

TECHNICAL INSTRUCTIONS

FOR

SAFETY RECALL HLE

HYBRID TRANSAXLE REPLACEMENT

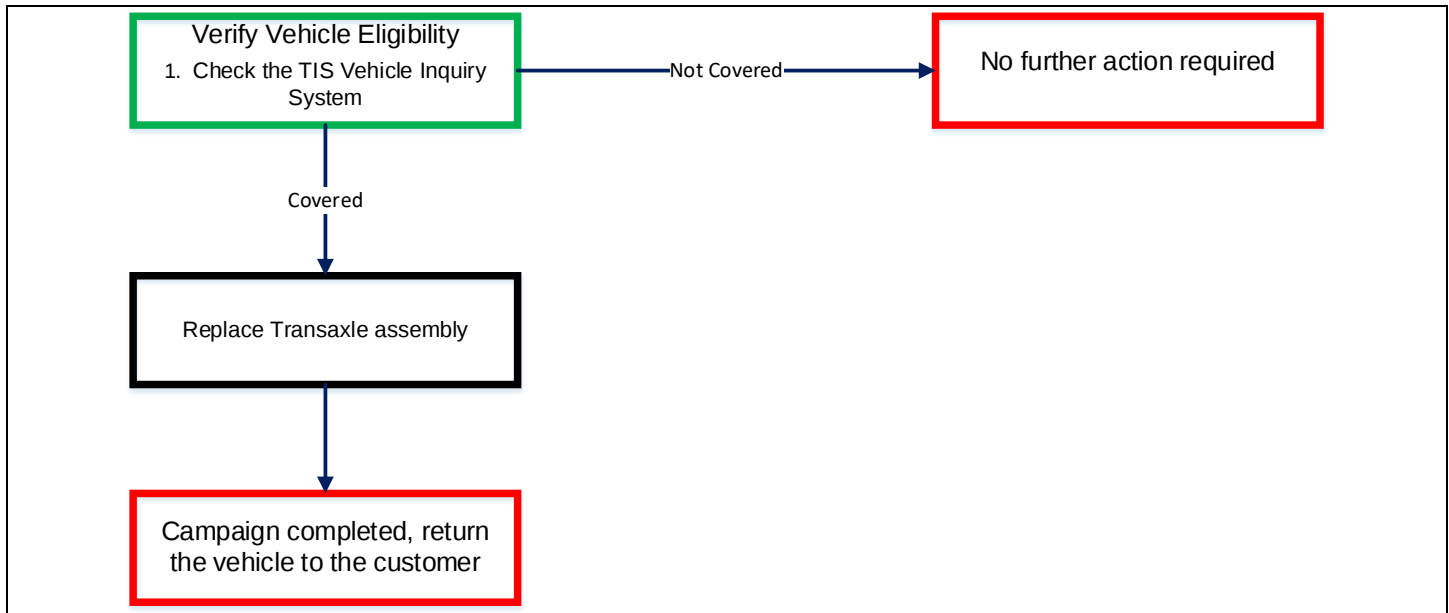
CERTAIN 2010 HS250h

The repair quality of covered vehicles is extremely important to Lexus. All dealership technicians performing this recall are required to successfully complete the most current version of the E-Learning course “Safety Recall and Service Campaign Essentials” as well as instructor led course L071 Lexus Hybrid. To ensure that all vehicles have the repair performed correctly; technicians performing this recall repair are required to currently hold at least one of the following certification levels:

- Senior
- Master
- Diagnostic Specialist

It is the dealership’s responsibility to select technicians with the above certification level or greater to perform this recall repair. Carefully review your resources, the technician skill level, and ability before assigning technicians to this repair. It is important to consider technician days off and vacation schedules to ensure there are properly trained technicians available to perform this repair at all times.

I. OPERATION FLOW CHART



II. IDENTIFICATION OF AFFECTED VEHICLES

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Safety Recall, and that it has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs completed on vehicles that are not affected or were completed by another dealer.

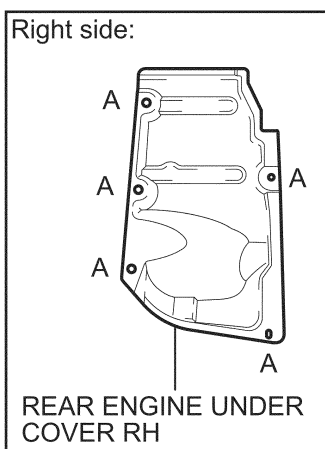
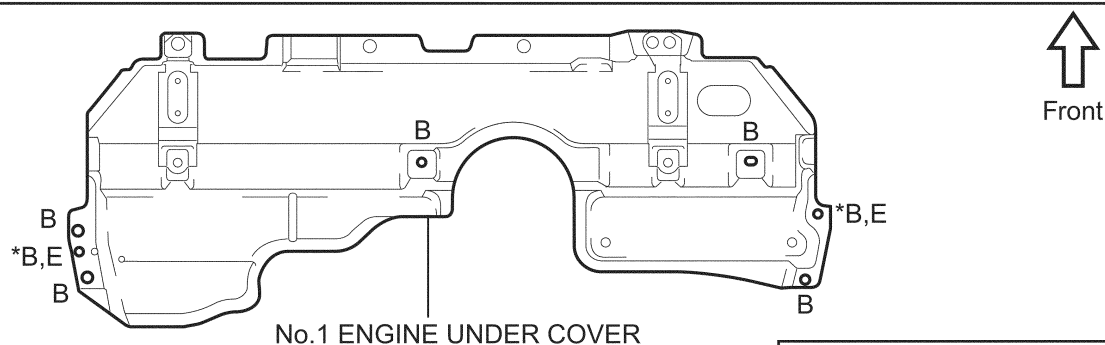
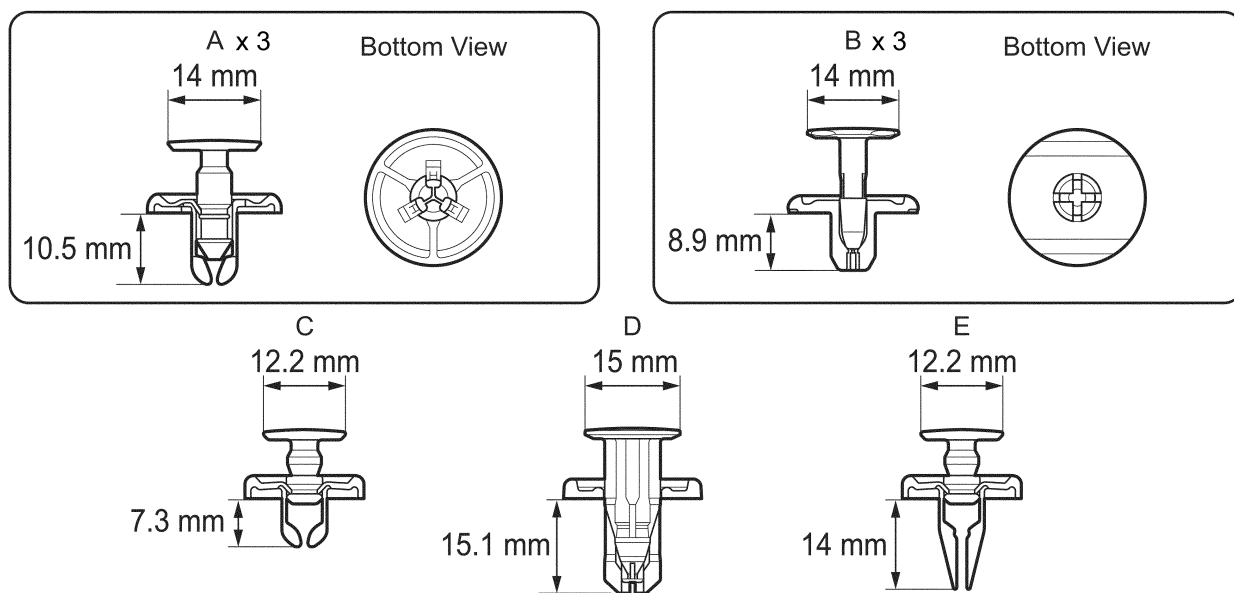
III. PREPARATION

A. PARTS

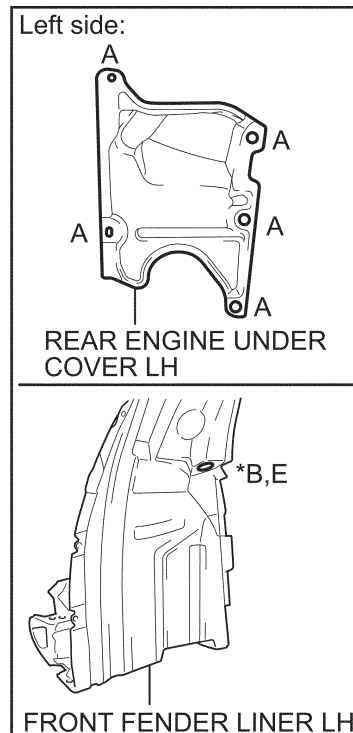
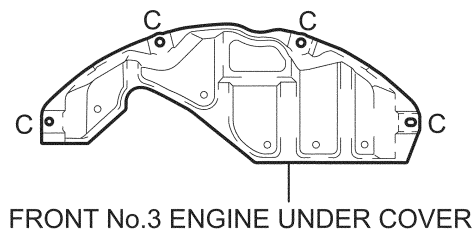
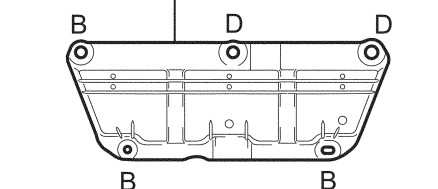
Part Number	Part Description	Quantity
04005-04175	HYBRID VEHICLE TRANSAXLE ASSEMBLY	1
04005-24175	HYBRID VEHICLE TRANSAXLE REPAIR KIT*	1
* The kit above includes the following parts.		
90105-10494	Bolt	4
17451-28070	Exhaust Pipe Gasket	1
90917-06078	Exhaust Pipe Gasket	1
90430-18008	Transaxle Housing & Case Gasket	3
		• For filler plug 2 pieces for refilling/ checking • For hybrid transaxle mass damper
90467-06202	Clip	1
90521-33002	Front Drive Shaft Hole Snap Ring	1
95381-03025	Cotter Pin	2
90430-12037	Oil Cooler Union Gasket	1
90467-07201	Clip A	3
90467-07214	Clip B	3
90467-07183	Clip C	1
90467-09227	Clip D	1
53888-48010	Clip E	1
		Extra replacement parts Refer to the next page for installing position

NOTE- 2 Front Drive Axle Nuts will be included in the repair kit. Please disregard and DO NOT USE the 2 Front Drive Axle Nuts

1. Replace the clips for the No.1 engine under cover only when they are broken.
2. Three pieces of clip A and B, and one of clip C, D and E are included in the hybrid vehicle transaxle repair kit as extra replacement parts. Refer to the illustration below for the installing positions of each clip.



No.2 ENGINE UNDER COVER



*Different according to production period

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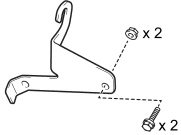
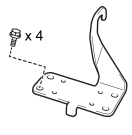
B. TOOLS & EQUIPMENT

- Standard Hand Tools
- Alignment Tester
- Dial Indicator With Magnetic Base
- Electrical Tester
- Deep Socket Wrench 12mm
- Deep Socket Wrench 30mm
- Hose Plug Set
- Transmission Jack
- Electrical Insulating Gloves
- Techstream
- Angle Gauge
- Tire Pressure Gauge
- Vernier Calipers
- Socket Hexagon 6mm
- Deep Socket Wrench 14mm
- Union Nut Wrench 17mm
- Plastic Hammer
- Engine Sling Device
- Air Gun
- Torque Wrench
- Camber-Caster-Kingpin Gauge
- Toe-in Gauge
- Radiator Cap Tester
- Socket Hexagon 10mm
- Deep Socket Wrench 17mm
- Chisel
- Chain Block

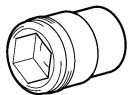
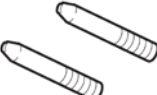
SST –These are essential service tools that the dealership should have.

Part Number	Part Name	Quantity
09930-00010 (09931-00010) (09931-00020)	Drive Shaft Nut Chisel Handle Nut Chisel	1
09960-20010 (09961-02010) (09961-02060)	Ball Joint Puller Set Ball Joint Puller Assembly Spacer B	1
09520-24010 (09520-32040)	Differential Side Gear Shaft Puller Shocker Set	1
09520-01010	Drive Shaft Remover Attachment	1
ESB Parts/Instructions	Engine Support Bar	1

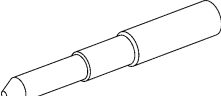
C. HV TRANSAXLE HANGER

HV Transaxle Hanger Application: Lift the Hybrid Vehicle Transaxle Assembly	HV Transaxle Hanger Application: Lift the Hybrid Vehicle Transaxle Assembly
	

D. NUT GRIP SOCKET & GUIDE BOLTS

Nut Grip Socket Application: Removal of Hybrid Vehicle Transaxle Assembly	Guide Bolts Application: Installation of Hybrid Vehicle Transaxle Assembly
	

E. No.1 & No.2 ENGINE HANGER & FRONT CROSSMEMBER GUIDE TOOL

No.1 & No.2 Engine Hanger Application: Support of Engine Assembly	Front Crossmember Guide Tool Application: Installation of Front Crossmember Guide Tool
	

F. MATERIALS & SUPPLIES

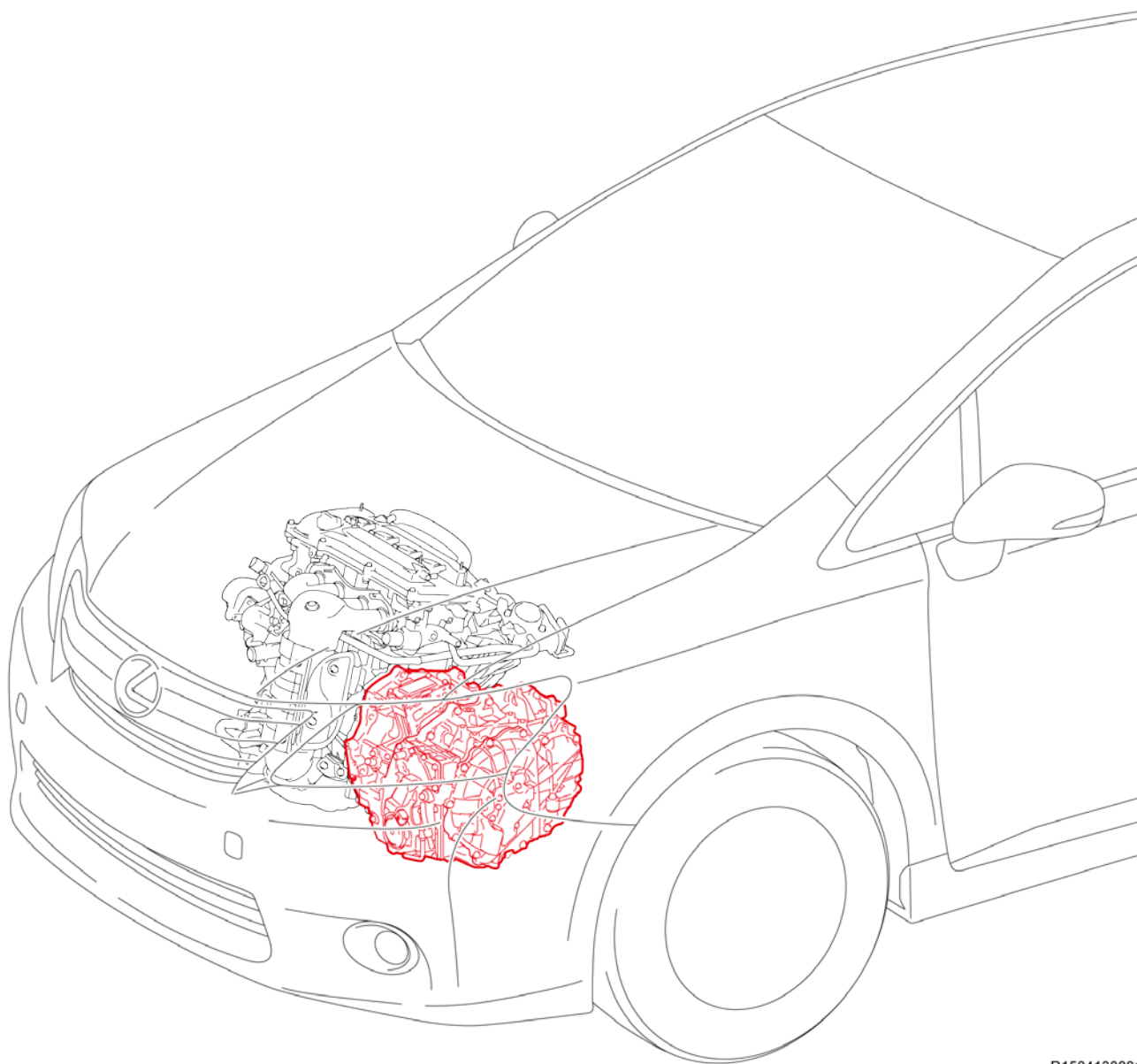
- Brake Cleaner
- Container
- Protective Eyewear
- Plastic Bag, etc.
- Wooden Block
- Toyota Genuine ATF WS = 00289-ATFWS = Quantity 3.6 L (3.8 US qts, 3.2 Imp. qts)
- Toyota Super Long Life Coolant = 00272-SLLC2 = Quantity 1.1 L (1.2 US qts, 1.0 Imp. qts)
- Grease
- Protective Tape
- Insulating Tape
- Shop Cloth
- Lubricant
- Tape
- Protective Glove
- Marking Pen

IV. WORK PROCEDURE TABLE OF CONTENTS

SAFETY PRECAUTIONS	SECTION VI.
REMOVE THE HYBRID VEHICLE TRANSAXLE ASSEMBLY	SECTION VII.
REPLACE THE HYBRID VEHICLE TRANSAXLE ASSEMBLY.....	SECTION VIII.
INSTALL THE HYBRID VEHICLE TRANSAXLE ASSEMBLY.....	SECTION IX.
APPENDIX.....	SECTION X.

