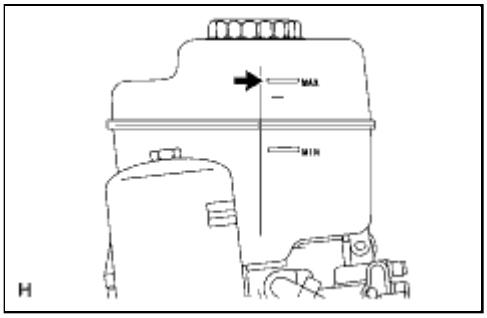
Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000012XQ011X
Title: BRAKE SYSTEM (OTHER): BRAKE FLUID: ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

NOTICE:

Water or deteriorated brake fluid. Sealed areas or brake fluid may deteriorate and lead to fluid leaks or decreased efficiency.

1. CHECK FLUID LEVEL IN RESERVOIR



(a) Turn the engine switch off and fully depress the brake pedal 40 times or more to release the pressure in the accumulator.

HINT:

When the pressure in the accumulator is released, the pedal stroke will lengthen.

(b) Adjust the fluid level so that it is at the MAX line.

HINT:

When the engine switch is turned on (IG), brake fluid is sent to the accumulator and the fluid level decreases by approximately 10 mm (0.394 in.) from the MAX line.

Brake fluid:
SAE J1703 or FMVSS NO. 116 DOT 3

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000038OX00BX
Title: BRAKE SYSTEM (OTHER): BRAKE FLUID: REPLACEMENT (2010 4Runner)		

REPLACEMENT

NOTICE:

- Perform brake fluid replacement with the shift lever in P and the parking brake set.
- Perform brake fluid replacement while adding fluid to maintain the fluid level between the MIN and MAX lines of the reservoir.
- As brake fluid may overflow when fluid is released from the brake actuator, do not leave the brake fluid can in the reservoir filler opening when adding brake fluid.
- If the brake pedal is depressed with the reservoir cap removed, brake fluid may overflow.
- Do not allow brake fluid to come into contact with any painted surface. If contact occurs, wash off the fluid immediately.
- When the brake fluid is replaced, DTCs may be stored. Therefore, after fluid replacement, always clear the DTCs and check that a normal system code is output.

1. REPLACE BRAKE FLUID

(a) Turn the engine switch on (IG).

(b) Remove the brake master cylinder reservoir filler cap assembly.

(c) Add brake fluid until the fluid level is between the MIN and MAX lines of the reservoir.

(d) While depressing the brake pedal, loosen the bleeder plug of the front disc brake cylinder RH, and then repeatedly depress the brake pedal.

(e) Repeatedly depress the brake pedal until the air is completely bled, and then tighten the bleeder plug while depressing the brake pedal.

Torque: 11 N·m (110 kgf·cm, 8ft·lbf)

(f) Bleed the air from the bleeder plug of the front disc brake cylinder LH using the same procedure as for the RH side.

(g) With the brake pedal depressed, loosen the bleeder plug of the rear disc brake cylinder RH, continue to hold the brake pedal and allow brake fluid to be drained from the bleeder plug while the pump motor operates.

HINT:

- Air is bled as the pump motor operates while the brake pedal is being depressed
- Be sure to release the brake pedal to stop the motor after approximately 100 seconds of continuous operation.
- As brake fluid is continuously drained while the pump operates, it is not necessary to repeatedly depress the brake pedal.

(h) Tighten the bleeder plug, and then release the brake pedal.

Torque: 11 N·m (110 kgf·cm, 8ft·lbf)

(i) Bleed the air from the bleeder plug of the rear disc brake cylinder LH using the same procedure as for the RH side.

(j) Turn the engine switch off (IG).

(k) Inspect for brake fluid leaks.

(l) Check and adjust the brake fluid level INFO .

(m) Clear the DTCs INFO .

Last Modified: 5-10-2010	6.4 N	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000018DF00BX
Title: BRAKE SYSTEM (OTHER): BRAKE FLUID: BLEEDING (2010 4Runner)		

BLEEDING

NOTICE:

- Bleed air with the shift lever in P and the parking brake set.
- Bleed air while adding fluid to maintain the fluid level between the MIN and MAX lines of the reservoir.
- As brake fluid may overflow when fluid is released from the brake actuator, do not leave the brake fluid can in the reservoir filler opening when adding brake fluid.
- If the brake pedal is depressed with the reservoir cap removed, brake fluid may overflow.
- Do not allow brake fluid to come into contact with any painted surface. If contact occurs, wash off the fluid immediately.
- When the brake fluid is bled, DTCs may be stored. Therefore, after air bleeding, always clear the DTCs and check that a normal system code is output.
- When bleeding air, select the suitable procedure listed below.

REPLACED/INSTALLED ITEM	WORK PROCEDURE
Flexible hose (front/rear)	Bleed brake line
Disc brake cylinder assembly (front/rear)	
Brake booster with accumulator pump assembly	Bleed brake system
Brake master cylinder sub-assembly	
Brake master cylinder reservoir assembly	

1. BLEED BRAKE LINE

(a) Turn the engine switch on (IG).

(b) Remove the brake master cylinder reservoir filler cap assembly.

(c) Add brake fluid until the fluid level is between the MIN and MAX lines of the reservoir.

(d) Repeatedly depress the brake pedal and bleed air from the bleeder plug of the front disc brake cylinder RH.

(e) Repeat the step above until the air is completely bled, and then tighten the bleeder plug while depressing the brake pedal.

Torque: 11 N·m (110 kgf·cm, 8ft·lbf)

(f) Bleed the air from the bleeder plug of the front disc brake cylinder LH using the same procedure as for the RH side.

(g) With the brake pedal depressed, loosen the bleeder plug of the rear disc brake cylinder RH, continue to hold the brake pedal and allow brake fluid to be drained from the bleeder plug while the pump motor operates.

HINT:

- Air is bled as the pump motor operates while the brake pedal is being depressed.
- Be sure to release the brake pedal to stop the motor after approximately 100 seconds of

continuous operation.

- As brake fluid is continuously drained while the pump operates, it is not necessary to repeatedly depress the brake pedal.

(h) When there is no more air in the brake fluid, tighten the bleeder plug, and then release the brake pedal.

Torque: 11 N·m (110 kgf·cm, 8ft·lbf)

(i) Bleed the air from the bleeder plug of the rear disc brake cylinder LH using the same procedure as for the RH side.

(j) Turn the engine switch off (IG).

(k) Inspect for brake fluid leaks.

(l) Check and adjust the brake fluid level INFO.

2. BLEED BRAKE SYSTEM

CAUTION:

If air is bled without using the Techstream, damage or accidents may result. Therefore, always use the Techstream when bleeding air.

(a) Turn the engine switch on (IG).

(b) Remove the brake master cylinder reservoir filler cap assembly.

(c) Add brake fluid until the fluid level is between the MIN and MAX lines of the reservoir.

(d) Repeatedly depress the brake pedal and bleed air from the bleeder plug of the front disc brake cylinder RH.

(e) Repeat the step above until the air is completely bled, and then tighten the bleeder plug while depressing the brake pedal.

Torque: 11 N·m (110 kgf·cm, 8ft·lbf)

(f) Bleed the air from the bleeder plug of the front disc brake cylinder LH using the same procedure as for the RH side.

(g) With the brake pedal depressed, loosen the bleeder plug of the rear disc brake cylinder RH, continue to hold the brake pedal and allow brake fluid to be drained from the bleeder plug while the pump motor operates.

HINT:

- Air is bled as the pump motor operates while the brake pedal is being depressed.
- Be sure to release the brake pedal to stop the motor after approximately 100 seconds of continuous operation.
- As brake fluid is continuously drained while the pump operates, it is not necessary to repeatedly depress the brake pedal.

(h) When there is no more air in the brake fluid, tighten the bleeder plug, and then release the brake pedal.

Torque: 11 N·m (110 kgf·cm, 8ft·lbf)

(i) Bleed the air from the bleeder plug of the rear disc brake cylinder LH using the same procedure as for the RH side.

(j) Turn the engine switch off and connect the Techstream to the DLC3.

(k) Turn the engine switch on (IG).

(l) Turn the Techstream on.

(m) Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Air Bleeding.

NOTICE:

To protect the solenoid from overheating, the solenoid operation stops automatically in 4 seconds, and then the solenoid will not respond to commands for an additional 20 seconds.

(n) Repeatedly depress the brake pedal several times, and then, with the brake pedal depressed, turn FR Line on and bleed air.

HINT:

Air returns to the brake master cylinder reservoir together with the brake fluid and is bled from the brake system.

NOTICE:

- As it is not possible to visually confirm that air is being bled, repeat this step 10 times.
- Do not loosen the bleeder plug.

(o) Turn FL Line on and bleed air using the same procedures as for FR Line.

(p) Turn RR Line on, loosen the bleeder plug of the rear disc brake cylinder RH and drain brake fluid.

HINT:

- Do not depress the brake pedal.
- As brake fluid is automatically drained while the pump and solenoid operate, it is not necessary to operate the brake pedal.

(q) Repeat the step above until the air is completely bled, and then tighten the bleeder plug.

Torque: 11 N·m (110 kgf·cm, 8ft·lbf)

(r) Turn RL Line on and bleed air from the bleeder plug of the rear disc brake cylinder LH using the same procedure as for the RH side.

(s) Turn the Techstream off and turn the engine switch off.

(t) Inspect for brake fluid leaks.

(u) Check and adjust the brake fluid level INFO .

(v) Clear the DTCs INFO .

Last Modified: 5-10-2010	6.4 L	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001HJ900XX
Title: BRAKE SYSTEM (OTHER): BRAKE LINE: PRECAUTION (2010 4Runner)		

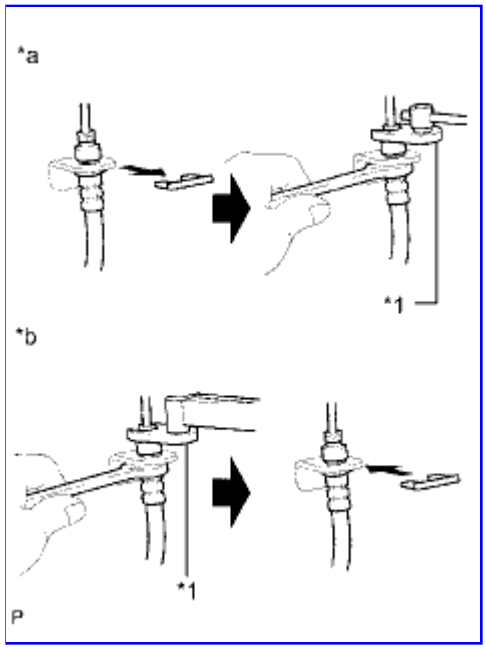
PRECAUTION

CAUTION:

Make sure to replace each part properly. Improper installation or repair could affect the performance of the brake system and cause a driving hazard.

NOTICE:

- It is very important to keep the brake system parts and the area clean when repairing the brake system.
- Since the brake line is one of the critical safety-related parts, be sure to disassemble the components if a brake fluid leak is found. If any abnormality is found, replace the component with a new one.
- When removing brake components, cover the brake tube connections to prevent foreign matter such as dust or dirt from entering the tubes.
- Do not damage or deform the brake tubes when removing or installing them.
- When installing a brake tube or flexible hose, make sure that it is not twisted or bent.
- If the fitting of the flexible hose does not match the groove on the bracket, twist the hose slightly to insert it.
- Flexible hoses must be free from absorber oil, grease, etc.
- When installing a brake tube to a plastic clamp, make sure that the brake tube is not loose or pinched.
- Do not reuse a clip removed from a flexible hose.
- After installing a brake tube or flexible hose, make sure that it does not interfere with any other components.
- Do not allow brake fluid to adhere to any painted surface such as the vehicle body. If brake fluid leaks onto any painted surface, immediately wash it off.
- Follow these procedures when disconnecting the flexible hose and brake tube.



Text in Illustration

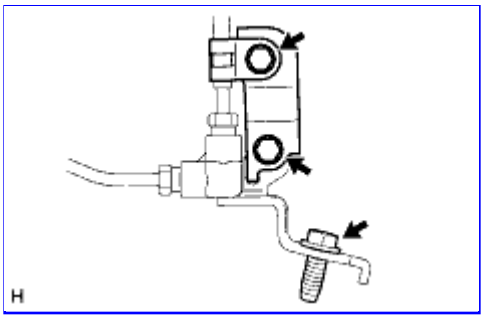
*a	Disconnecting
*b	Connecting
*1	Union Nut Wrench

a. Remove the clip.
b. Hold the flexible hose with a wrench. Using a union nut wrench, disconnect the brake tube without deforming the tube.

- Follow these procedures when connecting the flexible hose and brake tube.

a. Hold the flexible hose with a wrench. Using a union nut wrench, connect the brake tube without deforming the tube.
b. Install a new clip.

- Follow these procedures when connecting the brake tube and 2-way.



