



2016 Murano HYBRID

Roadside Assistance Guide



Foreword

This manual describes roadside assistance operations and **important safety** related warnings and cautions for this vehicle.

This vehicle is equipped with a high-voltage battery pack. **Failure to follow recommended practices during emergency responses will cause death or serious personal injury.**

Please read this manual in advance in order to understand the features of this vehicle and to help you deal with roadside assistance operations involving this vehicle. Follow the procedures in order to help assure a safe and successful roadside assistance operation.

This manual is periodically updated. If you are not viewing this manual on the Nissan web site, we urge you to go to www.nissanusa.com or www.nissan-techinfo.com to make sure you have the most recent version of this manual.

NISSAN EMERGENCY CONTACT INFORMATION

- Nissan Consumer Affairs: 1-800-647-7261 (US) or 1-800-387-0122 (Canada)
- Hours of operation are 8am - 5pm (Monday-Friday) Eastern, Central and Pacific time zones

IMPORTANT INFORMATION ABOUT THIS MANUAL

You may see various symbols in this manual. They have the following meanings:



⚠ DANGER

This symbol is used to inform you of an operation which will result in death or serious personal injury if instructions are not followed.

Example: Touching high-voltage components without using the appropriate protective equipment will result in electrocution. PPE must always be worn when touching or working on high-voltage components.

⚠ WARNING

This symbol is used to inform you of an operation which may cause death or serious personal injury if instructions are not followed.

⚠ CAUTION

This symbol is used to inform you of an operation which may cause personal injury or component damage if instructions are not followed.

Please note that there may be differences between this manual and the vehicle specification due to specification changes.

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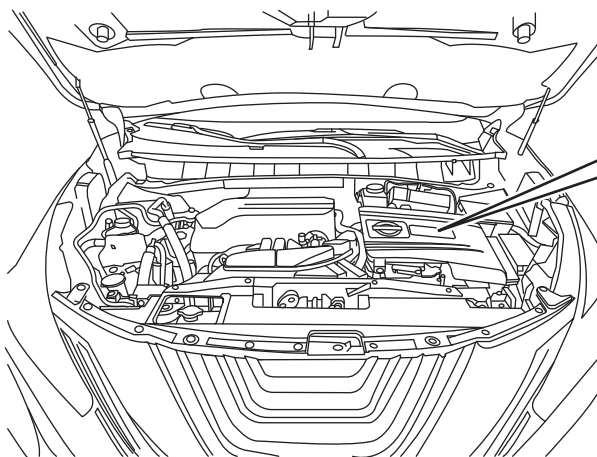
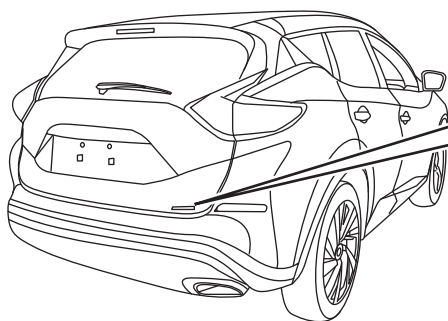
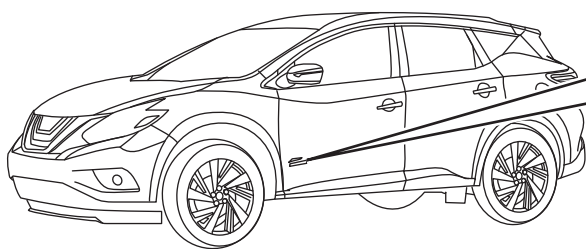
1. About the Murano HYBRID

This hybrid electric vehicle (HEV) uses two types of batteries. One is a 12-volt battery that is the same as the battery in vehicles powered by internal combustion engines. The 12-volt battery is located in the front of the vehicle on the left side of the engine compartment. The other is the high-voltage battery for the traction motor which propels the vehicle. The high-voltage battery is located under the center console between the driver's and passenger's seats with service plug access through the center console area storage bin.

When the high-voltage battery level is low, engine output is used to generate power from the traction motor and charge the high-voltage battery. Additionally, the vehicle system can recharge the high-voltage battery by converting driving force into electricity while the vehicle is decelerating or being driven downhill. This is called regenerative charging.

1-1 MURANO HYBRID IDENTIFICATION

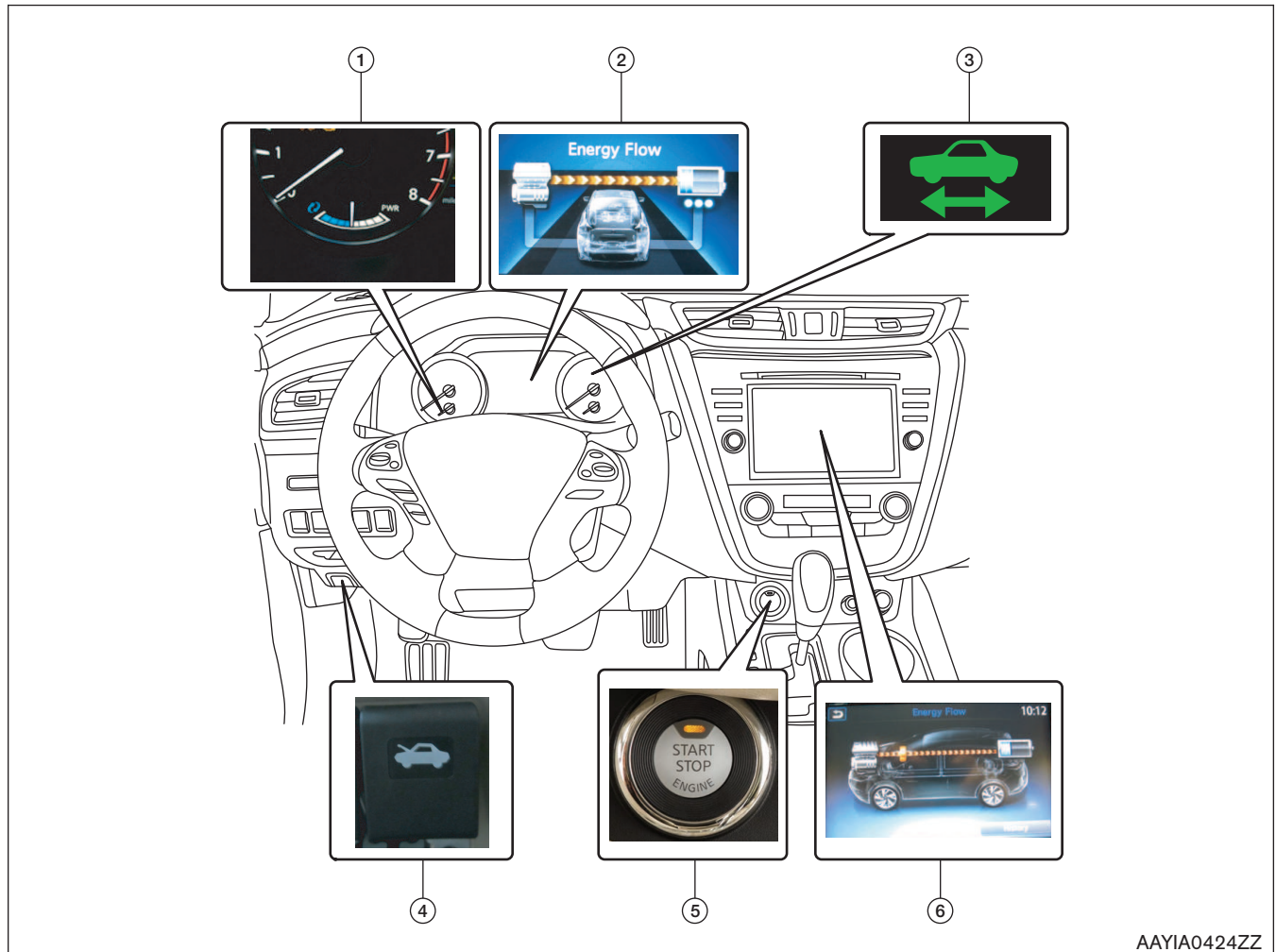
1-1.1 Exterior and Engine Compartment



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1-1.2 Interior

Interior components referenced in this manual are as follows:



- | | | |
|------------------------|---|----------------------------|
| 1. Assist charge gauge | 2. Energy flow display *1 | 3. READY indicator (green) |
| 4. Hood release handle | 5. Ignition switch and ON indicator lamp (orange) | 6. Energy flow display *1 |

*1: This screen may not be displayed due to customer settings. Only one of these screens will display energy flow depending on vehicle optional equipment.

