

BRAKE SYSTEM

4850-01

OVERVIEW AND OPERATION PROCESS

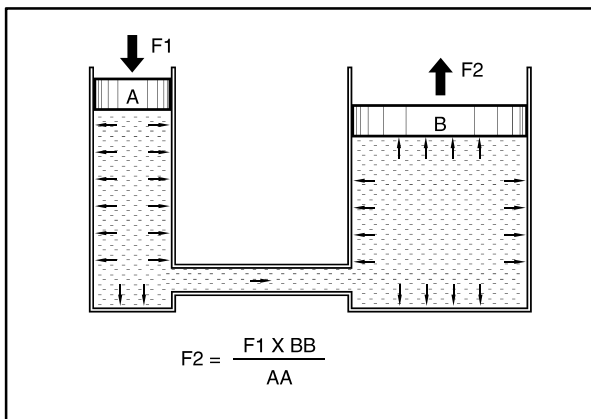
1. BRAKE SYSTEM GENERAL INFORMATION

1) DESCRIPTION AND OPERATION

(1) Brake System

Even though a driver cuts off the power, while driving, the vehicle continues to move due to the law of inertia. Therefore, a braking device is needed to stop the vehicle. The brake system normally uses the frictional discs that converts the kinetic energy to the thermal energy by frictional operation. The brake system consists of the brake disc (front wheel), brake disc or drum (rear wheel), parking brake (mechanical type), master cylinder, booster, pedal and supply lines (pipes and hoses).

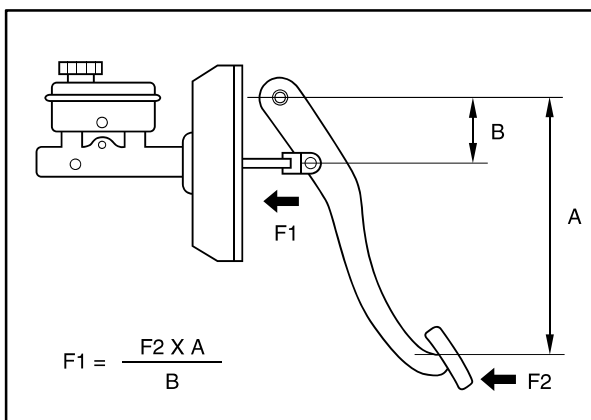
(2) Hydraulic Brake



This system uses the leverage effect and Pascal's principle. When depressing the brake pedal, the pedal pressure is increased by booster and is delivered to master cylinder to generate hydraulic pressure. The hydraulic pressure generated by the master cylinder is delivered to the brake caliper through the brake pipes or hoses.

This hydraulic pressure pushes the brake calipers, accordingly the caliper pads are contacted to brake disc to generate the braking force.

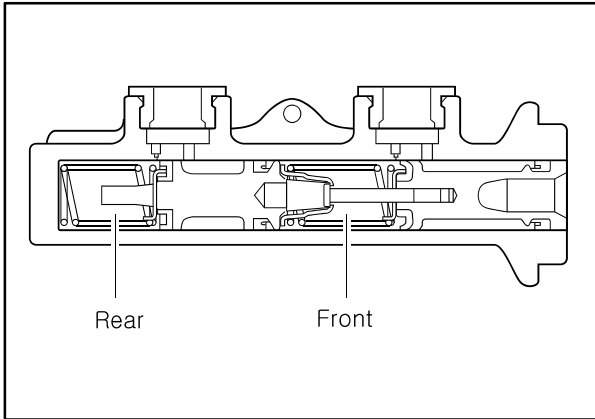
(3) Brake Pedal



Brake pedal uses the leverage effect to apply bigger force to the brake master cylinder.

