

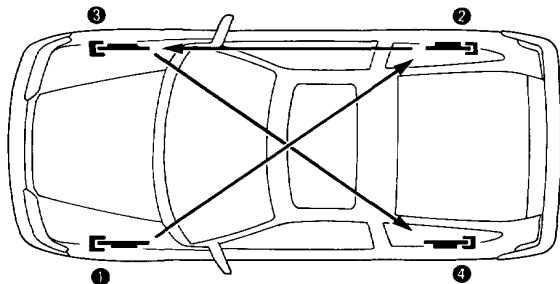
Bleeding

CAUTION

- Make sure all parts are clean before reassembly.
- Use only clean brake fluid.
- Do not allow dirt or other foreign matter to contaminate the brake fluid.
- Do not mix different brands of brake fluid.
- Avoid spilling brake fluid on painted, plastic or rubber surfaces as it can damage the finish; Wash spilled brake fluid off immediately with clean water.

NOTE: The reservoir on the master cylinder must be full at the start of bleeding procedure, and checked after bleeding each wheel cylinder. Add fluid as required. Use only DOT 3 brake fluid.

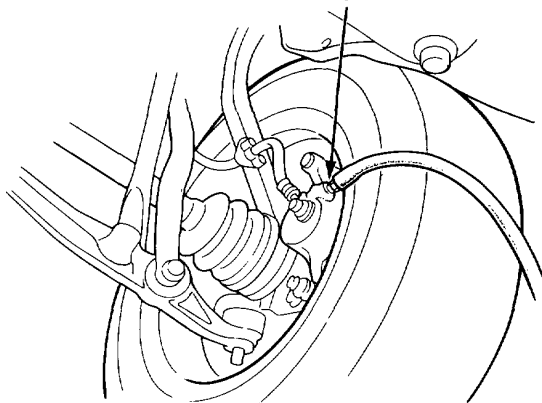
Bleeding Sequence



1. Have someone slowly pump the brake pedal several times, then apply steady pressure.
2. Loosen the brake bleed screw to allow air to escape from the system. Then tighten the bleed screw securely.
3. Repeat the procedure for each wheel in the sequence shown above, until air bubbles no longer appear in the fluid.
4. Check brake performance by road testing.

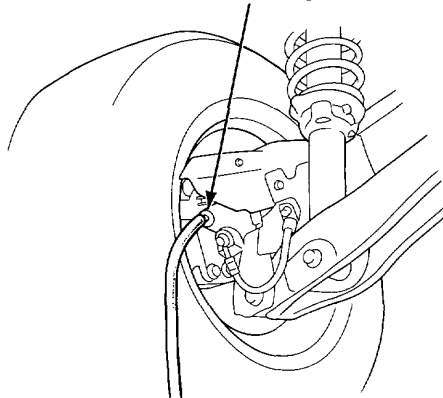
FRONT

FRONT BLEED SCREW
9 N·m (0.9 kg-m, 7 lb-ft).



REAR

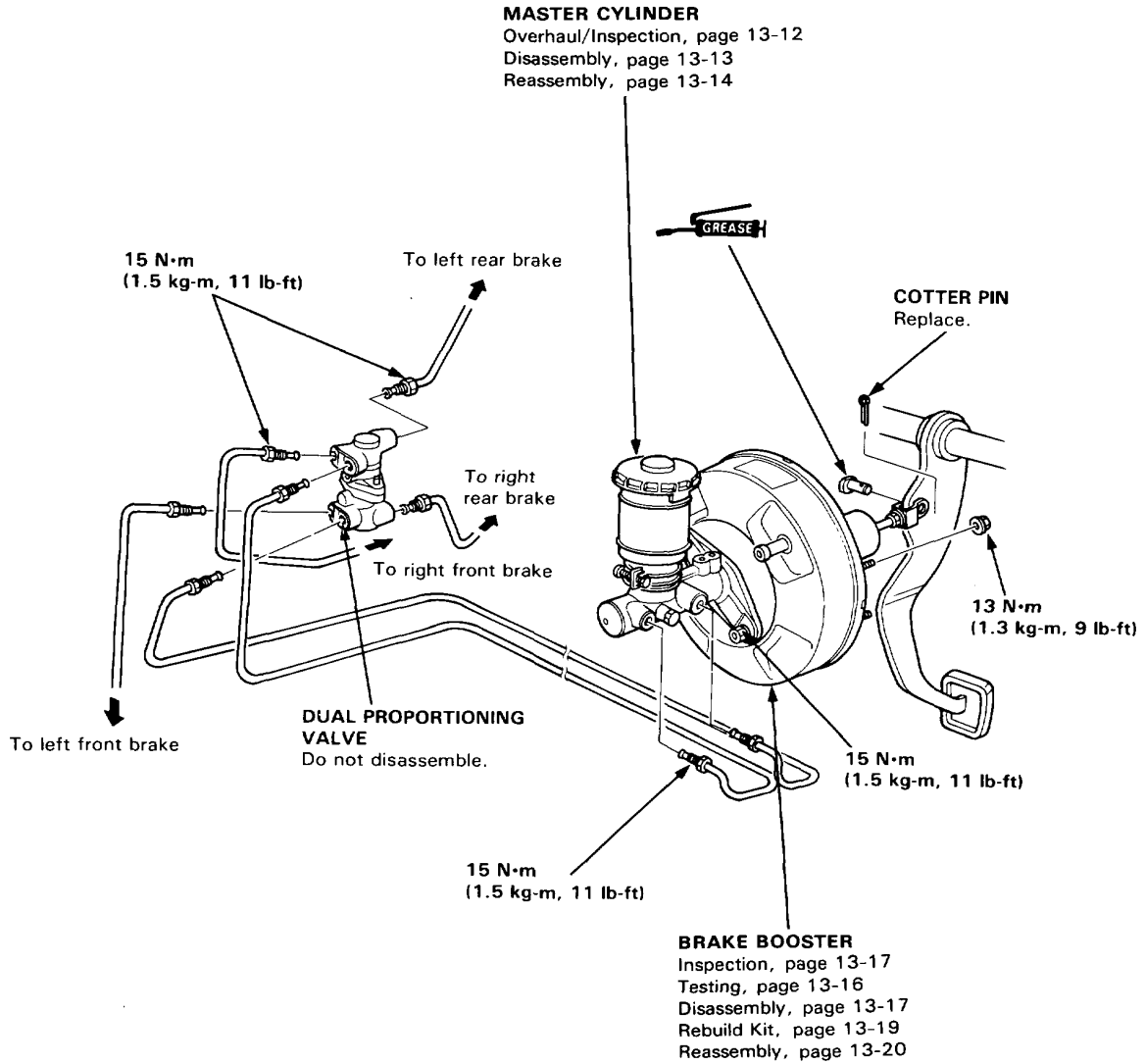
REAR BLEED SCREW
9 N·m (0.9 kg-m, 7 lb-ft)