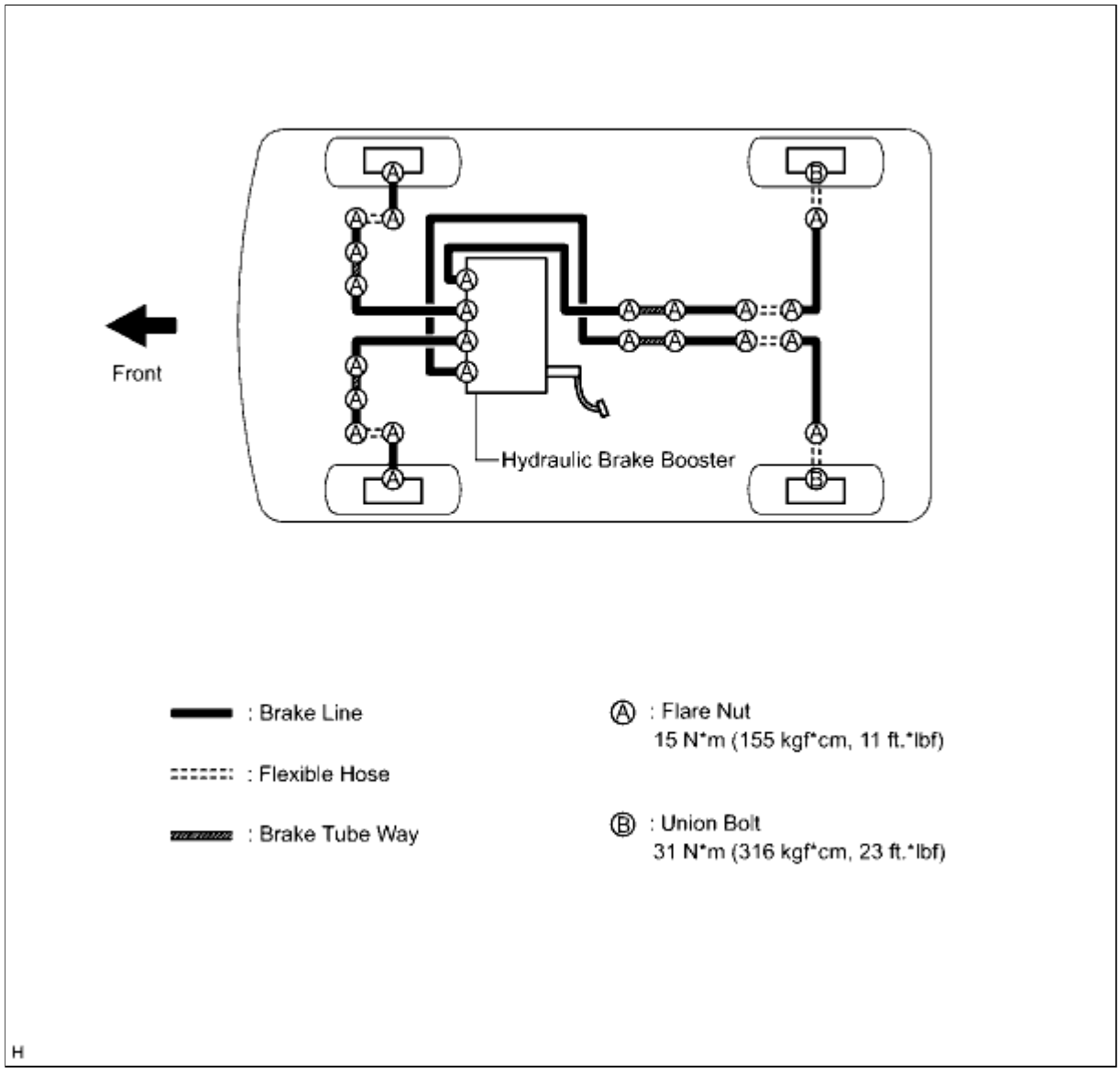
a. Connect the brake tubes to the 2-way and temporarily install the flare nuts of the brake tubes.
b. Support the 2-way to prevent deformation to the brake tubes and install the bolt to fix the 2-way to the frame.
c. Support the 2-way to prevent deformation to the brake tubes and tighten the flare nuts of the brake tubes to the torque specification with a union nut wrench.
d. Connect the clamp to the brake tubes and 2-way with the 2 bolts.

Last Modified: 5-10-2010	6.4 U	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000012XP00RX
Title: BRAKE SYSTEM (OTHER): BRAKE LINE: SYSTEM DIAGRAM (2010 4Runner)		

SYSTEM DIAGRAM

HINT:

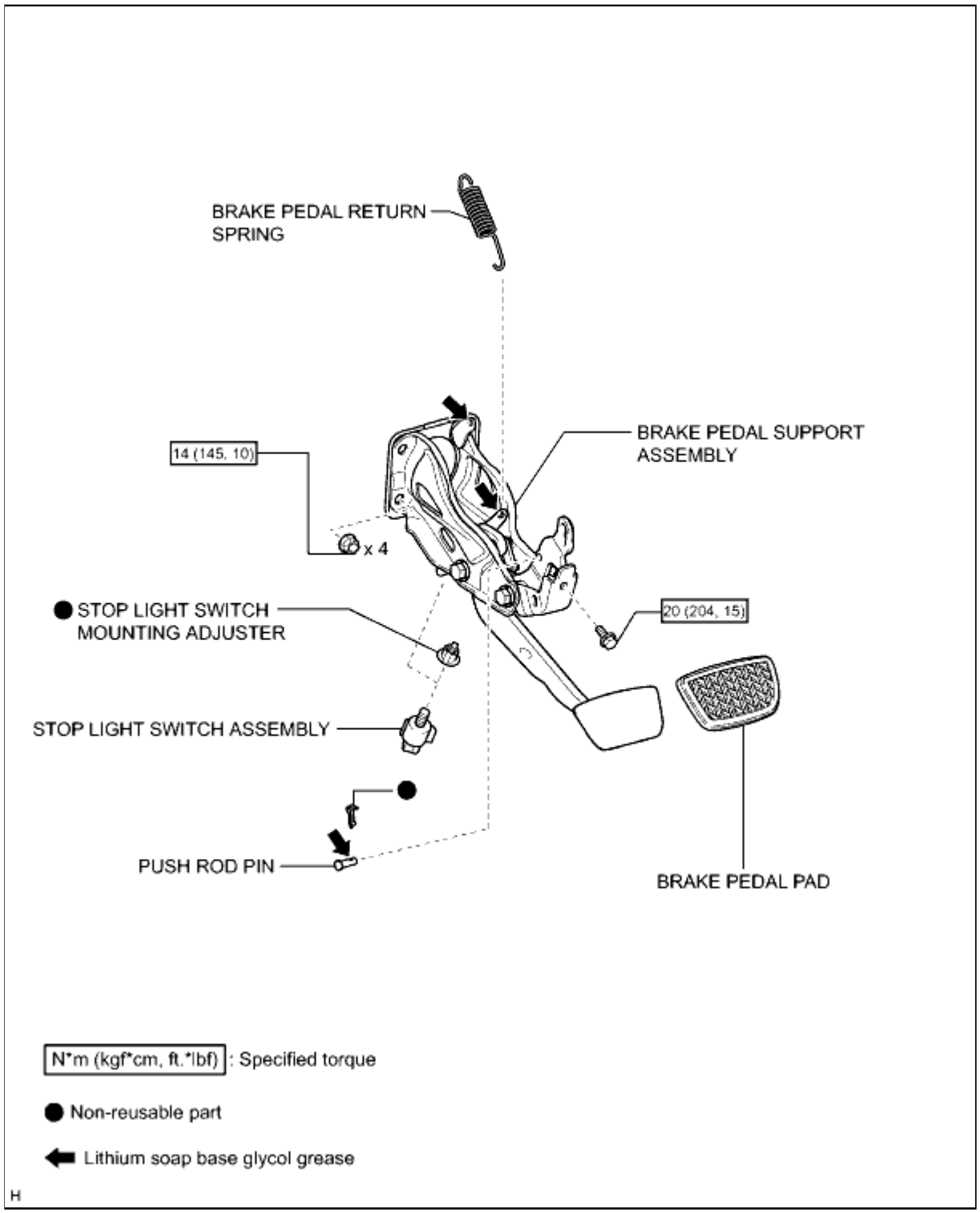
Refer to the diagram below to confirm the locations and tightening torque of the flexible hoses and brake tubes.



Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001Q8H00YX
Title: BRAKE SYSTEM (OTHER): BRAKE PEDAL: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001Q8I00YX
Title: BRAKE SYSTEM (OTHER): BRAKE PEDAL: REMOVAL (2010 4Runner)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTICE:

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

2. REMOVE LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

(a) Remove the lower No. 1 instrument panel airbag assembly INFO .

3. REMOVE BRAKE PEDAL RETURN SPRING

4. REMOVE PUSH ROD PIN

(a) Remove the clip and push rod pin from the brake pedal lever.

5. REMOVE STOP LIGHT SWITCH ASSEMBLY

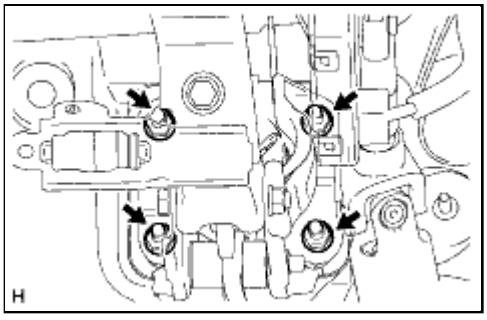
(a) Disconnect the stop light switch connector.

(b) Remove the stop light switch INFO .

6. REMOVE BRAKE PEDAL SUPPORT ASSEMBLY

(a) Remove the brake pedal support reinforcement set bolt.

(b) Remove the hydraulic brake booster assembly INFO .

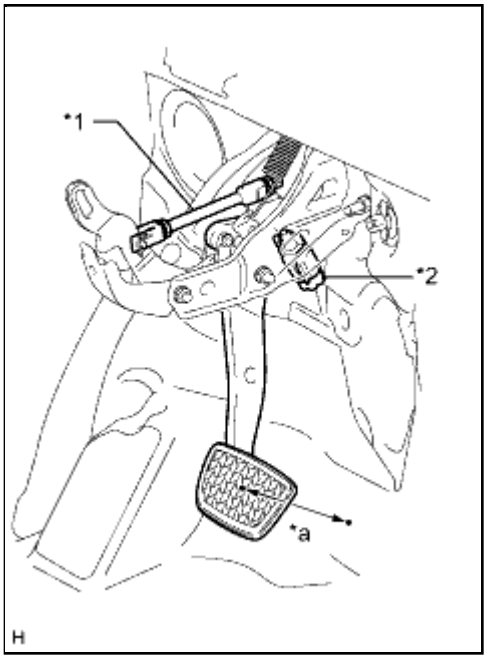


(c) Remove the brake pedal support assembly.

Last Modified: 5-10-2010	6.4 N	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001QHK010X
Title: BRAKE SYSTEM (OTHER): BRAKE PEDAL: ADJUSTMENT (2010 4Runner)		

ADJUSTMENT

1. CHECK BRAKE PEDAL HEIGHT



(a) Check the brake pedal height.

Pedal height from Dash panel:
158.8 to 168.8 mm (6.25 to 6.46 in.)

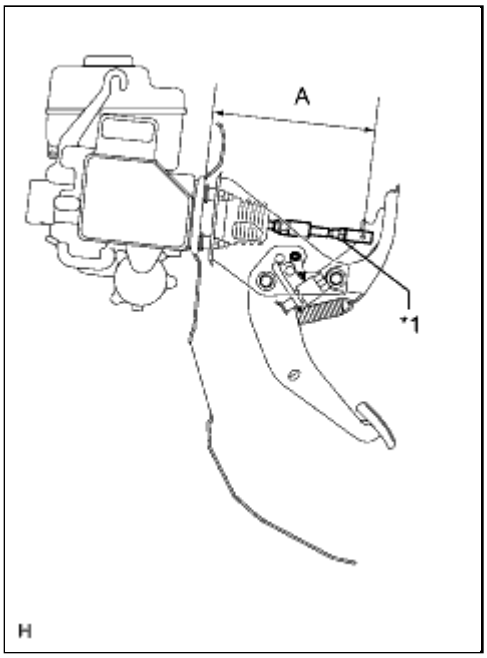
Text in Illustration

*a	Pedal Height
*1	Rod Operating Adapter
*2	Stop Light Switch Assembly

NOTICE:

Do not adjust the pedal height. Doing so by changing the push rod length will structurally change the pedal ratio.

If the pedal height is incorrect, adjust the rod operating adapter length.



(b) Adjust the rod operating adapter length.

(1) Remove the clip and clevis pin.

(2) Loosen the clevis lock nut.

Text in Illustration

*1	Clevis Lock Nut

(3) Adjust the rod operating adapter length by turning the pedal push rod clevis.

Rod operating adapter length "A":
236.3 to 237.3 mm (9.30 to 9.34 in.)

(4) Tighten the clevis lock nut.

Torque: 26 N·m (260 kgf·cm, 19ft·lbf)

(5) Install the clip and clevis pin.

If the pedal height is incorrect even if the rod operating

adapter is adjusted, check that there is no damage to the brake pedal, brake pedal lever, brake pedal bracket or dash panel.

- Even if there is damage, there is no problem if the reserve distance is within the standard value.
- If necessary, replace the clip.

2. CHECK AND ADJUST STOP LIGHT SWITCH ASSEMBLY

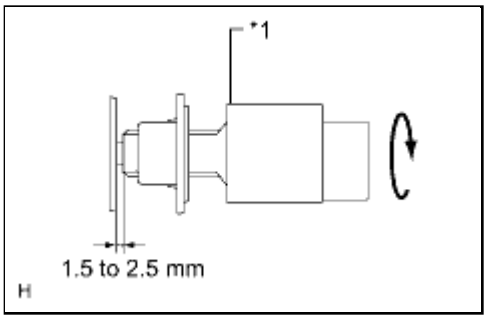
HINT:

If the pedal height is incorrect, check and adjust the stop light switch clearance.

(a) Disconnect the stop light switch assembly connector from the stop light switch assembly.

(b) Turn the stop light switch assembly counterclockwise and remove the stop light switch assembly.

(c) Insert the stop light switch assembly until the body hits the cushion.



Text in Illustration

*1	Stop Light Switch

NOTICE:

When inserting the stop light switch assembly, support the pedal from behind so that the pedal is not pushed in.

(d) Make a quarter turn clockwise to install the stop light switch assembly.

NOTICE:

The turning torque for installing the stop light switch should be 1.5 N*m (15 kgf*cm, 13 in.*lbf) or less.

HINT:

Due to the inverse screw structure, if the stop light switch assembly is turned clockwise, the stop light switch assembly moves in the direction to be pulled out.

(e) Connect the stop light switch connector to the stop light switch assembly.

