

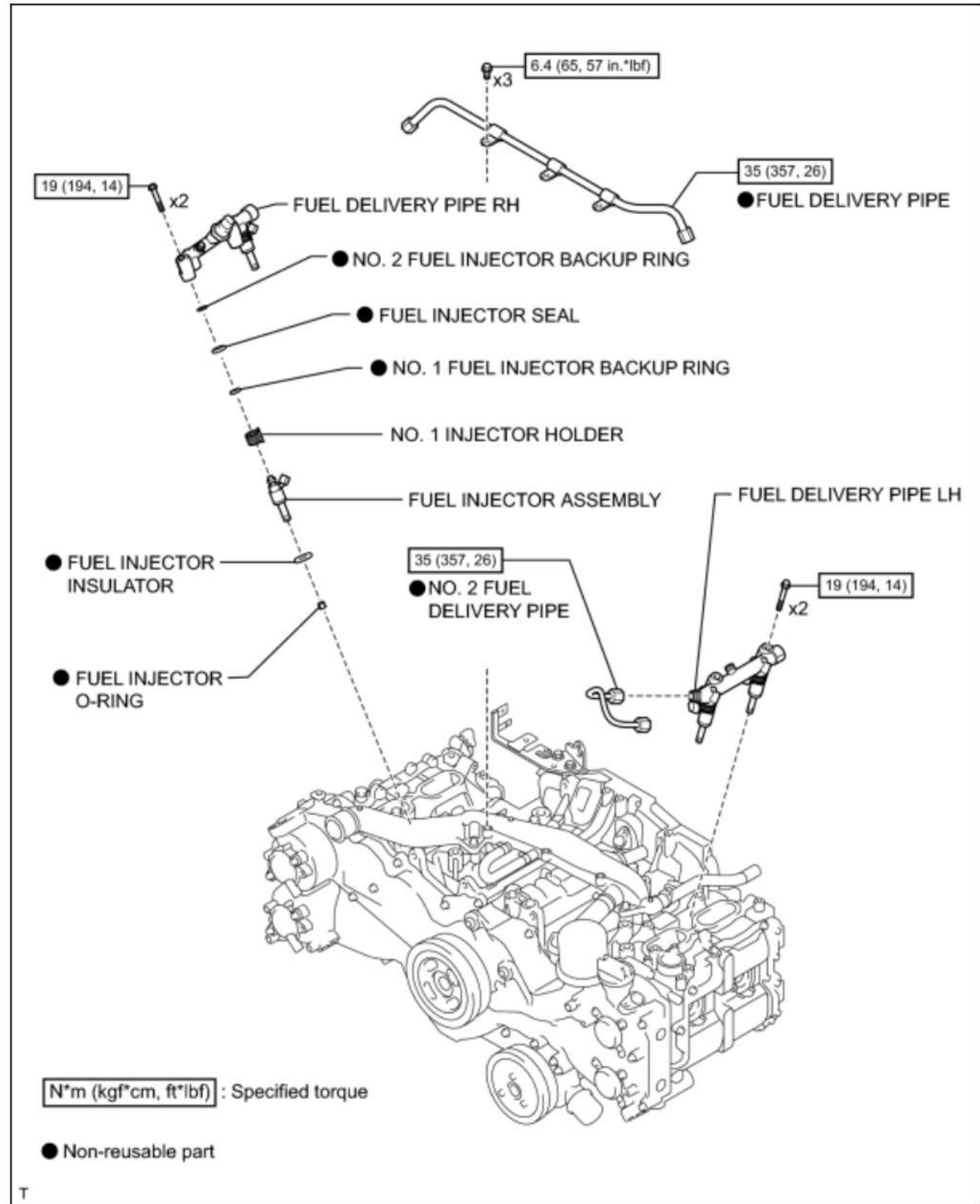
2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

Last Modified: 4-14-2014	6.6 K	Doc ID: RM000000PE206UX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL INJECTOR (for Direct Injection): COMPONENTS; 2013 MY FR-S [03/2012 -]		

COMPONENTS

ILLUSTRATION



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Last Modified: 4-14-2014	6.6 G	Doc ID: RM000000WQQ07RX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL INJECTOR (for Direct Injection): INSPECTION; 2013 MY FR-S [03/2012 -]		

INSPECTION

1. INSPECT FUEL INJECTOR ASSEMBLY

NOTICE:
This inspection aims is to inspect the fuel injectors for opens or shorts, because the fuel injectors of this vehicle are of a high-pressure type and cannot be inspected for fuel injection volume.

(a) 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)	1.9 Ω

Text in Illustration

*a	Component without harness connected (Fuel Injector Assembly)
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If the result is not as specified, replace the fuel injector assembly.

Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000Q4608BX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL INJECTOR (for Direct Injection): INSTALLATION; 2013 MY FR-S [03/2012 -]		

INSTALLATION

1. INSTALL FUEL INJECTOR SEAL

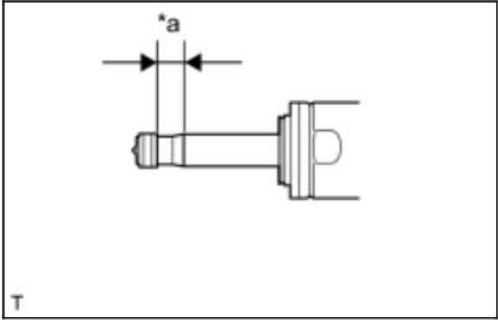
- (a) Apply engine conditioner to the injector area shown in the illustration. Using a piece of cloth, remove the carbon deposits from the injector and its grooves.

Text in Illustration

*a	Clean Area
----	------------

NOTICE:

- Do not clean the tip of the injector.
- Do not use a wire brush to clean the injector.
- If an injector is dropped or the tips of the injectors are struck, replace it with a new one.



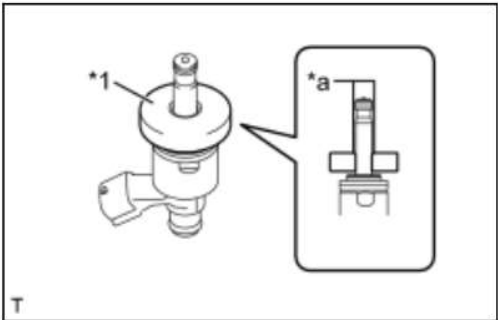
- (b) Apply engine oil to the injector contact surface of SST (guide). Then attach SST (guide) to the injector with the tapered inner portion facing the tip of the injector, as shown in the illustration.

SST: 09260-39020

09261-03020

Text in Illustration

*1	SST (Guide)
*a	Tapered Inner Portion



- (c) Install a new injector seal to SST (holder).

SST: 09260-39020

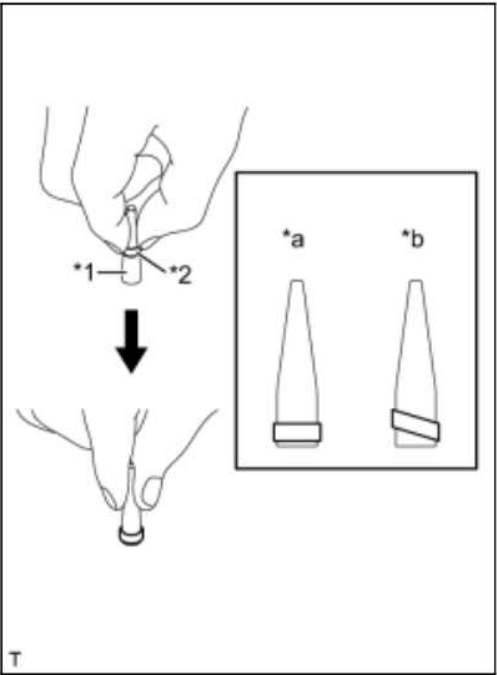
09261-03010

Text in Illustration

*1	SST (holder)
*2	Injector Seal

*a	CORRECT
*b	INCORRECT

NOTICE:
Be careful not to install the injector seal to SST (holder) at an angle. Doing so will stretch the seal and correcting this problem is very complicated.



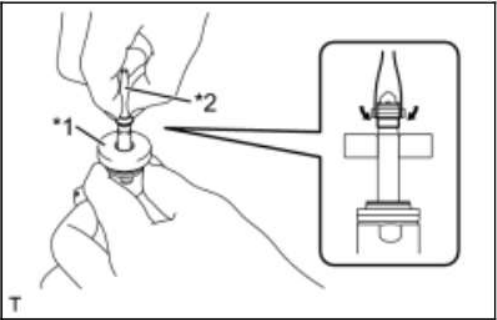
(d) Install SST (holder with injector seal) to the tip of the injector. Slide the seal downward into the injector groove (injector connector side) with your fingers, as shown in the illustration.

SST: 09260-39020

09261-03010

09261-03020

Text in Illustration



*1	SST (Guide)
*2	SST (Holder)

HINT:
Check that the seal covers the circumference of the injector groove as shown in the illustration.

(e) Using SST (holder), gently press downward on the injector seal (injector connector side). Then slowly slide SST (guide) toward the injector tip to settle the seal into the injector groove.

SST: 09260-39020

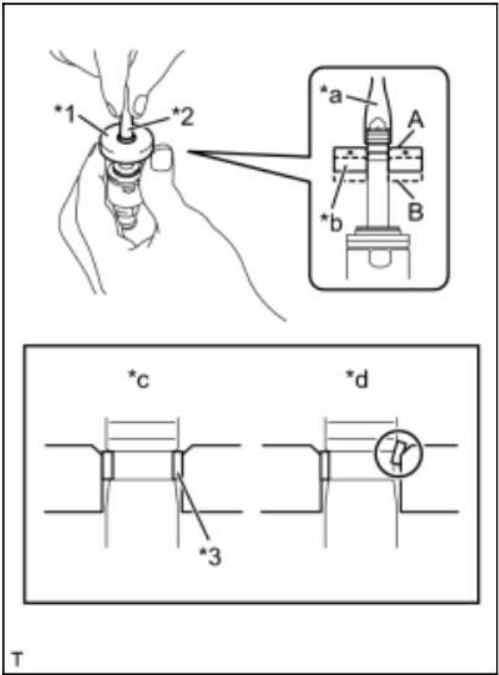
09261-03010

09261-03020

Text in Illustration

*1	SST (Guide)
*2	SST (Holder)

*3	Injector Seal
*a	Gently Press
*b	Slowly Slide
*c	CORRECT
*d	INCORRECT



- NOTICE:**
- Be careful that the seal is not pinched between SST (guide) and the injector groove. Replace the seal if it becomes damaged.
- HINT:**
- When using SST (guide) to settle the seal into the groove, SST (guide) only needs to be slid upward to the position labeled A in the illustration.
 - After using SST (guide) to settle the seal into the groove, return SST (guide) to its position labeled B in the illustration.

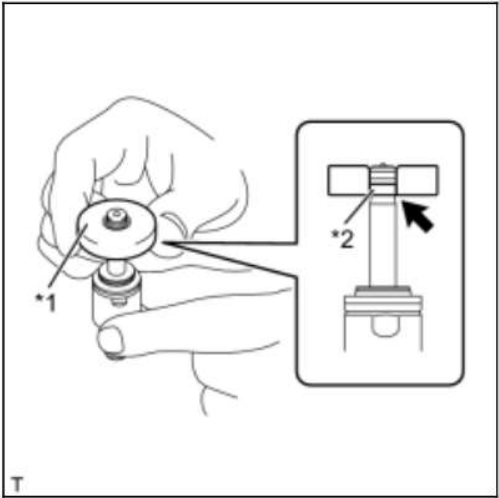
(f) Slowly slide SST (guide) toward the tip of the injector. When the injector contact surface of SST (guide) aligns with the seal (injector connector side) as shown in the illustration, hold the position for 5 seconds or more to fully align the seal into the injector groove.

SST: 09260-39020

09261-03020

Text in Illustration

*1	SST (Guide)
*2	Injector Seal

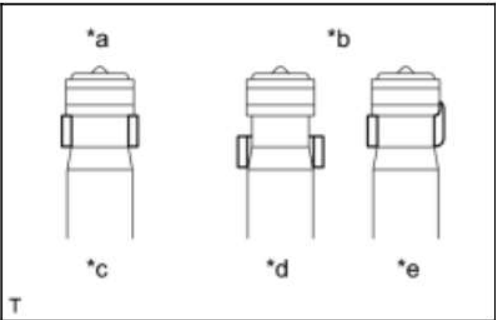


- NOTICE:**
- Be careful that the seal is not pinched between SST (guide) and the injector groove. Replace the seal if it becomes damaged.
- HINT:**
- Set SST (guide) so that its bottom surface and seal are flush.
 - If there is difficulty in sliding SST upward, slowly wiggle it from side to side while sliding it up the injector little by little.

- (g) After installing the seals, check that they are not scratched, deformed or protruding from the injector groove.

Text in Illustration

*a	CORRECT
*b	INCORRECT
*c	Normal
*d	Protruding
*e	Deformed



NOTICE:
If a seal is scratched, deformed or protruding from the groove, replace it with a new one.

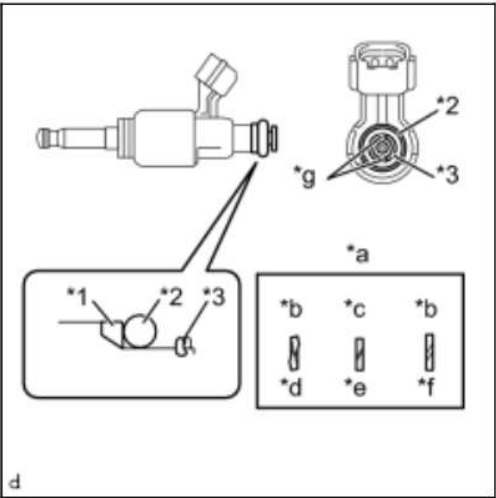
2. INSTALL FUEL INJECTOR ASSEMBLY

NOTICE:
If the tip of the fuel injector assembly is struck or the fuel injector assembly is dropped, replace the fuel injector assembly with a new one.

- (a) Install new fuel injector backup rings (No. 1 and No. 2) and a new fuel injector seal to the fuel injector assembly as shown in the illustration.

Text in Illustration

*1	No. 1 Fuel Injector Backup Ring
*2	Injector Seal
*3	No. 2 Fuel Injector Backup Ring
*a	Alignment Opening
*b	INCORRECT
*c	CORRECT
*d	Overlapped
*e	Normal
*f	Stretched
*g	Grooved Section



- NOTICE:**
- Check that there is no foreign matter or damaged areas in the injector seal groove.
 - Check that the No. 1 fuel injector backup ring is installed in the correct direction.
 - Install the No. 2 fuel injector backup ring so that the

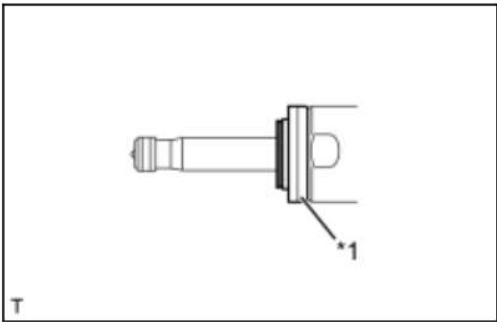
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grooved section faces the fuel delivery pipe.

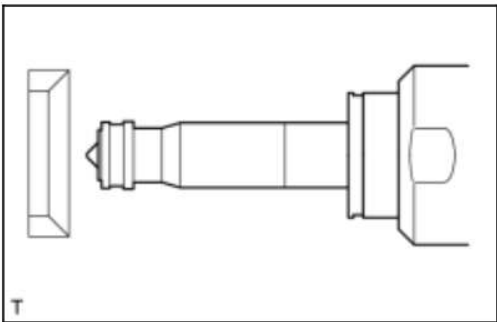
- Make sure that the backup rings and injector seal are installed in the correct order.
- Check that the alignment openings of the backup rings are not overlapped or stretched as shown in the illustration.
- After installing the injector seal, check that it is not contaminated with foreign matter and is not damaged.

(b) Install a new fuel injector insulator to the fuel injector.



Text in Illustration

*1	Fuel Injector Insulator
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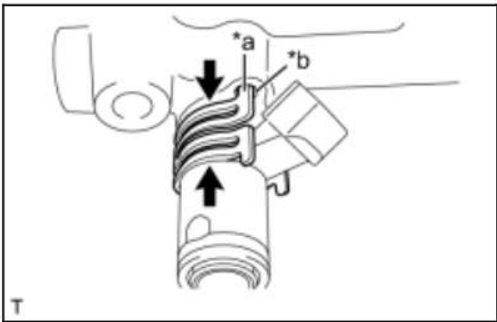


NOTICE:

Install a new fuel injector insulator to the fuel injector as shown in the illustration.

(c) Install the No. 1 injector holder.

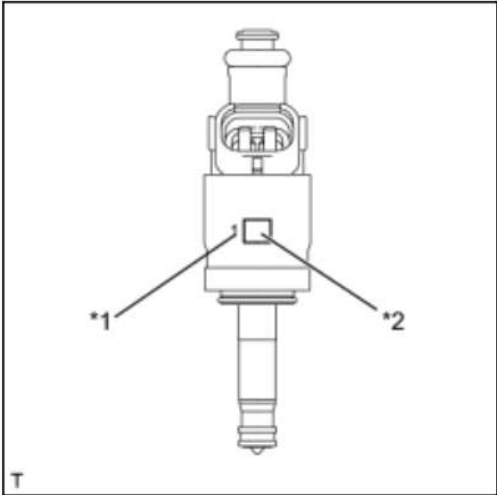
(d) Apply new engine oil to the surface of the injector insertion hole in the fuel delivery pipe.



Text in Illustration

*a	Protruding section
----	--------------------

*b	Baffle hole
	No gap



NOTICE:

- Check that there are no foreign objects or scratches in the inner face of the fuel injector assembly insertion hole in the fuel delivery pipe.
- Ensure that gasoline does not adhere to the fuel injector seal or to inside the attachment hole.
- Insert the fuel injector assembly in a straight line into the fuel delivery pipe without tilting it.
- Ensure that there is no gap between the No. 1 injector holder and the fuel injector pipe on the high-pressure side.
- If using a new fuel injector assembly, use one with the same numbers.

Text in Illustration

*1	Number
*2	Quick Response Code

NOTICE:

- Make sure that there is no gap between the delivery pipe and the No. 1 injector holder.
- Check that there is no foreign matter or damage to the injector insertion hole of the delivery pipe.
- Insert the injector straight into the delivery pipe without tilting it.

(e) Install the No. 1 injector holder while aligning the protrusion on the No. 1 injector holder with the baffle hole on the fuel delivery pipe.

3. INSTALL FUEL DELIVERY PIPE LH

(a) Install the fuel delivery pipe LH with the 2 bolts.

Torque:

19 N·m { 194 kgf·cm, 14ft·lbf }

(b) Connect the 2 fuel injector assembly connectors.

4. INSTALL FUEL DELIVERY PIPE RH

(a) Install the fuel delivery pipe RH with the 2 bolts.

Torque:

19 N·m { 194 kgf·cm, 14ft·lbf }

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(b) Connect the fuel pressure sensor connector and 2 fuel injector assembly connectors.

5. INSTALL FUEL DELIVERY PIPE

(a) Temporarily install the new fuel delivery pipe with the 2 union nuts and 3 bolts.

(b) Tighten the 3 bolts.

Torque:

6.4 N·m { 65 kgf·cm, 57 in·lbf }

(c) Using a union nut wrench, tighten the 2 union nuts.

Torque:

35 N·m { 357 kgf·cm, 26 ft·lbf }

6. INSTALL NO. 2 FUEL DELIVERY PIPE

(a) Temporarily install the new No. 2 fuel pipe with the 2 union nuts.

(b) Using a union nut wrench, tighten the 2 union nuts.

Torque:

35 N·m { 357 kgf·cm, 26 ft·lbf }

7. INSTALL INTAKE MANIFOLD

INFO



Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000Q4808IX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL INJECTOR (for Direct Injection): REMOVAL; 2013 MY FR-S [03/2012 -]		

REMOVAL

1. REMOVE INTAKE MANIFOLD

INFO

2. REMOVE NO. 2 FUEL DELIVERY PIPE

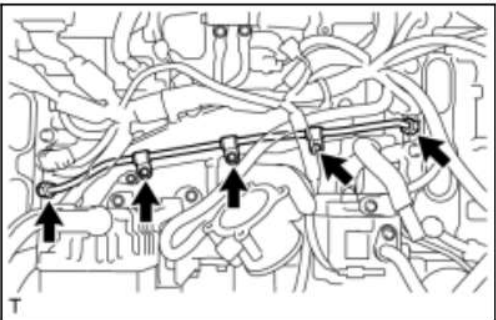
- (a) Using a union nut wrench, loosen the 2 union nuts and remove the No. 2 fuel delivery pipe.

NOTICE:
When removing the No. 2 fuel delivery pipe, pull it out in a straight line to avoid damaging seal surface of the fuel delivery pipe LH.



3. REMOVE FUEL DELIVERY PIPE

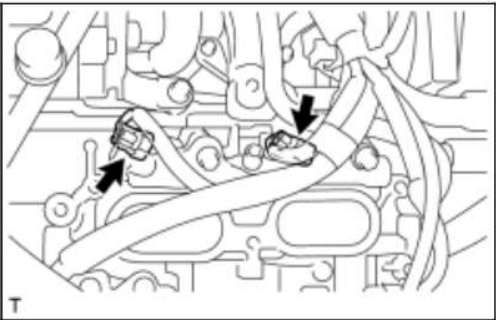
- (a) Remove the 3 bolts.



- (b) Using a union nut wrench, loosen the 2 union nuts and remove the fuel delivery pipe.

4. REMOVE FUEL DELIVERY PIPE LH

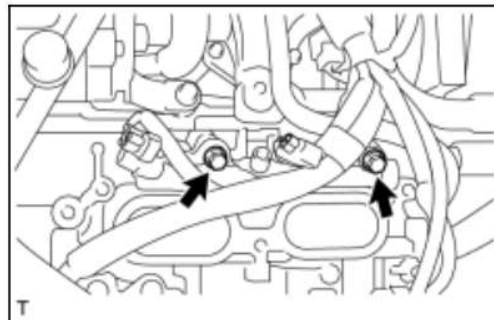
- (a) Disconnect the 2 fuel injector assembly connectors.



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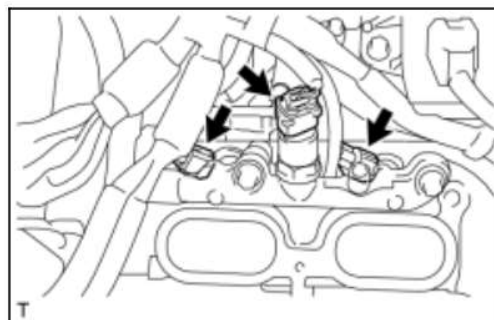
TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

(b) Remove the 2 bolts and fuel delivery pipe LH.

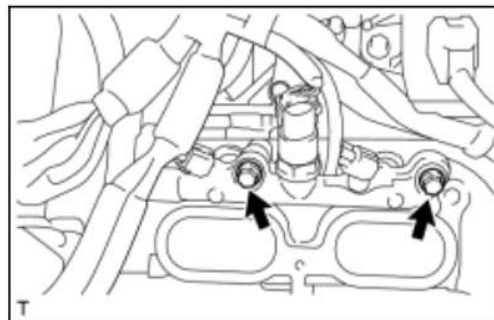


5. REMOVE FUEL DELIVERY PIPE RH

(a) Disconnect the fuel pressure sensor connector and 2 fuel injector assembly connectors.



(b) Remove the 2 bolts and fuel delivery pipe RH.

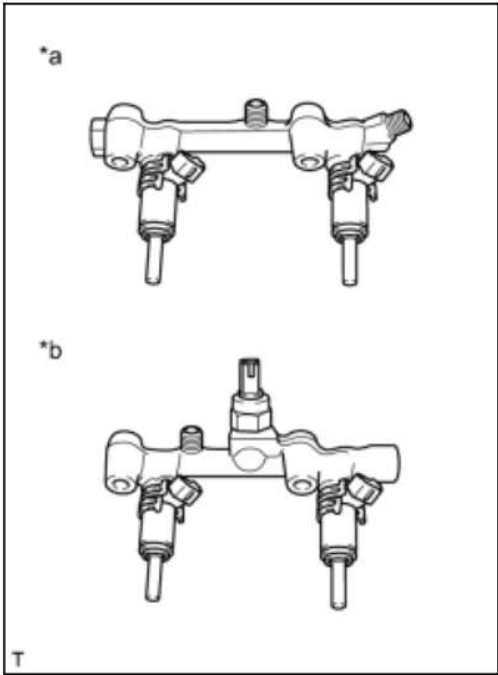


6. REMOVE FUEL INJECTOR ASSEMBLY

(a) Remove the 4 fuel injector assemblies from the fuel delivery pipe.

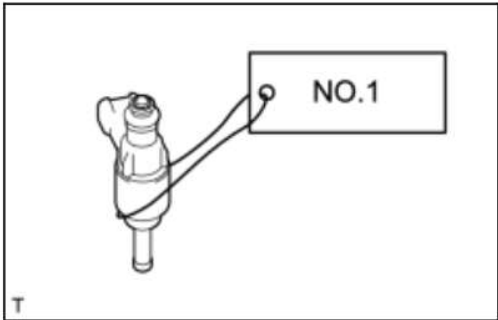
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Text in Illustration

*a	for Bank 2
*b	for Bank 1



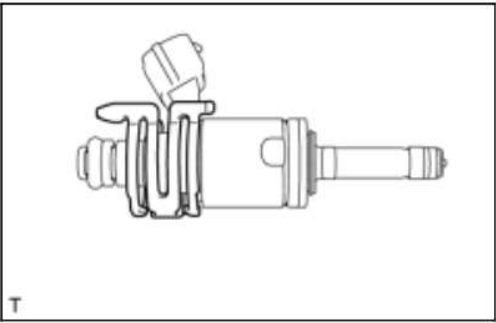
NOTICE:

- If the tip of the fuel injector assembly is struck or the fuel injector assembly is dropped, replace the fuel injector assembly with a new one.
- Pull and remove the fuel injector assembly in a straight line to avoid damaging the seal surface of the fuel delivery pipe.
- For re-installation, attach a tag or label to each fuel injector assembly.

NOTICE:

- Pull and remove the injector in a straight line to avoid damaging to the seal surface of the delivery pipe O-rings.
- For reinstallation, attach a tag or label to the injector shaft.

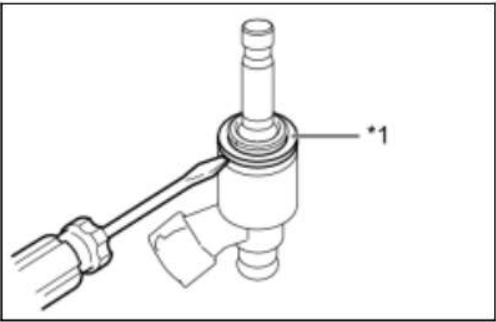
(b) Remove the No. 1 injector holders from the fuel injectors.



(c) Using a screwdriver, remove the fuel injector insulator.

Text in Illustration

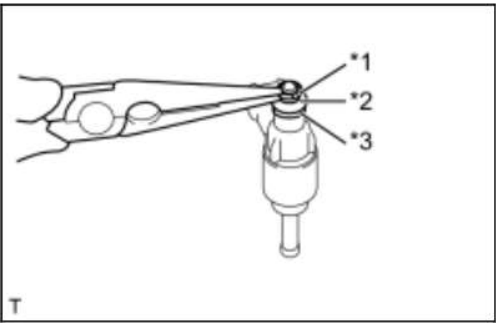
*1	Fuel Injector Insulator
----	-------------------------



(d) Using a needle nose plier, remove the No. 2 fuel injector backup ring.

Text in Illustration

*1	No. 2 Fuel Injector Backup Ring
*2	Fuel Injector Seal
*3	No. 1 Fuel Injector Backup Ring



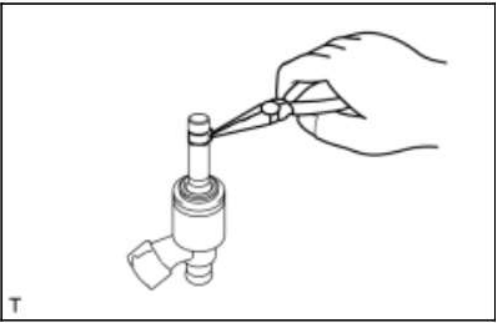
(e) Remove the fuel injector seal and No. 1 fuel injector backup ring.

7. REMOVE FUEL INJECTOR O-RING

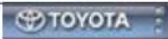
(a) Using the tips of a pair of needle nose pliers, pinch and pull one of the fuel injector O-ring at several points to stretch it. Repeat this for the other fuel injector O-ring.

NOTICE:

- Excessively pinching the fuel injector O-ring may damage the groove of the injector.
- If an injector is dropped or the tip of the injector is struck, replace it with a new one.



(b) Remove the injector seal from the injector.