Master Cylinder Booster



Index



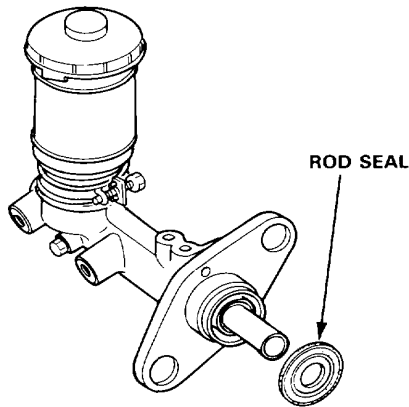


Disassembly

CAUTION:

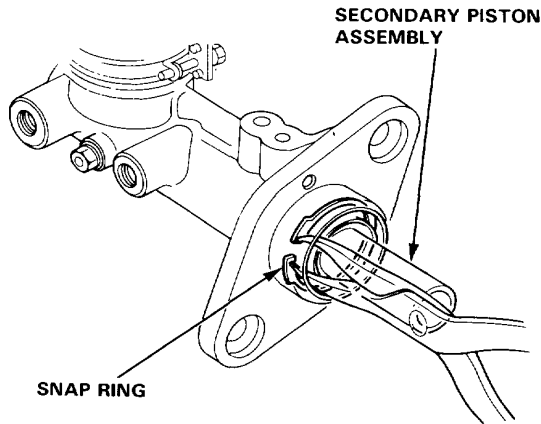
- Avoid spilling fluid on painted, plastic or rubber parts as it may damage the finish.
- Plug the end of the brake hose with a shop rag to prevent brake fluid from flowing out of the brake hose after disconnecting.
- Use only new clean brake fluid.
- Clean all parts thoroughly with brake fluid. Blow out all passages with compressed air.
- Do not allow foreign matter to enter the system.
- Be careful not to bend or damage the brake pipe when removing the master cylinder.

1. Remove the rod seal.

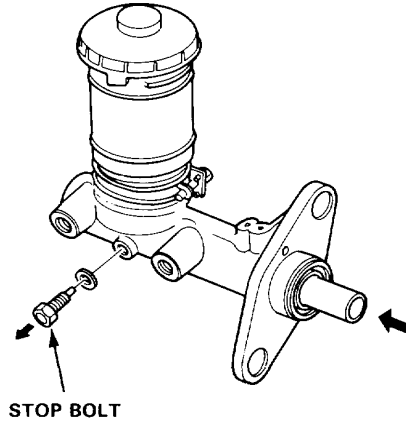


2. Push the secondary piston assembly, then remove the snap ring.

CAUTION: Avoid damaging the master cylinder wall.



3. Remove the stop bolt while pushing in the secondary piston assembly.



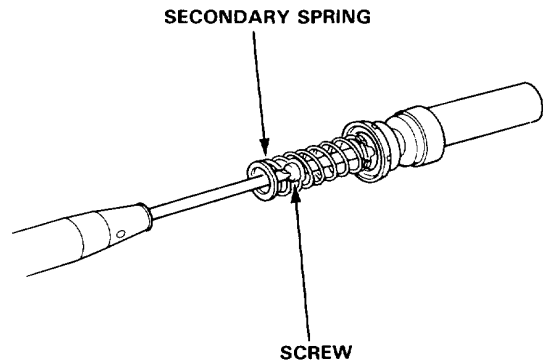
4. Remove the piston guide, secondary piston assembly and primary piston assembly.

NOTE: If the primary piston assembly is difficult to remove, apply compressed air from the primary piston side outlet.

CAUTION:

- Do not use high pressure air or bring the nozzle too close to the inlet.
- Place a shop rag over the master cylinder to prevent the primary piston from becoming a projectile.

5. Remove the screw from the secondary piston assembly, then remove the secondary spring.



6. Clean all parts with brake fluid.

Master Cylinder

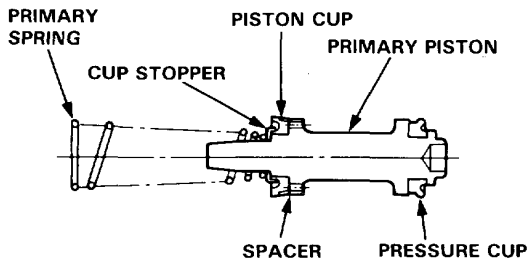
Reassembly

CAUTION:

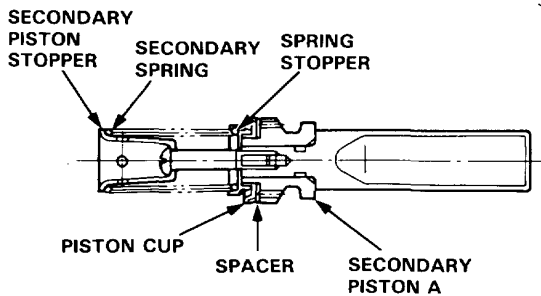
- Make sure all parts are clean before reassembly.
 - Use only new replacement parts.
 - Use only clean brake fluid.
 - Do not allow dirt or other foreign matter to contaminate the brake fluid.
 - Do not mix different brands of brake fluid.
 - Avoid spilling brake fluid on painted, plastic or rubber surfaces as it can damage the finish.
- Wash spilled brake fluid off immediately with clean water.

1. Lubricate new piston assemblies with brake fluid, then fit them together.

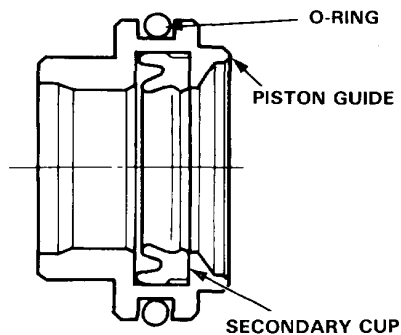
PRIMARY PISTON ASSEMBLY



SECONDARY PISTON ASSEMBLY



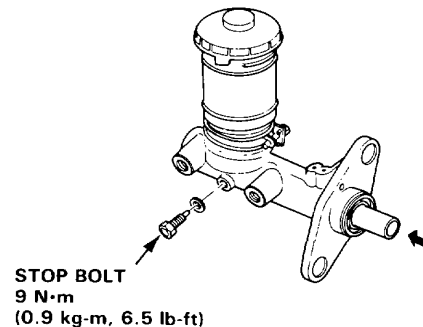
PISTON GUIDE ASSEMBLY



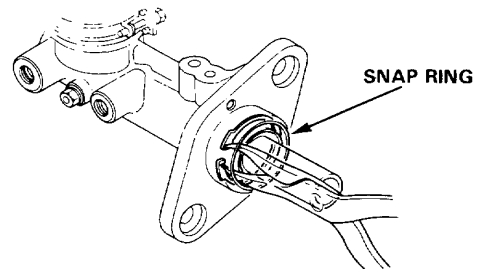
2. Install the piston assemblies in the master cylinder.

