KOBELCO

SERVICE MANUAL

HYDRAULIC EXCAVATOR

SK100

SK120(LC)

S5LP0004E 02

APPLICABLE:
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LP-5201~

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TROUBLESHOOTING

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5. SWING PERFORMANCE

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A. Swing performance

Condition :

Engine at high idling, oil temperature of 50±5°C (122±9°F), fully retract the bucket cylinder and arm cylinder, and hold the bucket (empty) at 1.5m (4ft-11in) above ground.

Procedure :

Measure the time required to make two turns after one turn of start-up with a stop watch and give the time required to make one turn. Repeat it three times and give an average value.

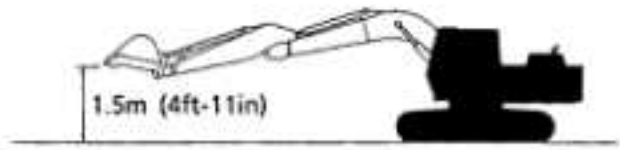


Fig. 37

B. Swing brake

Condition :

Engine at high idling, oil temperature of 50±5°C (122±9°F), fully extend the bucket cylinder and fully retract the arm cylinder, and hold the bucket (empty) at 1.5m (4ft-11in) above ground.

Procedure :

Measure the braking distance at the top end of the bucket, actuating swing relief valve after one turn of start-up. Repeat it three times on clockwise and counterclockwise direction respectively and give an average value for each direction.

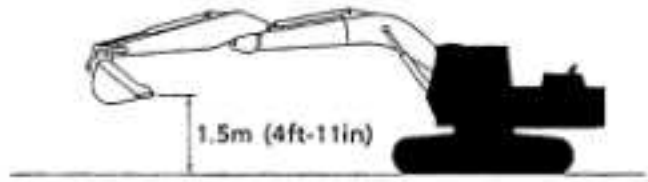


Fig. 38

C. Swing maintain performance

Condition :

Engine stopped, oil temperature of 50±5°C (122±9°F), fully retract the bucket cylinder and the arm cylinder, and set the machine on a 10 deg. Slope, holding the bucket at 1.5m (4ft-11in) above ground.

Procedure :

Direst the attachment perpendicular to the slope and measure the swing (overrun) at the bucket top end for 20 seconds. Measure it in both the clockwise and counterclockwise directions.

