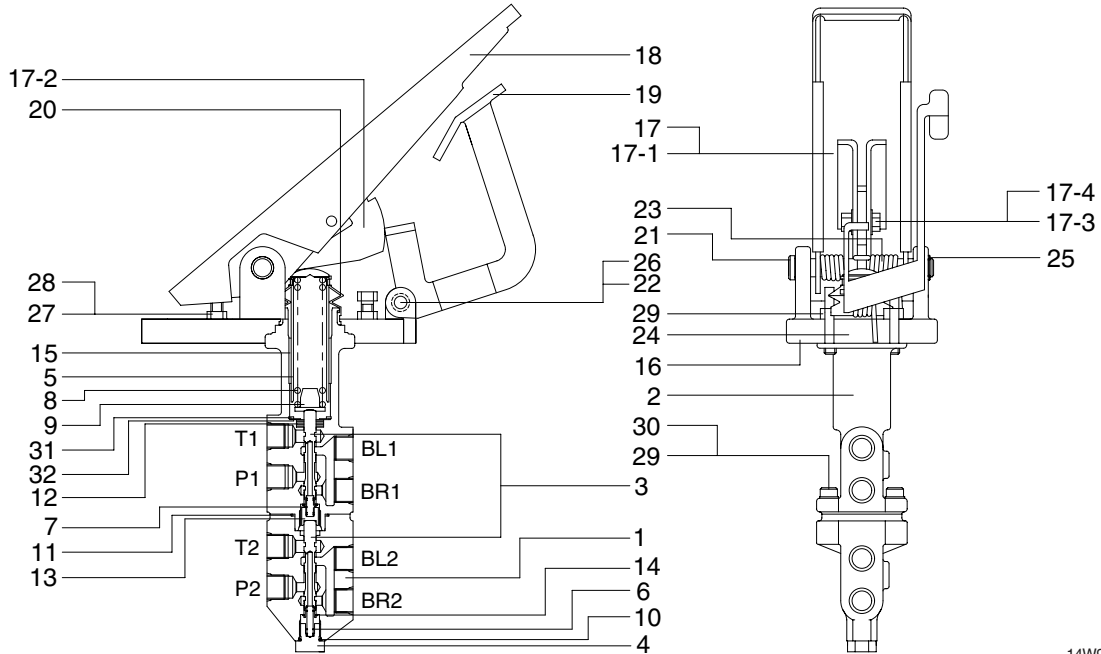


## GROUP 7 BRAKE PEDAL (VALVE)

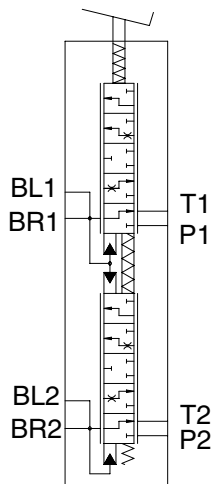
### 1. STRUCTURE

The casing (spacer) has the oil inlet port A (primary pressure), and the oil outlet port T (tank). In addition the secondary pressure is taken out through ports 1, 2, 3 and 4 provided at the bottom face.



14W92BV01

- |                   |                   |                     |
|-------------------|-------------------|---------------------|
| 1 Lower body      | 13 Spring Guide   | 21 Lock pin 1       |
| 2 Upper body      | 14 Snap ring      | 22 Lock pin 2       |
| 3 Spool           | 15 DU bushing     | 23 Torsion spring 1 |
| 4 Plug            | 16 Pedal plate    | 24 Torsion spring 2 |
| 5 Holder          | 17 Pedal assy     | 25 Retainer ring    |
| 6 Lower spring    | 17-1 Pedal        | 26 E-ring           |
| 7 Upper spring    | 17-2 Lock plate   | 27 Hex bolt         |
| 8 Main spring     | 17-3 Hex bolt     | 28 Hex nut          |
| 9 Spring retainer | 17-4 Plain washer | 29 Socket head bolt |
| 10 O-ring         | 18 Pedal cover    | 30 Spring washer    |
| 11 O-ring         | 19 Latch          | 31 Plat washer      |
| 12 Oil seal       | 20 Bellows        | 32 Retainer ring    |



14W72BV02

Port	Port name	Port size
P1	Port	PF 3/8
P2	Port	
BR1	Brake cylinder port	
BR2	Brake cylinder port	
BL1	Plugging	
BL2	Plugging	
T1	Drain port	
T2	Drain port	

## **2. FUNCTION**

### **1) PURPOSE**

The purpose of the brake valve is to sensitively increase and decrease the braking pressure when the brake pedal is actuated.

### **2) READY POSITION**

When the braking system is ready for operation, its accumulator pressure acts directly on port P1/P2 of the brake valve. A connection is established between ports BR1/BR2 and port T1/T2 so that the wheel brakes ports BR1/BR2 are pressureless via the returns ports T1/T2.

### **3) PARTIAL BRAKING**

When the brake valve is actuated, an amount of hydraulic pressure is output as a ratio of the foot force applied.

The spring assembly (8) beneath pedal plate (16) is designed in such a way that the braking pressure changes depending on the angle. In the lower braking pressure range, the machine can be slowed sensitively.

When the braking process is commenced, the upper spool (3) is mechanically actuated via spring assembly (8), and the lower spool (3) is actuated hydraulically by spool (3). As spools (3) move downward, they will first close returns T1/T2 via the control edges, thus establishing a connection between accumulator port P1/P2 and ports BR1/BR2 for the wheel brake cylinders. The foot force applied now determines the output braking pressure. The control spools (3) are held in the control position by the force applied (spring assembly) above the spools and the hydraulic pressure below the spool (balance of forces).

After output of the braking pressure, spools (3) are in a partial braking position, causing ports P1/P2 and T1/T2 to close and holding the pressure in ports BR1/BR2.

### **4) FULL BRAKING POSITION**

When pedal (17) is fully actuated, an end position of the brakes is reached and a connection established between accumulator ports P1/P2 and brake cylinder ports BR1/BR2. Returns T1/T2 are closed at this point.

When the braking process ended, a connection is once again established between brake cylinder ports BR1/BR2 and return ports T1/T2, closing accumulator ports P1/P2.

The arrangement of spools in the valve ensures that even if one braking circuit fails the other remains fully operational. This is achieved by means of the mechanical actuation of both spools and requires slightly more pedal travel.

### **5) LIMITING THE BRAKING PRESSURE**

Pedal restriction screw (29) on pedal plate (16) below pedal (17) is used to limit the braking pressure.

### **6) FAILURE OF A CIRCUIT**

In the event of the lower circuit failing, the upper circuit will remain operational. Spring assembly (8) will mechanically actuate spool (3). In the event of the upper circuit failing, the lower circuit will remain operational since the lower spool (3) is mechanically actuated by spring assembly (8) and spool (3).