

ENGINE

Fuel System [1AR-FE] - Sienna

FUEL INJECTOR

COMPONENTS

ILLUSTRATION

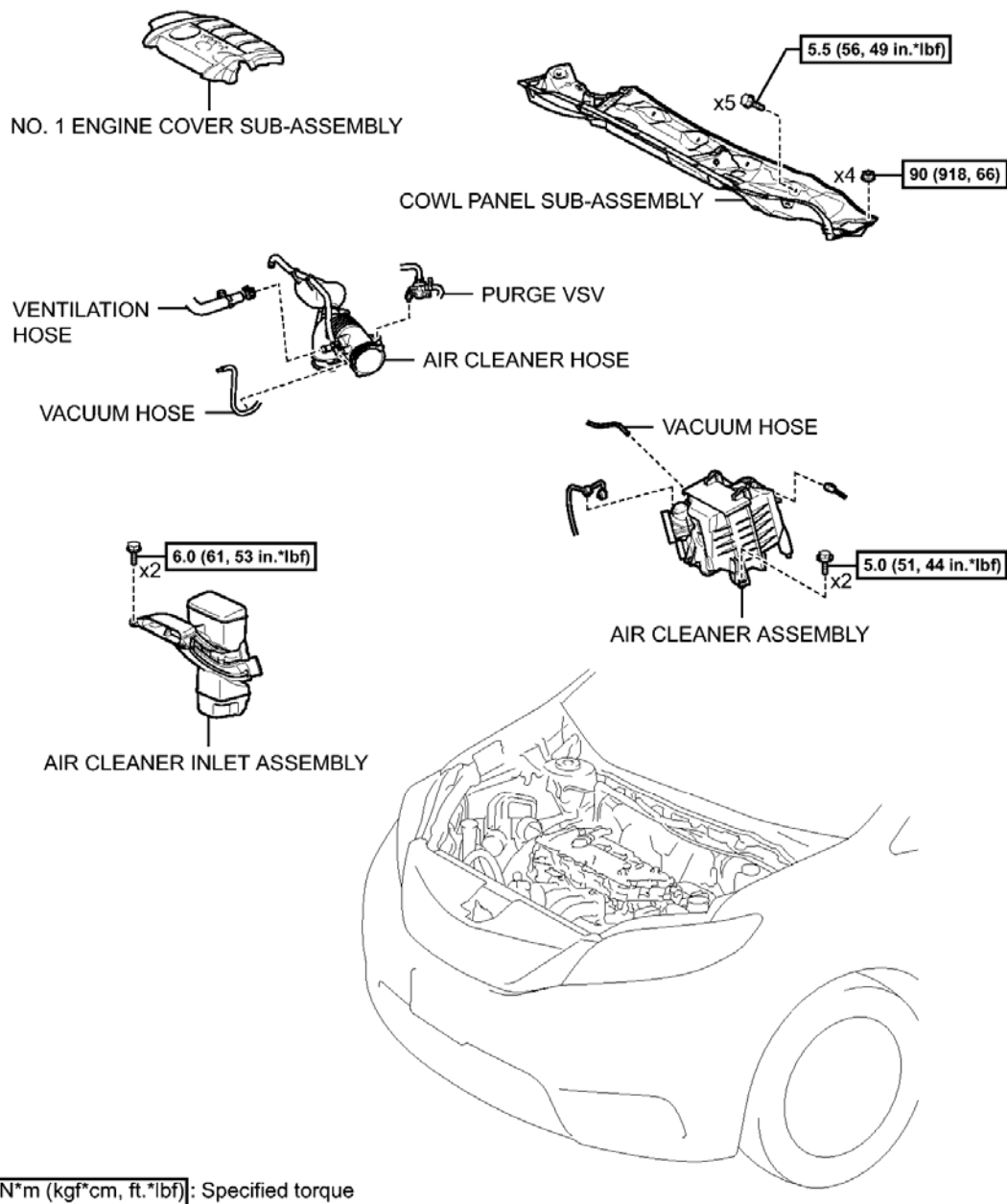
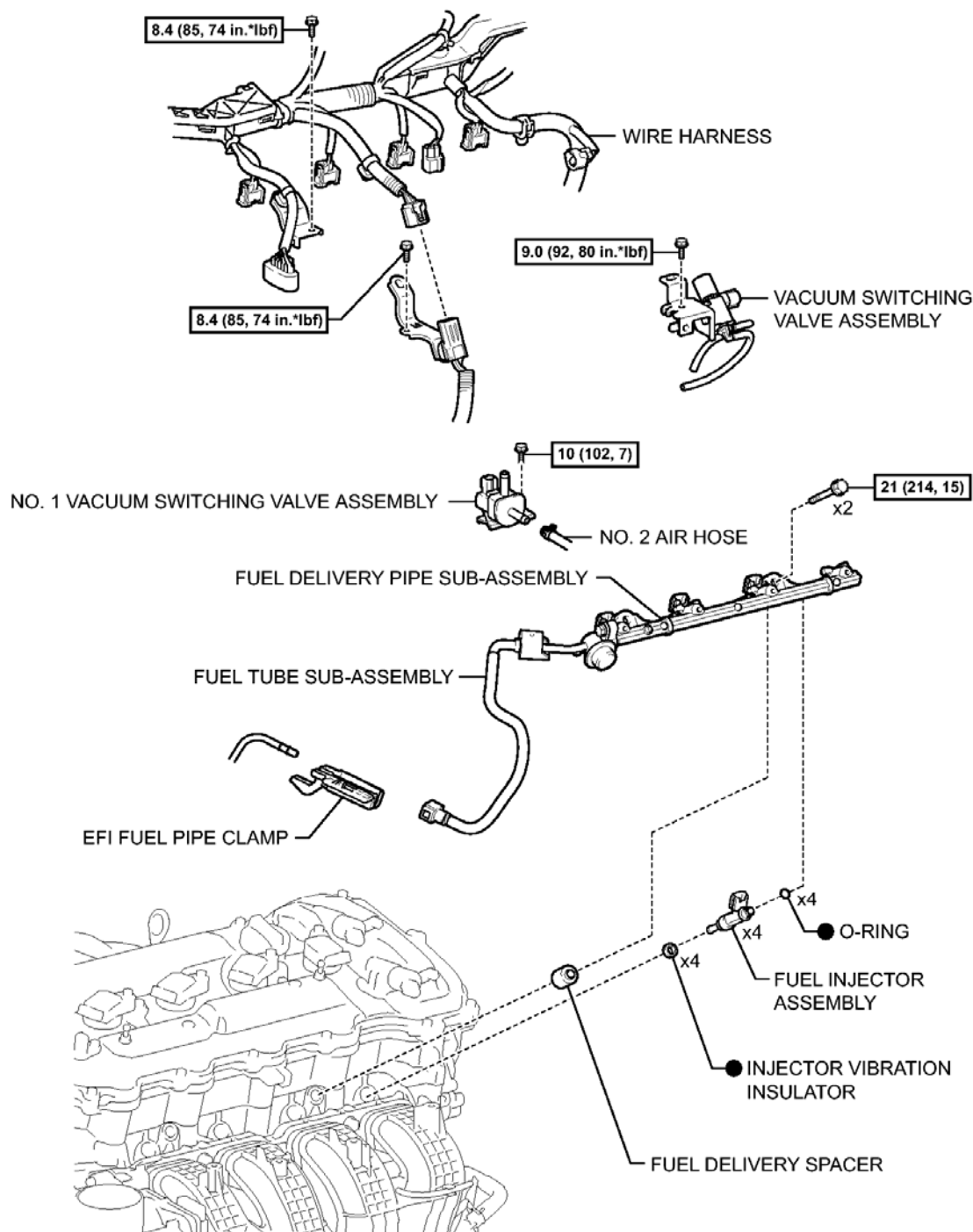


Fig. 1: Fuel Pressure Pulsation Damper Replacement Components With Torque Specifications (1 of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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

● Non-reusable part

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Fig. 2: Fuel Injector Replacement Components With Torque Specifications (2 of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. DISCHARGE FUEL SYSTEM PRESSURE

Refer to **PRECAUTION**

2. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

Refer to **REMOVAL**

3. REMOVE COWL PANEL SUB-ASSEMBLY . Refer to REMOVAL - Step 10

4. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY . Refer to REMOVAL - Step 21

5. REMOVE AIR CLEANER INLET ASSEMBLY . Refer to REMOVAL - Step 22

6. REMOVE AIR CLEANER ASSEMBLY . Refer to REMOVAL - Step 7

7. REMOVE AIR CLEANER HOSE . Refer to REMOVAL - Step 3

8. REMOVE EFI FUEL PIPE CLAMP

- a. Disengage the claw and remove the EFI fuel pipe clamp.

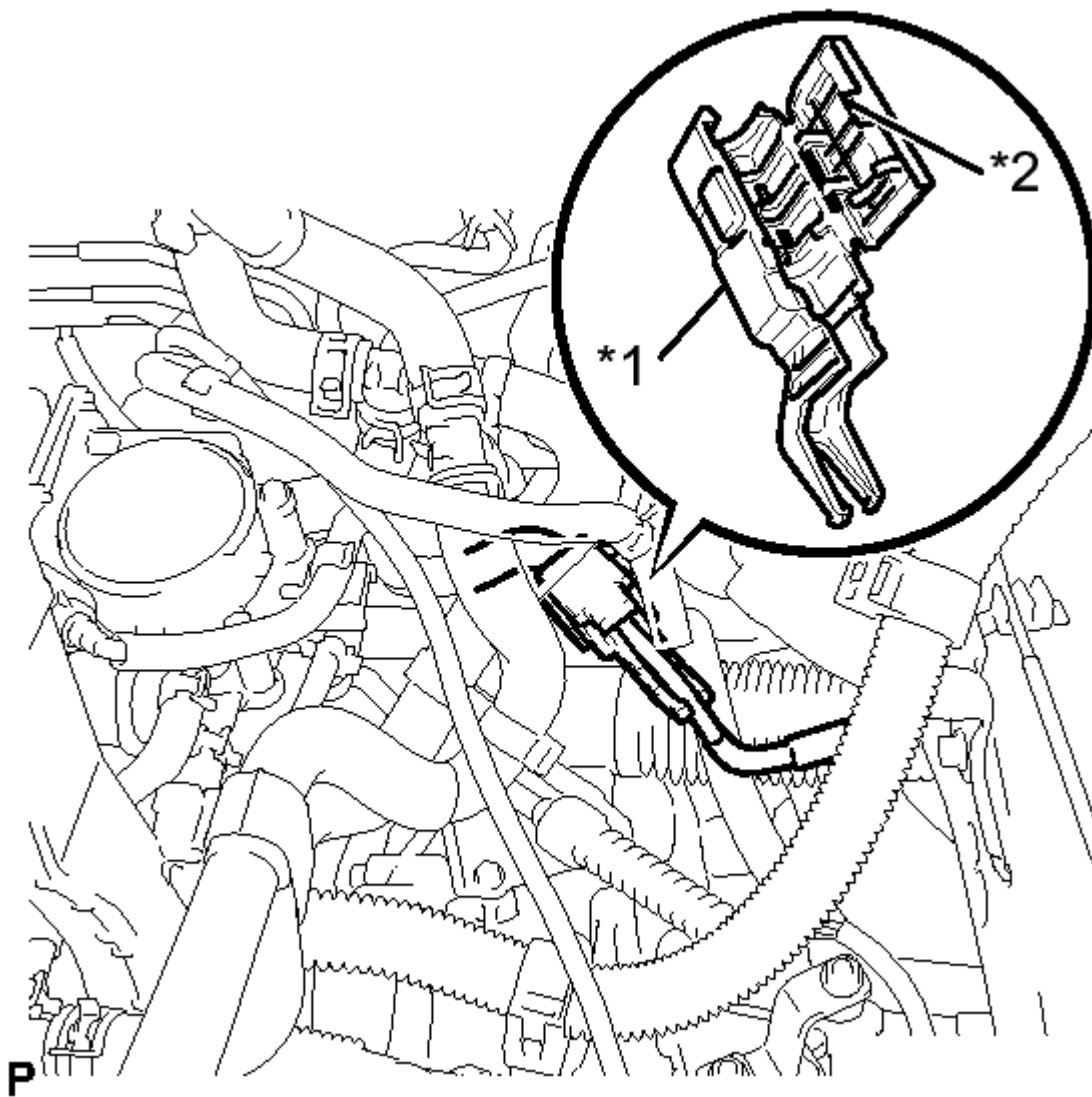


Fig. 3: Identifying EFI Fuel Pipe Clamp
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	EFI Fuel Pipe Clamp
*2	Claw

9. DISCONNECT FUEL TUBE SUB-ASSEMBLY

- a. Pinch the retainer to release it as shown in the illustration and disconnect the fuel tube. Refer to **PRECAUTION**.

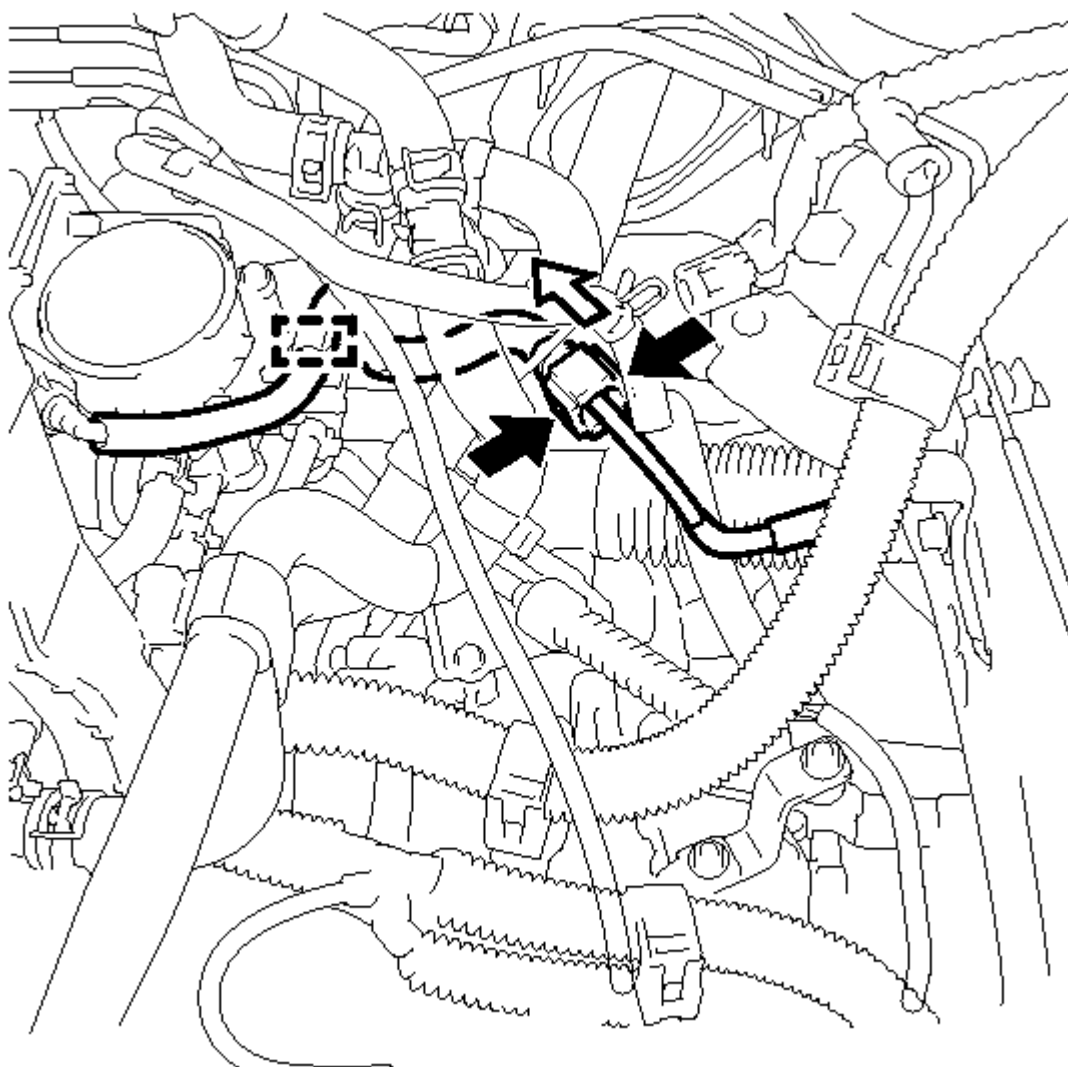


Fig. 4: Removing Fuel Tube Sub-Assembly & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Pinch
Pull
Out

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- If the connector and the pipe are stuck, push and pull on the connector to release them while pinching the retainer. Pull the connector out of the pipe carefully.

- Do not use any tools.
- Do not bend or twist the tubes.
- Protect the contact surface by covering it with a plastic bag.

b. Separate the fuel tube from the fuel tube clamp.

10. REMOVE NO. 1 VACUUM SWITCHING VALVE ASSEMBLY

a. Disconnect the No. 1 vacuum switching valve connector.

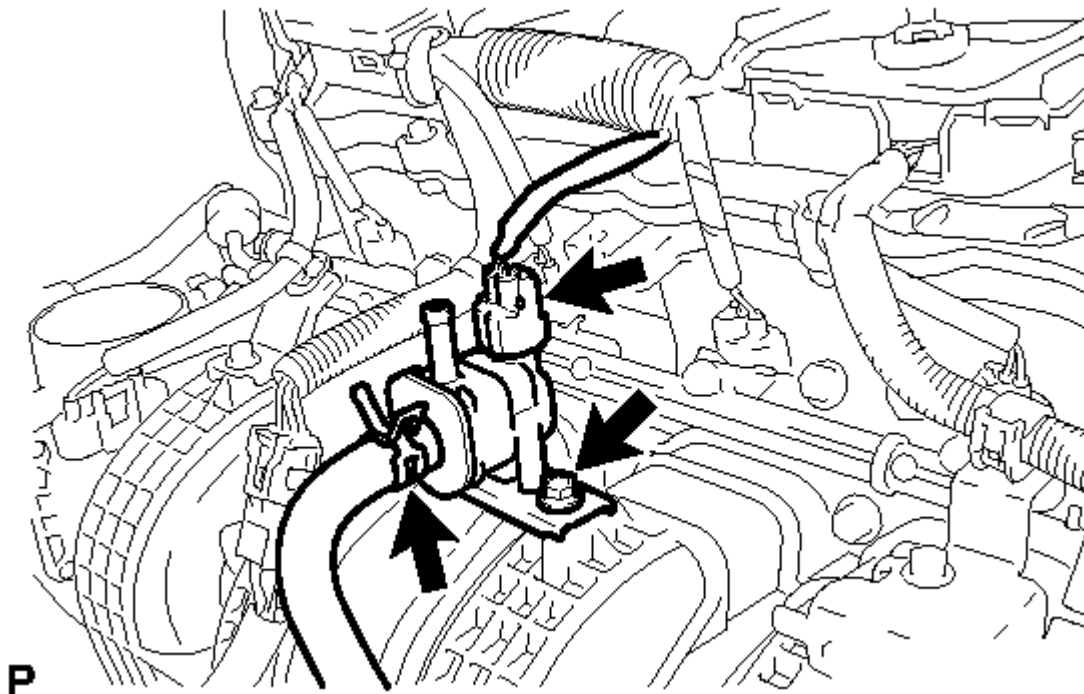


Fig. 5: Identifying No. 1 Vacuum Switching Valve Assembly, Connector & No. 2 Air Hose
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Disconnect the No. 2 air hose.

c. Remove the bolt and No. 1 vacuum switching valve assembly.

11. REMOVE VACUUM SWITCHING VALVE ASSEMBLY

a. Disconnect the vacuum switching valve connector.

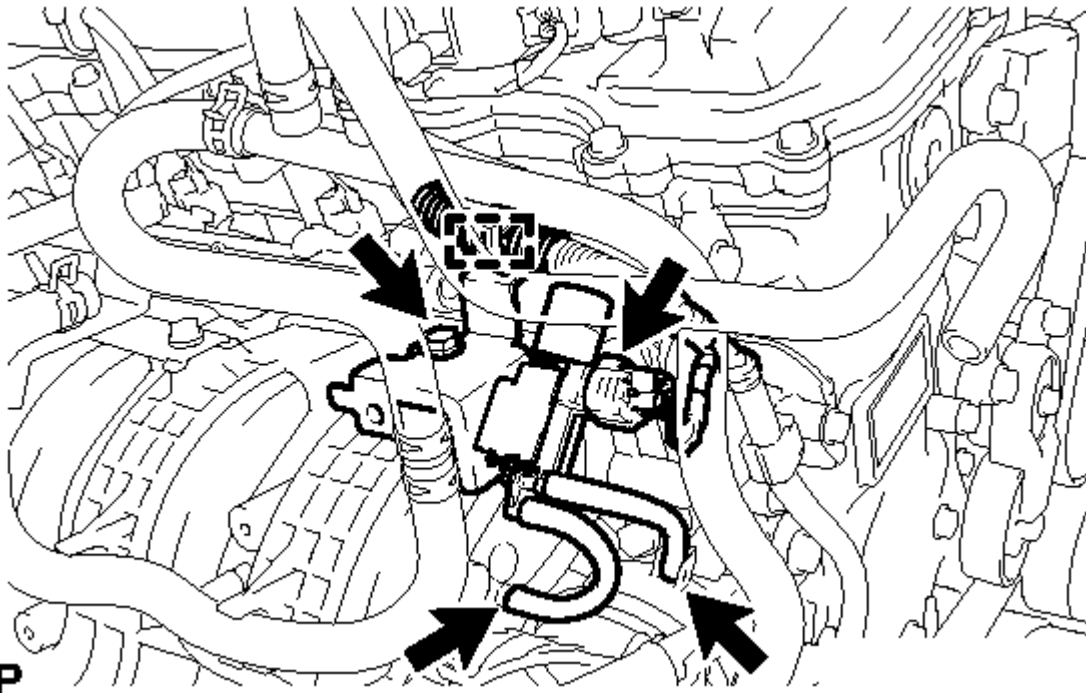


Fig. 6: Identifying Vacuum Switching Valve Connector, Wire Harness Clamp, Vacuum Hoses & Fastener

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disengage the wire harness clamp.
- c. Disconnect the 2 vacuum hoses.
- d. Remove the bolt and vacuum switching valve assembly.

12. DISCONNECT WIRE HARNESS

- a. Disconnect the 4 fuel injector connectors.

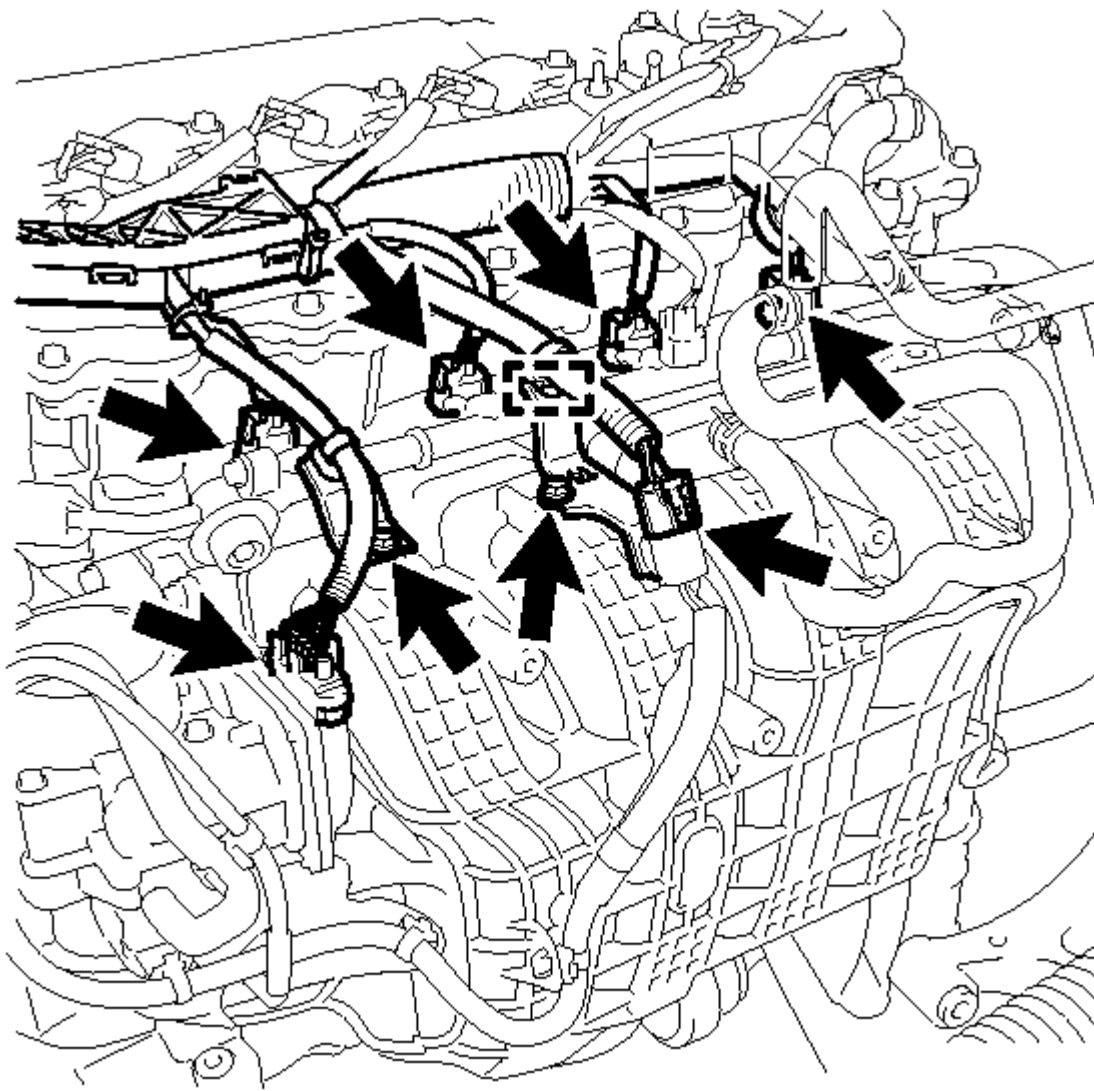
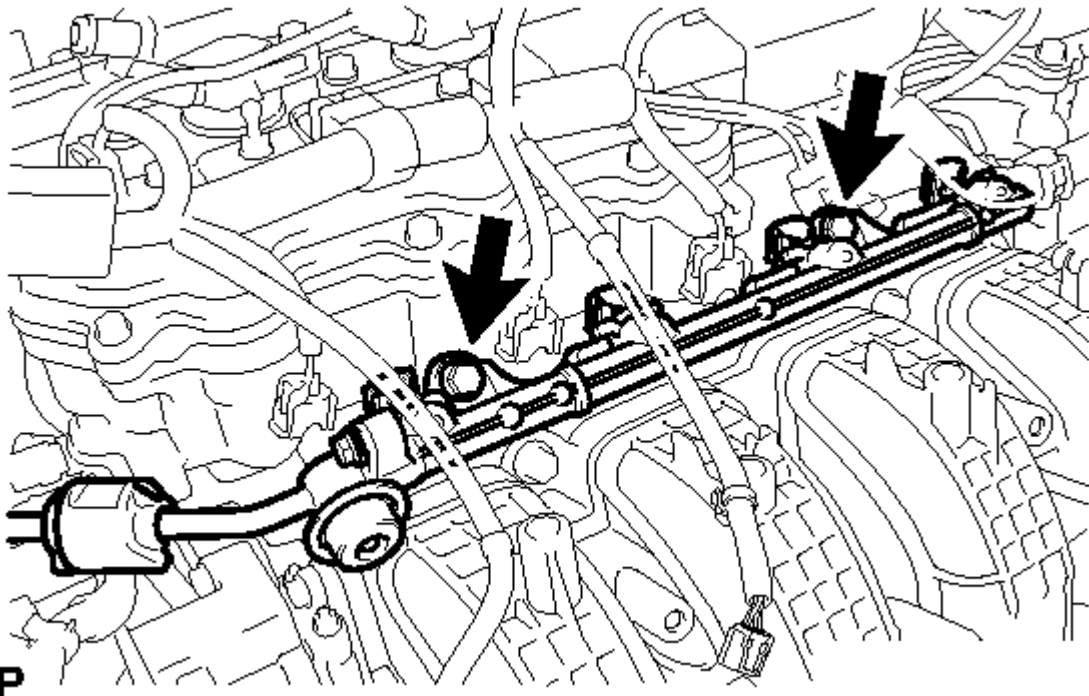


Fig. 7: Identifying Fuel Injector Connectors & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the throttle with motor body connector.
 - c. Disconnect the connector and disengage the harness clamp.
 - d. Remove the 2 bolts and separate the 2 wire harness brackets.
13. **REMOVE FUEL DELIVERY PIPE SUB-ASSEMBLY**
- a. Remove the 2 bolts, and then remove the fuel delivery pipe together with the 4 fuel injectors.



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Fig. 8: Identifying Fuel Delivery Pipe Sub-Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be careful not to drop the fuel injectors when removing the fuel delivery pipe.

- b. Remove the 2 fuel delivery spacers from the cylinder head.

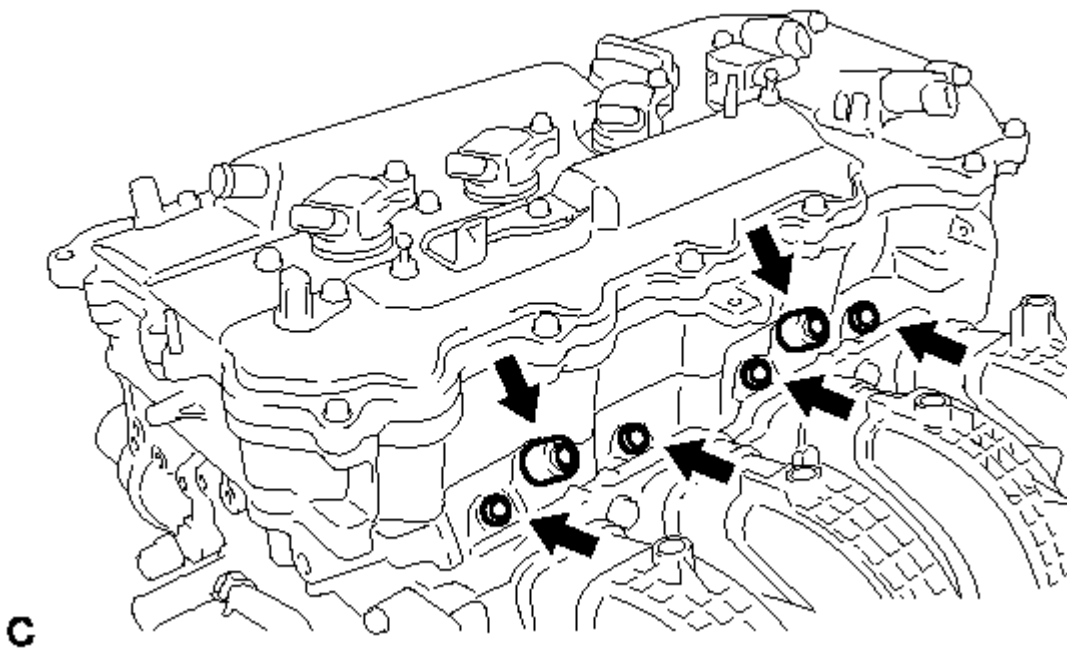
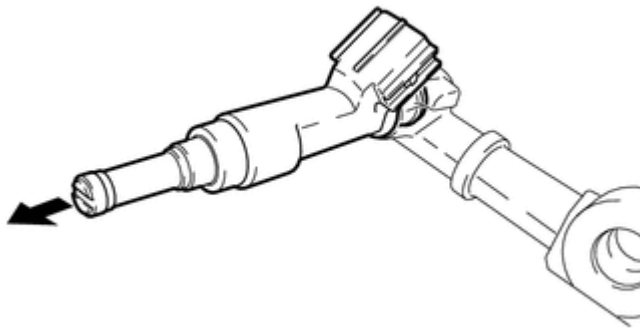


Fig. 9: Identifying Fuel Delivery Spacers And Injector Vibration Insulators
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Remove the 4 injector vibration insulators from the cylinder head.

14. REMOVE FUEL INJECTOR ASSEMBLY

- a. Pull the 4 fuel injectors out of the fuel delivery pipe.



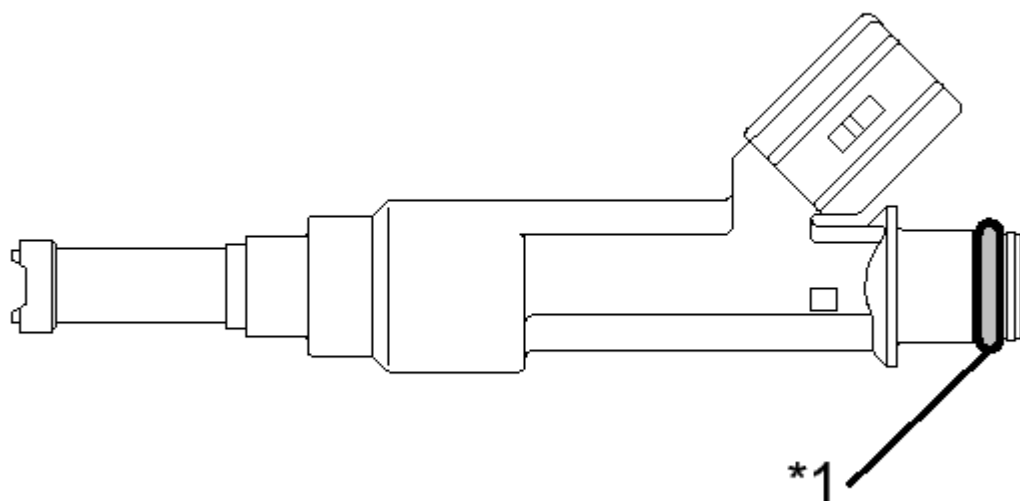
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Fig. 10: Removing Fuel Injector At Fuel Delivery Pipe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Pull
Out

- b. Remove the 4 O-rings from the injectors.

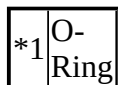


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Fig. 11: Identifying Fuel Injector & O-Ring

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



INSPECTION

INSPECTION

1. INSPECT FUEL INJECTOR ASSEMBLY

- a. Check the resistance.

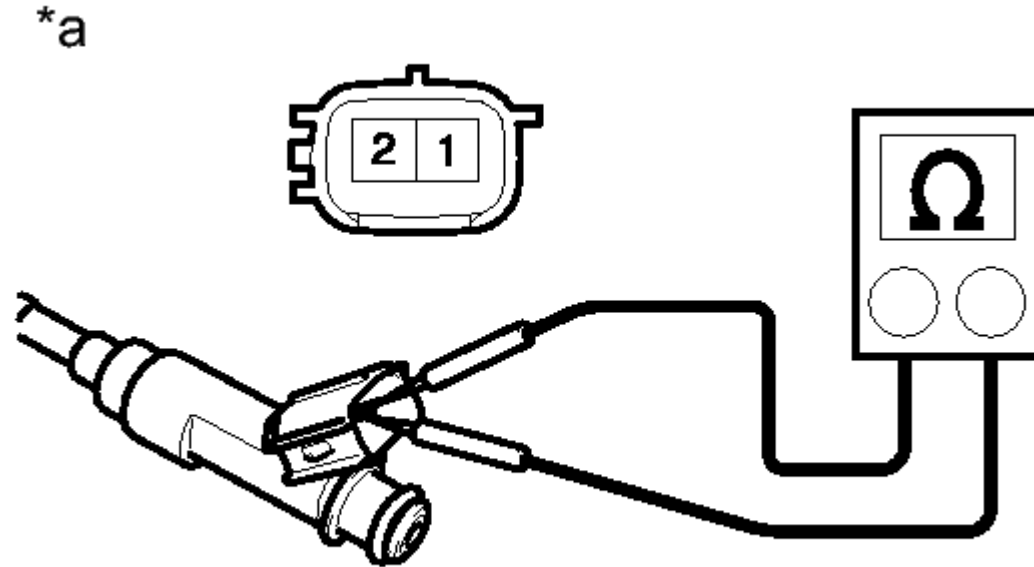


Fig. 12: Measuring Fuel Injector Assembly Resistance
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Fuel Injector Assembly)
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1. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	11.6 to 12.4 ohms

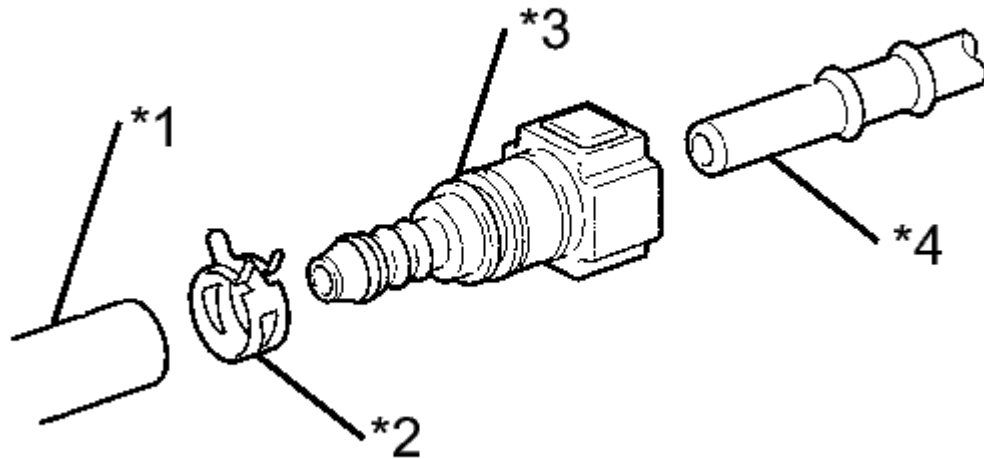
If the result is not as specified, replace the fuel injector assembly.

- b. Check the operation.

WARNING: Perform the inspection in a well-ventilated area. Do not perform

the inspection near an open flame.

1. Connect SST (fuel tube connector) to SST (hose) with SST (clip), and then connect them to the fuel pipe (vehicle side).



