PART NO. TODAK90-EN-00

HITACHI

Reliable solutions

Technical Manual
Operational Principle

ZX
130-5A
Hydraulic Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TODAK90-EN
Technical Manual (Troubleshooting)	: Vol. No.TTDAK90-EN
Workshop Manual	: Vol. No.WDAK90-EN
Engine Manual	: Vol. No.EDBL-EN

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SECTION 1

GENERAL

CONTENTS

Group 1 Specifications

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
Electrical System (Rear Tray) T1-2-3
Electrical System (Switch Panel) T1-2-4
Electrical System (Around Air Cleaner) T1-2-5
Electrical System (Relays, etc.) T1-2-6
Components Related with Engine T1-2-7
Components Related with Pump Device T1-2-8
Components Related with Pump Device
(with Blade Pump (Option) Attached) T1-2-8
Around Pump Device T1-2-9
Components Related with Control Valve T1-2-10
Components Related with Signal Control Valve T1-2-10
Components Related with Swing Device T1-2-12
Travel Device T1-2-12
4-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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Engine Accessories

RADIATOR ASSEMBLY	Type	Radiator, Oil Cooler Parallel Type, Intercooler Tandem Type

	Radiator	Oil Cooler	Intercooler
Air Tight Test Pressure	100 kPa (1.0 kgf/cm², 14 psi)	1500 kPa (15 kgf/cm², 213 psi)	250 kPa (2.5 kgf/cm², 36 psi)

FUEL COOLER	Pressureproof	45 kPa (0.46 kgf/cm², 6.5 psi)
BATTERY	Type	80D26R-MF
	Voltage	12 V×2
	Capacity	55 Ah or More (5-Hour Rate), 58 Ah or More (20-Hour Rate)

EXPANSION TANK	All Capacity	4.9 L (1.3 US gal)
	Cap Opening Pressure	90 kPa (0.92 kgf/cm², 13 psi)

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Pump Torque Decrease Control (Radiator Coolant Temperature)

Purpose:
When the target engine speed is the ECO mode engine speed or faster and when the coolant temperature increases, the pump torque decrease control (radiator coolant temperature) decreases the pump delivery flow rate and pump driving torque so that the engine overheating is prevented.

Operation:

1. When the target engine speed is the ECO mode engine speed or faster and when the coolant temperature increases, MC (8) activates torque control solenoid valve (22).
2. Torque control solenoid valve (22) supplies the pilot pressure to the regulator according to the signal, and decrease the pump delivery flow rate. Therefore, the engine overheating is prevented when the coolant temperature increases.

NOTE: The pump torque decrease control (radiator coolant temperature) can be made operable or inoperable by MPDr. (9).

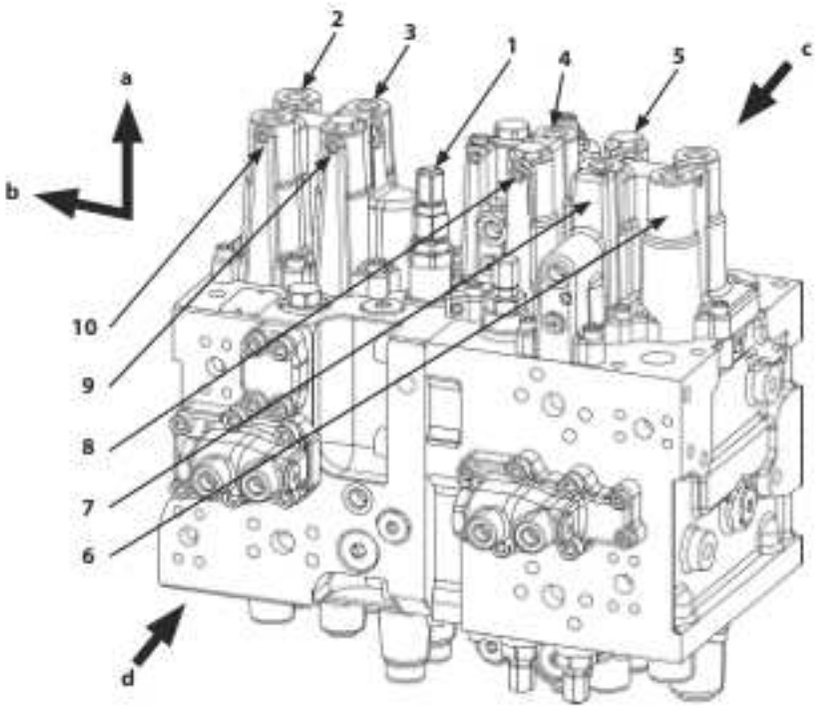
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Outline

