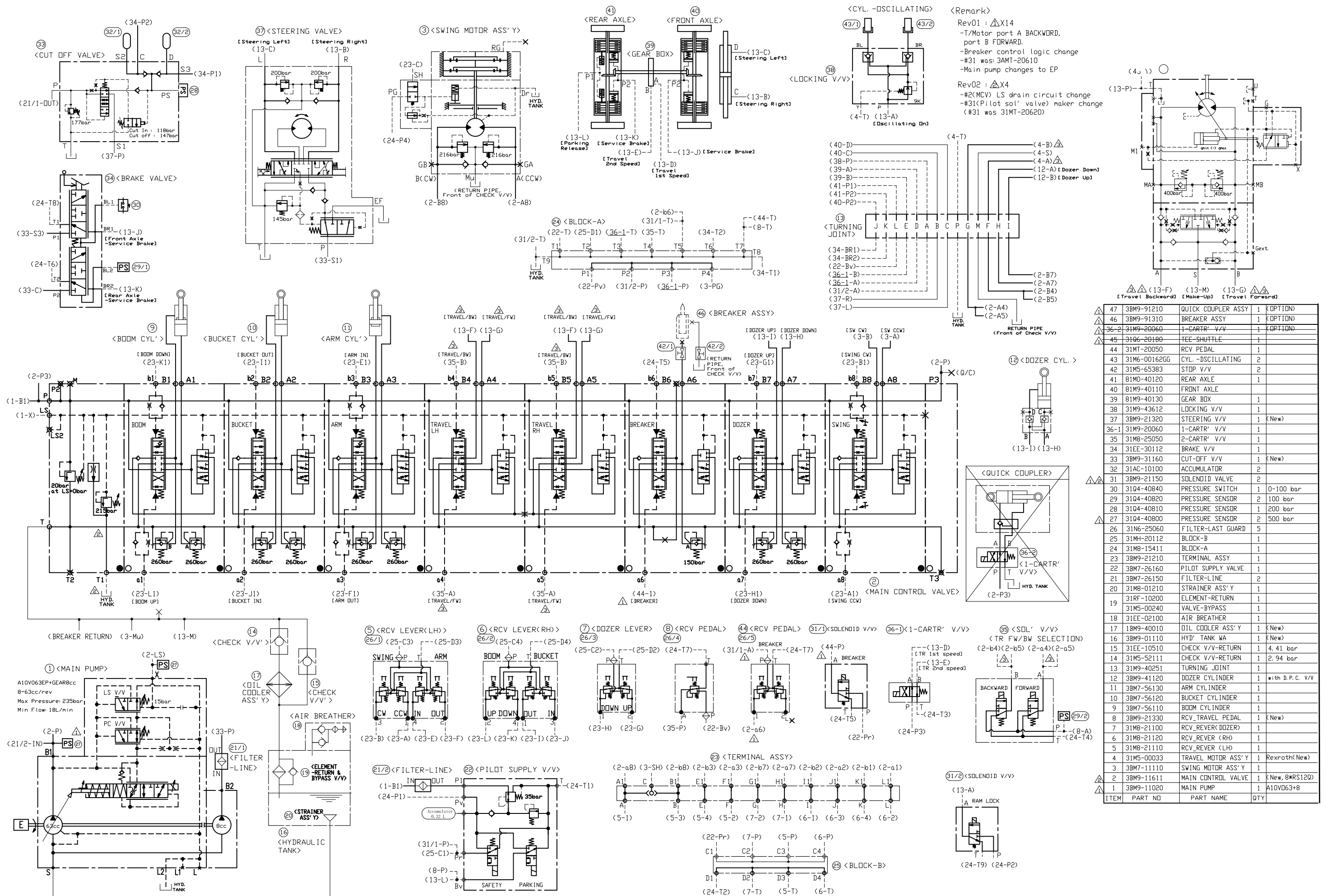


## SECTION 3 HYDRAULIC SYSTEM

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# SECTION 3 HYDRAULIC SYSTEM