V. BACKGROUND

A manufacturing issue in an electric motor in the involved vehicles' hybrid drivetrain may cause components to wear, leading to a potential short circuit. This condition will illuminate warning lights and warning messages. In most cases, the vehicle will enter a fail-safe mode, resulting in reduced propulsion and allowing the vehicle to be driven safely for a limited distance. Under rare conditions, the hybrid system could shut down. While power steering and braking assist will function normally, a hybrid system shut down while driving at higher speeds could increase the risk of a crash.



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VI. SAFETY PRECAUTIONS

A. PRECAUTIONS WHEN WORKING ON THE HIGH VOLTAGE SYSTEM



- Always remember “SAFETY FIRST”.
- Be extremely careful when handling high voltage components.

1. CAUTION WITH "WORKING ON HIGH VOLTAGE" SIGN

- a) Put a "WORKING ON HIGH VOLTAGE" sign on the roof etc. to caution other technicians. (A sheet is prepared on the next page. Make a copy and use it.).

2. BEWARE OF PERSONAL-EFFECTS FOR SHORT-CIRCUIT PREVENTION

- a) For short-circuit prevention, do not wear metal goods, such as a wrist watch, rings, and a mechanical pencil.

3. INSULATE TOOLS

- a) For short-circuit prevention, wrap insulating tape around the tools to be used.

NOTE:

Use ordinary tape for automobile maintenance etc. as insulating tape (with which no adhesive remains after the tape is removed).

4. WEAR INSULATION GLOVES

- a) When working with or around a high voltage circuit (in which wiring and connectors are all in orange), wear insulation gloves for electric shock prevention.
- b) **DO NOT** use wet or broken insulation gloves.
- c) When the insulation gloves are dirty, clean them before use according to the instructions on the manual of the gloves.

5. PROPERLY HANDLE THE SERVICE PLUG GRIP

- a) Before working with a high voltage system, disconnect the negative terminal of the auxiliary battery and then the service plug grip. Then, leave them for ten minutes and, after the capacitor discharges, you may start the work.
- b) Put the disconnected service plug grip in a pocket to prevent other engineers from connecting in error during the work.

6. INSULATE AFTER DISCONNECTION OF HIGH VOLTAGE CIRCUIT

- a) Upon removal of connectors and terminals in a high voltage system, insulate them with insulating tape.

NOTE:

Use ordinary tape for automobile maintenance etc. as insulating tape (with which no adhesive remains after the tape is removed).

7. CONNECT HIGH VOLTAGE TERMINAL

- a) In order to prevent defects, such as burnout due to poor connection, be sure to check the following items.
 - (1) Check that there is no bite-in of foreign matters or adhesion of dirt.
 - (2) Use a torque wrench to check the tightening torques of the terminals.

Person in charge: _____

CAUTION:
Working on
high voltage system

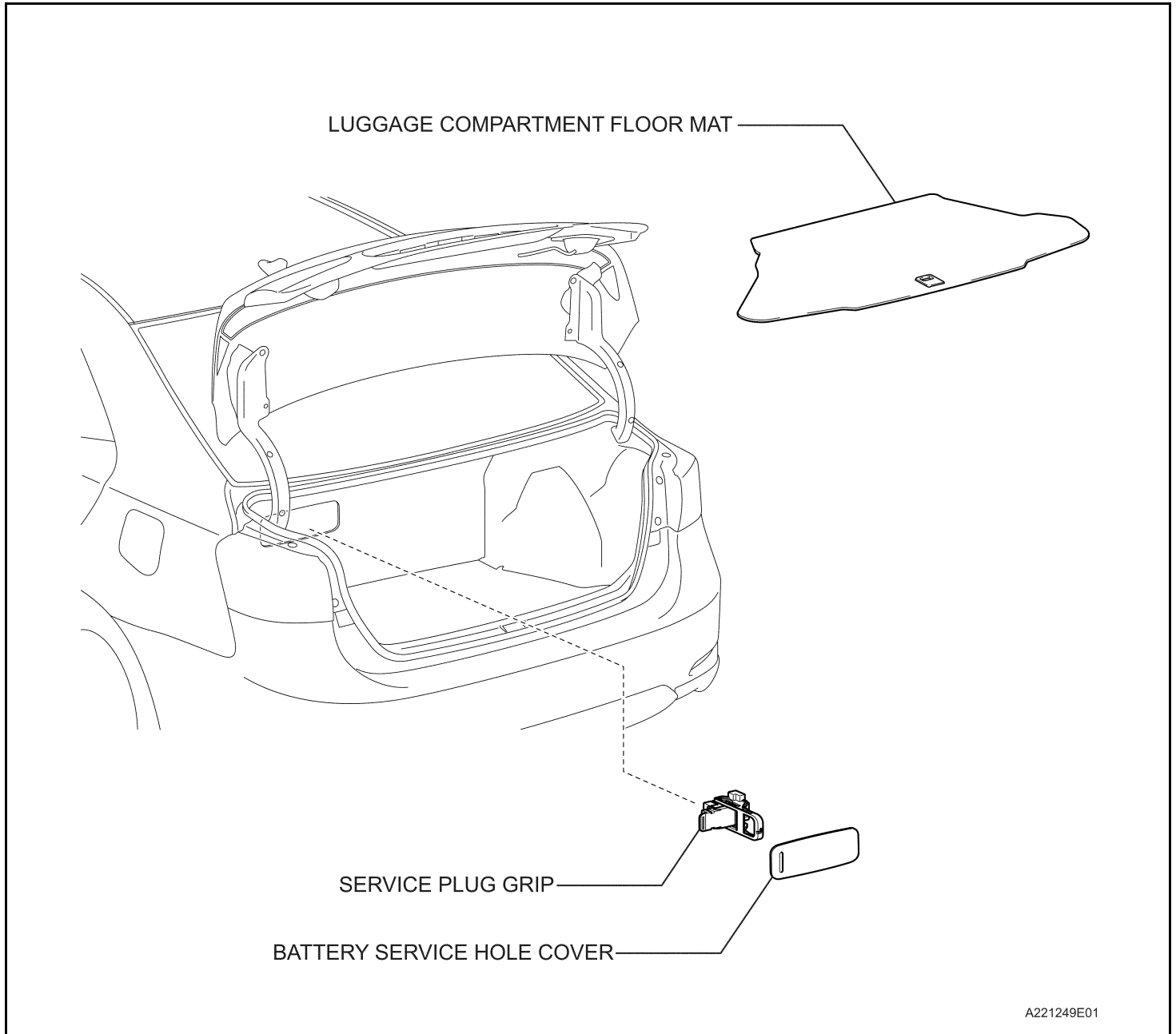
CAUTION:
Working on
high voltage system

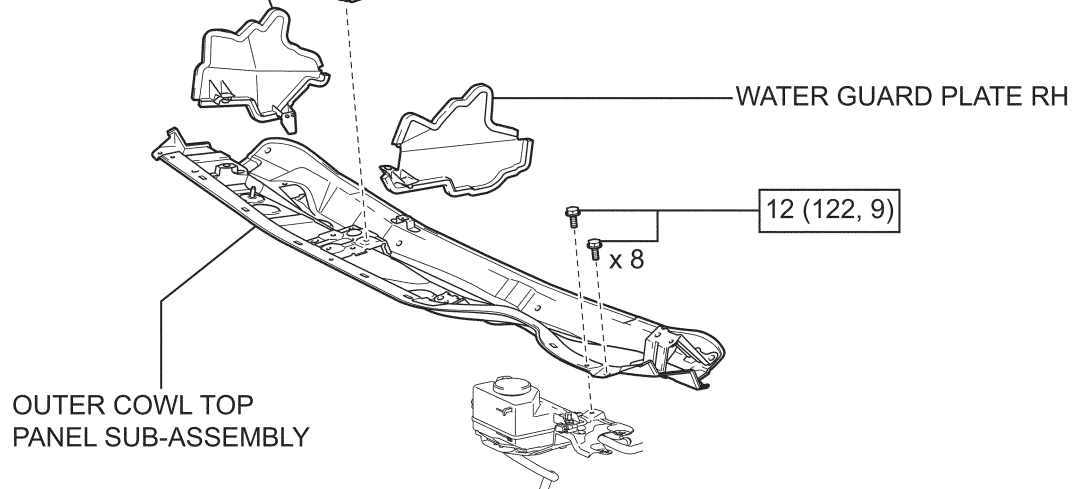
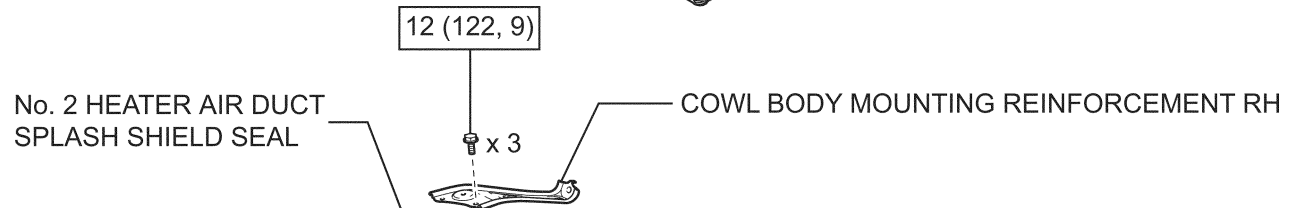
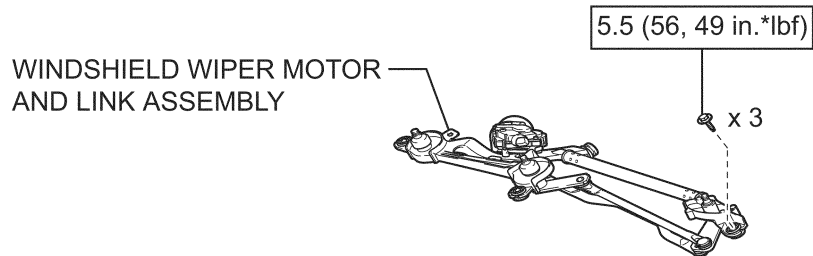
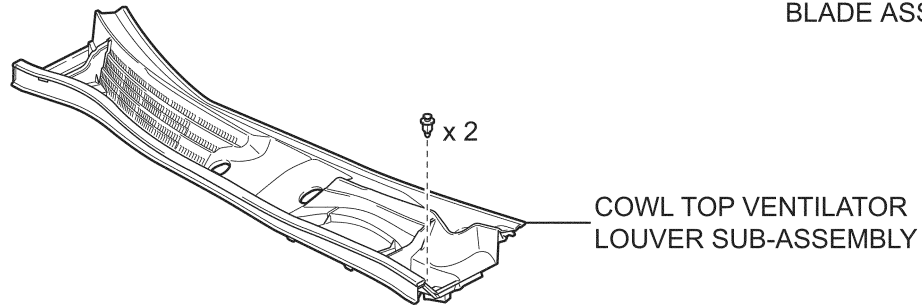
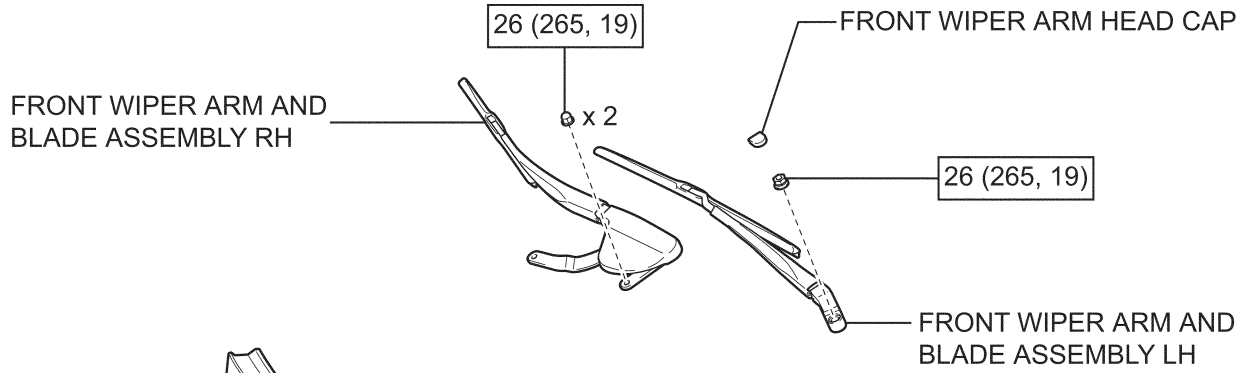
Person in charge: _____

Fold this page and place on the roof of vehicle.

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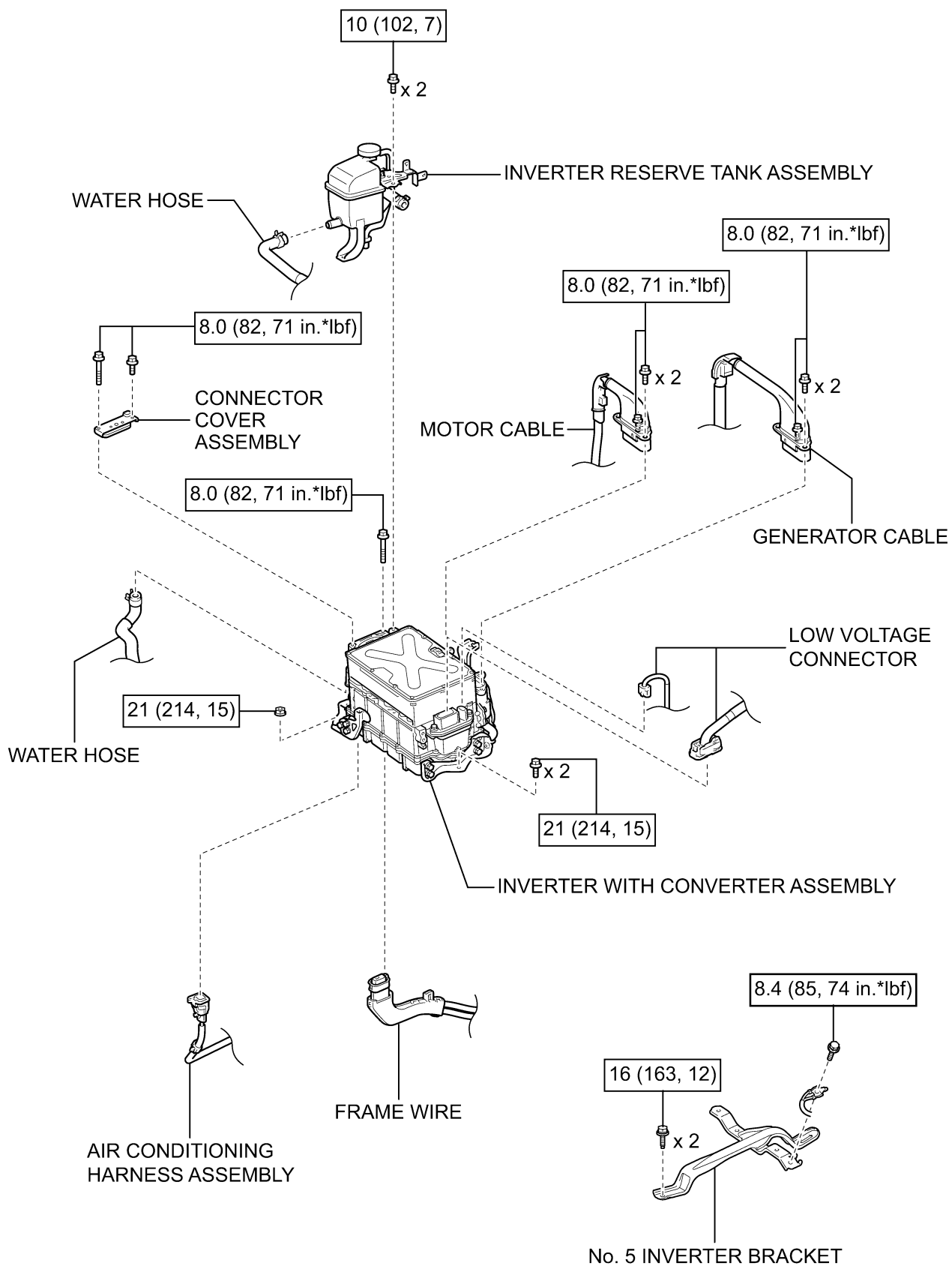
VII. REMOVE THE HYBRID VEHICLE TRANSAXLE ASSEMBLY COMPONENTS:





