2020 **F-150 POLICE RESPONDER**
Owner's Manual

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2020 F-150 POLICE RESPONDER Owner's Manual

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California Proposition 65

WARNING: Operating, servicing and maintaining a passenger vehicle or off-highway motor vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

WARNING: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash your hands after handling**.

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ABOUT THIS MANUAL

Thank you for choosing Ford. We recommend that you take some time to get to know your vehicle by reading this manual. The more that you know about your vehicle, the greater the safety and pleasure you will get from driving it.

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

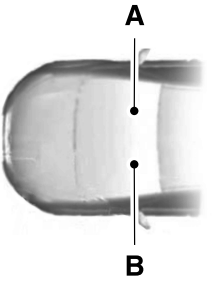
Note: *This manual describes product features and options available throughout the range of available models, sometimes even before they are generally available. It may describe options not fitted to the vehicle you have purchased.*

Note: *Some of the illustrations in this manual may show features as used in different models, so may appear different to you on your vehicle.*

Note: *Always use and operate your vehicle in line with all applicable laws and regulations.*

Note: *Pass on this manual when selling your vehicle. It is an integral part of your vehicle.*

This manual may qualify the location of a component as left-hand side or right-hand side. The side is determined when facing forward in the seat.



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A Right-hand side.

B Left-hand side.

SYMBOLS GLOSSARY

These are some of the symbols you may see on your vehicle.

Air conditioning system

Air conditioning system lubricant type

Anti-lock braking system

Avoid smoking, flames or sparks

Battery

Battery acid

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Brake fluid - non petroleum based

Brake system

Brake system

Cabin air filter

Check fuel cap

Child safety door lock or unlock

Child seat lower anchor

Child seat tether anchor

Cruise control

Do not open when hot

Engine air filter

Engine coolant

Engine coolant temperature

Engine oil

Explosive gas

Fan warning

Fasten seatbelt

Flammable

Front airbag

Front fog lamps

Fuel pump reset

Fuse compartment

Hazard flashers

Heated rear window

Windshield defrosting system

Interior luggage compartment release

Jack

Keep out of reach of children

Lighting control

Low tire pressure warning

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Maintain correct fluid level

Note operating instructions

Horn control

Panic alarm

Parking aid

Parking brake

Power steering fluid

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Power window lockout

Requires registered technician

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See Owner's Manual

See Service Manual

Service engine soon

Passenger airbag activated

Passenger airbag deactivated

Side airbag

Shield the eyes

Stability control

Hill descent control

Trail control

Windshield wiping system

Windshield wash and wipe

DATA RECORDING

WARNING: Do not connect wireless plug-in devices to the data link connector. Unauthorized third parties could gain access to vehicle data and impair the performance of safety related systems. Only allow repair facilities that follow our service and repair instructions to connect their equipment to the data link connector.

We respect your privacy and are committed to protecting it. The information contained in this publication was correct at the time of going to print, but as technology rapidly changes, we recommend that you visit the regional Ford website for the latest information.

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Your vehicle has electronic control units that have data recording functionality and the ability to permanently or temporarily store data. This data could include information on the condition and status of your vehicle, vehicle maintenance requirements, events and malfunctions. The types of data that can be recorded are described in this section. Some of the data recorded is stored in event logs or error logs.

Note: *Error logs are reset following a service or repair.*

Note: *We may provide information in response to requests from law enforcement, other government authorities and third parties acting with lawful authority or through a legal process. Such information could be used by them in legal proceedings.*

Data recorded includes, for example:

- Operating states of system components, for example, fuel level, tire pressure and battery charge level.
- Vehicle and component status, for example, wheel speed, deceleration, lateral acceleration and seatbelt status.
- Events or errors in essential systems, for example, headlamps and brakes.
- System responses to driving situations, for example, airbag deployment and stability control.
- Environmental conditions, for example, temperature.

Some of this data, when used in combination with other information, for example, an accident report, damage to a vehicle or eyewitness statements, could be associated with a specific person.

Service Data

Service data recorders in your vehicle are capable of collecting and storing diagnostic information about your vehicle. This potentially includes information about the performance or status of various systems and modules in the vehicle, such as engine, throttle, steering or brake systems. In order to properly diagnose and service your vehicle, Ford Motor Company (Ford of Canada in Canada), and service and repair facilities may access or share among them vehicle diagnostic information received through a direct connection to your vehicle when diagnosing or servicing your vehicle. Additionally, Ford Motor Company (Ford of Canada, in Canada) may, where permitted by law, use vehicle diagnostic information for vehicle improvement or with other information we may have about you, for example, your contact information, to offer you products or services that may interest you. Data may be provided to our service providers such as part suppliers that may help diagnose malfunctions, and who are similarly obligated to protect data. We retain this data only as long as necessary to perform these functions or to comply with law. We may provide information where required in response to official requests to law enforcement or other government authorities or third parties acting with lawful authority or court order, and such information may be used in legal proceedings. For U.S. only (if equipped), if you choose to use connected apps and services, you consent that certain diagnostic information may also be accessed electronically by Ford Motor Company and Ford authorized service facilities, and that the diagnostic information may be used to provide services to you, personalizing your experience, troubleshoot, and to improve products and services and offer you products and services that may interest

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you, where permitted by law. For Canada only, for more information, please review the Ford of Canada privacy policy at www.ford.ca, including our U.S. data storage and use of service providers in other jurisdictions who may be subject to legal requirements in Canada, the United States and other countries applicable to them, for example, lawful requirements to disclose personal information to governmental authorities in those countries.

Event Data

This vehicle is equipped with an event data recorder. The main purpose of an event data recorder is to record, in certain crash or near crash-like situations, such as an airbag deployment or hitting a road obstacle; this data assist in understanding how a vehicle's systems performed. The event data recorder is designed to record data related to vehicle dynamics and safety systems for a short period of time, typically 30 seconds or less.

The event data recorder in this vehicle is designed to record such data as:

- How various systems in your vehicle were operating;
- Whether or not the driver and passenger seatbelts were buckled/fastened;
- How far (if at all) the driver was depressing the accelerator and/or the brake pedal; and
- How fast the vehicle was traveling; and
- Where the driver was positioning the steering wheel.

This data can help provide a better understanding of the circumstances in which crashes and injuries occur.

Note: *Event data recorder data is recorded by your vehicle only if a non-trivial crash situation occurs; no data is recorded by the event data recorder under normal driving conditions and no personal data or information (e.g., name, gender, age, and crash location) is recorded. However, other parties, such as law enforcement, could combine the event data recorder data with the type of personally identifying data routinely acquired during a crash investigation.*

To read data recorded by an event data recorder, special equipment is required, and access to the vehicle or the event data recorder is needed. In addition to the vehicle manufacturer, other parties, such as law enforcement, that have such special equipment, can read the information if they have access to the vehicle or the event data recorder.

Comfort, Convenience and Entertainment Data

Your vehicle has electronic control units that have the ability to store data based on your personalized settings. The data is stored locally in the vehicle or on devices that you connect to it, for example, a USB drive or digital music player. You can delete some of this data and also choose whether to share it through the services to which you subscribe. See **Settings** (page 539).

Comfort and Convenience Data

Data recorded includes, for example:

- Seat and steering wheel position.
- Climate control settings.
- Radio presets.

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Entertainment Data

Data recorded includes, for example:

- Music, videos or album art.
- Contacts and corresponding address book entries.
- Navigation destinations.

Services That We Provide

If you use our services, we collect and use data, for example, account information, vehicle location and driving characteristics, that could identify you. We transmit this data through a dedicated, protected connection. We only collect and use data to enable your use of our services to which you have subscribed, with your consent or where permitted by law. For additional information, see the terms and conditions of the services to which you have subscribed.

Services That Third Parties Provide

We recommend that you review the terms and conditions and data privacy information for any services to which you subscribe. We take no responsibility for services that third parties provide.

Vehicles With a Modem

The modem has a SIM. The modem was enabled when your vehicle was built and periodically sends messages to stay connected to the cell phone network, receive automatic software updates and send vehicle-related information to us, for example, diagnostic information. These messages could include information that identifies your vehicle, the SIM and the electronic serial number of the modem. Cell phone network service providers could have access to additional information, for example, cell phone network tower identification.

Note: *The modem continues to send this information unless you disable the modem or stop the modem from sharing vehicle data by changing the modem settings. See* ***Connected Vehicle*** *(page 474).*

Note: *The service can be unavailable or interrupted for a number of reasons, for example, environmental or topographical conditions and data plan coverage.*

Note: *To find out if your vehicle has a modem, visit www.FordConnected.com.*

Vehicles With a Connectivity Device (If Equipped)

The connectivity device has a SIM. The connectivity device periodically sends messages to stay connected to the cell phone network. These messages could include information that identifies your vehicle, the SIM and the electronic serial number of the connectivity device. Cell phone network service providers could have access to additional information, for example, cell phone network tower identification.

Note: *The connectivity device continues to send this information unless you disable the connectivity device. To find out more about having the connectivity device disabled, contact the Ford Customer Relationship Center. Disabling this connectivity device is permanent. See* ***Connected Vehicle*** *(page 474).*

If FordPass is connected to your vehicle, Ford also receives additional information, for example, location and vehicle data. See FordPass Terms and Privacy Policy. For additional information about our privacy policy, visit www.FordConnected.com.

Note: *To stop the connectivity device from sharing this information, for example, location and vehicle data, see your Connectivity Settings through the FordPass app. You may also remove the vehicle from your FordPass account.*

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Note: *The service can be unavailable or interrupted for a number of reasons, for example, environmental or topographical conditions and data plan coverage.*

Note: *To find out if your vehicle has a connectivity device, visit www.FordConnected.com.*

Note: *If you plan to no longer use your vehicle, for example, by selling or donating it, remember to remove the vehicle from your FordPass account. If you recently purchased the vehicle and want to disable connectivity, please contact the Ford Customer Relationship Center through the FordPass app or by using the e-mail address on the local Ford website.*

Vehicles With SYNC

Mobile Device Data

If you connect a mobile device to your vehicle, you can display data from your device on the touchscreen for example, music and album art. You can share your vehicle data with mobile apps on your device through the system. See **Apps** (page 536).

The mobile apps function operates by your connected device sending data to us in the United States. The data is encrypted and includes the vehicle identification number of your vehicle, the SYNC module serial number, odometer, enabled apps, usage statistics and debugging information. We retain it only as long as necessary to provide the service, to troubleshoot, for continuous improvement and to offer you products and services that may be of interest to you according to your preferences and where allowed by law.

If you connect a cell phone to the system, the system creates a profile that links to that cell phone. The cell phone profile enables more mobile features and efficient operation. The profile contains, for example, data from your phonebook, read and unread text messages and call history, including history of calls when your cell phone was not connected to the system.

If you connect a media device, the system creates and retains a media device index of supported media content. The system also records a short diagnostic log of approximately 10 minutes of all recent system activity.

The cell phone profile, media device index and diagnostic log remain in your vehicle unless you delete them and are generally accessible only in your vehicle when you connect your cell phone or media device. If you no longer plan to use the system or your vehicle, we recommend you use the master reset function to erase the stored information. See **Settings** (page 539).

System data cannot be accessed without special equipment and access to your vehicle's module.

For additional information about our privacy policy, refer to your local Ford website.

Note: *To find out if your vehicle has connectivity technology, visit www.FordConnected.com.*

Vehicles With an Emergency Call System

When the emergency call system is active, it may disclose to emergency services that your vehicle has been in a crash involving the deployment of an airbag or activation of the fuel pump shut-off. Certain versions or updates to the emergency call system may also be capable of electronically or verbally disclosing to emergency services operators your vehicle location or other

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details about your vehicle or crash to assist emergency services operators to provide the most appropriate emergency services. If you do not want to disclose this information, do not activate the emergency call system.

Note: *You cannot deactivate emergency call systems that are required by law.*

PERCHLORATE

Certain components in your vehicle such as airbag modules, seatbelt pretensioners and remote control batteries may contain perchlorate material. Special handling may apply for service or vehicle end of life disposal.

For more information visit:

Web Address
www.dtsc.ca.gov/hazard-ouswaste/perchlorate

FORD CREDIT

US Only

Ford Credit offers a full range of financing and lease plans to help you acquire your vehicle. If you have financed or leased your vehicle through Ford Credit, thank you for your business.

For assistance call 1-800-727-7000, or for more information about Ford Credit and access to the online Account Manager tool, visit www.ford.com/finance.

REPLACEMENT PARTS RECOMMENDATION

We have built your vehicle to the highest standards using quality parts. We recommend that you demand the use of genuine Ford and Motorcraft parts whenever your vehicle requires scheduled maintenance or repair. You can clearly identify genuine Ford and Motorcraft parts by looking for the Ford, FoMoCo or Motorcraft branding on the parts or their packaging.

Scheduled Maintenance and Mechanical Repairs

One of the best ways for you to make sure that your vehicle provides years of service is to have it maintained in line with our recommendations using parts that conform to the specifications detailed in this Owner's Manual. Genuine Ford and Motorcraft parts meet or exceed these specifications.

Collision Repairs

We hope that you never experience a collision, but accidents do happen. Genuine Ford replacement collision parts meet our stringent requirements for fit, finish, structural integrity, corrosion protection and dent resistance. During vehicle development we validate that these parts deliver the intended level of protection as a whole system. A great way to know for sure you are getting this level of protection is to use genuine Ford replacement collision parts.

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Warranty on Replacement Parts

Genuine Ford and Motorcraft replacement parts are the only replacement parts that benefit from a Ford Warranty. The Ford Warranty may not cover damage caused to your vehicle as a result of failed non-Ford parts. For additional information, refer to the terms and conditions of the Ford Warranty.

SPECIAL NOTICES

New Vehicle Limited Warranty

Vehicles sold in the United States and Canada

For a detailed description of what is covered by your New Vehicle Limited Warranty, see your warranty guide that is available online. For more information, refer to our website and download your copy of the warranty guide.

Vehicles sold outside the United States and Canada

For a detailed description of what is covered by your New Vehicle Limited Warranty, see the warranty guide that is provided to you along with your Owner's Manual.

Special Instructions

For your added safety, your vehicle is fitted with sophisticated electronic controls.

WARNING: You risk death or serious injury to yourself and others if you do not follow the instruction highlighted by the warning symbol. Failure to follow the specific warnings and instructions could result in personal injury.

WARNING: NEVER use a rearward facing child restraint on a seat protected by an ACTIVE AIRBAG in front of it, DEATH or SERIOUS INJURY to the CHILD can occur.

On Board Diagnostics Data Link Connector

WARNING: Do not connect wireless plug-in devices to the data link connector. Unauthorized third parties could gain access to vehicle data and impair the performance of safety related systems. Only allow repair facilities that follow our service and repair instructions to connect their equipment to the data link connector.

Your vehicle has an OBD Data Link Connector (DLC) that is used in conjunction with a diagnostic scan tool for vehicle diagnostics, repairs and reprogramming services. Installing an aftermarket device that uses the DLC during normal driving for purposes such as remote insurance company monitoring, transmission of vehicle data to other devices or entities, or altering the performance of the vehicle, may cause interference with or even damage to vehicle systems. We do not recommend or endorse the use of unapproved aftermarket plug-in devices. The vehicle Warranty will not cover damage caused by an aftermarket plug-in device.

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Notice to Owners of Pickup Trucks and Utility Type Vehicles

WARNING: Utility vehicles have a significantly higher rollover rate than other types of vehicles.

Before you drive your vehicle, please read this Owner's Guide carefully. Your vehicle is not a passenger car. As with other vehicles of this type, failure to operate this vehicle correctly may result in loss of vehicle control, vehicle rollover, personal injury or death.

Using Your Vehicle With a Snowplow

Do not use this vehicle for snowplowing.

Your vehicle does not have a snowplowing package.

Using Your Vehicle as an Ambulance

Do not use this vehicle as an ambulance.

Your vehicle does not have the Ambulance Preparation Package.

MOBILE COMMUNICATIONS EQUIPMENT

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

Using mobile communications equipment is becoming increasingly important in the conduct of business and personal affairs. However, you must not compromise your own or others' safety when using such equipment. Mobile communications can enhance personal safety and security when appropriately used, particularly in emergency situations. Safety must be paramount when using mobile communications equipment to avoid negating these benefits. Mobile communication equipment includes, but is not limited to, cellular phones, pagers, portable email devices, text messaging devices and portable two-way radios.

EXPORT UNIQUE OPTIONS

For your particular global region, your vehicle may be equipped with features and options that are different from the features and options that are described in this Owner's Manual. A market unique supplement may be supplied that complements this book. By referring to the market unique supplement, if provided, you can properly identify those features, recommendations and specifications that are unique to your vehicle. This Owner's Manual is written primarily for the U.S. and Canadian Markets. Features or equipment listed as standard may be different on units built for export. **Refer to this Owner's Manual for all other required information and warnings.**

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PROTECTING THE ENVIRONMENT

You should play your part in protecting the environment. Correct vehicle usage and the authorized disposal of waste, cleaning and lubrication materials are significant steps toward this aim.

For details about Ford Motor Company's sustainability progress and initiatives visit:

Web Address
www.sustainability.ford.com

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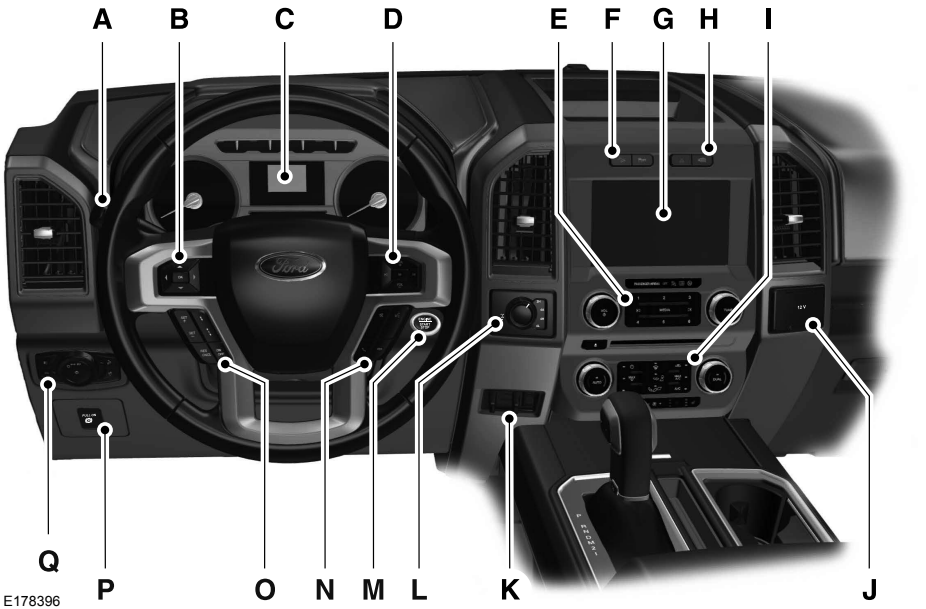
INSTRUMENT PANEL



A Wiper lever. See **Windshield Wipers** (page 94).
B Information display controls. See **General Information** (page 120).
C Instrument cluster. See **General Information** (page 120).
D Audio controls. See **Audio Control** (page 91).
E Audio system. See **Audio System** (page 481).
F Hill descent control. See **Using Hill Descent Control** (page 242).
G Information and entertainment display.
H 360 degree parking aid camera button. See **360 Degree Camera** (page 251).
I Climate controls. See **Climate Control** (page 151).
J Auxiliary power point. See **Auxiliary Power Points** (page 173).
K Integrated trailer brake controller. See **Essential Towing Checks** (page 316).
L Four-wheel drive control. See **Using Four-Wheel Drive** (page 223).

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M Start button. See **Keyless Starting** (page 180).

N Voice control. See **Voice Control** (page 91).

O Cruise control switches. See **Cruise Control** (page 91). Adaptive cruise control switches. See **Using Adaptive Cruise Control** (page 255).

P Electric parking brake switch. See **Electric Parking Brake** (page 235).

Q Lighting control. See **Lighting Control** (page 96).

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GENERAL INFORMATION

See the following sections for directions on how to properly use safety restraints for children.

WARNING: Always make sure your child is secured properly in a device that is appropriate for their height, age and weight. Child safety restraints must be bought separately from your vehicle. Failure to follow these instructions and guidelines may result in an increased risk of serious injury or death to your child.

WARNING: All children are shaped differently. The National Highway Traffic Safety Administration and other safety organizations, base their recommendations for child restraints on probable child height, age and weight thresholds, or on the minimum requirements of the law. We recommend that you check with a NHTSA Certified Child Passenger Safety Technician (CPST) to make sure that you properly install the child restraint in your vehicle and that you consult your pediatrician to make sure you have a child restraint appropriate for your child. To locate a child restraint fitting station and CPST, contact NHTSA toll free at 1-888-327-4236 or go to www.nhtsa.dot.gov. In Canada, contact Transport Canada toll free at 1-800-333-0371 or go to www.tc.gc.ca to find a Child Car Seat Clinic in your area. Failure to properly restrain children in child restraints made especially for their height, age and weight, may result in an increased risk of serious injury or death to your child.

WARNING: On hot days, the temperature inside the vehicle can rise very quickly. Exposure of people or animals to these high temperatures for even a short time can cause death or serious heat related injuries, including brain damage. Small children are particularly at risk.

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Recommendations for Safety Restraints for Children

Child	Child Size, Height, Weight, or Age	Recommended Restraint Type
Infants or toddlers	Children weighing 40 lb (18 kg) or less (generally age four or younger).	Use a child restraint (sometimes called an infant carrier, convertible seat, or toddler seat).
Small children	Children who have outgrown or no longer properly fit in a child restraint (generally children who are less than 57 in (1.45 m) tall, are greater than age four and less than age 12, and between 40 lb (18 kg) and 80 lb (36 kg) and upward to 100 lb (45 kg) if recommended by your child restraint manufacturer).	Use a belt-positioning booster seat.
Larger children	Children who have outgrown or no longer properly fit in a belt-positioning booster seat (generally children who are at least 57 in (1.45 m) tall or greater than 80 lb (36 kg) or 100 lb (45 kg) if recommended by child restraint manufacturer).	Use a vehicle seatbelt having the lap belt snug and low across the hips, shoulder belt centered across the shoulder and chest, and seat backrest upright.

- You are required by law to properly use child restraints for infants and toddlers in the United States and Canada.
- Many states and provinces require that small children use approved booster seats until they reach age eight, a height of 57 in (1.45 m) tall, or 80 lb (36 kg). Check your local and state or provincial laws for specific requirements about the safety of children in your vehicle.
- When possible, properly restrain children 12 years of age and under in a rear seating position of your vehicle. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in a front seating position. See **Front Passenger Sensing System** (page 54).
- When installing a rear facing child restraint, adjust the vehicle seats to avoid interference between the child restraint and the vehicle seat in front of the child restraint.

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INSTALLING CHILD RESTRAINTS

Child Seats

E142594

Use a child safety seat (sometimes called an infant carrier, convertible seat, or toddler seat) for infants, toddlers, or children weighing 40 lb (18 kg) or less (generally age four or younger).

Using Lap and Shoulder Belts (Except Front Center Position of Super Cab and Crew Cab)

WARNING: Do not place a rearward facing child restraint in front of an active airbag. Failure to follow this instruction could result in personal injury or death.

WARNING: Properly secure children 12 years old and under in a rear seating position whenever possible. If you are unable to properly secure all children in a rear seating position, properly secure the largest child on the front seat. If you must use a forward facing child restraint on the front seat, move the seat as far back as possible. Failure to follow these instructions could result in personal injury or death.

WARNING: Depending on where you secure a child restraint, and depending on the child restraint design, you may block access to certain seatbelt buckle assemblies and LATCH lower anchors, rendering those features potentially unusable. To avoid risk of injury, make sure occupants only use seating positions where they are able to be properly restrained.

When installing a child safety seat with combination lap and shoulder belts:

- Use the correct seatbelt buckle for that seating position.
- Insert the belt tongue into the proper buckle until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.
- Keep the buckle release button pointing up and away from the safety seat, with the tongue between the child restraint and the release button, to prevent accidental unbuckling.
- Place the vehicle seat upon which the child restraint will be installed in the upright position.
- Put the seatbelt in the automatic locking mode. This vehicle does not require the use of a locking clip.

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Perform the following steps when installing the child restraint with combination lap and shoulder belts:

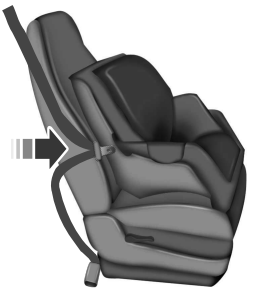
Note: *Although the child restraint illustrated is a forward facing child restraint, the steps are the same for installing a rear facing child restraint.*

E142528

1. Position the child safety seat in a seat with a combination lap and shoulder belt.

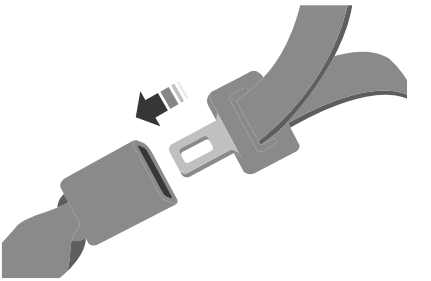
E142529

2. Pull down on the shoulder belt and then grasp the shoulder belt and lap belt together.



E142530

3. While holding the shoulder and lap belt portions together, route the tongue through the child restraint according to the child restraint manufacturer's instructions. Make sure the belt webbing is not twisted.



E142531

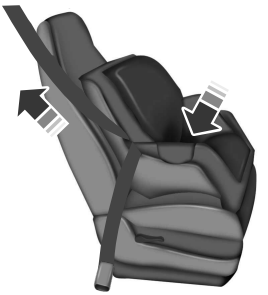
4. Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) for that seating position until you hear a snap and feel the latch engage. Make sure the tongue is latched securely by pulling on it.

E142875

5. To put the retractor in the automatic locking mode, grasp the shoulder portion of the belt and pull downward until you pull all of the seatbelt out.

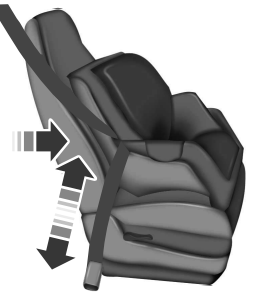
Note: *The automatic locking mode is available on the front passenger and rear seats. This vehicle does not require the use of a locking clip.*

6. Allow the belt to retract to remove slack. The belt will click as it retracts to indicate it is in the automatic locking mode.
7. Try to pull the seatbelt out of the retractor to make sure the retractor is in the automatic locking mode (you should not be able to pull more belt out). If the retractor is not locked, unbuckle the belt and repeat Steps 5 and 6.



E142533

8. Remove remaining slack from the belt. Force the seat down with extra weight, for example, by pressing down or kneeling on the child restraint while pulling up on the shoulder belt in order to force slack from the belt. This is necessary to remove the remaining slack that exists once you add the extra weight of the child to the child restraint. It also helps to achieve the proper snugness of the child restraint to your vehicle. Sometimes, a slight lean toward the buckle helps to remove remaining slack from the belt.
9. Attach the tether strap (if the child restraint is equipped).



E142534

10. Before placing the child in the seat, forcibly move the seat forward and back to make sure the seat is securely held in place.

To check this, grab the seat at the belt path and attempt to move it side to side and forward and back. There should be no more than 1 in (2.5 cm) of movement for proper installation.

We recommend checking with a NHTSA Certified Child Passenger Safety Technician to make certain the child restraint is properly installed. In Canada, check with Transport Canada for referral to a Child Car Seat Clinic.

Using Lap and Shoulder Belts (Front Center Position of Super Cab and Crew Cab)

WARNING: Do not place a rearward facing child restraint in front of an active airbag. Failure to follow this instruction could result in personal injury or death.

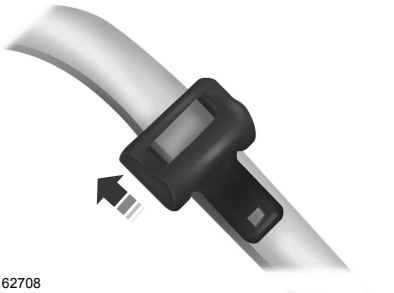
WARNING: Properly secure children 12 years old and under in a rear seating position whenever possible. If you are unable to properly secure all children in a rear seating position, properly secure the largest child on the front seat. If you must use a forward facing child restraint on the front seat, move the seat as far back as possible. Failure to follow these instructions could result in personal injury or death.

WARNING: Always use both the lap and shoulder portion of the seatbelt in the center seating position.

The belt webbing below the tongue is the lap portion of the combination lap and shoulder belt. The seatbelt webbing above the tongue is the shoulder belt portion of the combination lap and shoulder belt.

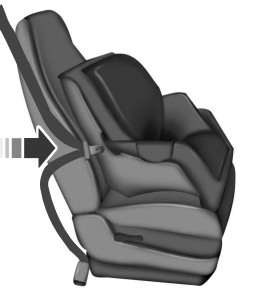
E142528

1. Position the child safety seat in the front center seat.



E162708

2. Slide the tongue up the webbing.



E142530

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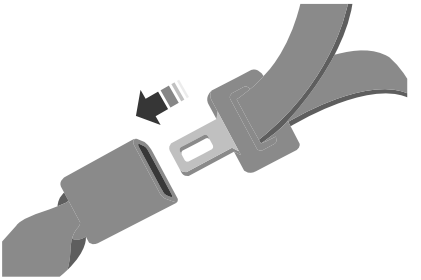
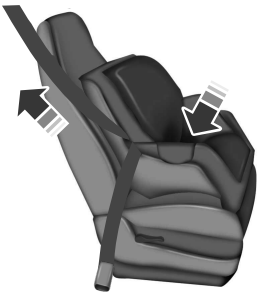
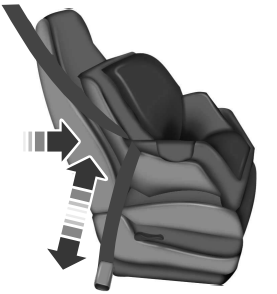
3. While holding both shoulder and lap portions next to the tongue, route the tongue and webbing through the child restraint according to the child restraint manufacturer's instructions. Be sure that the belt webbing is not twisted.


E142531

4. Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) for that seating position until you hear a snap and feel the latch engage. Make sure the tongue is latched securely by pulling on it.


E142533

5. While pushing down with your knee on the child restraint, pull up on the shoulder belt portion to tighten the lap belt portion of the combination lap and shoulder belt.
6. Allow the seatbelt to retract and remove any slack in the belt to securely tighten the child safety seat in the vehicle.
7. Attach the tether strap (if the child restraint is equipped).


E142534

8. Before placing the child in the seat, forcibly move the seat forward and back to make sure the seat is securely held in place. To check this, grab the seat at the belt path and attempt to move it side to side and forward and back. There should be no more than 1 in (2.5 cm) of movement for proper installation.
9. Check from time to time to be sure that there is no slack in the lap and shoulder belt. The shoulder belt must be snug to keep the lap belt tight during a crash.

We recommend checking with a NHTSA Certified Child Passenger Safety Technician to make certain the child restraint is properly installed. In Canada, check with Transport Canada for referral to a Child Car Seat Clinic.

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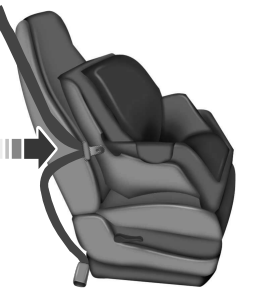
Using Inflatable Seatbelts (Rear Seat Outermost Positions) (If Equipped)

E142528

1. Position the child safety seat in a seat with a combination lap and shoulder belt.

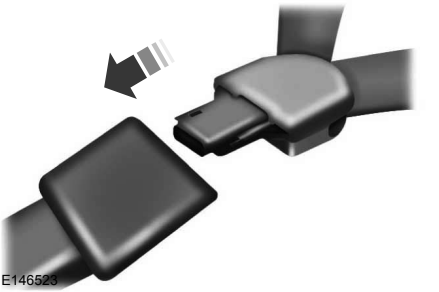
E146522

2. After positioning the child safety seat in the proper seating position, grasp the shoulder belt and lap belt together behind the belt tongue.



E142530

3. While holding the shoulder and lap belt portions together, route the tongue through the child restraint according to the child restraint manufacturer's instructions. Be sure the belt webbing is not twisted.



E146523

4. Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) for that seating position until you hear a snap and feel the latch engage. Make sure the tongue is latched securely by pulling on it.

E146524

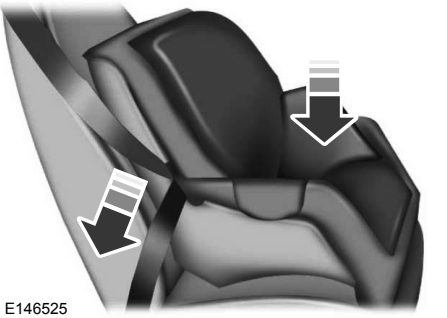
5. To put the retractor in the automatic locking mode, grasp the lap portion of the inflatable seatbelt and pull upward until you pull all of the belt out.

Note: *The automatic locking mode is available on the front passenger and rear seats.*

Note: *Unlike the standard seatbelt, the inflatable seatbelt's unique lap portion locks the child restraint for installation. The ability for the shoulder portion of the belt to move freely is normal, even after the lap belt has been put into the automatic locking mode.*

Note: *The lock-off device on some child restraints may not accommodate the shoulder portion of the inflatable seatbelt. Follow all instructions provided by the manufacturer of the child restraint regarding the necessary and proper use of the lock-off device. In some instances, these devices have been provided only for use in vehicles with seatbelt systems that would otherwise require a locking clip.*

6. Allow the belt to retract to remove slack. The belt will click as it retracts to indicate it is in the automatic locking mode.
7. Try to pull the belt out of the retractor to make sure the retractor is in the automatic locking mode (you should not be able to pull more belt out). If the retractor is not locked, unbuckle the belt and repeat Steps 5 and 6.


E146525

8. Remove remaining slack from the belt. Force the seat down with extra weight, for example, by pressing down or kneeling on the child restraint while pulling down on the lap belt in order to force slack from the belt. This is necessary to remove the remaining slack that exists once you add the extra weight of the child to the child restraint. It also helps to achieve the proper snugness of the child restraint to your vehicle. Sometimes, a slight lean toward the buckle will additionally help to remove remaining slack from the belt.
9. Attach the tether strap (if the child restraint is equipped).

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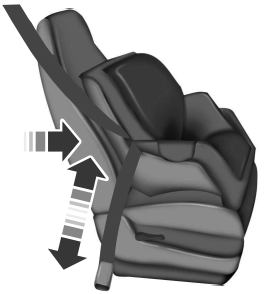

E142534

10. Before placing the child in the seat, forcibly move the seat forward and back to make sure the seat is securely held in place. To check this, grab the seat at the belt path and attempt to move it side to side and forward and back. There should be no more than 1 in (2.5 cm) of movement for proper installation.

We recommend checking with a NHTSA Certified Child Passenger Safety Technician to make certain the child restraint is properly installed. In Canada, check with Transport Canada for referral to a Child Car Seat Clinic.

Using Lower Anchors and Tethers for CHildren (LATCH)

WARNING: Do not attach two child safety restraints to the same anchor. In a crash, one anchor may not be strong enough to hold two child safety restraint attachments and may break, causing serious injury or death.

WARNING: Depending on where you secure a child restraint, and depending on the child restraint design, you may block access to certain seatbelt buckle assemblies and LATCH lower anchors, rendering those features potentially unusable. To avoid risk of injury, make sure occupants only use seating positions where they are able to be properly restrained.

The LATCH system is composed of three vehicle anchor points: two lower anchors where the vehicle seat backrest and seat cushion meet (called the seat bight) and one top tether anchor behind that seating position.

LATCH compatible child safety seats have two rigid or webbing mounted attachments that connect to the two lower anchors at the LATCH equipped seating positions in your vehicle. This type of attachment method eliminates the need to use seatbelts to attach the child restraint. However, the seatbelt can still be used to attach the child restraint if the lower anchors are not used. For forward-facing child restraints, the top tether strap must also be attached to the proper top tether anchor, if a top tether strap has been provided with your child restraint.

Your vehicle has LATCH lower anchors for child restraint installation at the following seating positions (LATCH is not available on Regular Cab):

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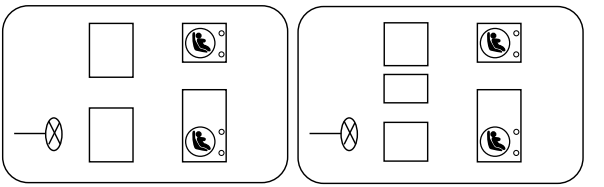
Crew Cab and Super Cab



E166694

E166695

The lower LATCH anchors are at the rear section of the rear seat between the cushion and seat backrest. Follow the child restraint manufacturer's instructions to properly install a child restraint with LATCH attachments.

Follow the instructions later in this chapter on attaching child safety seats with tether straps.

Attach LATCH lower attachments of the child restraint only to the anchors shown.

Use of Inboard Lower Anchors from the Outermost Seating Positions (Center Seating Use)

WARNING: The standardized spacing for LATCH lower anchors is 11 in (280 mm) center to center. Do not use LATCH lower anchors for the center seating position unless the child restraint manufacturer's instructions permit and specify using anchors spaced at least as far apart as those in this vehicle.

The lower anchors at the center of the second row rear seat are spaced 25.7 in (652 mm) apart. The standardized spacing for LATCH lower anchors is 11 in (280 mm) center to center. You cannot install achild restraint with rigid LATCH attachments at the center seating position. LATCH compatible child restraints (with attachments on belt webbing) can only be used at this seating position provided that the child restraint manufacturer's instructions permit use with the anchor spacing stated. Do not attach a child restraint to any lower anchor if an adjacent child restraint is attached to that anchor.

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Each time you use the safety seat, check that the seat is properly attached to the lower anchors and tether anchor, if applicable. Tug the child restraint from side to side and forward and back where it is secured to the vehicle. The seat should move less than one inch when you do this for a proper installation.

If the safety seat is not anchored properly, the risk of a child being injured in a crash greatly increases.

Combining Seatbelt and LATCH Lower Anchors for Attaching Child Safety Seats

When used in combination, either the seatbelt or the LATCH lower anchors may be attached first, provided a proper installation is achieved. Attach the tether strap afterward, if included with the child restraint.

Using Tether Straps

Many forward-facing child safety seats include a tether strap which extends from the back of the child safety seat and hooks to an anchoring point called the top tether anchor. Tether straps are available as an accessory for many older safety seats.

Contact the manufacturer of your child restraint for information about ordering a tether strap, or to obtain a longer tether strap if the tether strap on your safety seat does not reach the appropriate top tether anchor in the vehicle.

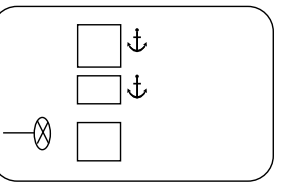
The passenger seats of your vehicle may have built-in tether strap anchors behind the seats.

The tether anchors in your vehicle may be loops of webbing above the seat backrest or an anchor bracket behind the seat on the rear edge of the seat cushion.

The rear seat in the Crew Cab and Super Cab has three straps along the top of the seat back that function as both routing loops for the tether straps and anchor loops.

The tether strap anchors in your vehicle are in the following positions (shown from top view):

Regular Cab



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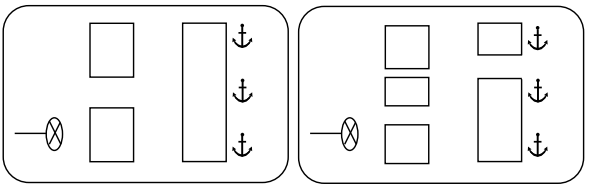
Crew Cab and Super Cab



E166697

Attach the tether strap only to the appropriate tether anchor as shown. The tether strap may not work properly if attached somewhere other than the correct tether anchor.

If you install a child restraint with rigid LATCH attachments, do not tighten the tether strap enough to lift the child restraint off the vehicle seat cushion when the child is seated in it. Keep the tether strap just snug without lifting the front of the child restraint. Keeping the child restraint just touching the vehicle seat gives the best protection in a severe crash.

Once you have installed the child safety seat using either the seatbelt, the lower anchors of the LATCH system, or both, you can attach the top tether strap.

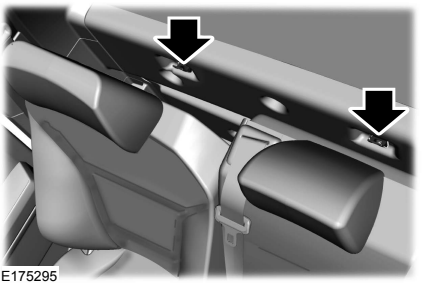
Front Seat Tether Strap Attachment (Regular Cab)

1. Route the child safety seat tether strap over the back of the seat and under the head restraint.

Note: *For vehicles with adjustable head restraints, route the tether strap under the head restraint and between the head restraint posts, otherwise route the tether strap over the top of the seat backrest.*

2. Locate the correct anchor for the selected seating position. You may need to pull the seat backrest forward to access the tether anchors. Make sure the seat is locked in the upright position before installing the child restraint.
3. Clip the tether strap to the anchor.
4. Tighten the child safety seat tether strap according to the manufacturer's instructions.

Regular Cab passenger and center seats (on back panel)



E175295

If the tether strap is clipped incorrectly, the child safety seat may not be retained properly in the event of a crash.

If the safety seat is not anchored properly, the risk of a child being injured in a crash greatly increases.

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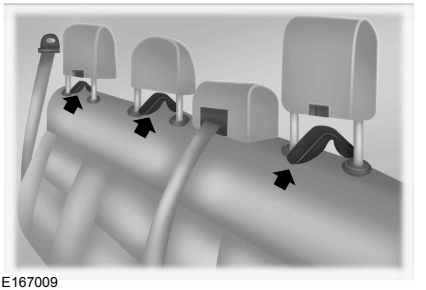
If your child restraint system has a tether strap, and the child restraint manufacturer recommends its use, we also recommend its use.

Rear Seat Tether Strap Attachment (Crew Cab and Super Cab)



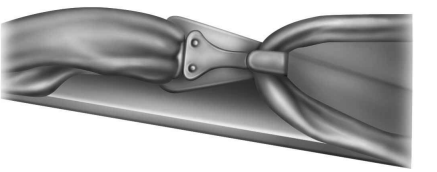
E167009

There are three loops of webbing just above the back of the rear seat (along the bottom edge of the rear window). Use these loops as both routing loops and anchor loops for up to three child safety seat tether straps.

For example, you can use the center loop as a routing loop for a child safety seat in the center rear seat and as an anchoring loop for child restraints installed in the outermost rear seats.

Many tether straps cannot be tightened if the tether strap is hooked to the loop directly behind the child restraint.

To provide a tight tether strap:



E162715

1. Route the vehicle tether loop between the head restraint posts, then route the child restraint tether strap through the loop, forward of the head restraint.
2. Hook the strap to the vehicle tether anchor loop in the adjacent seating position. If using the driver side, pass the strap behind the shoulder belt for the center seat. Always put the tether strap through the routing loop. The head restraint support post holds the child restraint tightly, but the head restraint post is not strong enough to hold the child restraint during a crash.
3. Tighten the tether strap according to the child restraint manufacturer's instructions.

If the safety seat is not anchored properly, the risk of a child being injured in a crash greatly increases.

If your child restraint system has a tether strap, and the child restraint manufacturer recommends its use, we also recommend its use.

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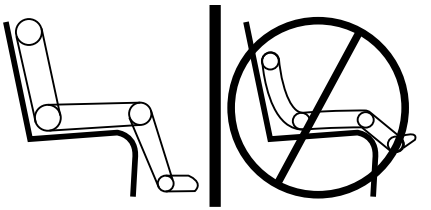
BOOSTER SEATS

WARNING: Do not put the shoulder section of the seatbelt or allow the child to put the shoulder section of the seatbelt under their arm or behind their back. Failure to follow this instruction could reduce the effectiveness of the seatbelt and increase the risk of injury or death in a crash.

Note: *Some booster seat seatbelt guides may not accommodate the shoulder portion of the inflatable seatbelt.*

Use a belt-positioning booster seat for children who have outgrown or no longer properly fit in a child safety seat (generally children who are less than 57 in (1.45 m) tall, are greater than age four (4) and less than age twelve (12), and between 40 lb (18 kg) and 80 lb (36 kg) and upward to 100 lb (45 kg) if recommended by your child restraint manufacturer). Many state and provincial laws require that children use approved booster seats until they reach age eight, a height of 57 in (1.45 m) tall, or 80 lb (36 kg).

Booster seats should be used until you can answer YES to ALL of these questions when seated without a booster seat:



E142595

- Can the child sit all the way back against their vehicle seat backrest with knees bent comfortably at the edge of the seat cushion?
- Can the child sit without slouching?
- Does the lap belt rest low across the hips?
- Is the shoulder belt centered on the shoulder and chest?
- Can the child stay seated like this for the whole trip?

Always use booster seats in conjunction with your vehicle lap and shoulder belt.

Types of Booster Seats

E68924

- Backless booster seats

If your backless booster seat has a removable shield, remove the shield. If a vehicle seating position has a low seat backrest or no head restraint, a backless booster seat may place your child's head (as measured at the tops of the ears) above the top of the seat. In this case, move the backless booster to another seating position with a higher seat backrest or head restraint and lap and shoulder belts, or consider using a high back booster seat.

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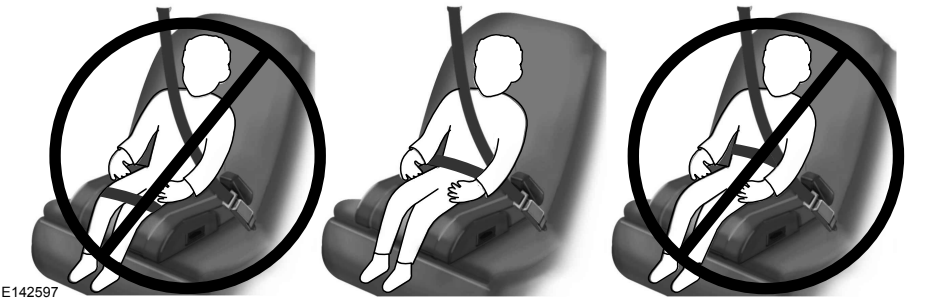
E70710

- High back booster seats

If, with a backless booster seat, you cannot find a seating position that adequately supports your child's head, a high back booster seat would be a better choice.

Children and booster seats vary in size and shape. Choose a booster that keeps the lap belt low and snug across the hips, never up across the stomach, and lets you adjust the shoulder belt to cross the chest and rest snugly near the center of the shoulder. The following drawings compare the ideal fit (center) to a shoulder belt uncomfortably close to the neck and a shoulder belt that could slip off the shoulder. The drawings also show how the lap belt should be low and snug across the child's hips.

E142596



E142597

If the booster seat slides on the vehicle seat upon which it is being used, placing a rubberized mesh sold as shelf or carpet liner under the booster seat may improve this condition. Do not introduce any item thicker than this under the booster seat. Check with the booster seat manufacturer's instructions.

CHILD RESTRAINT POSITIONING

WARNING: Do not place a rearward facing child restraint in front of an active airbag. Failure to follow this instruction could result in personal injury or death.

WARNING: Properly secure children 12 years old and under in a rear seating position whenever possible. If you are unable to properly secure all children in a rear seating position, properly secure the largest child on the front seat. If you must use a forward facing child restraint on the front seat, move the seat as far back as possible. Failure to follow these instructions could result in personal injury or death.

WARNING: Always carefully follow the instructions and warnings provided by the manufacturer of any child restraint to determine if the restraint device is appropriate for your child's size, height, weight, or age. Follow the child restraint manufacturer's instructions and warnings provided for installation and use in conjunction with the instructions and warnings provided by your vehicle manufacturer. A safety seat that is improperly installed or utilized, is inappropriate for your child's height, age, or weight or does not properly fit the child may increase the risk of serious injury or death.

WARNING: Do not allow a passenger to hold a child on their lap when your vehicle is moving. Failure to follow this instruction could result in personal injury or death in the event of a sudden stop or crash.

WARNING: Do not use pillows, books or towels to boost your child's height. Failure to follow this instruction could result in personal injury or death.

WARNING: Properly secure child restraints or booster seats when they are not in use. They could become projectiles in a sudden stop or crash. Failure to follow this instruction could result in personal injury or death.

WARNING: Do not put the shoulder section of the seatbelt or allow the child to put the shoulder section of the seatbelt under their arm or behind their back. Failure to follow this instruction could reduce the effectiveness of the seatbelt and increase the risk of injury or death in a crash.

WARNING: Do not leave children or pets unattended in your vehicle. Failure to follow this instruction could result in personal injury or death.

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Recommendations for Attaching Child Safety Restraints for Children

Restraint Type	Combined Weight of Child and Child Restraint	Use Any Attachment Method as Indicated Below by X				
		LATCH (Lower Anchors and Top Tether Anchor)	LATCH (Lower Anchors Only)	Seatbelt and Top Tether Anchor	Seatbelt and LATCH (Lower Anchors and Top Tether Anchor)	Seatbelt Only
Rear facing child restraint	Up to 65 lb (29.5 kg)		X			X
Rear facing child restraint	Over 65 lb (29.5 kg)					X
Forward facing child restraint	Up to 65 lb (29.5 kg)	X		X	X	
Forward facing child restraint	Over 65 lb (29.5 kg)			X	X	

Note: *The child restraint must rest tightly against the vehicle seat upon which it is installed. It may be necessary to lift or remove the head restraint. See* ***Seats*** *(page 158).*

CHILD SAFETY LOCKS (IF EQUIPPED)

When these locks are set, the rear doors cannot be opened from the inside.

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E112197

The childproof locks are located on the rear edge of each rear door and must be set separately for each door.

Left-Hand Side

Turn counterclockwise to lock and clockwise to unlock.

Right-Hand Side

Turn clockwise to lock and counterclockwise to unlock.

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PRINCIPLE OF OPERATION

WARNING: Always drive and ride with your seatback upright and the lap belt snug and low across the hips.

WARNING: To reduce the risk of injury, make sure children sit where they can be properly restrained.

WARNING: Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a crash, which may result in serious injury or death.

WARNING: All occupants of the vehicle, including the driver, should always properly wear their safety belts, even when an airbag supplemental restraint system is provided. Failure to properly wear your safety belt could seriously increase the risk of injury or death.

WARNING: It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a crash, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and safety belts. Be sure everyone in your vehicle is in a seat and using a safety belt properly.

WARNING: In a rollover crash, an unbelted person is significantly more likely to die than a person wearing a safety belt.

WARNING: Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair. 1) Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. 2) Never swing the safety belt around your neck over the inside shoulder. 3) Never use a single belt for more than one person.

WARNING: When possible, all children 12 years old and under should be properly restrained in a rear seating position. Failure to follow this could seriously increase the risk of injury or death.

WARNING: Safety belts and seats can become hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check seat covers and buckles before you place a child anywhere near them.

WARNING: Front and rear seat occupants, including pregnant women, should wear safety belts for optimum protection in an accident.

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All seating positions in this vehicle have lap and shoulder safety belts. All occupants of the vehicle should always properly wear their safety belts, even when an airbag supplemental restraint system is provided.

The safety belt system consists of:

- Lap and shoulder safety belts.
- Shoulder safety belt with automatic locking mode, (except driver safety belt).
- Height adjuster at the front outboard seating positions.
- Safety belt pretensioner at the front outboard seating positions.

- Safety belt warning light and chime.

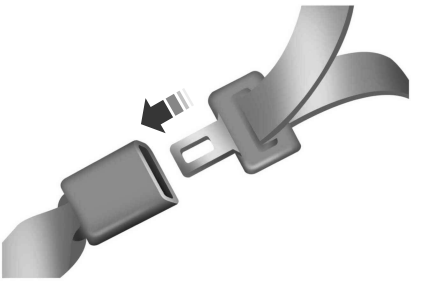
- Crash sensors and monitoring system with readiness indicator.

The safety belt pretensioners at the front seating positions are designed to tighten the safety belts when activated. In frontal and near-frontal crashes, the safety belt pretensioners may be activated alone or, if the crash is of sufficient severity, together with the front airbags. In side crashes and rollovers, the pretensioners will be activated when the Safety Canopy is activated.

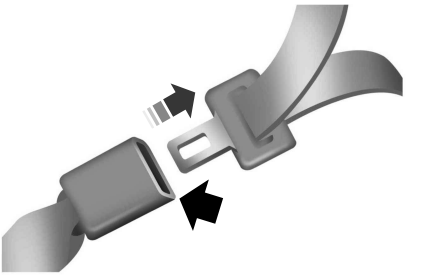
FASTENING THE SEATBELTS

Standard belts shown, inflatable belts similar

The front outermost and rear safety restraints in the vehicle are combination lap and shoulder belts.


E142587

1. Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) until you hear a snap and feel it latch. Make sure you securely fasten the tongue in the buckle.


E142588

2. To unfasten, press the release button and remove the tongue from the buckle.

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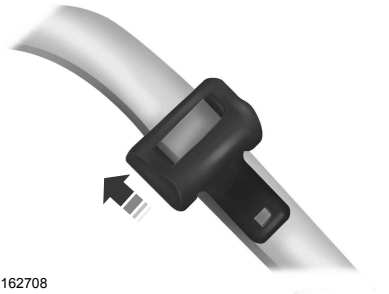
Using the Seatbelt with Cinch Tongue (Front Center Seat)

The cinch tongue slides up and down the seatbelt webbing when you stow the belt or when you put the seatbelts on. When you buckle the lap and shoulder seatbelt, the cinch tongue allows you to shorten the lap portion, but pinches the webbing to keep the lap portion from getting longer. The cinch tongue is designed to slip during a crash, so always wear the shoulder belt properly and do not allow any slack in either the lap or shoulder portions.

Before you can reach and latch a lap and shoulder belt having a cinch tongue into the buckle, you may have to lengthen the lap belt portion of it.



E162708

1. To lengthen the lap belt, pull some seatbelt webbing out of the shoulder belt retractor.
2. While holding the webbing below the tongue, grasp the tip (metal portion) of the tongue so that it is parallel to the webbing and slide the tongue up.
3. Provide enough lap belt length so that the tongue can reach the buckle.

Fastening the Cinch Tongue

WARNING: Always drive and ride with your seatback upright and the lap belt snug and low across the hips.

1. Pull the lap and shoulder belt from the retractor so that the shoulder belt portion of the seatbelt crosses your shoulder and chest.
2. Be sure the belt is not twisted. If the belt is twisted, remove the twist.
3. Insert the belt tongue into the proper buckle for your seating position until you hear a snap and feel it latch.
4. Make sure you securely fasten the tongue to the buckle by pulling on the tongue.

While you are fastened in the seatbelt, the lap and shoulder belt with a cinch tongue adjusts to your movement. However, if you brake hard, turn hard, or if your vehicle receives an impact of 5 mph (8 km/h) or more, the seatbelt locks and helps reduce your forward movement.

Using Seatbelts During Pregnancy

WARNING: Always ride and drive with your seatback upright and properly fasten your seatbelt. Fit the lap portion of the seatbelt snugly and low across the hips. Position the shoulder portion of the seatbelt across your chest. Pregnant women must follow this practice. See the following figure.

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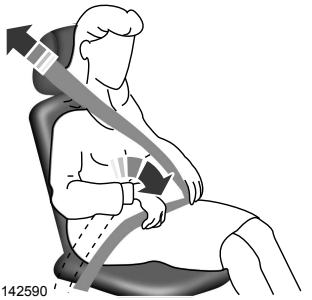

Pregnant women should always wear their seatbelt. Position the lap belt portion of a combination lap and shoulder belt low across the hips below the belly and worn as tight as comfort allows. Position the shoulder belt to cross the middle of the shoulder and the center of the chest.

Seatbelt Locking Modes

WARNING: If your vehicle is involved in a crash, have the seatbelts and associated components inspected as soon as possible. Failure to follow this instruction could result in personal injury or death.

All safety restraints in the vehicle are combination lap and shoulder belts. The driver seatbelt has the first type of locking mode. The front outermost passenger and rear seat seatbelts have both types of locking modes described as follows:

Vehicle Sensitive Mode

This is the normal retractor mode, which allows free shoulder belt length adjustment to your movements and locking in response to vehicle movement. For example, if the driver brakes suddenly, turns a corner sharply, or the vehicle receives an impact of about 5 mph (8 km/h) or more, the combination seatbelts lock to help reduce forward movement of the driver and passengers.

In addition, the retractor is designed to lock if you pull the webbing out too quickly. If the seatbelt retractor locks, slowly lower the height adjuster to allow the seatbelt to retract. If the retractor does not unlock, pull the seatbelt out slowly then feed a small length of webbing back toward the stowed position. For rear seatbelts, recline the rear seat backrest or push the seat backrest cushion away from the seatbelt. Feed a small length of webbing back toward the stowed position.

Automatic Locking Mode

In this mode, the shoulder belt automatically pre-locks. The belt still retracts to remove any slack in the shoulder belt. The automatic locking mode is not available on the driver seatbelt.

When to Use the Automatic Locking Mode

Use this mode any time you install a child restraint in a front outermost passenger seating position in a Regular Cab, SuperCab, SuperCrew or any rear seating position of a SuperCab or SuperCrew. The optional front seat center seatbelt has a cinch mechanism. Properly restrain children 12 years old and under in a rear seat whenever possible. See **Child Safety** (page 22).

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How to Use the Automatic Locking Mode

Non-Inflatable Seatbelts

E142591

1. Buckle the combination lap and shoulder belt.
2. Grasp the shoulder portion and pull downward until you pull the entire belt out.
3. Allow the belt to retract. As the belt retracts, you will hear a clicking sound. This indicates the seatbelt is now in the automatic locking mode.

Rear Outermost Inflatable Seatbelts

E146363

1. Buckle the combination lap and shoulder belt.
2. Grasp the lap portion of the belt and pull upward until you pull the entire belt out.
3. Allow the belt to retract. As the belt retracts, you will hear a clicking sound. This indicates the seatbelt is now in the automatic locking mode.

How to Disengage the Automatic Locking Mode

Unbuckle the combination lap and shoulder belt and allow it to retract completely to disengage the automatic locking mode and activate the vehicle sensitive locking mode.

Rear Inflatable Seatbelt (If Equipped)

WARNING: Do not attempt to service, repair, or modify the supplementary restraint system or associated components. Failure to follow this instruction could result in personal injury or death.

The rear inflatable seatbelts are in the shoulder portion of the seatbelts of the second-row outermost seating positions.

Note: *The rear inflatable seatbelts are compatible with most infant and child restraints and belt positioning booster seats when properly installed. This is because they are designed to fill with a cooled gas at a lower pressure and at a slower rate than traditional airbags. After inflation, the shoulder portion of the seatbelt remains cool to the touch.*

The rear inflatable seatbelt consists of the following:

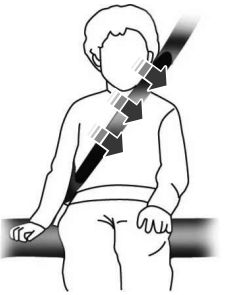
- An inflatable bag in the shoulder seatbelt webbing.
- Lap seatbelt webbing with automatic locking mode.

- The same warning light, electronic control and diagnostic unit as used for the front seatbelts.
- Impact sensors in various parts of the vehicle.

How Does the Rear Inflatable Seatbelt System Work?

WARNING: If a supplementary restraint system component has deployed, it will not function again. Have the system and associated components inspected as soon as possible. Failure to follow this instruction could result in personal injury or death.

The rear inflatable seatbelts function like standard restraints in everyday usage.



E146364

During a crash of sufficient force, the inflatable belt inflates from inside the webbing.

E146365

The fully inflated belt's increased diameter more effectively holds the occupant in the appropriate seating position, and spreads crash forces over more area of the body than regular seatbelts. This helps reduce pressure on the chest and helps control head and neck motion for passengers.

The rear inflatable seatbelts are designed to inflate in frontal or near-frontal crashes, rollovers and some side impact crashes. The fact that the rear inflatable seatbelt did not inflate in a crash does not mean that something is wrong with the system. Rather, it means the forces were not of the type sufficient to cause activation.

SEATBELT HEIGHT ADJUSTMENT

WARNING: Position the safety belt height adjuster so that the belt rests across the middle of your shoulder. Failure to adjust the safety belt properly could reduce the effectiveness of the safety belt and increase the risk of injury in a crash.

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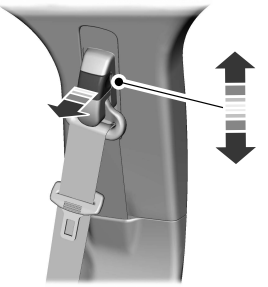

E145664

Adjust the height of the shoulder belt so the belt rests across the middle of your shoulder.

To adjust the shoulder belt height:

1. Pull the button and slide the height adjuster up or down.
2. Release the button and pull down on the height adjuster to make sure it is locked in place.

SEATBELT WARNING LAMP AND INDICATOR CHIME

This lamp illuminates and an indicator chime will sound if the driver seatbelt has not been fastened when the vehicle's ignition is turned on.

Conditions of operation

If	Then
The driver seatbelt is not buckled before the ignition switch is turned to the on position...	The seatbelt warning lamp illuminates and the indicator chime sounds for a few seconds.
The driver seatbelt is buckled while the warning lamp is illuminated and the indicator chime is sounding...	The seatbelt warning lamp and indicator chime turn off.
The driver seatbelt is buckled before the ignition switch is turned to the on position...	The seatbelt warning lamp and indicator chime remain off.

SEATBELT REMINDER

Belt-Minder™

This feature supplements the seatbelt warning function by providing additional reminders that intermittently sound a tone and illuminate the seatbelt warning light when you are in the driver seat or you have a front seat passenger and a seatbelt is unbuckled.

The system uses information from the front passenger sensing system to determine if a front seat passenger is present and therefore potentially in need of a warning. To avoid activating the Belt-Minder feature for objects you place in the front passenger seat, only the front seat passengers receive warnings as determined by the front passenger sensing system.

If the Belt-Minder warnings expire (warnings for about five minutes) for one passenger (driver or front passenger), the other passenger can still cause the Belt-Minder feature to turn on.

If	Then
You and the front seat passenger buckle your seatbelts before you switch the ignition on or less than 1-2 minutes elapse after you switch the ignition on...	The Belt-Minder feature will not activate.
You or the front seat passenger do not buckle your seatbelts before your vehicle reaches at least 6 mph (9.7 km/h) and 1-2 minutes elapse after you switch the ignition on...	The Belt-Minder feature activates, the seatbelt warning light illuminates and a warning tone sounds for 6 seconds every 25 seconds, repeating for about 5 minutes or until you and the front seat passenger buckle your seatbelts.
The seatbelt for the driver or front passenger is unbuckled for about 1 minute while the vehicle is traveling at least 6 mph (9.7 km/h) and more than 1-2 minutes elapse after you switch the ignition on...	The Belt-Minder feature activates, the seatbelt warning light illuminates and a warning tone sounds for 6 seconds every 25 seconds, repeating for about 5 minutes or until you and the front seat passenger buckle your seatbelts.

Deactivating and Activating the Belt-Minder Feature

WARNING: While the system allows you to deactivate it, this system is designed to improve your chances of being safely belted and surviving an accident. We recommend you leave the system activated for yourself and others who may use the vehicle.

Note: *The driver and front passenger warnings switch on and off independently. When you perform this procedure for one seating position, do not buckle the other position as this will terminate the process.*

Note: *If you are using MyKey, you cannot disable the Belt-Minder. Also, if the Belt-Minder has been previously disabled, it will be re-enabled during the use of MyKey. See* ***MyKey™*** *(page 68).*

Read Steps 1 - 4 thoroughly before proceeding with the programming procedure.

Before following the procedure, make sure that:

- The parking brake is set.
- The transmission is in park (P).
- The ignition is off.
- The driver and front passenger seatbelt is unbuckled.

1. Switch the ignition on. Do not start the engine.
2. Wait until the seatbelt warning light switches off (about one minute). After Step 2, wait an additional 5 seconds before proceeding with Step 3. Once you start Step 3, you must complete the procedure within 30 seconds.

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3. For the seating position you are switching off, buckle then unbuckle the seatbelt three times at a moderate speed, ending in the unbuckled state. After Step 3, the seatbelt warning light switches on.
4. While the seatbelt warning light is on, buckle then unbuckle the seatbelt. After Step 4, the seatbelt warning light flashes for confirmation.

- This switches the feature off for that seating position if it is currently on.
- This switches the feature on for that seating position if it is currently off.

CHILD RESTRAINT AND SEATBELT MAINTENANCE

Inspect the vehicle seatbelts and child safety seat systems periodically to make sure they work properly and are not damaged. Inspect the vehicle and child restraint seatbelts to make sure there are no nicks, tears or cuts. Replace if necessary. All vehicle seatbelt assemblies, including retractors, buckles, front seatbelt buckle assemblies, buckle support assemblies (slide bar-if equipped), shoulder belt height adjusters (if equipped), shoulder belt guide on seat backrest (if equipped), child safety seat LATCH and tether anchors, and attaching hardware, should be inspected after a crash. Read the child restraint manufacturer's instructions for additional inspection and maintenance information specific to the child restraint.

We recommend that all seatbelt assemblies in use in vehicles involved in a crash be replaced. However, if the crash was minor and an authorized dealer finds that the belts do not show damage and continue to operate properly, they do not need to be replaced. Seatbelt assemblies not in use during a crash should also be inspected and replaced if either damage or improper operation is noted.

Properly care for seatbelts. See **Vehicle Care** (page 384).

SEATBELT EXTENSIONS

WARNING: Persons who fit into the vehicle's seatbelt should not use an extension. Unnecessary use could result in serious personal injury in the event of a crash.

WARNING: Only use extensions provided free of charge by our dealers. The dealer will provide an extension designed specifically for this vehicle, model year and seating position. The use of an extension intended for another vehicle, model year or seating position may not offer you the full protection of your vehicle's seatbelt restraint system.

WARNING: Never use seatbelt extensions to install child restraints.

WARNING: Do not use a seatbelt extension with an inflatable seatbelt.

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WARNING: Do not use extensions to change the way the seatbelt fits across the torso, over the lap or to make the seatbelt buckle easier to reach.

If, because of body size or driving position, it is not possible to properly fasten the seatbelt over your lap and shoulder, an extension that is compatible with the seatbelts is available free of charge from our dealers. Only use our seatbelt extensions made by the original equipment seatbelt manufacturer with our seatbelts. Ask your authorized dealer if your extension is compatible with your vehicle restraint system.

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The Personal Safety System provides an improved overall level of frontal crash protection to front seat occupants and is designed to help further reduce the risk of airbag-related injuries. The system is able to analyze different occupant conditions and crash severity before activating the appropriate safety devices to help better protect a range of occupants in a variety of frontal crash situations.

The Vehicle Personal Safety System consists of:

- Driver and passenger dual-stage airbag supplemental restraints.
- Front seat outboard seatbelts with pretensioners, energy management retractors and seatbelt usage sensors.
- Driver seat position sensor.
- Front passenger sensing system.
- Passenger airbag status indicator.
- Front crash severity sensors.
- Restraints control module with impact and safing sensors.
- Restraint system warning lamp and tone.
- The electrical wiring for the airbags, crash sensors, seatbelt pretensioners, front seatbelt usage sensors, driver seat position sensor, front passenger sensing system and indicator lights.

How Does the Personal Safety System Work?

The Personal Safety System can adapt the deployment strategy of the safety devices according to crash severity and occupant conditions. A collection of crash and occupant sensors provides information to the restraints control module. During a crash, the restraints control module may deploy the seatbelt pretensioners, one or both stages of the dual-stage airbags based on crash severity and occupant conditions.

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PRINCIPLE OF OPERATION

WARNING: Airbags do not inflate slowly or gently, and the risk of injury from a deploying airbag is the greatest close to the trim covering the airbag module.

WARNING: All occupants of your vehicle, including the driver, should always properly wear their seatbelts, even when an airbag supplemental restraint system is provided. Failure to properly wear your seatbelt could seriously increase the risk of injury or death.

WARNING: Properly secure children 12 years old and under in a rear seating position whenever possible. If you are unable to properly secure all children in a rear seating position, properly secure the largest child on the front seat. If you must use a forward facing child restraint on the front seat, move the seat as far back as possible. Failure to follow these instructions could result in personal injury or death.

WARNING: Do not place your arms on the airbag cover or through the steering wheel. Failure to follow this instruction could result in personal injury.

WARNING: Do not place a rearward facing child restraint in front of an active airbag. Failure to follow this instruction could result in personal injury or death.

WARNING: Do not attempt to service, repair, or modify the supplementary restraint system or associated components. Failure to follow this instruction could result in personal injury or death.

WARNING: Several airbag system components get hot after inflation. To reduce the risk of injury, do not touch them after inflation.

WARNING: If a supplementary restraint system component has deployed, it will not function again. Have the system and associated components inspected as soon as possible. Failure to follow this instruction could result in personal injury or death.

The airbags are a supplemental restraint system and are designed to work with the seatbelts to help protect the driver and right front passenger from certain upper body injuries. Airbags do not inflate slowly; there is a risk of injury from a deploying airbag.

Note: *You will hear a loud bang and see a cloud of harmless powdery residue if an airbag deploys. This is normal.*

The airbags inflate and deflate rapidly upon activation. After airbag deployment, it is normal to notice a smoke-like, powdery residue or smell the burnt propellant. This may consist of cornstarch, talcum powder (to lubricate the bag) or sodium compounds (for example, baking soda) that result from the combustion process that inflates the airbag. Small amounts of sodium hydroxide may be present which may irritate the skin and eyes, but none of the residue is toxic.

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While the system is designed to help reduce serious injuries, contact with a deploying airbag may also cause abrasions or swelling. Temporary hearing loss is also a possibility as a result of the noise associated with a deploying airbag. Because airbags must inflate rapidly and with considerable force, there is the risk of death or serious injuries such as fractures, facial and eye injuries or internal injuries, particularly to occupants who are not properly restrained or are otherwise out of position at the time of airbag deployment. Thus, it is extremely important that occupants be properly restrained as far away from the airbag module as possible while maintaining vehicle control.

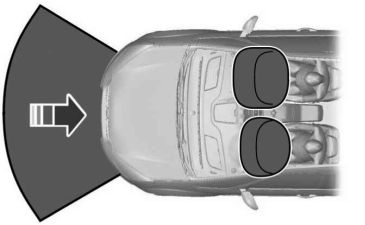
Routine maintenance of the airbags is not required.

DRIVER AND PASSENGER AIRBAGS

WARNING: Keep the areas in front of the airbags free from obstruction. Do not affix anything to or over the airbag covers. Objects could become projectiles during airbag deployment. Failure to follow this instruction could result in personal injury or death.

WARNING: Do not place a rearward facing child restraint in front of an active airbag. Failure to follow this instruction could result in personal injury or death.

WARNING: Properly secure children 12 years old and under in a rear seating position whenever possible. If you are unable to properly secure all children in a rear seating position, properly secure the largest child on the front seat. If you must use a forward facing child restraint on the front seat, move the seat as far back as possible. Failure to follow these instructions could result in personal injury or death.



E151127

The driver and front passenger airbags will deploy during significant frontal and near frontal crashes.

The driver and passenger front airbag system consists of:

- Driver and passenger airbag modules.
- Front passenger sensing system.

· Crash sensors and monitoring system with readiness indicator. See **Crash Sensors and Airbag Indicator** (page 59).

Proper Driver and Front Passenger Seating Adjustment

WARNING: National Highway Traffic Safety Administration (NHTSA) recommends a minimum distance of at least 10 in (25 cm) between an occupant's chest and the driver airbag module.

To properly position yourself away from the airbag:

- Move your seat to the rear as far as you can while still reaching the pedals comfortably.
- Recline the seat slightly one or two degrees from the upright position.

After all occupants have adjusted their seats and put on seatbelts, it is very important that they continue to sit properly. Properly seated occupants sit upright, lean against the seat backrest, and center themselves on the seat cushion, with their feet comfortably extended on the floor. Sitting improperly can increase the chance of injury in a crash event. For example, if an occupant slouches, lies down, turns sideways, sits forward, leans forward or sideways, or puts one or both feet up, the chance of injury during a crash greatly increases.

Children and Airbags

WARNING: Do not place a rearward facing child restraint in front of an active airbag. Failure to follow this instruction could result in personal injury or death.

E142846

Children must always be properly restrained. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating position. Failure to follow these instructions may increase the risk of injury in a crash.

If two adults and a child occupy a Regular Cab, properly restrain the child in the center front seat unless doing so would interfere with driving your vehicle. This provides lap and shoulder belt protection for all occupants, and airbag protection for the adults. A child or infant properly restrained in the center front seat should not incur risk of serious injury from the airbags.

FRONT PASSENGER SENSING SYSTEM

WARNING: Even with advanced restraints systems, properly restrain children 12 and under in a rear seating position. Failure to follow this could seriously increase the risk of injury or death.

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WARNING: Sitting improperly, out of position or with the seatback reclined too far can take weight off the seat cushion and affect the decision of the passenger sensing system, resulting in serious injury or death in the event of a crash. Always sit upright against your seat back, with your feet on the floor.

WARNING: Any alteration or modification to the front passenger seat may affect the performance of the front passenger sensing system. This could seriously increase the risk of injury or death.

E181984

The front passenger sensing system uses a passenger airbag status indicator which illuminates indicating that the front passenger frontal airbag is either on (enabled) or off (disabled). The indicator lamp is in the center stack of the instrument panel.

Note: *When you first switch the ignition on, the passenger airbag status indicator off and on lamps illuminate for a short period to confirm they are functional.*

The front passenger sensing system is designed to disable (will not inflate) the front passenger frontal airbag under certain conditions:

- The front passenger seat is unoccupied.
- The system determines an infant is present in a child restraint.
- A passenger takes their weight off of the seat for a period of time.
- If there is a problem with the airbag system or the passenger sensing system.

Even with this technology, parents are **strongly** encouraged to always properly restrain children in the rear seat.

- When the front passenger sensing system disables (will not inflate) the front passenger frontal airbag, the passenger airbag status indicator illuminates the off lamp and stays lit to remind you that the front passenger frontal airbag is disabled.
- If you have installed the child restraint and the passenger airbag status indicator illuminates the on lamp, then switch your vehicle off, remove the child restraint from your vehicle and reinstall the restraint following the child restraint manufacturer's instructions.

The front passenger sensing system works with sensors that are part of the front passenger seat and seatbelt. The sensors are designed to detect the presence of a properly seated occupant and determine if the front passenger frontal airbag should be enabled.

- When the front passenger sensing system enables the front passenger frontal airbag (may inflate), the passenger airbag status indicator illuminates the on lamp and remains illuminated.

If a person of adult size is sitting in the front passenger seat, but the passenger airbag status indicator off lamp is lit, it is possible that the person is not sitting properly in the seat. If this happens:

- Switch your vehicle off and ask the person to place the seat backrest in an upright position.
- Have the person sit upright in the seat, centered on the seat cushion, with the person's legs comfortably extended.
- Restart your vehicle and have the person remain in this position for about two minutes. This allows the system to detect that person and enable the passenger frontal airbag.
- If the indicator off lamp remains lit even after this, you should advise the person to ride in the rear seat.

After all occupants have adjusted their seats and put on seatbelts, it is very important that they continue to sit properly. A properly seated occupant sits upright, leaning against the seat backrest, and centered on the seat cushion, with their feet comfortably extended on the floor. Sitting improperly can increase the chance of injury in a crash event. For example, if an occupant slouches, lies down, turns sideways, sits forward, leans forward or sideways, or puts one or both feet up, the chance of injury during a crash greatly increases.

If you think that the state of the passenger airbag status indicator lamp is incorrect, check for the following:

- Objects lodged underneath the seat.
- Objects between the seat cushion and the center console.
- Objects hanging off the seat backrest.
- Objects stowed in the seat backrest map pocket.
- Objects placed on the occupant's lap.
- Cargo interference with the seat
- Other passengers pushing or pulling on the seat.
- Rear passenger feet and knees resting or pushing on the seat.

The conditions listed above may cause the weight of a properly seated occupant to be incorrectly interpreted by the front passenger sensing system. The person in the front passenger seat may appear heavier or lighter due to the conditions described in the previous list.

Make sure the front passenger sensing system is operating properly. See **Crash Sensors and Airbag Indicator** (page 59).

If the airbag readiness light is lit, do the following:

The driver and adult passengers should check for objects lodged underneath the front passenger seat or cargo interfering with the seat.

If objects are lodged or cargo is interfering with the seat, take the following steps to remove the obstruction:

- Pull your vehicle over.
- Switch your vehicle off.
- Driver or adult passengers should check for any objects lodged underneath the front passenger seat or cargo interfering with the seat.
- Remove the obstruction(s) (if found).
- Restart your vehicle.
- Wait at least two minutes and verify that the airbag readiness light in the instrument cluster is no longer illuminated.
- If the airbag readiness light in the instrument cluster remains illuminated, this may or may not be a problem due to the front passenger sensing system.

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Do not attempt to repair or service the system. Take your vehicle immediately to an authorized dealer.

If it is necessary to modify an advanced front airbag system to accommodate a person with disabilities, contact your Customer Relationship Center.

SIDE AIRBAGS

WARNING: Do not place objects or mount equipment on or near the airbag cover, on the side of the front or rear seatbacks, or in areas that may come into contact with a deploying airbag. Failure to follow these instructions may increase the risk of personal injury in the event of a crash.

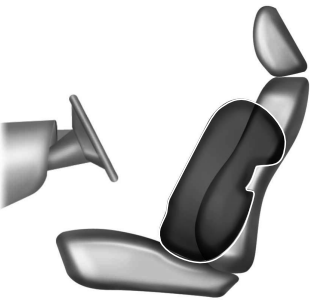
WARNING: Do not use accessory seat covers. The use of accessory seat covers may prevent the deployment of the side airbags and increase the risk of injury in an accident.

WARNING: Do not lean your head on the door. The side airbag could injure you as it deploys from the side of the seatback.

WARNING: Do not attempt to service, repair, or modify the supplementary restraint system or associated components. Failure to follow this instruction could result in personal injury or death.

WARNING: If a supplementary restraint system component has deployed, it will not function again. Have the system and associated components inspected as soon as possible. Failure to follow this instruction could result in personal injury or death.

The side airbags are on the outermost side of the seat backrests of the front seats. In certain sideways crashes or rollovers, the airbags will be inflated. The airbag was designed to inflate between the door panel and occupant to further enhance the protection provided occupants in side impact crashes.



E152533

The system consists of the following:

- A label or embossed side panel indicating that side airbags are fitted to your vehicle.
- Side airbags inside the driver and front passenger seat backrests.
- Front passenger sensing system.
- Crash sensors and monitoring system with readiness indicator. See **Crash Sensors and Airbag Indicator** (page 59).

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Note: *The passenger sensing system will deactivate the passenger seat-mounted side airbag if it detects an empty passenger seat.*

The design and development of the side airbag system included recommended testing procedures that were developed by a group of automotive safety experts known as the Side Airbag Technical Working Group. These recommended testing procedures help reduce the risk of injuries related to the deployment of side airbags.

SAFETY CANOPY™

WARNING: Do not place objects or mount equipment on or near the headliner at the siderail that may come into contact with a deploying curtain airbag. Failure to follow these instructions may increase the risk of personal injury in the event of a crash.

WARNING: Do not lean your head on the door. The curtain airbag could injure you as it deploys from the headliner.

WARNING: Do not attempt to service, repair, or modify the supplementary restraint system or associated components. Failure to follow this instruction could result in personal injury or death.

WARNING: All occupants of your vehicle, including the driver, should always properly wear their seatbelts, even when an airbag supplemental restraint system is provided. Failure to properly wear your seatbelt could seriously increase the risk of injury or death.

WARNING: To reduce risk of injury, do not obstruct or place objects in the deployment path of the airbag.

WARNING: If a supplementary restraint system component has deployed, it will not function again. Have the system and associated components inspected as soon as possible. Failure to follow this instruction could result in personal injury or death.

The Safety Canopy deploys during significant side crashes or when a certain likelihood of a rollover event is detected by the rollover sensor. The Safety Canopy is mounted to the roof side rail sheet metal, behind the headliner, above each row of seats. In certain sideways crashes or rollover events, the Safety Canopy will be activated, regardless of which seats are occupied. The Safety Canopy is designed to inflate between the side window area and occupants to further enhance protection provided in side impact crashes and rollover events.

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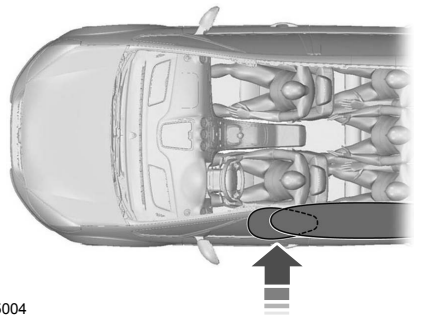

E75004

The system consists of the following:

- Safety Canopy curtain airbags above the trim panels over the front and rear side windows identified by a label or wording on the headliner or roof-pillar trim.
- A flexible headliner which opens above the side doors to allow air curtain deployment

· Crash sensors and monitoring system with a readiness indicator. See **Crash Sensors and Airbag Indicator** (page 59).

Properly restrain children 12 years old and under in the rear seats. The Safety Canopy will not interfere with children restrained using a properly installed child or booster seat because it is designed to inflate downward from the headliner above the doors along the side window opening.

The design and development of the Safety Canopy included recommended testing procedures that were developed by a group of automotive safety experts known as the Side Airbag Technical Working Group. These recommended testing procedures help reduce the risk of injuries related to the deployment of side airbags (including the Safety Canopy).

CRASH SENSORS AND AIRBAG INDICATOR

WARNING: Modifying or adding equipment to the front end of your vehicle (including hood, bumper system, frame, front end body structure, tow hooks and hood pins) may affect the performance of the airbag system, increasing the risk of injury. Do not modify or add equipment to the front end of your vehicle.

Your vehicle has a collection of crash and occupant sensors that provide information to the restraints control module which deploys (activates) the front seatbelt pretensioners, optional rear inflatable seatbelts, driver airbag, passenger airbag, seat mounted side airbags, and the Safety Canopy. Based on the type of crash, the restraints control module will deploy the appropriate safety devices.

The restraints control module also monitors the readiness of the above safety devices plus the crash and occupant sensors. The readiness of the safety system is indicated by a warning indicator light in the instrument cluster or by a backup tone if the warning light is not working. See **Instrument Cluster** (page 111). Routine maintenance of the airbag is not required.

A difficulty with the system is indicated by one or more of the following:

The readiness light will not illuminate immediately after you switch the ignition on.

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- The readiness light either flashes or stays lit.
- A series of five beeps will be heard. The tone pattern repeats periodically until the problem, the light or both are repaired.

If any of these things happen, even intermittently, have the supplemental restraint system serviced at an authorized dealer immediately. Unless serviced, the system may not function properly in the event of a crash.

The fact that the seatbelt pretensioners or front airbags did not activate for both front seat occupants in a crash does not mean that something is wrong with the system. Rather, it means the restraints control module determined the accident conditions (crash severity, belt usage) were not appropriate to activate these safety devices.

- The design of the front airbags is to activate only in frontal and near-frontal crashes (not rollovers, side impacts or rear impacts unless the crash causes sufficient frontal deceleration).
- The design of the seatbelt pretensioners and rear inflatable seatbelts is to activate in frontal, near-frontal and side crashes, and in rollovers.
- The design of the side airbags is to inflate in certain side impact crashes or rollover events. Side airbags may activate in other types of crashes if the vehicle experiences sufficient sideways motion or deformation.
- The design of the Safety Canopy is to inflate in certain side impact crashes or rollover events. The Safety Canopy may activate in other types of crashes if the vehicle experiences sufficient sideways motion or deformation, or a certain likelihood of rollover.

AIRBAG DISPOSAL

Contact your authorized dealer as soon as possible. Airbags must be disposed of by qualified personnel.

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GENERAL INFORMATION ON RADIO FREQUENCIES

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

WARNING: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment. The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

The typical operating range for your transmitter is approximately 33 ft (10 m). Vehicles with the remote start feature will have a greater range.

One of the following could cause a decrease in operating range:

- Weather conditions.
- Nearby radio towers.
- Structures around the vehicle.
- Other vehicles parked next to your vehicle.

The radio frequency used by your remote control can also be used by other radio transmitters, for example amateur radios, medical equipment, wireless headphones, wireless remote controls, cell phones, battery chargers and alarm systems. If the frequencies are jammed, you will not be able to use your remote control. You can lock and unlock the doors with the key.

Note: *Make sure to lock your vehicle before leaving it unattended.*

Note: *If you are in range, the remote control will operate if you press any button unintentionally.*

Note: *The remote control contains sensitive electrical components. Exposure to moisture or impact may cause permanent damage.*

Intelligent Access (If Equipped)

The system uses a radio frequency signal to communicate with your vehicle and authorize your vehicle to unlock when one of the following conditions are met:

- You activate the front exterior door handle switch.
- You press the luggage compartment button.
- You press a button on the transmitter.

If excessive radio frequency interference is present in the area or if the transmitter battery is low, you may need to mechanically unlock your door. You can use the mechanical key blade in your intelligent access key to open the driver door in this situation. See **Remote Control** (page 61).

REMOTE CONTROL

Integrated Keyhead Transmitter (If Equipped)

Use the key blade to start your vehicle and unlock or lock the driver door from outside your vehicle. The integrated keyhead transmitter functions as a programmed ignition key that operates all the locks and starts your vehicle, as well as a remote control.

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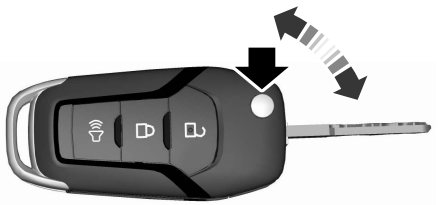


E191532

Press the button to release the key blade. Press and hold the button to fold the key blade back in when not in use.

E151795

Note: *Your vehicle keys came with a security label that provides important key cut information. Keep the label in a safe place for future reference.*

Intelligent Access Key (If Equipped)

Note: *You may not be able to shift out of park (P) unless the intelligent access key is inside your vehicle.*

The intelligent access keys operate the power locks and the remote start system. The key must be in your vehicle to use the push button start.

Removable Key Blade

The intelligent access key also contains a removable key blade that you can use to unlock your vehicle.

Press the release button and pull the key blade out.

E151795

Note: *Your vehicle keys came with a security label that provides important key cut information. Keep the label in a safe place for future reference.*

Replacing the Battery

Note: *Refer to local regulations when disposing of transmitter batteries.*

Note: *Do not wipe off any grease on the battery terminals or on the back surface of the circuit board.*

Note: *Replacing the battery does not erase the programmed key from your vehicle. The transmitter should operate normally.*

A message appears in the information display when the remote control battery is low. See **General Information** (page 120).

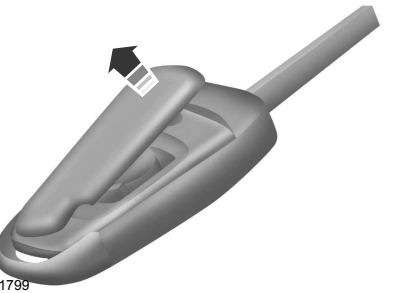
Integrated Keyhead Transmitter

The remote control uses one coin-type three-volt lithium battery.

Press the button to release the key blade before beginning the procedure.

E191533

1. Insert a suitable tool, for example a screwdriver, in the position shown and gently push the clip.
2. Press the clip down to release the battery cover.



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3. Carefully remove the cover.

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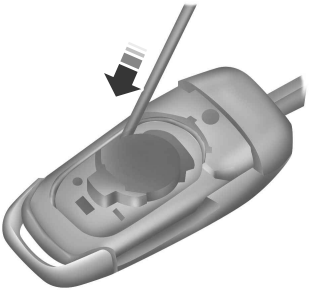
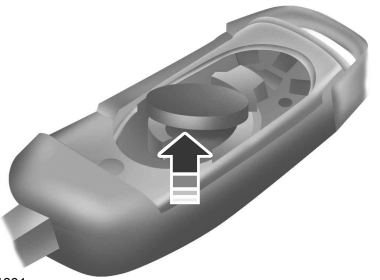


E151800

Note: *Do not touch the battery contacts or the printed circuit board with the screwdriver.*

4. Insert a screwdriver as shown to release the battery.



E151801

5. Remove the battery.
6. Install a new battery with the **+** facing up.
7. Replace the battery cover.

Intelligent Access Key

The remote control uses one coin-type three-volt lithium battery.

1. Push the release button and pull the key blade out.

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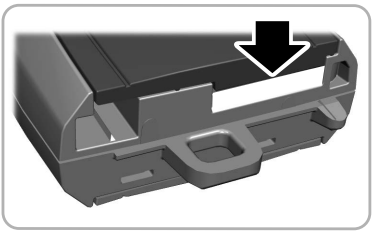
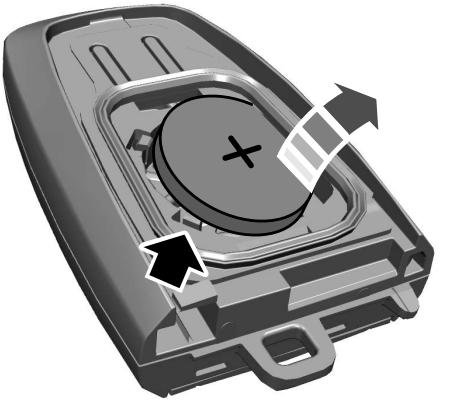


2. Twist a thin coin under the tab hidden behind the key blade head to remove the battery cover.



3. Insert a suitable tool, for example a screwdriver, in the position shown and carefully remove the battery.
4. Install a new battery with the + facing upward.
5. Reinstall the battery housing cover onto the transmitter and install the key blade.

Car Finder

Press the button twice within three seconds. The horn sounds and the direction indicators flash. We recommend you use this method to locate your vehicle, rather than using the panic alarm.

Sounding a Panic Alarm

Note: *The panic alarm only operates when the ignition is off.*

Press the button to activate the alarm. Press the button again or switch the ignition on to deactivate.

Remote Start (If Equipped)

WARNING: To avoid exhaust fumes, do not use remote start if your vehicle is parked indoors or in areas that are not well ventilated.

Note: *Do not use remote start if your fuel level is low.*

The remote start button is on the transmitter.

This feature allows you to start your vehicle from the outside. The transmitter has an extended operating range.

If your vehicle has automatic climate control, you can configure it to operate when you remote start your vehicle. See **Climate Control** (page 151). A manual climate control system will run at the setting it was set to when you switched your vehicle off.

Many states and provinces have restrictions for the use of remote start. Check your local and state or provincial laws for specific requirements regarding remote start systems.

The remote start system does not work if:

- The ignition is on.
- The alarm system triggers.
- You disable the feature.
- The hood is open.
- The transmission is not in park (P).
- The vehicle battery voltage is too low.
- The service engine soon light is on.

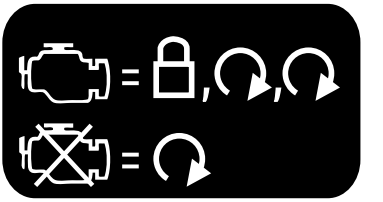
Remote Control Feedback (If Equipped)

An LED on the remote control provides status feedback of remote start or stop commands.

LED	Status
Solid green	Remote start successful
Solid red	Remote stop successful
Blinking red	Request failed or status not received
Blinking green	Status incomplete

Remote Starting your Vehicle

Note: *You must press each button within three seconds of each other. If you do not follow this sequence, your vehicle does not start remotely, the direction indicators do not flash twice and the horn does not sound.*



E138626

To remote start your vehicle:

1. Press the lock button to lock all the doors.
2. Press the remote start button twice. The exterior lamps flash twice.

The horn sounds if the system fails to start.

Note: *You must press the push button ignition switch on the instrument panel once while applying the brake pedal before driving your vehicle.*

The power windows do not work during remote start and the radio does not turn on automatically.

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The parking lamps remain on and your vehicle will run for 5, 10 or 15 minutes, depending on the setting.

Extending the Engine Running Time

To extend the engine running time duration of your vehicle during remote start, repeat steps 1 and 2 while the engine is running. If the duration is set to 15 minutes, the duration extends by another 15 minutes. For example, if your vehicle had been running from the first remote start for 10 minutes, your vehicle continues to run now for a total of 30 minutes. You can extend the engine running time duration to a maximum of 30 minutes.

Wait at least five seconds before remote starting after the engine stops running.

Turning Your Vehicle Off After Remote Starting

Press the button once. Your vehicle and the parking lamps turn off.

You may have to be closer to your vehicle than when starting due to ground reflection and the added noise of your running vehicle.

You can switch this feature on or off in the information display.

Memory Feature

You can program your intelligent access key to recall memory positions. See **Memory Function** (page 164).

REPLACING A LOST KEY OR REMOTE CONTROL

Replacement keys or remote controls can be purchased from an authorized dealer. Authorized dealers can program remote controls for your vehicle. See **Passive Anti-Theft System** (page 83).

PRINCIPLE OF OPERATION

MyKey allows you to program keys with restricted driving modes to promote good driving habits. You can program the restrictions to all keys except one. Any keys that you did not program are administrator keys or admin keys.

You can use admin keys to:

- Create a MyKey with certain vehicle restrictions.
- Program certain MyKey settings.
- Clear all MyKey restrictions.

After you program a MyKey, you can view the following information through the information display:

- The total number of admin keys and MyKeys for your vehicle.
- The total distance a MyKey driver traveled with your vehicle.

Note: *Every MyKey receives the same restrictions and settings. You cannot program them individually.*

Note: *For vehicles equipped with a push-button start switch: When both a MyKey and an admin key are present when you start your vehicle, the system recognizes the admin key only.*

Standard Settings

Not every vehicle includes the features listed below. If your vehicle has this equipment, then you cannot change the following settings when using a MyKey:

- Seatbelt reminder or Belt-Minder™. MyKey mutes the audio system until drivers, and in some instances, passengers, fasten their seatbelts. **Note:** If your vehicle includes an AM/FM radio or a very basic audio system, then the radio may not mute.
- Earlier low-fuel warning. The low-fuel warning activates earlier for MyKey drivers, giving them more time to refuel.
- Certain driver alerts, stability systems or parking aids turn on automatically when you use the MyKey system. For example, Blind Spot Information System (BLIS), cross traffic alert, lane departure warning or forward collision warning. **Note:** MyKey drivers may be able to turn the lane departure warning feature off, but this feature turns back on automatically with every new key cycle.
- Restricted touchscreen operation in some markets. For example, MyKey may prevent manual navigation destination input while the vehicle is in any gear other than park (P) or when the vehicle reaches a certain rate of speed.
- Satellite radio adult content restrictions, if this feature is available in your market.

Optional Settings

You can configure certain vehicle feature settings when you first create a MyKey. You can also change the settings afterward with an admin key.

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Note: *Not every feature applies to every vehicle in every market. When they are available for your vehicle, then they appear in your information display, providing choices to switch them on or off, or to select a more specific setting.*

- Various vehicle speed limits so the MyKey driver cannot exceed certain speeds. The information display shows warnings followed by an audible tone when the MyKey driver reaches the set speed. You cannot override the set speed by fully depressing the accelerator pedal.

WARNING: Do not set MyKey maximum speed limit to a limit that will prevent the driver from maintaining a safe speed considering posted speed limits and prevailing road conditions. The driver is always responsible to drive in accordance with local laws and prevailing conditions. Failure to do so could result in accident or injury.

- Various vehicle speed reminders so MyKey drivers know when their vehicle speed approaches the limits. Warnings appear in your information display and a tone sounds when the MyKey drivers exceed the set vehicle speed.
- The audio system's maximum volume limits to 45% so MyKey drivers can concentrate on the road. A message appears in the information display when MyKey drivers attempt to exceed the limited volume. MyKey also disables the automatic volume control. **Note:** If your vehicle includes an AM/FM radio or a very basic audio system, then the radio may not limit.
- Always on setting. This setting forces certain features to remain on and active for MyKey drivers. For example, E911 or emergency assistance and the do not disturb features stay on even if a MyKey driver uses the feature's control to switch it off. When selected, you will not be able to turn off Advance Trac or traction control (if your vehicle has this feature).

CREATING A MYKEY

Use the information display to create a MyKey:

1. Insert the key you want to program into the ignition. If your vehicle is equipped with a push-button start, place the remote control into the backup slot. See **Starting a Gasoline Engine** (page 181).
2. Switch the ignition on.
3. Access the main menu in the information display and then scroll through the menus to change the settings of your MyKey. From the MyKey menu select the option Create MyKey. See **Information Displays** (page 120).

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4. When prompted, hold the **OK** button until you see a message informing you to label this key as a MyKey. The programmed restrictions apply when you key off, open and close the driver door and restart your vehicle with the programmed key or transmitter.

MyKey is successfully created. Make sure you label it so you can distinguish it from the admin keys.

You can also program configurable settings for the key(s). See **Programming and Changing Configurable Settings**.

Programming and Changing Configurable Settings

Use the information display to access your configurable MyKey settings.

1. Switch the ignition on using an admin key or transmitter you want to program.
2. Access the main menu in the information display and then scroll through the menus to change the settings of your MyKey. See **Information Displays** (page 120).
3. Follow the instructions in the display. The programmed restrictions apply when you switch the vehicle off, open and close the driver door and restart your vehicle with the programmed key or transmitter.

Note: *You can clear or change your MyKey settings at any time during the same key cycle as you created the MyKey. Once you have switched the vehicle off, however, you will need an admin key to change or clear your MyKey settings. When you make any changes to your MyKey settings, you change the settings for every MyKey. You cannot make individual changes to apply to certain MyKeys.*

CLEARING ALL MYKEYS

When you clear your MyKeys, you remove all restrictions and return all MyKeys to their original admin key status at once. To clear all MyKeys of all MyKey settings, use the information display.

1. Switch the ignition on using an admin key.
2. Access the main menu in the information display and then scroll through the menus to begin clearing your MyKey programming. See **Information Displays** (page 120).
3. Follow the instructions in the display.
4. A confirmation message appears in the display after you finish clearing your MyKeys.

Note: *When you clear your MyKeys, you remove all restrictions and return all MyKeys to their original admin key status. You cannot remove the MyKey restrictions individually.*

CHECKING MYKEY SYSTEM STATUS

You can find information about your programmed MyKeys by using the information display. See **Information Displays** (page 120).

MyKey Distance

Tracks the distance when drivers use a MyKey. The only way to delete the accumulated distance is by using an admin key to clear all MyKeys. If the distance does not accumulate as expected, then the intended user is not using the MyKey, or an admin key user recently cleared and then recreated a MyKey.

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Number of MyKeys

Indicates the number of MyKeys programmed to your vehicle. Use this feature to detect how many MyKeys you have for your vehicle and determine when all MyKeys have been deleted.

Number of Admin Keys

Indicates how many admin keys are programmed to your vehicle. Use this feature to determine how many admin keys you have for your vehicle, and detect if an additional MyKey has been programmed.

USING MYKEY WITH REMOTE START SYSTEMS

MyKey is not compatible with non Ford-approved, aftermarket remote start systems. If you choose to install a remote start system, see an authorized dealer for a Ford-approved remote start system.

MYKEY – TROUBLESHOOTING

Condition	Potential causes
I cannot create a MyKey.	· The key or transmitter used to start the vehicle does not have admin privileges. · Vehicles with keyless start: Make sure you place the transmitter into the backup slot. See **Passive Anti-Theft System** (page 83). · The key or transmitter used to start the vehicle is the only admin key. There always has to be at least one admin key. · SecuriLock passive anti-theft system is disabled or in unlimited mode.
I cannot program the configurable settings.	· The key or transmitter used to start the vehicle does not have admin privileges. · There are no MyKeys programmed to the vehicle. See **Creating a MyKey** (page 69).
I cannot clear the MyKeys.	· The key or transmitter used to start the vehicle does not have admin privileges. · No MyKeys are created. See **Creating a MyKey** (page 69).

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Condition	Potential causes
I lost the only admin key.	· Purchase a new key or transmitter from your authorized dealer.
I lost a key.	· Program a spare key or transmitter. You may need to see your authorized dealer. See **Passive Anti-Theft System** (page 83).
MyKey distances do not accumulate.	· The MyKey user is not using the MyKey. · An admin key holder cleared the MyKeys and created new MyKeys. · The key system has been reset.

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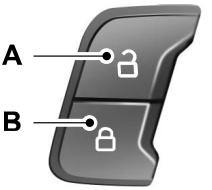
LOCKING AND UNLOCKING

You can use the power door lock control or the remote control to lock and unlock your doors and tailgate. See **Tailgate Lock** (page 78).

Power Door Locks (If Equipped)

The power door lock control is on the driver and front passenger door panels.



E138628

A Unlock.
B Lock.

Remote Control (If Equipped)

You can use the remote control at any time your vehicle is not running.

Unlocking the Vehicle (Two-Stage Unlock)

Press the button to unlock the driver door. Press the button again within three seconds to unlock all doors. The direction indicators flash. The direction indicators flash twice to confirm the change. The unlocking mode applies to the remote control, keyless entry keypad and intelligent access.

Press and hold both the lock and unlock buttons on the remote control for four seconds to disable or enable two-stage unlocking. Disabling two-stage unlocking allows your entire vehicle to unlock with one press of the button.

Intelligent access at the driver door unlocks your entire vehicle when you disable two-stage unlocking.

Locking the Vehicle

Press the button to lock all doors. The direction indicators flash.

Press the button again within three seconds to confirm that all the doors are closed. The doors lock again, the horn sounds and the direction indicators flash if all the doors are closed.

Mislock

If any door is open, or if the hood is open on vehicles with an anti-theft alarm or remote start, the horn sounds twice and the direction indicators do not flash.

Activating Intelligent Access (If Equipped)

General Information

You can unlock and lock the vehicle without taking the keys out of your pocket or purse when your intelligent access key is within 3 ft (1 m) of your vehicle. Intelligent access uses a sensor on the back of the door handle for unlocking and a separate sensor on the face of each door handle for locking.

The system does not function if:

- Your vehicle battery has no charge.
- The key battery has no charge.
- The key frequencies are jammed.

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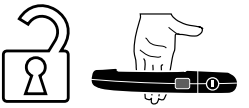
Note: *The system may not function if the key is close to metal objects or electronic devices, for example keys or a cell phone.*

Note: *If the system does not function, use the key blade to lock and unlock your vehicle. See* ***Remote Control*** *(page 61).*

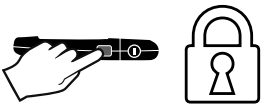
Unlocking Using Intelligent Access



E248555

With your intelligent access key within 3 ft (1 m) of your vehicle, touch the unlock sensor on the back of the door handle for a brief period and then pull on the door handle to unlock, being careful to not touch the lock sensor at the same time or pulling the door handle too quickly. The intelligent access system requires a brief delay to authenticate your intelligent access key fob.

Locking Using Intelligent Access



E248556

With your intelligent access key within 3 ft (1 m) of your vehicle, touch the outer door handle lock sensor for approximately one second to lock, being careful to not touch the unlock sensor on the back of the door handle at the same time. After locking, you can immediately pull on the door handle to confirm locking occurred without inadvertently unlocking.

Note: *Do not use the outside door handle as a roof cargo strap.*

At the Electronic Tailgate (If Equipped)

E187693

Press the exterior tailgate release button inside of the tailgate handle. The tailgate unlocks and opens. See **Tailgate Lock** (page 78).

Smart Unlock (If Equipped)

This feature helps to prevent you from locking your intelligent access key inside your vehicle's passenger compartment or rear cargo area.

If you leave your key in the ignition, when you open the driver door and lock your vehicle with the power door lock control, the doors lock then unlock.

You can still lock your vehicle with the key in the ignition by:

- Using the manual lock on the inside of the door.
- Locking the driver door with a key.
- Using the keyless entry keypad.
- Using the lock button on the remote control.

Smart Unlocks for Intelligent Access Keys (If Equipped)

This feature helps to prevent you from locking your intelligent access key inside your vehicle's passenger compartment or rear cargo area.

When you lock your vehicle using the power door lock control (with the door open, vehicle in park and ignition off), your vehicle searches for an intelligent access key in the passenger compartment after you close the door. If your vehicle finds a key, all of the doors immediately unlock.

In order to override the smart unlock feature and intentionally lock the intelligent access key inside your vehicle, you can lock your vehicle after all doors are closed by using the keyless entry keypad, pressing the lock button on another intelligent access key or touching the locking area on the handle with another intelligent access key in your hand.

When you open one of the front doors and lock your vehicle using the power door lock control, all doors lock then unlock if the ignition is on.

Autolock (If Equipped)

Autolock locks all the doors when:

- All doors are closed.
- The ignition is on.
- You shift into any gear putting your vehicle in motion.
- Your vehicle reaches a speed greater than 12 mph (20 km/h).

Autolock repeats when:

- You open then close any door while the ignition is on and your vehicle speed is 9 mph (15 km/h) or lower.
- Your vehicle reaches a speed greater than 12 mph (20 km/h).

Autounlock

Autounlock unlocks all the doors when:

- Your vehicle comes to a stop and you switch the ignition off or to the accessory position.
- You open the driver door within 10 minutes of switching the ignition off or to accessory.

Note: *The doors do not autounlock if you electronically lock your vehicle after you switch the ignition off and before you open the driver door.*

Enabling or Disabling Autounlock

You can enable or disable the autounlock feature in the information display or an authorized dealer can do it for you. See **General Information** (page 120).

Illuminated Entry

The interior lamps and select exterior lamps illuminate when you unlock the doors with the remote entry system.

The illuminated entry system turns off the lights if:

- The ignition is on.
- You press the remote control lock button.
- After 25 seconds of illumination.

The dome lamp does not turn on if the control is set to the off position.

The lights do not turn off if:

- You switch them on with the dimmer control.
- Any door is open.

Battery Saver

The battery saver turns off the interior lamps 10 minutes after you switch the ignition off, or 10 minutes after you exit the vehicle.

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Accessory Mode Battery Saver for Intelligent Access Keys (If Equipped)

If you leave the ignition on after leaving your vehicle, it turns off 30 minutes after you close all of the doors.

KEYLESS ENTRY (IF EQUIPPED)

SECURICODE™ KEYLESS ENTRY KEYPAD

The keypad is near the driver window and illuminates when you touch it.

Note: *If you enter your entry code too fast on the keypad, the unlock function may not work. Re-enter your entry code more slowly.*

E190936

You can use the keypad to:

- Lock or unlock the doors and liftgate.
- Program and erase user codes.
- Arm and disarm the anti-theft alarm.

You can operate the keypad with the factory-set five-digit entry code. The code is located on the owner's wallet card in the glove box and is available from an authorized dealer. You can also create up to five of your own five-digit personal entry codes.

Programming a Personal Entry Code

To create your own personal entry code:

1. Enter the factory-set code.
2. Press **1·2** on the keypad within five seconds.
3. Enter your personal five-digit code.
4. Press **1·2** on the keypad to save personal code one.

The doors will lock then unlock to confirm that programming was successful.

To Program additional personal entry codes, repeat Steps 1-3, then for Step4:

- Press **3·4** to save personal code two.
- Press **5·6** to save personal code three.
- Press **7·8** to save personal code four.
- Press **9·0** to save personal code five.

Tips:

- Do not set a code that uses five of the same number.
- Do not use five numbers in sequential order.
- The factory-set code will work even if you have set your own personal code.

Erasing a Personal Code

1. Enter the factory-set five-digit code.
2. Press and release **1·2** on the keypad within five seconds.
3. Press and hold **1·2** for two seconds. This must be done within five seconds of completing Step 2.

All personal codes erase and only the factory-set five-digit code will work.

Anti-Scan Feature

The keypad will go into an anti-scan mode if you enter the wrong code seven times (35 consecutive button presses). This mode disables the keypad for one minute and the keypad lamp will flash.

The anti-scan feature will turn off after:

- One minute of keypad inactivity.
- Pressing the unlock button on the remote control.
- Switching the ignition on.
- Unlocking the vehicle using intelligent access.

Unlocking and Locking the Doors

To Unlock the Driver Door

Enter the factory-set five-digit code or your personal code. You must press each number within five seconds of each other. The interior lamps illuminate.

Note: *All doors unlock if you disable the two-stage unlocking feature. See* ***General Information*** *(page 120).*

To Unlock All Doors

Enter the factory-set code or your personal code, then press **3•4** control within five seconds.

To Lock All Doors

Press and hold **7•8** and **9•0** at the same time with the driver door closed. You do not need to enter the keypad code first.

To Release the Tailgate (If Equipped)

Enter the factory-set code or your personal code, then press **5•6** control within five seconds.

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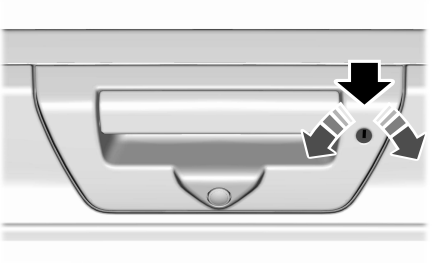
TAILGATE LOCK

The tailgate lock can help prevent theft of the tailgate.



E224958

Insert the ignition key into the tailgate lock. Turn it to the left to lock the tailgate. Turn it to the right to unlock the tailgate.

MANUAL TAILGATE (IF EQUIPPED)

WARNING: It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a crash, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and seatbelts. Make sure everyone in your vehicle is in a seat and properly using a seatbelt. Failure to follow this warning could result in serious personal injury or death.

E187692

1. Unlock the tailgate.
2. Pull up on the manual tailgate handle to release the tailgate.

ELECTRONIC TAILGATE (IF EQUIPPED)

WARNING: It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a crash, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and safety belts. Make sure everyone in your vehicle is in a seat and properly using a safety belt. Failure to follow this warning could result in serious personal injury or death.

The electronic tailgate release will not operate when:

- The battery voltage is below the minimum operating voltage.
- The vehicle speed is at or above 3 mph (5 km/h).

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With the Remote Control

Press the remote control button twice within three seconds.

With the Outside Control Button

1. Unlock the vehicle with the remote control or power door unlock control. If an intelligent access transmitter is within 3 ft (1 m) of the tailgate, the tailgate will unlock when you press the tailgate release button.

E187693

2. Press the button in the top of the tailgate handle.
3. Push the tailgate up to close the tailgate.

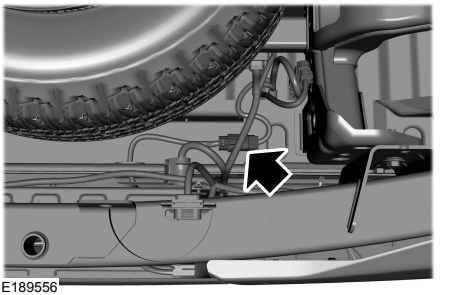
Note: *The electronic tailgate is not a powered tailgate. The use of a tonneau cover or other aftermarket accessories, freezing conditions or being parked downhill may stop your tailgate from opening automatically after it is unlatched. You may need to pull the handle to open the tailgate if the tailgate does not automatically lower after being unlatched.*

REMOVING THE TAILGATE

WARNING: Always properly secure cargo to prevent shifting cargo or cargo falling from the vehicle. Failure to do so could result in compromised vehicle stability and serious personal injury to vehicle occupants or others.

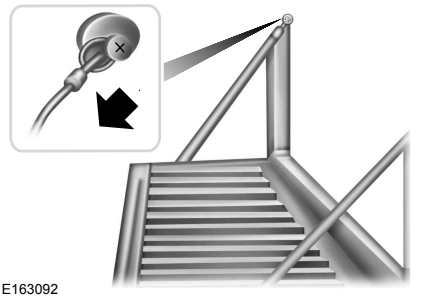
You can remove the tailgate for more loading room.

Note: *Skip to Step 4 if your vehicle does not have power door locks.*



E189556

1. Locate and disconnect the power door locks in-line connector. It is under the pickup box on the right-hand side of the vehicle near the spare tire.
2. There is a protective cap in the glove box. Install it on the in-line connector that remains under the pickup box.
3. Partially lower the tailgate. Carefully feed the tailgate harness up through the gap between the pickup box and the bumper and place it out of the way under the pickup box.
4. Lower the tailgate.


E163092

5. Use a screwdriver to gently pry the spring clip on each connector past the head of the support screw. Disconnect the cable.
6. Disconnect the other cable.
7. Lift the tailgate to 45 degrees from horizontal.
8. Lift the right side off its hinge.
9. Lift the tailgate to 80 degrees from horizontal.
10. Remove the tailgate from the left side hinge by sliding it to the right.

Reverse the steps to reinstall the tailgate.

TAILGATE STEP (IF EQUIPPED)

Use the step to make entering the truck bed easier.

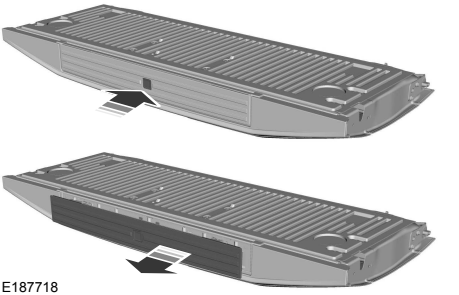
To reduce the risk of falling:

- Only operate the step when your vehicle is on a level surface.
- Only operate the step in areas with sufficient lighting.
- Always open the step panel to widen the step.
- Always use the grab handle when climbing on the step.
- Do not use the step with bare feet.
- Make sure the step is clean before use.
- Keep the step load, you plus the load, below 350 lb (159 kg).

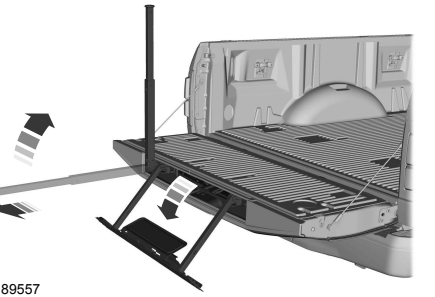
Opening the Step

Note: *Make sure to close and fully latch the step before moving your vehicle. Do not drive with the step or grab handle open.*

1. Lower the tailgate.
2. Push the button in the center of the step molding. The step pops out slightly.


E187718

3. Pull the step out fully. Lower the step to its lowest position.


E189557

4. Pull the yellow handle stop backward out of the tailgate until it fully extends.
5. Rotate the handle up from horizontal to vertical until you hear a click. You have locked the handle in place.

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Note: *Do not tow with the step or grab handle.*

Replace the slip resistance tape or grab handle molding if it appears as worn or damaged.

Closing the Step

1. Press the yellow button on the telescoping handle to lower the handle, then press the yellow lever at the bottom of the handle to unlock the handle. Rotate the handle down from vertical to horizontal and push it into the tailgate.
2. Rotate the step up until it is horizontal, then push it back into the tailgate until the step is secure.

BED EXTENDER (IF EQUIPPED)

Note: *Do not use the bed extender when driving off road.*

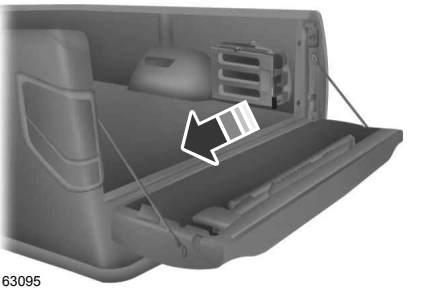
Note: *Make sure to engage the locking pins and knobs fully before driving your vehicle.*

Note: *Make sure to secure all cargo.*

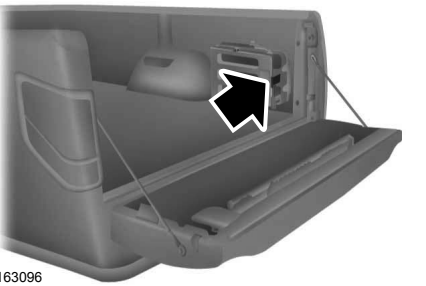
Note: *Do not exceed 150 lb (68 kg) on the tailgate when your vehicle is moving.*

Note: *Do not keep the bed extender in the tailgate mode when you are not using it for restraining cargo. Always keep the bed extender in the grocery mode or the stowed position with the tailgate closed.*

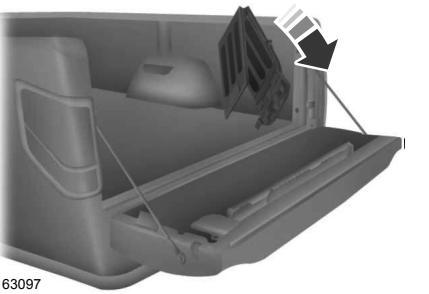
Tailgate Mode


E163095

1. Pull the locking pin toward the center of your vehicle.


E163096

2. Open the latches to release the panels.


E163097

3. Rotate the panels toward the tailgate. Repeat Steps 1-3 on the other side of your vehicle.

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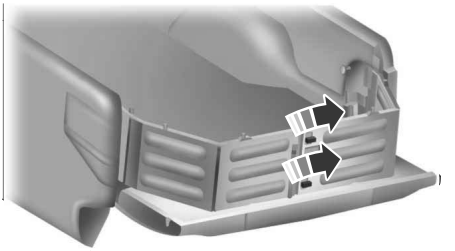
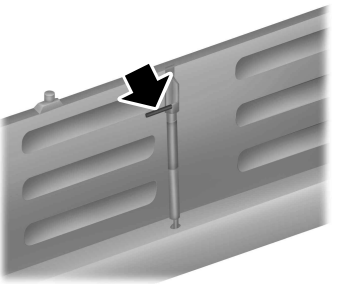


E163098

4. Connect the two panels. Rotate both knobs one-quarter turn clockwise to secure the panels.



E163099

5. Make sure to insert the latch rod into the tailgate hole. Make sure to engage both sides of the locking pins into their holes in the pick-up box.

Reverse the steps to store the bed extender.

Grocery Mode

E163100

Follow Steps 1-4 of the **Tailgate Mode** instructions by rotating the panels away from the tailgate. Close the tailgate.

PASSIVE ANTI-THEFT SYSTEM (IF EQUIPPED)

Note: *The system is not compatible with non-Ford aftermarket remote start systems. Use of these systems may result in vehicle starting problems and a loss of security protection.*

Note: *Metallic objects, electronic devices or a second coded key on the same key chain may cause vehicle starting problems if they are too close to the key when starting the engine. Prevent these objects from touching the coded key while starting the engine. Switch the ignition off, move all objects on the key chain away from the coded key and restart the engine if a problem occurs.*

Note: *Do not leave a duplicate coded key in the vehicle. Always take your keys and lock all doors when leaving the vehicle.*

SecuriLock™

The system is an engine immobilization system. It helps prevent the engine from starting unless you use a coded key programmed to your vehicle. Using the wrong key may prevent the engine from starting. A message may appear in the information display.

