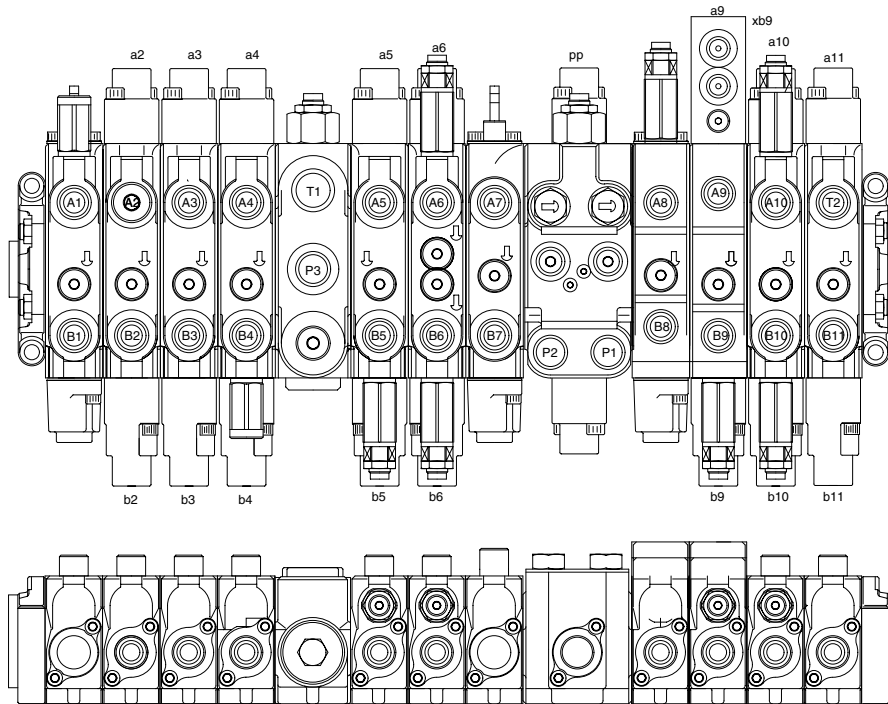


GROUP 2 MAIN CONTROL VALVE

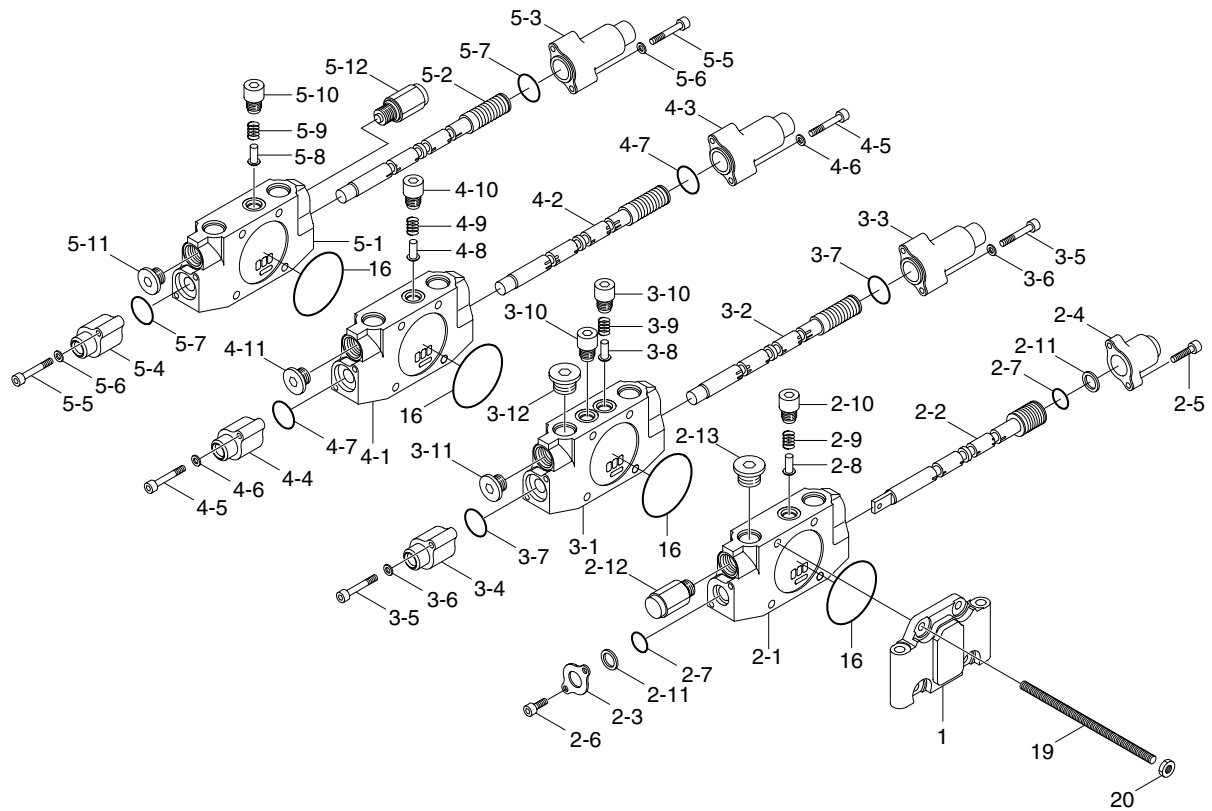
1. OUTLINE



R5572SF20

Mark	Port name	Port size	Tightening torque	Mark	Port name	Port size	Tightening torque
P1	P1 pump port	PF 1/2	6.0~7.0 kgf · m	A10	Bucket out port	PF 1/2	6.0~7.0 kgf · m
P2	P2 pump port			B10	Bucket in port		
P3	P3 pump port			B11	Arm 2 port		
A1	Option port			T2	Tank return port	PF1	10~12 kgf · m
B1	Option port			T1	Tank return port		
A2	Boom swing(RH) port			a2	Boom swing (RH) pilot port	PF 1/4	2.5~3.0 kgf · m
B2	Boom swing(LH) port			b2	Boom swing (LH) pilot port		
A3	Swing (LH) port			a3	Swing (RH) pilot port		
B3	Swing (RH) port			b3	Swing (RH) pilot port		
A4	Dozer down port			a4	Dozer down pilot port		
B4	Dozer up port			b4	Dozer up pilot port		
A5	Boom 2 port			a5	Boom 2 pilot port		
B5	Breaker port			b5	Breaker pilot port		
A6	Arm out port			a6	Arm out pilot port		
B6	Arm in port			b6	Arm in pilot port		
A7	Travel [LH/FW] port			a9	Boom up pilot port		
B7	Travel [LH/RR] port			b9	Boom down pilot port		
A8	Travel [RH/FW] port			a10	Bucket out pilot port		
B8	Travel [RH/RR] port			b10	Bucket in pilot port		
A9	Boom up port			a11	Arm 2 pilot port		
B9	Boom down port			b11	Arm 2 pilot port		