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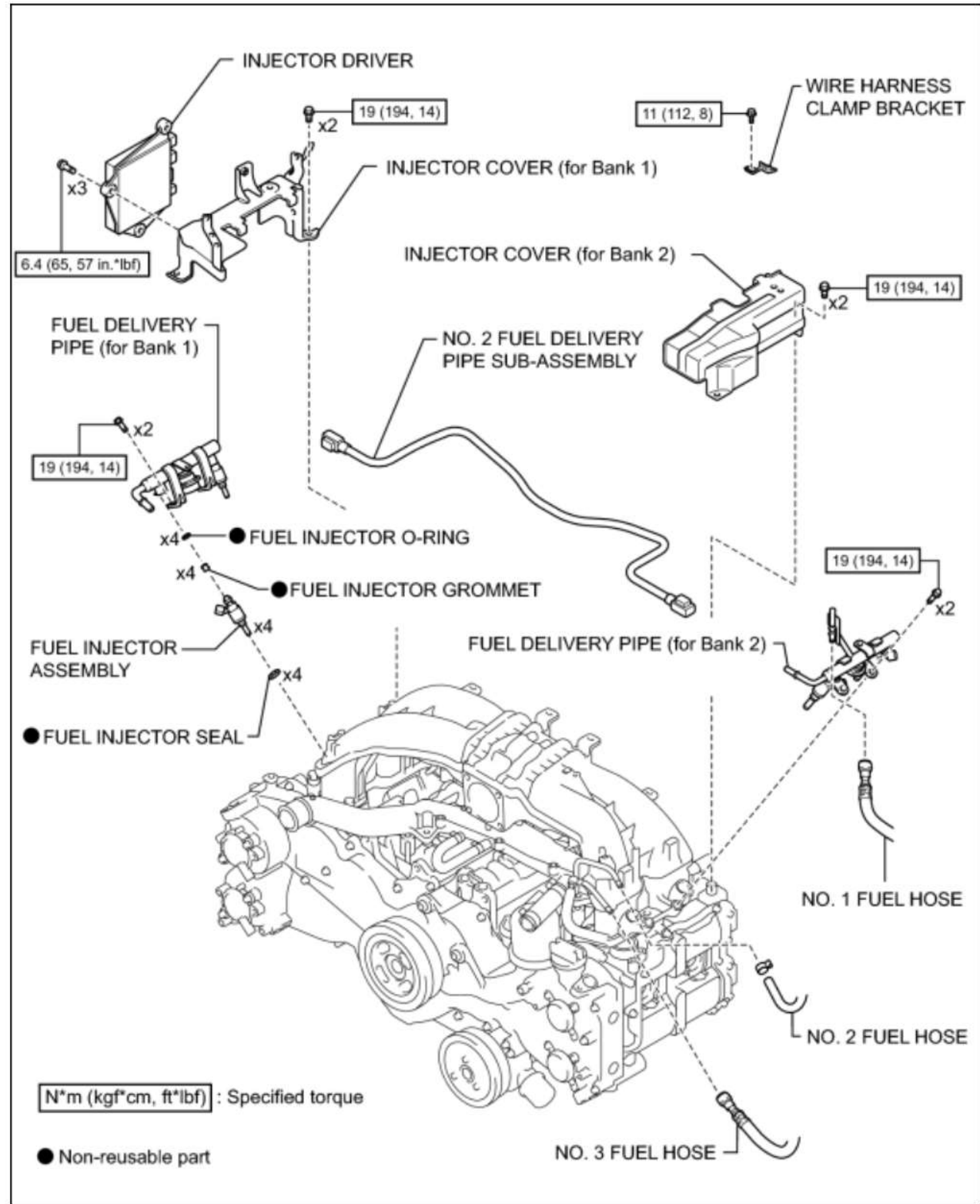
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Last Modified: 4-14-2014	6.6 K	Doc ID: RM000000PE206TX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL INJECTOR (for Port Injection): COMPONENTS; 2013 MY FR-S [03/2012 -]		

COMPONENTS

ILLUSTRATION

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Last Modified: 4-14-2014	6.6 G	Doc ID: RM000000WQQ07QX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL INJECTOR (for Port Injection): INSPECTION; 2013 MY FR-S [03/2012 -]		

INSPECTION

1. INSPECT FUEL INJECTOR ASSEMBLY

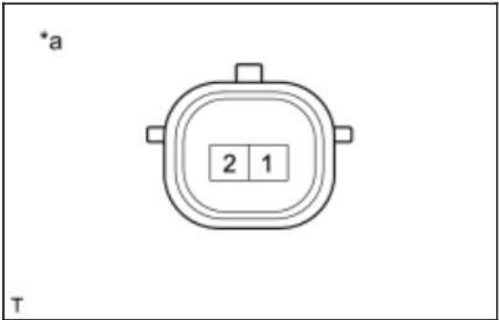
(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	20°C (68°F)	12 Ω

Text in Illustration

*a	Component without harness connected (Fuel Injector Assembly)
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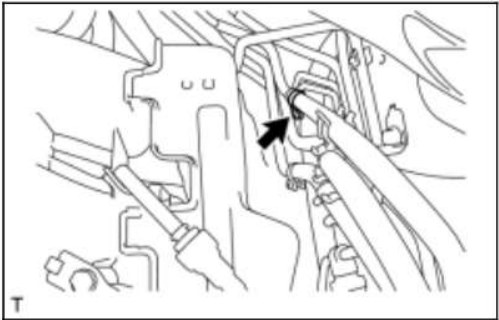
If the resistance is not as specified, replace the fuel injector assembly.

(b) Inspect the injection volume.

CAUTION:

This test involves high-pressure fuel and electricity. Take all precautions regarding safe handling of both the fuel and the electricity. Perform this test in a safe area, and avoid any sparks or flames. Do not smoke.

(c) Disconnect the fuel tube.



(d) Connect SST (hose) to the fuel pipe (vehicle side) with SST (hose band).

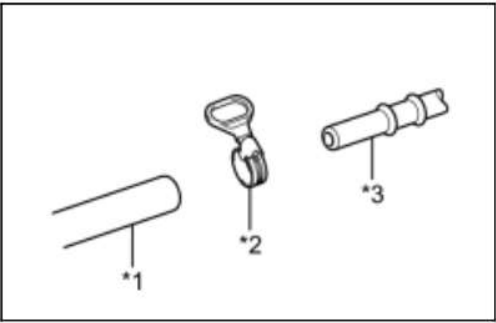
SST: 09268-31014

09268-41700

95336-08070

Text in Illustration

*1	SST (Hose)
*2	SST (Hose Band)
*3	Fuel Pipe (Vehicle Side)

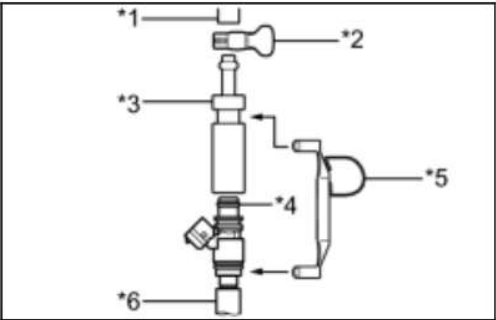


- (e) Install the O-ring to the fuel injector assembly.
- (f) Install SST and vinyl tube to the fuel injector assembly.

SST: 09268-31014
09268-41141
09268-41410
09268-41700
95336-08070

Text in Illustration

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

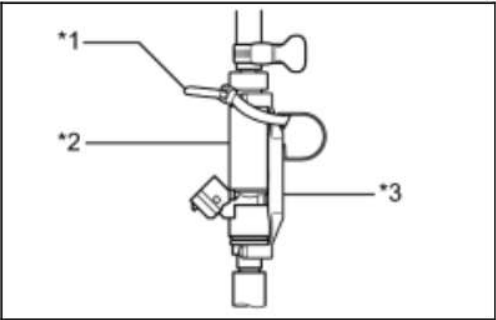


- (g) Tie SST (clamp and adapter) together with SST (tie band) as shown in the illustration.

SST: 09268-31014
09268-41141
09268-41410
09268-41800

Text in Illustration

*1	SST (Tie Band)
*2	SST



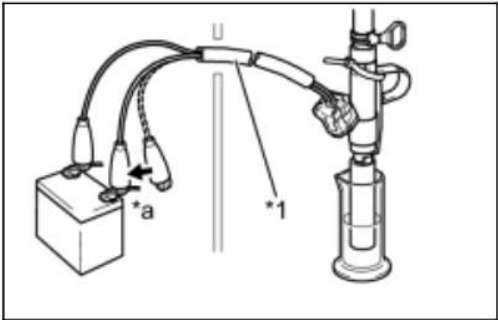
	(Adapter)
*3	SST (Clamp)

(h) Put the injector into a graduated cylinder.

SST: 09842-30090

Text in Illustration

*1	SST (Wire)
*a	Connect



CAUTION:
Install a strong rubber tube onto the injector to prevent gasoline from splashing.

- (i) Operate the fuel pump (turn the ignition switch to ON).
- (j) 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.

Standard injection volume:
84 to 103 cc (5.1 to 6.3 cu.in.) per 15 seconds
Difference between each injector:
19 cc (1.2 cu.in.) or less

NOTICE:

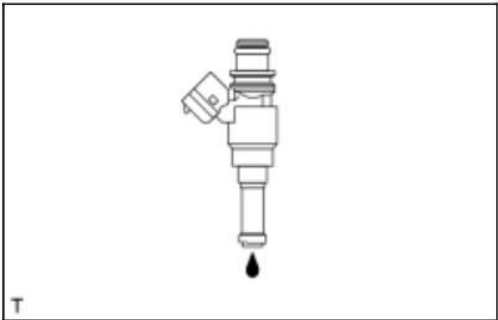
- Make sure that SST (EFI inspection wire I) is securely connected.
- Always turn on and off the voltage on the battery side, not on the fuel pump side.

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

- (k) Check for leakage.

- (1) In the condition above, disconnect the tester probes of SST (wire) from the battery and check for fuel leakage from the fuel injector assembly.

Standard fuel drop:
1 drop or less in 22 minutes
If there is excessive leakage, replace the fuel injector assembly.



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Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000Q4608AX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL INJECTOR (for Port Injection): INSTALLATION; 2013 MY FR-S [03/2012 -]		

INSTALLATION

1. INSTALL FUEL INJECTOR ASSEMBLY

- (a) Apply gasoline to a new fuel injector O-ring and a new fuel injector grommet, and then install them to the injector.

NOTICE:

Check that there is no damage or foreign material in the groove of the injector when installing the fuel injector O-ring and fuel injector grommet.

- (b) Install the 4 fuel injector assemblies to the fuel delivery pipe.

NOTICE:

- Check that there are no foreign objects or scratches in the insertion opening of the fuel delivery pipe.
- Take sufficient care not to twist the O-ring.
- If the injector does not rotate smoothly after installing it to the fuel delivery pipe, remove the injector and reinstall it with a new O-ring.

2. INSTALL FUEL INJECTOR SEAL (for Bank 1)

- (a) Install 2 new fuel injector seals.

3. INSTALL FUEL DELIVERY PIPE (for Bank 1)

- (a) Install the fuel delivery pipe (for bank 1) (with injector) to the intake manifold with the 2 bolts.

Torque:

19 N·m { 194 kgf·cm, 14ft·lbf }

- (b) Engage the clamp to connect the wire harness.
(c) Connect the 2 fuel injector assembly connectors.

HINT:

Connect the connector, aligning it with the baffles on the fuel injector assembly on the fuel delivery pipe (for bank 1).

- (d) Connect the No. 2 fuel delivery pipe sub-assembly to the fuel delivery pipe (for bank 1)  .

4. INSTALL FUEL INJECTOR SEAL (for Bank 2)

- (a) Install 2 new fuel injector seals.

5. INSTALL FUEL DELIVERY PIPE (for Bank 2)

- (a) Install the fuel delivery pipe (for bank 2) (with injector) to the intake manifold with the 2 bolts.

Torque:

19 N·m { 194 kgf·cm, 14ft·lbf }

- (b) Connect the 2 injector connectors and clamp.

HINT:

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Connect the connector, aligning it with the baffles on the fuel injector assembly on the fuel delivery pipe (for bank 2).

(c) Connect the No. 2 fuel delivery pipe sub-assembly to the fuel delivery pipe (for bank 2) **INFO** .

6. INSTALL INJECTOR COVER (for Bank 2)

(a) Install the injector cover to the intake manifold with the 2 bolts.

Torque:

19 N·m {194 kgf·cm, 14ft·lbf}

(b) Install the wire harness clamp bracket to the injector cover with the bolt.

Torque:

11 N·m {112 kgf·cm, 8ft·lbf}

7. CONNECT NO. 2 FUEL HOSE

(a) Connect the No. 2 fuel hose to the fuel delivery pipe sub-assembly with the clamp.

8. CONNECT NO. 3 FUEL HOSE

(a) Align the matchmarks on the the fuel delivery pipe and No. 3 fuel hose.

(b) Connect the No. 3 fuel hose to the fuel delivery pipe sub-assembly **INFO** .

9. CONNECT NO. 1 FUEL HOSE

(a) Align the matchmarks on fuel delivery pipe and the No. 1 fuel hose.

(b) Connect the No. 1 fuel hose to the fuel delivery pipe **INFO** .

10. INSTALL INJECTOR COVER (for Bank 1)

(a) Install the injector cover to the intake manifold with the 2 bolts.

Torque:

19 N·m {194 kgf·cm, 14ft·lbf}

(b) Engage the 4 clamps to install the wire harness to the injector cover.

11. INSTALL INJECTOR DRIVER **INFO**

12. INSTALL CHAMBER ASSEMBLY

INFO

13. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL **INFO**

14. INSPECT FOR FUEL LEAK **INFO**



Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000Q4808HX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL INJECTOR (for Port Injection): REMOVAL; 2013 MY FR-S [03/2012 -]		

REMOVAL

1. DISCHARGE FUEL SYSTEM PRESSURE

INFO

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

INFO

3. REMOVE CHAMBER ASSEMBLY

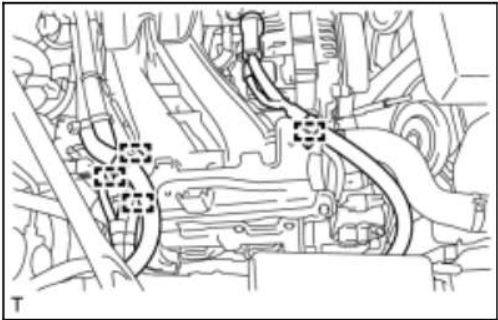
INFO

4. REMOVE INJECTOR DRIVER

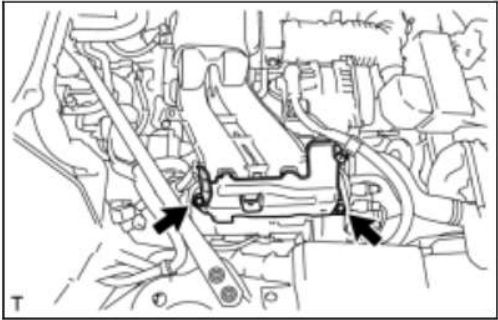
INFO

5. REMOVE INJECTOR COVER (for Bank 1)

- (a) Disengage the 4 clamps and separate the wire harness from the injector cover (for bank 1).



- (b) Remove the 2 bolts and injector cover (for bank 1).

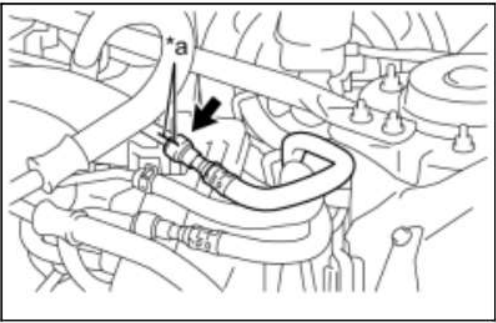


6. DISCONNECT NO. 1 FUEL HOSE

- (a) Place matchmarks on the fuel delivery pipe and the No. 1 fuel hose.

Text in Illustration

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



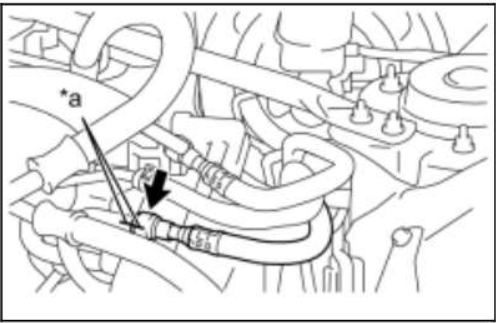
(b) Using SST, disconnect the No. 1 fuel hose from the fuel delivery pipe sub-assembly INFO .
SST: SU003-03936

7. DISCONNECT NO. 3 FUEL HOSE

(a) Place matchmarks on the fuel delivery pipe and the No. 3 fuel hose from the fuel pipe.

Text in Illustration

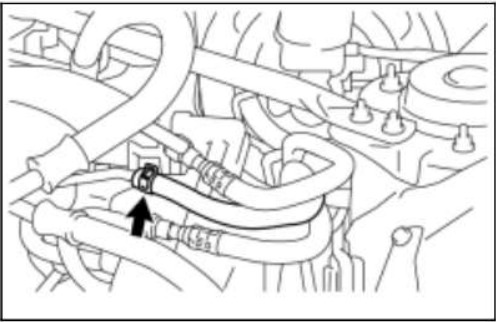
*a	Matchmark
----	-----------



(b) Using SST, disconnect the No. 3 fuel hose from the fuel pipe INFO .
SST: SU003-03936

8. DISCONNECT NO. 2 FUEL HOSE

(a) Remove the clamp and disconnect the No. 2 fuel vapor feed hose from the fuel pipe.



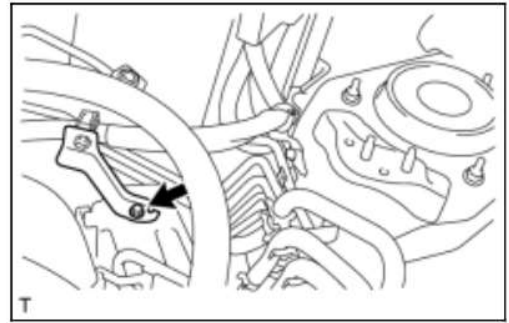
9. REMOVE INJECTOR COVER (for Bank 2)

(a) Remove the bolt and disconnect the wire harness clamp

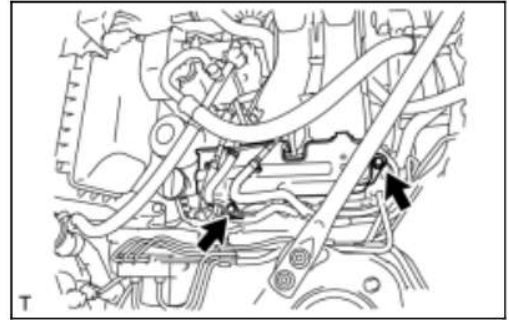
2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

bracket from the injector cover (for bank 2).

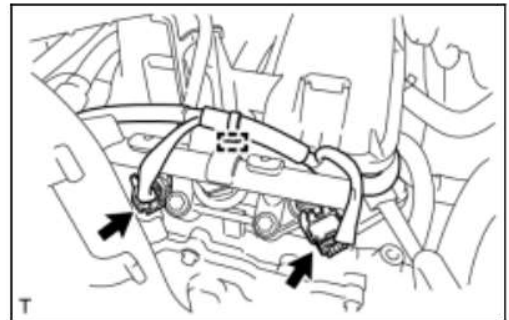


(b) Remove the 2 bolts and injector cover (for bank 2).

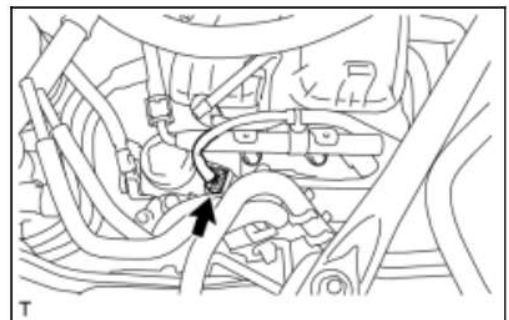


10. REMOVE FUEL DELIVERY PIPE (for Bank 2)

(a) Disconnect the 2 fuel injector assembly connectors.



(b) Disengage the clamp and separate the wire harness.

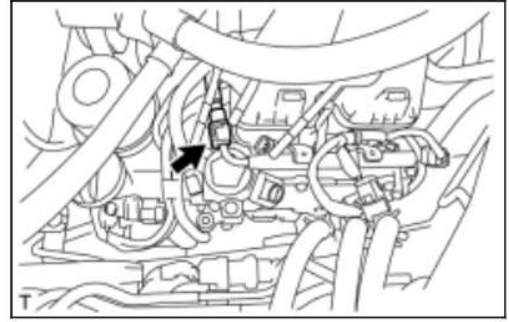


(c) Disconnect the fuel pump assembly connector.

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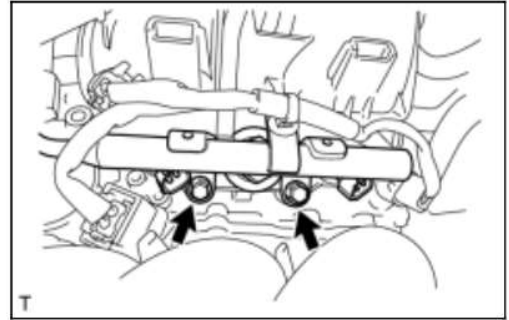
- (d) Disconnect the No. 2 fuel delivery pipe sub-assembly from the fuel delivery pipe (for bank 2) **INFO**.



- (e) Remove the 2 bolts and fuel delivery pipe (for bank 2).

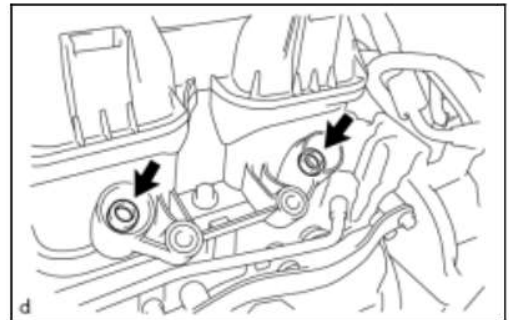
NOTICE:

When removing the fuel delivery pipe (for bank 2), hold the pipe by both ends and pull it straight upward.



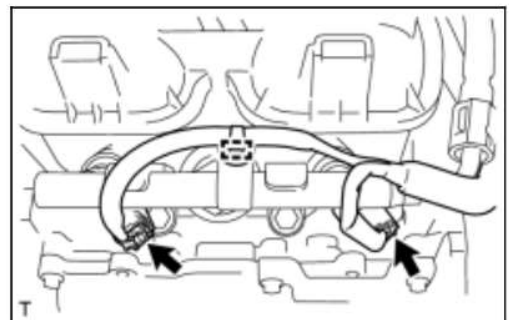
11. REMOVE FUEL INJECTOR SEAL (for Bank 2)

- (a) Remove the 2 fuel injector seals.



12. REMOVE FUEL DELIVERY PIPE (for Bank 1)

- (a) Disconnect the 2 fuel injector assembly connectors.



- (b) Disengage the clamp and separate the wire harness.

- (c) Disconnect the No. 2 fuel delivery pipe sub-assembly from the fuel delivery pipe (for bank 1) **INFO**.

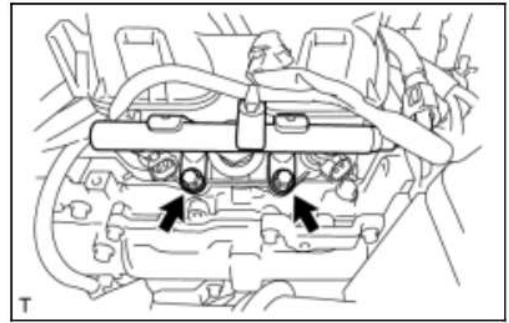
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TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

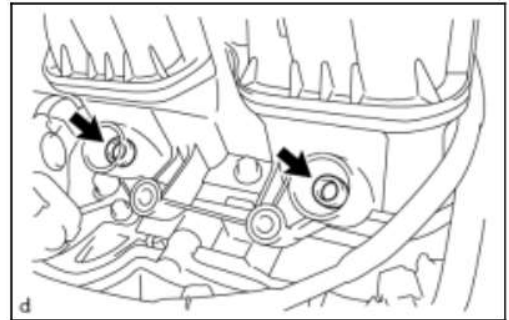
(d) Remove the 2 bolts and fuel delivery pipe (for bank 1).

NOTICE:

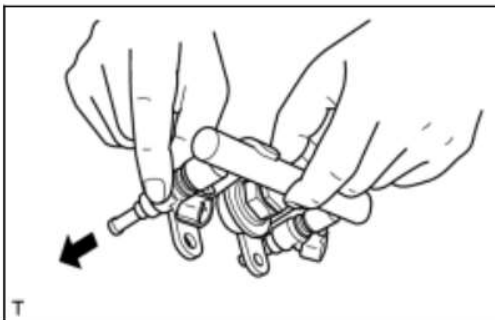
When removing the fuel delivery pipe (for bank 1), hold the pipe by both ends and pull it straight upward.

**13. REMOVE FUEL INJECTOR SEAL (for Bank 1)**

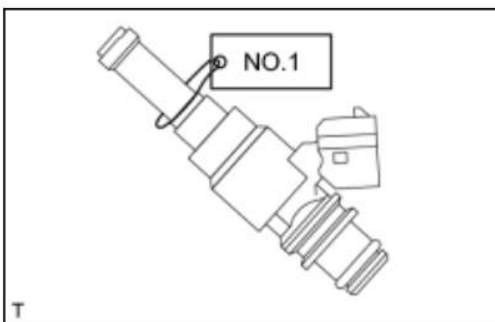
(a) Remove the 2 fuel injector seals.

**14. REMOVE FUEL INJECTOR ASSEMBLY**

(a) Remove the 4 fuel injector assemblies from the fuel delivery pipe.

**NOTICE:**

For reinstallation, attach a tag or label to the injector shaft.



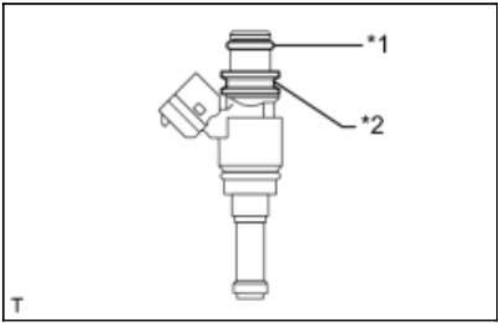
(b) Remove the fuel injector O-ring and fuel injector grommet from the fuel injector assembly.

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Text in Illustration

*1	Fuel Injector O-ring
*2	Fuel Injector Grommet



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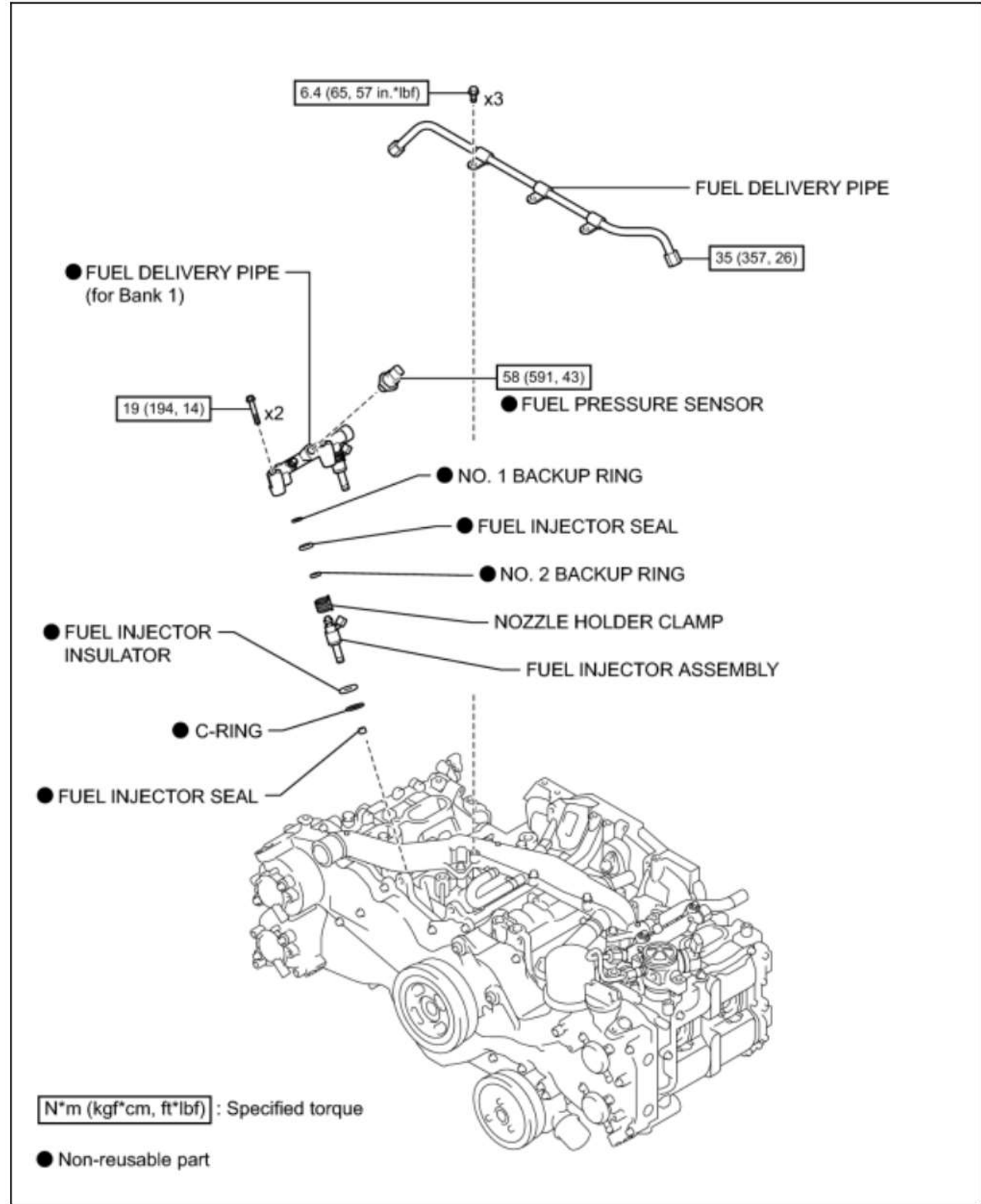
TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

Last Modified: 4-14-2014	6.6 K	Doc ID: RM000000VIL02HX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PRESSURE SENSOR: COMPONENTS; 2013 MY FR-S [03/2012 -]		

COMPONENTS

ILLUSTRATION

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Last Modified: 4-14-2014	6.6 G	Doc ID: RM000000WU302HX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PRESSURE SENSOR: INSPECTION; 2013 MY FR-S [03/2012 -]		

INSPECTION

1. INSPECT FUEL PRESSURE SENSOR

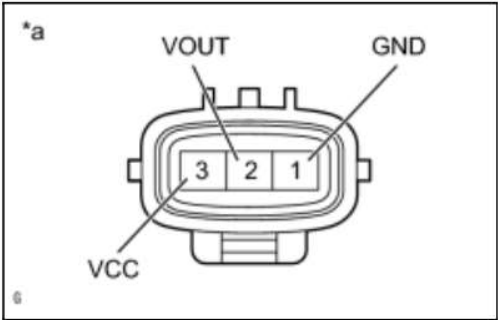
- (a) Check the fuel pressure sensor output voltage.
- (1) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 (GND) - 2 (VOUT)	Apply 5 V between terminals 3 (VCC) and 1 (GND)	Approximately 0.5 V

Text in Illustration

*a	Component without harness connected (Fuel Pressure Sensor)
----	--



- NOTICE:
- Be careful when connecting the leads, as the fuel pressure sensor may be damaged if the leads are connected to the wrong terminals.
 - Do not apply a voltage of 6 V or more to the terminals 3 (VCC) and 1 (GND).

