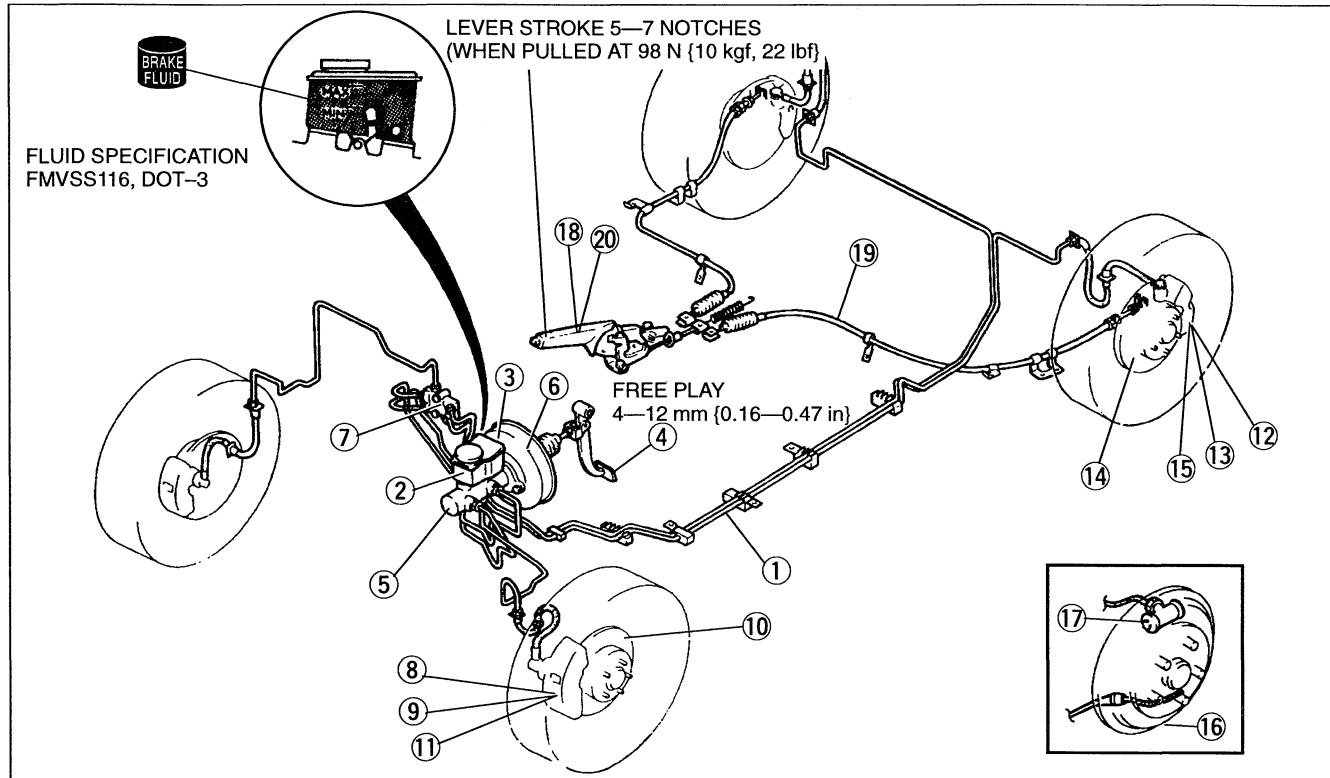


Before beginning any service procedure, refer to section S of the 1996 626/MX-6 Body Electrical Troubleshooting Manual for air bag system service warnings.

BRAKING SYSTEM

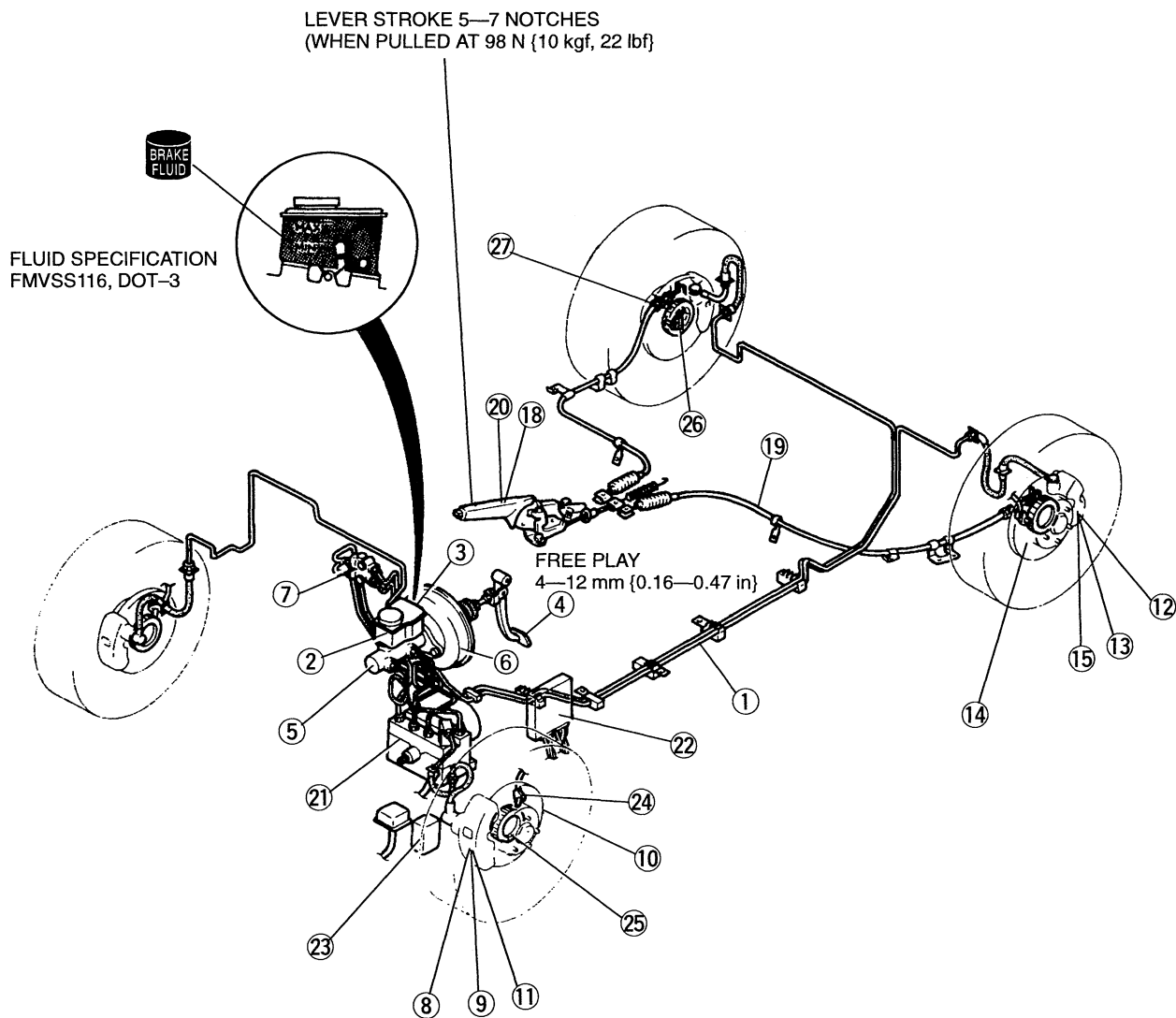
INDEX	P- 2	PARKING BRAKE SYSTEM	P-36
OUTLINE	P- 4	TROUBLESHOOTING GUIDE	P-36
SPECIFICATIONS	P- 4	PARKING BRAKE SHOE	P-36
CONVENTIONAL BRAKE SYSTEM ...	P- 5	PARKING BRAKE (LEVER TYPE) .	P-36
PREPARATION	P- 5	PARKING BRAKE CABLE	P-37
TROUBLESHOOTING GUIDE	P- 6	PARKING BRAKE LEVER	P-38
AIR BLEEDING	P- 7	ANTILOCK BRAKE SYSTEM (ABS) ..	P-38
BRAKE HYDRAULIC LINE	P- 7	PREPARATION	P-38
BRAKE FLUID	P- 9	TROUBLESHOOTING GUIDE	P-39
VACUUM LINE	P- 9	WIRING DIAGRAM	P-40
BRAKE PEDAL	P-10	RELATIONSHIP CHART	P-41
MASTER CYLINDER	P-12	QUICK DIAGNOSIS CHART	P-41
POWER BRAKE UNIT	P-18	DIAGNOSTIC INDEX	P-41
DUAL PROPORTIONING VALVE ...	P-22	SYMPTOM TROUBLESHOOTING ..	P-42
FRONT BRAKE (DISC)	P-24	ON-BOARD DIAGNOSTIC SYSTEM	P-45
DISC PAD	P-25	ABS HYDRAULIC UNIT	P-60
DISC PLATE	P-26	ABS CONTROL MODULE	P-63
CALIPER	P-26	ABS RELAY	P-64
REAR BRAKE (DISC)	P-28	ABS WHEEL-SPEED SENSOR	
DISC PAD	P-29	(FRONT)	P-66
DISC PLATE	P-30	ABS SENSOR ROTOR (FRONT) ...	P-67
CALIPER	P-31	ABS WHEEL-SPEED SENSOR	
REAR BRAKE (DRUM)	P-33	(REAR)	P-69
WHEEL CYLINDER	P-35	ABS SENSOR ROTOR (REAR)	P-70

INDEX



1. Brake hydraulic line Inspection / Removal / Installation	page P- 8	11. Caliper Disassembly / Inspection / Assembly	page P-26
2. Brake fluid Inspection	page P- 9	12. Rear brake (disc) Inspection (on-vehicle)	page P-28
Replacement	page P- 9	Removal / Inspection / Installation	page P-28
3. Vacuum line Inspection	page P- 9	13. Disc pad Replacement	page P-29
4. Brake pedal Inspection (on-vehicle)	page P-10	14. Disc plate Inspection	page P-30
Removal / Inspection / Installation	page P-11	15. Caliper Disassembly / Inspection / Assembly	page P-31
5. Master cylinder Removal / Installation	page P-12	16. Rear brake (drum) Inspection (on-vehicle)	page P-33
Disassembly / Inspection / Assembly	page P-16	Removal / Inspection / Installation	page P-33
6. Power brake unit Inspection (on-vehicle)	page P-18	17. Wheel cylinder Disassembly / Inspection / Assembly	page P-35
Removal / Installation	page P-20	18. Parking brake (lever type) Inspection (on-vehicle)	page P-36
7. Dual proportioning valve Inspection	page P-22	Adjustment	page P-36
Replacement	page P-22	19. Parking brake cable Removal / Inspection / Installation	page P-37
8. Front brake (disc) Inspection (on-vehicle)	page P-24	20. Parking brake lever Removal / Inspection / Installation	page P-38
Removal / Inspection / Installation	page P-24		
9. Disc pad Replacement	page P-25		
10. Disc plate Inspection	page P-26		

ANTILOCK BRAKE SYSTEM (ABS)



- | | |
|--|---|
| <p>21. ABS hydraulic unit
 Inspection page P-60
 Removal / Installation page P-61</p> <p>22. ABS control module
 Removal / Installation page P-63</p> <p>23. ABS relay
 Removal / Inspection /
 Installation page P-64</p> <p>24. ABS wheel-speed sensor (front)
 Removal / Inspection /
 Installation page P-66</p> | <p>25. ABS sensor rotor (front)
 Removal / Inspection page P-67
 Installation page P-68</p> <p>26. ABS wheel-speed sensor (rear)
 Removal / Inspection /
 Installation page P-69</p> <p>27. ABS sensor rotor (rear)
 Removal / Installation page P-70</p> |
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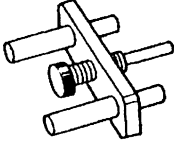
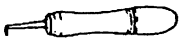
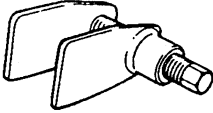
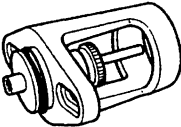
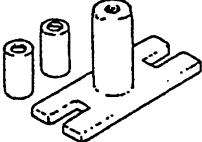
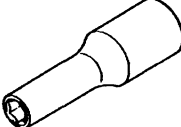
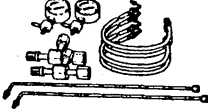
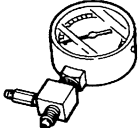
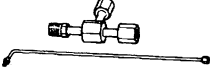
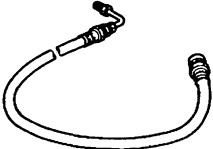
OUTLINE

SPECIFICATIONS

Item		Engine	FS		KL	
			non ABS	ABS	non ABS	ABS
Brake pedal	Type		Suspended			
	Pedal lever ratio		4.1			
	Max. stroke	mm {in}	125 {4.92}			
Master cylinder	Type		Tandem (with level sensor)			
			Conventional	Port-less	Conventional	Port-less
	Cylinder inner diameter	mm {in}	23.81 {0.937}			
Front disc brake	Type		Ventilated disc			
	Cylinder bore	mm {in}	57.15 {2.250}			
	Pad dimensions (area × thickness) mm ² {in ² } × mm {in}		4800 {7.44} × 10 {0.39}			
	Disc plate dimensions (outer diameter × thickness)	mm {in}	258 × 24 {10.16 × 0.94}			
Rear disc brake	Type		—	Solid disc		
	Cylinder bore	mm {in}	—	30.16 {1.187}		
	Pad dimensions (area × thickness) mm ² {in ² } × mm {in}		—	2900 × 8.0 {4.49 × 0.31}		
	Disc plate dimensions (outer diameter × thickness)	mm {in}	—	261 × 10.0 {9.88 × 0.39}		
Rear drum brake	Type		Leading-trailing	—		
	Wheel cylinder inner diameter	mm {in}	17.46 {0.687}	—		
	Lining dimensions (width × length × thickness)	mm {in}	30 × 219.3 × 4.5 {1.18 × 8.63 × 0.18}	—		
	Drum inner diameter	mm {in}	228.6 {9.000}	—		
	Shoe clearance adjustment		Automatic adjuster	—		
Power brake unit	Type		Vacuum multiplier			
			Single diaphragm		Tandem diaphragm	
	Diameter	mm {in}	239 {9.4}		188+215 {7.4+8.5}	
Braking force control device	Type		Dual proportioning valve			
Brake fluid			FMVSS116, DOT-3			
Parking brake	Type		Mechanical two-rear-wheel control			
	Operation system		Center lever			

CONVENTIONAL BRAKE SYSTEM

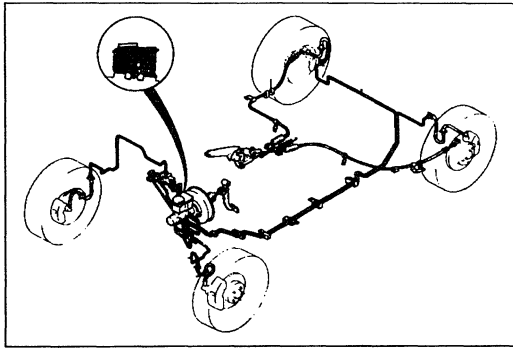
PREPARATION
SST

<p>49 0259 770B</p> <p>Wrench, flare nut</p> 	<p>For removal of brake pipe</p>	<p>49 F043 001</p> <p>Adjust gauge</p> 	<p>For adjustment of push rod clearance</p>
<p>49 0208 701A</p> <p>Air-out tool, boot</p> 	<p>For removal of piston seal</p>	<p>49 0221 600C</p> <p>Expand tool, disc brake</p> 	<p>For installation of brake pads (Front disc brake)</p>
<p>49 B043 001</p> <p>Adjust gauge</p> 	<p>For adjustment of push rod clearance</p>	<p>49 E043 003A</p> <p>Lock tool, turning</p> 	<p>For adjustment of push rod clearance</p>
<p>49 B043 004</p> <p>Socket wrench</p> 	<p>For adjustment of push rod clearance</p>	<p>49 U043 0A0</p> <p>Gauge set, oil pressure</p> 	<p>For inspection of brake fluid pressure</p>
<p>49 U043 004</p> <p>Gauge, oil pressure (Part of 49 U043 0A0)</p> 	<p>For inspection of brake fluid pressure</p>	<p>49 U043 005</p> <p>Joint (Part of 49 U043 0A0)</p> 	<p>For inspection of brake fluid pressure</p>
<p>49 U043 006</p> <p>Hose (Part of 49 U043 0A0)</p> 	<p>For inspection of brake fluid pressure</p>	<p>—</p>	<p>—</p>

P

TROUBLESHOOTING GUIDE

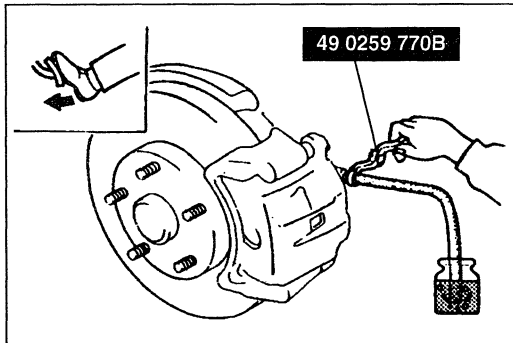
Problem	Possible cause	Action	Page
Poor braking	Leakage of brake fluid	Repair	—
	Air in system	Bleed air	P- 7
	Worn disc pad or brake shoe	Replace	P-25, 29, 33
	Brake fluid, grease, oil or water on disc pad or brake shoe	Clean or replace	P-25, 29, 33
	Hardening of disc pad or brake shoe surface or poor contact	Grind or replace	P-25, 29, 33
	Malfunction of caliper piston or wheel cylinder	Replace	P-26, 31, 33
	Malfunction of master cylinder or wheel cylinder	Repair or replace	P-12, 16, 33
	Malfunction of power brake unit	Replace	P-20
	Malfunction of check valve (vacuum hose)	Replace	P- 9
	Damaged vacuum hose	Replace	P- 9
	Deterioration of flexible hose	Replace	P- 8
Malfunction of dual proportioning valve	Replace	P-22	
Brakes pull to one side	Worn disc pad or brake shoe	Replace	P-25, 29, 33
	Brake fluid, grease, oil or water on disc pad or brake shoe	Clean or replace	P-25, 29, 33
	Hardening of disc pad brake shoe surface or poor contract	Grind or replace	P-25, 29, 33
	Abnormal wear, distortion of disc plate or drum	Repair or replace	P-24, 28, 33
	Malfunction of automatic adjuster	Repair or replace	P-31, 33
	Loose or damaged dust cover/backing plate mounting bolt	Tighten or replace	section M
	Malfunction of caliper piston or wheel cylinder	Replace	P-26, 31, 33
	Worn or improperly adjusted wheel bearing preload	Adjust or replace	section M
Improper adjustment of wheel alignment	Adjust	section R	
Unequal tire air pressure	Adjust	section Q	
Brakes do not release	No brake pedal play	Adjust	P-10
	Improper adjustment of push rod clearance	Adjust	P-13
	Clogged master cylinder return port	Clean	—
	Brake pad not returning properly	Repair	—
	Improper return or malfunction of caliper piston or wheel cylinder piston	Repair or replace	P-26, 31, 35
	Excessive runout of disc plate	Repair or replace	P-24, 28
	Improper adjustment of wheel bearing preload	Adjust or replace	section M
Pedal goes too far (Excessive pedal stroke)	Air in system, insufficient brake fluid	Add fluid and bleed air	P-7, 9
	Improper adjustment of pedal play	Adjust	P-10
	Worn disc pad or brake shoe	Replace	P-25, 29, 33
Abnormal noise or vibration during braking	Worn disc pad or brake shoe	Replace	P-25, 29, 33
	Damaged pad or brake shoe	Grind or replace	P-25, 29, 33
	Brakes do not release	Repair	—
	Foreign material or scratches on disc plate or drum contact surface	Clean	—
	Loose backing plate/dust cover or caliper mounting bolt	Tighten	P-24, 28, 33
	Damaged disc plate or drum contact surface	Replace	P-24, 28, 33
	Poor contact of pad or brake shoe	Repair or replace	P-25, 29, 33
	Insufficient grease on sliding parts	Apply grease	—



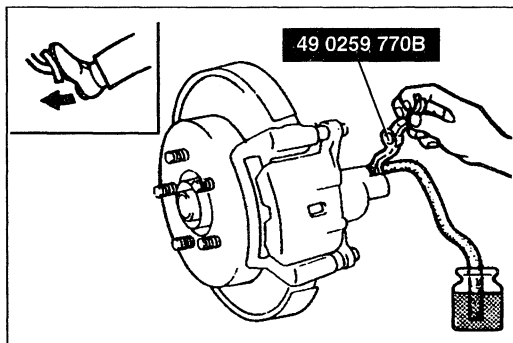
AIR BLEEDING

Note

- The brakes should be bled whenever a brake line is disconnected. If a hydraulic line is disconnected at the master cylinder, start at the slave cylinder farthest from the brake master cylinder, and move to the next closest slave cylinder until all four cylinders have been bled. If the disconnection point is anywhere except the master cylinder, start at the point closest to the disconnection, and move to the next farthest slave cylinder until all four cylinders have been bled.