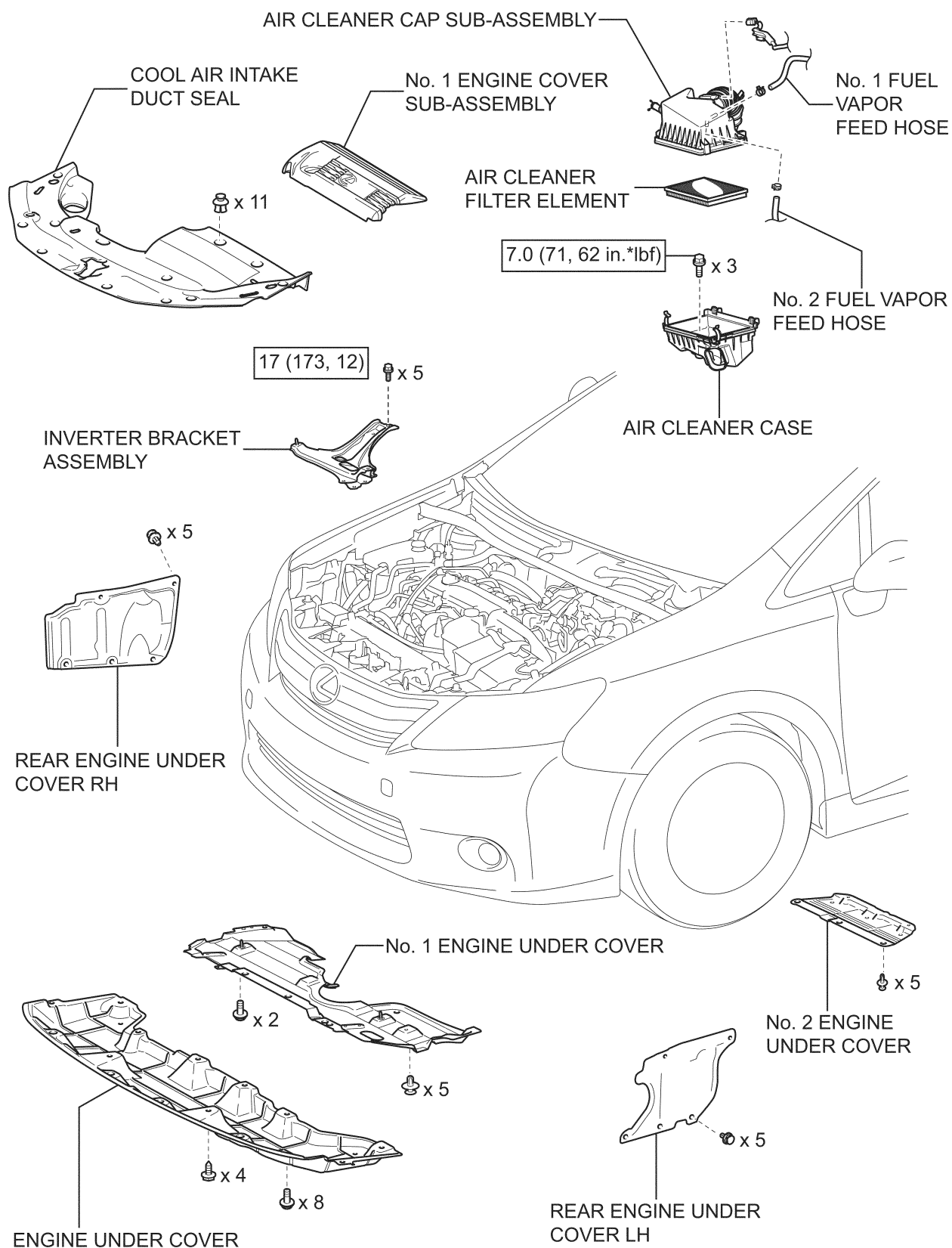
N*m (kgf*cm, ft.*lbf) : Specified torque

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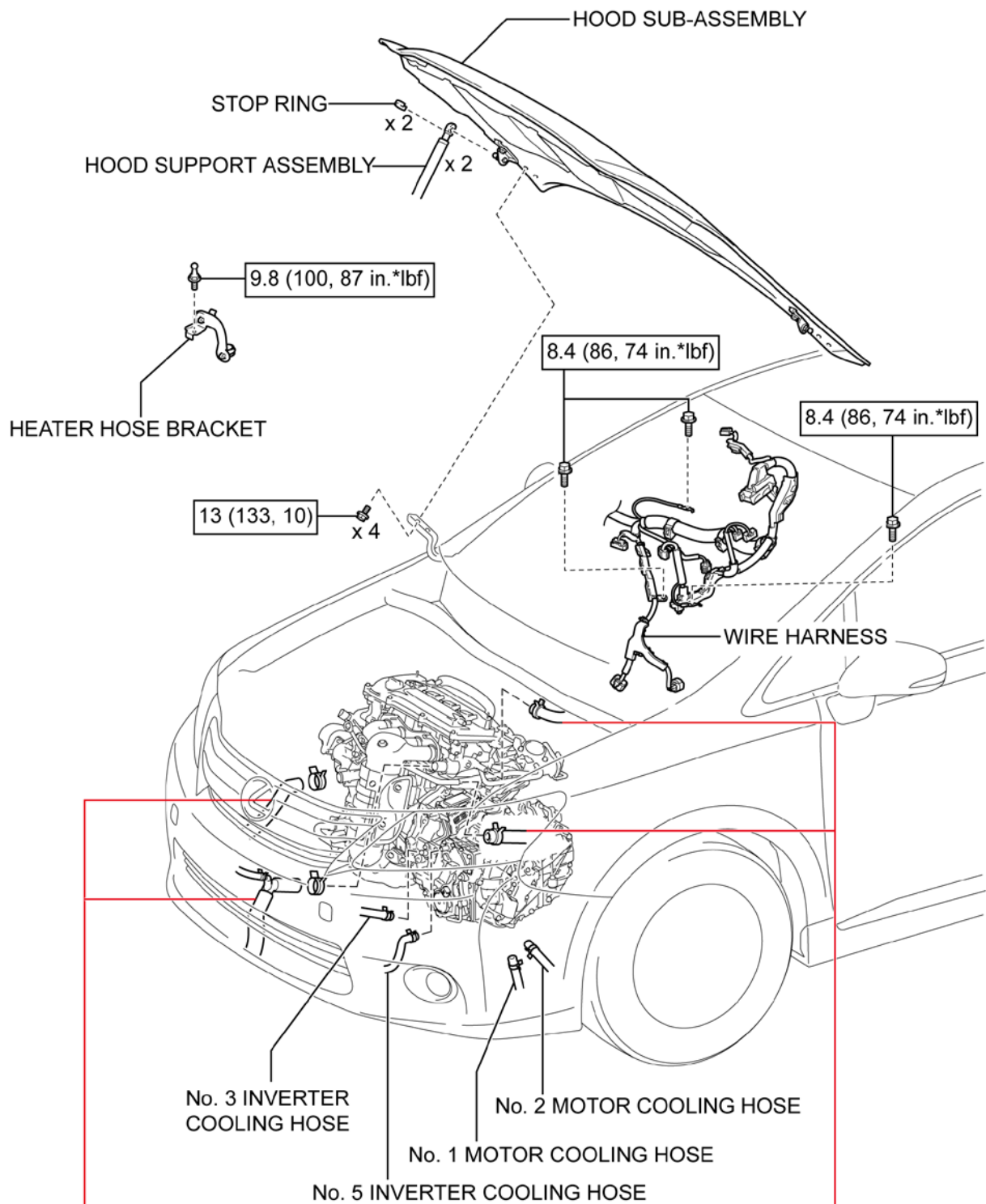
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N*m (kgf*cm, ft.*lbf): Specified torque

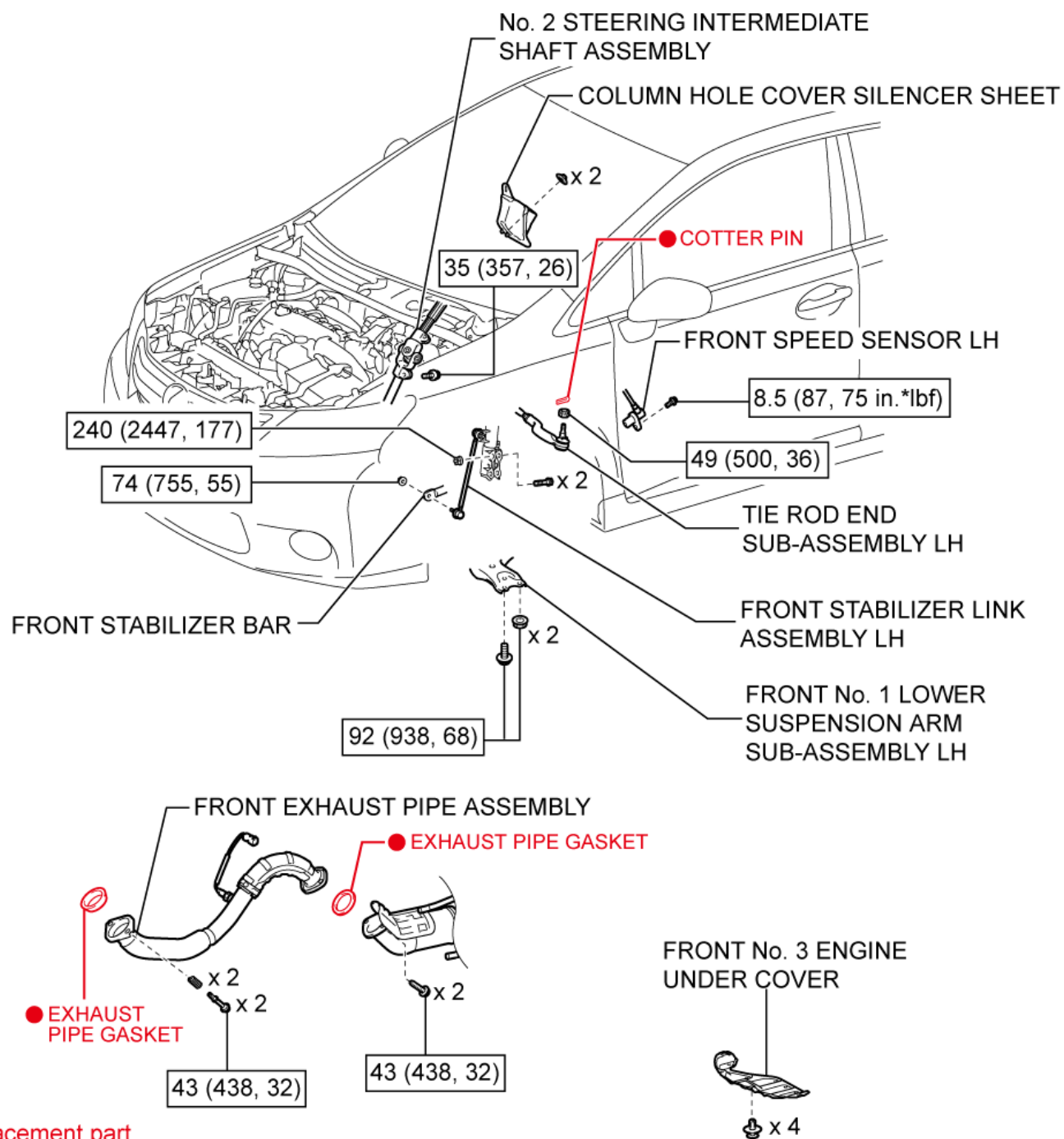
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BE CAREFUL!
DO NOT disconnect the radiator hose and heater water hose

N*m (kgf*cm, ft.*lbf) : Specified torque

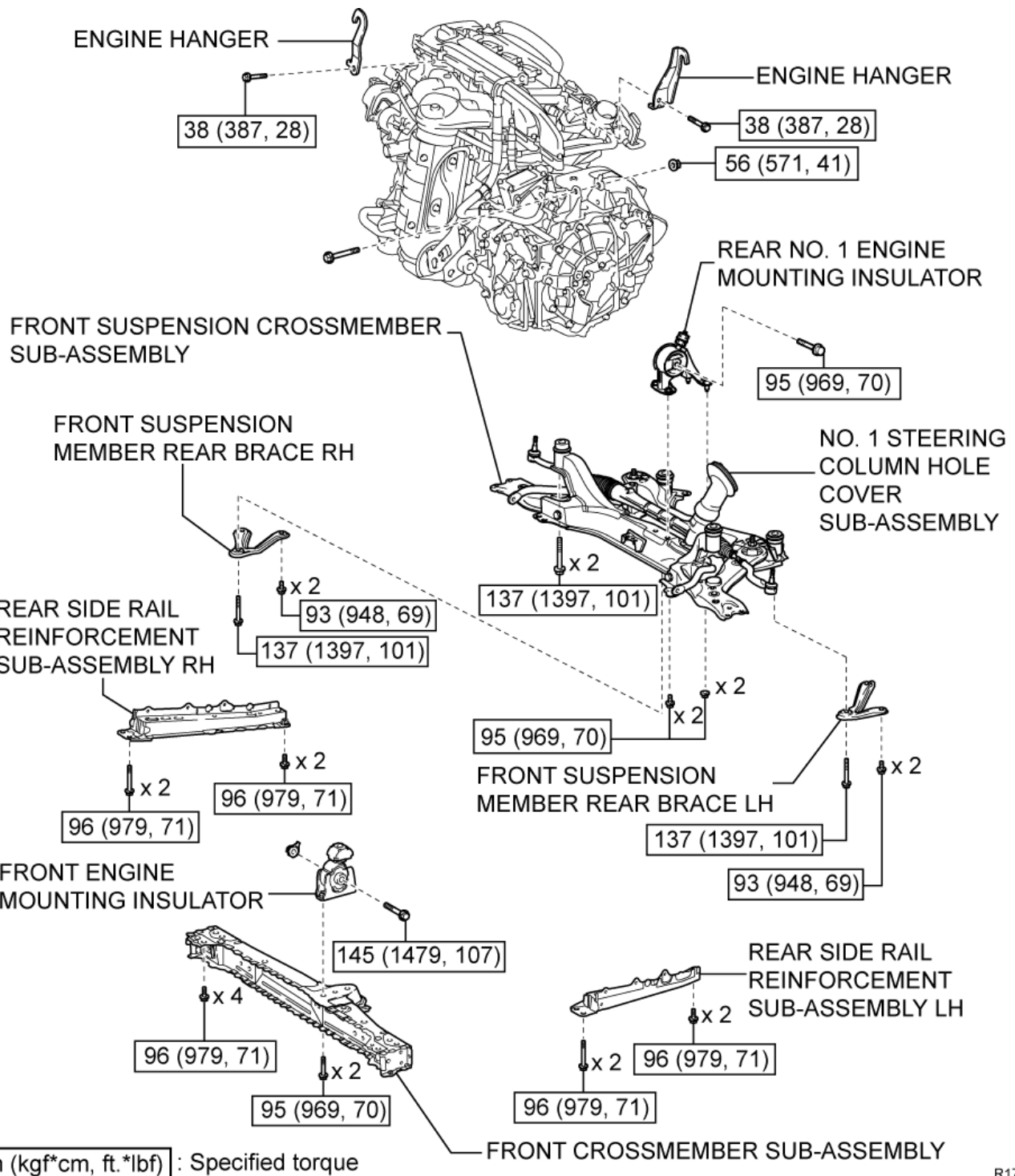
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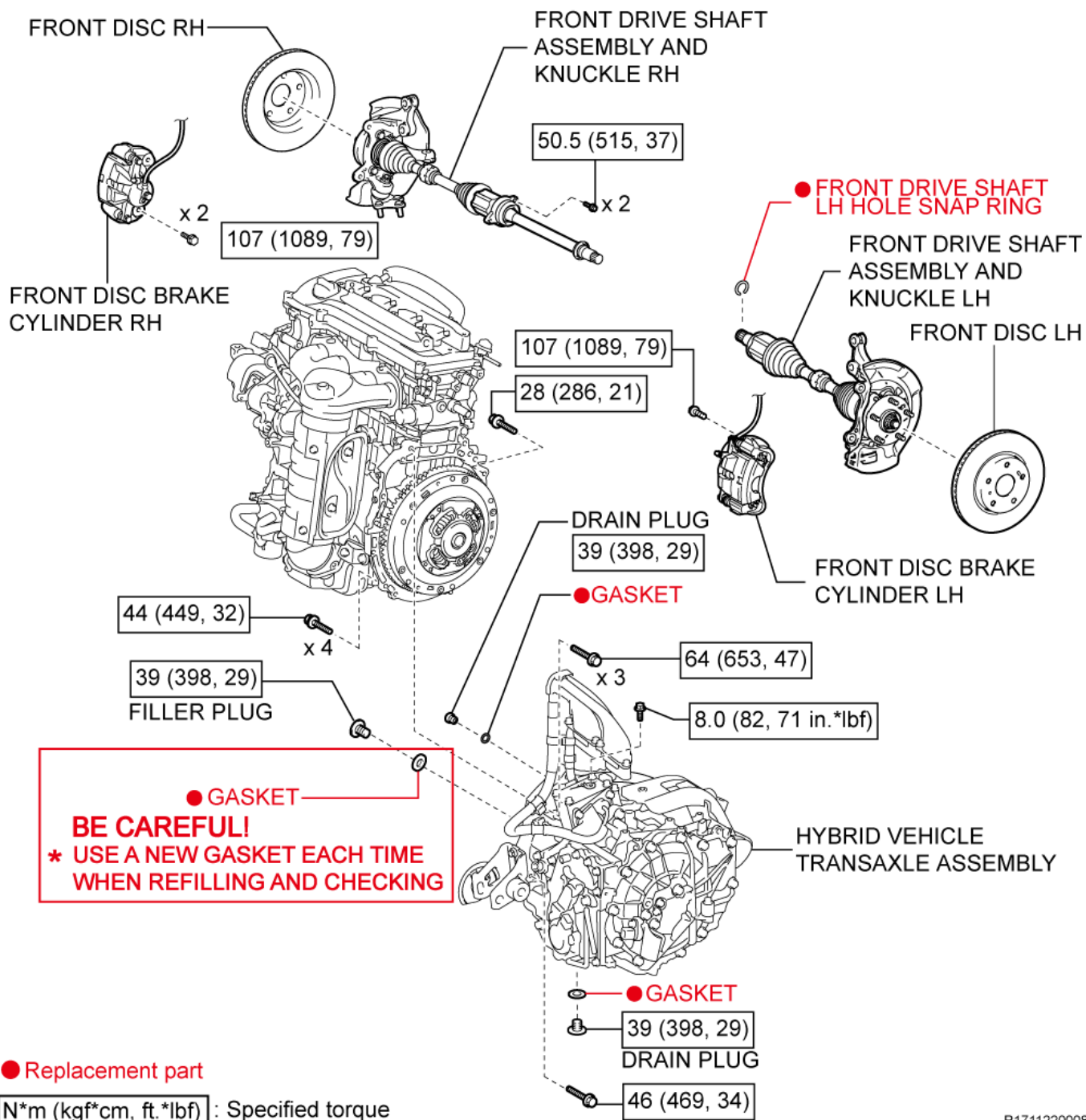
● Replacement part

