ATTENTION:
GENERAL MANAGER ❑
PARTS MANAGER ❑
CLAIMS PERSONNEL ❑
SERVICE MANAGER ❑

IMPORTANT - All Service Personnel Should Read and Initial in the boxes provided, right.

SUBARU
QUALITY DRIVEN® SERVICE

SERVICE BULLETIN

APPLICABILITY: 2019-2023 Crosstrek Hybrid

SUBJECT: 12v Inverter Connector Corrosion

NUMBER: 19-01-26
DATE: 03/19/26
REVISED: 03/26/26

INTRODUCTION:

This bulletin announces the repair procedure for the 12v terminal on the inverter to address concerns regarding corrosion buildup. The 12v terminal and cable assembly are now available as a one-piece design for repairing the inverter in rare cases where corrosion has developed after WRD-23 was performed. If the customer concern is a result of corrosion on the 12v terminal on the inverter or a damaged cable is found on the HV air conditioning cable, please follow the procedure outlined in this bulletin. Note this repair is not appropriate in any cases where the WRD-23 recall is still incomplete.

REQUIRED TECHNICIAN TRAINING

Subaru technicians will be required to take and pass the **WRD-23 12-Volt Inverter Connector Corrosion Video and Post Test** before performing the 19-01-26 service procedure. The video and post test are currently available on STAR-U.

Technicians must also complete the following required WBT courses in STAR-U, before performing the 19-01-26 service procedure. These WBT courses are currently available, and technicians are encouraged to be completed prior to enrolling in the WRD-23 Volt Inverter Connector Corrosion Video and Post Test.

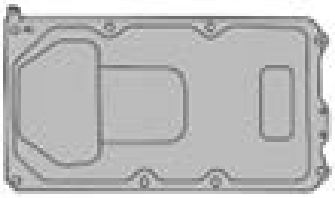
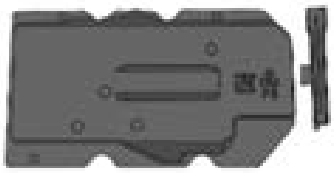
- 2019 Crosstrek Hybrid Introduction (13L301101W)
- 2019 Crosstrek Hybrid Safety (13L301103W)
- 2019 Crosstrek Hybrid Technical (13L301102W)
- 2023 Subaru Solterra - Systems and Features WBT (80L200103W)

Continued...

- 2023 Subaru Solterra - High Voltage Systems WBT (80L200104W)
- EV Power Down Video (20L000120W)

PART INFORMATION:

Part Description	Part Number	Qty
PRODCTN PRCHS DWG	X1009AA100	1

PRODCTN PRCHS KIT (X1009AA100) Component Breakdown			
Part Description	**Qty**	**Image**	**Part Number**
PRODCTN PRCHS DWG	1		10099AA100
COVER,CONVERTER	1		G927133010
BOLT, FLANGE	11		9010505065
COVER,HV CONVERTER	1		091X733010
CAP	2		9033916002

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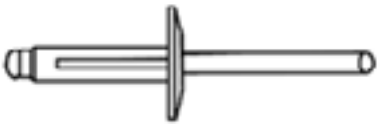
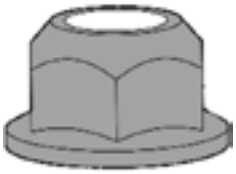
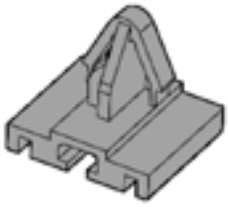
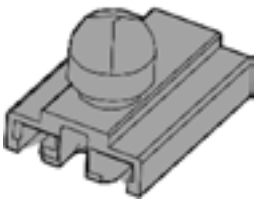
Additional One-Time Use Parts Required			
Part Description	**Qty**	**Image**	**Part Number**
BOLT	**2**		**010108450**
BLIND RIVET	**3**		**8057040009R**
GASKET-EXHAUST	2		44616AA2919R
GSKT-EGR PIPE	1		14738AA3519R
GASKET(CR)	1		44022AA1239R
GASKET	1		44011SG0009R
SELF LOCK NUT M10	2		9023300119R
ANCHOR PROTR TMC	1		82677FL5009R
ANCHOR PROTR FFL	1		82677FL5109R

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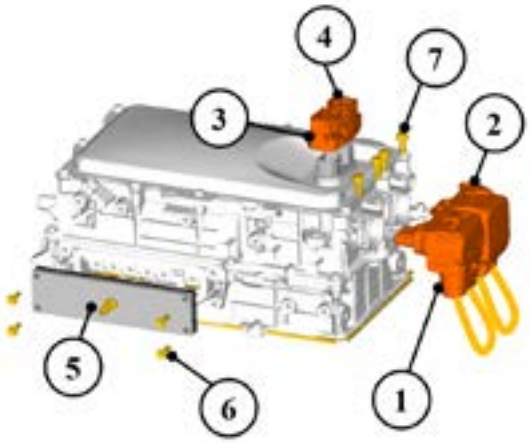
COVER-POWER CONN	2		33274AA0619R

REQUIRED TOOLS:

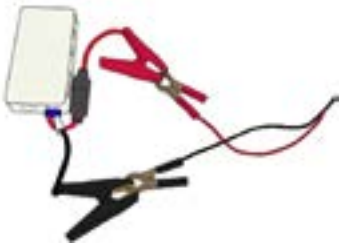
Part Description	Qty	Image
Leak Detector (Essential Tool) For inspecting air leak from the inverter with converter assembly after replacing the 12V terminal	1	

Part Description	Part Number	Qty
WRD-23 LEAK TEST TOOL KIT	SOA635177	1

IMPORTANT: SOA635177 was automatically shipped 1 per retailer during the release of WRD-23.

WRD-23 Leak Test Tool Kit (SOA635177)			
Part Description	**Part Number**	**Qty**	**Image**
CONNECTOR HOLDER (No. 1)	81911FL010	1	
CONNECTOR HOLDER (No. 2)	81911FL050	1	
CONNECTOR HOLDER (No. 3)	81911FL040	1	
CONNECTOR HOLDER (No. 4)	81911FL030	1	
REPAIR TOOL (No. 5)	99804AN030	1	
FLANGE BOLT (No. 6)	010406200	4	
FLANGE BOLT (No. 7)	010406120	4	
Details			
For inspecting air leak from the inverter with converter assembly after replacing the 12V terminal			

Continued...

Part Description	Qty	Image	Details
Non-metallic Sealant Scraper	1		For removing sealant. (To prevent any damage to the sealant surface, DO NOT use metallic scraper)
12V External Power Supply	1		For supplying 12V power to the leak detector.
Silicon Hose	1		To be used when performing leak check (Inner Diameter: 7mm/0.3 in)
Spray Nozzle (3M Cavity Wax Plus Applicator Wand Kit or general nozzle)	1		To be used with 3M Cavity Wax Plus spray (3M# 7100088894)

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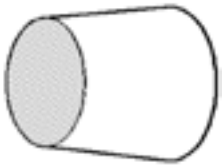
Part Description	Qty	Image	Details
Insulated Hand Tools	1		For removing and installing bolts for the high voltage components
High Voltage Insulated Gloves (Additional Information Provided Below)	1		To be used when removing and installing the high voltage components
Antistatic Mat	1		For preventing static electricity from electronic parts
Antistatic Strap			For preventing static electricity from electronic parts
Circuit Tester	1		For measuring the high voltage
Coolant Hose Cap	6		For preventing engine coolant dripping from the coolant hose
Hand Riveter	1		For installing the inverter/converter cover
Wooden Blocks	1		To be used to support the inverter/converter cover replacement

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REQUIRED CHEMICALS FOR 12V TERMINAL REPLACEMENT:

Product Name	Qty	Remarks	Image
3M Cavity Wax Plus (3M# 7100211448)	Appropriate amount	For rust prevention	
Three Bond 1207F (SOA868V9650) Warranty Number SOA635336	Appropriate amount	Sealant	

HIGH VOLTAGE INSULATED GLOVE INFORMATION:

- New gloves and sleeves are marked with the date of manufacture/electrical test and are acceptable for use 12 months from that date.

- If new gloves are first used within 12 months of the manufacture/electrical test date, re-certification must occur 6 months from first use. The first use date should be recorded.

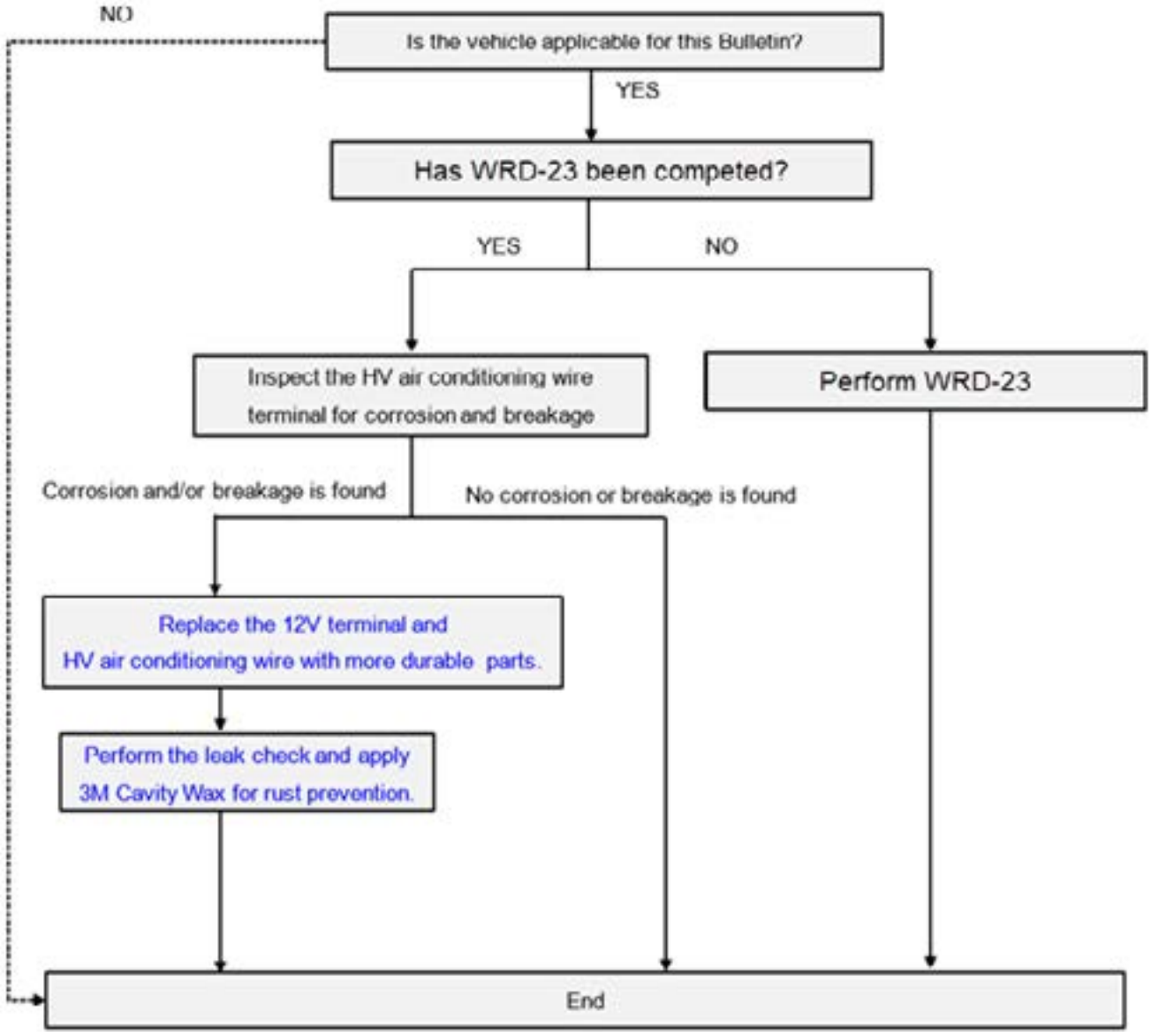
- If the first use date is not known, the gloves/sleeves must be retested 6 months from the electrical test date stamped on the glove/sleeve.

