

TECHNICAL INSTRUCTIONS
FOR
23TA07
DC/DC CONVERTER ASSEMBLY REPLACEMENT
CERTAIN 2021-2022
RAV4 PRIME

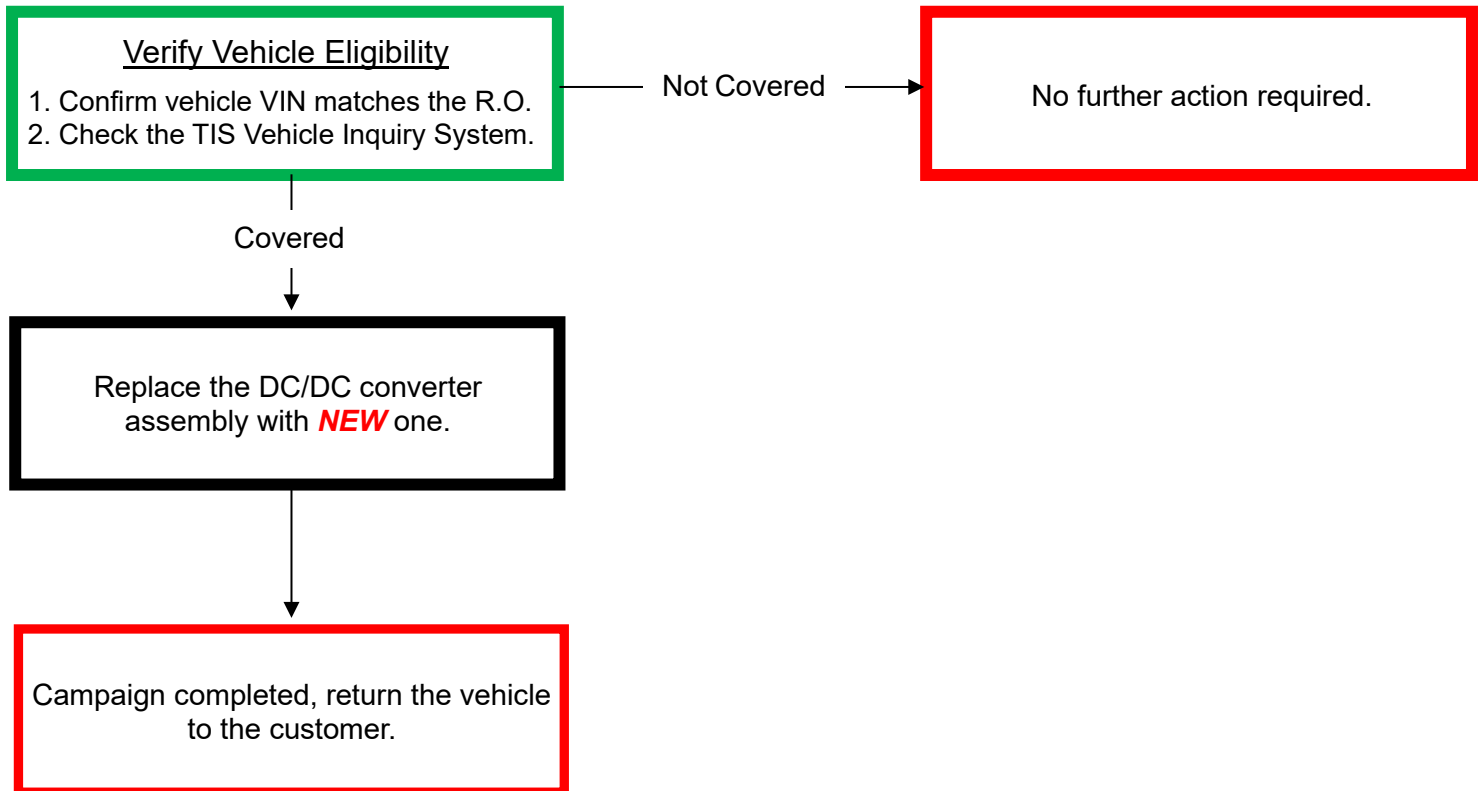
The repair quality of covered vehicles is extremely important to Toyota. All dealership technicians performing this Recall are required to successfully complete the most current version of the E-Learning course "Safety Recall and Service Campaign Essentials". To ensure that all vehicles have the repair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

TIC209A – Electrified Powertrain Vehicle Repair

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

The flow chart is for reference only. **DO NOT** use it in place of the full technical instructions. Follow **ALL** steps as outlined in the full technical instructions to confirm the campaign is completed correctly.



II. IDENTIFICATION OF AFFECTED VEHICLES

1. CHECK VEHICLE FOR CAMPAIGN ELIGIBILITY

- Compare the vehicles VIN to the VIN listed on the Repair Order to ensure they match.
- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Campaign, and that it has not already been completed.

NOTICE:

TMNA warranty will not reimburse dealers for repairs completed on vehicles that are not affected or were previously completed, even by another dealer.

III. PREPARATION

A. PARTS

Part Number	Part Description	Quantity
04003-15142	CONVERTER ASSY, HYBRID VEHICLE *	1
04003-15242	SEAL KIT, HV BATTERY, NO1 **	1
* The kit above includes the following parts.		
Part Number	Part Name	Quantity
G9270-42060	CONVERTER ASSY, HYBRID VEHICLE	1
** The kit above includes the following parts.		
Part Number	Part Name	Quantity
G92DB-42010	SEAL, HV BATTERY, No.1	1
72693-12080	HOOK, RR SEAT CUSHION LOCK	2

B. TOOLS, SUPPLIES & EQUIPMENT

- Standard Hand Tools
 - GTS+
 - Union Nut Wrench 12mm
 - TORX Socket Wrench T20*
 - Toyota Electrical Tester Set
 - Torque wrench
- *"TORX ®" is a trademark of Acument ® Intellectual Properties, LLC / CAMCAR Innovations ®.

