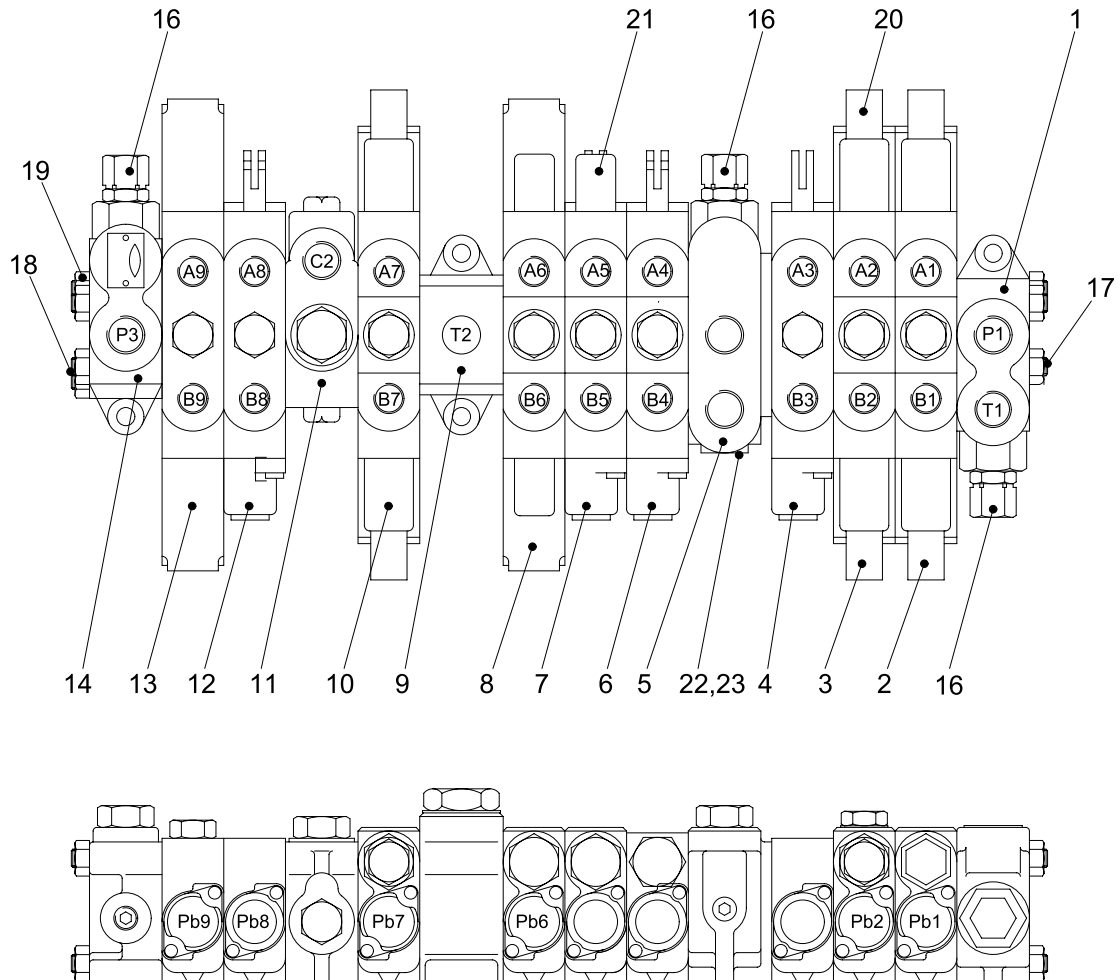


## GROUP 3 MAIN CONTROL VALVE

### A. MAIN CONTROL VALVE (SC 3A, UP TO #0616)

#### 1. DOZER MANUAL OPERATED TYPE (UP TO #0580)



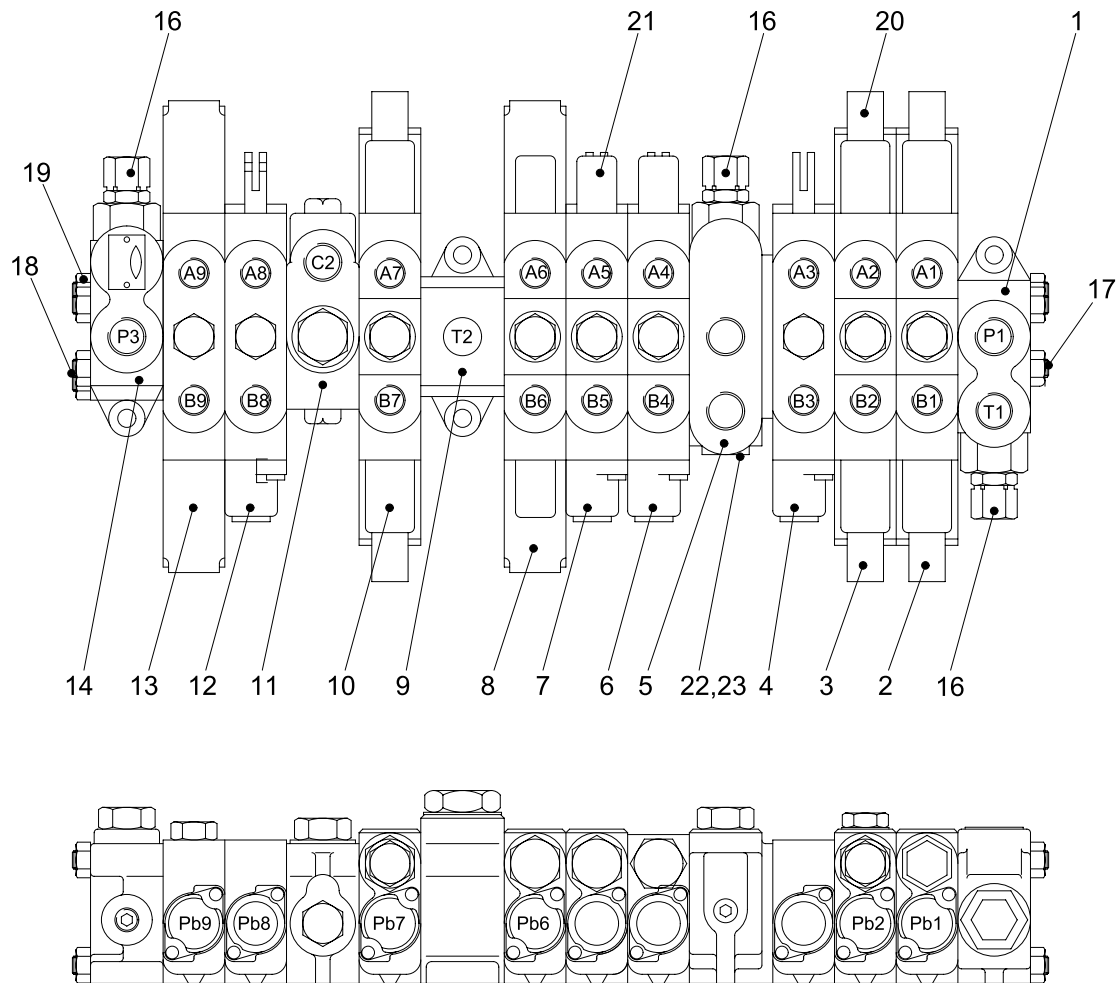
### SPECIFICATIONS

R55NM2SF15

- Type : 9 spool
- Main relief pressure : 210 kg/cm<sup>2</sup>
- Overload relief pressure : 230 kg/cm<sup>2</sup>

1	Inlet body	13	Work body assembly (Boom 2)
2	Work body assembly (Bucket)	14	Inlet body
3	Work body assembly (Boom 1)	15	O-ring 1B G55 (Section)
4	Work body assembly (TR, R)	16	Relief valve assembly
5	Inlet body	17	Bolt, L=313
6	Work body assembly (Dozer)	18	Bolt, L=205
7	Work body assembly (Swivel)	19	Nut, M8
8	Work body assembly (Swing)	20	Over load relief valve assembly
9	Outlet body	21	Anti-cavitation valve assembly
10	Work body assembly (Arm)	22	Plug PF 1/4
11	Inlet body assembly	23	O-ring 1B P11
12	Work body assembly (TR, L)		

## 2. DOZER PILOT OPERATED TYPE (#0581 TO #0616)



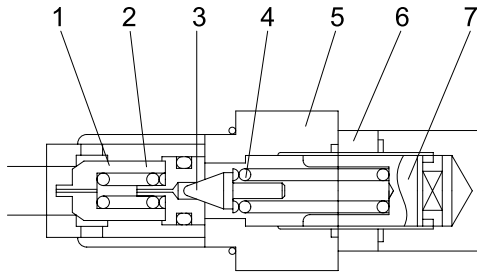
R55NM2SF16

### SPECIFICATIONS

- Type : 9 spool
- Main relief pressure : 210 kg/cm<sup>2</sup>
- Overload relief pressure : 230 kg/cm<sup>2</sup>