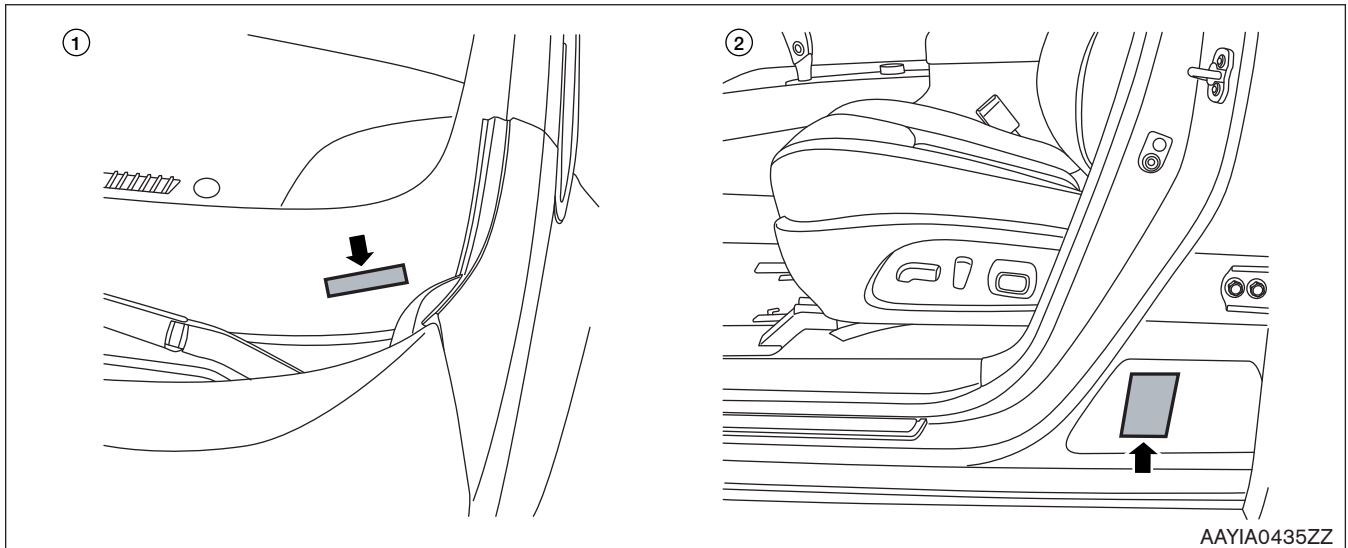
1-2 Vehicle Identification Number (VIN) Layout

In exterior appearance the Murano HYBRID is nearly identical to the conventional Nissan Murano series vehicles. The vehicle identification number can be located as follows:

Example VIN : 5N1 **C**Z2MG4GN052129

The Murano HYBRID is identified by the 4th alphanumeric character: **C**

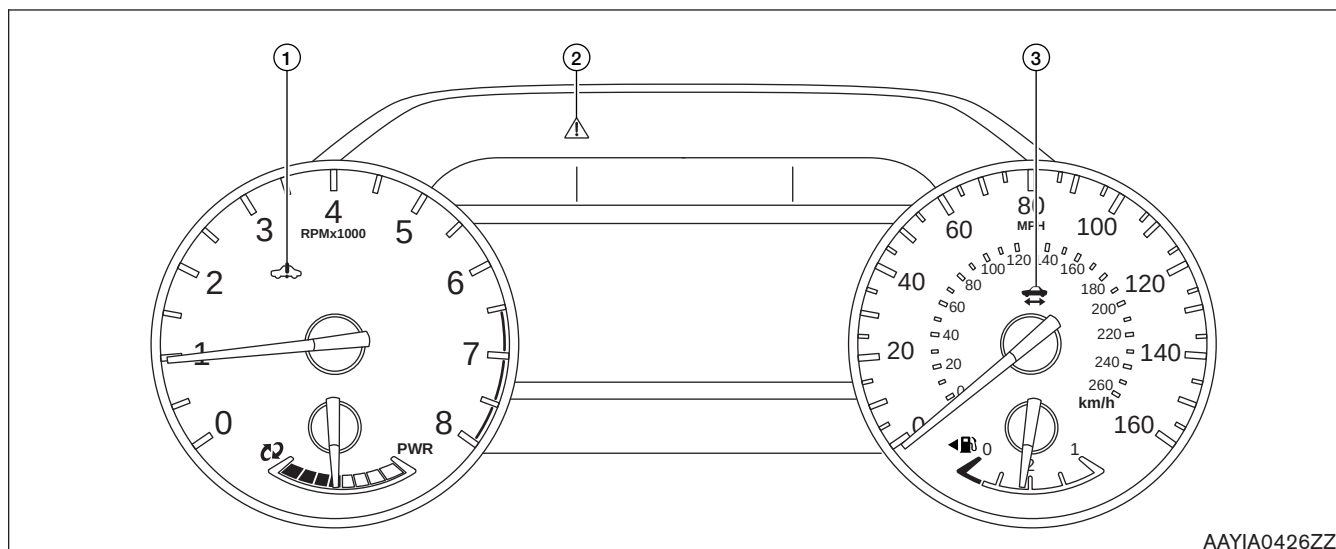
C = Murano HYBRID



1. VIN plate (visible through windshield)

2. Vehicle certification label (lower center pillar)

1-3 Warning and Indicator Lamp Information



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1. Hybrid System Warning Lamp
(Orange)

2. Master Warning Lamp
(Orange or Red)

3. READY Indicator (Green)

Lamp Name	Icon	Description
READY Indicator (Green)		This lamp is on when the high-voltage system is powered up and the vehicle is ready to drive.
Master Warning Lamp (Orange or Red)		This lamp is on when another warning lamp or message is displayed in the instrument cluster.
Hybrid System Warning Lamp *1 (Orange)		This lamp is on or blinking when: - Malfunction has occurred in the hybrid control system and/or - High-voltage leak to vehicle chassis and/or - Emergency shut-off system has been activated. The shut-off system activates in the following conditions: - Front and side collisions in which the air bags are deployed. - Certain rear collisions. - Certain high-voltage system malfunctions.

*1: When this lamp is ON, the READY Indicator will turn OFF.

2. Basic High-voltage System and 12-volt System Information

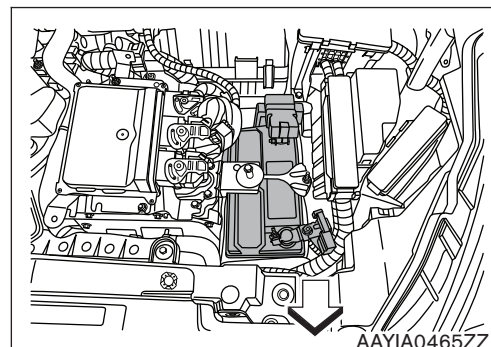
2-1 Battery Information

The Murano HYBRID utilizes two batteries in order to supply both high and low voltage.

2-1.1 12-Volt Battery

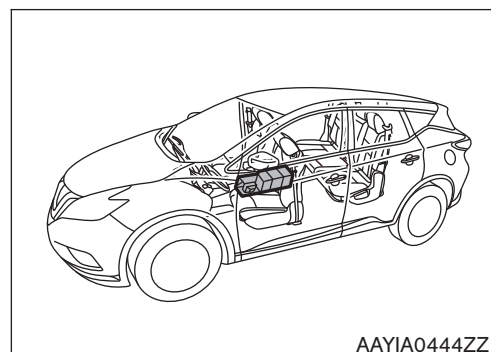
- The Murano HYBRID contains a conventional lead-acid 12-volt battery.
- The 12-volt battery is located in the front of the vehicle on the left side of the engine compartment.
- The 12-volt battery is charged by the high-voltage battery through the DC/DC converter.

← : Vehicle front



2-1.2 High-voltage Battery

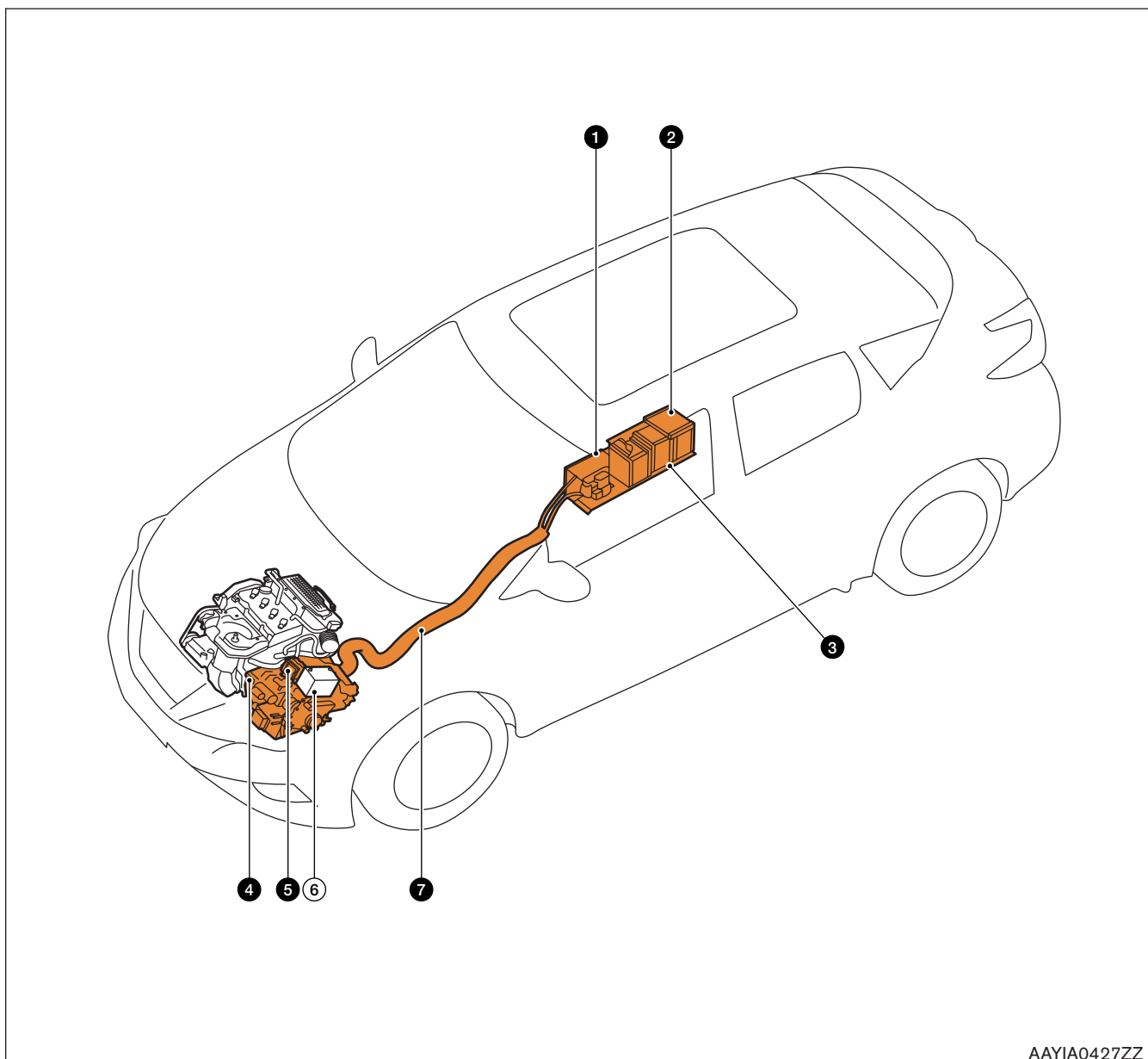
- The Murano HYBRID contains a high-voltage battery.
- The high-voltage battery is mounted under the center console and enclosed in a metal case.
- The high-voltage battery stores approximately 144 volts DC.
- A vent hose is provided to exhaust gasses outside the vehicle, if necessary.
- Air for battery cooling is drawn in from the front of the center console, under the instrument panel, and is vented into the RH side B-pillar with the use of a fan located under the passenger seat.