1. Jack up the vehicle and support it with safety stands.
2. Remove the bleeder cap and attach a vinyl hose to the bleeder plug.
3. Place the other end of the vinyl tube in a clear container.
4. One person should depress the brake pedal a few times, and then hold it in the depressed position.
5. A second person should loosen the bleeder screw, drain out the fluid, and retighten the screw by using the **SST**.



6. Repeat steps 4 and 5 until no air bubbles are seen. The reservoir should be kept about 3/4 full during bleeding to prevent air from reentering the lines.
7. Check for correct brake operation.
8. Verify that there is no fluid leakage. Wipe off any spilled fluid immediately.
9. After bleeding the air, add brake fluid to the reservoir up to the specified level.

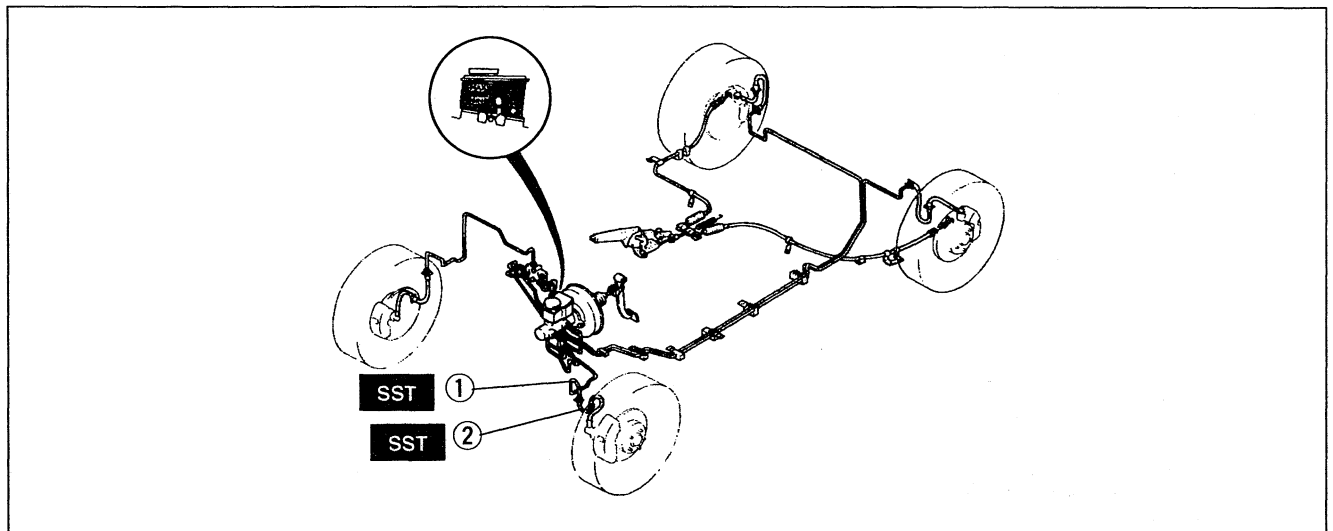
P

Tightening torque

Front: 7—9 N·m {72—91 kgf·cm, 63—78 in·lbf}

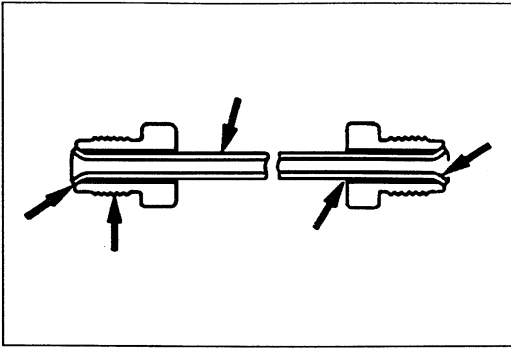
Rear: 5.9—8.8 N·m {60—90 kgf·cm, 53—78 in·lbf}

BRAKE HYDRAULIC LINE

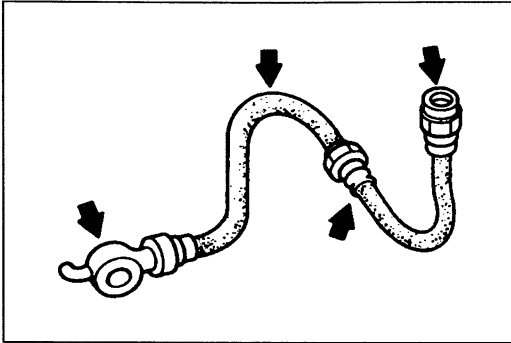


1. Brake pipe
Inspection / Removal /
Installation page P-8

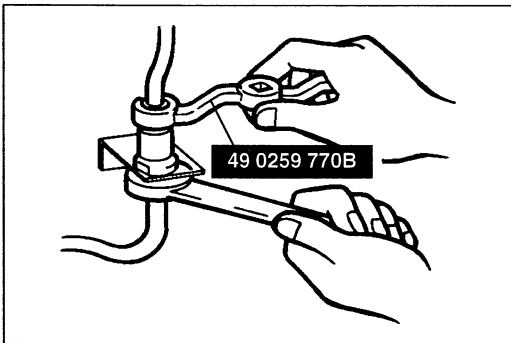
2. Flexible hose
Inspection / Removal /
Installation page P-8

**Inspection (on-vehicle)****Brake pipe**

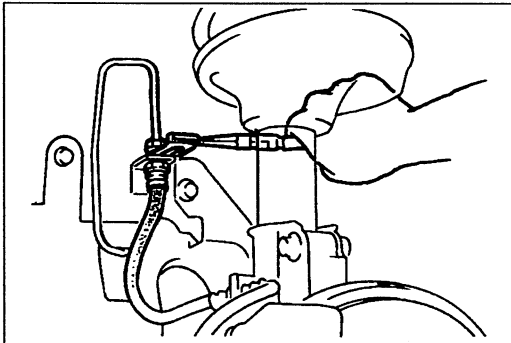
Check for cracks, damage, and corrosion of the brake pipe. Replace the pipe or flare nut(s) if necessary.

**Flexible hose**

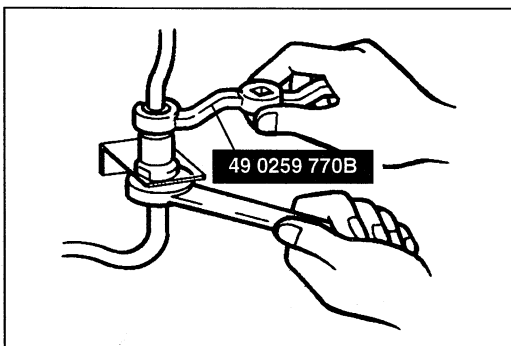
Check for scars, cracks, and swelling of the flexible hose. Replace the hose if necessary.

**Removal**

1. Remove the brake pipe by using the **SST**.
2. Disconnect the clip and remove the flexible hose from the bracket.

**Installation**

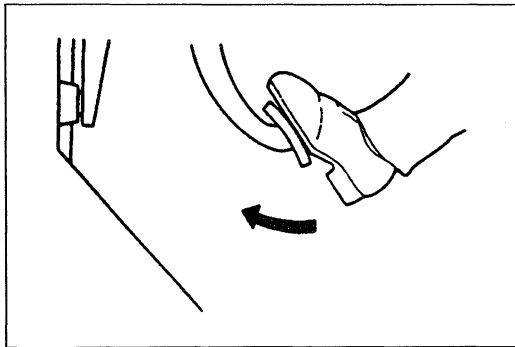
1. Secure the flexible hose in the bracket and connect the clip to it.



2. Connect the flexible hose to the brake pipe. Verify that the hose is not twisted.
3. Tighten the flare nut by using the **SST**. Verify that the hose can not come in contact with any other parts of vehicle.

Tightening torque:

12.9—21.5 N·m {130—220 kgf·cm, 113—190 in·lbf}



BRAKE FLUID

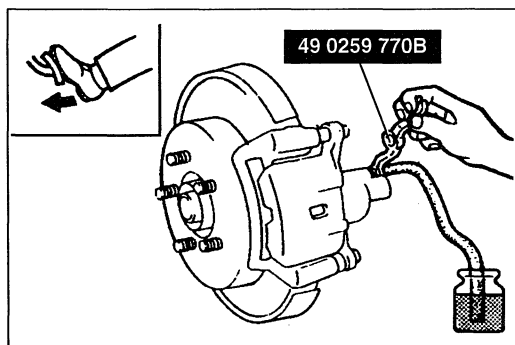
Inspection

1. Depress the brake pedal several times, and inspect for leakage of the brake line system.



2. Verify that the fluid level in the reservoir is between the MAX and MIN lines on the reservoir.
3. If the fluid level is extremely low, check the brake system for leakage.

Fluid specification: FMVSS116, DOT-3

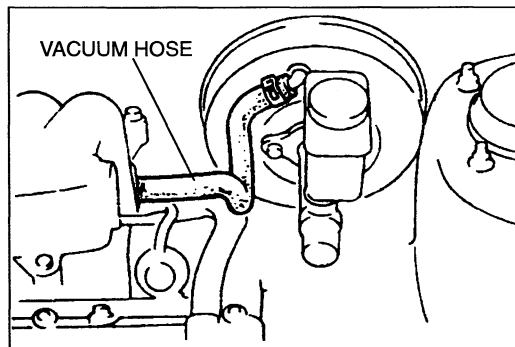


Replacement

Caution

- Brake fluid will damage painted surfaces. If brake fluid does get on a painted surface, wipe it off immediately.

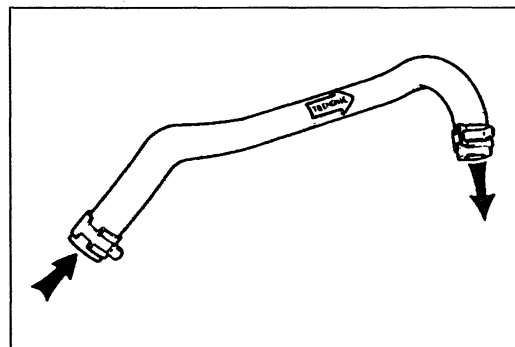
1. Remove the brake fluid from the reservoir by using a suction pump.
2. Fill the reservoir with clean brake fluid.
3. Attach a vinyl tube to the farthest bleeder screw and place the other end of the tube in a clear container.
4. Remove all old brake fluid from the brake lines by loosening the bleeder screw and pumping the brake pedal until only clean fluid is seen. The reservoir should be kept about 3/4 full during bleeding to prevent air from re-entering the lines.
5. Perform the above for all bleeder screws.
6. Fill the reservoir to the specified levels.



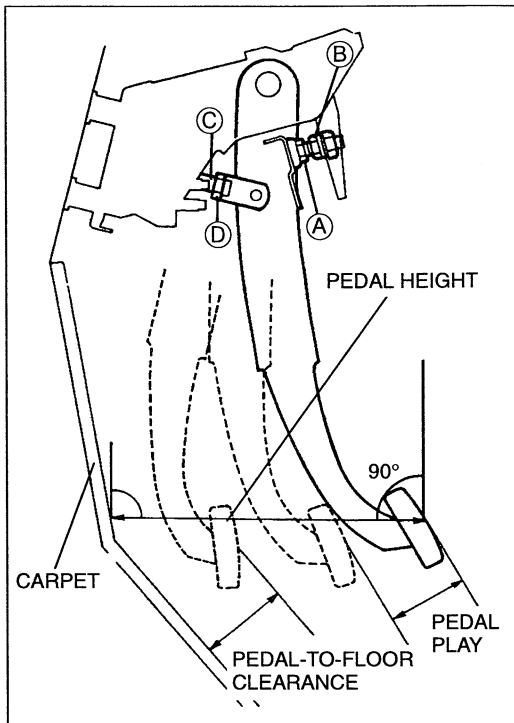
VACUUM LINE

Inspection

1. Remove the clamps and the hose.
2. Apply both suction and pressure to the engine-side of the hose, and verify that air flows only toward that side. If air flows in both directions or not at all, replace the vacuum hose.



P



BRAKE PEDAL
Inspection (on-vehicle)
Brake pedal height
Inspection

Verify that the distance from the center on the pedal pad to the carpet is as specified.

Specification: 191.5—196.5 mm {7.54—7.74 in}

Adjustment

1. Loosen locknut (B) and turn bolt (A) until it does not contact the pedal.
2. Loosen locknut (D) and turn rod (C) to adjust the height.
3. Adjust the pedal free play and tighten locknut (D).
4. Turn bolt (A) until it contacts the pedal; then turn an additional 1/2 turn.
5. Tighten locknut (B).

Tightening torque:

9.81—14.7 N·m {100—150 kgf·cm, 86.9—130 in·lbf}

Pedal Play

Inspection

1. Depress the pedal a few times to eliminate the vacuum in the system.
2. Remove the snap pin, verify that the holes in the fork and in the pedal are aligned, then reinstall the pin.
3. Gently depress the pedal by hand and check the free play (until resistance is felt).

Pedal play: 4—12 mm {0.16—0.47 in}

Adjustment

1. Remove the spring pin and the clevis pin.
2. Loosen locknut (D) and turn rod (C) to align the holes in the fork and in the pedal.
3. Install the clevis pin and a new spring pin.
4. Verify the pedal height and the brake light operation.

Tightening torque:

24—34 N·m {2.4—3.5 kgf·m, 17—25 ft·lbf}

Pedal-To-Floor Clearance

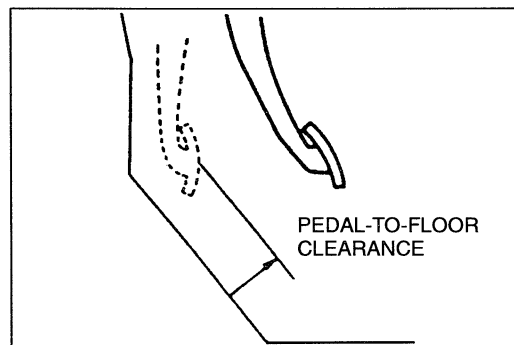
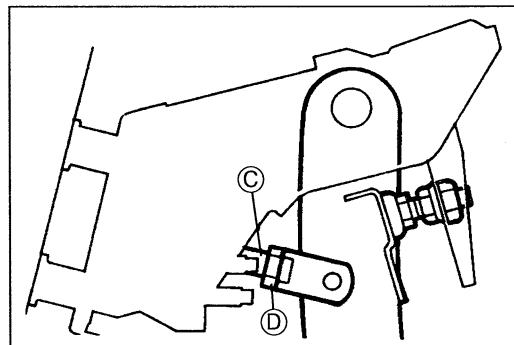
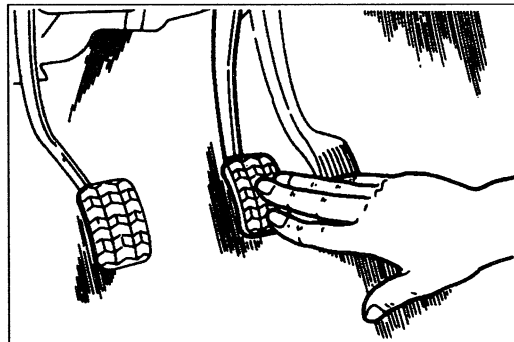
Inspection

Verify that the distance from the floor panel to the pedal pad center is as specified when the pedal is depressed with a force of 589 N {60 kgf, 132 lbf}.

Pedal-to-floor clearance: 85 mm {3.35 in} min.