Continued...

- All gloves must be inspected by the user for damage prior to each use.

- The gloves include a stamped date indicating when the rubber insulating gloves were "originally or last tested electrically." Rubber insulating gloves must be re-tested electrically by a certified lab 6 months after first use. The lab will re-stamp the gloves with the new "tested" date.

SERVICE PROCEDURE FLOW CHART:



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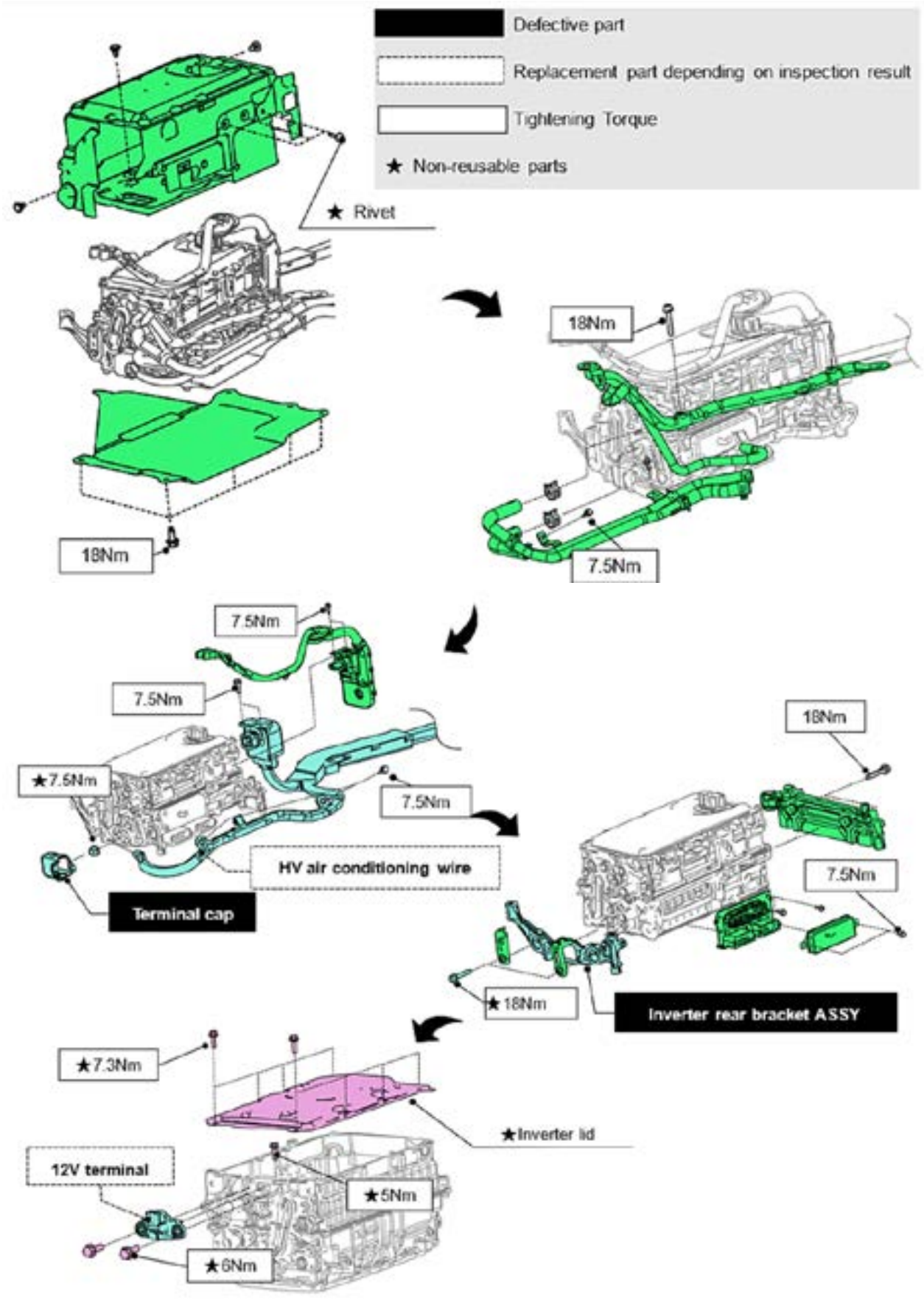
COMPONENT DETAILS / CONFIGURATION:



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PRECAUTIONARY INFORMATION:

- **When working on high voltage systems, always wear high voltage insulated gloves.**
- **During disassembly and reassembly of the inverter/converter assembly, BE CAREFUL not to cause or induce any static electricity.**
- **ALWAYS place the inverter/converter assembly and any other removed electronic components on an antistatic work mat after removal.**
- **Keep any foreign matters such as water and dust from entering the inverter/converter assembly.**
- **Be CAREFUL not to make contact with the electronic components within the inverter/converter assembly.**

STEP 1: Remove the inverter/converter assembly from the body of the vehicle using the work procedures outlined in the applicable Service Manual. Refer to STIS: Body & Electrical/WIRING SYSTEM > HYBRID ELECTRIC VEHICLE > Inverter and Converter Assembly

TIP 1: ALWAYS perform the required voltage checks as outlined in the Service Manual. A zero-DC voltage reading at these required points is vital for confirming safe working conditions.

CAUTION: ALWAYS wear high voltage insulation gloves when performing the voltage checks.

Continued...

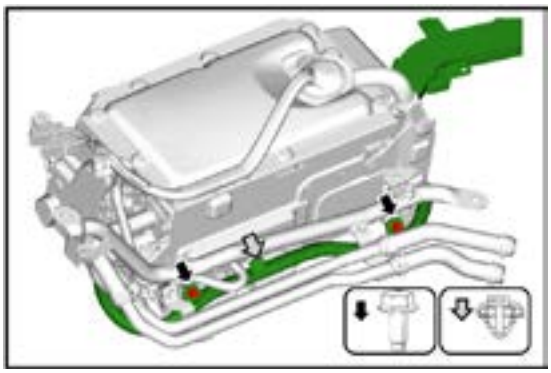
TIP 2: Removing the ECM provides additional cable slack when working in the upper and lower engine area during removal of the HV air conditioning cable.

STEP 2: CARFULLY remove the three retaining clips and the three rivets. The inverter/converter insulation cover can then be removed.

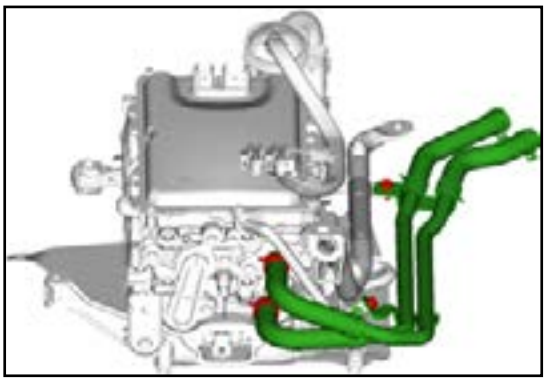
CAUTION:

- **Release the rivets with a drill for removal. To prevent any damage to the inverter/converter assembly, support the back side of the rivet with a trim tool or pliers.**
- **The spacers attached to the cover MUST be reused. DO NOT discard the spacers.**

STEP 3: Remove the two HV air condition cable mounting bolts. Release the retaining clip and move the HV air conditioning cable to allow room for workspace.



STEP 4: Remove the hose clamps from the connections. Remove the two water pipe mounting bolts. Install rubber caps onto the aluminum pipes to prevent any coolant drippage while working. The water pipe can then be lowered to allow access to the inverter/converter assembly.



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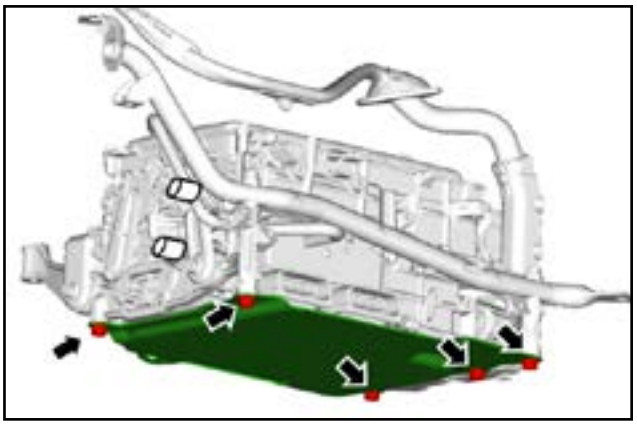
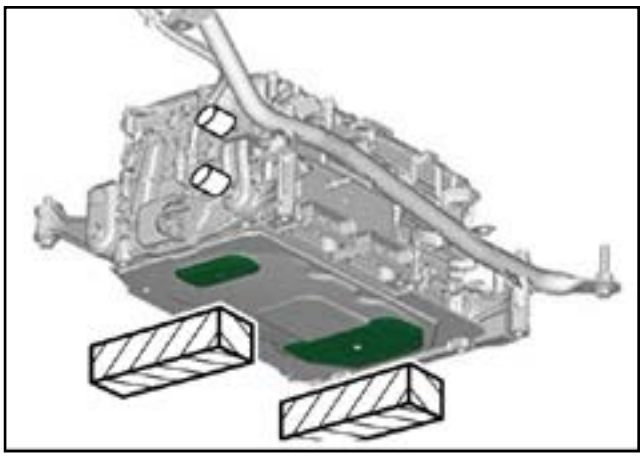
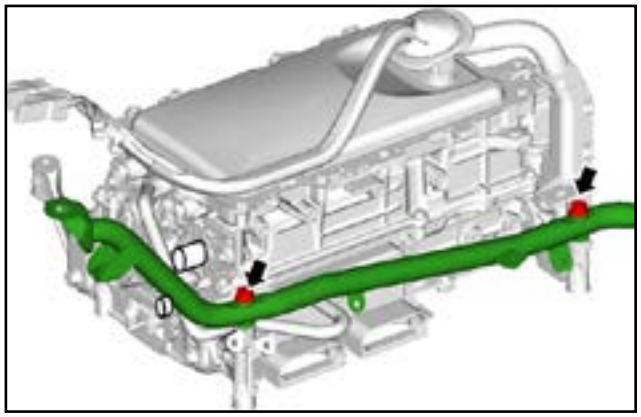
STEP 5: Remove the five inverter protector mounting bolts. The inverter protector can then be removed.



STEP 6: Place the inverter/converter assembly on two wooden blocks.

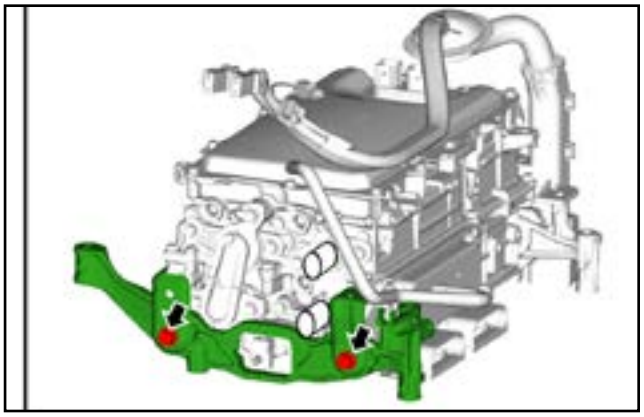


STEP 7: Remove the two mounting bolts for the inverter stay. The stay can then be removed.



