Utility Vehicle ProGator® 2020 Serial No. (010001-) 2030 Serial No. (010001-)

JOHN DEERE

OPERATORS MANUAL

Utility Vehicle ProGator® 2020 Serial No. (010001-)
2030 Serial No. (010001-)

OMM141591 J9 English

John Deere
Worldwide Commercial And Consumer Equipment Division

OMM141591 J9

Export Version

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ENGLISH

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INTRODUCTION

READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may also be available in other languages (see your John Deere dealer to order).

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your machine and should remain with the machine when you sell it.

MEASUREMENTS in this manual are given in both metric and customary U.S. unit equivalents. Use only correct replacement parts and fasteners. Metric and inch fasteners may require a specific metric or inch wrench.

RIGHT-HAND AND LEFT-HAND sides are determined by facing the direction of forward travel.

SETTING FUEL DELIVERY BEYOND PUBLISHED factory specifications or otherwise overpowering will result in loss of warranty protection for this machine.

BEFORE DELIVERING THIS MACHINE, your dealer performed a predelivery inspection to ensure best performance.

THIS UTILITY VEHICLE IS DESIGNED SOLELY for use in customary agricultural and forestry operations, for park and amenity area maintenance, and for winter work. Use in any other way is considered as contrary to the intended use.

The manufacturer accepts no liability for damage or injury resulting from this misuse, and these risks must be borne solely by the user. Compliance with and strict adherence to the conditions of operation, service and repair as specified by the manufacturer also constitute essential elements for the intended use.

THIS UTILITY VEHICLE SHOULD BE OPERATED, serviced and repaired only by persons familiar with all its particular characteristics and acquainted with the relevant safety rules (accident prevention). The accident prevention regulations, all other generally recognized regulations on safety and occupational medicine and the road traffic regulations must be observed at all times.

Any arbitrary modifications carried out on this tractor will relieve the manufacturer of all liability for any resulting damage or injury.

INTRODUCTION

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I.N.) in the space provided below. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts. File the identification numbers in a secure place off the machine.

DATE OF PURCHASE:

_____

DEALER NAME:

_____

DEALER PHONE:

_____

PRODUCT IDENTIFICATION NUMBER (A):

__ __ __ __ __ __ __ __ __ __ __ __ __

ENGINE SERIAL NUMBER (B):

__ __ __ __ __ __ __ __ __ __ __ __ __

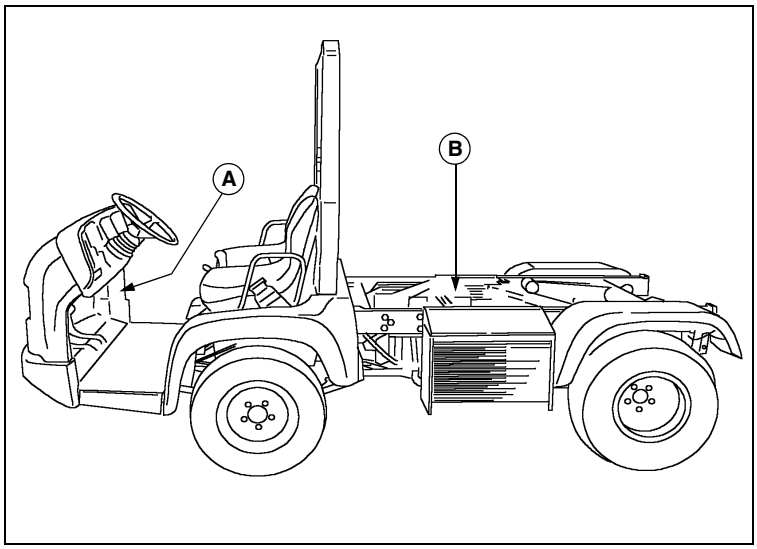

TABLE OF CONTENTS

Safety Signs 1
Controls 4
Operating 5
Replacement Parts 26
Service Machine Safely 27
Service Interval Chart 30
Service-Engine 33
Service-Transmission 53
Service-Hydraulics 57
Service-Steering & Brakes 61
Service-Electrical 64
Service-Miscellaneous 69
Troubleshooting 77
Storing Machine 81
Assembly 84
Specifications 86
Index 92

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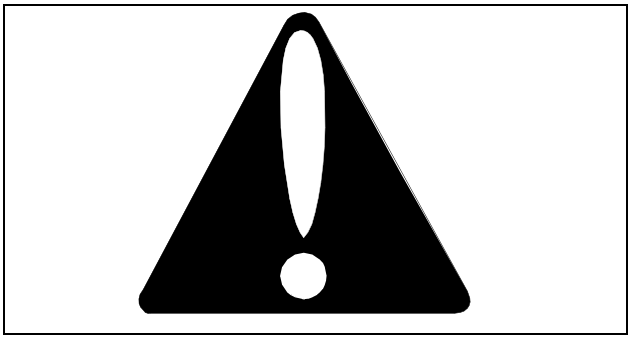
SAFETY SIGNS

Safety-Alert Symbol



Read and recognize safety information. Be alert to the potential for personal injury when you see this safety-alert symbol.

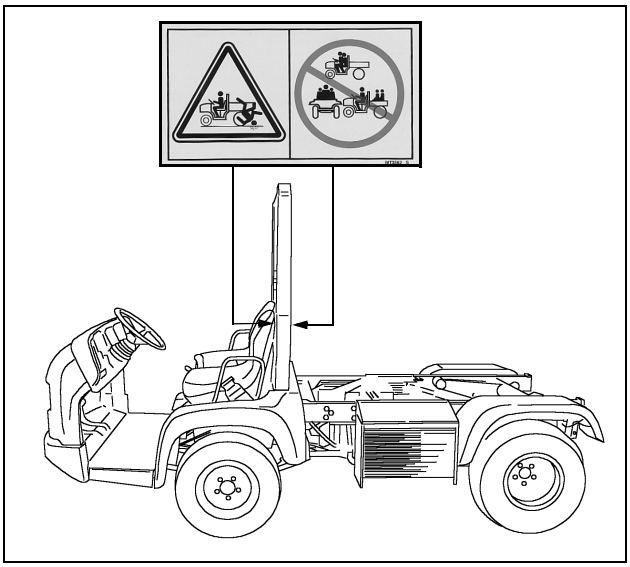
On your machine safety labels, the words DANGER, WARNING, and CAUTION are used with this safety-alert symbol. DANGER identifies the most serious hazards. In this manual, the word CAUTION and this symbol call attention to safety messages.

Machine Safety Labels

WARNING

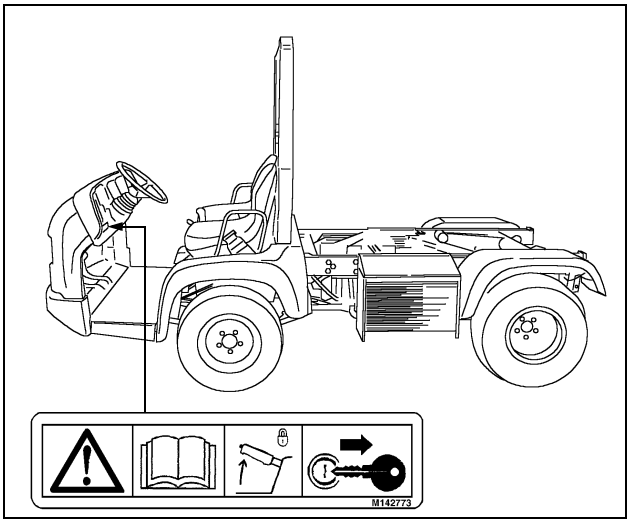
RIDERS CAN FALL OFF AND BE KILLED

- Maximum of one person to a seat
- No riders in box or anywhere else



CAUTION

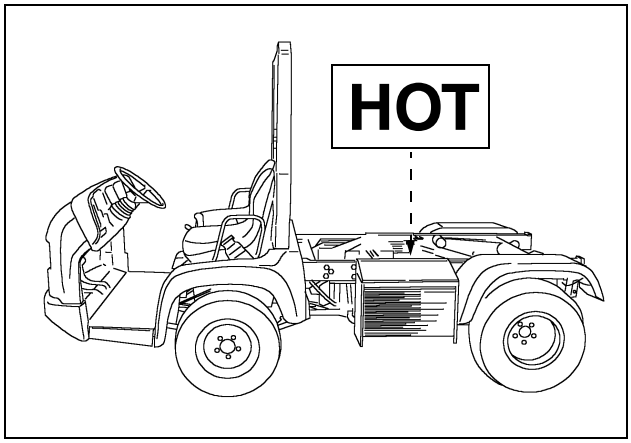
Read operator's manual. Before leaving machine: Stop engine, set park brake and remove key.



WARNING–HOT SURFACE

Picture Note: “HOT” muffler warning stamped into the top of the vehicle muffler.

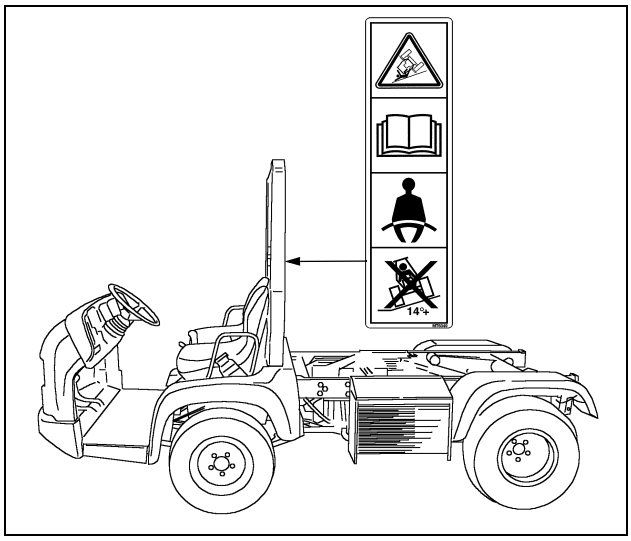
DO NOT touch the vehicle muffler, it may be hot.



WARNING

USE SEAT BELT

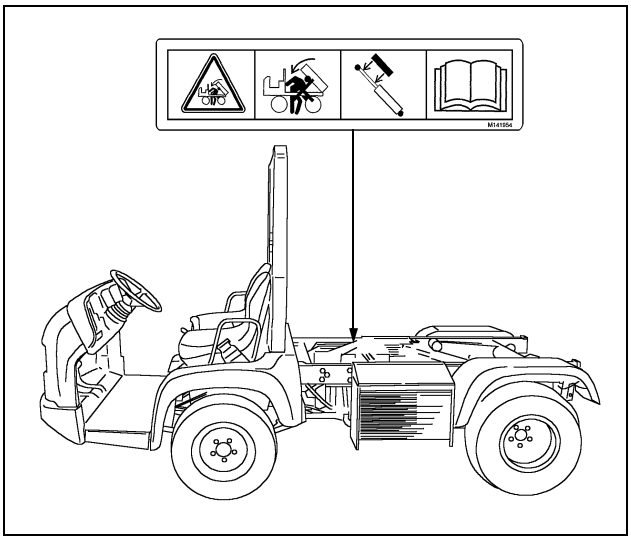
To avoid injury from crushing always wear seat belt. Do not jump from machine.



WARNING

Picture Note: Labels are located on each vehicle frame side rail.

Avoid injury from crushing: Always use safety support when working on a raised bed or attachment.

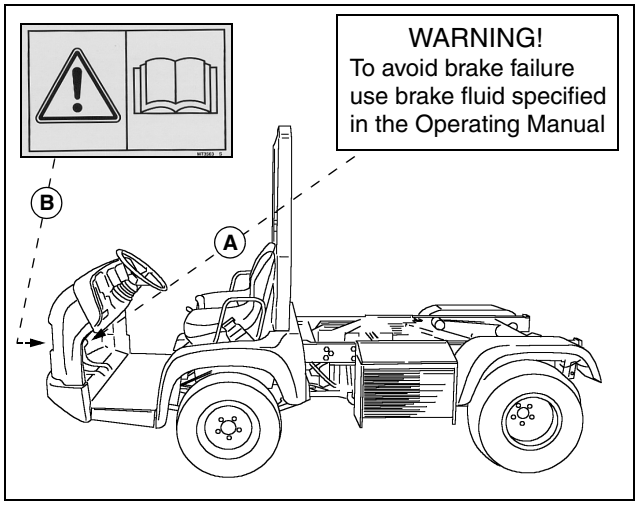


SAFETY SIGNS

WARNING

Picture Note: English WARNING information (A) molded into the top of the brake master cylinder. No text WARNING label (B) located behind the front grill.

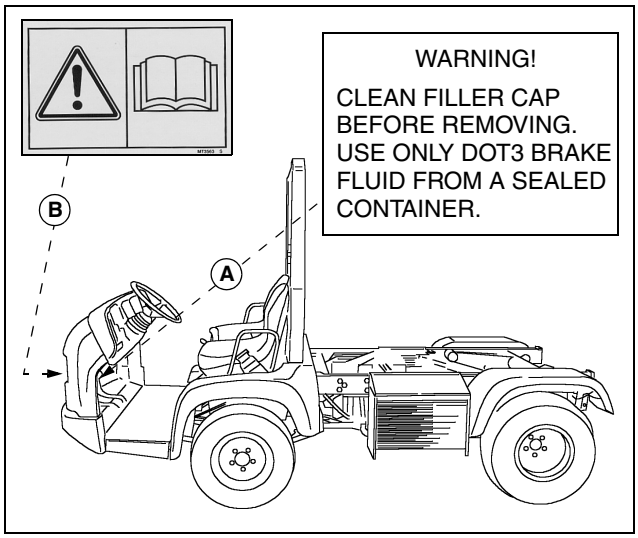
To avoid brake failure use brake fluid specified in the Operating Manual.



WARNING

Picture Note: English WARNING information (A) molded into the brake master cylinder fill cap. No text WARNING label (B) located behind the front grill.

CLEAN FILLER CAP BEFORE REMOVING. USE ONLY DOT3 BRAKE FLUID FROM A SEALED CONTAINER.



DANGER/POISON

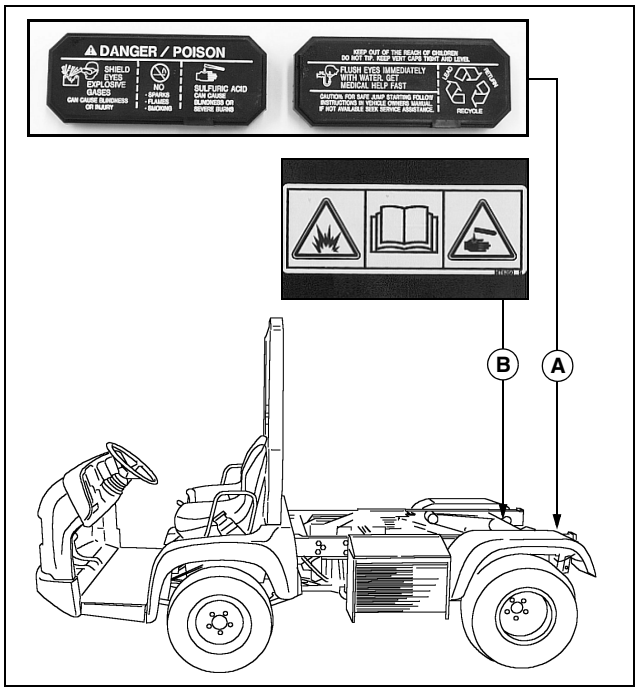
Picture Note: English DANGER/POISON information (A) molded into vehicle battery caps. No text DANGER/ POISON label (B) is located on the vehicle frame.

Explosive Gases

Cigarettes, flames or sparks could cause the batteries to explode. Always shield eyes and face from the batteries. Do not charge or use booster cables or adjust poor connections without proper instruction and training. Keep vent caps tight and level.

Causes Severe Burns

Contains sulfuric acid. Avoid contact with skin, eyes or clothing. In event of an accident, flush with water and call a physician immediately. Keep out of reach of children.

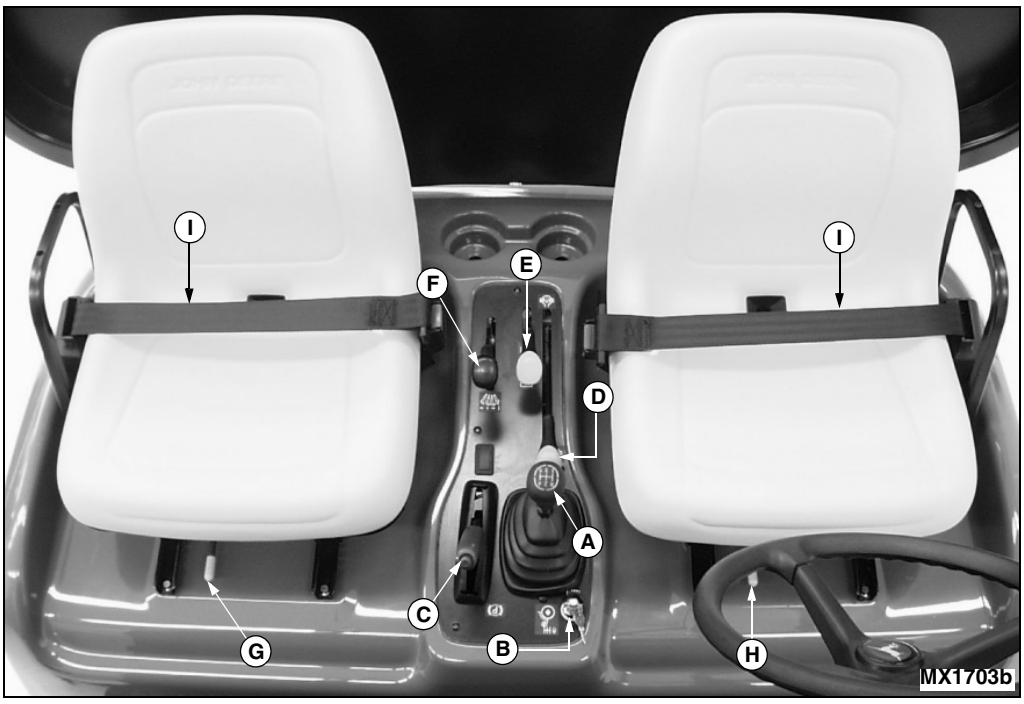


Dash and Foot Controls

A - Instrument Panel
B - Horn
C - Light Switch
D - Key Switch
E - Clutch Pedal
F - Brake Pedal
G - Accelerator Pedal

Console and Miscellaneous Controls

A - Gear Shift Lever
B - 5th Gear Lockout Switch
C - Park Brake Lever
D - Differential Lock Lever
E - Hydraulic PTO Lever (Optional)
F - Lift Cylinder Lever
G - Passenger Seat Adjustment Lever
H - Operator Seat Adjustment Lever
I - Seat Belt



Operate Safely

- View the videotape provided with the vehicle for safe operating practices.
- DO NOT misuse the ProGator® Utility Vehicle, it is a utility vehicle NOT a recreation vehicle.
- Sit on the center of the seat and keep both feet within the foot platform perimeter. Clean foot platform if dirty, and remove any debris from around foot controls.
- Check for debris or refuse in the battery storage compartment, especially around brake linkage which attaches to axle housing on each side of the transaxle.
- Always use both hands for steering.
- Know location of controls and how and what they operate.
- Never operate utility vehicle while standing.
- Never operate utility vehicle with the cargo box or any attachment raised.
- Check brake action before beginning vehicle operation. Adjust or service the brakes as necessary.
- To provide adequate braking ability and traction, DO NOT tow any attachment or loaded trailer unless the utility vehicle cargo box is loaded.
- Inspect vehicle before operating. Be sure hardware is tight. Repair or replace damaged, badly worn, or missing parts. Be sure guards and shields are in good condition and fastened in place. Make any necessary adjustments before operating.
- Keep people and pets out of the work area. Stop the vehicle if anyone enters the area. If an object is hit, stop and inspect the vehicle for damage. Make repairs before operating. Keep the vehicle properly maintained and in good working order.
- Keep headlight and taillight lenses clean.
- DO NOT leave vehicle unattended when it is running.
- Only operate during daylight or with good artificial light.
- Be careful of traffic when operating near or crossing roadways.
- This vehicle is NOT intended for use on highways or public roadways. It is to be used for off-road use only.
- Avoid sudden starts, stops, or turns.

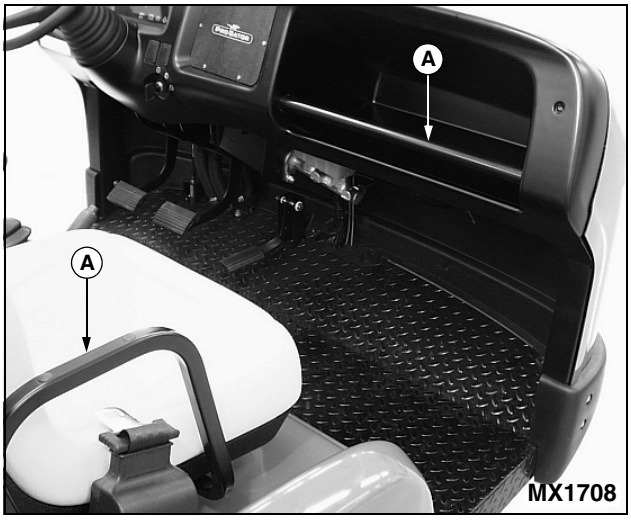
- Always use a level turn-around area.
- DO NOT wear radio or music headphones while operating the vehicle. Safe operation requires your full attention.
- STAY ALERT: LOOK, LISTEN.

Park Safely

- Stop the vehicle on a level surface, not on a slope.
- Lock park brake.
- Place transmission in first or reverse gear.
- STOP engine.
- Remove key.
- Before leaving the operator's seat, wait for the engine and all moving parts to STOP.
- Block wheels if it is necessary to park the vehicle on an incline.

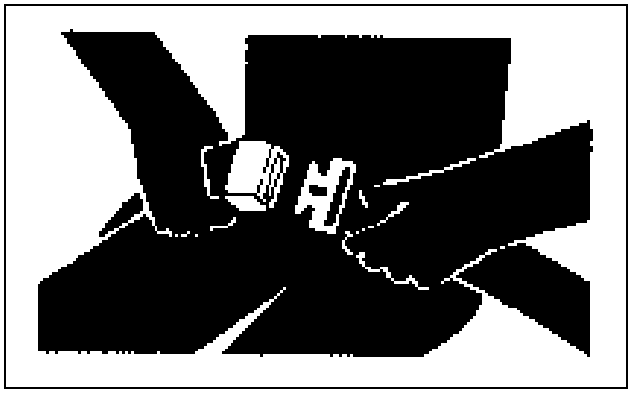
Use Hand Holds

Hand Holds (A) are provided for operator and passenger balance when driving over rough terrain. Use dash bar and side rails on seats for stability.

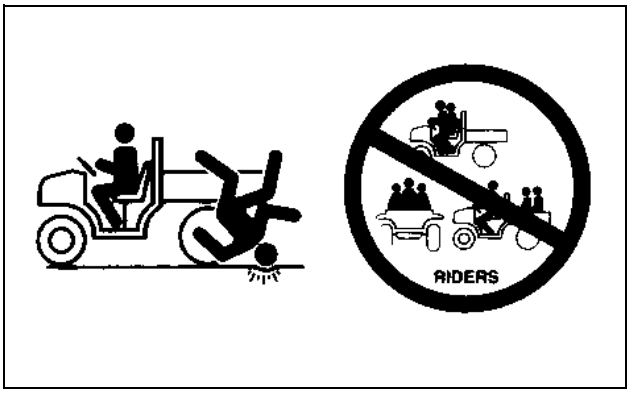


Use Seat Belt Properly

Use a seat belt when you operate with a Roll-Over Protective Structure (ROPS) or cab to minimize the chance of injury from an accident, such as an overturn.



Protect Children and Prevent Accidents



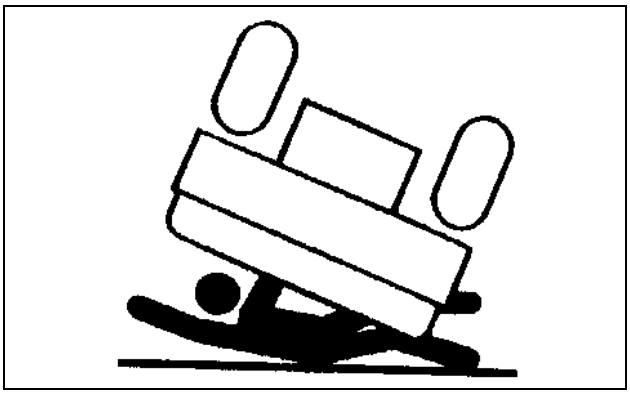
PROTECT CHILDREN:

- Never assume that children will remain where you last saw them. Stay alert to the presence of children.
- If the vehicle is equipped with a cargo box, never carry children in the cargo box area. DO NOT allow children to ride in a utility vehicle cargo box or on any attachment. DO NOT tow children in a cart or trailer.
- Use extra care when coming to blind corners, shrubs, trees, or other objects that may block vision.
- DO NOT let children or an untrained person operate the vehicle.
- Before backing or turning, look behind and around the utility vehicle for children.

HELP PREVENT SERIOUS OR FATAL ACCIDENTS:

- Be alert at all times, drive forward and in reverse carefully. People, especially children, can move quickly into an area of operation.
- Back carefully. Look behind the vehicle, especially for children, before backing up.
- DO NOT operate vehicle if under the influence of alcohol or other drugs.
- Misuse and recreational riding can lead to accidents, severe bodily injury or death.

Avoid Tipping



Accidents resulting in serious injury or death can occur from tipping the utility vehicle. Observe the following practices to help prevent accidents:

- DO NOT misuse this utility vehicle. This utility vehicle is not designed for recreational riding.
- Never allow riders in the cargo box or other areas where seats are not provided.
- Drive very slowly when turning. Sharp turns could cause the utility vehicle to tip over.
- Reduce speed and exercise extreme caution on slopes or on rough ground.
- DO NOT overload vehicle and avoid shifting loads. Reduce load when operating over rough or hilly terrain.

- Stay alert for holes, rocks, loose terrain, wet or slippery surfaces and other hidden hazards in the terrain.
- DO NOT stop or start suddenly when going uphill or downhill. Be especially cautious when changing direction on slopes.
- Keep front wheels straight at crest of hill or going over bumps.
- When descending a hill, remove foot from accelerator and apply brakes to reduce speed and maintain control.
- DO NOT make changes or modifications to this utility vehicle.

Operator Training Required

Study Operating section of this manual before operating the vehicle.

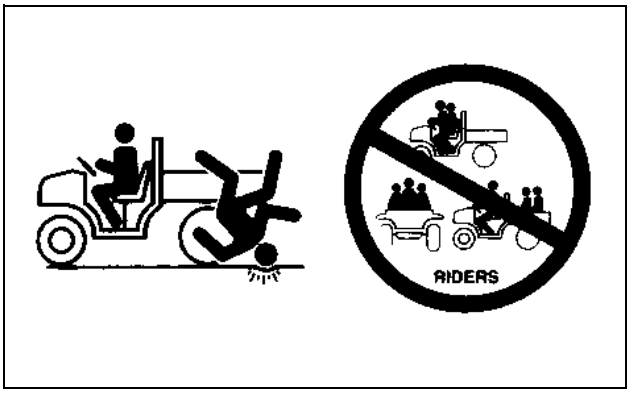
- Operate vehicle in an open, unobstructed area under the direction of an experienced operator.
- Learn the use of all controls.
- Operator experience is required to learn the moving, stopping, turning and other operating characteristics of the vehicle.
- Young drivers may not have the strength or experience to control the utility vehicle. This increases the chances of rolling the vehicle over resulting in severe bodily injury or death.
- The utility vehicle should NOT be operated by anyone under the age of 16 years.

Stay Clear Of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death:

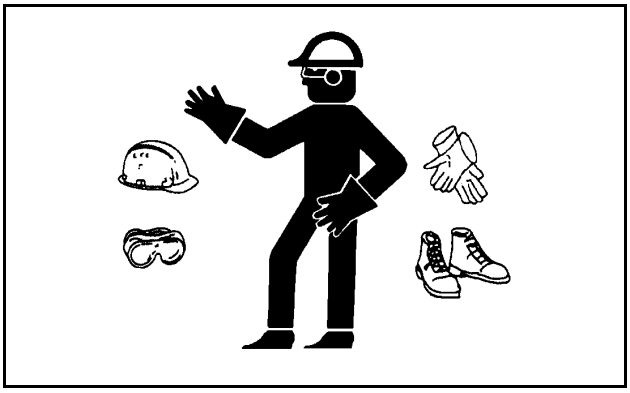
- Keep hands, feet, and clothing away from power driven parts.
- Wear close fitting clothing.
- STOP the engine and be sure PTO driveline is stopped before getting near it.

Keep Riders Off Vehicle



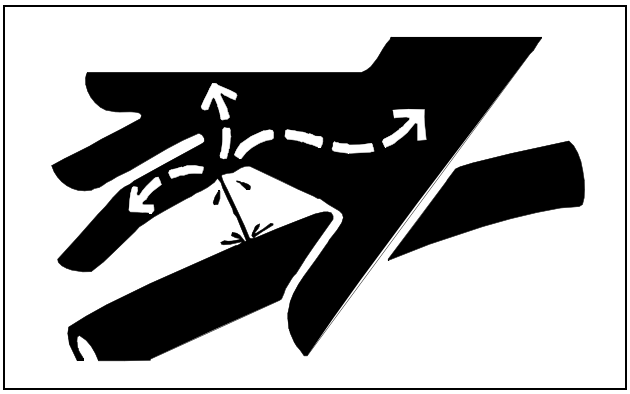
- Seating is provided for operator and one passenger. No riders are allowed in cargo box or anywhere else on vehicle.
- Riders on vehicle are subject to injury such as being struck by foreign objects or being thrown off of the vehicle and severely injured or killed.
- Riders affect the operators ability to control the vehicle as well as its center of gravity. Also, riders could obstruct the operator's view resulting in the vehicle being operated in an unsafe manner.

