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GENERAL SPECIFICATIONS

Items		
Master cylinder	I.D. mm	25.4
Brake booster	Effective diameter of power cylinder, mm	203 /230
	Boosting ratio	6.5 :1
Front brakes	Disc outer diameter, mm	294
	Disc thickness, mm	24
	Pad thickness, mm	10
	Caliper piston diameter, mm	2 x 42.9
Rear disc brakes	Disc outer diameter mm	284
	Disc thickness, mm	20
	Pad thickness, mm	10
	Caliper piston diameter, mm	38.1

SERVICE SPECIFICATIONS

Items	Standard value	Limit
Brake pedal height mm	168–173	–
Brake pedal free play mm	3–8	–
Brake pedal to floorboard clearance mm	85 or more	–
Front disc brake pad thickness mm	10	2.0
Front disc brake drag force (tangential force of wheel mounting bolts) N	69 or less	–
Front brake disc thickness mm	24	22.4
Front brake disc run-out mm	–	0.05
Front hub end play mm	–	0.05
Rear disc brake pad thickness mm	10	1.0
Rear disc brake drag force (tangential force of wheel mounting bolts) N	69 or less	–
Rear brake disc thickness mm	20	18.4
Rear brake disc run-out mm	–	0.05

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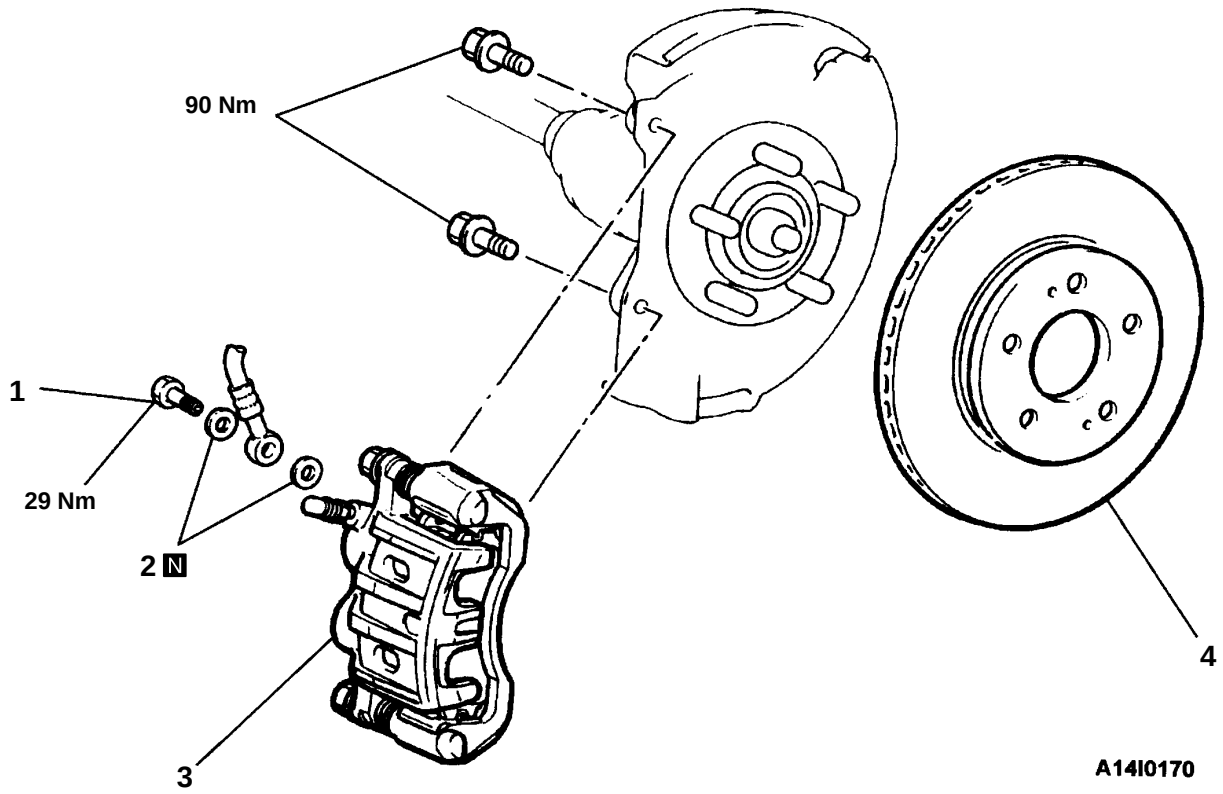
FRONT DISC BRAKE

REMOVAL AND INSTALLATION

Pre-removal Operation
- Brake Fluid Draining

Post-installation Operation
- Brake Fluid Supplying
- Brake Line Bleeding



REMOVAL STEPS

1. Brake hose connector bolt
2. Gasket
▶A◀ 3. Front brake assembly
4. Brake disc

INSTALLATION SERVICE POINTS

▶A◀ FRONT BRAKE ASSEMBLY INSTALLATION

Install the front brake assembly and measure the disc brake drag torque.