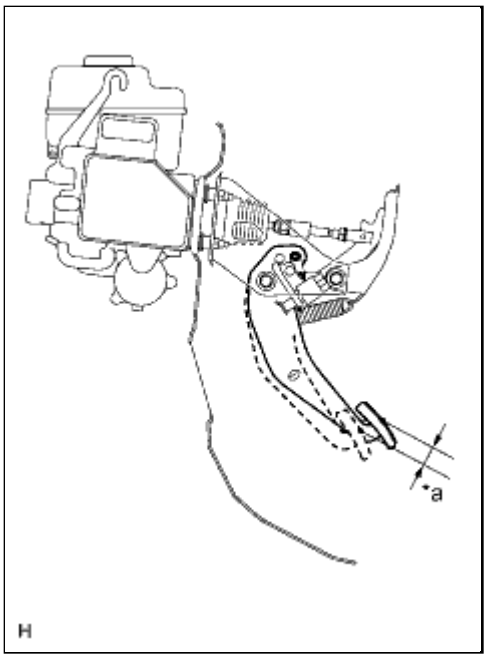
(f) Check the protrusion of the rod.

Protrusion of the rod:
1.5 to 2.5 mm (0.0591 to 0.0984 in.)

(g) Install the clevis pin and clip.

(h) After adjusting the pedal height, check the pedal free play.

3. CHECK PEDAL FREE PLAY



(a) Stop the engine and depress the brake pedal several times until there is no more vacuum left in the booster.

Text in Illustration

*a	Pedal Free Play

(b) Push in the pedal until the resistance is felt. Measure the distance.

Pedal free play:
1 to 6 mm (0.0394 to 0.236 in.)

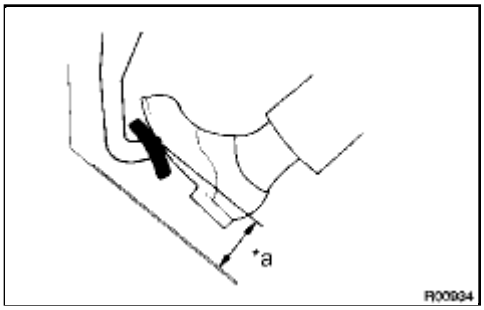
HINT:

Check the brake pedal free play at the same location as that used when checking the brake pedal height.

4. CHECK PEDAL RESERVE DISTANCE

(a) Release the parking brake pedal.

With the engine running, depress the pedal and measure the pedal reserve distance.



Text in Illustration

*a	Pedal Reserve Distance

Pedal reserve distance from asphalt sheet at 490 N (50 kgf, 110.2 lbf):
More than 92 mm (3.62 in.)

If incorrect, troubleshoot the brake system.

HINT:

Insert a ruler into the slit to measure the pedal reserve distance.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001Q8J00RX
Title: BRAKE SYSTEM (OTHER): BRAKE PEDAL: DISASSEMBLY (2010 4Runner)		

DISASSEMBLY

1. REMOVE BRAKE PEDAL PAD

(a) Remove the brake pedal pad from the brake pedal sub-assembly.

2. REMOVE STOP LIGHT SWITCH MOUNTING ADJUSTER

(a) Remove the stop light switch mounting adjuster from the brake pedal support.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001Q8K00RX
Title: BRAKE SYSTEM (OTHER): BRAKE PEDAL: REASSEMBLY (2010 4Runner)		

REASSEMBLY

1. INSTALL STOP LIGHT SWITCH MOUNTING ADJUSTER

(a) Install a new stop light switch mounting adjuster to the brake pedal support.

2. INSTALL BRAKE PEDAL PAD

(a) Install the brake pedal pad to the brake pedal.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001Q8G00YX
Title: BRAKE SYSTEM (OTHER): BRAKE PEDAL: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL BRAKE PEDAL SUPPORT ASSEMBLY

(a) Temporarily install the set bolt.

(b) Install the hydraulic brake booster INFO .

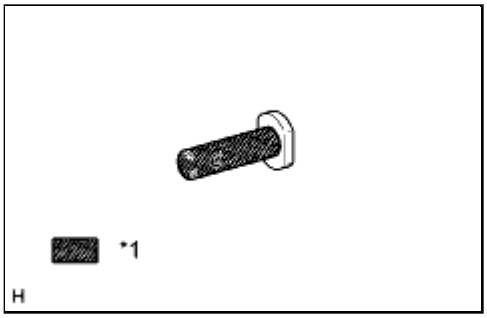
(c) tighten the brake pedal support sub-assembly with the 4 nuts.

Torque: 14 N·m (145 kgf·cm, 10ft·lbf)

(d) Tighten the brake pedal support reinforcement set bolt.

Torque: 20 N·m (204 kgf·cm, 15ft·lbf)

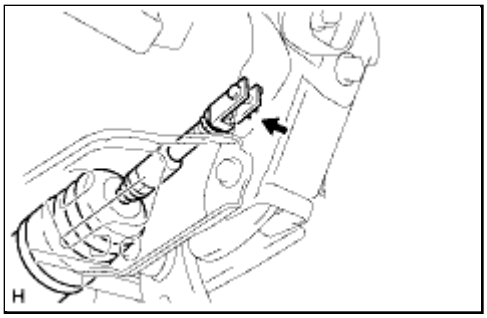
2. INSTALL PUSH ROD PIN



(a) Apply a light coat of lithium soap base glycol grease to the inner surface of the hole in the brake pedal lever.

Text in Illustration

*1	Lithium soap base glycol grease



(b) Set the master cylinder push rod clevis in place, insert the push rod pin from the left side of the vehicle, and then install a new clip.

3. INSTALL BRAKE PEDAL RETURN SPRING

(a) Apply a light coat of lithium soap base glycol grease to inner surface of the hole in the brake pedal support sub-assembly.

(b) Install the brake pedal return spring to the brake pedal support sub-assembly.

4. INSTALL STOP LIGHT SWITCH ASSEMBLY

(a) Install the stop light switch INFO .

(b) Connect the stop light switch connector.

5. INSTALL LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

(a) Install the lower No. 1 instrument panel airbag assembly INFO .

6. CONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

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

7. BLEED BRAKE SYSTEM INFO

8. CHECK AND ADJUST BRAKE PEDAL

(a) Check and adjust brake pedal INFO .

Last Modified: 5-10-2010	6.4 L	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001U3M00JX
Title: BRAKE SYSTEM (OTHER): BRAKE SYSTEM: PRECAUTION (2010 4Runner)		

PRECAUTION

CAUTION:

Care must be taken to replace each part properly as it could affect the performance of the brake system and result in a driving hazard. Replace the parts with parts having the same part number or equivalent.

NOTICE:

- It is very important to keep parts and the area clean when repairing the brake system.
- If the vehicle is equipped with a mobile communication system, refer to the Precaution in the Introduction section.

Last Modified: 5-10-2010	6.4 T	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001Q8E00OX
Title: BRAKE SYSTEM (OTHER): BRAKE SYSTEM: PROBLEM SYMPTOMS TABLE (2010 4Runner)		

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Brake System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Low pedal or spongy pedal	Fluid leaks in brake system	-
	Air in brake system	INFO
	Front brake piston seals (Worn or damaged)	INFO
	Rear brake piston seals (Worn or damaged)	INFO
	Hydraulic brake booster (Faulty)	INFO
Brake drag	Brake pedal free play (Minimum)	INFO
	Parking brake pedal travel (Out of adjustment)	INFO
	Parking brake wire (Sticking)	INFO
	Parking brake shoe clearance (Out of adjustment)	INFO
	Front brake pad (Cracked or distorted)	INFO
	Rear brake pad (Cracked or distorted)	INFO
	Front brake piston (Stuck)	INFO
	Rear brake piston (Stuck)	INFO
	Front brake piston (Frozen)	INFO
	Rear brake piston (Frozen)	INFO
	Parking brake tension or return spring (Faulty)	INFO
	Hydraulic brake booster (Faulty)	INFO
Brake pull	Front brake piston (Stuck)	INFO
	Rear brake piston (Stuck)	INFO
	Front brake pad (Oily)	INFO

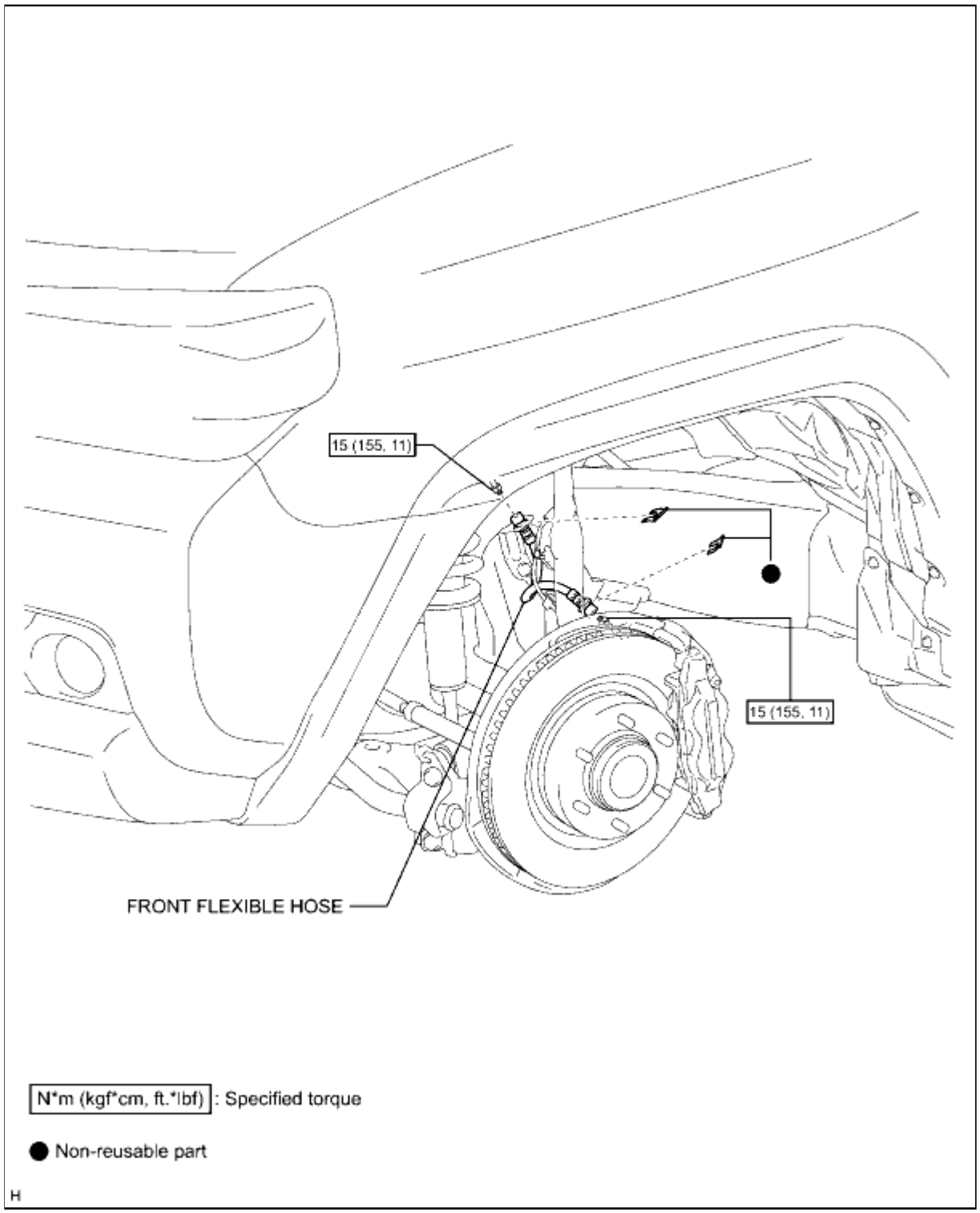
SYMPTOM	SUSPECTED AREA	SEE PAGE
	Rear brake pad (Oily)	INFO
	Front brake piston (Frozen)	INFO
	Rear brake piston (Frozen)	INFO
	Front brake disc (Scored)	INFO
	Rear brake disc (Scored)	INFO
	Front brake pad (Cracked or distorted)	INFO
	Rear brake pad (Cracked or distorted)	INFO
	Hydraulic brake booster (Faulty)	INFO
Hard pedal but brake inefficient	Fluid leaks in brake system	-
	Air in brake system	INFO
	Front brake pad (Worn)	INFO
	Rear brake pad (Worn)	INFO
	Front brake pad (Cracked or distorted)	INFO
	Rear brake pad (Cracked or distorted)	INFO
	Front brake pad (Oily)	INFO
	Rear brake pad (Oily)	INFO
	Front brake pad (Glazed)	INFO
	Rear brake pad (Glazed)	INFO
	Front brake disc (Scored)	INFO
	Rear brake disc (Scored)	INFO
	Hydraulic brake booster (Faulty)	INFO
Noise from brakes	Front brake pad (Cracked or distorted)	INFO
	Rear brake pad (Cracked or distorted)	INFO
	Front brake installation bolt (Loose)	INFO
	Rear brake installation bolt (Loose)	INFO
	Front brake disc (Scored)	INFO
	Rear brake disc (Scored)	INFO
	Rear brake pad support plate (Loose)	INFO
	Front brake pad (Dirty)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Rear brake pad (Dirty)	INFO
	Front brake pad (Glazed)	INFO
	Rear brake pad (Glazed)	INFO
	Parking brake tension or return spring (Faulty)	INFO
	Front brake anti-squeal shim (Damaged)	INFO
	Rear brake anti-squeal shim (Damaged)	INFO
	Parking brake shoe hold-down spring (Damaged)	INFO

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001HJT00VX
Title: BRAKE (FRONT): FRONT BRAKE FLEXIBLE HOSE: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001HJU00ZX
Title: BRAKE (FRONT): FRONT BRAKE FLEXIBLE HOSE: REMOVAL (2010 4Runner)		

REMOVAL

HINT:

- Use the same procedure for the RH and LH sides.
- The procedure listed below is for the LH side.