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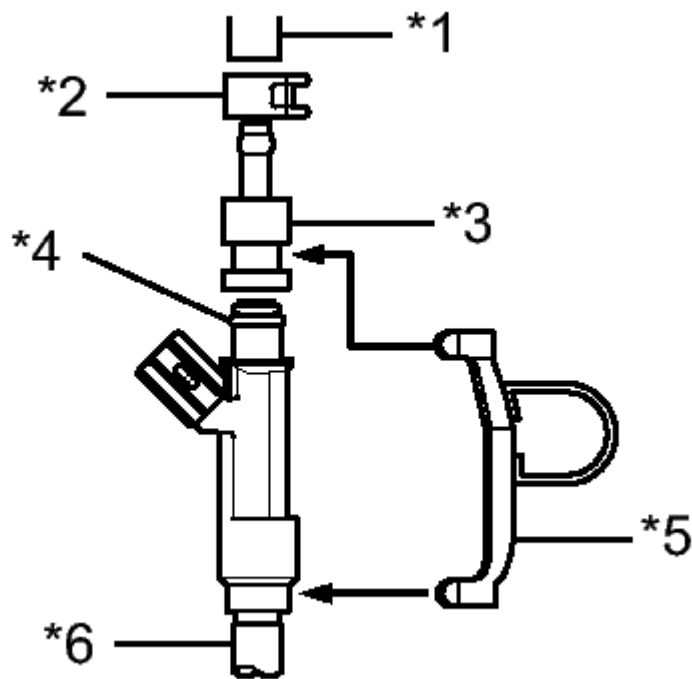
Fig. 13: Identifying Fuel Pipe & SST's
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	SST (Hose)
*2	SST (Clip)
*3	SST (Fuel Tube Connector)
*4	Fuel Pipe (Vehicle Side)

- **SST: 09268-31012**
09268-41500
90467-13001
95336-08070

2. Install a new O-ring to the fuel injector.



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Fig. 14: Identifying Fuel Injector, O-Ring & SST's
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

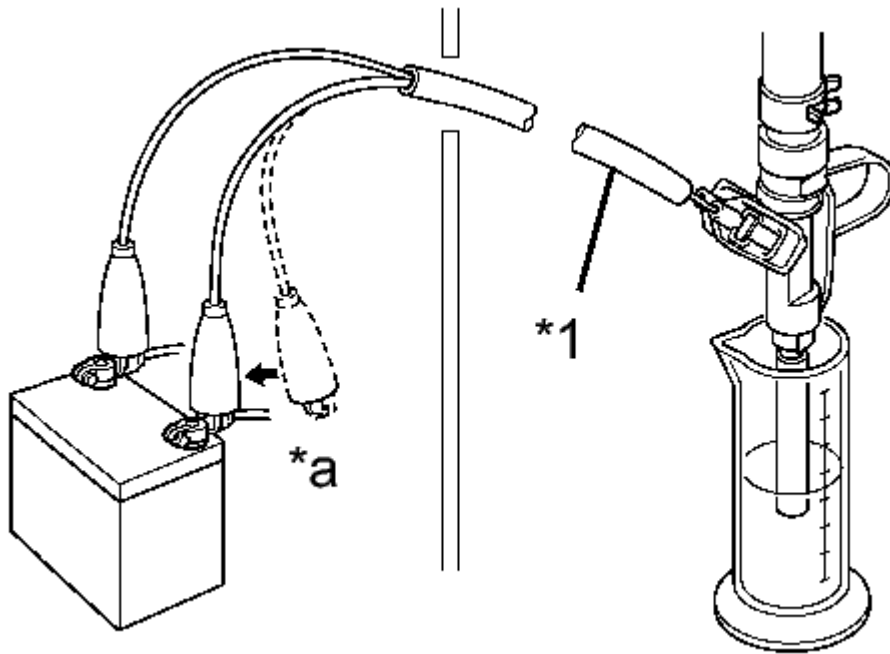
TEXT IN ILLUSTRATION

*1	SST (Hose)
*2	SST (Clip)
*3	SST (Adapter)
*4	O-ring
*5	SST (Clamp)
*6	Vinyl Tube

3. Connect SST (adapter and hose) to the injector, and hold the injector and union with SST (clamp).
 - **SST: 09268-31012**
 - 09268-41110
 - 09268-41300
 - 90467-13001
 - 95336-08070
4. Install a vinyl tube onto the injector.
5. Put the injector into the graduated cylinder.

WARNING: Install a suitable vinyl tube onto the injector assembly to prevent gasoline from spraying.

6. Operate the fuel pump.
7. Connect SST (wire) to the injector and the battery for 15 seconds, and measure the injection volume with the graduated cylinder. Test each injector 2 or 3 times.



Y

Fig. 15: Identifying Fuel Injector & SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	SST (Wire)
*a	Connect

- SST: 09842-30080

Standard Injection Volume

Tester Connection	Condition	Specified Condition
Positive (+) terminal - Ground terminal	Per 15 seconds	88 to 106 cc (5.4 to 6.5 cu in.)

Difference between each injector

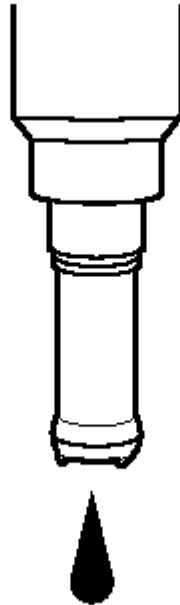
18 cc (1.1 cu in.) or less

WARNING: Always switch the voltage on and off on the battery side,
not the injector side.

If the result is not as specified, replace the fuel injector assembly.

c. Check for leaks.

1. Disconnect the tester probes of SST (wire) from the battery and check for fuel leaks from the injector.



Y

Fig. 16: Checking Fuel Leakage From Injector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Fuel Drop

1 drop or less per 20 minutes

If fuel drop is not as specified, replace the fuel injector assembly.

INSTALLATION

INSTALLATION

1. INSTALL FUEL INJECTOR ASSEMBLY

- a. Apply a light coat of spindle oil or gasoline to new O-rings, and install them to each injector.
- b. Apply a light coat of spindle oil or gasoline where the fuel delivery pipe contacts each O-ring.
- c. Push and twist each fuel injector to install them into the fuel delivery pipe.

NOTE:

- **Be careful not to twist the O-rings.**
- **After installing a fuel injector, check that it turns smoothly. If not, reinstall it with a new O-ring.**

2. INSTALL FUEL DELIVERY PIPE SUB-ASSEMBLY

- a. Install 4 new injector vibration insulators to the cylinder head.

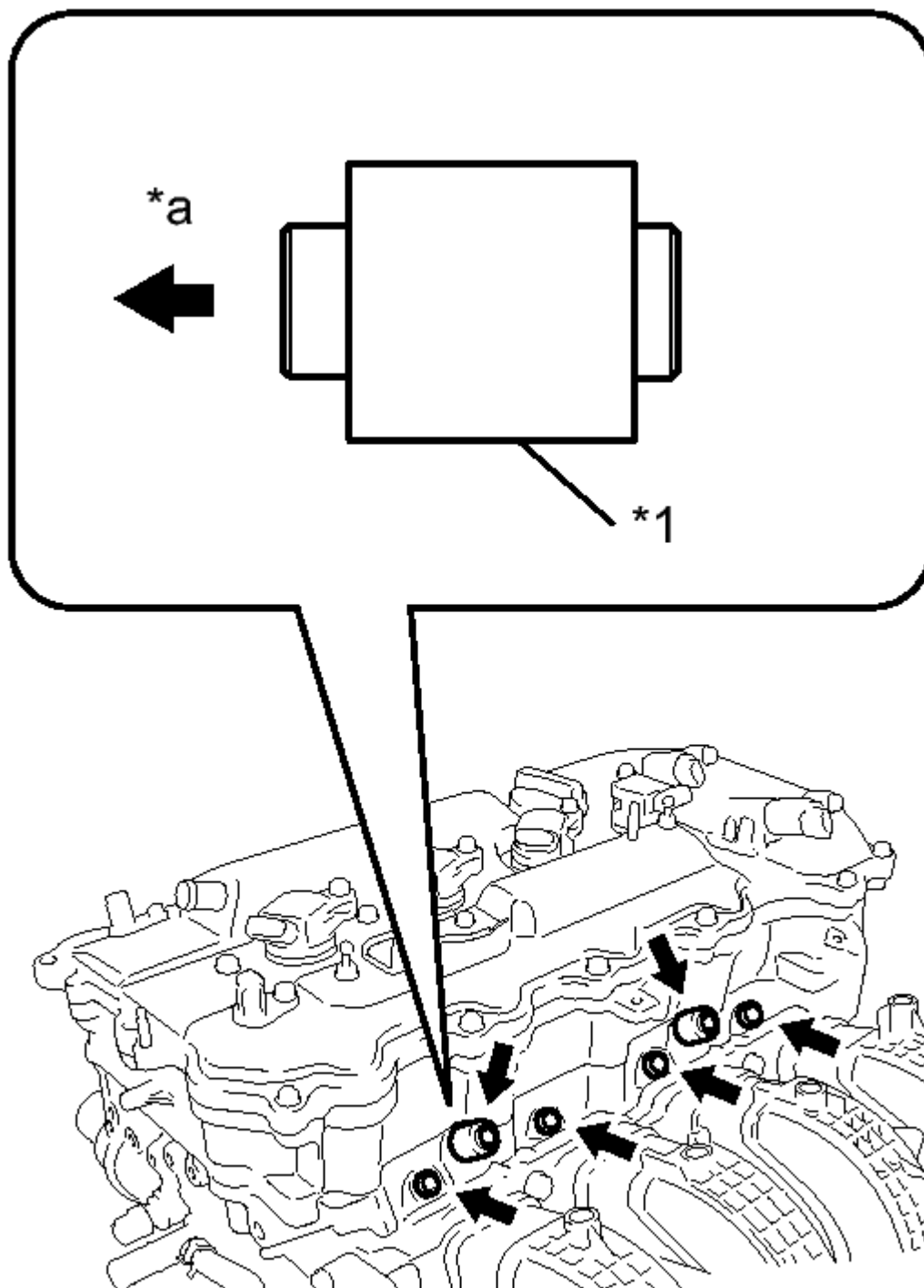


Fig. 17: Identifying Fuel Delivery Spacers & Injector Vibration Insulators At Cylinder Head
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Fuel

*1	Delivery Spacer
*a	Cylinder Head Side

- b. Install the 2 fuel delivery spacers onto the cylinder head.

HINT:

Install the fuel delivery spacer so that the longer protrusion is on the cylinder head side.

- c. Install the fuel delivery pipe together with the 4 fuel injectors to the cylinder head, and then temporarily install the 2 bolts.

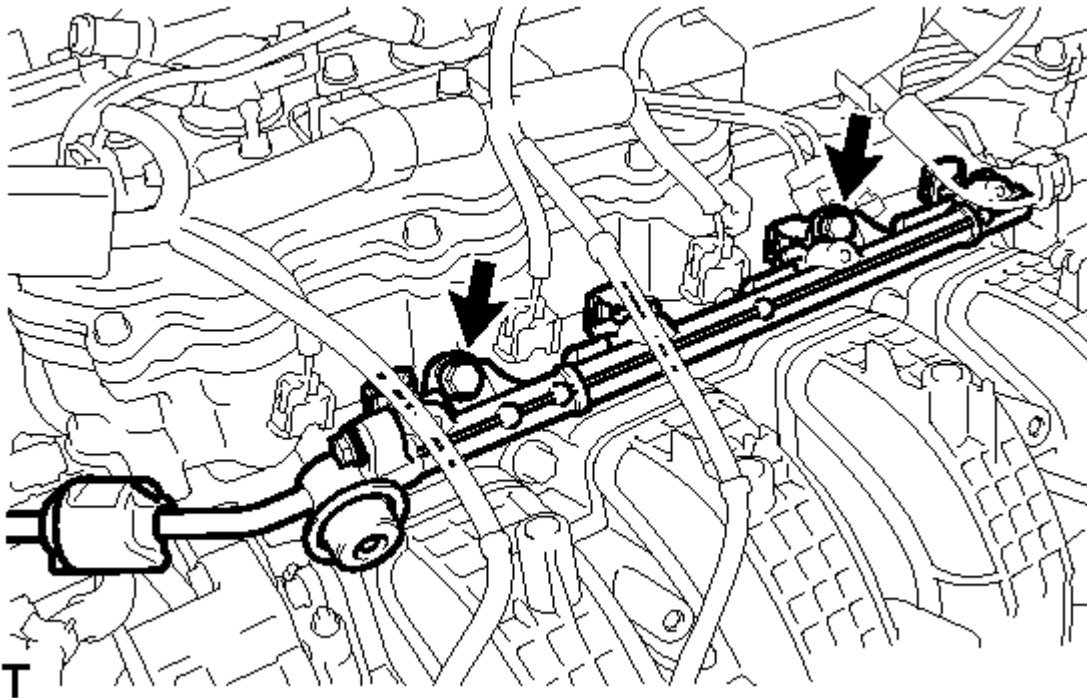


Fig. 18: Locating Fuel Delivery Pipe & Fasteners

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- Be careful not to drop the fuel injectors when installing the fuel delivery pipe.
- After installing the fuel injectors, check that they turn smoothly. If not, reinstall the injectors with new O-rings.

- d. Tighten the 2 bolts to the specified torque.

Torque: 21 N*m (214 kgf*cm, 15 ft.*lbf)

3. CONNECT WIRE HARNESS

- a. Install the 2 wire harness brackets with the 2 bolts.

Torque: 8.4 N*m (85 kgf*cm, 74 in.*lbf)

- b. Engage the harness clamp and connect the connector.
- c. Connect the throttle with motor body connector.
- d. Connect the 4 fuel injector connectors.

4. INSTALL VACUUM SWITCHING VALVE ASSEMBLY

- a. Install the vacuum switching valve assembly with the bolt.

Torque: 9.0 N*m (92 kgf*cm, 80 in.*lbf)

- b. Connect the 2 vacuum hoses.
- c. Engage the wire harness clamp.
- d. Connect the vacuum switching valve connector.

5. INSTALL NO. 1 VACUUM SWITCHING VALVE ASSEMBLY

- a. Install the No. 1 vacuum switching valve assembly with the bolt.

Torque: 10 N*m (102 kgf*cm, 7 ft.*lbf)

- b. Connect the No. 2 air hose.
- c. Connect the No. 1 vacuum switching valve connector.

6. CONNECT FUEL TUBE SUB-ASSEMBLY

- a. Line up the pipe and connector and push them together until a "click" sound is heard. Refer to **PRECAUTION** .

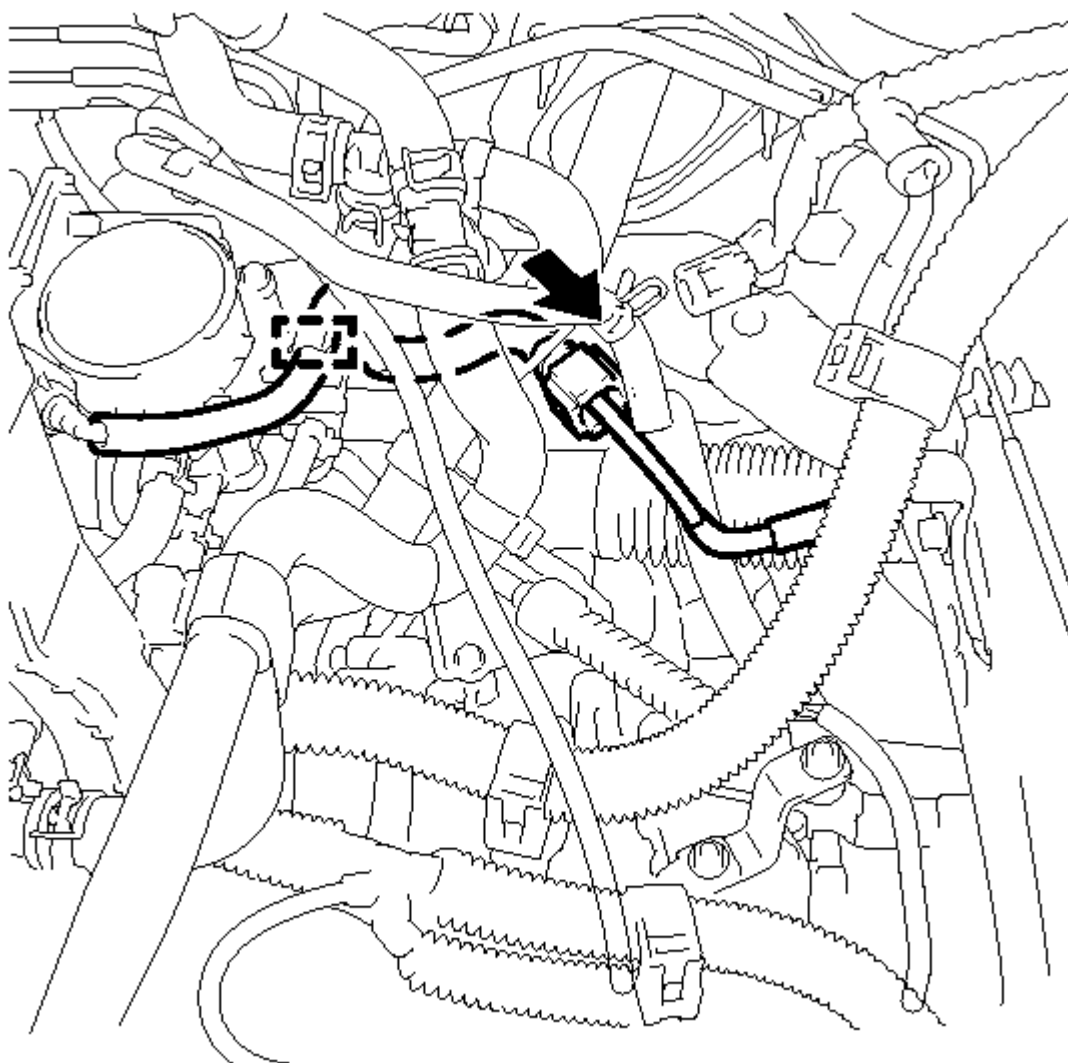


Fig. 19: Connecting Fuel Tube Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Push

NOTE:

- Check that there are no scratches or foreign objects on the connecting part.
- Check that the tube is inserted securely.
- Check that the tube is securely connected by pulling on it.

b. Install the fuel tube to the fuel tube clamp.

7. INSTALL EFI FUEL PIPE CLAMP

a. Engage the claw and install the EFI fuel pipe clamp.

8. **INSTALL AIR CLEANER HOSE** . Refer to **INSTALLATION - Step 18**
9. **INSTALL AIR CLEANER ASSEMBLY** . Refer to **INSTALLATION - Step 5**
10. **INSTALL AIR CLEANER INLET ASSEMBLY** . Refer to **INSTALLATION - Step 47**
11. **INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 75**
12. **INSTALL COWL PANEL SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 12**
13. **INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY**

Refer to **INSTALLATION**

14. **INSPECT FOR FUEL LEAK** . Refer to **ON-VEHICLE INSPECTION - Step 1**

FUEL PRESSURE PULSATION DAMPER

COMPONENTS

ILLUSTRATION

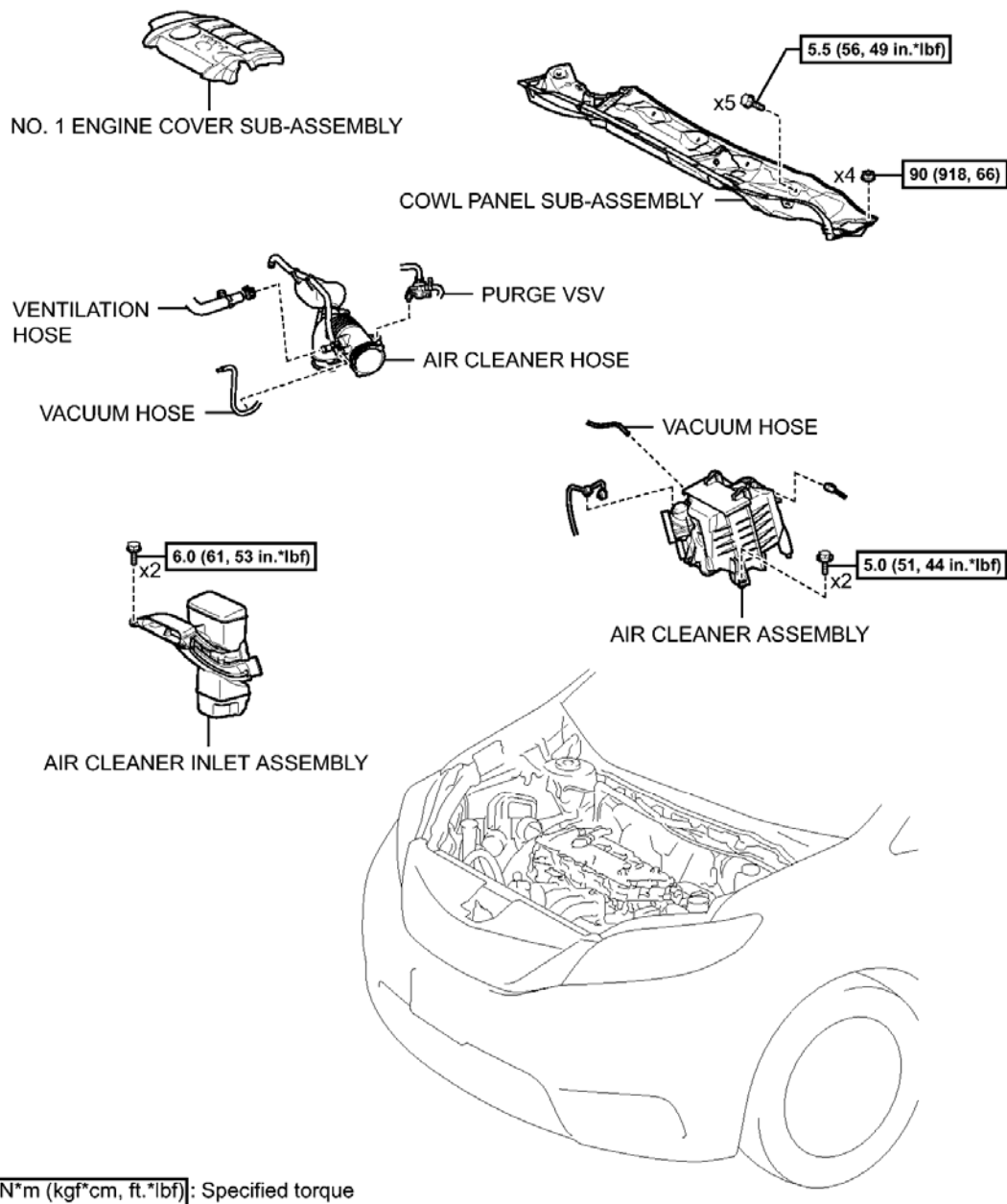
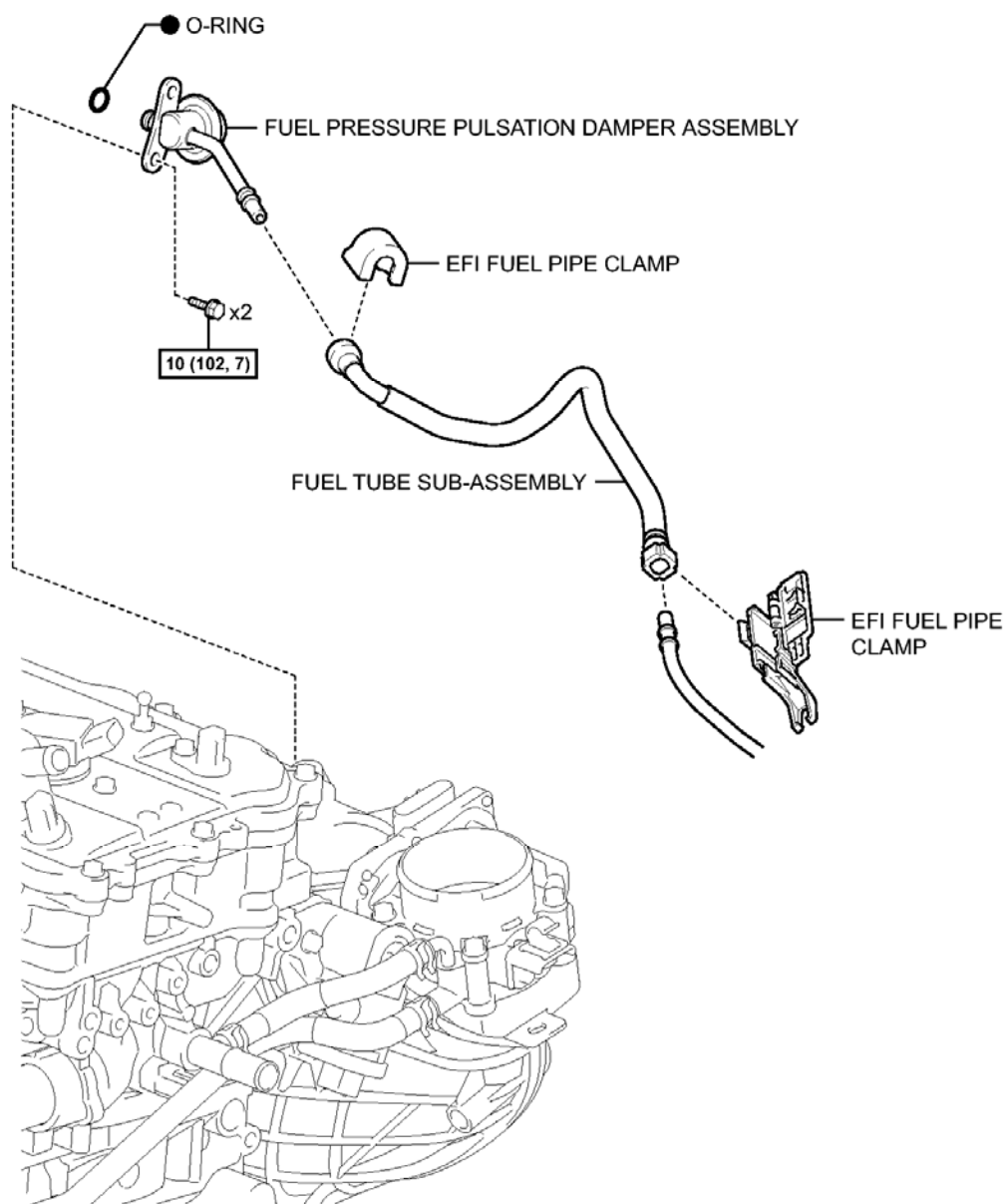


Fig. 20: Fuel Pressure Pulsation Damper Replacement Components With Torque Specifications (1 of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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Fig. 21: Fuel Pressure Pulsation Damper Replacement Components With Torque Specifications (2 of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

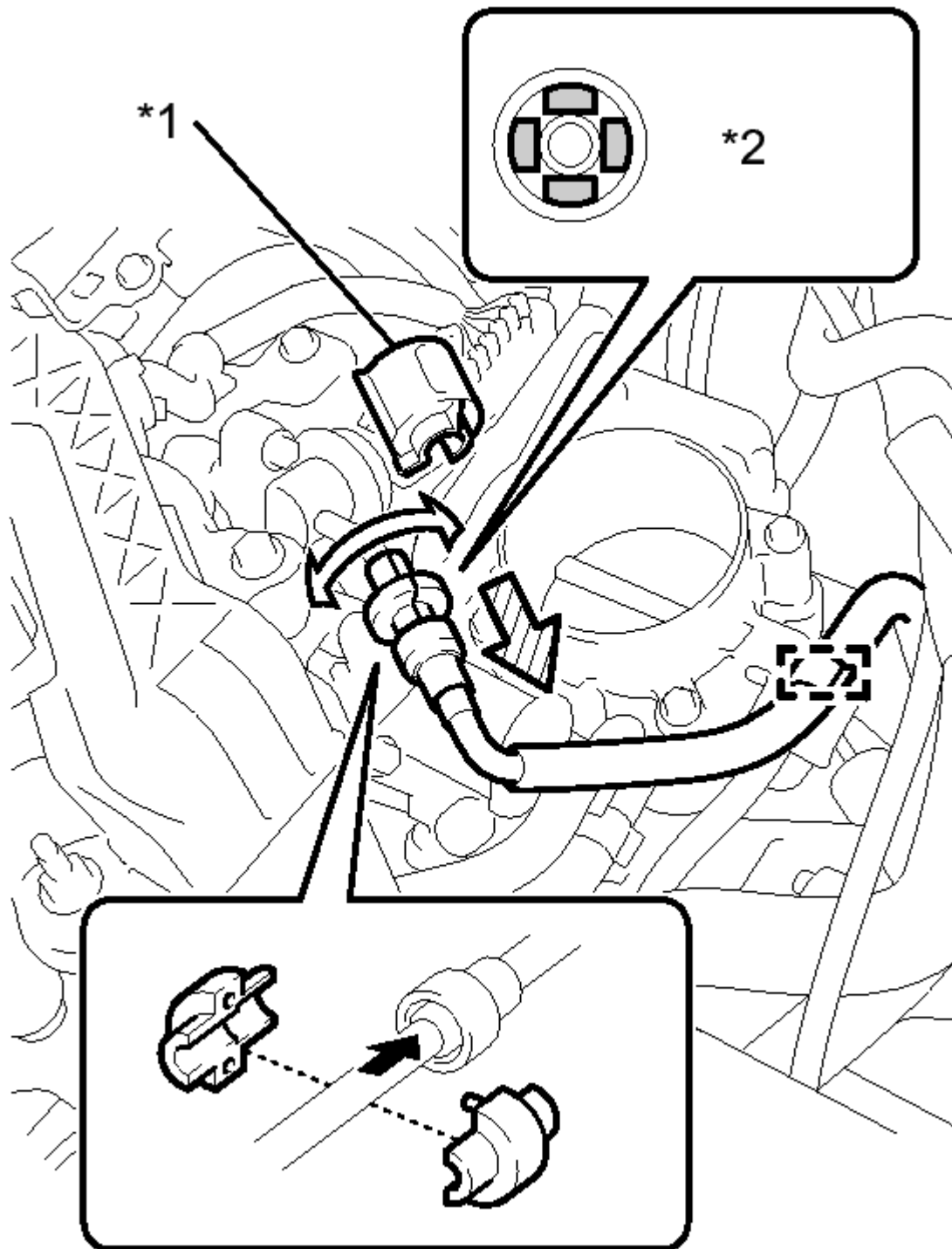
1. DISCHARGE FUEL SYSTEM PRESSURE

Refer to **PRECAUTION**

2. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

Refer to **REMOVAL**

- 3. REMOVE COWL PANEL SUB-ASSEMBLY . Refer to REMOVAL - Step 10**
- 4. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY . Refer to REMOVAL - Step 21**
- 5. REMOVE AIR CLEANER INLET ASSEMBLY . Refer to REMOVAL - Step 22**
- 6. REMOVE AIR CLEANER ASSEMBLY . Refer to REMOVAL - Step 7**
- 7. REMOVE AIR CLEANER HOSE . Refer to REMOVAL - Step 3**
- 8. REMOVE FUEL TUBE SUB-ASSEMBLY**
 - a. Separate the fuel tube from the fuel tube clamp.



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Fig. 22: Separating Fuel Tube From Fuel Tube Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

EFI

*1	Fuel Pipe Clamp
*2	Retainer
·	Push
·	Turn
·	Pull

NOTE: **Do not forcibly bend, kink or twist the fuel tube.**

- b. Remove the EFI fuel pipe clamp
- c. Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- d. Hold the fuel tube connector, and then install SST.
 - **SST: 09268-21011**
- e. Turn SST, align the retainers inside the fuel tube connector with the SST chamfered parts and insert SST into the fuel tube connector.
- f. Slide SST and the connector together towards the fuel tube assembly.

NOTE:

- **Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.**
- **The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.**
- **If the connector and the pipe are stuck, push and pull on the connector to release them while pinching the retainer. Pull the connector out of the pipe carefully.**
- **Do not use any tools.**
- **Do not bend or twist the tubes.**
- **Protect the contact surface by covering it with a plastic bag.**

- g. Disengage the claw and remove the EFI fuel pipe clamp.

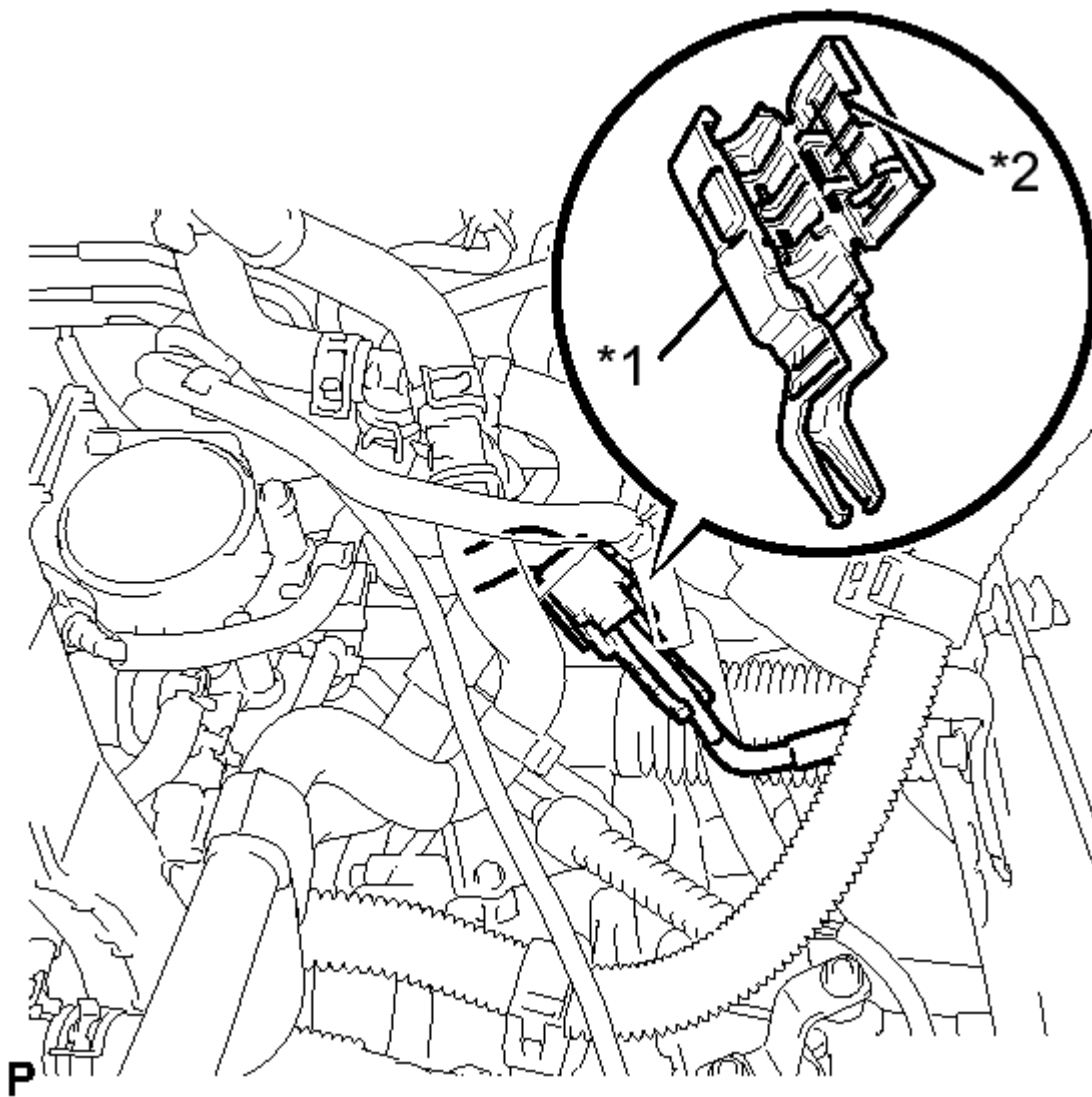


Fig. 23: Identifying EFI Fuel Pipe Clamp
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	EFI Fuel Pipe Clamp
*2	Claw

- h. Pinch the retainer to release it as shown in the illustration and disconnect the fuel tube. Refer to **PRECAUTION**.

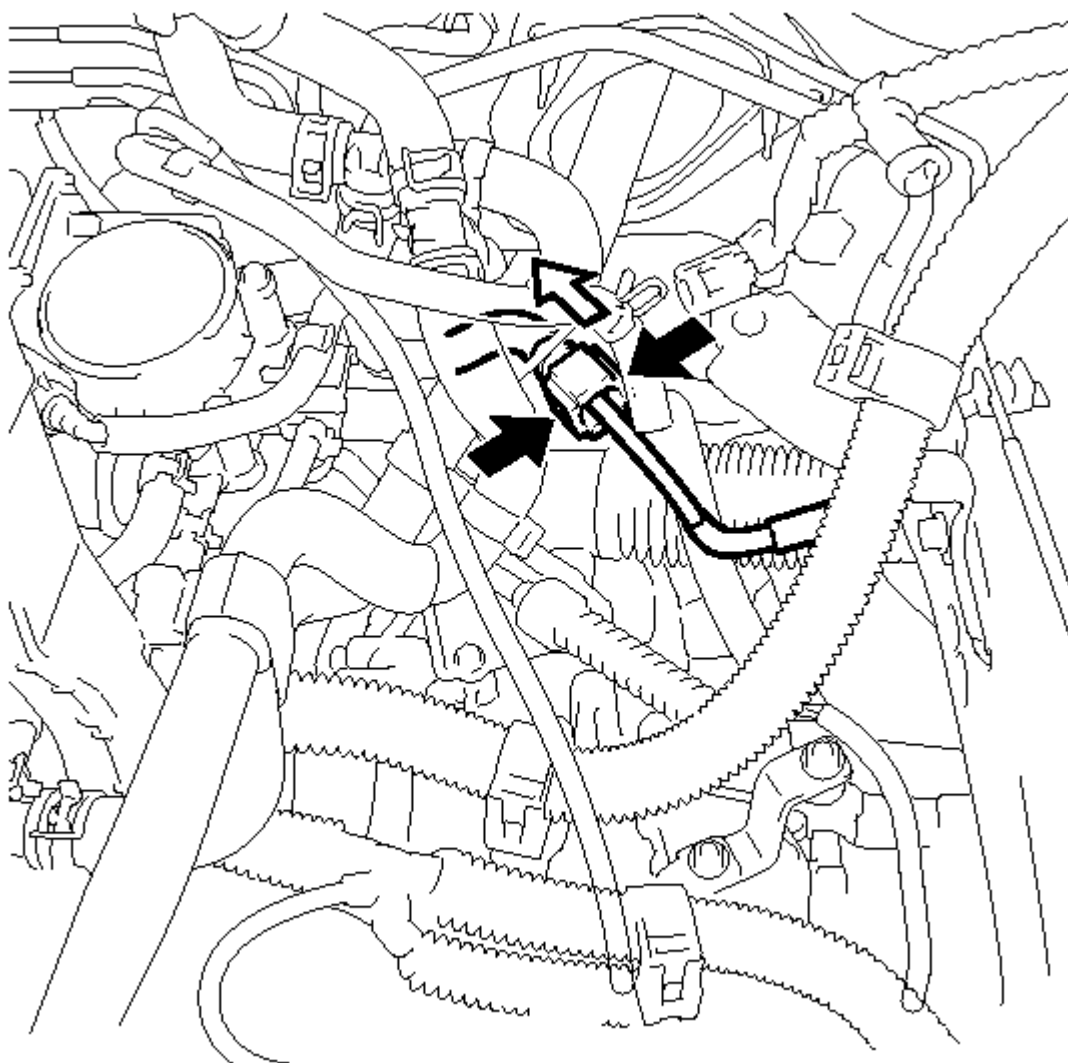


Fig. 24: Removing Fuel Tube Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Pinch
Pull
Out

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- If the connector and the pipe are stuck, push and pull on the connector to release them while pinching the retainer. Pull the connector out of the pipe carefully.

