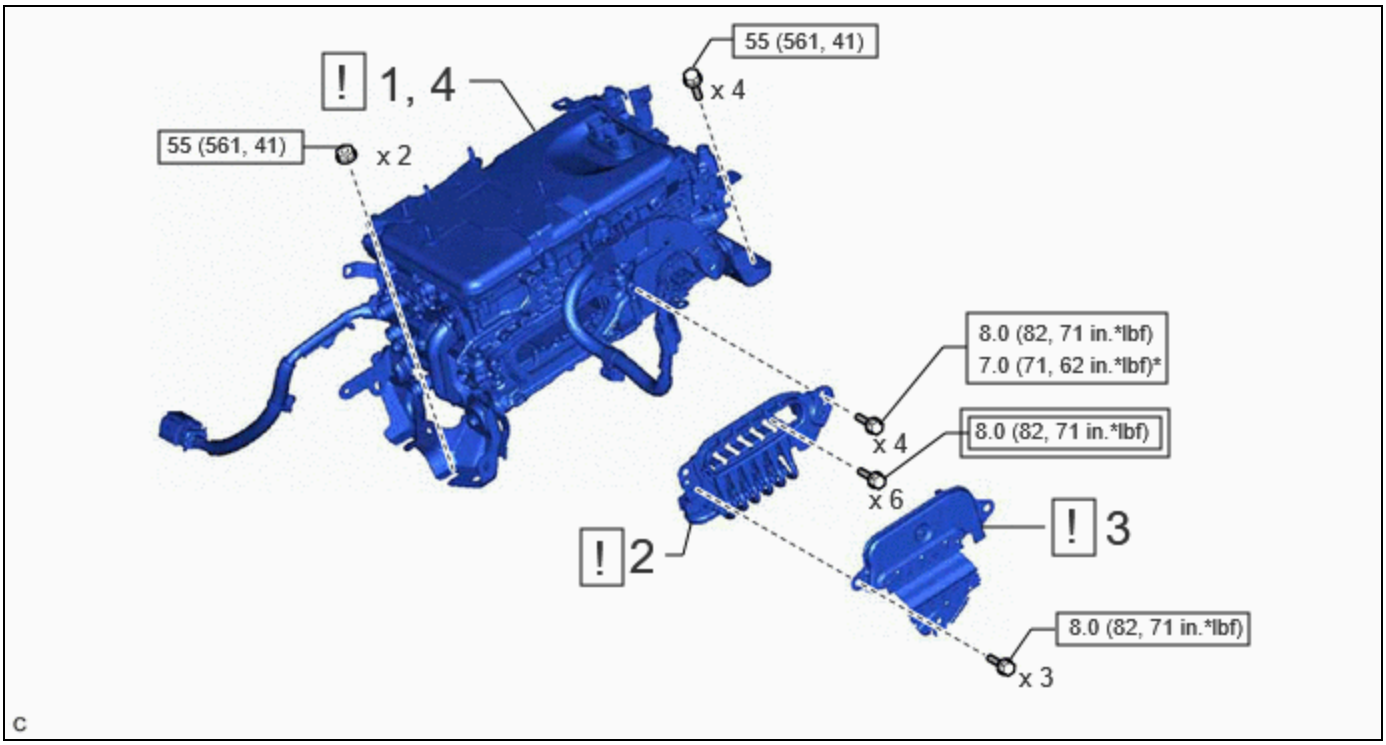
Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002B7AS
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: INVERTER WITH CONVERTER (for PHEV Model): INSTALLATION; 2023 - 2024 MY Prius Prime [03/2023 -]		

INSTALLATION

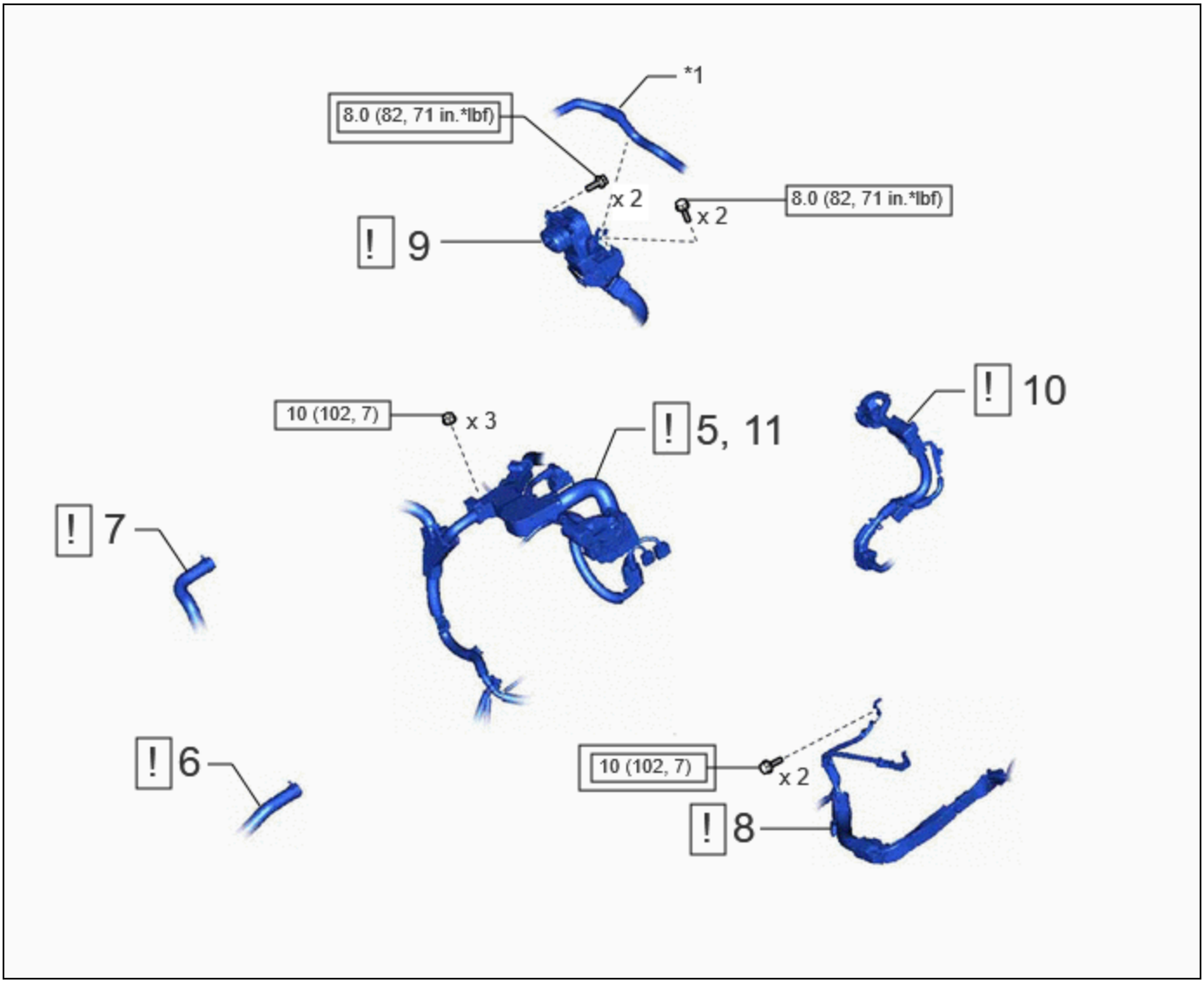
CAUTION / NOTICE / HINT

COMPONENTS (INSTALLATION)