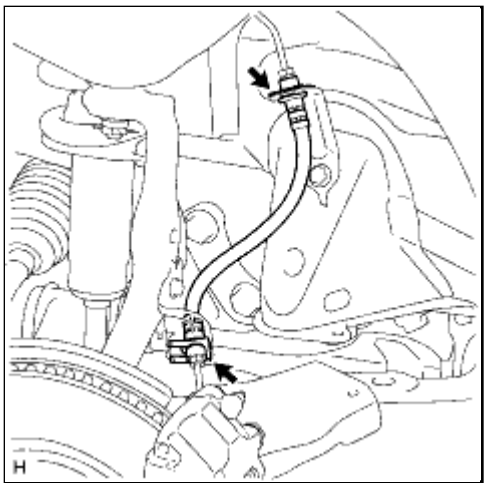
1. REMOVE FRONT WHEEL

2. DRAIN BRAKE FLUID

NOTICE:

Wash off brake fluid immediately if it comes in contact with any painted surface.

3. REMOVE FRONT FLEXIBLE HOSE



(a) Remove the 2 clips.

(b) Disconnect the brake tube from the front flexible hose with a union nut wrench while holding the front flexible hose with a wrench and remove the front flexible hose.

NOTICE:

- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001HJS014X
Title: BRAKE (FRONT): FRONT BRAKE FLEXIBLE HOSE: INSTALLATION (2010 4Runner)		

INSTALLATION

HINT:

- Use the same procedure for the RH and LH sides.
- The procedure listed below is for the LH side.

1. INSTALL FRONT FLEXIBLE HOSE

(a) Using a union nut wrench, connect the brake tube to the front flexible hose while holding the front flexible hose with a wrench to install the front flexible hose.

Torque: 15 N·m (155 kgf·cm, 11ft·lbf)

NOTICE:

- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.
- Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench INFO .

(b) Install 2 new clips to the front flexible hose.

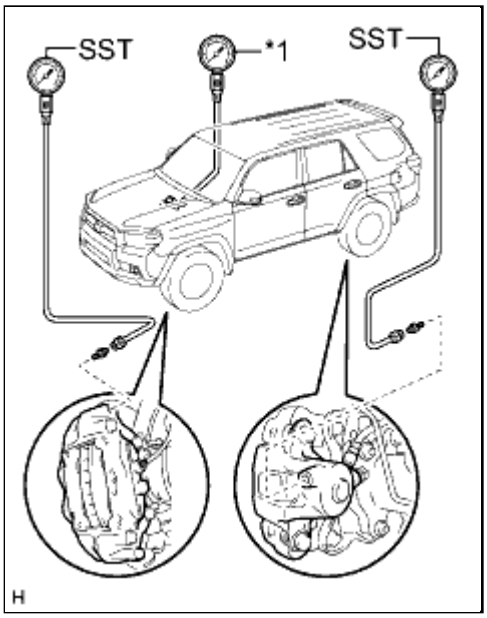
2. BLEED BRAKE LINE INFO

3. INSTALL FRONT WHEEL INFO

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000171W00XX
Title: BRAKE SYSTEM (OTHER): HYDRAULIC BRAKE BOOSTER: ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

1. INSPECT BRAKE MASTER CYLINDER FLUID PRESSURE CHANGE



(a) Inspect the battery voltage.

Battery voltage:
11 to 14 V

(b) Turn the ignition switch off and depress the brake pedal more than 40 times.

HINT:

When pressure in the power supply system is released, the reaction force decreases and the stroke becomes longer.

(c) Install the LSPV gauge (SST) and brake pedal effort gauge, and then bleed air.

SST: 09709-29018

Text in Illustration

*1	Brake Pedal Effort Gauge

(d) When the booster does not operate:

Depress the brake pedal and check the fluid pressure.

At 245 N (25 kgf, 55 lbf):

FRONT BRAKE RESSURE	REAR BRAKE PRESSURE
2170 kPa (22.1 kgf/cm^2, 315 psi) or higher	0 kPa (0 kgf/cm^2, 0 psi)

At 343 N (35 kgf, 77 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
3130 kPa (31.9 kgf/cm^2, 454 psi) or higher	0 kPa (0 kgf/cm^2, 0 psi)

(e) When the booster operates:

Depress the brake pedal and check the fluid pressure.

(1) Turn the ignition switch to ON and wait until the pump motor has stopped.

(2) Depress the brake pedal and check the fluid pressure.

At 49 N (5 kgf, 11 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
1410 to 2610 kPa (14.4 to 26.6 kgf/cm^2, 205 to 379 psi)	1620 to 2820 kPa (16.5 to 28.8 kgf/cm^2, 235 to 409 psi)

At 98 N (10 kgf, 22 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
3910 to 5110 kPa (39.9 to 52.1 kgf/cm^2, 567 to 741 psi)	4220 to 5420 kPa (43.0 to 55.3 kgf/cm^2, 612 to 786 psi)

At 147 N (15 kgf, 33 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
6410 to 7610 kPa (65.4 to 77.6 kgf/cm^2, 930 to 1104 psi)	6810 to 8010 kPa (69.4 to 81.1 kgf/cm^2, 988 to 1162 psi)

At 196 N (20 kgf, 44 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
8900 to 10100 kPa (90.8 to 103.0 kgf/cm^2, 1291 to 1465 psi)	9410 to 10610 kPa (96.0 to 108.2 kgf/cm^2, 1365 to 1539 psi)

2. INSPECT BRAKE MASTER CYLINDER OPERATION

(a) Inspect the battery voltage.

Battery voltage:
11 to 14 V

(b) Turn the ignition switch off and depress the brake pedal more than 20 times.

HINT:

When pressure in the power supply system is released, the reaction force decreases and the stroke becomes longer.

(c) Check that the brake pedal reaction force decreases.

If the pedal reaction force does not decrease, check the brake line and brake master cylinder and replace parts as necessary.

(d) Turn the ignition switch to ON and check the pump motor operation noise.

If the pump motor does not operate, check the wire harness and pump motor and replace parts as necessary INFO .

(e) Connect the Techstream to the DLC3.

(f) Turn the ignition switch to ON.

(g) Select "Active Test" mode on the Techstream.

HINT:

Refer to the Techstream operator's manual for further details.

(h) Jack up and support the vehicle.

(i) Release the parking brake lever.

(j) Move the transfer shift lever to N and check that the rear wheels can be rotated by hand.

(k) Inspect front VSC solenoid (SMCF) operation.

(1) Select "VSC/TRAC Solenoid (SRCF)" on the Techstream.

(2) Turn the "VSC/TRAC Solenoid (SRCF)" on with the Techstream, depress the brake pedal with a stable force and check that the pedal cannot be depressed.

If the pedal can be depressed, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.

(3) Release the brake pedal.

(4) When the solenoid is off, depress the brake pedal again and check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

(l) Inspect front VSC solenoid (SREA) operation.

(1) Select "VSC/TRAC Solenoid (SRCF & SRCR)" on the Techstream.

(2) Turn the "VSC/TRAC Solenoid (SRCF & SRCR)" on simultaneously with the Techstream, and then depress the brake pedal with a stable force.

(3) When the solenoids are on, check that the front wheels cannot be rotated by hand.

If the front wheels can be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheels quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheels as slowly as possible.

(4) When the solenoids are off, turn the "VSC/TRAC Solenoid (SRCF)" on again, and then depress the brake pedal. Check the front wheels by rotating them by hand.

If the front wheels cannot be rotated, replace the brake master cylinder.

(5) When the "VSC/TRAC Solenoid (SRCF)" is off, depress the brake pedal again and check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

(m) Inspect front ABS solenoid (SFRH) operation.

(1) Select "ABS Solenoid (SFRH)" on the Techstream.

(2) Turn the "ABS Solenoid (SFRH)" on with the Techstream, and then depress the brake pedal with a stable force.

(3) When the solenoid is on, check the right front wheel by rotating it by hand.

If the right front wheel cannot be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheel quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(4) When the solenoid is off, depress the brake pedal again and check that the right front wheel cannot be rotated by hand.

If the right front wheel rotates, replace the brake master cylinder.

HINT:

When rotating the wheel quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(n) Inspect front ABS solenoid (SFLH) operation.

(1) Select "ABS Solenoid (SFLH)" on the Techstream.

(2) Turn the "ABS Solenoid (SFLH)" on with the Techstream, and then depress the brake pedal with a stable force.

(3) When the solenoid is on, check the left front wheel by rotating it by hand.

If the left front wheel cannot be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheel quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(4) When the solenoid is off, depress the brake pedal again and check that the left front wheel cannot be rotated by hand.

If the left front wheel rotates, replace the brake master cylinder.

(o) Inspect front ABS solenoid (SFRR) operation.

(1) Select "ABS Solenoid (SFRR & SFRH)" on the Techstream.

(2) Depress the brake pedal with a stable force, and then turn the "ABS Solenoid (SFRR & SFRH)" on simultaneously with the Techstream.

(3) When the solenoids are on, check that the right front wheel by rotating it by hand.

If the right front wheel cannot be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheel quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(4) When the solenoids are off, depress the brake pedal again and check that the right front wheel cannot be rotated by hand.

If the right front wheel rotates, replace the brake master cylinder.

(p) Inspect front ABS solenoid (SFLR) operation.

(1) Select "ABS Solenoid (SFLR & SFLH)" on the Techstream.

(2) Depress the brake pedal with a stable force, and then turn the "ABS Solenoid (SFLR & SFLH)" on simultaneously with the Techstream.

(3) When the solenoids are on, check the left front wheel by rotating it by hand.

If the left front wheel cannot be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheel quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(4) When the solenoids are off, depress the brake pedal again and check that the left front wheel cannot be rotated by hand.

If the left front wheel rotates, replace the brake master cylinder.

(q) Inspect rear VSC solenoid (SREC) operation.

(1) Select "VSC/TRAC Solenoid (SRMF)" on the Techstream.

(2) Depress the brake pedal with a stable force, and then turn the "VSC/TRAC Solenoid (SRMF)" on with the Techstream.

(3) Release the brake pedal when the solenoid is on, and check that the rear wheels cannot be rotated by hand.

If the rear wheels can be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheels quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheels as slowly as possible.

(4) When the solenoid is off, check the rear wheels by rotating them by hand.

If the rear wheels cannot be rotated, replace the brake master cylinder.

(r) Inspect rear VSC solenoid (STR) operation.

(1) Select "VSC/TRAC Solenoid (SRMR & SRMF)" on the Techstream.

(2) Turn the "VSC/TRAC Solenoid (SRMR & SRMF)" on simultaneously with the Techstream.

(3) When the solenoids are on, check that the rear wheels cannot be rotated by hand.

If the rear wheels can be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheels quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheels as slowly as possible.

(4) When the solenoids are off, turn the "VSC/TRAC Solenoid (SRMF)" on again, and check the rear wheels by rotating them by hand.

If the rear wheels cannot be rotated, replace the brake master cylinder.

(5) When the "VSC/TRAC Solenoid (SRMF)" is off, depress the brake pedal again and check that the rear wheels cannot be rotated by hand.

If the rear wheels can be rotated, replace the brake master cylinder.

(s) Inspect rear ABS solenoid (SRRH) operation.

(1) Select "ABS Solenoid (SRRH)" on the Techstream.

(2) Turn the "ABS Solenoid (SRRH)" on with the Techstream, and then depress the brake pedal with a stable force.

(3) When the solenoid is on, check the right rear wheel by rotating it by hand.

If the right rear wheel cannot be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheel quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(4) When the solenoid is off, depress the brake pedal again and check that the right rear wheel cannot be rotated by hand.

If the right rear wheel rotates, replace the brake master cylinder.

HINT:

When rotating the wheel quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(t) Inspect rear ABS solenoid (SRLH) operation.

(1) Select "ABS Solenoid (SRLH)" on the Techstream.

(2) Turn the "ABS Solenoid (SRLH)" on with the Techstream, and then depress the brake pedal with a stable force.

(3) When the solenoid is on, check the left rear wheel by rotating it by hand.

If the left rear wheel cannot be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheel quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(4) When the solenoid is off, depress the brake pedal again and check that the left rear wheel cannot be rotated by hand.

If the left rear wheel rotates, replace the brake master cylinder.

(u) Inspect rear ABS solenoid (SRRR) operation.

(1) Select "ABS Solenoid (SRRR & SRRH)" on the Techstream.

(2) Depress the brake pedal with a stable force, and then turn the "ABS Solenoid (SRRR & SRRH)" on simultaneously with the Techstream.

(3) When the solenoids are on, check the right rear wheel by rotating it by hand.

If the right rear wheel cannot be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheel too quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(4) When the solenoids are off, depress the brake pedal again and check that the right rear wheel cannot be rotated by hand.

If the right rear wheel rotates, replace the brake master cylinder.

(v) Inspect rear ABS solenoid (SRLR) operation.

(1) Select "ABS Solenoid (SRLR & SRLH)" on the Techstream.

(2) Depress the brake pedal with a stable force, and then turn the "ABS Solenoid (SRLR & SRLH)" on simultaneously with the Techstream.

(3) When the solenoids are on, check the left rear wheel by rotating it by hand.

If the left rear wheel cannot be rotated, replace the brake master cylinder.

NOTICE:

When operating the solenoid continuously, set the interval to more than 20 seconds.

HINT:

- To protect the solenoids, the Techstream turns off automatically 2 sec. after every solenoid has been turned on.
- When rotating the wheel too quickly, the fail-safe function is activated and judgment cannot be made properly. Rotate the wheel as slowly as possible.

(4) When the solenoids are off, depress the brake pedal again and check that the left rear wheel cannot be rotated by hand.

If the left rear wheel rotates, replace the brake master cylinder.

(w) Lower the vehicle.

