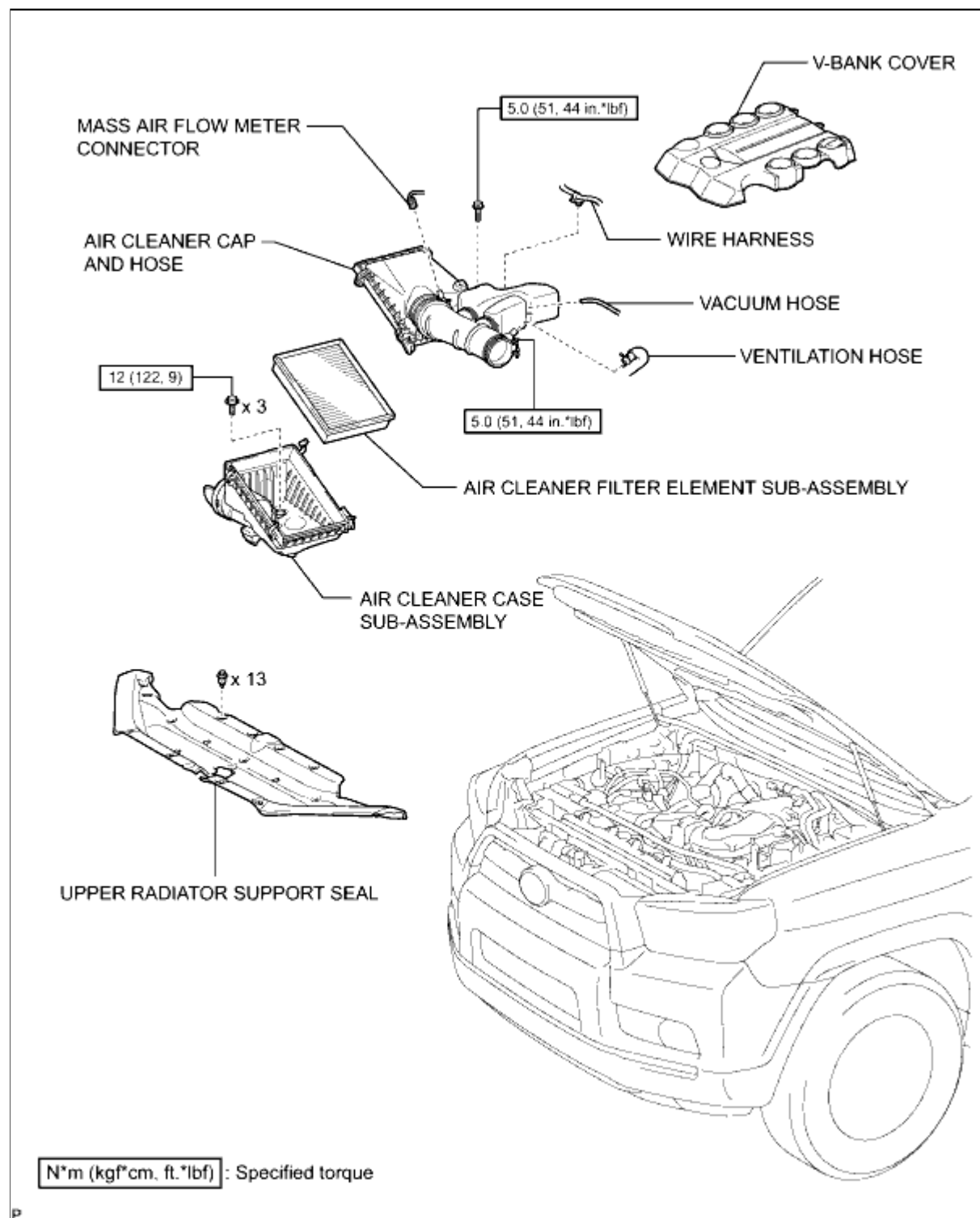


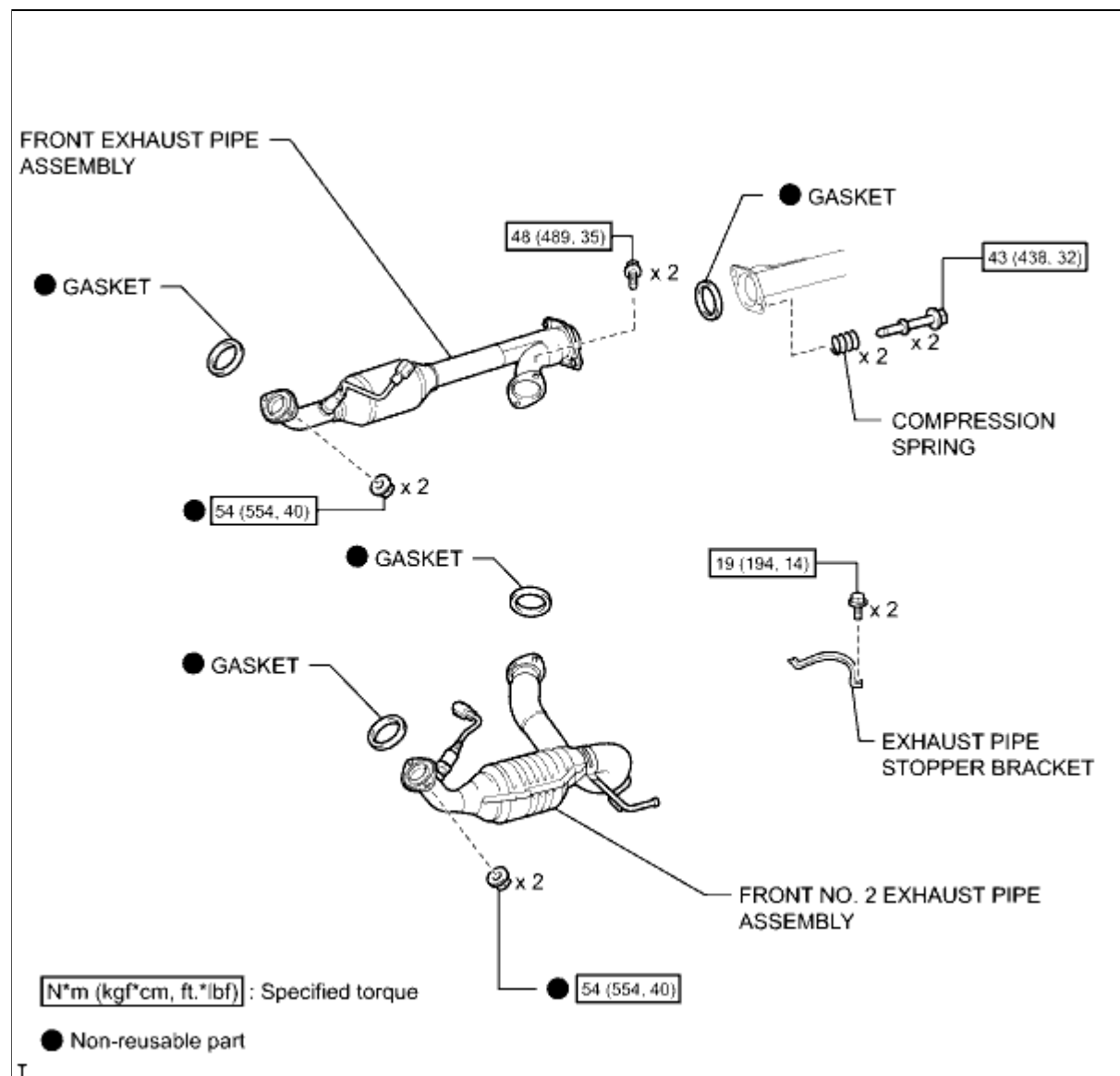
<b>Last Modified:</b> 5-10-2010	<b>6.4 K</b>	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM00000456F001X
<b>Title:</b> 1GR-FE INTAKE / EXHAUST: EXHAUST MANIFOLD: COMPONENTS (2010 4Runner)		

## COMPONENTS

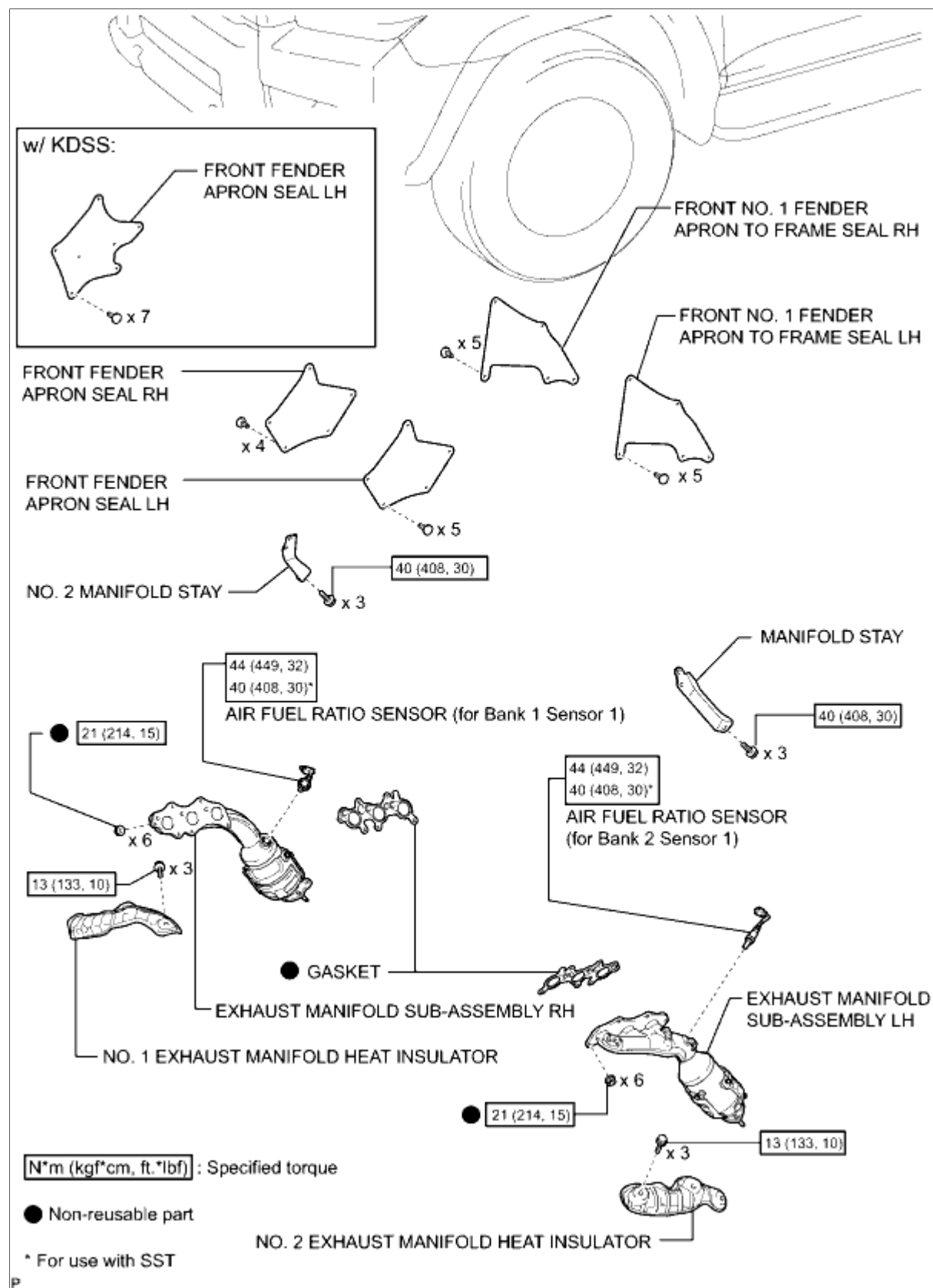
## ILLUSTRATION



## ILLUSTRATION



## ILLUSTRATION



<b>Last Modified:</b> 5-10-2010	6.4 A	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM00000456G001X
<b>Title:</b> 1GR-FE INTAKE / EXHAUST: EXHAUST MANIFOLD: REMOVAL (2010 4Runner)		

## REMOVAL

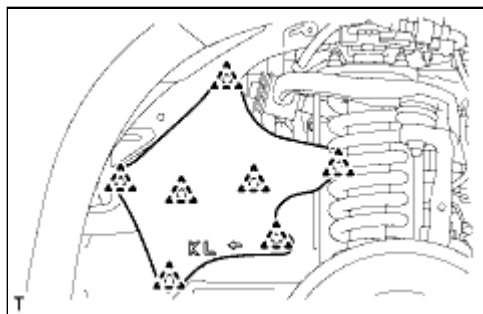
### 1. REMOVE UPPER RADIATOR SUPPORT SEAL

### 2. REMOVE V-BANK COVER

### 3. REMOVE AIR CLEANER CAP AND HOSE

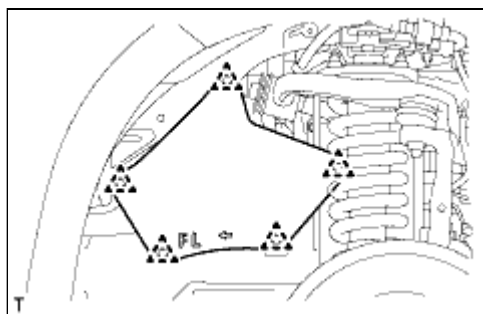
### 4. REMOVE AIR CLEANER CASE SUB-ASSEMBLY

### 5. REMOVE FRONT FENDER APRON SEAL LH



(a) w/ KDSS:

Remove the 7 clips and fender apron seal.

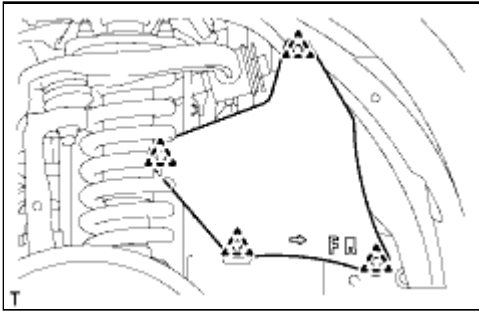


(b) w/o KDSS:

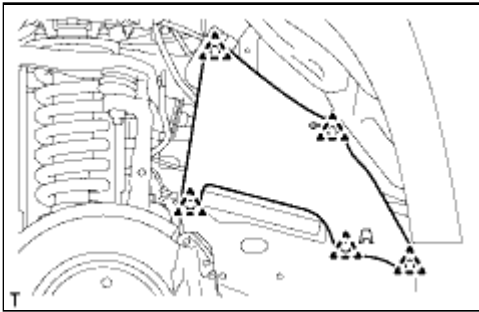
Remove the 5 clips and fender apron seal.

### 6. REMOVE FRONT FENDER APRON SEAL RH

(a) Remove the 4 clips and fender apron seal.

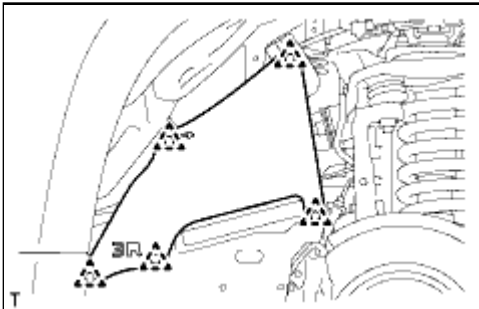


## 7. REMOVE FRONT NO. 1 FENDER APRON TO FRAME SEAL LH



(a) Remove the 5 clips and frame seal.