STEP 8: Remove the mounting bolts and stays holding the rear inverter bracket. The rear bracket assembly can then be removed.

IMPORTANT NOTE: The mounting bolts are one-time use parts and can be discarded. The stays are NOT to be discarded and MUST be re-used.



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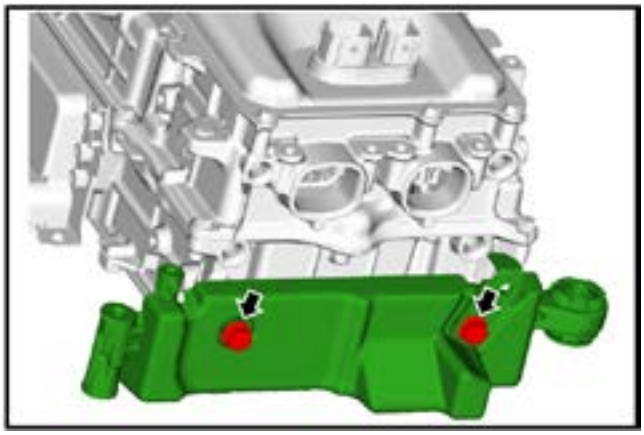
IMPORTANT: Insulated tools and gloves MUST be used for STEPS 9, 10, & 11.

STEP 9: Remove the three mounting bolts for the main battery connector. The connector can then be removed.

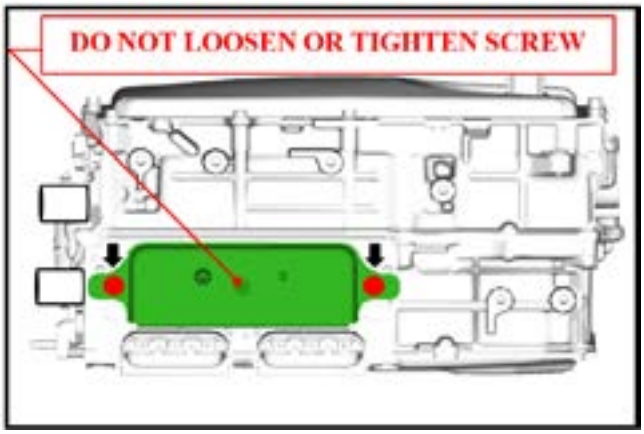
STEP 10: Remove the two mounting bolts for the HV air conditioning cable. The HV air conditioning cable can then be removed and discarded.

STEP 11: Remove the two mounting bolts for the front inverter/converter bracket assembly. The bracket assembly and insulator can then be removed.



STEP 12: Remove the two mounting bolts for the terminal block cover. The terminal block cover can then be removed.

CAUTION: DO NOT TOUCH the center screw of the terminal block cover.



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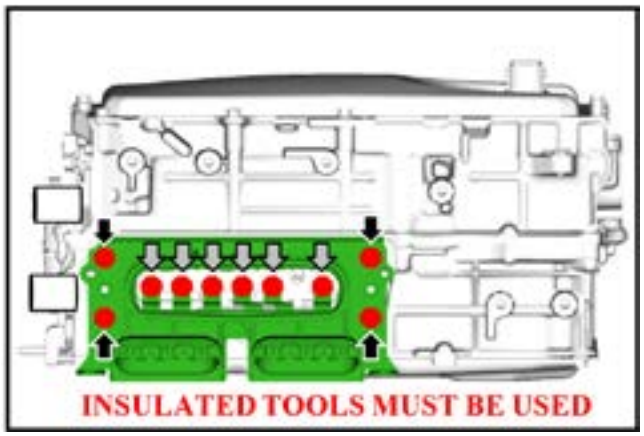
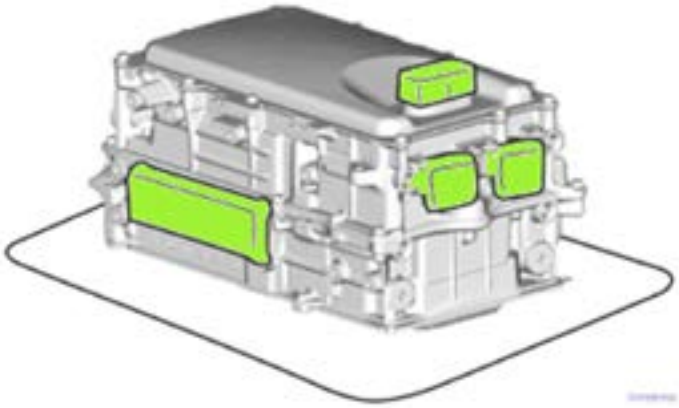
STEP 13: Remove the ten mounting bolts for the motor cable terminal block. The motor cable terminal block can then be removed.



STEP 14: Cover the opening of each electrical connection with masking tape. This will reduce the risk of foreign matter intrusion.



3M™ High Performance Green Masking Tape 401+ can be used for this procedure

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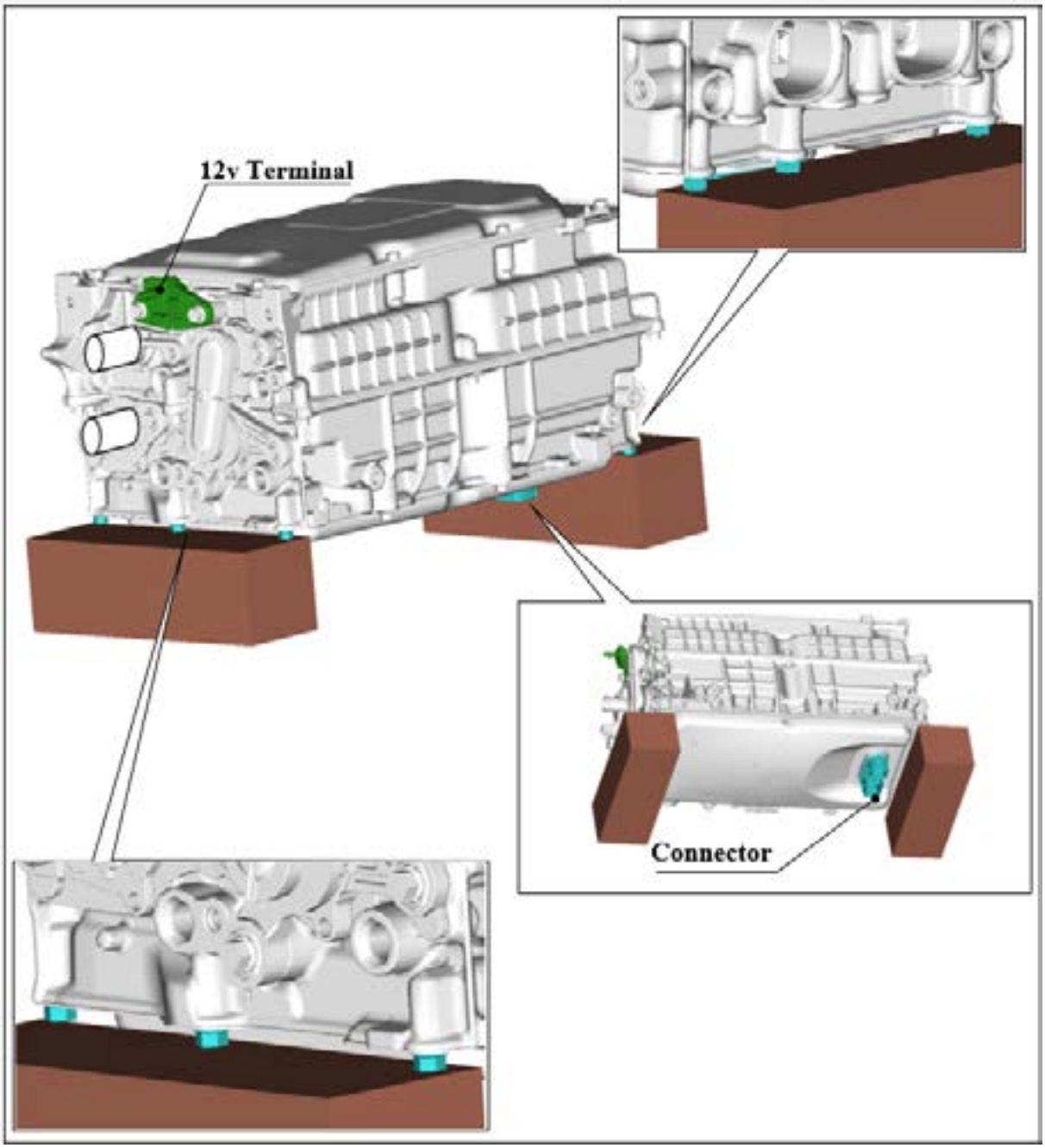
STEP 15: Rotate the inverter/converter assembly so the 12v terminal is facing upward.

STEP 16: Place the inverter/converter assembly on two wooden blocks. Align the bolt head of the cover with the wooden blocks. DO NOT place the block directly on the cover.

CAUTION: CAREFULLY place the inverter/converter assembly on the wooden blocks as shown in the images provided below in order to prevent any damage to the connector and cover.



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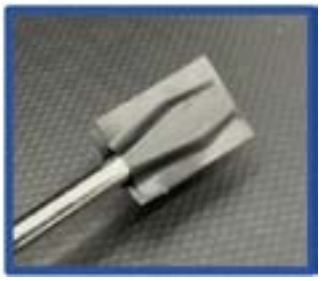
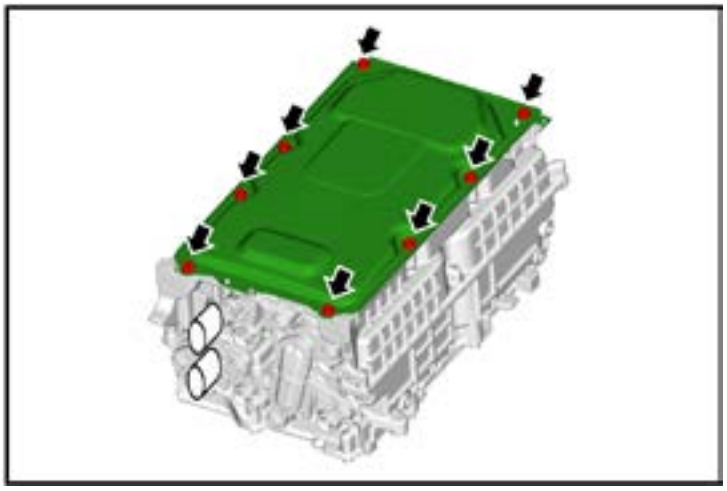
STEP 17: Remove the eight mounting bolts front the converter lid. Prepare a small flathead screwdriver with tape wrapped around the blade. **CAREFULLY** remove the inverter/converter lid as shown in the images below.

