KOBELCO

SERVICE MANUAL

HYDRAULIC EXCAVATOR

SK150LC III

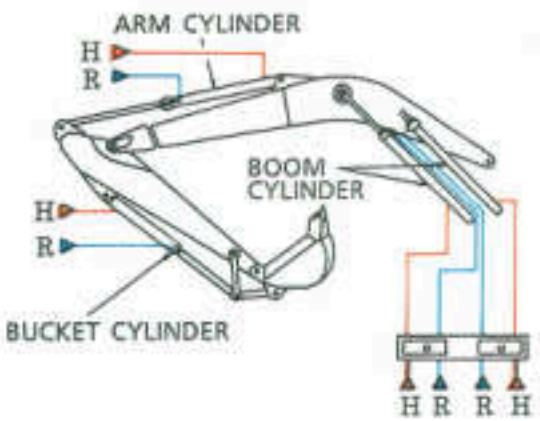
Applicable: SK150LC III YM-00101~

S5YM0001E-00 02/93

MidWestTech | Kobelco SK150LC III Hydraulic Excavator Service Manual | Publication S5YM0001E

Order the manual at mid-west-tech.com >

☞ The orange color shows oil supplied to the cylinder head port, whereas the blue color represents oil returned to the cylinder rod side.



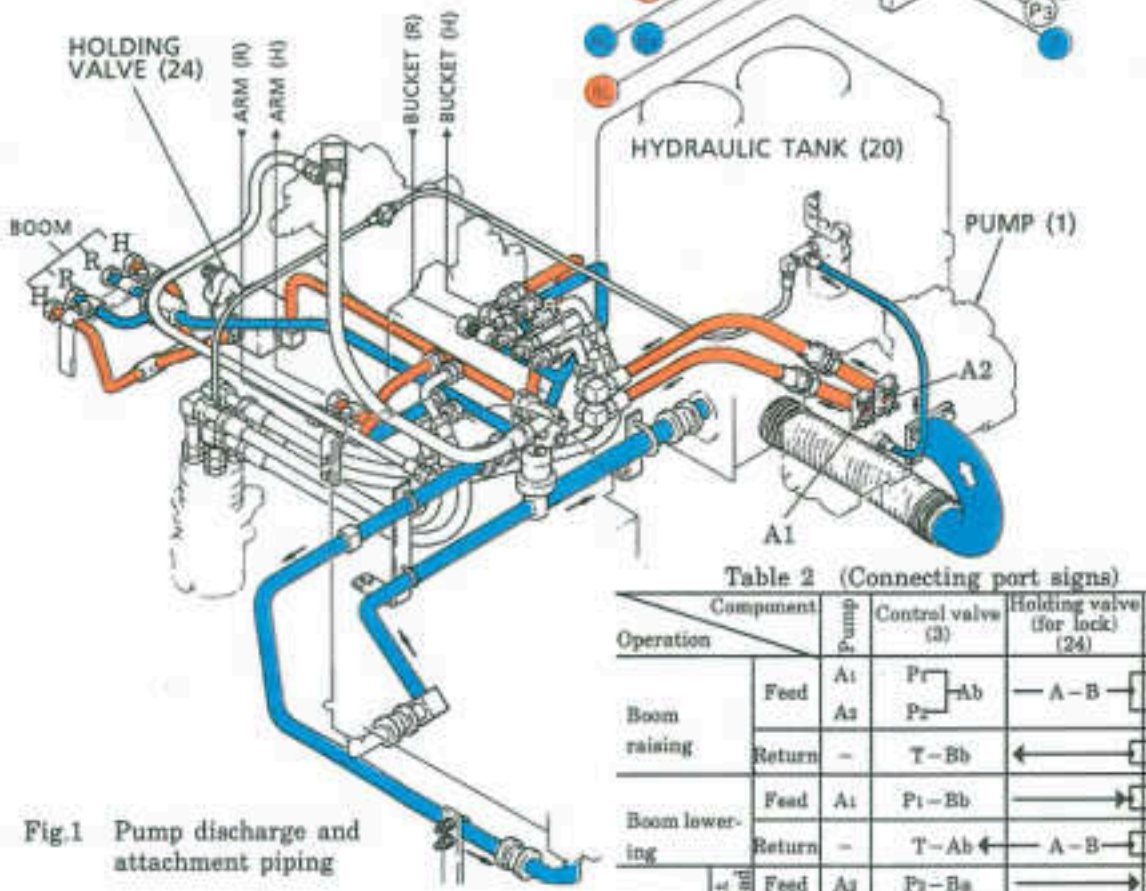


Fig.1 Pump discharge and attachment piping

Table 1 (Connecting port signs)