INSPECTION

Check the brake disc for damage.

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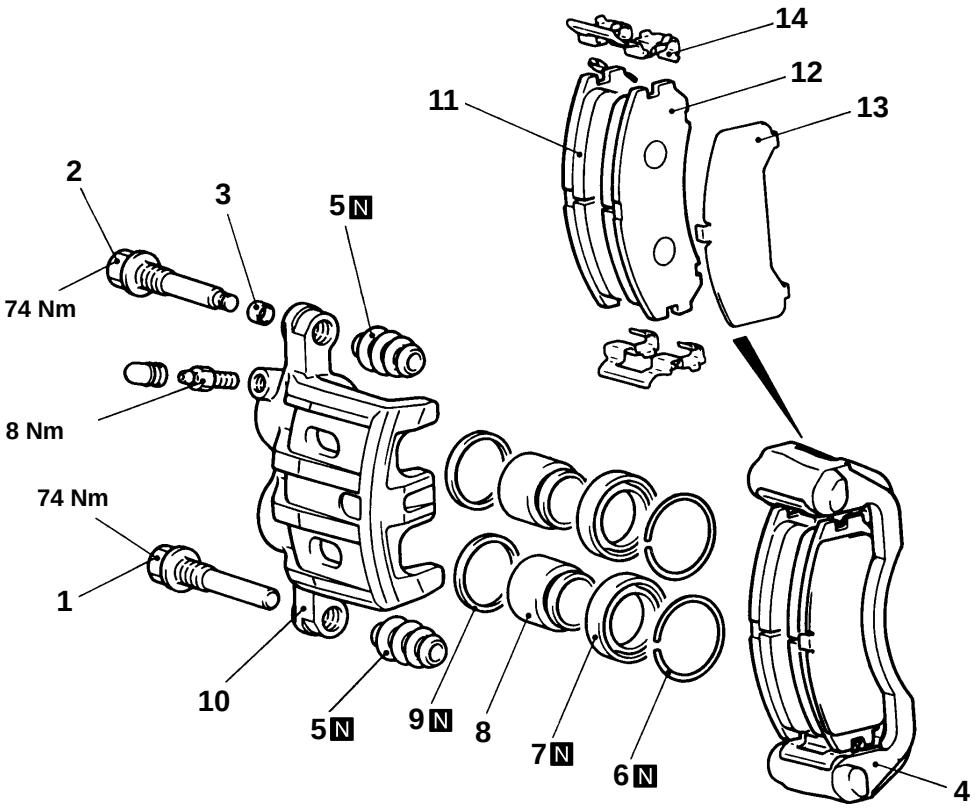
DISASSEMBLY AND REASSEMBLY



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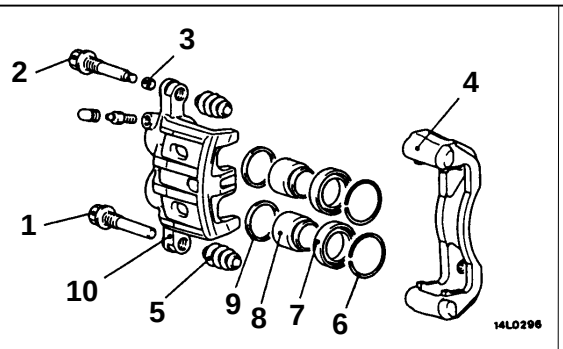
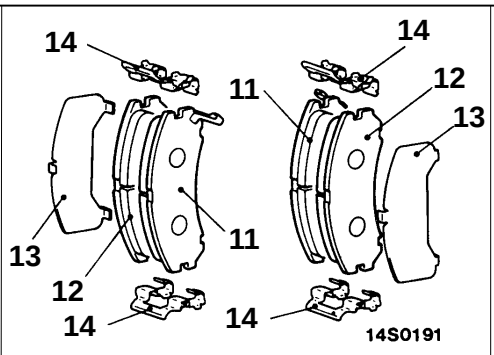
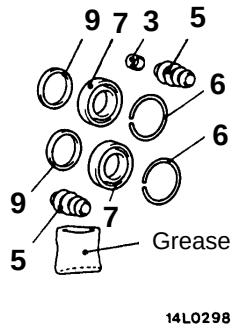


