

BRAKING SYSTEM

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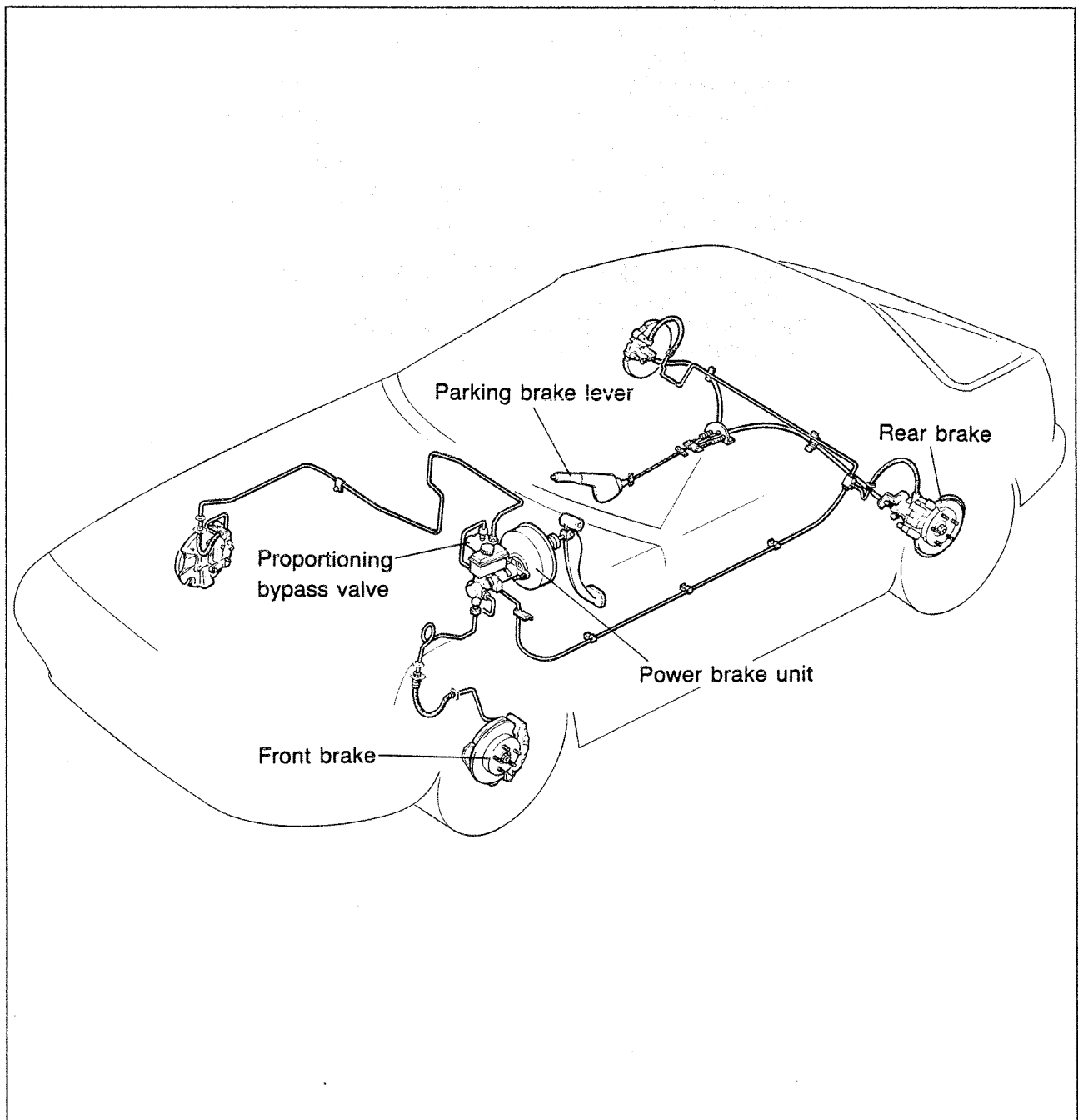
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OUTLINE

OUTLINE OF CONSTRUCTION

1. In order to improve braking performance, opposed-type, four-piston calipers have been adopted for the front disc brakes. In addition, the effective diameter of the disc plates on the front and rear brakes have been enlarged.
2. In order to reduce weight, an aluminum alloy has been adopted as the material for front disc brake calipers.
3. Along with the adoption of aluminum alloy wheel hubs, the front disc plate and wheel hub have been changed from the former one-piece construction type to a separate type.
4. In order to reduce weight, the brake pedal material has been changed from steel to aluminum alloy (only for left-hand drive).

