PART NO. TOLBJE0-EN-00

HITACHI

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Technical Manual
Operational Principle

ZX170W-5A
Wheeled Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TOLBJE0-EN
Technical Manual (Troubleshooting)	: Vol. No.TTLBJE0-EN
Workshop Manual	: Vol. No.WLBJE0-EN
Engine Manual	: Vol. No.ETDCY-EN, EWDCY-EN

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CYLINDER (Mono Boom)		Boom	Arm	Bucket
	Rod Diameter	80 mm	90 mm	75 mm
	Cylinder Bore	110 mm	120 mm	105 mm
	Stroke	1005 mm	1365 mm	935 mm
	Fully Retracted Length	1655 mm	1905 mm	1460 mm
	Plating Thickness	30 µm	30 µm	30 µm

CYLINDER (Option)		Blade	Outrigger
	Rod Diameter	60 mm	70 mm
	Cylinder Bore	105 mm	120 mm
	Stroke	195 mm	381 mm
	Fully Retracted Length	615 mm	854 mm
	Plating Thickness	30 µm	30 µm

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Pump Torque Increase Control (Swing and Boom Raise)

Purpose:
The pump torque increase control (swing and boom raise) increases driving torque of pumps 1, 2 and increases pump delivery flow rate during combined operation of swing and boom raise so that the boom raise speed becomes fast.

Operation:

1. When all following conditions exist, MC 1 (12) calculates the data including the signals from pump 1 delivery pressure sensor (26) and pump 2 delivery pressure sensor (25) and sends the signals to torque control solenoid valve (28).
2. Torque control solenoid valve (28) delivers the pilot pressure according to the signals to the regulator and increases the pump delivery flow rate.
3. Therefore, the boom raise speed becomes fast.

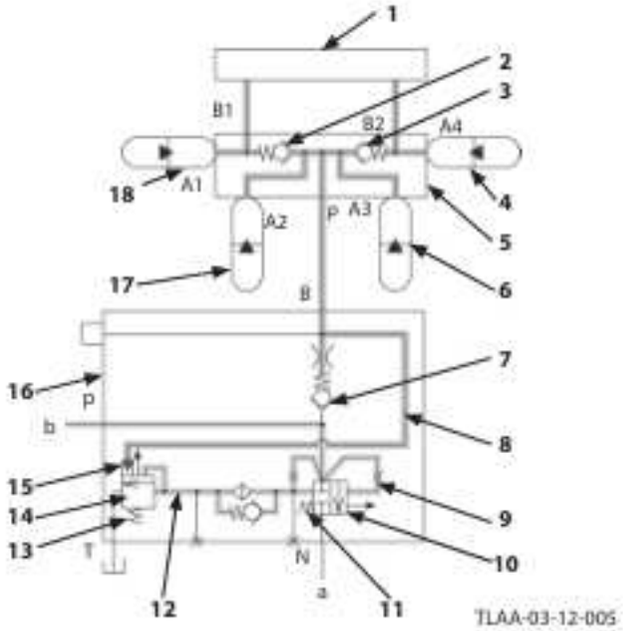
Condition:

- Pressure Sensor (Swing) (9): Outputting signal
- Pressure Sensor (Boom Raise) (6): Outputting signal
- Pump Delivery Pressure: High

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- Between pressure charging start and pressure charging finish