- |    |                             |    |                                 |
|----|-----------------------------|----|---------------------------------|
| 1  | Inlet body                  | 13 | Work body assembly (Boom 2)     |
| 2  | Work body assembly (Bucket) | 14 | Inlet body                      |
| 3  | Work body assembly (Boom 1) | 15 | O-ring 1B G55 (Section)         |
| 4  | Work body assembly (TR, R)  | 16 | Relief valve assembly           |
| 5  | Inlet body                  | 17 | Bolt, L=313                     |
| 6  | Work body assembly (Dozer)  | 18 | Bolt, L=205                     |
| 7  | Work body assembly (Swivel) | 19 | Nut, M8                         |
| 8  | Work body assembly (Swing)  | 20 | Over load relief valve assembly |
| 9  | Outlet body                 | 21 | Anti-cavitation valve assembly  |
| 10 | Work body assembly (Arm)    | 22 | Plug PF 1/4                     |
| 11 | Inlet body assembly         | 23 | O-ring 1B P11                   |
| 12 | Work body assembly (TR, L)  |    |                                 |

### 3. MAIN RELIEF VALVE

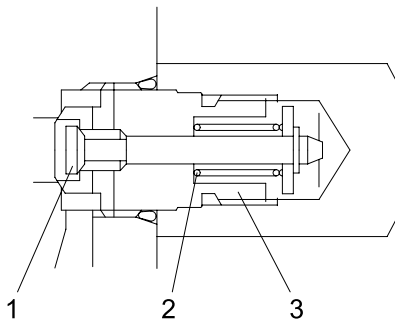


R55NM2SF37

- 1 Main valve
- 2 Main valve spring
- 3 Pilot poppet
- 4 Pilot poppet spring
- 5 Sleeve
- 6 Locknut
- 7 Adjustment screw