STRUCTURAL VIEW



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SPECIFICATIONS

Item		Specifications
Brake pedal	Type	Suspended
	Pedal lever ratio	4.5
	Max. stroke	mm (in.) 136 (5.35)
Master cylinder	Type	Tandem (with level sensor)
	Bore	mm (in.) 22.22 (0.875)
Front disc brake	Type	Disc (ventilated)
	Cylinder bore	mm (in.) 36.12 (1.42)
	Pad dimensions (area x thickness)	mm ² x mm (in ² x in) 47 x 11 (1.85 x 0.43)
	Disc plate dimensions (effective diameter x thickness)	mm (in.) 230 x 22 (9.06 x 0.87)
Rear disc brake	Type	Disc (ventilated)
	Cylinder bore	mm (in.) 34.93 (1.38)
	Pad dimensions (area x thickness)	mm ² x mm (in ² x in) 32.1 x 8 (1.26 x 0.31)
	Disc plate dimensions (effective diameter x thickness)	mm (in.) 237 x 20 (9.33 x 0.79)
Power brake unit	Type	Vacuum multiplier
	Size	mm (in.) 229.6 (9)
Braking force control device	Type	Proportioning Bypass Valve (PBV)
Brake fluid		FMVSS 115, DOT-3 or DOT-4 or SAEJ1703a
Parking brake	Type	Auto adjustment, rear brake
	Operation system	Lever

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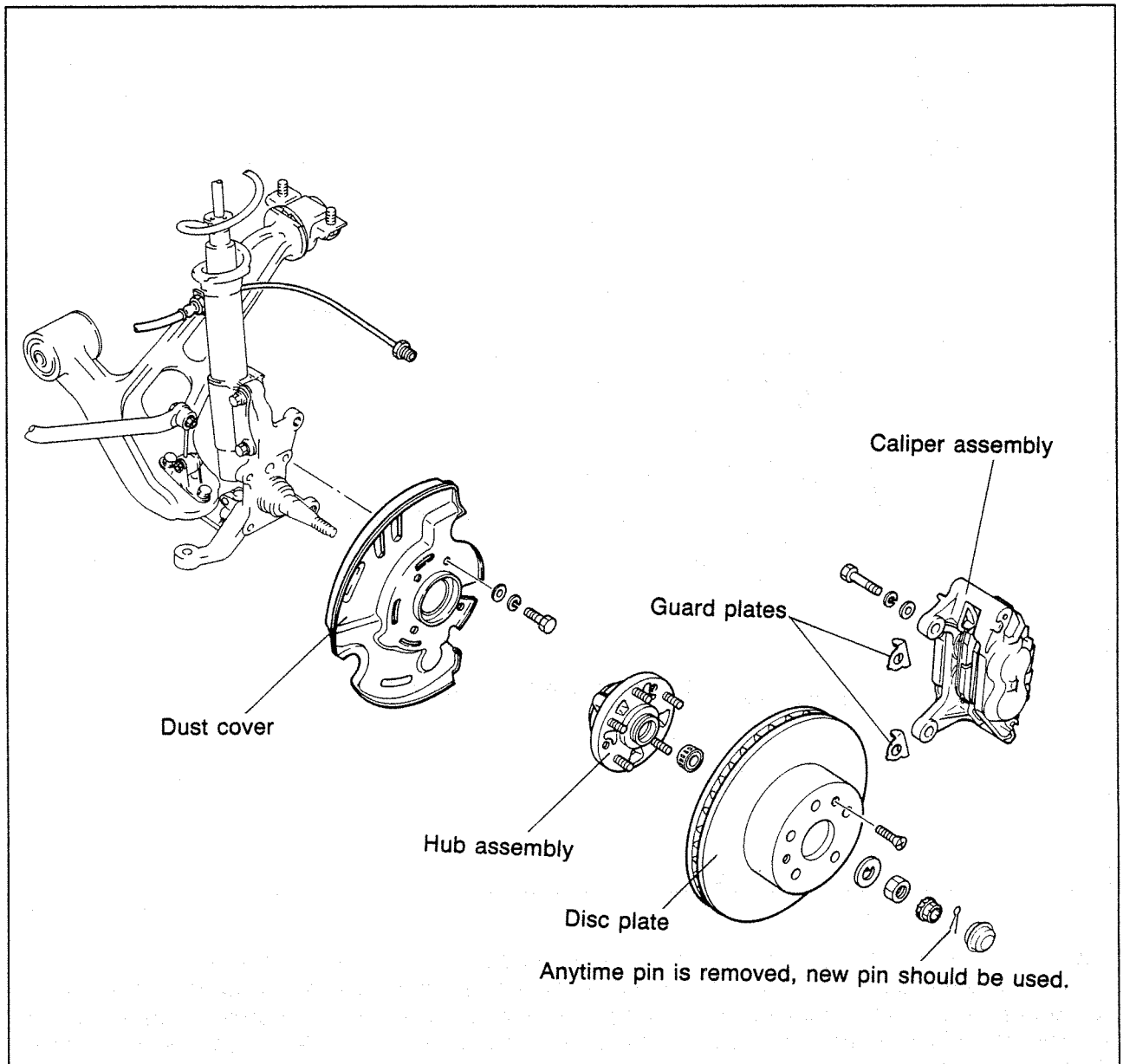
IMPROVEMENTS