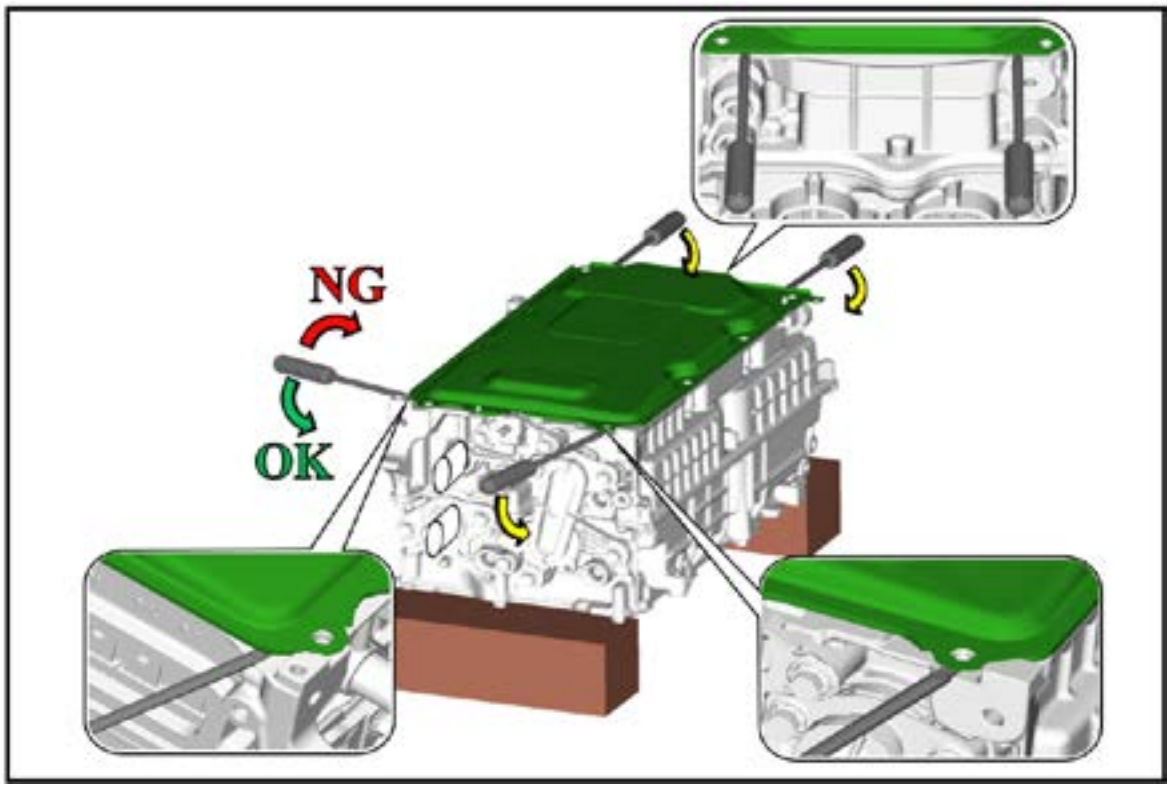
EXAMPLE





IMPORTANT CAUTIONS:

- **DO NOT damage the sealing surface of the inverter/converter assembly.**
- **DO NOT lift the screwdriver handle in the upward direction. ONLY push the handle of the screwdriver in the downward direction when inserted between the lid and case.**
- **ONLY insert the blade portion of the screwdriver between the lid and case. Deep insertion of the screwdriver can cause damage to the case and internal components.**
- **Work with bare hands or insulated gloves in order to prevent any static electricity and foreign mater intrusion into the internal electrical components.**



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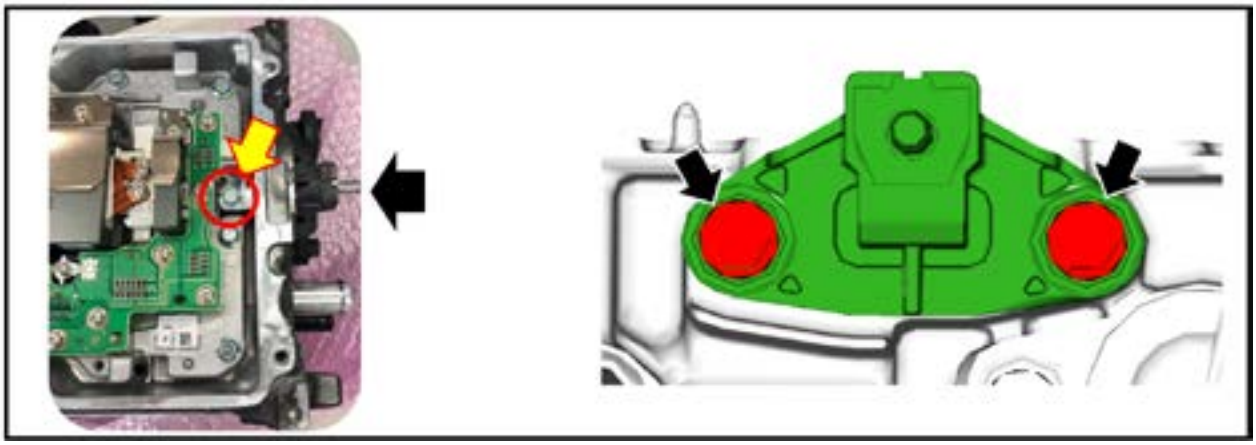
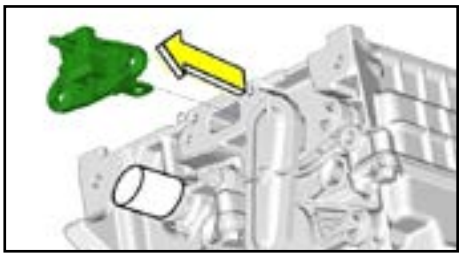
STEP 18: CAREFULLY retrieve any sealant that may have dropped into the case. **DO NOT** touch any of the internal components. Remove the three mounting bolts for the 12v terminal.

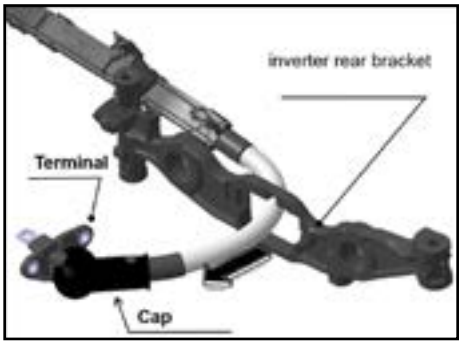


Once the mounting bolts are removed, pull the terminal away from the case to remove.



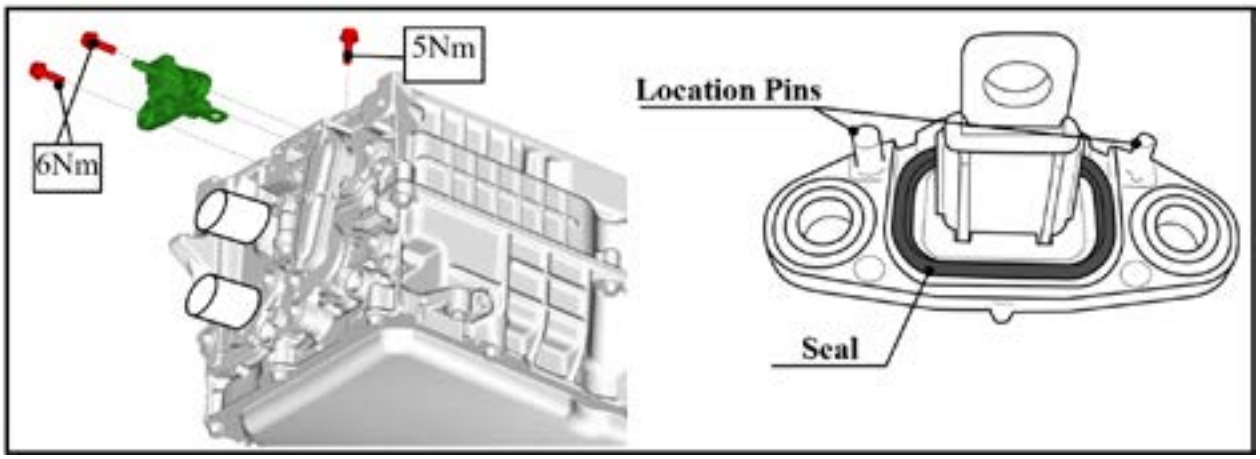
CAUTION: Confirm the original seal is removed with the terminal and is not left inside the case.

STEP 19: Insert the NEW 12v terminal of the countermeasure HV air conditioning cable into the hole of the inverter rear bracket. Align the location pins on the terminal. Torque the OUTER mounting bolts to 6Nm (4.4ft-lbs). Torque the INNER mounting bolt to 5Nm (3.7ft-lbs).



CAUTION: When passing the 12v terminal through the inverter rear bracket and during subsequent operations, ALWAYS handle the cable and bracket with care. Avoid applying any force to the terminal or rubber cap. Temporarily place the bracket in position until assembly to prevent any interference.

STEP 20: Install the NEW 12v terminal and cable assembly by aligning the location pins on the terminal to the inverter case. Torque the OUTER mounting bolts to 6Nm (4.4ft-lbs). Torque the INNER mounting bolt to 5Nm (3.7ft-lbs). NOTE: The image below does not show the cable attached.



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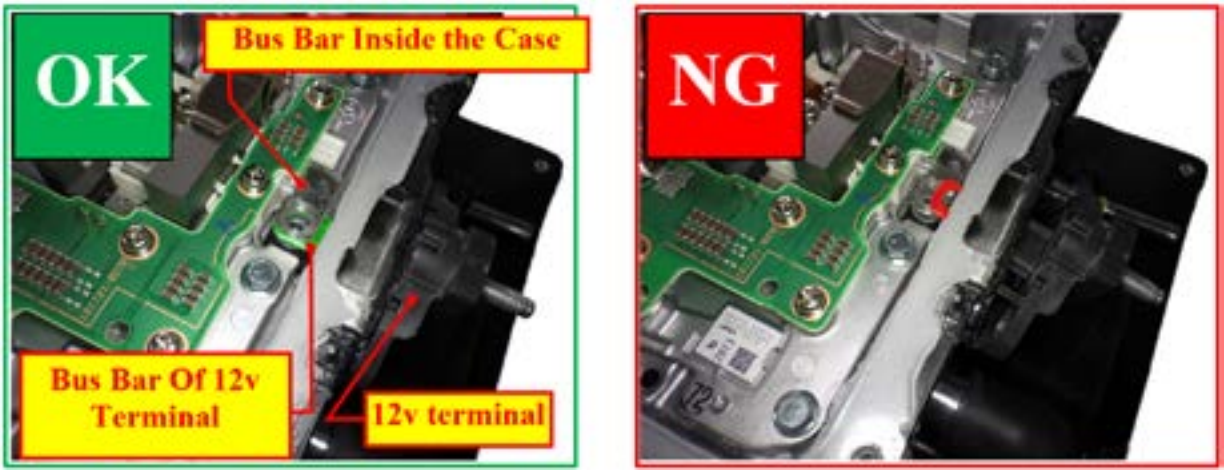
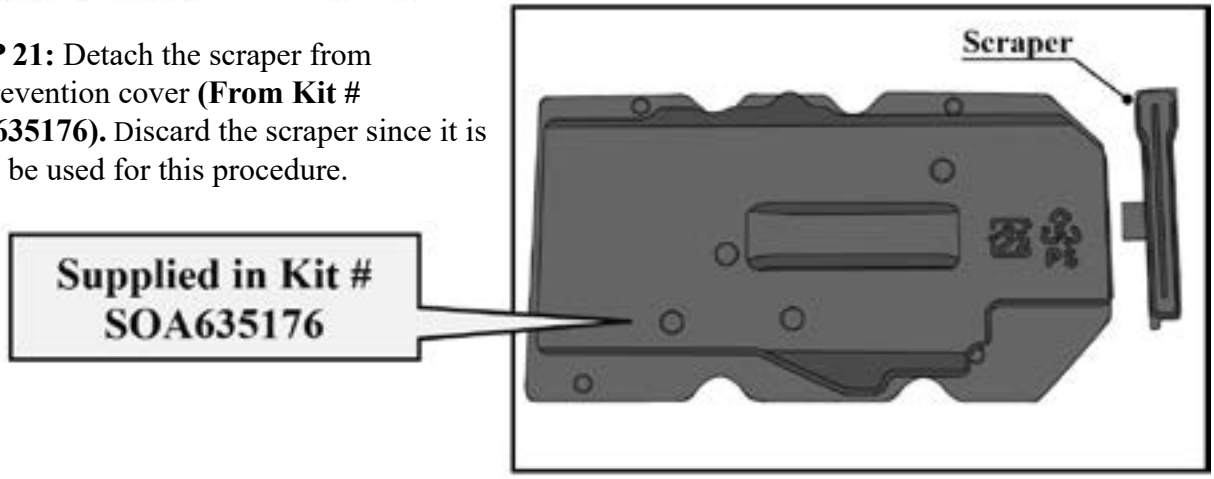
CAUTION: CONFIRM the bus bar portion of the 12v terminal is not positioned on top of the bus bar located inside the case.