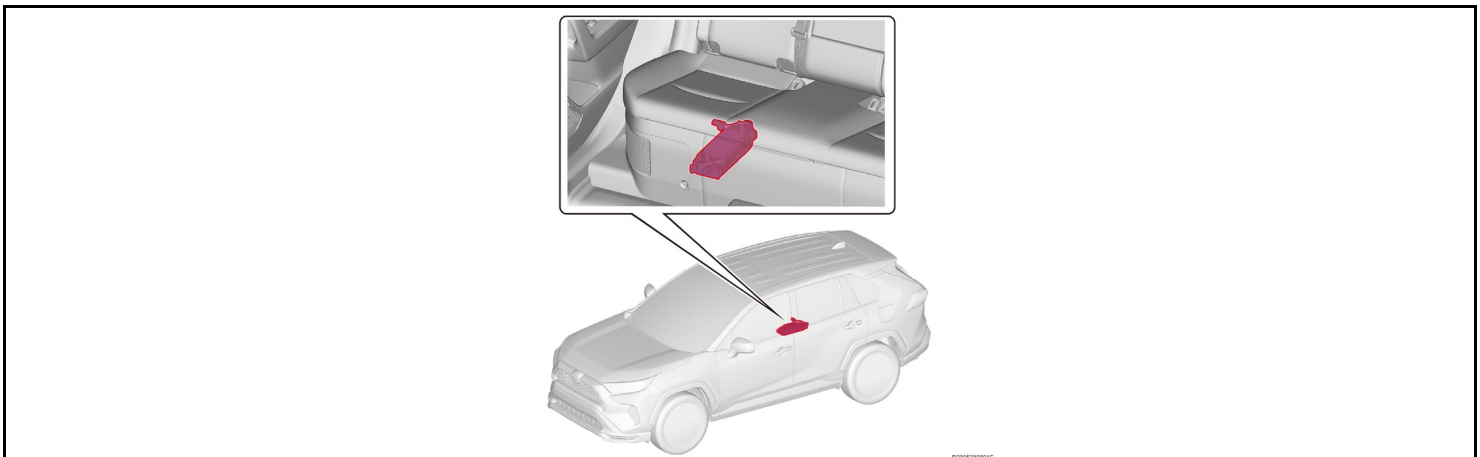
C. MATERIALS

- Protective Gloves
- Insulated Gloves
- Protective Tape
- Marker Pen

IV. WORK PROCEDURE TABLE OF CONTENTS

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V. BACKGROUND



VI. SAFETY PRECAUTIONS

Critical

- Always remember "**SAFETY FIRST**".
- Check each item in the appropriate section for each vehicle.

A. CAUTION WITH "WORKING AT HIGH VOLTAGE" SIGN

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

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

- To prevent short circuit, **DO NOT** wear metal items, such as a wrist watch, a mechanical pencil and a scale.

C. TOOL INSULATION

- Use insulated tools or wrap insulating tape around the tools to be used in order to prevent a short circuit.

HINT:

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

D. WEAR INSULATED GLOVES

- When working with or around the high voltage circuit (orange wires and connectors), wear insulated gloves to prevent electric shock.
- DO NOT** use wet or broken insulated gloves.
- When the insulated gloves are dirty, clean them before use according to the instructions on the manual of the gloves.

E. PROPERLY HANDLE THE SERVICE PLUG GRIP

- 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, start the work.
- Put the disconnected service plug grip in a pocket to prevent other engineers from connecting in error during the work.

F. INSULATE AFTER DISCONNECTION OF HIGH VOLTAGE CIRCUIT

- Soon after removing the connectors and terminals in a high voltage system, insulate them with insulating tape.

HINT:

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

G. CONNECT HIGH VOLTAGE TERMINAL

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

H. SEPARATE INSIDE AND OUTSIDE BOLTS

- The bolts are used for both inside and outside of the inverter with converter assembly, and some bolts are the same in size. The bolts used outside are dirty and if they are used inside, it may cause a malfunction. Make sure to store the bolts separating the ones for inside and outside.