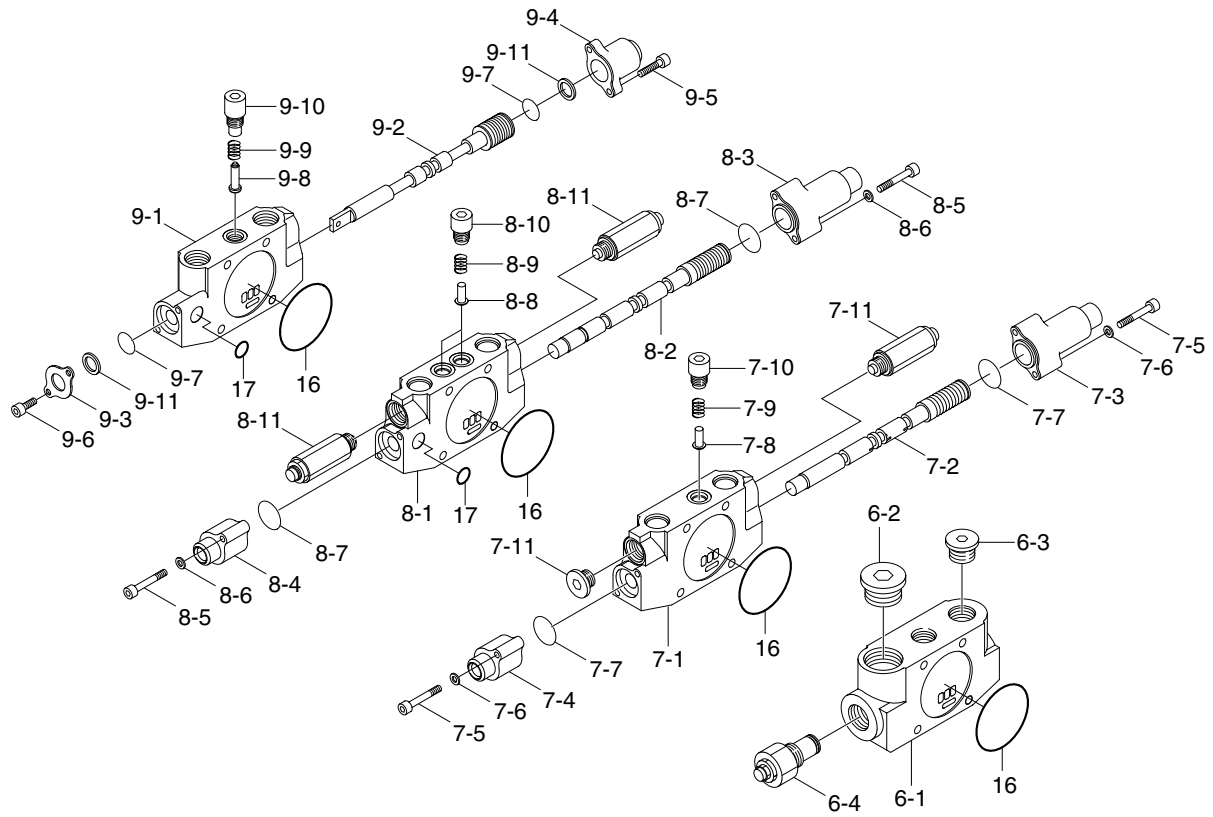
2. STRUCTURE(1/4)



R5572SF23

1	End cover	3-4	Pilot cap(B1)	4-10	Plug assy
2	Option block	3-5	Wrench bolt	4-11	Plug assy
2-1	Work block	3-6	Washer	5	Dozer block
2-2	Option spool assy	3-7	O-ring	5-1	Work block
2-3	Seal plate	3-8	Check poppet	5-2	Dozer spool assy
2-4	Return cap	3-9	Check spring	5-3	Pilot cap(A)
2-5	Wrench bolt	3-10	Plug assy	5-4	Pilot cap(B1)
2-6	Wrench bolt	3-11	Plug assy	5-5	Wrench bolt
2-7	O-ring	3-12	Plug assy	5-6	Washer
2-8	Check poppet	4	Swing block	5-7	O-ring
2-9	Check spring	4-1	Work block	5-8	Check poppet
2-10	Plug assy	4-2	Swing spool assy	5-9	Check spring
2-11	Dust wiper	4-3	Pilot cap(A)	5-10	Plug assy
2-12	Anti-cavitation valve	4-4	Pilot cap(B1)	5-11	Plug assy
2-13	Plug assy	4-5	Wrench bolt	5-12	Anti-cavitation valve
3	Boom swing block	4-6	Washer	16	O-ring
3-1	Work block	4-7	O-ring	19	Tie bolt
3-2	Boom swing spool assy	4-8	Check poppet	20	Nut
3-3	Pilot cap(A)	4-9	Check spring		

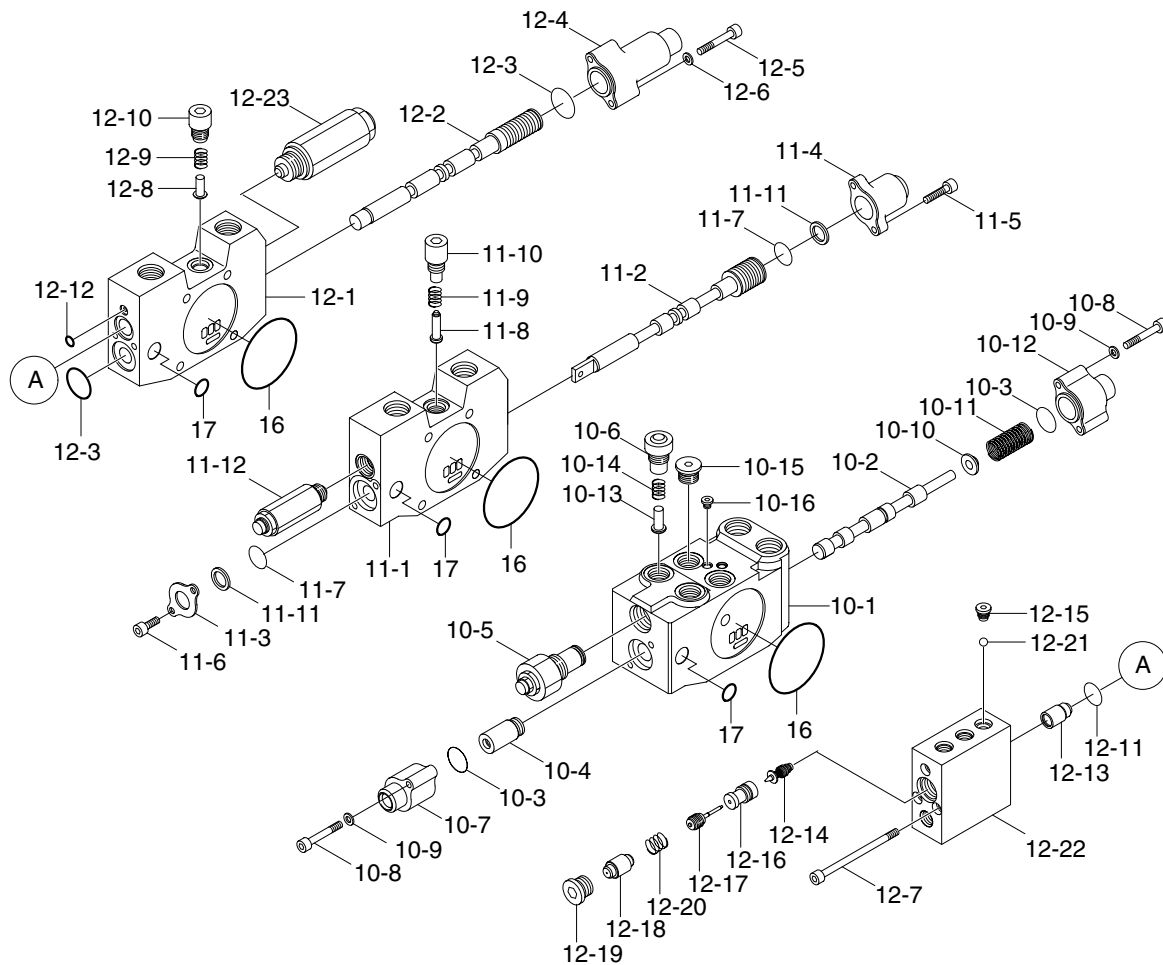
STRUCTURE(2/4)