## 8. REMOVE FRONT NO. 1 FENDER APRON TO FRAME SEAL RH



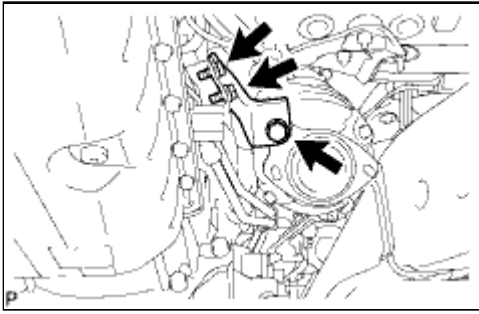
(a) Remove the 5 clips and fender apron seal.

## 9. REMOVE FRONT EXHAUST PIPE ASSEMBLY

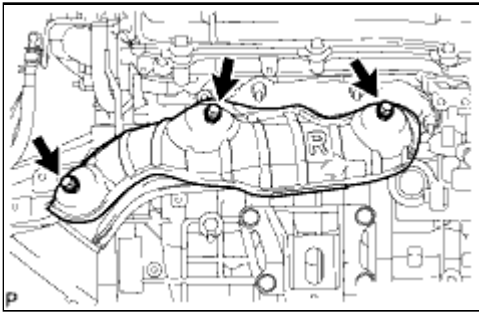
(a) Remove the front exhaust pipe [INFO](#) .

## 10. REMOVE MANIFOLD STAY

(a) Remove the 3 bolts and manifold stay.

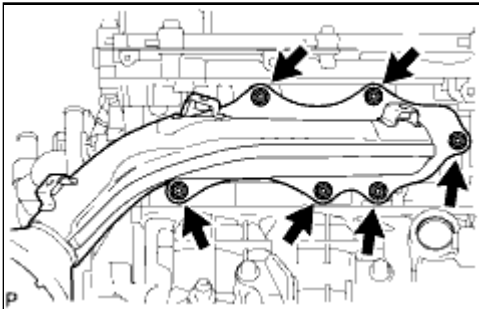


## 11. REMOVE NO. 1 EXHAUST MANIFOLD HEAT INSULATOR



(a) Remove the 3 bolts and heat insulator.

## 12. REMOVE EXHAUST MANIFOLD SUB-ASSEMBLY RH



(a) Disconnect the air fuel ratio sensor connector.

(b) Remove the 6 nuts, manifold and gasket.

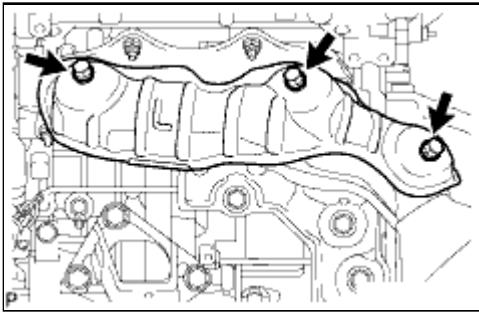
## 13. REMOVE AIR FUEL RATIO SENSOR (for Bank 1 Sensor 1)

## 14. REMOVE NO. 2 MANIFOLD STAY

(a) Remove the 3 bolts and No. 2 manifold stay.

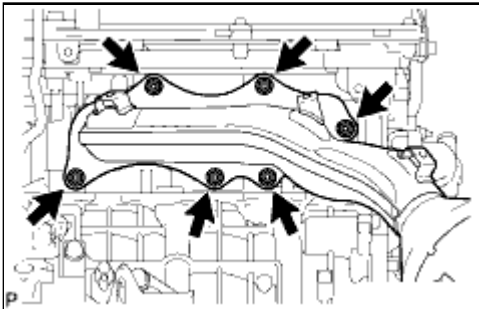


## 15. REMOVE NO. 2 EXHAUST MANIFOLD HEAT INSULATOR



(a) Remove the 3 bolts and heat insulator.

## 16. REMOVE EXHAUST MANIFOLD SUB-ASSEMBLY LH



(a) Disconnect the air fuel ratio sensor connector.

(b) Remove the 6 nuts, manifold and gasket.

## 17. REMOVE AIR FUEL RATIO SENSOR (for Bank 2 Sensor 1)



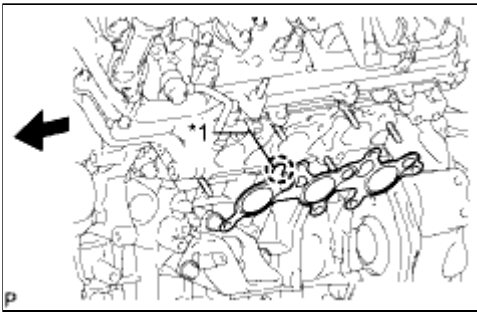
Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM00000456E001X
Title: 1GR-FE INTAKE / EXHAUST: EXHAUST MANIFOLD: INSTALLATION (2010 4Runner)		

# INSTALLATION

## 1. INSTALL AIR FUEL RATIO SENSOR (for Bank 2 Sensor 1) INFO

## 2. INSTALL EXHAUST MANIFOLD SUB-ASSEMBLY LH

(a) Install a new gasket onto the cylinder head.

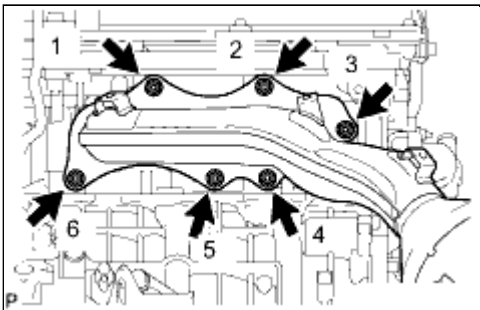


Text in Illustration

* 1	Protrusion
	Front

**NOTICE:**  
Be careful of the installation direction.

(b) Temporarily install the manifold with 6 new nuts.



(c) Tighten the 6 nuts in the sequence shown in the illustration.

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

(d) Connect the air fuel ratio sensor connector.

## 3. INSTALL NO. 2 EXHAUST MANIFOLD HEAT INSULATOR

(a) Install the heat insulator with the 3 bolts.

**Torque: 13 N·m (133 kgf·cm, 10ft·lbf)**



4. INSTALL MANIFOLD STAY

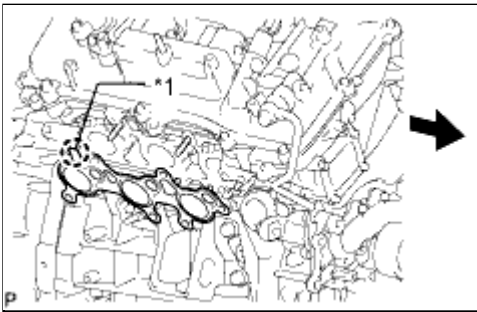
(a) Install the manifold stay with the 3 bolts.

**Torque: 40 N·m (408 kgf·cm, 30ft·lbf)**


5. INSTALL AIR FUEL RATIO SENSOR (for Bank 1 Sensor 1) INFO

6. INSTALL EXHAUST MANIFOLD SUB-ASSEMBLY RH

(a) Install a new gasket onto the cylinder head.

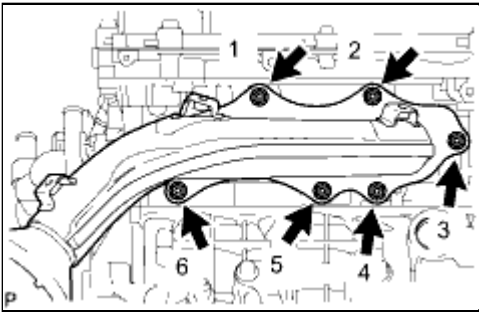


Text in Illustration

* 1	Protrusion
	Front

**NOTICE:**  
Be careful of the installation direction.

(b) Temporarily install the manifold with 6 new nuts.



(c) Tighten the 6 nuts in the sequence shown in the illustration.

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

(d) Connect the air fuel ratio sensor connector.

7. INSTALL NO. 1 EXHAUST MANIFOLD HEAT INSULATOR

(a) Install the heat insulator with the 3 bolts.


**Torque: 13 N·m (133 kgf·cm, 10ft·lbf)**

8. INSTALL NO. 2 MANIFOLD STAY

(a) Install the manifold stay with the 3 bolts.

**Torque: 40 N·m (408 kgf·cm, 30ft·lbf)**

## **9. INSTALL FRONT EXHAUST PIPE ASSEMBLY**

(a) Install the front exhaust pipe .

## **10. INSTALL AIR CLEANER CASE SUB-ASSEMBLY**

## **11. INSTALL AIR CLEANER CAP AND HOSE**

## **12. INSTALL V-BANK COVER**

## **13. INSTALL RADIATOR SUPPORT SEAL UPPER**

## **14. INSPECT FOR EXHAUST GAS LEAK**

## **15. INSTALL FRONT FENDER APRON SEAL LH**

(a) w/ KDSS:

Install the apron seal with the 7 clips.

(b) w/o KDSS:

Install the apron seal with the 4 clips.

## **16. INSTALL FRONT FENDER APRON SEAL RH**

(a) Install the apron seal with the 5 clips.

## **17. INSTALL FRONT NO. 1 FENDER APRON TO FRAME SEAL LH**

(a) Install the frame seal with the 5 clips.

## **18. INSTALL FRONT NO. 1 FENDER APRON TO FRAME SEAL RH**

(a) Install the frame seal with the 5 clips.



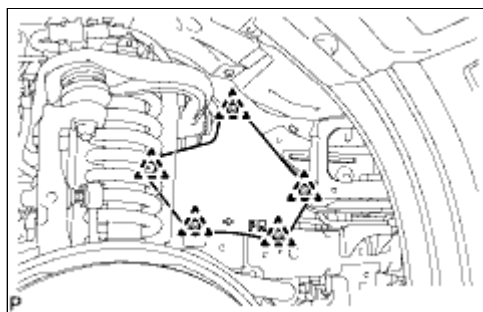




TOYOTA

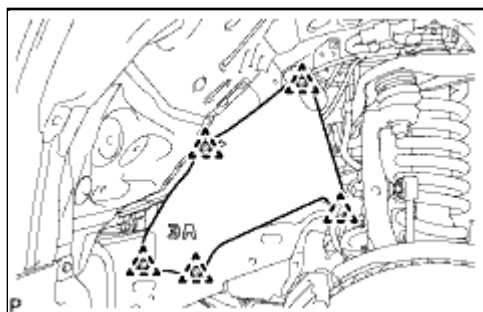
<b>Last Modified:</b> 5-10-2010	6.4 A	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM0000046EQ002X
<b>Title:</b> 2TR-FE INTAKE / EXHAUST: EXHAUST MANIFOLD: REMOVAL (2010 4Runner)		

## REMOVAL



### 1. REMOVE FRONT FENDER APRON SEAL RH

- (a) Remove the 5 clips and front fender apron seal.



### 2. REMOVE FRONT NO. 1 FENDER APRON TO FRAME SEAL RH

- (a) Remove the 5 clips and front fender apron to frame seal.

### 3. REMOVE AIR CLEANER AND HOSE INFO

### 4. REMOVE AIR CLEANER CASE INFO

### 5. DISCONNECT NO. 1 AIR INJECTION SYSTEM HOSE INFO

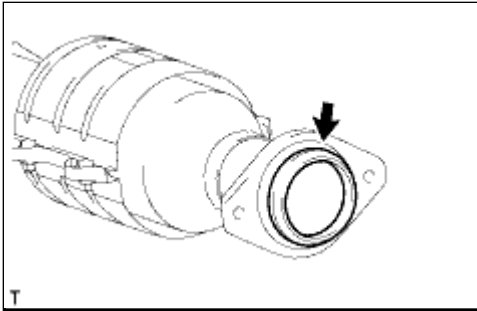
### 6. REMOVE NO. 1 EXHAUST MANIFOLD HEAT INSULATOR INFO

### 7. REMOVE NO. 4 INTAKE PIPE INFO

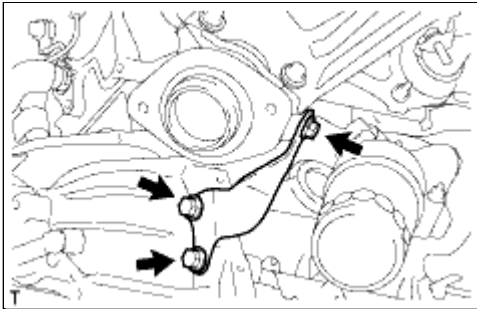
### 8. REMOVE AIR SWITCHING VALVE ASSEMBLY INFO

### 9. REMOVE FRONT EXHAUST PIPE ASSEMBLY

- (a) Disconnect the air fuel ratio sensor connector and detach the wire harness clamp.
- (b) Disconnect the heated oxygen sensor connector.
- (c) Remove the 4 bolts and 4 compression springs.
- (d) Remove the front exhaust pipe from the pipe support.

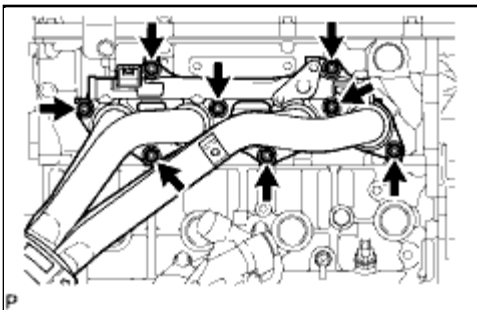


(e) Remove the gasket.



## 10. REMOVE MANIFOLD STAY

(a) Remove the 3 bolts and manifold stay.



## 11. REMOVE EXHAUST MANIFOLD

(a) Remove the 8 nuts and exhaust manifold.

(b) Remove the 2 gaskets.



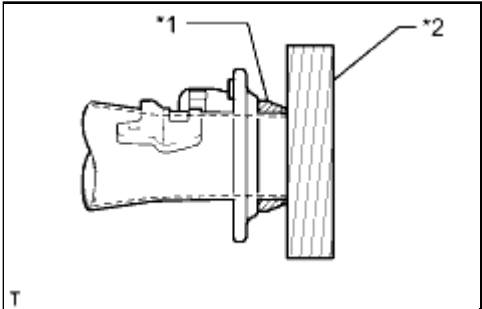
Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM0000046EO002X
Title: 2TR-FE INTAKE / EXHAUST: EXHAUST MANIFOLD: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL EXHAUST MANIFOLD

(a) Using a plastic-faced hammer and wooden block, tap in a new gasket until its surface is flush with the exhaust manifold.

Text in Illustration

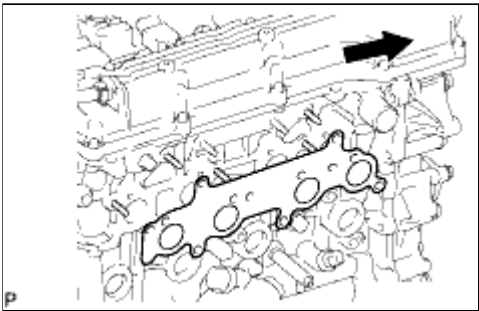


*1	Gasket
*2	Wooden Block

NOTICE:

- Be sure to install the gasket so that it faces the correct direction.
- Do not reuse the gasket.
- Do not damage the gasket.
- When connecting the exhaust pipe, do not push in the gasket with the exhaust pipe.

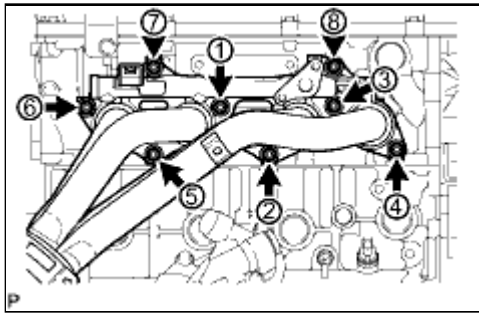
(b) Install a new gasket as shown in the illustration.



