PART NO. TOLBKE0-EN-00

HITACHI

Reliable solutions

Technical Manual

Operational Principle

ZX190W-5A

Wheeled Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TOLBKE0-EN
Technical Manual (Troubleshooting)	: Vol. No.TTLBKE0-EN
Workshop Manual	: Vol. No.WLBKE0-EN
Engine Manual	: Vol. No.ETDCY-EN, EWDCY-EN

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FRONT ATTACHMENT PILOT VALVE	Plunger Stroke	Port 1, 3: 7.0±0.5 mm Port 2, 4: 5.9±0.5 mm
TRAVEL, AUXILIARY PILOT VALVE	Plunger Stroke	Port 1, 2: 3.7±0.3 mm
3-SPOOL SOLENOID VALVE UNIT	Type	3-Spool Proportional Solenoid Valve
	Rated Voltage	DC 24 V
	Coil Resistance	22 Ω
PUMP2 FLOW RATE CONTROL SOLENOID VALVE UNIT	Type	Proportional Solenoid Valve
	Rated Voltage	DC 24 V
	Coil Resistance	22 Ω
AXLE LOCK/BRAKE SOLENOID VALVE UNIT	Type	2-Spool Proportional Solenoid Valve
	Rated Voltage	DC 24 V
	Coil Resistance	22 Ω
2-SPOOL SOLENOID VALVE UNIT (BLADE/ OUTRIGGER CYLINDER)	Type	2-Spool Proportional Solenoid Valve
	Rated Voltage	DC 24 V
	Coil Resistance	22 Ω
AUXILIARY FLOW CONBINER CONTROL SOLENOID VALVE (Option)	Rated Voltage	DC 24 V
	Coil Resistance	59.7 Ω
AUXILIARY FLOW RATE CONTROL SOLENOID VALVE (Option)	Rated Voltage	DC 24 V
	Coil Resistance	22 Ω
SIGNAL CONTROL VALVE	Rated Pressure	3.72 MPa
PILOT SHUT-OFF SOLENOID VALVE	Type	ON / OFF Solenoid Valve
	Rated Voltage	DC 24 V
	Coil Resistance	49 Ω
PILOT RELIEF VALVE	Relief Set Pressure	3.9 MPa @ 40 L/min
STEERING VALVE	Gerotor Displacement	148 cm^3/rev
	Relief Set Pressure	17.2 MPa
	Overload Relief Set Pressure	22.6 MPa
BRAKE VALVE	Brake Start-Up Threshold Pressure	2.5±0.5 to 4.9±0.5 MPa