R5572SF24

6	Inlet block	7-10	Plug assy	9	Travel block
6-1	Work block	7-11	Relief valve	9-1	Work block
6-2	Plug assy	8	Arm 1 block	9-2	Travel spool assy
6-3	Plug assy	8-1	Work block	9-3	Seal plate
6-4	Main relief valve	8-2	Arm 1 spool assy	9-4	Return cap
7	Boom 2 block	8-3	Pilot cap(A)	9-5	Wrench bolt
7-1	Work block	8-4	Pilot cap(B1)	9-6	Wrench bolt
7-2	Boom 2 spool assy	8-5	Wrench bolt	9-7	O-ring
7-3	Pilot cap(A)	8-6	Washer	9-8	Check poppet
7-4	Pilot cap(B1)	8-7	O-ring	9-9	Check spring
7-5	Wrench bolt	8-8	Check poppet	9-10	Plug 2 assy
7-6	Washer	8-9	Check spring	9-11	Dust wiper
7-7	O-ring	8-10	Plug assy	16	O-ring
7-8	Check poppet	8-11	Relief valve	17	O-ring
7-9	Check spring				

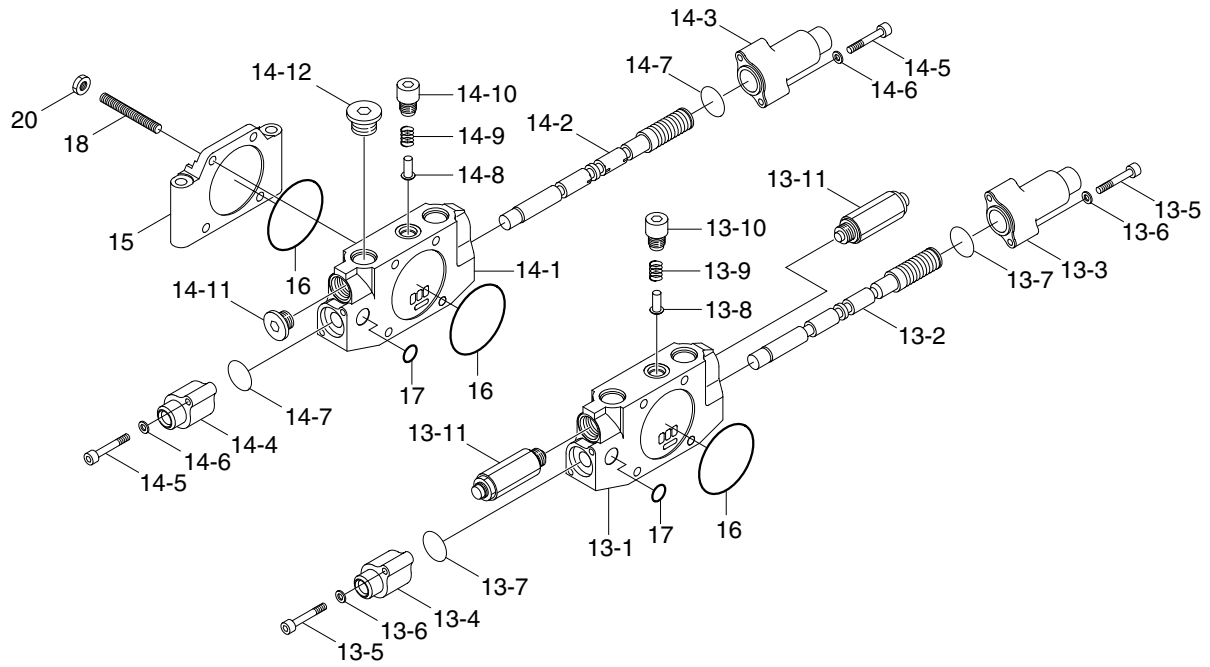
STRUCTURE(3/4)



R5572SF25

10	Travel block	11-2	Travel spool assy	12-8	Check poppet
10-1	Work block	11-3	Seal plate	12-9	Check spring
10-2	Travel straight spool assy	11-4	Return cap	12-10	Plug assy
10-3	O-ring	11-5	Wrench bolt	12-11	O-ring
10-4	Filter assy	11-6	Wrench bolt	12-12	O-ring
10-5	Main relief valve	11-7	O-ring	12-13	Holding poppet assy
10-6	Plug 3 assy	11-8	Check poppet	12-14	Pilot poppet
10-7	Pilot cap(B1)	11-9	Check spring	12-15	Plug assy
10-8	Wrench bolt	11-10	Plug 2 assy	12-16	Piston guide assy
10-9	Washer	11-11	Dust wiper	12-17	Piston
10-10	Spring seat	11-12	Relief valve	12-18	Pilot piston
10-11	Pilot spring	12	Boom 1 block	12-19	Plug assy
10-12	Pilot cap(B2)	12-1	Work block	12-20	Spring
10-13	Check poppet	12-2	Boom 1 spool assy	12-21	Steel ball
10-14	Check spring	12-3	O-ring	12-22	Pilot cover
10-15	Plug assy	12-4	Pilot cap(A)	12-23	Relief valve
10-16	Wrench bolt	12-5	Wrench bolt	16	O-ring
11	Travel block	12-6	Washer	17	O-ring
11-1	Work block	12-7	Wrench bolt		

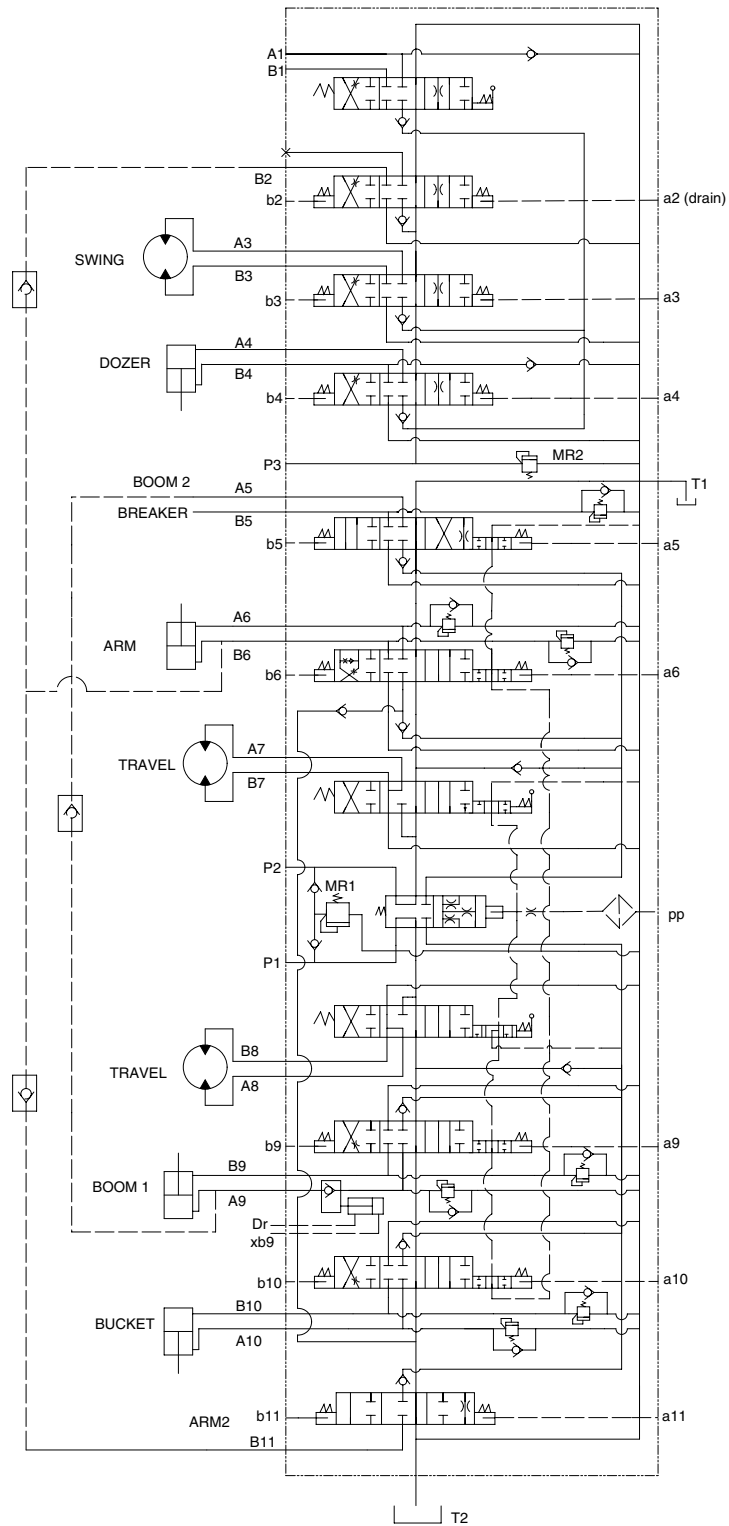
STRUCTURE(4/4)



