

<b>Last Modified:</b> 5-10-2010	6.4 F	<b>From:</b> 200908
<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM0000010EW1CFX
<b>Title:</b> FOREWORD / CAUTION / SECTION: FOREWORD: FOREWORD (2010 4Runner)		

## **FOREWORD**

This is Volume 1 of the 2010 4RUNNER manual. There are five volumes to this manual. The sections included in each volume are indicated by black type in the Section Index. Use the Section Index of each volume to find the volume with the section you need.

This manual applies to the models listed below. It covers all information in the previously issued Pub. No. RM1430U, and includes all production changes effective November 2009 or later.

Applicable models	GRN280, 285 series
	TRN280 series

Please note that the publications below have also been prepared as relevant service manuals for the components and system in these vehicles.

MANUAL NAME	PUB. NO.
2010 4RUNNER Electrical Wiring Diagram	EM1431U
2010 4RUNNER New Car Features	NM1431U

All information in this manual is based on the latest product information at the time of publication. However, specifications and procedures are subject to change without notice. For the most current information available, refer to the Toyota Technical Information System (TIS) online at dealership locations or on the Internet at <http://techinfo.toyota.com>.

If you find any failures in this manual, you are kindly requested to inform us by using the report form on the next page.

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<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM000003ESG009X
<b>Title:</b> SPECIFICATIONS: BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: TORQUE SPECIFICATIONS (2010 4Runner)		

## TORQUE SPECIFICATIONS

### Front Speed Sensor

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front speed sensor bolt	8.5	87	75 in.*lbf
Front skid control sensor wire clamp bolt	13	127	9
Front skid control sensor wire clamp x Body	5.0	51	44 in.*lbf
Front skid control sensor wire clamp x Knuckle	13	127	9

### Rear Speed Sensor

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear speed sensor nut	7.8	80	69 in.*lbf
Skid control sensor wire clamp bolt	13	127	9

### Yaw Rate Sensor

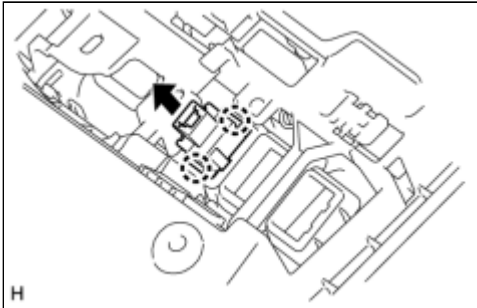
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Yaw rate and acceleration sensor bolt	15	148	11



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<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM000001PBY00GX
<b>Title:</b> BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: DOWNHILL ASSIST CONTROL SWITCH: INSTALLATION (2010 4Runner)		

## INSTALLATION

### 1. INSTALL DOWNHILL ASSIST CONTROL SWITCH



(a) Attach the 2 claws to install the downhill assist control switch to the map lamp assembly.

(b) Connect the 2 connectors.

### 2. INSTALL MAP LIGHT ASSEMBLY [INFO](#)

### 3. INSTALL DRIVE MONITOR SWITCH [INFO](#)

### 4. PERFORM DOWNHILL ASSIST CONTROL CALIBRATION

(a) Perform downhill assist control switch calibration [INFO](#).



## OUTLET OIL COOLER TUBE

(a) Install the 2 No. 2 flexible hose clamps with the 2 bolts.

**Torque: 14 N·m (143 kgf·cm, 10ft·lbf)**

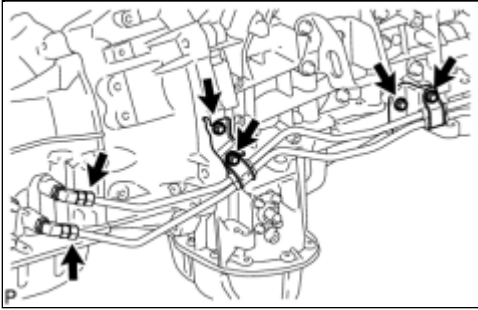
(b) Temporarily install the ends of the 2 oil cooler tubes to each oil cooler tube union by hand.

(c) Close the 2 No. 2 flexible hose clamps and install the 2 bolts.

**Torque: 5.5 N·m (56 kgf·cm, 49in·lbf)**

(d) Using a union nut wrench, tighten the inlet and outlet tubes.