	PROCEDURE	PART NAME CODE	!		
1	SET INVERTER WITH CONVERTER ASSEMBLY	G9200	INFO	-	-
2	MOTOR CABLE	G1148	INFO	-	-
3	UPPER INVERTER COVER	G9221	INFO	-	-
4	INSTALL INVERTER WITH CONVERTER ASSEMBLY	G9200	INFO	-	-

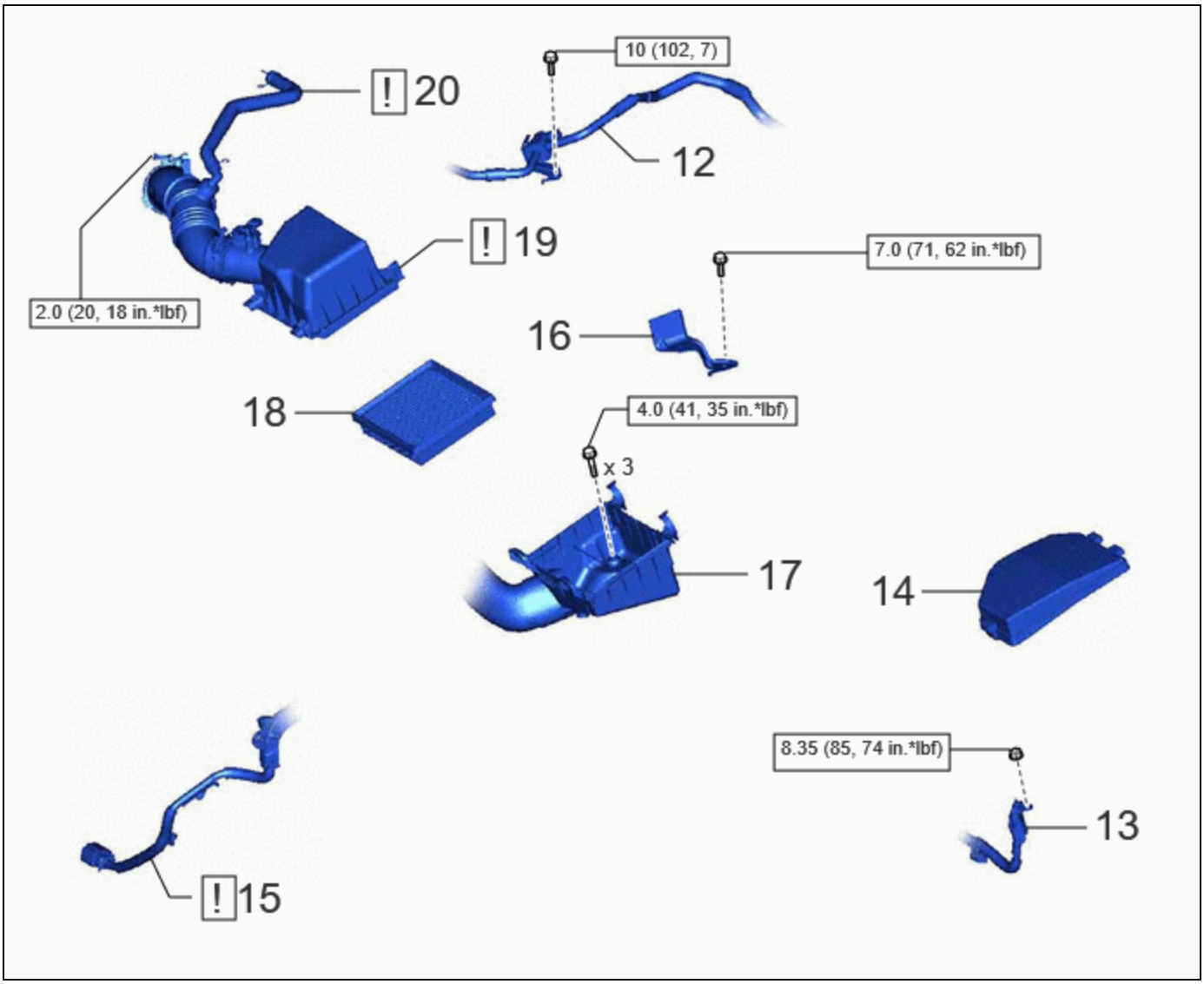
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping" : N*m (kgf*cm, ft.*lbf)		N*m (kgf*cm, ft.*lbf): Specified torque
*	For use with a union nut wrench	-	-



	PROCEDURE	PART NAME CODE	!		
5	ENGINE WIRE	82121	INFO	-	-
6	INLET NO. 1 INVERTER COOLING HOSE	G922AA	INFO	-	-
7	OUTLET NO. 1 INVERTER COOLING HOSE	G922C	INFO	-	-
8	NO. 7 ENGINE WIRE	82127D	INFO	-	-
9	FLOOR UNDER WIRE	821H1	INFO	-	-
10	ENGINE ROOM MAIN WIRE	82111	INFO	-	-
11	ENGINE WIRE	82121	INFO	-	-

*1	FUEL VAPOR FEED HOSE ASSEMBLY	-	-

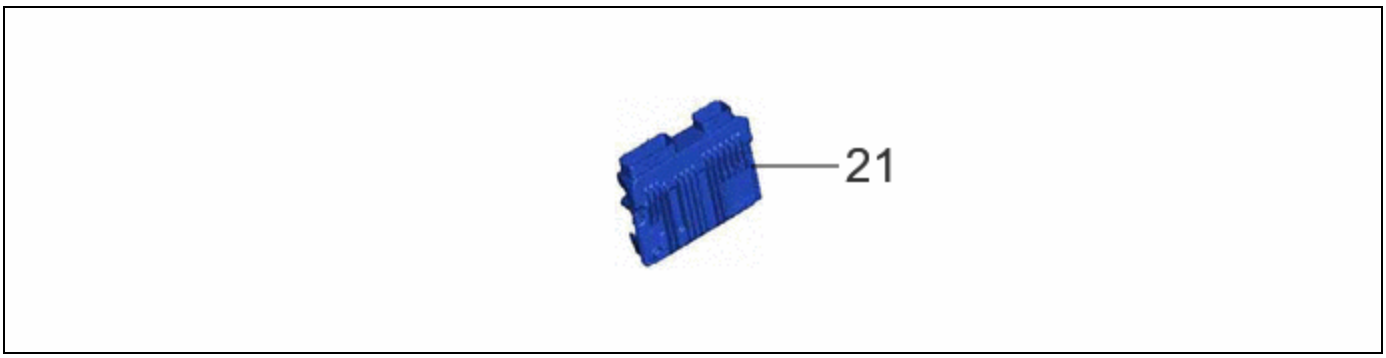
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping" : N*m (kgf*cm, ft.*lbf)		N*m (kgf*cm, ft.*lbf): Specified torque