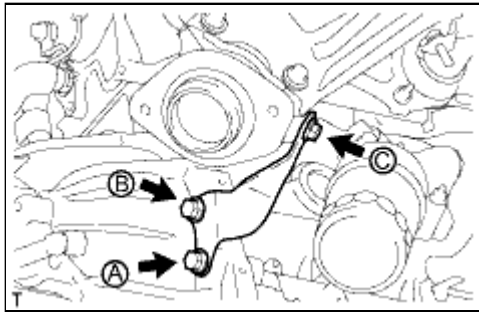
Text in Illustration

	Front
---	-------

(c) Install the exhaust manifold with 8 new nuts in the order shown in the illustration.



**Torque: 36 N·m (367 kgf·cm, 27ft·lbf)**



## 2. INSTALL MANIFOLD STAY

(a) Install the manifold stay with the 3 bolts.

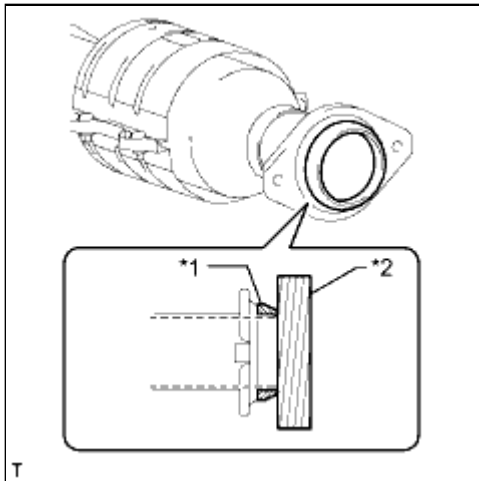
**for bolt A - Torque: 71 N·m (724 kgf·cm, 52ft·lbf)**

**for bolt B - Torque: 44 N·m (449 kgf·cm, 32ft·lbf)**

**for bolt C - Torque: 30 N·m (306 kgf·cm, 22ft·lbf)**

## 3. INSTALL FRONT EXHAUST PIPE ASSEMBLY

(a) Using a plastic-faced hammer and wooden block, tap in a new gasket until its surface is flush with the front exhaust pipe.



### Text in Illustration

*1	Gasket
*2	Wooden Block

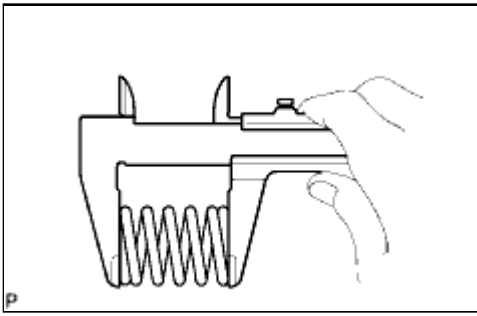
### NOTICE:

- Be sure to install the gasket so that it faces the correct direction.
- Do not reuse the gasket.
- Do not damage the gasket.
- When connecting the exhaust pipe, do not push in the gasket with the exhaust pipe.

(b) Using a vernier caliper, measure the free length of the compression spring.

Minimum free length:





42 mm (1.65 in.)

If the free length is less than the minimum, replace the compression spring.

(c) Install the front exhaust pipe to the pipe support.

(d) Connect the front exhaust pipe to the exhaust manifold with the 2 compression springs and 2 bolts. Alternately tighten the bolts in several passes.

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

(e) Connect the front exhaust pipe to the center exhaust pipe with the 2 compression springs and 2 bolts. Alternately tighten the bolts in several passes.

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

(f) Connect the air fuel ratio sensor connector and attach the wire harness clamp.

(g) Connect the heated oxygen sensor connector.

#### 4. INSTALL AIR SWITCHING VALVE ASSEMBLY INFO

#### 5. INSTALL NO. 4 INTAKE PIPE INFO

#### 6. INSTALL NO. 1 EXHAUST MANIFOLD HEAT INSULATOR INFO

#### 7. CONNECT NO. 1 AIR INJECTION SYSTEM HOSE INFO

#### 8. INSTALL AIR CLEANER CASE INFO

#### 9. INSTALL AIR CLEANER AND HOSE INFO

#### 10. CHECK FOR EXHAUST GAS LEAK INFO

#### 11. INSTALL FRONT NO. 1 FENDER APRON TO FRAME SEAL RH

(a) Install the front fender apron to frame seal with the 5 clips.

#### 12. INSTALL FRONT FENDER APRON SEAL RH

(a) Install the front fender apron seal with the 5 clips.

#### 13. INSPECT FOR EXHAUST GAS LEAK INFO

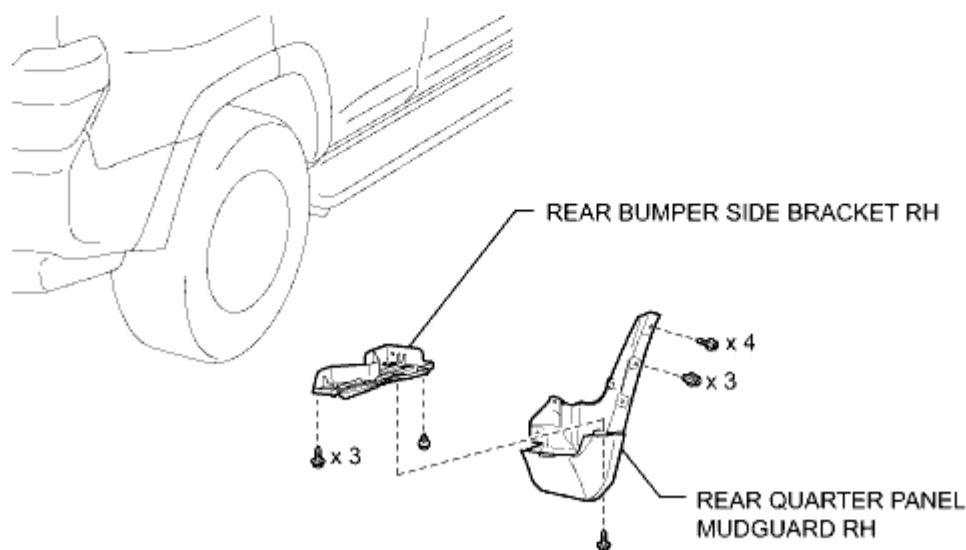
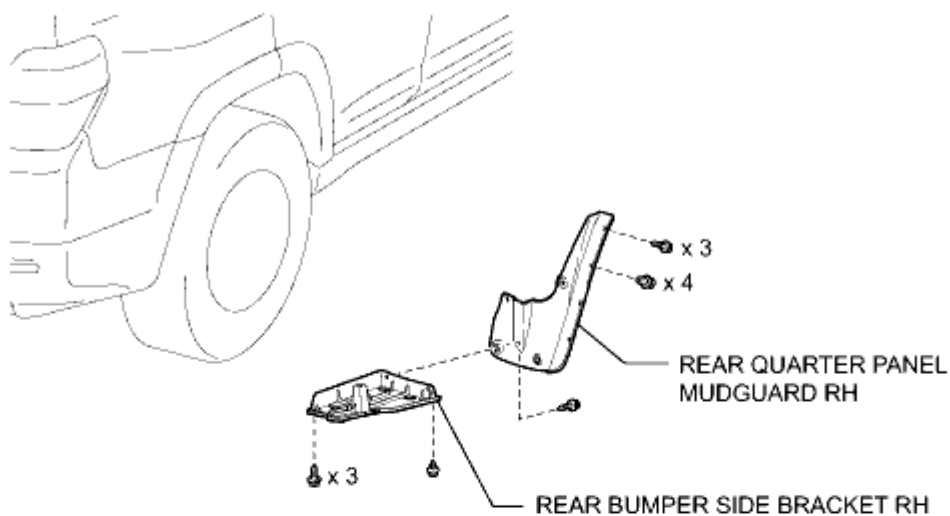


<b>Last Modified:</b> 5-10-2010	6.4 K	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM00000456I001X
<b>Title:</b> 1GR-FE INTAKE / EXHAUST: EXHAUST PIPE: COMPONENTS (2010 4Runner)		

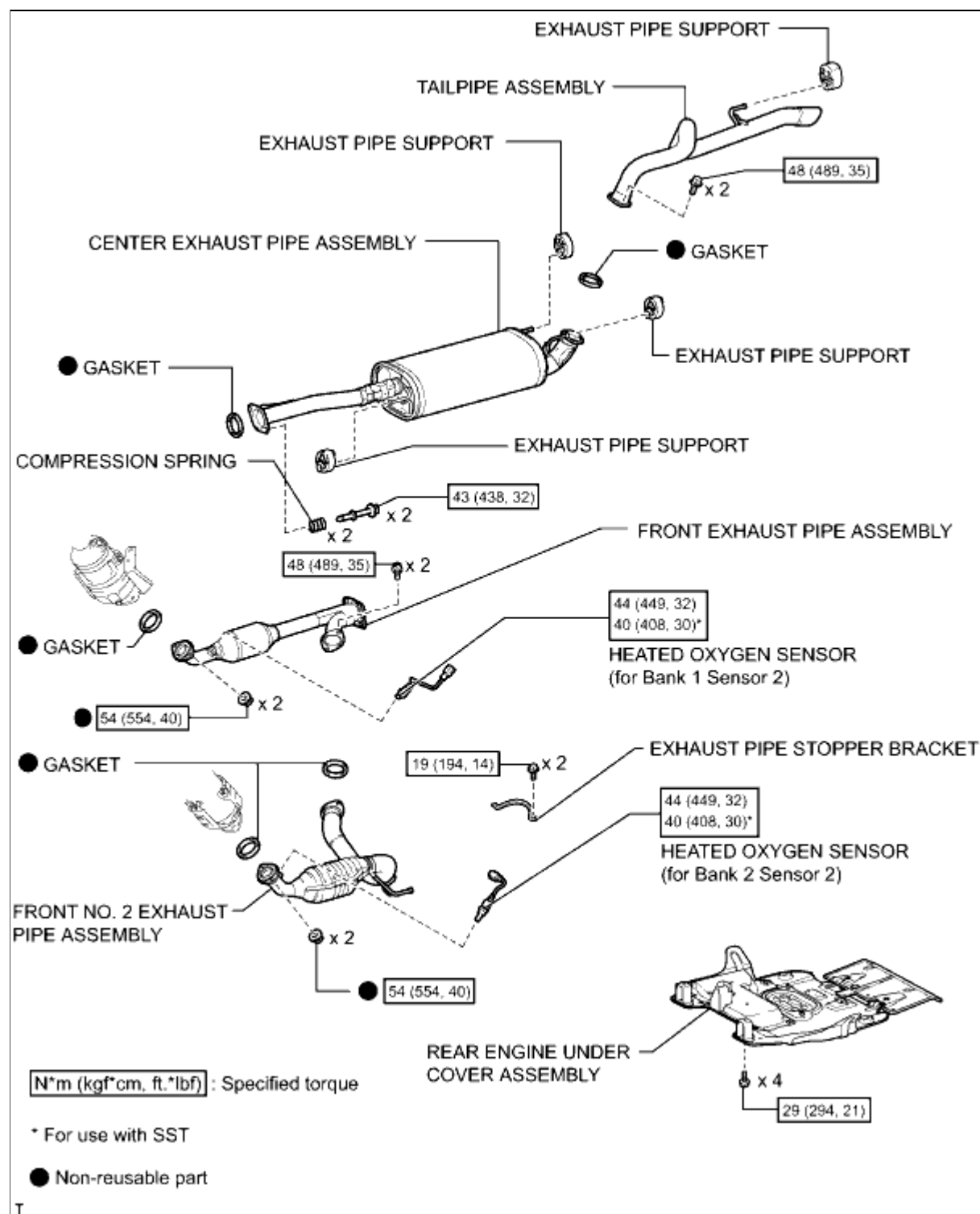
## COMPONENTS

## ILLUSTRATION

for X-RUNNER:



## ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM00000456J001X
Title: 1GR-FE INTAKE / EXHAUST: EXHAUST PIPE: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE REAR ENGINE UNDER COVER ASSEMBLY INFO

2. REMOVE REAR QUARTER PANEL MUDGUARD RH (for X-Runner)

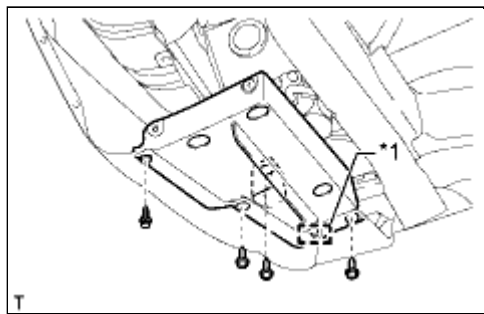
(a) Remove the 4 clips, 4 screws and rear quarter panel mudguard.

3. REMOVE REAR QUARTER PANEL MUDGUARD RH

(a) Remove the 3 clips, 5 screws and rear quarter panel mudguard.

4. REMOVE REAR BUMPER SIDE BRACKET RH

(a) for X-Runner:



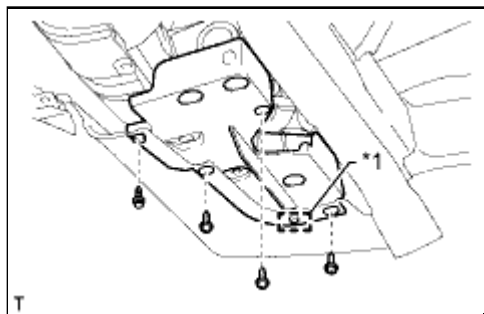
(1) Remove the clip and 3 screws.

(2) Detach the guide and remove the rear bumper side bracket.

Text in Illustration

* 1	Guide
-----	-------

(b) except X-Runner:



(1) Remove the clip and 3 screws.

(2) Detach the guide and remove the rear bumper side bracket.

## 5. REMOVE TAILPIPE ASSEMBLY

- (a) Remove the 2 bolts and disconnect the tailpipe from the exhaust pipe support.
- (b) Remove the gasket and exhaust pipe support.

## 6. REMOVE CENTER EXHAUST PIPE ASSEMBLY

- (a) Remove the 2 bolts and 2 compression springs, and then disconnect the center exhaust pipe from the 3 exhaust pipe supports.
- (b) Remove the gasket.

## 7. REMOVE FRONT EXHAUST PIPE ASSEMBLY

- (a) Disconnect the heated oxygen sensor connector.
- (b) Remove the 2 nuts and front exhaust pipe.
- (c) Remove the gasket.

## 8. REMOVE EXHAUST PIPE STOPPER BRACKET

- (a) Remove the 2 bolts and stopper bracket.

## 9. REMOVE FRONT NO. 2 EXHAUST PIPE ASSEMBLY

- (a) Disconnect the heated oxygen sensor connector.
- (b) Remove the 2 nuts and front exhaust pipe.
- (c) Remove the gasket.

## 10. REMOVE HEATED OXYGEN SENSOR (for Bank 1 Sensor 2)



## 11. REMOVE HEATED OXYGEN SENSOR (for Bank 2 Sensor 2)



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<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM00000456H001X
<b>Title:</b> 1GR-FE INTAKE / EXHAUST: EXHAUST PIPE: INSTALLATION (2010 4Runner)		

## INSTALLATION

### 1. INSTALL HEATED OXYGEN SENSOR (for Bank 1 Sensor 2)



### 2. INSTALL HEATED OXYGEN SENSOR (for Bank 2 Sensor 2)



### 3. INSTALL FRONT NO. 2 EXHAUST PIPE ASSEMBLY

- (a) Install 2 new gaskets and the No. 2 front exhaust pipe to the exhaust manifold with 2 new nuts.

