PART NO. TODCR-EN-00

HITACHI

Reliable solutions

Technical Manual
Operational Principle

ZX220LC-GI
Hydraulic Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TODCR-EN
Technical Manual (Troubleshooting)	: Vol. No.TTDCR-EN
Workshop Manual	: Vol. No.WDCR-EN

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SECTION 1

GENERAL

CONTENTS

Group 1 Specification

Specifications T1-1-1
Working Ranges (Grouser shoe) T1-1-2

Group 2 Component Layout

Main Component T1-2-1
Electrical System (Overview) T1-2-2
Engine T1-2-3
Electrical System (In Cab) T1-2-3
Electrical System (Rear Tray) T1-2-4
Electrical System (Monitors) T1-2-5
Electrical System (Switch Panel) T1-2-6
Electrical System (Around Air Cleaner) T1-2-7
Electrical System (Relays) T1-2-8
Pump Device T1-2-9
Control Valve T1-2-10
Signal Control Valve T1-2-10
Swing Device T1-2-12
Travel Device T1-2-12
3-Spool Solenoid Valve Unit T1-2-13
Layout of Attachment Spec. Parts T1-2-14

Group 3 Component Specifications

Engine T1-3-1
Engine Accessories T1-3-5
Hydraulic Component T1-3-6
Electrical Component T1-3-10

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IMPORTANT: This list shows design specifications, which are not servicing standards.

PERFORMANCE	Fuel Consumption Ratio	240 g/kW/h (177 g/PS·h) at $125^{+1.5}_{-4.4}$ kW / (at Full Load: 2100 min^{-1})
		230 g/kW/h (169 g/PS·h) at $118^{+8.8}_{-1}$ kW / (at Working Load: 2000 min^{-1})
	Maximum Output Torque	637^{+55}_{-65} N·m ($65^{+5.6}_{-6.6}$ kgf·m) at approx. 1800 min^{-1}
	Compression Pressure	3.04 MPa (31 kgf/cm^2) at 200 min^{-1}
	Valve Clearance (Inlet / Exhaust)	0.4 / 0.4 mm (when cool)
	No Load Speed	Slow: (at Full Load: 950±20 min^{-1})
		Fast: (at Full Load: 2390^{+25}_{-55} min^{-1})
		Fast: (at Working Load: 2300±50 min^{-1})

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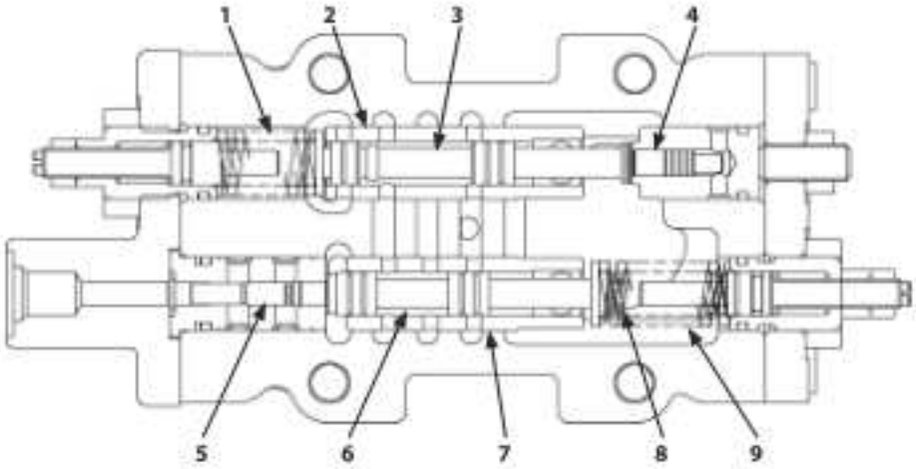
Outline

The electrical circuit is broadly divided into the main circuit, monitor circuit, accessory circuit, and control circuit.