The high-voltage battery supplies power to the following:

- High-voltage harnesses
- DC/DC converter
- Traction motor inverter
- Traction motor

2-2 High-voltage-Related and 12-Volt-Related Component Locations and Descriptions



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NOTE:

Components with white number in black background are high-voltage components.

No.	Component	Location	Description
❶	DC/DC Converter	Inside the center console area (mounted right of high-voltage battery)	The DC/DC converter reduces the voltage of the high-voltage battery to provide power to the 12-volt battery in order to operate the vehicle's electric components (headlights, audio system, etc.).
❷	Service Plug	Center console (inside storage bin under access door)	This is used to disable the high-voltage system.
❸	High-voltage Battery	Inside the center console area (between the front driver's and passenger's seats)	The high-voltage battery stores and outputs DC power (Maximum voltage 144V) needed to propel the vehicle.
❹	Traction Motor	Engine compartment (built-into the transmission)	Converts three-phase alternating current (AC) power to drive power (torque) which propels the vehicle.
❺	Traction Motor Inverter	Engine compartment (front driver side)	Converts the DC power stored in the high-voltage battery to three-phase AC power and controls motor torque (revolution) by regulating the motor current. The inverter has a built in high-voltage capacitor.
❻	12-volt Battery	Front of the vehicle on the left side of the engine compartment.	A lead-acid battery that supplies power to the low voltage devices.
❼	High-voltage Harness	Center console area (on high-voltage battery), under floor, engine compartment	Orange-colored power cables carry high DC voltage between each of the high-voltage components.

2-3 High-voltage Battery Pack Specifications

High-voltage Battery Specifications	
High-voltage battery voltage	144V
Number of high-voltage battery modules in the pack	3 modules (40 cells)
High-voltage battery module voltage	43.2V- 50.4V (depending on individual module)
High-voltage battery dimensions	27.91 L x 9.41 W x 16.65 H in. (709.0 L x 239.0 W x 423.0 H mm)
High-voltage battery weight	70.60 lbs (32.0 kg)

2-4 High-voltage Safety Measures

Circuit insulation	The high-voltage positive (+) and negative (-) circuits are insulated from the metal chassis.
Reducing the risk of electrocution	The high-voltage components and harnesses have insulated cases or orange-colored coverings which provide insulation and easy identification. The high-voltage battery case is electrically connected to the vehicle ground. This connection helps protect the vehicle occupants and emergency responders from high-voltage electrical shock.
Identification	The high-voltage components are labeled “WARNING” similar to label shown below. All high-voltage harnesses are coated in orange.

2-4.1 Warning Labels

The following warning label is applied to the high-voltage inverter located in the engine compartment.



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The following warning label is applied to the service plug access cover located inside the passenger compartment center console.



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The following warning label is applied to the high-voltage battery located inside the passenger compartment center console.

 WARNING/AVERTISSEMENT	
HIGH VOLTAGE INSIDE DO NOT ATTEMPT TO DISASSEMBLE OR REPAIR. ELECTRIC SHOCK MAY OCCUR. • Avoid contacting the batteries and fluid with eyes, skin or clothes. In the event of a spill, flush with water and seek medical help immediately. • Keep children away from this unit • To avoid explosions or fire which can result in serious injury or death: • Do NOT immerse in water or allow condensation to occur within the unit • Do NOT touch with wet hands • Do NOT expose to fire or open flame • Do NOT strike or puncture the battery or its housing For Qualified High Voltage Technicians: • Read the Service Manual before repairing or replacing the battery • Do not allow metal objects to contact or fall inside the battery. Burns, shock, sparks, explosion or fire may occur due to a sudden increase in internal pressure. HV BATTERY RECYCLING INFORMATION: • TRANSPORT THIS BATTERY IN ACCORDANCE WITH ALL APPLICABLE LAWS. • FOR REPLACEMENT AND DISPOSAL INFORMATION, BE SURE TO CONTACT YOUR NISSAN DEALER OR NISSAN NORTH AMERICA P.O.BOX 885001 FRANKLIN, TN 37088-5001 (800) 847-7281.	HAUTE TENSION À L'INTÉRIEUR NE TENTEZ PAS DE DÉSASSEMBLER OU DE RÉPARER; RISQUE DE CHOC ÉLECTRIQUE. • Évitez tout contact des batteries et du fluide avec les yeux, la peau ou les vêtements. En cas de renversement, rincez avec de l'eau et consultez un médecin immédiatement. • Tenez les enfants éloignés de cet équipement. • Pour éviter une explosion ou un incendie pouvant entraîner des blessures graves, voire mortelles : • Ne PAS immerger dans l'eau ou permettre la formation de condensation à l'intérieur • Ne PAS toucher avec les mains mouillées • Ne PAS exposer à une source d'inflammation ou des flammes nues • Ne PAS frapper ou percer la batterie ou son boîtier Pour les techniciens qualifiés pour les circuits haute tension : • Lisez le manuel d'entretien avant de réparer ou de remplacer la batterie. • Ne permettez à aucun objet métallique d'entrer en contact avec la batterie ou de tomber à l'intérieur. Une augmentation soudaine de la pression interne peut entraîner des brûlures, des chocs ou des étincelles, ou causer une explosion ou un incendie. RENSEIGNEMENTS RELATIFS AU RECYCLAGE DES BATTERIES HAUTE TENSION: • TRANSPORTER CETTE BATTERIE CONFORMEMENT À TOUTES LES LOIS APPLICABLES. • POUR DE PLUS AMPLES RENSEIGNEMENTS SUR LE REMPLACEMENT ET LA MISE AU REBUT, S'ASSURER DE COMMUNIQUER AVEC VOTRE CONCESSIONNAIRE NISSAN OU AVEC NISSAN CANADA INC, 5290 ORBITOR DRIVE MISSISSAUGA ON L4W 4Z5 1(800) 387-0122









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3. Roadside Assistance Response Steps

WARNING

-  **NEVER** assume the Murano HYBRID is shut OFF simply because it is quiet.
-  If the vehicle is damaged and you are not sure about the condition of the electric vehicle system, contact first responders immediately. If the vehicle is damaged, the high-voltage system should be shut down by first responders while following the procedures in the First Responder's Guide and while wearing appropriate Personal Protective Equipment (PPE).
-  If the READY  indicator or charging indicator are ON, the high-voltage system is active.
-  If possible, be sure to verify that the READY  indicator on the instrument cluster is OFF and the high-voltage system is stopped.
- Some of the under hood parts get hot and may cause serious burns. Use caution when working on or around these parts.

3-1 Preparation Items

Preparation Items	Specification	Purpose
PPE (personal protective equipment): Insulated gloves 	Up to 1,000V	For protection from high-voltage electrical shock.
Insulated shoes 	—	
Safety shield 	—	To protect eyes when around high-voltage components and wiring.
Safety Glasses 		
Leather gloves 	Must be able to fasten tight around the wrist (worn over insulated gloves).	To protect insulated gloves.
Wrenches 	Size:10mm	To remove the 12-volt battery terminal bolt.
Solvent resistant protection gloves Solvent resistant protection shoes	—	To utilize in the event of a high-voltage battery electrolytic solution leak.
Absorbent pad	The same pad used for internal combustion engine fluids can be used.	To absorb any high-voltage battery electrolytic solution leakage.
Standard fire fighting equipment	Standard fire fighting equipment. Depending on type of fire (vehicle or battery) use standard fire fighting equipment (water or extinguisher).	To extinguish a fire.
Insulated tape	Insulating	To cover any damaged harnesses to protect from and prevent electrical shock. Tape should cover all bare or damaged wire.

3-1.1 Personal Protective Equipment (PPE) Protective Wear Control

Perform an inspection of the Personal Protective Equipment (PPE) items before beginning work. Do not use any damaged PPE items.

3-1.2 Daily Inspection

This inspection is performed before and after use. The worker who will be using the items should perform the inspection and check for deterioration and damage.

- Insulated rubber gloves should be inspected for scratches, holes and tears. (Visual check and air leakage test)
- Insulated safety boots should be inspected for holes, damage, nails, metal pieces, wear or other problems on the soles. (Visual check)
- Insulated rubber sheet should be inspected for tears. (Visual check)

3-1.3 Insulated Tools

When performing work at locations where high-voltage is applied (such as terminals), use insulated tools meeting 1,000V/300A specifications.

3-2 Indications the High-voltage System is ON

If the READY  indicator is ON, the high-voltage system is active.