Brake caliper kit



Pad kit



Seal and boot kit

15AE059N

DISASSEMBLY STEPS

- ▶A◀ 1. Guide pin
- ▶A◀ 2. Lock pin
- 3. Bushing
- 4. Caliper support (pad, clip, shim)
- 5. Pin boot
- 6. Boot ring
- ◀A▶ 7. Piston boot
- ◀A▶ 8. Piston
- ◀B▶ 9. Piston seal
- 10. Caliper body
- 11. Pad and wear indicator assembly
- 12. Pad assembly
- 13. Outer shim
- 14. Clip

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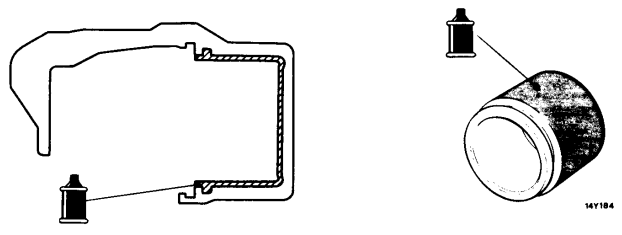
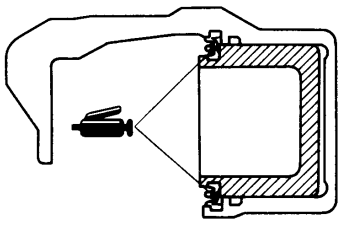
LUBRICATION POINTS

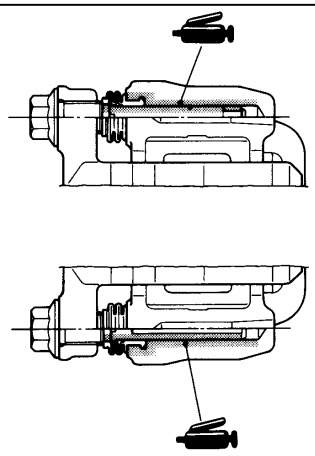


Caution
The piston seal inside the seal and boot kit is coated with special grease. Do not wipe this grease off.

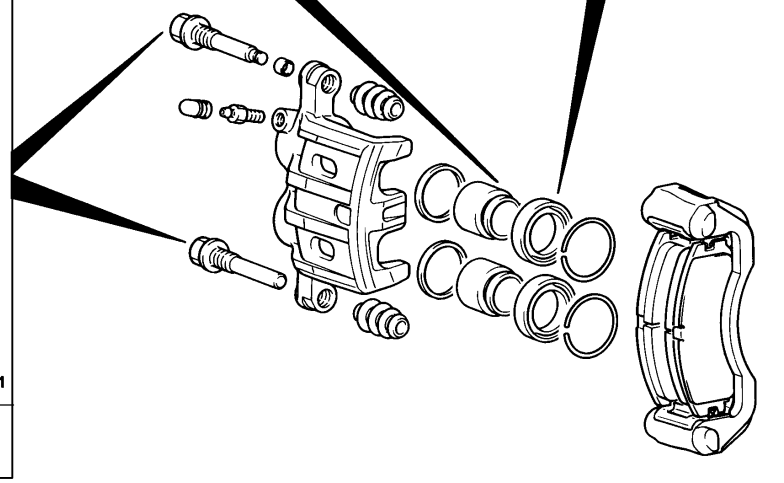
Brake fluid: DOT4



Grease: Repair kit grease (orange)



Grease: Repair kit grease (orange)



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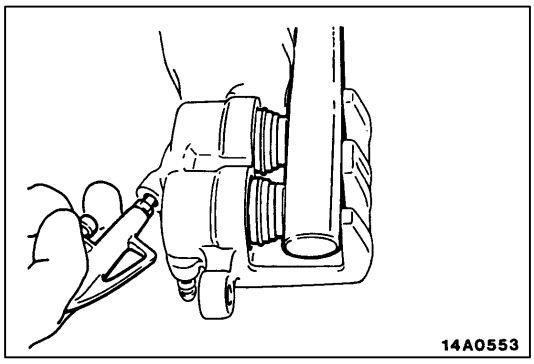
DISASSEMBLY SERVICE POINTS

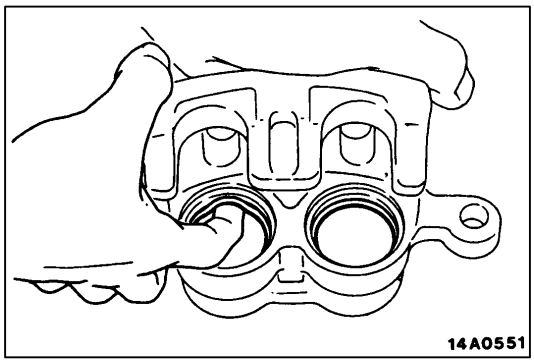
When disassembling the disc brakes, disassemble both sides (left and right) as a set.



◀A▶ PISTON BOOT/PISTON REMOVAL

Protect caliper body with cloth. Blow compressed air through brake hose to remove piston boot and piston.