R5572SF26

13	Bucket block	13-10	Plug assy	14-8	Check poppet
13-1	Work block	13-11	Relief valve	14-9	Check spring
13-2	Bucket spool assy	14	Arm 2 block	14-10	Plug assy
13-3	Pilot cap(A)	14-1	Work block	14-11	Plug assy
13-4	Pilot cap(B1)	14-2	Arm 2 spool assy	14-12	Plug assy
13-5	Wrench bolt	14-3	Pilot cap(A)	15	End cover
13-6	Washer	14-4	Pilot cap(B1)	16	O-ring
13-7	O-ring	14-5	Wrench bolt	17	O-ring
13-8	Check poppet	14-6	Washer	18	Tie bolt
13-9	Check spring	14-7	O-ring	20	Nut

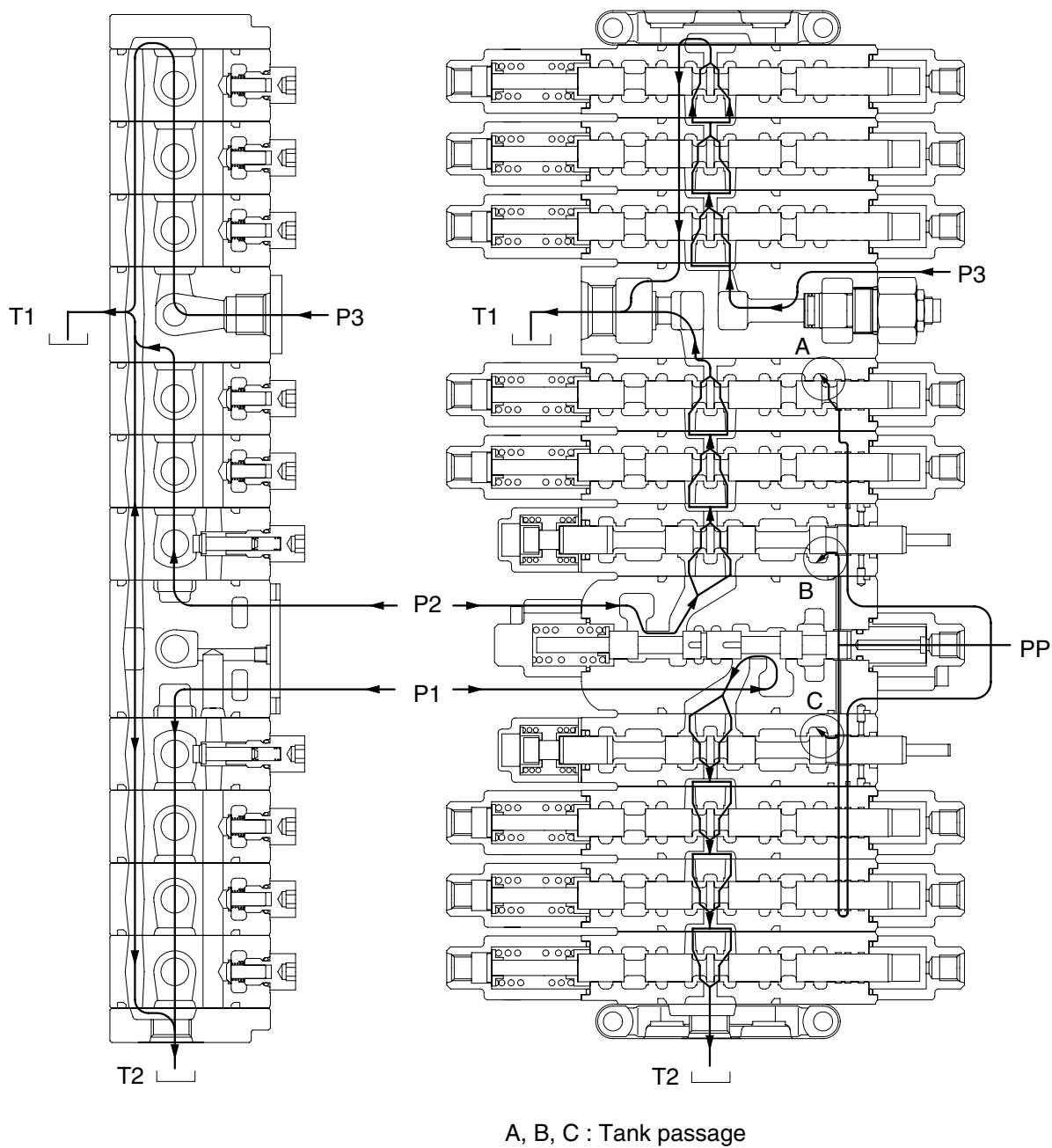
3. HYDRAULIC CIRCUIT



R5572SF21

4. FUNCTION

1) CONTROL IN NEUTRAL FUNCTION

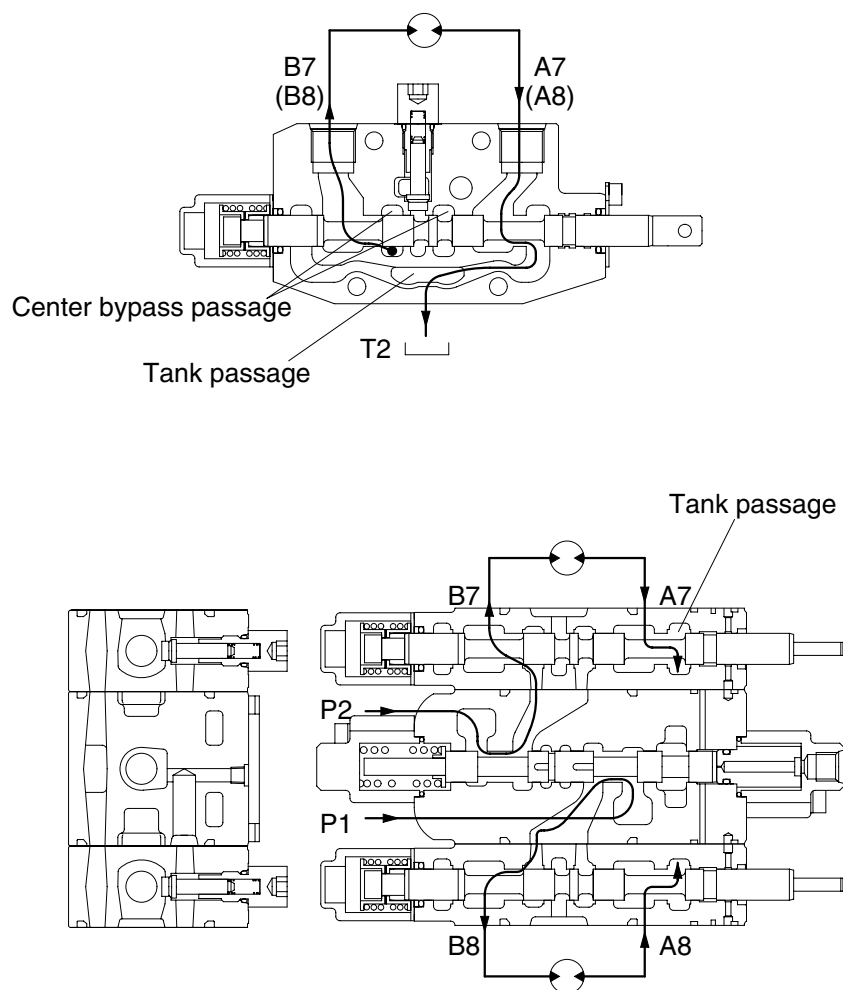


R5572MCV01

In neutral, spring sets the spool at the neutral position, the hydraulic oil from pumps flow to the tank through the center bypass.

