PART NO. TOJAG50-EN-00

HITACHI

Reliable solutions

Technical Manual

Operational Principle

ZX

470-6
470LC-6
490H-6
490LCH-6
490R-6
490LCR-6
530LCH-6

Hydraulic Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TOJAG50-EN
Technical Manual (Troubleshooting)	: Vol. No.TTJAG50-EN
Workshop Manual	: Vol. No.WJAG50-EN
Engine Manual	: Vol. No.ETJAG50-EN, EWJAG50-EN

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Hydraulic Component

PUMP DEVICE	Drive Gear Ratio	Pump1 and 2: 1 Fan Pump: 1 Pilot Pump: 1
MAIN PUMP	Type	Variable Displacement Swash Plate Tandem Plunger Pump
	Theoretical Displacement	204 cm^3/revx2
	Rated Pressure	31.9 MPa
REGULATOR	Type	Pump Control Solenoid Valve Operated Type
FAN PUMP	Type	Variable Displacement Swash Plate Plunger Pump
	Maximum Flow (Theoretical Value)	64 L/min
PILOT PUMP	Type	HY/ZFS 11/16.8
	Model	Fixed Displacement Type Gear Pump
	Theoretical Displacement	16.8 cm^3/revx2
CONTROL VALVE	Type	Pilot Pressure Operated Type (4-Spools + 5-Spools)
	Main Relief Set-Pressure	Normal: 31.9 MPa at 285 L/min
		Increases Pressure: 35.3 MPa at 345 L/min
	Overload Relief Set-Pressure	36.3 MPa at 110 L/min (Boom, Arm, Bucket)
		33.3 MPa at 110 L/min (Auxiliary Close)
		27.9 MPa at 50 L/min (Auxiliary Open)

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Outline

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

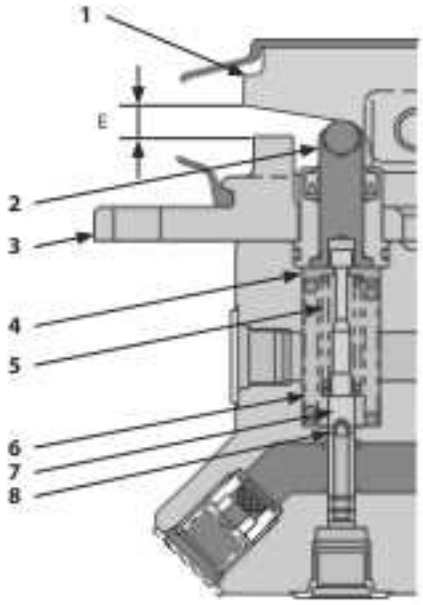
- The main circuit consists of the engine and the accessory related circuits.
- The monitor circuit displays the machine operating conditions. The monitor circuit consists of the monitor controller, monitor, relays, and switches.
- The accessory circuit controls the various lights, the wiper, and the washer. The accessory circuit consists of the wiper/light controller, relays, and switches.
- The control circuit controls the engine, pump, and valve. The control circuit consists of the actuators such as solenoid valves, MC, ECM, sensors, and switches.
  (Refer to SYSTEM/Control System.)

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Operation (Auxiliary, Counterweight Removal/Installation Pilot Valves)

The spool (7) head is hanged from 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).