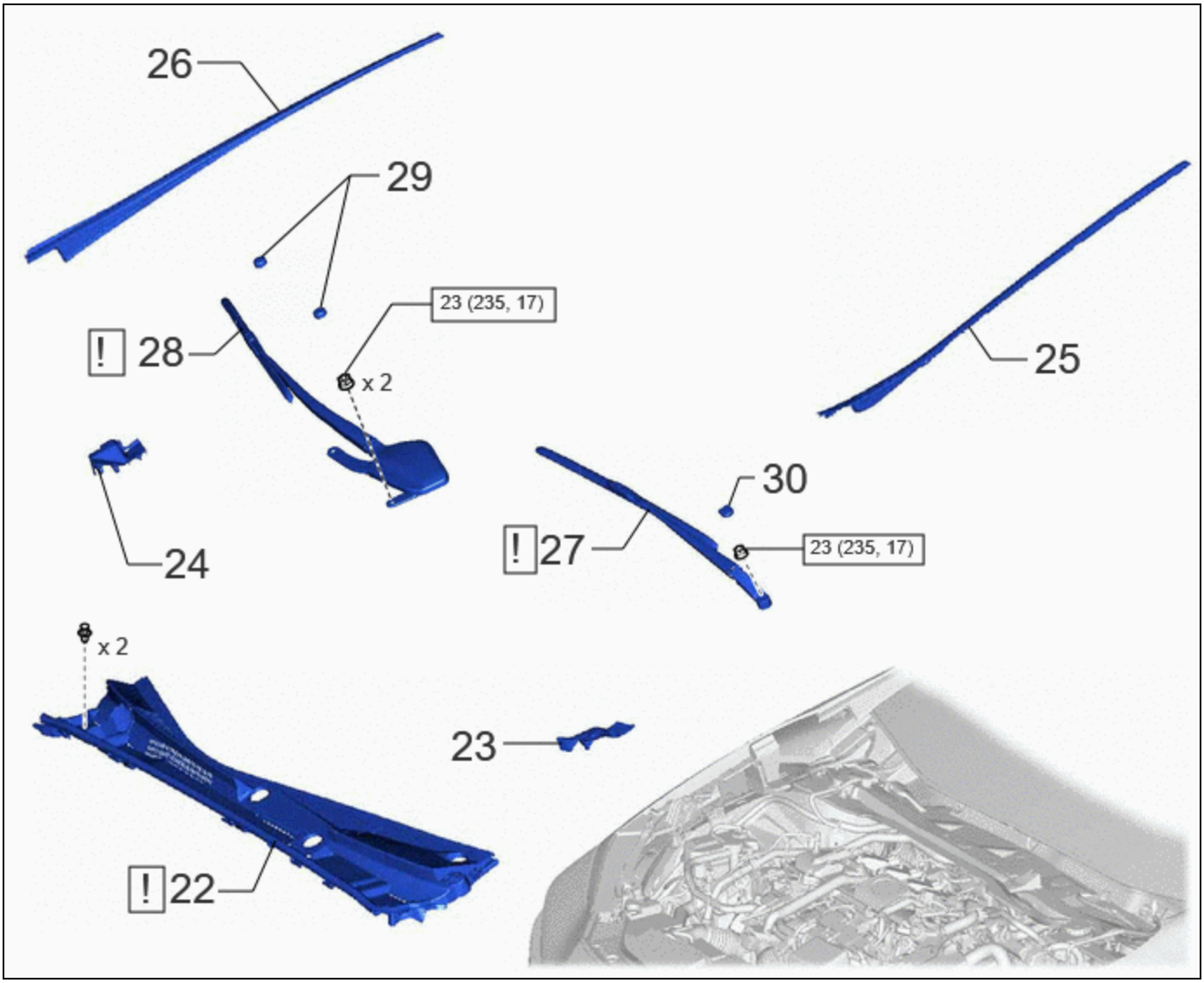
	PROCEDURE	PART NAME CODE	!		
12	VACUUM SWITCHING VALVE ASSEMBLY	25860	-	-	-
13	NO. 3 ENGINE WIRE	82123	-	-	-
14	NO. 2 RELAY BLOCK COVER	82662B	-	-	-
15	HV AIR CONDITIONING WIRE	821H2	INFO	-	-
16	AIR CLEANER BRACKET	17771A	-	-	-
17	AIR CLEANER CASE SUB-ASSEMBLY	17701	-	-	-
18	AIR CLEANER FILTER ELEMENT SUB-ASSEMBLY	17801	-	-	-
19	AIR CLEANER CAP WITH AIR CLEANER HOSE	-	INFO	-	-

PROCEDURE		PART NAME CODE			
20	NO. 2 VENTILATION HOSE	12262	INFO	-	-

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

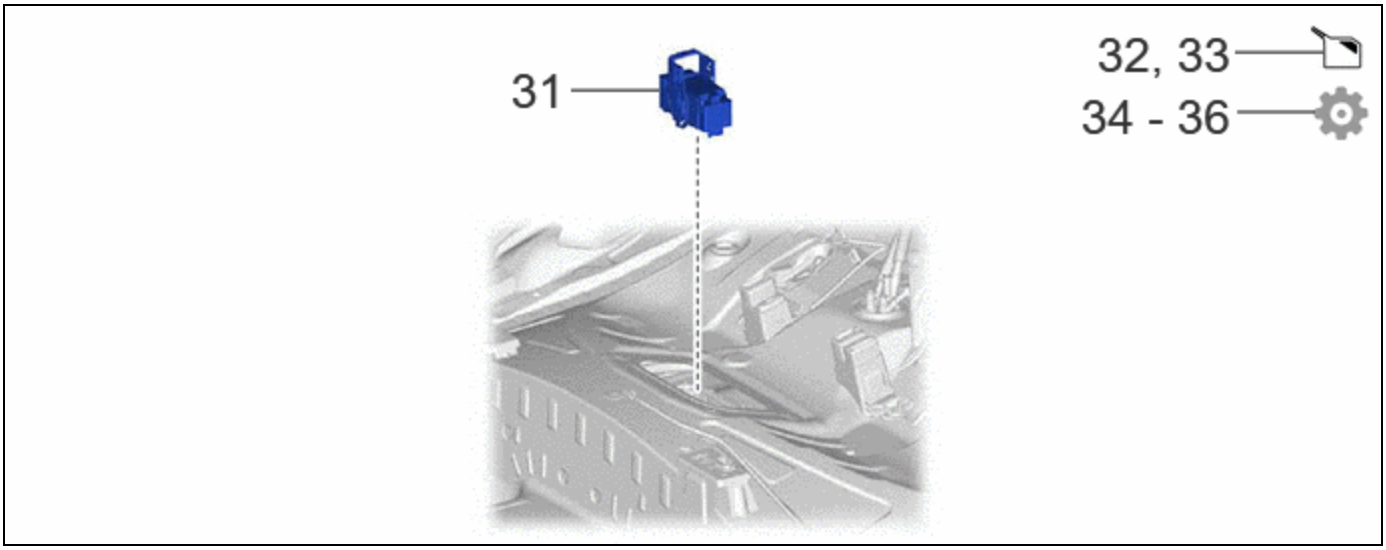


PROCEDURE		PART NAME CODE			
21	ECM	89661	-	-	-



	PROCEDURE	PART NAME CODE	!		
22	COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY	55708	INFO	-	-
23	COWL WATER EXTRACT SHIELD LH	55754F	-	-	-
24	COWL WATER EXTRACT SHIELD RH	55753D	-	-	-
25	WINDSHIELD LOWER OUTSIDE MOULDING LH	75536D	-	-	-
26	WINDSHIELD LOWER OUTSIDE MOULDING RH	75535F	-	-	-
27	FRONT WIPER ARM AND BLADE ASSEMBLY LH	-	INFO	-	-
28	FRONT WIPER ARM AND BLADE ASSEMBLY RH	-	INFO	-	-
29	SHIELD CAP	85247	INFO	-	-
30	FRONT WIPER ARM HEAD CAP	85292B	INFO	-	-

