TECHNICAL INSTRUCTIONS

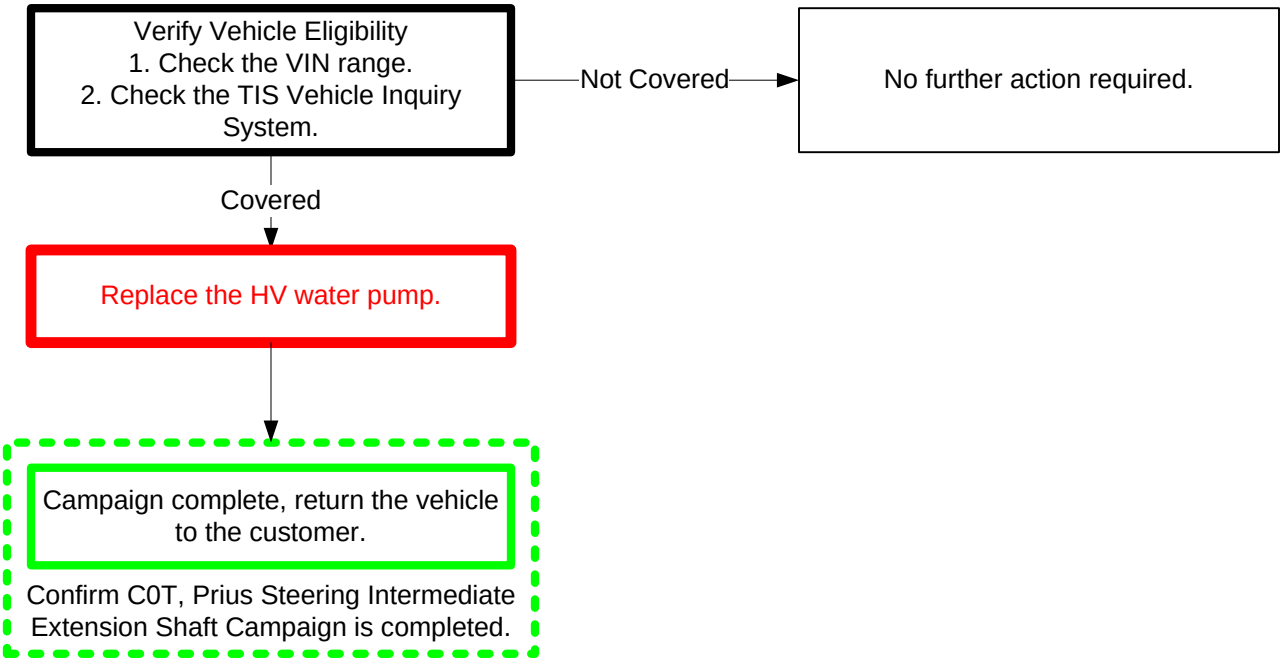
FOR

SAFETY RECALL C0U

HYBRID ELECTRIC WATER PUMP REPLACEMENT

2004 – CERTAIN 2009 MODEL YEAR PRIUS

I. OPERATION FLOW CHART



II. IDENTIFICATION OF AFFECTED VEHICLES

A. COVERED VIN RANGE

WMI	Year	VIN Range	
		VDS	Range
JTD	2004	KB20U	0001175-0116869
		KB22U	0001260-0116749
	2005	KB20U	0116878-0133247
			3000027-3128073
			7004347-7057932
		KB22U	0116886-0132689
			3000115-3128039
			7004602-7057877
	2006	KB20U	3099688-3202420
			7057977-7545072
		KB22U	3128125-3202418
			7056471-7544598
	2007	KB20U	3202456-3296439
			7083529-7694891
	2008	KB20U	3291973-3462539
			7690436-7818544
	2009	KB20U	3458507-3546425
			7815791-7894047

NOTE:

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

III. PREPARATION

A. PARTS

Part Number	Part Description	Quantity
04000-32528	HV Electric Water Pump Kit*	1
*The kit above includes the following parts.		
G9020-47031	HV Water Pump	1
90430-18008	Gasket	1