**Torque: 34 N·m (347 kgf·cm, 25ft·lbf)**

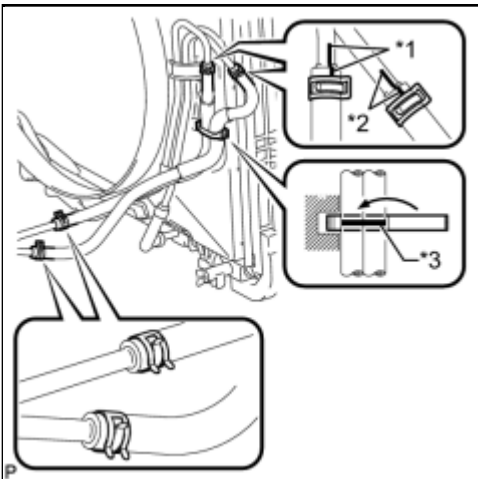


### NOTICE:

Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench  .

## 4. INSTALL NO. 1 OIL COOLER INLET HOSE AND NO. 1 OIL COOLER OUTLET HOSE

(a) Connect the No. 1 oil cooler inlet hose and No. 1 oil cooler outlet hose to the oil cooler inlet tube and No. 1 oil cooler outlet tube.



### Text in Illustration

*1	Blue Paint Mark
*2	Pink Paint Mark
*3	White Paint Mark

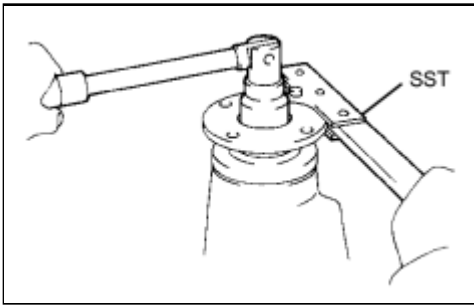
(b) Connect the 2 hoses to the No. 2 oil cooler tube to install them, and then pass the 2 hoses through the No. 1 flexible hose clamp and close the clamp.

### NOTICE:

- When connecting the hoses to the tube, support the tube by hand and be careful to prevent the tube from being deformed.
- Make sure the paint marks and pinching portion of each clip are facing the directions shown in the illustration.

## 5. ADJUST AUTOMATIC TRANSMISSION FLUID LEVEL

(a) Adjust the automatic transmission fluid level  .



**SST: 09330-00021**

### 15. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

(a) Using SST, remove the drive pinion companion flange.

**SST: 09950-30012**

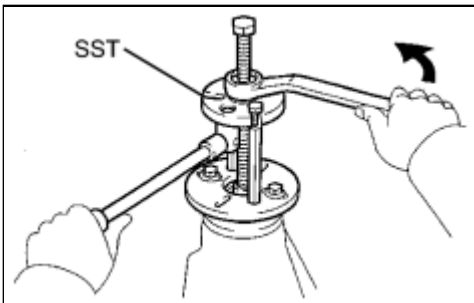
09951-03010

09953-03010

09954-03010

09955-03030

09956-03040

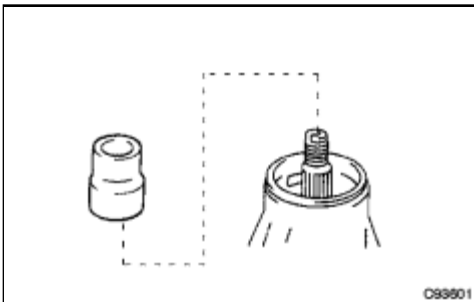


### 16. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER

### 17. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING (INNER)

INFO

### 18. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING (OUTER)



### 19. INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

(a) Install a new bearing spacer to the drive pinion.