**Torque: 54 N·m (554 kgf·cm, 40ft·lbf)**

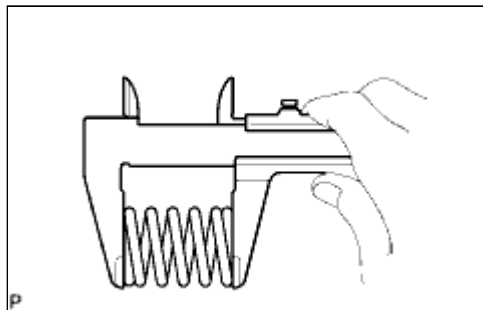
- (b) Connect the heated oxygen sensor connector.

### 4. INSTALL EXHAUST PIPE STOPPER BRACKET

- (a) Install the stopper bracket with the 2 bolts.

**Torque: 19 N·m (194 kgf·cm, 14ft·lbf)**

### 5. INSTALL FRONT EXHAUST PIPE ASSEMBLY



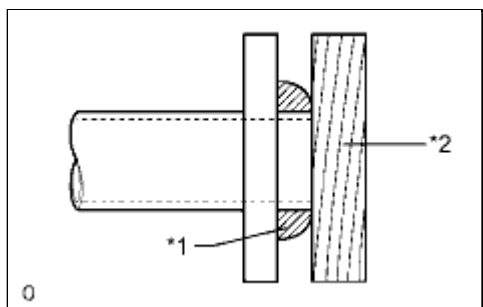
- (a) Using a vernier caliper, measure the free length of the compression spring.

Minimum free length:

43 mm (1.69 in.)

If the free length is less than the minimum, replace the compression spring.

- (b) Using a plastic-faced hammer and wooden block, tap in a new gasket until its surface is flush with the front exhaust pipe.



### Text in Illustration

*1	Gasket
*2	Wooden Block

#### NOTICE:

- Be sure to install the gasket so that it faces the correct direction.
- Do not reuse the gasket.

- Do not damage the gasket.
- When connecting the exhaust pipe, do not push in the gasket with the exhaust pipe.

(c) Install a new gasket and the front exhaust pipe to the exhaust manifold with 2 new nuts.

**Torque: 54 N·m (554 kgf·cm, 40ft·lbf)**

(d) Connect the front exhaust pipe to the front No. 2 exhaust pipe with the 2 bolts.

**Torque: 48 N·m (489 kgf·cm, 35ft·lbf)**

(e) Connect the heated oxygen sensor connector.

## 6. INSTALL CENTER EXHAUST PIPE ASSEMBLY

(a) Connect the center exhaust pipe to the 3 exhaust pipe supports.

(b) Install the center exhaust pipe with the 2 compression springs and 2 bolts.

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

## 7. INSTALL TAILPIPE ASSEMBLY

(a) Install the tailpipe to the exhaust pipe support.

(b) Set a new gasket to the center exhaust pipe.

(c) Install the 2 bolts.

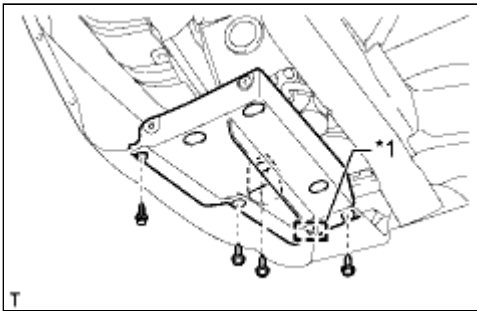
**Torque: 48 N·m (489 kgf·cm, 35ft·lbf)**

## 8. INSPECT FOR EXHAUST GAS LEAK

If gas is leaking, tighten the areas necessary to stop the leak. Replace damaged parts as necessary.

## 9. INSTALL REAR BUMPER SIDE BRACKET RH

(a) for X-Runner:



(1) Attach the guide and install the rear bumper side bracket with the 3 screws and clip.

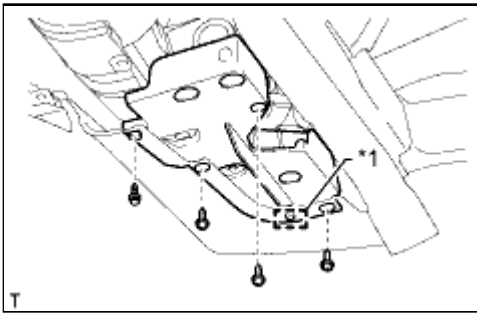
### Text in Illustration

* 1	Guide
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(b) except X-Runner:

(1) Attach the guide and install the rear bumper side bracket with the 3 screws and clip.

### Text in Illustration



\*1

Guide

## 10. INSTALL REAR QUARTER PANEL MUDGUARD RH (for X-Runner)

(a) Install the rear quarter panel mudguard with the 4 screws and 4 clips.

## 11. INSTALL REAR QUARTER PANEL MUDGUARD RH

(a) Install the rear quarter panel mudguard with the 5 screws and 3 clips.

## 12. INSTALL REAR ENGINE UNDER COVER ASSEMBLY

INFO



TOYOTA

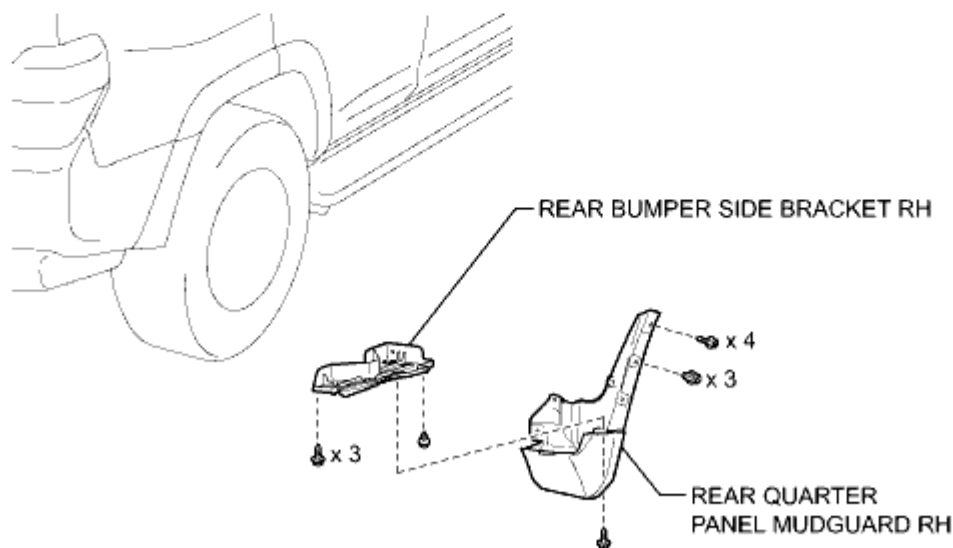
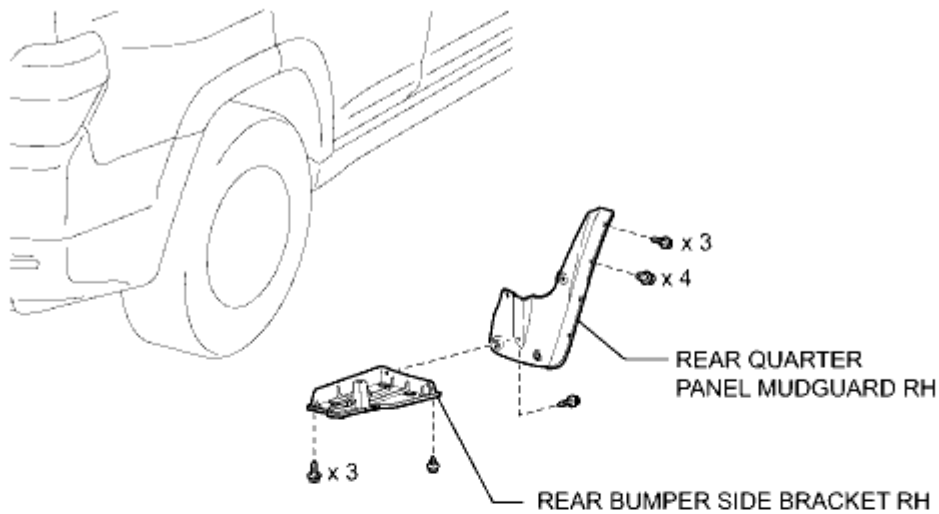


<b>Last Modified:</b> 5-10-2010	6.4 K	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM0000046ES002X
<b>Title:</b> 2TR-FE INTAKE / EXHAUST: EXHAUST PIPE: COMPONENTS (2010 4Runner)		

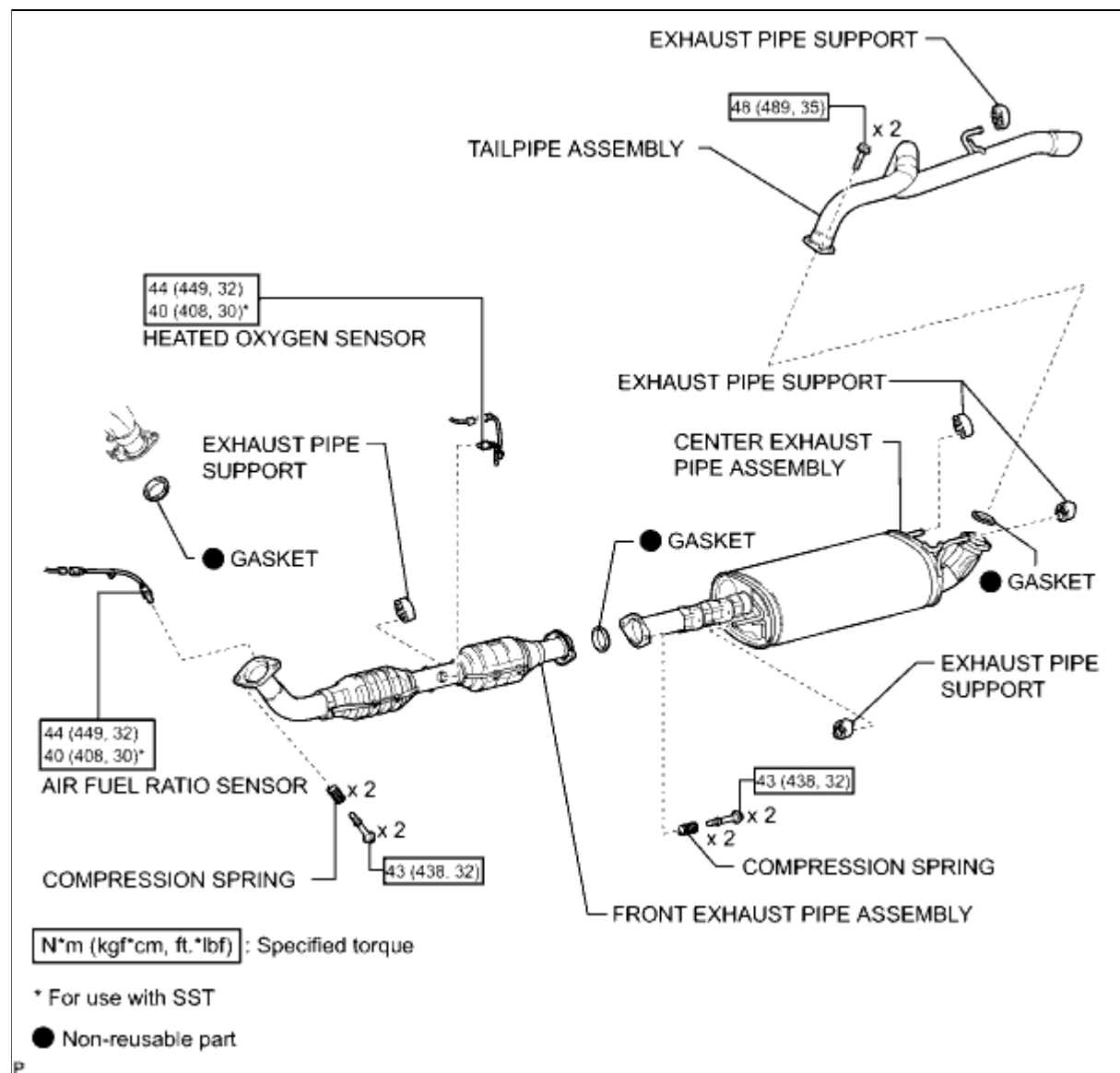
## COMPONENTS

## ILLUSTRATION

for X-Runner:



## ILLUSTRATION



<b>Last Modified:</b> 5-10-2010	6.4 A	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM0000046ET002X
<b>Title:</b> 2TR-FE INTAKE / EXHAUST: EXHAUST PIPE: REMOVAL (2010 4Runner)		

**REMOVAL**

**CAUTION:**

- Wear protective gloves when removing the exhaust pipe.
- The exhaust pipe is extremely hot immediately after the engine has stopped.
- Confirm that the exhaust pipe has cooled down before removing it.

**1. REMOVE REAR QUARTER PANEL MUDGUARD RH (for X-Runner)**

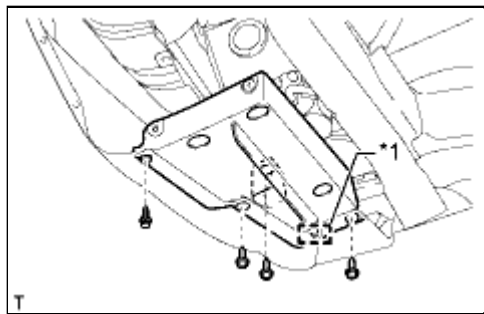
(a) Remove the 4 clips, 4 screws and rear quarter panel mudguard.

**2. REMOVE REAR QUARTER PANEL MUDGUARD RH**

(a) Remove the 3 clips, 5 screws and rear quarter panel mudguard.

**3. REMOVE REAR BUMPER SIDE BRACKET RH**

(a) for X-Runner:



(1) Remove the clip and 3 screws.

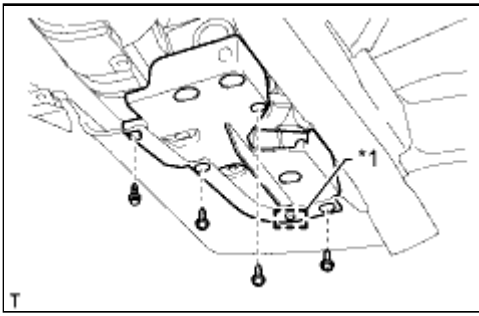
(2) Detach the guide and remove the rear bumper side bracket.

**Text in Illustration**

* 1	Guide
-----	-------

(b) except X-Runner:

(1) Remove the clip and 3 screws.



(2) Detach the guide and remove the rear bumper side bracket.

#### Text in Illustration

* 1	Guide
-----	-------

### 4. REMOVE TAILPIPE ASSEMBLY

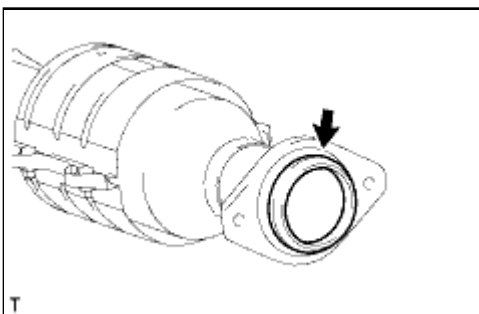
- (a) Remove the 2 bolts and disconnect the tailpipe from the center exhaust pipe.
- (b) Remove the tailpipe from the pipe support.