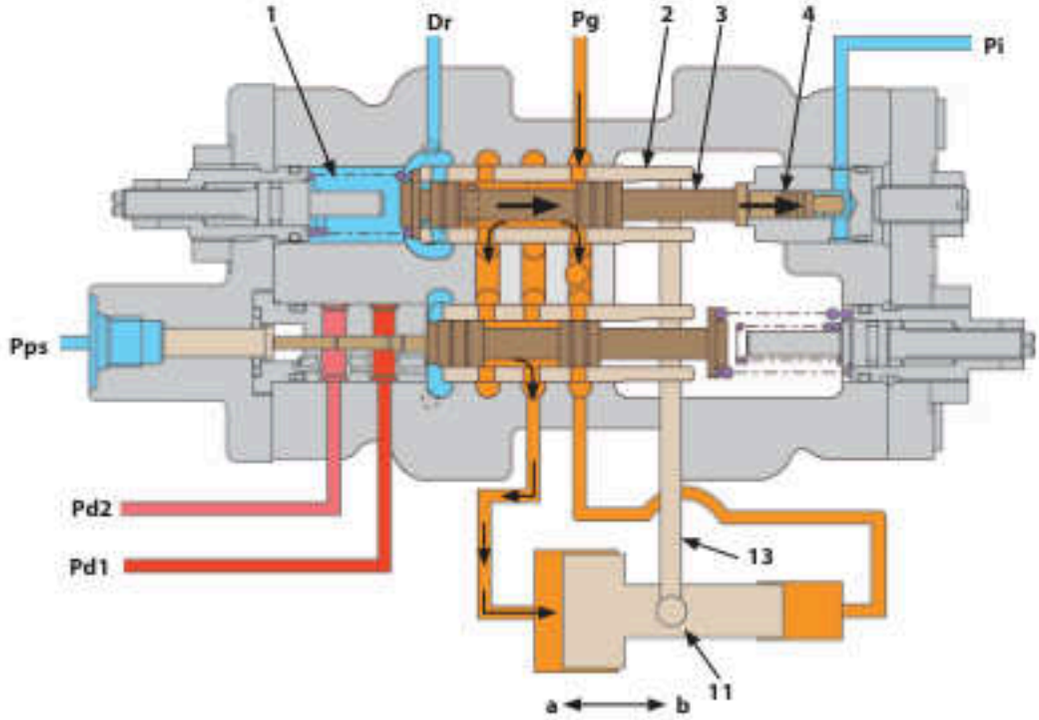
1. When pressure in the brake circuit (accumulator) decreases, pressure in passage (8) also decreases. Pilot piston (14) and piston (15) move to the right (up as illustrated in the circuit diagram) due to the spring (13) force.
2. As passage (12) is disconnected from port T by pilot piston (14), pressure in passage (12) increases gradually.
3. When the total of the pressure in passage (12) and the spring (11) force is larger than the pressure in chamber A (9), spool (10) is moved to the right, and the circuit between port P and port N is blocked.
4. Pressure oil (b) from port P pushes to open check valves (7, 2, and 3) and flows to accumulators (6, 17, 18, and 4) and brake valve (1).
5. Therefore, when pressure in the brake circuit is low, pressure oil is given priority to flow to the brake circuit. At the same time, accumulators (6, 17, 18, and 4) start pressure charging.
6. These procedures are continued until accumulators (6, 17, 18, and 4) become saturated (cut-out pressure).



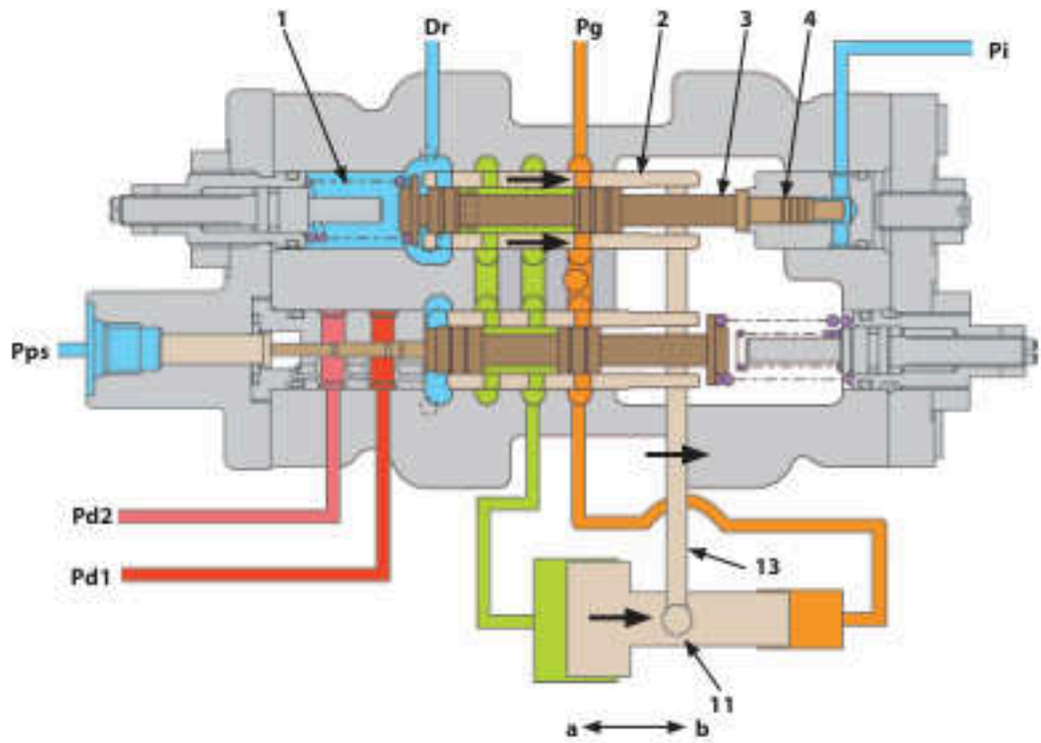
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NOTE: The figure shows the pump 2 regulator.