2) EACH SPOOL OPERATION

(1) TRAVEL OPERATION



R5572MCV02

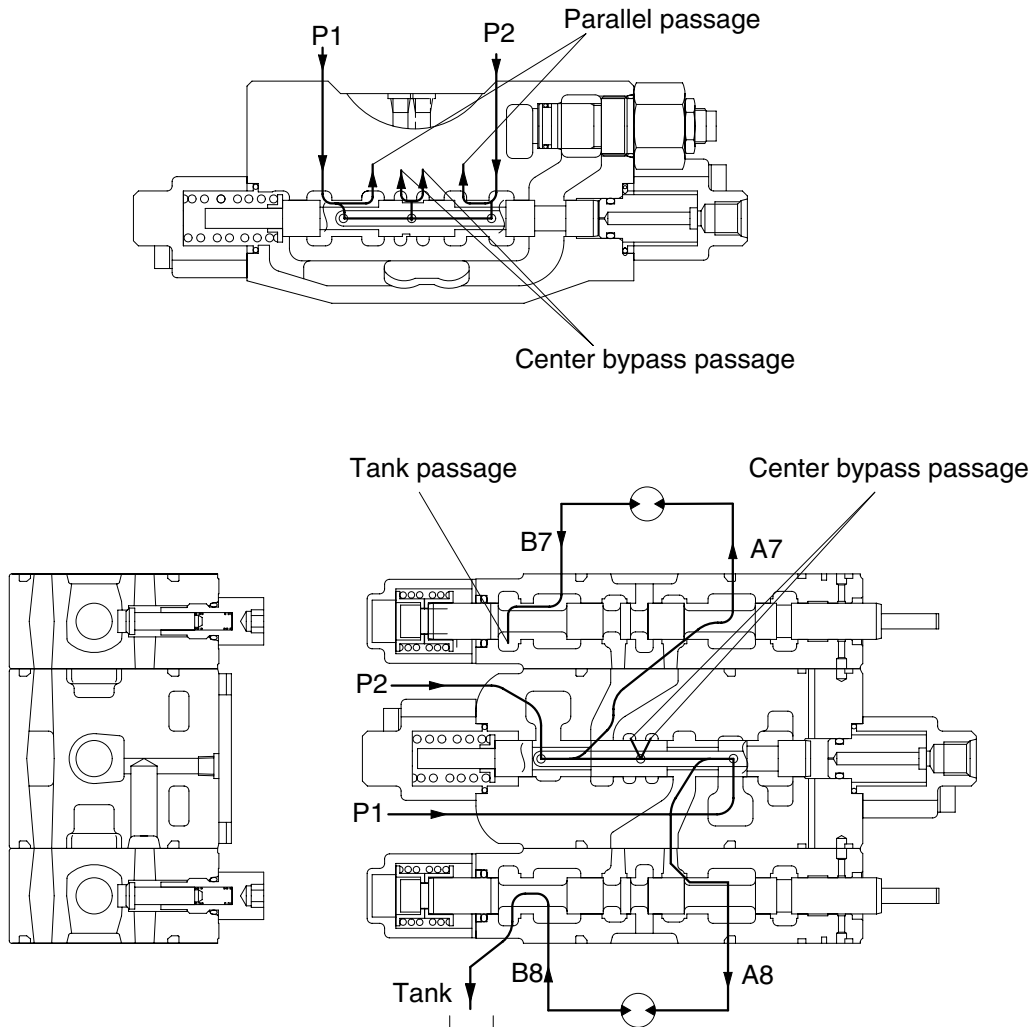
During the travel operation, the hydraulic fluid of the pump P1 is supplied to the travel motor and the hydraulic fluid of the pump P2 is supplied to the other travel motor.

The travel lever shifts travel right and left spools in the left direction against springs. Hydraulic fluid from the pump P2 flow into the travel left spool through the bypass passage and hydraulic fluid from the pump P1 flow into the travel right spool through the bypass passage.

Then they are directed to the each travel motor through port B7 and B8. As a result, the travel motors turn and hydraulic fluid returns to the tank passage through the travel spools.

In case of the opposite operation, the operation is similar.

(2) TRAVEL STRAIGHT FUNCTION



R5572MCV03

This function keeps straight travel in case of simultaneous operation of other actuators(boom, arm, bucket, swing) during a straight travel.

① During travel only :

The hydraulic fluid of the pump P1 is supplied to the travel motor and the pump P2 is supplied to the other motor.

Thus, the machine keep travel straight.

② The other actuator operation during straight travel operation :

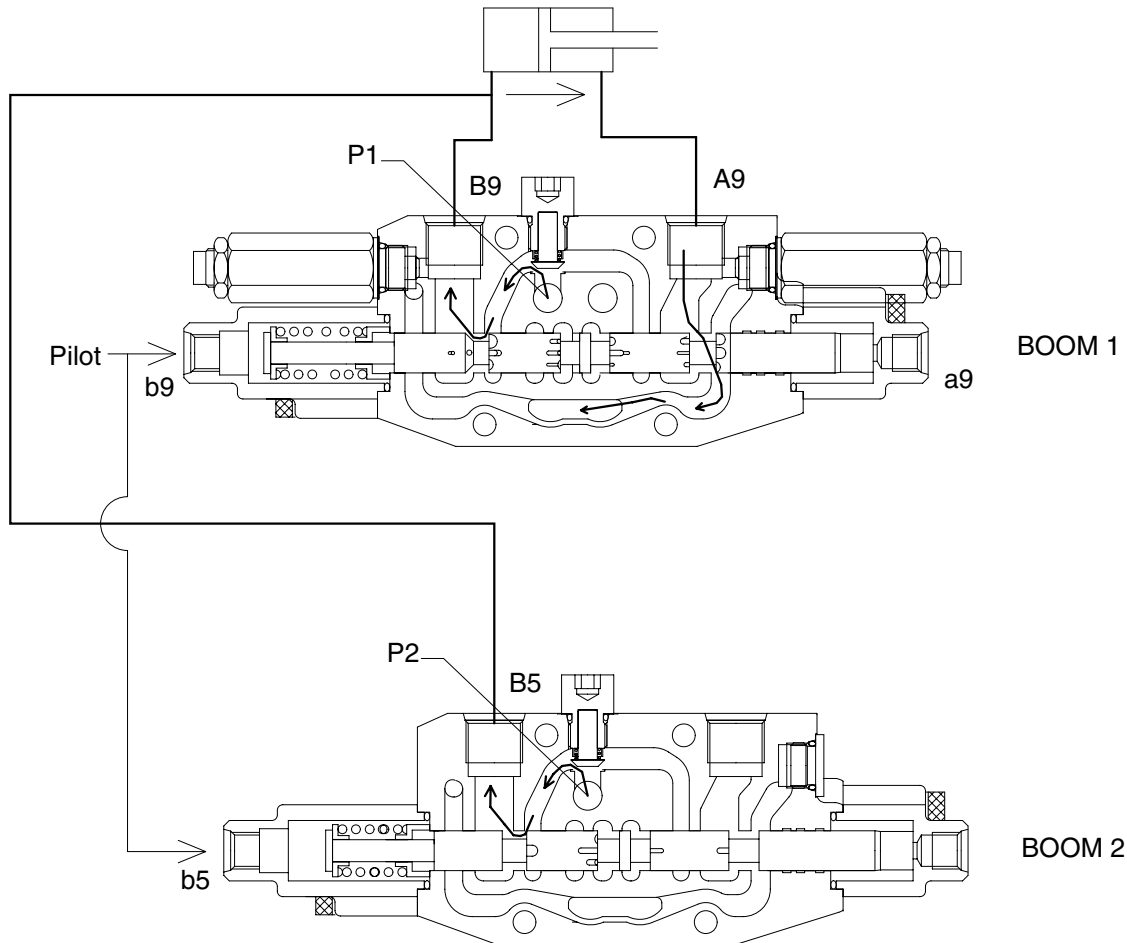
When the other actuator spool(s) is selected under straight travel operation, the straight travel spool is moved.