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, digging regenerative valve, boom lower meter-in cut valve, auxiliary flow combiner valve, bypass shut-out valve, and spools. The spools are operated by the pilot oil pressure.

As for the spools in the 4-spool side, travel (right), bucket, boom 1, and arm 2 are arranged in that order as viewed from the machine front. As for the spools in the 5-spool side, travel (left), auxiliary, boom 2, arm 1, and swing are arranged in that order as viewed from the machine front.

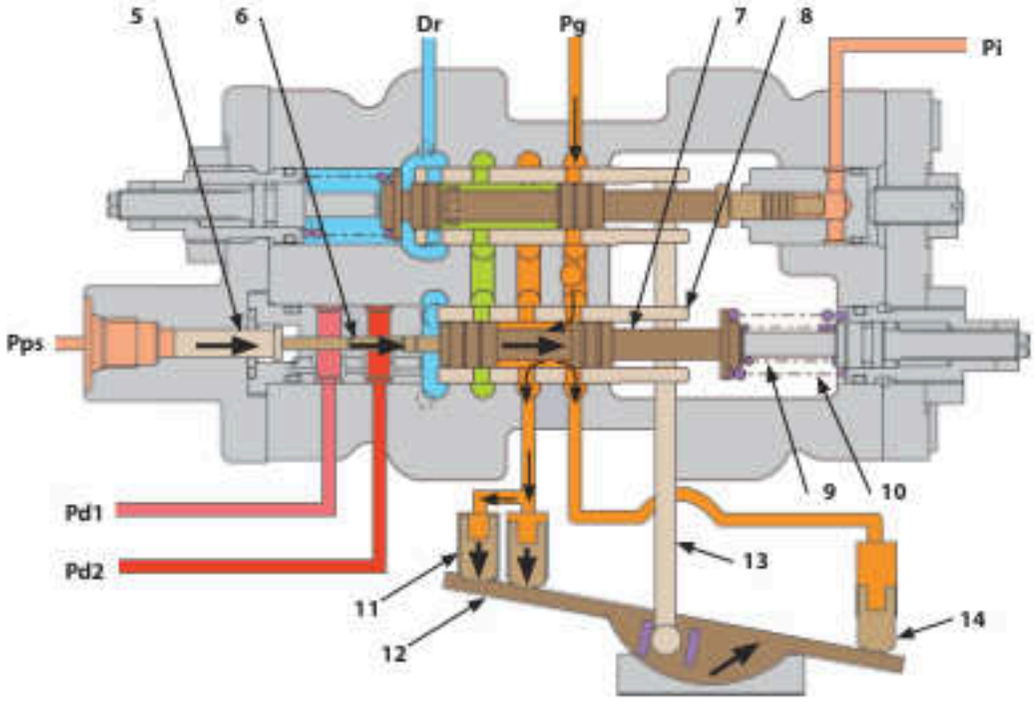
Control Valve