HINT:

If a stable power supply is not available, use 4 1.2 V nickel-metal hydride batteries, etc.

If the resistance is not as specified, replace the fuel pressure sensor.

2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000VIK030X
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PRESSURE SENSOR: INSTALLATION; 2013 MY FR-S [03/2012 -]		

INSTALLATION

1. INSTALL FUEL INJECTOR ASSEMBLY

NOTICE:

Be sure to use a new fuel delivery pipe and new fuel pressure sensor. INFO

2. INSTALL FUEL DELIVERY PIPE (for Bank 1)

(a) Install the fuel delivery pipe (for Bank 1) with the 2 bolts.

Torque:

19 N·m {194 kgf·cm, 14ft·lbf}

3. INSTALL FUEL PRESSURE SENSOR

(a) Temporarily install the new fuel pressure sensor by hand as much as possible to the fuel delivery pipe (for Bank 1).

(b) Tighten the fuel pressure sensor.

Torque:

58 N·m {591 kgf·cm, 43ft·lbf}

NOTICE:

- Ensure that no oil adheres to the threads of the fuel pressure sensor and No. 1 fuel delivery pipe sub-assembly RH.
- Do not allow any foreign matter to adhere when installing the fuel pressure sensor.
- Once the fuel pressure sensor is tightened to the specified torque, do not retighten or recheck it.

(c) Connect the fuel pressure sensor connector and 2 fuel injector connectors.

4. INSTALL FUEL DELIVERY PIPE INFO

5. INSTALL INTAKE MANIFOLD

INFO

Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000VIM02ZX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PRESSURE SENSOR: REMOVAL; 2013 MY FR-S [03/2012 -]		

REMOVAL

1. REMOVE INTAKE MANIFOLD

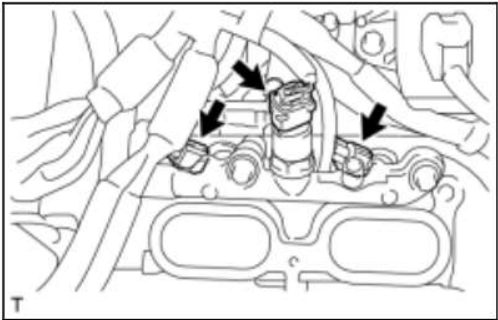
INFO

2. REMOVE FUEL DELIVERY PIPE

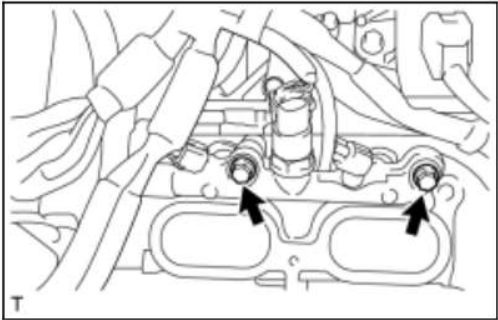
INFO

3. REMOVE FUEL DELIVERY PIPE (for Bank 1)

(a) Disconnect the fuel pressure sensor connector and 2 fuel injector connectors.

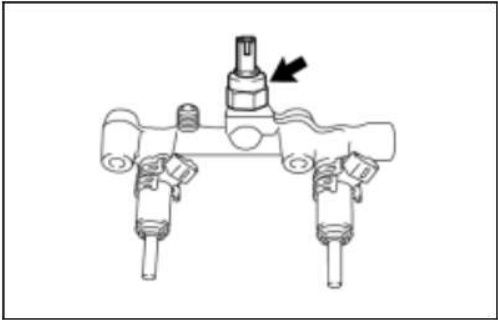


(b) Remove the 2 bolts and the fuel delivery pipe (for Bank 1).



4. REMOVE FUEL PRESSURE SENSOR

(a) Remove the fuel pressure sensor from the fuel delivery pipe (for Bank 1).



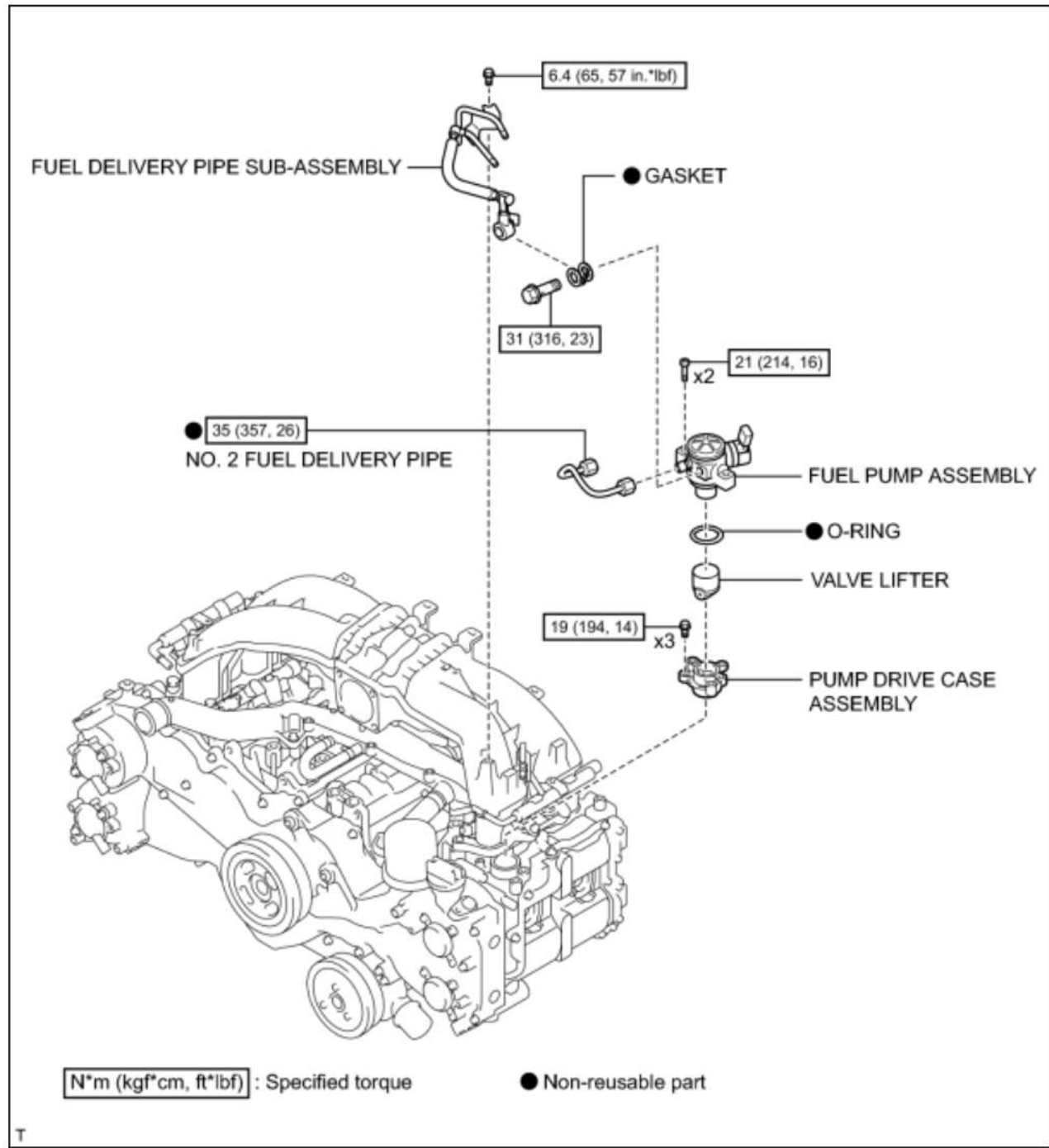
5. REMOVE FUEL INJECTOR ASSEMBLY

INFO

Last Modified: 4-14-2014	6.6 K	Doc ID: RM000000VIR02GX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP (for High Pressure): COMPONENTS; 2013 MY FR-S [03/2012 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 4-14-2014	6.6 G	Doc ID: RM0000053LC004X
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP (for High Pressure): INSPECTION; 2013 MY FR-S [03/2012 -]		

INSPECTION

1. INSPECT FUEL PUMP ASSEMBLY

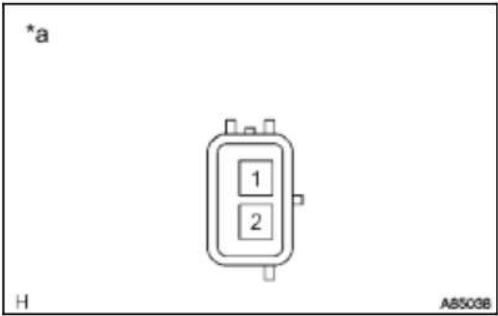
(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	20°C (68°F)	0.45 to 0.55 Ω

Text in Illustration

*a	Component without harness connected (Fuel Pump Assembly)
----	---



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

Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000VIQ02TX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP (for High Pressure): INSTALLATION; 2013 MY FR-S [03/2012 -]		

INSTALLATION

1. INSTALL PUMP DRIVE CASE ASSEMBLY

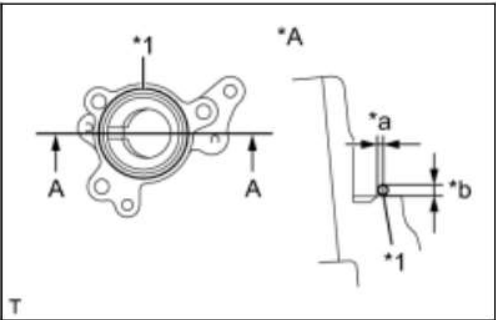
(a) Apply seal packing in a continuous line as shown in the illustration.

Seal packing:
Three Bond 1217G, 1217H or equivalent
Standard seal diameter:
Within 1 mm (0.039 in.)

- NOTICE:
- Install within 5 minutes of applying seal packing, and tighten the bolts within 15 minutes.
 - Do not pour in engine oil for at least 2 hours after installation.
 - Do not start the engine for at least 2 hours after installation.
 - Do not allow seal packing to enter the engine oil passage.

Text in Illustration

*A	A-A cross-section
*1	Seal Packing
*a	Seal Application Position : Within 1 mm (0.039 in.) from Edge
*b	Seal Diameter : 2 to 4 mm (0.079 to 0.158 in.)



(b) Using a 6 mm hexagon wrench, install the pump drive case assembly with the 3 bolts.

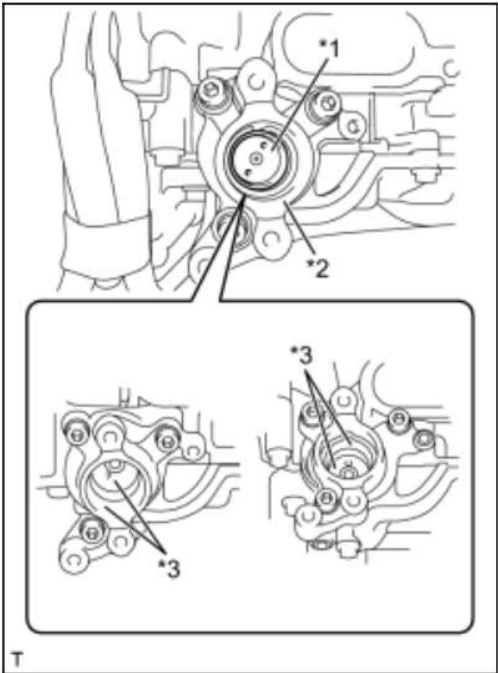
Torque:
19 N·m { 194 kgf·cm, 14ft·lbf }

2. INSTALL VALVE LIFTER

(a) Turn the crankshaft until the flat of the cam is facing the cylinder head cover's fuel pump attachment hole.

- HINT:
- When installing the fuel pump by following the procedure described above, it is easier to install the fuel pump and the No. 2 fuel pipe later if the crankshaft pointed side is not used to push up the pump activation surface.
- (b) Apply a coat of engine oil to the pump activation cam and pump lifter part.

(c) Apply new engine oil to the inside of the pump drive case assembly and the underside of the valve lifter, and install the valve lifter to the pump drive case assembly.



Text in Illustration

*1	Valve Lifter
*2	Pump Drive Case Assembly
*3	Location for applying new engine oil

HINT:
When applying oil to the underside of the valve lifter, drop a few drops of oil on the camshaft and the roller rocker arm from the valve lifter hole.

3. INSTALL FUEL PUMP ASSEMBLY

- (a) Apply a light coat of engine oil to a new O-ring and install it to the fuel pump assembly.
- (b) Using a "TORX" Plus Socket Wrench, install the fuel pump assembly with the 2 bolts.

Torque:
21 N·m { 214 kgf·cm, 16ft·lbf }

4. CONNECT FUEL DELIVERY PIPE SUB-ASSEMBLY

- (a) Install the fuel delivery pipe sub-assembly to the fuel pump assembly with a new gasket and the union bolt.

Torque:
31 N·m { 316 kgf·cm, 23ft·lbf }

5. INSTALL NO. 2 FUEL DELIVERY PIPE INFO

6. INSTALL INTAKE MANIFOLD

INFO

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Last Modified: 4-14-2014	6.6 G	Doc ID: RM000000VIT02IX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP (for High Pressure): ON-VEHICLE INSPECTION; 2013 MY FR-S [03/2012 -]		

ON-VEHICLE INSPECTION

1. CHECK FUEL PUMP OPERATION

(a) Check fuel pressure.

- (1) Connect the Techstream to the DLC3.
- (2) Start the engine.
- (3) Turn the Techstream on.
- (4) Enter the following menus: Powertrain / Engine / Active Test / Control the Target Fuel Pressure.
- (5) Check that the fuel pressure fluctuates when the target fuel pressure changes.

HINT:

The target fuel pressure operation lowers the target fuel pressure by -12.5% or increases the target fuel pressure by 24.8%.

Standard:

Fuel pressure fluctuates in accordance with the Techstream operation.

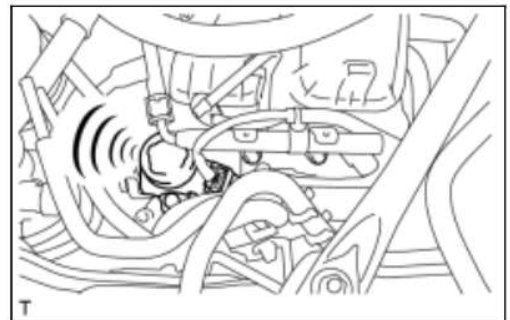
If the result is not as specified, replace the fuel pump or fuel pressure sensor.

(b) Check operating sound.

- (1) Remove the injector cover (for bank 2).
- (2) Start the engine.

- (3) Using a sound scope, check the operating sound of the pump.

If no sound can be heard, check the fuel pump, wire harness and ECM.



- (4) Stop the engine.
- (5) Reinstall the injector cover (for bank 2).



Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000VIS02SX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP (for High Pressure): REMOVAL; 2013 MY FR-S [03/2012 -]		

REMOVAL

1. REMOVE INTAKE MANIFOLD

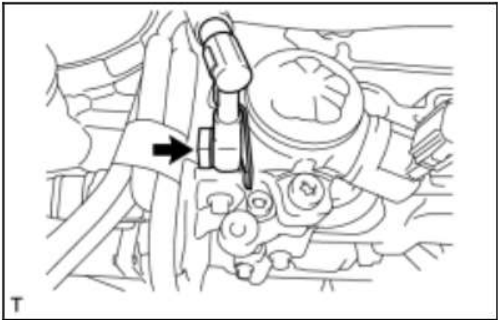
INFO

2. REMOVE NO. 2 FUEL DELIVERY PIPE

INFO

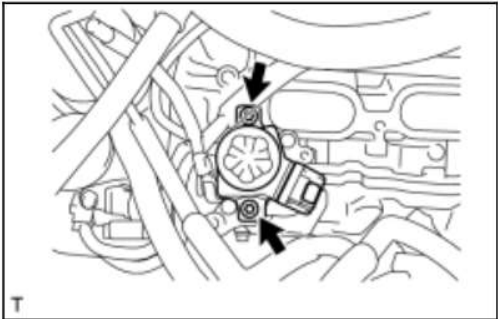
3. DISCONNECT FUEL DELIVERY PIPE SUB-ASSEMBLY

- (a) Remove the union bolt and gasket, and disconnect the fuel delivery pipe sub-assembly.



4. REMOVE FUEL PUMP ASSEMBLY

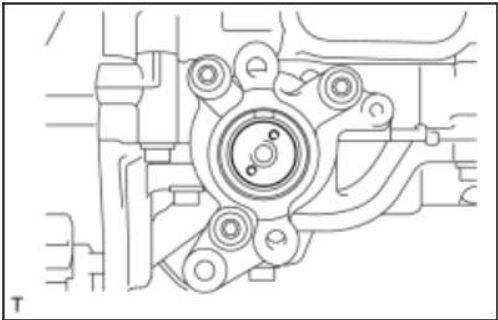
- (a) Using a "TORX" Plus Socket Wrench, remove the 2 bolts and fuel pump assembly.



- (b) Remove the O-ring from the fuel pump assembly.

5. REMOVE VALVE LIFTER

- (a) Remove the valve lifter from the pump drive case assembly.

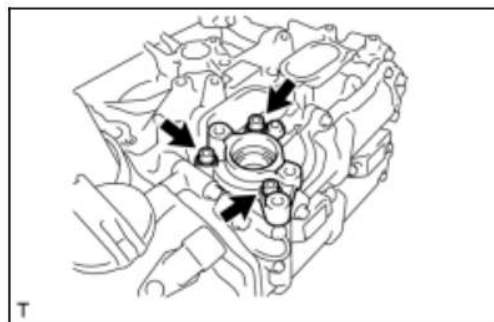


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6. REMOVE PUMP DRIVE CASE ASSEMBLY

- (a) Using a 6 mm hexagon wrench, remove the 3 bolts and pump drive case assembly.



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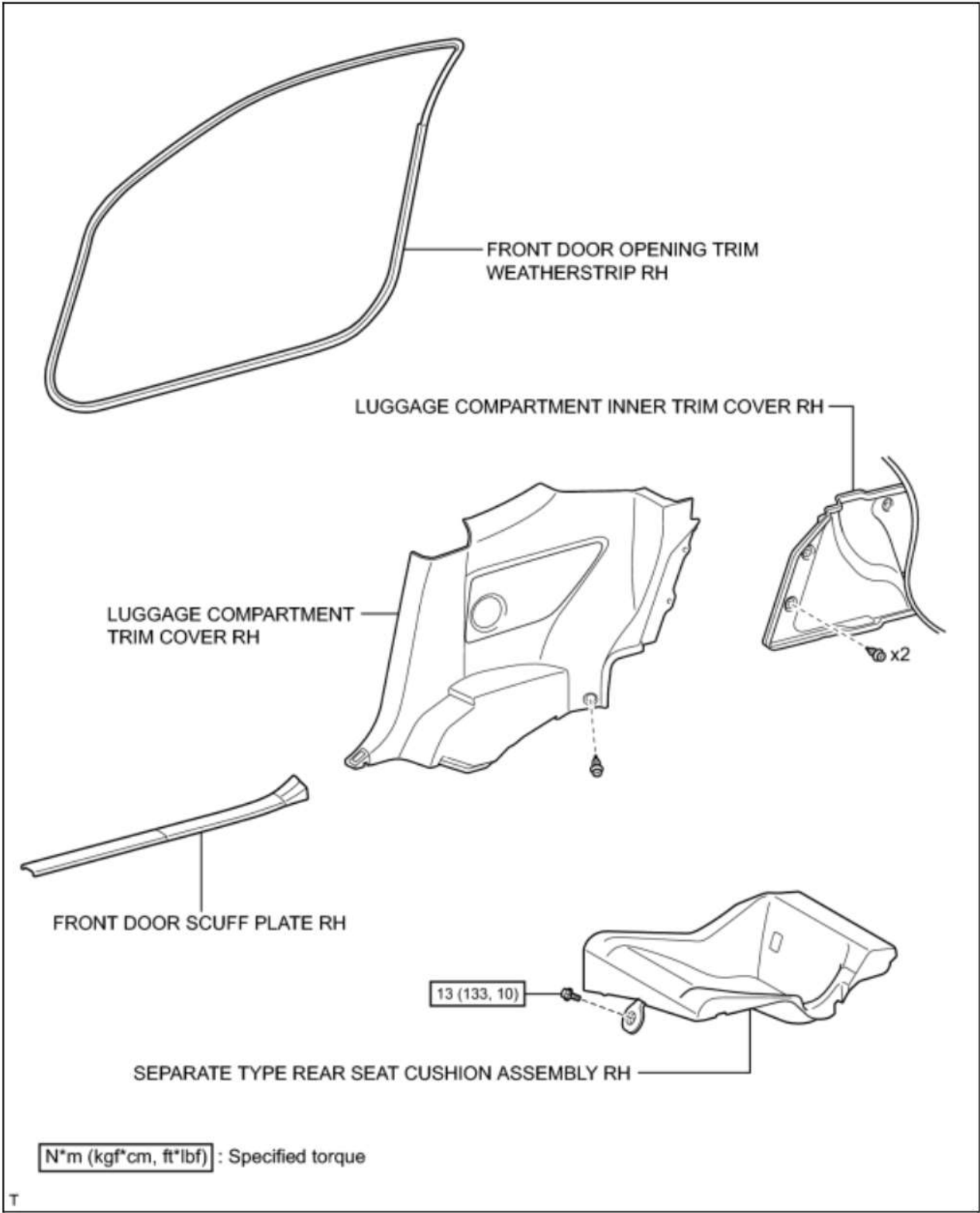
TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

Last Modified: 4-14-2014	6.6 K	Doc ID: RM000000VIW02HX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP ECU: COMPONENTS; 2013 MY FR-S [03/2012 -]		

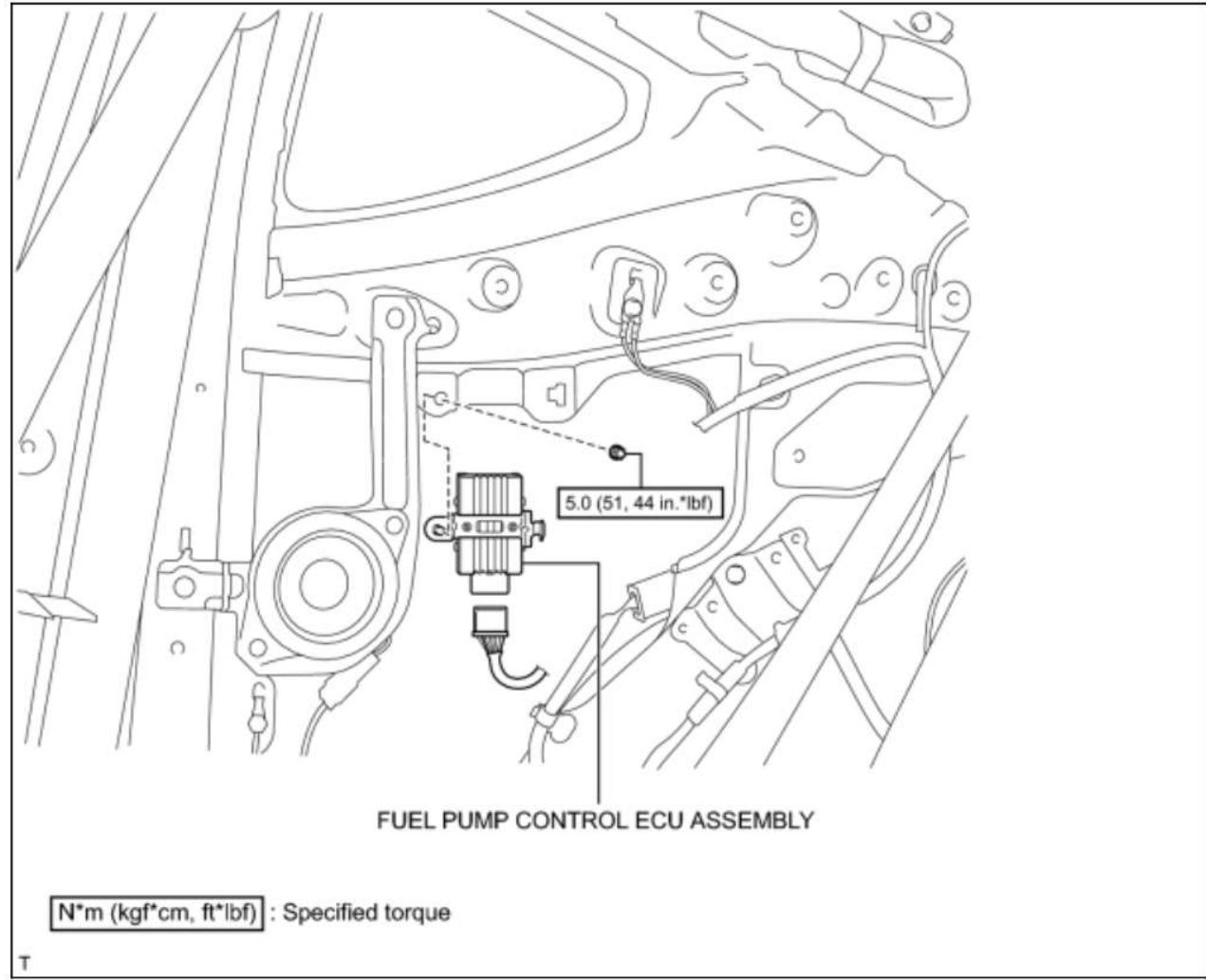
COMPONENTS

ILLUSTRATION

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ILLUSTRATION



Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000VIU044X
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP ECU: INSTALLATION; 2013 MY FR-S [03/2012 -]		

INSTALLATION

1. INSTALL FUEL PUMP CONTROL ECU ASSEMBLY

- (a) Attach the fuel pump control ECU assembly bracket to the body attachment hole, and pass the stud bolt through the hole in the body.
- (b) Install the fuel pump control ECU assembly with the nut.

Torque:
5.0 N·m { 51 kgf·cm, 44in·lbf }

NOTICE:
Do not reuse the fuel pump control ECU assembly if it has been subjected to shocks.

- (c) Connect the fuel pump control ECU assembly connector.

2. INSTALL LUGGAGE COMPARTMENT TRIM COVER RH INFO

3. INSTALL LUGGAGE COMPARTMENT INNER TRIM COVER RH INFO

4. INSTALL SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY RH INFO

5. INSTALL FRONT DOOR SCUFF PLATE RH INFO

6. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO

7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL INFO

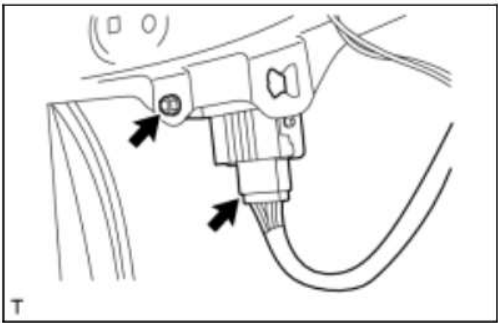


Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000VIX041X
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP ECU: REMOVAL; 2013 MY FR-S [03/2012 -]		

REMOVAL

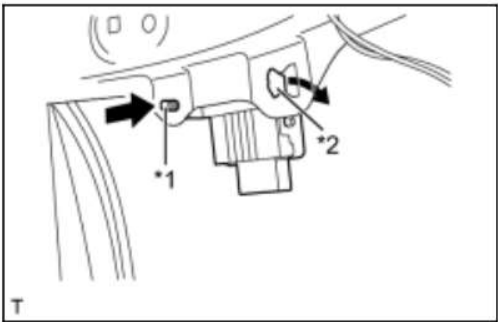
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. SEPARATE FRONT DOOR OPENING TRIM WEATHERSTRIP RH
3. REMOVE FRONT DOOR SCUFF PLATE RH
4. REMOVE SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY RH
5. SEPARATE LUGGAGE COMPARTMENT INNER TRIM COVER RH
6. REMOVE LUGGAGE COMPARTMENT TRIM COVER RH
7. REMOVE FUEL PUMP CONTROL ECU ASSEMBLY

(a) Disconnect the fuel pump control ECU assembly connector.



(b) Remove the nut.

(c) Push in the fuel pump control ECU assembly stud bolt.



*1	Stud Bolt
*2	Bracket

(d) Move the fuel pump control ECU assembly towards the rear of the vehicle, disengage the bracket, and remove the fuel pump control ECU assembly.

NOTICE:
Do not reuse the fuel pump control ECU assembly if it has been subjected to shocks.