- Do not use any tools.
- Do not bend or twist the tubes.
- Protect the contact surface by covering it with a plastic bag.

9. REMOVE FUEL PRESSURE PULSATION DAMPER ASSEMBLY

- a. Remove the 2 bolts and fuel pressure pulsation damper.



Fig. 25: Locating Fuel Pressure Pulsation Damper & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the O-ring from the fuel pressure pulsation damper.

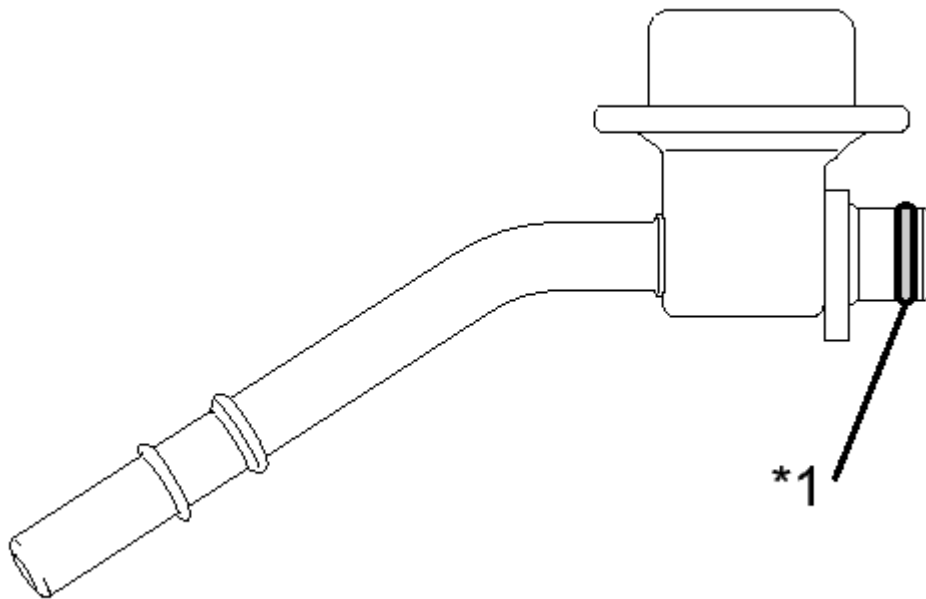
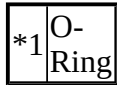


Fig. 26: Identifying Fuel Pressure Pulsation Damper & O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



INSTALLATION

INSTALLATION

1. INSTALL FUEL PRESSURE PULSATION DAMPER ASSEMBLY

- a. Apply a light coat of gasoline or spindle oil to a new O-ring.
- b. Install the O-ring to the fuel pressure pulsation damper.
- c. Install the fuel pressure pulsation damper with the 2 bolts.

Torque: 10 N*m (102 kgf*cm, 7 ft.*lbf)

NOTE: **Make sure that the O-ring is not cracked or jammed when installing the damper.**

2. INSTALL FUEL TUBE SUB-ASSEMBLY

- a. Line up the pipe and connector and push them together until a "click" sound is heard. Refer to **PRECAUTION** .

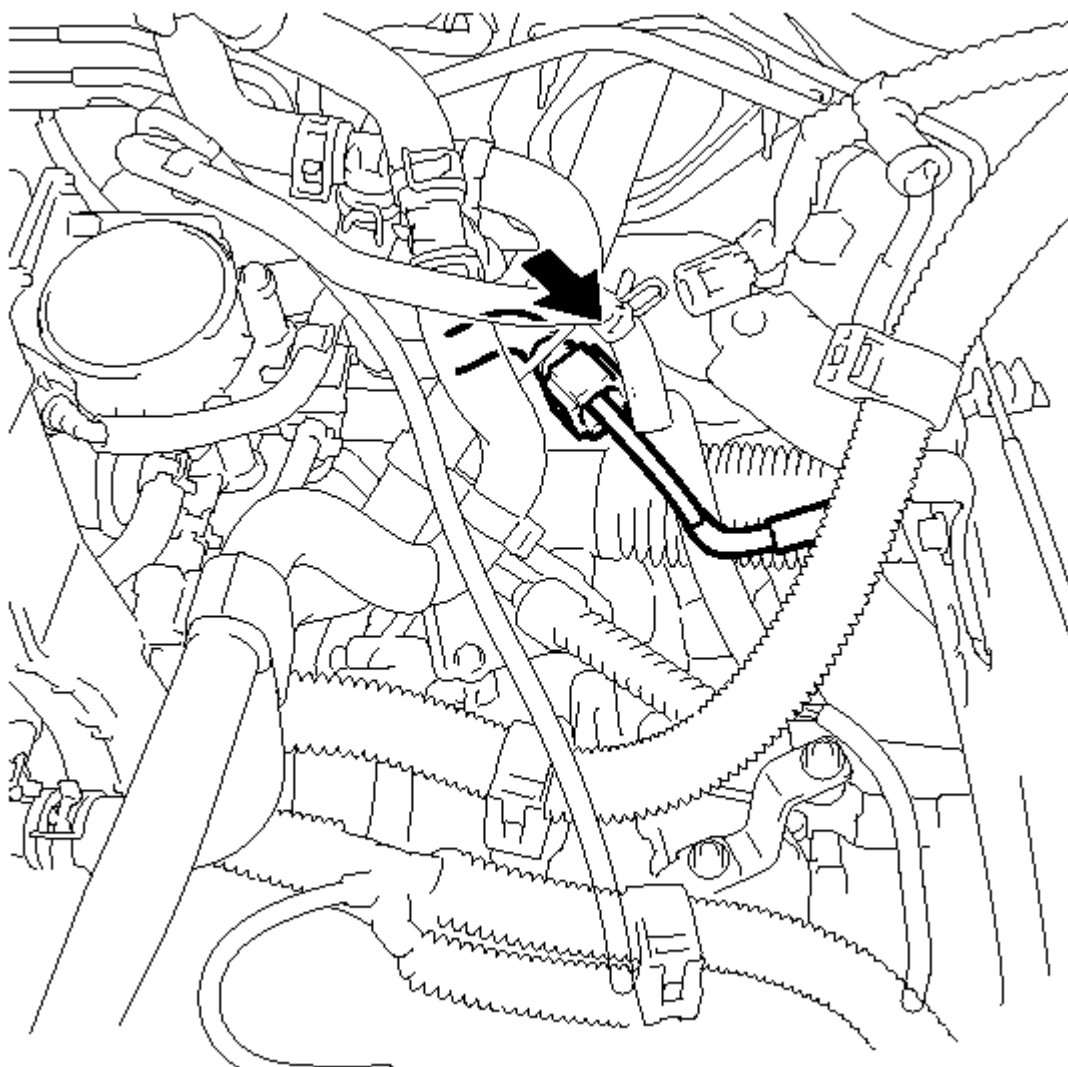


Fig. 27: Installing Fuel Tube Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Push

NOTE:

- Check that there are no scratches or foreign objects on the connecting part.
- Check that the tube is inserted securely.
- Check that the tube is securely connected by pulling on it.

- b. Engage the claw and install the EFI fuel pipe clamp.
- c. Connect the fuel tube.

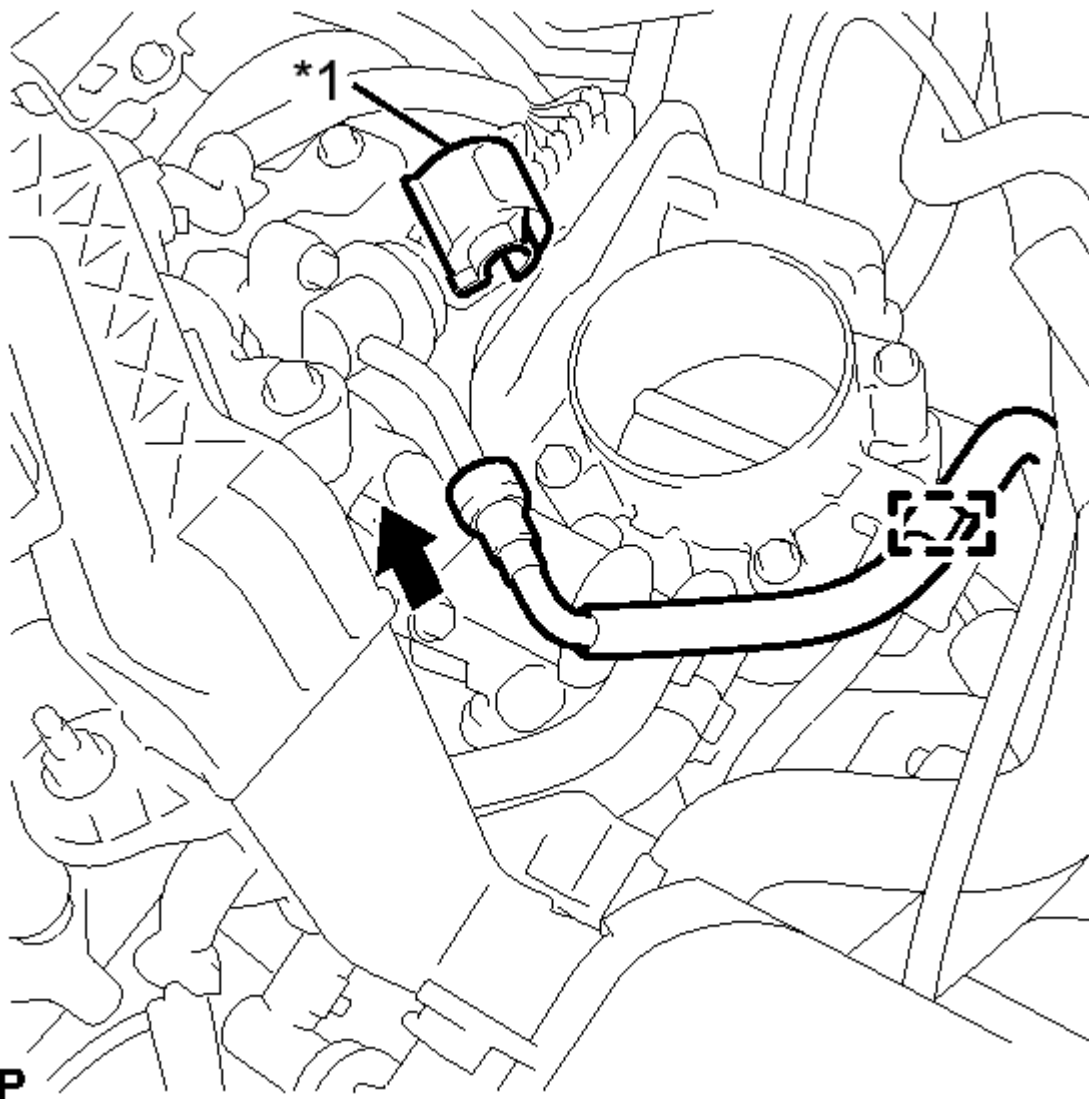


Fig. 28: Precautions - Removing/Installing Fuel Tube Connectors (Metallic Type)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	EFI
	Fuel
	Pipe
	Clamp
·	Push

- d. Push the fuel tube connector until it makes a "click" sound.
- e. Install the EFI fuel pipe clamp.
- f. Install the fuel tube to the fuel hose clamp.

- 3. **INSTALL AIR CLEANER HOSE** . Refer to **INSTALLATION - Step 18**
- 4. **INSTALL AIR CLEANER ASSEMBLY** . Refer to **INSTALLATION - Step 5**

5. **INSTALL AIR CLEANER INLET ASSEMBLY** . Refer to INSTALLATION - Step 47
6. **INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY** . Refer to INSTALLATION - Step 75
7. **INSTALL COWL PANEL SUB-ASSEMBLY** . Refer to INSTALLATION - Step 12
8. **INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY**

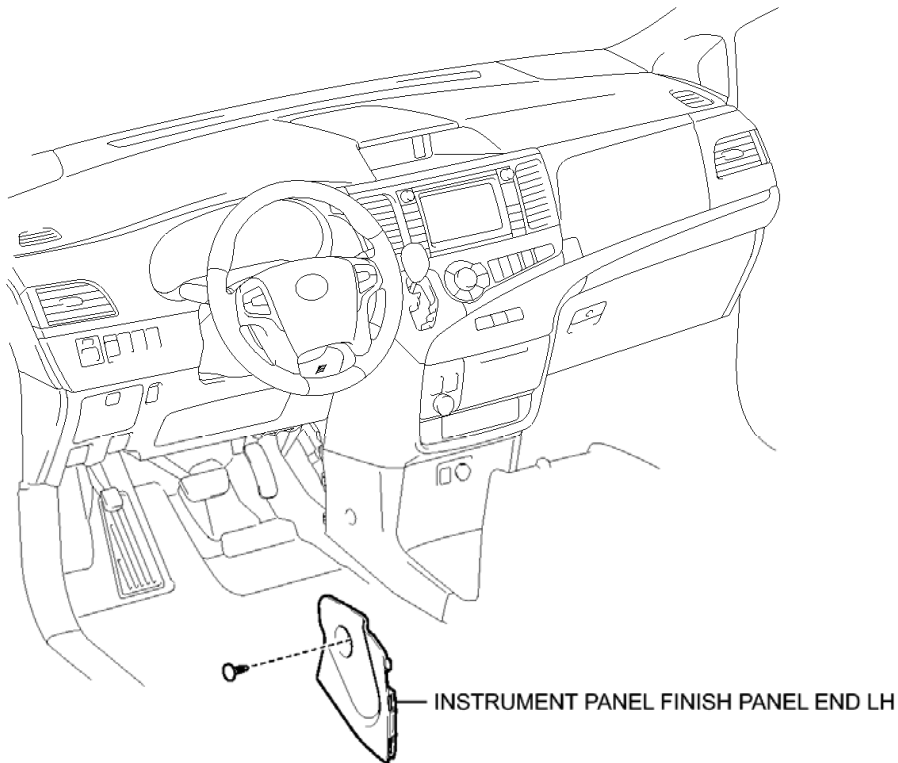
Refer to INSTALLATION

9. **INSPECT FOR FUEL LEAK** . Refer to ON-VEHICLE INSPECTION - Step 1

FUEL TANK

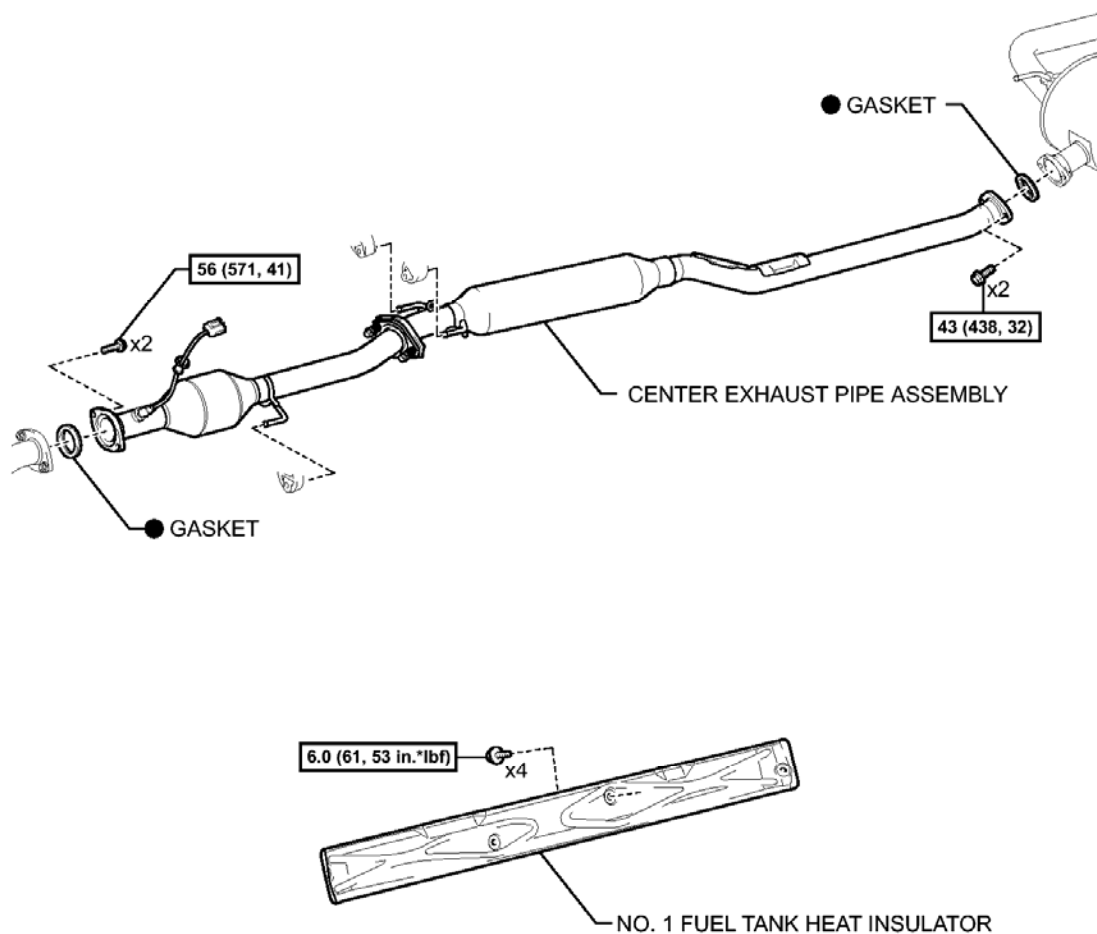
COMPONENTS

ILLUSTRATION



Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



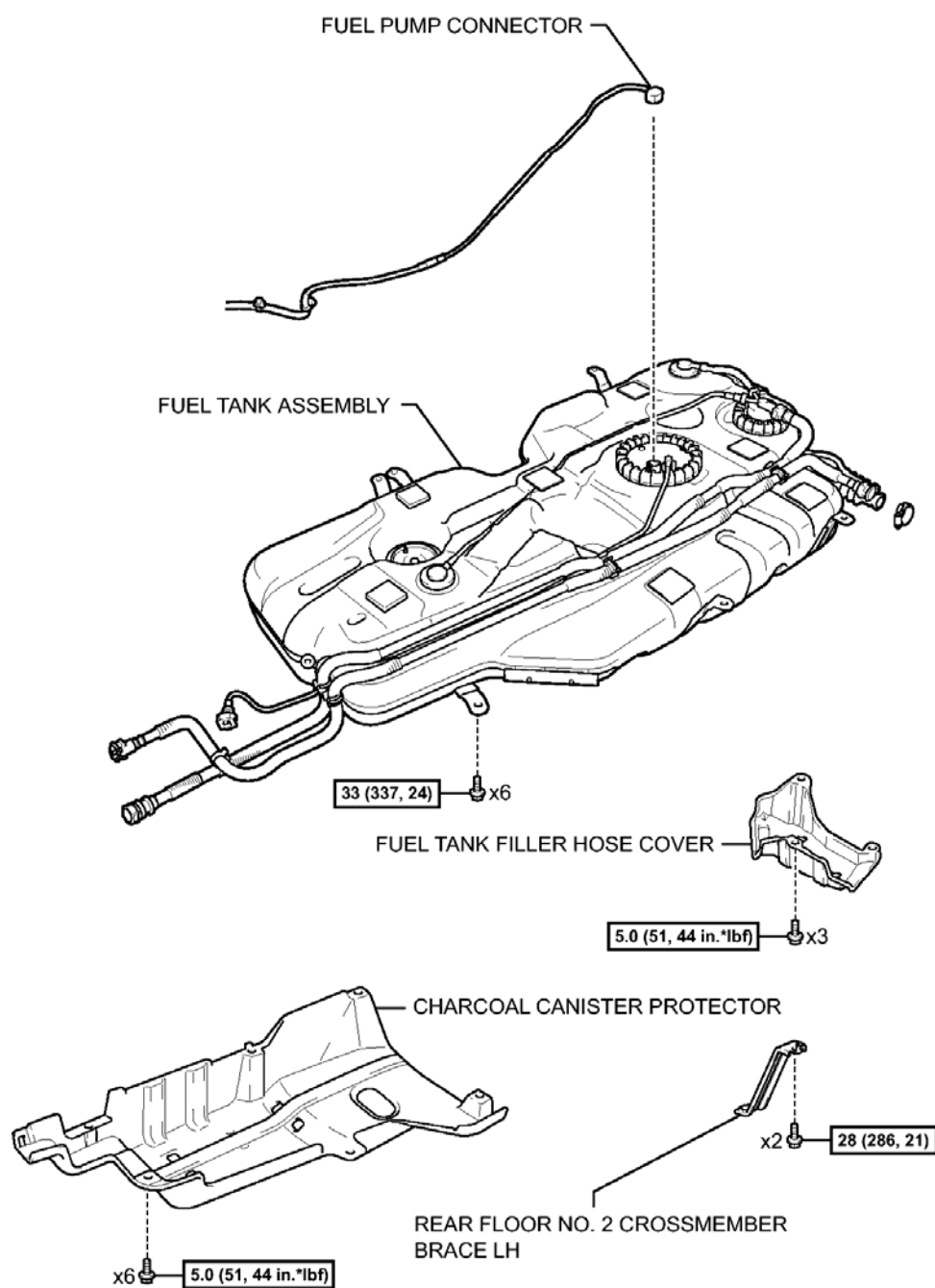
[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

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Fig. 30: Fuel Tank Replacement Components With Torque Specifications (2 of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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

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Fig. 31: Fuel Tank Replacement Components With Torque Specifications (3 of 5)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

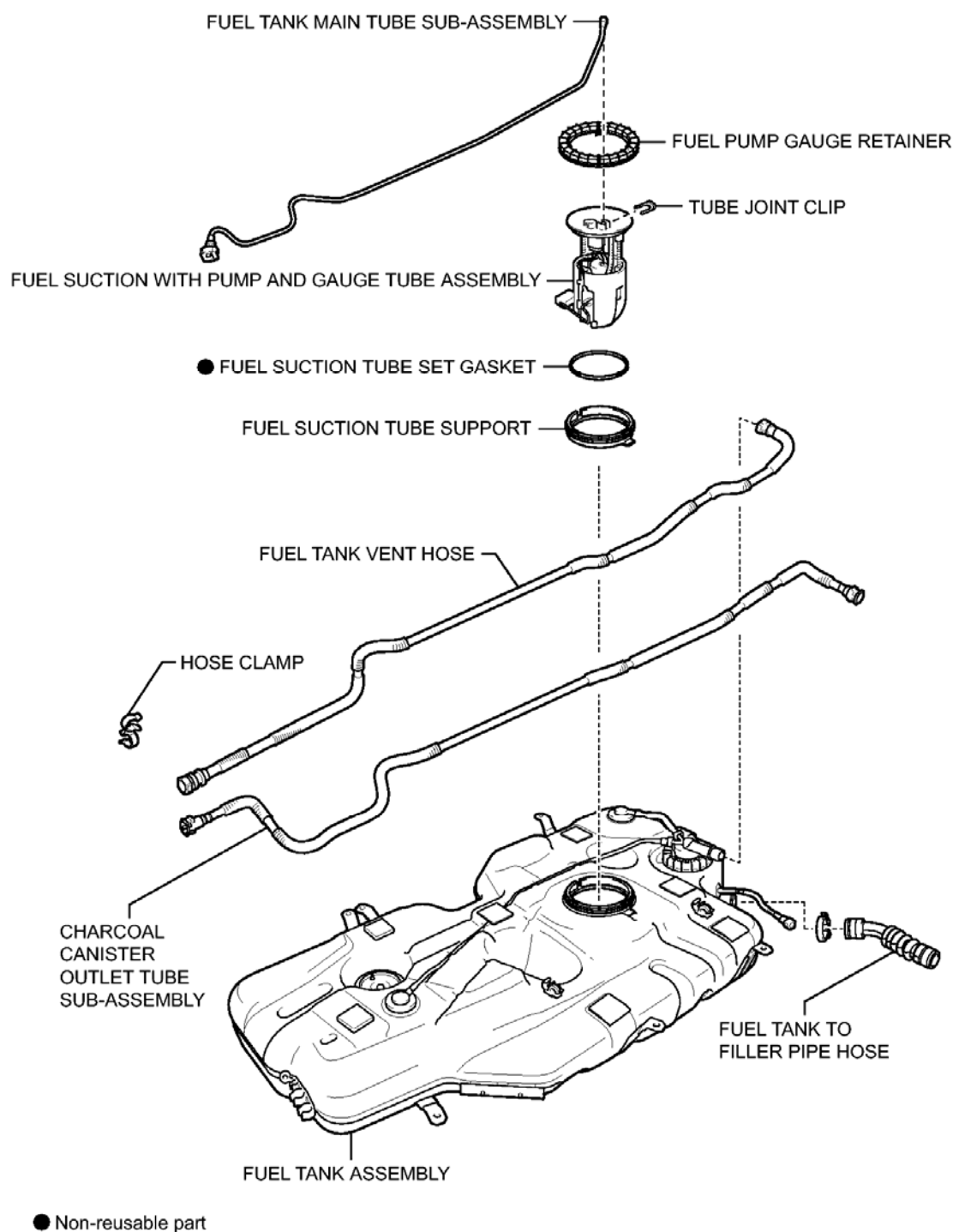
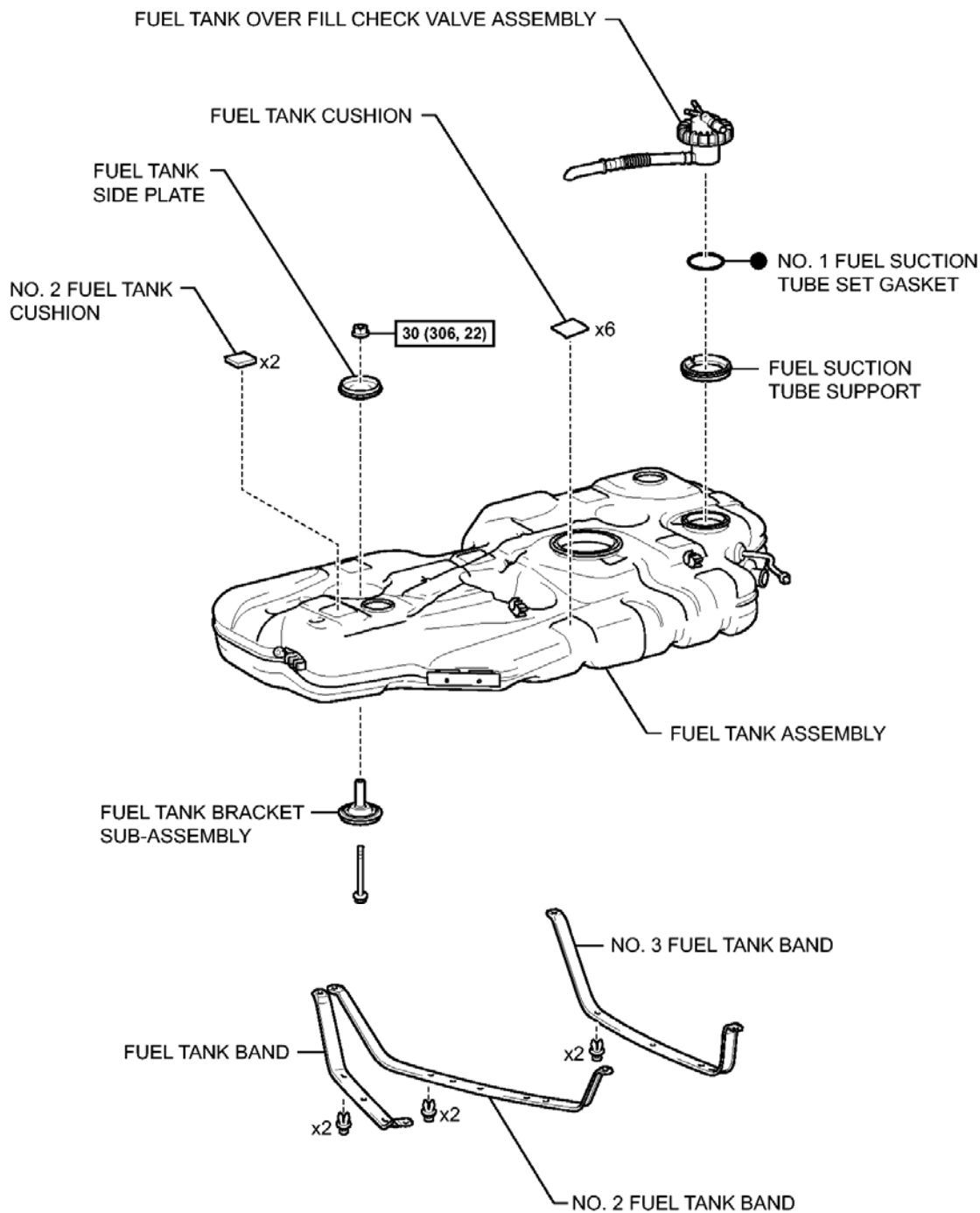


Fig. 32: Fuel Tank Replacement Components With Torque Specifications (3 of 4)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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

● Non-reusable part

Fig. 33: Fuel Tank Replacement Components With Torque Specifications (5 of 5)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

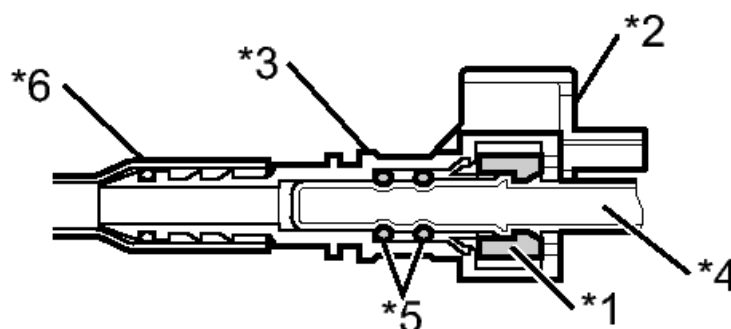
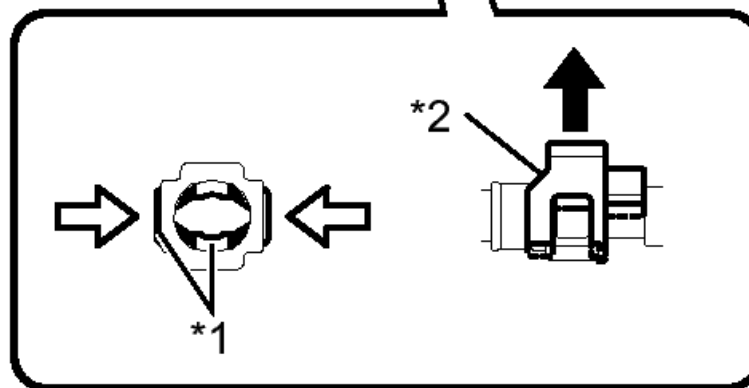
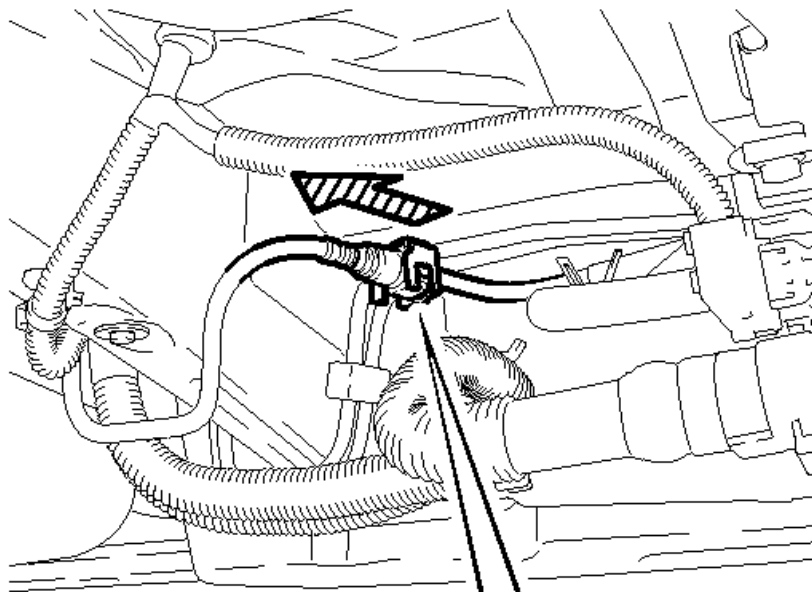
1. DISCHARGE FUEL SYSTEM PRESSURE

Refer to **PRECAUTION**

2. REMOVE CHARCOAL CANISTER PROTECTOR . Refer to REMOVAL - Step 1

3. DISCONNECT FUEL TANK MAIN TUBE SUB-ASSEMBLY

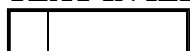
- a. Release the fuel tube connector cover as shown in the illustration.



P

Fig. 34: Removing Fuel Tank Main Tube Sub-Assembly Fuel Tube Connector & Cover
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



*1	Retainer
	Fuel Tube
*2	Connector Cover
*3	Fuel Tube Connector
*4	Fuel Pipe
*5	O-Ring
*6	Nylon Tube
·	Up
·	Pinch
·	Pull Out

- b. Pinch the retainer to release it as shown in the illustration and disconnect the fuel tank main tube. Refer to **PRECAUTION** .

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- Do not use any tools.
- Do not bend or twist the tubes.
- Protect the contact surface by covering it with a plastic bag.
- If the connector is stuck, push and pull on the parts to separate them.

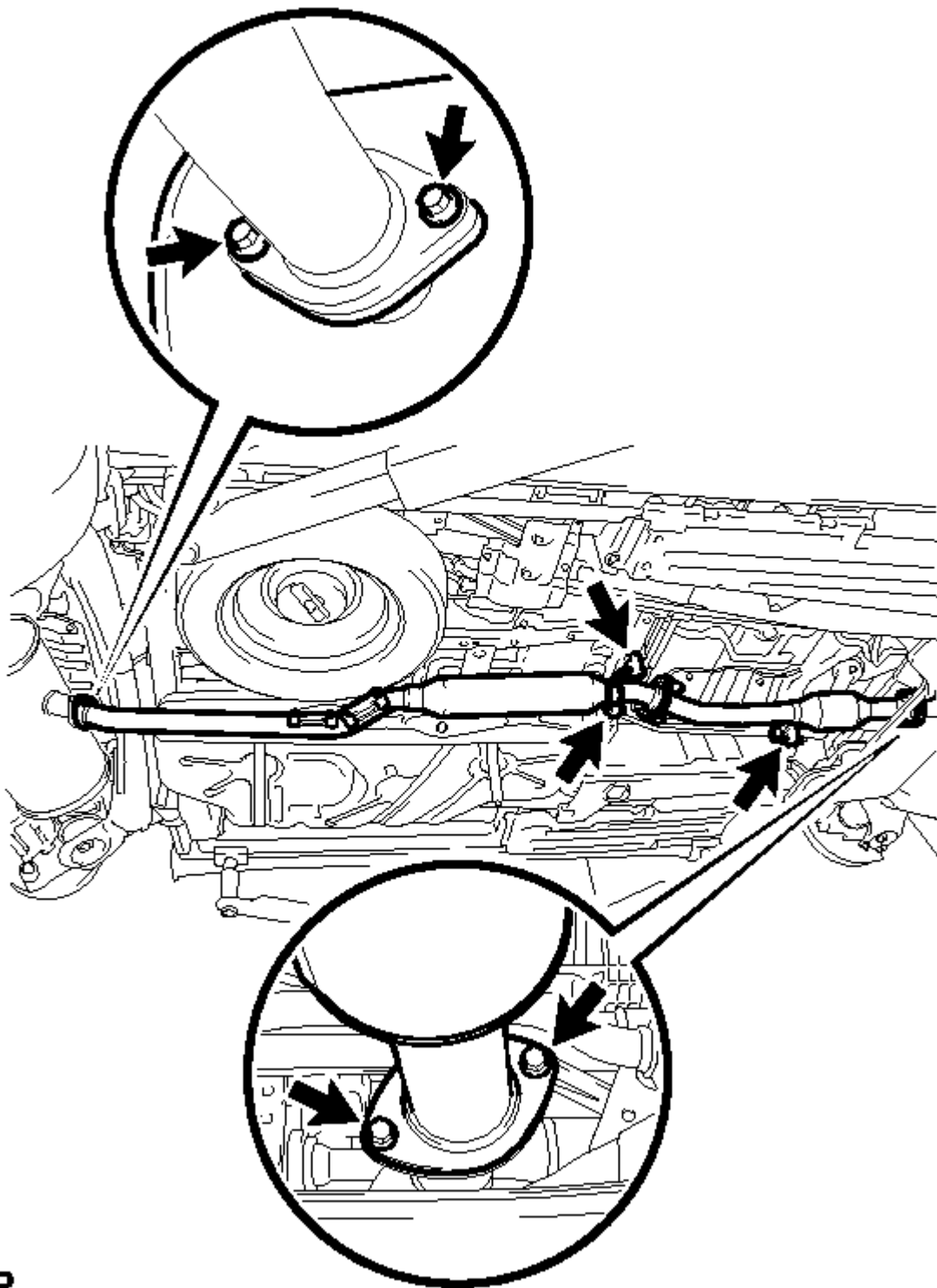
4. DRAIN FUEL

- a. Operate the fuel pump and drain the fuel from the fuel tank through the fuel tank main tube. Refer to **ON-VEHICLE INSPECTION - Step 1** .

5. REMOVE INSTRUMENT PANEL FINISH PANEL END LH . Refer to REMOVAL - Step 1

6. REMOVE CENTER EXHAUST PIPE ASSEMBLY

- a. Remove the 4 bolts.



