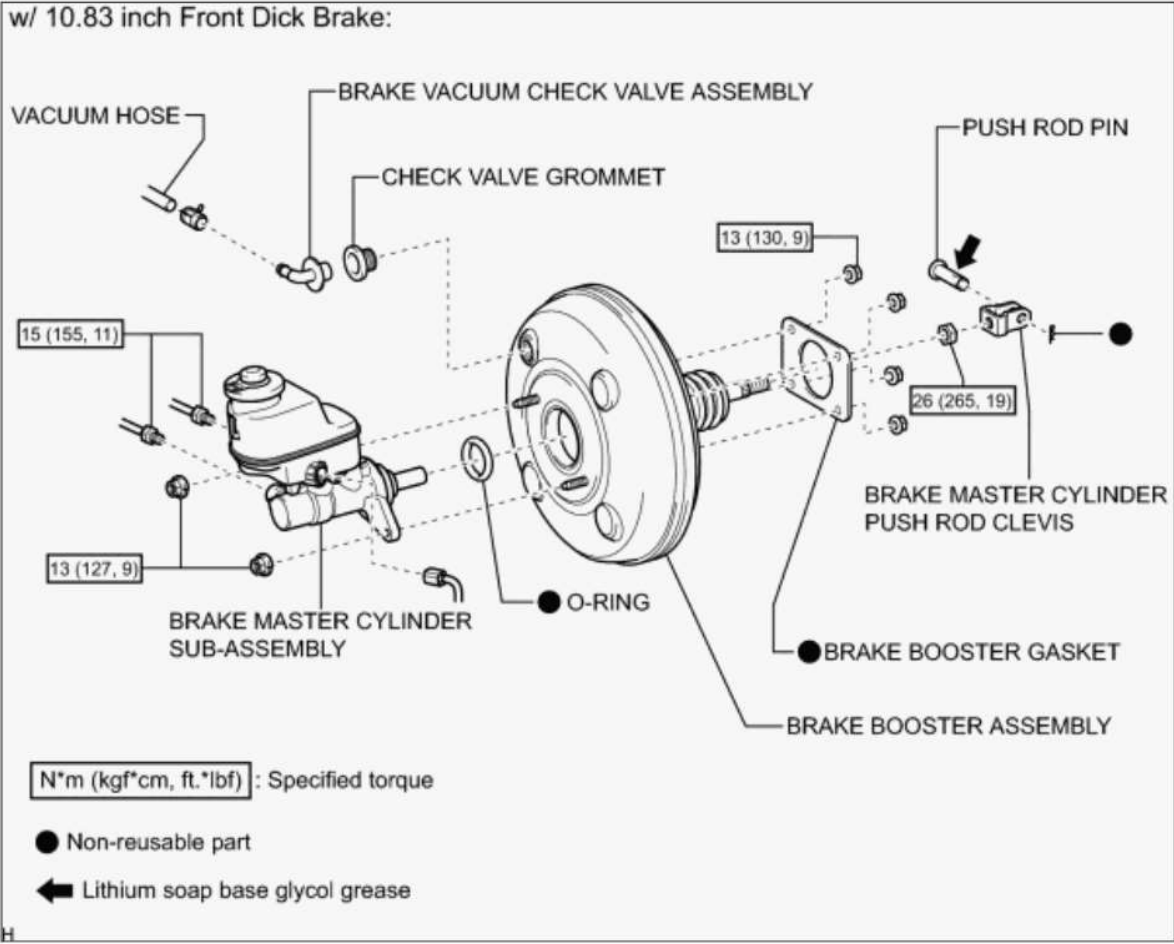


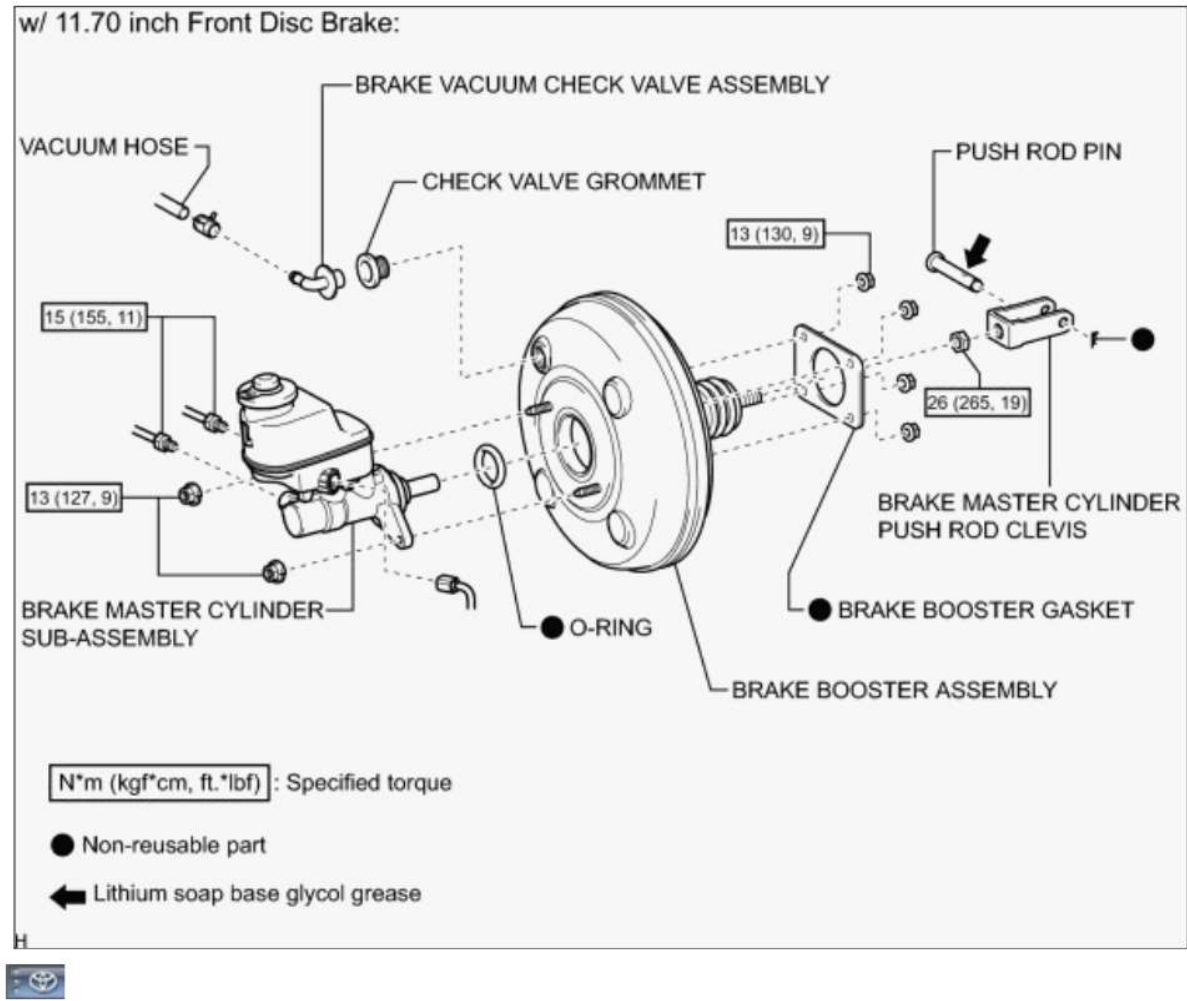
Last Modified: 9-7-2011	6.4 K	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJC00MX
Title: BRAKE: BRAKE BOOSTER: COMPONENTS (2011 RAV4)		

COMPONENTS

ILLUSTRATION



ILLUSTRATION



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Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJB019X
Title: BRAKE: BRAKE BOOSTER: INSTALLATION (2011 RAV4)		

INSTALLATION

1. INSTALL CHECK VALVE GROMMET

- (a) Install the grommet to the booster.

2. INSTALL BRAKE VACUUM CHECK VALVE ASSEMBLY

- (a) Install the check valve to the grommet.

3. INSTALL BRAKE BOOSTER GASKET

- (a) Install a new gasket to the booster.

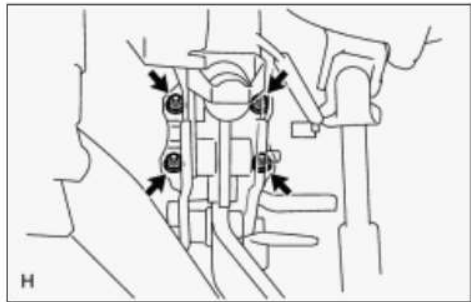
4. INSTALL BRAKE MASTER CYLINDER PUSH ROD CLEVIS

- (a) Install the push rod clevis to the booster.
- (b) Partially tighten the push rod clevis lock nut.

HINT:

The push rod clevis lock nut will be tightened to a torque specification in the "CHECK AND ADJUST BRAKE PEDAL HEIGHT" procedures.

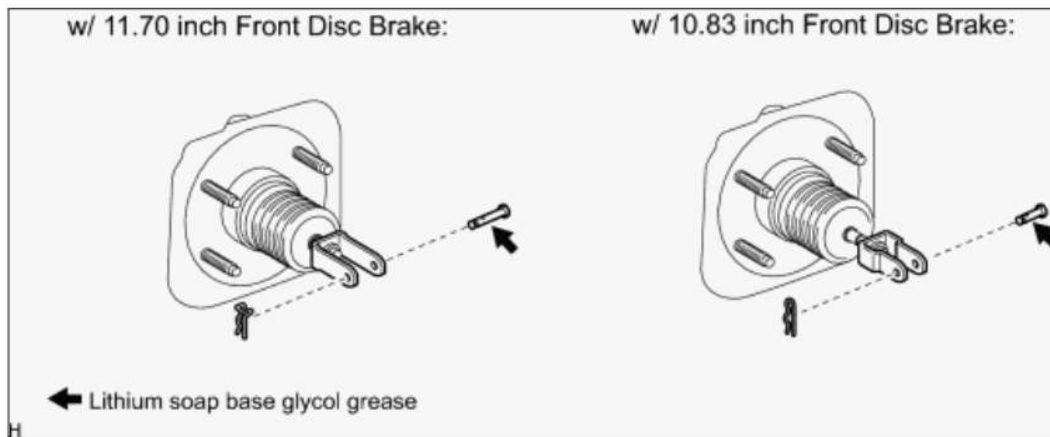
5. INSTALL BRAKE BOOSTER ASSEMBLY



- (a) Install the booster with the 4 nuts.
Torque: 13 N·m (130 kgf·cm, 9ft·lbf)

6. INSTALL PUSH ROD PIN

- (a) Apply a light coat of lithium soap base glycol grease to the push rod pin.



(b) Install the push rod pin to the push rod clevis.

NOTICE:

The push rod pin must be installed as shown in the illustration.

(c) Install a new clip to the push rod pin.

NOTICE:

The clip must be installed as shown in the illustration.

7. CHECK AND ADJUST BRAKE BOOSTER PUSH ROD [INFO](#)

8. CONNECT VACUUM HOSE

(a) Connect the vacuum hose to the check valve.

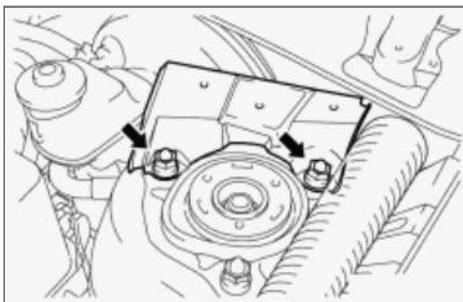
9. INSTALL BRAKE MASTER CYLINDER SUB-ASSEMBLY [INFO](#)

10. INSTALL BRAKE ACTUATOR ASSEMBLY WITH BRACKET

(a) Install brake actuator assembly with bracket [INFO](#).

11. CONNECT BRAKE LINES [INFO](#)

12. INSTALL COWL BODY MOUNTING REINFORCEMENT LH

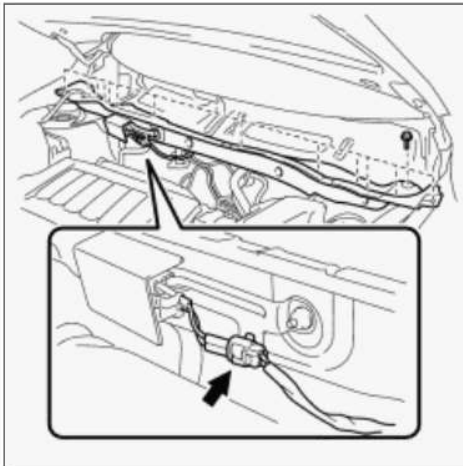


(a) Install the cowl body mounting reinforcement LH with the 2 nuts.