Before disconnecting the 12-volt battery terminal, if necessary, lower the windows, unlock the doors, and open the rear hatch as required. Once 12-volt battery is disconnected, power controls will not operate.

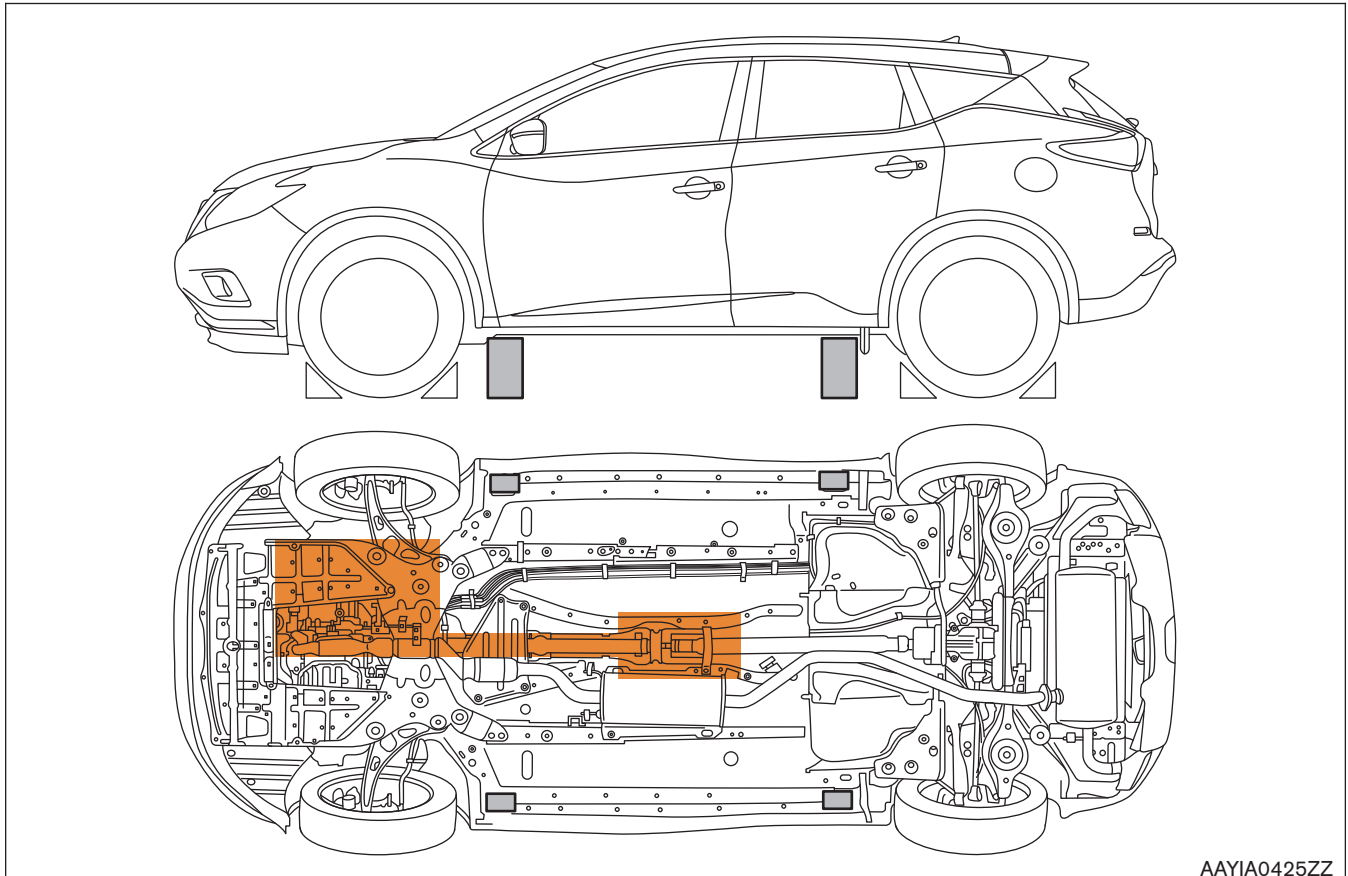
3-3 Vehicle Immobilization and Stabilization

If possible, immobilize the vehicle by turning the 12-volt system OFF and stabilize it with a wheel chock(s). Stabilize the vehicle with wooden blocks or by removing air from the tires.

⚠ WARNING

- ⚠ To avoid electrical shock, do not put wooden blocks or wheel chock(s) under the high-voltage components and harnesses as shown following.

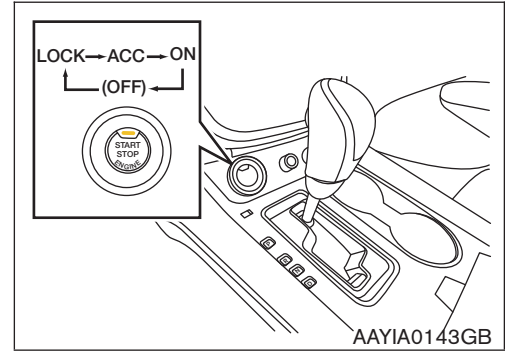
 =  **⚠ DANGER**



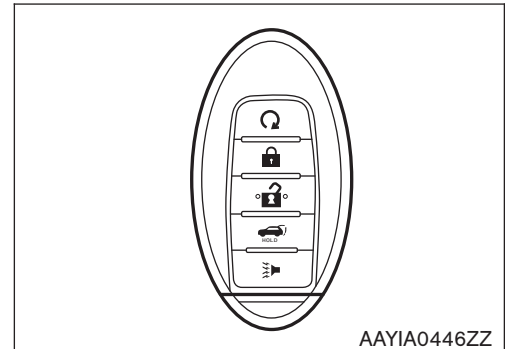
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3-4 Turning OFF the Ignition Switch

1. Check the READY  indicator status. If it is ON, the high-voltage system is active.
2. Press the ignition switch once to turn OFF the high-voltage system. Then verify whether the READY  indicator is OFF.



3. If possible, keep the Nissan Intelligent Key® at least 5 meters (16 feet) away from the vehicle to prevent accidentally turning ON the hybrid system while the roadside assistance is in progress.



3-5 Water Submersion



⚠ DANGER



Damage level of submerged vehicle may not be apparent. Handling a submerged vehicle without appropriate Personal Protective Equipment (PPE) will result in serious injury or death from electrical shock.

⚠ WARNING

-  **The ignition switch of the submerged vehicle must be turned OFF first, if possible. Then the vehicle must be completely out of the water and drained to avoid electrical shock.**
-  **If the vehicle is in the water, to avoid electrical shock NEVER touch the high-voltage components, harnesses or service plug. PPE must always be worn when touching or working on high-voltage components.**

Only first responders wearing appropriate Personal Protective Equipment (PPE) should shut down the vehicle. After shut down, standard towing/recovery procedures can be used. Refer to [4-3 Towing \(RAG-25\)](#).

3-6 Vehicle Fire

⚠ WARNING

- Always utilize appropriate full Personal Protective Equipment (PPE) and self-contained breathing apparatus during fire fighting operations. Smoke from a Murano HYBRID vehicle fire is similar to smoke from a conventional vehicle fire.
- In the case of extinguishing a fire with water, large amounts of water from a fire hydrant (if possible) must be used. DO NOT extinguish fire with a small amount of water.

⚠ CAUTION

In the event of a small fire, a Type ABC fire extinguisher may be used for an electrical fire caused by wiring harnesses, electrical components, etc. or oil fire.

In case of vehicle fire, contact fire department immediately and extinguish the fire if possible. If you must walk away from the vehicle, notify an appropriate responder or a rescue person of the fact that the vehicle is a hybrid vehicle that contains a high-voltage system and warn all others.

3-7 High-voltage Battery Damage and Fluid Leaks

⚠ WARNING

The high-voltage battery contains electrolyte solution. To avoid exposure to electrolyte solution and serious personal injury, always wear appropriate solvent resistant Personal Protective Equipment (PPE) and read the following precautions:

- Electrolyte solution is a skin irritant.
- Electrolyte solution is an eye irritant – If contact with eyes, rinse with plenty of water and see a doctor immediately.
- If electrolyte leak occurs, wear appropriate solvent resistant PPE and use a dry cloth to clean up the spilled electrolyte. Be sure to adequately ventilate the area.
- Electrolyte solution is highly flammable.
- Electrolyte liquid or fumes that have come into contact with water vapors in the air will create an oxidized substance. This substance may irritate skin and eyes. In these cases, rinse with plenty of water and see a doctor immediately.
- Electrolyte fumes (when inhaled) can cause respiratory irritation and acute intoxication. Move to fresh air and wash mouth with water. See a doctor immediately.

In cases of battery case breach or electrolyte leakage, contact the fire department immediately. If you must walk away from the vehicle, notify an appropriate responder of the fact that the vehicle is a hybrid vehicle and contains a high-voltage system and warn all others.

High-voltage Battery Electrolyte Solution Characteristics:

- Clear in color
- Sweet odor
- Similar viscosity to water
- Since the high-voltage battery is made up of many small sealed battery modules, electrolyte solution leakage should be minimal.

NOTE:

Other fluids in the vehicle (such as engine oil, washer fluid, brake fluid, coolant, etc.) are the same as those in a conventional vehicle.

4. Roadside Assistance

4-1 Jump Starting

To start the hybrid system with a booster battery, the instructions and precautions below must be followed.

WARNING

If done incorrectly, jump starting can lead to a 12-volt battery explosion, resulting in severe personal injury or death. It could also damage your vehicle.

Jump starting provides power to the 12-volt system to allow the electrical systems to operate. The electrical systems must be operating to allow the high-voltage battery to be charged. Jump starting does not charge the high-voltage battery.

