



INFINITI®

2013 M35h HYBRID

Dismantling Guide



Foreword

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

This vehicle is equipped with a high voltage Lithium-ion (Li-on) battery pack. **Failure to follow recommended practices during dismantling 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 dismantling operations involving this vehicle. Follow the procedures in order to help assure a successful dismantling operation.

INFINITI EMERGENCY CONTACT INFORMATION

- 1-800-662-6200 (US) or 1-800-361-4792 (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.



⚠ 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. In such a case, follow this manual.

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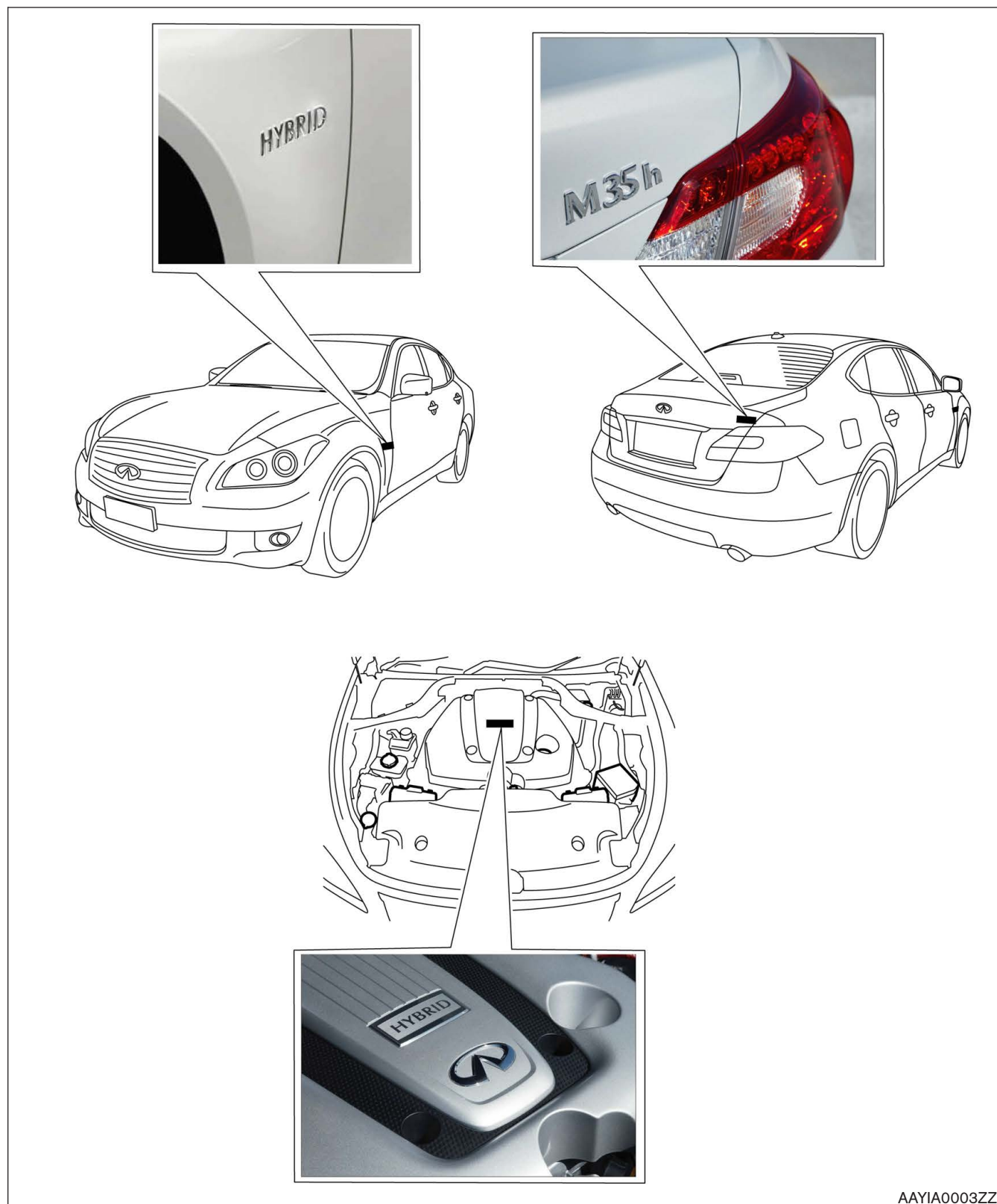
1. About the INFINITI M35h HYBRID

This hybrid electric vehicle (HEV) uses two types of batteries. One is a 12V battery that is the same as the battery in vehicles powered by internal combustion engines. The 12V battery is located behind the rear seat back with battery cable access through the trunk area. The other is the Lithium-ion (Li-ion) battery (high voltage) for the traction motor which propels the vehicle. The Li-ion battery is located behind the rear seat back with service plug access through the trunk area.

The high voltage Li-ion battery is recharged with an on-board DC/DC converter and generator powered by the engine. Additionally, the vehicle system can recharge the Li-ion battery by converting driving force into electricity while the vehicle is decelerating or being driven downhill. This is called regenerative charging.

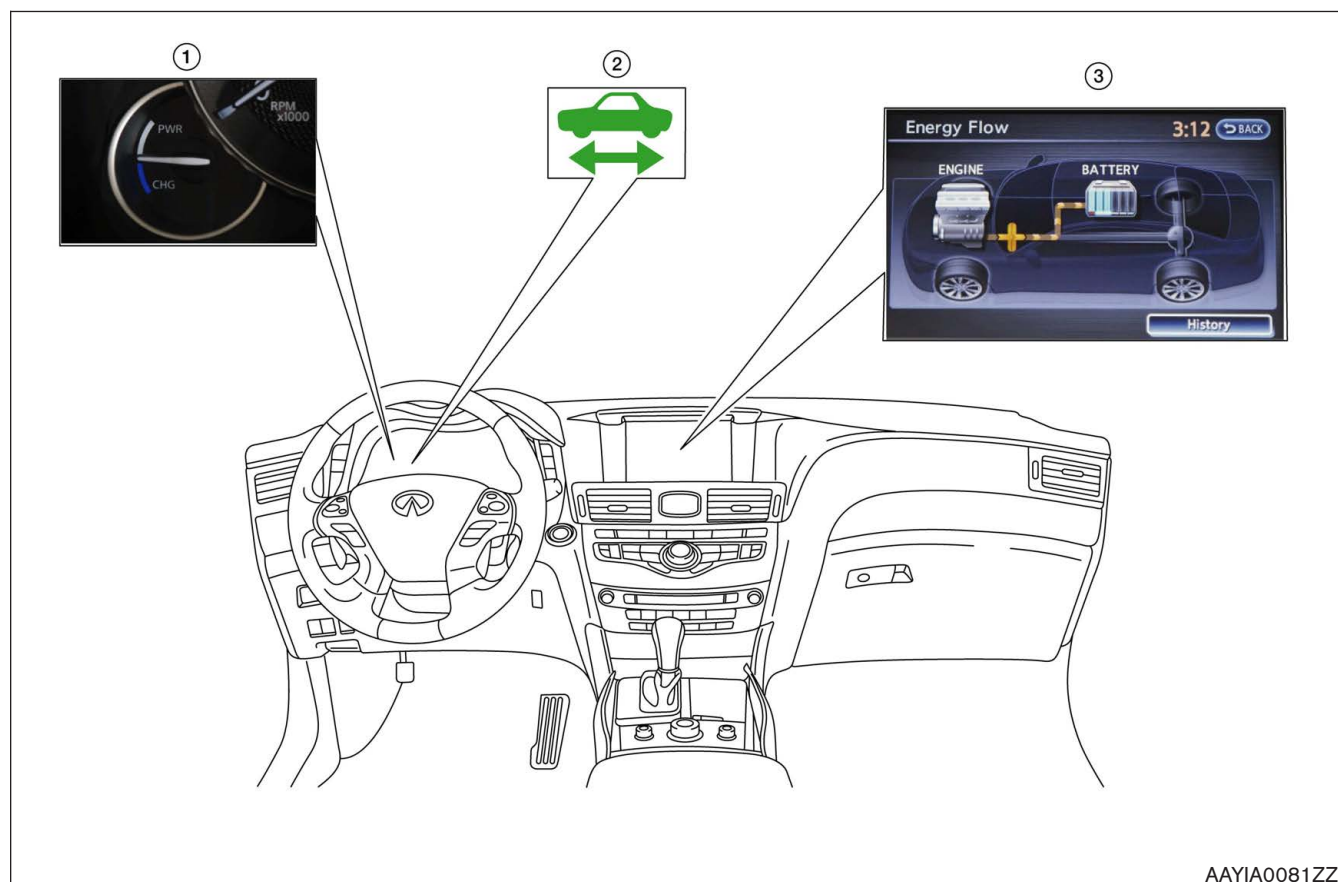
1-1 M35h HYBRID IDENTIFICATION

1-1.1 Exterior and Engine Compartment



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1-1.2 Interior



1. Assist charge gauge

2. READY indicator (green)

3. Energy flow display *1

*1: This screen may not be displayed due to customer settings.

1-2 Vehicle Identification Number (VIN) Layout

In exterior appearance the M35h HYBRID is nearly identical to the conventional INFINITI M series vehicles. The vehicle identification number can be located as follows:

Example VIN : JN1**E**Y1APXCM005523

The M35h HYBRID is identified by the 4th alphanumeric character: **E**

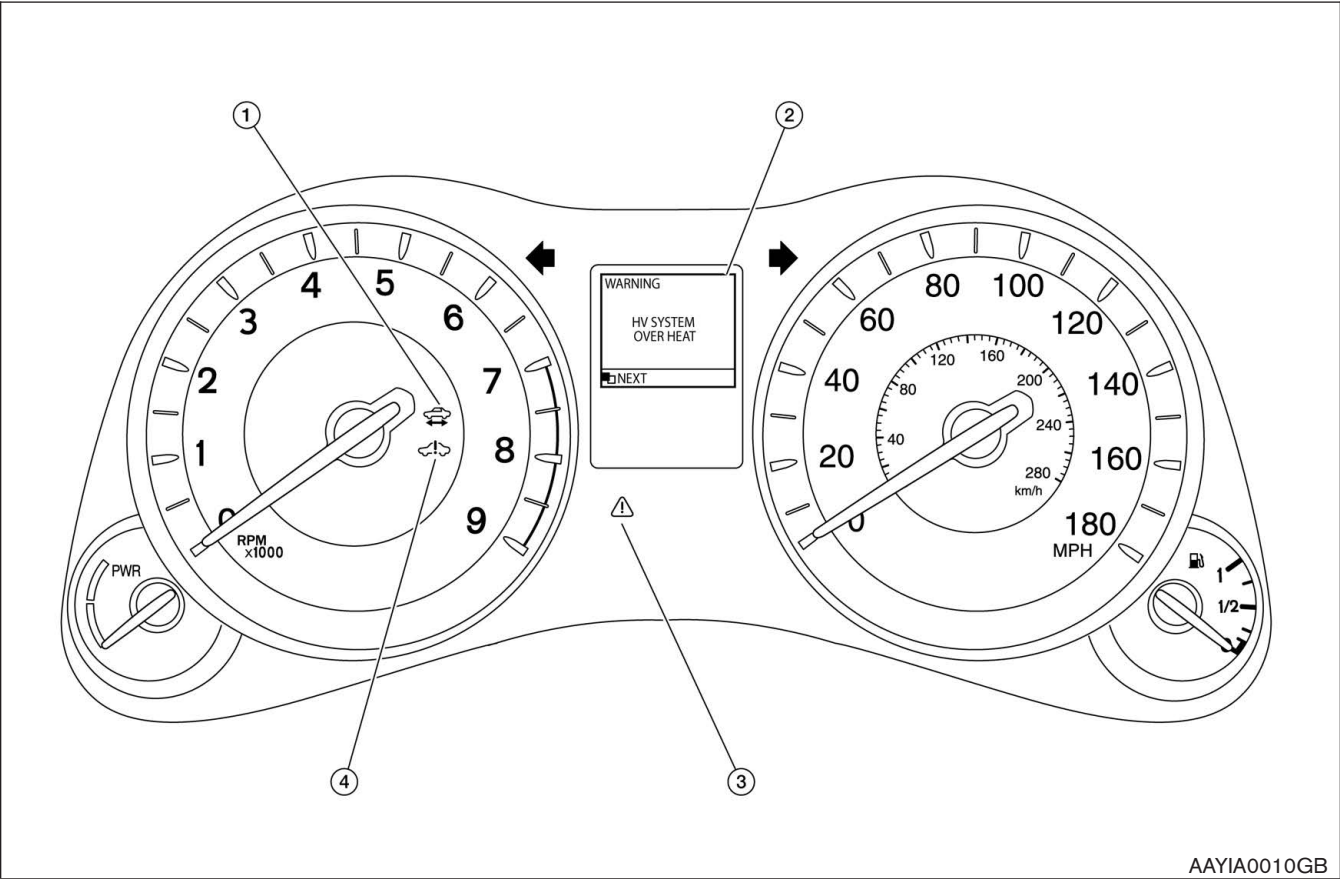
E = M35h HYBRID



1. VIN plate (visible through windshield)

2. Vehicle certification plate (lower center pillar)

1-3 Warning and Indicator Lamp Information



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1. READY Indicator (Green)

2. HV System Overheat Warning (Dot Matrix Liquid Crystal Display)

3. Master Warning Lamp (Orange or Red)

4. Hybrid System Warning Lamp (Orange)

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.

Lamp Name	Icon	Description
Hybrid System Warning Lamp *1 (Orange)		This lamp is on or blinking when: ▪ Malfunction has occurred in the high voltage 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.

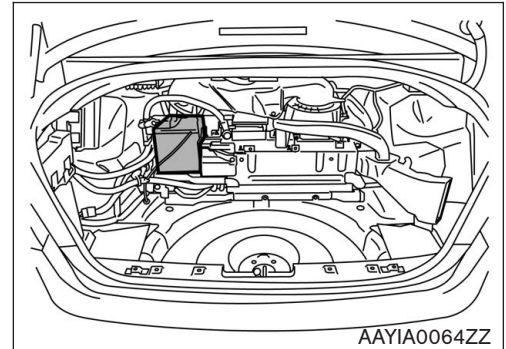
2. Basic High Voltage Information

2-1 Battery Information

The M35h HYBRID utilizes two batteries in order to supply both high and low voltage.

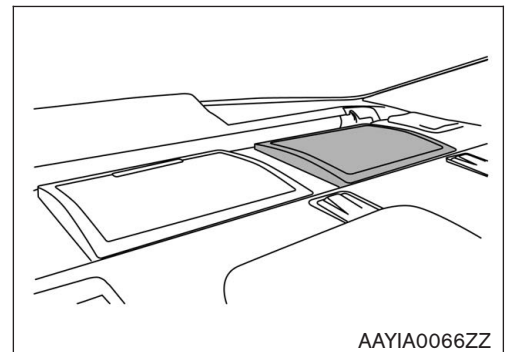
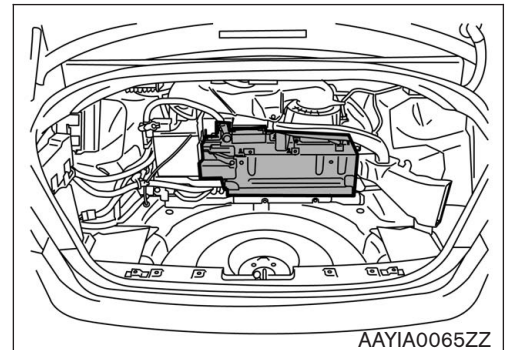
2-1.1 12V Battery

- The M35h HYBRID contains a conventional lead-acid 12V battery.
- The 12V battery is located in the trunk, left of Li-ion battery, concealed by trim cover.
- The 12V battery is charged by the Li-ion battery through the DC/DC converter.