## GROUP 1 HYDRAULIC CIRCUIT (1/2)



ITEM	PART NO	PART NAME	QTY
1	3BM9-11020	MAIN PUMP	1 A10V63+8
2	3BM9-11611	MAIN CONTROL VALVE	1 (New, 8MRS120)
3	3BM7-11110	SWING MOTOR ASS'Y	1
4	31M5-00033	TRAVEL MOTOR ASS'Y	1 Rexroth(New)
5	31M8-21110	RCV_REVER (LH)	1
6	31M8-21120	RCV_REVER (RH)	1
7	31M8-21100	RCV_REVER(DOZER)	1
8	3BM9-21330	RCV_TRAVEL PEDAL	1 (New)
9	3BM7-56110	BOOM CYLINDER	1
10	3BM7-56120	BUCKET CYLINDER	1
11	3BM7-56130	ARM CYLINDER	1
12	3BM9-41120	DOZER CYLINDER	1 with D.P.C. V/V
13	31M9-40251	TURNING JOINT	1
14	31M5-52111	CHECK V/V-RETURN	1 2.94 bar
15	31EE-10510	CHECK V/V-RETURN	1 4.41 bar
16	3BM9-01110	HYD' TANK WA	1 (New)
17	1BM9-40010	OIL COOLER ASS'Y	1 (New)
18	31EE-02100	AIR BREATHER	1
19	31M5-00240	VALVE-BYPASS	1
20	31RF-10200	ELEMENT-RETURN	1
21	3BM7-26150	FILTER-LINE	2
22	3BM7-26160	PILOT SUPPLY VALVE	1
23	3BM9-21210	TERMINAL ASSY	1
24	31M8-15411	BLOCK-A	1
25	31M8-20112	BLOCK-B	1
26	31N6-25060	FILTER-LAST GUARD	5
27	31Q4-40800	PRESSURE SENSOR	2 500 bar
28	31Q4-40810	PRESSURE SENSOR	1 200 bar
29	31Q4-40820	PRESSURE SENSOR	2 100 bar
30	31Q4-40840	PRESSURE SWITCH	1 0-100 bar
31	3BM9-21150	SOLENOID VALVE	2
32	31AC-10100	ACCUMULATOR	2
33	3BM9-31160	CUT-OFF V/V	1 (New)
34	31EE-30112	BRAKE V/V	1
35	31M8-25050	2-CARTR' V/V	1
36-1	31M9-20060	1-CARTR' V/V	1
37	3BM9-21320	STEERING V/V	1 (New)
38	31M9-43612	LOCKING V/V	1
39	81M9-40130	GEAR BOX	1
40	81M9-40110	FRONT AXLE	1
41	81M0-40120	REAR AXLE	2
42	31M5-65383	STOP V/V	1
43	31M6-00162GG	CYL.-OSCILLATING	2
44	31MT-20050	RCV PEDAL	1
45	31G6-20180	TEE SHUTTLE	1
46	3BM9-91310	BREAKER ASSY	1 (OPTION)
47	3BM9-91210	QUICK COUPLER ASSY	1 (OPTION)