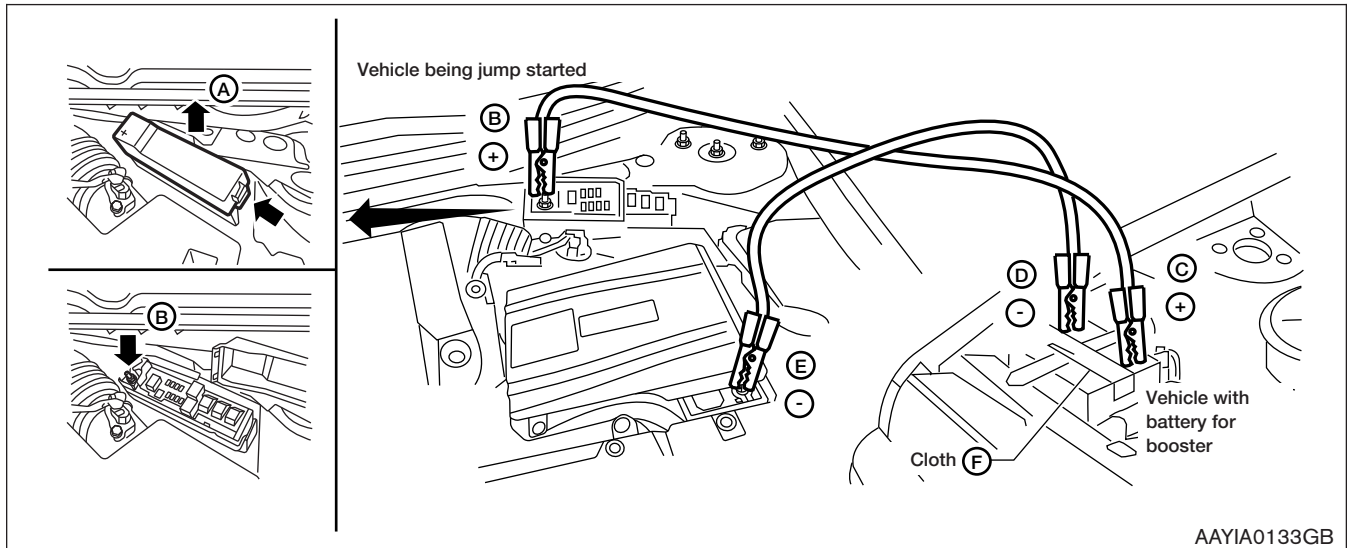
Discharged 12-volt battery may cause the following issues:

- The instrument cluster cannot be displayed while the ignition switch is turned ON. (The hybrid system cannot start.)
- Headlamps, horn, etc. are weak.

WARNING

-  **To avoid electrical shock, the high-voltage battery CANNOT be jump started.**
- **Explosive hydrogen gas is always present in the vicinity of the 12-volt battery. Keep all sparks and flames away from the 12-volt battery. Make sure the vent tube is mounted.**
- **Do not allow battery fluid to come into contact with eyes, skin, clothing or painted surfaces. Battery fluid is a corrosive sulfuric acid solution that can cause severe burns. If the fluid comes into contact with anything, immediately flush the contacted area with water.**
- **The booster battery must be rated at 12 volts. Use of an improperly rated battery can damage the vehicle.**
- **Whenever working on or near a 12-volt battery, always wear suitable eye protectors (for example, goggles or industrial safety spectacles) and remove rings, metal bands, or any other jewelry. Do not lean over the 12-volt battery when jump starting.**
- **Do not attempt to jump start a frozen battery. It could explode and cause serious injury.**
- **Murano HYBRID is equipped with an automatic cooling fan. It could come on at any time. Keep hands and other objects away from it.**
- **Always follow the jump starting instructions below. Failure to do so could result in damage to the charging system and cause personal injury.**

4-1.1 Jump Starting Procedures



NOTE:

Jumper cable connections under the hood of the Murano HYBRID are not connected directly to a battery. They are connected to chassis ground and a fuse box terminal. Refer to the following instructions and the above illustration.

1. Locate the fusible link box behind the engine air cleaner.
2. Push the tab in and lift up (A) to remove the lid and expose the remote positive battery terminal (B).
3. If the booster battery is in another vehicle, position the two vehicles to bring their batteries near each other.

DO NOT allow the two vehicles to touch.

4. Apply the parking brake. Move the selector lever to the P (Park). Switch off all unnecessary electrical systems (lights, heater, air conditioner, etc.).
5. Remove vent caps on the battery (if so equipped) of the vehicle with battery for booster. Cover the battery with an old cloth (F) to reduce explosion hazard.
6. Connect jumper cables in the sequence as illustrated (B → C → D → E).

CAUTION

- **Always connect positive (+) to positive (+) and negative (-) to body ground (for example, as illustrated), not to the 12-volt battery.**
- **Make sure the jumper cables do not touch moving parts in the engine compartment and that the cable clamps do not contact any other metal.**

7. Start the engine of the booster vehicle and let it run for a few minutes.
8. Hold down the brake pedal and press the START button. The vehicle instruments and gauges will light up, and the green READY light  will come ON.

⚠ CAUTION

If the green READY  light does not come on, press the **START** button to turn the Hybrid System OFF. Carefully disconnect the negative cable then the positive cable. It is recommended you visit a **NISSAN** dealer for repair.

9. After the green READY  light in the meter display comes ON, carefully disconnect the negative cable and then the positive cable.
10. Replace the vent caps (if so equipped). Be sure to dispose of the cloth used to cover the vent holes as it may be contaminated with corrosive acid.
11. Reinstall the fusible link box cover.

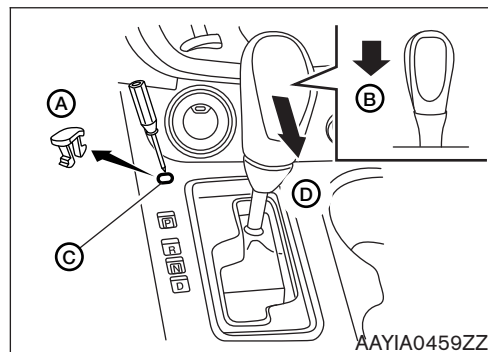
NOTE:

If it is not possible to turn the hybrid system ON by following this procedure, it is recommended you contact a NISSAN dealer immediately.

4-1.2 Shift Selector Lever Lock Release

If the 12-volt battery is low or discharged, the selector lever cannot be moved from the Park (P) position. If a booster battery is not available, the selector lever lock can be manually released. To manually release the selector lever lock, perform the following procedure:

1. Push the ignition switch to the LOCK or OFF position.
2. Apply the parking brake.
3. Remove the shift lock cover (A) using a suitable tool.
4. Push down the shift lock (C) using a suitable tool as shown in the illustration.
5. Push the selector lever button (B) and move the selector lever to the Neutral (N) position (D) while holding down the shift lock.

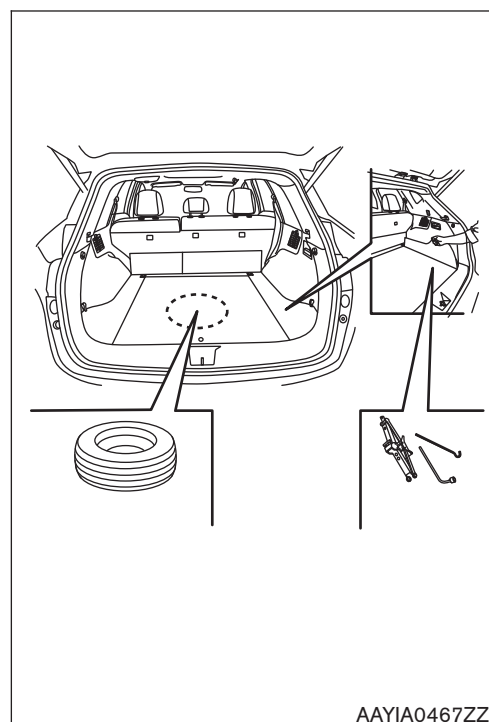


4-2 Tools Installed in the Vehicle

The recovery hook and tool kit are housed along with the jack located inside the rear cargo area.

The tools are located under the right side luggage board.

- Raise the right side luggage board.
- Remove jacking tools located inside the compartment as illustrated.



4-3 Towing

4-3.1 Vehicle Specifications

Length (with Front License Plate Bracket)	192.8 in. (4,897.6 mm)
Length (without Front License Plate Bracket)	192.4 in. (4,887.8 mm)
Width	75.4 in. (1,915.6 mm)
Overall Height	66.6 in. (1,691 mm)
Wheel Base	111.2 in. (2,825 mm)
Minimum ground clearance	6.9 in. (176 mm)
Overall vehicle weight	3,979 - 4,184 lbs. (1,805 - 1,898 kg) (Weight varies by equipment and trim level.)
Front approach angle	13.6°
Rear departure angle (without tow hitch)	24.2°