If you are unable to start the engine with a correctly coded key, the system has malfunctioned. A message may appear in the information display.

Automatic Arming

The system arms immediately after you switch the ignition off.

Automatic Disarming

Switching the ignition on with a coded key disarms the system.

Replacement Keys

Note: *Your vehicle may have two integrated keyhead transmitters.*

The integrated keyhead transmitter functions as a programmed ignition key. It operates all the locks, starts the vehicle and acts as a remote control.

If your programmed transmitters or standard SecuriLock coded keys are lost or stolen and you do not have an extra coded key, you need to have your vehicle towed to an authorized dealer. You need to erase the key codes from your vehicle and program new coded keys.

Store an extra programmed key away from your vehicle in a safe place to help prevent any inconveniences. Contact an authorized dealer to purchase additional spare or replacement keys.

Programming a Spare Integrated Keyhead Transmitter

Note: *You can program a maximum of six coded keys to your vehicle. All six can be integrated keyhead transmitters.*

You can program your own integrated keyhead transmitter or standard SecuriLock coded keys to your vehicle. This procedure programs both the engine immobilizer keycode and the remote entry portion of the remote control to your vehicle.

Only use integrated keyhead transmitters or standard SecuriLock keys.

You must have two previously programmed coded keys and the new unprogrammed key readily accessible. Contact an authorized dealer to have the spare key programmed if two previously programmed coded keys are not available.

Read and understand the entire procedure before you begin.

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1. Insert the first previously programmed coded key into the ignition.
2. Switch the ignition from off to on. Keep the ignition on for at least three seconds, but no more than 10 seconds.
3. Switch the ignition off and remove the first coded key from the ignition.
4. After three seconds but within 10 seconds of switching the ignition off, insert the second previously coded key into the ignition.
5. Switch the ignition from off to on. Keep the ignition on for at least three seconds, but no more than 10 seconds.
6. Switch the ignition off and remove the second previously programmed coded key from the ignition.
7. After three seconds but within 10 seconds of switching the ignition off and removing the previously programmed coded key, insert the new unprogrammed key into the ignition.
8. Switch the ignition from off to on. Keep the ignition on for at least six seconds until you hear the door locks cycle.
9. Remove the newly programmed coded key from the ignition.

The key starts the engine if programming is successful. You can operate the remote entry system if the new key is an integrated keyhead transmitter.

If programming was not successful, wait 20 seconds and repeat Steps 1 through 8. If you are still unsuccessful, take your vehicle to an authorized dealer.

Programming a Spare Intelligent Access Key

Note: *You can program a maximum of four intelligent access keys to your vehicle.*

Note: *If your programmed transmitters are lost or stolen and you do not have an extra coded key, you need to have your vehicle towed to an authorized dealer. You need to erase the key codes from your vehicle and program new coded keys. Store an extra programmed key away from your vehicle in a safe place to help prevent any inconvenience. Contact an authorized dealer to purchase additional spare or replacement keys.*

You must have two previously programmed intelligent access keys inside your vehicle and the new unprogrammed intelligent access keys readily accessible. Contact an authorized dealer to have the spare key programmed if two previously programmed keys are not available. Make sure that your vehicle is off before beginning this procedure. Make sure that you close all the doors before beginning and that they remain closed throughout the procedure. Perform all steps within 30 seconds of starting the sequence. Stop and wait for at least one minute before starting again if you perform any steps out of sequence.

Read and understand the entire procedure before you begin.

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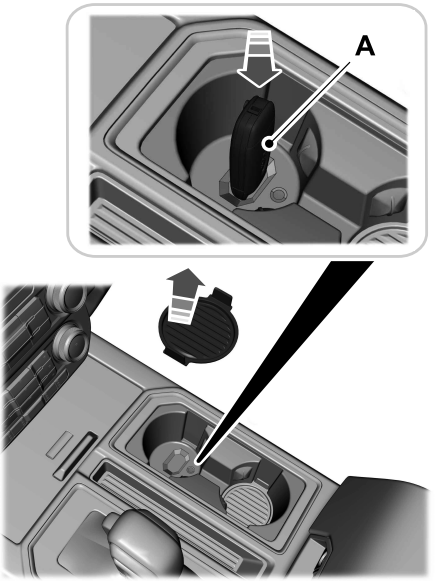
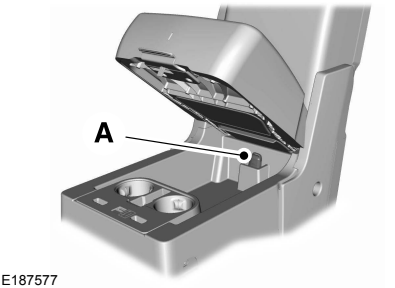
Type One



E244507

Type Two



E187577

1. Place the first programmed key in the backup slot (A) at the bottom of the cup holder or inside the center console (A), then press the push button ignition switch.
2. Wait five seconds and then press the push button ignition switch again.
3. Remove the intelligent access key.
4. Within 10 seconds, place a second programmed intelligent access key in the backup slot. Press the push button ignition switch.
5. Wait five seconds and then press the push button ignition switch again. Keep the ignition on for at least three seconds, but no more than 10 seconds.
6. Remove the intelligent access key.
7. Place the unprogrammed intelligent access key in the backup slot and press the push button ignition switch.

Programming is now complete. Verify the remote control functions operate and your vehicle starts with the new intelligent access key.

If programming was not successful, wait 10 seconds and repeat Steps 1 through 7. If you are still unsuccessful, take your vehicle to an authorized dealer.

ANTI-THEFT ALARM (IF EQUIPPED)

The active anti-theft system is designed to warn you in the event of unauthorized vehicle entry and is also designed to help prevent unwanted towing of your vehicle. You can choose what is monitored by arming the system in different ways. See **Information Displays** (page 120).

The direction indicators flash and the horn sounds if the system triggers while the alarm is armed.

Take all remote controls to an authorized dealer if there is any potential alarm problem with your vehicle.

Using the System

You can select two levels of alarm security. You can change the level of security when the ignition is switched off through the information display with the two options below:

Perimeter Only (If Equipped)

Perimeter only monitors the following:

- Doors.
- Hood.
- Tailgate.

All Sensors (If Equipped)

All sensors monitors the following:

- Doors.
- Hood.
- Tailgate.
- Movement inside your vehicle.
- Change in vehicle inclination, for example, unwanted towing.

Note: *Do not choose all sensors monitor mode when the vehicle is in transport or if movement within the vehicle is likely to occur.*

Note: *For correct operation of the interior motion detection system, make sure you close all the windows prior to arming the system. This helps prevent accidental alarm activation due to external influences. Additionally, the interior motion sensing system does not arm if any door is ajar.*

Arming the Alarm

The alarm is ready to arm when there is not a key in the ignition. Lock your vehicle using the remote control or keyless entry keypad. You can also lock your vehicle using the lock sensor on the exterior door handle if your vehicle is equipped with intelligent access. See **Locking and Unlocking** (page 73).

The direction indicators flash once after you lock your vehicle. This indicates the alarm is in the pre-armed mode. It fully arms after 20 seconds.

Disarming the Alarm

Disarm the alarm by any of the following actions:

- Press the power door unlock button within the 20-second pre-armed mode.
- Unlock the doors with the remote control or keyless entry keypad. If equipped with intelligent access, you can use the unlock sensor on the exterior door handle. See **Locking and Unlocking** (page 73).
- Switch the ignition on or start your vehicle.
- Use a key in the driver door lock cylinder to unlock your vehicle, then switch the ignition on within 12 seconds.

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USING POWER RUNNING BOARDS

WARNING: In extreme climates, excessive ice buildup may occur, causing the running boards not to deploy. Make sure that the running boards have deployed, and have finished moving before attempting to step on them. The running boards will resume normal function once the blockage is cleared.

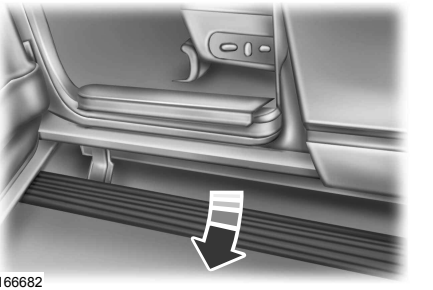
WARNING: Switch off the running boards before jacking or placing any object under your vehicle. Never place your hand between the extended running board and your vehicle. A moving running board may cause injury.

Note: *Do not use the running boards, front and rear hinge assemblies, running board motors, or the running board underbody mounts to lift your vehicle when jacking. Always use proper jacking points.*

Note: *The running boards may operate more slowly in cool temperatures.*

Note: *The running board mechanism may trap debris such as mud, dirt, snow, ice and salt. This may cause unwanted noise. If this happens, manually set the running boards to the deployed position. Then, wash the system, in particular the front and rear hinge arms, with a high-pressure car wash wand.*

Automatic Power Deploy


E166682

The running boards automatically extend down and out when you open the door. This can help you enter and exit your vehicle.

Automatic Power Stow

When you close the doors, the running boards return to the stowed position after a two-second delay.

Manual Power Deploy

You can manually operate the running boards in the information display.

1. Select ***Settings***.
2. Select ***Advanced Settings***.
3. Select ***Vehicle***.
4. Select ***Power Running Boards***.
5. Select your desired power running board setting.

Set the running boards in the deployed position to access the roof.

The running boards return to the stowed position and enter automatic mode when the vehicle speed exceeds 3 mph (5 km/h).

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Enabling and Disabling

You can enable and disable the power running board feature in the information display.

- When disabled, the running boards move to the stowed position regardless of the door position.
- When enabled, the running boards move back to the correct positions based on the door position.

Bounce-back

The running board will reverse direction and move to the end of travel if it encounters an object while moving.

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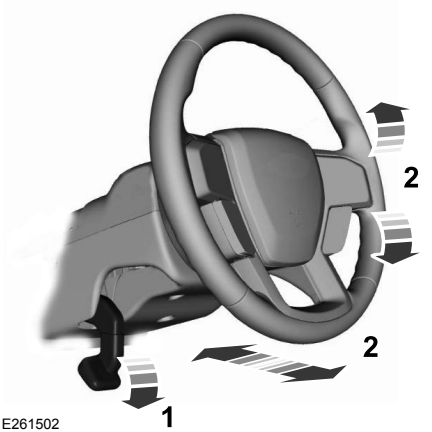
ADJUSTING THE STEERING WHEEL - VEHICLES WITH: MANUAL ADJUSTABLE STEERING COLUMN

WARNING: Do not adjust the steering wheel when your vehicle is moving.

Note: *Make sure that you are sitting in the correct position. See* ***Sitting in the Correct Position*** *(page 158).*



E261502

1. Unlock the steering column.
2. Adjust the steering wheel to the desired position.

E261503

3. Lock the steering column.

ADJUSTING THE STEERING WHEEL - VEHICLES WITH: POWER ADJUSTABLE STEERING COLUMN

WARNING: Do not adjust the steering wheel when your vehicle is moving.

Note: *Make sure that you are sitting in the correct position. See* ***Sitting in the Correct Position*** *(page 158).*

E261582

Use the control on the side of the steering column to adjust the position.

To adjust:

- Tilt: Press the top or bottom of the control.
- Telescope: Press the front or rear of the control.

End of Travel Position

The steering column sets a stopping position just short of the end of the column position to prevent damage to the steering column. A new stopping position sets if the steering column encounters an object when tilting or telescoping.

To reset the steering column to its normal stopping position:

1. Confirm there is nothing obstructing the motion of the steering column.
2. Press and hold the steering column control until the steering column stops moving.
3. Press the steering column control again.

Note: *The steering column may begin to move again.*

4. When the steering column stops, continue holding the control for a few seconds.
5. Repeat for each direction as necessary.

A new stopping position sets. The next time you tilt or telescope the steering column, it stops just short of the end of the column position.

Memory Feature (If Equipped)

You can save and recall the steering column position with the memory function. See **Memory Function** (page 164).

Pressing the adjustment control during a memory recall cancels the operation.

Easy Entry and Exit Feature

The column moves up when you switch the ignition off. Switch the ignition on to return the system to its previous settings. You can switch this feature on or off in the information display. See **Information Displays** (page 120).

Note: *If you press any adjustment or memory button when in easy exit mode, the system cancels the operation.*

Note: *Depending on your vehicle, the column may move up and in.*

AUDIO CONTROL

E291380

E291395

You can operate the following functions with the control:

VOL Press **-** to decrease volume level.
Press **+** to increase volume level.

Press to access the previous media selection.

Press to access the next media selection.

M Press repeatedly to scroll through available audio sources.

Press to access phone mode or to answer a phone call.

Press to end a phone call.

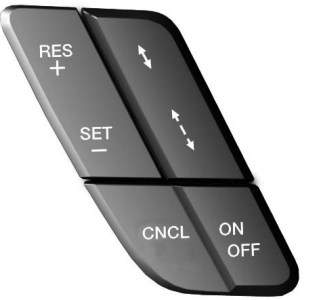
Press to silence the current media

VOICE CONTROL

The controls are on the steering wheel.

Press and release to activate voice recognition.

CRUISE CONTROL - VEHICLES WITH: ADAPTIVE CRUISE CONTROL



E248613

See **Using Adaptive Cruise Control** (page 255).

CRUISE CONTROL - VEHICLES WITH: CRUISE CONTROL

E191329

See **Using Adaptive Cruise Control** (page 255).

INFORMATION DISPLAY CONTROL

E191336

See **Information Displays** (page 120).

HEATED STEERING WHEEL (IF EQUIPPED)

Switch the heated steering wheel on and off using the touchscreen.

Touch the button to switch the heated steering wheel on and off.

Note: *You can use the heated steering wheel only when the engine is running.*

Note: *The system uses a sensor and is designed to control the temperature of the steering wheel and to prevent it from overheating.*

Note: *In warm temperatures, the steering wheel quickly reaches its maximum temperature and the system reduces the current to the heating element. This could cause you to think that the system has stopped working but it has not. This is normal.*

HORN

ADJUSTING THE PEDALS

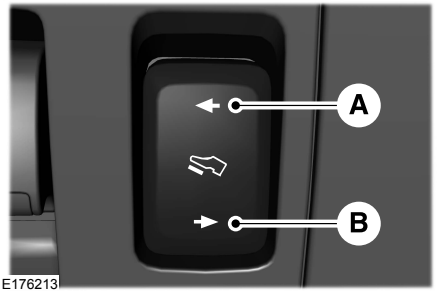
WARNING: Never use the pedal adjustment controls when your feet are on the accelerator or brake pedal when the vehicle is moving.

Note: *Adjust the pedals only when your vehicle is in park (P).*

Depending on your vehicle and equipment level, the shape and location of your power-adjustable pedal control can vary.

- If your control is vertical, then it is to the left of the steering column and on the instrument panel.
- If your control is horizontal, then it is on the left side of the steering column.

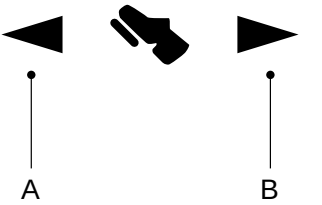
Vertical Control



E176213

A. Farther.
B. Closer.

Horizontal Control



E162916

A. Farther.
B. Closer.

Both horizontal and vertical controls operate the same way:

1. Press and hold A to move the pedals away from you.
2. Press and hold B to move the pedals closer to you.

You can save and recall the pedal positions with the memory feature. See **Memory Function** (page 164).

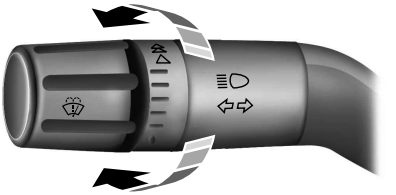
WINDSHIELD WIPERS

Note: *Fully defrost the windshield before you switch the windshield wipers on.*

Note: *Make sure you switch the windshield wipers off before entering a car wash.*

Note: *If streaks or smears appear on the windshield, clean the windshield and the wiper blades. If that does not resolve the issue, install new wiper blades.*

Note: *Do not operate the wipers on a dry windshield. This may scratch the glass, damage the wiper blades or cause the wiper motor to burn out. Always use the windshield washers before wiping a dry windshield.*



E172816

- Rotate away from you for a long wipe interval.
- Rotate toward you for a short wipe interval.

Speed Dependent Wipers

When your vehicle speed increases, the interval between wipes decreases.

AUTOWIPERS (IF EQUIPPED)

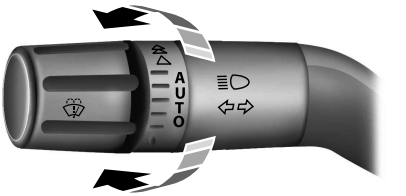
Note: *Fully defrost the windshield before you switch the windshield wipers on.*

Note: *Make sure you switch the windshield wipers off before entering a car wash.*

Note: *If streaks or smears appear on the windshield, clean the windshield and the wiper blades. If that does not resolve the issue, install new wiper blades.*

Note: *The courtesy wipe feature turns on after using the windshield washers to remove any excess washer fluid and debris. You can adjust the courtesy wipe settings in the instrument display.*

Wet or winter driving conditions with ice, snow or salty road mist can cause inconsistent and unexpected wiping or smearing.



E172817

Use the rotary control to adjust the sensitivity of the autowipers. When you select low sensitivity, the wipers operate when the sensor detects a large amount of water on the windshield. When you select high sensitivity, the wipers operate when the sensor detects a small amount of water on the windshield.

Keep the outside of the windshield clean. The rain sensor is very sensitive and the wipers may operate if dirt, mist or insects hit the windshield.

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In these conditions, you can do the following:

- Lower the sensitivity of the autowipers to reduce the amount of smearing on the windshield.
- Switch to normal or high-speed wipe.
- Switch autowipers off.

WINDSHIELD WASHERS

E172818

- A brief press causes a single wipe without washer fluid.
- A brief press and hold causes the wipers to swipe three times with washer fluid.
- A long press and hold turns on the wipers and washer fluid for up to 10 seconds.

A wipe occurs a few seconds after washing to clear any remaining washer fluid. You can switch this feature on or off in the information display. See **Information Displays** (page 120).

Note: *Do not operate the washers when the washer reservoir is empty. This could cause the washer pump to overheat.*

GENERAL INFORMATION

Condensation in the Exterior Front Lamps and Rear Lamps

Exterior front lamps and rear lamps have vents to accommodate normal changes in air pressure.

Condensation can be a natural by-product of this design. When moist air enters the lamp assembly through the vents, there is a possibility that condensation can occur when the temperature is cold. When normal condensation occurs, a fine mist can form on the interior of the lens. The fine mist eventually clears and exits through the vents during normal operation.

Clearing time may take as long as 48 hours under dry weather conditions.

Examples of acceptable condensation are:

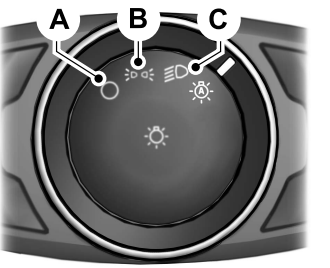
- The presence of a fine mist (no streaks, drip marks or large droplets).
- A fine mist covers less than 50% of the lens.

Examples of unacceptable condensation are:

- A water puddle inside the lamp.
- Streaks, drip marks or large droplets present on the interior of the lens.

If you see any unacceptable condensation, have your vehicle checked by an authorized dealer.

LIGHTING CONTROL



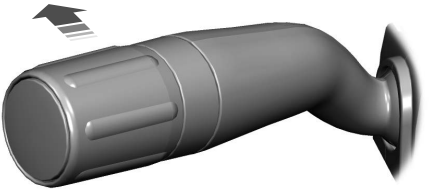
E142449

A Lamps off.

B Parking lamps, instrument panel lamps, license plate lamps and rear lamps.

C Headlamps.

Headlamp High Beam



Push the lever away from you to switch the high beam on.

Push the lever forward again or pull the lever toward you to switch the high beams off.

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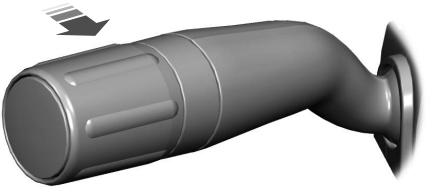
Flashing the Headlamp High Beam



Slightly pull the lever toward you and release it to flash the headlamps.

AUTOLAMPS

WARNING: The system does not relieve you of your responsibility to drive with due care and attention. You may need to override the system if it does not turn the headlamps on in low visibility conditions, for example daytime fog.

Autolamps turn the headlamps on in low light situations or when the wipers operate.

Switch the lighting control to the autolamps position.

The headlamps remain on for a period of time after you switch the ignition off. Use the information display controls to adjust the period of time that the headlamps remain on.

Note: *If you switch the autolamps on, you cannot switch the high beams on until the system turns the low beams on.*

Windshield Wiper Activated Headlamps

When you switch the autolamps on, the headlamps turn on within 10 seconds of switching the wipers on. They turn off approximately 60 seconds after you switch the windshield wipers off.

The headlamps do not turn on with the wipers:

- During a single wipe.
- When using the windshield washers.
- If the wipers are in intermittent mode.

Note: *If you switch the autolamps and the autowipers on, the headlamps turn on when the windshield wipers continuously operate.*

INSTRUMENT LIGHTING DIMMER

The instrument lighting dimmer buttons are on the lighting control.

Repeatedly press one of the buttons to adjust the brightness.

DAYTIME RUNNING LAMPS - VEHICLES WITH: DAYTIME RUNNING LAMPS (DRL)

WARNING: The daytime running lamps system does not activate the rear lamps and may not provide adequate lighting during low visibility driving conditions. Make sure you switch the headlamps on, as appropriate, during all low visibility conditions. Failure to do so may result in a crash.

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The system turns the lamps on in daylight conditions.

To switch the system on, switch the lighting control to any position except headlamps.

DAYTIME RUNNING LAMPS - VEHICLES WITH: CONFIGURABLE DAYTIME RUNNING LAMPS

WARNING: The daytime running lamps system does not activate the rear lamps and may not provide adequate lighting during low visibility driving conditions. Make sure you switch the headlamps on, as appropriate, during all low visibility conditions. Failure to do so may result in a crash.

Switch the daytime running lamps on or off using the information display. See **General Information** (page 120).

The daytime running lamps turn on when:

1. The lamps are on in the information display.
2. You switch the ignition on.
3. The transmission is not in park (P) for vehicles with automatic transmissions or you release the parking brake for vehicles with manual transmissions.
4. The lighting control is in the autolamps position.
5. The headlamps are off.

The other lighting control switch positions do not turn on the daytime running lamps.

If the daytime running lamps are off in the information display, the lamps stay off in all switch positions.

FRONT FOG LAMPS (IF EQUIPPED)

Switching the Front Fog Lamps On or Off

Only switch the front fog lamps on during reduced visibility.

You can switch the front fog lamps on if any of the following occur:

- You set the lighting control to the parking lamps position.
- You set the lighting control to the headlamps position.
- You set the lighting control to the autolamps position and the headlamps are on.

The front fog lamp button is on the lighting control.

Press the button to switch the front fog lamps on or off.

Note: *The brightness of the daytime running lamps may decrease when the front fog lamps are switched on.*

Front Fog Lamp Indicator

It illuminates when you switch the front fog lamps on.

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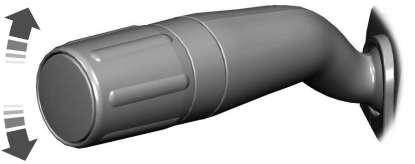
DIRECTION INDICATORS

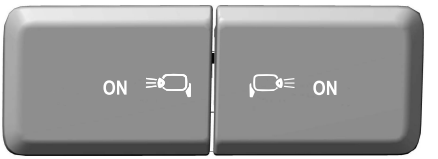


Push the lever up or down to use the direction indicators.

Note: *Tap the lever up or down to make the direction indicators flash three times.*

SPOT LAMPS (IF EQUIPPED)

The spot lamps are on the forward-facing side of the exterior mirrors. Switch on the spot lamps by pressing the buttons above the lighting control with the parking lamps on.



E176842

When switching on the spot lamps, the area in front of and to the side of your vehicle illuminates.

Adjust the aim of the spot lamps by moving the position of the exterior mirrors.

For manual folding mirrors, adjust the aim of the lamps by folding the exterior mirrors into or away from the windows. For power-folding mirrors, use the switch on the driver-side door.

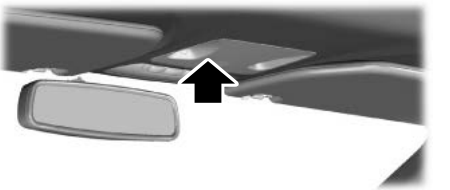
Note: *The spot lamps turn off when you reach a speed of 6 mph (10 km/h).*

INTERIOR LAMPS

The lamps turn on under the following conditions:

- You open any door.
- You press a remote control button.
- You press the all lamps on button on the overhead console.

Front Interior Lamp



E262162

The front interior lamp switches are on the overhead console.

Note: *The position of each button on the overhead console depends on your vehicle.*

All Lamps On

Press to switch all interior lamps on.

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All Lamps Off

Press to switch all interior lamps off.

Individual Map Lamps

Press to switch the left-hand individual dome lamp on and off.

Press to switch the right-hand individual dome lamp on and off.

Interior Lamp Function

Press to switch the interior lamp function on and off.

When the interior lamp function is off and you open a door, the courtesy and door lamps stay off.

When the interior lamp function is on and you open a door, the courtesy and door lamps turn on.

Note: *The indicator lamp lights amber when the door function is off.*

Rear Interior Lamps

The rear interior lamps may be above the rear seat or above the rear windows.

Press to switch the lamps on or off.

Press to switch the left-hand individual dome lamp on and off.

Press to switch the right-hand individual dome lamp on and off.

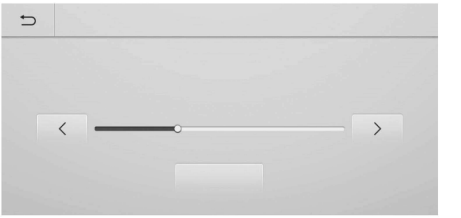
AMBIENT LIGHTING (IF EQUIPPED)

Use the touchscreen to select the following:

Select the settings option on the feature bar.

Select ***Vehicle***.

Select ***Ambient Light***.



Switching Ambient Lighting On

Drag the slider above zero brightness.

Adjusting the Brightness

Drag the slider left or right.

Switching Ambient Lighting Off

Drag the slider left to zero brightness.

CARGO LAMPS (IF EQUIPPED)

Press the button in the lighting control panel or in the rear cargo box to switch on the lamps.

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E190880

The cargo lamps are in the following areas:

- Either side of the cargo box.
- Next to the tailgate handle.

Note: *The cargo lamps turn off when you reach a speed of 3 mph (5 km/h). They also turn off after 10 minutes, fading gradually to off.*

WHAT IS AUTOMATIC HIGH BEAM CONTROL

The system turns on high beams if it is dark enough and no other traffic is present. If it detects an approaching vehicle's headlamps or tail lamps, or street lighting ahead, the system turns the high beams off. Low beams remain on.

A camera sensor, centrally mounted behind the windshield of your vehicle, continuously monitors conditions to turn the high beams on and off.

SWITCHING AUTOMATIC HIGH BEAM CONTROL ON AND OFF

Switch the system on or off using the information display. See **Switching Automatic High Beam Control On and Off** (page 102).

Activating the Automatic High Beam Control

Switch the lighting control to the autolamps position to activate. See **Autolamps** (page 97).

Note: *Automatic high beams are not available when autolamps are not turned on.*

When active, the high beams turn on if:

- The ambient light level is low enough.
- There is no traffic in front of your vehicle.
- The vehicle speed is greater than approximately 32 mph (52 km/h).

When active, the high beams turn off if:

- The ambient light level is high enough that high beams are not required.
- The system detects an approaching vehicle's headlamps or tail lamps.
- The system detects severe rain, snow or fog.
- The camera is blocked.
- The vehicle speed falls below approximately 27 mph (44 km/h).

Note: *The deactivation speed is lower on curves.*

Note: *High beam reactivation may be delayed in certain curvy road situations.*

Note: *The system may not operate properly if the sensor is blocked. Keep the windshield free from obstruction or damage.*

Note: *The system may not operate properly in cold or inclement conditions. You can switch on the high beams by overriding the system.*

Note: *If the system detects a blockage, for example bird droppings, bug splatter, snow or ice, the system goes into low beam mode until you clear the blockage. A message may appear in the information display if the camera is blocked.*

Note: *Using much larger tires or equipping vehicle accessories such as snowplows can modify your vehicle's ride height and degrade automatic high beam control performance.*

AUTOMATIC HIGH BEAM CONTROL INDICATORS

The indicator illuminates to confirm when the system is ready to assist.

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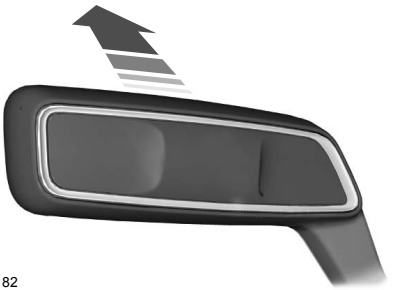
OVERRIDING AUTOMATIC HIGH BEAM CONTROL

WARNING: The system does not relieve you of your responsibility to drive with due care and attention. You may need to override the system if it does not turn the high beams on or off.

WARNING: You may need to override the system when approaching other road users.

WARNING: You may need to override the system during inclement weather.



E273182

Push the lever away from you to switch between high beam and low beam.

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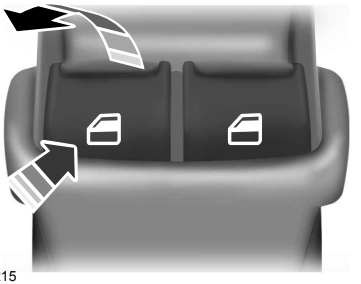
POWER WINDOWS (IF EQUIPPED)

WARNING: Do not leave children unattended in your vehicle and do not let them play with the power windows. They may seriously injure themselves.

WARNING: When closing the power windows, you should verify they are free of obstructions and make sure that children and pets are not in the proximity of the window openings.



E176215

Press the control to open the window.

Lift the control to close the window.

Note: *You may hear a pulsing noise when just one of the windows is open. Lower the opposite window slightly to reduce this noise.*

One-Touch Up or Down (If Equipped)

Press or lift the switch fully and release it. Press or lift it again to stop the window.

Note: *The window may disable for up to five minutes if you cycle it up and down repeatedly. This helps prevent damage to the motor. Normal operation will resume once the motor cools.*

Restoring the One-Touch Up Function

You may lose the one-touch function if the vehicle battery is low.

To reset the function after the battery recharges:

1. Pull the switch all the way up.
2. Hold the switch until the glass stops and continue to hold for two seconds.
3. Press the switch down and operate the window to the full down position. One-touch up will now be functional.

Note: *Perform one-touch up re-calibration with the door closed. Calibrating with the door open will cause the window to continuously bounce back.*

Bounce-Back (If Equipped)

The window will automatically stop and reverse some distance if it detects an obstacle while closing.

Overriding the Bounce-Back Feature

WARNING: When you override the bounce-back feature the window will not reverse if it detects an obstacle. Take care when closing the windows to avoid personal injury or damage to your vehicle.

Pull up the window switch and hold within two seconds of the window reaching the bounce-back position. The window will travel up with no bounce-back protection. The window will stop if you release the switch before the window closes fully.

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Window Lock (If Equipped)

E176216

Press the control to lock or unlock the rear window controls.

Accessory Delay (If Equipped)

The window switches remain operational for several minutes when you switch the ignition off or until you open either front door.

EXTERIOR MIRRORS

Power Exterior Mirrors (If Equipped)

WARNING: Do not adjust the mirrors when your vehicle is moving. This could result in the loss of control of your vehicle, serious personal injury or death.

E144073

A Left-hand mirror.

B Adjustment control.

C Right-hand mirror.

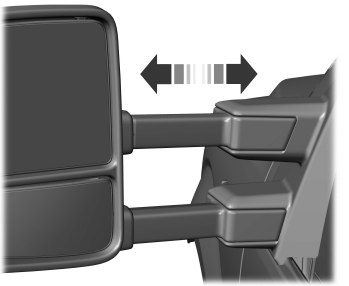
To adjust your mirrors, switch your vehicle on (with the ignition in accessory mode or the engine running) and then:

1. Select the mirror you want to adjust. The control lights.
2. Use the adjustment control to adjust the position of the mirror.
3. Press the mirror control again. The control light turns off.

Fold-Away Exterior Mirrors

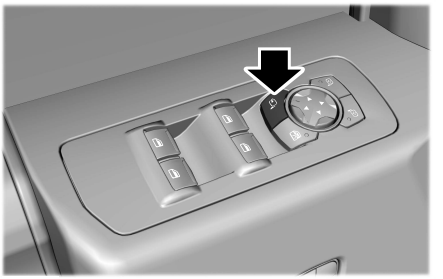
Push the mirror toward the door window glass. Make sure that you fully engage the mirror in its support when returning it to its original position.

Telescoping Mirrors (If Equipped)


E277400

This feature lets you extend the mirror about 3 in (75 mm). It is useful when towing a trailer. You can manually pull out or push in the mirrors to the desired position.

Power-Folding Mirrors (If Equipped)


E176218

To fold both mirrors, switch your vehicle on (with the ignition in accessory mode or the engine running) and then:

1. Press the control.
2. Press control again to unfold the mirrors.

Note: *Do not stop the mirrors midway through their movement. Wait until the mirrors stop moving and press the control again.*

The left-hand and right-hand mirrors move at different rates. For example, one mirror may stop while the other one continues to move. This is normal.
Moving the mirrors 10 or more times within one minute, or repeated folding and unfolding of the mirrors while holding the control down during full travel, may disable the system to protect the motors from overheating. Wait approximately three minutes with the vehicle running, and up to 10 minutes with the vehicle off, for the system to reset and for function to return to normal.

Loose Mirror

If your power-folding mirrors are manually folded, they may not work properly even after you re-position them. You need to reset them if:

- The mirrors vibrate when you drive.
- The mirrors feel loose.
- The mirrors do not stay in the folded or unfolded position.
- One of the mirrors is not in its normal driving position.

To reset the power-fold feature, use the power-folding mirror control to fold and unfold the mirrors. You may hear a loud noise as you reset the power-folding mirrors. This sound is normal. Repeat this process as needed each time the mirrors are manually folded.

PowerScope™ Power Telescoping Mirrors (If Equipped)

This feature lets you position both mirrors at the same time.

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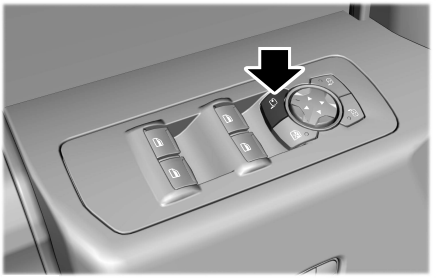
E176218

To adjust your mirrors, make sure you switch your vehicle on (with the ignition in accessory mode or the engine running) and then:

1. Press and release the control. It lights.
2. Press the adjustment control to position the mirrors.
   - Press the left arrow to extend the mirrors out. Press the right arrow to retract the mirrors in.
   - Press the up or down arrow to fold the mirrors toward the window glass. Press the up or down arrow again to fold the mirrors out.

Note: *Moving the mirrors 10 or more times within one minute, or repeated folding and unfolding of the mirrors while holding the control down during full travel, may disable the system to protect the motors from overheating. Wait approximately three minutes with the vehicle running, and up to 10 minutes with the vehicle off, for the system to reset and for function to return to normal.*

Heated Exterior Mirrors (If Equipped)

See **Heated Exterior Mirrors** (page 156).

Memory Mirrors (If Equipped)

You can save and recall the mirror positions through the memory function. See **Memory Function** (page 164).

Auto-dimming Feature (If Equipped)

The driver exterior mirror automatically dims when the interior auto-dimming mirror turns on.

Direction Indicator Mirrors (If Equipped)

While the vehicle is running, the forward-facing portion of the appropriate mirror housing blinks when you switch on the direction indicator.

Puddle Lamps (If Equipped)

The lamps on the bottom part of the mirror housing light when you use your transmitter to unlock the doors or when you open a door.

Clearance Lamps (If Equipped)

The lower, outer part of the mirror housings light when you switch the headlamps or parking lamps on.

Spot Lamps (If Equipped)

The area lights are on the forward-facing portion of the mirror housing. You can switch them on and off by using the controls located on the instrument panel. See **Lighting** (page 96).

360-Degree Camera (If Equipped)

Each mirror includes a camera.

Integrated Blind Spot Mirror (If Equipped)

WARNING: Objects in the mirror are closer than they appear.

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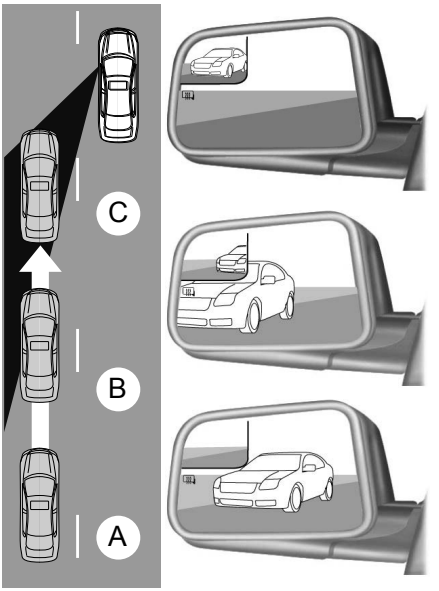
Blind spot mirrors have an integrated convex mirror built into the upper outboard corner of the exterior mirrors. They can assist you by increasing visibility along the side of your vehicle. The blind spot mirror is only on the driver exterior mirror.

Check the main mirror first before a lane change, then check the blind spot mirror. If no vehicles are present in the blind spot mirror and the traffic in the adjacent lane is at a safe distance, signal that you are going to change lanes. Glance over your shoulder to verify traffic is clear, and carefully change lanes.



E138665

The image of the approaching vehicle is small and near the inboard edge of the main mirror when it is at a distance. The image becomes larger and begins to move outboard across the main mirror as the vehicle approaches (A). The image transitions from the main mirror and begins to appear in the blind spot mirror as the vehicle approaches (B). The vehicle transitions to your peripheral field of view as it leaves the blind spot mirror (C).

Blind Spot Information System (If Equipped)

See **Blind Spot Information System** (page 268).

INTERIOR MIRROR

WARNING: Do not adjust the mirrors when your vehicle is moving. This could result in the loss of control of your vehicle, serious personal injury or death.

Note: *Do not clean the mirror housing or glass with harsh abrasives, fuel or other petroleum-based cleaning products.*

You can adjust the interior mirror to your preference. Some mirrors also have a second pivot point. This lets you move the mirror head up or down and from side to side.

Manual Dimming Mirror

Pull the tab below the mirror toward you to reduce the effect of bright light from behind.

Automatic Dimming Mirror (If Equipped)

Note: *Do not block the sensors on the front and back of the mirror. A rear center passenger or raised rear center head restraint may also block light from reaching the sensor.*

The mirror dims to reduce the effect of bright light from behind. It returns to normal when the bright light from behind is no longer present or if you shift into reverse (R).

SLIDING WINDOWS (IF EQUIPPED)

Power Sliding Back Window (If Equipped)

WARNING: When operating the power sliding back window, you must make sure all rear seat occupants and cargo are not in the proximity of the back window.

WARNING: Do not leave children unattended in your vehicle and do not let them play with the power sliding back window. They may seriously injure themselves.

E176217

The control is on the overhead console.

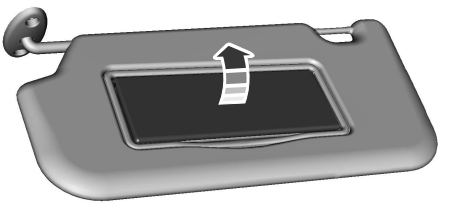
Press and hold the control to open the window. Pull and hold the control to close the window.

SUN VISORS

E138666

Rotate the sun visor toward the side window and extend it rearward for extra shade.

Illuminated Vanity Mirror (If Equipped)



E162197

Lift the cover to switch the lamp on.

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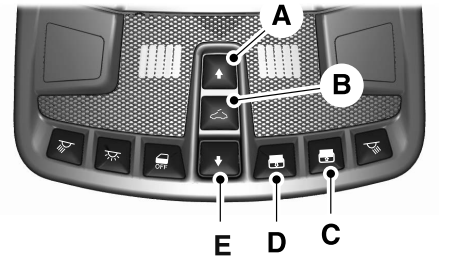
MOONROOF (IF EQUIPPED)

WARNING: Do not leave children unattended in your vehicle and do not let them play with the moonroof. Failure to follow this instruction could result in personal injury.

WARNING: When closing the moonroof, verify that it is free of obstruction and make sure that children and pets are not in the proximity of the roof opening.

The moonroof controls are located on the overhead console and have a one-touch open and close feature. To stop its movement during one-touch operation, press the control a second time.

Opening and Closing the Moonroof



E191272

A Moonroof open.
B Moonroof vent.
C Sunshade open.
D Sunshade close.
E Moonroof close.

Moonroof Open

Press and release to open the moonroof.

Note: *The moonroof stops short of the fully opened position to reduce wind noise or rumbling that may happen with the moonroof fully open. Press and release the control again to open the moonroof fully.*

Moonroof Vent

Press and release to vent the moonroof.

Sunshade Open

Press and release to open the sunshade. The sunshade opens automatically with the moonroof. You can also open the sunshade with the moonroof closed.

Note: *The sunshade stops short of its fully opened position for the comfort of rear passengers. To open the sunshade fully, press the control again.*

Sunshade Close

Press and release to close the sunshade.

Moonroof Close

Press and release to close the moonroof from either the open or vent positions.

Note: *The sunshade stops short of the fully closed position. Press and release the button a second time to fully close the shade. The sunshade completely closes only when the moonroof is closed. The moonroof closes with a single press of the close button.*

Bounce-Back

The moonroof automatically reverses some distance if an obstacle is detected while closing.

To override this feature, press and hold (E) within two seconds after the roof comes to a stop following a bounce-back reversal.

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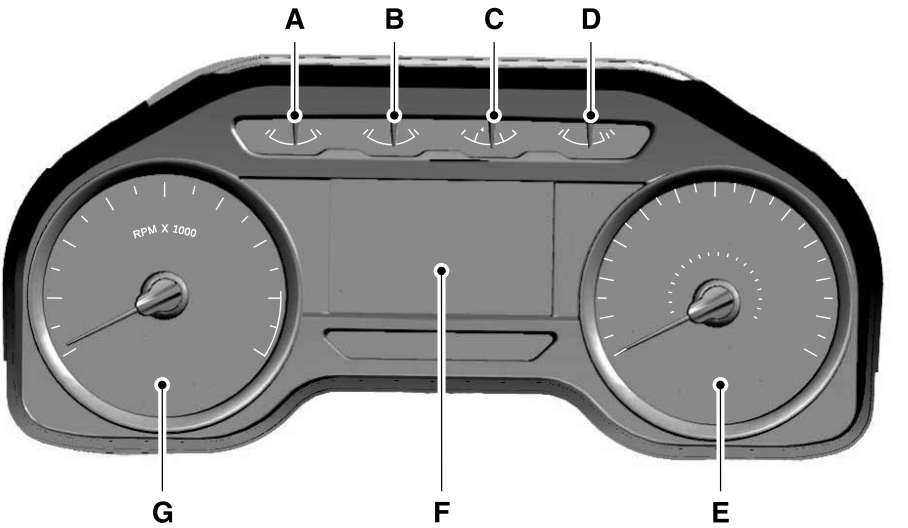
GAUGES

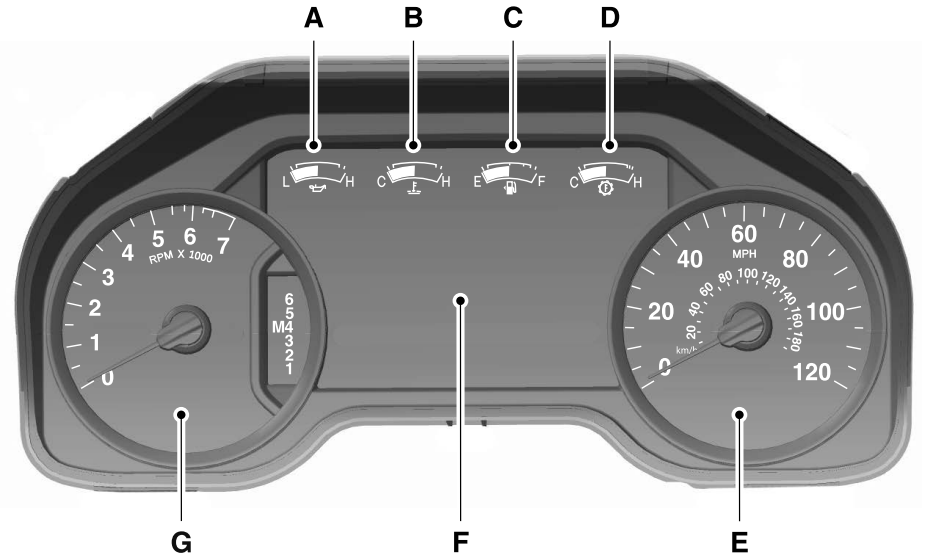
Type 1 and 2



E271241

A Engine oil pressure gauge
B Engine coolant temperature gauge
C Fuel gauge
D Transmission fluid temperature or Turbo boost gauge
E Speedometer
F Information display See **General Information** (page 120).
G Tachometer

Type 3



E176091

A Engine oil pressure gauge
B Engine coolant temperature gauge
C Fuel gauge
D Transmission fluid temperature, Turbo boost or Diesel exhaust fluid gauge
E Speedometer
F Information display See **General Information** (page 120).
G Tachometer

Engine Oil Pressure Gauge

Indicates engine oil pressure. The needle should stay in the normal operating range (between L and H). If the needle falls below the normal range, stop your vehicle, turn off the engine and check the engine oil level. Add oil if needed. If the oil level is correct, have your vehicle checked by an authorized dealer.

Engine Coolant Temperature Gauge

WARNING: Do not remove the coolant reservoir cap when the engine is on or the cooling system is hot. Wait 10 minutes for the cooling system to cool down. Cover the coolant reservoir cap with a thick cloth to prevent the possibility of scalding and slowly remove the cap. Failure to follow this instruction could result in personal injury.

Indicates engine coolant temperature. At normal operating temperature, the level indicator will be in the normal range. If the engine coolant temperature exceeds the normal range, stop your vehicle as soon as safely possible, switch off the engine and let the engine cool.

Fuel Gauge

The fuel gauge indicates about how much fuel is in the fuel tank.

The arrow adjacent to the fuel pump symbol indicates on which side of your vehicle the fuel filler door is located.

Note: *The fuel gauge may vary slightly when your vehicle is moving or on a slope.*

Low Fuel Reminder

A low fuel level reminder displays and sounds when the distance to empty reaches 75 mi (120 km) to empty for MyKey, and at 50 mi (80 km), 25 mi (40 km), 10 mi (20 km) and 0 mi (0 km) for all vehicle keys.

Note: *The low fuel reminder can appear at different fuel gauge positions depending on fuel economy conditions. This variation is normal.*

Transmission Fluid Temperature Gauge (If Equipped)

Indicates transmission fluid temperature. At normal operating temperature, the level indicator will be in the normal range. If the transmission fluid temperature exceeds the normal range, stop your vehicle as soon as safely possible and verify the airflow is not restricted (snow or debris blocking airflow through the grille).

Also, higher than normal operating temperature can be caused by special operation conditions (snowplowing, towing or off-road use). Refer to Special operating conditions in the scheduled maintenance information for instructions.

Operating the transmission for extended periods with the gauge in the higher than normal area may cause internal transmission damage. You need to alter the severity of your driving conditions to lower the transmission temperature into the normal range. If the gauge continues to show high temperatures, see an authorized dealer.

Turbo Boost Gauge (If Equipped)

Indicates the amount of manifold air pressure in the engine.

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Diesel Exhaust Fluid (DEF) Gauge (If Equipped)

Indicates the current DEF level.

Information Display

Odometer

Located in the bottom of the information display. Registers the accumulated distance your vehicle has traveled.

Compass

Displays the vehicle's heading direction.

Trip Computer

See **General Information** (page 120).

Vehicle Settings and Personalization

See **General Information** (page 120).

WARNING LAMPS AND INDICATORS

The following warning lamps and indicators alert you to a vehicle condition that may become serious. Some lamps illuminate when you start your vehicle to make sure they work. If any lamps remain on after starting your vehicle, refer to the respective system warning lamp for further information.

Note: *Some warning indicators appear in the information display and operate the same as a warning lamp but do not illuminate when you start your vehicle.*

Adaptive Cruise Control Indicator (If Equipped)

It illuminates when you switch the system on. It illuminates white when the system is in standby mode. It illuminates green when you set the adaptive cruise speed.

See **Using Adaptive Cruise Control** (page 255).

Anti-Lock Braking System

If it illuminates when you are driving, this indicates a malfunction. Your vehicle continues to have normal braking without the anti-lock brake system function. Have your vehicle checked as soon as possible.

Automatic Headlamp High Beam Indicator (If Equipped)

It illuminates when the system automatically turns the headlamp high beam on.

See **Automatic High Beam Control Indicators** (page 102).

Automatic Regen Control Off (If Equipped)

It illuminates if you manually switch off the automatic regen control.

See **Diesel Particulate Filter** (page 212).

Auto-Start-Stop Indicator (If Equipped)

It illuminates when the engine has automatically stopped. It flashes to inform you when the engine needs to restart. The indicator is shown with a strikethrough if the system is not available.

See **Auto-Start-Stop** (page 190).

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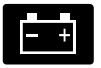
Battery



It illuminates when you switch the ignition on.

If it illuminates when the engine is running this indicates a malfunction. Have your vehicle checked as soon as possible.

Blind Spot Monitor (If Equipped)

It illuminates when you switch the system off.

See **Blind Spot Information System** (page 268).

Brake System Warning Lamp

WARNING: Driving your vehicle with the warning lamp on is dangerous. A significant decrease in braking performance may occur. It may take you longer to stop your vehicle. Have your vehicle checked as soon as possible. Driving extended distances with the parking brake engaged can cause brake failure and the risk of personal injury.

Note: *Indicators vary depending on region.*

This lamp is a dual function lamp and will illuminate when:

- You apply the parking brake with the ignition on.
- Your vehicle has a brake fault or low brake fluid level, regardless of parking brake position.

If the lamp illuminates while you are moving, you may have the parking brake applied. Be sure that the parking brake is off. Have your vehicle checked as soon as possible if the lamp continues to illuminate.

Check 4X4 (If Equipped)

Illuminates with the message ***Check 4x4*** when a four-wheel drive fault is present. See **Using Four-Wheel Drive** (page 223).

Cruise Control Indicator (If Equipped)

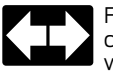
It illuminates when you switch the system on.

See **Using Adaptive Cruise Control** (page 255).

Diesel Exhaust Fluid (If Equipped)

With the key in the on position, illuminates when the DEF is contaminated, low or someone has tampered with the DEF system. See **Selective Catalytic Reductant System** (page 207).

Direction Indicator



Flashes when the left or right direction indicator or the hazard warning flasher turns on. An increase in the rate of flashing warns of a failed indicator bulb.

Door Ajar Warning Lamp

It illuminates when you switch the ignition on and remains on if any door or the hood is open.

Electronic Locking Differential (If Equipped)

Illuminates when using the electronic locking differential.

Electric Park Brake (If Equipped)

It illuminates or flashes when the electric parking brake has a malfunction. See **Electric Parking Brake** (page 235).

Engine Coolant Temperature Warning Lamp

If it illuminates when your vehicle is moving, this indicates that the engine is overheating. Stop your vehicle as soon as it is safe to do so and switch the engine off. Have your vehicle checked as soon as possible.

See **Engine Coolant Check** (page 366).

Fasten Seatbelt Warning Lamp

It illuminates and a chime sounds until you fasten the seatbelts.

Four-Wheel Drive Indicators (If Equipped)

Note: *Some indicators will appear different depending on vehicle options.*

Illuminates momentarily when you select two-wheel drive high.

Illuminates when the automatic four-wheel drive system is engaged.

Illuminates when four-wheel drive low is engaged.

Illuminates when four-wheel drive high is engaged.

Front Airbag

If it fails to illuminate when you start your vehicle, continues to flash or remains on, it indicates a malfunction. Have the system checked.

Front Fog Lamp Indicator (If Equipped)

It illuminates when you switch the front fog lamps on.

Headlamp High Beam Indicator

It illuminates when you switch the headlamp high beam on. It flashes when you use the headlamp flasher.

Hill Descent (If Equipped)

Illuminates when hill descent is switched on.

Low Fuel Level Warning Lamp

If it illuminates when you are driving, refuel as soon as possible.

Low Tire Pressure Warning Lamp

It illuminates when your tire pressure is low. If the lamp remains on with the engine running or when driving, check your tire pressure as soon as possible.

It also illuminates momentarily when you switch the ignition on to confirm the lamp is functional. If it does not illuminate when you switch the ignition on, or begins to flash at any time, have the system checked by your authorized dealer.

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Low Washer Fluid Level Warning Lamp

It illuminates when the washer fluid is low.

Oil Pressure Warning Lamp

It illuminates when you switch the ignition on.

If it illuminates when the engine is running this indicates a malfunction. Stop your vehicle as soon as it is safe to do so and switch the engine off. Check the engine oil level. If the oil level is sufficient, this indicates a system malfunction. Have your vehicle checked as soon as possible.

See **Engine Oil Check** (page 363).

Parking Lamps

It illuminates when you switch the parking lamps on.

Powertrain Malfunction/Reduced Power/Electronic Throttle Control

Illuminates when the system has detected a powertrain or a four-wheel drive fault. Contact an authorized dealer as soon as possible.

Service Engine Soon

If it illuminates when the engine is running this indicates a malfunction. The On Board Diagnostics system has detected a malfunction of the vehicle emission control system.

If it flashes, engine misfire may be occurring. Increased exhaust gas temperatures could damage the catalytic converter or other vehicle components. Drive in a moderate fashion (avoid heavy acceleration and deceleration) and have your vehicle immediately serviced.

It illuminates when you switch the ignition on prior to engine start to check the bulb and to indicate whether your vehicle is ready for Inspection and Maintenance (I/M) testing.

Normally, it illuminates until the engine is cranked and automatically turns off if no malfunctions are present. However, if after 15 seconds it flashes eight times, this indicates that your vehicle is not ready for Inspection and Maintenance (I/M) testing. See **Emission Law** (page 204).

Sport Mode

Illuminates when you switch the sport mode on.

Stability Control and Traction Control Indicator

Flashes during operation.

If it does not illuminate when you switch the ignition on, or remains on when the engine is running, this indicates a malfunction. Have your vehicle checked as soon as possible.

See **Using Stability Control** (page 240).

Stability Control and Traction Control Off Warning Lamp

It illuminates when you switch the system off.

Tow Haul Indicator (If Equipped)

It illuminates when you switch the system on.

Wait To Start (If Equipped)

Illuminates when you switch the ignition on as part of the pre-start system. Wait until the wait to start indicator turns off before attempting to start vehicle. See **Starting a Diesel Engine** (page 184).

Water In Fuel (If Equipped)

WARNING: Do not drain the water-in-fuel separator while the engine is running. Failure to follow this warning may result in fire, serious injury, death or property damage.

During refueling, it is possible for you to pump water-contaminated diesel fuel into your fuel tank. Your vehicle's fuel system is equipped with a fuel filter and water separator to remove water from the fuel. The water in fuel indicator lights when the fuel and water separator has a significant quantity of water in it and requires immediate draining.

If the water in fuel indicator illuminates when the engine is running, stop your vehicle as soon as safely possible, shut off the engine, then drain the fuel and water separator. See **Fuel Quality** (page 194). Allowing water to stay in the fuel system, after the water in fuel indicator illuminates, could result in extensive damage or failure of the fuel injection system.

Note: *Do not drain the fuel and water separator while the engine is running. Air will enter into the fuel system causing the engine not to operate properly.*

AUDIBLE WARNINGS AND INDICATORS

Airbag Secondary Warning

Sounds if there is a malfunction with the safety belt warning lamp and there is a fault in the supplemental restraints system.

Beltminder Warning

Sounds when a seatbelt is unfastened in an occupied seat and your vehicle is moving.

Door Ajar Warning

Sounds when any door is not completely closed and your vehicle speed exceeds 3 mph (5 km/h).

Headlamps On Warning

Sounds when you remove the key from the ignition and open the driver's door and you have left the headlamps or parking lamps on.

Key in Ignition Warning

Sounds when you open the driver's door and you have left the key in the ignition.

Keyless Warning Alert (If Equipped)

Sounds the horn twice when you exit your vehicle with the intelligent access key, after the last door is closed and your keyless vehicle is in RUN, indicating your vehicle is still on.

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Rear Park Aid Warning (If Equipped)

A detection warning sounds when obstacles are within a certain range of the bumper area. The system turns on automatically whenever you switch the ignition on.

Parking Brake On Warning

Sounds when you have left the parking brake on and drive your vehicle. If the warning chime remains on after you have released the parking brake, have the system checked by your authorized dealer immediately.

Service AdvanceTrac Warning

Sounds when there is a malfunction with the Electronic Stability Control (ESC) or Rollover Stability Control (RSC) system.

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GENERAL INFORMATION

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

Various systems on your vehicle can be controlled using the information display controls on the steering wheel. Corresponding information is displayed in the information display.

Note: *Some options may appear slightly different or not at all if the items are optional.*

Note: *Trailer options are not available if your vehicle speed is greater than 3 mph (5 km/h).*

Note: *Some MyKey menu options only appear if MyKey is enabled and at least one MyKey is programmed.*

This icon gives you the ability to switch a feature on or off. A check in the box indicates the feature is switched on, and unchecked indicates the feature is switched off.

Information Display Controls (Type 1 and 2)

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- Press the up and down arrow buttons to scroll through and highlight the options within a menu.
- Press the right arrow button to enter a sub-menu.
- Press the left arrow button to exit a menu.
- Press the ***OK*** button to choose and confirm a setting or messages.

Main menu (Type 1)

- Trip 1 & 2
- Fuel economy
- Driver assist
- Settings

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Trip 1 & 2

Note: *Use the arrow buttons to choose between the following trip options.*

Trip 1 & 2
Digital Speed - Press ***OK*** for km/h
Trip Odometer
Trip Timer
DTE
Average Fuel

- Digital Speed - Shows a digital display of your vehicle speed.
- Trip Odometer - Registers the distance of individual journeys.
- Trip Timer - Registers the time of individual journeys.
- DTE - Shows the approximate distance your vehicle can travel before running out of fuel.
- Average Fuel - Shows the average fuel economy for a given trip.

Note: *Press and hold **OK** to reset the currently displayed trip information.*

Fuel Economy

Note: *Use the arrow buttons to choose the desired fuel economy display.*

Fuel Economy
Distance to E
Instant Fuel Economy
Average Fuel Economy

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Fuel Economy
Average Speed
Auto StartStop

- Distance to E - Shows the approximate distance your vehicle can travel before running out of fuel.
- Instant Fuel Economy - Shows your instantaneous fuel usage.
- Average Fuel Economy - Shows the average fuel usage based on time. Press and hold ***OK*** to reset this value.
- Average Speed - Shows the average speed your vehicle travels.
- Auto StartStop - Shows the current status of the Auto StartStop system.

Note: *You can reset your average fuel economy by pressing and holding the* ***OK*** *button on the left hand steering wheel controls.*

Driver Assist

Note: *Use the arrow buttons to configure different driver setting choices.*

Driver Assist	
Driver Assist	Prog Range Sel
	DEF Gauge
	Exhaust Filter
	Engine Hours
	Tire Pressure
	Trans. Temp.
	Rear Park Aid
	Brake Type
	Brake Effort
	Trailer Sway

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Settings

Settings		
Vehicle	Auto Regen	Enter the submenu and select your setting
	DTE Calculate	
	Lighting	
	Locks	
	Neutral Tow	
	Oil Life Reset	
	Remote Start	
	Wiper Controls	
MyKey	MyKey Status	Enter the submenu and select your setting
	Create MyKey	
	911 Assist	
	Do Not Disturb	
	AdvanceTrac	
	Max Speed	
	Speed Minder	
	Vol. Limiter	
	Clear MyKeys	Enter the submenu and select your setting
Display Setup	Units	Enter the submenu and select your setting
	Temperature	
	Tire Pressure	
	Language	

Main menu (Type 2)

- Display Mode
- Trip/Fuel
- Towing
- Off Road
- Settings

Display Mode

Note: *Use the arrow buttons to choose between the following display options.*

Display Mode
Distance to Empty
DEF Status
Exhaust Filter Status
Tire Pressure
Digital Speedometer - Press ***OK*** for km/h
Engine Information
Transmission Temp.

- Distance to Empty - Shows the approximate distance your vehicle can travel before running out of fuel.
- DEF Status - Shows DEF status on demand screen and DEF distance to empty.
- Exhaust Filter Status - Shows exhaust filter on demand screen.
- Tire Pressure - Shows the tire pressure. See **Tire Pressure Monitoring System** (page 410).
- Engine Information - Shows engine hours and engine idle hours. Hold ***OK*** to Reset
- Transmission Temp.- Shows the transmission temperature of your vehicle.

Trip/Fuel

Note: *Use the arrow buttons to choose between the following trip and fuel options.*

Trip/Fuel	
Trip 1	Enter the submenu for items such as trip timer, DTE, odometer and avg fuel economy
Trip 2	Enter the submenu for items such as trip timer, DTE, odometer and avg fuel economy
Fuel Economy	Enter the submenu and select your setting
Fuel History	Enter the submenu and select your setting
Compass	Enter the submenu and select your setting

Trip/Fuel	
Average Speed	Enter the submenu and select your setting
Auto StartStop	

Trip 1 or 2

- Trip Timer - Registers the time of individual journeys.
- DTE - Shows the approximate distance your vehicle can travel before running out of fuel.
- Odometer - Registers the distance of individual journeys.
- Avg - Shows the average fuel economy for a given trip.

Fuel Economy - Shows your instantaneous fuel usage as a bar graph and average fuel economy.

Fuel History - Shows your fuel usage based on time. The graph is updated each minute with the fuel economy that you achieved during 30 minutes of driving.

Average Speed - Shows the average speed your vehicle travels.

Auto StartStop - Shows the current status of the Auto StartStop system.

Note: *Press and hold **OK** to reset the currently displayed information.*

Towing

Note: *Use the arrow buttons to configure different towing setting choices.*

Note: *Once you select a trailer, it remains active until you set it as no longer active. An active trailer still accumulates miles even after you physically disconnect it from your vehicle.*

Towing		
Trailer Status	Trailer Connection Status	
	BLIS with Trailer Ready/Not Available/Not Setup/Off	
	Pro Trailer Backup Assist: Ready or Not Setup or Not Calibrated	
	Active Trailer Name or Default Trailer	
	Accumulated Trailer Miles	
	Trailer Brake Gain	
	Output	
Trailer Options	Trailer Sway Control	
	Select Trailer	Enter the submenu and select your setting

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Towing		
	Change Trailer Settings	Enter the submenu and select your setting
	Add Trailer	Enter the submenu and select your setting
Connection Checklist	Conventional	
	Fifth Wheel	
	Gooseneck	

Off Road

Note: *Use the arrow buttons to configure different off road choices.*

Off Road	
Off Road Status	Pitch, Steering Angle, Roll, Elocker and 4X4
Power Distribution	

Settings

Settings		
Auto Regen		
Blind Spot		
Cross Traffic Alert		
DTE Calculation	Enter the submenu and select your setting	
Rear Park Aid		
Trailer Blind Spot		
Advanced Settings	Vehicle	Easy Entry/Exit
		Lighting
		Locks
		Remote Start
		Wiper Controls

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Settings		
	MyKey	Enter the submenu and select your setting
	Display Setup	Units
		Temperature
		Tire Pressure
		Language

Information Display Controls (Type 3) (If Equipped)

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- Press the up and down arrow buttons to scroll through and highlight the options within a menu.
- Press the right arrow button to enter a sub-menu.
- Press the left arrow button to exit a menu.
- Press the ***OK*** button to choose and confirm a setting or messages.

Main menu

You can access the menus using the information display control.

My View

Trip/Fuel

Truck Info

Towing

Off Road

Settings

My View

Use the arrow buttons to choose between the following My View options.

MyView		
Trip 1		
Fuel Economy		
Tire Pressure		
Off Road Status		
Configure MyView	Add/Remove Screens	Enter the submenu for Trip/Fuel, Truck Info, Towing and Off Road selections
	Reorder Screens	Enter the submenu and select your setting

Trip/Fuel

Use the arrow buttons to choose between the following trip and fuel options.

Trip/Fuel	
Trip 1	Enter the submenu for items such as trip timer, DTE, odometer and avg fuel economy
Trip 2	Enter the submenu for items such as trip timer, DTE, odometer and avg fuel economy
Fuel Economy	Enter the submenu and select your setting
Fuel History	Enter the submenu and select your setting

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Trip/Fuel	
Navigation/Compass	Enter the submenu and select your setting
Auto StartStop	

Trip 1 or 2

- Trip Timer - Registers the time of individual journeys.
- DTE - Shows the approximate distance your vehicle can travel before running out of fuel.
- Odometer - Registers the distance of individual journeys.
- Avg - Shows the average fuel economy for a given trip.

Fuel Economy - Shows your instantaneous fuel usage as a bar graph and average fuel economy.

Fuel History - Shows your fuel usage based on time. The graph is updated each minute with the fuel economy that you achieved during 30 minutes of driving.

Average Speed - Shows the average speed your vehicle travels.

Navigation/Compass - Shows navigation turn by turn or compass direction when a route is not set.

Auto StartStop - Shows the current status of the Auto StartStop system.

Note: *Press and hold* ***OK*** *to reset the currently displayed information.*

Truck Info

In this mode, off-road information depicted with graphics are available.

Note: *Use the arrow buttons to choose between the following display options.*

Truck Info
Gauge View
Tire Pressure
Digital Speedometer
Diesel Exhaust Fluid Status
Diesel Exhaust Filter Status

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Truck Info
Engine Information
Transmission Temperature

- Gauge View - Shows the turbo boost or transmission temp value.
- Tire Pressure - Shows the tire pressure. See **Tire Pressure Monitoring System** (page 410).
- Digital Speedometer - Shows a digital display of your vehicle speed.
- Diesel Exhaust Fluid Status - Shows diesel exhaust fluid status on demand screen and DEF distance to empty.
- Diesel Exhaust Filter Status - Shows exhaust filter on demand screen.
- Engine Information - Shows engine information.
- Transmission Temperature - Shows the transmission temperature of your vehicle.

Towing

Use the arrow buttons to choose between the following towing options.

Note: *Once you select a trailer, it remains active until you set it as no longer active. An active trailer still accumulates miles even after you physically disconnect it from your vehicle.*

Towing		
Towing Status	Enter the submenu for items such as % Grade, steering angle, gain and output display	
Towing Information	Enter the submenu for items such as Trailer Name, Accumulated Miles, Pro Trailer Backup Assist Status and Trailer BLIS Status - Press ***OK*** for Trailer Options	
Trailer Light Check	Enter the submenu for items such as Running, Brake and Turn Signal Light Status or No Trailer Detected	
Trailer Setup	Trailer Sway Control	
	Select trailer	Enter the submenu and select your setting
	Change Trailer Settings	Enter the submenu and select your setting
	Add Trailer	Enter the submenu and select your setting

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Towing	
Connection Checklist	Conventional
	Fifth Wheel
	Gooseneck

Off Road

Use the arrow buttons to choose between the following off road options.

Off Road	
Off Road Status	Pitch, Steering Angle, Roll, Elocker and 4X4
Power Distribution	

Settings

Use the arrow buttons to configure different driver setting choices.

Settings	
Auto Regen	
Cross Traffic Alert	
Driver Alert	
Rear Park Aid	
Trailer Blind Spot	
Pre-Collision	Enter the submenu for items such as alert sensitivity, distance indication and active braking
Cruise Control	Enter the submenu and select your setting
DTE Calculation	Enter the submenu and select your setting

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Settings		
Gauge Selection	Enter the submenu and select your setting	
Lane Keeping System	Enter the submenu for items such as system modes and alert intensity	
Advanced Settings	Vehicle	Auto Engine Off
		Blind Spot
		Easy Entry/Exit
		Lighting
		Locks
		Oil Life Reset
		Alarm
		Power Running Boards
		Remote Start
		Wiper Controls
	MyKey	Enter the submenu and select your setting
	Display Setup	Measurement Units
		Temperature
		Tire Pressure
		Language

INFORMATION MESSAGES

Note: *Depending on your vehicle options and instrument cluster type, not all of the messages will display or be available. The information display may abbreviate or shorten certain messages.*

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Press the ***OK*** button to acknowledge and remove some messages from the information display. The information display will automatically remove other messages after a short time.

You need to confirm certain messages before you can access the menus.

Active Park

Message	Action
Active Park Fault	The system requires service due to a malfunction. Have the system checked by an authorized dealer.

Adaptive Cruise Control

Message	Action
Adaptive Cruise Malfunction	A radar malfunction is preventing the adaptive cruise control from engaging. See **Using Adaptive Cruise Control** (page 255).
Adaptive Cruise Not Available	A condition exists such that the adaptive cruise cannot function properly. See **Using Adaptive Cruise Control** (page 255).
Adaptive Cruise Not Available Sensor Blocked See Manual	You have a blocked sensor due to bad weather, ice, mud or water in front of the radar sensor. You can typically clean the sensor to resolve. See **Using Adaptive Cruise Control** (page 255).
Normal Cruise Active Automatic Braking Turned Off	The system has disabled the automatic braking.
Front Sensor Not Aligned	A radar malfunction is preventing the adaptive cruise control from engaging.

Message	Action
Adaptive Cruise - Driver Resume Control	The adaptive cruise has reinstated controls to the driver.
Adaptive Cruise Speed Too Low to Activate	Your vehicle speed is too slow to activate the adaptive cruise.
Adaptive Cruise Shift Down	The adaptive cruise is automatically adjusting the gap distance and you need to shift the transmission into a lower gear.

AdvanceTrac and Traction Control

Message	Action
Service AdvanceTrac	The system detects a condition that requires service. Contact an authorized dealer as soon as possible.
AdvanceTrac Off	The status of the AdvanceTrac system after you switched it off.
AdvanceTrac On	The status of the AdvanceTrac system after you switched it on.
AdvanceTrac SPORT MODE	The status of the AdvanceTrac sport mode after you switched it on.
Traction Control Off	The status of the traction control system after you switched it off. See **Using Traction Control** (page 238).
Traction Control On	The status of the traction control system after you switched it on. See **Using Traction Control** (page 238).

Airbag

Message	Action
Occupant Sensor BLOCKED Remove Objects Near Passenger Seat	Displays when the system detects a malfunction due to a blocked sensor.

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Alarm and Security

Message	Action
Vehicle Alarm To Stop Alarm, Start Vehicle.	Alarm triggered due to unauthorized entry. See **Anti-Theft Alarm** (page 85).

Battery and Charging System

Message	Action
Check Charging System	The charging system needs servicing. If the warning stays on or continues to come on, contact an authorized dealer as soon as possible.
Low Battery Features Temporarily Turned Off	The battery management system detects an extended low-voltage condition. Your vehicle will disable various features to help preserve the battery. Turn off as many of the electrical loads as soon as possible to improve system voltage. If the system voltage has recovered, the disabled features will operate again as normal.
Turn Power Off To Save Battery	The battery management system determines that the battery is at a low state of charge. Turn your ignition off as soon as possible to protect the battery. This message will clear once you restart your vehicle and the battery state of charge has recovered. Turning off unnecessary electrical loads will allow faster battery state-of-charge recovery.
Charging System Service Soon	The charging system needs servicing. If the warning stays on or continues to come on, contact an authorized dealer as soon as possible.
Charging System Service Now	The charging system needs servicing. Contact an authorized dealer as soon as possible.
Battery State of Charge Low	The battery management system determines that the battery is at a low state of charge. Turn your ignition off as soon as possible to protect the battery. This message clears once you restart your vehicle and the battery state of charge has recovered.

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Blind Spot Information and Cross Traffic Alert System

Message	Action
Blindspot System Fault	A fault with the system has occurred. Contact an authorized dealer as soon as possible.
Blindspot Not Available Sensor Blocked See Manual	The system sensors are blocked. See **Blind Spot Information System** (page 268).
Cross Traffic Vehicle Coming From X	The system detects a vehicle. See **Blind Spot Information System** (page 268).
Cross Traffic Not Available Sensor Blocked See Manual	The blind spot information system and cross traffic alert system sensors are blocked. See **Blind Spot Information System** (page 268).
Cross Traffic System Fault	A fault with the system has occurred. Contact an authorized dealer as soon as possible.
Cross Traffic Alert Deactivated Trailer Attached	The system automatically turns off and displays this message when you connect a trailer to the vehicle that does not have a trailer blind spot system or when you switch the trailer blind spot system off through the information display. See **Blind Spot Information System** (page 268).
Blind Spot Alert Deactivated Trailer Attached	The system automatically turns off and displays this message when you connect a trailer to the vehicle that does not have a trailer blind spot system or when you switch the trailer blind spot system off through the information display. See **Blind Spot Information System** (page 268).
Trailer Blind Spot Not available Due to Invalid Trailer	Displays when the trailer connected is a fifth wheel or gooseneck, or when the trailer width is wider than 10 ft (2.7 m) or longer than 33 ft (10 m).

Diesel Messages

WARNING: When the ***Exhaust Filter Cleaning*** message appears in the information display, do not park near flammable materials, vapors or structures until filter cleaning is complete.

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Message	Action
Exhaust Filter Cleaning	Your vehicle has entered the cleaning mode. Various engine actions will raise the exhaust temperature in the Diesel Particulate Filter system to burn off the particles (exhaust soot). After the vehicle burns the particles off, the exhaust temperature will return to normal levels. This message is NORMAL.
Exhaust Filter Overloaded Drive to Clean	The diesel particulate filter is full of particles (exhaust soot) and you are not operating the vehicle in a manner that allows normal cleaning. Drive the vehicle above 30 mph (48 km/h) until the ***Exhaust Filter Cleaning*** message turns off.
Exhaust Filter Overloaded Clean Now	
Exhaust Filter at Limit Clean Now	The diesel particulate filter is full of particles (exhaust soot) and you are not operating the vehicle in a manner that allows normal cleaning. Drive the vehicle above 30 mph (48 km/h) until the ***Exhaust Filter Cleaning*** message turns off.
Exhaust Filter at Limit Drive to Clean Now	
Exhaust System Overheated Stop Safely NOW	Your vehicle exhaust system temperature exceeded the intended operating range. If this warning occurs, a tone sounds, followed by reduced engine power. The engine shuts down when your vehicle speed is below 3 mph (5 km/h) . Stop the vehicle as soon as safely possible. Have the system checked by an authorized dealer.
Engine Warming Please Wait {seconds:00} sec	In extremely cold weather, typically below -14.8ºF (-26ºC) and if the engine block heater is not utilized, your engine will not respond to accelerator pedal movement for 30 seconds. This restriction allows your engine to circulate the oil properly in order to avoid engine damage.
Exhaust Filter Drive Complete	Your diesel particulate filter is clean.
Exhaust Filter Cleaned	Your diesel particulate filter is clean (OCR Only).
Exhaust Filter Cleaning Stopped	The manual regeneration process has stopped (OCR Only).
DEF Level Range: XX mi/km Refill Now	The distance you can travel before depleting the remaining diesel exhaust fluid.
DEF Level Empty Speed Limited to XX MPH / km/h in XX mi/km	Your diesel exhaust fluid is nearing empty. Your vehicle's top speed will become limited in the displayed distance. You must replenish the diesel exhaust fluid to resume normal operation of your vehicle. See **Selective Catalytic Reductant System** (page 207).

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Message	Action
DEF Level Empty Speed Limited to XX MPH/km/h Upon Restart	Your remaining diesel exhaust fluid has depleted. Your speed will be limited upon restart. You must replenish the diesel exhaust fluid to resume normal operation of your vehicle. See **Selective Catalytic Reductant System** (page 207).
DEF Level Low Speed Limited to XX MPH/km/h	The diesel exhaust fluid is empty. You must replenish the diesel exhaust fluid to resume normal operation of your vehicle. See **Selective Catalytic Reductant System** (page 207).
DEF Level Empty Engine Idled Soon	The selective catalytic reduction system detects low exhaust fluid. The engine will eventually enter into an idle only mode. You must replenish the diesel exhaust fluid to resume normal operation of your vehicle. See **Selective Catalytic Reductant System** (page 207).
DEF Level Empty Engine Idled See Manual	A problem exists with the selective catalytic reduction system. The vehicle will enter into an idle-only mode. If the exhaust fluid is empty, you must replenish the diesel exhaust fluid to resume normal operation of your vehicle. See **Selective Catalytic Reductant System** (page 207).
DEF Fault Speed Limited to XX MPH/km/h in XX mi/km	The selective catalytic reduction system detects a fault. The vehicle's top speed will become limited in the displayed distance and count down from this point. Have the system checked by an authorized dealer.
DEF Fault Speed Limited to XX MPH/km/h Upon Restart	The selective catalytic reduction system detects a fault. The vehicle's top speed will become limited upon restarting. Have the system checked by an authorized dealer.
DEF Fault Speed Limited to XX MPH/km/h	The selective catalytic reduction system detects a fault. The vehicle's top speed is limited. Have the system checked by an authorized dealer.
DEF Fault Engine Idled Soon	The selective catalytic reduction system detects a fault. The engine will eventually enter into an idle only mode. Have the system checked by an authorized dealer.

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Message	Action
Exhaust Filter Over Limit Service Now	You must have your vehicle serviced by an authorized dealer. Ignoring the ***Exhaust Filter Over Limit Service Now*** warning message could lead to reduced drivability and customer expense, including damage to the diesel particulate filter. Your new vehicle warranty may not cover this damage.
Water in Fuel Drain Filter	The water separator has reached a predetermined capacity and needs draining. See **Draining the Fuel Filter Water Trap** (page 373).
Fuel Pressure Low	A low fuel pressure condition has occurred due to cold, low fuel level or fuel filters need to be changed. See **Fuel Quality** (page 194).

Doors and Locks

Message	Action
X Door Ajar	The door(s) listed is not completely closed.

Driver Alert

Message	Action
Driver Alert Warning Rest Now	Stop and rest as soon as it is safe to do so.
Driver Alert Warning Rest Suggested	Take a rest soon.

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Drivetrain

Message	Action
To Engage Locking Differential Slow to XX mph/km/h	The electronic locking differential requests a certain speed requirement to engage.
To Engage Locking Differential Release Accelerator Pedal	The electronic locking differential requests the accelerator to be released in order to engage.
Check Locking Differential	An electronic locking differential (ELD) system fault is present. Contact an authorized dealer as soon as possible.
Neutral Tow Enabled Leave Transmission in Neutral	The transfer case is in the neutral position. This message indicates that your vehicle is safe to be towed with all four wheels on the ground.
Neutral Tow Disabled	The transfer case is NOT in the neutral position. This message indicates that your vehicle is NOT safe to be towed with all four wheels on the ground.

Engine

Message	Action
Power Reduced to Lower Engine Temp	The engine has reduced power to help reduce high engine temperature.

Fuel

Message	Action
Fuel Level Low	An early reminder of a low fuel condition.
Check Fuel Fill Inlet	The fuel fill inlet may not be properly closed.

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Keys and Intelligent Access

Message	Action
To START Press Brake	A reminder to press the brake while starting the vehicle.
No Key Detected	The system does not detect a key in your vehicle. See **Keyless Starting** (page 180).
Restart Now or Key is Needed	You pressed the StartStop button to switch off the engine and your vehicle does not detect your intelligent access key inside your vehicle.
Run Power Active	Your vehicle is in the run ignition state.
Starting System Fault	There is a problem with your vehicle's starting system. See an authorized dealer for service.
Key Program Successful	You have successfully programmed an intelligent access key to the system.
Key Program Failure	You have failed to program an intelligent access key to the system.
Max Number of Keys Learned	You have programmed the maximum number of keys to the system.
Not Enough Keys Learned	You have not programmed enough keys to the system.
Key Battery Low Replace Soon	The key battery is low. Change the battery as soon as possible.
Engine ON	Informs you that you are exiting your vehicle and the engine is on.

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Lane Keeping System

Message	Action
Lane Keeping Sys. Malfunction Service Required	The system has malfunctioned. Contact an authorized dealer as soon as possible.
Front Camera Temporarily Not Available	The system has detected a condition that has caused the system to be temporarily unavailable.
Front Camera Low Visibility Clean Screen	The system has detected a condition that requires you to clean the windshield in order for it to operate properly.
Front Camera Malfunction Service Required	The system has malfunctioned. Contact an authorized dealer as soon as possible.
Keep Hands on Steering Wheel	The system requests you to keep your hands on the steering wheel.

Maintenance

Message	Action
Low Engine Oil Pressure	Stop your vehicle as soon as safely possible and turn off the engine. Check the oil level. If the warning stays on or continues to come on with your engine running, contact an authorized dealer as soon as possible.
Change Engine Oil Soon	The engine oil life remaining is 10% or less.
Oil Change Required	The oil life left is at 0%.
Brake Fluid Level Low	The brake fluid level is low, inspected the brake system immediately. See **Brake Fluid Check** (page 371).
Check Brake System	The brake system needs servicing. Stop your vehicle in a safe place. Contact an authorized dealer.
Transport / Factory Mode Contact Dealer	Your vehicle is still in Transport or Factory mode. This may not allow some features to operate properly. See an authorized dealer.
See Manual	The powertrain needs service due to a powertrain malfunction.

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MyKey

Message	Action
MyKey not Created	You cannot program a MyKey.
MyKey Active Drive Safely	MyKey is active.
Speed Limited to XX MPH/km/h	When switching on your vehicle and MyKey is in use, displays that the MyKey speed limit is on.
Near Vehicle Top Speed	MyKey is in use and the MyKey speed limit is on and the vehicle speed is approaching 81 mph (130 km/h).
Vehicle at Top Speed of MyKey Setting	You have reached the speed limit set for your MyKey.
Check Speed Drive Safely	You have an active MyKey with a programmed set speed limit.
Buckle Up to Unmute Audio	Belt-Minder turns on with a MyKey in use.
AdvanceTrac On - MyKey Setting	With a MyKey in use, AdvanceTrac turns on.
Traction Control On - MyKey Setting	With a MyKey in use, traction control turns on.
MyKey Park Aid Cannot be Deactivated	With a MyKey in use, park aid is always on.
Lane Keeping Alert On MyKey Setting	With a MyKey in use, lane keeping alert turns on.

Off Road

Message	Action
Hill Descent Control Active	Hill descent control mode is active.
Hill Descent Control OFF	Hill descent control mode is inactive.
For Hill Descent Reduce Speed XX MPH/km/h or Less	Your vehicle speed requirement for off-road mode entry has not been met.
For Hill Descent Select Gear	You need to select a transmission gear for hill descent mode.

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Message	Action
Hill Descent Driver Resume Control	Hill descent control mode is deactivated and you must resume control.
Hill Descent Control Fault	A hill descent system fault is present.
Hill Descent Control Off System Cooling	The hill descent system is cooling due to overuse.
Hill Descent Control Ready	The hill descent control system is ready.

Park Aid

Message	Action
Check Front Park Aid	The system has detected a condition that requires service. Contact an authorized dealer. See **Principle of Operation** (page 243).
Check Rear Park Aid	The system has detected a condition that requires service. Contact an authorized dealer. See **Principle of Operation** (page 243).
Front Park Aid On Off	Displays the park aid status.
Rear Park Aid On Off	Displays the park aid status.

Park Brake

Message	Action
To Release: Press Brake and Switch	The electric parking brake is set and a manual release is attempted without the brake pedal being pressed.
Park Brake Use Switch to Release	The electric park brake is set and an automatic release is attempted but cannot be performed. Perform a manual release.
Release Park Brake	The electric park brake is set and your vehicle speed exceeds 3 mph (5 km/h). Release park brake before continued driving.
Park Brake Not Applied	The electric park brake is not fully applied.
Park Brake Not Released	The electric park brake is not fully released.

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Message	Action
Park Brake Maintenance Mode	The electric park brake system has been put into a special mode that is used to allow service of the rear brakes. Contact an authorized dealer.
Park Brake Limited Function Service Required	The electric park brake system has detected a condition that requires service. Some functionality may still be available. Contact an authorized dealer.
Park Brake Malfunction Service Now	The electric park brake system has detected a condition that requires service. Contact an authorized dealer.

Power Steering

Message	Action
Steering Fault Service Now	The power steering system has detected a condition that requires service. See an authorized dealer.
Steering Loss Stop Safely	The power steering system is not working. Stop your vehicle in a safe place. Contact an authorized dealer.
Steering Assist Fault Service Required	The power steering system has detected a condition within the power steering system or passive entry or passive start system requires service. Contact an authorized dealer.
Steering Lock Malfunction Service Now	The steering lock system has detected a condition that requires service. See an authorized dealer.

Pre-Collision Assist

Message	Action
Pre-Collision Assist Not Available Sensor Blocked	You have a blocked sensor due to bad weather, ice, mud or water in front of the radar sensor. You can typically clean the sensor to resolve.
Pre-Collision Assist Not Available	A fault with the system has occurred. Contact an authorized dealer as soon as possible.

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Pro Trailer Backup Assist

Message	Action
Pro Trailer Backup Assist™ Not Active Stop Vehicle to Activate	Pro Trailer Backup Assist can only be activated when the vehicle is stopped.
Pro Trailer Backup Assist™ Locating Sticker Please wait... Press Knob to Exit	Camera System is locating the sticker. Wait until the sticker is found before attempting to use Pro Trailer Backup Assist.
Pro Trailer Backup Assist™ Stop now Maximum trailer angle Press Knob to Exit	Stop Now. Pro Trailer Backup Assist has reached max trailer angle.
Pro Trailer Backup Assist™ Stop Now Take Control of Steering Wheel	Stop Now. Pro Trailer Backup Assist is no longer controlling steering.
Pro Trailer Backup Assist™ Reduce Speed Turn Knob to Steer Press Knob to Exit	Slow vehicle speed. Vehicle is approaching the exit speed for the Pro Trailer Backup Assist feature.
Pro Trailer Backup Assist™ System is Not Available	Conditions for Pro Trailer Backup Assist operation are not met. See **Trailer Reversing Aids** (page 294).
Pro Trailer Backup Assist™ Remove Hands from Steering Wheel to Activate Press Knob to Exit	Pro Trailer Backup Assist cannot operate with hands on wheel. Remove hands to activate.
Pro Trailer Backup Assist™ Cancelled by Driver Take Control of Steering Wheel	Pro Trailer Backup Assist knob has been pushed to deactivate the system.
Pro Trailer Backup Assist™ Shift to Reverse to Activate. Press Knob to Exit	Pro Trailer Backup Assist operation is only available in reverse gear. Shift gear selector into reverse to activate.
Pro Trailer Backup Assist™ Sticker Not Found Shift to Park Press Knob to Exit	Camera system cannot locate sticker. Shift to park.

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Message	Action
Pro Trailer Backup Assist™ Sticker Not Found Refer to Owner's Manual. Press Knob to Exit	Camera system cannot locate sticker. See **Trailer Reversing Aids** (page 294).
Pro Trailer Backup Assist™ Drive Straight Forward to Calibrate. Press Knob to Exit	Drive between 4–24 mph (6–39 km/h) straight forward to calibrate Pro Trailer Backup Assist.
Pro Trailer Backup Assist™ Calibration Complete Stop Vehicle	The system has completed calibration. Stop the vehicle to use Pro Trailer Backup Assist feature.

Remote Start

Message	Action
To Drive: Press Start Button	A reminder to push the start button to drive your vehicle after a remote start.

Seats

Message	Action
Memory Recall Not Permitted While Driving	A reminder that memory seats are not available while driving.
Memory {0} Saved	Shows where you have saved your memory setting.

Side-Wind

Message	Action
Side-Wind Stabilization Active	This message displays when the side-wind system turns on in response to strong wind conditions. See **Principle of Operation** (page 239).

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Starting System

Message	Action
To START Press Brake	A reminder to apply the brake when starting your vehicle .
Cranking Time Exceeded	The starter has exceeded its cranking time in attempting to start your vehicle.
Engine Start Pending Please Wait	The starter is attempting to start your vehicle.
Pending Start Cancelled	The system has cancelled the pending start.

Tire Pressure Monitoring System

Message	Action
Tire Pressure Low	One or more tires on your vehicle has low tire pressure. See **Tire Pressure Monitoring System** (page 410).
Tire Pressure Monitor Fault	The tire pressure monitoring system is malfunctioning. If the warning stays on or continues to come on, contact an authorized dealer. See **Tire Pressure Monitoring System** (page 410).
Tire Pressure Sensor Fault	A tire pressure sensor is malfunctioning or your spare tire is in use. See **Tire Pressure Monitoring System** (page 410). If the warning stays on or continues to come on, contact an authorized dealer as soon as possible.

Trailer

Message	Action
Trailer Brake Gain: {trailer gain value:#0.0}	The current gain setting for the trailer brake.
Trailer Brake Gain: {trailer gain value:#0.0} No Trailer	The current gain setting for the trailer brake when a trailer is not connected.
Trailer Brake Module Fault	Faults sensed in the Integrated Trailer Brake Control Module followed by a single chime. See **Towing a Trailer** (page 292).
Trailer Connected	A correct trailer connection is sensed during a given ignition cycle.

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Message	Action
Trailer Disconnected	A trailer connection becomes disconnected, either intentionally or unintentionally, and has been sensed during a given ignition cycle.
Trailer Sway Reduce Speed	The trailer sway control has detected trailer sway.
Trailer Wiring Fault	There are certain faults in your vehicle wiring and trailer wiring/brake system. See **Towing a Trailer** (page 292).
Trailer Left Turn Lamps Fault Check Lamps	There is a fault with your trailer turn lamp. Check your lamp.
Trailer Right Turn Lamps Fault Check Lamps	There is a fault with your trailer turn lamp. Check your lamp.
Trailer Battery Not Charging See Manual	There is a fault with your trailer battery. See **Towing a Trailer** (page 292).
Trailer Lighting Module Fault See Manual	There is a fault with your vehicle trailer lighting module. See **Towing a Trailer** (page 292).

4WD

Message	Action
Check 4x4	A 4X4 system fault is present. Contact an authorized dealer as soon as possible.
4x4 Shift in Progress	The 4X4 system is making a shift.
For 4x4 LOW Shift to N	Displays when you attempt to switch to 4X4 LOW and you do not shift the transmission to neutral (N).
For 4x4 LOW Slow to 3 MPH	Displays when you attempt to switch to 4X4 LOW and your vehicle's speed is greater than 3 mph (5 km/h).
To Exit 4x4 LOW Shift to N	Displays when you attempt to switch from 4X4 LOW and you do not shift the transmission to neutral (N).
To Exit 4x4 LOW Slow to 3 MPH	Displays when you attempt to switch from 4X4 LOW and your vehicle's speed is greater than 3 mph (5 km/h).
Shift Delayed Pull Forward	May display when there is a Transfer case gear tooth blockage while shifting to or from 4L or to the neutral state.

Message	Action
4x4 Temporarily Disabled	Displays when the system turns off the clutch due to excessive stress. The system automatically turns on the clutch after it cools.
4x4 Restored	Displays when the 4X4 system restores to the 4A setting.
4X4 Temporarily Locked	Displays when the 4X4 system temporarily turns on 4H from 4A after detecting driving conditions that require greater 4X4 performance. The system automatically returns to 4A after the system no longer detects these driving conditions.
Shift to Neutral	Displays when the system requires an additional transmission shift to Neutral to complete a transfer case shift.
To Engage 4x4 Slow to 3 MPH	Displays when you command a 4x4 shift during conditions which are potentially harmful to the driveline components
To Engage 4x4 Slow to 5 km/h	
To Engage 4x4 Release Accelerator Pedal	Displays when the 4x4 system requests that you release the accelerator pedal to complete a 4x4 shift. See **Using Four-Wheel Drive** (page 223).

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MANUAL CLIMATE CONTROL

E291393

Note: *Depending on your vehicle option package, the controls may look different from what you see here.*

Directing the Airflow

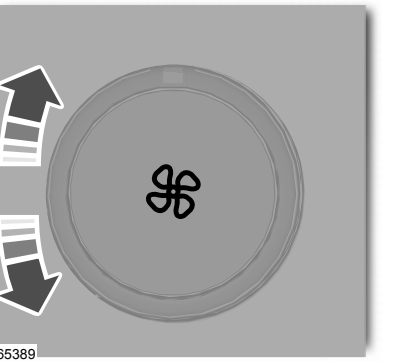
Press and release the button to direct airflow to the windshield air vents and de-mister.

Press and release the button to direct airflow to the instrument panel air vents.

Press and release the button to direct airflow to the footwell air vents.

You can direct air through any combination of these air vents.

Setting the Blower Motor Speed



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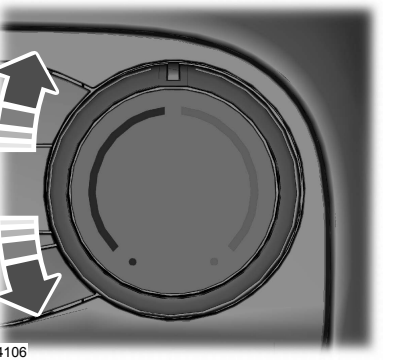
Turn the control to adjust the volume of air circulated in the vehicle.

Setting the Temperature



E244106

Turn the control to set the temperature.

Switching the Air Conditioning On and Off

A/C

Press and release the button.

Use air conditioning with recirculated air to improve cooling performance and efficiency.

Note: *In certain conditions, for example, maximum defrost, the air conditioning compressor may continue to operate even though you switch off the air conditioning.*

Switching the Climate Control On and Off

Press and release the button.

Switching Maximum Air Conditioning On and Off

MAX A/C

Turn the temperature control counterclockwise to the lowest setting for maximum cooling.

Switching Maximum Defrost On and Off

MAX

Turn the temperature control clockwise to the highest setting for maximum defrosting.

You can also use this setting to defog and clear the windshield of a thin covering of ice.

Note: *To prevent window fogging, you cannot select recirculated air when maximum defrost is on.*

Switching Recirculated Air On and Off

Press and release the button to switch between outside air and recirculated air.

The air currently in the passenger compartment recirculates. This may reduce the time needed to cool the interior, when used with ***A/C***, and reduce unwanted odors from entering your vehicle.

Note: *Recirculated air may turn off, or prevent you from switching it on, in all air flow modes except* ***MAX A/C*** *to reduce the risk of fogging. Recirculation may also turn on and off in various air distribution control combinations during hot weather in order to improve cooling efficiency.*

AUTOMATIC CLIMATE CONTROL

E291388

Note: *Depending on your vehicle option package, the controls may look different from what you see here.*

Directing the Airflow

Press and release the button to direct airflow to the windshield air vents and de-mister.

Press and release the button to direct airflow to the instrument panel air vents.

Press and release the button to direct airflow to the footwell air vents.

You can direct air through any combination of these air vents.

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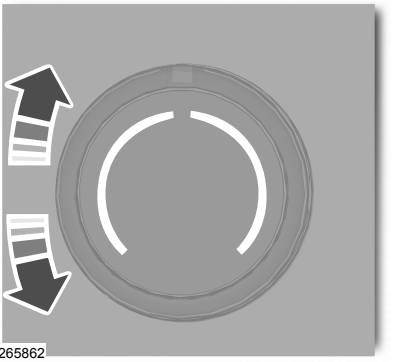
Setting the Blower Motor Speed

Press and release **+** or **-** to adjust the volume of air circulated in the vehicle.

Setting the Temperature



Turn the control on the left-hand side of the climate control to set the left-hand temperature.

Note: *This control also sets the right-hand side temperature when you switch off dual zone mode.*

Turn the control on the right-hand side of the climate control to set the right-hand temperature.

Switching Auto Mode On and Off

AUTO

Press and release the button to switch on automatic operation, then set the temperature.

The system adjusts the blower motor speed, air distribution, air conditioning operation, and outside or recirculated air to reach and maintain the temperature you have set.

Note: *You can also switch off dual zone mode by pressing and holding the button for more than two seconds.*

Switching the Air Conditioning On and Off

A/C

Press and release the button.

Use air conditioning with recirculated air to improve cooling performance and efficiency.

Note: *In certain conditions, for example, maximum defrost, the air conditioning compressor may continue to operate even though you switch off the air conditioning.*

Switching the Climate Control On and Off

Press and release the button.

Switching Dual Zone Mode On and Off

DUAL

Press and release the button to switch on temperature control for the right-hand side of the vehicle.

Switching Maximum Air Conditioning On and Off

MAX A/C

Press and release the button for maximum cooling.

The left-hand and right-hand settings set to LO, recirculated air flows through the instrument panel air vents, air conditioning turns on and the blower motor adjusts to the highest speed.

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Switching Maximum Defrost On and Off

Press and release the button for maximum defrosting.

The left-hand and right-hand settings set to HI, air flows through the windshield air vents, and the blower motor adjusts to the highest speed.

You can also use this setting to defog and clear the windshield of a thin covering of ice.

Note: *To prevent window fogging, you cannot select recirculated air when maximum defrost is on.*

Note: *The heated rear window also turns on when you select maximum defrost.*

Switching Recirculated Air On and Off

Press and release the button to switch between outside air and recirculated air.

The air currently in the passenger compartment recirculates. This may reduce the time needed to cool the interior, when used with ***A/C***, and reduce unwanted odors from entering your vehicle.

Note: *Recirculated air may turn off, or prevent you from switching it on, in all air flow modes except* ***MAX A/C*** *to reduce the risk of fogging. Recirculation may also turn on and off in various air distribution control combinations during hot weather in order to improve cooling efficiency.*

HINTS ON CONTROLLING THE INTERIOR CLIMATE - VEHICLES WITH: DUAL AUTOMATIC TEMPERATURE CONTROL (DATC)

General Hints

Note: *Prolonged use of recirculated air may cause the windows to fog up.*

Note: *You may feel a small amount of air from the footwell air vents regardless of the air distribution setting.*

Note: *To reduce humidity build-up inside your vehicle, do not drive with the system switched off or with recirculated air always switched on.*

Note: *Do not place objects under the front seats as this may interfere with the airflow to the rear seats.*

Note: *Remove any snow, ice or leaves from the air intake area at the base of the windshield.*

Note: *To improve the time to reach a comfortable temperature in hot weather, drive with the windows open until you feel cold air through the air vents.*

Automatic Climate Control

Note: *Adjusting the settings when your vehicle interior is extremely hot or cold is not necessary. Automatic mode is best recommended to maintain set temperature.*

Note: *The system adjusts to heat or cool the interior to the temperature you select as quickly as possible.*

Note: *For the system to function efficiently, the instrument panel and side air vents should be fully open.*

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Note: *If you select **AUTO** during cold outside temperatures, the system directs air flow to the windshield and side window air vents. In addition, the blower motor may run at a slower speed until the engine warms up.*

Note: *If you select **AUTO** during hot temperatures and the inside of the vehicle is hot, the system uses recirculated air to maximize interior cooling. Blower motor speed may also reduce until the air cools.*

Quickly Heating the Interior

1. Press and release ***AUTO***.
2. Adjust the temperature function to the setting you prefer.

Recommended Settings for Heating

1. Press and release ***AUTO***.
2. Adjust the temperature function to the setting you prefer. Use 72ºF (22ºC) as a starting point, then adjust the setting as necessary.

Quickly Cooling the Interior

1. Press and release ***MAX A/C***.

Recommended Settings for Cooling

1. Press and release ***AUTO***.
2. Adjust the temperature function to the setting you prefer. Use 72ºF (22ºC) as a starting point, then adjust the setting as necessary.

Defogging the Side Windows in Cold Weather

1. Press and release defrost.
2. Adjust the temperature control to the setting you prefer. Use 72ºF (22ºC) as a starting point, then adjust the setting as necessary.

HINTS ON CONTROLLING THE INTERIOR CLIMATE - VEHICLES WITH: ELECTRONIC MANUAL TEMPERATURE CONTROL (EMTC)

General Hints

Note: *Prolonged use of recirculated air may cause the windows to fog up.*

Note: *You may feel a small amount of air from the footwell air vents regardless of the air distribution setting.*

Note: *To reduce humidity build-up inside your vehicle, do not drive with the system switched off or with recirculated air always switched on.*

Note: *Do not place objects under the front seats as this may interfere with the airflow to the rear seats.*

Note: *Remove any snow, ice or leaves from the air intake area at the base of the windshield.*

Note: *To improve the time to reach a comfortable temperature in hot weather, drive with the windows open until you feel cold air through the air vents.*

Quickly Heating the Interior

1. Adjust the blower motor speed to the highest speed setting.
2. Adjust the temperature control to the highest setting.
3. Direct air to the footwell air vents.

Recommended Settings for Heating

1. Adjust the blower motor speed to the center setting.
2. Adjust the temperature control to the midway point of the hot settings.
3. Direct air to the footwell air vents.

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Quickly Cooling the Interior

1. Select ***MAX A/C***.
2. Drive with the windows open for a short period of time.

Recommended Settings for Cooling

1. Adjust the blower motor speed to the center setting.
2. Adjust the temperature control to the midway point of the cold settings.
3. Direct air to the instrument panel air vents.

Vehicle Stationary for Extended Periods During Extreme High Ambient Temperatures

1. Apply the parking brake.
2. Place your vehicle in park (P) or neutral.
3. Select ***MAX A/C***.
4. Adjust the blower motor speed to the lowest speed setting.

Defogging the Side Windows in Cold Weather

1. Direct air to the instrument panel and windshield air vents.
2. Press and release ***A/C***.
3. Adjust the temperature control to the setting you prefer.
4. Adjust the blower motor speed to the highest setting.
5. Direct air toward the side windows.
6. Close the instrument panel air vents.

HEATED WINDSHIELD (IF EQUIPPED)

Windshield Wiper De-Icer

When you switch the heated rear window on, the windshield wiper de-icer turns on.

HEATED REAR WINDOW (IF EQUIPPED)

Press the button to clear the rear window of thin ice and fog. The heated rear window turns off after a short period of time.

Note: *Do not use harsh chemicals, razor blades or other sharp objects to clean or remove decals from the inside of the heated rear window. The vehicle warranty may not cover damage to the heated rear window grid lines.*

HEATED EXTERIOR MIRRORS

(IF EQUIPPED)

When you switch the heated rear window on, the heated exterior mirrors turn on.

Note: *Do not remove ice from the mirrors with a scraper or adjust the mirror glass when it is frozen in place.*

Note: *Do not clean the mirror housing or glass with harsh abrasives, fuel or other petroleum-based cleaning products. The vehicle warranty may not cover damage caused to the mirror housing or glass.*

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CABIN AIR FILTER

Your vehicle is equipped with a cabin air filter, which gives you and your passengers the following benefits:

- It improves your driving comfort by reducing particle concentration.
- It improves the interior compartment cleanliness.
- It protects the climate control components from particle deposits.

You can locate the cabin air filter behind the glove box.

Note: *Make sure you have a cabin air filter installed at all times. This prevents foreign objects from entering the system. Running the system without a filter in place could result in degradation or damage to the system.*

Replace the filter at regular intervals. See **Scheduled Maintenance** (page 557).

For additional cabin air filter information, or to replace the filter, see an authorized dealer.

REMOTE START (IF EQUIPPED)

You can switch this feature on or off and adjust the settings using the information display controls. See **Information Displays** (page 120).

The climate control system adjusts the interior temperature during remote start.

You cannot adjust the climate control setting during remote start operation. Switch the ignition on to make adjustments.

Based on your remote start settings, the following vehicle-dependent features may or may not remain on after remote starting your vehicle:

- Climate controlled seats.
- Heated steering wheel.
- Heated mirrors.
- Heated rear window.
- Windshield wiper de-icer.

Note: *For dual zone climate controlled seats, the passenger seat setting defaults to match the driver seat during remote start.*

Automatic Settings

If ***Auto*** is on, the system sets the interior temperature to 72ºF (22ºC) and heats or cools the vehicle interior as required to achieve comfort.

Note: *In cold weather, the heated rear window and heated mirrors turn on.*

Last Settings

If ***Last Settings*** is on, the system uses the settings last selected before you turned off the vehicle.

Heated and Cooled Features

In ***Auto*** mode, certain heated features may switch on during cold weather, and cooled features during hot weather.

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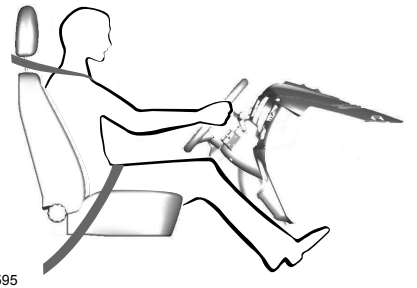
SITTING IN THE CORRECT POSITION

WARNING: Sitting improperly, out of position or with the seatback reclined too far can take weight off the seat cushion and affect the decision of the passenger sensing system, resulting in serious injury or death in the event of a crash. Always sit upright against your seat back, with your feet on the floor.

WARNING: Do not recline the seatback too far as this can cause the occupant to slide under the seatbelt, resulting in serious injury in the event of a collision.

WARNING: Do not place objects higher than the top of the seat backrest. Failure to follow this instruction could result in personal injury or death in the event of a sudden stop or crash.



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When you use them properly, the seat, head restraint, seatbelt and airbags will provide optimum protection in the event of a crash.

We recommend that you follow these guidelines:

- Sit in an upright position with the base of your spine as far back as possible.
- Do not recline the seat backrest so that your torso is more than 30° from the upright position.
- Adjust the head restraint so that the top of it is level with the top of your head and as far forward as possible. Make sure that you remain comfortable.
- Keep sufficient distance between yourself and the steering wheel. We recommend a minimum of 10 in (25 cm) between your breastbone and the airbag cover.
- Hold the steering wheel with your arms slightly bent.
- Bend your legs slightly so that you can press the pedals fully.
- Position the shoulder strap of the seatbelt over the center of your shoulder and position the lap strap tightly across your hips.

Make sure that your driving position is comfortable and that you can maintain full control of your vehicle.

HEAD RESTRAINTS

WARNING: Fully adjust the head restraint before you sit in or operate your vehicle. This will help minimize the risk of neck injury in the event of a crash. Do not adjust the head restraint when your vehicle is moving.

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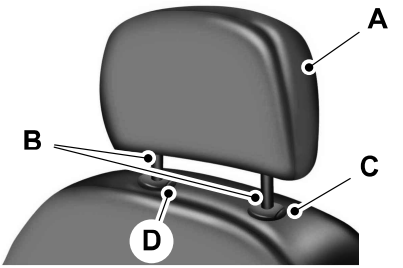
WARNING: The head restraint is a safety device. Whenever possible it should be installed and properly adjusted when the seat is occupied. Failure to adjust the head restraint properly could reduce its effectiveness during certain impacts.

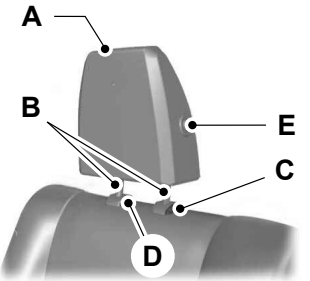
Note: *Adjust the seat backrest to an upright driving position before adjusting the head restraint. Adjust the head restraint so that the top of it is level with the top of your head and as far forward as possible. Make sure that you remain comfortable. If you are extremely tall, adjust the head restraint to its highest position.*

Front Seat Head Restraint



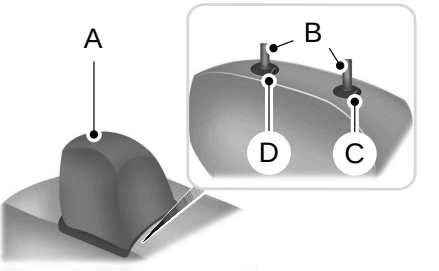
E138642

Rear Seat Outermost Head Restraints



E166700

Rear Seat Center Head Restraint



E166701

The head restraints consist of:

A	An energy absorbing head restraint.
B	Two steel stems.
C	Guide sleeve adjust and release button.
D	Guide sleeve unlock and remove button (If equipped).
E	Fold button (rear seat outermost only- if equipped).

Adjusting the Head Restraint

Raising the Head Restraint

Pull the head restraint up.

Lowering the Head Restraint

1. Press and hold button C.
2. Push the head restraint down.

Removing the Head Restraint (If equipped)

1. Pull up the head restraint until it reaches the highest adjustment position.
2. Press and hold buttons C and D.
3. Pull up the head restraint.

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Note: *For rear outboard seats, you can fold the head restraint forward for easier removal.*

Installing the Head Restraint

Align the steel stems into the guide sleeves and push the head restraint down until it locks.

Folding the Head Restraint (If equipped)

Note: *The rear seat outermost head restraints may fold forward for improved visibility.*

1. Press and hold button E.
2. Pull the head restraint back up to reset.

Front Seat Center Head Restraint

Your vehicle may have a front row center head restraint that you cannot adjust or remove.

Tilting Head Restraints (If equipped)

The front head restraints tilt for extra comfort. To tilt the head restraint, do the following:

E144727

1. Adjust the seat backrest to an upright driving or riding position.
2. Pivot the head restraint forward toward your head to the desired position.

After the head restraint reaches the forward-most tilt position, pivot it forward again to release it to the rearward, untilted position.

Note: *Do not attempt to force the head restraint backward after it is tilted. Instead, continue tilting it forward until the head restraint releases to the upright position.*

MANUAL SEATS

WARNING: Do not adjust the driver's seat or seatback when your vehicle is moving.

Moving the Seat Backward and Forward

E175314

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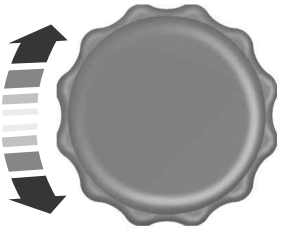
Recline Adjustment

E175315

Manual Lumbar (If Equipped)



E166702

The lumbar support control is located on the outboard side of the seat. Turn the control to adjust your support.

POWER SEATS (IF EQUIPPED)

WARNING: Do not adjust the driver seat or seat backrest when your vehicle is moving. This may result in sudden seat movement, causing the loss of control of your vehicle.

WARNING: Do not place cargo or any objects behind the seatback before returning it to the original position.

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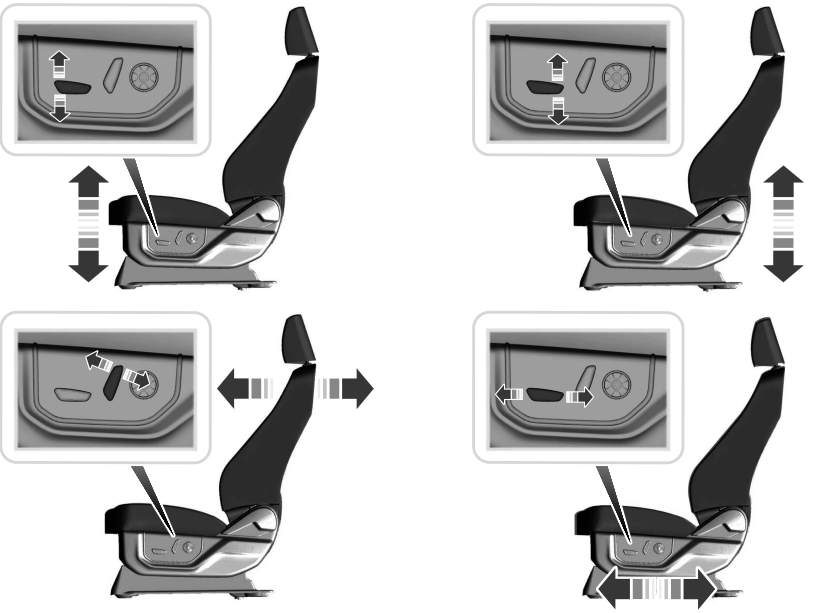
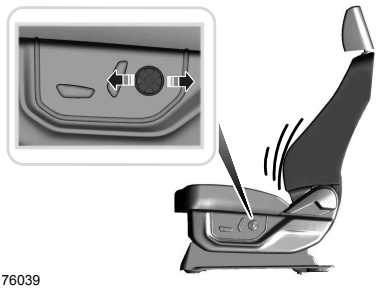


E176038

Adjusting the Lumbar Support (If Equipped)

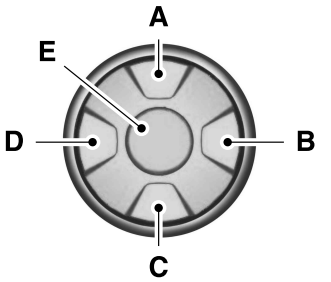


E176039

Adjusting the Multi-Contour Front Seats With Active Motion (If Equipped)

Note: *The engine must be running or the vehicle must be in accessory mode to activate the seats.*

Note: *Allow a few seconds for any selection to activate. When the seat backrest and cushion are both active, the massage alternates between zones.*



E156301

	Massage Mode	Lumbar and Bolster Mode
A	Back massage intensity adjustment	Upper lumbar
B	Massage intensity decrease and off*	Lumbar decrease
C	Cushion massage intensity adjustment	Lower lumbar**
D	Massage intensity increase	Lumbar increase
E	On and off	-

*The massage feature defaults to an alternating massage mode with back massage intensity adjustment. The lumbar and bolster feature defaults to the middle lumbar mode.

**Press C a second time to adjust the back bolster. Press C a third time to adjust the cushion bolster.

You can also adjust this feature through the touchscreen. When switched on, the system displays directions for you to adjust the lumbar settings in your seat or to set the massage function.

To access and make adjustments to the lumbar setting:

1. Press the Menu Settings icon > Vehicle > Multi-Contour Seat.
2. Choose the desired seat to adjust.
3. Press the + or - to adjust the lumbar intensity.

To access and make adjustments to the massage setting:

1. Press the Menu Settings icon > Vehicle >Multi-Contour Seat.
2. Choose the desired seat to adjust.
3. Press Off, Low or High.

MEMORY FUNCTION (IF EQUIPPED)

WARNING: Before activating the memory seat, make sure that the area immediately surrounding the seat is clear of obstructions and that all occupants are clear of moving parts.

WARNING: Do not use the memory function when your vehicle is moving.

This function automatically recalls the position of these features:

- Driver seat.
- Power mirrors.
- Optional power steering column.
- Optional power adjustable pedals.

The memory control is on the driver door.

E142554

Saving a PreSet Position

1. Switch the ignition on.
2. Adjust the memory features to your desired position.
3. Press and hold the desired preset button until you hear a single tone.

Note: *A confirmation that you saved a memory preset appears in the information display.*

You can save up to three preset memory positions. You can save a memory preset at any time.

Recalling a PreSet Position

Press and release the preset button associated with your desired driving position. The memory features move to the position stored for that preset.

Note: *You can only recall a preset memory position when the ignition is off, or when you place the transmission in park (P) or neutral (N) if the ignition is on and the vehicle is not moving.*

Note: *Pressing any of the memory feature controls during a memory recall cancels the operation.*

You can also recall a preset memory position by:

- Pressing the unlock button on your intelligent access key fob if you linked it to a preset position.
- Unlocking the intelligent driver door handle if a linked key fob is present.

Note: *Using a linked key fob to recall your memory position when the ignition is off moves the seat and steering column to the Easy Entry position.*

Linking a PreSet Position to your Remote Control or Intelligent Access Key

Your vehicle can save the preset memory positions for up to three remote controls or intelligent access (IA) keys.

1. With the ignition on, move the memory features to the position you desire.

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2. Press and hold the desired preset button for about five seconds. A tone sounds after about two seconds. Continue holding until you hear a second tone.
3. Within three seconds, press the lock button on the remote control you are linking.

To unlink a remote control, follow the same procedure – except in Step 3, press the unlock button on the remote control.

Easy Entry and Exit Feature

If you enable this feature, it automatically moves the driver seat position rearward up to 2 in (5 cm) when you switch the ignition off. The driver seat returns to the previous position when you switch the ignition on.

Switch this feature on and off through the Information displays settings menu. See **General Information** (page 120).

Note: *After moving the seat to the easy exit position, pressing any of the memory feature controls cancels the easy entry return movement.*

REAR SEATS (IF EQUIPPED)

Folding Up the Rear Seat Cushion

The rear seat has a split 60/40 cushion. You can flip each seat cushion up into a vertical storage position.

E181250

Rotate the seat cushion up until it locks into the vertical storage position.

Returning the Seat to the Seating Position

WARNING: Make sure that cargo and other objects are not trapped under the seat cushion and that you return the seat cushion to the full-down position. Failure to do so may prevent the seat from operating properly, which could increase the risk of serious injury in a crash.

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E270859

Pull the strap to release the seat cushion from the storage position.

HEATED SEATS (IF EQUIPPED)

WARNING: People who are unable to feel pain to their skin because of advanced age, chronic illness, diabetes, spinal cord injury, medication, alcohol use, exhaustion or other physical conditions, must exercise care when using the heated seat. The heated seat may cause burns even at low temperatures, especially if used for long periods of time. Do not place anything on the seat that insulates against heat, such as a blanket or cushion. This may cause the heated seat to overheat. Do not puncture the seat with pins, needles or other pointed objects. This may damage the heating element which may cause the heated seat to overheat. An overheated seat may cause serious personal injury.

Do not do the following:

- Place heavy objects on the seat.
- Operate the heated seat if water or any other liquid spills on the seat. Allow the seat to dry thoroughly.

Note: *The engine must be running to use this feature.*

E146322

Press the heated seat symbol to cycle through the various heat settings and off. More indicator lights indicate warmer settings.