NOTE: To ease assembly, rotate the pistons while inserting.

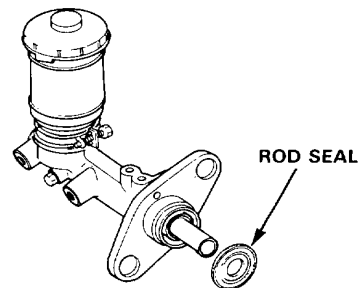
3. Install the stop bolt and new sealing washer while pushing in the secondary piston assembly, then tighten the stop bolt.



4. Install the snap ring while pushing in the secondary piston assembly.



5. Install a new rod seal.



CAUTION: When connecting the brake pipes, make sure that there is no interference between the brake pipes and other parts


Brake Booster

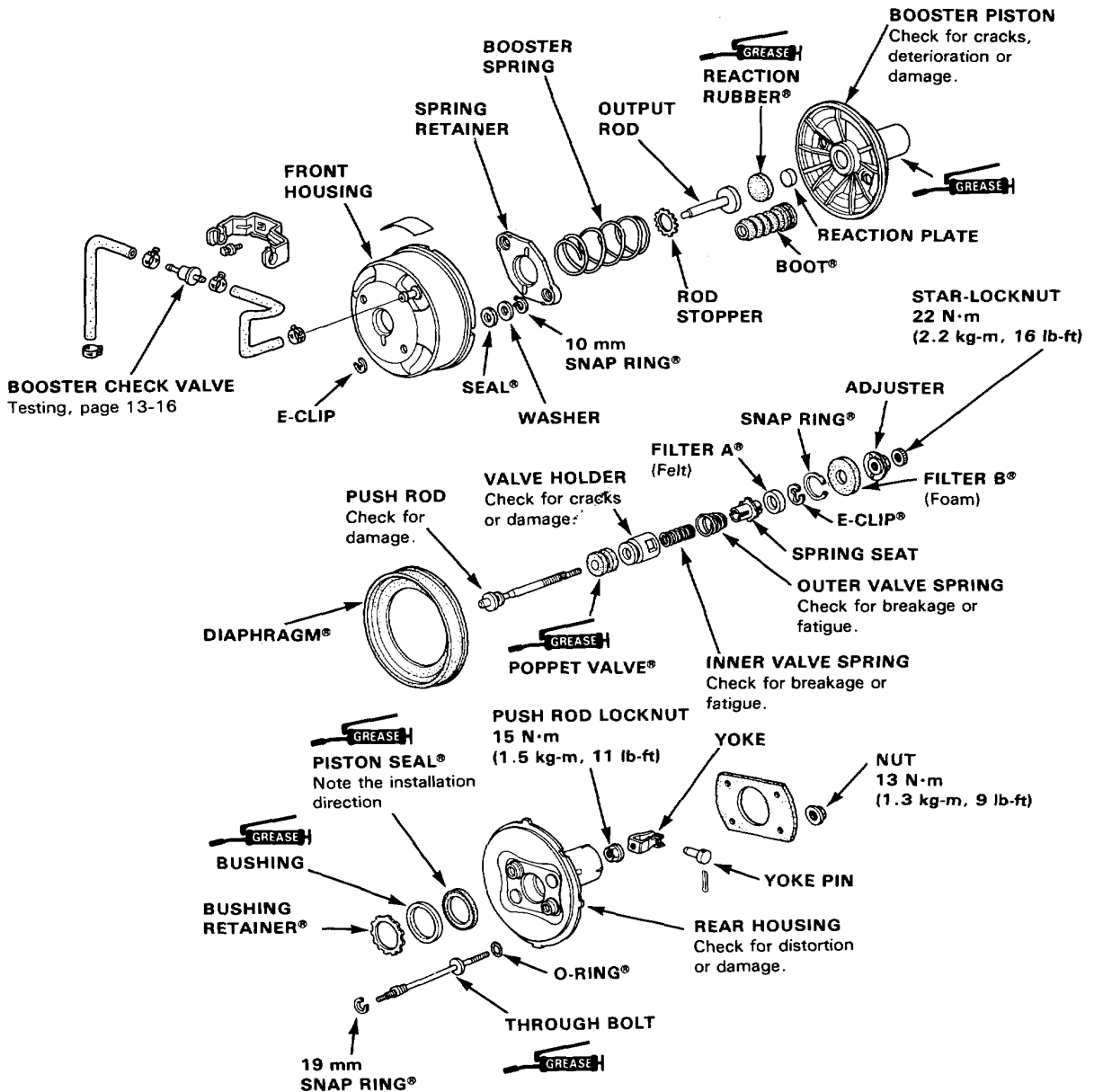


Index and Inspection

Booster testing is on next page.

NOTE:

- Parts marked® are available with rebuild kit and must be replaced whenever disassembled.
-  on this page refers to silicone grease.
- Scribe an aligning mark across the front and rear housings so you can reassemble in their original positions (page 13-17).



Brake Booster

Test

Leak Test

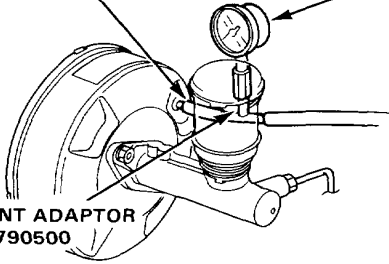
1. Install the Brake Power Kit (07504-6340100) as shown.
2. Start the engine, adjust the engine speed with the accelerator pedal so that the vacuum gauge readings show 300-500 mmHg (11.8-19.7 inHg), then stop the engine.
3. Read the vacuum gauge.

If the vacuum readings decreases 20 mmHg (0.8 inHg) or more after 30 seconds, check following parts for leaks.