### 5. REMOVE CENTER EXHAUST PIPE ASSEMBLY

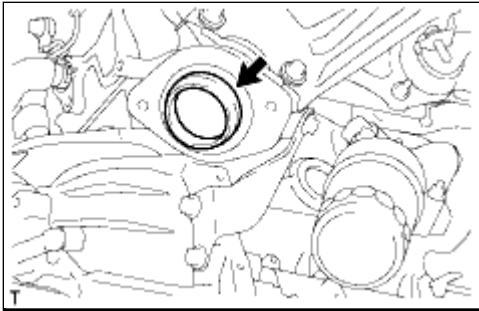
- (a) Remove the 2 bolts and 2 compression springs.
- (b) Disconnect the center exhaust pipe from the front pipe.
- (c) Remove the center exhaust pipe from the 3 pipe supports.
- (d) Remove the gasket.

### 6. REMOVE FRONT EXHAUST PIPE ASSEMBLY

- (a) Disconnect the heated oxygen sensor connector.
- (b) Disconnect the air fuel ratio sensor connector and detach the wire harness clamp.
- (c) Remove the 2 bolts and 2 compression springs.
- (d) Disconnect the front pipe from the exhaust manifold.
- (e) Remove the front exhaust pipe from the pipe support.

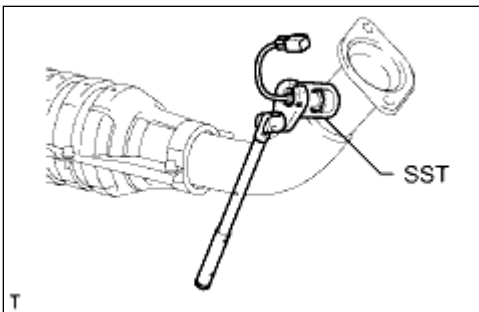


(f) Remove the gasket from the front exhaust pipe.



(g) Remove the gasket from the exhaust manifold.

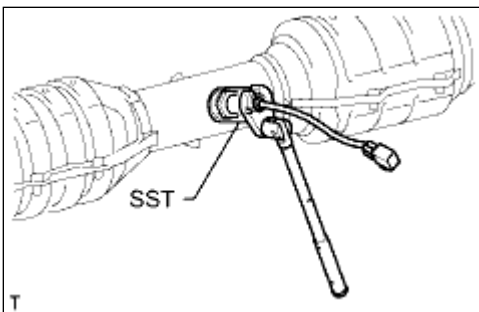
## 7. REMOVE AIR FUEL RATIO SENSOR



(a) Using SST, remove the air fuel ratio sensor.

**SST: 09224-00010**

## 8. REMOVE HEATED OXYGEN SENSOR



(a) Using SST, remove the heated oxygen sensor.

**SST: 09224-00010**



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<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM0000046ER002X
<b>Title:</b> 2TR-FE INTAKE / EXHAUST: EXHAUST PIPE: INSTALLATION (2010 4Runner)		

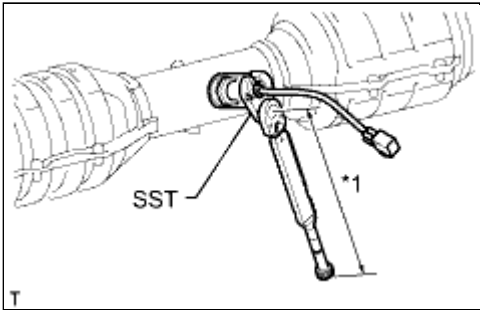
INSTALLATION

1. INSTALL HEATED OXYGEN SENSOR

- (a) Temporarily install the heated oxygen sensor to the front exhaust pipe by hand.
- (b) Using SST, tighten the heated oxygen sensor.

**SST: 09224-00010**  
**without SST - Torque: 44 N·m (449 kgf·cm, 32ft·lbf)**  
**with SST - Torque: 40 N·m (408 kgf·cm, 30ft·lbf)**

Text in Illustration



* 1	Fulcrum Length
-----	----------------

HINT:

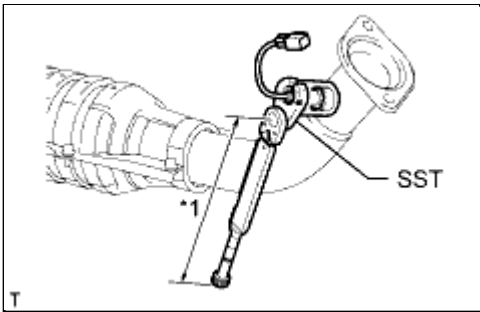
- Use a torque wrench with a fulcrum length of 30 cm (11.8 in.). When using a torque wrench with a fulcrum length that is not 30 cm (11.8 in.), calculate the torque specification for the torque wrench and SST based on the "without SST" torque specification INFO.
- Make sure SST and the wrench are connected in a straight line.

2. INSTALL AIR FUEL RATIO SENSOR

- (a) Temporarily install the air fuel ratio sensor to the front exhaust pipe by hand.
- (b) Using SST, tighten the air fuel ratio sensor.

**SST: 09224-00010**  
**without SST - Torque: 44 N·m (449 kgf·cm, 32ft·lbf)**  
**with SST - Torque: 40 N·m (408 kgf·cm, 30ft·lbf)**

Text in Illustration



* 1	Fulcrum Length
-----	----------------

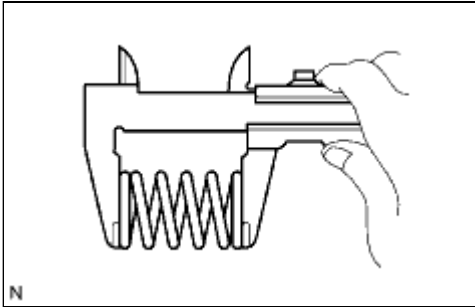
HINT:

- Use a torque wrench with a fulcrum length of 30 cm (11.8

in.). When using a torque wrench with a fulcrum length that is not 30 cm (11.8 in.), calculate the torque specification for the torque wrench and SST based on the "without SST" torque specification INFO.

- Make sure SST and the wrench are connected in a straight line.

### 3. INSTALL FRONT EXHAUST PIPE ASSEMBLY

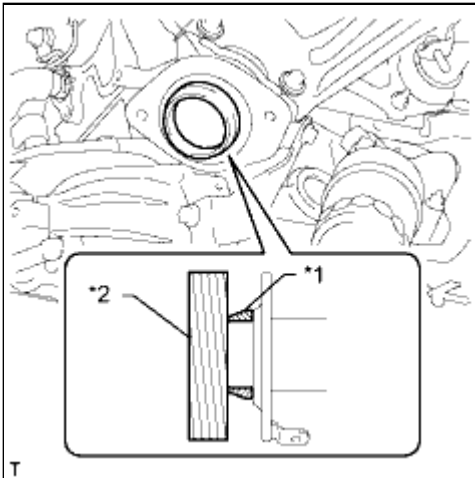


- (a) Using a vernier caliper, measure the free length of the compression spring.

Minimum free length:

42 mm (1.65 in.)

If the length is less than the minimum, replace the compression spring.



- (b) Using a plastic-faced hammer and wooden block, tap in a new gasket until its surface is flush with the exhaust manifold.

#### Text in Illustration

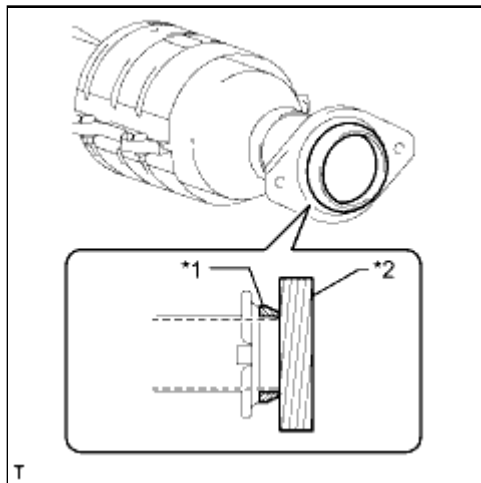
*1	Gasket
*2	Wooden Block

#### NOTICE:

- Be sure to install the gasket so that it faces the correct direction.
- Do not reuse the gasket.
- Do not damage the gasket.
- When connecting the exhaust pipe, do not push in the gasket with the exhaust pipe.

- (c) Using a plastic-faced hammer and wooden block, tap in a new gasket until its surface is flush with the front exhaust pipe.

#### Text in Illustration



*1	Gasket
*2	Wooden Block

**NOTICE:**

- Be sure to install the gasket so that it faces the correct direction.
- Do not reuse the gasket.
- Do not damage the gasket.
- When connecting the exhaust pipe, do not push in the gasket with the exhaust pipe.

(d) Install the front exhaust pipe to the pipe support.

(e) Connect the front exhaust pipe to the exhaust manifold with the 2 compression springs and 2 bolts. Alternately tighten the bolts in several passes.

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

(f) Connect the air fuel ratio sensor connector and attach the wire harness clamp.

(g) Connect the heated oxygen sensor connector.

#### 4. INSTALL CENTER EXHAUST PIPE ASSEMBLY

(a) Using a vernier caliper, measure the free length of the compression spring.

Minimum free length:

42 mm (1.65 in.)

If the length is less than the minimum, replace the compression spring.

(b) Install a new gasket to the center exhaust pipe.

(c) Install the center exhaust pipe to the 3 pipe supports.

(d) Connect the center exhaust pipe to the front exhaust pipe with the 2 compression springs and 2 bolts. Alternately tighten the bolts in several passes.

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

#### 5. INSTALL TAILPIPE ASSEMBLY

(a) Install the tailpipe to the pipe support.

(b) Connect the tailpipe to the center exhaust pipe with the 2 bolts. Alternately tighten the bolts in several passes.

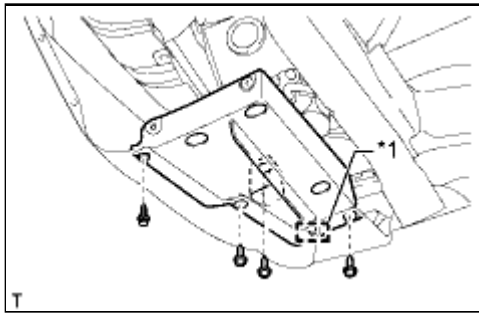
**Torque: 48 N·m (489 kgf·cm, 35ft·lbf)**

#### 6. INSTALL REAR BUMPER SIDE BRACKET RH

(a) for X-Runner:

- (1) Attach the guide and install the rear bumper side bracket with the 3 screws and clip.

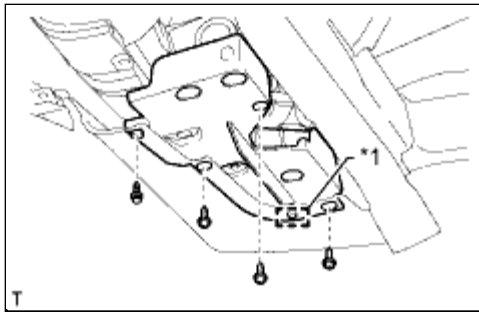




## Text in Illustration

*1	Guide
----	-------

(b) except X-Runner:



(1) Attach the guide and install the rear bumper side bracket with the 3 screws and clip.

## Text in Illustration

*1	Guide
----	-------

### 7. INSTALL REAR QUARTER PANEL MUDGUARD RH (for X-Runner)

(a) Install the rear quarter panel mudguard with the 4 screws and 4 clips.

### 8. INSTALL REAR QUARTER PANEL MUDGUARD RH

(a) all the rear quarter panel mudguard with the 5 screws and 3 clips.

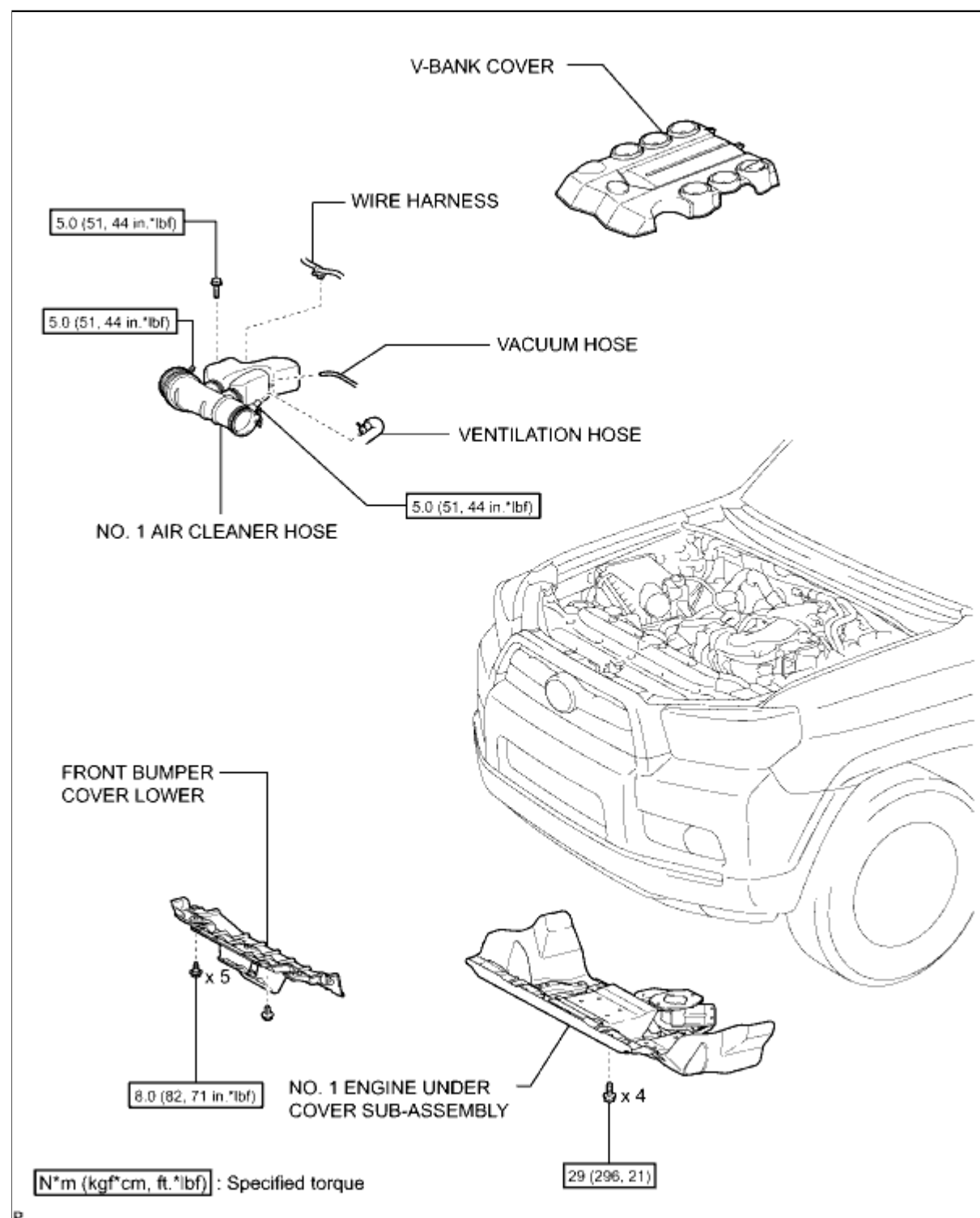
### 9. INSPECT FOR EXHAUST GAS LEAK

If gas is leaking, tighten the areas necessary to stop the leak. Replace damaged parts as necessary.