2/5/2014

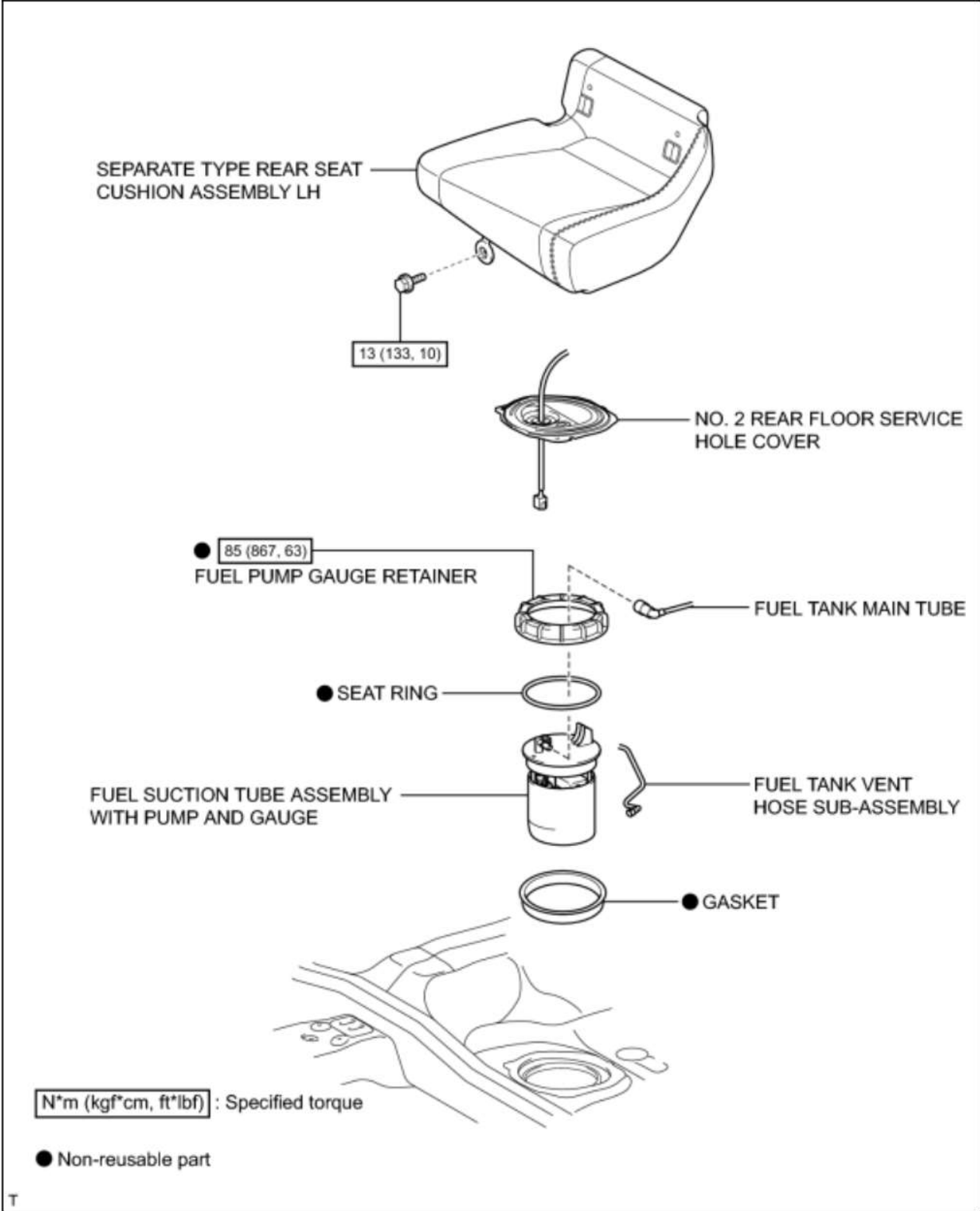
TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

Last Modified: 4-14-2014	6.6 K	Doc ID: RM000000QDV05XX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP: COMPONENTS; 2013 MY FR-S [03/2012 -]		

COMPONENTS

ILLUSTRATION

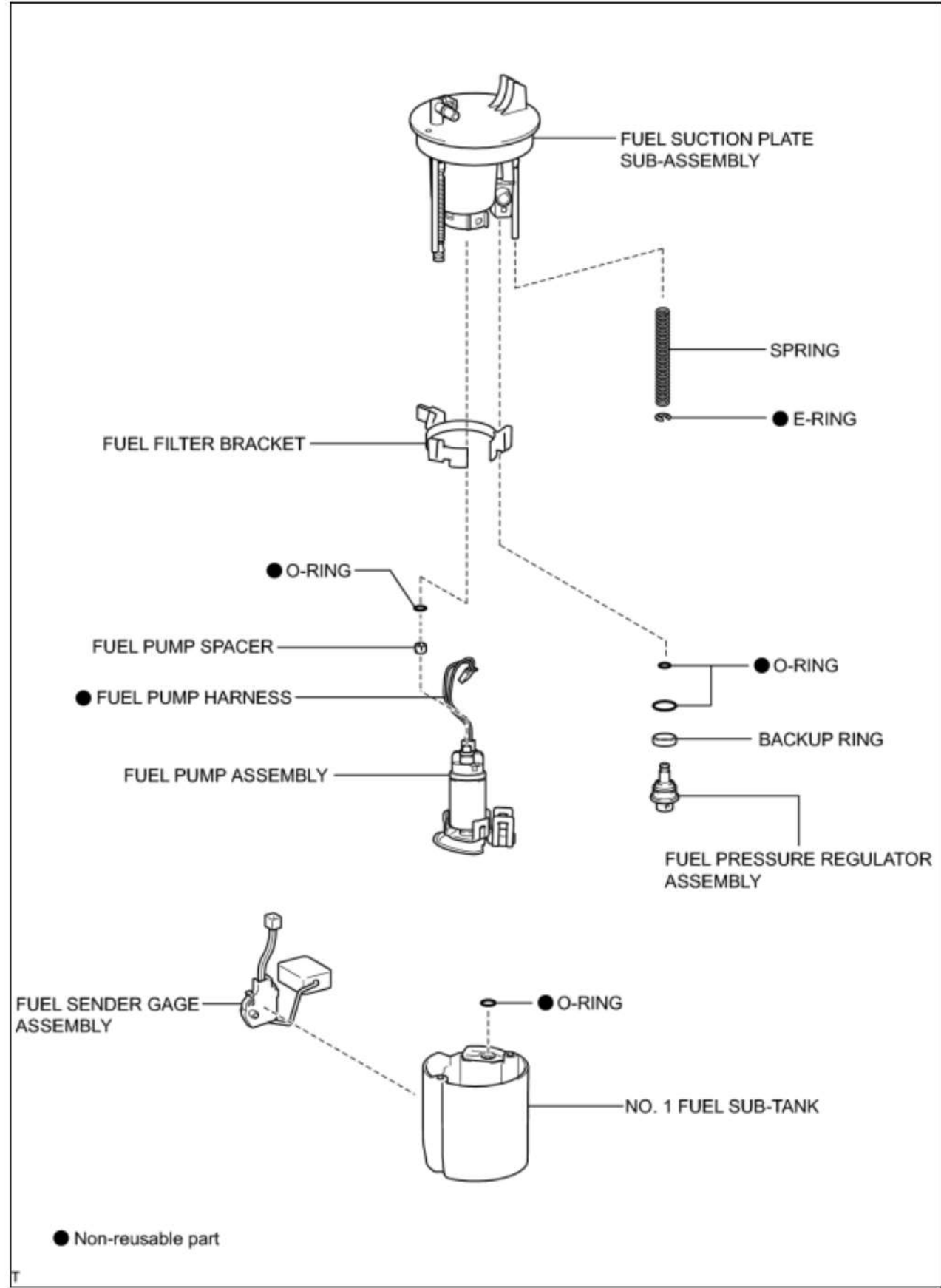
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ILLUSTRATION

2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)



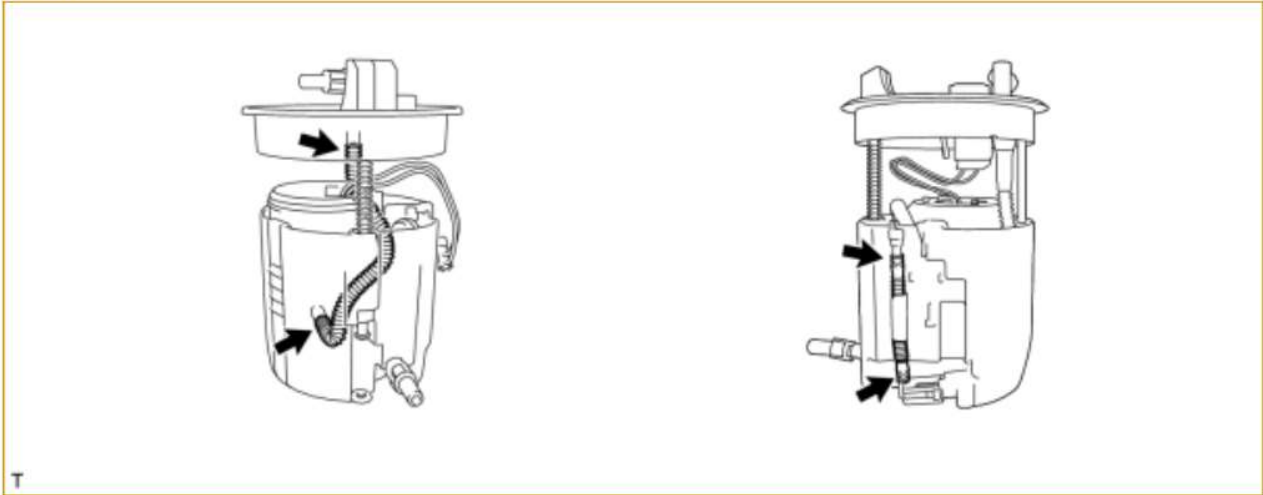
cardiagn.com

Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000QDW07JX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP: DISASSEMBLY; 2013 MY FR-S [03/2012 -]		

DISASSEMBLY

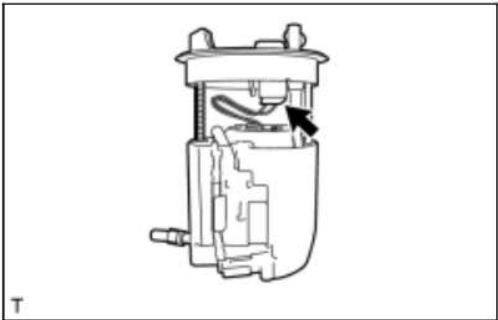
NOTICE:

- Do not disconnect the hose indicated in the illustration.
- When replacing the fuel filter assembly, replace it together with the fuel suction plate sub-assembly.

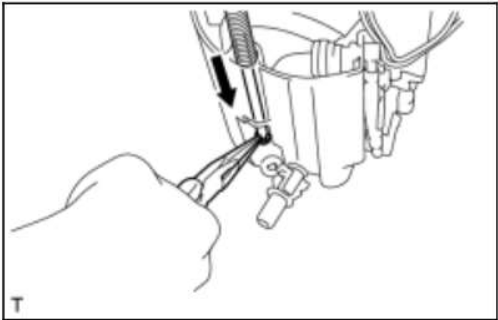


1. REMOVE FUEL SENDER GAGE ASSEMBLY
- INFO
2. REMOVE NO. 1 FUEL SUB-TANK

(a) Disconnect the fuel pump connector.



(b) Hold the fuel suction plate sub-assembly in the direction of the arrow as shown in the illustration.

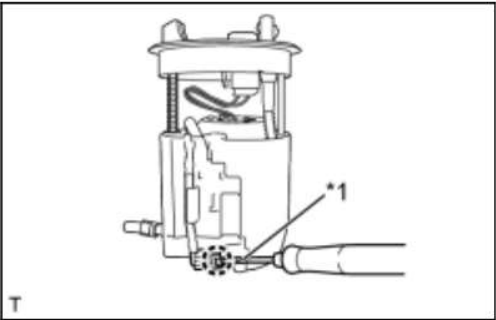


(c) Using needle nose plier, remove the E-ring.

(d) Using a screwdriver with the tip taped, disengage the claw and separate the jet pump nozzle.

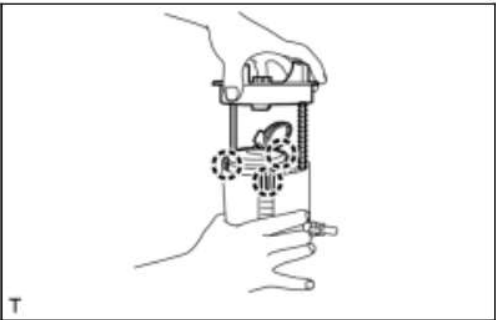
Text in Illustration

*1	Protective Tape
----	-----------------

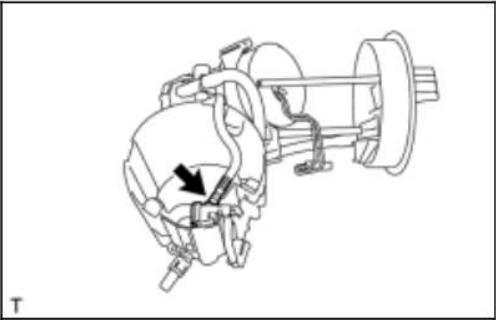


(e) Using a screwdriver with the tip taped, disengage the 3 claws and separate the No. 1 fuel sub-tank.

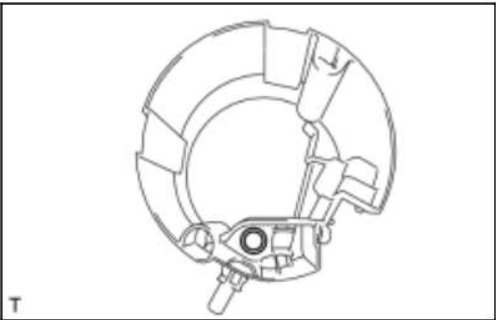
NOTICE:
Do not damage the No. 1 fuel sub-tank or the fuel filter.



(f) Using a screwdriver with the tip taped, disengage the claw and separate the jet pump.

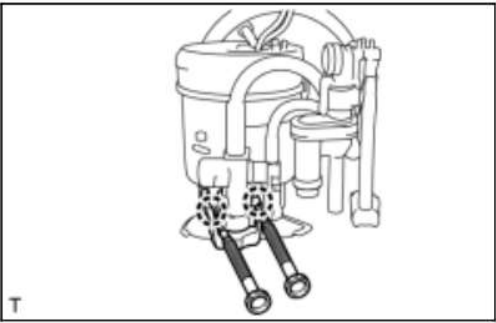


(g) Remove the O-ring from the No. 1 fuel sub-tank.



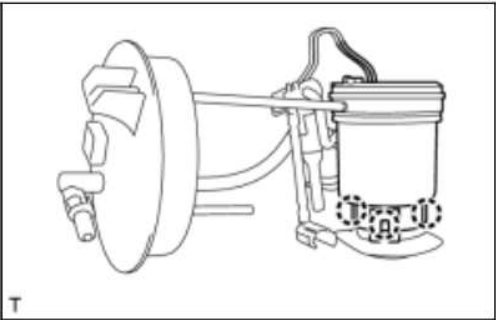
3. REMOVE FUEL PUMP ASSEMBLY

(a) Using 2 screwdrivers with the tip taped, disengage the 2 claws.

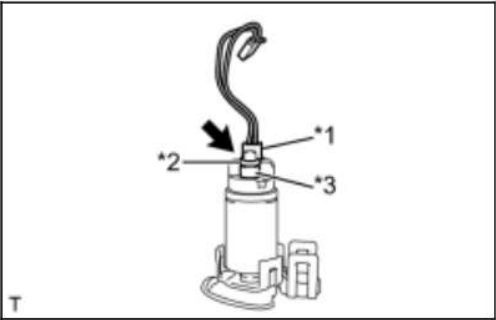


(b) Using a screwdriver with the tip taped, disengage the 3 claws and remove the fuel pump.

NOTICE:
Do not damage the fuel pump or the fuel filter.



(c) Disconnect the connector, and remove the fuel pump wire harness.



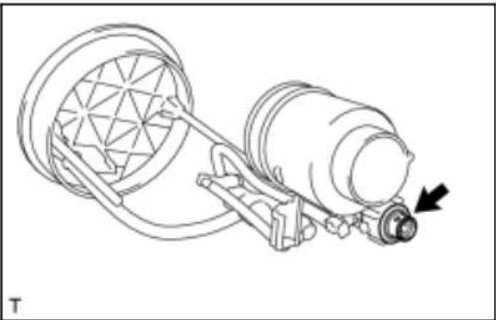
(d) Remove the O-ring and fuel pump spacer from the fuel pump assembly.

Text in Illustration

*1	fuel pump wire harness
*2	O-Ring
*3	Fuel Pump Spacer

4. REMOVE FUEL PRESSURE REGULATOR ASSEMBLY

(a) Remove the fuel pressure regulator assembly from the fuel filter.



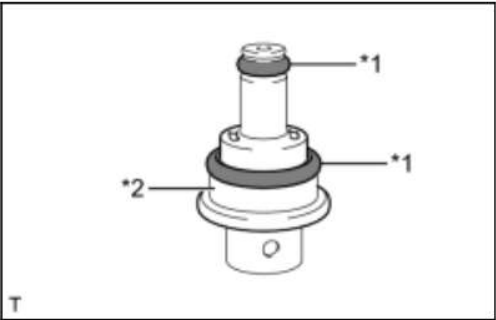
2/5/2014

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(b) Remove the 2 O-ring and backup ring from the fuel pressure regulator assembly.

Text in Illustration

*1	O-Ring
*2	Backup Ring



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Last Modified: 4-14-2014	6.6 G	Doc ID: RM000000W1H055X
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP: INSPECTION; 2013 MY FR-S [03/2012 -]		

INSPECTION

1. INSPECT FUEL PUMP ASSEMBLY

(a) Inspect the resistance of the fuel pump assembly.

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

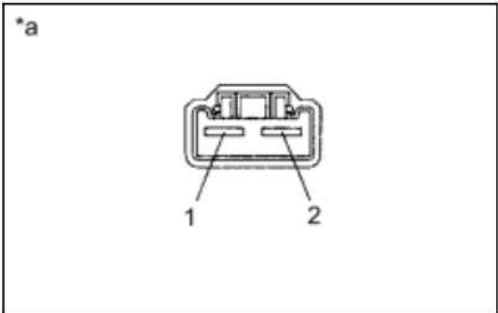
Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	20°C (68°F)	0.2 to 3.0 Ω

Text in Illustration

*a	Component without harness connected (Fuel Pump Assembly)
----	---

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

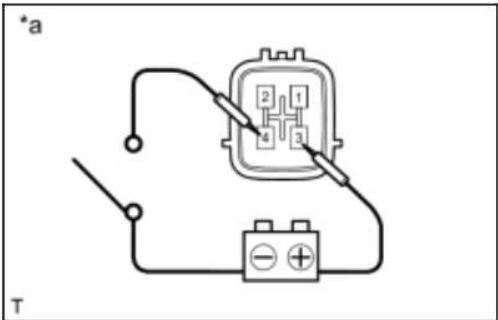


(b) Inspect the operation of the fuel pump assembly.

(1) Connect a battery's negative (-) lead to terminal 3 of the connector, and a positive (+) lead to terminal 4. Check that the fuel pump operates.

Text in Illustration

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



NOTICE:

- These tests must be performed within 10 seconds to prevent the coil from burning out.
- Keep the fuel pump as far away from the battery as possible.
- Always turn on and off the voltage on the battery side, and not on the fuel pump side.

Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000QDU07TX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP: INSTALLATION; 2013 MY FR-S [03/2012 -]		

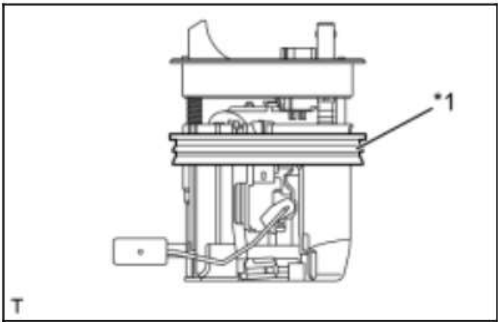
INSTALLATION

1. INSTALL FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE

- (a) Set the new gasket to the fuel suction tube assembly with pump and gauge.

Text in Illustration

*1	Gasket
----	--------

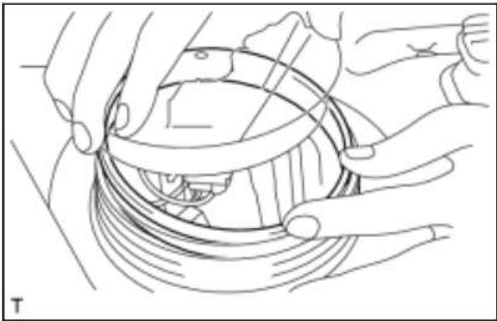


- (b) Connect the fuel tank vent hose sub-assembly INFO .

NOTICE:

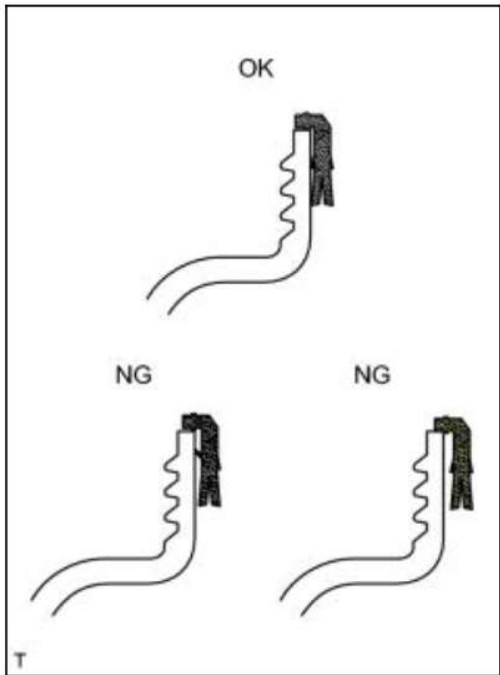
- When connecting the fuel tube connector, do not forcibly pull the fuel return vent tube sub-assembly.
- Be careful not to bend the arm of the fuel sender gauge assembly.

- (c) Insert the fuel suction tube assembly with pump and gauge inside the fuel tank assembly, and then attach the new gasket which has already been mounted on the fuel suction tube assembly with pump and gauge to the fuel tank assembly.



NOTICE:

Gaps or misplaced attachment of the gasket may cause fuel to leak, so make sure that there are no gaps or misalignments anywhere around the gasket when attaching it to the fuel tank assembly.



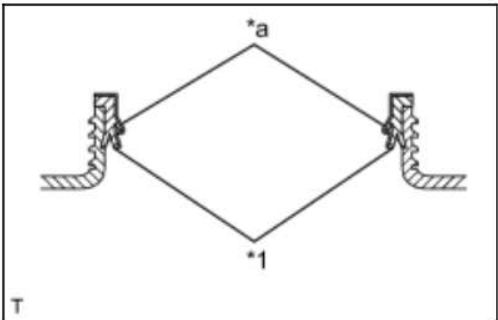
(d) Apply a light coat of gasoline to a gasket.

Text in Illustration

*1	Gasket
*a	Application area

NOTICE:

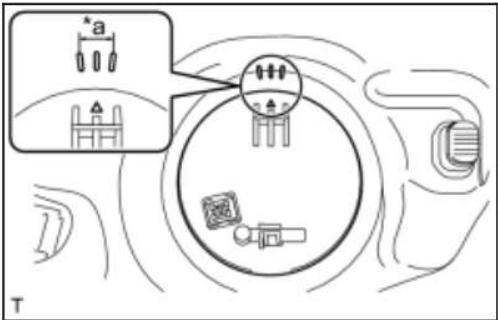
- Apply gasoline in the area indicated in the illustration.
- Ensure that gasoline does not adhere to the threads of the fuel tank assembly.
- Check that there is no fuel or foreign matter in the seal section.



(e) Set the fuel suction tube assembly with pump and gauge within the fuel tank assembly installation position marks.

Text in Illustration

*a	Installation position marks
----	-----------------------------



(f) Attach a new sheet ring and fuel pump gauge retainer, and temporarily tighten the fuel pump gauge retainer.

(g) Temporarily install SST (plate and 4 claws) to the fuel pump gauge retainer.

SST: 09808-14030

09808-01030

2/5/2014

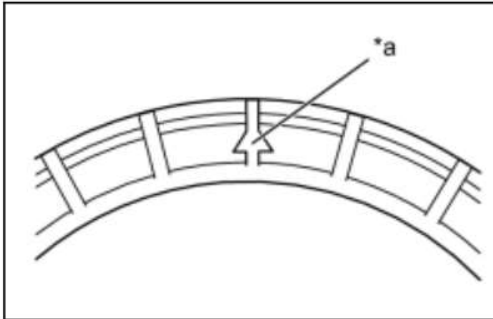
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09808-01050

SST: 09808-01071

NOTICE:

Do not apply a claw of SST at the marked part.



Text in Illustration

*a	Marked Part
----	-------------

HINT:

- Be sure to use SST (claws) as shown in the illustration.
- Engage SST (claws) securely with the fuel pump gauge retainer ribs to secure SST.

(h) While securely pressing SST (claws) against the fuel pump gauge retainer ribs, tighten the 4 bolts.

HINT:

Install SST while pressing SST (claws) against the fuel pump gauge retainer (towards the center of SST).

(i) Using SST, tighten the fuel pump gauge retainer.

Torque:

85 N·m { 867 kgf·cm, 63ft·lbf }

NOTICE:

- Do not use any tools other than those specified in this operation. Damage to the fuel pump gauge retainer or fuel tank may result.
- Do not press down on SST excessively as this may make the fuel pump gauge retainer hard to rotate, and may damage components.
- Make sure to rotate SST horizontally. If SST is rotated at an angle, SST may come off.
- Do not spin SST too fast or use an impact wrench as this may result in damage to components.
- If SST comes off of the fuel pump gauge retainer, loosen SST (bolts) and reinstall SST.
- Check that the fuel suction tube assembly with pump and gauge position marks are within the fuel tank assembly installation position marks, as shown in the illustration.
- After tightening to the specified torque, check that it has been tightened to the correct torque.

HINT:

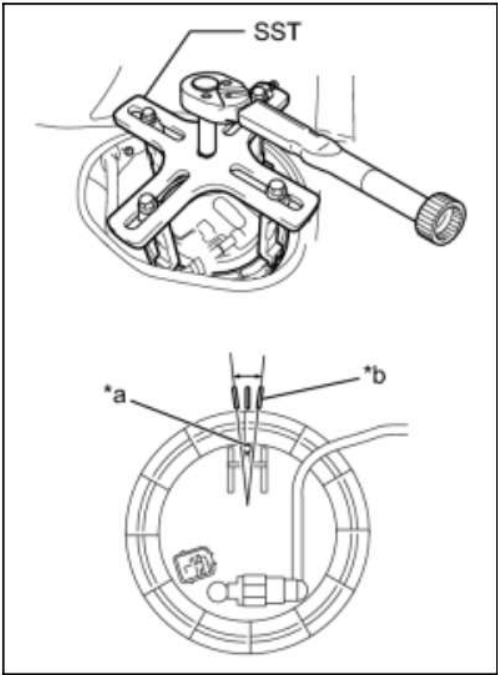
- Lightly press down on SST to prevent it from separating

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from the fuel pump gauge retainer. While pressing SST, rotate the handle slowly to tighten the fuel pump gauge retainer.

- The tips of SST (claws) can be fitted onto the ribs of the fuel pump gauge retainer.



Text in Illustration

*a	Position mark
*b	Installation position marks

- (j) Connect the fuel tank main tube INFO .
2. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL INFO
3. INSPECT FOR FUEL LEAK INFO
4. INSTALL NO. 2 REAR FLOOR SERVICE HOLE COVER
- (a) Connect the fuel suction tube assembly with pump and gauge connector.

(b) Install the No. 2 rear floor service hole cover with new butyl tape.
5. INSTALL SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY LH INFO

Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000QDU07UX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP: REASSEMBLY; 2013 MY FR-S [03/2012 -]		

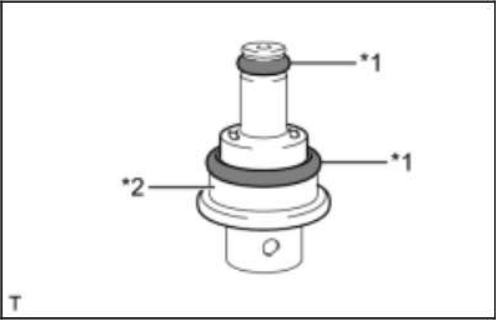
REASSEMBLY

1. INSTALL FUEL PRESSURE REGULATOR ASSEMBLY

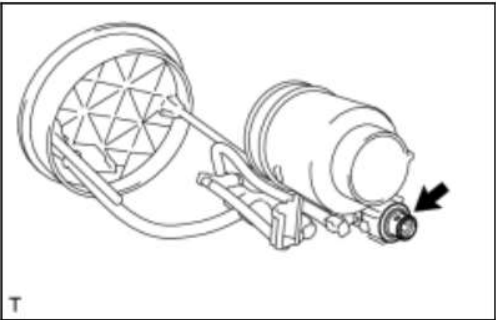
- (a) Apply a light coat of gasoline to new 2 O-rings, and install the 2 O-rings and backup ring to the fuel pressure regulator assembly.

Text in Illustration

*1	O-Ring
*2	Backup Ring



- (b) Install the fuel pressure regulator assembly to the fuel filter.

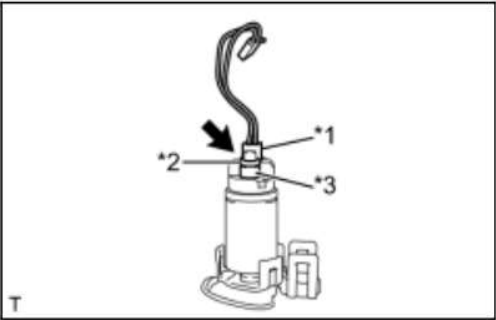


2. INSTALL FUEL PUMP ASSEMBLY

- (a) Install the new O-ring and fuel pump spacer to the fuel pump assembly.

Text in Illustration

*1	Fuel Pump Wire harness
*2	O-Ring
*3	Fuel Pump Spacer

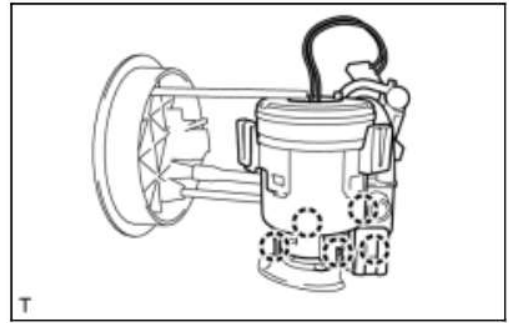


- (b) Connect the new fuel pump wire harness to the fuel pump assembly.

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TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

- (c) Apply a light coat of gasoline to a seal, and install it to the fuel pump assembly.



- (d) Attach the 5 claws of the fuel filter to install the fuel pump assembly.

NOTICE:

When installing the seal, make sure that it does not become pinched or cut.

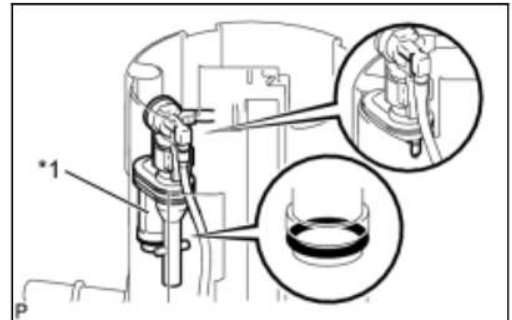
3. INSTALL NO. 1 FUEL SUB-TANK

- (a) Set the fuel suction plate sub-assembly to the No. 1 fuel sub-tank using the spring.

- (b) Apply a light coat of gasoline to a new O-ring and install the O-ring to the jet pump.