Note: *The heated seats may remain on after you remote start your vehicle, based on your remote start settings. The heated seats may also turn on when you start your vehicle if they were on when you switched your vehicle off.*

Rear Heated Seats (If Equipped)

WARNING: People who are unable to feel pain to their skin because of advanced age, chronic illness, diabetes, spinal cord injury, medication, alcohol use, exhaustion or other physical conditions, must exercise care when

using the heated seat. The heated seat may cause burns even at low temperatures, especially if used for long periods of time. Do not place anything on the seat that insulates against heat, such as a blanket or cushion. This may cause the heated seat to overheat. Do not puncture the seat with pins, needles or other pointed objects. This may damage the heating element which may cause the heated seat to overheat. An overheated seat may cause serious personal injury.

Do not do the following:

- Place heavy objects on the seat.
- Operate the heated seat if water or any other liquid spills on the seat. Allow the seat to dry thoroughly.

Note: *The engine must be running to use this feature.*

The rear seat heat controls are on the rear of the center console.

E146322

Press the heated seat symbol to cycle through the various heat settings and off. More indicator lights indicate warmer settings.

The heated seat module resets at every ignition run cycle. While the ignition is in the on position, press the heated seat switch to enable heating mode. When activated, they turn off automatically when you switch off the engine.

VENTILATED SEATS (IF EQUIPPED)

Note: *The ventilated seats may remain on after you remote start your vehicle, based on your remote start settings. The ventilated seats may also turn on when you start your vehicle if they were on when you switched your vehicle off.*

Do not do the following:

- Spill liquid on the front seats. This may cause the air vent holes to become blocked and not work properly.
- Place cargo or objects under the seats. They may block the air intake causing the air vents to not work properly.

The engine must be running to use this feature.

E224689

Press this symbol to cycle through the various ventilation settings and off. More indicator lights indicate higher fan speeds.

If the engine falls below 350 RPM while the ventilated seats are on, the feature turns itself off. You need to reactivate it.

Note: *To improve comfort, use the ventilated seats along with the vehicle's air conditioning system.*

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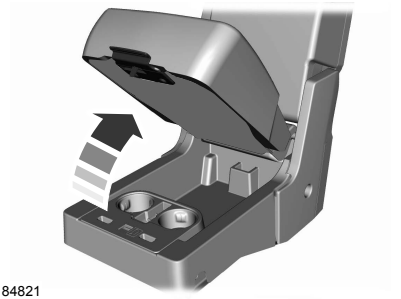
FRONT SEAT ARMREST (IF EQUIPPED)

E175382

Press the release control to move the front seat armrest up or down.



E184821

Lift the latch to open the lid and gain access to the optional storage compartment under the center seat cushion.

The cupholder is located inside the front seat armrest. You can also flip the cupholder so that it faces forward. See **Center Console** (page 177).

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UNIVERSAL GARAGE DOOR OPENER

HomeLink Wireless Control System

WARNING: Do not use the system with any garage door opener that does not have the safety stop and reverse feature as required by U.S. Federal Safety Standards (this includes any garage door opener manufactured before April 1, 1982). A garage door opener which cannot detect an object, signaling the door to stop and reverse, does not meet current federal safety standards. Using a garage door opener without these features increases the risk of serious injury or death.

Note: *Make sure that the garage door and security device are free from obstruction when you are programming. Do not program the system with the vehicle in the garage.*

Note: *Make sure you keep the original remote control transmitter for use in other vehicles as well as for future system programming.*

Note: *We recommend that upon the sale or lease termination of your vehicle, you erase the programmed function buttons for security reasons. See* ***Erasing the Function Button Codes*** *later in this section.*

Note: *You can program a maximum of three devices. To change or replace any of the three devices after it has been initially programmed, you must first erase the current settings. See* ***Erasing the Function Button Codes****.*

E188211

The universal garage door opener replaces the common hand-held garage door opener with a three-button transmitter integrated into the driver's sun visor.

The system includes two primary features, a garage door opener and a platform for remote activation of devices within the home. You can program garage doors as well as entry gate operators, security systems, entry door locks and home or office lighting.

Additional system information can be found online at www.homelink.com, www.youtube.com/user/HomeLinkGentex or by calling the toll-free help line at 1-800-355-3515.

In-Vehicle Programming

This process is to program your in-vehicle HomeLink function button with your hand-held transmitter.

Note: *The programming steps below assume you will be programming HomeLink that was not previously programmed. If your HomeLink was previously programmed, you may need to erase your HomeLink buttons. See* ***Erasing the Function Button Codes.***

Note: *Put a new battery in the hand-held transmitter. This allows for quicker training and accurate transmission of the radio-frequency signal.*

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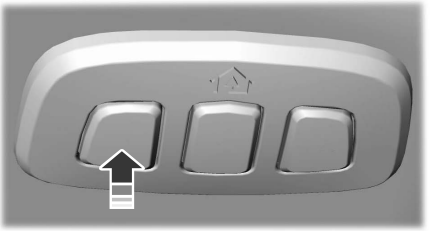


E188212

1. With your vehicle parked outside of the garage, switch your ignition to the **on** position, but do not start your vehicle.
2. Press and release the function button that you would like to program.
3. Hold your hand-held garage door transmitter 1–3 in (2–8 cm) away from the HomeLink button you want to program.
4. Press and hold the hand-held transmitter button you want to program while watching the indicator light on HomeLink. Continue to hold the hand-held button until the HomeLink indicator light flashes rapidly or is continuously on.

Note: *You may need to use a different method if you live in Canada or have difficulties programming your gate operator or garage door opener. See* ***Gate Operator / Canadian Programming.***

5. Press and hold the HomeLink button you programmed for two seconds, then release. You may need to do this twice to activate the door. If your garage door does not operate, watch the HomeLink indicator light.

If the indicator light stays on, the programming is complete. Your device should activate when the HomeLink button is pressed and released.

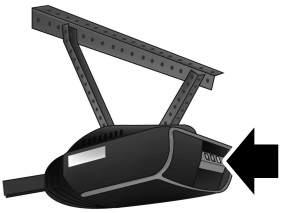
If the indicator light flashes rapidly, press and hold for two seconds and release the programmed HomeLink button. Repeat the "press/hold/release" sequence up to three times to complete the programming process. If your device still does not operate, you must program your garage door. See **Programming Your Garage Door Opener Motor.**

To program additional buttons, repeat Steps 1 – 4.

For questions or comments, please contact HomeLink at www.homelink.com, www.youtube.com/user/HomeLinkGentex or by calling the toll-free help line at 1-800-355-3515.

Programming Your Garage Door Opener Motor

Note: *You may need a ladder to reach the unit and you may need to remove the cover or lamp lens on your garage door opener.*



E142659

1. Press the learn button on the garage door opener motor and then you have 30 seconds to complete the next two steps.
2. Return to your vehicle.

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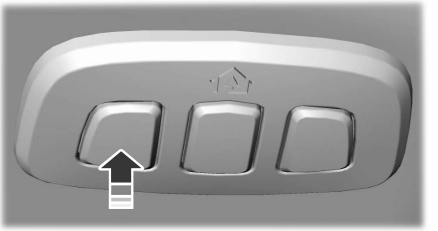


E188212

3. Press and hold the function button you want to program for 2 seconds, then release. Repeat this step. Depending on your brand of garage door opener, you may need to repeat this sequence a third time.

Gate Operator / Canadian Programming

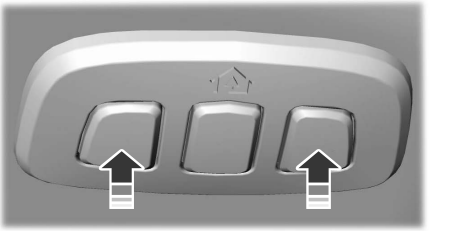
Canadian radio-frequency laws require transmitter signals to "time-out" (or quit) after several seconds of transmission – which may not be long enough for HomeLink to pick up the signal during programming. Similar to this Canadian law, some U.S. gate operators are designed to "time-out" in the same manner.

Note: *If programming a garage door opener or gate operator, it is advised to unplug the device during the "cycling" process to prevent possible overheating.*

1. Press and release, **every two seconds**, your hand-held transmitter until the HomeLink indicator light changes to a rapidly blinking or continuously on light.
2. Release the hand-held transmitter button.
3. Continue programing HomeLink. See **In-Vehicle Programming, Step 4**.

Erasing the Function Button Codes

Note: *You cannot erase individual buttons.*



E188213

1. Press and hold the outer two function buttons simultaneously for approximately 10 seconds until the indicator light above the buttons flashes rapidly.
2. When the indicator light flashes, release the buttons. You erased the codes for all buttons.

Reprogramming a Single Button

To program a device to a previously trained button, follow these steps:

1. Press and hold the desired button. Do NOT release the button.
2. The indicator light begins to flash after 20 seconds. Without releasing the button, follow Step 1 in the Programming section.

For questions or comments, contact HomeLink at www.homelink.com, www.youtube.com/user/HomeLinkGentex or by calling the toll-free help line at 1-800-355-3515.

FCC and RSS-210 Industry Canada Compliance

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment. The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End Users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must be at least 8 in (20 cm) from the user and must not be co-located or operating in conjunction with any other antenna or transmitter.

The term “IC:” before the certification/registration number only signifies that Industry Canada technical specifications were met.

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12 V DC Power Point

WARNING: Do not plug optional electrical accessories into the cigar lighter socket. Incorrect use of the cigar lighter can cause damage not covered by the vehicle warranty, and can result in fire or serious injury.

Note: *When you switch the ignition on, you can use the socket to power 12 V appliances with a maximum current rating of 20 A20 amps.*

Note: *Do not plug in any device that supplies power to the vehicle through the power points, this may result in damage to vehicle systems.*

Note: *Do not hang any accessory from the accessory plug.*

Note: *Do not use the power point over the vehicle capacity of 12 V DC 240 W or a fuse may blow.*

Note: *Always keep the power point caps closed when not in use.*

Do not insert objects other than an accessory plug into the power point. This damages the power point and may blow the fuse.

Run the vehicle for full capacity use of the power point.

To prevent the battery from running out of charge:

- Do not use the power point longer than necessary when the engine is off.
- Do not leave devices plugged in overnight or when you park your vehicle for extended periods.

110 V 400 Watt AC Power Point (If Equipped)

WARNING: Do not keep electrical devices plugged in the power point whenever the device is not in use. Do not use any extension cord with the 110 volt AC power point, since it will defeat the safety protection design. Doing so may cause the power point to overload due to powering multiple devices that can reach beyond the 400 watt load limit and could result in fire or serious injury.

Note: *This feature works only when you have the ignition switched on.*

Note: *This feature has a maximum output of 400 watts when the vehicle is in park (P).*

Note: *While in drive (D), the maximum outlet output is 300 watts.*

Note: *When powering electric devices that require more than 10 watts in vehicles equipped with keyless start, the engine must remain running. If the engine is turned off or you switch the ignition to accessory mode, plugged in devices will not be charged.*

You can use the power point for electric devices that require up to 400 watts. It is on the instrument panel, and the rear of the center console.

E191617

When the indicator light on the power point is:

- On: The power point is working, the ignition is on and a device is plugged in.
- Off: The power point is off, the ignition is off or no device is plugged in.
- Flashing: The power point is in fault mode.

The power outlet temporarily turns off power when in fault mode if the device exceeds the 400 watt limit. Unplug your device and switch the ignition off. Switch the ignition back on, but do not plug your device back in. Let the system cool off and switch the ignition off to reset the fault mode. Switch the ignition back on and make sure the indicator light remains on.

You can use the 400 watt power outlet for these types of electric devices:

- Electric hand drills.
- Rechargeable power tools.
- Video games.
- Laptops.
- Televisions.

Note: *Max 400W - when the vehicle is parked and 300W - when the vehicle is driving.*

Do not use the power point for certain electric devices, including:

- Cathode-ray, tube-type televisions.
- Motor loads, such as vacuum cleaners, electric saws and other electric power tools or compressor-driven refrigerators.
- Measuring devices, which process precise data, such as medical equipment or measuring equipment.
- Other appliances requiring an extremely stable power supply such as microcomputer-controlled electric blankets or touch-sensor lamps.

Locations

Note: *Timed power points remain on for 30 minutes if the vehicle is in accessory mode. If you switch the vehicle off, the timed power points remain on for 75 minutes.*

Power points may be in the following locations:

- On the instrument panel.
- Inside the center console.
- On the rear of the center console.
- In the seat bin.

WIRELESS ACCESSORY CHARGING (IF EQUIPPED)

WARNING: Wireless charging devices can affect the operation of implanted medical devices, including cardiac pacemakers. If you have any implanted medical devices, we recommend that you consult with your physician.

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WARNING: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment. The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

Note: *Devices without built-in Qi wireless charging receivers require an additional Qi receiver or sleeve.*

Note: *For compatible devices with built-in Qi wireless charging capability, the charging performance may be affected if your device is in a case. It may be necessary to remove the case to wirelessly charge your device.*

The system supports one Qi wireless charging compatible device on the charging area.

Keep the charging area clean and remove foreign objects prior to charging a device.

Do not place items with a magnetic strip, for example passports, parking tickets or credit cards, near the charging area when charging a device. Damage may occur to the magnetic strip.

Do not place metal objects, for example remote controls, coins and candy wrappers, on or near the charging area when charging a device. Metal objects may heat up and degrade the charging performance.

Note: *The device controls the rate of charge, or charging power. During charging, the device and the charger may heat up, this is normal. If the battery gets hotter than usual, the charger may stop charging.*

The charging area is on the center console or lower instrument panel. See **Center Console** (page 177).

You can charge a device if the vehicle is on, when in accessory mode, or anytime SYNC is on.

To begin charging, place the device on the center of the charging surface with the charging side down. The charging stops after your device reaches a full charge.

Note: *If the system detects a foreign object or if the device is misaligned on the charging area, a message appears in the display.*

Note: *Software and firmware updates may affect device compatibility, including the use of unofficial software or firmware. You should verify charging functionality with your specific devices when in your vehicle.*

Message	Behavior	Description
Wireless Charger Active	Message on screen display or pop-up window.	This message appears when wireless charging begins.
Charging Terminated Phone misaligned or object between phone and charger detected. Correct the condition to resume charging.	Pop-up window.	The system stops charging your device if the system detects the phone is misaligned, or a foreign metal object is on the charging surface.

FCC ID: L2C0066T

Tests on this equipment show that it complies with part 18 of the FCC Rules.

- This equipment generates, uses and can radiate radio frequency energy and may cause harmful interference to radio communications. There is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, please consult the dealer.
- This product is not end-user serviceable.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

Note: *Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment. The term "IC" before the radio certification number only signifies that Industry Canada technical specifications were met.*

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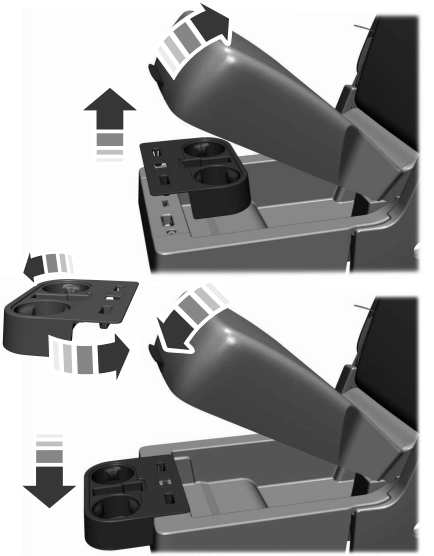
CENTER CONSOLE (IF EQUIPPED)

Stow items in the cup holder carefully as items may become loose during hard braking, acceleration or crashes, including hot drinks which may spill.

In vehicles with a 40-20-40 split-bench seat, the cup holders are inside of the folding console.

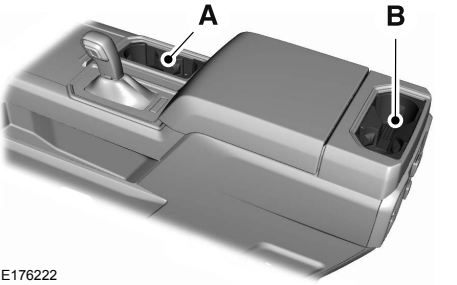


E185121

To use the cup holders:

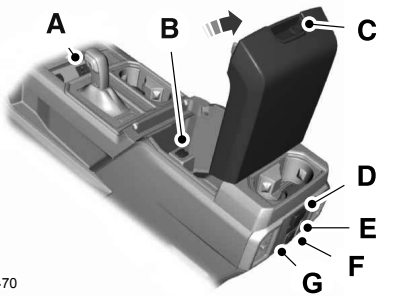
1. Lift the console lid up to open.
2. Lift the cup holders up and rotate them outward.
3. Close the console.

Vehicles with a console-mounted shifter feature cup holders molded into the console.



E176222

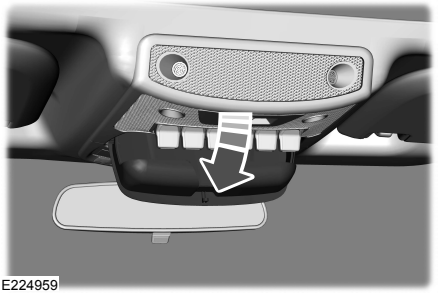
A Front cup holders.
B Rear cup holders.



E251470

A USB ports or audio input jack.
B Auxiliary power point.
C Locking storage compartment with hanging file folder supports and room for a laptop computer.
D AC power point.
E Heated rear seats.
F Auxiliary power point.
G USB port.

OVERHEAD CONSOLE (IF EQUIPPED)


E224959

Press near the rear edge of the door to open it.

REAR SEAT ARMREST

E243962

Pull the strap on the center seatback to access the armrest and cupholders.

The cupholders are inside the rear seat armrest.

To open the cupholders:

1. Push in gently on the center of the plastic panel at the front edge of the armrest. The cupholders will partially open.
2. Pull the cupholder fully open before using.

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GENERAL INFORMATION

WARNING: Extended idling at high engine speeds can produce very high temperatures in the engine and exhaust system, creating the risk of fire or other damage.

WARNING: Do not park, idle or drive your vehicle on dry grass or other dry ground cover. The emission system heats up the engine compartment and exhaust system, creating the risk of fire.

WARNING: Do not start the engine in a closed garage or in other enclosed areas. Exhaust fumes can be toxic. Always open the garage door before you start the engine.

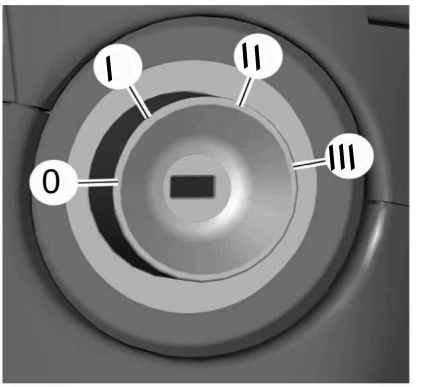
WARNING: Exhaust leaks may result in entry of harmful and potentially lethal fumes into the passenger compartment. If you smell exhaust fumes inside your vehicle, have your vehicle inspected immediately. Do not drive if you smell exhaust fumes.

If you disconnect the battery, your vehicle may exhibit some unusual driving characteristics for approximately 5 mi (8 km) after you reconnect it. This is because the engine management system must realign itself with the engine. You can disregard any unusual driving characteristics during this period.

The powertrain control system meets all Canadian interference-causing equipment standard requirements regulating the impulse electrical field or radio noise.

When you start the engine, avoid pressing the accelerator pedal before and during operation. Only use the accelerator pedal when you have difficulty starting the engine.

IGNITION SWITCH (IF EQUIPPED)



E252522

0 (off) - The ignition is off.

Note: *When you switch the ignition off and leave your vehicle, do not leave your key in the ignition. This could cause your vehicle battery to lose charge.*

I (accessory) - Allows the electrical accessories, such as the radio, to operate while the engine is not running.

Note: *Do not leave the ignition key in this position for too long. This could cause your vehicle battery to lose charge.*

II (on) - All electrical circuits are operational and the warning lamps and indicators illuminate.

III (start) - Cranks the engine.

KEYLESS STARTING (IF EQUIPPED)

Note: *The keyless starting system may not function if the key is close to metal objects or electronic devices such as cellular phones.*

Note: *A valid key must be located inside your vehicle to switch the ignition on and start the engine.*

Ignition Modes

E144447

The keyless starting system has three modes:

Off: Turns the ignition off.

- Without applying the brake pedal, press and release the button once when the ignition is in the on mode, or when the engine is running but the vehicle is not moving.

On: All electrical circuits are operational and the warning lamps and indicators illuminate.

- Without applying the brake pedal, press and release the button once.

Start: Starts the vehicle. The engine may not start when the vehicle starts.

- Press the brake pedal, and then press the button for any length of time. An indicator light on the button illuminates when then ignition is on and when the engine starts.

STEERING WHEEL LOCK - VEHICLES WITHOUT: PUSH BUTTON START (IF EQUIPPED)

WARNING: Always check that the steering is unlocked before attempting to move your vehicle.

To lock the steering wheel:

1. Remove the key from the ignition.
2. Rotate the steering wheel 180º from the straight ahead position to engage the lock.

To unlock the steering wheel:

1. Insert the key in the ignition.
2. Turn the key to the on position.

Note: *You may need to rotate the steering wheel slightly to assist unlocking if there is a steering wheel load applied.*

STEERING WHEEL LOCK - VEHICLES WITH: PUSH BUTTON START (IF EQUIPPED)

Your vehicle has an electronically controlled steering wheel lock that automatically operates.

The steering wheel will lock shortly after you have parked your vehicle and the passive key is outside it or when you lock your vehicle.

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Note: *The steering wheel will not lock when the ignition is on or when your vehicle is moving.*

Unlocking the Steering Wheel

The steering wheel unlocks when the system detects a valid passive key inside your vehicle. If the steering wheel relocks, switch the ignition on to unlock it.

Note: *You may have to slightly rotate the steering wheel to assist unlocking it.*

STARTING A GASOLINE ENGINE (IF EQUIPPED)

When you start the engine, the idle speed increases. This helps to warm up the engine. If the engine idle speed does not slow down automatically, have your vehicle checked by an authorized dealer.

Note: *You can crank the engine for a total of 60 seconds (without the engine starting) before the starting system temporarily disables. The 60 seconds does not have to be all at once. For example, if you crank the engine three times for 20 seconds each time, without the engine starting, you reached the 60-second time limit. A message appears in the information display alerting you that you exceeded the cranking time. You cannot attempt to start the engine for at least 15 minutes. After 15 minutes, you are limited to a 15-second engine cranking time. You need to wait 60 minutes before you can crank the engine for 60 seconds again.*

Before starting the engine, check the following:

- Make sure all occupants have fastened their seatbelts.
- Make sure the headlamps and electrical accessories are off.
- Make sure the parking brake is on.
- Move the transmission selector lever to position **P**.
- Turn the ignition key to on. If your vehicle is equipped with a keyless ignition, see the following instructions.

Vehicles with an Ignition Key

Note: *Do not touch the accelerator pedal.*

1. Fully depress the brake pedal.
2. Turn the key to start the engine. Release the key when the engine starts.

Note: *The engine may continue cranking for up to 15 seconds or until it starts.*

Note: *If you cannot start the engine on the first try, wait for a short period and try again.*

Vehicles with Keyless Start

Note: *Do not touch the accelerator pedal.*

Note: *You must have your intelligent access key in the vehicle in order to shift the transmission out of position **P**.*

1. Fully depress the brake pedal.
2. Press the button.

The system does not function if:

- The key frequencies are jammed.
- The key battery has no charge.

If you are unable to start the engine, locate the backup slot (A) in one of two positions:

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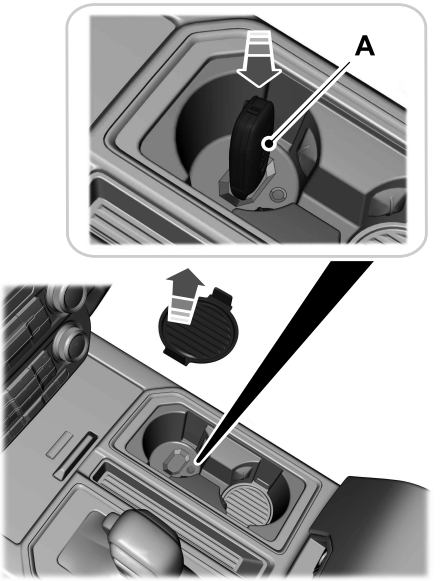
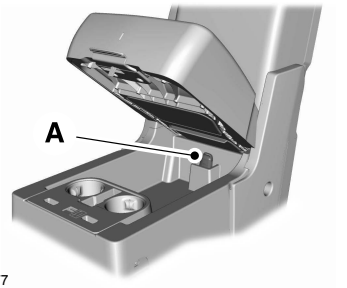
Type One



E244507

Type Two



E187577

Note: *If your vehicle is equipped with Type One, make sure to place the key properly into the backup slot.*

Note: *If your vehicle is equipped with Type Two, make sure the buttons are facing the rear of the vehicle and the key ring up. Place the key into the backup slot.*

Note: *With the key in this position, press the brake pedal, and then the button to switch on the engine.*

Fast Restart

The fast restart feature allows you to restart the engine within 20 seconds of switching it off, even if a valid key is not present.

Within 20 seconds of switching the engine off, press the brake pedal and press the button. After 20 seconds have expired, you can no longer restart the engine without the key present inside your vehicle.

Once the engine has started, it remains running until you press the button, even if the system does not detect a valid key. If you open and close a door while the engine is running, the system searches for a valid key. You cannot restart the engine if the system does not detect a valid key within 20 seconds.

Failure to Start

If you cannot start the engine after three attempts, wait 10 seconds and follow this procedure:

1. Fully press the brake pedal.
2. Move the transmission selector lever to position **P**.
3. Fully press the accelerator pedal and hold it there.
4. Start the engine.

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Automatic Engine Shutdown

If your vehicle is equipped with a keyless ignition, it has a feature that automatically shuts down the engine if it has been idling for an extended period. The ignition also turns off in order to save battery power. Before the engine shuts down, a message appears in the information display showing a timer counting down from 30 seconds. If you do not intervene within 30 seconds, the engine shuts down. Another message appears in the information display to inform you that the engine has shut down in order to save fuel. Start your vehicle as you normally do.

Automatic Engine Shutdown Override

Note: *You cannot permanently switch off the automatic engine shutdown feature. When you switch it off temporarily, it turns on at the next ignition cycle.*

You can stop the engine shutdown, or reset the timer, at any point before the 30-second countdown has expired by doing any of the following:

- You can reset the timer by interacting with your vehicle (such as pressing the brake pedal or accelerator pedal).
- You can temporarily switch off the shutdown feature any time the ignition is on (for the current ignition cycle only). Use the information display to do so. See **Information Displays** (page 120).
- During the countdown before engine shutdown, you are prompted to press OK or RESET (depending on your type of information display) to temporarily switch the feature off (for the current ignition cycle only).

Stopping the Engine When Your Vehicle is Stationary

Vehicles with an Ignition Key

1. Move the transmission selector lever to position **P**.
2. Turn the key to off.
3. Apply the parking brake.

Vehicles with Keyless Start

1. Move the transmission selector lever to position **P**.
2. Press the button once.
3. Apply the parking brake.

Note: *This switches off the ignition, all electrical circuits, warning lamps and indicators.*

Note: *If the engine is idling for 30 minutes, the ignition and engine automatically shut down.*

Stopping the Engine When Your Vehicle is Moving

WARNING: Switching off the engine when your vehicle is still moving results in a significant decrease in braking assistance. Higher effort is required to apply the brakes and to stop your vehicle. A significant decrease in steering assistance could also occur. The steering does not lock, but higher effort could be required to steer your vehicle. When you switch the ignition off, some electrical circuits, for example airbags, also turn off. If you unintentionally switch the ignition off, shift into neutral (N) and restart the engine.

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Vehicles with an Ignition Key

1. Move the transmission selector lever to position **N** and use the brakes to bring your vehicle to a safe stop.
2. When your vehicle has stopped, move the transmission selector lever to position **P** and turn the key to off.
3. Apply the parking brake.

Vehicles with Keyless Start

1. Move the transmission selector lever to position **N** and use the brakes to bring your vehicle to a safe stop.
2. When your vehicle has stopped, move the transmission selector lever to position **P**.
3. Press and hold the button for one second, or press it three times within two seconds.
4. Apply the parking brake.

Guarding Against Exhaust Fumes

WARNING: Exhaust leaks may result in entry of harmful and potentially lethal fumes into the passenger compartment. If you smell exhaust fumes inside your vehicle, have your vehicle inspected immediately. Do not drive if you smell exhaust fumes.

Important Ventilating Information

If you stop your vehicle and leave the engine idling for long periods, we recommend that you do one of the following:

- Open the windows at least 1 in (2.5 cm).
- Set your climate control to outside air.

STARTING A DIESEL ENGINE (IF EQUIPPED)

Read all starting instructions carefully before you start your vehicle.

For temperatures below 32ºF (0ºC), the use of the correct grade engine oil is essential for proper operation. Refer to Engine oil specifications for more information. See **Capacities and Specifications** (page 435).

Your vehicle may be equipped with a cold weather starting strategy that prevents severe engine damage by assisting in engine lubrication warm-up. In extremely cold ambient temperatures, this strategy activates and prevents the accelerator pedal from being used for 30 seconds after starting your vehicle. A message will appear in the information display as your vehicle warms up. By not allowing the accelerator pedal to be used, the engine oil is allowed to properly lubricate the bearings preventing engine damage due to lack of proper lubrication. After the 30 second warm-up period, the accelerator pedal will be operational again and a message will appear informing you the vehicle is ok to drive.

When starting the engine in extremely cold temperatures -15ºF (-26ºC), it is recommended to allow the engine to idle for several minutes before driving the vehicle.

Before starting the engine check the following:

- Make sure all occupants have fastened their seatbelts.
- Make sure the headlamps and electrical accessories are off.
- Make sure the parking brake is on.
- Make sure the transmission is in park (P).

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Note: *Do not press the accelerator during starting.*

Vehicles with Keyless Start

Note: *Do not touch the accelerator pedal.*

Note: *If the push button ignition switch is pressed again prior to the engine starting the ignition switches to accessory mode and does not start.*

Note: *If the brake pedal is released before the engine has started, follow the engine start sequence again.*

1. Fully depress the brake pedal.
2. Press the center of the push button ignition switch.

Note: *A message displays Engine Start Pending, Please Wait.*

3. When the engine starts, release the brake pedal.

Diesel Engine Fast Start Glow Plug System

The diesel engine glow system consists of:

- Six or eight glow plugs (one per cylinder)
- Glow Plug Control Module
- Engine Coolant Temperature sensor
- Barometric pressure sensor
- Environmental temperature sensor

The powertrain and glow plug control modules electronically control the glow plug system. After you switch the ignition on the glow plug control module immediately energizes the glow plugs. The glow plug control module using the engine coolant temperature, barometric pressure sensor and environmental temperature sensor will determine how long the glow plugs stay energized. The required time for the glow plugs to be energized decreases as the coolant temperature, barometric pressure and environmental temperature increase.

Automatic Engine Shutdown

If your vehicle is equipped with a keyless ignition, it has a feature that automatically shuts down the engine if it has been idling for an extended period. The ignition also turns off in order to save battery power. Before the engine shuts down, a message appears in the information display showing a timer counting down from 30 seconds. If you do not intervene within 30 seconds, the engine shuts down. Another message appears in the information display to inform you that the engine has shut down in order to save fuel. Start your vehicle as you normally do.

Cold Weather Starting

WARNING: Do not use starting fluid, for example ether, in the air intake system. Such fluid could cause immediate explosive damage to the engine and possible personal injury.

WARNING: Do not mix diesel with gasoline, gasohol or alcohol. This could cause an explosion.

It is recommended that the engine block heater be used for starting when the temperature is -9ºF (-23ºC) or colder. See **Engine Block Heater** (page 188).

When operating in cold weather, Motorcraft® cetane improvers or non-alcohol-based cetane improvers from a reputable manufacturer may be used as needed.

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Do not crank the engine for more than 10 seconds as starter damage may occur. If the engine fails to start, switch the ignition off and wait 30 seconds before trying again.

Switch the ignition on. Do not start the engine until the glow-plug indicator turns off.

When the glow plug pre-heat indicator turns off, turn the key to start and release the key as soon as the engine starts. After starting the engine, the glow plugs may remain on for a period. If you do not start the engine before the glow plug activation time ends, you will need to reset the glow plugs by switching the ignition off. After the engine starts, allow it to idle for about 15 seconds. This is to protect the engine. Do not increase engine speed until the oil pressure gauge indicates normal pressure.

For vehicles with keyless start:

1. Fully depress brake pedal and hold to allow time for glow-plugs to heat.
2. Press and release the start button.

Note: *A message "Engine Start Pending, Please Wait", along with the glow plug indicator displays on the instrument cluster.*

3. When the engine starts, release the brake pedal.

Cold Weather Operation

Note: *Idling in cold weather does not heat the engine to its normal operating temperature. Long periods of idling, especially in cold weather, can cause a buildup of deposits which can cause engine damage.*

Changing to a lighter grade engine oil also makes starting easier under these conditions. Refer to Engine oil specifications. See **Capacities and Specifications** (page 435).

Diesel fuel is adjusted seasonally for cold temperatures. Diesel fuel which has not been properly formulated for the ambient conditions may gel which can clog the fuel filters. One indication that the fuel filter(s) may be clogged is if the engine starts, stalls after a short time, and then does not restart. If you have been using biodiesel, you may need to use a fuel with lower biodiesel content, try another brand, or discontinue using biodiesel. Do not use alcohol based additives to correct fuel gelling. This may result in damage to the fuel injectors and system. Use the proper anti-gel and performance improvement product. See **Capacities and Specifications** (page 435).

Your vehicle is equipped with a fuel and water separator that recirculates fuel from the engine to help prevent fuel filter clogging. To avoid engine fuel starvation during cold weather operation of 32ºF (0ºC) or below, we recommended that the fuel level in your tank should not drop below 1/4 full. This helps prevent air from entering the fuel system and stalling the engine.

In cold weather below 32ºF (0ºC), the engine may slowly increase to a higher idle speed if left idling in park (P). As the engine warms-up, the engine sound level decreases due to the activation of PCM-controlled sound reduction features.

If you operate your vehicle in a heavy snowstorm or blowing snow conditions, snow and ice can clog the engine air induction. If this occurs, the engine may experience a significant reduction in power output. At the earliest opportunity, clear all the snow and/or ice away from inside the air filter assembly. Remove the air cleaner cover and the pleated paper filter, leaving the foam filter in and remove any

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snow or ice. Make sure you install the foam filter correctly in place. Remove any debris, snow or ice on the foam filter by brushing the surface with soft brush. Once you have cleared all of the debris, reinstall the air filter and assembly.

Do not use water, solvents, or a hard brush for cleaning the foam filter.

WARNING: To reduce the risk of vehicle damage and personal burn injuries, do not start your engine with the air cleaner removed and do not remove it while the engine is running.

In order to operate the engine in temperatures of 32ºF (0ºC) or lower, read the following instructions:

- Make sure that the batteries are of sufficient size and are fully charged. Check other electrical components to make sure they are in optimum condition.
- Use the proper coolant solution at the concentration recommended protecting the engine against damage from freezing.
- Try to keep the fuel tank full as much as possible at the end of operation to prevent condensation in the fuel system.
- Make sure you use proper cold weather engine oil and that it is at its proper level. Also, if necessary, make sure to follow the engine oil and filter change schedule found under the Special operating conditions section listed in the scheduled maintenance information.
- At temperatures of -9ºF (-23ºC) or below, it is recommended that you use an engine block heater to improve cold engine starting.
- If operating in arctic temperatures of -20ºF (-29ºC) or lower, consult your truck dealer for information about special cold weather equipment and precautions.

The following cold weather idling guidelines are recommended:

- You can use Motorcraft® cetane improvers or non-alcohol-based cetane improvers from a reputable manufacturer as needed.
- Maintain the engine cooling system properly.
- Avoid shutting the engine down after an extensive idling period. Drive your vehicle for several miles with the engine at normal operating temperatures under a moderate load.
- Consider using an engine block heater.
- For extended idle times use an approved idle speed increase device.

Winter Operating Tips for Arctic Operation -20ºF (-29ºC) and Below

The following information is a guideline only and is not to be the only source of possible solutions in resolving extreme cold temperature issues.

Starting Aids

WARNING: Do not use starting fluid, for example ether, in the air intake system. Such fluid could cause immediate explosive damage to the engine and possible personal injury.

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The use of the factory engine block heater assists in engine starting in extreme cold ambient temperatures See **Engine Block Heater** (page 188).

Idle Control

Your vehicle may have a factory option for a stationary elevated idle control through dash-mounted upfitter switches that allows the operator to elevate the idle rpm for extended idle periods, as well as aftermarket equipment such as PTO operation. You must configure this feature even if ordered from the factory. See your authorized dealer for required upfitting.

Operation in Snow and Rain

Vehicle operation in heavy snowfall or extreme rain conditions may feed excessive amounts of snow or water into the air intake system. This could plug the air filter with snow and may cause the engine to lose power and possibly shut down.

We recommend the following actions after operating your vehicle up to 200 mi (320 km) in snowfall or extreme rain:

- Snow: At the earliest opportunity, open the hood and clear all the snow and ice from the air filter housing inlet (do not remove the foam filter) and reset the air filter restriction gauge.

Note: *Removal of the foam filter degrades your vehicle performance during snow and hot weather conditions.*

- Extreme rain: The air filter dries after about 15–30 minutes at highway speeds. At the earliest opportunity, open the hood and reset the air filter restriction gauge.

Refer to Air filter and restriction gauge in the Maintenance chapter for more information. See **Changing the Engine Air Filter** (page 381).

Operation in Standing Water

Ingestion of water into the diesel engine can result in immediate and severe damage to the engine. If driving through water, slow down to avoid splashing water into the intake. If the engine stalls, and you suspect ingestion of water into the engine, do not try to restart the engine. Consult your dealer for service immediately.

Your fuel tank vents to the atmosphere by valves on top of the tank and through the fuel cap. If water reaches the top of the tank, the valves may pull water into the fuel tank. Water in the fuel can cause performance issues and damage the fuel injection system.

SWITCHING OFF THE ENGINE

Allow the engine to idle for three to five minutes before shutting it down. The larger the engine, the greater the need is for this idling period.

Note: *Try to limit engine idle to 10 minutes. Excessive idling reduces fuel economy.*

ENGINE BLOCK HEATER (IF EQUIPPED)

WARNING: Failure to follow engine block heater instructions could result in property damage or serious personal injury.

WARNING: Do not use your heater with ungrounded electrical systems or two-pronged adapters. There is a risk of electrical shock.

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WARNING: Do not fully close the hood, or allow it to drop under its own weight when using the engine block heater. This could damage the power cable and may cause an electrical short resulting in fire, injury and property damage.

Note: *The heater is most effective when outdoor temperatures are below 0°F (-18°C).*

The heater acts as a starting aid by warming the engine coolant. This allows the climate control system to respond quickly. The equipment includes a heater element, installed in the engine block and a wire harness. You can connect the system to a grounded 120-volt AC electrical source.

We recommend that you do the following for a safe and correct operation:

- Use a 16-gauge outdoor extension cord that is product certified by Underwriter's Laboratory (UL) or Canadian Standards Association (CSA). This extension cord must be suitable for use outdoors, in cold temperatures, and be clearly marked Suitable for Use with Outdoor Appliances. Do not use an indoor extension cord outdoors. This could result in an electric shock or become a fire hazard.
- Use as short an extension cord as possible.
- Do not use multiple extension cords.
- Make sure that when in operation, the extension cord plug and heater cord plug connections are free and clear of water. This could cause an electric shock or fire.
- If the block heater cord is under the hood, Do Not remove the wiring from its original location. Do Not close the hood on the extension wiring.
- Make sure your vehicle is parked in a clean area, clear of combustibles.
- Make sure the heater, heater cord and extension cord are firmly connected.
- Check for heat anywhere in the electrical hookup once the system has been operating for approximately 30 minutes.
- Make sure the system is unplugged and properly stowed before starting and driving your vehicle. Make sure the protective cover seals the prongs of the block heater cord plug when not in use.
- Make sure the heater system is checked for proper operation before winter.

Using the Engine Block Heater

Make sure the receptacle terminals are clean and dry prior to use. Clean them with a dry cloth if necessary.

The heater uses 0.4 to 1.0 kilowatt-hours of energy per hour of use. The system does not have a thermostat. It achieves maximum temperature after approximately three hours of operation. Using the heater longer than three hours does not improve system performance and unnecessarily uses electricity.

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AUTO-START-STOP (IF EQUIPPED)

The system helps reduce fuel consumption by automatically stopping and restarting the engine when your vehicle has stopped. The engine restarts automatically when you release the brake pedal.

In some situations, your vehicle may restart automatically, for example:

- To maintain interior comfort.
- To recharge the battery.

Note: *Power assist steering turns off when the engine is off.*

Note: *If your vehicle is flex fuel capable, Auto-Start-Stop will be inhibited for a short time after a refuel event while the system is verifying the fuel type being used.*

WARNING: Apply the parking brake, shift into park (P), switch the ignition off and remove the key before you leave your vehicle. Failure to follow this instruction could result in personal injury or death.

WARNING: Before opening the hood, fully apply the parking brake, shift into park (P) or neutral (N) and switch the ignition off.

WARNING: Apply the parking brake, shift into park (P), switch the ignition off and remove the key before you open the hood or have any service or repair work completed. If you do not switch the ignition off, the engine could restart at any time. Failure to follow this instruction could result in personal injury or death.

WARNING: The system may require the engine to automatically restart when the auto-start-stop indicator illuminates green or flashes amber. Failure to follow this instruction could result in personal injury.

The Auto-Start-Stop system status is available at a glance within the information display. See **Information Displays** (page 120).

Enabling Auto-Start-Stop

The system automatically enables every time you start your vehicle if:

- You do not press the Auto-Start-Stop button (not illuminated).
- Your vehicle exceeds an initial speed of 3 mph (5 km/h) after you have initially started your vehicle.
- You have stopped your vehicle.
- Your foot is on the brake pedal.
- The driver door is closed.
- There is adequate brake vacuum.
- The interior compartment has cooled or warmed to an acceptable level.
- The front windshield defroster is off.
- You have not turned the steering wheel rapidly or you do not have it at a sharp angle.
- The vehicle is not on a steep road grade.
- The battery is within optimal operating conditions (battery state of charge and temperature in range).
- The engine coolant is at operating temperature.
- The vehicle is not at a high elevation.
- Ambient temperature is moderate.
- The trailer is not connected.

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- If you select Normal, Eco, Snow/Wet or Grass/Gravel/Snow modes. (if equipped).
- You are not in 4H or 4L.
- You have not selected Manual shift mode.
- Trail control is not active.
- You have not selected Tow haul, Sport, Sand, Mud/Rut or Baja modes. (if equipped).

The green Auto-Start-Stop indicator light on the instrument cluster will illuminate to indicate when the automatic engine stop occurs.

If the instrument cluster is equipped with a grey Auto-Start-Stop indicator light, it illuminates when automatic engine stop is not available due to one of the above noted conditions not being met.

Automatic Engine Restart

Any of the following conditions will result in an automatic restart of the engine:

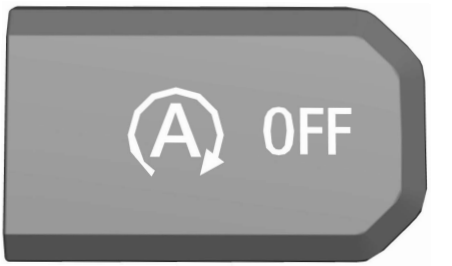
- You have removed your foot from the brake pedal.
- You press the accelerator pedal.
- You press the accelerator and the brake pedal at the same time.
- The driver safety belt becomes unfastened or the driver door is ajar.
- Your vehicle is moving.
- The interior compartment does not meet customer comfort when air conditioning or heat is on.
- Fogging of the windows could occur and the air conditioning is on.
- The battery is not within optimal operating conditions.
- You have exceeded the maximum engine off time.
- When you press the Auto-Start-Stop button with the engine automatically stopped.
- The front defroster is turned to the Max setting.

Any of the following conditions may result in an automatic restart of the engine:

- You have increased the blower fan speed or changed the climate control temperature.
- You have an electrical accessory turned on or plugged in.

Note: *You may notice that the climate seat fan fluctuates during an automatic restart.*

Disabling Auto-Start-Stop



E181352

Press the Auto-Start-Stop button located on the center console to switch the system off. The button will illuminate. Deactivating using the button lasts only one key cycle. Press the button again to restore Auto-Start-Stop function.

Note: *If the Shift to P, Restart Engine message appears and the amber Auto-Start-Stop indicator light is flashing, automatic restart is not available. You must restart the vehicle manually. See* ***Information Displays*** *(page 120).*

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If Auto Start Stop stops your engine, shifting from drive (D) to reverse (R) will not restart your engine unless you are pressing the brake pedal. When the Press Brake to Start Engine message appears, you must press the brake pedal within 60 seconds or you will have to shift to park (P) and manually restart.

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SAFETY PRECAUTIONS

WARNING: Do not overfill the fuel tank. The pressure in an overfilled tank may cause leakage and lead to fuel spray and fire.

WARNING: The fuel system may be under pressure. If you hear a hissing sound near the fuel filler inlet, do not refuel until the sound stops. Otherwise, fuel may spray out, which could cause serious personal injury.

WARNING: Fuels can cause serious injury or death if misused or mishandled.

WARNING: Fuel may contain benzene, which is a cancer-causing agent.

WARNING: When refueling always shut the engine off and never allow sparks or open flames near the fuel tank filler valve. Never smoke or use a cell phone while refueling. Fuel vapor is extremely hazardous under certain conditions. Avoid inhaling excess fumes.

Follow these guidelines when refueling:

- Extinguish all smoking materials and any open flames before refueling your vehicle.
- Always switch the engine off before refueling.
- Automotive fuels can be harmful or fatal if swallowed. Fuel is highly toxic and if swallowed can cause death or permanent injury. If fuel is swallowed immediately call a physician, even if no symptoms are immediately apparent. The toxic effects of fuel may not be apparent for hours.
- Avoid inhaling fuel vapors. Inhaling fuel vapor can lead to eye and respiratory tract irritation. In severe cases, excessive or prolonged breathing of fuel vapor can cause serious illness and permanent injury.
- Avoid getting fuel in your eyes. If you splash fuel in your eyes, immediately remove contact lenses (if worn), flush with water for 15 minutes and seek medical attention. Failure to seek proper medical attention could lead to permanent injury.
- Fuels can be harmful if absorbed through the skin. If you splash fuel on your skin, clothing or both, promptly remove contaminated clothing and thoroughly wash your skin with soap and water. Repeated or prolonged skin contact causes skin irritation.
- Be particularly careful if you are taking Antabuse or other forms of Disulfiram for the treatment of alcoholism. Breathing fuel vapors could cause an adverse reaction, serious personal injury or sickness. Immediately call a physician if you experience any adverse reactions.

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FUEL QUALITY - DIESEL

Fuel Requirements - Choosing The Right Fuel: Vehicles Operated Where Ultra Low Sulfur Diesel Fuel Is Required (United States/Canada/Puerto Rico/U.S. Virgin Islands And Other Locales)

Note: *Your warranty will not cover damage caused by using an improper type of fuel or fuel additive.*

Note: *Do not blend used engine oil with diesel fuel under any circumstances. Blending used oil with the fuel will significantly increase your vehicle's exhaust emissions and reduce engine life due to increased internal wear.*

We recommend Top Tier diesel fuel where available to help minimize engine deposits and maintain optimal vehicle and engine performance. For additional information, refer to www.toptiergas.com.

You should use Ultra-Low Sulfur Diesel fuel (also known as ULSD) designated as number 1-D or 2-D with a maximum of 15-ppm sulfur in your diesel vehicle. You may operate your vehicle on diesel fuels containing up to 20% biodiesel, also known as B20. These fuels should meet the ASTM D975 diesel or the ASTM D7467 B6-B20 biodiesel industry specifications. Outside of North America, use fuels meeting EN590 or equivalent local market standard.

Using low sulfur diesel fuel (16-500 ppm) or high sulfur diesel fuel (greater than 500 ppm) in your diesel engine will cause certain emission components to malfunction which may also cause the service engine soon light to illuminate indicating an emissions-related concern.

Diesel fuel is adjusted seasonally for cold temperature. For best results at temperatures below 19ºF (-7ºC), we recommended using a diesel fuel which has been seasonally adjusted for the ambient conditions.

Fuel Requirements - Choosing The Right Fuel: Vehicles Operated Where Ultra Low Sulfur Diesel Fuel Is Not Required

For the engine to operate reliably on low-sulfur or high-sulfur diesel fuel, the engine must be a factory built high-sulfur engine (available as a dealer order option for select markets) or an ultra low sulfur diesel fuel configured engine that has been retrofitted for high-sulfur diesel fuel using Ford Motor Company dealer service parts. Failure to use retrofit components other than those available through your authorized dealer will result in coolant system damage, engine overheating, selective catalyst reduction system or diesel particulate filter damage and possible base engine damage.

Use only a diesel engine configured for use with high sulfur diesel fuel in markets with diesel fuel that has sulfur content greater than 15 ppm. Using low sulfur diesel fuel (16–500 ppm) or high sulfur diesel fuel (greater than 500 ppm) in a diesel engine designed to use only Ultra Low Sulfur Diesel fuel may result in damage to engine emission control devices and the aftertreatment system, potentially rendering the vehicle inoperable.

Vehicles with engines configured for use with high sulfur diesel fuel are only available for sale in countries where ultra low sulfur diesel fuel is generally not available or mandated by the government. Vehicles originally sold in a ultra low sulfur diesel fuel market that are subsequently

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exported to non- ultra low sulfur diesel fuel markets will need to be retrofitted at the customer's expense using Ford authorized dealer service parts in order to be reliably operated on non- ultra low sulfur diesel fuel.

Biodiesel

WARNING: Do not mix diesel with gasoline, gasohol or alcohol. This could cause an explosion.

Note: *Do not use home heating oil, agricultural fuel, raw fats and oils, waste cooking greases, biodiesel greater than 20% or any diesel not intended for highway use. Damage to the fuel injection system, engine and exhaust catalyst, and diesel particulate filter can occur if you use an improper fuel. Red dye is used to identify fuels intended for agricultural and non-highway use.*

You may operate your vehicle on diesel fuels containing up to 20% biodiesel, also known as B20.

Biodiesel fuel is a chemically converted product from renewable fuel sources, such as vegetable oils, animal fats and waste cooking greases.

To help achieve acceptable engine performance and durability when using biodiesel in your vehicle:

- Confirm the biodiesel content of the fuel to be B20 (20% biodiesel) or less
- Only use biodiesel fuel of good quality that complies with industry standards
- Follow the recommended service maintenance intervals See **General Maintenance Information** (page 557).
- Do not store biodiesel fuel in the fuel tank for more than 1 month
- Consider changing brands or reducing biodiesel content if you have cold temperature fuel gelling issues or a frequent LOW FUEL PRESSURE message appearing

Use of biodiesel in concentrations greater than 20% may cause damage to your vehicle, including engine and/or exhaust after-treatment hardware (exhaust catalyst and particulate filter) failures. Concentrations greater than 20% can also cause fuel filter restrictions that may result in a lack of power or damage to fuel system components, including fuel pump and fuel injector failures.

We recommend SAE 5W-40 oil for fuels with greater than 5% biodiesel (B5). For more information about oil change intervals and other maintenance when operating on biodiesel See **Special Operating Conditions Scheduled Maintenance** (page 564).

Look for a label on the fuel pump to confirm the amount of biodiesel contained in a diesel fuel. Biodiesel content is often indicated with the letter B followed by the percent of biodiesel in the fuel. For example, B20 indicates a fuel containing 20% biodiesel. Ask the service station attendant to confirm the biodiesel content of a diesel fuel if you do not see a label on the fuel pump.

Biodiesel fuels degrade more easily than diesel fuels not containing biodiesel and should not be stored in the fuel tank for more than 1 month. If you plan to park or store your vehicle for more than 1 month, then you should empty your vehicle fuel tank of biodiesel fuel. You should fill the tank with a pure petroleum-based diesel fuel and run your vehicle for a minimum of 30 minutes.

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Note: *Degraded or oxidized biodiesel can damage fuel system seals and plastics and corrode steel parts.*

During cold weather, if you have problems operating on biodiesel, you may need to use a diesel fuel with lower biodiesel content, try another brand, or discontinue the use of biodiesel.

Diesel Fuel Additives

It should not be necessary to add any aftermarket additives to your fuel if you use a high quality diesel fuel that conforms to ASTM industry specifications. Aftermarket additives can damage the fuel injector system or engine.

Use Motorcraft® cetane booster or an equivalent cetane booster additive if you suspect fuel has low cetane. Use Motorcraft® anti-gel & performance improver or an equivalent additive if there is fuel gelling.

Do not use alcohol-based additives to improve cetane quality, to prevent fuel gelling or any other use. The use of alcohol additives may result in damage to the fuel injectors and system. See **Engine Specifications** (page 426).

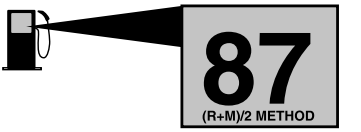
Your warranty may not cover repairs needed to correct the effects of using an aftermarket product that does not meet Ford specifications in your fuel.

FUEL QUALITY - E85

Choosing the Right Fuel - Flex Fuel Vehicles

Flex fuel vehicles have one of the following identifiers:

- Yellow fuel filler cap.
- Yellow bezel around the fuel filler inlet.
- Yellow fuel filler housing.
- Yellow E85 label on the fuel tank filler door.



E161513

Your vehicle is designed to operate on regular unleaded gasoline with a minimum pump (R+M)/2 octane rating of 87 or regular unleaded gasoline blended with a maximum of 85% ethanol (E85).

Some fuel stations, particularly those in high altitude areas, offer fuels posted as regular unleaded gasoline with an octane rating below 87. The use of these fuels could result in engine damage that will not be covered by the vehicle warranty.

For best overall vehicle and engine performance, premium fuel with an octane rating of 91 or higher is recommended. The performance gained by using premium fuel is most noticeable in hot weather as well as other conditions, for example when towing a trailer. See **Towing** (page 292).

Do not be concerned if the engine sometimes knocks lightly. However, if the engine knocks heavily while using fuel with the recommended octane rating, contact an authorized dealer to prevent any engine damage.

We recommend Top Tier detergent gasolines, where available to help minimize engine deposits and maintain optimal vehicle and engine performance. For additional information, refer to www.toptiergas.com.

Note: *Use of any fuel for which the vehicle was not designed can impair the emission control system, cause loss of vehicle performance, and cause damage to the engine which may not be covered by the vehicle Warranty.*

Do not use:

- Diesel fuel.
- Fuels containing kerosene or paraffin.
- Fuels containing more than 85% ethanol or E100 fuel.
- Fuels containing methanol.
- Fuels containing metallic-based additives, including manganese-based compounds.
- Fuels containing the octane booster additive, methylcyclopentadienyl manganese tricarbonyl (MMT).
- Leaded fuel, using leaded fuel is prohibited by law.

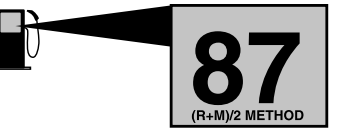
The use of fuels with metallic compounds such as methylcyclopentadienyl manganese tricarbonyl (commonly known as MMT), which is a manganese-based fuel additive, will impair engine performance and affect the emission control system.

Switching Between E85 and Gasoline

We do not recommend repeatedly alternating between E85 and gasoline. If you switch from using E85 to gasoline, or from gasoline to E85, add as much fuel as possible, at least half a tank. Drive your vehicle immediately for a minimum of 5 mi (8 km) to allow it to adapt to the change in ethanol concentration. If you use E85 exclusively, we recommend that you fill the fuel tank with regular unleaded gasoline at each scheduled oil change.

FUEL QUALITY - GASOLINE

Choosing the Right Fuel



E161513

Your vehicle is designed to operate on regular unleaded gasoline with a minimum pump (R+M)/2 octane rating of 87.

Some fuel stations, particularly those in high altitude areas, offer fuels posted as regular unleaded gasoline with an octane rating below 87. The use of these fuels could result in engine damage that will not be covered by the vehicle warranty.

For best overall vehicle and engine performance, premium fuel with an octane rating of 91 or higher is recommended. The performance gained by using premium fuel is most noticeable in hot weather as well as other conditions, for example when towing a trailer. See **Towing** (page 292).

Do not be concerned if the engine sometimes knocks lightly. However, if the engine knocks heavily while using fuel with the recommended octane rating, contact an authorized dealer to prevent any engine damage.

We recommend Top Tier detergent gasolines, where available to help minimize engine deposits and maintain optimal vehicle and engine performance. For additional information, refer to www.toptiergas.com.

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Note: *Use of any fuel for which the vehicle was not designed can impair the emission control system, cause loss of vehicle performance, and cause damage to the engine which may not be covered by the vehicle Warranty.*

Do not use:

- Diesel fuel.
- Fuels containing kerosene or paraffin.
- Fuel containing more than 15% ethanol or E85 fuel.
- Fuels containing methanol.
- Fuels containing metallic-based additives, including manganese-based compounds.
- Fuels containing the octane booster additive, methylcyclopentadienyl manganese tricarbonyl (MMT).
- Leaded fuel, using leaded fuel is prohibited by law.

The use of fuels with metallic compounds such as methylcyclopentadienyl manganese tricarbonyl (commonly known as MMT), which is a manganese-based fuel additive, will impair engine performance and affect the emission control system.

FUEL FILLER FUNNEL LOCATION - REGULAR CAB

The fuel filler funnel is behind the right-hand front seat.

FUEL FILLER FUNNEL LOCATION - SUPERCAB/ SUPERCREW

The fuel filler funnel is under the second row right-hand rear seat.

RUNNING OUT OF FUEL

Running out of fuel can cause damage not covered by the vehicle Warranty.

If your vehicle runs out of fuel:

- Add a minimum of 1.3 gal (5 L) of fuel to restart the engine.
- You may need to switch the ignition from off to on several times after refueling to allow the fuel system to pump the fuel from the tank to the engine. When restarting, cranking time takes a few seconds longer than normal.

Note: *If your vehicle is on a steep slope, more fuel may be required.*

Filling a Portable Fuel Container

WARNING: Flow of fuel through a fuel pump nozzle can produce static electricity. This can cause a fire if you are filling an ungrounded fuel container.

Use the following guidelines to avoid electrostatic charge build-up, which can produce a spark, when filling an ungrounded fuel container:

- Only use an approved fuel container to transfer fuel to your vehicle. Place the container on the ground when filling it.
- Do not fill a fuel container when it is inside your vehicle (including the cargo area).
- Keep the fuel pump nozzle in contact with the fuel container when filling it.
- Do not use a device that holds the fuel pump nozzle lever in the fill position.

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Adding Fuel From a Portable Fuel Container

WARNING: Do not insert the nozzle of a fuel container or an aftermarket funnel into the fuel filler neck. This may damage the fuel system filler neck or its seal and cause fuel to run onto the ground.

WARNING: Do not try to pry open or push open the capless fuel system with foreign objects. This could damage the fuel system and its seal and cause injury to you or others.

WARNING: Do not dispose of fuel in the household refuse or the public sewage system. Use an authorized waste disposal facility.

When refueling the vehicle fuel tank from a fuel container, use the fuel filler funnel included with your vehicle. See **Fuel Filler Funnel Location** (page 198).

Note: *Do not use aftermarket funnels as they may not work with the capless fuel system and can damage it.*

When refueling the vehicle fuel tank from a fuel container, do the following:

1. Fully open the fuel filler door.
2. Fully insert the fuel filler funnel into the fuel filler inlet.

E157452

3. Add fuel to your vehicle from the fuel container.
4. Remove the fuel filler funnel.
5. Fully close the fuel filler door.
6. Clean the fuel filler funnel and place it back in your vehicle or correctly dispose of it.

Note: *Extra funnels can be purchased from an authorized dealer if you choose to dispose of the funnel.*

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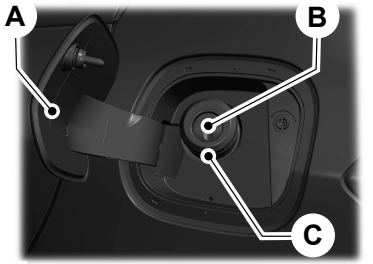
REFUELING

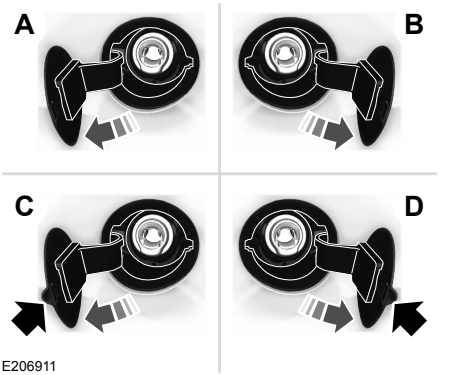
Refueling System Overview



E267248

A Fuel filler door.
B Fuel tank filler valve.
C Fuel tank filler pipe.

Your vehicle does not have a fuel tank filler cap.



E206911

A Left-hand side. To open the fuel filler door, press the center rear edge of the fuel filler door and then release.
B Right-hand side. To open the fuel filler door, press the center rear edge of the fuel filler door and then release.
C Left-hand side. Pull the rear of the fuel filler door to open it.
D Right-hand side. Pull the rear of the fuel filler door to open it.

Refueling Your Vehicle

WARNING: When refueling always shut the engine off and never allow sparks or open flames near the fuel tank filler valve. Never smoke or use a cell phone while refueling. Fuel vapor is extremely hazardous under certain conditions. Avoid inhaling excess fumes.

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WARNING: The fuel system may be under pressure. If you hear a hissing sound near the fuel filler inlet, do not refuel until the sound stops. Otherwise, fuel may spray out, which could cause serious personal injury.

WARNING: Do not pry open the fuel tank filler valve. This could damage the fuel system. Failure to follow this instruction could result in fire, personal injury or death.

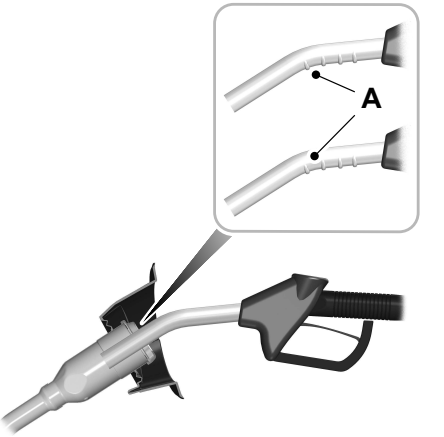
WARNING: Do not remove the fuel pump nozzle from its fully inserted position when refueling.

WARNING: Stop refueling when the fuel pump nozzle automatically shuts off for the first time. Failure to follow this will fill the expansion space in the fuel tank and could lead to fuel overflowing.

WARNING: Do not overfill the fuel tank. The pressure in an overfilled tank may cause leakage and lead to fuel spray and fire.

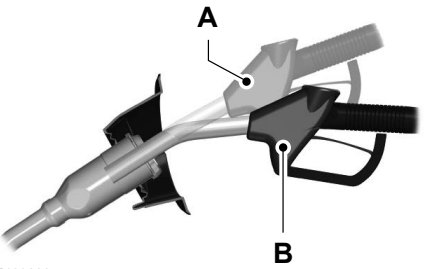
WARNING: Wait at least five seconds before removing the fuel pump nozzle to allow any residual fuel to drain into the fuel tank.

1. Fully open the fuel filler door.
2. Select the correct fuel pump nozzle for your vehicle.



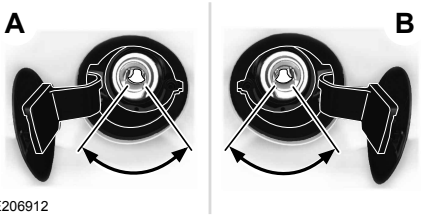
E139202

3. Insert the fuel pump nozzle up to the first notch on the nozzle A. Keep the fuel pump nozzle resting on the fuel tank filler pipe.



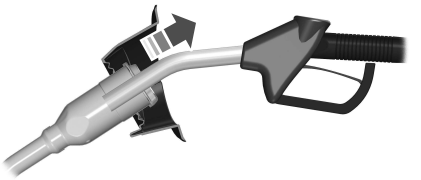
E139203

4. Hold the fuel pump nozzle in position B when refueling. Holding the fuel pump nozzle in position A can affect the flow of fuel and shut off the fuel pump nozzle before the fuel tank is full.



E206912

5. Operate the fuel pump nozzle within the area shown.



E119081

6. When you finish refueling slightly raise the fuel pump nozzle and slowly remove it.
7. Fully close the fuel filler door.

Do not attempt to start the engine if you have filled the fuel tank with incorrect fuel. Incorrect fuel use could cause damage not covered by the vehicle Warranty. Have your vehicle immediately checked.

Refueling System Warning (If Equipped)

If the fuel tank filler valve does not fully close, a message could appear in the information display.

Message
Check Fuel Fill Inlet

If the message appears, do the following:

1. Stop your vehicle as soon as it is safe to do so and switch the engine off.
2. Shift into park (P) or neutral (N).
3. Apply the parking brake.
4. Fully open the fuel filler door.
5. Check the fuel tank filler valve for any debris that may be restricting its movement.
6. Remove any debris from the fuel tank filler valve.
7. Fully insert a fuel pump nozzle or the fuel filler funnel provided with your vehicle into the fuel filler pipe. See **Fuel Filler Funnel Location** (page 198). This action should dislodge any debris that may be preventing the fuel tank filler valve from fully closing.
8. Remove the fuel pump nozzle or fuel filler funnel from the fuel filler pipe.
9. Fully close the fuel filler door.

Note: *The message may not immediately reset. If the message continues to appear and a warning lamp illuminates, have your vehicle checked as soon as possible.*

FUEL CONSUMPTION

Advertised Capacity

The advertised capacity is the maximum amount of fuel that you can add to the fuel tank when the fuel gauge indicates empty. See **Capacities and Specifications** (page 435).

In addition, the fuel tank contains an empty reserve. The empty reserve is an unspecified amount of fuel that remains in the fuel tank when the fuel gauge indicates empty.

Note: *The amount of fuel in the empty reserve varies and should not be relied upon to increase driving range.*

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Filling the Fuel Tank

For consistent results when refueling:

- Turn the ignition off before fueling; an inaccurate reading results if the engine is left running.
- Use the same fill rate (low-medium-high) each time the tank is filled.
- Allow no more than one automatic shut-off when refueling.

Results are most accurate when the filling method is consistent.

Calculating Fuel Economy

Your vehicle calculates fuel economy figures through the trip computer average fuel function. See **Information Displays** (page 120).

The first 1,000 mi (1,500 km) of driving is the break-in period of the engine. A more accurate measurement is obtained after 2,000 mi (3,000 km).

1. Completely fill the fuel tank and record the initial odometer reading. See **Refueling** (page 200).
2. Each time you fill the fuel tank, record the amount of fuel added.
3. After at least three fill ups, fill the fuel tank and record the current odometer reading.
4. Subtract your initial odometer reading from the current odometer reading.

To calculate L/100 km (liters per 100 kilometers) fuel consumption, multiply the liters used by 100, then divide by kilometers traveled. To calculate MPG (miles per gallon) fuel consumption, divide miles traveled by gallons used.

Keep a record for at least one month and record the type of driving, for example city or highway. This provides an accurate estimate of your vehicle's fuel economy under current driving conditions. Keeping records during summer and winter shows how temperature impacts fuel economy.

Conditions

- Heavily loading your vehicle reduces fuel economy.
- Carrying unnecessary weight in your vehicle may reduce fuel economy.
- Avoid adding accessories that increase aerodynamic drag to your vehicle such as bug deflectors, car top carriers and ski or bike racks.
- Using fuel blended with alcohol may lower fuel economy.
- Fuel economy may decrease with lower temperatures.
- Fuel economy may decrease when driving short distances.
- You will get better fuel economy when driving on flat terrain than when driving on hilly terrain.

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EMISSION LAW

WARNING: Do not remove or alter the original equipment floor covering or insulation between it and the metal floor of the vehicle. The floor covering and insulation protect occupants of the vehicle from the engine and exhaust system heat and noise. On vehicles with no original equipment floor covering insulation, do not carry passengers in a manner that permits prolonged skin contact with the metal floor. Failure to follow these instructions may result in fire or personal injury.

U.S. federal laws and certain state laws prohibit removing or rendering inoperative emission control system components. Similar federal or provincial laws may apply in Canada. We do not approve of any vehicle modification without first determining applicable laws.

Tampering with emissions control systems including related sensors or the Diesel Exhaust Fluid system can result in reduced engine power and the illumination of the service engine soon light.

Tampering With a Noise Control System

Federal laws prohibit the following acts:

- Removal or rendering inoperative by any person other than for purposes of maintenance.
- Repair or replacement of any device or element of the design incorporated into a new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use.
- The use of the vehicle after any person removes or renders inoperative any device or element of the design.

The U.S. Environmental Protection Agency may presume to constitute tampering as follows:

- Removal of hood blanket, fender apron absorbers, fender apron barriers, underbody noise shields or acoustically absorptive material.
- Tampering or rendering inoperative the engine speed governor, to allow engine speed to exceed manufacturer specifications.

If the engine does not start, runs rough, experiences a decrease in engine performance, experiences excess fuel consumption or produces excessive exhaust smoke, check for the following:

- A plugged or disconnected air inlet system hose.
- A plugged engine air filter element.
- Water in the fuel filter and water separator.
- A clogged fuel filter.
- Contaminated fuel.
- Air in the fuel system, due to loose connections.
- An open or pinched sensor hose.
- Incorrect engine oil level.

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- Incorrect fuel for climatic conditions.
- Incorrect engine oil viscosity for climactic conditions.

Note: *Some vehicles have a lifetime fuel filter that is integrated with the fuel tank. Regular maintenance or replacement is not needed.*

Note: *If these checks do not help you correct the concern, have your vehicle checked as soon as possible.*

Noise Emissions Warranty, Prohibited Tampering Acts and Maintenance

On January 1, 1978, Federal regulation became effective governing the noise emission on trucks over 10,000 lb (4,536 kg) Gross Vehicle Weight Rating (GVWR). The preceding statements concerning prohibited tampering acts and maintenance, and the noise warranty found in the Warranty Guide, are applicable to complete chassis cabs over 10,000 lb (4,536 kg) GVWR.

CATALYTIC CONVERTER

WARNING: Do not park, idle or drive your vehicle on dry grass or other dry ground cover. The emission system heats up the engine compartment and exhaust system, creating the risk of fire.

WARNING: The normal operating temperature of the exhaust system is very high. Never work around or attempt to repair any part of the exhaust system until it has cooled. Use special care when working around the catalytic converter. The catalytic converter heats up to a very high temperature after only a short period of engine operation and stays hot after the engine is switched off.

WARNING: Exhaust leaks may result in entry of harmful and potentially lethal fumes into the passenger compartment. If you smell exhaust fumes inside your vehicle, have your vehicle inspected immediately. Do not drive if you smell exhaust fumes.

WARNING: Do not allow people or animals in truck beds that have modifications, such as bed covers or slide-in campers, when the engine is running. Exhaust fumes are toxic. Failure to follow this instruction could result in personal injury or death.

Your vehicle has various emission control components and a catalytic converter that enables it to comply with applicable exhaust emission standards.

To make sure that the catalytic converter and other emission control components continue to work properly:

- Do not crank the engine for more than 10 seconds at a time.
- Do not run the engine with a spark plug lead disconnected.
- Do not push-start or tow-start your vehicle. Use booster cables. See **Jump Starting the Vehicle** (page 335).

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- Use only the specified fuel listed.
- Do not switch the ignition off when your vehicle is moving.
- Avoid running out of fuel.
- Have the items listed in scheduled maintenance information performed according to the specified schedule.

Note: *Your vehicle warranty does not cover resulting component damage.*

The scheduled maintenance items listed in scheduled maintenance information are essential to the life and performance of your vehicle and to its emissions system.

If you use anything other than our parts for maintenance replacements or for service of components affecting emission control, such aftermarket parts should be equivalent to our genuine parts in performance and durability.

Illumination of the service engine soon indicator, charging system warning light or the temperature warning light, fluid leaks, strange odors, smoke or loss of engine power could indicate that the emission control system is not working properly.

An improperly operating or damaged exhaust system may allow exhaust to enter the vehicle. Have a damaged or improperly operating exhaust system inspected and repaired immediately.

Do not make any unauthorized changes to your vehicle or engine. By law, vehicle owners and anyone who manufactures, repairs, services, sells, leases, trades vehicles, or supervises a fleet of vehicles are not permitted to intentionally remove an emission control device or prevent it from working. Information about your vehicle's emission system is on the Vehicle Emission Control Information Decal located on or near the engine. This decal also lists engine displacement.

Please consult your warranty information for complete details.

On-Board Diagnostics (OBD-II)

Your vehicle has a computer known as the on-board diagnostics system (OBD-II) that monitors the engine's emission control system. The system protects the environment by making sure that your vehicle continues to meet government emission standards. The OBD-II system also assists a service technician in properly servicing your vehicle.

When the service engine soon indicator illuminates, the OBD-II system has detected a malfunction. Temporary malfunctions may cause the service engine soon indicator to illuminate. Examples are:

1. Your vehicle has run out of fuel—the engine may misfire or run poorly.
2. Poor fuel quality or water in the fuel—the engine may misfire or run poorly.
3. The fuel fill inlet may not have closed properly. See **Refueling** (page 200).
4. Driving through deep water—the electrical system may be wet.

You can correct these temporary malfunctions by filling the fuel tank with good quality fuel, properly closing the fuel fill inlet or letting the electrical system dry out. After three driving cycles without these or any other temporary malfunctions present, the service engine soon indicator should stay off the next time you start the engine. A driving cycle consists of a cold engine startup followed by mixed city and highway driving. You do not require additional vehicle service.

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If the service engine soon indicator remains on, have your vehicle serviced at the first available opportunity. Although some malfunctions detected by the OBD-II may not have symptoms that are apparent, continued driving with the service engine soon indicator on can result in increased emissions, lower fuel economy, reduced engine and transmission smoothness and lead to more costly repairs.

Readiness for Inspection and Maintenance (I/M) Testing

Some state and provincial and local governments may have Inspection/Maintenance (I/M) programs to inspect the emission control equipment on your vehicle. Failure to pass this inspection could prevent you from getting a vehicle registration.

If the service engine soon indicator is on or the bulb does not work, your vehicle may need service. See On-Board Diagnostics.

Your vehicle may not pass the I/M test if the service engine soon indicator is on or not working properly, for example, the bulb does not work, or if the OBD-II system has determined that some of the emission control systems have not been properly checked. In this case, the vehicle is not ready for I/M testing.

If you have just serviced the vehicle's engine or transmission or the battery has recently run down or you have replaced it, the OBD-II system may indicate that the vehicle is not ready for I/M testing. To determine if the vehicle is ready for I/M testing, turn the ignition key to the on position for 15 seconds without cranking the engine. If the service engine soon indicator blinks eight times, it means that the vehicle is not ready for I/M testing; if the service engine soon indicator stays on solid, it means that your vehicle is ready for I/M testing.

The OBD-II system checks the emission control system during normal driving. A complete check may take several days.

If the vehicle is not ready for I/M testing, you can perform the following driving cycle consisting of mixed city and highway driving:

1. 15 minutes of steady driving on an expressway or highway followed by 20 minutes of stop-and-go driving with at least four 30-second idle periods.
2. Allow your vehicle to sit for at least eight hours with the ignition off. Then, start the vehicle and complete the above driving cycle. The vehicle must warm up to its normal operating temperature. Once started, do not turn off the vehicle until the above driving cycle is complete.

If the vehicle is still not ready for I/M testing, you need to repeat the above driving cycle.

SELECTIVE CATALYTIC REDUCTANT SYSTEM

Your vehicle may have a selective catalytic reduction system. The system helps reduce emission levels of oxides of nitrogen from the exhaust system. The system automatically injects diesel exhaust fluid into the exhaust system to enable correct selective catalytic reduction system function.

Note: *Selective catalytic reduction systems are not fitted to vehicles in markets where only high-sulfur diesel fuel is available.*

Diesel Exhaust Fluid Level

In order for the system to operate correctly you must maintain the diesel exhaust fluid level.

A warning message appears in the information display when the diesel exhaust fluid level is low. If a warning message appears, refill the diesel exhaust fluid tank as soon as possible. See **Information Messages** (page 132).

Filling the Diesel Exhaust Fluid Tank

WARNING: Keep diesel exhaust fluid out of reach of children. Avoid contact with skin, eyes or clothing. In case of contact with your eyes, flush immediately with water and get prompt medical attention. In case of contact with your skin, clean immediately with soap and water. If you swallow any diesel exhaust fluid, drink plenty of water, call a physician immediately.

WARNING: Only refill the diesel exhaust fluid tank in a well ventilated area. When you remove the diesel exhaust fluid tank filler cap or a diesel exhaust fluid container cap, ammonia vapors may escape. Ammonia vapors can be irritating to skin, eyes and mucous membranes. Inhaling ammonia vapors can cause burning to the eyes, throat and nose and cause coughing and watery eyes.

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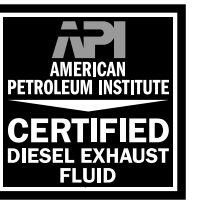
The diesel exhaust fluid tank has a blue filler cap. The tank is behind the left-hand front wheel. Fill the tank using a fluid pump at a diesel exhaust fluid filling station or a diesel exhaust fluid container. We recommend Motorcraft® diesel exhaust fluid. See **Capacities and Specifications** (page 435).



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Only use diesel exhaust fluid that is certified by the American Petroleum Institute (API). Non-certified diesel exhaust fluid use can cause damage not covered by the vehicle Warranty.

Note: *Do not put diesel exhaust fluid in the fuel tank. This can cause damage not covered by the vehicle Warranty.*

You can purchase diesel exhaust fluid at an authorized dealer, most highway truck stops or you can contact roadside assistance for help in finding a retailer that sells diesel exhaust fluid. In addition, there is a government website to help you find the nearest location to purchase diesel exhaust fluid: http://www.discoverdef.com.

Filling the Diesel Exhaust Fluid Tank Using a Fuel Station Pump

Filling the diesel exhaust fluid tank using a nozzle is similar to fuel fill. The nozzle shuts off automatically when the tank is full.

Filling the Diesel Exhaust Fluid Tank Using a Container

The following procedure applies to Motorcraft diesel exhaust fluid or similar fluid containers. Always follow the manufacturer's instructions.

1. Remove the diesel exhaust fluid container cap. Place the spout on to the container and tighten it until you feel a strong resistance.
2. Remove the diesel exhaust fluid tank filler cap.
3. Insert the spout in to the filler neck until the seal on the spout seats on to the filler neck. Pour the fluid in to the tank. When the tank is full the fluid will stop flowing automatically.
4. Return the container to the vertical position slightly below the diesel exhaust fluid filler neck. Allow any fluid remaining in the spout to drain back in to the container.
5. Remove the spout from the diesel exhaust fluid filler neck. Replace the diesel exhaust fluid tank cap.
6. Remove the spout from the diesel exhaust fluid container and replace the cap.

Note: *If there is diesel exhaust fluid left in the container retain it for later use. The spout is re-useable. Wash the spout with clean water prior to storage. Do not use the diesel exhaust fluid spout with any other fluid.*

Filling the Diesel Exhaust Fluid Tank in Cold Climates

Diesel exhaust fluid may freeze if the ambient temperature is below 12°F (-11°C). Your vehicle has a preheating system which allows diesel exhaust fluid to operate below 12°F (-11°C). If you do not use your vehicle for an extended period when the ambient temperature is below 12°F (-11°C), the fluid in the tank may freeze. If the tank is overfilled and the fluid freezes it may damage the tank. This is not covered by the vehicle warranty.

Diesel Exhaust Fluid Warning Messages and Vehicle Operations

WARNING: Diesel exhaust fluid must be refilled when low or replaced when contaminated or your vehicle speed becomes limited to 50 mph (80 km/h). In these conditions, drive with caution and refill diesel exhaust fluid immediately. If the diesel exhaust fluid becomes empty or contaminated and fluid is not replaced, your vehicle

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becomes limited to engine idle only once stopped. In these conditions, be cautious where you stop your vehicle because you may not be able to drive long distances or maintain highway speeds until you refill or replace the diesel exhaust fluid.

WARNING: Tampering with or disabling the selective catalytic reduction system results in severe vehicle performance limitation including eventual speed limiting to 5 mph (8 km/h).

The information display shows a series of messages about the amount of diesel exhaust fluid available. A systems check displays messages indicating the amount of diesel exhaust fluid available or displays a warning message indicating the approximate distance remaining as the fluid in the diesel exhaust fluid tank nears empty. See **Information Messages** (page 132).

As the diesel exhaust fluid level nears empty, the warning symbol displays and a series of tones and messages starting at 500 mi (800 km) remaining before diesel exhaust fluid is depleted. The warning symbol and messages continue until you refill the diesel exhaust fluid tank.

Continued driving without refilling results in the following actions as required by the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA):

- Within a preset distance to empty, speed is limited upon vehicle restart. Prior to this occurring a message appears in the information display.
- Further vehicle operation without refilling the diesel exhaust fluid tank causes the engine to enter an idle-only condition. This only occurs upon vehicle refueling or at an extended idle. A message indicates the required actions to resume normal operation. It is required to add a minimum of 1.0 gal (3.8 L) of diesel exhaust fluid to the tank to exit the idle-only condition, but your vehicle is still in the speed-limiting mode until you refill the tank completely.

Note: *For either vehicle speed limiting or idle-only condition, normal vehicle operation resumes when you refill the diesel exhaust fluid tank.*

Note: *When filling the diesel exhaust fluid tank from empty, there may be a short delay before detecting the increased level of fluid. The increased level detection must occur before your vehicle returns to full power.*

Diesel Exhaust Fluid Guidelines and Information

- Use only diesel exhaust fluid that carries the American Petroleum Institute (API) certified diesel exhaust fluid trademark or ISO 22241.
- Do not put diesel exhaust fluid in the diesel fuel tank.
- Do not overfill the diesel exhaust fluid tank.
- Diesel exhaust fluid is corrosive.
- Do not re-use the diesel exhaust fluid container once it is emptied.

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- Avoid spilling diesel exhaust fluid on painted surfaces, carpeting or plastic components. Immediately wipe away any diesel exhaust fluid that has spilled with a damp cloth and water. If it has already crystallized, use warm water and a sponge.
- Store diesel exhaust fluid out of direct sunlight and in temperatures between 23ºF (-5ºC) and 68ºF (20ºC).
- Diesel exhaust fluid freezes below 12ºF (-11ºC).
- Do not store the diesel exhaust fluid bottle in your vehicle. If it leaks it could cause damage to interior components or release an ammonia odor inside your vehicle.
- Diesel exhaust fluid is non-flammable, non-toxic, colorless and water-soluble liquid.
- The system has a diesel exhaust fluid quality sensor. Dilution of diesel exhaust fluid or use of any other liquid in the SCR system leads to a diesel exhaust fluid system fault, eventually leading to the vehicle only operating in idle-only mode.
- Do not dilute diesel exhaust fluid with water or any other liquid.
- An ammonia odor may be smelled when the cap is removed or during refill. Refill diesel exhaust fluid in a well ventilated area.

Typical Diesel Exhaust Fluid Usage When Using the Power Take Off (PTO)

Continuous PTO use—Minimal PTO use
0–7,800 mi (0–12,550 km)

Contaminated Diesel Exhaust Fluid or Inoperative Selective Catalytic Reduction System

Selective catalytic reduction systems are sensitive to contamination of the diesel exhaust fluid. Maintaining the purity of the fluid is important to avoid system malfunctions. If you remove or drain the diesel exhaust fluid tank, do not use the same fluid to refill the tank. The system has a sensor to monitor fluid quality.

A warning lamp illuminates and a message appears in the information display if the system becomes contaminated or inoperative.

Continued driving without replacing diesel exhaust fluid or having the selective catalytic reduction system repaired results in the following actions as required by the California Air Resources Board (CARB) and U.S. Environmental Protection Agency (EPA):

- Within a preset distance to empty, speed is limited upon vehicle restart. Prior to this occurring a message appears in the information display.
- Further vehicle operation without replacing contaminated diesel exhaust fluid causes the engine to enter an idle-only condition. This only occurs upon vehicle refueling, vehicle idling in park for 1 hour, or engine shutdown for 10 minutes or more and is indicated by a message in the information display indicating required actions to resume normal operation.

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Note: *For vehicle speed limiting or idle-only condition, normal vehicle operation resumes when you repair the contaminated system. To service a contaminated or inoperative system, see an authorized dealer.*

DIESEL PARTICULATE FILTER

The filter forms part of the emissions reduction system on your vehicle. It filters harmful diesel particulates (soot) from the exhaust gas.

Regeneration

WARNING: Do not park or idle your vehicle over dry leaves, dry grass or other combustible materials. The regeneration process creates very high exhaust gas temperatures and the exhaust will radiate a considerable amount of heat during and after regeneration and after you have switched the engine off. This is a potential fire hazard.

Note: *Avoid running out of fuel.*

Note: *During regeneration at low speed or engine idle, you may smell a hot metallic odor and could notice a clicking metallic sound. This is due to high temperatures reached during regeneration and is normal.*

Note: *Changes in the engine or exhaust sound may be heard during the regeneration process.*

The diesel particulate filter on your vehicle requires periodic regeneration to maintain its correct function. Your vehicle will carry out this process automatically.

If your journeys meet one of the following conditions:

- You drive only short distances.
- You frequently switch the ignition on and off.
- Your journeys contain a high level of acceleration and deceleration.

You must carry out occasional trips with the following conditions to assist the regeneration process:

- Drive your vehicle in more favorable conditions, which you will find at higher vehicle speeds in normal driving, on a main road or freeway for a minimum of 20 minutes. This drive may include short stops that will not affect the regeneration process.
- Avoid prolonged idling and always observe speed limits and road conditions.
- Do not switch the ignition off.
- Select a suitable gear to ideally maintain engine speed between 1500 and 3000 RPM.

Oxidation Catalytic Converter and Diesel Particulate Filter System (If Equipped)

WARNING: The normal operating temperature of the exhaust system is very high. Never work around or attempt to repair any part of the exhaust system until it has cooled. Use special care when working around the diesel oxidation catalytic converter or the diesel particulate filter. The diesel oxidation catalytic converter and the diesel particulate filter heat up to very high temperatures after only a short period of engine operation and remain hot after you switch the engine off.

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Your vehicle has a diesel particulate filter. The diesel particulate filter is an inline filter in the exhaust system that reduces carbon emissions by trapping exhaust particles before they reach the tailpipe. The diesel particulate filter looks similar to a traditional exhaust catalyst and is part of the exhaust system under your vehicle. The filter couples to a diesel oxidation catalyst that reduces the amount of harmful exhaust emitted from the tailpipe. As soot gathers in the system, it begins to restrict the filter. The system must periodically clean the soot that gathers inside the filter. This is carried out in two ways, passive regeneration and active regeneration. Both methods occur automatically and require no actions from the driver. During either one of these regeneration methods, you may notice a change in exhaust tone. At certain times, the information display shows various messages related to the diesel particulate filter. See **Information Messages** (page 132).

Diesel Particulate Filter Maintenance

You must properly maintain your vehicle's diesel particulate filter in order for it to function properly.

Do not disregard maintenance messages that appear in the information display. Failure to follow the instructions of an information message may degrade vehicle performance and could lead to engine damage that may not be covered by the vehicle Warranty.

Failure to perform active or operator commanded regeneration when instructed could result in a clogged diesel particulate filter. If the diesel particulate filter fills beyond the regeneration threshold, your vehicle disables the ability for active and operator commanded regeneration. This could result in irreversible damage to the diesel particulate filter requiring replacement that may not be covered by the vehicle Warranty.

Passive Regeneration

In passive regeneration, the exhaust system temperature and constituents automatically clean the filter by oxidizing the soot. Cleaning automatically occurs during normal vehicle operating conditions due to driving patterns.

Active Regeneration

Once the diesel particulate filter is full of exhaust particles, the engine control module commands the exhaust system to clean the filter through active regeneration. Active regeneration requires the engine computer to raise the exhaust temperature to eliminate the particles. During cleaning, the particles convert to harmless gasses. Once cleaned the diesel particulate filter continues trapping exhaust particles.

The regeneration process operates more efficiently when you drive your vehicle at a constant speed above 30 mph (48 km/h) and at a steady engine speed for approximately 20 minutes. The frequency and duration of regeneration fluctuates by how you drive your vehicle, outside air temperature and altitude. For most driving, regeneration frequency varies from 100–500 mi (160–805 km) between occurrences and each occurrence lasts 9–35 minutes. You can usually reduce the duration of regeneration if you maintain a constant speed above 30 mph (48 km/h).

When the engine control module detects that the diesel particulate filter is nearly full of particulates and you are not operating your vehicle in a manner to allow effective automatic regeneration, messages appear in the information display as a reminder for you to drive your vehicle in order to clean the diesel particulate filter. If you drive your vehicle in a manner to allow effective automatic regeneration, the information display

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shows a cleaning exhaust filter message, which is the normal regeneration process. You can also choose operator commanded regeneration to clean the exhaust system at this point. See **Information Messages** (page 132).

If you are not able to drive in a manner that allows effective automatic active regeneration or you choose to perform regeneration of the diesel particulate filter while at idle, then operator commanded regeneration would need to be performed.

Operator Commanded Regeneration (If Equipped)

If your vehicle is operated with significant stationary operation, low speed drive cycles less than 25 mph (40 km/h), short drive cycles, a drive time is less than 10 - 15 minutes or the vehicle does not fully warm up, passive and active regeneration may not sufficiently clean the diesel particulate filter system. Operator commanded regeneration allows you to manually start regeneration of the diesel particulate filter at idle to clean the filter. If you are not sure whether your vehicle has this feature, contact an authorized dealer.

When to Carry Out Operator Commanded Regeneration

You can use the operator commanded regeneration feature when a message appears in the information display and you are not able to drive in a manner that allows effective automatic active regeneration or if you choose to manually start the regeneration of the diesel particulate filter manually while the vehicle is idle. See **Information Messages** (page 132).

Operator Commanded Regeneration Precautions and Safe Exhaust Position

WARNING: Do not park or idle your vehicle over dry leaves, dry grass or other combustible materials. The regeneration process creates very high exhaust gas temperatures and the exhaust will radiate a considerable amount of heat during and after regeneration and after you have switched the engine off. This is a potential fire hazard.

WARNING: Stay clear of the exhaust tailpipe during regeneration. Hot exhaust gases can burn you badly.

Make sure that the louvers located at the tip of the exhaust are clear of any obstructions as they are used to introduce fresh air into the tailpipe to cool the exhaust gases as they leave the exhaust system.

Before you start operator commanded regeneration, do the following:

- Shift into park (P) and apply the parking brake, on stable, level ground.
- Park your vehicle outside of any structure.
- Park your vehicle 10–15 ft (3–5 m) away from any obstructions and away from materials that can easily combust or melt, for example paper, leaves, petroleum products, fuels, plastics and other dry organic material.
- Make sure there is a minimum of 1/8 tank of fuel.
- Make sure all fluids are at proper levels.

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How to Start Operator Commanded Regeneration

WARNING: Stay clear of the exhaust tailpipe during regeneration. Hot exhaust gases can burn you badly.

Note: *You cannot use the operator commanded regeneration until the diesel particulate filter load percentage has reached 100%. The diesel particulate filter load percentage fluctuates up and down when driving your vehicle due to active and passive regenerations.*

Note: *During the use of operator commanded regeneration, you may observe a light amount of white smoke. This is normal.*

You may not be able to use operator commanded regeneration if the service engine soon warning lamp appears in the information display

Information Display Procedure

Start with your vehicle engine and when it has reached the normal operating temperature, press the information display control button on the steering wheel. See **Information Display Control** (page 92). If a message advising that the exhaust filter is full appears in the information display, press the **OK** button as instructed. Answer yes to this prompt and then follow the next prompts regarding the exhaust position required to initiate operator commanded regeneration. Be sure to understand each prompt. If you are not sure what is being asked by each prompt, contact an authorized dealer. The display confirms the operation has started and when it has finished.

If the diesel particulate filter is near or at saturation, a message requesting permission to initiate filter cleaning appears in the information display. See **Information Messages** (page 132). Answer yes to this prompt and then follow the next prompts regarding exhaust position required to initiate operator commanded regeneration. Be sure to understand each prompt. If you are not sure what is being asked by each prompt, contact an authorized dealer. The display confirms the operation has started and when it has finished. You can also drive to clean the filter.

When the system is at the point of oversaturation, the service engine warning lamp illuminates and a message appears in the information display. You cannot initiate filter cleaning. You must have your vehicle checked as soon as possible.

Once operator commanded regeneration starts, engine speed increases to approximately 2000 rpm and the cooling fan speed increases. You will hear a change in audible sound due to engine speed and cooling fan speed increases.

It is not necessary to open the hood on the engine compartment. Once operator commanded regeneration completes, the engine speed returns to normal idling. The exhaust system remains very hot for several minutes even after regeneration is complete. Do not reposition the vehicle over materials that could burn until the exhaust system has had sufficient time to cool. Depending on the amount of soot collected by the diesel particulate filter, ambient temperature and altitude, operator commanded regeneration lasts approximately 30 minutes.

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Operator Commanded Regeneration with Automatic Regeneration Control (If Equipped)

If your vehicle is operated with significant stationary operation, low speed drive cycles less than 25 mph (40 km/h), short drive cycles, drive time less than 15 minutes or the vehicle does not fully warm up, passive and active regeneration may not sufficiently clean the diesel particulate filter system. You can switch off automatic regeneration until better driving conditions are available, for example steady high speed driving. You can then switch automatic regeneration back on to clean the diesel particulate filter.

Switching Automatic Regeneration Control On and Off

To switch operator commanded regeneration on and off, use the information display control on the steering wheel. See **Information Display Control** (page 92). Scroll to the exhaust cleaning message, a check in the box indicates the feature is enabled, and unchecked indicates the feature is disabled.

How to Interrupt or Cancel Operator Commanded Regeneration

If you need to cancel the operator commanded regeneration, pressing the brake, accelerator or switching the engine off stops the procedure. Depending on the amount of time you allowed the operator commanded regeneration to operate, soot may not have had sufficient time to be fully eliminated, but the exhaust system and exhaust gas may still be hot. If you shut your vehicle off during operator commanded regeneration, you may notice turbo flutter. This is a normal consequence caused by shutting off a diesel engine during boosted operation and is considered normal.

Filter Service and Maintenance

Over time, a slight amount of ash builds up in the diesel particulate filter, which is not removed during the regeneration process. The filter may need to be replaced with a new or remanufactured part at approximately 250,000 mi (400,000 km). Actual mileage varies depending on engine and vehicle operating conditions.

If filter service is required, the engine control system warning lamp illuminates in the information display.

If there are any issues with the diesel particulate filter system, the engine control system warning lamp and a service engine soon warning lamp illuminate to inform you that your vehicle requires service. Have your vehicle checked as soon as possible.

Resonator and Tailpipe Assembly Maintenance

Aftermarket devices or modifications to the exhaust system may reduce the effectiveness of the exhaust system as well as cause damage to the exhaust system or engine. This may also degrade vehicle performance and could lead to engine damage that may not be covered by the vehicle Warranty.

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AUTOMATIC TRANSMISSION

WARNING: Always fully apply the parking brake and make sure you shift into park (P). Failure to follow this instruction could result in personal injury or death.

WARNING: Do not use tow/haul when the road surface is slippery. Failure to follow this instruction could result in the loss of control of your vehicle.

WARNING: When your vehicle is stationary, keep the brake pedal fully pressed when shifting gears. Failure to follow this instruction could result in personal injury, death or property damage.

Note: *Under certain conditions, you will not be able to shift out of park (P) unless the intelligent access key is inside the vehicle.*

Understanding the Shift Positions of your Automatic Transmission

Putting your vehicle in or out of gear:

1. Fully press down on the brake pedal.
2. Move the gearshift lever into the desired gear.
3. When you are finished driving, come to a complete stop.
4. Move the gearshift lever and securely latch it in park (P).

The instrument cluster displays the current gear.

Park (P)

This position locks the transmission and prevents the wheels from turning.

Reverse (R)

With the gearshift lever in reverse (R), your vehicle moves backward. Always come to a complete stop before shifting into and out of reverse (R).

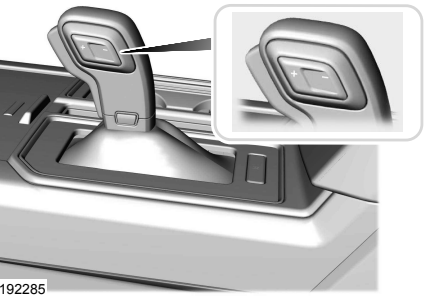
Neutral (N)

With the gearshift lever in neutral (N), you can start your vehicle, which is free to roll. Hold the brake pedal down when in this position.

Drive (D)

Drive (D) is the normal driving position for the best fuel economy, and allows automatic upshifts and downshifts through all available gears.

Manual (M) with Floor-shifter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With the gearshift lever in manual (M), the driver can change gears up or down as desired. By moving the gearshift lever from drive position drive (D) to manual (M) you now have control of selecting the gear you desire using buttons on the shift lever. See **Understanding your SelectShift Automatic™ transmission** later in this section.

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To return to normal drive (D) position, move the gearshift lever back to drive (D). The transmission operates in all available gears.

Third (3) with Column-shifter - 6-speed

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Note: *When pressing the button on the gearshift lever, you can cycle through the available drive modes.*

Transmission operates in third (3) gear only. Use third (3) gear for improved traction on slippery roads.

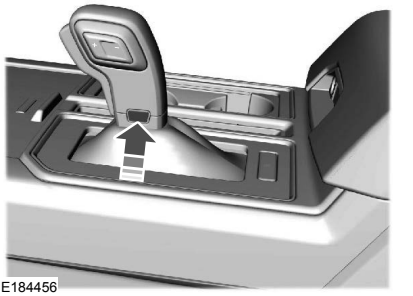
Second (2) - 6-speed

Transmission operates in second (2) gear only. Use second (2) gear to start-up on slippery roads.

First (1) - 6-speed

- Transmission operates in first (1) gear only.
- Provides maximum engine braking.
- Allows upshifts by moving gearshift lever.
- Does not downshift into first (1) gear at high speeds; allows for first (1) gear when vehicle reaches slower speeds.

Tow Mode



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To activate tow mode, press the button on the gearshift lever until tow mode is selected. The indicator light illuminates in the instrument cluster when the system becomes active.

The tow mode feature:

- Moves upshifts to higher engine speeds to reduce the frequency of transmission shifting.
- Provides engine braking in all forward gears, which slows your vehicle and assists you in controlling your vehicle when descending a grade.
- Depending on driving conditions and load conditions, may downshift the transmission, slow your vehicle and control your vehicle speed when descending a hill, without pressing the accelerator pedal. The amount of downshift braking provided varies based upon the amount you press the brake pedal.

The tow mode feature improves transmission operation when towing a trailer or a heavy load. All transmission gear ranges are available when using tow mode.

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To deactivate the tow mode feature and return to normal driving mode, press the button on the gearshift lever twice. The indicator light deactivates when the system turns off. Tow mode also deactivates when you power down your vehicle.

Sport Mode

To activate Sport Mode, press the button on the gearshift lever until sport mode is selected. The SPORT or **S** indicator light illuminates in the instrument display when the system becomes active.

The sport mode feature:

- Provides additional slope, engine braking and extends lower gear operation to enhance performance for uphill climbs, hilly terrain or mountainous areas. This increases engine RPM during engine braking.
- Provides additional lower gear operation through the automatic transmission shift strategy.
- Selects gears more quickly and at higher engine speeds.

To deactivate the sport mode feature and return to normal driving mode, press the button on the gearshift lever again. The SPORT or **S** indicator light deactivates when the system turns off. The sport mode feature also deactivates when you power down your vehicle.

Automatic Transmission Adaptive Learning

This feature increases durability and provides consistent shift feel over the life of your vehicle. A new vehicle or transmission may have firm shifts, soft shifts or both. This operation is normal and does not affect function or durability of the transmission. Over time, the adaptive learning process fully updates transmission operation.

Understanding your SelectShift™ Automatic Transmission

Your vehicle is equipped with a SelectShift Automatic transmission gearshift lever. The SelectShift Automatic transmission gives you the ability to change gears up or down (without a clutch) as desired.

In order to prevent the engine from running at too low an RPM, which may cause it to stall, SelectShift still automatically makes some downshifts if it has determined that you have not downshifted in time. Although SelectShift makes some downshifts for you, it still allows you to downshift at any time as long as SelectShift determines that damage to the engine from over-revving does not occur.

SelectShift does not automatically upshift, even if the engine is approaching the RPM limit. It must be shifted manually by pressing the **+** button.

Note: *Engine damage may occur if you maintain excessive engine revving without shifting.*

The SelectShift Automatic transmission feature has two modes: PRS and M mode.

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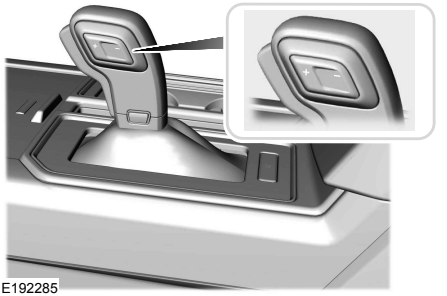
Manual (M) with Floor-shifter

Moving the gearshift lever to the manual (M) position allows you to manually select the gear you desire. Only the current gear displays. Use the buttons on the gearshift lever or steering wheel to manually select gears. Press the + button to upshift or the – button to downshift. Return the transmission to a different gearshift position to deactivate manual control.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Progressive Range Selection

Progressive Range Selection gives you the ability to lockout gears from the automatic shifting range. This could provide you with an improved driving experience, for example, in slippery conditions or when experiencing a steep slope.

With the transmission in drive (D), press the – button to active PRS. The available and selected gears are indicated on the instrument cluster.

All available gears display with the current gear indicated. Press the – button again to lock out gears beginning with the highest gear. Only the available gears display and the transmission automatically shifts between the available gears. Press the + button to unlock gears to allow the transmission to shift to higher gears. The transmission shifts automatically within the gear range you select.

Brake-Shift Interlock

WARNING: When doing this procedure, you need to take the transmission out of park (P) which means your vehicle can roll freely. To avoid unwanted vehicle movement, always fully apply the parking brake prior to doing this procedure. Use wheels chocks if appropriate.

WARNING: If the parking brake is fully released, but the brake warning lamp remains illuminated, the brakes may not be working properly. Have your vehicle checked as soon as possible.

WARNING: Do not drive your vehicle until you verify that the stoplamps are working.

Your vehicle is equipped with a brake-shift interlock feature that prevents moving the gearshift lever from park (P) when the ignition is in the on position and the brake pedal is not pressed.

If you cannot move the gearshift lever out of park (P) position with the ignition in the on position and the brake pedal pressed, a malfunction may have occurred. It is possible that a fuse has blown or your vehicle's brake lamps are not operating properly. See **Fuse Specification Chart** (page 346).

If the fuse is not blown and the brake lamps are working properly, the following procedure allows you to move the gearshift lever from park (P):

Column-shifter

1. Apply the parking brake and switch off your vehicle.

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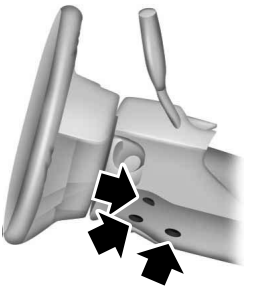
2. Move the steering column to the full down and full rearward position (toward the driver's seat).
3. Remove the gearshift lever boot.
4. Place fingers into gearshift lever boot hole and pull top half of shroud up and forward to separate it from the lower half of the shroud. There is a hinge at the forward edge of the top shroud. Roll the top half of the shroud upward on the hinge point, then pull straight rearward toward the driver's seat to remove.
5. Remove the top half of the shroud.
6. Remove the three fasteners under the column that secure the lower shroud half to the column.



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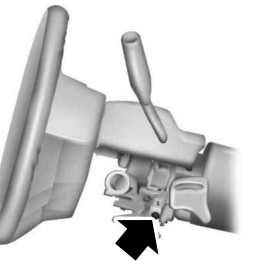
7. Pull the lock lever into the full unlocked position and remove the lower shroud cover by pulling the lever handle through the slot in the cover.



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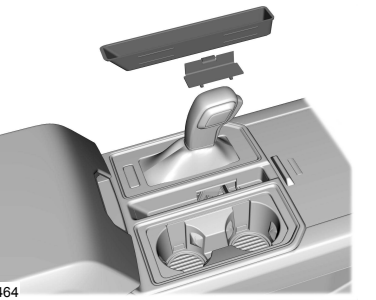
8. Apply the brake, pull the white disk then move the shifter to neutral (N).
9. Start your vehicle.

Perform Steps 4 through 8 in reverse order, making sure to engage the hinge pivots between the upper and lower halves of the shroud. Keep slight pressure in the forward direction as the halves rotate together.

Floor-shifter

1. Apply the parking brake and switch off your vehicle.
2. Remove the rubber mat between the shifter and cup holder. Using a screwdriver or similar tool, carefully pry up the access panel from the attachment points and disconnect it from the console to expose the inside of the gearshift.



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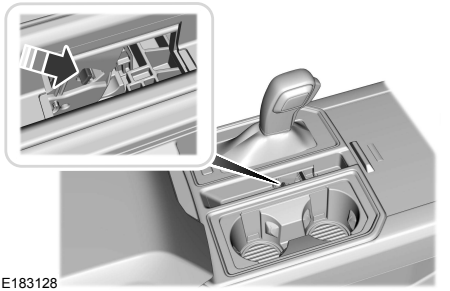
3. Locate the white brake shift interlock lever on the passenger side of the shifter assembly.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4. Apply the brake pedal. Using light finger pressure, move the white lever forward when pulling the gearshift lever out of the park (P) position and into the neutral (N) position.
5. Install the access panel and rubber mat.
6. Apply brake pedal, start your vehicle, and release the parking brake. See your authorized dealer as soon as possible if this procedure is used.

If Your Vehicle Gets Stuck in Mud or Snow

Note: *Do not rock your vehicle if the engine is not at normal operating temperature or damage to the transmission may occur.*

Note: *Do not rock your vehicle for more than a minute or damage to the transmission and tires could occur, or the engine could overheat.*

If your vehicle gets stuck in mud or snow, you may rock it out by shifting between forward and reverse gears, stopping between shifts in a steady pattern. Press lightly on the accelerator in each gear.

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USING FOUR-WHEEL DRIVE

Note: *For important information regarding safe operation of this type of vehicle, see General Information in the Wheels and Tires chapter.*

Note: *Do not use 4H or 4L mode on dry, hard surfaced roads. Doing so can produce excessive noise, increase tire wear and may damage drive components. 4H or 4L mode is only intended for consistently slippery or loose surfaces. Use of 4L mode on these surfaces may produce some noise (such as occasional clunks), but should not damage drive components.*

Note: *If 4L is selected while your vehicle is moving above 3 mph (5 km/h), the 4WD system should not perform a shift. This is normal and should be no reason for concern. Refer to Shifting to or from 4L (4X4 Low) for proper operation.*

Note: *You can switch on and switch off the electronic locking differential by pulling the 4WD control (4WD vehicles) or turning the electronic locking differential control (2WD vehicles). See* ***Electronic Locking Differential*** *(page 232).*

4WD Indicator Lights

Note: *When a 4X4 system fault is present, the system can typically remain in whichever 4X4 mode was selected prior to the fault condition occurring. It should not default to 4X2 in all circumstances. When this warning is displayed, have your vehicle serviced by an authorized dealer.*

4X2

Momentarily illuminates when 2H is selected.

4X4 Auto

Continuously illuminates when 4A is selected (2-Speed Automatic 4WD vehicles only).

4X4 HIGH

Continuously illuminates when 4H is selected.

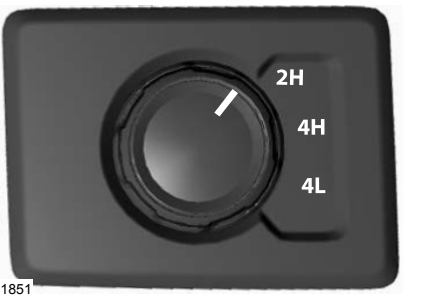
4X4 LOW

Continuously illuminates when 4L is selected.

CHECK 4X4

Displays when a 4X4 fault is present.

Using the Electronic Shift on the Fly 4WD system (If Equipped)



2H (4X2)

For general on-road driving. Sends power to the rear wheels only and should be used for street and highway driving. Provides optimal smoothness and fuel economy at high speeds.

4H (4X4 HIGH)

Provides mechanically locked four-wheel drive power to both the front and rear wheels for use in off-road or winter conditions such as deep snow, sand or mud. This mode is not for use on dry pavement.

4L (4X4 LOW)

Provides mechanically locked four-wheel drive power to both the front and rear wheels for use on low traction surfaces, but does so with additional gearing for increased torque multiplication. Intended only for off-road applications such as deep sand, steep grades, or pulling heavy objects. 4L (4X4 low) should not engage while your vehicle is moving above 3 mph (5 km/h); this is normal and should be no reason for concern. Refer to Shifting to or from 4L (4X4 low) for proper operation.

Shifting between system modes

Note: *Momentarily releasing the accelerator pedal while a shift in progress message displays can improve engagement/disengagement performance.*

Note: *Do not perform this operation if the rear wheels are slipping or while applying the accelerator pedal.*

Note: *You may hear some noise as the system shifts or engages; this is normal.*

You can move the control from 2H or 4H at a stop or while driving. The information display may display a message indicating a 4X4 shift is in progress. Once the shift is complete the message center can then display the system mode selected.

Shifting to or from 4L (4X4 low)

Note: *You may hear some noise as the system shifts or engages; this is normal.*

1. Bring your vehicle to a speed of 3 mph (5 km/h) or less.
2. Place the transmission in neutral (N).
3. Move the 4WD control to the desired position.

The information display can display a message indicating a 4X4 shift is in progress. The information display can then display the system mode selected. If any of the above shift conditions are not present, the shift should not occur and the information display can display information guiding the driver through the proper shifting procedures.

If ***Shift Delayed Pull Forward*** displays in the information display, a transfer case gear tooth blockage is present. To alleviate this condition, place the transmission in a forward gear, move your vehicle forward approximately 5 ft (1.5 m), and shift the transmission back to neutral (N) to allow the transfer case to complete the range shift.

Using the 2-Speed Automatic 4WD System (If Equipped)

This system includes an electronically controlled transfer case with a high capacity clutch. The system is interactive with the road, continually monitoring and adjusting power delivery to the front and rear wheels to optimize traction.

Note: *The AdvanceTrac system has the ability to take over control of the transfer case clutch in 4A mode and disable it during driving maneuvers when necessary.*

Note: *The information display may show messages during 4WD operation. See* ***Information Messages*** *(page 132).*

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2H (4X2)

For general on-road driving, this mode provides optimal smoothness and fuel economy at high speeds. Sends power to the rear wheels only.

4A (4X4 AUTO)

Provides electronic controlled four-wheel drive with power delivered to the front and rear wheels, as required, for increased traction. 4A tuning varies based on selected Drive Mode See **Drive Control** (page 280). . 4A in Normal and Sport is appropriate for all on-road driving conditions, including, dry road surfaces. 4A in Snow/Wet is appropriate for slippery on-road conditions such as snow and ice covered roads.

4H (4X4 HIGH)

Provides electronically or mechanically locked four-wheel drive power to both the front and rear wheels for use in off-road or winter conditions such as deep snow, sand or mud. This mode is not for use on dry pavement.

4L (4X4 LOW)

Provides electronically or mechanically locked four-wheel drive power to both the front and rear wheels for use on low traction surfaces, but does so with additional gearing for increased torque multiplication. Intended only for off-road applications such as deep sand, steep grades, or pulling heavy objects. 4L (4X4 low) should not engage while your vehicle is moving above 3 mph (5 km/h); this is normal and should be no reason for concern. Refer to Shifting to or from 4L (4X4 low) for proper operation.

Shifting between system modes

Note: *Momentarily releasing the accelerator pedal while a shift in progress message displays can improve engagement/disengagement performance.*

Note: *Do not perform this operation if the rear wheels are slipping or while applying the accelerator pedal.*

Note: *You may hear some noise as the system shifts or engages; this is normal.*

You can move the control from 2H to 4A or 4H at a stop or while driving. The information display may display a message indicating a 4X4 shift is in progress. Once the shift is complete the message center can then display the system mode selected.

Shifting to or from 4L (4X4 low)

Note: *You may hear some noise as the system shifts or engages; this is normal.*

1. Bring your vehicle to a speed of 3 mph (5 km/h) or less.
2. Place the transmission in neutral (N).
3. Move the 4WD control to the desired position.

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The information display can display a message indicating a 4X4 shift is in progress. The information display can then display the system mode selected. If any of the above shift conditions are not present, the shift should not occur and the information display can display information guiding the driver through the proper shifting procedures.

If ***Shift Delayed Pull Forward*** displays in the information display, a transfer case gear tooth blockage is present. To alleviate this condition, place the transmission in a forward gear, move your vehicle forward approximately 5 ft (1.5 m), and shift the transmission back to neutral (N) to allow the transfer case to complete the range shift.

Operating 4WD vehicles with spare or mismatched tires

On four-wheel drive vehicles, the size of the spare tire can affect the 4X4 system. If there is a significant difference between the size of the spare tire and the remaining tires, you may have limited four-wheel drive functionality.

When driving with the full-size dissimilar spare wheel and tire assembly, it is recommended that you do not:

- Exceed 50 mph (80 km/h) with a 4WD mode turned on.
- Turn on a 4WD mode unless the vehicle is stationary.
- Use a 4WD mode on dry pavement.

When driving with the full-size dissimilar spare wheel and tire assembly, 4WD functionality may be limited, especially when driving in a mechanically locked 4WD mode. You may experience the following:

- Additional noise from the transfer case or other drive components.
- Difficulty shifting out of a mechanically locked 4WD mode.

Use of a dissimilar spare wheel and tire assembly may lead to impairment of the following:

- Comfort and noise.
- Winter weather driving capability.
- Wet driving capability.
- Four-wheel drive capability.

How Your Vehicle Differs From Other Vehicles

WARNING: Vehicles with a higher center of gravity (utility and four-wheel drive vehicles) handle differently than vehicles with a lower center of gravity (passenger cars). Avoid sharp turns, excessive speed and abrupt steering in these vehicles. Failure to drive cautiously increases the risk of losing control of your vehicle, vehicle rollover, personal injury and death.

Truck and utility vehicles can differ from some other vehicles. Your vehicle may be higher to allow it to travel over rough terrain without getting hung up or damaging underbody components.

The differences that make your vehicle so versatile also make it handle differently than an ordinary passenger car.

Maintain steering wheel control at all times, especially in rough terrain. Since sudden changes in terrain can result in abrupt steering wheel motion, make sure you grip the steering wheel from the outside. Do not grip the spokes.

Drive cautiously to avoid vehicle damage from concealed objects such as rocks and stumps.

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You should either know the terrain or examine maps of the area before driving. Map out your route before driving in the area. To maintain steering and braking control of your vehicle, you must have all four wheels on the ground and they must be rolling, not sliding or spinning.

Driving Off-Road With Truck and Utility Vehicles

Note: *On some models, the initial shift from two-wheel drive to four-wheel drive while your vehicle is moving can cause some momentary clunk and ratcheting sounds. This is the front drivetrain coming up to speed and the automatic locking hubs engaging and is not cause for concern.*

Note: *Your vehicle may have a front air dam. Due to low ground clearance, you can damage it when taking your vehicle off-road. You can take the air dam off by removing the bolts that secure it.*

Note: *Your vehicle may have an underbody transmission shield and brackets. Due to low ground clearance, you can damage them when taking your vehicle off-road. Remove the shield by disengaging the fasteners at each corner of the shield. Then, remove the shield's rear brackets by removing the bracket to frame bolts.*

Four-wheel drive vehicles are specially equipped for driving on sand, snow, mud and rough terrain and have operating characteristics that are somewhat different from conventional vehicles, both on and off the road.

The transfer case supplies power to all four wheels. On four-wheel drive vehicles, the transfer case allows you to select different 4WD modes when necessary. You can find information on transfer case operation and shifting procedures in this chapter. You can find information on transfer case maintenance in the Maintenance chapter. You should become thoroughly familiar with this information before you operate your vehicle.

Four-wheel drive (when you select a 4WD mode) uses all four wheels to power your vehicle. This increases traction, enabling you to drive over terrain and road conditions that a conventional two-wheel drive vehicle cannot.

Basic Operating Principles

- Drive slower in strong crosswinds which can affect the normal steering characteristics of your vehicle.
- When driving your vehicle on surfaces made slippery by loose sand, water, gravel, snow or ice proceed with care.
- Do not use 4H or 4L on dry, hard surfaced roads. Doing so can produce excessive noise, increase tire wear and may damage drive components. 4H or 4L modes are only for consistently slippery or loose surfaces.

If Your Vehicle leaves the Road

If your vehicle leaves the road, reduce your vehicle speed and avoid severe braking. When your vehicle speed decreases, ease your vehicle back onto the road. Do not turn the steering wheel sharply while returning your vehicle to the road.

It may be safer to stay on the shoulder of the road and slow down gradually before returning to the road. You may lose control if you do not slow down or if you turn the steering wheel too sharply or abruptly.

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It may be less risky to strike small objects, such as freeway reflectors, with minor damage to your vehicle rather than attempt a sudden return to the road which could cause your vehicle to slide sideways out of control or roll over. Remember, your safety and the safety of others should be your primary concern.

Emergency Maneuvers

In an unavoidable emergency situation where a sudden sharp turn must be made, remember to avoid over-driving your vehicle (i.e. turn the steering wheel only as rapidly and as far as required to avoid the emergency). Excessive steering can result in loss of vehicle control. Apply smooth pressure to the accelerator pedal or brake pedal when changes in vehicle speed are required. Avoid abrupt steering, acceleration and braking. This could result in an increased risk of vehicle roll over, loss of vehicle control and personal injury. Use all available road surface to bring your vehicle to a safe direction of travel.

In the event of an emergency stop, avoid skidding the tires and do not attempt any sharp steering wheel movements.

If your vehicle goes from one type of surface to another (i.e. from concrete to gravel) there can be a change in the way your vehicle responds to a maneuver (i.e. steering, acceleration or braking).