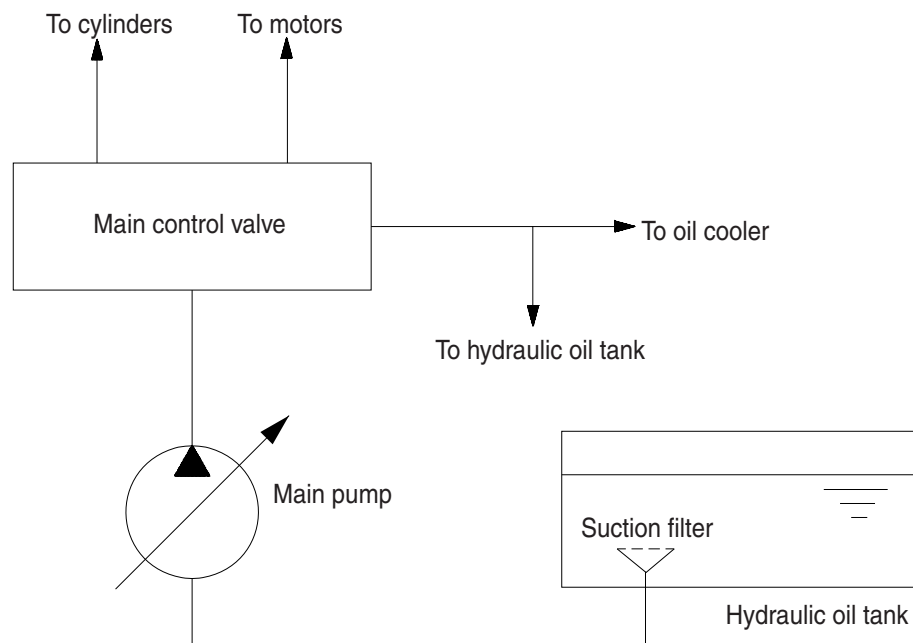
## GROUP 2 MAIN CIRCUIT

The main hydraulic circuit consists of suction circuit, delivery circuit, return circuit and drain circuit.

The hydraulic system consists of one main pump, one control valve, one swing motor, four cylinders and two travel motors.

The swash plate type variable displacement axial piston pump is used as the main pump and is driven by the engine at ratio 1.0 of engine speed.

### 1. SUCTION AND DELIVERY CIRCUIT



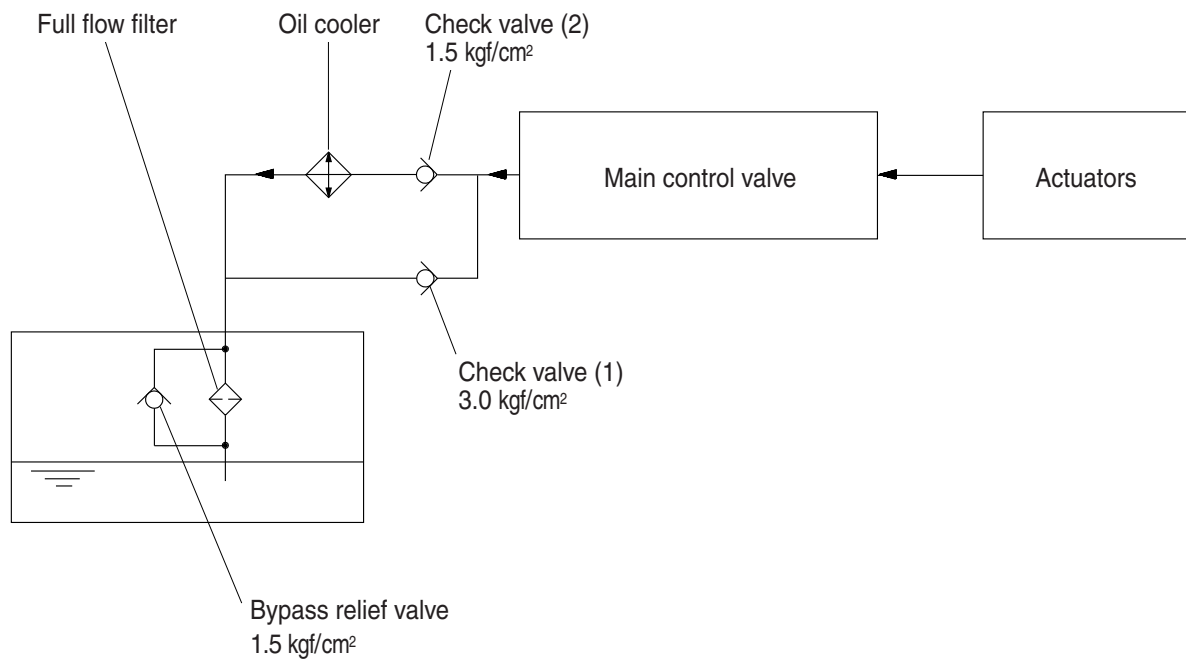
The pumps receive oil from the hydraulic tank through a suction filter. The discharged oil from the pump flows into the control valve and goes out the tank ports.