- Check valve
- Vacuum hose
- Seals
- Diaphragm
- Master cylinder O-ring and cup

VACUUM JOINT TUBE A
07510-6340300

VACUUM GAUGE
07404-5790300



TUBE JOINT ADAPTOR
07410-5790500

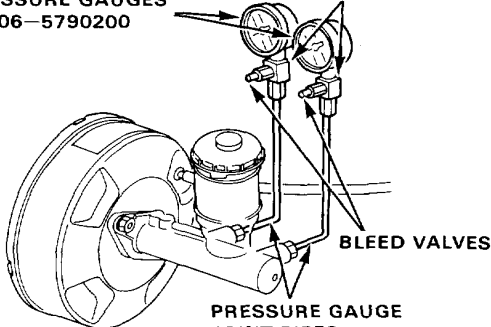
Function Test

1. Install the vacuum gauge as same the leak test.
2. Connect the oil pressure gauges to the master cylinder using the attachments as shown.
3. Bleed air through the valves.

CAUTION: Avoid spilling brake fluid on painted, plastic or rubber parts as it may damage the finish.

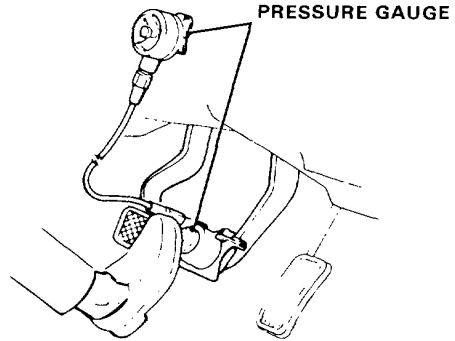
PRESSURE GAUGES
07406-5790200

ATTACHMENT C
07410-5790100



PRESSURE GAUGE
JOINT PIPES
07510-6340100

4. Start the engine.
5. Depress the brake pedal with a 200 N (20 kg, 44 lbs) of pressure. The following pressures should be observed at the pressure gauges in each vacuum.

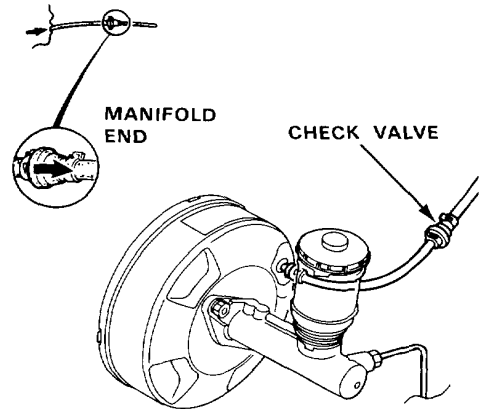


Vacuum mmHg	Line Pressure kpa (kg/cm ² . psi)
0	1363 (13.9, 198)
300	4511 (46, 654)
500	6610 (67.4, 958)

6. Inspect the master cylinder pistons and cups in the readings do not fall within the limits shown above.

Check Valve Test

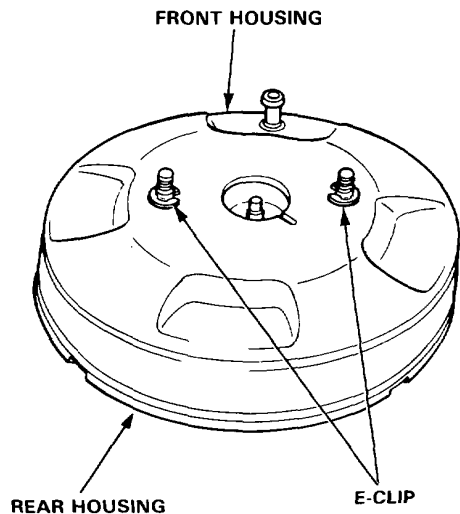
1. Remove the check valve, blow on one end of the hose and then the other; if you can blow through the booster end, but not through the manifold end, the check valve is OK.



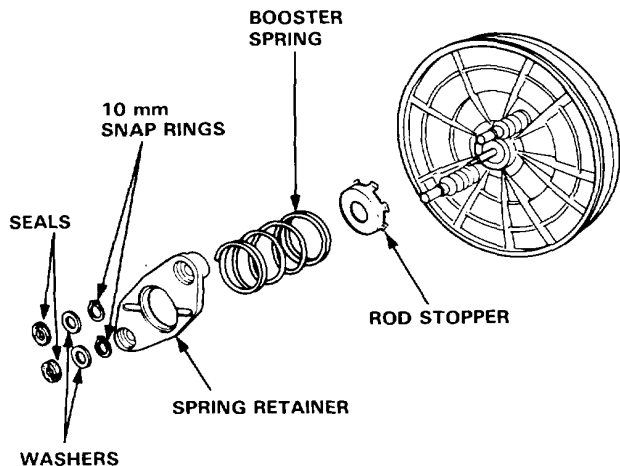


Disassembly

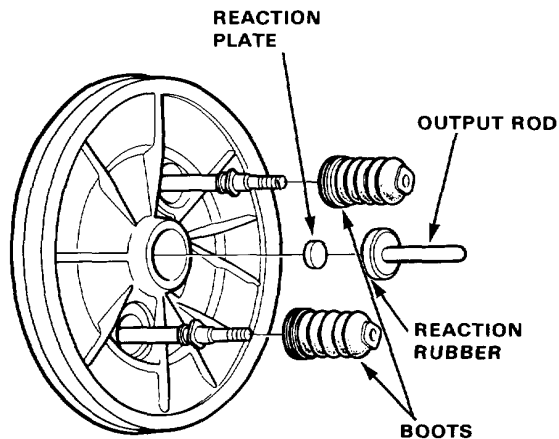
1. Scribe an aligning mark across the front and rear booster housings to ensure proper positioning of parts on reassembly.
2. Remove the E-clips, and separate the front booster housing and the rear booster housing.



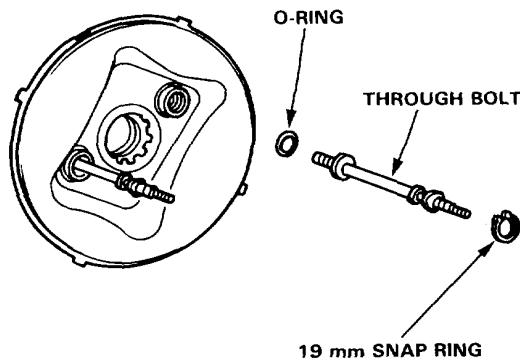
3. Remove the seals and washers from the spring retainer, then remove the spring retainer, booster spring and rod stopper by removing the 10 mm snap rings.



4. Remove the output rod, reaction rubber and reaction plate.
5. Remove the boots.



6. Separate the booster piston from the housing.
7. Remove the 19 mm snap ring and remove the through bolts with O-rings from the rear housing.