Text in Illustration

*1	Jet Pump
----	----------

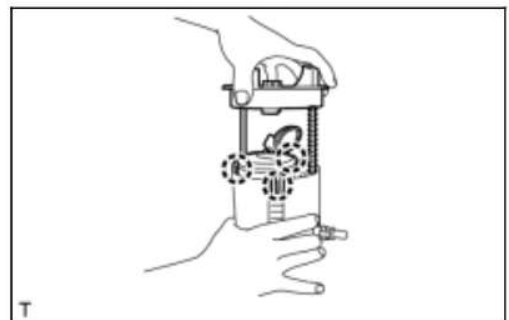


- (c) Install the jet pump to the No. 1 fuel sub-tank.

NOTICE:

- When installing the O-ring, make sure that it does not become pinched or cut.
- Securely attach the claws.

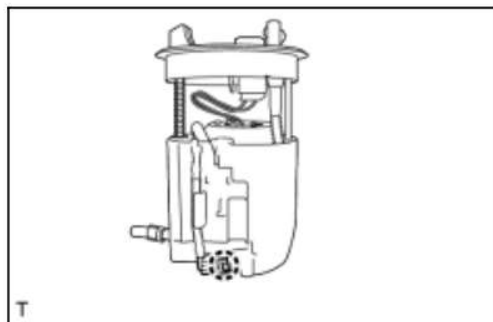
- (d) Attach the 3 claws to install the fuel filter assembly to the No. 1 fuel sub-tank.



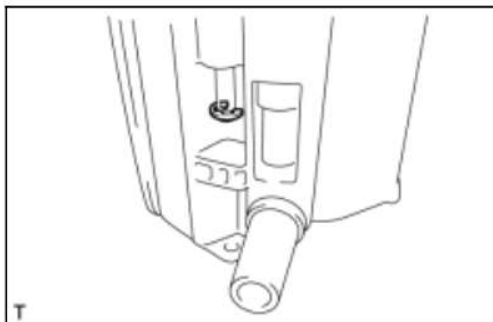
2/5/2014

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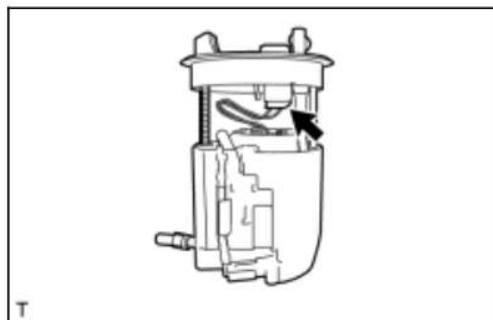
- (e) Attach the claw to install the jet pump nozzle to the No. 1 fuel sub-tank.



- (f) Install a new E-ring.



- (g) Connect the fuel pump connector.



4. INSTALL FUEL SENDER GAGE ASSEMBLY

INFO



TOYOTA

Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000QDW07IX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL PUMP: REMOVAL; 2013 MY FR-S [03/2012 -]		

REMOVAL

1. DISCHARGE FUEL SYSTEM PRESSURE

INFO

2. DRAIN FUEL

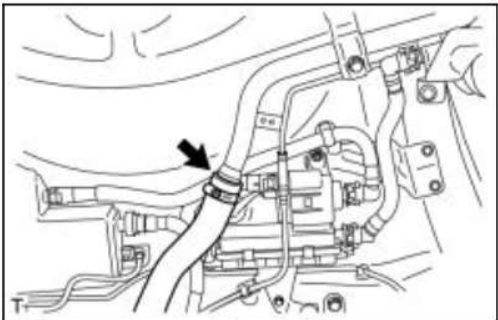
(a) If the fuel gauge reads 2/3 or more, carry out the following procedure to drain fuel.

CAUTION:
After running, the engine will be very hot, so take care to avoid burns.

- NOTICE:
- Be sure not to scatter any fuel.
 - In some cases, there may be fuel in the fuel filler pipe section. Use a gasoline-capable pump or a gasoline-capable hose with a diameter of 10 mm (0.3937 in.) or less, to drain fuel from the fuel filler pipe section.
- (1) Remove the center exhaust pipe assembly.
- (2) Remove the tail exhaust pipe assembly.

(3) Loosen the hose clamp bolt and disconnect the fuel tank to filler pipe hose.

NOTICE:
Be sure not to scatter any fuel.



(4) Place a metal container below the vehicle, and use a gasoline-capable hose with a diameter of 10 mm or less to drain fuel from the opening of fuel tank assembly to filler pipe hose.

- NOTICE:
- Be sure not to scatter any fuel.
 - Static electricity could possibly ignite gasoline, so be sure to use earthed metal containers.
- (5) Connect the fuel tank to filler pipe hose to the fuel tank filler pipe sub-assembly with the clamp.

Torque:
2.0 N·m { 20 kgf·cm, 18in·lbf }

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

INFO

4. REMOVE SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY LH

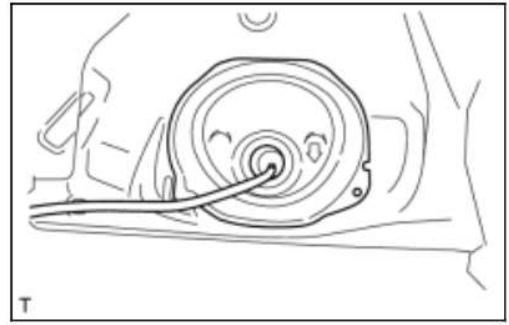
INFO

5. REMOVE NO. 2 REAR FLOOR SERVICE HOLE COVER

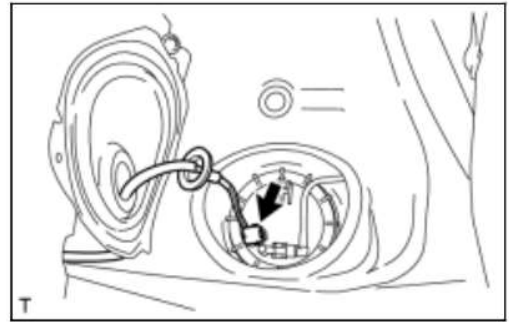
2/5/2014

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(a) Remove the No. 2 rear floor service hole cover.

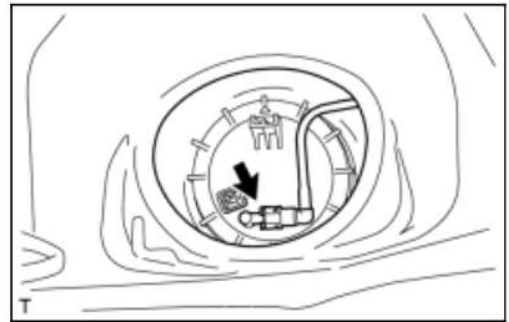


(b) Disconnect the fuel suction tube assembly with pump and gauge connector.

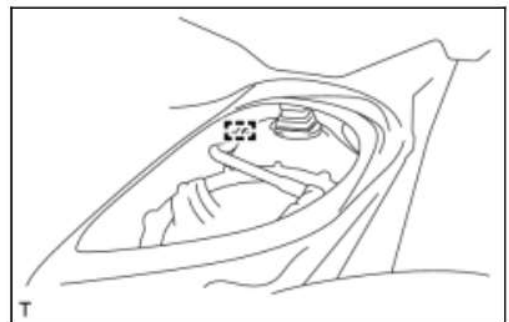


6. REMOVE FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE

(a) Disconnect the fuel tank main tube INFO.



(b) Disengage the clamp and separate the fuel tank main tube from the fuel tank assembly.

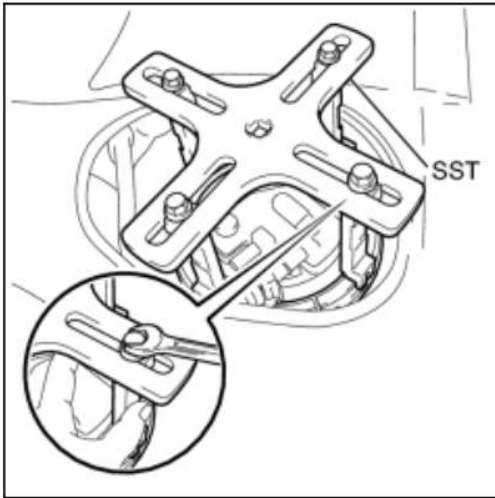


(c) Remove the fuel pump gauge retainer.

(1) Temporarily install SST to the fuel pump gauge retainer.

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SST: 09808-14030

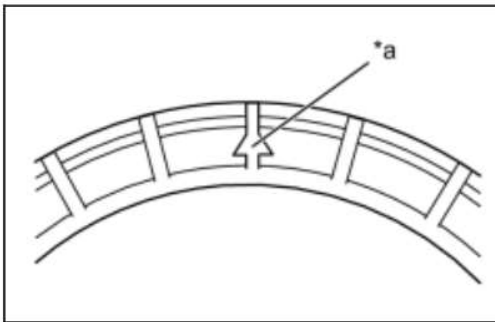
09808-01010

09808-01020

09808-01030

09808-01050

SST: 09808-01071

**NOTICE:**

Do not apply a claw of SST at the marked part.

Text in Illustration

*a	Marked Part
----	-------------

HINT:

- Be sure to use SST (claws) as shown in the illustration.
- Engage SST (claws) securely with the fuel pump gauge retainer ribs to secure SST.

(2) While securely pressing SST (claws) against the fuel pump gauge retainer ribs, tighten the 4 bolts.

(3) Install SST (handle).

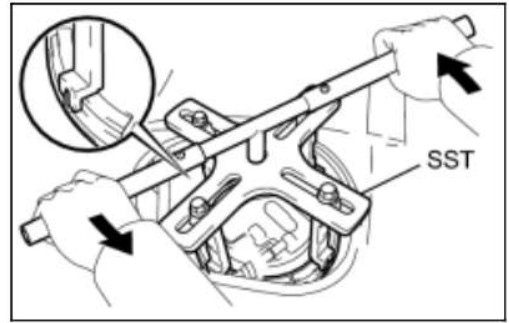
(4) Lightly press down on SST to prevent it from separating from the fuel pump gauge retainer. While pressing SST, rotate the handle slowly to loosen the fuel pump gauge retainer.

NOTICE:

2/5/2014

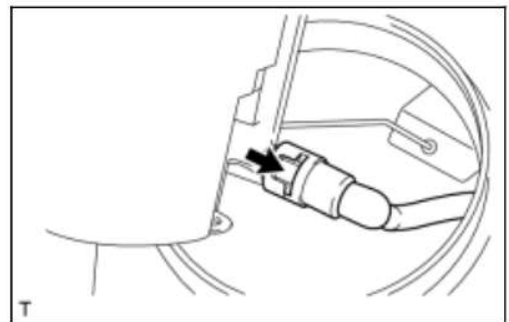
TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

- Do not use any tools other than those specified in this operation. Damage to the fuel pump gauge retainer or fuel tank may result.
- Do not press down on SST excessively as this may make the fuel pump gauge retainer hard to rotate and may damage components.
- Make sure to rotate SST (handle) horizontally. If SST (handle) is rotated at an angle, SST may come off.
- Do not spin SST too fast or use an impact wrench as this may result in damage to components.
- If SST comes off of the fuel pump gauge retainer, loosen SST (bolts) and reinstall SST.



(5) Disconnect the fuel tank vent hose sub-assembly

INFO



(6) Remove the fuel suction tube assembly with pump and gauge from the fuel tank assembly.

NOTICE:

- Do not pull the fuel return vent tube sub-assembly forcibly when disconnecting the fuel return vent tube sub-assembly.
- Be careful not to bend the arm of the fuel sender gauge assembly.
- Do not rotate the fuel suction tube assembly inside the fuel tank assembly, as doing so may bend the fuel sender gauge arm section.
- Be sure not to spill the fuel remaining in the fuel suction tube assembly on the exterior of the fuel tank assembly or interior of the vehicle.

(7) Remove the gasket from the fuel tank assembly.



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TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

Last Modified: 4-14-2014	6.6 K	Doc ID: RM000001OU801OX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL SENDER GAUGE ASSEMBLY: COMPONENTS; 2013 MY FR-S [03/2012 -]		

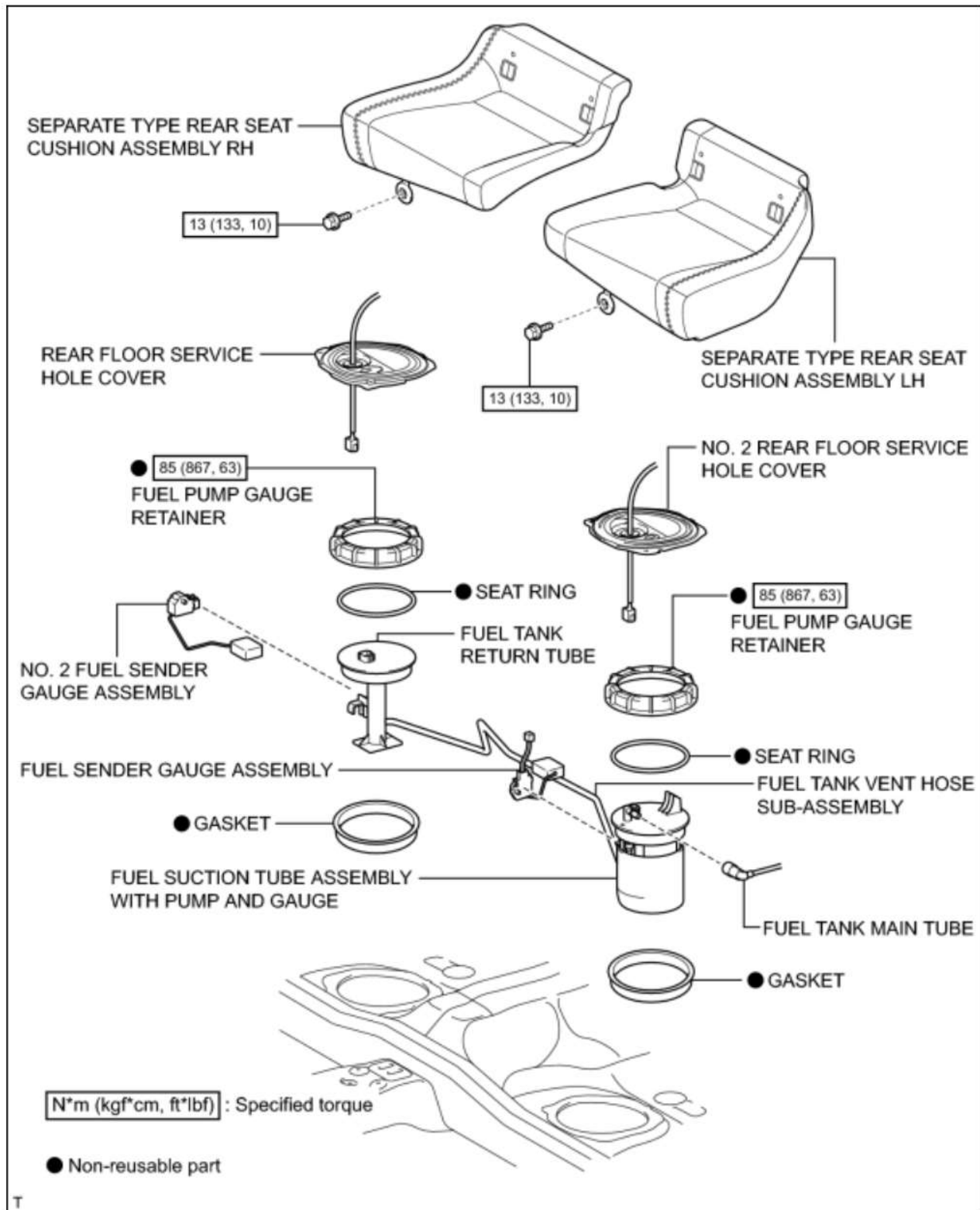
COMPONENTS

ILLUSTRATION

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Last Modified: 4-14-2014	6.6 G	Doc ID: RM0000014W605MX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL SENDER GAUGE ASSEMBLY: INSPECTION; 2013 MY FR-S [03/2012 -]		

INSPECTION

1. INSPECT FUEL SENDER GAUGE ASSEMBLY

CAUTION:
Take special care of fire.

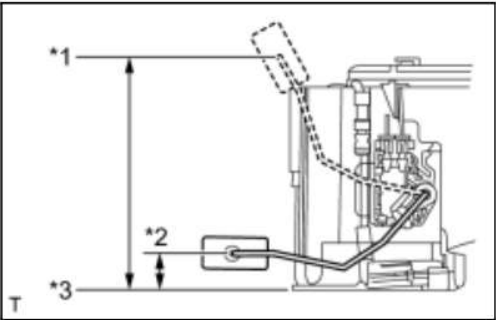
- (a) Inspect to see if there is any damage to the fuel sender gauge assembly.
- (b) Measure the dimensions between the fuel tank seat face and the float center with the float position at F (upper end) and at E (lower end).

Dimensions

Float position F (upper end) to fuel tank seat face	121 to 129 mm (4.764 to 5.079 in.)
Float position E (lower end) to fuel tank seat face	14.7 to 22.7 mm (0.579 to 0.894 in.)

Text in Illustration

*1	Float position F (upper end)
*2	Float position E (lower end)
*3	Fuel tank seat face

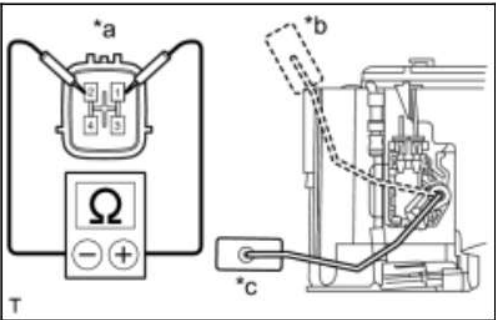


- (c) Check that the float moves smoothly between F (upper) and E (lower).
- (d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	Float position is F (upper end)	6.5 to 8.5 Ω
	Float position is E (lower end)	168 to 172 Ω

Text in Illustration



2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

*a	Component without harness connected (Fuel Sender Gauge Assembly)
*b	F (upper end)
*c	E (lower end)

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

2. INSPECT NO. 2 FUEL SENDER GAUGE ASSEMBLY

CAUTION:

Take special care of fire.

(a) Inspect to see if there is any damage to the No. 2 fuel sender gauge assembly.

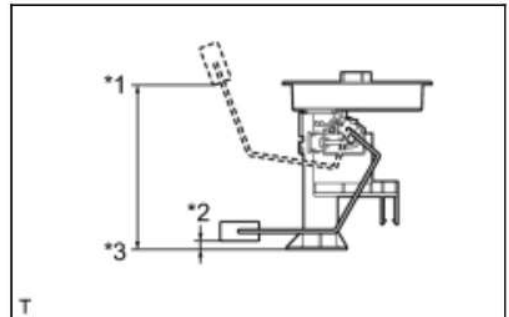
(b) Measure the dimensions between the fuel tank seat face and the float center with the float position at F (upper end) and at E (lower end).

Dimensions

Float position F (upper end) to fuel tank seat face	150.3 to 158.3 mm (5.917 to 6.232 in.)
Float position E (lower end) to fuel tank seat face	0.7 to 8.7 mm (0.028 to 0.343 in.)

Text in Illustration

*1	Float position F (upper end)
*2	Float position E (lower end)
*3	Fuel tank seat face



(c) Check that the float moves smoothly between F (upper) and E (lower).

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	Float position is F (upper end)	5.5 to 9.5 Ω
	Float position is E (lower end)	236 to 244 Ω

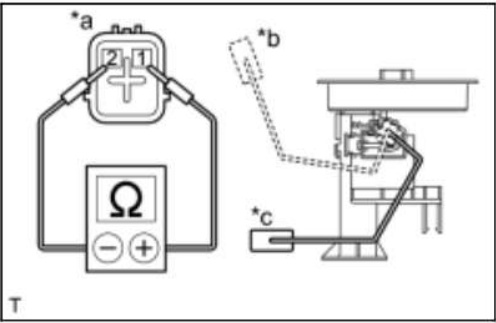
2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

Text in Illustration

*a	Component without harness connected (No. 2 Fuel Sender Gauge Assembly)
*b	F (upper end)
*c	E (lower end)

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

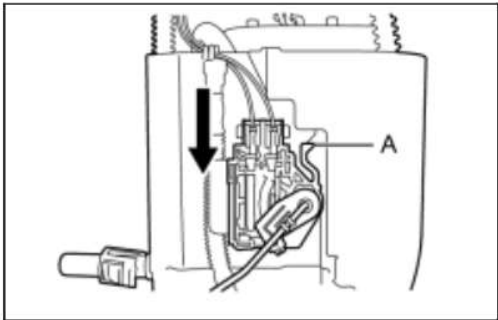


Last Modified: 4-14-2014	6.6 A	Doc ID: RM000001OU701VX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL SENDER GAUGE ASSEMBLY: INSTALLATION; 2013 MY FR-S [03/2012 -]		

INSTALLATION

1. INSTALL NO. 2 FUEL SENDER GAUGE ASSEMBLY

- (a) Slide the No. 2 fuel sender gauge assembly downwards and attach the claw labeled A to install the No. 2 fuel sender gauge assembly.



Text in Illustration



- (b) Connect the No. 2 fuel sender gauge assembly connector.
(c) Engage the 4 clamps.

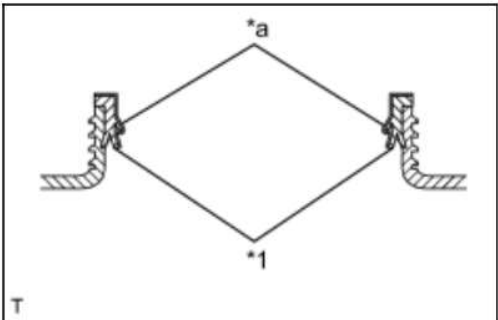
2. INSTALL FUEL TANK RETURN TUBE

- (a) Install a new gasket to the fuel tank assembly.

- (b) Apply a light coat of gasoline to a gasket.

Text in Illustration

*1	Gasket
*a	Application area



- NOTICE:
- Apply gasoline in the area indicated in the illustration.
 - Ensure that gasoline does not adhere to the threads of the fuel tank assembly.
 - Check that there is no fuel or foreign matter in the seal section.

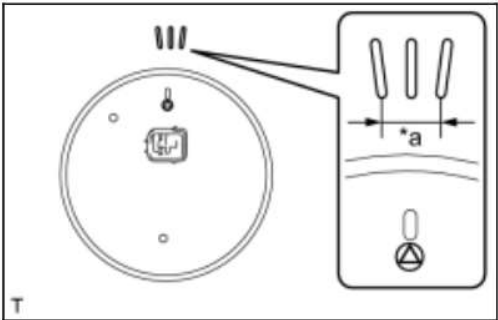
- (c) Engage the clamp to install the tube and set the fuel tank return tube into the fuel tank assembly.

NOTICE:
Be careful not to bend the arm of the No. 2 fuel sender gauge assembly.

(d) Set the fuel tank return tube within the fuel tank assembly installation position marks.

Text in Illustration

*a	Installation position marks
----	-----------------------------



(e) Attach a new sheet ring and fuel pump gauge retainer, and temporarily tighten the fuel pump gauge retainer.

(f) Temporarily install SST (plate and 4 claws) to the fuel pump gauge retainer.

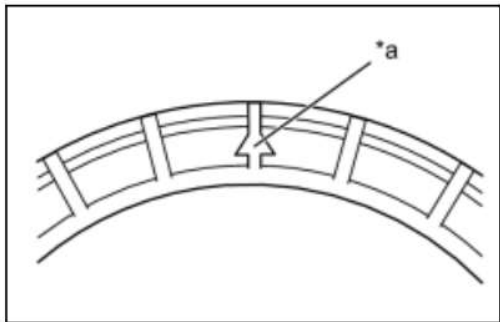
SST: 09808-14030

09808-01030

09808-01050

SST: 09808-01071

NOTICE:
Do not apply a claw of SST at the marked part.



Text in Illustration

*a	Marked Part
----	-------------

HINT:

- Be sure to use SST (claws) as shown in the illustration.
- Engage SST (claws) securely with the fuel pump gauge retainer ribs to secure SST.

(g) While securely pressing SST (claws) against the fuel pump gauge retainer ribs, tighten the 4 bolts.

HINT:
Install SST while pressing SST (claws) against the fuel pump gauge retainer (towards the center of SST).

(h) Using SST, tighten the fuel pump gauge retainer.

Torque:

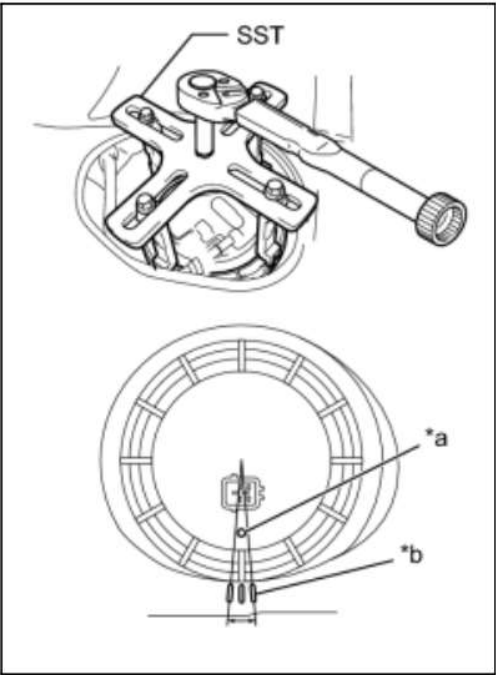
85 N·m {867 kgf·cm, 63ft·lbf}

NOTICE:

- Do not use any tools other than those specified in this operation. Damage to the fuel pump gauge retainer or fuel tank may result.
- Do not press down on SST excessively as this may make the fuel pump gauge retainer hard to rotate, and may damage components.
- Make sure to rotate SST horizontally. If SST is rotated at an angle, SST may come off.
- Do not spin SST too fast or use an impact wrench as this may result in damage to components.
- If SST comes off of the fuel pump gauge retainer, loosen SST (bolts) and reinstall SST.
- Check that the No. 2 fuel sender gauge assembly within the fuel tank assembly position marks are within the fuel tank assembly installation position marks, as shown in the illustration.
- After tightening to the specified torque, check that it has been tightened to the correct torque.

HINT:

- Lightly press down on SST to prevent it from separating from the fuel pump gauge retainer. While pressing SST, rotate the handle slowly to tighten the fuel pump gauge retainer.
- The tips of SST (claws) can be fitted onto the ribs of the fuel pump gauge retainer.

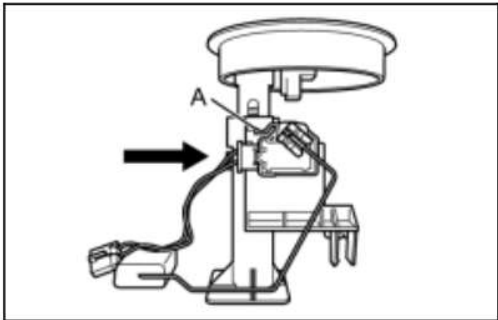


Text in Illustration

*a	Position mark
*b	Installation position marks

3. INSTALL FUEL SENDER GAUGE ASSEMBLY

- (a) Slide the fuel sender gauge assembly downwards and attach the claw labeled A to install the fuel sender gauge assembly.



Text in Illustration

	Slide
---	-------

- (b) Connect the fuel pump harness to the 2 clamps.
- (c) Connect the fuel sender gauge assembly connector.

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4. INSTALL FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE INFO
5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL INFO
6. INSPECT FOR FUEL LEAK INFO
7. INSTALL NO. 2 REAR FLOOR SERVICE HOLE COVER INFO
8. INSTALL REAR FLOOR SERVICE HOLE COVER
 - (a) Connect the fuel tank return tube connector.
 - (b) Install the rear floor service hole cover with new butyl tape.
9. INSTALL SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY RH INFO
10. INSTALL SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY LH INFO



Last Modified: 4-14-2014	6.6 A	Doc ID: RM000001OU901TX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL SENDER GAUGE ASSEMBLY: REMOVAL; 2013 MY FR-S [03/2012 -]		

REMOVAL

1. DISCHARGE FUEL SYSTEM PRESSURE

INFO

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

INFO

3. REMOVE SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY RH

INFO

4. REMOVE SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY LH

INFO

5. REMOVE NO. 2 REAR FLOOR SERVICE HOLE COVER

INFO

6. REMOVE FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE

INFO

7. REMOVE FUEL SENDER GAUGE ASSEMBLY



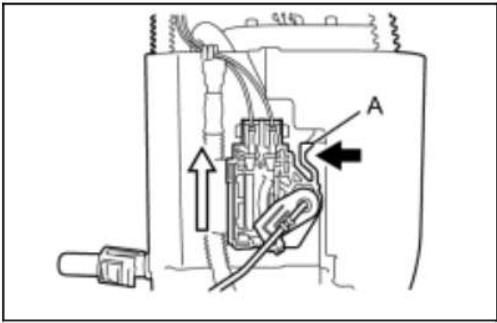
(a) Disconnect the connector.

(b) Disconnect the fuel pump harness from the 4 clamps.

(c) Push the claw labeled A of the fuel sender gauge assembly, and then pull up the fuel sender gauge assembly to remove it.

2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)



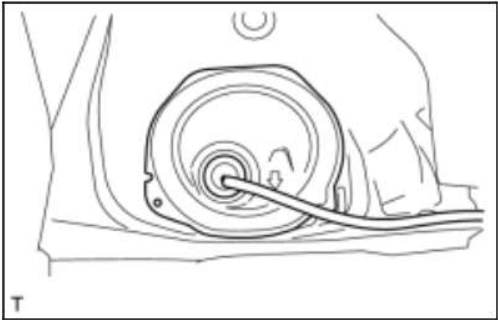
NOTICE:
Be careful not to bend the arm of the fuel sender gauge assembly.