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

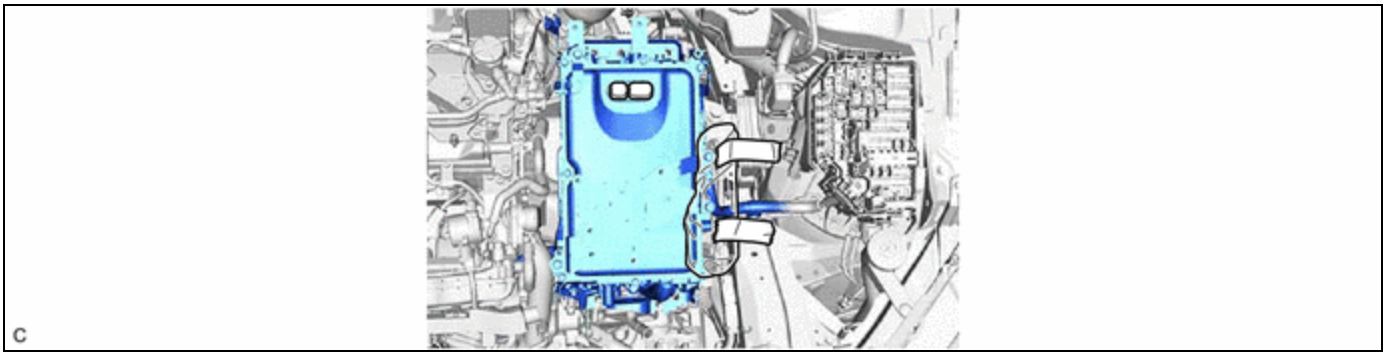


	PROCEDURE	PART NAME CODE	!		⚙
31	SERVICE PLUG GRIP	G3834	-	-	-
32	ADD COOLANT (for Inverter)	-	-	INFO	-
33	INSPECT FOR COOLANT LEAK (for Inverter)	-	-	INFO	-
34	ECU CONFIGURATION	-	-	-	INFO
35	RESOLVER LEARNING	-	-	-	INFO
36	INITIALIZATION AFTER RECONNECTING AUXILIARY BATTERY TERMINAL	-	-	-	INFO

PROCEDURE

1. SET INVERTER WITH CONVERTER ASSEMBLY

!	**CAUTION:** Be sure to wear insulated gloves. **NOTICE:** • When installing the inverter with converter assembly, be careful not to damage the parts around it. • To prevent damage, do not hold the inverter with converter assembly by the connectors, brackets or cooling pipes. • To prevent damage due to static electricity, do not touch the terminals of the disconnected connectors.



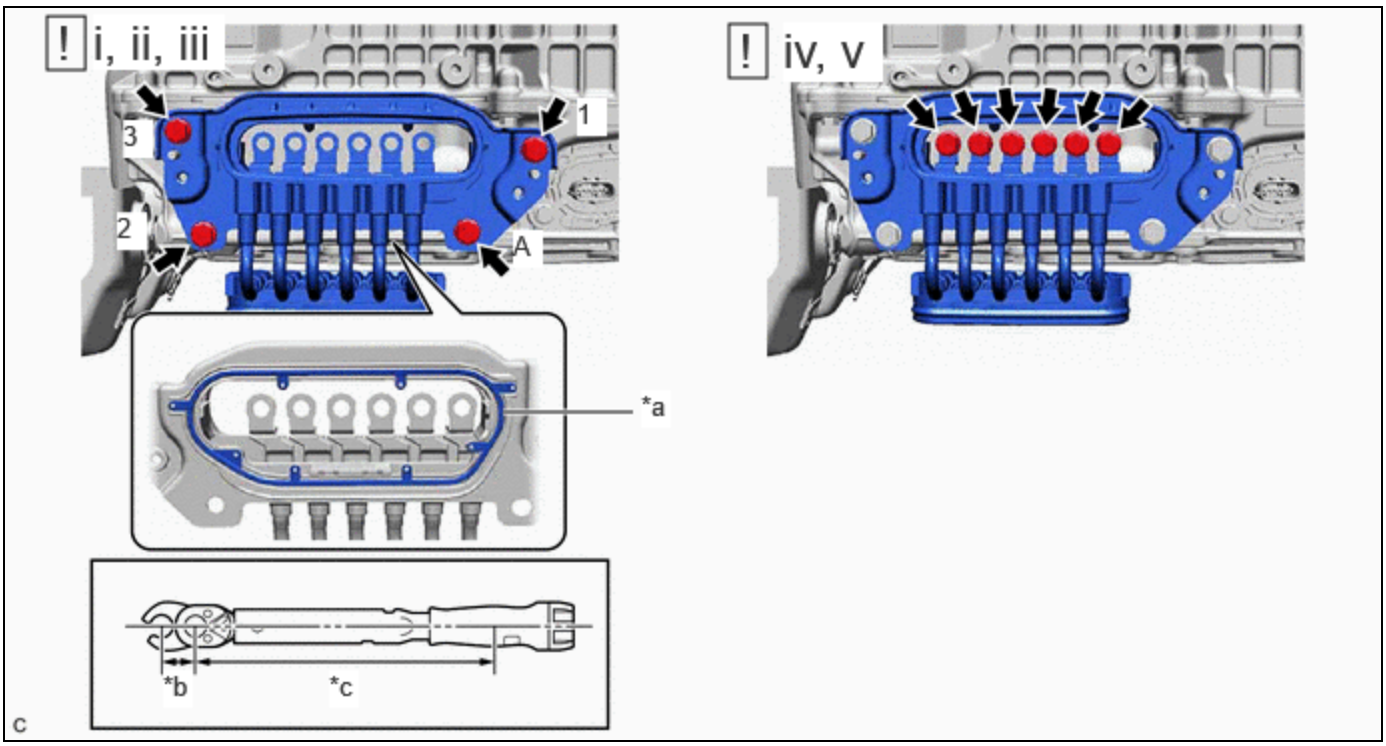
2. CONNECT MOTOR CABLE

CAUTION:

Be sure to wear insulated gloves.

NOTICE:

Do not allow any foreign matter or water to enter the inverter with converter assembly.



*a	Waterproof Seal	*b	10 mm Union Nut Wrench Fulcrum Length
*c	Torque Wrench Fulcrum Length	-	-

(1) Temporarily install the motor cable to the inverter with converter assembly with the 4 bolts,

NOTICE:

- Do not touch the waterproof seal or terminals of the motor cable.
- Do not damage the terminals, connector housing or inverter with converter assembly during connection.
- Be careful to avoid cutting or pinching the waterproof seal during installation.

(2) Using a 10 mm union nut wrench, fully tighten the bolt (A).