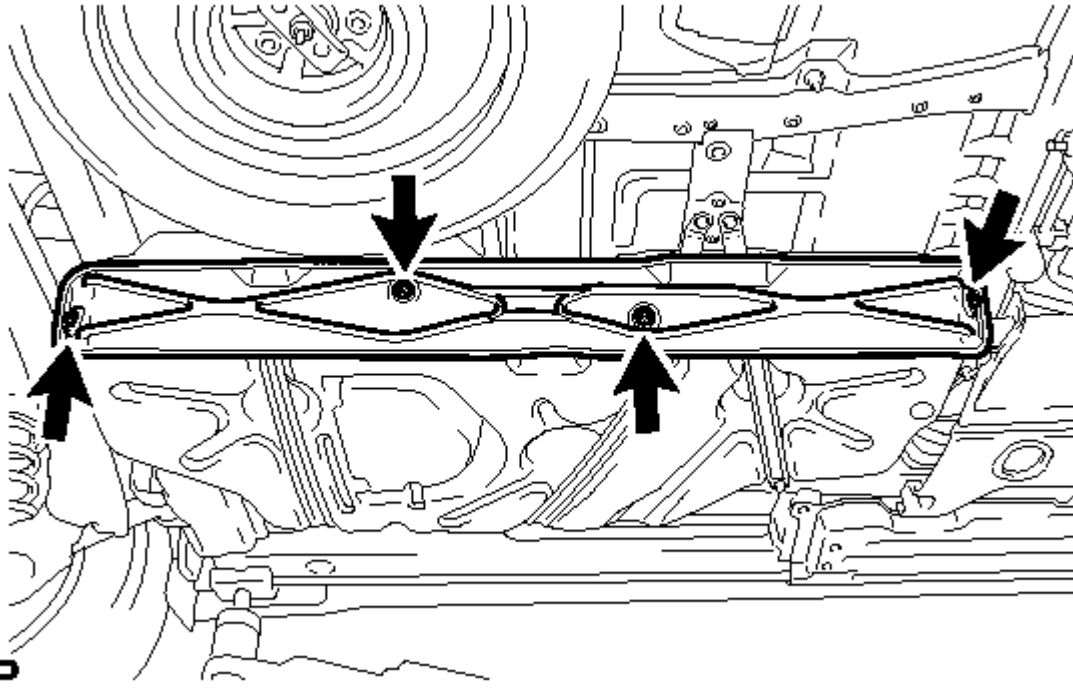
P

Fig. 35: Identifying Center Exhaust Pipe Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the 3 exhaust pipe supports and remove the center exhaust pipe assembly.
- c. Remove the 2 gaskets from the front exhaust pipe assembly and center exhaust pipe assembly.

7. REMOVE NO. 1 FUEL TANK HEAT INSULATOR

- a. Remove the 4 nuts and No. 1 fuel tank heat insulator.



P

Fig. 36: Identifying No. 1 Fuel Tank Heat Insulator & Fasteners (For 2WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **DISCONNECT FUEL TANK VENT HOSE** . Refer to **REMOVAL - Step 2**
9. **DISCONNECT CHARCOAL CANISTER OUTLET TUBE SUB-ASSEMBLY** . Refer to **REMOVAL - Step 3**
10. **REMOVE REAR FLOOR NO. 2 CROSSMEMBER BRACE LH**
- a. Remove the 2 bolts and the rear floor No. 2 crossmember brace LH.

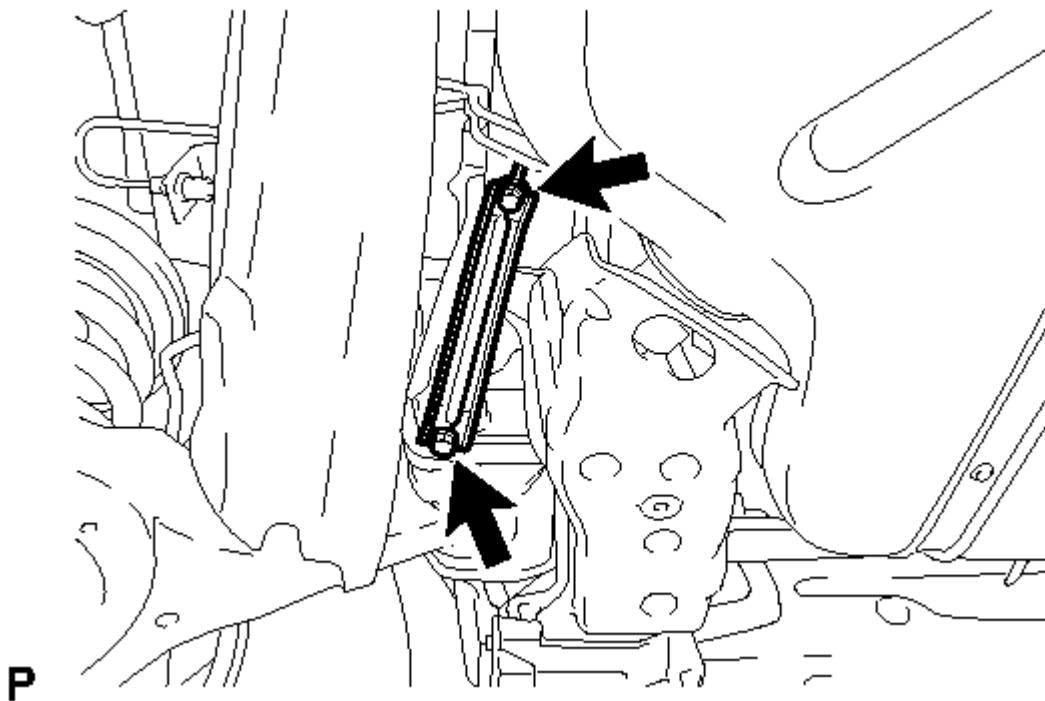


Fig. 37: Identifying Fuel Tank Filler Hose Cover And Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. REMOVE FUEL TANK FILLER HOSE COVER

- a. Remove the 3 bolts and the fuel tank filler hose cover.

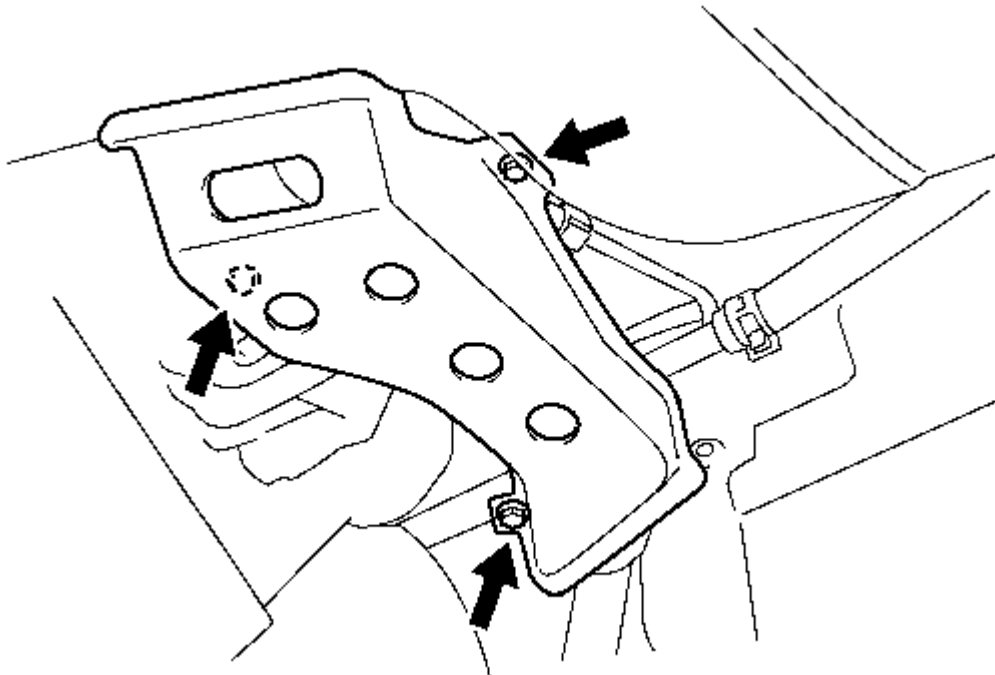
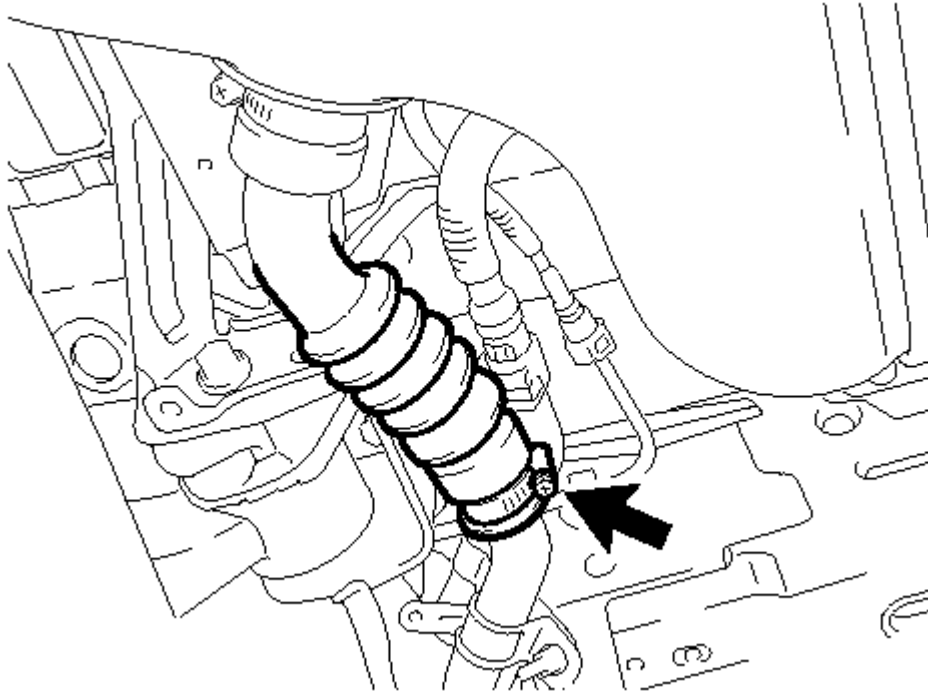


Fig. 38: Identifying Fuel Tank Filler Hose Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. REMOVE FUEL TANK ASSEMBLY

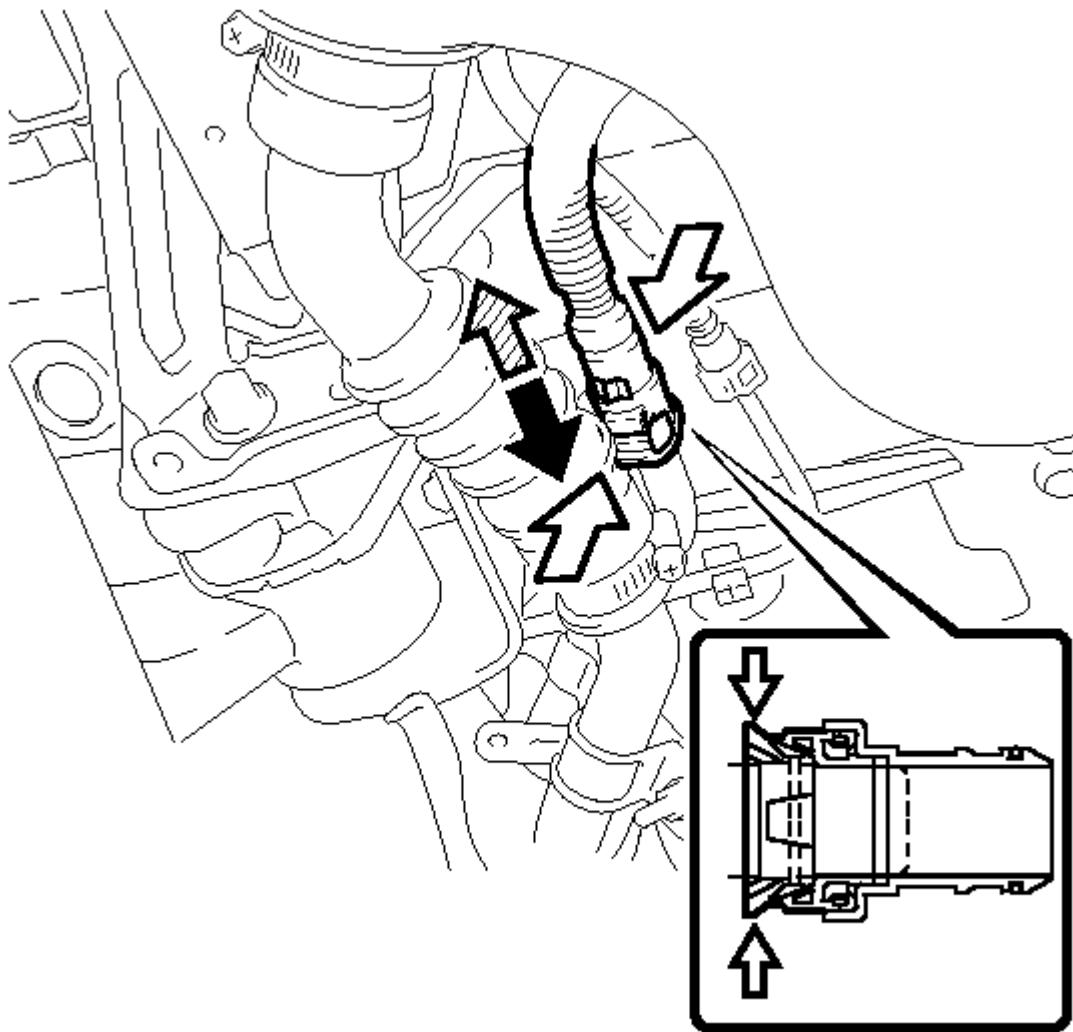
- a. Disconnect the fuel tank to filler pipe hose.



P

Fig. 39: Remove/Install Fuel Tank To Filler Pipe Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the charcoal canister outlet tube. Refer to **PRECAUTION** .



P

Fig. 40: Removing Charcoal Canister Outlet Tube
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

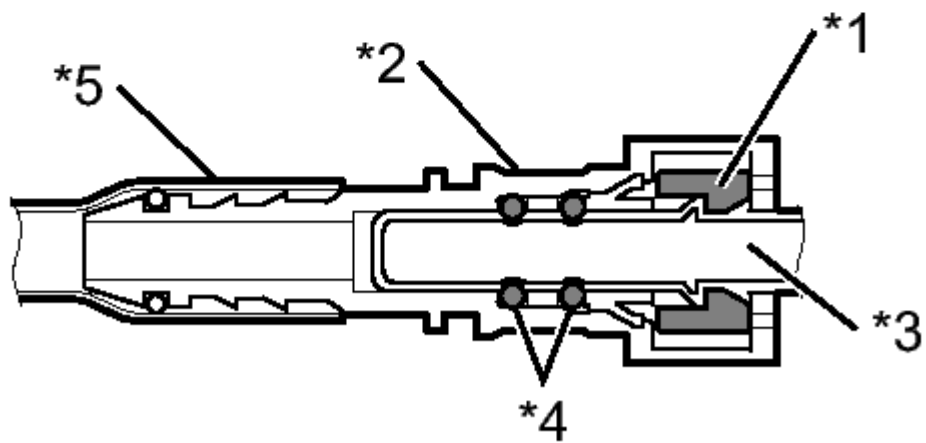
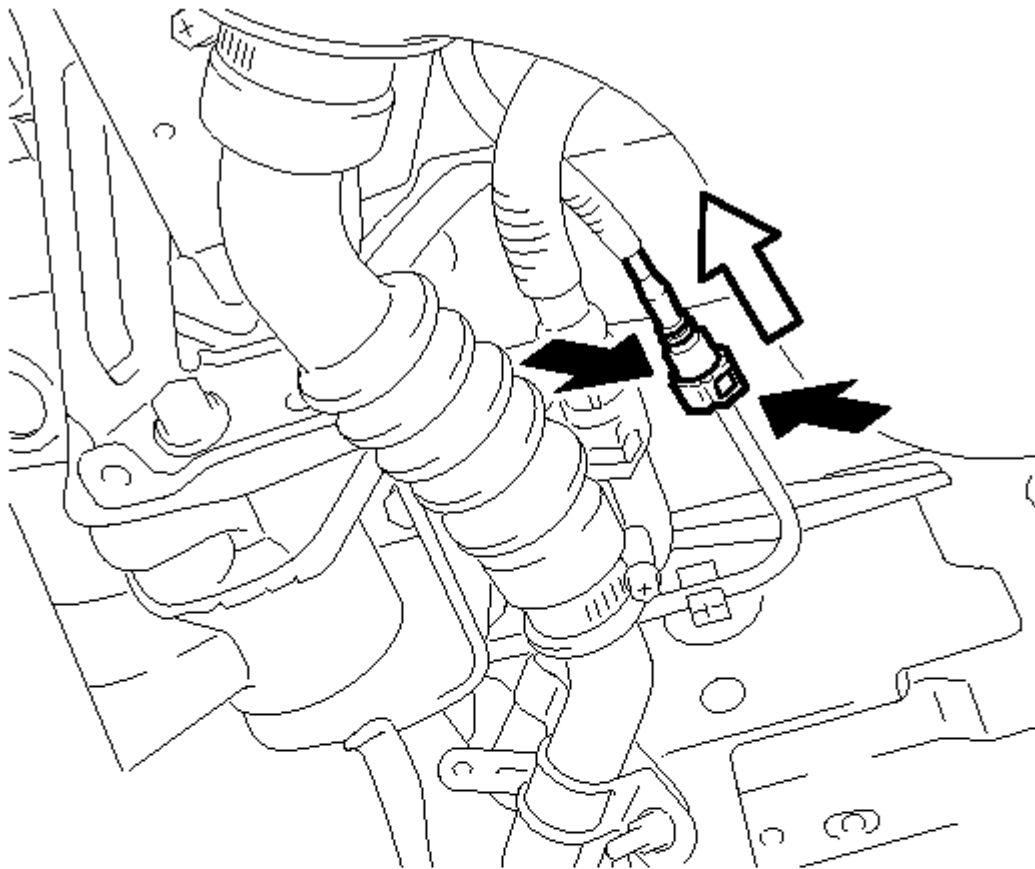
Push
Pinch
Pull
Out

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- Do not use any tools.

- Do not bend or twist the tubes.
- Protect the contact surface by covering it with a plastic bag.
- If the connector is stuck, push and pull on the parts to separate them.

c. Pinch the retainer to release it as shown in the illustration and disconnect the fuel tube. Refer to **PRECAUTION**.



P

Fig. 41: Removing Fuel Tank Assembly Fuel Tube
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

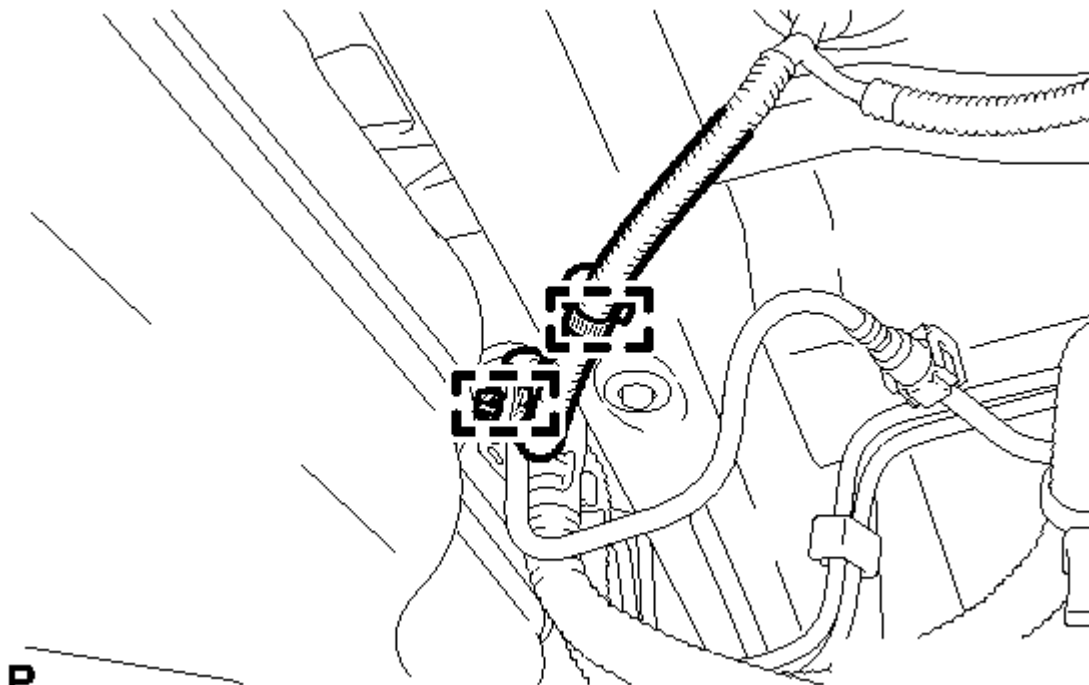
*1	Retainer
----	----------

*2	Fuel Tube Connector
*3	Fuel Pipe
*4	O-Ring
*5	Nylon Tube
·	Pinch
·	Pull Out

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- Do not use any tools.
- Do not bend or twist the tubes.
- Protect the contact surface by covering it with a plastic bag.
- If the connector is stuck, push and pull on the parts to separate them.

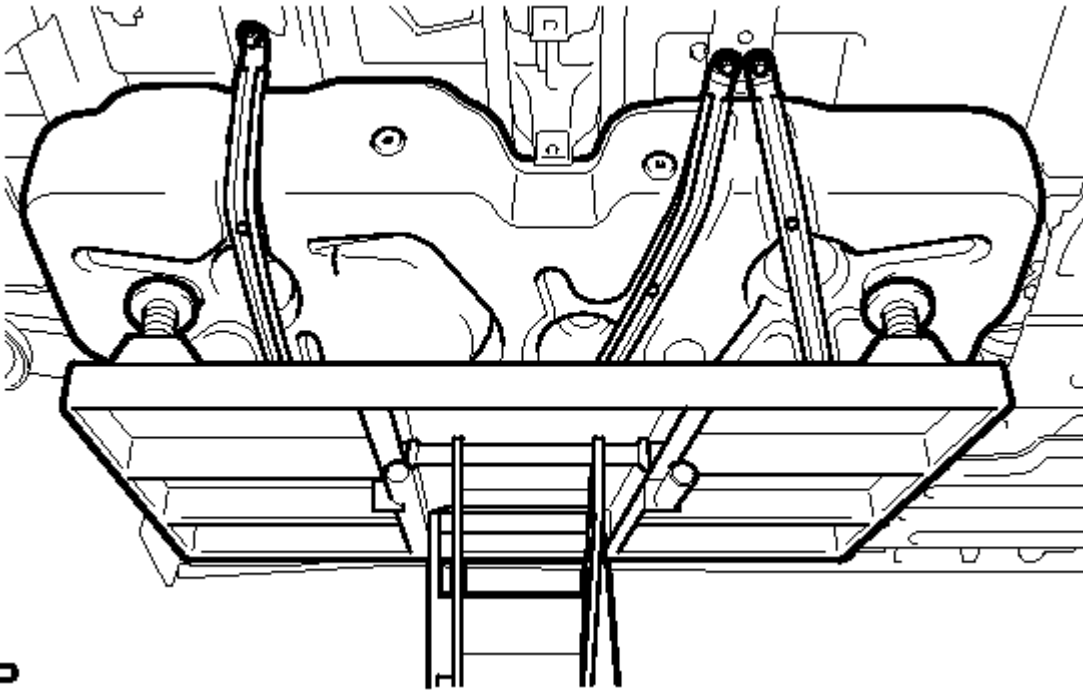
d. Disengage the 2 wire harness clamps.



P

Fig. 42: Identifying Fuel Tank Assembly Wire Harness Clamps
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

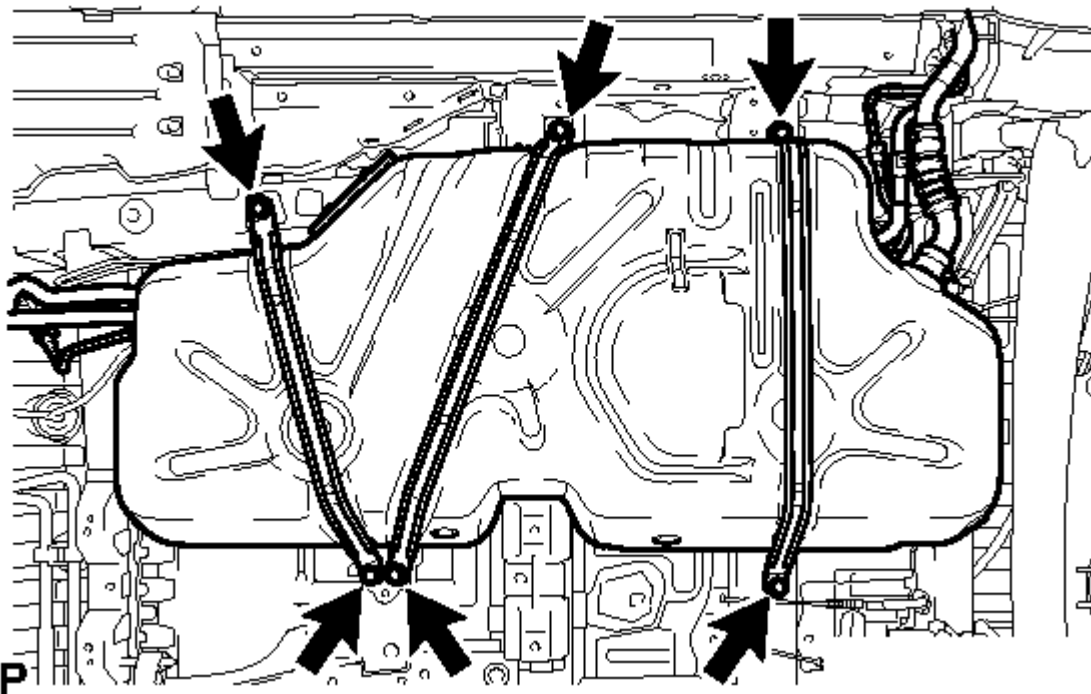
- e. Using an engine lifter, support the fuel tank assembly.



P

Fig. 43: Identifying Fuel Tank Assembly & Engine Lifter
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. Remove the 6 set bolts of the 3 fuel tank bands.

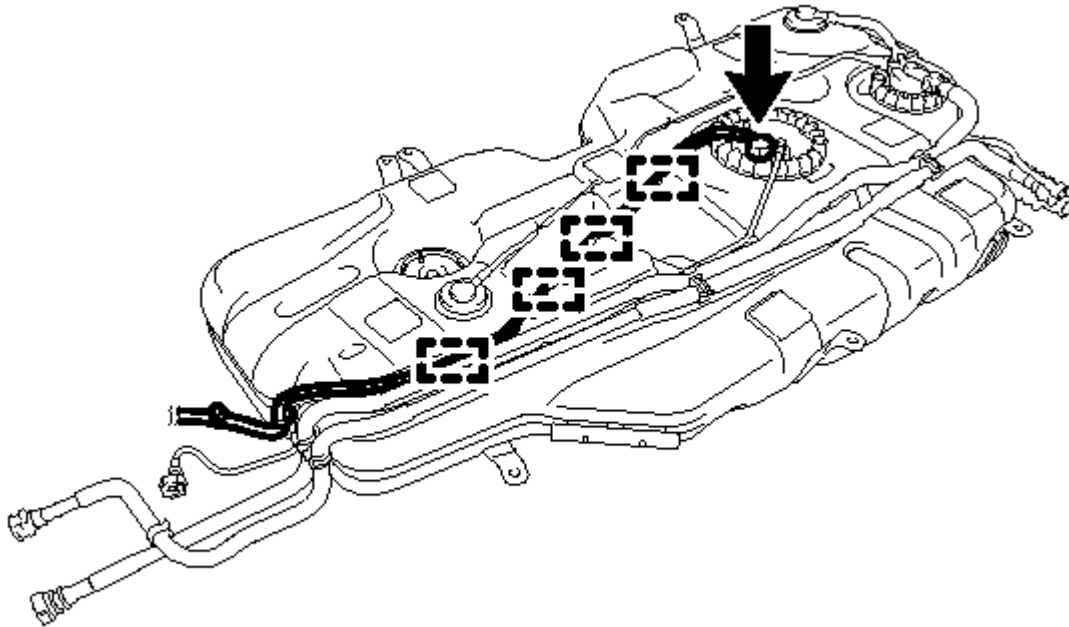


P

Fig. 44: Identifying Fuel Tank Bands & Fasteners

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- g. While operating the engine lifter, disengage the 4 guides for the wire harness and disconnect the fuel pump connector, then remove the fuel tank assembly and the 3 fuel tank bands from the vehicle.



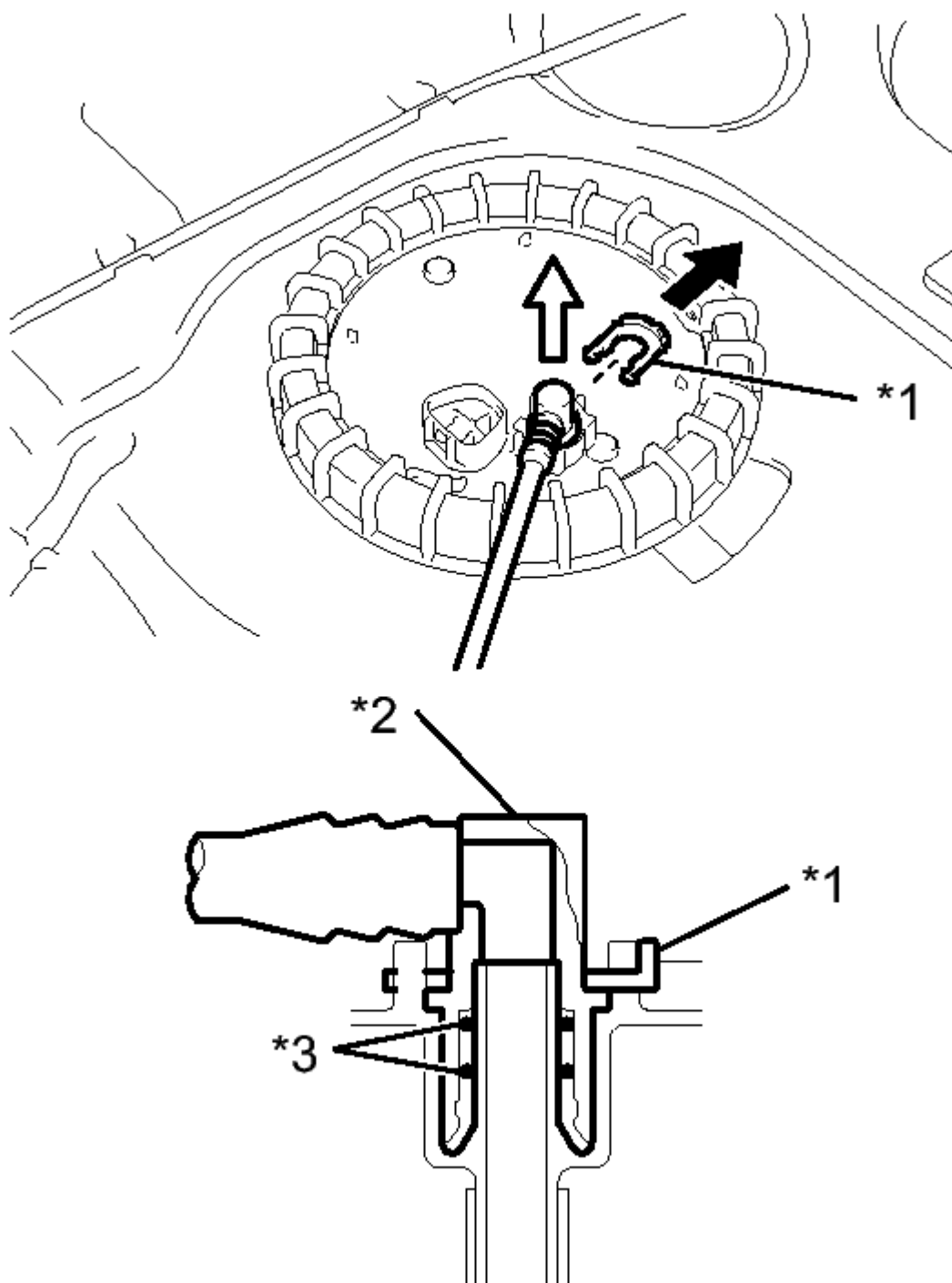
P

Fig. 45: Identifying Fuel Pump Connector & Guides

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. REMOVE FUEL TANK MAIN TUBE SUB-ASSEMBLY

- a. Widen the tip of the tube joint clip and pull out the clip in the direction indicated by the arrow.



P

Fig. 46: Removing Fuel Tank Main Tube Sub-Assembly & Clip
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Tube

*1	Joint Clip
*2	Fuel Tube Connector
*3	O-Ring
·	Pull Out
·	Pull

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- Do not use any tools.
- Do not bend or twist the tubes.
- Protect the contact surface by covering it with a plastic bag.
- If the connector is stuck, push and pull on the parts to separate them.

- b. Disengage the 4 guides and remove the fuel tank main tube sub-assembly.

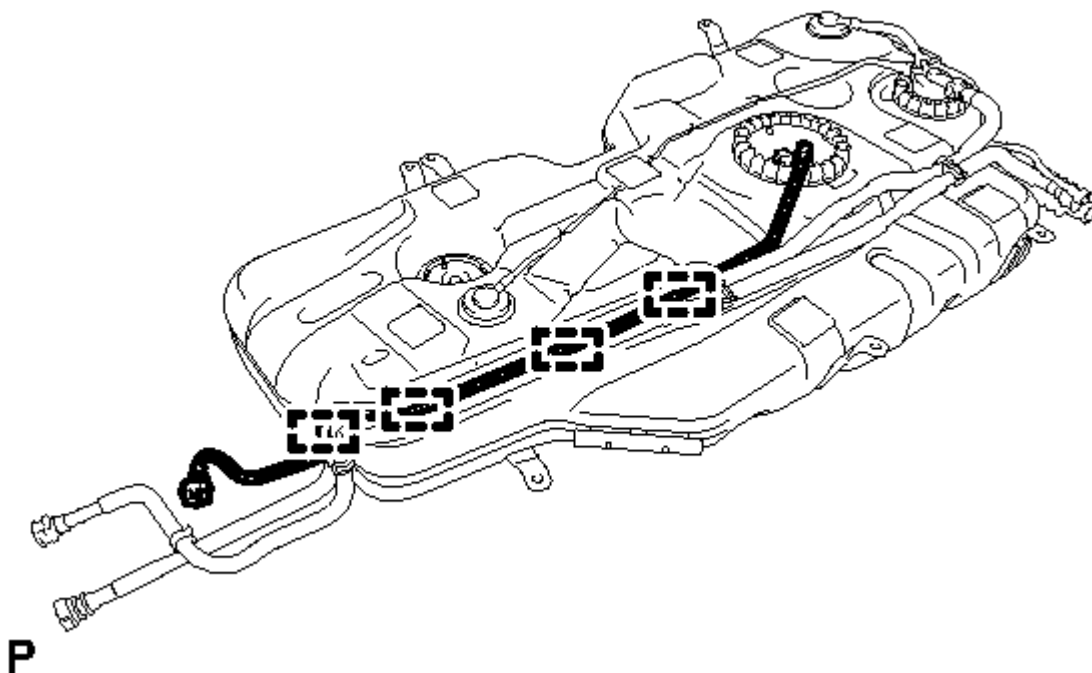
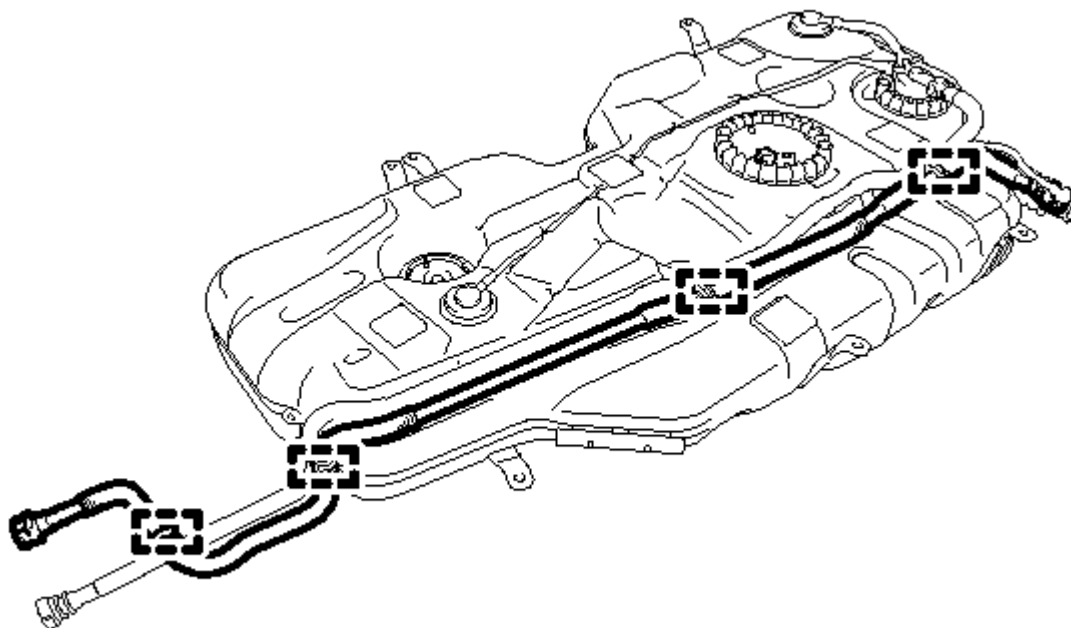


Fig. 47: Identifying Fuel Tank Main Tube Sub-Assembly & Guides
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. REMOVE CHARCOAL CANISTER OUTLET TUBE SUB-ASSEMBLY

- a. Disengage the 4 clamps and remove the charcoal canister outlet tube sub-assembly.

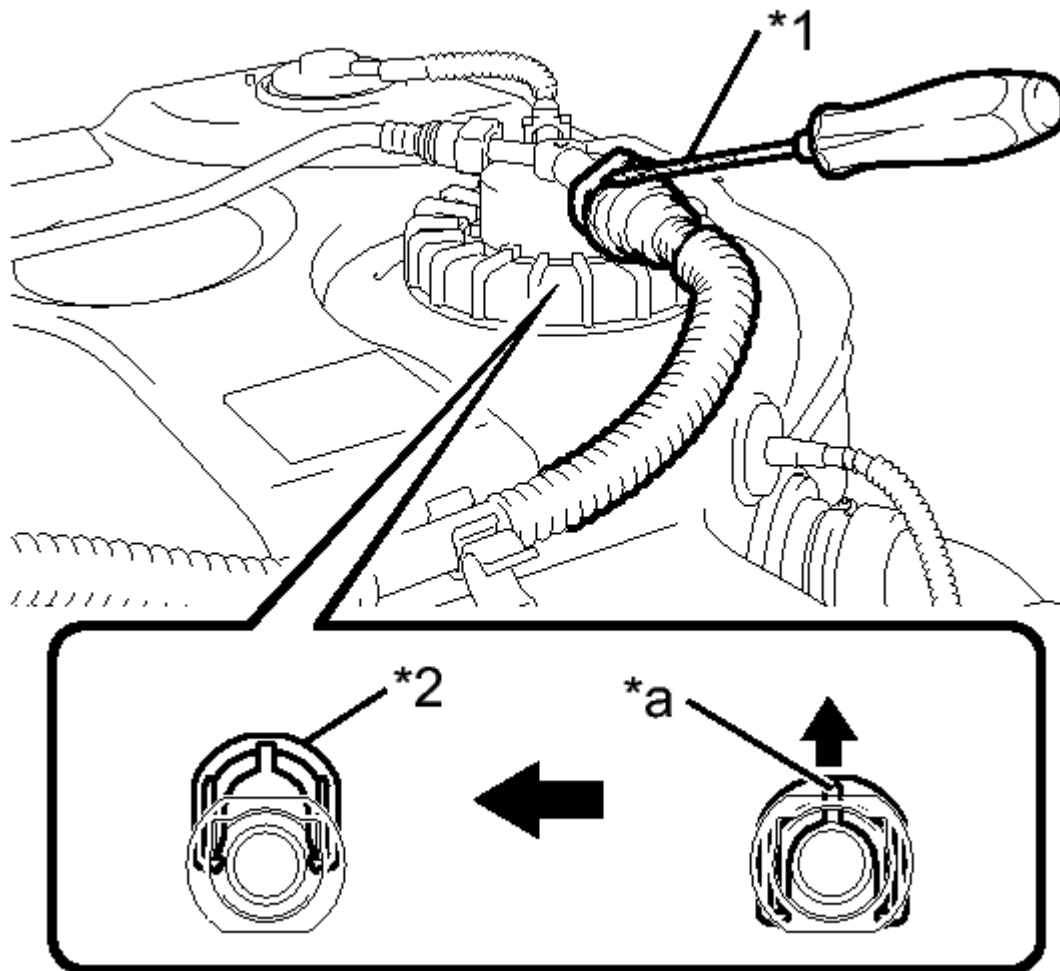


P

Fig. 48: Identifying Charcoal Canister Outlet Tube Sub-Assembly & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. REMOVE FUEL TANK VENT HOSE

- a. Insert a screwdriver with its tip wrapped in protective tape into the quick connector cutout as shown in the illustration, pry up the retainer and disconnect the fuel tank vent hose.