B. TOOLS & EQUIPMENT

- Radiator cap tester with adapter set C
- Standard hand tools
- Torque wrench
- Transparent hose (inner diameter: approx. 6mm, length: approx. 450mm)

C. SUPPLIES

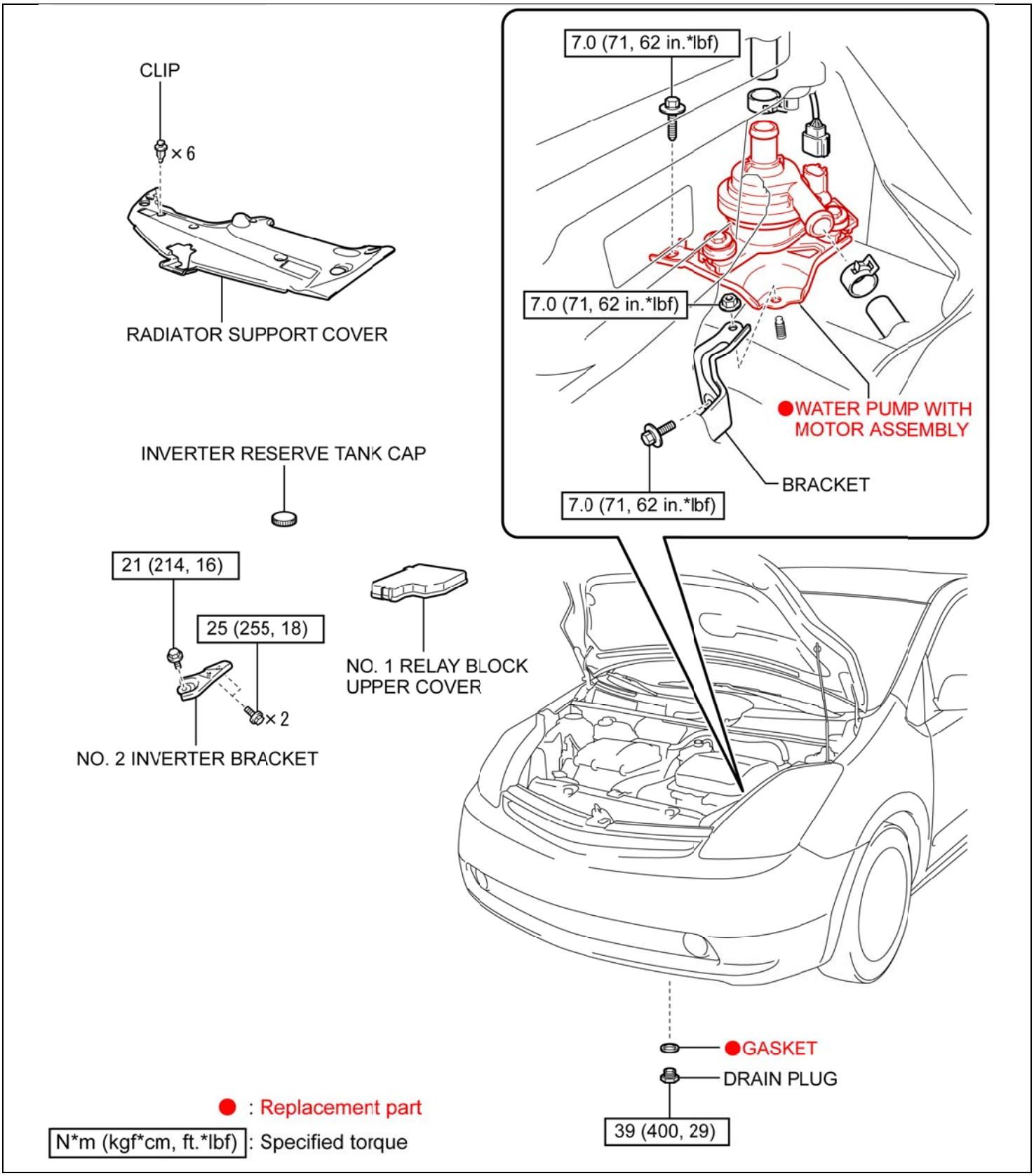
Part Name	Quantity
Toyota Genuine 50/50 Pre-Diluted SLLC	Approximately 2.85 quarts