**CAUTION:
HIGH-VOLTAGE
DO NOT TOUCH.**

Person in charge: _____

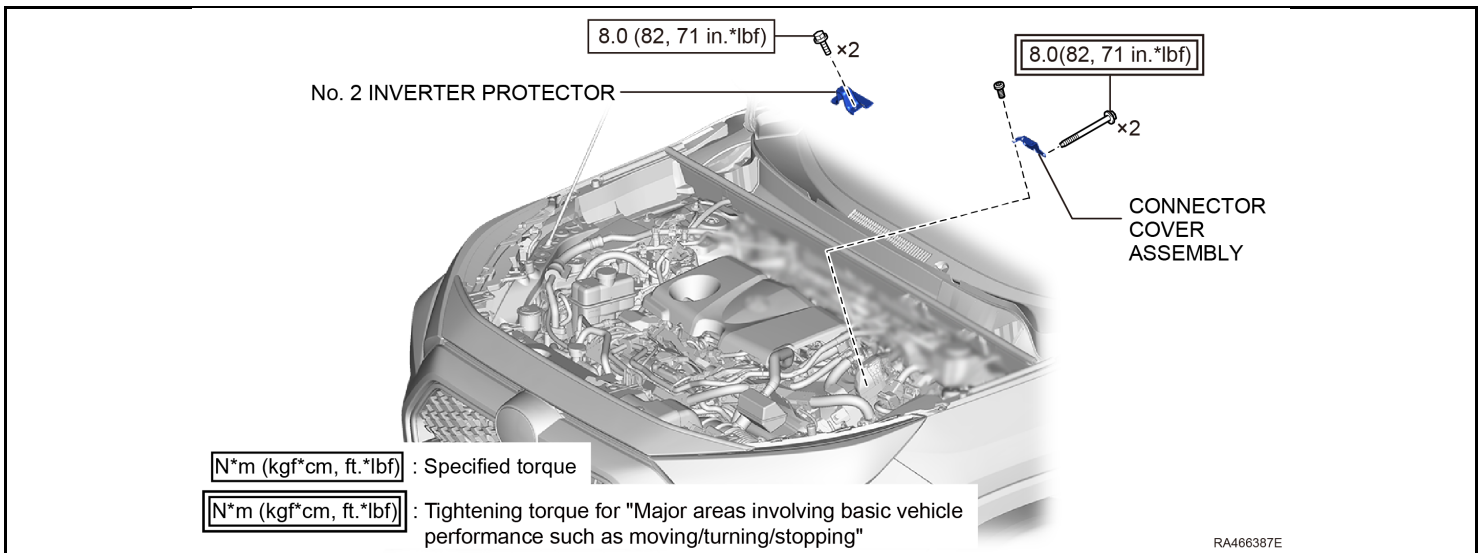
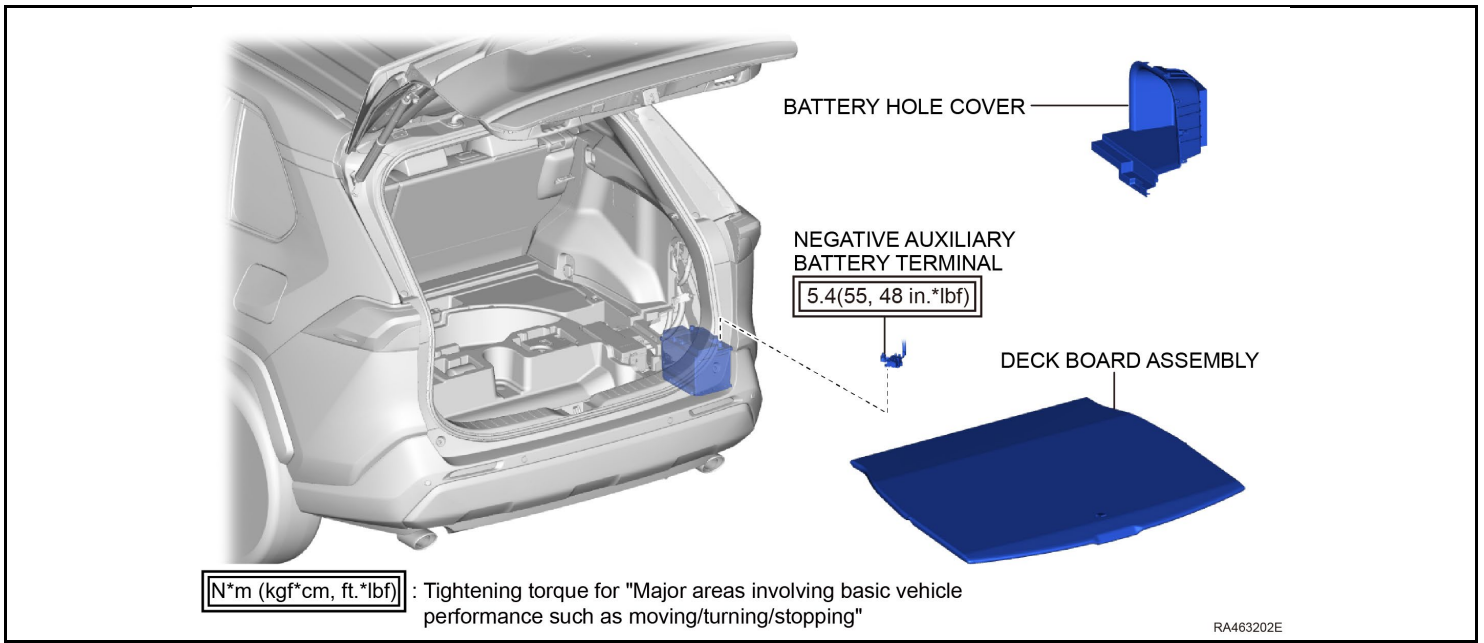
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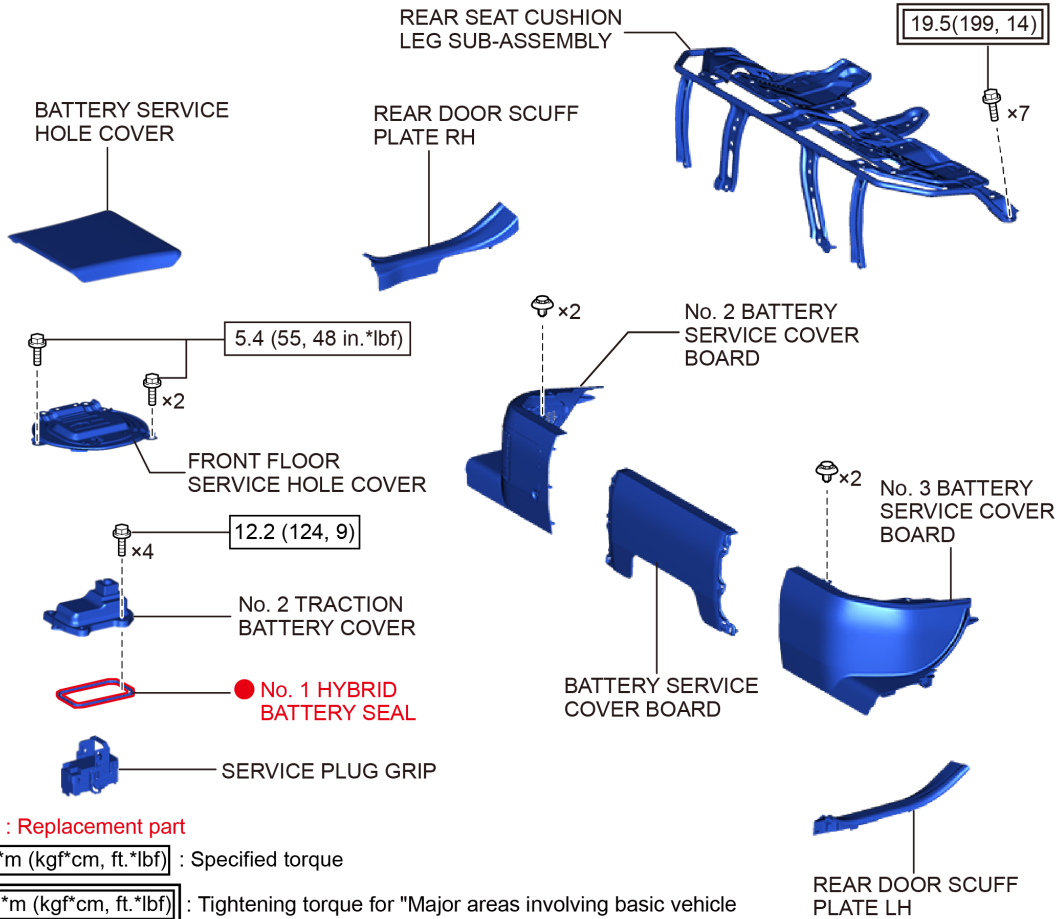
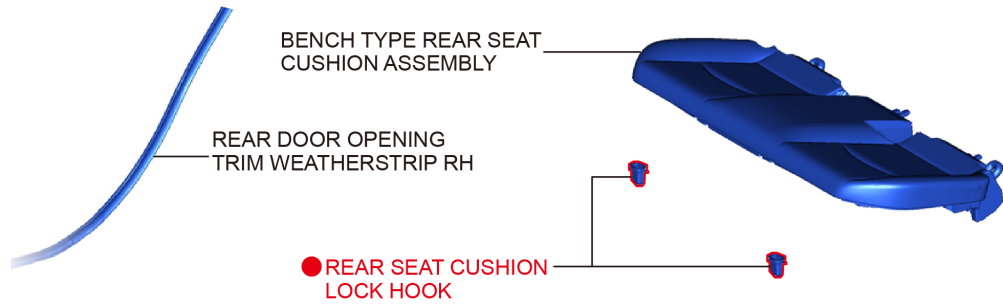
Person in charge: _____