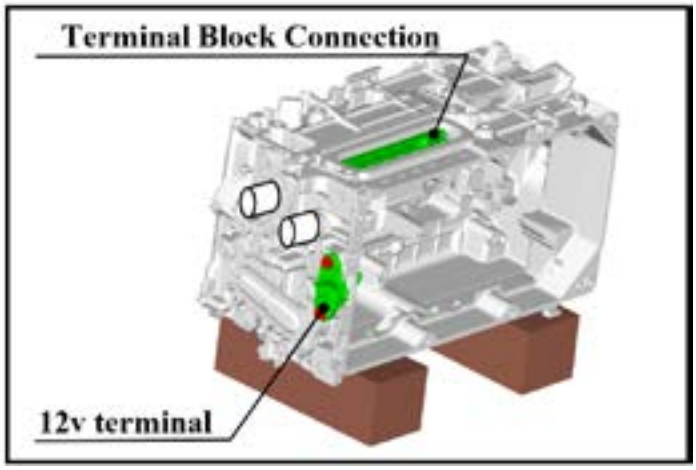


STEP 21: Detach the scraper from the prevention cover **(From Kit # SOA635176).** Discard the scraper since it is not to be used for this procedure.



STEP 22: CONFIRM no sealant has dropped into the case.

STEP 23: Rotate the inverter/converter assembly with the terminal block connection facing upward. This position will help prevent removed sealant from entering the internal case.



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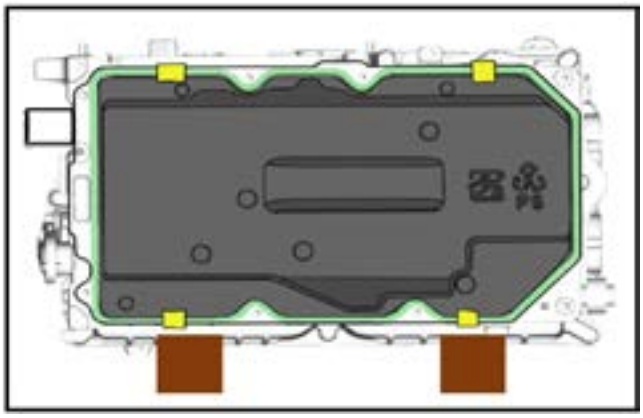
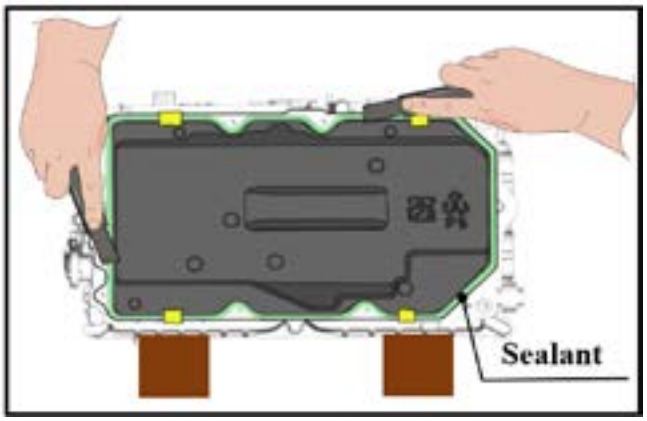
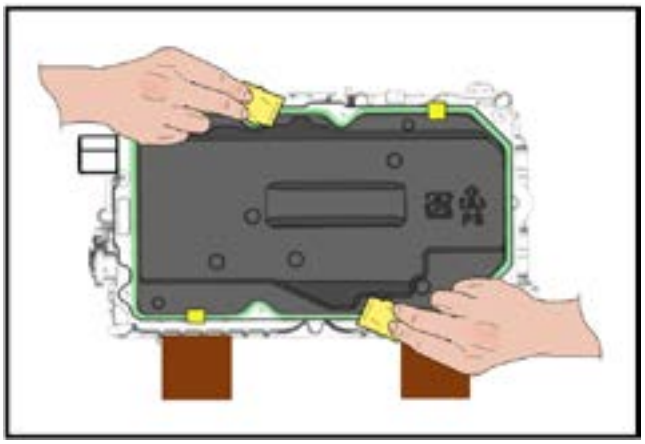
STEP 24: Install the sealant drop prevention cover and secure it with masking tape.



STEP 25: Using a suitable plastic scraper or plastic razor blade, removed any sealant adhered to the case sealing surface. ONLY the protruding sealant is required to be removed. Thin amounts of sealant without protrusions do not have any affect on the sealing performance.

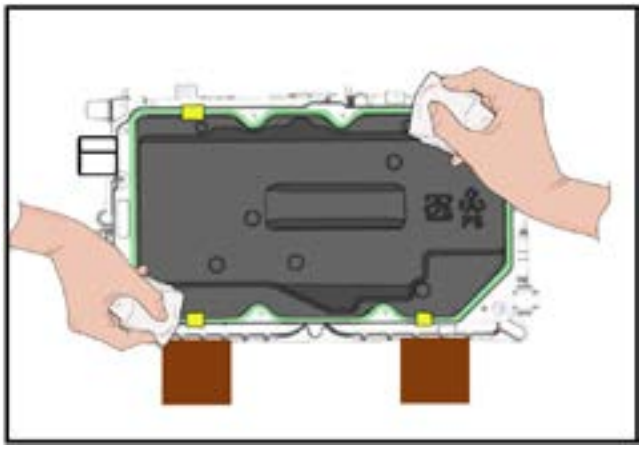


STEP 26: Remove residual sealant fragments with the adhesive side of masking tape.



STEP 27: Clean the surface area with a clean cloth.

CAUTION: DO NOT use a blow gun or brake/parts cleaner. This can cause damage to the inverter/converter internals and cause insufficient sealant curing.

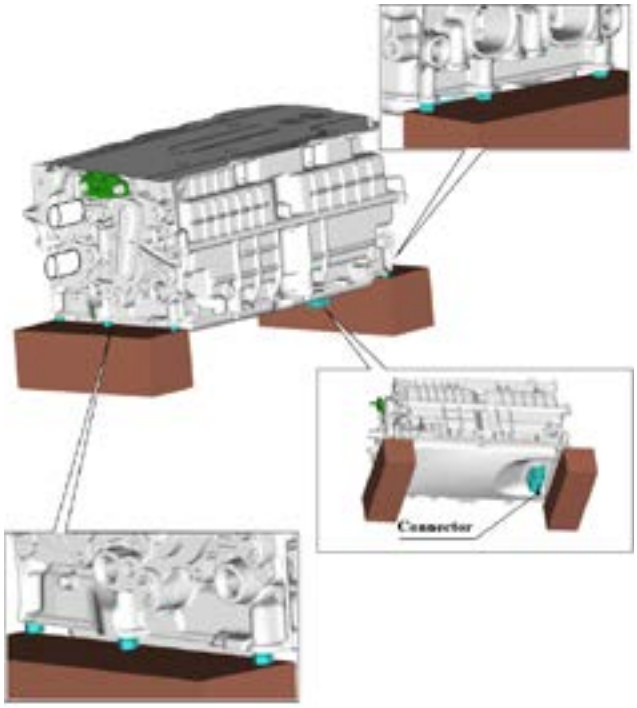


Continued...

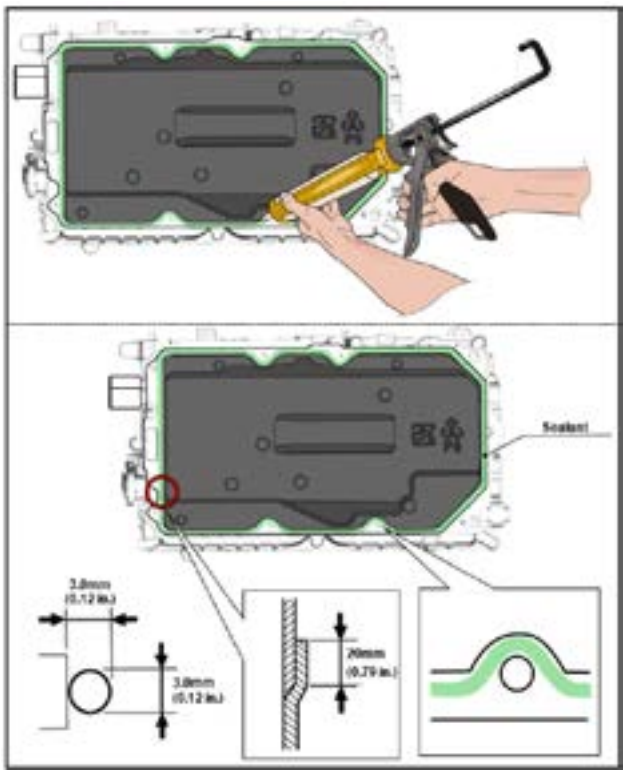
STEP 28: Once the sealant has been sufficiently removed and the sealing surface is clean and free of debris, rotate the inverter/converter with sealing surface facing upward.

CAUTION: CONFIRM the inverter/converter is positioned with the mounting bolts on the wooden blocks. DO NOT cause any damage to the connector or cover.

STEP 29: Remove any masking tape securing the prevention cover to the case.



STEP 30: Apply a 3mm (0.12in) diameter bead of Three Bond 1207F as detailed in the images below.

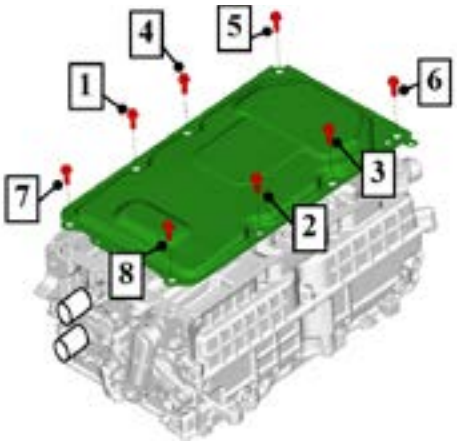


Continued...

STEP 30: Remove the sealant drop prevention cover.

NOTE: The sealant drop prevention cover is NOT a one-time use tool and is designed for repeated usage. It is important to keep the cover clean and sealant free for future usage.

STEP 31: Install the inverter lid. Install the eight mounting bolts by hand. Torque the bolts to 7.3Nm (5.4ft-lbs) in the order specified in the right image.