IV. BACKGROUND

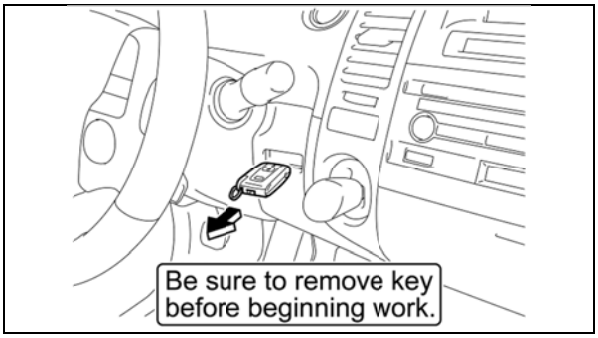
There is a possibility that the coil wire of the electric motor installed in the Water Pump for the Hybrid System may have been scratched during the coiling manufacturing process at the supplier. In this condition, the coil wire may corrode at the scratched portion and in some cases break. If this occurs, the water pump could stop, leading to the illumination of various warning lights in the instrument panel. In limited instances, a short circuit can occur between adjacent coil wires, resulting in an open fuse for the electric power supply circuit. If the fuse is open, the hybrid system will stop while the vehicle is being driven, which may increase the risk of an accident.

V. WORK PROCEDURE

A. COMPONENTS

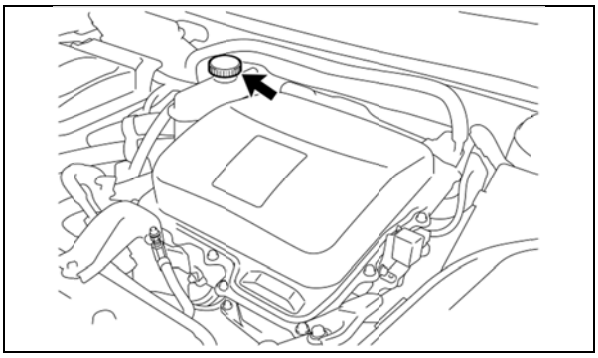


B. HV WATER PUMP REMOVAL



1. REMOVE THE KEY

a) Remove the key from the ignition and keep it in your pocket to prevent other from startingt the vehicle.

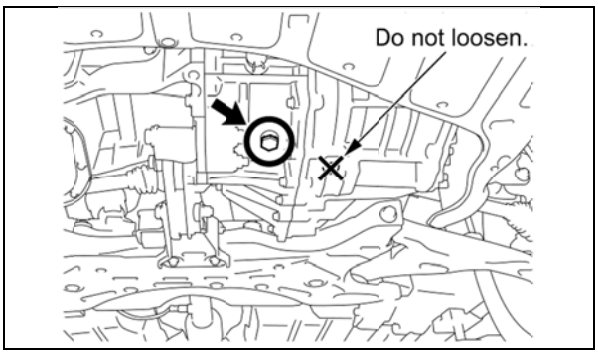


2. DRAIN THE COOLANT FROM THE INVERTER

a) Remove the 6 clips and the radiator support cover.

b) Remove the inverter reserve tank cap.

NOTE: The inverter / coolant may be hot, take precautions when removing the reserve tank cap to prevent potential injuries



c) Remove the inverter drain plug.

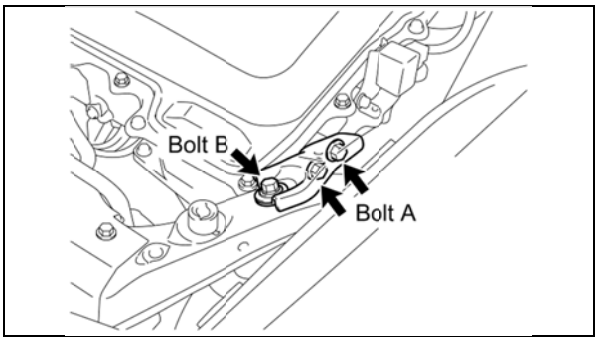
d) Remove and cut the drain plug gasket to prevent it from being reused.

e) Install a ***NEW*** drain plug gasket.

f) Reinstall the drain plug and torque to specification.