2-1.2 Li-ion Battery

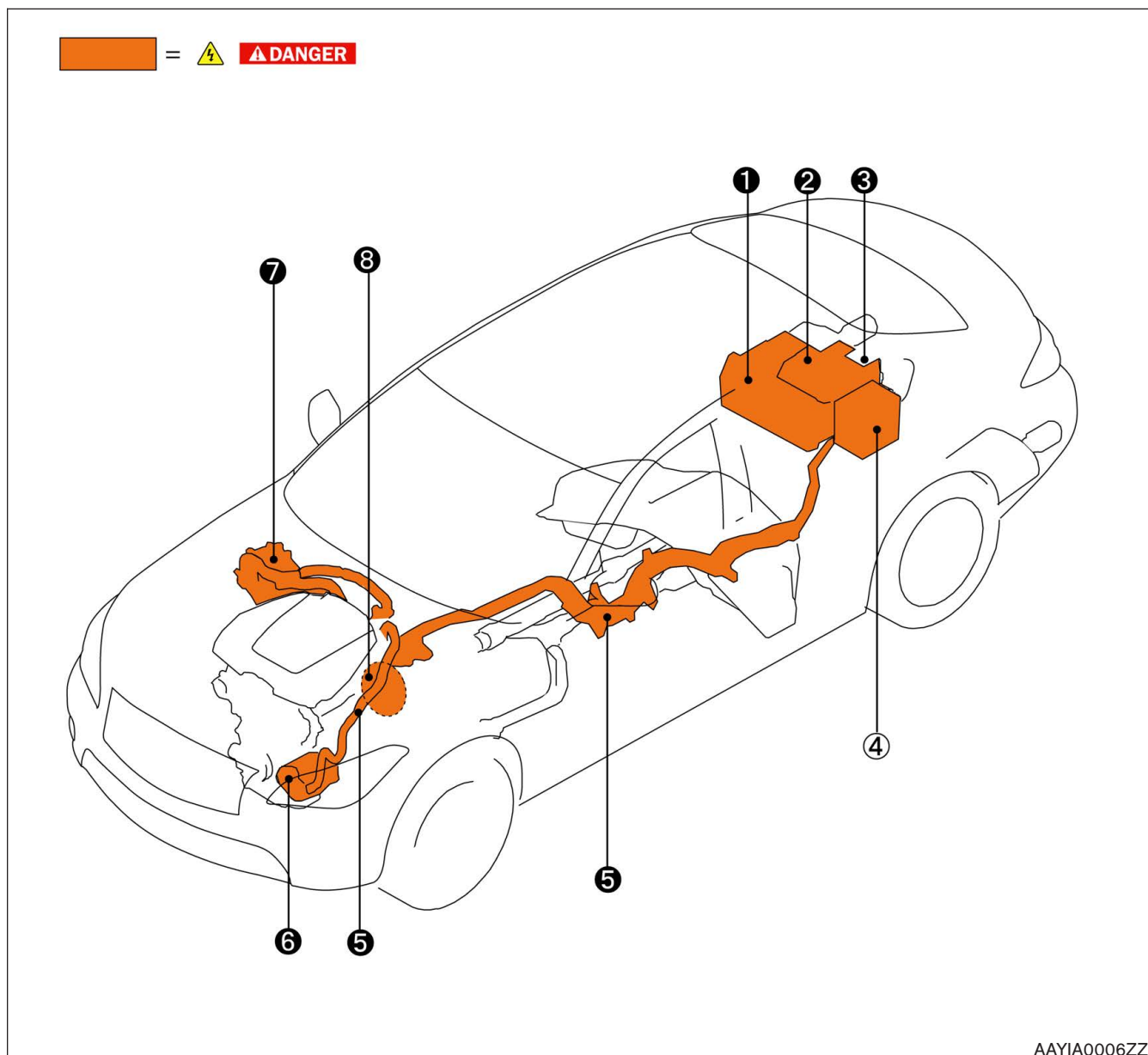
- The M35h HYBRID contains a Li-ion high voltage battery.
 - The high voltage battery is mounted in the trunk area behind the rear seat, enclosed in a metal case and concealed by trim cover.
 - The high voltage battery stores approximately 346 volts DC (400V max.).
 - The high voltage battery exhausts gases directly outside the vehicle through a vent hose.
-
- An air vent is located on the rear parcel shelf for battery cooling.



The high voltage battery supplies power to the following:

- High voltage harnesses
- DC/DC converter
- Traction motor inverter
- Traction motor
- Electric air conditioner compressor

2-2 High Voltage-Related and 12V-Related Component Locations and Descriptions



NOTE:

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

No.	Component	Location	Description
①	Lithium-ion (Li-ion) Battery	Trunk area (behind rear seat back)	The Li-ion battery stores and outputs DC power (Maximum voltage 400V) needed to propel the vehicle.
②	DC/DC Converter	Trunk area (mounted to top of Li-ion battery)	The DC/DC converter reduces the voltage of the Li-ion battery to provide power to the 12V battery in order to operate the vehicle's electric components (headlights, audio system, etc.).
③	Service Plug	Trunk area (below parcel shelf; behind access door in trim panel)	This is used to disable the high voltage system.
④	12V Battery	Trunk area (below parcel shelf; behind trim panel left of Li-ion battery)	A lead-acid battery that supplies power to the low voltage devices.
⑤	High Voltage Harnesses	Trunk area (on Li-ion battery), under floor pan, engine compartment	Orange-colored power cables carry high DC voltage between each of the high voltage components.
⑥	Electric Air Conditioner Compressor	Engine compartment (front driver side)	Air conditioner compressor
⑦	Traction Motor Inverter	Engine compartment (rear passenger side)	Converts the DC power stored in the Li-ion 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.
⑧	Traction Motor	Built-into the transmission	Converts three-phase alternating current (AC) power to drive power (torque) which propels the vehicle.

2-3 Li-ion Battery Pack Specifications

Li-ion Battery Specifications	
Li-ion battery voltage	346V (400V max.)
Number of Li-ion battery modules in the pack	12
Li-ion battery module voltage	28.8V each
Li-ion battery dimensions	33.35 x 17.83 x 15.43 in. (847 x 453 x 392 mm)
Li-ion battery weight	121.28 lbs (55 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 vehicle dismantlers 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 Label

  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 685001 FRANKLIN, TN 37068-5001 (800) 647-7261.	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







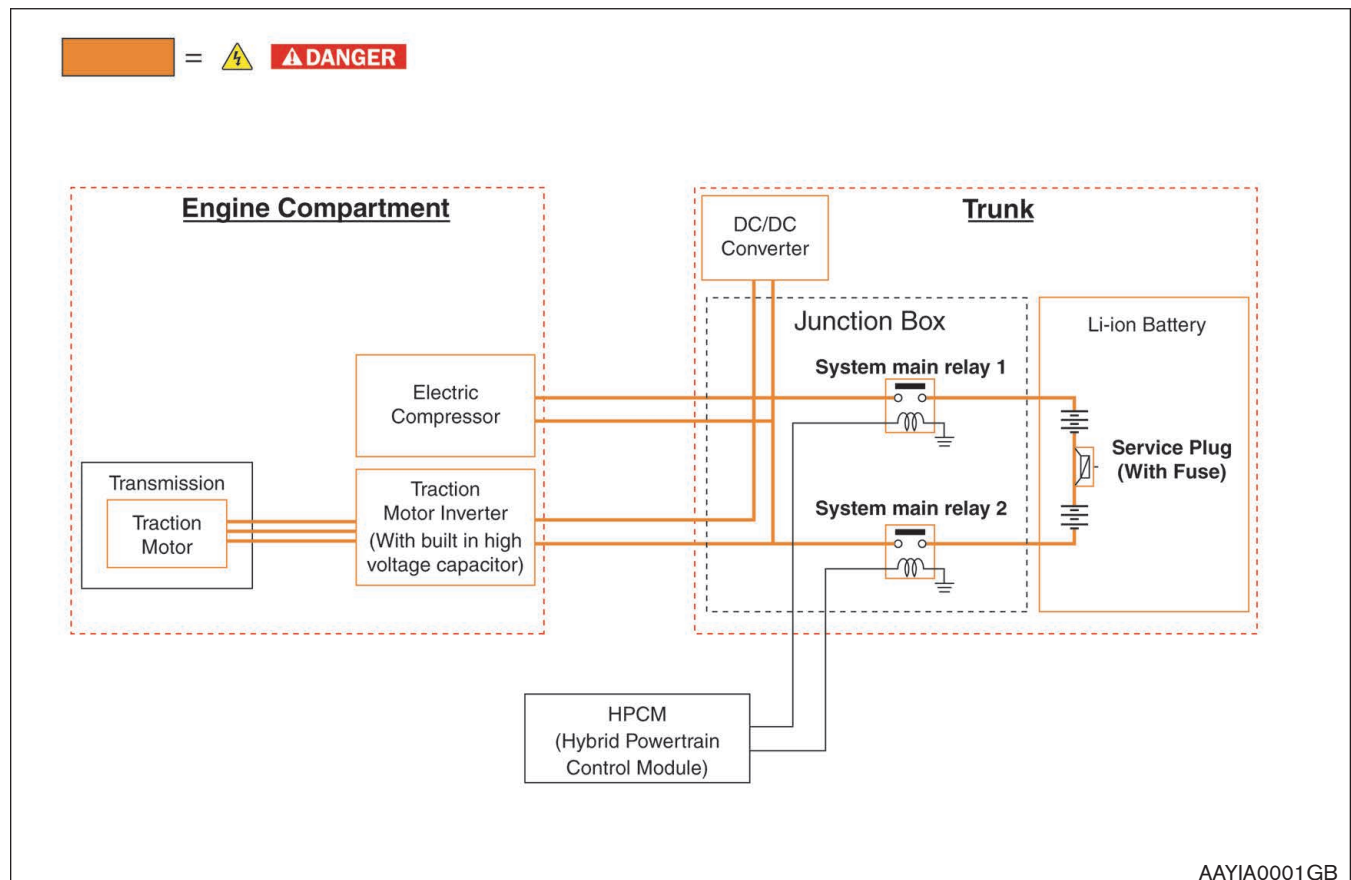


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2-5 High Voltage Safety System

The high voltage safety system is intended to help keep vehicle occupants and emergency responders safe from high voltage electricity.

- A high voltage fuse provides short circuit protection inside the high voltage battery.
- The high voltage safety system is insulated from the metal chassis.
- Positive and negative high voltage power cables are connected to the high voltage battery and are controlled by normally open system main relays (SMR1 and SMR2). When the vehicle is shut off, the relays stop electrical flow from leaving the high voltage battery. However, it can take up to ten (10) minutes for the high voltage capacitor to fully discharge.



DANGER

- **The high voltage system and high voltage capacitor may remain powered for up to 10 minutes after the vehicle is shut off.**
- **The high voltage battery retains high voltage at all times.**

- A ground fault monitor continuously monitors for high voltage leakage to the metal chassis while the vehicle is running. If a malfunction is detected, the HPCM (hybrid powertrain control module) will illuminate the hybrid system warning lamp  in the instrument cluster.
- The high voltage battery relays (SMR1 and SMR2) will automatically open to stop the electrical flow in a frontal collision that is sufficient enough to activate the supplemental restraint system (SRS).

2-6 High Voltage Circuit Shut-Off System

This vehicle is equipped with a system to shut off the current from the Li-ion battery by the following methods:

Service plug	Positioned in the center area of the Li-ion battery, this plug shuts off the output of high voltage when manually removed.
System main relays	Controlled by the ignition switch, these relays are powered by the 12V system and shut off high voltage from the Li-ion battery.
Emergency shut-off system	In the case of a collision (air bag deployment, etc.) or certain system malfunctions this system shuts off the high voltage from the Li-ion battery.

2-7 Preventing Electrical Shock

1. If it is necessary to touch any of the high voltage harnesses or components, always wear appropriate PPE (refer to [3-1 Preparation Items](#)). Shut off the high voltage system by referring to [3-3.1 High Voltage System Shut-Down Procedure](#).
2. To avoid the risk of electrocution, do not touch the inside of the Li-ion battery with bare hands after shutting off the high voltage system. The Li-ion battery maintains charge even though the high voltage system is shut down.
3. Cover damaged high voltage components with insulated tape.

3. Preparation for Dismantling



⚠ DANGER

-  Failure to properly shut down the high voltage electrical system before the Dismantling Procedures are performed will result in serious injury or death from electrical shock. To prevent serious injury or death, **DO NOT** touch high voltage harnesses or components without always wearing appropriate PPE.
-  If it is necessary to touch any of the high voltage harnesses or components you must always wear appropriate PPE to avoid electrical shock. Shut down the high voltage system by following the steps outlined in [3-3.1 High Voltage System Shut-Down Procedure](#). Wait at least ten (10) minutes for complete discharge of the high voltage capacitor after the high voltage system has been shut down.

⚠ WARNING

- **NEVER** assume the M35h HYBRID is shut OFF simply because it is quiet.
- If it becomes necessary for the dismantler to leave the vehicle, place a “DANGER” sign (for example, refer to [5. Storing the Vehicle](#)) on the vehicle to alert other people that the vehicle contains a high voltage battery.
- If the READY  indicator is ON the high voltage system is active.
- If possible, be sure to check the READY  indicator on the instrument cluster and verify that the READY  indicator is OFF and the high voltage system is stopped.

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 	—	
Wrenches 	Size:10mm	To remove the 12V battery terminal bolt.
Solvent resistant protection gloves	—	To utilize in the event of a Li-ion battery electrolytic solution leak.
Solvent resistant protection shoes	—	
Absorbent pad	The same pad used for internal combustion engine fluids can be used.	To absorb any Li-ion 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.

3-2 Discharge Procedures



⚠ DANGER

Failure to properly discharge the Li-ion battery before the dismantling procedures are performed will result in serious injury or death from electrical shock.

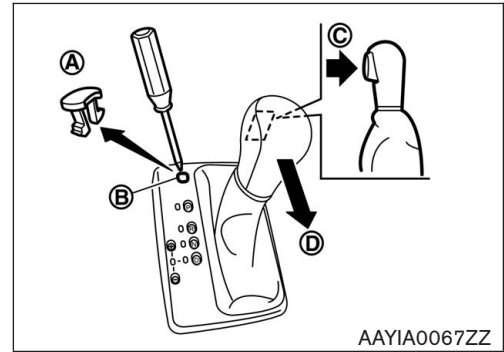
Li-ion battery discharging must take place before dismantling. Sufficient discharging can be achieved by following these steps.

1. Place the shift selector into the Park (P) position
2. Apply the parking brake.
3. Set wheel chocks to ensure the vehicle is completely stopped.