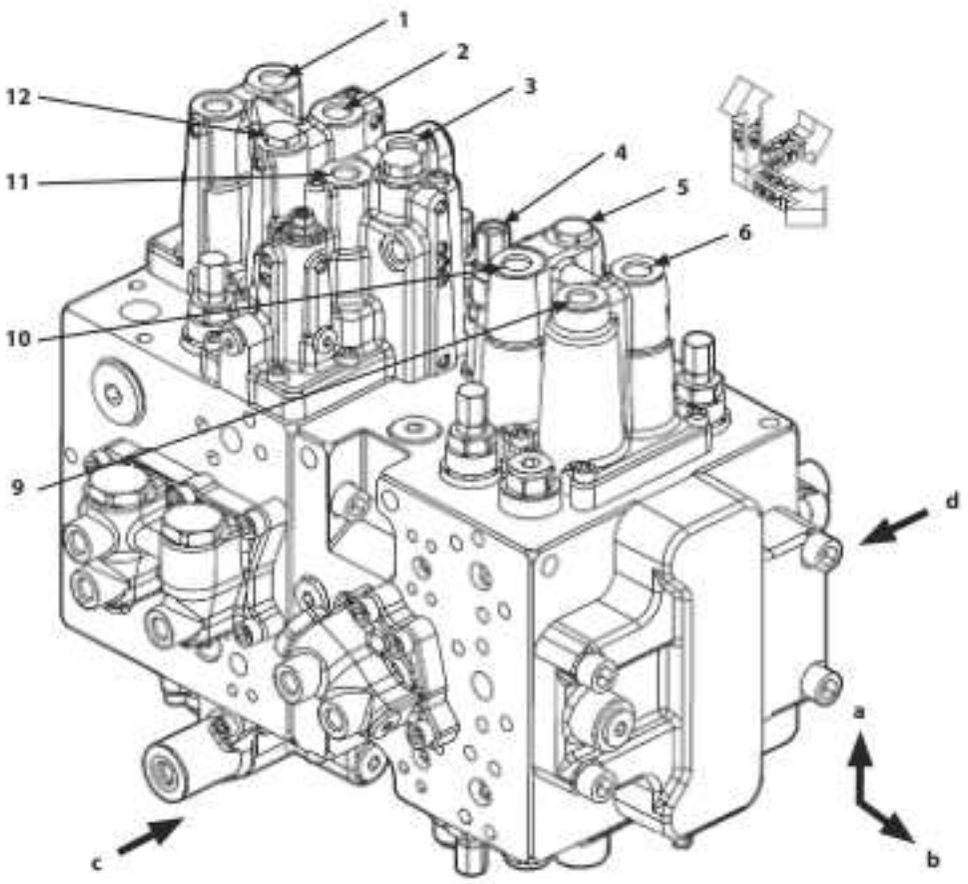
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Outline

The control valve controls the oil pressure, flow rate, and flow direction in the hydraulic circuit.
The control valve consists of the main relief valve, overload relief valve, anti-drift valve, flow rate control valve, 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 pressure.

As for the spool, in the 4-spool side block, travel (9), bucket (10), boom 1 (11), and arm 2 (12) are arranged in that order as viewed from the machine front. In the 5-spool side block, blade/outrigger (6), auxiliary (5), boom 2 (3), arm 1 (2), and swing (1) are arranged in that order as viewed from the machine front.

Control Valve



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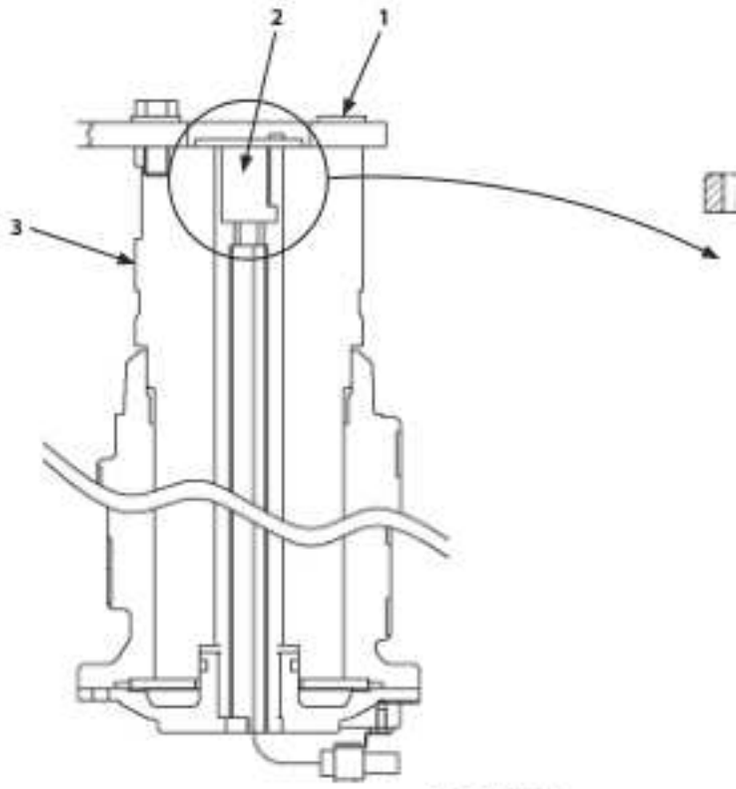
a- Machine Top
b- Machine Front
c- 4-Spool Side
d- 5-Spool Side