Torque: 50 N·m (510 kgf·cm, 37ft·lbf)

13. INSTALL COWL TOP PANEL OUTER SUB-ASSEMBLY

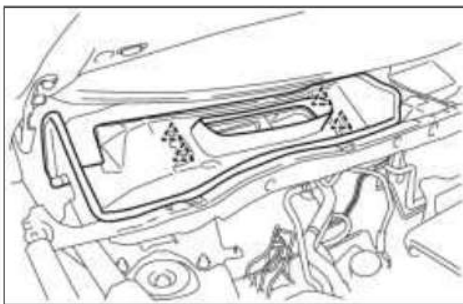
(a) Install the cowl top panel outer sub-assembly with the 14 bolts.



Torque: 7.5 N·m (76 kgf·cm, 66in·lbf)

(b) Connect the connector.

14. INSTALL COWL VENTILATOR HOUSING SUB-ASSEMBLY



(a) Engage the 4 clips to install the cowl ventilator housing sub-assembly.

15. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

(a) Install the windshield wiper motor and link assembly [INFO](#) .

16. REMOVE COWL TOP VENTILATOR LOUVER BRACKET LH [INFO](#)

17. BLEED BRAKE SYSTEM [INFO](#)

18. INSTALL COWL TOP VENTILATOR LOUVER BRACKET LH [INFO](#)

19. CHECK AND ADJUST BRAKE PEDAL

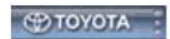
(a) Check and adjust brake pedal [INFO](#) .

20. INSTALL AIR CLEANER CASE SUB-ASSEMBLY (for 2AR-FE)

(a) Install the air cleaner case [INFO](#) .

21. INSTALL AIR CLEANER CASE (for 2GR-FE)

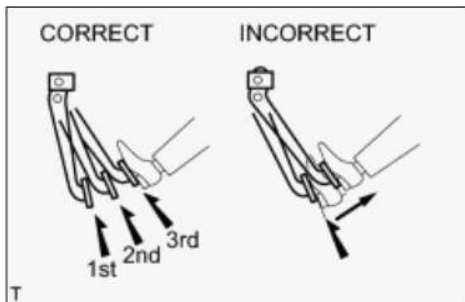
(a) Install the air cleaner case [INFO](#) .



Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJE011X
Title: BRAKE: BRAKE BOOSTER: ON-VEHICLE INSPECTION (2011 RAV4)		

ON-VEHICLE INSPECTION

1. CHECK BRAKE BOOSTER ASSEMBLY



(a) Check the airtightness.

- (1) Start the engine and stop it after 1 or 2 minutes. Slowly depress the brake pedal several times.
- (2) Make sure the booster is airtight. Check that the distance the pedal can be depressed decreases gradually in correlation with each subsequent press of the pedal.

If the pedal is not as specified, check the check valve.

If the check valve is normal, replace the booster.

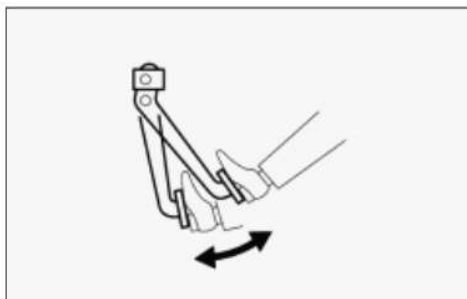
- (3) Start the engine. Depress and hold down the pedal, and stop the engine.
- (4) Make sure the booster is airtight. Hold the pedal for 30 seconds and check that there is no change in the pedal reserve distance.

If the pedal is not as specified, check the check valve.

If the check valve is normal, replace the booster.

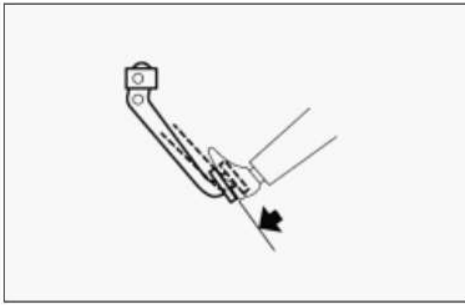
(b) Check the operation.

- (1) Stop the engine.



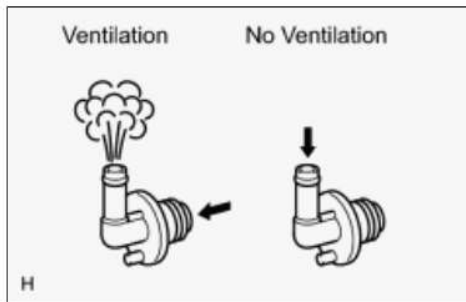
- (2) Depress the pedal several times and check that there is no change in the pedal reserve distance.

- (3) Depress and hold down the pedal, and start the engine. Check that the pedal can only be depressed slightly.



If the pedal is not as specified, check the check valve.

If the check valve is normal, replace the booster.



2. CHECK BRAKE VACUUM CHECK VALVE ASSEMBLY

(a) Check the check valve.

- (1) Slide the clip and disconnect the vacuum hose.
- (2) Remove the check valve from the booster.
- (3) Check that there is ventilation from the booster to the engine, and no ventilation from the engine to the booster.

If the result is not as specified, replace the check valve assembly.



Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJD014X
Title: BRAKE: BRAKE BOOSTER: REMOVAL (2011 RAV4)		

REMOVAL

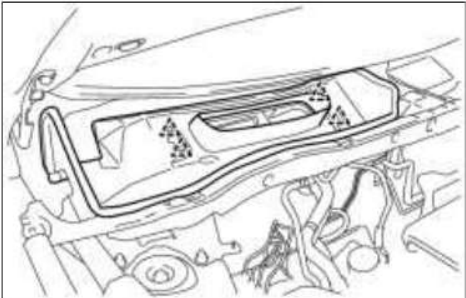
NOTICE:

Make sure to release the vacuum from the brake booster before removing the master cylinder from the brake booster.

1. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

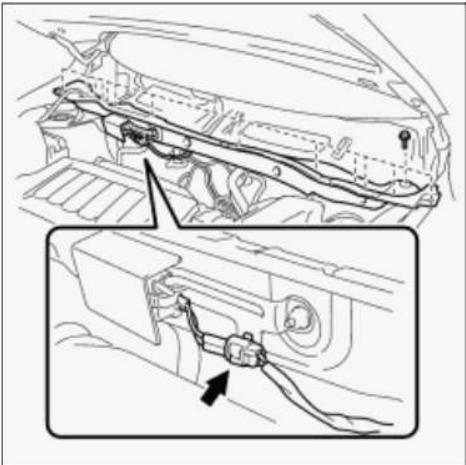
- (a) Remove the windshield wiper motor and link assembly [INFO](#) .

2. REMOVE COWL VENTILATOR HOUSING SUB-ASSEMBLY



- (a) Disengage the 4 clips and remove the cowl ventilator housing sub-assembly.

3. REMOVE COWL TOP PANEL OUTER SUB-ASSEMBLY

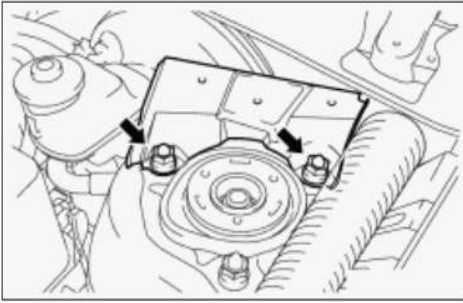


- (a) Disconnect the connector.

- (b) Remove the 14 bolts and cowl top panel outer sub-assembly.

4. REMOVE COWL BODY MOUNTING REINFORCEMENT LH

- (a) Remove the 2 nuts and cowl body mounting reinforcement LH.



5. REMOVE AIR CLEANER CASE SUB-ASSEMBLY (for 2AR-FE)

- (a) Remove the air cleaner case INFO.

6. REMOVE AIR CLEANER CASE (for 2GR-FE)

- (a) Remove the air cleaner case INFO.

7. DRAIN BRAKE FLUID

NOTICE:

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

8. DISCONNECT BRAKE LINES INFO

9. REMOVE BRAKE ACTUATOR ASSEMBLY WITH BRACKET

- (a) Remove brake actuator assembly with bracket INFO.

10. REMOVE BRAKE MASTER CYLINDER SUB-ASSEMBLY INFO

11. DISCONNECT VACUUM HOSE

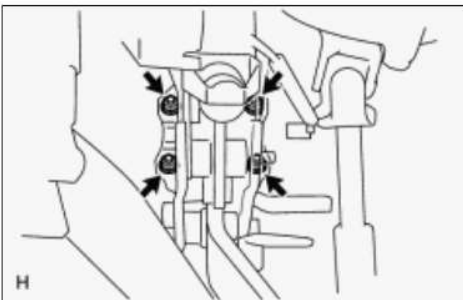
12. REMOVE PUSH ROD PIN

- (a) Remove the clip from the push rod pin.
(b) Remove the push rod pin from the push rod clevis.

13. REMOVE BRAKE MASTER CYLINDER PUSH ROD CLEVIS

- (a) Loosen the push rod clevis lock nut.
(b) Remove the push rod clevis.

14. REMOVE BRAKE BOOSTER ASSEMBLY



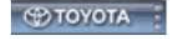
- (a) Remove the 4 nuts.

(b) Pull out the booster with gasket to remove it.

15. REMOVE BRAKE BOOSTER GASKET

16. REMOVE BRAKE VACUUM CHECK VALVE ASSEMBLY

17. REMOVE CHECK VALVE GROMMET



Last Modified: 9-7-2011	6.4 N	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJ200QX
Title: BRAKE: BRAKE FLUID: BLEEDING (2011 RAV4)		

BLEEDING

HINT:

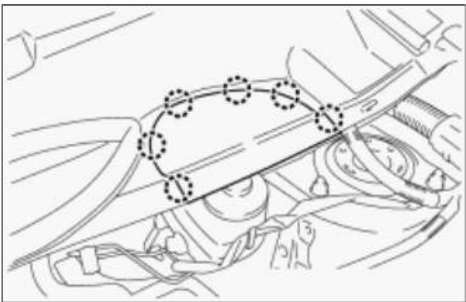
If any work is performed on the brake system or if air in the brake lines is suspected, bleed air from the brake system.

NOTICE:

- Apply the parking brake before bleeding the brakes.
- Add brake fluid to keep the level between the MIN and MAX lines of the reservoir while bleeding the brakes.
- Wash off brake fluid immediately if it comes in contact with any painted surface.
- 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 actuator assembly	Bleed brake system
Brake master cylinder sub-assembly	
Brake master cylinder reservoir assembly	
Brake booster assembly	

1. REMOVE COWL TOP VENTILATOR LOUVER BRACKET LH



(a) Detach the 6 claws and remove the bracket.

2. BLEED BRAKE LINE

- (a) Bleed brake line.
- (1) Remove the brake master cylinder reservoir filler cap assembly.
 - (2) Add brake fluid to keep the level between the MIN and MAX lines of the reservoir while bleeding the brakes.
- Brake fluid:
SAE J1703 or FMVSS No. 116 DOT 3

- (3) Remove the bleeder plug cap.
- (4) Connect a vinyl tube to the bleeder plug.
- (5) Depress the brake pedal several times, and then loosen the bleeder plug with the pedal depressed.*1
- (6) When fluid stops coming out, tighten the bleeder plug, and then release the brake pedal.*2
- (7) Repeat *1 and *2 until all the air in the fluid is completely bled out.
- (8) Tighten the bleeder plug completely.

Torque: 8.3 N·m (85 kgf·cm, 73in·lbf)

- (9) Install the bleeder plug cap.
 - (10) Repeat the above procedure for each wheel to bleed the brake line.
- (b) Inspect for brake fluid leak.
- (c) Check brake fluid level in reservoir INFO.

3. BLEED BRAKE SYSTEM

- (a) Bleed brake master cylinder.