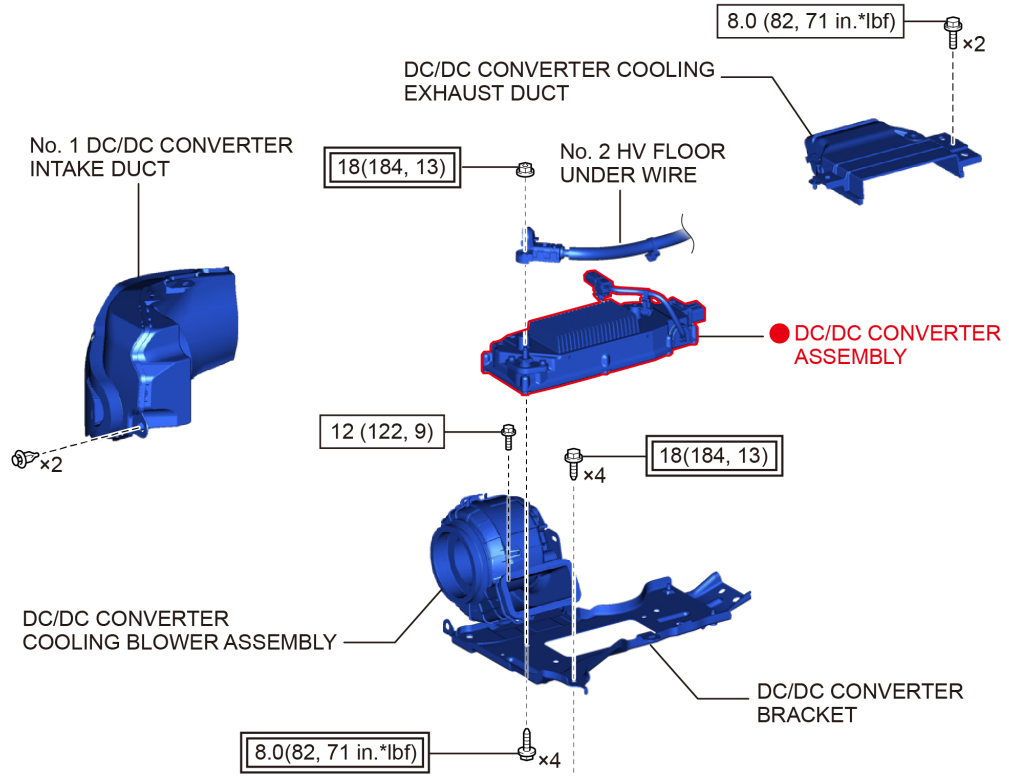
When performing work on the HV system, fold this sign and put it on the roof of the vehicle.