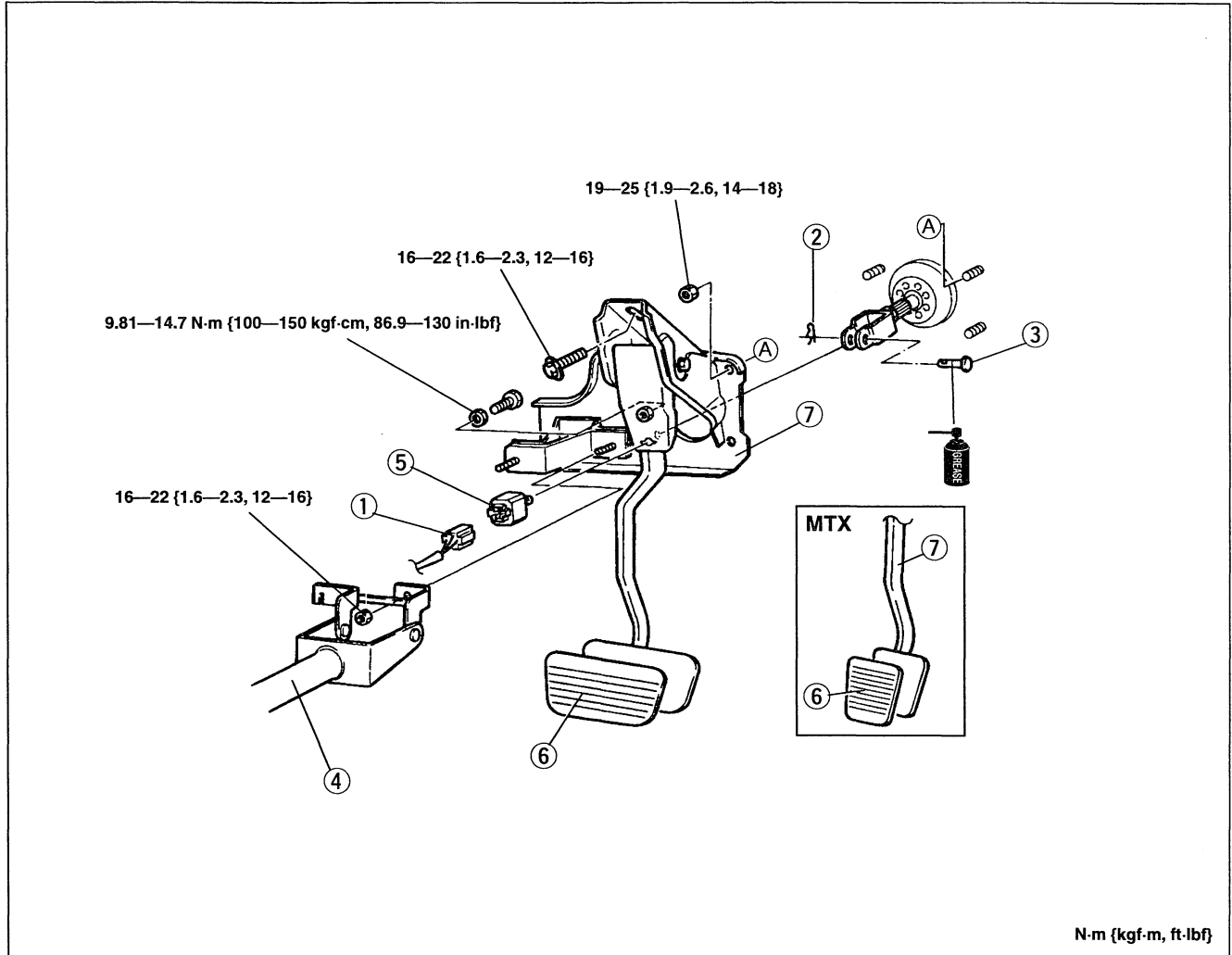
If the distance is less than specified, check for the following problems:

1. Air in brake system
2. Malfunction of automatic adjuster
3. Worn pads

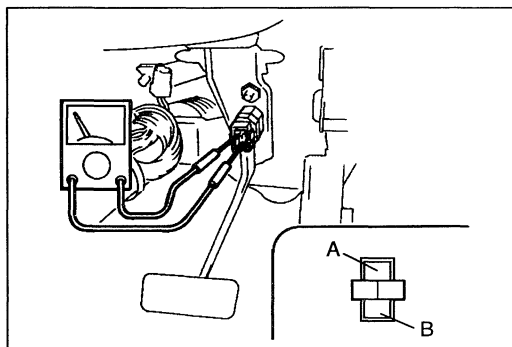


Removal / Inspection / Installation

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal.
4. After installation, check and if necessary adjust the pedal height and free play.



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Brake switch connector 2. Spring pin 3. Clevis pin 4. Steering shaft
Service section N 5. Brake switch
Inspection below | <ol style="list-style-type: none"> 6. Pedal pad
Inspect for wear and damage 7. Brake pedal
Inspect for bending and damage |
|--|---|

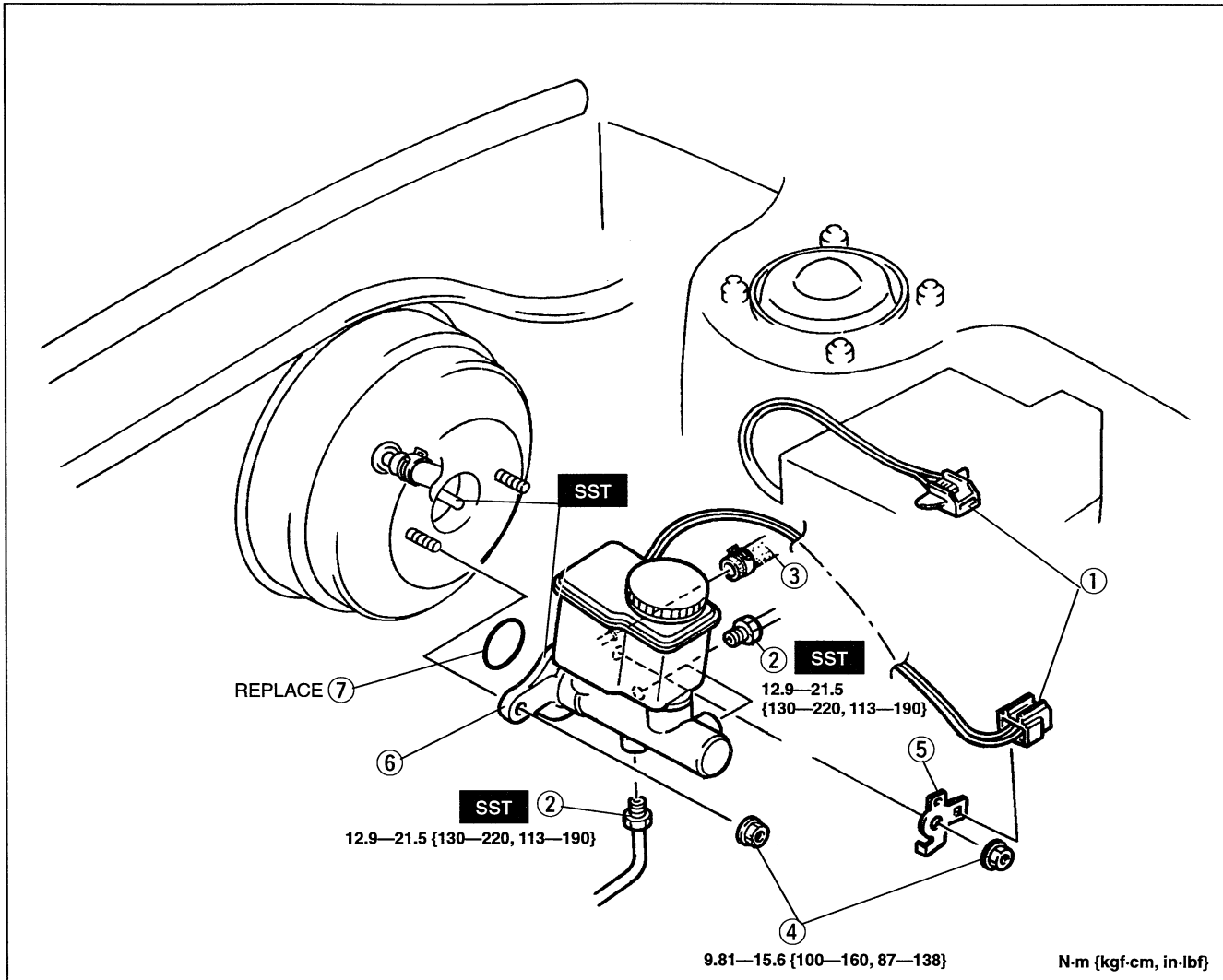


**Inspection
Brake switch**

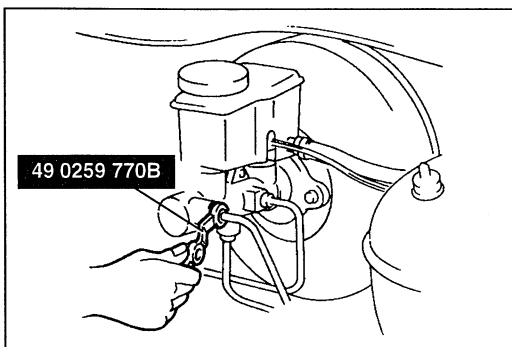
1. Disconnect the brake switch connector.
2. Connect an ohmmeter between the terminals of the brake switch.
3. Confirm continuity between the terminals when the brake pedal is depressed.

**MASTER CYLINDER
Removal / Installation**

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation, add brake fluid, bleed air, and check for fluid leakage.



- | | |
|---------------------------------------|------------------------------------|
| 1. Brake fluid level sensor connector | 5. Bracket |
| 2. Brake pipe | 6. Master cylinder |
| Removal Note below | Disassembly / Inspection / |
| Installation Note page P-15 | Assembly page P-16 |
| 3. Hose (MTX) | Installation Note page P-13 |
| 4. Nut | 7. O-ring (Except MTX without ABS) |

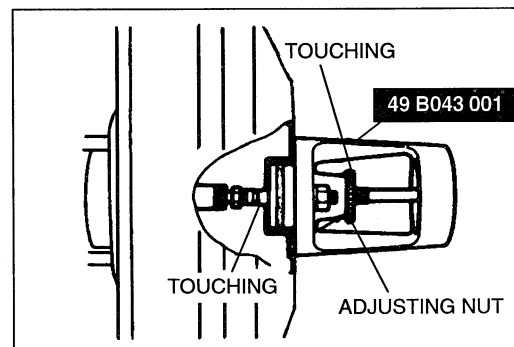
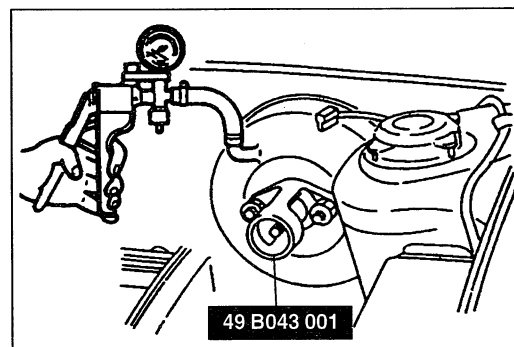
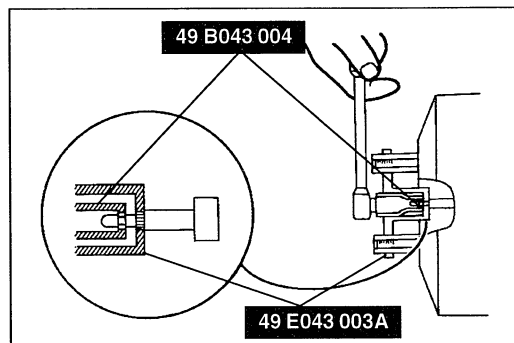
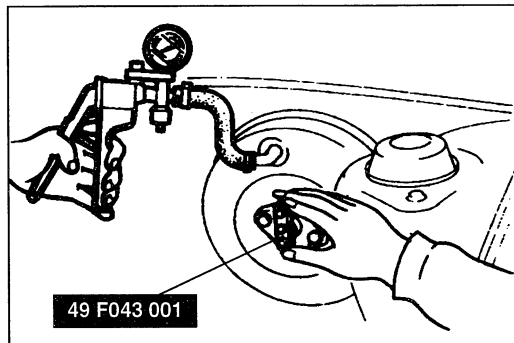
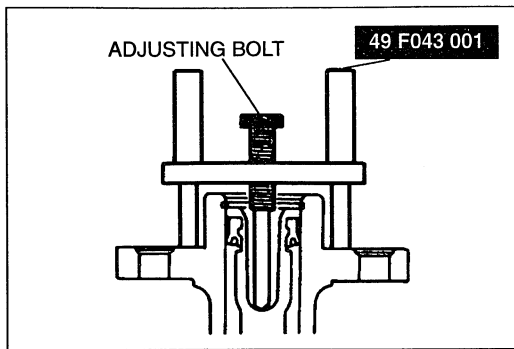


**Removal note
Brake pipe**

Caution

- Brake fluid will damage painted surfaces. If brake fluid does get on a painted surface, wipe it off immediately.

Disconnect the brake pipe from the master cylinder by using the SST.



Installation note
Master cylinder (MTX without ABS)
Piston to push rod clearance

1. Place the **SST** atop the master cylinder. Turn the adjusting bolt until it touches the bottom of the push rod hole in the piston.
2. Apply **66.7 kPa {500 mmHg, 19 inHg}** vacuum to the power brake unit by using a vacuum pump.
3. Invert the adjustment gauge used in step 1 and place it on the power brake unit.
4. Measure the clearance between the end of the **SST** and the push rod of the power brake unit. If it is not **0 mm {0 in}**, loosen the push rod locknut and turn the push rod to make the adjustment by using the **SSTs**.

Note

- This adjustment produces the following clearance.

Vacuum applied to unit	Push rod to piston clearance
Approx. 66.7 kPa {500 mmHg, 19.7 inHg}	0.1—0.4 mm {0.004—0.016 in}

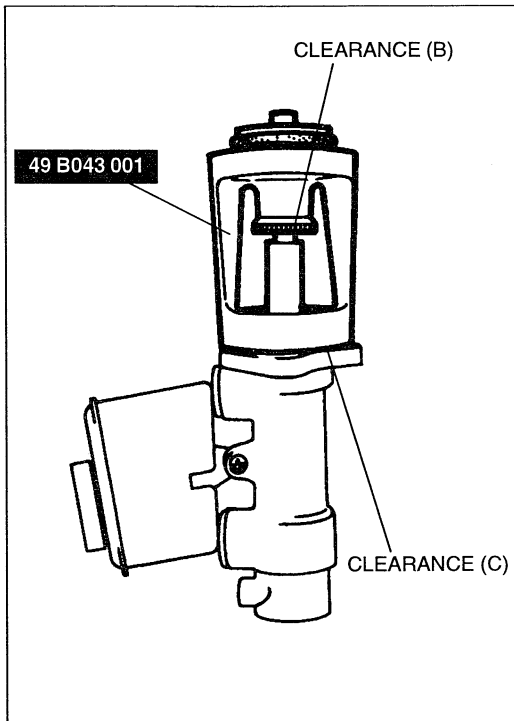
Master cylinder (except MTX without ABS)
Piston to push rod clearance

1. Turn the nut of the **SST** clockwise to fully retract the **SST** gauge rod. Attach the **SST** to the power brake unit.

Tightening torque:

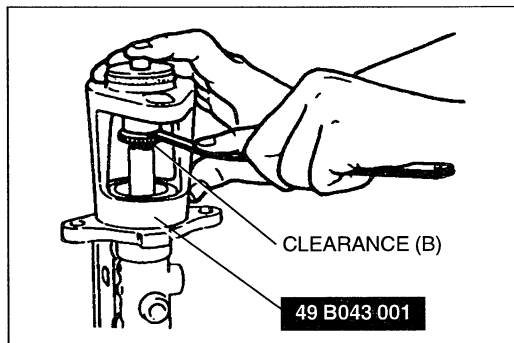
9.81—15.6 N·m {100—160 kgf·cm, 87—138 in·lbf}

2. Apply **66.7 kPa {500 mmHg, 19.7 inHg}** vacuum to the power brake unit by using a vacuum pump.
3. Turn the adjusting nut of the **SST** counterclockwise until the gauge rod just contacts the push rod end of the power brake unit.
 Push lightly on the end of the gauge rod to be sure it is seated. Verify that there is no gap between the adjusting nut and **SST** body.



4. Remove the **SST** from the power brake unit without disturbing the adjusting nut. Set the **SST** onto the master cylinder as shown in the figure.
5. Push lightly on the end of the **SST** gauge rod to be sure it is bottomed in the master cylinder piston, but do not push so hard that the piston moves. Note any clearance between the **SST** body and the adjusting nut (clearance B) or between the body and the master cylinder (clearance C). Adjust the push rod as necessary as outlined in "Adjustment" below.

Measurement	Push rod
Clearance at (B)	Too short
Clearance at (C)	Too long
No clearance at (B) or (C)	OK

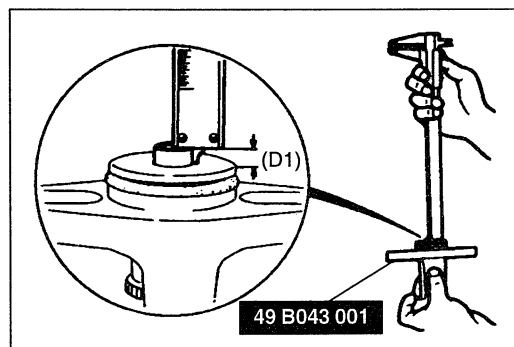
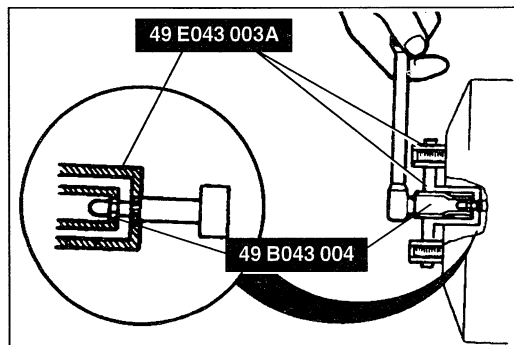


Adjustment

The threads of the push rod are specially designed so that the bolt becomes harder to turn past a certain point. This is to prevent the bolt from coming loose. Turn the bolt only within this range when adjusting.

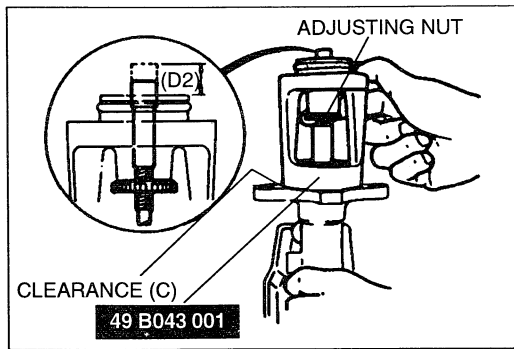
Clearance at (B)

1. Push lightly on the end of the **SST** gauge rod, and measure the clearance between the adjusting nut and the **SST** body.
2. Using the **SSTs**, turn the nut to lengthen the power brake unit push rod to an amount equal to the clearance measured at (B).