CAUTION: Blow compressed air gently.



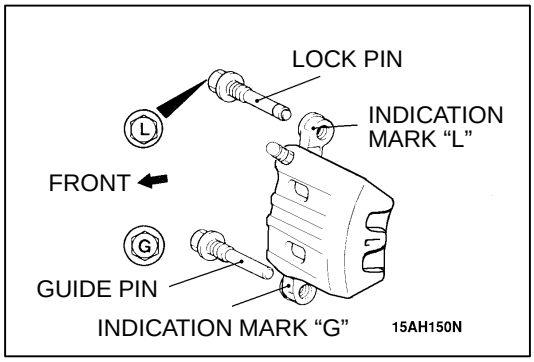
◀B▶ PISTON SEAL REMOVAL

(1) Remove piston seal with finger tip.

CAUTION: Do not use a flat-tipped screwdriver or other tool to prevent damage to inner cylinder.

(2) Clean piston surface and inner cylinder with alcohol, or specified brake fluid.

Specified brake fluid: DOT4



REASSEMBLY SERVICE POINT

▶A◀ LOCK PIN/GUIDE PIN INSTALLATION

Install the guide pin and lock pin as illustrated so that each head mark of the guide pin and the lock pin matches the indication mark located on the caliper body.

INSPECTION

- Check cylinder for wear, damage or rust.
- Check piston surface for wear, damage or rust.
- Check caliper body or sleeve for wear.
- Check pad for damage or adhesion of grease, check backing metal for damage.

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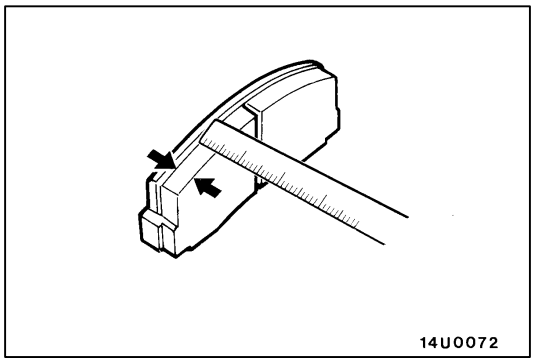


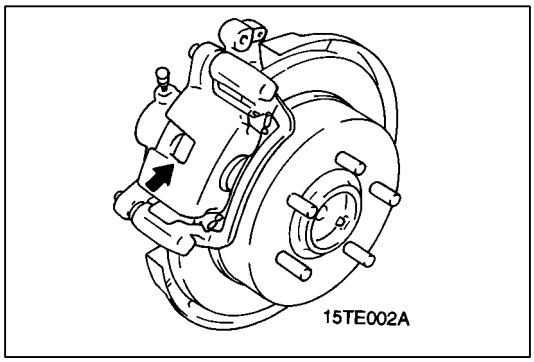
PAD WEAR CHECK

Measure thickness at the thinnest and worn area of the pad. Replace pad assembly when pad thickness is less than the limit value.

Standard value: 10 mm
Limit value: 2.0 mm

CAUTION: When the limit is exceeded, the brake pads on both the left and right wheels must be replaced as a set.

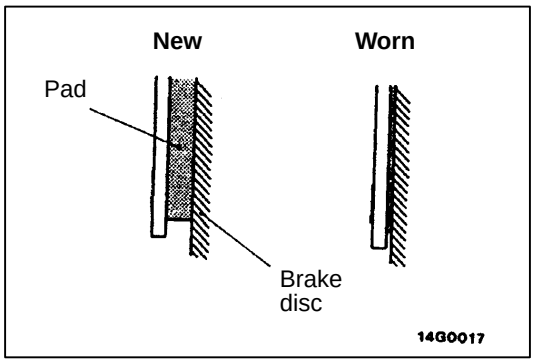
CAUTION: If there is a significant difference in the thicknesses of the pads on the left and right sides, check the sliding condition of the piston, lock pin and guide pin.



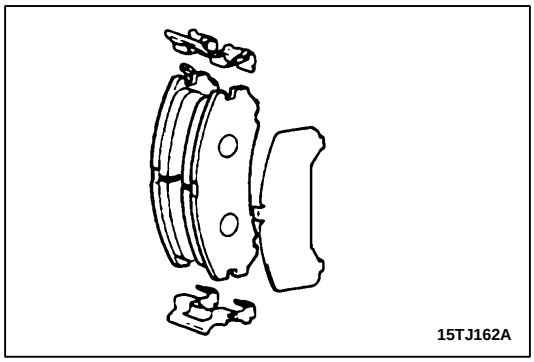
REAR DISC BRAKE PAD CHECK AND REPLACEMENT