Torque: 29ft. lbf (39N·m)

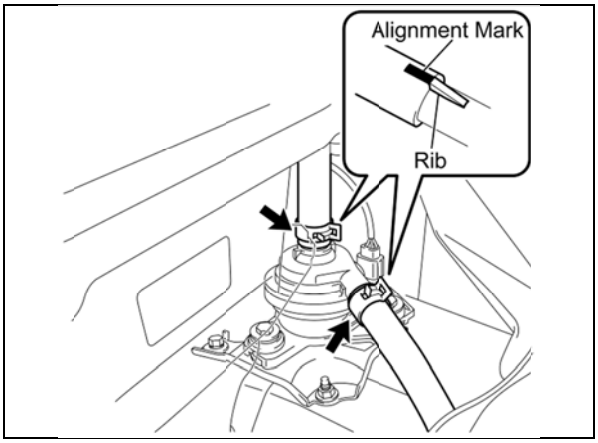
NOTE: The inverter / coolant may be hot, take precautions when removing the reserve tank cap to prevent potential injuries



3. REMOVE THE No.2 INVERTER BRACKET

a) Remove the 3 bolts and the bracket.

NOTE: There are 2 different bolt types (A & B) used to secure the bracket.

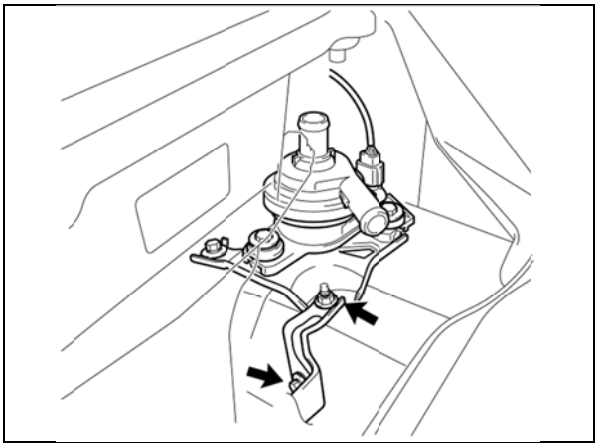


4. REMOVE THE HV WATER PUMP ASSEMBLY

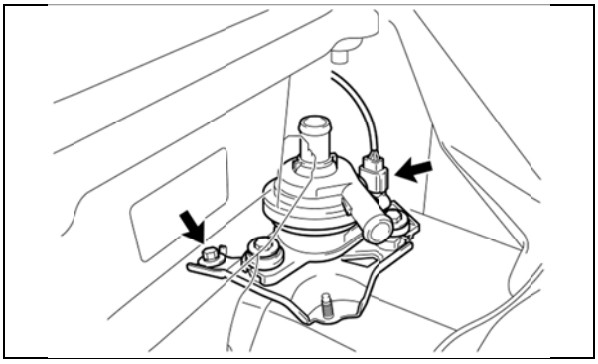
a) Place an alignment mark locating the HV water pump rib on the 2 hoses.

b) Disconnect the 2 hoses by loosening the 2 clamps.

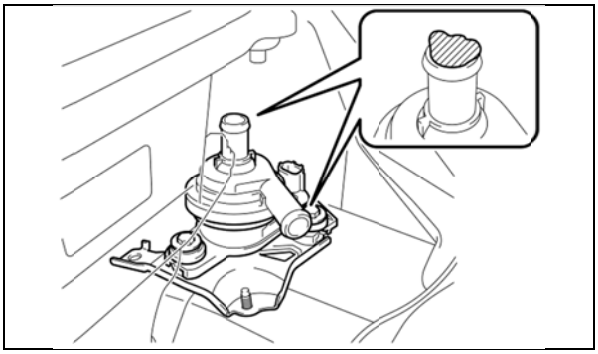
NOTE: The alignment mark is used to prevent twisting of the hoses during reassembly.