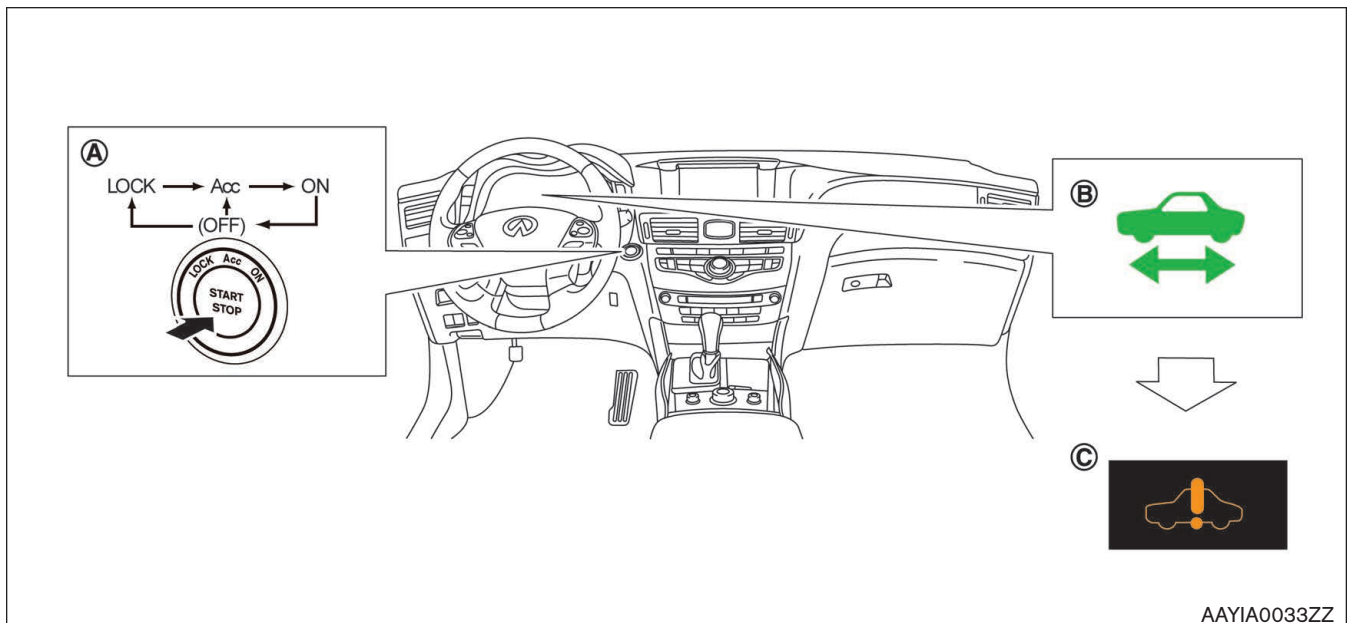
4. Apply foot brake and press the ignition switch to turn the system ON. Confirm READY  indicator in instrument cluster turns ON.
 - a. If the engine starts, leave the engine on until idling stops.
 - b. If the engine does NOT start, move on to next step.
5. Remove the shift lock cover (A) using a suitable tool.
6. Push down the shift lock (B) as shown in the illustration.
7. Push the shift selector button (C) and move the shift selector to Neutral (N) position (D) while holding down the shift lock.

NOTE:

DO NOT press accelerator or foot brake after moving the shift selector to the Neutral (N) position. Otherwise Li-ion battery will start to be charged.



8. Release the parking brake.
9. Turn ON electric devices such as headlamps, A/C (set to the coldest temperature) and rear window defogger to discharge the high voltage battery. Allow approximately 15 minutes to discharge. Discharge is complete when the READY  indicator (B) (green) turns OFF and the hybrid system warning indicator (C) (orange) turns ON.



10. Press the ignition switch (A) to turn the system OFF.

Please contact following number if the vehicle could not be discharged.

- 1-800-662-6200 (US) or 1-800-361-4792 (Canada)
- Hours of operation are 8am-5pm (Monday-Friday) Eastern, Central and Pacific time zones.

3-3 How to Handle a Damaged Vehicle

3-3.1 High Voltage System Shut-Down Procedure

Any of the following procedures can shut down the high voltage system. The dismantling operation can only begin after shutting down the high voltage system. If the vehicle is heavily damaged, for example the Li-ion battery is deformed, broken or cracked, appropriate PPE must always be used and the Li-ion battery and high voltage components must not be touched.

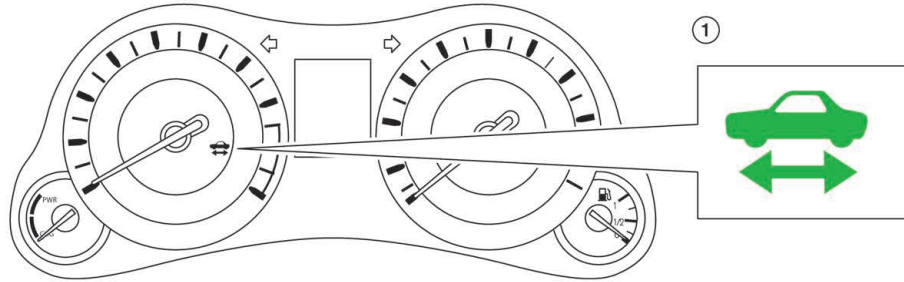


⚠ DANGER

-  **Failure to properly shut down the high voltage system before the dismantling procedures are performed will result in serious injury or death from electrical shock. To prevent serious injury or death, DO NOT touch high voltage harnesses or components without always wearing appropriate PPE.**
-  **When contact with high voltage components or high voltage harnesses is unavoidable, or when there is risk of such contact, you must always wear appropriate PPE.**

⚠ WARNING

-  The vehicle contains parts that contain powerful magnets. If a person who is wearing a pacemaker or other medical device is close to these parts, the medical device may be affected by the magnets. Such persons must not perform work on the vehicle.
- Be sure to check the **READY** indicator (1) in the instrument cluster, and verify that the **READY** indicator is off and the high voltage system is stopped.



- After the high voltage system is shut down, please wait for ten (10) minutes for complete discharge of the high voltage capacitor. While waiting, do not operate any vehicle functions.

NOTE:

The high voltage full discharge takes ten (10) minutes, but after five (5) minutes the voltage has dropped below 60V.

- Remove the 12V battery negative (-) terminal and wait for three (3) minutes to discharge the air bag capacitor. Even though the 12V battery negative (-) is disconnected, the Supplemental Restraint System (SRS) air bag maintains voltage for three (3) minutes. There is a possibility of sudden SRS air bag inflation due to harness short circuit or damage and it may cause serious injuries.
- The 12V system will remain active even after the 12V battery negative (-) terminal is removed while the high voltage system is active. This is because the DC/DC converter will not shut down and power will be supplied to the 12V system and high voltage system continuously.

Before disconnecting the 12V battery terminal, if necessary, lower the windows, adjust the steering column, adjust the seats, unlock the doors, open the trunk, etc. as required. Once the 12V battery is disconnected, power controls will not operate.

Powering Down the High Voltage System

The high voltage system can be shut down with any 1 of the following procedures:

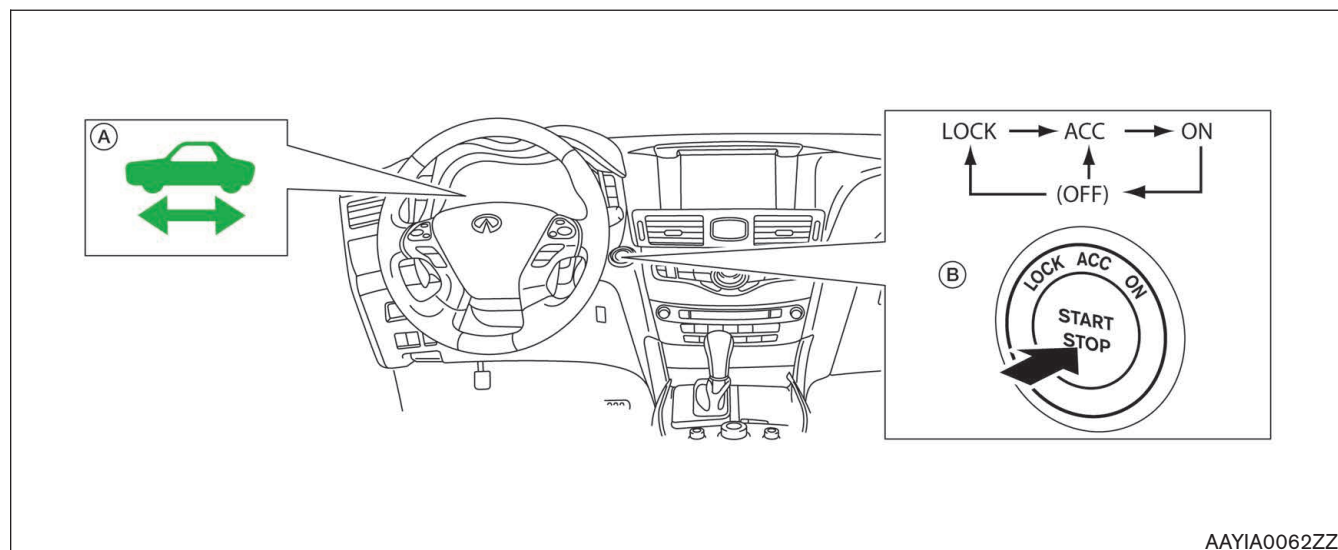
- Turn OFF the power switch and disconnect the 12V battery. Refer to [Primary Procedure](#).
- Remove the fuse for the high voltage control system and disconnect the 12V battery. Refer to [Alternate Procedure 1](#).
- Remove the service plug and disconnect the 12V battery. Refer to [Alternate Procedure 2](#).

Primary Procedure

NOTE:

Before disconnecting the 12V battery terminal, if necessary, lower the windows, adjust the steering column, adjust the seats, unlock the doors, etc. Once 12V battery is disconnected, power controls will not operate.

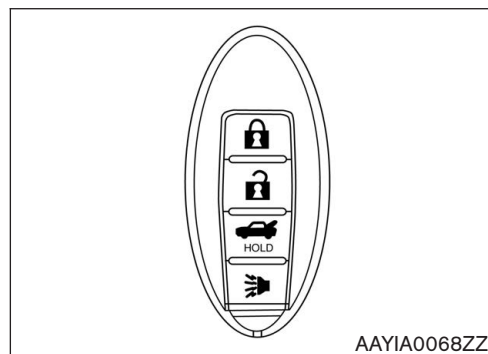
1. Check the READY indicator (A) status in the instrument cluster. If it is on, the high voltage system is active.



2. Place the shift selector in the Park (P) position.
3. Push the ignition switch (B) once to turn OFF the high voltage system. Then verify whether the READY indicator (A) is off.

If the READY indicator (A) does not turn off, continue to the next steps to open the trunk for 12V battery negative cable access.

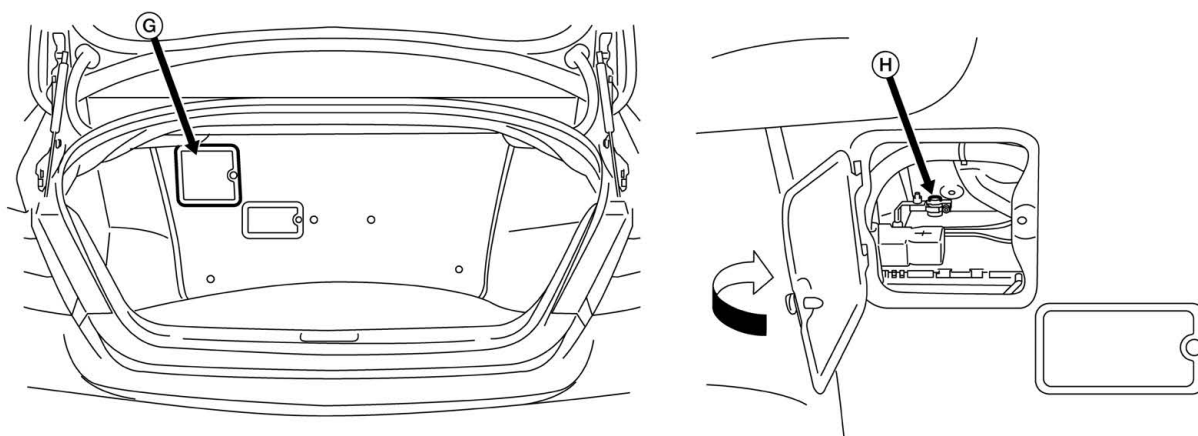
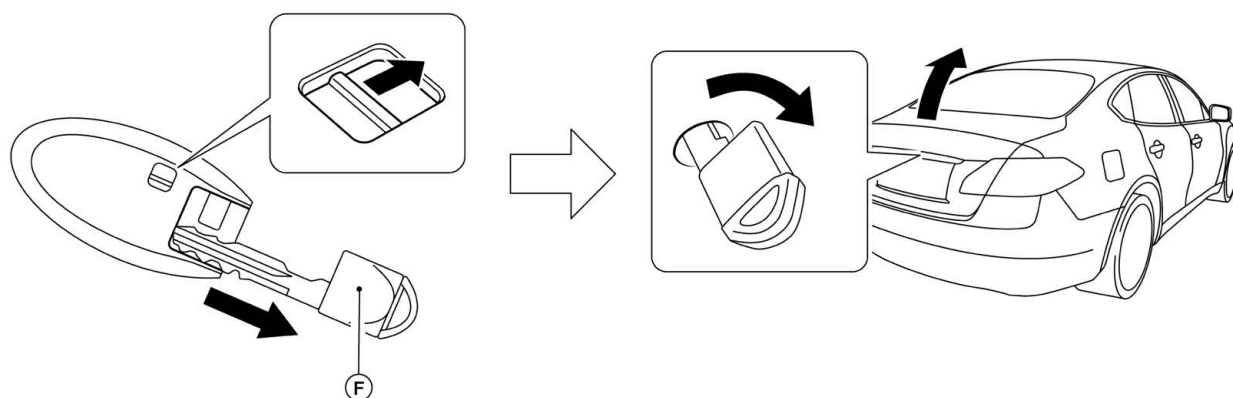
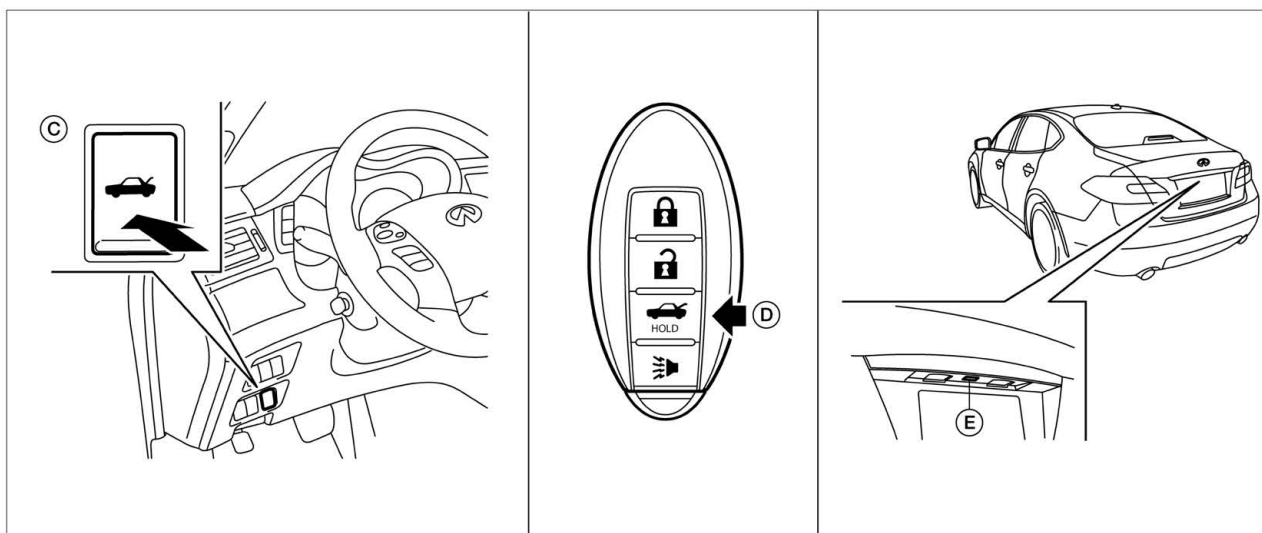
4. If possible, keep the INFINITI Intelligent Key™ at least 5 meters (16 feet) away from the vehicle (except as noted below).



5. Open the trunk using any of the following:
- a. push-button switch (C) on the lower LH side of the instrument panel.
 - b. trunk button (D) on the INFINITI Intelligent Key™ [press for longer than one (1) second].
 - c. trunk open request switch (E) (located above license plate)*.
 - d. with the mechanical key (F) housed inside the INFINITI Intelligent Key™.

Method	Shift Selector Position	Ignition Switch Status
a	P or N	Any
b	P	OFF
c*	Any	Any
d	Any	Any

* You must have the INFINITI Intelligent Key™ within approximately 1 meter (3 feet) range of trunk request switch to use the trunk open request switch function.