1. Check brake pad thickness through caliper body check port.

   Standard value: 10 mm
   Limit: 1.0 mm



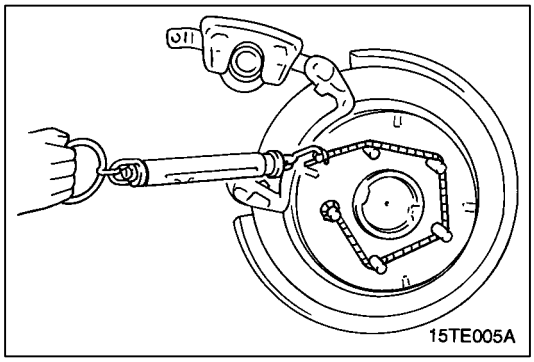
Caution
1. When the limit is exceeded, the brake pads on both the left and right wheels must be replaced as a set.
2. If there is a significant difference in the thicknesses of the pads on the left and right sides, check the sliding condition of the piston, lock pin sleeve and guide pin sleeve.



2. Remove the lower guide pin caliper bolt. Lift caliper assembly and retain with wire.

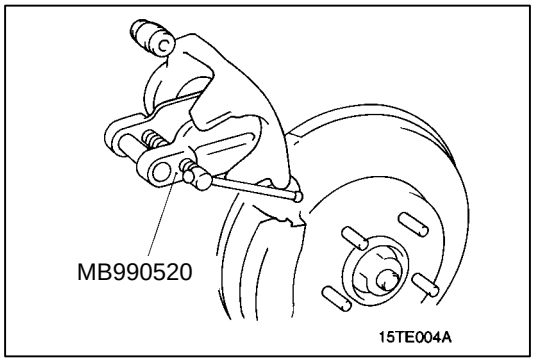
   Caution
   Do not wipe off the special grease that is on the guide pin or allow it to contaminate the bolt thread.

3. Remove the brake pads parts from the caliper support.

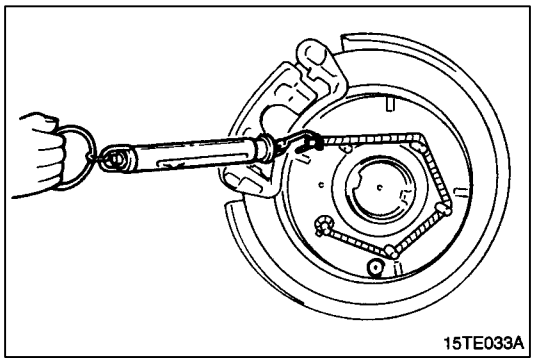


4. Measure hub torque (A) with pads removed to measure brake drag torque. Torque value (A) will be used later to calculate brake drag force with the pads installed.

   NOTE
   To secure the disc to the hub, tighten the nuts.



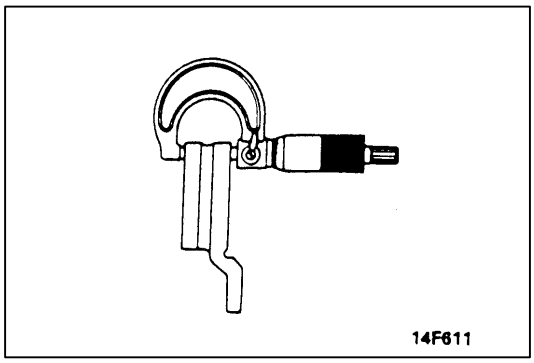
5. Clean the piston; then use the special tool to push the piston into the cylinder (caliper).
6. Be careful that the piston boot does not catch and tear as the caliper assembly is swung back into position. Replace guide pin locking bolt and torque dry to specified torque.



7. Check brake drag torque as follows.
   (1) Start engine and hold brake pedal down for 5 seconds. [Pedal depression force: approx. 196 N]
   (2) Stop engine.
   (3) Turn brake disc forward 10 times.
   (4) Check brake hub torque (B) with spring scale.
   (5) Calculate the drag torque of the disc brake [difference between hub torque (B) and hub torque (A)].

   Standard value: 69 N [4 Nm] or less

8. If the difference between brake drag torque and hub torque exceeds the standard value, disassemble piston and clean piston. Check for corrosion or worn piston seal, and check the sliding condition of the lock pin and guide pin.