Set pressure : See hydraulic circuit diagram

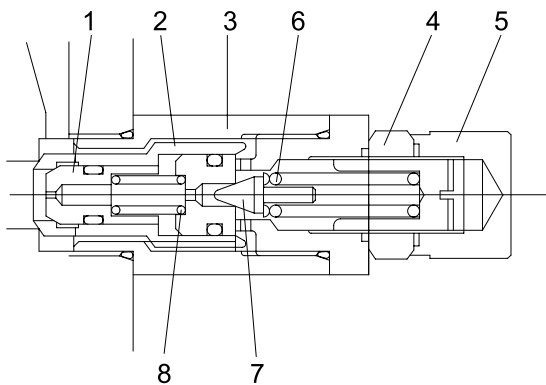
### 4. ANTI-CAVITATION VALVE



R55NM2SF38

- 1 Valve
- 2 Valve spring
- 3 Sleeve

### 5. OVERLOAD RELIEF VALVE ASSEMBLY

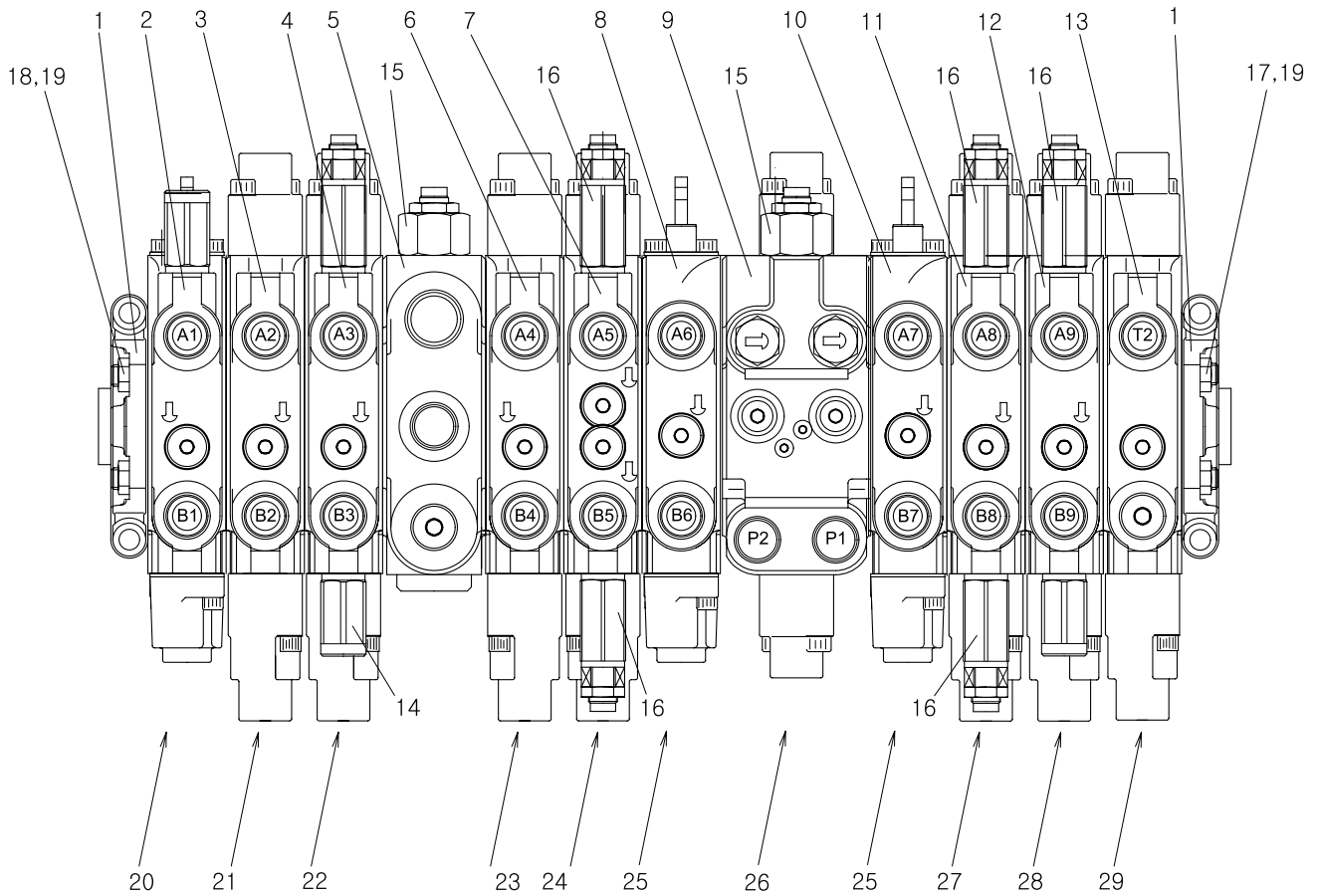


R55NM2SF39

- 1 Safety valve main valve
- 2 Suction valve
- 3 Sleeve
- 4 Locknut
- 5 Plug
- 6 Safety valve pilot poppet spring
- 7 Safety valve pilot poppet
- 8 Safety valve main valve spring