VII.COMPONENTS





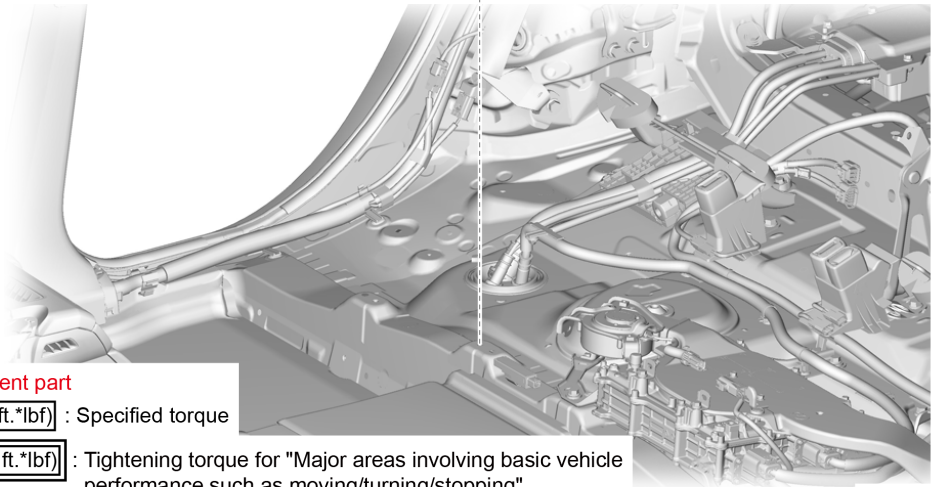
RA468174E



● : Replacement part

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

$[N*m (kgf*cm, ft.*lbf)]$: Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping"



RA463022E

VIII. REMOVE DC/DC CONVERTER ASSEMBLY



1. CHECK FOR DTC'S

- a) Using GTS+, perform a Health Check to check for any Diagnostic Trouble Codes.

NOTICE:

This Safety Recall covers only the replacement of the DC/DC converter assembly and associated parts. It does not cover the diagnosis or replacement of any other parts on the vehicle.

2. REMOVE DC/DC CONVERTER ASSEMBLY

[Refer to the TIS for instructions on Engine / Hybrid System > HYBRID / BATTERY CONTROL > ELECTRIC VEHICLE CONVERTER > REMOVAL](#)

- REMOVE BENCH TYPE REAR SEAT CUSHION ASSEMBLY

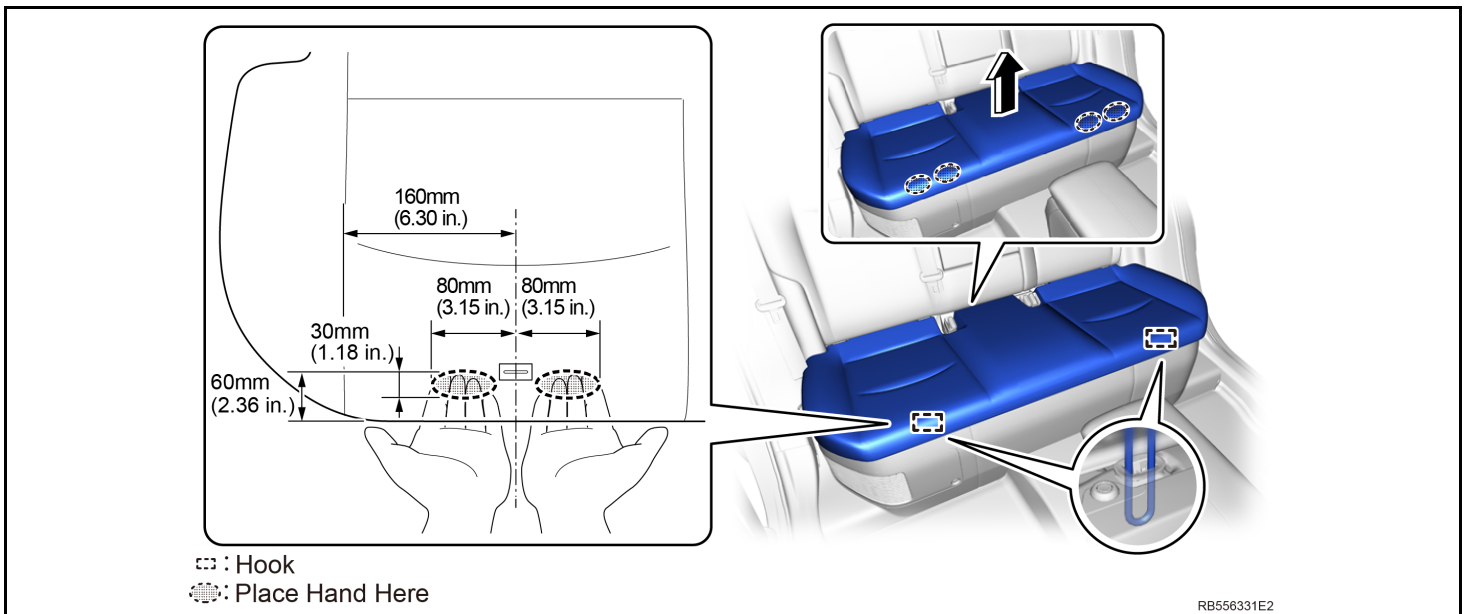
NOTICE:

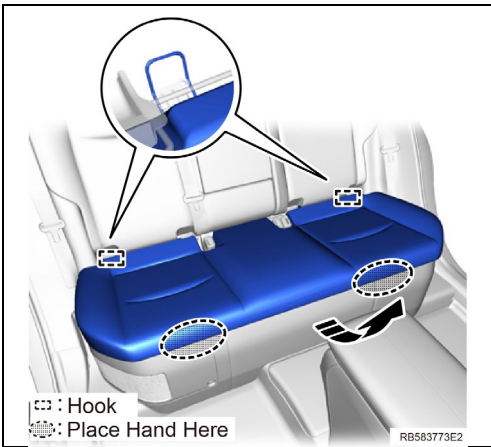
Before removing the rear door scuff plate, remove the bench type rear seat cushion assembly and rear seat cushion lock hook following the procedure below.

- (1) Place your hand in the position beside the hook as shown in the illustration and lift the front end of bench type rear seat cushion assembly in the removal direction to detach the cushion wire on the front of bench type rear seat cushion assembly from the rear seat cushion lock hook.

NOTICE:

- Be sure to detach the hook on the front of bench type rear seat cushion assembly one at a time.
- Be sure to hold the parts of the bench type rear seat cushion assembly directly next to the bench type rear seat cushion frame hooks when lifting it. Lifting a different part of the cushion may deform the rear seat cushion frame.





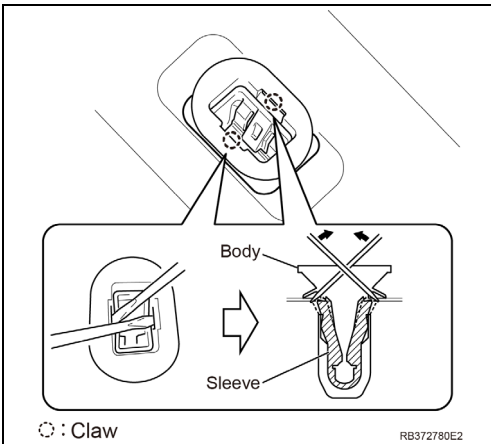
- (2) Place your hand in the position shown in the illustration and pull in the removal direction to detach the hook on the rear end of bench type rear seat cushion assembly.



- (3) w/ Seat Heater System:
Disconnect the 4 connectors.
Detach the clamp.
- (4) Remove the bench type rear seat cushion assembly.

NOTICE:

Be careful not to damage the bench type rear seat cushion assembly, body exterior or interior parts.

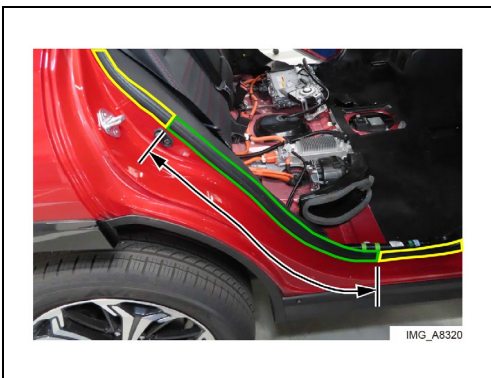


• REMOVE REAR SEAT CUSHION LOCK HOOK

HINT:

Use the same procedure for the 2 parts.

- (1) Insert 2 thin-bladed screwdrivers between the rear seat cushion lock hook sleeve and body as shown in the illustration.
- (2) Pull up the 2 thin-bladed screwdrivers to detach the claw and remove the rear seat cushion lock hook.



• DISCONNECT REAR DOOR OPENING TRIM WEATHERSTRIP

NOTICE:

Disconnect the rear door opening trim weatherstrip as shown below when lifting up the rear seat side garnish.

- (1) Disconnect the rear door opening trim weatherstrip of the green area shown in the illustration.

HINT:

Disconnect the rear door opening trim weather strip as much as necessary to disconnect the rear seat side garnish.

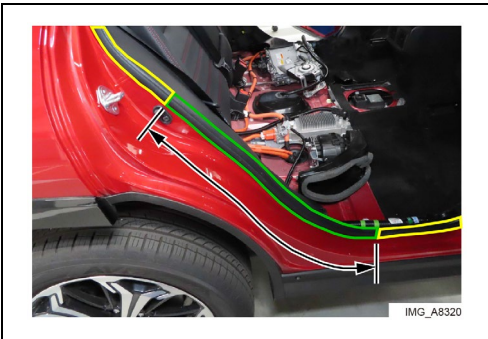
NOTICE:

It is unnecessary to remove the DC/DC converter cooling blower assembly from the DC/DC converter bracket.