Text in Illustration

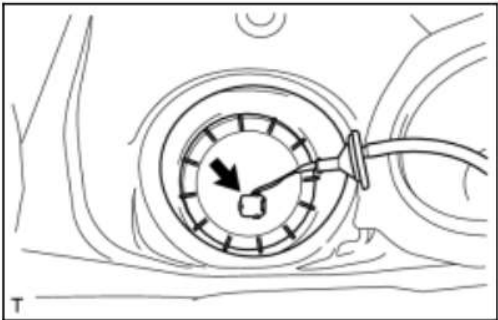
	Push
	Pull up

8. REMOVE REAR FLOOR SERVICE HOLE COVER

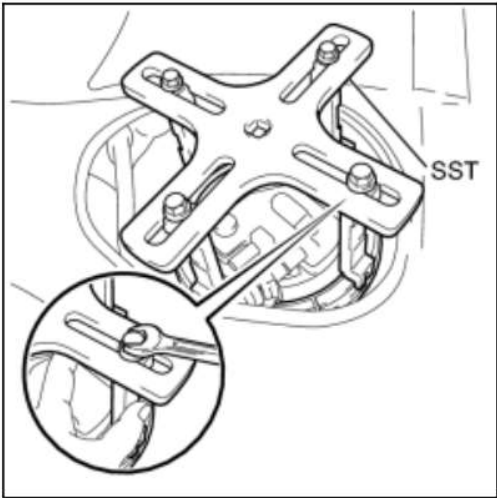
(a) Remove the rear floor service hole cover.



(b) Disconnect the fuel tank return tube connector.

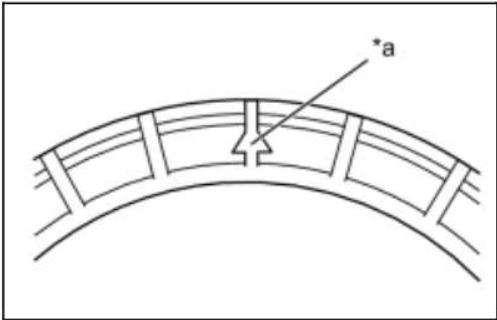


9. REMOVE FUEL TANK RETURN TUBE



(a) Temporarily install SST to the fuel pump gauge retainer.

- SST: 09808-14030
- 09808-01010
- 09808-01020
- 09808-01030
- 09808-01050
- SST: 09808-01071



NOTICE:
Do not apply a claw of SST at the marked part.

Text in Illustration

*a	Marked Part
----	-------------

- HINT:**
- Be sure to use SST (claws) as shown in the illustration.
 - Engage SST (claws) securely with the fuel pump gauge retainer ribs to secure SST.
- (b) While securely pressing SST (claws) against the fuel pump gauge retainer ribs, tighten the 4 bolts.
- (c) Install SST (handle).
- (d) Lightly press down on SST to prevent it from separating from the fuel pump gauge retainer.
- While pressing SST, rotate the handle slowly to loosen the fuel pump gauge retainer.

NOTICE:
Do not use any tools other than those specified in this operation.

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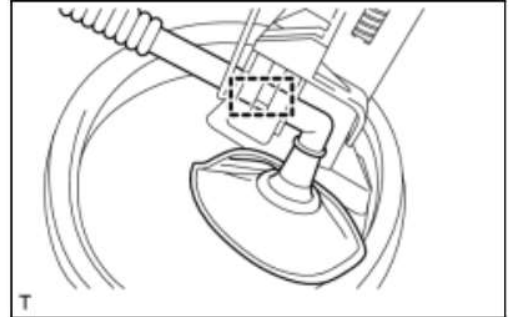
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Damage to the fuel pump gauge retainer or fuel tank may result.

- Do not press down on SST excessively as this may make the fuel pump gauge retainer hard to rotate and may damage components.
- Make sure to rotate SST (handle) horizontally. If SST (handle) is rotated at an angle, SST may come off.
- Do not spin SST too fast or use an impact wrench as this may result in damage to components.
- If SST comes off of the fuel pump gauge retainer, loosen SST (bolts) and reinstall SST.

(e) Remove the fuel pump gauge retainer.

(f) Disengage the clamp and separate the fuel tank vent hose sub-assembly from the fuel tank return tube.



(g) Remove the fuel tank return tube from the fuel tank assembly.

NOTICE:

Be careful not to bend the arm of the No. 2 fuel sender gauge assembly.

(h) Remove the gasket from the fuel tank assembly.

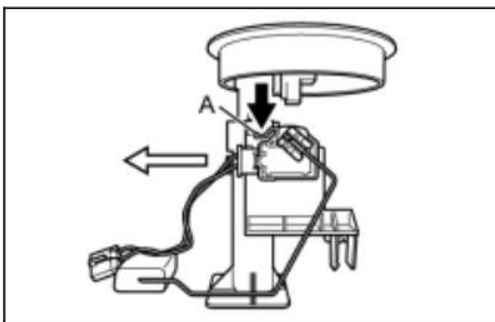
10. REMOVE NO. 2 FUEL SENDER GAUGE ASSEMBLY

(a) Disconnect the No. 2 fuel sender gauge assembly connector.



(b) Disconnect the fuel pump harness from the clamp.

(c) Push the claw labeled A of the No. 2 fuel sender gauge assembly, and then pull up the No. 2 fuel sender gauge assembly to remove it.



Text in Illustration

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	Push
	Pull up



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Last Modified: 4-14-2014	6.6 G	Doc ID: RM000000Q3M04GX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL SYSTEM: ON-VEHICLE INSPECTION; 2013 MY FR-S [03/2012 -]		

ON-VEHICLE INSPECTION

1. CHECK FUEL PUMP OPERATION AND INSPECT FOR FUEL LEAK

(a) Connect the Techstream to the DLC3.

(1) Turn the ignition switch to ON.

NOTICE:

Do not start the engine.

(2) Turn the Techstream on.

(3) Enter the following menus: Power train / Engine / Active Test / Control the Fuel Pump Speed.

(b) Check the fuel pump operation.

(1) Check for pressure in the fuel inlet tube from the fuel line. Check that sound of fuel flowing in the fuel tank can be heard.

If no sound can be heard, check the EFI MAIN 1 relay, fuel pump, ECM and wiring connector.

(c) Inspect for fuel leaks.

(1) Check that there are no fuel leaks anywhere on the system after performing maintenance.

If there is a fuel leak, repair or replace parts as necessary.

2. CHECK FUEL PRESSURE

(a) Check that the battery positive voltage is above 12 V.

(b) Discharge the fuel system pressure INFO.

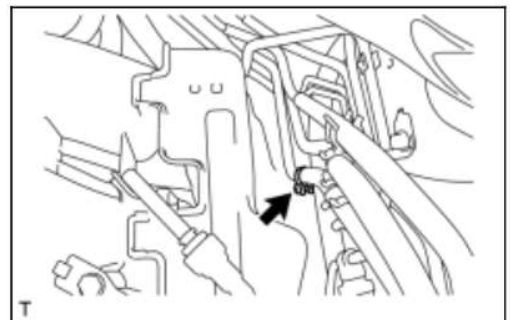
(c) Disconnect the cable from the negative (-) battery terminal.

NOTICE:

The power window system utilizes a mechanism in which the door glass moves down slightly when the door is opened, and in which the glass moves up when the door is closed the door in order to prevent the door molding from being damaged. When the battery negative (-) terminal needs to be disconnected for servicing, fully open the driver and passenger door glasses in advance.

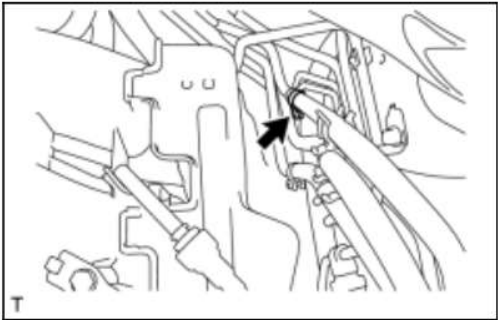
(d) Disconnect the No. 2 fuel tube. (Direct injection side)

(1) Loosen the hose clamp and disconnect the No. 2 fuel tube.



(e) Disconnect the fuel tube. (Port injection side)

(1) Loosen the hose clamp and disconnect the fuel tube.



(f) Install SST (pressure gauge) as shown in the illustration.

SST: 09268-31014

09268-41700

SST: 09268-45100

09268-41250

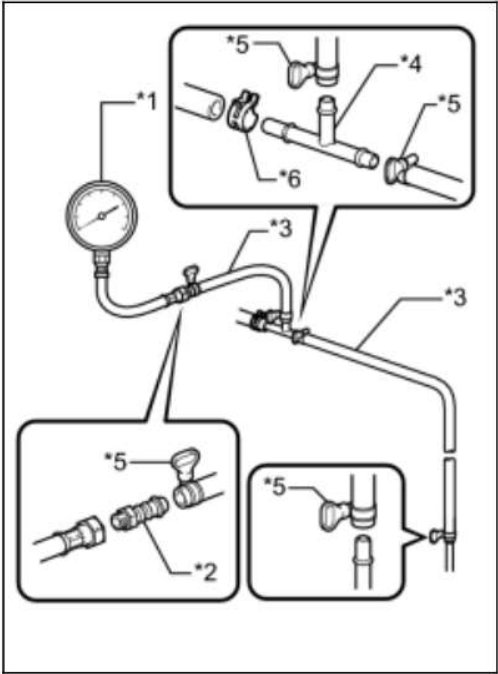
09268-41260

09268-41270

95336-08070

96135-51300

Text in Illustration



*1	SST (Pressure Gauge)
*2	SST (Straight joint)
*3	SST (Hose)
*4	SST (T-joint)
*5	SST (Hose Band)
*6	SST (Clip)

- (g) Wipe off any gasoline.
- (h) Reconnect the cable to the negative (-) battery terminal.
- (i) Operate the fuel pump.
- (1) Connect the Techstream to the DLC3.
- (2) Turn the ignition switch to ON.

NOTICE:
Do not start the engine.

(3) Turn the Techstream on.

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(4) Enter the following menus: Power train / Engine / Active Test / Control the Fuel Pump Speed.

(j) Measure the fuel pressure.

Standard fuel pressure:

350 to 500 kPa (4 to 5 kgf/cm² , 51 to 73 psi)

If the fuel pressure is higher than the specification, replace the fuel pump (built-in fuel tank).

If the pressure is lower than the specification, check the fuel hoses, connections, and fuel pump (built-in fuel tank).

(k) Start the engine.

(l) Measure the fuel pressure when idle.

Standard fuel pressure:

350 to 500 kPa (4 to 5 kgf/cm² , 51 to 73 psi)

If the pressure is not as specified, check the fuel pump and injectors.

(m) Stop the engine.

(n) Check that the fuel pressure remains as specified for 5 minutes after the engine has stopped.

Standard fuel pressure:

147 kPa (1.5 kgf/cm² , 21 psi) or more

If the pressure is not as specified, check the fuel pump or injectors.

(o) After checking the fuel pressure, disconnect the cable from the negative (-) battery terminal and carefully remove SST and the fuel tube connector to prevent fuel from spilling.

(p) Reconnect the No. 2 fuel tube with the clamp. (Direct injection side)

(q) Reconnect the fuel tube with the clamp. (Port injection side)

(r) Inspect for fuel leaks (Step 1).

3. CHECK FUEL PRESSURE (for High Pressure)

(a) Connect the Techstream to the DLC3.

(1) Turn the ignition switch to ON.

(2) Turn the Techstream on.

(b) Start and warm up the engine.

(c) Run the engine at idle.

(d) Enter the following menus: Power train / Engine / Data List / Fuel Press.

(e) Check the high pressure side fuel pressure.

Standard fuel pressure:

3000 to 5000 kPa (30.6 to 51.0 kgf/cm² , 435 to 725 psi)

If the pressure is not as specified, check the fuel pump, high pressure side fuel pump, fuel pressure sensor and wirings.

(f) Stop the engine.



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Last Modified: 4-14-2014	6.6 R	Doc ID: RM000000VHO03YX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL SYSTEM: PARTS LOCATION; 2013 MY FR-S [03/2012 -]		

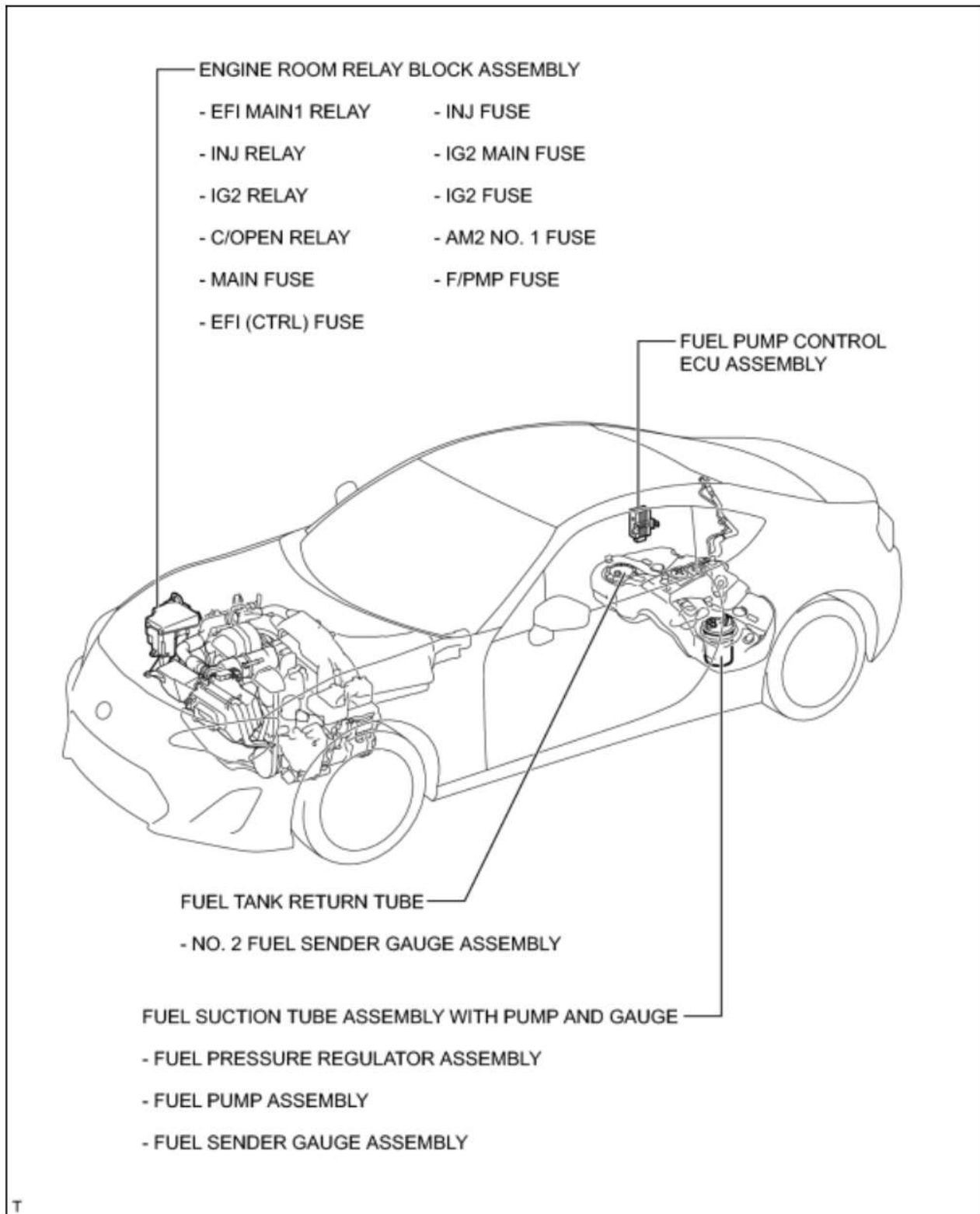
PARTS LOCATION

ILLUSTRATION

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2/5/2014

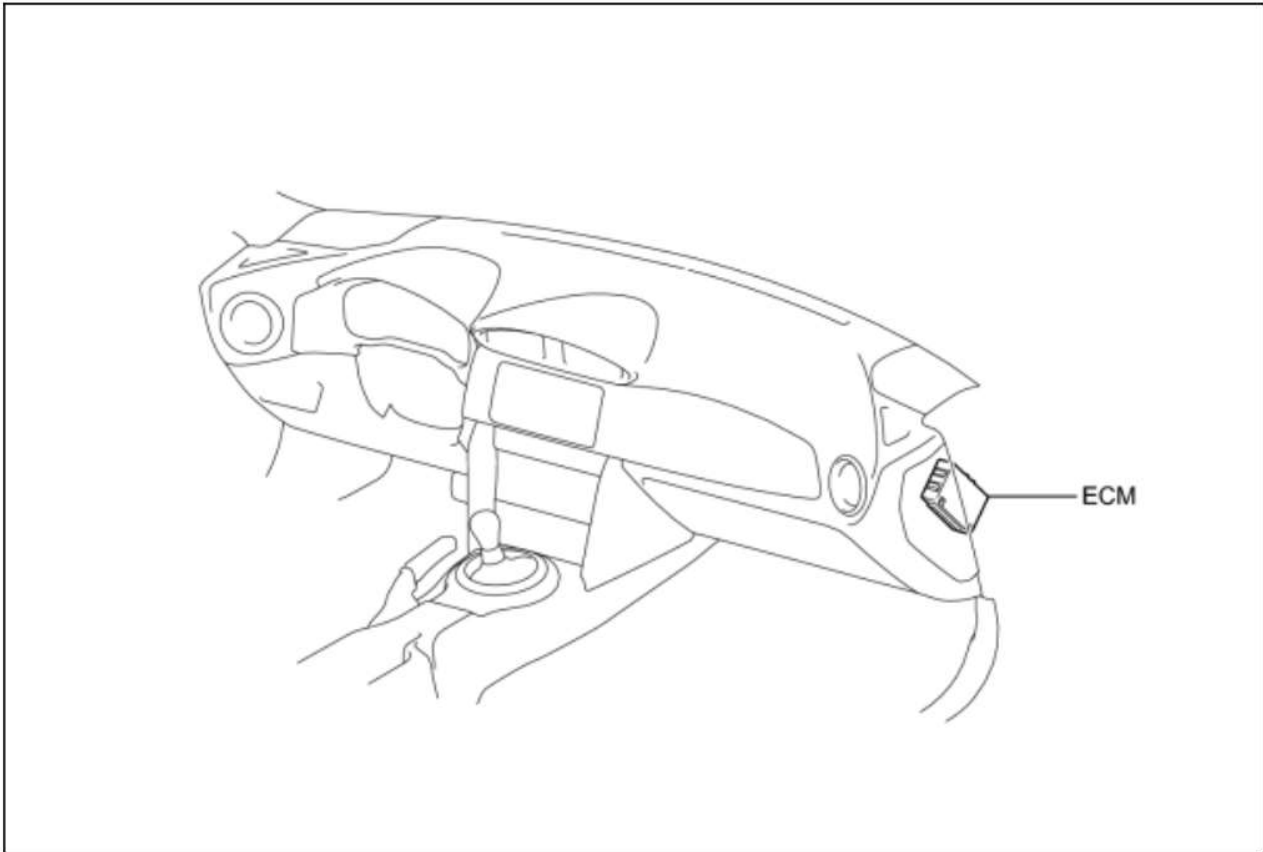
TIS - Scion 2013 FR-S Repair Manual (RM20S0U)



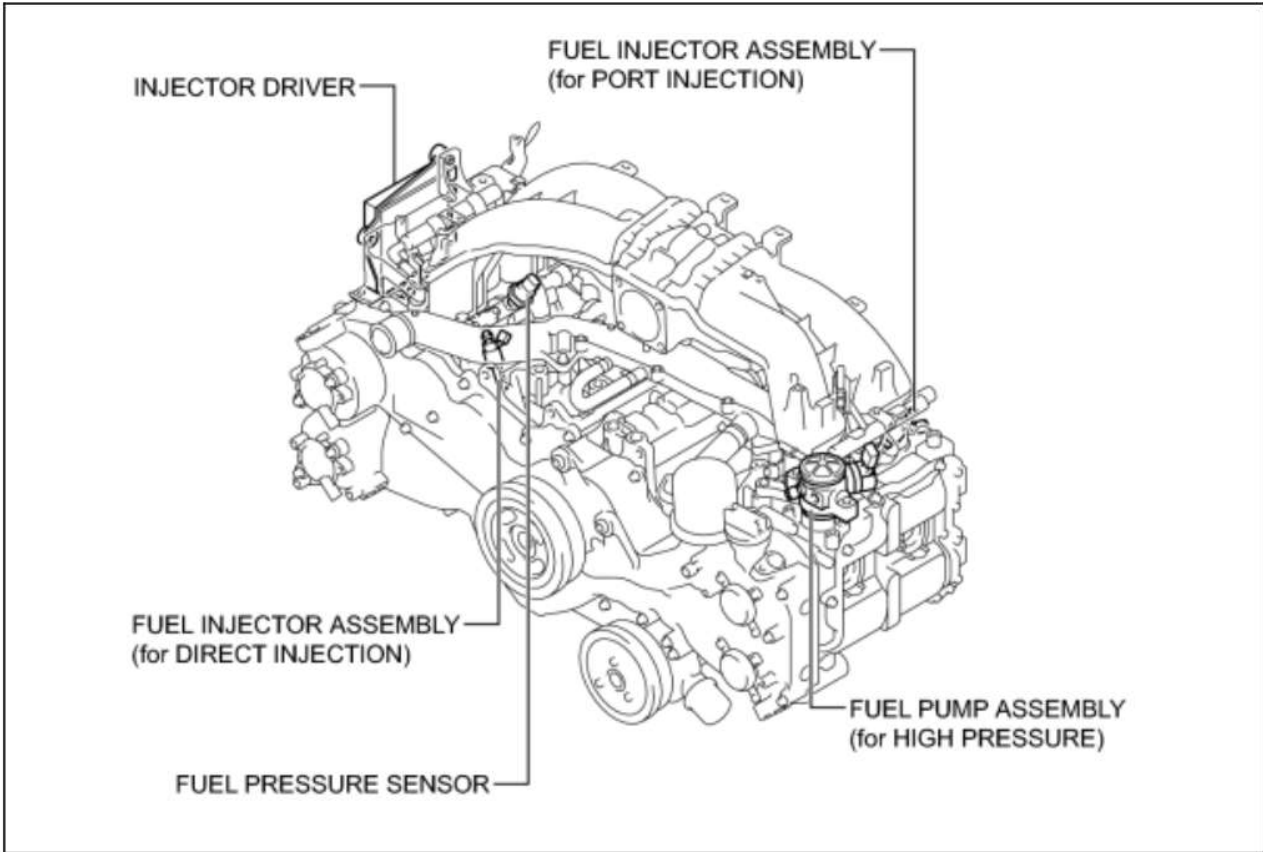
ILLUSTRATION

2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)



ILLUSTRATION



Last Modified: 4-14-2014	6.6 L	Doc ID: RM000000Q3K042X
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL SYSTEM: PRECAUTION; 2013 MY FR-S [03/2012 -]		

PRECAUTION

NOTICE:

Before working on the fuel system, disconnect the cable from the negative (-) battery terminal.

CAUTION:

- Do not smoke or be near an open flame when working on the fuel system.
- Keep gasoline away from rubber or leather parts.
- Do not allow fuel to spray when removing the pipe between the high pressure side fuel pump and the fuel injector. The fuel in the pipe is highly pressurized.

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work .

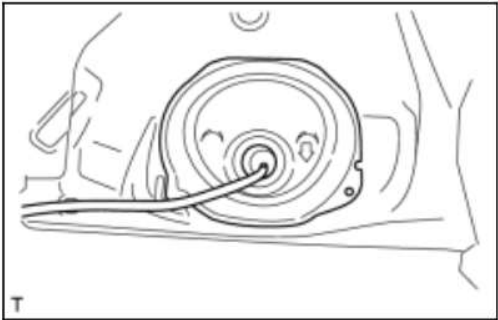
2. DISCHARGE FUEL SYSTEM PRESSURE

CAUTION:

- Make sure the engine coolant temperature is 60°C (140°F) or less when performing this procedure.
- Do not disconnect any part of the fuel system until you have discharged the fuel system pressure.
- Even after discharging the fuel pressure, place a piece of cloth or equivalent over fittings as you separate them to reduce the risk of fuel spray on yourself or in the engine compartment.

- (a) Disconnect the cable from the negative (-) battery terminal.
- (b) Remove rear seat cushion assembly LH.

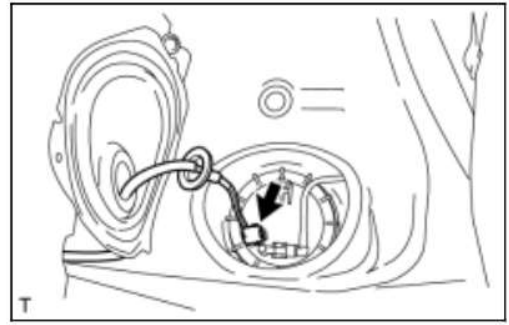
- (c) Remove the No. 2 rear floor service hole cover.



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TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

- (d) Disconnect the fuel suction tube assembly with pump and gauge connector.



- (e) Connect the cable to the negative (-) battery terminal.
 (f) Start the engine. After the engine has stopped on its own, turn the ignition switch off.

HINT:

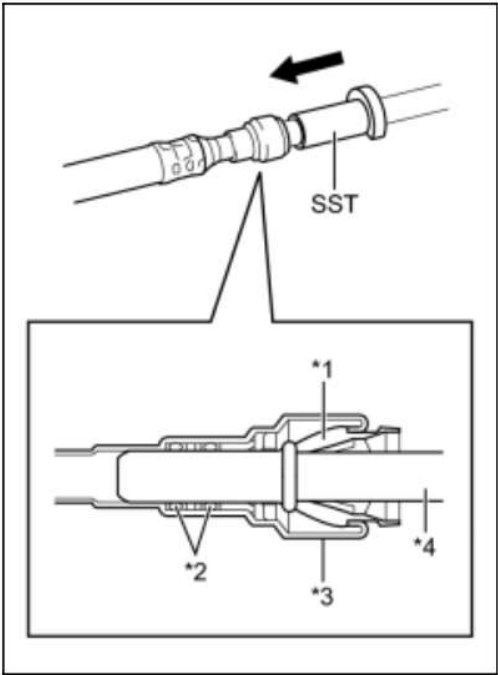
Some DTCs may be stored. Clear the DTCs before proceeding to the next step.

- (g) Crank the engine again, then check that the engine does not start.
 (h) Loosen the fuel tank cap, then discharge the pressure in the fuel tank completely.
 (i) Connect the fuel suction tube assembly with pump and gauge connector.
 (j) Install the No. 2 rear floor service hole cover.
 (k) Install rear seat cushion assembly LH.

3. FUEL SYSTEM

- (a) When disconnecting a fuel pressure line, a large amount of gasoline will spill out. Perform the following procedure:
- (1) Discharge fuel system pressure.
 - (2) Put a container under the connection.
 - (3) Disconnect the fuel pump tube.
 - (4) Drain the fuel remaining inside the fuel pump tube into the container.
 - (5) Cover the disconnected pipe and connector with a plastic bag to prevent damage and contamination.
- (b) Observe these precautions when connecting the fuel tube connector (for metallic type).

- (1) Attach SST to the fuel pipe.
- SST: SU003-03936



- (2) Insert SST in the fuel tube connector side, and remove the fuel tube from the fuel pipe.

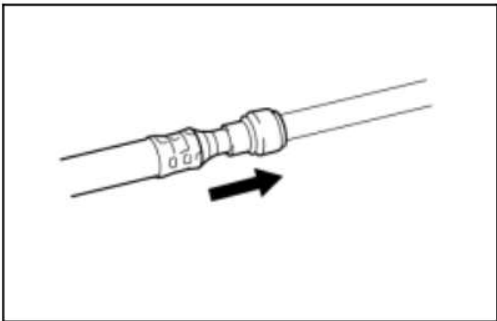
Text in Illustration

*1	Retainer
*2	O-Ring
*3	Housing
*4	Fuel Pipe
	Insert

- (3) Cover the disconnected fuel pipe and fuel tube connector with plastic bags to prevent damage and contamination.

- (c) Observe these precautions when connecting the fuel tube connector (for metallic type).

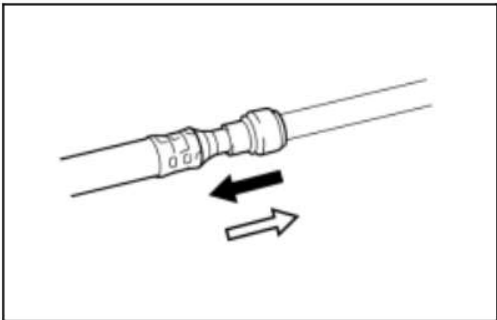
- (1) Check for damage or foreign matter on the connected part of the fuel pipe.
- (2) Align the fuel tube connector axis with the fuel pipe axis, and push the fuel tube connector in until the retainer makes a clicking sound.



Text in Illustration

2/5/2014	TIS - Scion 2013 FR-S Repair Manual (RM20S0U)	
		Push

(3) After connecting the fuel tube connector, pull the fuel tube connector and pipe, and then push them to check that they are connected firmly.



NOTICE:
Be sure to always finish checking the fuel pipe connections by pushing.

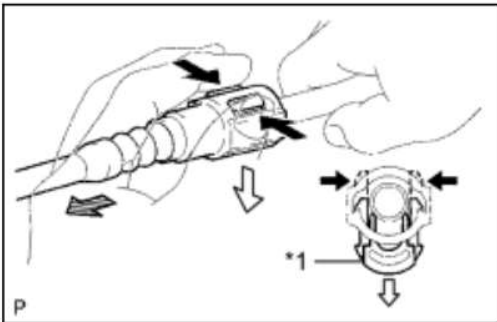
Text in Illustration

	Pull
	Push

(4) Inspect for fuel leaks INFO .

(d) Observe these precautions when disconnecting the fuel tube connector (for quick type A).

- (1) Check that there is no damage or foreign matter on the part of the pipe that contacts the connector.
- (2) Detach the 2 claws of the connector retainer. Push down on the connector and disconnect it from the pipe.



Text in Illustration

*1	Retainer
	Push
	Down

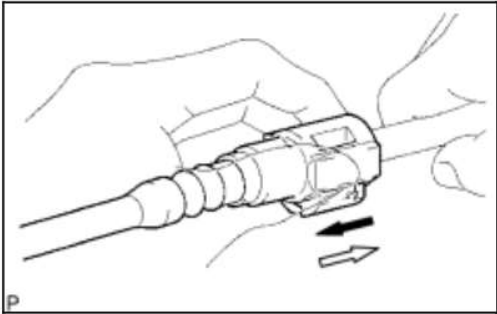
2/5/2014

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Pull

HINT:
If the connector and pipe are stuck, pinch the fuel pipe by hand and push and pull the connector to disconnect it.