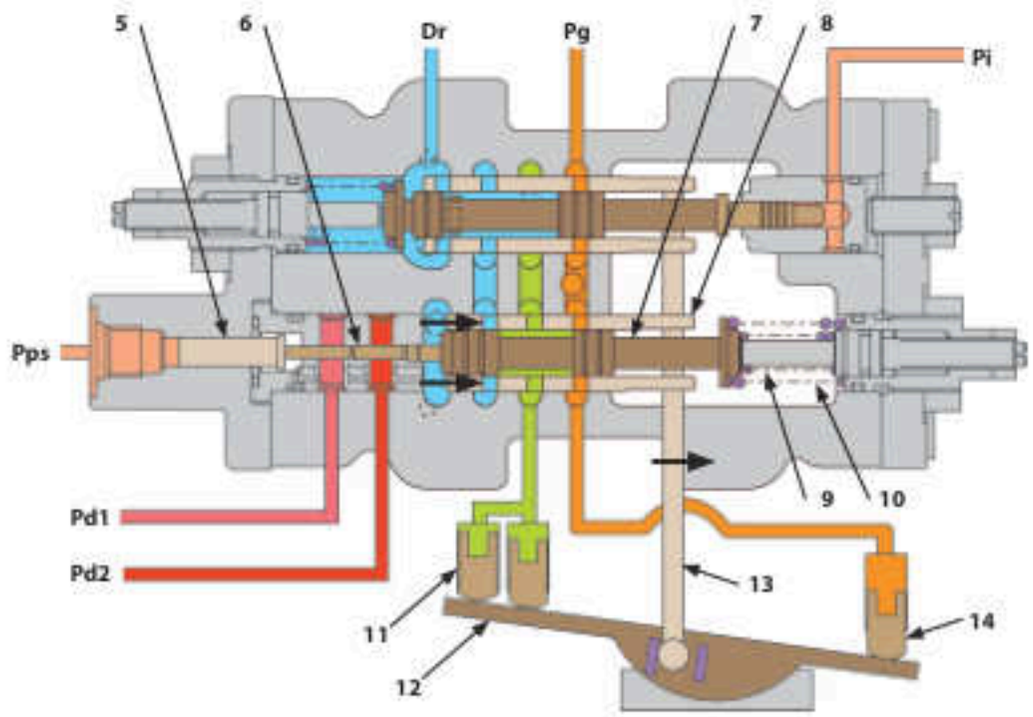
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a-	Machine Upper Side	b-	Machine Front Side	c-	4-Spool Side	d-	5-Spool Side
1-	Main Relief Valve	4-	Boom 1	7-	Arm 1	10-	Travel (Left)
2-	Travel (Right)	5-	Arm 2	8-	Boom 2		
3-	Bucket	6-	Swing	9-	Auxiliary		

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TDAD-03-01-035



TDAD-03-01-036

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)

5- Load Piston 1
6- Load Piston 2
7- Spool 8

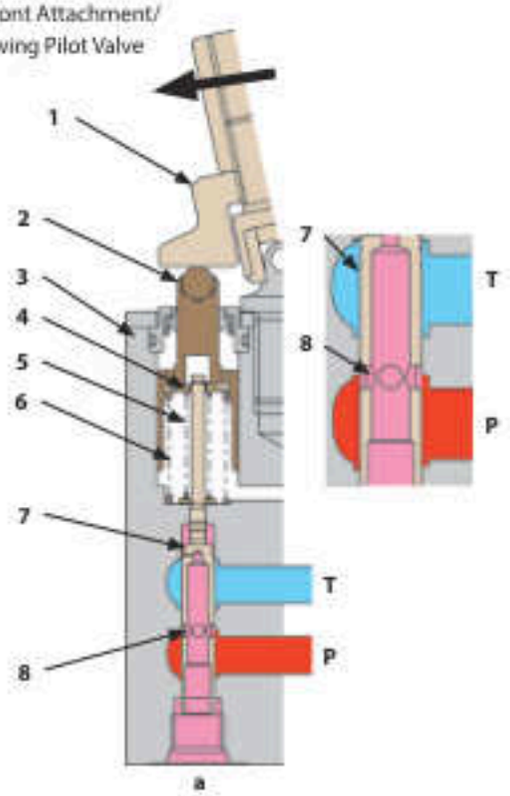
8- Sleeve 8
9- Inner Spring
10- Outer Spring