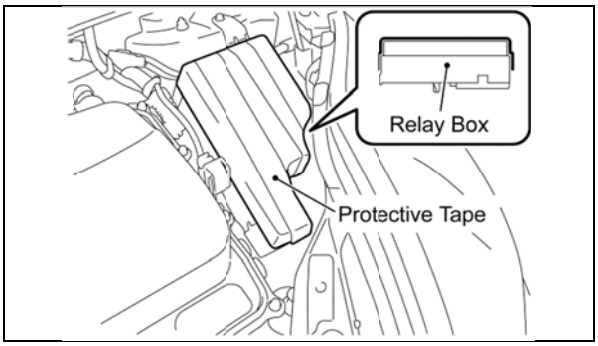
c) Remove the nut, bolt, and bracket.



d) Remove the connector and bolt.



e) Plug the HV water pump ports with paper towels or shop cloths.

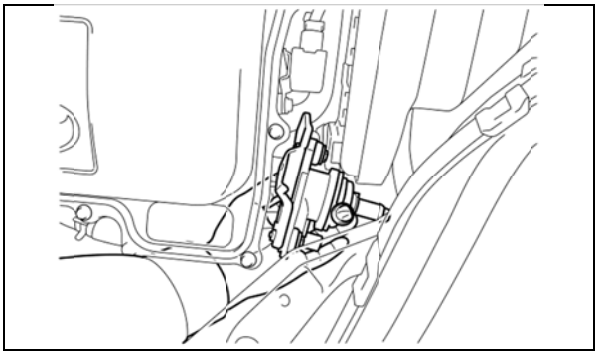


f) Remove the relay box cover.

g) Place protective tape over the relay box to prevent water from entering it when removing the HV water pump.

NOTE:

- ***DO NOT* allow coolant to enter the relay box, doing so will cause it to malfunction.**
- **Place the protective tape so that is covers all the edges of the relay box.**

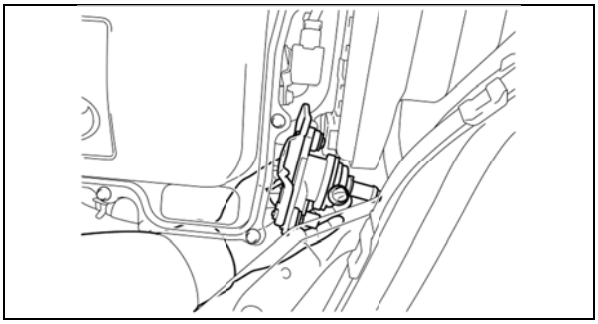


h) Remove the HV water pump from the vehicle by lifting it out as shown.

i) Place a mark on the original HV water pump to prevent it from being reused.

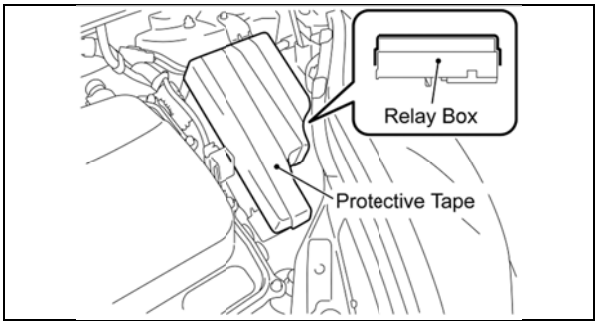
NOTE: DO NOT allow coolant to spill onto the relay box.

C. HV WATER PUMP INSTALLATION



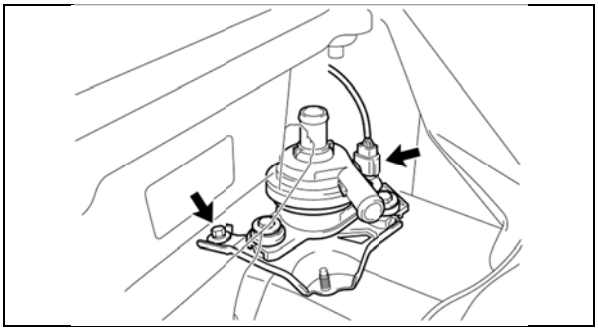
1. INSTALL THE *NEW* HV WATER PUMP

a) Install the ***NEW*** HV water pump by lowering it into the vehicle as shown.



b) Remove the protective tape from the relay box.