NOTICE:

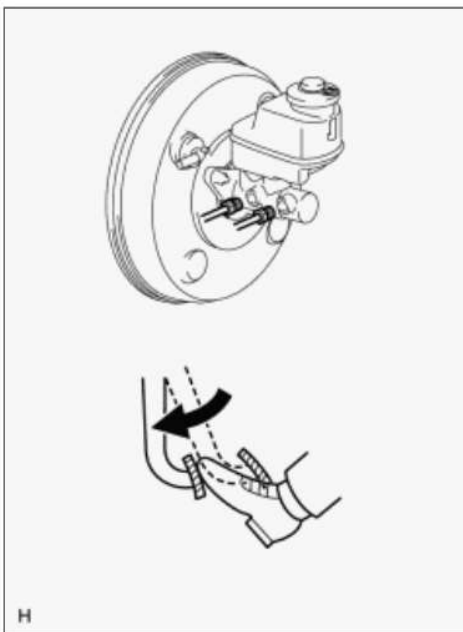
- If the master cylinder is reinstalled or if the reservoir becomes empty, bleed the master cylinder.
- To prevent brake fluid from damaging painted surfaces, cover any surrounding parts with a piece of cloth.

- (1) Remove the brake master cylinder reservoir filler cap assembly.
- (2) Add brake fluid to keep the level between the MIN and MAX lines of the reservoir while bleeding the brakes.

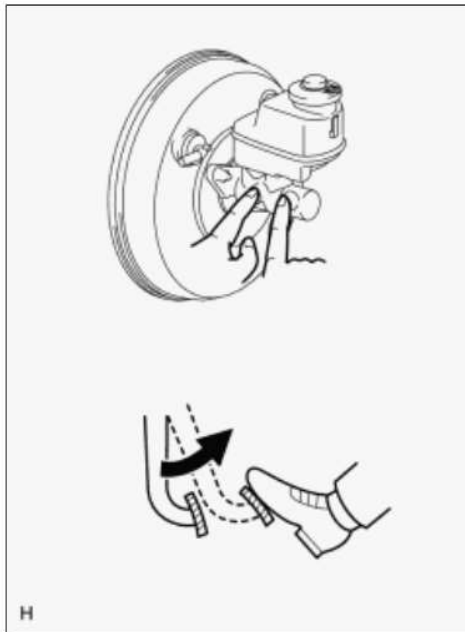
Brake fluid::

SAE J1703 or FMVSS No. 116 DOT 3

- (3) Using a union nut wrench, disconnect the 2 brake lines from the master cylinder.



- (4) Slowly depress the brake pedal and hold it.*1



(5) Cover the 2 outer holes with fingers and release the brake pedal.*2

(6) Repeat *1 and *2 3 or 4 times.

(7) Using a union nut wrench, connect the 2 brake lines to the master cylinder.

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](#) .

(b) Bleed brake line.

(1) Remove the bleeder plug cap.

(2) Connect a vinyl tube to the bleeder plug.

(3) Depress the brake pedal several times, and then loosen the bleeder plug with the pedal depressed.

(4) When fluid stops coming out, immediately tighten the bleeder plug. Then release the pedal.

(5) Repeat the 2 previous steps until all the air in the brake fluid is gone.

(6) Tighten the bleeder plug.

Torque: 8.3 N·m (85 kgf·cm, 73in·lbf)

(7) Remove the vinyl tube and install the cap.

(8) Bleed air from the brake line for each wheel by repeating the above procedures.

(c) Bleed brake actuator assembly.

NOTICE:

After bleeding the air from the brake system, if the height or feel of the brake pedal is not correct, perform air bleeding of the brake actuator with the Techstream by following the procedure below.

(1) Depress the brake pedal more than 20 times with the engine off.

(2) Connect the Techstream to the DLC3, and turn the ignition switch to on.

NOTICE:

Do not start the engine.

(3) Select AIR BLEEDING on the Techstream.

HINT:

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

(4) Bleed the air out of the suction line.

NOTICE:

- Perform the bleeding for the right front wheel and right rear wheel.
- Bleed the air by following the steps displayed on the Techstream.
 1. Connect a vinyl tube to the bleeder plug for the right front wheel.
 2. Loosen the bleeder plug.
 3. Operate the brake actuator to bleed the air using the Techstream.

HINT:

This operation stops automatically after 4 seconds.

NOTICE:

Do not depress the brake pedal at this time.

4. Check if the operation has stopped by referring to the Techstream display.
5. Tighten the bleeder plug.
6. Repeat the 4 previous steps until all air in the fluid is completely bled out.
7. Tighten the bleeder plug.

Torque: 8.3 N·m (85 kgf·cm, 73in·lbf)

8. Repeat all of the above procedures for the right rear wheel to bleed the air out of the suction line.
- (5) Bleed the air out of the pressure reduction line.

NOTICE:

- Perform the bleeding for all 4 wheels.
- Bleed the air by following the steps displayed on the Techstream.
 1. Connect a vinyl tube to one of the bleeder plugs.
 2. Loosen the bleeder plug.
 3. Using the Techstream, operate the brake actuator assembly, completely depress the brake pedal and hold it there.

HINT:

- The operation stops automatically after 4 seconds. When performing this procedure consecutively, wait at least 20 seconds between each operation.

NOTICE:

- During this procedure, the pedal will feel heavy, but completely depress it so that the brake fluid comes out of the bleeder plug.
- Depress and hold the brake pedal. Do not depress and release the pedal repeatedly.
 4. Tighten the bleeder plug, then release the brake pedal.
 5. Repeat the 3 previous steps until all air in the fluid is completely bled out.

6. Tighten the bleeder plug.

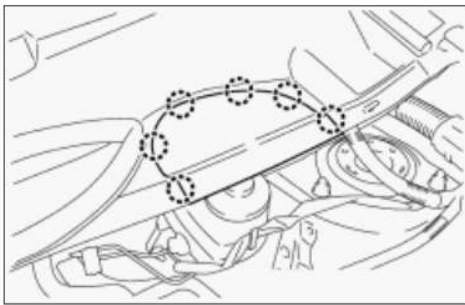
Torque: 8.3 N·m (85 kgf·cm, 73in·lbf)

7. Repeat all of the above procedures for the other wheels to bleed the air out of the pressure reduction line.

(d) Inspect for brake fluid leak.

(e) Check brake fluid level in reservoir .

4. INSTALL COWL TOP VENTILATOR LOUVER BRACKET LH

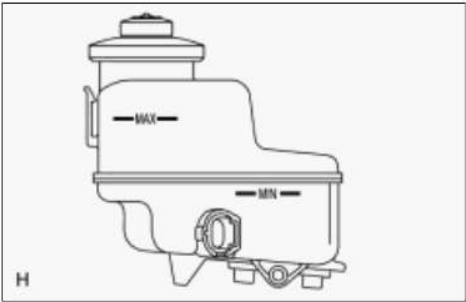


(a) Attach the 6 claws to install the bracket.



Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001JEW00SX
Title: BRAKE: BRAKE FLUID: ON-VEHICLE INSPECTION (2011 RAV4)		

ON-VEHICLE INSPECTION

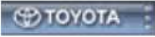


1. CHECK BRAKE FLUID LEVEL IN RESERVOIR

(a) Check the fluid level and add fluid if necessary.

Fluid:
SAE J1703 or FMVSS No. 116 DOT 3

HINT:
The brake fluid level must always be adjust to the MAX line.



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Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000044LX002X
Title: BRAKE: BRAKE FLUID: REPLACEMENT (2011 RAV4)		

REPLACEMENT

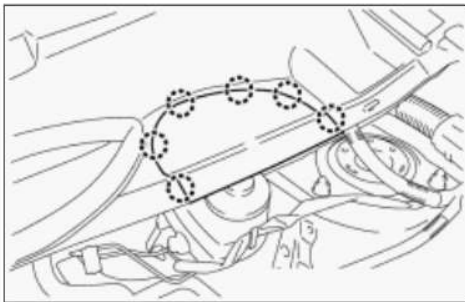
HINT:

If any work is performed on the brake system or if air in the brake lines is suspected, bleed air from the brake system.

NOTICE:

- Apply the parking brake before bleeding the brakes.
- Add brake fluid to keep the level between the MIN and MAX lines of the reservoir while bleeding the brakes.
- If brake fluid leaks onto any painted surface, immediately wash it off.
- Bleed the brake line of the wheel farthest from the master cylinder first.

1. REMOVE COWL TOP VENTILATOR LOUVER BRACKET LH



(a) Detach the 6 claws and remove the bracket.

2. REPLACEMENT BRAKE FLUID

(a) Replacement brake fluid.

- (1) Remove the brake master cylinder reservoir filler cap assembly.
- (2) Add brake fluid to keep the level between the MIN and MAX lines of the reservoir while bleeding the brakes.

Brake Fluid:

SAE J1703 or FMVSS No. 116 DOT 3

- (3) Remove the bleeder plug cap.
- (4) Connect the vinyl tube to the bleeder plug.
- (5) Depress the brake pedal several times, and then loosen the bleeder plug with the pedal depressed.*1
- (6) When fluid stops coming out, tighten the bleeder plug, and then release the brake pedal.*2
- (7) Repeat *1 and *2 until all the air in the fluid is completely bled out.
- (8) Tighten the bleeder plug completely.

Torque: 8.3 N·m (85 kgf·cm, 73in·lbf)

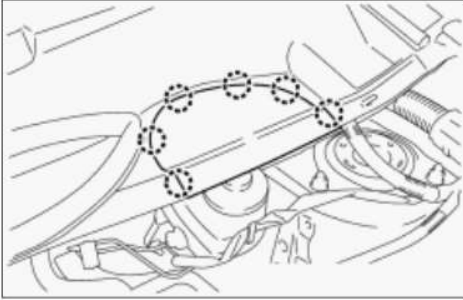
- (9) Remove the vinyl tube and install the bleeder plug cap.

(10) repeat the above procedure for each wheel to bleed the brake line

(b) Inspect fluid level  .

(c) Inspect for brake fluid leak.

3. INSTALL COWL TOP VENTILATOR LOUVER BRACKET LH



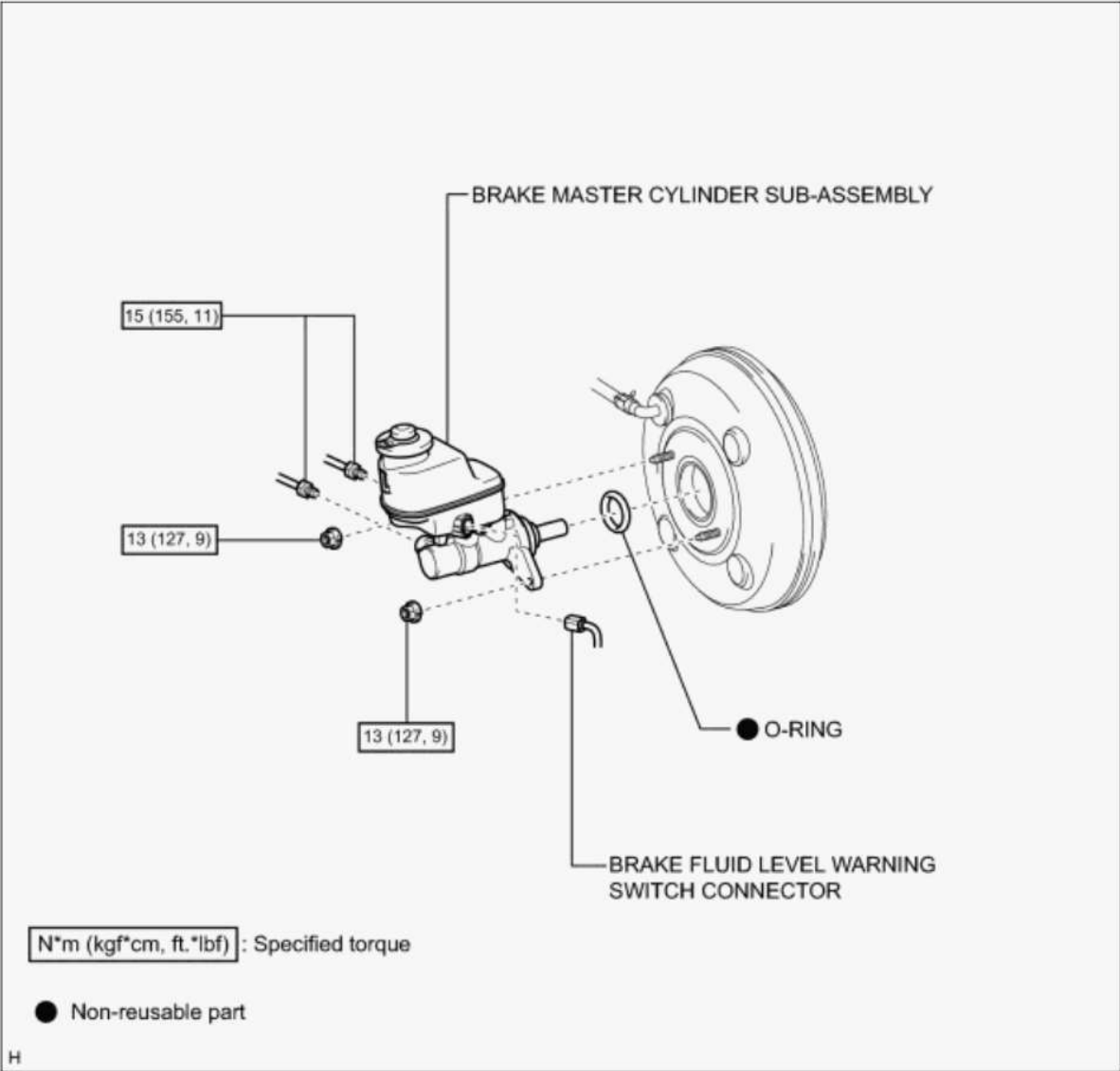
(a) Attach the 6 claws to install the bracket.