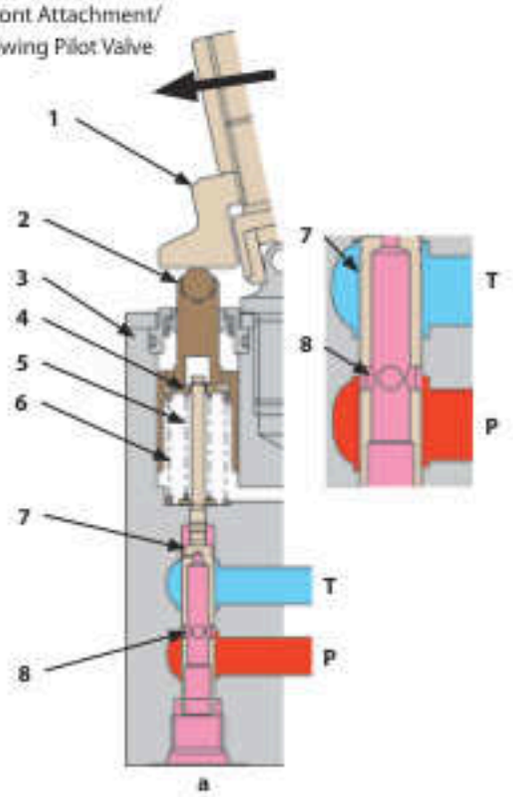


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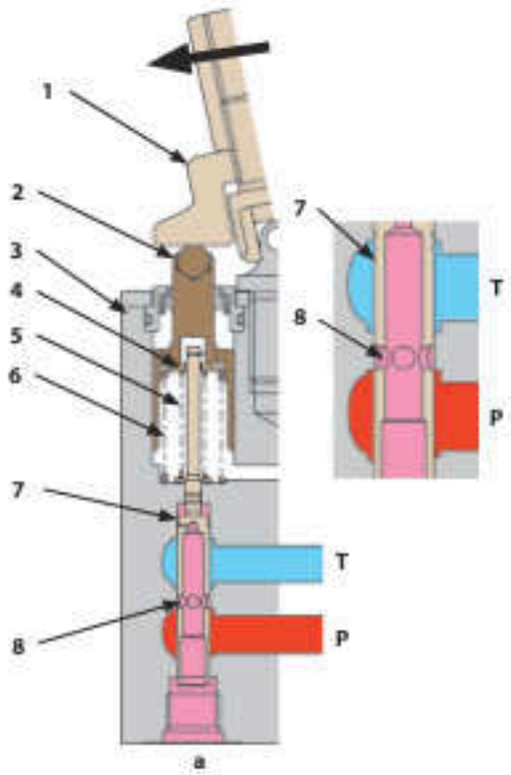
1- Cam
2- Pusher
3- Plate
4- Spring Guide
5- Balance Spring
6- Return Spring
7- Spool
8- Hole

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Front Attachment/
Swing Pilot Valve

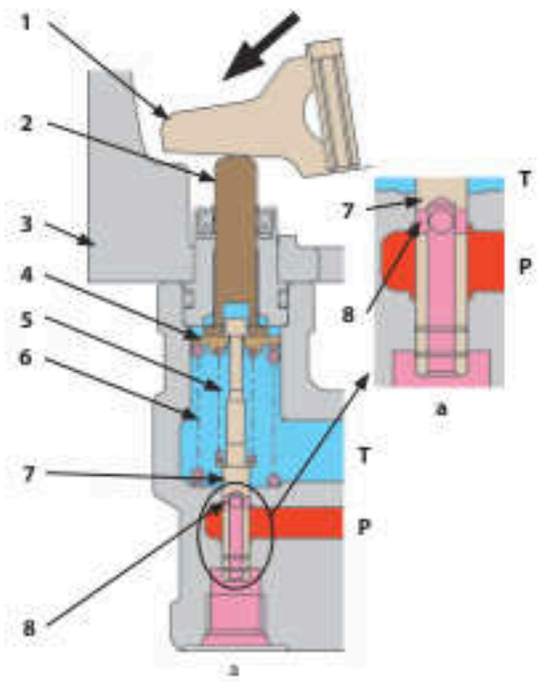


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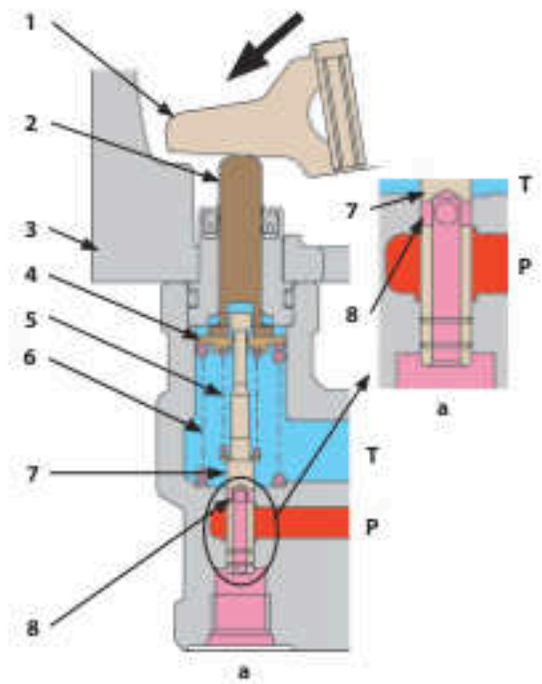