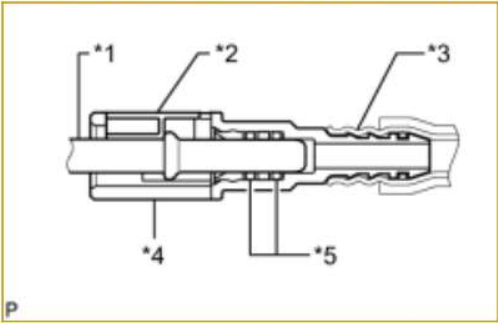


Text in Illustration

	Pull
	Push

NOTICE:

- Check for any dirt and foreign matter contamination in the pipe and around the connector. Clean if necessary. Foreign matter may damage the O-ring or cause leaks in the seal between the pipe



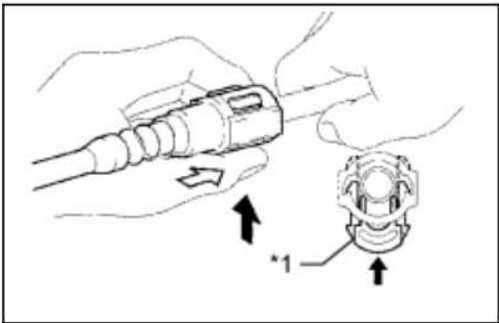
- and connector.
- Do not use any tools to separate the pipe and connector.
 - Do not allow any scratches or foreign matter on the parts when disconnecting them, as the fuel tube joint contains the O-rings that seal the plug.
 - Check for any dirt and foreign matter on the pipe seal surface. Clean if necessary.
 - Do not forcibly bend, twist or turn the nylon tube.
 - Protect the disconnected part by covering it with a plastic bag and tape after disconnecting the main tube.
 - If the pipe and connector are stuck together, pinch the tube between your fingers and turn it carefully to free it. Then disconnect the main tube.

Text in Illustration

*1	Pipe
*2	Retainer
*3	Nylon Tube

*4	Connector
*5	O-Ring

- (3) Check for foreign matter on the seal surface of the disconnected pipe. Clean it if necessary.
- (4) To protect the disconnected pipe and connector from damage and foreign matter, cover them with a plastic bag.
- (e) Observe these precautions when connecting the fuel tube connector (for quick type A).
- (1) Check for foreign matter on the pipe and around the connector before connecting it. Clean it if necessary.
- (2) Align the axis of the connector with the axis of the pipe. Push the pipe into the connector, and then push up on the retainer.



Text in Illustration

*1	Retainer
➡	Up
➡	Push

NOTICE:

- Before connecting the tube connectors to the pipes, check if there is any damage or foreign matter



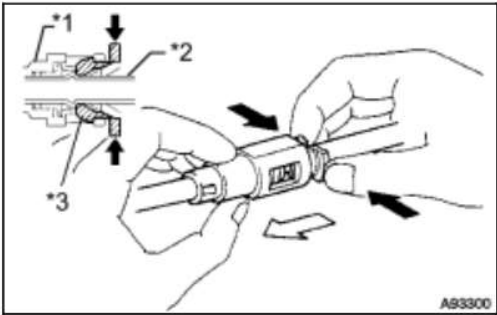
- in the connectors.
- After connecting the pipe and the connector, check that the pipe and connector are securely connected by trying to pull them apart.

Text in Illustration

➡	Pull
---	------

(3) Inspect for fuel leaks INFO .

(f) Perform the following procedure when disconnecting a fuel tube connector (Quick Type B).



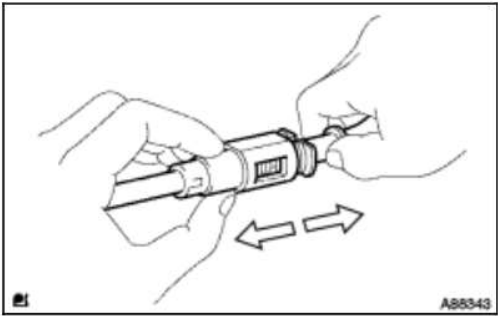
Text in Illustration

*1	Fuel Tube Connector
*2	Fuel Pipe
*3	Retainer
➡	Pinch
➡	Pull Out

- (1) Check that there is no dirt or other foreign matter around the fuel tube connector before disconnecting it. Clean the joint if necessary.
- (2) Pinch the retainer as illustrated, then pull out the fuel tube connector from the fuel pipe.

NOTICE:
Be sure to disconnect the fuel tube connector by hand.

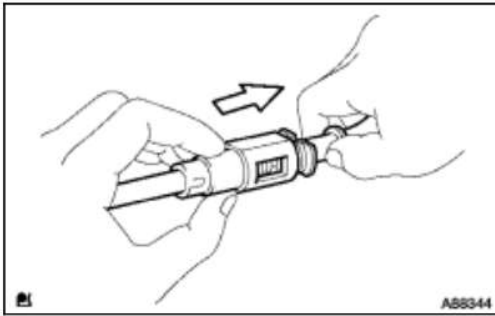
- (3) If the fuel tube connector and fuel pipe are stuck, pinch the fuel pipe, and then push and pull the fuel tube connector to release and disconnect the fuel tube connector.



- (4) Check if there is any dirt or other foreign matter on the seal surface of the disconnected fuel pipe and clean it away as necessary.
- (5) Cover the disconnected fuel pipe and fuel tube connector with plastic bags to prevent damage and contamination.
- (g) Perform the following procedure when connecting a fuel tube connector (Quick Type B).

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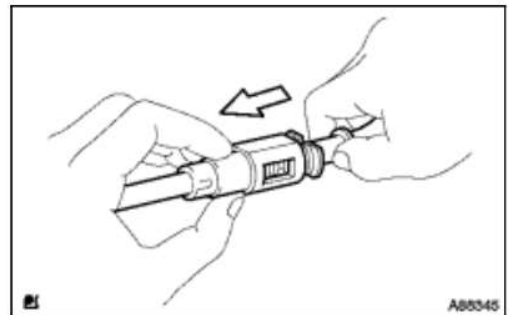


- (1) Check for damage or foreign matter on the connected part of the fuel pipe.
- (2) Align the fuel tube connector with the fuel pipe, and then push in the fuel tube connector until the retainer makes a "click" sound.

HINT:

If the fuel pipe is difficult to push into the fuel tube connector, apply a light coat of engine oil to the tip of the fuel pipe and reinsert it.

- (3) After finishing the connection, check that the fuel pipe and the fuel tube connector are securely connected by pulling on them.



- (4) Inspect for fuel leaks INFO.

4. INSPECT FOR FUEL LEAK

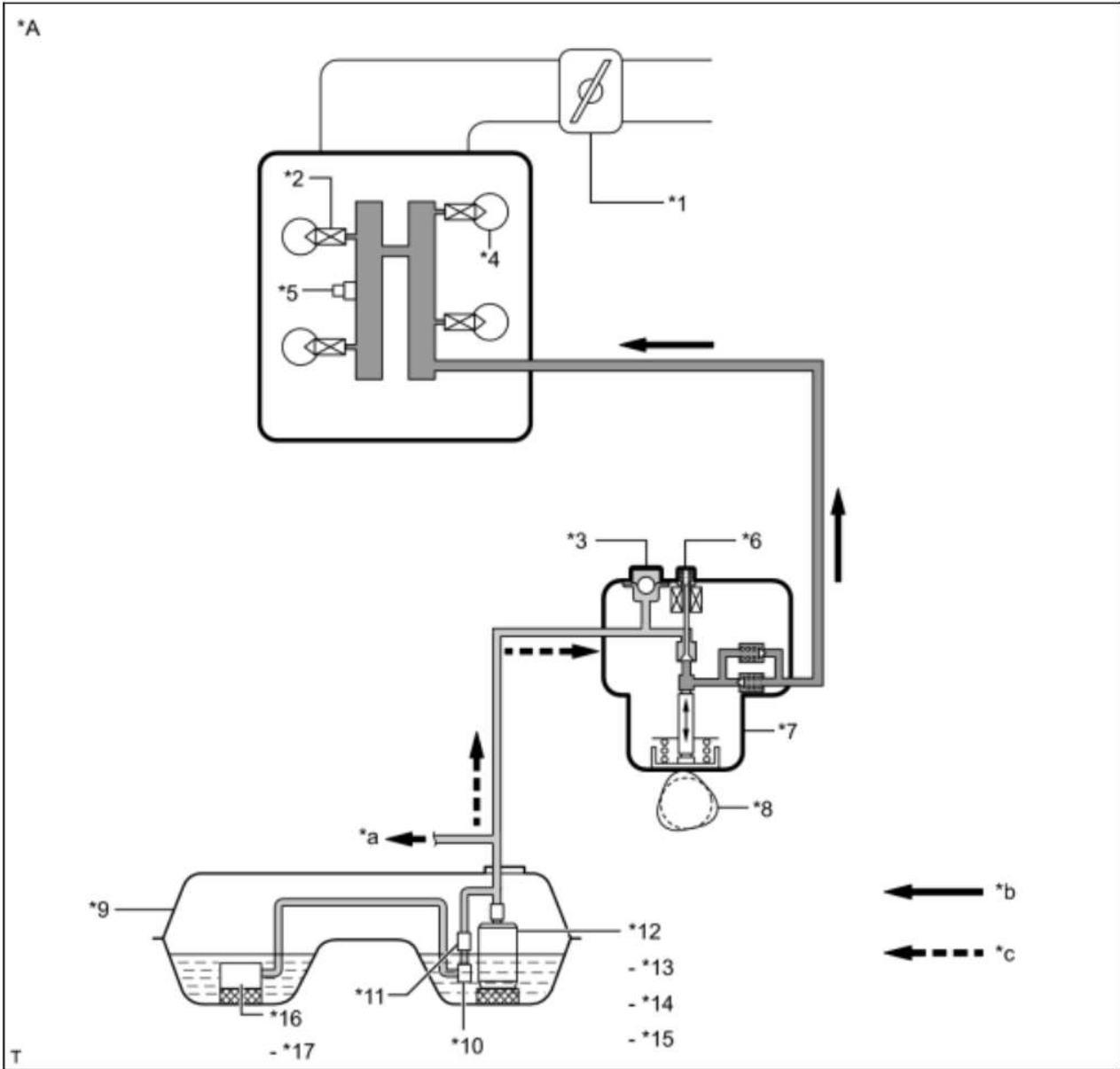
- (a) Check that there are no fuel leaks anywhere on the fuel system after performing maintenance

INFO


Last Modified: 4-14-2014	6.6 U	Doc ID: RM000000PDZ03ZX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL SYSTEM: SYSTEM DIAGRAM; 2013 MY FR-S [03/2012 -]		

SYSTEM DIAGRAM

1. FUEL FLOW DIAGRAM



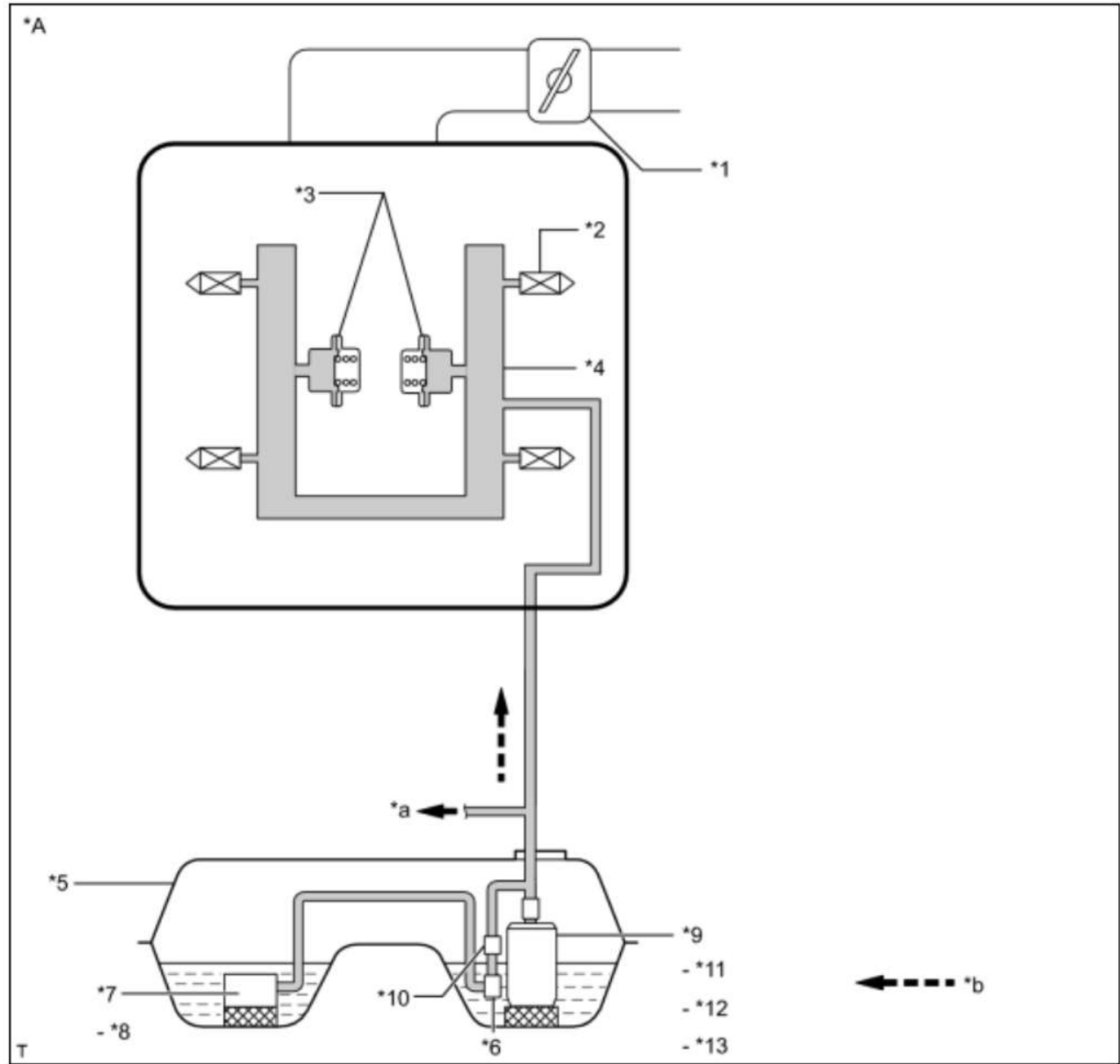
Text in Illustration

*A	Direct Injection Side	-	-
*1	Throttle with Motor Body Assembly	*2	Fuel Injector Assembly (for Direct Injection)
*3	Fuel Pressure Pulsation Damper	*4	Cylinder
*5	Fuel Pressure Sensor	*6	Solenoid Spill Valve
*7		*8	Camshaft

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	Fuel Pump Assembly (for High Pressure)		
*9	Fuel Tank Assembly	*10	Jet Pump
*11	Fuel Pressure Regulator	*12	Fuel Suction Tube Assembly with Pump and Gauge
*13	Fuel Sender Gauge Assembly	*14	Fuel Pump Assembly
*15	Fuel Filter	*16	Fuel Tank Return Tube
*17	No. 2 Fuel Sender Gauge Assembly	-	-
*a	to Fuel Injector Assembly (for Port Injection)	*b	High Pressure Fuel Line
*c	Low Pressure Fuel Line	-	-



Text in Illustration

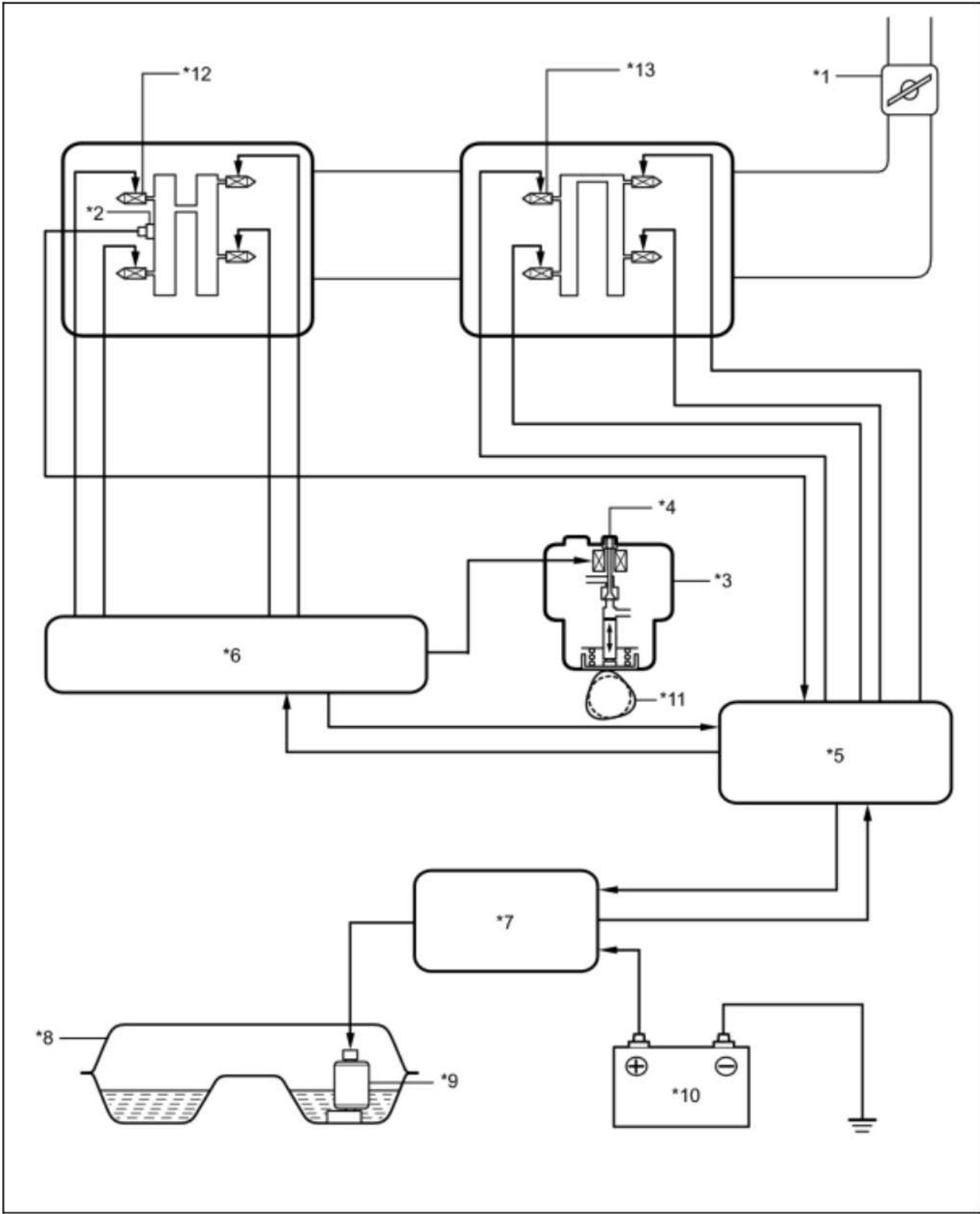
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2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

*A	Port Injection Side	-	-
*1	Throttle with Motor Body Assembly	*2	Fuel Injector Assembly (for Port Injection)
*3	Fuel Pressure Pulsation Damper	*4	Fuel Delivery Pipe
*5	Fuel Tank Assembly	*6	Jet Pump
*7	Fuel Tank Return Tube	*8	No. 2 Fuel Sender Gauge Assembly
*9	Fuel Suction Tube Assembly with Pump and Gauge	*10	Fuel Pressure Regulator
*11	Fuel Sender Gauge Assembly	*12	Fuel Pump Assembly
*13	Fuel Filter	-	-
*a	to Fuel Injector Assembly (for Direct Injection)	*b	Low Pressure Fuel Line

2. ELECTRICAL CONTROL DIAGRAM



Text in Illustration

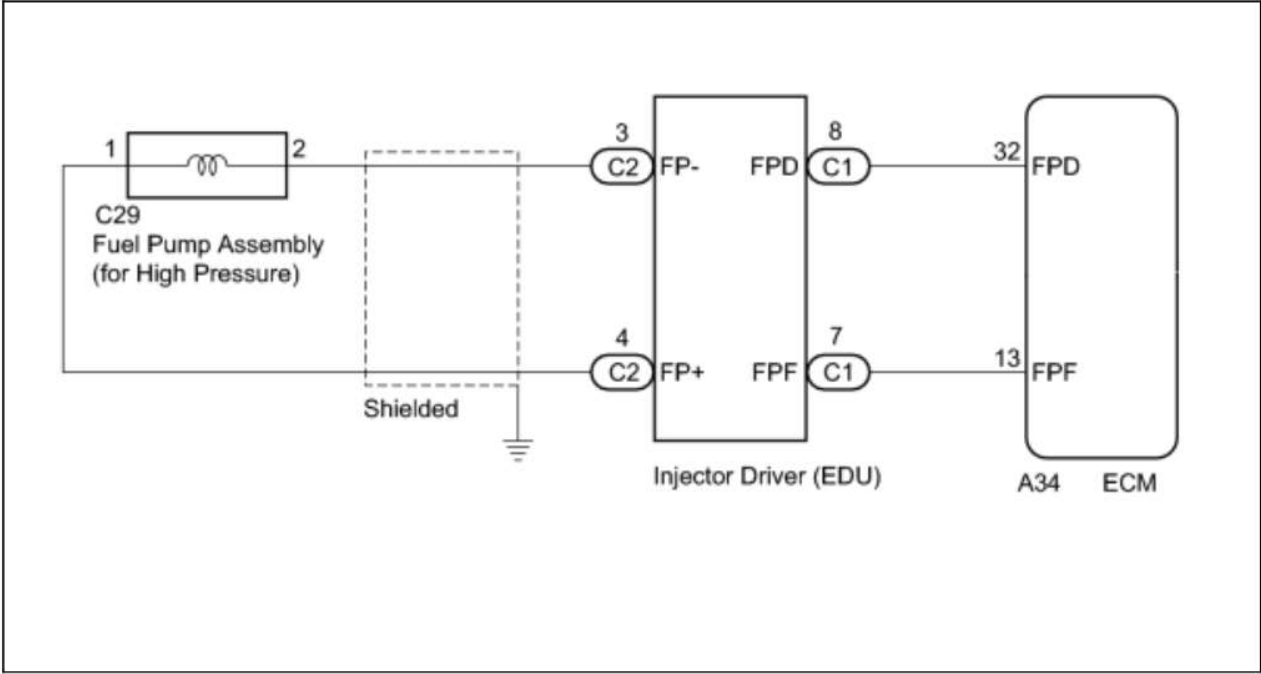
*1	Throttle with Motor Body Assembly	*2	Fuel Pressure Sensor
*3	Fuel Pump Assembly (for High Pressure)	*4	Solenoid Spill Valve
*5	ECM	*6	Injector Driver
*7	Fuel Pump Control ECU Assembly	*8	Fuel Tank Assembly

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TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

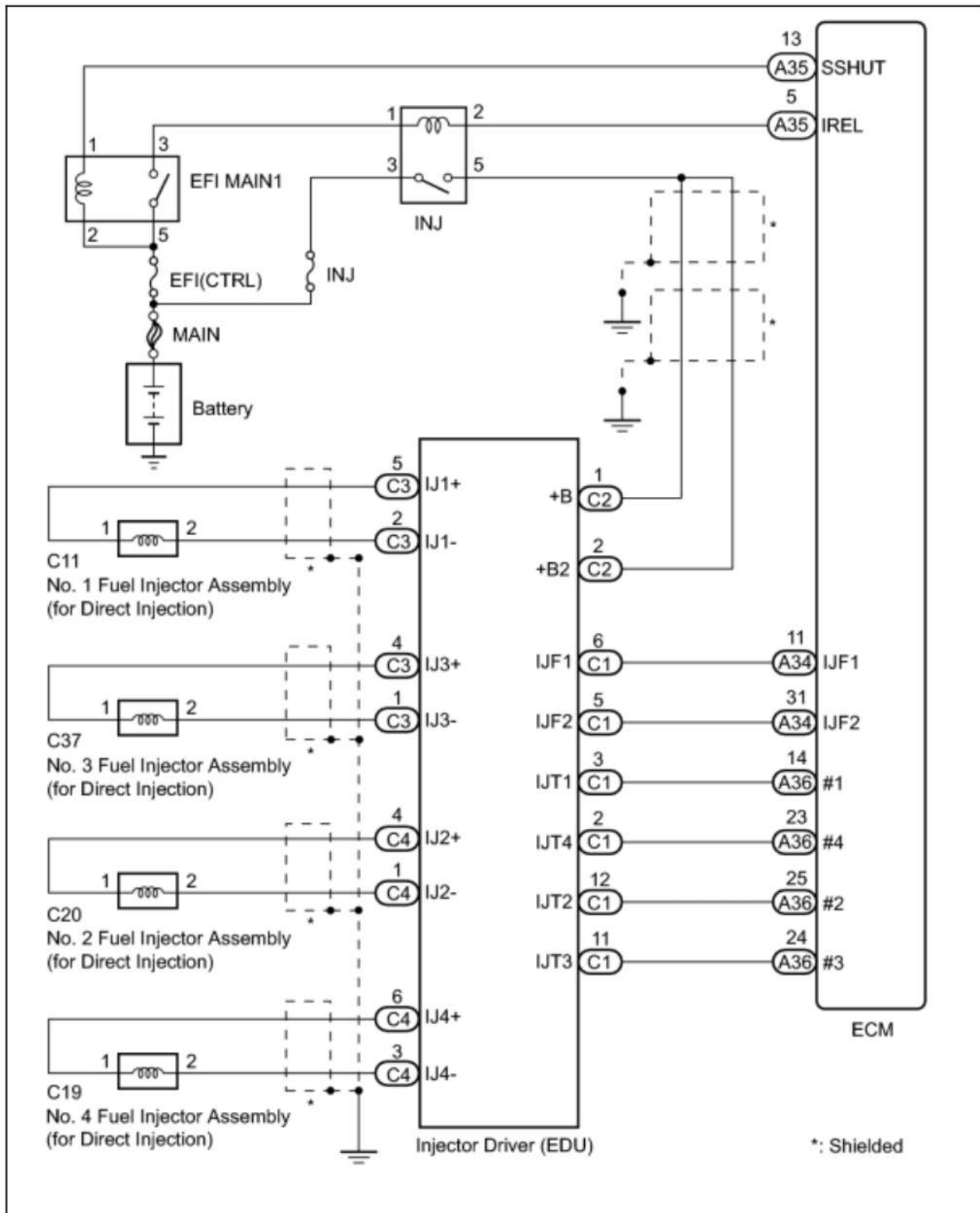
*9	Fuel Pump Assembly	*10	Battery
*11	Camshaft	*12	Fuel Injector Assembly (for Direct Injection)
*13	Fuel Injector Assembly (for Port Injection)	-	-

3. HIGH PRESSURE SIDE FUEL SYSTEM WIRING DIAGRAM

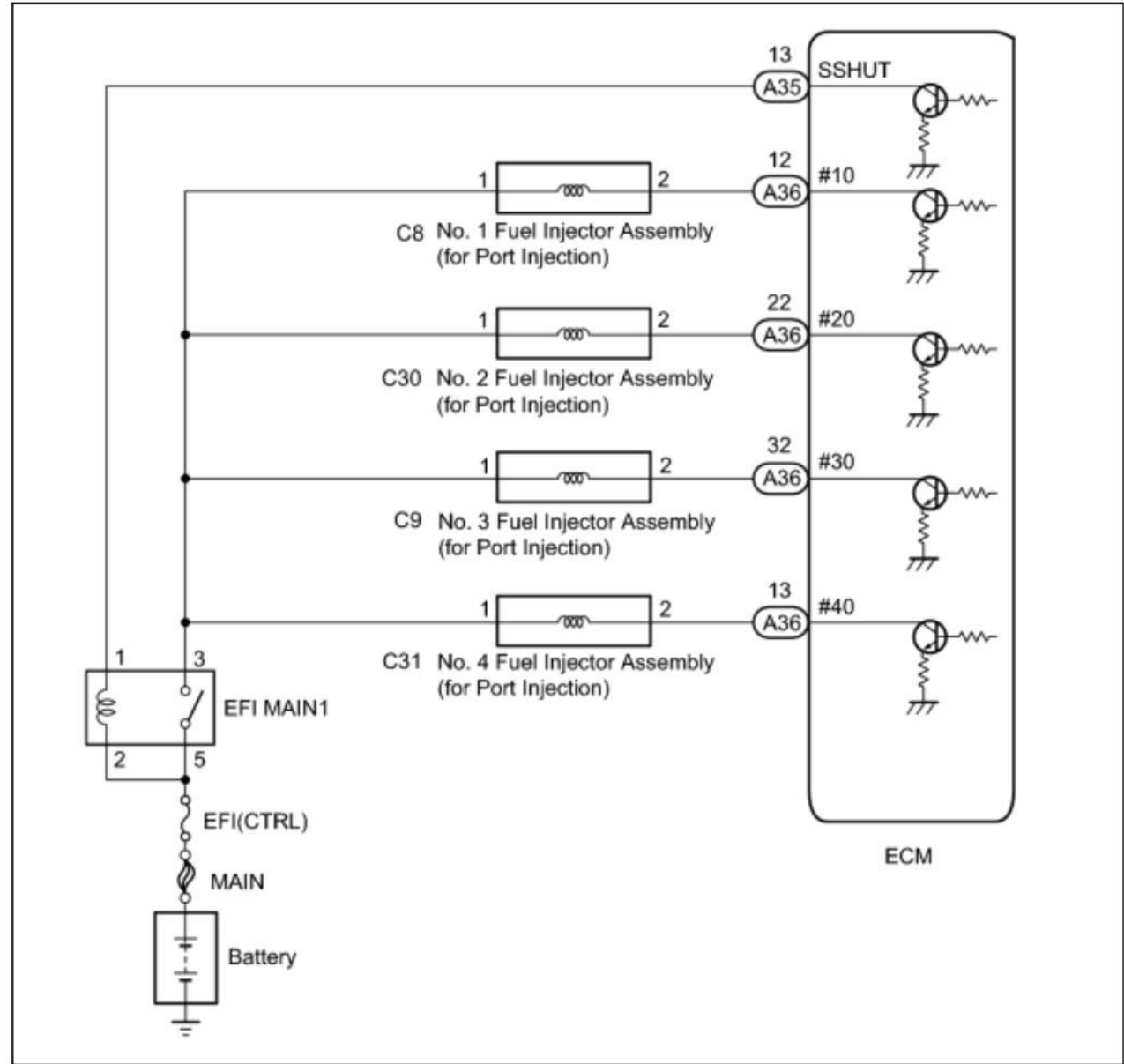


2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)