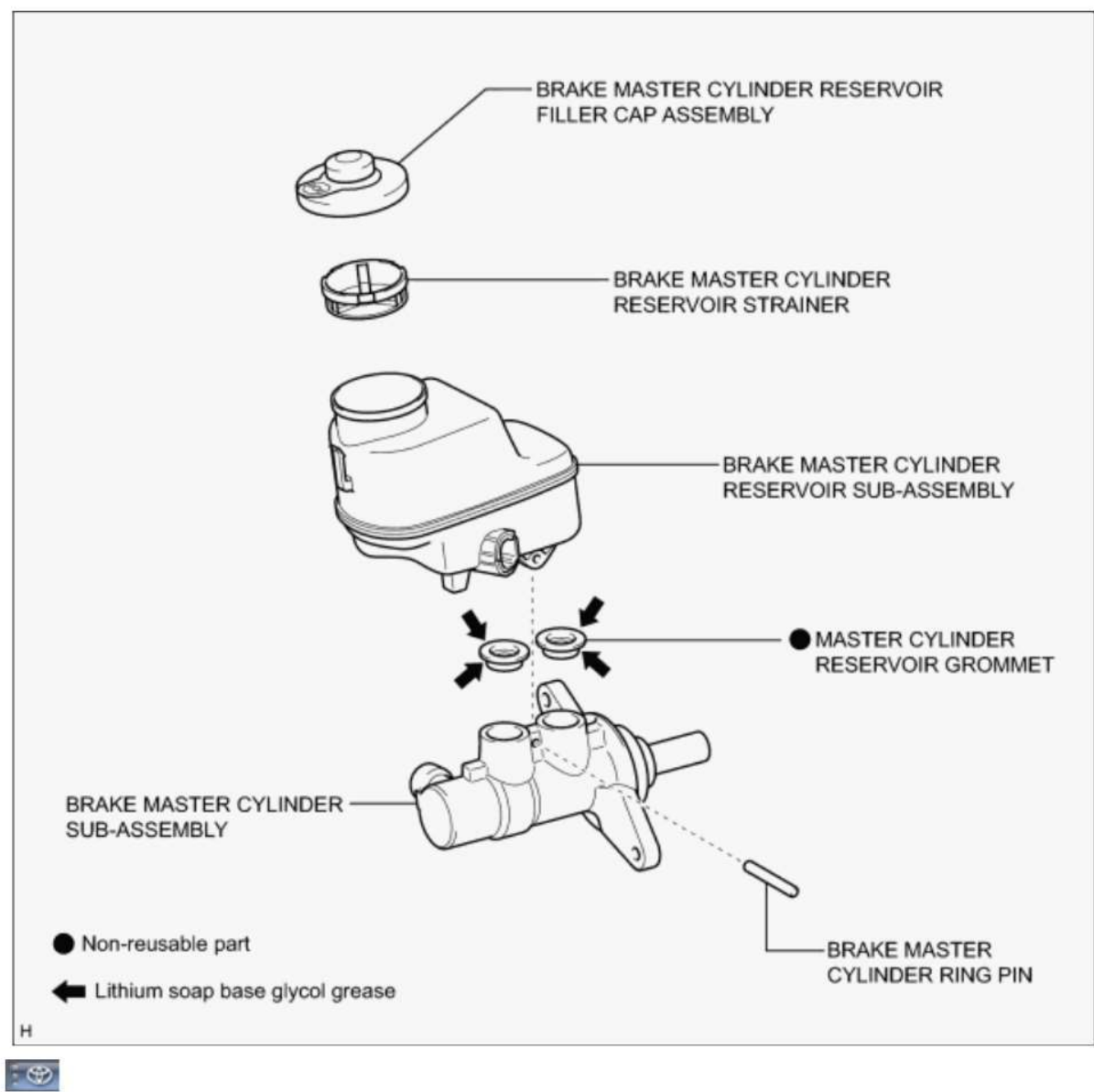
Last Modified: 9-7-2011	6.4 K	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HK800WX
Title: BRAKE: BRAKE MASTER CYLINDER: COMPONENTS (2011 RAV4)		

COMPONENTS

ILLUSTRATION



ILLUSTRATION



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BRAKE: BRAKE MASTER CYLINDER: DISASSEMBLY (2011 RAV4) <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001Z4900MX
Title: BRAKE: BRAKE MASTER CYLINDER: DISASSEMBLY (2011 RAV4)		

DISASSEMBLY

- 1. REMOVE BRAKE MASTER CYLINDER RING PIN
- 2. REMOVE BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY
- 3. REMOVE MASTER CYLINDER RESERVOIR GROMMET
- 4. REMOVE BRAKE MASTER CYLINDER RESERVOIR FILLER CAP ASSEMBLY
- 5. REMOVE BRAKE MASTER CYLINDER RESERVOIR STRAINER



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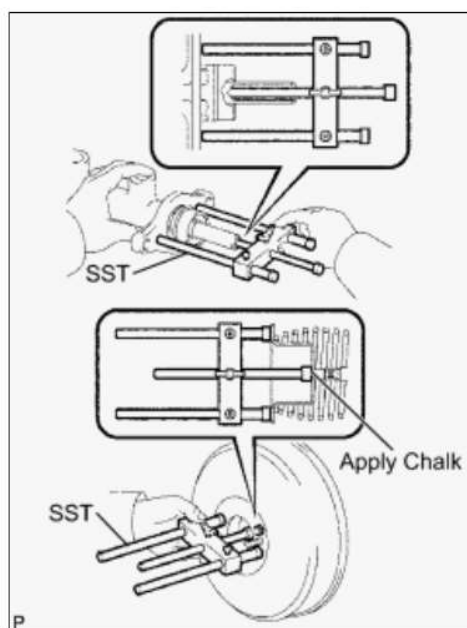
Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HK700WX
Title: BRAKE: BRAKE MASTER CYLINDER: INSPECTION (2011 RAV4)		

INSPECTION

1. INSPECT AND ADJUST BRAKE BOOSTER PUSH ROD

HINT:

Adjust the booster push rod when the master cylinder is replaced with a new one. Adjustment is not necessary when the master cylinder is reinstalled and the booster is replaced with a new one.



- (a) Set SST on the master cylinder and lower the rod of SST until it just touches the piston.

SST: 09737-00013

HINT:

SST 09737-00012 can also be used.

- (b) Apply chalk to the flat tip of the rod of SST. Turn SST upside down and measure the clearance between the brake booster push rod and SST.

Standard clearance:

-0.21 to 0 mm (-0.00827 to 0 in.)

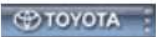
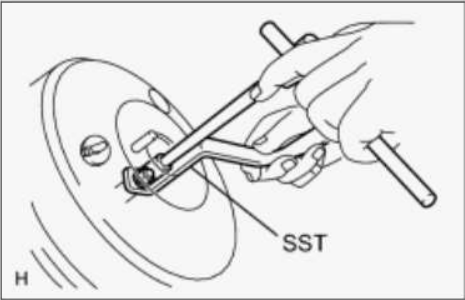
If there is clearance between the main body of SST and the shell of the brake booster, the push rod is protruding too far. If the chalk does not stick to the tip of the brake booster push rod, the push rod protrusion is insufficient.

- (c) If the clearance is not within the standard, adjust the length by holding the rod using SST and turning the tip of the rod using a 7 mm socket driver.

SST: 09737-00020

NOTICE:

Check the push rod clearance again after adjusting.



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Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HK601HX
Title: BRAKE: BRAKE MASTER CYLINDER: INSTALLATION (2011 RAV4)		

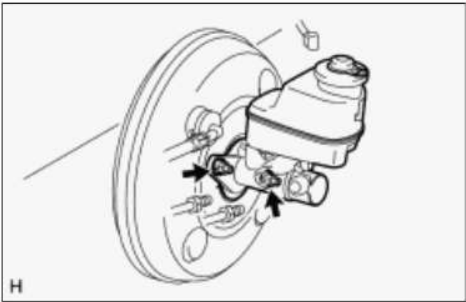
INSTALLATION

1. INSTALL BRAKE MASTER CYLINDER SUB-ASSEMBLY

NOTICE:

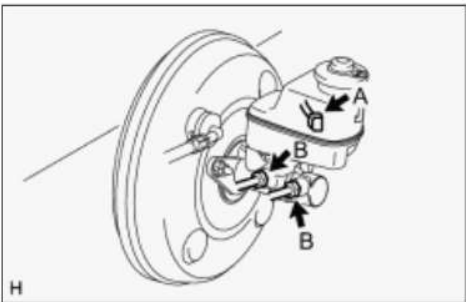
- The master cylinder and piston are designed so that the piston can easily fall out. Prevent this by making sure that the tip of the master cylinder points downward when handling the master cylinder.
- Make sure foreign matter does not adhere to the piston of the master cylinder. If foreign matter adheres, clean it off with a cloth. Then apply lithium soap base glycol grease to the entire outer circumference of the piston surface that contacts the booster.

(a) Install a new O-ring to the master cylinder.



(b) Install the master cylinder to the booster with the 2 nuts.

Torque: 13 N·m (127 kgf·cm, 9ft·lbf)



(c) Using a union nut wrench, connect the 2 brake lines labeled B to the master cylinder.

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 brake fluid level warning switch connector (labeled A) to the master cylinder.

2. REMOVE COWL TOP VENTILATOR LOUVER BRACKET LH INFO

3. BLEED BRAKE SYSTEM INFO

4. INSTALL COWL TOP VENTILATOR LOUVER BRACKET LH INFO

5. INSTALL AIR CLEANER CASE SUB-ASSEMBLY (for 2AR-FE)

(a) Install the air cleaner case INFO .

6. INSTALL AIR CLEANER CASE (for 2GR-FE)

(a) Install the air cleaner case  .

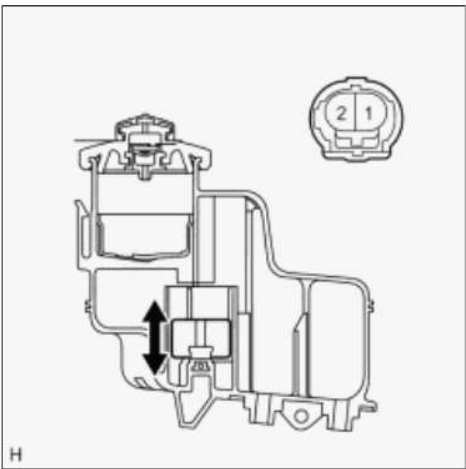


Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001ZZY00MX
Title: BRAKE: BRAKE MASTER CYLINDER: ON-VEHICLE INSPECTION (2011 RAV4)		

ON-VEHICLE INSPECTION

1. CHECK BRAKE FLUID LEVEL WARNING SWITCH

- (a) Remove the reservoir filler cap and strainer.
- (b) Disconnect the brake fluid level warning switch connector.
- (c) Measure the resistance according to the value(s) in the table below.



