KOBELCO

SHOP MANUAL

HYDRAULIC EXCAVATOR

SK220

SK220LC

Applicable: SK220 LQU-00001~
Applicable: SK220LC LLU-00601~

S5LLU0003E 07/03

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4.6.3 ARM RETRACTION(VARIABLE RECIRCULATION CIRCUIT FOR LIGHT LOAD)

This circuit is characterized by recirculating the oil returning from the rod side (R) of the arm cylinder to the head side (H) to increase arm retraction speed or to reduce the variation in arm retraction speed when under a light load, in order to prevent cavitation of the cylinder. This is called the variable recirculation circuit.

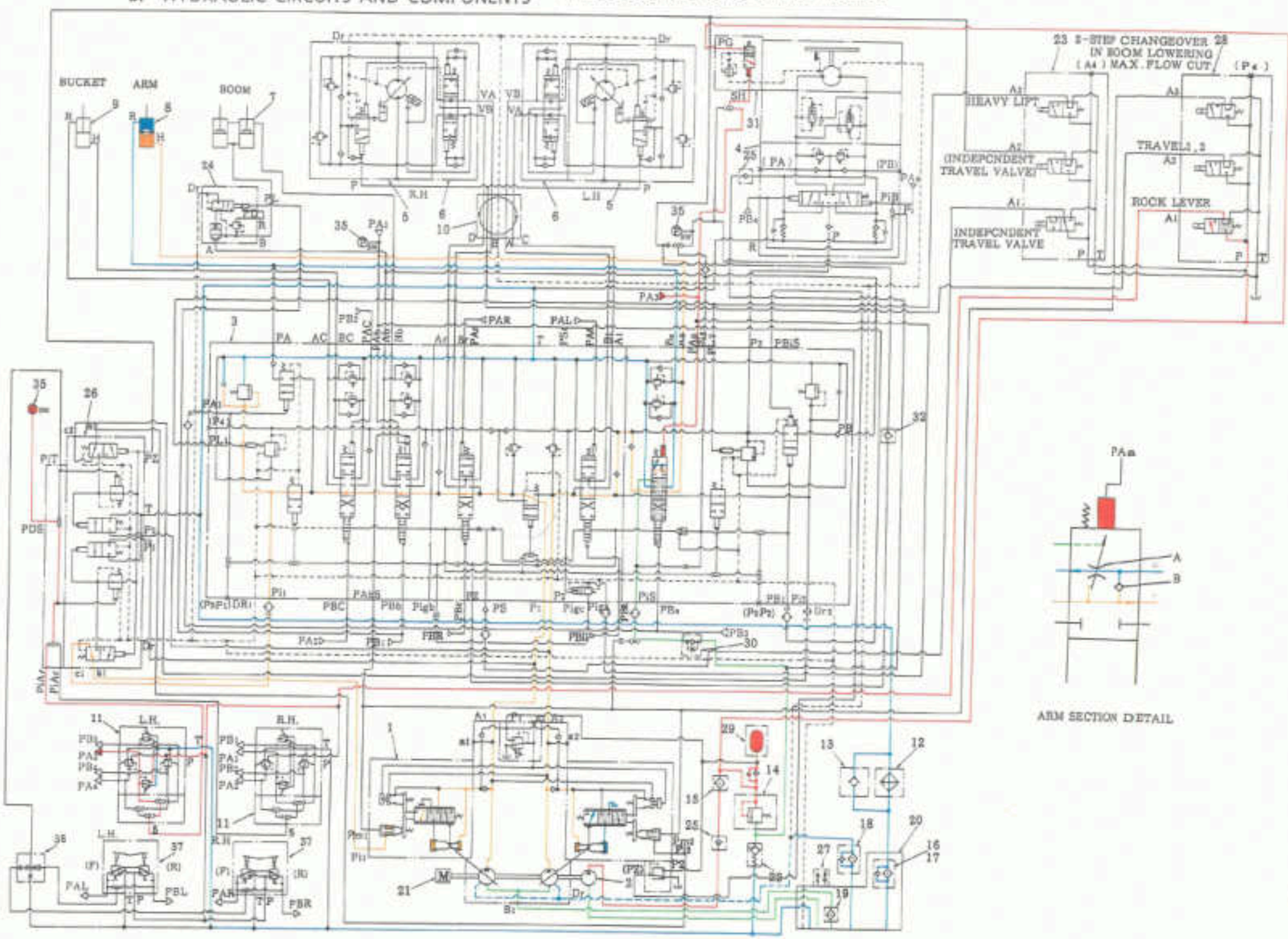
(1) Pilot circuit

1) Switching the arm spool circuit
When the operating lever is shifted to RETRACT ARM, secondary pilot pressure from port PA3 of the pilot valve enters port PAa of the arm section to switch the arm spool position.

2) Variable recirculation pilot circuit
When the arm spool is switched over, pilot back pressure enters port PiS of the control valve after passing through restrictor (30) to throttle restrictor (A).
For simultaneous swing and arm movement, pilot pressure from the swing pilot circuit is combined with that from the arm recirculation pilot circuit to the throttle restrictor (A).

3) Releasing the swing brake
When the arm is retracted, secondary pilot pressure from port PA3 of the pilot valve enters port SH of the reducing valve (31) and switches the valve, and the primary pressure from port PG releases the swing brake.

(2) Main circuit
During light-load retraction, oil from the NO.2 variable displacement pump enters the head side (H) of the cylinder, and oil returning from the rod side (R) of the cylinder passes through the control valve, and back to the tank.
If the pressure at the rod side (R) becomes higher than that at the head side (H) due to oil returning from the cylinder being throttled by restrictor (A) or due to the action of the arm's own weight, check valve (B) is forced open, and the return oil is recirculated for supply to the head side.
During simultaneous swing and arm movement, the swing pilot circuit pressure further throttles restrictor (A), and this facilitates the flow of oil to the swing circuit from the NO.2 pump, thus the swing priority circuit is completed.



ARM SECTION DETAIL

Fig. 20 Retracting the Arm (under light load)

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