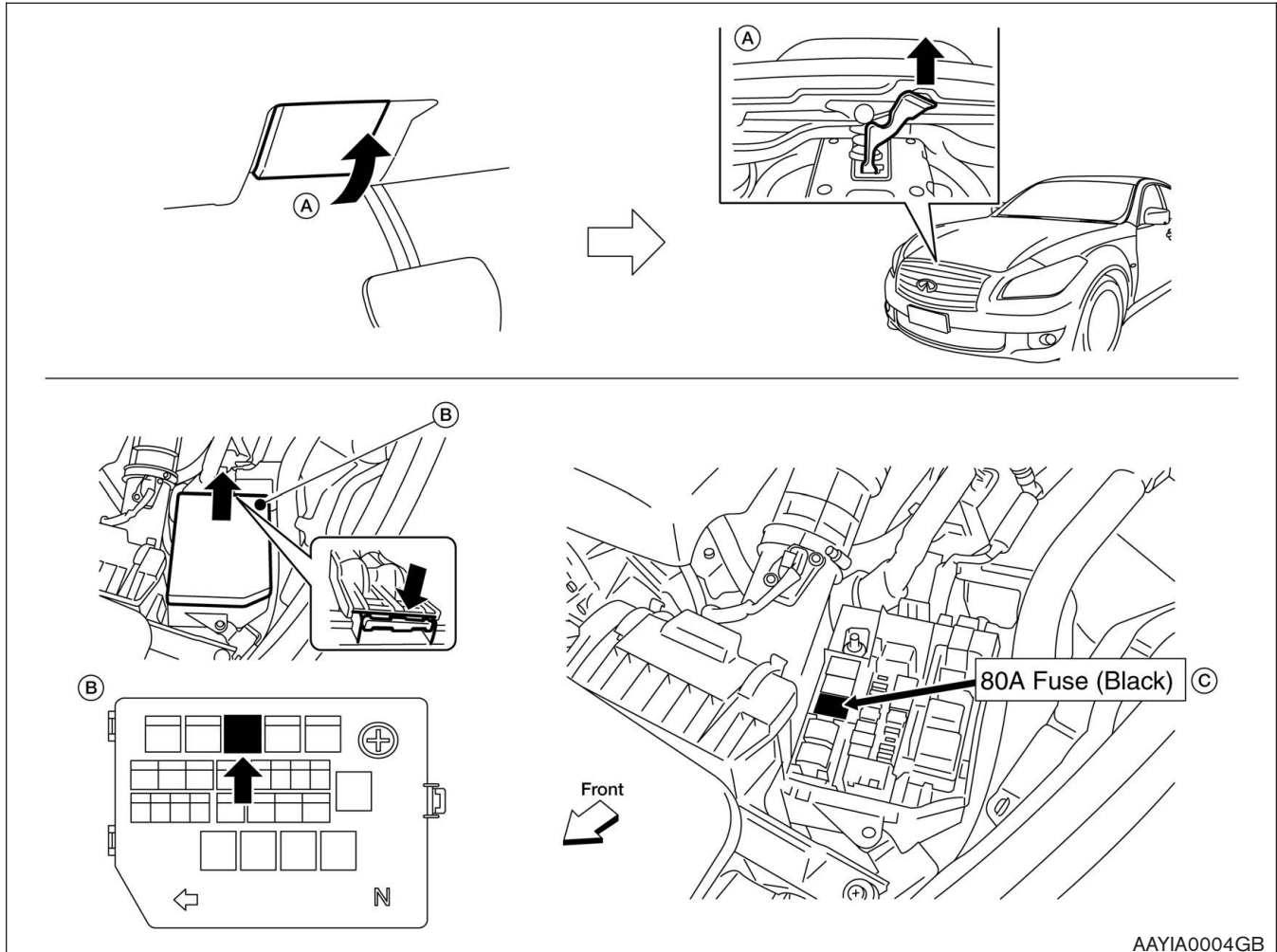
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6. Open the 12V battery service access cover (G).
7. Disconnect negative (-) battery cable (H) and cover it with insulated tape.
8. Wait ten (10) minutes for complete discharge of the high voltage capacitor after the battery cable has been disconnected.
9. Perform the dismantling operation. Refer to [6. Dismantling Information](#).

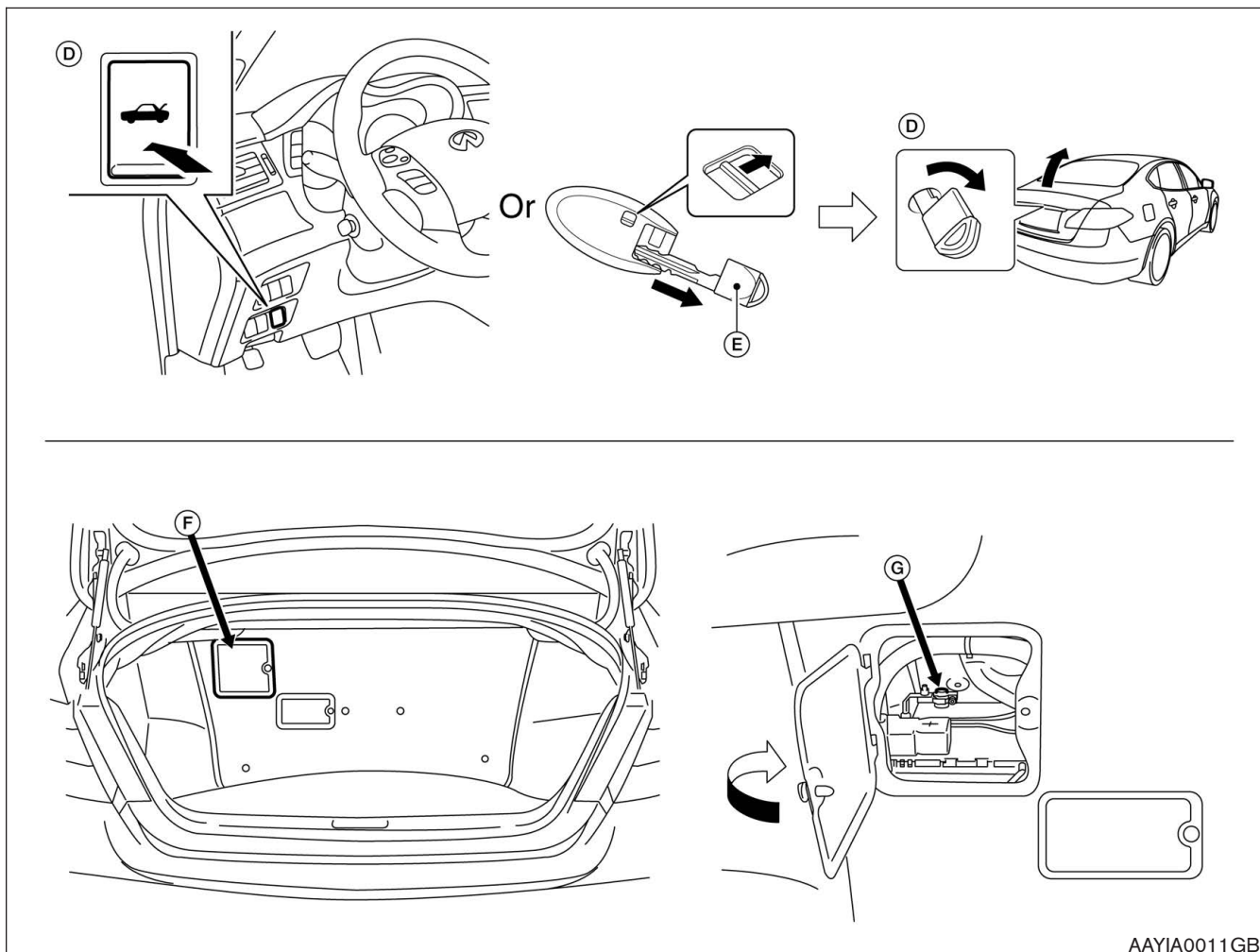
Alternate Procedure 1

NOTE:

Before removing any fuses, if necessary, lower the windows, adjust the steering column, adjust the seats, unlock the doors, etc. Once fuses are removed, power controls will not operate.



1. Pull release handle (A) to open the hood.
2. Remove fuse box cover (B).
3. Remove 80A fuse (C) (black).
4. If you cannot identify the fuse (C), remove all fuses in the fuse box.



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5. Open the trunk. The trunk can be opened with the push-button switch (D) on the lower LH side of the instrument panel or with the mechanical key (E) housed inside the INFINITI Intelligent Key™.
6. Open the 12V battery service access cover (F).
7. Disconnect negative (-) battery cable (G) and cover it with insulated tape.
8. Wait ten (10) minutes for complete discharge of the high voltage capacitor after the fuse is pulled and battery cable has been disconnected.
9. Perform the dismantling operation. Refer to [6. Dismantling Information](#).

Alternate Procedure 2



⚠ DANGER

- Do not remove the service plug without always wearing appropriate PPE to help protect the dismantler from serious injury or death by electrical shock.
- Immediately cover the service plug socket with insulated tape. To avoid electric shock, **DO NOT** touch the terminals inside the socket.

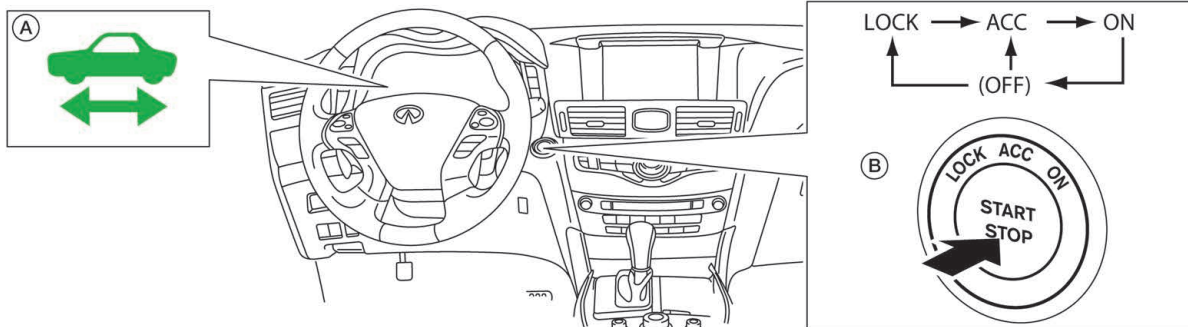
⚠ WARNING

To avoid unintended reinstallation and risk of electrical shock and severe personal injury or death, the dismantler should carry the service plug on his/her person while work is in progress.

NOTE:

Before disconnecting the 12V battery terminal, if necessary, lower the windows, adjust the steering column, adjust the seats, unlock the doors, etc. Once 12V battery is disconnected, power controls will not operate.

1. Check the READY indicator (A) status in the instrument cluster. If it is on, the high voltage system is active.

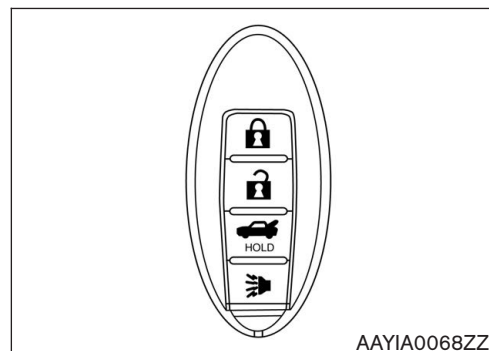


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2. Place the shift selector in the Park (P) position.
3. Push the ignition switch (B) once to turn OFF the high voltage system. Then verify whether the READY indicator (A) is off.

If the READY indicator (A) does not turn off, continue to the next steps to open the trunk for 12V battery negative cable access.

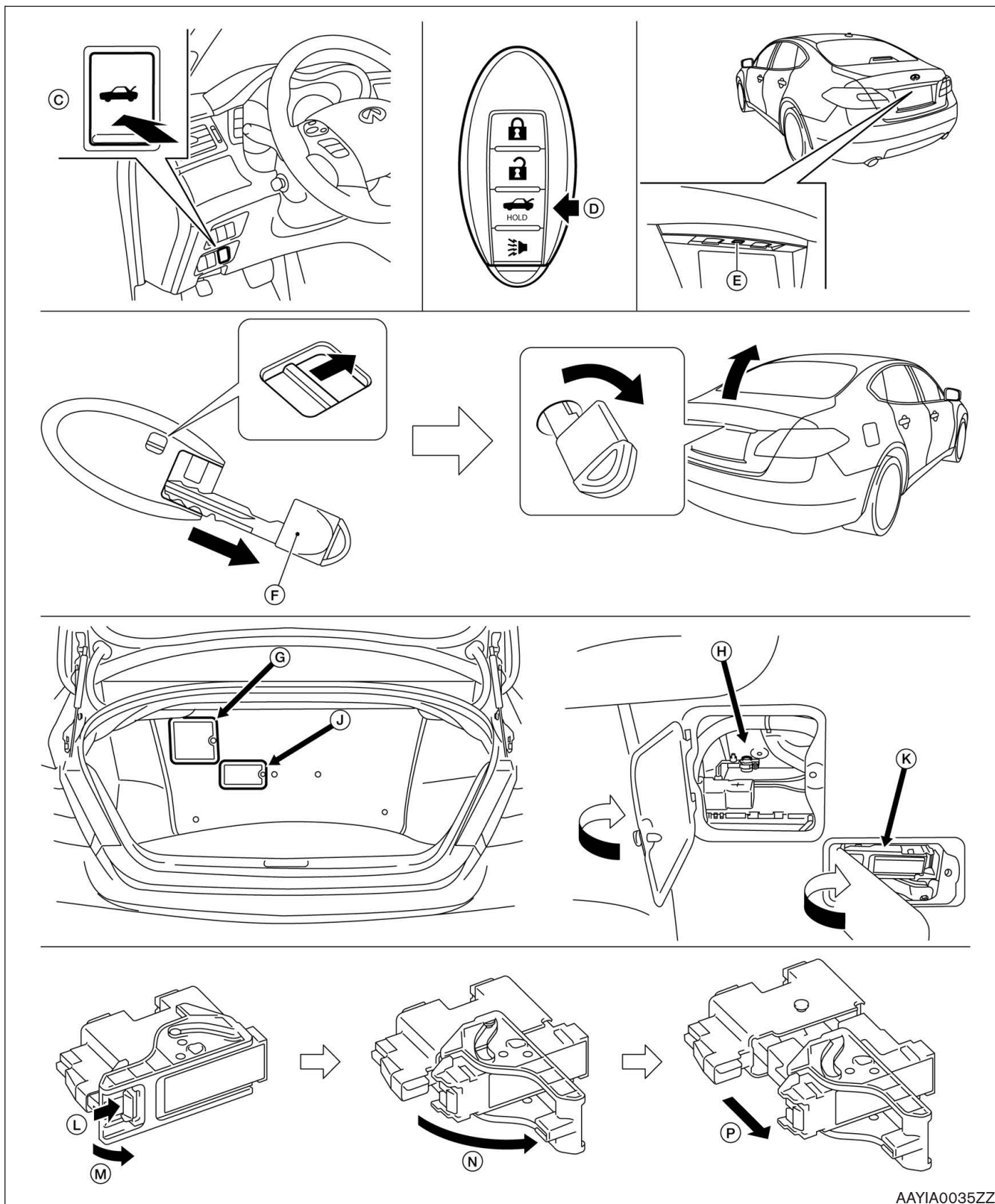
4. If possible, keep the INFINITI Intelligent Key™ at least 5 meters (16 feet) away from the vehicle (except as noted below).



5. Open the trunk using any of the following:
 - a. push-button switch (C) on the lower LH side of the instrument panel.
 - b. trunk button (D) on the INFINITI Intelligent Key™ [press for longer than one (1) second].
 - c. trunk open request switch (E) (located above license plate)*.
 - d. with the mechanical key (F) housed inside the INFINITI Intelligent Key™.

