PART NO. TODDE-EN-01

HITACHI

Reliable solutions

Technical Manual
Operational Principle

ZX
330-5G
330LC-5G
350H-5G
350LCH-5G
350K-5G
350LCK-5G
Hydraulic Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TODDE-EN
Technical Manual (Troubleshooting)	: Vol. No.TTDDE-EN
Workshop Manual	: Vol. No.WDDE-EN
Engine Manual	: Vol. No.EDDE-EN

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SECTION 1

GENERAL

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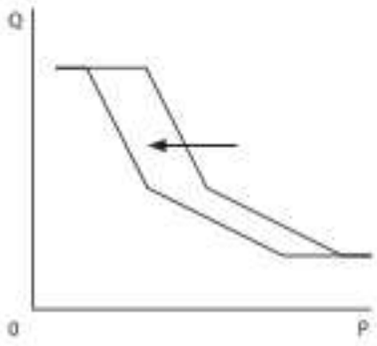
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Group 3 Component Specifications

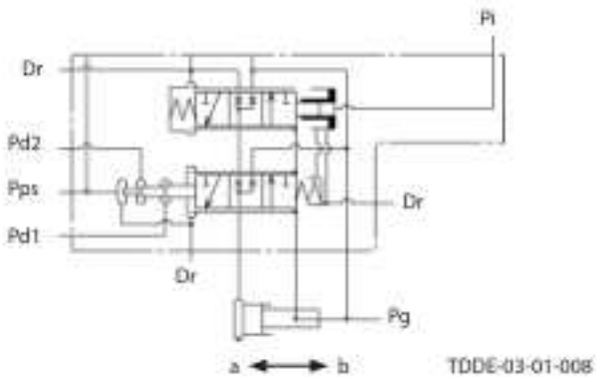
FRONT ATTACHMENT PILOT VALVE	Model	HVP07A-040-101
	Plunger Stroke	Ports 1, 3: 6.5 mm (0.26 in), Ports 2, 4: 8.0 mm (0.32 in)
TRAVEL PILOT VALVE	Model	HVP08A-040-101
	Plunger Stroke	Ports 1, 2, 3, 4: 4.6 mm (0.18 in)
3-SPOOL SOLENOID VALVE UNIT	Type	3-Spool Proportional Solenoid valve
	Rated Voltage	DC 24 V
	Coil Resistance	22 Ω
AUXILIARY FLOW COMBINER CONTROL SOLENOID VALVE (Optional)	Rated Voltage	DC 24 V
	Coil Resistance	59.7 Ω
SIGNAL CONTROL VALVE	Model	KVSS-10-H
	Rated Pressure	3.72 MPa (38 kgf/cm², 540 psi)
PILOT SHUT-OFF SOLENOID VALVE	Type	ON/OFF Solenoid Valve
	Rated Voltage	DC 24V
	Coil Resistance	49 Ω
OIL COOLER BYPASS CHECK VALVE	Cracking Pressure	490 kPa (5 kgf/cm²) at 5 L/min
FILTER	Engine Oil Filter	ISUZU 8973243860
	Full-Flow Filter (Filtration)	β10≥2.0
	Suction Filter (Filtration)	177 µm (80 mesh)
	Pilot Filter (Filtration)	β10≥1.4

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- Control by Pilot Pressure from Torque Control Solenoid Valve (13)
  MC (main controller) sends the signals to torque control solenoid valve (13) according to the engine speed and the signals from sensors.
  Torque control solenoid valve (13) delivers torque control pilot pressure Pps to the regulator in response to the signals from MC. When receiving torque control pilot pressure Pps, the regulator reduces the pump delivery flow rate.
  (Refer to SYSTEM / Control System.)



