KOBELCO

SERVICE MANUAL

HYDRAULIC EXCAVATOR

SK100(L)

SK120(LC)

S5LP0006E 03

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SHOP MANUAL

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SPECIFICATION

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TROUBLESHOOTING

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7) When [CPU] is displayed, the stepping motor is fixed in the engine stop position.
8) Adjust dimension A of the governor rod in the engine stop position. Tighten the locknut when the clearance between the governor lever and the engine stop set bolt is 0.1mm (0.004in). After tightening the locknut, make sure of the clearance again. In case the clearance is not 0.1mm (0.004in), loosen and adjust the locknut once again.

(2) Procedure of setting the engine high idle position
1) If the adjusting harness pushbutton is depressed, power to the stepping motor is cut off, making the stepping motor free.
2) Put a 0.2mm (0.008in) thickness gauge to the high idle setscrew. Move the now freed governor lever and press it hard against the thickness gauge so the lever contacts the setscrew.
3) With the governor lever pressed, depress the adjusting harness pushbutton. Power is supplied to the stepping motor whereby it is fixed in the high idle position.
4) After the lever is fixed in the high idle position, make sure of the standard clearance of 0.2mm (0.008in).
5) If the clearance runs out of the clearance standard, fine clearance adjustment may be carried out, as follows :

Where the clearance is large ;
If the auto accel switch is turned on and the buzzer stop switch is pressed one time, the clearance decreases by about 0.04mm (0.002in).

Were the clearance is small ;
If the auto accel switch is turned off and the buzzer switch is pressed once, the clearance increases by about 0.04mm (0.002in).

6) If the adjusting harness pushbutton is depressed after clearance adjustment, the stepping motor memorizes the high idle position and at the same time stops after running to the stop bolt side.
7) Memorization is complete when the indication on the multi display has changed from [CPU] to [MARK III].

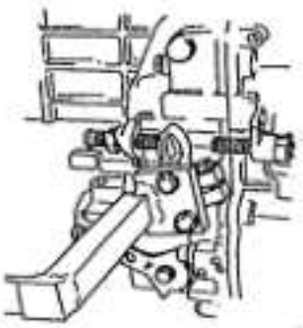
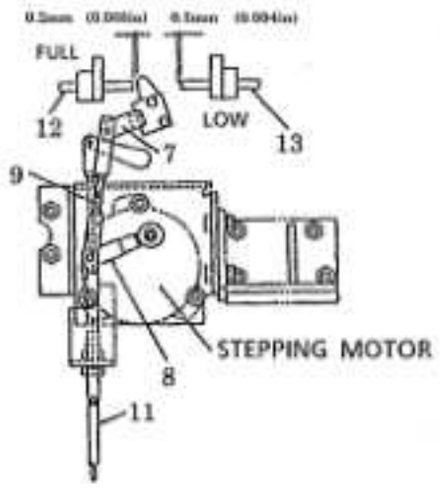


Fig. 8 Engine high idle position



7 Governor lever
8 Stepping motor lever
9 Adjust rod
11 Emergency stop cable
12 High idle set screw
13 Engine stop set screw