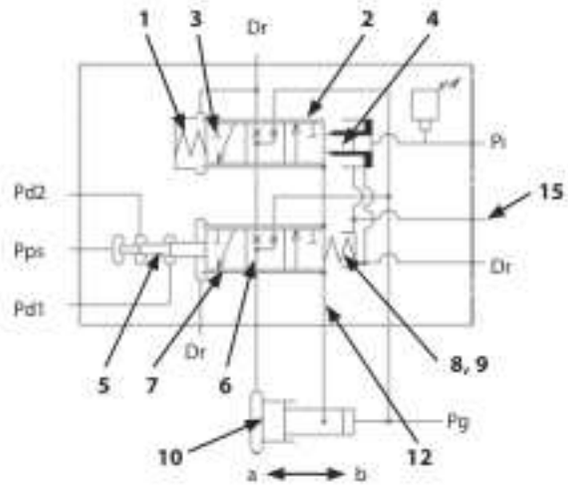
- Main Circuit:
  Operates the engine and the accessory related circuits.
- Monitor Circuit:
  Displays the machine operating conditions. Consists of monitor, relays, and switches.
- Accessory Circuit:
  Operates the accessory circuit. Consists of MC, relays, and switches.
- Control Circuit:
  Controls the engine, pump, and valve. Consists of the actuators such as solenoid valves, MC, ECF, sensors, and switches.
  (Refer to SYSTEM / Control System.)