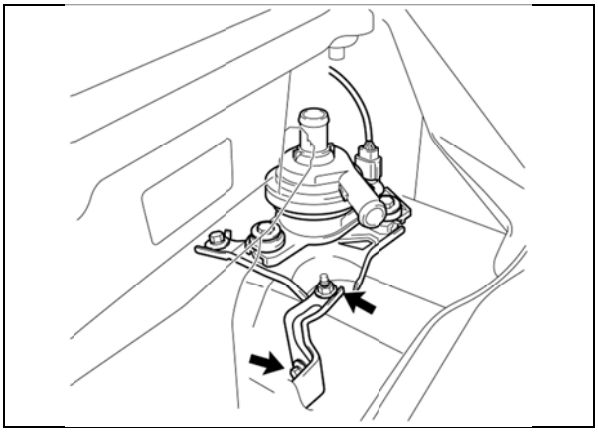
c) Reinstall the relay box cover.



d) Reinstall the bolt and torque to spec.

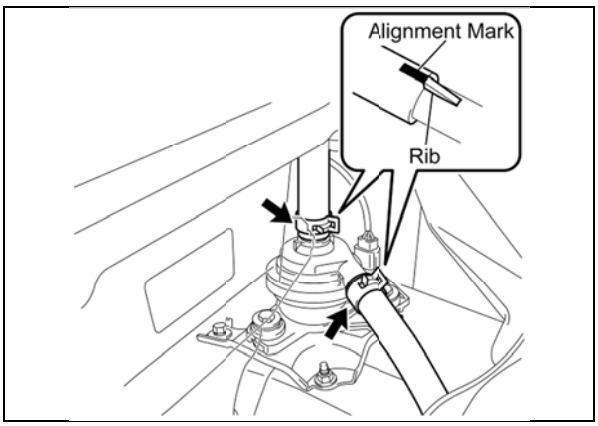
Torque Spec: 62in. lbf (7.0N·m)

e) Reconnect the connector.

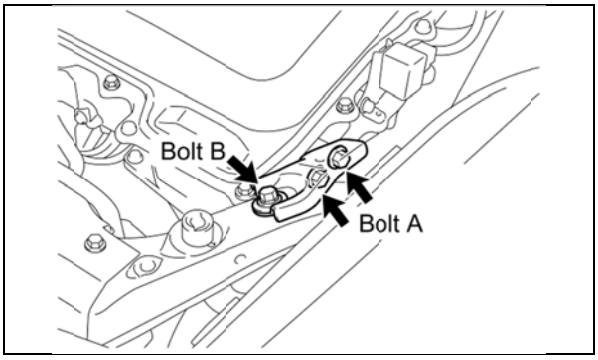


f) Reinstall the bracket with the bolt and nut, then torque to spec.

Torque Spec: 62in. lbf (7.0N·m)



g) Using the alignment marks, reconnect the 2 hoses with the 2 clamps.

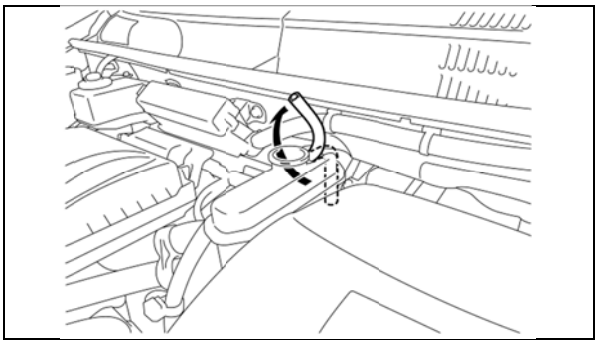


2. REINSTALL THE NO. 2 INVERTER BRACKET

a) Reinstall the No. 2 inverter bracket with the 3 bolts and torque to spec.