The oil discharged from the main pump flows to the actuators through the control valve.

The control valve controls the hydraulic functions.

The return oil from the actuators flows to the hydraulic tank through the control valve and the oil cooler.

## 2. RETURN CIRCUIT



All oil returned from each actuator returns to the hydraulic tank through the control valve.

The bypass check valves are provided in the return circuit.

The setting pressure of bypass check valves are 1.5 kgf/cm<sup>2</sup> (21 psi) and 3.0 kgf/cm<sup>2</sup> (43 psi). Usually, oil returns to the hydraulic tank from the left side of control valve through oil cooler.

When oil temperature is low, viscosity becomes higher and flow resistance increases when passing through the oil cooler. When the oil pressure exceeds 3.0 kgf/cm<sup>2</sup> (43 psi), the oil returns directly to the hydraulic tank, resulting in the oil temperature being raised quickly at an appropriate level.

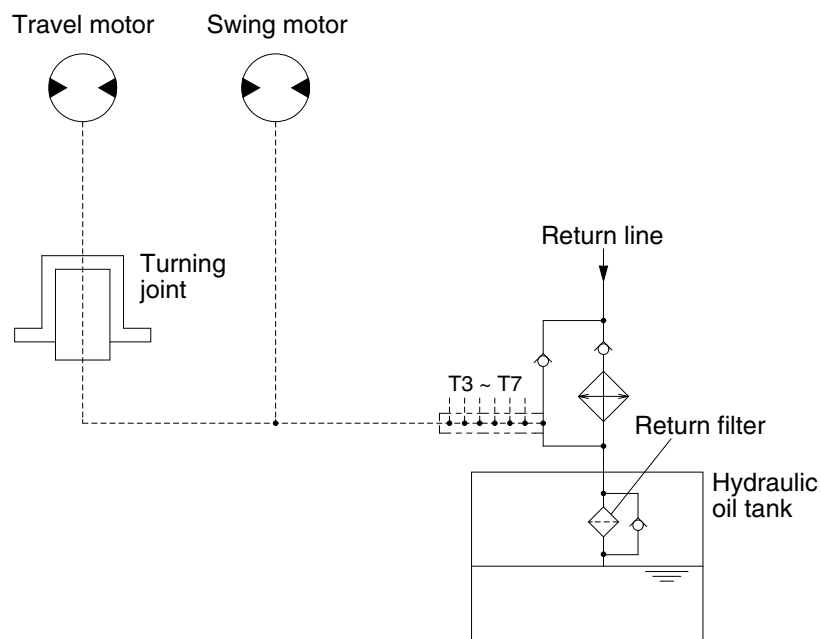
When the oil cooler is clogged, the oil returns directly to the hydraulic tank through bypass check valve (1).

The full-flow filter and bypass relief valve are provided in the hydraulic tank.

The oil returned from right and left side of control valve is combined and filtered by the full-flow filter. A bypass relief valve is provided in the full-flow filter.

When the filter element is clogged, the bypass relief valve opens at 1.5 kgf/cm<sup>2</sup> (21 psi) differential pressure.

### 3. DRAIN CIRCUIT



Besides internal leaks from the motors and main pump, the oil for lubrication circulates.