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Travel Pilot Valve



TPPP-03-04-012

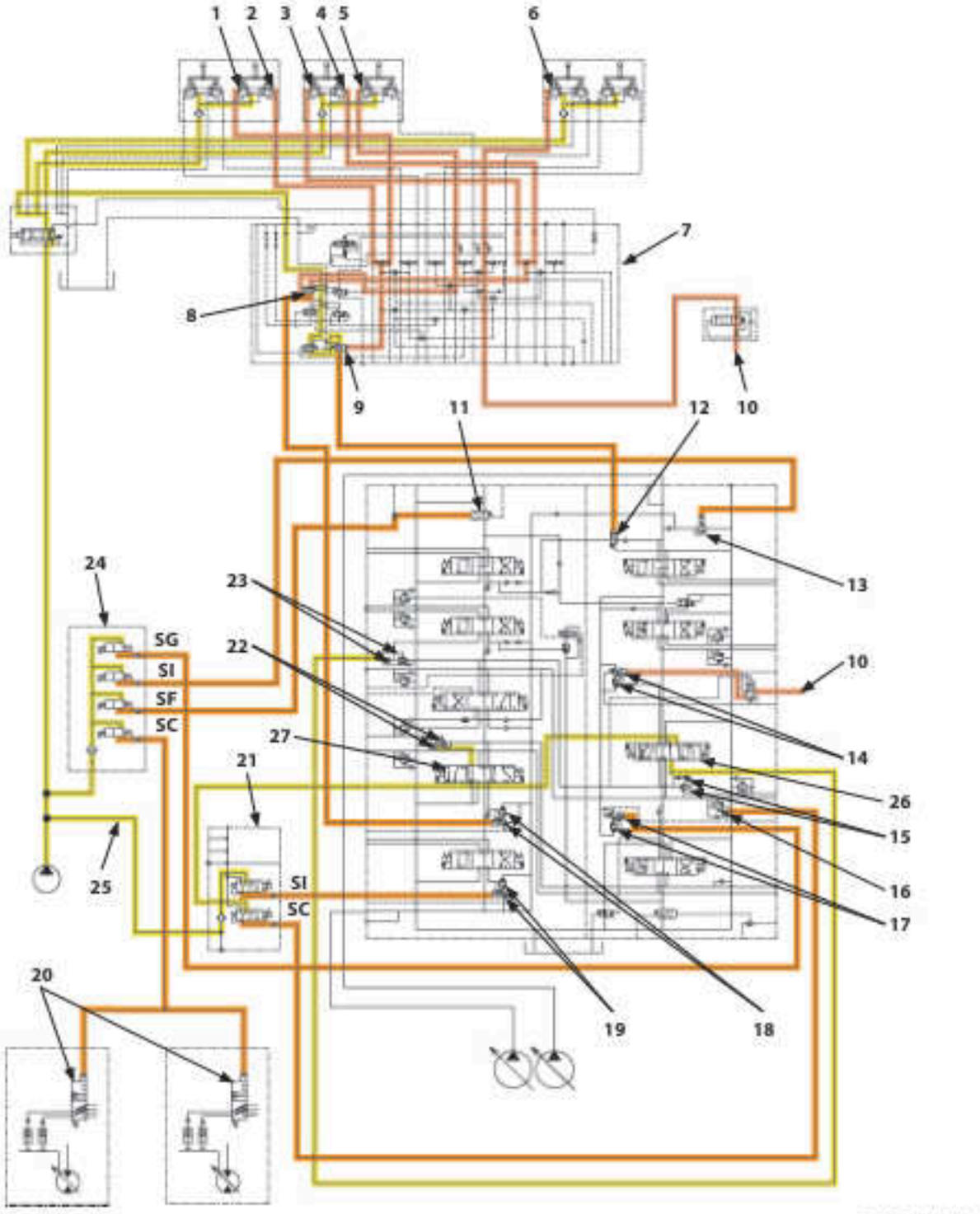


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P- Port P
T- Port T
a- Output Port

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 Selector 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
26- Boom 1 Spool
27- Arm 1 Spool