4-3.2 Towing Guidelines

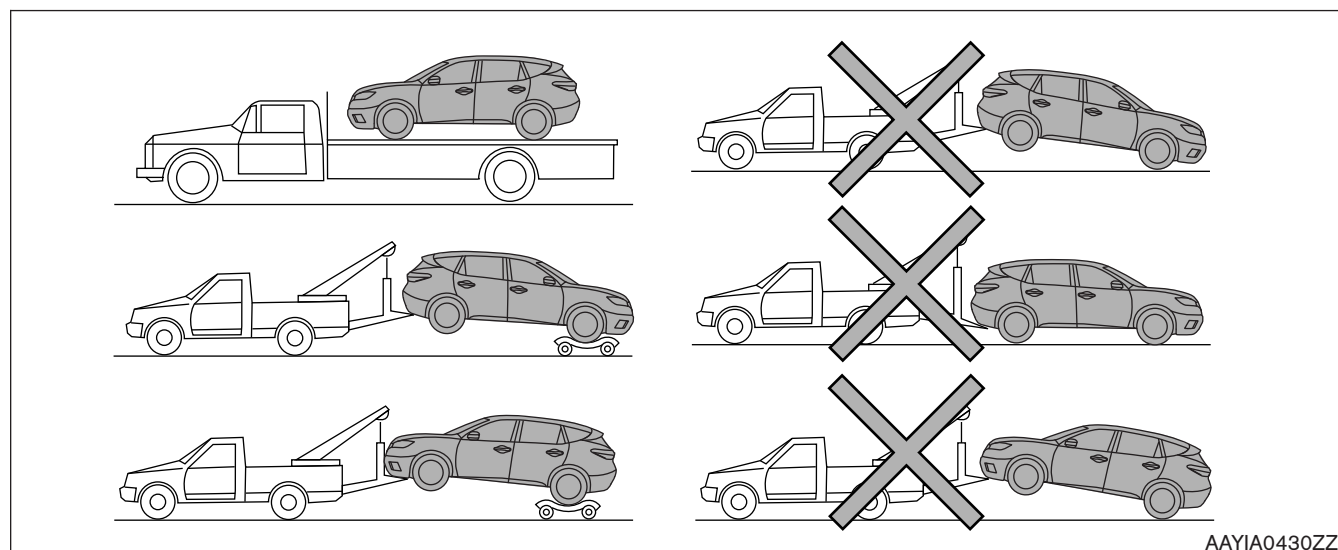
Nissan strongly recommends that Murano HYBRID be towed with the driving wheels off the ground or that the vehicle be placed on a flatbed truck.

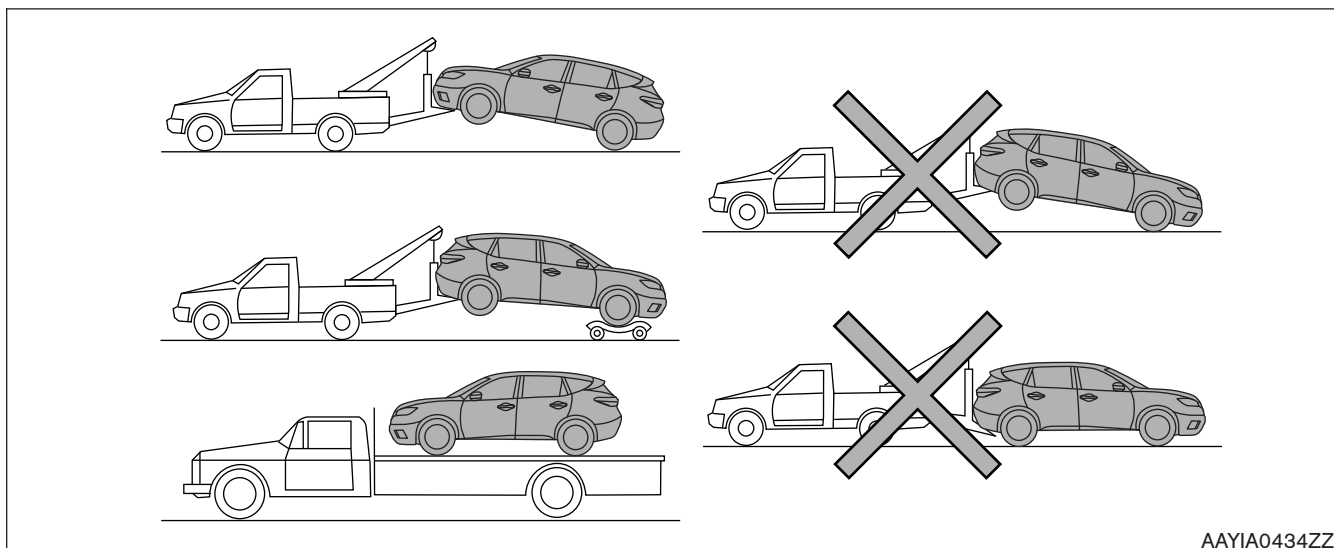
⚠ CAUTION

- **AWD Models:** Never tow with any of the wheels on the ground, as this may cause serious and expensive damage to the powertrain.
- **FWD Models:** Never tow with the front wheels on the ground, as this may cause serious and expensive damage to the powertrain.
- **Transport the vehicle only after turning the ignition switch OFF.**
- **Safety chains or cables must be attached only to the main structural members of the vehicle. Otherwise, the vehicle body will be damaged.**
- **Do not use the vehicle tie down points to free a vehicle stuck in sand, snow, mud, etc.**
- **Never tow a vehicle using the vehicle tie down.**
- **Always pull the recovery device straight out from the vehicle. Never pull on the vehicle at an angle.**
- **Pulling devices should be routed so they do not touch any part of the suspension, steering, brake, high-voltage or cooling systems.**
- **Pulling devices such as ropes or canvas straps are not recommended for use in vehicle towing or recovery.**

Perform vehicle towing by holding up drive wheels (front or all depending on model) or on flatbed in order to prevent secondary damage from voltage generated by the motor. In addition, turn the ignition switch OFF when towing the vehicle. Refer to the following illustration:

AWD Models





4-3.3 Use of Vehicle Equipped Hooks for Recovery Operations

If the vehicle is stuck in sand, snow, mud, etc., use a tow strap or other device designed specifically for vehicle recovery. Always follow the manufacturer's instructions for the recovery device.

⚠ WARNING

To avoid vehicle damage, serious personal injury or death when recovering a stuck vehicle:

- **Tow chains or cables must be attached only to main structural members of the vehicle.**
- **Do not use the vehicle tie-downs to tow or free a stuck vehicle.**
- **Only use devices specifically designed for vehicle recovery and follow the manufacturer's instructions.**
- **Always pull the recovery device straight out from the front of the vehicle. Never pull at an angle.**
- **Route recovery devices so they do not touch any part of the vehicle except the attachment point.**

4-4 Jacking Up the Vehicle and Changing a Tire

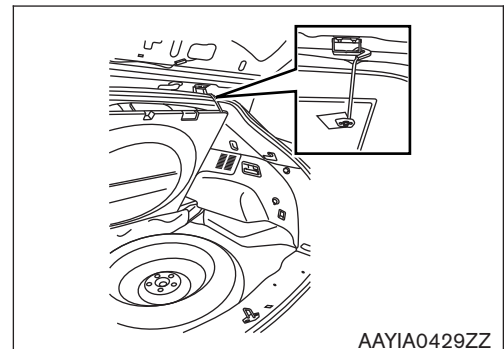
⚠ WARNING

Always follow these instructions when jacking up the vehicle and changing a tire:

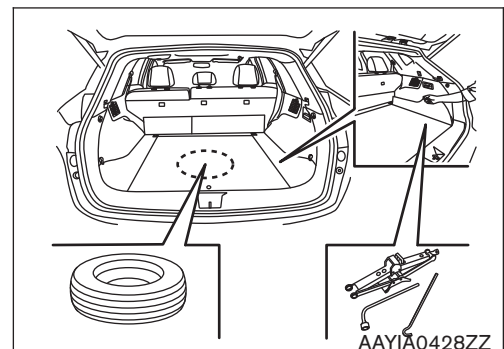
- Never change a tire when the vehicle is on a slope, ice or slippery areas. Jack must be on level ground.
- Make sure the parking brake is securely applied and shift selector is in P (Park) position.
- Never get under the vehicle while it is supported only by the jack. If it is necessary to work under the vehicle, support it with safety stands.
- Use the correct jack-up points. Never use any other part of the vehicle for jack support.
- Never jack up the vehicle more than necessary.
- Never use blocks on or under the jack.
- Do not start or run the engine while vehicle is on the jack. It may cause the vehicle to move. This is especially true for vehicles with limited slip differentials.
- Do not allow passengers to stay in the vehicle while it is on the jack.
- Never run the engine with a wheel(s) off the ground. It may cause the vehicle to move.
- Be sure to block the wheel diagonally opposite the wheel being removed as the vehicle may move and result in personal injury.

Failure to follow these instructions can result in serious personal injury or death and/or vehicle damage.

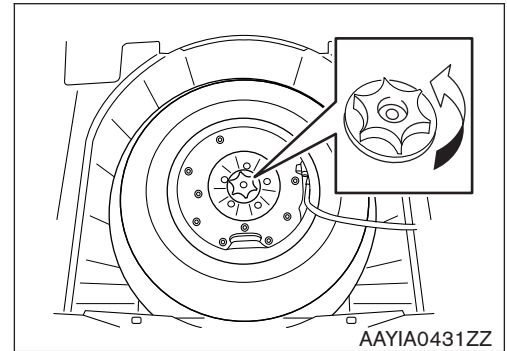
1. Open the liftgate and lift the luggage board in the cargo area using the strap.



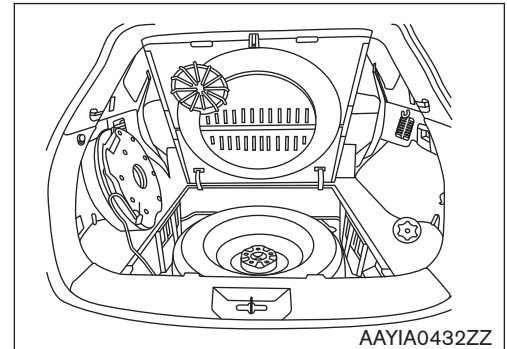
2. Remove the jack and tool kit cover by lifting up using the strap.