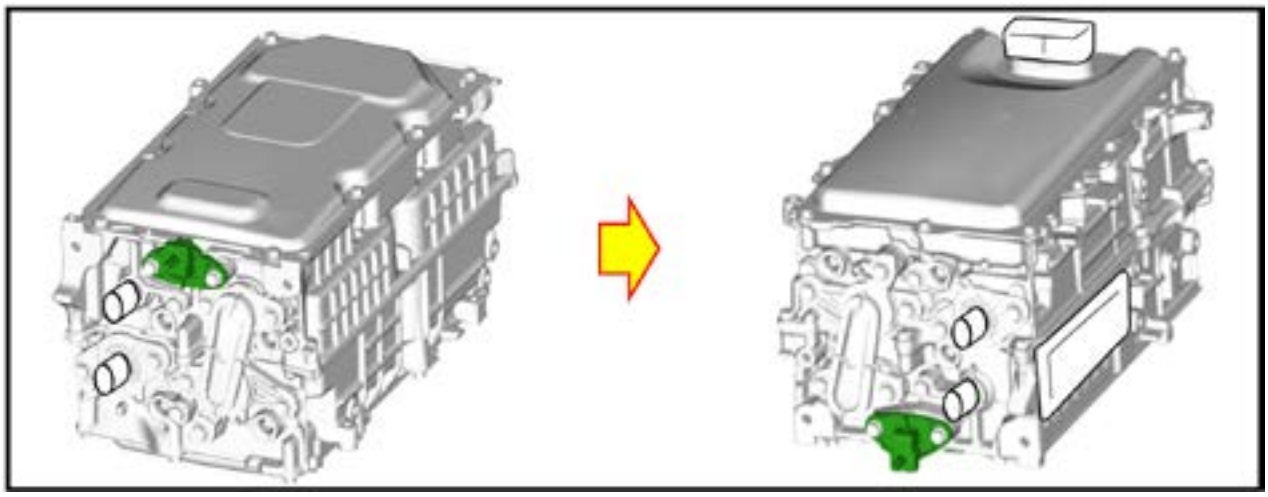


STEP 32: Perform the torques sequence a second time.

CAUTIONS:

- **The inverter lid MUST be installed within three minutes after the Three Bond application.**
- **The torque procedure MUST be performed within fifteen minutes after the Three Bond application.**
- **Three Bond 1207F requires 24 hours to become fully cured. The vehicle MUST not be exposed to heavy moisture such as car wash, rain, and snow until this 24-hour cure time is complete.**

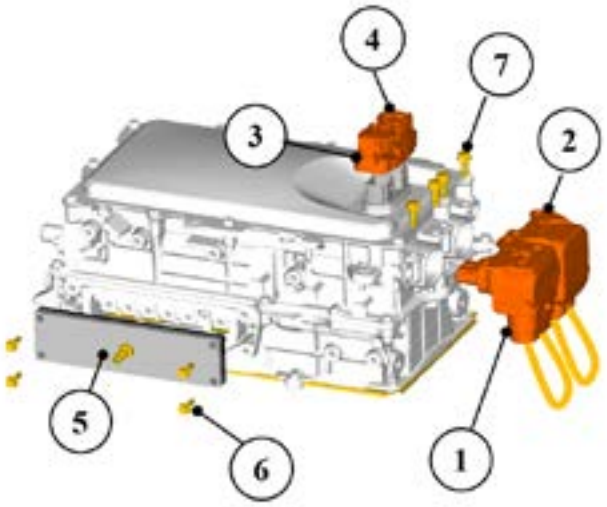
STEP 33: Rotate the inverter/converter assembly on the wooden blocks as shown in the image below.



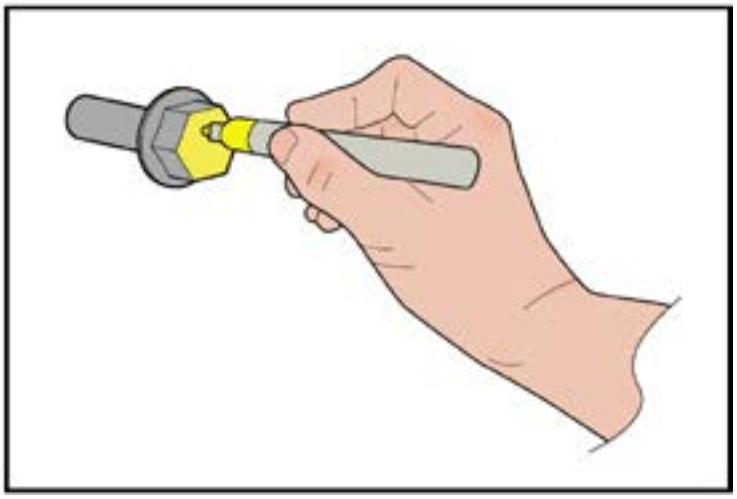
Continued...

STEP 34: Remove the masking tape from the electrical connections. Prepare the following specialty tools.

1. Connector Holder 1 **(p.n.81911FL010)**
2. Connector Holder 2 **(p.n.81911FL050)**
3. Connector Holder 3 **(p.n.81911FL030)**
4. Connector Holder 4 **(p.n.81911FL030)**
5. Repair Tool **(p.n.99804AN030)**
6. Flange Bolts **(p.n.010406200)**
7. Flange Bolts **(p.n.010406120)**

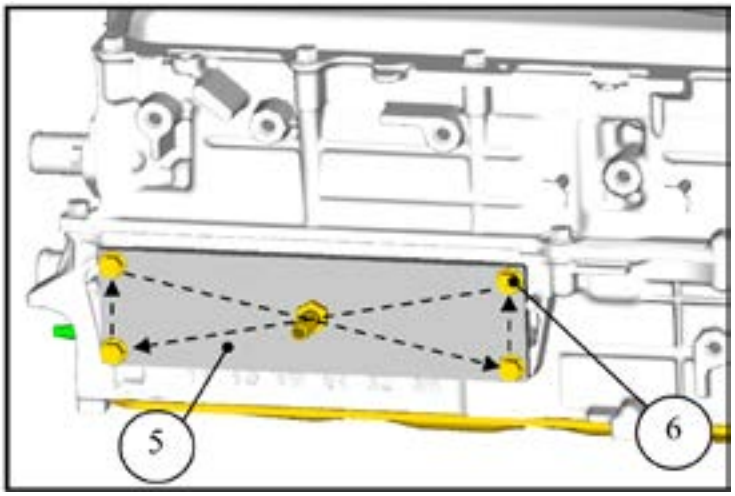


STEP 35: Mark the bolt heads of the Flange Bolts **(p.n.010406200)** and **(p.n.010406120)** for identification and to prevent possible mixing with any original equipment hardware.



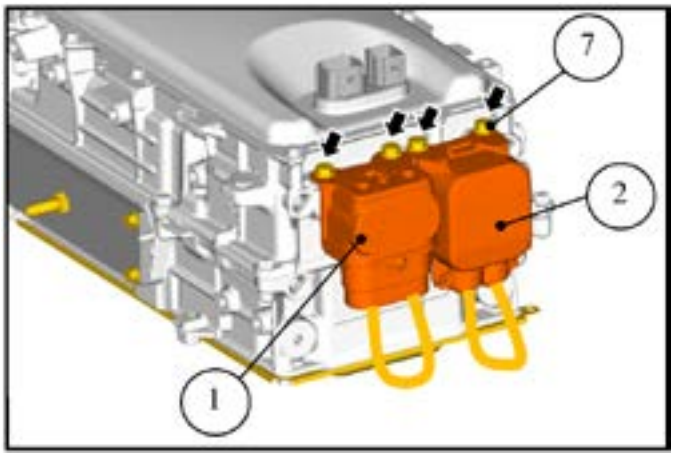
STEP 36: Install the Repair Tool **(p.n.99804AN030)** using the four Flange Bolts **(p.n.010406200)** in place of the motor cable terminal block connection. Tighten the bolts in an X-Pattern and torque to 5Nm (5Nm (3.7ft-lbs).

CAUTION: DO NOT use the originally supplied bolts used for the motor cable terminal block. CAREFULLY tighten the bolts evenly. Uneven tightening may cause incorrect leak detection results.



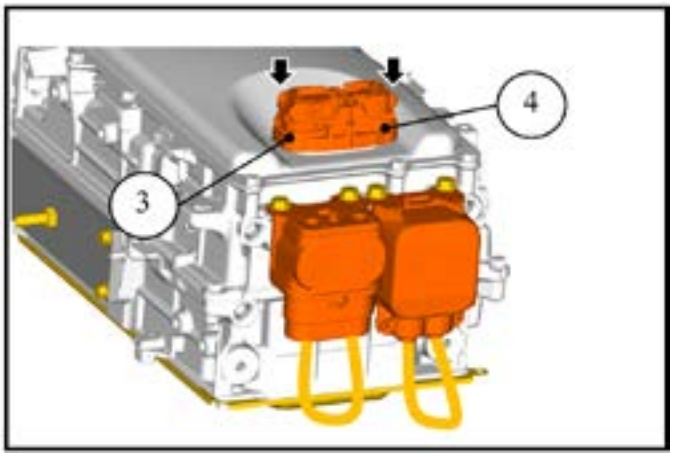
Continued...

STEP 37: Install Connector Holder 1 **(p.n.81911FL010)** and Connector Holder 2 **(p.n.81911FL050)** in place of the main battery cable connection and the HV air conditioning cable connection. Secure the Holders using the four Flange Bolts **(p.n.010406120).** Torque the Flange Bolts to 5Nm (5Nm (3.7ft-lbs).



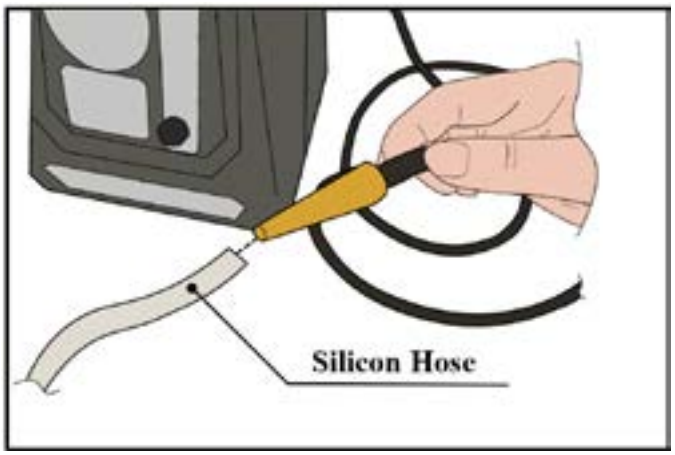
STEP 38: Install Connector Holder 3 **(p.n.81911FL030)** and Connector Holder 4 **(p.n.81911FL030)** in place of the upper HV air conditioning connection.

CAUTION: CONFIRM the connection is secure by pressing down on the lock lever to ensure it is fully locked. An unsecure connection may cause incorrect leak detection results.

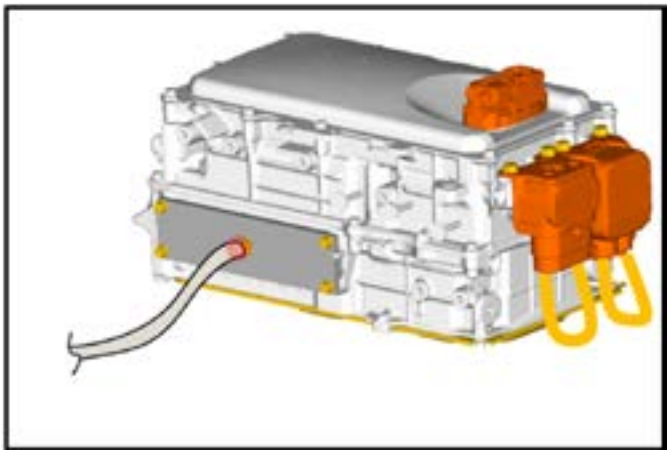


STEP 39: Insert the provided silicon hose nozzle of the portable leak detector.

NOTE: The inner diameter of the hose is 7mm (0.28 inches).