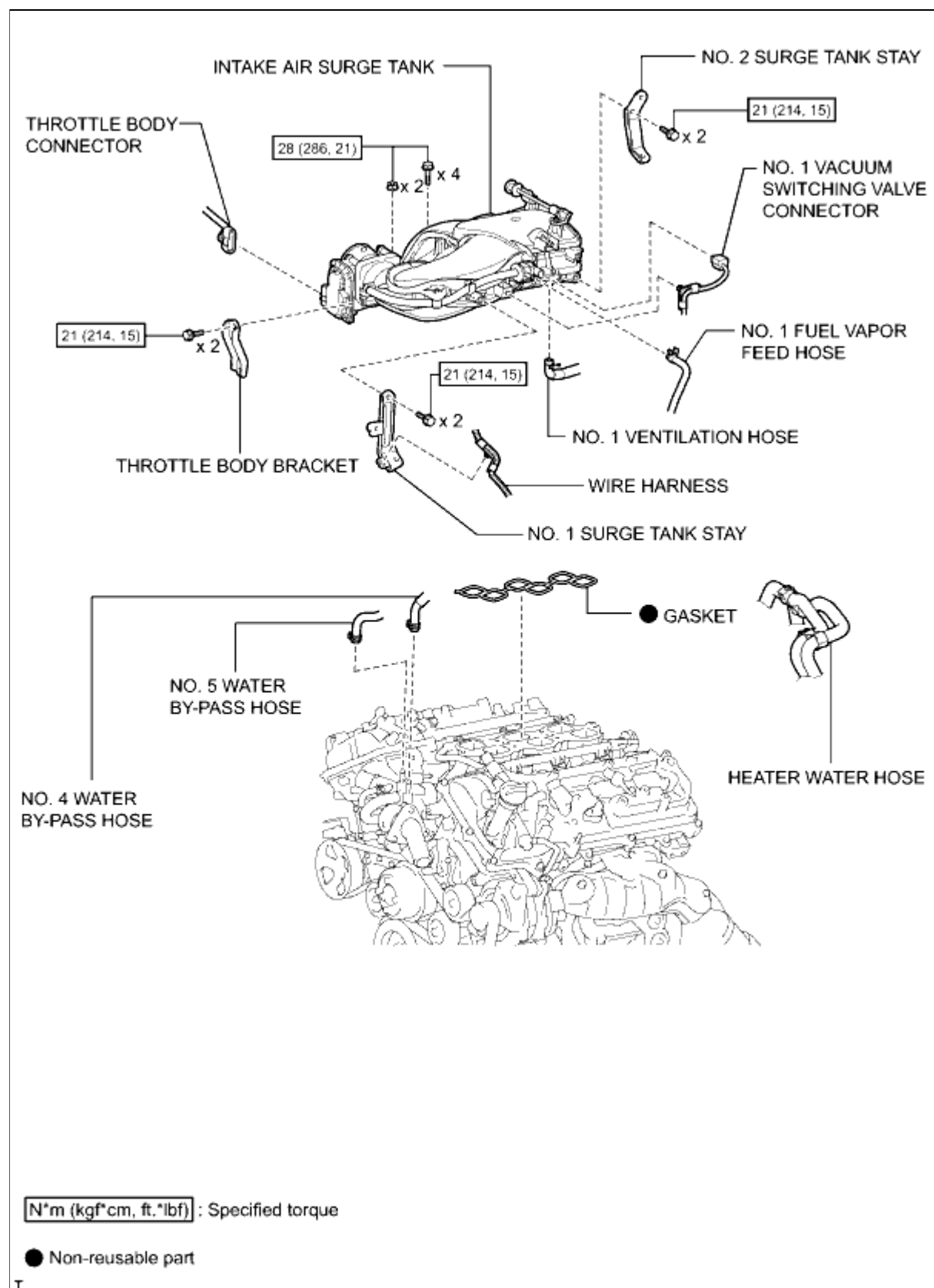
<b>Last Modified:</b> 5-10-2010	6.4 K	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM00000456C001X
<b>Title:</b> 1GR-FE INTAKE / EXHAUST: INTAKE MANIFOLD: COMPONENTS (2010 4Runner)		

## COMPONENTS

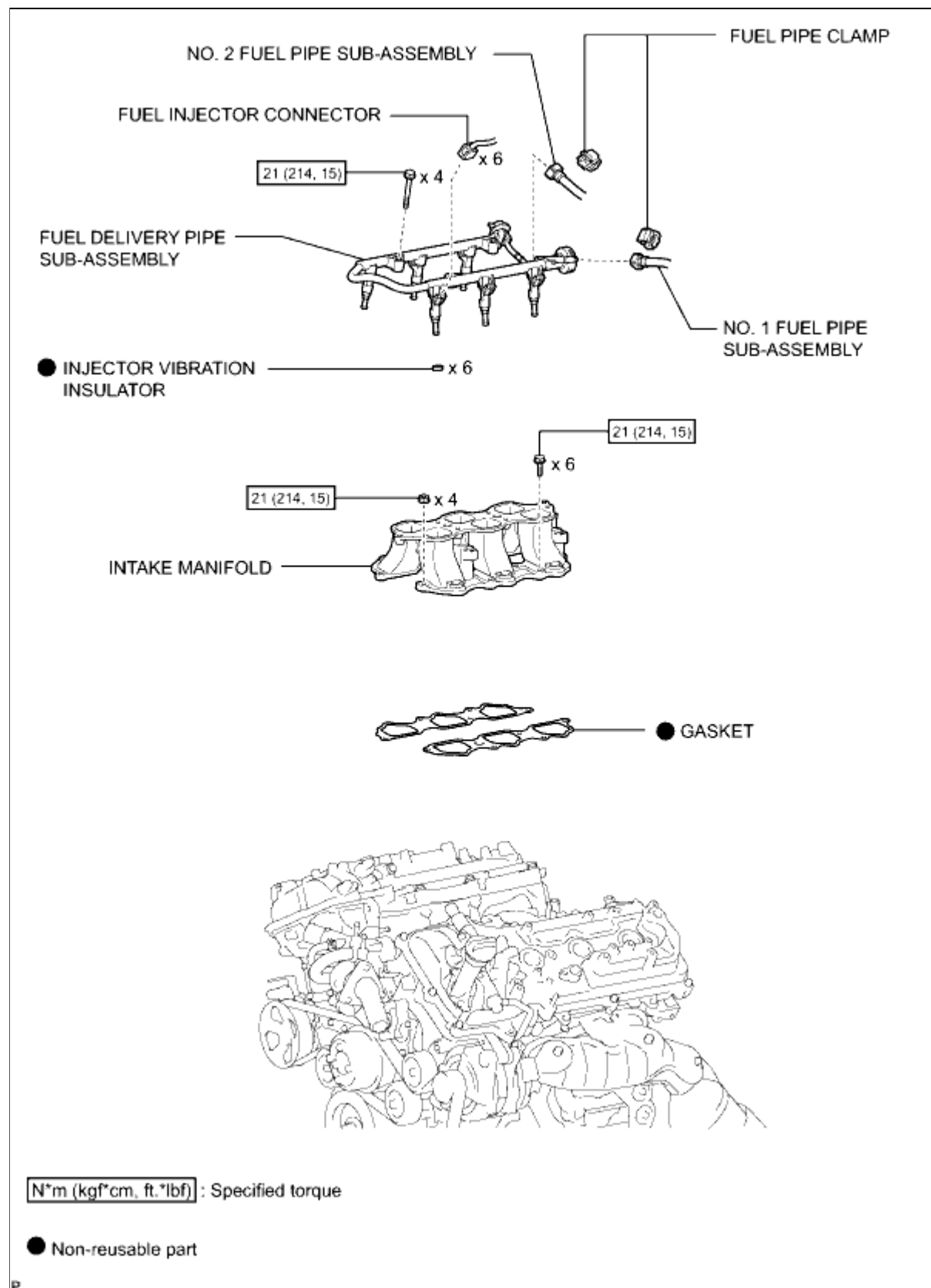
## ILLUSTRATION



## ILLUSTRATION



## ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM00000456D001X
Title: 1GR-FE INTAKE / EXHAUST: INTAKE MANIFOLD: REMOVAL (2010 4Runner)		

# REMOVAL

## 1. DISCHARGE FUEL SYSTEM PRESSURE INFO

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

### NOTICE:

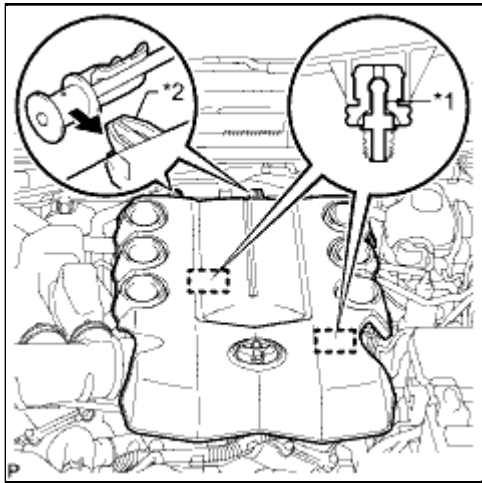
When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO.

## 3. REMOVE FRONT BUMPER COVER LOWER INFO

## 4. REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY INFO

## 5. DRAIN ENGINE COOLANT INFO

## 6. REMOVE V-BANK COVER

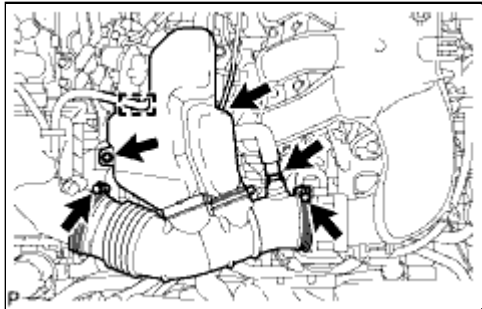


(a) Raise the front of the V-bank cover to detach the 2 pins. Then remove the 2 V-bank cover hooks from the bracket, and remove the V-bank cover.

### Text in Illustration

* 1	Pin
* 2	Hook

## 7. REMOVE NO. 1 AIR CLEANER HOSE



(a) Disconnect the ventilation hose and vacuum hose.

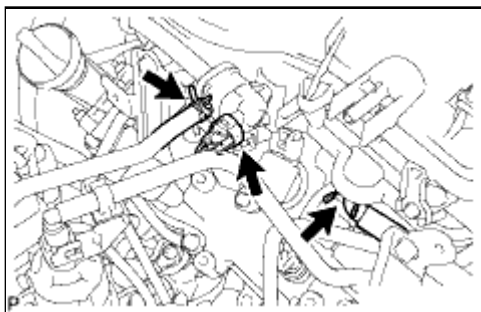
- (b) Detach the wire harness clamp.
- (c) Remove the bolt and loosen the 2 hose clamps.
- (d) Remove the No. 1 air cleaner hose.

## 8. REMOVE INTAKE AIR SURGE TANK



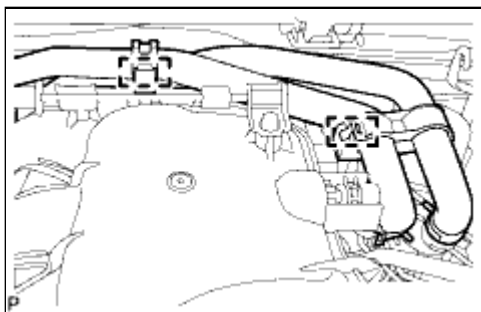
- (a) Disconnect the throttle body connector.

- (b) Disconnect the No. 4 water by-pass hose.
- (c) Disconnect the No. 5 water by-pass hose.



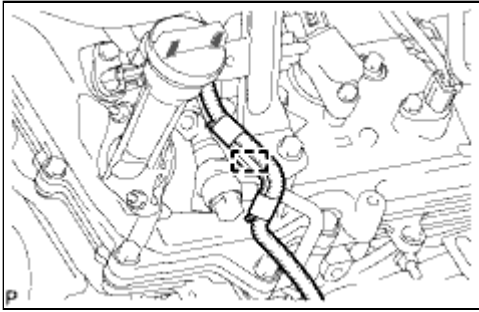
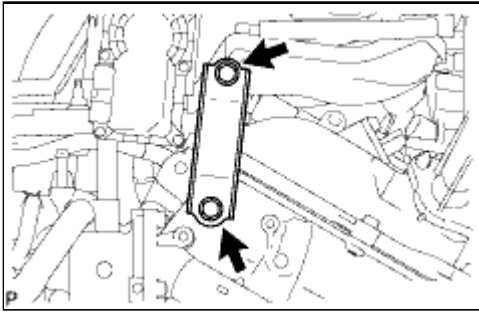
- (d) Disconnect the No. 1 fuel vapor feed hose.

- (e) Disconnect the No. 1 vacuum switching valve connector.
- (f) Disconnect the No. 1 ventilation hose.

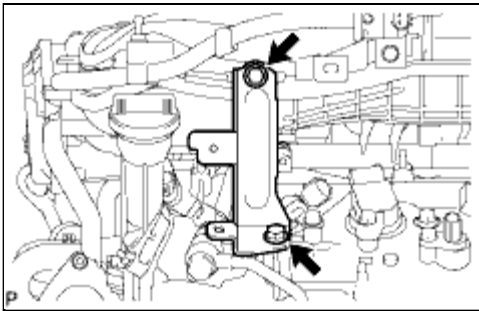


- (g) Detach the 2 heater hose clamps.

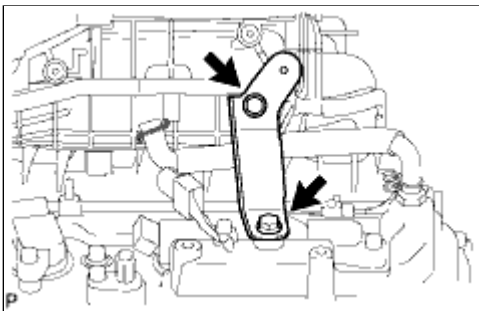
- (h) Remove the 2 bolts and throttle body bracket.



(i) Using a clip remover, detach the wire harness clamp.

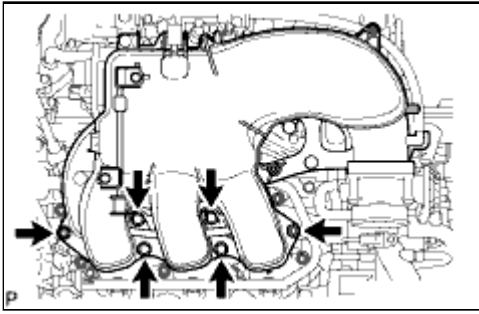


(j) Remove the 2 bolts and No. 1 surge tank stay.



(k) Remove the 2 bolts and No. 2 surge tank stay.

(l) Remove the 2 nuts, 4 bolts and intake air surge tank.

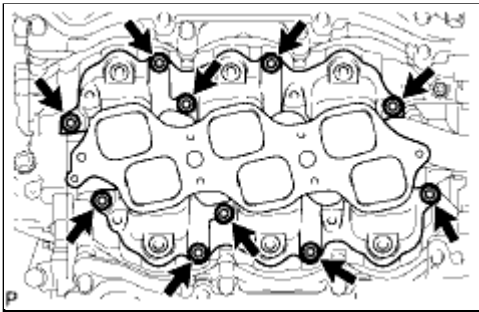


(m) Remove the gasket.

## 9. REMOVE FUEL DELIVERY PIPE SUB-ASSEMBLY



## 10. REMOVE INTAKE MANIFOLD



(a) Remove the 4 nuts, 6 bolts and 2 gaskets.





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<b>Title:</b> 1GR-FE INTAKE / EXHAUST: INTAKE MANIFOLD: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL INTAKE MANIFOLD



(a) Set a new gasket on each cylinder head.

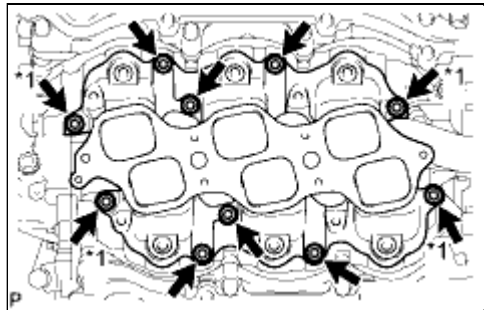
NOTICE:

- Align the port holes of the gasket and cylinder head.
- Be careful of the installation direction.