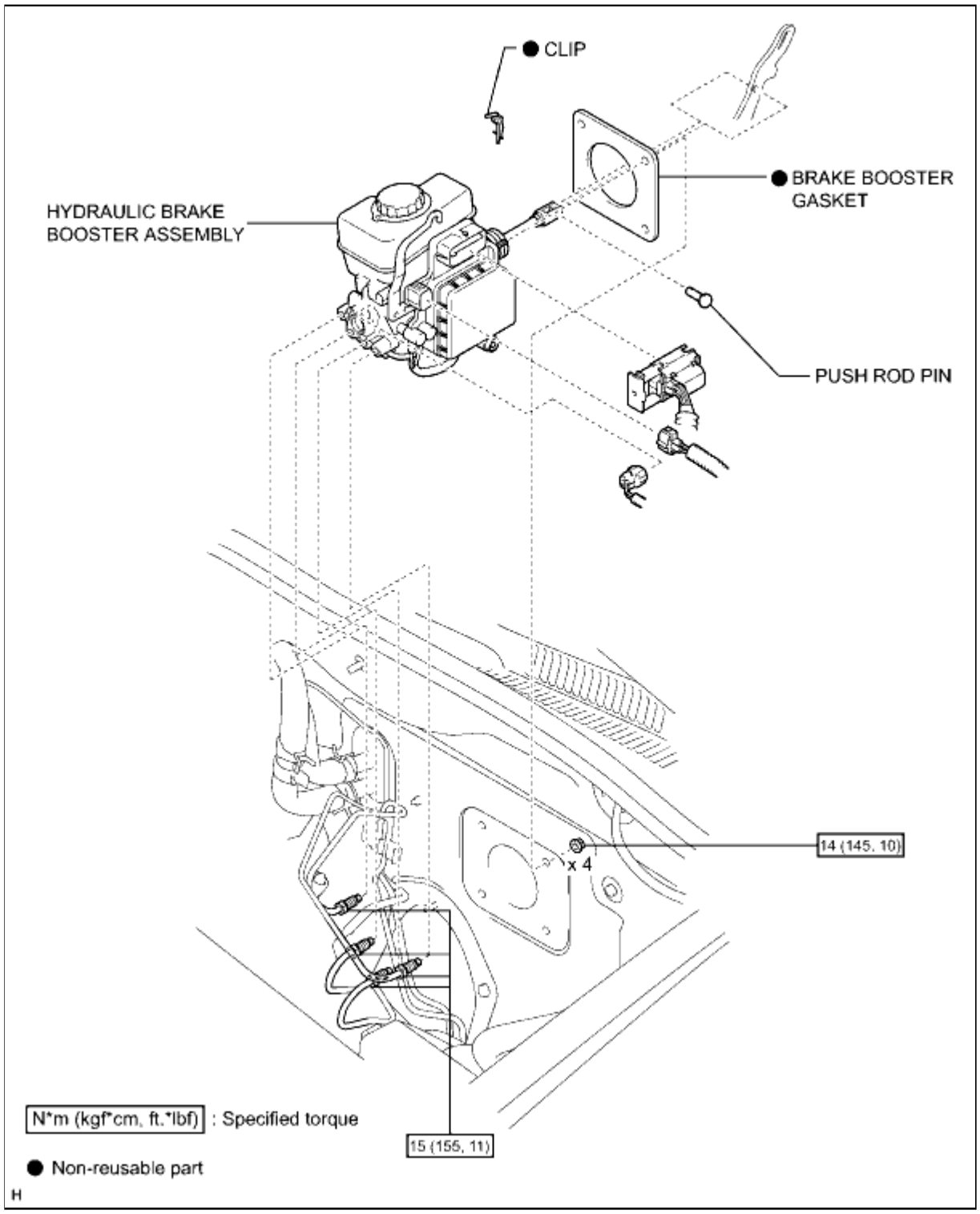
(x) Disconnect the Techstream.

3. INSPECT BRAKE FLUID LEVEL INFO

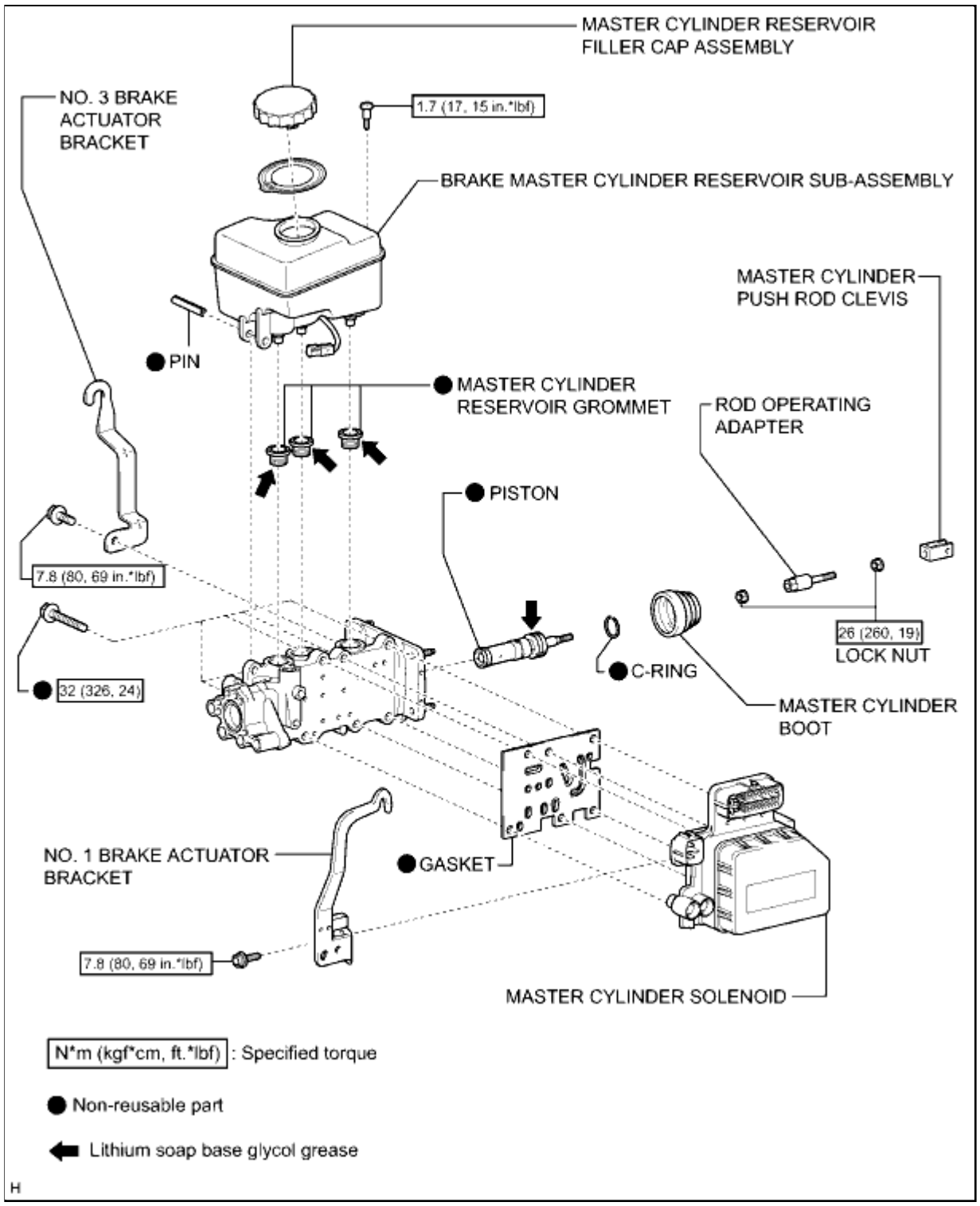
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000171S00TX
Title: BRAKE SYSTEM (OTHER): HYDRAULIC BRAKE BOOSTER: COMPONENTS (2010 4Runner)		

COMPONENTS

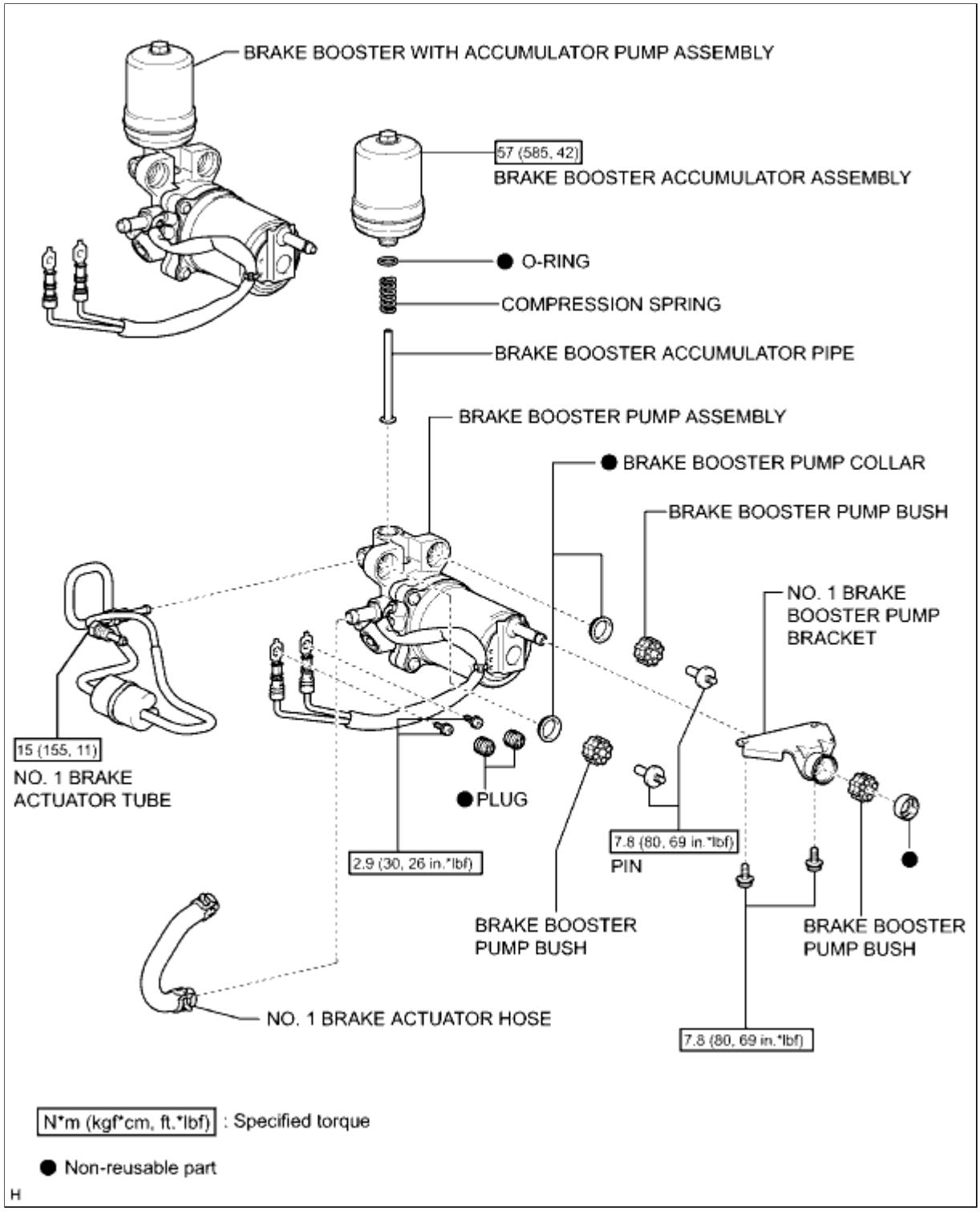
ILLUSTRATION



ILLUSTRATION



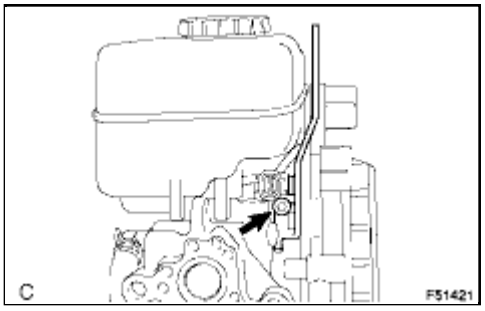
ILLUSTRATION



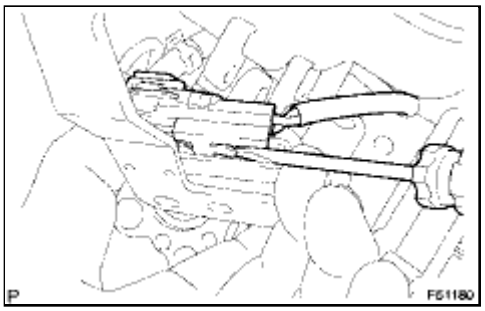
Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000171U00VX
Title: BRAKE SYSTEM (OTHER): HYDRAULIC BRAKE BOOSTER: DISASSEMBLY (2010 4Runner)		

DISASSEMBLY

1. REMOVE NO. 1 BRAKE ACTUATOR BRACKET

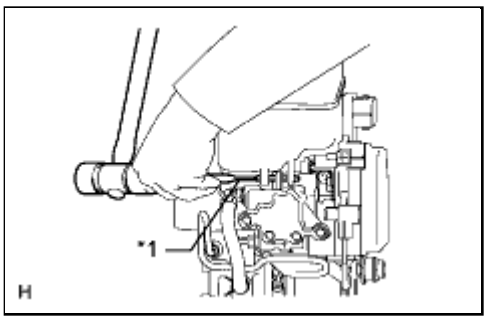


(a) Using a 5 mm hexagon wrench, remove the bolt and No. 1 brake actuator bracket.



(b) Using a screwdriver, remove the brake fluid level warning switch connector from the No. 1 brake actuator bracket.

2. REMOVE BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY

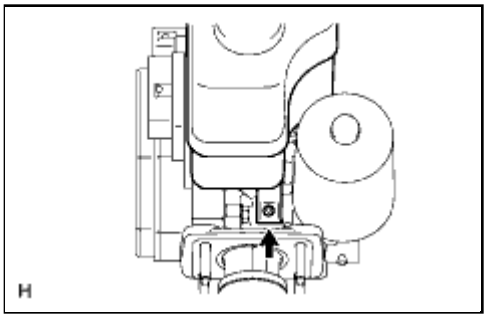


(a) Using a pin punch and hammer, remove the pin from the brake master cylinder reservoir.