11- Servo Piston 1 (2 Used)
12- Swash Plate
13- Link

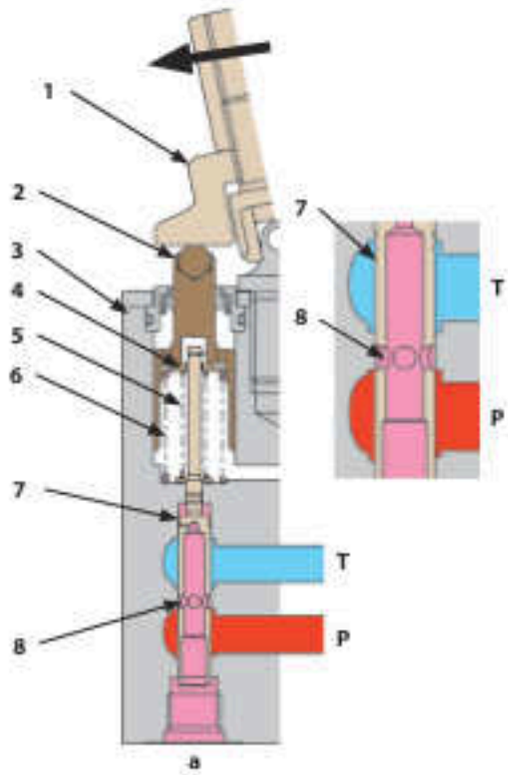
14- Servo Piston 2

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Front Attachment/
Swing Pilot Valve

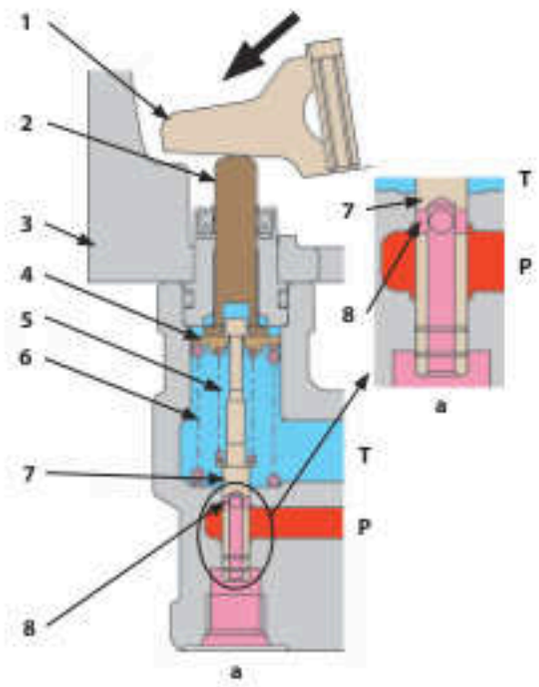


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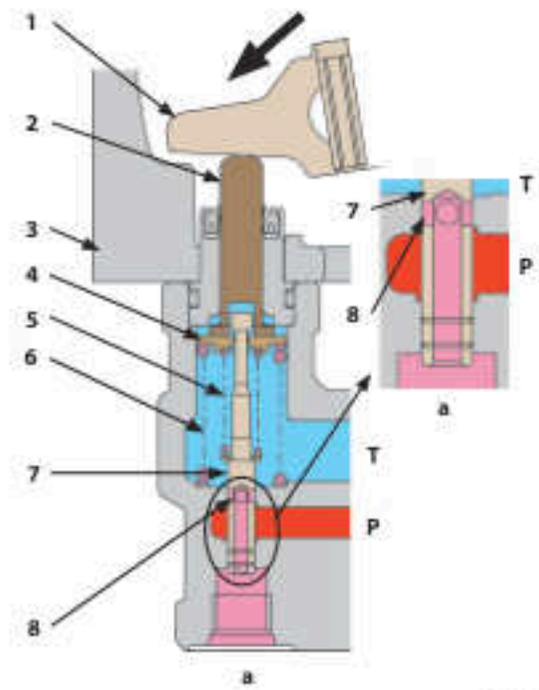


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Travel Pilot Valve



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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