PART NO. TOJAC91-EN-00

HITACHI

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Technical Manual
Operational Principle

ZX470LC-5G
Hydraulic Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TOJAC91-EN
Technical Manual (Troubleshooting)	: Vol. No.TTJAC91-EN
Workshop Manual	: Vol. No.WJAC91-EN

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GENERAL

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Group 3 Component Specifications

FRONT ATTACHMENT PILOT VALVE	Model	HVP07C-040-101
	Plunger Stroke	Ports 1, 3: 6.5 mm (0.26 in), Ports 2, 4: 8.0 mm (0.32 in)
TRAVEL PILOT VALVE	Model	HVP08A-040-101
	Plunger Stroke	Ports 1, 2, 3, 4: 4.6 mm (0.18 in)
4-SPOOL SOLENOID VALVE UNIT	Type	4-Spool Proportional Solenoid valve
	Rated Voltage	DC 24 V
	Coil Resistance	22 Ω
2-SPOOL SOLENOID VALVE UNIT	Type	2-Spool Proportional Solenoid Valve
	Rated Voltage	DC 24 V
	Coil Resistance	22 Ω
SIGNAL CONTROL VALVE	Model	KVSS-10-HB
	Rated Pressure	3.72 MPa (38 kgf/cm^2, 540 psi)
PILOT SHUT-OFF SOLENOID VALVE	Type	ON/OFF Solenoid Valve
	Rated Voltage	DC 24V
	Coil Resistance	49 Ω
LOW-PRESSURE RELIEF VALVE	Relief Set Pressure	150±37 kPa (1.5±0.4 kgf/cm^2, 22±5 psi)
BYPASS CHECK VALVE	Relief Set Pressure	350±38 kPa (3.6±0.4 kgf/cm^2, 51±6 psi)
FILTER	Air Cleaner (Filtration)	-
	Full-Flow Filter (Filtration)	β10≥2.0
	Suction Filter (Filtration)	177 µm (80 mesh)
	Drain Filter (Filtration)	10 µm
	Pilot Filter (Filtration)	10≥1.4

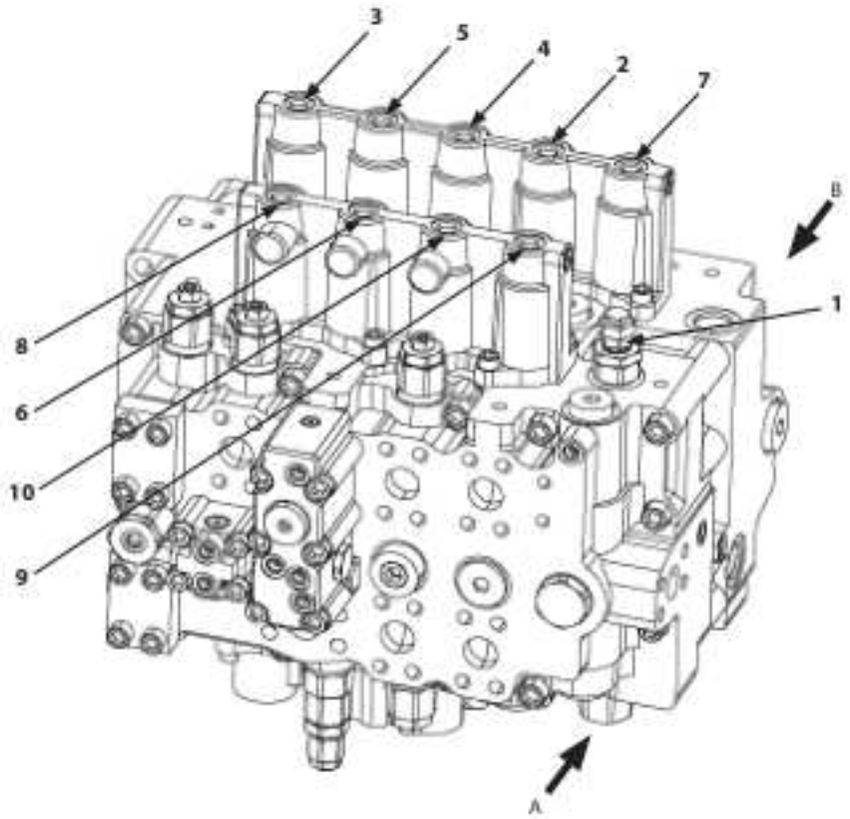
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Outline

The control valve controls the oil pressure, flow rate, and flow direction in the hydraulic circuit.
The major parts are the main relief valve, overload relief valve, flow combiner valve, anti-drift valve, flow rate control valve, regenerative valve, boom lower meter-in cut valve, bypass shut-out valve, and spools. The spools are operated by the pilot oil pressure.