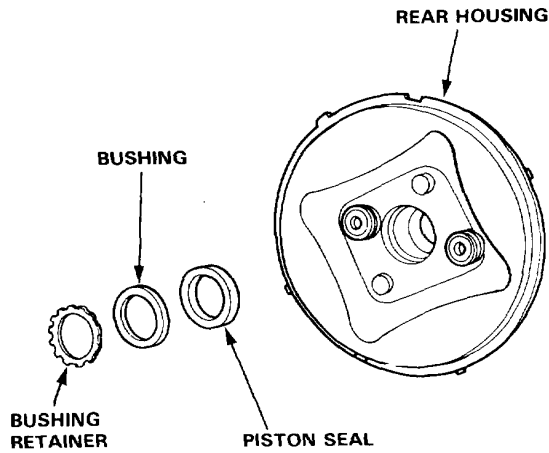


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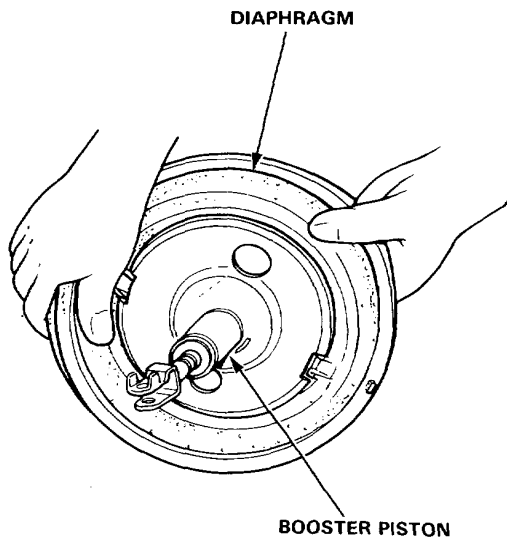
Brake Booster

Disassembly (cont'd)

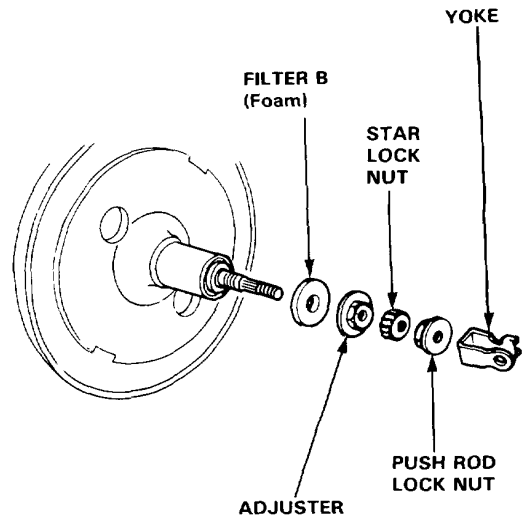
8. Remove the bushing retainer, bushing and piston seal from the rear housing.



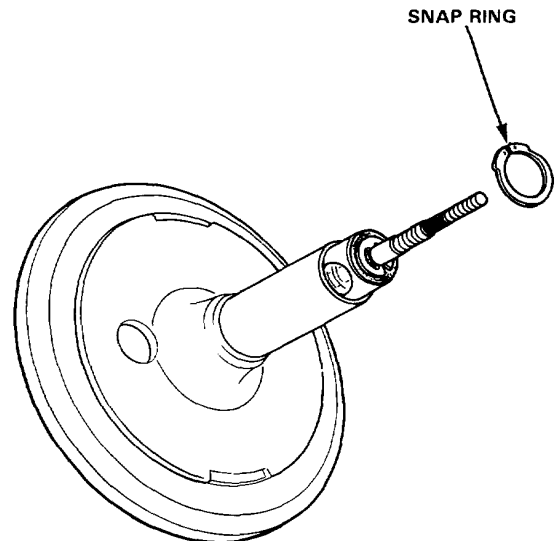
9. Remove the diaphragm from the booster piston.



10. Remove the push rod yoke, push rod lock nut, star lock nut, adjuster and filter B (foam) from the booster piston.

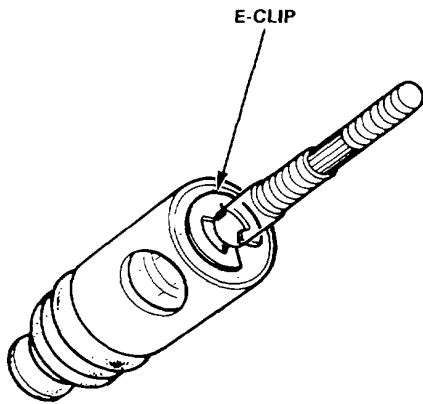


11. Remove the push rod by removing the snap ring.

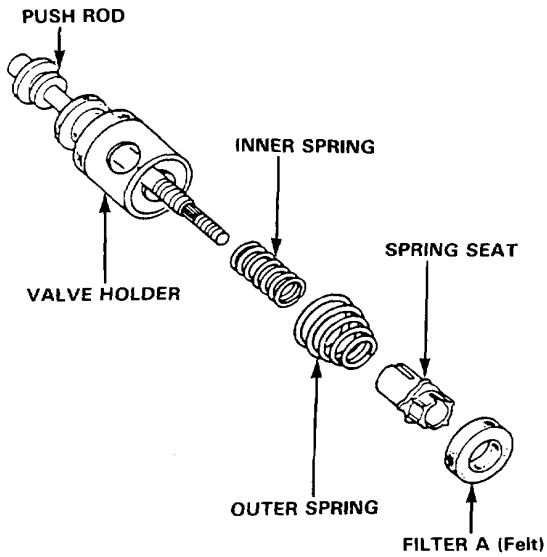




12. Remove the E-clip from the push rod.



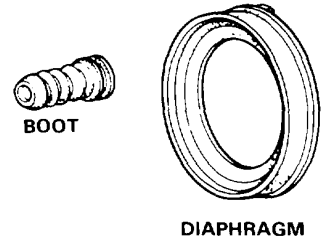
13. Remove filter A (Felt), spring seat, outer valve spring, inner valve spring, valve holder, poppet valve and push rod.