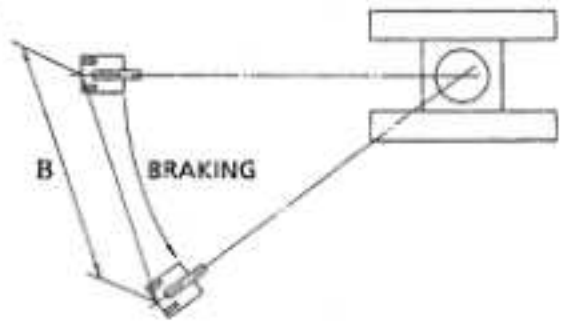


Fig. 39

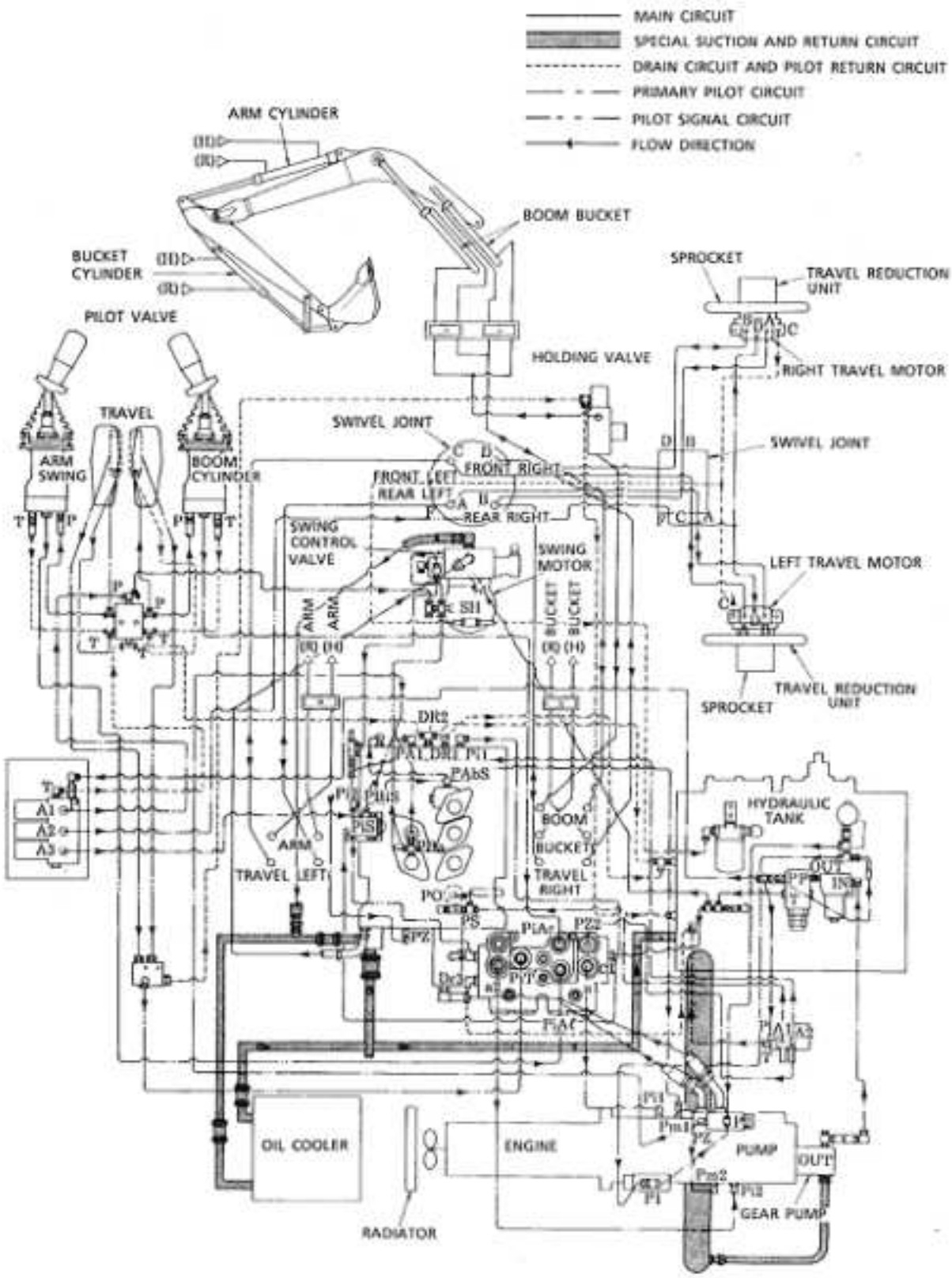
Table 12

Symbol	Item	Standard value	Remarks
A	Swing speed	4.6~5.1sec/rev	
B	Swing brake performance	60°~90°	
C	Swing maintain performance	0mm/20sec (0 in/20 sec)	

☞ Measure the swing drift value in "C" 10 seconds after the engine stops.