N*m (kgf*cm, ft.*lbf) : Specified torque

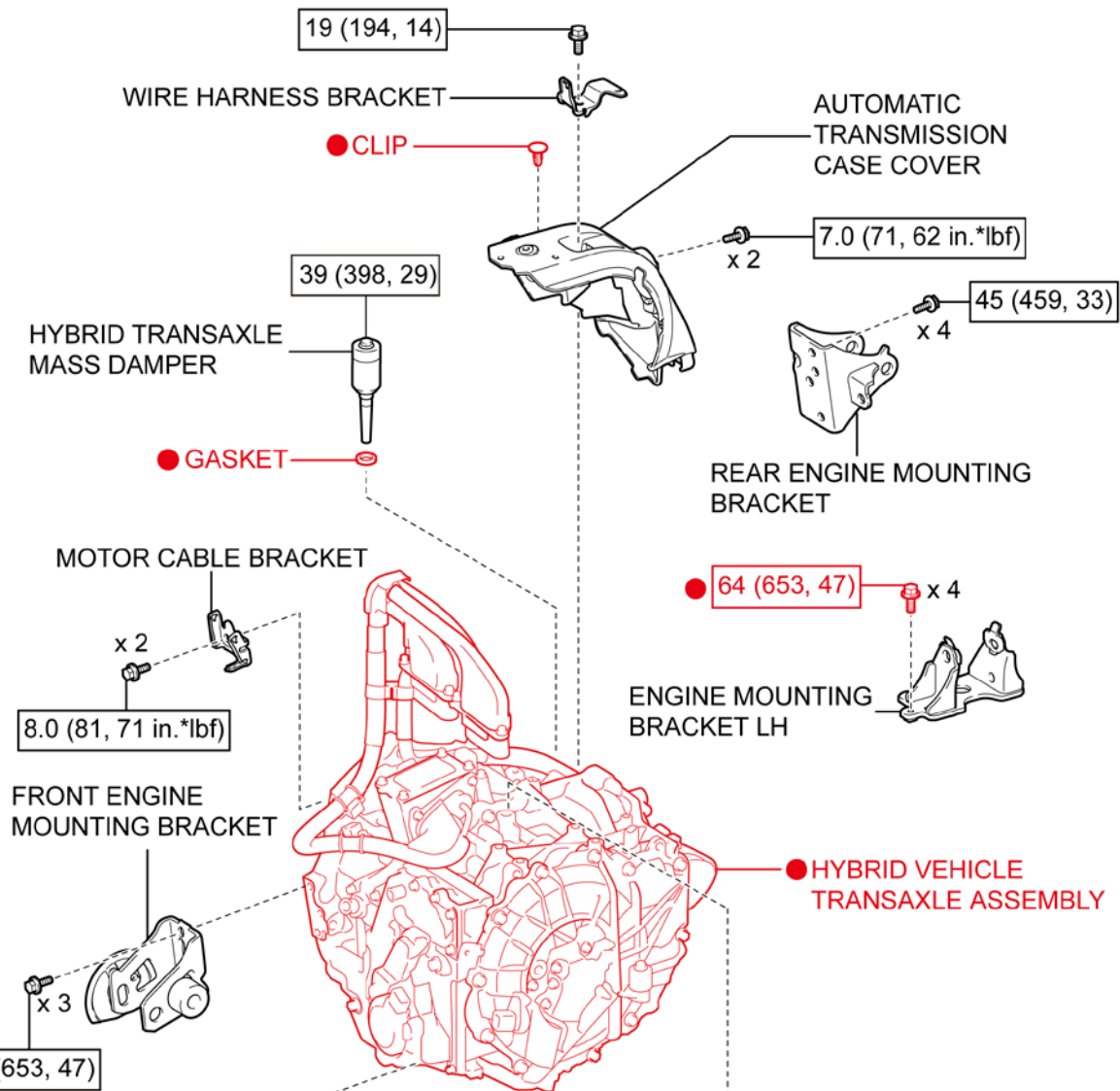
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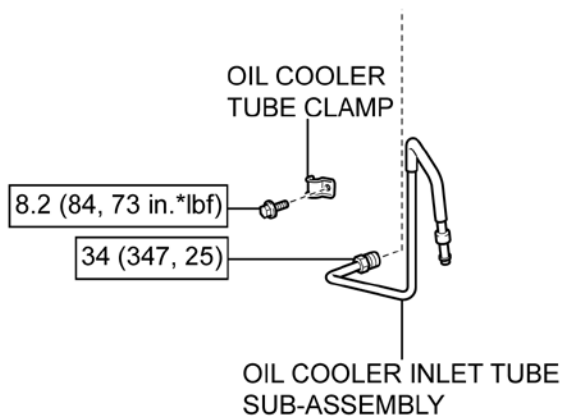


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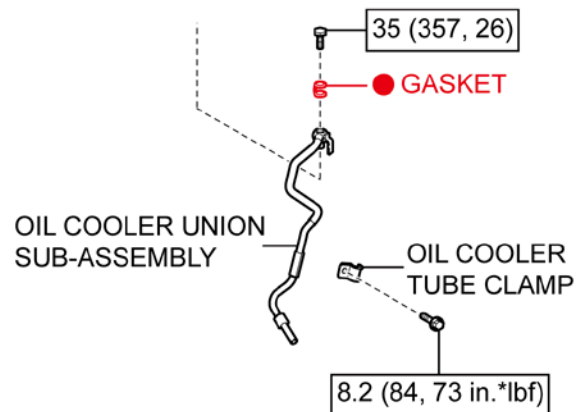
BE CAREFUL!

DO NOT remove the oil cooler inlet tube



BE CAREFUL!

DO NOT remove the oil cooler union sub-assembly on the vehicle



● Replacement part

N*m (kgf*cm, ft.*lbf): Specified torque

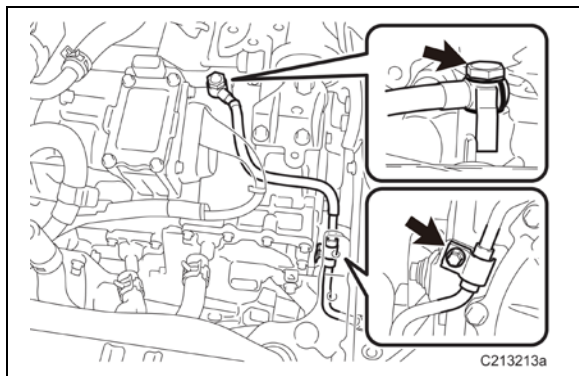
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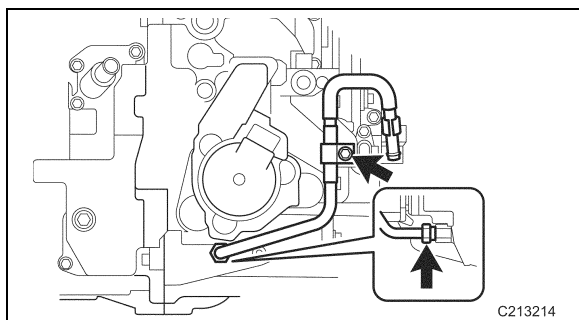
IMPORTANT NOTICE FOR REMOVAL/INSTALLATION OF THE HYBRID VEHICLE TRANSAXLE ASSEMBLY



- It is not necessary to drain engine coolant.
- **DO NOT** remove the radiator hose and heater water hose.



DO NOT remove the oil cooler union sub-assembly on the vehicle.



DO NOT remove the oil cooler inlet tube sub-assembly.



1. CHECK FOR DTC'S

- Using a Techstream, check for Diagnostic Trouble Codes.



If any hybrid DTC's are found that indicate a safety risk at performing this repair, do not proceed until they have been resolved.

Note: This Safety Recall covers only the replacement of the Hybrid Transaxle, as detailed in these instructions. It does not cover the diagnosis or replacement of any other parts on the vehicle, including the hybrid system.

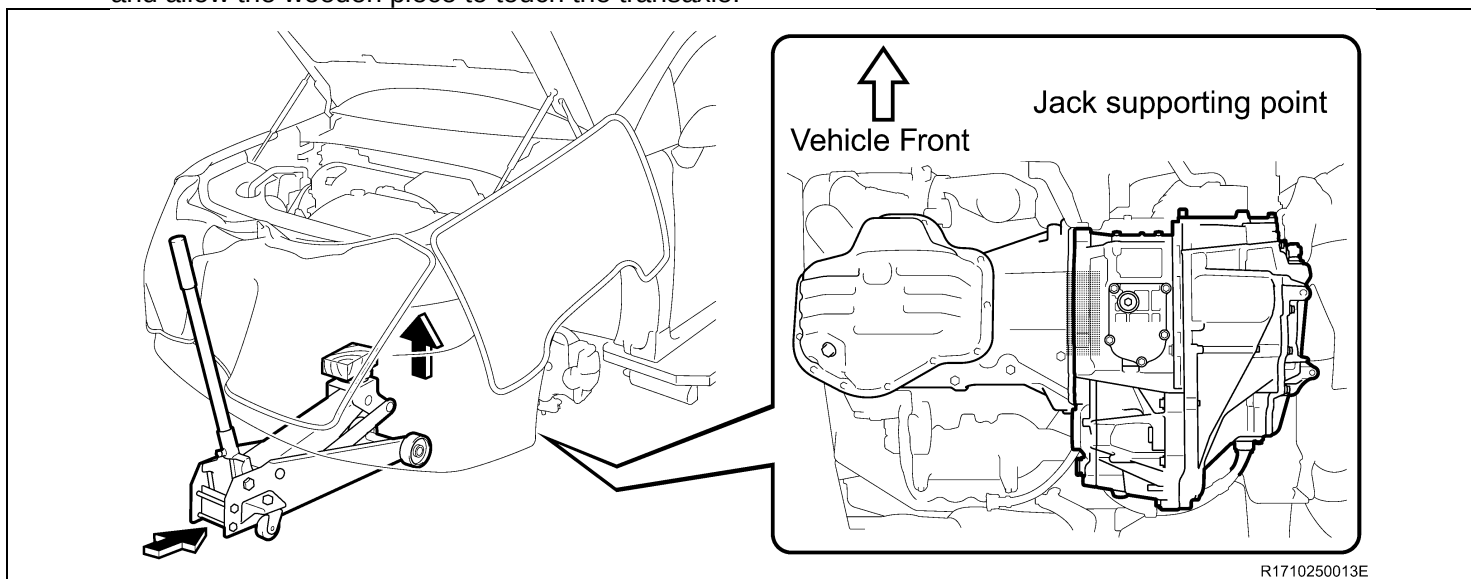
1. REMOVE THE HYBRID VEHICLE TRANSAXLE ASSEMBLY

Refer to Removal Instructions for HS250h for instructions on HYBRID VEHICLE TRANSAXLE ASSEMBLY

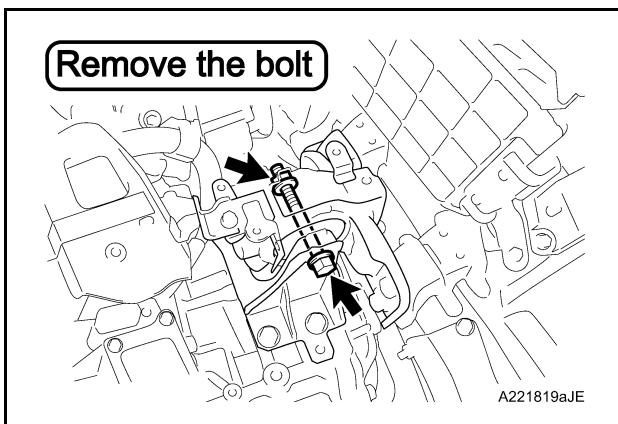


- LOCKING AGENT IS APPLIED TO THE ENGINE MOUNTING BRACKET BOLTS, SO A HIGHER EFFORT IS REQUIRED TO LOOSEN THEM. IN ORDER TO LOOSEN THE BOLTS EASILY WITH LESS EFFORT IN THE LATER STEP, LOOSEN THE BOLTS BEFORE THE VEHICLE IS RAISED.
- PERFORM THE FOLLOWING PROCEDURE AFTER DISCONNECTING THE No.2 MOTOR COOLING HOSES.

- a) Put a wooden piece onto a jack, set the jack under the hybrid vehicle transaxle as shown in the illustration, and allow the wooden piece to touch the transaxle.



Remove the bolt

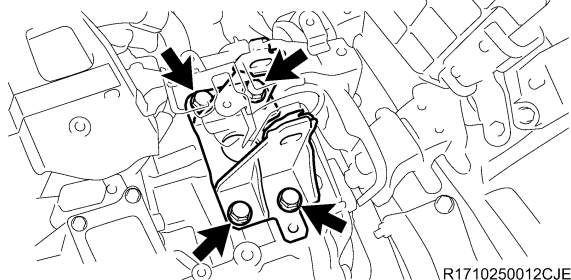


- b) Remove the nut.
c) One of the 2 workers raise the vehicle with the jack to reduce the load applied to the through bolt, and the other worker removes the bolt.



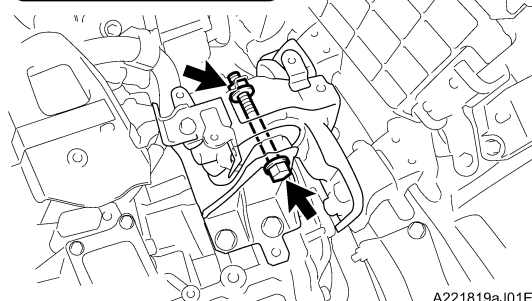
- Ensure that the wire harness, pipes, or cables are not caught by the components.
- Remove the through bolt as it will interfere with a tool when the bracket bolts are loosened.