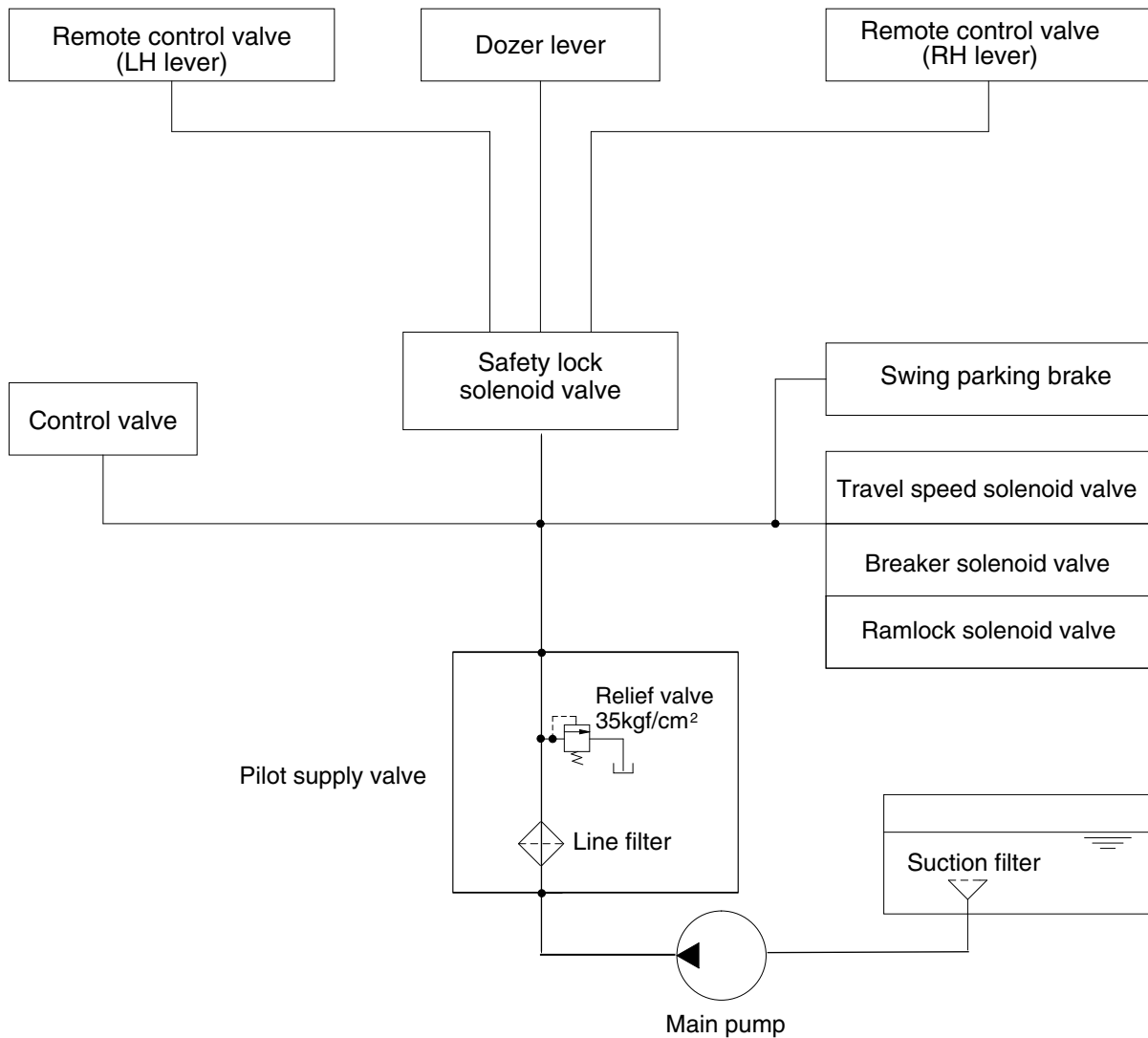
#### 1) TRAVEL MOTOR DRAIN CIRCUIT

Oil leaked from the right and left travel motors comes out of the drain ports provided in the respective motor casing and join with each other. These oils pass through the turning joint and return to the hydraulic tank after being filtered by return filter.

#### 2) SWING MOTOR DRAIN CIRCUIT

Oil leaked from the swing motor returns to the hydraulic tank passing through a return filter with oil drained from the travel circuit.

## GROUP 3 PILOT CIRCUIT



The pilot circuit consists of suction circuit, delivery circuit and return circuit.

The pilot pump is provided with relief valve, receives the oil from the hydraulic tank through the suction filter.

The discharged oil from the pilot pump flows to the remote control valve through line filter, solenoid valve assemblies, swing parking brake, main control valve and safety lock solenoid valve.