Wear Appropriate Clothing



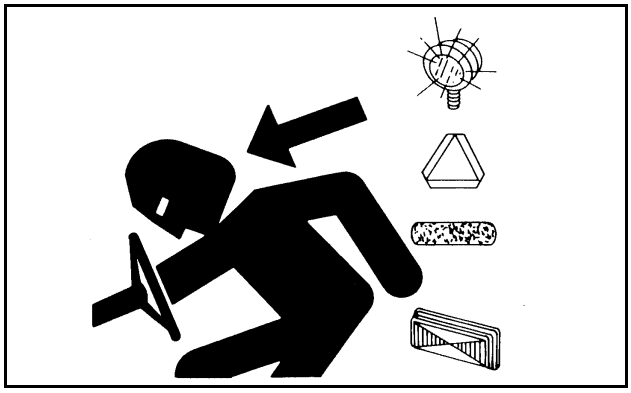
- Wear close fitting clothing and safety equipment appropriate for the job.
- Loud noise can cause impairment or loss of hearing, wear a suitable protective device such as earplugs.
- Do not wear radio or music headphones while operating the vehicle. Safe operation requires your full attention.

Avoid High Pressure Fluids



- Hydraulic hoses can fail due to physical damage, kinks, age, and exposure. Check hoses regularly. Replace damaged hoses.
- Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
- If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A. Information may be obtained in the United States and Canada only by calling 1-800-822-8262.

Transport Safely



- Use safety lights and devices. Slow moving vehicles when driven on public roads are hard to see, especially at night. Avoid personal injury or death resulting from a collision with a vehicle.
- Flashing warning lights are recommended whenever driving on public roads to increase visibility. Extra flashing warning lights may need to be installed.
- A safety lighting kit is available from your John Deere distributor.

Attachments

- Use approved attachments only.
- Traction is reduced without an attachment installed. Operate only on level ground and slowly without an attachment.

Check Wheel Hardware

- A serious accident could occur causing serious injury if wheel hardware is not tight.
- Check wheel hardware tightness often during the first 100 hours of operation.

Adjusting Vehicle Seats

1. Sit on the operator or passenger seat.
2. Pull and hold lever (A) to the left.

   Picture Note: Operator seat shown.
3. Slide seat forward or rearward to desired position.
4. Release lever.

Using Seat Belts

CAUTION: Avoid injury from an accident, such as an overturn. Use a seat belt when operating a vehicle with a Roll-Over Protective Structure (ROPS).

To **CONNECT** the seat belt:

- With one continuous motion pull seat belt from retractor (A) and across hips and waist.

NOTE: If seat belt stops short of being able to insert into latch, allow belt to return into the retractor and pull again.

- Insert buckle into latch (B) on other side of seat. When properly inserted into the latch a “click” should be heard.

To **DISCONNECT** the seat belt:

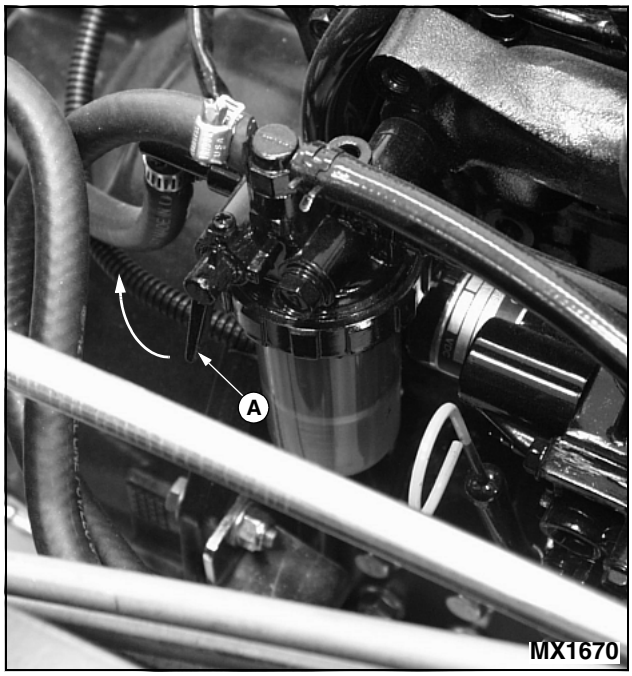
- Press red button (C). Allow seat belt to return to retractor.

Using Fuel Shut-Off Valve (Diesel Models)

1. Locate fuel filter sediment bowl assembly on the left side of the engine.

2. Rotate two-position fuel shut-off valve lever (A) to the “O” (open) position or “C” (closed) position.

Picture Note: Fuel shut-off valve shown in the open position.



“C” (Closed) position:

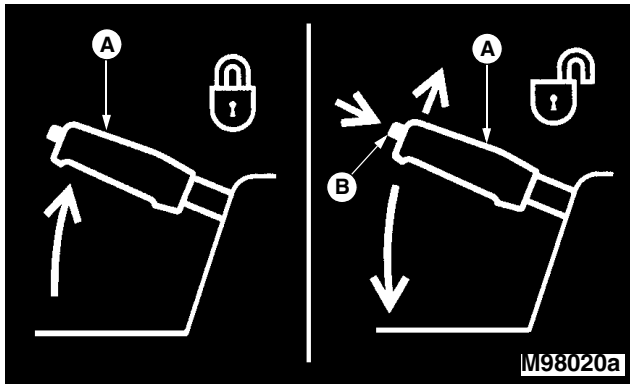
- When performing any type of engine service.
- When transporting.
- During periods of extended storage.

“O” (Open) position:

- Fuel shut-off valve must be in the full OPEN position for proper fuel delivery to the engine.

Using the Park Brake

CAUTION: Avoid serious bodily injury due to loss of vehicle control. Always lock the park brake when the vehicle is left unattended.



To **LOCK** park brake:

- Pull up lever (A) and latch into position.

To **UNLOCK** park brake:

- Pull up on lever (A).
- Depress button (B).
- Push lever (A) down completely. Instrument panel indicator light must go out.

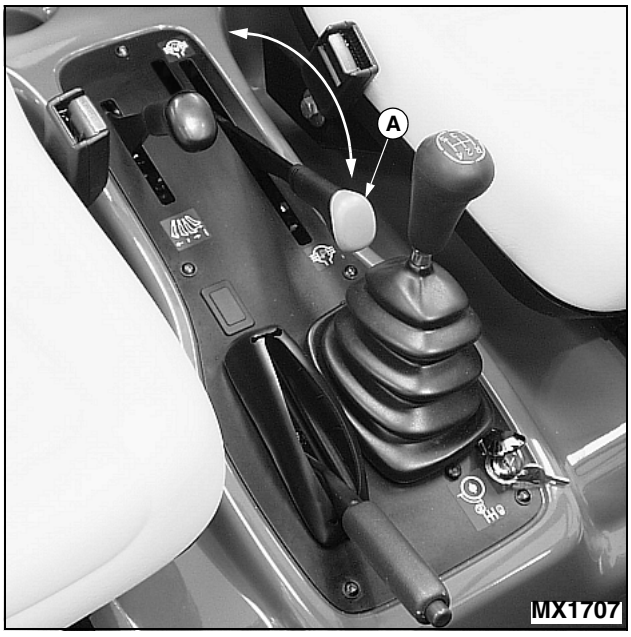
Using the Differential Lock Lever

CAUTION: Avoid tipping the vehicle with the differential lock engaged. DO NOT attempt to turn the vehicle on slopes and hills. DO NOT operate the vehicle at high speeds.

The differential lock is used to provide better traction when the rear wheels of the vehicle start to slip. Engaging the differential lock lever will lock the left and right rear axles together and cause both rear wheels to turn at equal speeds for maximum traction.

IMPORTANT: To prevent damage to the transmission, DO NOT engage differential lock when the vehicle is traveling at high speeds.

NOTE: Vehicle turning radius is increased when the differential lock is engaged.



To **ENGAGE** differential lock:

- Stop or slow vehicle down.
- Pull up and hold differential lock lever (A) in the raised position. Hold lever in the raised position as long as there is rear wheel slippage.

To **DISENGAGE** differential lock:

- Lower differential lock lever (A).

Using the Hydraulic PTO Control Lever

Perform this operational procedure with vehicles equipped with the auxiliary hydraulic kit. Engaging the hydraulic PTO lever will provide auxiliary hydraulics for attachments requiring the capability.

IMPORTANT: Avoid equipment damage. DO NOT operate PTO control lever without an auxiliary attachment connected. Hydraulic flow is blocked and pressure will bypass through relief port of hydraulic control valve causing excessive heat buildup and possible component failure.

Check the auxiliary hydraulic oil level before each use.

To **ENGAGE** the hydraulic PTO:

- Pull up lever (A) to the ON (PTO) position.

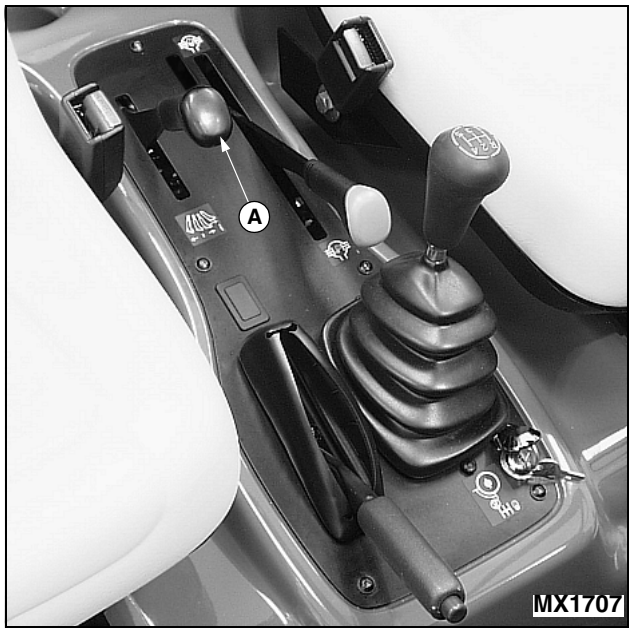
To **DISENGAGE** the hydraulic PTO:

- Push lever (A) down to the OFF (PTO) position.

Using the Lift Cylinder Lever

CAUTION: Avoid injury or death!

- **Make sure the vehicle is on a hard, level surface and the park brake is locked before raising the cargo box. If the vehicle is facing uphill with the cargo box raised, the weight of the cargo box may cause the vehicle to tip.**
- **DO NOT perform a service function under a raised attachment without the lift cylinder safety support properly installed.**
- **Empty all material from the cargo box before servicing the vehicle.**



To RAISE attachment:

1. Start engine.
2. Pull and hold back lever (A).
3. Release lever. Lever will return to the neutral position, and attachment will be held in position with the lift cylinder locked in place.

To LOWER attachment:

NOTE: An attachment can be lowered and the lift cylinder will retract with the engine running or the engine stopped.

1. Push and hold down lever until attachment is lowered or positioned as desired.

2. Release lever. Lever will return to the neutral position, and attachment will be held in position, with the lift cylinder locked in place.

NOTE: When operating the vehicle with the auxiliary hydraulic PTO engaged, it is recommended that the lift cylinder lever be held down momentarily after the attachment has been lowered. This will firmly seat the load check for the lift cylinder spool which locks the lift cylinder in position.

When operating the vehicle with a cargo box attachment having the tailgate release kit installed, the lift cylinder lever must be held down momentarily after the box has been lowered. This will lock the tailgate and eliminate tailgate rattle.

To allow attachment to FLOAT:

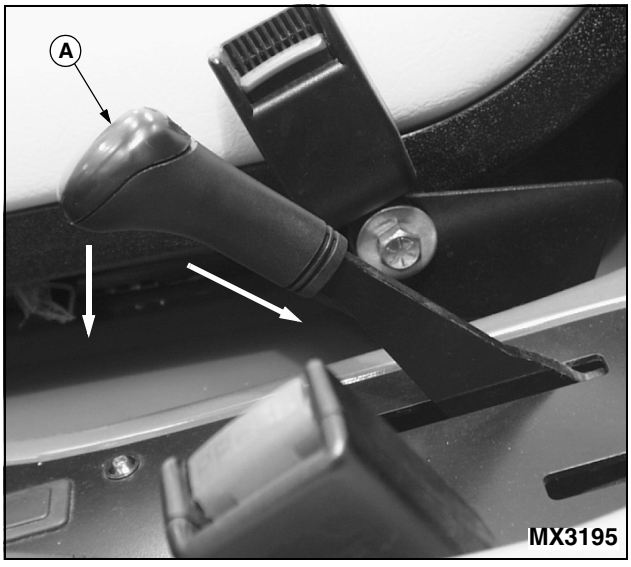
NOTE: Float position allows the lift cylinder to move freely for use with some ground following attachments.

Placing the lift cylinder lever in the float position will cause a raised attachment to be lowered by gravity until completely down. For best control of raised loads, it is recommended that float position NOT be used to lower attachments.

1. Push lever (A) in, then down for float position.

2. Pull up lever to release float position.

3. Release lever. Lever will return to the neutral position, and attachment will be held in position, with the lift cylinder locked in place.



Using the 5th Gear Lockout

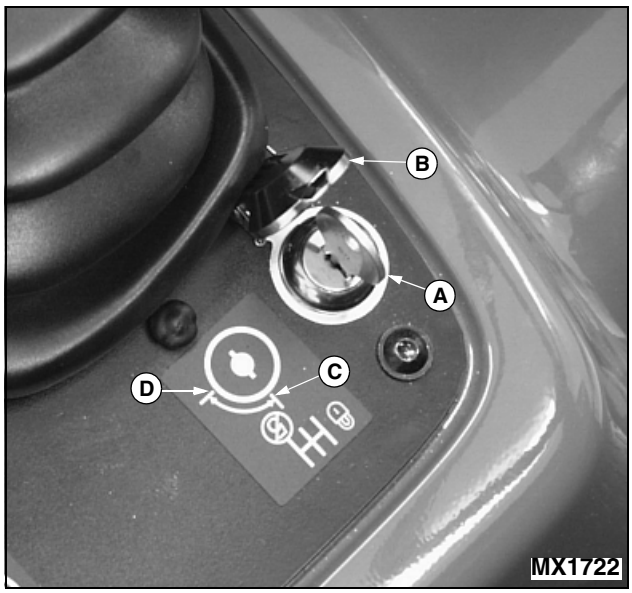
CAUTION: Avoid severe bodily injury due to loss of control, load shifting and/or tipping. Do not operate at higher speeds when hauling loads, when operating around obstacles, when turning and when operating on any hazardous off-road conditions.

This vehicle is equipped with a keyed lock (A) for 5th gear lockout. Preventing the use of 5th gear while limiting vehicle ground speed may be advisable in certain operating conditions.

To **LOCKOUT** 5th gear:

Picture Note: Key position shown with 5th gear locked out.

NOTE: Lock will not operate if vehicle transmission is already in 5th gear.



1. Move gear shift lever to any position except 5th gear.
2. Raise switch cover (B).
3. Install key into key switch.
4. Turn key to position (C).

IMPORTANT: DO NOT operate the vehicle with the key left in the lock. The switch cover must be allowed to close to prevent water, sand and other contaminants from entering the lock.

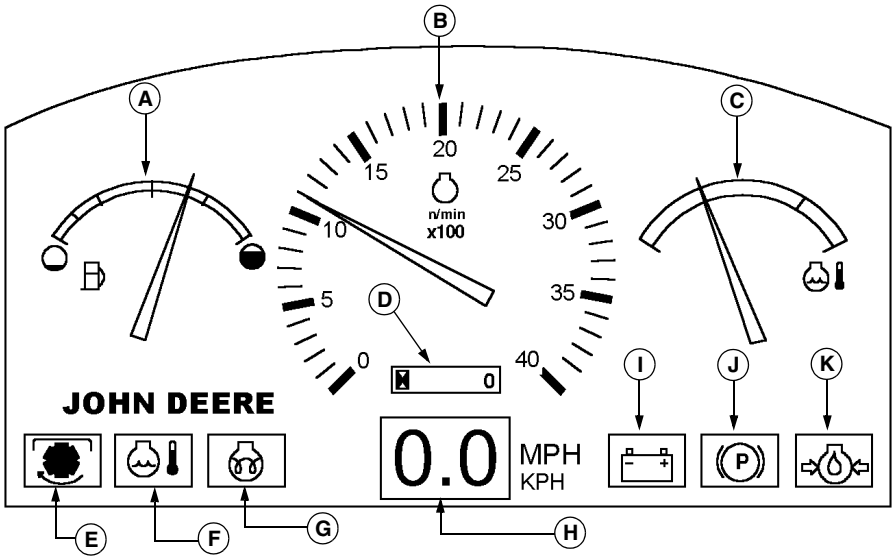
5. Remove key.

To **UNLOCK** 5th gear:

1. Move gear shift lever to any position.
2. Raise switch cover (B).
3. Install key into key switch.
4. Turn key to position (D).
5. Remove key.

Instrument Panel

- **A - Fuel Gauge**
- **B - Tachometer**
- **C - Coolant Temperature Gauge**
- **D - Hour Meter**
- **E - PTO Indicator**
- **F - Coolant Temperature Indicator**
- **G - Glow Plug Circuit Indicator (Diesel Model)**
- **H - Speedometer LED Display**
- **I - Battery Low Voltage Indicator**
- **J - Park Brake Indicator**
- **K - Engine Oil Pressure Indicator**



Fuel Gauge (A) shows approximately how much fuel is in the fuel tank.

Tachometer (B) is an instrument used to determine speed. Engine speed is shown in 100's. Example: If indicator is pointing at 20 (20 x 100 = 2000 RPM).

Engine Coolant Temperature Gauge (C) will indicate if engine temperature becomes excessive. If the gauge indicator needle moves all the way into the red zone, stop vehicle engine immediately and determine cause.

Hour Meter (D) shows the approximate number of hours the engine has run. Use the hour meter and the Service Interval Chart to determine when the vehicle will need service.

PTO Indicator (E) will only glow when the hydraulic PTO lever is engaged.

Engine Coolant Temperature Indicator (F) will glow when the engine coolant approaches a dangerously hot temperature. Reduce engine to idle speed. Check the engine coolant level and make sure air flow to the radiator is not obstructed. Continued operation may cause higher temperatures resulting in damage.

Glow Plug Indicator (Diesel Model) (G) is visible only when lighted and will glow when the key switch is turned to the RUN position. The indicator light should go off approximately 3 seconds after the key switch is turned to the RUN position. This indicates that the engine glow plugs are on and preheating the engine combustion chamber.

Speedometer LED Display (H) will glow when the key switch is turned to the RUN position. This LED display indicates vehicle speed.

Battery Discharge Indicator (I) will glow when the key switch is turned to the RUN position.This is an indication that the alternator is not producing adequate current. Stop engine and determine cause.

Park Brake Indicator (J) will glow when the park brake is locked.

Engine Oil Pressure Indicator (K) will glow when engine oil pressure is low. If lamp glows when engine is running, stop engine immediately. This is an indication that the engine may be low on oil, or major engine damage may have occurred.

Operating the 5-Speed Synchronized Transmission

Using the Clutch Pedal

IMPORTANT: Avoid unnecessary wear, never "ride" the clutch by resting a foot on the clutch pedal while the vehicle is in operation.

It is possible to create extremely high clutch speeds when leaving the vehicle in first, second, or reverse gears and coasting down a hill with the clutch pedal depressed. NEVER allow the vehicle to freewheel while in gear with the clutch disengaged.

The functions of the clutch pedal (A) are:

- Connects and disconnects engine power to the transmission.
- Operates in conjunction with the gear shift lever to shift gears.

To **DISENGAGE** the clutch:

- Press the clutch pedal down completely. This will disengage the transmission from engine power.

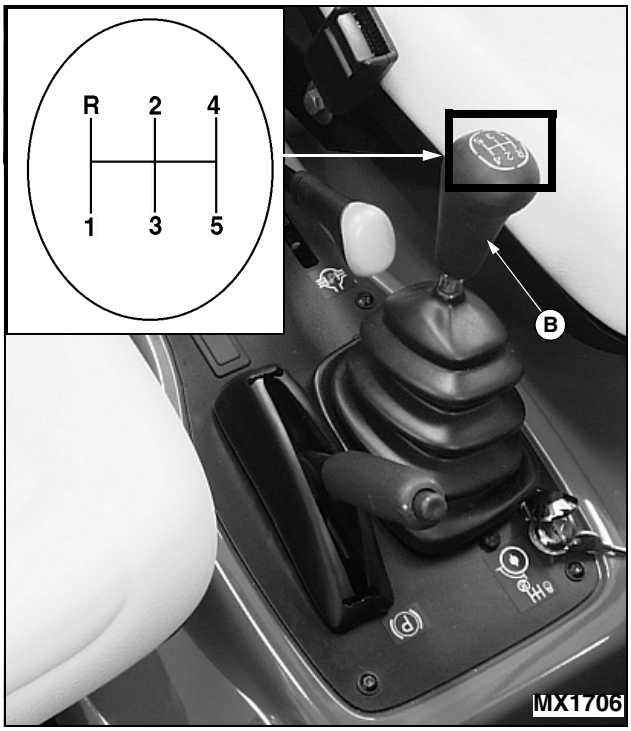
To **ENGAGE** the clutch:

- Remove foot from clutch pedal slowly. This will engage the transmission to engine power.

Using the Gear Shift Lever

The gear shift lever (B) is located on a console to the right of the operator seat. The gear shift lever provides five forward travel speeds and one reverse speed.

Select a gear on the gear shift lever that matches desired speed and direction. First and second gears are very low and should be used when hauling heavy loads.



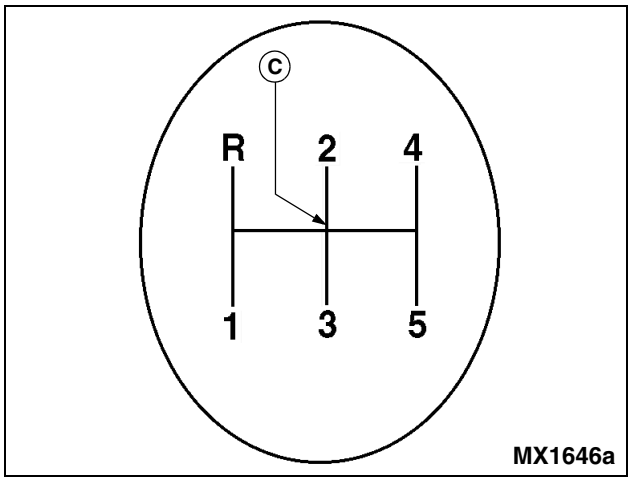
Gear	Maximum Ground Speed with Standard Size Tires at 3300 RPM
1	4.5 km/h (2.8 mph)
2	7.4 km/h (4.6 mph)
3	12.7 km/h (7.9 mph)
4	24.1 km/h (15 mph)
5	30.7 km/h (19.1 mph)
R	5.8 km/h (3.6 mph)

Forward Travel

1. Lock park brake.

NOTE: The gear shift lever must be in the NEUTRAL position for the engine to start.

2. Move the gear shift lever to the NEUTRAL position (C) between gears “2” and “3”.



3. Depress clutch pedal and start engine.
4. Move gear shift lever to a desirable starting gear.
   - Vehicles with a load–first gear
   - Vehicles with no load–second or third gear
5. Unlock park brake.
6. Release clutch gradually to take up load smoothly.

IMPORTANT: When downshifting this vehicle, it is very important not to skip more than one gear at a time. For example, shifting from gear five to four is preferred, shifting from gear five to three is acceptable, shifting from gear five to two is NOT recommended. When downshifting more than two gears at a time it is possible to spin the clutch past its limit of 10,000 RPM. Spinning the clutch at or above 10,000 RPM will result in severe clutch damage and possible failure.

7. Shift gears while moving:
   - Depress clutch and shift to next gear.
   - Slowly release clutch.

Reverse Travel

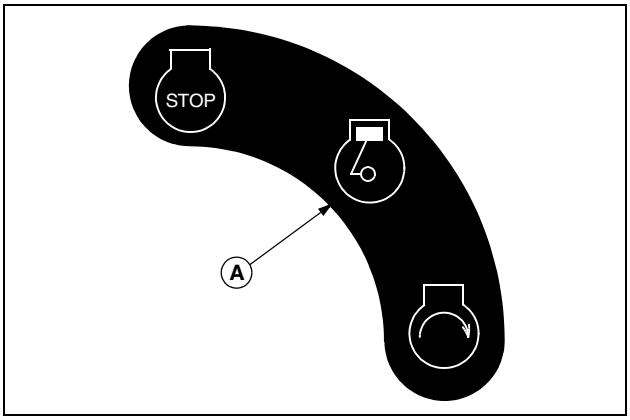
1. Stop vehicle completely.
2. Depress clutch.
3. Move gear shift lever to REVERSE.
4. Slowly release clutch.

Starting the Engine

CAUTION: Engine exhaust fumes can cause sickness or death.

- **If it is necessary to run an engine in an enclosed area, remove the exhaust fumes for the area with an exhaust pipe extension.**
- **If you do not have an exhaust pipe extension, open the doors and get outside air into the area.**

1. **Diesel Models:** Open fuel shut-off valve.
2. Lock park brake.
3. Push hydraulic PTO lever to the OFF (⎚) position.
4. Move the gear shift lever to the NEUTRAL position.
5. Turn key switch to the RUN position (A).

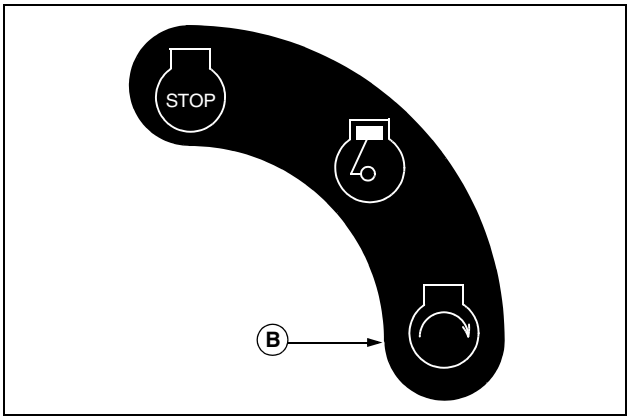


6. Check indicator lights:
   - Battery discharge indicator light should be on.
   - Park brake indicator light should be on.
   - Engine oil pressure indicator light should be on.
   - **Diesel Models:** Glow plug indicator light should be on. After approximately three seconds indicator light will go off. Engine is now ready to start.

IMPORTANT: DO NOT operate starter more than 20 seconds at a time or damage may occur.

If engine does not start, wait two minutes before trying again. If engine will not start, refer to the Troubleshooting section.

7. Turn key switch to the START position (B).

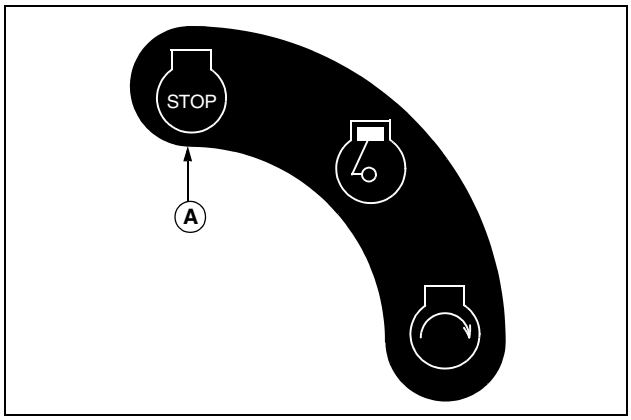


NOTE: Engine is calibrated at the factory to slow idle at 1450 RPM ± 50 when started.

8. When engine starts, release key switch to the RUN position.
   - Battery discharge indicator light should go out.
   - Engine oil pressure indicator light should go out.
9. Unlock park brake.
   - Park brake indicator light should go out.

Stopping the Engine

CAUTION: Avoid serious bodily injury due to loss of vehicle control. If the gear shift lever is moved to the NEUTRAL position the vehicle will free-wheel. Always lock the park brake when the vehicle is left unattended.



1. Release accelerator pedal and allow engine to slow idle.
2. Depress the clutch pedal and the foot brake.
3. Place gear shift lever in first or reverse gear.
4. Lock park brake.
5. Turn key switch to the “STOP” position (A).
6. Remove key.

Daily Operating Checklist

- ❑ Test Safety Interlock System
- ❑ Check tire pressure.
- ❑ Check fuel level.
- ❑ Check engine oil level.
- ❑ Check hydraulic oil level.

Testing Safety Interlock System

CAUTION: Engine exhaust fumes can cause sickness or death.

- **If it is necessary to run an engine in an enclosed area, remove the exhaust fumes for the area with an exhaust pipe extension.**
- **If you do not have an exhaust pipe extension, open the doors and get outside air into the area.**

Use the following checkout procedure to check for normal operation of the utility vehicle.

If there is a malfunction during one of these procedures, DO NOT operate the utility vehicle. (See your John Deere dealer for service.)

Perform these tests in a clear open area with the vehicle parked on a hard, level surface. Keep bystanders away.

Testing Seat and Park Brake Switches

1. Operator on seat.
2. Lock the park brake.
3. Move gear shift lever to the NEUTRAL position.
4. Start engine.
5. With engine running at slow idle, raise off seat.
6. Engine must continue to run.
7. Operator on seat.
8. Unlock park brake.
9. Raise off seat.
10. Engine must stop within five seconds. If the engine does not stop, there is a problem with the safety interlock circuit. (See your John Deere Dealer.)

Testing Neutral Switch

1. Operator on seat.
2. Lock park brake.
3. Move the gear shift lever to the “R” (REVERSE) position.
4. Turn the key switch to the START position.
5. Engine must not crank.
6. Repeat starting procedure with shift lever in each gear.
7. Engine must not crank.
8. Move the gear shift lever to the NEUTRAL position.
9. Turn the key switch to the START position.
10. Engine should crank. If the engine should start with the gear shift lever in any position other than the NEUTRAL position, there is a problem with the safety interlock circuit. (See your John Deere Dealer.)

Testing Auxiliary Hydraulic System Switch

CAUTION: Avoid injury or death. The PTO interlock switch is a safety feature designed to prevent engine start-up when the PTO control lever is in the ON (⚙) position eliminating supply pressure to the auxiliary quick-couplers. Never operate the vehicle if the PTO interlock system is defective or disconnected. Sudden, unexpected operation of an auxiliary attachment could occur during vehicle start-up.

NOTE: Make sure no attachments are connected to the auxiliary hydraulic quick-couplers at the rear of the vehicle.

1. Operator on seat.
2. Lock park brake.
3. Move the gear shift lever to the NEUTRAL position.
4. Pull up hydraulic PTO lever to the ON (⚙) position.
5. Turn the key switch to the START position.
6. Engine must not crank. If the engine should start, there is a problem with the safety interlock circuit. (See your John Deere Dealer.)

Operating Vehicle Engine with Operator Off the Seat

CAUTION: Avoid injury to the operator and bystanders.