Method	Shift Selector Position	Ignition Switch Status
a	P or N	Any
b	P	OFF
c*	Any	Any
d	Any	Any

* You must have the INFINITI Intelligent Key™ within approximately 1 meter (3 feet) range of trunk request switch to use the trunk open request switch function.



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6. Open the 12V battery service access cover (G).
7. Disconnect negative (-) battery cable (H) and cover it with insulated tape.
8. Open service plug access cover (J).
9. Remove the service plug (K) by pressing the locking tab (L) and rotating the handle (M) fully outward (N). Using the handle, pull the service plug (P) completely out of its socket.
10. Cover the service plug socket with insulated tape.

11. Wait ten (10) minutes for complete discharge of the high voltage capacitor after the service plug has been removed.
12. Perform the dismantling operation. Refer to [6. Dismantling Information](#).

3-3.2 Cutting the Vehicle Body



⚠ DANGER

-  **Do not cut into high voltage related areas to avoid severe personal injury or death.**
-  **Do not cut into the Li-ion battery to avoid severe personal injury or death.**
-  **When removing parts, DO NOT touch the high voltage parts or the insides of the exposed orange-colored high voltage cables to avoid severe personal injury or death.**

⚠ WARNING

Do not cut air bag parts to avoid unintended deployment of the air bags and the risk of severe personal injury or death.

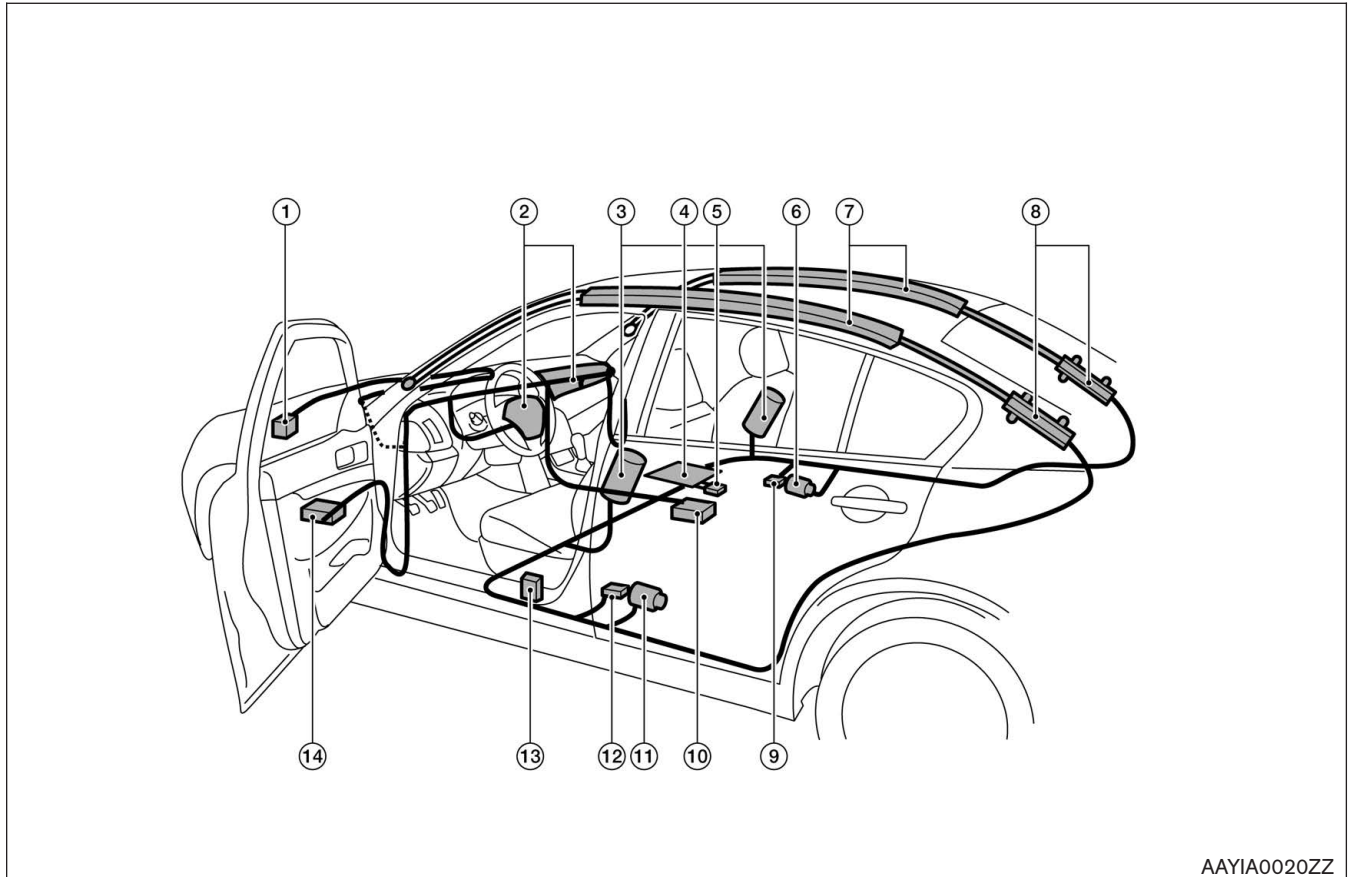
If ten (10) minutes have passed since the rescuer shut down the high voltage system (refer to [3-3.1 High Voltage System Shut-Down Procedure](#)), then the dismantler can cut the vehicle except for the Li-ion battery.

DO NOT cut the Li-ion battery due to possible electrocution risk and electrolyte solution leakage.

SRS Air Bag System Components Location

The SRS air bag system must not be cut as there is a risk of short circuit and unintentional deployment of the SRS. However, the vehicle can be cut (except inflators) under the following conditions:

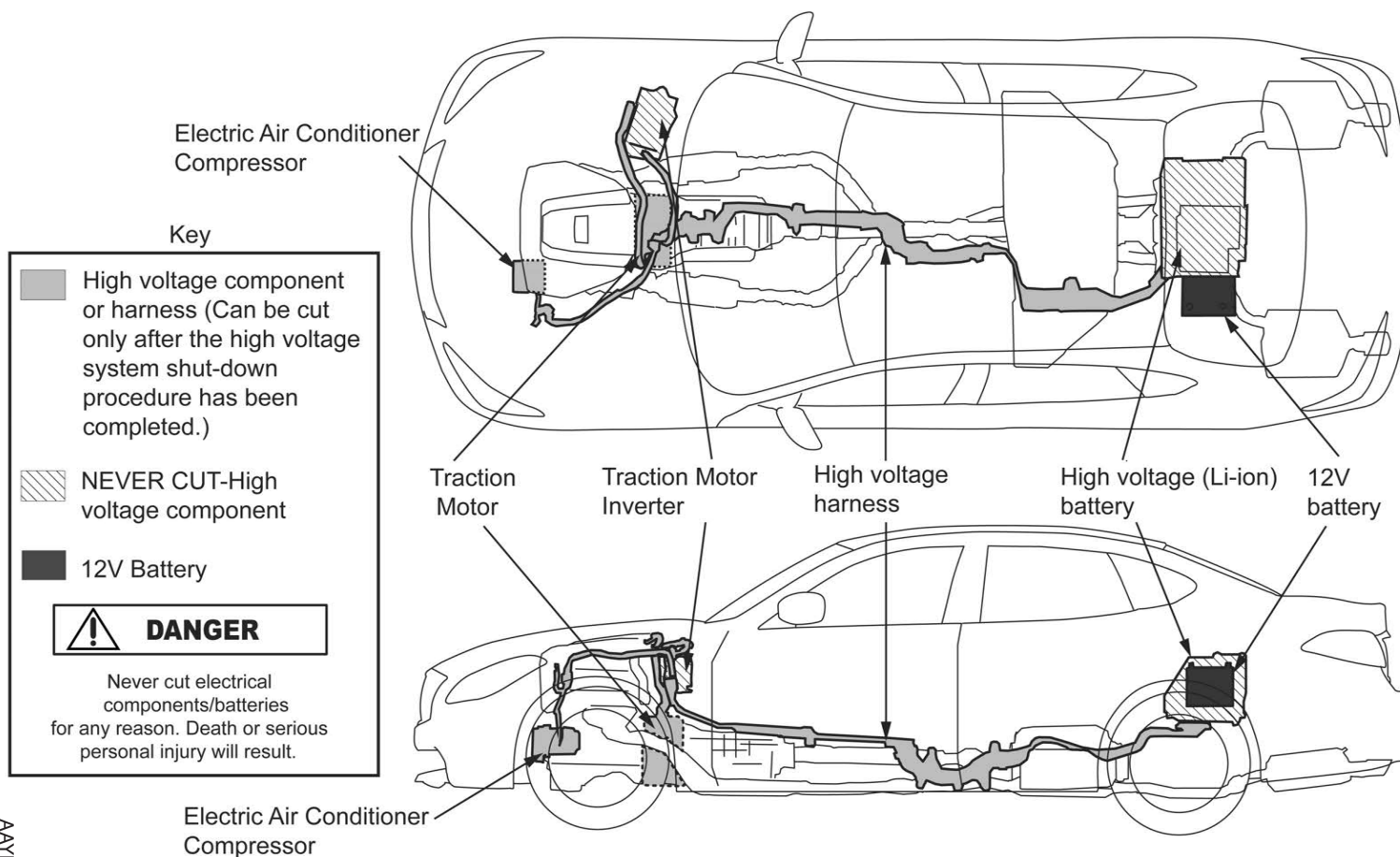
- The front, side and curtain air bags have deployed.
- At least three (3) minutes have passed after the 12V battery negative (-) cable has been disconnected and the high voltage system has been shut down.



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- | | | |
|---|--|---|
| 1. Crash zone sensor | 2. Supplemental front air bag modules (INFINITI Advanced Air Bags) | 3. Front seat-mounted side-impact supplemental air bags |
| 4. Occupant classification sensor (pattern sensor) | 5. Occupant classification system control unit | 6. RH seat belt with pretensioner |
| 7. Roof-mounted curtain side-impact supplemental air bags | 8. Roof-mounted curtain side-impact supplemental air bag inflators | 9. RH satellite sensor |
| 10. Air bag control unit (ACU) | 11. LH seat belt with pretensioner | 12. LH Satellite sensor |
| 13. Lap outer pretensioner (if so equipped) | 14. Front door satellite sensor LH (RH similar) | |

INFINITI Emergency Contact
1-800-662-6200 (US) or 1-800-361-4792 (Canada)
Hours of Operation: 8am-5pm (Monday-Friday) Eastern,
Central and Pacific Time Zones



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Nissan North America, Version (3)

April 2012

3-3.3 Water Submersion



⚠ DANGER



Damage level of submerged vehicle may not be apparent. Handling a submerged vehicle without appropriate 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.
- Always wear appropriate PPE and remove/drain water before removing the service plug when working on a vehicle after a fire or submersion to avoid electrical shock.
- If the vehicle is in the water, to avoid electrical shock do not touch the high voltage components, harnesses or service plug.

3-3.4 Vehicle Fire

⚠ WARNING

- Always utilize full PPE and self-contained breathing apparatus during fire fighting operations. Smoke from a M35h 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.

3-3.5 Li-ion Battery Damage and Fluid Leaks

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 an electric car and contains a high voltage system and warn all others.

Li-ion Battery Electrolyte Solution Characteristics:

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

4. 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 12V battery explosion, resulting in severe personal injury or death. It could also damage your vehicle.

Jump starting provides power to the 12V system to allow the electrical systems to operate. The electrical systems must be operating to allow the Li-ion battery to be charged. Jump starting does not charge the Li-ion battery.

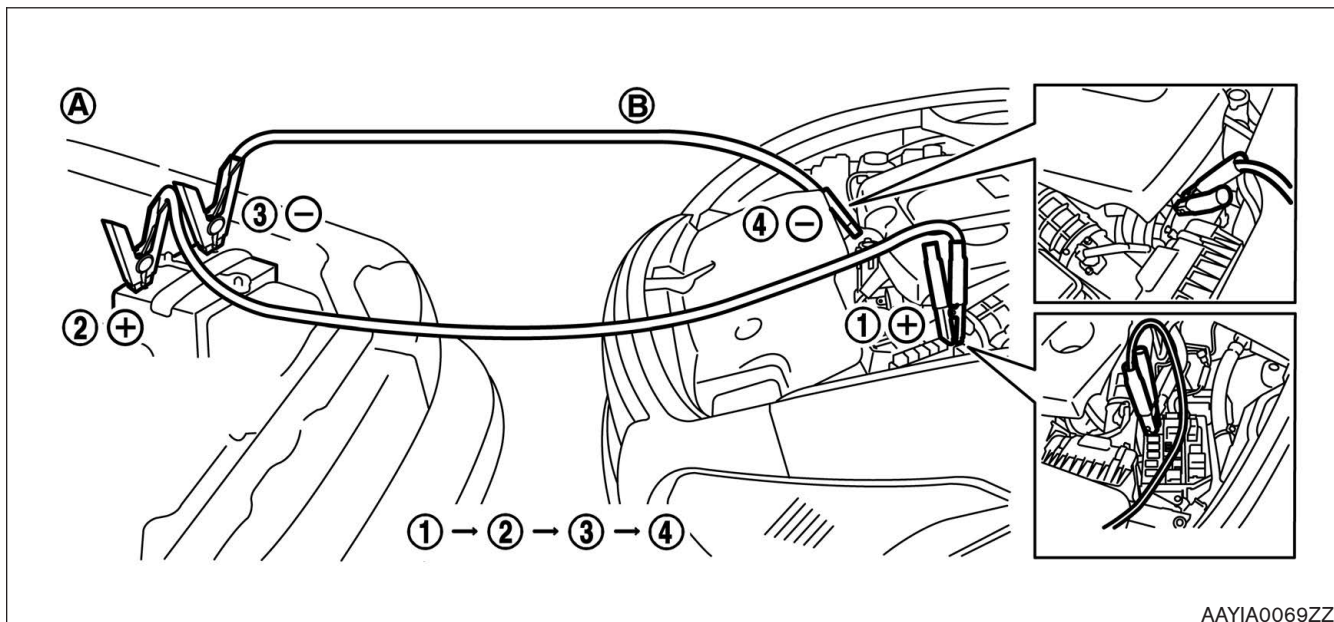
Discharged 12V battery may cause the following issues:

- 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 Li-ion battery CANNOT be jump started.**
- **Explosive hydrogen gas is always present in the vicinity of the 12V battery. Keep all sparks and flames away from the 12V battery.**
- **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 12V 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 12V battery when jump starting.**
- **Do not attempt to jump start a frozen battery. It could explode and cause serious injury.**
- **M35h 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 DC/DC converter and cause personal injury.**

4-1 Jump Starting Procedures



NOTE:

Jumper cable connections under the hood of the M35h 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. If the booster battery is in another vehicle (A), position the two vehicles (A and B) to bring the 12V battery and fuse box into close proximity to each other.

DO NOT allow the two vehicles to touch.

2. Apply the parking brake. Move the selector lever the P (Park) position. Switch off all unnecessary electrical systems (headlights, heater, air conditioner, etc.).
3. Remove fuse box cover on the M35h HYBRID and connect jumper cables in the sequence as illustrated (①→②→③→④).

For models with a steering wheel lock mechanism:

If the 12V battery is disconnected or discharged, the steering wheel will lock and cannot be turned. Supply power using jumper cables before pushing the ignition switch and disengaging the steering lock.

⚠ CAUTION

- Always connect positive (+) to positive (+) and negative (-) to body ground (for example, as illustrated), not to the 12V 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.
- If the hybrid system does not start right away, push the ignition switch to the OFF position and wait ten (10) seconds before trying again.

4. Start the engine of the booster vehicle (A) and let it run for a few minutes.
5. Start the hybrid system of the vehicle being jump started (B).

6. After starting the hybrid system, carefully disconnect the negative cable and then the positive cable ((4)→(3)→(2)→(1)).
7. Reinstall the fuse box cover.