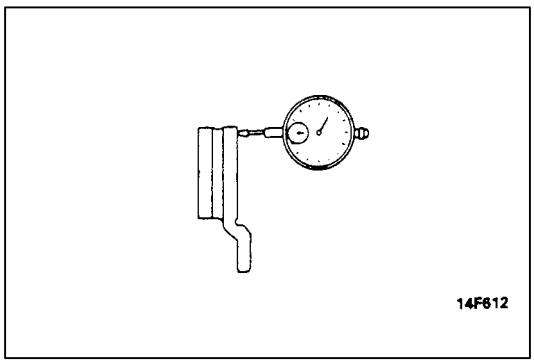


REAR BRAKE DISC THICKNESS CHECK

1. Remove dirt and rust from brake disc surface.
2. Measure disc thickness at 4 locations or more.

   Standard value: 20 mm
   Limit: 18.4 mm

   Replace the discs and pad assembly for both sides left and right of the vehicle if they are worn beyond the specified limit.



REAR BRAKE DISC RUN-OUT CHECK

1. Remove the caliper support, raise the caliper assembly, and secure it by using a wire, etc.
2. Place a dial gauge approximately 5 mm from the outer circumference of the brake disc, and measure the run-out of the disc.

   Limit: 0.05 mm

   NOTE
   To secure the disc to the hub, tighten the nuts.

REAR BRAKE DISC RUN-OUT CORRECTION

1. If the run-out of the brake disc is equivalent to or exceeds the limit specification, change the phase of the disc and hub, and then measure the run-out again.

   NOTE
   The procedures for checking and changing the rear disc phase are the same as those for the front brake discs.

2. If the problem cannot be corrected by changing the phase of the brake disc, replace the disc or turn rotor using an on the car type brake lathe. Be sure to follow the exact brake lathe manufacturer instructions. Rotors turned on the vehicle will often have a lower run-out than a new brake disc.

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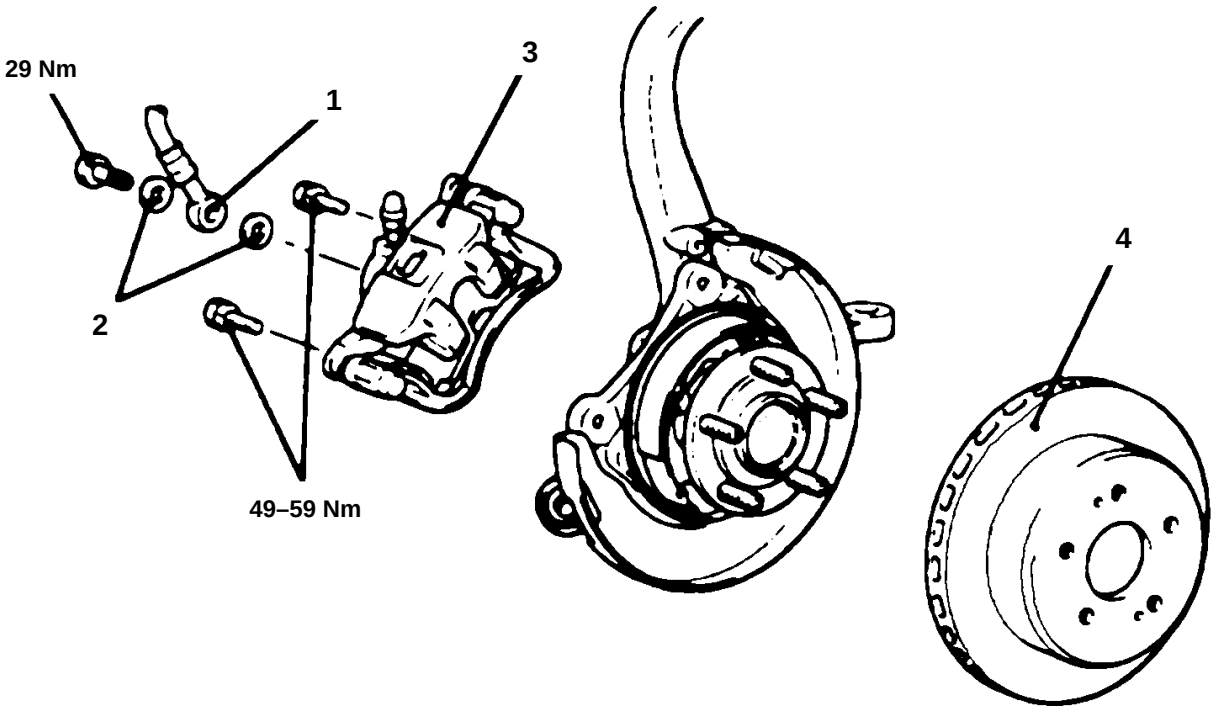
REAR DISC BRAKE

REMOVAL AND INSTALLATION

Pre-removal Operation
- Loosening Parking Brake Cable Adjusting Nut.
- Brake Fluid Draining

Post-installation Operation
- Brake Fluid Filling and Air Bleeding
- Parking Brake Lever Stroke Adjustment