Q- Flow Rate P- Pressure



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

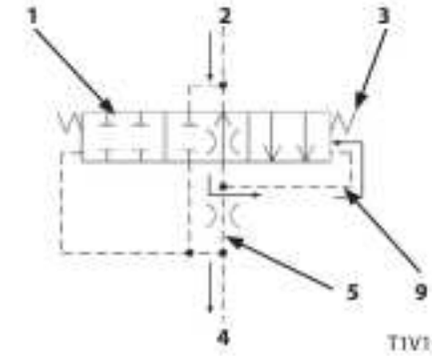
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Shockless Valve

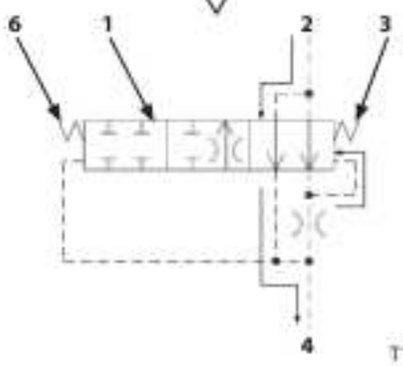
The shockless valve is provided in the boom raise circuit and functions during boom lowering operation or when stopping boom raise operation.

During boom raise operation

1. Boom raise pilot pressure is routed to spool (1) through port A (2).
2. Immediately after operation is started, low pilot pressure is routed to the spring B (3) chamber through clearance C between spool (1) and housing (7) and inner passage 3 (9). In addition, pilot pressure is also routed to port 1 (4) through inner passage 2 (5) at the same time.
3. When pilot pressure increases, pressure in the spring B (3) chamber also increases. Spool (1) pushes spring A (6) and is moved to the left.
4. As spool (1) is moved, port A (2) is connected to port 1 (4) and pressure in the port 1 (4) increases, so that the control valve spool is moved.