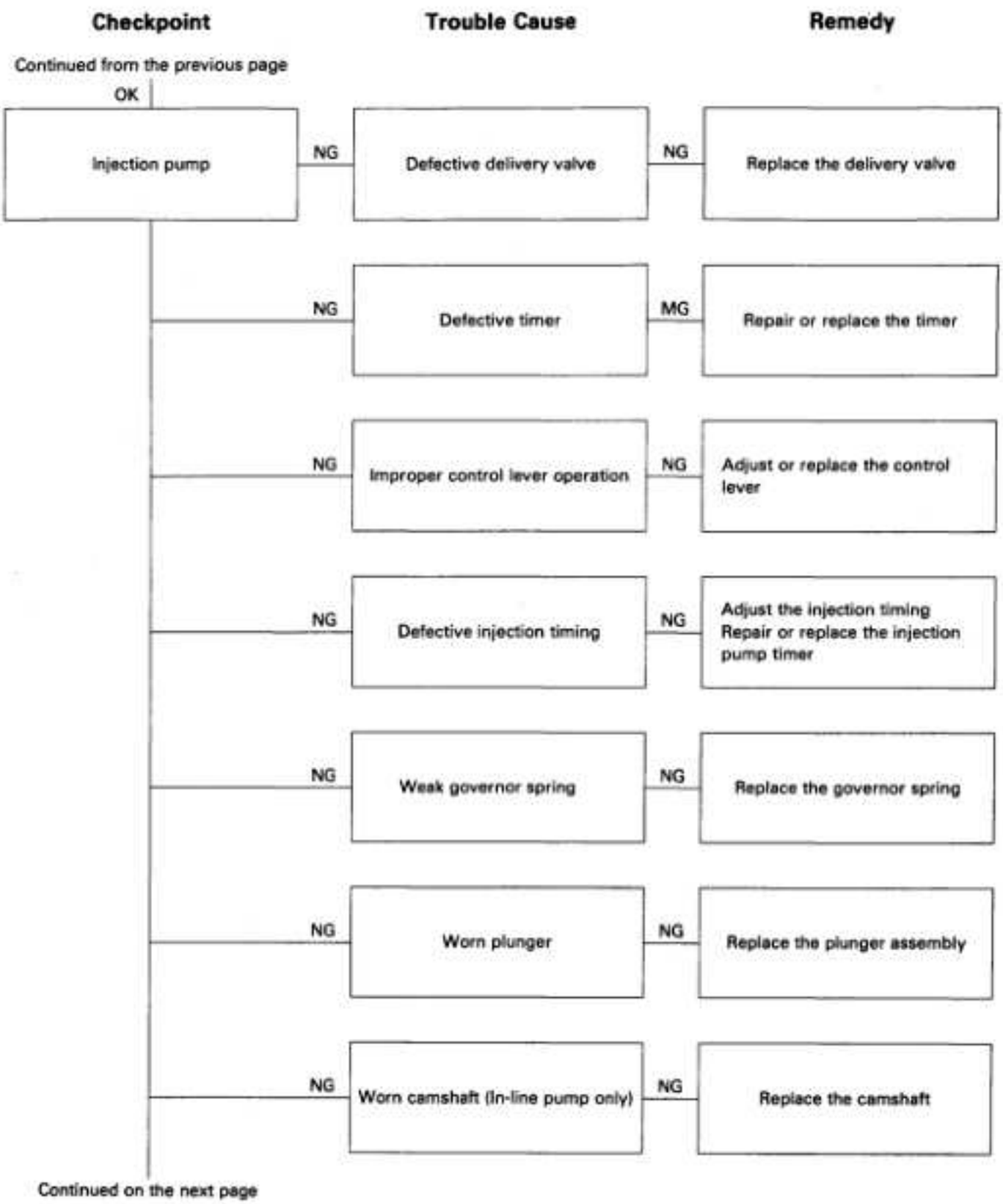
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2.2 SK120 HYDRAULIC CIRCUIT DIAGRAM (WRIST CONTROL)