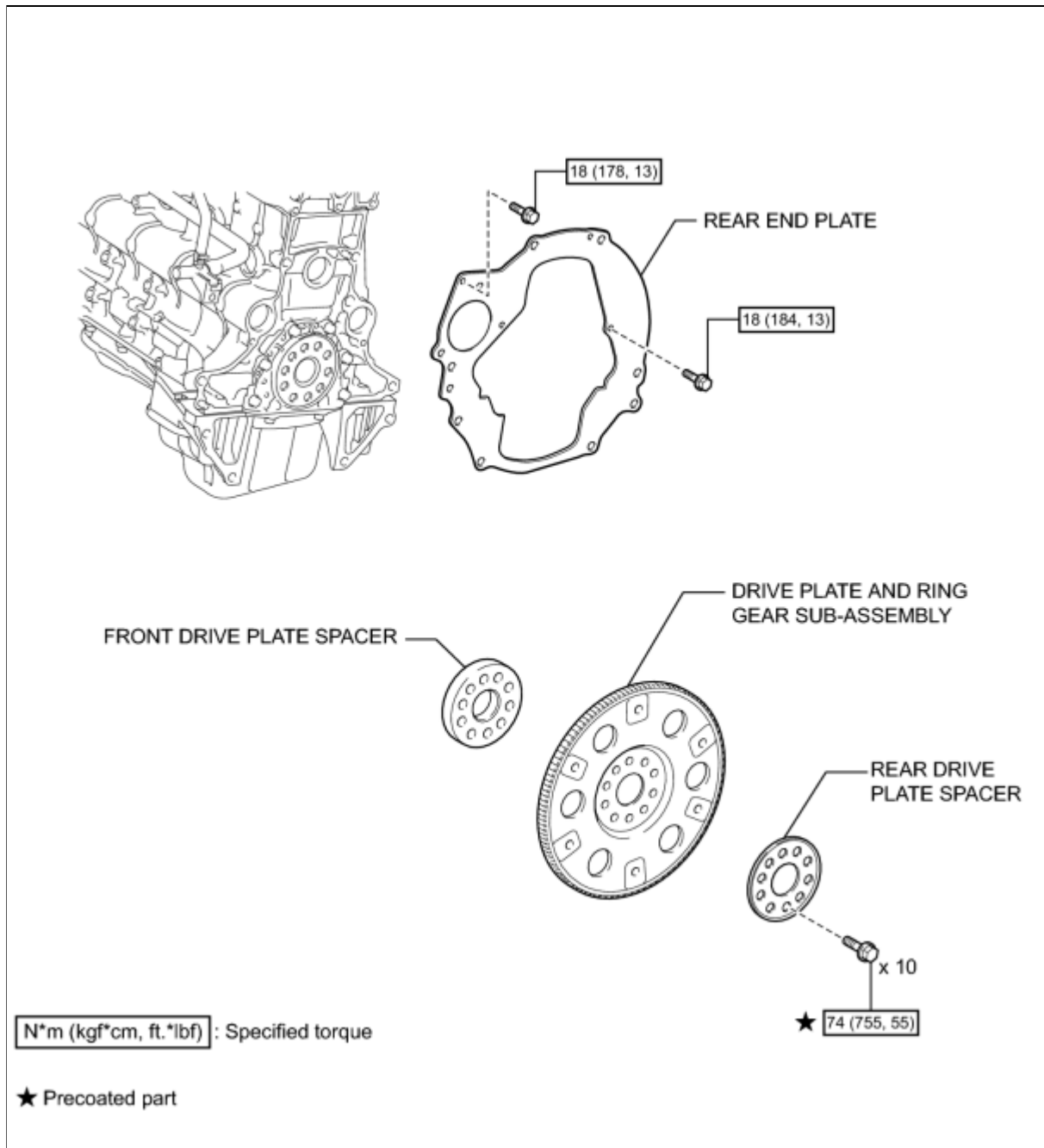
### 20. INSTALL DIFFERENTIAL OIL STORAGE RING

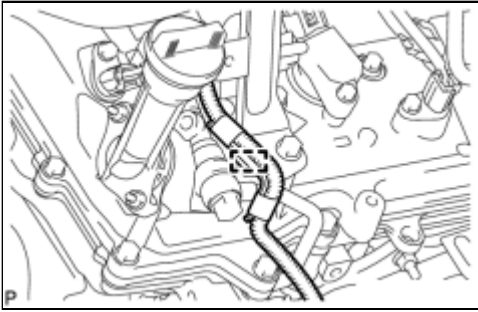
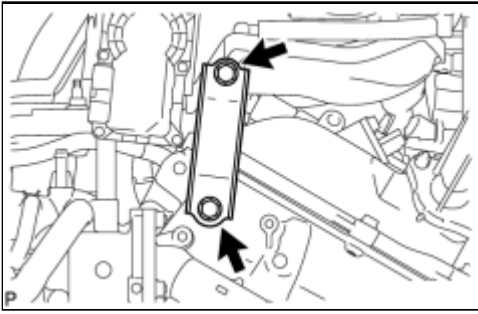
(a) Using SST, tap in a new oil storage ring.