Component / circuits	Hydraulic tank	Pump (1)	Control valve (3)
Feed	Tank	A1	P1
		A2	P2
Return	Tank	Oil cooler	T

Table 2 (Connecting port signs)

Operation		Component: Pump	Control valve (3)	Holding valve (for lock) (24)	Cylinder
Boom raising	Feed	A1	P1 – Ab	A – B	H
		A2	P2		H
	Return	–	T – Bb		R
					R
Boom lowering	Feed	A1	P1 – Bb		R
					R
	Return	–	T – Ab	A – B	H
					H
Arm digging	Light load: Feed	A2	P2 – Ba		H
	Light load: Return	–	T – Aa		R
	Heavy load: Feed	A1	P1 – Ba		H
		A2	P2		
	Heavy load: Return	–	T – Aa		R
Arm extension	Feed	A1	P1 – Aa		R
		A2	P2		
	Return	–	T – Ba		H
Bucket digging	Feed	A1	P1 – BC		H
	Return	–	T – AC		R
Bucket discharge	Feed	A1	P1 – AC		R
	Return	–	T – BC		H

MidWestTech | Kobelco SK150LC III Hydraulic Excavator Service Manual | Publication S5... Order the manual at mid-west-tech.com >

1. OPERATION OF SWING SYSTEM

1.1 SPECIAL FEATURES OF THE SWING SYSTEM

The swing system has the following functions:

1) Pilot pressure-operated operating method
   Delicate swing operation according to operating lever strokes can be attained by the proportionate pilot-operated secondary pressure.
2) Automatic parking brake for swing motion
   Except for the swing action and the arm pull action, the mechanical parking brake operates at all times so as to prevent the swing motion from drifting on a slope.
3) Delay brake by the action of the reducing valve
   The swing brake is actuated 5-8 seconds after the swing pilot valve is released to keep it from operating in swing inertia.
4) Swing priority circuit
   In a simultaneous operation of both arm and swing motions, hydraulic pressure is delivered in preference to the swing motor so that swing pressed digging and oblique arm pull motions may be performed smoothly.
5) Swing-back preventive valve
   It absorbs shocks produced as swing motion stops and reduces oscillation caused by swing bounce back.
6) Lighting of Swing alarm lamp
   If the swing / back work light switch is selected and then swing motion is done, the swing alarm lamp lights.

1.2 MAIN PIPING CONNECTION

Table 1 (Connecting port signs)

	Hydraulic Oil Tank	Pump (1)	Control Valve(3)	Control Valve(34)
Supply	Tank →	B1 – A2	– P2 – P3 →	P
Return	Tank ←	Oil Cooler	T	← R