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INSUFFICIENT POWER



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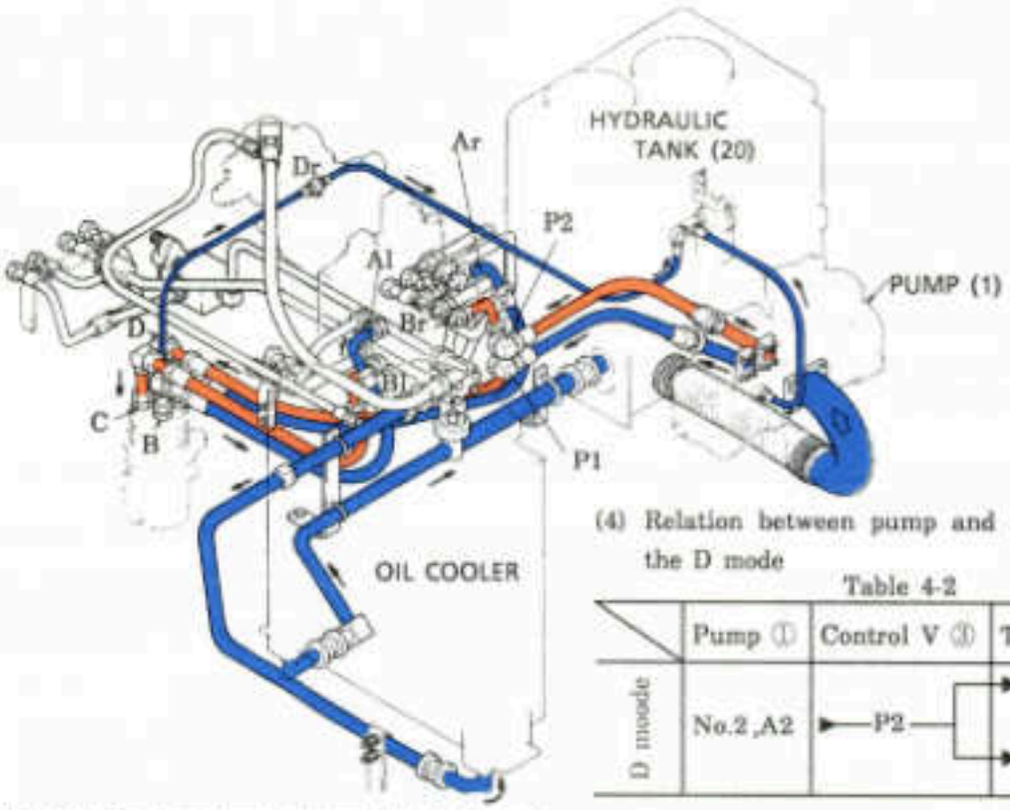


Fig. 2-2 Oil flow in advance travel in the D mode

(4) Relation between pump and travel motor in the D mode

Table 4-2

	Pump ①	Control V ③	Travel motor ⑤
D mode	No.2 ,A2	P2	Right (advance and retreat)
			Left (advance and retreat)

☞ Port F of the swivel joint (10) and port P of both travel motors get high only when 2-speed travel command pressure enters the ports.