1- Swing
2- Arm 1
3- Boom 2
4- Main Relief Valve
5- Auxiliary
6- Blade/Outrigger
9- Travel
10- Bucket
11- Boom 1
12- Arm 2

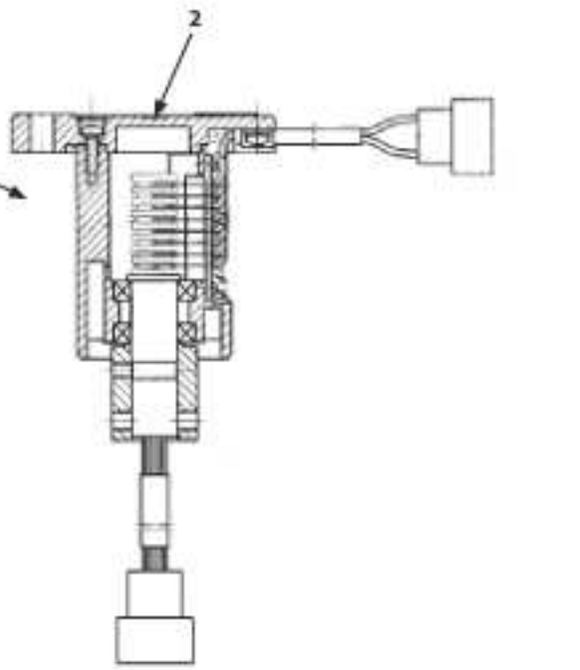
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Slip Ring

Slip ring (2) is installed to the spindle (3) upper part of center joint (1).
Slip ring (2) is a free-rotating joint. When the upperstructure swings, slip ring (2) prevents twisting of the wirings and allows current to flow to the undercarriage.
In addition, it transmits the detected values from the sensors on the undercarriage to the upperstructure.



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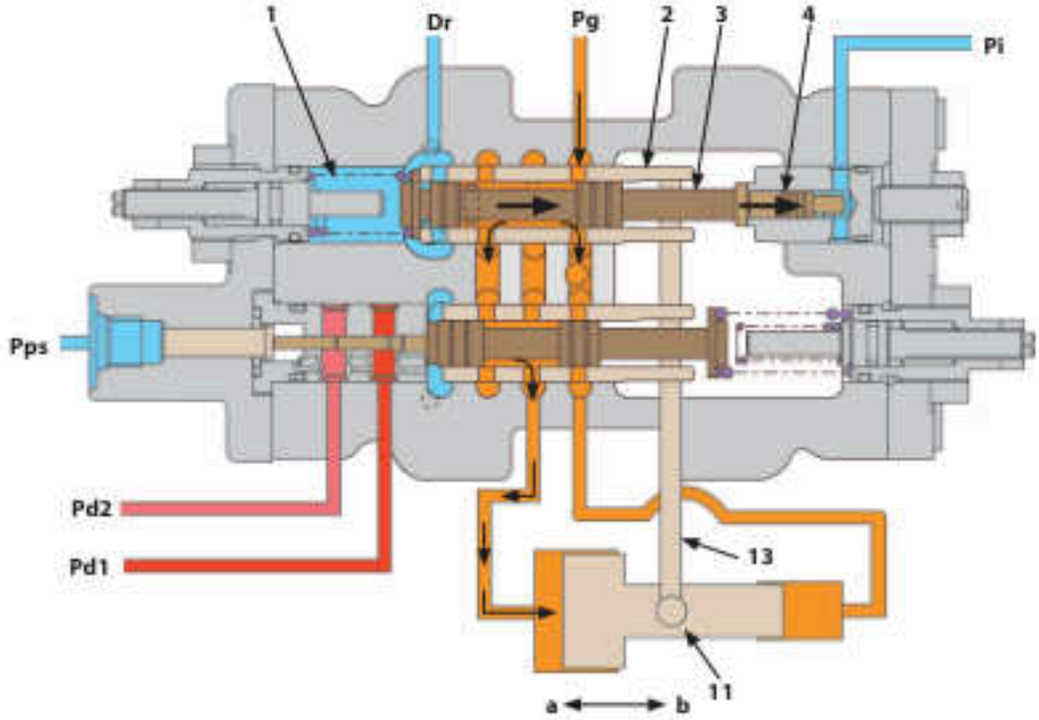