Temporary tightening after loosening once



- d) Loosen the 4 bracket bolts.
- e) Temporarily tighten the 4 bolts uniformly in several steps until the bolt heads seat.

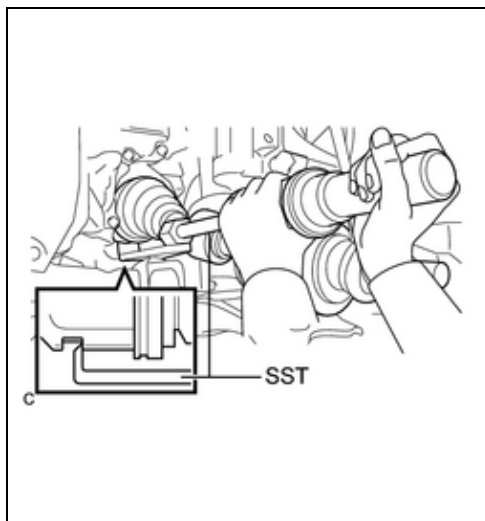
Temporary fixing



- f) Reinstall the removed through bolt and nut, and temporarily tighten them.
- g) Remove the jack.



Perform the following procedure before removing the front drive shaft



2. SEPARATE FRONT DRIVE SHAFT ASSEMBLY LH FROM THE TRANSAXLE

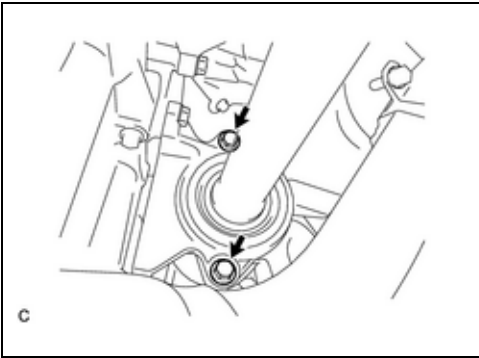
- a. Using SST, separate the front drive shaft assembly LH from the transaxle

SST:09520-01010

SST:09520-24010



- Do not separate the drive shaft from the wheel hub.
- Do not drop the front drive shaft axle



3. SEPARATE FRONT DRIVE SHAFT ASSEMBLY RH FROM THE TRANSAXLE

- a. Remove the 2 bolts and pull out the front drive shaft assembly RH from the transaxle



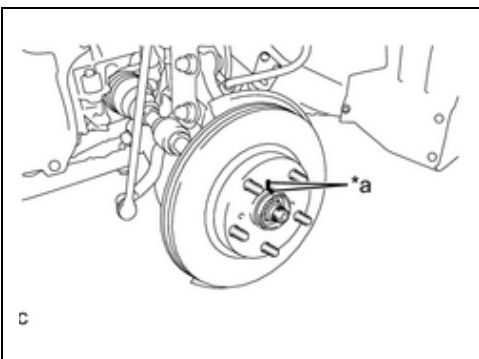
4. REMOVE FRONT DISC BRAKE CYLINDER MOUNTING LH AND RH

- a. Remove the 2 bolts and front disc brake cylinder mounting from the steering knuckle



- b. Using a rope or bungee cord, support the front disc brake cylinder as shown in the picture

Use the same procedure for both LH and RH side



5. REMOVE FRONT DISC LH AND RH

- a. Put matchmarks on the disc and the axle hub
- b. Remove the front disc

*a	Matchmark
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Use the same procedure for both LH and RH side

Requires 2 Workers



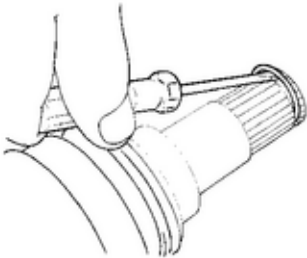
6. REMOVE FRONT DRIVE SHAFT ASSEMBLY AND KNUCKLE LH AND RH

- a. While one person is supporting the knuckle and front drive shaft, the second person will remove the 2 bolts and 2 nuts, and separate the knuckle from the front shock absorber
- b. Remove the knuckle and front drive shaft assembly from the vehicle



- Two people are needed to remove the knuckle and drive axle from the vehicle
- Do not drop the front drive shaft axle

Use the same procedure for both LH and RH side



7. REMOVE FRONT DRIVE SHAFT LH HOLE SNAP RING (for LH Side)

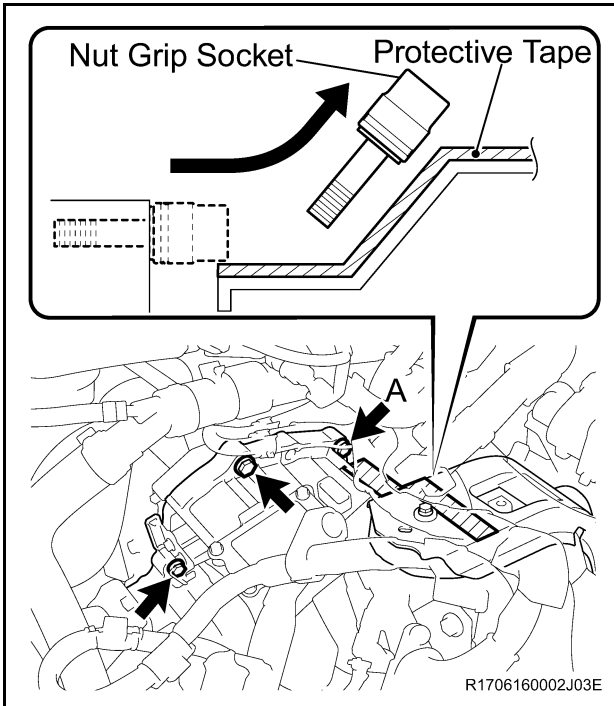
- a. Using a screwdriver, remove the front drive shaft LH hole snap ring



Perform the following procedure before removing the transaxle



PERFORM THE FOLLOWING PROCEDURE TO REMOVE THE HYBRID VEHICLE TRANSAXLE ASSEMBLY.



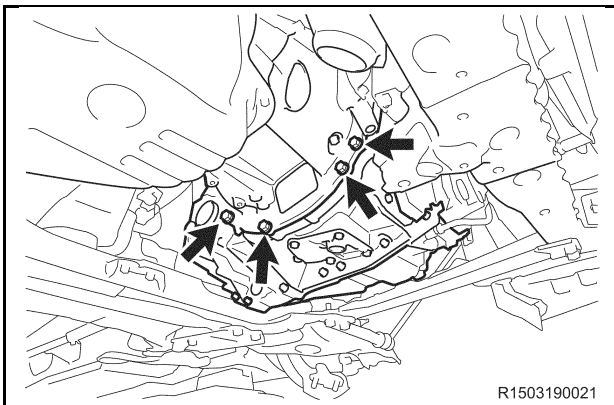
1. REMOVE HV TRANSAXLE ASSEMBLY

- Apply protective tape to the automatic transmission case cover in order to prevent damage.
- Remove the bolt (A) using the supplied nut grip socket.

NOTE:

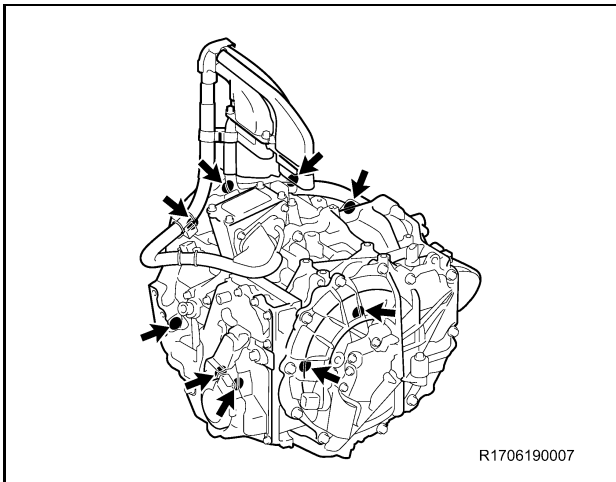
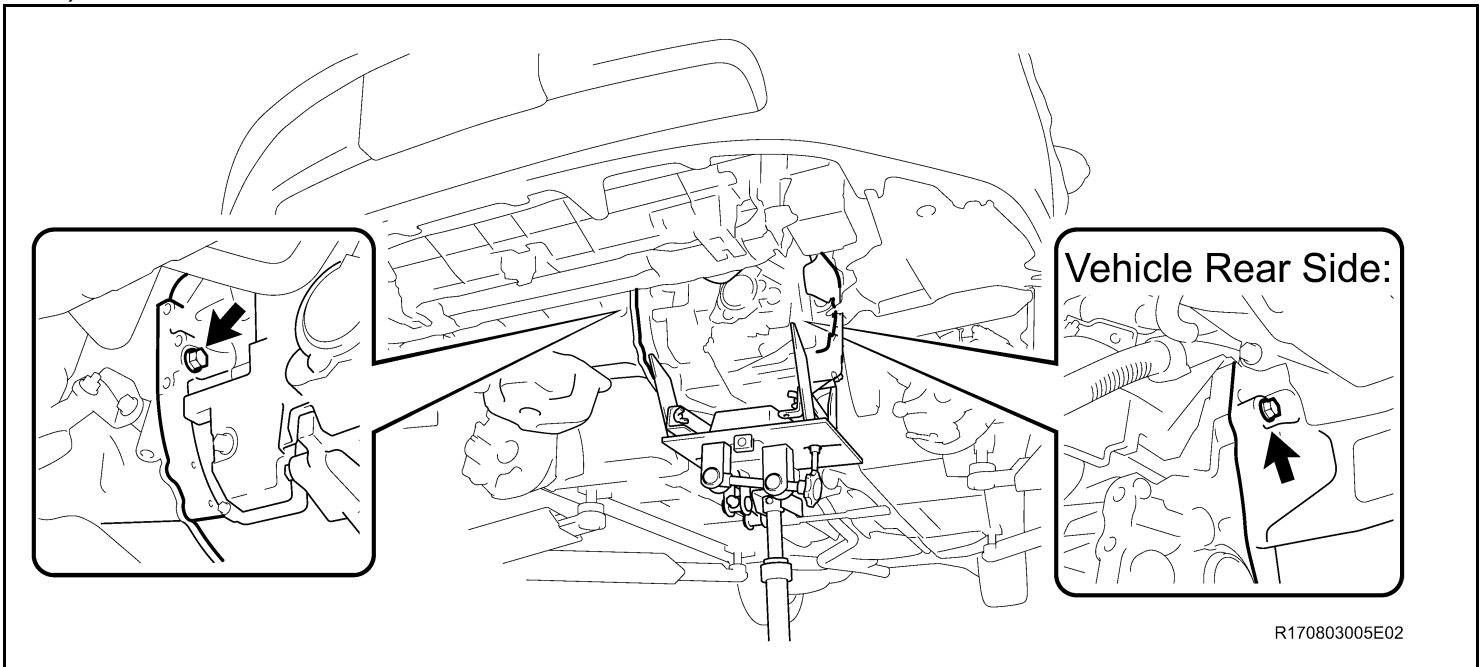
- By using the nut gripping socket, falling of the bolt can be prevented.
- Remove the bolt (A) by pulling upward.

- Remove the 2 bolts.



- Remove the 4 bolts.

e) Remove the 2 bolts.



f) Check that all the 9 bolts connecting the engine and the hybrid vehicle transaxle assembly are removed from the mating face.

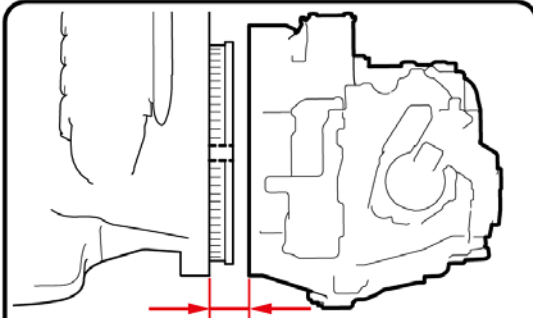
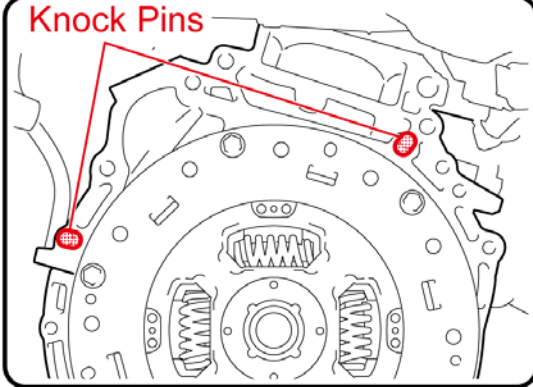
g) Have one person pull the hybrid vehicle transaxle assembly, while the other person pries open the mating face between the engine and the hybrid vehicle transaxle assembly using a flathead screwdriver wrapped with protective tape to disengage the 2 knock pins. Separate the hybrid vehicle transaxle assembly more than 40 mm (1.57 in.) by pulling it straight out from the engine.



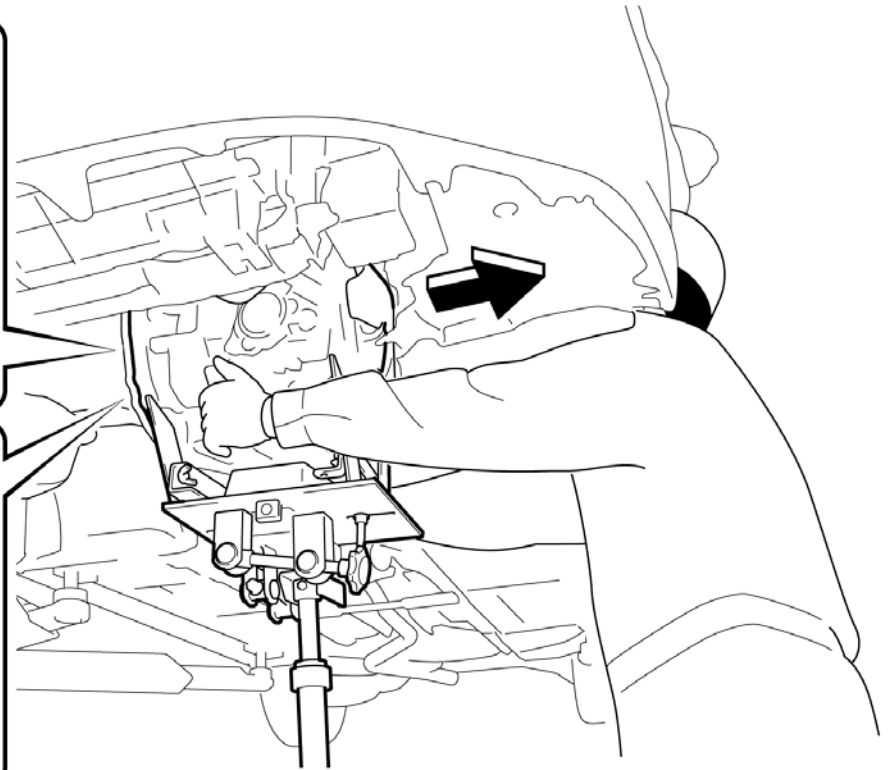
- If the hybrid vehicle transaxle assembly cannot be separated off the engine, try to separate them apart while adjusting the angle by operating the inclination adjustment mechanism of the transmission jack to make the gap between the engine and the hybrid vehicle transaxle assembly uniform.
- DO NOT use lubricant when disengaging the fitting of the knock pins.
- Make sure that the knock pins remain on the engine side.

Requires 2 Workers

Knock Pins

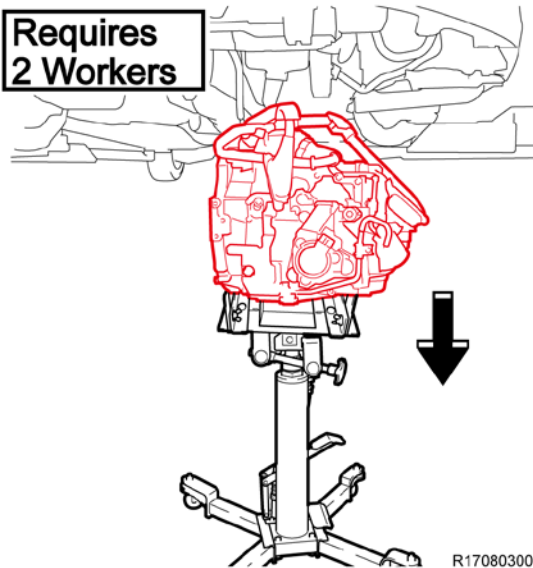


Pull straight out more than 40 mm (1.57in.)