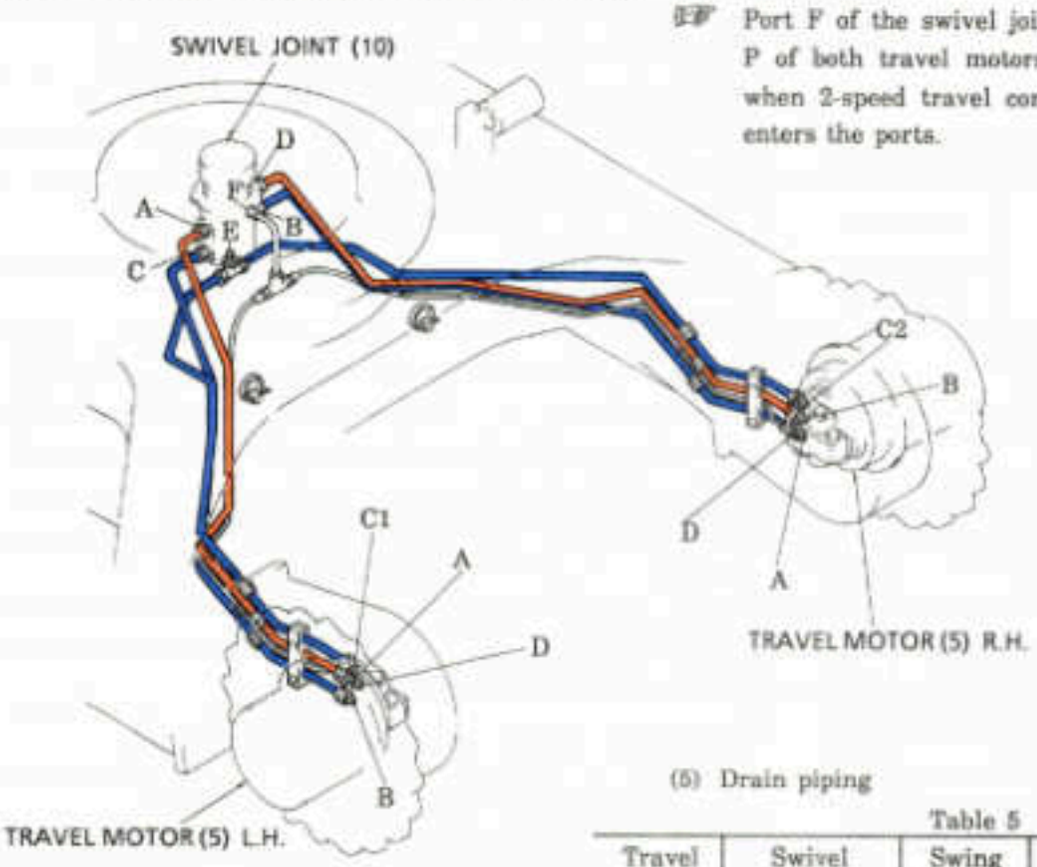


Fig. 3 Oil flow for advance travel of lower body (2-speed travel command)

(5) Drain piping

Table 5

Travel motor (5)	Swivel joint (10)	Swing motor (4)	Drain filter (18)	Tank(20)
C1	E — E	DR		
C2				

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4.2 TRAVEL CIRCUIT

The travel circuit is featured by straight travel, boost press travel 2-speed travel, 1-speed travel and independent travel functions.

The travel system operates on hydraulic pilot pressure, the same way as the pilot control method used in other motions.

4.2.1 SIMPLE TRAVEL 2ND SPEED (FORWARD)

(1) Pilot circuit

1) Travel 2nd changeover signal

If the "Tortoise & Hare" sign on the right travel lever is pressed, the 2-speeded, the 2-speed travel valve of the solenoid valve (28) is changed over which causes pilot pressure to connect with port A2.

Pressurized oil from port A2 is directed to port D of the travel variable-displacement motor (5) to drive the travel motor at travel 2nd speed.

If the travel motor driving pressure becomes excessively high, the speed will automatically return to travel 1st speed.

2) Changing the travel priority valve to ordinary work function

Pilot pressure from port A1 of the solenoid valve (23) enters port PO of the control valve, and switches the travel priority valve to the normal function mode.

3) Automatic deceleration at travel operation

If travel action is performed when the automatic deceleration switch is "ON", the secondary pilot pressure enters from the PiT port of the pilot valve (37) to the PiT port of the independent travel (26) and turn the pressure switch (35) "ON". If the pressure switch is turned 'ON", an electric signal is sent to the KPSS controller. The controller then determines that the travel operating lever is in operation and activates the automatic deceleration.

(2) Main circuit

The flow of the oil that drives the travel motors is as follows. Oil from the No.1 pump passes through the travel priority valve in the control valve (3), and comes out of port Br in the control valves travel section.

The oil passes through the swivel joint (10) and enters port A of the brake valve, mounted on the right-hand travel motor (5).

The moment the brake valve is changed over by hydraulic pressure, the pressure releases the parking brake and permits the pressure to run into the motor.

Oil from the No.2 pump drives the left-hand travel motor in the same way, except that the oil is directed directly to the travel spool without passing through the travel priority valve in the control valve.