Rebuild Kit

E-CLIP SEAL 10 mm SNAP RING

REACTION RUBBER



POPPET VALVE FILTER A (Felt) E-CLIP

FILTER B (Foam) SNAP RING BUSHING RETAINER

BUSHING PISTON SEAL 19 mm SNAP RING

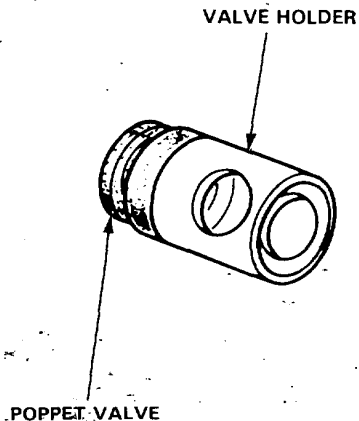
O-RING SILICONE GREASE

Brake Booster

Reassembly

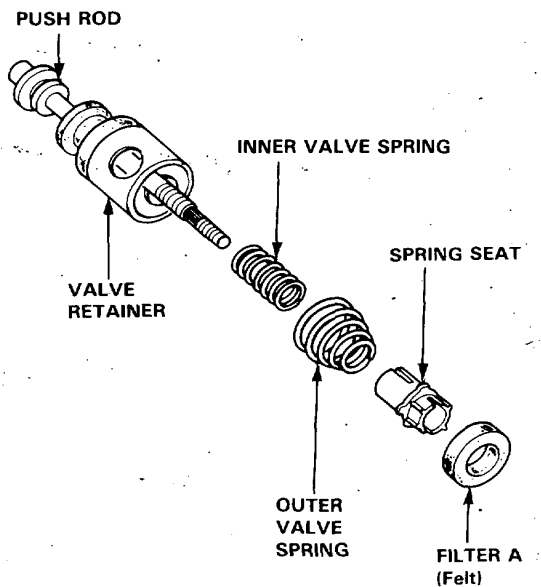
NOTE: Clean all parts before reassembly.

1. Install the poppet valve on the valve holder.

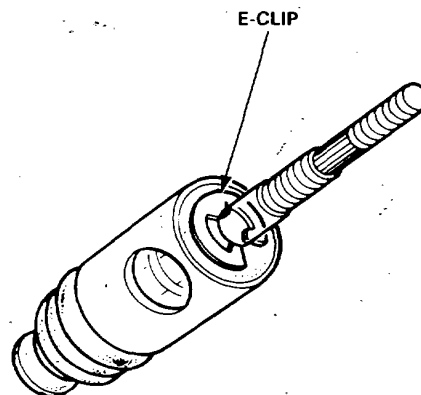


2. Install the valve holder, inner valve spring, outer valve spring and spring seat on the push rod.

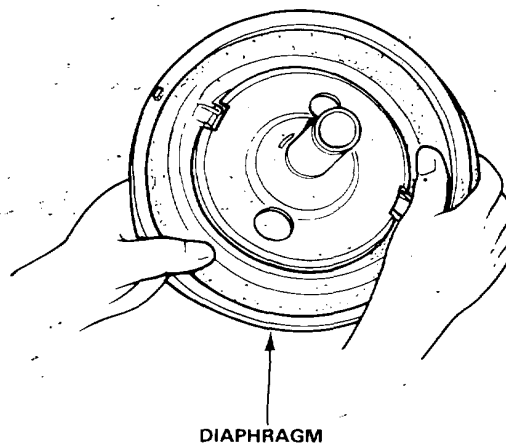
NOTE: Install the spring seat with its short end facing the filter side.



3. Install a new filter A (felt) on the push rod and secure with a new E-clip.

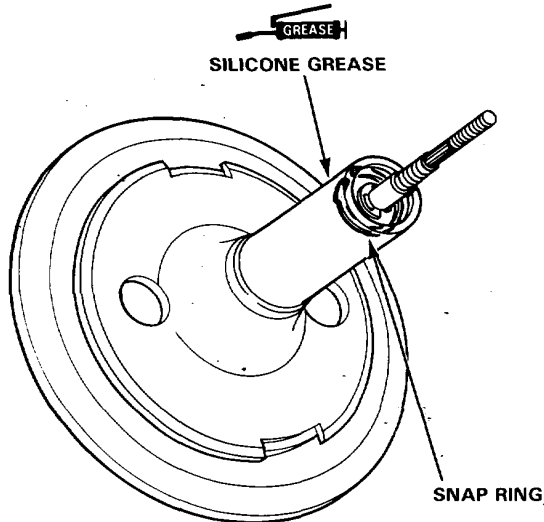


4. Install the diaphragm on the booster piston.

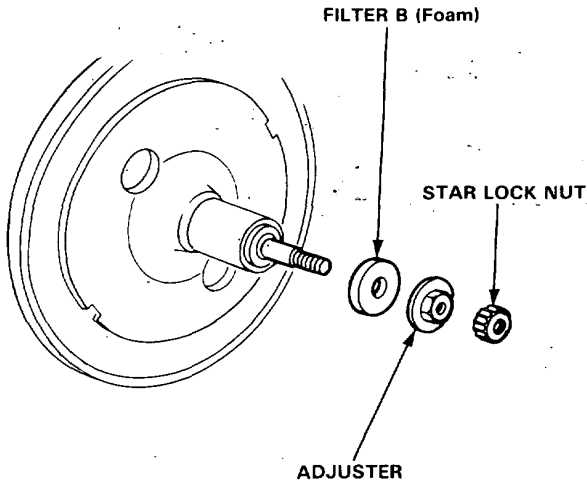




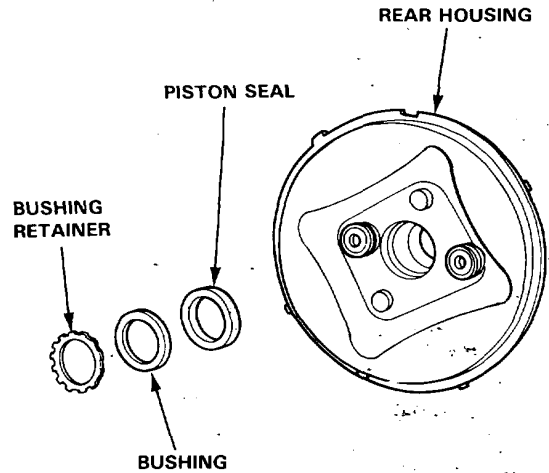
5. Apply silicone grease to the inner and outer surface of the booster piston tube.
6. Install the push rod assembly and secure with the snap ring.



7. Install filter B (foam) on the push rod, then loosely install the adjuster and start lock nut.



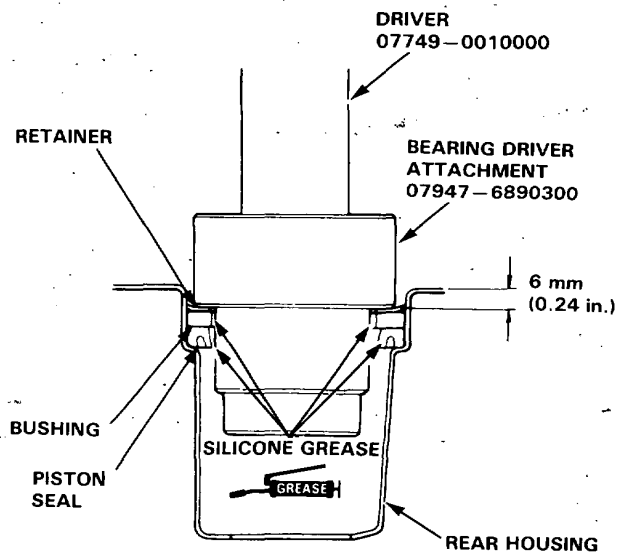
8. Apply silicone grease to the piston seal.
9. Position the piston seal, bushing and bushing retainer on the rear housing.