Item	New model	Previous model	Effect
Materials of dust cover	Aluminum alloy	Steel	Weight reduction
Disc plate surface treatment (front and rear)	Zinc-chromate coating applied	—	Prevention of disc plate corrosion
Materials of brake pedal (only for left-hand drive)	Aluminum alloy	Steel	Weight reduction
Front			
Materials of disc brake caliper	Aluminum alloy	Cast iron	Weight reduction
Disc brake pistons/caliper	4	1	Improved braking
Disc plate effective braking diameter mm (in.)	230 (9.06)	204 (8.03)	
Installation of brake calipers	Directly to knuckle	Via mounting support to knuckle	Reduction of caliper vibration during braking
Rear			
Disc plate effective braking diameter mm (in.)	237 (9.33)	221 (8.70)	Improved braking

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FRONT BRAKE

STRUCTURAL VIEW



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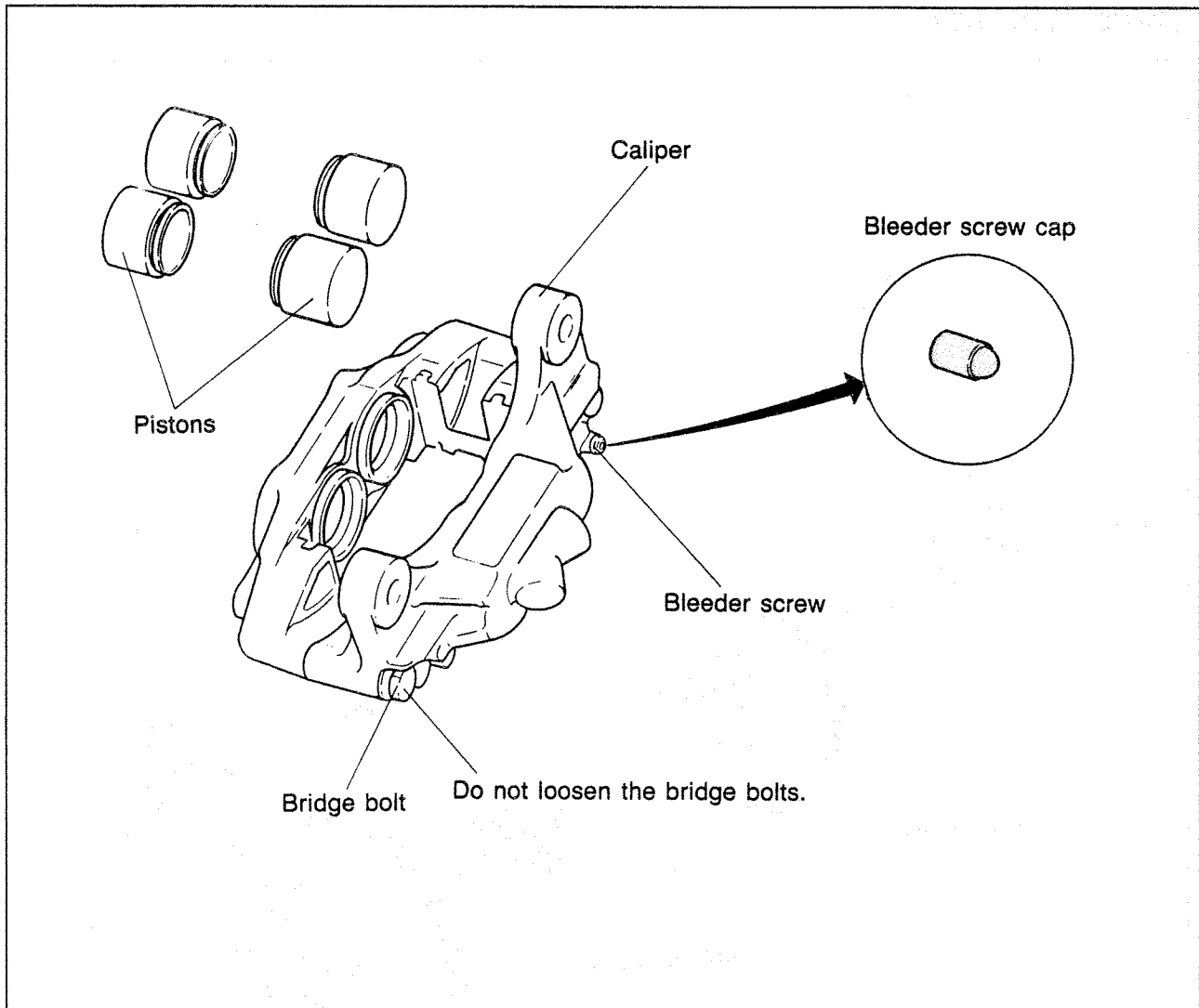
Opposed-type, four-piston calipers are now used for the front brakes; mounting is directly to the knuckle. As a result, caliper vibration during braking has been suppressed.