**SST: 09308-14010**

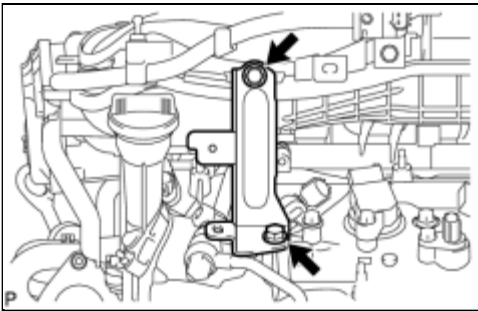


# ILLUSTRATION

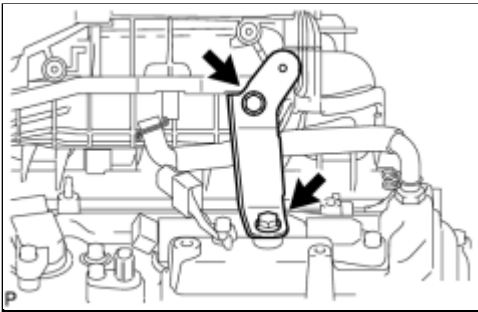




(i) Using a clip remover, detach the wire harness clamp.



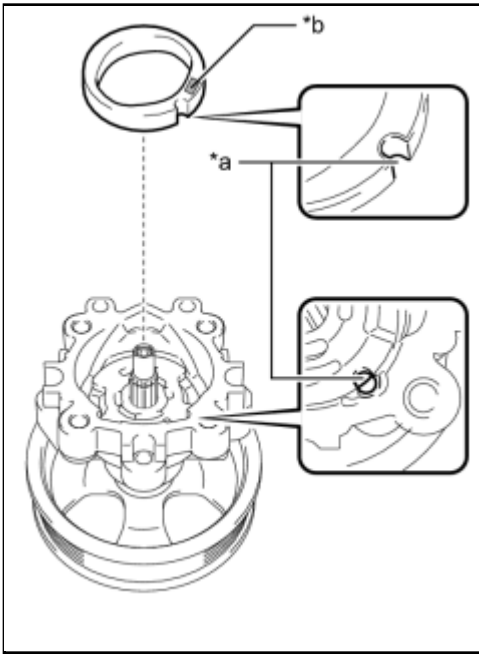
(j) Remove the 2 bolts and No. 1 surge tank stay.



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

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





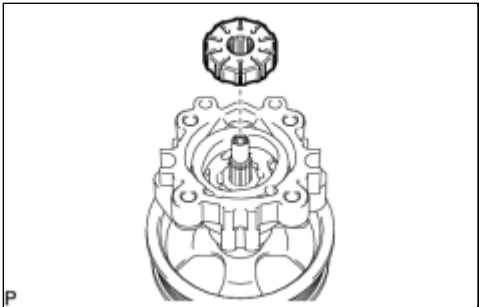
### Text in Illustration

* a	Align
* b	Inscribed Mark

**NOTICE:**

**Make sure that the cam ring is installed facing in the correct direction.**

### 5. INSTALL VANE PUMP ROTOR



(a) Install the vane pump rotor.

**HINT:**

**The vane pump rotor can be installed with either side facing up.**

(b) Coat the 10 vane pump plates with power steering fluid.

(c) Install the vane pump plates with the round end facing outward.

### Text in Illustration

* a	Round End
* b	Outward

**NOTICE:**

**Make sure that the vane pump plates are installed facing in the correct direction.**

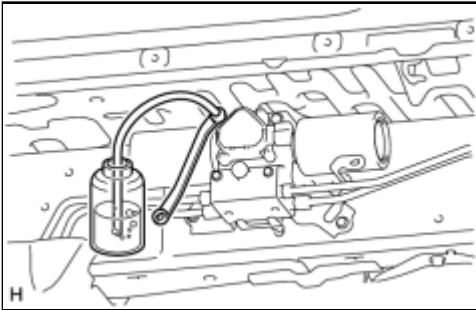
**CAUTION:**

If a fluid leak is discovered, immediately release the pressure and repair the fluid leak as there is danger involved due to the high pressure.