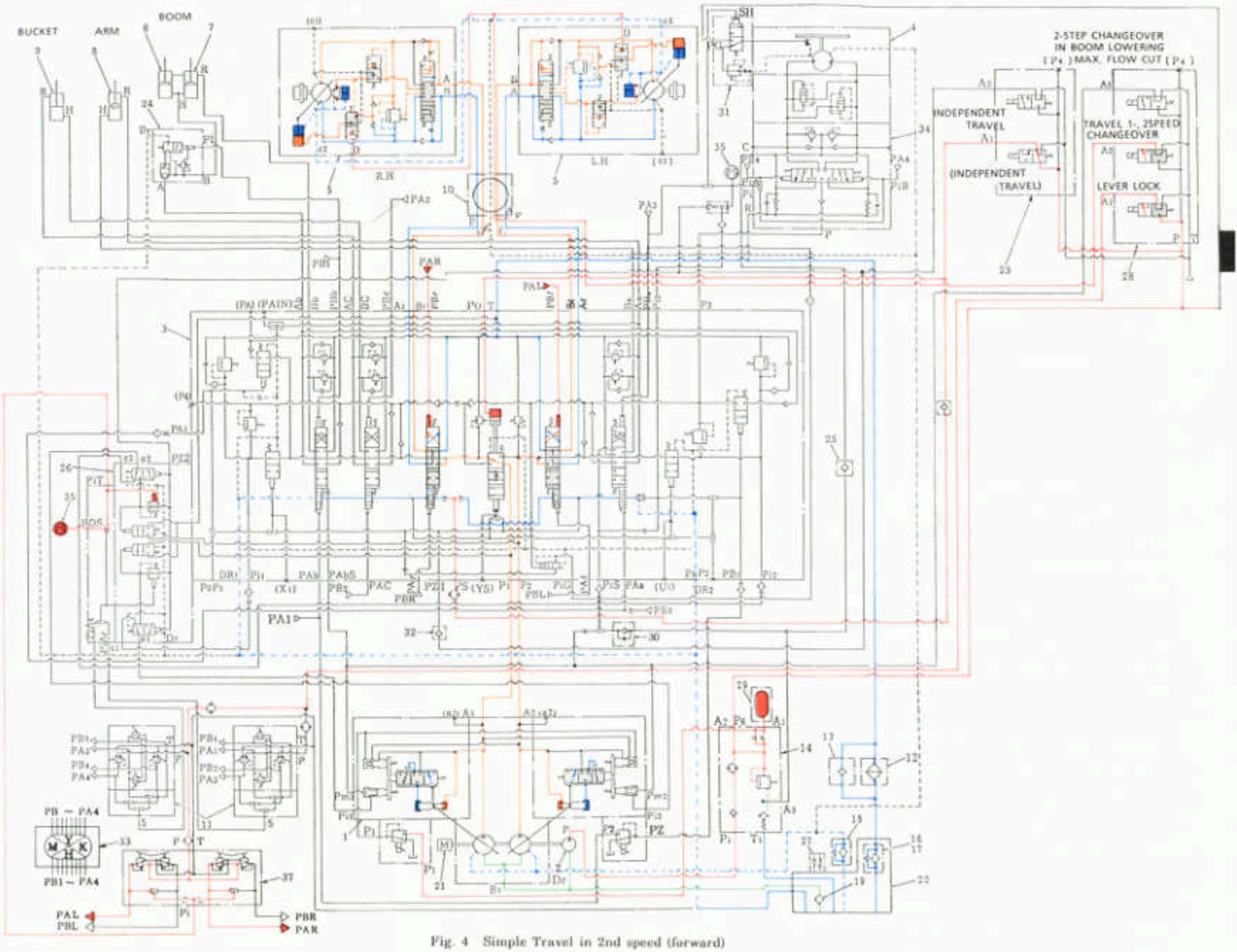


Fig. 4 Simple Travel in 2nd speed (forward)

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