- **LOCK PARK BRAKE at all times before leaving seat.**
- **DO NOT leave seat with vehicle running unless attachment function requires it.**

NOTE: During normal operating conditions, the vehicle engine should stop running when the operator raises off the seat.

To keep engine running when operator is off the seat:

1. Depress clutch and foot brake pedals to stop the vehicle.
2. Move the gear shift lever to the NEUTRAL position.
3. Lock park brake.
4. Slowly release clutch and foot brake pedals.
   - Engine should continue to run with the operator off of the seat.

Towing the Utility Vehicle

CAUTION: Avoid injury by removing any load from the vehicle cargo box or attachment before towing. Towing a loaded vehicle could cause either vehicle to lose control.

1. Move gear shift lever to the NEUTRAL position.

2. Attach a tow line to oval slot (A) provided on either side of the main frame under the front of the vehicle.

3. Unlock park brake.

CAUTION: Avoid injury by not exceeding 16 km/h (10 mph) when towing the vehicle. The vehicle is difficult to steer when the engine is not running.

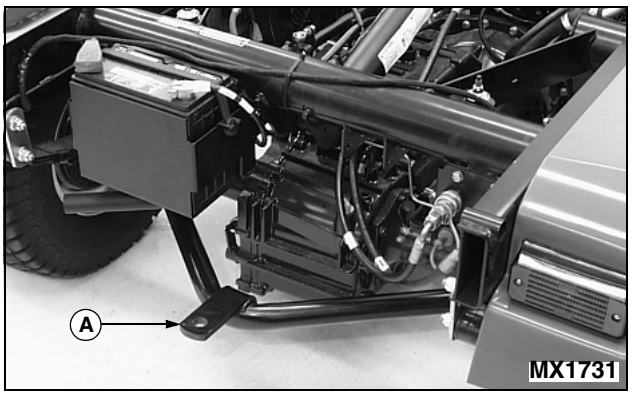
4. Tow vehicle slowly and carefully to desired location.

Towing Loads

CAUTION: Avoid injury due to loss of control or tipping, always tow a load slowly enough to maintain control.

To provide adequate braking ability and traction DO NOT tow a load unless utility vehicle cargo box is loaded or attachment is installed.

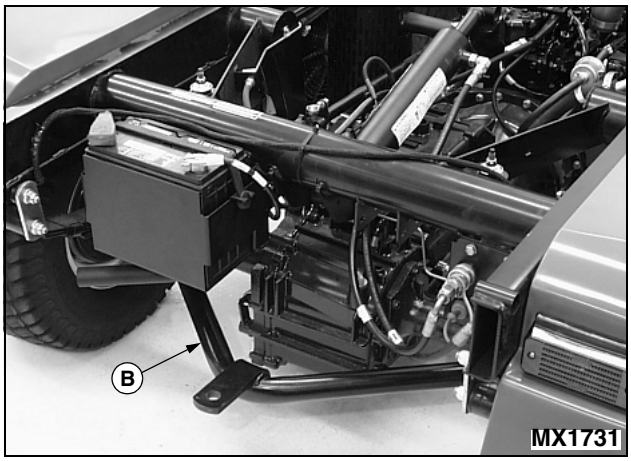
- DO NOT tow a load with this vehicle that exceeds 680 kg (1500 lb).
- DO NOT exceed a tongue weight of 90.7 kg (200 lb).
- Tow load at a speed slow enough to maintain control.
- Always use rear hitch point (A) provided on and approved for this utility vehicle. This is an approved hitch point, DO NOT modify in any way.



Transporting Utility Vehicle

1. Drive vehicle forward onto a trailer.
2. Park vehicle safely. (See **Park Safely** in this section.)
3. **Diesel Models:** Turn the fuel shut-off valve to the "OFF" position during transport.
4. Block rear wheels with chocks or wood blocks.
5. Fasten vehicle to trailer with heavy-duty straps, chains, or cables.

   - The tie downs should be attached to oval slots (A) provided on both sides of the main frame under the front of the vehicle and both sides of the hitch assembly (B) at the rear of the vehicle.
   - Both front and rear straps must be directed down and outward from the vehicle.



6. When transporting the utility vehicle on a road or highway, use accessory lights and devices for adequate warning to operators of other vehicles. Check local, state, provincial, or federal laws.

Raising and Lowering the Cargo Box

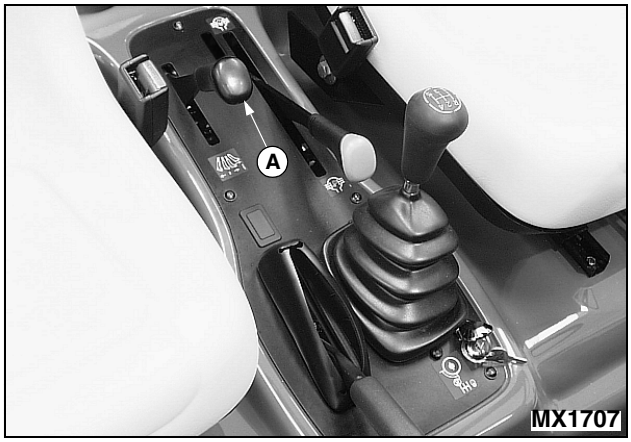
CAUTION: Avoid injury or death!

- **Make sure the vehicle is on a hard, level surface and the park brake is locked before raising the cargo box. If the vehicle is facing uphill with the cargo box raised, the weight of the cargo box may cause the vehicle to tip.**
- **DO NOT perform a service function under a raised attachment without the lift cylinder safety support properly installed.**
- **Empty all material from the cargo box before servicing the vehicle.**

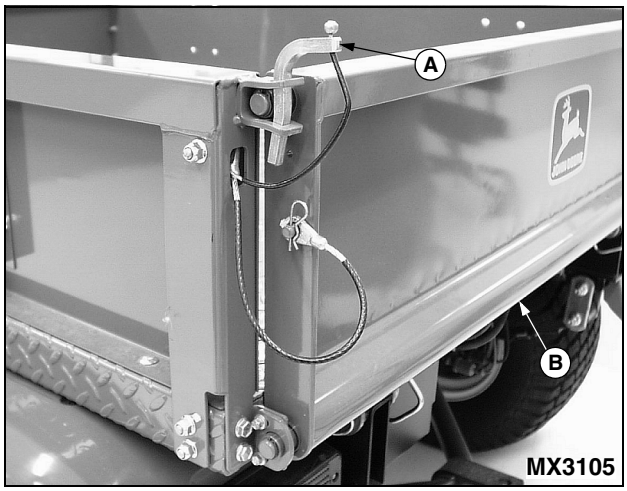
1. Start engine.
2. Pull and hold back lift cylinder lever (A) to raise cargo box.

NOTE: The lift cylinder will retract and the cargo box will lower with the engine running or the engine stopped.

3. Push and hold down lever (A) to lower cargo box.
4. Stop engine.



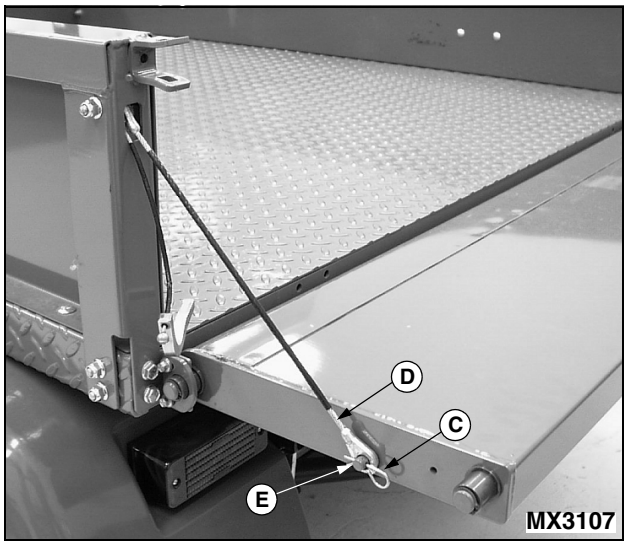
Operating the Cargo Box Tailgate



1. Pull up and remove each tailgate latch pin (A).
2. Lower tailgate (B).

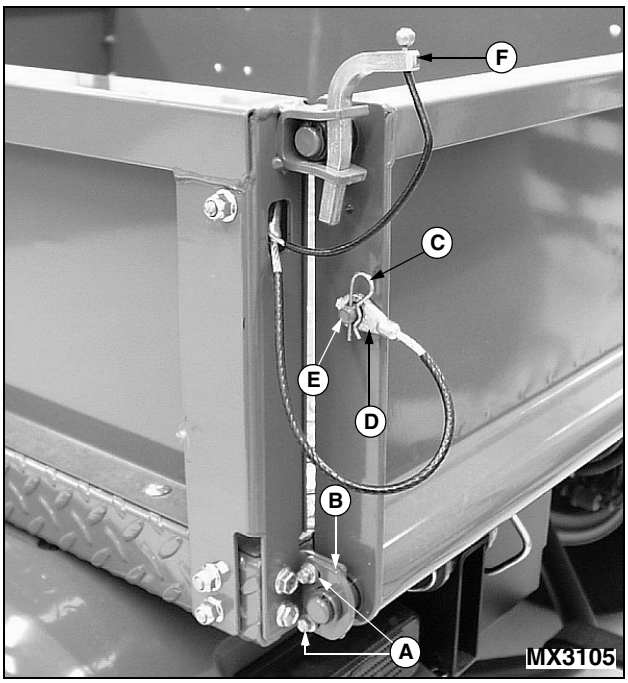
CAUTION: Avoid injury. DO NOT operate the vehicle with the tailgate fully lowered. In a fully lowered position the tailgate will obstruct vehicle taillights causing a possible rear collision.

IMPORTANT: Avoid the possibility of the tailgate making contact with the rear fenders causing structural damage. DO NOT operate utility vehicle with the tailgate fully lowered.



3. Remove spring locking pin (C) and cable (D) from each drilled stud (E) to fully lower tailgate.

Removing the Cargo Box Tailgate



1. Close the tailgate and latch both sides.
2. Remove two screws (A) and tailgate support plates (B) from each side.
3. Remove spring locking pin (C) and cable (D) from each drilled stud (E).
4. Pull up and remove each tailgate latch pin (F).
5. Remove tailgate.
6. Reverse steps to install tailgate.

John Deere Parts

WE RECOMMEND JOHN DEERE quality parts and lubricants, available at your John Deere dealer.

PART NUMBERS MAY CHANGE, use part numbers listed below when you order. If a number changes, your dealer will have the latest number.

WHEN YOU ORDER PARTS, your John Deere dealer needs your machine serial number. This is the number you have recorded in the **INTRODUCTION** section in the front of this manual.

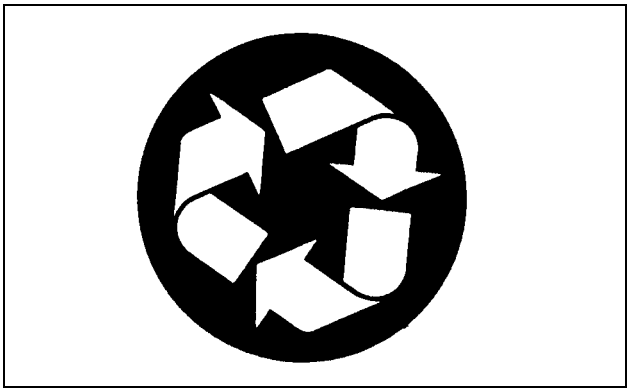
ITEM	PART NUMBER
Air Cleaner Assembly-All Models	
• Primary Element	M113621
• Secondary Element	M123378
Engine Oil Filter - All Models	AM101378
Transmission Oil Filter - All Models	AM131053
High Pressure Hydraulic Oil Filter - All Models	AM102723
Spark Plug - Gas Models	M805853
Battery	AM125463
Fuel Filter	
• Gas Models	AM876035
• Diesel Models	CH15553
Key–5th Gear Lockout	M142370
Fuses	
• 10 amp	57M7121
• 25 amp	99M7069
Light Bulbs	
• Headlight	AM118013
• Stoplight/Taillight	AR48041
• Indicator Light	57M7926
Alternator Belt - All Models	M802026

(Part numbers are subject to change without notice. Part Numbers may be different outside the U.S.A.)

Practice Safe Maintenance

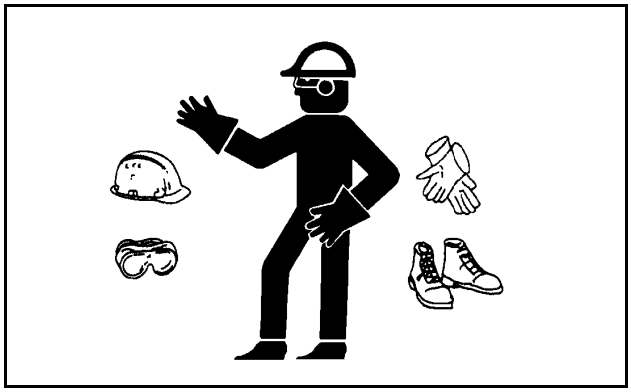
- Understand service procedure before doing work. Keep area clean and dry.
- Never lubricate or service machine while it is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- To prevent them from getting caught, keep hands, feet, clothing, jewelry, and long hair away from any moving parts.
- Before servicing machine, disengage all power and stop the engine. Lock park brake and remove the key. Let machine cool.
- Securely support any machine elements that must be raised for service work.
- Never run engine unless park brake is locked.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.
- Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on vehicle.
- Unauthorized modifications to the vehicle may impair its function and safety.

Handling Waste Product and Chemicals



- Waste products, such as, used oil, fuel, coolant, brake fluid, and batteries, can harm the environment and people.
- DO NOT use beverage containers for waste fluids–someone may drink from them.
- See your local Recycling Center or John Deere distributor to learn how to recycle or get rid of waste products.

Wear Appropriate Clothing



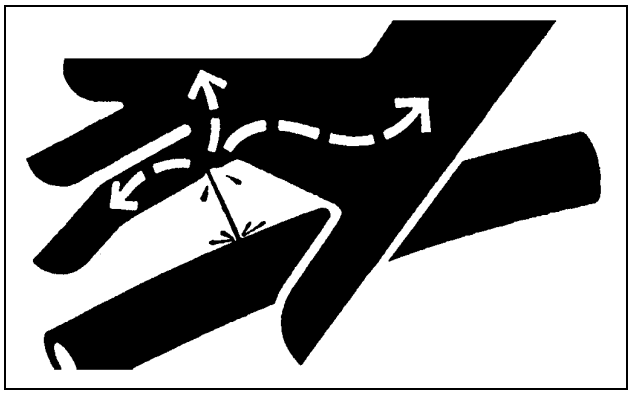
- Wear close fitting clothing and safety equipment appropriate for the job.
- Loud noise can cause impairment or loss of hearing, wear a suitable protective device such as earplugs.
- Do not wear radio or music headphones while servicing the machine. Safe service requires your full attention.

Stay Clear Of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death:

- Keep hands, feet, and clothing away from power driven parts.
- Wear close fitting clothing.
- STOP the engine and be sure PTO driveline is stopped before getting near it.

Avoid High Pressure Fluids



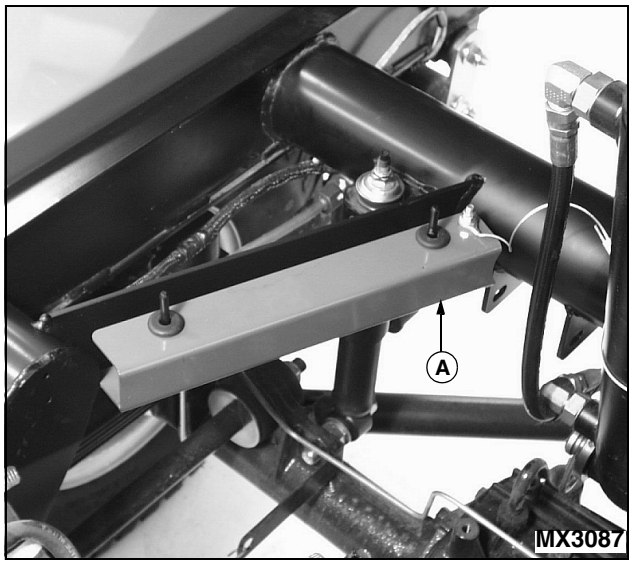
- Hydraulic hoses and lines can fail due to physical damage, kinks, age, and exposure. Check hoses and lines regularly. Replace damaged hoses and lines.
- Hydraulic fluid connections can loosen due to physical damage and vibration. Check connections regularly. Tighten loose connections.
- Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
- If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

Using the Lift Cylinder Safety Support

To safely service vehicle always use the lift cylinder safety support.

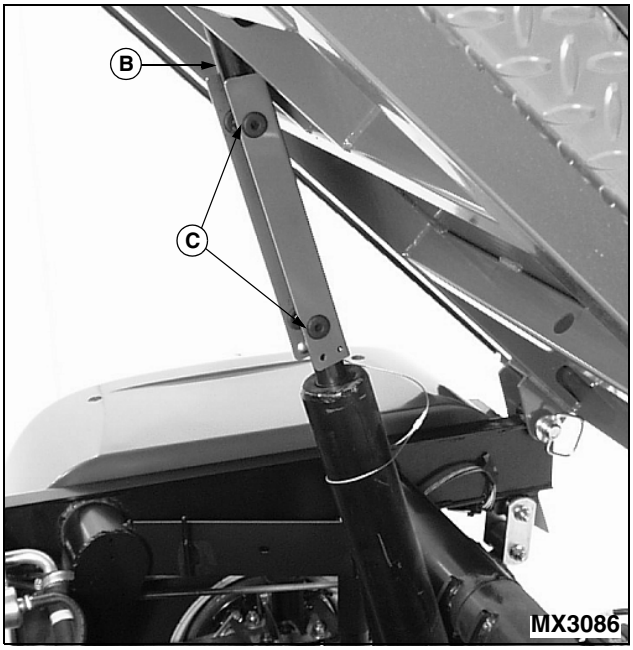
CAUTION: Avoid a crushing injury or death!

- **DO NOT perform a service function under a raised attachment without the lift cylinder safety support properly installed.**
- **Empty all material from any attachment before servicing the vehicle.**



Installing:

1. Empty attachment.
2. Raise attachment to service position.
3. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
4. Remove safety support (A) from stored position in the rear of the vehicle on the right side.
5. Install safety support onto the lift cylinder rod (B). Be sure the lift cylinder rod is seated properly between the safety support rubber grommets (C).



Removing:

1. Remove safety support from the lift cylinder rod.
2. Return safety support to the stored position.
3. Lower attachment.

SERVICE INTERVAL CHART

Servicing Your Machine

Please use the following timetables to perform routine maintenance on your machine.

IMPORTANT: If you operate vehicle in extreme heat, dust or other severe conditions, service more often than shown below.

Before Each Use

- Check engine oil level.
- Check transmission oil level.
- Check coolant level.
- Check hydraulic oil level–auxiliary oil reservoir.
- Test safety interlock system.

After Each Use

- Clean debris from operator station.
- Clean air intake screen and fan shroud.
- Check for loose, missing, or damaged parts.
- Check fuel gauge, fill if necessary.

Break-in–After First 10 Hours

- Check tire pressure.
- Check tightness of wheel hardware.
- Check for loose hardware.

Break-in–After First 50 Hours

- Change engine oil and filter.
- Change transmission oil and filter.
- Clean transmission oil strainer.
- 4WD Models: Check front axle oil.
- Check brake fluid level.
- Check air intake hose, hydraulic hoses, radiator hoses and clamps.
- Check alternator belt wear and tension.
- Change hydraulic oil and filter–auxiliary hydraulic reservoir.

SERVICE INTERVAL CHART

Every 100 Hours

- Check tightness of wheel hardware.
- Change engine oil and filter.
- 4WD Models: Lubricate driveshaft–three fittings.
- 4WD Models: Check front axle oil.
- Check air cleaner elements.
- Gas Models: Clean and gap spark plugs.
- Check battery electrolyte level.

Every 200 Hours

- Change engine oil and filter.
- Diesel Models: Clean fuel sediment bowl.
- Check and clean radiator cooling fins.
- Clean oil cooler coils–auxiliary hydraulic kit.
- Check battery electrolyte level.
- Check alternator belt wear and tension.
- Check air intake hose, hydraulic hoses, radiator hoses and clamps.

Every 450 Hours

- Change transmission oil and filter.
- Change hydraulic oil and filter–auxiliary hydraulic oil kit.
- 4WD Models: Change front axle oil.
- Change hydraulic oil and filter–auxiliary oil reservoir.
- Check toe-in adjustment (See the technical manual or your John Deere dealer.)

Yearly

- Check coolant freeze point and clarity.
- Replace fuel filter.
- Clean battery.

As Needed

- Replace alternator belt.
- Replace air cleaner elements.
- Replace fuses.
- Clean or replace battery.
- Replace light bulbs.
- Check tire pressure.
- Add brake fluid.
- Adjust park brake linkage. (See the technical manual or your John Deere dealer.)
- Adjust clutch pedal linkage. (See the technical manual or your John Deere dealer.)
- Adjust accelerator pedal linkage. (See the technical manual or your John Deere dealer.)

Engine Warranty Maintenance Statement

Maintenance, repair, or replacement of the emission control devices and systems on this engine, which are being done at the customers expense, may be performed by any nonroad engine repair establishment or individual. Warranty repairs must be performed by an authorized John Deere dealer.

Adjusting Carburetor–Gas Engine

NOTE: The carburetor is calibrated by the engine manufacturer and should not require any adjustments.

If engine is operated at altitudes above 1829 m (6,000 ft.), some carburetors may require a special high altitude main jet. See your John Deere dealer.

Possible engine surging will occur at high rpm when the transmission is in neutral (“N”) and the PTO lever is in the OFF position. This is a normal condition due to the emission control system.

If engine is hard to start or runs rough, check the TROUBLESHOOTING section of this manual.

After performing the checks in the troubleshooting section and your engine is still not performing correctly, contact your John Deere dealer.

Avoid Fumes

CAUTION: Engine exhaust fumes can cause sickness or death:

- **If it is necessary to run an engine in an enclosed area, use an exhaust pipe extension to remove the fumes.**
- **Always try to work in a well ventilated area.**

Engine Oil–Gas Model

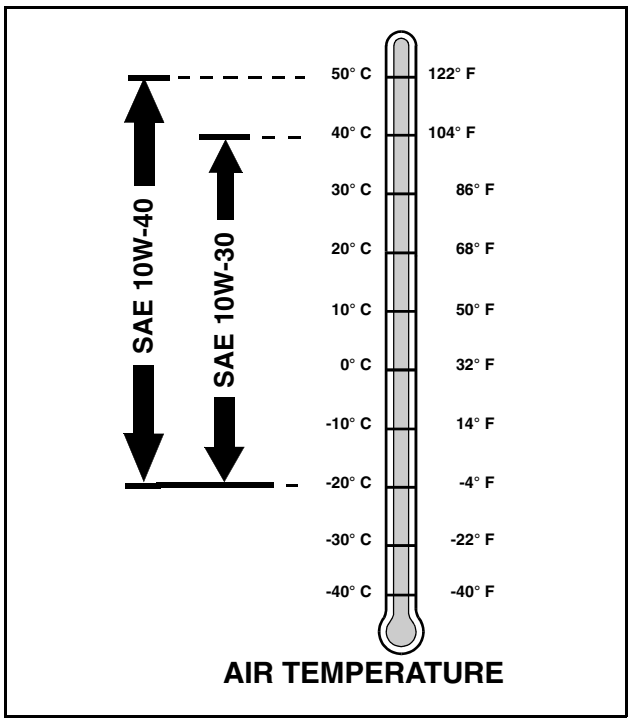
Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oil is preferred:

- John Deere TURF-GARD® (SAE 10W-30)

Other oils may be used if they meet one of the following:

- API Service Classification SJ



Engine Oil–Diesel Model

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following John Deere oils are preferred:

- PLUS-50® (SAE 15W-40)
- TORQ-GARD SUPREME® (SAE 5W-30)

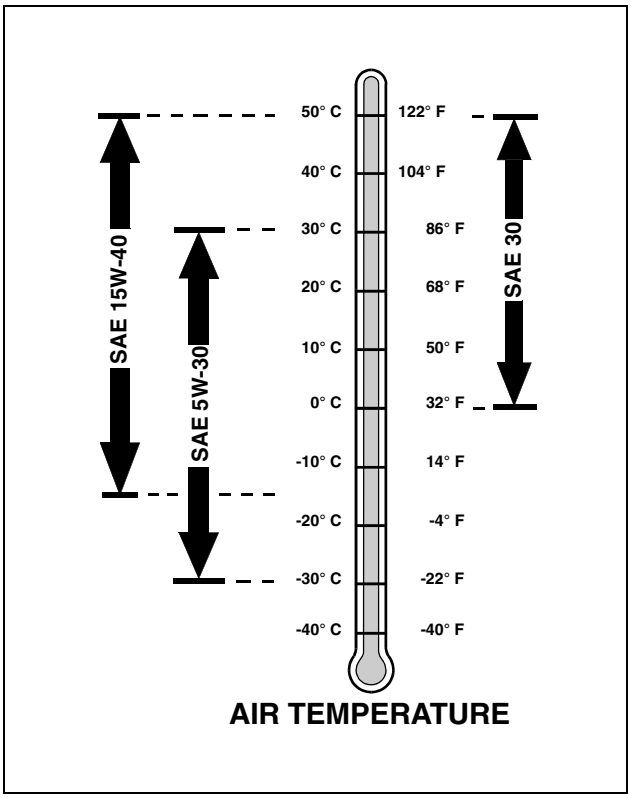
The following John Deere oil is also recommended, based on a specified temperature range:

- TORQ-GARD SUPREME® (SAE 30)

Other oils may be used if above John Deere oils are not available, provided they meet one of the following specifications:

- SAE 15W-40–API Service Classification CF-4 or higher.
- SAE 5W-30–API Service Classification CC or higher.
- SAE 10W-30–API Service Classification CF or higher.
- SAE 30–API Service Classification CF or higher.

If diesel fuel exceeding 0.5% sulfur content is used, reduce the service interval for engine oil and filter by 50%.



Checking Engine Oil Level

IMPORTANT: DO NOT check or add oil while the engine is running.

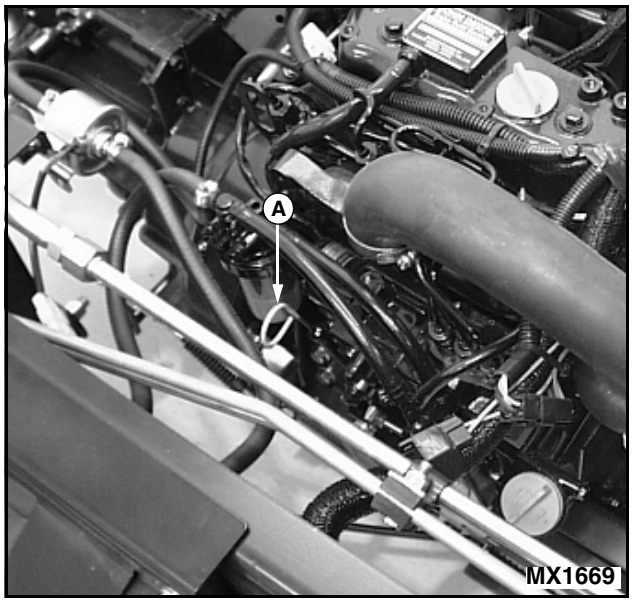
To prevent extensive engine wear or damage, always maintain the proper engine oil level.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

IMPORTANT: Help prevent dirt and other contaminants from entering the oil dipstick tube location. Clean area around dipstick before removing.

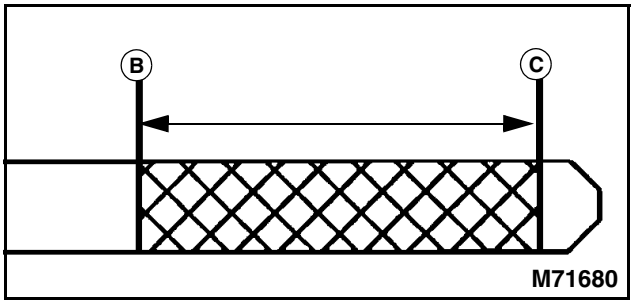
Picture Note: Diesel engine shown.



3. Remove dipstick (A). Wipe dipstick with a clean cloth.

4. Install dipstick.

5. Remove dipstick. Check oil level on dipstick; oil level should be between levels (B) and (C) on the dipstick.



- If oil is low, add oil to bring oil level no higher than level (B) on the dipstick.
- If oil level is above level (B) on the dipstick, drain to proper level.

6. Install dipstick.

7. Lower attachment.

Changing Engine Oil and Filter

IMPORTANT: Change engine oil and filter after first 50 hours of break-in operation. When operating vehicle in extremely dusty or dirty conditions, change engine oil more often.

1. Run engine to warm the oil.

2. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

3. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

4. Place container under the oil drain location.

Picture Note: Diesel engine shown.

5. Remove drain plug (A) located under the RIGHT side of the engine.

6. Remove oil filter (B).

- Locate filter under the RIGHT side of the engine.
- Turn filter counterclockwise to remove.

7. Apply a film of clean engine oil on gasket of new filter.

8. Install oil filter.

- Turn filter clockwise until gasket makes contact with mounting surface. Tighten 1/2–3/4 turn after gasket contact.

9. Install oil drain plug. DO NOT overtighten.

NOTE: An additional oil fill cap location is located on the right side of the engine.

10. Remove oil fill cap (C) on top of engine.

11. Add approximately 2.1 L (2.2 qt.) of oil.

12. Install oil fill cap.

13. Start engine.

- Run engine at a slow throttle speed for approximately two minutes.

