

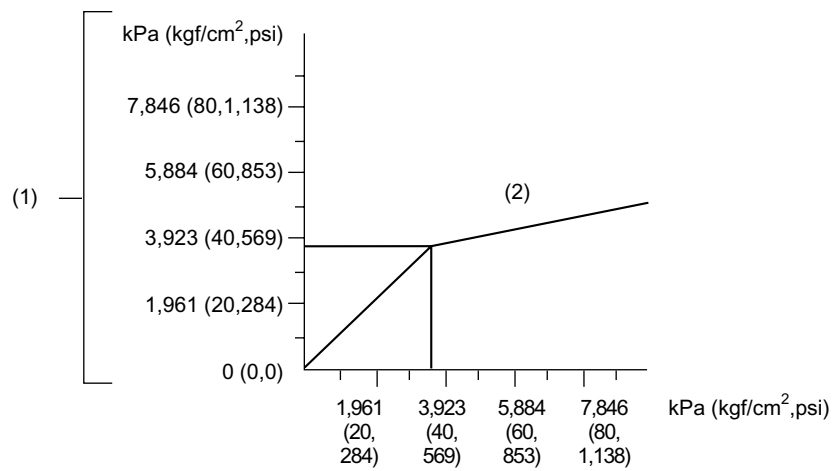
## PROPORTIONING VALVE

Brakes

### 4. Proportioning Valve

The proportioning valve prevents the rear wheels from locking and resultant skidding that would occur during hard braking due to transfer of vehicle weight toward the front wheels. The valve distributes a reduced pressure to the rear wheel brakes as compared with the pressure to the front wheel brakes when a specified master cylinder fluid pressure (called "split point") is exceeded as shown in the diagrams below.

#### VDC model



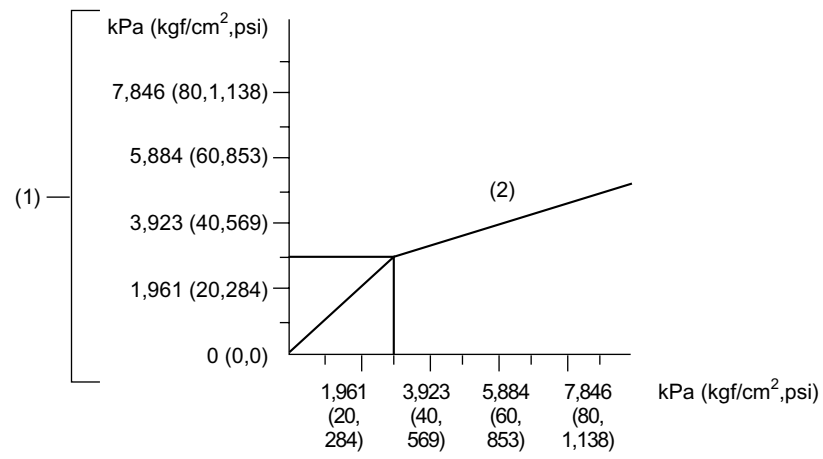
BR-00191

- (1) Rear wheel cylinder fluid pressure
- (2) Master cylinder fluid pressure in case of split point 3,677 kPa (37.5 kgf/cm<sup>2</sup>, 533 psi)

# PROPORTIONING VALVE

Brakes

Except VDC model



BR-00192

- (1) Rear wheel cylinder fluid pressure
- (2) Master cylinder fluid pressure in case of split point 2,942 kPa (30 kgf/cm², 427 psi)

## PROPORTIONING VALVE

Brakes

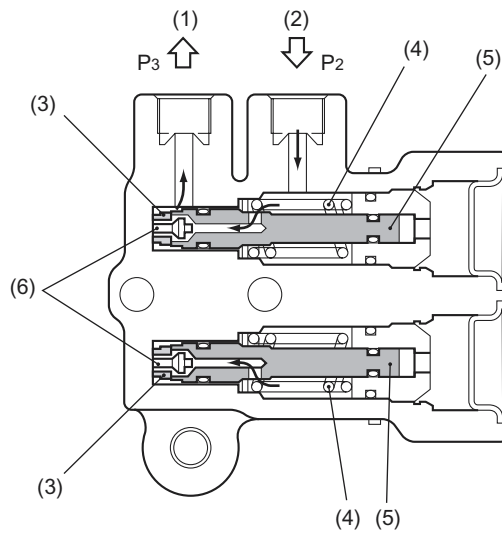
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### A: OPERATION

#### 1) Operation before the split point

The piston is held pressed toward the left by the spring so that the valve is kept away from its seat.

Under this condition, fluid pressure " $P_3$ " to the rear wheel cylinders is equal to fluid pressure " $P_2$ " from the master cylinder.



BR-00193

- (1) To rear wheel cylinder
- (2) From master cylinder
- (3) Seat

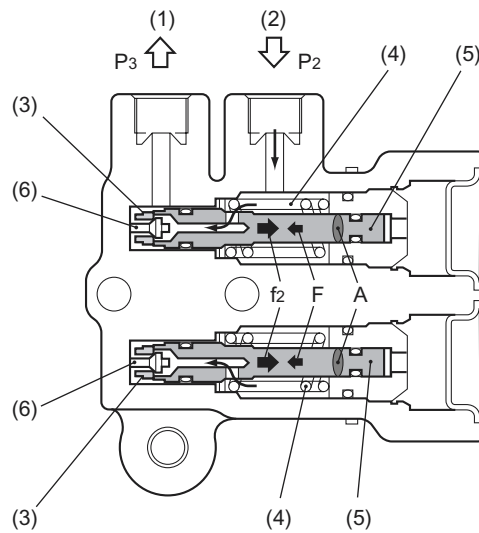
- (4) Spring
- (5) Piston
- (6) Valve

## PROPORTIONING VALVE

Brakes

### 2) Operation at the split point pressure

When pressure " $P_2$ " increases to the split point pressure, force " $f_2$ " is generated. (Pistons cross sectional area  $A$  has been selected so that the force is generated starting with the split point pressure.) The pressure pushes the piston rightward, overcoming spring force  $F$ . As a result, the valve seat moves together with the piston rightward and comes in contact with the valve, blocking the passage toward the rear wheel cylinders.



BR-00194

- |                            |            |
|----------------------------|------------|
| (1) To rear wheel cylinder | (4) Spring |
| (2) From master cylinder   | (5) Piston |
| (3) Seat                   | (6) Valve  |

### 3) Operation after reaching the split point pressure

Immediately before the fluid passage toward the rear wheel cylinders is closed, pressure " $P_2$ " is slightly higher than pressure " $P_3$ ". So the piston can move in the spring force acting direction and the fluid can flow to the wheel cylinders. However, as soon as pressure " $P_2$ " becomes equal to " $P_3$ ", the valve closes.

This cycle is repeated as long as the pedal is depressed further, but pressure increasing rate of the rear wheel cylinders is smaller than that of the front wheel cylinders.

## PROPORTIONING VALVE

Brakes

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**MEMO**

**BR-12**