**NOTICE:**

Do not allow the pressure to reach 8 MPa (81.6 kgf/cm<sup>2</sup>, 1160 psi) or higher as the accumulator may be damaged.

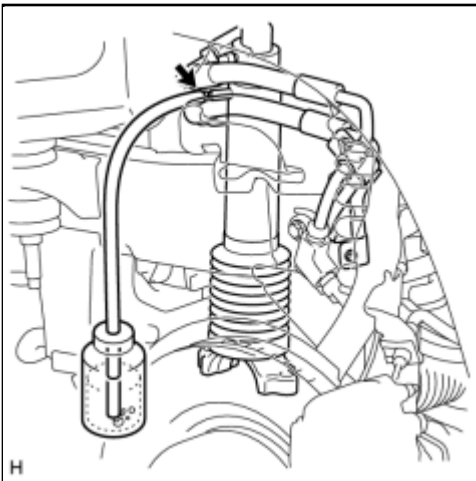
- (1) Pump SST (high pressure oil pump) to add fluid until the pressure reaches 5 MPa (51.0 kgf/cm<sup>2</sup>, 725 psi).\* 1
- (2) Check for fluid leaks from the pipe connections and hydraulic circuit parts.



- (3) Add fluid to the stabilizer control with accumulator housing.\* 2

1. Loosen the bleeder plug of the stabilizer control with accumulator housing.
2. Pump SST (high pressure oil pump) and maintain a pressure of 5 MPa (51.0 kgf/cm<sup>2</sup>, 725 psi) until air stops coming out.
3. Tighten the bleeder plug of the stabilizer control with accumulator housing.

**Torque: 8.3 N·m (85 kgf·cm, 73in·lbf)**



- (4) Add fluid to the lower chamber of the front stabilizer control cylinder.\* 3

1. Pump SST (high pressure oil pump) to add fluid until the pressure reaches 5 MPa (51.0 kgf/cm<sup>2</sup>, 725 psi).
2. Loosen the lower chamber bleeder plug of the front stabilizer control cylinder.
3. Pump SST (high pressure oil pump) and maintain a pressure of 5 MPa (51.0 kgf/cm<sup>2</sup>, 725 psi) until air stops coming out.
4. Tighten the lower chamber bleeder plug of the front stabilizer control cylinder.

**Torque: 7.9 N·m (81 kgf·cm, 70in·lbf)**

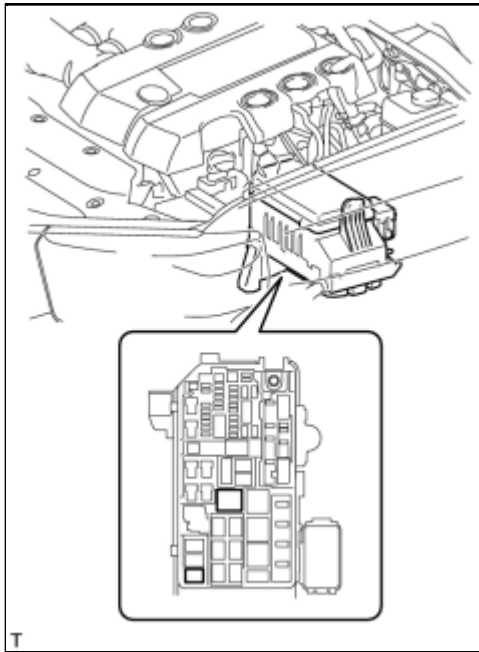
- (5) Add fluid to the upper chamber of the front stabilizer control cylinder.\* 4

1. Pump SST (high pressure oil pump) to add fluid until the pressure reaches 5 MPa (51.0 kgf/cm<sup>2</sup>, 725 psi).
2. Loosen the upper chamber bleeder plug of the front stabilizer control cylinder.
3. Pump SST (high pressure oil pump) and maintain a pressure of 5 MPa (51.0 kgf/cm<sup>2</sup>,