HINT:
There is a float inside the reservoir. Its position can be changed by increasing or decreasing the brake fluid level.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	Float up (Switch off)	10 kΩ or higher
	Float down (Switch on)	Below 1 Ω

If the result is not as specified, replace the brake master cylinder reservoir sub-assembly.

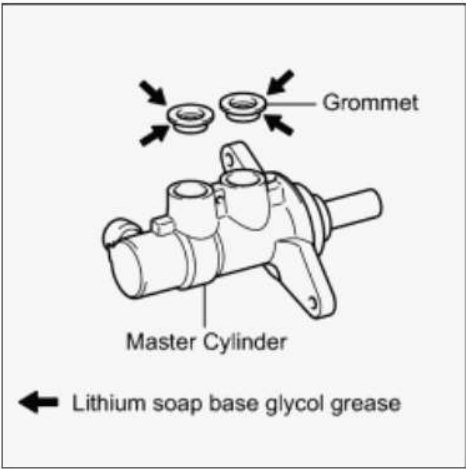
- (d) Add brake fluid to the MAX level.



Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001Z4A00MX
Title: BRAKE: BRAKE MASTER CYLINDER: REASSEMBLY (2011 RAV4)		

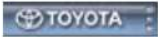
REASSEMBLY

- 1. INSTALL BRAKE MASTER CYLINDER RESERVOIR STRAINER**
- 2. INSTALL BRAKE MASTER CYLINDER RESERVOIR FILLER CAP ASSEMBLY**
- 3. INSTALL MASTER CYLINDER RESERVOIR GROMMET**



(a) Apply a light coat of lithium soap base glycol grease to 2 new grommets, and then install them to the master cylinder.

- 4. INSTALL BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY**
- 5. INSTALL BRAKE MASTER CYLINDER RING PIN**



Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HK901AX
Title: BRAKE: BRAKE MASTER CYLINDER: REMOVAL (2011 RAV4)		

REMOVAL

- NOTICE:
- Make sure to release the vacuum from the brake booster before removing the master cylinder from the brake booster.

1. REMOVE AIR CLEANER CASE SUB-ASSEMBLY (for 2AR-FE)

(a) Remove the air cleaner case [INFO](#) .

2. REMOVE AIR CLEANER CASE (for 2GR-FE)

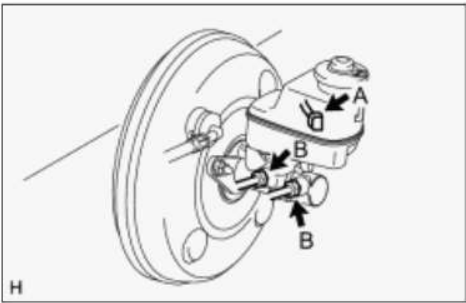
(a) Remove the air cleaner case [INFO](#) .

3. DRAIN BRAKE FLUID

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

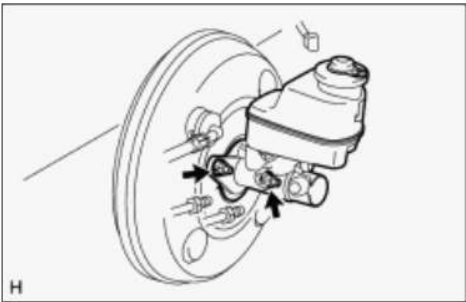
4. REMOVE BRAKE MASTER CYLINDER SUB-ASSEMBLY

- (a) Release the vacuum in the brake booster as follows.
- (1) Stop the engine.
 - (2) Depress the brake pedal several times.



(b) Disconnect the brake fluid level warning switch connector labeled A.

(c) Using a union nut wrench, disconnect the 2 brake lines labeled B from the master cylinder.



(d) Remove the 2 nuts.

(e) Remove the master cylinder from the brake booster.

NOTICE:

- The master cylinder requires careful handling. Do not allow the master cylinder to receive any impact, such as from being dropped. Do not reuse a master cylinder that has been dropped.
- Do not strike or pinch the master cylinder piston, and do not cause any damage to the master cylinder piston by any other means.
- When installing the master cylinder to the brake booster, or when removing the master cylinder from the brake booster, make sure that the master cylinder is kept horizontal or with its tip facing downward (the piston faces upward) to prevent the master cylinder piston from falling out.
- Do not allow any foreign objects to contaminate the master cylinder piston. If a foreign object gets on the piston, remove it by using a piece of cloth, and then apply an even layer of lithium soap base glycol grease around the circumference (sliding part) of the piston.
- Do not use any other type of grease or fluid.
- Be careful not to damage the brake tubes.

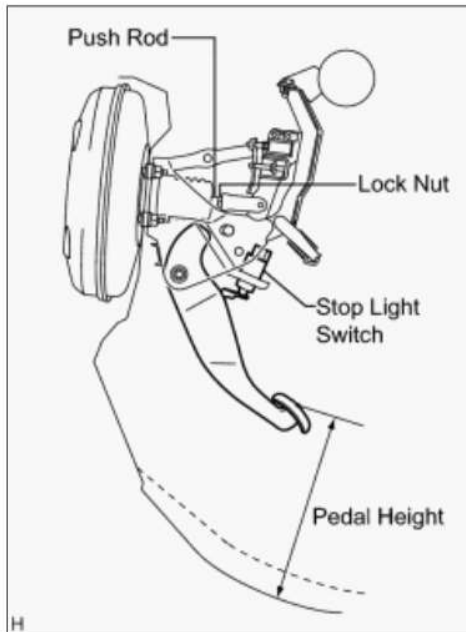
(f) Remove the O-ring from the master cylinder.



Last Modified: 9-7-2011	6.4 N	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJ300SX
Title: BRAKE: BRAKE PEDAL: ADJUSTMENT (2011 RAV4)		

ADJUSTMENT

1. CHECK AND ADJUST BRAKE PEDAL HEIGHT



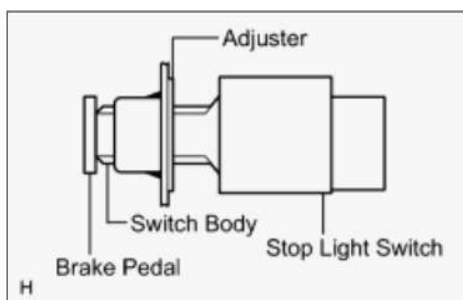
(a) Check the pedal height.

Standard pedal height from dash panel:
184.2 to 194.2 mm (7.252 to 7.646 in.)

(b) Adjust the pedal height.

- (1) Disconnect the connector from the stop light switch.
- (2) Remove the switch.
- (3) Loosen the push rod clevis lock nut.
- (4) Adjust the pedal height by turning the push rod.
- (5) Tighten the lock nut.

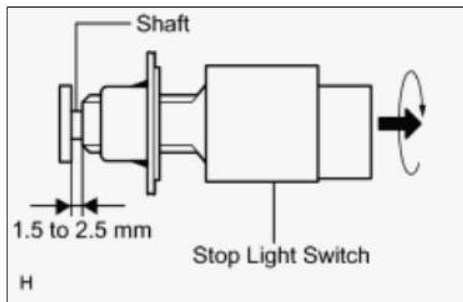
Torque: 26 N·m (265 kgf·cm, 19ft·lbf)



(6) Insert the switch into the adjuster until the switch body touches the pedal.

NOTICE:

Do not depress the pedal.



(7) Turn the switch a quarter turn clockwise.

Torque: 1.5 N·m (15 kgf·cm, 13in·lbf) or less

NOTICE:

Do not depress the pedal.

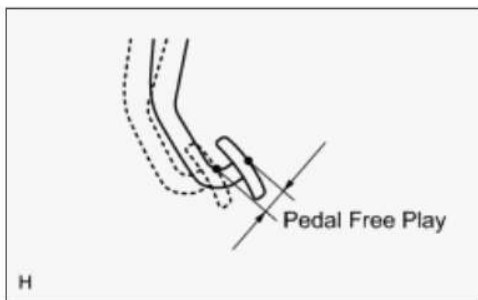
(8) Connect the connector to the switch.

(9) Check the switch clearance.

Standard stop light switch clearance:

1.5 to 2.5 mm (0.0591 to 0.0984 in.)

2. CHECK BRAKE PEDAL FREE PLAY



(a) Stop the engine. Depress the pedal several times until there is no vacuum in the booster. Then release the pedal.

(b) Depress the pedal until resistance is felt.

(c) Check the pedal free play by measuring the distance between the position in the previous step and the pedal released position.

Standard pedal free play:

1.0 to 6.0 mm (0.0394 to 0.236 in.)

If the free play is not as specified, check the switch clearance in the next step.

If the free play is as specified, proceed to the "CHECK BRAKE PEDAL RESERVE DISTANCE" procedure.

(d) Check the switch clearance.

Standard stop light switch clearance:

1.5 to 2.5 mm (0.0591 to 0.0984 in.)

If the clearance is not as specified, remove and reinstall the switch and recheck the pedal free play.

If the clearance is as specified, troubleshoot the brake system and proceed to the "CHECK BRAKE PEDAL RESERVE DISTANCE" procedure.

3. CHECK BRAKE PEDAL RESERVE DISTANCE

(a) Release the parking brake lever. Start the engine.

(b) Depress the pedal and check the pedal reserve distance.

- (1) Depress the pedal with a force of 490 N (50 kgf, 110 lbf).
- (2) Measure the distance between the pedal and dash panel.

HINT:

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

Standard Pedal Reserve Distance:

ITEM	SPECIFIED CONDITION
for 2AR-FE (w/o 3rd Seat)	More than 95 mm (3.74 in.)
for 2AR-FE (w/ 3rd Seat)	More than 120 mm (4.72 in.)
for 2GR-FE (w/o 3rd Seat)	More than 120 mm (4.72 in.)
for 2GR-FE (w/ 3rd Seat)	More than 120 mm (4.72 in.)

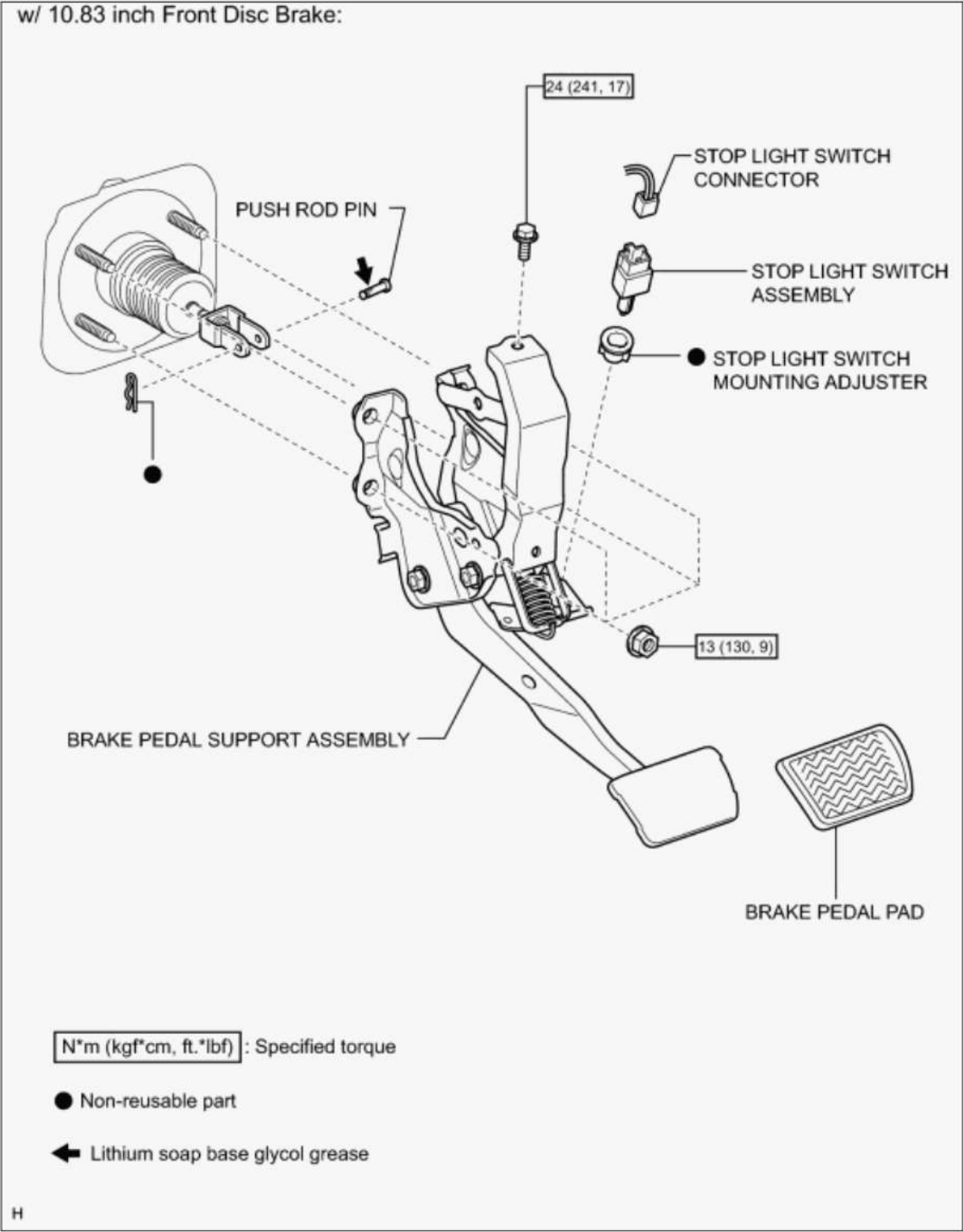
If the distance is not as specified, troubleshoot the brake system.