## B. MAIN CONTROL VALVE (BCV65, #0617 AND UP)

### 1. STRUCTURE

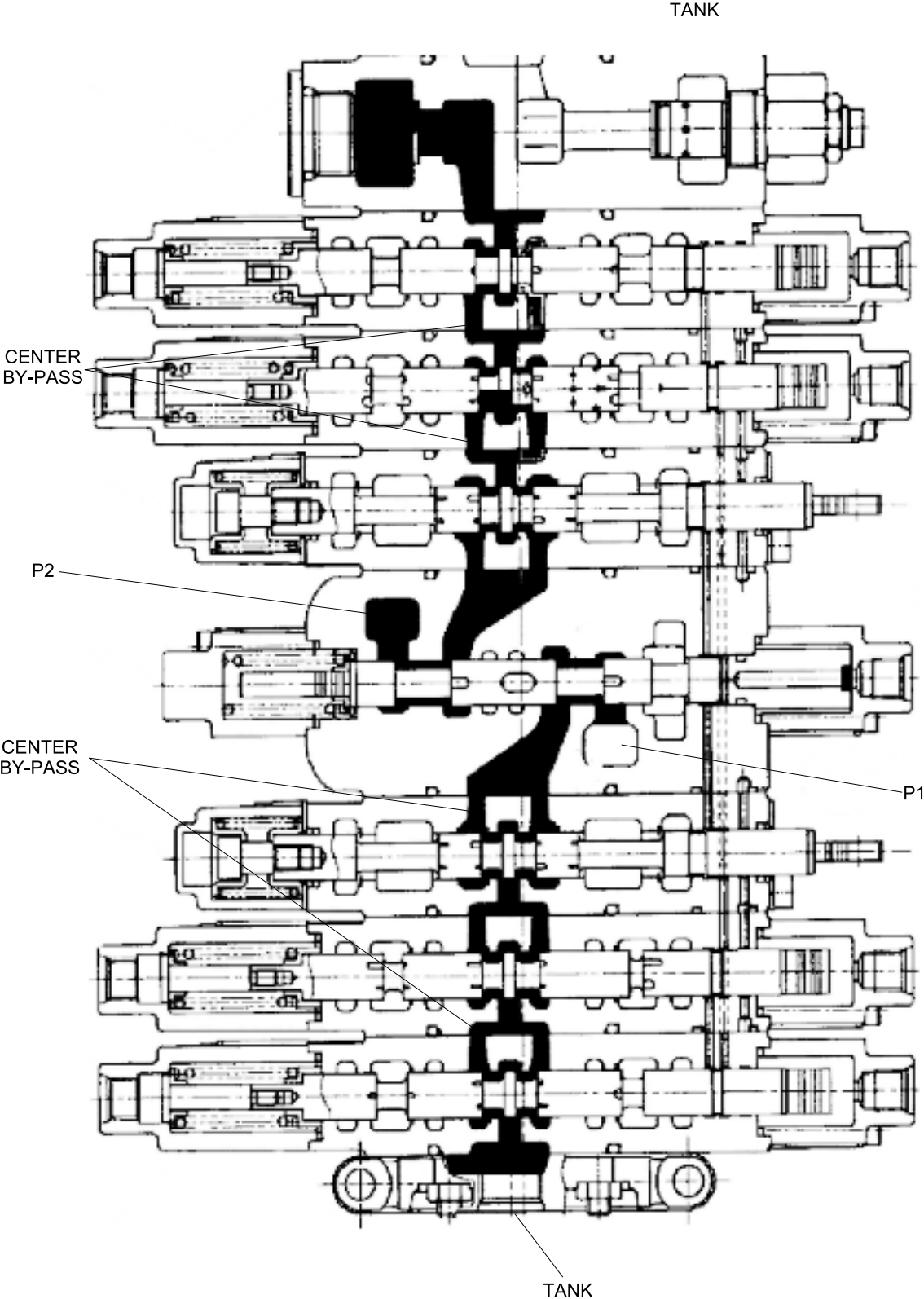


R55NM2SF60

- |    |                               |    |                              |
|----|-------------------------------|----|------------------------------|
| 1  | T-Cover                       | 16 | Overload relief v/v assembly |
| 2  | Block assembly (Boom swing)   | 17 | Tie bolt                     |
| 3  | Block assembly (Swing)        | 18 | Tie bolt                     |
| 4  | Block assembly (Dozer)        | 19 | Nut                          |
| 5  | Block assembly (Inlet-P3)     | 20 | Spool assembly (Boom swing)  |
| 6  | Block assembly (Boom2)        | 21 | Spool assembly (Swing)       |
| 7  | Block assembly (Arm1)         | 22 | Spool assembly (Dozer)       |
| 8  | Block assembly (TR)           | 23 | Spool assembly (Boom2)       |
| 9  | Block assembly (Inlet-P1, P2) | 24 | Spool assembly (Arm1)        |
| 10 | Block assembly (TR)           | 25 | Spool assembly (TR)          |
| 11 | Block assembly (Boom1)        | 26 | Spool assembly (T.S)         |
| 12 | Block assembly (Bucket)       | 27 | Spool assembly (Boom1)       |
| 13 | Block assembly (Arm2)         | 28 | Spool assembly (Bucket)      |
| 14 | Anti-cavitation assembly      | 29 | Spool assembly (Arm2)        |
| 15 | Main relief v/v assembly      |    |                              |

**2. FUNCTION**

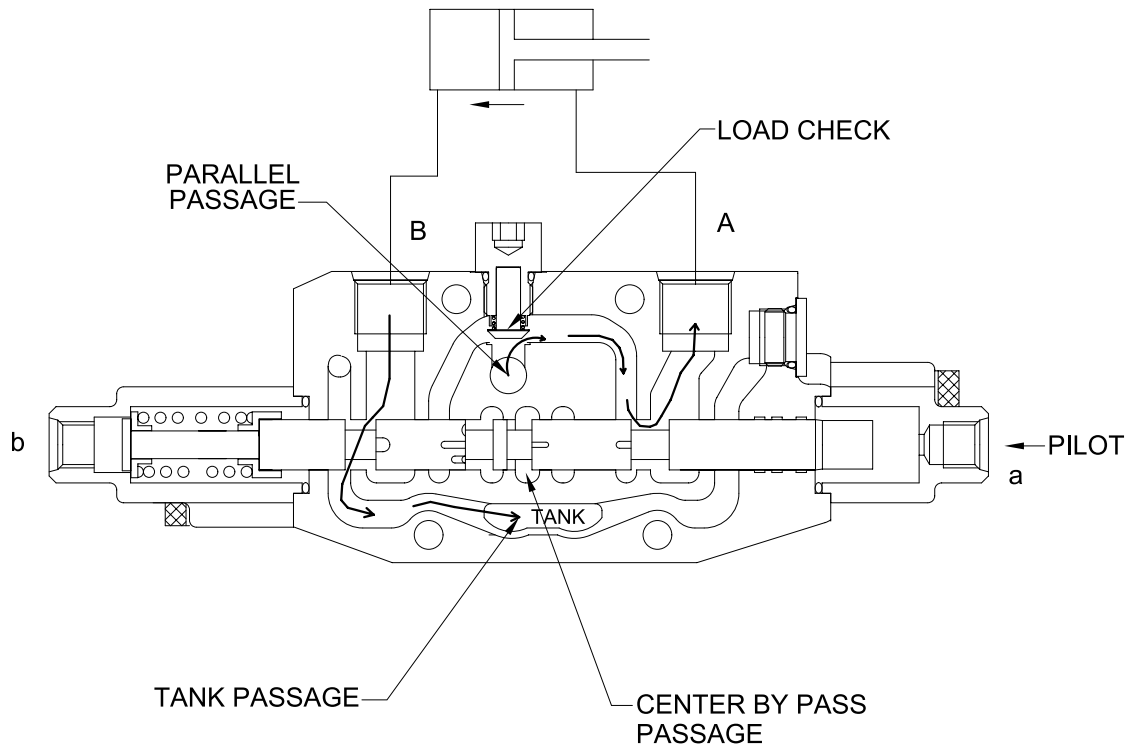
**1) NEUTRAL POSITION OF SPOOL**



R55NM2SF36A

In neutral, spring sets the plunger at the neutral position, oil from the pump flows to the tank through the center bypass.