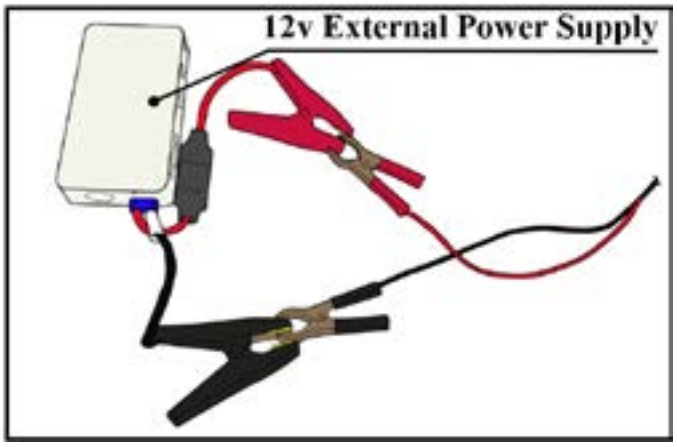


STEP 40: Connect the opposite end of the silicon hose to the nozzle located on Repair Tool **(p.n.99804AN030).**



Continued...

STEP 41: Connect a 12v external power supply to the portable leak detector.



STEP 42: Confirm the Power LED in ON.

STEP 44: Press the "**Air Only Test**" button to begin the leakage test.

Continued...

STEP 44: During the leakage test, confirm the float stays at the bottom.

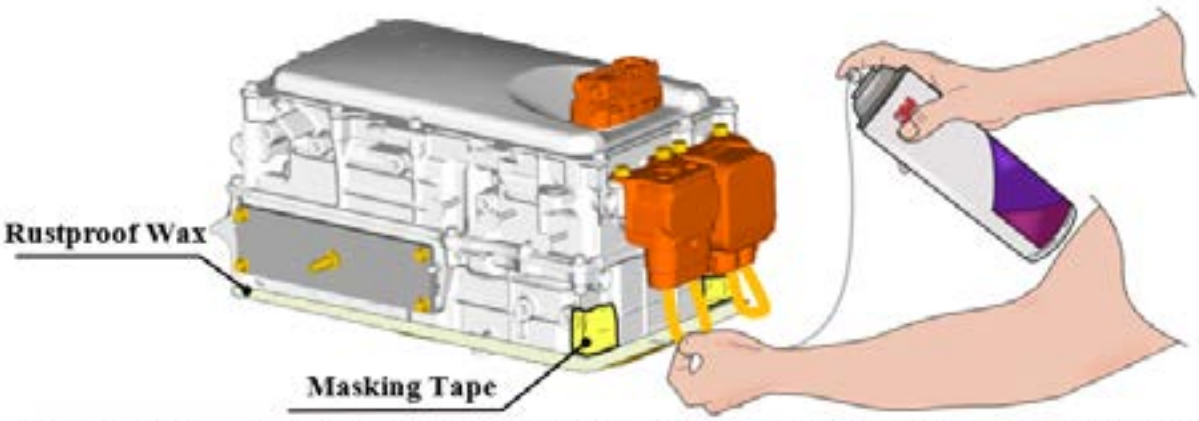
CAUTION: If leakage is detected, check connection conditions, the testing equipment for damage and/or deformation of the inverter/converter lid then re-test. If no visible fault is found and leakage is still found, removed the inverter/converter lid, clean and reseal the lid then retest.

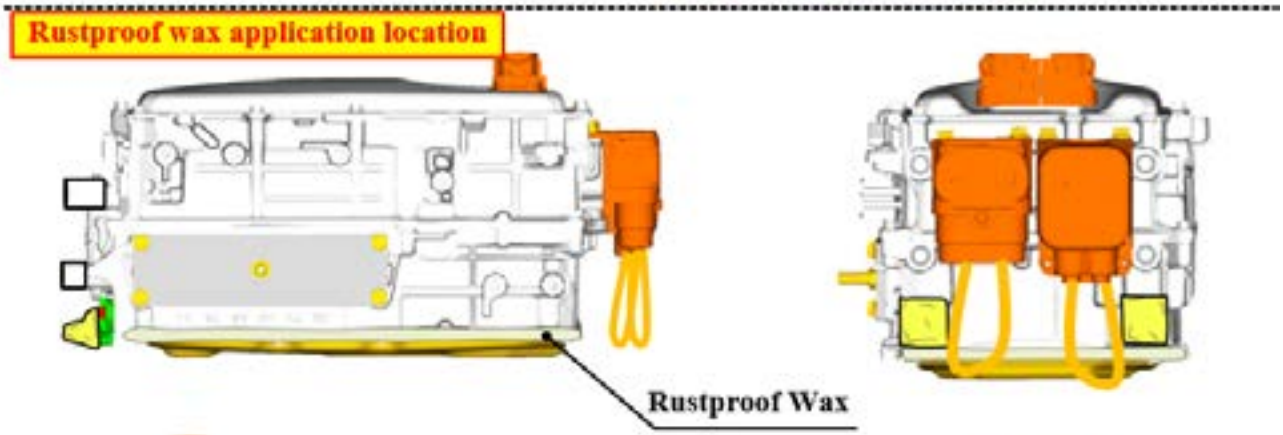
Continued...

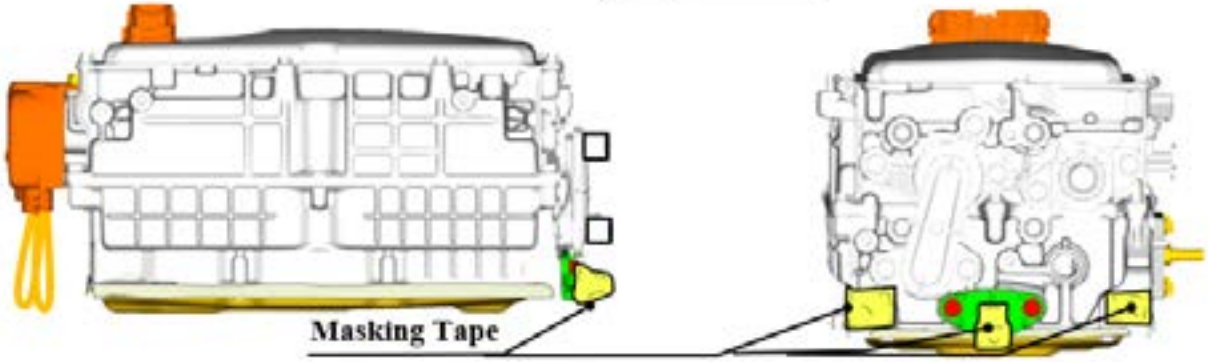
STEP 45: Apply masking tape to the mounting surfaces of the front and rear brackets. Cover the 12v terminal with masking tape. Apply the rustproof wax (3M Cavity Wax Plus) to the contact area of the inverter lid and case. Spray the area by moving the nozzle at a rate of about 50mm (2 inches) per 1 second. Perform two full rotations of application.

CAUTIONS:

- **The rustproof wax does not completely cure. Avoid touching the wax during work procedures.**
- **Thoroughly shake the can prior to use. Attach the nozzle to allow optimum distribution.**







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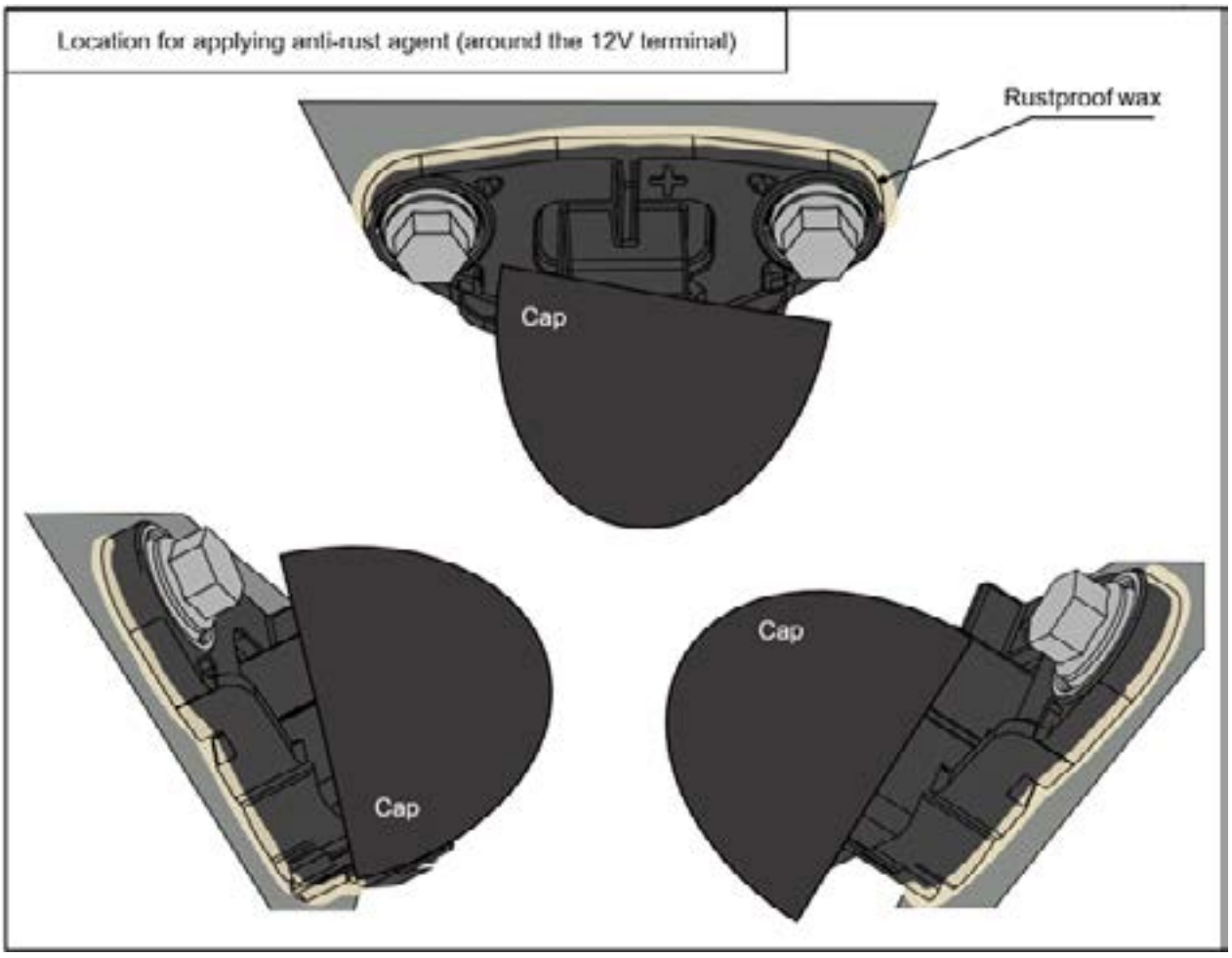
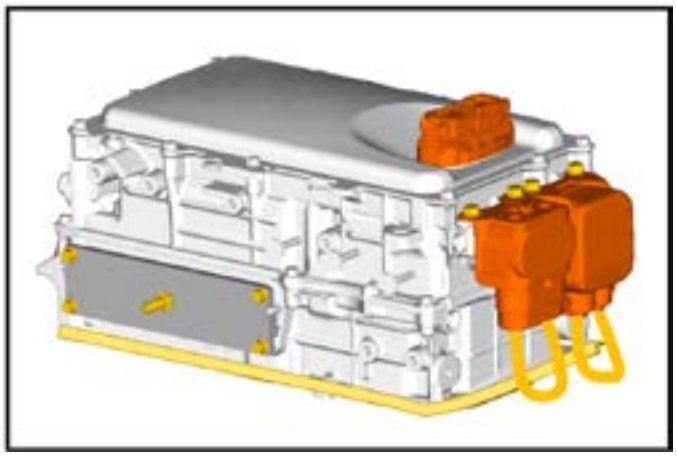


STEP 46: Confirm there is a sufficient application of the rustproof wax. Remove all leakage testing tools and masking tape.

CAUTION: Clean any wax that has made contact with resin portion of the 12v terminal and/or the mounting surfaces of the front & rear brackets.