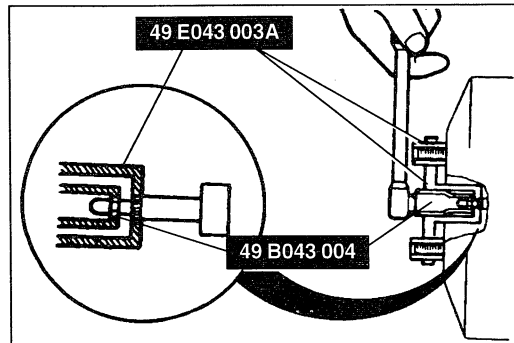


Clearance at (C)

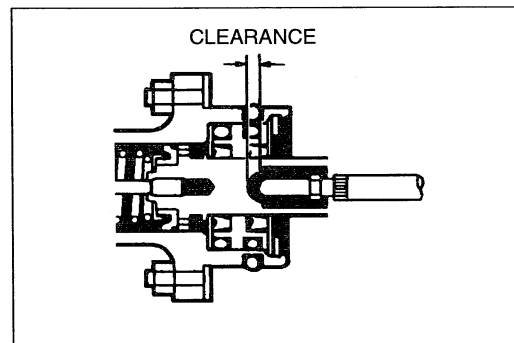
1. Measure and record height (D1) of the gauge rod.



2. Turn the adjusting nut until the **SST** body sets squarely on the master cylinder. (Turn only enough for the body to touch.)
3. Measure and record height D2 of the gauge rod.



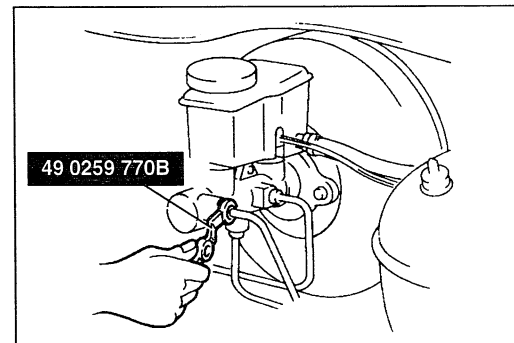
4. Subtract D1 from D2 and using the **SSTs**, turn the nut to shorten the power brake unit push rod an amount equal to the sum.



Note

- This adjustment produces the following clearance.

Vacuum applied to unit	Push rod to piston clearance
Approx. 66.7 kPa {500 mmHg, 19.7 inHg}	0.1—0.4 mm {0.004—0.016 in}



Brake pipe

Tighten the brake pipe flare nut by using the **SST**.

Tightening torque:

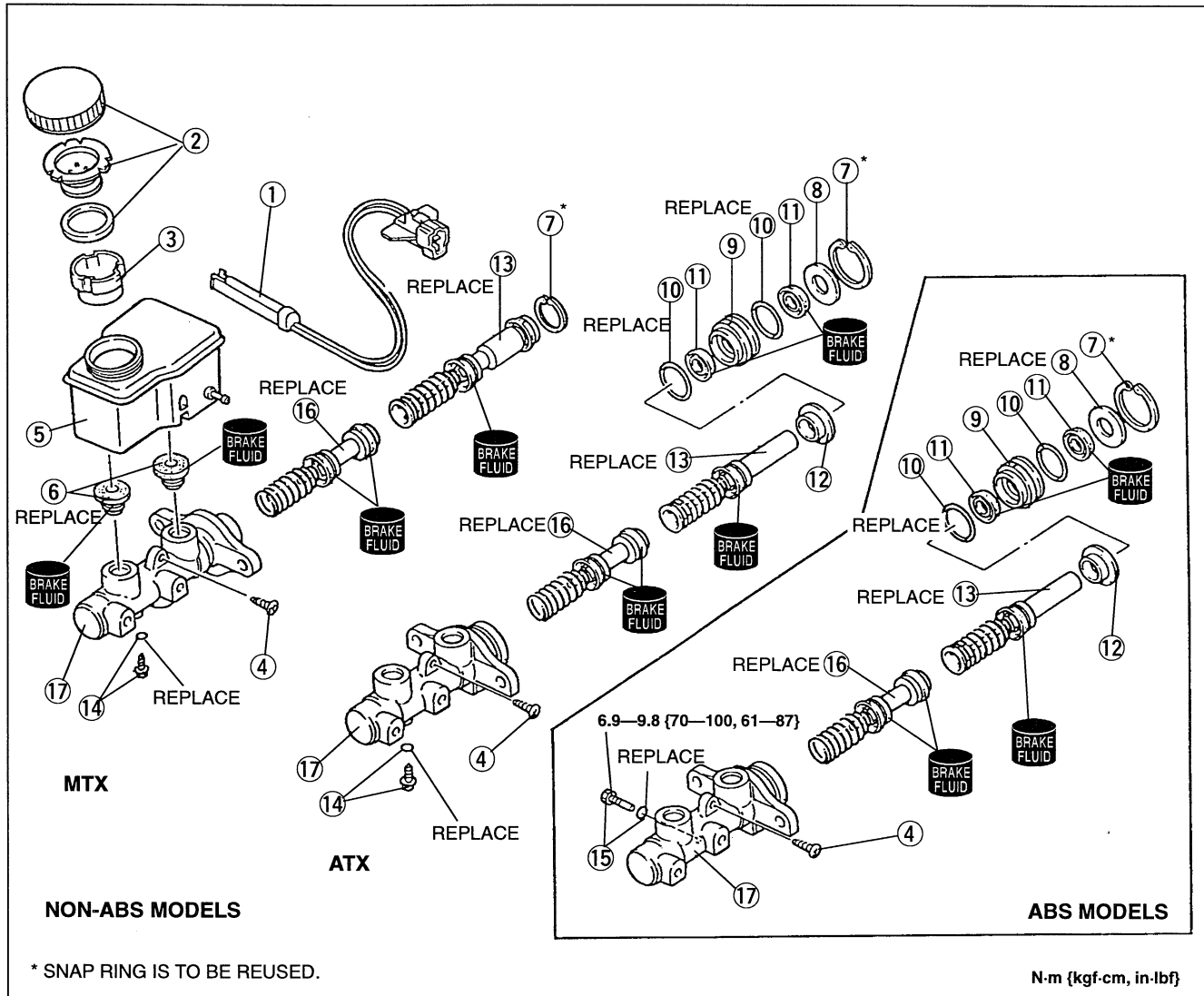
12.9—21.5 N·m {130—220 kgf·cm, 113—190 in·lbf}

Disassembly / Inspection / Assembly

1. After removing the brake fluid, disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary. If the master cylinder body is damaged, replace the unit as an assembly.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.

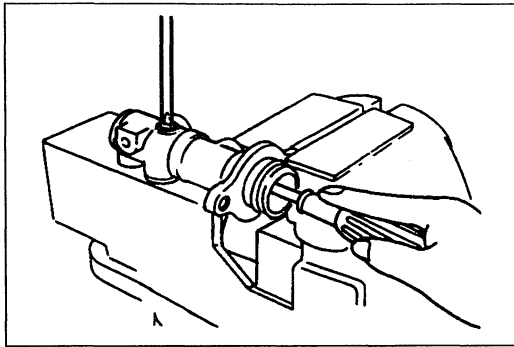
Caution

- The brake master cylinder is made of aluminum, and can be easily damaged by tightening in a vise. When securing the master cylinder in a vise, tighten only the flange of the master cylinder.



- | | |
|------------------------------------|-----------|
| 1. Brake fluid level sensor | |
| Inspection | page P-17 |
| 2. Cap set | |
| 3. Filter | |
| 4. Screw | |
| 5. Reservoir | |
| Inspect for damage and deformation | |
| 6. Bushings | |
| 7. Snap ring | |
| 8. Spacer | |
| 9. Piston guide | |
| 10. O-ring | |

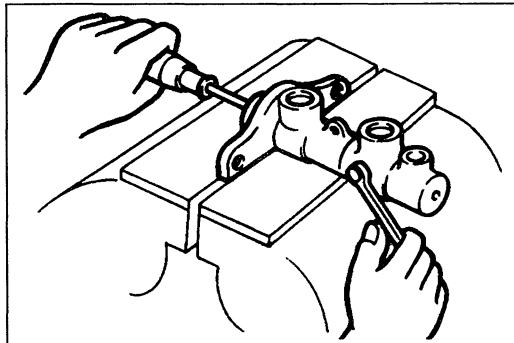
- | | |
|---|-----------|
| 11. Cup | |
| 12. Stopper | |
| 13. Primary piston assembly | |
| Inspect for abnormal wear, rust, and damage | |
| 14. Stop screw and O-ring (Non-ABS model) | |
| Assembly Note | page P-17 |
| 15. Stop pin and O-ring (ABS model) | |
| Assembly Note | page P-17 |
| 16. Secondary piston assembly | |
| Inspect for abnormal wear, rust, and damage | |
| 17. Master cylinder body | |
| Inspect inside of body for corrosion | |



Assembly note

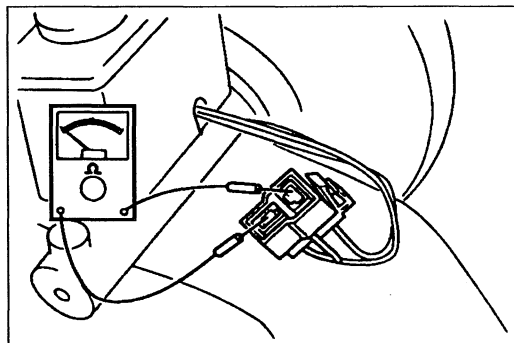
Stop screw and O-ring (non-ABS model)

1. Push the secondary piston assembly in fully.
2. Install and tighten a new O-ring and stop screw.
3. Push and release the piston to verify that it is held by the stop screw.



Stop pin and O-ring (ABS model)

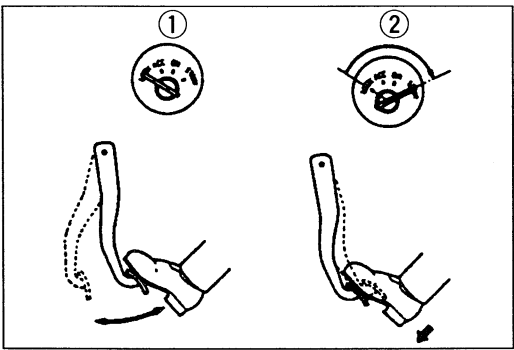
1. Install the secondary piston assembly with the piston hole facing the stop pin.
2. Install and tighten the new O-ring and stop pin.
3. Push and release the piston to verify that it is held by the stop pin.



Inspection

Fluid level sensor

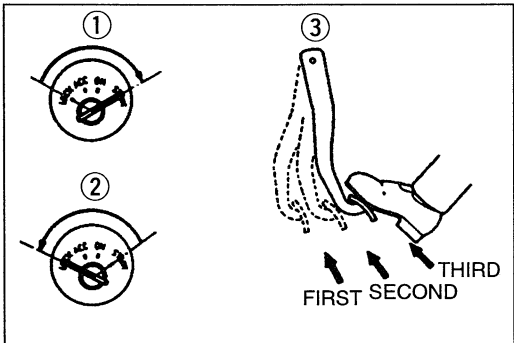
1. Disconnect the sensor connector.
2. Connect an ohmmeter to the connector.
3. Starting with the fluid level above the MIN mark on the reservoir, verify that there is no continuity.
4. Remove the brake fluid and verify continuity when the level is below the MIN mark.
5. Replace the sensor if necessary.



POWER BRAKE UNIT
Quick Inspection (on-vehicle)
Power brake unit function check
(Simple method)

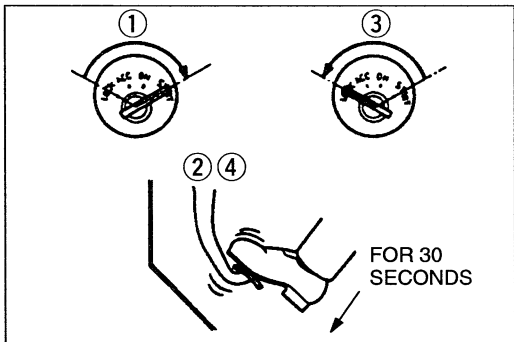
Step 1

1. With the engine stopped, depress the pedal a few times.
2. With the pedal depressed, start the engine.
3. If the pedal moves down slightly immediately after the engine starts, the unit is operating.



Step 2

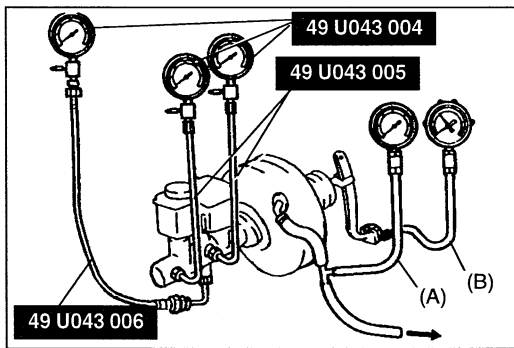
1. Start the engine.
2. Stop the engine after it has run for **1 or 2 minutes**.
3. Depress the pedal with the usual force.
4. If the first pedal stroke is long and becomes shorter with subsequent strokes, the unit is operating.
5. If a problem is found, inspect the check valve and vacuum hose for damage and examine the installation. Repair if necessary, and inspect it again.



Step 3

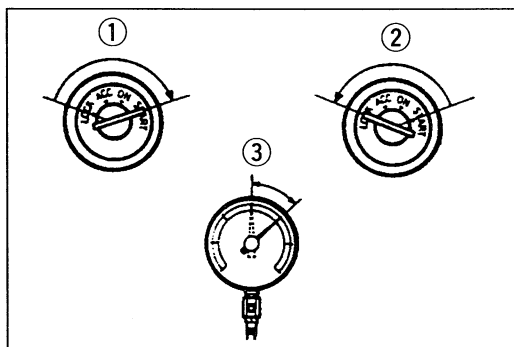
1. Start the engine.
2. Depress the pedal with the usual force.
3. Stop the engine with the pedal depressed.
4. Hold the pedal down for **about 30 seconds**.
5. If the pedal height does not change, the unit is operating.
6. If there is a problem, check the check valve and vacuum hose for damage, and check the connection. Repair if necessary and check again.

If the nature of the problem is still not clear after the 3 steps above, follow the more detailed check described in "Inspection using gauges" below.



(Inspection using gauges)

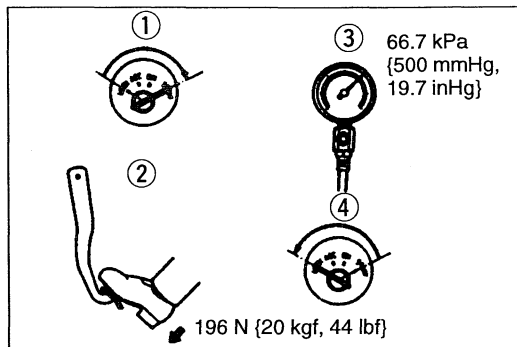
Connect the **SSTs** gauges, vacuum gauge (A), and pedal depression force gauge (B) as shown. Bleed the air from the **SSTs** gauges before performing the following tests.



a) Checking for vacuum loss

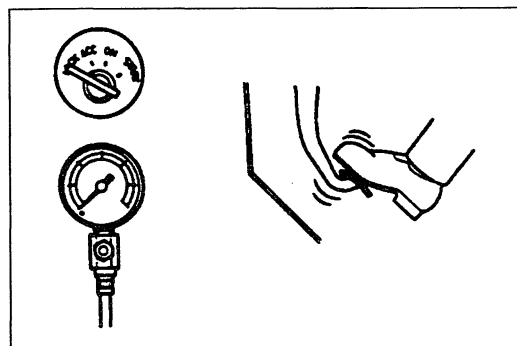
Unloaded condition

1. Start the engine.
2. Stop the engine when the vacuum gauge reading reaches **66.7 kPa {500 mmHg, 19.7 inHg}**.
3. Observe the vacuum gauge for **15 seconds**. If the gauge shows **63.3—66.7 kPa {475—500 mmHg, 18.7—19.7 inHg}**, the unit is operating.



Loaded condition

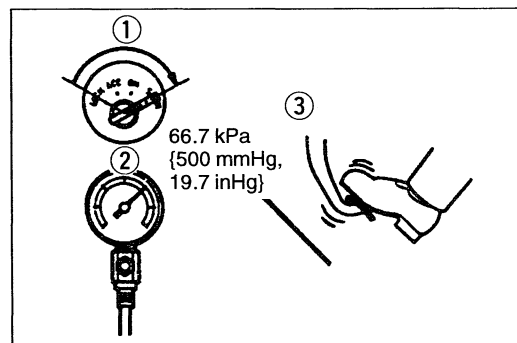
1. Start the engine.
2. Depress the brake pedal with a force of **196 N {20 kgf, 44 lbf}**.
3. With the brake pedal depressed, stop the engine when the vacuum gauge reading reaches **66.7 kPa {500 mmHg, 19.7 inHg}**.
4. Observe the vacuum gauge for **15 seconds**. If the gauge shows **63.3—66.7 kPa {475—500 mmHg, 18.7—19.7 inHg}**, the unit is operating.



b) Checking for hydraulic pressure

1. If the fluid pressure is within the specification when the engine is stopped (vacuum **0 kPa {0 mmHg, 0 inHg}**), the unit is operating.

Pedal force	N {kgf, lbf}	Fluid pressure kPa {kgf/cm ² , psi}
	196 {20, 44}	883 {9, 128} min.