15TJ163A

Removal steps

1. Connection for the brake hose
2. Gasket
3. Rear brake assembly
4. Brake disc

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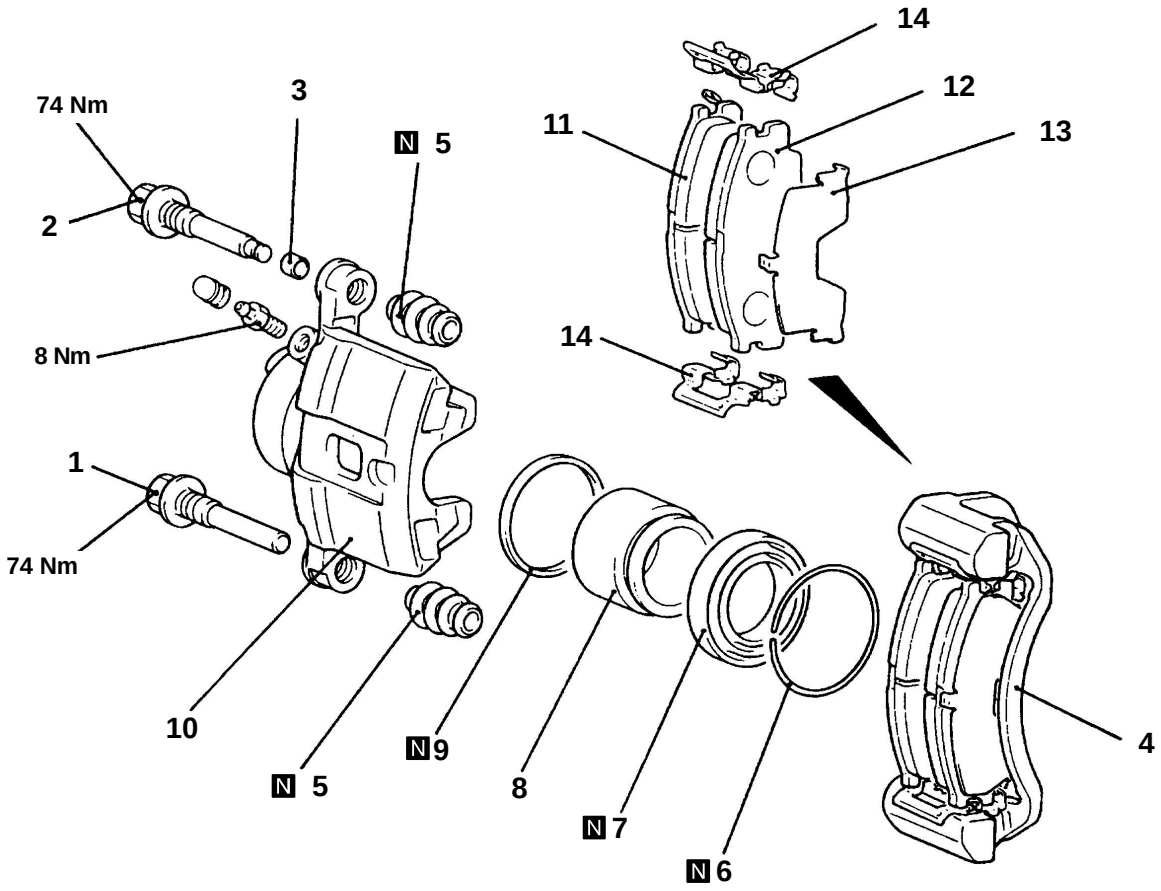
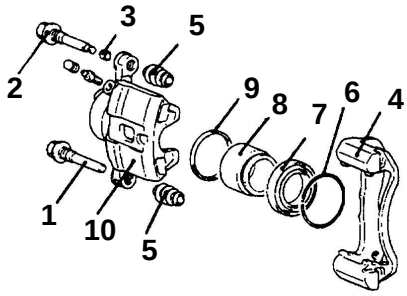
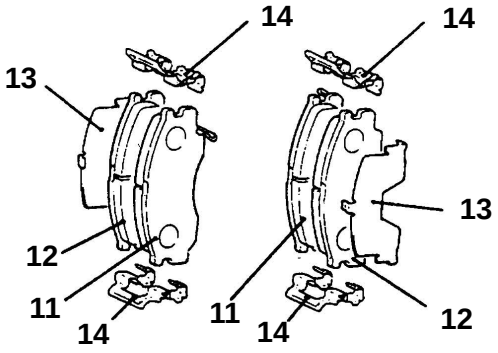
DISASSEMBLY AND REASSEMBLY