Text in Illustration

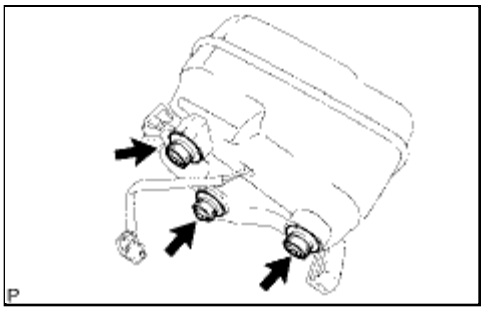
*1	Pin Punch

(b) Remove the screw and pull out the brake master cylinder reservoir sub-assembly.



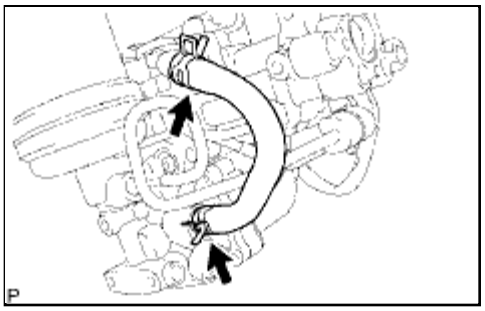
(c) Remove the master cylinder reservoir filler cap.

3. REMOVE MASTER CYLINDER RESERVOIR GROMMET



(a) Remove the 3 reservoir grommets from the master cylinder reservoir.

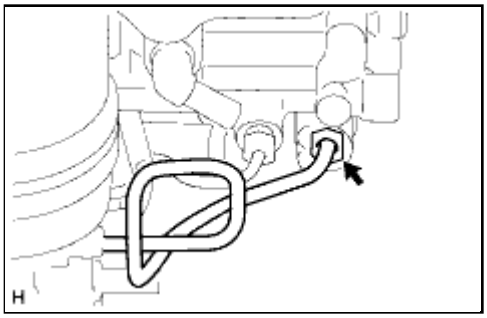
4. REMOVE NO. 1 BRAKE ACTUATOR HOSE



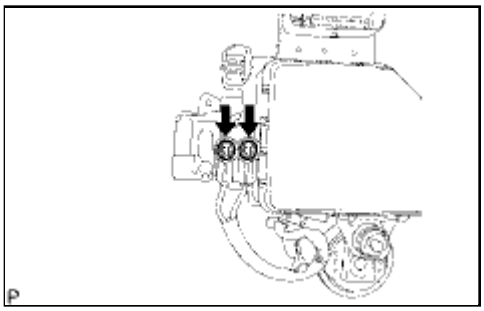
(a) Using needle nose pliers, slide the 2 clips and remove the brake actuator hose and 2 clips.

5. REMOVE NO. 1 BRAKE ACTUATOR TUBE

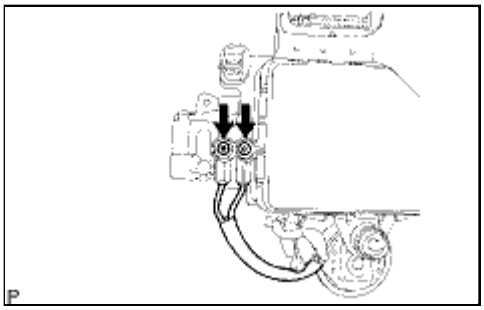
(a) Using a union nut wrench, remove the No. 1 brake actuator tube.



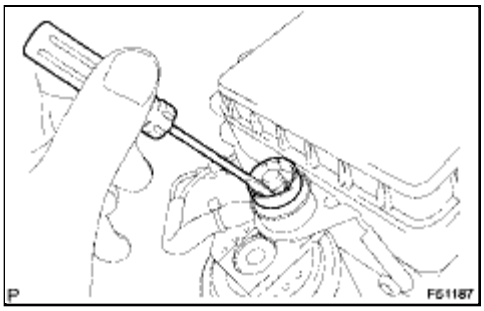
6. REMOVE BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY



(a) Using a screwdriver, remove the 2 plugs.

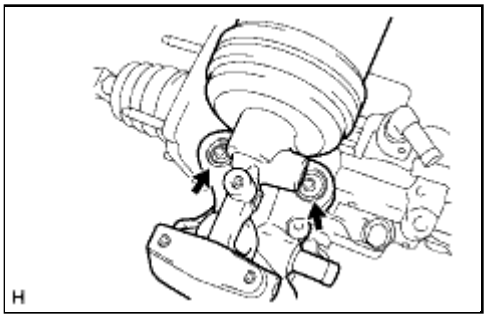


(b) Remove the 2 screws and disconnect the wire harnesses from the master cylinder solenoid.



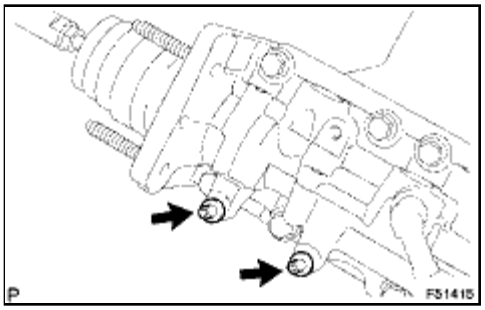
(c) Using a screwdriver, remove the clip.

(d) Remove the brake booster with accumulator pump



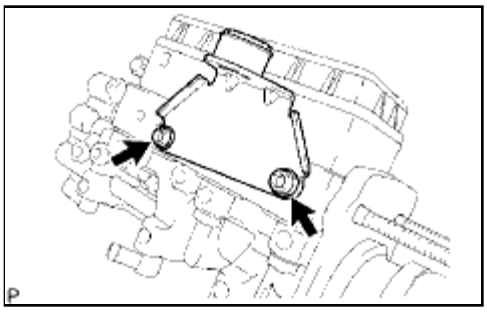
assembly from the brake master cylinder.

(e) Remove the 2 brake booster pump collars and 2 brake booster pump bushes from the brake booster with accumulator pump assembly.



(f) Using a 4 mm hexagon wrench, remove the 2 pins.

7. REMOVE NO. 1 BRAKE BOOSTER PUMP BRACKET

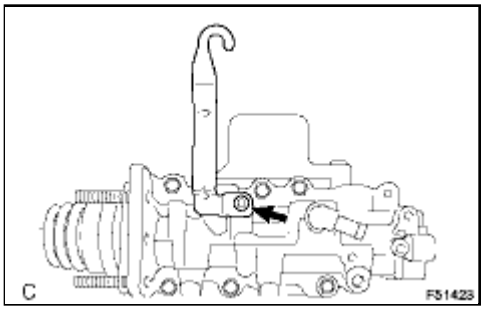


(a) Using a 5 mm hexagon wrench, remove the 2 bolts and No. 1 brake booster pump bracket from the brake master cylinder solenoid.

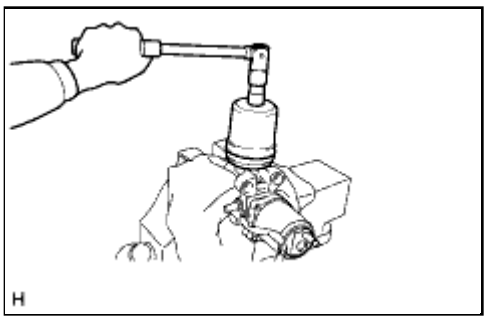
(b) Remove the brake booster pump bush from the No. 1 brake booster pump bracket.

8. REMOVE NO. 3 BRAKE ACTUATOR BRACKET

(a) Remove the bolt and No. 3 brake actuator bracket from the brake master cylinder.



9. REMOVE BRAKE BOOSTER ACCUMULATOR PIPE



(a) Secure the brake booster with accumulator pump assembly in a vise.

(b) Remove the brake booster accumulator.

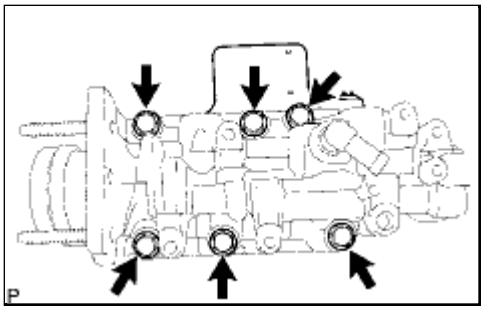
(c) Remove the O-ring from the brake booster accumulator.

NOTICE:

Make sure no foreign matter enters the pump.

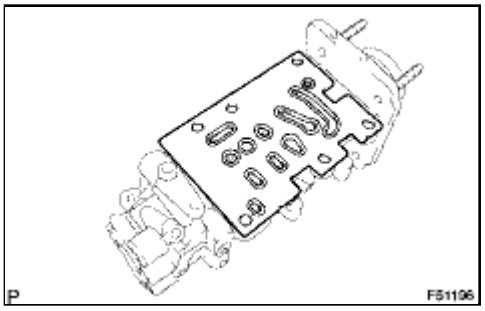
(d) Remove the brake booster accumulator pipe and compression spring.

10. REMOVE MASTER CYLINDER SOLENOID

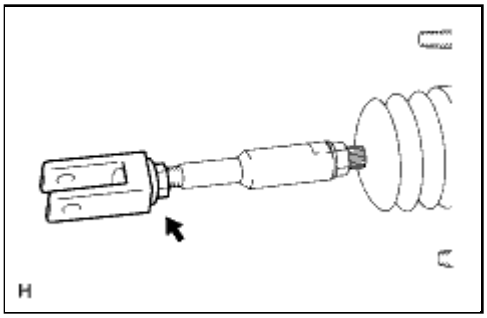


(a) Remove the 6 bolts and master cylinder solenoid.

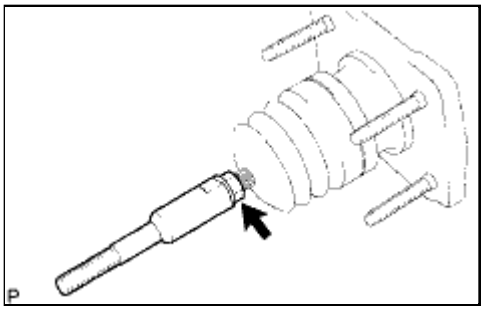
(b) Remove the gasket.



11. REMOVE MASTER CYLINDER PUSH ROD CLEVIS



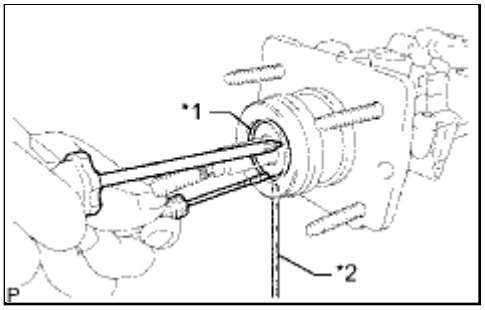
(a) Loosen the lock nut on the rod operating adapter and remove the push rod clevis and lock nut.



(b) Loosen the lock nut on the brake master cylinder side and remove the rod operating adapter and lock nut.

12. REMOVE MASTER CYLINDER BOOT

13. REMOVE BRAKE BOOSTER PISTON SUB-ASSEMBLY



(a) Pressing the piston in with a screwdriver, use a pin or equivalent to push the C-ring from the hole in the master cylinder body and then remove it with another screwdriver.

Text in Illustration

*1	C-Ring

*2	Pin

HINT:

Tape the screwdriver tip before use.

(b) Remove the plug from the piston.

(c) Remove the piston by pulling it straight out, not at an angle.

NOTICE:

If the piston is pulled out at an angle, there is a possibility that the cylinder bore could be damaged.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000171T00VX
Title: BRAKE SYSTEM (OTHER): HYDRAULIC BRAKE BOOSTER: REMOVAL (2010 4Runner)		

REMOVAL

NOTICE:

- When installing, coat the parts indicated by arrows with lithium soap base glycol grease INFO .
- As high pressure is applied to the brake actuator tube No. 1, never deform it.
- Do not turn the ignition switch ON until the procedures are completed.
- Before starting the work, make sure that the ignition switch is off and depress the brake pedal more than 20 times.

HINT:

When pressure in the power supply system is released, the reaction force decreases and the stroke becomes longer.

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTICE:

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

2. DRAIN BRAKE FLUID

NOTICE:

Wash off brake fluid immediately if it comes into contact with a painted surface.

3. REMOVE LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

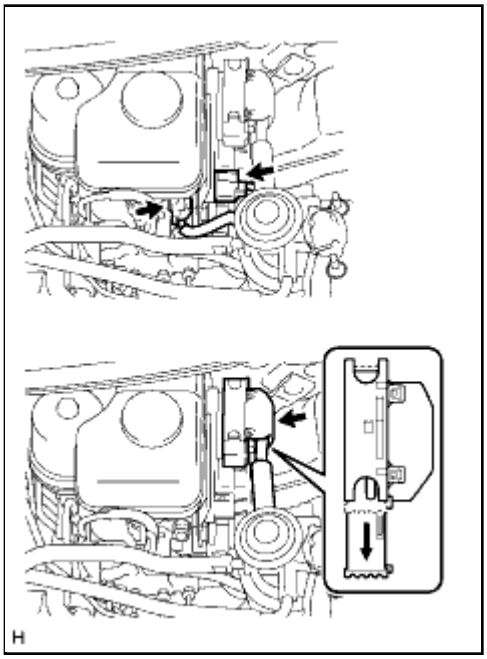
(a) Remove the lower No. 1 instrument panel airbag assembly INFO .