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<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM000003SBL004X
<b>Title:</b> LIGHTING (EXT): RELAY: ON-VEHICLE INSPECTION (2010 4Runner)		

## ON-VEHICLE INSPECTION

### 1. REMOVE HEADLIGHT RELAY

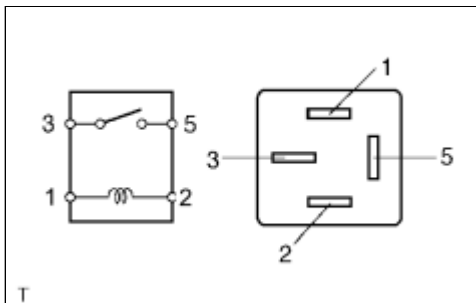


(a) Remove the headlight relay from the engine room relay box.

### 2. INSPECT HEADLIGHT RELAY

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

Standard Resistance:



TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 - 5	Battery voltage not applied to terminals 1 and 2	10 k $\Omega$ or higher
	Battery voltage applied to terminals 1 and 2	Below 1 $\Omega$

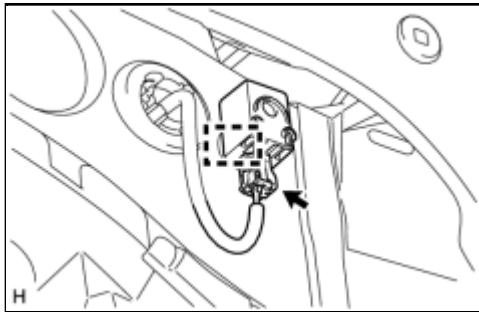
If the result is not as specified, replace the headlight relay.

### 3. INSTALL HEADLIGHT RELAY

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<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM000002XKT00QX
<b>Title:</b> DOOR LOCK: WIRELESS DOOR LOCK BUZZER: INSTALLATION (2010 4Runner)		

## **INSTALLATION**

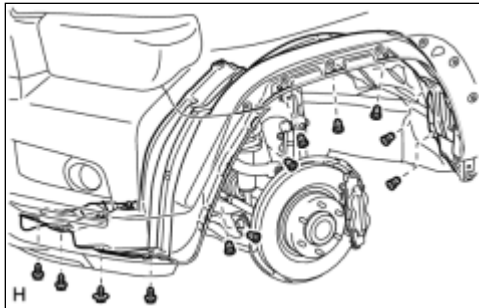
### **1. INSTALL WIRELESS DOOR LOCK BUZZER**



(a) Connect the connector.

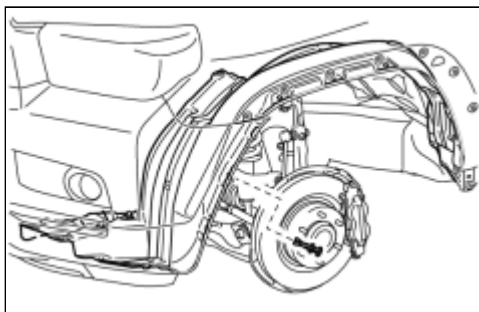
(b) Attach the clamp to install the wireless door lock buzzer.

### **2. INSTALL FRONT FENDER LINER LH (for X-Runner)**



(a) Install 8 new grommets.