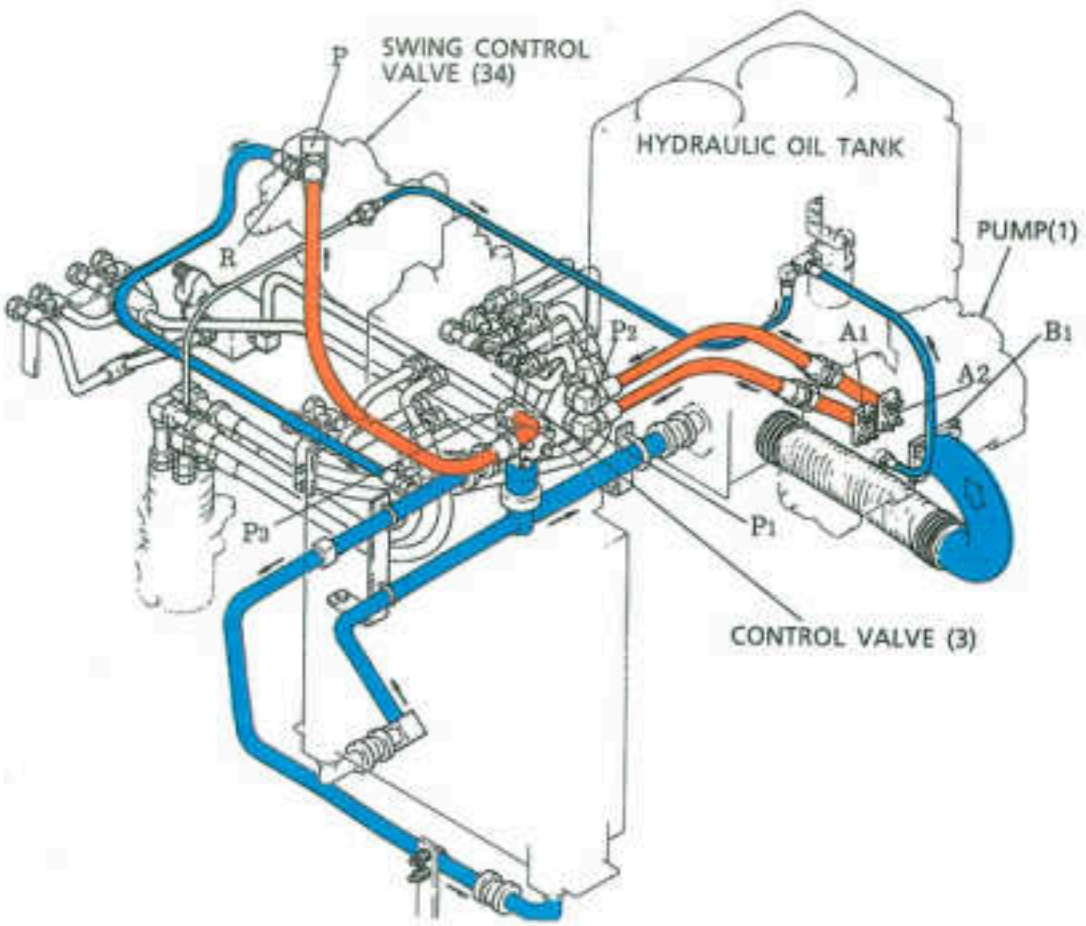


Fig. 1 Oil flow diagram in the Swing system

MidWestTech | Kobelco SK150LC III Hydraulic Excavator Service Manual | Publication S5... Order the manual at mid-west-tech.com >

4.2.4 WHERE THE INDEPENDENT TRAVEL (ADVANCE) VALVE IS AT 1-SPEED

The following explains the travel operation when the independent travel switch is on and where the independent travel valve on the previous page is at neutral. The independent travel valve performs independent travel action by distinctly separating the travel circuit from the attachment circuit. The independent travel circuit is set up if the straight travel valve (305) is switched over for the independent travel function. If the straight travel valve is changed over, only the oil flow by the No.2 pump is branched off to the travel motor. This reduces the speed to half and makes no speed variation even when travel and attachment motions are combined. This function is used, for instance, for loading a pipe.

(1) Pilot circuit

If the KPSS work mode switch is turned to the D mode, A2 port of the solenoid valves (23) changes over electrically. As the result, the pressurized oil on the A2 port side connects with the PZ2 port of the independent travel valve (26) and ports PZ1 and Pi3 of C /V. The pressurized oil in port PZ2 of the independent travel valve switches the changeover valve (302) over to issue a negative control cut. command. The pressure oil in port PZ1 of C / V switches over the straight travel valve (305) and the neutral cut valve (306B). The pressure oil in port Pi3 of C /V switches over the logic valve (612) and the neutral cut valve (306A). Next, if you perform a travel forward motion, the secondary pilot pressures PAL, PAR go out of the travel pilot valve (37), enter ports PA1 and PAr of the C / V travel spool and shift it. Meanwhile, the higher of the secondary pilot pressures for travel motion is selected in the valve and enters port PiT of the independent travel valve (26). The hydraulic pressure in port PiT actuates the pressure switch (35) to produce an automatic deceleration input signal. In the meantime, the pressure acts upon the reducing valve (303) in the independent travel valve and cuts off the negative control command on the No.2 pump side.