P

Fig. 49: Removing Fuel Tank Vent Hose Using Screwdriver
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Protective Tape
*2	Retainer
*a	Cutout

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- Do not bend or twist the tubes.

- Protect the contact surface by covering it with a plastic bag.
- If the connector is stuck, push and pull on the parts to separate them.

b. Disengage the 4 clamps and remove the fuel tank vent hose and hose clamp.

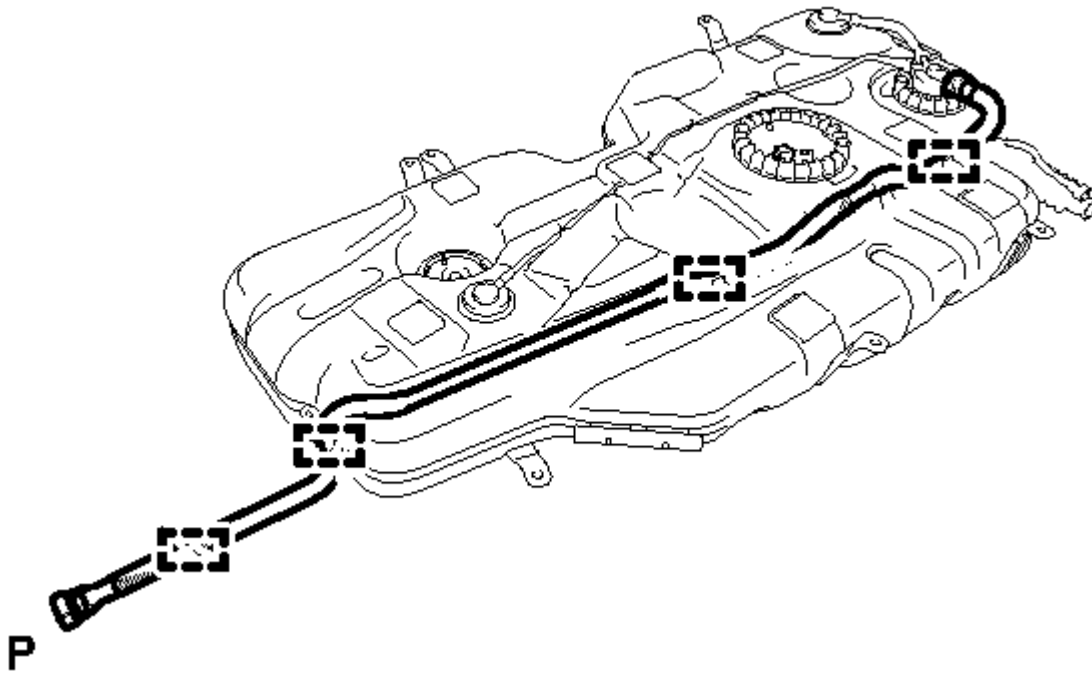
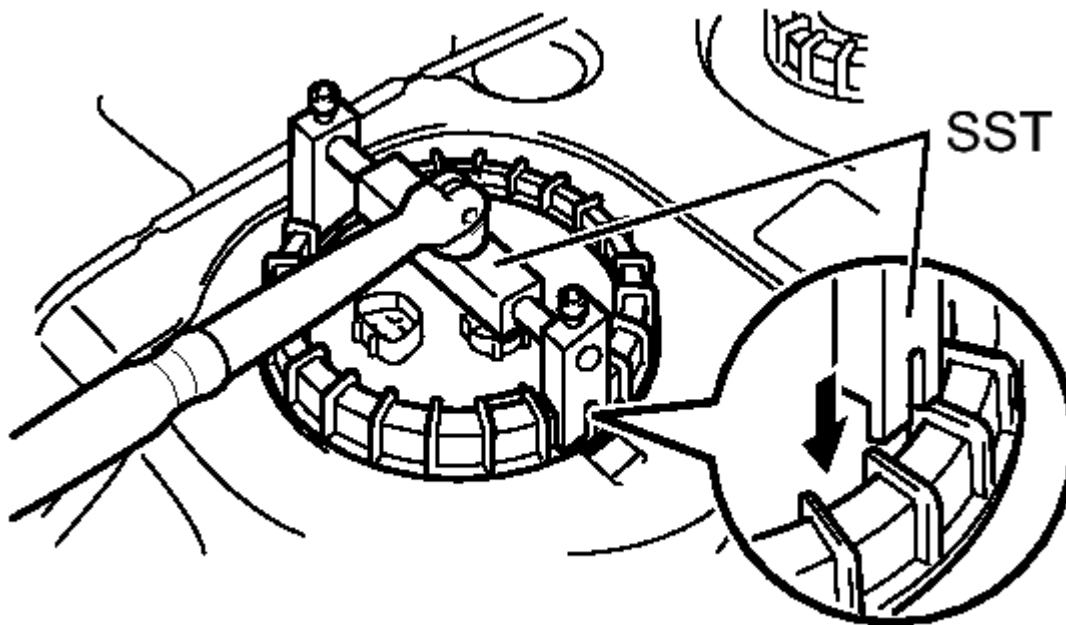


Fig. 50: Identifying Fuel Tank Vent Hose & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. REMOVE FUEL PUMP GAUGE RETAINER

- a. Using SST, loosen the retainer.



P

Fig. 51: Removing Fuel Pump Gauge Retainer Using SST

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- SST: 09808-14020
09808-01410
09808-01420
09808-01430

NOTE:

- Do not use any tools other than SST.
- When the retainer is loosened, be careful as the fuel suction with pump and gauge tube assembly will spring upward from the force of the spring.
- Remove foreign matter around the fuel suction with pump and gauge tube assembly before this operation.

HINT:

Align the ribs of the fuel pump gauge retainer with the tips of SST.

- b. Remove the fuel pump gauge retainer while holding the fuel suction with pump and gauge tube assembly by hand.

17. REMOVE FUEL SUCTION WITH PUMP AND GAUGE TUBE ASSEMBLY

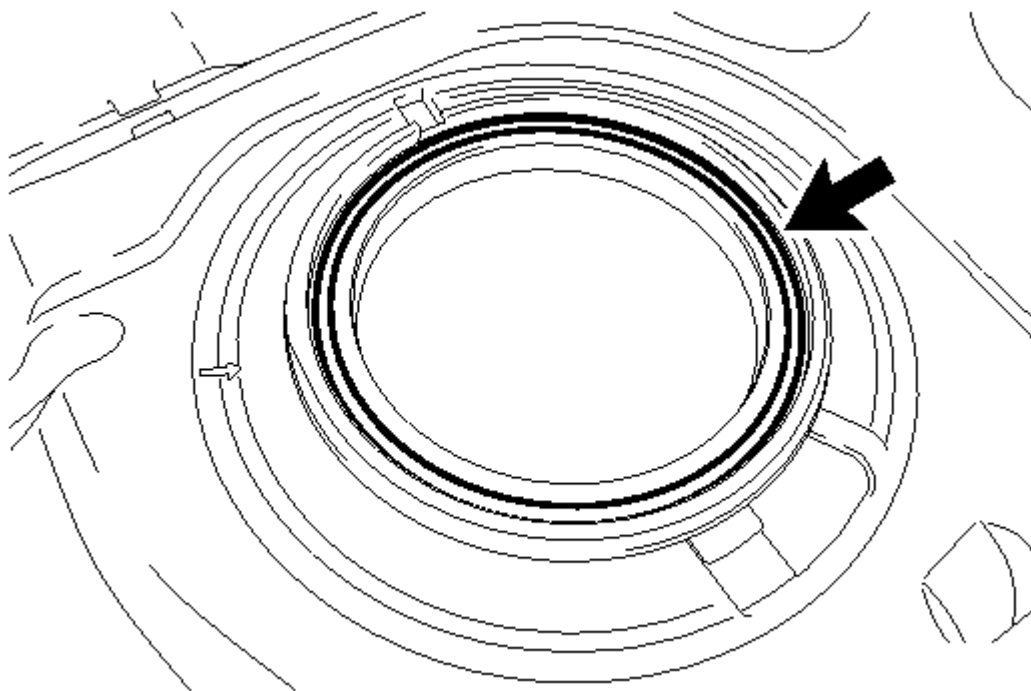
- a. Remove the fuel suction with pump and gauge tube assembly from the fuel tank.

NOTE:

Do not bend the arm of the sender gauge.

18. **REMOVE FUEL SUCTION TUBE SET GASKET**

- a. Remove the gasket from the fuel tank.

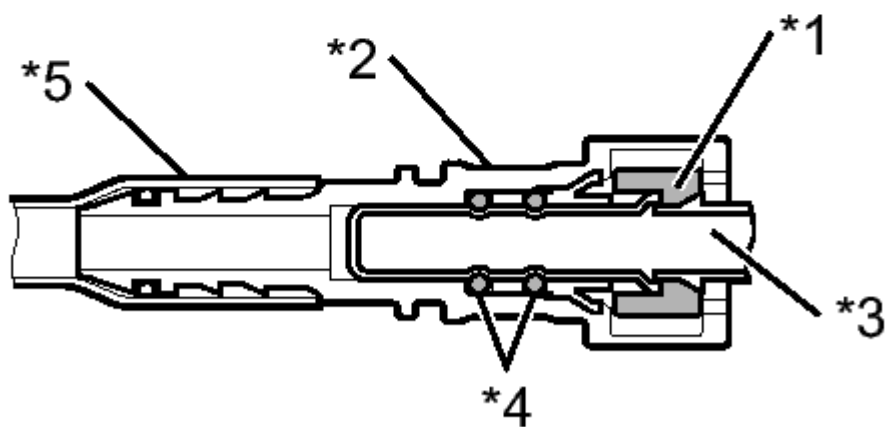
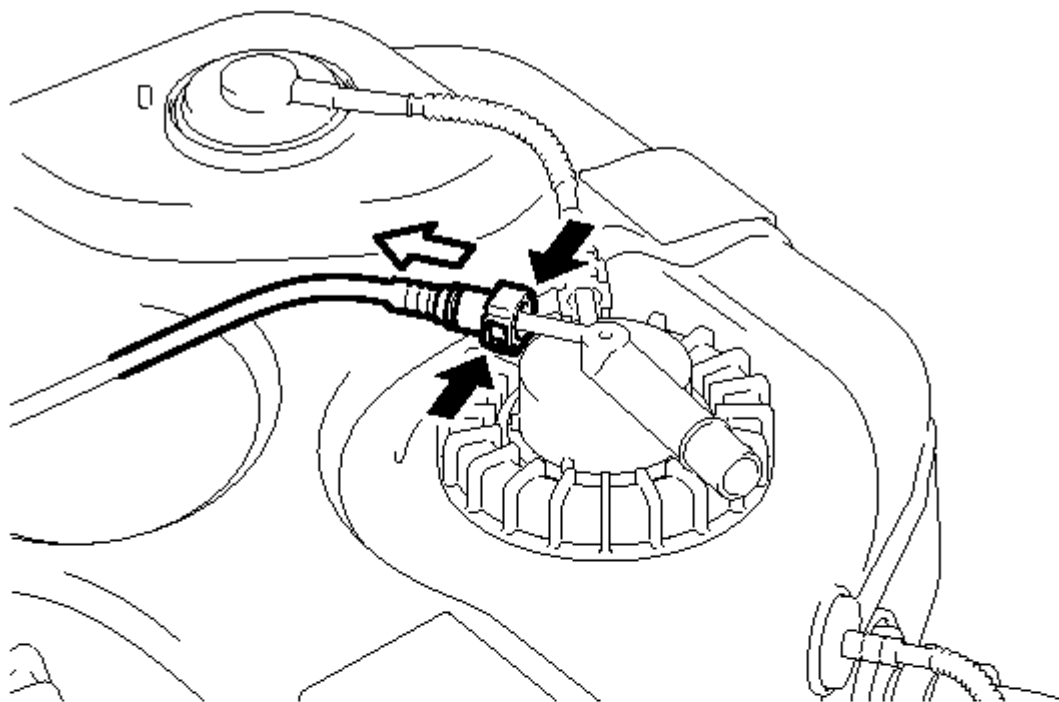


P

Fig. 52: Identifying Fuel Suction Tube Set Gasket At Fuel Tank
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. **REMOVE FUEL TANK OVERFILL CHECK VALVE ASSEMBLY**

- a. Pinch the retainer to release it as shown in the illustration and disconnect the fuel tube. Refer to **PRECAUTION**.



P

Fig. 53: Removing Fuel Tube Connector
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

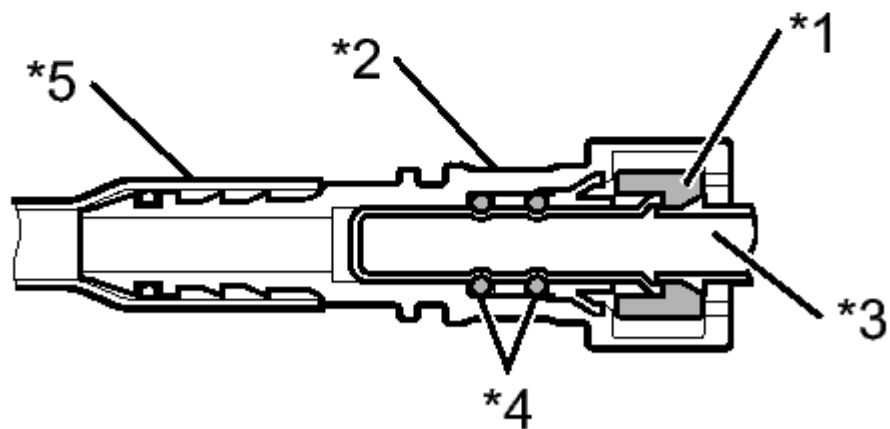
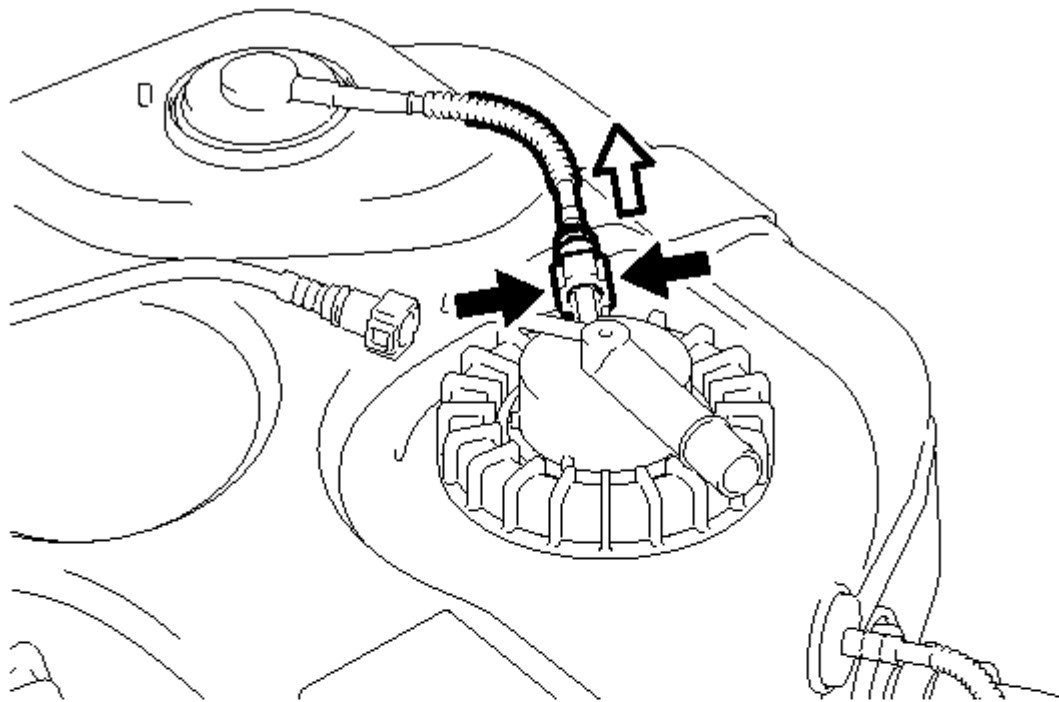
*1	Retainer
----	----------

*2	Fuel Tube Connector
*3	Fuel Pipe
*4	O-Ring
*5	Nylon Tube
·	Pinch
·	Pull Out

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- Do not use any tools.
- Do not bend or twist the tubes.
- Protect the contact surface by covering it with a plastic bag.
- If the connector is stuck, push and pull on the parts to separate them.

- b. Pinch the retainer to release it as shown in the illustration and disconnect the fuel tube. Refer to **PRECAUTION** .



P

Fig. 54: Removing Fuel Tube Connector
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Retainer
----	----------

*2	Fuel Tube Connector
*3	Fuel Pipe
*4	O-Ring
*5	Nylon Tube
·	Pinch
·	Pull Out

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- Do not use any tools.
- Do not bend or twist the tubes.
- Protect the contact surface by covering it with a plastic bag.
- If the connector is stuck, push and pull on the parts to separate them.

c. Disengage the hose clamp.

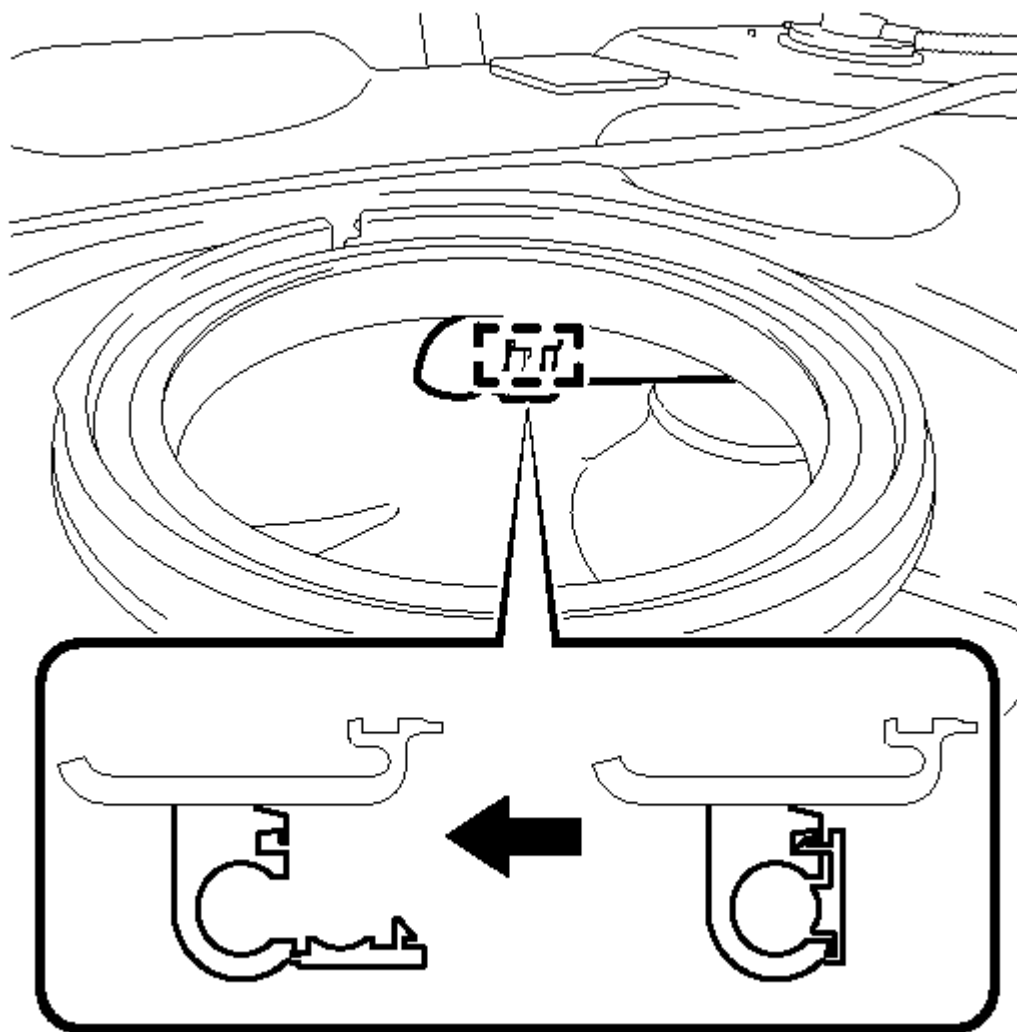


Fig. 55: Disengaging Fuel Tube Hose Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Using SST, loosen the retainer.

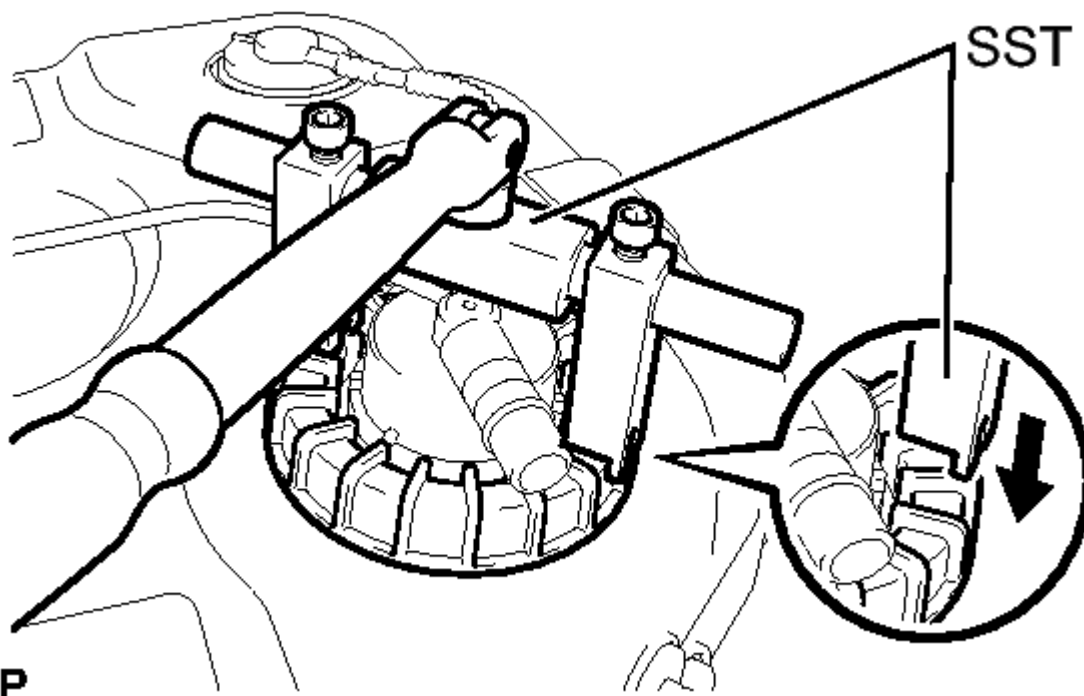


Fig. 56: Loosening Fuel Pump Gauge Retainer Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

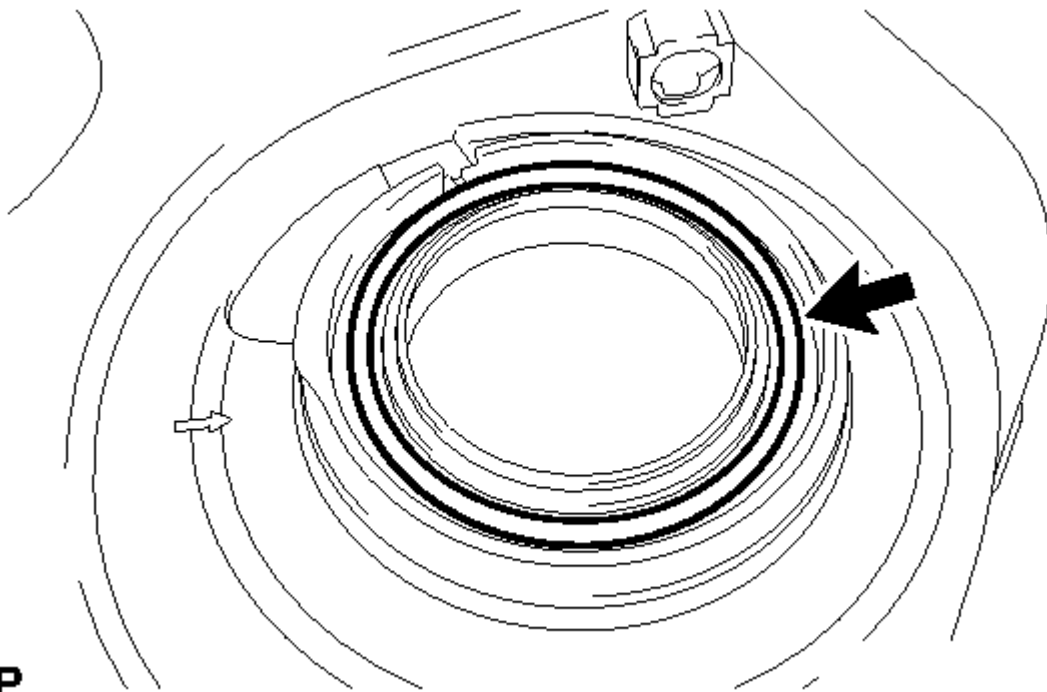
- SST: 09808-14020
09808-01410
09808-01420
09808-01430

HINT:

Align the ribs of the fuel pump gauge retainer with the tips of SST.

NOTE: Remove foreign matter around the fuel tank overfill check valve assembly before this operation.

- e. Remove the fuel tank overfill check valve assembly.
20. **REMOVE NO. 1 FUEL SUCTION TUBE SET GASKET**
- a. Remove the gasket from the fuel tank.

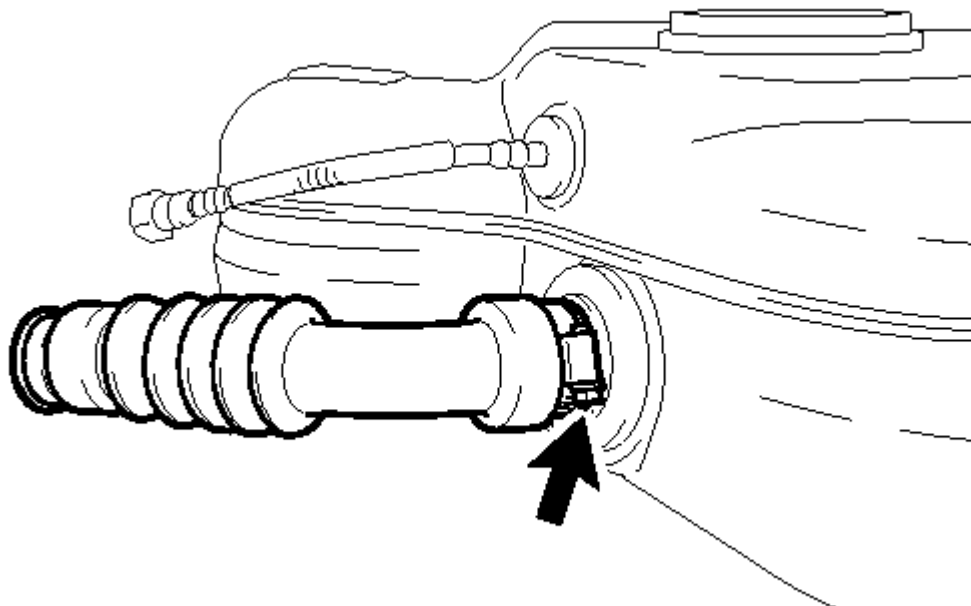


P

Fig. 57: Identifying No. 1 Fuel Suction Tube Set Gasket At Fuel Tank
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

21. REMOVE FUEL TANK TO FILLER PIPE HOSE

- a. Remove the fuel tank to filler pipe hose from the fuel tank.



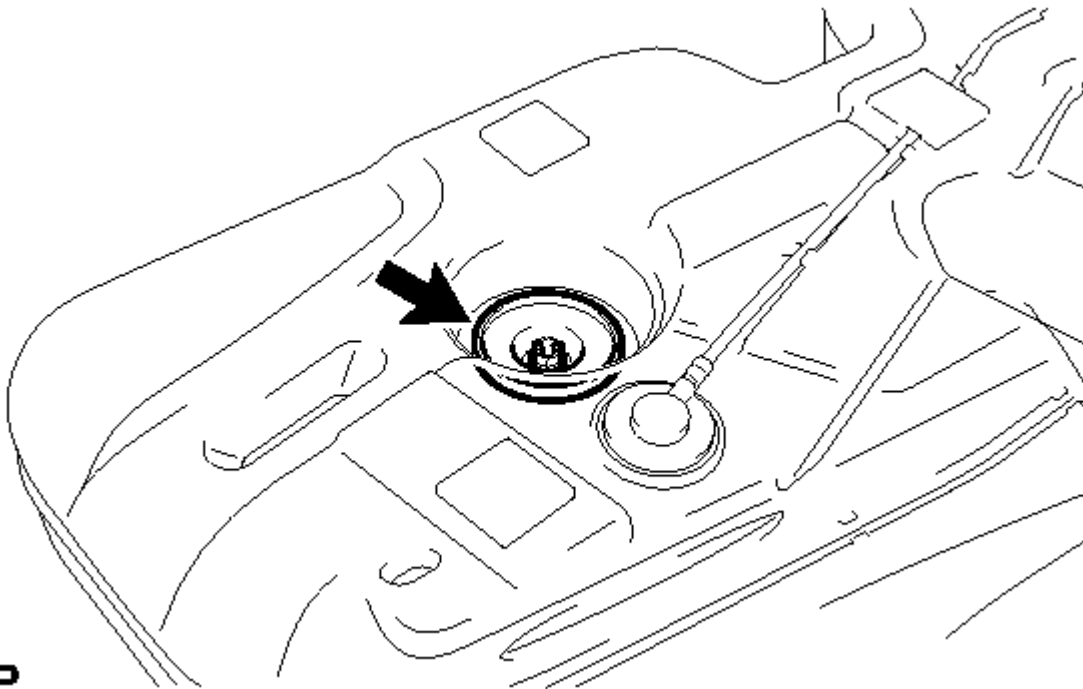
P

Fig. 58: Identifying Fuel Tank To Filler Pipe Hose At Fuel Tank

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

22. REMOVE FUEL TANK SIDE PLATE

- a. Remove the nut, bolt, fuel tank side plate and fuel tank bracket sub-assembly.



P

Fig. 59: Identifying Fuel Tank Side Plate & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

23. REMOVE NO. 2 FUEL TANK CUSHION

- a. Remove the 2 No. 2 fuel tank cushions.

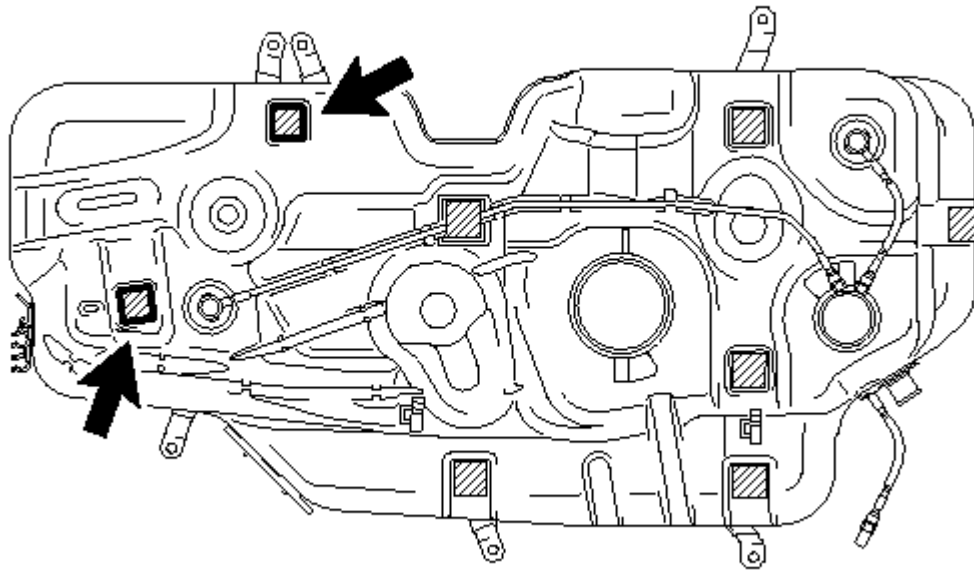


Fig. 60: Identifying No. 2 Fuel Tank Cushions
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

24. REMOVE FUEL TANK CUSHION

- a. Remove the 6 fuel tank cushions.

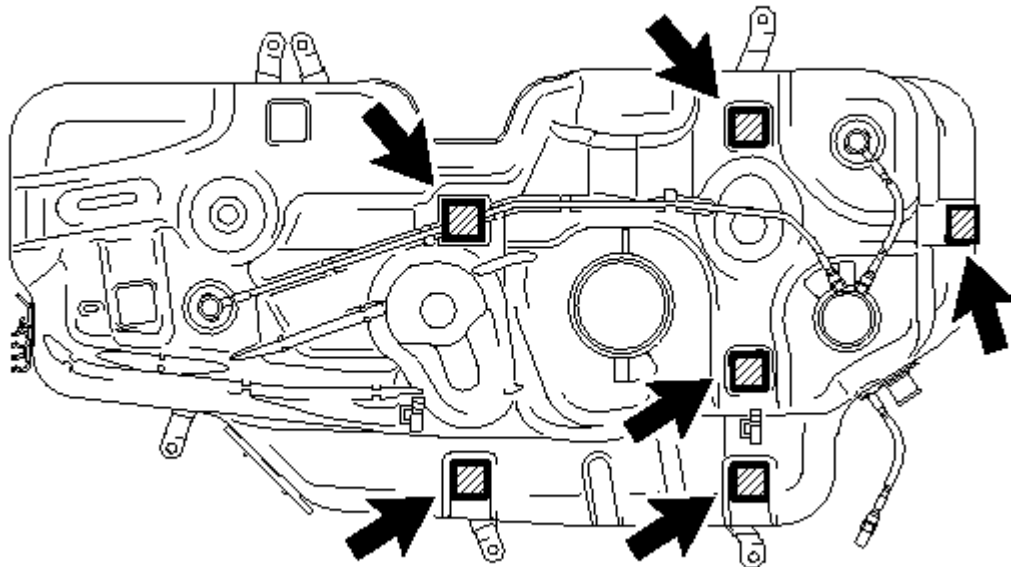
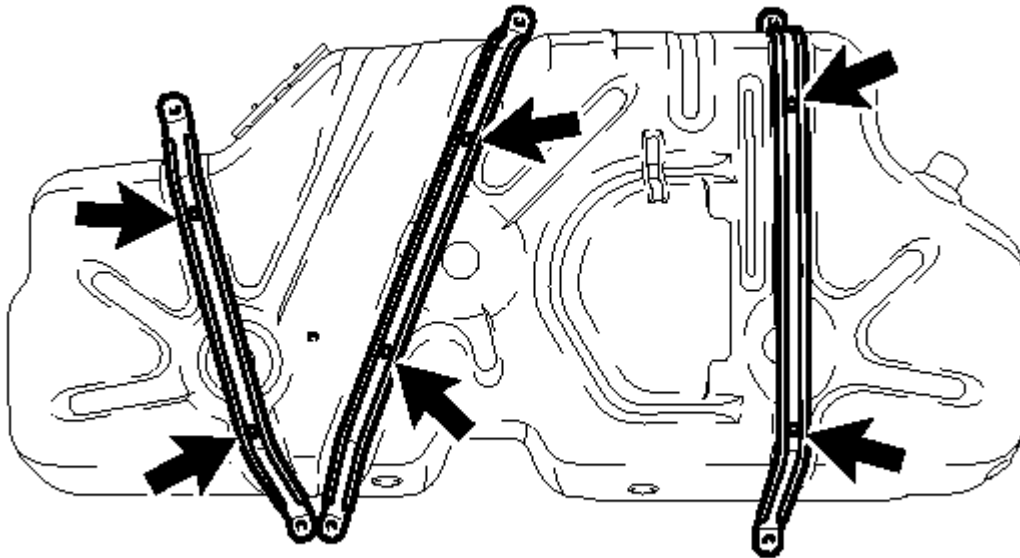


Fig. 61: Identifying Fuel Tank Cushions

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

25. REMOVE FUEL TANK BAND

- a. Remove the 6 clips and 3 fuel tank bands.



P

Fig. 62: Identifying Fuel Tank Bands & Clips

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. INSPECT FUEL SUCTION WITH PUMP AND GAUGE TUBE ASSEMBLY

- a. Inspect the fuel pump resistance.

*a

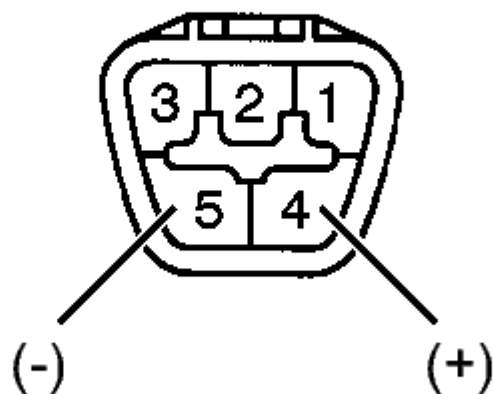


Fig. 63: Identifying Fuel Suction With Pump & Gauge Tube Assembly Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Fuel Suction with Pump and Gauge Tube Assembly)
----	--

1. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
4 - 5	20°C (68°F)	0.2 to 3.0 ohms

If the result is not as specified, replace the fuel suction with pump and gauge tube assembly.

INSTALLATION

INSTALLATION

1. INSTALL FUEL TANK BAND

- a. Install the 3 fuel tank bands with the 6 clips.