Sand

When driving over sand, try to keep all four wheels on the most solid area of the trail. Avoid reducing the tire pressures but shift to a lower gear and drive steadily through the terrain. Apply the accelerator slowly and avoid excessive wheel slip.

When driving at slow speeds in deep sand under high outside temperatures, use a low gear when possible. Low gear operation can maximize the engine and transmission cooling capability.

Avoid driving at excessive speeds, this causes vehicle momentum to work against you and your vehicle could become stuck to the point that assistance may be required from another vehicle. Remember, you may be able to back out the way you came if you proceed with caution.

Mud and Water

Mud

Be cautious of sudden changes in vehicle speed or direction when you are driving in mud. Even four-wheel drive vehicles can lose traction in slick mud. If your vehicle does slide, steer in the direction of the slide until you regain control of your vehicle.

After driving through mud, clean off residue stuck to rotating driveshafts and tires. Excess mud stuck on tires and rotating driveshafts can cause an imbalance that could damage drive components.

Water

If you must drive through high water, drive slowly. Traction or brake capability may be limited.

When driving through water, determine the depth and avoid water higher than the bottom of the hubs. If the ignition system gets wet, your vehicle may stall.

Once through water, try the brakes. Wet brakes do not stop your vehicle as effectively as dry brakes. Drying improves by applying light pressure to the brake pedal while moving slowly.

Note: *Driving through deep water may damage the transmission. If the front or rear axle is submerged in water, the axle lubricant and power transfer unit lubricant should be checked and changed if necessary.*

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Driving on Hilly or Sloping Terrain

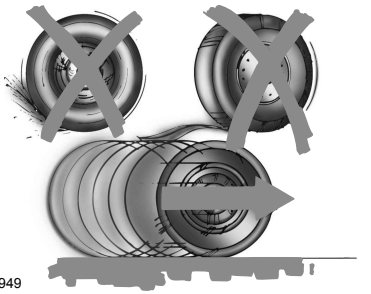
Although natural obstacles may make it necessary to travel diagonally up or down a hill or steep incline, you should try to drive straight up or straight down.

Note: *Avoid turning on steep slopes or hills. A danger lies in losing traction, slipping sideways and possible vehicle roll over. Whenever driving on a hill, determine beforehand the route you can use. Do not drive over the crest of a hill without seeing what conditions are on the other side. Do not drive in reverse over a hill without the aid of an observer.*

When climbing a steep slope or hill, start in a lower gear rather than downshifting to a lower gear from a higher gear once the ascent has started. This reduces strain on the engine and the possibility of stalling.

If your vehicle stalls, do not try to turn around because this could cause vehicle roll over. It is better to reverse back to a safe location.

Apply just enough power to the wheels to climb the hill. Too much power can cause the tires to slip, spin or lose traction, resulting in loss of vehicle control.



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Descend a hill in the same gear you would use to climb up the hill to avoid excessive brake application and brake overheating. Do not descend in neutral. Disengage overdrive or move the transmission selector lever to a lower gear. When descending a steep hill, avoid sudden hard braking as you could lose control. The front wheels have to be turning in order to steer your vehicle.

If your vehicle has anti-lock brakes, apply the brakes steadily. Do not pump the brakes.

Driving on Snow and Ice

WARNING: If you are driving in slippery conditions that require tire chains or cables, then it is critical that you drive cautiously. Keep speeds down, allow for longer stopping distances and avoid aggressive steering to reduce the chances of a loss of vehicle control which can lead to serious injury or death. If the rear end of your vehicle slides while cornering, steer in the direction of the slide until you regain control of your vehicle.

Note: *Excessive tire slippage can cause transmission damage.*

Four-wheel drive vehicles have advantages over two-wheel drive vehicles in snow and ice but can skid like any other vehicle. Should you start to slide while driving on snowy or icy roads, turn the steering wheel in the direction of the slide until you regain control.

Avoid sudden applications of power and quick changes of direction on snow and ice. Apply the accelerator slowly and steadily when starting from a full stop.

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Avoid sudden braking. Although a four-wheel drive vehicle may accelerate better than a two-wheel drive vehicle in snow and ice, it cannot stop any faster as braking occurs at all four wheels. Do not become overconfident as to road conditions.

Make sure you allow sufficient distance between you and other vehicles for stopping. Drive slower than usual and consider using one of the lower gears. In emergency stopping situations, apply the brake steadily. Do not pump the brake pedal. See **Hints on Driving With Anti-Lock Brakes** (page 235).

If Your Vehicle Gets Stuck In Mud or Snow

WARNING: Do not spin the wheels at over 34 mph (55 km/h). The tires may fail and injure a passenger or bystander.

If your vehicle gets stuck in mud or snow, you may rock it out by shifting between forward and reverse gears, stopping between shifts in a steady pattern. Press lightly on the accelerator in each gear.

Note: *Do not rock your vehicle if the engine is not at normal operating temperature, damage to the transmission may occur.*

Note: *Do not rock your vehicle for more than a minute, damage to the transmission and tires may occur or the engine may overheat.*

Parking

WARNING: If the parking brake is fully released, but the brake warning lamp remains illuminated, the brakes may not be working properly. Have your vehicle checked as soon as possible.

WARNING: Apply the parking brake, shift into park (P), switch the ignition off and remove the key before you leave your vehicle. Failure to follow this instruction could result in personal injury or death.

On some four-wheel drive vehicles, when the transfer case is in the neutral (N) position, the engine and transmission disconnect from the rest of the driveline. Therefore, your vehicle is free to roll even if it is parked. Do not leave your vehicle unattended with the transfer case in the neutral (N) position. Set the parking brake fully and turn off the ignition when leaving your vehicle.

Maintenance and Modifications

The suspension and steering systems on your vehicle have been designed and tested to provide predictable performance whether loaded or empty. For this reason, we strongly recommend that you do not make modifications such as adding or removing parts (i.e., lift kits or stabilizer bars) or by using replacement parts not equivalent to the original factory equipment.

We recommend that you use caution when your vehicle has either a high load or device (such as ladders or luggage racks). Any modifications to your vehicle that raise the center of gravity may cause your vehicle to roll over when there is a loss of vehicle control.

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Failure to maintain your vehicle correctly may void the warranty, increase your repair cost, reduce vehicle performance and operational capabilities and adversely affect you and your passenger's safety. We recommend you frequently inspect your vehicle's chassis components when your vehicle is subject to off road usage.

ELECTRONIC LOCKING DIFFERENTIAL (IF EQUIPPED)

Note: *The electronic locking differential is for off-road use only and is not for use on dry pavement. Using the electronic locking differential on dry pavement will result in increased tire wear, noise and vibration.*

The electronic locking differential is a device housed in the rear axle that allows both rear wheels to turn at the same speed. The electronic locking differential can provide additional traction should your vehicle become stuck. You can activate the differential electronically and shift it on the fly within the differential operating speed range. The differential is for use in mud, rocks, sand, or any off-road condition where you need maximum traction. It is not for use on dry pavement.

The following conditions will affect the electronic locking differential:

- The electronic locking differential will not engage if your vehicle speed is above 20 mph (32 km/h) in 4x2, 4x4 Auto, or 4x4 High modes.
- The electronic locking differential will not engage if your vehicle speed is above or 56 mph (90 km/h) in 4X4 Low.
- The electronic locking differential may not engage if you press your accelerator pedal during an engagement attempt. A message may display in the instrument display guiding you to release the accelerator pedal.
- In 4x2, 4x4 Auto, and 4x4 High modes, the electronic locking differential will automatically disengage at speeds above 25 mph (41 km/h) and will automatically reengage at speeds below 20 mph (32 km/h).
- In 4L (4X4 low), the electronic locking differential will automatically disengage at speeds above 62 mph (100 km/h) and will automatically reengage at speeds below 56 mph (90 km/h).
- The AdvanceTrac system has the ability to take over control of the electronic locking differential and disable it during driving maneuvers when necessary.

When you switch the system on, if you do not meet the required conditions for electronic locking differential activation, the instrument cluster will display the appropriate information guiding you through the proper activation process.

Activating the Electronic Locking Differential

Note: *Do not use electronic locking differential on dry, hard surfaced roads. Doing so will produce excessive noise, vibration and increase tire wear.*

Note: *If the electronic locking differential has difficulty disengaging, release the accelerator pedal and turn the steering wheel in the opposite direction while rolling.*

For 4WD vehicles

E227398

Pull the 4WD control knob toward you.

For 2WD vehicles

E183740

Turn the control to ON.

Once the indicator light illuminates in the information display, both rear wheel axle shafts will be locked together providing added traction.

If the indicator does not come on, or the indicator turns off while driving, one of the following has occurred:

- The vehicle speed is too high.
- The left and right rear wheel speed difference is too high during an engagement attempt.
- The system has malfunctioned and is accompanied by a message in the information display. See your authorized Ford dealer for assistance.
- The vehicle is experiencing an anti-lock brake activation.

Operating ELD With a Spare or Mismatched Tires

On vehicles with an ELD, the size of the spare tire can affect performance of the system. If there is a significant difference between the two rear tires, you may have limited ELD functionality. If the electronic locking differential has difficulty disengaging, release the accelerator pedal and turn the steering wheel in the opposite direction when rolling. We recommend engaging and disengaging the ELD at a stop when you mount a spare on the rear axle.

GENERAL INFORMATION

Note: *Occasional brake noise is normal. If a metal-to-metal, continuous grinding or continuous squeal sound is present, the brake linings may be worn-out. Have the system checked by an authorized dealer. If your vehicle has continuous vibration or shudder in the steering wheel while braking, have it checked by an authorized dealer.*

Note: *Brake dust may accumulate on the wheels, even under normal driving conditions. Some dust is inevitable as the brakes wear and does not contribute to brake noise. See* ***Cleaning the Wheels*** *(page 390).*

Note: *Depending on applicable laws and regulations in the country for which your vehicle was originally built, your brake lamps may flash during heavy braking. Following this, your hazard lights may also flash when your vehicle comes to a stop.*

See **Warning Lamps and Indicators** (page 114).

Wet brakes result in reduced braking efficiency. Gently press the brake pedal a few times when driving from a car wash or standing water to dry the brakes.

Brake Over Accelerator

In the event the accelerator pedal becomes stuck or entrapped, apply steady and firm pressure to the brake pedal to slow the vehicle and reduce engine power. If you experience this condition, apply the brakes and bring your vehicle to a safe stop. Move the transmission to park (P), switch the engine off and apply the parking brake. Inspect the accelerator pedal for any interference. If none are found and the condition persists, have your vehicle towed to the nearest authorized dealer.

Brake Assist

Brake assist detects when you rapidly brake by measuring the rate at which you press the brake pedal. It provides maximum braking efficiency as long as you press the pedal. It can also reduce stopping distances in critical situations.

Anti-lock Brake System

This system helps you maintain steering control during emergency stops by keeping the brakes from locking.

If it illuminates when you are driving, this indicates a malfunction. Your vehicle continues to have normal braking without the anti-lock brake system function. Have your vehicle checked as soon as possible.

It also momentarily illuminates when you switch the ignition on to confirm the lamp is functional. If it does not illuminate when you switch the ignition on, or begins to flash at any time, have the system checked by an authorized dealer.

It illuminates when you engage the parking brake and the ignition is on.

If it illuminates when your vehicle is moving, make sure the parking brake is disengaged. If the parking brake is disengaged, this indicates low brake fluid level or a brake system fault. Have your vehicle checked as soon as possible.

It also momentarily illuminates when you switch the ignition on to confirm the lamp is functional. If it does not illuminate when you switch the ignition on, or begins to flash at any time, have the system checked by an authorized dealer.

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HINTS ON DRIVING WITH ANTI-LOCK BRAKES

The anti-lock braking system does not eliminate the risks when:

- You drive too closely to the vehicle in front of you.
- Your vehicle is hydroplaning.
- You take corners too fast.
- The road surface is poor.

Note: *If the system activates, the brake pedal may pulse and may travel further. Maintain pressure on the brake pedal. You may also hear a noise from the system. This is normal.*

ELECTRIC PARKING BRAKE

WARNING: Always fully apply the parking brake and make sure you shift into park (P). Failure to follow this instruction could result in personal injury or death.

WARNING: If you drive extended distances with the parking brake applied, you could cause damage to the brake system.

WARNING: The electric parking brake does not operate if the vehicle battery is running out of charge.

Your vehicle has an electric parking brake. You operate it with a switch instead of a lever. The switch is on the center console or to the left-hand side of the steering wheel, on the lower part of the instrument panel.

Note: *The electric parking brake makes noises during operation. This is normal.*

Applying the Electric Parking Brake

Pull the switch upward.

The red warning lamp flashes during operation and illuminates when the parking brake is applied.

Note: *It remains illuminated for a short period of time after you switch the ignition off.*

If it continues to flash or does not illuminate, the system has malfunctioned. Have your vehicle checked as soon as possible.

Note: *You can apply the electric parking brake when the ignition is off.*

Note: *The electric parking brake could automatically apply when you shift into park (P). See* ***Transmission*** *(page 217).*

Applying the Electric Parking Brake in an Emergency

Note: *Do not apply the electric parking brake when your vehicle is moving, except in an emergency. If you repeatedly use the electric parking brake to slow or stop your vehicle, you could cause damage to the brake system.*

You can use the electric parking brake to slow or stop your vehicle in an emergency.

Pull the switch upward and hold it.

The red warning lamp illuminates, a tone sounds and the stoplamps turn on.

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The electric parking brake continues to slow your vehicle down unless you release the switch.

Manually Releasing the Electric Parking Brake

Switch the ignition on.

Press and hold the brake pedal.

Push the switch downward.

The red warning lamp turns off.

If it remains illuminated or flashes, the system has malfunctioned. Have your vehicle checked as soon as possible.

Pulling Away on a Hill When Towing a Trailer

Press and hold the brake pedal.

Pull the switch upward and hold it.

Shift into gear.

Press the accelerator pedal until engine has developed sufficient torque to prevent your vehicle from rolling down the hill.

Release the switch and pull away in a normal manner.

Automatically Releasing the Electric Parking Brake

Close the driver door.

Shift into gear.

Press the accelerator pedal and pull away in a normal manner.

The red warning lamp turns off.

If it remains illuminated or flashes, the electric parking brake has not released. Manually release the parking brake.

Releasing the Electric Parking Brake if the Vehicle Battery is Running Out of Charge

Connect a booster battery to the vehicle battery to release the electric parking brake if the vehicle battery is running out of charge. See **Jump Starting the Vehicle** (page 335).

HILL START ASSIST

WARNING: The system does not replace the parking brake. When you leave your vehicle, always apply the parking brake.

WARNING: You must remain in your vehicle when the system turns on. At all times, you are responsible for controlling your vehicle, supervising the system and intervening, if required. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

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WARNING: The system will turn off if a malfunction is apparent or if you rev the engine excessively. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

The system makes it easier to pull away when your vehicle is on a slope without the need to use the parking brake.

When the system is active, your vehicle remains stationary on the slope for two to three seconds after you release the brake pedal. This allows time to move your foot from the brake to the accelerator pedal. The system releases the brakes automatically once the engine has developed sufficient torque to prevent your vehicle from rolling down the slope. This is an advantage when pulling away on a slope, for example from a car park ramp, traffic lights or when reversing uphill into a parking space.

The system activates on any slope that causes your vehicle to roll.

Note: *There is no warning light to indicate the system is either on or off.*

Using Hill Start Assist

1. Press the brake pedal to bring your vehicle to a complete standstill. Keep the brake pedal pressed and shift into first gear when facing uphill or reverse (R) when facing downhill.
2. If the sensors detect that your vehicle is on a slope, the system activates automatically.
3. When you remove your foot from the brake pedal, your vehicle remains on the slope without rolling away for about two to three seconds. This hold time automatically extends if you are in the process of driving off.
4. Drive off in the normal manner. The system releases the brakes automatically.

Note: *When you remove your foot from the brake pedal and press the pedal again when the system is active, you will experience significantly reduced brake pedal travel. This is normal.*

Switching the System On and Off

Vehicles with Manual Transmission

You can switch this feature on or off in the information display. The system remembers the last setting when you start your vehicle.

Vehicles with Automatic Transmission

You cannot turn the system on or off. When you switch the ignition on, the system automatically turns on.

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PRINCIPLE OF OPERATION

The traction control system helps avoid drive wheel spin and loss of traction.

If your vehicle begins to slide, the system applies the brakes to individual wheels and, when needed, reduces engine power at the same time. If the wheels spin when accelerating on slippery or loose surfaces, the system reduces engine power in order to increase traction.

USING TRACTION CONTROL

WARNING: The stability and traction control light illuminates steadily if the system detects a failure. Make sure you did not manually disable the traction control system using the information display controls or the switch. If the stability control and traction control light is still illuminating steadily, have the system serviced by an authorized dealer immediately. Operating your vehicle with the traction control disabled could lead to an increased risk of loss of vehicle control, vehicle rollover, personal injury and death.

The system automatically turns on each time you switch the ignition on.

If your vehicle is stuck in mud or snow, switching traction control off may be beneficial as this allows the wheels to spin.

Note: *When you switch traction control off, stability control remains fully active.*

Switching the System Off

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The switch for the stability and traction control system is on the instrument panel.

When you switch the system off, a message and an illuminated icon appear on the instrument cluster.

Use the switch again to return the traction control system to normal operation.

Your vehicle may have MyKey restrictions regarding this feature. See **Principle of Operation** (page 68).

System Indicator Lights and Messages

The stability and traction control light temporarily illuminates on engine start-up and flashes:

- When a driving condition activates either of the systems.
- If a problem occurs in either of the systems.

The stability and traction control off light temporarily illuminates on engine start-up and stays on:

- When you switch the traction control system off.
- When you select an alternative stability control mode.

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PRINCIPLE OF OPERATION

WARNING: Vehicle modifications involving braking system, aftermarket roof racks, suspension, steering system, tire construction and wheel and tire size may change the handling characteristics of your vehicle and may adversely affect the performance of the electronic stability control system. In addition, installing any stereo loudspeakers may interfere with and adversely affect the electronic stability control system. Install any aftermarket stereo loudspeaker as far as possible from the front center console, the tunnel, and the front seats in order to minimize the risk of interfering with the electronic stability control sensors. Reducing the effectiveness of the electronic stability control system could lead to an increased risk of loss of vehicle control, vehicle rollover, personal injury and death.

WARNING: Remember that even advanced technology cannot defy the laws of physics. It's always possible to lose control of a vehicle due to inappropriate driver input for the conditions. Aggressive driving on any road condition can cause you to lose control of your vehicle increasing the risk of personal injury or property damage. Activation of the electronic stability control system is an indication that at least some of the tires have exceeded their ability to grip the road; this could reduce the operator's ability to control the vehicle potentially resulting in a loss of vehicle control, vehicle rollover, personal injury and death. If your electronic stability control system activates, SLOW DOWN.

The system automatically turns on each time you switch the ignition on.

If the stability control or traction control system detects a fault, the following may occur:

- The stability and traction control light illuminates steadily.
- The stability control and traction control systems do not enhance your vehicle's ability to maintain traction of the wheels.

If the stability control or traction control system activates, the following may occur:

- The stability and traction control light flashes.
- Your vehicle slows down.
- Reduced engine power.
- A vibration in the brake pedal.
- The brake pedal is stiffer than usual.
- If the driving condition is severe and your foot is not on the brake pedal, the pedal may move as the system applies higher brake force.

The stability control system has several features built into it to help you maintain control of your vehicle.

Electronic Stability Control

The system helps to prevent your vehicle skidding or laterally sliding by individually applying the brakes to one or more wheels and, if necessary, reducing engine power.

Roll Stability Control

The system helps to prevent rollovers by detecting your vehicle's roll motion, and individually applying the brakes to one or more wheels.

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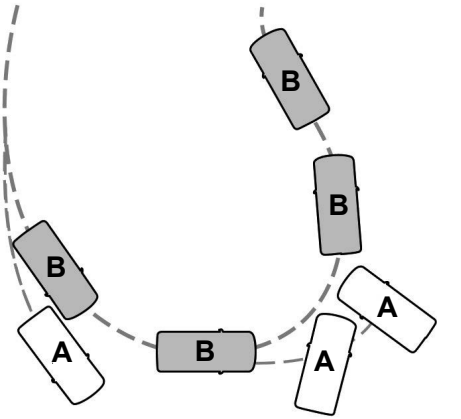
Side-Wind Stabilization

The system applies the brakes on one side of your vehicle to reduce the effect of a sudden side-wind gust on your vehicle's path. When the system turns on, the stability and traction control light flashes, and a message may appear in the information display. You may notice a slight deceleration and may still need to make a steering correction to maintain the intended vehicle path. The system does not turn on for a continuous side-wind or during turns.

Traction Control

The system enhances your vehicle's ability to maintain traction of the wheels by detecting and controlling wheel spin. See **Using Traction Control** (page 238).



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A Vehicle without stability control skidding off its intended route.

B Vehicle with stability control maintaining control on a slippery surface.

USING STABILITY CONTROL

AdvanceTrac™ with Roll Stability Control™ (RSC™)

The system automatically turns on each time you switch the ignition on.

You can switch the electronic stability control systems off.

When you shift the transmission into reverse (R), the systems are disabled.

You can switch the traction control system off or on independently. See **Using Traction Control** (page 238).

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AdvanceTrac with RSC Features				
Button functions	**Stability control OFF light**	**Roll stability control**	**Electronic stability control**	**Traction control system**
Default at start-up	Illuminated during bulb check	Enabled	Enabled	Enabled
Button pressed momentarily	Illuminated	Enabled	Enabled	Disabled
Button pressed and held for more than 5 seconds	Illuminated	Enabled	Disabled	Disabled
Double press * Sport Mode	Illuminated	Enabled	Enabled with higher threshold target	Enabled with higher threshold target
Button pressed again after deactivation	Not illuminated	Enabled	Enabled	Enabled
Transfer case switched to 4WD Low	Illuminated	Disabled	Disabled	Disabled

*On F-150 Raptor models, the double press function to put your vehicle into sport mode is not available. You can access sport mode through the terrain management system.

PRINCIPLE OF OPERATION

WARNING: Hill descent control cannot control descent in all surface conditions and circumstances, such as ice or extremely steep grades. Hill descent control is a driver assist system and cannot substitute for good judgment by the driver. Failure to do so may result in loss of vehicle control, crash or serious injury.

Hill descent control allows you to set and maintain vehicle speed when descending steep grades in various surface conditions.

Hill descent control can maintain vehicle speeds on downhill grades between 2 mph (3 km/h) and 20 mph (32 km/h). Above 20 mph (32 km/h), the system remains armed, but you cannot use the system to set or maintain the descent speed.

Hill descent control requires a cooling down interval after a period of sustained use. The amount of time that the feature can remain active before cooling varies with conditions. The system provides a warning in the message center and a tone sounds when the system is about to disengage for cooling. At this time, manually apply the brakes as needed to maintain descent speed.

USING HILL DESCENT CONTROL

Press and release the hill descent button on the instrument panel. A light in the cluster illuminates and a tone sounds when you switch this on.

To increase descent speed, press the accelerator pedal until you reach the speed you desire. To decrease descent speed, press the brake pedal until you reach the speed you desire.

When accelerating or decelerating, once you reach the descent speed you desire, remove your feet from the pedals and the hill descent control maintains the vehicle speed you chose.

Note: *You may observe a noise from the ABS pump motor during hill descent control operation. This is a normal characteristic of the ABS and is no reason for concern.*

Note: *Refer to the* ***Raptor Supplement*** *for further information on Trail Control.*

Hill descent modes

- At speeds between 2 mph (3 km/h) and 20 mph (32 km/h): When you press this button, the light flashes indicating this feature is active. Your vehicle maintains the speed you desire when in this mode.
- At speeds between 20 mph (32 km/h) and 40 mph (64 km/h): When you press this button, the light is solid and a message appears in the information display indicating this feature is active. Your vehicle does not maintain the speed you desire and you cannot set your descent speed.
- At speeds above 40 mph (64 km/h): When you press this button, the system turns this feature off and no light or message appears in the information display. You need to switch this feature back on to use.

Refer to the Information Displays for additional hill descent control messages. See **Information Messages** (page 132).

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PRINCIPLE OF OPERATION

WARNING: To help avoid personal injury, always use caution when in reverse (R) and when using the sensing system.

WARNING: The system may not detect objects with surfaces that absorb reflection. Always drive with due care and attention. Failure to take care may result in a crash.

WARNING: Traffic control systems, inclement weather, air brakes, external motors and fans may affect the correct operation of the sensing system.This may cause reduced performance or false alerts.

WARNING: The system may not detect small or moving objects, particularly those close to the ground.

Note: *Certain add-on devices installed around the bumper or fascia may create false beeps. For example, large trailer hitches, bike or surfboard racks, license plate brackets, bumper covers or any other device that may block the normal detection zone of the system. Remove the add-on devices to prevent the false beeps.*

Note: *Keep the sensors, located on the bumper or fascia, free from snow, ice and large accumulations of dirt. If the sensors are covered, the system's accuracy can be affected. Do not clean the sensors with sharp objects.*

Note: *If your vehicle sustains damage to the bumper or fascia, leaving it misaligned or bent, the sensing zone may be altered causing inaccurate measurement of obstacles or false alarms.*

Note: *If your vehicle is equipped with MyKey™, the sensing system cannot be turned off when a MyKey™ is present. See* ***Principle of Operation*** *(page 68).*

Note: *When a trailer is connected to the vehicle, the rear parking aid may detect the trailer and therefore provide warnings. It is suggested that you disable the system when a trailer is connected to the vehicle to prevent these warnings.*

The sensing system warns the driver of obstacles within a certain range of your vehicle. The system turns on automatically whenever you switch the ignition on.

When receiving a detection warning, the radio volume reduces to a predetermined level. After the warning goes away, the radio volume returns to the previous level.

The system can be switched off through the information display menu or from the pop-up message that appears once you shift the transmission into reverse (R). See **General Information** (page 120).

If a fault is present in the system, a warning message appears in the information display and you cannot switch the system on through the pop-up message. See **Information Messages** (page 132).

REAR PARKING AID

The rear sensors are only active when the transmission is in reverse (R). As your vehicle moves closer to the obstacle, the rate of the audible warning increases. When the obstacle is less than 11.81 in (30 cm) away, the warning sounds continuously. If the system detects a

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stationary or receding object farther than 11.81 in (30 cm) from the corners of the bumper, the tone sounds for only two seconds. Once the system detects an object approaching, the warning sounds again.

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Coverage area of up to 6 ft (1.8 m) from the rear bumper. There may be decreased coverage area at the outer corners of the bumper.

The system detects certain objects while the transmission is in reverse (R) :

- Your vehicle is moving toward a stationary object at a speed of 3 mph (5 km/h) or less.
- Your vehicle is not moving, but a moving object is approaching the rear of your vehicle at a speed of 3 mph (5 km/h) or less.
- Your vehicle is moving at a speed of less than 3 mph (5 km/h) and a moving object is approaching the rear of your vehicle at a speed of less than 3 mph (5 km/h).

The system provides audio warnings only when your vehicle is moving or when your vehicle is stationary and the detected obstacle is less than 12 in (30 cm) away from the bumper.

Obstacle Distance Indicator (If Equipped)

The system provides obstacle distance indication through the display screen. See **Rear View Camera** (page 248).

ACTIVE PARK ASSIST (IF EQUIPPED)

WARNING: You must remain in your vehicle when the system turns on. At all times, you are responsible for controlling your vehicle, supervising the system and intervening, if required. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

WARNING: You are responsible for controlling your vehicle at all times. The system is designed to be an aid and does not relieve you of your responsibility to drive with due care and attention. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: The sensors may not detect objects in heavy rain or other conditions that cause interference.

WARNING: Active park assist does not apply the brakes under any circumstances.

Note: *The blind spot information system does not detect traffic alongside or behind your vehicle during an active park assist maneuver.*

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Note: *Active park assist is a multi-step process and may require you to shift your transmission multiple times. Follow the on-screen instructions until you complete the parking process.*

The system detects an available parallel parking space and automatically steers your vehicle (hands-free) while you control the accelerator, transmission and brakes. The system visually and audibly guides you to park your vehicle.

If you are uncomfortable with the proximity to any vehicle or object, you may choose to override the system by grabbing the steering wheel or pushing the active park assist button.

The system may not operate correctly in any of the following conditions:

- You use a spare tire or a tire significantly worn more than the other tires.
- One or more tires are improperly inflated.
- You try to park on a tight curve.
- Something passes between the front bumper and the parking space. For example, a pedestrian or cyclist.
- The edge of the neighboring parking vehicle is high off the ground. For example, a bus, tow truck or flatbed truck.
- The weather conditions are poor. For example, during heavy rain, snow or fog.

Note: *Keep the sensors on the fascia free from snow, ice and large accumulations of dirt. Covered sensors can affect the systems accuracy. Do not clean the sensors with sharp objects.*

Note: *The sensors may not detect objects with surfaces that absorb ultrasonic waves or cause ultrasonic interference. For example, motorcycle exhaust, truck air brakes or horns.*

Note: *Following a change in tire size, the system must recalibrate and operation may be impaired for a short time.*

Do not use the system if:

- You have attached a bike rack, trailer or other object near the sensors on the front or rear of your vehicle.
- You have attached an overhanging object to the roof. For example, a surfboard.
- A foreign object damages or obstructs the sensors.
- The correct tire size is not in use. For example, when using a mini-spare tire.

Using Active Park Assist

Press the active park assist button to search for a parallel parking space.

When driving at a speed less than 22 mph (35 km/h), the system automatically scans both sides of your vehicle for an available parking space. The system displays a message and a corresponding graphic to indicate it is searching for a parking space. Use the direction indicator to select searching either to the left hand side or right hand side of your vehicle. If the direction indicator is not used, the system defaults to the passenger side of your vehicle.

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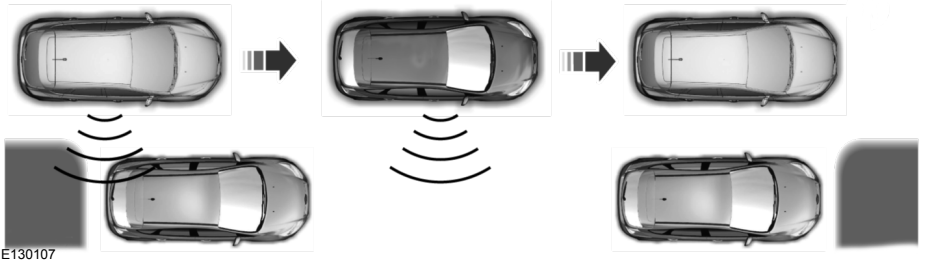
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When the system finds a suitable space it displays a message and a tone sounds. Stop your vehicle and follow the instructions on the display screen. If your vehicle is moving very slowly, you may need to pull forward a short distance before the system is ready to park.

Note: *You can also activate the system after you drive partially or completely pass the parking space. To do so, press the active park assist button and the system informs you if you recently passed a suitable parking space.*

Note: *You must observe that the selected space remains clear of obstructions at all times in the maneuver.*

Note: *You should drive your vehicle within 5 ft (1.5 m) and as parallel to the other vehicles as possible while passing a parking space.*

Note: *The system always offers the last detected parking space. For example, if your vehicle detects multiple spaces while you are driving, it offers the last detected space.*

Note: *If driven above approximately 22 mph (35 km/h), the display screen shows a message to alert you to reduce your vehicle speed.*

Automatic Steering into Parking Space

Note: *If vehicle speed exceeds 6 mph (9 km/h) or the maneuver is interrupted, for example driver input is detected, the system switches off and you need to take full control of your vehicle.*

When you shift the transmission into reverse (R), with your hands off the steering wheel and nothing obstructing its movement, your vehicle steers itself into the space. The system displays instructions to move your vehicle back and forth in the space.

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When you think your vehicle has enough space in front and behind it, or you hear a solid tone from the parking aid (accompanied by a touchscreen display message and a chime), bring your vehicle to a complete stop.

When automatic steering is complete, the system displays a message and a chime sounds, indicating that the active park assist process is finished. You are responsible for checking the parking job and making any necessary corrections before leaving your vehicle.

Deactivating the Park Assist Feature

Manually deactivate the system by:

- Pressing the active park assist button during an active maneuver.
- Grabbing the steering wheel during an active maneuver.
- Driving above approximately 22 mph (35 km/h) for 30 seconds during an active park search.
- Driving above 6 mph (9 km/h) during automatic steering.
- Switching off the traction control system.

Certain vehicle conditions can also deactivate the system, such as:

- Traction control has activated.
- There is an anti-lock brake system activation or failure.

If a problem occurs with the system, a warning message displays accompanied by a tone. Occasional system messages may occur in normal operation. For recurring or frequent system faults, contact an authorized dealer to have your vehicle serviced.

Troubleshooting the System

The System Does Not Look For a Space
The traction control system may be off.
The transmission is in reverse (R). Your vehicle must be moving forward to detect a parking space.

The System Does Not Offer a Particular Space
The sensors may be covered. For example, with snow, ice or dirt. Covered sensors can affect the system's functionality
There is not enough room in the parking space for your vehicle to safely park.
There is not enough space for the parking maneuver on the opposite side of the parking space.

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The System Does Not Offer a Particular Space
The parking space is farther than 5 ft (1.5 m) or closer than 16 in (40 cm) away.
Your vehicle is going faster than 22 mph (35 km/h).
You may have recently disconnected or replaced the battery. After a battery disconnect, the vehicle must be driven on a straight road for a short period of time.

The System Does Not Position The Vehicle Where I Want in the Space
Your vehicle is rolling in the opposite direction of the transmission. For example, rolling forward when the transmission is in reverse (R).
An irregular curb along the parking space prevents the system from aligning your vehicle properly.
Vehicles or objects bordering the space may not be positioned correctly.
Your vehicle was pulled too far past the parking space. The system performs best when you drive the same distance past the parking space.
The tires may not be installed or maintained correctly. For example, not inflated correctly, improper size or of a different size.
A repair or alteration has changed detection capabilities.
A parked vehicle has a high attachment. For example, a salt sprayer, snowplow or moving truck bed.
The parking space length or position of parked objects changed after your vehicle passed.
The temperature around your vehicle changes quickly. For example, when driving from a heated garage into the cold, or after leaving a car wash.

REAR VIEW CAMERA (IF EQUIPPED)

WARNING: The rear view camera system is a reverse aid supplement device that still requires the driver to use it in conjunction with the interior and exterior mirrors for maximum coverage.

WARNING: Objects that are close to either corner of the bumper or under the bumper, might not be seen on the screen due to the limited coverage of the camera system.

WARNING: Reverse your vehicle as slow as possible, higher speeds may limit your reaction time to stop your vehicle.

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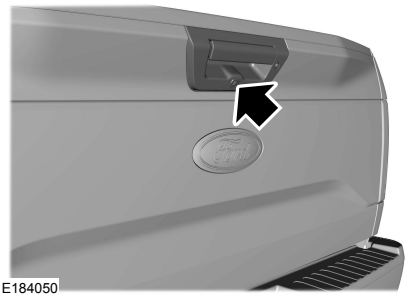
WARNING: Use caution when the rear cargo door is ajar. If the rear cargo door is ajar, the camera will be out of position and the video image may be incorrect. All guidelines disappear when the rear cargo door is ajar. Some vehicles may not come equipped with guidelines.

WARNING: Use caution when turning camera features on or off when the transmission is not in park (P). Make sure your vehicle is not moving.

The rear view camera system provides a video image of the area behind your vehicle.

During operation, lines appear in the display which represent your vehicle's path and proximity to objects behind your vehicle.


E184050

The rear view camera is located on the tailgate.

Using the Rear View Camera System

The rear view camera system displays what is behind your vehicle when you place the transmission in reverse (R).

Note: *The reverse sensing system is not effective at speeds above 3 mph (5 km/h) and may not detect certain angular or moving objects.*

The system uses three types of guides to help you see what is behind your vehicle:

- Active guidelines: Show the intended path of your vehicle while reversing.
- Fixed guidelines: Show the actual path your vehicle is moving in while reversing in a straight line. This can be helpful when backing into a parking space or aligning your vehicle with another object behind you.
- Centerline: Helps align the center of your vehicle with an object (for example, a trailer).

Note: *If the image comes on while the transmission is not in reverse (R), have the system inspected by your authorized dealer.*

Note: *When towing, the camera only sees what you are towing behind your vehicle. This might not provide adequate coverage as it usually provides in normal operation and you might not see some objects. In some vehicles, the guidelines may disappear once you engage the trailer tow connector.*

Note: *If your vehicle is equipped with Pro Trailer Backup Assist you can set-up the trailer to work with the Rear View Camera system. See* ***Trailer Reversing Aids*** *(page 294).*

The camera may not operate correctly under the following conditions:

- Nighttime or dark areas if the reverse lamps are not operating.
- Mud, water or debris obstructs the camera's view. Clean the lens with a soft, lint-free cloth and non-abrasive cleaner.
- The rear of your vehicle is hit or damaged, causing the camera to become misaligned.

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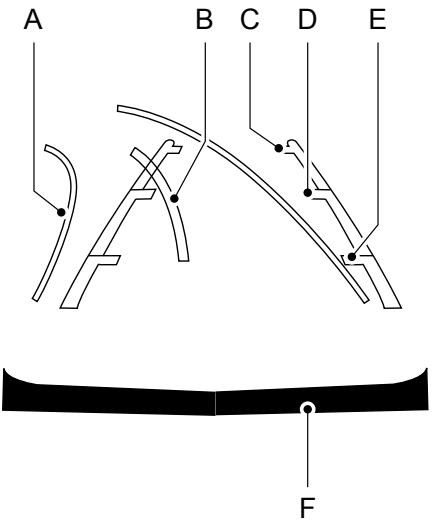
Camera System Settings

You can access the rear view camera system settings in the display screen. See **General Information** (page 120).

Camera guidelines

Note: *Active guidelines and fixed guidelines are only available when the transmission is in reverse (R).*

Note: *The centerline is only available if active or fixed guidelines are on.*



E142436

A Active guidelines
B Centerline
C Fixed guideline: Green zone
D Fixed guideline: Yellow zone
E Fixed guideline: Red zone
F Rear bumper

Active guidelines only show with fixed guidelines. To use active guidelines, turn the steering wheel to point the guidelines toward an intended path. If the steering wheel position changes while reversing, your vehicle might deviate from the original intended path.

The fixed and active guidelines fade in and out depending on the steering wheel position. The active guidelines do not show when the steering wheel position is straight.

Always use caution while reversing. Objects in the red zone are closest to your vehicle and objects in the green zone are farther away. Objects are getting closer to your vehicle as they move from the green zone to the yellow or red zones. Use the side view mirrors and rear view mirror to get better coverage on both sides and rear of your vehicle.

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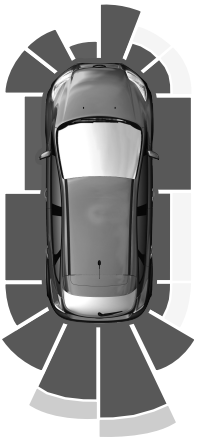
Obstacle Distance Indicator (If Equipped)



E190459

The system will provide an image of your vehicle and the sensor zones. The zones will highlight green, yellow and red when the parking aid sensors detect an object in the coverage area.

Manual Zoom

WARNING: When manual zoom is on, the full area behind your vehicle may not show. Be aware of your surroundings when using the manual zoom feature.

Note: *Manual zoom is only available when the transmission is in reverse (R).*

Note: *Only the centerline shows when you enable manual zoom.*

Selectable settings for this feature are Zoom in (+) and Zoom out (-). Press the symbol on the camera screen to change the view. The default setting is Zoom OFF. This allows you to get a closer view of an object behind your vehicle. The zoomed image keeps the bumper in the image to provide a reference. The zoom is only active while the transmission is in reverse (R).

Rear Camera Delay

Selectable settings for this feature are ON and OFF. The default setting for the rear camera delay is OFF.

When shifting the transmission out of reverse (R) and into any gear other than park (P), the camera image remains in the display until your vehicle speed reaches 6 mph (10 km/h). This occurs when the rear camera delay feature is on, or until a radio button is pressed.

360 DEGREE CAMERA (IF EQUIPPED)

WARNING: The 360 degree camera system still requires the driver to use it in conjunction with looking out of the windows, and checking the interior and exterior mirrors for maximum coverage.

WARNING: Objects that are close to either corner of the bumper or under the bumper, might not be seen on the screen due to the limited coverage of the camera system.

WARNING: Use caution when turning camera features on or off when the transmission is not in park (P). Make sure your vehicle is not moving.

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The 360 degree camera system consists of front, side and rear cameras. The system:

- Allows you to see what is directly in front or behind your vehicle.
- Provides cross traffic view in front and behind your vehicle.
- Allows you to see a top-down view of the area outside your vehicle, including the blind spots.
- Provides visibility around your vehicle to you in parking maneuvers such as:
  - Centering in a parking space.
  - Obstacles near vehicle.
  - Parallel parking.

The 360 degree camera system button is located on the instrument panel and allows you to toggle through different camera views. The front and rear cameras have multiple screens which consist of: Normal view with 360, Normal view, and split view. When in park (P), neutral (N) or drive (D), only the front images will be displayed when the button is pressed. When in reverse (R), only the rear images will be displayed when the button is pressed.

Note: *The 360 degree camera system will turn OFF when your vehicle is in motion at low speed, except when in reverse (R).*

Camera Views

The small vehicle icon displayed on the top left corner of the image illustrates the camera view being displayed. Camera views are laid out in the order the screens will appear once the button is pressed.

Note: *The front video image will be disabled when your vehicle is in motion at low speed, except when in reverse (R).*

- **Front 360 + Normal:** Contains the normal front camera view next to a 360 degree camera view. This view will appear on the screen when the button is pressed in any gear other than reverse (R).
- **Front Normal View:** Provides an image of what is directly in front of your vehicle. Access this view by pressing the camera button from the Front 360 + Normal View screen.
- **Front Split View:** Provides an extended view of what is in front of your vehicle. Access this view by pressing the camera button from the Front Normal View screen.
- **Rear 360 + Normal:** Contains the normal rear camera view next to a 360 degree camera view. This view can be accessed by putting your vehicle in reverse (R), or by pressing the camera button from the Rear Split View screen.
- **Rear Normal View:** Provides an image of what is directly behind your vehicle. Access this view by pressing the camera button from the Rear 360 + Normal screen.
- **Rear Split View:** Provides an extended view of what is behind your vehicle. Access this view by pressing the camera button from the Rear Normal View screen.

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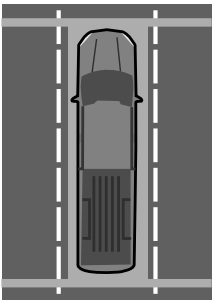
Keep Out Zone

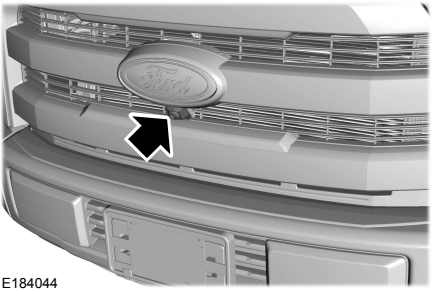


E184448

The Keep Out Zone is represented by the yellow dotted lines running parallel to your vehicle. It is designed to give you the indication on the ground of the fully extended outside mirror position.

Front Camera

WARNING: The front camera system still requires the driver to use it in conjunction with looking out of your vehicle.



E184044

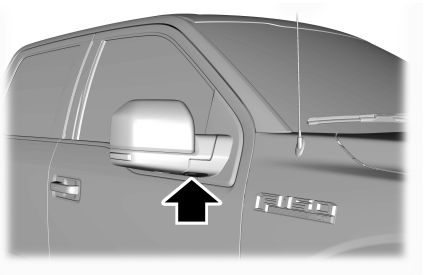
The front video camera, located in the grille, provides a video image of the area in front of your vehicle. It adds assistance to the driver while driving forward at low speeds.

To use the front video camera system, place the transmission in any gear except reverse (R) and press the small icon in the corner of the screen.

Note: *The front camera system will automatically switch on when you are in mud/sand, rock crawl, or Baja mode and your speed is less than 15 mph (24 km/h) (F150 Raptor only).*

The area displayed on the screen may vary according to your vehicle's orientation and road conditions.

Side Camera



E206263

The side view camera, located in the outside mirror, provide a video image of the area on the sides of your vehicle as part of the front 360 + normal view and rear 360 + normal view. It aids you while parking your vehicle either forward or backwards.

Note: *Use caution when using the 360 view while any of the doors are ajar. If a door is ajar, the camera will be out of position and the video image may be incorrect.*

WHAT IS CRUISE CONTROL

Cruise control lets you maintain a set speed without keeping your foot on the accelerator pedal. You can use cruise control when your vehicle speed is greater than 20 mph (30 km/h).

SWITCHING CRUISE CONTROL ON AND OFF

WARNING: Do not use cruise control on winding roads, in heavy traffic or when the road surface is slippery. This could result in loss of vehicle control, serious injury or death.

The cruise controls are on the steering wheel. See **Cruise Control** (page 92).

Switching Cruise Control On

ON Press the button.

Switching Cruise Control Off

OFF Press the button when the system is in standby mode.

The system also turns off when you switch the ignition off.

Note: *The set speed erases when you switch the system off.*

SETTING THE CRUISE CONTROL SPEED

WARNING: When you are going downhill, your vehicle speed could increase above the set speed. The system does not apply the brakes.

Drive to the speed you prefer.

SET+ Press either button to set the current speed.

SET-

Take your foot off the accelerator pedal.

Note: *The indicator changes color in the information display.*

Changing the Set Speed

SET+ Press and release the button to increase the set speed in small increments.

Press and hold the button to accelerate. Release the button when you reach your preferred speed.

SET- Press and release the button to decrease the set speed in small increments.

Press and hold the button to decelerate. Release the button when you reach your preferred speed.

Note: *If you accelerate by pressing the accelerator pedal, the set speed does not change. When you release the accelerator pedal, your vehicle returns to the speed that you previously set.*

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CANCELING THE SET SPEED

CNCL Press the button, or tap the brake pedal to cancel the set speed.

Note: *The system remembers the set speed.*

Note: *The system cancels if the vehicle speed drops below 10 mph (16 km/h) under the set speed when driving uphill.*

RESUMING THE SET SPEED

RES Press the button.

CRUISE CONTROL INDICATORS

Illuminates when you switch the system on.

USING ADAPTIVE CRUISE CONTROL - VEHICLES WITH: ADAPTIVE CRUISE CONTROL

(IF EQUIPPED)

WARNING: Always pay close attention to changing road conditions when using adaptive cruise control. The system does not replace attentive driving. Failing to pay attention to the road may result in a crash, serious injury or death.

WARNING: Do not use the adaptive cruise control when entering or leaving a highway, on roads with intersections or roundabouts or non-vehicular traffic or roads that are winding, slippery, unpaved, or steep slopes.

WARNING: Do not use the system in poor visibility, for example fog, heavy rain, spray or snow.

WARNING: Do not use the system when towing a trailer that has aftermarket electronic trailer brake controls. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: Do not use tire sizes other than those recommended because this can affect the normal operation of the system. Failure to do so may result in a loss of vehicle control, which could result in serious injury.

WARNING: Adaptive cruise control may not detect stationary or slow moving vehicles below 6 mph (10 km/h).

WARNING: Adaptive cruise control does not detect pedestrians or objects in the road.

WARNING: Adaptive cruise control does not detect oncoming vehicles in the same lane.

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WARNING: Adaptive cruise control is not a crash warning or avoidance system.

WARNING: Do not use adaptive cruise control with a snow plow blade installed.

The system adjusts your vehicle speed to maintain the set gap between you and the vehicle in front of you in the same lane. You can select four gap settings.

The system uses a radar sensor which projects a beam directly in front of your vehicle.

Note: *It is your responsibility to stay alert, drive safely and be in control of the vehicle at all times.*

E262918

The cruise controls are on the steering wheel.

Switching Adaptive Cruise Control On

ON

Press and release the button.

The indicator, current gap setting and set speed appear in the information display.

E183738

Setting the Adaptive Cruise Speed

Drive to your preferred speed.

SET-

Press and release the button.

Take your foot off the accelerator pedal.

The indicator, current gap setting and set speed appear in the information display.

E183738

A vehicle graphic illuminates if there is a vehicle detected in front of you.

Note: *When adaptive cruise control is active, the speedometer may vary slightly from the set speed displayed in the information display.*

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Setting the Adaptive Cruise Speed When Your Vehicle is Stationary

Follow a vehicle to a complete stop.

RES+ Press while keeping the brake pedal fully pressed.

The set speed adjusts to 20 mph (30 km/h).

The indicator, current gap setting and set speed appear in the information display.

Following a Vehicle

WARNING: When following a vehicle, your vehicle does not always decelerate quickly enough to avoid a crash without driver intervention. Always apply the brakes when necessary. Failing to do so may result in a crash, serious injury or death.

WARNING: Adaptive cruise control only warns of vehicles detected by the radar sensor. In some cases there may be no warning or a delayed warning. You should always apply the brakes when necessary. Failure to do so may result in a crash, serious injury or death.

When a vehicle ahead of you enters the same lane or a slower vehicle is ahead in the same lane, the vehicle speed adjusts to maintain a preset gap distance. A vehicle graphic illuminates in the instrument cluster.

Note: *The brakes may emit noise when applied by the system.*

Note: *When you are following a vehicle and you switch on a direction indicator, adaptive cruise control may provide a small temporary acceleration to help you pass.*

Your vehicle maintains a consistent gap from the vehicle ahead until:

- The vehicle in front of you accelerates to a speed above the set speed.
- The vehicle in front of you moves out of the lane you are in.
- You set a new gap distance.

The system applies the brakes to slow your vehicle to maintain a safe gap distance from the vehicle in front. The system only applies limited braking. You can override the system by applying the brakes.

If the system determines that its maximum braking level is not sufficient, an audible warning sounds, a message appears in the information display and an indicator flashes when the system continues to brake. Take immediate action.

Following a Vehicle to a Complete Stop

If your vehicle follows a vehicle to a complete stop and remains stationary for less than three seconds, your vehicle accelerates from a stationary position to follow the vehicle ahead.

RES+ If your vehicle follows a vehicle to a complete stop and remains stationary for more than three seconds, press to follow the vehicle ahead. Or press the accelerator pedal.

Setting the Gap Distance

You can decrease or increase the distance between your vehicle and the vehicle in front by pressing the gap control.

Press and release to decrease the gap distance.

Press and release to increase the gap distance.

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E183738

The selected gap appears in the information display as shown by the bars in the image.

Note: *The gap setting is time dependent and therefore the distance adjusts with your vehicle speed.*

Note: *It is your responsibility to select a gap appropriate to the driving conditions.*

Adaptive Cruise Control Gap Settings

Graphic Display, Bars Indicated Between Vehicles	Distance Gap	Dynamic Behavior
1	Closest.	Sport.
2	Close.	Normal.
3	Medium.	Normal.
4	Far.	Comfort.

Each time you switch the system on, it selects the last chosen gap setting.

Overriding the Set Speed

WARNING: If you override the system by pressing the accelerator pedal, it does not automatically apply the brakes to maintain a gap from any vehicle ahead.

When you press the accelerator pedal, you override the set speed and gap distance.

Use the accelerator pedal normally to intentionally exceed the set speed limit.

When you override the system, the green indicator light illuminates and the vehicle image does not appear in the information display.

The system resumes operation when you release the accelerator pedal. The vehicle speed decreases to the set speed, or a lower speed if following a slower vehicle.

Changing the Set Speed

RES+ Press and release to increase the set speed in small increments.

SET- Press and release to decrease the set speed in small increments.

Press and hold either button to change the set speed in large increments. Release the button when you reach your preferred speed.

Press the accelerator or brake pedal until you reach your preferred speed. Press either button.

The system may apply the brakes to slow the vehicle to the new set speed. The set speed displays continuously in the information display when the system is active.

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Canceling the Set Speed

CNCL Press and release the button or tap the brake pedal.

Note: *The system remembers the set speed.*

Resuming the Set Speed

RES+ Press and release the button.

Your vehicle speed returns to the previously set speed and gap setting. The set speed displays continuously in the information display when the system is active.

Note: *Only use resume if you are aware of the set speed and intend to return to it.*

Automatic Cancellation

Automatic cancellation can also occur when:

- The tires lose traction.
- You apply the parking brake.

Park Brake Application

Automatic parking brake application and cancellation occurs if:

- You unbuckle the seatbelt after you stop the vehicle.
- You hold the vehicle at a stop continuously for more than three minutes.

Hilly Condition Usage

You should select a lower gear when the system is active in situations such as prolonged downhill driving on steep grades, for example in mountainous areas. The system needs additional engine braking in these situations to reduce the load on the vehicle's regular brake system to prevent it from overheating.

Note: *An audible alarm sounds and the system shuts down if it applies brakes for an extended period of time. This allows the brakes to cool. The system functions normally again after the brakes cool.*

Switching Adaptive Cruise Control Off

OFF Press and release the button when the system is in standby mode or switch the ignition off.

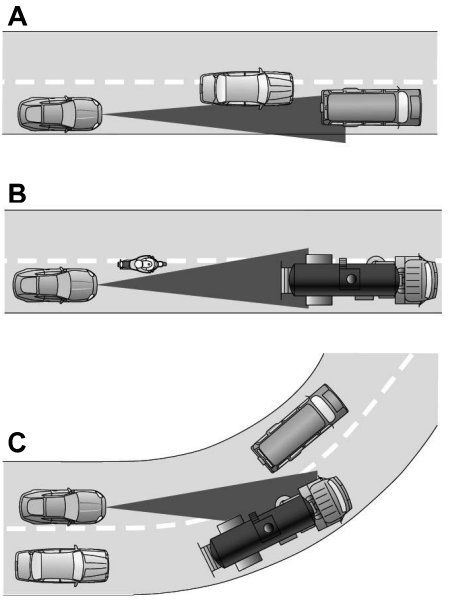
Note: *You erase the set speed when you switch the system off.*

Detection Issues

WARNING: On rare occasions, detection issues can occur due to the road infrastructures, for example bridges, tunnels and safety barriers. In these cases, the system may brake late or unexpectedly. At all times, you are responsible for controlling your vehicle, supervising the system and intervening, if required.

WARNING: If the system malfunctions, have your vehicle checked as soon as possible.

The radar sensor has a limited field of view. It may not detect vehicles at all or detect a vehicle later than expected in some situations. The lead vehicle graphic does not illuminate if the system does not detect a vehicle in front of you.



E71621

Detection issues can occur:

A When driving on a different line than the vehicle in front.

B With vehicles that edge into your lane. The system can only detect these vehicles once they move fully into your lane.

C There may be issues with the detection of vehicles in front when driving into and coming out of a bend or curve in the road.

In these cases, the system may brake late or unexpectedly. You should stay alert and take action when necessary.

If something hits the front end of your vehicle or damage occurs, the radar-sensing zone may change. This could cause missed or false vehicle detection.

Optimal system performance requires a clear view of the road by the windshield-mounted camera.

Optimal performance may not occur if:

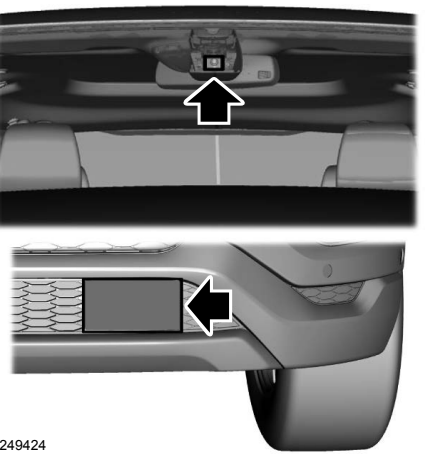
- The camera is blocked.
- There is poor visibility or lighting conditions.
- There are bad weather conditions.

System Not Available

Conditions that can cause the system to deactivate or prevent the system from activating when requested include:

- A blocked sensor.
- High brake temperature.
- A failure in the system or a related system.

Blocked Sensor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A message displays if something obstructs the radar signals from the sensor. The sensor is in the lower grille. The system cannot detect a vehicle ahead and does not function when something blocks the sensor.

Note: *You cannot see the sensor. It is behind a fascia panel.*

Keep the front of your vehicle free of dirt, metal badges or objects. Vehicle front protectors and aftermarket lights may also block the sensor.

Possible Causes and Actions for This Message Displaying:

Cause	Action
The surface of the radar is dirty or obstructed.	Clean the grille surface in front of the radar or remove the object causing the obstruction.
The surface of the radar is clean but the message remains in the display.	Wait a short time. It may take several minutes for the radar to detect that it is free from obstruction.
Heavy rain or snow is interfering with the radar signals.	Do not use the system in these conditions because it may not detect any vehicles ahead.
Water, snow or ice on the surface of the road may interfere with the radar signals.	Do not use the system in these conditions because it may not detect any vehicles ahead.
You are in a desert or remote area with no other vehicles and no roadside objects.	Wait a short time or switch to normal cruise control.

Due to the nature of radar technology, it is possible to get a blockage warning with no actual block. A false blocked condition either self clears, or clears after you restart your vehicle.

Switching to Normal Cruise Control

WARNING: Normal cruise control will not brake when your vehicle is approaching slower vehicles. Always be aware of which mode you have selected and apply the brakes when necessary.

The cruise control indicator light replaces the adaptive cruise control indicator light if you select normal cruise control. The gap setting does not display, and the system does not respond to lead vehicles. Automatic braking remains active to maintain set speed.

You can change from adaptive cruise control to normal cruise control through the information display.

DRIVER ALERT (IF EQUIPPED)

WARNING: The system is designed to aid the driver. It is not intended to replace your attention and judgment. You are still responsible to drive with due care and attention.

WARNING: At all times, you are responsible for controlling your vehicle, supervising the system and intervening, if required. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

WARNING: The system may not function if the sensor is blocked.

WARNING: Take regular rest breaks if you feel tired. Do not wait for the system to warn you.

WARNING: Certain driving styles may result in the system warning you even if you are not feeling tired.

WARNING: In cold and severe weather conditions the system may not function. Rain, snow and spray can all limit sensor performance.

WARNING: The system will not operate if the sensor cannot track the road lane markings.

WARNING: If damage occurs in the immediate area surrounding the sensor, have your vehicle checked as soon as possible.

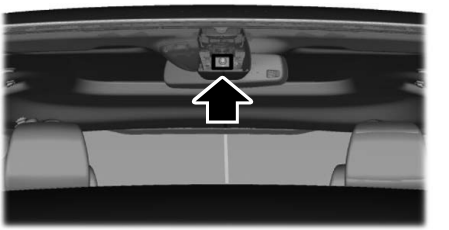
WARNING: The system may not correctly operate if your vehicle is fitted with a suspension kit not approved by us.

Note: *Keep the windshield free from obstructions. For example, bird droppings, insects and snow or ice.*

Note: *If the camera is blocked or if the windshield is damaged, the system may not function.*

Note: *The system remembers the last setting when you start your vehicle, unless a MyKey™ is detected.*

Note: *If enabled in the menu, the system activates at speeds above 40 mph (64 km/h).*



E249505

The system automatically monitors your driving behavior using various inputs including the front camera sensor.

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If the system detects that your driving alertness is reduced below a certain threshold, the system will alert you using a chime and a message in the information display.

Using Driver Alert

Switching the system on and off

You may switch the system on or off through the information display by selecting Settings then Driver Assist then Driver Alert in the menu. When activated, the system will monitor your alertness level based upon your driving behavior in relation to the lane markings, and other factors.

System Warnings

Note: *The system will not issue warnings below approximately 40 mph (64 km/h).*

The warning system is in two stages. At first the system issues a temporary warning that you need to take a rest. This message will only appear for a short time. If the system detects further reduction in driving alertness, another warning may be issued which will remain in the information display for a longer time. Press OK on the steering wheel control to clear the warning. When active the system will run automatically in the background and only issue a warning if required.

Resetting the System

You can reset the system by either:

- Switching the ignition off and on.
- Stopping the vehicle and then opening and closing the driver's door.

LANE KEEPING SYSTEM (IF EQUIPPED)

WARNING: You are responsible for controlling your vehicle at all times. The system is designed to be an aid and does not relieve you of your responsibility to drive with due care and attention. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: Always drive with due care and attention when using and operating the controls and features on your vehicle.

WARNING: In cold and severe weather conditions the system may not function. Rain, snow and spray can all limit sensor performance.

WARNING: The system will not operate if the sensor cannot track the road lane markings.

WARNING: The sensor may incorrectly track lane markings as other structures or objects. This can result in a false or missed warning.

WARNING: The system may not operate properly if the sensor is blocked. Keep the windshield free from obstruction.

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WARNING: If damage occurs in the immediate area surrounding the sensor, have your vehicle checked as soon as possible.

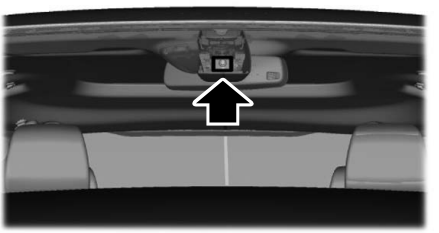
WARNING: The system may not correctly operate if your vehicle is fitted with a suspension kit not approved by us.

Note: *The system works as long as the camera can detect one lane marking.*

Note: *When you select aid or alert and aid mode and the system detects no steering activity for a short period, the system alerts you to put your hands on the steering wheel.* ***The system may detect a light grip or touch on the steering wheel as hands off driving.***

Note: *The system works above 40 mph (64 km/h).*

Note: *The system may not function if the camera is blocked, or if the windshield is damaged or dirty.*



E249505

When you switch the system on and it detects an unintentional drift out of your lane is likely to occur, the system notifies or assists you to stay in your lane through the steering system and information display. In Alert mode, the system provides a warning by vibrating the steering wheel. In Aid mode, the system provides steering assistance by gently counter steering your vehicle back into the lane.

When the system is functioning in the combined Alert and Aid mode, the system first provides steering assistance by gently counter steering your vehicle back into the lane, followed by a warning that vibrates the steering wheel if the vehicle is still out of the lane markings.

Switching the System On and Off

Note: *The system on or off setting is stored until it is manually changed, unless a MyKey™ is detected. If the system detects a MyKey™, it defaults to on and the mode is set to alert.*

Note: *If a MyKey™ is detected, pressing the button does not affect the on or off status of the system. You can only change the mode and intensity settings.*

To activate the system, press the button on the instrument panel or console.

System Settings

The system has optional menu settings available. See **General Information** (page 120). The system stores the last known selection for each of these settings. You do not need to readjust your settings each time you switch on the system.

Adjust the settings to enable one of the three modes:

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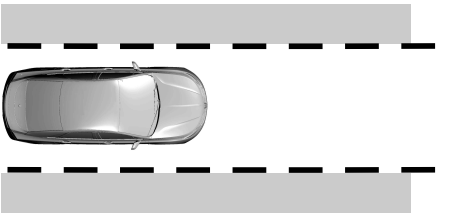
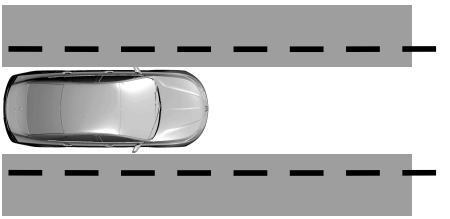
Alert Only



E165515

Alert Only mode provides a steering wheel vibration when an unintended lane departure is detected.

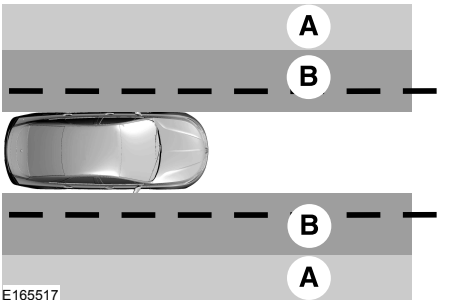
Aid Only



E165516

Aid Only mode provides steering assistance toward the lane center.

Alert and Aid Mode



E165517

A Alert

B Aid

Alert and Aid mode provides steering assistance toward the lane center.

If your vehicle continues drifting out of the lane, the system provides a steering wheel vibration.

Note: *The alert and aid diagrams illustrate general zone coverage. They do not provide exact zone parameters.*

Intensity: This setting affects the intensity of the steering wheel vibration used for the alert and Alert and Aid modes. **This setting does not affect the aid mode.**

- Low
- Medium
- High

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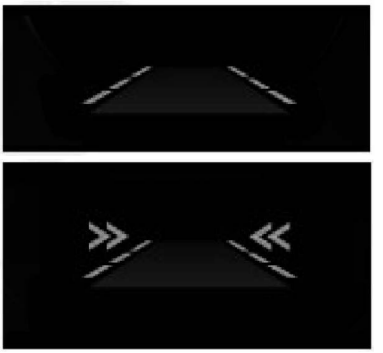
System Display



E274073

If you switch the system on in alert mode, a graphic with lane markings appears in the information display.

If you switch the system on in aid or alert and aid mode, arrows appear with the lane markings.

When you switch the system off, the lane marking graphics do not display.

Note: *The overhead vehicle graphic may still be displayed if adaptive cruise control is enabled.*

While the system is on, the color of the lane markings change to indicate the system status.

Gray: Indicates that the system is temporarily unable to provide a warning or intervention on the indicated side. This may be because:

- Your vehicle is under the activation speed.
- The direction indicator is active.
- Your vehicle is in a dynamic maneuver.
- Quick braking.
- Fast acceleration.
- The road has no or poor lane markings in the camera field-of-view.
- The camera is obscured or unable to detect the lane markings due to environmental, traffic or vehicle conditions. For example, significant sun angles, shadows, snow, heavy rain or fog, following a large vehicle that is blocking or shadowing the lane or poor headlamp illumination.

See **Troubleshooting** for additional information.

Green: Indicates that the system is available or ready to provide a warning or intervention, on the indicated side.

Yellow: Indicates that the system is providing or has just provided a lane keeping aid intervention.

Red: Indicates that the system is providing or has just provided a lane keeping alert warning.

The system can be temporarily suppressed at any time by the following:

- Quick braking.
- Fast acceleration.
- Using the direction indicator.
- Evasive steering maneuver.
- Driving too close to the lane markings.

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Troubleshooting

Why is the feature not available (line markings are gray) when I can see the lane markings on the road?
Your vehicle speed is outside the operational range of the feature.
The sun is shining directly into the camera lens.
A quick intentional lane change has occurred.
Your vehicle stays too close to the lane markings.
Driving at high speeds in curves.
The last alert warning or aid intervention occurred a short time ago.
Ambiguous lane markings, for example in construction zones.
Rapid transition from light to dark, or from dark to light.
Sudden offset in lane markings.
ABS or AdvanceTrac™ is active.
There is a camera blockage due to dirt, grime, fog, frost or water on the windshield.
You are driving too close to the vehicle in front of you.
Transitioning between no lane markings to lane markings or vice versa.
There is standing water on the road.
Faint lane markings, for example partial yellow lane markings on concrete roads.
Lane width is too narrow or too wide.
The camera has not been calibrated after a windshield replacement.
Driving on tight roads or on uneven roads.

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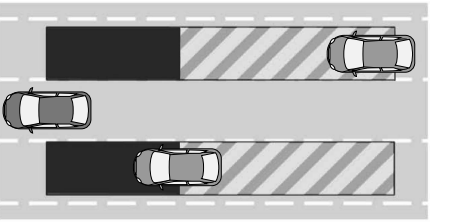
Why does the vehicle not come back toward the middle of the lane, as expected, in the Aid or Aid + Alert mode?
High cross winds are present.
There is a large road crown.
Rough roads, grooves or shoulder drop-offs.
Heavy uneven loading of the vehicle or improper tire inflation pressure.
The tires have been changed, or the suspension has been modified.

BLIND SPOT INFORMATION SYSTEM

WARNING: Do not use the blind spot information system as a replacement for using the interior and exterior mirrors or looking over your shoulder before changing lanes. The blind spot information system is not a replacement for careful driving.

WARNING: The system may not operate properly during severe weather conditions, for example snow, ice, heavy rain and spray. Always drive with due care and attention. Failure to take care may result in a crash.



E255695

The system is designed to detect vehicles that may have entered the blind spot zone. The detection area is on both sides of your vehicle, extending rearward from the exterior mirrors to approximately 13 ft (4 m) beyond the rear bumper. The detection area extends to approximately 59 ft (18 m) beyond the rear bumper when the vehicle speed is greater than 30 mph (48 km/h) to alert you of faster approaching vehicles.

Note: *The system does not prevent contact with other vehicles. It is not designed to detect parked vehicles, pedestrians, animals or other infrastructures.*

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Using the Blind Spot Information System

Vehicles with Automatic Transmission

The system turns on when all of the following occur:

- You start your vehicle.
- You shift into drive (D).
- The vehicle speed is greater than 6 mph (10 km/h).

Note: *The system does not operate in park (P) or reverse (R).*

Vehicles with Manual Transmission

The system turns on when all of the following occur:

- You start your vehicle.
- The vehicle speed is greater than 6 mph (10 km/h).

Note: *The system does not operate in reverse (R).*

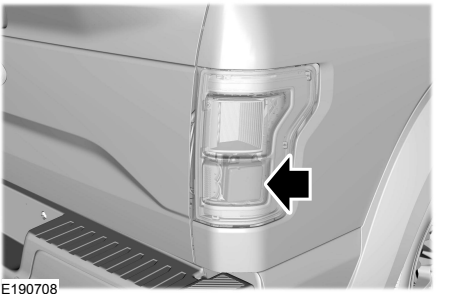
System Lights and Messages

E142442

When the system detects a vehicle, an alert indicator illuminates in the exterior mirror on the side the approaching vehicle is coming from. If you turn the direction indicator on for that side of your vehicle, the alert indicator flashes.

Note: *The system may not alert you if a vehicle quickly passes through the detection zone.*

Blocked Sensors



E190708

The sensors are inside the brake lamp on both sides of your vehicle.

Note: *Keep the sensors free from snow, ice and large accumulations of dirt.*

Note: *Do not cover the sensors with bumper stickers, repair compound or other objects.*

Note: *Blocked sensors could affect system performance.*

If the sensors become blocked, a message may appear in the information display. See **Information Messages** (page 132). The alert indicators remain illuminated but the system does not alert you.

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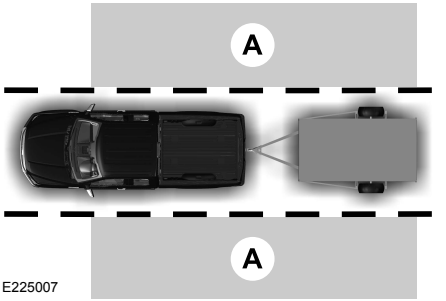
Blind Spot Information System with Trailer Tow (If Equipped)



The system is designed to detect vehicles that may have entered the blind spot zone (A). The detection area is on both sides of your vehicle and trailer, extending rearward from the exterior mirrors to the end of your trailer.

The system turns on when all of the following occur:

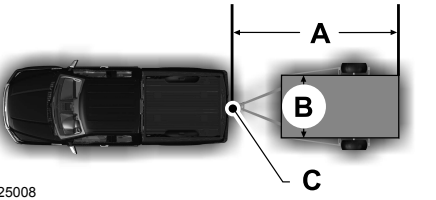
- You attach a trailer to your vehicle.
- You have set up the trailer to work with the system through the information display.
- You start your vehicle.
- You shift into drive (D).
- The vehicle speed is greater than 6 mph (10 km/h).

Note: *If you switch the Blind Spot Information System off, the Blind Spot Information System with Trailer Tow automatically turns off.*

Note: *If you connect a trailer to your vehicle and do not set up the trailer through the information display, the system turns off and a warning message appears. See* ***Information Messages*** *(page 132).*

Note: *When towing a trailer, the extended blind spot zone range decreases to a short fixed or non-variable distance behind the trailer. The extended blind spot zone range returns to 59 ft (18 m) when you disconnect the trailer.*

Setting up a Trailer



A	Trailer length
B	Trailer width
C	Trailer hitch ball

You can set-up a trailer to work with the system through the information display. See **General Information** (page 120). When setting up a trailer, a sequence of screens appear asking for trailer information.

- Select type of trailer screen - Conventional, fifth wheel or gooseneck.

The system only supports conventional trailers. If you select fifth wheel or gooseneck, the system automatically turns off.

- Do you want to set up BLIS with trailer screen?

If no, the system turns off.

If yes, the menu goes to the next screen.

- Is the width less than 9 ft (2.7 m) and length less than 33 ft (10.1 m)?

If no, the system turns off.

If yes, the menu goes to the next screen.

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- Trailer width measurement:

The width of the trailer is measured at the front of the trailer. It is not measured at the widest point of the trailer. The maximum width at the front of the trailer that the system can support is 8.5 ft (2.6 m).

Note: *You do not need to enter an exact trailer width measurement. You only need to confirm that the width of the trailer is 8.5 ft (2.6 m) or less.*

- Trailer length measurement:

The trailer length is the distance between the trailer hitch ball and the rear of the trailer. The maximum length that the system can support is 33 ft (10.1 m).

- Enter length of trailer:

The default setting is 18 ft (5.5 m). Toggling up or down using the menu buttons increases or decreases the measurement by 3 ft (1 m). Select a length that is equal to or within 3 ft (1 m) of the actual measured length. For example, if the actual measured length is 25 ft (7.6 m), toggle the length in the menu to 27 ft (8.2 m). When you enter the length of the trailer, the system setup is saved.

Note: *If the trailer is actually a bike rack or cargo rack with electrical lighting, enter a length of 3 ft (1 m). Cross Traffic Alert remains on for trailers with a length of 3 ft (1 m) or less.*

Note: *Proper measurement and measurement entry is required for the system to function as designed.*

System Operation

When you connect a trailer to your vehicle, the trailer set up menu appears in the information display. This menu allows you to set up a new trailer or choose from a previously set up trailer. A warning message appears and the system turns off if you do not choose or add a new trailer.

Note: *The warning message may not appear until your vehicle speed reaches 22 mph (35 km/h).*

If you select a trailer in the information display before connecting a trailer to your vehicle, the system loads the configuration for the selected trailer. When you connect a trailer, a warning message appears.

Note: *A second warning message may appear stating that the Cross Traffic Alert system has turned off. The Blind Spot Information System with Trailer Tow continues to function normally in this situation.*

Note: *The system remembers the last selected trailer set up when you start your vehicle.*

Trailer Considerations

The system is designed to work with a trailer with a front width of 8.5 ft (2.6 m) or less, and a total length from the trailer hitch ball to the rear of the trailer of 33 ft (10.1 m) or less.

Some trailers may cause a slight change in system performance:

- Large box trailers may cause false alerts to occur when driving next to infrastructures or near parked cars. A false alert may also occur while making a 90-degree turn.
- Trailers that have a width greater than 8.5 ft (2.6 m) at the front and have a total length greater than 20 ft (6 m) may cause delayed alerts when a vehicle is passing at high speed.

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- Box trailers that have a width greater than 8.5 ft (2.6 m) at the front may cause early alerts when you pass a vehicle.
- Clam shell or V-Nose box trailers with a width greater than 8.5 ft (2.6 m) at the front may cause delayed alerts when a vehicle traveling the same speed as your vehicle merges lanes.

System Errors

If the system detects a fault, a warning lamp illuminates and a message displays. See **Information Messages** (page 132).

Switching the System On and Off

You can switch the system off using the information display. See **General Information** (page 120). When you switch the system off, a warning lamp illuminates and a message displays. When you switch the system on or off, the alert indicators flash twice.

Note: *The system remembers the last setting when you start your vehicle.*

Note: *The system may not correctly operate when towing a trailer. For vehicles with an approved trailer tow module and tow bar, the system turns off when you attach a trailer. For vehicles with an aftermarket trailer tow module or tow bar, we recommend that you switch the system off when you attach a trailer.*

To permanently switch the system off, contact an authorized dealer.

CROSS TRAFFIC ALERT (IF EQUIPPED)

WARNING: Do not use the cross traffic alert system as a replacement for using the interior and exterior mirrors or looking over your shoulder before reversing out of a parking space. The cross traffic alert system is not a replacement for careful driving.

WARNING: The system may not operate properly during severe weather conditions, for example snow, ice, heavy rain and spray. Always drive with due care and attention. Failure to take care may result in a crash.

The system alerts you of vehicles approaching from the sides behind your vehicle when you shift into reverse (R).

Using Cross Traffic Alert

The system detects vehicles that approach at a speed between 4 mph (6 km/h) and 37 mph (60 km/h). Coverage decreases when the sensors are partially, mostly or fully obstructed. Slowly reversing helps increase the coverage area and effectiveness.

The system turns on when you start the engine and you shift into reverse (R). The system turns off when you shift out of reverse (R).

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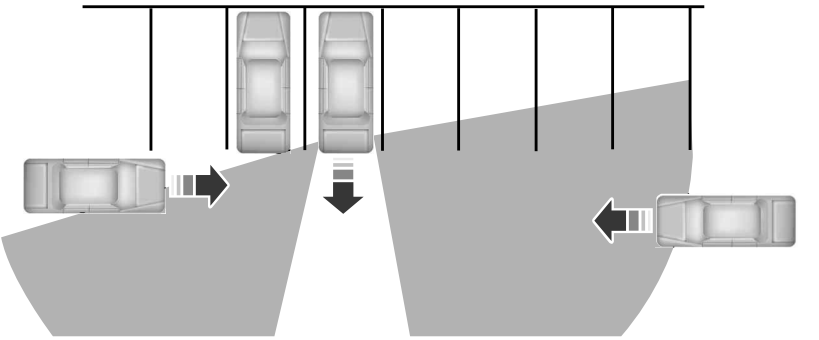
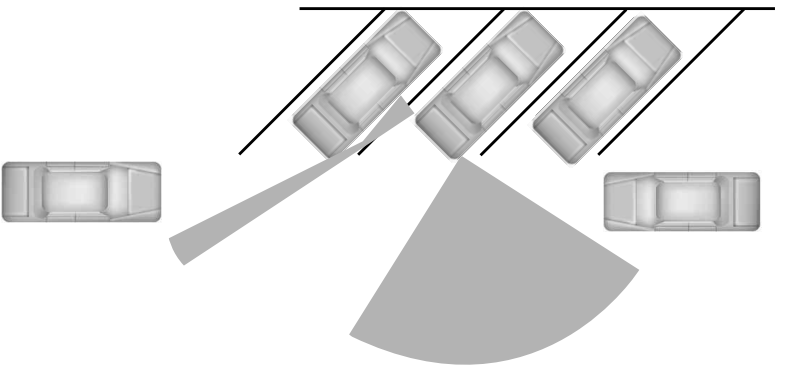


E142440

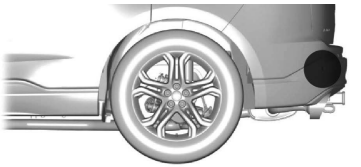
The sensor on the left-hand side is only partially obstructed and zone coverage on the right-hand side is maximized.



E142441

Zone coverage also decreases when parking at narrow angles. The sensor on the left-hand side is mostly obstructed and zone coverage on that side is severely reduced.

Cross Traffic Alert System Sensors



E205199

The sensors are behind the rear bumper on both sides of your vehicle.

Note: *Keep the sensors free from snow, ice and large accumulations of dirt.*

Note: *Do not cover the sensors with bumper stickers, repair compound or other objects.*

Note: *Blocked sensors could affect system performance.*

If the sensors are blocked, a message may appear in the information display when you shift into reverse (R).

Cross Traffic Alert System Limitations

The system may not correctly operate when any of the following occur:

- The sensors are blocked.
- Adjacently parked vehicles or objects are obstructing the sensors.
- Vehicles approach at speeds less than 4 mph (6 km/h) or greater than 37 mph (60 km/h).
- The vehicle speed is greater than 7 mph (12 km/h).
- You reverse out of an angled parking space.

Cross Traffic Alert Behavior When Trailer is Attached

Note: *The system may not correctly operate when towing a trailer. For vehicles with an approved trailer tow module and tow bar, the system turns off when you attach a trailer. For vehicles with an aftermarket trailer tow module or tow bar, we recommend that you switch the system off when you attach a trailer.*

Cross traffic alert remains on when you attach a trailer in vehicles that come with blind spot information system with trailer tow under the following conditions:

- You connect a trailer.
- The trailer is a bike rack or cargo rack with a maximum length of 3 ft (1 m).
- You set the trailer length to 3 ft (1 m) in the information display.

See **Blind Spot Information System** (page 268).

Switching the System On and Off

To switch the system on or off, adjust the setting. Depending on your vehicle options, the setting could be in the following:

- Information display. See **General Information** (page 120).
- Touchscreen. See **Settings** (page 539).

Note: *The system turns on every time you switch the ignition on. To permanently switch the system off, contact an authorized dealer.*

Cross Traffic Alert Indicator

When the system detects an approaching vehicle, a tone sounds, a warning lamp illuminates in the relevant exterior mirror and arrows appear in the information display to show which side the approaching vehicle is coming from.

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Note: *If arrows do not display, a message appears in the information display.*

If the system malfunctions, a warning lamp illuminates in the instrument cluster and a message appears in the information display. Have your vehicle checked as soon as possible.

Note: *In exceptional conditions, the system could alert you, even when there is nothing in the detection zone, for example a vehicle passing further away from your vehicle.*

Cross Traffic Alert Information Messages

Message	Action
Cross Traffic Alert	Displays instead of indication arrows when the system detects a vehicle. Check for approaching traffic.
Cross Traffic Not Available Sensor Blocked See Manual	Indicates blocked cross traffic alert system sensors. Clean the sensors. If the message continues to appear, have your vehicle checked as soon as possible.
Cross Traffic System Fault	The system has malfunctioned. Have your vehicle checked as soon as possible.
Cross Traffic Alert Deactivated Trailer Attached	Displays if you attach a trailer to your vehicle.

STEERING

Electric Power Steering

WARNING: The electric power steering system has diagnostic checks that continuously monitor the system. If a fault is detected, a message displays in the information display. Stop your vehicle as soon as it is safe to do so. Switch the ignition off. After at least 10 seconds, switch the ignition on and watch the information display for a steering system warning message. If a steering system warning message returns, have the system checked as soon as possible.

WARNING: If the system detects an error, you may not feel a difference in the steering, however a serious condition may exist. Have your vehicle checked as soon as possible. Failure to do so may result in loss of steering control.

Your vehicle has an electric power steering system, there is no fluid reservoir, no maintenance is required.

If your vehicle loses electrical power while you are driving, electric power steering assistance is lost. The steering system still operates and you can steer your vehicle manually. Manually steering your vehicle requires more effort.

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Extreme continuous steering may increase the effort required for you to steer your vehicle, this increased effort prevents overheating and permanent damage to the steering system. You do not lose the ability to steer your vehicle manually. Typical steering and driving maneuvers allow the system to cool and return to normal operation.

Steering Tips

If the steering wanders or pulls, check for:

- Correct tire pressures.
- Uneven tire wear.
- Loose or worn suspension components.
- Loose or worn steering components.
- Improper vehicle alignment.

Note: *A high crown in the road or high crosswinds may also make the steering seem to wander or pull.*

Adaptive Learning (If Equipped)

The electronic power steering system adaptive learning helps correct road irregularities and improves overall handling and steering feel. It communicates with the brake system to help operate advanced stability control and accident avoidance systems. Additionally, whenever the battery is disconnected or a new battery installed, you must drive your vehicle a short distance before the system relearns the strategy and reactivates all systems.

PRE-COLLISION ASSIST (IF EQUIPPED)

WARNING: You are responsible for controlling your vehicle at all times. The system is designed to be an aid and does not relieve you of your responsibility to drive with due care and attention. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: The system does not detect vehicles that are driving in a different direction, cyclists or animals. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

WARNING: The system does not operate during hard acceleration or steering. Failure to take care may lead to a crash or personal injury.

WARNING: The system may fail or operate with reduced function during cold and severe weather conditions. Snow, ice, rain, spray and fog can adversely affect the system. Keep the front camera and radar free of snow and ice. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

WARNING: In situations where the vehicle camera has limited detection capability, this may reduce system performance. These situations include but are not limited to direct or low sunlight, vehicles at night without tail

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lights, unconventional vehicle types, pedestrians with complex backgrounds, partly obscured pedestrians, or pedestrians that the system cannot distinguish from a group. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

WARNING: The system cannot help prevent all crashes. Do not rely on this system to replace driver judgment and the need to maintain a safe distance and speed.

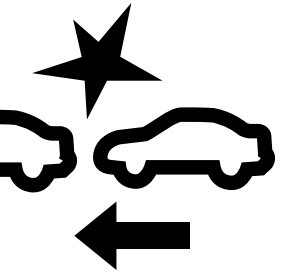
Using the Pre-Collision Assist System

The Pre-Collision Assist system is active at speeds above approximately 3 mph (5 km/h) and pedestrian detection is active at speeds up to 50 mph (80 km/h).

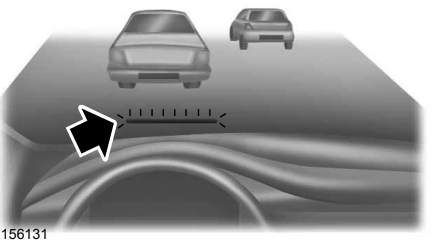
E156130

If your vehicle is rapidly approaching another stationary vehicle, a vehicle traveling in the same direction as yours, or a pedestrian within your driving path, the system provides three levels of functionality:

1. Alert
2. Brake Support
3. Active Braking



E255268



E156131

Alert: When active, a flashing visual warning appears and an audible warning tone sounds.

Brake Support: The system is designed to help reduce the impact speed by preparing the brakes for rapid braking. The system does not automatically apply the brakes. If you press the brake pedal, the system could apply additional braking up to maximum braking force, even if you lightly press the brake pedal.

Active Braking: Active braking may activate if the system determines that a collision is imminent. The system may help the driver reduce impact damage or avoid the crash completely.

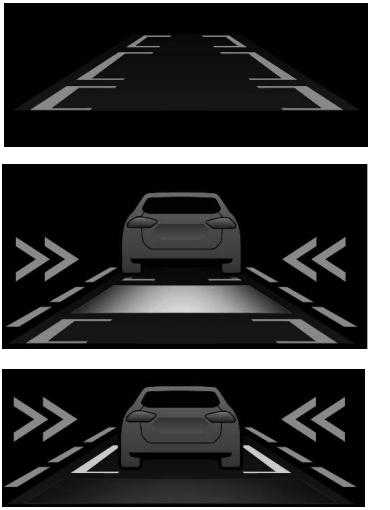
Note: *Brake Support and Active Braking are active at speeds up to 75 mph (120 km/h). If the vehicle has a radar sensor or Adaptive Cruise Control, then Brake Support and Active Braking are active up to the maximum speed of the vehicle.*

Note: *If you perceive Pre-Collision Assist alerts as being too frequent or disturbing, then you can reduce the alert sensitivity, though the manufacturer recommends using the highest sensitivity setting where possible. Setting lower sensitivity would lead to fewer and later system warnings.*

Note: *The Pre-Collision Assist system automatically disables when you select* ***4X4 LOW*** *or when you manually disable AdvanceTrac™.*

Distance Indication and Alert (If Equipped)

Distance Indication and Alert is a function that provides the driver with a graphical indication of the time gap to other preceding vehicles traveling in the same direction. The Distance Indication and Alert screen in the display screen shows one of the graphics that follow.



E254791

If the time gap to a preceding vehicle is small, a red visual indication displays.

Note: *Distance Indication and Alert deactivates and the graphics do not display when Adaptive Cruise Control is active.*

Speed	Sensitivity	Graphics	Distance Gap	Time Gap
62 mph (100 km/h)	Normal	Grey	>82 ft (25 m)	>0.9sec
62 mph (100 km/h)	Normal	Yellow	56–82 ft (17–25 m)	0.6sec — 0.9sec
62 mph (100 km/h)	Normal	Red	<56 ft (17 m)	<0.6sec

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Adjusting the Pre-Collision Assist Settings

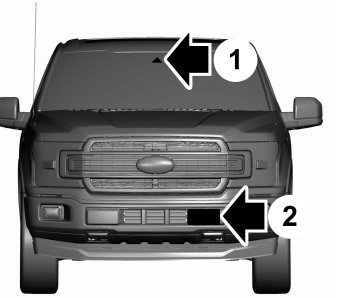
You can adjust the following settings by using the information display controls. See **General Information** (page 120).

- You can change Alert and Distance Alert sensitivity to one of three possible settings.
- You can switch Distance Indication and Alert on or off.
- If required, you can switch Active Braking on or off.
- If required, you can switch the entire Pre-Collision Assist feature on or off.

Note: *Active braking automatically turns on every time you switch the ignition on.*

Note: *If your vehicle has a radar sensor, we recommend that you switch the system off if you install a snow plow or similar object in such a way that it may block the radar sensor. Your vehicle remembers the selected setting across key cycles.*

Blocked Sensors



1 Camera.
2 Radar sensor (if equipped).

If a message regarding a blocked sensor or camera appears in the information display, the radar signals or camera images are obstructed. If your vehicle has a radar sensor, it is located behind the fascia cover in the center of the lower grille. With a blocked sensor or camera, the Pre-Collision Assist system may not function, or performance may reduce. The following table lists possible causes and actions for when this message displays.

Camera Troubleshooting

Cause	Action
The windshield in front of the camera is dirty or obstructed in some way.	Clean the outside of the windshield in front of the camera.
The windshield in front of the camera is clean but the message remains in the display screen.	Wait a short time. It may take several minutes for the camera to detect that there is no obstruction.

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Radar Troubleshooting (If Equipped)

Cause	Action
The surface of the radar in the grille is dirty or obstructed in some way.	Clean the grille surface in front of the radar or remove the object causing the obstruction.
The surface of the radar in the grille is clean but the message remains in the display screen.	Wait a short time. It may take several minutes for the radar to detect that there is no obstruction.
Heavy rain, spray, snow or fog is interfering with the radar signals.	The Pre-Collision Assist system is temporarily disabled. Pre-Collision Assist automatically reactivates a short time after the weather conditions improve.
Swirling water or snow or ice on the surface of the road may interfere with the radar signals.	The Pre-Collision Assist system is temporarily disabled. Pre-Collision Assist automatically reactivates a short time after the weather conditions improve.
Radar is out of alignment due to a front end impact.	Contact an authorized dealer to have the radar checked for proper coverage and operation.

Note: *Proper system operation requires a clear view of the road by the camera. Have any windshield damage in the area of the camera's field of view repaired.*

Note: *If something hits the front end of your vehicle or damage occurs and your vehicle has a radar sensor, the radar sensing zone may change. This could cause missed or false vehicle detections. Contact an authorized dealer to have the radar checked for proper coverage and operation.*

Note: *If your vehicle detects excessive heat at the camera or a potential misalignment condition, a message may display in the information display indicating temporary sensor unavailability. When operational conditions are correct, the message deactivates. For example, when the ambient temperature around the sensor decreases or the sensor automatically recalibrates successfully.*

DRIVE CONTROL

Selectable Drive Modes

This provides a single location to control multiple system performance settings such as steering, handling and powertrain response.

Changing the drive mode automatically changes the functionality of the following systems:

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- Electronic stability control and traction control maintains your vehicle control in adverse conditions or high performance driving. See **Stability Control** (page 239).
- Electronic throttle control enhances the powertrain response to your inputs.
- Transmission controls are optimized with shift schedules tuned to each terrain.

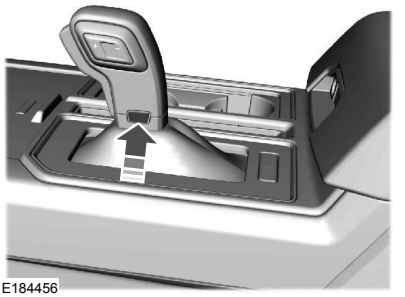
Using the System

The system tailors your vehicle configuration for each mode you select.

Column Shifter

E249567

Console Shifter



E184456

Press the drive mode button on the column or console shifter to select or change a drive mode. The drive mode selection menu appears in the instrument cluster and allows you to select through the available drive modes.

Note: *Mode changes are not available when the vehicle ignition is off. In drive (D), only some modes may be available.*

Normal – Delivers a balanced combination of comfort and handling.

Tow Haul – Improves transmission operation when towing a trailer or hauling a heavy load.

Snow/Wet – For use during inclement weather conditions. Vehicle response becomes tuned for optimum traction at lower speeds and confidence inspiring stability at higher speeds.

Eco – Offers the best possible fuel economy with tradeoffs in vehicle performance and comfort.

Sport – Use for spirted and aggressive off road driving situations. Vehicle response becomes tuned for maximum off road performance.

Note: *Your vehicle may only be equipped with some of the drive modes listed above.*

Note: *The system has diagnostic checks that continuously monitor the system for proper operation. Certain drive modes are not available based on the gearshift position. If a mode is unavailable due to a system fault or change in gearshift position, the mode defaults to Normal mode.*

Some drive modes reduce traction and stability control performance and the warning indicator illuminates in the instrument cluster. See **Using Stability Control** (page 240).

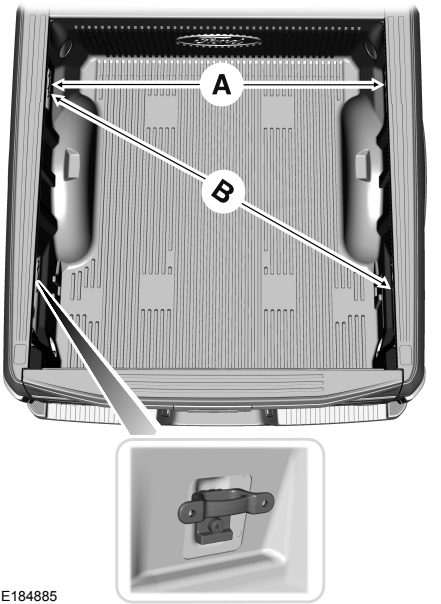
LOAD RETAINING FIXTURES (IF EQUIPPED)

BoxLink™ Cleats

These cleats attach to the inner box walls to help you to tie down cargo. The cleats can be locked to prevent removal or unlocked for removal.

BoxLink Cleats

Note: *Leave the key in the lock when removing or installing the cleats. The key cannot be removed from the lock unless it is in the locked position.*



E184885

A. 275 lb (1,223 N) maximum force between directly opposed cleats.

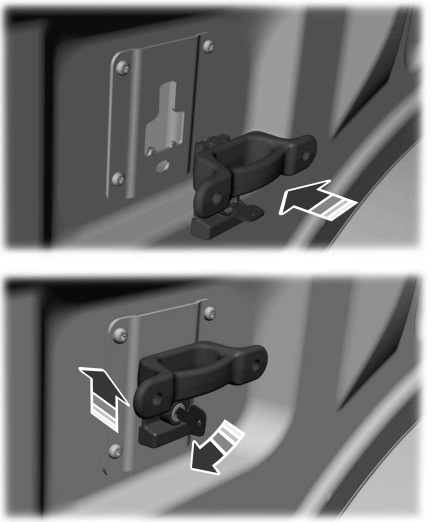
B. 600 lb (2,669 N) maximum force between diagonally opposed cleats.

Secure cargo with up to 275 lb (1,223 N) force applied between opposing box link cleats, or up to 600 lb (2,669 N) force applied between diagonal box link cleats.

Removing Locking BoxLink Cleats

1. Insert the key into the lock and turn clockwise to unlock.
2. Pull bottom of the cleat outward while pushing top of cleat down.
3. Hold on to the cleat as it clears the mounting slot.

Installing Locking BoxLink Cleats



E189558

1. Insert the key into lock and turn clockwise to unlock.
2. Insert the cleat into the mounting slot and push upward. Make sure the cleat is fully engaged.

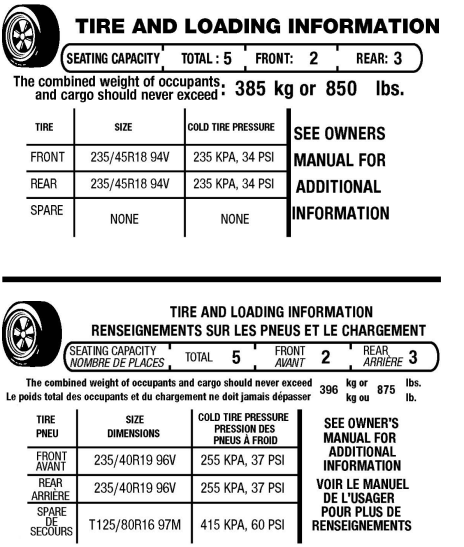
3. Turn the key counterclockwise to lock.
4. Remove the key.

LOAD LIMIT

Vehicle Loading - with and without a Trailer

This section guides you in the proper loading of your vehicle, trailer, or both. Keep your loaded vehicle weight within its design rating capability, with or without a trailer. Properly loading your vehicle provides maximum return of vehicle design performance. Before you load your vehicle, become familiar with the following terms for determining your vehicle's weight rating, with or without a trailer, from the vehicle's Tire and Loading Information label or Safety Compliance Certification label.

Tire and Loading Label Information Example:



E198719

Payload

Payload is the combined weight of cargo and passengers that your vehicle is carrying. The maximum payload for your vehicle appears on the Tire and Loading label. The label is either on the B-pillar or the edge of the driver door. Vehicles exported outside the US and Canada may not have a tire and loading label. Look for "The combined weight of occupants and cargo should never exceed XXX kg OR XXX lb" for maximum payload. The payload listed on the Tire and Loading Information label

is the maximum payload for your vehicle as built by the assembly plant. If you install any additional equipment on your vehicle, you must determine the new payload. Subtract the weight of the equipment from the payload listed on the Tire and Loading label. When towing, trailer tongue weight or king pin weight is also part of payload.

WARNING: The appropriate loading capacity of your vehicle can be limited either by volume capacity (how much space is available) or by payload capacity (how much weight the vehicle should carry). Once you have reached the maximum payload of your vehicle, do not add more cargo, even if there is space available. Overloading or improperly loading your vehicle can contribute to loss of vehicle control and vehicle rollover.

GAWR (Gross Axle Weight Rating)

GAWR is the maximum allowable weight that a single axle (front or rear) can carry. These numbers are on the Safety Compliance Certification label. The label is located on the door hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver seating position.

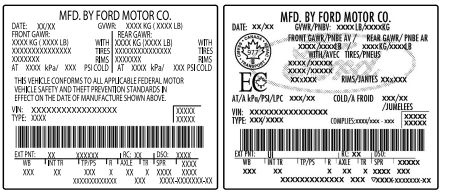
The total load on each axle must never exceed its Gross Axle Weight Rating.

GVWR (Gross Vehicle Weight Rating)

GVWR is the maximum allowable weight of the fully loaded vehicle. This includes all options, equipment, passengers and cargo. It appears on the Safety Compliance Certification label. The label is located on the door hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver seating position.

The gross vehicle weight must never exceed the Gross Vehicle Weight Rating.

Safety Compliance Certification Label Example:



E198828

WARNING: Exceeding the Safety Compliance Certification label vehicle weight limits can adversely affect the performance and handling of your vehicle, cause vehicle damage and can result in the loss of control of your vehicle, serious personal injury or death.

Maximum Loaded Trailer Weight

Maximum loaded trailer weight is the highest possible weight of a fully loaded trailer the vehicle can tow. Consult an authorized dealer (or the RV and Trailer Towing Guide available at an authorized dealer) for more detailed information.

GCWR (Gross Combined Weight Rating)

GCWR is the maximum allowable weight of the vehicle and the loaded trailer, including all cargo and passengers, that the vehicle can handle without risking damage. (Important: The towing vehicle's braking system is rated for operation at Gross Vehicle Weight Rating, not at Gross Combined Weight Rating.) Separate functional brakes should be used for safe control of towed vehicles and for trailers where the Gross Combined Weight of the towing vehicle plus the trailer exceed the Gross Vehicle Weight Rating of the towing vehicle.

The gross combined weight must never exceed the Gross Combined Weight Rating.

Note: *For trailer towing information refer to the RV and Trailer Towing Guide available at an authorized dealer.*

WARNING: Do not exceed the GVWR or the GAWR specified on the certification label.

WARNING: Do not use replacement tires with lower load carrying capacities than the original tires because they may lower your vehicle's GVWR and GAWR limitations. Replacement tires with a higher limit than the original tires do not increase the GVWR and GAWR limitations.

WARNING: Exceeding any vehicle weight rating can adversely affect the performance and handling of your vehicle, cause vehicle damage and can result in the loss of control of your vehicle, serious personal injury or death.

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Steps for determining the correct load limit:

1. Locate the statement "The combined weight of occupants and cargo should never exceed XXX kg or XXX lb." on your vehicle's placard.
2. Determine the combined weight of the driver and passengers that will be riding in your vehicle.
3. Subtract the combined weight of the driver and passengers from XXX kg or XXX lb.
4. The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the "XXX" amount equals 1,400 lb. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lb. (1400-750 (5 x 150) = 650 lb.)
5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.
6. If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult this manual to determine how this reduces the available cargo and luggage load capacity of your vehicle.

Helpful examples for calculating the available amount of cargo and luggage load capacity

Suppose your vehicle has a 1400-pound (635-kilogram) cargo and luggage capacity. You decide to go golfing. Is there enough load capacity to carry you, four of your friends and all the golf bags? You and four friends average 220 pounds (99 kilograms) each and the golf bags weigh approximately 30 pounds (13.5 kilograms) each. The calculation would be: 1400 - (5 x 220) - (5 x 30) = 1400 - 1100 - 150 = 150 pounds. Yes, you have enough load capacity in your vehicle to transport four friends and your golf bags. In metric units, the calculation would be: 635 kilograms - (5 x 99 kilograms) - (5 x 13.5 kilograms) = 635 - 495 - 67.5 = 72.5 kilograms.

Suppose your vehicle has a 1400-pound (635-kilogram) cargo and luggage capacity. You and one of your friends decide to pick up cement from the local home improvement store to finish that patio you have been planning for the past two years. Measuring the inside of the vehicle with the rear seat folded down, you have room for twelve 100-pound (45-kilogram) bags of cement. Do you have enough load capacity to transport the cement to your home? If you and your friend each weigh 220 pounds (99 kilograms), the calculation would be: 1400 - (2 x 220) - (12 x 100) = 1400 - 440

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- 1200 = - 240 pounds. No, you do not have enough cargo capacity to carry that much weight. In metric units, the calculation would be: 635 kilograms - (2 x 99 kilograms) - (12 x 45 kilograms) = 635 - 198 - 540 = -103 kilograms. You will need to reduce the load weight by at least 240 pounds (104 kilograms). If you remove three 100-pound (45-kilogram) cement bags, then the load calculation would be:1400 - (2 x 220) - (9 x 100) = 1400 - 440 - 900 = 60 pounds. Now you have the load capacity to transport the cement and your friend home. In metric units, the calculation would be: 635 kilograms - (2 x 99 kilograms) - (9 x 45 kilograms) = 635 - 198 - 405 = 32 kilograms.

The above calculations also assume that the loads are positioned in your vehicle in a manner that does not overload the front or the rear gross axle weight rating specified for your vehicle on the Safety Compliance Certification label.

Special Loading Instructions for Owners of Pick-up Trucks and Utility-type Vehicles

WARNING: When loading the roof racks, we recommend you evenly distribute the load, as well as maintain a low center of gravity. Loaded vehicles, with higher centers of gravity, may handle differently than unloaded vehicles. Take extra precautions, such as slower speeds and increased stopping distance, when driving a heavily loaded vehicle.

BED ACCESS (IF EQUIPPED)

Box Side Step

Use the step for easier access to the vehicle bed.

Note: *Close the step before driving.*

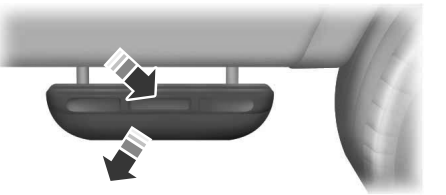
Note: *Do not exceed 500 lb (227 kg) on the step. This includes you plus cargo.*

Note: *Do not use the step to lift the vehicle. Only use proper jacking points.*

Note: *The step may operate more slowly in cool temperatures.*

Note: *The step mechanism may trap debris such as mud, dirt, snow, ice and salt. This may prevent the step from deploying automatically when you press the button. If this happens, make sure that you press the button down and carefully pull out the step manually. Wash off the debris with a high-pressure sprayer and stow the step.*

Deploying the Step



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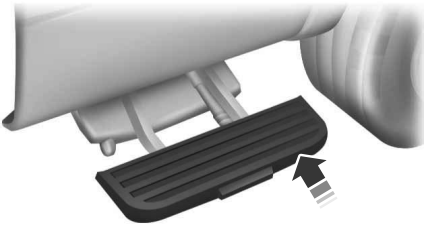
Push down on the button with your foot. The step automatically extends from the stowed position.

Stowing the Step



E167269

Push the step under your vehicle with your foot until it fully latches. Do not push on the button while stowing the step.

BED RAMPS (IF EQUIPPED)

WARNING: When sliding the ramp up or down, take care not to get your fingers or hands caught in the mechanism. Failure to follow this instruction could result in personal injury.

WARNING: Make sure that you correctly install the ramp to the tailgate plate. Failure to follow this instruction could result in personal injury.

WARNING: Do not step or sit on the ramp when it is in the stowed position. Failure to follow this instruction could result in personal injury.

WARNING: Only install the ramp within the prescribed ramp angles. Failure to follow this instruction could result in personal injury.

Note: *The ramp maximum capacity is 800 lb (363 kg).*

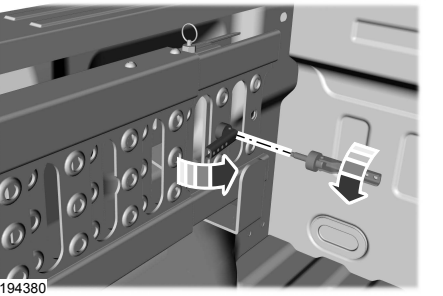
Note: *Verify the ramp is on stable ground before usage.*

Note: *For loading and unloading equipment, your ramp should be set between 10 degrees upward and 26 degrees downward to avoid damage to the ramp claw and tailgate plate.*

Note: *When using your vehicle for off-road operation, remove the bed ramps from the vehicle and store them in a safe location away from your vehicle.*

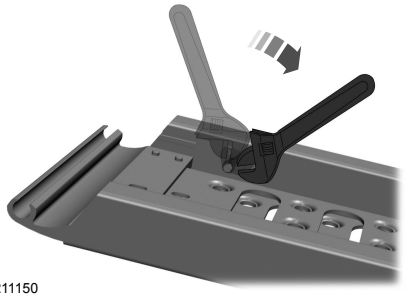
Using the Bed Ramp

1. Remove the front and rear cables.



E194380

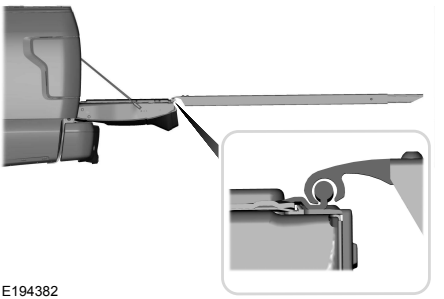
2. Open the cam lever arms and unscrew the cam bolts.
3. Remove the ramp from the ramp holder.



E211150

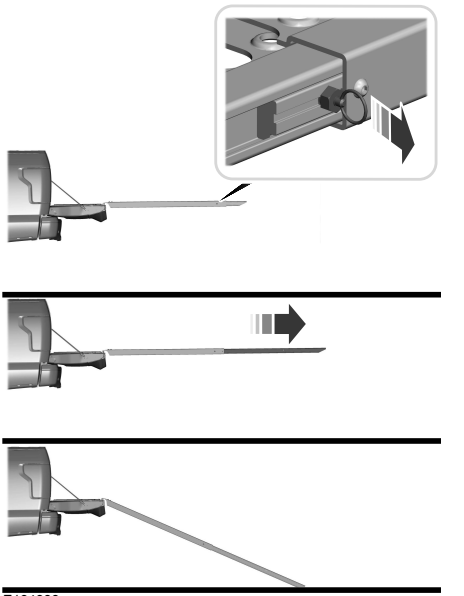
4. Rotate the stops at the underside of the ramp to the open position.

Note: *You can use a smooth surface tool to rotate the stops.*



E194382

5. Slide the ramp claw onto the tailgate plate.



E194383

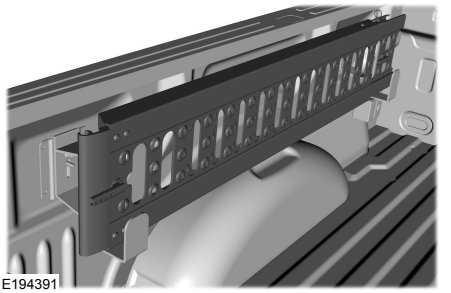
6. Pull the location pin outward and extend the ramp until the pin is seated in the usage position, then set the ramp on even ground.

Stowing the Bed Ramp

1. Pick up the ramp. Pull the location pin outward.
2. Slide the ramp into the storage position until the location pin locks.

Note: *Make sure the proper pin location has been applied for your bed size.*

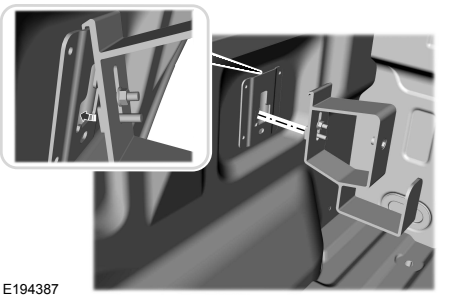
3. Slide the ramp claw off of the tailgate plate.
4. Rotate the stops at the underside of the ramp to the closed position.


E194391

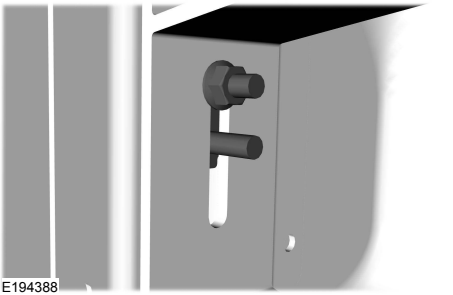
5. Place the ramp into the ramp holder.
6. Install the cam bolts and close the cam lever arms.
7. Attach the front and rear cables.

Note: *Make sure you properly secure the locking cable. If the locking cable is unsecured, you may hear a rattling noise.*

Installing the Ramp Holder


E194387

1. Hook the top of the ramp holder over the mounting plate and rotate the ramp holder into position.


E194388

2. Slide the ramp holder studs upwards into the installed position.
3. Tighten the ramp holder nut.

Note: *The nut should be on the upper stud.*

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TOWING A TRAILER

WARNING: Do not exceed the GVWR or the GAWR specified on the certification label.

WARNING: Towing trailers beyond the maximum recommended gross trailer weight exceeds the limit of your vehicle and could result in engine damage, transmission damage, structural damage, loss of vehicle control, vehicle rollover and personal injury.

WARNING: Do not exceed the lowest rating capacity for your vehicle or trailer hitch. Overloading your vehicle or trailer hitch can impair your vehicle stability and handling. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: Do not cut, drill, weld or modify the trailer hitch. Modifying the trailer hitch could reduce the hitch rating.

Note: *To prevent your trailer from accumulating distance, and the trailer information status appearing when you restart your vehicle after disconnecting your trailer, you must deactivate your trailer. Using the information display, go to the Towing menu and then the Select Trailer option. Select the No active trailer option. See* ***Information Displays*** *(page 120).*

Your vehicle may have electrical items, such as fuses or relays, related to towing. See **Fuses** (page 346).

Your vehicle may have ability to modify trailer towing features. See **General Information** (page 120).

Your vehicle's load capacity designation is by weight, not by volume, so you cannot necessarily use all available space when loading a vehicle or trailer.

Towing a trailer places an extra load on your vehicle's engine, transmission, axle, brakes, tires and suspension. Inspect these components periodically during, and after, any towing operation.

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Load Placement

To help minimize how trailer movement affects your vehicle when driving:

- Load the heaviest items closest to the trailer floor.
- Load the heaviest items centered between the left and right side trailer tires.
- Load the heaviest items above the trailer axles or just slightly forward toward the trailer tongue. Do not allow the final trailer tongue weight to go above or below 10-15% of the loaded trailer weight.
- Select a ball mount with the correct rise or drop. When both the loaded vehicle and trailer are connected, the trailer frame should be level, or slightly angled down toward your vehicle, when viewed from the side.

When driving with a trailer or payload, a slight takeoff vibration or shudder may be present due to the increased payload weight. Additional information regarding proper trailer loading and setting your vehicle up for towing is located in another chapter of this manual. See **Load Limit** (page 284).

You can also find information in the **RV & Trailer Towing Guide** available at your authorized dealer, or online.

RV & Trailer Towing Guide Online	
Website	http://www.fleet.ford.com/towing-guides/

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TRAILER REVERSING AIDS

Pro Trailer Backup Assist™

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

WARNING: This system is an extra driving aid. It does not replace your attention and judgment, or the need to apply the brakes. This system does NOT automatically brake your vehicle. If you fail to press the brake pedal when necessary, you may collide with another vehicle.

Note: *The system is not a substitute for safe driving practices.*

Note: *You must always be aware of the vehicle and trailer combination, and the surrounding environment.*

Note: *The system does not detect or prevent your vehicle or trailer from making contact with obstacles in the surrounding environment.*

Note: *Keep in mind that the front end of your vehicle swings out when changing the direction of the trailer.*

Note: *The system relies on user measurements to determine sticker placement and system limits. It is critical to take the key measurements correctly. Incorrect measurements can result in the improper function of the system up to and including contact between the vehicle and trailer.*

Note: *The system limits vehicle speed when backing up. The system is not a replacement for proper use of the throttle and brake pedals.*

Principle of Operation

This feature helps you to steer your vehicle when reversing with a trailer. Turn and hold the control knob in the direction you want the trailer to go and the system takes over the steering. This allows you to focus on checking the mirrors and operating the brake and accelerator.

Each trailer you use with your vehicle has to be setup once.

You must take care to follow the setup process accurately, to make sure the sticker is placed correctly.

Contact your dealership if you need assistance in setting up your trailer.

Setting Up Pro Trailer Backup Assist

Note: *Your vehicle saves the trailer information when you enter it into the system. A maximum of 10 trailers can be added to the system.*

Step 1: Position your Vehicle and Trailer

Hitch your trailer to the truck and connect the electrical wiring harness. Check to make sure that the wiring is working. See **Essential Towing Checks** (page 316).

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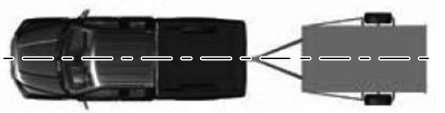
Park your vehicle and hitched trailer on a level surface.

For best results, make sure that your trailer rides level with the ground when you hitch your vehicle. More information on selecting your towbar is available in the Towing section. See **Towing** (page 292).



E209760

Make sure that the trailer and your vehicle are in line with each other. You can do this by putting the transmission in drive (D) and pulling straight forward.

Step 2: Follow the Information Display Prompts

E209765

1. Press the button to switch the system on.
2. Select the option to add a trailer in the instrument display, using the steering wheel control. See **General Information** (page 120).
3. Add a personalized name for the trailer using the screen prompts. Use the down arrow to scroll to the desired letter and then press the right arrow to advance to the next letter. Press OK to continue.
4. Select the type of trailer brake system for the trailer you are adding.
5. Select the brake effort level for the trailer.

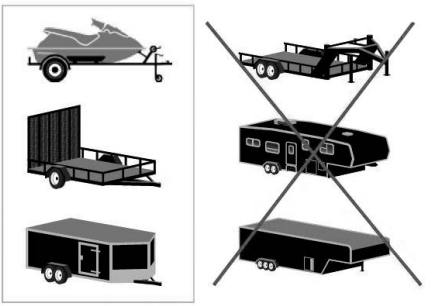
Note: *The default option is low. This is recommended for most trailers. If the trailer's brakes require more initial voltage, or if you prefer more aggressive braking then select the other options as required.*

6. Select the trailer type.

Some examples of conventional type trailers are shown below.

Note: *You cannot use the system with the types of trailers marked with the cross.*

The system only works with conventional trailers. It does not work with other types including goose neck and fifth wheel.



E209766

Follow the information display prompts.

Step 3: Place the Sticker on the Trailer Frame

You must place the sticker in an area visible by the rear view camera.

Note: *The cargo and trailer hookup lamps turn on automatically to improve visibility.*

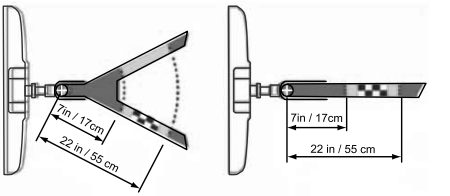
Note: *An assistant can help to carry out the following procedure.*

Note: *Make sure nothing can obstruct the rear view camera's view of the sticker. For example, items such as a jack handle or wiring.*

Note: *Position the sticker on a flat, dry and clean horizontal surface. For best results apply the sticker when temperatures are above 32°F (0°C).*

Note: *Do not move stickers after they are placed. Do not re-use any stickers if removed.*

Note: *Additional stickers may be purchased through your authorized dealer.*



E209805

Use the supplied measurement card, a tape measure and pen to carefully mark the area where to attach the sticker. The sticker is supplied in the back cover pocket of your quick start guide. Make sure the entire sticker is within the green zone between the two arcs or distance markers on the diagram, and is also visible in the rear view camera display.

Once you have found the correct location, place the sticker.

Step 4: Take Measurements

After you place the sticker on the trailer you must take some measurements.

Note: *You must take accurate measurements for the system to operate properly.*

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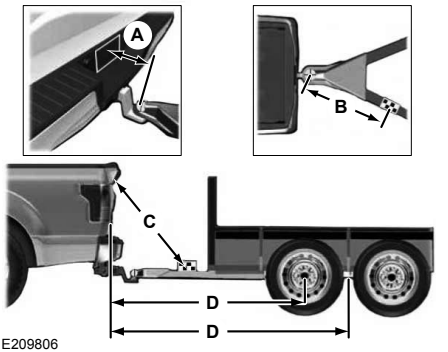
Note: *When rounding in inches, round upward if the measured length is a quarter inch or greater. Round downward if the measured length is less than a quarter inch. For example 12.25 in (31.11 cm) would be rounded up to 12.50 in (31.75 cm). 12.13 in (30.8 cm) would be rounded down to 12.00 in (30.48 cm).*

Note: *When rounding in centimeters, round to the nearest whole centimeter. If the measurement is less than 0.2 in (0.5 cm) round downward. If the measurement is more than or equal to 0.2 in (0.5 cm) round upward. For example, 11.9 in (30.3 cm) would be rounded down to 11.8 in (30 cm). 12.0 in (30.5 cm) would be rounded up to 12.2 in (31 cm).*

Note: *Use consistent metric or imperial units as required by your country or vehicle.*

The measurement card requires you to record four key distances (A, B, C, D). Record the trailer name for these measurements.