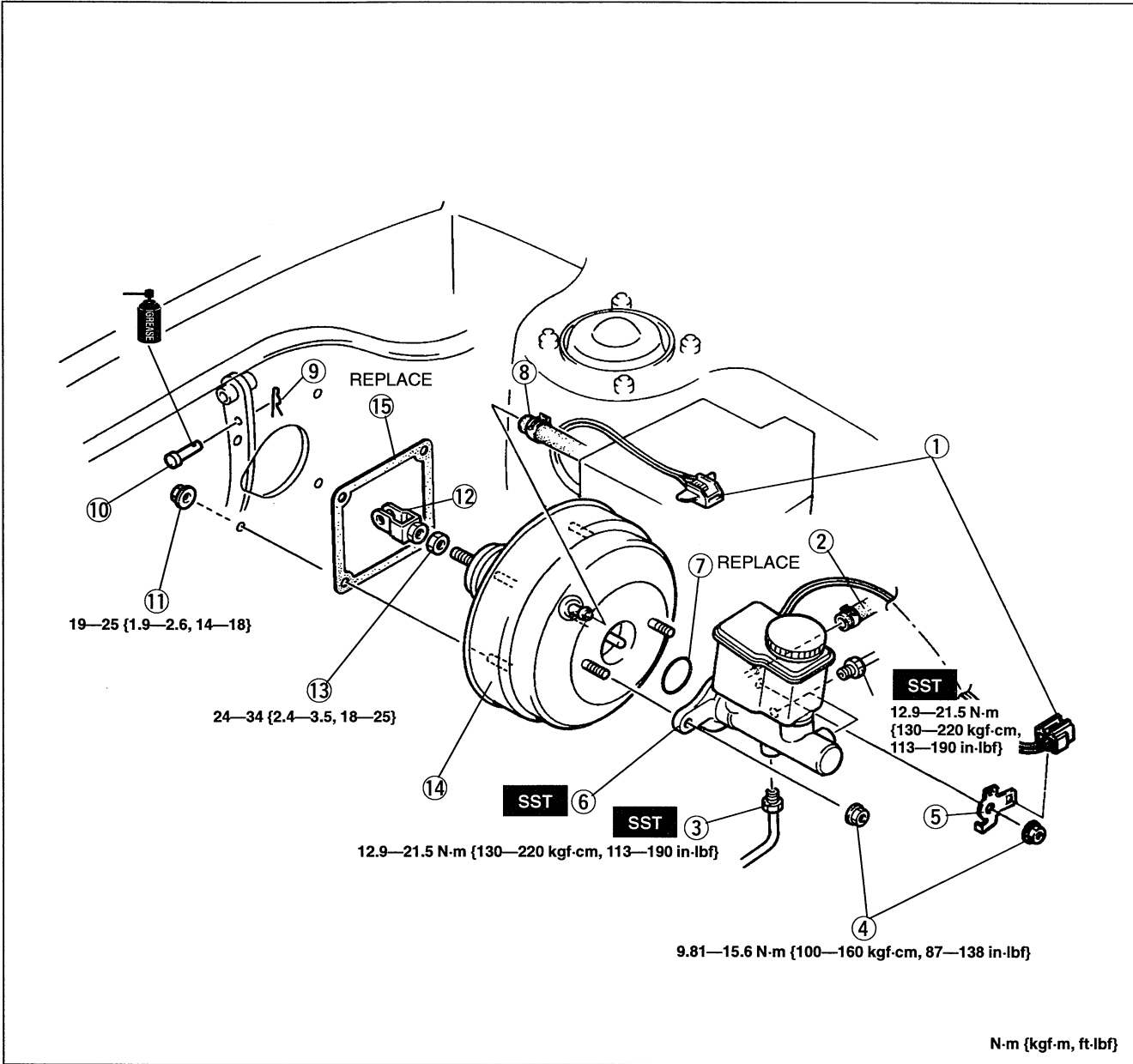


2. Start the engine. Depress the brake pedal when the vacuum reaches **66.7 kPa {500 mmHg, 19.7 inHg}**. If the fluid pressure is within the specification, the unit is operating.

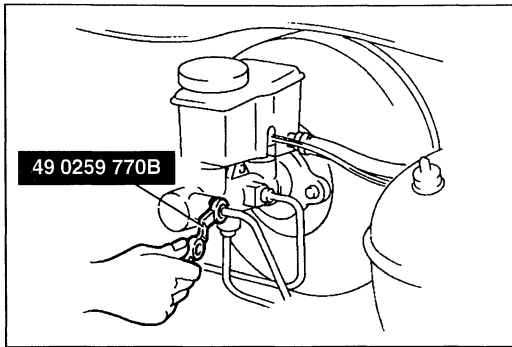
Pedal force	N {kgf, lbf}	Fluid pressure kPa {kgf/cm ² , psi}
	196 {20, 44}	MTX: 7061 {72, 1024} min.
		ATX: 8826 {90, 1280} min.

Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation, perform the following.
 - (1) Add fluid and bleed the air. (Refer to page P-7.)
 - (2) Check and adjust the brake pedal height. (Refer to page P-10.)
 - (3) Check for fluid leakage. (Refer to page P-9.)



- | | |
|---|------------------------------------|
| 1. Brake fluid level sensor connector | 7. O-ring (Except MTX without ABS) |
| 2. Hose (MTX) | 8. Vacuum hose |
| 3. Brake pipe | 9. Spring pin |
| Removal / Installation Note page P-21 | 10. Clevis pin |
| 4. Nut | 11. Nut |
| 5. Bracket | 12. Fork |
| 6. Master cylinder | 13. Nut |
| Removal / Installation page P-12 | 14. Power brake unit |
| Disassembly / Inspection / | 15. Gasket |
| Assembly page P-16 | |

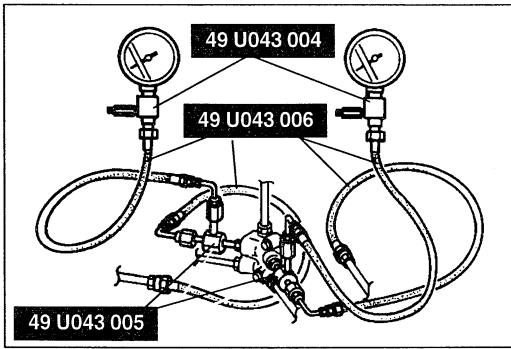


Removal / Installation note
Brake pipes

Caution

- Brake fluid will damage painted surfaces. If it does get on a painted surface, wipe it off immediately.

Loosen and tighten the brake pipes by using the SST.



DUAL PROPORTIONING VALVE

Inspection

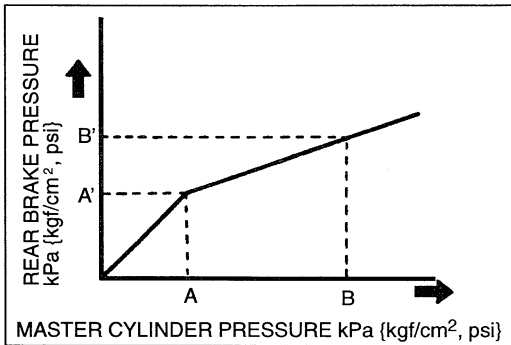
1. Connect the SSTs to the brake pipes with adapters as shown in the figure.

Adapter and flare nut tightening torque:

12.9—21.5 N·m {130—220 kgf·m, 113—190 ft·lbf}

Note

- Connect the brake pipes by using the SST (49 0259 770B).



2. Bleed the air from the brake system. (Refer to page P-7.)
3. Depress the brake pedal until the master cylinder pressure equals A; then record rear brake pressure A'.
4. Depress the brake pedal again, apply additional pressure until the pressure equals B; then record pressure B'.

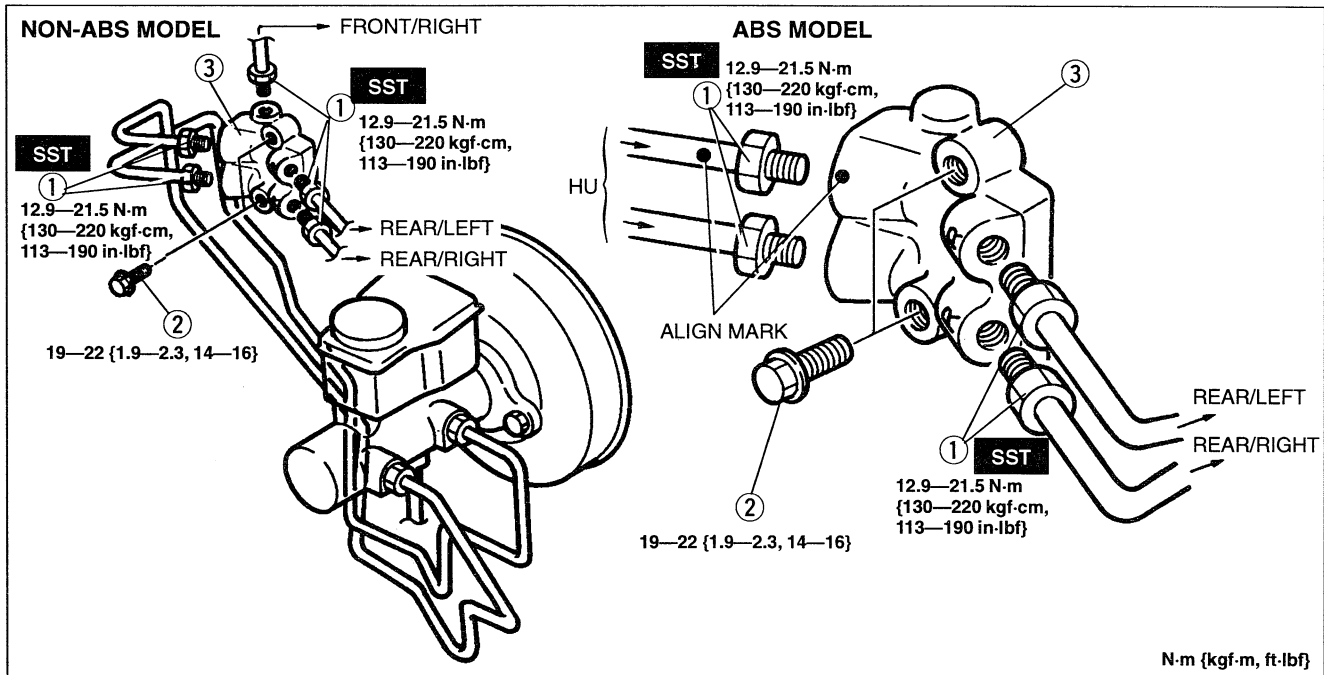
Fluid pressure

kPa {kgf/cm², psi}

	A	A'	B	B'
Non-ABS MODEL	3400 {35,500}	3400 {35,500} ± 200 {2,30}	5880 {60,850}	4170 {42,5,600} ± 294 {3,43}
ABS MODEL	3400 {35,500}	3400 {35,500} ± 200 {2,30}	5880 {60,850}	4410 {45,640} ± 294 {3,43}

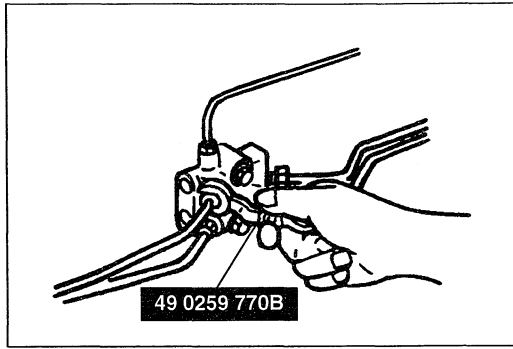
Replacement

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation, add brake fluid, bleed air, and check for fluid leakage.



1. Brake pipe
Removal / Installation Note page P-23
2. Bolts

3. Dual proportioning valve
Installation Note page P-23



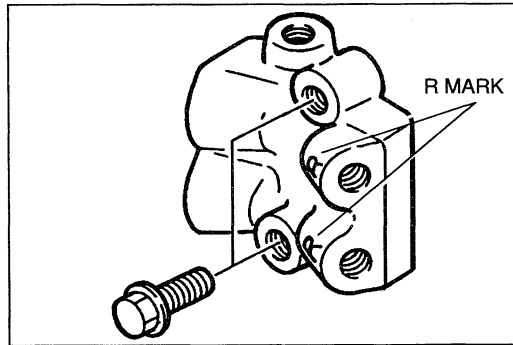
Removal / Installation note

Brake pipe

Loosen and tighten the brake pipe by using the SST.

Tightening torque:

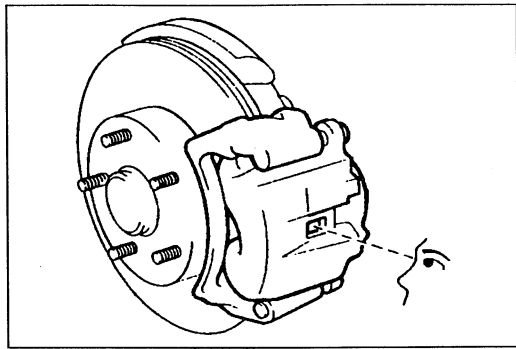
12.9—21.5 N·m {130—220 kgf·cm, 113—190 in·lbf}



Installation note

Dual proportioning valve

Install the dual proportioning valve with the R marks facing the right side.



**FRONT BRAKE (DISC)
Inspection (on-vehicle)
Disc pad**

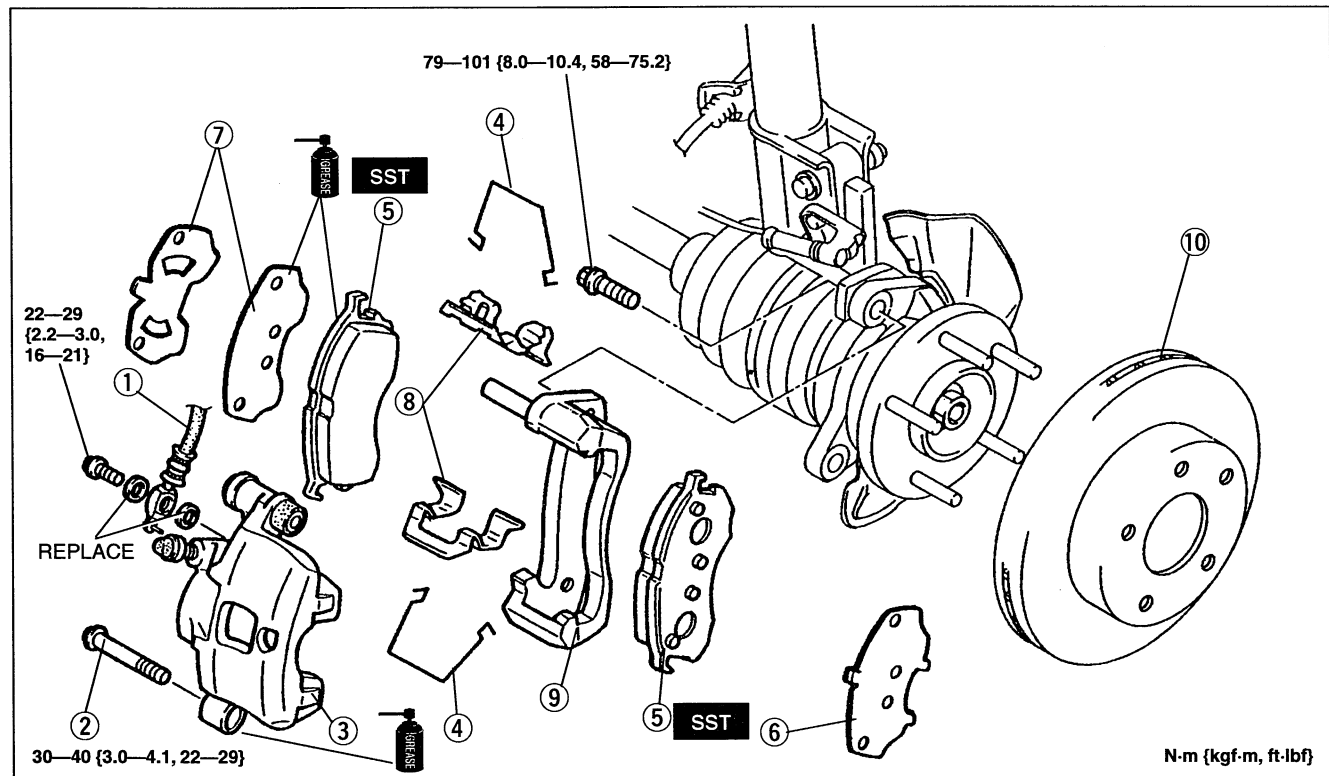
1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the wheels and tires.
3. Look through the caliper inspection hole and inspect the remaining thickness of the pads.

Thickness: 2.0 mm {0.08 in} min.

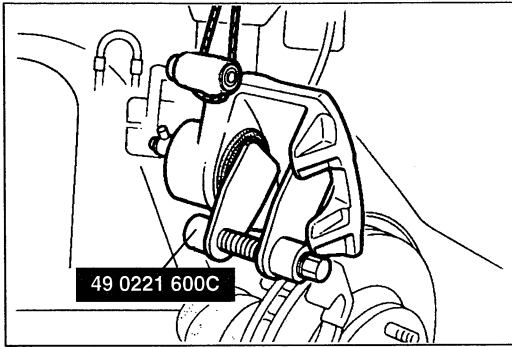
4. Replace the pads as a set (right and left wheels) if either is at or less than the minimum thickness.

Removal / Inspection / Installation

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.
4. After installation, perform the following.
 - (1) Add fluid and bleed the air. (Refer to page P-7.)
 - (2) Check for fluid leakage. (Refer to page P-9.)
 - (3) Depress the pedal a few times, then verify that the brakes do not drag while rotating the wheel by hand.



- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Flexible hose 2. Bolt 3. Caliper
Disassembly / Inspection /
Assembly page P-26 4. V-spring 5. Disc pad
Inspection above
Installation Note page P-25 | <ol style="list-style-type: none"> 6. Outer shim 7. Inner shim 8. Guide plate 9. Mounting support 10. Disc plate
Inspection page P-26 |
|--|--|



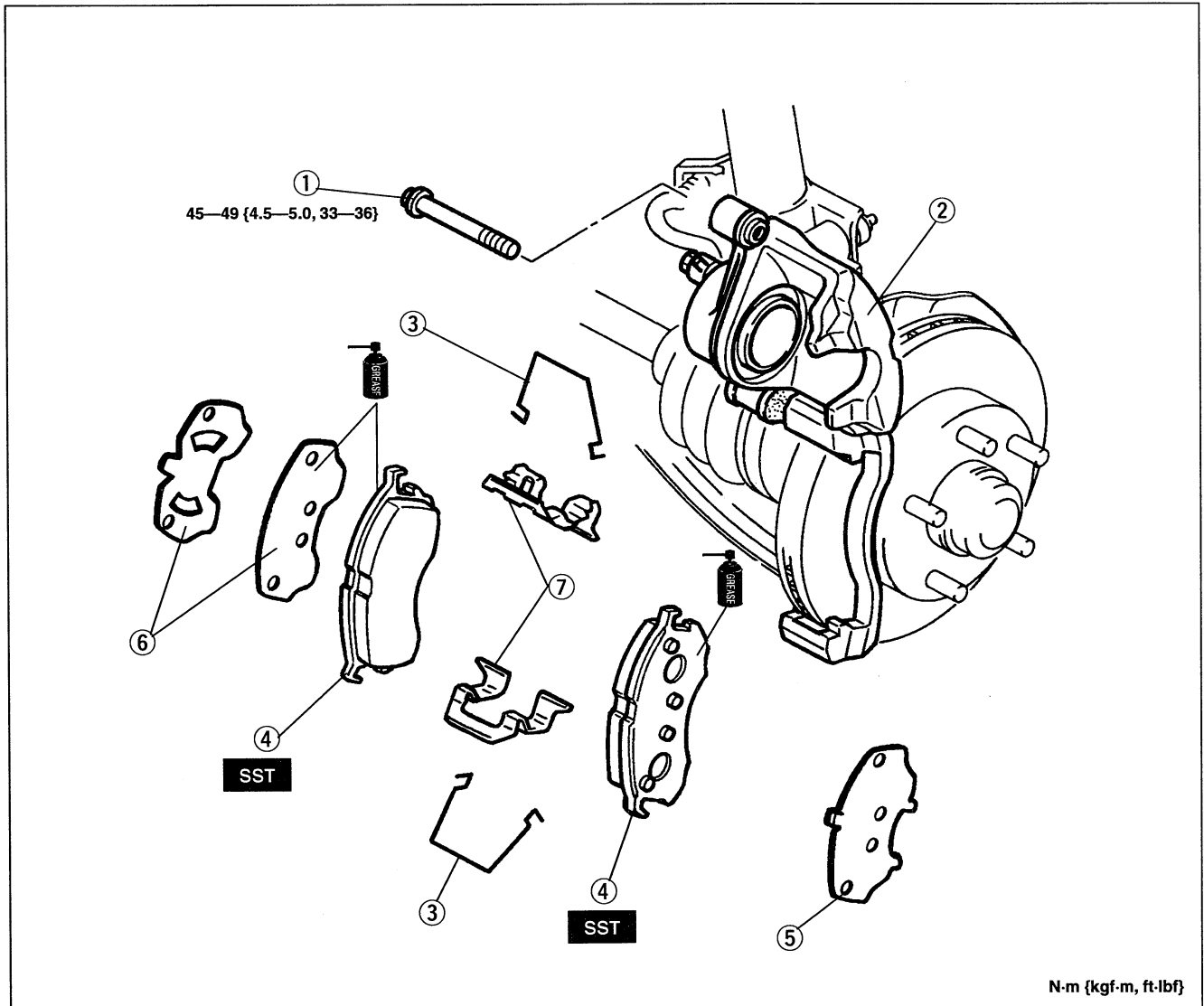
Installation note

Disc pad

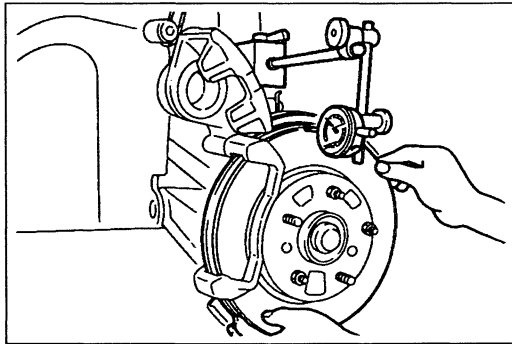
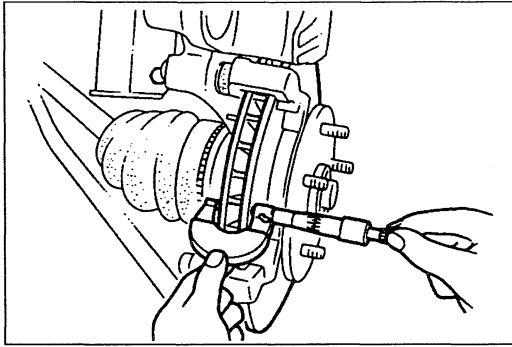
Before installing the disc pads, push the piston fully inward by using the **SST**.

DISC PAD Replacement

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal, referring to **Installation Note**.



- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Bolt 2. Caliper 3. V-spring 4. Disc pad | <ol style="list-style-type: none"> 5. Outer shim 6. Inner shim 7. Guide plate |
|---|--|
- Installation Note above



DISC PLATE

Inspection

Disc plate thickness

1. Measure the thickness of the disc plate.

Caution

- When it is necessary to machine the disc plate, if the disc plate is removed from the vehicle then machined, excessive runout may result. Machine the disc plate with it installed on the vehicle.

Standard: 24 mm {0.94 in}

Minimum: 22 mm {0.87 in}

Minimum thickness after machining by using a brake lathe on-vehicle: 22.8 mm {0.90 in}

2. If the thickness is not within the specifications, replace the disc plate.

Disc plate runout

1. Verify that there is no wheel bearing looseness.
2. Measure the runout at the outer edge of the contact surface of the disc pad.

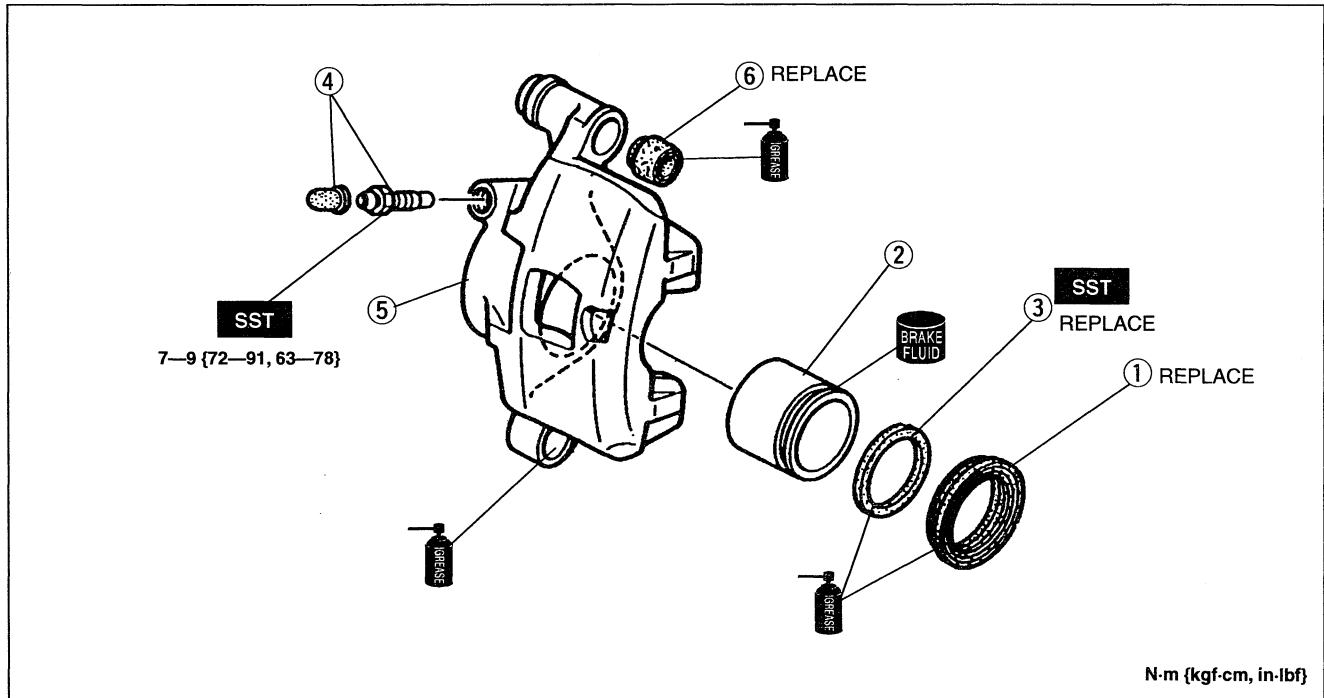
Runout: 0.05 mm {0.002 in} max.

3. If the runout is not within the specification, repair or replace the disc plate.

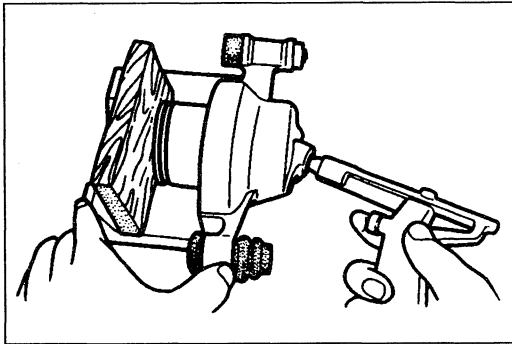
CALIPER

Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



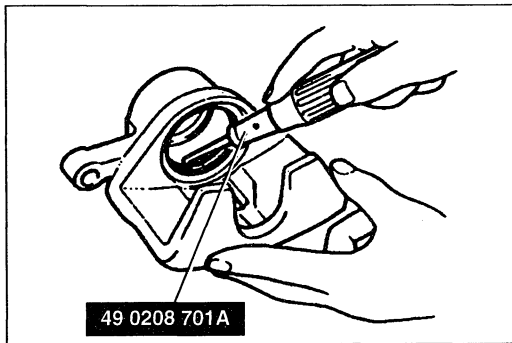
- 1. Dust seal
Inspect for damage and poor sealing
- 2. Piston
Disassembly Note page P-27
Inspect for wear and rust
- 3. Piston seal
Disassembly Note page P-27
- 4. Bleeder cap, bleeder screw
Disassembly Note page P-27
Assembly Note page P-27
- 5. Caliper body
Inspect for damage, wear and rust
- 6. Boot



Disassembly note

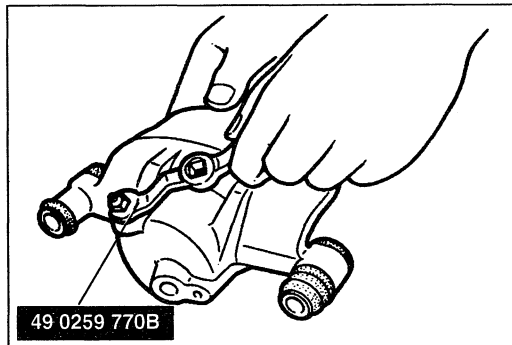
Piston

- 1. Place a piece of wood in the caliper.
- 2. Gently blow compressed air through the pipe hole to force the piston out of the caliper.



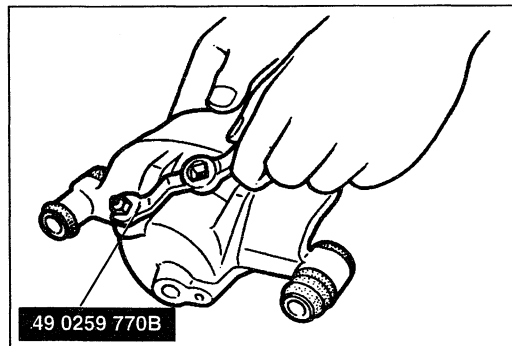
Piston seal

Remove the piston seal from the caliper by using the SST.



Bleeder screw

Loosen the bleeder screw by using the SST.



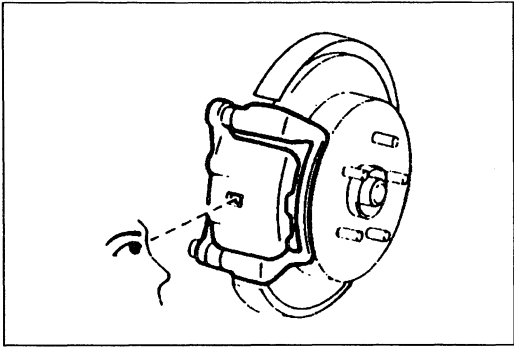
Assembly note

Bleeder screw

Tighten the bleeder screw by using the SST.

Tightening torque:

7—9 N·m {72—91 kgf·cm, 63—78 in·lbf}



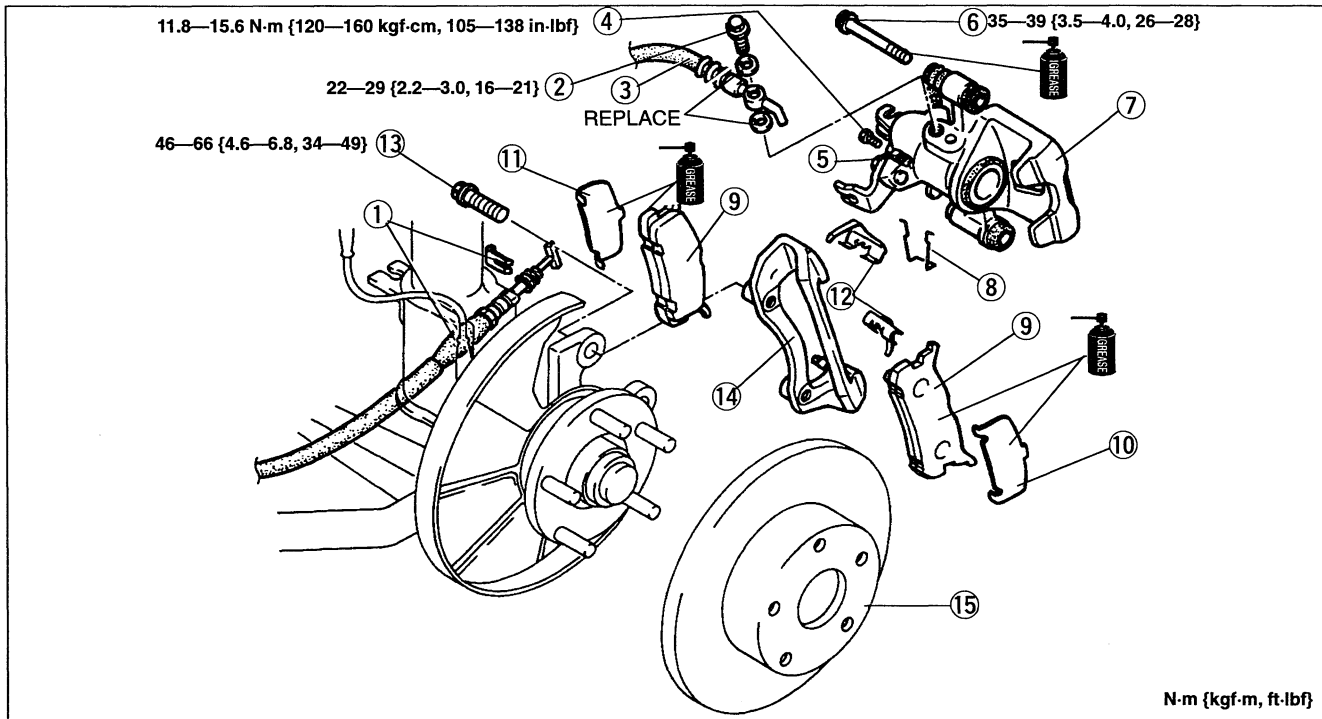
**REAR BRAKE (DISC)
Inspection (on-vehicle)
Disc pad**

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheels and tires.
3. Verify the remaining thickness of the pads.

Thickness: 1.0 mm {0.04 in} min.

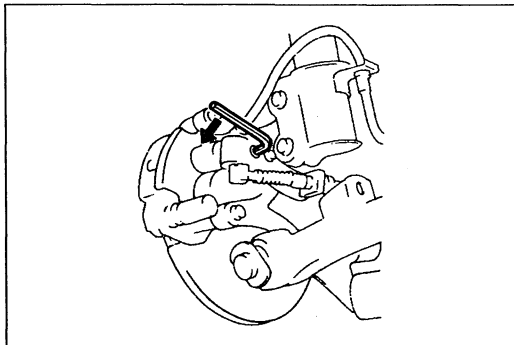
Removal / Inspection / Installation

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.
4. After installation, check the following.
 - (1) Add fluid and bleed the air. (Refer to page P-7.)
 - (2) Check for fluid leakage. (Refer to page P-9.)
 - (3) Depress the pedal a few times, then verify that the brakes do not drag while rotating the wheel by hand.



N-m {kgf-m, ft-lbf}

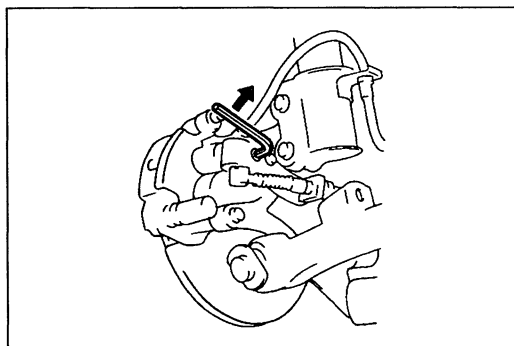
- | | |
|---|--|
| <p>1. Parking brake cable, clip
Removal / Inspection /
Installation page P-37</p> <p>2. Connecting bolt</p> <p>3. Brake hose</p> <p>4. Screw plug</p> <p>5. Manual adjustment gear
Removal Note page P-29
Installation Note page P-29</p> <p>6. Lock bolt</p> <p>7. Caliper
Disassembly / Inspection /
Assembly page P-31</p> | <p>8. M-spring</p> <p>9. Disc pad
Inspection above</p> <p>10. Outer shim</p> <p>11. Inner shim</p> <p>12. Guide plate</p> <p>13. Bolt</p> <p>14. Mounting support</p> <p>15. Disc plate
Inspection page P-30</p> |
|---|--|



Removal note

Manual adjustment gear

Turn the manual adjustment gear counterclockwise with an Allen wrench to pull the brake caliper piston inward. (Turn until it stops.)



Installation note

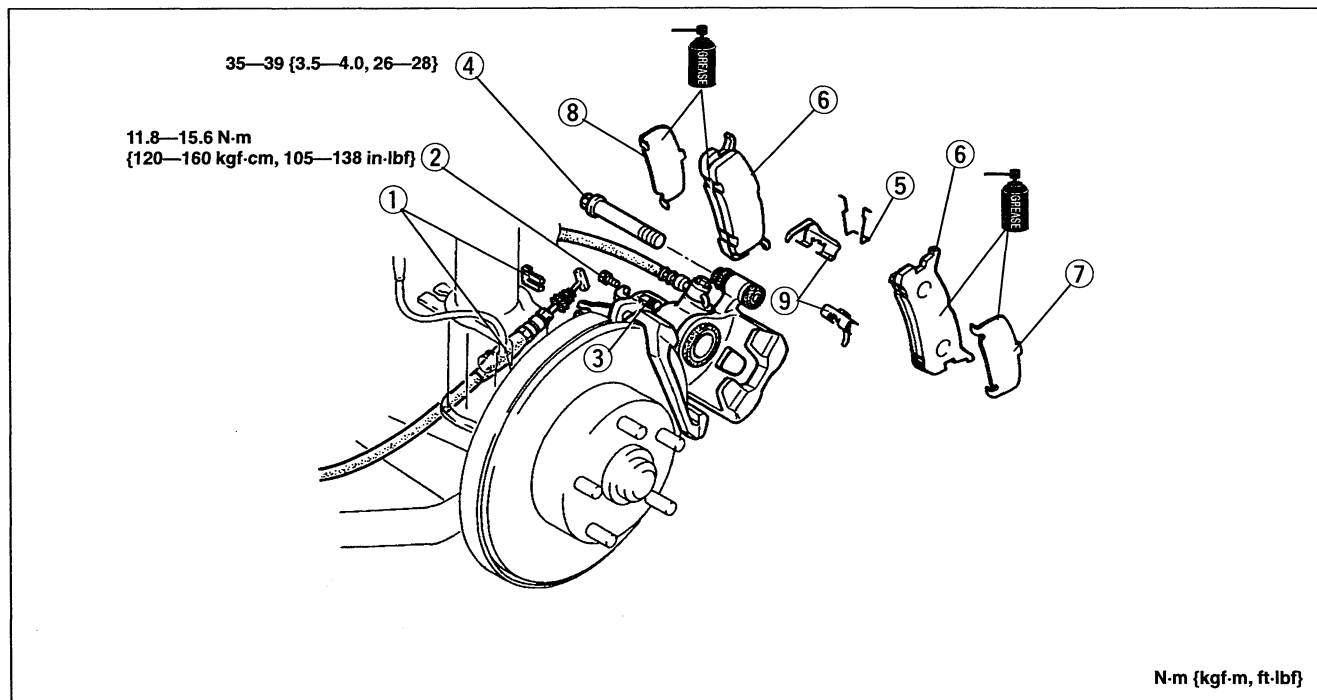
Manual adjustment gear

1. Turn the manual adjustment gear clockwise until the brake pads just touch the disc plate.
2. Return the manual adjustment gear 1/3-turn.