(b) Set the intake manifold on the cylinder heads.

(c) Install and uniformly tighten the 6 bolts and 4 nuts in several passes.

Torque: 21 N·m (214 kgf·cm, 15ft·lbf)



Text in Illustration

* 1	Nut
-----	-----

HINT:

Tighten the inner installation bolts of the intake manifold before tightening the outer bolts.

2. INSTALL FUEL DELIVERY PIPE SUB-ASSEMBLY



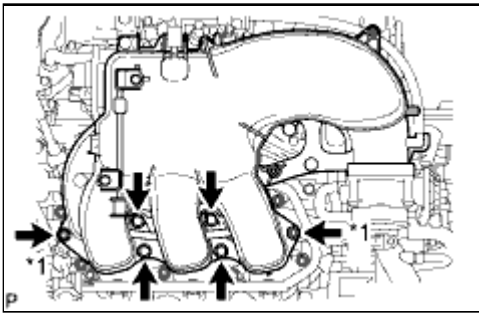
3. INSTALL INTAKE AIR SURGE TANK

(a) Install a new gasket to the intake air surge tank.

(b) Install the intake air surge tank with the 4 bolts and 2 nuts in the order shown in the illustration.

Torque: 28 N·m (286 kgf·cm, 21ft·lbf)

Text in Illustration



* 1	Nut
-----	-----

(c) Install the No. 1 surge tank stay with the 2 bolts.

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

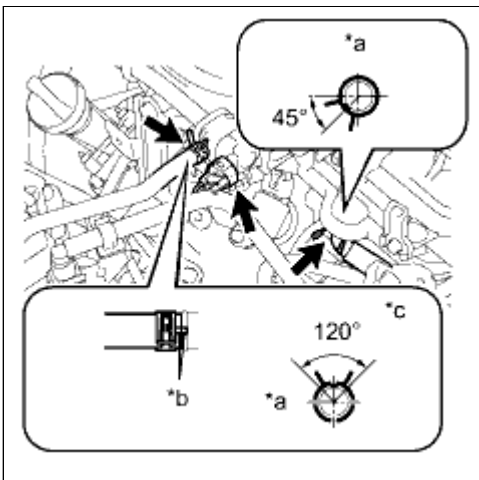
(d) Attach the wire harness clamp.

(e) Install the No. 2 surge tank stay with the 2 bolts.

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

(f) Install the throttle body bracket with the 2 bolts.

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



(g) Connect the No. 1 ventilation hose.

## Text in Illustration

* a	Front
* b	Matchmark
* c	Top

(h) Connect the No. 1 vacuum switching valve connector.

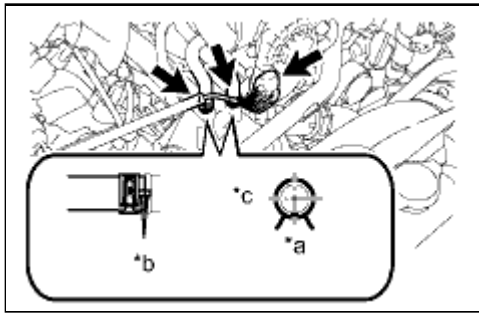
(i) Connect the No.1 fuel feed hose.

## HINT:

Connect the hose so that the direction of the hose clamp is as indicated in the illustration.

(j) Connect the throttle body connector.

## Text in Illustration



*a	Front
*b	Matchmark
*c	RH

(k) Connect the No. 4 water by-pass hose.

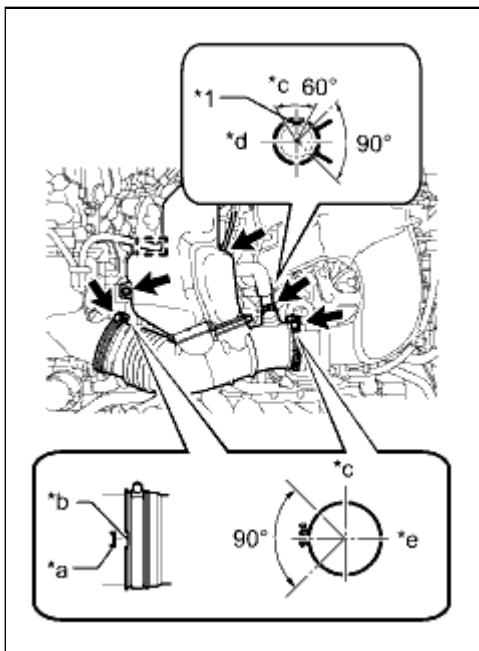
(l) Connect the No. 5 water by-pass hose.

#### **HINT:**

**Connect the hose so that the direction of the hose clamp is as indicated in the illustration.**

(m) Connect the 2 heater hose clamps.

### **4. INSTALL NO. 1 AIR CLEANER HOSE**



(a) Install the air cleaner hose with the 2 clamps.

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

#### **Text in Illustration**

*1	Paint Mark
*a	Protrusion
*b	Groove
*c	Top
*d	RH
*e	Front

(b) Install the bolt.

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

(c) Connect the vacuum hose and ventilation hose.

#### **HINT:**

**The direction of the hose clamp is indicated in the illustration.**

(d) Attach the wire harness clamp.

## 5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

### NOTICE:

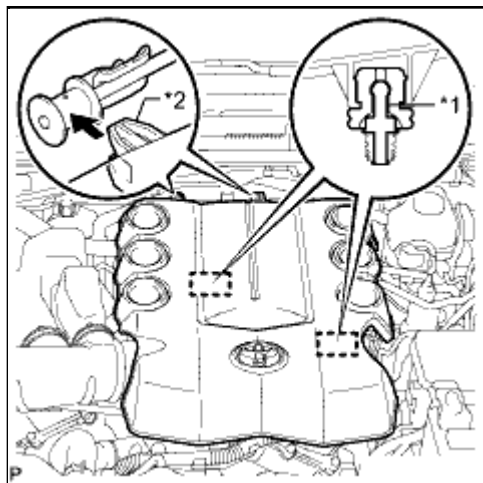
When disconnecting the cable, some systems need to be initialized after the cable is reconnected .

## 6. ADD ENGINE COOLANT

## 7. INSPECT FOR COOLANT LEAK

## 8. INSPECT FOR FUEL LEAK

## 9. INSTALL V-BANK COVER



(a) Attach the 2 V-bank cover hooks to the bracket. Then align the 2 V-bank cover grommets with the 2 pins and press down on the V-bank cover to attach the pins.

### Text in Illustration

*1	Pin
*2	Hook

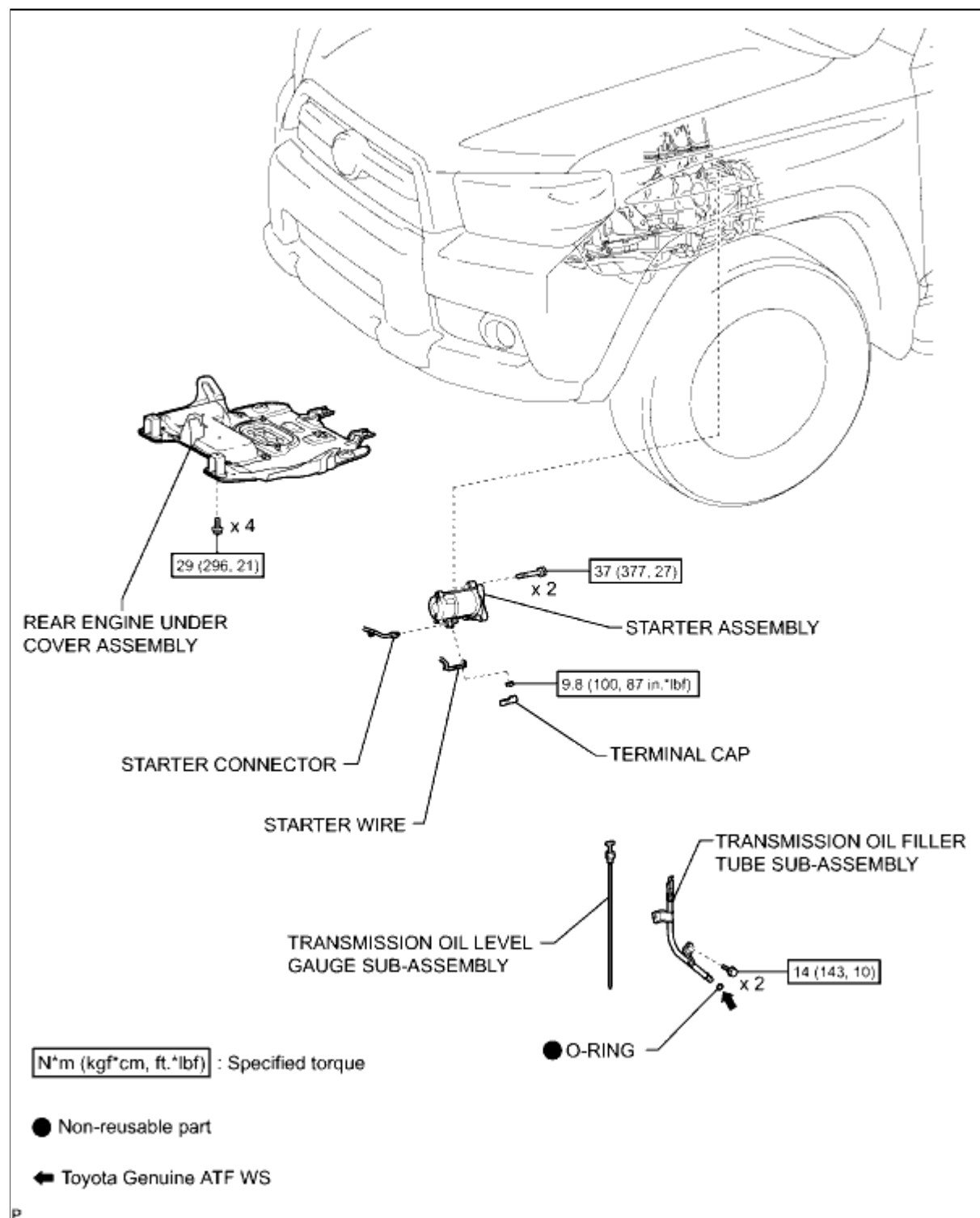
## 10. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

## 11. INSTALL FRONT BUMPER COVER LOWER

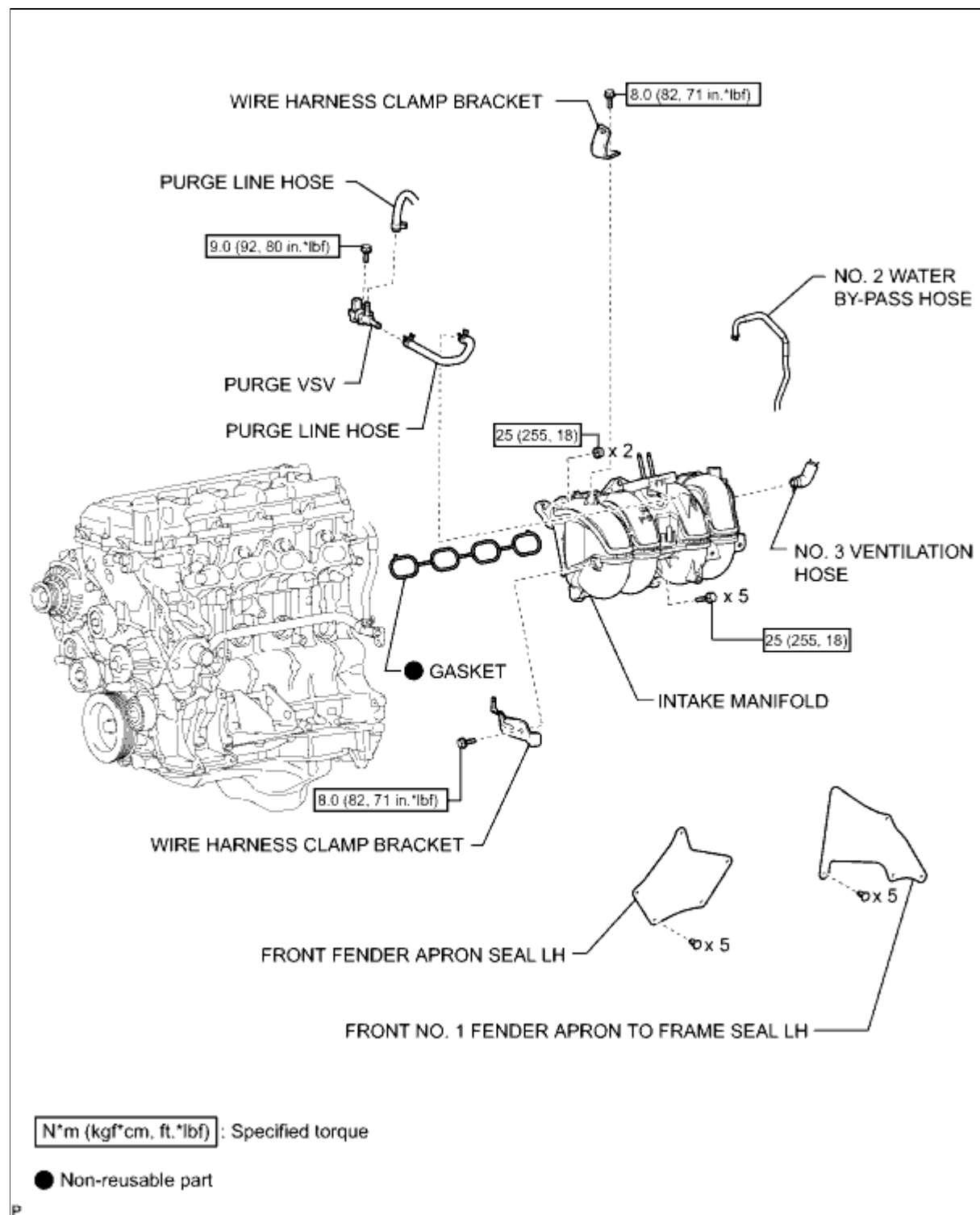
<b>Last Modified:</b> 5-10-2010	6.4 K	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM0000046EM002X
<b>Title:</b> 2TR-FE INTAKE / EXHAUST: INTAKE MANIFOLD: COMPONENTS (2010 4Runner)		

## COMPONENTS

## ILLUSTRATION



## ILLUSTRATION



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<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM0000046EN002X
<b>Title:</b> 2TR-FE INTAKE / EXHAUST: INTAKE MANIFOLD: REMOVAL (2010 4Runner)		

## REMOVAL

### 1. DISCHARGE FUEL SYSTEM PRESSURE

INFO

### 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

#### NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected

INFO

### 3. REMOVE THROTTLE BODY WITH MOTOR ASSEMBLY

(a) Remove the throttle body with motor

INFO

### 4. REMOVE FUEL DELIVERY PIPE WITH FUEL INJECTOR

(a) Remove the delivery pipe with fuel injector

INFO

### 5. REMOVE PURGE VSV

INFO

### 6. REMOVE REAR ENGINE UNDER COVER ASSEMBLY

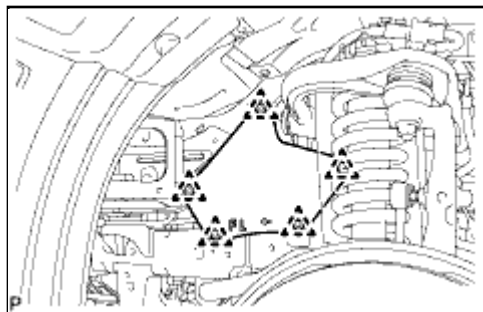
INFO

### 7. REMOVE TRANSMISSION OIL FILLER TUBE SUB-ASSEMBLY

INFO

### 8. REMOVE STARTER ASSEMBLY

INFO



### 9. REMOVE FRONT FENDER APRON SEAL LH

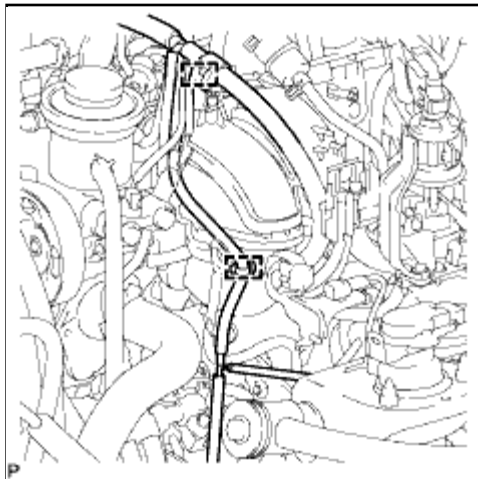
(a) Remove the 5 clips and front fender apron seal.