NOTE: Make sure the lip of the seal is facing in, as shown in drawing below.

10. Drive the bushing retainer in until it is 6 mm below the edge of the rear housing.

CAUTION: If you drive the retainer more than 6 mm, the piston seal may distort.

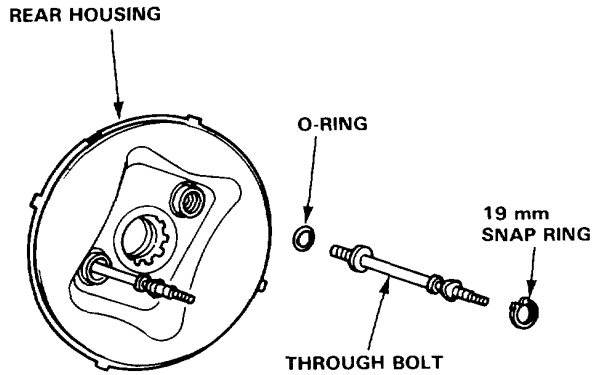


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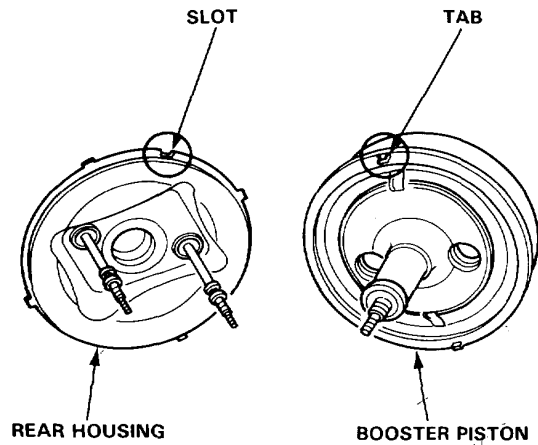
Brake Booster

Disassembly (cont'd)

11. Install the O-rings and through bolts on the rear housing and secure with 19 mm snap ring.

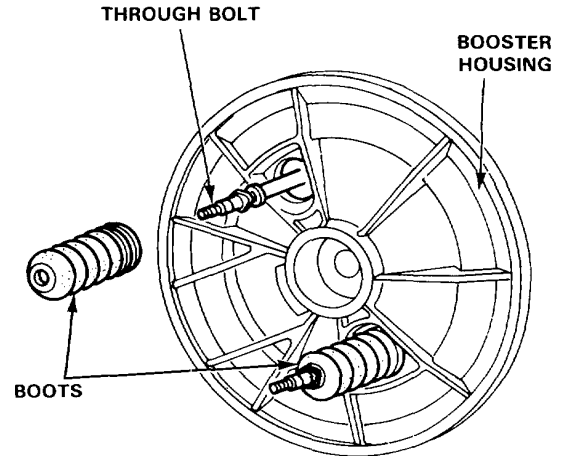


12. Install the booster piston on the rear housing aligning their tabs and slots.



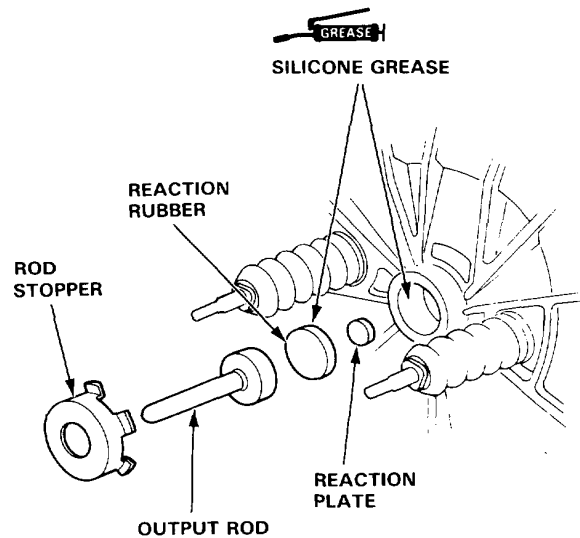
13. Install the boots on the through bolts.

NOTE: Make sure not to damage the boots when installing.



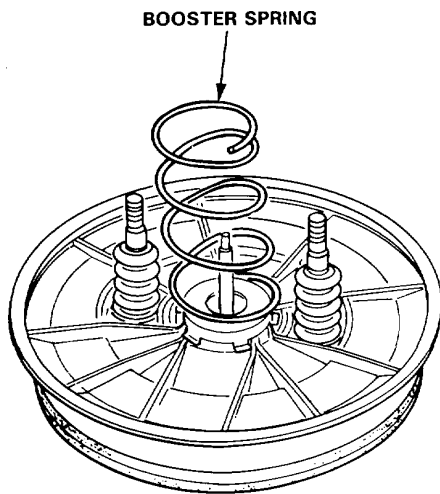
14. Apply silicone grease to the bore of the booster piston and reaction rubber.

15. Install the reaction plate, reaction rubber, output rod and rod stopper on the booster piston.



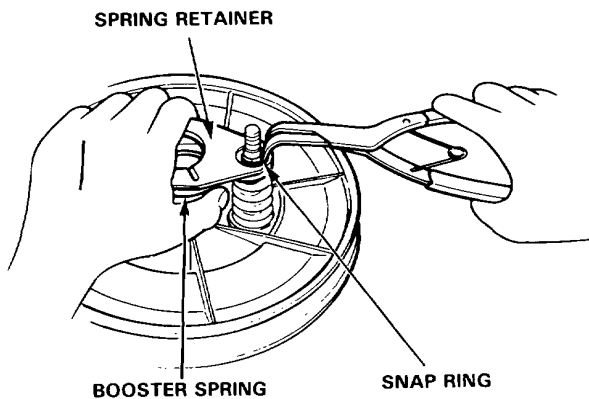


16. Install the booster spring.



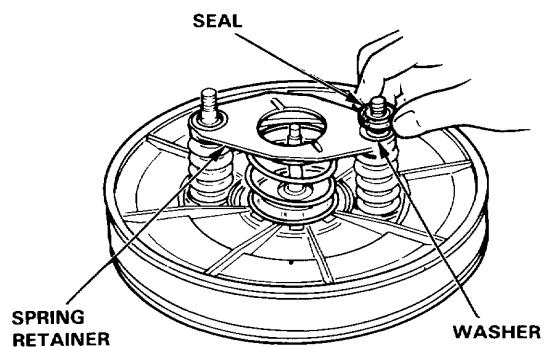
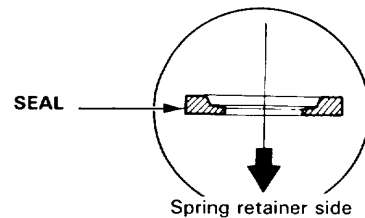
17. Install the spring retainer on the through bolts aligning the square portions of the bolts and retainer.