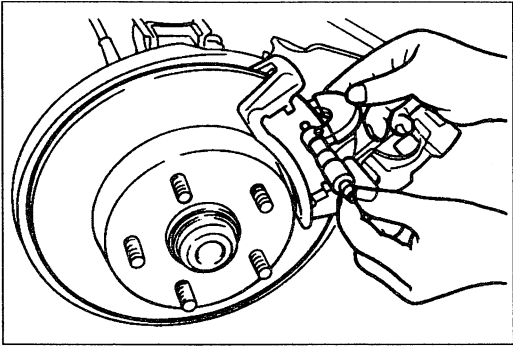
DISC PAD

Replacement

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.



- | | |
|------------------------------|----------------|
| 1. Parking brake cable, clip | 5. M-spring |
| 2. Screw plug | 6. Disc pad |
| 3. Manual adjustment gear | 7. Outer shim |
| Removal Note | 8. Inner shim |
| Installation Note | 9. Guide plate |
| 4. Lock bolt | |

**DISC PLATE****Inspection****Disc plate thickness**

1. Measure the thickness of the disc plate.

Caution

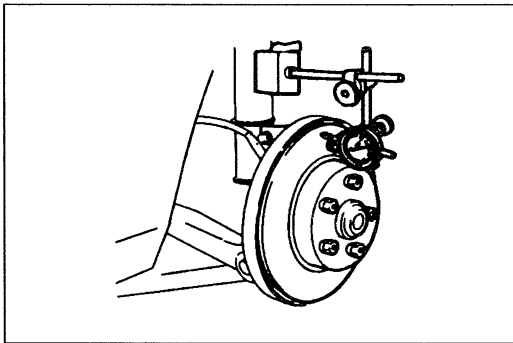
- When it is necessary to machine the disc plate, if the disc plate is removed from the vehicle then machined, excessive runout may result. Machine the disc plate with it installed on the vehicle.

Standard: 10 mm {0.39 in}

Minimum: 8 mm {0.31 in}

**Minimum thickness after machining by using a
brake lathe: 8.8 mm {0.35 in}**

2. If the thickness is not within the specifications, replace the disc plate.

**Disc plate runout**

1. Verify that there is no looseness in the wheel bearing.
2. Measure the runout at the outer edge of the contact surface of the disc plate.

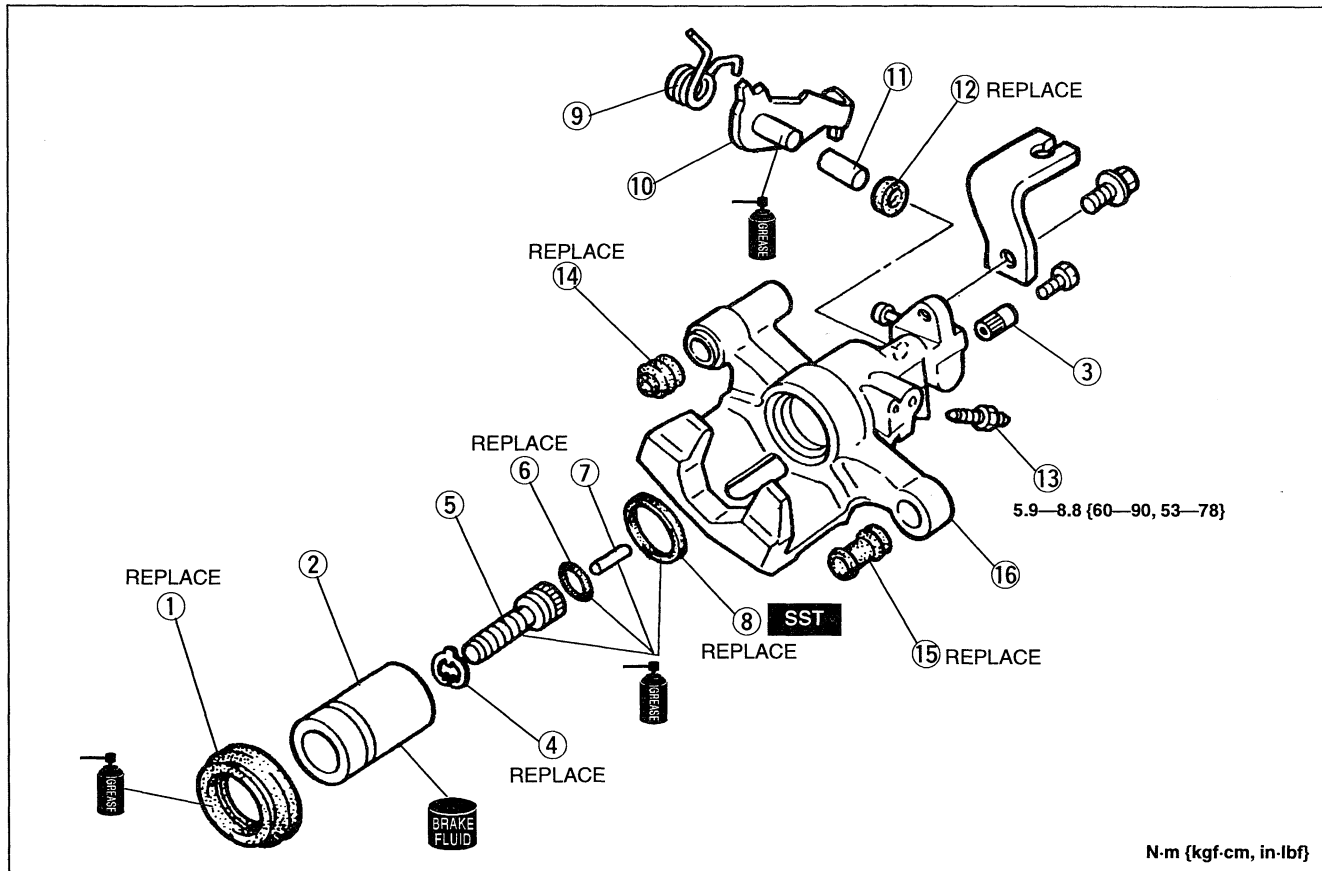
Runout: 0.05 mm {0.002 in} max.

3. If the runout is not within the specification, repair or replace the disc plate.

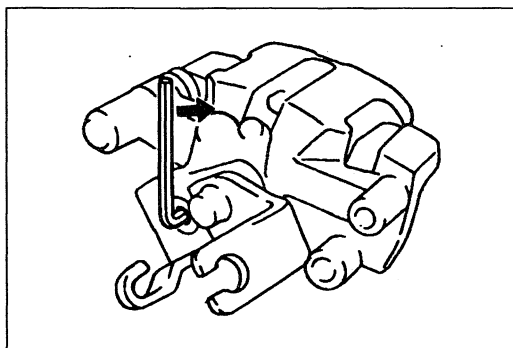
CALIPER

Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



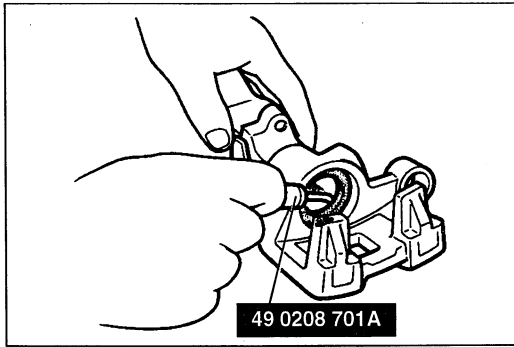
- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Dust seal 2. Piston
Disassembly Note below
Assembly Note page P-32
Inspect for wear and rust 3. Manual adjustment gear 4. Snap ring 5. Adjusting bolt 6. O-ring 7. Connecting link 8. Piston seal
Disassembly Note page P-32 | <ol style="list-style-type: none"> 9. Spring 10. Operating lever 11. Sleeve 12. Boot 13. Bleeder cap and bleeder screw
Disassembly Note page P-32
Assembly Note page P-32 14. Boot 15. Boot 16. Caliper body
Inspect for damage and cracks |
|--|--|



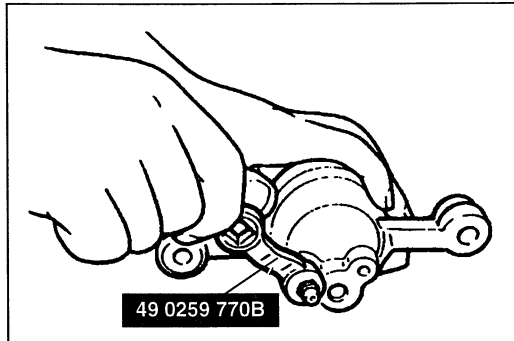
Disassembly note

Piston

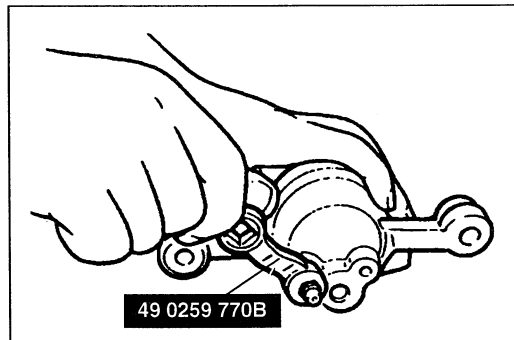
Turn the adjustment gear clockwise with an Allen wrench to remove the piston from the adjustment gear.
(Turn the adjustment gear until it becomes easy to turn.)

**Piston seal**

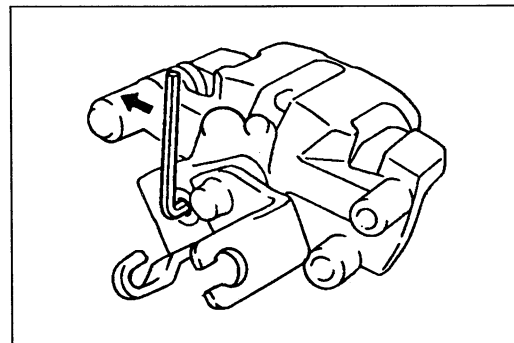
Remove the piston seal from the caliper by using the SST.

**Bleeder screw**

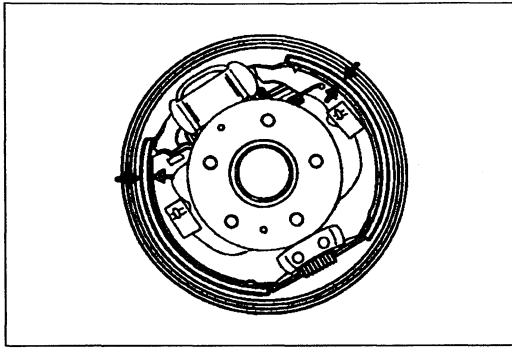
Loosen the bleeder screw by using the SST.

**Assembly note****Bleeder screw**

Tighten the bleeder screw by using the SST.

**Piston**

Insert the piston into the caliper and turn the adjustment gear counterclockwise with an Allen wrench to pull the piston inward. (Turn until it stops.)



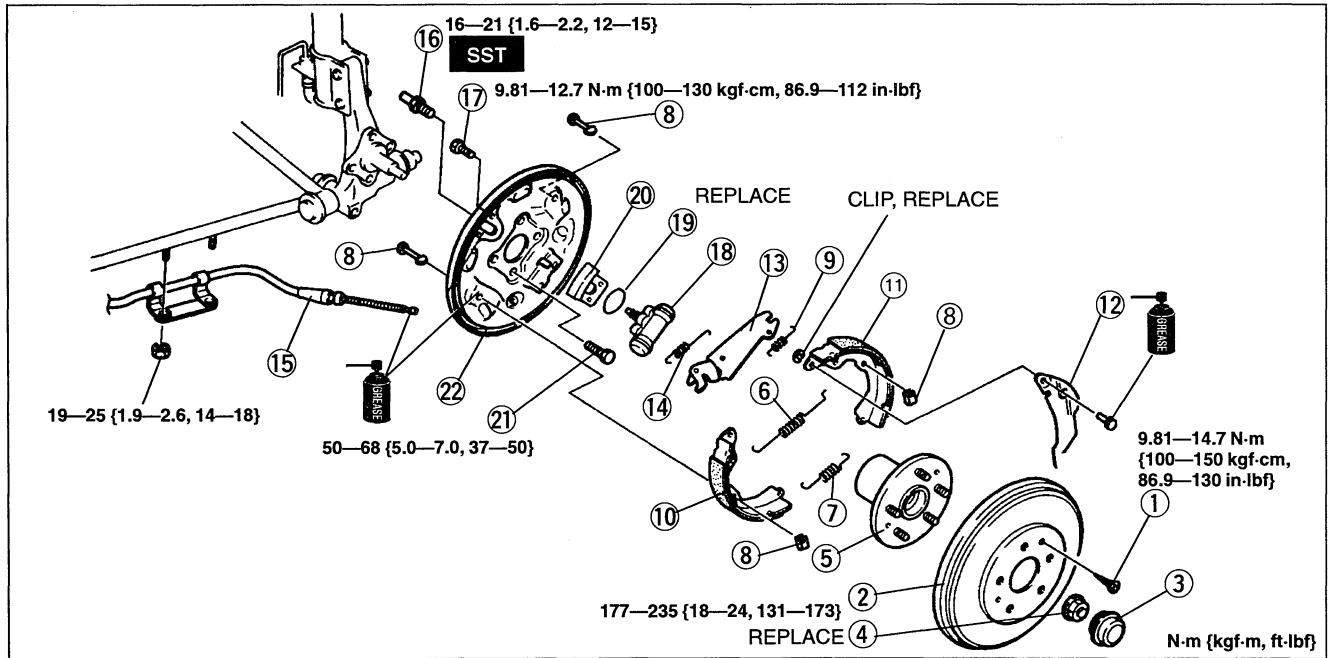
REAR BRAKE (DRUM)
Inspection (on-vehicle)
Brake shoe (lining)

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheels and tires.
3. Remove the brake drum. (See below)
4. Verify the remaining thickness of the lining.

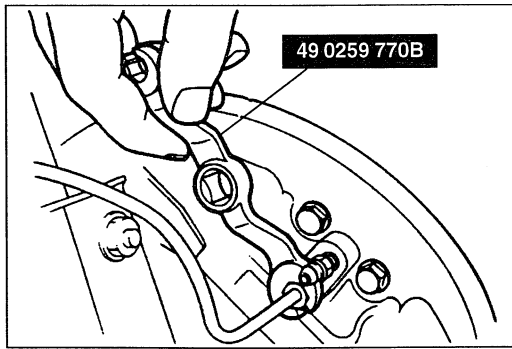
Thickness: 1.0 mm {0.04 in} min.

Removal / Inspection / Installation

1. Remove the lining in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.
4. After installation, check the following.
 - (1) Add fluid and bleed the air. (Refer to page P-7.)
 - (2) Check for fluid leakage. (Refer to page P-9.)
 - (3) Depress the pedal a few times, then verify that the brakes do not drag while rotating the wheel by hand.



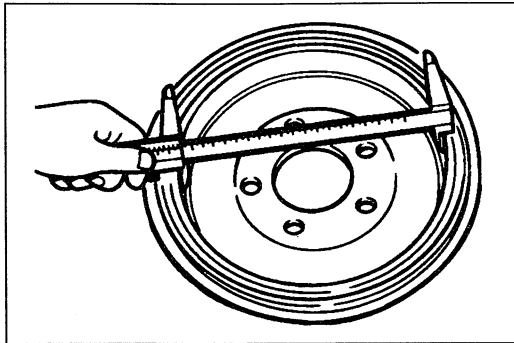
- | | |
|-----------------------------------|-------------------------------|
| 1. Screw | 12. Operating lever |
| 2. Brake drum | 13. Quadrant |
| Inspection page P-34 | 14. Quadrant spring |
| Installation Note page P-34 | 15. Parking brake cable |
| 3. Hub cap | 16. Brake pipe |
| 4. Locknut | Removal Note page P-34 |
| 5. Wheel hub assembly | 17. Bolt |
| 6. Return spring (upper) | 18. Wheel cylinder |
| 7. Return spring (lower) | Disassembly / Inspection / |
| 8. Hold pin and spring | Assembly page P-35 |
| 9. Anti-rattle spring | 19. Wheel cylinder gasket |
| 10. Brake shoe (leading side) | 20. Insulator |
| Inspection above | 21. Bolt |
| 11. Brake shoe (trailing side) | 22. Backing plate |
| Inspection above | Inspect for damage and cracks |

**Removal note****Brake pipe**

Disconnect or connect the brake pipe from/to the wheel cylinder with the SST.

Tightening torque:

16—21 N·m {1.6—2.2 kgf·m, 12—15 ft·lbf}

**Inspection**

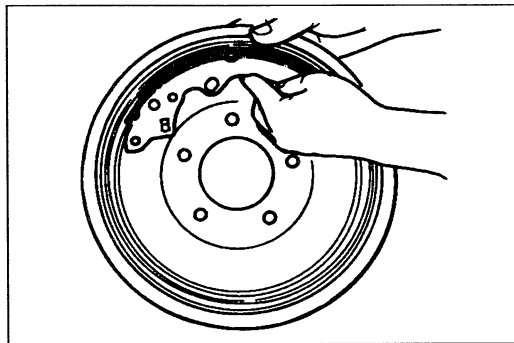
Check for the following and repair or replace the parts as necessary.