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| Modification basis | |
| Application basis | |
| Affected VIN | |

(4) Master Cylinder



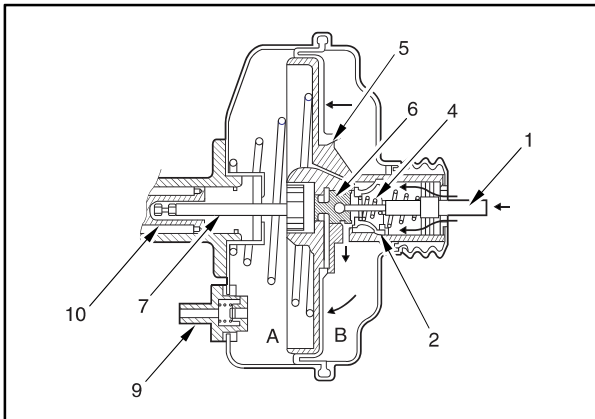
The brake master cylinder is designed to convert the force from the brake master cylinder to the high hydraulic pressure. The brake system uses the tandem type master cylinder with in-line 2 pistons.

The in-line 2 pistons generate the hydraulic pressure. The piston cup on the piston keeps the sealing conditions in cylinder and prevents the oil leaks. The hydraulic pressure generated by the primary piston is delivered to the front wheels, and the hydraulic pressure generated by the secondary piston is delivered to the rear wheels.

(5) Brake Booster

The brake booster is a power assist device for brake system. It relieves the pedal depressing force by using the pressure difference between the vacuum pressure generated by vacuum pump in intake manifold and the atmospheric pressure.

1. Pressure distribution at working

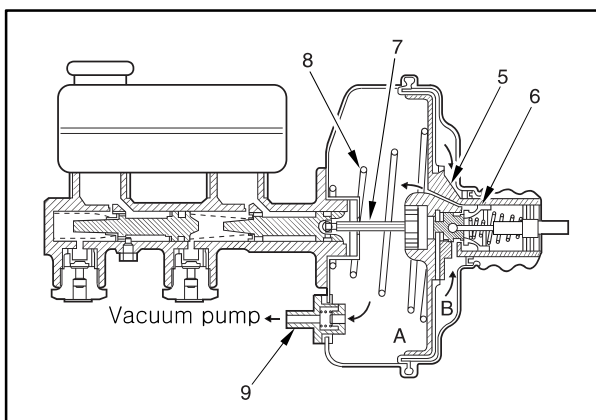


When depressing the brake pedal, the push rod (1) in booster pushes the poppet (2) and valve plunger (3). The poppet (2) pushes the power piston seat (5) resulting in closing the vacuum valve (9). The chamber (A) and (B) in power cylinder are isolated and the valve plunger (3) is separated from the poppet (2). And then the air valve (6) opens and air flows into the chamber (B) through filter.

Then, the power piston (5) pushes the master cylinder push rod (7) to assist the brake operation.