14. Check area under engine for oil leaks.

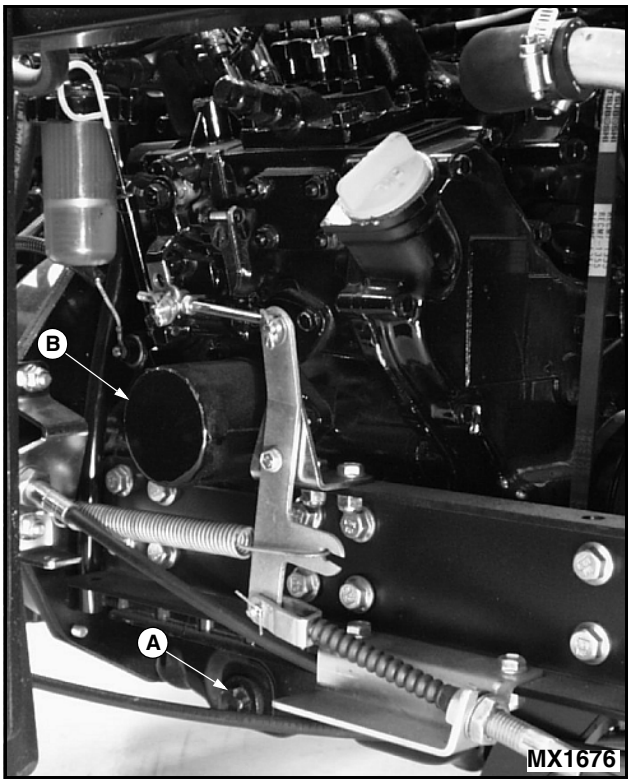
15. Stop engine.

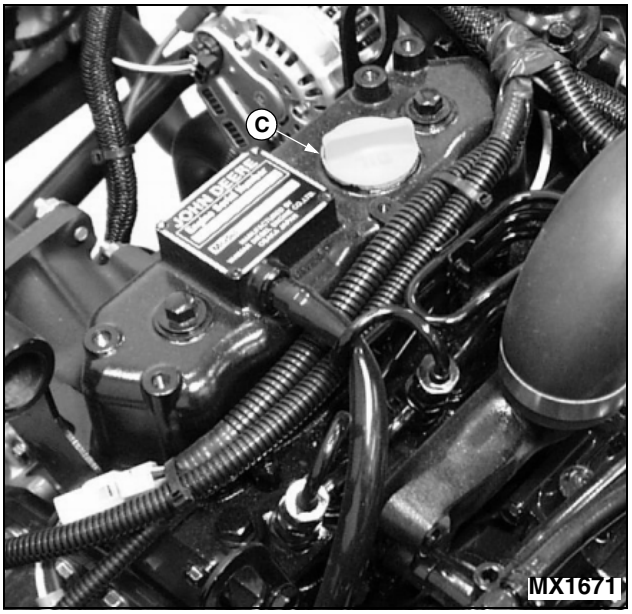
16. After approximately two minutes check engine oil level.

IMPORTANT: Help prevent dirt and other contaminants from entering the oil dipstick tube location. Clean area around dipstick before removing.

17. Remove dipstick. Wipe with a clean cloth.

18. Install dipstick in tube.



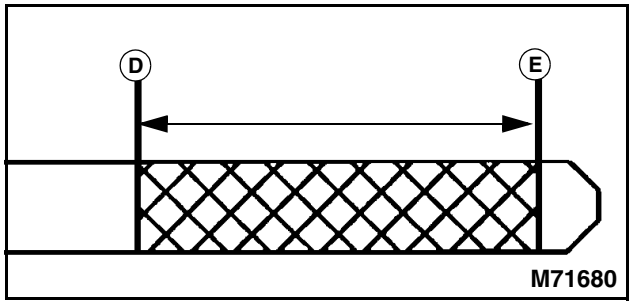


19.Remove dipstick. Check oil level on dipstick; oil level should be between levels (D) and (E) on the dipstick.

- If oil is low, add oil to bring oil level no higher than level (D) on the dipstick.
- If oil level is above level (D) on the dipstick, drain to proper level.

20.Install dipstick.

21.Lower attachment.



Checking Spark Plugs

CAUTION: Avoid injury. Before removing the spark plugs, STOP the engine and allow it to cool.

IMPORTANT: DO NOT clean spark plugs with abrasives.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

3. Clean area around each spark plug.

4. Disconnect the spark plug wire (A) from each plug.

5. Remove and inspect spark plugs:

- Clean each plug and check for damage, replace if necessary.
- If plugs are in good condition, check gap.

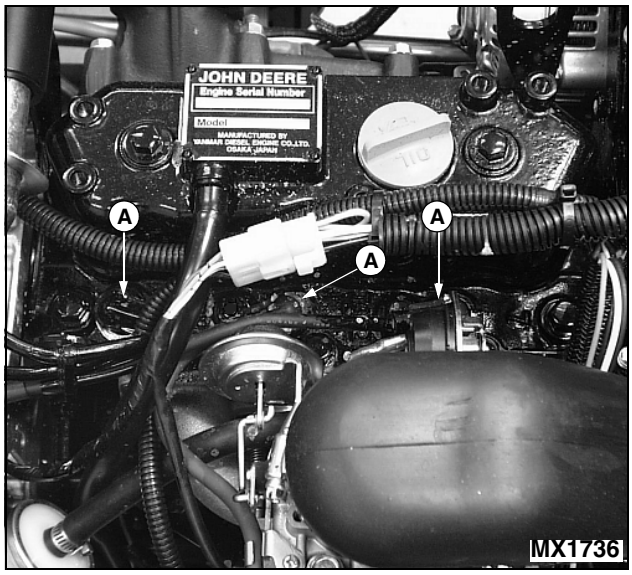
6. Check and adjust spark plug gap (B) to 0.76 mm (0.030 in.).

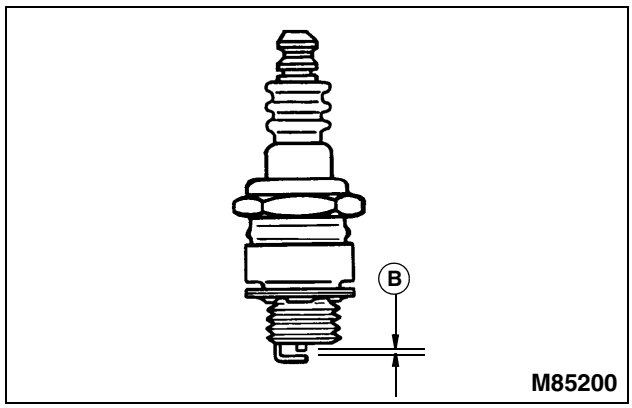
7. Install spark plugs.

- Tighten to 20 N•m (15 lb-ft).

8. Install each spark plug wire.

9. Lower attachment.

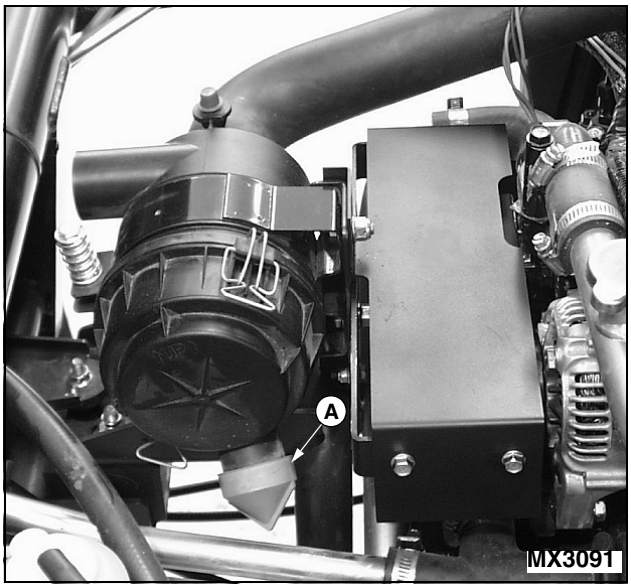




Clean Rubber Dust Unloading Valve

IMPORTANT: Avoid engine damage. Never operate engine without air cleaner element and rubber dust unloading valve installed.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Remove dust unloading valve (A) and clean. Replace if damaged.
4. Install dust unloading valve.
5. Lower attachment.

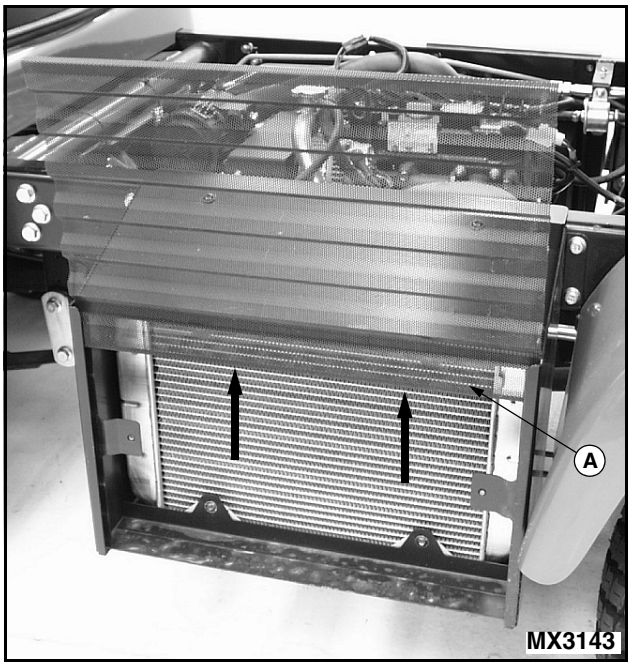


Cleaning Air Intake Screen

CAUTION: Avoid injury. Wear personal eye protection when using compressed air for cleaning purposes.

IMPORTANT: Avoid engine overheating. To allow adequate air intake keep the air intake screen clean.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Lift air intake screen (A) from position in front of the engine radiator.
4. Clean screen with a brush or compressed air.
5. Install grill screen.
6. Lower attachment.

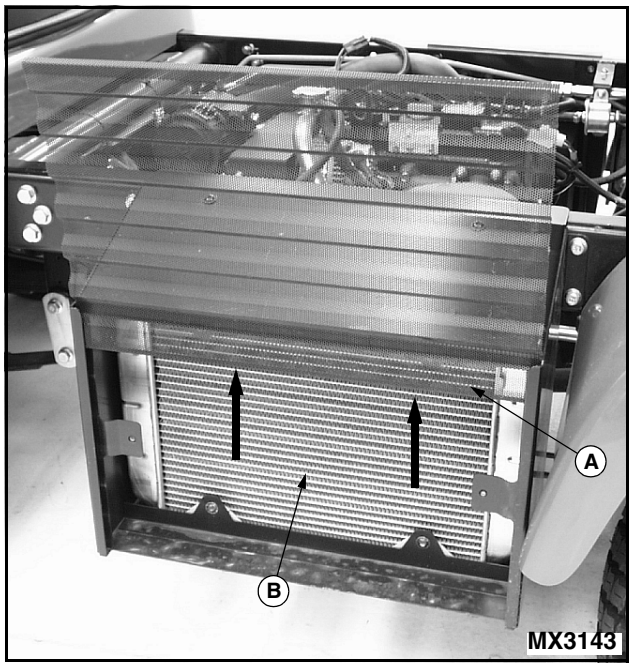


Cleaning Radiator Cooling Fins and Fan Shroud

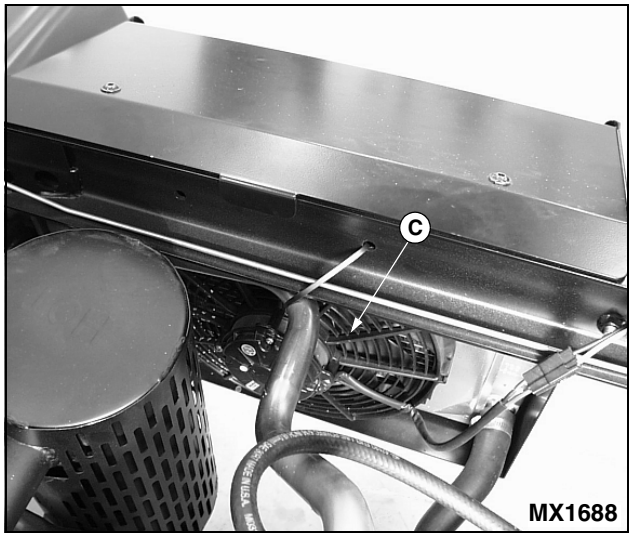
CAUTION: Avoid injury. Wear personal eye protection when using compressed air for cleaning purposes.

IMPORTANT: Avoid engine overheating. The radiator cooling fins and fan shroud must be clean.

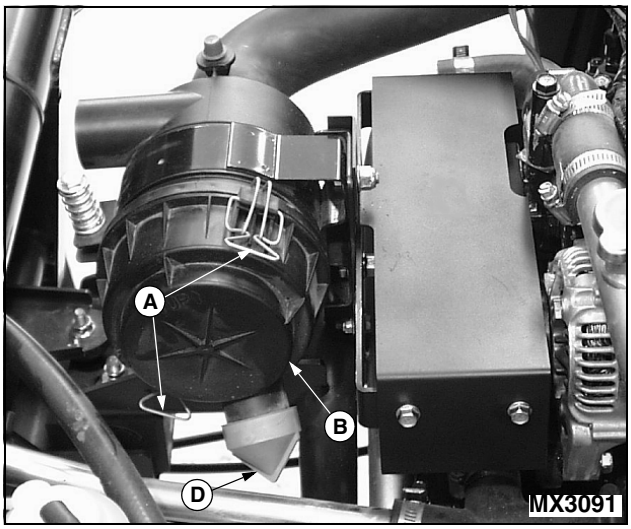
1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Remove air intake screen (A).



4. Remove dirt and debris from the radiator cooling fins (B) and fan shroud (C) using compressed air or water.
   - Check radiator fins for damage.
5. Install air intake screen.
6. Lower attachment.



Servicing Air Cleaner Element



Checking Air Cleaner Element

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

3. Release latches (A) and remove air cleaner canister cover (B).

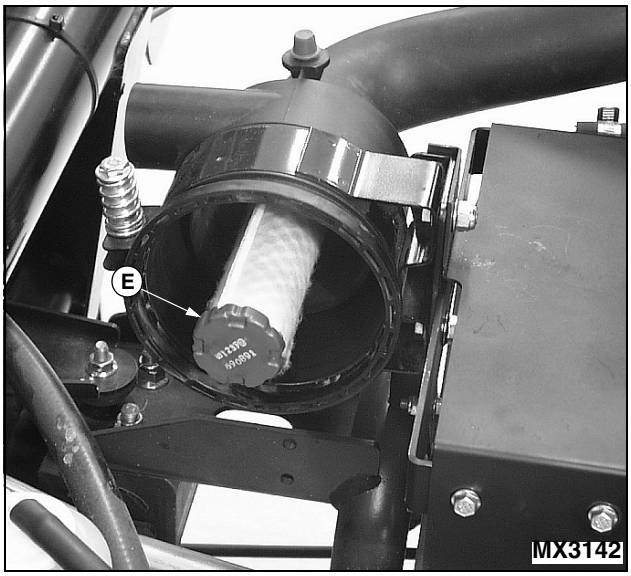
4. Visually inspect each element before removing. Replace element ONLY if damaged or very dirty.

Replacing Primary Air Filter Element

1. Remove and discard primary element (C). Replace with a new primary filter element.

2. Install air cleaner canister cover (B).

   - Check instruction molded into canister cover for proper installation.
   - Rubber dust unloading valve (D) should be pointed downward when the cover is properly installed.
   - Engage latches (A).



Replacing Secondary Air Filter Element

1. Remove air cleaner canister cover.

2. Remove primary air filter element.

3. Remove and discard secondary air filter element (E). Replace with a new secondary air filter element.

4. Install primary air filter element.

5. Replace air cleaner canister cover.

6. Lower attachment.

Check Air Intake Hose, Hydraulic Hoses, Radiator Hoses and Clamps

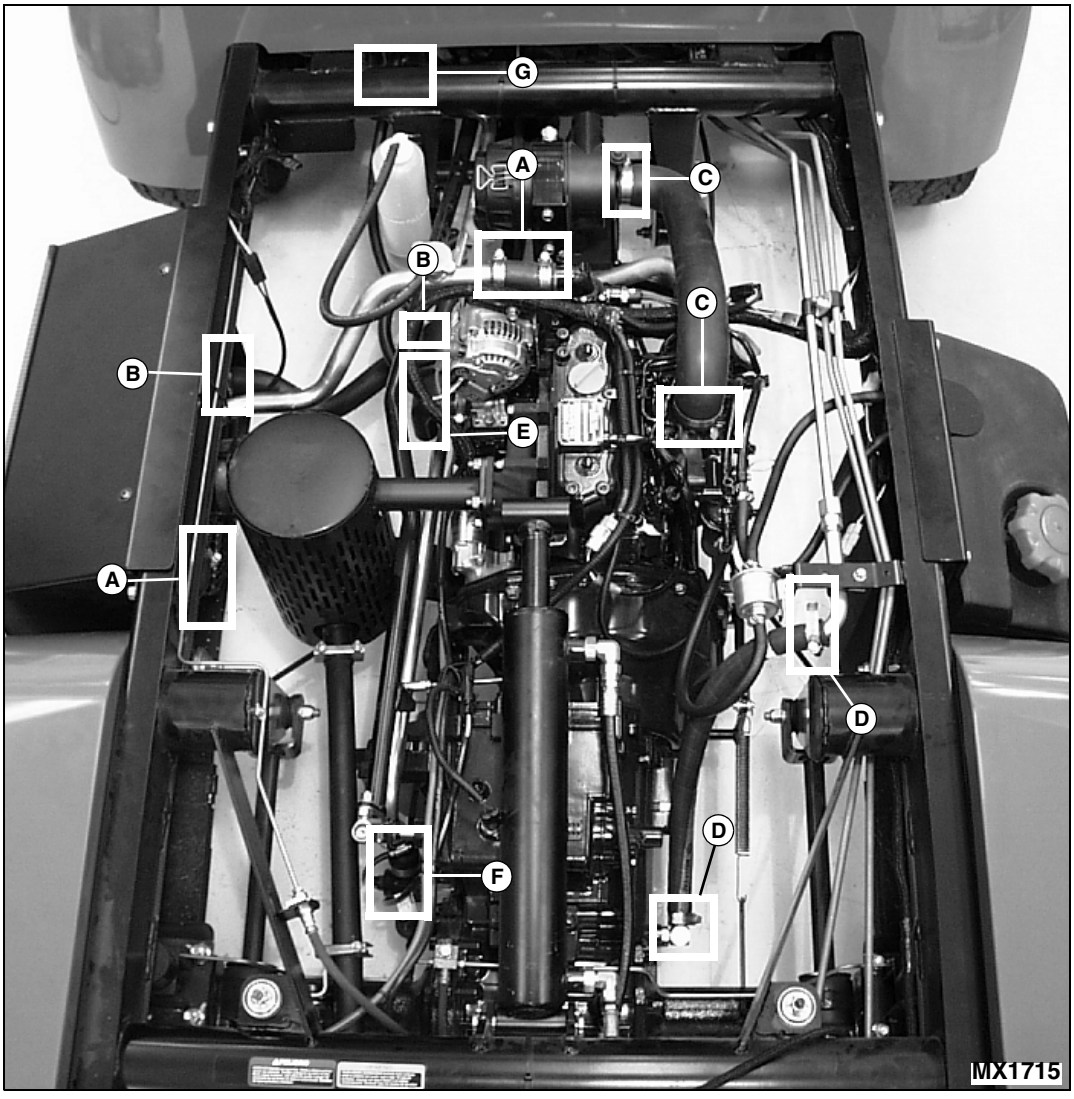
1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

3. Check hoses for leaking or damage and adjustable clamps for tightness. Replace if necessary.

4. Lower attachment.

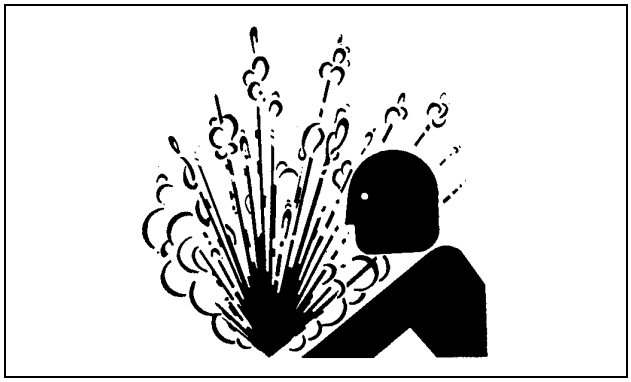
A - Upper Radiator Hoses (4 Clamps)
B - Lower Radiator Hoses (4 Clamps)
C - Air Intake Hose (2 Clamps)
D - Hydraulic Hose (2 Clamps)
E - Hydraulic Suction Manifold (4 Clamps)
F - Hydraulic Hose (2 Clamps)
G - Hydraulic Hose (2 Clamps)



Service Cooling System Safely

CAUTION: Avoid injury. Explosive release of fluids from pressurized cooling system can cause serious burns:

- **Shut off engine.**
- **Only remove filler cap when radiator is cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.**



Engine Coolant

The following John Deere coolant is preferred for both diesel and gasoline engines. Read and follow all instructions listed on the product label:

- PRE-DILUTED DIESEL ENGINE ANTI-FREEZE/ SUMMER COOLANT™ (TY16036).

If preferred pre-diluted coolant is not available, the following John Deere concentrate is recommended:

- DIESEL ENGINE ANTI-FREEZE/SUMMER COOLANT CONCENTRATE™ (TY16034).

These coolants exceed industry specifications: ASTM D5345, D4656, D4985, D3306, and GM6038. They are designed with 5-year or 5000 hour long life formulation (subject to testing annually for conditioner level) for use in all heavy duty diesel engines. These coolants have a coolant conditioner added to help protect against liner pitting and cavitation.

If neither of the above coolants is available, use an ethylene glycol base coolant that meets the following specification:

- ASTM D4985 (JDM H24A2).

Check container label before using to be sure it has the appropriate specifications for your machine. Use coolant with conditioner or add conditioner to coolant before using.

IMPORTANT: To prevent engine damage, DO NOT use pure antifreeze or more than 50% antifreeze in cooling system. DO NOT mix or add any other type additives to cooling system.

If using concentrate, mix approximately 50 percent antifreeze with 50 percent distilled or deionized water before adding to cooling system. This mixture will provide freeze protection to -37 degrees C (-34 degrees F).

Certain geographical areas may require lower temperature protection. See the label on your antifreeze container or consult your John Deere dealer to obtain the latest information and recommendations.

The preferred antifreeze provides:

- Adequate heat transfer.
- Corrosion-resistant environment within the cooling system.
- Protection against liner pitting and cavitation.
- Compatibility with cooling system hose and seal material.
- Protection during cold and hot weather operations.

Engine Coolant Drain Interval

When using PRE-DILUTED DIESEL ENGINE ANTI-FREEZE/SUMMER COOLANT™ or DIESEL ENGINE ANTI-FREEZE/SUMMER COOLANT CONCENTRATE™ (TY16034) coolants, drain and flush the cooling system and refill with fresh coolant mixture every 60 months or 5,000 hours of operation, whichever comes first.

If above John Deere Service coolants are not being used: drain, flush, and refill the cooling system with fresh coolant mixture every 24 months or 600 hours of operation, whichever comes first.

Checking Coolant Level

IMPORTANT: Avoid engine damage:

- **DO NOT operate engine without coolant.**
- **DO NOT pour coolant into the radiator when the engine is hot.**
- **Use antifreeze approved for use in aluminum engine.**
- **To prevent engine overheating, do not exceed more than 50 percent antifreeze in cooling system.**

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

3. Check recovery bottle (A) coolant level:

   - If engine is warm, coolant level should be between the “FULL” line (B) and the “LOW” line (C).
   - If engine is cold, coolant level should be at the “LOW” line (C) on the recovery bottle.

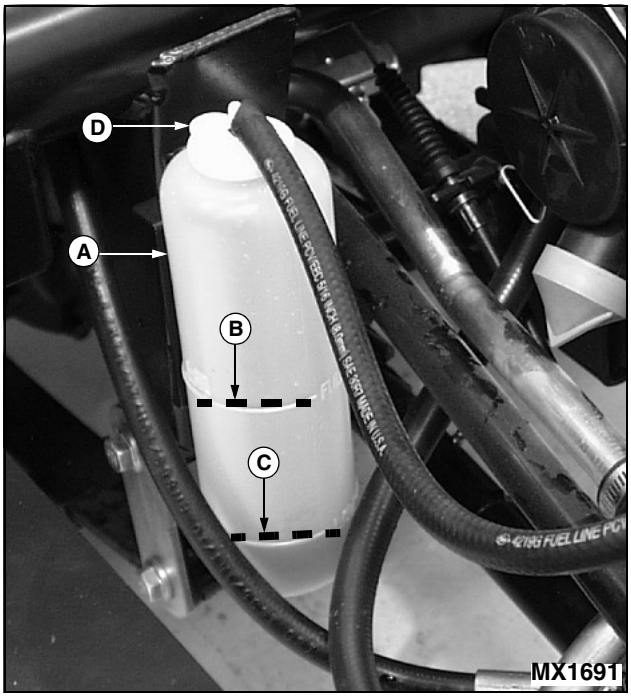
4. Remove recovery bottle cap (D) to add coolant.

5. If coolant is low, add specified ratio of antifreeze and water.

6. Install and tighten recovery bottle cap.

7. Clean debris from the air intake screen, fan shroud, radiator cooling fins and auxiliary oil cooler coils.

8. Check condition of coolant system hoses and clamps. Check for leaks or loose connections.



Draining Cooling System

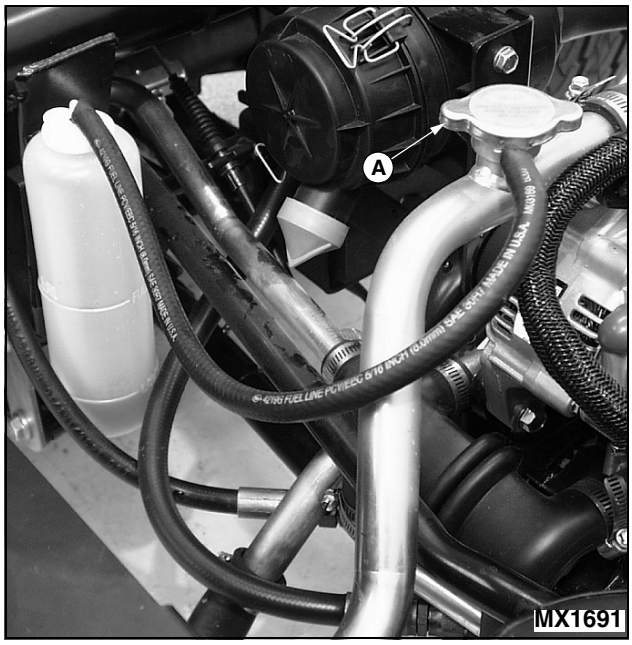
CAUTION: Avoid injury. DO NOT remove the radiator cap unless the engine is cool. Slowly loosen cap to the first stop. Release all pressure before removing cap. When the engine is hot the explosive release of fluids from the pressurized cooling system could cause serious burns.

Antifreeze is hazardous to the environment. Dispose of antifreeze in a proper container.

IMPORTANT: Avoid engine damage:

- **DO NOT operate engine without coolant.**
- **DO NOT pour coolant into the radiator when the engine is hot.**

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Slowly open radiator cap (A) to the first stop to release all pressure.
4. Close radiator cap tightly.



5. Open radiator petcock (B). Drain coolant into a pan.
6. When coolant drains from the recovery bottle, remove radiator cap.
7. After all coolant has drained, close radiator petcock.
8. Flush cooling system.

Flushing Cooling System

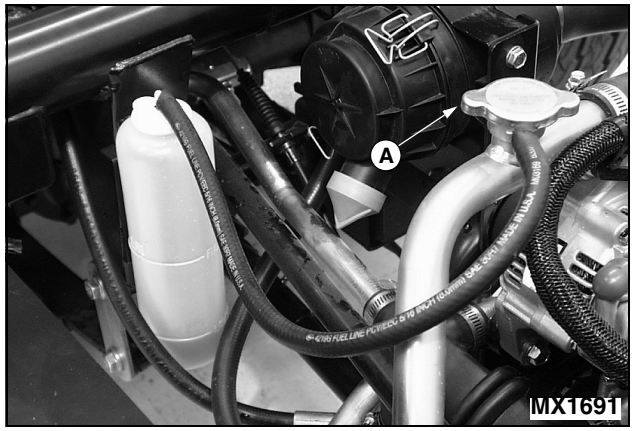
CAUTION: Avoid injury. Engine and coolant will be hot.

Turn radiator cap using a thick rag or glove to protect your hand.

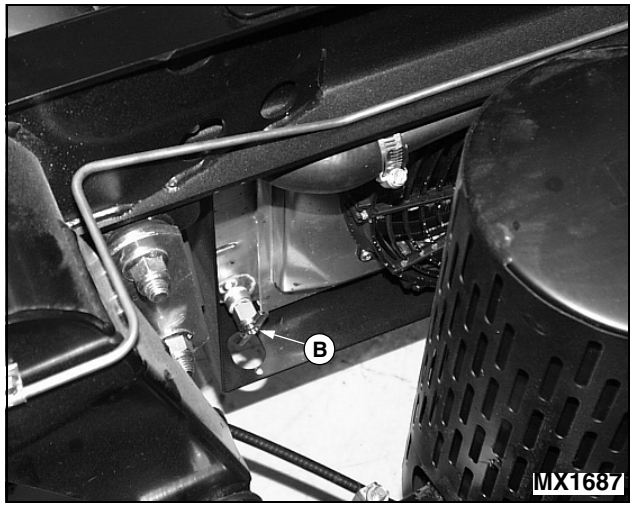
IMPORTANT: Avoid engine damage:

• DO NOT pour water into radiator when engine is hot.

• DO NOT operate engine without coolant.



1. Fill cooling system with clean water and John Deere Cooling System Cleaner, or John Deere Cooling System Quick Flush or an equivalent. Follow directions on the can.
2. Install and tighten radiator cap (A).
3. Start and run engine until it reaches operating temperature.
4. Stop engine.
5. Open radiator petcock (B).
   - Drain cooling system immediately before rust and dirt settle.
6. Close radiator petcock.



Filling Cooling System

IMPORTANT: Avoid engine damage:

• DO NOT use straight antifreeze or more than 50% antifreeze in the cooling system.

• DO NOT mix or add any other type additives to the cooling system.