E209806

Distance A

The horizontal distance from the license plate to the center of the ball hitch on the trailer.

Distance B

The horizontal distance from the center of the ball hitch to the center of the sticker.

Distance C

The point to point distance from the rear view camera to the center of the sticker.

Distance D

Trailers with single axle:

- The horizontal distance from the tailgate to the center of the trailer axle.

Trailers with dual axles or more:

- The horizontal distance from the tailgate to the center of the axles.

Note: *Round distance D to the nearest inch.*

Step 5: Enter Measurements Using the Information Display

Using the measurements you record, enter the required data into the system. Follow the on screen prompts to enter each of the measurements taken in step 4. Use the up and down arrows to increase or decrease the numbers as necessary. Press OK to confirm each measurement. When you add the last measurement, the information display shows all of the measurements you entered. You can choose to confirm or change the measurements.

Step 6: Confirming the Sticker Location

Check the rear view camera display to see if the system identifies the sticker. The system marks the sticker with a red circle. Confirm that the red circle shows over the sticker image in the rear view camera display.

Note: *If the system cannot locate the sticker, try cleaning the camera lens. Make sure the sticker is within the zone as indicated in step 3.*

Calibrating the System

To complete setup, drive your vehicle straight forward between 4–24 mph (6–39 km/h), as directed by the information display.

The information display shows a message during calibration and after calibration is complete

Note: *Keep the steering wheel straight during the calibration process. If the steering wheel is in a turned position, the calibration pauses. The information display prompts you to drive straight forward to complete the calibration.*

Note: *For best results, do not calibrate the system at night.*

Using Pro Trailer Backup Assist

To use the system, press the button and select the trailer from the display.

E209765

When the system locates the sticker, the display prompts you to shift into reverse (R). The system turns on.

Note: *The system does not function if your hands are on the steering wheel. Remove your hands to resume operation.*

Follow the screen prompts to steer your vehicle and trailer.

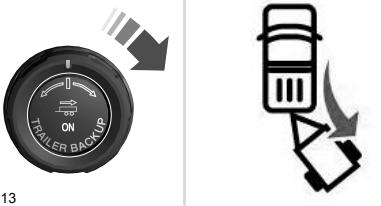
Note: *You may have to drive forward to straighten the trailer.*

Take your hands off the steering wheel and turn the Pro Trailer Backup Assist control knob instead. The knob acts as the steering control for the trailer.

Note: *The more you turn the knob, the sharper the trailer turns.*

E209812

Turn and hold counterclockwise to make the trailer go left.



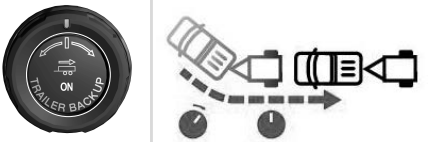
E209813

Turn and hold clockwise to make the trailer go right.

Note: *Practice maneuvering with the system in a safe open area first.*

Note: *Try backing up in a straight line and then turning the knob slowly in the direction you want to go.*

Note: *Quickly turning and releasing the knob results in a jerky movement of the vehicle.*



E209814

Release the knob when the trailer is moving in the direction you want. Control the accelerator and brakes while the system steers your vehicle automatically to keep the trailer moving straight back.

Note: *You may have to use the knob to correct the trailer direction when attempting to move the trailer straight back under some conditions.*

Note: *The system limits the vehicle speed.*

Note: *When you release the knob or turn it to the center position, your vehicle follows the trailer's path.*

Troubleshooting

Note: *The system requires a clear view of the sticker placed on the trailer. You must keep the camera lens and sticker clean for the system to operate correctly.*

Setup

The system is designed to be used with a wide variety of trailers. There are some trailers that do not have a proper surface and location to mount the sticker. These trailers are not supported. Attempts to place the sticker on a surface that does not meet the sticker placement requirement listed in Step 3 of the setup instruction or entering inaccurate measurements to proceed through setup can result in improper system function.

Accurate measurements are critical for correct system function. If you need to check measurements entered or change them you can access them through the instrument cluster. Choose the option to change the sticker from the change trailer settings menu. It is not necessary to remove the sticker if you are just reviewing or changing measurements.

The following menu warnings or difficulties may occur during setup. Tips to resolve them are listed below.

Note: *If you still experience issues with the system's ability to detect the sticker, see the information in the next section regarding sticker lost during system operation.*

Measurement A has reached maximum or minimum value:

- The system is designed to work with drawbars that have a license plate to hitch ball center measurement of 9 in (23 cm) to 16 in (41 cm) when installed. Do not attempt to use drawbars that have a length outside this range as the system performance will be degraded and could cause improper system function.
- Make sure that the measurement being made is the horizontal distance only from license plate and the hitch ball center. A straight line distance that includes any vertical rise or drop increases the measurement and makes it inaccurate. Inaccurate measurements degrade system performance and could cause improper system function. See step 4 of the setup instruction to review measurement instructions.

Measurement B has reached maximum or minimum value:

- Make sure that the sticker placement instruction in step 3 of the setup has been followed. Stickers placed outside the allowed zone will adversely affect the system performance and could cause improper feature function.
- Make sure that the measurement being made is the horizontal distance only from center of sticker to the hitch ball center. A straight line distance that includes any vertical rise or drop increases the measurement and causes an inaccurate value to be entered into the system. See step 4 of the setup for additional measurement instructions.

Measurement C has reached maximum or minimum value:

- Make sure you follow the sticker placement instructions in step 3 of the setup. Stickers placed outside the allowed zone adversely affect the system performance and could cause improper feature function. If you have met all the criteria for sticker placement and you see this message, the sticker is either too far below or too close to the camera to properly recognize the sticker. In order for the system to operate correctly, the sticker height must be lowered if you receive the minimum warning or the sticker height must be raised if you receive the maximum warning.
- Only one sticker can be placed on the trailer for correct system function. The previous sticker must be removed or covered so only one sticker is visible to the camera.
- Measurement B and C must be measured again if a new sticker is placed on the trailer.

Measurement D has reached maximum or minimum value:

- Make sure that the measurement being made is the horizontal distance only from tailgate to the center of the single axle or the center of all the axles on the trailer. See step 4 of the setup for additional measurement instructions. The system does not support trailer lengths outside the range allowed by the information display.

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System is circling something beside the sticker or system cannot find the sticker:

- Make sure the rear camera is clean and the sticker is clearly visible in the camera image. Clean the camera and sticker if necessary.
- The camera system uses the entered measurements to help locate the sticker. Inaccurate sticker measurements degrade the system's ability to locate the sticker. Verify the measurements you enter into the system are accurate.
- Remove the incorrectly circled label or decal if possible.
- If you cannot resolve the issue, try a new sticker location. The sticker location must still meet the requirements noted in step 3 of the setup instructions. Only one sticker can be placed on the trailer for correct system function. The previous sticker must be removed or covered so only one sticker is visible to the camera.

Calibration

The system monitors various vehicle parameters to ensure your vehicle is being driven straight and the trailer is straight behind your vehicle. Any steering input or trailer movement pauses the calibration.

For best results:

- Use a long, straight, smooth and level road when attempting to calibrate.
- Drive straight forward.
- Drive between 4–24 mph (6–39 km/h).

System Operation

The following warnings or difficulties may occur during feature operation. Tips to resolve them are listed below.

The system is not available:

- The system relies on many sub-systems in your vehicle to operate correctly. If those sub-systems are not operating correctly, the system may not be available.
- Low battery voltage is a condition which prevents the system from operating. Please make sure the battery is correctly charged if the system is not available.
- You may need to drive your vehicle straight forward above 25 mph (40 km/h) before the system is available again.
- If the message continues to display, see your authorized dealer for service.

Sticker lost:

- If the system cannot initially find the sticker, it may be necessary for you to change the lighting conditions by moving the vehicle and trailer or waiting until conditions change.
- Check for the following if you receive the lost sticker message while using the system.
- Stop your vehicle as soon as the message displays.
- Make sure the sticker is visible and the pattern is discernable in the rear view camera image.
- Clean the sticker and camera to make sure they are unobstructed.
- Clean the lens with a soft, lint-free cloth and water.
- Clean the sticker with isopropyl rubbing alcohol sprayed directly onto the sticker, and then wipe clean with a soft cloth.

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- Remove any items that may be blocking the view of the sticker. Depending on your trailer configuration and any equipment mounted to your trailer, it is possible for the sticker to be blocked from view of the camera as it rotates on the hitch ball but not be blocked during setup. Remove the obstruction if possible. It may be necessary to remove the sticker from its current location if the obstruction cannot be cleared. Place a new sticker that is visible to the camera in all positions of the trailer behind your vehicle.
- Placing the sticker on a surface angled away from the vehicle reduces performance. Use a drawbar that positions the trailer level to the ground when attached to the vehicle. This typically provides a level surface to mount the sticker. Place the sticker on a bracket or other object when no level surface is available.
- Make sure the entire sticker is on a flat surface that is completely visible to the camera. Do not fold the sticker over an edge on the trailer frame. This can degrade performance.
- Shadows on the sticker may effect tracking performance under some lighting conditions. Moving the sticker to another location within the allowed placement area may improve performance. Use the change sticker option in the information display menu if you move the sticker.
- You can change your sticker location by going into the information display menu, selecting trailer options, selecting change trailer settings and then selecting the change sticker option. The previous sticker must be removed. **ONLY ONE STICKER SHOULD BE PLACED ON THE TRAILER FOR CORRECT SYSTEM FUNCTION.**
- The camera system uses the entered measurements to help locate the sticker. Inaccurate measurements reduce the system's ability to locate the sticker. Check the measurements entered into the system are correct. Refer to step 4 of setup for instructions on measurements.
- You can change your measurement by going into the information display menu, selecting trailer options, selecting change trailer setting and then selecting the change sticker option. Disregard the prompt to remove this sticker and continue to the next step if you only plan to update the measurements for the current sticker location.

System does not reverse straight:

- Factors such as the drawbar connection to the hitch receiver, road camber, road grade and compliance in the trailer suspension can influence how straight the system is able to reverse your trailer when the knob is not turned. You can compensate for the trailer drifting to the right or left by slowly turning the knob until the trailer is following your desired path and then holding the knob in that position. If you would like to recalibrate the system for straight backing, you can do so with the following procedure.
- Go into the information display menu, select trailer options, select change trailer setting and then select the change sticker option. Your saved measurements display. Do not change them but continue to confirm measurements. Once you confirm the measurements, the system then prompts you to perform the calibration procedure.

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System consistently shows ***Pro Trailer Backup Assist™ Stop now Maximum trailer angle Press Knob to Exit***:

- The system uses your measurements to determine sticker position and establish system limits. Accurate sticker placement and trailer measurements provide the best system performance. If you are consistently receiving this warning, it is likely there is an issue with sticker placement or the entered measurements. Make sure that the sticker is placed correctly based on step 3 and the measurements were made correctly according to step 4. The troubleshooting guide for trailer measurements can also be reviewed for help in making measurements.
- To change sticker location or change trailer measurements, go into the information display menu, select trailer options, select change trailer setting and then select the change sticker option.
- If the sticker location needs to be changed, the previous sticker must be removed and a new sticker needs to be placed on the trailer. **ONLY ONE STICKER SHOULD BE PLACED ON THE TRAILER FOR PROPER SYSTEM FUNCTION.**
- Disregard the prompt to remove this sticker and continue to the next step if you only plan to update the measurements for the current sticker location.

System consistently shows ***Pro Trailer Backup Assist™ Stop Now Take Control of Steering Wheel***:

- The system displays this warning when it can no longer steer the vehicle and you must take over steering. There are four reasons why this warning displays and additional information regarding the reason for the warning is available on the center display.
- The steering wheel is touched while under system control. Avoid touching the wheel during system operation.
- The maximum speed for feature operation is exceeded. System performance is optimized at slower speeds. Reverse slowly.
- The sticker was lost by the camera system. Once your vehicle is stopped, additional warnings indicate the sticker was lost. Refer to sticker lost troubleshooting tips.
- An internal condition for system operation was not met which requires your vehicle return to manual control of the steering.

Note: *The system is designed to be used with the same trailer connection every time the trailer is chosen from the selection menu. When using a different drawbar or a different pin hole on drawbars with more than one, connecting the drawbar to your vehicle affects the trailer measurements. Take the measurements again and update if required.*

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TRAILER SWAY CONTROL

WARNING: Turning off trailer sway control increases the risk of loss of vehicle control, serious injury or death. Ford does not recommend disabling this feature except in situations where speed reduction may be detrimental (such as hill climbing), the driver has significant trailer towing experience, and can control trailer sway and maintain safe operation.

Note: *This feature does not prevent trailer sway, but reduces it once it begins.*

Note: *This feature cannot stop all trailers from swaying.*

Note: *In some cases, if vehicle speed is too high, the system may activate multiple times, gradually reducing vehicle speed.*

This feature applies your vehicle brakes at individual wheels and, if necessary, reduces engine power. If the trailer begins to sway, the stability control light flashes and the message **TRAILER SWAY REDUCE SPEED** appears in the information display. The first thing to do is slow your vehicle down, then pull safely to the side of the road and check for proper tongue load and trailer load distribution. See **Load Carrying** (page 283).

RECOMMENDED TOWING WEIGHTS

Note: *Do not exceed a trailer weight of 5,000 lb (2,268 kg) when towing with, or by, the bumper only.*

Note: *For vehicles equipped with 2.7L and 3.3L engines without a Heavy Duty Towing Package, do not exceed a trailer weight of 5,000 lb (2,268 kg) when using the trailer hitch.*

Note: *For vehicles equipped with 3.5L and 5.0L engines without a Heavy Duty Towing Package, do not exceed a trailer weight of 7,000 lb (3,175 kg) when using the trailer hitch.*

Note: *Make sure to take into consideration trailer frontal area. Vehicles not equipped with the Trailer Tow Package or the Heavy Duty Payload Package should not exceed 11 ft² (3.4 m²) trailer frontal area. Vehicles equipped with the Trailer Tow Package or the Heavy Duty Payload Package should not exceed 18 ft² (5.6 m²) trailer frontal area. All values calculated with SAE J2807 method.*

Note: *Exceeding this limitation may significantly reduce the performance of your towing vehicle. Selecting a trailer with a low aerodynamic drag and rounded front design helps optimize performance and fuel economy.*

Note: *For high altitude operation, reduce the gross combined weight by 2% per 1,000 ft (300 m) starting at the 1,000 ft (300 m) elevation point.*

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Note: *Certain states require electric trailer brakes for trailers over a specified weight. Be sure to check state regulations for this specified weight. The maximum trailer weights listed may be limited to this specified weight, as your vehicle's electrical system may not include the wiring connector needed to use electric trailer brakes.*

Your vehicle may tow a trailer provided the maximum trailer weight is less than or equal to the maximum trailer weight calculated using the formula that appears after the following chart.

Driveline – 4x2 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
Regular cab – 122	3.3L TiVCT	3.55	9,500 lb (4,308 kg) [3]
		3.73	12,100 lb (5,489 kg)
	2.7L GTDI	3.15, 3.31	12,200 lb (5,534 kg)
		3.73	13,100 lb (5,942 kg)
	5.0L TiVCT	3.15, 3.31	13,000 lb (5,896 kg)
		3.55	13,800 lb (6,260 kg)
Regular cab – 141	3.3L TiVCT	3.55	9,600 lb (4,355 kg) [3]
		3.73	12,200 lb (5,534 kg)

Driveline – 4x2 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
	2.7L GTDI	3.15, 3.31	12,300 lb (5,579 kg)
		3.73	13,200 lb (5,987 kg)
		3.73	13,300 lb (6,032 kg) [4]
	5.0L TiVCT	3.15, 3.31	13,900 lb (6,305 kg)
		3.55	14,900 lb (6,759 kg)
		3.73	16,000 lb (7,257 kg)
	3.5L GTDI	3.15, 3.55	15,500 lb (7,031 kg)
		3.55	17,000 lb (7,711 kg) [5]
		3.73	17,100 lb (7,756 kg) [5]
Super Cab – 145	3.3L TiVCT	3.55	9,800 lb (4,445 kg) [3]
		3.73	12,200 lb (5,534 kg)
	2.7L GTDI	3.15, 3.31	12,600 lb (5,715 kg)

Driveline – 4x2 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
		3.73	13,300 lb (6,033 kg)
	5.0L TiVCT	3.15, 3.31	14,200 lb (6,441 kg)
		3.55	15,200 lb (6,895 kg)
	3.5L GTDI	3.15, 3.55	15,800 lb (7,167 kg)
		3.55	17,100 lb (7,756 kg) [5]
	3.0L Diesel	3.31	15,700 lb (7,121 kg)
		3.55	17,100 lb (7,756 kg)
Super Cab – 163	2.7L GTDI	3.15, 3.31	12,600 lb (5,715 kg)
		3.73	13,300 lb (6,033 kg)
		3.73	14,100 lb (6,396 kg) [4]
	5.0L TiVCT	3.15, 3.31	14,300 lb (6,486 kg)
		3.55	15,300 lb (6,940 kg)
		3.73	16,200 lb (7,348 kg)

Driveline – 4x2 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
	3.5L GTDI	3.15, 3.55	15,900 lb (7,212 kg)
		3.55	17,100 lb (7,756 kg) [5]
		3.73	17,100 lb (7,756 kg) [5]
Crew cab – 145	3.3L TiVCT	3.55	9,900 lb (4,491 kg) [3]
		3.73	12,300 lb (5,579 kg)
	2.7L GTDI	3.15, 3.31	12,700 lb (5,761 kg)
		3.73	13,300 lb (6,033 kg)
	5.0L TiVCT	3.15, 3.31	14,200 lb (6,441 kg)
		3.55	15,200 lb (6,895 kg)
	3.5L GTDI	3.15, 3.55	15,800 lb (7,167 kg)
		3.55	17,900 lb (8,119 kg) [6]
	3.5L GTDI 10.5:1 CR	3.55	16,700 lb (7,575 kg)

Driveline – 4x2 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
	3.0L Diesel	3.31	15,800 lb (7,167 kg)
		3.55	17,100 lb (7,756 kg)
Crew cab – 157	2.7L GTDI	3.15, 3.31	12,700 lb (5,761 kg)
		3.73	13,300 lb (6,033 kg)
		3.73	14,100 lb (6,396 kg) [4]
	5.0L TiVCT	3.15, 3.55	14,200 lb (6,441 kg)
		3.55	15,200 lb (6,895 kg)
		3.73	16,200 lb (7,348 kg)
	3.5L GTDI	3.15, 3.55	15,900 lb (7,212 kg)

Driveline – 4x2 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
		3.55	18,400 lb (8,346 kg) [6]
		3.73	17,100 lb (7,756 kg) [5]

[1] For vehicles without a Heavy Duty Towing Package, do not exceed a trailer weight of 5,000 lb (2,268 kg)

[2] Heavy Duty Trailer Tow Payload Package (unless stated otherwise).

[3] Medium Duty Trailer Tow Pkg. - Class IV receiver hitch. Max trailer weights by engine: 3.3L and 2.7L GTDI = 6000 lb, 5.0L, 3.5L GTDI and 3.0L Diesel = 7000 lb

[4] MAX Trailer Tow Payload Package.

[5] Max. Duty Trailer Tow Pkg. - Class IV receiver hitch. Optional on all models except vehicles with 3.5L GTDI Heavy Payload Package (HPP).

[6] Max. Duty Trailer Tow Pkg. - Class IV receiver hitch. Optional on 3.5L GTDI Heavy Frame Crew Cabs only.

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Driveline – 4x4 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
Regular cab – 122	3.3L TiVCT	3.55	9,700 lb (4,400 kg) [3]
		3.73	12,200 lb (5,534 kg)
	2.7L GTDI	3.55	12,500 lb (5,670 kg)
		3.73	13,300 lb (6,033 kg)
	5.0L TiVCT	3.31, 3.55	13,200 lb (5,987 kg)
		3.73	14,600 lb (6,622 kg)
Regular cab – 141	3.3L TiVCT	3.73	12,200 lb (5,534 kg)
	2.7L GTDI	3.55	12,600 lb (5,715 kg)
		3.73	13,300 lb (6,033 kg)
		3.73	14,100 lb (6,396 kg) [4]
	5.0L TiVCT	3.31, 3.55	14,100 lb (6,396 kg)
		3.73	16,200 lb (7,348 kg)

Driveline – 4x4 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
			16,100 lb (7,303 kg) [5]
			16,100 lb (7,303 kg) [6]
	3.5L GTDI	3.31, 3.55	15,800 lb (7,166 kg)
		3.55	17,100 lb (7,756 kg) [7]
		3.73	17,000 lb (7,711 kg)
			17,100 lb (7,756 kg) [7]
Super Cab – 145	3.3L TiVCT	3.73	12,500 lb (5,670 kg)
	2.7L GTDI	3.55	12,800 lb (5,806 kg)
		3.73	13,300 lb (6,033 kg)
		3.73	14,299 lb (6,486 kg) [4]
	5.0L TiVCT	3.31	14,299 lb (6,486 kg)
		3.55	14,400 lb (6,532 kg)
		3.73	16,500 lb (7,484 kg)

Driveline – 4x4 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
	3.5L GTDI	3.31, 3.55	16,000 lb (7,257 kg)
		3.55	17,100 lb (7,756 kg) [7]
Super Cab – 163	5.0L TiVCT	3.31	14,400 lb (6,532 kg)
		3.55	14,500 lb (6,577 kg)
		3.73	16,200 lb (7,348 kg)
	3.5L GTDI	3.31, 3.55	16,200 lb (7,348 kg)
		3.55	17,100 lb (7,757 kg) [7]
		3.73	17,100 lb (7,757 kg) [7]
Crew cab – 145	3.3L TiVCT	3.73	12,600 lb (5,715 kg)
	2.7L GTDI	3.55	12,900 lb (5,851 kg)
		3.73	13,300 lb (6,033 kg)
		3.73	14,300 lb (6,486 kg) [4]

Driveline – 4x4 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
	5.0L TiVCT	3.31	14,300 lb (6,486 kg)
		3.55	14,400 lb (6,532 kg)
		3.73	16,200 lb (7,348 kg)
	3.5L GTDI	3.31, 3.55	16,100 lb (7,303 kg)
		3.55	18,100 lb (8,210 kg) [8]
	3.5L 10.5:1 CR	3.31	16,100 lb (7,303 kg)
		3.55	16,700 lb (7,575 kg)
	3.0L Diesel	3.31, 3.55	16,000 lb (7,257 kg)
		3.55	17,100 lb (7,756 kg)
Crew cab – 157	5.0L TiVCT	3.31	14,400 lb (6,532 kg)
		3.55	14,500 lb (6,577 kg)
		3.73	16,900 lb (7,666 kg)
		3.73	16,200 lb (7,348 kg)

Driveline – 4x4 [1]			
Cab – Wheelbase (inches)	**Engine**	**Axle Ratio**	**Maximum GCWR Calculated with SAE J2807 Method [2]**
	3.5L GTDI	3.31, 3.55	16,100 lb (7,303 kg)
		3.55	18,400 lb (8,346 kg) [8]
		3.73	17,000 lb (7,711 kg) [5]
			17,100 lb (7,756 kg) [6]
	3.0L Diesel	3.31, 3.55	16,100 lb (7,303 kg)
		3.55	17,100 lb (7,757 kg)

[1] For vehicles without a Heavy Duty Towing Package, do not exceed a trailer weight of 5,000 lb (2,268 kg)

[2] Heavy Duty Trailer Tow Payload Package (unless stated otherwise).

[3] Medium Duty Trailer Tow Pkg. - Class IV receiver hitch. Max trailer weights by engine: 3.3L and 2.7L GTDI = 6000 lb, 5.0L, 3.5L GTDI and 3.0L Diesel = 7000 lb

[4] MAX Trailer Tow Payload Package.

[5] 17 Inch Rims.

[6] 18 Inch Rims.

[7] Max. Duty Trailer Tow Pkg. - Class IV receiver hitch. Optional on all models except vehicles with 3.5L GTDI Heavy Payload Package (HPP).

[8] Max. Duty Trailer Tow Pkg. - Class IV receiver hitch. Optional on 3.5L GTDI Heavy Frame Crew Cabs only

Calculating the Maximum Loaded Trailer Weight for Your Vehicle

1. Start with the gross combined weight rating for your vehicle model and axle ratio. See the previous charts.
2. Subtract all of the following that apply to your vehicle:

- Vehicle curb weight.
- Hitch hardware weight, for example a draw bar, ball, locks or weight distributing hardware.
- Driver weight.
- Passenger(s) weight.
- Payload, cargo and luggage weight.
- Aftermarket equipment weight.

This equals the maximum loaded trailer weight for this combination.

Note: *The trailer tongue load is considered part of the payload for your vehicle. Reduce the total payload by the final trailer tongue weight.*

Note: *Consult an authorized dealer to determine the maximum trailer weight allowed for your vehicle if you are not sure.*

ESSENTIAL TOWING CHECKS

Follow these guidelines for safe towing:

- Do not tow a trailer until you drive your vehicle at least 1,000 mi (1,600 km).
- Consult your local motor vehicle laws for towing a trailer.
- See the instructions included with towing accessories for the proper installation and adjustment specifications.
- Service your vehicle more frequently if you tow a trailer. See your scheduled maintenance information. See **Scheduled Maintenance** (page 557).
- If you use a rental trailer, follow the instructions the rental agency gives you.

See **Load limits** in the Load Carrying chapter for load specification terms found on the tire label and Safety Compliance label and instructions on calculating your vehicle's load. See **Load Limit** (page 284).

Remember to account for the trailer tongue weight as part of your vehicle load when calculating the total vehicle weight.

Trailer Towing Connector

E193232

When attaching the trailer wiring connector to your vehicle, only use a proper fitting connector that works with the vehicle and trailer functions. Some seven-position connectors may have the SAE J2863 logo, which confirms that it is the proper wiring connector and works correctly with your vehicle.

Color	Function
Yellow	Left turn signal and stop lamp
White	Ground (-)
Blue	Electric brakes
Green	Right turn signal and stop lamp
Orange	Battery (+)[1]
Brown	Running lights
Grey	Reverse lights

[1] Your vehicle must recognize the trailer before the trailer can receive power.

Recognizing a Trailer

1. Attach the trailer and wiring connector to your vehicle.
2. Switch on your vehicle.
3. Press the brake pedal for a few seconds.

A confirmation message appears in the information display. See **General Information** (page 120).

Hitches

Do not use a hitch that either clamps onto the bumper or attaches to the axle. You must distribute the load in your trailer so that 10-15% of the total weight of the trailer is on the tongue.

Weight-distributing Hitches

WARNING: Do not adjust the spring bars so that your vehicle's rear bumper is higher than before attaching the trailer. Doing so will defeat the function of the weight-distributing hitch, which may cause unpredictable handling, and could result in serious personal injury.

When hooking-up a trailer using a weight-distributing hitch, always use the following procedure:

1. Park the loaded vehicle, without the trailer, on a level surface.
2. Measure the height to the top of your vehicle's front wheel opening on the fender. This is H1.
3. Attach the loaded trailer to your vehicle without the weight-distributing bars connected.
4. Measure the height to the top of your vehicle's front wheel opening on the fender a second time. This is H2.
5. Install and adjust the tension in the weight-distributing bars so that the height of your vehicle's front wheel opening on the fender is approximately a quarter the way down from H2, toward H1.
6. Check that the trailer is level or slightly nose down toward your vehicle. If not, adjust the ball height accordingly and repeat Steps 2-6.

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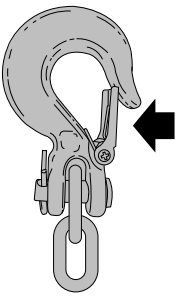
Once the trailer is level or slightly nose down toward the vehicle:

- Lock the bar tension adjuster in place.
- Check that the trailer tongue securely attaches and locks onto the hitch.
- Install safety chains, lighting, and trailer brake controls as required by law or the trailer manufacturer.

Safety Chains

Note: *Do not attach safety chains to the bumper. Always connect the safety chains to the frame or hook retainers of your trailer hitch.*

Install trailer safety chains to the trailer hitch as recommended by the manufacturer. Cross the chains under the trailer tongue and allow enough slack for turning tight corners. Do not allow the chains to drag on the ground.



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If the trailer safety chain hook has a latch, make sure the latch is fully closed.

Trailer Brakes

WARNING: Do not connect a trailer's hydraulic brake system directly to your vehicle's brake system. Your vehicle may not have enough braking power and your chances of having a collision greatly increase.

Electric brakes and manual, automatic or surge-type trailer brakes are safe if you install them properly and adjust them to the manufacturer's specifications. The trailer brakes must meet local and federal regulations.

The rating for the tow vehicle's braking system operation is at the gross vehicle weight rating, not the gross combined weight rating.

Separate functioning brake systems are required for safe control of towed vehicles and trailers weighing more than 1500 lb (680 kg) when loaded.

Integrated Trailer Brake Controller

(If Equipped)

WARNING: Use the integrated trailer brake controller to properly adjust the trailer brakes and check all connections before towing a trailer. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

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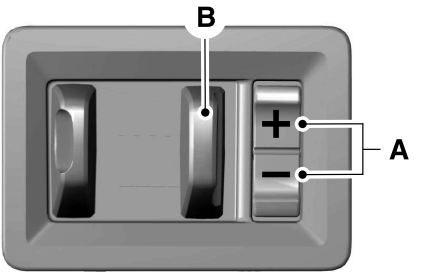

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When used properly, the trailer brake controller assists in smooth and effective trailer braking by powering the trailer's electric or electric-over-hydraulic brakes with a proportional output based on the towing vehicle's brake pressure.

You can adjust the level of initial trailer brake output by selecting one of three settings using the information display. Choose Low, Medium or High for the initial trailer brake output you require. See **Information Displays** (page 120).

The controller user interface consists of the following:

A: + and - (Gain adjustment buttons): Pressing these buttons adjusts the controller's power output to the trailer brakes in 0.5 increments. You can increase the gain setting to 10.0 (maximum trailer braking) or decrease it to 0 (no trailer braking). The gain setting displays in the message center.

The controller shows gain setting, output bar graph, and trailer connectivity status in the information display. They appear in the information display as follows:

- Trailer Brake Controller Gain (without trailer connected): Shows the current gain setting during a given ignition cycle and when adjusting the gain. This also displays if you use the manual control lever or make gain adjustments with no trailer connected.
- Trailer Brake Controller Gain Output: Displays when you push your vehicle's brake pedal, or upon use of the manual control. Bar indicators illuminate in the information display to indicate the amount of power going to the trailer brakes relative to the brake pedal or manual control input. One bar indicates the least amount of output; six bars indicate maximum output.
- Trailer Connected: Displays when the system senses a correct trailer wiring connection (a trailer with electric trailer brakes) during a given ignition cycle.
- Trailer Disconnected: Displays, accompanied by a single audible time, when the system senses a trailer connection and then a disconnection, either intentional or unintentional, during a given ignition cycle. It also displays if a truck or trailer-wiring fault occurs causing the trailer to appear disconnected. This message can also display if you use the manual control lever without a trailer connected. After disconnecting the trailer connector, press the brake pedal for approximately five seconds to allow the system to detect and update the trailer status.

B: Manual control lever: Slide the control lever to the left to turn on the trailer's electric brakes independent of the tow vehicle's. See the following **Procedure for adjusting gain** section for instructions on proper use of this feature. If you use the manual control while the brake is also applied, the greater of the two inputs determines the power sent to the trailer brakes.

- **Stop lamps:** Using the manual control lever illuminates both the trailer brake lamps and your vehicle brake lamps except the center high-mount stop lamp, if you make the proper electrical connection to the trailer. Pressing your vehicle brake pedal also illuminates both trailer and vehicle brake lamps.

Procedure for Setting Trailer Brake Controller Mode

Select the correct option using the information display. Choose electric for trailers with electromagnetic drum brakes or EOH for trailers with electric over hydraulic brake systems. See **Information Displays** (page 120).

Trailer Brake Effort Setting

The trailer brake controller allows the user to customize how aggressively the trailer brakes engage. The default value is "Low" and is the recommended setting for most trailers. If your trailer's brakes require more initial voltage, or if you prefer more aggressive trailer braking, then select either the "Medium" or the "High" setting.

Procedure for Adjusting Gain

Note: *Only perform this procedure in a traffic-free environment at speeds of approximately 20–25 mph (30–40 km/h).*

The gain setting sets the trailer brake controller for the specific towing condition. You should change the setting as towing conditions change. Changes to towing conditions include trailer load, vehicle load, road conditions and weather.

The gain should be set to provide the maximum trailer braking assistance while making sure the trailer wheels do not lock when using the brakes. Locked trailer wheels may lead to trailer instability.

1. Make sure the trailer brakes are in good working condition, functioning normally and properly adjusted. See your trailer dealer if necessary.
2. Hook up the trailer and make the electrical connections according to the trailer manufacturer's instructions.
3. When you plug in a trailer with electric or electric-over-hydraulic brakes, a message confirming connection appears in the information display.
4. Use the gain adjustment (+ and -) buttons to increase or decrease the gain setting to the desired starting point. A gain setting of 6.0 is a good starting point for heavier loads.
5. In a traffic-free environment, tow the trailer on a dry, level surface at a speed of 20–25 mph (30–40 km/h) and squeeze the manual control lever completely.
6. If the trailer wheels lock up, indicated by squealing tires, reduce the gain setting. If the trailer wheels turn freely, increase the gain setting. Repeat Steps 5 and 6 until the gain setting is at a point just below trailer wheel lock-up. If towing a heavier trailer, trailer wheel lock-up may not be attainable even with the maximum gain setting of 10.

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Explanation of Information Display Warning Messages

Note: *An authorized dealer can diagnose the trailer brake controller to determine exactly which trailer fault has occurred. However, your Ford warranty does not cover this diagnosis if the fault is with the trailer.*

A message indicating a trailer brake module fault may display in response to faults sensed by the trailer brake controller, accompanied by a single tone. If this message appears, contact an authorized dealer as soon as possible for diagnosis and repair. The controller may still function, but performance may be degraded.

A message indicating a trailer wiring fault may display when there is a short circuit on the electric brake output wire. If this message displays, accompanied by a single tone, with no trailer connected, the problem is with your vehicle wiring between the trailer brake controller and the 7-pin connector at the bumper. If the message only displays with a trailer connected, the problem is with the trailer wiring. Consult your trailer dealer for assistance. This can be a short to ground (such as a chaffed wire), short to voltage (such as a pulled pin on trailer emergency breakaway battery) or the trailer brakes may be drawing too much current.

Points to Remember

Note: *Do not attempt removal of the trailer brake controller without consulting the Workshop Manual. Damage to the unit may result.*

- Adjust gain setting before using the trailer brake controller for the first time.
- Adjust gain setting, using the procedure above, whenever road, weather and trailer or vehicle loading conditions change from when the gain was initially set.
- Only use the manual control lever for proper adjustment of the gain during trailer setup. Misuse, such as application during trailer sway, could cause instability of trailer or tow vehicle.
- Avoid towing in adverse weather conditions. The trailer brake controller does not provide anti-lock control of the trailer wheels. Trailer wheels can lock up on slippery surfaces, resulting in reduced stability of trailer and tow vehicle.
- The trailer brake controller is equipped with a feature that reduces output at vehicle speeds below 11 mph (18 km/h) so trailer and vehicle braking is not jerky or harsh. This feature is only available when applying the brakes using your vehicle's brake pedal, not the controller.
- The controller interacts with the brake control system and powertrain control system of your vehicle to provide the best performance on different road conditions.
- Your vehicle's brake system and the trailer brake system work independently of each other. Changing the gain setting on the controller does not affect the operation of your vehicle's brakes whether you attach a trailer or not.
- When you switch the engine off, the controller output is disabled and the display and module shut down. The controller module and display turn on when you switch the ignition on.
- The trailer brake controller is only a factory-installed or dealer-installed item. Ford is not responsible for warranty or performance of the controller due to misuse or customer installation.

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Trailer Lamps

WARNING: Never connect any trailer lamp wiring to the vehicle's tail lamp wiring; this may damage the electrical system resulting in fire. Contact your authorized dealer as soon as possible for assistance in proper trailer tow wiring installation. Additional electrical equipment may be required.

Trailer lamps are required on most towed vehicles. Make sure all running lights, brake lights, turn signals and hazard lights are working.

Using a Step Bumper (If Equipped)

The rear bumper is equipped with an integral hitch and only requires a ball with a one-inch (25.4 millimeter) shank diameter. The bumper has a 5,000 lb (2,268 kg) trailer weight and a 500 lb (227 kg) tongue weight capacity.

If it is necessary to relocate the hitch ball position, you must install a frame-mounted trailer hitch.

Before Towing a Trailer

Practice turning, stopping and backing up to get the feel of your vehicle-trailer combination before starting on a trip. When turning, make wider turns so the trailer wheels clear curbs and other obstacles.

When Towing a Trailer

- Do not drive faster than 70 mph (113 km/h) during the first 500 mi (800 km).
- Do not make full-throttle starts.
- Check your hitch, electrical connections and trailer wheel lug nuts thoroughly after you have traveled 50 mi (80 km).
- When stopped in congested or heavy traffic during hot weather, place the transmission in park (P) to aid engine and transmission cooling and to help A/C performance.
- Turn off the speed control with heavy loads or in hilly terrain. The speed control may turn off automatically when you are towing on long, steep grades.
- Shift to a lower gear when driving down a long or steep hill. Do not apply the brakes continuously, as they may overheat and become less effective.
- If your transmission is equipped with a Grade Assist or Tow/Haul feature, use this feature when towing. This provides engine braking and helps eliminate excessive transmission shifting for optimum fuel economy and transmission cooling.
- If your vehicle is equipped with AdvanceTrac with RSC, this system may turn on during typical cornering maneuvers with a heavily loaded trailer. This is normal. Turning the corner at a slower speed while towing may reduce this tendency.
- If you are towing a trailer frequently in hot weather, hilly conditions, at the gross combined weight rating (or any combination of these factors), consider refilling your rear axle with synthetic gear lubricant (if the axle is not already filled with it). See **Capacities and Specifications** (page 426).
- Allow more distance for stopping with a trailer attached. Anticipate stops and brake gradually.
- Avoid parking on a grade. However, if you must park on a grade:

1. Turn the steering wheel to point your vehicle tires away from traffic flow.
2. Set your vehicle parking brake.

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3. Place the automatic transmission in park (P).
4. Place wheel chocks in front and back of the trailer wheels. Chocks are not included with your vehicle.

Your vehicle may be equipped with a temporary or conventional spare tire. A temporary spare tire is different in diameter or width, tread-type, or is from a different manufacturer than the road tires on your vehicle. Consult information on the tire label or Safety Compliance label for limitations when using.

Launching or Retrieving a Boat or Personal Watercraft (PWC)

Note: *Disconnect the wiring to the trailer **before** backing the trailer into the water.*

Note: *Reconnect the wiring to the trailer **after** removing the trailer from the water.*

When backing down a ramp during boat launching or retrieval:

- Do not allow the static water level to rise above the bottom edge of the rear bumper.
- Do not allow waves to break higher than 6 in (15 cm) above the bottom edge of the rear bumper.

Exceeding these limits may allow water to enter vehicle components:

- Causing internal damage to the components.
- Affecting driveability, emissions, and reliability.

Replace the rear axle lubricant anytime the rear axle has been submerged in water. Water may have contaminated the rear axle lubricant, which is not normally checked or changed unless a leak is suspected or other axle repair is required.

TOWING THE VEHICLE ON FOUR WHEELS

WARNING: If your vehicle has a steering wheel lock make sure the ignition is in the accessory or on position when being towed.

Emergency Towing

If your vehicle becomes inoperable (without access to wheel dollies, car-hauling trailer, or flatbed transport vehicle), it can be flat-towed (all wheels on the ground, regardless of the powertrain and transmission configuration) under the following conditions:

- Your vehicle is facing forward for towing in a forward direction.
- Place the transmission in neutral (N). If you cannot move the transmission into neutral (N), you may need to override it. See **Transmission** (page 217).
- Maximum speed is 35 mph (56 km/h).
- Maximum distance is 50 mi (80 km).

Recreational Towing

Note: *Put your climate control system in recirculated air mode to prevent exhaust fumes from entering your vehicle. See **Climate Control** (page 151).*

Follow these guidelines if you have a need for recreational towing, such as towing your vehicle behind a motorhome. These guidelines are designed to prevent damage to your transmission.

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Two-wheel Drive Vehicles

You cannot tow a two-wheel drive vehicle with any wheels on the ground as vehicle or transmission damage may occur. You must tow your vehicle with all four wheels off the ground, such as when using a car-hauling trailer.

Four-wheel Drive Vehicles

You can only tow a four-wheel drive vehicle with all wheels on the ground by placing the transfer case in its neutral position and engaging the four-wheel-down towing feature. Perform the steps outlined in the following section after positioning your vehicle behind the tow vehicle and properly securing them together.

Note: *Make sure you properly secure your vehicle to the tow vehicle.*

Note: *If completed successfully, the information display shows* ***NEUTRAL TOW LEAVE IN N*** *or* ***Neutral Tow Enabled Leave Transmission in Neutral****. This indicates that your vehicle is safe to tow with all wheels on the ground.*

Note: *If you do not see the message in the display, you must perform the procedure again from the beginning.*

Note: *For F-150 Raptor, please refer to your Raptor supplement guide.*

Four-wheel-down Towing

1. Put the ignition in the on position, but do not start the engine. If your vehicle has an ignition key, turn the key to on. If your vehicle has intelligent access, press the engine ***START/STOP*** button once without pressing the brake pedal.
2. Press and hold the brake pedal.
3. Rotate the four-wheel drive switch to ***2H***.
4. Shift the transmission to neutral (N).
5. Rotate the four-wheel drive switch from ***2H*** to ***4L*** and back to ***2H*** five times within seven seconds. If completed successfully, the information display shows **NEUTRAL TOW LEAVE IN N** or ***Neutral Tow Enabled Leave Transmission in Neutral***. This indicates that your vehicle is safe to tow with all wheels on the ground.

Note: *If you do not see the message in the display, you must perform the procedure again from the beginning.*

Note: *You may hear an audible noise as the transfer case shifts into its neutral position. This is normal.*

6. Leave the transmission in neutral (N) and turn the ignition as far as it can go toward the off position. It does not turn fully off when the transmission is in neutral (N). If your vehicle has an ignition key, you must leave the key in the ignition while towing. To lock and unlock your vehicle, use the keyless entry keypad or an extra set of keys. If your vehicle has intelligent access, press the engine ***START/STOP*** button once without pressing the brake pedal. You do not need to leave your keys in the vehicle. You can lock and unlock your vehicle as you normally do.
7. Release the brake pedal.

WARNING: Do not disconnect the battery during recreational towing. It prevents the transfer case from shifting properly and may cause the vehicle to roll, even if the transmission is in park (P).

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WARNING: Shifting the transfer case to its neutral position for recreational towing may cause the vehicle to roll, even if the transmission is in park (P). It may injure the driver and others. Make sure you press the foot brake and the vehicle is in a secure, safe position when you shift to neutral (N).

Note: *Failing to put the transfer case in its neutral position while towing the vehicle can damage vehicle components.*

Note: *You can check four-wheel-down towing status at any time by opening the driver's door or turning the ignition to the accessory or on position. A message displays in the information display confirming your vehicle is in neutral tow.*

To exit four-wheel-down towing and return the transfer case to its ***2H*** position:

1. With your vehicle still properly secured to the tow vehicle, put the ignition in the on position, but do not start the engine. If your vehicle has an ignition key, turn the key to on. If your vehicle has intelligent access, press the engine ***START/STOP*** button once without pressing the brake pedal.
2. Press and hold the brake pedal.
3. Place the transmission back into park (P).
4. Release the brake pedal.

Note: *If completed successfully, the instrument cluster displays **4X2**, and **Neutral Tow Disabled**.*

Note: *If the indicator light and message do not display, you must perform the procedure again from the beginning.*

Note: *You may hear an audible noise as the transfer case shifts out of its neutral position, this is normal.*

Note: *If **Shift Delayed Pull Forward** displays in the instrument cluster, transfer case gear tooth blockage is present. See the instructions following this section.*

5. Apply the parking brake, then disconnect your vehicle from the tow vehicle.
6. Release the parking brake, start the engine, and shift the transmission into drive (D) to make sure the transfer case is out of the neutral tow position.
7. If the transfer case does not successfully shift out of neutral (N), set the parking brake until you can have your vehicle serviced.

Resolving the Shift Delayed Pull Forward Message

If the instrument cluster displays ***Shift Delayed Pull Forward***, perform the following:

1. Press and hold the brake pedal.
2. Put the transmission into neutral (N), then start the engine.
3. With the engine running, shift the transmission into drive (D) and let the vehicle roll forward, up to 3 ft (1 m). You may hear an audible noise as the transfer case shifts out of its neutral position. This is normal.
4. Make sure the instrument cluster displays ***Neutral Tow Disabled***.

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BREAKING-IN

You need to break in new tires for approximately 300 mi (480 km). During this time, your vehicle may exhibit some unusual driving characteristics.

Avoid driving too fast during the first 1,000 mi (1,600 km). Vary your speed frequently and change up through the gears early. Do not labor the engine.

Do not tow during the first 1,000 mi (1,600 km).

ECONOMICAL DRIVING

Your fuel economy is affected by several things, such as how you drive, the conditions you drive under, and how you maintain your vehicle.

You may improve your fuel economy by keeping these things in mind:

- Accelerate and slow down in a smooth, moderate fashion.
- Drive at steady speeds without stopping.
- Anticipate stops; slowing down may eliminate the need to stop.
- Combine errands and minimize stop-and-go driving.
- Close the windows for high-speed driving.
- Drive at reasonable speeds (traveling at 55 mph [88 km/h] uses 15% less fuel than traveling at 65 mph [105 km/h]).
- Keep the tires properly inflated and use only the recommended size.
- Use the recommended engine oil.
- Perform all regularly scheduled maintenance.

Avoid these actions; they reduce your fuel economy:

- Sudden accelerations or hard accelerations.
- Revving the engine before turning it off.
- Idle for periods longer than one minute.
- Warm up your vehicle on cold mornings.
- Use the air conditioner or front defroster.
- Use the speed control in hilly terrain.
- Rest your foot on the brake pedal while driving.
- Drive a heavily loaded vehicle or tow a trailer.
- Carry unnecessary weight (approximately 1 mpg [0.4 km/L] is lost for every 400 lb [180 kilogram] of weight carried).
- Driving with the wheels out of alignment.

Conditions

- Heavily loading a vehicle or towing a trailer may reduce fuel economy at any speed.
- Adding certain accessories to your vehicle (for example bug deflectors, rollbars, light bars, running boards, ski racks or luggage racks) may reduce fuel economy.
- To maximize the fuel economy, drive with the tonneau cover installed (if equipped).
- Using fuel blended with alcohol may lower fuel economy.
- Fuel economy may decrease with lower temperatures during the first 5–10 mi (12–16 km) of driving.
- Driving on flat terrain offers improved fuel economy as compared to driving on hilly terrain.

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- Transmissions give their best fuel economy when operated in the top cruise gear and with steady pressure on the gas pedal.
- Four-wheel-drive operation (if equipped) is less fuel efficient than two-wheel-drive operation.
- Close the windows for high-speed driving.

OFF-ROAD DRIVING

In addition to providing an excellent on-road driving experience, your vehicle excels at all types of off-road driving. The truck has been designed and equipped to allow you to explore those places where the road doesn't take you whether it's a forest trail or the open desert. Before going off-roading, consult with your local governmental agencies to determine designated off-road trails and recreation areas. Also, be sure to understand any off-road vehicle registration requirements for the area in which you plan on driving.

Tread Lightly is an educational program designed to increase public awareness of land-use regulations and responsibilities in our nation's wilderness areas. Ford joins the U.S. Forest Service and Bureau of Land Management in encouraging you to help preserve our national forest and other public and private lands by treading lightly.

Before taking your vehicle off-roading, a basic vehicle inspection should be done to make sure that the vehicle is in top working condition.

It is always recommended that at least two vehicles are used while off-roading. The buddy system helps make sure that help is close at hand should a vehicle become stuck or damaged. It is also wise to take supplies such as a first aid kit, supply of water, tow strap, cell or satellite phone with you any time an off-road excursion is planned.

Basic Off-road Driving Techniques

- Grip the steering wheel with thumbs on the outside of the rim. This will reduce the risk of injury due to abrupt steering wheel motions that occur when negotiating rough terrain. Do not grip the steering wheel with thumbs inside the rim.
- Throttle, brake and steering inputs should be made in a smooth and controlled manner. Sudden inputs to the controls can cause loss of traction or upset the vehicle, especially while on sloped terrain or while crossing obstacles such as rocks or logs.
- Look ahead on your route noting upcoming obstacles, surface texture or color changes or any other factors which may indicate a change in available traction, and adjust the vehicle speed and route accordingly. During pre-run, mark obstacles with GPS markers to make sure appropriate speeds are used to avoid potential vehicle damage.
- When driving off-road, if the front or rear suspension is bottoming out and/or excessive contact with the skid-plates is encountered, reduce vehicle speed to avoid potential damage to the vehicle.
- When running with other vehicles, it is recommended that communication is used, and the lead vehicle notify other vehicles of obstacles that could cause potential vehicle damage.

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- Always keep available ground clearance in mind and pick a route that minimizes the risk of catching the underside of the vehicle on an obstacle.
- When negotiating low speed obstacles, applying light brake pressure in conjunction with the throttle will help prevent the vehicle from jerking and will allow you to negotiate the obstacle in a more controlled manner. Using 4L will also help with this.
- Use and equip supplemental safety equipment as discussed later in this chapter.
- Please consult your local off-road group for other helpful tips.
- Off-roading requires a high degree of concentration. Even if your local law does not prohibit alcohol use while driving off-road, Ford strongly recommends against drinking if you plan to off-road.

Crossing Obstacles

- Review the path ahead before attempting to cross any obstacle. It is best if the obstacle is reviewed from outside the vehicle so that there is a good understanding of terrain condition both in front of and behind the obstacle.
- Approach obstacles slowly and slowly inch the vehicle over.
- If a large obstacle such as a rock cannot be avoided, choose a path that places the rock directly under the tire rather than the undercarriage of the vehicle. This will help prevent damage to the vehicle.
- Ditches and washouts should be crossed at a 45 degree angle, allowing each wheel to independently cross the obstacle.

Hill Climbing

WARNING: Extreme care should be used when steering the vehicle in reverse down a slope so as not to cause the vehicle to swerve out of control.

- Always attempt to climb a steep hill along the fall line of the slope and not diagonally.
- If the vehicle is unable to make it up the hill, DO NOT attempt to turn back down the slope. Place the vehicle in low range and slowly back down in reverse.
- When descending a steep slope, select low gear and engage hill descent control. Use the throttle and brake pedals to control your descent speed as described earlier in this section using hill descent control. Note that hill descent control is functional in reverse and should be used in this situation.

DRIVING THROUGH WATER

WARNING: Do not drive through flowing or deep water as you may lose control of your vehicle.

Note: *Driving through standing water can cause vehicle damage.*

Note: *Engine damage can occur if water enters the air filter.*

Before driving through standing water, check the depth. Never drive through water that is higher than the bottom of the wheel hubs.

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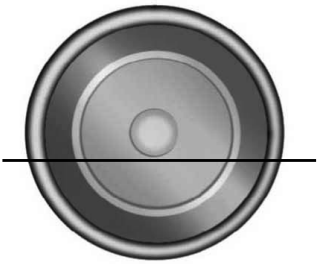

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When driving through standing water, drive very slowly and do not stop your vehicle. Your brake performance and traction may be limited. After driving through water and as soon as it is safe to do so:

- Lightly press the brake pedal to dry the brakes and to check that they work.
- Check that the horn works.
- Check that the exterior lights work.
- Turn the steering wheel to check that the steering power assist works.

FLOOR MATS

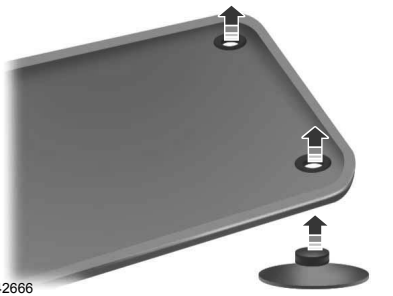
WARNING: Use a floor mat designed to fit the footwell of your vehicle that does not obstruct the pedal area. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: Pedals that cannot move freely can cause loss of vehicle control and increase the risk of serious personal injury.

WARNING: Secure the floor mat to both retention devices so that it cannot slip out of position and interfere with the pedals. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: Do not place additional floor mats or any other covering on top of the original floor mats. This could result in the floor mat interfering with the operation of the pedals. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: Always make sure that objects cannot fall into the driver foot well while your vehicle is moving. Objects that are loose can become trapped under the pedals causing a loss of vehicle control.



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To install the floor mats, position the floor mat eyelet over the retention post and press down to lock in position.

To remove the floor mat, reverse the installation procedure.

Note: *Regularly check the floor mats to make sure they are secure.*

SNOW PLOWING

We recommend the four-wheel drive F-150 in XL, XLT or Lariat trim levels with the 5.0L engine and snowplow option for residential snowplowing only. We do not recommend the F-150 with the automatic four-wheel drive system for snowplowing.

Do not use F-150 vehicles equipped with the 2.7L, 3.0L, 3.3L or 3.5L engines for snowplowing.

Installing the Snowplow

Weight limits and guidelines for selecting and installing the snowplow are in the Ford Truck Body Builders Layout Book, snowplow section, found at www.fleet.ford.com/truckbbas.

A typical installation affects the following:

- Certification to government safety laws such as occupant protection and airbag deployment, braking, and lighting. Look for an Alterer's Label on your vehicle from the snowplow installer certifying that the installation meets all applicable Federal Motor Vehicle Safety Standards (FMVSS).
- The Front Gross Axle Weight Rating (GAWR) is on the upper left side of the vehicle's Safety Compliance Certification Label. This is the total weight that front axle supports, which includes the vehicle weight plus any auxiliary equipment such as snowplow frame-mounted hardware that can be added to the vehicle and satisfy Ford compliance certification to FMVSS. Do not exceed FGAWR or Gross Vehicle Weight Rating (GVWR).
- Rear ballast weight behind the rear axle may be required to prevent exceeding the FGAWR, and provide front-to-rear weight balance for proper braking and steering.
- Front wheel toe may require re-adjustment to prevent premature uneven tire wear. Specifications are in the Ford Workshop Manual.
- Headlight aim may require adjustment.
- The tire air pressures recommended for general driving are on the vehicle's Safety Certification Label. The maximum cold inflation pressure for the tire and associated load rating are on the tire sidewall. Tire air pressure may require re-adjustment within these pressure limits to accommodate the additional weight of the snowplow installation.
- Federal and some local regulations require additional exterior lamps for snowplow-equipped vehicles. Contact an authorized dealer for additional information.

Snowplow Mode (If Equipped)

Press the snowplow button on the instrument panel to switch on snowplow mode. The button illuminates when in snowplow mode. A message appears in the information display indicating that features are turned off when in snowplow mode.

The following features are disabled when in snowplow mode:

- 110V inverter.
- Fog lamps.
- Heated steering wheel.
- Heated front and rear seats.
- Massaging seats.

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The body module also activates the snowplow relay that provides power to aftermarket snowplow controls.

Switch off snowplow mode by pressing the snowplow button or switching off the ignition. The snowplow button is no longer illuminated and features are turned on.

Note: *The electrical system is designed to support the addition of a residential snowplow (up to 60 Amps continuous) and snowplow lights (up to 20 Amps continuous) using snowplow mode. The system is not designed to support snowplow usage with additional electrical aftermarket accessories.*

Operating the Vehicle with the Snowplow Attached

Note: *Drive the vehicle at least 500 mi (800 km) before using your vehicle for snow removal.*

We recommend vehicle speed does not exceed 45 mph (72 km/h) when snowplowing.

The attached snowplow blade restricts airflow to the radiator, and may cause the engine to run at a higher temperature. Attention to engine temperature is especially important when outside temperatures are above freezing. Angle the blade to maximize airflow to the radiator and monitor engine temperature to determine whether a left or right angle provides the best performance.

Follow the severe duty schedule in your Scheduled Maintenance information for engine oil and transmission fluid change intervals.

Snowplowing with your Airbag Equipped Vehicle

WARNING: Do not attempt to service, repair, or modify the airbag supplemental restraint systems or its fuses on a vehicle containing air bags as you could be seriously injured or killed. Contact your authorized dealer as soon as possible.

WARNING: All occupants of your vehicle, including the driver, should always properly wear their seatbelts, even when an airbag supplemental restraint system is provided. Failure to properly wear your seatbelt could seriously increase the risk of injury or death.

WARNING: Modifying or adding equipment to the front end of your vehicle (including hood, bumper system, frame, front end body structure, tow hooks and hood pins) may affect the performance of the airbag system, increasing the risk of injury. Do not modify or add equipment to the front end of your vehicle.

Note: *Please refer to the Body Builders Layout Book for instructions about the appropriate installation of additional equipment.*

Your vehicle is equipped with a driver and passenger airbag supplemental restraint system. The supplemental restraint system activates in certain frontal and offset frontal collisions when the vehicle sustains sufficient longitudinal deceleration.

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Careless or high speed driving while snowplowing, which results in significant vehicle decelerations, can deploy the airbag. Such driving also increases the risk of accidents.

Never remove or defeat the tripping mechanisms designed into the snow removal equipment by its manufacturer. Doing so may cause damage to the vehicle and the snow removal equipment as well as possible airbag deployment.

Engine Temperature while Plowing

Your engine may run at a higher temperature than normal because the attached snowplow blade restricts airflow to the radiator:

- If you are driving more than 15 mi (24 km) at temperatures above freezing, angle the plow blade either full left or full right to provide maximum airflow to the radiator.
- If you are driving less than 15 mi (24 km) at speeds up to 45 mph (72 km/h) in cold weather, you do not need to worry about blade position to provide maximum airflow.

Transmission Operation while Plowing

WARNING: Do not spin the wheels at over 34 mph (55 km/h). The tires may fail and injure a passenger or bystander.

- Shift transfer case to **4L** (4WD Low) when plowing in small areas at speeds below 5 mph (8 km/h).
- Shift transfer case to **4H** (4WD High) when plowing larger areas or light snow at higher speeds. Do not exceed 15 mph (24 km/h).
- Do not shift the transmission from a forward gear to **R** (Reverse) until the engine is at idle and the wheels have stopped.

Outside Air Temperature While Plowing

While plowing with your vehicle, the plow blade can block the sensor airflow and cause the outside air temperature reading to be inaccurate.

A Ford wiring kit is available to relocate the Outside Air Temperature sensor to the plow blade frame to provide more accurate outside air temperature readings. Contact an authorized dealer for more information.

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ROADSIDE ASSISTANCE

Vehicles Sold in the United States: Getting Roadside Assistance

To fully assist you should you have a vehicle concern, Ford Motor Company offers a complimentary roadside assistance program. This program is separate from the New Vehicle Limited Warranty.

The service is available:

- 24 hours a day, seven days a week.
- For the coverage period supplied with your vehicle.

Roadside Assistance covers:

- A flat tire change with a good spare (except vehicles supplied with a tire inflation kit).
- Battery jump start.
- Lock-out assistance (key replacement cost is the customer's responsibility).
- Fuel delivery — independent service contractors, if not prohibited by state, local or municipal law, shall deliver up to 2 gal (8 L) of gasoline or 5 gal (20 L) of diesel fuel to a disabled vehicle. Roadside Assistance limits fuel delivery service to two no-charge occurrences within a 12-month period.
- Winch out — available within 100 ft (30 m) of a paved or county maintained road, no recoveries.
- Towing — independent service contractors, if not prohibited by state, local or municipal law, shall tow Ford eligible vehicles to an authorized dealer within 35 mi (56 km) of the disablement location or to the nearest authorized dealer. If a member requests a tow to an authorized dealer that is more than 35 mi (56 km) from the disablement location, the member shall be responsible for any mileage costs in excess of 35 mi (56 km).
- Roadside Assistance includes up to $200 for a towed trailer if the disabled eligible vehicle requires service at the nearest authorized dealer. If the towing vehicle is operational but the trailer is not, then the trailer does not qualify for any roadside services.

Vehicles Sold in the United States: Using Roadside Assistance

Complete the roadside assistance identification card and place it in your wallet for quick reference. This card is in the Owner's Manual kit.

United States vehicle customers who require Roadside Assistance, call 1-800-241-3673.

If you need to arrange roadside assistance for yourself, Ford Motor Company reimburses a reasonable amount for towing to the nearest dealership within 35 mi (56 km). To obtain reimbursement information, United States vehicle customers call 1-800-241-3673. Customers need to submit their original receipts.

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Vehicles Sold in Canada: Getting Roadside Assistance

To fully assist you should you have a vehicle concern, Ford Motor Company of Canada, Limited offers a complimentary roadside assistance program. This program is eligible within Canada or the continental United States.

The service is available 24 hours a day, seven days a week.

This program is separate from the New Vehicle Limited Warranty, but the coverage is concurrent with the powertrain coverage period of your vehicle. Canadian roadside coverage and benefits may differ from the U.S. coverage.

If you require more information, please call us in Canada at 1-800-665-2006, or visit our website at www.ford.ca.

HAZARD FLASHERS

Note: *The hazard flashers operate when the ignition is in any position, or if the key is not in the ignition. If used when the vehicle is not running, the battery loses charge. As a result, there may be insufficient power to restart your vehicle.*

The flasher control is on the instrument panel. Use your hazard flashers when your vehicle is creating a safety hazard for other motorists.

- Press the flasher control and all front and rear direction indicators flash.
- Press the button again to switch them off.

FUEL SHUTOFF

WARNING: If your vehicle has been involved in a crash, have the fuel system checked. Failure to follow this instruction could result in fire, personal injury or death.

Note: *When you try to restart your vehicle after a fuel shutoff, the vehicle makes sure that various systems are safe to restart. Once the vehicle determines the systems are safe, then the vehicle allows you to restart.*

Note: *In the event that your vehicle does not restart after your third attempt, contact a qualified technician.*

The fuel pump shutoff stops the flow of fuel to the engine in the event of a moderate to severe crash. Not every impact causes a shutoff.

Should your vehicle shut off after a crash, you may restart your vehicle.

If your vehicle has a key system:

1. Switch off the ignition.
2. Switch to start position.
3. Switch off the ignition.
4. Switch on the ignition to re-enable the fuel pump.
5. If the vehicle does not start, repeat steps 1 through 4.

If your vehicle has a push button start system:

1. Press ***START/STOP*** to switch off your vehicle.
2. Press the brake pedal and ***START/STOP*** to switch on your vehicle.

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3. Remove your foot from the brake pedal and press ***START/STOP*** to switch off your vehicle.
4. You can attempt to start the vehicle by pressing the brake pedal and ***START/STOP***, or press ***START/STOP*** without pressing the brake pedal.
5. If the vehicle does not start, repeat steps 1 through 4.

JUMP STARTING THE VEHICLE

WARNING: Batteries normally produce explosive gases which can cause personal injury. Therefore, do not allow flames, sparks or lighted substances to come near the battery. When working near the battery, always shield your face and protect your eyes. Always provide correct ventilation.

WARNING: Keep batteries out of reach of children. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Shield your eyes when working near the battery to protect against possible splashing of acid solution. In case of acid contact with skin or eyes, flush immediately with water for a minimum of 15 minutes and get prompt medical attention. If acid is swallowed, call a physician immediately.

WARNING: Use only adequately sized cables with insulated clamps.

Preparing Your Vehicle

Do not attempt to push-start your automatic transmission vehicle.

Note: *Attempting to push-start a vehicle with an automatic transmission may cause transmission damage.*

Note: *Use only a 12-volt supply to start your vehicle.*

Note: *Do not disconnect the battery of the disabled vehicle as this could damage the vehicle electrical system.*

Park the booster vehicle close to the hood of the disabled vehicle, making sure the two vehicles do not touch.

Connecting the Jumper Cables

WARNING: Do not attach the cables to fuel lines, engine rocker covers, the intake manifold or electrical components as grounding points. Stay clear of moving parts. To avoid reverse polarity connections, make sure that you correctly identify the positive (+) and negative (-) terminals on both the disabled and booster vehicles before connecting the cables.

WARNING: Do not attach the end of the positive cable to the studs or L-shaped eyelet located above the positive (+) terminal of your vehicle's battery. High current may flow through and cause damage to the fuses.

WARNING: Do not connect the end of the second cable to the negative (-) terminal of the battery to be jumped. A spark may cause an explosion of the gases that surround the battery.

Note: *In the illustration, the bottom vehicle represents the booster vehicle.*

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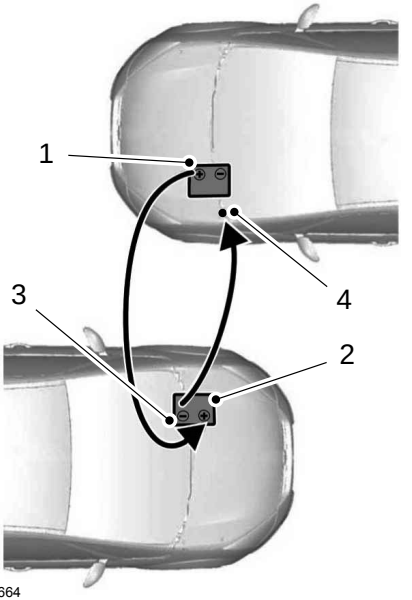

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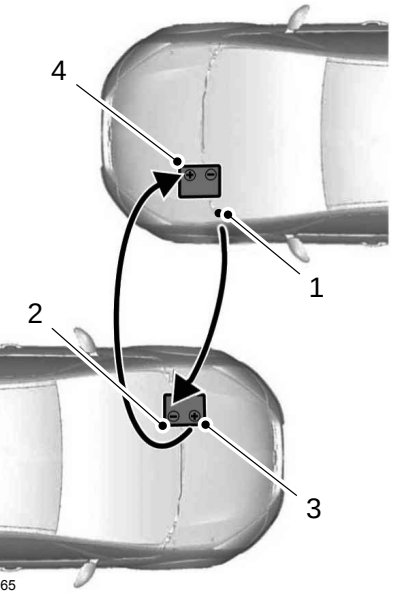
1. Connect the positive (+) jumper cable to the positive (+) terminal of the discharged battery.
2. Connect the other end of the positive (+) cable to the positive (+) terminal of the booster vehicle battery.
3. Connect the negative (-) cable to the negative (-) terminal of the booster vehicle battery.
4. Make the final connection of the negative (-) cable to an exposed metal part of the stalled vehicle's engine, away from the battery and the fuel injection system, or connect the negative (-) cable to a ground connection point if available.

Jump Starting

1. Start the engine of the booster vehicle and rev the engine moderately, or press the accelerator gently to keep your engine speed between 2000 and 3000 RPM, as shown in your tachometer.
2. Start the engine of the disabled vehicle.
3. Once the disabled vehicle has been started, run both vehicle engines for an additional three minutes before disconnecting the jumper cables.

Removing the Jumper Cables

Remove the jumper cables in the reverse order that they were connected.



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1. Remove the negative (-) jumper cable from the disabled vehicle.

2. Remove the jumper cable on the negative (-) terminal of the booster vehicle battery.
3. Remove the jumper cable from the positive (+) terminal of the booster vehicle battery.
4. Remove the jumper cable from the positive (+) terminal of the disabled vehicle battery.
5. Allow the engine to idle for at least one minute.

POST-CRASH ALERT SYSTEM

The system flashes the direction indicators and sounds the horn (intermittently) in the event of a serious impact that deploys an airbag (front, side, side curtain or Safety Canopy) or the seatbelt pretensioners.

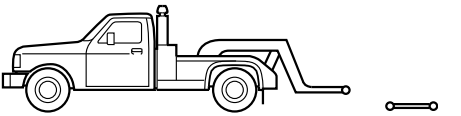
The horn and indicators turn off when:

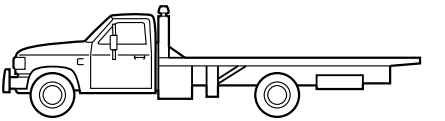
- You press the hazard control button.
- You press the panic button on the remote entry transmitter (if equipped).
- Your vehicle runs out of power.
- Sounding of the horn is only enabled in specific markets.

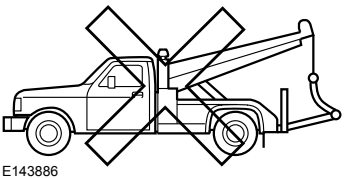
TRANSPORTING THE VEHICLE

WARNING: Block the wheels to help prevent the vehicle from moving.

WARNING: Unexpected and possibly sudden vehicle movement may occur if you do not take these precautions.







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If you need to tow your vehicle, contact a professional towing service or, if you are a member of a roadside assistance program, your roadside assistance service provider.

We recommend the use of a wheel lift and dollies or flatbed equipment to tow your vehicle. Do not tow with a slingbelt. We do not approve a slingbelt towing procedure. If you tow your vehicle incorrectly, or by any other means, vehicle damage may occur.

We produce a towing manual for all authorized tow truck operators. Have your tow truck operator refer to this manual for proper hook-up and towing procedures for your vehicle.

It is acceptable to have your two-wheel drive vehicle towed with the front wheels on the ground (without dollies) and the rear wheels off the ground.

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We recommend towing a four-wheel drive vehicle with all wheels off the ground, such as using a wheel lift and dollies or flatbed equipment. However, it is acceptable to use a wheel lift to raise the rear of your vehicle so long as, depending on vehicle configuration, you perform the following before towing:

- If your vehicle has an electronic shift-on-the-fly transfer case, make sure you switch the four-wheel drive control to the **2H** position before towing.

Note: *Towing an electronic shift-on-the-fly four-wheel drive vehicle with the front wheels on the ground without disengaging the front hubs may cause damage to the automatic transmission.*

Note: *Towing a two-wheel drive vehicle or an electronic shift-on-the-fly four-wheel drive vehicle with the rear wheels on the ground for more than 50 mi (80 km) or faster than 35 mph (56 km/h) may cause damage to the automatic transmission.*

TOWING POINTS

WARNING: Using recovery hooks is dangerous and should only be done by a person familiar with proper vehicle recovery safety practices. Improper use of recovery hooks may cause hook failure or separation from the vehicle and could result in serious injury or death.

WARNING: Always slowly remove the slack from the recovery strap prior to pulling. Failure to do so can introduce significantly higher loads which can cause the recovery hooks to break off, or the recovery strap to fail which can cause serious injury or death.

WARNING: Never link two straps together with a clevis pin. These heavy metal objects could become projectiles if the strap breaks and can cause serious injury or death.

Your vehicle comes equipped with frame-mounted front recovery hooks. These hooks should never have a load applied to them greater than the gross vehicle weight rating of your vehicle.

Before using recovery hooks:

- Make sure all attaching points are secure and capable of withstanding the applied load.
- Never use chains, cables or tow straps with metal hook ends.
- Only use recovery straps that have a minimum breaking strength two to three times the gross vehicle weight of the stuck vehicle.
- Make sure the recovery strap is in good condition and free of visible cuts, tears or damage.
- Use a damper device such as a tarp, heavy blanket or piece of carpet draped over the recovery strap to help absorb the energy in the event the strap breaks.
- Make sure the stuck vehicle is not loaded heavier than its gross vehicle weight rating specified on the certification label.
- Always align the tow vehicle and stuck vehicle in a straight line (within 10 degrees).
- Keep bystanders to the **sides** of the vehicle, at a distance of at least twice the length of the recovery strap. This helps avoid injury from the hazard of a recovery hook or strap breaking, or a vehicle lurching into their path.

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GETTING THE SERVICES YOU NEED

Warranty repairs to your vehicle must be performed by an authorized dealer. While any authorized dealer handling your vehicle line will provide warranty service, we recommend you return to your selling authorized dealer who wants to ensure your continued satisfaction.

Please note that certain warranty repairs require special training and equipment, so not all authorized dealers are authorized to perform all warranty repairs. This means that, depending on the warranty repair needed, you may have to take your vehicle to another authorized dealer.

A reasonable time must be allowed to perform a repair after taking your vehicle to the authorized dealer. Repairs will be made using Ford or Motorcraft® parts, or remanufactured or other parts that are authorized by Ford.

Away From Home

If you are away from home when your vehicle needs service, contact the Ford Customer Relationship Center or use the online resources listed below to find the nearest authorized dealer.

In the United States:

Mailing address

Ford Motor Company
Customer Relationship Center
P.O. Box 6248
Dearborn, MI 48126

Telephone

1-800-392-3673 (FORD)
(TDD for the hearing impaired: 1-800-232-5952)
If your vehicle is configured as a motorhome please call 1-800-444-3311 for support.

Additional information and resources are available online:

Website
www.owner.ford.com

These are some of the items that can be found online:

- U.S. dealer locator by Dealer Name, City/State or Zip Code.
- Owner Manuals.
- Maintenance Schedules.
- Recalls.
- Ford Extended Service Plans.
- Ford Genuine Accessories.
- Service specials and promotions.

In Canada:

Mailing address

Customer Relationship Centre
Ford Motor Company of Canada, Limited
P.O. Box 2000
Oakville, Ontario L6K 0C8

Telephone

1-800-565-3673 (FORD)

Website
www.ford.ca

Twitter

@FordServiceCA (English Canada)
@FordServiceQC (Quebec)

Additional Assistance

If you have questions or concerns, or are unsatisfied with the service you are receiving, follow these steps:

1. Contact your Sales Representative or Service Advisor at your selling or servicing authorized dealer.

2. If your inquiry or concern remains unresolved, contact the Sales Manager, Service Manager or Customer Relations Manager.
3. If you require assistance or clarification on Ford Motor Company policies, please contact the Ford Customer Relationship Center.

In order to help us serve you better, please have the following information available when contacting a Customer Relationship Center:

- Vehicle Identification Number.
- Your telephone number (home and business).
- The name of the authorized dealer and city where located.
- The vehicle's current odometer reading.

In some states within the United States, you must directly notify Ford in writing before pursuing remedies under your state's warranty laws, and Ford is also allowed a final repair attempt.

Additionally, in some states within the United States, a consumer has the option of submitting a warranty dispute to the BBB Auto Line before taking action under the Magnuson-Moss Warranty Act, or to the extent allowed by state law, before pursuing replacement or repurchase remedies provided by certain state laws. This dispute handling procedure is not required prior to enforcing state created rights or other rights which are independent of the Magnuson-Moss Warranty Act or state replacement or repurchase laws.

IN CALIFORNIA (U.S. ONLY)

California Civil Code Section 1793.2(d) requires that, if a manufacturer or its representative is unable to repair a motor vehicle to conform to the vehicle's applicable express warranty after a reasonable number of attempts, the manufacturer shall be required to either replace the vehicle with one substantially identical or repurchase the vehicle and reimburse the buyer in an amount equal to the actual price paid or payable by the consumer (less a reasonable allowance for consumer use). The consumer has the right to choose whether to receive a refund or replacement vehicle.

California Civil Code Section 1793.22(b) presumes that the manufacturer has had a reasonable number of attempts to conform the vehicle to its applicable express warranties if, within the first 18 months of ownership of a new vehicle or the first 18,000 mi (29,000 km), whichever occurs first:

1. Two or more repair attempts are made on the same non-conformity likely to cause death or serious bodily injury OR
2. Four or more repair attempts are made on the same nonconformity (a defect or condition that substantially impairs the use, value or safety of the vehicle) OR
3. The vehicle is out of service for repair of nonconformities for a total of more than 30 calendar days (not necessarily all at one time).

In the case of 1 or 2 above, the consumer must also notify the manufacturer of the need for the repair of the nonconformity at the following address:

Ford Motor Company
16800 Executive Plaza Drive
Mail Drop 3NE-B
Dearborn, MI 48126

You are required to submit your warranty dispute to BBB AUTO LINE before asserting in court any rights or remedies conferred by California Civil Code Section 1793.22(b). You are also required to use BBB AUTO LINE before exercising rights or seeking remedies created by the Federal Magnuson-Moss Warranty Act, 15 U.S.C. sec. 2301 et seq. If you choose to seek redress by pursuing rights and remedies not created by California Civil Code Section 1793.22(b) or the Magnuson-Moss Warranty Act, resort to BBB AUTO LINE is not required by those statutes.

THE BETTER BUSINESS BUREAU (BBB) AUTO LINE PROGRAM (U.S. ONLY)

Your satisfaction is important to Ford Motor Company and to your dealer. If a warranty concern has not been resolved using the three-step procedure outlined earlier in this chapter in the Getting the Services you need section, you may be eligible to participate in the BBB AUTO LINE program.

The BBB AUTO LINE program consists of two parts – mediation and arbitration. During mediation, a representative of the BBB will contact both you and Ford Motor Company to explore options for settlement of the claim. If an agreement is not reached during mediation or you do not want to participate in mediation, and if your claim is eligible, you may participate in the arbitration process. An arbitration hearing will be scheduled so that you can present your case in an informal setting before an impartial person. The arbitrator will consider the testimony provided and make a decision after the hearing.

Disputes submitted to the BBB AUTO LINE program are usually decided within forty days after you file your claim with the BBB. You are not bound by the decision, and may reject the decision and proceed to court where all findings of the BBB Auto Line dispute, and decision, are admissible in the court action. Should you choose to accept the BBB AUTO LINE decision, Ford is then bound by the decision, and must comply with the decision within 30 days of receipt of your acceptance letter.

BBB AUTO LINE Application: Using the information provided below, please call or write to request a program application. You will be asked for your name and address, general information about your new vehicle, information about your warranty concerns, and any steps you have already taken to try to resolve them. A Customer Claim Form will be mailed that will need to be completed, signed and returned to the BBB along with proof of ownership. Upon receipt, the BBB will review the claim for eligibility under the Program Summary Guidelines.

You can get more information by calling BBB AUTO LINE at 1-800-955-5100, or writing to:

BBB AUTO LINE
3033 Wilson Boulevard, Suite 600
Arlington, Virginia 22201

BBB AUTO LINE applications can also be requested by calling the Ford Motor Company Customer Relationship Center at 1-800-392-3673.

For additional information refer to the Better Business Bureau website.

Note: *Ford Motor Company reserves the right to change eligibility limitations, modify procedures, or to discontinue this process at any time without notice and without obligation.*

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UTILIZING THE MEDIATION/ARBITRATION PROGRAM (CANADA ONLY)

For vehicles delivered to authorized Canadian dealers. In those cases where you continue to feel that the efforts by Ford of Canada and the authorized dealer to resolve a factory-related vehicle service concern have been unsatisfactory, Ford of Canada participates in an impartial third party mediation/arbitration program administered by the Canadian Motor Vehicle Arbitration Plan (CAMVAP).

The CAMVAP program is a straight forward and relatively speedy alternative to resolve a disagreement when all other efforts to produce a settlement have failed. This procedure is without cost to you and is designed to eliminate the need for lengthy and expensive legal proceedings.

In the CAMVAP program, impartial third-party arbitrators conduct hearings at mutually convenient times and places in an informal environment. These impartial arbitrators review the positions of the parties, make decisions and, when appropriate, render awards to resolve disputes. CAMVAP decisions are fast, fair, and final as the arbitrator's award is binding on both you and Ford of Canada.

CAMVAP services are available in all Canadian territories and provinces. For more information, without charge or obligation, call your CAMVAP Provincial Administrator directly at 1-800-207-0685 or visit www.camvap.ca.

GETTING ASSISTANCE OUTSIDE THE U.S. AND CANADA

Before exporting your vehicle to a foreign country, contact the appropriate foreign embassy or consulate. These officials can inform you of local vehicle registration regulations and where to find unleaded fuel or petrol/gas engines or the proper sulfur fuel for diesel engines.

If you cannot find the proper fuel recommended for your vehicle, contact our Customer Relationship Center.

The use of improper fuels in your vehicle without proper conversion may damage the effectiveness of your emission control system and may cause engine knocking or serious engine damage. Ford Motor Company or Ford of Canada is not responsible for any damage caused by use of improper fuel. Using improper fuels may also result in difficulty importing your vehicle back into the United States.

If your vehicle must be serviced while you are traveling or living in Asia-Pacific Region, Sub-Saharan Africa, U.S. Virgin Islands and/or Puerto Rico, Central America, the Caribbean, and Israel and the Middle East, contact the nearest authorized dealer. If the authorized dealer cannot help you, contact the corresponding Ford Customer Assistance Center:

FORD MOTOR COMPANY

Customer Relationship Centers in:

Customer Relationship Center	Phone	Fax	E-mail
Asia Pacific	N/A	N/A	apemcrc@ford.com
Caribbean and Central America	+1 313 594 4857	-	expcac@ford.com
Middle East	Ford 80004443673	971 4 3327 266	menacac@ford.com
	Lincoln 80004441067		
	UAE 80004441066		
	Saudi Arabia 8008443673		
	Mobily and Zain cell phone users in Saudi 800850078		
	Kuwait 22280384		
North Africa	N/A	N/A	nafcrc@ford.com
Puerto Rico and U.S. Virgin Islands	+1-800-841-3673	N/A	prcac@ford.com
Sub-Saharan Africa	N/A	N/A	ssacrc@ford.com
South Korea	+82-02-1600-6003	N/A	infokr1@ford.com or infokr@lincoln.com

If you buy your vehicle in North America and then relocate to any of the above locations, register your vehicle identification number (VIN) and new address with Ford Global Trade Services by emailing, expcso@ford.com.

If you are in another foreign country, contact the nearest authorized dealer. In the event your inquiry is unresolved, communicate your concern with the dealership's Sales Manager, Service Manager or Customer Relations Manager. If you require additional assistance or clarification, please contact the respective Customer Relationship Center as previously listed.

Customers in the U.S. should call 1-800-392-3673.

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ORDERING ADDITIONAL OWNER'S LITERATURE

To order the publications in this portfolio, contact Helm, Incorporated at:

HELM, INCORPORATED
47911 Halyard Drive
Plymouth, Michigan 48170
Attention: Customer Service

Or to order a free publication catalog, call toll free: 1-800-782-4356

Monday-Friday 8:00 a.m. - 6:00 p.m. EST

Helm, Incorporated can also be reached by their website:

www.helminc.com

(Items in this catalog may be purchased by credit card, check or money order.)

Obtaining a French Owner's Manual

French Owner's Manual can be obtained from your authorized dealer or by contacting Helm, Incorporated using the contact information listed previously in this section.

REPORTING SAFETY DEFECTS (U.S. ONLY)

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Ford Motor Company.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Ford Motor Company.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to *http://www.safercar.gov*; or write to:

Administrator

1200 New Jersey Avenue, Southeast

Washington, D.C. 20590

You can also obtain other information about motor vehicle safety from *http://www.safercar.gov* .

REPORTING SAFETY DEFECTS (CANADA ONLY)

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform Transport Canada and Ford of Canada.

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Transport Canada Contact Information	
Website	http://www.tc.gc.ca/eng/motorvehiclesafety/reporting-defects-motor-vehicles.html (English)
Website	http://www.tc.gc.ca/fra/securiteautomobile/signaler-defauts-vehicules-automobiles.html (French)
Phone	1-800-333-0510

Ford of Canada Contact Information	
Website	www.ford.ca
Phone	1-800-565-3673

FUSE SPECIFICATION CHART

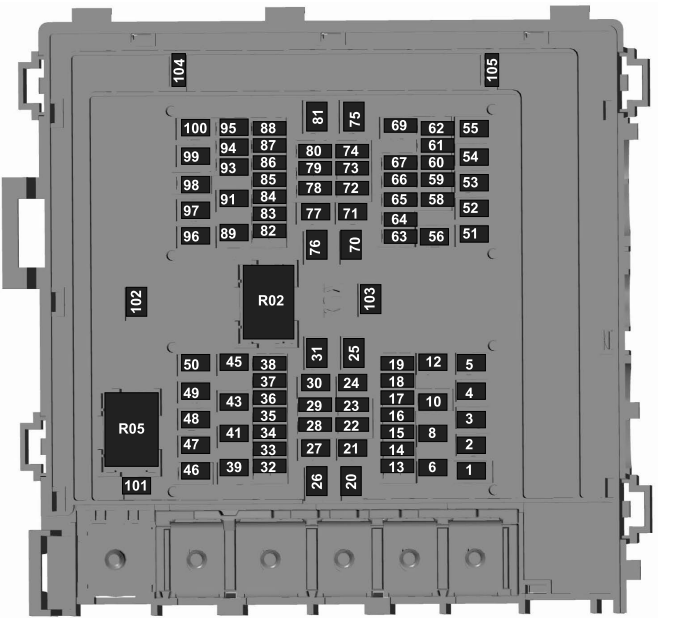
Power Distribution Box

WARNING: Always disconnect the battery before servicing high current fuses.

WARNING: To reduce risk of electrical shock, always replace the cover to the power distribution box before reconnecting the battery or refilling fluid reservoirs.

The power distribution box is in the engine compartment. It has high-current fuses that protect your vehicle's main electrical systems from overloads.

If you disconnect and reconnect the battery, you will need to reset some features. See **Changing the 12V Battery** (page 373).



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Fuse Number	Fuse Rating	Protected Component
1	25A[1]	Horn.
2	50A[2]	Electric fan 1.
3	30A[2]	Windshield wiper motor.
4	60A[2]	Body control module.
5	30A[2]	Starter relay.
6	20A[2]	Power point 1.
8	20A[2]	Power point 2.
10	5A[1]	Rain sensor.
12	15A[2]	Upfitter 1 relay (Raptor).
13	10A[1]	4x4 run/start. Adaptive cruise control run/start module.
14	—	Not used (base).
	15A[1]	Not used (spare) (Raptor).
15	7.5A[1]	Front view camera. Voltage quality module.
	15A[1]	Voltage quality module (Raptor).
16	10A[1]	Powertrain control module. Transmission control module run/start.
17	10A[1]	Anti-lock brakes run/start.
18	10A[1]	Electric power steering run/start.
19	5A[1]	Upfitter 5 relay (Raptor).
20	40A[2]	Blower motor.
21	30A[2]	Passenger seat motors.

Fuse Number	Fuse Rating	Protected Component
22	20A[1]	Radio amplifier.
23	10A[1]	Alt A sensor.
24	30A[2]	Trailer brake control module.
25	50A[2]	Body control module 1.
26	50A[2]	Electric fan (Gas).
27	30A[2]	Driver seat motors/memory module.
28	15A[1]	Heated seat.
29	10A[1]	4x4 solenoid.
30	25A[2]	Trailer tow battery charge.
31	—	Not used.
32	10A[1]	A/C clutch.
33	—	Not used.
34	10A[1]	Vehicle power 5 (Diesel).
35	20A[1]	Vehicle power 4 (Gas).
	15A[1]	Vehicle power 4 (Diesel).
36	10A[1]	Vehicle power 3.
37	25A[1]	Vehicle power 2 (Gas).
	15A[1]	Vehicle power 2 (Diesel).
38	25A[1]	Vehicle power 1 (Gas).
	20A[1]	Vehicle power 1 (Diesel).
39	—	Not used.

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Fuse Number	Fuse Rating	Protected Component
41	30A[2]	Body control module voltage quality module feed.
43	20A[2]	Trailer tow lamps module.
45	—	Not used.
46	10A[1]	Steering column lock.
47	50A[2]	Powertrain control heater 3 (Diesel).
48	30A[2]	Fuel filter heater (Diesel).
49	—	Not used.
50	30A[2]	Fuel pump.
51	20A[2]	Power point 3.
52	50A[2]	Powertrain control heater 2 (Diesel).
53	25A[2]	Trailer tow park lamps.
54	—	Not used.
55	15A[2]	Upfitter 2 relay (Raptor).
56	—	Not used.
58	5A[1]	USB smart charger.
59	—	Not used.
60	—	Not used.
61	—	Not used (base).
	15A[1]	Not used (spare) (Raptor).
62	5A[1]	Upfitter 6 relay (Raptor).
63	25A[1]	4x4.
64	15A[1]	E-locker.

Fuse Number	Fuse Rating	Protected Component
65	—	Not used.
66	—	Not used.
67	—	Not used.
69	—	Not used.
70	40A[2]	Anti-lock brake system (ABS) valves. Electric parking brake.
71	25A[2]	4x4.
72	—	Not used.
73	—	Not used.
74	10A[1]	Trailer tow backup lamps.
75	—	Not used.
76	40A[2]	Body control module 2.
77	30A[2]	Climate controlled seat.
78	10A[1]	Spot light module.
79	—	Not used.
80	10A[1]	Heated windshield wiper.
		Upfitter 4 relay (Raptor).
81	—	Not used.
82	30A[1]	Transmission fluid pump.
	5A[1]	Powertrain control module (Diesel).
83	15A[1]	Transmission control module.
84	—	Not used.
85	—	Not used.
86	—	Not used.
87	—	Not used.

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Fuse Number	Fuse Rating	Protected Component
88	10A[1]	Multi-contour seats relay.
		Upfitter 3 relay (Raptor).
89	30A[2]	Power running boards.
91	—	Not used.
93	15A[1]	Heated mirrors.
94	15A[1]	Rear heated seat module (Raptor, Diesel).
95	—	Not used (base).
	15A[1]	Not used (spare) (Raptor).
96	—	Not used.
97	40A[2]	Electric fan (Raptor).
	50A[2]	Powertrain control heater 1 (Diesel).
98	15A[2]	10R transmission module r/s. 3.3L transmission fluid pump.
99	40A[2]	Heated rear window.
100	25A[2]	Diesel exhaust fluid (DEF) heater relay (Diesel).
101	25A[2]	Electric fan (base).
102	30A[2]	Power sliding back window.
103	20A[2]	Trailer tow stop-turn relay fuse.
104	15A[1]	Snowplow switch. Rear heated seats (base).
105	10A[1]	Telescoping mirror.

[1] Micro 2 fuse.
[2] Slotted M case fuse.
Note: *Spare fuse amperage may vary.*

Relay Number	Fuse Rating	Protected Component
R02	—	Powertrain control module relay.
R05	—	Electric fan relay.

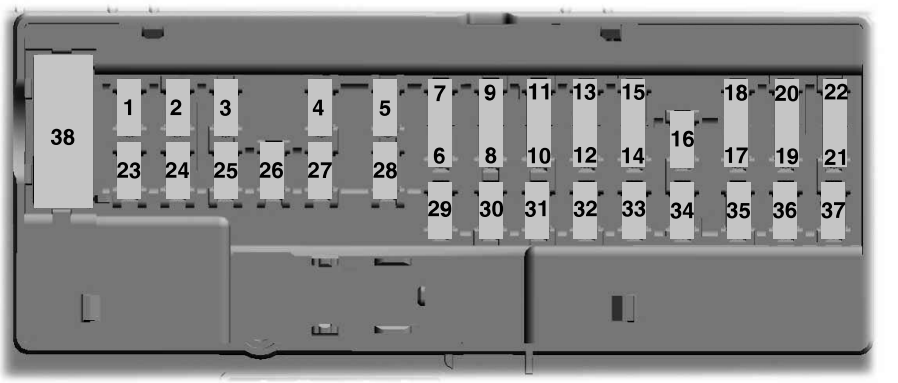
Passenger Compartment Fuse Panel

The fuse panel is in the right-hand side of the passenger footwell behind a trim panel.

To remove the trim panel, pull it toward you and swing it away from the side. To reinstall it, line up the tabs with the grooves on the panel, and then push it shut.

To remove the fuse panel cover, press in the tabs on both sides of the cover, and then pull it off.

To reinstall the fuse panel cover, place the top part of the cover on the fuse panel and push the bottom part until it latches. Gently pull on the cover to make sure it has latched properly.



E145984

Fuse Number	Fuse Rating	Protected Component
1	—	Not used.
2	7.5A	Memory module logic. Memory seat switches. Lumbar motor.
3	20A	Driver door lock motor.

Fuse Number	Fuse Rating	Protected Component
4	5A	Trailer brake control.
5	20A	Not used (spare).
6	10A	Not used (spare).
7	10A	Not used (spare).
8	10A	Not used (spare).
9	10A	Extended power module (base).
10	5A	Embedded modem module.
11	5A	Combined sensor module.
12	7.5A	Climate head module. Smart datalink connector.
13	7.5A	Cluster. Steering column control module.
14	10A	Brake on/off switch.
15	10A	Smart datalink connector.
16	15A	Tailgate release.
17	5A	Heads up display. Terrain switch.
18	5A	Ignition switch and passive-entry passive-start start stop switch. Key inhibit solenoid.
19	7.5A	Extended power module (base).
	7.5A	Restraint control module (Raptor).
20	7.5A	Not used (spare).
21	5A	Heads up display. In car temperature with humidity sensor.
22	5A	Passenger occupant detection (Raptor).
23	10A	Power driven rear glass switch. Inverter. Driver side window. Moonroof. Vista roof.

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Fuse Number	Fuse Rating	Protected Component
24	20A	Central lock/unlock.
25	30A	Driver door control module.
26	30A	Passenger door control module.
27	30A	Vista roof. Moonroof.
28	20A	Not used (spare).
29	30A	Not used (spare).
30	30A	Not used (spare).
31	15A	Adjustable pedal switch and motor.
32	10A	Multi-function display. SYNC. Radio frequency receiver.
33	20A	Radio.
34	30A	Run-start relay.
35	5A	Selectable drive mode switch. Upfitter switches (Raptor).
36	15A	360 camera module. Heated steering wheel module. Rear-view mirror. Rear heated seats. Lane departure warning module. Automatic high beam module. Image processing module A.
37	20A	Not used (spare).
38	30A Circuit breaker.	Rear window switches and motors.

Note: *Spare fuse amperage may vary.*

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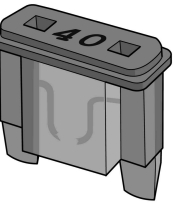
CHANGING A FUSE

Fuses

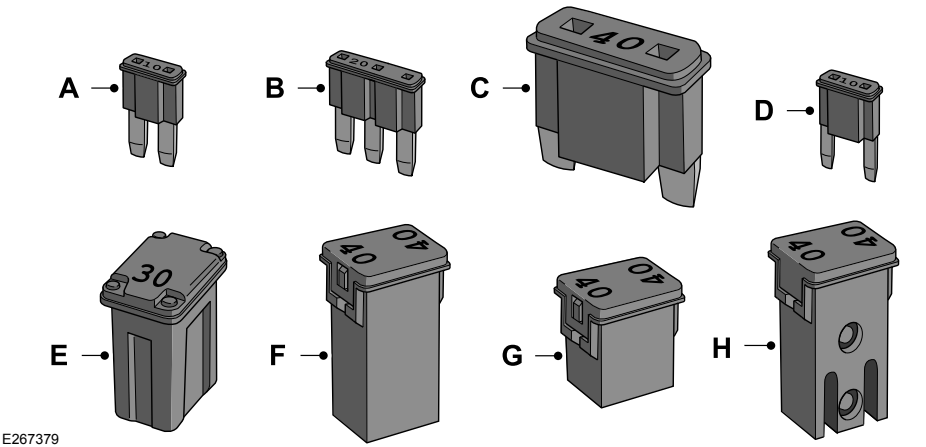
WARNING: Always replace a fuse with one that has the specified amperage rating. Using a fuse with a higher amperage rating can cause severe wire damage and could start a fire.



E217331

If electrical components in the vehicle are not working, a fuse may have blown. Blown fuses are identified by a broken wire within the fuse. Check the appropriate fuses before replacing any electrical components.

Fuse Types



E267379

A Micro 2.
B Micro 3.
C Maxi.
D Mini.
E M Case.
F J Case.

G J Case Low Profile.
H Slotted M Case.

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GENERAL INFORMATION

Have your vehicle serviced regularly to help maintain its roadworthiness and resale value. There is a large network of authorized dealers that are there to help you with their professional servicing expertise. We believe that their specially trained technicians are best qualified to service your vehicle properly and expertly. They are supported by a wide range of highly specialized tools developed specifically for servicing your vehicle.

If your vehicle requires professional service, an authorized dealer can provide the necessary parts and service. Check your warranty information to find out which parts and services are covered.

Use only recommended fuels, lubricants, fluids and service parts conforming to specifications. Motorcraft® parts are designed and built to provide the best performance in your vehicle.

Precautions

- Do not work on a hot engine.
- Make sure that nothing gets caught in moving parts.
- Do not work on a vehicle with the engine running in an enclosed space, unless you are sure you have enough ventilation.
- Keep all open flames and other burning material (such as cigarettes) away from the battery and all fuel related parts.

Working with the Engine Off

1. Set the parking brake and shift the transmission to park (P).
2. Switch off the engine.
3. Block the wheels.

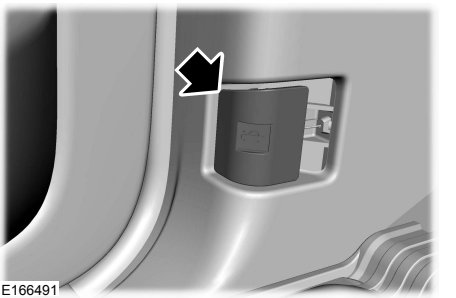
Working with the Engine On

WARNING: To reduce the risk of vehicle damage and personal burn injuries, do not start your engine with the air cleaner removed and do not remove it while the engine is running.

1. Set the parking brake and shift the transmission to park (P).
2. Block the wheels.

OPENING AND CLOSING THE HOOD

1. Inside the vehicle, pull the hood release handle located under the left hand side of the instrument panel.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2. Go to the front of your vehicle and locate the secondary release lever under the front of the hood near the center of your vehicle.

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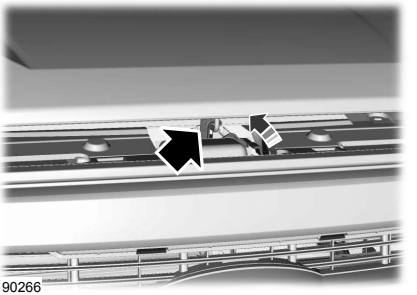
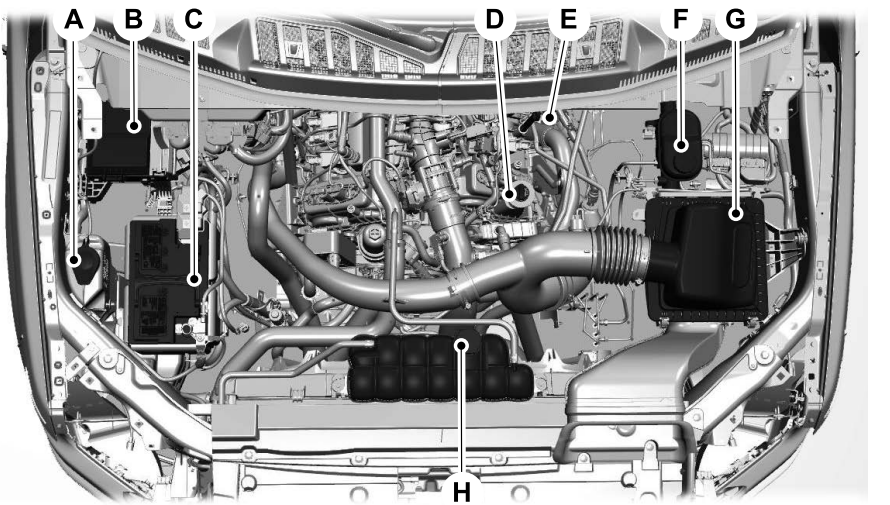

E190266

3. Raise the hood until the lift cylinders hold it open.
4. To close, lower the hood and make sure that it is closed properly and fully latched.

UNDER HOOD OVERVIEW - 2.7L ECOBOOST™



A. Windshield washer fluid reservoir. See **Washer Fluid Check** (page 372).
B. Power distribution box. See **Fuses** (page 346).
C. Battery. See **Changing the 12V Battery** (page 373).
D. Engine oil filler cap. See **Engine Oil Check** (page 363).
E. Engine oil dipstick. See **Engine Oil Dipstick** (page 363).

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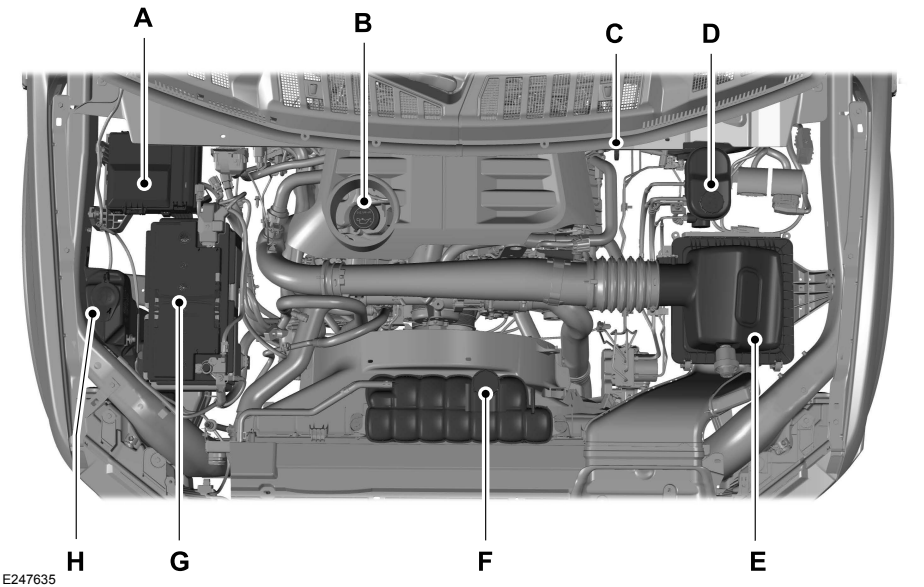
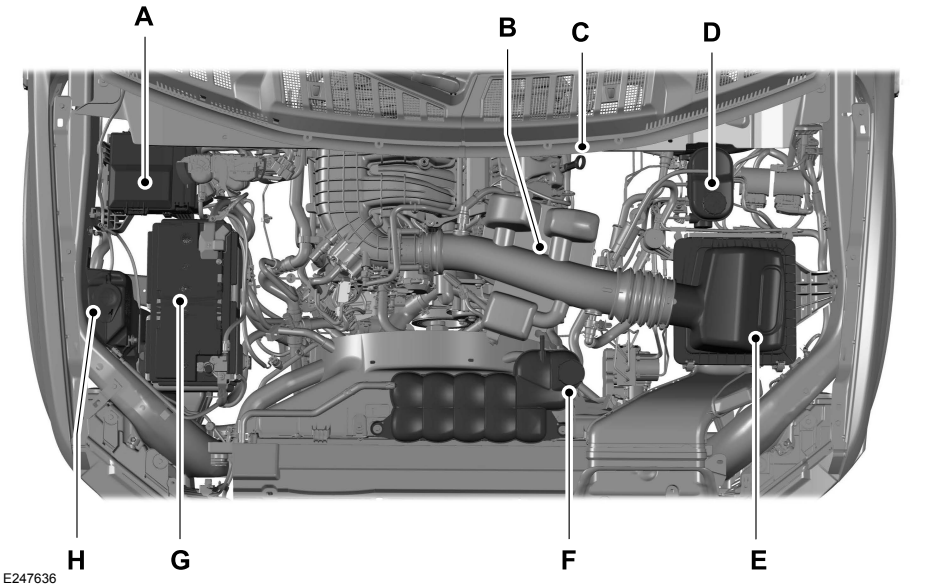
F. Brake fluid reservoir. See **Brake Fluid Check** (page 371).
G. Air filter assembly. See **Changing the Engine Air Filter** (page 381).
H. Engine coolant reservoir. See **Engine Coolant Check** (page 366).

UNDER HOOD OVERVIEW - 3.0L DIESEL



A. Power distribution box. See **Fuses** (page 346).
B. Engine oil filler cap. See **Engine Oil Check** (page 363).
C. Engine oil dipstick. See **Engine Oil Dipstick** (page 363).
D. Brake fluid reservoir. See **Brake Fluid Check** (page 371).
E. Air filter assembly. See **Changing the Engine Air Filter** (page 381).
F. Engine coolant reservoir. See **Engine Coolant Check** (page 366).
G. Battery. See **Changing the 12V Battery** (page 373).
H. Windshield washer fluid reservoir. See **Washer Fluid Check** (page 372).

UNDER HOOD OVERVIEW - 3.3L



A. Power distribution box. See **Fuses** (page 346).
B. Engine oil filler cap. See **Engine Oil Check** (page 363).
C. Engine oil dipstick. See **Engine Oil Dipstick** (page 363).
D. Brake fluid reservoir. See **Brake Fluid Check** (page 371).
E. Air filter assembly. See **Changing the Engine Air Filter** (page 381).
F. Engine coolant reservoir. See **Engine Coolant Check** (page 366).
G. Battery. See **Changing the 12V Battery** (page 373).
H. Windshield washer fluid reservoir. See **Washer Fluid Check** (page 372).

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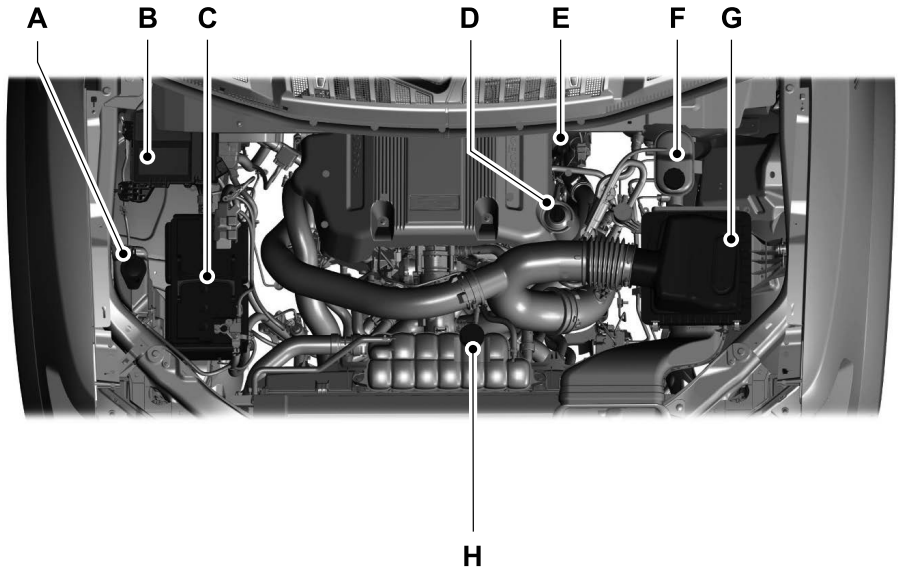
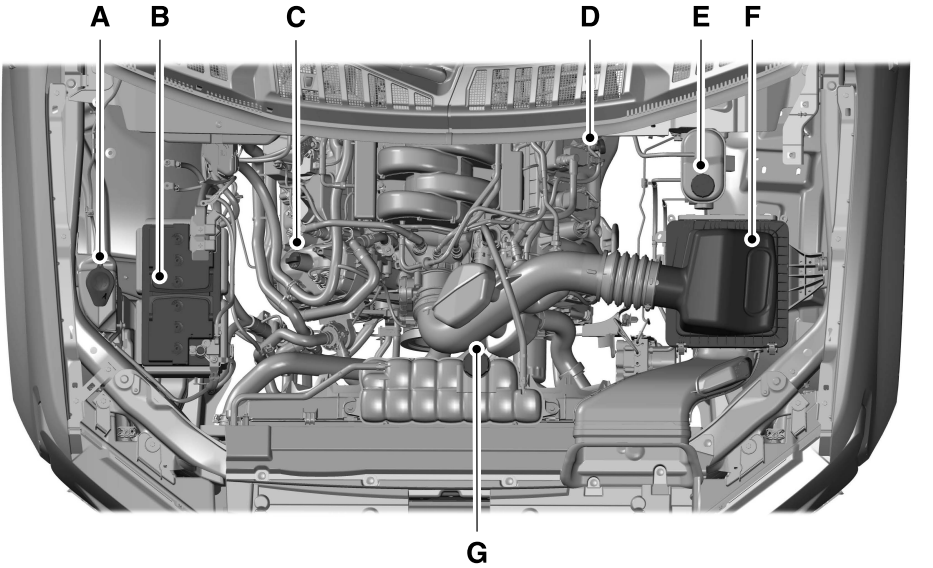
UNDER HOOD OVERVIEW - 3.5L ECOBOOST™



A. Windshield washer fluid reservoir. See **Washer Fluid Check** (page 372).
B. Power distribution box. See **Changing a Fuse** (page 355).
C. Battery. See **Changing the 12V Battery** (page 373).
D. Engine oil filler cap. See **Engine Oil Check** (page 363).
E. Engine oil dipstick. See **Engine Oil Dipstick** (page 363).
F. Brake fluid reservoir. See **Brake Fluid Check** (page 371).
G. Air filter. See **Changing the Engine Air Filter** (page 381).
H. Engine coolant reservoir. See **Engine Coolant Check** (page 366).

UNDER HOOD OVERVIEW - 5.0L



E251845

A. Windshield washer fluid reservoir. See **Washer Fluid Check** (page 372).
B. Battery. See **Changing the 12V Battery** (page 373).
C. Engine oil filler cap. See **Engine Oil Check** (page 363).
D. Engine oil dipstick. See **Engine Oil Dipstick** (page 363).
E. Brake fluid reservoir. See **Brake Fluid Check** (page 371).
F. Air filter assembly. See **Changing the Engine Air Filter** (page 381).
G. Engine coolant reservoir. See **Engine Coolant Check** (page 366).

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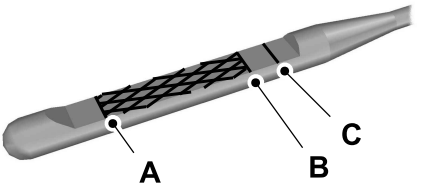
ENGINE OIL DIPSTICK - GASOLINE

E161560

A MIN
B MAX

ENGINE OIL DIPSTICK - DIESEL



E249448

A. MIN
B. FULL
C. MAX

ENGINE OIL CHECK - GASOLINE

To check the engine oil level consistently and accurately, do the following:

1. Make sure the parking brake is on. Make sure the transmission is in park (P) or neutral (N).
2. Run the engine until it reaches normal operating temperature.
3. Make sure that your vehicle is on level ground.
4. Switch the engine off and wait 15 minutes for the oil to drain into the oil pan. Checking the engine oil level too soon after you switch the engine off may result in an inaccurate reading.
5. Open the hood. See **Opening and Closing the Hood** (page 357).
6. Remove the dipstick and wipe it with a clean, lint-free cloth. See **Under Hood Overview** (page 358).
7. Reinstall the dipstick and remove it again to check the oil level. See **Engine Oil Dipstick** (page 363).
8. Make sure that the oil level is between the maximum and minimum marks. If the oil level is at the minimum mark, add oil immediately. See **Capacities and Specifications** (page 435).
9. If the oil level is correct, replace the dipstick and make sure it is fully seated.

Note: *Do not remove the dipstick when the engine is running.*

Note: *If the oil level is between the maximum and minimum marks, the oil level is acceptable. Do not add oil.*

Note: *The oil consumption of new engines reaches its normal level after approximately 3,000 mi (5,000 km).*

Adding Engine Oil

WARNING: Do not remove the filler cap when the engine is running.

Do not use supplemental engine oil additives because they are unnecessary and could lead to engine damage that may not be covered by the vehicle Warranty.

E142732

Only use oils certified for gasoline engines by the American Petroleum Institute (API). An oil with this trademark symbol conforms to the current engine and emission system protection standards and fuel economy requirements of the International Lubricants Specification Advisory Committee (ILSAC).

To top up the engine oil level do the following:

1. Clean the area surrounding the engine oil filler cap before you remove it.
2. Remove the engine oil filler cap. See **Under Hood Overview** (page 358). Turn it counterclockwise and remove it.
3. Add engine oil that meets our specifications. See **Capacities and Specifications** (page 435). You may have to use a funnel to pour the engine oil into the opening.
4. Recheck the oil level.
5. If the oil level is correct, replace the dipstick and make sure it is fully seated.
6. Replace the engine oil filler cap. Turn it clockwise until you feel a strong resistance.

Note: *Do not add oil further than the maximum mark. Oil levels above the maximum mark may cause engine damage.*

Note: *Make sure you install the oil filler cap correctly.*

Note: *Soak up any spillage with an absorbent cloth immediately.*

ENGINE OIL CHECK - DIESEL

To check the engine oil level consistently and accurately, do the following:

1. Make sure that your vehicle is on level ground.
2. Run the engine until it reaches normal operating temperature.
3. Make sure the parking brake is on. Make sure the transmission is in park (P) or neutral (N).
4. Switch the engine off and wait 15 minutes for the oil to drain into the oil pan. Checking the engine oil level too soon after you switch the engine off may result in an inaccurate reading.
5. Open the hood. See **Opening and Closing the Hood** (page 357).
6. Remove the dipstick and wipe it with a clean, lint-free cloth. See **Under Hood Overview** (page 358).
7. Replace the dipstick and remove it again to check the oil level. See **Engine Oil Dipstick** (page 363).
8. Make sure that the oil level is between the full and minimum marks. If the oil level is at the minimum mark, add oil immediately. See **Capacities and Specifications** (page 435).
9. If the oil level is correct, replace the dipstick and make sure it is fully seated.

Note: *Do not remove the dipstick when the engine is running.*

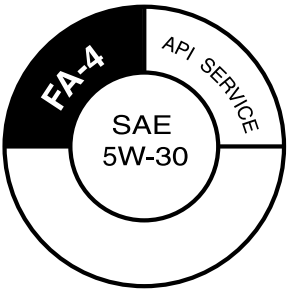
Note: *If the oil level is between the full and minimum marks, the oil level is acceptable. Do not add oil.*

Note: *The oil consumption of new engines reaches its normal level after approximately 3,000 mi (5,000 km).*

Adding Engine Oil

WARNING: Do not remove the filler cap when the engine is running.

Do not use supplemental engine oil additives because they are unnecessary and could lead to engine damage that may not be covered by the vehicle Warranty.



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The American Petroleum Institute (API) service symbol is used to identify the proper engine oil for your engine. The API service symbol will be displayed on the oil container you purchase. The API symbol displays the oil performance category in the top half of the symbol and the viscosity grade in the center of the symbol.

To top up the engine oil level do the following:

1. Clean the area surrounding the engine oil filler cap before you remove it.
2. Remove the engine oil filler cap.
3. Add engine oil that meets Ford specifications.
4. Recheck the oil level.
5. If the oil level is correct, replace the dipstick and make sure it is fully seated.
6. Replace the engine oil filler cap. Turn it clockwise until you feel a strong resistance.

Note: *Do not add oil further than the maximum mark. Oil levels above the maximum mark may cause engine damage.*

Note: *Make sure you install the oil filler cap correctly.*

Note: *Soak up any spillage with an absorbent cloth immediately.*

OIL CHANGE INDICATOR RESET

Use the information display controls on the steering wheel to reset the oil change indicator.

From the main menu scroll to:

Message	Action and description
Settings	Press the right arrow button, then from this menu scroll to the following message.
Convenience	Press the right arrow button, then from this menu scroll to the following message.
Oil Life Reset	Press the right arrow button, then from this menu scroll to the following message.
Hold OK to Reset	Press and hold the **OK** button until the instrument cluster displays the following message. Reset Successful

Message	Action and description
	When the oil change indicator resets the instrument cluster displays 100%. Remaining Life {00}%
	If the instrument cluster displays one of the following messages, repeat the process. Not Reset Reset Cancelled

ENGINE COOLANT CHECK

WARNING: Do not remove the coolant reservoir cap when the engine is on or the cooling system is hot. Wait 10 minutes for the cooling system to cool down. Cover the coolant reservoir cap with a thick cloth to prevent the possibility of scalding and slowly remove the cap. Failure to follow this instruction could result in personal injury.

WARNING: Do not put coolant in the windshield washer reservoir. If sprayed on the windshield, coolant could make it difficult to see through the windshield.

WARNING: To reduce the risk of personal injury, make sure the engine is cool before unscrewing the coolant pressure relief cap. The cooling system is under pressure. Steam and hot liquid can come out forcefully when you loosen the cap slightly.

WARNING: Do not add coolant further than the ***MAX*** mark.

When the engine is cold, check the concentration and level of the coolant at the intervals listed in the scheduled maintenance information. See **Scheduled Maintenance** (page 557).

Note: *Make sure that the coolant level is between the **MIN** and **MAX** marks on the coolant reservoir.*

Note: *Coolant expands when it is hot. The level may extend beyond the **MAX** mark.*

Maintain coolant concentration within 48% to 50%, which equates to a freeze point between -29ºF (-34ºC) and -35ºF (-37ºC). Coolant concentration should be checked using a refractometer. We do not recommend the use of hydrometers or coolant test strips for measuring coolant concentration.

Adding Coolant

WARNING: Do not add engine coolant when the engine is on or the cooling system is hot. Failure to follow this instruction could result in personal injury.

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WARNING: Do not remove the coolant reservoir cap when the engine is on or the cooling system is hot. Wait 10 minutes for the cooling system to cool down. Cover the coolant reservoir cap with a thick cloth to prevent the possibility of scalding and slowly remove the cap. Failure to follow this instruction could result in personal injury.

WARNING: Do not put coolant in the windshield washer reservoir. If sprayed on the windshield, coolant could make it difficult to see through the windshield.

Note: *Do not use stop leak pellets, cooling system sealants, or non-specified additives as they can cause damage to the engine cooling or heating systems. Resulting component damage may not be covered by the vehicle Warranty.*

Note: *Automotive fluids are not interchangeable.*

It is very important to use prediluted coolant approved to the correct specification in order to avoid plugging the small passageways in the engine cooling system. See **Capacities and Specifications** (page 426). Do not mix different colors or types of coolant in your vehicle. Mixing of engine coolants or using an incorrect coolant may harm the engine or cooling system components and may not be covered by the vehicle Warranty.