T1V1-03-06-003

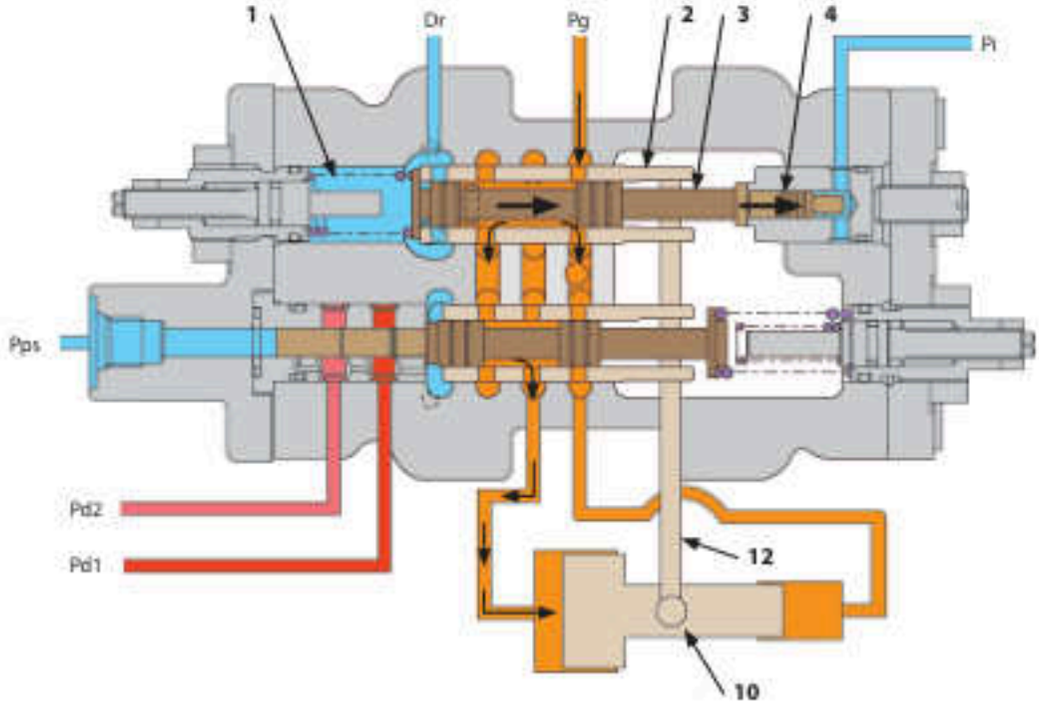


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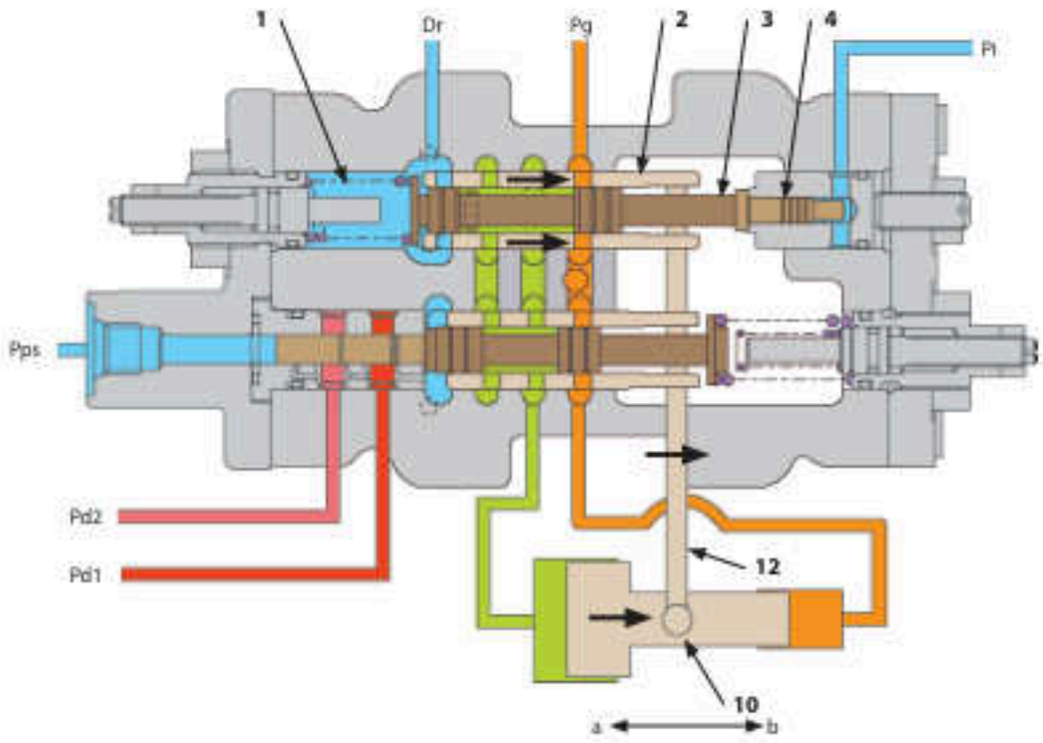
1- Spool
2- Port A
3- Spring B
4- Port 1
5- Inner Passage 2
6- Spring A
9- Inner Passage 3

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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

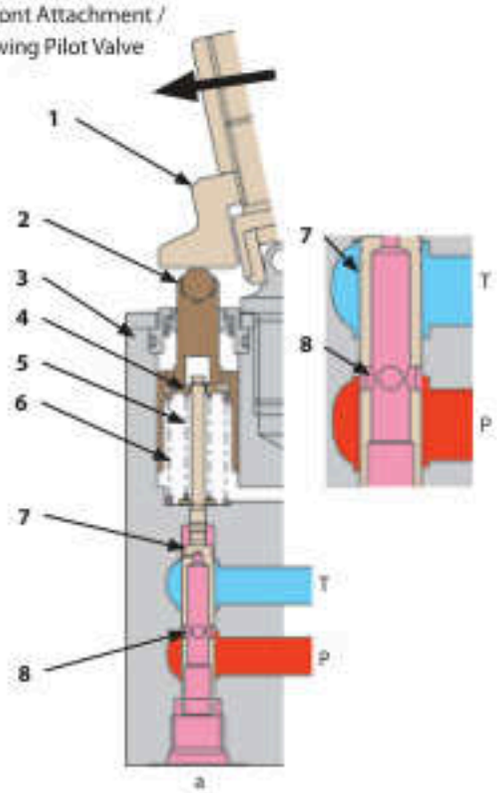
Pi- Pump Control Pressure
Pps- Torque Control Pressure