A zinc-chromate coating is applied in order to prevent the occurrence of corrosion of the surface of the disc plate before initial use.

To prevent electrolytic corrosion, zinc-chromate plated guard plates are used between the knuckle and the caliper assembly.

Due to the adoption of four-piston calipers, there is no interchangeability of this disc brake system with that of previous models.

FOUR-PISTON CALIPER



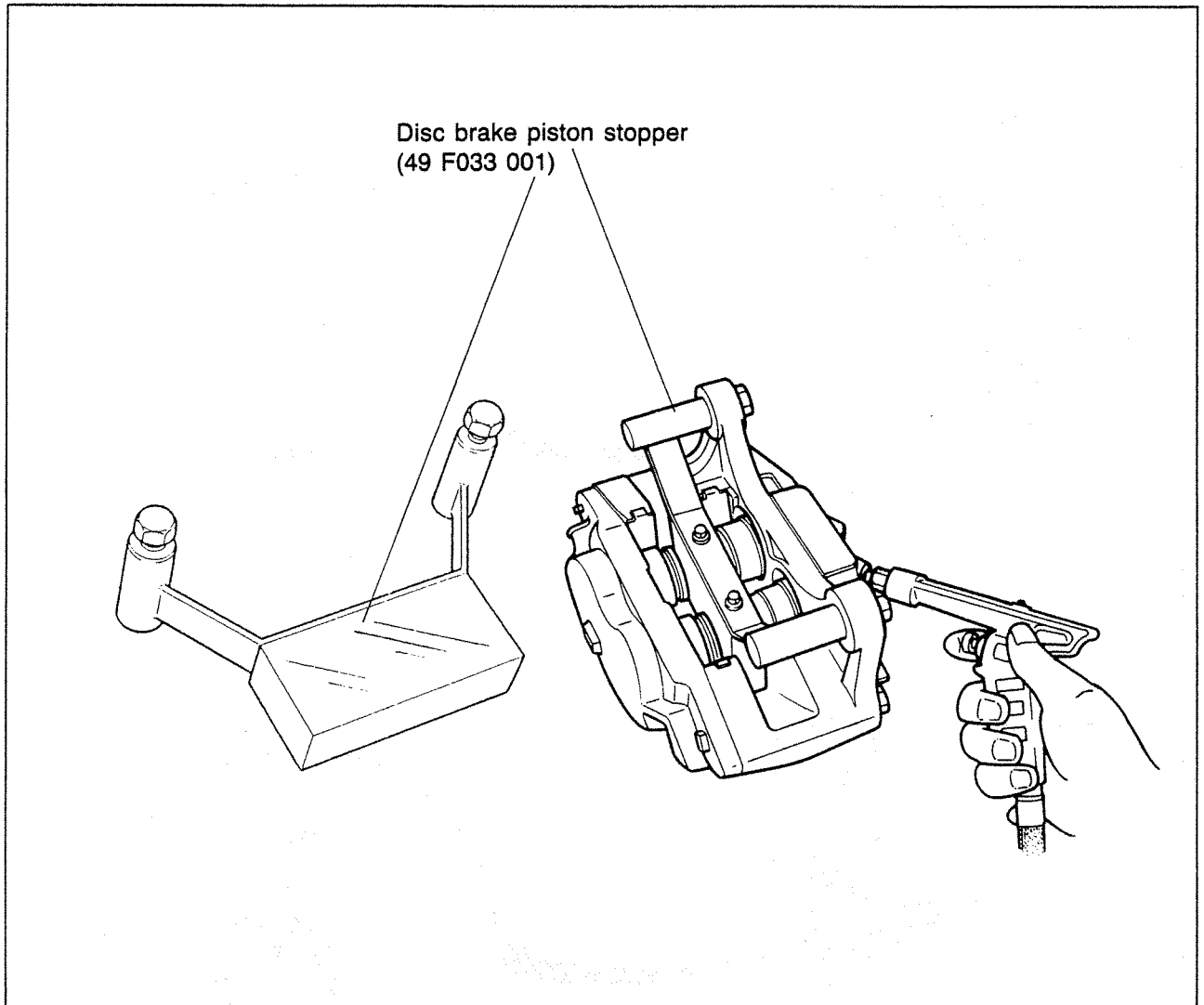
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New opposed-type, four-piston calipers have been adopted for front-disc brakes. As a result, the effective braking diameter has been increased **from 204 mm (8.03 in.) to 230 mm (9.06 in.)**. This design offers a uniform pad pressure and overall braking performance is improved. In order to reduce weight, the material of the calipers has been changed to an aluminum alloy. A cap which covers the entire bleeder screw has been adopted. The reason for this is to prevent the electrolytic corrosion which could occur between the two components because the caliper is aluminum alloy and the bleeder screw is steel. This cap must be attached so that it completely covers the bleeder screw in such a way as to protect the screw from salt water (i.e. salted roads, coastal areas, etc.).