Fig. 9 Governor lever adjusting clearance

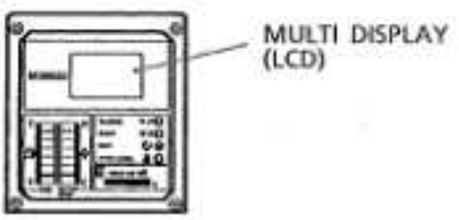


Fig. 10 MARK III indication on multi display



Fig. 11 CPU indication on multi display



Fig. 12 Auto accel select switch

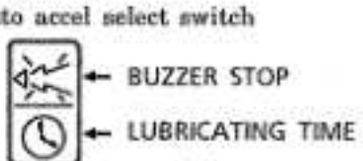
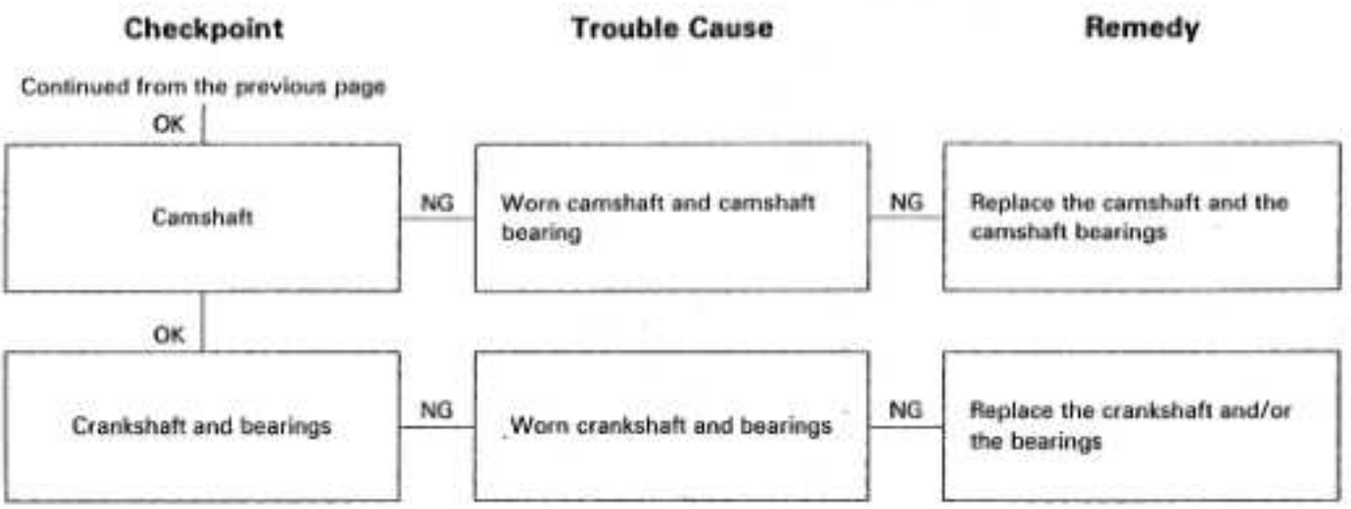


Fig. 13 Buzzer stop switch

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OIL PRESSURE DOES NOT RISE



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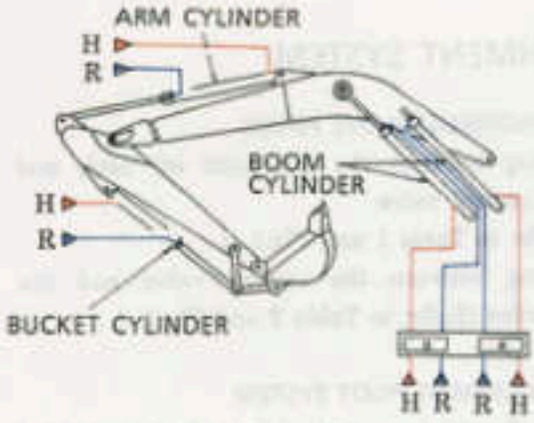
PREFACE

This is a composite valve that holds the circuit pressure within safe ranges by means of relief valves, changeover valves, conflux valves and sequence valves, in addition to changing the control directions of the operating part (actuators) as circuits are changed over.

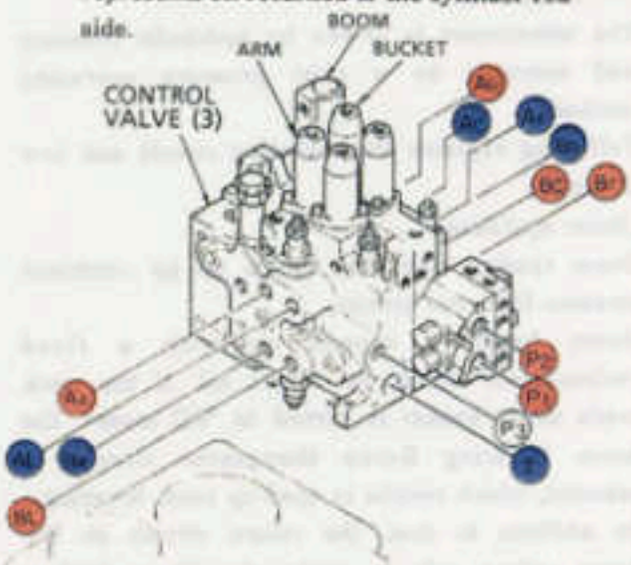
Models	Applicable Machines	Notes	Models	Applicable Machines	Notes
SK100	YW-04601~	Spec 1			
SK120	LP-08001~	Spec 2			
SK120LC	YP-01801~	Spec 2			