Torque:

Specified Tightening Torque :

8.0 N·m {82 kgf·cm, 71 in·lbf}

HINT:

- Calculate the torque wrench reading when changing the fulcrum length of the torque wrench.

  Click here INFO
- When using a union nut wrench (fulcrum length of 22 mm (0.866 in.)) + torque wrench (fulcrum length of 162 mm (6.38 in.)): 7.0 N*m (71 kgf*cm, 62 in.*lbf)

(3) Fully tighten the 3 bolts in the order shown in the illustration.

Torque:

8.0 N·m {82 kgf·cm}

(4) Temporarily install the 6 bolts.

CAUTION:

Insulate the tool with insulating tape.

NOTICE:

- To prevent the threads from being damaged, temporarily tighten the 6 bolts by hand.
- Do not touch the waterproof seal or terminals of the motor cable.
- Do not damage the terminals, connector housing or inverter with converter assembly during connection.

(5) Fully tighten the 6 bolts.

Torque:

8.0 N·m {82 kgf·cm}

CAUTION:

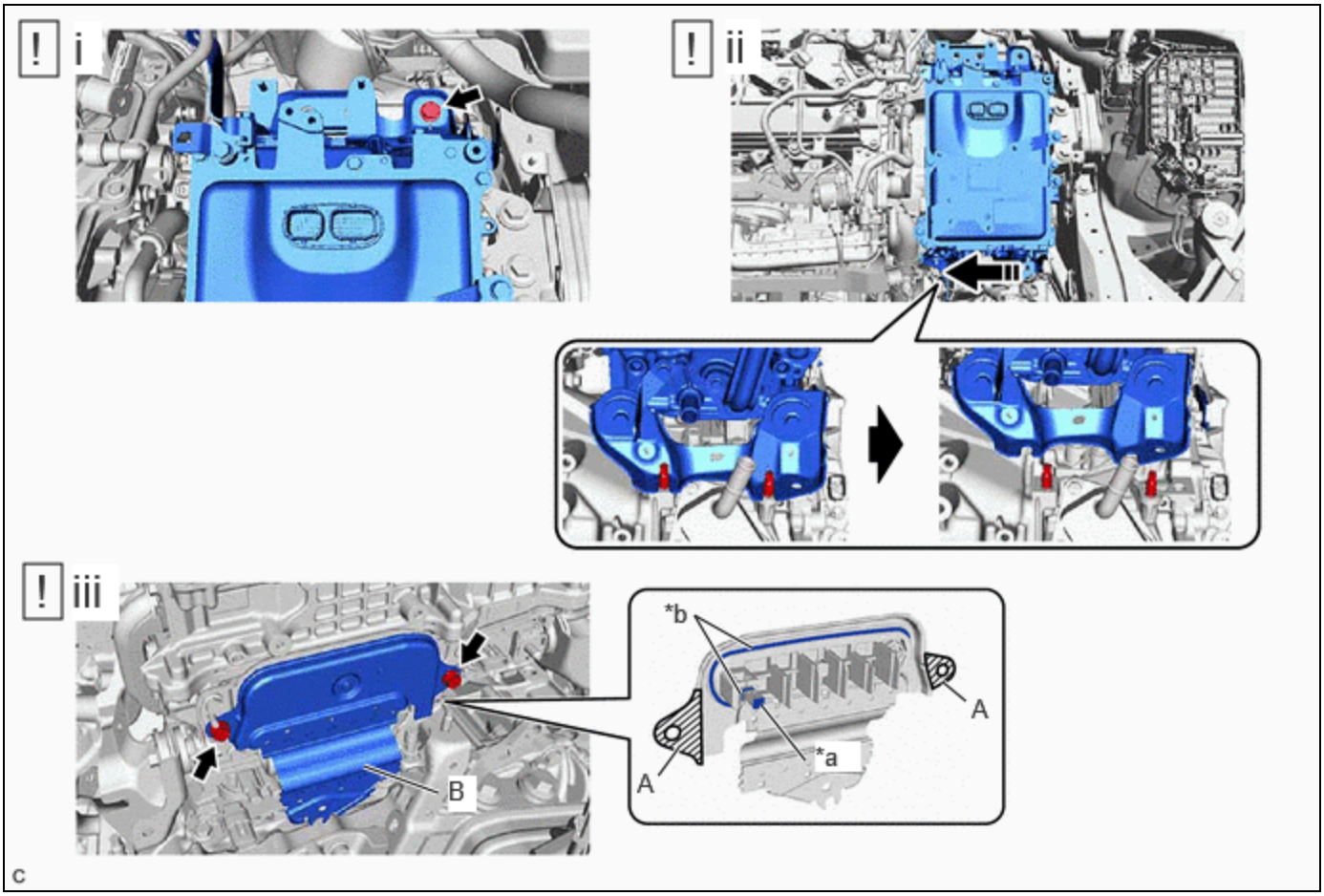
Insulate the tool with insulating tape.

NOTICE:

- Do not damage the terminals, connector housing or inverter with converter assembly during connection.
- Be sure to use a torque wrench to tighten the bolts.

3. INSTALL UPPER INVERTER COVER

	**CAUTION:** Be sure to wear insulated gloves.



*a	Interlock	*b	Waterproof Seal

(1) To prevent the inverter with converter assembly from falling, temporarily install the bolt in the location shown in the illustration.

(2) Shift the position of the inverter with converter assembly and temporarily set it on top of the stud bolts as shown in the illustration.

NOTICE:

When lifting, make sure not to apply force to the motor cable.

(3) Install the inverter cover to the inverter with converter assembly with the 2 bolts.

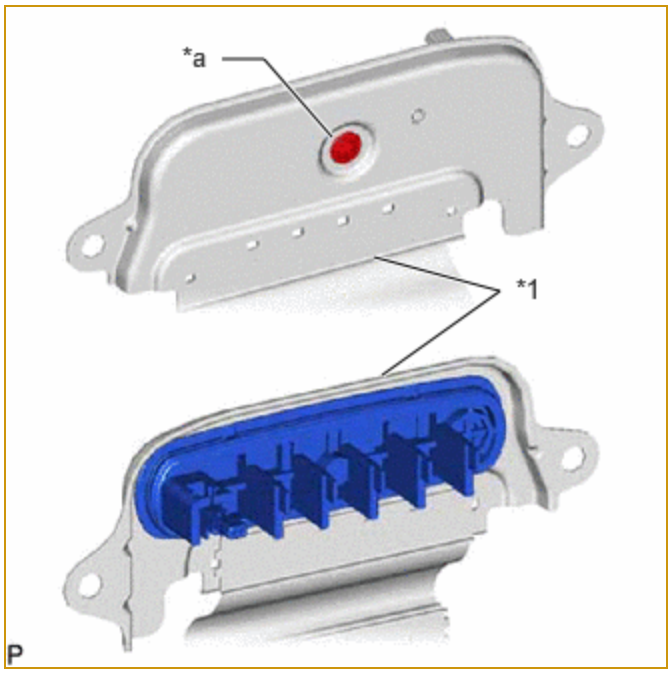
Torque:

8.0 N·m {82 kgf·cm}

NOTICE:

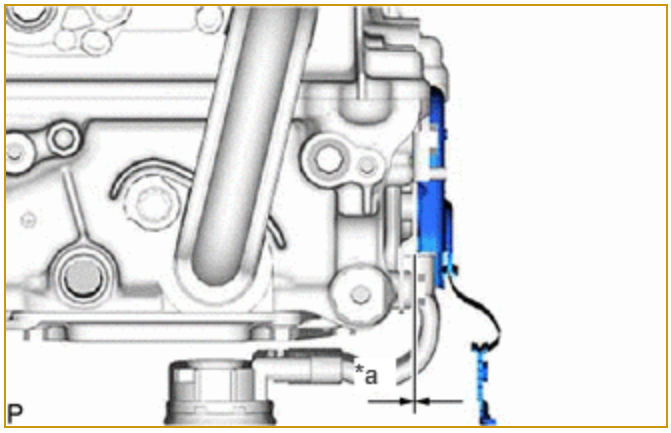
- To avoid deforming portion (A) of the inverter cover, do not hold portion (A) when installing.
- Be careful not to scratch or damage portion (B) of the inverter cover.
- Visually confirm that the inverter cover waterproof seal is securely installed before installing the upper inverter cover.
- Do not touch the waterproof seal of the upper inverter cover.
- Make sure that the interlock is fully engaged.
- Do not damage the terminals, interlock connector or inverter with converter assembly during installation.
- Do not allow any foreign matter or water to enter the inverter with converter assembly.

- Do not remove or excessively tighten the screw of the upper inverter cover.

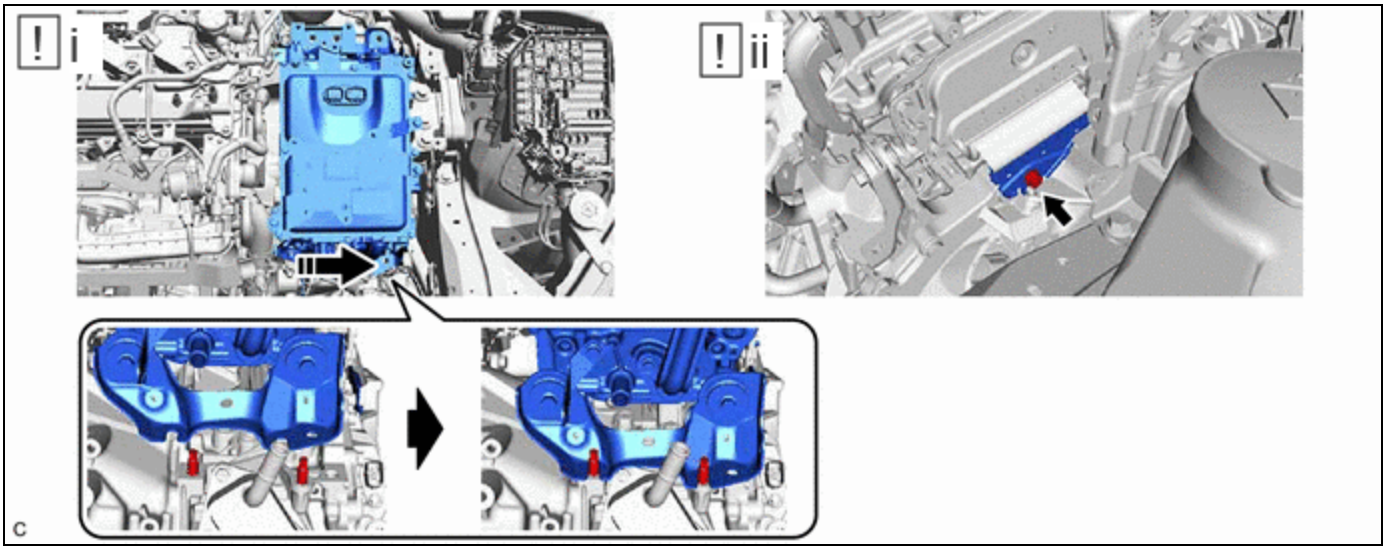


*1	Inverter Cover
*a	Screw

- Although the upper inverter cover may feel loose, this is not due to a malfunction.
- Push in the upper inverter cover until it contacts the inverter with converter assembly.



*a	No Gap



(1) Shift the position of the inverter with converter assembly and temporarily set it on the hybrid vehicle transaxle assembly as shown in the illustration.

NOTICE:

When lifting, make sure not to apply force to the motor cable.

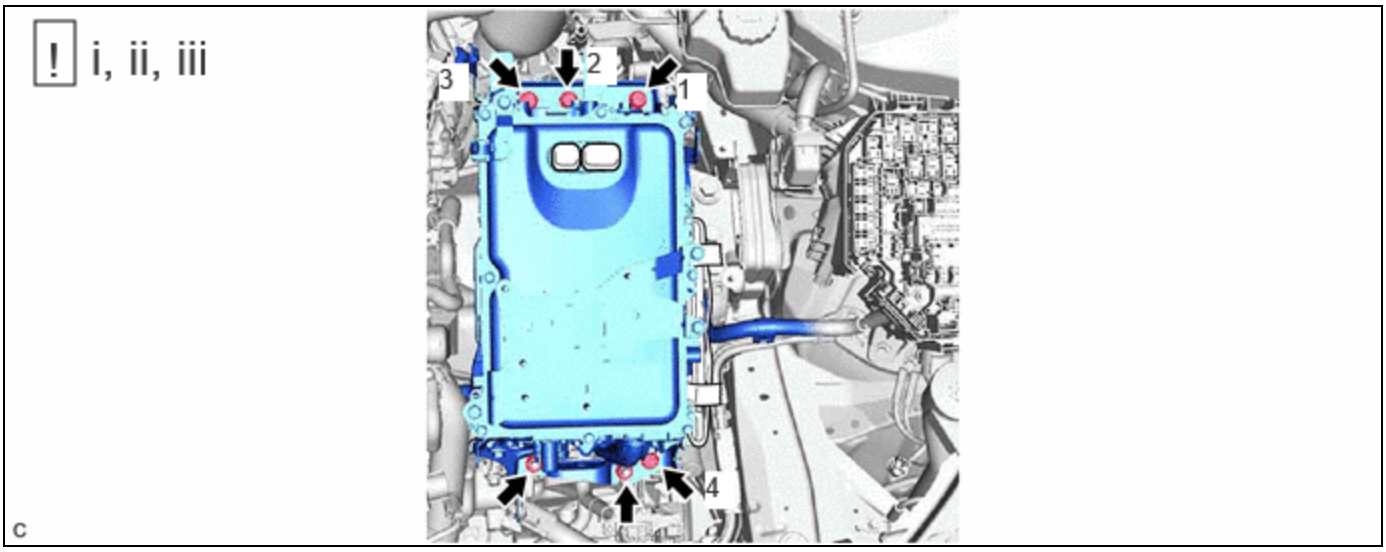
(2) Install the inverter cover with the bolt to the hybrid vehicle transaxle assembly.