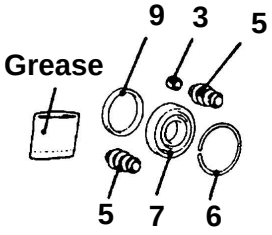




Brake caliper kit



Pad repair kit



Seal and boots repair kit

15TJ164A

Caliper assembly disassembly steps

1. Guide pin
2. Lock pin
3. Bushing
4. Caliper support (pads)
5. Boot
6. Boot ring
7. Piston boot
8. Piston
9. Piston seal
10. Caliper body

Pad assembly disassembly steps

1. Guide pin
2. Lock pin
3. Bushing
4. Caliper support (pads, clip, shim)
11. Pad and wear indicator assembly
12. Pad assembly
13. Outer shim
14. Clip

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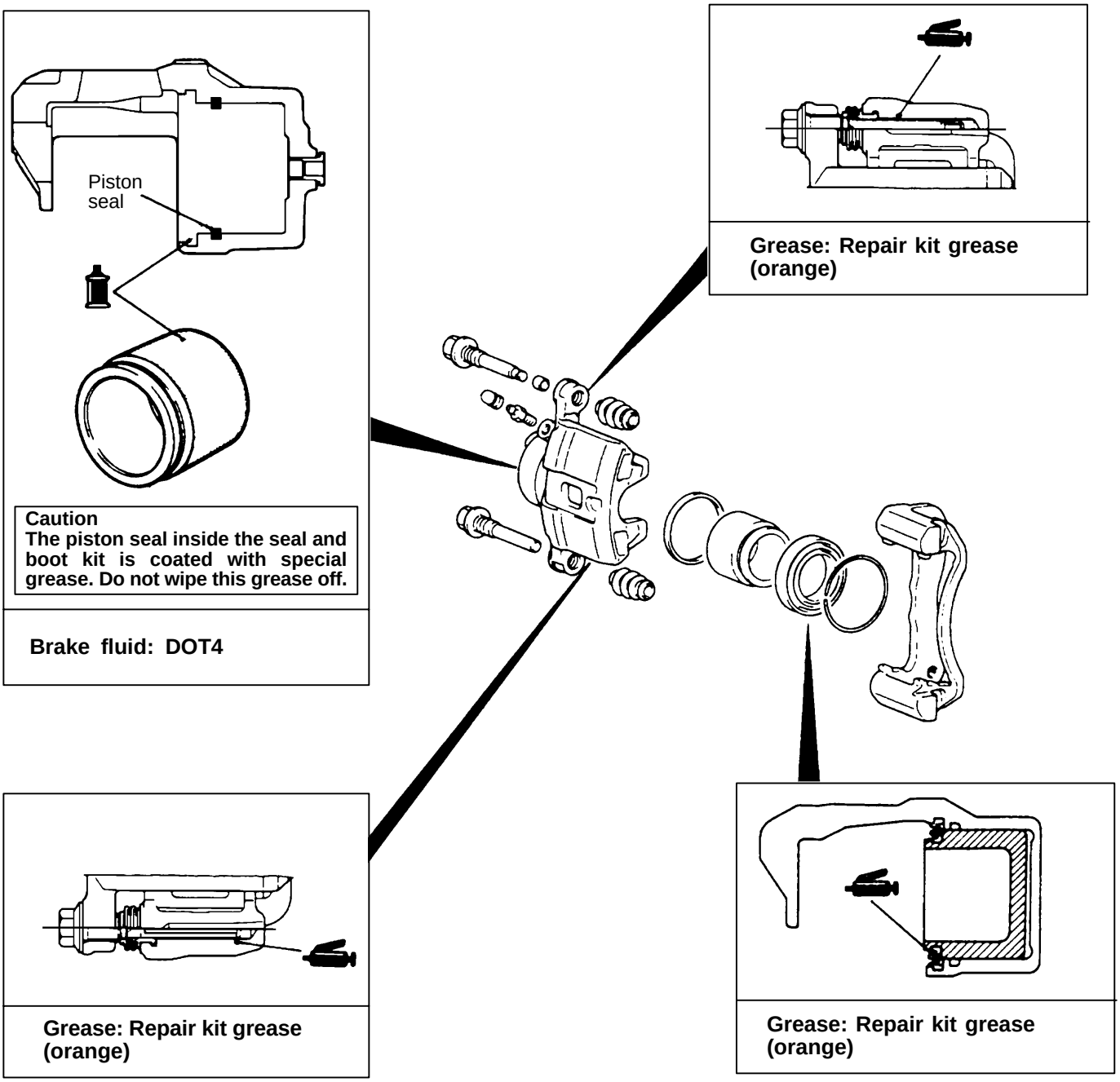
Lubrication Points



Caution
The piston seal inside the seal and boot kit is coated with special grease. Do not wipe this grease off.

Brake fluid: DOT4

Grease: Repair kit grease (orange)

Grease: Repair kit grease (orange)

Grease: Repair kit grease (orange)