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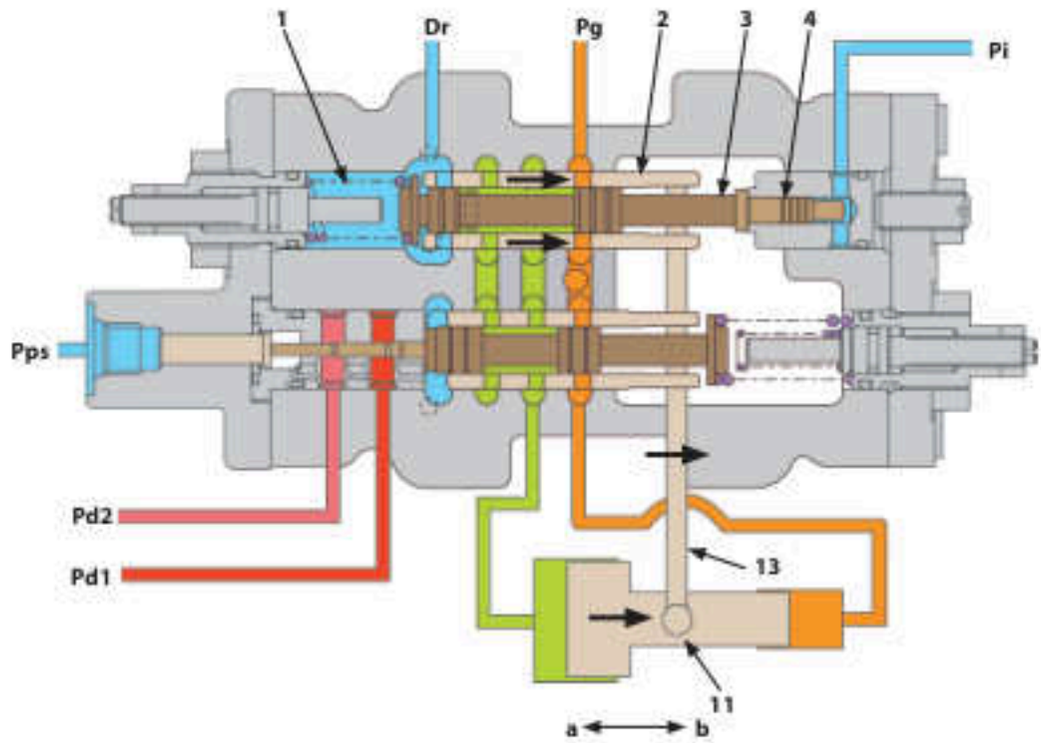
1- Center Joint 2- Slip Ring 3- Spindle

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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