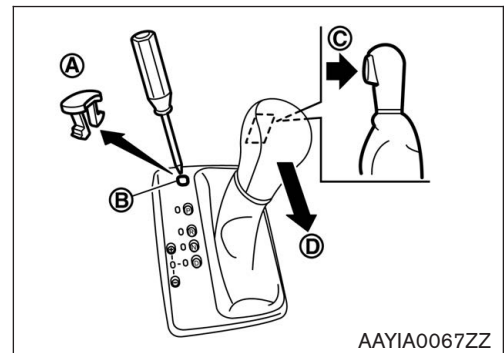
NOTE:

If it is not possible to turn the hybrid system ON by following this procedure, contact an INFINITI retailer immediately.

4-2 Shift Selector Lever Lock Release

If the 12V 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 (B) as shown in the illustration.
5. Push the selector lever button (C) and move the selector lever to the Neutral (N) position (D) while holding down the shift lock.



5. Storing the Vehicle

If the M35h HYBRID needs to be stored or left unattended, the high voltage system must be shut down by removing the service plug (refer to [Alternate Procedure 2](#)) and a sign put on the vehicle indicating it is a hybrid 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.

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6. Dismantling Information

Removal or repair of the high voltage battery requires special tools and specific training. INFINITI strongly recommends that only certified INFINITI retailer technicians perform these operations.

6-1 Precautions for Handling High Voltage Lithium-ion (Li-ion) Battery

⚠ WARNING

-  Because M35h HYBRID contains a high voltage (Li-ion) battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage components or vehicle is handled incorrectly. Be sure to follow the correct work procedures when performing inspection and dismantling.
-  The colors of the high voltage harnesses and connectors are all orange. Orange "High Voltage" labels are applied to the Li-ion battery and other high voltage devices. Do not touch the Li-ion battery or other high voltage devices without always wearing appropriate PPE.
-  Clearly identify the persons responsible for high voltage work and ensure that other persons do not touch the vehicle. When not working, cover high voltage parts with an insulating cover sheet and sign or similar item to prevent other persons from contacting them.
-  The high voltage battery retains high voltage at all times.
-  Be sure to always wear appropriate PPE before beginning work on the high voltage system.
-  If it is necessary to touch any of the high voltage harnesses or components you must always wear appropriate PPE and properly shut-down the high voltage system by removing the service plug.
-  Be sure to remove the service plug in order to shut-down the high voltage system before performing inspection or dismantling of high voltage system harnesses and parts.
-  Be sure to put the removed service plug in your pocket and carry it with you so another person does not accidentally reinstall it while work is in progress.
-  Immediately insulate disconnected high voltage connectors and terminals with insulated tape.
-  The vehicle contains parts that contain powerful magnets. If a person who is wearing a pacemaker or other medical device is close to these parts, the medical device may be affected by the magnets. Such persons must not perform work on the vehicle.
-  Because this vehicle uses components that contain high voltage and powerful magnetism, do not carry any metal products which may cause short circuits, or any magnetic media (cash cards, credit cards, etc.) which may be damaged when working on the vehicle.
-  Keep removed Li-ion battery packs away from rain to avoid electric shock.
-  If the vehicle is heavily damaged, for example the Li-ion battery is deformed, broken, or cracked; appropriate PPE must always be used at all times to avoid electrical shock.
- Do not heat removed battery packs higher than 158° F (70° C).

⚠ CAUTION

There is the possibility of a hybrid system malfunction occurring if the vehicle is changed to READY  status while the service plug is removed.

6-2 PPE (Personal Protective Equipment) and Insulated Tools

6-2.1 PPE (Personal Protective Equipment) Protective Wear Control

Perform an inspection of the PPE items before beginning work. Do not use any damaged PPE items.

6-2.2 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.

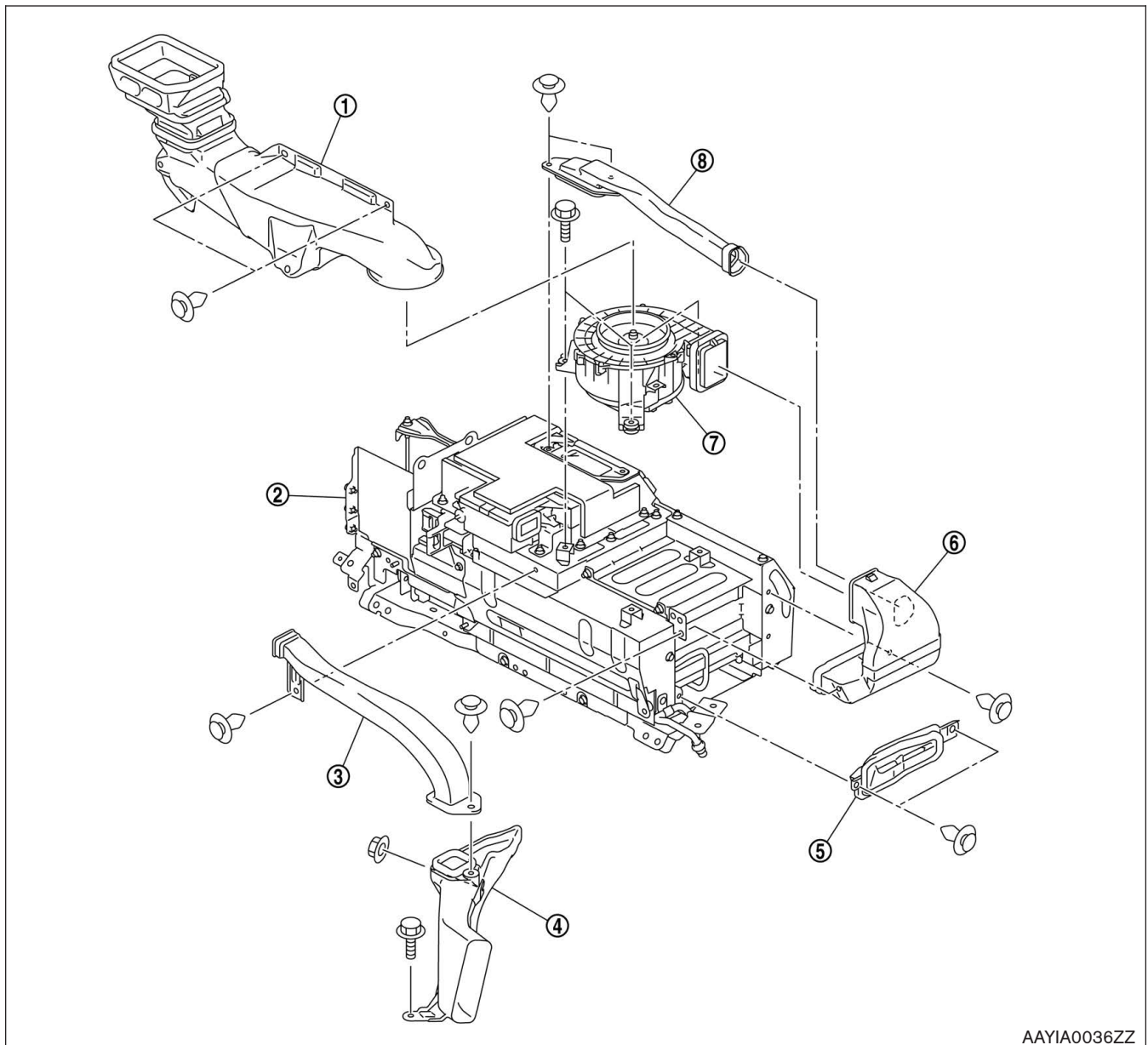
- Insulated rubber gloves should be inspected for scratches, holes and tears. (Visual check and air leakage test)
- Insulated safety boots should be inspected for holes, damage, nails, metal pieces, wear or other problems on the soles. (Visual check)
- Insulated rubber sheet should be inspected for tears.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

6-2.3 Insulated Tools

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

6-3 Lithium-ion (Li-ion) Battery Pack Removal

6-3.1 Exploded View

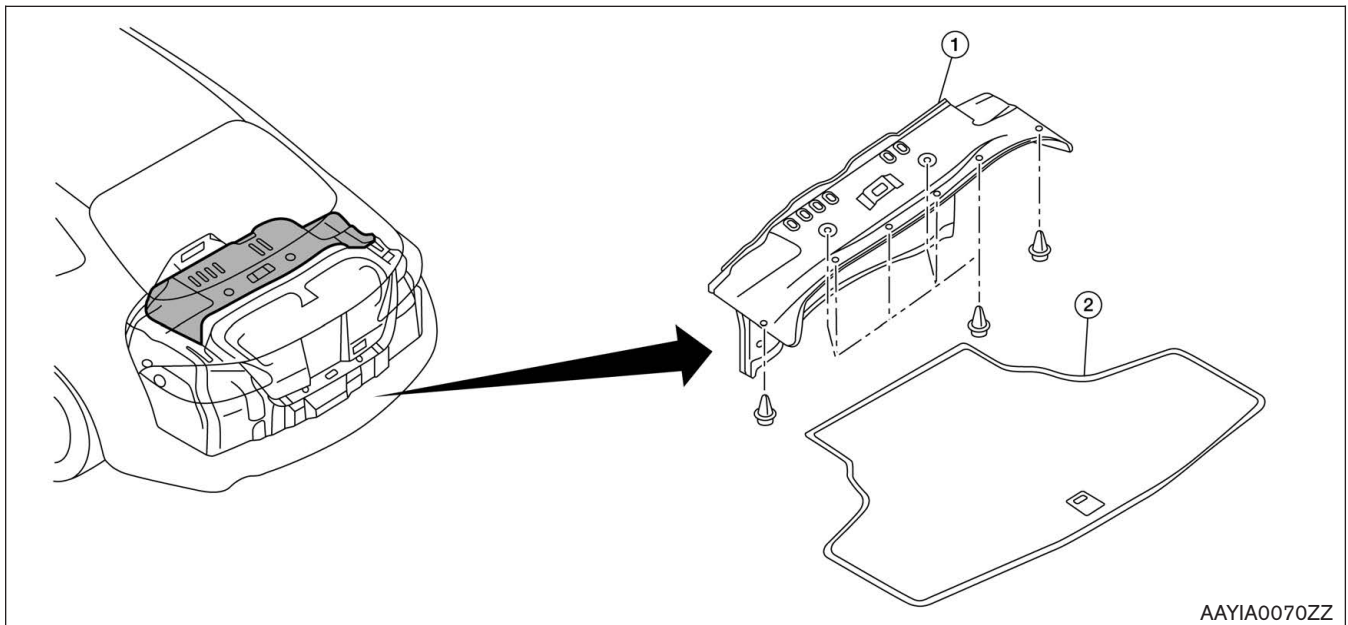


- | | | |
|--------------------------|-------------------------------|--------------------------------|
| 1. Battery inlet duct A | 2. Li-ion battery assembly | 3. DC/DC converter outlet duct |
| 4. Battery outlet duct B | 5. Battery outlet duct A | 6. Battery inlet duct B |
| 7. Battery cooling fan | 8. DC/DC converter inlet duct | |

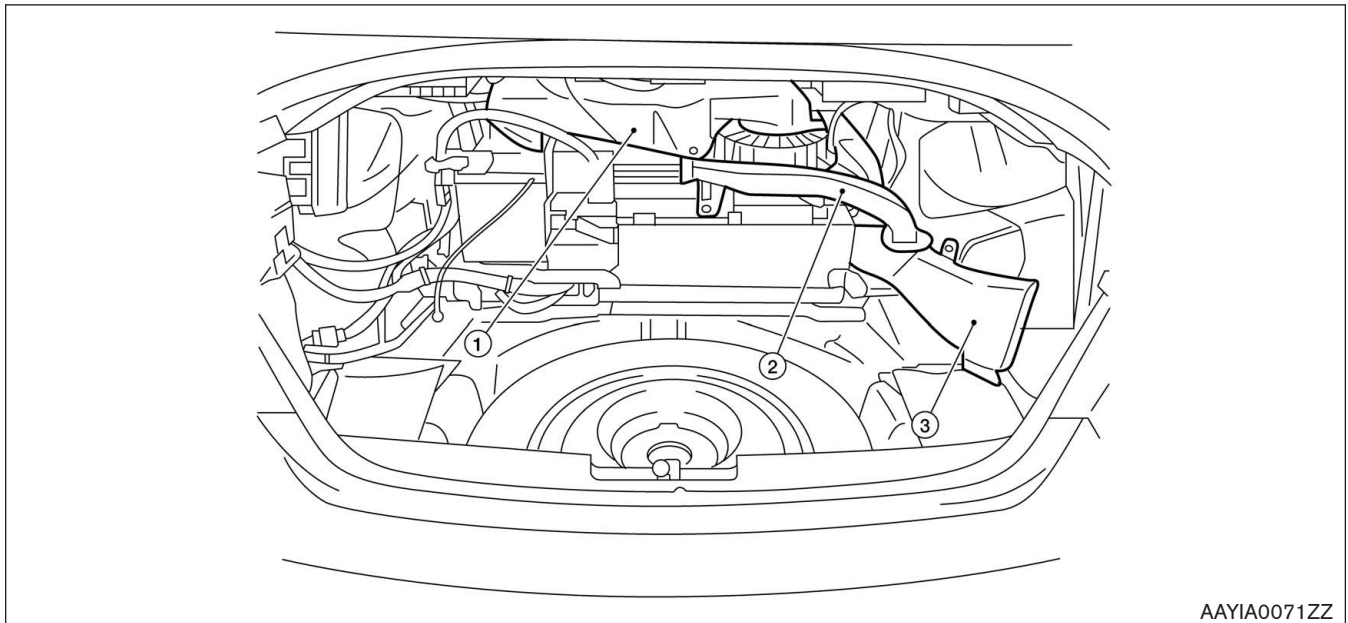
6-3.2 Removal Procedure

1. Remove the service plug. Refer to [Alternate Procedure 2](#).
2. Insert an appropriate tool into the gap between the trunk lamp case and front trunk trim panel to remove the trunk lamp case.
3. Disconnect the trunk lamp harness connector.
4. Remove the trunk lid weather strip.
5. Remove the front trunk trim retainer clips.

6. Remove the front trunk trim panel (1) and remove the trunk floor trim panel (2).



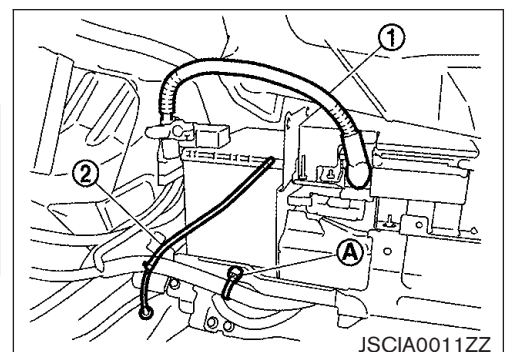
7. Remove the battery inlet duct A (1), DC/DC converter outlet duct (2) and battery outlet duct B (3).



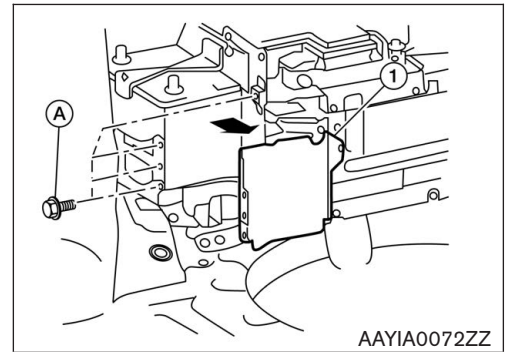
8. Remove the DC/DC harness (1), the 12V battery vent tube (2) and the high voltage harness clip (A).

CAUTION

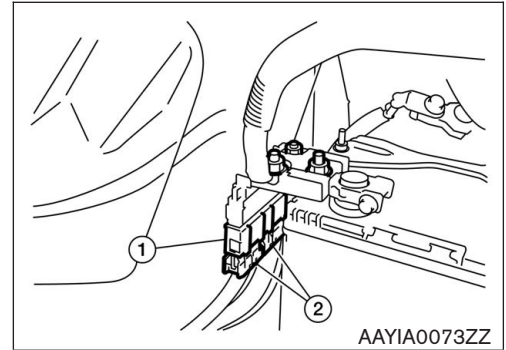
Grip the tip of the tube to remove the 12V battery vent tube.