18. Compress the booster spring, then install the 10 mm snap ring on the through bolts.

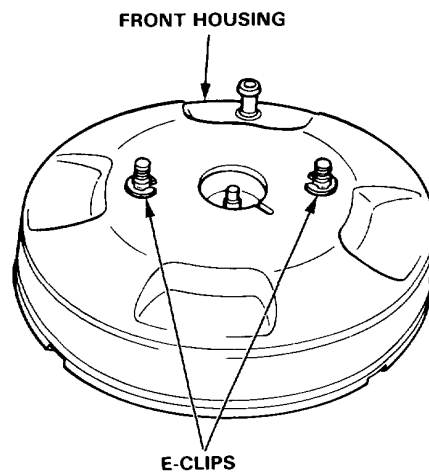


19. Install the washers and seals on the through bolts.

NOTE: Install the seals with the flat sides facing the spring retainer side as shown.



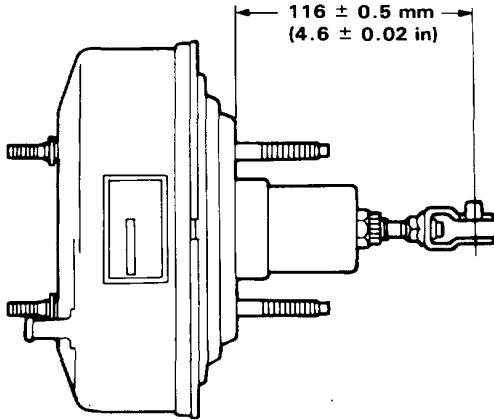
20. Install the front housing and secure with E-clips.



Brake Booster

Pushrod Adjustment

Install the locknut and pushrod yoke on the pushrod, and adjust the pushrod length as shown.

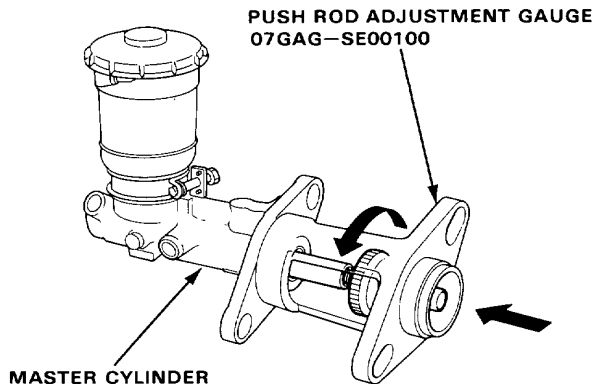




Pushrod Clearance Adjustment

NOTE: Master cylinder pushrod-to-piston clearance must be checked and adjustments made, if necessary, before installing master cylinder.

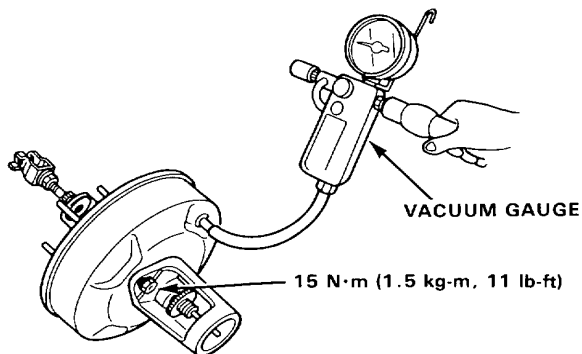
1. Using the Push Rod Adjustment Gauge, adjust bolt so the top of it is flush with end of master cylinder piston.



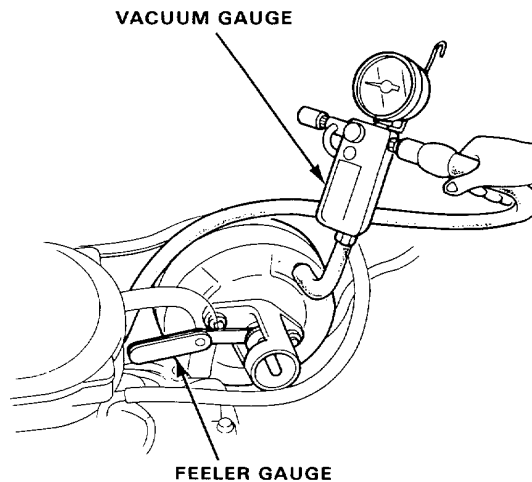
2. Install the master cylinder rod seal between the push rod adjustment gauge and brake booster.
3. Without disturbing the adjusting bolt's position, put the gauge upside down on the booster.
4. Install the master cylinder nuts and tighten to the specified torque.
5. Connect the booster in-line with a vacuum gauge to the booster's apply a 500 mm Hg (20 in Hg) vacuum and hold.
6. With a feeler gauge, measure the clearance between the gauge body and the adjusting nut.

CLEARANCE: 0–0.4 mm (0–0.016 in)

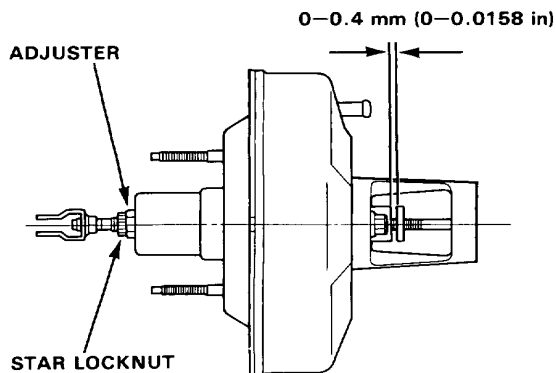
- Booster out of car.



- Inspection with the booster attached to the car.



7. If clearance is incorrect, loosen the star locknut and turn the adjuster in or out to adjust. Hold the clevis while adjusting.
8. Tighten the star locknut securely.



NOTE: If the clearance between the gauge body and adjusting nut is 0 mm, the push rod-to-piston clearance is 0.04 mm. If the clearance between the gauge body and adjusting nut is 0.4 mm, the push rod-to-piston clearance is 0 mm.

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