Note: *If prediluted coolant is not available, use the approved concentrated coolant diluting it to 50/50 with distilled water. See **Capacities and Specifications** (page 426). Using water that has not been deionised may contribute to deposit formation, corrosion and plugging of the small cooling system passageways.*

Note: *Coolants marketed for all makes and models may not be approved to our specifications and may cause damage to the cooling system. Resulting component damage may not be covered by the vehicle Warranty.*

If the coolant level is at or below the minimum mark, add prediluted coolant immediately.

To top up the coolant level do the following:

1. Unscrew the cap slowly. Any pressure escapes as you unscrew the cap.
2. Add prediluted coolant approved to the correct specification. See **Capacities and Specifications** (page 426).
3. Add enough prediluted coolant to reach the correct level.
4. Replace the coolant reservoir cap. Turn the cap clockwise until it contacts the hard stop.
5. Check the coolant level in the coolant reservoir the next few times you drive your vehicle. If necessary, add enough prediluted engine coolant to bring the coolant level to the correct level.

If you have to add more than 1.1 qt (1 L) of engine coolant per month, have your vehicle checked as soon as possible. Operating an engine with a low level of coolant can result in engine overheating and possible engine damage.

In case of emergency, you can add a large amount of water without engine coolant in order to reach a vehicle service location. In this instance, qualified personnel:

1. Must drain the cooling system.
2. Chemically clean the coolant system.
3. Refill with engine coolant as soon as possible.

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Water alone, without engine coolant, can cause engine damage from corrosion, overheating or freezing.

Do not use the following as a coolant substitute:

- Alcohol.
- Methanol.
- Brine.
- Any coolant mixed with alcohol or methanol antifreeze.

Alcohol and other liquids can cause engine damage from overheating or freezing.

Do not add extra inhibitors or additives to the coolant. These can be harmful and compromise the corrosion protection of the coolant.

Recycled Coolant

We do not recommend the use of recycled coolant as an approved recycling process is not yet available.

Note: *Dispose of used coolant in the appropriate manner.*

Follow your community's regulations and standards for recycling and disposing of automotive fluids.

Severe Climates

If you drive in extremely cold climates:

- It may be necessary to increase the coolant concentration above 50%.
- A coolant concentration of 60% provides improved freeze point protection. Coolant concentrations above 60% decrease the overheat protection characteristics of the coolant and may cause engine damage.

If you drive in extremely hot climates:

- You can decrease the coolant concentration to 40%.
- Coolant concentrations below 40% decrease the freeze and corrosion protection characteristics of the coolant and may cause engine damage.

Vehicles driven year-round in non-extreme climates should use prediluted coolant for optimum cooling system and engine protection.

Coolant Change

At specific mileage intervals, as listed in the scheduled maintenance information, the coolant should be changed. Add prediluted coolant approved to the correct specification. See **Capacities and Specifications** (page 426).

Fail-Safe Cooling

Fail-safe cooling allows you to temporarily drive your vehicle before any incremental component damage occurs. The fail-safe distance depends on ambient temperature, vehicle load and terrain.

How Fail-Safe Cooling Works

If the engine begins to overheat, the coolant temperature gauge moves toward the red zone:

A warning lamp illuminates and a message may appear in the information display.

If the engine reaches a preset over-temperature condition, the engine automatically switches to alternating cylinder operation. Each disabled cylinder acts as an air pump and cools the engine.

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When this occurs, your vehicle still operates, however:

- Engine power is limited.
- The air conditioning system turns off.

Continued operation increases the engine temperature, causing the engine to completely shut down. Your steering and braking effort increases in this situation.

When the engine temperature cools, you can re-start the engine. Have your vehicle checked as soon as possible to minimize engine damage.

When Fail-Safe Mode Is Activated

WARNING: Fail-safe mode is for use during emergencies only. Operate your vehicle in fail-safe mode only as long as necessary to bring your vehicle to rest in a safe location and seek immediate repairs. When in fail-safe mode, your vehicle will have limited power, will not be able to maintain high-speed operation, and may completely shut down without warning, potentially losing engine power, power steering assist, and power brake assist, which may increase the possibility of a crash resulting in serious injury.

WARNING: Do not remove the coolant reservoir cap when the engine is on or the cooling system is hot. Wait 10 minutes for the cooling system to cool down. Cover the coolant reservoir cap with a thick cloth to prevent the possibility of scalding and slowly remove the cap. Failure to follow this instruction could result in personal injury.

Your vehicle has limited engine power when in the fail-safe mode, drive your vehicle with caution. Your vehicle does not maintain high-speed operation and the engine may operate poorly.

Remember that the engine is capable of automatically shutting down to prevent engine damage. In this situation:

1. Pull off the road as soon as safely possible and switch the engine off.
2. If you are a member of a roadside assistance program, we recommend that you contact your roadside assistance service provider.
3. If this is not possible, wait for a short period of time for the engine to cool.
4. Check the coolant level. If the coolant level is at or below the minimum mark, add prediluted coolant immediately.
5. When the engine temperature cools, you can re-start the engine. Have your vehicle checked as soon as possible to minimize engine damage.

Note: *Driving your vehicle without repair increases the chance of engine damage.*

Engine Coolant Temperature Management (If Equipped)

WARNING: To reduce the risk of crash and injury, be prepared that the vehicle speed may reduce and the vehicle may not be able to accelerate with full power until the coolant temperature reduces.

If you tow a trailer with your vehicle, the engine may temporarily reach a higher temperature during severe operating conditions, for example ascending a long or steep grade in high ambient temperatures.

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At this time, you may notice the coolant temperature gauge moves toward the red zone and a message may appear in the information display.

You may notice a reduction in vehicle speed caused by reduced engine power in order to manage the engine coolant temperature. Your vehicle may enter this mode if certain high-temperature and high-load conditions take place. The amount of speed reduction depends on vehicle loading, grade and ambient temperature. If this occurs, there is no need to stop your vehicle. You can continue to drive.

The air conditioning may automatically turn on and off during severe operating conditions to protect the engine from overheating. When the coolant temperature decreases to the normal operating temperature, the air conditioning turns on.

If the coolant temperature gauge moves fully into the red zone, or if the coolant temperature warning or service engine soon messages appear in your information display, do the following:

1. Stop your vehicle as soon as it is safe to do so. Fully apply the parking brake, shift into park (P) or neutral (N).
2. Leave the engine running until the coolant temperature gauge needle returns to the normal position. If the temperature does not drop after several minutes, follow the remaining steps.
3. Switch the engine off and wait for it to cool. Check the coolant level.
4. If the coolant level is at or below the minimum mark, add prediluted coolant immediately.
5. If the coolant level is normal, restart the engine and continue.

AUTOMATIC TRANSMISSION FLUID CHECK

If required, have an authorized dealer check and change the transmission fluid at the correct service interval. See **Scheduled Maintenance** (page 557).

The automatic transmission does not have a transmission fluid dipstick.

Refer to your scheduled maintenance information for scheduled intervals for fluid checks and changes. Your transmission does not consume fluid. However, if the transmission slips, shifts slowly or if you notice a sign of leaking fluid, contact an authorized dealer.

Do not use supplemental transmission fluid additives, treatments or cleaning agents. The use of these materials may affect transmission operation and result in damage to internal transmission components.

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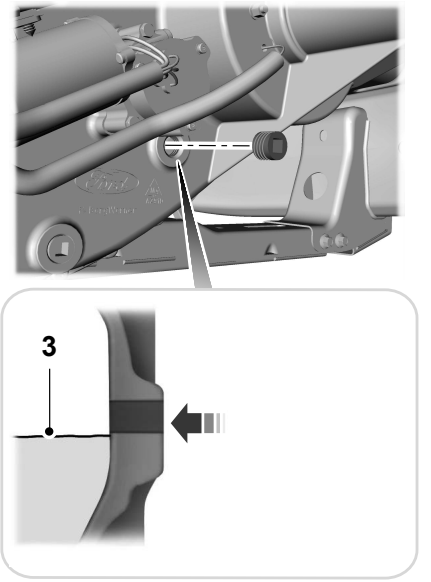
TRANSFER CASE FLUID CHECK



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1. Clean the filler plug.
2. Remove the filler plug.
3. Inspect the fluid level. The fluid level should be within 0.12 in (3 mm) from the bottom of the hole.
4. Add fluid through the filler hole.

Use only fluid that meets Ford specifications. See **Capacities and Specifications** (page 426).

BRAKE FLUID CHECK

WARNING: Do not use any fluid other than the recommended brake fluid as this will reduce brake efficiency. Use of incorrect fluid could result in the loss of vehicle control, serious personal injury or death.

WARNING: Only use brake fluid from a sealed container. Contamination with dirt, water, petroleum products or other materials may result in brake system damage or failure. Failure to adhere to this warning could result in the loss of vehicle control, serious personal injury or death.

WARNING: Do not allow the fluid to touch your skin or eyes. If this happens, rinse the affected areas immediately with plenty of water and contact your physician.

WARNING: The brake system could be affected if the brake fluid level is below the ***MIN*** mark or above the ***MAX*** mark on the brake fluid reservoir.

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1. Park your vehicle on a level surface.
2. Look at the brake fluid reservoir to see where the brake fluid level is relative to the ***MIN*** and the ***MAX*** marks on the reservoir.

Note: *If the brake fluid level is between the* ***MIN*** *and the* ***MAX*** *marks on the reservoir, it is acceptable.*

Note: *If the brake fluid level is below the* ***MIN*** *mark or above the* ***MAX*** *mark, have your vehicle checked as soon as possible.*

Note: *To avoid fluid contamination, the reservoir cap must remain in place and fully tight, unless you are adding fluid.*

Only use fluid that meets our specifications. See **Capacities and Specifications** (page 426).

Brake Fluid Service Interval

Brake fluid absorbs water over time which degrades the effectiveness of the brake fluid. Change the brake fluid at the specified intervals to prevent degraded braking performance.

For detailed interval information, see Scheduled Maintenance in your Owner's Manual or your local maintenance guide.

POWER STEERING FLUID CHECK

Your vehicle is equipped with an electric power steering (EPS) system. There is no fluid reservoir to check or fill.

WASHER FLUID CHECK

WARNING: If you operate your vehicle in temperatures below 40°F (5°C), use washer fluid with antifreeze protection. Failure to use washer fluid with antifreeze protection in cold weather could result in impaired windshield vision and increase the risk of injury or accident.

Add fluid to fill the reservoir if the level is low. Only use a washer fluid that meets Ford specifications. See **Capacities and Specifications** (page 426).

State or local regulations on volatile organic compounds may restrict the use of methanol, a common windshield washer antifreeze additive. Washer fluids containing non-methanol antifreeze agents should be used only if they provide cold weather protection without damaging the vehicle's paint finish, wiper blades or washer system.

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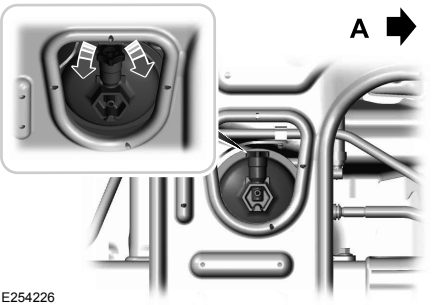
DRAINING THE FUEL FILTER WATER TRAP

WARNING: Do not dispose of fuel in the household refuse or the public sewage system. Use an authorized waste disposal facility.

Note: *Only add fuel that meets the Ford specification. See* ***Fuel Quality*** *(page 196).*

Note: *The in-tank pump will turn off automatically after approximately 30 seconds.*

The fuel water trap is above the frame rail under the driver side of the vehicle.



A Front of Vehicle.

1. Switch the ignition off.
2. Loosen the drain plug approximately one and a half turns.
3. Allow the water to drain.
4. Tighten the drain plug until you feel a strong resistance.
5. Key on for 30 seconds then key off. Repeat twice.
6. Start the engine.
7. Check for leaks.

Note: *The water-in-fuel indicator lamp will go out after approximately 2 seconds, with the engine running.*

FUEL FILTER - DIESEL

Your fuel filters must be changed at the correct service interval or when you see the low fuel pressure message appear. See **Scheduled Maintenance** (page 557).

FUEL FILTER - GASOLINE

Your vehicle is equipped with a lifetime fuel filter that is integrated with the fuel tank. Regular maintenance or replacement is not needed.

CHANGING THE 12V BATTERY

WARNING: Batteries normally produce explosive gases which can cause personal injury. Therefore, do not allow flames, sparks or lighted substances to come near the battery. When working near the battery, always shield your face and protect your eyes. Always provide correct ventilation.

WARNING: When lifting a plastic-cased battery, excessive pressure on the end walls could cause acid to flow through the vent caps, resulting in personal injury and damage to the vehicle or battery. Lift the battery with a battery carrier or with your hands on opposite corners.

WARNING: Keep batteries out of reach of children. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Shield your eyes when working near the battery to protect against possible splashing of acid solution. In case of acid contact with skin or eyes, flush immediately with water for a minimum of 15 minutes and get prompt medical attention. If acid is swallowed, call a physician immediately.

WARNING: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash your hands after handling**.

WARNING: This vehicle may have more than one battery. Removing the battery cables from only one battery does not disconnect your vehicle electrical system. Make sure you disconnect the battery cables from all batteries when disconnecting power. Failure to do so may cause serious personal injury or property damage.

Your vehicle is fitted with a Motorcraft maintenance-free battery which normally does not require additional water.

When a battery replacement is required, you must use a recommended replacement battery that matches the electrical requirements of the vehicle.

Note: *After cleaning or replacing the battery, make sure you reinstall the battery vent tube, battery cover or shield.*

For longer, trouble-free operation, keep the top of the battery clean and dry.

If you see any corrosion on the battery or terminals, remove the cables from the terminals and clean with a wire brush. You can neutralize the acid with a solution of baking soda and water.

Because your vehicle's engine is electronically controlled by a computer, some control conditions are maintained by power from the battery. When the battery is disconnected or a new battery is installed, the engine must relearn its idle and fuel trim strategy for optimum driveability and performance. Flexible fuel vehicles (FFV) must also relearn the ethanol content of the fuel for optimum driveability and performance.

To restore the settings, do the following:

1. Apply the parking brake.
2. Shift into park (P) or neutral (N).
3. Switch off all accessories.
4. Press the brake pedal and start your vehicle.
5. Run the engine until it reaches normal operating temperature. While the engine is warming up, complete the following: Reset the clock. Reset the power windows bounce-back feature. See **Windows and Mirrors** (page 104). Reset the radio station presets. See **Audio System** (page 481).
6. Allow the engine to idle for at least one minute.
7. Drive the vehicle at least 10 mi (16 km) to completely relearn the idle trim and fuel trim strategy.

Note: *If you do not allow the engine to relearn the idle and fuel trim strategy, the idle quality of your vehicle may be adversely affected until the engine computer eventually relearns the idle trim and fuel trim strategy.*

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Note: *For flexible fuel vehicles, if you are operating on E85, you may experience poor starts or an inability to start the engine and driveability problems until the fuel trim and ethanol content have been relearned.*

Make sure that you dispose of old batteries in an environmentally friendly way. Seek advice from your local authority about recycling old batteries.

If storing your vehicle for more than 30 days without recharging the battery, we recommend that you disconnect the negative battery cable to maintain battery charge for quick starting.

Battery Management System (If Equipped)

The battery management system monitors battery conditions and takes actions to extend battery life. If excessive battery drain is detected, the system temporarily disables some electrical systems to protect the battery.

Systems included are:

- Heated rear window.
- Heated seats.
- Climate control.
- Heated steering wheel.
- Audio unit.
- Navigation system.

A message may appear in the information displays to alert you that battery protection actions are active. These messages are only for notification that an action is taking place, and not intended to indicate an electrical problem or that the battery requires replacement.

After battery replacement, or in some cases after charging the battery with an external charger, the battery management system requires eight hours of vehicle sleep time to relearn the battery state of charge. During this time your vehicle must remain fully locked with the ignition switched off.

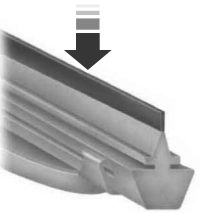
Note: *Prior to relearning the battery state of charge, the battery management system may temporarily disable some electrical systems.*

Electrical Accessory Installation

To make sure the battery management system works correctly, do not connect an electrical device ground connection directly to the battery negative post. This can cause inaccurate measurements of the battery condition and potential incorrect system operation.

Note: *If you add electrical accessories or components to the vehicle, it may adversely affect battery performance and durability. This may also affect the performance of other electrical systems in the vehicle.*

CHECKING THE WIPER BLADES



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Run the tip of your fingers over the edge of the blade to check for roughness.

Clean the wiper blades with washer fluid or water applied with a soft sponge or cloth.

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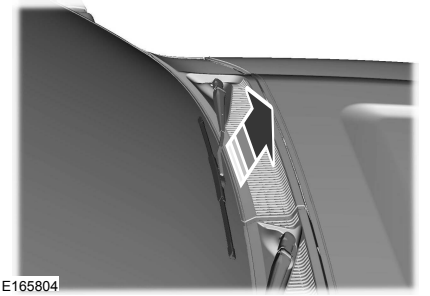
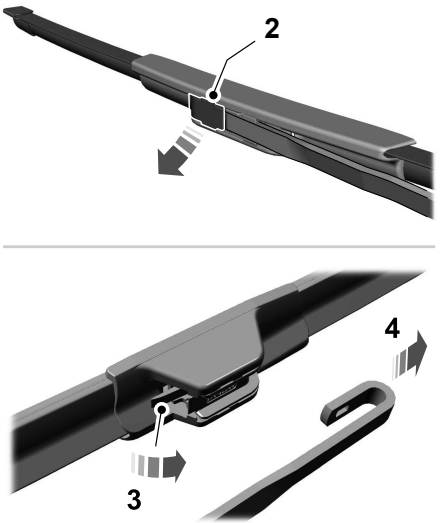
CHANGING THE WIPER BLADES

Note: *Do not hold the wiper blade when lifting the wiper arm.*



1. Pull the wiper blade and arm away from the glass.



2. Lift the wiper blade primary locking clip.
3. Press the wiper blade secondary locking clip.
4. Remove the wiper blade.

Note: *Make sure that the wiper arm does not spring back against the glass when the wiper blade is not attached.*

5. Install in the reverse order.

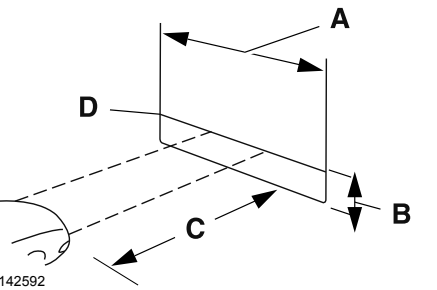
Note: *Make sure that the wiper blade locks into place.*

ADJUSTING THE HEADLAMPS

Vertical Aim Adjustment

The headlamps on your vehicle are properly aimed at the assembly plant. If your vehicle has been in an accident, contact an authorized dealer to check and realign your headlamps.

Headlamp Aiming Target



A	8 feet (2.4 meters).
B	Center height of lamp to ground.
C	25 feet (7.6 meters).
D	Horizontal reference line.

Vertical Aim Adjustment

1. Park your vehicle directly in front of a wall or screen on a level surface, approximately 25 ft (7.6 m) away.

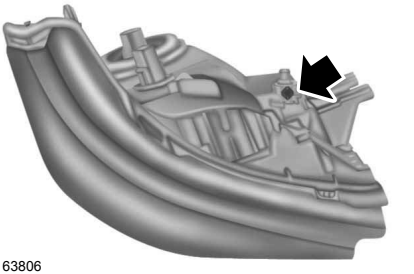
2. Measure the height from the center of your headlamp (indicated by a 3.0 millimeter circle on the lens) to the ground and mark an 8 ft (2.4 m) horizontal reference line on the vertical wall or screen at this height (a piece of masking tape works well).

Note: *To see a clearer light pattern for adjusting, you may want to block the light from one headlamp while adjusting the other.*

3. Switch on the low beam headlamps to illuminate the wall or screen and open the hood. Cover one of the headlamps so no light hits the wall.

E167358

4. **For halogen or LED headlamps:** On the wall or screen you will observe a light pattern with a distinct horizontal edge toward the right. If this edge is not at the horizontal reference line, you will need to adjust the beam so the edge is at the same height as the horizontal reference line.



E163806

5. Locate the vertical adjuster on each headlamp. Use a #2 Phillips screwdriver to turn the adjuster either counterclockwise or clockwise in order to adjust the vertical aim of the headlamp.
6. Repeat Steps 3 through 7 to adjust the other headlamp.
7. Close the hood and turn off the lamps.

Horizontal Aim Adjustment

Horizontal aim is not required for this vehicle and is not adjustable.

CHANGING A BULB

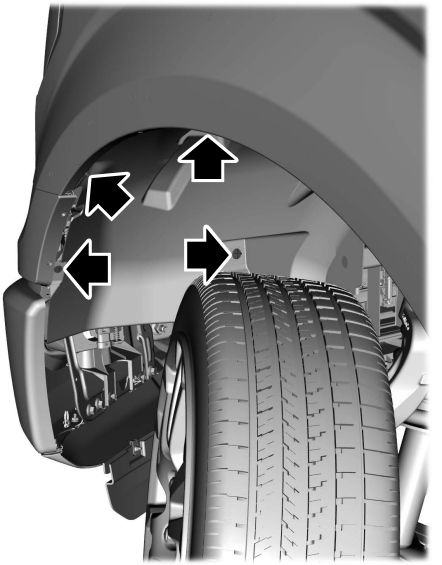
WARNING: Make sure the bulbs have cooled down before removing them. Failure to follow this warning could result in serious personal injury.

Note: *Handle a halogen headlamp bulb carefully and keep out of children's reach. Grasp the bulb only by its plastic base and do not touch the glass. The oil from your hand could cause the bulb to break the next time the headlamps are operated.*

Note: *If the bulb is accidentally touched, clean it with rubbing alcohol before installing it.*

Accessing the Halogen High Beam, Low Beam and Direction Indicator Bulbs

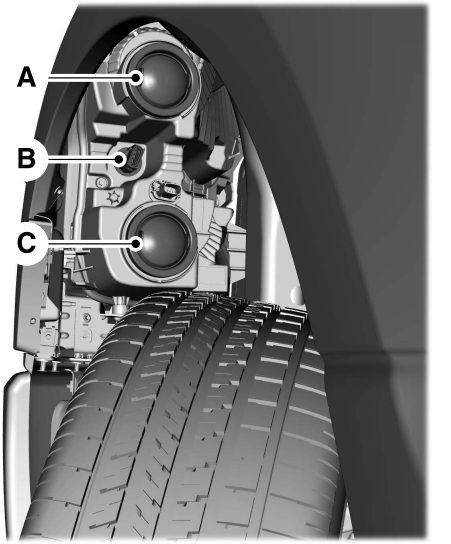
1. Rotate the steering wheel to the opposite side of the bulb needing replacement.
2. Remove two screws and one push pin from the front of the wheel liner.



E183762

3. Pull the wheel liner back towards the tire to gain access to the bulbs.

Replacing the Halogen High Beam, Low Beam and Direction Indicator Bulbs



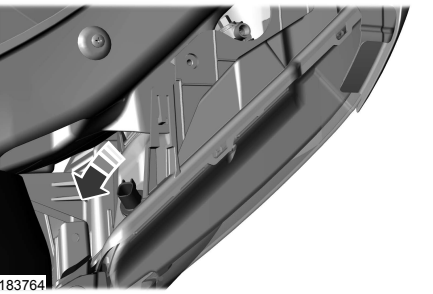
E183500

A. Low beam headlamp bulb.
B. Direction indicator bulb.
C. High beam headlamp bulb.

E183763

1. Make sure the headlamps are off.
2. For the high beam and low beam bulbs, remove the rubber cap to access the bulbs.
3. Remove the bulb holder from the lamp assembly by turning it counterclockwise and pulling it straight out.
4. Disconnect the bulb from the electrical connector.
5. Install the new bulb in reverse order.

Replacing Side Marker Bulb



E183764

1. Make sure the headlamps are off.
2. With the hood open, locate the side marker on the top of the headlamp assembly.
3. Remove the bulb holder from the lamp assembly by turning it counterclockwise and pulling it straight out.
4. Install the new bulb in reverse order.

Replacing Fog Lamp Bulbs (If Equipped)

E163826

1. Make sure the fog lamps are off.
2. Disconnect the electrical connector from the fog lamp bulb.
3. Turn the bulb counterclockwise and remove it from the fog lamp.
4. Install the new bulb in reverse order.

Replacing LED Headlamp Bulbs (If Equipped)

These lamps have LED bulbs. Contact an authorized dealer.

Replacing LED Fog lamp Bulbs (If Equipped)

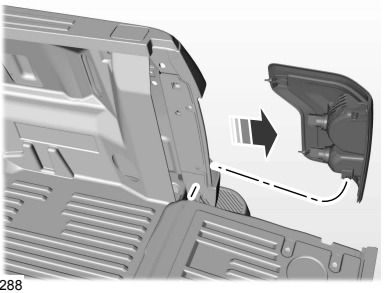
These lamps have LED bulbs. Contact an authorized dealer.

Replacing LED Direction Indicator and Side Marker Bulbs (If Equipped)

These lamps have LED bulbs. Contact an authorized dealer.

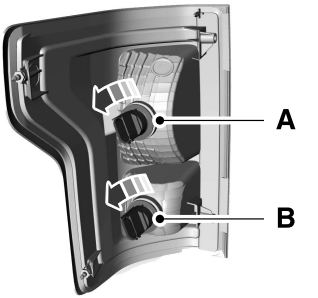
Replacing Brake, Rear, Direction Indicator and Reverse Lamp Bulbs

1. Make sure the headlamps are off.
2. Open the tailgate to access the rear lamp assemblies



E187288

3. Remove the two bolts from the tail lamp assembly. Then, carefully pull the lamp assembly from the tailgate pillar by releasing the two retaining tabs.
4. Disconnect the electrical connector from the bulb.



E187289

A. Brake, rear and direction indicator bulb.
B. Reverse lamp bulb.

1. Rotate the bulb socket counterclockwise and remove it from the rear lamp assembly.
2. Install the new bulb in reverse order.

Replacing LED Brake, Rear, Direction Indicator and Reverse Lamp Bulbs (If Equipped)

These lamps have LED bulbs. Contact an authorized dealer.

Replacing Cargo Lamp and High-mount Brake Lamp Bulbs

1. Make sure the lamps are off.
2. Remove the four screws and move the lamp assembly away from the vehicle to expose the bulb sockets.

E187290

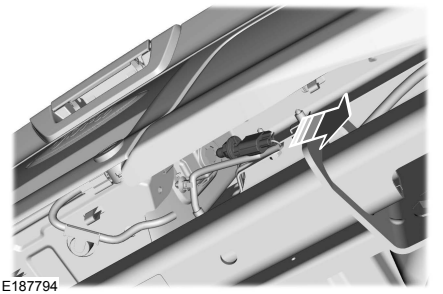
3. Remove the bulb socket by rotating it counterclockwise and pulling it out of the lamp assembly.
4. Pull the bulb straight out of the socket.
5. Install the new bulb in reverse order.

Replacing LED Cargo Lamp, Spot Lamp and High-mount Brake Lamp Bulbs (If Equipped)

These lamps have LED bulbs. Contact an authorized dealer.

Replacing the License Plate Lamp Bulb

Note: *The license plate bulbs are behind the rear bumper.*



E187794

1. Reach behind the rear bumper to locate the bulb.
2. Twist the bulb socket counterclockwise and carefully pull to remove it from the lamp assembly.
3. Pull the bulb straight out of the socket.
4. Install the new bulb in reverse order.

Replacing Exterior Mounted Mirror Direction Indicator Lamp Bulbs

These lamps have LED bulbs. Contact an authorized dealer.

CHANGING THE ENGINE AIR FILTER - GASOLINE

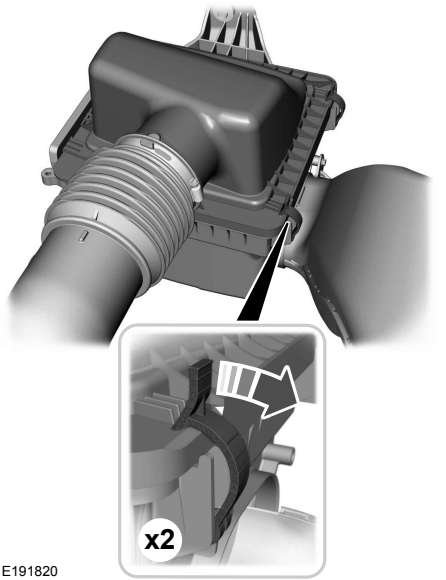
WARNING: To reduce the risk of vehicle damage and personal burn injuries, do not start your engine with the air cleaner removed and do not remove it while the engine is running.

Note: *Failure to use the correct air filter element may result in severe engine damage. Resulting component damage may not be covered by the vehicle Warranty.*

Note: *When servicing the air cleaner, do not allow foreign material to enter the air induction system. The engine is susceptible to damage from even small particles.*

When changing the air filter element, use only the air filter element listed. See **Capacities and Specifications** (page 426).

Change the air filter element at the proper intervals. See **Scheduled Maintenance** (page 557).



E191820

1. Release the clamps that secure the air filter cover to the housing.
2. Carefully lift the air filter housing cover.
3. Remove the air filter element from the air filter housing.
4. Install in the reverse order.

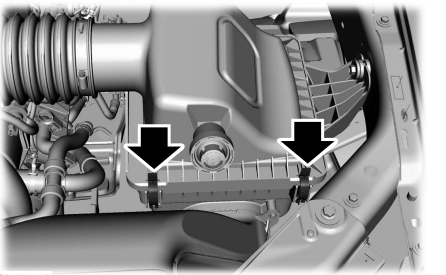
CHANGING THE ENGINE AIR FILTER - DIESEL

WARNING: To reduce the risk of vehicle damage and personal burn injuries, do not start your engine with the air cleaner removed and do not remove it while the engine is running.

Use the correct specification air filter element. See **Motorcraft Parts** (page 432).

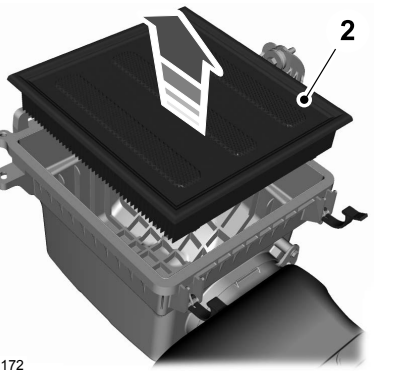
Note: *Failure to use the correct air filter element may result in severe engine damage. Resulting component damage may not be covered by the vehicle Warranty.*

Change the air filter element at the correct service interval. See **Scheduled Maintenance** (page 557).



E254171

1. Remove the clips that secure the air filter housing cover. Lift and rotate the air filter housing cover.

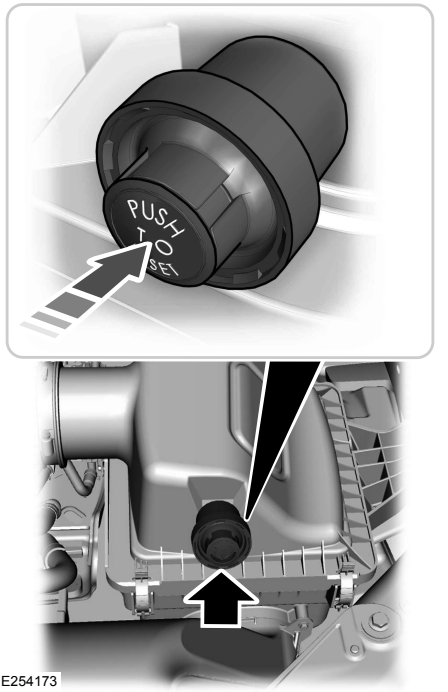


E254172

2. Remove the air filter element from the air filter housing.
3. Install in the reverse order.

4. After installing a new air filter element, you must reset the air filter restriction gauge by pressing the reset button.

Air Filter Restriction Gauge



E254173

The air filter restriction gauge is in the upper housing of the air filter assembly.

Check the air filter restriction gauge whenever you open the hood to carry out general engine maintenance or at least every 7,500 mi (12,000 km). If you operate your vehicle in extremely dusty conditions, check the gauge at least every 500 mi (800 km) or two weeks, whichever occurs first. Change the air filter element when the restriction gauge reads near the **change filter** line and the gauge is yellow. Allowing the restriction gauge to reach maximum affects engine performance and fuel economy.

Operating your vehicle in heavy snowfall or extreme rain conditions may allow excessive amounts of snow or water into the air intake system. This could restrict air flow and cause the engine to lose power or shut down.

After installing a new air filter element, you must reset the gauge by pressing the reset button.

After operating your vehicle during heavy snowfall or extreme rain, do the following:

- Snow: At the earliest opportunity, open the hood and clear any snow and ice from the air filter housing inlet and reset the air filter restriction gauge.
- Extreme rain: The air filter element dries out after approximately 15–30 minutes of driving at highway speeds. At the earliest opportunity, open the hood and reset the air filter restriction gauge.

GENERAL INFORMATION

Your dealer has many quality products available to clean your vehicle and protect its finishes.

CLEANING PRODUCTS

Materials

For best results, use the following products or products of equivalent quality:

Name	Specification
Motorcraft® Bug and Tar Remover, ZC-42 (U.S. & Canada)	
Motorcraft® Custom Bright Metal Cleaner, ZC-15 (U.S. & Canada)	ESR-M5B194-B
Motorcraft® Detail Wash, ZC-3-A (U.S. & Canada)	ESR-M14P4-A
Motorcraft® Engine Shampoo and Degreaser, ZC-20 (U.S.)	ESR-M14P3-A
Motorcraft® Engine Shampoo, CXC-66-A (Canada)	
Motorcraft® Premium Leather and Vinyl Cleaner, ZC-56 (U.S. & Canada)	
Motorcraft® Multi-Purpose Cleaner, CXC-101 (Canada)	
Motorcraft® Premium Windshield Wash Concentrate with Bitterant, ZC-32-B2 (U.S.)	WSS-M14P19-A
Motorcraft® Premium Quality Windshield Washer Fluid, CXC-37-A/B/D/F (Canada)	WSS-M14P19-A
Motorcraft® Professional Strength Carpet & Upholstery Cleaner, ZC-54 (U.S. & Canada)	
Motorcraft® Premium Glass Cleaner, CXC-100 (Canada)	ESR-M14P5-A
Motorcraft® Spot and Stain Remover, ZC-14 (U.S.)	
Motorcraft® Ultra-Clear Spray Glass Cleaner, ZC-23 (U.S.)	ESR-M14P5-A
Motorcraft® Wheel and Tire Cleaner, ZC-37-A (U.S. & Canada)	

CLEANING THE EXTERIOR

Wash your vehicle regularly with cool or lukewarm water and a neutral pH shampoo, we recommend Motorcraft Detail Wash.

- Never use strong household detergents or soap, for example dish washing or laundry liquid. These products can discolor and spot painted surfaces.
- Never wash your vehicle when it is hot to the touch, or during strong or direct sunlight.

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- Dry your vehicle with a chamois or soft terry cloth towel to eliminate water spotting.
- Immediately remove fuel spillages, bird droppings, insect deposits and road tar. These may cause damage to your vehicle's paintwork or trim over time. We recommend Motorcraft Bug and Tar Remover.
- Remove any exterior accessories, for example antennas, before entering a car wash.
- When filling with AdBlue®, remove any residue on painted surfaces immediately.

Note: *Suntan lotions and insect repellents can damage painted surfaces. If these substances come in contact with your vehicle, wash the affected area as soon as possible.*

Cleaning the Headlamps

Note: *Do not scrape the headlamp lenses or use abrasives, alcoholic solvents or chemical solvents to clean them.*

Note: *Do not wipe the headlamps when they are dry.*

Exterior Chrome Parts

- Apply a high quality-cleaning product to bumpers and other chrome parts. Follow the manufacturer's instructions. We recommend Motorcraft Custom Bright Metal Cleaner.
- Do not apply the cleaning product to hot surfaces. Do not leave the cleaning product on chrome surfaces longer than the time recommended.
- Using non-recommended cleaners can result in severe and permanent cosmetic damage.

Note: *Never use abrasive materials, for example steel wool or plastic pads as they can scratch the chrome surface.*

Note: *Do not use chrome cleaner, metal cleaner or polish on wheels or wheel covers.*

Exterior Plastic Parts

For routine cleaning we recommend Motorcraft Detail Wash. If tar or grease spots are present, we recommend Motorcraft Bug and Tar Remover.

Stripes or Graphics (If Equipped)

Hand washing your vehicle is preferred however, pressure washing may be used under the following conditions:

- Do not use water pressure higher than 2,000 psi (14,000 kPa).
- Do not use water hotter than 179ºF (82ºC).
- Use a spray with a 40º wide spray angle pattern.
- Keep the nozzle at a 12 in (305 mm) distance and 90º angle to your vehicle's surface.

Note: *Holding the pressure washer nozzle at an angle to the vehicle's surface may damage graphics and cause the edges to peel away from the vehicle's surface.*

Underbody

Regularly clean the underside of your vehicle using water. Keep body and door drain holes free of debris or foreign material.

Under Hood

For removing black rubber marks from under the hood we recommend Motorcraft Wheel and Tire Cleaner or Motorcraft Bug and Tar Remover.

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WAXING

Regular waxing is necessary to protect your car's paint from the elements. We recommend that you wash and wax the painted surface once or twice a year.

When washing and waxing, park your vehicle in a shaded area out of direct sunlight. Always wash your vehicle before applying wax.

- Use a quality wax that does not contain abrasives.
- Follow the manufacturer's instructions to apply and remove the wax.
- Apply a small amount of wax in a back-and-forth motion, not in circles.
- Do not allow wax to come in contact with any non-body (low-gloss black) colored trim. The wax will discolor or stain the parts over time.
  - Roof racks.
  - Bumpers.
  - Grained door handles.
  - Side moldings.
  - Mirror housings.
  - Windshield cowl area.
- Do not apply wax to glass areas.
- After waxing, your car's paint should feel smooth, and be free of streaks and smudges.

CLEANING THE ENGINE

Engines are more efficient when they are clean because grease and dirt buildup keep the engine warmer than normal.

When washing:

- Take care when using a power washer to clean the engine. The high-pressure fluid could penetrate the sealed parts and cause damage.
- Do not spray a hot engine with cold water to avoid cracking the engine block or other engine components.
- Spray Motorcraft Engine Shampoo and Degreaser on all parts that require cleaning and pressure rinse clean. In Canada, use Motorcraft Engine Shampoo.

Note: *If your vehicle has an engine cover remove the cover before application of Motorcraft Engine Shampoo and Degreaser. Immediately rinse away any over spray.*

- Never wash or rinse the engine while it is hot or running; water in the running engine may cause internal damage.
- Never wash or rinse any ignition coil, spark plug wire or spark plug well, or the area in and around these locations.
- Cover the battery, power distribution box, and air filter assembly to prevent water damage when cleaning the engine.

CLEANING THE EXHAUST - DIESEL

WARNING: Failure to keep the holes in the exhaust tailpipe clean and free of debris or foreign material may result in blocked holes. Blocked holes may result in increased exhaust gas temperatures, vehicle damage, property damage or personal injury.

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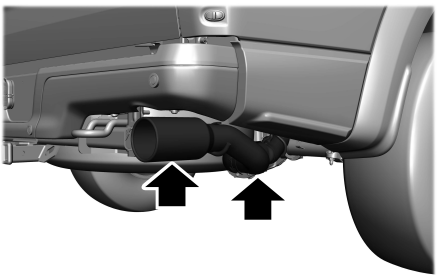
WARNING: The normal operating temperature of the exhaust system is very high. Never work around or attempt to repair any part of the exhaust system until it has cooled. Use special care when working around the catalytic converter. The catalytic converter heats up to a very high temperature after only a short period of engine operation and stays hot after the engine is switched off.



E231484

The visible holes in the exhaust tailpipe and the holes under the shield just inboard of the right rear tire are functional. You must keep the holes clean and free of debris or foreign material to maintain the correct operation of the exhaust system. When washing your vehicle, spray the holes with clean water from a hose. This helps to keep the holes clean and free of debris or foreign material.

CLEANING THE WINDOWS AND WIPER BLADES

Car wash chemicals and environmental fallout can result in windshield and wiper blade contamination. Dirty windshield and wipers will result in poor windshield wiper operation. Keep the windshield and wiper blades clean to maintain windshield wiper performance.

To clean the windshield and wiper blades:

- Clean the windshield with a non-abrasive glass cleaner. When cleaning the interior of the windshield, avoid getting any glass cleaner on the instrument panel or door panels. Wipe any glass cleaner off these surfaces immediately.
- For windshields contaminated with tree sap, chemicals, wax or bugs, clean the entire windshield using steel wool (no greater than 0000 grade) in a circular motion and rinse with water.
- Clean the wiper blades with isopropyl rubbing alcohol or windshield washer concentrate.

Note: *Do not use razor blades or other sharp objects to clean or remove decals from the inside of the heated rear window. The vehicle warranty does not cover damage caused to the heated rear window grid lines.*

CLEANING THE INTERIOR

WARNING: Do not use cleaning solvents, bleach or dye on the vehicle's seatbelts, as these actions may weaken the belt webbing.

WARNING: On vehicles equipped with seat-mounted airbags, do not use chemical solvents or strong detergents. Such products could contaminate the side airbag system and affect performance of the side airbag in a crash.

For fabric, carpets, cloth seats and seats equipped with side airbags:

- Remove dust and loose dirt with a vacuum cleaner.
- Remove light stains and soil with Motorcraft Professional Strength Carpet & Upholstery Cleaner.
- If grease or tar is present on the material, spot-clean the area first with Motorcraft Spot and Stain Remover. In Canada, use Motorcraft Multi-Purpose Cleaner.
- If a ring forms on the fabric after spot cleaning, clean the entire area immediately (but do not oversaturate) or the ring will set.
- Do not use household cleaning products or glass cleaners, which can stain and discolor the fabric and affect the flame retardant abilities of the seat materials.

Mirrors

Do not clean the housing or glass of any mirror with harsh abrasives, fuel or other petroleum or ammonia-based cleaning products.

CLEANING THE INSTRUMENT PANEL AND INSTRUMENT CLUSTER LENS

WARNING: Do not use chemical solvents or strong detergents when cleaning the steering wheel or instrument panel to avoid contamination of the airbag system.

Clean the instrument panel and cluster lens with a clean, damp, white cotton cloth, then use a clean and dry white cotton cloth to dry these areas.

- Avoid cleaners or polishes that increase the gloss of the upper portion of the instrument panel. The dull finish in this area helps protect you from undesirable windshield reflection.
- Be certain to wash or wipe your hands clean if you have been in contact with certain products such as insect repellent and suntan lotion in order to avoid possible damage to the interior painted surfaces.
- Do not use household or glass cleaners as these may damage the finish of the instrument panel, interior trim and cluster lens.
- Do not allow air fresheners and hand sanitizers to spill onto interior surfaces. If a spill occurs, wipe off immediately. Damage may not be covered by your warranty.

If a staining liquid like coffee or juice has been spilled on the instrument panel or on interior trim surfaces, clean as follows:

1. Wipe up spilled liquid using a clean, white, cotton cloth.

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2. Wipe the surface with a damp, clean, white cotton cloth. For more thorough cleaning, use a mild soap and water solution. If the spot cannot be completely cleaned by this method, the area may be cleaned using a commercially available cleaning product designed for automotive interiors.
3. If necessary, apply more soap and water solution or cleaning product to a clean, white, cotton cloth and press the cloth onto the soiled area. Allow this to set at room temperature for 30 minutes.
4. Remove the soaked cloth and if it is not soiled badly, use this cloth to clean the area by using a rubbing motion for 60 seconds.
5. Following this, wipe area dry with a clean, white, cotton cloth.

CLEANING LEATHER SEATS (IF EQUIPPED)

Without King Ranch Edition

Note: *Follow the same procedure as cleaning leather seats for cleaning leather instrument panels and leather interior trim surfaces.*

For routine cleaning, wipe the surface with a soft, damp cloth and a mild soap and water solution. Dry the area with a clean, soft cloth.

For cleaning and removing spots and stains such as dye transfer, use Motorcraft Premium Leather and Vinyl Cleaner or a commercially available leather cleaning product for automotive interiors.

Note: *Test any cleaner or stain remover on an inconspicuous area.*

You should:

- Remove dust and loose dirt with a vacuum cleaner.
- Clean and treat spills and stains as soon as possible.

Do not use the following products as these may damage the leather:

- Oil and petroleum or silicone-based leather conditioners.
- Household cleaners.
- Alcohol solutions.
- Solvents or cleaners intended specifically for rubber, vinyl and plastics.

With King Ranch Edition

Your vehicle has seating covered in premium, top-grain leather that is extremely durable, but still requires special care and maintenance in order to preserve longevity and comfort.

Regular cleaning and conditioning maintains the appearance of the leather.

Cleaning

For dirt, use a vacuum cleaner then use a clean, damp cloth or soft brush.

For routine cleaning, wipe the surface with a soft, damp cloth. For more thorough cleaning, wipe the surface with a mild soap and water solution.

- Clean spills as quickly as possible.
- Test any cleaner or stain remover on an inconspicuous part of the leather as cleaners may darken the leather.
- Do not spill coffee, ketchup, mustard, orange juice or oil-based products on the leather as they may permanently stain the leather.
- Do not use household cleaning products, alcohol solutions, solvents or cleaners intended for rubber, vinyl or plastics.

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Scratches

Because the leather in the seat comes from genuine steer hides, there may be evidence of naturally occurring markings, such as small scars. These markings give character to the seating covers and are considered to be proof of a genuine leather product.

In order to lessen the appearance of certain scratches and other wear marks, apply conditioner on the affected area following the same instructions as in the **Conditioning** section.

Conditioning

Bottles of King Ranch Leather Conditioner are available at the King Ranch Saddle Shop. Visit the website at www.krsaddleshop.com, or call 1–800–282–KING (5464) in the United States. If you are unable to obtain King Ranch Leather Conditioner, use another premium leather conditioner.

- Clean the surfaces using the steps outlined in the Cleaning section.
- Make sure the leather is dry then apply a nickel-sized amount of conditioner to a clean, dry cloth.
- Rub the conditioner into the leather until it disappears. Allow the conditioner to dry, then repeat the process for the entire interior. If a film appears, wipe it off with a dry, clean cloth.

REPAIRING MINOR PAINT DAMAGE

Authorized dealers have touch-up paint to match your vehicle's color. Your vehicle color code is printed on a sticker on the front, left-hand side door jamb. Take your color code to your authorized dealer to make sure you get the correct color.

Before repairing minor paint damage, use a cleaner such as Motorcraft Bug and Tar Remover to remove particles such as bird droppings, tree sap, insect deposits, tar spots, road salt and industrial fallout.

Always read the instructions before using cleaning products.

CLEANING THE WHEELS (IF EQUIPPED)

1. Regularly clean them with a wheel cleaner. We recommend that you use Ford approved wheel cleaner if available.
2. Remove dirt and brake dust with a sponge.
3. Remove tar and grease with a bug and tar remover. We recommend that you use Ford approved bug and tar remover if available.
4. Thoroughly rinse the wheels with water after cleaning.

If you intend on parking your vehicle for an extended period after cleaning the wheels with a wheel cleaner, drive your vehicle for a few minutes before doing so. This reduces the risk of corrosion of the brake discs, brake pads and linings.

Do not clean the wheels when they are hot.

Note: *Some car washes could damage wheel rims and covers.*

Note: *Using non-recommended cleaners, harsh cleaning products, chrome wheel cleaners or abrasive materials could damage wheel rims and covers.*

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VEHICLE STORAGE

If you plan on storing your vehicle for 30 days or more, read the following maintenance recommendations to make sure your vehicle stays in good operating condition.

We engineer and test all motor vehicles and their components for reliable, regular driving. Under various conditions, long-term storage may lead to degraded engine performance or failure unless you use specific precautions to preserve engine components.

General

- Store all vehicles in a dry, ventilated place.
- Protect from sunlight, if possible.
- If vehicles are stored outside, they require regular maintenance to protect against rust and damage.

Body

- Wash your vehicle thoroughly to remove dirt, grease, oil, tar or mud from exterior surfaces, rear-wheel housing and the underside of front fenders.
- Periodically wash your vehicle if it is stored in exposed locations.
- Touch-up exposed or primed metal to prevent rust.
- Cover chrome and stainless steel parts with a thick coat of auto wax to prevent discoloration. Re-wax as necessary when you wash your vehicle.
- Lubricate all hood, door and luggage compartment hinges and latches with a light grade oil.
- Cover interior trim to prevent fading.
- Keep all rubber parts free from oil and solvents.

Engine

- Change the engine oil and filter prior to storage because used engine oil contains contaminates which may cause engine damage.
- Start the engine every 15 days for a minimum of 15 minutes. Run at fast idle with the climate controls set to defrost until the engine reaches normal operating temperature.
- With your foot on the brake, shift through all the gears while the engine is running.
- We recommend that you change the engine oil before you use your vehicle again.

Fuel system

- Fill the fuel tank with high-quality fuel until the first automatic shutoff of the fuel pump nozzle.

Cooling system

- Protect against freezing temperatures.
- When removing your vehicle from storage, check coolant fluid level. Confirm that there are no cooling system leaks and that fluid is at the recommended level.

Disconnecting Your 12 Volt Battery

- Check and recharge as necessary. Keep connections clean.
- If storing your vehicle for more than 30 days without recharging the battery, we recommend that you disconnect the battery cables to maintain battery charge for quick starting.

Note: *It is necessary to reset memory features if you disconnect the battery cables.*

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Brakes

- Make sure the brakes and parking brake release fully.

Tires

- Maintain recommended air pressure.

Miscellaneous

- Make sure all linkages, cables, levers and pins under your vehicle are covered with grease to prevent rust.
- Move vehicles at least 25 ft (7.5 m) every 15 days to lubricate working parts and prevent corrosion.

Removing Vehicle From Storage

When your vehicle is ready to come out of storage, do the following:

- Wash your vehicle to remove any dirt or grease film build-up on window surfaces.
- Check windshield wipers for any deterioration.
- Check under the hood for any foreign material that may have collected during storage such as mice or squirrel nests.
- Check the exhaust for any foreign material that may have collected during storage.
- Check tire pressures and set tire inflation per the Tire Label.
- Check brake pedal operation. Drive your vehicle 15 ft (4.5 m) back and forth to remove rust build-up.
- Check fluid levels (including coolant, oil and gas) to make sure there are no leaks, and fluids are at recommended levels.
- If you remove the battery, clean the battery cable ends and check for damage.

Contact an authorized dealer if you have any concerns or issues.

BODY STYLING KITS

The distance between the underside of your vehicle and the ground is less than that of other models. Drive with extreme care to avoid damage to your vehicle.

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GENERAL INFORMATION

Notice to utility vehicle and truck owners

WARNING: Utility vehicles have a significantly higher rollover rate than other types of vehicles.

WARNING: Vehicles with a higher center of gravity (utility and four-wheel drive vehicles) handle differently than vehicles with a lower center of gravity (passenger cars). Avoid sharp turns, excessive speed and abrupt steering in these vehicles. Failure to drive cautiously increases the risk of losing control of your vehicle, vehicle rollover, personal injury and death.

WARNING: In a rollover crash, an unbelted person is significantly more likely to die than a person wearing a seatbelt.

WARNING: Do not become overconfident in the ability of four-wheel drive vehicles. Although a four-wheel drive vehicle may accelerate better than a two-wheel drive vehicle in low traction situations, it won't stop any faster than two-wheel drive vehicles. Always drive at a safe speed.

Utility vehicles and trucks handle differently than passenger cars in the various driving conditions that are encountered on streets, highways and off-road. Utility vehicles and trucks are not designed for cornering at speeds as high as passenger cars any more than low-slung sports cars are designed to perform satisfactorily under off-road conditions.

Study your owner's manual and any supplements for specific information about equipment features, instructions for safe driving and additional precautions to reduce the risk of an accident or serious injury.

Four-wheel drive system (if equipped)

A vehicle equipped with four-wheel drive (when selected) has the ability to use all four wheels to power itself. This increases traction which may enable you to safely drive over terrain and road conditions that a conventional two-wheel drive vehicle cannot.

On some four-wheel drive models, the initial shift from two-wheel drive to four-wheel drive while the vehicle is moving can cause a momentary clunk and ratcheting sound. These sounds are normal as the front drivetrain comes up to speed and are not cause for concern.

Note: *In four-wheel drive vehicles, the size of the spare tire relative to the remaining tires can have an effect on the 4x4 system. If there is a significant difference between the size of a spare and the remaining tires, four-wheel drive functionality may be limited. See* ***Using Four-Wheel Drive*** *(page 223).*

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How your vehicle differs from other vehicles

Sport utility vehicles and trucks can differ from some other vehicles in a few noticeable ways. Your vehicle may be:

- Higher - to allow higher load carrying capacity and to allow it to travel over rough terrain without getting hung up or damaging underbody components.
- Shorter - to give it the capability to approach inclines and drive over the crest of a hill without getting hung up or damaging underbody components. All other things held equal, a shorter wheelbase may make your vehicle quicker to respond to steering inputs than a vehicle with a longer wheelbase.
- Narrower - to provide greater maneuverability in tight spaces, particularly in off-road use.

As a result of the above dimensional differences, Sport utility vehicles and trucks often will have a higher center of gravity and a greater difference in center of gravity between the loaded and unloaded condition. These differences that make your vehicle so versatile also make it handle differently than an ordinary passenger car.

TIRE CARE

Information About Uniform Tire Quality Grading

E142542

Tire Quality Grades apply to new pneumatic passenger car tires. The Quality grades can be found where applicable on the tire sidewall between tread shoulder and maximum section width. For example: **Treadwear 200 Traction AA Temperature A**.

These Tire Quality Grades are determined by standards that the United States Department of Transportation has set.

Tire Quality Grades apply to new pneumatic passenger car tires. They do not apply to deep tread, winter-type snow tires, space-saver or temporary use spare tires, light truck or LT type tires, tires with nominal rim diameters of 10 to 12 inches or limited production tires as defined in Title 49 Code of Federal Regulations Part 575.104 (c)(2).

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U.S. Department of Transportation Tire quality grades: The U.S. Department of Transportation requires us to give you the following information about tire grades exactly as the government has written it.

Treadwear

The treadwear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear one and one-half (1 ½) times as well on the government course as a tire graded 100. The relative performance of tires depends upon the actual conditions of their use, however, and may depart significantly from the norm due to variations in driving habits, service practices, and differences in road characteristics and climate.

Traction AA A B C

WARNING: The traction grade assigned to this tire is based on straight-ahead braking traction tests, and does not include acceleration, cornering, hydroplaning or peak traction characteristics.

The traction grades, from highest to lowest are AA, A, B, and C. The grades represent the tire's ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.

Temperature A B C

WARNING: The temperature grade for this tire is established for a tire that is properly inflated and not overloaded. Excessive speed, underinflation, or excessive loading, either separately or in combination, can cause heat buildup and possible tire failure.

The temperature grades are A (the highest), B and C, representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the material of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure. The grade C corresponds to a level of performance which all passenger car tires must meet under the

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Federal Motor Vehicle Safety Standard No. 139. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

Glossary of Tire Terminology

***Tire label:** A label showing the original equipment tire sizes, recommended inflation pressure and the maximum weight the vehicle can carry.

***Tire Identification Number (TIN):** A number on the sidewall of each tire providing information about the tire brand and manufacturing plant, tire size and date of manufacture. Also referred to as DOT code.

***Inflation pressure:** A measure of the amount of air in a tire.

***Standard load:** A class of P-metric or Metric tires designed to carry a maximum load at set pressure. For example: For P-Metric tires 35 psi (2.4 bar) and for Metric 36 psi (2.5 bar). Increasing the inflation pressure beyond this pressure will not increase the tire's load carrying capability.

***Extra load:** A class of P-metric or Metric tires designed to carry a heavier maximum load at 42 psi (2.9 bar). Increasing the inflation pressure beyond this pressure will not increase the tire's load carrying capability.

***kPa:** Kilopascal, a metric unit of air pressure.

***PSI:** Pounds per square inch, a standard unit of air pressure.

***Cold tire pressure:** The tire pressure when the vehicle has been stationary and out of direct sunlight for an hour or more and prior to the vehicle being driven for 1 mile (1.6 kilometers).

***Recommended inflation pressure:** The cold inflation pressure found on the Safety Compliance Certification Label (affixed to either the door hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver's seating position), or Tire Label located on the B-pillar or the edge of the driver's door.

B-pillar: The structural member at the side of the vehicle behind the front door.

***Bead area of the tire:** Area of the tire next to the rim.

* **Sidewall of the tire:** Area between the bead area and the tread.

***Tread area of the tire:** Area of the perimeter of the tire that contacts the road when mounted on the vehicle.

***Rim:** The metal support (wheel) for a tire or a tire and tube assembly upon which the tire beads are seated.

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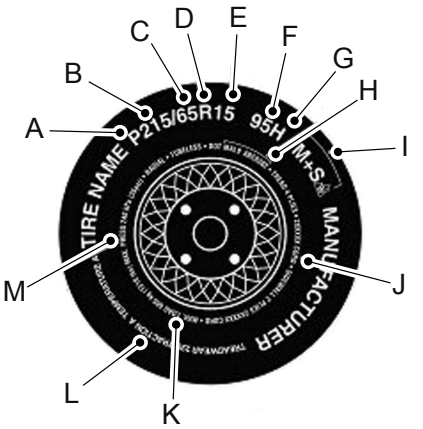
Information Contained on the Tire Sidewall

Both United States and Canada Federal regulations require tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a U.S. DOT Tire Identification Number for safety standard certification and in case of a recall.

Information on P Type Tires



E142543

P215/65R15 95H is an example of a tire size, load index and speed rating. The definitions of these items are listed below. (Note that the tire size, load index and speed rating for your vehicle may be different from this example.)

A. **P:** Indicates a tire, designated by the Tire and Rim Association, that may be used for service on cars, sport utility vehicles, minivans and light trucks. **Note:** If your tire size does not begin with a letter this may mean it is designated by either the European Tire and Rim Technical Organization or the Japan Tire Manufacturing Association.

B. **215:** Indicates the nominal width of the tire in millimeters from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

C. **65:** Indicates the aspect ratio which gives the tire's ratio of height to width.

D. **R:** Indicates a radial type tire.

E. **15:** Indicates the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

F. **95:** Indicates the tire's load index. It is an index that relates to how much weight a tire can carry. You may find this information in your owner's manual. If not, contact a local tire dealer.

Note: *You may not find this information on all tires because it is not required by federal law.*

G. **H:** Indicates the tire's speed rating. The speed rating denotes the speed at which a tire is designed to be driven for extended periods of time under a standard condition of load and inflation pressure. The tires on your vehicle may operate at different conditions for load and inflation pressure. These speed ratings may need to be adjusted for the difference in conditions. The ratings range from 81 mph (130 km/h) to 186 mph (299 km/h). These ratings are listed in the following chart.

Note: *You may not find this information on all tires because it is not required by federal law.*

Letter rating	mph (km/h)
M	81 (130)
N	87 (140)
Q	99 (159)
R	106 (171)
S	112 (180)
T	118 (190)
U	124 (200)
H	130 (210)
V	149 (240)
W	168 (270)
Y	186 (299)

Note: *For tires with a maximum speed capability over 149 mph (240 km/h), tire manufacturers sometimes use the letters ZR. For those with a maximum speed capability over 186 mph (299 km/h), tire manufacturers always use the letters ZR.*

H. **U.S. DOT Tire Identification Number:** This begins with the letters DOT and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code designating where it was manufactured, the next two are the tire size code and the last four numbers represent the week and year the tire was built. For example, the numbers 317 mean the 31st week of 1997. After 2000 the numbers go to four digits. For example, 2501 means the 25th week of 2001. The numbers in between are identification codes used for traceability. This information is used to contact customers if a tire defect requires a recall.

I. **M+S or M/S:** Mud and Snow, or

AT: All Terrain, or

AS: All Season.

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J. **Tire Ply Composition and Material Used:** Indicates the number of plies or the number of layers of rubber-coated fabric in the tire tread and sidewall. Tire manufacturers also must indicate the ply materials in the tire and the sidewall, which include steel, nylon, polyester, and others.

K. **Maximum Load:** Indicates the maximum load in kilograms and pounds that can be carried by the tire (affixed to either the door hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver's seating position), or Tire Label located on the B-pillar or the edge of the driver's door.

L. **Treadwear, Traction and Temperature Grades:**

***Treadwear:** The treadwear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear 1½ times as well on the government course as a tire graded 100.

***Traction:** The traction grades, from highest to lowest are AA, A, B, and C. The grades represent the tire's ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.

***Temperature:** The temperature grades are A (the highest), B and C, representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel.

M. **Maximum Inflation Pressure:** Indicates the tire manufacturers' maximum permissible pressure or the pressure at which the maximum load can be carried by the tire. This pressure is normally higher than the vehicle manufacturer's recommended cold inflation pressure which can be found on the Safety Compliance Certification Label (affixed to either the door hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver's seating position), or Tire Label located on the B-pillar or the edge of the driver's door. The cold inflation pressure should never be set lower than the recommended pressure on the vehicle label.

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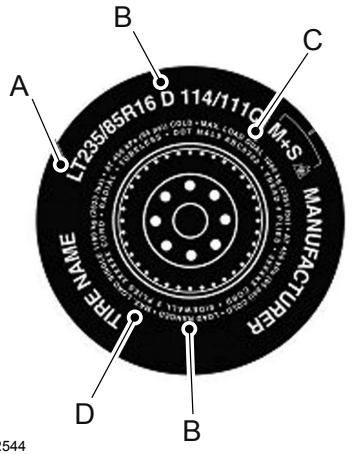
The tire suppliers may have additional markings, notes or warnings such as standard load or radial tubeless.

Additional Information Contained on the Tire Sidewall for LT Type Tires

Note: *Tire Quality Grades do not apply to this type of tire.*



E142544

LT type tires have some additional information beyond those of P type tires. These differences are described below.

A. **LT:** Indicates a tire, designated by the Tire and Rim Association, that is intended for service on light trucks.

B. **Load Range and Load Inflation Limits:** Indicates the tire's load-carrying capabilities and its inflation limits.

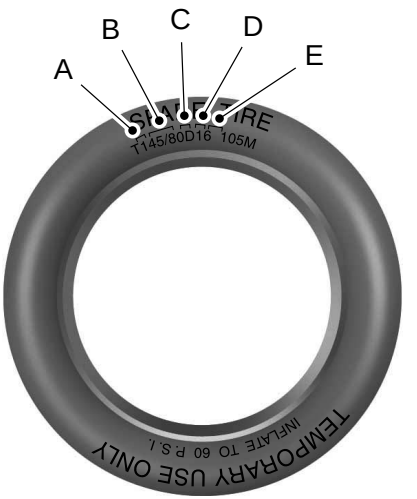
C. **Maximum Load Dual lb (kg) at psi (kPa) cold:** Indicates the maximum load and tire pressure when the tire is used as a dual; defined as four tires on the rear axle (a total of six or more tires on the vehicle).

D. **Maximum Load Single lb (kg) at psi (kPa) cold:** Indicates the maximum load and tire pressure when the tire is used as a single; defined as two tires (total) on the rear axle.

Information on T Type Tires

T145/80D16 is an example of a tire size.

Note: *The temporary tire size for your vehicle may be different from this example. Tire Quality Grades do not apply to this type of tire.*



E142545

T type tires have some additional information beyond those of P type tires. These differences are described below:

A. **T:** Indicates a type of tire, designated by the Tire and Rim Association, that is intended for temporary service on cars, sport utility vehicles, minivans and light trucks.

B. **145:** Indicates the nominal width of the tire in millimeters from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

C. **80:** Indicates the aspect ratio which gives the tire's ratio of height to width. Numbers of 70 or lower indicate a short sidewall.

D. **D:** Indicates a diagonal type tire.

R: Indicates a radial type tire.

E. **16:** Indicates the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

Location of the Tire Label

You will find a Tire Label containing tire inflation pressure by tire size and other important information located on the B-Pillar or the edge of the driver's door. See **Load Carrying** (page 283).

Inflating Your Tires

Safe operation of your vehicle requires that your tires are properly inflated. Remember that a tire can lose up to half of its air pressure without appearing flat.

Every day before you drive, check your tires. If one looks lower than the others, use a tire gauge to check pressure of all tires and adjust if required.

At least once a month and before long trips, inspect each tire and check the tire pressure with a tire gauge (including spare, if equipped). Inflate all tires to the inflation pressure recommended by us.

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You are strongly urged to buy a reliable tire pressure gauge, as automatic service station gauges may be inaccurate. We recommend the use of a digital or dial-type tire pressure gauge rather than a stick-type tire pressure gauge.

Use the recommended cold inflation pressure for optimum tire performance and wear. Under-inflation or over-inflation may cause uneven treadwear patterns.

WARNING:
Under-inflation is the most common cause of tire failures and may result in severe tire cracking, tread separation or blowout, with unexpected loss of vehicle control and increased risk of injury. Under-inflation increases sidewall flexing and rolling resistance, resulting in heat buildup and internal damage to the tire. It also may result in unnecessary tire stress, irregular wear, loss of vehicle control and accidents. A tire can lose up to half of its air pressure and not appear to be flat!

Always inflate your tires to the our recommended inflation pressure even if it is less than the maximum inflation pressure information found on the tire. Our recommended tire inflation pressure is found on the Safety Compliance Certification Label or Tire Label (affixed to either the door hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver's seating position), or Tire Label located on the B-pillar or the edge of the driver's door. Failure to follow the tire pressure recommendations can cause uneven treadwear patterns and adversely affect the way your vehicle handles.

Note: *Do not reduce tire pressure to change the ride characteristics of the vehicle. If you do not maintain the inflation pressure at the levels specified by us, your vehicle may experience a condition known as shimmy. Shimmy is a severe vibration and oscillation in the steering wheel after the vehicle travels over a bump or dip in the road that does not dampen out by itself. Shimmy may result from significant under-inflation of the tires, improper tires (load range, size, or type), or vehicle modifications such as lift-kits. In the event that your vehicle experiences shimmy, you should slowly reduce speed by either lifting off the accelerator pedal or lightly applying the brakes. The shimmy will cease as the vehicle speed decreases.*

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Maximum Inflation Pressure is the tire manufacturer's maximum permissible pressure and the pressure at which the maximum load can be carried by the tire. This pressure is normally higher than the manufacturer's recommended cold inflation pressure which can be found on the Safety Compliance Certification Label (affixed to either the door hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver's seating position), or Tire Label located on the B-pillar or the edge of the driver's door. The cold inflation pressure should never be set lower than the recommended pressure on the Safety Compliance Certification Label or Tire Label.

When weather temperature changes occur, tire inflation pressures also change. A 10°F (6°C) temperature drop can cause a corresponding drop of 1 psi (7 kPa) in inflation pressure. Check your tire pressures frequently and adjust them to the proper pressure which can be found on the Safety Compliance Certification Label or Tire Label.

To check the pressure in your tire(s):

1. Make sure the tires are cool, meaning they are not hot from driving even a mile.

Note: *If you are checking tire pressure when the tire is hot, (for example, driven more than 1 mile [1.6 kilometers]), never bleed or reduce air pressure. The tires are hot from driving and it is normal for pressures to increase above recommended cold pressures. A hot tire at or below recommended cold inflation pressure could be significantly under-inflated.*

Note: *If you have to drive a distance to get air for your tire(s), check and record the tire pressure first and add the appropriate air pressure when you get to the pump. It is normal for tires to heat up and the air pressure inside to go up as you drive.*

2. Remove the cap from the valve on one tire, then firmly press the tire gauge onto the valve and measure the pressure.

3. Add enough air to reach the recommended air pressure.

Note: *If you overfill the tire, release air by pressing on the metal stem in the center of the valve. Then recheck the pressure with your tire gauge.*

4. Replace the valve cap.

5. Repeat this procedure for each tire, including the spare.

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Note: *Some spare tires operate at a higher inflation pressure than the other tires. For T type mini-spare tires, see the Dissimilar spare wheel and tire assembly information for a description. Store and maintain at 60 psi (4.15 bar). For full-size and dissimilar spare tires, see the Dissimilar spare wheel and tire assembly information for a description. Store and maintain at the higher of the front and rear inflation pressure as shown on the Safety Compliance Certification Label or Tire Label.*

6. Visually inspect the tires to make sure there are no nails or other objects embedded that could poke a hole in the tire and cause an air leak.

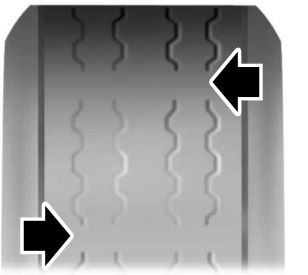
7. Check the sidewalls to make sure there are no gouges, cuts or bulges.

Inspecting Your Tires and Wheel Valve Stems

Periodically inspect the tire treads for uneven or excessive wear and remove objects such as stones, nails or glass that may be wedged in the tread grooves. Check the tire and valve stems for holes, cracks, or cuts that may permit air leakage and repair or replace the tire and replace the valve stem. Inspect the tire sidewalls for cracking, cuts, bruises and other signs of damage or excessive wear. If internal damage to the tire is suspected, have the tire demounted and inspected in case it needs to be repaired or replaced. For your safety, tires that are damaged or show signs of excessive wear should not be used because they are more likely to blow out or fail.

Improper or inadequate vehicle maintenance can cause tires to wear abnormally. Inspect all your tires, including the spare, frequently, and replace them if one or more of the following conditions exist:

Tire Wear



E142546

When the tread is worn down to one sixteenth of an inch (2 millimeters), tires must be replaced to help prevent your vehicle from skidding and hydroplaning. Built-in treadwear indicators, or wear bars, which look like narrow strips of smooth rubber across the tread will appear on the tire when the tread is worn down to one sixteenth of an inch (2 millimeters).

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When the tire tread wears down to the same height as these wear bars, the tire is worn out and must be replaced.

Damage

Periodically inspect the tire treads and sidewalls for damage (such as bulges in the tread or sidewalls, cracks in the tread groove and separation in the tread or sidewall). If damage is observed or suspected have the tire inspected by a tire professional. Tires can be damaged during off-road use, so inspection after off-road use is also recommended.

Age

WARNING: Tires degrade over time depending on many factors such as weather, storage conditions, and conditions of use (load, speed, inflation pressure) the tires experience throughout their lives.

WARNING: In general, tires should be replaced after six years regardless of tread wear. However, heat caused by hot climates or frequent high loading conditions can accelerate the aging process and may require tires to be replaced more frequently.

WARNING: You should replace your spare tire when you replace the road tires or after six years due to aging even if it has not been used.

U.S. DOT Tire Identification Number

Both United States and Canada Federal regulations require tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a U.S. DOT Tire Identification Number for safety standard certification and in case of a recall.

This begins with the letters DOT and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code designating where it was manufactured, the next two are the tire size code and the last four numbers represent the week and year the tire was built. For example, the numbers 317 mean the 31st week of 1997. After 2000 the numbers go to four digits. For example, 2501 means the 25th week of 2001. The numbers in between are identification codes used for traceability. This information is used to contact customers if a tire defect requires a recall.

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Tire Replacement Requirements

Your vehicle is equipped with tires designed to provide a safe ride and handling capability.

WARNING: Only use replacement tires and wheels that are the same size, load index, speed rating and type (such as P-metric versus LT-metric or all-season versus all-terrain) as those originally provided by Ford. The recommended tire and wheel size may be found on either the Safety Compliance Certification Label (affixed to either the door hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver's seating position), or the Tire Label which is located on the B-Pillar or edge of the driver's door. If this information is not found on these labels, then you should contact your authorized dealer as soon as possible. Use of any tire or wheel not recommended by Ford can affect the safety and performance of your vehicle, which could result in an increased risk of loss of vehicle control, vehicle rollover, personal injury and death.

WARNING: To reduce the risk of serious injury, when mounting replacement tires and wheels, you should not exceed the maximum pressure indicated on the sidewall of the tire to set the beads without additional precautions listed below. If the beads do not seat at the maximum pressure indicated, re-lubricate and try again.

WARNING: When inflating the tire for mounting pressures up to 20 psi (1.38 bar) greater than the maximum pressure on the tire sidewall, the following precautions must be taken to protect the person mounting the tire:

- Make sure that you have the correct tire and wheel size.
- Lubricate the tire bead and wheel bead seat area again.
- Stand at a minimum of 12 ft (3.66 m) away from the wheel and tire assembly.
- Use both eye and ear protection.

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WARNING: For a mounting pressure more than 20 psi (1.38 bar) greater than the maximum pressure, a Ford dealer or other tire service professional should do the mounting.

WARNING: Always inflate steel carcass tires with a remote air fill with the person inflating standing at a minimum of 12 ft (3.66 m) away from the wheel and tire assembly.

Important: Remember to replace the wheel valve stems when the road tires are replaced on your vehicle.

The two front tires or two rear tires should generally be replaced as a pair, except if the vehicle is equipped with four wheel drive. Vehicles equipped with four wheel drive should have all four tires replaced simultaneously. Unevenly worn tires, mismatched makes, models or brands can be different in size, resulting in potential damage to the four wheel drive system.

The tire pressure sensors mounted in the wheels are not designed to be used in aftermarket wheels.

The use of wheels or tires not recommended by us may affect the operation of your tire pressure monitoring system.

If the tire pressure monitoring system indicator is flashing, the system is malfunctioning. Your replacement tire might be incompatible with your tire pressure monitoring system, or some component of the system may be damaged.

Safety Practices

WARNING: If your vehicle is stuck in snow, mud or sand, do not rapidly spin the tires; spinning the tires can tear the tire and cause an explosion. A tire can explode in as little as three to five seconds.

WARNING: Do not spin the wheels at over 34 mph (55 km/h). The tires may fail and injure a passenger or bystander.

Driving habits have a great deal to do with your tire mileage and safety.

*Observe posted speed limits

*Avoid fast starts, stops and turns

*Avoid potholes and objects on the road

*Do not run over curbs or hit the tire against a curb when parking

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Highway Hazards

No matter how carefully you drive there's always the possibility that you may eventually have a flat tire on the highway. Drive slowly to the closest safe area out of traffic. This may further damage the flat tire, but your safety is more important.

If you feel a sudden vibration or ride disturbance while driving, or you suspect your tire or vehicle has been damaged, immediately reduce your speed. Drive with caution until you can safely pull off the road. Stop and inspect the tires for damage. If a tire is under-inflated or damaged, deflate it, remove wheel and replace it with your spare tire and wheel. If you cannot detect a cause, have the vehicle towed to the nearest repair facility or tire dealer to have the vehicle inspected.

Tire and Wheel Alignment

A bad jolt from hitting a curb or pothole can cause the front end of your vehicle to become misaligned or cause damage to your tires. If your vehicle seems to pull to one side when you're driving, the wheels may be out of alignment. Have an authorized dealer check the wheel alignment periodically.

Wheel misalignment in the front or the rear can cause uneven and rapid treadwear of your tires and should be corrected by an authorized dealer. Front-wheel drive vehicles and those with an independent rear suspension may require alignment of all four wheels.

The tires should also be balanced periodically. An unbalanced tire and wheel assembly may result in irregular tire wear.

Tire Rotation

WARNING: If the tire label shows different tire pressures for the front and rear tires and the vehicle has a tire pressure monitoring system, then you need to update the settings for the system sensors. Always perform the system reset procedure after tire rotation. If you do not reset the system, it may not provide a low tire pressure warning when necessary.

Note: *If your tires show uneven wear ask an authorized dealer to check for and correct any wheel misalignment, tire imbalance or mechanical problem involved before tire rotation.*

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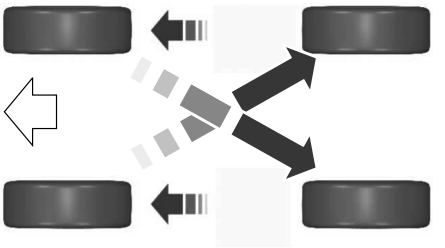
Note: *Your vehicle may be equipped with a dissimilar spare wheel and tire assembly. A dissimilar spare wheel and tire assembly is defined as a spare wheel and tire assembly that is different in brand, size or appearance from the road tires and wheels. If you have a dissimilar spare wheel and tire assembly it is intended for temporary use only and should not be used in a tire rotation.*

Note: *After having your tires rotated, inflation pressure must be checked and adjusted to the vehicle requirements.*

Rotating your tires at the recommended interval (as indicated in the Scheduled Maintenance chapter) will help your tires wear more evenly, providing better tire performance and longer tire life.

Rear-wheel drive vehicles and four-wheel drive vehicles (front tires at left of diagram)



E142548

Sometimes irregular tire wear can be corrected by rotating the tires.

USING SNOW CHAINS

WARNING: Snow tires must be the same size, load index and speed rating as those originally provided by Ford. Use of any tire or wheel not recommended by Ford can affect the safety and performance of your vehicle, which could result in an increased risk of loss of control, vehicle rollover, personal injury and death. Additionally, the use of non-recommended tires and wheels can cause steering, suspension, axle, transfer case or power transfer unit failure. Follow the Ford recommended tire inflation pressure found on the Safety Compliance Certification Label (on the door hinge pillar, door latch post or the door edge that meets the door latch post, next to the driver seat), or Tire Label on the B-Pillar or the edge of the driver door. Failure to follow the tire pressure recommendations can cause uneven treadwear patterns and adversely affect the way your vehicle handles.

Note: *The suspension insulation and bumpers will help prevent vehicle damage. Do not remove these components from your vehicle when using snow tires and chains.*

The tires on your vehicle have all-weather treads to provide traction in rain and snow. However, in some climates, you may need to use snow tires and cables. If you need to use cables, it is recommended that steel wheels (of the same size and specifications) be used, as cables may chip aluminum wheels.

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Follow these guidelines when using snow tires and chains:

- If possible, avoid fully loading your vehicle.
- Conventional link type chains may contact and cause damage to the vehicle's wheel house and/or body.
- Do not install chains on the front tires as this may interfere with suspension components.
- Only certain snow cables or chains have been approved by Ford/Lincoln as safe for use on your vehicle with the following tires: 245/70R17, LT245/70R17, 265/70R17 and 265/60R18.
- You should install snow cables or chains that have been rated as SAE Class S.
- Install chains securely, verifying that the chains do not touch any wiring, brake lines, or fuel lines.
- Do not exceed 30 mph (48 km/h) or less if recommended by the chain manufacturer while using snow chains.
- Drive cautiously. If you hear the chains rub or bang against your vehicle, stop and retighten the chains. If this does not work, remove the chains to prevent damage to your vehicle.
- Remove the tire chains when they are no longer needed. Do not use tire chains on dry roads.
- Purchase chains or cables from a manufacturer that clearly labels body to tire dimension restrictions. The snow chains or cables must be mounted in pairs on the rear tires only.

If you have any questions regarding snow chains or cables, please contact your authorized dealer.

TIRE PRESSURE MONITORING SYSTEM

WARNING: The tire pressure monitoring system is not a substitute for manually checking tire pressures. You should periodically check tire pressures using a pressure gauge. Failure to correctly maintain tire pressures could increase the risk of tire failure, loss of control, vehicle rollover and personal injury.

Check each tire, including the spare if applicable, monthly, when cold and inflate to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire inflation pressure label. If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pressure label, you should determine the proper tire inflation pressure for those tires.

As an added safety feature, your vehicle has been equipped with a Tire Pressure Monitoring System (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated. Accordingly, when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle's handling and stopping ability.

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Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale.

Your vehicle has also been equipped with a TPMS malfunction indicator to indicate when the system is not operating properly. The TPMS malfunction indicator is combined with the low tire pressure telltale. When the system detects a malfunction, the telltale flashes for approximately one minute and then remains continuously illuminated. This sequence continues upon subsequent vehicle start-ups as long as the malfunction exists.

When the malfunction indicator is illuminated, the system may not be able to detect or signal low tire pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation of replacement or alternate tires or wheels on the vehicle that prevent the TPMS from functioning properly. Always check the TPMS malfunction telltale after replacing one or more tires or wheels on your vehicle to ensure that the replacement or alternate tires and wheels allow the TPMS to continue to function properly.

This device complies with part 15 of the FCC Rules and with Licence exempt RSS Standards of Industry Canada. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

WARNING: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment. The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

Changing Tires With a Tire Pressure Monitoring System

E142549

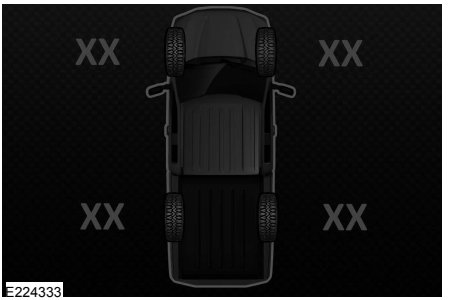
Note: *Each road tire is equipped with a tire pressure sensor located inside the wheel and tire assembly cavity. The pressure sensor is attached to the valve stem. The pressure sensor is covered by the tire and is not visible unless the tire is removed. Take care when changing the tire to avoid damaging the sensor.*

You should always have your tires serviced by an authorized dealer.

Periodically check the tire pressure, at least monthly, using an accurate tire gauge. See Inflating Your Tires in this chapter.

Understanding Your Tire Pressure Monitoring System

The tire pressure monitoring system measures pressure in your four road tires and sends the tire pressure readings to your vehicle.



The low tire pressure warning light turns on if the tire pressure is significantly low. Once the light is illuminated, your tires are under-inflated and need to be inflated to the manufacturer's recommended tire pressure. Even if the light turns on and a short time later turns off, your tire pressure still needs to be checked.

When Your Temporary Spare Tire is Installed

When you replace one of your road tires with the temporary spare, the system continues to identify an issue to remind you that the damaged road wheel and tire assembly needs to be repaired and put back on your vehicle.

To restore the full function of the tire pressure monitoring system, have the damaged road wheel and tire assembly repaired and remounted on your vehicle.

When You Believe Your System is Not Operating Properly

The main function of the tire pressure monitoring system is to warn you when your tires need air. It can also warn you in the event the system is no longer capable of functioning as intended. See the following chart for information concerning your tire pressure monitoring system:

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Low Tire Pressure Warning Light	Possible Cause	Customer Action Required
Solid warning light	Tire(s) under-inflated	Make sure tires are at the proper pressure. See Inflating your tires in this chapter. After inflating your tires to the manufacturer's recommended pressure as shown on the Tire Label, on the edge of driver door or the B-Pillar, drive your vehicle for at least two minutes over 20 mph (32 km/h) before the light turns off.
	Spare tire in use	Repair the damaged road wheel and tire assembly and reinstall it on the vehicle to restore system function. For a description on how the system functions, see When Your Temporary Spare Tire is Installed, in this section.
	Tire pressure monitoring system malfunction	If the tires are properly inflated and the spare tire is not in use but the light remains on, contact your authorized dealer as soon as possible.
	Tire rotation without sensor training	On vehicles with different front and rear tire pressures, the system must be retrained following every tire rotation. See **Tire Care** (page 394).
Flashing warning light	Spare tire in use	Repair the damaged road wheel and tire assembly and reinstall it on the vehicle to restore system function. For a description on how the system functions, see When Your Temporary Spare Tire is Installed, in this section.
	Tire pressure monitoring system malfunction	If the tires are properly inflated and the spare tire is not in use but the light remains on, contact your authorized dealer as soon as possible.

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When Inflating Your Tires

WARNING: Do not use the tire pressure displayed in the information display as a tire pressure gauge. Failure to follow this instruction could result in personal injury or death.

When putting air into your tires, such as at a gas station or in your garage, the tire pressure monitoring system may not immediately respond to the air added to your tires.

It may take up to two minutes of driving over 20 mph (32 km/h) for the light to turn off after you have filled your tires to the recommended inflation pressure.

How Temperature Affects Your Tire Pressure

The tire pressure monitoring system monitors tire pressure in each pneumatic tire. When driving in a normal manner, a typical passenger tire inflation pressure may increase about 2–4 psi (14–28 kPa) from a cold start situation. If the vehicle is stationary overnight with the outside temperature significantly lower than the daytime temperature, the tire pressure may decrease about 3 psi (21 kPa) for a drop of 30ºF (17ºC) in ambient temperature. This lower pressure value may be detected by the tire pressure monitoring system as being significantly lower than the recommended inflation pressure and activate the system warning light for low tire pressure.

If the low tire pressure warning light is on, visually check each tire to verify that no tire is flat. If one or more tires are flat, repair as necessary. Check the air pressure in the road tires. If any tire is under-inflated, carefully drive the vehicle to the nearest location where air can be added to the tires. Inflate all the tires to the recommended inflation pressure.

Tire Pressure Monitoring System Reset Procedure

WARNING: To determine the required pressure(s) for your vehicle, see the Safety Compliance Certification Label (on the door hinge pillar, door-latch post or the door edge that meets the door-latch post, next to the driver seat) or the Tire Label on the B-Pillar or the edge of the driver door.

Note: *You need to perform the tire pressure monitoring system reset procedure after each tire rotation on vehicles that require different recommended tire pressures in the front tires as compared to the rear tires.*

Overview

To provide the vehicle's load carrying capability, some vehicles require different recommended tire pressures in the front tires as compared to the rear tires. The tire pressure monitoring system equipped on these vehicles is designed to illuminate the low tire pressure warning light at two different pressures; one for the front tires and one for the rear tires.

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Since tires need to be rotated to provide consistent performance and maximum tire life, the tire pressure monitoring system needs to know when the tires are rotated to determine which set of tires are on the front and which are on the rear. With this information, the system can detect and properly warn of low tire pressures.

System reset tips:

- To reduce the chances of interference from another vehicle, perform the system reset procedure at least three feet, one meter, away from another Ford Motor Company vehicle undergoing the system reset procedure at the same time.
- Do not wait more than two minutes between resetting each tire sensor or the system can time-out and you need to repeat the entire procedure on all four wheels.
- A double horn sounds indicating the need to repeat the procedure.

Performing the System Reset Procedure

Read the entire procedure before attempting.

1. Drive the vehicle above 20 mph (32 km/h) for at least two minutes, then park in a safe location where you can easily get to all four tires and have access to an air pump.
2. Place the ignition in the off position and keep the key in the ignition.
3. Cycle the ignition to the on position with the engine off.
4. Switch the hazard flashers on then off three times. You must accomplish this within 10 seconds. If you successfully enter the reset mode, the horn sounds once, the system indicator flashes and a message shows in the information display. If this does not occur, please try again starting at Step 2. If after repeated attempts to enter the reset mode, the horn does not sound, the system indicator does not flash and no message shows in the information display, seek service from your authorized dealer.
5. Train the tire pressure monitoring system sensors in the tires using the following system reset sequence starting with the left front tire in the following clockwise order: Left front - driver side front tire, Right front - passenger side front tire, Right rear - passenger side rear tire - Left rear, driver side rear tire.
6. Remove the valve cap from the valve stem on the left front tire. Decrease the air pressure until the horn sounds.

Note: *The single horn tone confirms that the sensor identification code has been learned by the module for this position. If a double horn is heard, the reset procedure was unsuccessful, and you must repeat it.*

7. Remove the valve cap from the valve stem on the right front tire. Decrease the air pressure until the horn sounds.
8. Remove the valve cap from the valve stem on the right rear tire. Decrease the air pressure until the horn sounds.
9. Remove the valve cap from the valve stem on the left rear tire. Decrease the air pressure until the horn sounds. Training is complete after the horn sounds for the last tire trained, driver side rear tire, the system indicator stops flashing, and a message shows in the information display.
10. Turn the ignition off. If two short horn beeps are heard, the reset procedure was unsuccessful and you must repeat it. If after repeating the procedure and two short beeps are heard when the ignition is turned to off, seek assistance from your authorized dealer.

11. Set all four tires to the recommended air pressure as indicated on the Safety Compliance Certification Label, affixed to either the door hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver seating position or Tire Label located on the B-Pillar or the edge of the driver door.

CHANGING A ROAD WHEEL

WARNING: If the tire pressure monitor sensor becomes damaged it may not function.

Note: *The use of tire sealant may damage your tire pressure monitoring system and should only be used in roadside emergencies.*

Note: *The tire pressure monitoring system indicator light illuminates when the spare tire is in use. To restore the full function of the monitoring system, all road wheels equipped with tire pressure monitoring sensors must be mounted on this vehicle.*

If you get a flat tire when driving, do not apply the brake heavily. Instead, gradually decrease your speed. Hold the steering wheel firmly and slowly move to a safe place on the side of the road.

Have a flat serviced by an authorized dealer in order to prevent damage to the system sensors. See **Tire Pressure Monitoring System** (page 410). Replace the spare tire with a road tire as soon as possible. During repairing or replacing of the flat tire, have the authorized dealer inspect the system sensor for damage.

Dissimilar Spare Wheel and Tire Assembly Information

WARNING: Failure to follow these guidelines could result in an increased risk of loss of vehicle control, injury or death.

If you have a dissimilar spare wheel and tire, then it is intended for temporary use only. This means that if you need to use it, you should replace it as soon as possible with a road wheel and tire assembly that is the same size and type as the road tires and wheels that were originally provided by Ford.

A dissimilar spare wheel and tire assembly is defined as a spare wheel and tire assembly that is different in brand, size or appearance from the road tires and wheels.

Full-size dissimilar spare

When driving with the full-size dissimilar spare wheel and tire assembly, do not:

- Exceed 70 mph (113 km/h).
- Use more than one dissimilar spare wheel and tire assembly at a time.
- Use snow chains on the end of the vehicle with the dissimilar spare wheel and tire assembly.

When driving with the full-size dissimilar spare wheel and tire assembly, 4WD functionality may be limited, especially when driving in a mechanically locked 4WD mode. You may experience the following:

- Additional noise from the transfer case or other drive components.
- Difficulty shifting out of a mechanically locked 4WD mode.

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When driving with the full-size dissimilar spare wheel and tire assembly, it is recommended that you do not:

- Exceed 50 mph (80 km/h) in 4WD.
- Engage 4WD unless the vehicle is stationary.
- Use 4WD on dry pavement.

The usage of a full-size dissimilar spare wheel and tire assembly can lead to impairment of the following:

- Handling, stability and braking performance.
- Comfort and noise.
- Ground clearance and parking at curbs.
- Winter weather driving capability.
- Wet weather driving capability.
- Four-wheel drive capability.

When driving with the full-size dissimilar spare wheel and tire assembly additional caution should be given to:

- Towing a trailer.
- Driving vehicles equipped with a camper body.
- Driving vehicles with a load on the cargo rack.

Drive cautiously when using a full-size dissimilar spare wheel and tire assembly and seek service as soon as possible.

Tire Change Procedure

WARNING: When one of the front wheels is off the ground, the transmission alone will not prevent the vehicle from moving or slipping off the jack, even if the transmission is in park (P).

WARNING: To help prevent your vehicle from moving when changing a wheel, shift the transmission into park (P), set the parking brake and use an appropriate block or wheel chock to secure the wheel diagonally opposite to the wheel being changed. For example, when changing the front left wheel, place an appropriate block or wheel chock on the right rear wheel.

WARNING: Do not work on your vehicle when the jack is the only support. If the vehicle slips off the jack, you or someone else could be seriously injured.

WARNING: Do not attempt to change a tire on the side of the vehicle close to moving traffic. Pull far enough off the road to avoid the danger of being hit when operating the jack or changing the wheel.

WARNING: Always use the jack provided as original equipment with your vehicle. If using a jack other than the one provided, make sure the jack capacity is adequate for the vehicle weight, including any vehicle cargo or modifications. If you are unsure if the jack capacity is adequate, contact the authorized dealer.

WARNING: No person should place any portion of their body under a vehicle that is supported by a jack.

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WARNING: The jack supplied with this vehicle is only intended for changing wheels. Do not use the vehicle jack other than when you are changing a wheel in an emergency.

WARNING: The jack should be used on level firm ground wherever possible.

WARNING: Check that the vehicle jack is not damaged or deformed and the thread is lubricated and clean.

WARNING: Never place anything between the vehicle jack and the ground.

WARNING: Never place anything between the vehicle jack and your vehicle.

WARNING: It is recommended that the wheels of the vehicle be chocked, and that no person should remain in a vehicle that is being jacked.

WARNING: Switch off the running boards before jacking or placing any object under your vehicle. Never place your hand between the extended running board and your vehicle. A moving running board may cause injury.

Note: *Only use the spare tire carrier to stow the tire and wheel combination provided with your vehicle. Other tire and wheel combinations can cause the tire carrier to fail.*

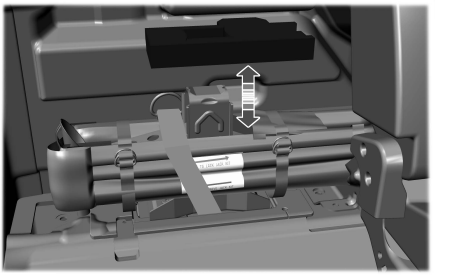
Note: *Do not use impact tools or power tools operating at over 200 RPM on the spare tire carrier, this may cause a winch malfunction and prevent a secure fit. Override the winch at least three times, there's an audible click each time, to make sure the wheel and tire have been tightened securely.*

Note: *Passengers should not remain in the vehicle when the vehicle is being jacked.*

Park on a level surface, activate the hazard flashers and set the parking brake. Then, place the transmission in park (P) and turn the engine off.

Remove the Vehicle Jack and Tool Bag

The vehicle jack and tool bag are on the rear passenger side of your vehicle, behind the passenger seat.



E233621

1. Remove the foam top - Raptor only.

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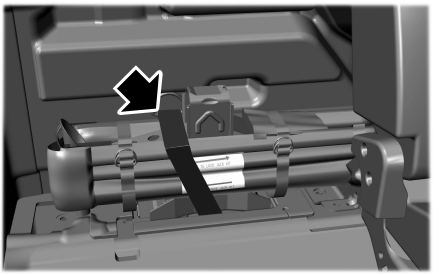
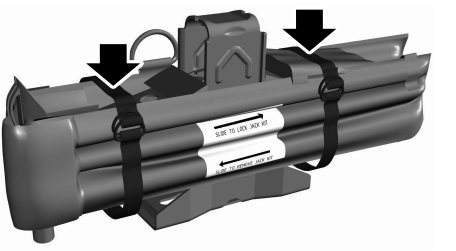


E233622

2. Release the strap securing the vehicle jack and tool bag to the vehicle.
3. With slight downward pressure, slide the vehicle jack and tool bag outward, toward the passenger side of the vehicle.
4. Lift the vehicle jack and tool bag off the floor posts and remove from your vehicle.

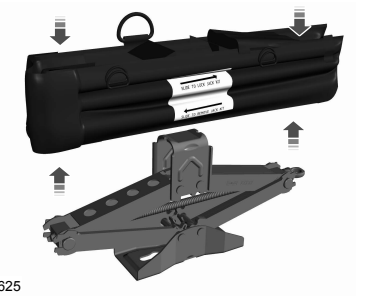
E270943

5. With the vehicle jack and tool bag removed from your vehicle, remove the fuel funnel.



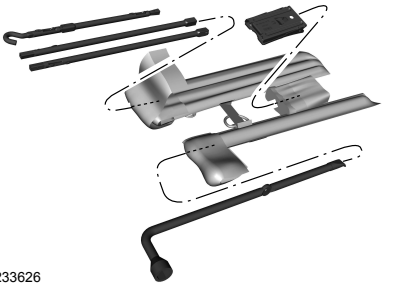
E233624

6. Release the D-ring straps.



E233625

7. Lift the tool bag off of the vehicle jack.



E233626

8. Remove the tools from the tool bag.

Note: *Only F-150 Raptor trim vehicles receive a wheel chock with the tool bag.*

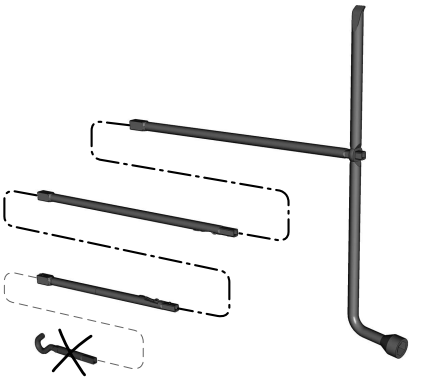
Note: *No maintenance or addition lubrication of your jack is required over the service life of your vehicle.*

Removing the Spare Tire

Note: *Remove the hook end from the assembled jack handle before continuing.*

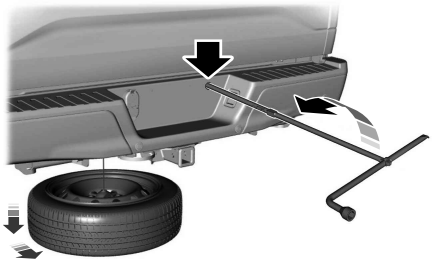
The spare tire is located under the vehicle, just forward of the rear bumper.

1. Use your key to remove the lock cylinder from the access hole of the bumper to allow access to the guide tube.



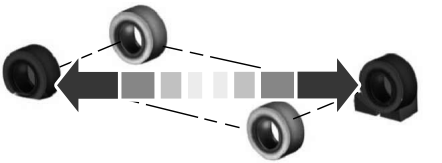
E188735

2. Assemble the jack handle as shown in the illustration.



E184020

3. Fully insert the jack handle through the bumper hole and into the guide tube through the access hole in the rear bumper.
4. Turn the handle counterclockwise until the tire is lowered to the ground and the cable is slightly slack to allow the tire to be slid rearward from under the vehicle.
5. Remove the retainer from the center of the wheel.



E175447

6. Block both the front and rear of the wheel diagonally opposite the flat tire. For example, if the left front tire is flat, block the right rear wheel.
7. Obtain the spare tire and vehicle jack from their storage locations.
8. Loosen each wheel lug nut on the affected flat tire one-half turn counterclockwise, but do not remove them.

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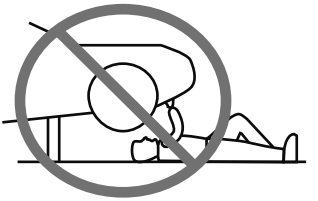
Jacking the Vehicle



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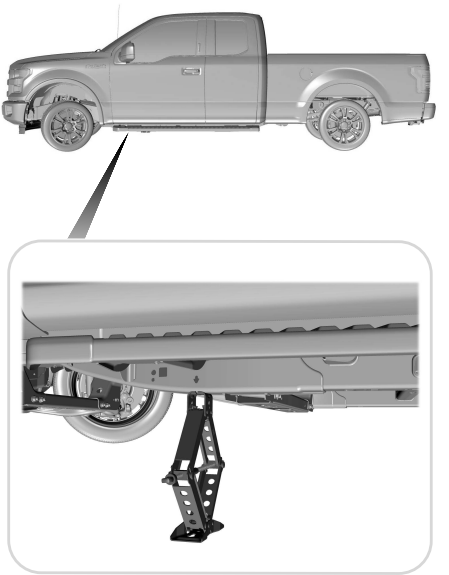
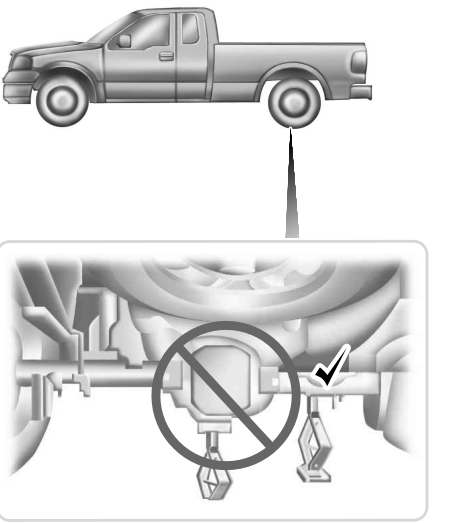
Front Jacking Points



E183709

Note: *Use the frame rail as the front jacking location point, not the control arm. The frame rail is marked with an arrow.*

Rear Jacking Points

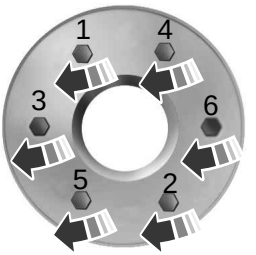


E272477

Note: *Jack at the specified locations to avoid damage to the vehicle.*

1. Place the vehicle jack at the jacking point next to the tire you are changing. Turn the jack handle clockwise until the wheel is completely off the ground.
2. Remove the lug nuts with the lug wrench.
3. Replace the flat tire with the spare tire, making sure the valve stem is facing outward. Reinstall the lug nuts until the wheel is snug against the hub. Do not fully tighten the lug nuts until the wheel has been lowered.
4. Lower the wheel by turning the jack handle counterclockwise.

5. Remove the vehicle jack and fully tighten the lug nuts in the order shown. See **Technical Specifications** (page 424).
6. Stow the flat tire. See the Stowing the Flat or Spare Tire.
7. Stow the vehicle jack and lug wrench. Make sure the jack is securely fastened before you drive. See Stowing the Vehicle Jack and Tool Bag.
8. Unblock the wheels.



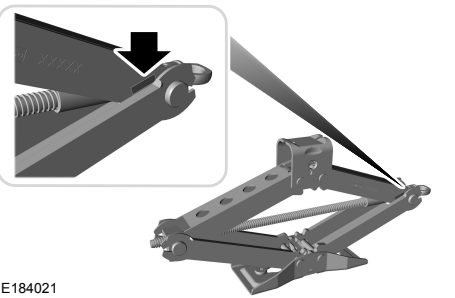
E166719

Stowing the Flat or Spare Tire

Note: *Failure to follow the spare tire stowage instructions may result in failure of the cable or loss of the spare tire.*

1. Lay the tire on the ground with the valve stem facing up.
2. Slide the wheel partially under the vehicle and install the retainer through the wheel center. Pull on the cable to align the components at the end of the cable.
3. Turn the jack handle clockwise until the tire is raised to its stowed position underneath the vehicle. The effort to turn the jack handle increases significantly and the spare tire carrier ratchets or slips when the tire is raised to the maximum tightness. Tighten to the best of your ability, to the point where the ratchet or slip occurs, if possible. The spare tire carrier does not allow you to overtighten. If the spare tire carrier ratchets or slips with little effort, contact your authorized dealer.
4. Check that the tire lies flat against the frame and is properly tightened. Try to push or pull, then turn the tire to be sure it does not move. Loosen and retighten, if necessary. Failure to properly stow the spare tire may result in failure of the winch cable and loss of the tire.
5. Repeat this tightness check procedure when servicing the spare tire pressure, every six months, as per your scheduled maintenance information, or at any time that the spare tire is disturbed through service of other components.
6. If removed, install the spare tire lock into the bumper drive tube with the spare tire lock key and jack handle.

Stowing the Vehicle Jack and Tool Bag



E184021

1. Adjust the jack up or down by rotating the lead screw located on the end of the jack. The stowage markings should line up with the bottom channel.

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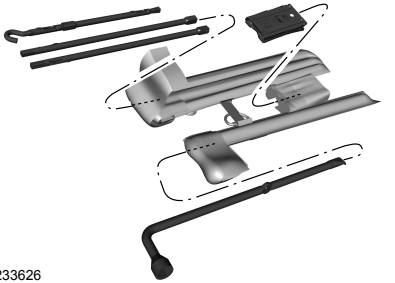
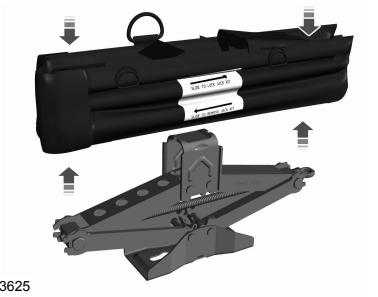


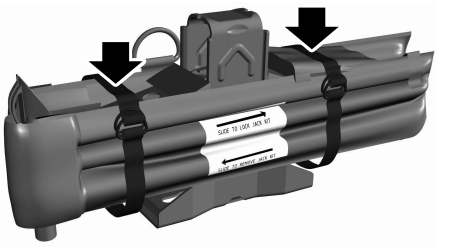
E233626

2. Place the tools inside of the tool bag.



E233625

3. Install the tool bag to the top of the vehicle jack.

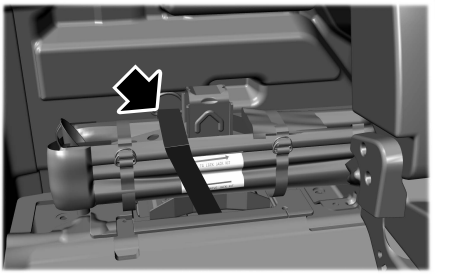


E233624

4. Install the D-ring straps that secure the tool bag to the vehicle jack.

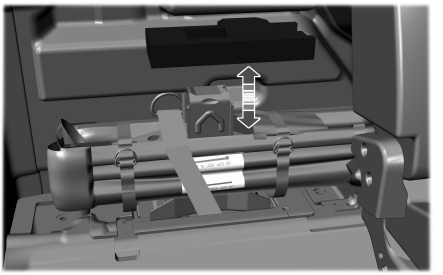
E270943

5. Install the fuel funnel.
6. Position the jack base so the key hole slots align with the posts in the floor.
7. With slight downward pressure, slide the vehicle jack and tool bag inwards toward the driver side of the vehicle until it stops.



E233622

8. Secure the strap that holds the vehicle jack and tool bag to the vehicle.


E233621

9. Install the foam top - Raptor only.

TECHNICAL SPECIFICATIONS

Wheel Lug Nut Torque Specifications

WARNING: When you install a wheel, always remove any corrosion, dirt or foreign materials present on the mounting surfaces of the wheel or the surface of the wheel hub, brake drum or brake disc that contacts the wheel. Make sure to secure any fasteners that attach the rotor to the hub so they do not interfere with the mounting surfaces of the wheel. Installing wheels without correct metal-to-metal contact at the wheel mounting surfaces can cause the wheel nuts to loosen and the wheel to come off while your vehicle is in motion, resulting in loss of vehicle control, personal injury or death.

Bolt Size	lb.ft (Nm) [1]
M14 x 1.5	150 lb.ft (204 Nm)

[1] Torque specifications are for nut and bolt threads free of dirt and rust. Use only our recommended replacement fasteners.

Retighten the lug nuts to the specified torque within 100 miles (160 kilometers) after any wheel disturbance, such as tire rotation, changing a flat tire or wheel removal.

E145950

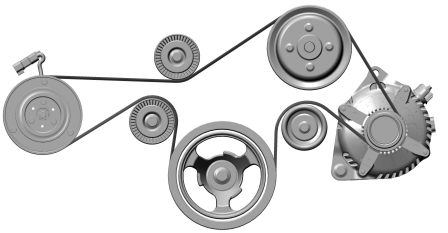
A Wheel pilot bore.

Inspect the wheel pilot hole and mounting surface prior to installation. Remove any visible corrosion or loose particles.

ENGINE SPECIFICATIONS - 2.7L ECOBOOST™

Measurement	Specification
Cubic inches	164
Firing order	1-4-2-5-3-6
Ignition system	Coil on plug
Spark plug gap	.028-.031 in. (0.7 - 0.8 mm)
Compression ratio	10.3:1

Drivebelt Routing

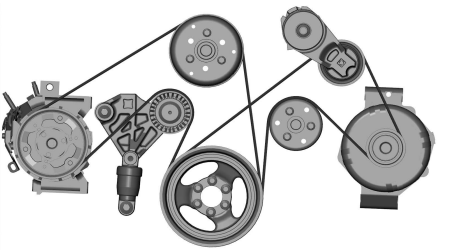


E176088

ENGINE SPECIFICATIONS - 3.0L DIESEL

Measurement	Specification
Cubic inches	183
Required Fuel	Ultra Low Sulfur Diesel
Firing order	1-4-2-5-3-6
Compression ratio	16:1

Drivebelt Routing

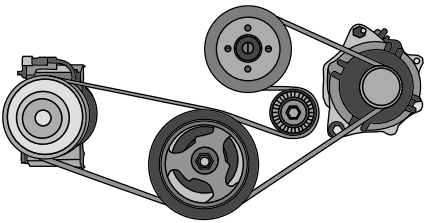


E249449

ENGINE SPECIFICATIONS - 3.3L

Measurement	Specification
Cubic inches	201
Firing order	1-4-2-5-3-6
Ignition system	Coil on plug
Spark plug gap	.049-.053 in. (1.25 - 1.35 mm)
Compression ratio	12:1

Drivebelt Routing

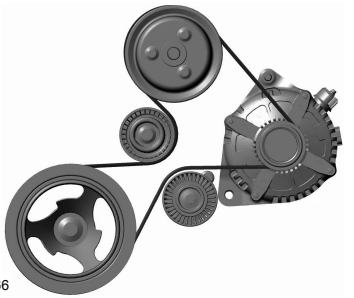


E167467

ENGINE SPECIFICATIONS - 3.5L ECOBOOST™

Measurement	Specification
Cubic inches	213
Firing order	1-4-2-5-3-6
Ignition system	Coil on plug
Spark plug gap	0.028–0.031 in (0.7–0.8 mm)
Compression ratio	10.5:1

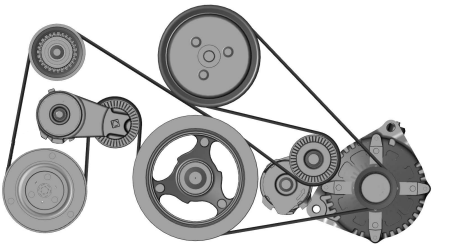
Drivebelt Routing


E263466

ENGINE SPECIFICATIONS - 5.0L

Measurement	Specification
Cubic inches	307
Firing order	1-3-7-2-6-5-4-8
Ignition system	Coil on plug, coil near plug
Spark plug gap	.049-.053 in. (1.25 - 1.35 mm)
Compression ratio	12:1

Drivebelt Routing



MOTORCRAFT PARTS - 2.7L ECOBOOST™

Component	Part Number
Air filter element.	FA-1883
Oil filter.	FL-2062
Transmission oil filter.	FT-202
Battery.	BAGM-48H6-760
	BAGM-94RH7-800
Spark plugs.	SP-578
Windshield wiper blade.	WW-2248
Cabin air filter.	FP-79

For scheduled maintenance, we recommend Motorcraft® replacement parts available at your authorized dealer or at fordparts.com. The parts engineered for your vehicle meet or exceed our specifications. Use of other parts could impact vehicle performance, emissions and durability. Your warranty could be void for any damage related to use of other parts.

If a Motorcraft® oil filter is not available, use an oil filter that meets industry performance specification SAE/USCAR-36.

For spark plug replacement, contact an authorized dealer. Replace the spark plugs at the appropriate intervals. See **Scheduled Maintenance** (page 557).

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MOTORCRAFT PARTS - 3.0L DIESEL

Component	Part Number
Air filter element.	FA-1883
Oil filter.	FL-2081
Transmission oil filter.	FT-202
Battery.	BAGM-49H8
Glow plugs.	ZD-22
Windshield wiper blade.	WW-2248
Cabin air filter.	FP-79
Fuel filter kit	FD-4627

For scheduled maintenance, we recommend Motorcraft® replacement parts available at your authorized dealer or at fordparts.com. The parts engineered for your vehicle meet or exceed our specifications. Use of other parts may impact vehicle performance, emissions and durability. Your warranty may be void for any damage related to use of other parts.

If a Motorcraft® oil filter is not available, use an oil filter that meets industry performance specification SAE/USCAR-36.

For glow plug replacement, contact an authorized dealer. See **Scheduled Maintenance** (page 557).

MOTORCRAFT PARTS - 3.3L

Component	Part Number
Air filter element.	FA-1883
Oil filter.	FL-500-S
Transmission oil filter	FT-196
Battery.	BAGM-48H6-760
	BAGM-94RH7-800
Spark plugs.	SP-520
Windshield wiper blade.	WW-2248
Cabin air filter.	FP-79

For scheduled maintenance, we recommend Motorcraft® replacement parts available at your authorized dealer or at fordparts.com. The parts engineered for your vehicle meet or exceed our specifications. Use of other parts could impact vehicle performance, emissions and durability. Your warranty could be void for any damage related to use of other parts.

If a Motorcraft® oil filter is not available, use an oil filter that meets industry performance specification SAE/USCAR-36.

Replace the spark plugs at the appropriate intervals. Replace the spark plugs at the appropriate intervals.

MOTORCRAFT PARTS - 3.5L ECOBOOST™

Component	Part Number
Air filter element.	FA-1883
Oil filter.	FL-500-S
Transmission oil filter.	FT-202
Battery.	BAGM-48H6-760
	BAGM-94RH7-800
Spark plugs.	SP-578
Windshield wiper blade.	WW-2248
Cabin air filter.	FP-79

For scheduled maintenance, we recommend Motorcraft® replacement parts available at your authorized dealer or at fordparts.com. The parts engineered for your vehicle meet or exceed our specifications. Use of other parts may impact vehicle performance, emissions and durability. Your warranty may be void for any damage related to use of other parts.

If a Motorcraft® oil filter is not available, use an oil filter that meets industry performance specification SAE/USCAR-36.

For spark plug replacement, contact an authorized dealer. Replace the spark plugs at the appropriate intervals.

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MOTORCRAFT PARTS - 5.0L

Component	Part Number
Air filter element.	FA-1883
Oil filter.	FL-500-S
Transmission oil filter.	FT-202
Battery.	BAGM-48H6-760
	BAGM-94RH7-800
Spark plugs.	SP-551
Windshield wiper blade.	WW-2248
Cabin air filter.	FP-79

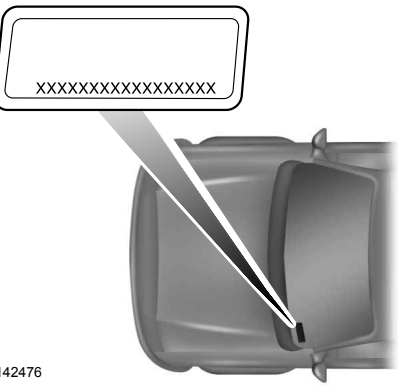
For scheduled maintenance, we recommend Motorcraft® replacement parts available at your authorized dealer or at fordparts.com. The parts engineered for your vehicle meet or exceed our specifications. Use of other parts may impact vehicle performance, emissions and durability. Your warranty may be void for any damage related to use of other parts.

If a Motorcraft® oil filter is not available, use an oil filter that meets industry performance specification SAE/USCAR-36.

For spark plug replacement, contact an authorized dealer. Replace the spark plugs at the appropriate intervals.

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number is located on the left-hand side of the instrument panel.

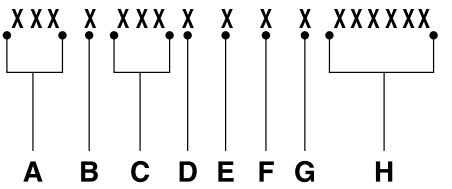


E142476

Please note that in the graphic, XXXX is representative of your vehicle identification number.

The Vehicle Identification Number contains the following information:

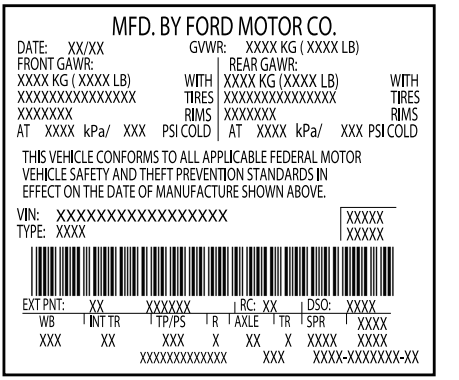
F-150 (TFC) Canada/United States of America, enUSA, Edition date: 201907, First-Printing



E142477

A	World manufacturer identifier
B	Brake system, Gross Vehicle Weight Rating, Restraint Devices and their locations
C	Make, vehicle line, series, body type
D	Engine type
E	Check digit
F	Model year
G	Assembly plant
H	Production sequence number

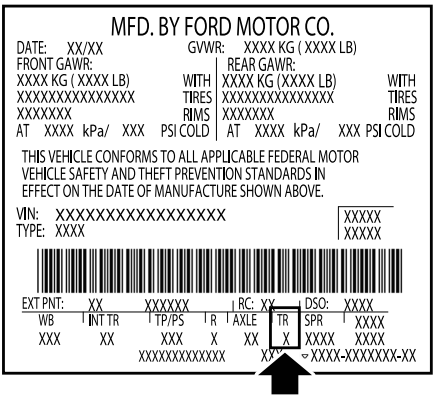
VEHICLE CERTIFICATION LABEL



E167469

The National Highway Traffic Safety Administration Regulations require that a Safety Compliance Certification Label be affixed to a vehicle and prescribe where the Safety Compliance Certification Label may be located. The Safety Compliance Certification Label shall be affixed to either the door hinge pillar, the door latch post, or the edge of the door near the door latch, next to the driver's seating position.

TRANSMISSION CODE DESIGNATION



E167814

The transmission code is on the Safety Compliance Certification Label. The following table shows the transmission code along with the transmission description.

Description	Code
Six-speed automatic transmission 6R80	6
Ten-speed automatic transmission 10R80	G

CAPACITIES AND SPECIFICATIONS - 2.7L ECOBOOST™

Use oil and fluid that meets the defined specification and viscosity grade.

If you do not use oil and fluid that meets the defined specification and viscosity grade, it could result in:

- Component damage not covered by the vehicle warranty.
- Longer engine cranking periods.
- Increased emission levels.
- Reduced engine performance.
- Reduced fuel economy.
- Reduced brake performance.

Air Conditioning System

WARNING: The air conditioning refrigerant system contains refrigerant under high pressure. Only qualified personnel should service the air conditioning refrigerant system. Opening the air conditioning refrigerant system can cause personal injury.

Capacities

Variant	Refrigerant	Refrigerant Oil
All.	26 oz (0.74 kg)	2.71 fl oz (80 ml)

Materials

Name	Specification
R-1234yf Refrigerant (U.S.) R-1234yf Refrigerant / Frigorigène R-1234yf (Canada) YN-33-A (U.S.) HS7Z-19B519-BA (Canada)	WSS-M17B21-A
Motorcraft® R-1234yf Refrigerant PAG Oil (U.S.) Motorcraft® R-1234yf Refrigerant PAG Oil / Huile PAG pour frigorigène R-1234yf Motorcraft® (Canada) YN-35 (U.S. & Canada)	WSS-M2C300-A2

Automatic Transmission

Note: *Automatic transmissions that require MERCON® ULV transmission fluid should only use MERCON® ULV transmission fluid. The use of any other fluid may cause transmission damage.*

Capacities

Variant	Quantity
All.	13.2 qt (12.5 L) [1]

[1] Approximate dry fill capacity. Actual amount may vary during fluid changes.