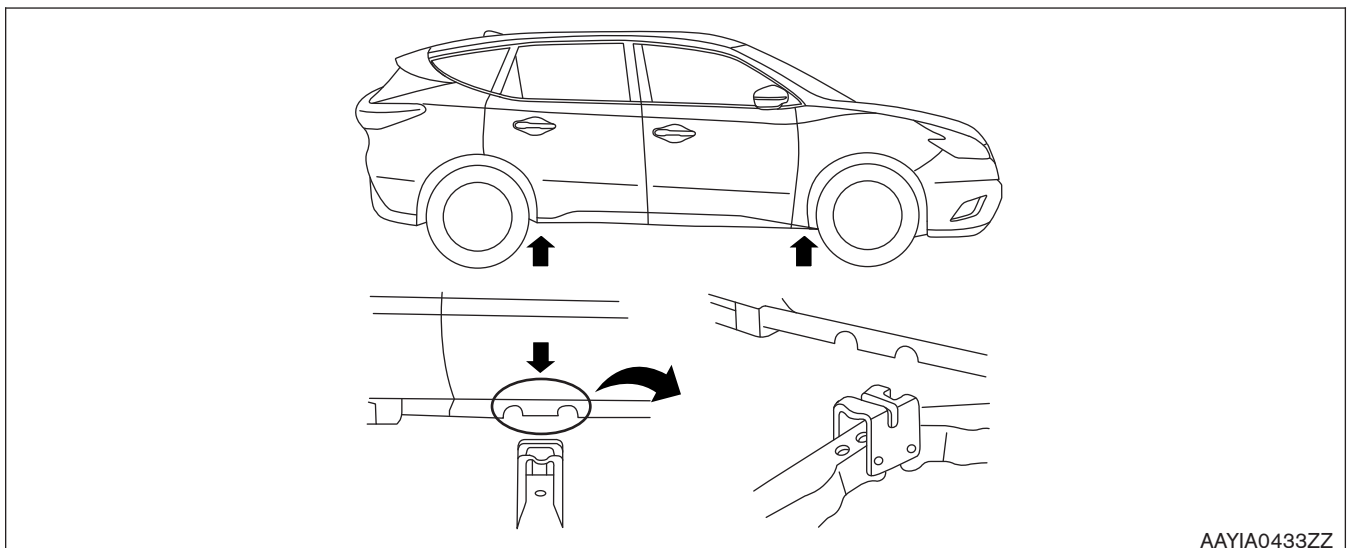
3. Remove the jack and tools from the storage.
4. To remove the spare tire, loosen the bolt by turning counterclockwise. If equipped with BOSE® sub-woofer continue with sub steps a-d as follows. If not equipped with BOSE® sub woofer, proceed to step 5.



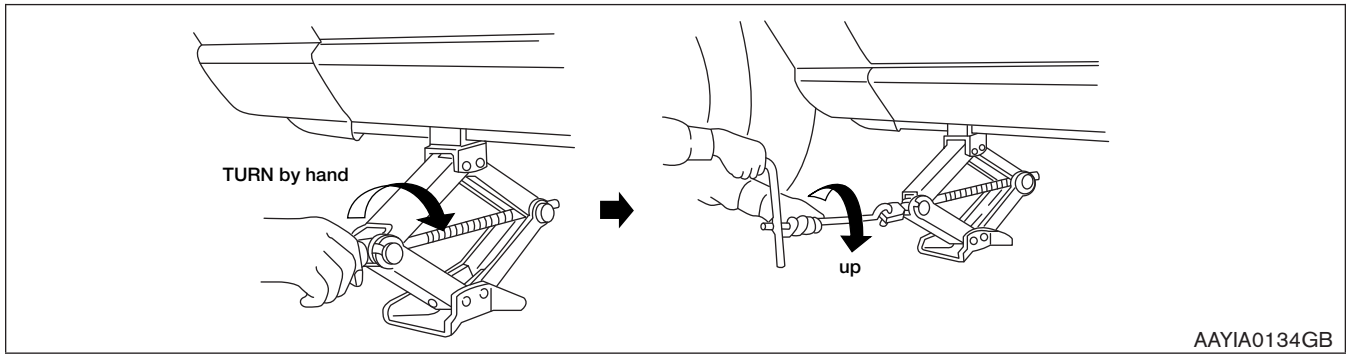
- a. Place the sub-woofer in the lower left corner of the cargo area, leaning against the driver side wall.
- b. Once the flat tire is exchanged with the spare tire, store the flat tire where the spare tire was located.
- c. Place the sub-woofer inside the flat tire.
- d. Turn the bolt clockwise to tighten and place the carpeted floorboard back over the tire.



5. Once free, remove the bolt.
6. Remove the spare tire.
7. Loosen each wheel nut one or two turns by turning it counterclockwise with the wheel nut wrench. **Do not remove the wheel nuts until the tire is off the ground.**
8. Place the jack directly under the jack-up point as illustrated so the top of the jack contacts the vehicle at the jack-up point. Align the jack head between the two notches in the front or the rear as shown. Also fit the groove of the jack head between the notches as shown. **The jack should be used on level firm ground.**



9. To lift the vehicle, securely hold the jack lever and rod with both hands as shown. Carefully raise the vehicle until the tire clears the ground. Remove the wheel nuts, and then remove the tire.



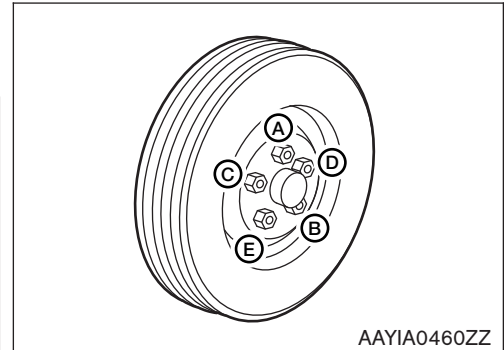
10. Install new or repaired tire and hand-tighten the wheel nuts with the wheel nut wrench in an alternating pattern.

⚠ WARNING

Always follow these instructions when changing a tire:

- **Incorrect wheel nuts or improperly tightened wheel nuts can cause the wheel to become loose or come off. This could cause an accident.**
- **Do not use oil or grease on the wheel studs or nuts. This could cause the nuts to become loose.**

Failure to follow these instructions can result in serious personal injury or death and/or vehicle damage.



11. Securely torque the wheel nuts in an alternating pattern to 83 ft-lb (113 Nm).
12. Lower the vehicle slowly until the tire touches the ground. Then, with the wheel nut wrench, tighten the wheel nuts securely in the sequence illustrated **(A, B, C, D, E)**. Lower the vehicle completely.

⚠ WARNING

Always follow these instructions when using the jacking equipment or after changing a tire:

- **Always make sure that the spare tire and jacking equipment are properly secured after use. Such items can become dangerous projectiles in an accident or sudden stop.**
- **When re-installing the spare tire under the vehicle after use, be sure to secure it with the tire stem facing down toward the ground. If the spare tire is improperly secured with the tire stem facing up towards the bottom of the vehicle, there is an increased risk of separating from the vehicle in the event of crash which may pose a hazard in traffic or risk of injury to others.**

Failure to follow these instructions can result in serious personal injury or death and/or vehicle damage.

NOTE:

To help prevent squeaks and rattles, check that the tools are reinstalled and properly secured in the stored place after use.

13. Remove the jack and securely store the flat tire, tools and jacking equipment in the vehicle.

5. Storing the Vehicle

⚠ WARNING

The service plug must be removed to shut down the high-voltage system for storage.

Do not store a vehicle inside a structure. Keep the vehicle away from other vehicles if the high-voltage battery is severely damaged. There is possibility of delayed fire from a severely damaged high-voltage battery.

5-1 Danger Sign Example

If Murano HYBRID needs to be stored or left unattended, the high-voltage system must be shut down by removing the service plug (refer to [5-2 Removing The Service Plug \(RAG-33\)](#)), and a sign put on the vehicle indicating it is an electric vehicle with high-voltage dangers. For example:

Person in charge: _____

**DO NOT TOUCH!
IN PROGRESS.
HIGH VOLTAGE REPAIR
DANGER:**

**DANGER:
HIGH VOLTAGE REPAIR
IN PROGRESS.
DO NOT TOUCH!**

Person in charge: _____

Copy this page and put it after folding on the roof of the vehicle in service.

AAYIA0020GB

5-2 Removing The Service Plug



DANGER

-  **Do not remove the service plug without always wearing appropriate Personal Protective Equipment (PPE) to help protect the responder from serious injury or death by electrical shock.**
-  **Immediately cover the service plug socket with insulated tape. The high-voltage battery retains high-voltage power even when the service plug is removed. To avoid electric shock, NEVER touch the terminals inside the socket.**

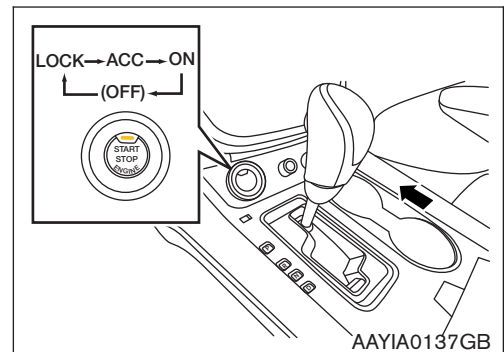
WARNING



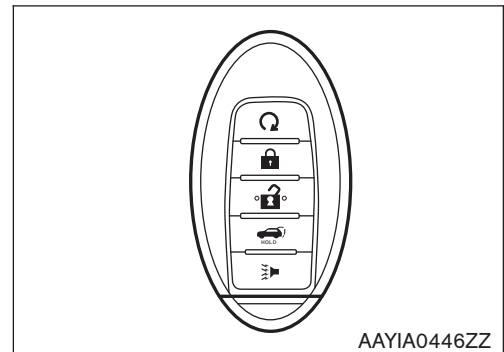
To avoid unintended reinstallation and risk of electrical shock and severe personal injury or death, the service plug should be securely stored away from the vehicle while the vehicle is in storage.