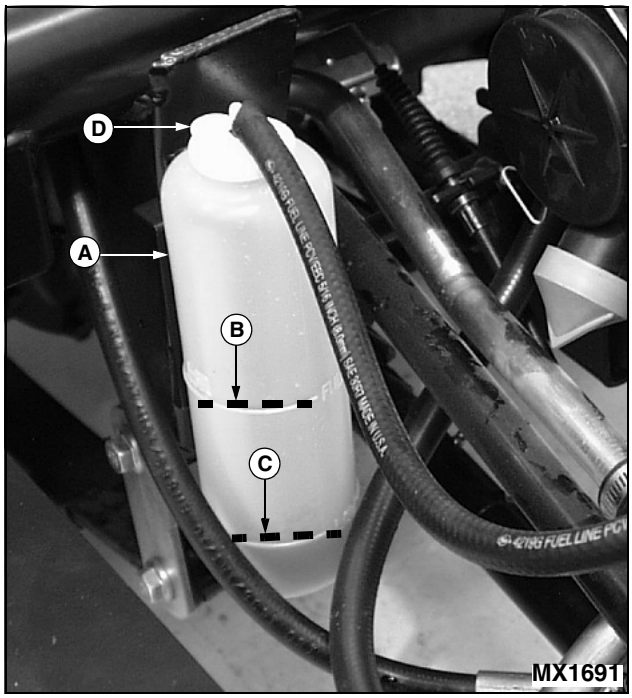
1. Fill cooling system with approximately 3.8 L (4.1 qt) of coolant.
   - Certain geographical areas may require protection from lower temperatures. See the label on your antifreeze container or consult your John Deere distributor to obtain the latest information and recommendations.

- John Deere Cooling System Sealer or its equivalent may be added to the radiator to seal leaks. Do not use any other additives in the cooling system.

2. Install and tighten radiator cap.
3. Run engine until it reaches operating temperature.
4. Stop engine.
5. Check recovery bottle (A) coolant level:

- If engine is warm, coolant level should be between the “FULL” line (B) and the “LOW” line (C).
- If engine is cold, coolant level should be at the “LOW” line (C) on the recovery bottle.

6. Remove cap (D) from recovery bottle to add coolant if necessary.
7. Check condition of coolant system hoses and clamps.
8. Lower attachment.



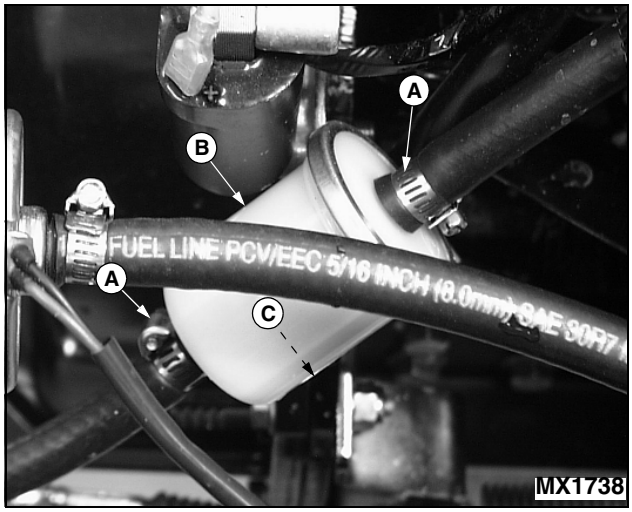
Replace Fuel Filter (Gas Models)

CAUTION: Avoid injury. Keep cigarettes, sparks, and flames away from the fuel system. Allow engine to cool.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Slide hose clamps (A) away from filter (B) located on the right side of the engine.
4. Disconnect hoses from filter.

NOTE: When installing a new fuel filter, make sure the filter arrow (C) is pointed in the direction of the fuel flow.

5. Install new filter.
6. Connect hoses to new filter.
7. Install hose clamps.
8. Lower attachment.

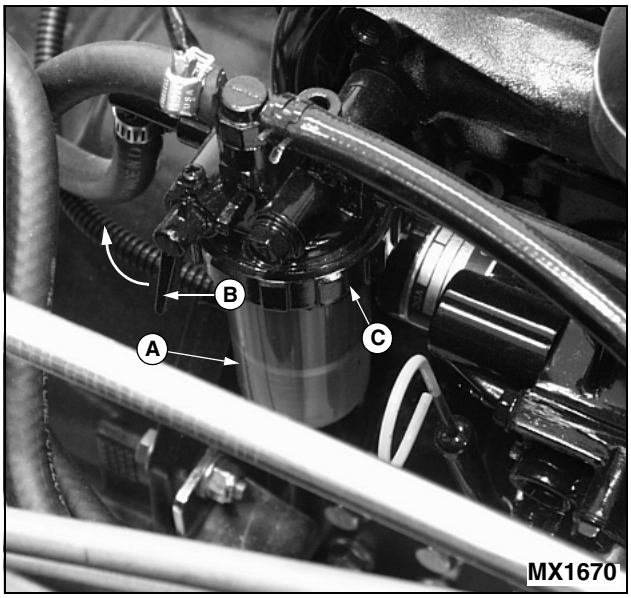


Servicing Fuel Filter Sediment Bowl (Diesel Models)

CAUTION: Avoid injury. Keep cigarettes, sparks, and flames away from fuel system. Make sure engine is cool.

Checking

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Visually check for water and deposits in the sediment bowl (A).
4. If necessary, clean bowl and replace filter.



Cleaning and Replacing

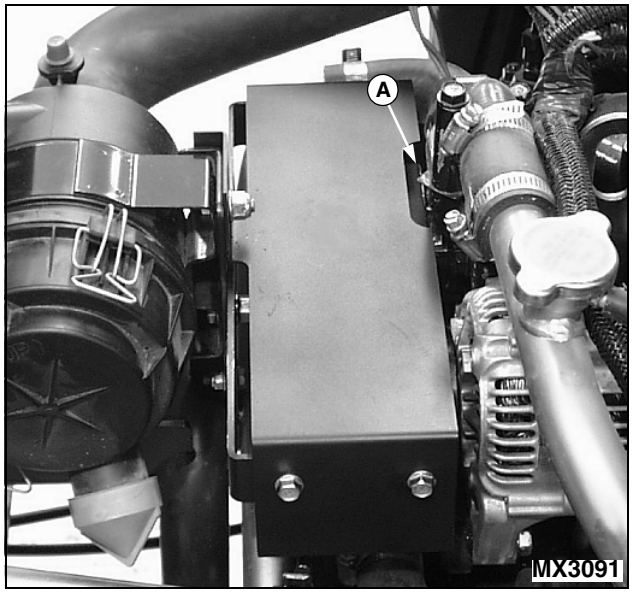
1. Close fuel shut-off valve (B).
2. Turn collar (C) to remove bowl and filter. Discard filter.
3. Clean bowl.
4. Install new filter and bowl.
5. Tighten collar.
6. Open fuel shut-off valve.
7. Lower attachment.

Checking and Adjusting Alternator Belt

CAUTION: Avoid injury due to entanglement or contact with a rotating belt or sheave. Stop engine and wait for all moving parts to stop.

Check Belt Tension

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Check alternator belt (A) through shield opening:
   - Inspect belt for excessive wear, damage or stretching while in position on the sheaves.
   - Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 mm (3/8 in.).



Adjusting Belt Tension

1. Loosen adjustment bolt (B).
2. Loosen alternator mounting bolt (C).
3. Apply outward pressure to the alternator housing.
4. Tighten alternator adjustment bolt (B) and mounting bolt (C).
5. Check belt tension:
   - Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 mm (3/8 in.).
6. Lower attachment.

Replacing Alternator Belt (Gas Models)

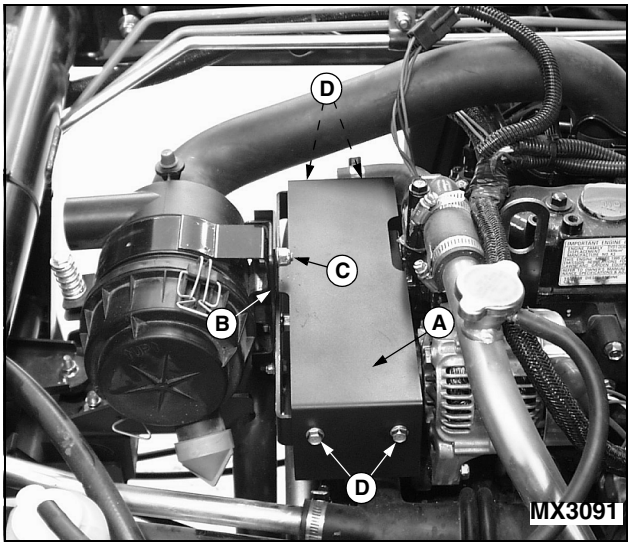
CAUTION: Avoid injury due to entanglement or contact with a rotating belt or sheave. Stop engine and wait for all moving parts to stop.

1. Raise attachment to service position.(See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

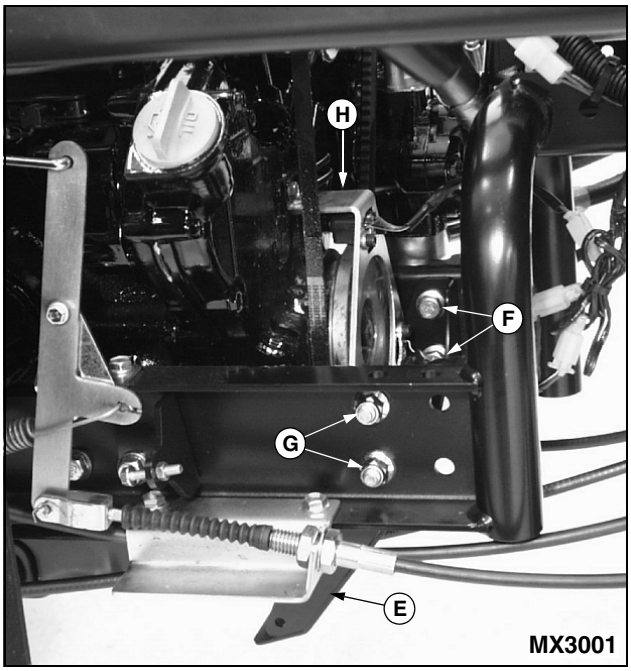
3. Remove belt guard (A) from the air cleaner support bracket (B).

- Remove nut (C) and four screws (D).

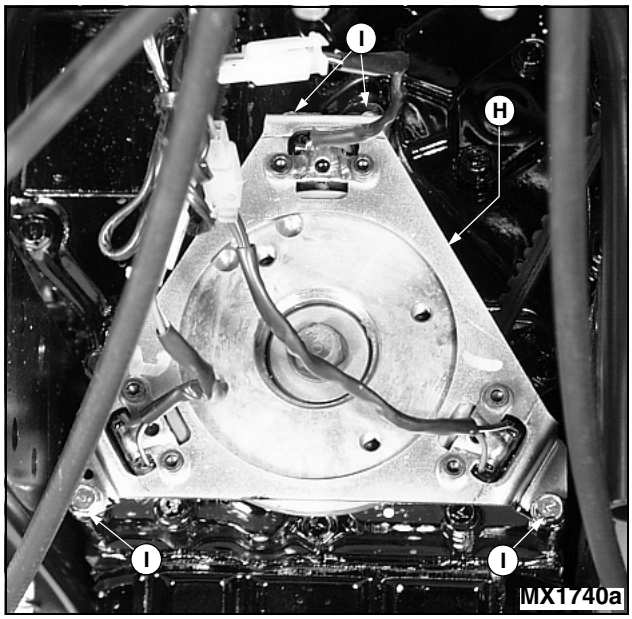


4. Remove skid plate (E) mounted under the vehicle in front of the engine.

- Remove four hex bolts (F) and flanged lock nuts (G).



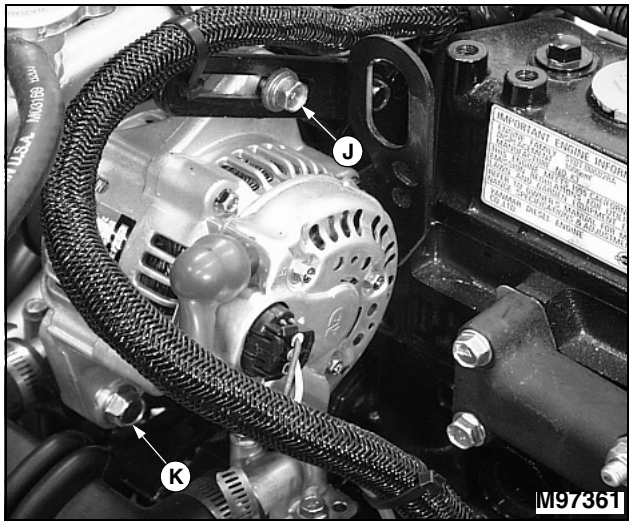
5. Remove pulser bracket (H).
   - Remove four cap screws (I).



6. Loosen alternator adjustment bolt (J).
7. Remove alternator mounting bolt (K).
8. Apply inward pressure to the alternator housing.
9. Remove worn belt from the alternator sheave and both engine sheaves.
10. Install new belt.
11. Install alternator mounting bolt (K). DO NOT tighten.
12. Apply outward pressure to the alternator housing.
13. Tighten adjustment bolt (J) and mounting bolt (K).
14. Check belt tension:
    - Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 mm (3/8 in.).
15. Install pulser bracket with four cap screws.

NOTE: Install bolts from inside to the outside of the skid plate.

16. Install skid plate with four hex bolts and flanged lock nuts.
17. Install belt guard.
18. Lower attachment.



Replacing Alternator Belt (Diesel Models)

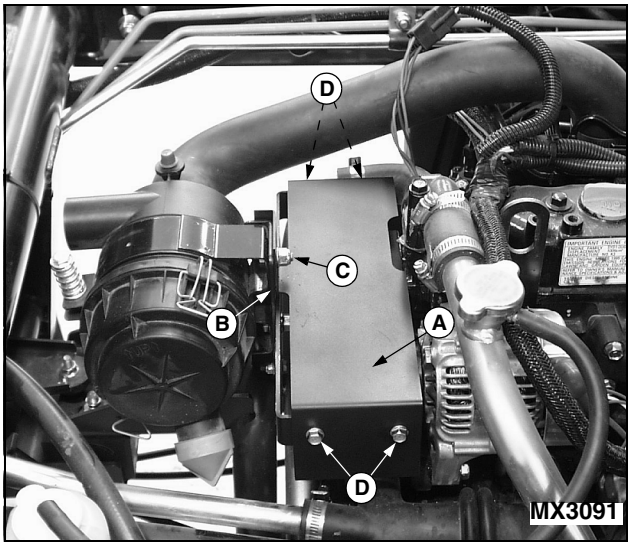
CAUTION: Avoid injury due to entanglement or contact with a rotating belt or sheave. Stop engine and wait for all moving parts to stop.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

3. Remove belt guard (A) from the air cleaner support bracket (B).

   - Remove nut (C) and four screws (D).



4. Loosen adjustment bolt (E).

5. Remove alternator mounting bolt (F).

6. Apply inward pressure to the alternator housing.

7. Remove worn belt from the alternator sheave and both engine sheaves.

8. Install new belt.

9. Install alternator mounting bolt (F). DO NOT tighten.

10. Apply outward pressure to the alternator housing.

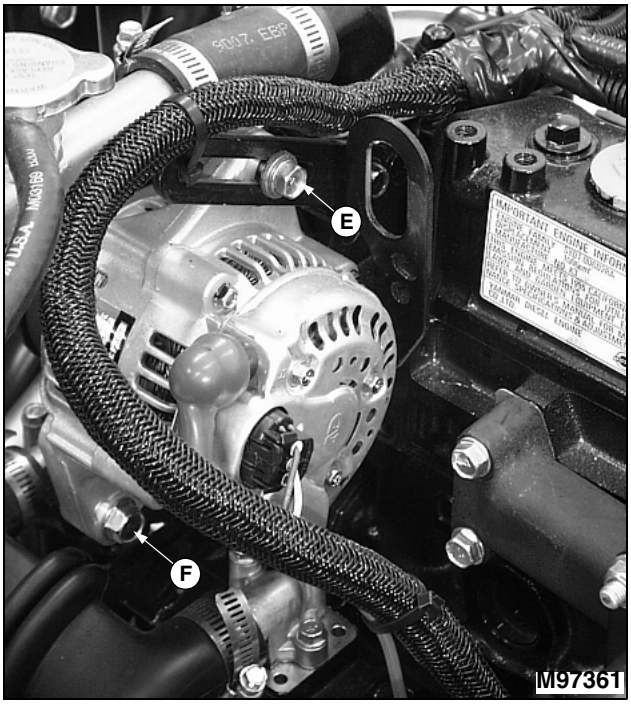
11. Tighten alternator adjustment bolt (E) and mounting bolt (F).

12. Check belt tension:

   - Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 mm (3/8 in.).

13. Install belt guard.

14. Lower attachment.



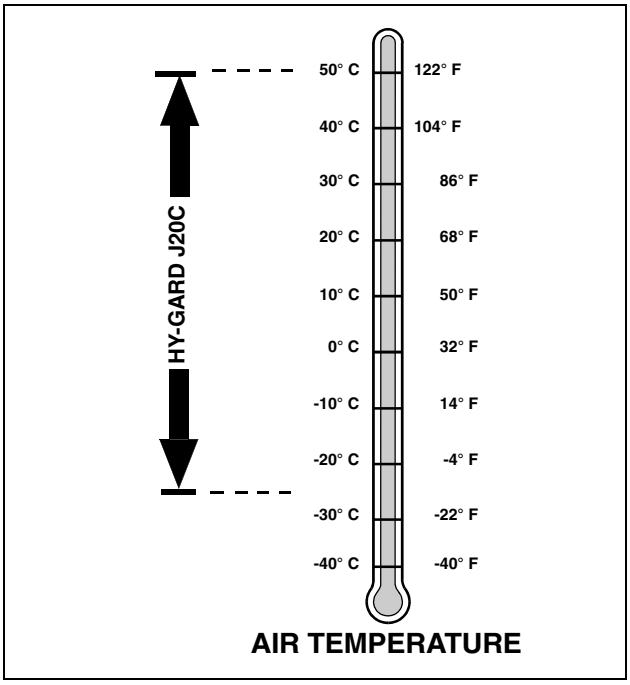
Transmission Oil

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following John Deere transmission and hydraulic oil is preferred:

- HY-GARD® (JDM J20C)

IMPORTANT: Only use a quality oil in this transmission. DO NOT mix any other oils in this transmission. DO NOT use BIO–HYGARD® in this transmission. DO NOT use engine oil or "Type F" (Red) Automatic Transmission Fluid in this transmission.



Checking Transmission Oil Level

IMPORTANT: Check transmission oil level when oil is cold. Engine must not be running.

1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

2. Thoroughly clean area around reservoir fill cap/dipstick (A).

3. Remove fill cap/dipstick and wipe with a clean cloth.

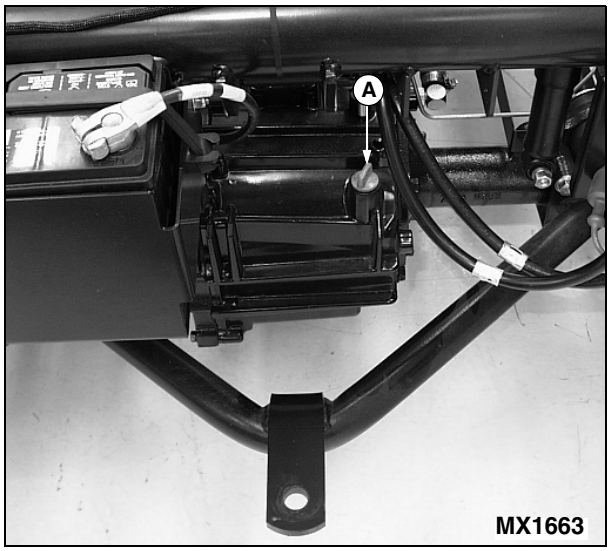
NOTE: DO NOT tighten dipstick. Allow threads to rest on top of transmission housing.

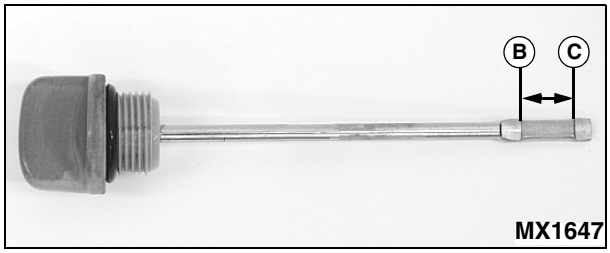
4. Install fill cap/dipstick.

5. Remove fill cap/dipstick. Check oil level on dipsick; oil level should be between levels (B) and (C) on the dipstick.

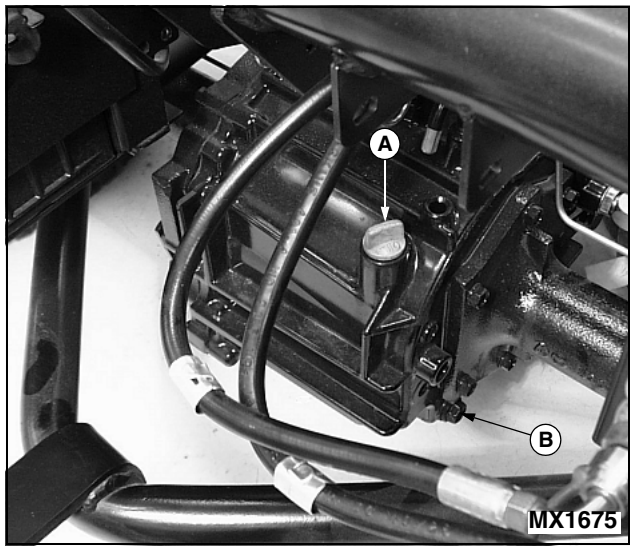
   - If oil is low, add oil to bring oil level no higher than level (B) on the dipstick.
   - If oil is above level (B) on the dipstick, drain to proper level.

6. Install fill cap/dipstick.





Changing Transmission Oil and Filter



IMPORTANT: Contamination of transmission oil could cause transmission damage or failure. DO NOT remove fill cap/dipstick unless absolutely necessary.

Severe or unusual conditions may require a more frequent service interval.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

- Allow the engine and transmission to cool.

3. Thoroughly clean area around the transmission fill cap/dipstick (A). Remove fill cap/dipstick.

4. Locate drain plug (B) under right side of transmission.

5. Remove drain plug. Allow oil to drain into a drain pan with at least a 10.6 L (2.8 gal) capacity.

NOTE: If the vehicle is equipped with an auxiliary hydraulic kit, the transmission filter (C) is relocated to the RIGHT side of the vehicle.

6. Locate transmission oil filter (C) under the left side of the vehicle.

7. Turn filter counterclockwise to remove. Use a drain pan to catch dripping oil.

8. Install new filter.

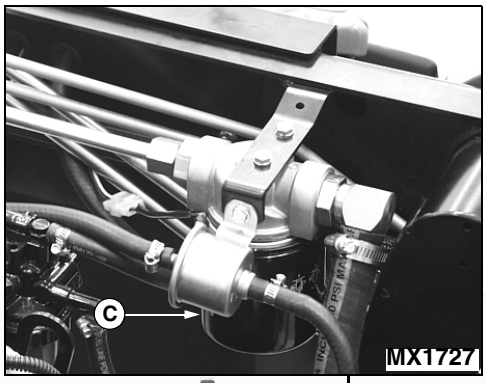
- Apply a film of clean oil on gasket of new filter.
- Turn filter clockwise until gasket makes contact with the mounting surface. Tighten 1/2 to 3/4 turn after gasket contact.

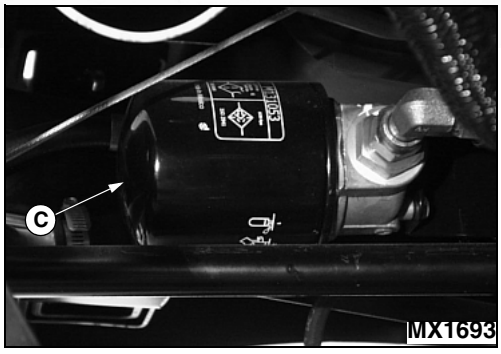
9. Install and tighten drain plug.

10. Add approximately 10.6 L (2.8 gal) of oil into fill opening.

NOTE: DO NOT tighten dipstick. Allow threads to rest on top of transmission housing.

11. Install fill cap/dipstick.



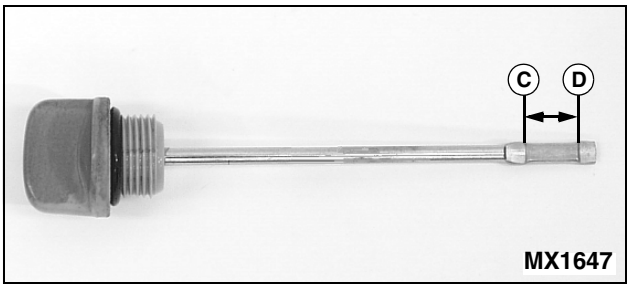


12.Remove fill cap/dipstick. Check oil level on dipstick; oil level should be between levels (C) and (D) on the dipstick.

- If oil is low, add oil to bring oil level no higher than level (C) on the dipstick.
- If oil is above level (C) on the dipstick, drain to proper level.

13.Install fill cap/dipstick.

14.Lower attachment.



Clean Transmission Oil Strainer

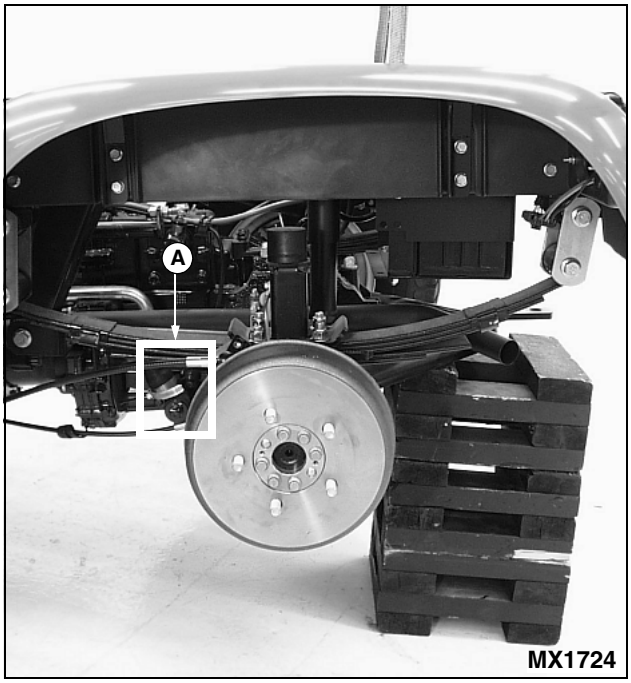
CAUTION: Use caution when performing this service procedure. During periods of machine operation the transmission oil can get hot.

NOTE: Routinely clean strainer when changing the transmission oil and filter. Strainer should be serviced when the transmission is EMPTY.

1. Change transmission oil and filter.

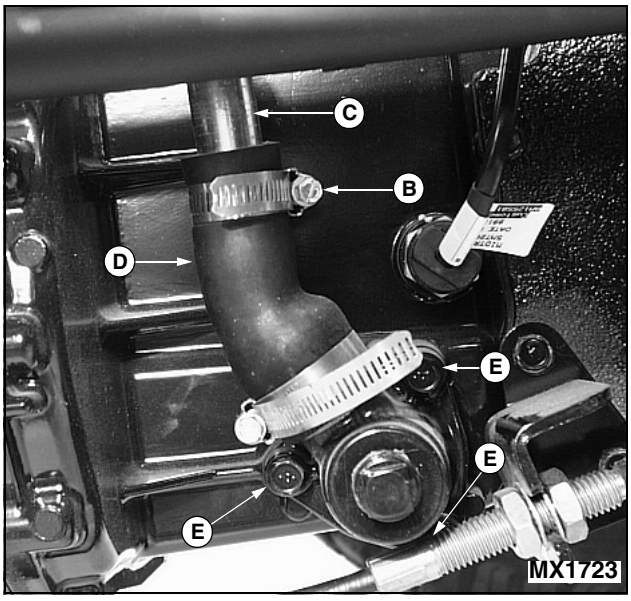
NOTE: Left rear wheel removed for photo clarity only.

2. Locate strainer housing (A) on the left side of vehicle.



NOTE: Use drain pan to catch dripping oil.

3. Loosen adjustable hose clamp (B).
4. Remove hydraulic line (C) from rubber hose (D).
5. Loosen and remove three hex bolts (E).
6. Remove strainer housing and strainer.



7. Clean strainer (F) with solvent or mineral spirits and allow to dry.

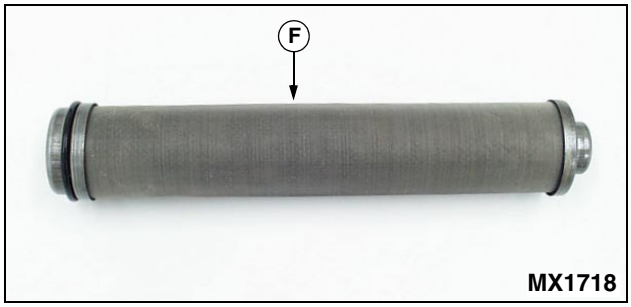
8. Install strainer into the strainer housing.

9. Install strainer housing.

- Install and tighten three hex bolts (E).

10. Install rubber hose (D) onto hydraulic line (C).

11. Tighten adjustable hose clamp (B).



Grease

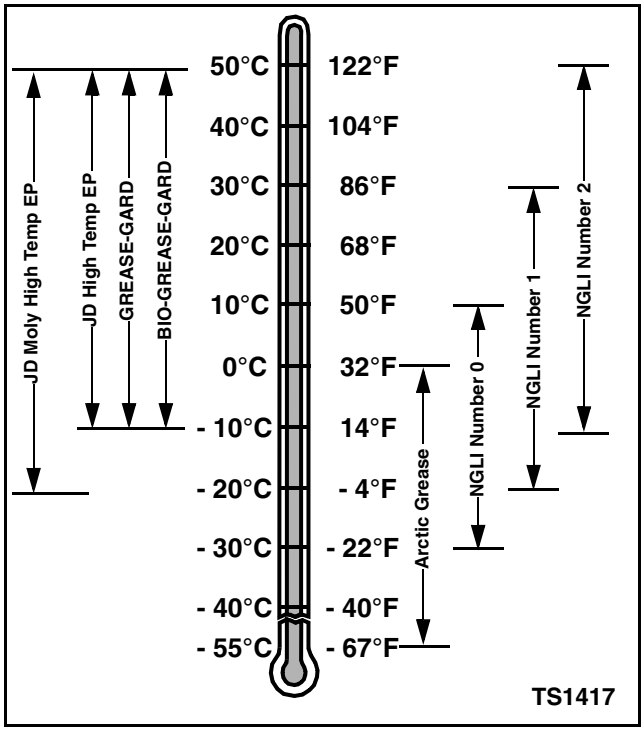
Use grease based on the expected air temperature range during the service interval.