Materials

Name	Specification
Motorcraft® MERCON® ULV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® ULV Automatic Transmission Fluid / MERCON® ULV huile pour boîtes automatique Motorcraft® (Canada) XT-12-QULV (U.S. & Canada)	WSS-M2C949-AMERCON® ULV

Engine Coolant

Capacities

Variant	Quantity
All.	15.1 qt (14.3 L)

Materials

Name	Specification
Motorcraft® Yellow Prediluted Antifreeze/Coolant (U.S.) Motorcraft® Yellow Prediluted Antifreeze/Coolant / Antigel/liquide de refroidissement prédilué jaune Motorcraft® (Canada) VC-13DL-G (U.S.) CVC-13DL-G (Canada)	WSS-M97B57-A2

Engine Oil

E142732

E276075

An oil that displays this symbol conforms to current engine, emission system and fuel economy performance standards of ILSAC.

We recommend Motorcraft® motor oil for your vehicle. If Motorcraft® oil is not available, use motor oils of the recommended viscosity grade that meet API SN PLUS requirements and display the API Certification Mark for gasoline engines.

Do not use supplemental engine oil additives because they are unnecessary and could lead to engine damage that your vehicle warranty does not cover.

Capacities

Variant	Including the Oil Filter
All.	6.0 qt (5.7 L)

Materials

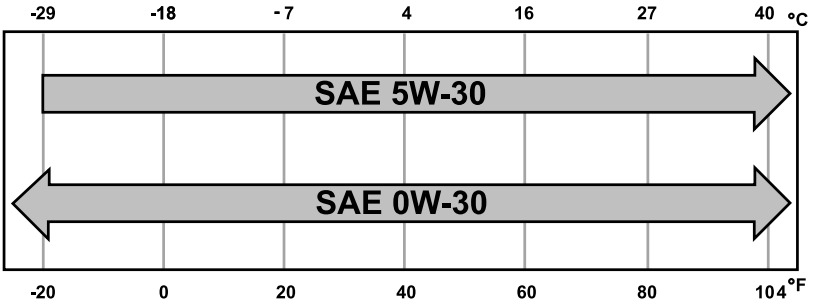
Name	Specification
Engine Oil - SAE 5W-30 - Synthetic Blend Motor Oil (U.S.) Engine Oil - SAE 5W-30 - Super Premium Motor Oil / Huile moteur de très haute qualité SAE 5W-30 Motorcraft® (Canada) XO-5W30-Q1SP (U.S.) CXO-5W30-LSP6 (Canada)	WSS-M2C946-B1

Alternative Engine Oil for Extremely Cold Climates

To improve engine cold start performance, we recommend that you use the following alternative engine oil in extremely cold climates, where the ambient temperature reaches -22.0°F (-30°C) or below.

Materials

Name	Specification
Engine Oil - SAE 0W-30	WSS-M2C953-B1



Fuel Tank

Capacities

Variant	Quantity
Regular Cab and SuperCab.	23.0 gal (87.1 L)
SuperCrew Cab.	26.0 gal (98.4 L)
Optional.	36.0 gal (136.3 L)

Grease

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Materials

Name	Specification
Motorcraft® Premium Long-Life Grease (U.S.) Motorcraft® Premium Long-Life Grease / Graisse longue durée de qualité première Motorcraft® (Canada) XG-1-E1 (U.S. & Canada)	ESA-M1C75-B
Motorcraft® Multi-Purpose Grease Spray (U.S.) Motorcraft® Multi-Purpose Grease Spray / Graisse tout usage en aérosol Motorcraft® (Canada) XL-5-A (U.S. & Canada)	ESB-M1C93-B

Hydraulic Brake System

Materials

Name	Specification
Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid (U.S.) Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid / Liquide de frein automobile haute performance DOT 4 LV Motorcraft® (Canada) PM-20 (U.S. & Canada)	WSS-M6C65-A2

Note: *We recommend using DOT 4 Low Viscosity (LV) High Performance Brake Fluid or equivalent meeting WSS-M6C65-A2. Use of any fluid other than the recommended fluid could cause reduced brake performance and not meet our performance standards. Keep brake fluid clean and dry. Contamination with dirt, water, petroleum products or other materials could result in brake system damage and possible failure.*

Locks

Materials

Name	Specification
Motorcraft® Penetrating and Lock Lubricant (U.S.) Motorcraft® Penetrating Fluid / Liquide dégrippant Motorcraft® (Canada) XL-1 (U.S.) CXC-51-A (Canada)	-

Transfer Case

Capacities

Variant	Quantity
Four-wheel drive (Electronic Shift-on-the-Fly).	1.5 qt (1.4 L)
Automatic four-wheel drive (Torque on demand).	1.5 qt (1.4 L)

Materials

Name	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® LV Automatic Transmission Fluid / Huile pour boîte automatique MERCON® LV Motorcraft® (Canada) XT-10-QLVC (U.S.) CXT-10-LV6 (Canada)	MERCON® LV WSS-M2C938-A

Front Axle

Capacities

Variant	Quantity
Four wheel drive.	1.8 qt (1.7 L)

Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Rear Axle

Capacities

Variant	Quantity
All.	2.7 qt (2.6 L)

Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Washer Reservoir

Capacities

Variant	Quantity
All.	Fill as required.

Materials

Name	Specification
Motorcraft® Premium Windshield Wash Concentrate with Bitterant (U.S.) Motorcraft® Premium Quality Windshield Washer Fluid / Liquide lave-glace de haute qualité Motorcraft® (Canada) ZC-32-B2 (U.S.) CXC-37-A/B/D/F (Canada)	WSS-M14P19-A

CAPACITIES AND SPECIFICATIONS - 3.0L DIESEL

Use oil and fluid that meets the defined specification and viscosity grade.

If you do not use oil and fluid that meets the defined specification and viscosity grade, it could result in:

- Component damage not covered by the vehicle warranty.
- Longer engine cranking periods.
- Increased emission levels.
- Reduced engine performance.
- Reduced fuel economy.
- Reduced brake performance.

Air Conditioning System

WARNING: The air conditioning refrigerant system contains refrigerant under high pressure. Only qualified personnel should service the air conditioning refrigerant system. Opening the air conditioning refrigerant system can cause personal injury.

Capacities

Variant	Refrigerant	Refrigerant Oil
All.	26 oz (0.74 kg)	2.71 fl oz (80 ml)

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Materials

Name	Specification
R-1234yf Refrigerant (U.S.) R-1234yf Refrigerant / Frigorigène R-1234yf (Canada) YN-33-A (U.S.) HS7Z-19B519-BA (Canada)	WSS-M17B21-A
Motorcraft® R-1234yf Refrigerant PAG Oil (U.S.) Motorcraft® R-1234yf Refrigerant PAG Oil / Huile PAG pour frigorigène R-1234yf Motorcraft® (Canada) YN-35 (U.S. & Canada)	WSS-M2C300-A2

Automatic Transmission

Note: *Automatic transmissions that require MERCON® ULV transmission fluid should only use MERCON® ULV transmission fluid. The use of any other fluid may cause transmission damage.*

Capacities

Variant	Quantity
All.	13.3 qt (12.6 L) [1]

[1] Approximate dry fill capacity. Actual amount may vary during fluid changes.

Materials

Name	Specification
Motorcraft® MERCON® ULV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® ULV Automatic Transmission Fluid / MERCON® ULV huile pour boîtes automatique Motorcraft® (Canada) XT-12-QULV (U.S. & Canada)	WSS-M2C949-AMERCON® ULV

Engine Coolant

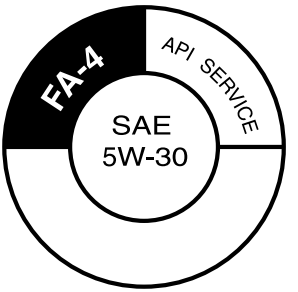
Capacities

Variant	Quantity
All.	13.7 qt (13 L)

Materials

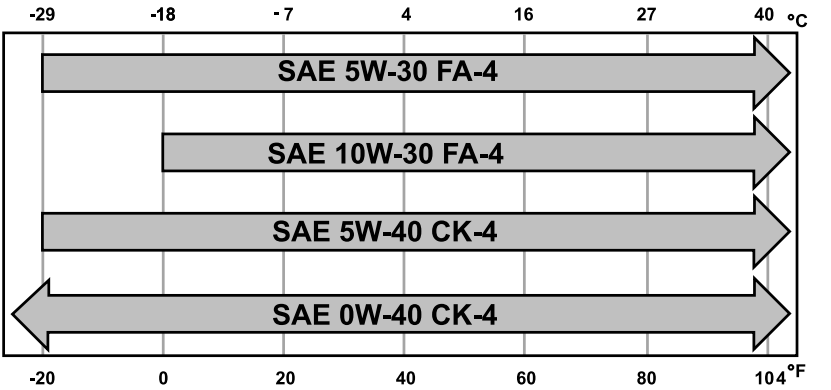
Name	Specification
Motorcraft® Yellow Prediluted Antifreeze/Coolant (U.S.) Motorcraft® Yellow Prediluted Antifreeze/Coolant / Antigel/liquide de refroidissement prédilué jaune Motorcraft® (Canada) VC-13DL-G (U.S.) CVC-13DL-G (Canada)	WSS-M97B57-A2

Engine Oil



E258300

The American Petroleum Institute (API) service symbol is used to identify the proper engine oil for your engine. The API service symbol will be displayed on the oil container you purchase. The API symbol displays the oil performance category in the top half of symbol and the viscosity grade in the center of the symbol.



The use of correct oil viscosities for diesel engines is important for satisfactory operation. Determine which oil viscosity best suits the temperature range you expect to encounter for the next service interval from the following SAE viscosity grade chart.

Note: *For severe duty service, use SAE 5W-40 API CK-4.*

Note: *For bio-diesel fuel blends (B20 max), use SAE 5W-40 API CK-4.*

Note: *An engine block heater is recommended at temperatures below -9°F (-23°C).*

Note: *Do not use supplemental engine oil additives because they are unnecessary and could lead to engine damage that your vehicle warranty does not cover.*

Capacities

Variant	Including the Oil Filter
All.	6.5 qt (6.15 L)

Materials

Name	Specification
Motorcraft® SAE 5W-30 F-150 Diesel Motor Oil (U.S.) Motorcraft® SAE 5W-30 F-150 Diesel Motor Oil / Huile moteur diesel F-150 SAE 5W-30 Motorcraft® (Canada) XO-5W30-QFA (U.S. & Canada)	WSS-M2C214-B1

Fuel Tank

Capacities

Variant	Quantity
All.	26.0 gal (98.4 L)

Diesel Exhaust Fluid Tank

Capacities

Variant	Quantity
All.	5.6 gal (21.3 L)

Materials

Name	Specification
Motorcraft® Diesel Exhaust Fluid (U.S.) Motorcraft® Diesel Exhaust Fluid / Fluide pour échappement diesel Motorcraft® (Canada) PM-27-GAL, PM-27-JUG (U.S.) CPM-27-J (Canada)	WSS-M99C130-A

Grease

Materials

Name	Specification
Motorcraft® Premium Long-Life Grease (U.S.) Motorcraft® Premium Long-Life Grease / Graisse longue durée de qualité première Motorcraft® (Canada) XG-1-E1 (U.S. & Canada)	ESA-M1C75-B
Motorcraft® Multi-Purpose Grease Spray (U.S.) Motorcraft® Multi-Purpose Grease Spray / Graisse tout usage en aérosol Motorcraft® (Canada) XL-5-A (U.S. & Canada)	ESB-M1C93-B

Hydraulic Brake System

Materials

Name	Specification
Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid (U.S.) Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid / Liquide de frein automobile haute performance DOT 4 LV Motorcraft® (Canada) PM-20 (U.S. & Canada)	WSS-M6C65-A2

Note: *We recommend using DOT 4 Low Viscosity (LV) High Performance Brake Fluid or equivalent meeting WSS-M6C65-A2. Use of any fluid other than the recommended fluid could cause reduced brake performance and not meet our performance standards. Keep brake fluid clean and dry. Contamination with dirt, water, petroleum products or other materials could result in brake system damage and possible failure.*

Locks

Materials

Name	Specification
Motorcraft® Penetrating and Lock Lubricant (U.S.) Motorcraft® Penetrating Fluid / Liquide dégrippant Motorcraft® (Canada) XL-1 (U.S.) CXC-51-A (Canada)	-

Transfer Case

Capacities

Variant	Quantity
Four-wheel drive (Electronic Shift-on-the-Fly).	1.5 qt (1.4 L)
Automatic four-wheel drive (Torque on demand).	1.5 qt (1.4 L)
Two-speed automatic four-wheel drive (Mechanical Lock).	1.9 qt (1.8 L)

Materials

Name	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® LV Automatic Transmission Fluid / Huile pour boîte automatique MERCON® LV Motorcraft® (Canada) XT-10-QLVC (U.S.) CXT-10-LV6 (Canada)	MERCON® LV WSS-M2C938-A

Front Axle

Capacities

Variant	Quantity
Four wheel drive.	1.8 qt (1.7 L)

Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Rear Axle

Capacities

Variant	Quantity
All.	2.7 qt (2.6 L)

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Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Washer Reservoir

Capacities

Variant	Quantity
All.	Fill as required.

Materials

Name	Specification
Motorcraft® Premium Windshield Wash Concentrate with Bitterant (U.S.) Motorcraft® Premium Quality Windshield Washer Fluid / Liquide lave-glace de haute qualité Motorcraft® (Canada) ZC-32-B2 (U.S.) CXC-37-A/B/D/F (Canada)	WSS-M14P19-A

CAPACITIES AND SPECIFICATIONS - 3.3L

Use oil and fluid that meets the defined specification and viscosity grade.

If you do not use oil and fluid that meets the defined specification and viscosity grade, it could result in:

- Component damage not covered by the vehicle warranty.
- Longer engine cranking periods.
- Increased emission levels.
- Reduced engine performance.
- Reduced fuel economy.
- Reduced brake performance.

Air Conditioning System

WARNING: The air conditioning refrigerant system contains refrigerant under high pressure. Only qualified personnel should service the air conditioning refrigerant system. Opening the air conditioning refrigerant system can cause personal injury.

Capacities

Variant	Refrigerant	Refrigerant Oil
All.	26 oz (0.74 kg)	4.06 fl oz (120 ml)

Materials

Name	Specification
R-1234yf Refrigerant (U.S.) R-1234yf Refrigerant / Frigorigène R-1234yf (Canada) YN-33-A (U.S.) HS7Z-19B519-BA (Canada)	WSS-M17B21-A
Motorcraft® R-1234yf Refrigerant PAG Oil (U.S.) Motorcraft® R-1234yf Refrigerant PAG Oil / Huile PAG pour frigorigène R-1234yf Motorcraft® (Canada) YN-35 (U.S. & Canada)	WSS-M2C300-A2

Automatic Transmission

Note: *Automatic transmissions that require MERCON® LV transmission fluid should only use MERCON® LV transmission fluid. The use of any other fluid may cause transmission damage.*

Capacities

Variant	Quantity
All.	13.6 qt (12.9 L) [1]

[1] Approximate dry fill capacity. Actual amount may vary during fluid changes.

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Materials

Name	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® LV Automatic Transmission Fluid / Huile pour boîte automatique MERCON® LV Motorcraft® (Canada) XT-10-QLVC (U.S.) CXT-10-LV6 (Canada)	MERCON® LV WSS-M2C938-A

Engine Coolant

Capacities

Variant	Quantity
All.	13.6 qt (12.86 L)

Materials

Name	Specification
Motorcraft® Yellow Prediluted Antifreeze/Coolant (U.S.) Motorcraft® Yellow Prediluted Antifreeze/Coolant / Antigel/liquide de refroidissement prédilué jaune Motorcraft® (Canada) VC-13DL-G (U.S.) CVC-13DL-G (Canada)	WSS-M97B57-A2

Engine Oil

E142732

E275759

An oil that displays this symbol conforms to current engine, emission system and fuel economy performance standards of ILSAC.

We recommend Motorcraft® motor oil for your vehicle. If Motorcraft® oil is not available, use motor oils of the recommended viscosity grade that meet API SN PLUS requirements and display the API Certification Mark for gasoline engines.

Do not use supplemental engine oil additives because they are unnecessary and could lead to engine damage that your vehicle warranty does not cover.

Capacities

Variant	Including the Oil Filter
All.	6.0 qt (5.7 L)

Materials

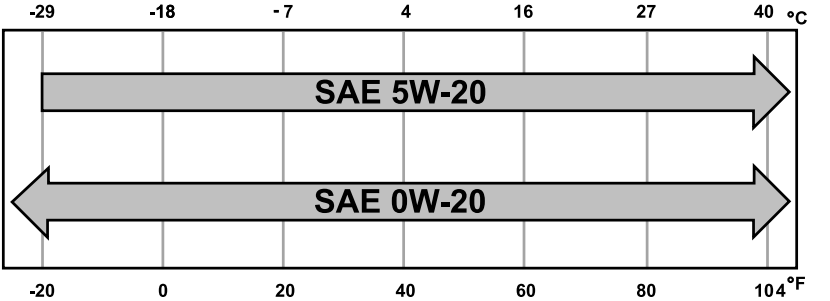
Name	Specification
Engine Oil - SAE 5W-20 - Synthetic Blend Motor Oil (U.S.) Engine Oil - SAE 5W-20 - Super Premium Motor Oil / Huile moteur de très haute qualité SAE 5W-20 Motorcraft® (Canada) XO-5W20-Q1SP (U.S.) CXO-5W20-LSP6 (Canada)	WSS-M2C945-B1

Alternative Engine Oil for Extremely Cold Climates

To improve engine cold start performance, we recommend that you use the following alternative engine oil in extremely cold climates, where the ambient temperature reaches -22.0°F (-30°C) or below.

Materials

Name	Specification
Engine Oil - SAE 0W-20 - Synthetic Blend Motor Oil (U.S.) (Canada) XO-0W20-Q1SP (U.S.)	WSS-M2C947-B1



Fuel Tank

Capacities

Variant	Quantity
Regular Cab and SuperCab.	23.0 gal (87.1 L)
SuperCrew Cab.	26.0 gal (98.4 L)
Optional.	36.0 gal (136.3 L)

Grease

F-150 (TFC) Canada/United States of America, enUSA, Edition date: 201907, First-Printing

Materials

Name	Specification
Motorcraft® Premium Long-Life Grease (U.S.) Motorcraft® Premium Long-Life Grease / Graisse longue durée de qualité première Motorcraft® (Canada) XG-1-E1 (U.S. & Canada)	ESA-M1C75-B
Motorcraft® Multi-Purpose Grease Spray (U.S.) Motorcraft® Multi-Purpose Grease Spray / Graisse tout usage en aérosol Motorcraft® (Canada) XL-5-A (U.S. & Canada)	ESB-M1C93-B

Hydraulic Brake System

Materials

Name	Specification
Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid (U.S.) Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid / Liquide de frein automobile haute performance DOT 4 LV Motorcraft® (Canada) PM-20 (U.S. & Canada)	WSS-M6C65-A2

Note: *We recommend using DOT 4 Low Viscosity (LV) High Performance Brake Fluid or equivalent meeting WSS-M6C65-A2. Use of any fluid other than the recommended fluid could cause reduced brake performance and not meet our performance standards. Keep brake fluid clean and dry. Contamination with dirt, water, petroleum products or other materials could result in brake system damage and possible failure.*

Locks

F-150 (TFC) Canada/United States of America, enUSA, Edition date: 201907, First-Printing

Materials

Name	Specification
Motorcraft® Penetrating and Lock Lubricant (U.S.) Motorcraft® Penetrating Fluid / Liquide dégrippant Motorcraft® (Canada) XL-1 (U.S.) CXC-51-A (Canada)	-

Transfer Case

Capacities

Variant	Quantity
Four-wheel drive (Electronic Shift-on-the-Fly).	1.5 qt (1.4 L)
Automatic four-wheel drive (Torque on demand).	1.5 qt (1.4 L)

Materials

Name	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® LV Automatic Transmission Fluid / Huile pour boîte automatique MERCON® LV Motorcraft® (Canada) XT-10-QLVC (U.S.) CXT-10-LV6 (Canada)	MERCON® LV WSS-M2C938-A

Front Axle

Capacities

Variant	Quantity
Four wheel drive.	1.8 qt (1.7 L)

Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Rear Axle

Capacities

Variant	Quantity
All.	2.7 qt (2.6 L)

Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Washer Reservoir

Capacities

Variant	Quantity
All.	Fill as required.

Materials

Name	Specification
Motorcraft® Premium Windshield Wash Concentrate with Bitterant (U.S.) Motorcraft® Premium Quality Windshield Washer Fluid / Liquide lave-glace de haute qualité Motorcraft® (Canada) ZC-32-B2 (U.S.) CXC-37-A/B/D/F (Canada)	WSS-M14P19-A

CAPACITIES AND SPECIFICATIONS - 3.5L ECOBOOST™

Use oil and fluid that meets the defined specification and viscosity grade.

If you do not use oil and fluid that meets the defined specification and viscosity grade, it could result in:

- Component damage not covered by the vehicle warranty.
- Longer engine cranking periods.
- Increased emission levels.
- Reduced engine performance.
- Reduced fuel economy.
- Reduced brake performance.

Air Conditioning System

WARNING: The air conditioning refrigerant system contains refrigerant under high pressure. Only qualified personnel should service the air conditioning refrigerant system. Opening the air conditioning refrigerant system can cause personal injury.

Capacities

Variant	Refrigerant	Refrigerant Oil
All.	26 oz (0.74 kg)	2.71 fl oz (80 ml)

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Materials

Name	Specification
R-1234yf Refrigerant (U.S.) R-1234yf Refrigerant / Frigorigène R-1234yf (Canada) YN-33-A (U.S.) HS7Z-19B519-BA (Canada)	WSS-M17B21-A
Motorcraft® R-1234yf Refrigerant PAG Oil (U.S.) Motorcraft® R-1234yf Refrigerant PAG Oil / Huile PAG pour frigorigène R-1234yf Motorcraft® (Canada) YN-35 (U.S. & Canada)	WSS-M2C300-A2

Automatic Transmission

Note: *Automatic transmissions that require MERCON® ULV transmission fluid should only use MERCON® ULV transmission fluid. The use of any other fluid may cause transmission damage.*

Capacities

Variant	Quantity
All.	13.2 qt (12.5 L) [1]

[1] Approximate dry fill capacity. Actual amount may vary during fluid changes.

Materials

Name	Specification
Motorcraft® MERCON® ULV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® ULV Automatic Transmission Fluid / MERCON® ULV huile pour boîtes automatique Motorcraft® (Canada) XT-12-QULV (U.S. & Canada)	WSS-M2C949-AMERCON® ULV

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Engine Coolant

Capacities

Variant	Quantity
All.	15.2 qt (14.35 L)

Materials

Name	Specification
Motorcraft® Yellow Prediluted Antifreeze/Coolant (U.S.) Motorcraft® Yellow Prediluted Antifreeze/Coolant / Antigel/liquide de refroidissement prédilué jaune Motorcraft® (Canada) VC-13DL-G (U.S.) CVC-13DL-G (Canada)	WSS-M97B57-A2

Engine Oil

E142732

E276075

An oil that displays this symbol conforms to current engine, emission system and fuel economy performance standards of ILSAC.

We recommend Motorcraft® motor oil for your vehicle. If Motorcraft® oil is not available, use motor oils of the recommended viscosity grade that meet API SN PLUS requirements and display the API Certification Mark for gasoline engines.

Do not use supplemental engine oil additives because they are unnecessary and could lead to engine damage that your vehicle warranty does not cover.

Capacities

Variant	Including the Oil Filter
All.	6.0 qt (5.7 L)

Materials

Name	Specification
Engine Oil - SAE 5W-30 - Synthetic Blend Motor Oil (U.S.) Engine Oil - SAE 5W-30 - Super Premium Motor Oil / Huile moteur de très haute qualité SAE 5W-30 Motorcraft® (Canada) XO-5W30-Q1SP (U.S.) CXO-5W30-LSP6 (Canada)	WSS-M2C946-B1

Alternative Engine Oil for Extremely Cold Climates

To improve engine cold start performance, we recommend that you use the following alternative engine oil in extremely cold climates, where the ambient temperature reaches -22.0°F (-30°C) or below.

Materials

Name	Specification
Engine Oil - SAE 0W-30	WSS-M2C953-B1

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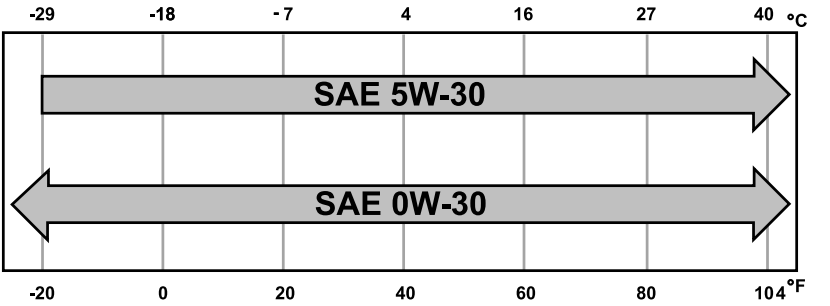

Fuel Tank

Capacities

Variant	Quantity
Regular Cab and SuperCab.	23.0 gal (87.1 L)
SuperCrew Cab.	26.0 gal (98.4 L)
Optional.	36.0 gal (136.3 L)

Grease

Materials

Name	Specification
Motorcraft® Premium Long-Life Grease (U.S.) Motorcraft® Premium Long-Life Grease / Graisse longue durée de qualité première Motorcraft® (Canada) XG-1-E1 (U.S. & Canada)	ESA-M1C75-B
Motorcraft® Multi-Purpose Grease Spray (U.S.) Motorcraft® Multi-Purpose Grease Spray / Graisse tout usage en aérosol Motorcraft® (Canada) XL-5-A (U.S. & Canada)	ESB-M1C93-B

Hydraulic Brake System

Materials

Name	Specification
Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid (U.S.) Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid / Liquide de frein automobile haute performance DOT 4 LV Motorcraft® (Canada) PM-20 (U.S. & Canada)	WSS-M6C65-A2

Note: *We recommend using DOT 4 Low Viscosity (LV) High Performance Brake Fluid or equivalent meeting WSS-M6C65-A2. Use of any fluid other than the recommended fluid could cause reduced brake performance and not meet our performance standards. Keep brake fluid clean and dry. Contamination with dirt, water, petroleum products or other materials could result in brake system damage and possible failure.*

Locks

Materials

Name	Specification
Motorcraft® Penetrating and Lock Lubricant (U.S.) Motorcraft® Penetrating Fluid / Liquide dégrippant Motorcraft® (Canada) XL-1 (U.S.) CXC-51-A (Canada)	-

Transfer Case

Capacities

Variant	Quantity
Four-wheel drive (Electronic Shift-on-the-Fly).	1.5 qt (1.4 L)
Automatic four-wheel drive (Torque on demand).	1.5 qt (1.4 L)
Two-speed automatic four-wheel drive (Mechanical Lock).	1.9 qt (1.8 L)

Materials

Name	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® LV Automatic Transmission Fluid / Huile pour boîte automatique MERCON® LV Motorcraft® (Canada) XT-10-QLVC (U.S.) CXT-10-LV6 (Canada)	MERCON® LV WSS-M2C938-A

Front Axle

Capacities

Variant	Quantity
Four wheel drive.	1.8 qt (1.7 L)

Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Rear Axle

Capacities

Variant	Quantity
All.	2.7 qt (2.6 L)

Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Washer Reservoir

Capacities

Variant	Quantity
All.	Fill as required.

Materials

Name	Specification
Motorcraft® Premium Windshield Wash Concentrate with Bitterant (U.S.) Motorcraft® Premium Quality Windshield Washer Fluid / Liquide lave-glace de haute qualité Motorcraft® (Canada) ZC-32-B2 (U.S.) CXC-37-A/B/D/F (Canada)	WSS-M14P19-A

CAPACITIES AND SPECIFICATIONS - 5.0L

Use oil and fluid that meets the defined specification and viscosity grade.

If you do not use oil and fluid that meets the defined specification and viscosity grade, it could result in:

- Component damage not covered by the vehicle warranty.
- Longer engine cranking periods.
- Increased emission levels.
- Reduced engine performance.
- Reduced fuel economy.
- Reduced brake performance.

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Air Conditioning System

WARNING: The air conditioning refrigerant system contains refrigerant under high pressure. Only qualified personnel should service the air conditioning refrigerant system. Opening the air conditioning refrigerant system can cause personal injury.

Capacities

Variant	Refrigerant	Refrigerant Oil
All.	26 oz (0.74 kg)	2.71 fl oz (80 ml)

Materials

Name	Specification
R-1234yf Refrigerant (U.S.) R-1234yf Refrigerant / Frigorigène R-1234yf (Canada) YN-33-A (U.S.) HS7Z-19B519-BA (Canada)	WSS-M17B21-A
Motorcraft® R-1234yf Refrigerant PAG Oil (U.S.) Motorcraft® R-1234yf Refrigerant PAG Oil / Huile PAG pour frigorigène R-1234yf Motorcraft® (Canada) YN-35 (U.S. & Canada)	WSS-M2C300-A2

Automatic Transmission

Note: *Automatic transmissions that require MERCON® ULV transmission fluid should only use MERCON® ULV transmission fluid. The use of any other fluid may cause transmission damage.*

Capacities

Variant	Quantity
All.	13.2 qt (12.5 L) [1]

[1] Approximate dry fill capacity. Actual amount may vary during fluid changes.

Materials

Name	Specification
Motorcraft® MERCON® ULV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® ULV Automatic Transmission Fluid / MERCON® ULV huile pour boîtes automatique Motorcraft® (Canada) XT-12-QULV (U.S. & Canada)	WSS-M2C949-AMERCON® ULV

Engine Coolant

Capacities

Variant	Quantity
All.	13.9 qt (13.2 L)

Materials

Name	Specification
Motorcraft® Yellow Prediluted Antifreeze/Coolant (U.S.) Motorcraft® Yellow Prediluted Antifreeze/Coolant / Antigel/liquide de refroidissement prédilué jaune Motorcraft® (Canada) VC-13DL-G (U.S.) CVC-13DL-G (Canada)	WSS-M97B57-A2

Engine Oil

E142732

E275759

An oil that displays this symbol conforms to current engine, emission system and fuel economy performance standards of ILSAC.

We recommend Motorcraft® motor oil for your vehicle. If Motorcraft® oil is not available, use motor oils of the recommended viscosity grade that meet API SN PLUS requirements and display the API Certification Mark for gasoline engines.

Do not use supplemental engine oil additives because they are unnecessary and could lead to engine damage that your vehicle warranty does not cover.

Capacities

Variant	Including the Oil Filter
All.	8.8 qt (8.3 L)

Materials

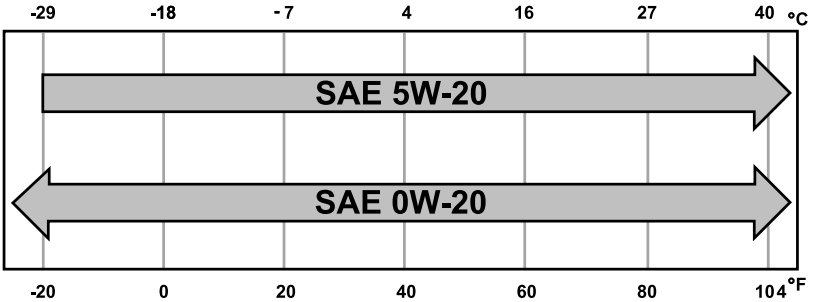
Name	Specification
Engine Oil - SAE 5W-20 - Synthetic Blend Motor Oil (U.S.) Engine Oil - SAE 5W-20 - Super Premium Motor Oil / Huile moteur de très haute qualité SAE 5W-20 Motorcraft® (Canada) XO-5W20-Q1SP (U.S.) CXO-5W20-LSP6 (Canada)	WSS-M2C945-B1

Alternative Engine Oil for Extremely Cold Climates

To improve engine cold start performance, we recommend that you use the following alternative engine oil in extremely cold climates, where the ambient temperature reaches -22.0°F (-30°C) or below.

Materials

Name	Specification
Engine Oil - SAE 0W-20 - Synthetic Blend Motor Oil (U.S.) (Canada) XO-0W20-Q1SP (U.S.)	WSS-M2C947-B1



Fuel Tank

Capacities

Variant	Quantity
Regular Cab and SuperCab.	23.0 gal (87.1 L)
SuperCrew Cab.	26.0 gal (98.4 L)
Optional.	36.0 gal (136.3 L)

Grease

F-150 (TFC) Canada/United States of America, enUSA, Edition date: 201907, First-Printing

Materials

Name	Specification
Motorcraft® Premium Long-Life Grease (U.S.) Motorcraft® Premium Long-Life Grease / Graisse longue durée de qualité première Motorcraft® (Canada) XG-1-E1 (U.S. & Canada)	ESA-M1C75-B
Motorcraft® Multi-Purpose Grease Spray (U.S.) Motorcraft® Multi-Purpose Grease Spray / Graisse tout usage en aérosol Motorcraft® (Canada) XL-5-A (U.S. & Canada)	ESB-M1C93-B

Hydraulic Brake System

Materials

Name	Specification
Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid (U.S.) Motorcraft® DOT 4 LV High Performance Motor Vehicle Brake Fluid / Liquide de frein automobile haute performance DOT 4 LV Motorcraft® (Canada) PM-20 (U.S. & Canada)	WSS-M6C65-A2

Note: *We recommend using DOT 4 Low Viscosity (LV) High Performance Brake Fluid or equivalent meeting WSS-M6C65-A2. Use of any fluid other than the recommended fluid could cause reduced brake performance and not meet our performance standards. Keep brake fluid clean and dry. Contamination with dirt, water, petroleum products or other materials could result in brake system damage and possible failure.*

Locks

Materials

Name	Specification
Motorcraft® Penetrating and Lock Lubricant (U.S.) Motorcraft® Penetrating Fluid / Liquide dégrippant Motorcraft® (Canada) XL-1 (U.S.) CXC-51-A (Canada)	-

Transfer Case

Capacities

Variant	Quantity
Four-wheel drive (Electronic Shift-on-the-Fly).	1.5 qt (1.4 L)
Automatic four-wheel drive (Torque on demand).	1.5 qt (1.4 L)

Materials

Name	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid (U.S.) Motorcraft® MERCON® LV Automatic Transmission Fluid / Huile pour boîte automatique MERCON® LV Motorcraft® (Canada) XT-10-QLVC (U.S.) CXT-10-LV6 (Canada)	MERCON® LV WSS-M2C938-A

Front Axle

Capacities

Variant	Quantity
Four wheel drive.	1.8 qt (1.7 L)

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Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Rear Axle

Capacities

Variant	Quantity
All.	2.7 qt (2.6 L)

Materials

Name	Specification
Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant (U.S.) Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant / Huile synthétique de haute qualité pour engrenages hypoïdes SAE 75W-85 Motorcraft® (Canada) XY-75W85-QL (U.S. & Canada)	WSS-M2C942-A

Washer Reservoir

Capacities

Variant	Quantity
All.	Fill as required.

Materials

Name	Specification
Motorcraft® Premium Windshield Wash Concentrate with Bitterant (U.S.) Motorcraft® Premium Quality Windshield Washer Fluid / Liquide lave-glace de haute qualité Motorcraft® (Canada) ZC-32-B2 (U.S.) CXC-37-A/B/D/F (Canada)	WSS-M14P19-A

BULB SPECIFICATION CHART

Replacement bulbs are specified in the chart below. Headlamp bulbs must be marked with an authorized D.O.T. marking for North America to make sure they have the proper lamp performance, light brightness, light pattern and safe visibility. The correct bulbs will not damage the lamp assembly or void the lamp assembly warranty and will provide quality bulb illumination time.

Exterior Lamps

Lamp	Specification	Power (Watt)
Front direction indicator and parking lamps.	4157NA	21/5W
Daytime running lamps.	LED.	LED.
Headlamp high beam.	9005	65W
Headlamp low beam.	H11	55W
Headlamps.	LED.	LED.
Front fog lamps.[1]	9140	55W
Front side marker lamps.	W5W	5W
Side direction indicator.	LED.	LED.
Puddle lamp.	LED.	LED.

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Lamp	Specification	Power (Watt)
Rear lamps, brake lamps, rear direction indicator and rear side marker lamps.[1]	3157	27/8W
Central high mounted brake lamp.[1]	921	16W
Central high mounted brake lamp. Vehicles with cargo box lamp.	LED.	LED.
Reversing lamps.	W21W	21W
License plate lamp.	168	5W

[1] May have optional LED lamps.
Note: *LED lamps are not serviceable. See an authorized dealer if they fail.*

Interior Lamps

Lamp	Specification	Power (Watt)
Glove compartment lamp.	LED.	LED.
Map lamp.	LED.	LED.
Rear dome and courtesy lamps.	LED.	LED.
Rear cargo box lamps.	LED.	LED.

Note: *LED lamps are not serviceable. See an authorized dealer if they fail.*

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CONNECTED VEHICLE REQUIREMENTS

Connected service and related feature functionality requires a compatible vehicle network.

Some remote features require a subscription. For additional information, see the FordPass app. Some restrictions, third party terms and message or data rates may apply.

CONNECTED VEHICLE LIMITATIONS

Evolving technology or evolving cellular networks could affect functionality and availability, or continued provision of some features. These changes could even stop some features from functioning.

CONNECTING THE VEHICLE TO A MOBILE NETWORK - VEHICLES WITH: CONNECTIVITY DEVICE

What Is the Connectivity Device

The connectivity device enables access to a range of features built into your vehicle.

Disabling the Connectivity Device

To disable the connectivity device, contact the Ford Customer Relationship Center.

Note: *Disabling your connectivity device is permanent.*

Connecting FordPass to the Connectivity Device

1. Open the FordPass app on your device and log in.
2. Add your vehicle or select your vehicle if already added.
3. Select the option for vehicle details.
4. Select the option to activate your vehicle.

CONNECTING THE VEHICLE TO A MOBILE NETWORK - VEHICLES WITH: MODEM

What Is the Modem

The modem enables access to a range of features built into your vehicle.

Enabling and Disabling the Modem

1. Select ***Settings***.
2. Select ***FordPass Connect***.
3. Select ***Connectivity Settings***.
4. Switch connectivity features on or off.

Connecting FordPass to the Modem

1. Make sure that the modem is enabled using the vehicle settings menu.
2. Open the FordPass app on your device and log in.
3. Add your vehicle or select your vehicle if already added.
4. Select the option for vehicle details.
5. Select the option to activate your vehicle.

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6. Make sure that the name on the screen matches the name shown in your FordPass account.
7. Confirm that FordPass account is connected to the modem .

CONNECTING THE VEHICLE TO A WI-FI NETWORK - VEHICLES WITH: SYNC 3

1. Select ***Settings***.
2. Select ***Wi-Fi***.
3. Switch ***System Wi-Fi*** on.
4. Select ***View Available Networks***.
5. Select an available Wi-Fi network.

Note: *Enter the network password to connect to a secure network.*

CONNECTED VEHICLE – TROUBLESHOOTING - VEHICLES WITH: CONNECTIVITY DEVICE

Symptom	Possible Cause and Resolution
I cannot confirm the connection of my FordPass account to the connectivity device.	– Contact the Ford Customer Relationship Center to check that the FordPass account is connected to the device.
	– Weak network signal. • Move your vehicle closer to a place where the network signal is not obstructed.

CONNECTED VEHICLE – TROUBLESHOOTING - VEHICLES WITH: MODEM

Symptom	Possible Cause and Resolution
I cannot confirm the connection of my FordPass account to the modem.	– Modem is not enabled. • Switch connectivity features on. – Weak network signal. • Move your vehicle closer to a place where the network signal is not obstructed.

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CONNECTED VEHICLE – TROUBLESHOOTING - VEHICLES WITH: SYNC 3

Symptom	Possible Cause and Resolution
I cannot connect to a Wi-Fi network.	– Password error. • Enter the correct network password. – Weak network signal. • Move your vehicle closer to the Wi-Fi hotspot or to a place where the network signal is not obstructed. – Multiple access points in range with the same SSID. • Use a unique name for your SSID. Do not use the default name unless it contains a unique identifier, for example as part of the MAC address.
The Wi-Fi connection disconnects after successful connection.	– Weak network signal. • Move your vehicle closer to the Wi-Fi hotspot or to a place where the network signal is not obstructed.
I am close to a Wi-Fi hotspot but the network signal strength is weak.	– Obstructed network signal. • If your vehicle has a heated windshield, position your vehicle so that the windshield is not facing the Wi-Fi hotspot. • If your vehicle has metallic tinting on the windows but not on the windshield, position your vehicle so that the windshield is facing the Wi-Fi hotspot or open the windows that are facing the hotspot. • If your vehicle has metallic tinting on the windows and the windshield, open the windows that are facing the hotspot. • If your vehicle is in a garage and you have the garage door closed, open the garage door.
I cannot see a network in the list of available networks that I expect to see.	– Hidden network. • Make the network visible and try again.

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Symptom	Possible Cause and Resolution
I cannot see the Wi-Fi hotspot name when I search for Wi-Fi networks on my cell phone or other device.	– System limitation. • Make sure Wi-Fi hotspot visibility is on. • The system does not provide a Wi-Fi hotspot at this time.
Software downloads take too long.	– Weak network signal • Move your vehicle closer to the Wi-Fi hotspot or to a place where the network signal is not obstructed. – Wi-Fi hotspot in high demand or has a slow Internet connection. • Use a more reliable Wi-Fi hotspot.
The system seems to connect to a Wi-Fi network and the signal strength is excellent but the software does not update.	– No software update available. – Wi-Fi network requires a subscription or acceptance of terms and conditions. • Test the connection using another device. If the network requires a subscription or acceptance of terms and conditions, contact the network service provider.

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CREATING A WI-FI HOTSPOT - VEHICLES WITHOUT: SYNC 3

Use your FordPass app to create and change the name and password of your Wi-Fi hotspot. Visit your regional website for more information on the FordPass app.

Make sure the modem in your vehicle is enabled. See **Connecting FordPass to the Modem** (page 474).

Note: *The Wi-Fi Hotspot may be defaulted to off. If so you will need to switch it on using the FordPass app.*

Connecting a Device to the Wi-Fi Hotspot

1. On your device, turn on Wi-Fi and select the hotspot from the list of available Wi-Fi networks.
2. When prompted, enter the password.

Purchasing a Data Plan

1. Connect a device to the hotspot.

Note: *The vehicle network carrier's portal opens on your device.*

2. If the portal does not open on your device, open a website and it redirects to the vehicle network carrier's portal.

Note: *Secure websites do not redirect.*

Note: *If you have an active plan, the system does not redirect to the vehicle network carrier's portal when you connect a device. Visit the vehicle network carrier's website to purchase more data.*

Note: *If data usage information is available in the vehicle hotspot menu, it is approximate.*

Note: *If you carry out a master reset, the system does not remove your vehicle from your vehicle network carrier's account. To remove your vehicle from the account, contact your vehicle network carrier.*

Note: *The vehicle network carrier provides Vehicle Hotspot services, subject to your vehicle network carrier agreement, coverage and availability.*

CREATING A WI-FI HOTSPOT - VEHICLES WITH: SYNC 3

You can create a Wi-Fi hotspot in your vehicle and allow devices to connect to it for access to the Internet.

Press the button to enter the settings menu.

1. Select ***Connectivity Features***.
2. Select ***Vehicle Hotspot***.

Note: *The vehicle hotspot default setting is on.*

3. Select ***Settings***.
4. Make sure that you have Wi-Fi visibility switched on.

Note: *The Wi-Fi Visibility default setting is on.*

Finding the Wi-Fi Hotspot Name and Password

Press the button to enter the settings menu.

1. Select ***Connectivity Features***.
2. Select ***Vehicle Hotspot***.
3. Select ***Settings***.

Note: *The SSID is the hotspot name.*

4. Scroll to ***Hide password***.
5. Uncheck the box.

Connecting a Device to the Wi-Fi Hotspot

1. On your device, turn on Wi-Fi and select the hotspot from the list of available Wi-Fi networks.

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2. When prompted, enter the password.

Purchasing a Data Plan

1. Connect a device to the hotspot.

Note: *The vehicle network carrier's portal opens on your device.*

2. If the portal does not open on your device, open a website and it redirects to the vehicle network carrier's portal.

Note: *Secure websites do not redirect.*

Note: *If you have an active plan, the system does not redirect to the vehicle network carrier's portal when you connect a device. Visit the vehicle network carrier's website to purchase more data.*

Note: *If data usage information is available in the vehicle hotspot menu, it is approximate.*

Note: *If you carry out a master reset, the system does not remove your vehicle from your vehicle network carrier's account. To remove your vehicle from the account, contact your vehicle network carrier.*

Note: *The vehicle network carrier provides Vehicle Hotspot services, subject to your vehicle network carrier agreement, coverage and availability.*

CHANGING THE WI-FI HOTSPOT NAME OR PASSWORD

Press the button to enter the settings menu.

1. Select ***Connectivity Features***.
2. Select ***Vehicle Hotspot***.
3. Select ***Settings***.
4. Select ***SSID:___***.
5. Enter your required SSID.
6. Select ***Done***.
7. Select ***Password:___***.
8. Enter your required password.
9. Select ***Done***.

GENERAL INFORMATION

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

Radio Frequencies and Reception Factors

Note: *Listening to loud audio for long periods of time could damage your hearing.*

Radio Reception Factors	
Distance and strength	The further you travel from an AM or FM station, the weaker the signal and the weaker the reception.
Terrain	Hills, mountains, tall buildings, bridges, tunnels, freeway overpasses, parking garages, dense tree foliage and thunderstorms can interfere with the reception.
Station overload	When you pass a ground-based broadcast repeating tower, a stronger signal may overtake a weaker one and result in the audio system muting.

AUDIO UNIT - VEHICLES WITH: SYNC 3

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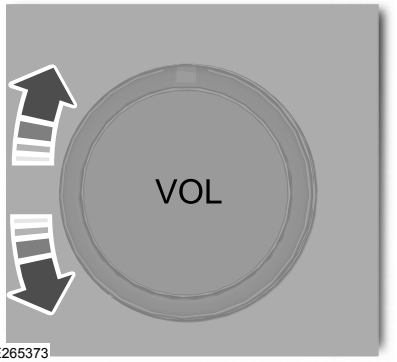
E291384

Note: *Depending on your vehicle option package, the controls could look different from what you see here.*

Note: *Some features, such as satellite radio, may not be available in your location. Check with an authorized dealer.*

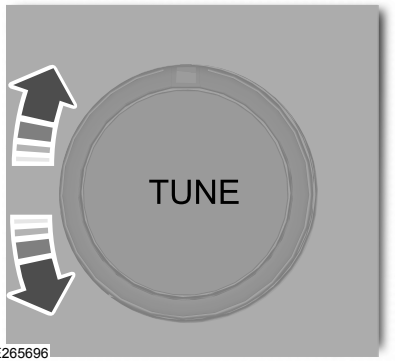
Note: *The touchscreen system controls most of the audio features.*

Adjusting the Volume



Turn to adjust the volume.

Changing Radio Stations



In radio mode, turn to search through the radio frequency band.

In satellite radio mode, turn to find the previous or next available satellite radio station.

Selecting the Audio Modes

MEDIA

Press and release the button to access different audio modes, for example AM and FM.

Setting a Memory Preset

Tune to a station, then press and hold one of the memory preset buttons on the touchscreen. The audio briefly mutes while the system saves the station and returns once the station is stored.

Switching the Audio Unit On and Off

Press and release the button.

Using Seek, Fast Forward and Reverse

In radio mode, select a frequency band and press and release either button. The system stops at the first station it finds in that direction.

In satellite radio mode, press and release to select the next or previous satellite radio station. If you select a specific category, such as jazz, rock or news, press to find the next or previous station in that category.

AUDIO UNIT - VEHICLES WITH: SYNC

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

E291383

Note: *Depending on your vehicle option package, the controls may look different from what you see here.*

Note: *Some features, such as satellite radio, may not be available in your location. Check with an authorized dealer.*

Accessing the Apps Menu

Press and release the button to access the apps menu. Follow the on-screen prompts to make your selection.

Accessing the Clock Settings

Press and release the button to access the clock setting.

Use the center arrow controls to change the hours and minutes.

Accessing the Media Source Menu

MEDIA Press and release the button to open the media source menu.

You can press this multiple times to change to a SYNC-Media device or scroll through the media sources using the arrow buttons. Press **OK** to select a source.

Accessing the Phone Features

Press and release the button to access the phone features of the SYNC system.

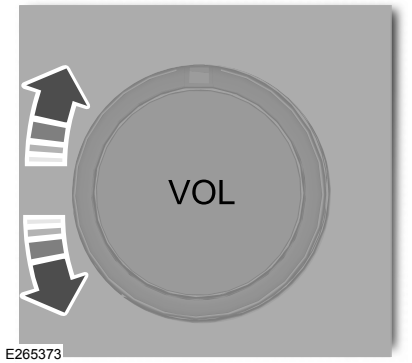
Accessing the Sound Settings

Press and release the button to access settings for Treble, Midrange, Bass, Fade and Balance.

Accessing the Settings Menu

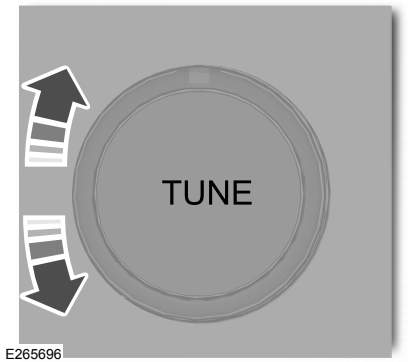
Press and release the button to access the settings menu. Follow the on-screen prompts to make your selection.

Adjusting the Volume



Turn to adjust the volume.

Changing Radio Stations



In radio mode, turn to search through the radio frequency band.

In satellite radio mode, turn to find the previous or next available satellite radio station.

Listening to the Radio

RADIO

Press and release the button to listen to the radio or change radio stations.

Playing or Pausing Media

Press and release the button to either play or pause current media source.

Switching the Audio Unit On and Off

Press and release the button.

Switching the Display On and Off

Press and release the button.

Switching Radio Text On and Off

Press and release the button to display extra information, for example, artist name.

Note: *Extra information may not always be available.*

Switching Repeat Mode On and Off

Press and release the button to repeat the current media source.

Switching Shuffle Mode On and Off

Press and release the button to shuffle the current media source.

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Using the Display Control

Use the up and down arrow buttons to select the various settings. When you make your selection, press the left and right arrow buttons to change the settings.

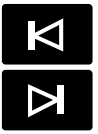
Press and release to confirm a selection.

Press and release the function buttons below the display to select different functions of the audio system depending on which mode you are in.

Using the Number Block

In radio mode, store and recall your favorite radio stations. To store a favorite station, press and hold until the sound returns. In phone mode, enter a phone number.

Using Seek, Fast Forward and Reverse



In radio mode, select a frequency band and press and release either button. The system stops at the first station it finds in that direction.

In satellite radio mode, press and release to select the next or previous satellite radio station. If you select a specific category, such as jazz, rock or news, press to find the next or previous station in that category.

DIGITAL RADIO

Note: *HD Radio broadcasts are not available in all markets.*

HD Radio technology is the digital evolution of analog AM/FM radio. Your system has a special receiver that allows it to receive digital broadcasts, where available, in addition to the analog broadcasts, it already receives. Digital broadcasts provide a better sound quality than analog broadcasts with free, crystal-clear audio and no static or distortion. For more information, and a guide to available stations and programming, please visit www.hdradio.com.

When HD Radio is on and you tune to a station broadcasting HD Radio technology, you may notice the HD Radio logo on your screen. When this logo is available, you may also see Title and Artist fields on-screen.

The multicast indicator appears in FM mode, only, if the current station is broadcasting multiple digital broadcasts. The highlighted numbers signify available digital channels where new or different content is available. HD1 signifies the main programming status and is available in analog and digital broadcasts. Other multicast stations, HD2 through HD7, are only available digitally.

When HD Radio broadcasts are active, you can access the following functions:

- **Memory presets** allow you to save an active channel as a memory preset. Touch and hold a memory preset slot until the sound returns. There is a brief mute while the radio saves the station. Sound returns when finished. When switching to an HD2 or HD3 memory preset, the sound mutes before the digital audio plays, because the system has to reacquire the digital signal.

Note: *As with any saved radio station, you cannot access the saved station if your vehicle is outside the station's reception area.*

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HD Radio Reception and Station Troubleshooting

Potential reception issues	
Reception area	If you are listening to a multicast station and you are on the fringe of the reception area, the station may mute due to weak signal strength.
	If you are listening to HD1, the system switches back to the analog broadcast until the digital broadcast is available again. However, if you are listening to any of the possible HD2-HD7 multicast channels, the station mutes and stays muted unless it is able to connect to the digital signal again.
Station blending	When the system first receives a station, aside from HD2-HD7 multicast stations, it first plays the station in the analog version. Once the receiver verifies the station is an HD Radio station, it shifts to the digital version. Depending on the station quality, you may hear a slight sound change when the station changes from analog to digital. Blending is the shift from analog to digital sound or digital back to analog sound.

In order to provide the best possible experience, use the contact form to report any station issues found while listening to a station broadcasting with HD Radio technology. Independent entities own and operate each station. These stations are responsible for the accuracy of all audio streams and data fields.

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Potential station issues		
Issues	**Cause**	**Action**
Echo, stutter, skip or repeat in audio. Increase or decrease in audio volume.	This is poor time alignment by the radio broadcaster.	No action required. This is a broadcast issue.
Sound fading or blending in and out.	The radio is shifting between analog and digital audio.	No action required. The reception issue may clear up as you continue to drive.
There is an audio mute delay when selecting HD2 or HD3, multicast preset or **Direct Tune**.	The digital multicast is not available until the HD Radio broadcast is decoded. Once decoded, the audio is available.	No action required. This is normal behavior. Wait until the audio is available.
Cannot access HD2 or HD3 multicast channel when recalling a preset or from a direct tune.	The previously stored multicast preset or direct tune is not available in your current reception area.	No action required. The station is not available in your current location.
Text information does not match currently playing audio.	Data service issue by the radio broadcaster.	Fill out the station issue form at website listed below. [1]
There is no text information shown for currently selected frequency.	Data service issue by the radio broadcaster.	Fill out the station issue form at website listed below. [1]

[1] http://hdradio.com/stations/feedback

HD Radio Technology manufactured under license from iBiquity Digital Corporation and foreign patents. HD Radio and the HD and HD Radio logos are proprietary trademarks of DTS Ford Motor Company and DTS are not responsible for the content sent using HD Radio technology. Content may be changed, added or deleted at any time at the station owner's discretion.

SATELLITE RADIO (IF EQUIPPED)

SiriusXM® Satellite Radio broadcasts a variety of music, news, sports, weather, traffic and entertainment satellite radio channels. For more information and a complete list of SiriusXM satellite radio channels, visit www.siriusxm.com in the United States, www.siriusxm.ca in Canada, or call SiriusXM at 1-888-539-7474.

Note: *This receiver includes the eCos real-time operating system. eCos is published under the eCos License.*

Satellite Radio Reception Factors

Potential satellite radio reception issues	
Antenna obstructions	For optimal reception performance, keep the antenna clear of snow and ice build-up and keep luggage and other material as far away from the antenna as possible.
Terrain	Hills, mountains, tall buildings, bridges, tunnels, freeway overpasses, parking garages, dense tree foliage and thunderstorms can interfere with your reception.
Station overload	When you pass a ground-based broadcast-repeating tower, a stronger signal may overtake a weaker one and the audio system may mute.
Satellite radio signal interference	Your display may show ACQUIRING . . . to indicate the interference and the audio system may mute.

SiriusXM Satellite Radio Service

Note: *SiriusXM reserves the unrestricted right to change, rearrange, add or delete programming including canceling, moving or adding particular channels, and its prices, at any time, with or without notice to you. Ford Motor Company shall not be responsible for any such programming changes.*

E208625

SiriusXM satellite radio is a subscription-based satellite radio service that broadcasts a variety of music, sports, news, weather, traffic and entertainment programming. Your factory-installed SiriusXM satellite radio system includes hardware and a limited subscription term, which begins on the date of sale or lease of your vehicle. See an authorized dealer for availability.

For more information on extended subscription terms (a service fee is required), the online media player and a complete list of SiriusXM satellite radio channels, and other features, please visit www.siriusxm.com in the United States, www.siriusxm.ca in Canada, or call SiriusXM at 1-888-539-7474.

Satellite Radio Electronic Serial Number (ESN)

You need your ESN to activate, modify or track your satellite radio account.

Locating Your ESN

With satellite radio as the source, use the touchscreen to select the following:

1. Select ***Settings***. See **Settings** (page 539).
2. Select ***SiriusXM***.
3. Select ***SiriusXM information***.

Troubleshooting

Message	Condition	Action
Acquiring...	Radio requires more than two seconds to produce audio for the selected channel.	No action required. This message should disappear shortly.
Satellite antenna fault SIRIUS system failure	There is an internal module or system failure present.	If this message does not clear shortly, or with an ignition key cycle, your receiver may have a fault. See an authorized dealer for service.
Invalid Channel	The channel is no longer available.	Tune to another channel or choose another preset.
Unsubscribed Channel	Your subscription does not include this channel.	Contact SiriusXM at 1-888-539-7474 to subscribe to the channel, or tune to another channel.
No Signal	The signal is lost from the SiriusXM satellite or SiriusXM tower to your vehicle antenna.	The signal is blocked. When you move into an open area, the signal should return.
Updating...	Update of channel programming in progress.	No action required. The process may take up to three minutes.
Questions? Call 1-888-539-7474	Your satellite service is no longer available.	Contact SiriusXM at 1-888-539-7474 to resolve subscription issues.
None found Check Channel Guide	All the channels in the selected category are either skipped or locked.	Use the channel guide to turn off the Lock or Skip function on that station.
Subscription Updated	SiriusXM has updated the channels available for your vehicle.	No action required.

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USB PORT

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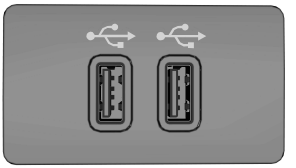

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The USB Port is below the climate control and in the center console.

You can use the USB port to play media and charge a device.

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GENERAL INFORMATION

SYNC is an in-vehicle communications system that works with your Bluetooth enabled cellular phone and portable media player. This allows you to:

- Make and receive calls.
- Access and play music from your portable music player.
- Use 911 Assist or Emergency Assistance and applications via SYNC AppLink.*
- Access phonebook contacts and music using voice commands.
- Stream music from your connected phone.
- Text message.
- Use the advanced voice recognition system.
- Charge your USB device (if your device supports this).

*These features are not available in all markets and may require activation. Available AppLink enabled apps vary by market.

Make sure that you review your device's manual before using it with SYNC.

Support

SYNC support is available at your regional Ford website. See **SYNC™ Troubleshooting** (page 499).

SYNC Owner Account

Why do I need a SYNC owner account?

- Essential for keeping up with the latest software downloads available for SYNC.
- Access to customer support for any questions you may have.

Driving Restrictions

For your safety, certain features are speed-dependent and restricted when your vehicle is traveling over 3.1 mph (5 km/h).

Safety Information

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

When using SYNC:

- Do not operate playing devices if the power cords or cables are broken, split or damaged. Place cords and cables out of the way, so they do not interfere with the operation of pedals, seats, compartments or safe driving abilities.
- Do not leave playing devices in your vehicle during extreme conditions as it could cause them damage. See your device's manual for further information.
- Do not attempt to service or repair the system. See an authorized dealer.

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Privacy Information

When a cellular phone is connected to SYNC, the system creates a profile within your vehicle that is linked to that cellular phone. This profile is created in order to offer you more cellular features and to operate more efficiently. Among other things, this profile may contain data about your cellular phone book, text messages (read and unread), and call history, including history of calls when your cellular phone was not connected to the system. In addition, if you connect a media device, the system creates and retains an index of supported media content. The system also records a short development log of approximately 10 minutes of all recent system activity. The log profile and other system data may be used to improve the system and help diagnose any problems that may occur.

The cellular profile, media device index, and development log will remain in the vehicle unless you delete them and are generally accessible only in the vehicle when you connect the cellular phone or media player. If you no longer plan to use the system or the vehicle, we recommend you perform a Master Reset to erase all stored information.

No one can access system data without special equipment and access to the vehicle's SYNC module. Ford Motor Company and Ford of Canada will not access the system data for any purpose other than as described absent consent, a court order, or where required by law enforcement, other government authorities, or other third parties acting with lawful authority. Other parties may seek to access the information independently of Ford Motor Company and Ford of Canada. For further privacy information, see the section on 911 Assist. See **SYNC™ Applications and Services** (page 495).

USING VOICE RECOGNITION

This system helps you control many features using voice commands. This allows you to keep your hands on the wheel and focus on what is around you.

Initiating a Voice Session

Press the voice button. A list of available voice commands appears in the display.

Global Voice Commands

These voice commands are always available. You can say them at any time.

Global voice commands	
Help	Gives you available commands you can use on the current screen.
List of Commands	Gives you a list of possible voice commands.
Cancel	This command ends the voice session. You can also cancel a session by pressing seek up, seek down, or holding the voice button for two or more seconds.

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Helpful Hints

- Make sure the interior of your vehicle is as quiet as possible. Wind noise from open windows and road vibrations may prevent the system from correctly recognizing spoken commands.
- Before giving a voice command, wait for the system announcement to finish, followed by a single tone. Any command spoken before this does not register with the system.
- Speak naturally, without long pauses between words.
- You can interrupt the system at any time while it is speaking by pressing the voice button. You can cancel a voice session by pressing and holding the voice button.

System Interaction and Feedback

The system provides feedback through audible tones, prompts, questions and spoken confirmations depending on the situation and the chosen level of interaction. You can customize the voice recognition system to provide more or less instruction and feedback.

The default setting is to a higher level of interaction in order to help you learn to use the system. You can change these settings at any time.

Adjusting the Interaction Level

Press the voice button. When prompted, say:

Voice Command	Action and Description
Interaction Mode Standard	Provides more detailed interaction and guidance. (Recommended for first time users.)
Interaction Mode Advanced	Provides less audible interaction and guidance.

Phone Confirmation

Using phone confirmations the system asks you to verify before placing any calls.

To adjust this setting press the voice button, when prompted say:

Voice Command	Action and Description
Phone Confirmation Off	When enabled, this feature will prompt you to confirm any voice initiated call command prior to the call being placed.
Phone Confirmation On	The system will make a best guess; you may still occasionally be asked to confirm settings.

USING SYNC™ WITH YOUR PHONE

Hands-free calling is one of the main features of SYNC. While the system supports a variety of features, many are dependent on your cellular phone's functionality. At a minimum, most cellular phones with Bluetooth wireless technology support the following functions:

- Answering an incoming call.
- Ending a call.
- Dialing a number.
- Redialing.
- Call waiting notification.
- Caller ID.

Other features, such as text messaging using Bluetooth and automatic phonebook download, are phone-dependent features.

Pairing a Phone

Wirelessly pairing your phone with SYNC allows you to make and receive hands-free calls.

Note: *Make sure to switch on the ignition and the radio. Shift the transmission into park (P) for automatic transmission or first gear for manual transmission.*

Using the Audio System

Note: *To scroll through the menus, press the up and down arrows on your audio system.*

1. Make sure to switch on your phone's Bluetooth feature before starting the search. See your device's manual if necessary.
2. Press the **Settings** button.
3. Select Bluetooth from the menu.
4. Press the **OK** button.
5. Select the option to add. This starts the pairing process.
6. When a message to begin pairing appears in the audio display, search for SYNC on your device.

Depending on your phone's capability and your market, the system may prompt you with questions, such as setting the current phone as the primary phone and downloading your phonebook.

Using Voice Commands

Make sure to switch on your phone's Bluetooth feature before starting the search. See your device's manual if necessary.

Press the voice button and when prompted say:

Voice Command	Action and Description
Pair Phone	Follow the instructions on the audio display.

Phone Voice Commands

Press the voice button. You can do things like place a phone call and access text messages. When prompted, say a command. See the following table for examples of commands.

Voice Command
___ List of Commands
Help
Call ___
Dial ___
Text Messages

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__ is a dynamic listing, meaning that it could be the name of anything, such as a contact or phone number.

Phone Controls

Use the phone buttons on your steering wheel to answer, reject, or hang up a call.

Accessing Features through the Phone Menu

You can access your call history, phonebook, sent text messages, as well as access phone and system settings.

1. Press the **PHONE** button to enter the phone menu.
2. Scroll through the menu to view contacts, text messages, and the phone dialer.

SYNC™ APPLICATIONS AND SERVICES

- 911 Assist: Can alert 911 in the event of an emergency.
- SYNC AppLink: Allows you to connect to and use certain applications (if your phone is compatible).

These features may require activation. Available AppLink enabled apps vary by market.

911 Assist

WARNING: Unless the 911 Assist setting is set on before a crash, the system will not dial for help which could delay response time, potentially increasing the risk of serious injury or death after a crash.

WARNING: Do not wait for 911 Assist to make an emergency call if you can do it yourself. Dial emergency services immediately to avoid delayed response time which could increase the risk of serious injury or death after a crash. If you do not hear 911 Assist within five seconds of the crash, the system or phone may be damaged or non-functional.

WARNING: Always place your phone in a secure location in your vehicle so it does not become a projectile or get damaged in a crash. Failure to do so may cause serious injury to someone or damage the phone which could prevent 911 Assist from working properly.

Note: *The SYNC 911 Assist feature must be set on before the incident.*

Note: *The SYNC 911 Assist feature only operates in the U.S., Canada or in a territory in which 911 is the emergency number.*

Note: *Before setting this feature on, make sure that you read the 911 Assist Privacy Notice later in this section for important information.*

Note: *If any user switches 911 Assist to on or off, that setting applies for all paired phones. If 911 Assist is switched off, either a voice message plays or a display message or an icon comes on when your vehicle is started and after a previously paired phone connects.*

Note: *Every phone operates differently. While SYNC 911 Assist works with most cellular phones, some may have trouble using this feature.*

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If a crash deploys an airbag (excluding knee airbags and rear inflatable safety belts [if equipped]) or activates the fuel pump shut-off, your SYNC-equipped vehicle may be able to contact emergency services by dialing 911 through a paired and connected Bluetooth-enabled phone.

See **Supplementary Restraints System** (page 52). Important information about airbag deployment is in this chapter.

See **Roadside Emergencies** (page 333). Important information about the fuel pump shut-off is in this chapter.

Setting 911 Assist On or Off

Press the Settings button then select:

Menu Item	Action and Description
911 Assist	Select the desired option, on or off.

To make sure that 911 Assist works properly:

- SYNC must be powered and working properly at the time of the incident and throughout feature activation and use.
- The 911 Assist feature must be set on before the incident.
- You must pair and connect a Bluetooth enabled and compatible cell phone to SYNC.
- A connected Bluetooth enabled phone must have the ability to make and maintain an outgoing call at the time of the incident.
- A connected Bluetooth enabled phone must have adequate network coverage, battery power and signal strength.
- The vehicle must have battery power and be located in the U.S., Canada or in a territory in which 911 is the emergency number.

In the Event of a Crash

Not all crashes deploy an airbag or activate the fuel pump shut-off (the triggers for 911 Assist). If a connected cell phone sustains damage or loses its connection to SYNC during a crash, SYNC searches for and tries to connect to a previously paired cell phone; SYNC then attempts to call the emergency services.

Before making the call:

- SYNC provides a short window of time (about 10 seconds) to cancel the call. If you fail to cancel the call, SYNC attempts to dial 911.
- SYNC says the following, or a similar message: "SYNC will attempt to call 911, to cancel the call, press Cancel on your screen or press and hold the phone button on your steering wheel".

If you do not cancel the call, and SYNC makes a successful call, a pre-recorded message plays for the 911 operator, and then the occupant(s) in your vehicle are able to talk with the operator. Be prepared to provide your name, phone number and location immediately, because not all 911 systems are capable of receiving this information electronically.

911 Assist May Not Work If

- Your cellular phone or 911 Assist hardware sustains damage in a crash.
- The vehicle's battery or the SYNC system has no power.
- The phone(s) thrown from your vehicle are the ones paired and connected to the system.

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911 Assist Privacy Notice

When you switch on 911 Assist, it may disclose to emergency services that your vehicle has been in a crash involving the deployment of an airbag or activation of the fuel pump shut-off. Certain versions or updates to 911 Assist may also be capable of electronically or verbally disclosing to 911 operators your vehicle location or other details about your vehicle or crash to assist 911 operators to provide the most appropriate emergency services. If you do not want to disclose this information, do not switch the feature on.

SYNC Mobile Apps

The system enables voice and steering wheel control of SYNC AppLink enabled smartphone apps. When an app is running through AppLink, you can control main features of the app through voice commands and steering wheel controls.

Note: *You must pair and connect your smartphone to SYNC to access AppLink.*

Note: *Android users need to connect the phone to SYNC using Bluetooth.*

Note: *For information on available apps, supported smartphone devices and troubleshooting tips please visit the Ford website*

Note: *Availability of SYNC AppLink enabled Apps will vary by region.*

Note: *Make sure you have an active account for the app that you have downloaded. Some apps work automatically with no setup. Other apps want you to configure your personal settings and personalize your experience by creating stations or favorites. We recommend you do this at home or outside of your vehicle.*

To Access Using the SYNC Menu

Press the Mobile Apps button to access the menu on-screen. Then select:

Menu Item	Action and Description
Find Mobile Apps	Scroll through the list of available applications and select a particular app.

Note: *If you cannot find a compatible SYNC AppLink app, make sure the required app is running on the mobile device.*

To Access Using Voice Commands

Press the voice button, then when prompted say:

Voice Command	Action and Description
Mobile Applications	Say the name of the application after the tone. The app should start. When an app is running through SYNC, you can press the voice button and speak commands specific to the app, for example "Play Playlist Road Trip".
List Applications	SYNC lists all of the currently available mobile apps.
Find Applications	Searches your connected mobile device for SYNC-compatible mobile apps.
Help	Use this command to discover the available voice commands.

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App Permissions

App permissions are organized by groups. You can grant these group permissions individually. You can change a permission group status any time when not driving, by using the settings menu.

When you launch an app using SYNC, the system may ask you to grant certain permissions, for example:

- To allow your vehicle to provide vehicle information to the app such as, but not limited to: Fuel level, fuel economy, fuel consumption, engine speed, rain sensor, odometer, VIN, external temperature, gear position, tire pressure, and head lamp status.
- To allow your vehicle to provide driving characteristic information such as, but not limited to: MyKey, seat belt status, engine revolutions per minute, gear position, braking events, steering wheel angle, and accelerator pedal position.
- To allow your vehicle to provide location information, including: GPS and speed.
- To allow the app to send push notifications using the vehicle display and voice capabilities while running in a background state. Push notifications may be particularly useful for news or location based apps.

Note: *You only need to grant permissions the first time you use an app with SYNC.*

Note: *Ford is not responsible or liable for any damages or loss of privacy relating to usage of an app, or dissemination of any vehicle data that you approve Ford to provide to an app.*

Enabling SYNC Mobile Apps

In order to enable mobile apps, SYNC requires user consent to send and receive app authorization information and updates using the data plan associated with the connected device.

Data is sent to Ford in the United States through the connected device. The information is encrypted and includes your VIN, SYNC module number, anonymous usage statistics and debugging information. Updates may take place.

Note: *You must enable mobile apps for each connected device the first time you select a mobile app using the system.*

Note: *Standard data rates apply. Ford is not responsible for any additional charges you may receive from your service provider, when your vehicle sends or receives data through the connected device. This includes any additional charges incurred due to driving in areas when roaming out of a home network.*

USING SYNC™ WITH YOUR MEDIA PLAYER

SYNC supports digital media sources including: iPod, Bluetooth devices, and most USB drives. SYNC also supports audio formats, such as MP3, WMA, WAV and ACC.

Media Sources

The **AUX** or **MEDIA** button allows you to view and select available media sources.

Press the **AUX** or **MEDIA** button to view your sources. Use the directional arrows and OK button to select your source. You can also use the steering wheel audio controls.

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Audio Voice Commands

Press the voice button. You can do things like play a specific song or album, or tune to a radio station. When prompted, say a command. See the following table for example commands. Not all commands may be available on your vehicle.

Command
___ List of Commands
Help
Pause
Play
AM ___
FM ___
CD Player
Sirius Channel ___
USB
Bluetooth Audio

__ is a dynamic listing, meaning that it could be the name of anything, such as an artist, station, or media source.

SYNC™ TROUBLESHOOTING

Your SYNC system is easy to use. However, should questions arise, see the tables below.

Use your regional Ford website at any time to check your phone's compatibility, register your account and set preferences as well as access a customer representative via an online chat (during certain hours).

Market	Website(s)
North America	www.SYNCMyRide.com www.SYNCMyRide.ca www.sync-maroute.ca

Phone issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
There is excessive background noise during a phone call.	The audio control settings on your phone may be affecting SYNC performance.	Review your phone's manual about audio adjustments.
During a call, I can hear the other person but they cannot hear me.	This may be a possible phone malfunction.	Try turning off the device, resetting the device, removing the device's battery, then trying again.
SYNC is not able to download my phonebook.	This is a phone-dependent feature.	Go to the website to review your phone's compatibility.

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Phone issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
	This may be a possible phone malfunction.	Try turning off the device, resetting the device or removing the device's battery, then trying again. Try pushing your phonebook contacts to SYNC by using the Add Contacts feature. Use the SYNCmyphone feature available on the website.
The system says Phonebook Downloaded but the phonebook in SYNC is empty or missing contacts.	This may be a limitation on your phone's capability.	Try pushing your phonebook contacts to SYNC by using the Add Contacts feature. If the missing contacts are stored on your SIM card, try moving them to the device memory. Remove any pictures or special ring tones associated with the missing contact. Depending upon your phone, you may have to grant SYNC permission to access your phonebook contacts. Make sure to confirm when prompted by your phone during the phonebook download.
I am having trouble connecting my phone to SYNC.	This is a phone-dependent feature.	Go to the website to review your phone's compatibility. Try turning off the device, resetting the device or removing the device's battery, then trying again.

Phone issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
	This may be a possible phone malfunction.	Try deleting your device from SYNC, deleting SYNC from your device and trying again. Check the security and auto accept and prompt always settings relative to the SYNC Bluetooth connection on your phone. Update your device's firmware. Turn off the Auto phonebook download setting.
Text messaging is not working on SYNC.	This is a phone-dependent feature. This may be a possible phone malfunction.	Go to the website to review your phone's compatibility. Try turning off the device, resetting the device or removing the device's battery, then trying again.
I cannot return to the Phone menu when selecting a contact.	You are on the Select a Character screen.	Press the Phone button to return to the Phone menu.

USB and media issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
I am having trouble connecting my device.	This may be a possible device malfunction.	Try turning off the device, resetting the device, removing the device's battery, then trying again. Make sure you are using the manufacturer's cable. Make sure you insert the USB cable correctly into the device and the USB port.

USB and media issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
		Make sure that the device does not have an auto-install program or active security settings.
SYNC does not recognize my device when I turn on the car.	This is a device limitation.	Make sure you are not leaving the device in your vehicle during very hot or cold temperatures.
Bluetooth audio does not stream.	This is a phone-dependent feature.	Review the device compatibility chart on the SYNC website to confirm your phone supports the Bluetooth audio streaming function.
	The device is not connected.	Make sure you correctly connect the device to SYNC, and that you have pressed play on your device.
SYNC does not recognize music that is on my device.	Your music files may not contain the correct artist, song title, album or genre information.	Make sure that all song details are populated.
	The file may be corrupted.	
	The song may have copyright protection, which does not allow it to play.	Some devices require you to change the USB settings from mass storage to MTP class.
I cannot change the Sirius station.	Sirius Replay is active.	Switch radio bands and return to Sirius or switch the feature off. You can then change the Sirius station using the directional buttons.

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Voice command issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
SYNC does not understand what I am saying.	You may be using the wrong voice commands.	Review the phone voice commands and the media voice commands at the beginning of their respective sections.
	You may be speaking too soon or at the wrong time.	After pressing the voice icon, wait until after the tone sounds and Listening appears before saying a command. Any command spoken before this does not register with the system.
SYNC does not understand the name of a song or artist.	You may be using the wrong voice commands.	Review the media voice commands at the beginning of the media section.
	You may be saying the name differently than the way you saved it.	Say the song or artist exactly as listed. If you say "Play Artist Prince", the system does not play music by Prince and the Revolution or Prince and the New Power Generation.
	The system may not be reading the name the same way you are saying it.	Make sure you are saying the complete title, such as "California remix featuring Jennifer Nettles".
		If the song titles are in all CAPS, you have to spell them. LOLA requires you to say "L-O-L-A".
		Do not use special characters in the title. The system does not recognize them.
SYNC does not understand or is calling the wrong contact when I want to make a call.	You may be using the wrong voice commands.	Review the Phone voice commands at the beginning of the phone section.

Voice command issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
	You may be saying the name differently than the way you saved it.	Make sure you are saying the contacts exactly as they are listed. For example, if you save a contact as Joe Wilson, say "Call Joe Wilson". Using the SYNC phone menu, open the phonebook and scroll to the name SYNC is having trouble understanding. SYNC will read the name to you, giving you some idea of the pronunciation SYNC is expecting.
	The system may not be reading the name the same way you are saying it.	The system works better if you list full names, such as "Joe Wilson" rather than "Joe".
	Contacts in your phonebook may be very short and similar, or they may contain special characters.	Do not use special characters, such as 123 or ICE, as the system does not recognize them.
	Your phonebook contacts may be in CAPS.	If a contact is in CAPS, you have to spell it. JAKE requires you to say "Call J-A-K-E".

AppLink issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
AppLink Mobile Applications: When I select "Find New Apps," SYNC does not find any applications.	An AppLink capable phone is not connected to SYNC.	Ensure you have a compatible smartphone; an Android with OS 2.3 or higher or an iPhone 3GS or newer with iOS 5.0 or higher. Additionally, ensure your phone is paired and connected to

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AppLink issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
		SYNC in order to find AppLink-capable apps on your device. iPhone users must also connect to SYNC's USB port with an Apple USB cable.
My phone is connected, but I still cannot find any apps.	AppLink-enabled apps are not installed and running on your mobile device.	Ensure you have downloaded and installed the latest version of the app from your phone's app store. Ensure the app is running on your phone. Some apps require you to register or login on the app on the phone before using them with AppLink. Also, some may have a "Ford SYNC" setting, so check the app's settings menu on the phone.
My phone is connected, my app(s) are running, but I still cannot find any apps.	Sometime apps do not properly close and re-open their connection to SYNC, over ignition cycles, for example.	Closing and restarting apps may help SYNC find the application if you cannot discover it inside the vehicle. On an Android device, if apps have an "Exit' or 'Quit' option, select that then restart the app. If the app does not have that option, you can also manually "Force Close" the app by going to the phone's settings menu, selecting 'Apps.' then finding the particular app and choosing 'Force stop.' Don't forget to restart the app afterwards, then select "Find New Apps" on SYNC.

AppLink issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
		On an iPhone with iOS7+, to force close an app, double tab the home button then swipe up on the app to close it. Tab the home button again, then select the app again to restart it. After a few seconds, the app should then appear in SYNC's Mobile App's Menu.
My Android phone is connected, my app(s) are running, I restarted them, but I still cannot find any apps.	There is a Bluetooth bug on some older versions of the Android operating system that may cause apps that were found on your previous vehicle drive to not be found again if you have not turned off Bluetooth.	Reset the Bluetooth on your phone by turning it off and then turning Bluetooth back on. If you are in your vehicle, SYNC should be able to automatically re-connect to your phone if you press the "Phone" button.

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AppLink issues		
Issue	**Possible cause(s)**	**Possible solution(s)**
My iPhone phone is connected, my app is running, I restarted the app but I still cannot find it on SYNC.	The USB connection to SYNC may need to be reset.	Unplug the USB cable from the phone, wait a moment, and plug the USB cable back in to the phone. After a few seconds, the app should appear in SYNC's Mobile Apps Menu. If not, "Force Close" the application and restart it.
I have an Android phone. I found and started my media app on SYNC, but there is no sound or the sound is very low.	The bluetooth volume on the phone may be low.	Try increasing the Bluetooth volume of the device by using the device's volume control buttons which are most often found on the side of the device.
I can only see some of the AppLink apps running on my phone listed in SYNC's Mobile Apps Menu.	Some Android devices have a limited number of bluetooth ports apps can use to connect. If you have more AppLink apps on your phone than the number of available Bluetooth ports, you will not see all of your apps listed in SYNC's mobile apps menu.	Force close or uninstall the apps you do not want SYNC to find. If the app has a "Ford SYNC" setting, disable that setting in the app's settings menu on the phone.

SYNC System Reset
The SYNC system in your vehicle has System Reset feature that can be performed if the function of a SYNC feature is lost. This reset is intended to restore functionality and will not erase any information previously stored in the system (Such as paired devices, phonebook, call history, text messages, or user settings). To perform a System Reset, press and hold the Seek Up (>>) button while pressing and holding the Radio Power button. Release both buttons after 2-3 seconds. Please allow a few minutes for the reset to complete. After a few minutes has passed you can resume using the SYNC system.

GENERAL INFORMATION

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

About SYNC

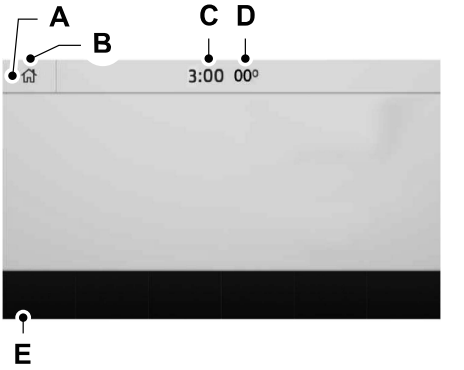
The system allows you to interact with the entertainment, information and communication systems on your vehicle using voice commands and a touchscreen. The system provides easy interaction with audio, phone, navigation, mobile apps and settings.

Note: *You can switch the system on and use it for up to an hour without switching the ignition on.*

Note: *You can use the system after you switch the ignition off for up to 10 minutes or until you open a door.*

Note: *For your safety, some features are speed-dependent. Their use is limited to when your vehicle speed is less than 3 mph (5 km/h).*

Using the Touchscreen



A Status bar.
B Home screen.
C Clock. See **Settings** (page 539).
D Outside air temperature.
E Feature bar.

Status Bar

Cell phone microphone muted.

Audio system muted.

Software update installed.

Wi-Fi connected.

Cell phone roaming.

Text message received.

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Automatic crash notification system off.

Cell phone network signal strength.

Feature Bar

Select to use the radio, a USB, a media player or a Bluetooth device. See **Entertainment** (page 517).

Select to adjust climate settings See **Climate** (page 527).

Select to make calls and access the phonebook on your cell phone. See **Phone** (page 529).

Select to use the navigation system. See **Navigation** (page 531).

Select to search for and use compatible apps on your iOS or Android device. See **Apps** (page 536).

Select to adjust system settings. See **Settings** (page 539).

Cleaning the Touchscreen

See **Cleaning the Interior** (page 387).

Updating the System

Updating the System Using a USB Drive

Downloading an Update

1. Go to the SNYC update page on the local Ford website.
2. Download the update.

Note: *The website notifies you if an update is available.*

3. Insert a USB drive into your computer.

Note: *The USB drive needs to be empty and meet the minimum requirements detailed on the website.*

4. Follow the instructions provided to download the update to the USB drive.

Installing an Update

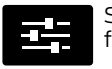
Note: *You can use the system when an installation is in progress.*

1. Disconnect all other USB devices from the USB ports.
2. Connect the USB drive with the update to a USB port.

Note: *Installation starts automatically within 10 minutes.*

Updating the System Using a Wi-Fi Network Connection

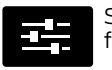
Connecting to a Wi-Fi Network


Select the settings option on the feature bar.

1. Select ***Automatic Updates***.
2. Select ***System Wi-Fi***.
3. Switch ***System Wi-Fi*** on.
4. Select ***Available Wi-Fi Networks***.
5. Select an available Wi-Fi network.

Note: *Enter the network password to connect to a secure network.*

Switching Automatic System Updates On


Select the settings option on the feature bar.

1. Select ***Automatic Updates***.
2. Switch ***Automatic System Updates*** on.

The system is now set to check for and receive system updates when it is connected to a Wi-Fi network.

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Note: *You can use the system when a download is in progress.*

Note: *If the system is disconnected from the Wi-Fi network when a download is in progress, the download continues the next time the system is connected to a Wi-Fi network.*

Additional Information and Assistance

For additional information and assistance, we recommend that you contact an authorized dealer or refer to the local Ford website.

USING VOICE RECOGNITION

The SYNC 3 system allows you to use voice commands, to control features like audio and climate controls. By using voice commands, you can keep your hands on the wheel and your eyes on the road.

You can access each feature controlled by SYNC 3 through a variety of commands.

To activate the SYNC 3 voice commands push the voice button on the steering wheel and wait for the prompt.

___ is a dynamic listing, meaning that it can be the name of anything, such as artist, the name of contact or number. The context and the description of the command tell you what to say for this dynamic option.

There are some commands that work for every feature, these commands are:

Voice Command	Action and Description
Main Menu	Brings you to the main menu.
Go back	Returns you to the previous screen.
Cancel	Ends the voice session.
List of Commands	Gives you a list of possible voice commands.
___ List of Commands	You can name any feature and the system gives a list of commands available for the feature. For example, you could say:
	Phone List of Commands
	Navigation List of Commands
Next Page	You can use this command to view the next page of options on any screen where multiple pages of choices are given.
Previous Page	You can use this command to view the previous page of options on any screen where multiple pages of choices are given.
Help	Gives you available commands you can use on the current screen.

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Included here are some of the most popular commands for each SYNC 3 feature.

Audio Voice Commands

___ is a dynamic listing, meaning that for audio voice commands it can be the name of a Sirius channel or a channel number, a radio frequency number, or the name of an artist, album, song or a genre.

To control the media features, press the voice button and when prompted, say:

Voice command	Description
Sirius Channel ___ [1]	You can say the Sirius channel name or number such as "Sirius channel 16".
You can also turn to a Sirius channel by saying the channel's name, such as "The Pulse".	
AM ___ FM ___	Allows you to tune to a specific FM or AM frequency such as "FM 88.7" or "AM 1580".
FM ___ HD ___ [1]	Allows you to tune to a specific HD frequency such as “FM 88.7 HD 1”.
Bluetooth Audio	Allows you to listen to music on your Bluetooth connected device.
USB	Allows you to listen to music on your USB connected device.
Play Genre ___ Play Playlist ___ Play Artist ___ Play Album ___ Play Podcast ___ Play Song ___ Play Audiobook ___	For USB audio only, you can say the name of an artist, album, song or a genre to listen to that selection. Your system must finish indexing before this option is available. For example, you could say "Play artist The Beatles" or "Play song Penny Lane".
Browse ___ Browse Artist ___ Browse Album ___ Browse Genre ___ Browse Playlist ___	For USB audio only, you can say the name of an artist, album, or a genre to browse by that selection. Your system must finish indexing before this option is available. For example you can say "Browse artist The Beatles" or "Browse genre folk".

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Voice command	Description
Browse Audiobook ___ Browse Podcast ___	

[1] This option may not be available in all markets or may require a subscription.

Climate Voice Commands (If Equipped)

You can control the temperature of the vehicle using voice commands.

___ is a dynamic listing, meaning that for climate voice commands it can be the desired degrees for the temperature setting.

To adjust the temperature, say:

Voice command	Description
Set Temperature ___	Adjust the temperature between 60–85ºF (15.5–29.5ºC).

Phone Voice Commands

Pairing a Phone

You can use voice commands to connect your Bluetooth enabled phone to the system.

To pair your phone, press the voice button and when prompted, say:

Voice command	Description
Pair Phone	Follow the on-screen instructions to complete the pairing process. See **Settings** (page 539).

Making Calls

___ is a dynamic listing, meaning that for phone voice commands it can be the name of the contact you wish to call or the digits you want to dial.

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Press the voice button and say a command similar to the following:

Voice command	Description
Call ___	Allows you to call a specific contact from your phonebook such as "Call Jenny".
Call ___ at ___	Allows you to call a specific contact from your phonebook at a specific location such as "Call Jenny at Home".
Dial ___	Allows you to dial a specific number such as “Dial 867-5309”.

Please make sure that you are saying the contact name exactly as it appears in your contact list.

Once you have provided the digits of the phone number, you can say the following commands:

Voice Command	Description
<0-9>	If you did not enter the full number with the first command, you can continue saying the number.
Dial	Tells SYNC 3 to make the phone call.
Delete	Tells SYNC 3 to erase the last block of digits you state.
Clear	Tells SYNC 3 to erase the entire number.

Text Message Voice Commands

To access text message options, press the voice button and say:

Voice command	Description
Listen to Message	
Listen to text message ___	You can say the number of the message you would like to hear.
Reply to Message	

Navigation Voice Commands (If Equipped)

Setting a Destination

You can use any of the following commands to set a destination or find a point of interest.

___ is a dynamic listing, meaning that for navigation voice commands it can be a POI category or a major brand name, where major brand name is a chain with more than 20 locations

You can find an address, a point of interest (POI), or search for points of interest by category:

Voice command	Description
Find an Address	Allows you to enter the address search functionality. You can also search for an address in a specific state or province.
Find a ___	State the name of the POI category or major brand name you would like to search for such as "Find restaurants".
Find a POI	Allows you to enter the POI search functionality.
Find an Intersection	Allows you to enter the intersection search functionality.
Find the Nearest <POI Category>	State the name of a POI category or major brand name you would like to search for.
Show Previous Destinations	Allows you to see a list of your previous destinations.
Show Favorites	Allows you to see a list of your favorite destinations.
Drive Home	Allows you to route to your home address.
Drive to Work	Allows you to route to your work address.

In addition, you can say these commands when a route is active:

Voice command	Description
Cancel Route	Cancels the current route.
Detour	Allows you to select an alternate route.
Repeat Instruction	Repeats the last guidance prompt.
Show Route	Displays the active route.
Route Summary	Displays the list of upcoming maneuvers.

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Voice command	Description
Where Am I	Provides current location.
Zoom in	Allows you to zoom in on the map.
Zoom out	Allows you to zoom out from the map.

Mobile App Voice Commands (If Equipped)

The following voice commands are always available:

Voice command	Description
Mobile Apps	SYNC 3 will prompt you to say the name of an app to start it on SYNC 3.
List Mobile Apps	SYNC 3 will list all of the currently available Mobile Apps.
Find Mobile Apps	SYNC 3 will search and connect to compatible app(s) running on your mobile device.

There are also voice commands that you can use when app(s) are connected to SYNC 3:

Voice command	Description
Say the name of an app	At any time, you can say the name of a mobile app to start the mobile app on SYNC 3.
Say the name of an app, followed by help	SYNC 3 will list the available voice commands for the specified app if the app is running on SYNC 3.

SiriusXM Traffic and Travel Link Voice Commands (If Equipped)

SiriusXM Traffic and Travel Link may not be available in all markets. Activation and a subscription are required.

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You can say the following commands to access SiriusXM Traffic and Travel Link:

Voice command	Description
Show Traffic	Displays a list of traffic incidents.
Show Weather Map	Displays the current weather map.
Show Fuel Prices	Displays a list of fuel prices.
Show 5 Day Forecast	Displays the 5 day weather forecast.
Help	

Voice Settings Commands

You can say the following commands to access the voice settings:

Voice command	Description
Voice Settings	Allows you to enter the voice settings functionality.
Interaction Mode Standard	Sets standard prompting with longer prompts.
Interaction Mode Advanced	Sets advanced prompting with shorter prompts.
Call Confirmation On	Allows the system to confirm before making a phone call.
Call Confirmation Off	The system does not confirm before placing a call.
Voice Command Lists On	The system displays a short list of available commands.
Voice Command Lists Off	The system does not display the list of commands.

You can use the volume control to adjust the volume of the system voice prompts. While prompt is active, adjust the volume control up or down to your desired setting.

Note: *Depending on the current climate control settings, the fan speed may automatically go down while issuing voice commands or while making and receiving phone calls via SYNC to reduce the amount of background noise in the vehicle. The fan speed will automatically return to normal operation once the voice session ends. You can adjust the fan speed during a voice session, simply press the fan buttons (or turn the fan knob) to increase or decrease the fan speed to the setting you prefer.*

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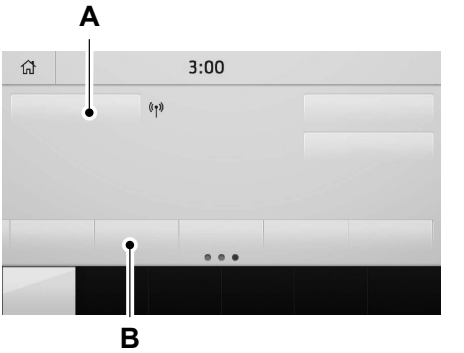
To disable this automatic fan speed reduction feature during voice sessions, press and hold the climate control AC and Recirculated air buttons simultaneously, release and then increase fan speed within 2 seconds. To re-enable this feature, repeat the above sequence.

ENTERTAINMENT



A Audio source. Select to choose a different audio source.

B Presets. Swipe left to view more presets.

You can access these options using the touchscreen or voice commands.

Sources

Press this button to select the source of media you want to listen to.

Menu Item	
AM	
FM	
SIRIUS [1]	
CD [1]	
USB	The name of the USB that is plugged in displays here.

Menu Item	
Bluetooth Stereo	
Apps	If you have SYNC 3 compatible apps on your connected smart phone, they display here as individual source selections.

[1] This feature may not be available in all markets and requires an active subscription.

AM/FM Radio

Tuning a Station

You can use the tune or seek controls on the radio bezel to select a station.

To tune a station using the touchscreen, select:

Menu Item
Direct Tune

A pop up appears, allowing you to type in the frequency of a station. You can only enter a valid station for the source you are currently listening to.

You can press the backspace button to delete the previously entered number.

Once you have entered the station's call numbers, you can select:

Menu Item	Action and Description
Enter	Press to begin playing the station you have entered.
Cancel	Press to exit without changing the station.

Presets

To set a new preset, tune to the station and then press and hold one of the memory preset buttons. The audio mutes briefly while the system saves the station and then returns.

You may be able to add additional preset pages using the settings option on the feature bar.

SiriusXM® Satellite Radio (If Activated)

Note: *This feature may not be available in all markets and requires an active subscription.*

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SiriusXM satellite radio is a subscription-based satellite radio service that broadcasts a variety of music, sports, news, weather, traffic and entertainment programming. Your factory-installed SiriusXM satellite radio system includes hardware and a limited subscription term that begins on the date of sale or lease of your vehicle. See an authorized dealer for availability.

For more information on extended subscription terms (a service fee is required), the online media player and a list of SiriusXM satellite radio channels, and other features, please visit www.siriusxm.com in the United States, www.siriusxm.ca in Canada, or call SiriusXM at 1-888-539-7474.

Note: *SiriusXM reserves the unrestricted right to change, rearrange, add or delete programming. This includes canceling, moving or adding particular channels, and its prices, at any time, with or without notice to you. We are not responsible for any such programming changes.*

Note: *This receiver includes the eCos real-time operating system. eCos is published under the eCos License.*

The following buttons are available for SiriusXM:

Menu Item	Action and Description	
Browse	Touch this button to see a list of available stations.	
Direct Tune	A pop-up appears, allowing you to type in the call numbers of a station. Once you enter the stations call numbers, you can select:	
	Enter	The system tunes to the station you select.
	Cancel	You exit the pop-up and the current station continues to play.
	You can press the backspace button to delete the previous number.	
Replay	Replay audio on the current channel. You can replay approximately 45 minutes of audio as long as you remain tuned to the current station. Changing stations erases the previous audio.	
	Live	When you are in replay mode, you are not able to select a different preset until you return to live audio. Pressing this button returns you to the live broadcast.
ALERT	Save the current song, artist, or team as a favorite. The system alerts you when it plays again on any channel.	

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Menu Item	Action and Description
	Selecting this button allows you to enable and edit alerts. See **Settings** (page 539).

Memory Presets

To set a preset, tune to the station then press and hold one of the memory preset buttons. The audio mutes briefly while the system saves the station and returns once the station is stored.

You may be able to add additional preset pages using the settings option on the feature bar.

Satellite Radio Electronic Serial Number (ESN)

You need your ESN to activate, modify or track your satellite radio account. See **Settings** (page 539).

SiriusXM Satellite Radio Reception Factors and Troubleshooting

Potential Reception Issues	
Antenna obstructions	For optimal reception performance, keep the antenna clear of snow and ice build-up and keep luggage and other materials as far away from the antenna as possible.
Terrain	Hills, mountains, tall buildings, bridges, tunnels, freeway overpasses, parking garages, dense tree foliage and thunderstorms can interfere with your reception.
Station overload	When you pass a ground-based broadcast-repeating tower, a stronger signal may overtake a weaker one and the audio system may mute.
Satellite radio signal interference	Your display may show ACQUIRING... to indicate the interference and the audio system may mute.

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Troubleshooting Tips		
Message	**Cause**	**Action**
Acquiring Signal	Radio requires more than two seconds to produce audio for the selected channel.	No action required. This message should disappear shortly.
Satellite antenna fault SIRIUS system failure	There is an internal module or system failure present.	If this message does not clear shortly, or with an ignition key cycle, your receiver may have a fault. See an authorized dealer for service.
Invalid Channel	The channel is no longer available.	Tune to another channel or choose another preset.
Unsubscribed Channel	Your subscription does not include this channel.	Contact SiriusXM at 1-888-539-7474 to subscribe to the channel, or tune to another channel.
Satellite acquiring signal...	The signal is lost from the SiriusXM satellite or SiriusXM tower to your vehicle antenna.	The signal is blocked. When you move into an open area, the signal should return.
Updating...	Update of channel programming in progress.	No action required. The process may take up to three minutes.
Questions? Call 1-888-539-7474	Your satellite service is no longer available.	Contact SiriusXM at 1-888-539-7474 to resolve subscription issues.
None found. Check channel guide.	All the channels in the selected category are either skipped or locked.	Use the channel guide or the Sirius XM Settings tile to turn off the Lock or Skip function on that station.
SIRIUS Subscription updated	SiriusXM has updated the channels available for your vehicle.	No action required.

HD Radio™ Information (If Available)

To activate HD radio, please see the Radio Settings in the Settings Chapter. See **Settings** (page 539).

Note: *HD Radio broadcasts are not available in all markets.*

HD Radio technology is the digital evolution of analog AM/FM radio. Your system has a special receiver that allows it to receive digital broadcasts (where available) in addition to the analog broadcasts, it already receives. Digital broadcasts provide a better sound quality than analog broadcasts with free, crystal-clear audio and no static or distortion. For more information, and a guide to available stations and programming, please visit:

Website
www.hdradio.com

When HD Radio is on and you tune to a station broadcasting HD Radio technology, you may notice the following indicators on your screen:

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The HD logo is grey when acquiring a digital station, and then changes to orange when digital audio is playing. When this logo is available, you may also see Title and Artist fields on-screen.

The multicast indicator appears in FM mode (only) if the current station is broadcasting multiple digital broadcasts. The highlighted numbers signify available digital channels where new or different content is available. HD1 signifies the main programming status and is available in analog and digital broadcasts. Other multicast stations (HD2 through HD7) are only available digitally.

Note: *There is also an additional feature for stations that have more than 1 HD multicast (For example, HD1 or HD2). The HD logo and Radio text appears as a button. Pressing this button allows you to cycle through all of the HD stations on that specific frequency. For example, if you are on 101.1 and it has HD1, HD2, HD3, pressing the button repeatedly causes the radio to cycle through the HD stations in a cyclic increasing order.*

When HD Radio broadcasts are active, you can access the following functions:

Message	Action and Description
Presets	Allows you to save an active channel as a memory preset. Touch and hold a memory preset slot until the sound returns. There is a brief mute while the radio saves the station. Sound returns when the channel saves. When switching to an HD2 or HD3 memory preset, the sound mutes before the digital audio plays, because the system has to reacquire the digital signal.

Note: *As with any station you save, you cannot access the saved station if your vehicle is outside the station's reception area.*

HD Radio Reception and Station Troubleshooting

Potential Reception Issues	
Reception area	If you are listening to a multicast station and you are on the fringe of the reception area, the station may mute due to weak signal strength.
	If you are listening to HD1, the system changes back to the analog broadcast until the digital broadcast is available again. However, if you are listening to any of the possible HD2-HD7 multicast channels, the station mutes and stays muted unless it is able to connect to the digital signal again.
Station blending	When the system first receives a station (aside from HD2-HD7 multicast stations), it first plays the station in the analog version. Once the receiver verifies the station is an HD Radio station, it shifts to the digital version. Depending on the station quality, you may hear a slight sound change when the station changes from analog to digital. Blending is the shift from analog to digital sound or digital back to analog sound.

In order to provide the best possible experience, use the contact form to report any station issues found while listening to a station broadcasting with HD Radio technology. Independent entities own and operate each station. These stations are responsible for ensuring all audio streams and data fields are accurate.

Potential Station Issues		
Issues	**Cause**	**Action**
Echo, stutter, skip or repeat in audio. Increase or decrease in audio volume.	This is poor time alignment by the radio broadcaster.	No action required. This is a broadcast issue.
Sound fading or blending in and out.	The radio is shifting between analog and digital audio.	No action required. The reception issue may clear up as you continue to drive.
There is an audio mute delay when selecting HD2 or HD3, multicast preset or Direct Tune.	The digital multicast is not available until the HD Radio broadcast is decoded. Once decoded, the audio is available.	No action required. This is normal behavior. Wait until the audio is available.

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Potential Station Issues		
Issues	**Cause**	**Action**
Cannot access HD2 or HD3 multicast channel when recalling a preset or from a direct tune.	The previously stored multicast preset or direct tune is not available in your current reception area.	No action required. The station is not available in your current location.
Text information does not match currently playing audio.	Data service issue by the radio broadcaster.	Fill out the station issue form. [1]
There is no text information shown for currently selected frequency.	Data service issue by the radio broadcaster.	Fill out the station issue form. [1]

[1] You can find the form here:

Website
http://hdradio.com/stations/feedback

HD Radio Technology manufactured under license from iBiquity Digital Corporation and foreign patents. HD Radio and the HD and HD Radio logos are proprietary trademarks of DTS. The vehicle manufacturer and DTS are not responsible for the content sent using HD Radio technology. Content may be changed, added or deleted at any time at the station owner's discretion.

CD (If equipped)

Once you select this option, the system returns you to the main audio screen.

The current audio information appears on the screen.

The following buttons are also available:

Button	Function
Browse	You can use the browse button to select a track.
Repeat	Select this button and a small number one displays to indicate the track is set to repeat.

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Button	Function
	For MP3 CDs, this button allows you to toggle through repeat off, repeat one track (a small number one displays), and repeat current folder (a small folder displays).
Shuffle	Select the shuffle symbol to have the audio on the disk play in random order.

You can use the forward, reverse, pause or play buttons to control the audio playback.

Bluetooth Stereo or USB

Bluetooth Stereo and USB allow you to access media that you store on your Bluetooth device or USB device such as music, audio books or podcasts.

The following buttons are available for Bluetooth and USB:

Button	Function
Repeat	Pressing the repeat button toggles the repeat setting through three modes: repeat off (button not highlighted), repeat all (button highlighted) and repeat track (button highlighted with a small number one).
Shuffle	Play the tracks in random order.

You can use the forward, reverse, pause or play buttons to control the audio playback.

To get more information about the currently playing track, press the cover art or Info button.

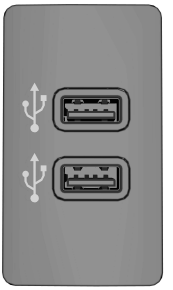
For some devices, SYNC 3 is able to provide 30-second skip buttons when you listen to audio books or podcasts. These buttons allow you to skip forward or backward within a track.

While playing audio from a USB device you can look for certain music by selecting the following:

Button	Function
Browse	If available, displays the list of tracks in the Now Playing playlist.
New Search	This option, which is available under browse, allows you to play all tracks or to filter the available media into one of the below categories.
	Play All

Button	Function
	Playlists
	Artist
	Albums
	Songs
	Genres
	Podcasts
	Audio books
	Composers
A-Z Jump	This button allows you to choose a specific letter to view within the category you are browsing.
Explore Device	If available, this allows you to browse the folders and files on your USB device.

USB Ports



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The USB ports are in the center console or behind a small access door in the instrument panel.

This feature allows you to plug in USB media devices, memory sticks, flash drives or thumb drives, and charge devices if they support this feature.

Select this option to play audio from your USB device.

Apps

The system supports the use of certain audio apps such as iHeartRadio through a USB or Bluetooth enabled device.

Each app gives you different on-screen options depending on the app's content. See **Apps** (page 536).

Supported Media Players, Formats and Metadata Information

The system is capable of hosting nearly any digital media player, including iPod, iPhone, and most USB drives.

Supported audio formats include MP3, WMA, WAV, AAC, and FLAC.

Supported audio file extensions include MP3, WMA, WAV, M4A, M4B, AAC, and FLAC.

Supported USB file systems include: FAT, exFAT, and NTFS.

SYNC 3 is also able to organize the media from your USB device by metadata tags. Metadata tags, which are descriptive software identifiers embedded in the media files, provide information about the file.

If your indexed media files contain no information embedded in these metadata tags, SYNC 3 may classify the empty metadata tags as unknown.

SYNC 3 is capable of indexing up to 50,000 songs per USB device, for up to 10 devices.

CLIMATE

Touch the climate button on the touchscreen to access your climate control features.

Note: *You can switch temperature units between Fahrenheit and Celsius. See* ***Settings*** *(page 539).*

Accessing the Climate Control Menu

MENU Touch the button to access additional controls for the front climate system.

Directing the Airflow

Touch the button to direct airflow to the windshield air vents and de-mister.

Touch the button to direct airflow to the instrument panel air vents.

Touch the button to direct airflow to the footwell air vents.

You can direct air through any combination of these air vents.

Setting the Blower Motor Speed

Touch up or down to increase or decrease the volume of air that circulates in your vehicle.

Setting the Temperature

Touch up or down on the left-hand temperature control to set the left-hand temperature.

Note: *This control also adjusts the right-hand side temperature when you switch off dual zone mode.*

Touch up or down on the right-hand temperature control to set the right-hand temperature.

Switching Auto Mode On and Off

AUTO Touch the button to switch on automatic operation, then set the temperature.

The system adjusts the blower motor speed, air distribution, air conditioning operation, and outside or recirculated air to reach and maintain the temperature you have set.

Switching the Air Conditioning On and Off

A/C A pop-up appears on the screen to display the air conditioning options.

MAX A/C: Touch the button to activate and maximize cooling. The driver and passenger temperatures are set to LO, recirculated air flows through the instrument panel vents, air conditioning automatically turns on and the fan automatically adjusts to the highest speed.

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A/C: Touch to switch the air conditioning on or off. Use A/C with recirculated air to improve cooling performance and efficiency.

Note: *In certain conditions, such as maximum defrost, the air conditioning compressor may continue to operate even though you switch off the air conditioning.*

Switching the Climate Control On and Off

Touch the button.

Switching the Climate Controlled Seats On and Off

Touch the button to cycle through the various climate controlled seat settings.

Switching Dual Zone Mode On and Off

Touch the button to switch on temperature control for the right-hand side of the vehicle.

Switching the Heated Exterior Mirrors On and Off

Touch the button.

Switching the Heated Windshield On and Off

Touch the button to clear the windshield of thin ice and fog. The heated windshield turns off after a short period of time.

Switching the Heated Rear Window On and Off

Touch the button to clear the rear window of thin ice and fog.

Switching the Heated Seats On and Off

Touch the button to cycle through the various heat settings.

Switching the Heated Steering Wheel On and Off

Touch the button.

Switching Maximum Air Conditioning On and Off

Touch the button for maximum cooling.

Recirculated air flows through the instrument panel air vents, air conditioning turns on and the blower motor adjusts to the highest speed.

Switching Maximum Defrost On and Off

Touch the button for maximum defrosting.

Air flows through the windshield air vents, and the blower motor adjusts to the highest speed.

You can also use this setting to defog and clear the windshield of a thin covering of ice.

Note: *To prevent window fogging, you cannot select recirculated air when maximum defrost is on.*

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Note: *The heated rear window also turns on when you select maximum defrost.*

Switching Recirculated Air On and Off

Touch the button to switch between outside air and recirculated air.

The air currently in the passenger compartment recirculates. This may reduce the time needed to cool the interior, when used with ***A/C***, and reduce unwanted odors from entering your vehicle.

Note: *Recirculated air may turn off, or prevent you from switching on, in all air flow modes except **MAX A/C** to reduce the risk of fogging. Recirculation may also turn on and off in various air distribution control combinations during hot weather to improve cooling efficiency.*

Switching the Ventilated Seats On and Off

Touch the button to cycle through the various ventilated seat settings.

Accessing Rear Climate Controls

Touch the button to access additional controls for the rear climate system.

Rear Climate Control Lock Indicator

Touch the button.

When on, you can only operate the rear passenger settings through the front controls.

Switching Rear Auto Mode On and Off

Touch the button to switch on rear automatic operation, then set the temperature.

Switching the Rear Climate Controlled Seats On and Off

Touch the button to cycle through the various climate controlled seat settings.

Switching the Rear Heated Seats On and Off

Touch the button to cycle through the various heat settings.

Switching the Rear Ventilated Seats On and Off

Touch the button to cycle through the various ventilated seat settings.

PHONE

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any

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hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

Check the compatibility of your device on the regional website.

Pairing Your Cell Phone for the First Time

Go to the settings menu on your cell phone and switch Bluetooth on.

Select the phone option on the feature bar.

1. Select ***Add Phone***.

Note: *A prompt alerts you to search for your vehicle on your cell phone.*

2. Select your vehicle on your cell phone.

Note: *A number appears on your cell phone and on the touchscreen.*

3. Confirm that the number on your cell phone matches the number on the touchscreen.

Note: *The touchscreen indicates that you have successfully paired your cell phone.*

4. Download the phonebook from your cell phone when you are prompted.

Note: *If you pair more than one cell phone, use the phone settings to specify the primary phone. You can change this setting at any time.*

Using Your Cell Phone

Recent Call List

Display and select an entry from a list of previous calls.

Contacts

Display a smart search form to look up your contacts. Use the List button to alphabetically sort your contacts.

Change Device

Display the list of paired or connected devices that you can select.

Phone Settings

Change ring tones, alerts or pair another phone.

Do Not Disturb

Reject incoming calls and switch ring tones and alerts off.

Phone Keypad

Directly dial a number.

Mute

Mute the microphone.

Text Messaging

Setting Text Message Notification

iOS

1. Go to the settings menu on your cell phone.
2. Select Bluetooth.
3. Select the information icon to the right of your vehicle.
4. Switch text message notification on.

Android

1. Go to the settings menu on your cell phone.
2. Select Bluetooth.
3. Select the profiles option.
4. Select the phone profile.
5. Switch text message notification on.

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Using Text Messaging

Menu Item	Description
Hear It	Hear the text message.
View	View the text message.
Call	Call the sender.
Reply	Reply to the text message with a standard text message.

Apple CarPlay (If Equipped)

1. Connect your device to a USB port.
2. Follow the instructions on the touchscreen.

Note: *Certain features of the system are not available when you are using Apple CarPlay.*

Switching Apple CarPlay Off

Select the settings option on the feature bar.

1. Select ***Apple CarPlay Preferences***.
2. Switch ***Apple CarPlay*** off.

Android Auto (If Equipped)

1. Connect your device to a USB port.
2. Follow the instructions on the touchscreen.

Note: *You might need to enable Android Auto from the settings menu.*

Note: *Certain features of the system are not available when you are using Android Auto.*

Switching Android Auto Off

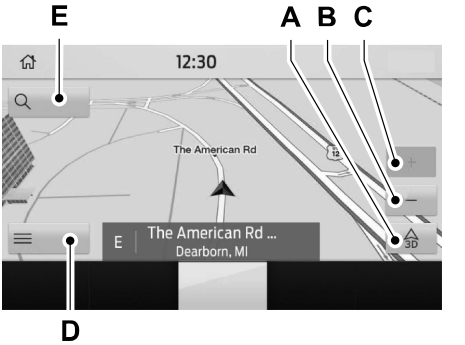
Select the settings option on the feature bar.

1. Select ***Android Auto***.
2. Switch ***Android Auto*** off.

NAVIGATION

Note: *For more information, refer to our website.*

Select the navigation option on the feature bar.



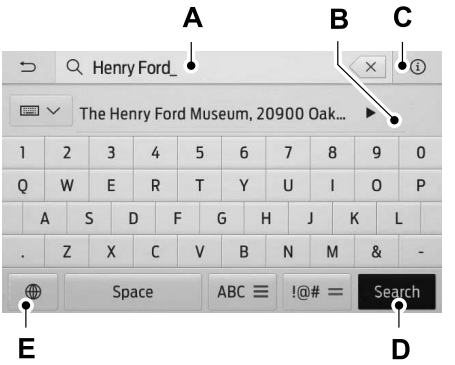
A Map view menu.
B Zoom out.
C Zoom in.
D Route guidance menu.
E Destination entry menu.

Setting a Destination

Destination Entry Menu

Item	Description
Search	Enter a destination address.
Previous Destinations	Display and select from a list of previous destinations.
Home	Set your saved home address as your destination
Work	Set your saved place of work as your destination.
Favorites	Display and select from a list of favorite destinations.

Setting a Destination Using the Text Entry Screen



A Text entry field.

B Automatic suggestions based on the text you enter.

C Information icon.

D Search.

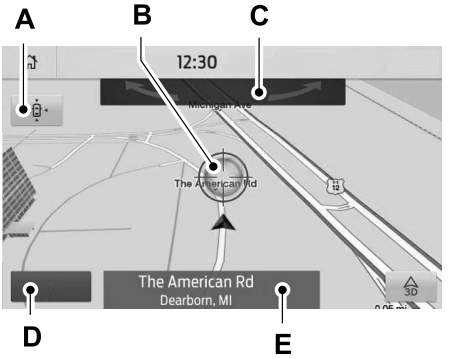
E Keyboard settings.

Note: *Select one of the suggestions to copy the detail to the text entry field.*

You can search by entering all or part of the destination, such as the Address, POI Category or Name, Intersection, City, Latitude/Longitude, etc. Tips: If you do not specify a location, the system will use the current vehicle location. You can specify a location by address, city, state or zip code. For additional search support, please visit: support.ford.com.

Note: *Press the button in the top right-hand corner of the main map to display estimated time of arrival, remaining travel time or distance to destination.*

Setting a Destination Using the Map Screen



A	Re-center the map.
B	Selected location.
C	3D map rotation. Swipe left or right.
D	Start route guidance.
E	Destination name.

Select the location on the map.

Select ***Start*** to begin route guidance.

Changing the Format of the Map

Display the map in one of the following formats:

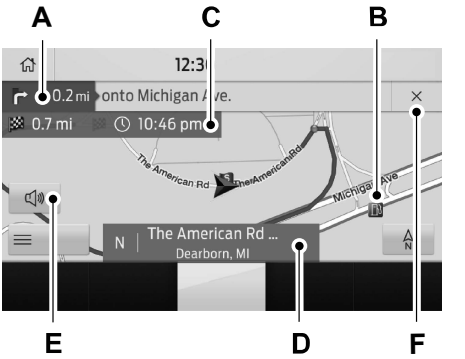
- A two-dimensional map with the direction you are traveling toward the top of the screen.
- A two-dimensional map with north toward the top of the screen.
- A three-dimensional map with the direction you are traveling toward the front.

Zoom

Display more or less detail on the map.

Note: *You can use pinch gestures to zoom in and out. Place two fingers on the screen and move them apart to zoom in. Place two fingers on the screen and bring them together to zoom out.*

Route Guidance



A	Turn indicator. Select to hear the last voice prompt.
B	Point of interest.
C	Estimated time of arrival, distance to destination or time to destination.
D	Current road.
E	Mute guidance prompts.
F	Cancel route guidance.

Note: *To change guidance prompt volume, turn the volume control when a guidance prompt plays.*

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Route Guidance Menu

Menu Item	Description
Screen View	Adjust your map preferences for when route guidance is active.
Full Map	View a full screen map when route guidance is active.
Highway Exit Info	View highway exit information for your current route.
Turn List	View the turn list for your current route. Select a road to avoid it.
Traffic List	You can find the SiriusXM Traffic and Travel Link information by pressing this button. This information requires an active subscription to SiriusXM Traffic and Travel Link. When a route is not active, a list of nearby traffic incidents displays. When a route is active, you can choose to display a list of traffic nearby or on the route.
Navigation Settings	Adjust navigation settings. See **Settings** (page 539).
Where Am I?	View information about your current location.
Cancel Route	Cancel route guidance.
View Route	View the entire current route on the map.
Detour	View an alternative route compared to your current one.
Edit Waypoints	Change the order or remove waypoints.
Optimize Order	The system determines the order of waypoints for you.
Go	Go to the next screen and start the new route.

Adjusting the Guidance Prompt Volume

Turn the volume control when a guidance prompt plays to adjust the volume.

Note: *If you have inadvertently adjusted the volume to zero, press the turn indicator button to play the last voice prompt and then adjust the volume to the desired level.*

Muting Guidance Prompts

Select the mute option on the screen to mute guidance prompts.

Note: *The system mutes the next and all future guidance prompts.*

Adding Waypoints

You can add a waypoint to a navigation route as a destination along your route. You can add up to five waypoints.

1. Select the search option on the map.
2. Set a destination.
3. Select ***Add Waypoint***.
4. Select ***Go***.

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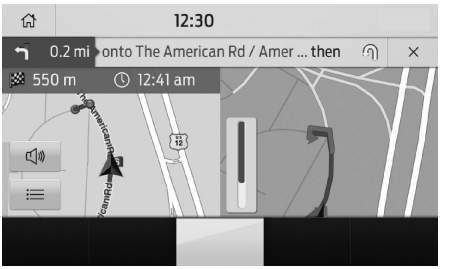
Canceling Route Guidance

Select the route guidance menu option on the active guidance screen.