4. LOW PRESSURE SIDE FUEL SYSTEM WIRING DIAGRAM



2/5/2014

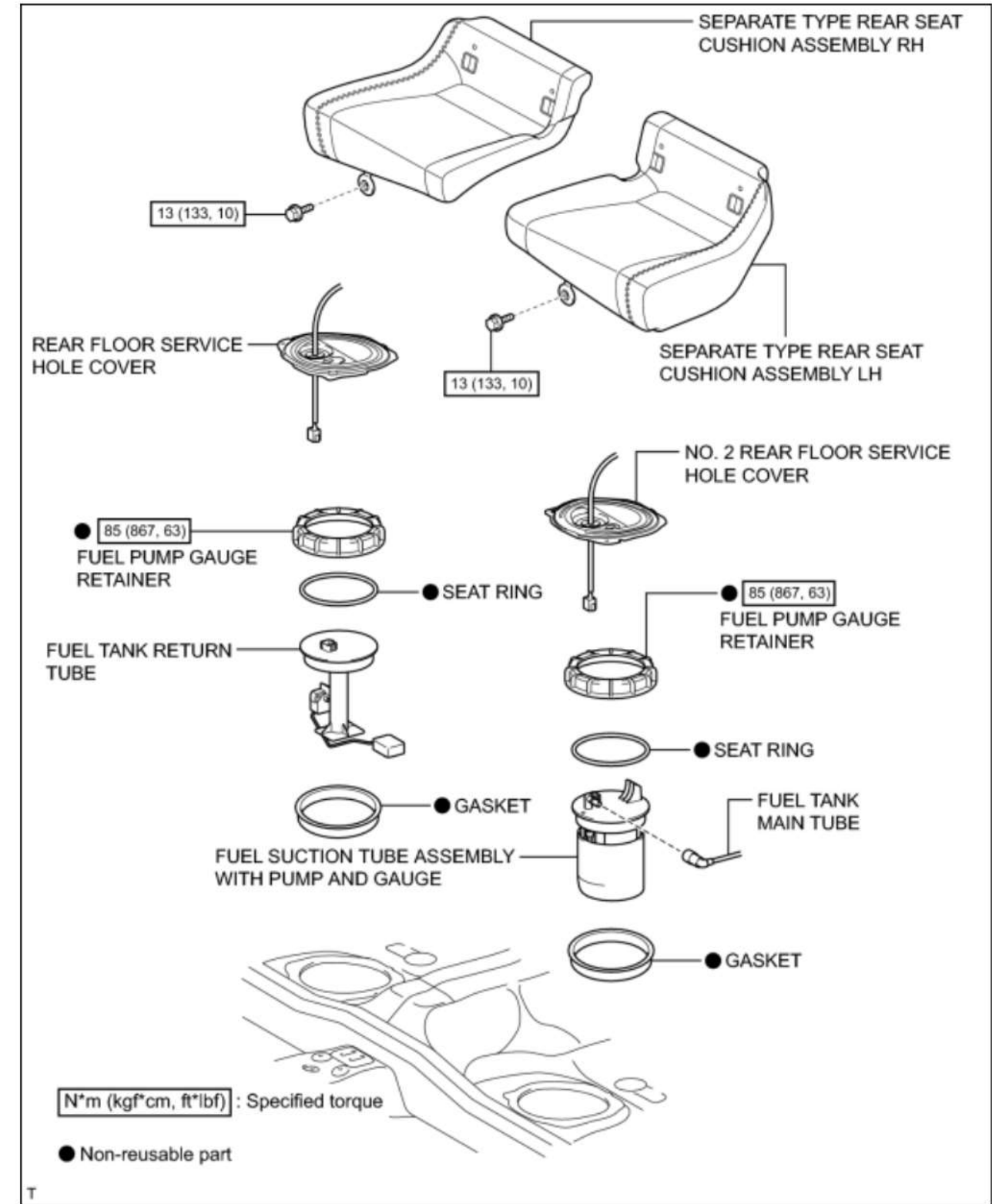
TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

Last Modified: 4-14-2014	6.6 K	Doc ID: RM000000QDY03WX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL TANK: COMPONENTS; 2013 MY FR-S [03/2012 -]		

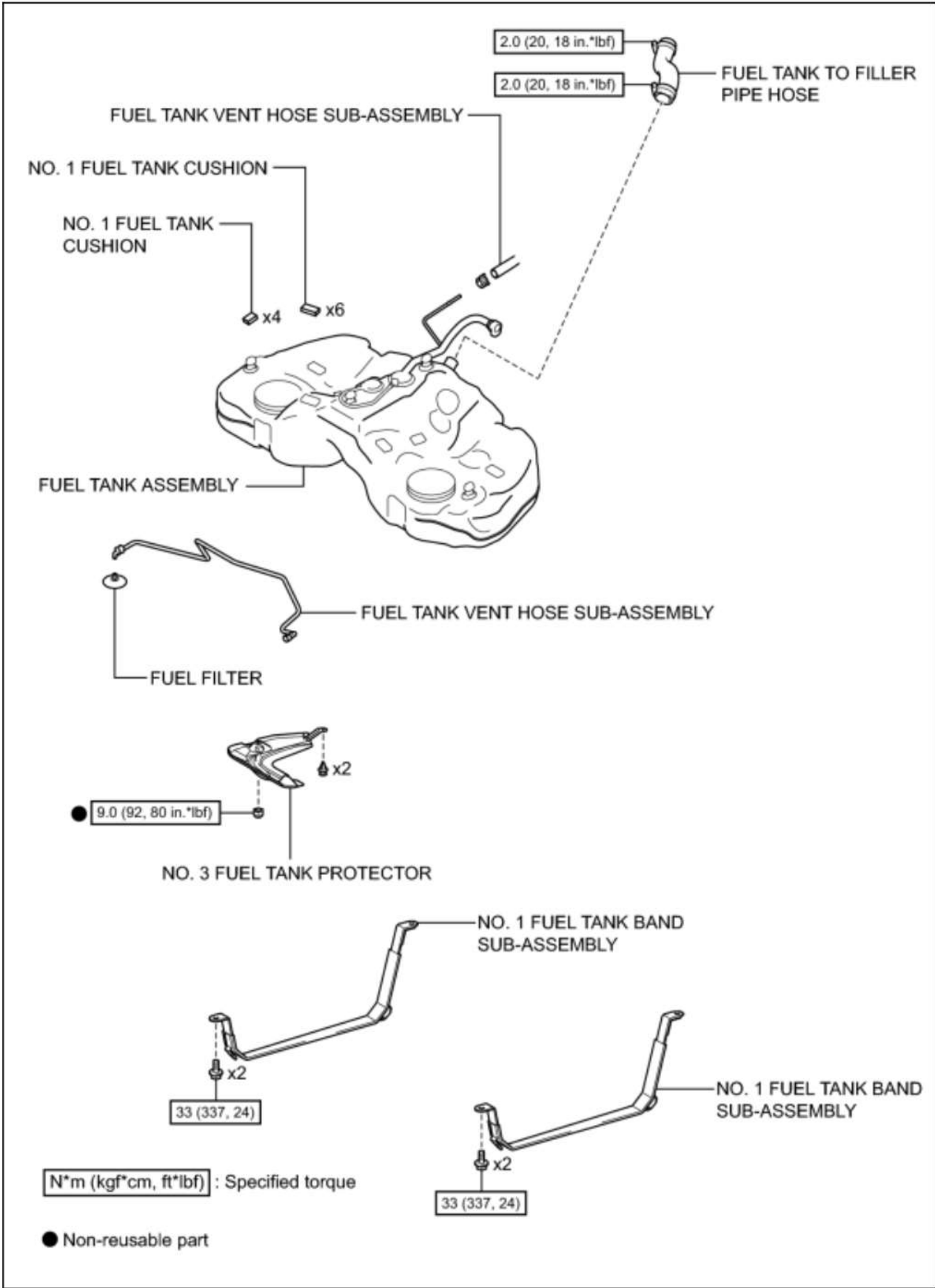
COMPONENTS

ILLUSTRATION

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ILLUSTRATION



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Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000QDX057X
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL TANK: INSTALLATION; 2013 MY FR-S [03/2012 -]		

INSTALLATION

1. INSTALL NO. 1 FUEL TANK CUSHION

- (a) Install 10 new No. 1 fuel tank cushions to the fuel tank assembly.

2. INSTALL NO. 2 FUEL TANK MAIN TUBE SUB-ASSEMBLY

- (a) Install the fuel filter to the No. 2 fuel tank main tube sub-assembly.
(b) Install the No. 2 fuel tank main tube sub-assembly to the fuel tank assembly.

3. INSTALL FUEL TANK TO FILLER PIPE HOSE

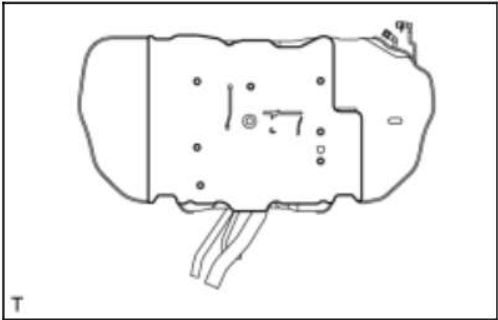
- (a) Install the fuel tank to filler pipe hose to the fuel tank assembly with the clamp.
(b) Tighten the hose clamp bolt.

Torque:
2.0 N·m { 20 kgf·cm, 18in·lbf }

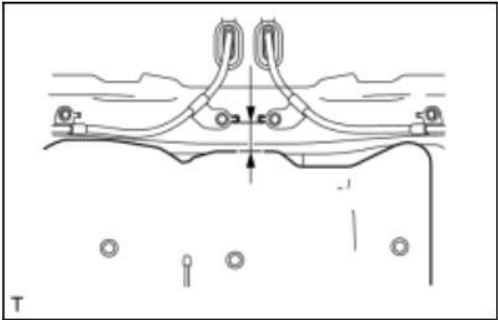
4. INSTALL FUEL TANK ASSEMBLY

- (a) Inspect the fuel tank cover.

HINT:
The fuel tank cover is used as a base when attaching the fuel tank assembly, so inspect for any deformation, cracking, or other damage. If any faults are found, replace with a new one.



- (b) Hold the fuel tank assembly with an engine lifter.
(c) Temporarily install the fuel tank assembly to the body with the 2 No. 1 fuel tank bands and 4 bolts.



- (d) Adjust the position of the fuel tank assembly to achieve the required separation between the front edge of the fuel tank cover and the holes used for fixing the parking brake cable bracket in place.

Standard:
42 to 44 mm (1.6535 to 1.7323 in.)

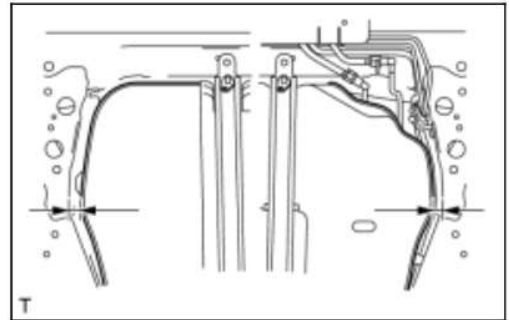
2/5/2014

TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

- (e) Adjust the position of the fuel tank assembly to achieve the required difference in clearance between the left and right sides of the fuel tank assembly and the body.

Standard:

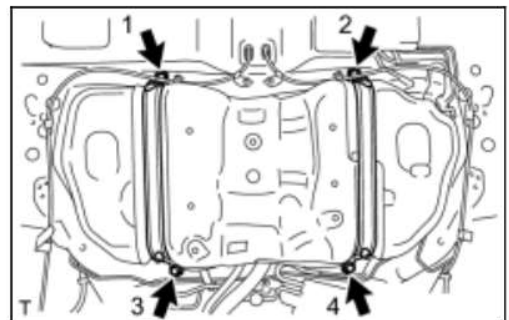
Below 2 mm (0.0787 in.)



- (f) Tighten the 4 bolts in the order shown in the illustration.

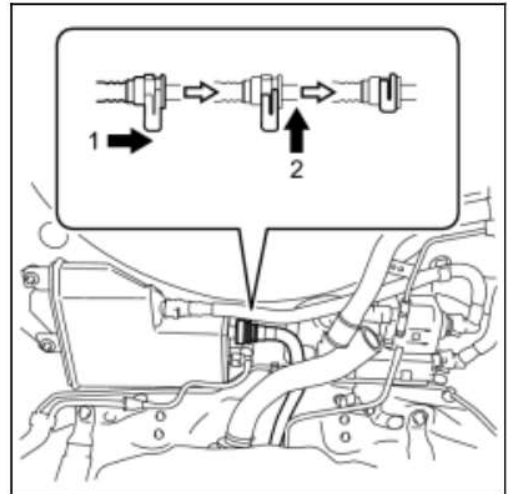
Torque:

33 N·m { 337 kgf·cm, 24ft·lbf }



5. INSTALL CHARCOAL CANISTER ASSEMBLY

- (a) Connect the quick connector as indicated by the arrows in the order shown in the illustration.



6. CONNECT FUEL TANK VENT HOSE SUB-ASSEMBLY

- (a) Engage the clamp to install the tube.
(b) Connect the fuel tank vent hose sub-assembly with the clamp.

7. CONNECT FUEL TANK TO FILLER PIPE HOSE

- (a) Connect the fuel tank to filler pipe hose to the fuel tank filler pipe sub-assembly with the clamp.
(b) Tighten the hose clamp bolt.

Torque:

2.5 N·m { 25 kgf·cm, 22in·lbf }

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8. REMOVE NO. 3 PARKING BRAKE CABLE ASSEMBLY

INFO

9. REMOVE NO. 2 PARKING BRAKE CABLE ASSEMBLY

INFO

10. INSTALL NO. 3 FUEL TANK PROTECTOR

(a) Install the No. 3 fuel tank protector with a new nut and 2 clips.

Torque:

9.0 N·m { 92 kgf·cm, 80 in·lbf }

11. INSTALL REAR SUSPENSION MEMBER SUB-ASSEMBLY

INFO

12. INSTALL FUEL TANK RETURN TUBE

INFO

13. INSTALL FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE

INFO

14. ADD FUEL

15. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

INFO

16. INSPECT FOR FUEL LEAK

INFO

17. INSTALL NO. 2 REAR FLOOR SERVICE HOLE COVER

INFO

18. INSTALL REAR FLOOR SERVICE HOLE COVER

INFO

19. INSTALL SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY LH

INFO

20. INSTALL SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY RH

INFO



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Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000QDZ052X
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: FUEL TANK: REMOVAL; 2013 MY FR-S [03/2012 -]		

REMOVAL

1. DISCHARGE FUEL SYSTEM PRESSURE

INFO

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

INFO

3. REMOVE SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY LH

INFO

4. REMOVE SEPARATE TYPE REAR SEAT CUSHION ASSEMBLY RH

INFO

5. REMOVE NO. 2 REAR FLOOR SERVICE HOLE COVER

INFO

6. REMOVE REAR FLOOR SERVICE HOLE COVER

INFO

7. REMOVE FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE

INFO

8. REMOVE FUEL TANK RETURN TUBE

INFO

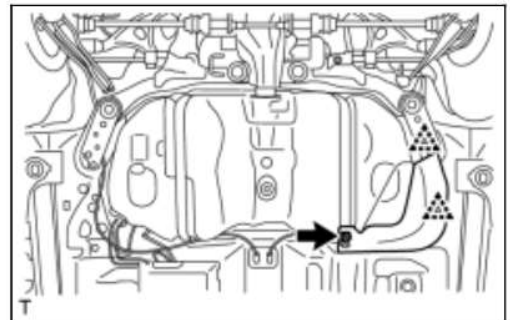
9. DRAIN FUEL

10. REMOVE REAR SUSPENSION MEMBER SUB-ASSEMBLY

INFO

11. REMOVE NO. 3 FUEL TANK PROTECTOR

(a) Remove the nut, 2 clips and No. 3 fuel tank protector.



12. REMOVE NO. 3 PARKING BRAKE CABLE ASSEMBLY

INFO

13. REMOVE NO. 2 PARKING BRAKE CABLE ASSEMBLY

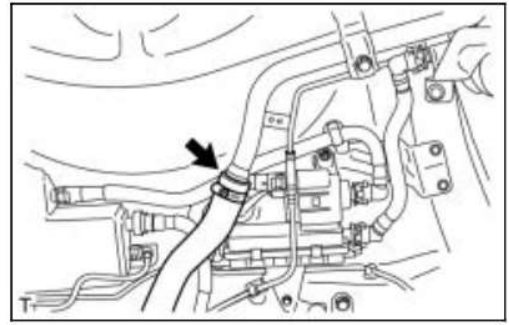
INFO

14. DISCONNECT FUEL TANK TO FILLER PIPE HOSE

2/5/2014

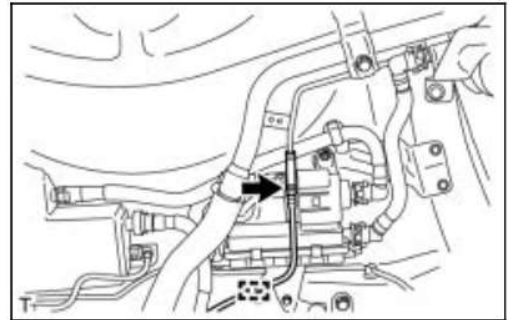
TIS - Scion 2013 FR-S Repair Manual (RM20S0U)

- (a) Loosen the hose clamp bolt and disconnect the fuel tank to filler pipe hose.



15. DISCONNECT FUEL TANK VENT HOSE SUB-ASSEMBLY

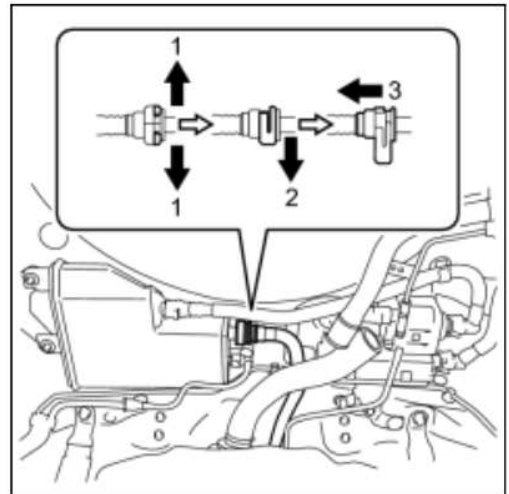
- (a) Remove the clamp and disconnect the fuel tank vent hose sub-assembly.



- (b) Disengage the clamp and separate the tube.

16. SEPARATE CHARCOAL CANISTER ASSEMBLY

- (a) Disconnect the quick connector as indicated by the arrows in the order shown in the illustration.

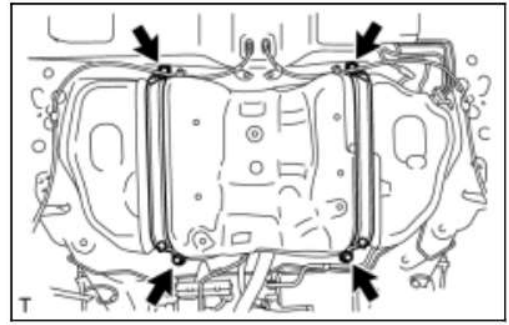


17. REMOVE FUEL TANK ASSEMBLY

2/5/2014

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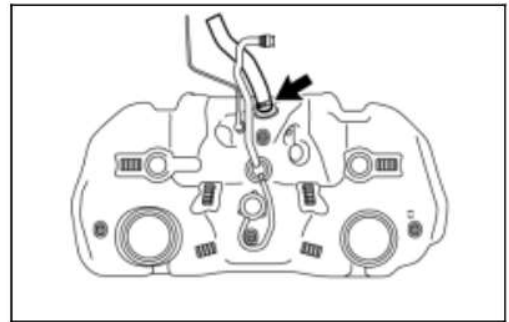
- (a) Place an engine lifter under the fuel tank assembly.



- (b) Remove the 4 bolts, 2 No. 1 fuel tank bands and fuel tank assembly.

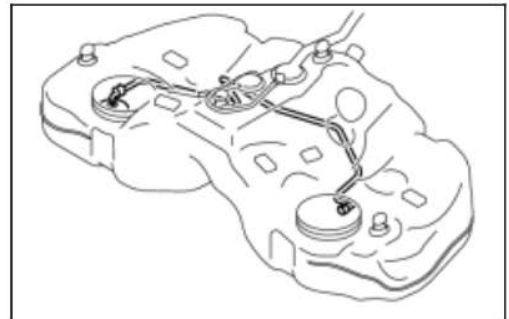
18. REMOVE FUEL TANK TO FILLER PIPE HOSE

- (a) Loosen the hose clamp bolt and remove the fuel tank to filler pipe hose from the fuel tank.

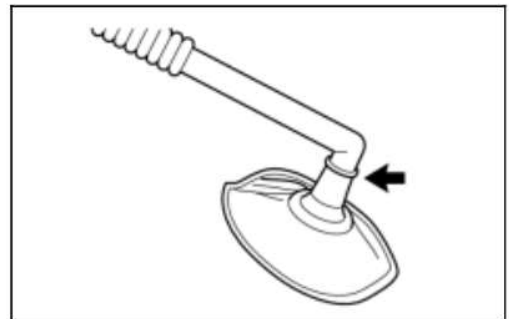


19. REMOVE NO. 2 FUEL TANK MAIN TUBE SUB-ASSEMBLY

- (a) Remove the No. 2 fuel tank main tube sub-assembly from the fuel tank assembly.



- (b) Remove the fuel filter from the No. 2 fuel tank main tube sub-assembly.

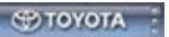
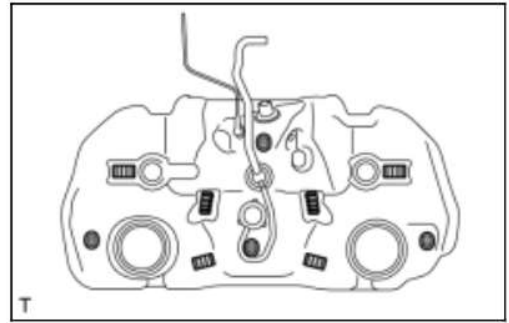


20. REMOVE NO. 1 FUEL TANK CUSHION

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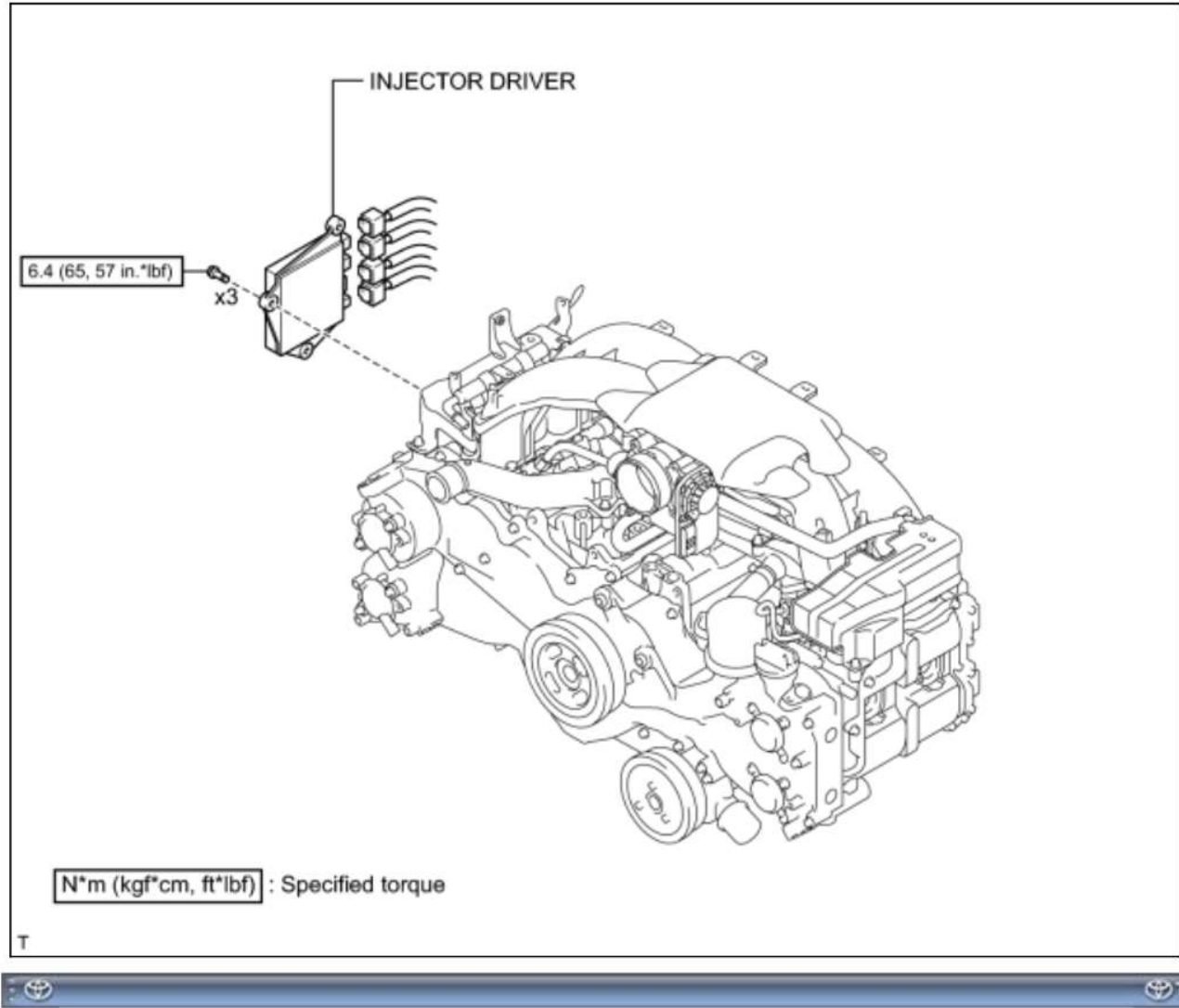
(a) Remove the 10 No. 1 fuel tank cushions shown in the illustration.



Last Modified: 4-14-2014	6.6 K	Doc ID: RM000000VIO02JX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: INJECTOR DRIVER: COMPONENTS; 2013 MY FR-S [03/2012 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000VIN02UX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: INJECTOR DRIVER: INSTALLATION; 2013 MY FR-S [03/2012 -]		

INSTALLATION

1. INSTALL INJECTOR DRIVER

NOTICE:

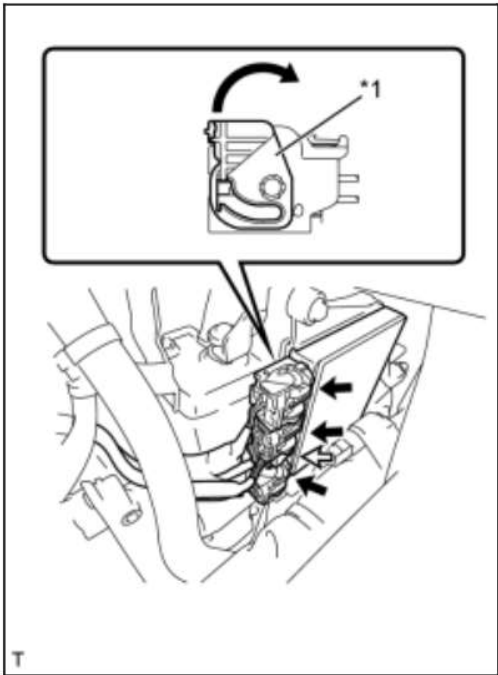
- Be careful not to drop or strike the injector driver.
- The injector driver is grounded at the bolt and the nut. To ensure that it is grounded, clean all oil and foreign matter from the installation areas of the injector driver and engine before installing the injector driver.

(a) Install the injector driver with the 3 bolts.

Torque:

6.4 N·m { 65 kgf·cm, 57in·lbf }

(b) Connect the 4 connectors to the injector driver. Move the lock levers in the direction indicated by the arrow to lock the 3 connectors.



Text in Illustration

*1	Lock Lever
➡	Lock with Connector
➡	Normal Connector

2. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

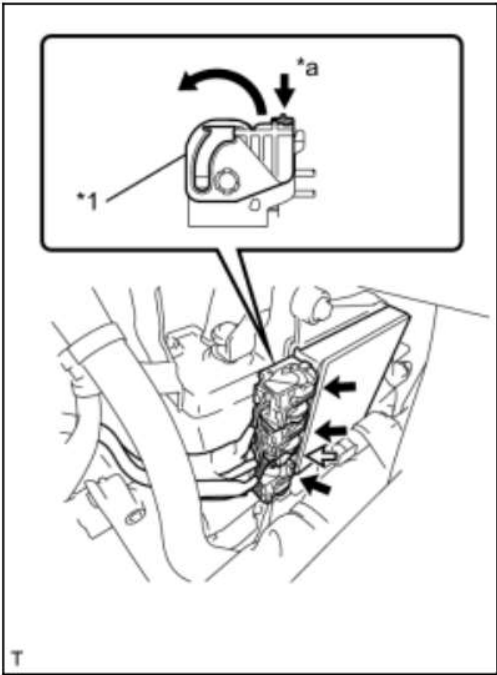
INFO

Last Modified: 4-14-2014	6.6 A	Doc ID: RM000000VIP02SX
Model Year: 2013	Model: FR-S	Prod Date Range: [03/2012 -]
Title: FA20 FUEL: INJECTOR DRIVER: REMOVAL; 2013 MY FR-S [03/2012 -]		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL INFO
2. REMOVE INJECTOR DRIVER

(a) Move the lock levers in the direction indicated by the arrow to release the 3 connector locks. Disconnect the 4 connectors from the injector driver.



Text in Illustration

*1	Lock Lever
*a	Release
	Lock with Connector
	Normal Connector

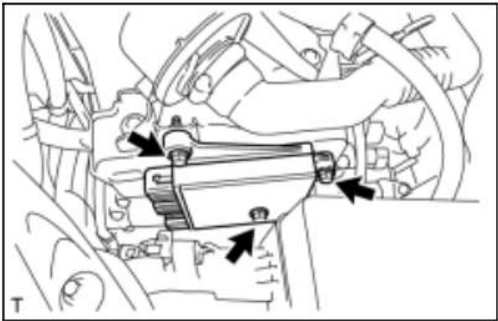
- (b) Remove the 3 bolts and injector driver.

NOTICE:

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Be careful not to drop or strike the injector driver.



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