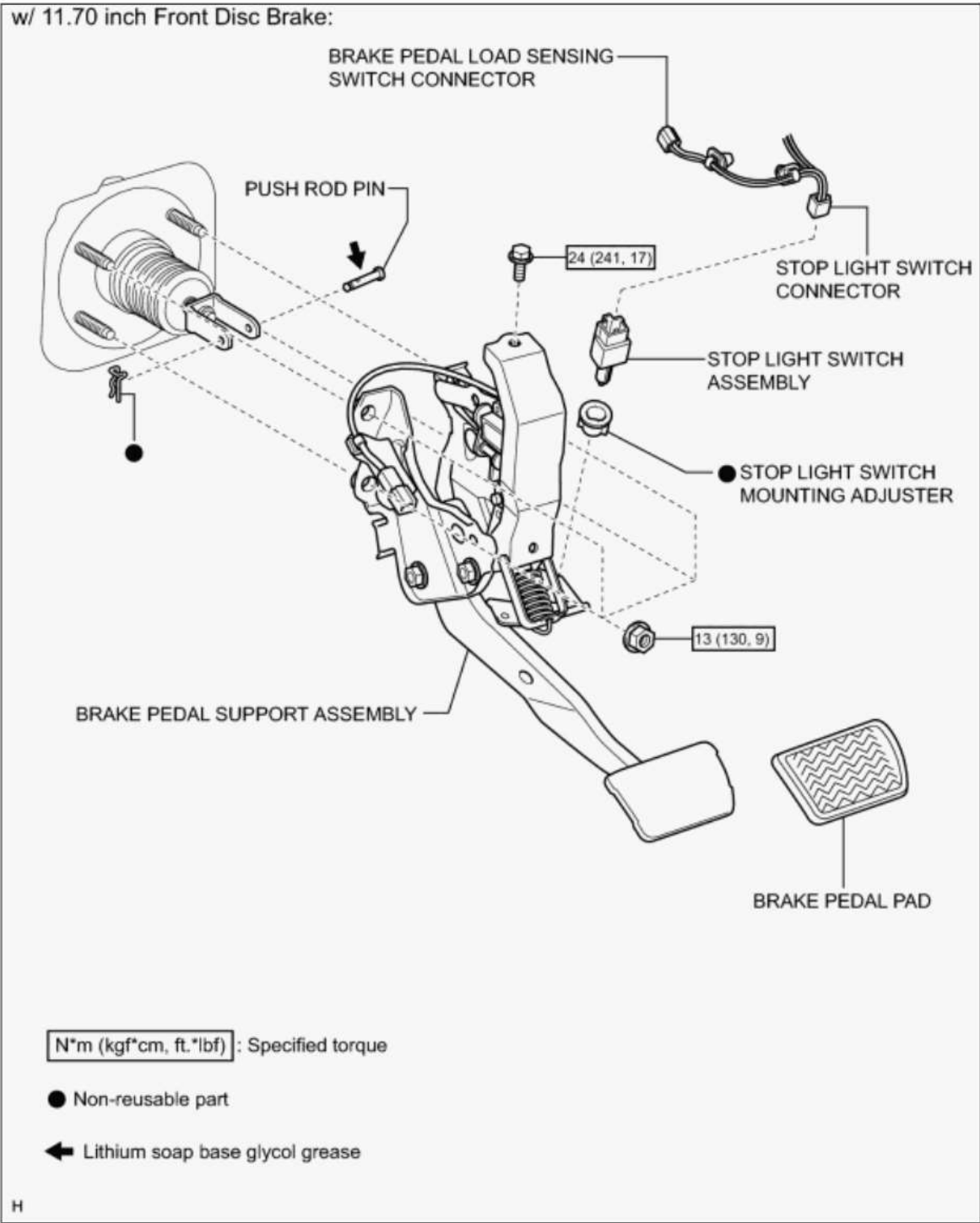
Last Modified: 9-7-2011	6.4 K	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJ500KX
Title: BRAKE: BRAKE PEDAL: COMPONENTS (2011 RAV4)		

COMPONENTS

ILLUSTRATION



ILLUSTRATION



Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJ700MX
Title: BRAKE: BRAKE PEDAL: DISASSEMBLY (2011 RAV4)		

DISASSEMBLY

1. REMOVE STOP LIGHT SWITCH MOUNTING ADJUSTER

(a) Remove the adjuster from the support.

2. REMOVE BRAKE PEDAL PAD

(a) Remove the pad from the pedal.

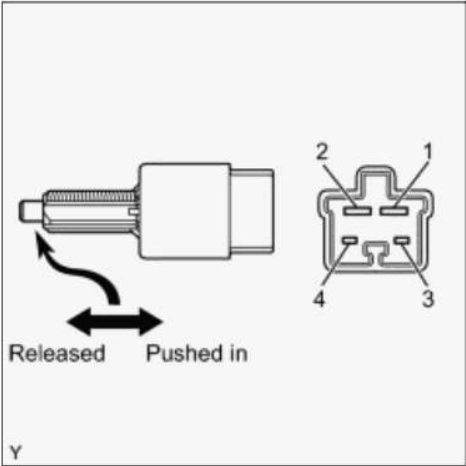


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Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000200M00FX
Title: BRAKE: BRAKE PEDAL: INSPECTION (2011 RAV4)		

INSPECTION

1. INSPECT STOP LIGHT SWITCH ASSEMBLY

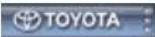


(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Switch pin released	Below 1 Ω
	Switch pin pushed in	10 k Ω or higher

If the result is not as specified, replace the stop light switch assembly.

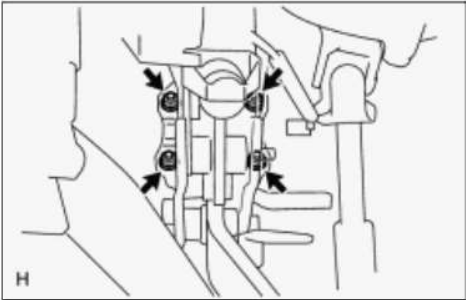


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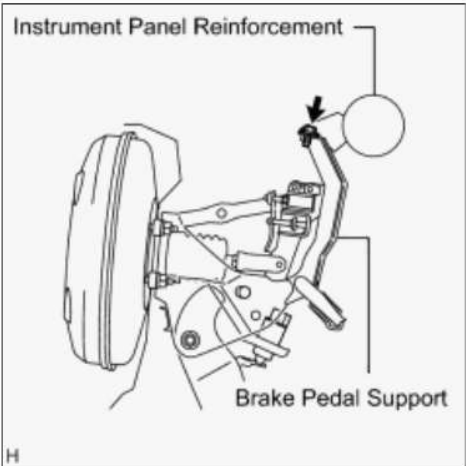
Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJ400SX
Title: BRAKE: BRAKE PEDAL: INSTALLATION (2011 RAV4)		

INSTALLATION

1. INSTALL BRAKE PEDAL SUPPORT ASSEMBLY

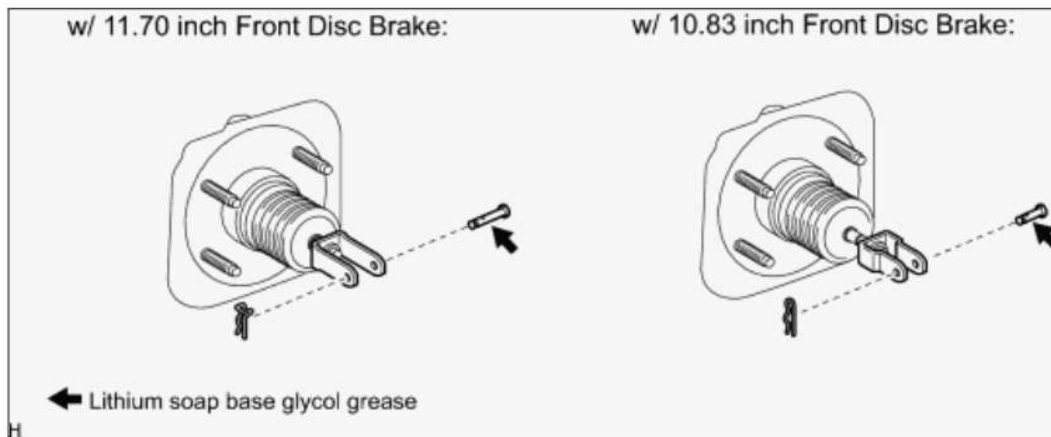


- (a) Install the support with the 4 nuts.
Torque: 13 N·m (130 kgf·cm, 9ft·lbf)



- (b) Install the bolt to the support.
Torque: 24 N·m (241 kgf·cm, 17ft·lbf)

2. INSTALL PUSH ROD PIN



- Apply a light coat of lithium soap base glycol grease to the push rod pin.
- Install the push rod pin to the push rod clevis.

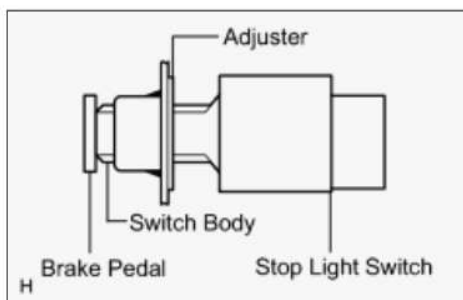
NOTICE:

The push rod pin must be installed as shown in the illustration.

- Install a new clip to the push rod pin.

NOTICE:

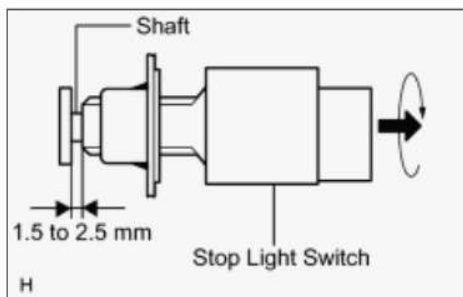
The clip must be installed as shown in the illustration.

3. INSTALL STOP LIGHT SWITCH ASSEMBLY

- Insert the switch into the adjuster until the switch body touches the pedal.

NOTICE:

Do not depress the pedal.



- Turn the switch a quarter turn clockwise.

Torque: 1.5 N·m (15 kgf·cm, 13in·lbf) or less

NOTICE:

Do not depress the pedal.

- Check the switch clearance.

Standard stop light switch clearance:

1.5 to 2.5 mm (0.0591 to 0.0984 in.)

4. CONNECT CONNECTORS

(a) w/ 11.70 inch Front Disc Brake:

Connect the brake pedal load sensing switch connector.

(b) Connect the stop light switch connector.

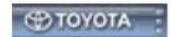
5. CHECK AND ADJUST BRAKE PEDAL

(a) Check and adjust brake pedal  .

6. INSTALL INSTRUMENT PANEL SUB-ASSEMBLY

(a) Install the instrument panel  .