Revision	Date of Issue	Remarks
First edition	December,1991	S5130739E K

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



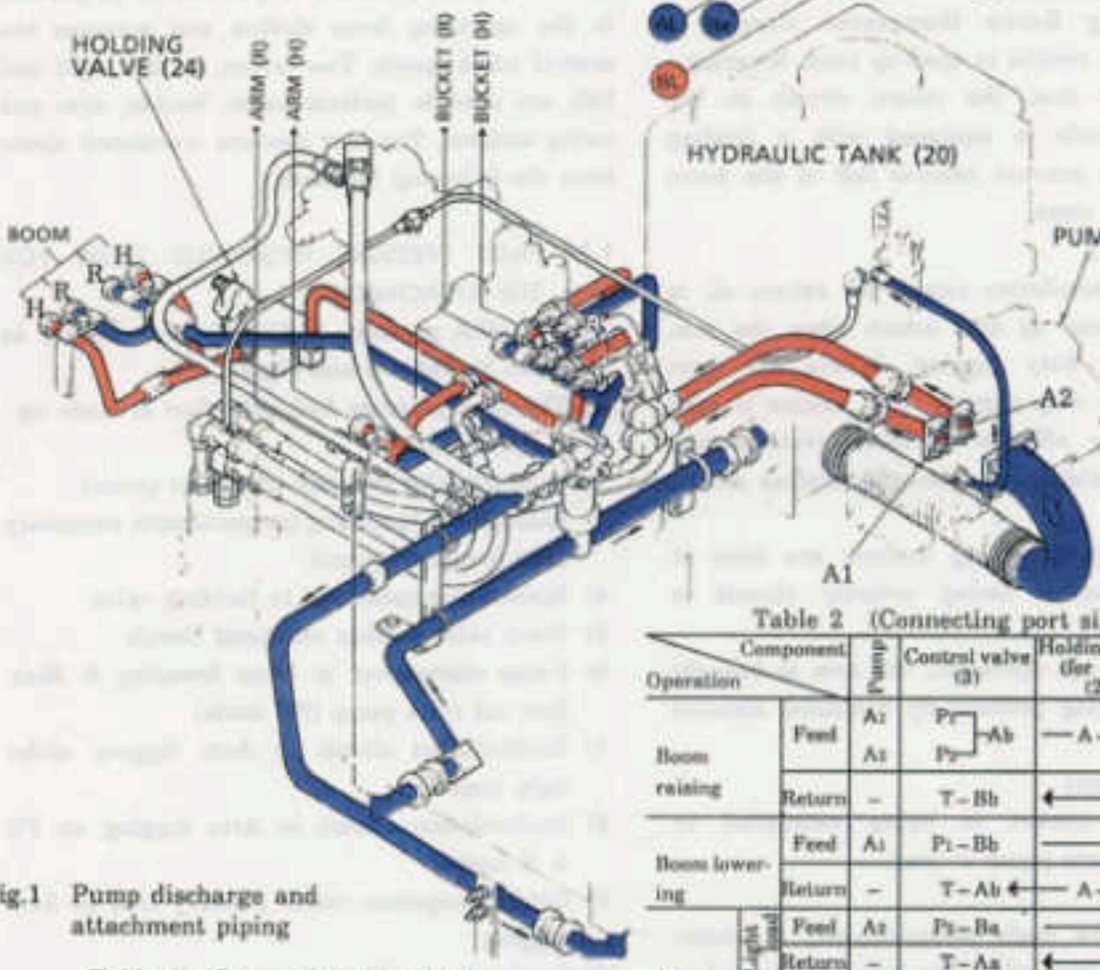


Fig.1 Pump discharge and attachment piping

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

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4. FUNCTIONAL EXPLANATION OF HYDRAULIC CIRCUITS

4.1 NEUTRAL CIRCUIT

(1) Pilot circuit (with lever unlocked)

1) Primary pilot pressure circuit

The oil discharged from the OUT port of the gear pump passes through the line filter (15) and the relief valve and connects with the following components as primary pressure.

P port of pilot valve (11)

PG port of reducing valve (31)

Electromagnetic proportionate reducing valve (ports P1, P2 attached to the pump)

Port PO, PS of control valve (3)

2) Negative control signal circuit

This circuit is featured by reduced fuel consumption in which pump flow is minimized when the machine is not working, in order to save unnecessary power.

The operating principle is based upon a negative control method that reduces the delivery rate of the main pump as pilot pressure Pi rises.

To increase the pilot pressure Pi, let all delivery from the pump in neutral run downstream and pass it through the restrictor (611) of low pressure relief valve (611) so as to increase the flow rate.

In the negative control circuit for the No.1 pump, oil from port Pi1 of the control valve passes through the independent travel valve and enters port Pi1 of the regulator.