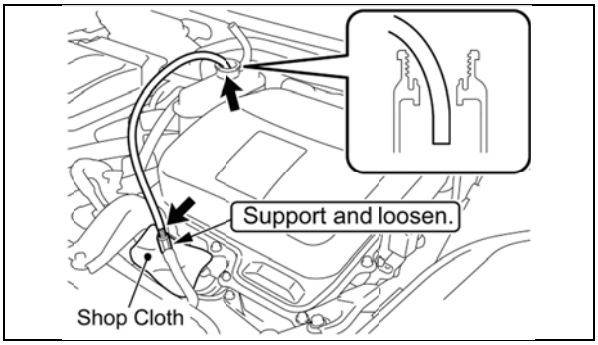
Torque:

- **Bolt A – 18ft. lbf (25N·m)**
- **Bolt B – 16ft. lbf (21N·m)**



3. ADD COOLANT

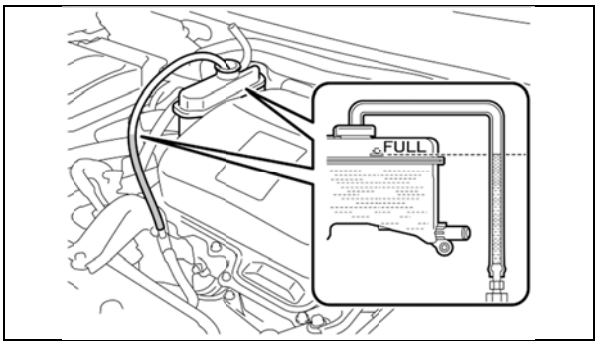
a) Place the reserve tank hose in the upward position.



b) Place a paper towel or shop cloth underneath the inverter bleeder plug.

c) Support and loosen the bleeder plug screw, then connect a transparent hose (inner diameter: approx. 6 mm, length: approx. 450 mm) to it and insert the other end into the reserve tank.

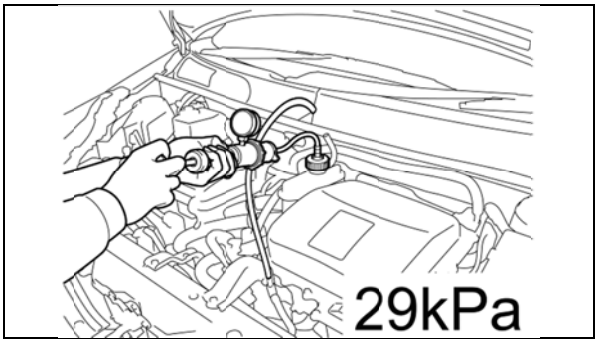
NOTE: Support the base of the bleeder screw when loosening it to prevent deformation or damage to the attachment bracket.



d) Add coolant until the level in the hose is even with the reserve tank FULL marking.

e) Close the bleeder plug and torque to spec.

Torque: 98in. lbf (11N·m)



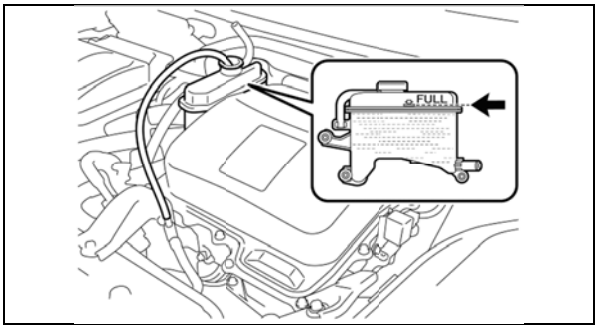
4. PERFORM A PRELIMINARY COOLANT LEAK TEST

a) Temporarily remove the hose from the reserve tank.

b) Install the radiator cap tester onto the reserve tank.

c) Pump the tester to 29 kPa (0.3 kgf/cm^2, 4.2 psi) and inspect for coolant leaks.

d) Remove the radiator cap tester.



5. BLEED THE INVERTER COOLING SYSTEM

a) Reinstall the hose to the reserve tank.

b) Verify that the reserve tank coolant level if at the FULL mark.

c) Bleeding The Inverter Cooling System – Part 1:

i. Loosen the bleeder screw.

ii. Push the power switch to turn IG ON and operate the water pump for approximately 5 seconds, then switch the IG OFF.

iii. Add coolant to the reserve tank until the level is at the FULL mark.

iv. Repeat steps "ii" and "iii" 3 times, and verify that the coolant level is no longer dropping.