Torque:

8.0 N·m {82 kgf·cm}

4. INSTALL INVERTER WITH CONVERTER ASSEMBLY

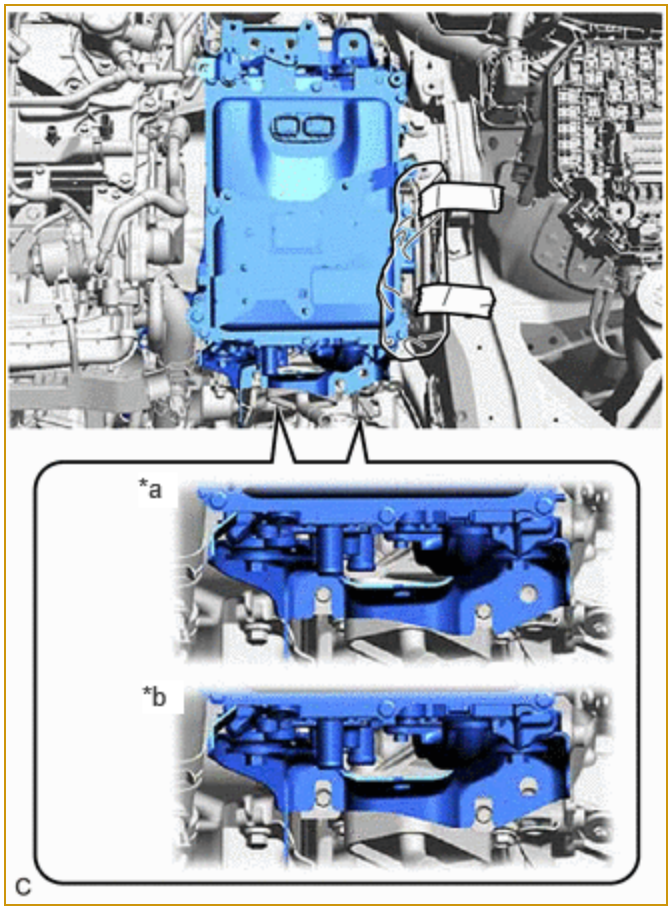
!	**CAUTION:** Be sure to wear insulated gloves.



(1) Temporarily install the inverter with converter assembly with the 4 bolts and 2 nuts.

NOTICE:

- When installing the inverter with converter assembly, be careful not to damage the parts around it.
- To prevent damage, do not hold the inverter with converter assembly by the connectors, brackets or cooling pipes.
- To prevent damage due to static electricity, do not touch the terminals of the disconnected connectors.
- Make sure that the inverter with converter assembly is positioned so that the stud bolts are in contact with the base of the U-shaped portions of the No. 1 inverter bracket.



*a	Correct
*b	Incorrect

HINT:

If the bolts and nuts are not tightened appropriately, the inverter with converter assembly may make an abnormal noise.

(2) Fully tighten the 4 bolts in the order shown in the illustration.

Torque:

55 N·m {561 kgf·cm, 41 ft·lbf}

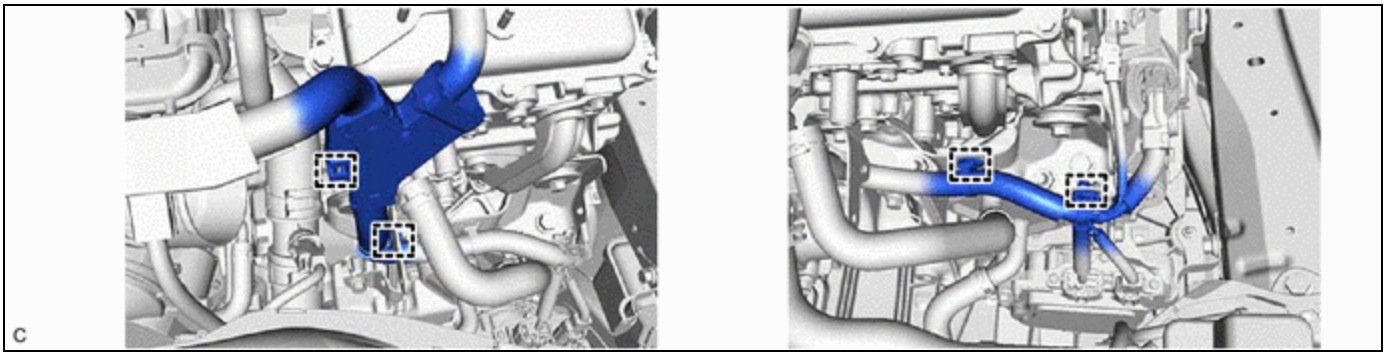
(3) Fully tighten the 2 nuts.

Torque:

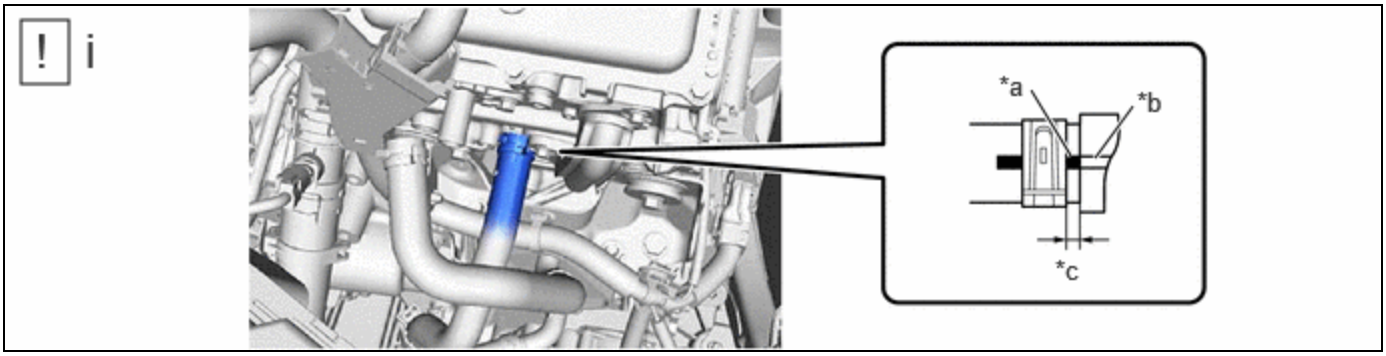
55 N·m {561 kgf·cm, 41 ft·lbf}

5. CONNECT ENGINE WIRE

	**CAUTION:** Be sure to wear insulated gloves.



6. CONNECT INLET NO. 1 INVERTER COOLING HOSE



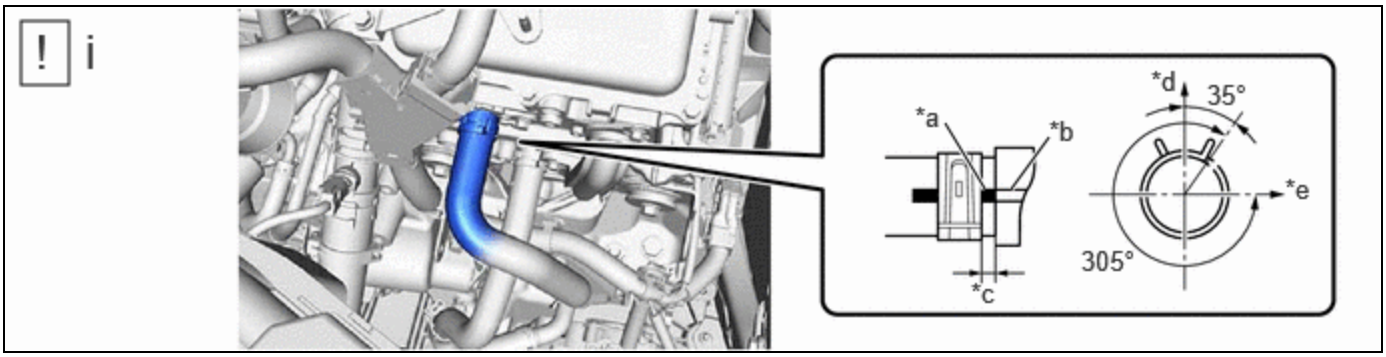
*a	Alignment Mark	*b	Rib
*c	2 to 11 mm (0.0787 to 0.4331 in.)	-	-

(1) Connect the inlet No. 1 inverter cooling hose to the inverter with converter assembly and slide the clip to secure it.