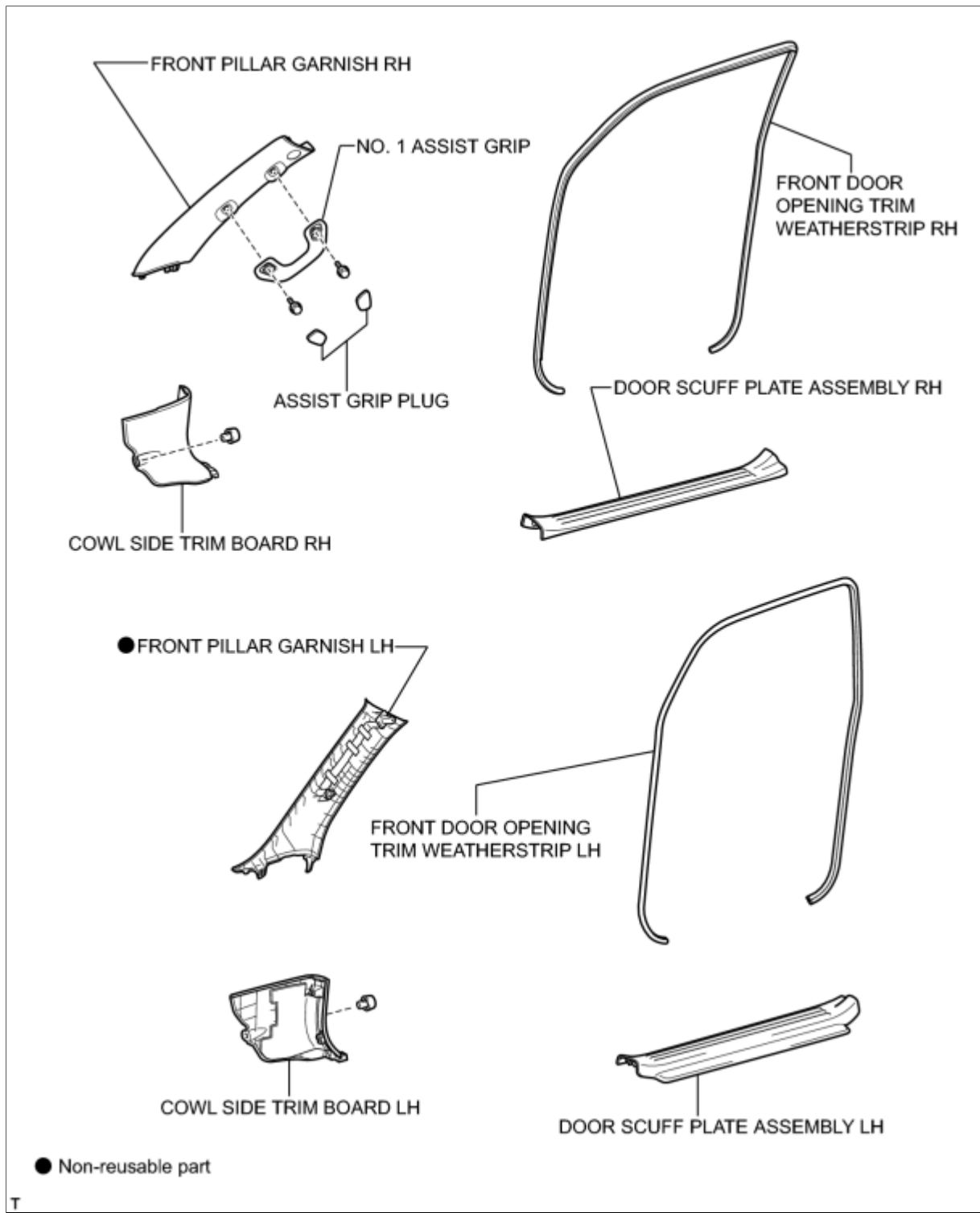
(b) Install the 4 screws.



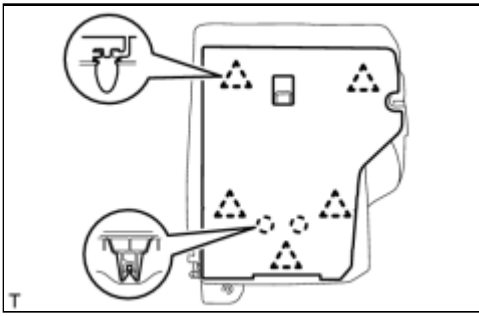
(c) Install the pin hold clip.

