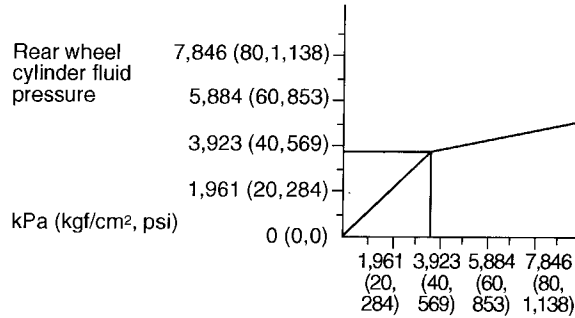


## 5. Proportioning Valve

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.

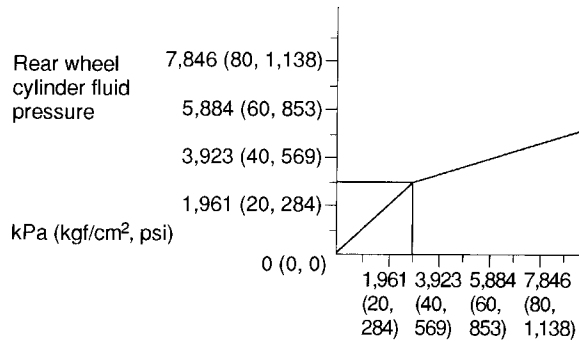
**Rear drum brake model and VDC model**



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

B4H2221B

**Rear disc brake model**



Master cylinder fluid pressure kPa (kgf/cm<sup>2</sup>, psi)  
 In case of split point 2,942 kPa (30 kgf/cm<sup>2</sup>, 427 psi)

B4H1942A

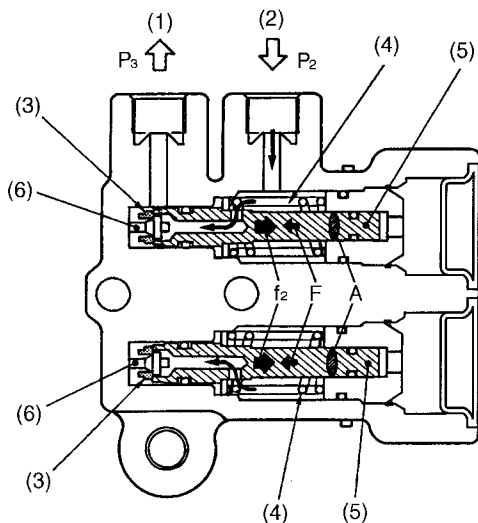


# PROPORTIONING VALVE

## Brakes

### 2) Operation at the split point pressure

When pressure " $P_2$ " increases to the split point pressure, force " $f_2$ " is generated. (Piston's 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.



H4H1399B

- |                            |            |
|----------------------------|------------|
| (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.