The following greases are preferred:

- John Deere Moly High Temperature EP Grease.
- John Deere High Temperature EP Grease.
- John Deere GREASE-GARD™.

Other greases may be used are:

- SAE Multipurpose EP Grease with 3 to 5 percent molybdenum disulfide.
- SAE Multipurpose EP Grease.
- Greases meeting Military Specification MIL-G-10924C may be used as arctic grease.



Lubricating the Drive Shaft (4WD Models)

1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

2. Lubricate three grease fittings (A) on the drive shaft with John Deere Moly High Temperature EP grease or an equivalent.

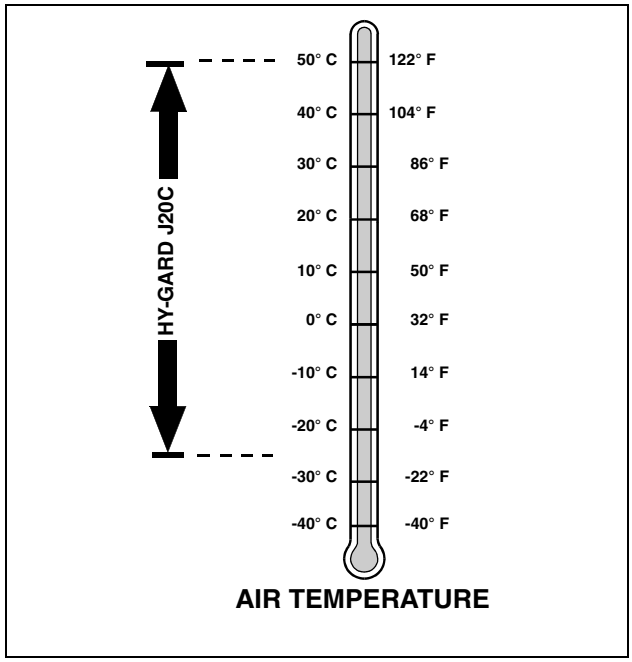
Hydraulic Oil

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following John Deere transmission and hydraulic oil is preferred:

- HY-GARD® (JDM J20C)

IMPORTANT: Only use a quality oil in this auxiliary oil cooler reservoir. DO NOT mix any other oils in this oil reservoir. DO NOT use BIO–HYGARD® in this oil reservoir. DO NOT use engine oil or "Type F" (Red) Automatic Transmission Fluid in this reservoir.



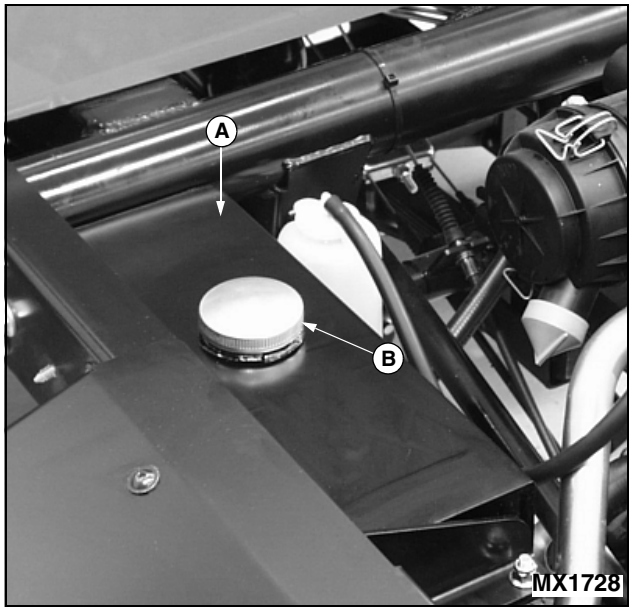
Check Hydraulic Oil Level

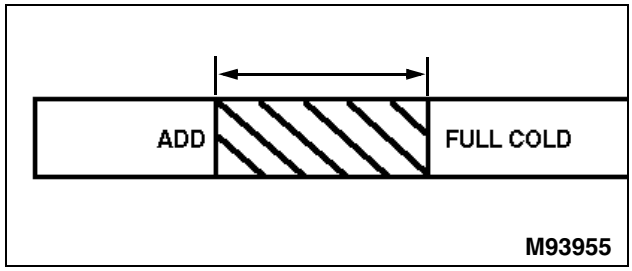
NOTE: This service procedure should be performed on vehicles equipped with the auxiliary hydraulic kit.

IMPORTANT: Check oil level in reservoir tank when oil is cold.

DO NOT overfill oil reservoir tank. Oil will expand during operation and could overflow.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Locate auxiliary oil reservoir (A) on left side of vehicle.
4. Thoroughly clean area around dipstick cap (B).
5. Remove dipstick cap (B) from the oil reservoir tank. Visually check level of oil.
   - Oil must be between the "ADD" and "FULL COLD" marks on the dipstick.
6. Add oil, if necessary.
7. Install and tighten dipstick cap.
8. Lower attachment.





Changing the Hydraulic Oil and Filter

NOTE: This service procedure should be performed on vehicles equipped with the auxiliary hydraulic kit.

CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

Use caution when filling and draining hydraulic oil. During periods of machine operation the hydraulic oil reservoir can get hot. Allow engine and oil reservoir to cool before servicing.

IMPORTANT: Prevent contamination of hydraulic oil. DO NOT open the oil reservoir cap unless absolutely necessary.

DO NOT overfill the hydraulic oil reservoir. Oil expands during operation and could overflow.

Severe or unusual conditions may require a more frequent service interval.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)

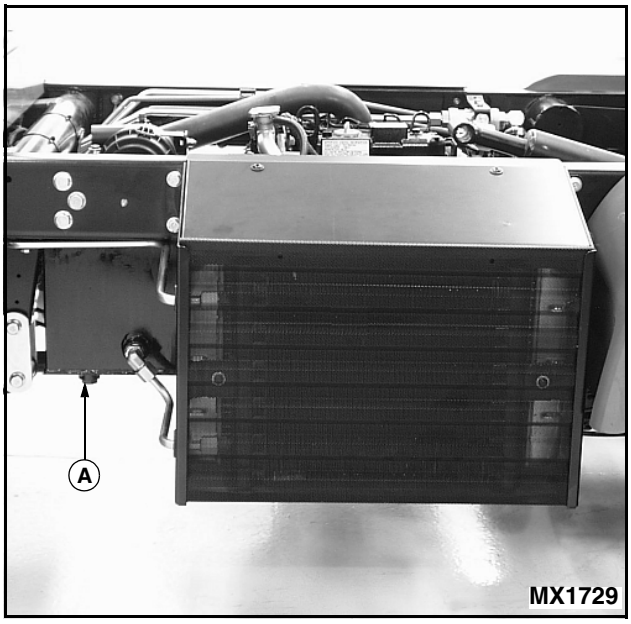
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

- Allow the engine and the oil reservoir to cool.

3. Locate drain plug (A) under the oil reservoir on the LEFT side of the vehicle.

4. Place container under the oil drain location.

5. Remove drain plug. Allow oil to drain into a container with at least a 13.2 L (3.5 gal) capacity.



6. Remove hydraulic oil filter (B).

   - Locate filter under LEFT side of vehicle.

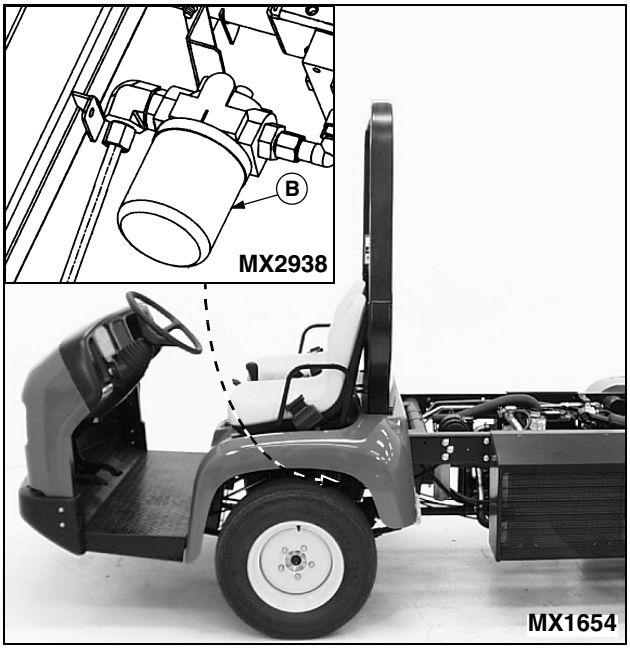
7. Turn filter counterclockwise to remove. Use a drain pan to catch dripping oil.

8. Apply a film of clean oil on gasket of new filter.

9. Install new filter.

   - Turn filter clockwise until gasket makes contact with the mounting surface. Tighten 1/2 to 3/4 turn after gasket contact.

10. Install drain plug. DO NOT overtighten.

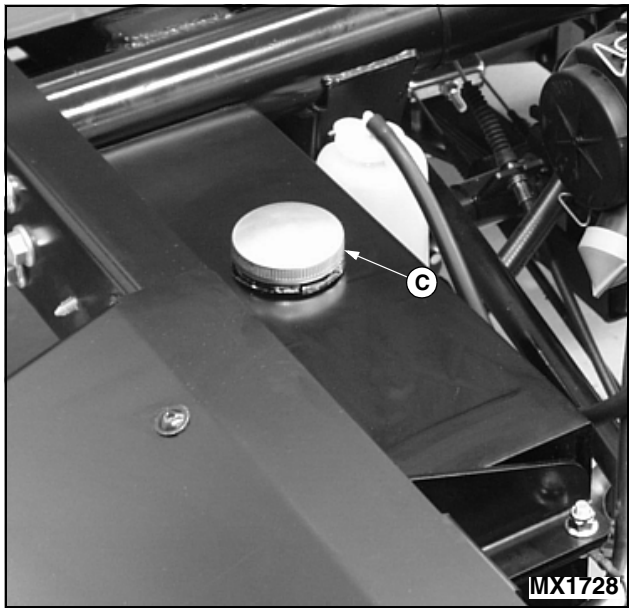


11. Thoroughly clean area around dipstick cap (C).

12. Remove dipstick cap from the oil reservoir tank.

13. Fill oil reservoir with approximately 13.2 L (3.5 gal) of oil.

14. Start engine.

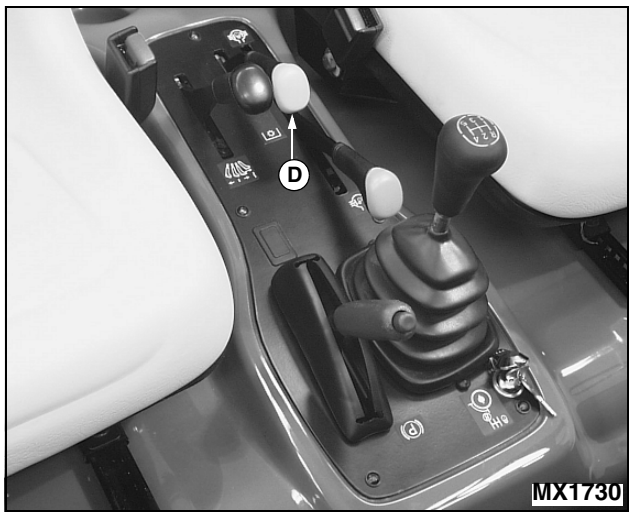


15. Cycle the hydraulic PTO lever (D) for approximately one or two minutes. Check for leaks.

16. Stop engine.

17. Check oil level. Add oil as necessary.

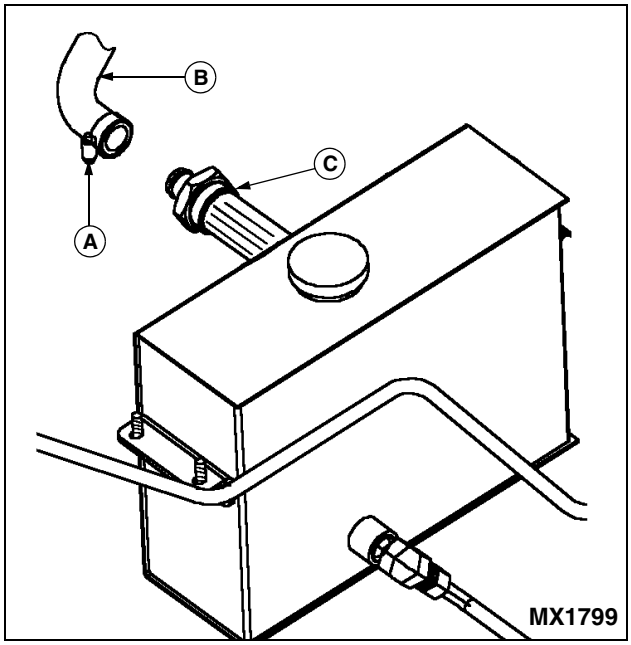
18. Lower attachment or cargo box.



Clean Hydraulic Oil Reservoir Strainer

NOTE: This service procedure should be performed on vehicles equipped with auxiliary hydraulic kit.

Routinely clean strainer when changing the hydraulic oil and filter. Strainer should be serviced when the hydraulic oil tank is empty.



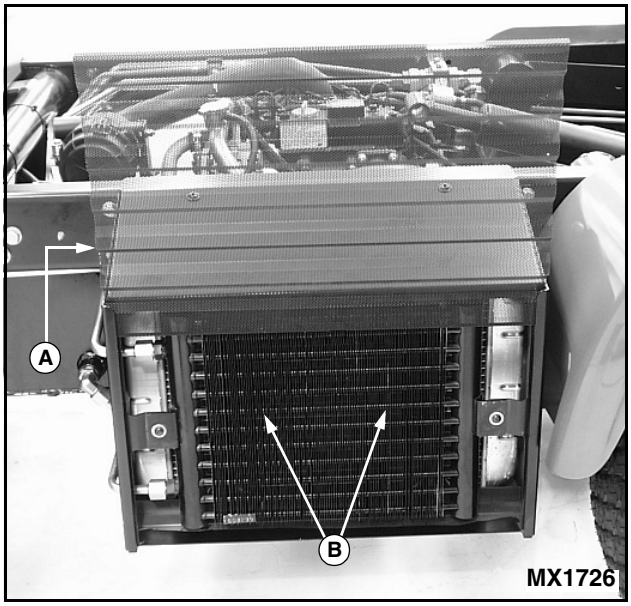
1. Change hydraulic oil and filter.
2. Loosen adjustable hose clamp (A).
3. Remove rubber hose (B) from strainer (C).
4. Remove strainer from the hydraulic oil tank.
5. Clean strainer with solvent or mineral spirits and allow to dry.
6. Install strainer into the hydraulic oil tank.
7. Install rubber hose onto strainer.
8. Tighten adjustable hose clamp.

Cleaning Oil Cooling Coils

NOTE: This service procedure should be performed on vehicles equipped with auxiliary hydraulic kit.

CAUTION: Avoid injury. Wear personal eye protection when using compressed air for cleaning purposes.

IMPORTANT: Avoid engine damage. Keep cooling coils clean to prevent engine overheating.



1. Raise attachment to service position.(See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Lift air intake screen (A) from position in front of the engine radiator.
4. Remove dirt and debris from the oil cooling coils (B) using compressed air or water. Check coils for damage.
5. Install air intake screen.
6. Lower attachment.

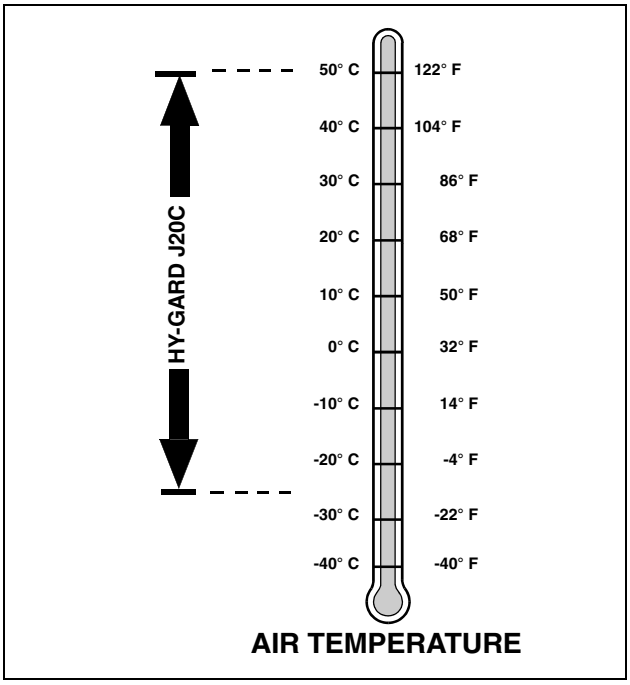
Front Axle Oil

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following John Deere transmission and hydraulic oil is preferred:

- HY-GARD® (JDM J20C)

IMPORTANT: Only use a quality oil in this front axle gear case. DO NOT mix any other oils in this gear case. DO NOT use BIO–HY–GARD® in this gear case.



Checking the Front Axle Oil Level (4WD Models)

IMPORTANT: Allow front axle oil time to cool before checking level.

1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

IMPORTANT: Help prevent contaminants from entering the oil dipstick location. Clean area around dipstick before removing.

2. Unscrew dipstick (A) and remove it from axle.

3. Wipe dipstick dry with a clean cloth.

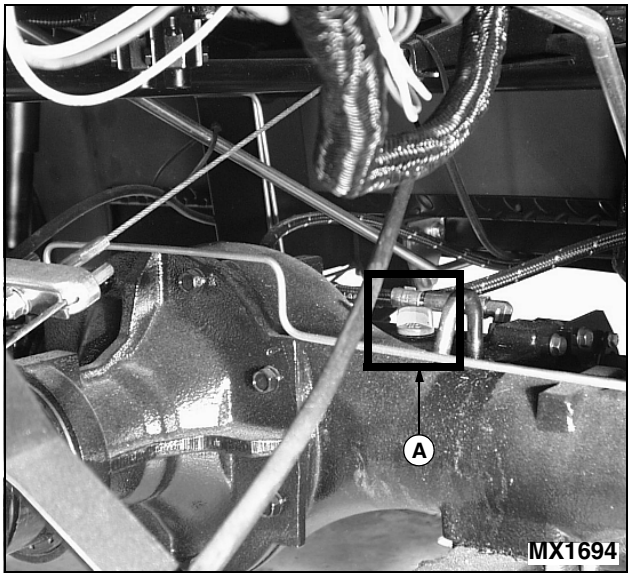
NOTE: DO NOT tighten dipstick. Allow threads to rest on top of the axle housing.

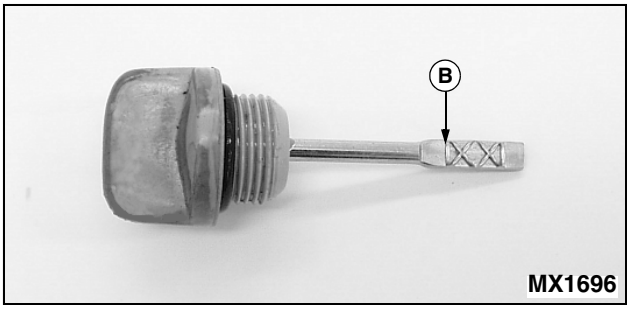
4. Install dipstick into the axle housing.

5. Remove dipstick. Oil level should be at level (B) on the dipstick.

   - If oil is low, add oil. Oil level should be to the top of the XX area (B) on the dipstick.

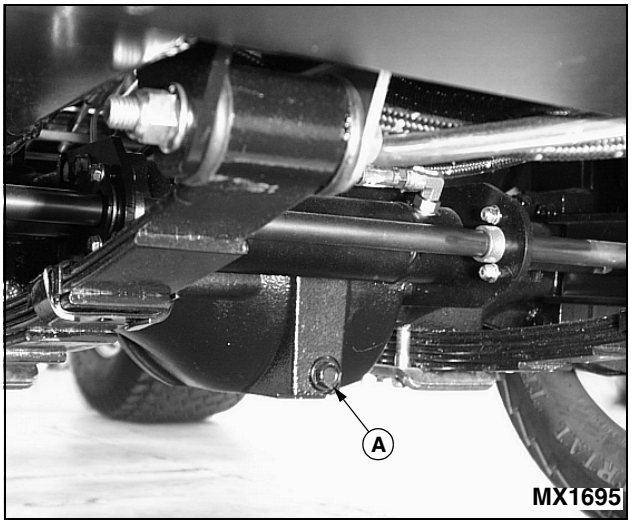
6. Install and tighten dipstick.





Changing the Front Axle Oil (4WD Models)

1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
2. Place container under the oil drain location.
3. Remove differential drain plug (A) to drain oil.
4. Install and tighten drain plug.

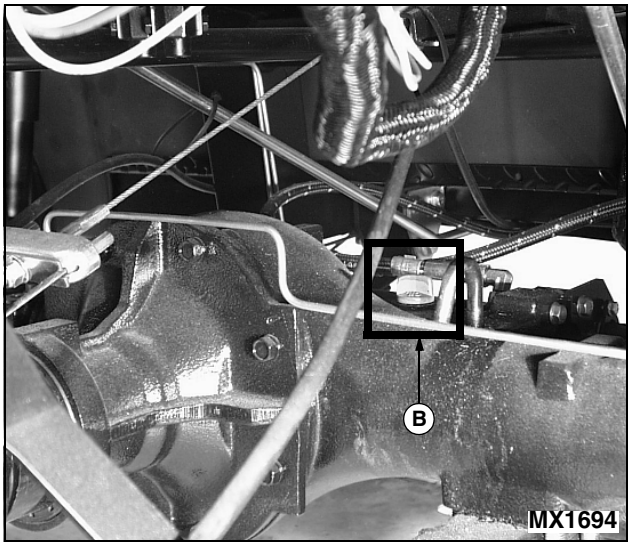


IMPORTANT: Help prevent contaminants from entering the oil dipstick location. Clean area around dipstick before removing.

5. Unscrew dipstick (B) and remove it from the differential housing.
6. Add approximately 3.3 L (3.5 qt) of oil through the dipstick opening.
7. Wipe dipstick dry with a clean cloth.

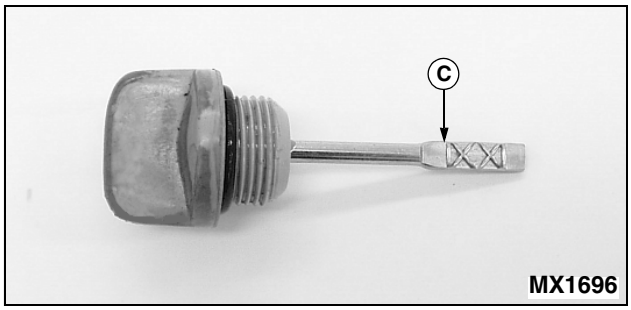
NOTE: DO NOT tighten dipstick. Allow threads to rest on top of the dipstick opening.

8. Install dipstick.



9. Remove dipstick. Oil level should be at level (C) on the dipstick.
   - If oil is low, add oil. Oil level should be to the top of the XX area (B) on the dipstick.
10. Install and tighten dipstick.

NOTE: Oil will flow very slowly through the front axle housing. Check oil level again after the first several hours of operation.



Brake Fluid

The following John Deere heavy duty brake fluid is **PREFERRED** for all drum and disc brakes:

- **Brake Fluid–DOT3 (TY15975)**

Other brake fluids may be used if the above John Deere brake fluid is not available and they provide the following:

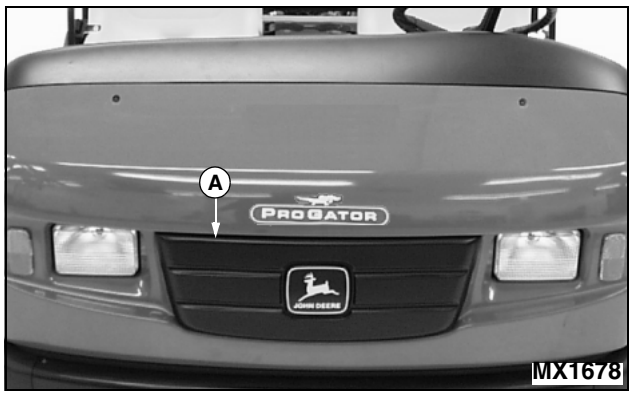
- DOT3 certified.
- Conforms to Motor Vehicle Safety Standard No. 116.
- Minimum wet boiling point 140° C (284° F).
- Minimum dry boiling point 232° C (450° F) to prevent vapor lock.

Check Brake Fluid Level

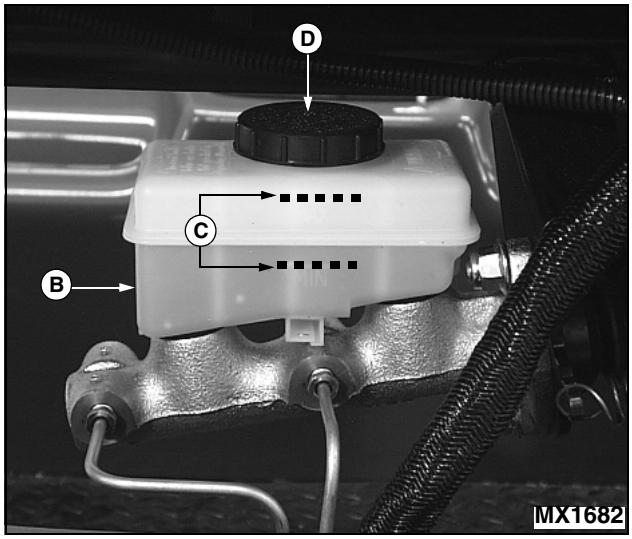
IMPORTANT: Avoid contamination of the brake fluid. Thoroughly clean area around the filler cap before removing. DO NOT open the brake fluid reservoir cap unless absolutely necessary.

Use extreme care when filling the reservoir. Fluid spilled on painted surfaces can cause damage.

Use only DOT3 brake fluid from a sealed container.



1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
2. Remove front grill (A).
3. Visually check the see-through reservoir (B) for the appropriate amount of fluid.
   - Fluid levels must be maintained between the “MAX” maximum and “MIN” minimum fill lines (C).
   - If the fluid level is above the “MIN” minimum fill line, DO NOT open the cap.
4. If fluid is low:
   - Carefully clean area around reservoir cap (D). Unscrew cap.
   - Add fluid to midpoint of the reservoir fill lines.
5. Install reservoir cap.
6. Install front grill.



Cleaning or Replacing Battery

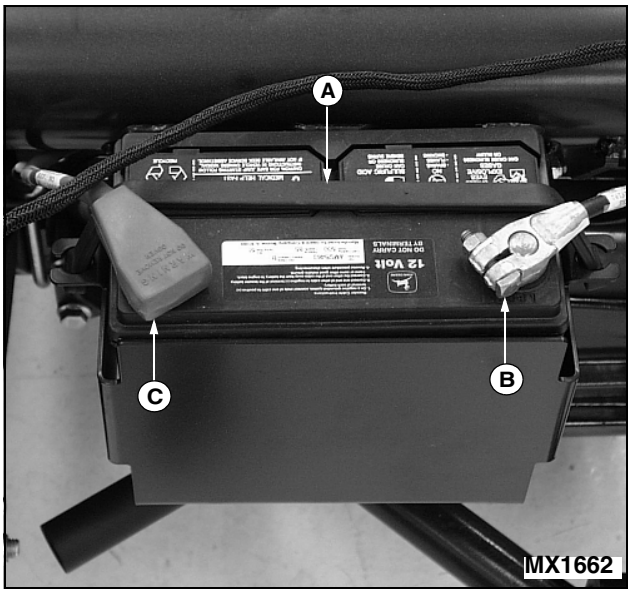
CAUTION: Battery gas can explode, to avoid injury:

- Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

- Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

- Always remove grounded (-) battery clamp first and replace it last.

1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Disconnect rubber hold-down strap (A).
4. Remove NEGATIVE (black) cable (B) from the battery first.
5. Remove POSITIVE (red) cable (C).
   - Pull red terminal cover back far enough to expose terminal.
6. If battery is very dirty, remove battery.
7. Clean battery, battery terminals, cable ends, hold-down, and battery tray with a solution of 1 part baking soda to 4 parts water. Keep solution out of battery cells.



NOTE: If a new battery is required, install a replacement John Deere battery or an equivalent.

8. Rinse all parts with clean water. Let dry.
9. Install battery.
10. Connect POSITIVE (red) cable (C) to battery.
    - Install red terminal cover.
11. Connect NEGATIVE (black) cable (B) to battery.
12. Apply petroleum jelly on battery terminals to help prevent corrosion.
13. Install rubber hold-down strap.
14. Lower attachment.

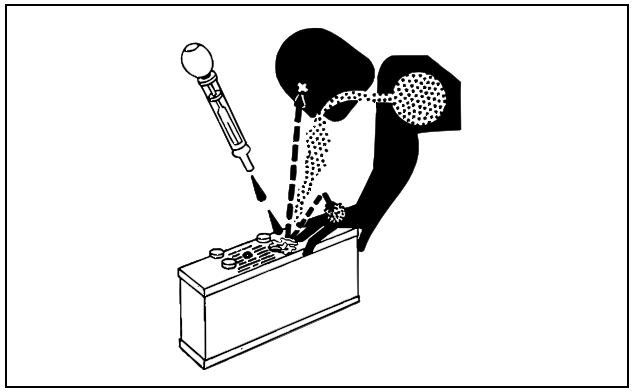
Checking Battery Electrolyte Level

CAUTION: Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

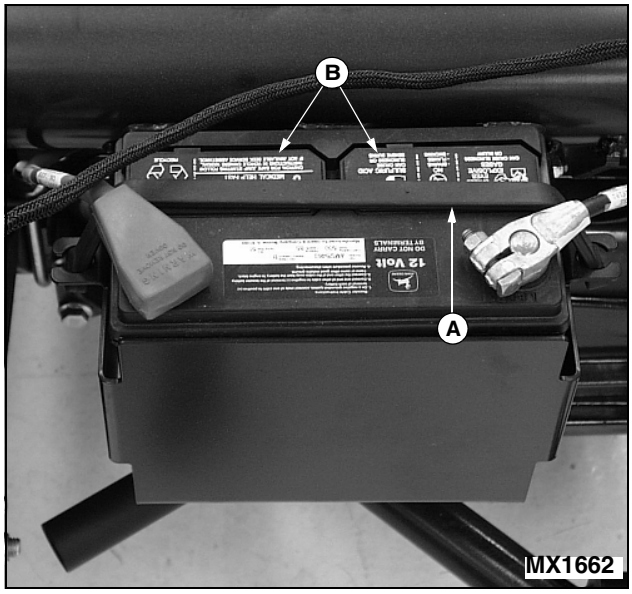
- Wear eye protection and avoid spilling or dripping electrolyte.