As for the spools, in the A side block, travel (right), bucket, boom 1, and arm 2 are arranged in that order as viewed from the machine front. In the B side block, travel (left), auxiliary, boom 2, arm 1, and swing are arranged in that order as viewed from the machine front.

Control Valve



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A - 4-Spool Side
B - 5-Spool Side

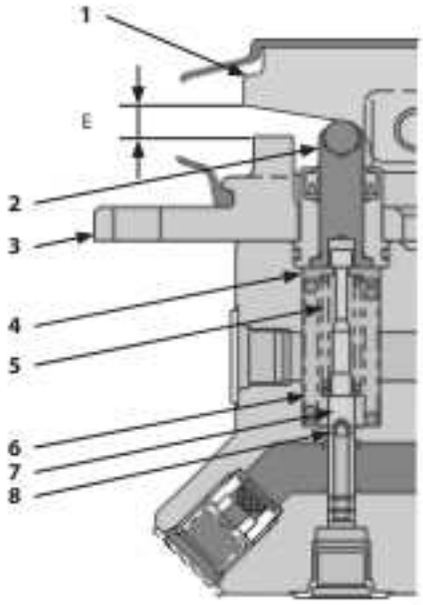
1- Main Relief Valve
2- Auxiliary
3- Swing
4- Boom 2
5- Arm 1
6- Boom 1
7- Travel (Left)
8- Arm 2
9- Travel (Right)
10- Bucket

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Operation (Auxiliary / Counterweight Removal and Installation Pilot Valve)

The spool (7) head comes in contact with the upper surface of spring guide (4). Spring guide (4) is kept raised by return spring (6).

NOTE: Total lever stroke is determined by stroke dimension (E) of cam (1).