Pg- Primary Pilot Pressure (From Pilot Pump)

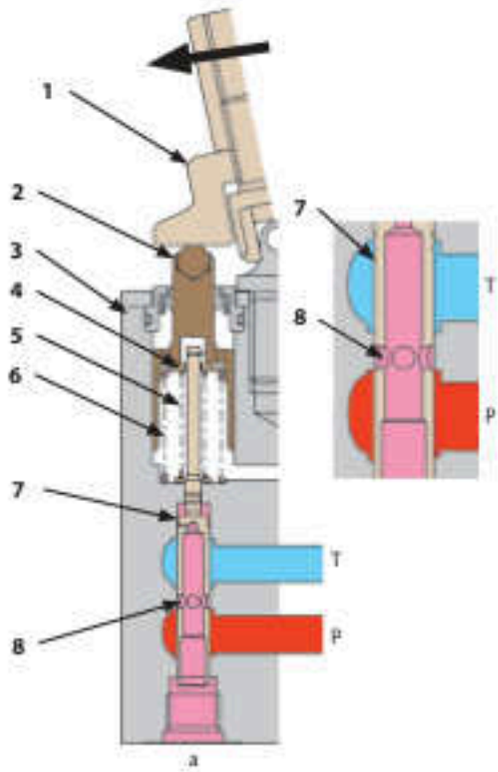
1- Spring
2- Sleeve A
3- Spool A
4- Piston
10- Servo Piston
12- Link

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Front Attachment / Swing Pilot Valve

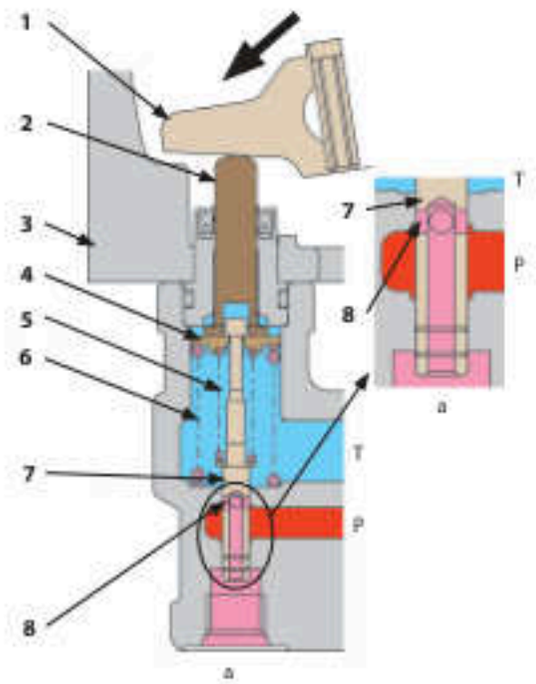


TPPP-03-04-007

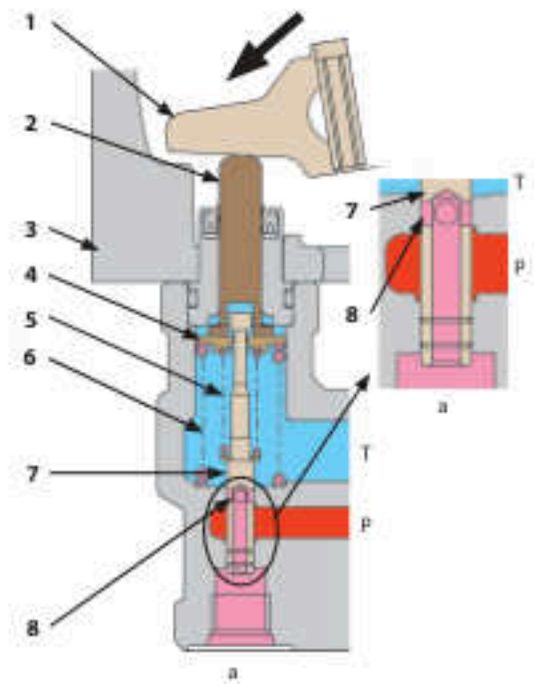


TPPP-03-04-008

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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