7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL



Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJ800MX
Title: BRAKE: BRAKE PEDAL: REASSEMBLY (2011 RAV4)		

REASSEMBLY

1. INSTALL BRAKE PEDAL PAD

- (a) Install the pad to the pedal.

2. INSTALL STOP LIGHT SWITCH MOUNTING ADJUSTER

- (a) Install a new adjuster to the support.



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Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJ600RX
Title: BRAKE: BRAKE PEDAL: REMOVAL (2011 RAV4)		

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.

2. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY

- (a) Remove the instrument panel [INFO](#) .

3. DISCONNECT CONNECTORS

- (a) Disconnect the stop light switch connector.
- (b) w/ 11.70 inch Front Disc Brake:
Disconnect the brake pedal load sensing switch connector.

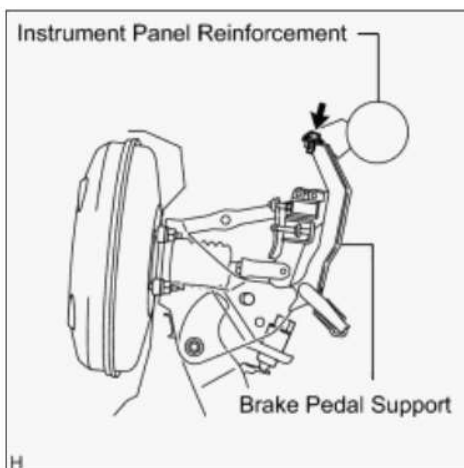
4. REMOVE STOP LIGHT SWITCH ASSEMBLY

- (a) Turn the switch counterclockwise and remove it.

5. REMOVE PUSH ROD PIN

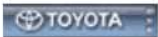
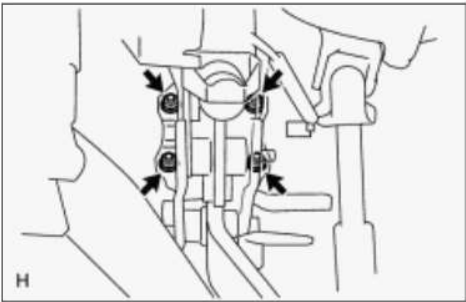
- (a) Remove the clip from the push rod pin.
- (b) Remove the push rod pin from the push rod clevis.

6. REMOVE BRAKE PEDAL SUPPORT ASSEMBLY



- (a) Remove the bolt from the support.

- (b) Remove the 4 nuts and support.



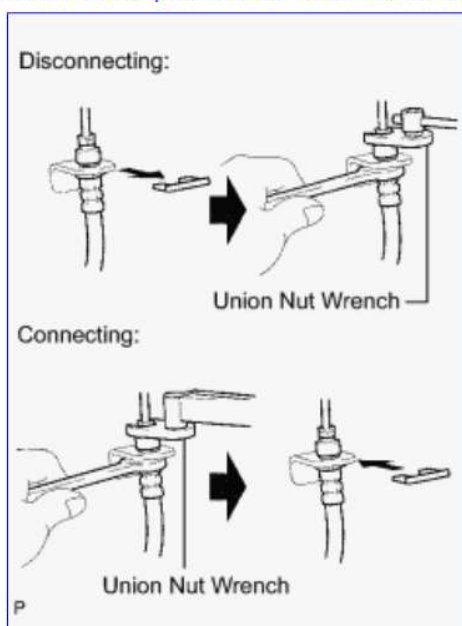
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Last Modified: 9-7-2011	6.4 L	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJ9014X
Title: BRAKE: BRAKE SYSTEM: PRECAUTION (2011 RAV4)		

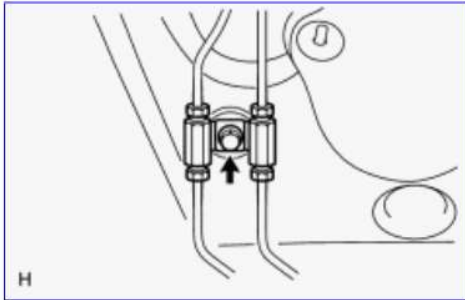
PRECAUTION

NOTICE:

- Take extra care to replace each part properly. Improper installation or repair could affect the performance of the brake system and cause a driving hazard.
- It is very important to keep the brake system parts and the work area clean when repairing the brake system.
- If the vehicle is equipped with a mobile communication system, refer to the Precautions in the Introduction section **INFO** .
- Care must be taken when using magnets as they could affect the performance of the speed sensors.
- 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 grommet to the body, ensure that the brake tube passes through the center of the grommet.
- When installing a brake tube or flexible hose, ensure 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, ensure that the brake tube is not loose or being pinched.
- Do not reuse a clip or plastic clamp removed from a flexible hose.
- After installing a brake tube and flexible hose, ensure that they do 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.



- 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. Support the 2-way to prevent deformation to the brake tube and connect the brake tube to the 2-way with a union nut wrench.
- b. Support the 2-way to prevent deformation to the brake tube and install the bolt to fix the 2-way to the body.



Last Modified: 9-7-2011	6.4 T	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJA013X
Title: BRAKE: BRAKE SYSTEM: PROBLEM SYMPTOMS TABLE (2011 RAV4)		

PROBLEM SYMPTOMS TABLE

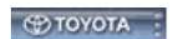
HINT:

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
	Brake master cylinder (faulty)	INFO
	Booster push rod (adjustment necessary)	INFO
Brake drag	Brake pedal free play (minimum)	INFO
	Parking brake lever travel (adjustment necessary)	INFO
	Parking brake cable (sticking)	INFO
	Parking brake shoe clearance (adjustment necessary)	INFO
	Front brake pad (cracked or distorted)	INFO
	Rear brake pad (cracked or distorted)	INFO
	Parking brake lining (cracked or distorted)	INFO
	Front brake piston (stuck or frozen)	INFO
	Rear brake piston (stuck or frozen)	INFO
	Parking brake shoe return tension spring	INFO
	Booster push rod (adjustment necessary)	INFO
	Vacuum leaks in booster system	INFO
	Brake master cylinder (faulty)	INFO
Brake pull	Front brake piston (stuck or frozen)	INFO
	Rear brake piston (stuck or frozen)	INFO
	Front brake pad (oily, cracked or distorted)	INFO
	Rear brake pad (oily, cracked or distorted)	INFO

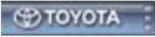
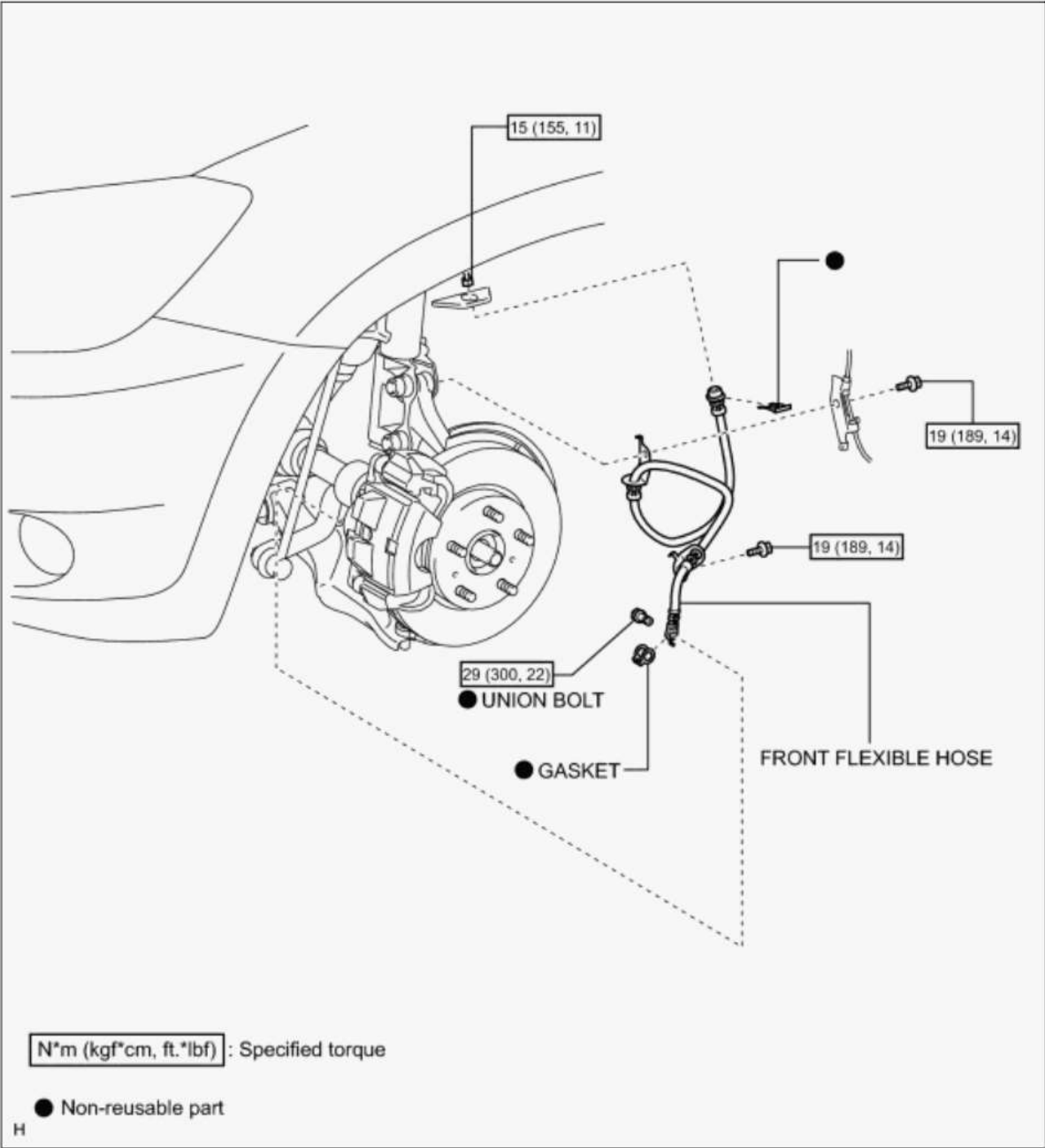
SYMPTOM	SUSPECTED AREA	SEE PAGE
	Parking brake lining (oily, cracked or distorted)	INFO
	Front brake disc (uneven wear)	INFO
	Rear brake disc (uneven wear)	INFO
Hard pedal but braking inefficient	Front brake pad (worn, cracked, distorted, oily or glazed)	INFO
	Rear brake pad (worn, cracked, distorted, oily or glazed)	INFO
	Parking brake lining (worn, cracked, distorted, oily or glazed)	INFO
	Front brake disc (uneven wear)	INFO
	Rear brake disc (uneven wear)	INFO
	Booster push rod (adjustment necessary)	INFO
	Vacuum leaks in booster system	INFO
Noise from brakes	Front brake pad (cracked, distorted, dirty or glazed)	INFO
	Rear brake pad (cracked, distorted, dirty or glazed)	INFO
	Front disc brake pad support plate (loose)	INFO
	Rear disc brake pad support plate (loose)	INFO
	Front disc brake cylinder slide pin (worn)	INFO
	Rear disc brake cylinder slide pin (worn)	INFO
	Front brake installation bolt (loose)	INFO
	Rear brake installation bolt (loose)	INFO
	Front brake disc (scored)	INFO
	Rear brake disc (scored)	INFO
	Parking brake shoe return tension 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: 9-7-2011	6.4 K	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJT011X
Title: BRAKE: FRONT BRAKE FLEXIBLE HOSE: COMPONENTS (2011 RAV4)		

COMPONENTS

ILLUSTRATION



Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJS01CX
Title: BRAKE: FRONT BRAKE FLEXIBLE HOSE: INSTALLATION (2011 RAV4)		

INSTALLATION

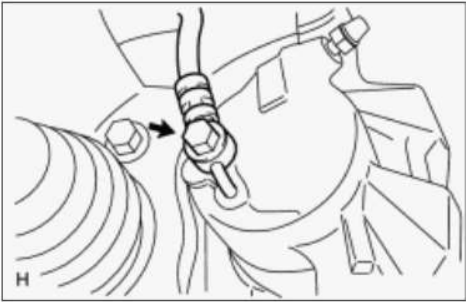
HINT:

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

1. INSTALL FRONT FLEXIBLE HOSE

NOTICE:

When replacing both the left and right front flexible hoses, as the left and right hoses each have a different shape, be sure to check the part number to confirm whether the hose is the left or right one before installing it.