9. Remove the mounting bolts (A) and then remove the 12V battery cover (1).



10. Disconnect the fusible link connectors (2) that are integrated with the 12V positive battery cable (1).

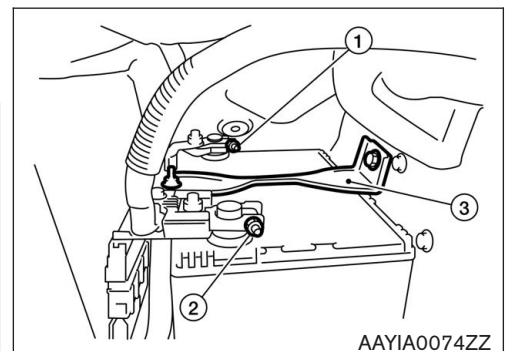


11. Remove 12V battery by removing the negative battery cable (1), positive battery cable (2) and frame (3).

⚠ CAUTION

To prevent damage to the parts:

- a) Disconnect the negative battery cable first
- b) Immediately cover the battery cables with insulated tape.

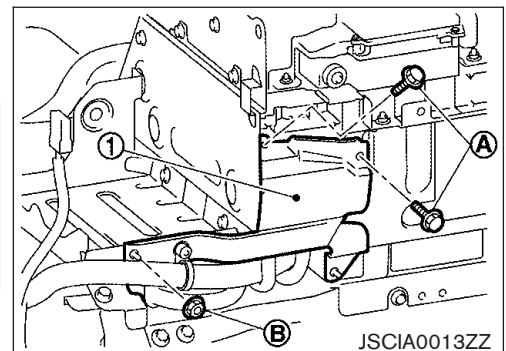


12. Remove the terminal cover bolts (A) and nut (B), then remove the terminal cover (1).



⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.

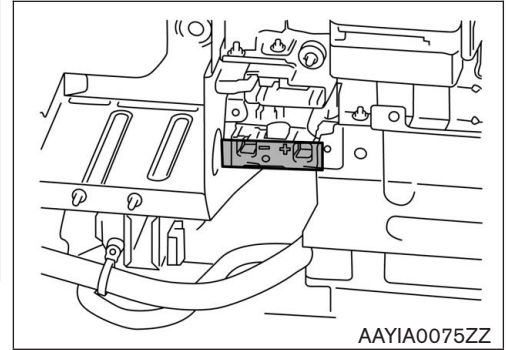
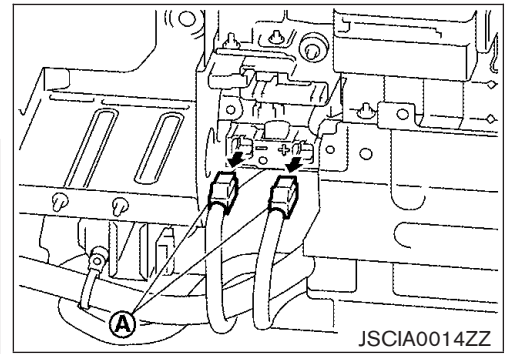


13. Disconnect the high voltage harness connectors (A).
Touching high voltage components without wearing appropriate PPE will cause electrocution.



⚠ DANGER

- ⚠ Touching high voltage components without wearing appropriate PPE will cause electrocution.
- ⚠ Immediately cover the terminals of the disconnected high voltage harness connectors using insulated tape so that they are not exposed.
- ⚠ Immediately protect the terminals of the disconnected battery junction box using insulated tape so that they are not exposed.

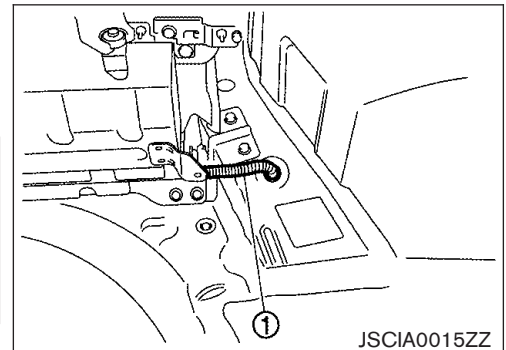


14. Grasp the rubber base of the gas discharge tube (1) and remove from the vehicle-side discharge port (body member).



⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.

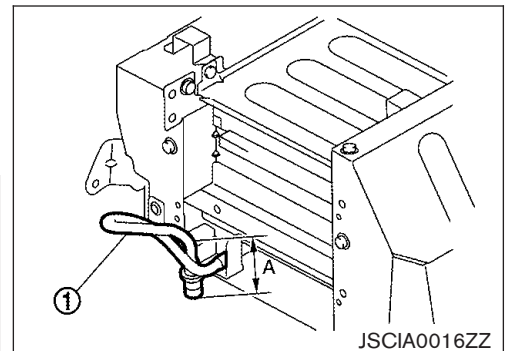


15. Hook approximately 15mm (A) from the end of the gas discharge tube (1) onto the tube base on the battery and check that the flange on the end of the tube does not come off from the tube base.

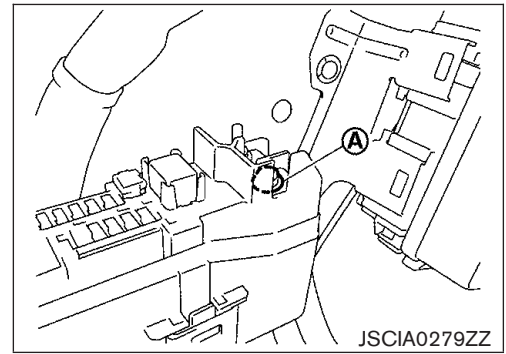


⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.

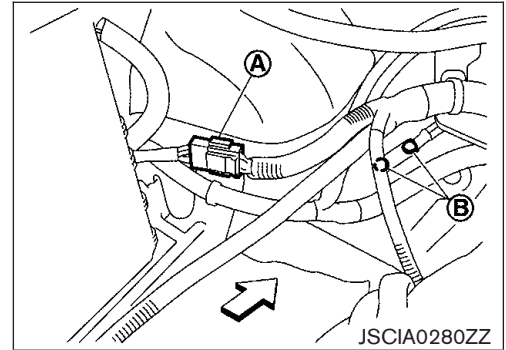


16. Remove the mounting nut (A) and then disconnect the harness from the fuse box on the left side of the trunk room.



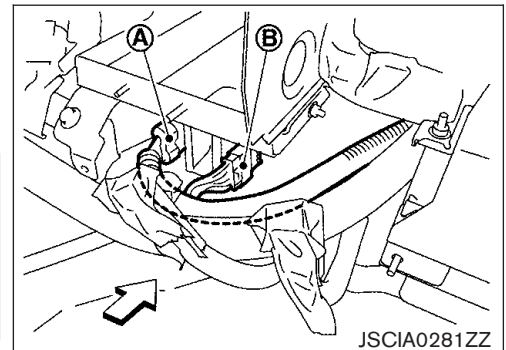
17. Disconnect the brake power supply backup unit harness connector (A) and remove the ground cable mounting bolts (B).

⇨ : Vehicle front



18. Disconnect the high voltage harness connector (A) and harness connector (B).

⇨ : Vehicle front



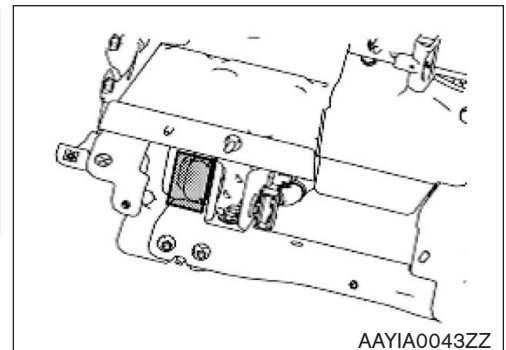
⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.

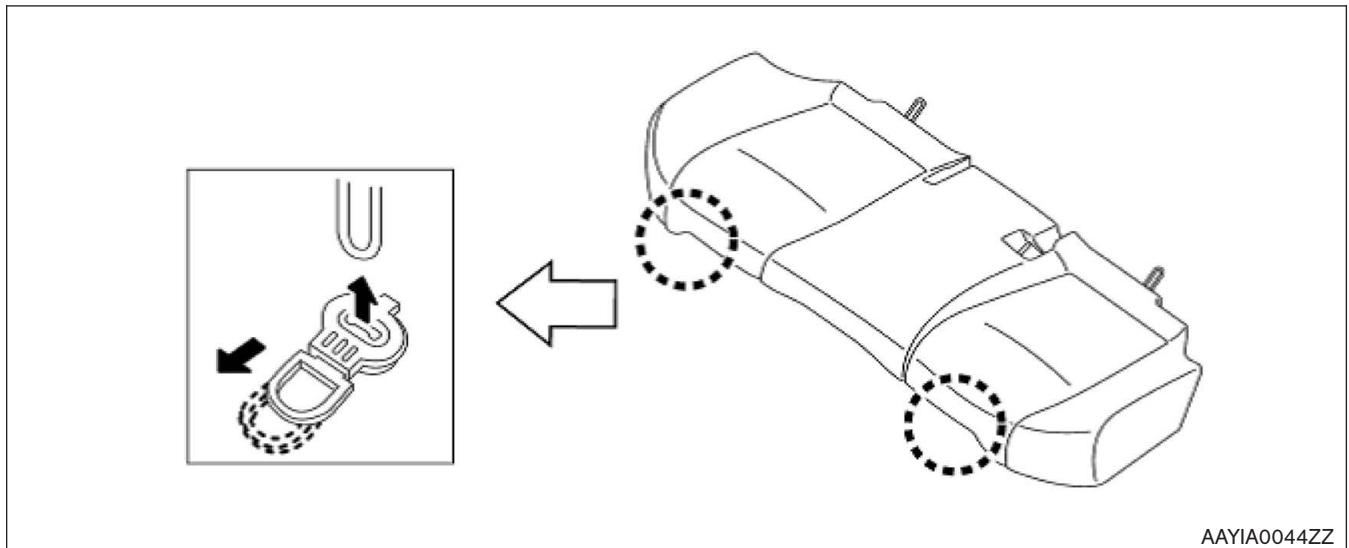


⚠ DANGER

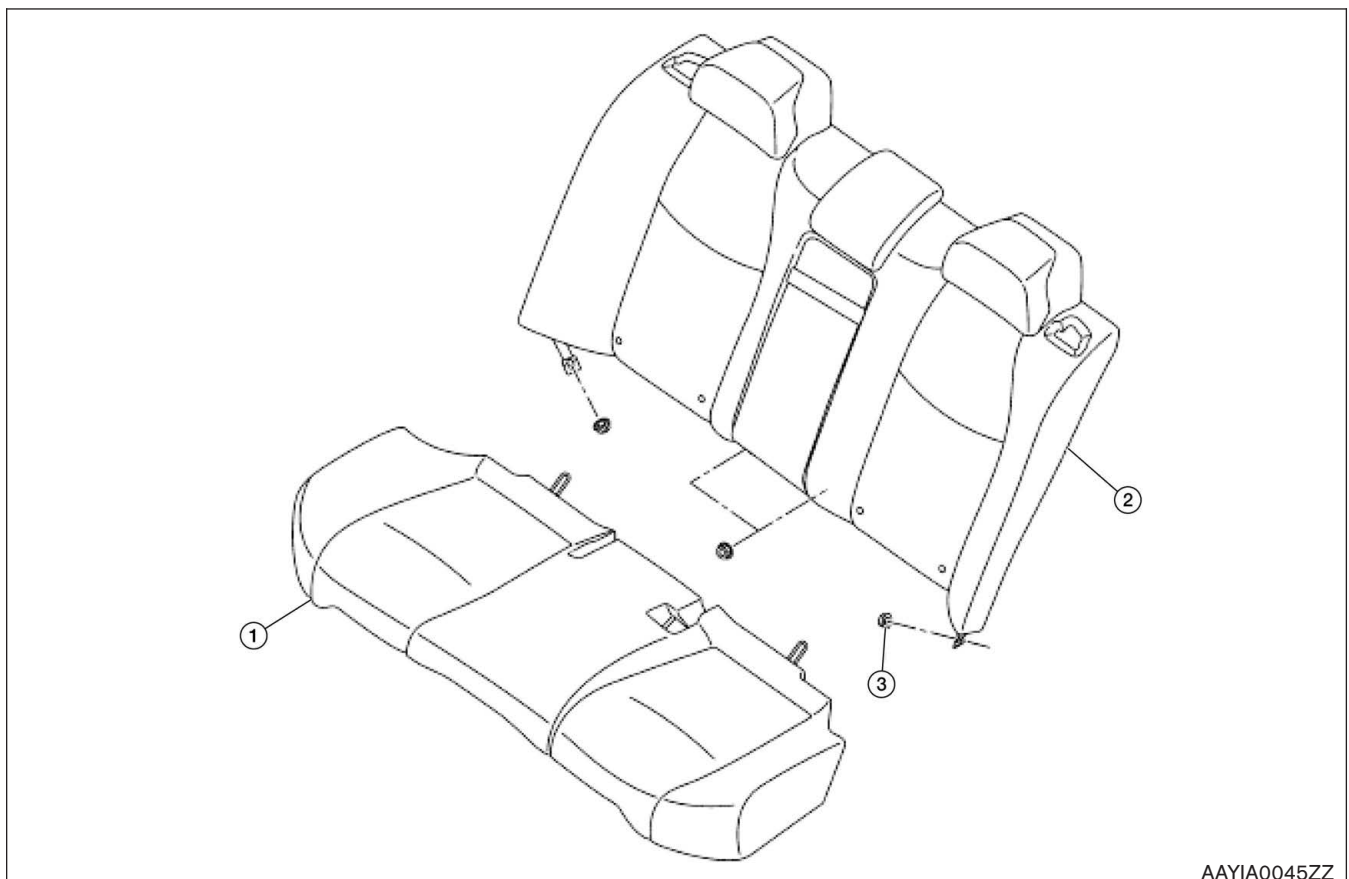
Immediately protect the terminals of the disconnected high voltage harness connector socket using insulated tape so that they are not exposed.



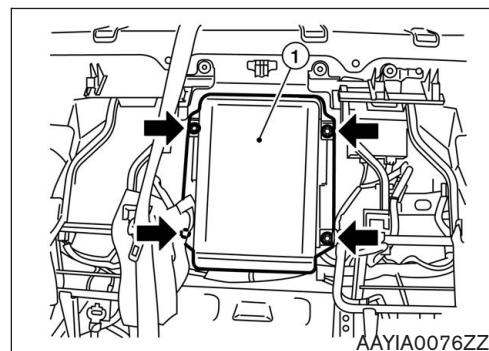
19. Disconnect the Li-ion battery cooling fan motor harness connector.
20. Release the two rear seat cushion retainers.