NOTE:

- **The initial sound of the HV water pump will subside and become quieter as the air is bleed from the system.**
- **Make sure to switch the IG OFF after 5 seconds. If the HV water pump is operated for more than 5 seconds the reserve tank may become empty, allowing air to enter the system making the bleeding process more difficult.**

d) Bleeding The Inverter Cooling System – Part 2:

i. With the bleeder plug loosened, switch the IG ON and operate the water pump for approximately 1 minute, then switch the IG OFF.

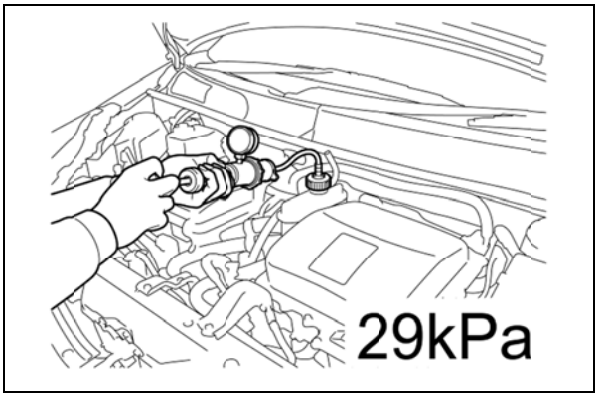
ii. Wait 1 minute, and then switch the IG ON to operate the water pump for approximately 1 minute, and then switch the IG OFF.

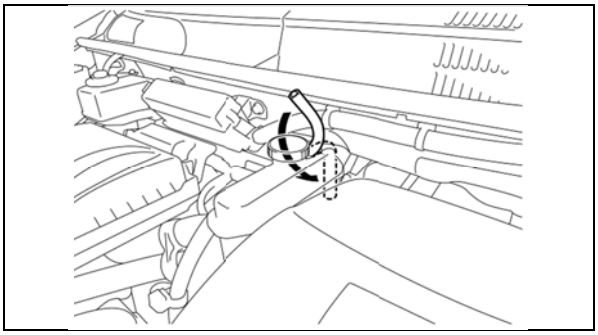
iii. Repeat steps "i" and "ii" a minimum of 3 times in order to bleed the air from the cooling system.

iv. Add coolant to the reserve tank until the level is at FULL mark.

NOTE: Bleeding is complete when the following criteria are met.

- **Steps "i" & "ii" have been repeated a minimum of 3 times.**
- **Air stops coming out of the bleeder screw.**
- **The initial sound of the HV water pump has subsided and become quieter.**





6. PERFORM A FINAL COOLANT LEAK TEST

a) Close the bleeder plug and torque to spec.

Torque: 98in. lbf (11N·m)

b) Remove the hose from the reserve tank and bleeder screw.

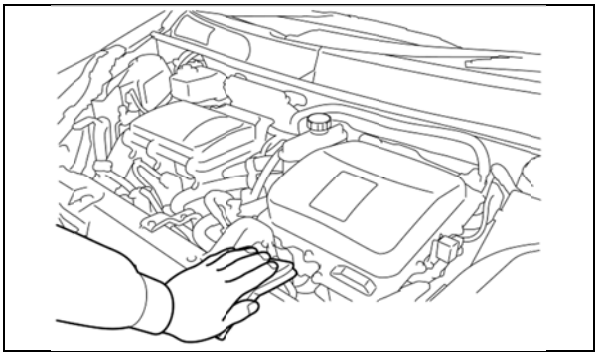
c) Install the radiator cap tester onto the reserve tank.

d) Pump the tester to 29 kPa (0.3 kgf/cm^2, 4.2 psi) and inspect for coolant leaks.

e) Remove the radiator cap tester.

f) Add coolant to the reserve tank until the level is at the FULL mark.

g) Place the reserve tank hose back in the downward position.



h) Wipe any residual coolant.
i) Reinstall the radiator support cover with the 6 clips.

◄ VERIFY REPAIR QUALITY ►

- **Confirm the coolant is filled and bled correctly**
- **Confirm there are no coolant leaks after replacing the pump**
- **Confirm C0T, Prius Steering Intermediate Extension Shaft Campaign is completed**

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

VI. APPENDIX

A. 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.***