- Flush eyes with water for 15-30 minutes if acid is splashed into eyes.

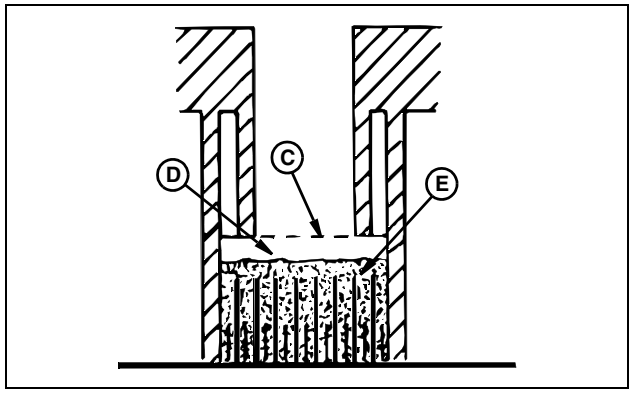
- If acid is swallowed, get medical attention immediately.



1. Raise attachment to service position. (See **Using the Lift Cylinder Safety Support** in the **Service Safety** section.)
2. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
3. Disconnect rubber hold-down strap (A).
4. Remove manifold caps (B).



IMPORTANT: DO NOT fill cells to the bottom of the filler neck (C). Electrolyte can overflow when battery is charged and cause damage.



5. Electrolyte (D) should be 6 mm (1/4 in.) above plates (E).
6. Add distilled water if necessary.
7. Install manifold caps.
8. Install rubber hold-down strap.
9. Lower attachment.

Using Booster Battery

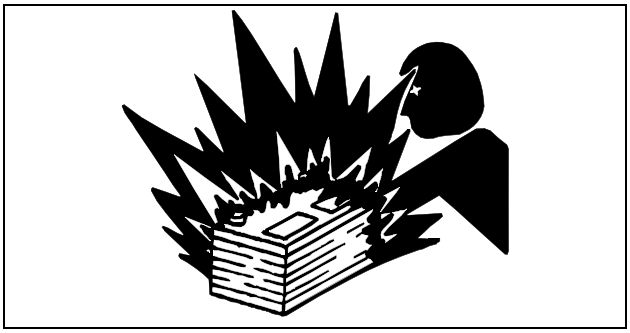
CAUTION: Battery gas is explosive:

- DO NOT smoke while you charge battery.

- Keep all flames and sparks away.

- DO NOT charge frozen battery.

- DO NOT connect booster battery negative (-) cable to negative (-) terminal of discharged battery.

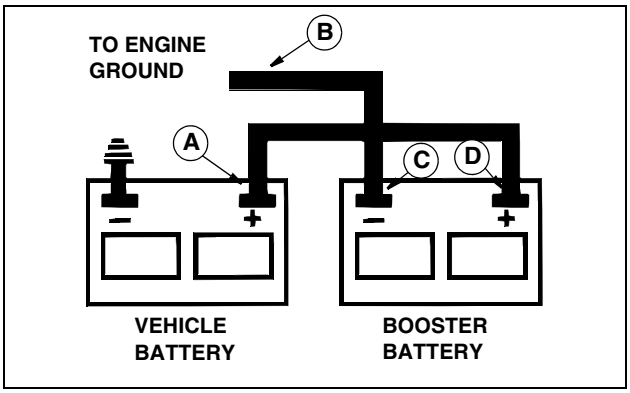


1. Connect positive (+) booster cable to booster battery positive (+) post (D).

2. Connect the other end of positive (+) booster cable to vehicle battery positive (+) post (A).

3. Connect negative (–) booster cable to booster battery negative (–) post (C).

4. Connect the other end of negative (–) booster cable (B) to engine ground away from battery.



Replacing Stoplight/Taillight Bulb

1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

2. Remove two screws (A), attaching hardware (B) and lens (C) from the combination stoplight/taillight assembly.

3. Remove defective bulb.

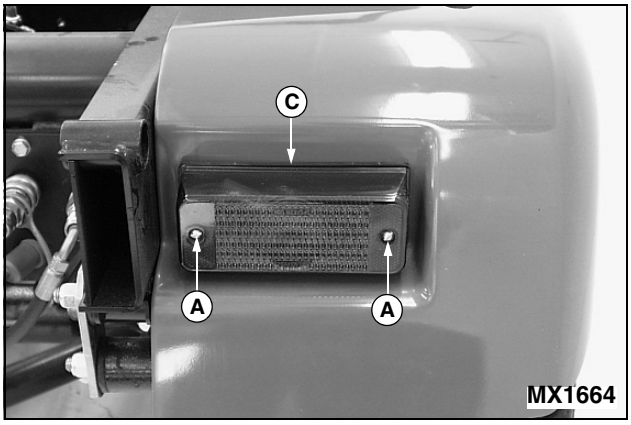
   • Rotate bulb counterclockwise approximately 1/3 turn and remove from the socket.

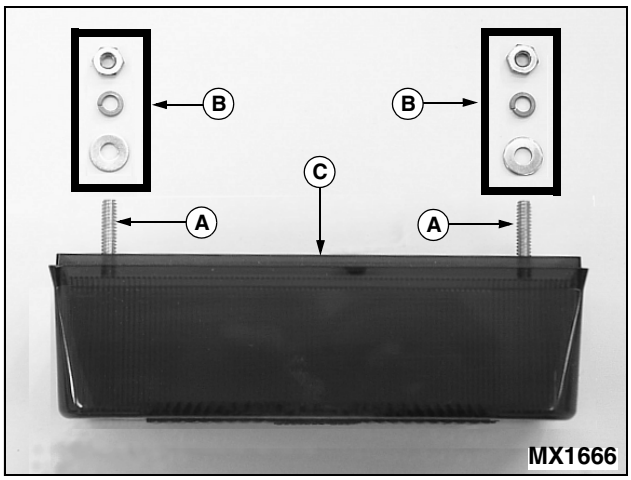
4. Install new bulb into the socket.

   • Push down top of bulb and rotate clockwise into a locked position.

5. Check operation of lights.

6. Install lens.





Replacing Indicator Light Bulb

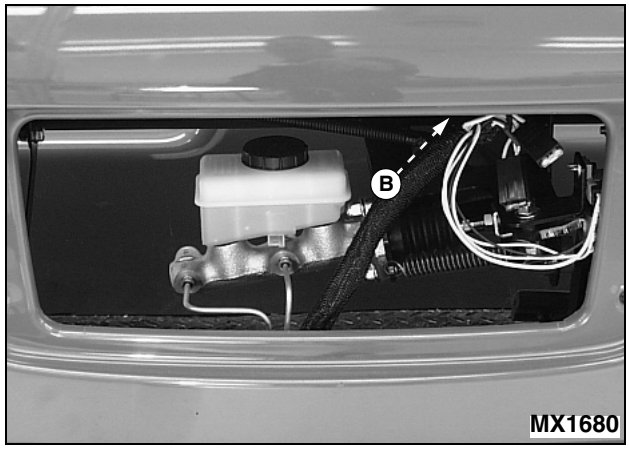
1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

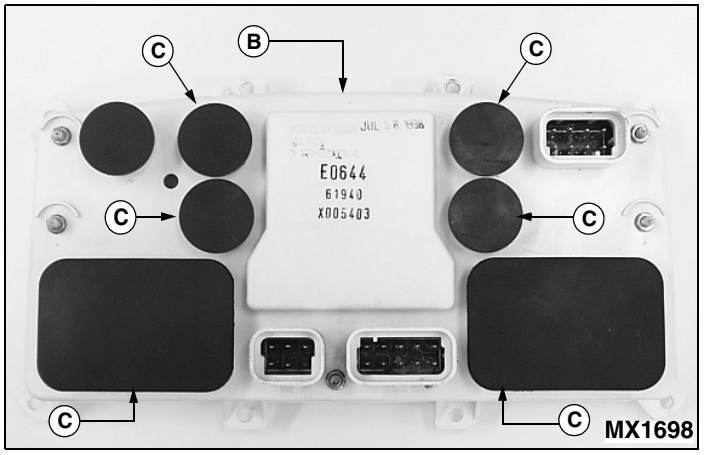
2. Remove front grill.

NOTE: Instrument panel housing removed to illustrate photo clarity.

3. Locate rear of instrument panel housing (B).

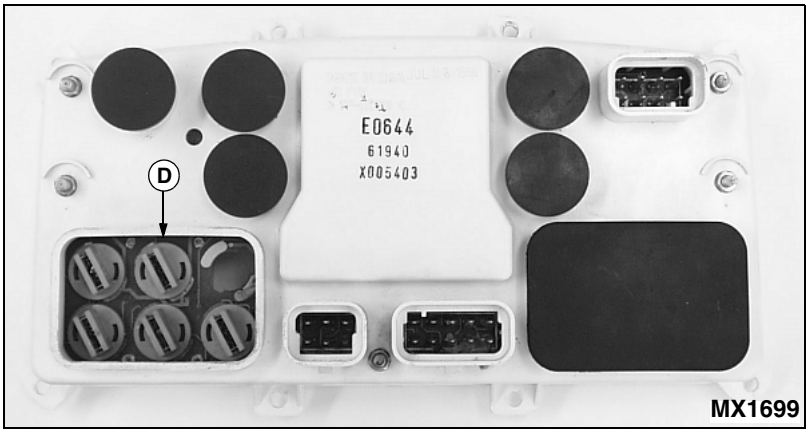
4. Remove rubber plugs (C) to locate indicator bulb light assemblies.

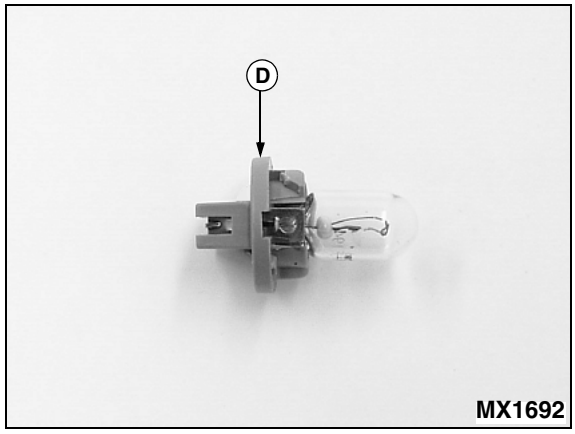




5. Remove defective bulb assembly (D) from the instrument panel housing.

- Rotate bulb assembly counterclockwise approximately 1/3 turn and remove from the housing socket.





6. Install new bulb assembly into housing socket and rotate clockwise into a locked position.

7. Check operation of lights.

8. Install rubber plug.

9. Install front grill.

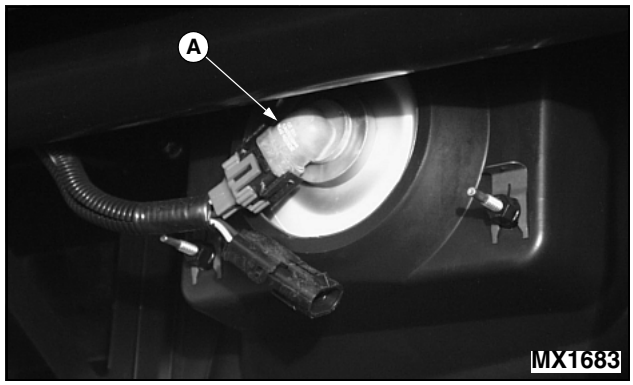
Replacing Headlight Bulb

1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

2. Locate headlight housing under the vehicle dash.

3. Remove bulb assembly (A) from the headlight housing.

   - Rotate bulb assembly counterclockwise approximately 1/3 turn and remove from the socket.



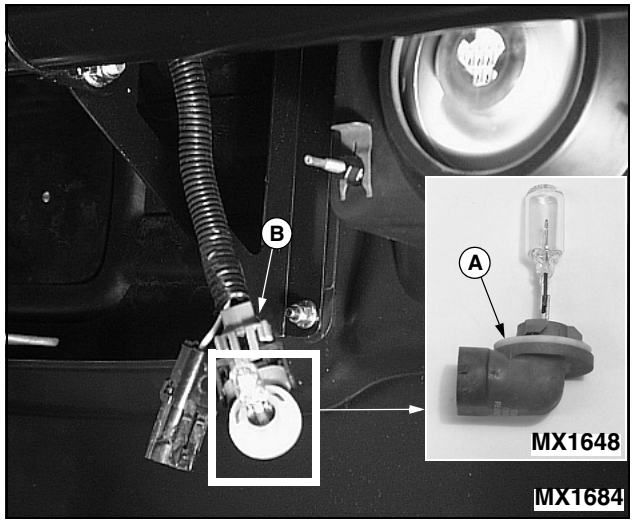
IMPORTANT: Prevent premature failure when inspecting or replacing the headlight bulb assembly. DO NOT touch the assembly glass component with bare skin surfaces.

4. Disconnect wiring harness (B) from the bulb assembly.

5. Connect wiring harness to the replacement bulb assembly (A).

6. Install new headlight bulb assembly into housing socket and rotate into a locked position.

7. Check operation of lights.



Checking and Replacing Fuses

IMPORTANT: Prevent vehicle electrical circuit damage. Make sure replacement fuse is the correct size.

1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

2. Remove front grill.

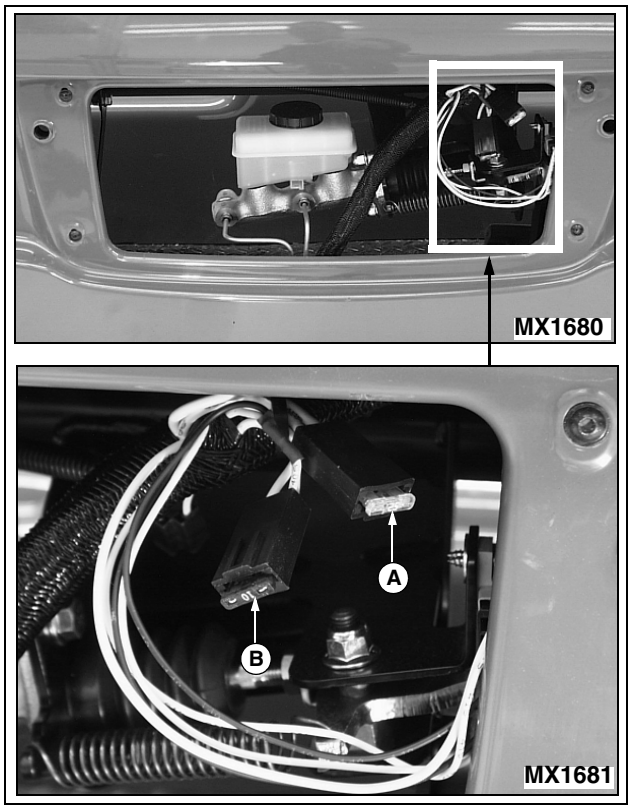
3. Fuse identification:

   - **25 amp fuse (A)** - Light Circuit
   - **10 amp fuse (B)** - Starter Circuit

4. Replace defective fuse.

   - Remove defective fuse from fuse holder.
   - Push in a new fuse.

5. Install access panel.



Checking Tire Pressure

CAUTION: Explosive separation of a tire and rim parts can cause serious injury or death:

• DO NOT attempt to mount a tire without the proper equipment and experience to perform the job.

• Always maintain the correct tire pressure. DO NOT inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

• When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly.

• Check tires for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

1. Check tires for damage.
2. Check tire pressure with an accurate gauge.
3. Add air, if necessary:

Tread Type	Location	Size	Ply Rating	Pressure
Industrial Trax (Standard)	Front	23x10.50-12	4	69-97 kPa (10-14 psi)
Multi Trac (Standard)	Rear	26x12.00-12	4	69-97 kPa (10-14 psi)
Multi Trac (Optional)	Rear	26x14.00-12	4	69-97 kPa (10-14 psi)

Fuel

CAUTION: Handle fuel with care, it is highly flammable and can cause serious injury or death:

• DO NOT refuel machine while you smoke, when machine is near an open flame or sparks, or when engine is running. STOP engine.

• Fill fuel tank outdoors.

• Prevent fires: clean oil, grease and dirt from machine. Clean up spilled fuel immediately.

• Do not store machine with fuel in tank in a building where fumes may reach an open flame or spark.

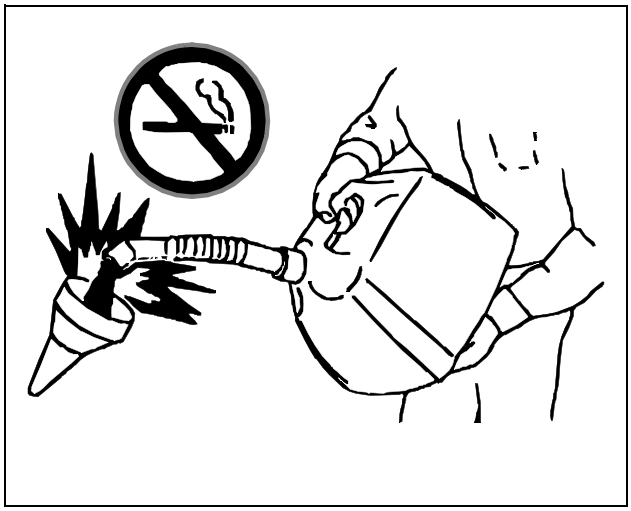
• Prevent fire and explosion caused by static electric discharge. Use only non-metal, portable fuel containers approved by the Underwriter's Laboratory (U.L.) or the American Society for Testing & Materials (ASTM). If using a funnel, make sure it is plastic and has no screen or filter.

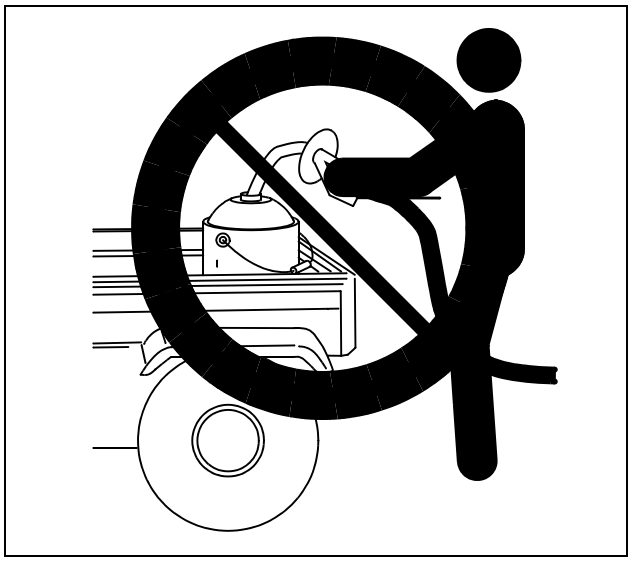
• Static electric discharge can ignite gasoline vapors in an ungrounded fuel container. Remove the fuel container from the bed of a vehicle or the trunk of a car and place on the ground away from the vehicle before filling. Keep nozzle in contact with container opening while filling.

• When practical, remove equipment from trailers or truck beds and refuel them on the ground. If this is not possible, use a portable, plastic fuel container to refuel equipment on a truck bed or trailer.

• Store oil and fuel in an area protected from dust, moisture and other contamination.

• DO NOT use METHANOL gasolines. METHANOL is harmful to the environment and to your health.





IMPORTANT: Avoid spilling fuel. Fuel can damage plastic and painted surfaces.

DO NOT mix oil with gasoline. Use unleaded gasoline with an octane rating of 87 or higher.

Fuel Specifications–Gas Units

- Use only clean, fresh, unleaded regular grade gasoline.
- Remove any trash from top of fuel tank drain area.
- Use summer blended fuel for warm weather operation and winter blended fuel for cold weather.
- Never use fuel that is stale or has been stored for a long period of time:

Warm Weather - Maximum 60 days.

Cold Weather - Maximum of 90 days.

- Fill fuel tank at the end of each day's operation. This helps to keep condensation out of fuel tank.

Oxygenated Fuel

Oxygenates (either ethanol or MTBE) are added to the gasoline. If you use the oxygenated fuel be sure it is unleaded and meets the minimum octane rating requirement.

The following are the EPA approved percentages of fuel oxygenates:

ETHANOL (Ethyl or Grain Alcohol): You may use gasoline containing up to 10 percent ethanol by volume.

MTBE (Methyl Tertiary Butyl Ether): You may use gasoline containing up to 15 percent MTBE by volume.

Gasoline Fuel Storage

IMPORTANT: To avoid machine damage, keep all foreign material out of fuel.

Keep fuel in a clean container in a protected area. Water and sediment must be removed before fuel gets to the engine. Do not use de-icers or depend on fuel filters to remove water from fuel. Install a water separator at the storage tank outlet. See your John Deere distributor for this part.

Store fuel drum on side with plug up.

Fuel Specifications–Diesel Units

- Use Grade No. 2-D fuel at temperatures above 4°C (40°F).
- Use Grade No. 1-D fuel at temperatures below 4°C (40°F).
- Use Grade No. 1-D fuel for all air temperatures at altitudes above 1500 m (5000 ft.).
- For maximum filter life, sediment and water should not be more than 0.10 per cent.
- The cetane number should be 40 minimum. If you operate your tractor where air temperatures are normally low or where altitudes are high, you may need fuel with a higher cetane number.
- Cloud Point - For cold weather operation, cloud point should be 6°C (10°F) below lowest normal air temperature.
- In winter use special winter fuel or add an anti-gelling compound to fuel to maintain its proper viscosity.

Diesel Fuel Storage

IMPORTANT: Diesel fuels stored for a long time may form gum and plug filters.

Diesel fuel stored in galvanized containers reacts with zinc coating on container to form zinc flakes. If fuel contains water, a zinc gel will form. Gel and flakes will quickly plug fuel filters and damage fuel injectors and pumps.

DO NOT use a galvanized container to store diesel fuel.

Store fuel in:

- Plastic containers.
- Aluminum containers.
- Specially coated steel containers made for diesel fuel.

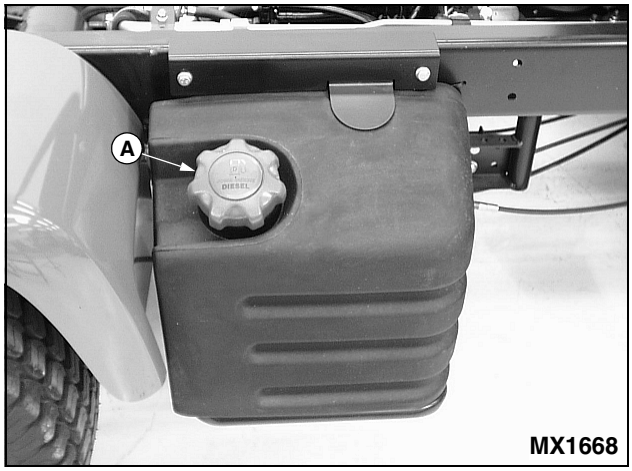
DO NOT use brass-coated containers, brass is an alloy of copper and zinc.

Tightening Wheel Hardware

NOTE: Tighten nuts after first ten hours of operation and every 100 hours thereafter.

- Tighten front and rear wheel nuts (A) alternately to 115 N•m (85 lb-ft.).

Filling Fuel Tank



1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)
   - Allow engine to cool.
2. Remove fuel tank cap (A) slowly to allow any pressure built up in tank to escape.
3. Fill fuel tank only to bottom of filler neck.
4. Install fuel tank cap.

Cleaning and Repairing Plastic Surfaces

Your John Deere dealer has the professional materials needed to properly remove surface scratches from any plastic surfaces, do not attempt to paint over marks or scratches in plastic parts.

IMPORTANT: from incorrect care of plastic parts surfaces:

- **DO NOT wipe plastic surfaces when they are dry. Dry wiping will result in minor surface scratches.**
- **Use a soft, clean cloth (bath towel, diaper, automotive mitt).**
- **DO NOT use abrasive materials, such as polishing compounds, on plastic surfaces.**
- **DO NOT spray insect repellent near machine.**
- **DO NOT spill fuel on plastic surfaces. Wipe up fuel immediately.**

1. Rinse hood and entire machine with clean water to remove dirt and dust that may scratch the surface.

2. Wash surface with clean water and a mild liquid automotive washing soap.

3. Dry thoroughly to avoid water spots.

4. Wax the surface with a liquid automotive wax. Use products that specifically say “contains no abrasives.”

IMPORTANT: . Do not use a power buffer to remove wax.

5. Buff applied wax by hand using a clean, soft cloth.

Cleaning and Repairing Metal Surfaces

Cleaning:

Follow automotive practices to care for your tractor painted metal surfaces. Use a high-quality automotive wax regularly to maintain the factory look of your tractor’s painted surfaces.

Repairing Minor Scratches (surface scratch):

1. Clean area to be repaired thoroughly.

IMPORTANT: . DO NOT use rubbing compound on painted surfaces.

2. Use automotive polishing compound to remove surface scratches.

3. Apply wax to entire surface.

Repairing Deep Scratches (bare metal or primer showing):

1. Clean area to be repaired with rubbing alcohol or mineral spirits.

2. Use paint stick with factory-matched colors available from your John Deere dealer to fill scratches. Follow directions included on paint stick for use and for drying.

3. Smooth out surface using an automotive polishing compound. Do not use power buffer.

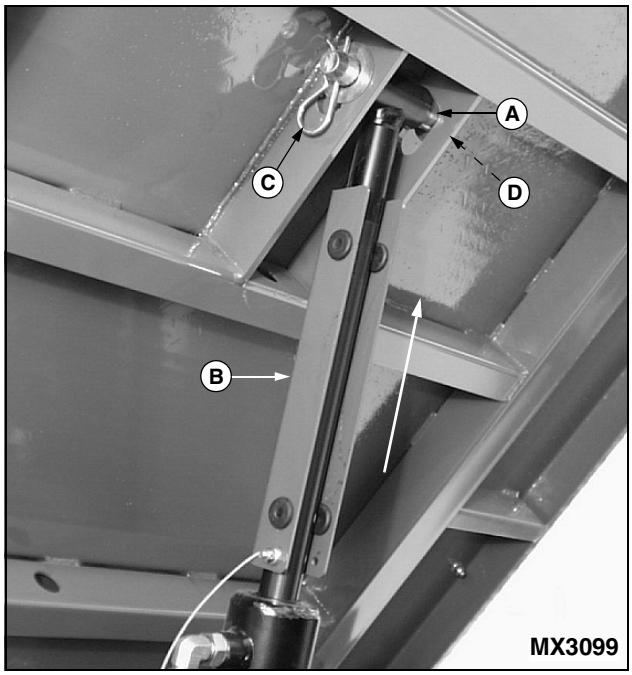
4. Apply wax to surface.

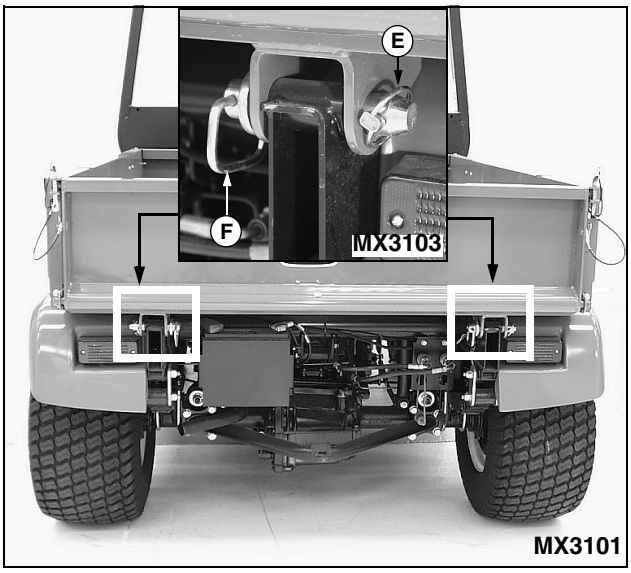
Removing the Cargo Box

CAUTION: Avoid a crushing injury or death!

- **DO NOT attempt removal of the cargo box without the lift cylinder safety support properly installed.**
- **Empty all material from the cargo box before removing.**

1. Empty cargo box.
2. Park vehicle on a hard, level surface.
3. Lock park brake and start engine.
4. Raise the cargo box.
   - Extend the lift cylinder (A) until the cargo box is fully raised.
5. Stop engine.
6. Install the lift cylinder safety support (B).
7. Raise front of cargo box slightly with a safe lifting device.
8. Disconnect lift cylinder from the cargo box.
   a. Remove spring locking pin (C) and cylinder pin (D).
   b. Install cylinder pin and spring locking pin back into the lift cylinder for storage.
9. Return safety support to the stored position.
10. Start engine.
11. Retract lift cylinder fully and stop engine.
12. Slowly lower front of cargo box onto top of vehicle frame.
13. Remove quick-lock pins (E) and drilled pins (F) securing the rear of the cargo box to the frame.
14. Carefully remove cargo box from the vehicle.
15. Install drilled pins and quick-lock pins back into vehicle brackets for storage.

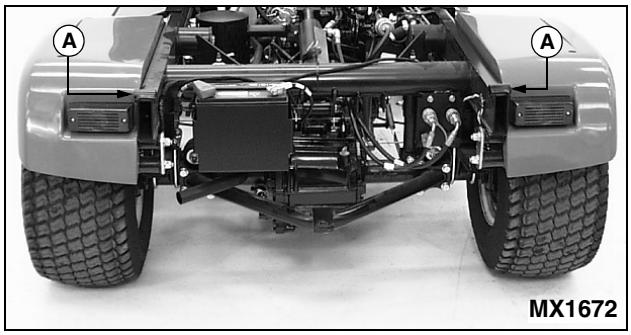




Installing the Cargo Box

1. Park vehicle safely. (See **Park Safely** in the **Operating** section.)

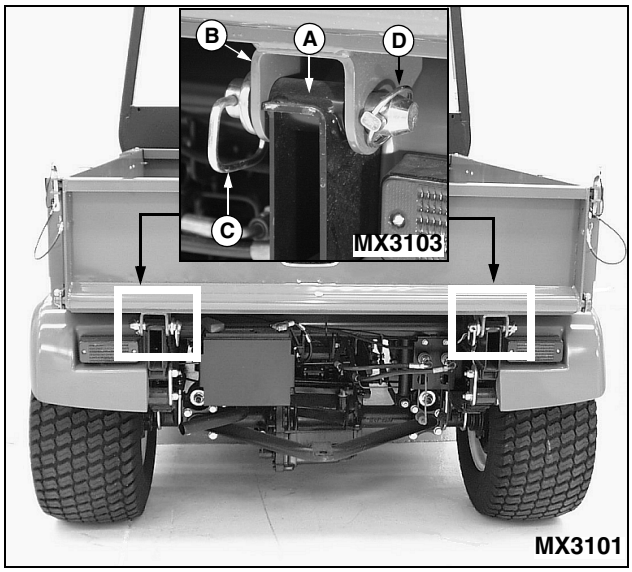
2. Remove quick-lock pins and drilled pins stored in brackets (A) at the rear of the vehicle.