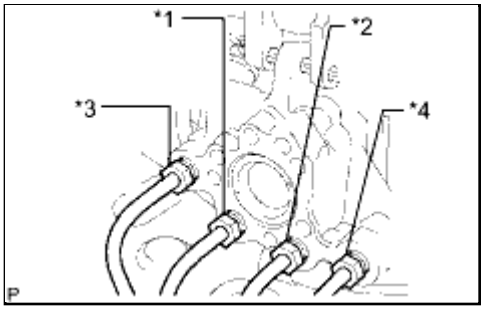
4. REMOVE PUSH ROD PIN

(a) Remove the clip and push rod pin from the brake pedal lever.

5. REMOVE HYDRAULIC BRAKE BOOSTER ASSEMBLY

(a) Disconnect the 3 connectors from the hydraulic brake booster assembly.

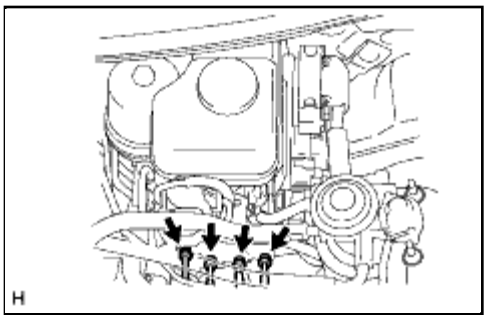




(b) Use tags or make a memo to identify the place to reconnect.

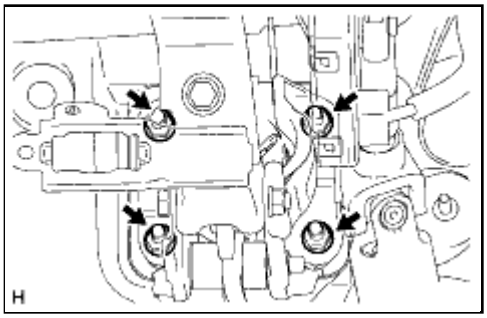
HINT:

- *1: To front wheel cylinder RH
- *2: To front wheel cylinder LH
- *3: To rear wheel cylinder RH
- *4: To rear wheel cylinder LH



(c) Using a union nut wrench, disconnect the 4 brake lines from the hydraulic brake booster assembly.

(d) Remove the 4 nuts and pull out the hydraulic brake booster assembly.



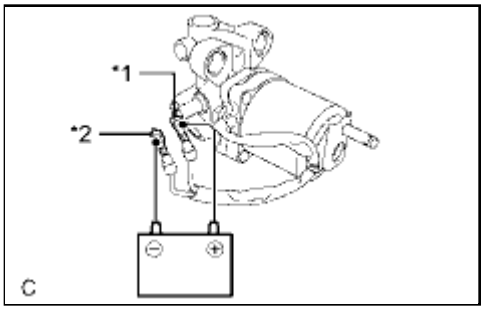
6. REMOVE BRAKE BOOSTER GASKET

(a) Remove the brake booster gasket from the brake master cylinder.

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000171R00VX
Title: BRAKE SYSTEM (OTHER): HYDRAULIC BRAKE BOOSTER: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT BRAKE BOOSTER PUMP ASSEMBLY



(a) Apply battery voltage to the brake booster pump cables, and check the operation of the pump motor.

OK::

MEASUREMENT CONDITION	SPECIFIED CONDITION
Battery positive (+) voltage → Red cable terminal	Pump motor operates
Battery negative (-) voltage → Black cable terminal	

Text in Illustration

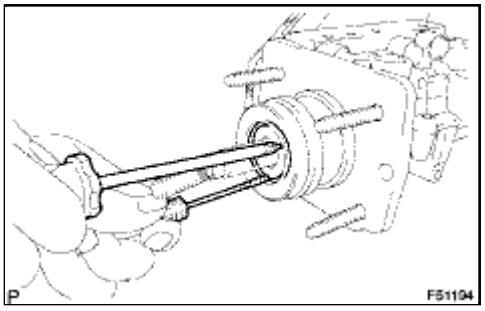
*1	Red Cable
*2	Black Cable

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

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000171V00VX
Title: BRAKE SYSTEM (OTHER): HYDRAULIC BRAKE BOOSTER: REASSEMBLY (2010 4Runner)		

REASSEMBLY

1. INSTALL BRAKE BOOSTER PISTON SIB-ASSEMBLY



(a) Apply a light coat of lithium soap base glycol grease to a new piston.

(b) Install the piston.

NOTICE:

When installing, be careful not to damage the seals, etc.

(c) Install the piston.

(d) Using 2 screwdrivers, install a new snap C-ring while pressing in the piston.

HINT:

Tape the screwdriver tip before use.

2. INSTALL MASTER CYLINDER BOOT

3. INSTALL MASTER CYLINDER PUSH ROD CLEVIS

(a) Install the brake master cylinder side lock nut and rod operating adapter to the brake master cylinder.

Torque: 26 N·m (260 kgf·cm, 19ft·lbf)

(b) Install the lock nut and master cylinder push rod clevis to the rod operating adapter.

Torque: 26 N·m (260 kgf·cm, 19ft·lbf)

4. INSTALL MASTER CYLINDER SOLENOID

(a) Install a new gasket.

NOTICE:

Keep all surfaces of the master cylinder solenoid, master cylinder and gasket, especially contact surfaces, away from water and dust.

(b) Install the master cylinder solenoid with 6 new bolts.

Torque: 32 N·m (326 kgf·cm, 24ft·lbf)

5. INSTALL BRAKE BOOSTER ACCUMULATOR PIPE

(a) Install the brake booster accumulator pipe and compression spring.

NOTICE:

Make sure that no foreign matter enters the pump.

(b) Install a new O-ring to the brake booster accumulator assembly.

(c) Install the brake booster accumulator assembly.

Torque: 57 N·m (585 kgf·cm, 42ft·lbf)

6. INSTALL NO. 3 BRAKE ACTUATOR BRACKET

(a) Install the No. 3 brake actuator bracket.

Torque: 7.8 N·m (80 kgf·cm, 69in·lbf)

7. INSTALL NO. 1 BRAKE BOOSTER PUMP BRACKET

(a) Install the brake booster pump bush to the No. 1 brake booster pump bracket.

(b) Using a 5 mm hexagon wrench, install the No. 1 brake booster pump bracket with the 2 bolts.

Torque: 7.8 N·m (80 kgf·cm, 69in·lbf)

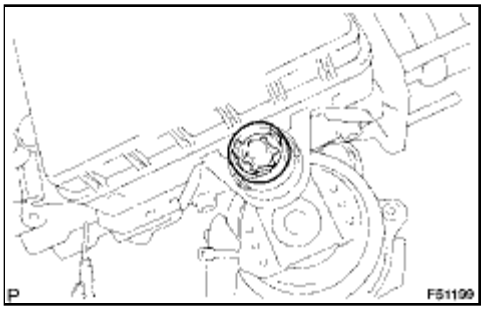
8. INSTALL BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY

(a) Using a 4 mm hexagon wrench, install the 2 pins to the brake master cylinder.

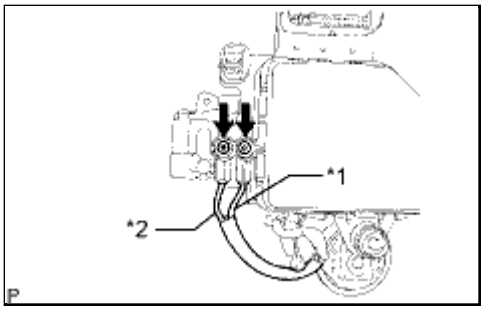
Torque: 7.8 N·m (80 kgf·cm, 69in·lbf)

(b) Install 2 new brake booster pump collars and 2 brake booster pump bushes to the brake booster with accumulator pump assembly.

(c) Install the brake booster with accumulator pump assembly to the brake master cylinder.



(d) Install a new clip.



(e) Connect the wire harnesses with the 2 screws.

Torque: 2.9 N·m (30 kgf·cm, 26in·lbf)

Text in Illustration

*1	Red Cable
*2	Black Cable

(f) Install 2 new plugs.

9. INSTALL NO. 1 BRAKE ACTUATOR TUBE

(a) Using a union nut wrench, install the No. 1 brake actuator tube.

Torque: 15 N·m (155 kgf·cm, 11ft·lbf)

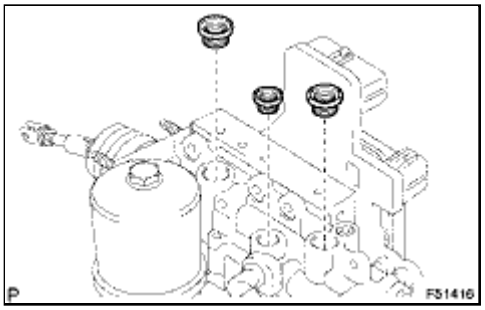
NOTICE:

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

10. INSTALL NO. 1 BRAKE ACTUATOR HOSE

(a) Using needle nose pliers, install the brake actuator hose with the 2 clips.

11. INSTALL MASTER CYLINDER RESERVOIR GROMMET



(a) Apply a light coat of lithium soap base glycol grease to 3 new reservoir grommets.

(b) Install the 3 reservoir grommets to the brake master cylinder.

HINT:

Be careful of the size of each grommet.

12. INSTALL BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY

(a) Install the brake master cylinder reservoir sub-assembly with the screw.

Torque: 1.7 N·m (17 kgf·cm, 15in·lbf)

(b) Install the master cylinder reservoir filler cap.

(c) Using a pin punch and hammer, install a new pin to the brake master cylinder reservoir sub-assembly.

13. INSTALL NO. 1BRAKE ACTUATOR BRACKET

(a) Install the brake fluid level warning switch connector to the No. 1 brake actuator bracket.

(b) Using a 5 mm hexagon wrench, install the No. 1 brake actuator bracket with the bolt.

Torque: 7.8 N·m (80 kgf·cm, 69in·lbf)

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000171Q00VX
Title: BRAKE SYSTEM (OTHER): HYDRAULIC BRAKE BOOSTER: INSTALLATION (2010 4Runner)		

INSTALLATION

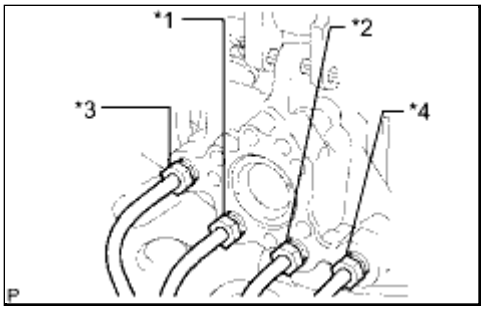
1. INSTALL BRAKE BOOSTER GASKET

(a) Install a new brake booster gasket to the hydraulic brake booster.

2. INSTALL HYDRAULIC BRAKE BOOSTER ASSEMBLY

(a) Install the hydraulic brake booster assembly with the 4 nuts.

Torque: 14 N·m (145 kgf·cm, 10ft·lbf)



(b) Connect the 4 brake lines to the correct positions of the hydraulic brake booster assembly as shown in the illustration.

HINT:

- *1: To front wheel cylinder RH
- *2: To front wheel cylinder LH
- *3: To rear wheel cylinder RH
- *4: To rear wheel cylinder LH

(c) Using a union nut wrench, connect the 4 brake lines to the hydraulic brake booster assembly.

Torque: 15 N·m (155 kgf·cm, 11ft·lbf)

NOTICE:

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

(d) Connect the 3 connectors to the hydraulic brake booster assembly.

3. INSTALL PUSH ROD PIN INFO

4. INSTALL LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

(a) Install the lower No. 1 instrument panel airbag assembly INFO .

5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

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

6. BLEED BRAKE SYSTEM INFO

7. CHECK AND ADJUST BRAKE PEDAL

(a) Check and adjust brake pedal INFO .

8. INSPECT BRAKE MASTER CYLINDER OPERATION

(a) Inspect the brake master cylinder operation INFO .

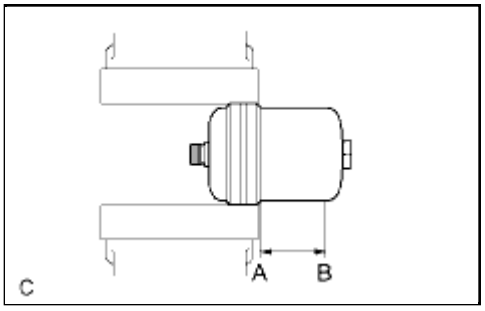
9. PERFORM YAW RATE AND ACCELERATION SENSOR ZERO POINT CALIBRATION

(a) Perform the yaw rate and acceleration sensor zero point calibration INFO .

Last Modified: 5-10-2010	6.4 N	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000017CW00VX
Title: BRAKE SYSTEM (OTHER): HYDRAULIC BRAKE BOOSTER: DISPOSAL (2010 4Runner)		

DISPOSAL

1. DISPOSE OF BRAKE BOOSTER ACCUMULATOR ASSEMBLY



(a) Place the brake booster accumulator assembly in a vise and cover it with cloth.

(b) Using a saw, cut the brake booster accumulator body between A and B as shown in the illustration to discharge the gas inside.

CAUTION:

- Cover the accumulator with a piece of cloth when working because gas may blow out.
- Cut the accumulator carefully, not abruptly.
- Wear protective glasses.

(c) When the outer body of the brake booster accumulator is cut, gas and liquid discharge.