## 2) OPERATION OF PLUNGER (General)

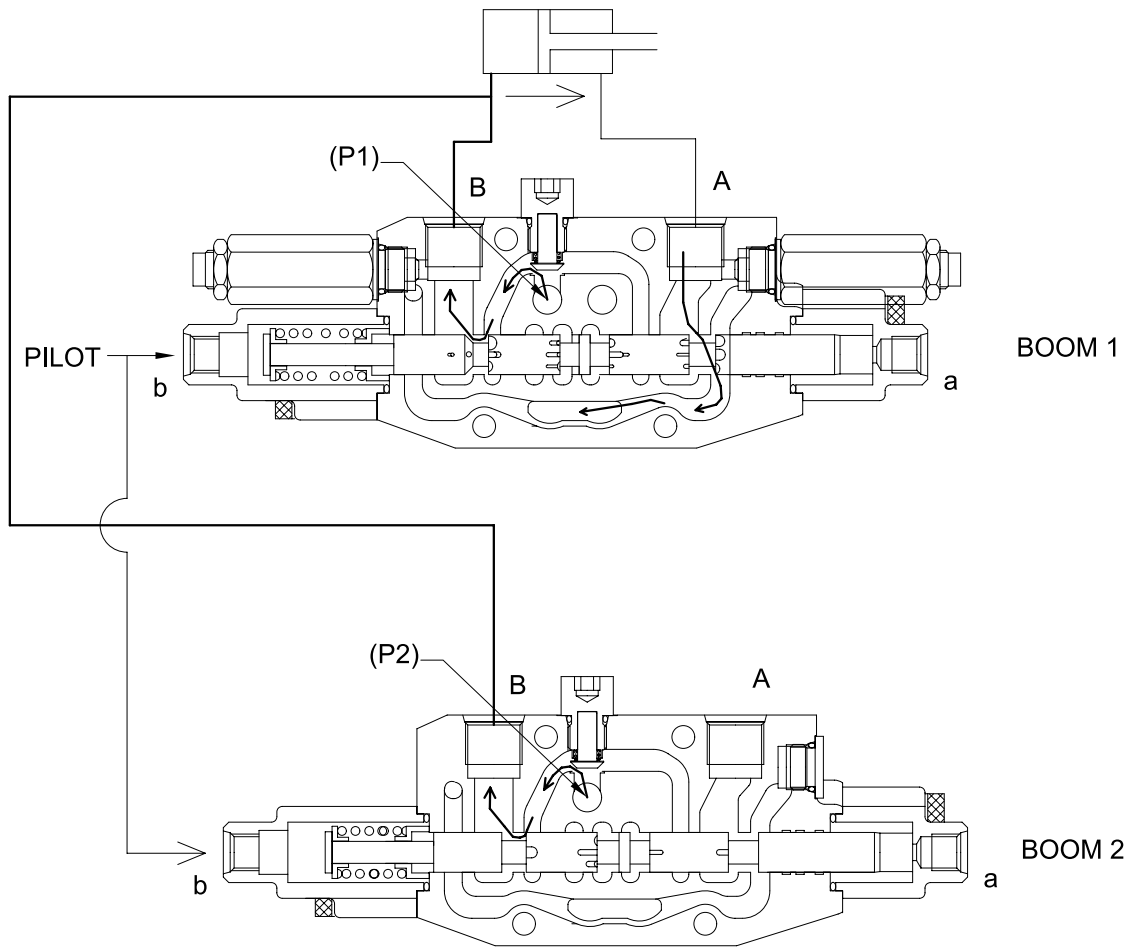


R55NM2SF40

When the pilot pressure is applied to **a** the plunger moves to the left and the center bypass is shut off. At the same time, pressurized oil from the parallel passage flows into the cylinder port A via load check valve. The return oil from the cylinder port B flows into the tank.