Some of hydraulic fluid from pump P1 and P2 is supplied to the travel motors through parallel passage and the other hydraulic fluid is supplied to the actuator(s) through center bypass passage via orifice passage.

Thus, the machine keeps straight travel.

(3) BOOM OPERATION

① Boom up operation



R5572MCV04

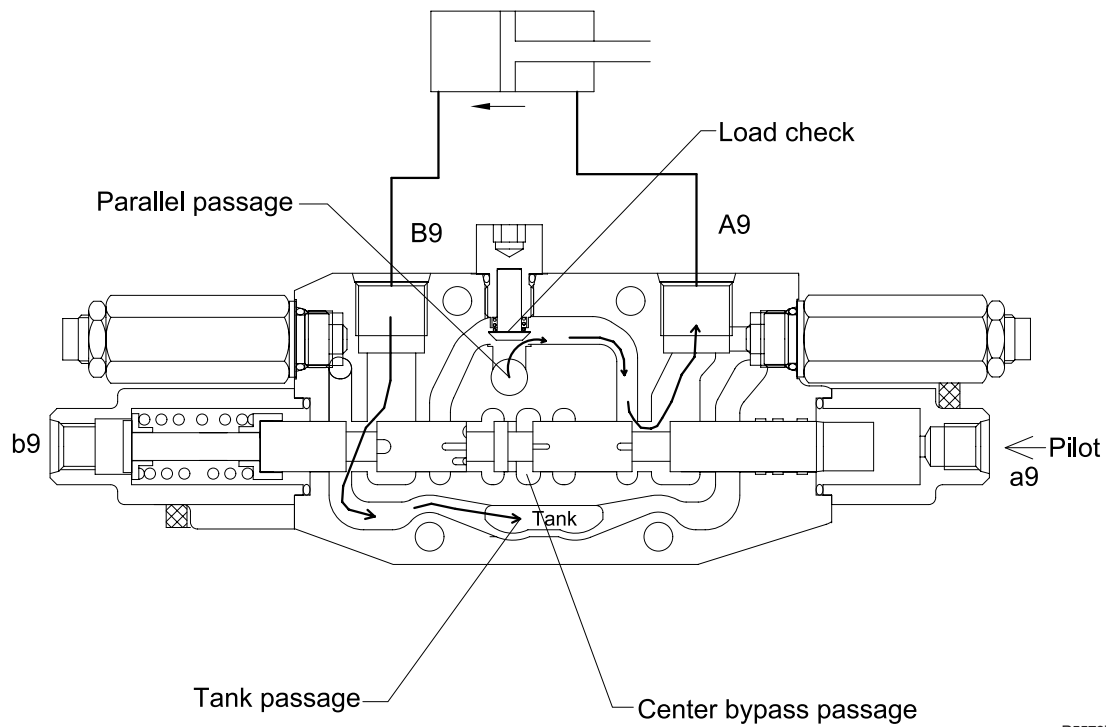
During boom up operation, the pilot pressure from RCV is supplied into the port b9 and shift the boom1 spool in the right direction. The hydraulic oil fluid from pump P1 is entered P1 parallel passage and then passes through the load check valve then flows into the port B9.

Following this it flows into the head side of the boom cylinder.

At the same time the pilot pressure through the port b5 shifts the boom2 spool. The hydraulic oil fluid from pump P2 is entered P2 parallel passage and then passes through the load check valve then flows into the port B5. The flows combine in hydraulic hoses and are directed to the cylinder head side of boom cylinder.

The flow from rod side of the boom cylinder return to the boom1 spool through the port A9. There after it is directed to the hydraulic oil tank through the tank passage.

② Boom down operation



R5572MCV05

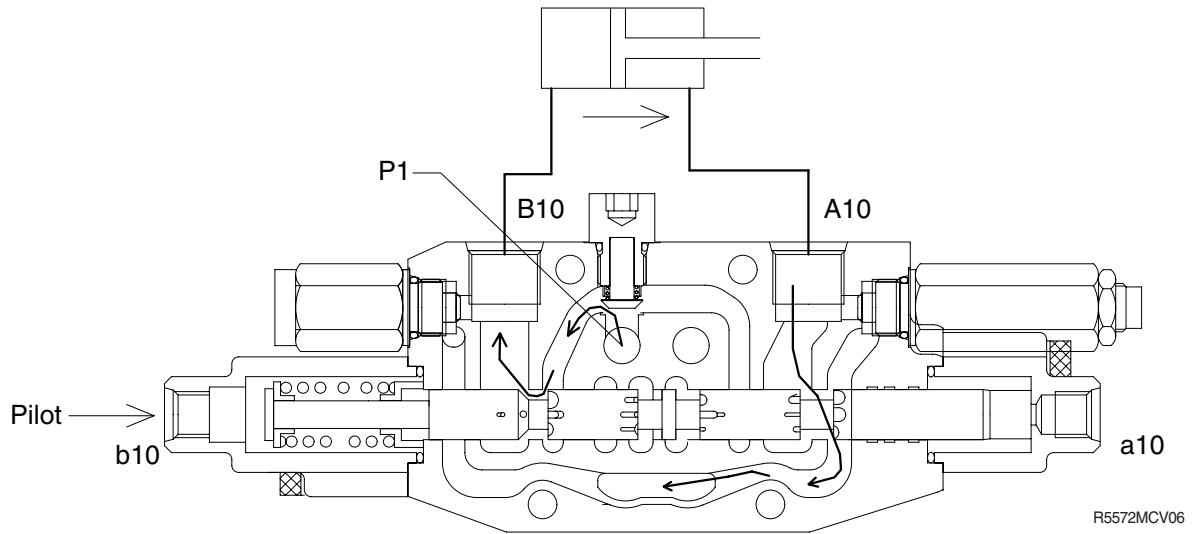
During the boom lowering operation, the pilot pressure from RCV is supplied to the port a8 and shift the boom1 spool in the left direction.

The hydraulic fluid from the pump P1 enters the parallel passage and is directed to the port A8 through the load check valve. Following this, it flows into the rod side of the boom cylinder.