Brake drum

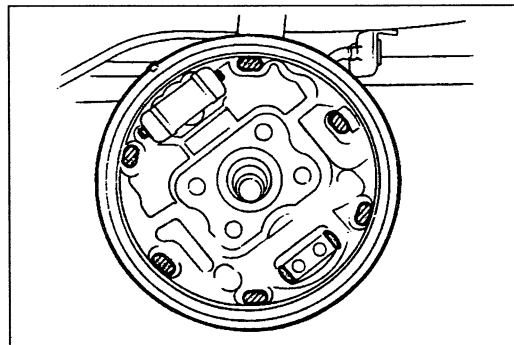
1. Measure the inner diameter of the drum.

Standard diameter: 228.6 mm {9.000 in}

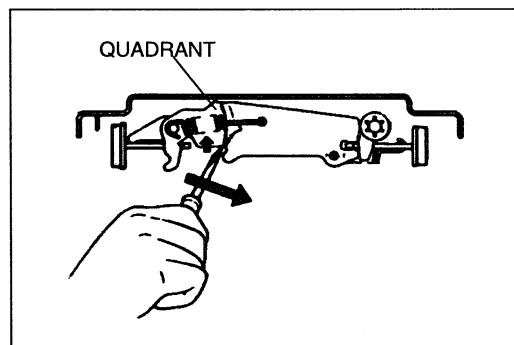
Diameter limit: 230.1 mm {9.059 in}



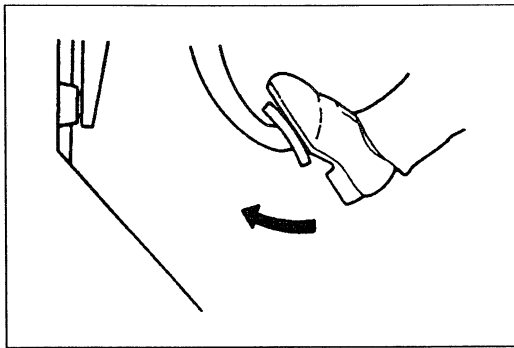
2. Check for scratches, and uneven or abnormal wear inside the drum.

**Grease points**

- (1) Shoe and cylinder contact points
- (2) Shoe anchor points
- (3) Projections of backing plate

**Installation note****Brake drum**

1. Before installing the brake drum, depress the brake pedal to verify operation of the automatic adjuster.

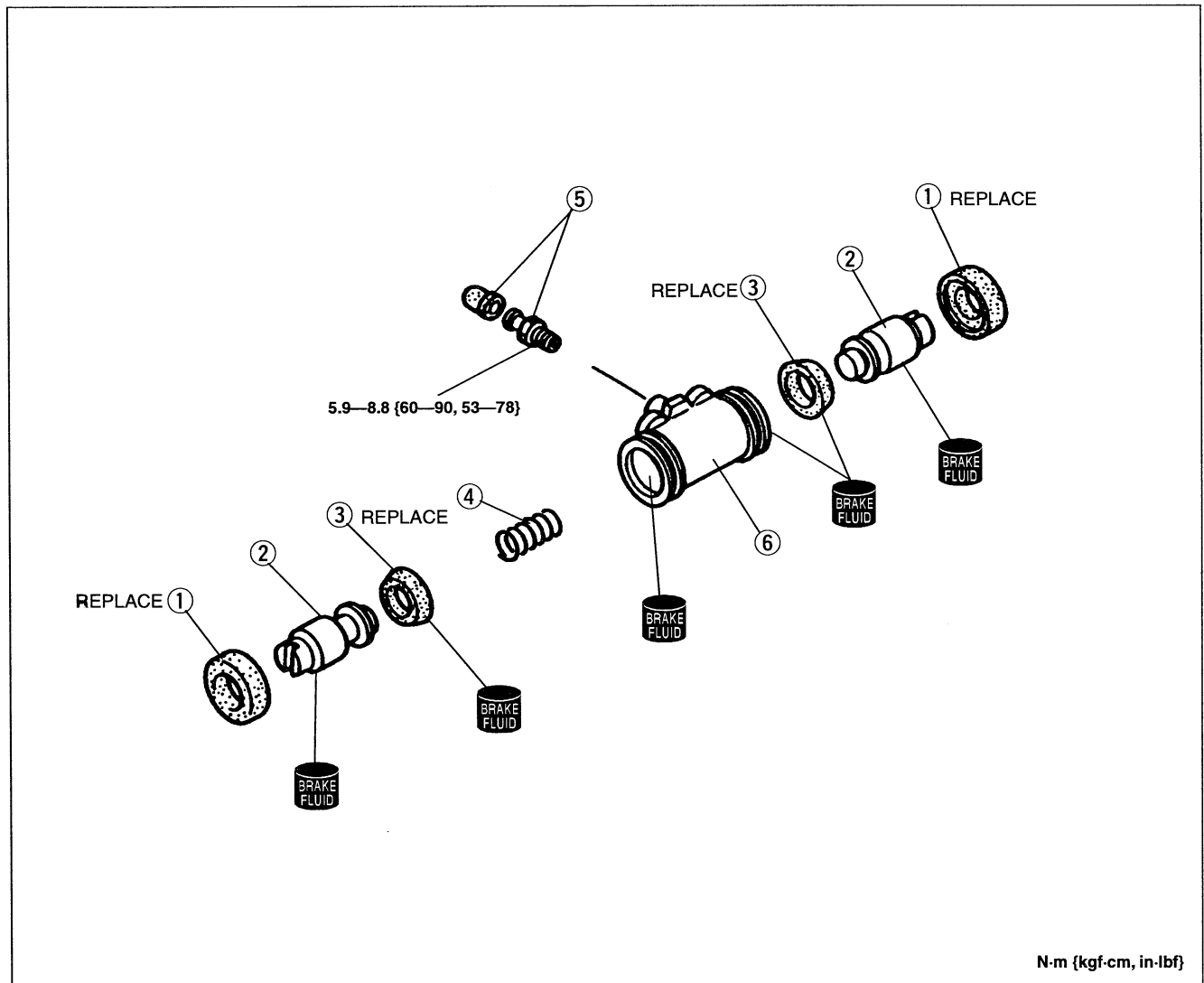


2. After installation:
 - (1) Add fluid and bleed the air. (Refer to page P-7.)
 - (2) Check for fluid leakage. (Refer to page P-8.)
 - (3) Depress the brake pedal a few times and check that the rear brakes do not drag while rotating the wheel.
 - (4) Check the parking brake lever stroke. (Refer to page P-36.)

WHEEL CYLINDER

Disassembly / Inspection / Assembly

1. Disassemble the wheel cylinder in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary. If any of the metal parts are damaged, replace the wheel cylinder as an assembly.
3. Assemble in the reverse order of disassembly.



N-m {kgf-cm, in-lbf}

1. Dust boot
2. Piston
Inspect for corrosion and damage
3. Piston cup

4. Spring
5. Bleeder cap and bleeder screw
6. Wheel cylinder body
Inspect for corrosion and damage

PARKING BRAKE SYSTEM

TROUBLESHOOTING GUIDE

Problem	Possible cause	Action	Page
Brakes do not release	Improper return of parking brake cable or improper adjustment	Repair or adjust	P-36, 37
Parking brake does not hold well	Excessive lever stroke	Adjust	P-36
	Brake cable stuck or damaged	Repair or replace	P-37
	Brake fluid or oil on pad or brake shoe	Clean or replace	—
	Hardening of pad or brake shoe surface or poor contact	Grind or replace	P-29, 33

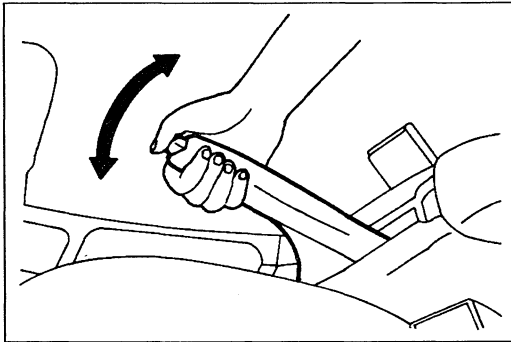
PARKING BRAKE SHOE

Removal / Inspection / Installation

Drum brake

Removal and Installation. (Refer to page P-33.)

Inspection. (Refer to page P-33.)

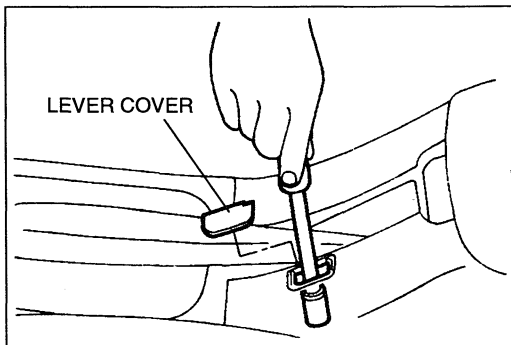


PARKING BRAKE (LEVER TYPE)

Inspection (on-vehicle)

Verify whether or not the stroke is within the specification when the parking brake lever is pulled with a force of **98 N {10 kgf, 22 lbf}**.

Stroke: 5—7 notches



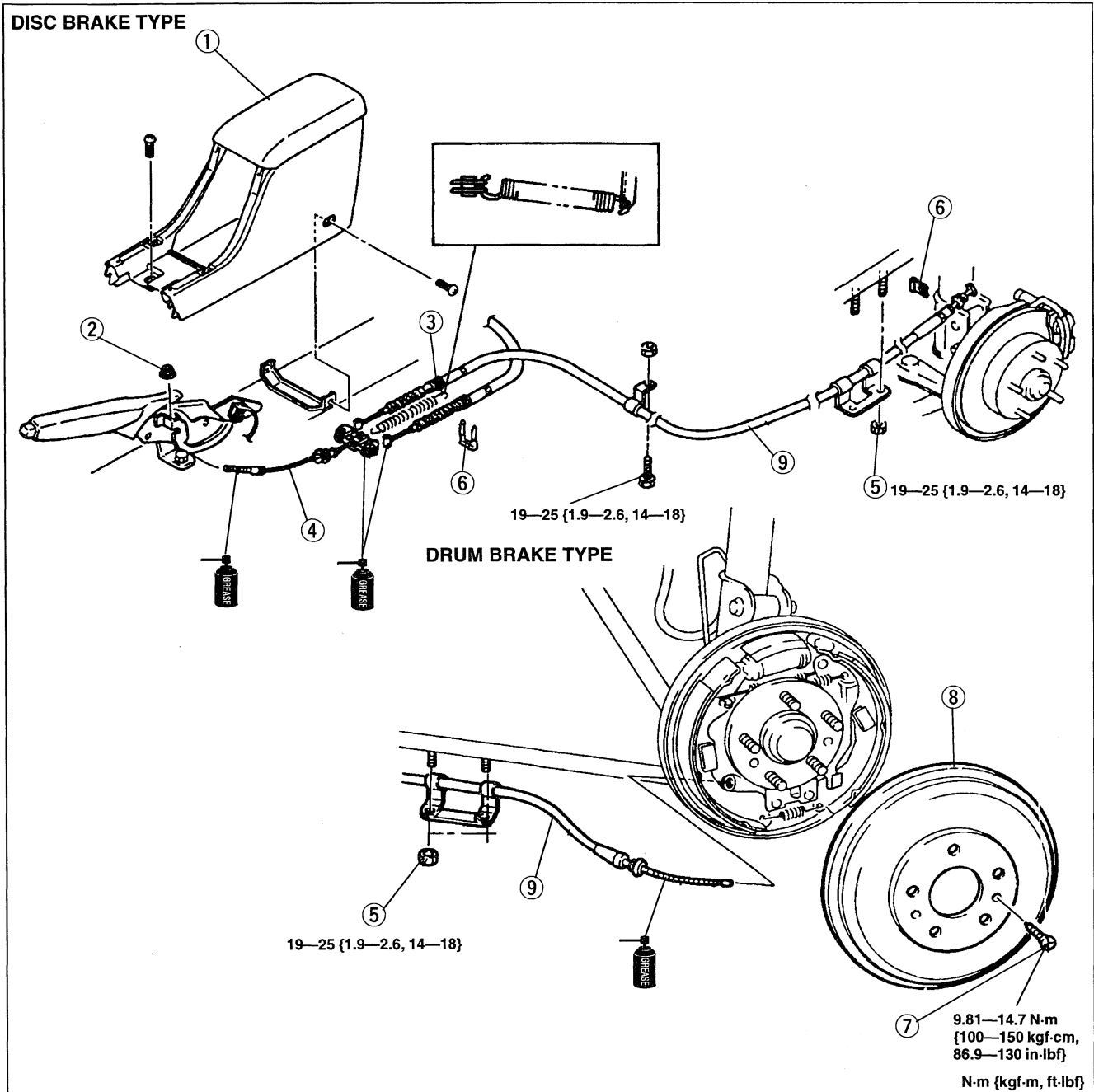
Adjustment

1. Before adjustment, start the engine and depress the brake pedal several times.
2. Stop the engine.
3. Remove the parking brake lever cover.
4. Turn the adjusting nut at the front of the parking cable.
5. After adjustment, check the following points:
 - (1) Turn the ignition switch ON, pull the parking brake lever one notch, and check that the parking brake warning light illuminates.
 - (2) Verify that the rear brakes do not drag.

PARKING BRAKE CABLE

Removal / Inspection / Installation

1. Remove the cable in the order shown in the figure.
2. Visually check each part, and replace it if necessary.
3. Install in the reverse order of removal.
4. Depress the brake pedal a few times and check that the rear brakes do not drag while rotating the wheels.
5. Adjust the parking brake lever stroke.

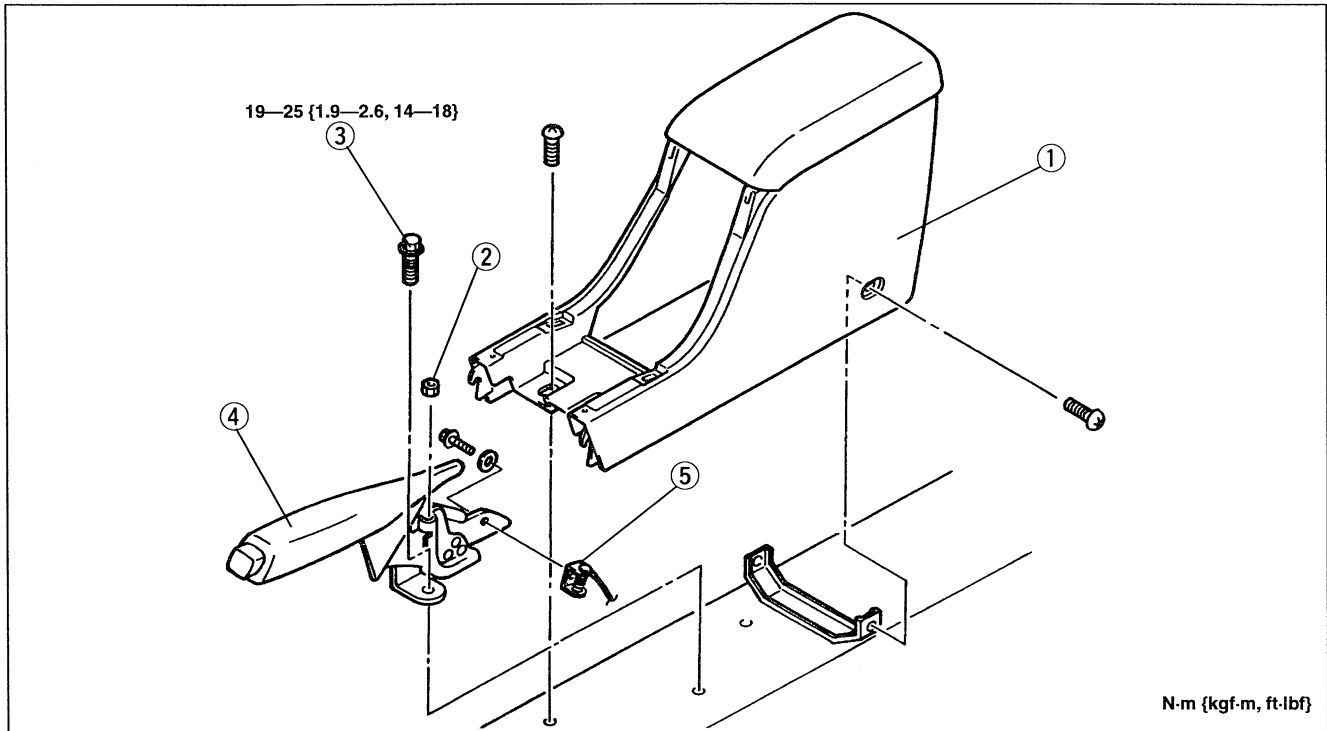


- | | |
|---|-----------------------|
| 1. Rear console
Removal / Installation section S | 5. Nut |
| 2. Adjusting nut | 6. Clip |
| 3. Return spring | 7. Screw |
| 4. Front parking cable
Inspect for damage and wear | 8. Brake drum |
| | 9. Rear parking cable |

PARKING BRAKE LEVER

Removal / Inspection / Installation

1. Block the wheels firmly.
2. Release the parking brake.
3. Remove in the order shown in the figure.
4. Inspect all components and parts. Replace any parts if necessary.
5. Install in the reverse order of removal. Install the parking brake switch so that it contacts the parking brake lever when the lever is fully released.
6. Adjust the parking lever stroke. (Refer to page P-37.)
7. Turn the ignition switch to ON, and verify that the parking brake warning light comes on when the lever is pulled up one notch.



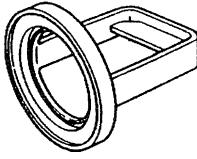

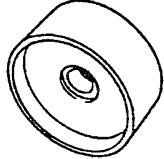
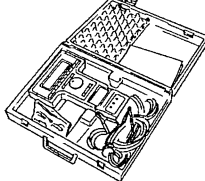
1. Rear console
Removal / Installation section S
2. Adjusting nut
3. Bolt

4. Parking brake lever assembly
Inspect for damage and wear
5. Parking brake switch
Inspection section T

ANTILOCK BRAKE SYSTEM (ABS)

PREPARATION

SST

<p>49 G025 001 Sensor rotor installer</p> 	<p>For installation of sensor rotor (Front)</p>	<p>49 0259 770B Wrench, flare nut</p> 	<p>For removal and installation of brake pipe</p>
<p>49 H028 204 Attachment</p> 	<p>For installation of sensor rotor (Rear)</p>	<p>49 T088 0A0 NGS set</p> 	<p>For diagnosis</p>