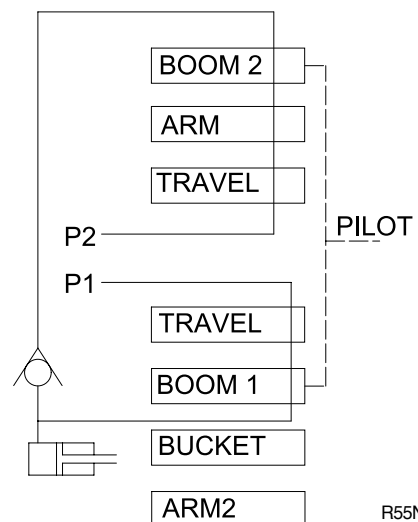
The opposite operation is similar.

### 3) OPERATION OF BOOM UP (Summation)



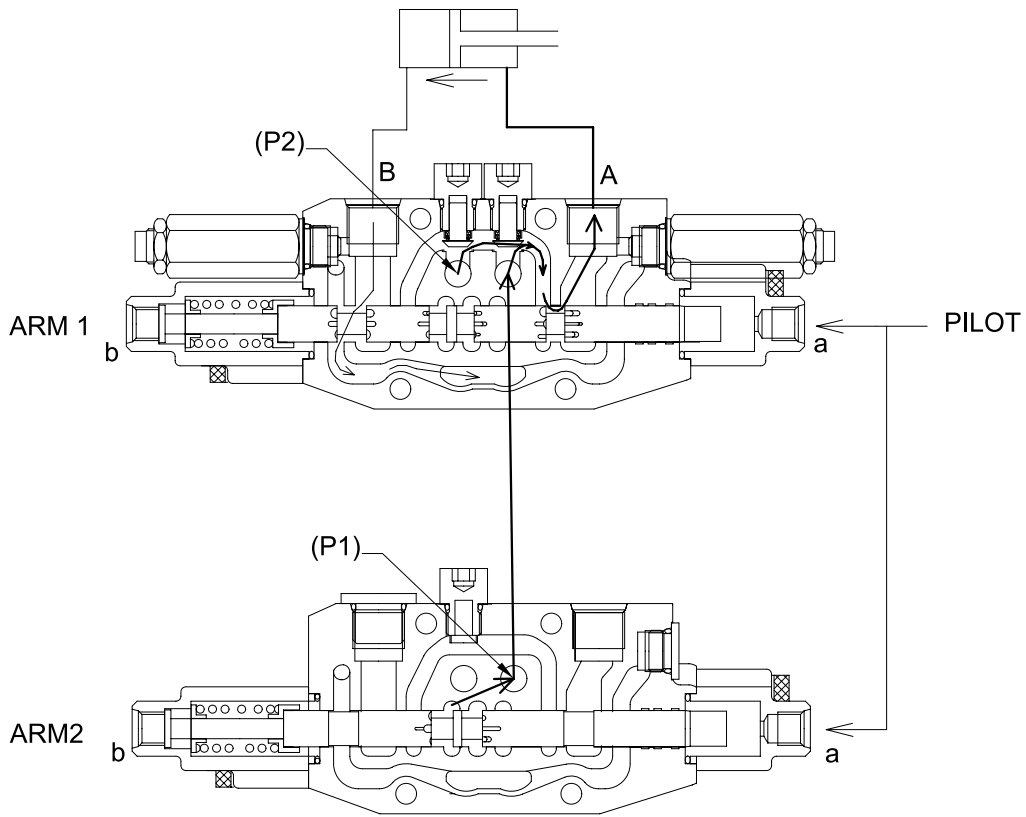
R55NM2SF41

When the pilot pressure is applied to **b** boom1 & boom2 plungers move to the right, then the pressurized oil from pump P1 flows into the boom cylinder via boom1 section; the pressurized oil from pump P2 via boom2 section joins the flow from the boom1 section via check valve.