2. INSTALL FUEL TANK CUSHION

- a. Install the 6 fuel tank cushions.

3. INSTALL NO. 2 FUEL TANK CUSHION

- a. Install the 2 No. 2 fuel tank cushions.

4. INSTALL FUEL TANK SIDE PLATE

- a. Install the fuel tank side plate and fuel tank bracket sub-assembly with the nut and bolt.

Torque: 30 N*m (306 kgf*cm, 22 ft.*lbf)

5. INSTALL FUEL TANK TO FILLER PIPE HOSE

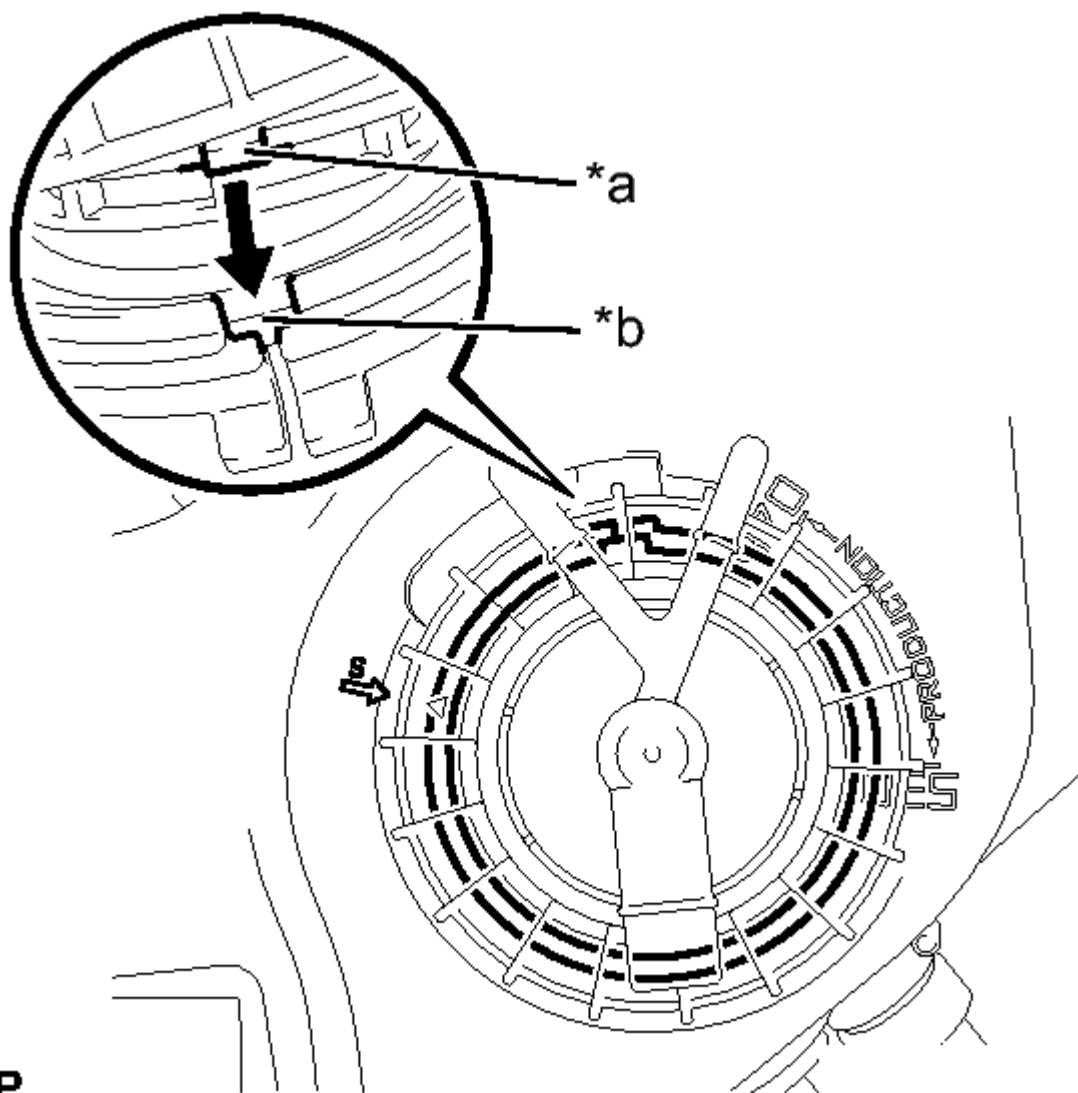
- a. Install the fuel tank to filler pipe hose.

6. INSTALL NO. 1 FUEL SUCTION TUBE SET GASKET

- a. Ensure gasket groove is clean and free of foreign particles.
- b. Install a new gasket onto the fuel tank.
- c. Make sure that the gasket sits in the groove.

7. INSTALL FUEL TANK OVERFILL CHECK VALVE ASSEMBLY

- a. Align the protrusion of the fuel tank overfill check valve assembly with the cutout of the tank suction tube support and install the fuel tank overfill check valve assembly.



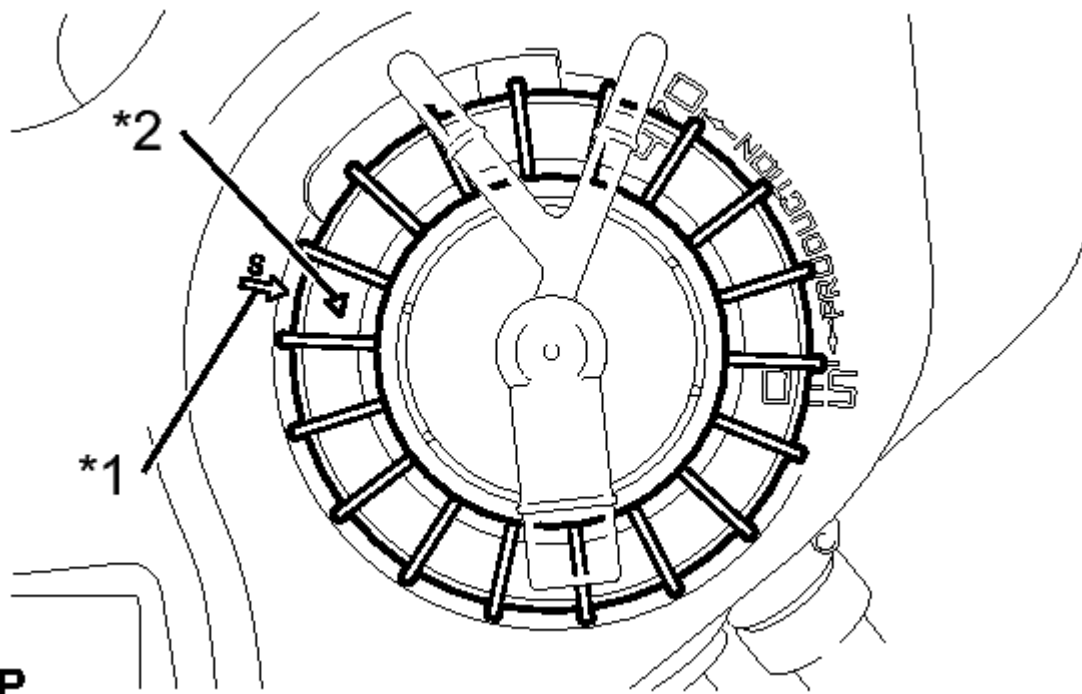
P

Fig. 64: Identifying Fuel Tank Overfill Check Valve Assembly Protrusion
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion
*b	Cutout

- b. Align marks on the fuel pump gauge retainer and the fuel tank.



P

Fig. 65: Identifying Fuel Pump Gauge Retainer & Fuel Tank Alignment
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

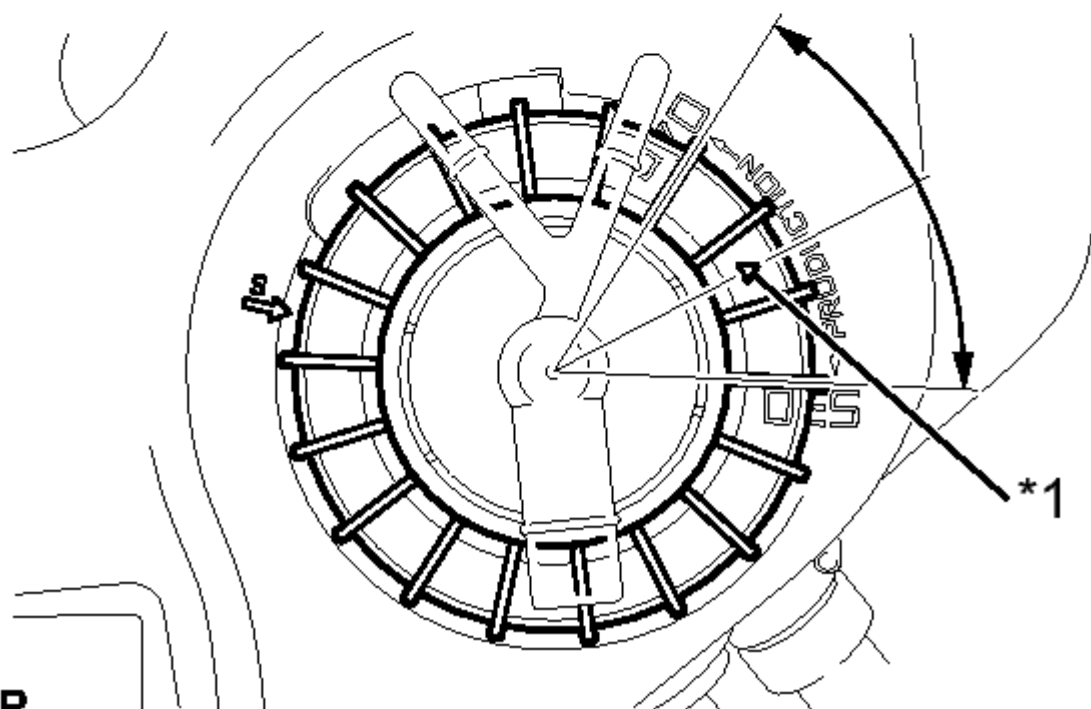
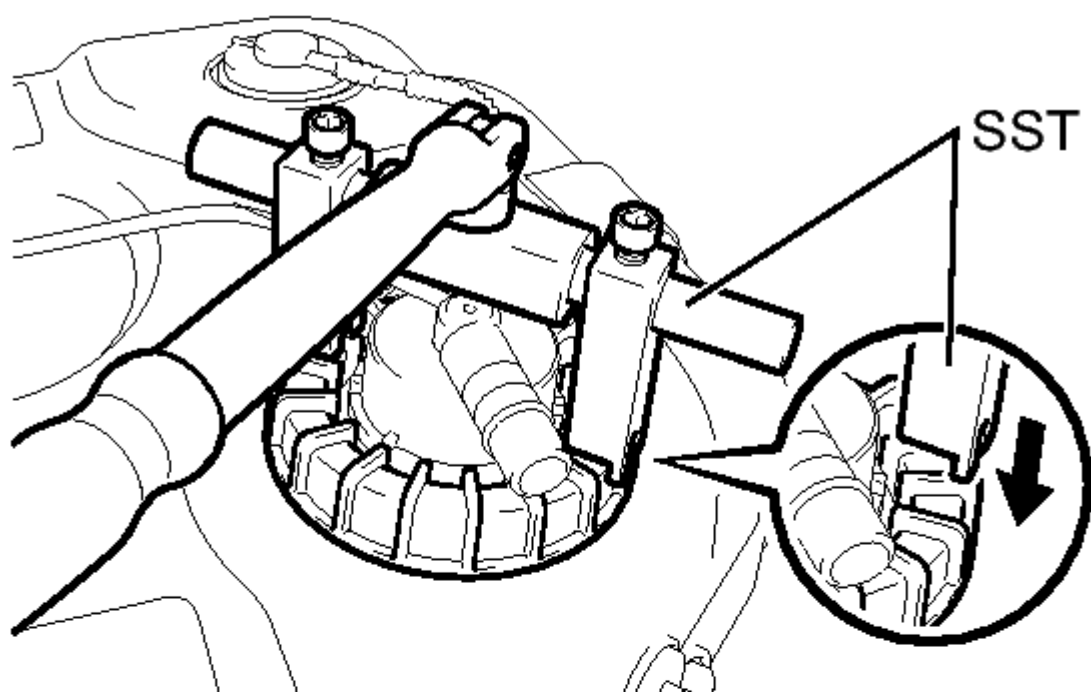
TEXT IN ILLUSTRATION

*1	Start Mark (Fuel Tank Side)
*2	Start Mark (Retainer Side)

- c. Position the fuel pump gauge retainer on top of the fuel tank overfill check valve assembly flange while pushing down the flange on center.
- d. While holding the fuel tank overfill check valve assembly, tighten the fuel pump gauge retainer one complete turn by hand*1.

NOTE:

- Make sure the fuel tank overfill check valve assembly anti-rotation tab is in the groove during above operation.
 - "S" arrow on the fuel tank indicates 0 degrees position.
- e. Ensure that no cross threading occurred during installation by checking the gap between the fuel pump gauge retainer and the fuel tank. Confirm that the gap is even. If cross threading occurred, remove the fuel pump gauge retainer and repeat step*1.



P

Fig. 66: Installing Fuel Pump Gauge Retainer Using SST
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Start

	Mark
*1	(Retainer Side)

f. Using SST, tighten the fuel pump gauge retainer.

- **SST: 09808-14020**

09808-01410

09808-01420

09808-01430

NOTE:

- **No ratcheting effect allowed when tightening the fuel pump gauge retainer.**
- **No grease or lubrication allowed on parts during installation.**

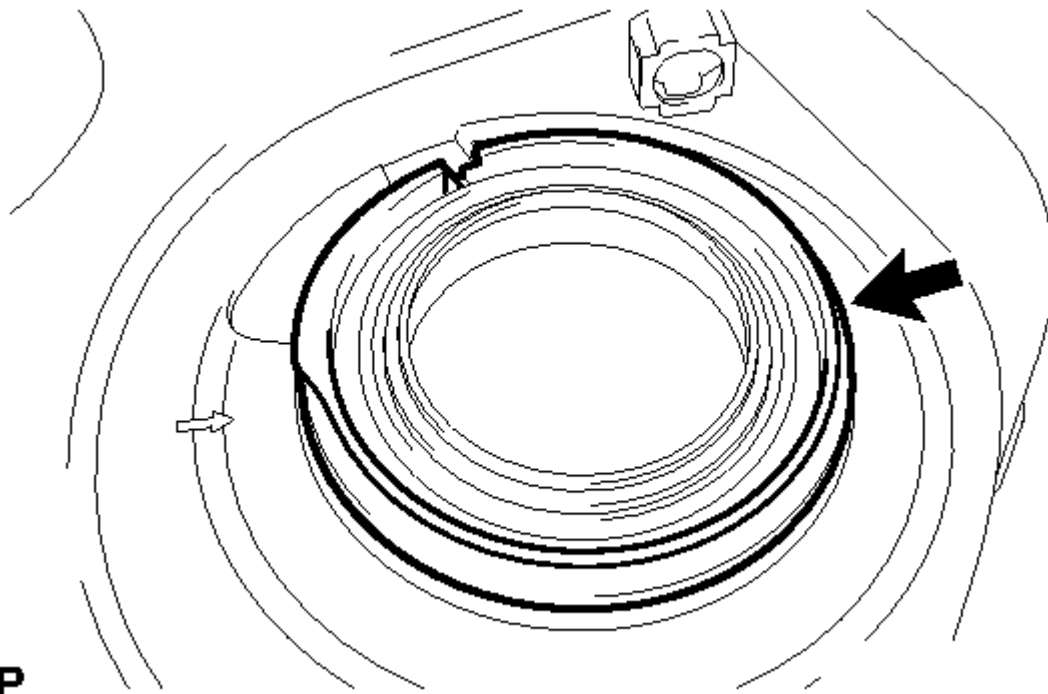
HINT:

- Align the ribs of the fuel pump gauge retainer with the tips of SST.
- g. Install the fuel pump gauge retainer by one and a half turns so that the start mark on the fuel pump gauge retainer is between 470° and 530° from the start position.
- h. If the start mark does not reach 470°, confirm that no cross threading occurred by measuring the gap between the fuel pump gauge retainer and the fuel tank.

If cross threading occurred, replace the fuel tank overfill check valve assembly, the gasket and the tank suction tube support.

i. Replace the tank suction tube support.

1. Remove the tank suction tube support from the fuel tank.



P

Fig. 67: Identifying Tank Suction Support At Fuel Tank
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Install the tank suction tube support to the fuel tank as shown in the illustration.

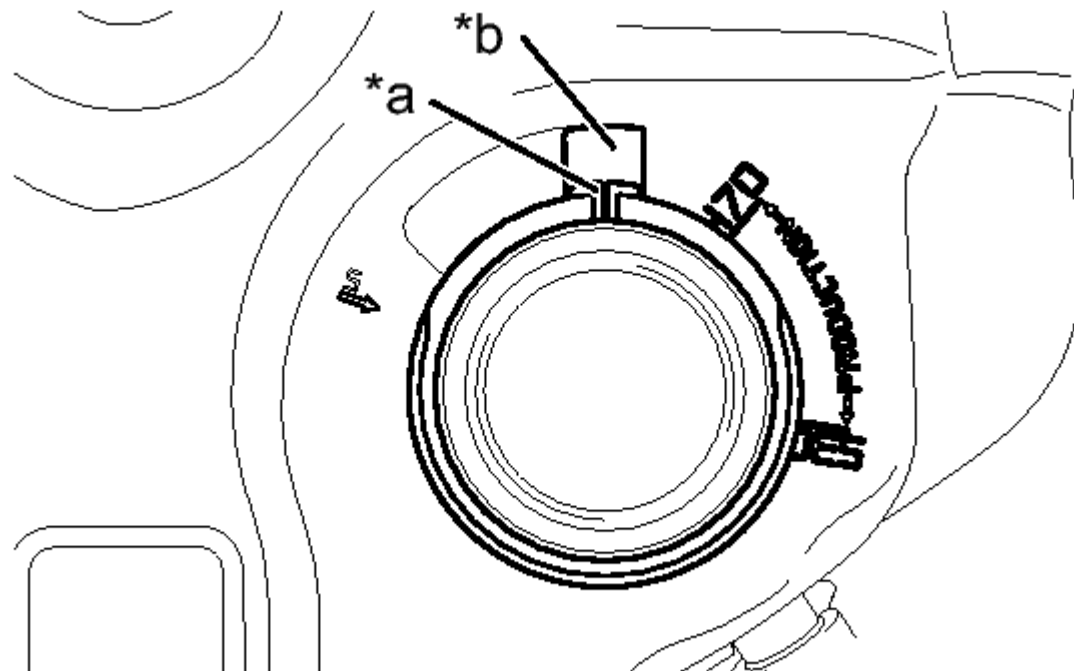


Fig. 68: Identifying Tank Suction Support To Fuel Tank Alignment
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion
*b	Cutout

- j. Engage the hose clamp.

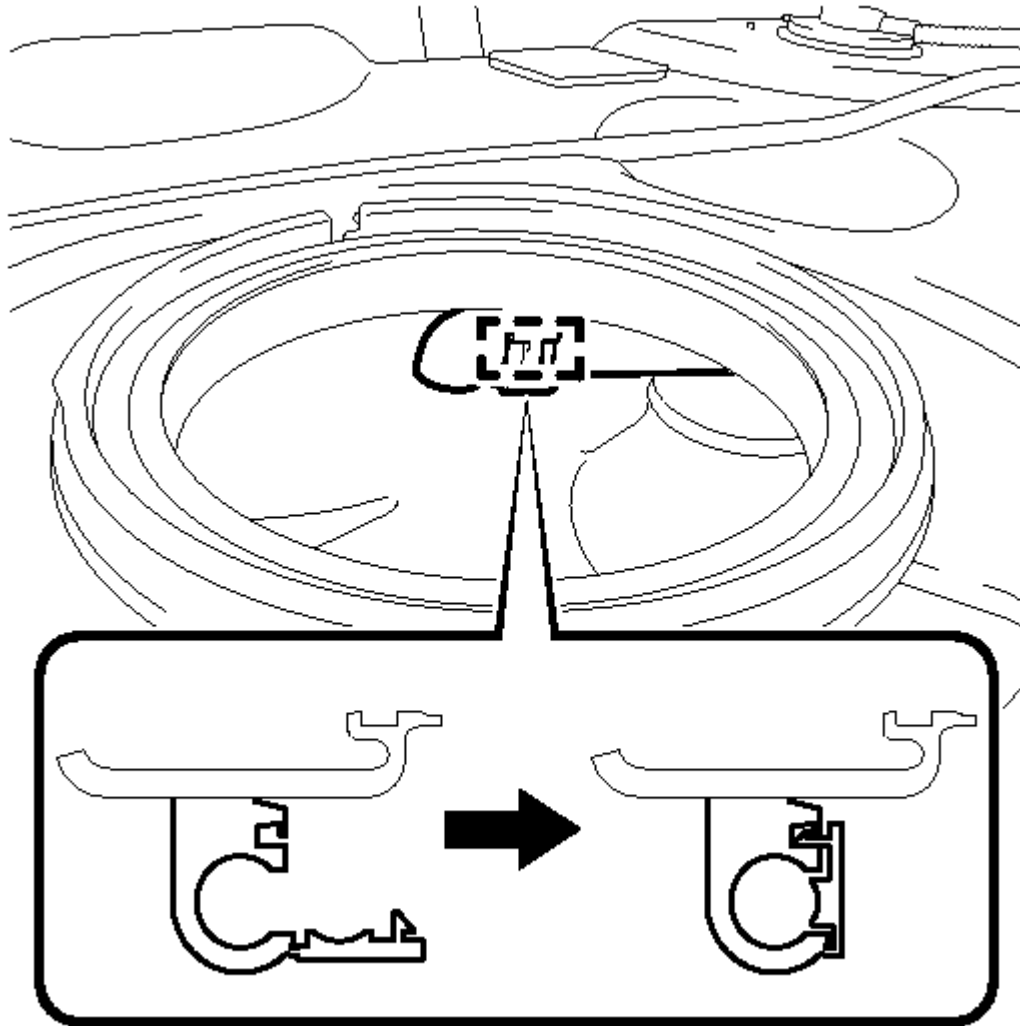
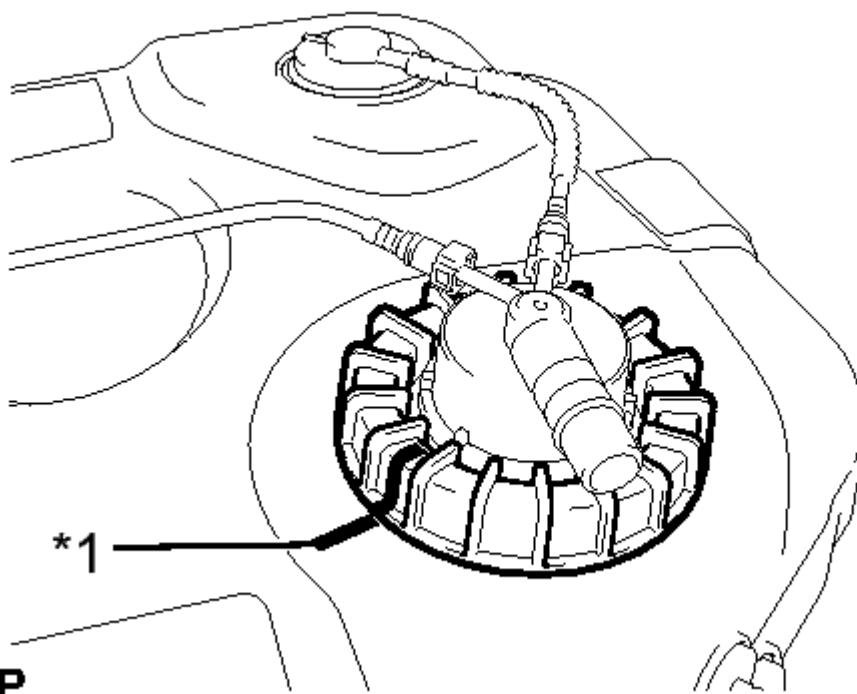


Fig. 69: Engaging Fuel Tube Hose Clamp

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- k. Put a mark on the fuel pump gauge retainer and the fuel tank with paint. This will be the evidence that the fuel pump gauge retainer has been removed.



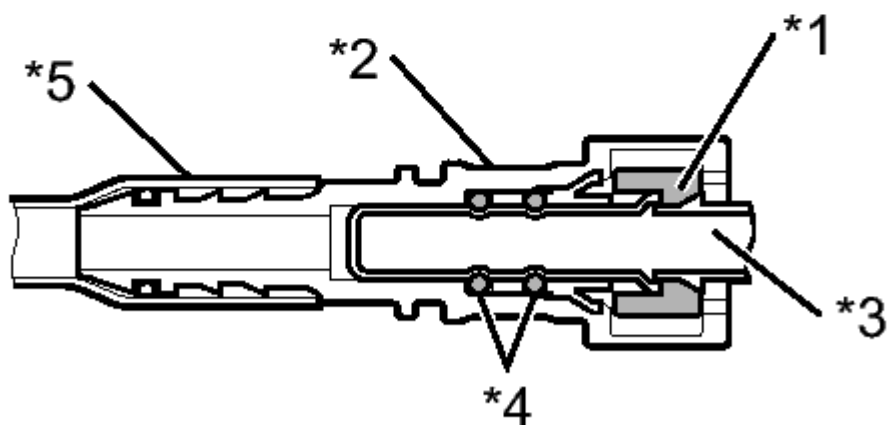
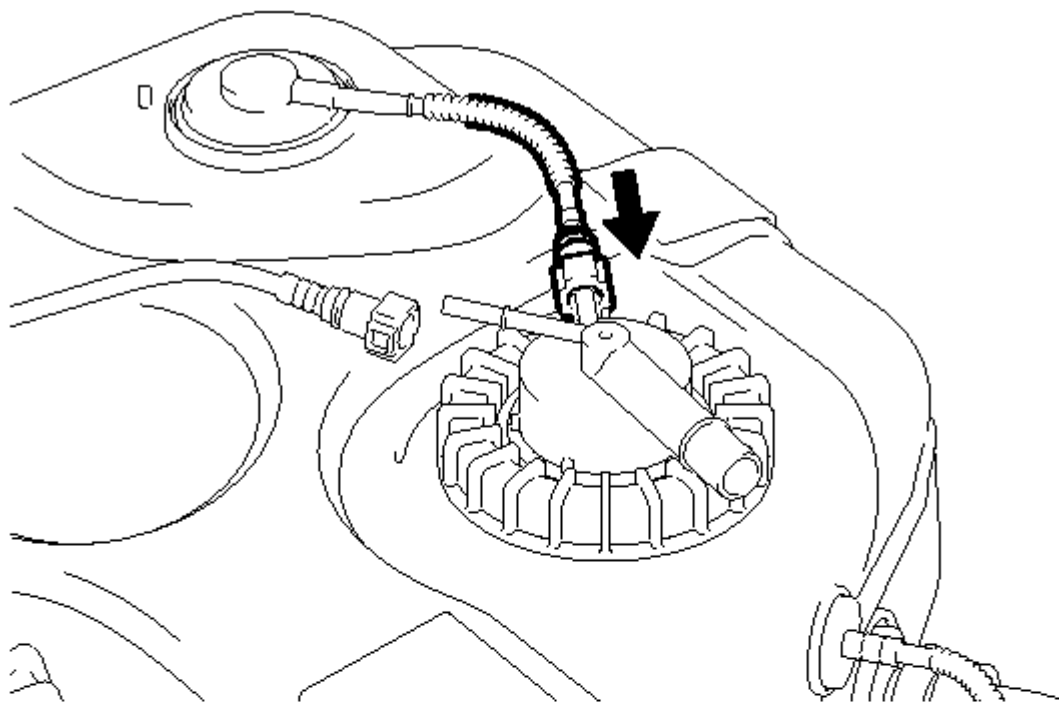
P

Fig. 70: Identifying Fuel Pump Gauge Retainer & Fuel Tank Paint Mark
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Paint Mark
----	---------------

1. Line up the pipe and connector and push them together until a "click" sound is heard. Refer to **PRECAUTION** .



P

Fig. 71: Installing Fuel Tube Connector

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

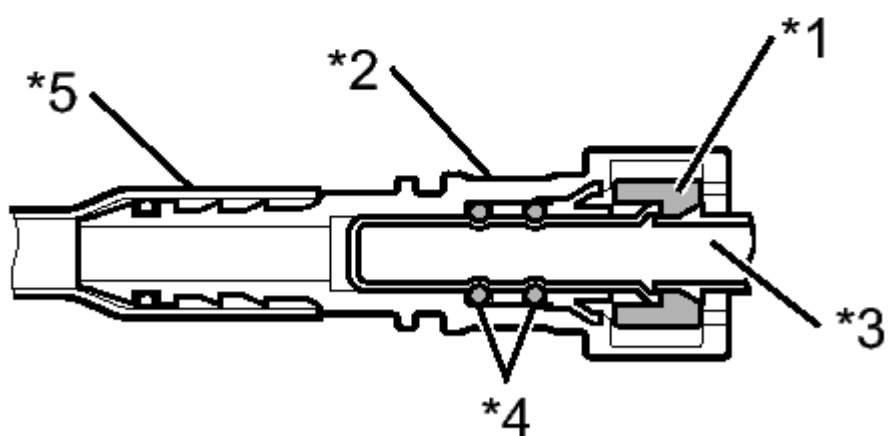
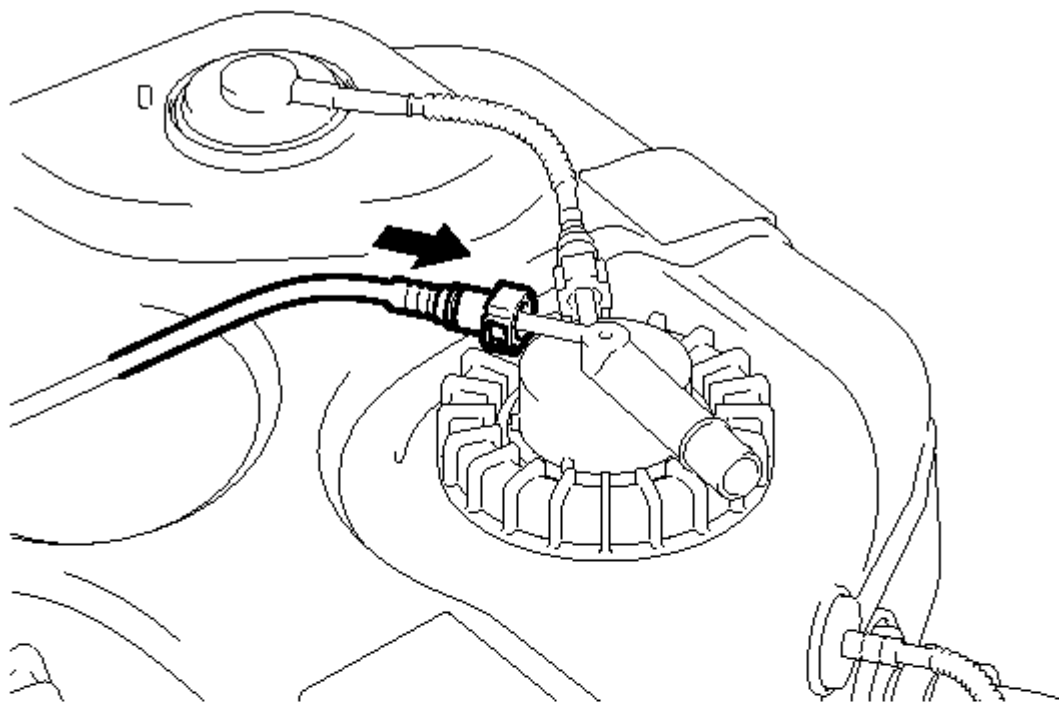
*1	Retainer
----	----------

*2	Fuel Tube Connector
*3	Fuel Pipe
*4	O-Ring
*5	Nylon Tube
.	Push

NOTE:

- Check that there are no scratches or foreign objects on the connecting part.
- Check that the tube is inserted securely.
- Check that the tube is securely connected by pulling on it.

- m. Line up the pipe and connector and push them together until a "click" sound is heard. Refer to **PRECAUTION** .



P

Fig. 72: Installing Fuel Tube Connector

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Retainer
----	----------

*2	Fuel Tube Connector
*3	Fuel Pipe
*4	O-Ring
*5	Nylon Tube
.	Push

NOTE:

- Check that there are no scratches or foreign objects on the connecting part.
- Check that the tube is inserted securely.
- Check that the tube is securely connected by pulling on it.

8. INSTALL FUEL SUCTION TUBE SET GASKET

- Ensure gasket groove is clean and free of foreign particles.
- Install a new gasket onto the fuel tank.
- Make sure that the gasket sits in the groove.

9. INSTALL FUEL SUCTION WITH PUMP AND GAUGE TUBE ASSEMBLY

- Align the protrusion of the fuel suction with pump and gauge tube assembly with the cutout of the tank suction tube support and install the fuel suction with pump and gauge tube assembly.

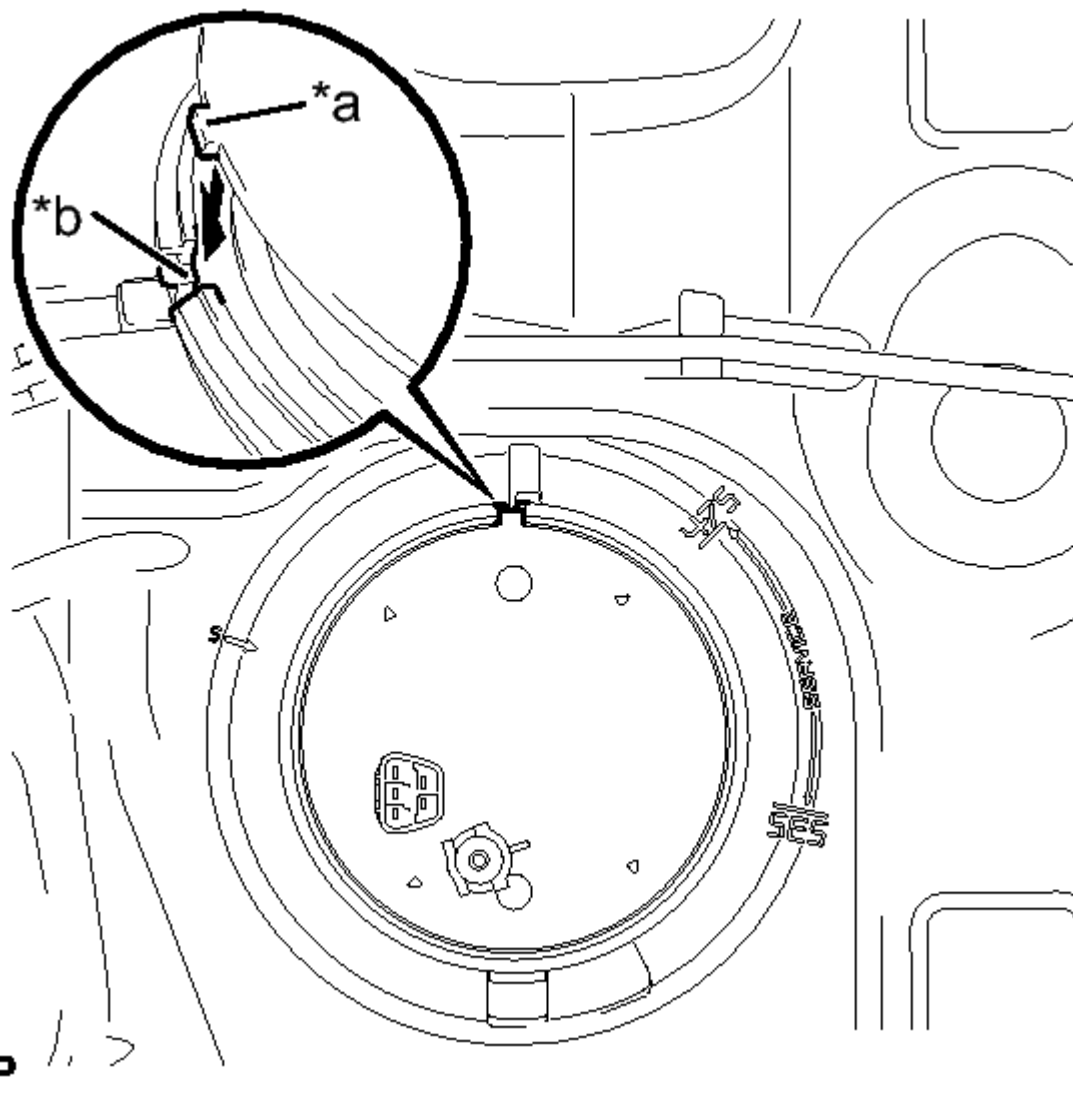


Fig. 73: Identifying Fuel Suction With Pump And Gauge Tube Assembly Protrusion
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion
*b	Cutout

NOTE: Do not bend the arm of the fuel sender gauge.

10. INSTALL FUEL PUMP GAUGE RETAINER

- Align marks on the fuel pump gauge retainer and the fuel tank.