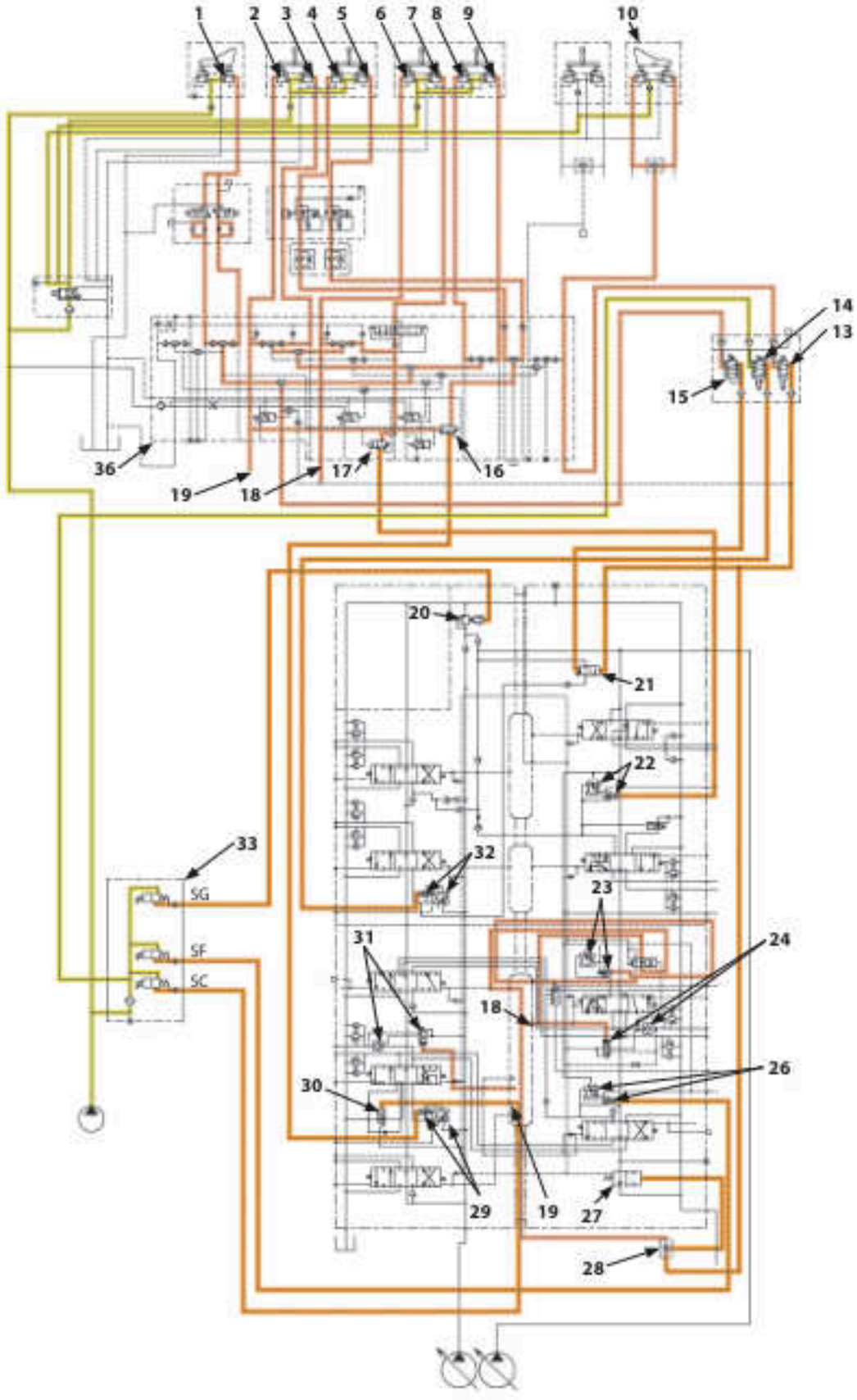
1- Spring
2- Sleeve A

3- Spool A
4- Piston

11- Servo Piston

13- Link

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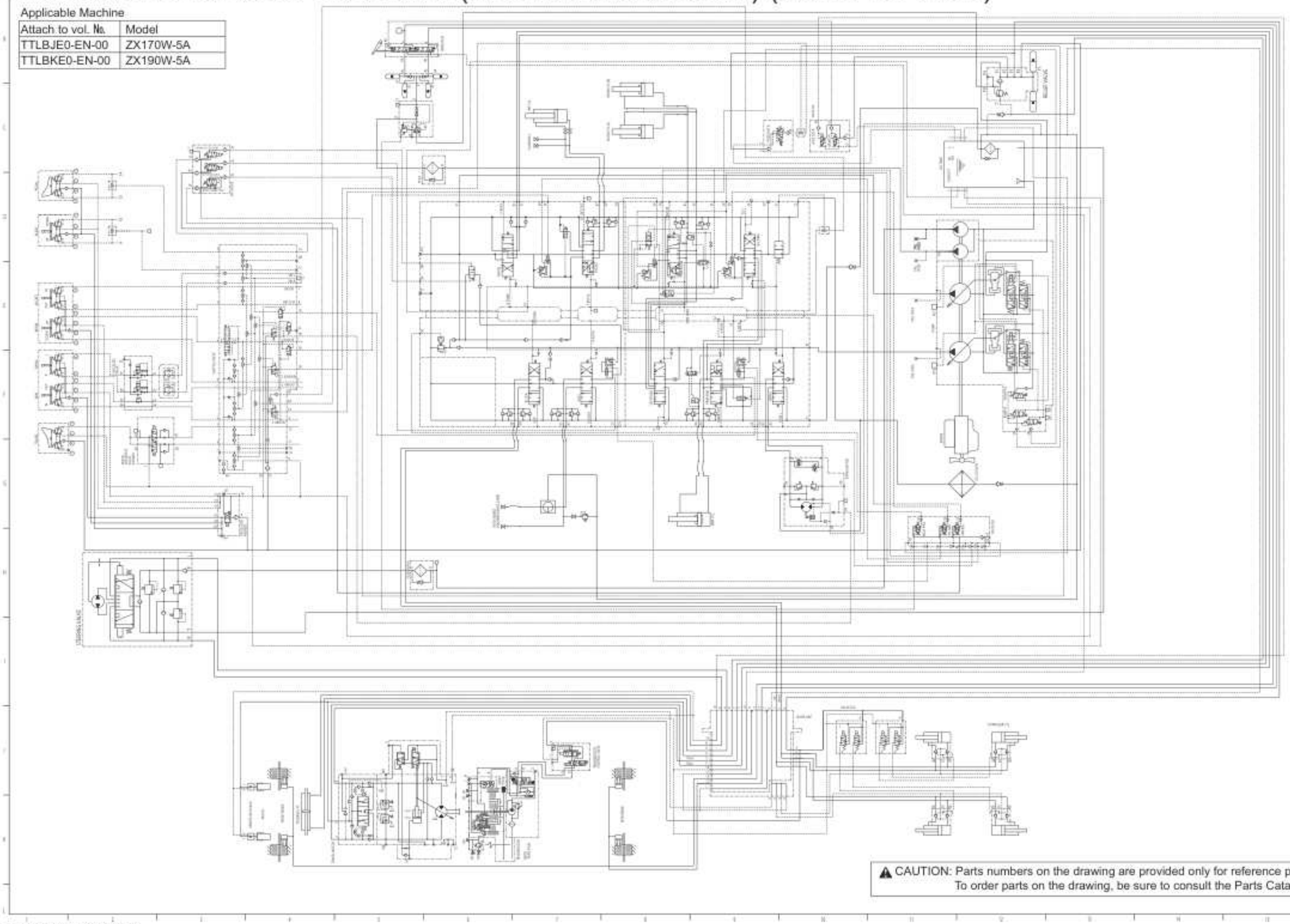
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HYDRAULIC CIRCUIT DIAGRAM (MONOBLOCK BOOM) (FULLY OPTION)

Applicable Machine

Attach to vol. No.	Model
TTLBJE0-EN-00	ZX170W-5A
TTLBKE0-EN-00	ZX190W-5A



⚠ CAUTION: Parts numbers on the drawing are provided only for reference purpose.
To order parts on the drawing, be sure to consult the Parts Catalog.

TTLBKE0-EN-00(20180523)

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