IX. INSTALL **NEW** DC/DC CONVERTER ASSEMBLY

1. INSTALL **NEW** DC/DC CONVERTER ASSEMBLY

[Refer to the TIS for instructions on Engine / Hybrid System > HYBRID / BATTERY CONTROL > ELECTRIC VEHICLE CONVERTER > INSTALLATION](#)

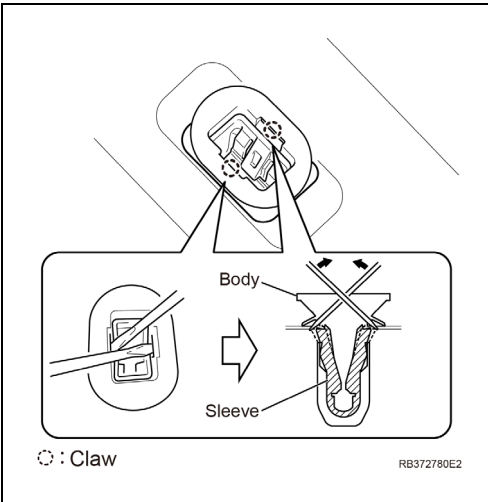


- RECONNECT REAR DOOR OPENING TRIM WEATHERSTRIP

NOTICE:

Install the rear door opening trim weatherstrip as shown below after installing the No. 1 DC/DC converter intake duct.

- (1) Connect the rear door opening trim weatherstrip of the green area shown in the illustration.



- INSTALL **NEW** REAR SEAT CUSHION LOCK HOOK

NOTICE:

After installing the rear door scuff plate, install the rear seat cushion lock hook and bench type rear seat cushion assembly following the procedure below.

HINT:

Use the same procedure for the 2 parts.

- (1) Set a **NEW** rear seat cushion lock hook.
- (2) Using 2 thin-bladed screwdrivers, push the sleeve to attach the claw.

NOTICE:

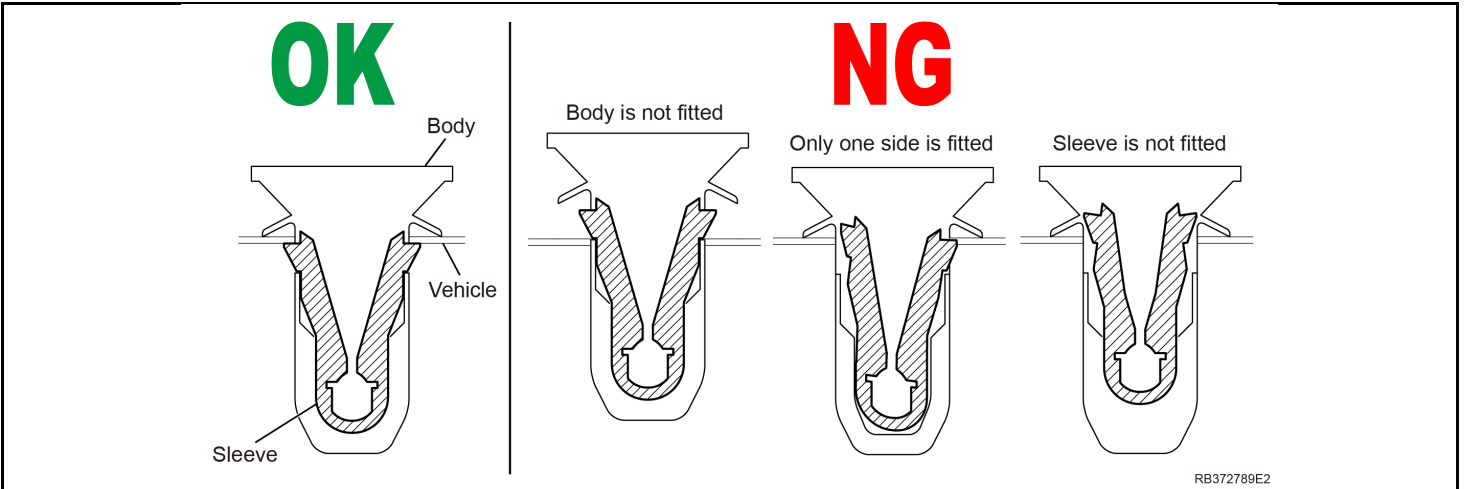
DO NOT apply excessive force which may break the sleeve.

HINT:

Tape the thin-bladed screwdriver tip before use.

- (3) Check the installation condition.

OK: The sleeve is installed properly.





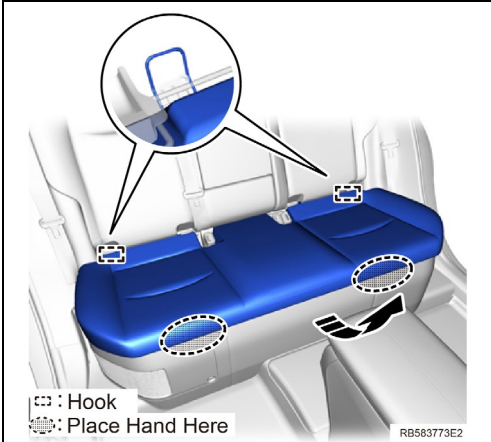
- REINSTALL BENCH TYPE REAR SEAT CUSHION ASSEMBLY

(1) Place the bench type rear seat cushion assembly in the vehicle.

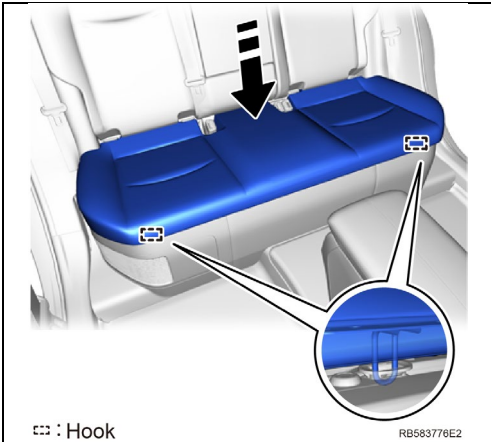
NOTICE:

Be careful not to damage the bench type rear seat cushion assembly, body exterior or interior parts.