Caution

Do not attempt to disassemble the brake caliper body because it was not designed to be disassembled. Once the caliper body is disassembled it will leak and cannot be re-sealed.

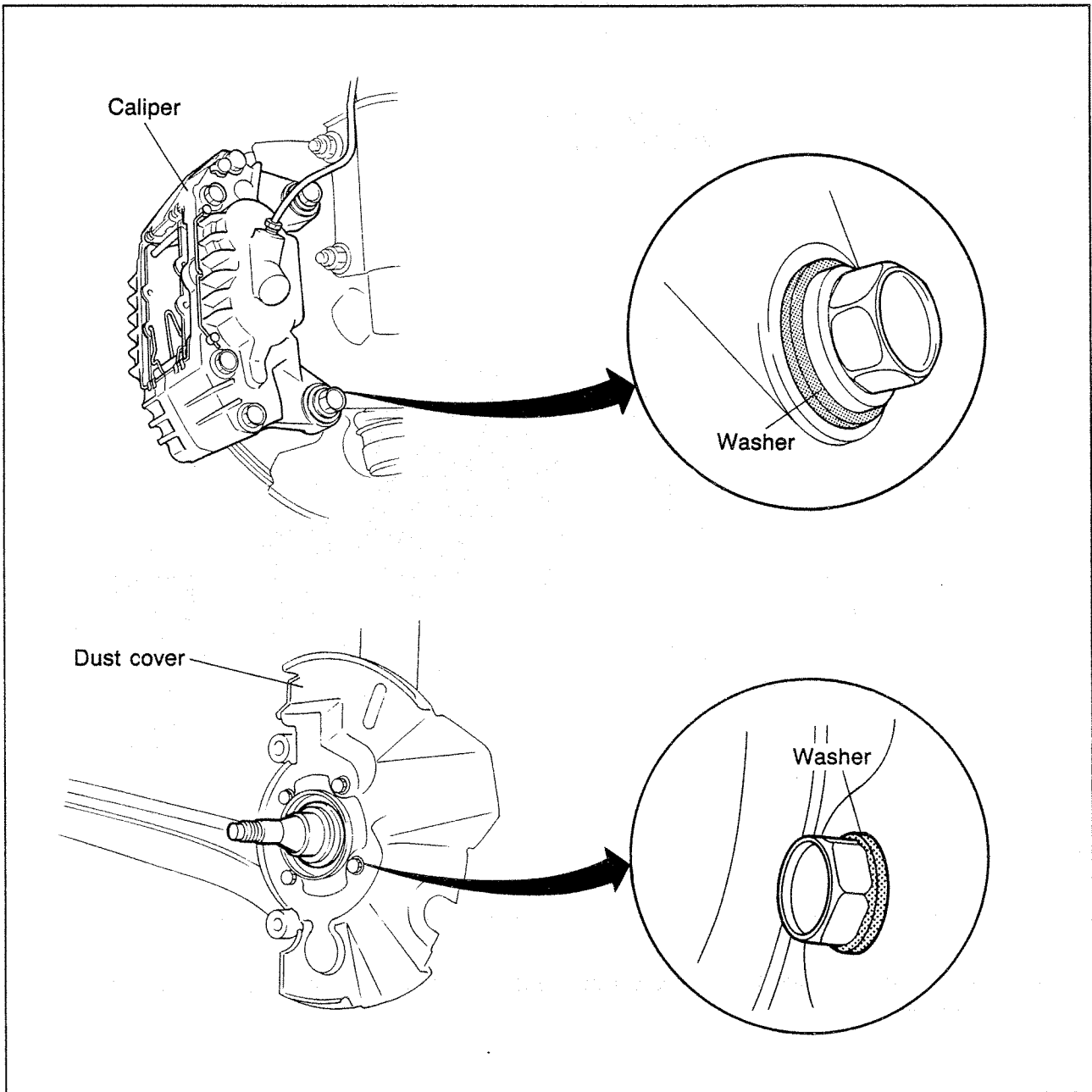
DISASSEMBLY OF THE FOUR-PISTON CALIPER



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A new special tool, the **disc brake piston stopper** (49 F033 001), allows all four pistons to be removed at the same time.