(2) Main circuit

As mentioned above, the oil stream from port A1 of main pump No.2 is branched off by the straight travel valve (305) to drive the right and left travel motors. The oil stream from the No.1 pump actuates the attachment cylinder. When the straight travel valve is at neutral, the oil stream is bypassed by the independent travel valve (26) and returns to the tank.

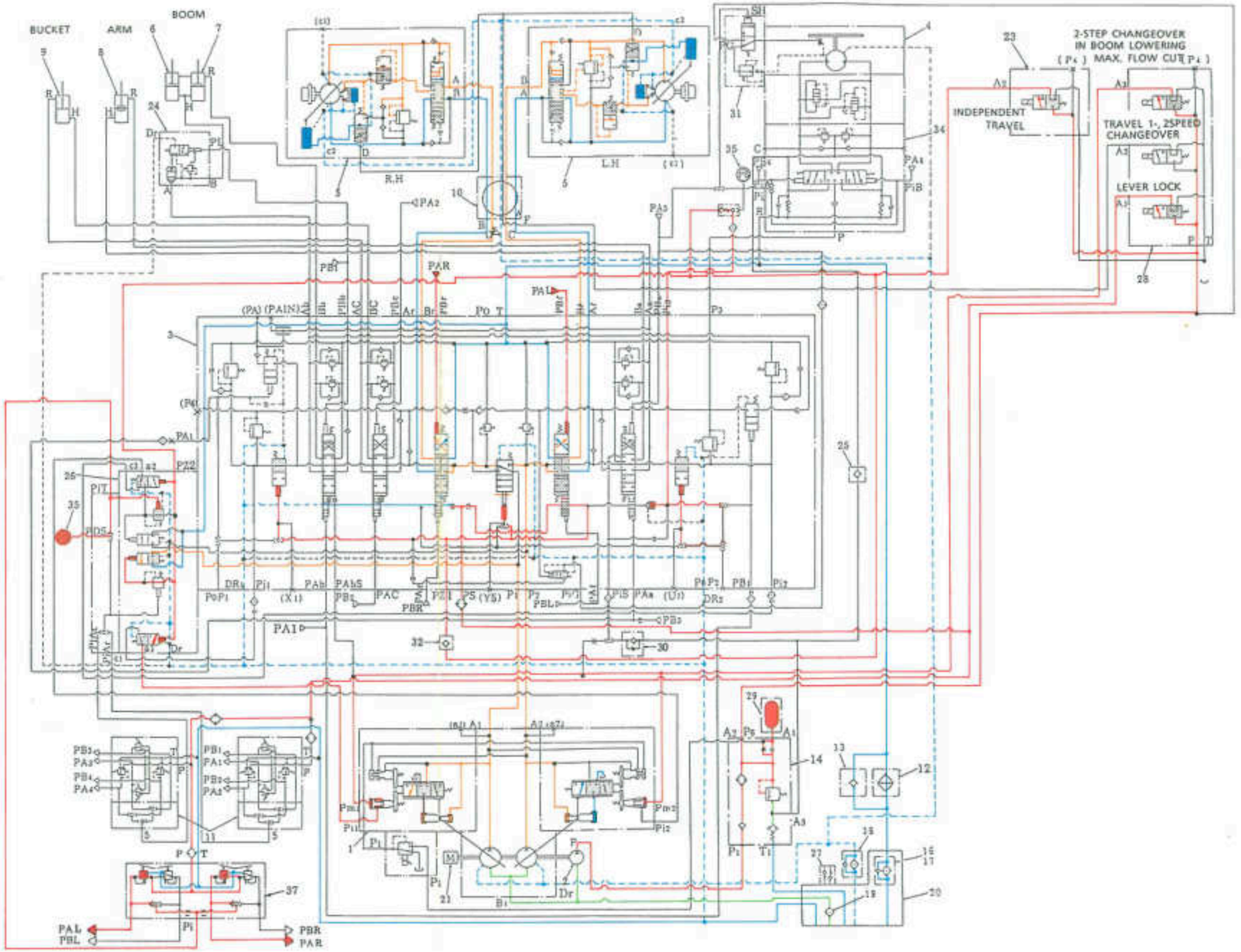


Fig. 10 Independent Travel in 1st Speed Forward

MidWestTech | Kobelco SK150LC III Hydraulic Excavator Service Manual | Publication S5YM0001E
Order the manual at mid-west-tech.com >