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Requires 2 Workers



R1708030007E

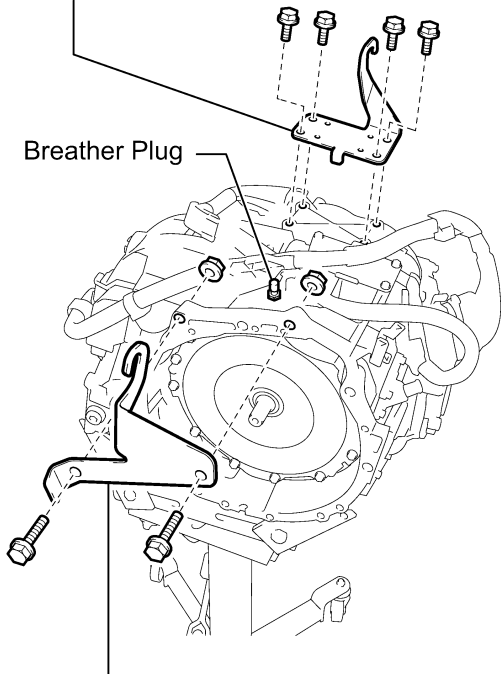
- h) Lower the transmission jack slowly to remove the hybrid vehicle transaxle assembly making sure that the wire harness, pipes, cables, etc. do not contact the other parts.

VIII. REPLACEMENT THE HYBRID VEHICLE TRANSAXLE ASSEMBLY

Requires 2 Workers

HV Transaxle Hanger

Breather Plug



HV Transaxle Hanger

R1706160003E

1. ATTACH THE HV TRANSAXLE HANGERS (REQUIRES 2 WORKERS)



DO NOT let the tools contact the breather plug as it could be damaged.

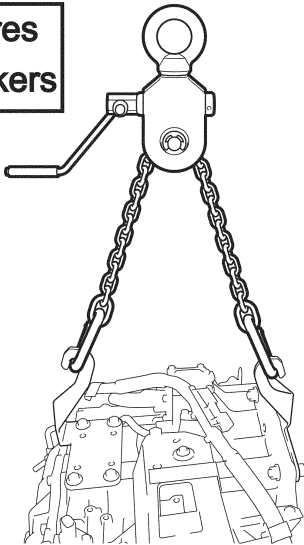
- a) Have one person hold the hybrid vehicle transaxle assembly, while the other person attaches the supplied HV transaxle hanger with the 4 supplied bolts.

Torque: 24.5 N*m (250 kgf*cm, 18 ft.*lbf)

- b) Attach the supplied HV transaxle hanger with the 2 supplied bolts and 2 supplied nuts.

Torque: 42 N*m (428 kgf*cm, 31 ft.*lbf)

Requires 2 Workers



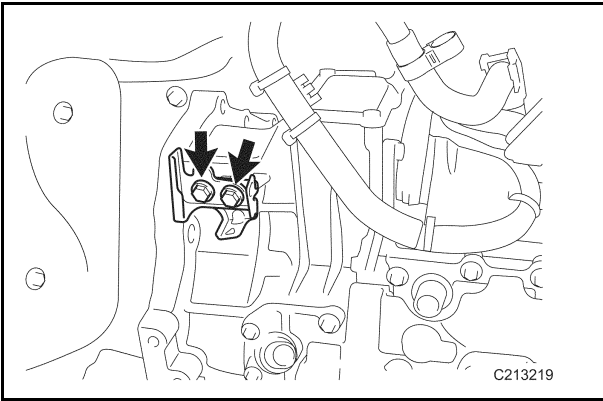
R1705110009E

2. UNLOAD THE HYBRID VEHICLE TRANSAXLE ASSEMBLY (REQUIRES 2 WORKERS)



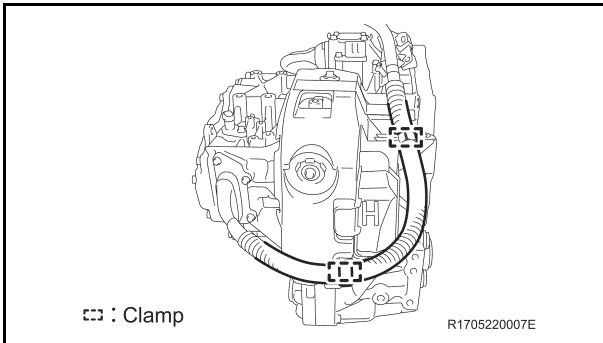
Be sure to work together with another person in order to prevent the hybrid vehicle transaxle assembly from falling.

- a) Have one person check that the hooks of the engine sling device are well positioned, while the other person operates the engine sling device until the chain is tight.



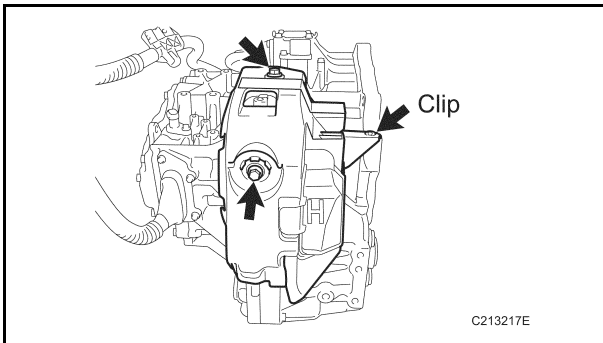
3. REMOVE THE MOTOR CABLE BRACKET

- Remove the 2 bolts and motor cable bracket.

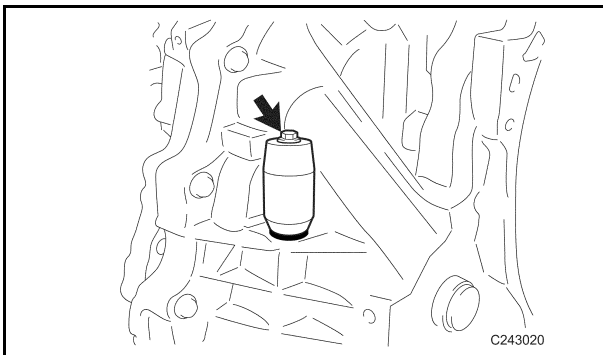


4. REMOVE THE AUTOMATIC TRANSMISSION CASE COVER

- Disconnect the 2 clamps and the harness.

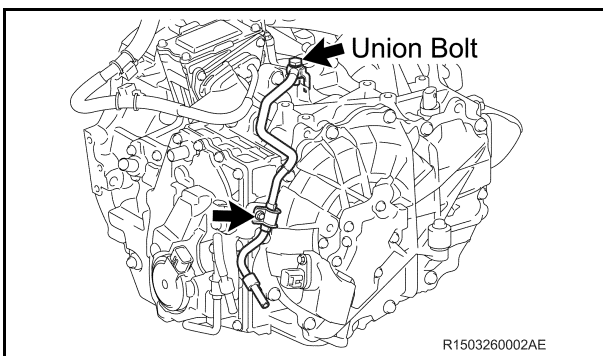


- Remove the 2 bolts, clip and automatic transmission case cover.
- Put a mark on the removed clip and store it in a box such as a replacement parts box.



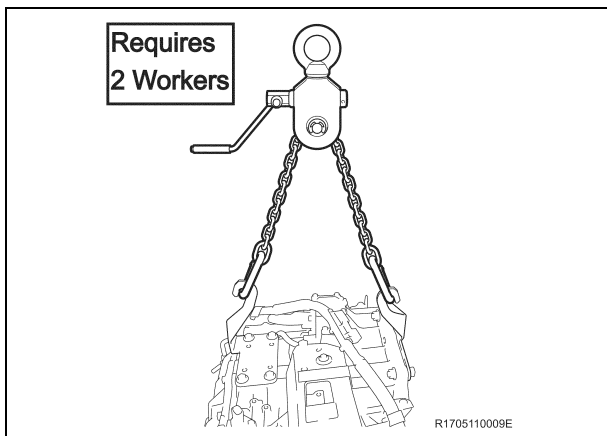
5. REMOVE THE HYBRID TRANSAXLE MASS DAMPER

- Remove the hybrid transaxle mass damper and gasket.
- Put a mark on the removed gasket and store it in a box such as a replacement parts box.



6. REMOVE THE OIL COOLER UNION SUB-ASSEMBLY

- Remove the bolt and oil cooler tube clamp.
- Remove the union bolt, gasket and oil cooler union sub-assembly.
- Put a mark on the removed gasket and store it in a box such as a replacement parts box.

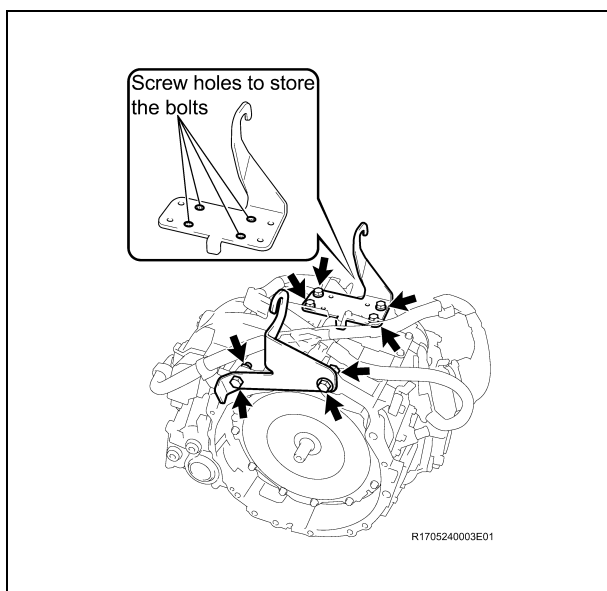


7. UNLOAD THE HYBRID VEHICLE TRANSAXLE ASSEMBLY (REQUIRES 2 WORKERS)

- Lift the hybrid vehicle transaxle assembly and unload it from the transmission jack.



Never enter below the lifted hybrid vehicle transaxle assembly, which weighs approximately 265 lbs.

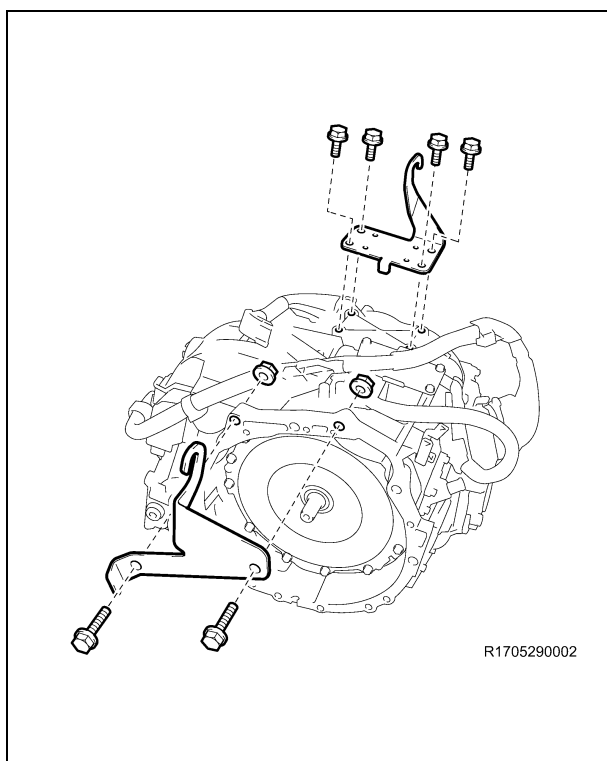


8. REMOVE THE HV TRANSAXLE HANGERS



DO NOT let the tools contact the breather plug as it could be damaged.

- Remove the 4 bolts and HV transaxle hanger from old hybrid vehicle transaxle assembly.
- Remove the 2 bolts and 2 nuts and HV transaxle hanger.
- Attach the removed bolts and nuts to the HV transaxle hangers in order to prevent them from being lost.



9. ATTACH THE HV TRANSAXLE HANGERS TO THE NEW HYBRID VEHICLE TRANSAXLE



DO NOT let the tools contact the breather plug as it could be damaged.

NOTE:

Removing the inner frame of the box makes it easier to attach the HV transaxle hangers.

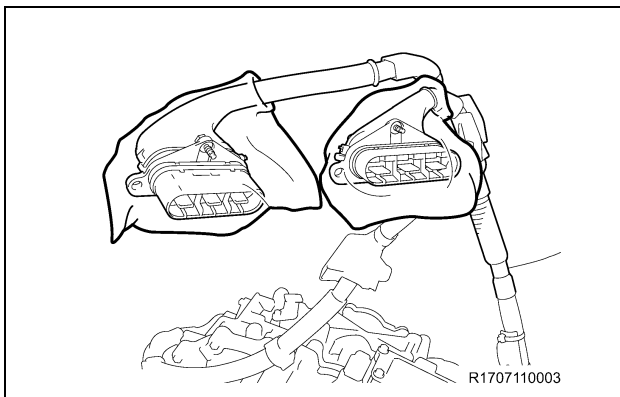
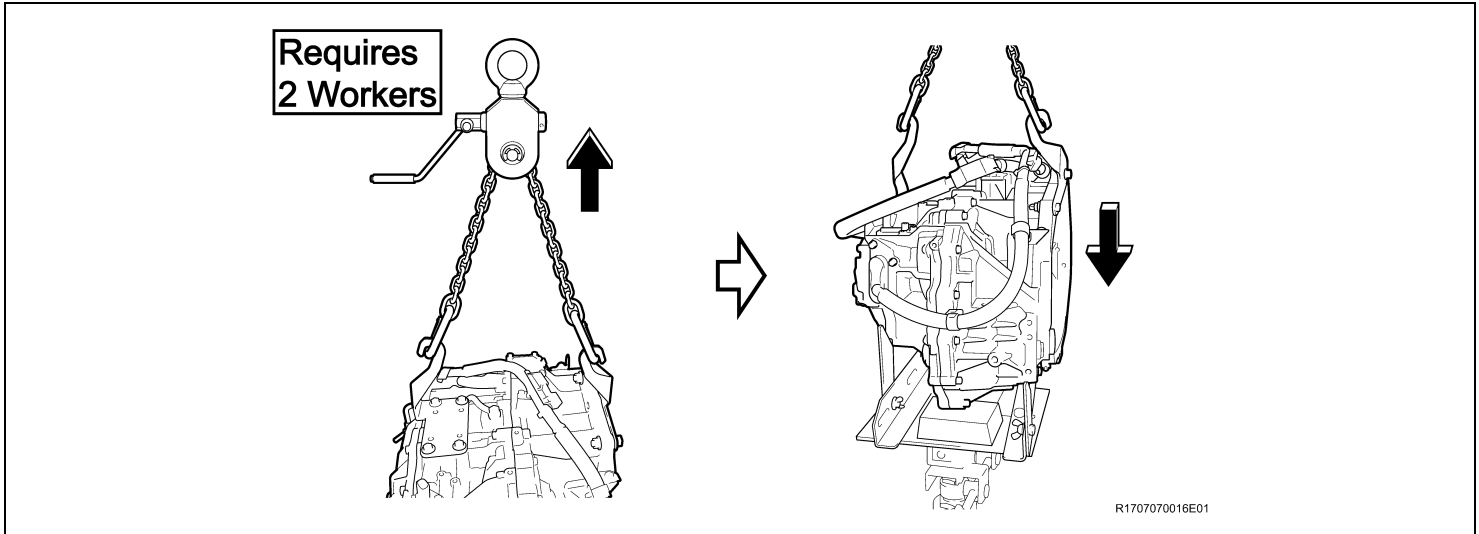
- Attach the HV transaxle hanger to a **NEW** hybrid vehicle transaxle assembly with the 4 bolts.
Torque: 24.5 N*m (250 kgf*cm, 18 ft.*lbf)
- Attach the HV transaxle hanger with the 2 bolts and 2 nuts.
Torque: 42 N*m (428 kgf*cm, 31 ft.*lbf)
- Remove the **NEW** hybrid vehicle transaxle assembly from the box using the engine sling device.

10. LOAD THE HYBRID VEHICLE TRANSAXLE ASSEMBLY (REQUIRES 2 WORKERS)

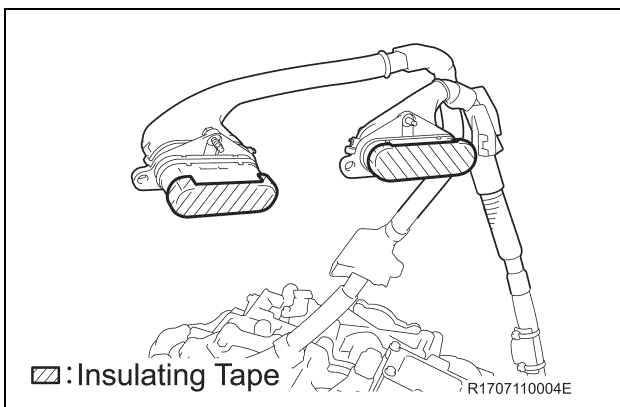
- a) Load the hybrid vehicle transaxle assembly on the transmission jack using the engine sling device.