ZINC-CHROMATE COATED WASHER

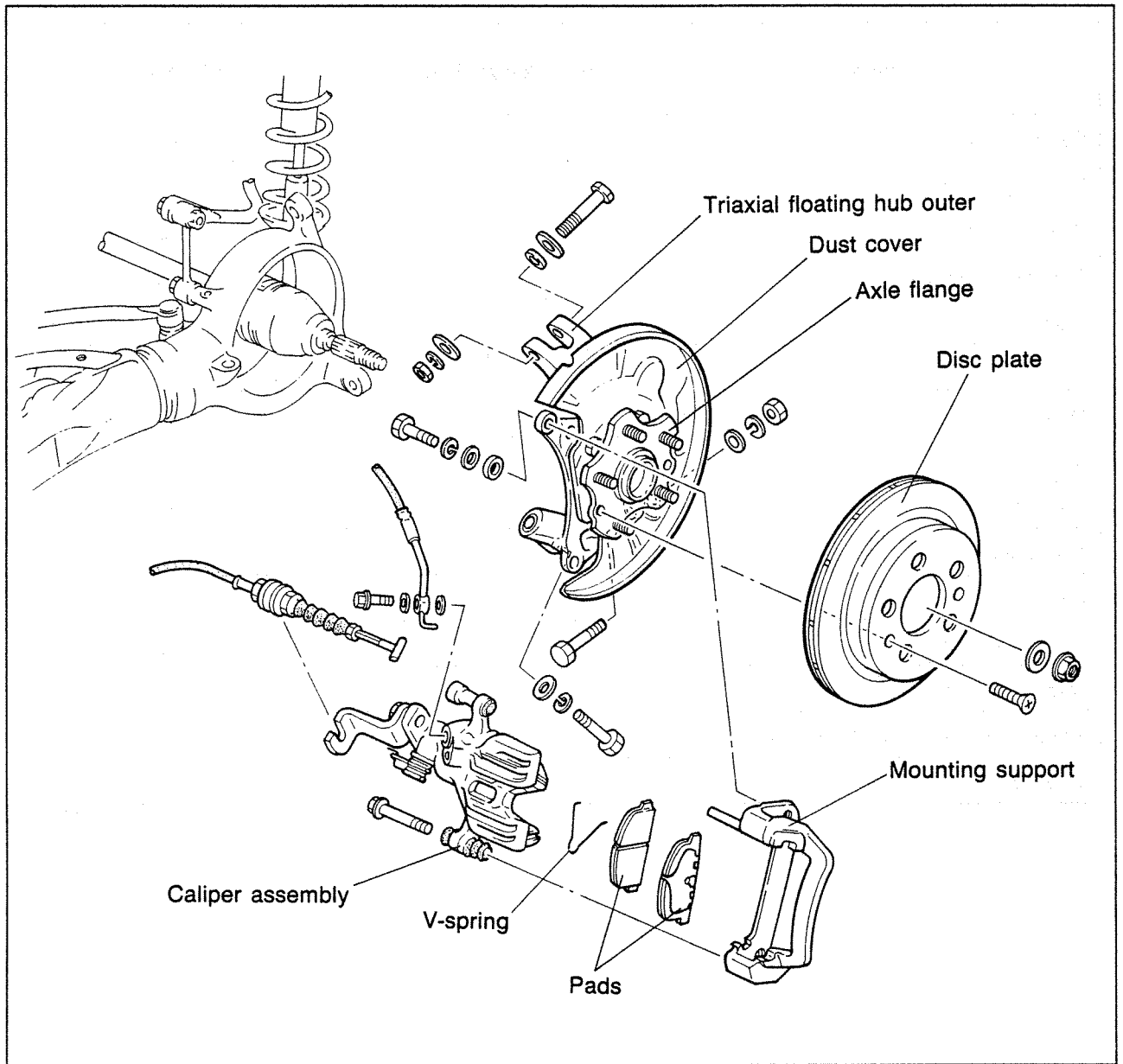


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The component shown by the shaded lines in the figure is surface-coated with a zinc-chromate coating. The reason for this coating is to prevent the electrolytic corrosion which could occur as a result of the moisture which adheres where steel and aluminum parts are in direct contact.

REAR BRAKE

STRUCTURAL VIEW



57G11X-509

The construction of the rear disc brakes is basically the same as that of the previous model, except that the size of the disc plates has been enlarged and a V-spring is added. The construction of the brake automatic adjuster has been simplified. This construction is the same as that for the 626 model and 323 model.