NOTICE:

- To prevent foreign matter from entering the inverter with converter assembly and inverter cooling system, do not remove the pieces of cloth from the pipe and disconnected hose until installation.
- Make sure to align the alignment mark of the hose with the rib of the inverter with converter assembly.
- Do not apply excessive force to the inlet No. 1 inverter cooling hose.

7. CONNECT OUTLET NO. 1 INVERTER COOLING HOSE



*a	Alignment Mark	*b	Rib
*c	2 to 11 mm (0.0787 to 0.4331 in.)	*d	Up
*e	LH Side	-	-

(1) Connect the outlet No. 1 inverter cooling hose to the inverter with converter assembly and slide the clip to secure it.

NOTICE:

- To prevent foreign matter from entering the inverter with converter assembly and inverter cooling system, do not remove the pieces of cloth from the pipe and disconnected hose until installation.
- Make sure to align the alignment mark of the hose with the rib of the inverter with converter assembly.
- Do not apply excessive force to the outlet No. 1 inverter cooling hose.
- Make sure that the clip is positioned as shown in the illustration.

8. CONNECT NO. 7 ENGINE WIRE

CAUTION:

Be sure to wear insulated gloves.

Torque:

10 N·m {102 kgf·cm, 7 ft·lbf}

9. CONNECT FLOOR UNDER WIRE

CAUTION:

Be sure to wear insulated gloves.

NOTICE:

- Do not allow any foreign matter or water to enter the inverter with converter assembly.
- Do not touch the waterproof seal or terminals of the connector.
- Do not damage the terminals, connector housing or inverter with converter assembly when connecting the connector.

Torque:

8.0 N·m {82 kgf·cm, 71 in·lbf}

10. CONNECT ENGINE ROOM MAIN WIRE

CAUTION:

Be sure to wear insulated gloves.

NOTICE:

- To prevent the threads from being damaged, temporarily tighten the nut by hand.
- Do not touch the waterproof seal or terminals of the connectors.
- To prevent damage due to static electricity, do not touch the terminals of the disconnected connectors.
- Do not damage the terminals, connector housing or inverter with converter assembly when connecting the connectors.

11. CONNECT ENGINE WIRE

CAUTION:

Be sure to wear insulated gloves.

NOTICE:

- To prevent the threads from being damaged, temporarily tighten the nut by hand.
- Do not touch the waterproof seal or terminals of the connectors.
- To prevent damage due to static electricity, do not touch the terminals of the disconnected connectors.
- Do not damage the terminals, connector housing or inverter with converter assembly when connecting the connectors.

Torque:

10 N·m {102 kgf·cm, 89 in·lbf}

12. CONNECT NO. 1 VACUUM SWITCHING VALVE ASSEMBLY

Torque:

10 N·m {102 kgf·cm, 7 ft·lbf}

13. CONNECT NO. 3 ENGINE WIRE

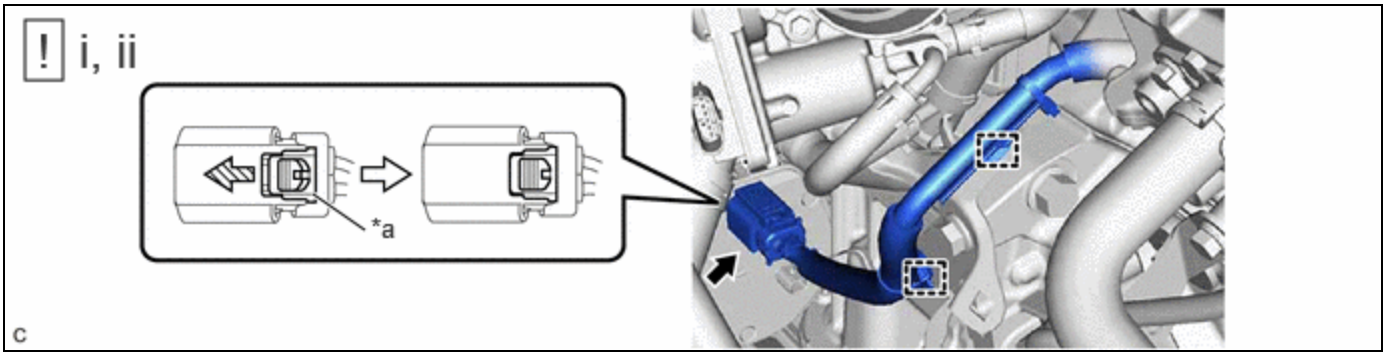
Torque:

8.35 N·m {85 kgf·cm, 74 in·lbf}

14. INSTALL NO. 2 RELAY BLOCK COVER

15. CONNECT HV AIR CONDITIONING WIRE

	**CAUTION:** Be sure to wear insulated gloves.



*a	Green-colored Lock	-	-
	Slide	-	-

(1) Connect the connector and slide the green-colored lock as shown in the illustration to securely lock it.

(2) Engage the 2 clamps.

16. INSTALL AIR CLEANER BRACKET

Torque:

2.0 N·m {20 kgf·cm, 18 in·lbf}

17. INSTALL AIR CLEANER CASE SUB-ASSEMBLY

Torque:

4.0 N·m {41 kgf·cm, 35 in·lbf}

18. INSTALL AIR CLEANER FILTER ELEMENT SUB-ASSEMBLY

19. INSTALL AIR CLEANER CAP WITH AIR CLEANER HOSE

	Click here INFO

20. CONNECT NO. 2 VENTILATION HOSE

	Click here INFO

21. INSTALL ECM

Click here INFO

22. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY

	Click here INFO

23. INSTALL COWL WATER EXTRACT SHIELD RH

24. INSTALL COWL WATER EXTRACT SHIELD LH

25. INSTALL WINDSHIELD LOWER OUTSIDE MOULDING LH

26. INSTALL WINDSHIELD LOWER OUTSIDE MOULDING RH

27. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH

	Click here INFO

28. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH

	Click here INFO

29. INSTALL SHIELD CAP

30. INSTALL FRONT WIPER ARM HEAD CAP

31. INSTALL SERVICE PLUG GRIP

Click here INFO

32. ADD COOLANT (for Inverter)

Click here INFO

33. INSPECT FOR COOLANT LEAK (for Inverter)

Click here INFO

34. PERFORM ECU CONFIGURATION

Click here INFO

35. PERFORM RESOLVER LEARNING

Click here INFO

36. INITIALIZATION AFTER RECONNECTING AUXILIARY BATTERY TERMINAL

HINT:

When disconnecting and reconnecting the auxiliary battery, there is an automatic learning function that completes learning when the respective system is used.

Click here INFO