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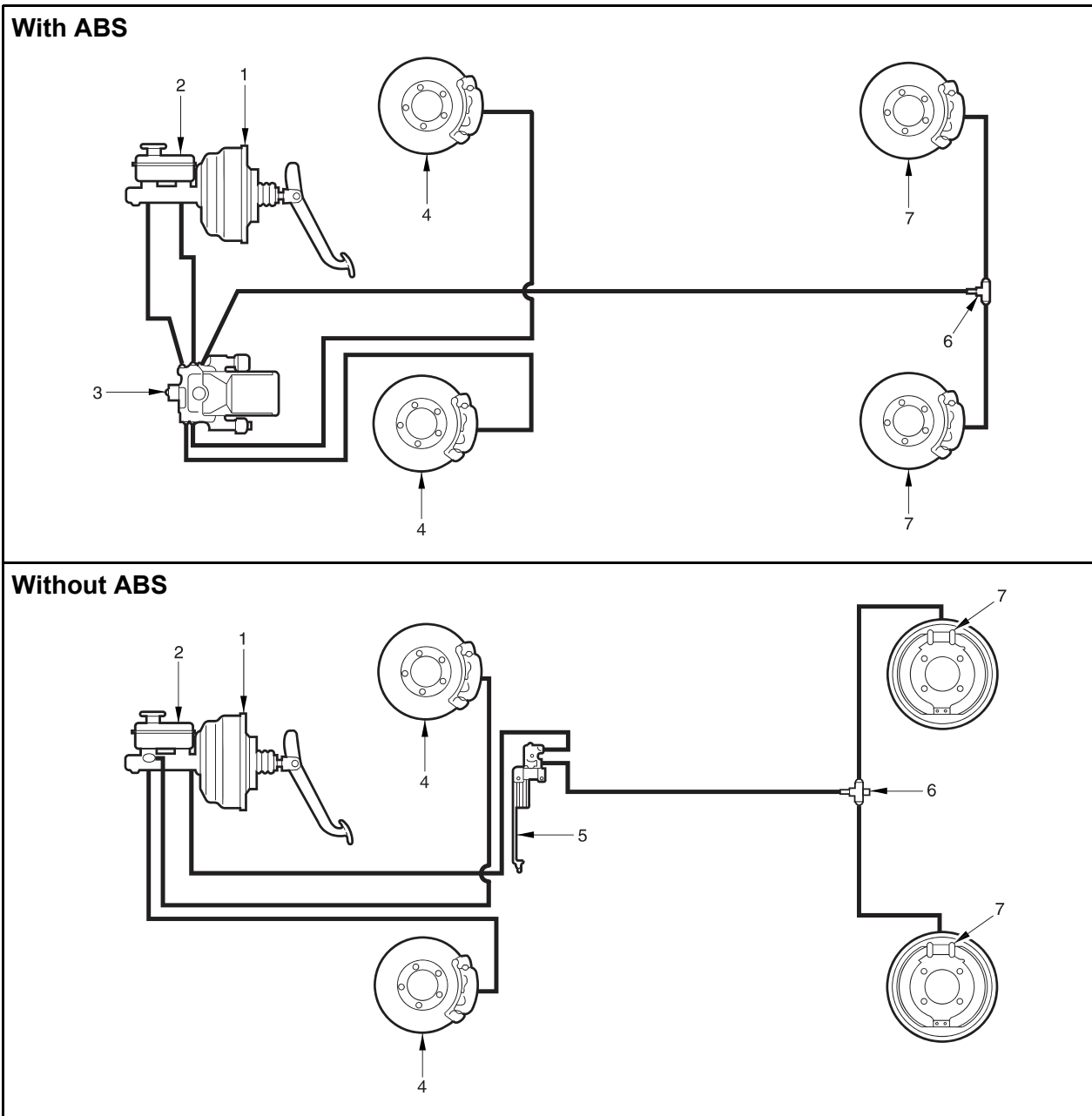
2. Pressure distribution after working



When releasing the brake pedal, the valve plunger (3) returns back to the original position by return spring (4) and the air valve (6) closes. At this time, the vacuum valve (9) opens and the pressure difference between chamber (A) and (B) in power cylinder is eliminated. Accordingly, the power piston (5) returns back to original position by the reaction of master cylinder (10) and the diaphragm return spring (8).