1. If possible, check the READY  indicator status in the instrument cluster. If it is on, the high-voltage system is active.
2. Place the shift selector in the Park (P) position.
3. Push the ignition switch once to turn OFF the high-voltage system. Then verify whether the READY indicator is off.

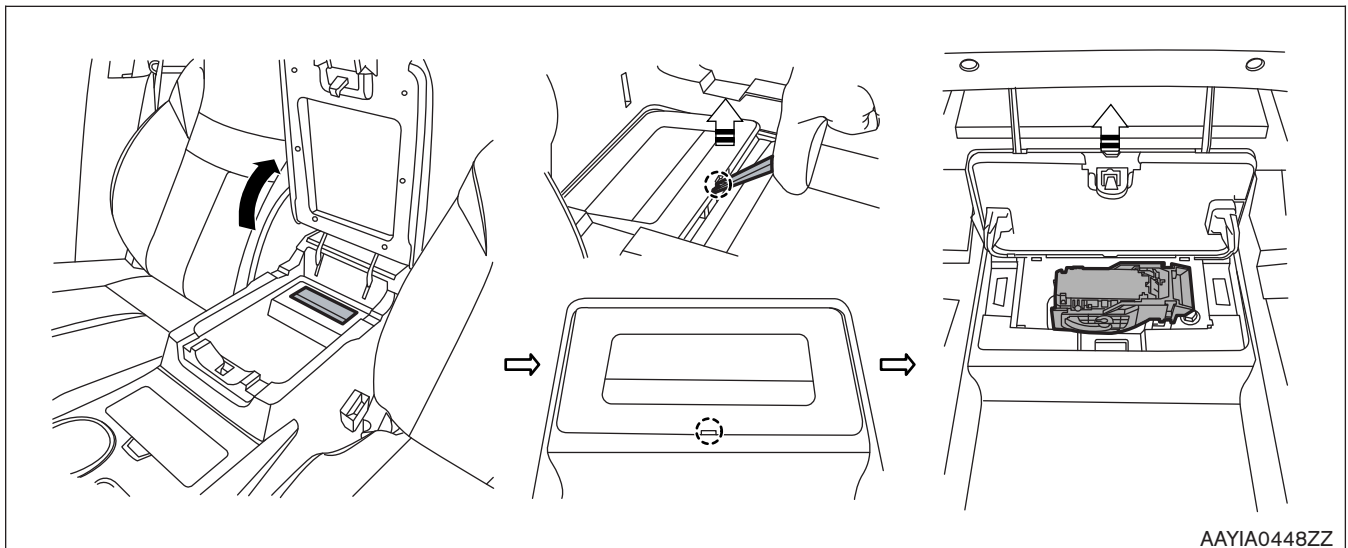
If the READY indicator does not turn off, continue to step 4.



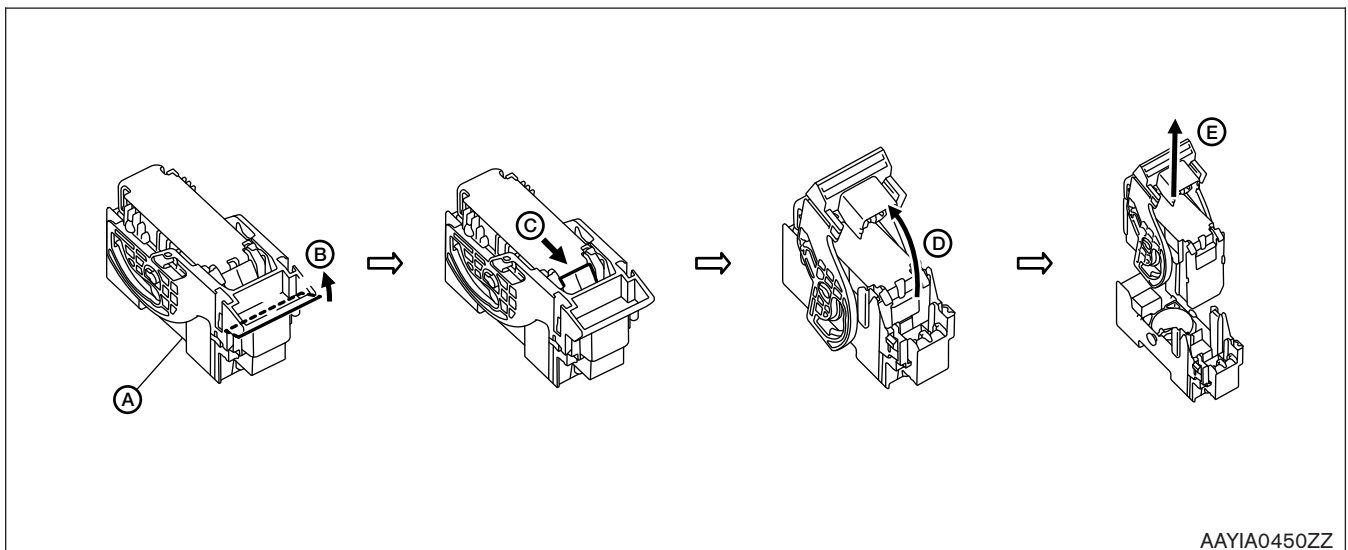
4. If possible, keep the Nissan Intelligent Key® at least 5 meters (16 feet) away from the vehicle.



5. Open the center console and use a suitable tool to remove the service plug access cover.

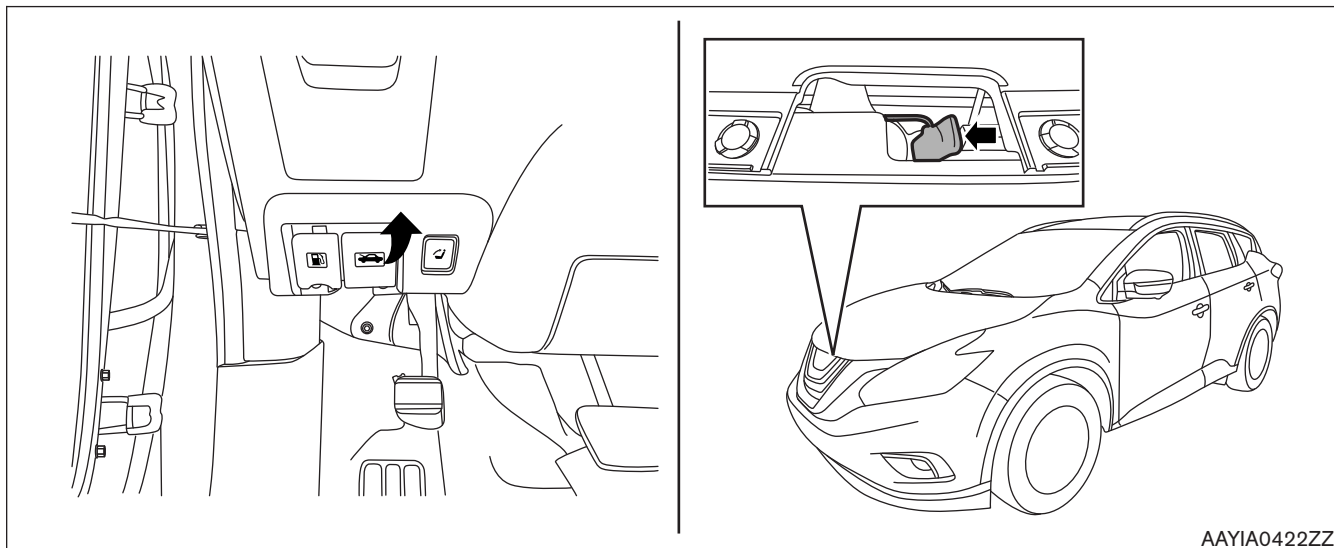


6. Remove the service plug **(A)** by pulling the locking lever **(B)**, then pressing the locking tab **(C)** and rotating the handle **(D)** fully outward. Using the handle, pull the service plug **(E)** completely out of its socket.

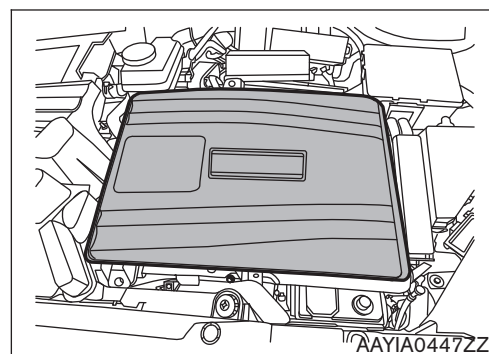


7. **Wait approximately ten (10) minutes for complete discharge** of the high-voltage capacitor after the service plug has been removed.

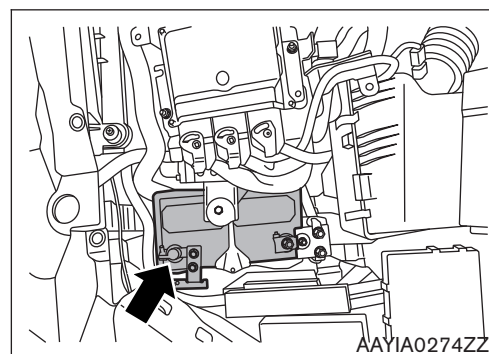
8. Pull release handle located on the instrument panel and push the release lever under the hood sideways to open hood.



9. Remove traction motor inverter cover.



10. Disconnect negative (-) battery cable and cover it with insulated tape.



11. The vehicle is now ready for storage.



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