KOBELCO

SERVICE MANUAL

HYDRAULIC EXCAVATOR

SK220

SK220LC

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SHOP MANUAL

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SPECIFICATION

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4. FUNCTIONAL DESCRIPTION OF HYDRAULIC CIRCUITS

4.1 NEUTRAL CIRCUIT

(1) Pilot circuit (Provided the lever is unlocked.)

1) Primary pilot pressure circuit

Oil discharged by the gear pump through its OUT port passes through the line filter (15) and relief valve (14) and enters the following components, completing the primary pilot pressure circuit.

P port of pilot valve (11)

PG port of reducing valve (31)

P1 ports of Solenoid proportionate reducing valve attached to pump

2) Negative control signal circuit

The advantage of this circuit is that it minimizes pump discharge when operation is not under way, thereby eliminating wasteful energy consumption (for energy conservation), and reducing fuel bills.

The operating principle is the negative control type in which the increase in pilot pressure Pi reduces the discharge from the pump.

Pilot pressure Pi rises when in neutral because all the oil discharged from the pump is directed through the throttle of the low pressure relief valve (611), increasing the flow through it.

In the negative control circuit for the No.1 pump, oil from port Pi1 of the control valve enters port Pi1 of the pump.

In the negative control circuit for the No.2 pump too, oil is directed from port Pi2 of the control valve to port Pi2 of the pump.

3) Negative control relief cut-off circuit

The advantage of this circuit is that it minimizes pump discharge when the cylinder is operated to the stroke end, thereby reducing fuel bills, as does the circuit mentioned above.

The operating principle is the same as that for the above circuit; pilot pressure Pi is increased by increasing the flow through the relief 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.

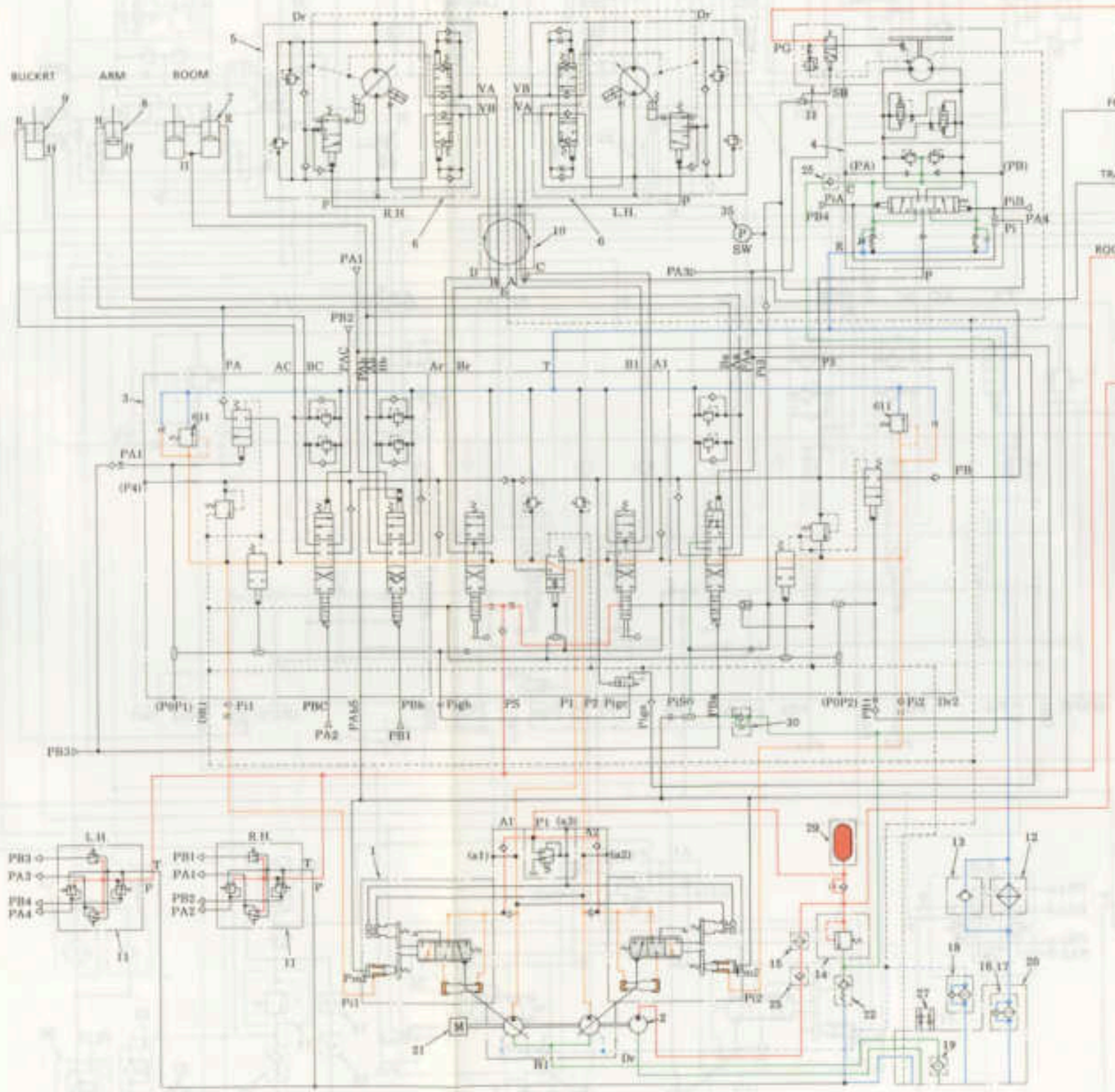


Fig. 3 Neutral Circuit

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