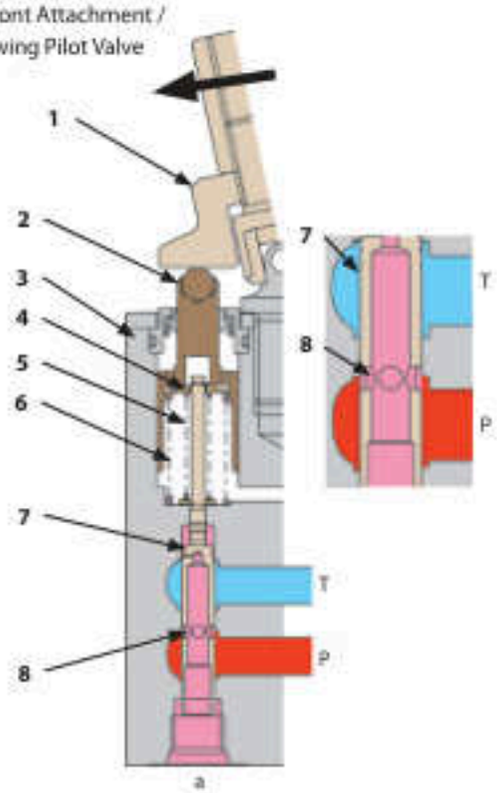


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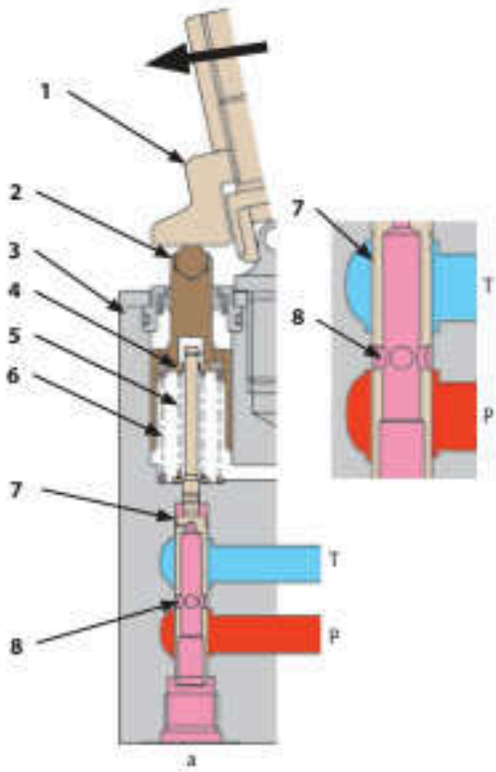
1- Cam
2- Pusher
3- Plate
4- Spring Guide
5- Balance Spring
6- Return Spring
7- Spool
8- Hole

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Front Attachment / Swing Pilot Valve

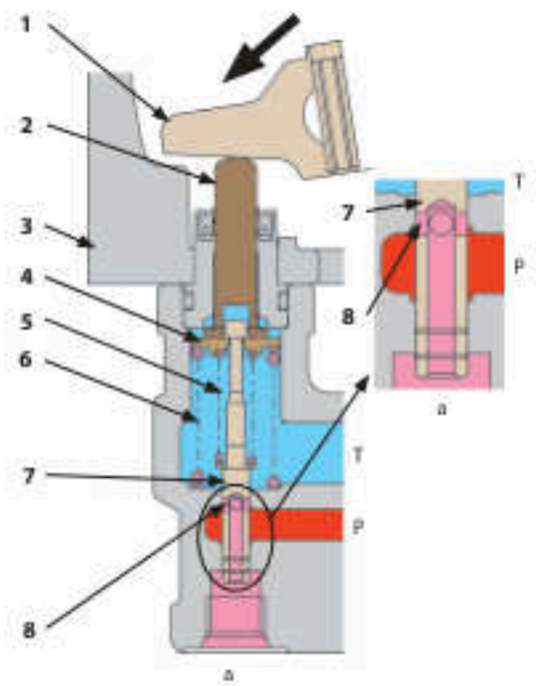


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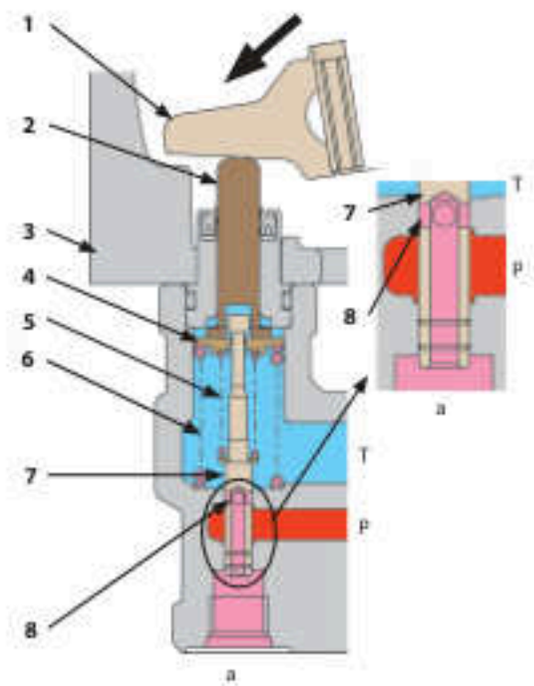