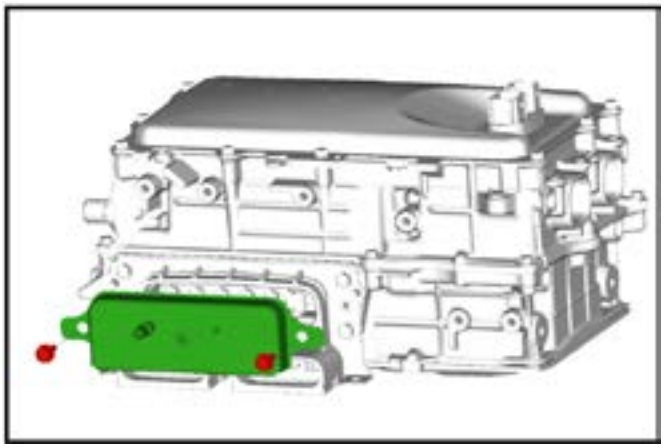


Continued...

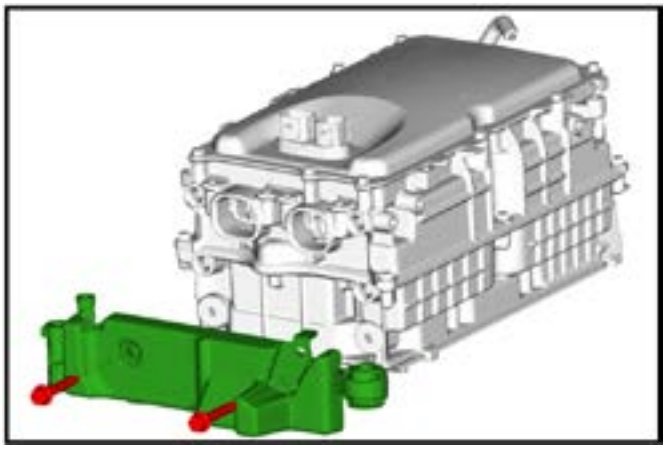
IMPORTANT: Insulated tools MUST be used for STEP 47, 50, and 51.

STEP 47: Install the motor cable terminal block. Torque the four outer bolts in an X-pattern to 7.5Nm (5.5ft-lbs). Torque the inner six bolts to 7.5Nm (5.5ft-lbs).

STEP 48: Install the terminal block cover. Torque the mounting bolts to 7.5Nm (5.5ft-lbs).



STEP 49: Install the front inverter/converter bracket and insulator. Torque the two mounting bolts to 18Nm (13.3ft-lbs).



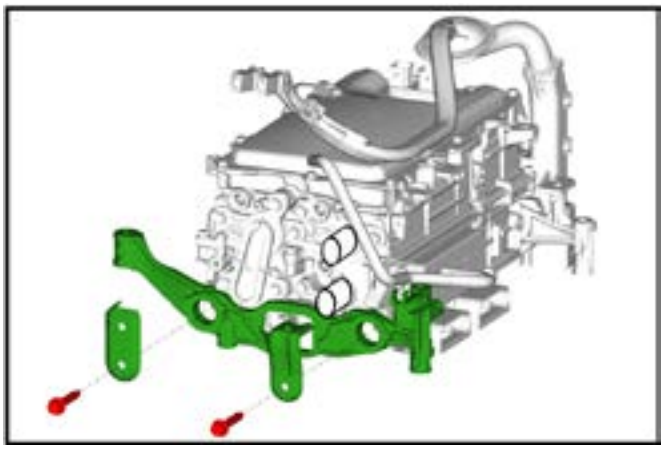
STEP 50: Connect the NEW HV air conditioning cable. Tighten the two mounting bolts to 7.5Nm (5.5ft-lbs).

Continued...

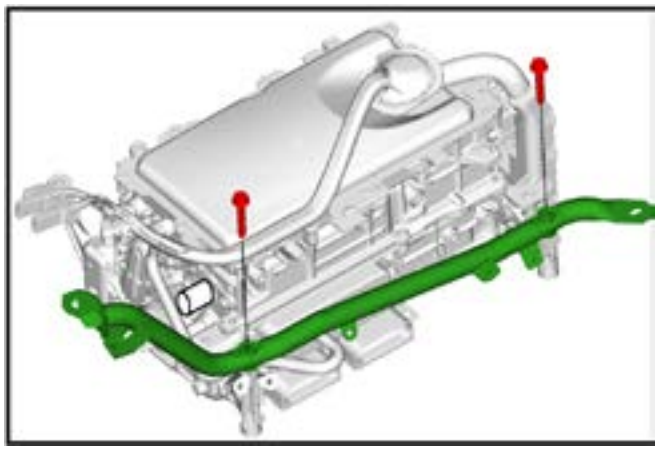
STEP 51: Connect the main battery cable. Torque the three mounting bolts to 7.5Nm (5.5ft-lbs).

STEP 52: Install the NEW inverter rear bracket using NEW mounting bolts. Torque the mounting bolts to 18Nm (13.3ft-lbs).

CAUTION: DO NOT drop or hit the new mounting bracket. This can cause the painted surface to be damaged compromising its corosion protective strength.



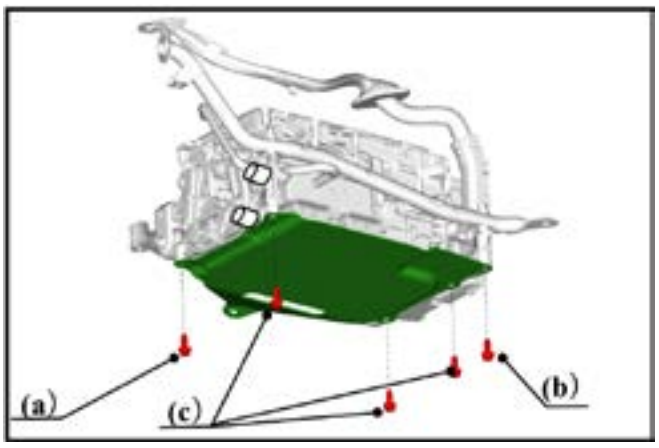
STEP 53: Install the inverter stay using the two original mounting bolts. Torque the mounting bolts to 18Nm (13.3ft-lbs).



STEP 54: Reinstall the inverter protector with the original mounting bolts in the following order.

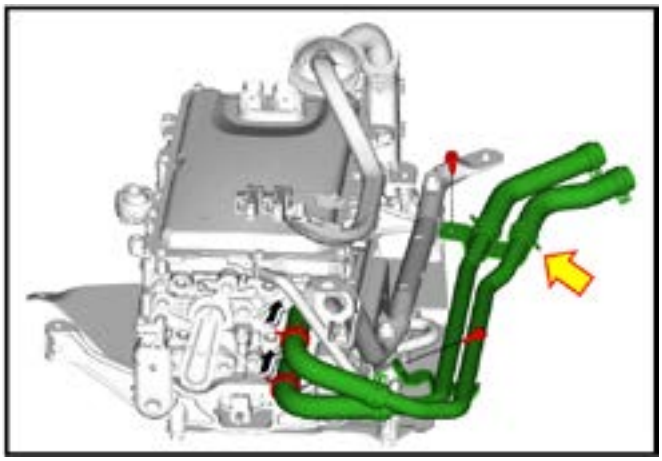
8. **Bolt (a)**
9. **Bolt (b)**
10. **Bolts (c)**

Torque the mounting bolts in the same order to 18Nm (13.3ft-lbs).

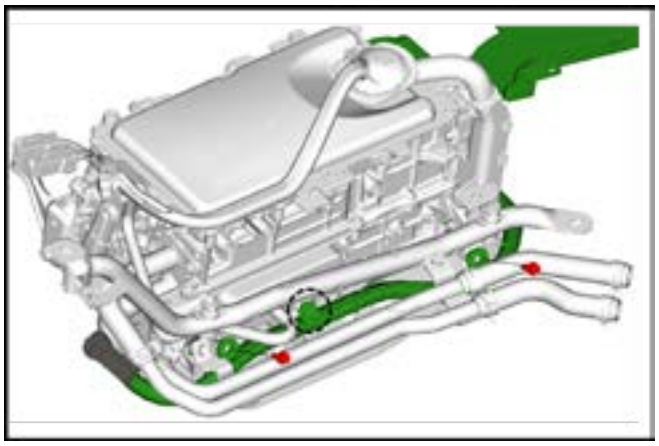


Continued...

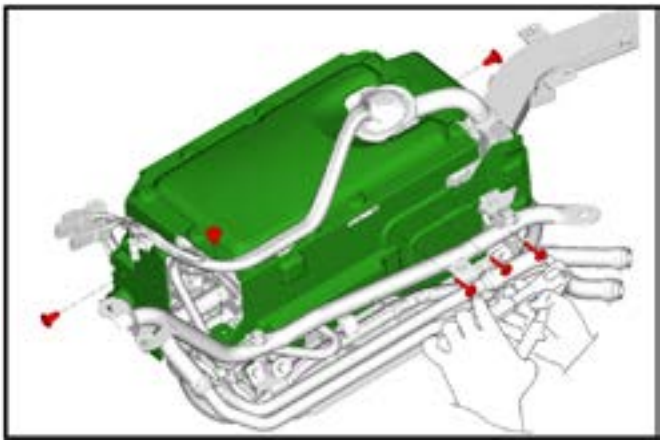
STEP 55: Removed the rubber caps from the water pipe. Reinstall the coolant hoses and clamps. Reattach the water pipe to the inverter/converter assembly using the original mounting bolts. Torque the bolts to 7.5Nm (5.5ft-lbs).



STEP 56: Secure the HV air condition cable to the inverter/converter using the original bolts and the new retaining clip. Torque the bolts to 7.5Nm (5.5ft-lbs).

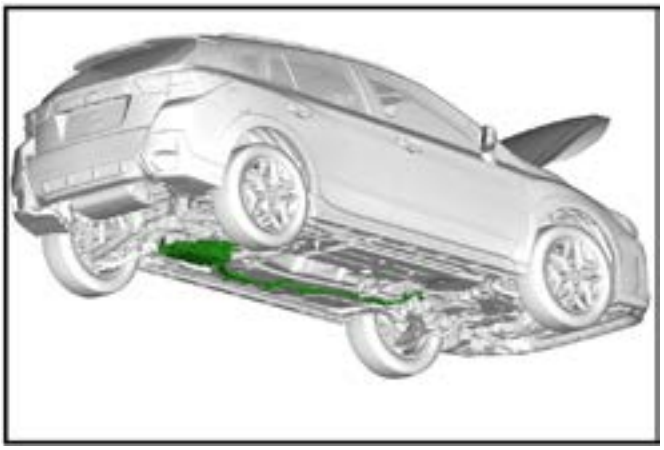


STEP 57: Connect the HV air conditioning cable to the 12v terminal. Torque the NEW nut to 7.5Nm (5.5ft-lbs).



STEP 62: Reinstall all parts in the reverse order of disassembly.

CAUTION: Three Bond 1207F requires 24 hours to become fully cured. The vehicle MUST not be exposed to heavy moisture such as car wash, rain, and snow until this 24-hour cure time complete.



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WARRANTY / CLAIM INFORMATION:

For vehicles within the Federal Hybrid System Warranty or covered by an active Subaru Added Security Classic or Gold plan, this repair may be submitted using the following claim information:

Labor Description	Labor Operation #	Labor Time	Fail Code
Inverter Cable Terminal & Bracket R&R	A840386	4.3H	FDA-42

NOTE: Up to $5.00 can be claimed in sublet for materials used during this procedure.

IMPORTANT REMINDERS:

- SOA strongly discourages the printing and/or local storage of service information as previously released information and electronic publications may be updated at any time.
- Always check for any open recalls or campaigns anytime a vehicle is in for servicing.
- Always refer to STIS for the latest service information before performing any repairs.

Continued...