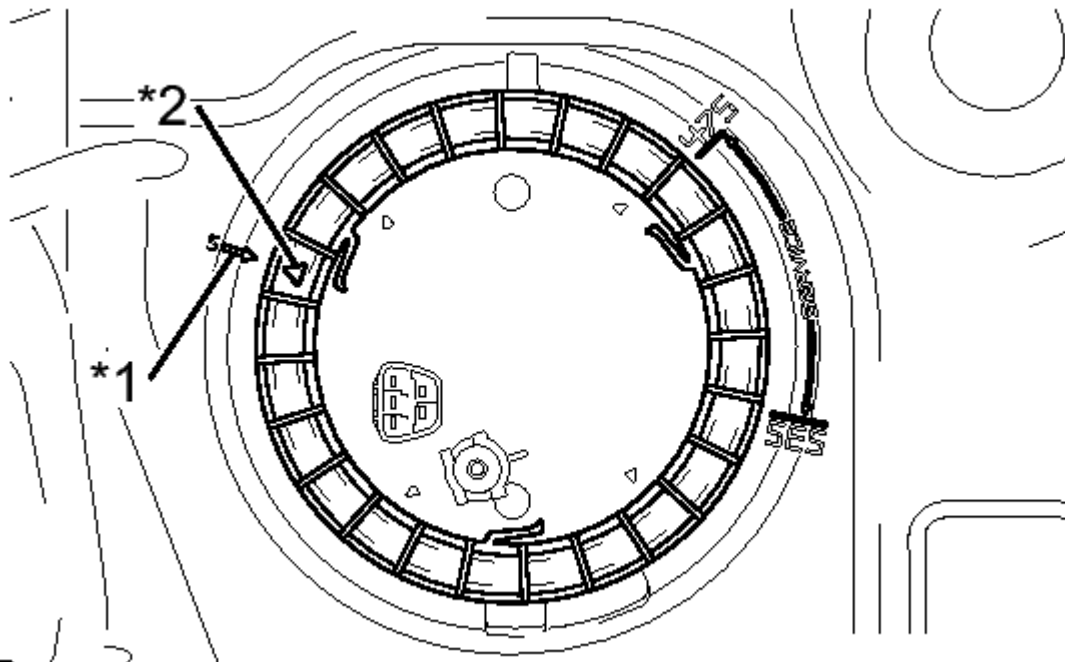


Fig. 74: Identifying Fuel Pump Gauge Retainer & Fuel Tank Alignment
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

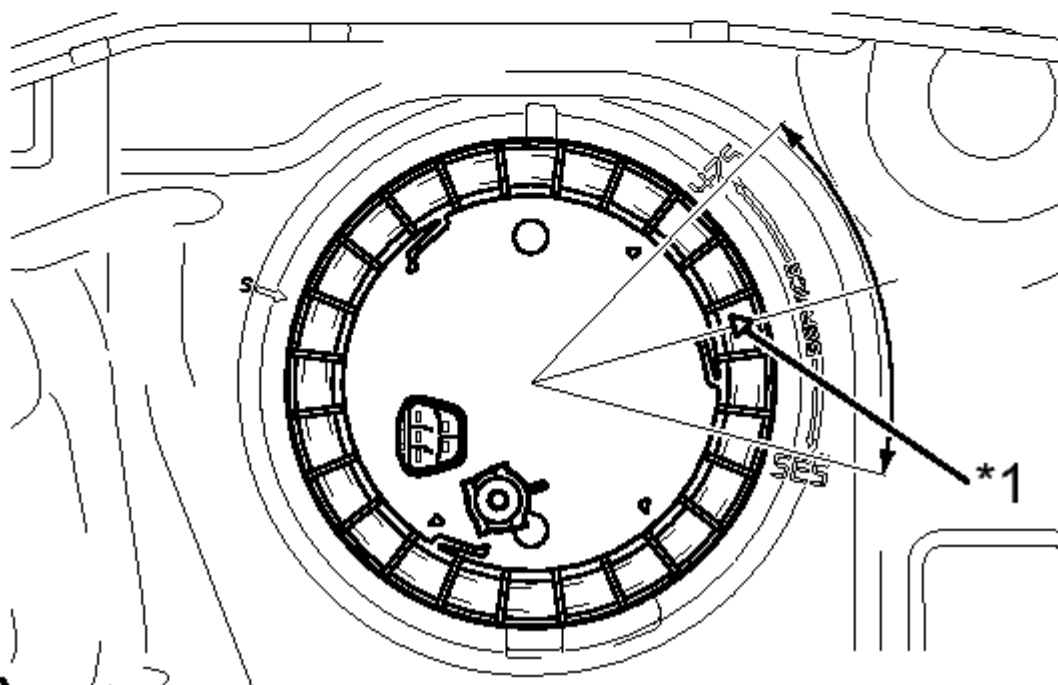
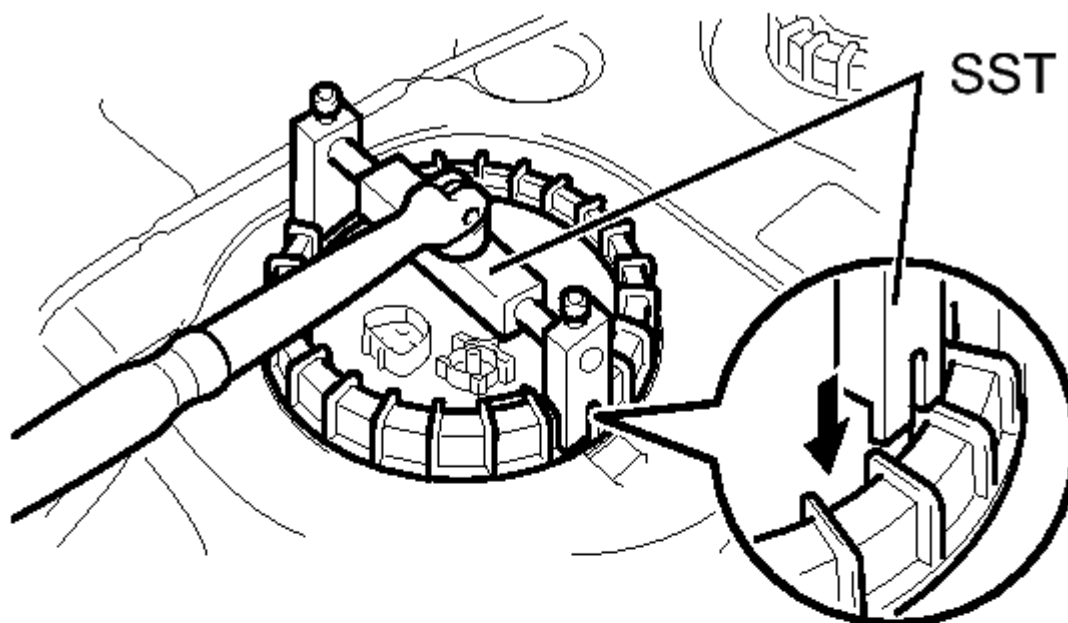
TEXT IN ILLUSTRATION

*1	Start Mark (Fuel Tank Side)
*2	Start Mark (Retainer Side)

- Position the fuel pump gauge retainer on top of the fuel suction with pump and gauge tube assembly flange while pushing down the flange on center.
- While holding the fuel suction with pump and gauge tube assembly, tighten the fuel pump gauge retainer one complete turn by hand*1.

NOTE:

- Make sure the fuel suction with pump and gauge tube assembly anti-rotation tab is in the groove during above operation.
 - "S" arrow on the fuel tank indicates 0 degrees position.
- Ensure that no cross threading occurred during installation by checking the gap between the fuel pump gauge retainer and the fuel tank. Confirm that the gap is even. If cross threading occurred, remove the fuel pump gauge retainer and repeat step*1.



P

Fig. 75: Installing Fuel Pump Gauge Retainer Using SST
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Start

*1	Mark (Retainer Side)
----	----------------------------

- e. Using SST, tighten the fuel pump gauge retainer to the specified torque.

- **SST: 09808-14020**

09808-01410

09808-01420

09808-01430

Torque: 80 N*m (816 kgf*cm, 59 ft.*lbf)

HINT:

Align the ribs of the fuel pump gauge retainer with the tips of SST.

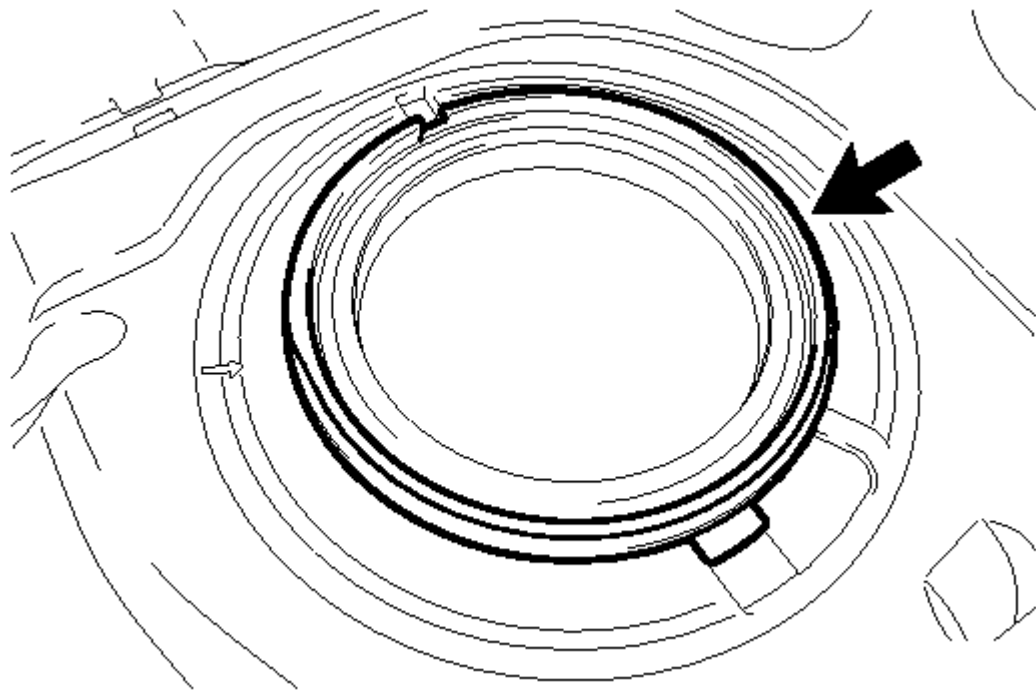
NOTE:

- **No ratcheting effect allowed when tightening the fuel pump gauge retainer.**
- **No grease or lubrication allowed on parts during installation.**

- f. Install the fuel pump gauge retainer by one and a half turns so that the start mark on the fuel pump gauge retainer is between 475° and 535° from the start position.
- g. If the start mark does not reach 475°, confirm that no cross threading occurred by measuring the gap between the fuel pump gauge retainer and the fuel tank.

If cross threading occurred, replace the fuel pump gauge retainer, the gasket and the tank suction tube support.

- h. Replace the tank suction tube support.
1. Remove the tank suction tube support from the fuel tank.



P

Fig. 76: Identifying Tank Suction Tube Support At Fuel Tank
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Install the tank suction tube support to the fuel tank as shown in the illustration.

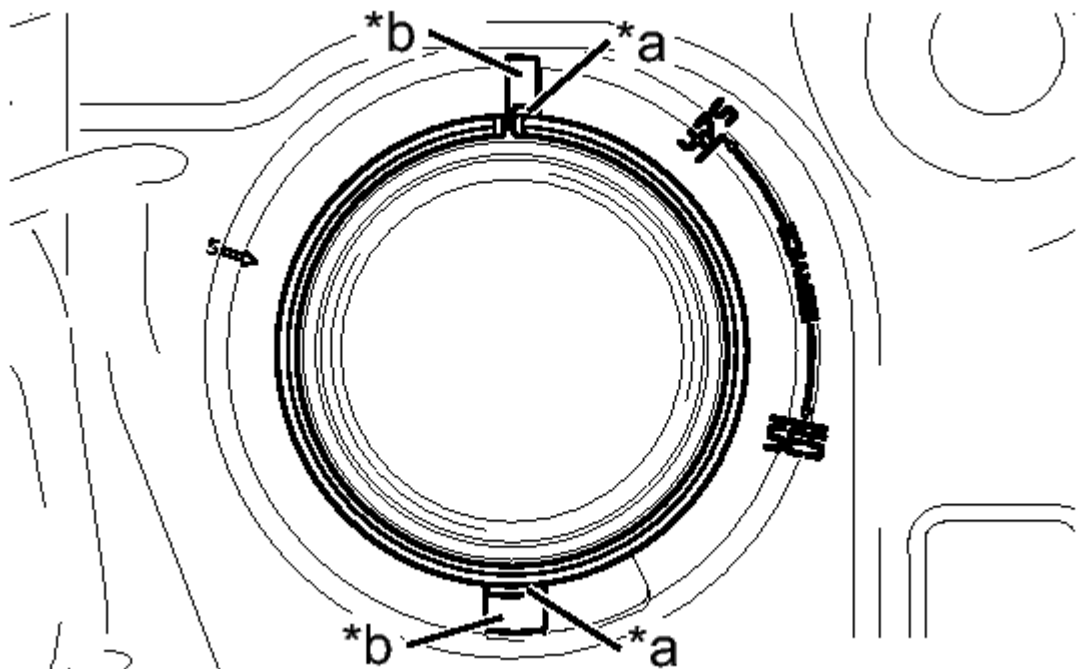


Fig. 77: Identifying Tank Suction Support To Fuel Tank Alignment
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion
*b	Cutout

- i. Put a mark on the fuel pump gauge retainer and the fuel tank with paint. This will be the evidence that the fuel pump gauge retainer has been removed.

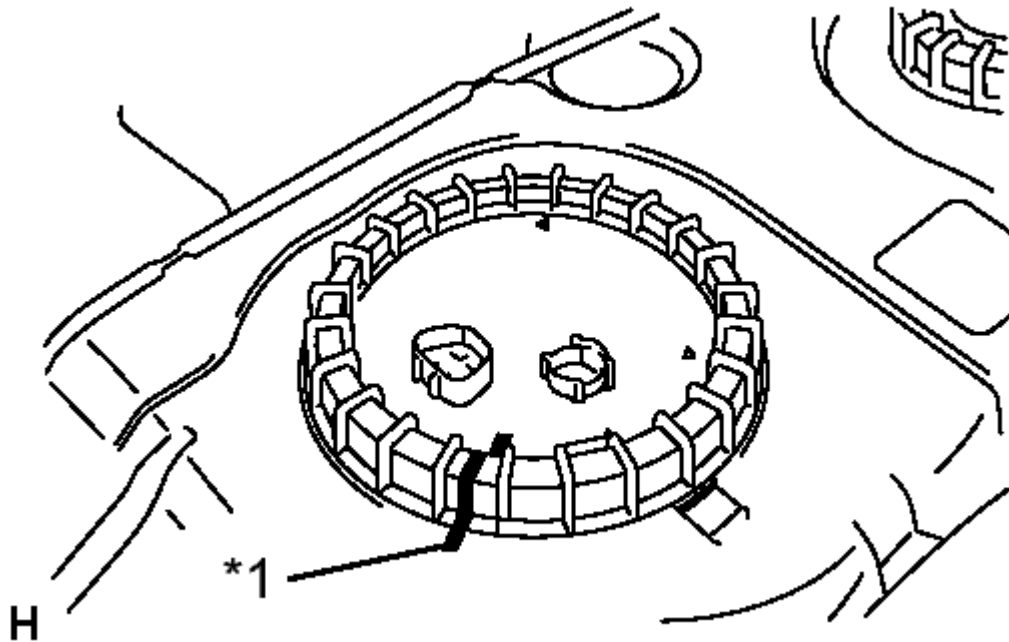


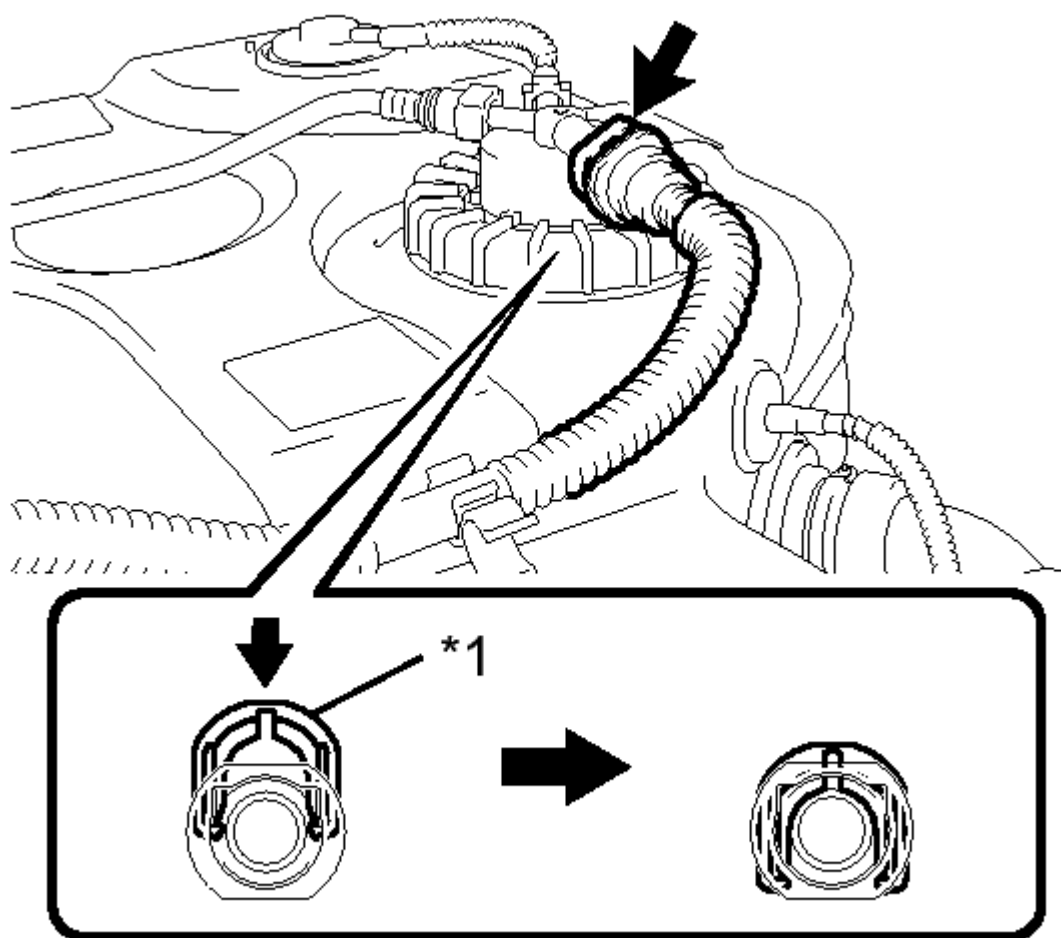
Fig. 78: Identifying Fuel Pump Gauge Retainer & Fuel Tank Paint Mark
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Paint Mark
----	---------------

11. INSTALL FUEL TANK VENT HOSE

- a. Engage the 4 clamps and install the fuel tank vent hose and hose clamp.
- b. Line up the pipe and connector and push them together until a "click" sound is heard.



P

Fig. 79: Installing Fuel Tank Vent Hose & Retainer
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

***1 Retainer**

- c. Lock it by pushing in the retainer as shown in the illustration.

NOTE:

- Check that there are no scratches or foreign objects on the connecting part.
- Check that the fuel tank vent hose is inserted securely.
- After installing the retainer, check that the fuel tank vent hose is securely connected by pulling on it.

HINT:

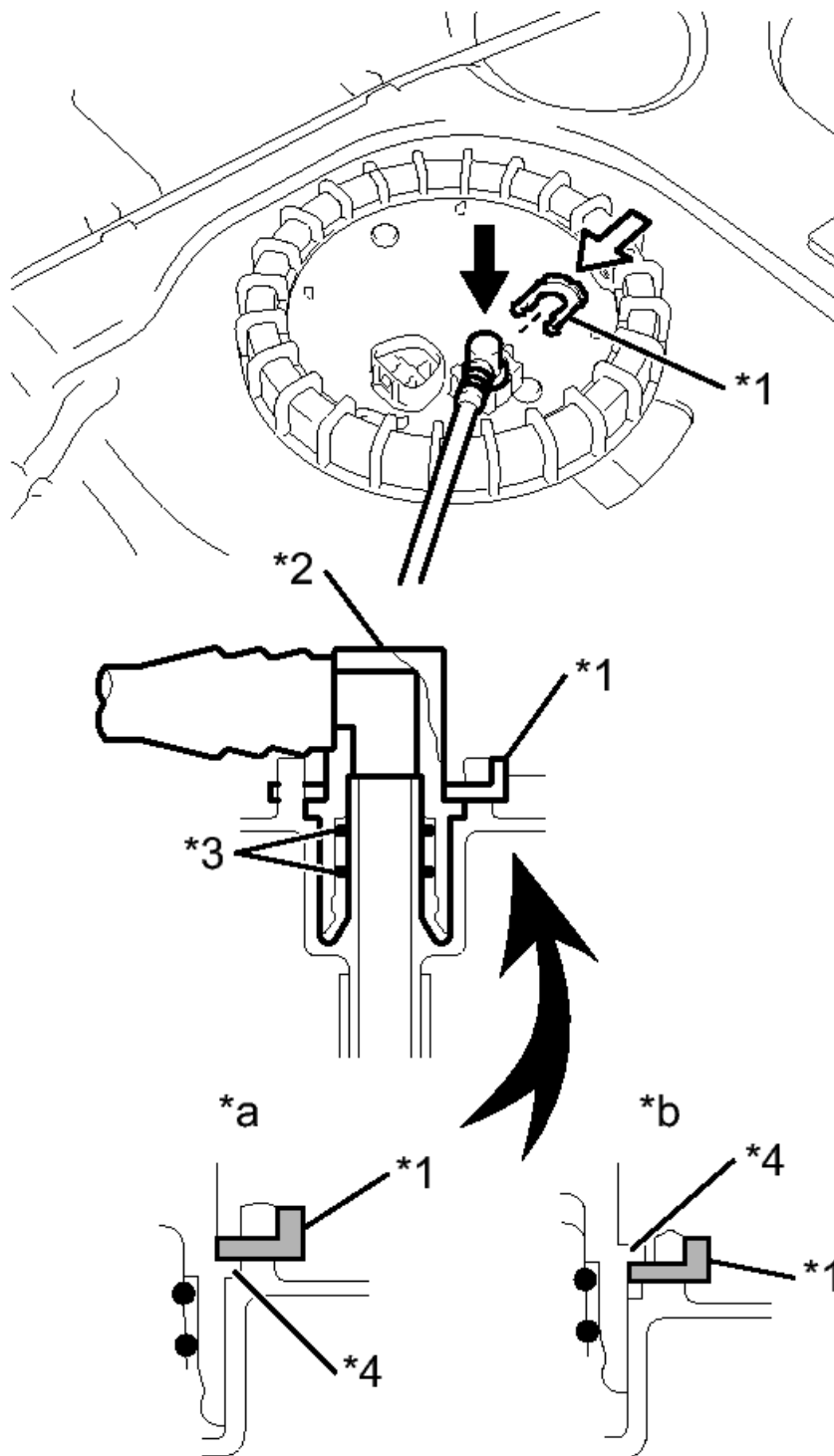
The quick connector cannot be locked when the tube is not inserted securely.

12. INSTALL CHARCOAL CANISTER OUTLET TUBE SUB-ASSEMBLY

- a. Engage the 4 clamps and install the charcoal canister outlet tube sub-assembly.

13. INSTALL FUEL TANK MAIN TUBE SUB-ASSEMBLY

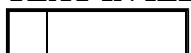
- a. Engage the 4 guides and install the fuel tank main tube sub-assembly.
- b. Insert the fuel tank main tube into the fuel suction tube assembly plug and lock it with the tube joint clip.



P

Fig. 80: Installing Fuel Tank Main Tube Sub-Assembly & Clip
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



*1	Tube Joint Clip
*2	Fuel Tube Connector
*3	O-Ring
*4	Collar
*a	OK
*b	NG
	Push Down
	Push

NOTE:

- Check that there are no scratches or foreign objects on the connecting part.
- Check that the fuel tank main tube is inserted securely.
- Check that the tube joint clip is on the collar of the main tube.
- After installing the tube joint clip, check that the fuel tank main tube assembly is securely connected by pulling on it.

14. INSTALL FUEL TANK ASSEMBLY

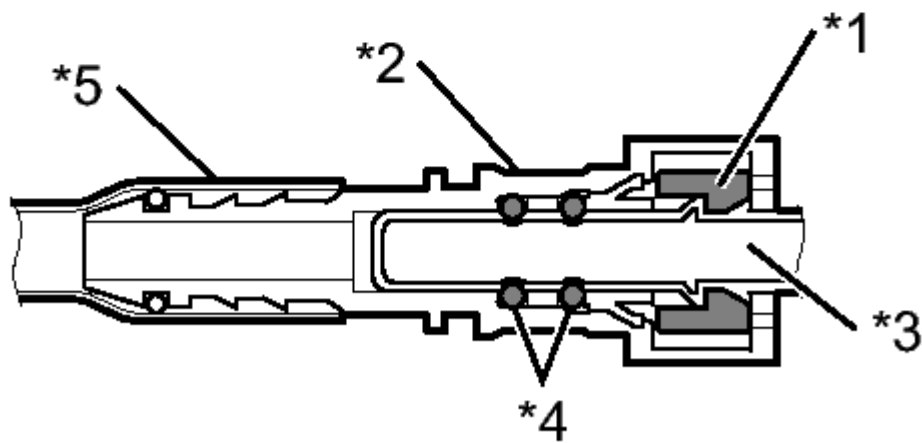
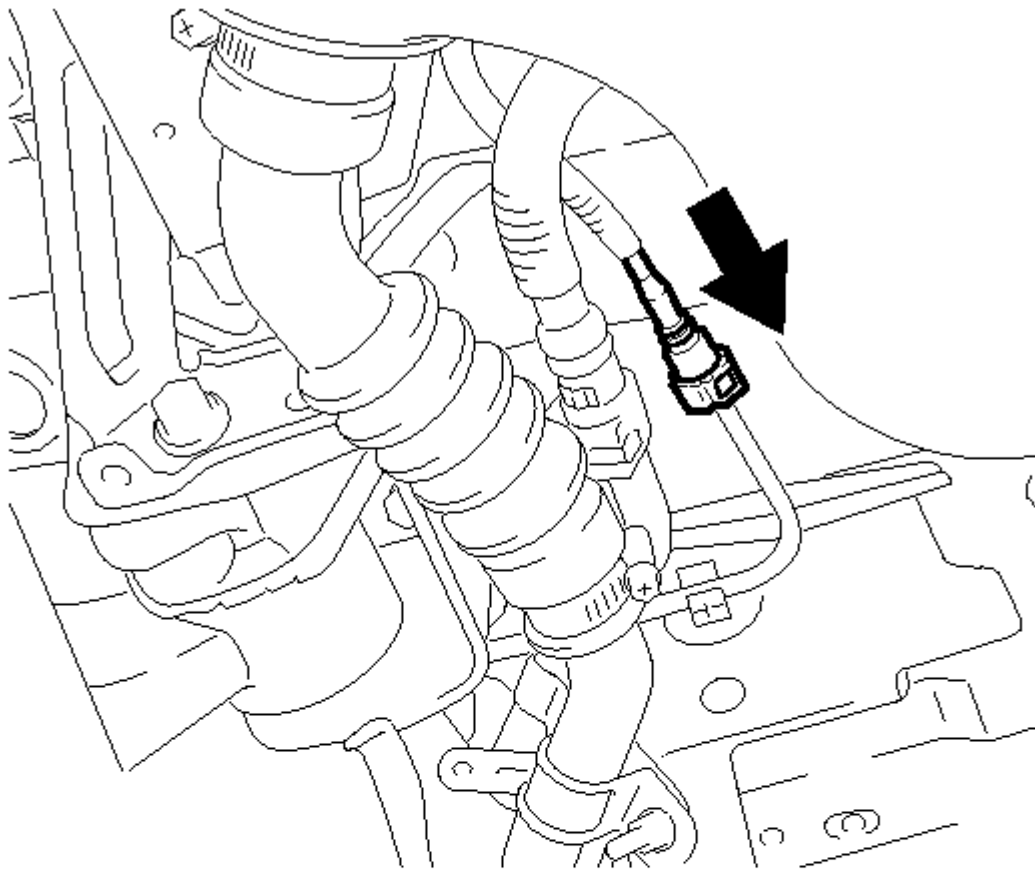
- Clean and degrease the bolt holes.
- Set the fuel tank and 3 fuel tank bands on the engine lifter.
- Slowly raise the engine lifter and install the fuel tank onto the vehicle.

NOTE: **Make sure that the fuel tank does not fall.**

- While operating the engine lifter, engage the 4 guides for the wire harness and connect the fuel pump connector, then install the fuel tank and the 3 fuel tank bands to the vehicle.
- Tighten the 6 set bolts of the 3 fuel tank bands.

Torque: 33 N*m (337 kgf*cm, 24 ft.*lbf)

- Install the 2 wire harness clamps.
- Line up the pipe and connector and push them together until a "click" sound is heard. Refer to **PRECAUTION** .



P

Fig. 81: Installing Fuel Tube Connector To Fuel Pipe
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

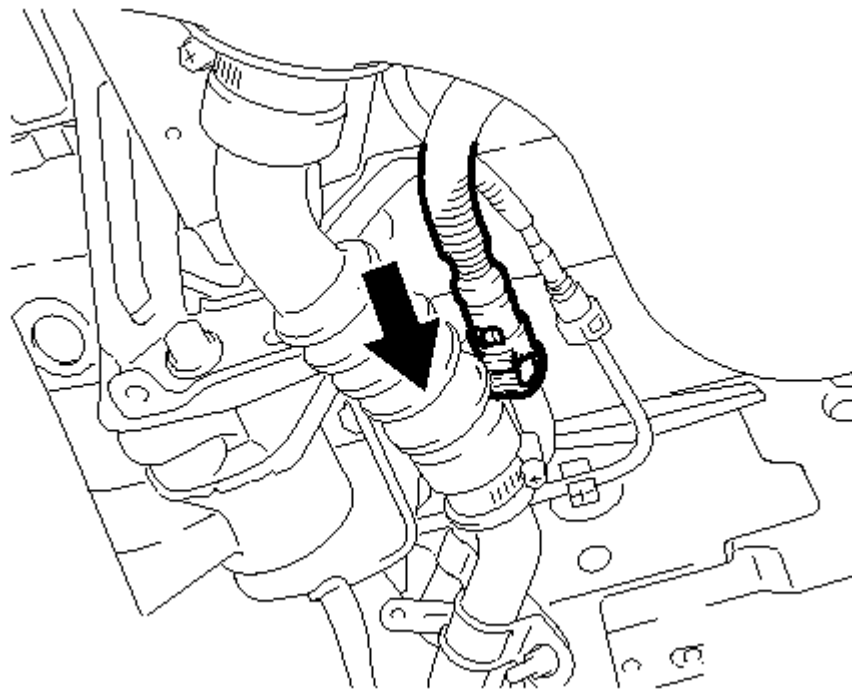
*1	Retainer
----	----------

*2	Fuel Tube Connector
*3	Fuel Pipe
*4	O-Ring
*5	Nylon Tube
·	Push

NOTE:

- Check if there is any damage or foreign objects on the connected part.
- After connecting, check if the connector and the pipe are securely connected by pulling on them.

h. Connect the charcoal canister outlet tube. Refer to **PRECAUTION** .



P

Fig. 82: Installing Charcoal Canister Outlet Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

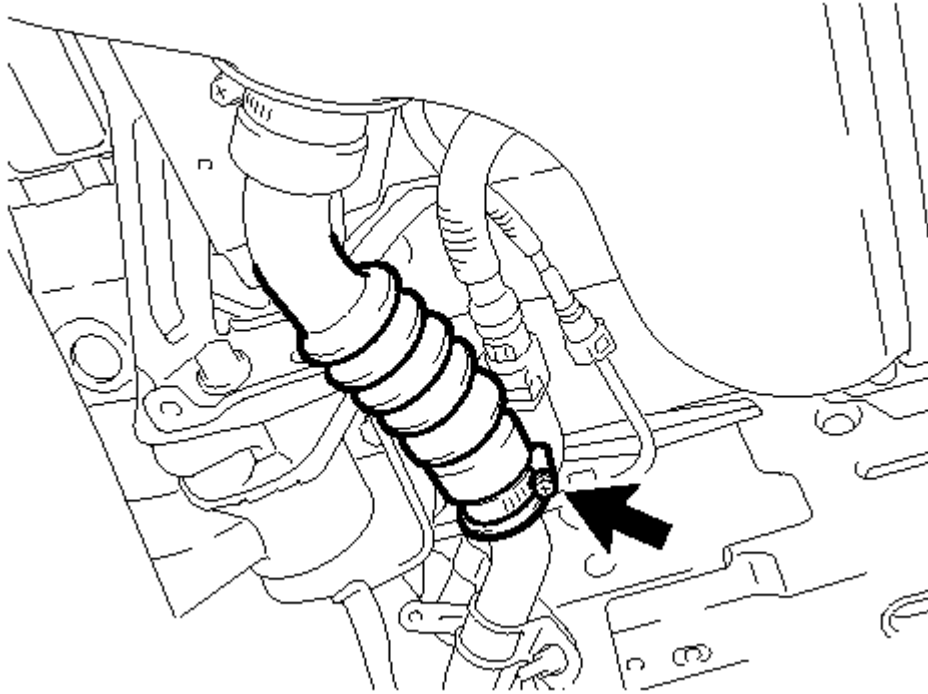
Push

NOTE:

- Check that there are no scratches or foreign objects on the connecting part.
- Check that the charcoal canister outlet tube sub-assembly is

inserted securely.

- Check that the charcoal canister outlet tube sub-assembly is securely connected by pulling on it.
- i. Connect the fuel tank to filler pipe hose.

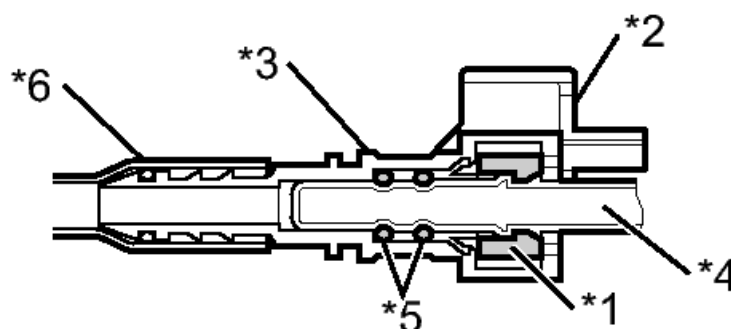
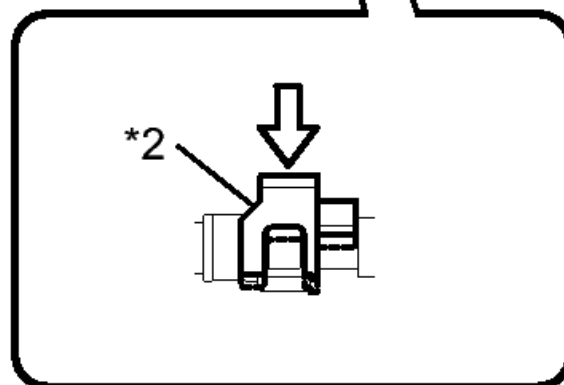
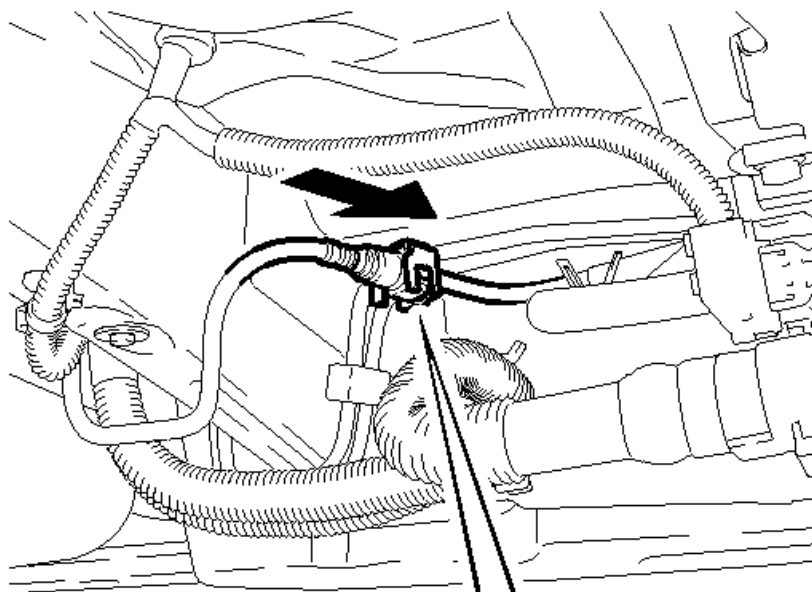


P

Fig. 83: Remove/Install Fuel Tank To Filler Pipe Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. CONNECT FUEL TANK MAIN TUBE SUB-ASSEMBLY

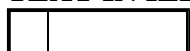
- a. Line up the pipe and connector and push them together until a "click" sound is heard. Refer to **PRECAUTION** .



P

Fig. 84: Installing Fuel Tank Main Tube Sub-Assembly Connector & Cover
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



*1	Retainer
*2	Fuel Tube Connector Cover
*3	Fuel Tube Connector
*4	Fuel Pipe
*5	O-Ring
*6	Nylon Tube
·	Push
·	Down

- b. Push the fuel tube connector cover in to lock it.

NOTE:

- Check that there are no scratches or foreign objects on the connecting part.
- Check that the fuel tank main tube is inserted securely.
- After installing the fuel tube connector cover, check that the fuel tank main tube is securely connected by pulling on it.

16. **CONNECT CHARCOAL CANISTER OUTLET TUBE SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 3**

17. **CONNECT FUEL TANK VENT HOSE** . Refer to **INSTALLATION - Step 4**

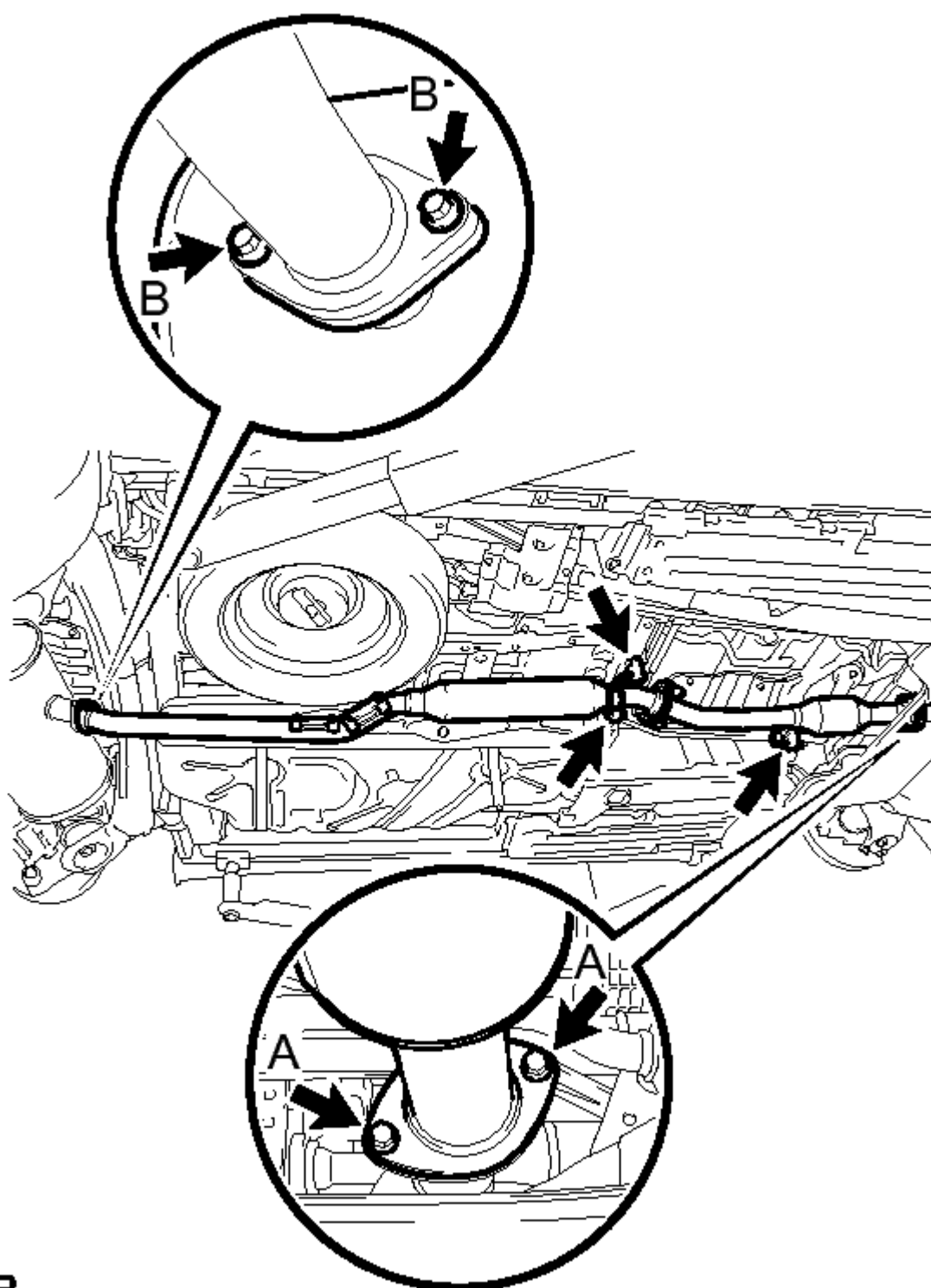
18. **INSTALL NO. 1 FUEL TANK HEAT INSULATOR**

- a. Install the No. 1 fuel tank heat insulator with the 4 nuts.