Select ***Cancel Route***.



Note: *The route guidance menu option is always in the bottom right-hand corner of the main map.*

cityseeker (If Equipped)

Note: *cityseeker point of interest (POI) information is limited to approximately 1,110 cities (1,049 in the United States, 36 in Canada and 15 in Mexico).*

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cityseeker, when available, is a service that provides more information about certain points of interest such as restaurants, hotels and attractions.

When you have selected a point of interest, the location and information appear, such as address, phone number and a star rating.

Press **More Information** to see a photo, a review, a list of services and facilities, the average room or meal price and the web address. This screen displays the point of interest icons.

For restaurants, cityseeker can provide information such as star rating, average cost, review, handicap access, hours of operation, and website address.

For hotels, cityseeker can provide information such as star rating, price category, review, check-in and checkout times, hotel service icons and website address. Hotel service icons include:

- Restaurant
- Business center
- Handicap facilities
- Laundry
- Refrigerator
- 24 hour room service
- Fitness center
- Internet access
- Pool
- Wi-Fi

Attractions include nearby landmarks, amusement parks, historic buildings and more. cityseeker can provide information such as star rating, reviews, hour of operation and admission price.

SiriusXM Traffic and Travel Link (If Equipped)

SiriusXM Traffic and Travel Link is available on vehicles equipped with navigation and only in select markets. You must activate and subscribe to receive SiriusXM Traffic and Travel Link information. It helps you locate the best gas prices, find movie listings, get current traffic alerts, view the weather map, get accurate ski conditions and see current sports scores.

The system calculates a reasonable efficient route based on available speed limits, traffic, and road conditions. You may know a local short cut that is more efficient at a given time than the route provided by SYNC 3, but you should expect a slight difference in minutes or miles with the SYNC 3 route.

Michelin Travel Guide (If Equipped)

The Michelin travel guide is a service which provides additional information about certain places of interest, for example restaurants, hotels and tourist sites. Points of interest that have Michelin travel guide information display a button to show you more information. Push the button to see the additional information. If you have paired your phone with the system, you can press the phone button to directly establish a call with the selected point of interest.

Navigation Map Accuracy and Updates

HERE is the digital map provider for the navigation application. If you find map data errors, you may report them directly to HERE by going to www.here.com. HERE evaluates all reported map errors and responds with the result of their investigation by e-mail.

The navigation system map data may contain inaccurate or incomplete information due to the passage of time, changing circumstances, sources used and the nature of collecting comprehensive geographic data, any of which may lead to incorrect results. Inaccurate speed limit information, turn restrictions and other road attributes may affect the determined route and associated guidance

Annual navigation map updates are available for purchase through your dealership. Depending on your purchase agreement, you might be eligible for free Map update. You can choose to download the Map data update onto a USB, order a USB, or use Wi-Fi to deliver automatic updates. To update your Map data over Wi-Fi, your vehicle must be connected to a Wi-Fi access point. Map Data files are large, so it is highly recommended to perform the update when free Wi-Fi is available otherwise high data rates may apply. For USB updates, free map update eligibility, and other details, contact dealers at 1-866-462-8837 in the United States and Canada or 01-800-557-5539 in Mexico or visit our local website for more information.

APPS

The system allows you interact with select mobile apps while keeping your eyes on the road. Voice commands, your steering wheel buttons, or a quick tap on your touchscreen give you advanced control of compatible mobile apps. You can also stream your favorite music or podcasts, share your time of arrival with friends, and keep connected safely.

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When you start an app through the system for the first time, you could be asked to grant certain permissions. You can review and change the permissions that you have granted at any time when your vehicle is not moving. We recommend that you check your data plan before using your apps through the system. Using them could result in additional charges. We also recommend that you check the app provider's terms and conditions and privacy policy before using their app. Make sure that you have an active account for apps that you want to use through the system. Some apps will work with no setup. Others require you to configure some personal settings before you can use them.

Note: *For more information about available apps, visit catalog.ford.com.*

Using Apps on an iOS Device

Select the apps option on the feature bar.

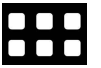
1. If your device is connected via USB, switch Apple CarPlay off. See **Phone** (page 529).
2. Connect your device to a USB port or pair and connect using Bluetooth.
3. If prompted to enable CarPlay, select ***Disable***.
4. Start the apps on your device that you want to use through SYNC.

Note: *If you close the apps on your device, you will not be able to use them through the system.*

5. Select the app that you want to use on the touchscreen.

Note: *Connect your device to a USB port if you want to use a navigation app. When using a navigation app, keep your device unlocked and the app open.*

Using Apps on an Android Device



Select the apps option on the feature bar.

1. If your device is connected via USB, switch Android Auto off. See **Phone** (page 529).
2. Pair your device. See **Phone** (page 529).
3. Start the apps on your device that you want to use through SYNC.

Note: *If you close the apps on your device, you will not be able to use them through the system.*

4. Select ***Find Mobile Apps***.

Note: *The system searches and connects to compatible apps that are running on your device.*

5. Select the app that you want to use on the touchscreen.

Note: *Mobile Apps on your device use the USB port to establish a connection with SYNC. Some devices may lose the ability to play music over USB when Mobile Apps are enabled.*

Using Mobile Navigation on an Android Device

1. Connect your device to a USB port.
2. Switch Android Auto off. See **Phone** (page 529).
3. Switch on ***Enable Mobile Apps via USB*** in the Mobile Apps Settings tile.
4. Select the apps option on the feature bar.
5. Select the navigation app that you want to use on the touchscreen.

Note: *When using a navigation app, keep your device unlocked and the app open.*

SiriusXM Traffic and Travel Link (If Equipped)

WARNING: Driving while distracted can result in loss of vehicle control, crash and injury. We strongly recommend that you use extreme caution when using any device that may take your focus off the road. Your primary responsibility is the safe operation of your vehicle. We recommend against the use of any hand-held device while driving and encourage the use of voice-operated systems when possible. Make sure you are aware of all applicable local laws that may affect the use of electronic devices while driving.

Note: *SiriusXM Traffic and Travel Link may not be available in all markets.*

Note: *In order to use SiriusXM Traffic and Travel Link, your vehicle must have navigation.*

Note: *A paid subscription is required to access and use these features. Go to www.siriusxm.com/travellink for more information.*

Note: *Visit www.siriusxm.com/traffic and click on Coverage map and details for a complete listing of all traffic areas covered by SiriusXM Traffic and Travel Link.*

Note: *Neither Sirius nor Ford is responsible for any errors or inaccuracies in the SiriusXM Traffic and Travel Link services or its use in vehicles.*

When you subscribe to SiriusXM Traffic and Travel Link, it can help you locate the best gas prices, find movie listings, get current traffic alerts, view the current weather map, get accurate ski conditions and see scores to current sports games.

Menu Item	Action and Description	
Traffic on Route	Touch these buttons to identify traffic incidents on your route, near your vehicle's current location or near any of your favorite places, if programmed.	
Traffic Nearby		
Fuel Prices	Touch this button to view fuel prices at stations close to your vehicle's location or on an active navigation route.	
Movie Listings	Touch this button to view nearby movie theaters and their show times, if available.	
Weather	Touch this button to view the nearby weather, current weather, or the five-day forecast for the chosen area.	
	Map	Select to see the weather map, which can show storms, radar information, charts and winds.

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Menu Item	Action and Description	
	Area	Select to choose from a listing of weather locations.
Sports Info	Touch this button to view scores and schedules from a variety of sports. You can also save up to 10 favorite teams for easier access. The score automatically refreshes when a game is in progress.	
Ski Conditions	Touch this button to view ski conditions for a specific area.	

SETTINGS

Press the button to enter the settings menu.

Once you select a tile, press the button next to a menu item to view an explanation of the feature or setting.

Sound

Select this tile to adjust sound the settings.

Clock

Select this tile to adjust the clock settings.

Bluetooth

Select this tile to switch Bluetooth on and off and adjust the settings.

Phone

Select this tile to connect, disconnect, and manage the connected device settings.

Audio

Select this tile to adjust the audio settings.

Driver Assist (If Equipped)

Select this tile to adjust Driver Assist features like Parking Aids, Lane Keeping System, Pedestrian Detection, and Auto-Start-Stop.

Vehicle

Select this tile to adjust vehicle settings like windows, alarm, lighting, and MyKey settings.

FordPass

Select this tile to adjust the FordPass settings

General

Select this tile to adjust settings like language, measurement units, or to reset the system.

911 Assist (If Equipped)

Select this tile to switch 911 Assist on and off.

Automatic Updates

Select this tile to adjust the automatic update settings.

Mobile Apps

Select this tile to adjust permissions, enable, disable, and update mobile apps.

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Display

Select this tile to adjust display settings like brightness and auto dim.

Charge Settings (If Equipped)

Select this tile to adjust the electric vehicle charge settings.

Voice Control

Select this tile to adjust voice control settings like command confirmations and displayed lists.

Navigation (If Equipped)

Select this tile to adjust navigation settings like map preferences and route guidance.

Multi Contour Seats (If Equipped)

Select this tile to adjust the position and massage function of your multi contour seats.

Seats (If Equipped)

Select this tile to adjust the lumbar function of your seats.

Message Center (If Equipped)

Select this tile to view vehicle messages.

Personal Profiles (If Equipped)

Select this tile to adjust recalled memory features when using personal profiles.

Valet Mode (If Equipped)

Select this tile to enable and disable valet mode.

Ambient Lighting (If Equipped)

Select this tile to change the color or intensity of the interior lighting.

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SYNC™ 3 TROUBLESHOOTING

Voice Recognition

Symptom	Possible Cause and Resolution
The system does not understand what I am saying.	– You are using the wrong voice commands. • See **Using Voice Recognition** (page 510). • For a complete list of voice commands, refer to our website. – You are speaking too soon. • Wait for the voice prompt before you speak.
The system does not understand the name of a track or artist.	– Device limitation. Bluetooth does not support voice commands. • Connect your device to a USB port. • If you have an iOS device, press and hold the voice control button on the steering wheel to use Siri to play specific tracks. – You are using the wrong voice commands. • See **Using Voice Recognition** (page 510). • For a complete list of voice commands, refer to our website. – You are not saying the name exactly as it appears on your device. • Say the name of the track or artist exactly as it appears on your device. Spell out any abbreviations in the name. The song or artist name may have some special characters that are not being recognized by the system. – The name contains special characters, for example *, - or +. • Rename the files on your device or use the touchscreen to select and play the track.

Symptom	Possible Cause and Resolution
The system does not understand the name of a contact in the phonebook on my device and calls the wrong contact.	– You are not saying the name exactly as it appears on your device. • Say the first and last name of the contact exactly as it appears on your device. Spell out any abbreviations in the name. – The name contains special characters, for example *, - or +. • Rename the contact on your device or use the touchscreen to select and call the contact.
The system does not understand foreign names of contacts in the phonebook on my device.	– You are not saying the name exactly as it appears on your device. • Say the first and last name of the contact exactly as it appears on your device. The system applies phonetic pronunciation rules of the selected language to the names of contacts in the phonebook on your device. Select the name of the contact on the touchscreen and use the Hear it option to get an idea of how the system expects you to pronounce it.
The system voice prompts and the pronunciation of some words does not seem to be very accurate.	– Device limitation. • The system uses text-to-speech technology and uses a synthetically generated voice rather than pre-recorded human voice.

USB and Bluetooth Audio

Symptom	Possible Cause and Resolution
I cannot connect my device.	– Device malfunction. • Disconnect your device. Switch your device off, reset it and try again. – Cable connection issue. • Correctly connect the cable to your device and the vehicle USB port. – Incompatible cable. • Use the cable recommended by the manufacturer of your device.

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Symptom	Possible Cause and Resolution
	– Incorrect device settings. • Make sure that your device does not have an auto-install program or active security settings. • Check that your device is not set only to charge. – Device lock screen enabled. • Unlock your device before connecting it.
The system does not recognize my device.	– Device limitation. • Do not leave your device in your vehicle during very hot or very cold weather conditions. – Cable connection issue. • Correctly connect the cable to your device and the vehicle USB port. – Incompatible cable. • Use the cable recommended by the manufacturer of your device.
The system does not understand the name of a track or artist.	– Device limitation. Bluetooth does not support voice commands. • Connect your device to a USB port. • If you have an iOS device, press and hold the voice control button on the steering wheel to use Siri to play specific tracks.
I cannot stream audio from my Bluetooth device.	– Incompatible device. • Check the compatibility of your device on our website. – Device not connected. • Pair your device. See **Phone** (page 529). – Media player not running. • Start the media player on your device.
The system does not recognize the music on my device.	– Missing or incorrect audio file metadata, for example artist, song title, album or genre. • Repair the files on your device. – Corrupt files. • Repair the files on your device.

Symptom	Possible Cause and Resolution
	– Copyright protected files. • Use a device that contains files that are not copy-right protected. – Unsupported file format. • Repair or convert the files to a supported format. See **Entertainment** (page 517). – Device indexing required. • Re-index your device. See **Settings** (page 539). – Device lock screen enabled. • Unlock your device before connecting it.
Sometimes I cannot hear a track playing on my device.	– Device malfunction. • Disconnect your device. Switch your device off, reset it and try again.
When I disconnect my iOS device the audio volume is set to maximum.	– Device limitation. • Turn the volume down on your device
The system does not play the tracks on my USB drive in the correct order.	If the system does not play the tracks on your USB device in the correct order, the following information could help: – If you are selecting USB as the audio source when the system is still indexing, SYNC plays tracks sorted alphabetically by file name in the root directory. – If you are selecting USB as the audio source after the system has finished indexing, SYNC plays all tracks sorted alphabetically by the title in the ID3 tag regardless of where they are located. SYNC uses the file name if the title in the ID3 Tag does not exist. – If you are selecting the option to play all tracks from the browsing menu, SYNC plays all tracks sorted alphabetically by the title in the ID3 tag regardless of where they are located. SYNC uses the file name if the title in the ID3 Tag does not exist. – If you are selecting a track when using the explore device option, SYNC plays tracks sorted alphabetically by file name in the folder you have selected. SYNC then plays all tracks in any subfolders in the folder you have selected.

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Phone

Symptom	Possible Cause and Resolution
During a call, I can hear excessive background noise.	– Incorrect cell phone settings. • Check and adjust the audio settings on your cell phone. Refer to your cell phone's user manual.
During a call, I can hear the other person but they cannot hear me.	– Cell phone malfunction. • Switch your cell phone off, reset it and try again. – Cell phone microphone muted. • Unmute your cell phone microphone.
During a call, I cannot hear the other person and they cannot hear me.	– System restart required. • Restart the system. Switch the ignition off and open the door. Close the door and lock the vehicle. Wait until the touchscreen is off and any illuminated USB ports are not illuminated. Unlock the vehicle, switch the ignition on and try again.
I cannot download phonebook.	– Incompatible cell phone. • Check the compatibility of your cell phone on our website. – Incorrect cell phone settings. • Allow the system to retrieve contacts from your cell phone. Refer to your cell phone's user manual. – Incorrect system settings. • Switch automatic phonebook download on. See **Settings** (page 539). – Cell phone malfunction. • Switch your cell phone off, reset it and try again.
A message displays suggesting that my phonebook has downloaded but it is empty or it has missing contacts.	– Incorrect cell phone settings. • Allow the system to retrieve contacts from your cell phone. Refer to your cell phone's user manual. • Check the location of the missing contacts on your cell phone. If they are stored on the SIM card, move them to the cell phone memory. – Incorrect system settings. • Switch automatic phonebook download on. See **Settings** (page 539).

Symptom	Possible Cause and Resolution
I cannot connect my cell phone.	– Incompatible cell phone. • Check the compatibility of your cell phone on our website. – Cell phone malfunction. • Switch your cell phone off, reset it and try again. • Install the latest cell phone firmware. • Delete your device from system and delete SYNC from your device and try again. • Switch automatic phonebook download off. See **Settings** (page 539).
Text messaging does not work.	– You did not switch on text message notifications. • Switch text message notifications on. See **Phone** (page 529). – Incompatible cell phone. • Check the compatibility of your cell phone on our website. – Cell phone malfunction. • Switch your cell phone off, reset it and try again.
I cannot hear text messages.	– Device message sharing is not enabled. • Check the permissions on your device to ensure text message sharing is enabled. – Incompatible cell phone. • Check the compatibility of your cell phone on our website.

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Navigation (If Equipped)

Symptom	Possible Cause and Resolution
I cannot enter a street name when I am abroad.	– Incorrect entry method. • Enter the street name with the country.
The system does not recognize coordinates.	– You are using the wrong coordinates format. • Use the format ##. #####, ##. ##### (for N/S , E/W). Add a minus before coordinates if the direction is West and keep a positive value if the direction is East, for example 12.5412 means East and -12.5412 means West.

Apps

Symptom	Possible Cause and Resolution
The system cannot find any apps.	– Incompatible device. • You will need an Android device with OS 4.3 or higher or an iOS device with iOS 8.0 or higher. Pair and connect your Android device to find AppLink compatible apps. Connect your iOS device to a USB port or pair and connect using Bluetooth.
I have a compatible device and it is correctly connected but the system still cannot find any apps.	– AppLink compatible apps not installed on your device. • Download and install the latest version of the app. – AppLink compatible apps not running on your device. • Start the apps to allow the system to find them and make sure you sign in to any apps if required. – Incorrect app settings. • Check and adjust the app settings on your device and allow SYNC to access the app if required.
I have a compatible device, it is correctly connected and my apps are running but the system still cannot find any apps.	– Apps failed to fully close. • Restart the apps and try again. • If you have an Android device with apps that have an exit or quit option, use this and then restart the apps. Alternatively, use the force stop option in the settings menu on your device. • If you have an iOS device with iOS 7.0 or higher, tap the home button on your device twice and then swipe the app upward to close it.
I have an Android device that is correctly connected, I have restarted my apps and they are running but the system still cannot find them.	– An issue on some older versions of the Android operating system could result in apps not being found. • Switch Bluetooth off and on again to force the system to reconnect to your device.

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Symptom	Possible Cause and Resolution
I have an iOS device that is correctly connected, I have restarted my apps and they are running but the system still cannot find them.	– Cable connection issue. • Disconnect the cable from your device, wait for a moment and then connect it again to force the system to reconnect to your device.
I have an Android device running a media app which the system has found but I cannot hear the sound or the sound is very quiet.	– Device volume is low. • Turn the volume up on your device.
I have an Android device running a number of compatible apps but the system cannot find all of them.	– Device limitation. Some Android devices have a limited number of Bluetooth ports that apps can use to connect. If you have more apps running on your device than the number of available Bluetooth ports, the system cannot find all of them. • Close some of the apps to allow the system to find those that you want to use.

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Wi-Fi Connectivity

Symptom	Possible Cause and Resolution
I cannot connect to a Wi-Fi network.	– Password error. • Enter the correct network password. – Weak network signal. • Move your vehicle closer to the Wi-Fi hotspot or to a place where the network signal is not obstructed. – Multiple access points in range with the same SSID. • Use a unique name for your SSID,. Do not use the default name unless it contains a unique identifier, for example as part of the MAC address.
The Wi-Fi connection disconnects after successful connection.	– Weak network signal. • Move your vehicle closer to the Wi-Fi hotspot or to a place where the network signal is not obstructed.
I am close to a Wi-Fi hotspot but the network signal strength is weak.	– Obstructed network signal. • If your vehicle has a heated windshield, position your vehicle so that the windshield is not facing the Wi-Fi hotspot. • If your vehicle has metallic tinting on the windows but not on the windshield, position your vehicle so that the windshield is facing the Wi-Fi hotspot or open the windows that are facing the hotspot. • If your vehicle has metallic tinting on the windows and the windshield, open the windows that are facing the hotspot. • If your vehicle is in a garage and you have the garage door closed, open the garage door.
I cannot see a network in the list of available networks that I expect to see.	– Hidden network. • Make the network visible and try again.

Symptom	Possible Cause and Resolution
I cannot see SYNC when I search for Wi-Fi networks on my cell phone or other device.	– System limitation. • SYNC does not provide a Wi-Fi hotspot at this time.
Software downloads take too long.	– Weak network signal • Move your vehicle closer to the Wi-Fi hotspot or to a place where the network signal is not obstructed. – Wi-Fi hotspot in high demand or has a slow Internet connection. • Use a more reliable Wi-Fi hotspot.
The system seems to connect to a Wi-Fi network and the signal strength is excellent but the software does not update.	– No software update available. – Wi-Fi network requires a subscription or acceptance of terms and conditions. • Test the connection using another device. If the network requires a subscription or acceptance of terms and conditions, contact the network service provider.

Personal Profiles (If Equipped)

Symptom	Possible Cause and Solution
I cannot create a profile.	You have not set up Personal Profiles.
	You entered an invalid profile.
	You did not select a memory button when prompted.
	You did not have the ignition on or in park (P), or you shifted out park (P) when creating a profile.
	Personal Profiles has been switched off.
I cannot link a remote control.	You did not select the lock button on the remote control.
	The remote control selected was already associated with another profile and the system declined to overwrite.
	The system performed a profile recall when linking a remote control.
	You did not have the ignition on or in park (P), or you shifted out park (P) when creating a profile.

Symptom	Possible Cause and Solution
	You are using the old linking method.
My personalized settings do not save.	Personal Profiles does not support your unsaved settings.
	A different personal profile is active.
	Another user changed the settings for the wrong personal profile.
My profile will not recall.	You did not create a personal profile.
	Personal Profiles is turned off.
	The profile you requested is already active.
	You did not link the memory button you are using to a profile.
	You did not link the remote control you are using to a profile.
	You are using the wrong remote control.
	You are pressing a button other than the unlock or remote start on a linked remote control.
	You deleted the personal profile.
My preset positions recall, but my profile does not.	You switched the personal profiles off.
My profile recalls but my preset positions do not.	The vehicle is in motion.
	The preset positions are the same as the guest or previously active profile.
I lost a remote control.	Unlink and relink your remote control in the Personal Profiles menu. You may need to see your authorized dealer.
I lost all profiles.	You erased and reprogrammed the remote controls. This could happen if you let a dealership add a new remote control to replace a lost one.
	Someone performed a master reset without your knowledge.

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Resetting the System

1. Simultaneously press and hold the seek up and the audio unit power buttons until the screen goes black.
2. Wait three minutes to allow the system to complete the reset.
3. Press the audio unit power button to switch the system on.

Note: *You can reset the system to restore functionality that has stopped working. The system reset is designed to restore functionality and not delete any data that you have stored.*

Additional Information and Assistance

For additional information and assistance, we recommend that you contact an authorized dealer or refer to our website.

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For a complete listing of the accessories that are available for your vehicle, please contact your authorized dealer or visit the online store web site:

Web Address (United States)
www.Accessories.Ford.com

Web Address (Canada)
www.Accessories.Ford.ca

We will repair or replace any properly authorized dealer-installed Ford Original Accessory found to be defective in factory-supplied materials or workmanship during the warranty period, as well as any component damaged by the defective accessories.

We will warrant your Ford Original Accessory through the warranty that provides the greatest benefit:

- 24 months, unlimited mileage.
- The remainder of your new vehicle limited warranty.

Contact an authorized dealer for details and a copy of the warranty.

*Ford Licensed Accessories. The accessory manufacturer designs, develops and therefore warrants Ford Licensed Accessories, and does not design or test these accessories to Ford Motor Company engineering requirements. Contact an authorized Ford dealer for the manufacturer's limited warranty details, and request a copy of the Ford Licensed Accessories product limited warranty from the accessory manufacturer.

For maximum vehicle performance, keep the following information in mind when adding accessories or equipment to your vehicle:

- When adding accessories, equipment, passengers and luggage to your vehicle, do not exceed the total weight capacity of the vehicle or of the front or rear axle (GVWR or GAWR as indicated on the Safety Compliance Certification label). Ask an authorized dealer for specific weight information.
- The Federal Communications Commission (FCC) and Canadian Radio Telecommunications Commission (CRTC) regulate the use of mobile communications systems that are equipped with radio transmitters, for example two-way radios, telephones and theft alarms. Any such equipment installed in your vehicle should comply with Federal Communications Commission (FCC) and Canadian Radio Telecommunications Commission (CRTC) regulations and should be installed only by an authorized dealer.
- An authorized dealer needs to install mobile communications systems. Improper installation may harm the operation of your vehicle, particularly if the manufacturer did not design the mobile communication system specifically for automotive use.
- If you or an authorized Ford dealer add any non-Ford electrical or electronic accessories or components to your vehicle, you may adversely affect battery performance and durability. In addition, you may also adversely affect the performance of other electrical systems in the vehicle.

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PROTECT YOURSELF FROM THE RISING COST OF VEHICLE REPAIRS WITH A FORD PROTECT EXTENDED SERVICE PLAN.

Ford Protect Extended Service Plans (U.S. Only)

Ford Protect extended service plan means peace of mind. It's the extended service plan backed by Ford Motor Company, and provides more protection beyond the New Vehicle Limited Warranty coverage. When you visit your Ford Dealer, Insist on Ford Protect extended service plans!

Ford Protect Can Quickly Pay for Itself

One trip to the Service Center could easily exceed the price of your Ford Protect extended service plan. With Ford Protect extended service plan you minimize your risk for unexpected repair bills and rising repair costs.

Up to 1,000+ Covered Vehicle Components

There are four mechanical Ford Protect extended service plans with different levels of coverage. Ask your authorized dealer for details.

1. PremiumCARE - Our most comprehensive coverage. With over 1,000 covered components, this plan is so complete it's probably easier to list what's not covered.
2. ExtraCARE - Covers 113 components, and includes many high-tech items.
3. BaseCARE - Covers 84 components.
4. PowertrainCARE - Covers 29 critical components.

Ford Protect extended service plans are honored by all authorized Ford dealers in the U.S., Canada and Mexico.

That means you get:

- Reliable, quality service at any Ford or Lincoln dealership.
- Repairs performed by factory trained technicians, using genuine parts.

Rental Car Reimbursement

1st day Rental Benefit

If you bring your car into your dealer for service, we'll give you a loaner to use for the day.

Extended Rental Benefits

If your vehicle is kept overnight for covered repairs, you are eligible for rental car coverage, including warranty repairs, and Field Service Actions.

Roadside Assistance

Exclusive 24/7 roadside assistance, including:

- Towing, flat-tire change and battery jump starts.
- Out of fuel and lock-out assistance.
- Travel expense reimbursement for lodging, meals and rental car.
- Assistance for taxi, shuttle, rental car coverage or other transportation.

Transferable Coverage

If you sell your vehicle before your Ford Protect extended service plan coverage expires, you can transfer any remaining coverage to the new owner. Which should give you and your potential buyer a little more peace of mind.

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Less Cost to Properly Maintain Your Vehicle

Ford Protect extended service plan also offers a Premium Maintenance Plan that covers all scheduled maintenance, and selected wear items. The coverage is prepaid, so you never have to worry about the cost of your vehicle's maintenance.

Covered maintenance includes:

- Windshield wiper blades.
- Spark plugs.
- The clutch disc (if equipped).
- Brake pads and linings.
- Shock absorbers.
- Struts.
- Engine Belts.
- Engine coolant hoses, clamps and o-rings.
- Diesel exhaust fluid replenishment (if equipped).
- Cabin air filter replacement every 20,000 mi (32,000 km) (electric vehicles only).

Interest Free Finance Options

Just a 10% down payment will provide you with an affordable, no interest, no fee payment program allowing you all the security and benefits Ford Protect extended service plan has to offer while paying over time. You are pre-approved with no credit check or hassles. To learn more, call our Ford Protect extended service plan specialists at 800-367-3377.

Ford Protect Extended Service Plan
P.O. Box 321067
Detroit, MI 48232

Ford Protect Extended Service Plan (CANADA ONLY)

You can get more protection for your vehicle by purchasing a Ford Protect extended service plan. Ford Protect extended service plan is the only service contract backed by Ford Motor Company of Canada, Limited. Depending on the plan you purchase, Ford Protect extended service plan provides benefits such as:

- Rental reimbursement.
- Coverage for certain maintenance and wear items.
- Protection against repair costs after your New Vehicle Limited Warranty Coverage expires.
- Roadside Assistance benefits.

There are several Ford Protect extended service plans available in various time, distance and deductible combinations. Each plan is tailored to fit your own driving needs, including reimbursement for towing and rental. When you purchase Ford Protect extended service plan, you receive added peace-of-mind protection throughout Canada, the United States and Mexico, provided by a network of participating authorized Ford Motor Company dealers.

Note: *Repairs performed outside of Canada and the United States are not eligible for Ford Protect extended service plan coverage.*

This information is subject to change. For more information; visit your local Ford of Canada dealer or www.ford.ca to find the Ford Protect extended service plan that is right for you.

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GENERAL MAINTENANCE INFORMATION

Why Maintain Your Vehicle?

Carefully following the maintenance schedule helps protect against major repair expenses resulting from neglect or inadequate maintenance and may help to increase the value of your vehicle when you sell or trade it. Keep all receipts for completed maintenance with your vehicle.

We have established regular maintenance intervals for your vehicle based upon rigorous testing. It is important that you have your vehicle serviced at the proper times. These intervals serve two purposes; one is to maintain the reliability of your vehicle and the second is to keep your cost of owning your vehicle down.

It is your responsibility to have all scheduled maintenance performed and to make sure that the materials used meet the specifications identified in this owner's manual. See **Capacities and Specifications** (page 426).

Failure to perform scheduled maintenance invalidates warranty coverage on parts affected by the lack of maintenance.

Why Maintain Your Vehicle at Your Dealership?

Factory-Trained Technicians

Service technicians participate in extensive factory-sponsored certification training to help them become experts on the operation of your vehicle. Ask your dealership about the training and certification their technicians have received.

Our Genuine Replacement Parts

Dealerships stock our parts and our authorized branded re-manufactured replacement parts. These parts meet or exceed our specifications. Parts installed at your dealership carry a nationwide 24-month or unlimited mile (kilometer) parts and labor limited warranty.

If you do not use our authorized parts they may not meet our specifications and depending on the part, it could affect emissions compliance.

Convenience

Many dealerships have extended evening and Saturday hours to make your service visit more convenient and they offer one stop shopping. They can perform any services that are required on your vehicle, from general maintenance to collision repairs.

Note: *Not all dealers have extended hours or body shops. Please contact your dealer for details.*

Protecting Your Investment

Maintenance is an investment that pays dividends in the form of improved reliability, durability and resale value. To maintain the proper performance of your vehicle and its emission control systems, make sure you have scheduled maintenance performed at the designated intervals.

Your vehicle comes with the Intelligent Oil-Life Monitor system, which displays a message in the information display at the proper oil change interval. This interval may be up to one year or 10,000 mi (16,000 km).

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When the oil change message appears in the information display, it is time for an oil change. Make sure you perform the oil change within two weeks or 500 mi (800 km) of the message appearing. Make sure you reset the Intelligent Oil-Life Monitor after each oil change. See **Oil Change Indicator Reset** (page 365).

If your information display resets prematurely or becomes inoperative, you should perform the oil change interval at six months or 5,000 mi (8,000 km) from your last oil change. Never exceed one year or 10,000 mi (16,000 km) between oil change intervals.

You can drive high performance vehicles in such a way that may lead to higher oil consumption this includes extended time at high engine speeds, high loads, engine braking, hard cornering maneuvers, track and off-road usage. Under these conditions, oil consumption of approximately 1 quart per 500 miles (1 liter per 800 km) is possible. As a result, you need to check the engine oil level at every refueling and adjust to maintain proper levels to avoid engine damage.

Your vehicle is very sophisticated and built with multiple, complex, performance systems. Every manufacturer develops these systems using different specifications and performance features. That is why it is important to rely upon your dealership to properly diagnose and repair your vehicle.

We have recommended maintenance intervals for various parts and component systems based upon engineering testing. We rely upon this testing to determine the most appropriate mileage for replacement of oils and fluids to protect your vehicle at the lowest overall cost to you and recommends against maintenance schedules that deviate from the scheduled maintenance information.

We strongly recommend the use of only our genuine or our authorized re-manufactured replacement parts engineered for your vehicle.

Additives and Chemicals

This owner's manual and our Workshop Manual list the recommended additives and chemicals for your vehicle. We do not recommend using chemicals or additives not approved by us as part of your vehicle's normal maintenance. Please consult your warranty information.

Oils, Fluids and Flushing

In many cases, fluid discoloration is a normal operating characteristic and, by itself, does not necessarily indicate a concern or that the fluid needs to be changed. However, a qualified expert, such as the factory-trained technicians at your dealership, should inspect discolored fluids that also show signs of overheating or foreign material contamination immediately.

Make sure to change your vehicle's oils and fluids at the specified intervals or in conjunction with a repair. Flushing is a viable way to change fluid for many vehicle sub-systems during scheduled maintenance. It is critical that systems are flushed only with new fluid that is the same as that required to fill and operate the system or using our approved flushing chemical.

Owner Checks and Services

Make sure you perform the following basic maintenance checks and inspections every month or at six-month intervals.

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Check Every Month
Air filter restriction gauge.[1]
Engine oil level.
Function of all interior and exterior lights.
Tires including the spare for wear and proper pressure.
Windshield washer fluid level.
Fuel and water separator. Drain if necessary or if indicated by the information display.[1]
Holes and slots in the tail pipe to make sure they are functional and clear of debris.[1]

[1] Diesel vehicles only.

Check Every Six Months
Battery connections. Clean if necessary.
Body and door drain holes for obstructions. Clean if necessary.
Cooling system fluid level and coolant strength.
Door weatherstrips for wear. Lubricate if necessary.
Hinges, latches and outside locks for proper operation. Lubricate if necessary.
Parking brake for proper operation.
Safety belts and seat latches for wear and function.
Safety warning lamps, brake, ABS, airbag and safety belt for operation.
Washer spray and wiper operation. Clean or replace blades as necessary.

Multi-Point Inspection

In order to keep your vehicle running right, it is important to have the systems on your vehicle checked regularly. This can help identify potential issues and prevent major problems. We recommend having the following multi-point inspection performed at every scheduled maintenance interval to help make sure your vehicle keeps running great.

Multi-Point Inspection	
Accessory drive belt or belts	Hazard warning system operation
Battery performance	Horn operation
Engine air filter	Radiator, cooler, heater and air conditioning hoses
Exhaust system	Suspension components for leaks or damage
Exterior lamps operation	Steering and linkage
Fluid levels[1]; fill if necessary	Tires including the spare for wear and proper pressure[2]
For oil and fluid leaks	Windshield for cracks, chips or pits
Half-shaft dust boots	Washer spray and wiper operation

[1] Brake, coolant recovery reservoir, automatic transmission and window washer

[2] If your vehicle is equipped with a temporary mobility kit, check the tire sealant expiration Use By date on the canister. Replace as needed.

Be sure to ask your dealership service advisor or technician about the multi-point vehicle inspection. It is a comprehensive way to perform a thorough inspection of your vehicle. Your checklist gives you immediate feedback on the overall condition of your vehicle.

NORMAL SCHEDULED MAINTENANCE

Intelligent Oil-Life Monitor

Diesel Engines

Your vehicle comes with an Intelligent Oil-Life Monitor that determines when you should change the engine oil based on how you use your vehicle. By using several important factors in its calculations, the monitor helps reduce the cost of owning your vehicle and reduces environmental waste at the same time.

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This means you do not have to remember to change the oil on a mileage-based schedule. Your vehicle lets you know when an oil change is due by displaying a message in the information display.

The following table provides examples of vehicle use and its impact on oil change intervals. It is a guideline only. Actual oil change intervals depend on several factors and generally decrease with severity of use.

When to Expect the OIL CHANGE REQUIRED Message	
Interval	**Vehicle Use and Example**
7,500–10,000 mi (12,000–16,000 km)	**Normal**
	Normal commuting with highway driving No, or moderate, load or towing Flat to moderately hilly roads No extended idling
5,000–7,500 mi (8,000–12,000 km)	**Severe**
	Moderate to heavy load or towing Mountainous or off-road conditions Extended idling Extended hot or cold operation
3,000–5,000 mi (5,000–8,000 km)	**Extreme**
	Maximum load or towing Extreme hot or cold operation

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Normal Maintenance Intervals

At Every Oil Change Interval as Indicated by the Information Display[1]
Change engine oil and filter.[2]
Rotate tires, inspect tire wear and measure tread depth.
Perform a multi-point inspection (recommended).
Inspect the automatic transmission fluid level (if equipped with dipstick). Consult your dealer for requirements.
Inspect the brake pads, shoes, rotors, drums, brake linings, hoses and parking brake.
Inspect the engine cooling system strength and hoses.
Inspect the exhaust system and heat shields.
Inspect front axle and U-joints. Lubricate if equipped with grease fittings (Four–wheel drive vehicles).
Inspect the half-shaft boots.
Inspect the steering linkage, ball joints, suspension, tire-rod ends, driveshaft and U-joints. Lubricate any areas with grease fittings.
Inspect the wheels and related components for abnormal noise, wear, looseness or drag.
Fuel and water separator. Drain if necessary (or if indicated by the information display).
Refill the diesel exhaust fluid tank.
Inspect the air filter restriction gauge. Replace the filter if necessary.

[1] Do not exceed one year or 10,000 mi (16,000 km) between service intervals.

[2] Reset the Intelligent Oil-Life Monitor after engine oil and filter changes. See **Oil Change Indicator Reset** (page 365).

Brake Fluid Maintenance[1]	
Every 3 Years	Change brake fluid.[2]

[1] Perform this maintenance item every 3 years. Do not exceed the designated time for the interval.

[2] Brake fluid servicing requires special equipment available at your authorized dealer.

Other Maintenance Items [1]	
Every 20,000 mi (32,000 km)	Replace cabin air filter.
Every 30,000 mi (48,000 km)	Replace engine air filter.
	Replace the engine-mounted and frame-mounted fuel filters.
Every 100,000 mi (160,000 km)	Replace spark plugs.
	Inspect accessory drive belt(s). [2]
Every 150,000 mi (240,000 km)	Change automatic transmission fluid and filter.
	Change front axle fluid (Four-wheel drive vehicles).
	Change rear axle fluid.
	Change transfer case fluid (Four-wheel drive vehicles).
	Replace accessory drive belt(s).
	Replace fuel pump drive belt (Diesel Only).
	Replace timing belt (Diesel Only).
At 200,000 mi (322,000 km)	Change engine coolant. [3]

[1] Perform these maintenance items within 3,000 mi (4,800 km) of the last engine oil and filter change. Do not exceed the designated distance for the interval.

[2] After initial inspection, inspect every other oil change until replaced.

[3] Initial replacement at 10 years or 200,000 mi (322,000 km), then every five years or 100,000 mi (160,000 km).

SPECIAL OPERATING CONDITIONS SCHEDULED MAINTENANCE

If you operate your vehicle **primarily** in any of the following conditions, you need to perform extra maintenance, as indicated. If you operate your vehicle **occasionally** under any of these conditions, it is not necessary to perform the extra maintenance. For specific recommendations, see your dealership service advisor or technician.

Perform the services shown in the following tables when specified or within 3,000 mi (4,800 km) of the **OIL CHANGE REQUIRED** message appearing in the information display.

- **Example 1**: The **OIL CHANGE REQUIRED** message comes on at 28,751 mi (46,270 km). Perform the 30,000 mi (48,000 km) automatic transmission fluid replacement.
- **Example 2**: The **OIL CHANGE REQUIRED** message has **not** come on, but the odometer reads 30,000 mi (48,000 km) (for example, the Intelligent Oil-Life Monitor was reset at 25,000 mi (40,000 km)). Perform the engine air filter replacement.

Towing a Trailer or Using a Car-top Carrier	
As required	Change engine oil and filter as indicated by the information display and perform services listed in the Normal Scheduled Maintenance chart.
Inspect frequently, service as required	Inspect and lubricate U-joints.
	See axle maintenance items under **Exceptions**.
Every 60,000 mi (96,000 km)	Replace spark plugs. (Gasoline Engine).

Extensive Idling or Low-speed Driving for Long Distances, as in Heavy Commercial Use (Such as Delivery, Taxi, Patrol Car or Livery)	
As required	Change engine oil and filter as indicated by the information display and perform services listed in the Normal Scheduled Maintenance chart.
Inspect frequently, service as required	Replace engine air filter. (Gasoline Engine).
	Inspect the air filter restriction gauge. Replace the filter if necessary (Diesel Engine).
Every 60,000 mi (96,000 km)	Replace spark plugs. (Gasoline Engine).

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Operating in Dusty or Sandy Conditions (Such as Unpaved or Dusty Roads)	
Inspect frequently, service as required	Replace engine air filter. (Gasoline engine).
	Inspect the air filter restriction gauge. Replace the filter if necessary (Diesel Engine).
Every 5,000 mi (8,000 km)	Inspect the wheels and related components for abnormal noise, wear, looseness or drag.
	Rotate tires, inspect tires for wear and measure tread depth.
Every 5,000 mi (8,000 km) or six months	Change engine oil and filter.[1]

[1] Reset your Intelligent Oil-Life Monitor after each engine oil and filter change.

Off-road Operation	
Inspect frequently, service as required	Inspect steering linkage, ball joints and U-joints. Lubricate if equipped with grease fittings.
	Replace engine air filter. (Gasoline engine).
	Inspect the air filter restriction gauge. Replace the filter if necessary (Diesel Engine).
Every 5,000 mi (8,000 km) or six months	Change engine oil and filter.[1]
	Inspect the wheels and related components for abnormal noise, wear, looseness or drag.
	Rotate tires, inspect tires for wear and measure tread depth.

[1] Reset your Intelligent Oil-Life Monitor after each engine oil and filter change.

Exclusive Use of E85 (Flex Fuel Vehicles Only)	
Every oil change interval	If ran exclusively on E85, fill the fuel tank full with regular unleaded fuel. (Gasoline Engine).

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Diesel Engine

If you operate your vehicle **primarily** in any of the following conditions, you need to perform extra maintenance as indicated. If you operate your vehicle **occasionally** under any of these conditions, it is not necessary to perform the extra maintenance. For specific recommendations, see your dealership service advisor or technician.

Towing a Trailer or Using a Car-top Carrier	
As required	Change the engine oil and filter as indicated by the information display, and perform the services listed in the scheduled maintenance chart.
	See the axle maintenance items under **Exceptions**.
Every 30,000 mi (48,000 km) or six months, 600 engine hours	Replace the engine-mounted and frame-mounted fuel filters.
Every 30,000 mi (48,000 km) or 1200 engine hours	Inspect the engine and cooling system coolant concentration (freeze-point protection) and additive (corrosion inhibitor) strength. Add coolant additive if necessary.
Every 60,000 mi (96,000 km) or 2400 engine hours	Flush and refill the coolant. Do not add coolant additive.

Note: *After the initial coolant flush and fill at 60,000 mi (96,000 km) or 2400 engine hours, flush and fill every 45,000 mi (72,000 km) or 1800 engine hours thereafter.*

Frequent or Extended Idling (Over 10 Minutes Per Hour of Normal Driving) or Frequent Low-speed Operation if your Vehicle is Used for Stationary Operation	
As required	Change the engine oil and filter as indicated by the information display, and perform the services listed in the scheduled maintenance chart.
Every 30,000 mi (48,000 km), six months or 600 engine hours	Replace the engine-mounted and frame-mounted fuel filters.
Every 30,000 mi (48,000 km) or 1200 engine hours	Inspect the engine and cooling system coolant concentration (freeze-point protection) and additive (corrosion inhibitor) strength. Add coolant additive if necessary.
Every 60,000 mi (96,000 km) or 2400 engine hours	Flush and refill the coolant. Do not add coolant additive.

Note: *After the initial coolant flush and fill at 60,000 mi (96,000 km) or 2400 engine hours, flush and fill every 45,000 mi (72,000 km) or 1800 engine hours thereafter.*

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Frequent Low-speed Operation, Consistent Heavy Traffic Under 25 mph (40 km/h) or Long Rush-hour Traffic	
As required	Change the engine oil and filter as indicated by the information display, and perform the services listed in the scheduled maintenance chart.
Every 30,000 mi (48,000 km), six months or 600 engine hours	Replace the engine-mounted and frame-mounted fuel filters.
Every 30,000 mi (48,000 km) or 1200 engine hours	Inspect the engine and cooling system coolant concentration (freeze-point protection) and additive (corrosion inhibitor) strength. Add coolant additive if necessary.
Every 60,000 mi (96,000 km) or 2400 engine hours	Flush and refill the coolant. Do not add coolant additive.

Note: *After the initial coolant flush and fill at 60,000 mi (96,000 km) or 2400 engine hours, flush and fill every 45,000 mi (72,000 km) or 1800 engine hours thereafter.*

Sustained High-speed Driving at Gross Vehicle Weight Rating (Maximum Loaded Weight for Vehicle Operation)	
As required	Change the engine oil and filter as indicated by the information display, and perform the services listed in the scheduled maintenance chart.
Every 30,000 mi (48,000 km), six months or 600 engine hours	Replace the engine-mounted and frame-mounted fuel filters.
Every 30,000 mi (48,000 km) or 1200 engine hours	Inspect the engine and cooling system coolant concentration (freeze-point protection) and additive (corrosion inhibitor) strength. Add coolant additive if necessary.
Every 60,000 mi (96,000 km) or 2400 engine hours	Flush and refill the coolant. Do not add coolant additive.

Note: *After the initial coolant flush and fill at 60,000 mi (96,000 km) or 2400 engine hours, flush and fill every 45,000 mi (72,000 km) or 1800 engine hours thereafter.*

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Operating in Sustained Ambient Temperatures Below -9°F (-23°C) or Above 100°F (38°C)	
As required	Change the engine oil and filter as indicated by the information display, and perform the services listed in the scheduled maintenance chart.
Every 30,000 mi (48,000 km), six months or 600 engine hours	Replace the engine-mounted and frame-mounted fuel filters.

Operating in Dusty or Sandy Conditions (Such as Unpaved or Dusty Roads)	
Every 7,500 mi (12,000 km)	Rotate the tires[1], inspect the tires for wear and measure tread depth.
	Inspect the brake system pads and rotors.
	Inspect the air filter restriction gauge. Replace the filter if necessary.
	Inspect the steering and suspension ball joints and tie rods. Lubricate any grease fittings.
Every 7,500 mi (12,000 km), six months or 300 engine hours	Change the engine oil and filter.[2]
	Inspect and lubricate the U-joints.
Every 30,000 mi (48,000 km), 6 months or 600 engine hours	Replace the engine-mounted and frame-mounted fuel filters.
Every 30,000 mi (48,000 km)	Replace the air inlet foam filter.

[1]Vehicles with dual rear wheels should rotate the front wheels when specified; rear wheels only if unusual wear is noted.

[2]Reset the Intelligent Oil-Life Monitor after engine oil and filter changes.

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Off-road Operation	
As required	Inspect functional holes in exhaust tip to make sure they are clean and clear of debris or foreign materials. Refer to the Vehicle Care chapter of your owner's manual for more information. (Diesel Engine).
	Inspect the steering and suspension ball joints and tie rods. Lubricate any grease fittings.
Every 7,000 mi (12,000 km), six months or 300 engine hours	Rotate the tires, inspect the tires for wear and measure tread depth.
	Inspect the brake system pads and rotors.
	Inspect the air filter restriction gauge. Replace the filter if necessary.
Every 7,000 mi (12,000 km) or 300 engine hours	Change the engine oil and filter.[1]
Every 30,000 mi (48,000 km), six months or 600 engine hours	Replace the engine-mounted and frame-mounted fuel filters.
Every 30,000 mi (48,000 km)	Replace the air inlet foam filter.

[1] Reset the Intelligent Oil-Life Monitor after engine oil and filter changes.

Using Biodiesel, up to and Including 20% Biodiesel (B20)	
As required	Change the engine oil and filter as indicated by the information display, and perform the services listed in the scheduled maintenance chart.
Every 30,000 mi (48,000 km), six months or 300 engine hours	Replace the engine-mounted and frame-mounted fuel filters.

Exceptions

There are several exceptions to the Normal Schedule.

Axle and Transfer Case Maintenance

Axle(s) and transfer case (Four-wheel drive vehicles) fluid changes or level checks are not required unless a leak is suspected or the assembly has been submerged in water. Contact an authorized dealer for service.

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California Fuel Filter Replacement

If you register your vehicle in California, the California Air Resources Board has determined that the failure to perform this maintenance item does not nullify the emission warranty or limit recall liability before the completion of your vehicle's useful life. Ford Motor Company, however, urges you to have all recommended maintenance services performed at the specified intervals and to record all vehicle service.

Hot Climate Oil Change Intervals

Vehicles operating in the Middle East, North Africa, Sub-Saharan Africa or locations with similar climates using an American Petroleum Institute (API) Certified for Gasoline Engines (Certification mark) oil of SM or SN quality, the normal oil change interval is 3,000 mi (4,800 km).

If the available API SM or SN oils are not available, then the oil change interval is 1,800 mi (2,900 km).

Engine Air Filter Replacement

The life of the engine air filter is dependent on exposure to dusty and dirty conditions. Vehicles operated in these conditions require frequent inspection and replacement of the engine air filter.

Diesel Particulate Filter

Over time, a slight amount of ash builds up in the diesel particulate filter, which is not removed during the regeneration process. The filter may need to be replaced with a new or remanufactured part at approximately 250,000 mi (400,000 km). Actual mileage varies depending on engine and vehicle operating conditions.

In this case, the engine control system sets a service light (wrench icon) to inform you to bring your vehicle to the dealer for service. If there are any issues with the oxidation catalyst or particulate filter system, a service light (wrench or engine icon) sets by the engine control system to inform you to bring your vehicle into a dealer for service.

SCHEDULED MAINTENANCE RECORD

After the scheduled maintenance services are performed, record the Repair Order #, Distance and Engine Hours in the boxes provided.

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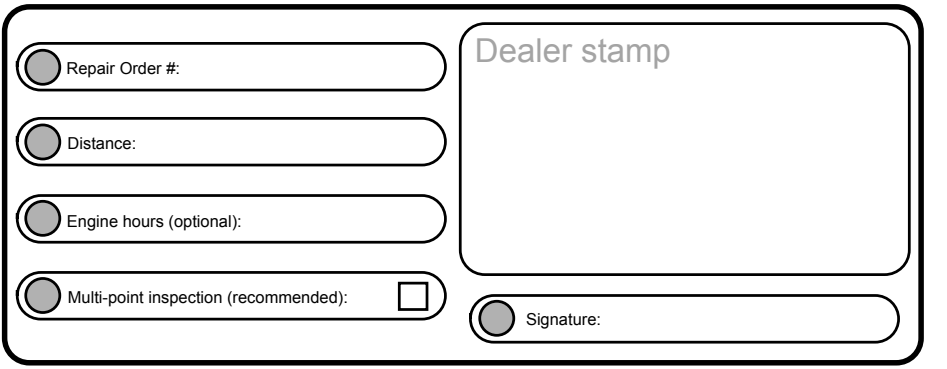
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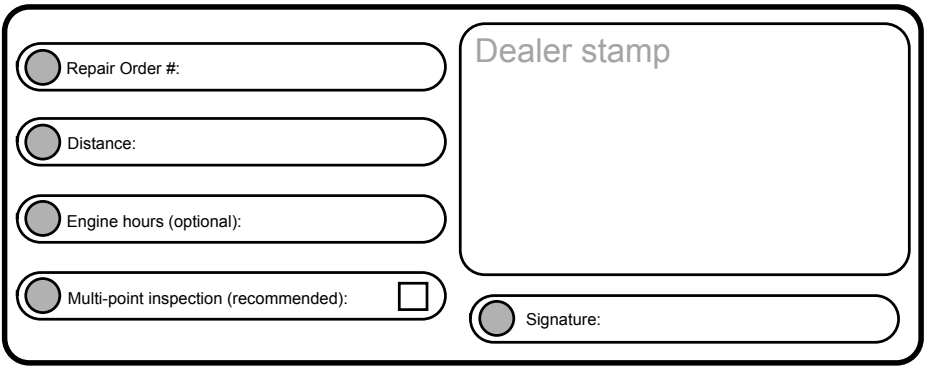
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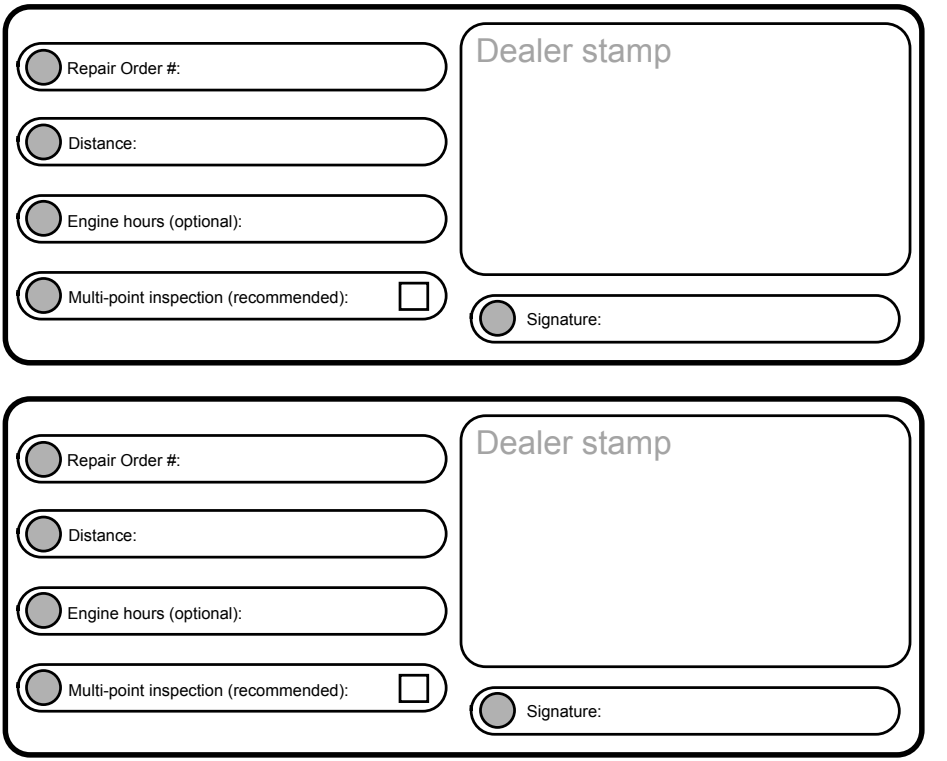
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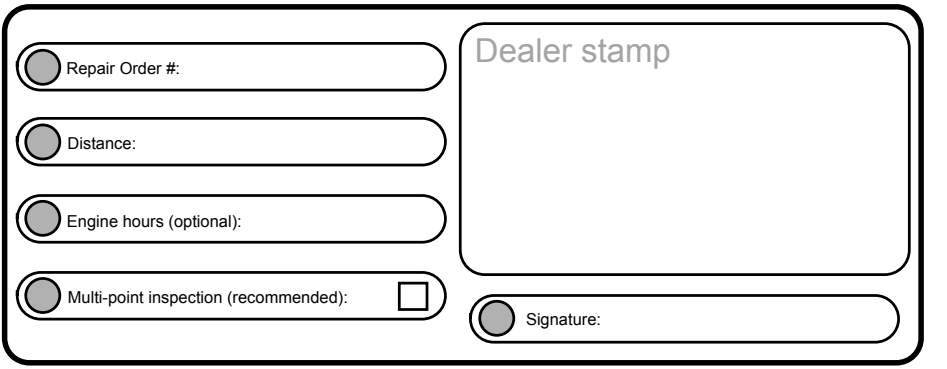
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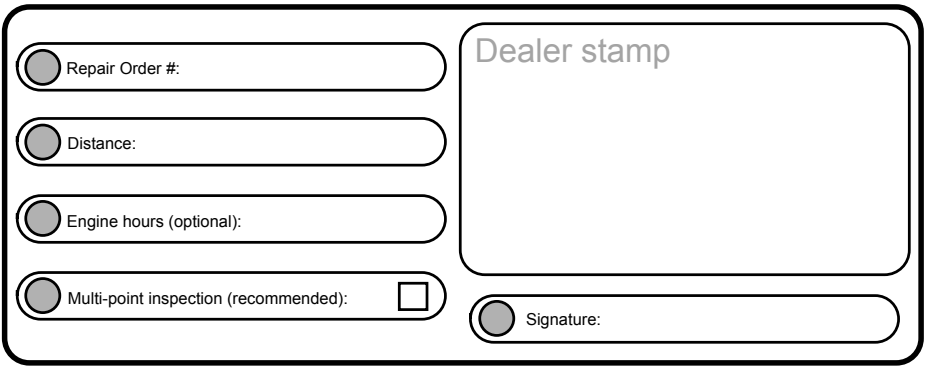
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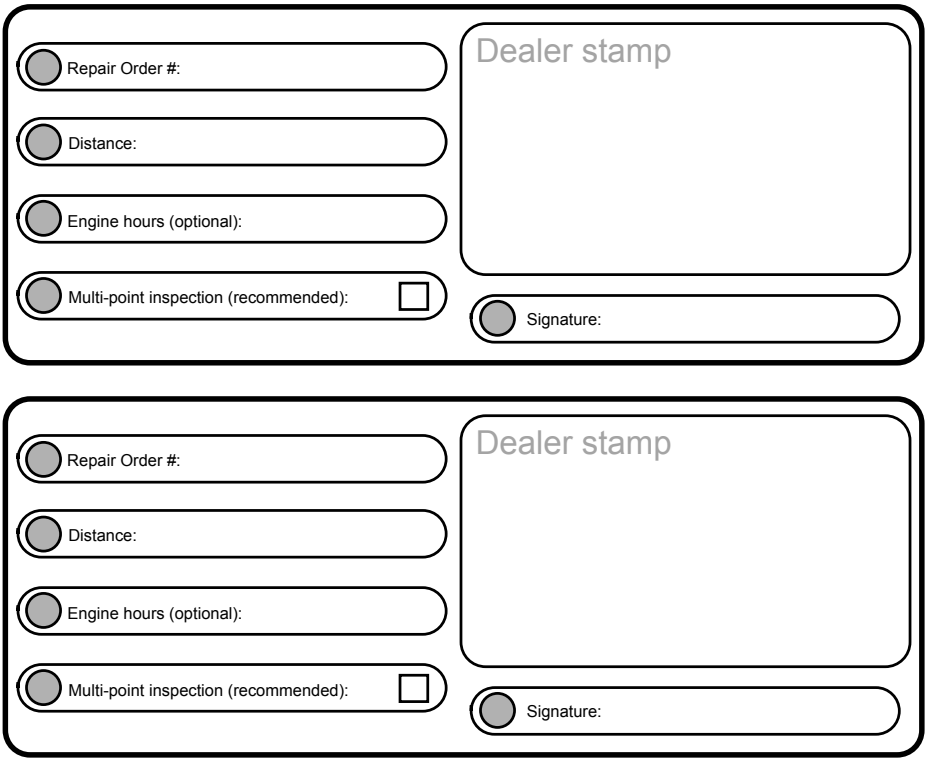
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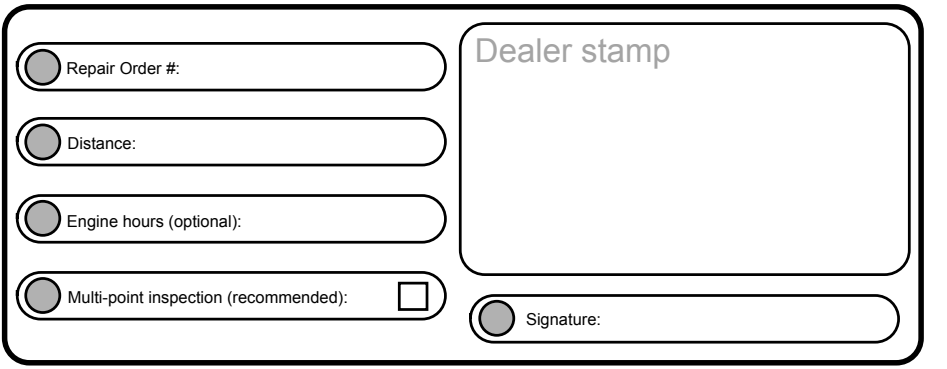
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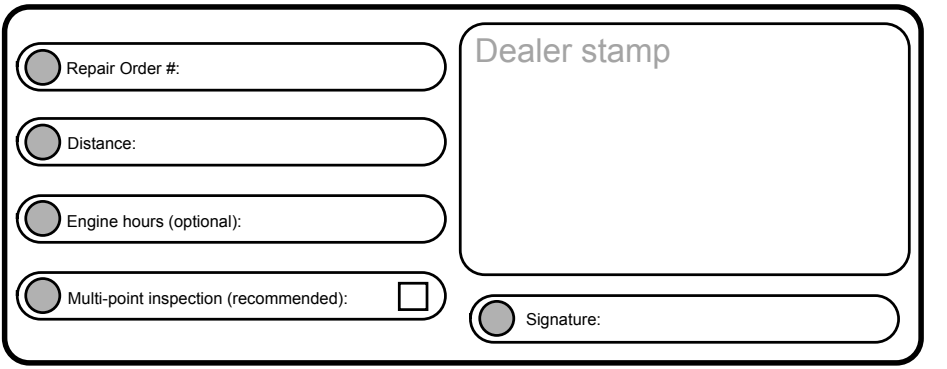
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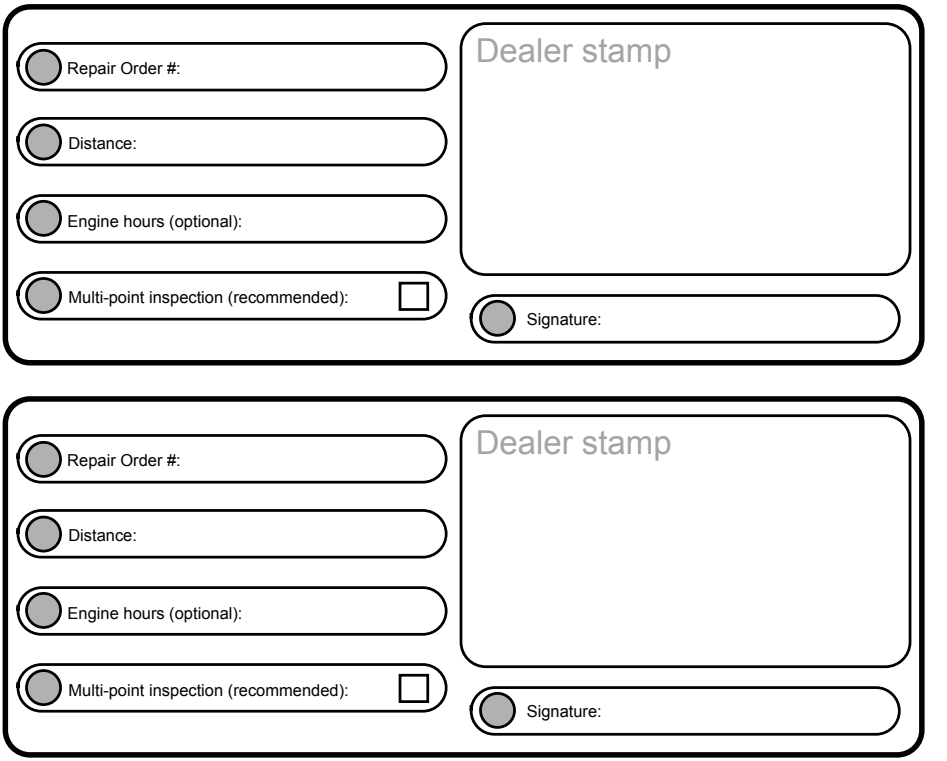
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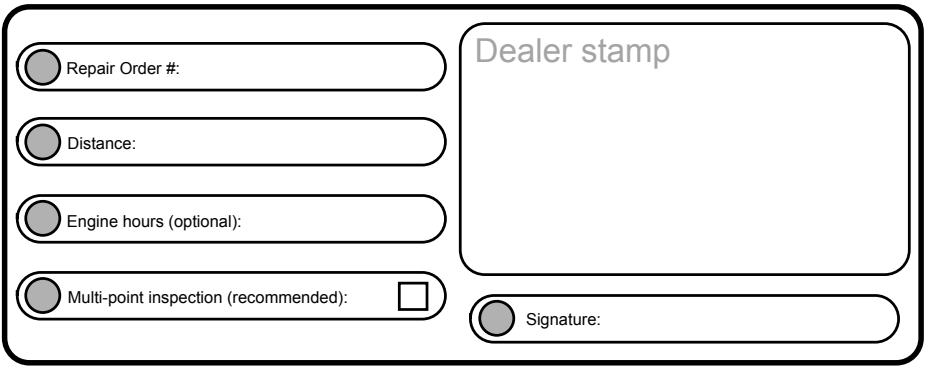
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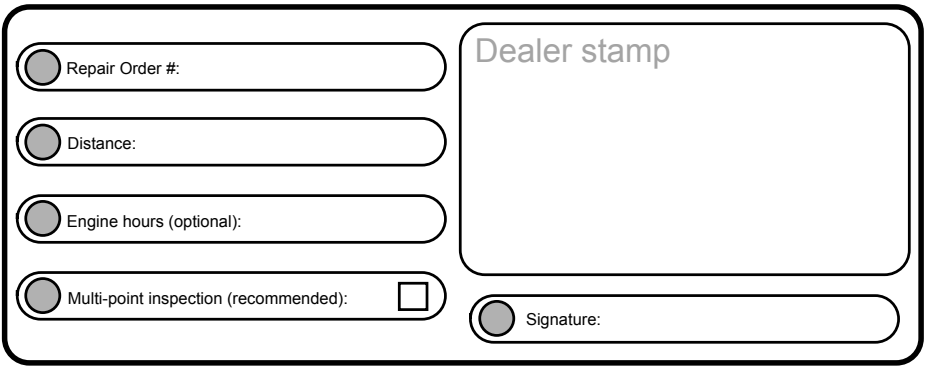
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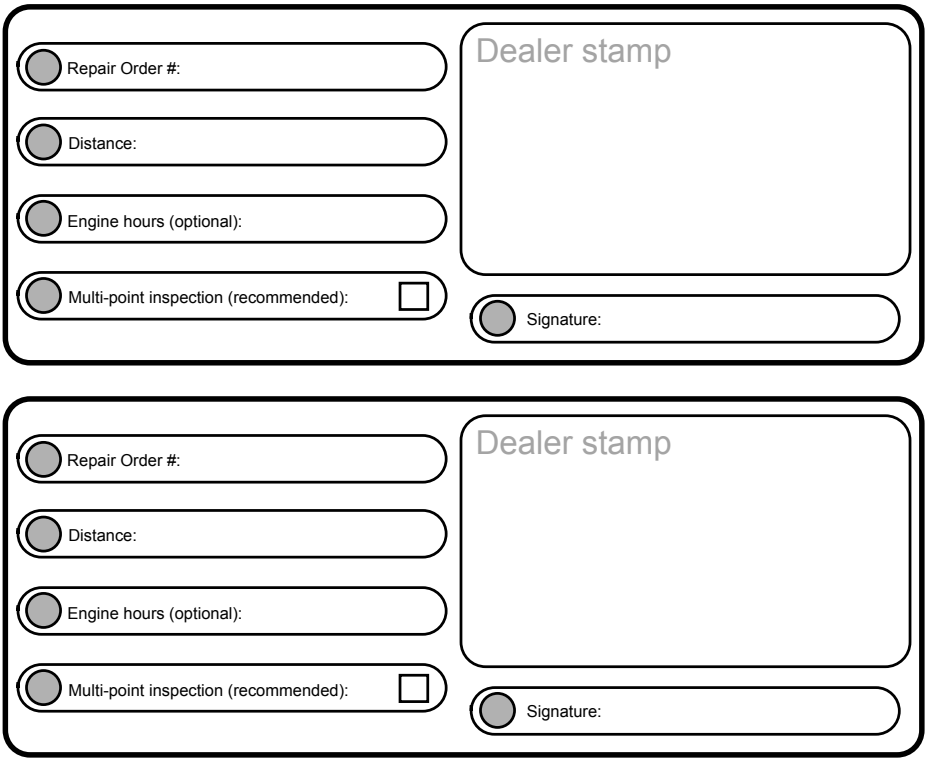
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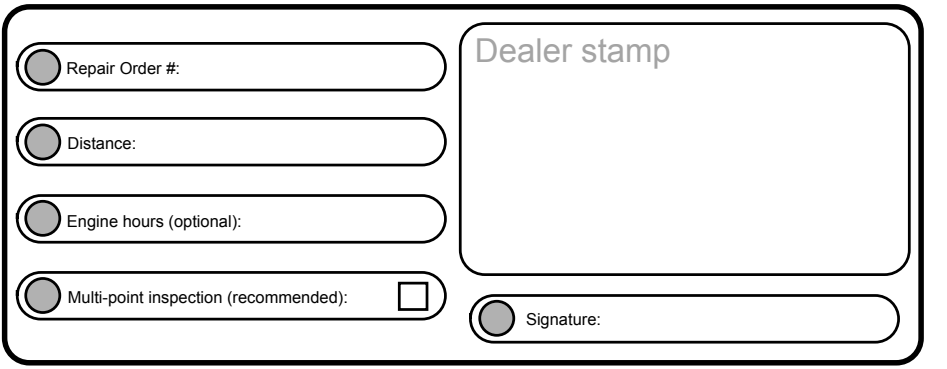
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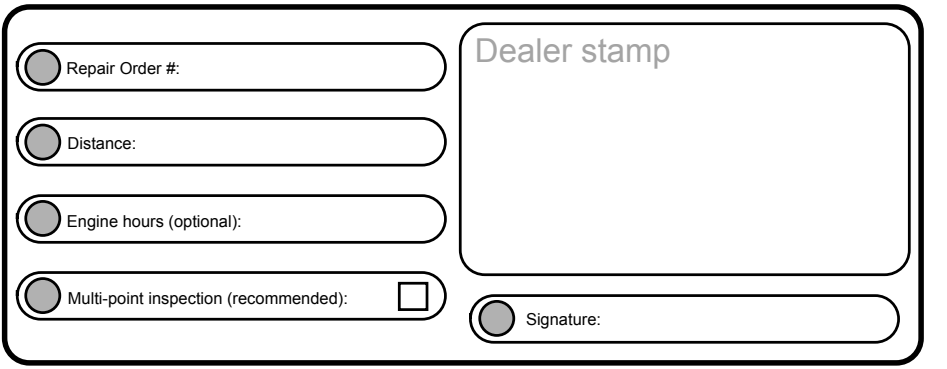
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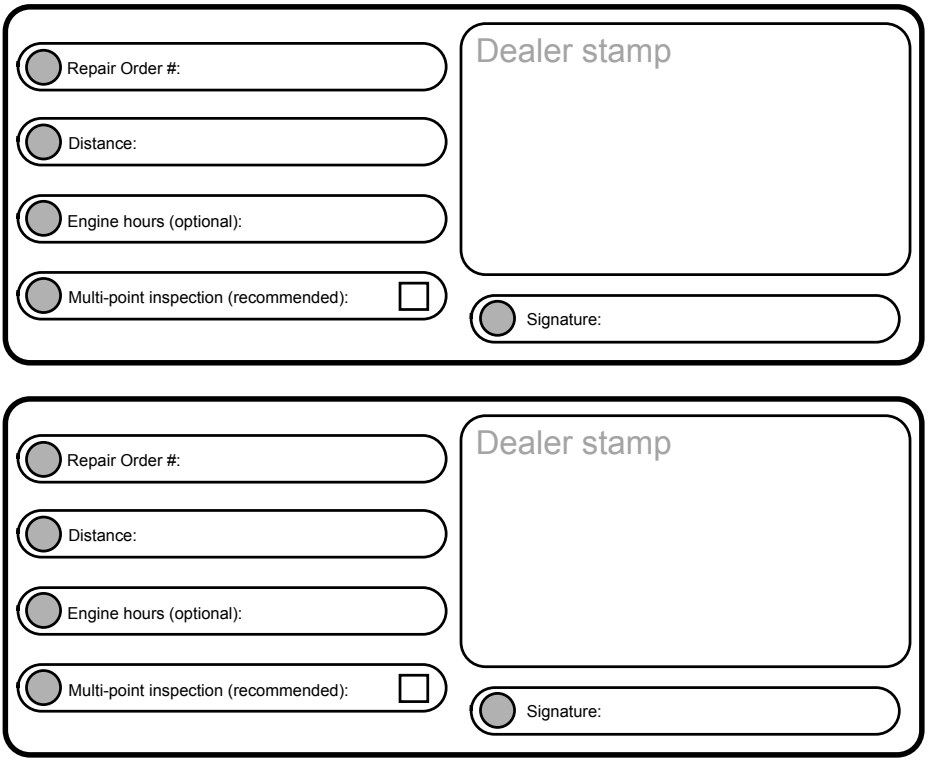
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ELECTROMAGNETIC COMPATIBILITY

WARNING: Do not place objects or mount equipment on or near the airbag cover, on the side of the seatbacks (of the front seats), or in front seat areas that may come into contact with a deploying airbag. Failure to follow these instructions may increase the risk of personal injury in the event of a crash.

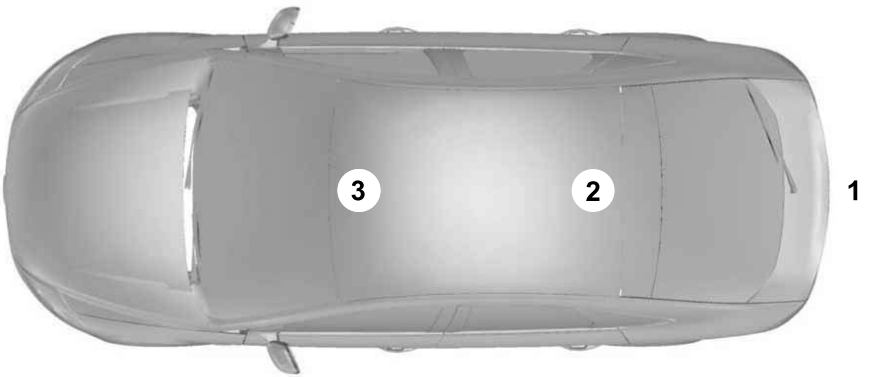
WARNING: Do not fasten antenna cables to original vehicle wiring, fuel pipes and brake pipes.

WARNING: Keep antenna and power cables at least 4 in (10 cm) from any electronic modules and airbags.

Note: *We test and certify your vehicle to meet electromagnetic compatibility legislation (UNECE Regulation 10 or other applicable local requirements). It is your responsibility to make sure that any equipment an authorized dealer installs on your vehicle complies with applicable local legislation and other requirements.*

Note: *Any radio frequency transmitter equipment in your vehicle (such as cellular telephones and amateur radio transmitters) must keep to the parameters in the following table. We do not provide special provisions or conditions for installations or use.*

Car



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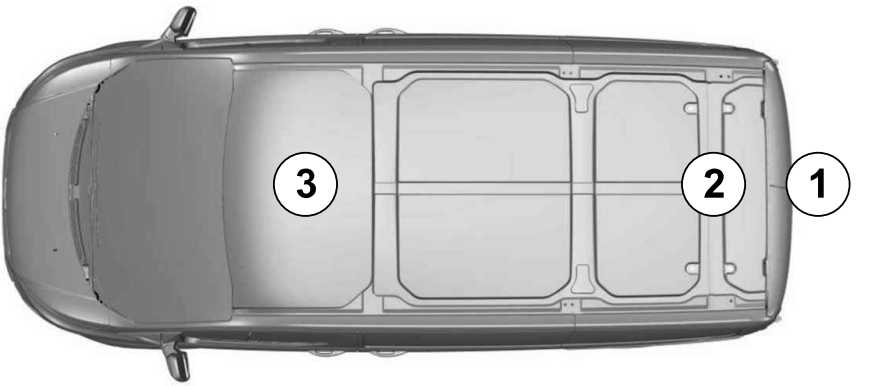
Van



E239122

Truck

E239121

Frequency Band MHz	Maximum output power Watt (Peak RMS)	Antenna Positions
1-30	50	1
50-54	50	2, 3
68-88	50	2, 3
142-176	50	2, 3
380-512	50	2, 3
806-870	10	2, 3

Note: *After the installation of radio frequency transmitters, check for disturbances from and to all electrical equipment in your vehicle, both in the standby and transmit modes.*

Check all electrical equipment:

- With the ignition ON.
- With the engine running.
- During a road test at various speeds.

Check that electromagnetic fields generated inside your vehicle cabin by the transmitter installed do not exceed applicable human exposure requirements.

END USER LICENSE AGREEMENT

VEHICLE SOFTWARE END USER LICENSE AGREEMENT (EULA)

- You (“You” or “Your” as applicable) have acquired a vehicle having several devices, including SYNC ® and various control modules, ("DEVICES") that include software licensed or owned by Ford Motor Company and its affiliates ("FORD MOTOR COMPANY"). Those software products of FORD MOTOR COMPANY origin, as well as associated media, printed materials, and "online" or electronic documentation ("SOFTWARE") are protected by international intellectual property laws and treaties. The SOFTWARE is licensed, not sold. All rights reserved.
- The SOFTWARE may interface with and/or communicate with, or may be later upgraded to interface with and/or communicate with additional software and/or systems provided by FORD MOTOR COMPANY.

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- **Single EULA:** The end user documentation for the DEVICES and related systems and services may contain multiple EULAs, such as multiple translations and/or multiple media versions (e.g., in the user documentation and in the software). Even if you receive multiple EULAs, you are licensed to use only one (1) copy of the SOFTWARE.

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- **SOFTWARE Transfer:** You may permanently transfer your rights under this EULA only as part of a sale or transfer of the DEVICES, provided you retain no copies, you transfer all of the SOFTWARE (including all component parts, the media and printed materials, any upgrades, and, if applicable, the Certificate(s) of Authenticity), and the recipient agrees to the terms of this EULA. If the SOFTWARE is an upgrade, any transfer must include all prior versions of the SOFTWARE.
- **Termination:** Without prejudice to any other rights, FORD MOTOR COMPANY may terminate this EULA if you fail to comply with the terms and conditions of this EULA.
- **Internet-Based Services Components:** The SOFTWARE may contain components that enable and facilitate the use of certain Internet-based services. You acknowledge and agree that FORD MOTOR COMPANY, third party software and service suppliers, its affiliates and/or its designated agent may automatically check the version of the SOFTWARE and/or its components that you are utilizing and may provide upgrades or supplements to the SOFTWARE that may be automatically downloaded to your DEVICES.
- **Additional Software/Services:** The SOFTWARE may permit FORD MOTOR COMPANY, third party software and service suppliers, its affiliates and/or its designated agent to provide or make available to you SOFTWARE updates, supplements, add-on components, or Internet-based services components of the SOFTWARE after the date you obtain your initial copy of the SOFTWARE ("Supplemental Components".) SOFTWARE updates may cause you to incur additional charges from your wireless service provider. If FORD MOTOR COMPANY or third party software and services suppliers provide or make available to you Supplemental Components and no other EULA terms are provided along with the Supplemental Components, then the terms of this EULA shall apply. FORD MOTOR COMPANY, its affiliates and/or its designated agent reserve the right to discontinue without liability any Internet-based services provided to you or made available to you through the use of the SOFTWARE.
- **Links to Third Party Sites:** The SOFTWARE may provide you with the ability to link to third party sites. The third party sites are not under the control of FORD MOTOR COMPANY, its affiliates and/or its designated agent. Neither FORD MOTOR COMPANY nor its affiliates nor its designated agent are responsible for (I) the contents of any third party sites, any links contained in third party sites, or any changes or updates to third party sites, or (ii) webcasting or any other form of transmission received from any third party sites. If the SOFTWARE provides links to third party sites, those links are provided to you only as a convenience, and the inclusion of any link does not imply an endorsement of the third party site by FORD MOTOR COMPANY, its affiliates and/or its designated agent.
- **Obligation to Drive Responsibly:** You recognize your obligation to drive responsibly and keep attention on the road. You will read and abide with the DEVICES operating instructions particularly as they pertain to safety and you agree to assume any risk associated with the use of the DEVICES.

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UPGRADES AND RECOVERY MEDIA: If the SOFTWARE is provided by FORD MOTOR COMPANY separate from the DEVICES on media such as a ROM chip, CD ROM disk(s) or via web download or other means, and is labeled "For Upgrade Purposes Only" or "For Recovery Purposes Only" you may install one (1) copy of such SOFTWARE onto the DEVICES as a replacement copy for the existing SOFTWARE, and use it in accordance with this EULA, including any additional EULA terms accompanying the upgrade SOFTWARE.

INTELLECTUAL PROPERTY RIGHTS: All title and intellectual property rights in and to the SOFTWARE (including but not limited to any images, photographs, animations, video, audio, music, text and "applets" incorporated into the SOFTWARE), the accompanying printed materials, and any copies of the SOFTWARE, are owned by FORD MOTOR COMPANY, or its affiliates or suppliers. The SOFTWARE is licensed, not sold. You may not copy the printed materials accompanying the SOFTWARE. All title and intellectual property rights in and to the content which may be accessed through use of the SOFTWARE is the property of the respective content owner and may be protected by applicable copyright or other intellectual property laws and treaties. This EULA grants you no rights to use such content outside its intended use. All rights not specifically granted under this EULA are reserved by FORD MOTOR COMPANY, its affiliates, and third party software and service providers and suppliers. Use of any on-line services which may be accessed through the SOFTWARE may be governed by the respective terms of use relating to such services. If this SOFTWARE contains documentation that is provided only in electronic form, you may print one copy of such electronic documentation.

EXPORT RESTRICTIONS: You acknowledge that the SOFTWARE is subject to U.S. and European Union export jurisdiction. You agree to comply with all applicable international and national laws that apply to the SOFTWARE, including the U.S. Export Administration Regulations, as well as end-user, end-use and destination restrictions issued by U.S. and other governments.

TRADEMARKS: This EULA does not grant you any rights in connection with any trademarks or service marks of FORD MOTOR COMPANY, its affiliates, and third party software and service providers.

PRODUCT SUPPORT: Please refer to FORD MOTOR COMPANY instructions provided in the documentation for the DEVICES product support, such as the vehicle owner guide.

Should you have any questions concerning this EULA, or if you desire to contact FORD MOTOR COMPANY for any other reason, please refer to the address provided in the documentation for the DEVICES.

No Liability for Certain Damages: EXCEPT AS PROHIBITED BY LAW, FORD MOTOR COMPANY, ANY THIRD PARTY SOFTWARE OR SERVICES SUPPLIERS, AND THEIR AFFILIATES SHALL HAVE NO LIABILITY FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES ARISING FROM OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE SOFTWARE. THIS LIMITATION SHALL APPLY EVEN IF ANY REMEDY FAILS OF ITS ESSENTIAL PURPOSE. THERE ARE NO WARRANTIES OTHER THAN THOSE THAT MAY BE EXPRESSLY PROVIDED FOR YOUR NEW VEHICLE.

SYNC® Automotive Important Safety Information Read and follow instructions:

- Before using your SYNC® system, read and follow all instructions and safety information provided in this end user manual ("Owner Guide".) Not following precautions found in the Owner Guide can lead to an accident or other serious injuries.

General Operation

- **Voice Command Control**: Certain functions within the SYNC® system may be accomplished using voice commands. Using voice commands while driving helps you to operate the system without removing your hands from the wheel or eyes from the road.
- **Prolonged Views of Screen:** Do not access any function requiring a prolonged view of the screen while you are driving. Pull over in a safe and legal manner before attempting to access a function of the system requiring prolonged attention.
- **Volume Setting:** Do not raise the volume excessively. Keep the volume at a level where you can still hear outside traffic and emergency signals while driving. Driving while unable to hear these sounds could cause an accident.
- **Navigation Features:** Any navigation features included in the system are intended to provide turn by turn instructions to get you to a desired destination. Please make certain all persons using this system carefully read and follow instructions and safety information fully.
- **Distraction Hazard:** Any navigation features may require manual (non-verbal) setup. Attempting to perform such set-up or insert data while driving can distract your attention and could cause an accident or other serious injury. Stop the vehicle in a safe and legal manner before attempting these operations.
- **Let Your Judgment Prevail:** Any navigation features are provided only as an aid. Make your driving decisions based on your observations of local conditions and existing traffic regulations. Any such feature is not a substitute for your personal judgment. Any route suggestions made by this system should never replace any local traffic regulations or your personal judgment or knowledge of safe driving practices.
- **Route Safety:** Do not follow the route suggestions if doing so would result in an unsafe or illegal maneuver, if you would be placed in an unsafe situation, or if you would be directed into an area that you consider unsafe. The driver is ultimately responsible for the safe operation of the vehicle and therefore, must evaluate whether it is safe to follow the suggested directions.
- **Potential Map Inaccuracy:** Maps used by this system may be inaccurate because of changes in roads, traffic controls or driving conditions. Always use good judgment and common sense when following the suggested routes.
- **Emergency Services:** Do not rely on any navigation features included in the system to route you to emergency services. Ask local authorities or an emergency services operator for these locations. Not all emergency services such as police, fire stations, hospitals and clinics are likely to be contained in the map database for such navigation features.

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Your Responsibilities and Assumptions of Risk

- You agree to each of the following:(a) Any use of the SOFTWARE while driving an automobile or other vehicle in violation of applicable law or otherwise driving in an unsafe manner presents a significant risk of distracted driving and should not be attempted under any circumstances;(b) Use of the SOFTWARE at excessive volume poses a significant risk of hearing damage and should not be attempted under any circumstances;(c) The SOFTWARE may not be compatible with new or different versions of an operating system, third party software, or third party services, and the SOFTWARE may potentially cause a critical failure of an operating system, third party software, or third party service.(d) Any third party service accessed by or third party software used with the SOFTWARE (I) may charge an additional fee for access, (ii) may not work correctly, on an uninterrupted basis, or error free, (iii) may change streaming formats or discontinue operation, (iv) may contain adult, profane or offensive content; and (v) may contain inaccurate, false or misleading traffic, weather, financial or safety information or other content; and (e) Use of the SOFTWARE may cause you to incur additional charges from your wireless service provider (WSP) and any data or minute calculators that may be included in the software program are for reference only, are not warranted in any way and should not be relied upon in anyway.
- When using the SOFTWARE, you agree to be responsible for and assume the entire risk to the items set forth in Section (a) – (e) above.

Disclaimer of Warranty

YOU EXPRESSLY ACKNOWLEDGE AND AGREE THAT USE OF THE DEVICES AND SOFTWARE IS AT YOUR SOLE RISK AND THAT THE ENTIRE RISK AS TO SATISFACTORY QUALITY, PERFORMANCE, COMPATIBILITY, ACCURACY AND EFFORT IS WITH YOU. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THE SOFTWARE AND ANY THIRD PARTY SOFTWARE OR THIRD-PARTY SERVICES ARE PROVIDED "AS IS" AND “AS AVAILABLE”, WITH ALL FAULTS AND WITHOUT WARRANTY OF ANY KIND, AND FORD MOTOR COMPANY HEREBY DISCLAIMS ALL WARRANTIES AND CONDITIONS WITH RESPECT TO THE SOFTWARE, THIRD PARTY SOFTWARE, AND THIRD-PARTY SERVICES, EITHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES AND/OR CONDITIONS OF MERCHANTABILITY, OF SATISFACTORY QUALITY, OF FITNESS FOR AN ARTICULAR PURPOSE, OF ACCURACY, OF QUIET ENJOYMENT, AND NON-INFRINGEMENT OF THIRD-PARTY RIGHTS. FORD MOTOR COMPANY DOES NOT WARRANT (a) AGAINST INTERFERENCE WITH YOUR ENJOYMENT OF THE SOFTWARE, THIRD PARTY SOFTWARE, OR THIRD-PARTY SERVICES, (b) THAT THE SOFTWARE, THIRD PARTY SOFTWARE, OR THIRD-PARTY SERVICES WILL MEET YOUR REQUIREMENTS, (c) THAT THE OPERATION OF THE SOFTWARE, THIRD PARTY SOFTWARE, OR THIRD-PARTY SERVICES WILL BE UNINTERRUPTED OR ERROR-FREE, (d) OR THAT DEFECTS IN THE SOFTWARE, THIRD PARTY SOFTWARE, OR THIRD-PARTY SERVICES WILL BE CORRECTED. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY FORD MOTOR COMPANY OR ITS AUTHORIZED REPRESENTATIVE SHALL

CREATE A WARRANTY. SHOULD THE SOFTWARE, THIRD PARTY SOFTWARE, OR THIRD-PARTY SERVICES PROVE DEFECTIVE, YOU ASSUME THE ENTIRE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION. SOME JURISDICTIONS DO NOT ALLOW THE DISCLAIMER OF IMPLIED WARRANTIES OR LIMITATIONS ON APPLICABLE STATUTORY RIGHTS OF A CONSUMER, SO THE ABOVE DISCLAIMER MAY NOT FULLY APPLY TO YOU. THE SOLE WARRANTY PROVIDED BY FORD MOTOR COMPANY SHALL BE FOUND IN THE WARRANTY INFORMATION INCLUDING WITH YOUR OWNER GUIDE. TO THE EXTENT THAT THERE IS ANY CONFLICT BETWEEN THE TERMS OF THIS SECTION AND THE WARRANTY BOOKLET, THE WARRANTY BOOKLET SHALL CONTROL.

Applicable Law, Venue, Jurisdiction

- The laws of the State of Michigan govern this EULA and Your use of the SOFTWARE. Your use of the SOFTWARE may also be subject to other local, state, national, or international laws. Any litigation arising out of or related to this EULA shall be brought and maintained exclusively in a court of the State of Michigan located in Wayne County or in the United States District Court for the Eastern District of Michigan. You hereby consent to submit to the personal jurisdiction of a court in the State of Michigan located in Wayne County and the United States District Court for the Eastern District of Michigan for any dispute arising out of or relating to this EULA.

Binding Arbitration and Class Action Waiver

(a) Application. This Section applies to any dispute EXCEPT IT DOES NOT INCLUDE A DISPUTE RELATING TO COPYRIGHT INFRINGEMENT, OR TO THE ENFORCEMENT OR VALIDITY OF YOUR, FORD MOTOR COMPANY, OR ANY OF FORD MOTOR COMPANY'S LICENSORS' INTELLECTUAL PROPERTY RIGHTS. Dispute means any dispute, action, or other controversy between You and FORD MOTOR COMPANY, other than the exceptions listed above, concerning the SOFTWARE (including its price) or this EULA, whether in contract, warranty, tort, statute, regulation, ordinance, or any other legal or equitable basis.

(b) Notice of Dispute. In the event of a Dispute, You or FORD MOTOR COMPANY must give the other a "Notice of Dispute", which is a written statement of the name, address, and contact information of the party giving it, the facts giving rise to the dispute, and the relief requested. You and FORD MOTOR COMPANY will attempt to resolve any dispute through informal negotiation within 60 days from the date the Notice of Dispute is sent. After 60 days, You or FORD MOTOR COMPANY may commence arbitration.

(c) Small claims court. You may also litigate any dispute in small claims court in your county of residence or FORD MOTOR COMPANY'S principal place of business, if the dispute meets all requirements to be heard in the small claims court. You may litigate in small claims court whether or not You negotiated informally first.

(d) Binding arbitration. If You and FORD MOTOR COMPANY, do not resolve any dispute by informal negotiation or in small claims court, any other effort to resolve the dispute will be conducted exclusively by binding arbitration. You are giving up

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the right to litigate (or participate in as a party or class member) all disputes in court before a judge or jury. Instead, all disputes will be resolved before a neutral arbitrator, whose decision will be final except for a limited right of appeal under the Federal Arbitration Act. Any court with jurisdiction over the parties may enforce the arbitrator's award.

(e) Class action waiver. Any proceedings to resolve or litigate any dispute in any forum will be conducted solely on an individual basis. Neither you nor FORD MOTOR COMPANY, will seek to have any dispute heard as a class action, as a private attorney general action, or in any other proceeding in which any party acts or proposes to act in a representative capacity. No arbitration or proceeding will be combined with another without the prior written consent of all parties to all affected arbitrations or proceedings.

(f) Arbitration procedure. Any arbitration will be conducted by the American Arbitration Association (the "AAA"), under its Commercial Arbitration Rules. If You are an individual and use the SOFTWARE for personal or vehicle use, or if the value of the dispute is $75,000 or less whether or not You are an individual or how You use the SOFTWARE, the AAA Supplementary Procedures for Consumer-Related Disputes will also apply. To commence arbitration, submit a Commercial Arbitration Rules Demand for Arbitration form to the AAA. You may request a telephonic or in-person hearing by following the AAA rules. In a dispute involving $10,000 or less, any hearing will be telephonic unless the arbitrator finds good cause to hold an in-person hearing instead. For more information, see adr.org or call 1-800-778-7879. You agree to commence arbitration only in your county of residence or FORD MOTOR COMPANY'S principal place of business. The arbitrator may award the same damages to You individually as a court could. The arbitrator may award declaratory or injunctive relief only to You individually, and only to the extent required to satisfy Your individual claim.

(g) Arbitration fees and incentives.

- I. Disputes involving $75,000 or less. FORD MOTOR COMPANY will promptly reimburse your filing fees and pay the AAA's and arbitrator's fees and expenses. If you reject FORD MOTOR COMPANY'S last written settlement offer made before the arbitrator was appointed ("last written offer"), your dispute goes all the way to an arbitrator's decision (called an "award"), and the arbitrator awards you more than the last written offer, FORD MOTOR COMPANY will give you three incentives: (1) pay the greater of the award or $1,000; (2) pay twice your reasonable attorney's fees, if any; and (3) reimburse any expenses (including expert witness fees and costs) that your attorney reasonably accrues for investigating, preparing, and pursuing your claim in arbitration. The arbitrator will determine the amounts.
- ii. Disputes involving more than $75,000. The AAA rules will govern payment of filing fees and the AAA's and arbitrator's fees and expenses.
- iii. Disputes involving any amount. In any arbitration you commence, FORD MOTOR COMPANY will seek its AAA or arbitrator's fees and expenses, or Your filing fees it reimbursed, only if the arbitrator finds the arbitration frivolous or brought for an improper purpose. In any arbitration FORD MOTOR COMPANY commences, it will pay all

filing, AAA, and arbitrator's fees and expenses. It will not seek its attorney's fees or expenses from you in any arbitration. Fees and expenses are not counted in determining how much a dispute involves.

(h) Claims or disputes must be filed within one year. To the extent permitted by law, any claim or dispute under this EULA to which this Section applies must be filed within one year in small claims court (Section c) or in arbitration (Section d). The one-year period begins when the claim or dispute first could be filed. If such a claim or dispute is not filed within one year, it is permanently barred.

(I) Severability. If the class action waiver (Section e) is found to be illegal or unenforceable as to all or some parts of a dispute, then that portion of Section e will not apply to those parts. Instead, those parts will be severed and proceed in a court of law, with the remaining parts proceeding in arbitration. If any other provision of that portion Section e is found to be illegal or unenforceable, that provision will be severed with the remainder of Section e remaining in full force and effect.

Telenav Software End User License Agreement

Please read these terms and conditions carefully before you use the TeleNav Software. Your use of the TeleNav Software indicates that you accept these terms and conditions. If you do not accept these terms and conditions, do not break the seal of the package, launch, or otherwise use the TeleNav Software. TeleNav may revise this Agreement and the privacy policy at any time, with or without notice to you. You agree to visit http://www.telenav.com from time to time to review the then current version of this Agreement and of the privacy policy.

1. Safe and Lawful Use

You acknowledge that devoting attention to the TeleNav Software may pose a risk of injury or death to you and others in situations that otherwise require your undivided attention, and you therefore agree to comply with the following when using the TeleNav Software:

(a) observe all traffic laws and otherwise drive safely;

(b) use your own personal judgment while driving. If you feel that a route suggested by the TeleNav Software instructs you to perform an unsafe or illegal maneuver, places you in an unsafe situation, or directs you into an area that you consider to be unsafe, do not follow such instructions;

(c) do not input destinations, or otherwise manipulate the TeleNav Software, unless your vehicle is stationary and parked;

(d) do not use the TeleNav Software for any illegal, unauthorized, unintended, unsafe, hazardous, or unlawful purposes, or in any manner inconsistent with this Agreement;

(e) arrange all GPS and wireless devices and cables necessary for use of the TeleNav Software in a secure manner in your vehicle so that they will not interfere with your driving and will not prevent the operation of any safety device (such as an airbag).

You agree to indemnify and hold TeleNav harmless against all claims resulting from any dangerous or otherwise inappropriate use of the TeleNav Software in any moving vehicle, including as a result of your failure to comply with the directions above.

2. Account Information

You agree: (a) when registering the TeleNav Software, to provide TeleNav with true, accurate, current, and complete information about yourself, and (b) to inform TeleNav promptly of any changes to such information, and to keep it true, accurate, current and complete.

3. Software License

- Subject to your compliance with the terms of this Agreement, TeleNav hereby grants to you a personal, non-exclusive, non-transferable license (except as expressly permitted below in connection with your permanent transfer of the TeleNav Software license), without the right to sublicense, to use the TeleNav Software (in object code form only) in order to access and use the TeleNav Software. This license shall terminate upon any termination or expiration of this Agreement. You agree that you will use the TeleNav Software only for your personal business or leisure purposes, and not to provide commercial navigation services to other parties.

3.1 License Limitations

- **(a)** reverse engineer, decompile, disassemble, translate, modify, alter or otherwise change the TeleNav Software or any part thereof; **(b)** attempt to derive the source code, audio library or structure of the TeleNav Software without the prior express written consent of TeleNav; **(c)** remove from the TeleNav Software, or alter, any of TeleNav's or its suppliers' trademarks, trade names, logos, patent or copyright notices, or other notices or markings; **(d)** distribute, sublicense or otherwise transfer the TeleNav Software to others, except as part of your permanent transfer of the TeleNav Software; or **(e)** use the TeleNav Software in any manner that

I. infringes the intellectual property or proprietary rights, rights of publicity or privacy or other rights of any party,

ii. violates any law, statute, ordinance or regulation, including but not limited to laws and regulations related to spamming, privacy, consumer and child protection, obscenity or defamation, or

iii. is harmful, threatening, abusive, harassing, tortuous, defamatory, vulgar, obscene, libelous, or otherwise objectionable; and (f) lease, rent out, or otherwise permit unauthorized access by third parties to the TeleNav Software without advanced written permission of TeleNav.

4. Disclaimers

- To the fullest extent permissible pursuant to applicable law, in no event will TeleNav, its licensors and suppliers, or agents or employees of any of the foregoing, be liable for any decision made or action taken by you or anyone else in reliance on the information provided by the TeleNav Software. TeleNav also does not warrant the accuracy of the map or other data used for the TeleNav Software. Such data may not always reflect reality due to, among other things, road closures, construction, weather, new roads and other changing conditions. You are responsible for the entire risk arising out of your use of the TeleNav Software. For example but without limitation, you agree not to rely on the TeleNav Software for critical navigation in areas where the well-being or survival of you or others

is dependent on the accuracy of navigation, as the maps or functionality of the TeleNav Software are not intended to support such high risk applications, especially in more remote geographical areas.

- TELENAV EXPRESSLY DISCLAIMS AND EXCLUDES ALL WARRANTIES IN CONNECTION WITH THE TELENAV SOFTWARE, WHETHER STATUTORY, EXPRESS OR IMPLIED, INCLUDING ALL WARRANTIES WHICH MAY ARISE FROM COURSE OF DEALING, CUSTOM OR TRADE AND INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT OF THIRD PARTY RIGHTS WITH RESPECT TO THE TELENAV SOFTWARE.
- Certain jurisdictions do not permit the disclaimer of certain warranties, so this limitation may not apply to you.

5. Limitation of Liability

- TO THE EXTENT PERMITTED UNDER APPLICABLE LAW, UNDER NO CIRCUMSTANCES SHALL TELENAV OR ITS LICENSORS AND SUPPLIERS BE LIABLE TO YOU OR TO ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL OR EXEMPLARY DAMAGES (INCLUDING IN EACH CASE, BUT NOT LIMITED TO, DAMAGES FOR THE INABILITY TO USE THE EQUIPMENT OR ACCESS DATA, LOSS OF DATA, LOSS OF BUSINESS, LOSS OF PROFITS, BUSINESS INTERRUPTION OR THE LIKE) ARISING OUT OF THE USE OF OR INABILITY TO USE THE TELENAV SOFTWARE, EVEN IF TELENAV HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING ANY DAMAGES THAT YOU MIGHT INCUR FOR ANY REASON WHATSOEVER (INCLUDING, WITHOUT LIMITATION, ALL DAMAGES REFERENCED HEREIN AND ALL DIRECT OR GENERAL DAMAGES IN CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE), THE ENTIRE LIABILITY OF TELENAV AND OF ALL OF TELENAV'S SUPPLIERS SHALL BE LIMITED TO THE AMOUNT ACTUALLY PAID BY YOU FOR THE TELENAV SOFTWARE. SOME STATES AND/OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

6. Arbitration and Governing Law

- You agree that any dispute, claim or controversy arising out of or relating to this Agreement or the TeleNav Software shall be settled by independent arbitration involving a neutral arbitrator and administered by the American Arbitration Association in the County of Santa Clara, California. The arbitrator shall apply the Commercial Arbitration Rules of the American Arbitration Association, and the judgment upon the award rendered by the arbitrator may be entered by any court having jurisdiction. Note that there is no judge or jury in an arbitration proceeding and the decision of the arbitrator shall be binding upon both parties. You expressly agree to waive your right to a jury trial. This Agreement and performance hereunder will be governed by and construed in accordance with the laws of the State of California, without giving effect to its conflict of law provisions. To the extent judicial action is necessary in connection with the binding arbitration, both TeleNav and you agree to submit

to the exclusive jurisdiction of the courts of the County of Santa Clara, California. The United Nations Convention on Contracts for the International Sale of Goods shall not apply.

7. Assignment

- You may not resell, assign, or transfer this Agreement or any of your rights or obligations, except in totality, in connection with your permanent transfer of the TeleNav Software, and expressly conditioned upon the new user of the TeleNav Software agreeing to be bound by the terms and conditions of this Agreement. Any such sale, assignment or transfer that is not expressly permitted under this paragraph will result in immediate termination of this Agreement, without liability to TeleNav, in which case you and all other parties shall immediately cease all use of the TeleNav Software. Notwithstanding the foregoing, TeleNav may assign this Agreement to any other party at any time without notice, provided the assignee remains bound by this Agreement.

8. Miscellaneous

8.1

This Agreement constitutes the entire agreement between TeleNav and you with respect to the subject matter hereof.

8.2

Except for the limited licenses expressly granted in this Agreement, TeleNav retains all right, title and interest in and to the TeleNav Software, including without limitation all related intellectual property rights. No licenses or other rights which are not expressly granted in this Agreement are intended to, or shall be, granted or conferred by implication, statute, inducement, estoppel or otherwise, and TeleNav and its suppliers and licensors hereby reserve all of their respective rights other than the licenses explicitly granted in this Agreement.

8.3

By using the TeleNav Software, you consent to receive from TeleNav all communications, including notices, agreements, legally required disclosures or other information in connection with the TeleNav Software (collectively, "Notices") electronically. TeleNav may provide such Notices by posting them on TeleNav's Website or by downloading such Notices to your wireless device. If you desire to withdraw your consent to receive Notices electronically, you must discontinue your use of the TeleNav Software.

8.4

TeleNav's or your failure to require performance of any provision shall not affect that party's right to require performance at any time thereafter, nor shall a waiver of any breach or default of this Agreement constitute a waiver of any subsequent breach or default or a waiver of the provision itself.

8.5

If any provision herein is held unenforceable, then such provision will be modified to reflect the intention of the parties, and the remaining provisions of this Agreement will remain in full force and effect.

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8.6

The headings in this Agreement are for convenience of reference only, will not be deemed to be a part of this Agreement, and will not be referred to in connection with the construction or interpretation of this Agreement. As used in this Agreement, the words "include" and "including" and variations thereof, will not be deemed to be terms of limitation, but rather will be deemed to be followed by the words "without limitation".

9. Other Vendors Terms and Conditions

- The Telenav Software utilizes map and other data licensed to Telenav by third party vendors for the benefit of you and other end users. This Agreement includes end-user terms applicable to these companies (included at the end of this Agreement), and thus your use of the Telenav Software is also subject to such terms. You agree to comply with the following additional terms and conditions, which are applicable to Telenav's third party vendor licensors::

9.1 End User Terms Required by HERE North America, LLC

The data ("Data") is provided for your personal, internal use only and not for resale. It is protected by copyright, and is subject to the following terms and conditions which are agreed to by you, on the one hand, and Telenav ("Telenav") and its licensors (including their licensors and suppliers) on the other hand.

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The Data for Mexico includes certain data from Instituto Nacional de Estadística y Geografía.

9.2 End User Terms Required by NAV2 (Shanghai) Co., Ltd

The data ("Data") is provided for your personal, internal use only and not for resale. It is protected by copyright, and is subject to the following terms and conditions which are agreed to by you, on the one hand, and NAV2 (Shanghai) Co., Ltd ("NAV2") and its licensors (including their licensors and suppliers) on the other hand. 20xx. All rights reserved

Terms and Conditions

Permitted Use. You agree to use this Data together with the Telenav Software solely for the internal business and personal purposes for which you were licensed, and not for service bureau, time-sharing or other similar purposes. Accordingly, but subject to the restrictions set forth in the following paragraphs, you agree not to otherwise reproduce, copy, modify, decompile, disassemble, create any derivative works of, or reverse engineer any portion of this Data, and may not transfer or distribute it in any form, for any purpose, except to the extent permitted by mandatory laws.

Restrictions. Except where you have been specifically licensed to do so by Telenav, and without limiting the preceding paragraph, you may not use this Data (a) with any products, systems, or applications installed or otherwise connected to or in communication with vehicles, capable of vehicle navigation, positioning, dispatch, real time route guidance, fleet management or similar applications; or (b) with or in communication with any positioning devices or any mobile or wireless-connected electronic or computer devices, including without limitation cellular phones, palmtop and handheld computers, pagers, and personal digital assistants or PDAs.

Warning. The Data may contain inaccurate or incomplete information due to the passage of time, changing circumstances, sources used and the nature of collecting comprehensive geographic data, any of which may lead to incorrect results.

No Warranty. This Data is provided to you "as is," and you agree to use it at your own risk. Telenav and its licensors (and their licensors and suppliers) make no guarantees, representations or warranties of any kind, express or implied, arising by law or otherwise, including but not limited to, content, quality, accuracy, completeness, effectiveness, reliability, fitness for a particular purpose, usefulness, use or results to be obtained from this Data, or that the Data or server will be uninterrupted or error-free.

Disclaimer of Warranty: TELENAV AND ITS LICENSORS (INCLUDING THEIR LICENSORS AND SUPPLIERS) DISCLAIM ANY WARRANTIES, EXPRESS OR IMPLIED, OF QUALITY, PERFORMANCE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. Some States, Territories and Countries do not allow certain warranty exclusions, so to that extent the above exclusion may not apply to you.

Disclaimer of Liability: TELENAV AND ITS LICENSORS (INCLUDING THEIR LICENSORS AND SUPPLIERS) SHALL NOT BE LIABLE TO YOU: IN RESPECT OF ANY CLAIM, DEMAND OR ACTION, IRRESPECTIVE OF THE NATURE OF THE CAUSE OF THE CLAIM, DEMAND OR ACTION ALLEGING ANY LOSS, INJURY OR DAMAGES, DIRECT OR INDIRECT, WHICH MAY RESULT FROM THE USE OR POSSESSION OF THE INFORMATION; OR FOR ANY LOSS OF PROFIT, REVENUE, CONTRACTS OR SAVINGS, OR ANY OTHER DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF YOUR USE OF OR INABILITY TO USE THIS INFORMATION, ANY DEFECT IN THE INFORMATION, OR THE BREACH OF THESE TERMS OR CONDITIONS, WHETHER IN AN ACTION IN CONTRACT OR TORT OR BASED ON A WARRANTY, EVEN IF TELENAV OR ITS LICENSORS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Some States, Territories and Countries do not allow certain liability exclusions or damages limitations, so to that extent the above may not apply to you.

Export Control. You shall not export from anywhere any part of the Data or any direct product thereof except in compliance with, and with all licenses and approvals required under, applicable export laws, rules and regulations, including but not limited to the laws, rules and regulations administered by the Office of Foreign Assets Control of the U.S. Department of Commerce and the Bureau of Industry and Security of the U.S. Department of Commerce. To the extent that any such

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export laws, rules or regulations prohibit HERE from complying with any of its obligations hereunder to deliver or distribute Data, such failure shall be excused and shall not constitute a breach of this Agreement.

Entire Agreement. These terms and conditions constitute the entire agreement between Telenav (and its licensors, including their licensors and suppliers) and you pertaining to the subject matter hereof, and supersedes in their entirety any and all written or oral agreements previously existing between us with respect to such subject matter.

Governing Law. The above terms and conditions shall be governed by the laws of the State of Illinois [insert "Netherlands" where European HERE Data is used], without giving effect to (i) its conflict of laws provisions, or (ii) the United Nations Convention for Contracts for the International Sale of Goods, which is explicitly excluded. You agree to submit to the jurisdiction of the State of Illinois [insert "The Netherlands" where European HERE Data is used] for any and all disputes, claims and actions arising from or in connection with the Data provided to you hereunder.

Government End Users. If the Data is being acquired by or on behalf of the United States government or any other entity seeking or applying rights similar to those customarily claimed by the United States government, this Data is a "commercial item" as that term is defined at 48 C.F.R. ("FAR") 2.101, is licensed in accordance with these End-User Terms, and each copy of Data delivered or otherwise furnished shall be marked and embedded as appropriate with the following "Notice of Use," and shall be treated in accordance with such Notice:

NOTICE OF USE
CONTRACTOR (MANUFACTURER/ SUPPLIER) NAME: HERE
CONTRACTOR (MANUFACTURER/ SUPPLIER) ADDRESS: c/o Nokia, 425 West Randolph Street, Chicago, Illinois 60606
This Data is a commercial item as defined in FAR 2.101 and is subject to these End-User Terms under which this Data was provided.
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If the Contracting Officer, federal government agency, or any federal official refuses to use the legend provided herein, the Contracting Officer, federal government agency, or any federal official must notify HERE prior to seeking additional or alternative rights in the Data.

I. US/Canada Territory

A. United States Data. The End-User Terms for any Application containing Data for the United States shall contain the following notices:

"HERE holds a non-exclusive license from the United States Postal Service® to publish and sell ZIP+4® information."

"©United States Postal Service® 20XX. Prices are not established, controlled or approved by the United States Postal Service®. The following trademarks and registrations are owned by the USPS: United States Postal Service, USPS, and ZIP+4."

B. Canada Data. The following provisions apply to the Data for Canada, which may include or reflect data from third party licensors ("Third Party Data"), including Her Majesty the Queen in Right of Canada ("Her Majesty"), Canada Post Corporation ("Canada Post") and the Department of Natural Resources of Canada ("NRCan"):

1. Disclaimer and Limitation: Client agrees that its use of the Third Party Data is subject to the following provisions:

a. Disclaimer: The Third Party Data is licensed on an "as is" basis. The licensors of such data, including Her Majesty, Canada Post and NRCan, make no guarantees, representations or warranties respecting such data, either express or implied, arising by law or otherwise, including but not limited to, effectiveness, completeness, accuracy or fitness for a particular purpose.

b. Limitation on Liability: The Third Party Data licensors, including Her Majesty, Canada Post and NRCan, shall not be liable: (i) in respect of any claim, demand or action, irrespective of the nature of the cause of the claim, demand or action alleging any loss, injury or damages, direct or indirect, which may result from the use or possession of such Data; or (ii) in any way for loss of revenues or contracts, or any other consequential loss of any kind resulting from any defect in the Data.

2. Copyright Notice: In connection with each copy of all or any portion of the Data for the Territory of Canada, Client shall affix in a conspicuous manner the following copyright notice on at least one of: (i) the label for the storage media of the copy; (ii) the packaging for the copy; or (iii) other materials packaged with the copy, such as user manuals or end user license agreements: "This data includes information taken with permission from Canadian authorities, including © Her Majesty the Queen in Right of Canada, © Queen's Printer for Ontario, © Canada Post Corporation, GeoBase®, © The Department of Natural Resources Canada. All rights reserved."

3. End-User Terms: Except as otherwise agreed by the parties, in connection with the provision of any portion of the Data for the Territory of Canada to End-Users as may be authorized under the Agreement, Client shall provide such End-Users, in a reasonably conspicuous manner, with terms (set forth with other end user terms required to be provided under the Agreement, or as otherwise may be provided, by Client) which shall include the following provisions on behalf of the Third Party Data licensors, including Her Majesty, Canada Post and NRCan:

The Data may include or reflect data of licensors, including Her Majesty the Queen in the Right of Canada ("Her Majesty"), Canada Post Corporation ("Canada Post") and the Department of Natural Resources Canada ("NRCan"). Such data is licensed on an "as is" basis. The licensors, including Her Majesty, Canada Post and NRCan, make no guarantees, representations or warranties respecting such data,

either express or implied, arising by law or otherwise, including but not limited to, effectiveness, completeness, accuracy or fitness for a particular purpose. The licensors, including Her Majesty, Canada Post and NRCan, shall not be liable in respect of any claim, demand or action, irrespective of the nature of the cause of the claim, demand or action alleging any loss, injury or damages, direct or indirect, which may result from the use or possession of the data or the Data. The licensors, including Her Majesty, Canada Post and NRCan, shall not be liable in any way for loss of revenues or contracts, or any other consequential loss of any kind resulting from any defect in the data or the Data.
End User shall indemnify and save harmless the licensors, including Her Majesty, Canada Post and NRCan, and their officers, employees and agents from and against any claim, demand or action, irrespective of the nature of the cause of the claim, demand or action, alleging loss, costs, expenses, damages or injuries (including injuries resulting in death) arising out of the use or possession of the data or the Data.

4. Additional Provisions: The terms contained in this Section are in addition to all of the rights and obligations of the parties under the Agreement. To the extent that any of the provisions of this Section are inconsistent with, or conflict with, any other provisions of the Agreement, the provisions of this Section shall prevail.

II. Mexico. The following provision applies to the Data for Mexico, which includes certain data from the Instituto Nacional de Estadística y Geografía ("INEGI"):

A. Any and all copies of the Data and/or packaging containing Data for Mexico shall contain the following notice: "Fuente: INEGI (Instituto Nacional de Estadística y Geografía)"

III. Latin America Territory

A. Third Party Notices. Any and all copies of the Data and/or packaging relating thereto shall include the respective Third Party Notices set forth below and used as described below corresponding to the Territory (or portion thereof) included in such copy:

Territory	Notice
Argentina	IGN "INSTITUTO GEOGRAFICO NACIONAL ARGENTINO"
Ecuador	"INSTITUTO GEOGRAFICO MILITAR DEL ECUADOR AUTORIZACION Nº IGM-2011-01- PCO-01 DEL 25 DE ENERO DE 2011" "source: © IGN 2009 - BD TOPO ®"
Guadeloupe, French Guiana and Martinique	"Fuente: INEGI (Instituto Nacional de Estadística y Geografía)"
Mexico	

IV. Middle East Territory

A. Third Party Notices. Any and all copies of the Data and/or packaging relating thereto shall include the respective Third Party Notices set forth below and used as described below corresponding to the Territory (or portion thereof) included in such copy:

Country	Notice
Jordan	"© Royal Jordanian Geographic Centre". The foregoing notice requirement for Jordan Data is a material term of the Agreement. If Client or any of its permitted sublicensees (if any) fail to meet such requirement, HERE shall have the right to terminate Client's license with respect to the Jordan Data.

B. Jordan Data. Client and its permitted sublicensees (if any) are restricted from licensing and/or otherwise distributing HERE's database for the country of Jordan ("Jordan Data") for use in Enterprise Applications to (i) non-Jordanian entities for use of the Jordan Data solely in Jordan or (ii) Jordan-based customers. In addition, Client, its permitted sublicensees (if any) and End-Users are restricted from using the Jordan Data in Enterprise Applications if such party is (i) a non-Jordanian entity using the Jordan Data solely in Jordan or (ii) a Jordan-based customer. For purposes of the foregoing, "Enterprise Applications" shall mean Geomarketing applications, GIS applications, mobile business asset management applications, call center applications, telematics applications, public organization Internet applications or for providing geocoding services.

V. Europe Territory

A. Use of Certain Traffic Codes in Europe

1. General Restrictions Applicable to Traffic Codes. Client acknowledges and agrees that in certain countries of the Europe Territory, Client will need to obtain rights directly from third party RDS-TMC code providers to receive and use the Traffic Codes in the Data and to deliver to End-Users Transactions in any way derived from or based on such Traffic Codes. For such countries, HERE shall deliver the Data incorporating Traffic Codes to Client only after receiving certification from Client of its having obtained such rights.

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Radio Frequency Statement

FCC ID: ACJ-SYNCG3-L

IC: 216B-SYNCG3-L

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment. The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

The antenna used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Taiwan Territory

Note: In accordance with the management approach of low-power radio wave radiation motors:

Article 12: For approved and certified low-power radiation motor models, companies, firms or users must not alter the frequency, increase the power or change the characteristics and functions of the original design without authorization.

Article 14: The usage of low-power radio-frequency motors must not affect aviation safety and interfere with legal telecommunications. Should interference be detected, immediately stop using the device and only resume usage after ensuring that there is no longer any interference. For the legal telecommunication and wireless telecommunication of the telco, the low-power radio frequency motor must be able to tolerate legal limits of interference from telecommunication, industrial, scientific and radio wave equipment.

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7. Please Note

Great care has been taken in preparing this manual. Constant product development may mean that some information is not entirely up-to-date. The information in this document is subject to change without notice.

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DECLARATION OF CONFORMITY

Your vehicle could have components that transmit and receive radio waves and are therefore subject to government regulation.

These components must accept any interference received, including interference that could cause undesired operation. For certification labels and declarations of conformity, visit *www.wirelessconformity.ford.com*.

DECLARATION OF CONFORMITY - VEHICLES WITH: SYNC 3

Radio Frequency Statement

SYNC Version	FCC Identification Number	IC Identification Number
3.0	ACJ-SYNCG3-L	216B-SYNCG3-L
3.1	ACJ-FA-170-BCARHS	216B-FA170BCARHS
3.2	ACJ-FG-185-SG32MH	216B-FG185SG32MH

WARNING: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment. The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

These devices comply with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. The device does not cause harmful interference.
2. The device accepts any interference received, including interference that could cause undesired operation.

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