Likewise, the oil in the negative control circuit of the No. 2 pump is admitted to port Pi2 of the regulator from port Pi2 of the control valve.

(2) Main circuit

Hydraulic oil cleaned by the strainer (19) in the tank is sucked in by the variable displacement pump (1).

This oil is then discharge by two pumps and enters the control valve (3).

When the low pressure relief valve in the control valve is actuated, the oil drains through tank port T.

The returning oil passes through the oil cooler, then enters the filter element (16) in the hydraulic tank, where any contaminants in it are removed.

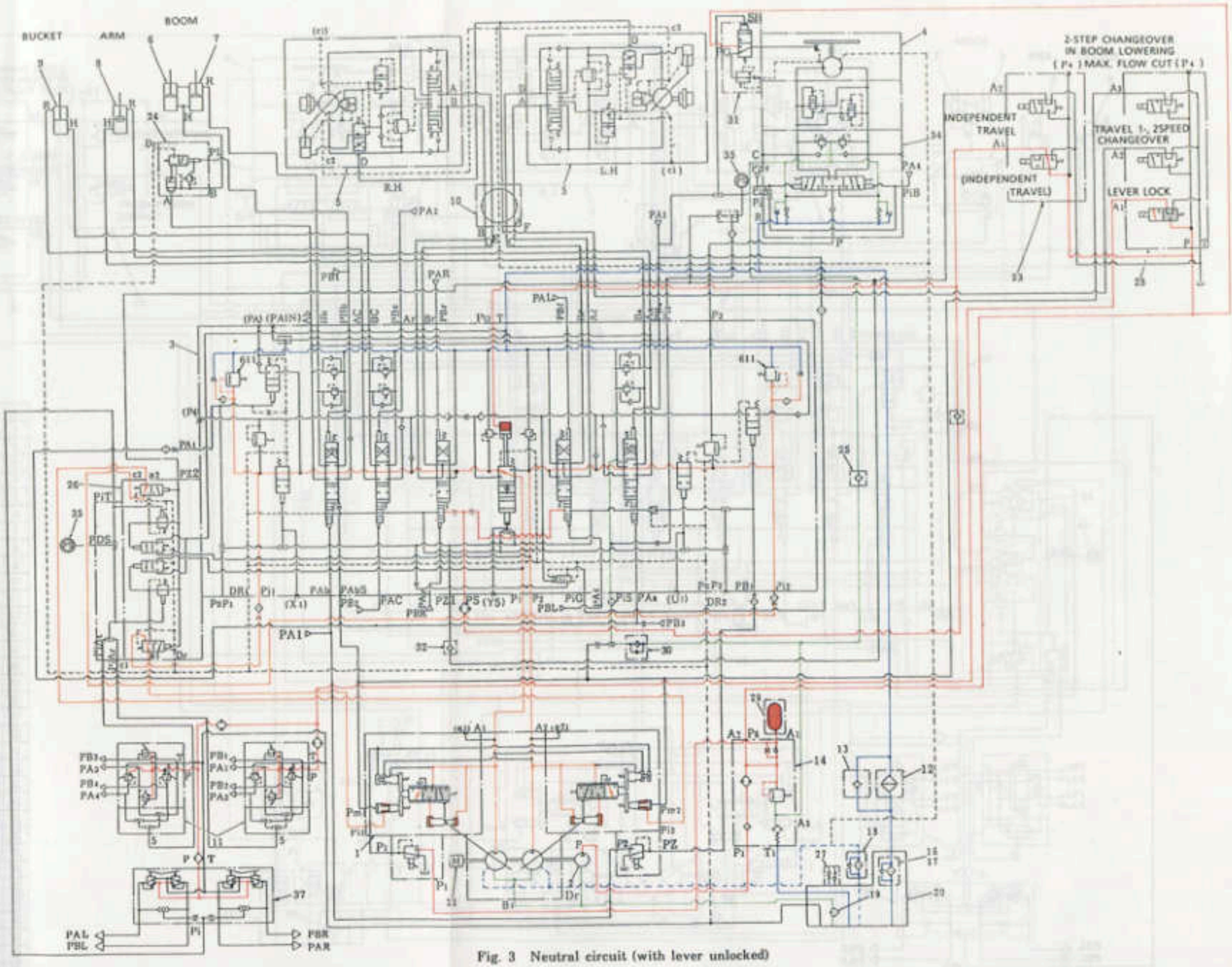


Fig. 3 Neutral circuit (with lever unlocked)

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