(2) w/ Seat Heater System:
Attach the clamp and connect the 4 connectors.



(3) Attach the hook on the rear end of bench type rear seat cushion assembly under the 2 child restraint seat anchor bracket sub-assemblies.



(4) Push in the installation direction shown in the illustration and attach the hook on the front of bench type rear seat cushion assembly to the rear seat cushion lock hook.

NOTICE:

- Be sure to attach the hook on the front of bench type rear seat cushion assembly one at a time.
- Check that the rear seat cushion lock hook and bench type rear seat cushion assembly are securely fastened.

2. INSPECT REAR SEAT HEATER SYSTEM

[Refer to the TIS for instructions on Vehicle Interior > SEAT > SEAT HEATER SYSTEM > OPERATION CHECK](#)

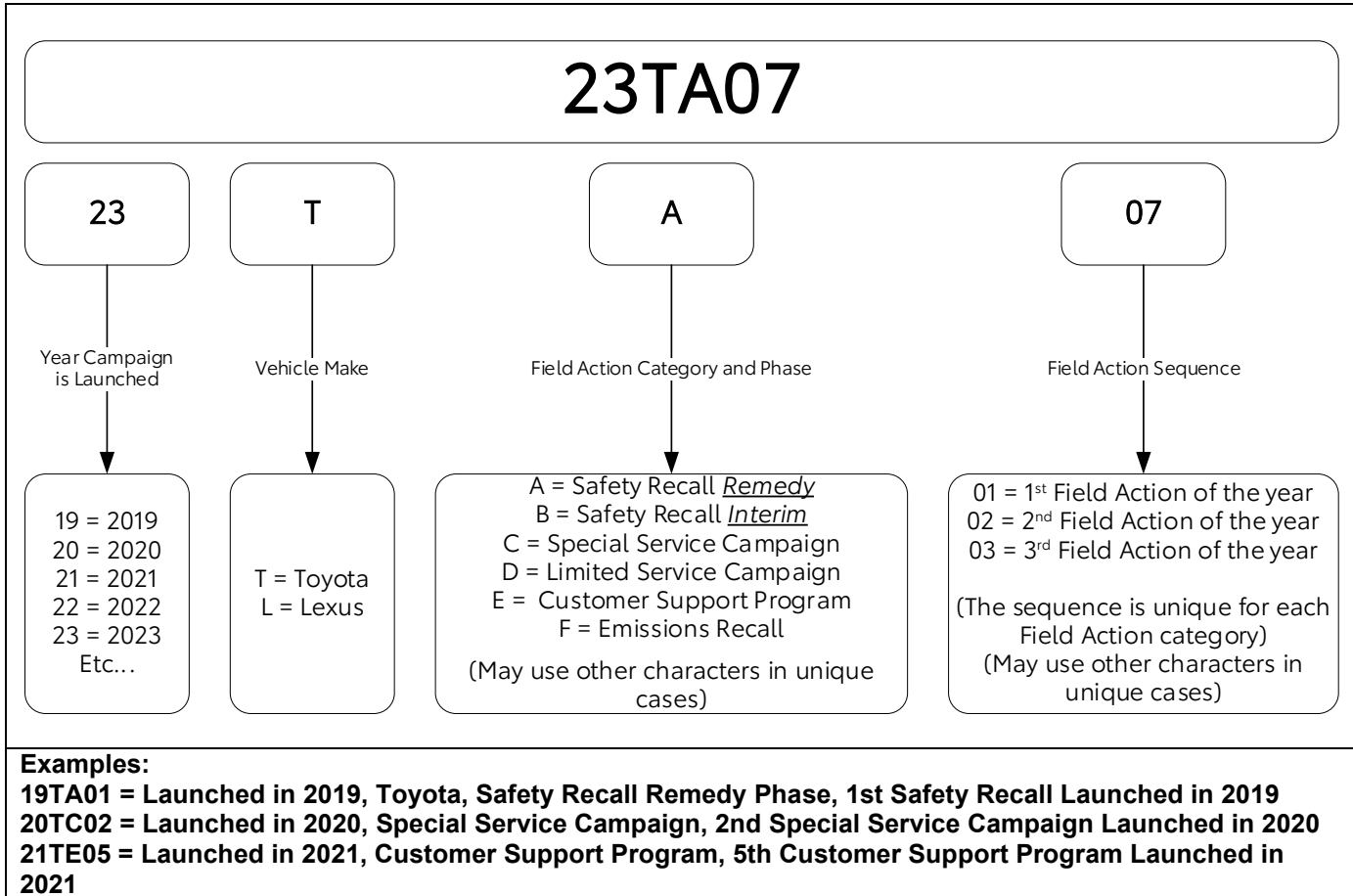
◀ VERIFY REPAIR QUALITY ▶

- Ensure all removed components are properly installed and functioning correctly.
- Ensure there are no new DTC's after Converter assembly replacement

If you have any questions regarding this update, please contact your regional representative.

X. APPENDIX

A. CAMPAIGN DESIGNATION DECODER



B. CAMPAIGN PARTS DISPOSAL

As required by Federal Regulations, please make sure all campaign 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.**