Torque: 6.0 N*m (61 kgf*cm, 53 in.*lbf)

19. **INSTALL CENTER EXHAUST PIPE ASSEMBLY**

- a. Install 2 new gaskets to the front exhaust pipe assembly and center exhaust pipe assembly.



P

Fig. 85: Identifying Center Exhaust Pipe Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Hang the center exhaust pipe assembly with the 3 exhaust pipe supports.
- c. Install the 4 bolts.

Bolt A

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

Bolt B

Torque: 43 N*m (438 kgf*cm, 32 ft.*lbf)

20. **INSTALL INSTRUMENT PANEL FINISH PANEL END LH** . Refer to **INSTALLATION - Step 6**

21. **ADD FUEL**

22. **INSPECT FOR FUEL LEAK** . Refer to **ON-VEHICLE INSPECTION - Step 1**

23. **INSPECT FOR EXHAUST GAS LEAK**

24. **INSTALL FUEL TANK FILLER HOSE COVER**

- a. Install the 3 bolts and the fuel tank filler hose cover.

Torque: 5.0 N*m (51 kgf*cm, 44 in.*lbf)

25. **INSTALL REAR FLOOR NO. 2 CROSSMEMBER BRACE LH**

- a. Install the rear floor No. 2 crossmember brace LH with 2 bolts.

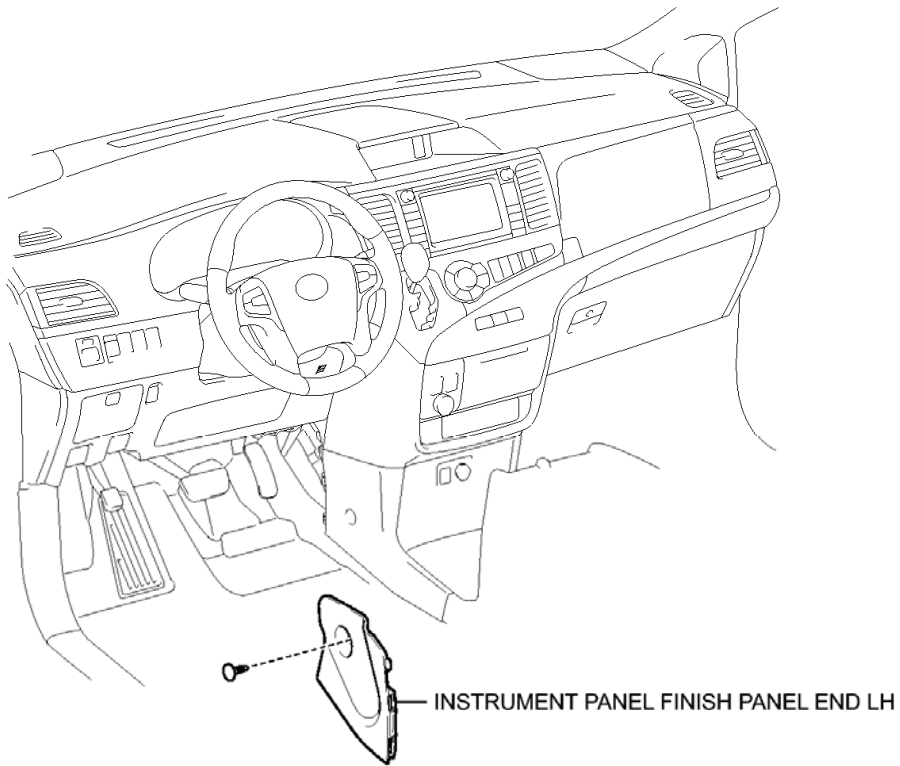
Torque: 28 N*m (286 kgf*cm, 21 ft.*lbf)

26. **INSTALL CHARCOAL CANISTER PROTECTOR** . Refer to **INSTALLATION - Step 5**

FUEL SENDER GAUGE ASSEMBLY

COMPONENTS

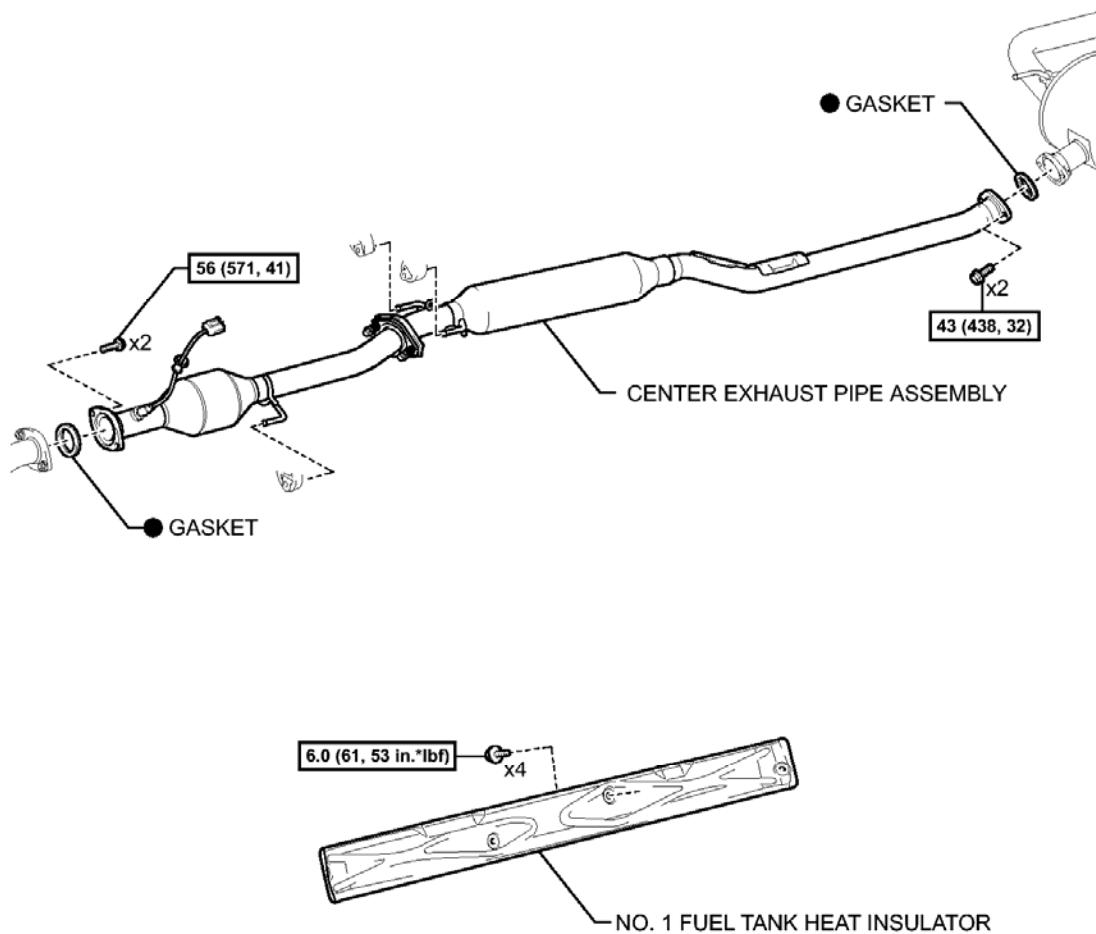
ILLUSTRATION



P

Fig. 86: Fuel Sender Gauge Assembly Replacement Components (1 of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



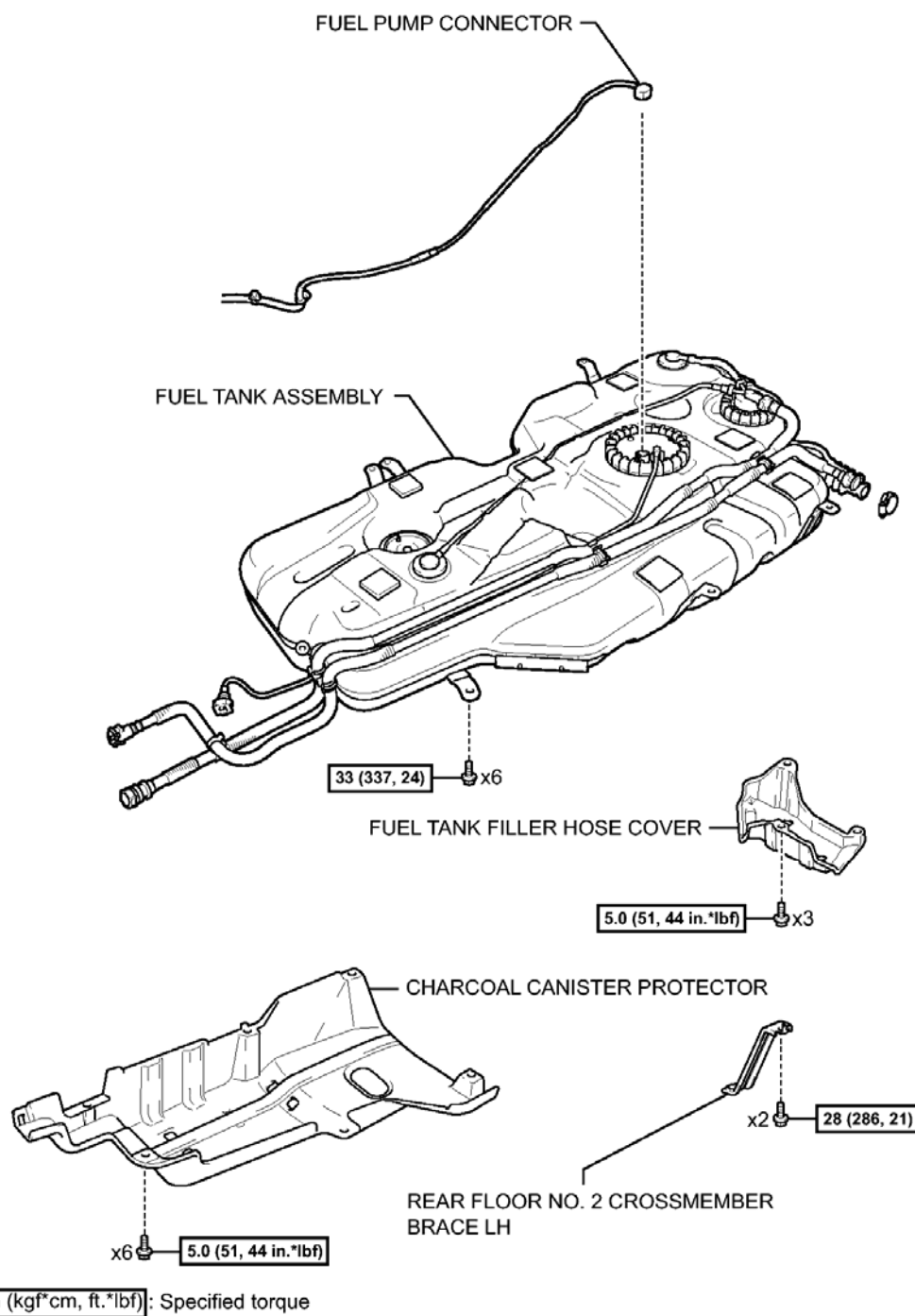
[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

P

Fig. 87: Fuel Sender Gauge Assembly Replacement Components With Torque Specifications (2 of 5)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

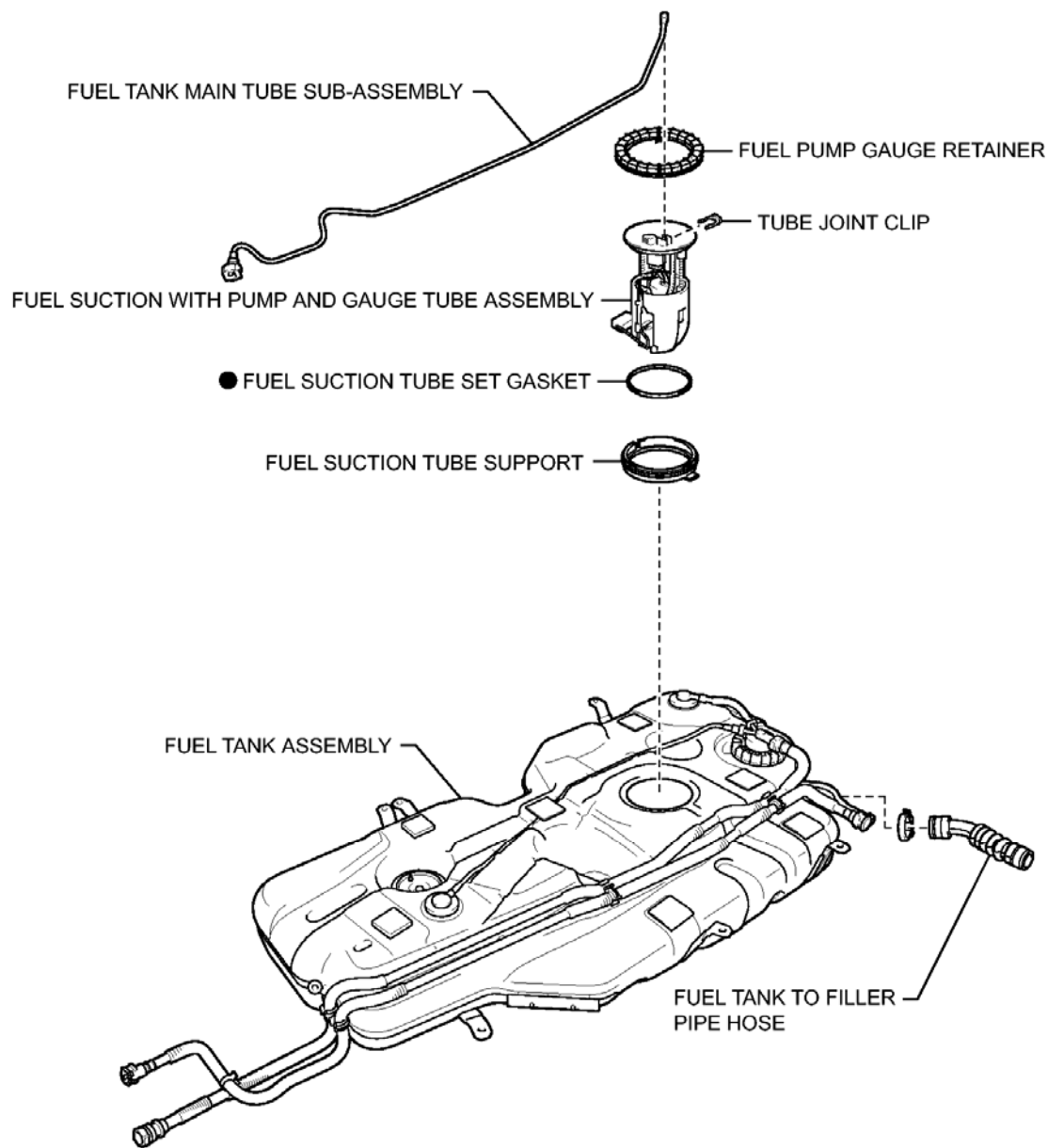


P

Fig. 88: Identifying Fuel Sender Gauge Assembly Replacement Components With Torque Specifications
(3 of 5)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

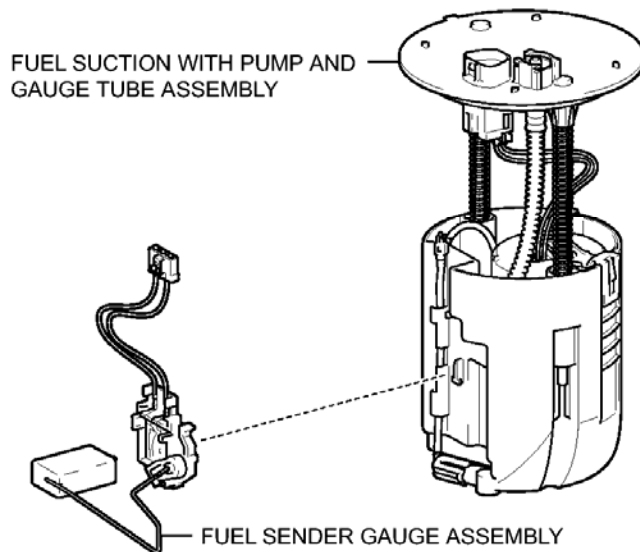
ILLUSTRATION



P

Fig. 89: Identifying Fuel Sender Gauge Assembly Replacement Components (4 of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P
Fig. 90: Identifying Fuel Sender Gauge Assembly Replacement Components (5 of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

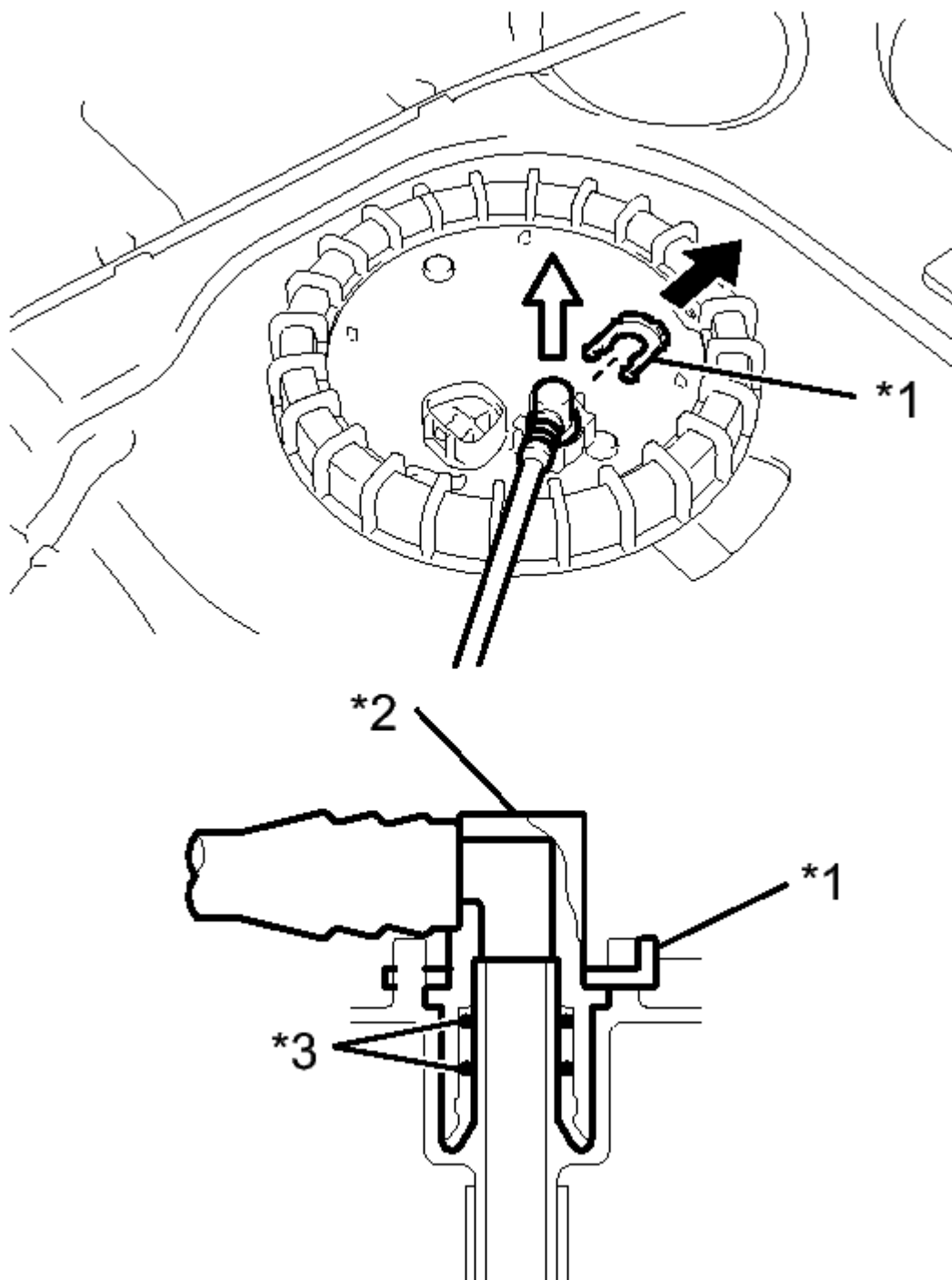
REMOVAL

1. DISCHARGE FUEL SYSTEM PRESSURE

Refer to **PRECAUTION** .

2. **REMOVE CHARCOAL CANISTER PROTECTOR** . Refer to **REMOVAL - Step 1**
3. **DISCONNECT FUEL TANK MAIN TUBE SUB-ASSEMBLY** See step 3
4. **DRAIN FUEL** See step 4
5. **REMOVE INSTRUMENT PANEL FINISH PANEL END LH** . Refer to **REMOVAL - Step 1**
6. **REMOVE CENTER EXHAUST PIPE ASSEMBLY** See step 6
7. **REMOVE NO. 1 FUEL TANK HEAT INSULATOR** See step 7
8. **DISCONNECT FUEL TANK VENT HOSE** . Refer to **REMOVAL - Step 2**

9. **DISCONNECT CHARCOAL CANISTER OUTLET TUBE SUB-ASSEMBLY** . Refer to **REMOVAL - Step 3**
10. **REMOVE REAR FLOOR NO. 2 CROSSMEMBER BRACE LH** See step 10
11. **REMOVE FUEL TANK FILLER HOSE COVER** See step 11
12. **REMOVE FUEL TANK ASSEMBLY** See step 12
13. **REMOVE FUEL TANK TO FILLER PIPE HOSE** See step 21
14. **DISCONNECT FUEL TANK MAIN TUBE SUB-ASSEMBLY**
 - a. Widen the tip of the tube joint clip and pull out the clip in the direction indicated by the arrow.



P

Fig. 91: Removing Fuel Tank Main Tube Sub-Assembly & Clip
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Tube

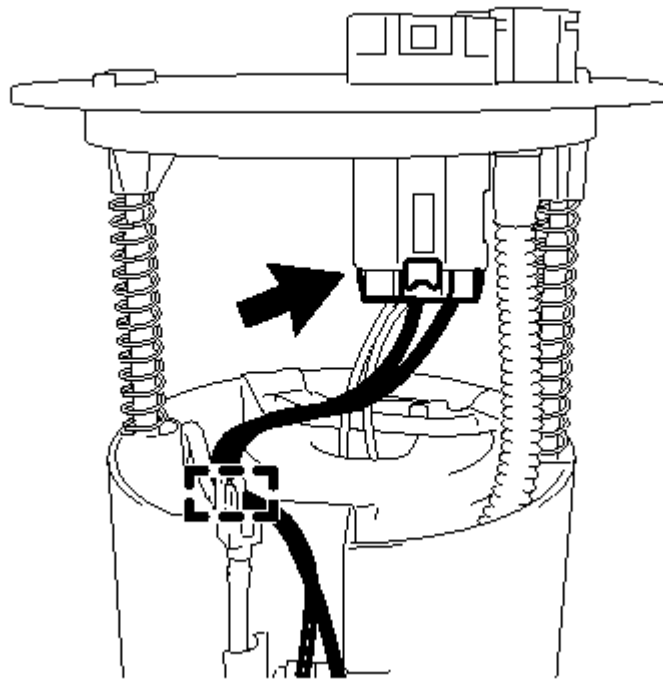
*1	Joint Clip
*2	Fuel Tube Connector
*3	O-Ring
·	Pull Out
·	Pull

NOTE:

- Check for dirt or other foreign matter on the parts to be disconnected and clean them if necessary.
- The fuel tube connector seals with an O-ring. Ensure that there is no damage or foreign matter on the contact surface.
- Do not use any tools.
- Do not bend or twist the tubes.
- Protect the contact surface by covering it with a plastic bag.
- If the connector is stuck, push and pull on the parts to separate them.

- b. Pull the fuel tank main tube out of the fuel suction with pump and gauge tube assembly to disconnect it.

15. **REMOVE FUEL PUMP GAUGE RETAINER** See step 16
16. **REMOVE FUEL SUCTION WITH PUMP AND GAUGE TUBE ASSEMBLY** See step 17
17. **REMOVE FUEL SUCTION TUBE SET GASKET** See step 18
18. **REMOVE FUEL SENDER GAUGE ASSEMBLY**
 - a. Disconnect the fuel sender gauge connector and disengage the harness clamp.

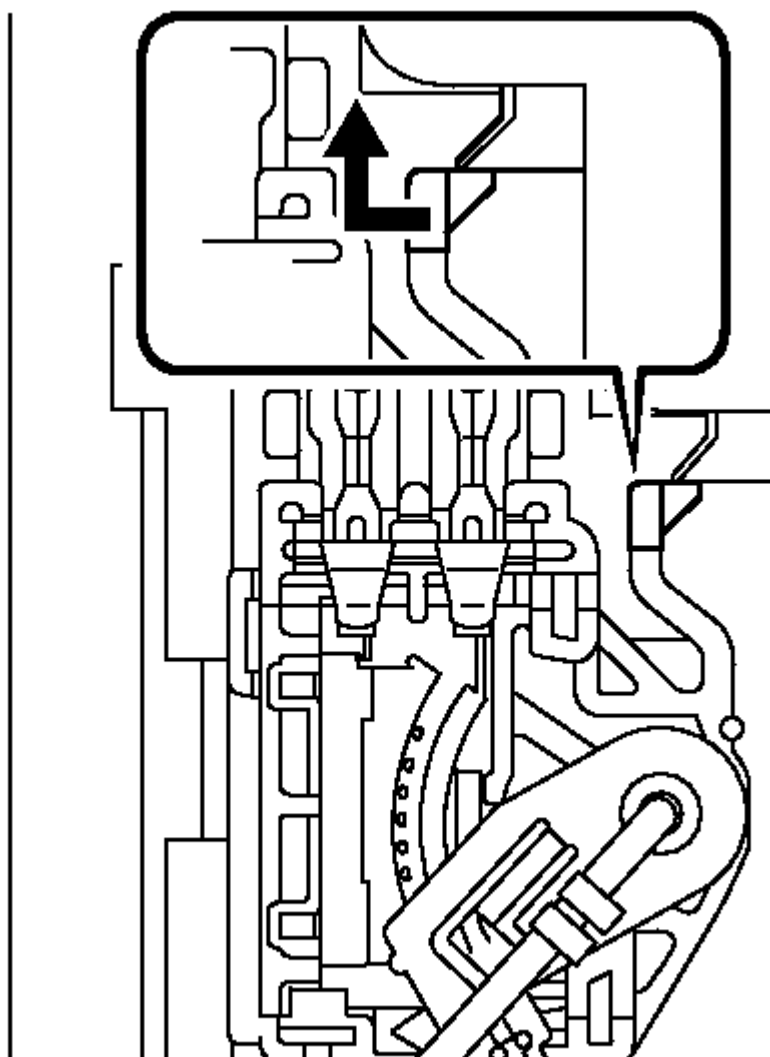


P

Fig. 92: Identifying Fuel Sender Gauge Assembly Connector & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **Do not damage the wire harness.**

- b. Release the lock as shown in the illustration and remove the fuel sender gauge by sliding it.



P

Fig. 93: Removing Fuel Sender Gauge Lock
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

- 1. INSPECT FUEL SENDER GAUGE ASSEMBLY**
 - a. Check the fuel sender gauge resistance.

*a

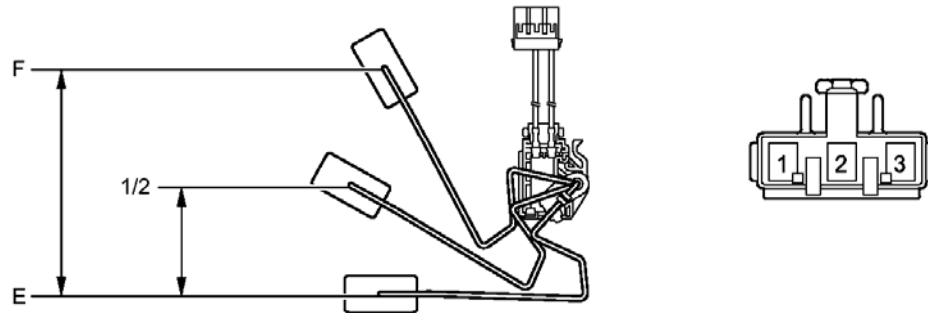


Fig. 94: Inspecting Fuel Sender Gauge Assembly Operation With Connector End View
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Fuel Sender Gauge Assembly)	--
----	--	----

- Check that the float moves smoothly between the F level (upper end) and E level (lower end).
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Float Level	Float Position (mm (in.))	Specified Condition
1 - 2	F	114.2 (4.496)	13.5 to 16.5 ohms
	1/2	66.1 (2.602)	202 to 223 ohms
	E	0 (0)	405.5 to 414.5 ohms

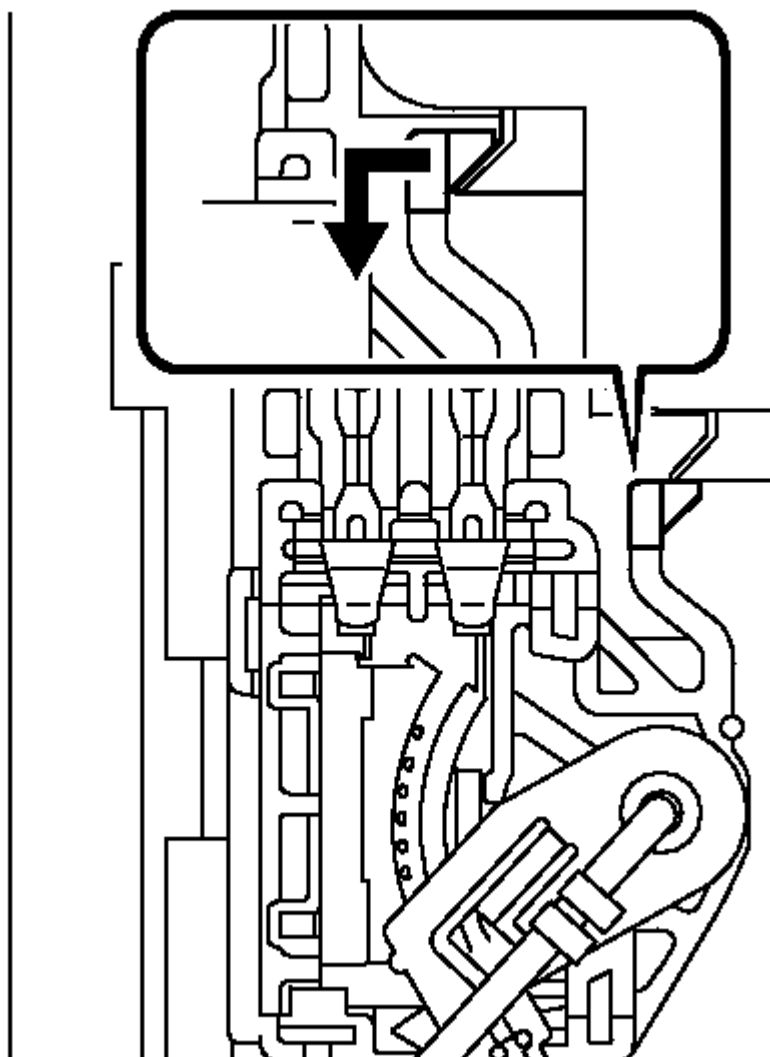
If the result is not as specified, replace the fuel sender gauge assembly.

INSTALLATION

INSTALLATION

1. INSTALL FUEL SENDER GAUGE ASSEMBLY

- a. Install the fuel sender gauge by sliding it.



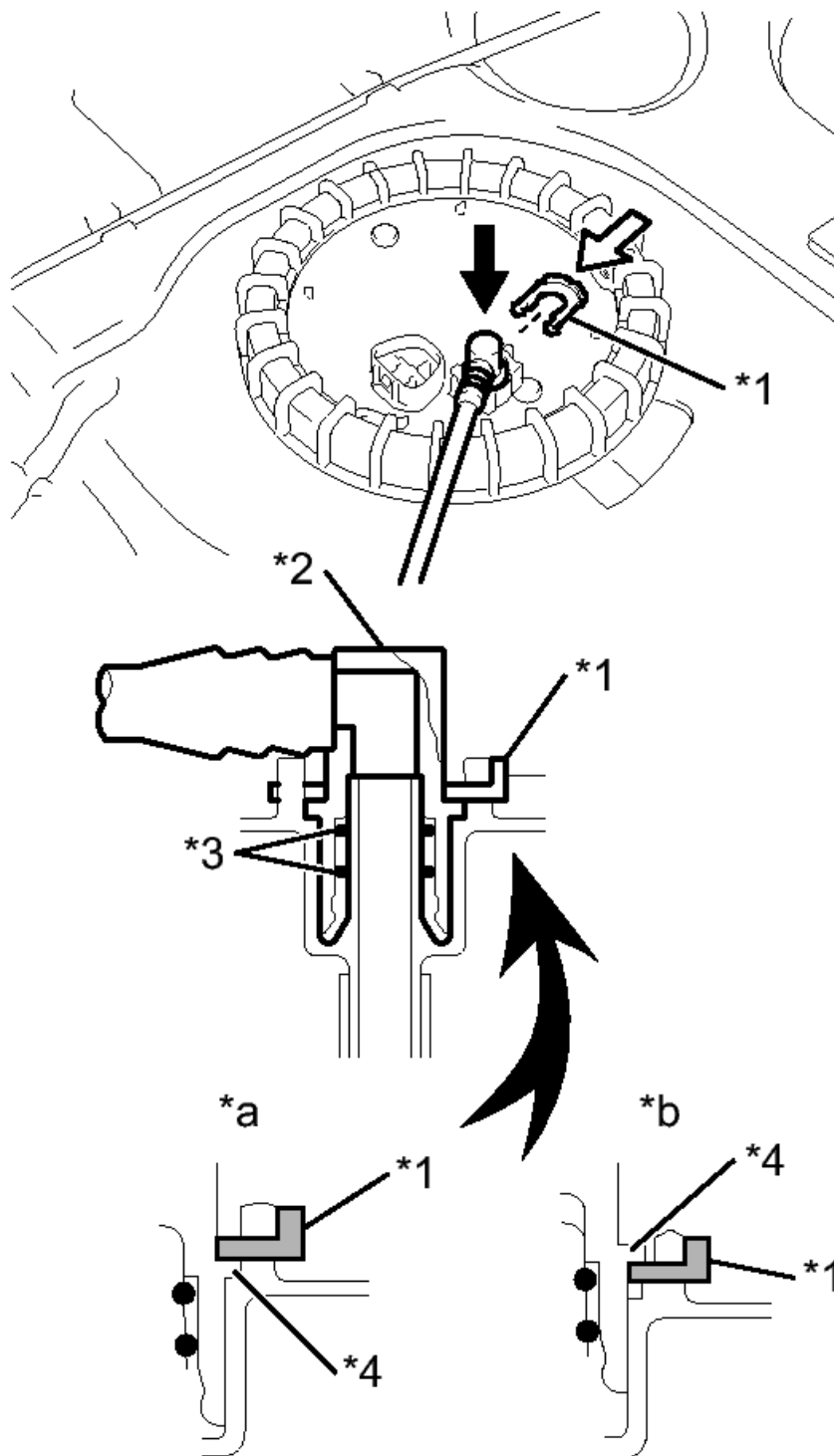
P

Fig. 95: Installing Fuel Sender Gauge Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect the fuel sender gauge connector and engage the harness clamp.

NOTE: **Do not damage the wire harness.**

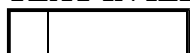
2. **INSTALL FUEL SUCTION TUBE SET GASKET** See step 8
3. **INSTALL FUEL SUCTION WITH PUMP AND GAUGE TUBE ASSEMBLY** See step 9
4. **INSTALL FUEL PUMP GAUGE RETAINER** See step 10
5. **CONNECT FUEL TANK MAIN TUBE SUB-ASSEMBLY**
 - a. Insert the fuel tank main tube into the fuel suction tube assembly plug and lock it with the tube joint clip.



P

Fig. 96: Installing Fuel Tank Main Tube Sub-Assembly & Clip
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



*1	Tube Joint Clip
*2	Fuel Tube Connector
*3	O-Ring
*4	Collar
*a	OK
*b	NG
.	Push Down
.	Push

NOTE:

- Check that there are no scratches or foreign objects on the connecting part.
- Check that the fuel tank main tube is inserted securely.
- Check that the tube joint clip is on the collar of the main tube.
- After installing the tube joint clip, check that the fuel tank main tube assembly is securely connected by pulling on it.

6. **INSTALL FUEL TANK TO FILLER PIPE HOSE** See step 5
7. **INSTALL FUEL TANK ASSEMBLY** See step 14
8. **CONNECT CHARCOAL CANISTER OUTLET TUBE SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 3**
9. **CONNECT FUEL TANK VENT HOSE** . Refer to **INSTALLATION - Step 4**
10. **INSTALL NO. 1 FUEL TANK HEAT INSULATOR** See step 18
11. **INSTALL CENTER EXHAUST PIPE ASSEMBLY** See step 19
12. **INSTALL INSTRUMENT PANEL FINISH PANEL END LH** . Refer to **INSTALLATION - Step 6**
13. **ADD FUEL**
14. **INSPECT FOR FUEL LEAK** . Refer to **ON-VEHICLE INSPECTION - Step 1**
15. **INSPECT FOR EXHAUST GAS LEAK**
16. **INSTALL FUEL TANK FILLER HOSE COVER** See step 24
17. **INSTALL REAR FLOOR NO. 2 CROSSMEMBER BRACE LH** See step 25
18. **INSTALL CHARCOAL CANISTER PROTECTOR** . Refer to **INSTALLATION - Step 5**