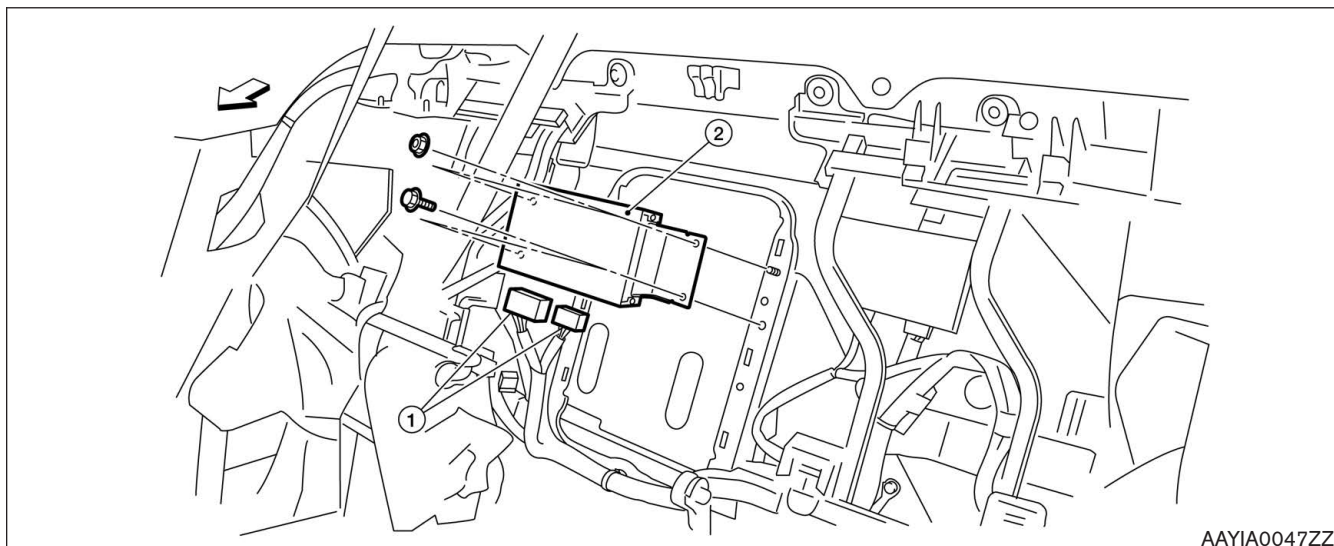
21. Lift up and pull out the rear seat cushion (1) and then remove the rear seat back nuts (3). Lift up the rear seat back (2) and remove it.



22. Remove the 4 clips (➡) and the HPCM cover (1).



23. Disconnect the HPCM harness connectors (1), and remove the HPCM mounting bolts, nuts and then the HPCM (2).

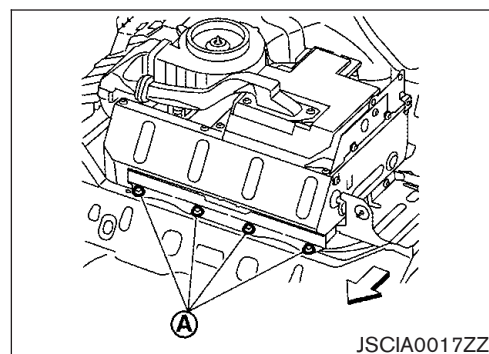


24. Remove the high voltage battery pack mounting bolts (A) from the passenger compartment side.

↖ : Vehicle front

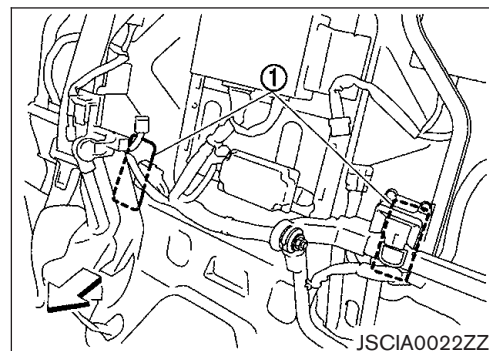
NOTE:

It is possible to access the mounting bolts (1) when the noise insulation sheet that is attached to the body panel behind the rear seat back is removed.



⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.



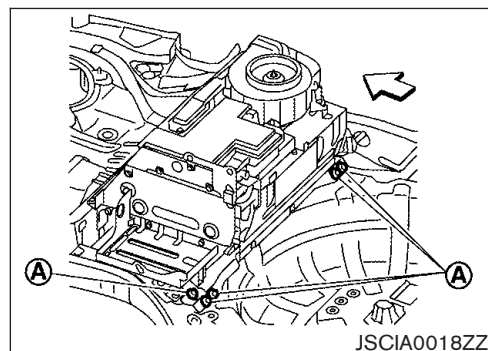
25. Remove the high voltage battery pack mounting bolts (A) from the trunk side.

↩ : Vehicle front



⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.

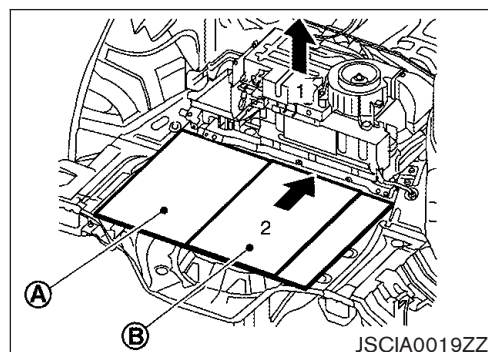


26. Place a plywood panel (A) on top of the spare tire, then lift the high voltage battery pack upwards (1) and slide a cardboard panel (B) underneath it (2).



⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.

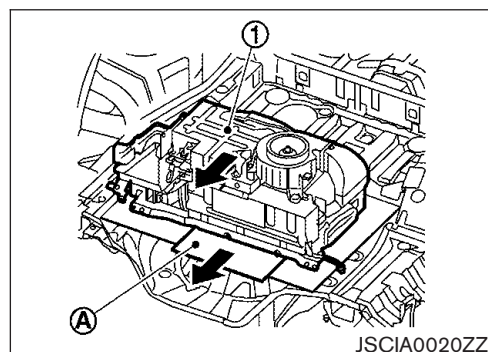


27. Pull the cardboard (A) together with the high voltage battery pack (1) toward the rear of the vehicle.



⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.



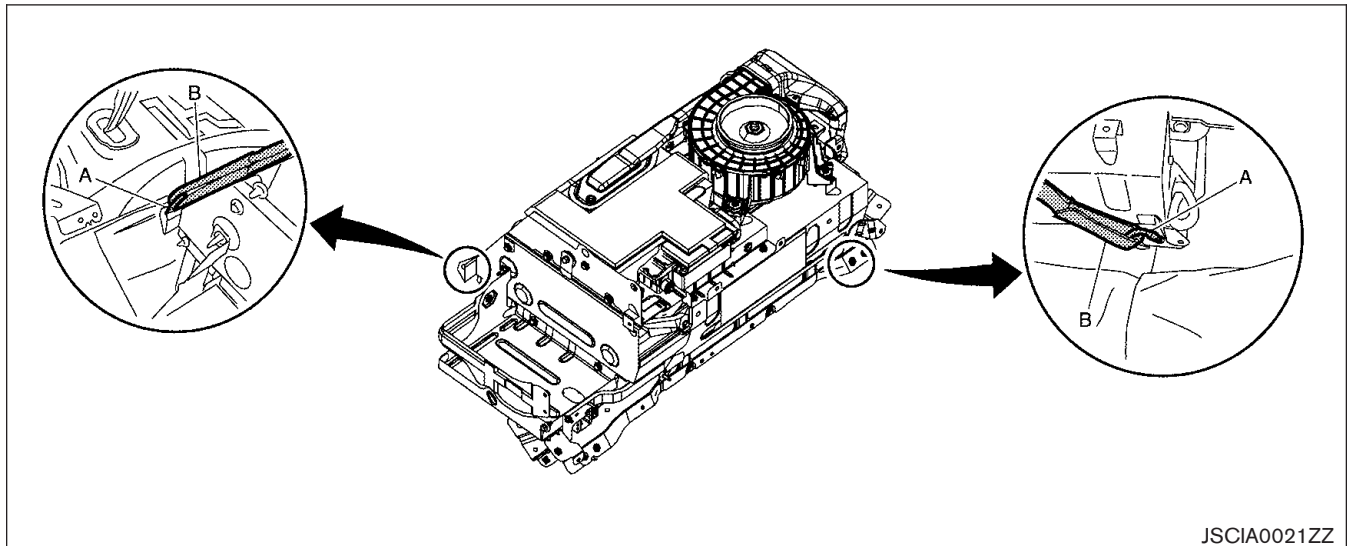
28. Follow the procedure below to remove the high voltage battery pack from the trunk room.



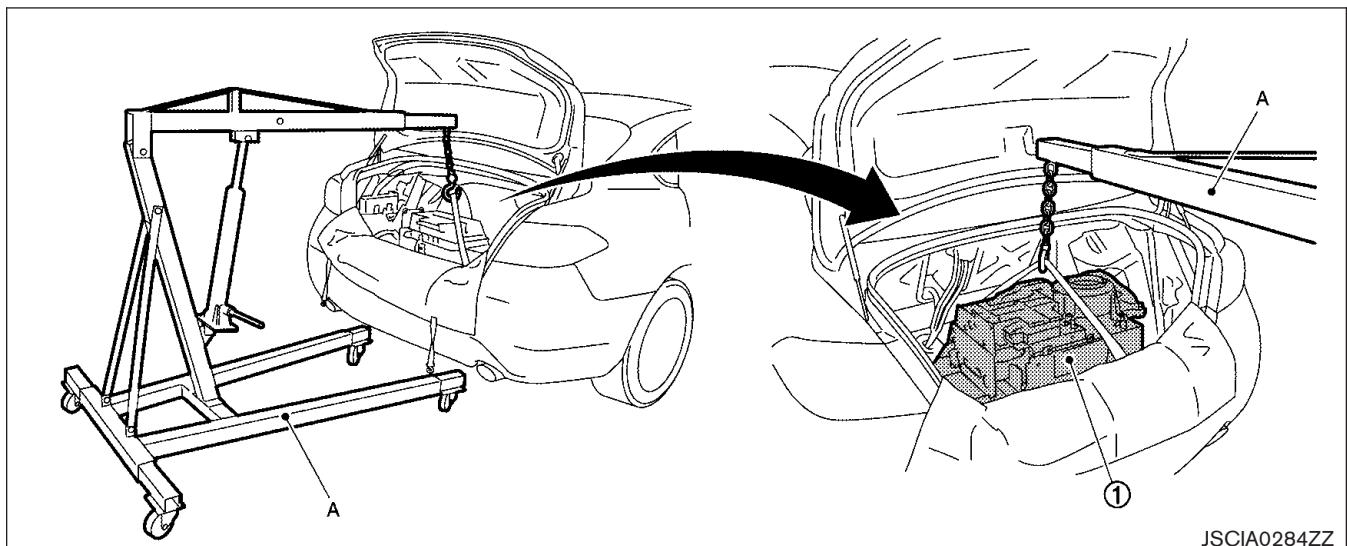
⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.

- a. Attach carabiners (A) in the positions as shown in the figure, and then connect a slinger (B) to them.

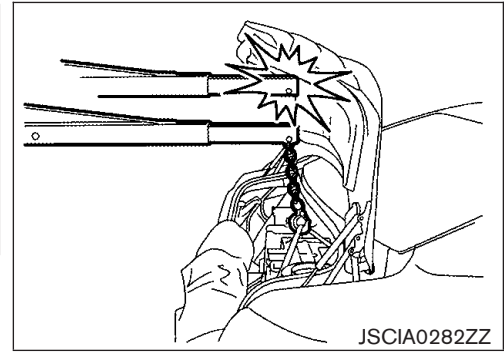


- b. Using an engine crane (A) to lift up the high voltage battery pack (1) and remove it from the trunk room.



⚠ CAUTION

- Be careful that the engine crane does not contact the trunk lid.
- Apply protection so that no scratches or other damage occurs on the vehicle body or trunk lid.

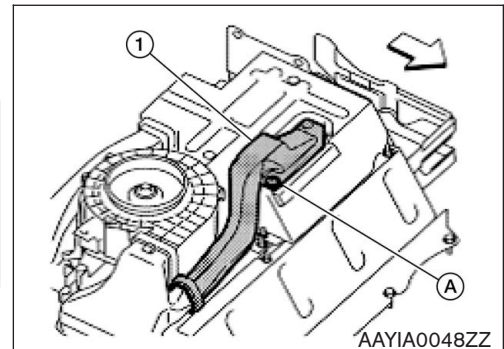


29. Remove the DC/DC converter inlet duct clips (A) and then the DC/DC converter inlet duct (1).



⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.

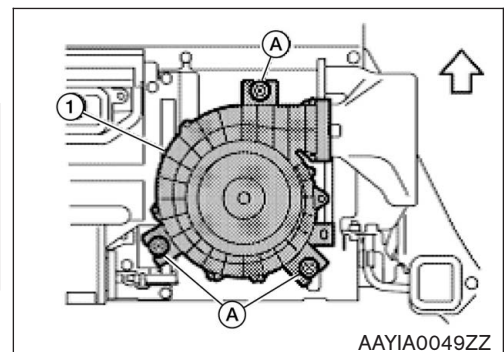


30. Remove the battery cooling fan mounting bolts (A) and remove the battery cooling fan (1).



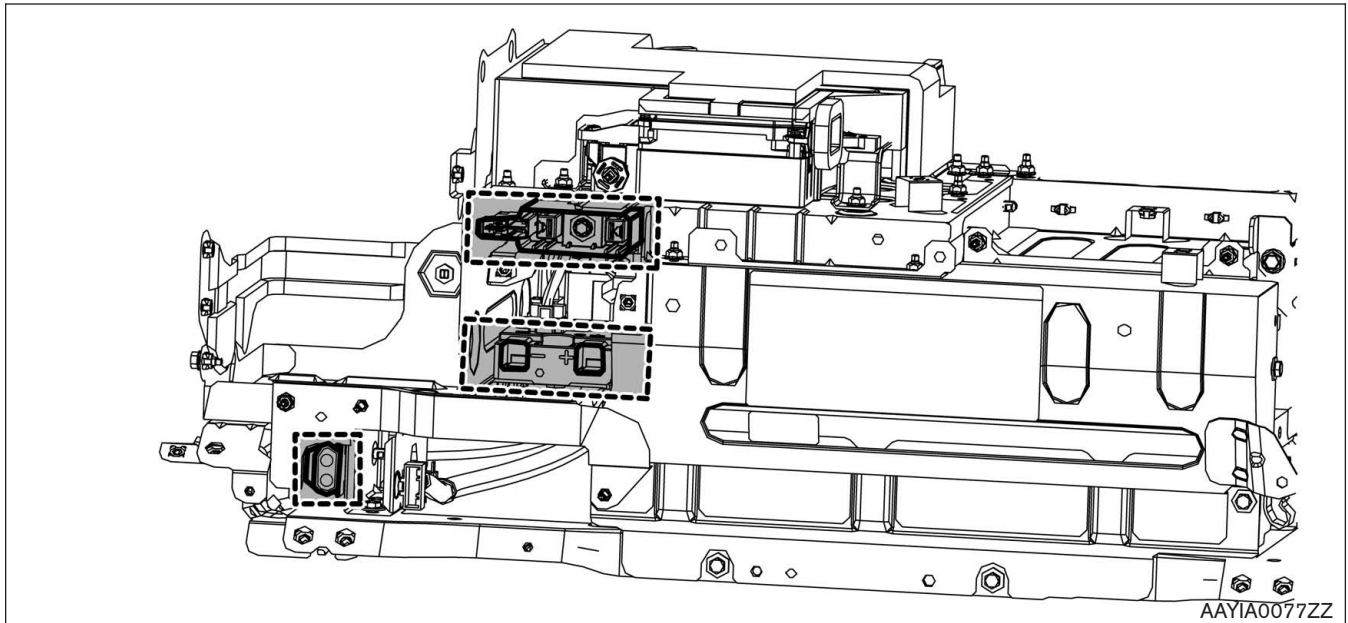
⚠ DANGER

Touching high voltage components without wearing appropriate PPE will cause electrocution.



31. Confirm that the insulated tape is still securely in place on the high voltage battery pack as shown in the figure.

■ : Insulated tape



32. Dismantling the remainder of the M35h HYBRID may be performed like conventional INFINITI vehicles once the high voltage system is properly shut down and discharged.

6-4 Li-ion Battery Recycling

The high voltage battery is recyclable. For information regarding recycling of the high voltage battery, contact the nearest INFINITI retailer or INFINITI Consumer Affairs at: United States: 1-800-662-6200 or in Canada: 1-800-361-4792.



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