INTERCHANGEABILITY OF REAR BRAKES

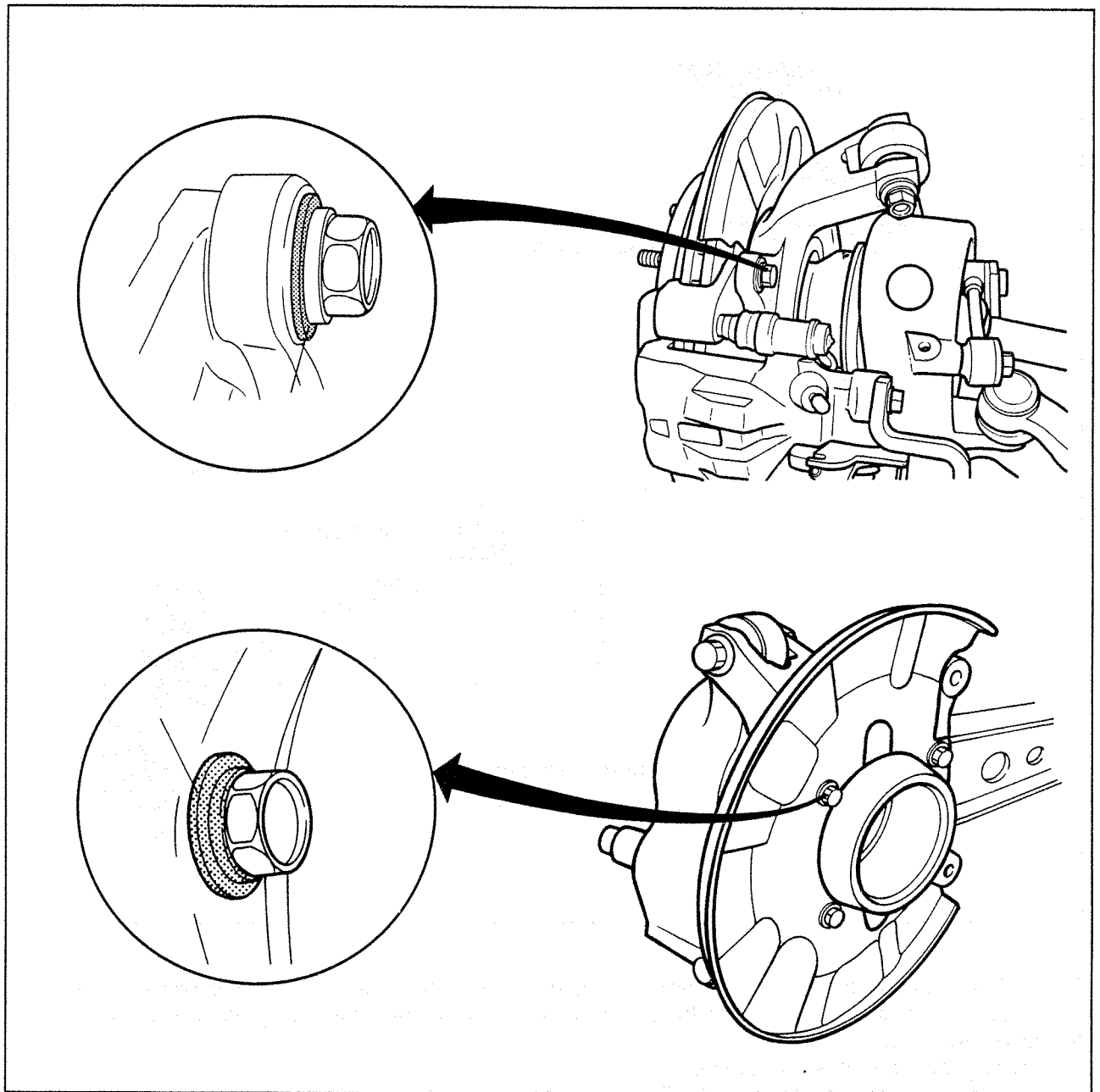
The major items of interchangeability between new model and previous model are as shown below.

The O indicates interchangeable; X indicates non-interchangeable.

Parts	Interchangeability	Difference
Caliper body	X	Shape
Mounting support	X	Shape
Piston assembly	X	Shape
Disc pad assembly	X	Shape
Piston seal	O	---
Piston boot	O	---
Main sleeve	O	---
Sleeve boot	O	---
Guide pin boot	O	---
Anti-squeak shim	O	---
Boot ring	O	---
Adjuster spindle	X	Shape
Bleeder screws	O	---
Bolt and washer assembly on caliper	O	---
V-spring	X	New parts