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Pump 1 Regulator



TDCD-03-01-005



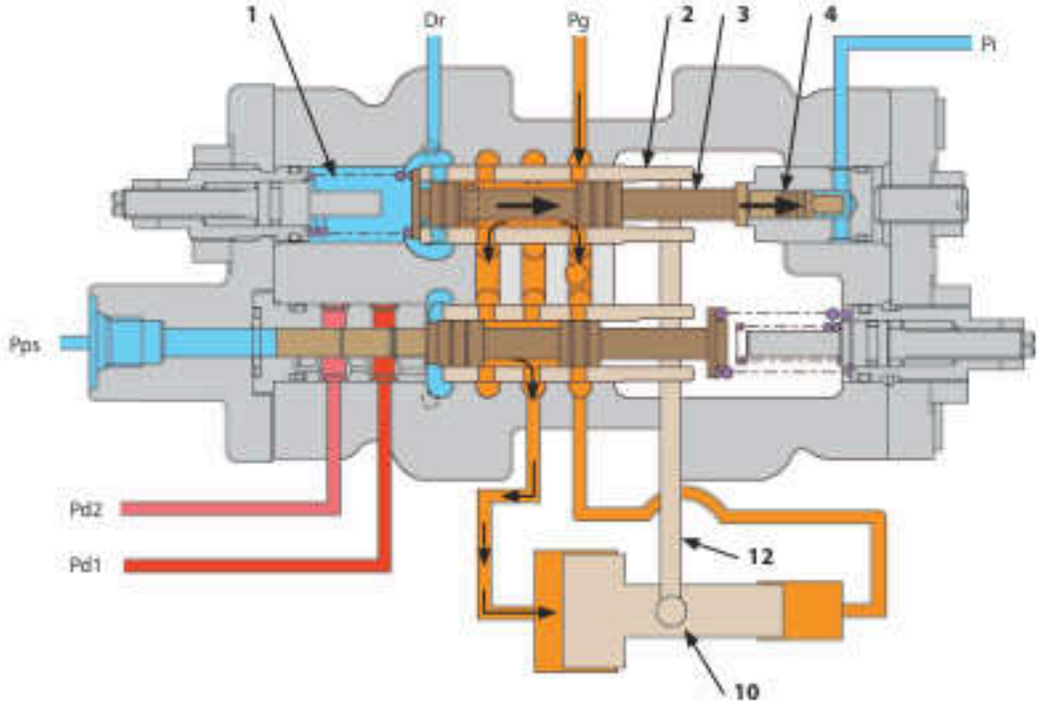
TDCE-03-01-001

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

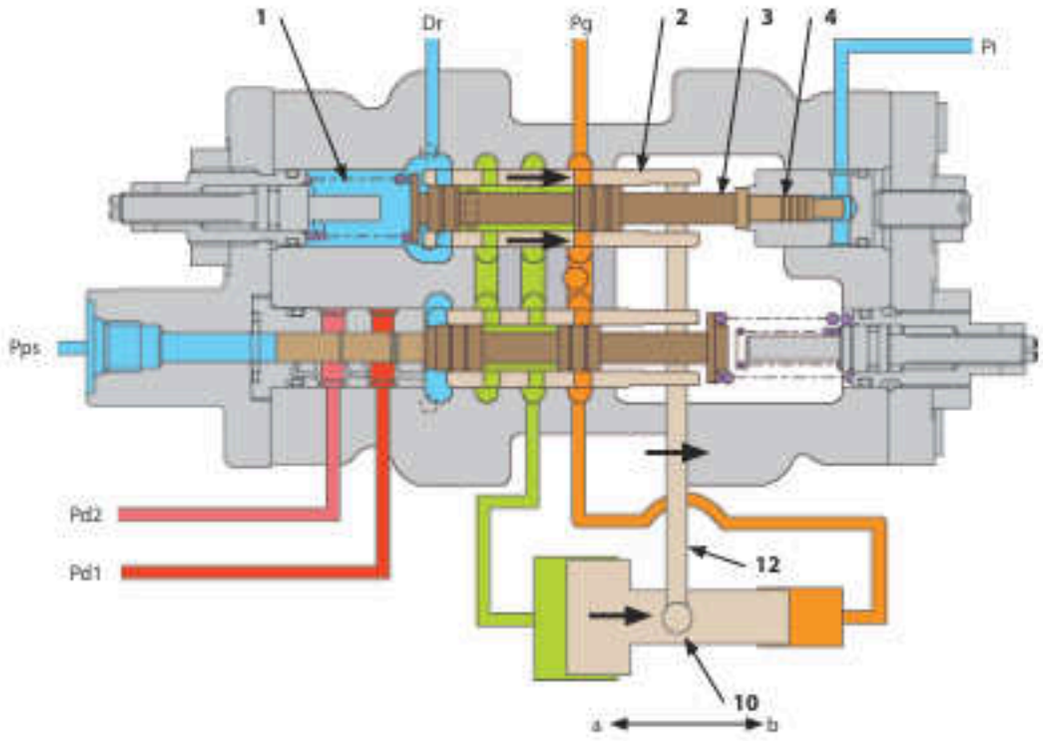
1- Spring
2- Sleeve A
3- Spool A
4- Piston
5- Load Piston
6- Spool B
7- Sleeve B
8- Inner Spring
9- Outer Spring
10- Servo Piston
12- Link
13- Torque Control Solenoid Valve
14- Maximum Pump 2 Flow Rate Limit Control Solenoid Valve
15- Air Bleeding Circuit

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NOTE: The illustration shows the pump2 regulator.



TDCD-03-01-011



TDCD-03-01-012

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

Dr- Returning to Hydraulic Oil Tank

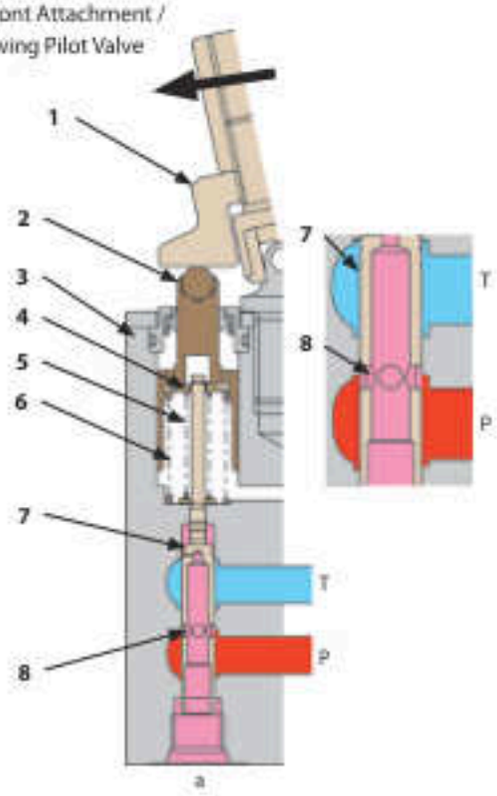
Pi- Pump Control Pressure
Pps- Torque Control Pressure