- **Never enter below the lifted hybrid vehicle transaxle assembly, which weighs approximately 265 lbs.**
- **DO NOT rest your hand on the transmission jack, or your hand may be pinched.**
- **DO NOT let the oil cooler tube contact the transmission jack, or it may be damaged.**



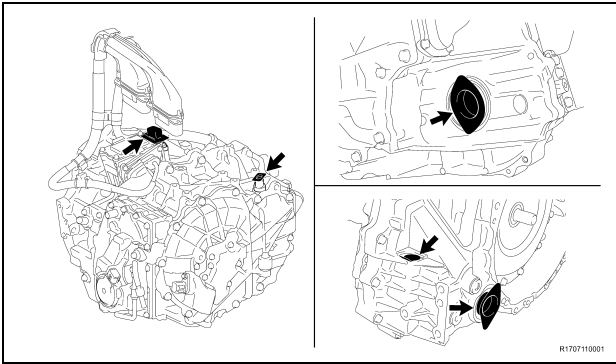
- b) Remove the plastic bags from the 2 high voltage cables.
- c) Put the removed plastic bags over the high voltage cables of the old hybrid vehicle transaxle assembly.



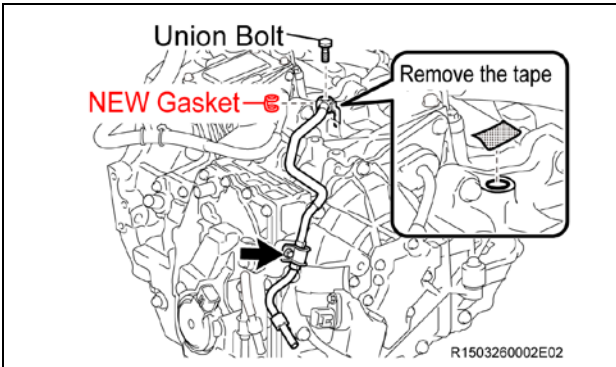
- d) Apply insulating tape over connecting ports of the 2 high voltage cables.

NOTE:

Use general insulating tape for automobile maintenance (that does not leave residue when removed).

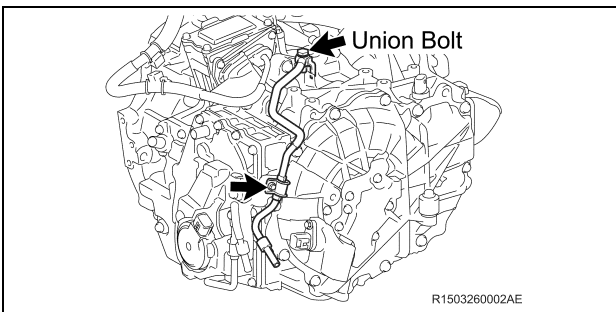


- e) Remove the 5 caps from the **NEW** hybrid vehicle transaxle assembly.
- f) Put the 5 removed caps on the old hybrid vehicle transaxle assembly.



11. REINSTALL THE OIL COOLER UNION SUB-ASSEMBLY

- a) Remove the tape.
- b) Temporarily install the oil cooler union sub-assembly with the union bolt and a **NEW** gasket.
- c) Temporarily install the oil cooler union sub-assembly with the clamp and bolt.



- d) Tighten the union bolt.

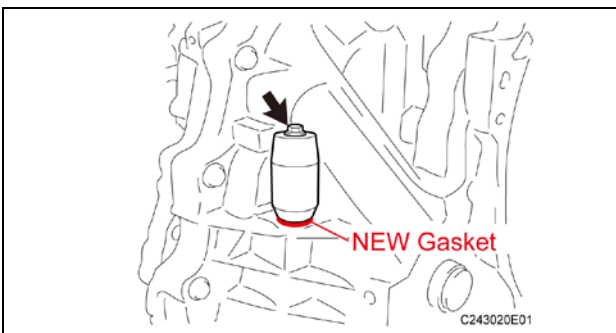
Torque: 35 N*m (357 kgf*cm, 26 ft.*lbf)

NOTE:

Tighten the union bolt with the oil cooler union sub-assembly stopper pressed against the rib.

- e) Tighten the oil cooler tube clamp bolt.

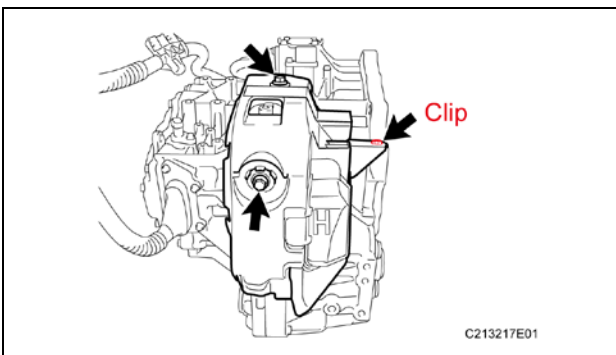
Torque: 8.2 N*m (84 kgf*cm, 73 in.*lbf)



12. REINSTALL THE HYBRID TRANSAXLE MASS DAMPER

- a) Reinstall a **NEW** gasket and the hybrid transaxle mass damper.

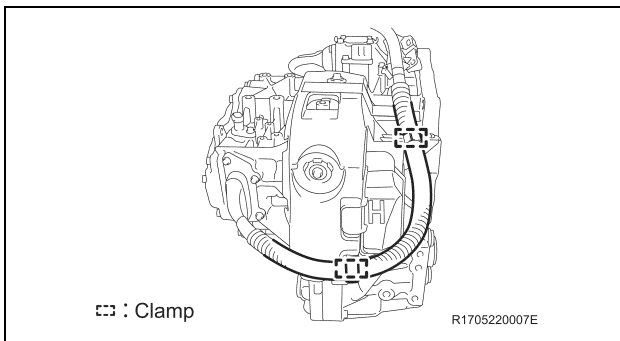
Torque: 39 N*m (400 kgf*cm, 29 ft.*lbf)



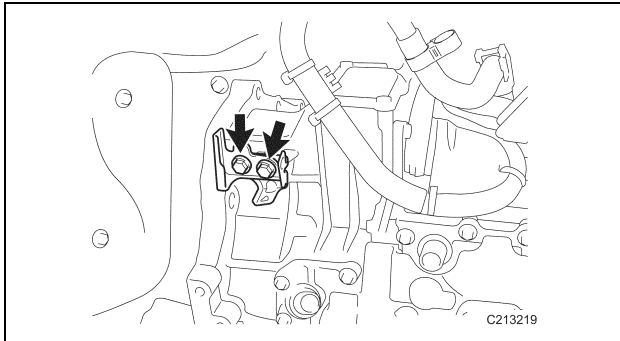
13. REINSTALL THE AUTOMATIC TRANSMISSION CASE COVER

- a) Reinstall the automatic transmission case cover with the 2 bolts and a **NEW** clip.

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

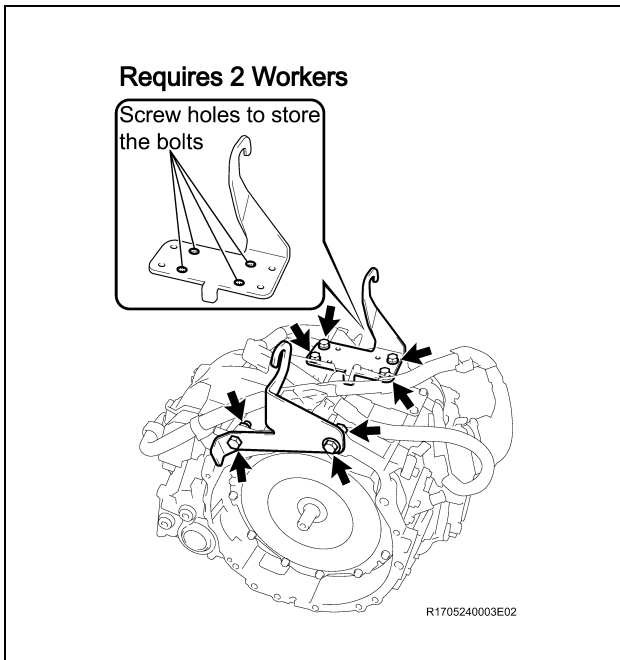


- b) Reconnect the 2 clamps.



14. REINSTALL THE MOTOR CABLE BRACKET

- a) Reinstall the motor cable bracket with the 2 bolts.
Torque: 8.0 N*m (81 kgf*cm, 71 in.*lbf)

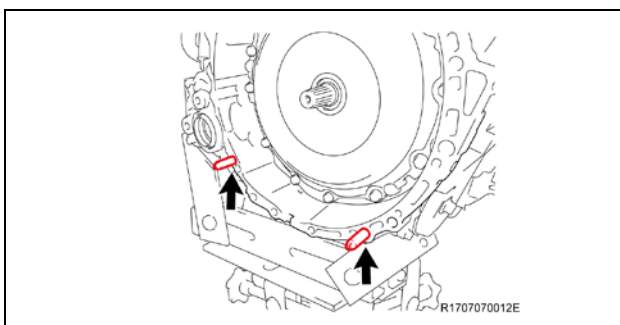


15. REMOVE THE HV TRANSAXLE HANGERS (REQUIRES 2 WORKERS)



DO NOT let the tools contact the breather plug as it could be damaged.

- Remove the engine sling device.
- Have one person hold the hybrid vehicle transaxle assembly, while the other person removes the 4 bolts and the HV transaxle hanger.
- Remove the 2 bolts, 2 nuts and HV transaxle hanger.
- Attach the removed bolts and nuts to the HV transaxle hangers in order to prevent them from being lost.



16. INSTALL THE GUIDE BOLT

- a) Install the 2 supplied guide bolts to the bolt holes of the hybrid vehicle transaxle assembly.

NOTE:

Installing the guide bolts to the bolt holes in advance make it easier to align the engine and hybrid vehicle transaxle assembly.

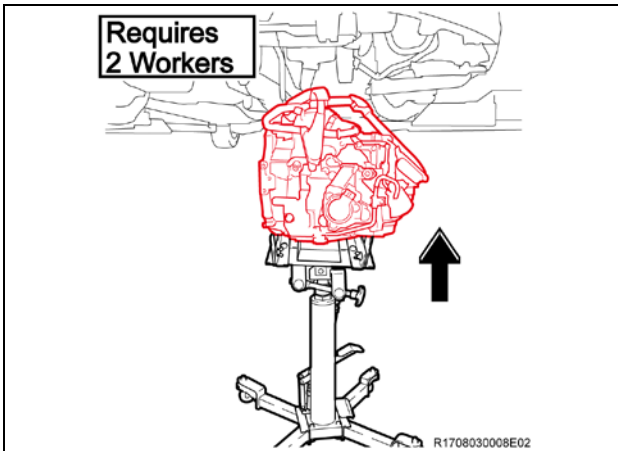
IX. INSTALL THE HYBRID VEHICLE TRANSAXLE ASSEMBLY

1. INSTALL THE NEW HYBRID VEHICLE TRANSAXLE ASSEMBLY

[Refer to TIS for HS250h for instructions on HYBRID VEHICLE TRANSAXLE ASSEMBLY : INSTALLATION](#)



Perform the following procedure before installing the transaxle



NOTE:

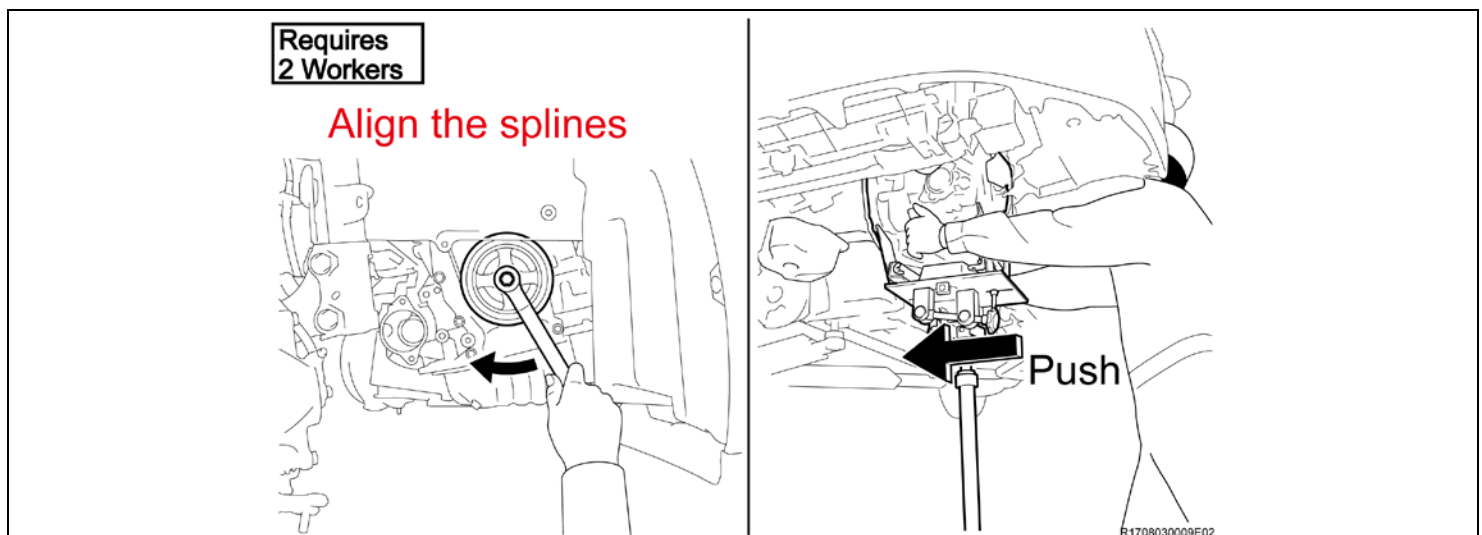
It is not necessary to apply grease to the spline of the new hybrid vehicle transaxle assembly.

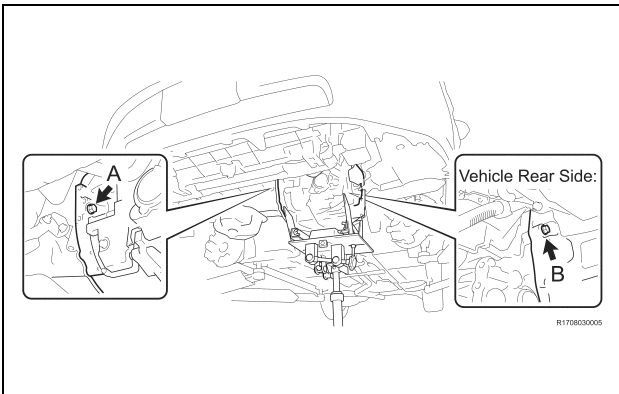
- b) Operate the transmission jack to slowly bring the hybrid vehicle transaxle assembly closer to the engine, making sure that the wire harness, pipes, cables, etc. do not contact the other parts.

- c) Align the guide bolts with the hybrid vehicle transaxle assembly installation holes.
d) Have one person turn the crankshaft little by little to facilitate engagement of the splines, while the other person pushes the transmission jack to connect the hybrid vehicle transaxle assembly to the engine.



- If the hybrid vehicle transaxle assembly cannot be installed successfully, adjust the angle of the hybrid vehicle transaxle assembly to that of the engine using the inclination adjustment mechanism of the transmission jack to connect the hybrid vehicle transaxle assembly to the engine.
- Be careful not to pinch the wire harnesses.
- DO NOT turn the crankshaft counterclockwise.





e) Tighten the 2 bolts evenly in several steps.

Torque:

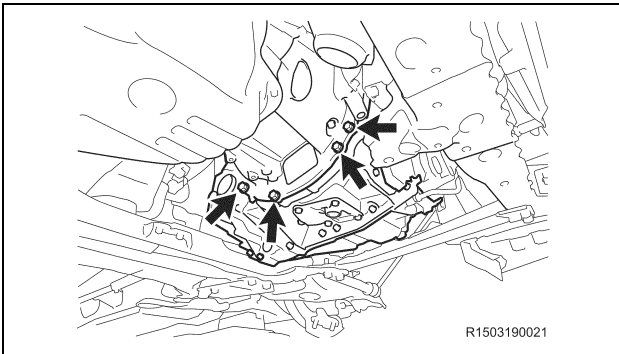
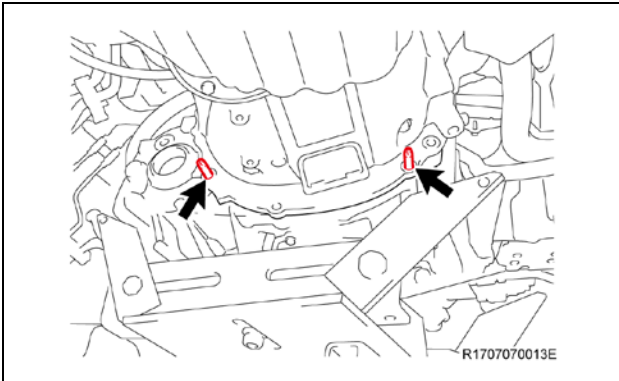
Bolt A (width across flats 14 mm):
46 N*m (469 kgf*cm, 34 ft.*lbf)

Bolt B (width across flats 12 mm):
28 N*m (286 kgf*cm, 21 ft.*lbf)



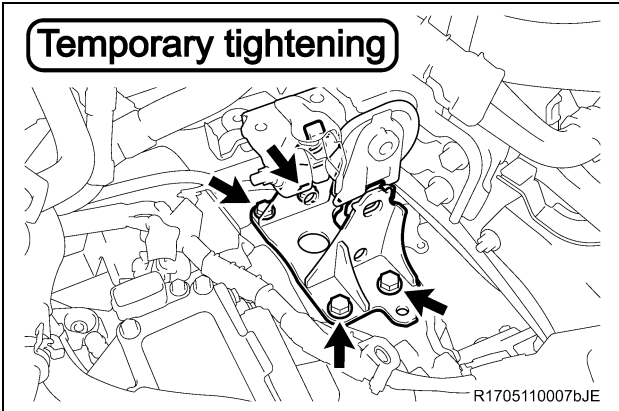
Be careful of the torque value which is different at each part.

f) Remove the 2 guide bolts.



g) Reinstall the 4 bolts.