TPPP-03-01-018



TPPP-03-01-019

Pd1- Pump 1 Delivery Pressure
Pd2- Pump 2 Delivery Pressure

Dr- Returning to Hydraulic Oil Tank
Pi- Pump Control Pressure

Pps- Torque Control Pressure
Pg- Primary Pilot Pressure (From Pilot Pump)

a- Displacement Angle Increase
b- Displacement Angle Decrease

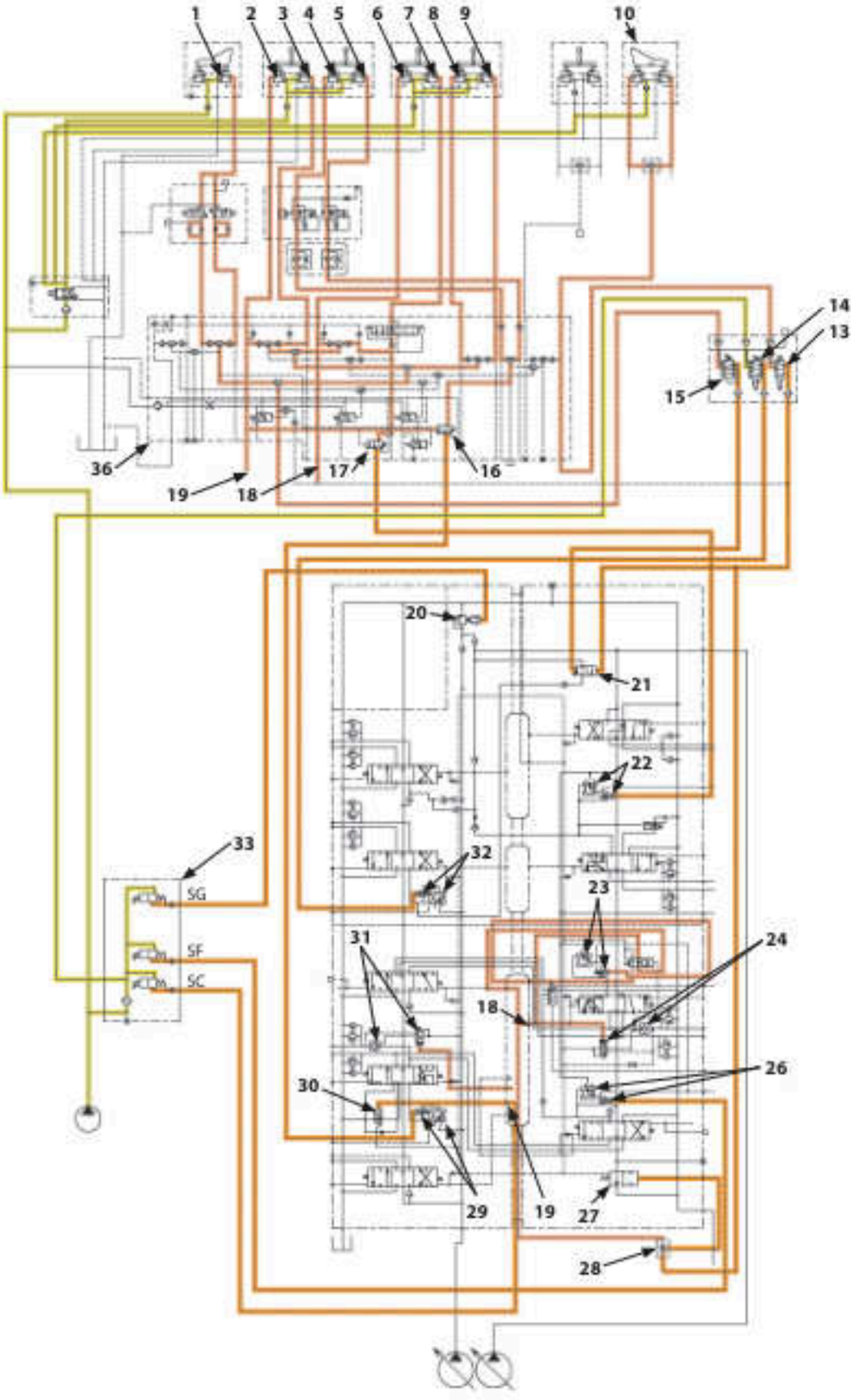
1- Spring
2- Sleeve A

3- Spool A
4- Piston

11- Servo Piston

13- Link

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