Pg- Primary Pilot Pressure (From Pilot Pump)

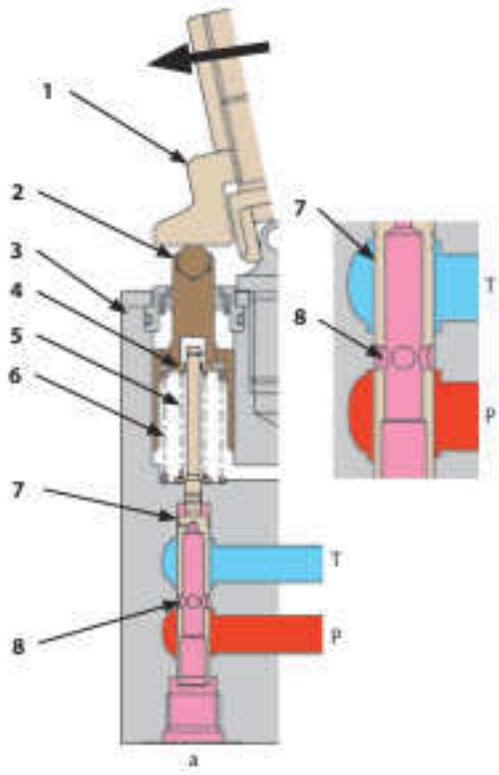
1- Spring
2- Sleeve A
3- Spool A
4- Piston
10- Servo Piston
12- Link

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Front Attachment /
Swing Pilot Valve

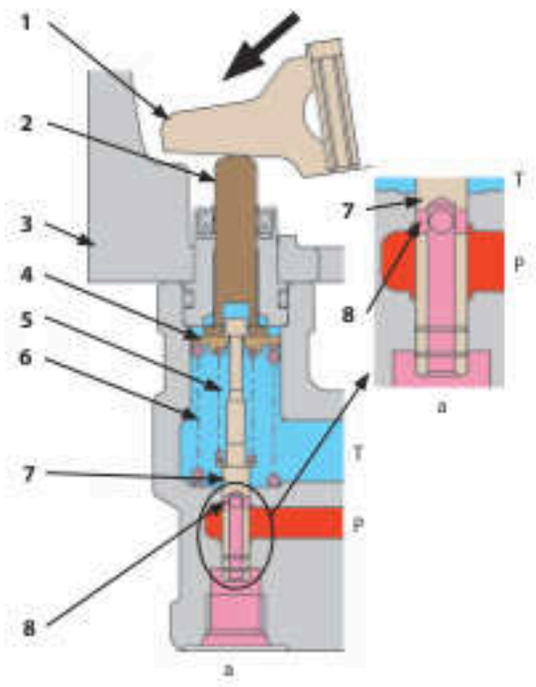


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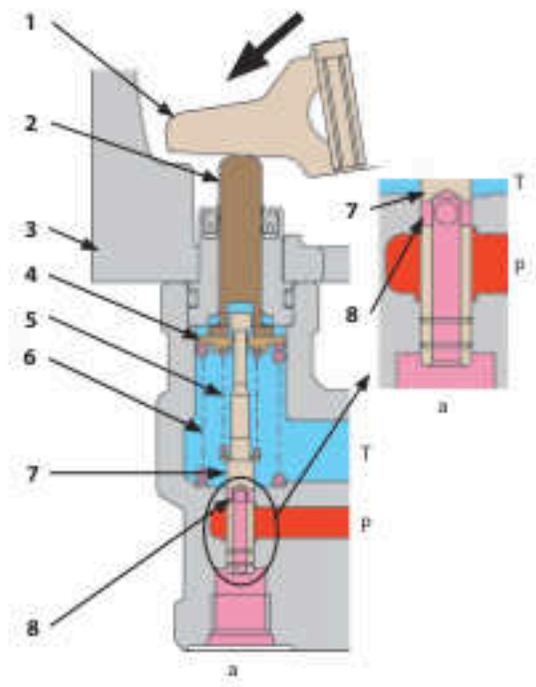


TPPP-03-04-008

Travel Pilot Valve



TPPP-03-04-012



TPPP-03-04-013

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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