Torque: 44 N*m (449 kgf*cm, 32 ft.*lbf)



g) Using a step stool, temporarily tighten 4 **NEW** bolts uniformly in several steps until the bolt heads seat, in order to fasten the engine mounting bracket LH.



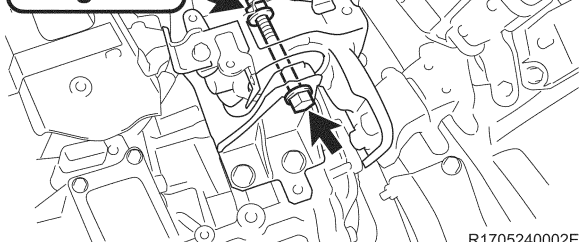
Observe the safety precautions for work at heights.

NOTE:

The bolts are coated with locking agent. However, use of air tools will lead to reduction in the time required to tighten the bolts at a height.

Requires 2 Workers

Temporary
fixing



R1705240002E

- h) One of the 2 workers operates a jack, and the other worker temporarily installs the through bolt to a position where a load will not be applied to the bolt.



- Both of the 2 workers announce all jack operations out loud to alert each other to ensure safety.
- Ensure that the wire harness, pipes, or cables are not caught by the components.
- Ensure that no gap is present between the hybrid vehicle transaxle and the transmission jack.

- i) Temporarily install the nut.

2. LOWER THE VEHICLE



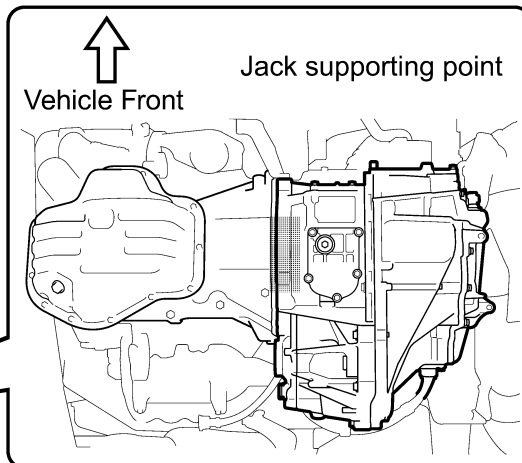
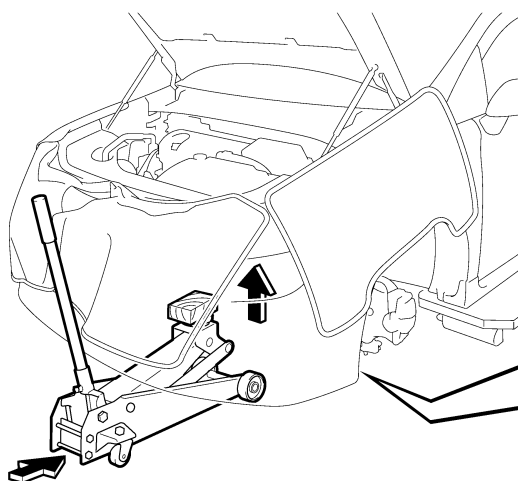
- TO AVOID APPLYING MUCH FORCE AT HEIGHT USING A STEPSTOOL POSITION, LOWER THE VEHICLE ON THE LIFT TO PERFORM THE FOLLOWING WORK.

3. TIGHTEN THE ENGINE MOUNT

- a. Put a wooden piece onto a jack, set the jack under the hybrid vehicle transaxle as shown in the illustration, and allow the wooden piece to touch the transaxle

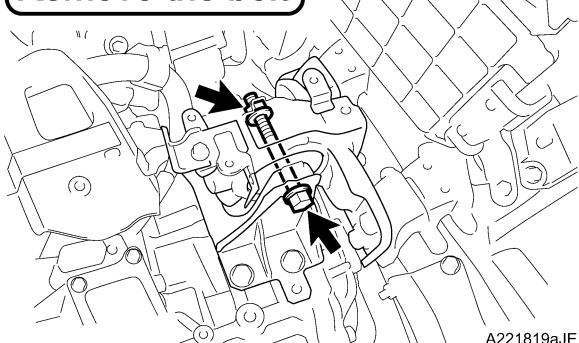
NOTE:

Be careful not to damage the components surrounding the transaxle with the jack or wooden piece.



R1710250013E

Remove the bolt



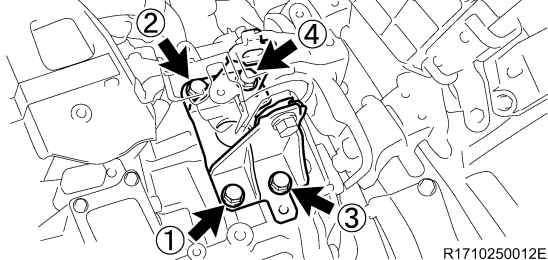
A221819aJE

- j) Remove the nut.
k) One of the 2 workers raise the vehicle with the jack to reduce the load applied to the through bolt, and the other worker removes the bolt.



- Both of the 2 workers announce all jack operations out loud to alert each other to ensure safety.
- Ensure that the wire harness, pipes, or cables are not caught by the components.
- Remove the through bolt as it will interfere with a tool when the bracket bolts are tightened.

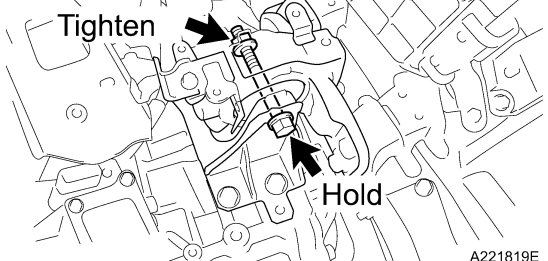
Complete tightening



- l) Tighten the 4 bracket bolts in the sequence shown in the illustration.

Torque: 64 N·m (653 kgf·cm, 47 ft.*lbf)

Complete tightening



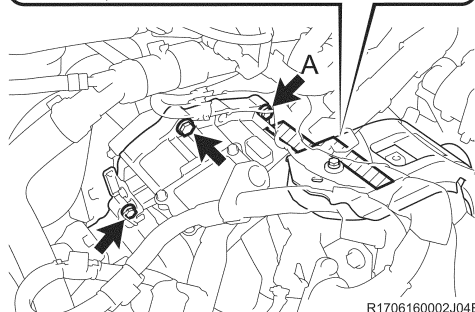
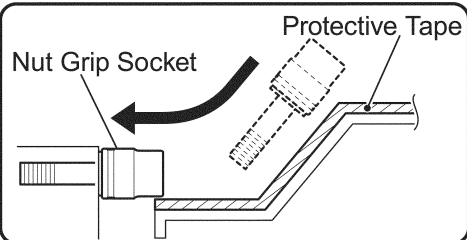
- m) Install the through bolt, and tighten the nut with a 14-mm deep socket wrench.

Torque: 56 N·m (571 kgf·cm, 41 ft.*lbf)



Holding the bolt, tighten the nut.

- n) Remove the jack.



- a) Using the supplied nut grip socket, tighten bolt (A).

Torque: 64 N·m (653 kgf·cm, 47 ft.*lbf)

- b) Tighten the 2 bolts.

Torque: 64 N·m (653 kgf·cm, 47 ft.*lbf)

- c) Remove the protective tape.

- d) Install and tighten the 9 bolts shown in the illustration.

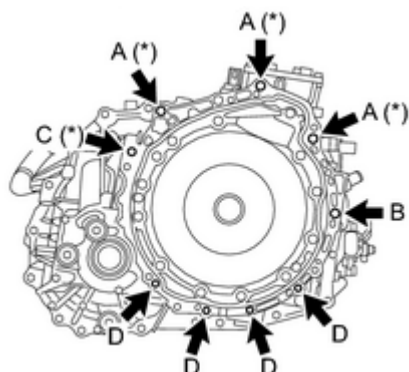
Torque:

Bolt A: 64 N·m (653 kgf·cm, 47 ft.*lbf)

Bolt B: 46 N·m (469 kgf·cm, 34 ft.*lbf)

Bolt C: 28 N·m (286 kgf·cm, 21 ft.*lbf)

Bolt D: 44 N·m (449 kgf·cm, 32 ft.*lbf)





Perform the following procedure before installing the Front Drive Shaft Assembly

1. INSTALL THE FRONT DRIVE SHAFT LH HOLE SNAP RING (for LH side)

- a. Install a new front drive shaft LH hole snap ring to the front drive inboard joint assembly LH

NOTE:

Face the end gap of the front drive shaft LH hole snap ring downward

Requires 2 Workers



2. ALIGN FRONT DRIVE SHAFT ASSEMBLY AND INSTALL KNUCKLE LH AND RH

- a. Coat the splines of the inboard joint shaft with ATF WS
- b. While one person is supporting the knuckle and front drive shaft, the other person aligns the inboard joint splines
- c. Install the knuckle to the shock absorber with the 2 bolts and 2 nuts

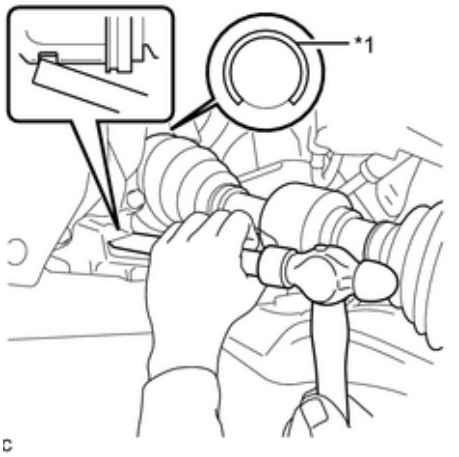
Torque: 240 N.m (2447 kgf.cm, 177 ft.lbs)

Use the same procedure for both LH and RH side

3. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH

- a. Once the inboard joint splines are aligned, use a brass bar and hammer to install the front drive shaft LH

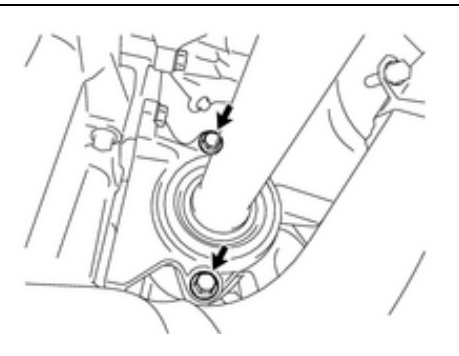
***1** Front Drive Shaft LH Hole Snap Ring

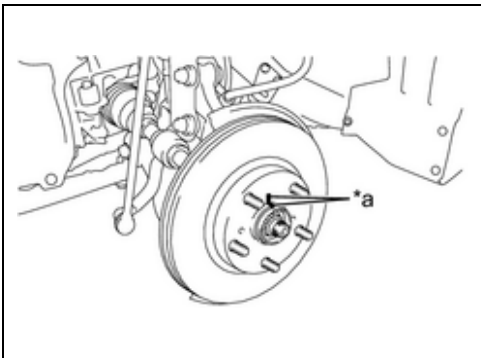


4. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH

- a. Once the inboard splines are aligned, install the front drive shaft assembly RH with the 2 bolts

Torque: 64 N.m (650 kgf.cm, 47 ft.lbs)





5. INSTALL FRONT DISC LH AND RH

- Align the matchmarks of the disc and axle hub, and install the disc

*a	Matchmark
----	-----------

Use the same procedure for the LH and RH side



6. INSTALL FRONT BRAKE CYLINDER

- Remove the bungie cord or rope from the hanging brake caliper
- Install the front disc brake mounting to the steering knuckle with the 2 bolts

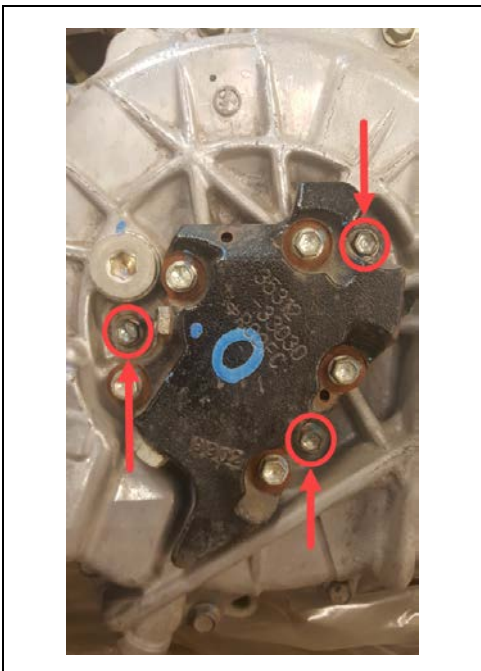
Torque: 107 N.m (1089 kgf.cm, 79 ft.lbs)

Use the same procedure for the LH and RH side

7. INSTALL THE NEW HYBRID VEHICLE TRANSAXLE ASSEMBLY

[Refer to TIS for HS250h for instructions on HYBRID VEHICLE TRANSAXLE ASSEMBLY : INSTALLATION](#)

X. DISABLE OLD TRANSAXLE ASSEMBLY



1. REMOVE RESOLVER PLATE BOLTS OFF OLD TRANSAXLE

- Remove the 3 bolts off of the side of the OLD transaxle as shown in the image to the right
- Dispose of bolts separately from the OLD transaxle



- Do NOT perform this procedure on the new transaxle.
- If the bolts are removed from the new transaxle it will need to be replaced.

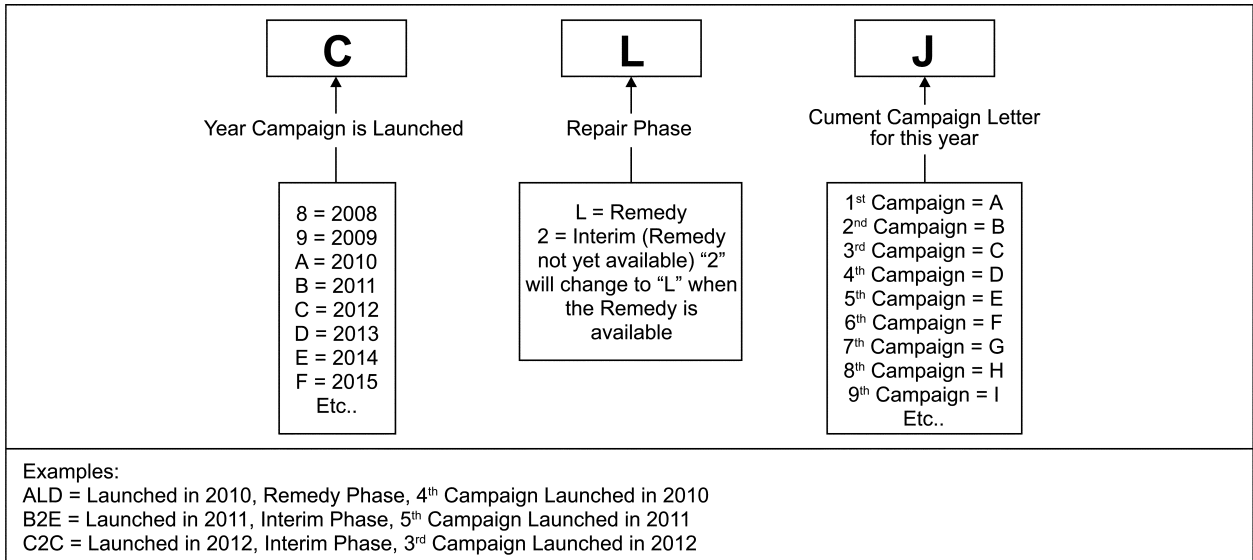
◀ VERIFY REPAIR QUALITY ▶

- Check that the steering linkage is aligned and connected properly
- Check that all fluids are properly filled

If you have any questions regarding this Safety Recall, please contact your Area Representative.

XI. APPENDIX

A. CAMPAIGN DESIGNATION DECODER



B. RECALL PARTS DISPOSAL

As required by Federal Regulations, please make sure all recalled parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused, unless requested for parts recovery return.