KOBELCO

SERVICE MANUAL

HYDRAULIC EXCAVATOR

SK400 III

SK400LC III

S5YSU0001E-00 NA

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4.6.4 BOOM LOWERING ; 2-STEP CHANGEOVER IN THE FC MODE AND FIXED RECIRCULATION CIRCUIT

(1) Pilot circuit

1) Operating pilot valve (11)
If boom lowering operation is performed, proportionate secondary pilot pressure PB1 for boom lowering action is sent out.

2) PAb port of control valve (3)
Proportionate secondary pilot pressure PB1 enters the PAb port to connect the No.1 pump circuit with the boom cylinder circuit.

3) Holding valve (24)
Proportionate secondary pilot pressure PB1 which enters the PL port shifts the spool (611) to connect the back pressure of the plunger (631) to the tank. As the result boom lowering pressure connects the cylinder with the control valve.
If operation is suspended, proportionate secondary pilot pressure to the PL port goes away. This causes the tank circuit of the spool (611) to close. Then the circuit pressure produced by the weight of the attachment pushes the plunger (631), closed the continuity between the cylinder and the control valve and prevents drifting of the attachment.

4) Solenoid valve (28)
Connection of the primary pilot pressure with the A3 port is effected when the A3 spool is shifted after the FC mode is selected.

5) PAbS port of control valve (3)
If the FC primary pilot pressure enters the PAbS port, the boom spool stroke is restricted by the stroke limiter (355).

6) Pump (1)
The primary FC pilot pressure which enters the Pm1 and Pm2 ports performs the maximum flow cut control of both pumps.

(2) Main circuit
If the FC mode is selected, the hydraulic oil by the No.1 pump is supplied to the boom cylinder rod (R), while the hydraulic oil by the No.2 pump goes back to the tank via the bypass valve. The action of the stroke limiter (355) restricts the oil supply to the cylinder as the boom spool shifts. In the meantime, the oil coming back from the cylinder is pressurized by the weight of the attachment. Where the return circuit pressure > the supply circuit pressure, the pressurized oil pushes the check valve (D) open as it pass through the boom section in the control valve and is recirculated on the supply side. This function saves oil flow for boom lowering action and insures positive bucket operation downstream.

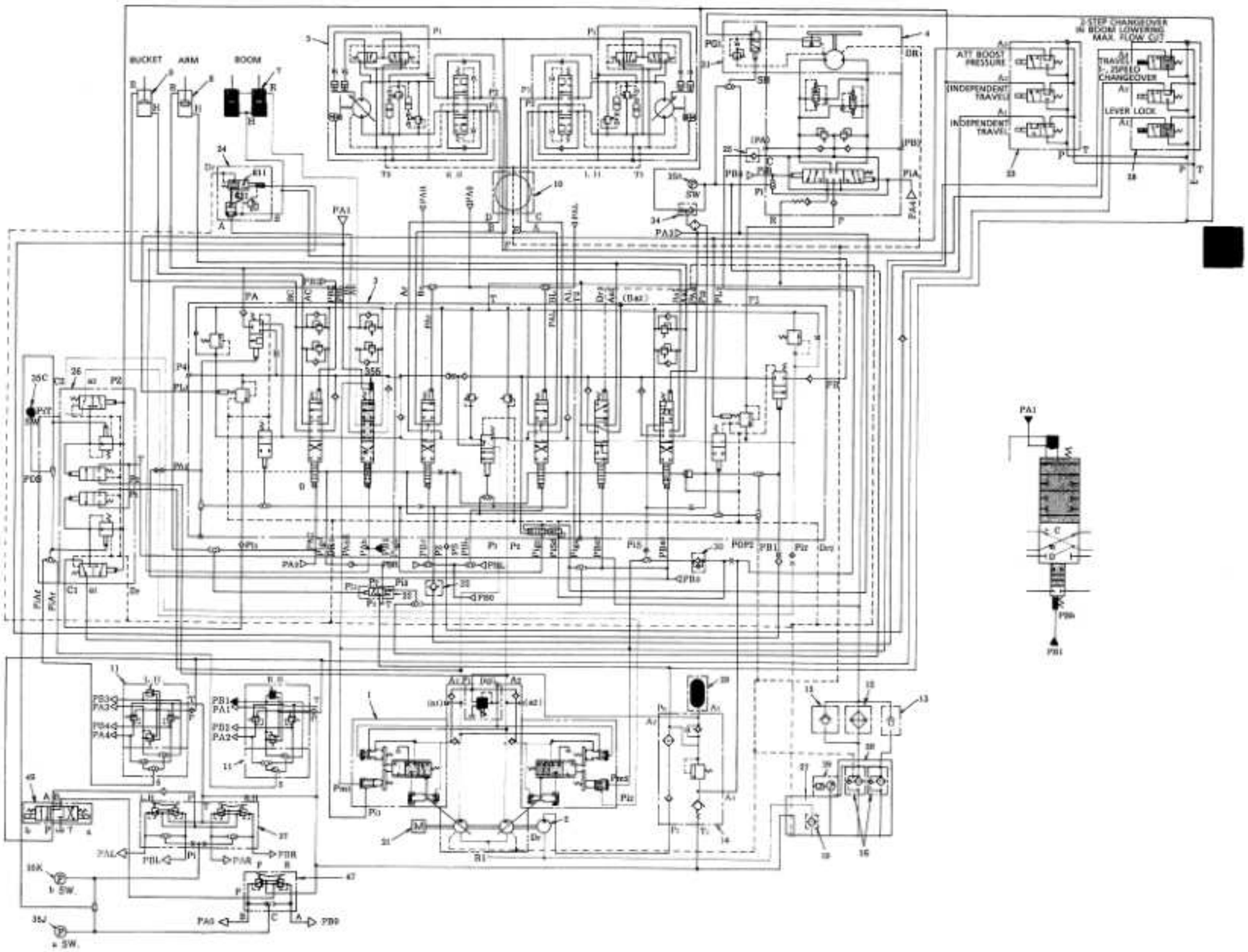


Fig. 12 Boom lowering; 2-step changeover and fixed recirculation circuit in the FC mode

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