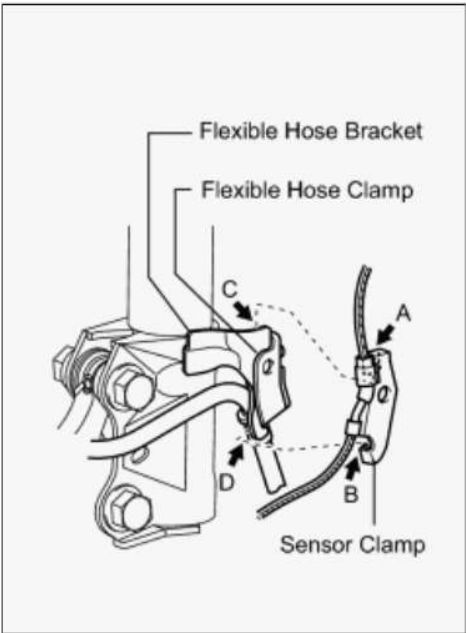


- (a) Connect the flexible hose with a new gasket and a new union bolt to the disc brake cylinder.

Torque: 29 N·m (300 kgf·cm, 22ft·lbf)

HINT:

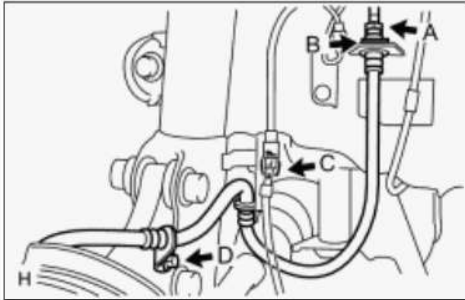
Install the flexible hose lock securely in the lock hole in the cylinder.



- (b) Set the flexible hose clamp on the flexible hose bracket.

- (c) Simultaneously perform the following: 1) hang the hook part of the sensor clamp labeled A on the flexible hose bracket labeled C; and 2) insert the hook part of the sensor clamp labeled B into the flexible hose

bracket labeled D.



(d) Install the bolt labeled C to secure the flexible hose clamp and sensor clamp.

Torque: 19 N·m (189 kgf·cm, 14ft·lbf)

(e) Install the flexible hose with the bolt labeled D.

Torque: 19 N·m (189 kgf·cm, 14ft·lbf)

(f) Set the flexible hose into place at the connecting point with the brake tube labeled A, and then install a new clip labeled B.

(g) Using a union nut wrench, connect the flexible hose to the brake tube labeled A while holding the flexible hose with a wrench.

Torque: 15 N·m (155 kgf·cm, 11ft·lbf)

NOTICE:

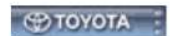
- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.
- Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench [INFO](#) .

2. REMOVE COWL TOP VENTILATOR LOUVER BRACKET LH [INFO](#)

3. BLEED BRAKE SYSTEM [INFO](#)

4. INSTALL COWL TOP VENTILATOR LOUVER BRACKET LH [INFO](#)

5. INSTALL FRONT WHEEL [INFO](#)



Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJU015X
Title: BRAKE: FRONT BRAKE FLEXIBLE HOSE: REMOVAL (2011 RAV4)		

REMOVAL

HINT:

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

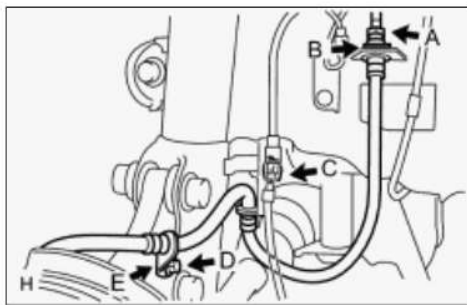
1. REMOVE FRONT WHEEL

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) Disconnect the brake tube labeled A from the flexible hose with union nut wrench while holding the flexible hose with a wrench.

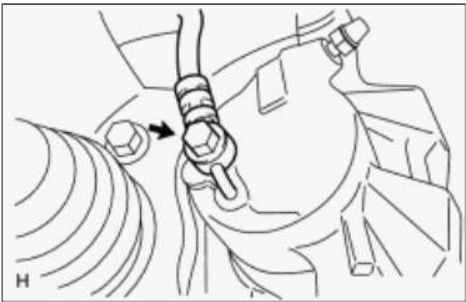
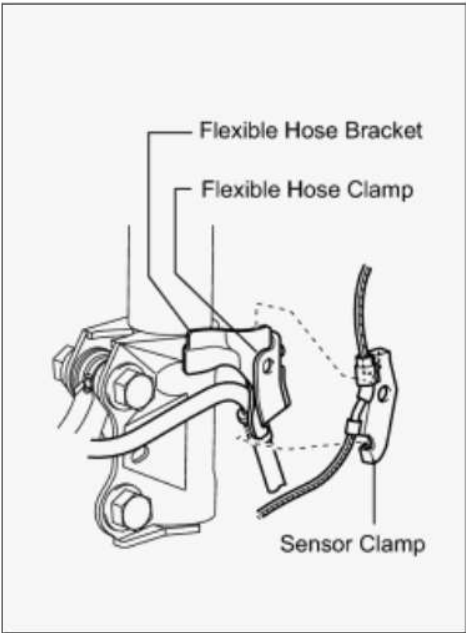
NOTICE:

- 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.

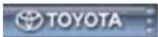
- (b) Remove the clip labeled B.

- (c) Remove the 2 bolts labeled C, D and then remove the flexible hose clamp labeled E from the knuckle.

- (d) Remove the sensor clamp and flexible hose clamp from the flexible hose bracket.



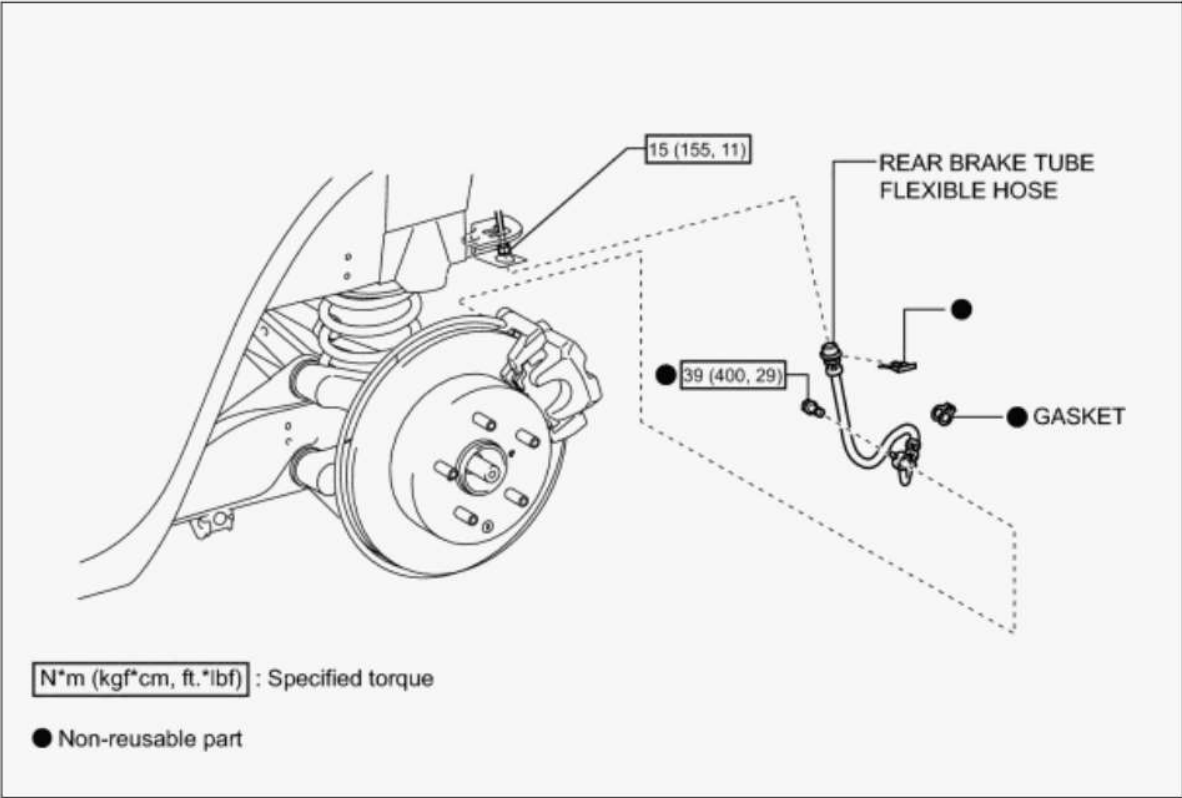
(e) Remove the union bolt and gasket, and then remove the flexible hose from the disc brake cylinder.



Last Modified: 9-7-2011	6.4 K	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HK0012X
Title: BRAKE: REAR BRAKE FLEXIBLE HOSE: COMPONENTS (2011 RAV4)		

COMPONENTS

ILLUSTRATION



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Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HJZ01CX
Title: BRAKE: REAR BRAKE FLEXIBLE HOSE: INSTALLATION (2011 RAV4)		

INSTALLATION

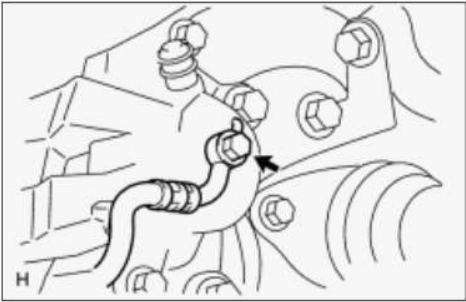
HINT:

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

1. INSTALL REAR BRAKE TUBE FLEXIBLE HOSE

NOTICE:

When replacing both the left and right rear flexible hoses, as the left and right hoses each have a different shape, be sure to check the part number to confirm whether the hose is the left or right one before installing it.

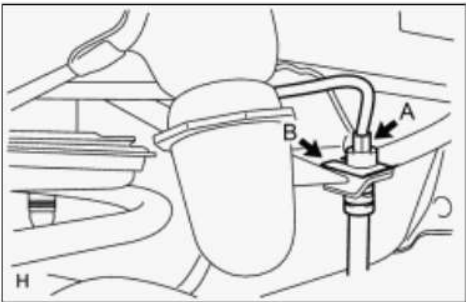


- (a) Connect the flexible hose with a new gasket and a new union bolt to the disc brake cylinder.

Torque: 39 N·m (400 kgf·cm, 29ft·lbf)

HINT:

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



- (b) Set the flexible hose into place at the connecting point with the brake tube labeled A, and then install a new clip labeled B.

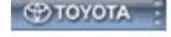
- (c) Using a union nut wrench, connect the flexible hose to the brake tube labeled A while holding the flexible hose with a wrench.

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.

2. REMOVE COWL TOP VENTILATOR LOUVER BRACKET LH INFO

3. BLEED BRAKE SYSTEM **4. INSTALL COWL TOP VENTILATOR LOUVER BRACKET LH** **5. INSTALL REAR WHEEL** 

Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001HK1019X
Title: BRAKE: REAR BRAKE FLEXIBLE HOSE: REMOVAL (2011 RAV4)		

REMOVAL

HINT:

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

1. REMOVE REAR WHEEL
2. DRAIN BRAKE FLUID

NOTICE:

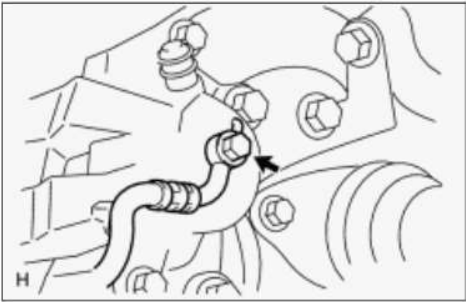
Wash off brake fluid immediately if it comes in contact with any painted surface.

3. REMOVE REAR BRAKE TUBE FLEXIBLE HOSE

(a) Using a union nut wrench, disconnect the brake tube labeled A from the flexible hose while holding the 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.

(b) Remove the clip labeled B.



(c) Remove the union bolt and gasket, and then remove the flexible hose from the disc brake cylinder.