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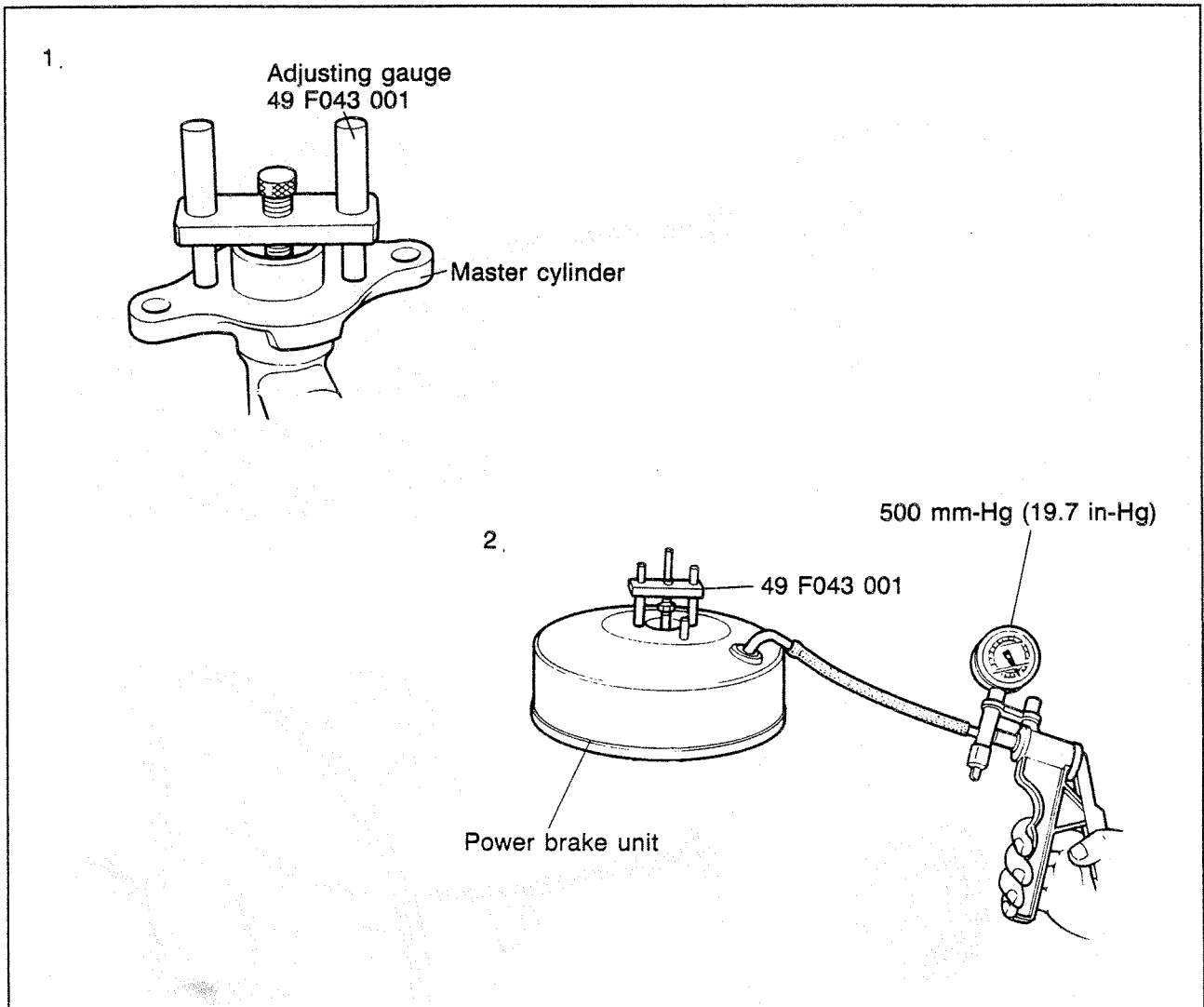
ZINC-CHROMATE COATED WASHER



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The component shown by the shaded lines in the figure is surface-coated with a zinc-chromate coating. The reason for this coating is to prevent electrolytic corrosion which could occur as a result of the moisture which adheres where steel and aluminum parts are in direct contact.

SETTING OF MASTER CYLINDER AND POWER BRAKE UNIT



57G11X-512

Power brake unit push rod movement is greater in the new model than on the previous model. As a result, the clearance setting of the power brake push rod must be made with the vacuum applied to the power brake unit.

The setting procedure is as follows:

1. Place the **adjustment gauge** (49F F043 001) on the master cylinder and then turn the adjustment bolt until it contacts the bottom of the push rod hole in the piston.
2. Connect a vacuum pump to the power brake unit and apply a vacuum of **500 mm-Hg (19.7 in-Hg)**. Invert the adjustment gauge used in step 1, and place it on the power brake unit. Check the clearance between the end of the gauge and the push rod. If it is not **0 mm**, loosen the push rod lock nut and turn the push rod to make the adjustment.

Note

Apply the vacuum to the power brake unit with it is installed to the vehicle.