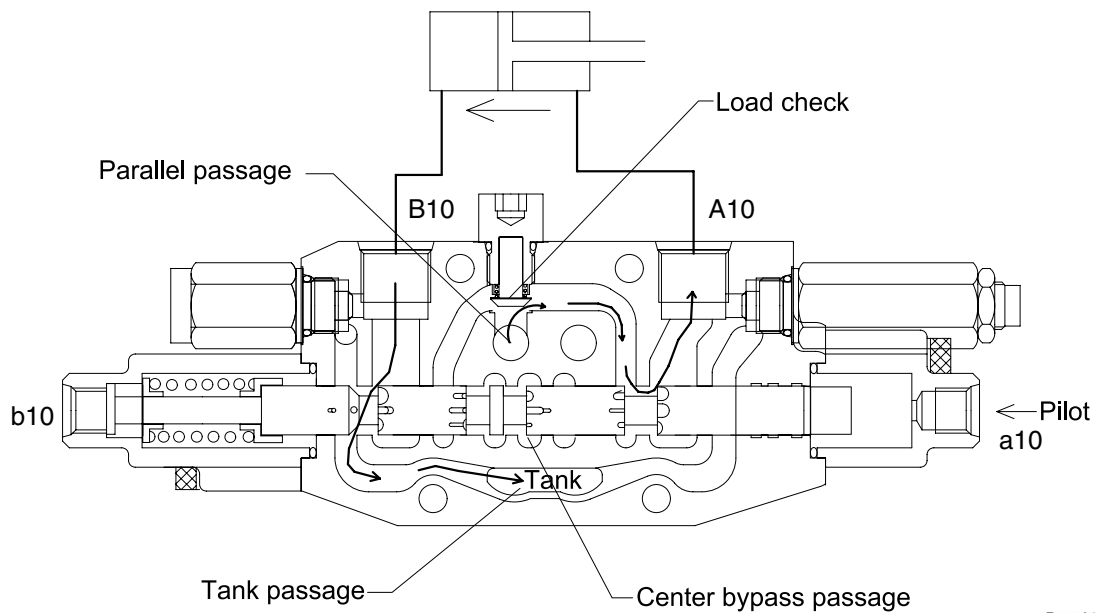
The return flow from the head side of the boom cylinder returns to the boom1 spool through the port B9. Thereafter it is directed to the hydraulic oil tank through tank passage.

(4) BUCKET OPERATION

① Bucket roll in operation



② Bucket roll out operation



① Bucket roll in operation

During the bucket roll in operation, the pilot pressure from RCV is supplied to port b10 and shift the bucket spool in the right direction.

The hydraulic fluid from pump P1 entered P1 parallel passage and is directed to the port B10 through the load check valve.

Following this it flows into the head side of the bucket cylinder.

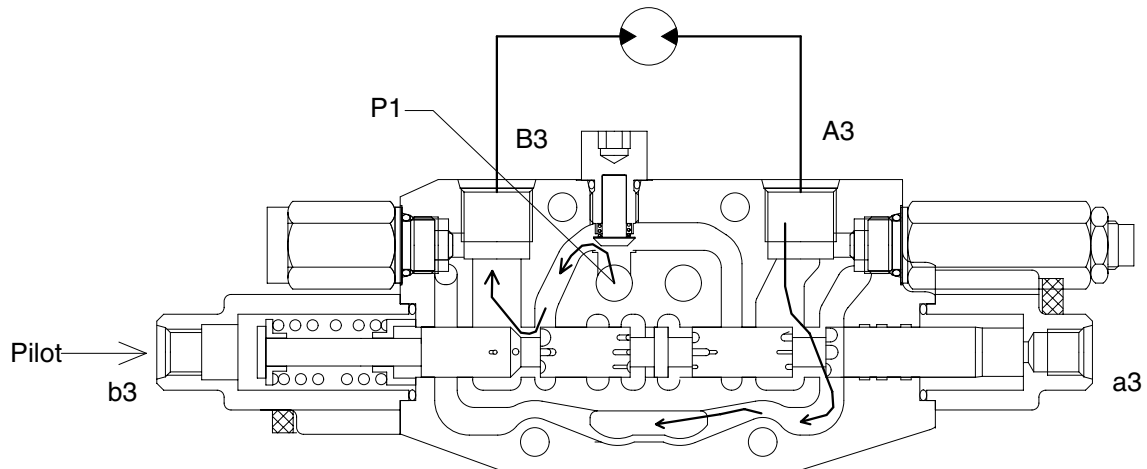
The return flow from the rod side of the bucket cylinder returns to the bucket spool through the port A10. Thereafter it is directed to the hydraulic oil tank through the tank passage.

② Bucket roll out operation

In case of the bucket roll out operation, the operation is similar.