### 10. REMOVE FRONT NO. 1 FENDER APRON TO FRAME SEAL LH

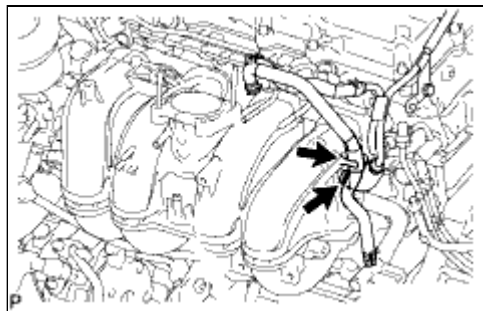
(a) Remove the 5 clips and front fender apron to frame seal.

## 11. REMOVE INTAKE MANIFOLD



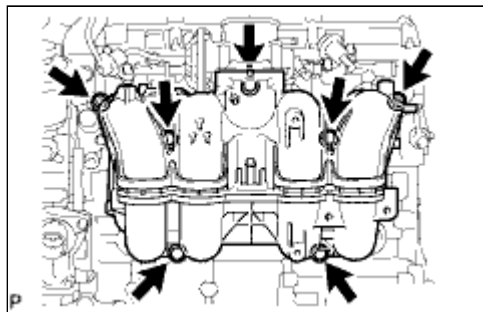
(a) for Engine Front Side:

Detach the 2 wire harness clamps from the 2 wire harness clamp brackets.



(b) for Engine Rear Side:

Detach the No. 2 water by-pass hose and disconnect the No. 3 ventilation hose from the intake manifold.

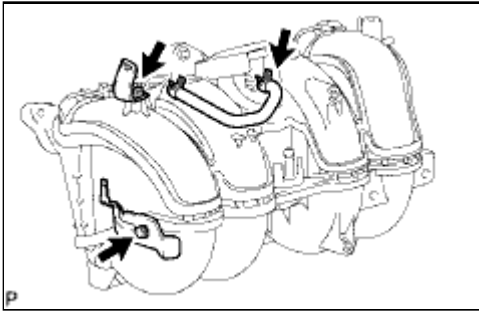


(c) Remove the 5 bolts, 2 nuts and intake manifold.

(d) Remove the gasket from the intake manifold.

(e) Remove the 2 bolts, 2 wire harness clamp brackets and purge line hose from the intake manifold.





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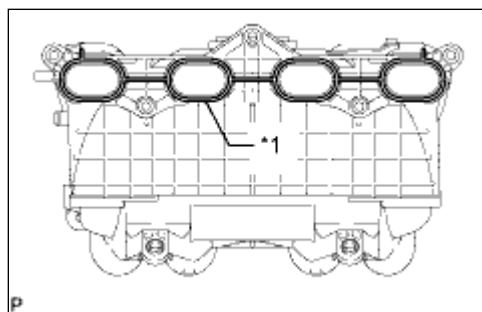
<b>Last Modified:</b> 5-10-2010	6.4 A	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM0000046EL002X
<b>Title:</b> 2TR-FE INTAKE / EXHAUST: INTAKE MANIFOLD: INSTALLATION (2010 4Runner)		

## INSTALLATION

### 1. INSTALL INTAKE MANIFOLD

- (a) Install the purge line hose to the intake manifold.
- (b) Install the 2 wire harness clamp brackets to the intake manifold with the 2 bolts.

**Torque: 8.0 N·m (82 kgf·cm, 71in·lbf)**



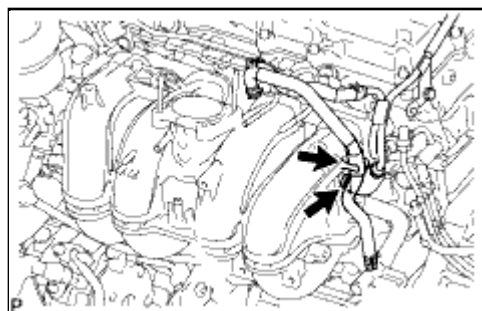
- (c) Install a new gasket to the intake manifold.

### Text in Illustration

*1	Gasket
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- (d) Install the intake manifold with the 5 bolts and 2 nuts.

**Torque: 25 N·m (255 kgf·cm, 18ft·lbf)**

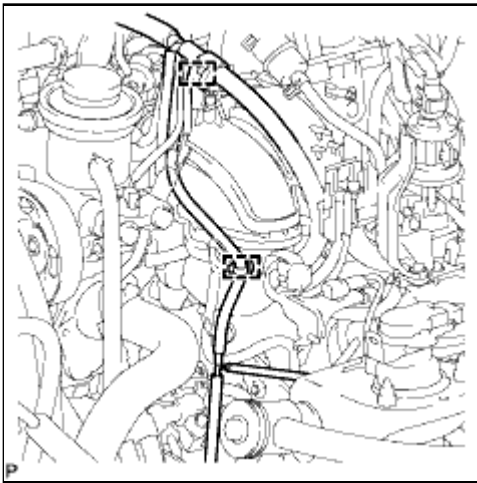


- (e) for Engine Rear Side:

Attach the No. 2 water by-pass hose and connect the No. 3 ventilation hose to the intake manifold.

- (f) for Engine Front Side:

Attach the 2 wire harness clamps to the 2 wire harness clamp brackets.



**2. INSTALL PURGE VSV** [INFO](#)

**3. INSTALL FRONT NO. 1 FENDER APRON TO FRAME SEAL LH**

(a) Install the front fender apron to frame seal with the 5 clips.

**4. INSTALL FRONT FENDER APRON SEAL LH**

(a) Install the front fender apron seal with the 5 clips.

**5. INSTALL STARTER ASSEMBLY** [INFO](#)

**6. INSTALL TRANSMISSION OIL FILLER TUBE SUB-ASSEMBLY** [INFO](#)

**7. INSTALL REAR ENGINE UNDER COVER ASSEMBLY** [INFO](#)

**8. INSTALL FUEL DELIVERY PIPE WITH FUEL INJECTOR**

(a) Install the fuel delivery pipe with fuel injector [INFO](#).

**9. INSTALL THROTTLE BODY WITH MOTOR ASSEMBLY**

(a) Install the throttle body with motor [INFO](#).

**10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

**NOTICE:**

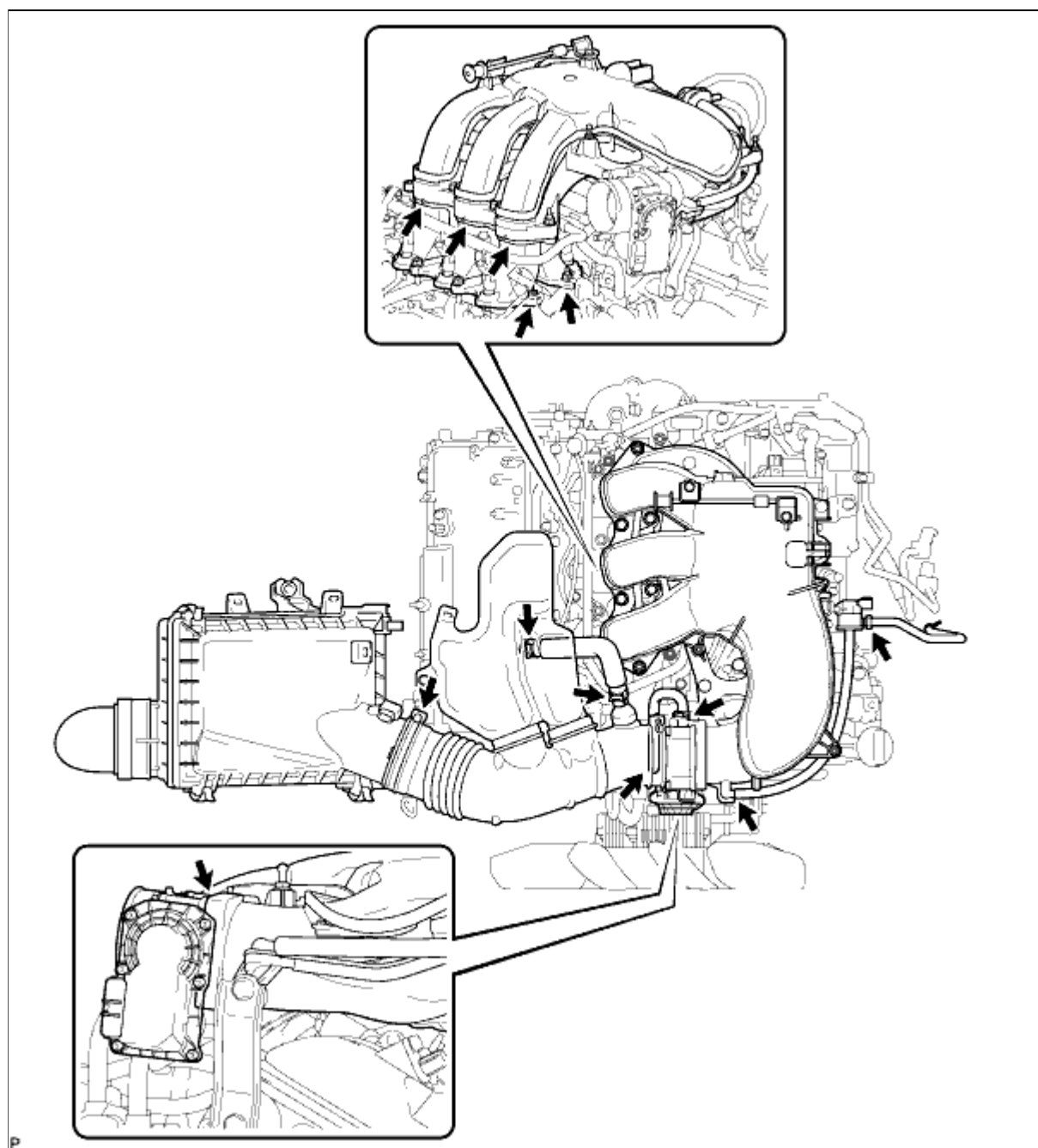
When disconnecting the cable, some systems need to be initialized after the cable is reconnected [INFO](#).

<b>Last Modified:</b> 5-10-2010	<b>6.4 G</b>	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM0000046C0001X
<b>Title:</b> 1GR-FE INTAKE / EXHAUST: INTAKE SYSTEM: ON-VEHICLE INSPECTION (2010 4Runner)		

## ON-VEHICLE INSPECTION

### 1. INSPECT INTAKE SYSTEM

(a) Check that there is no air suction at the points shown in the illustration.

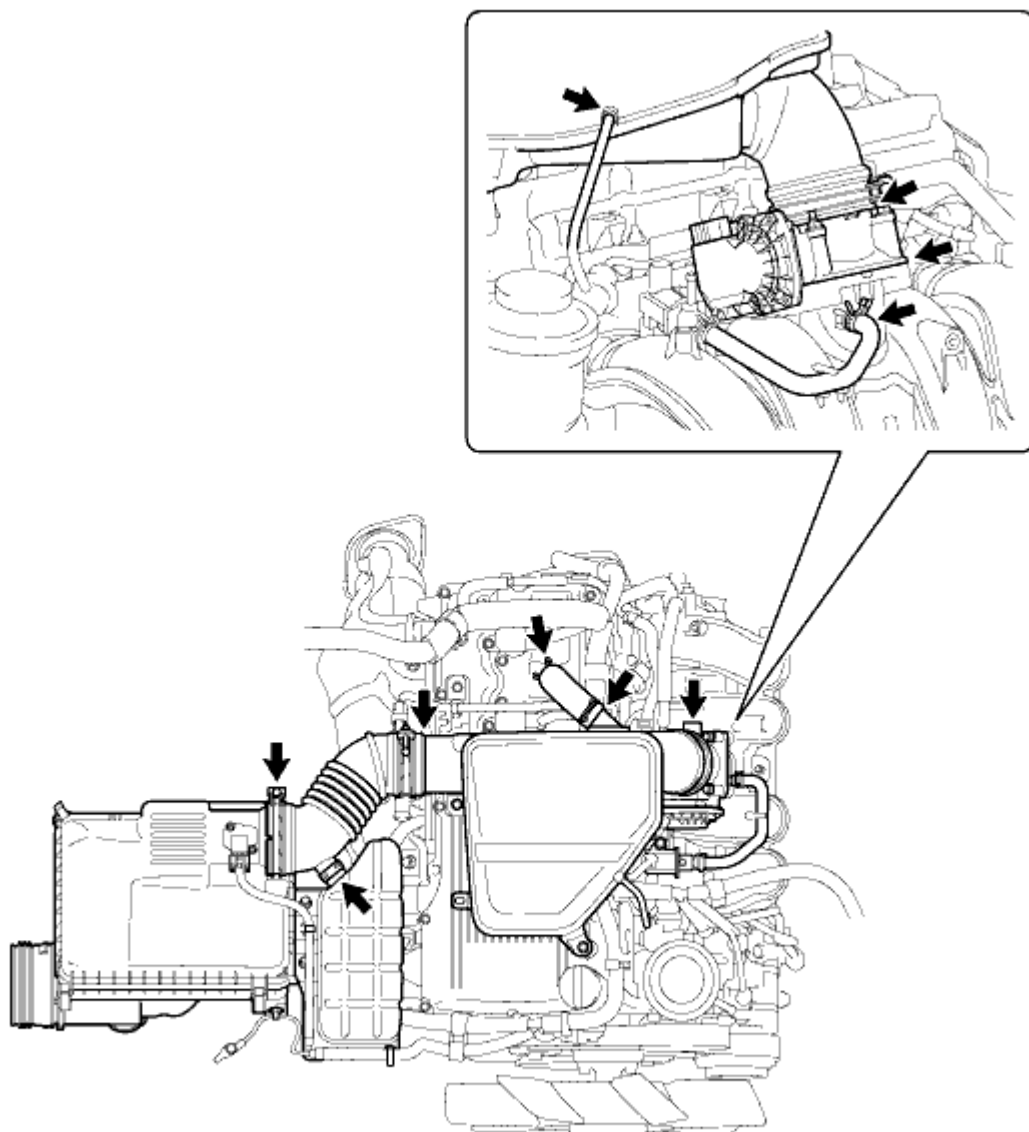


<b>Last Modified:</b> 5-10-2010	6.4 G	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM000001A3W01BX
<b>Title:</b> 2TR-FE INTAKE / EXHAUST: INTAKE SYSTEM: ON-VEHICLE INSPECTION (2010 4Runner)		

## ON-VEHICLE INSPECTION

### 1. INSPECT INTAKE SYSTEM

(a) Check that there is no air suction at the points shown in the illustration.



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