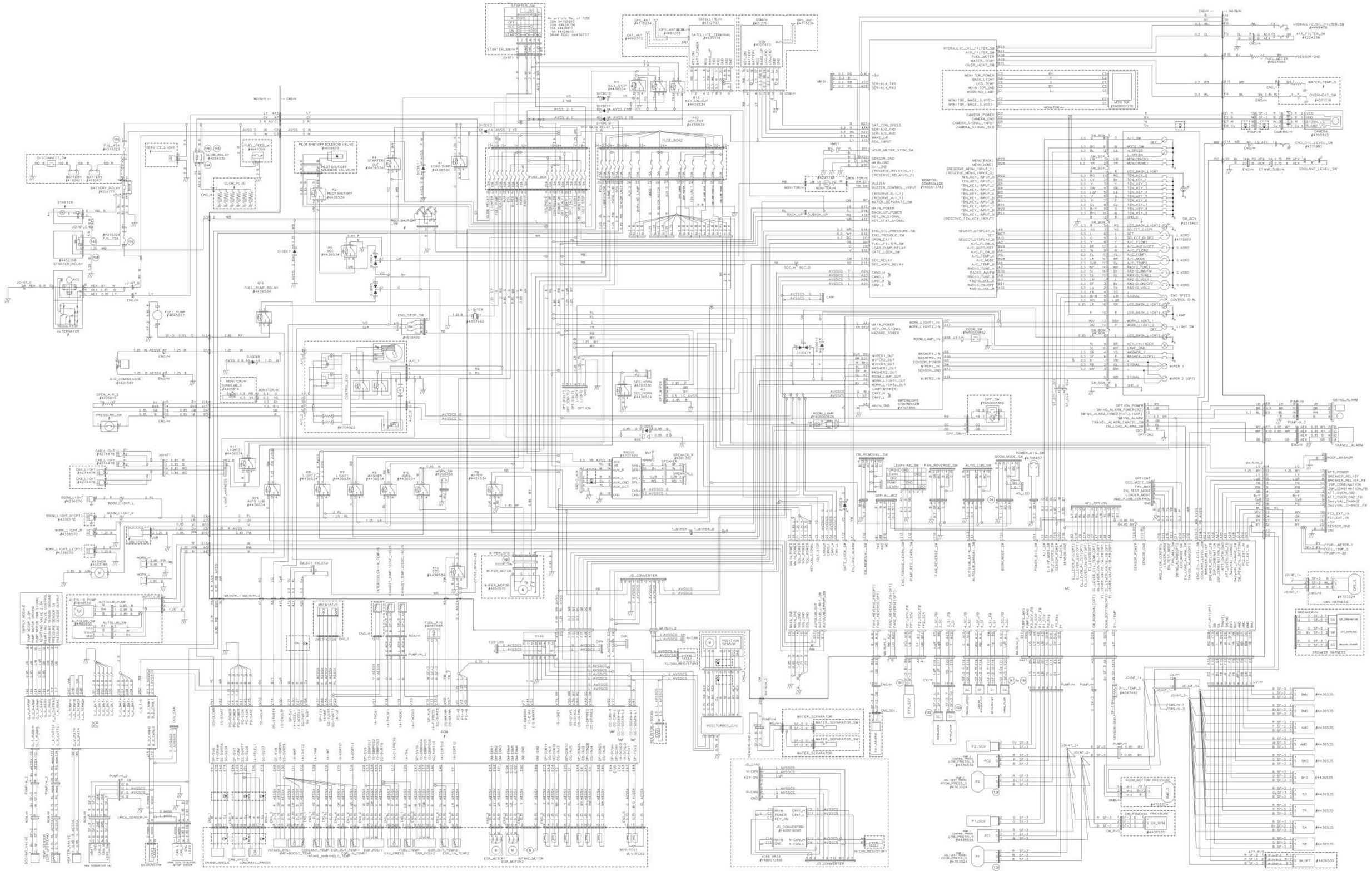
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ELECTRICAL CIRCUIT DIAGRAM

⚠ 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.

Applicable Machine

Attach to Vol. No.	Model
TTJAG50-EN-00	ZX470-6/470LC-6/490H-6/490LCH-6/490R-6/490LCR-6/530LCH-6



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