3. Carefully position cargo box on top of vehicle frame with a safe lifting device.

- Align cargo box tabs (B) and brackets (A) at the rear of the vehicle.

4. Secure rear of cargo box to the frame with drilled pins (C) and quick-lock pins (D).



CAUTION: Avoid a crushing injury or death! Make sure cargo box is safely supported in the raised position before connecting the lift cylinder to the bottom of the cargo box.

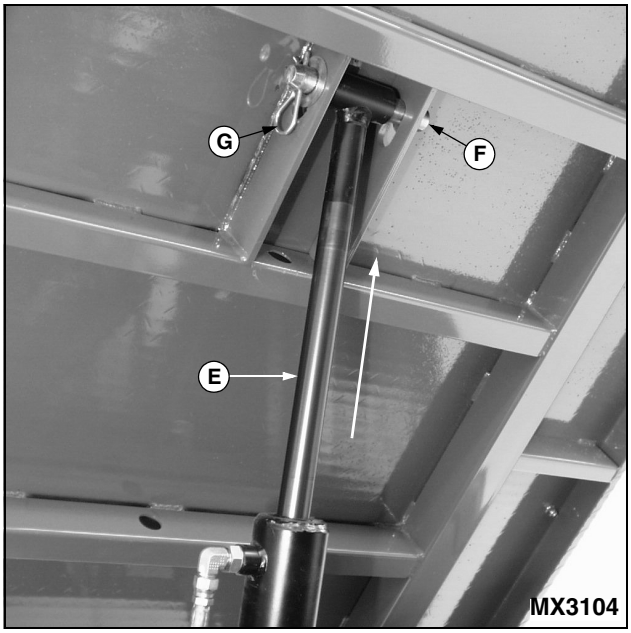
5. Raise front of cargo box with a safe lifting device.

6. Remove spring locking pin and cylinder pin stored in the lift cylinder.

7. Start engine.

8. Extend the lift cylinder (E) until the holes in the bottom of the cargo box frame and the top of the lift cylinder align.

9. Attach lift cylinder to the cargo box with cylinder pin (F) and spring locking pin (G).



10. Lower cargo box.

11. Stop engine.

Using Troubleshooting Chart

If you are experiencing a problem that is not listed in this chart, see your John Deere distributor for service.

When you have checked all the possible causes listed and you are still experiencing the problem, see your John Deere distributor.

Engine

IF	CHECK
ENGINE WILL NOT CRANK OR START	Stale fuel / improper fuel / fuel level. Fuel is dirty / replace fuel filter. DIESEL MODELS: Open fuel shut-off valve. PTO indicator light lit–disengage hydraulic PTO lever. Defective fuse. Air cleaner filter element(s) plugged. Put gear shift lever in NEUTRAL position. GAS MODELS: Spark plug wire(s) loose or disconnected. GAS MODELS: Check spark plug gap. Battery low - charge battery. Battery cables loose or corroded–clean and tighten battery cables.
ENGINE MISSES UNDER LOAD	GAS MODELS: Spark plug not gapped correctly. GAS MODELS: Faulty spark plug - replace spark plug. Stale or dirty fuel. Plugged fuel filter–replace fuel filter. Check electrical connections.
ENGINE HARD TO START	GAS MODELS: Clean/adjust carburetor. (See your technical manual or your John Deere dealer). Stale or dirty fuel. GAS MODELS: Check/replace failing spark plug. GAS MODELS: Check spark plug gap. Air cleaner filter element(s) plugged. Check/clean electrical connections. Check for air lock in fuel line. Disconnect fuel line from fuel filter. Fuel should flow.

IF	CHECK
ENGINE OVERHEATS	Air cleaner element plugged/ replace filter element. Clean radiator air intake screen, fan shroud and cooling fins. Clean oil cooler coils. (Optional) Check engine oil level - add oil. Low coolant level. Cooling system needs flushing. Defective radiator cap. Defective thermostat. Loose or defective alternator belt.
ENGINE WILL NOT SLOW IDLE	GAS MODELS: Clean/adjust carburetor. (See your technical manual or your John Deere distributor.) GAS MODELS: Spark plug not gapped correctly. GAS MODELS: Faulty spark plug - replace spark plug. Improper idle speed adjustment. Stale or dirty fuel. Plugged fuel line - clean fuel line. Valves not seating correctly - adjust valves. (See your technical manual or your John Deere distributor.)
ENGINE BACKFIRES	Gas Models: Faulty spark plug - replace spark plug. Intake valve sticking - adjust valves. (See your technical manual or your John Deere distributor.)
ENGINE VAPOR LOCKS	Replace fuel filter.
ENGINE RUNS ROUGH	Plugged fuel line - clean fuel line. DIESEL MODELS: Fuel shut-off valve partially closed. Stale or dirty fuel. Replace fuel filter. Air cleaner filter element(s) plugged. Check/clean electrical connections. GAS MODELS: Faulty spark plug - replace spark plug. GAS MODELS: Clean/adjust carburetor. (See your technical manual or your John Deere dealer.)

IF	CHECK
ENGINE LACKS POWER	Improper fuel. Too much oil in engine - drain to correct level. Air cleaner filter element(s) plugged. Engine overload–reduce load. Engine overheating–Clean radiator screen, fan shroud, cooling fins and oil cooler coils (optional). GAS MODELS: Faulty spark plug - replace spark plug. Replace fuel filter.
ENGINE KNOCKS	Stale or low octane fuel. Engine oil level low. Engine overload - reduce load. Improper idle speed adjustment.

Steering

IF	CHECK
STEERING NOT WORKING CORRECTLY	Check tire inflation pressure. Transmission oil level low–check oil level. 4WD MODELS: Front axle oil level low–check oil level. Check and align toe-in adjustment. (See your technical manual or your John Deere dealer.)

Brakes

IF	CHECK
BRAKES NOT WORKING CORRECTLY	Brake fluid level low–check fluid level. Adjust brakes. (See your technical manual or your John Deere dealer.) Replace worn brake shoes. (See your technical manual or your John Deere dealer.) Repair/replace worn or damaged brake linkage. (See your technical manual or your John Deere dealer.)

Electrical System

IF	CHECK
STARTER DOES NOT WORK OR WILL NOT TURN ENGINE	Clean and tighten all electrical connections. Put gear shift lever in NEUTRAL position. Defective fuse. Low battery output–check electrolyte level. Charge/replace battery. Battery cables loose or corroded–clean and tighten battery cables. Failed key switch or starter motor. (See your technical manual or your John Deere dealer.)
STARTER TURNS SLOWLY	Low battery output–check electrolyte level. Low battery power–charge battery. Engine oil viscosity too heavy. Battery cables loose or corroded–clean and tighten battery cables.
BATTERY LOW VOLTAGE INDICATOR REMAINS ON WITH ENGINE RUNNING	Low engine speed. Defective battery Defective alternator. Loose or defective alternator belt.
BATTERY WILL NOT CHARGE	Battery cables loose or corroded–clean and tighten battery cables. Defective battery–check electrolyte level. Dead battery cell. Loose or defective alternator belt. Defective alternator.
LIGHTS DO NOT WORK	Defective fuse. Loose or defective bulb. Loose switch connection.

STORING MACHINE

Storing Safety

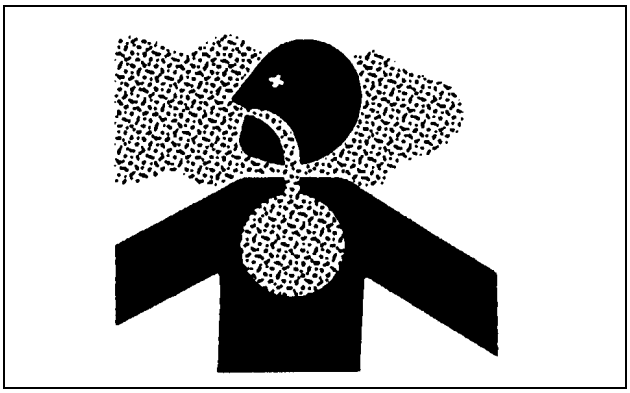
CAUTION: Engine exhaust fumes can cause sickness or death.

• If it is necessary to run an engine in an enclosed area, use an exhaust pipe extension to remove the fumes. Always try to work in a well ventilated area.

•DO NOT store vehicle with fuel in the tank inside a building where fumes may reach an open flame or spark.

•Allow engine to cool before storing in any enclosure.

•Remove the battery and store it in a cool dry place where it will not freeze, and where children cannot reach it.



Storing the Vehicle

IMPORTANT: Fuel conditioner and stabilizer should always be used when storing the vehicle to prevent formation of varnish and gum in the fuel system. Either of these conditions can cause the engine to run lean and result in piston seizure and engine failure.

1. Put appropriate John Deere Fuel Conditioner and Stabilizer or an equivalent in fuel tank. Follow directions on the product label.

2. Run engine for at least 10 minutes to be sure stabilizer gets into the fuel system.

3. Change engine oil and filter when engine is warm.

4. **Gas Models Only:**

   - Remove spark plugs.
   - Put 30 ml (1 oz.) of clean engine oil into each cylinder.
   - Install spark plugs. DO NOT install wires.
   - Crank engine several times to distribute oil.

5. Repair worn or damaged parts. Install new parts if necessary.

6. Service air cleaner.

7. Wash vehicle.

8. **4WD Models:** Lubricate driveshaft.

9. Clean engine and area around it. Remove oil, grease, and dirt.

10.Check engine compartment hoses.

11.Check engine coolant level and freeze point.

12.Clean air intake screen.

13.Clean radiator cooling fins.

14.Clean oil cooler coils–auxiliary oil reservoir tank.

15.Apply paint to areas that need it to prevent rust.

CAUTION: Avoid injury. Battery contains acid that is poisonous and corrosive. Store battery in an area out of the reach of children.

16.Remove and clean battery. Check electrolyte level. Charge battery. Store battery in a cool, dry place to preserve battery life.

17.Store vehicle in a dry, protected place. If storing vehicle outside, put a waterproof cover over it.

18.Put blocks or stands under vehicle to take weight off tires. Let 1/3 of air out of tires.

19.Clean alternator belt with a damp rag. Check belt for damage.

20. Check and adjust alternator belt tension.

21.**Diesel Model:** Close fuel sediment bowl shut-off valve.

22.Apply multipurpose lubricant on exposed cylinder rods.

23.Replace fuel filter.

Removing Vehicle From Storage

1. Check tire pressure.
   - Correct tire pressure is between 69-83 kPa (10-12 psi).
2. Check and tighten wheel hardware.
   - Tighten wheel hardware alternately to 115 N•m (85 lb-ft.).
3. Check battery electrolyte level. Charge battery if necessary. Install battery.
4. Connect spark plug wires.
5. Check engine oil level.
6. Check transmission oil level.
7. **4WD Models:** Check front axle oil level.
8. Check hydraulic oil level in reservoir.
9. **4WD Models:** Lubricate driveshaft.
10. Check hoses (air intake, fuel, hydraulic, cooling system), clamps, and connections.
11. Be sure shields and guards are in place.
12. **Diesel Model:** Open fuel sediment bowl shut-off valve.
13. Fill fuel tank with fresh clean fuel.

CAUTION: Engine exhaust fumes can cause sickness or death. Start engine ONLY in a well-ventilated place.

14. Run engine five minutes at slow–medium idle before putting engine under load.

Delivery Instructions

Prior to delivery, perform the listed service checks, clean the utility vehicle and review this manual with the owner/operator. Make sure the owner/operator can safely operate this utility vehicle.

Check Fluid Levels

IMPORTANT: Check all fluid levels before attempting to start the utility vehicle.

Utility vehicle should be parked on a hard, level surface with the park brake locked and the key switch in the "STOP" position.

1. **CHECK RADIATOR COOLANT LEVEL**. If engine is warm, coolant level should be between the "FULL" line and the "LOW" line on the coolant recovery bottle. If engine is cold, coolant level should be at the "LOW" line on the coolant recovery bottle. Add specified ratio of antifreeze and water as necessary. See **Checking Coolant Level** in the **Service-Engine** section for additional information.

IMPORTANT: If oil level is at or below "L" mark, DO NOT start engine.

2. **CHECK ENGINE OIL LEVEL**. Oil level should be between the ADD and FULL marks on the dipstick. Add oil as necessary. See **Checking Engine Oil Level** in the **Service-Engine** section for additional information.

IMPORTANT: DO NOT start engine if transmission oil level is low.

3. **CHECK TRANSMISSION OIL LEVEL**. Transmission oil level should be to the top of the FULL line on the transmission dipstick. Add oil as necessary. See **Checking Transmission Oil Level** in the **Service-Transmission** section for additional information.

4. **CHECK FRONT AXLE OIL LEVEL**. Front axle oil level should be to the top of the XX area of dipstick. Do not tighten dipstick when checking oil. Add oil as necessary. See **Checking the Front Axle Oil Level** in **Service-Transmission** section for additional information.

Checking the Battery

CAUTION: Prevent Battery Explosions: Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16 degrees C (60 degrees F).

NOTE: For additional battery information see the Service-Electrical section in this manual.

1. If engine will not turn over and headlights are dim or will not turn on—charge the battery.

2. Charge the battery for a minimum of 30 minutes at 5—10 amps. If your battery charger has a Deep Cycle or Maintenance Free setting, use this setting to charge the battery.

Check Safety Interlock System

For a complete checkout procedure of the safety interlock system, see **Testing the Safety Interlock System** in the **Operating** section.

Check Wheel Hardware Torque

For complete instructions and specifications on how to properly torque the wheel bolts, see **Tightening Wheel Hardware** in the **Service-Miscellaneous** section.

Check Tire Pressure

For complete information on tire safety and recommended tire pressures, see **Checking Tire Pressure** in the **Service-Miscellaneous** section.

Install Cargo Box

For complete instructions on installing the cargo box, see **Installing the Cargo Box** in the **Service-Miscellaneous** section.

SPECIFICATIONS

Engine (Model 2020-Gas)

Manufacturer	Yanmar
Model Number	3TG72
Horsepower @ 3400 rpm	19.1 kW (25.6 hp)
Displacement	879 cm^3 (53.6 cu. in.)
Cylinders	Three
Cycle	Four
Slow Idle RPM (± 50)	1450 RPM
Fast Idle RPM (± 50)	3570 RPM
Oil Filter	Full Flow, Replaceable
Lubrication	Full Pressure
Cooling	Liquid
Air Cleaner	Canister Type w/ Secondary Element

Engine (Model 2030-Diesel)

Manufacturer	Yanmar
Model Number	3TNE74
Horsepower @ 3200 rpm	16.6 kW (22.2 hp)
Displacement	1006 cm^3 (61.4 cu. in.)
Cylinders	Three
Cycle	Four
Slow Idle RPM (± 50)	1450 rpm
Fast Idle RPM (± 50)	3450 rpm
Oil Filter	Full Flow, Replaceable
Lubrication	Full Pressure
Cooling	Liquid
Air Cleaner	Canister Type w/ Secondary Element

Fuel System (Gas Models)

Fuel Type	Regular Unleaded
Fuel Filter	Replaceable Element
Fuel Pump	Electric

Fuel System (Diesel Models)

Fuel Type . . . . . **Diesel Fuel**
Fuel Filter . . . . . **Replaceable Element**
Fuel Pump . . . . . **Mechanical**

Electrical System

Type . . . . . **Flywheel, Alternator**
Alternator Capacity . . . . . **55 amp**
Battery Voltage . . . . . **12 volts DC**
Cold Cranking Amps @ 0°F **500**
Ignition . . . . . **CDI**

Steering and Brakes

Service Brake Type . . . . . **4-Wheel Hydraulic Drum**
Park Brake Type . . . . . **Mechanical Drum**
Park Brake Actuation . . . . . **Hand Lever**
Steering . . . . . **Hydraulic Power**

Tires

Tread Type	Location	Size	Ply Rating
Industrial trax (Standard)	Front	23x10.50-12	4
Multi trac (Standard)	Rear	26x12.00-12	4
Multi trac (Optional)	Rear	26x14.00-12	4

Transmission

Manufacturer . . . . . **Kanzaki**
Type . . . . . **5-speed, synchro-mesh**
4WD Option . . . . . **Automatic, on-demand**

SPECIFICATIONS

Ground Speeds (All Models Equipped with Standard Rear Tires)

Gear 1	**4.5 km/h (2.8 mph)**
Gear 2	**7.4 km/h (4.6 mph)**
Gear 3	**12.7 km/h (7.9 mph)**
Gear 4	**24.1 km/h (15 mph)**
Gear 5	**30.7 km/h (19.1 mph)**
Reverse	**5.8 km/h (3.6 mph)**

Dimensions

Ground Clearance	**16.8 cm (6.6 in.)**
Wheelbase (Front to Rear Axle)	**167.6 cm (66 in.)**
Wheel Tread, Front	**123.2 cm (48.5 in.)**
Wheel Tread, Rear	**129 cm (50.8 in.)**
Overall Length w/ Optional Cargo Box	**328.4 cm (129.3 in.)**
Overall Length w/o Optional Cargo Box	**319.3 cm (125.7 in.)**
Overall Width	**158.5 cm (62.4 in.)**
Overall Height	**193.7 cm (76.3 in.)**

Turning Circle Clearance

Inside Clearance Circle–2WD	**84 cm (33 in.)**
Inside Clearance Circle–4WD	**274 cm (108 in.)**
Outside Clearance Circle–2WD	**498 cm (196 in.)**
Outside Clearance Circle–4WD	**630 cm (248 in.)**

Weight (W/O Attachment)

Model 2020 2WD w/ Standard Tires	**829.2 kg (1828 lb)**
Model 2020 4WD w/ Standard Tires	**849.1 kg (1872 lb)**
Model 2030 2WD w/ Standard Tires	**829.2 kg (1828 lb)**
Model 2030 4WD w/ Standard Tires	**849.1 kg (1872 lb)**

SPECIFICATIONS

Fluid Capacities

Fuel Tank . . . . . 30.3 L (8 gal)
Cooling System (Total) . . . . . 3.8 L (4.1 qt)
Crankcase with Oil Filter (Gas Models) . . . . . 2.1 L (2.2 qt)
Crankcase with Oil Filter (Diesel Models) . . . . . 2.1 L (2.2 qt)
Transmission Oil System (Total) . . . . . 10.6 L (2.8 gal)
Front Axle Oil (4WD Models) . . . . . 3.3L (3.5 qt)

Towing

Maximum Towing Capacity (Rear Hitch) . . . . . 680.4 kg (1500 lb)
Maximum Tongue Weight (Rear Hitch) . . . . . 90.7 kg (200 lb)

Cargo Box

Overall Length, Inside . . . . . 165 cm (65 in.)
Overall Width, Inside . . . . . 128.4 cm (50.5 in.)
Overall Depth, Inside . . . . . 26.8 cm (10.5 in.)
Weight . . . . . 144.2 kg (318 lbs.)
Payload Capacity . . . . . 907 kg (2000 lbs.)
Maximum Lift Capacity w/ Hydraulic Power Lift . . . . . 907 kg (2000 lbs.)
Bedliner . . . . . Optional
Automatic Tailgate Release . . . . . Optional

Recommended Lubricants

Engine Oil–Gas Models . . . . . John Deere TURF-GARD® SAE 10W-30
Engine Oil–Diesel Models . . . . . John Deere PLUS 50® SAE 15W-40
. . . . . John Deere TORQ-GARD SUPREME® SAE 5W-30
Engine Coolant . . . . . Ethylene Glycol Base
Transmission/Hydraulic Oil . . . . . John Deere J20C Hy-Gard®
Grease . . . . . John Deere MOLY HIGH TEMPERATURE EP®
. . . . . John Deere HIGH TEMPERATURE EP®
. . . . . John Deere GREASE-GARD™

DECLARATION OF CONFORMITY

DEERE AND COMPANY
JOHN DEERE ROAD
MOLINE, IL. 61265-8098 USA

I, THE UNDERSIGNED:

DECLARE THAT THESE MACHINES

TYPE.....ProGator Diesel

SERIAL NUMBER .. TC2020A0_____

COMPLY WITH THE APPLICABLE REQUIREMENTS OF:

EMC DIRECTIVE.....89/336/EEC
MACHINE DIRECTIVE....89/392/EEC

DONE AT:

JOHN DEERE HORICON WORKS.....30 August 1999

MICHAEL J. MACK Jr.
GENERAL MANAGER
COMMERCIAL GOLF AND TURF PRODUCTS

DECLARATION OF CONFORMITY

DEERE AND COMPANY
JOHN DEERE ROAD
MOLINE, IL. 61265-8098 USA

I, THE UNDERSIGNED:

DECLARE THAT THESE MACHINES

TYPE.....ProGator Gas

SERIAL NUMBER .. TC2030A0_____

COMPLY WITH THE APPLICABLE REQUIREMENTS OF:

EMC DIRECTIVE..... 89/336/EEC
MACHINE DIRECTIVE 89/392/EEC

DONE AT:

JOHN DEERE HORICON WORKS..... 30 August 1999

MICHAEL J. MACK Jr.
GENERAL MANAGER
COMMERCIAL GOLF AND TURF PRODUCTS

INDEX

A

Accidents, Protect Children and Prevent 7
Air Cleaner Element, Servicing 40
Air Intake Hose, Hydraulic Hoses, Radiator Hoses and Clamps, Check 41
Air Intake Screen, Cleaning 38
Alternator Belt (Diesel Models), Replacing 52
Alternator Belt (Gas Models), Replacing 50
Alternator Belt, Checking and Adjusting 49
Attachments 10

B

Battery Electrolyte Level, Checking 65
Battery, Checking the 85
Battery, Cleaning or Replacing 64
Battery, Using Booster 66
Belt (Diesel Models), Replacing Alternator 52
Belt (Gas Models), Replacing Alternator 50
Belt, Checking and Adjusting Alternator 49
Belts, Using Seat 11
Booster Battery, Using 66
Brake Fluid 63
Brake Fluid Level, Check 63
Brake, Using the Park 12
Bulb, Replacing Headlight 68
Bulb, Replacing Indicator Light 67
Bulb, Replacing Stoplight/Taillight 66

C

Cargo Box Tailgate, Operating the 25
Cargo Box Tailgate, Removing the 25
Cargo Box, Installing the 76
Cargo Box, Raising and Lowering 24
Cargo Box, Removing the 75
Chart, Service Interval 30
Checklist, Daily Operating 20
Clothing, Wear Appropriate 9
Clutch Pedal, Using the 17
Coils, Cleaning Oil Cooling 60
Console and Miscellaneous Controls 4
Controls, Console and Miscellaneous 4
Controls, Dash and Foot 4
Coolant Drain Interval, Engine 43
Coolant Level, Checking 44
Coolant, Engine 42
Cooling System, Draining 45
Cooling System, Filling 46
Cooling System, Flushing 46

D

Dash and Foot Controls 4

INDEX

Diesel Fuel Storage 72
Differential Lock Lever, Using the 12
Drive Shaft (4WD Models), Lubricating the 56
Drivelines, Stay Clear of Rotating 8
Dust Unloading Valve, Clean Rubber 38

E

Electrolyte Level, Checking Battery 65
Element, Servicing Air Cleaner 40
Engine Coolant 42
Engine Coolant Drain Interval 43
Engine Oil 34
Engine Oil and Filter, Changing 35
Engine Oil Level, Checking 35
Engine Oil-Diesel Model 34
Engine Oil-Gas Model 34
Engine Warranty Maintenance Statement 33
Engine with Operator Off the Seat, Operating Vehicle 22
Engine, Adjusting Carburetor-Gas 33
Engine, Starting the 19
Engine, Stopping the 20

F

Fan Shroud, Cleaning Radiator Cooling Fins and 39
Filter (Gas Models), Replace Fuel 47
Filter, Changing Engine Oil and 35
Filter, Changing Oil 35
Filter, Changing the Hydraulic Oil and 58
Filter, Changing Transmission Oil and 54
Fluid Levels, Checking 84
Fluids, Avoid High Pressure 9
Foot Controls, Dash and 4
Front Axle Oil 61
Front Axle Oil (4WD Models), Changing the 62
Front Axle Oil Level (4WD Models), Checking the 61
Fuel 70
Fuel Filter (Gas Models), Replace 47
Fuel Sediment Bowl (Diesel Models), Servicing 48
Fuel Shut-Off Valve (Diesel Models), Using 11
Fuel Specifications-Diesel Units 72
Fuel Specifications-Gas Units 71
Fuel Storage, Diesel 72
Fuel Storage, Gasoline 71
Fuel Tank, Filling 73
Fuses, Checking and Replacing 68

G

Gasoline Fuel Storage 71
Gear Lockout, Using the 5th 15
Gear Shift Lever, Using the 17

INDEX

Grease 56

H

Hand Holds, Use 6
Headlight Bulb, Replacing 68
Hydraulic Hoses, Radiator Hoses and Clamps, Check Air Intake Hose 41
Hydraulic Oil 57
Hydraulic Oil and Filter, Changing the 58
Hydraulic Oil Level, Check 57
Hydraulic Oil Reservoir Strainer, Clean 60

I

Indicator Light Bulb, Replacing 67
Instructions, Delivery 84
Instrument Panel 16

L

Labels, Machine Safety 1
Lever, Using the Differential Lock 12
Lever, Using the Gear Shift 17
Lever, Using the Hydraulic PTO Control 13
Lever, Using the Lift Cylinder 13
Lift Cylinder Lever, Using the 13
Lift Cylinder Safety Support, Using the 29
Lock Lever, Using the Differential 12

M

Machine Safety Labels 1
Metal Surfaces, Repairing and Cleaning 74

N

Neutral Switch, Testing 21

O

Oil - Engine, Changing 35
Oil (4WD Models), Changing the Front Axle 62
Oil and Filter, Changing Engine 35
Oil and Filter, Changing the Hydraulic 58
Oil and Filter, Changing Transmission 54
Oil Cooling Coils, Cleaning 60
Oil Level (4WD Models), Checking the Front Axle 61
Oil Level, Check Hydraulic 57
Oil Level, Checking Engine 35
Oil Level, Checking Transmission 53
Oil Reservoir Strainer, Clean Hydraulic 60
Oil Strainer, Clean Transmission 55
Oil, Front Axle 61
Oil, Hydraulic 57
Oil, Transmission 53
Oil-Diesel Model, Engine 34
Oil-Gas Model, Engine 34
Operate Safely 5

INDEX

Operator Training Required 8

P

Panel, Instrument 16
Park Brake Switches, Testing Seat and 21
Park Brake, Using the 12
Park Safely 6
Parts, Replacement 26
Plastic Surface Cleaning and Repairing Surfaces 73
Plugs, Checking Spark 37
PTO Control Lever, Using the Hydraulic 13

R

Radiator Cooling Fins and Fan Shroud, Cleaning 39
Radiator Hoses and Clamps, Check Air Intake Hose, Hydraulic Hoses, ... 41
Riders Off Vehicle, Keep 9

S

Safely, Operate 5
Safely, Park 6
Safety Interlock System, Check 85
Safety Interlock System, Testing 20
Safety Labels, Machine 1
Safety Support, Using the Lift Cylinder 29
Safety, Avoid Fumes 33
Safety, Service 27
Safety, Service Cooling System 42
Safety, Storing 81
Screen, Cleaning Air Intake 38
Seat and Park Brake Switches, Testing 21
Seats, Adjusting Vehicle 10
Service Interval Chart 30
Service Parts, Replacement 26
Spark Plugs, Checking 37
Specifications 86
Stoplight/Taillight Bulb, Replacing 66
Storage, Diesel Fuel 72
Storage, Gasoline Fuel 71
Storage, Removing Vehicle From 83
Storing Safety 81
Storing the Vehicle 81
Strainer, Clean Hydraulic Oil Reservoir 60
Strainer, Clean Transmission Oil 55
Switch, Testing Auxiliary Hydraulic System 22
Switch, Testing Neutral 21

T

Tailgate, Operating the Cargo Box 25
Tailgate, Removing the Cargo Box 25
Taillight Bulb, Replacing Stoplight/ 66

INDEX

Testing Auxiliary Hydraulic System Switch 22
Testing Neutral Switch 21
Testing Safety Interlock System 20
Testing Seat and Park Brake Switches 21
Tipping, Avoid 7
Tire Pressure, Check 85
Tire Pressure, Checking 69
Towing Loads 23
Towing the Utility Vehicle 23
Training Required, Operator 8
Transmission Oil 53
Transmission Oil and Filter, Changing 54
Transmission Oil Level, Checking 53
Transmission Oil Strainer, Clean 55
Transmission, Operating the 5-Speed Synchronized 17
Transport Safely 10
Transporting Utility Vehicle 24
Troubleshooting Chart 77

V

Valve, Clean Rubber Dust Unloading 38
Vehicle, Keep Riders Off 9

W

Wheel Hardware Torque, Check 85
Wheel Hardware, Check 10
Wheel Hardware, Tightening 73

NOTES

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QUALITY DOESN'T END WHEN YOU INVEST IN A DEERE

John Deere Parts

We help minimize downtime by putting genuine John Deere parts in your hands in a hurry.

That's why we maintain a large and varied inventory - to stay a jump ahead of your needs.

The Right Tools

Precision tools and testing equipment enable our Service Department to locate and correct troubles quickly ... to save you time and money.

Well-Trained Technicians

School is never out for John Deere service technicians.

Training schools are held regularly to be sure our personnel know your equipment and how to maintain it.

Result? - Experience you can count on!

Prompt Service

Our goal is to provide prompt, efficient care when you want it and where you want it.

We can make repairs at your place or at ours, depending on the circumstances: see us, depend on us.

JOHN DEERE SERVICE SUPERIORITY: We'll be around when you need us.