### **3. INSTALL FRONT FENDER MOULDING SUB-ASSEMBLY LH (for X-Runner)**

[INFO](#)



**ILLUSTRATION**

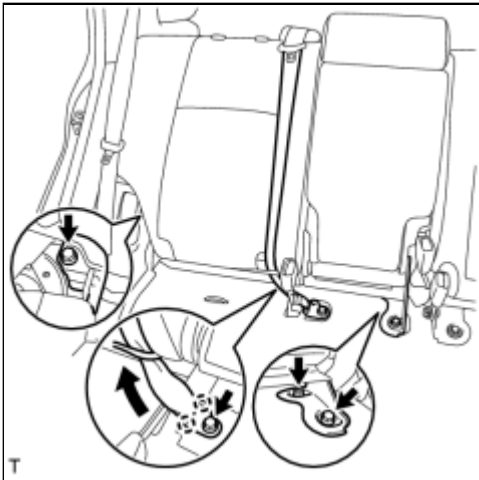


### 7. REMOVE REAR SEATBACK ASSEMBLY RH

- (a) Remove the bolt and detach the 2 claws, and then disconnect the outer belt.
- (b) Remove the 2 bolts that secure the seatback to the floor.
- (c) Fold down the seatback, remove the bolt from the hinge, and then remove the seatback.

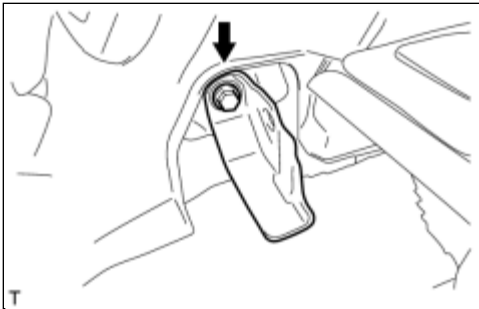
**NOTICE:**

**Be careful not to damage the vehicle body.**



### 8. REMOVE REAR SEATBACK HINGE SUB-ASSEMBLY RH

- (a) Remove the bolt and hinge.

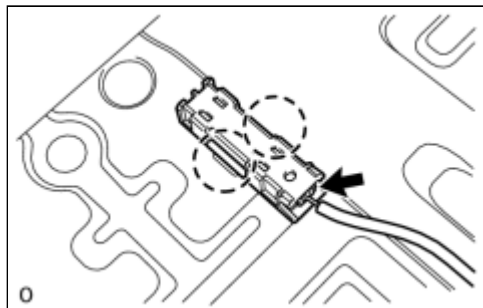


### 9. REMOVE REAR SEATBACK LOCK CONTROL LEVER BASE RH

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<b>Model Year:</b> 2010	<b>Model:</b> 4Runner	<b>Doc ID:</b> RM000002QFT00XX
<b>Title:</b> THEFT DETERRENT / KEYLESS ENTRY: ELECTRICAL KEY OSCILLATOR (for Luggage Compartment): INSTALLATION (2010 4Runner)		

## INSTALLATION

### 1. INSTALL INDOOR NO. 2 ELECTRICAL KEY ANTENNA ASSEMBLY



(a) Attach the 2 claws to install the indoor No. 2 electrical key antenna.

(b) Connect the connector.

### 2. INSTALL NO. 1 LUGGAGE COMPARTMENT TRIM COVER [INFO](#)

### 3. INSTALL REAR FLOOR PAD (w/o Deck Board)

(a) Install the rear floor pad.

### 4. INSTALL REAR FLOOR CARPET ASSEMBLY (w/o Deck Board) [INFO](#)

### 5. INSTALL REAR FLOOR CARPET ASSEMBLY (w/ Deck Board)

(a) Attach the 4 claws to install the rear floor carpet.

### 6. INSTALL REAR FLOOR MAT REAR SUPPORT PLATE [INFO](#)

### 7. INSTALL INNER FLOOR SIDE RAIL SUB-ASSEMBLY (w/ Deck Board) [INFO](#)

### 8. INSTALL DECK BOARD ASSEMBLY (w/ Deck Board) [INFO](#)

### 9. INSTALL LUGGAGE COMPARTMENT SIDE COVER SUB-ASSEMBLY LH (w/ Deck Board) [INFO](#)

### 10. INSTALL LUGGAGE COMPARTMENT SIDE COVER SUB-ASSEMBLY RH (w/ Deck Board) [INFO](#)

### 11. INSTALL REAR NO. 2 FLOOR BOARD ASSEMBLY (w/ Deck Board) [INFO](#)

### 12. INSTALL NO. 2 DECK BOARD SUB-ASSEMBLY (w/o Deck Board) [INFO](#)

### 13. INSTALL NO. 2 LUGGAGE COMPARTMENT TRIM COVER (w/ Deck Board, w/o Rear No. 2 Seat) [INFO](#)