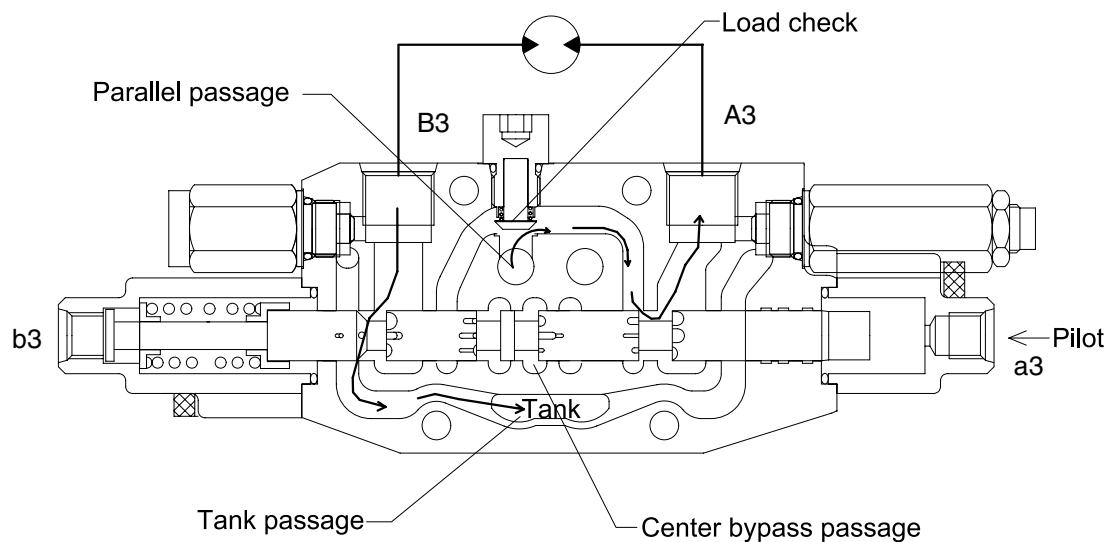
(5) SWING OPERATION

① Swing left operation



R5572MCV08

② Swing right operation

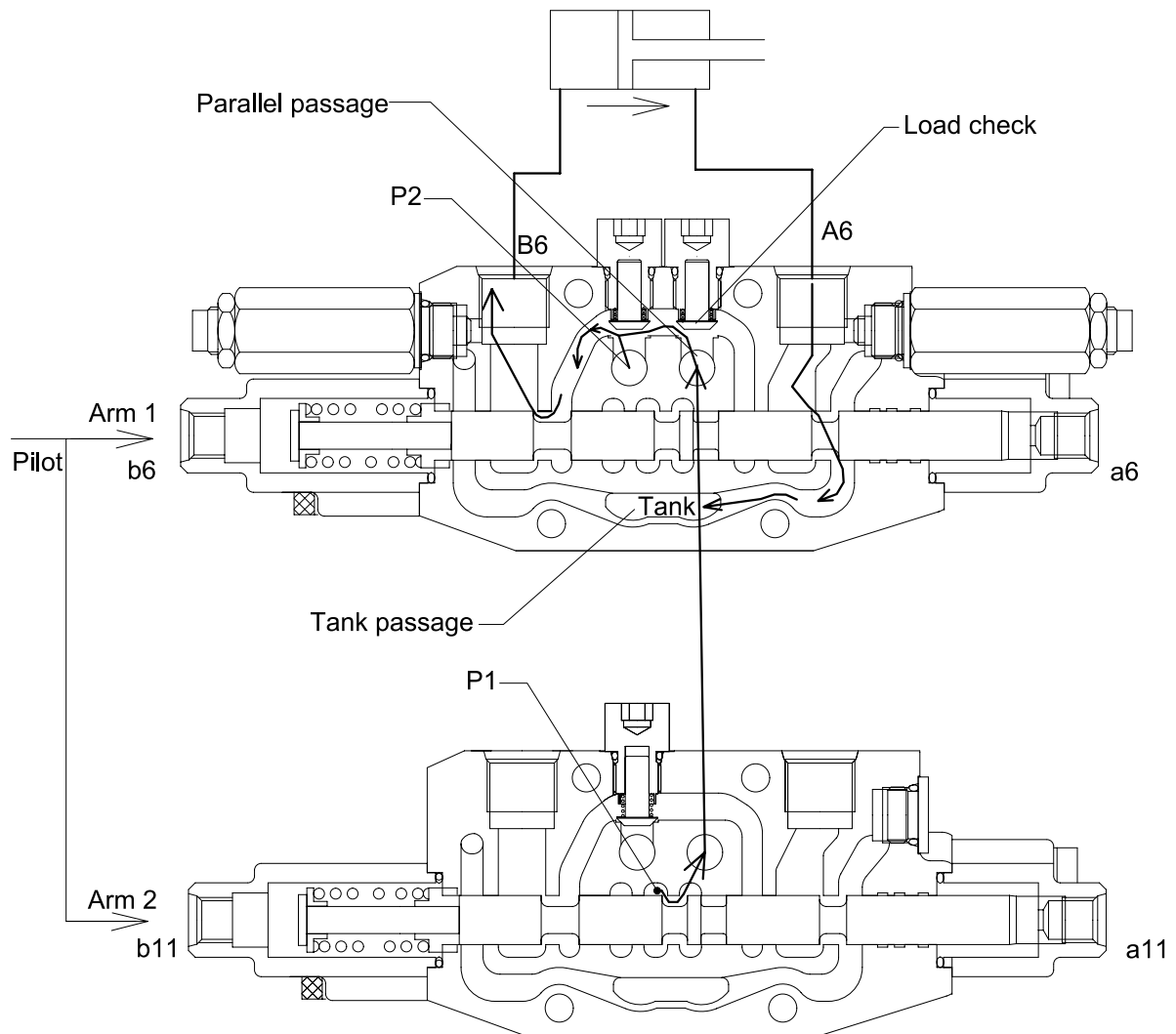


R557A2MCV09

The pilot pressure from the RCV is supplied to the b3 and shift the swing spool in right direction. The hydraulic fluid from pump P3 flows into swing spool through the parallel passage. Then it is directed to swing motor through the port B3. As the result, swing motor turns and flow from the swing motor returns to the hydraulic oil tank through the port A3, swing spool and the tank passage . In case of swing right operation, the operation is similar.

(6) ARM OPERATION

① Arm roll in operation



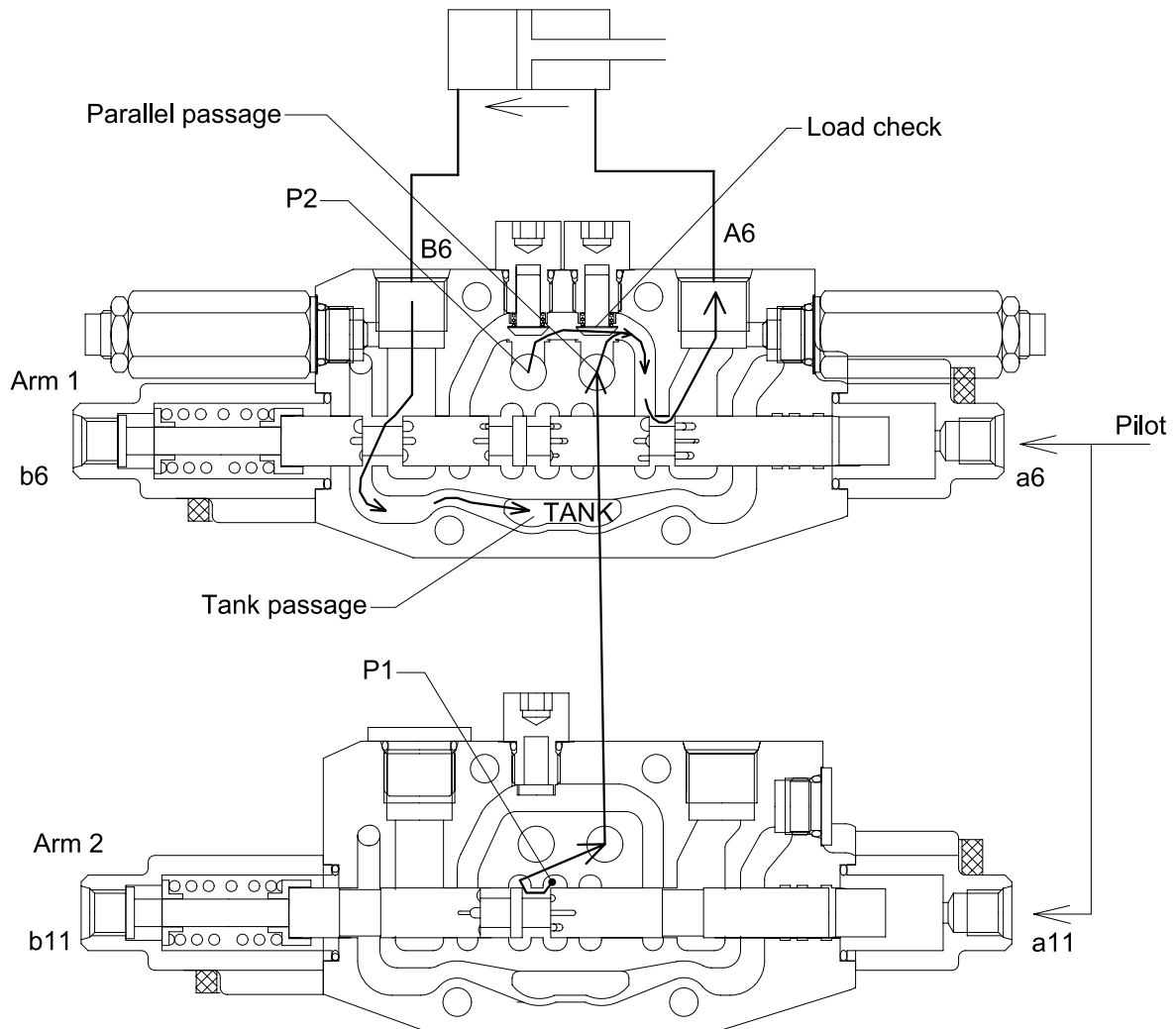
R5572MCV10

During arm roll in operation the pilot pressure from the RCV is supplied to the port b6 and b11 and shifts arm1 spool and arm2 spool in the direction.

The hydraulic oil from the pump P2 flows into the arm cylinder head side through P2 parallel passage, the load check valve and the port B6.

At same time, the hydraulic fluid from the pump P1 flows into the arm summation passage in arm1 spool through the arm2 spool. Then it entered the arm cylinder head side with hydraulic fluid from arm1 spool.

② Arm roll out operation



R5572MCV11

During arm roll out operation the pilot pressure from RCV is supplied to the port a6 and the a11 and shifts arm1 spool and arm2 spool in the left direction.

The hydraulic fluid from pump P2 flows into arm1 spool through the parallel passage. Then it enters into the arm cylinder rod side through the load check valve and the port A6.

At same time, the hydraulic oil from the pump P1 flows into the arm summation passage in arm 1 spool through the arm 2 spool.

The return flow from the arm cylinder head side returns to the hydraulic tank through the port B60 the arm1 spool and tank passage.