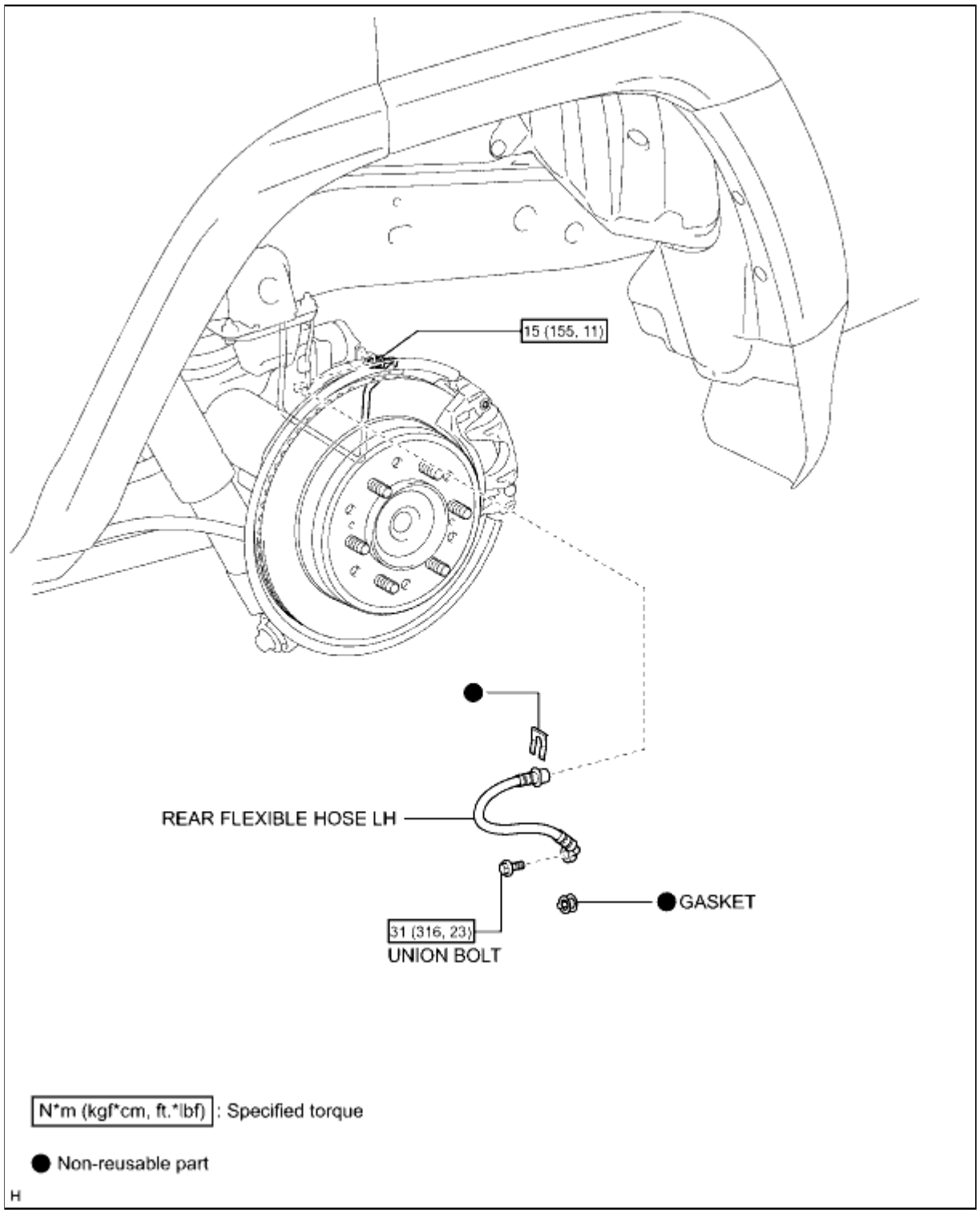
HINT:

The gas is colorless, odorless and non-poisonous.

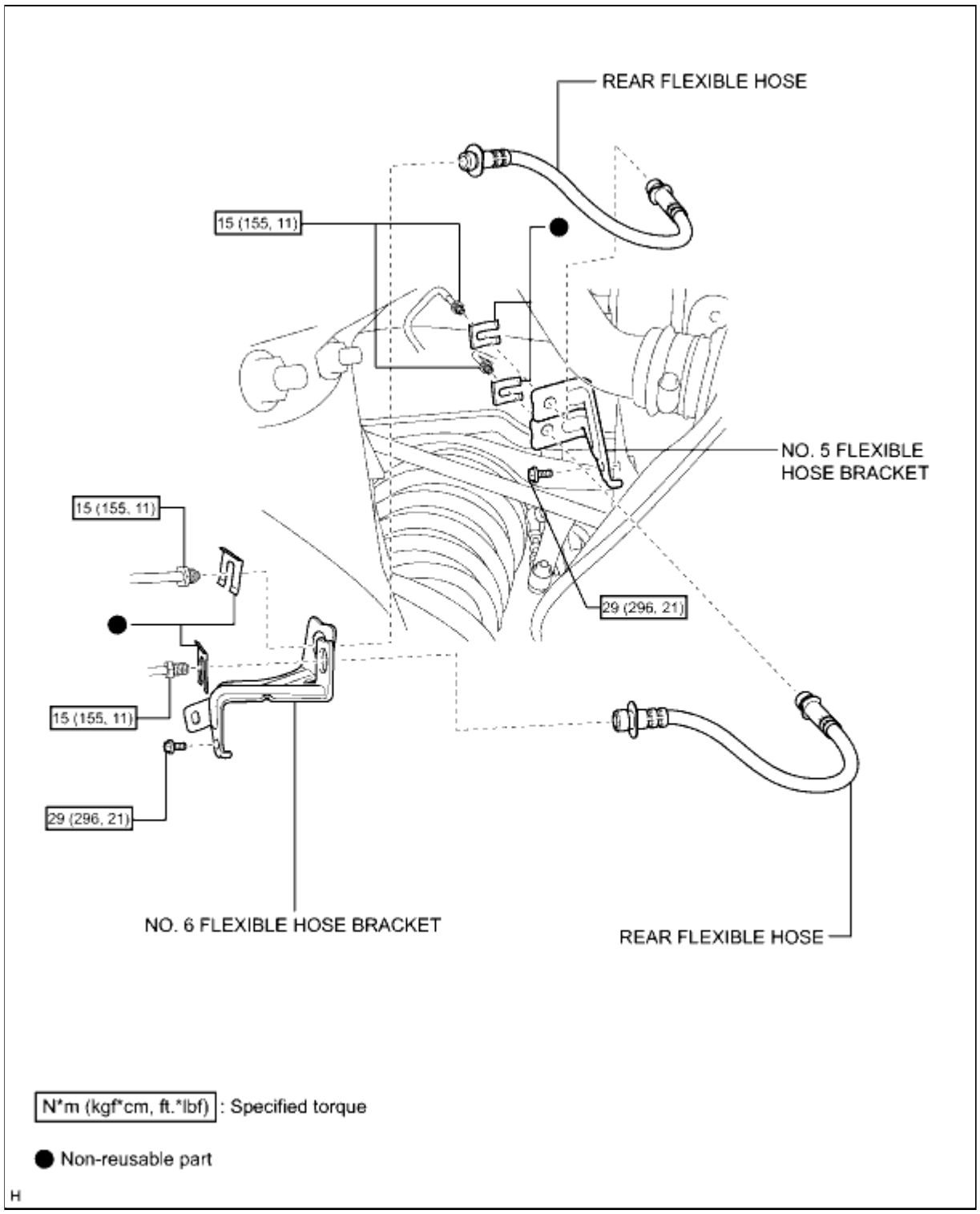
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001HK000WX
Title: BRAKE (REAR): REAR BRAKE FLEXIBLE HOSE: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001HK1012X
Title: BRAKE (REAR): REAR BRAKE FLEXIBLE HOSE: REMOVAL (2010 4Runner)		

REMOVAL

HINT:

- Use the same procedure for the RH and LH sides.
- The procedure listed below is for the LH side.

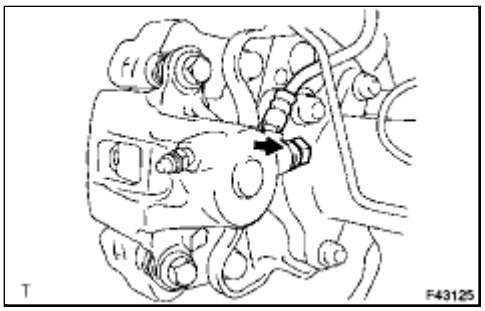
1. REMOVE REAR WHEEL

2. DRAIN BRAKE FLUID

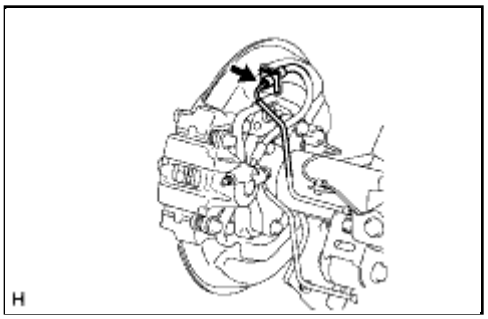
NOTICE:

Wash off brake fluid immediately if it comes in contact with any painted surface.

3. REMOVE REAR FLEXIBLE HOSE LH



(a) Remove the union bolt, gasket and rear flexible hose from the rear disc brake cylinder.



(b) Disconnect the brake tube from the rear flexible hose with a union nut wrench while holding the rear flexible hose with a wrench.

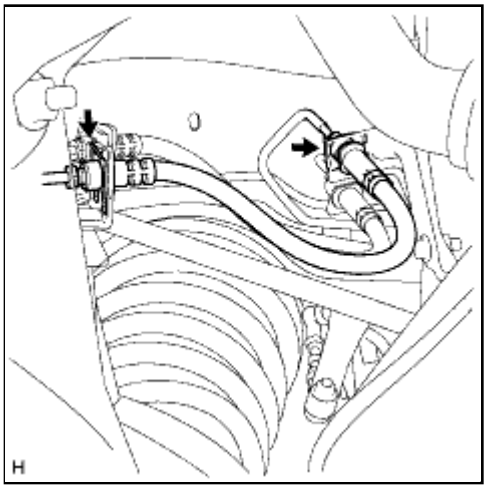
NOTICE:

- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.

(c) Remove the clip.

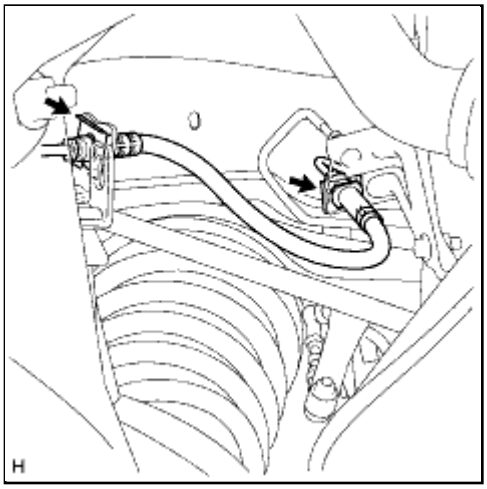
4. REMOVE REAR FLEXIBLE HOSE

(a) Disconnect each brake tube from the rear flexible hose with a union nut wrench while holding the rear flexible hose with a wrench.



(b) Remove the 2 clips.

(c) Remove the rear flexible hose.



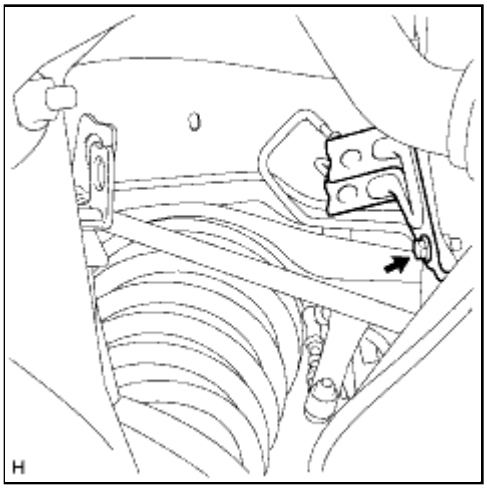
(d) Disconnect each brake tube from the rear flexible hose with a union nut wrench while holding the rear flexible hose with a wrench.

(e) Remove the 2 clips.

(f) Remove the rear flexible hose.

5. REMOVE NO. 5 FLEXIBLE HOSE BRACKET

(a) Remove the bolt and bracket from the upper arm bracket.



6. REMOVE NO. 6 FLEXIBLE HOSE BRACKET

(a) Remove the bolt and bracket from the rear axle housing.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001HJZ014X
Title: BRAKE (REAR): REAR BRAKE FLEXIBLE HOSE: INSTALLATION (2010 4Runner)		

INSTALLATION

HINT:

- Use the same procedure for the RH and LH sides.
- The procedure listed below is for the LH side.

1. INSTALL NO. 5 FLEXIBLE HOSE BRACKET

(a) Install the bracket with the bolt.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)

NOTICE:

Make sure the bracket rotation stopper touches the installation position.

2. INSTALL NO. 6 FLEXIBLE HOSE BRACKET

(a) Install the bracket with the bolt.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)

3. INSTALL REAR FLEXIBLE HOSE

(a) Connect the rear flexible hose to the connecting point with each brake tube, and then install 2 new clips.

(b) Using a union nut wrench, connect each brake tube to the rear flexible hose while holding the rear flexible hose with a wrench.

Torque: 15 N·m (155 kgf·cm, 11ft·lbf)

NOTICE:

- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.
- Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench  .

(c) Connect the rear flexible hose to the connecting point with each brake tube, and then install 2 new clips.

(d) Using a union nut wrench, connect each brake tube to the rear flexible hose while holding the rear flexible hose with a wrench.

Torque: 15 N·m (155 kgf·cm, 11ft·lbf)

NOTICE:

- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.
- Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench  .

4. INSTALL REAR FLEXIBLE HOSE LH

(a) Connect the rear flexible hose to the connecting point with the brake tube, and then install a new clip.

(b) Using a union nut wrench, connect the brake tube to the rear flexible hose while holding the rear flexible hose with a wrench.

Torque: 15 N·m (155 kgf·cm, 11ft·lbf)

NOTICE:

- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.
- Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench INFO .

(c) Install the rear flexible hose and a new gasket to the rear disc brake cylinder with the union bolt.

Torque: 31 N·m (316 kgf·cm, 23ft·lbf)

HINT:

Install the rear flexible hose lock securely to the lock hole in the cylinder.

5. BLEED BRAKE LINE INFO

6. INSTALL REAR WHEEL INFO