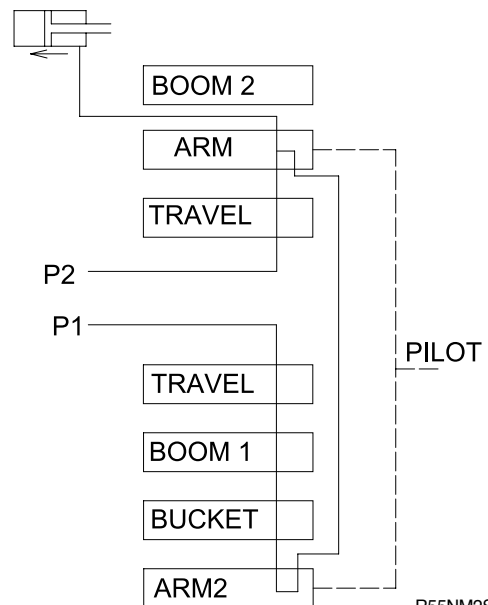
R55NM2SF42

#### 4) OPERATION OF ARM ROLL IN/OUT (Summation)



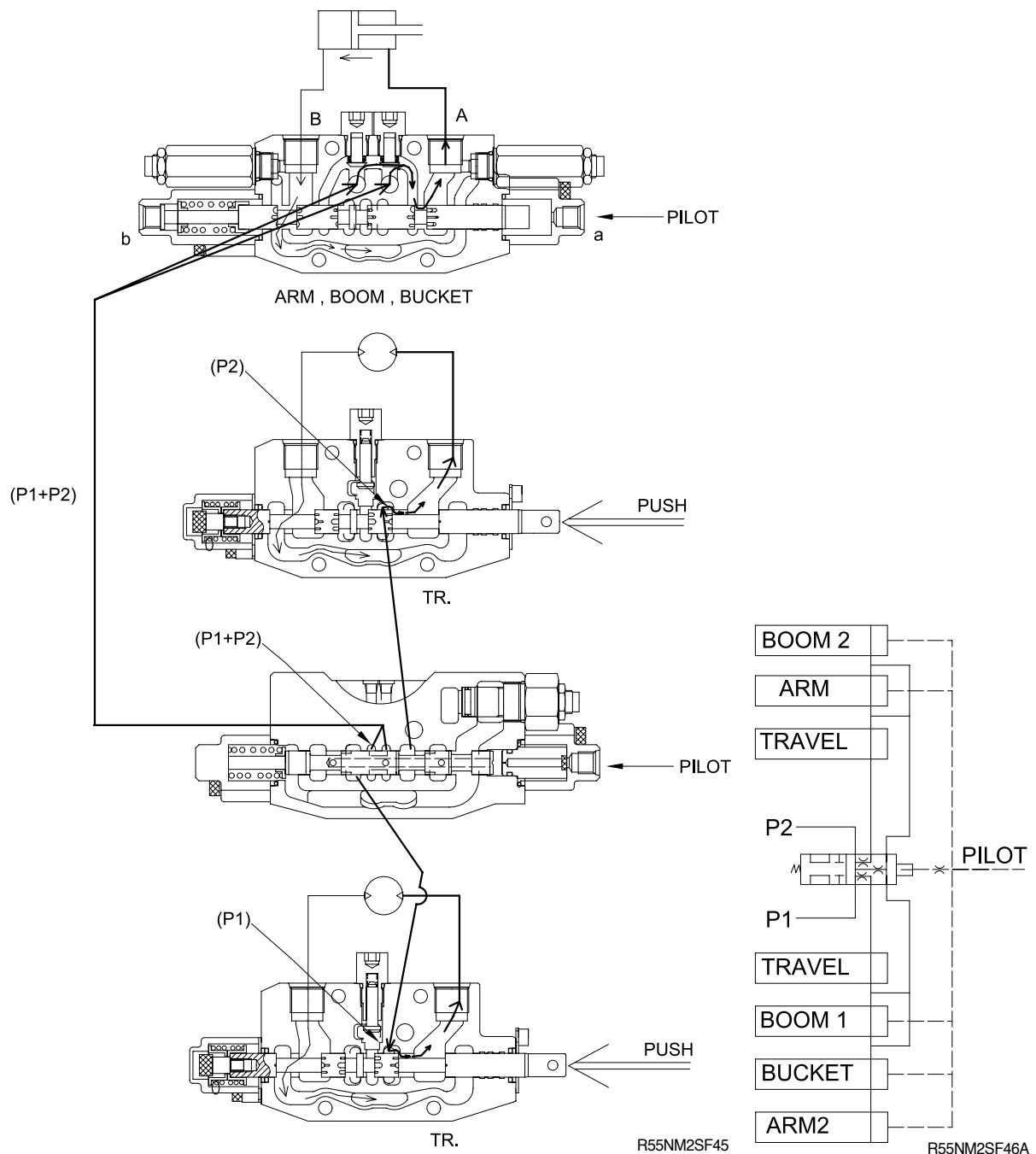
R55NM2SF43

When the pilot pressure is applied to **a** arm1 & arm2 plungers move to the left, then the pressurized oil from pump P2 flows into the arm cylinder via arm1 section. At the same time, the pressurized oil from pump P1 via arm2 section flows into the arm1 plunger through the inner parallel line of the MCV.



R55NM2SF44

## 5) COMBINED TRAVEL AND ARM, BOOM, BUCKET



When the other actuator spool(s) is selected under straight travel operation, the straight travel spool is moved.

The hydraulic fluid from pump P1 is supplied actuator through P1 and P2 parallel pass and travel motors through orifice at side of straight travel spool.

The hydraulic oil fluid from pump P2 is supplied to travel motors(left/right).

Therefore, the other actuator operation with straight travel operation, hydraulic oil fluid from pump P1 is mainly supplied to actuator, and the hydraulic oil fluid form pump P2 is mainly supplied to travel motors(left/right).

Then the machine keeps straight travel.