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Travel Pilot Valve



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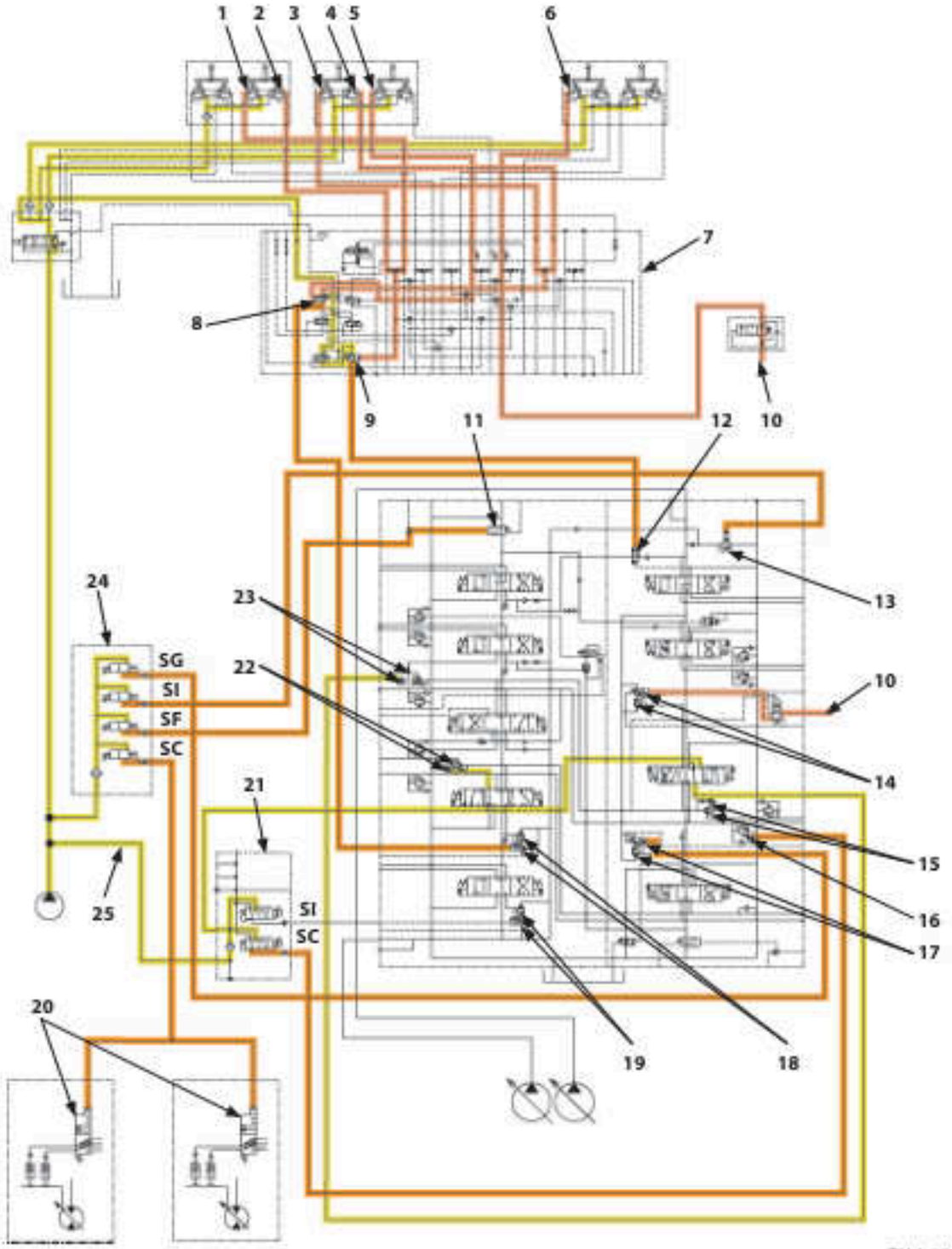


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P- Port P
T- Port T
a- Output Port

1- Cam
2- Pusher
3- Casing
4- Spring Guide
5- Balance Spring
6- Return Spring
7- Spool
8- Hole

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1- Travel (Right Reverse)
2- Travel (Right Forward)
3- Swing (Right)
4- Swing (Left)
5- Arm Roll-In
6- Boom Lower
7- Signal Control Valve
8- Arm Flow Rate Control Valve Control Spool
9- Flow Combiner Valve Control Spool
10- Boom Lower Pilot Pressure
11- Bypass Shut-Out Valve
12- Flow Combiner Valve
13- Main Relief Valve
14- Boom Flow Rate Control Valve
15- Boom 1 Anti-Drift Valve
16- Boom Overload Relief Control Valve
17- Arm 2 Flow Rate Control Valve
18- Arm 1 Flow Rate Control Valve
19- Swing Flow Rate Control Valve
20- Travel Motor Displacement Angle Control Valve
21- 2-Spool Solenoid Valve Unit
22- Arm 1 Anti-Drift Valve
23- Boom 2 Anti-Drift Valve
24- 4-Spool Solenoid Valve Unit
25- Pilot Pressure from Pilot Pump

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