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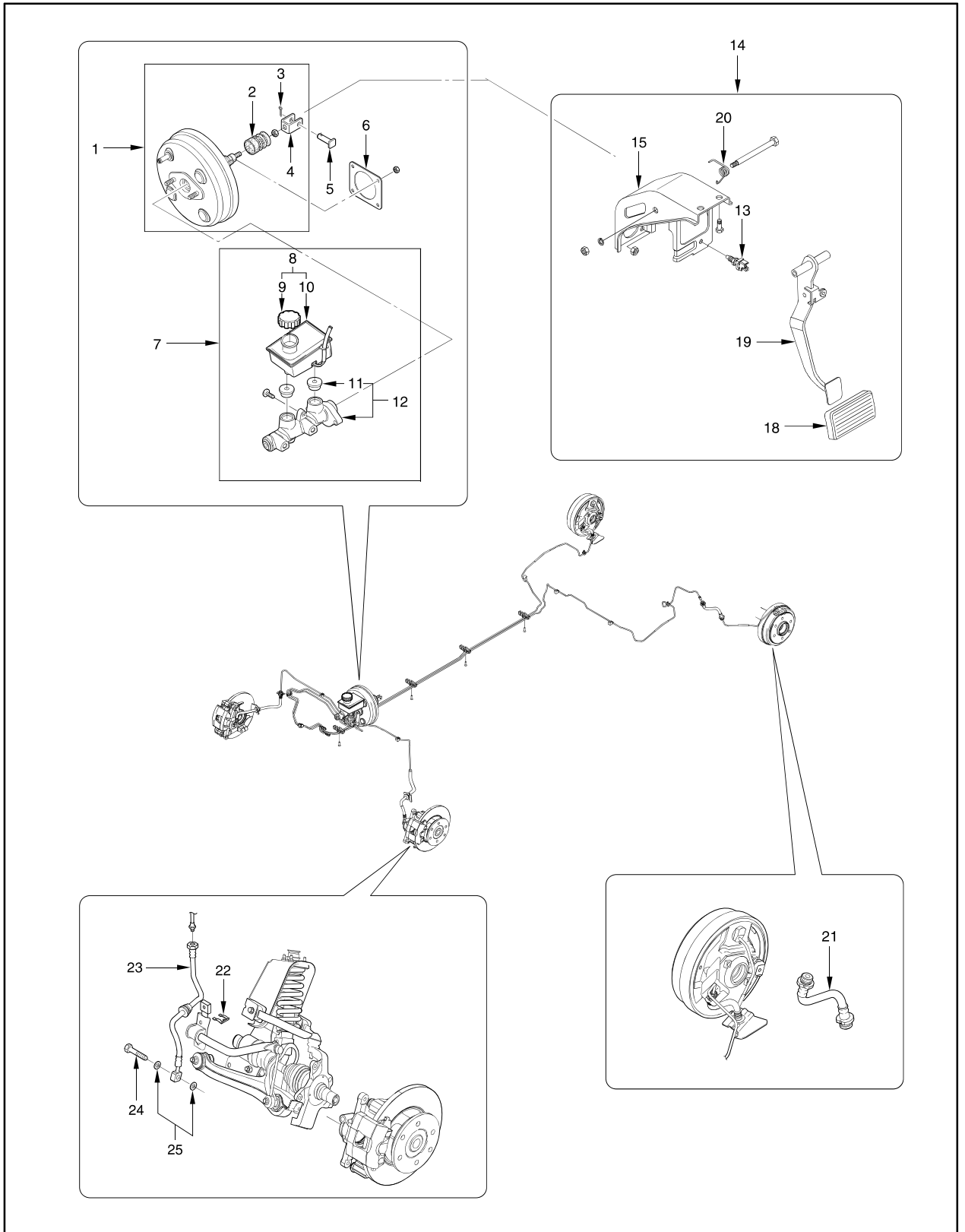
2. BRAKE SYSTEM LAYOUT (HYDRAULIC LINE)



1. Brake booster
2. Brake reservoir and master cylinder
3. ABS control unit
4. Front disc brake and caliper
5. Load conscious reducing valve (LCRV)
6. 3-way connector
7. Rear drum (disc) and wheel cylinder (caliper)

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3. BRAKE SYSTEM COMPONENTS LOCATOR



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| Application basis | |
| Affected VIN | |

1. Brake booster
2. Brake booster boot
3. Cotter pin
4. Clevis
5. Clevis pin
6. Packing (1)
7. Master cylinder assembly
8. Brake reservoir assembly
9. Brake reservoir cap
10. Brake reservoir
11. Grommet seal
12. Master cylinder
13. Stop lamp switch
14. Pedal assembly
15. Pedal bracket assembly
16. Brake pedal pad
17. Brake pedal
18. Brake pedal spring
19. Rear brake hose
20. Clip
21. Front brake hose
22. Union bolt
23. Plane washer

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