Manual No. : TO17VE-00

# Technical Manual

## (Operational Principle)

## ZAXIS

## 800

## Excavator

HITACHI

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**Counterweight Removal and Installation Control (Optional)**

Function: Applies back pressure on the main relief valve to increase main relief pressure, so that the hoist / lower power increases.

Operation: When the counterweight hoist / lower lever is operated, the pressure sensor (counterweight) measures the pilot pressure and the signal is sent to the MC. The MC actuates solenoid valve unit (SA) to allow pressure oil to direct from the pilot pump to the shuttle valve. Therefore, the spring of the main relief valve is compressed and its preload increased, so that the relief valve opening pressure increases from 31.9 MPa (325 kgf/cm$^2$, 4622 psi) to 34.3 MPa (350 kgf/cm$^2$, 4977 psi).

Also, the MC actuates the pump control solenoid valves according to the signals from the pump delivery pressure sensors and pump displacement angle sensors, so that the setting of upper limit for the delivery flow rate changes to 97 L/min (25.6 US gal). (It is decreased approximately 80 % from the maximum.)

*NOTE: Refer to COUNTERWEIGHT REMOVAL / INSTALLATION CIRCUIT (Optional) in Hydraulic System group / SYSTEM.*

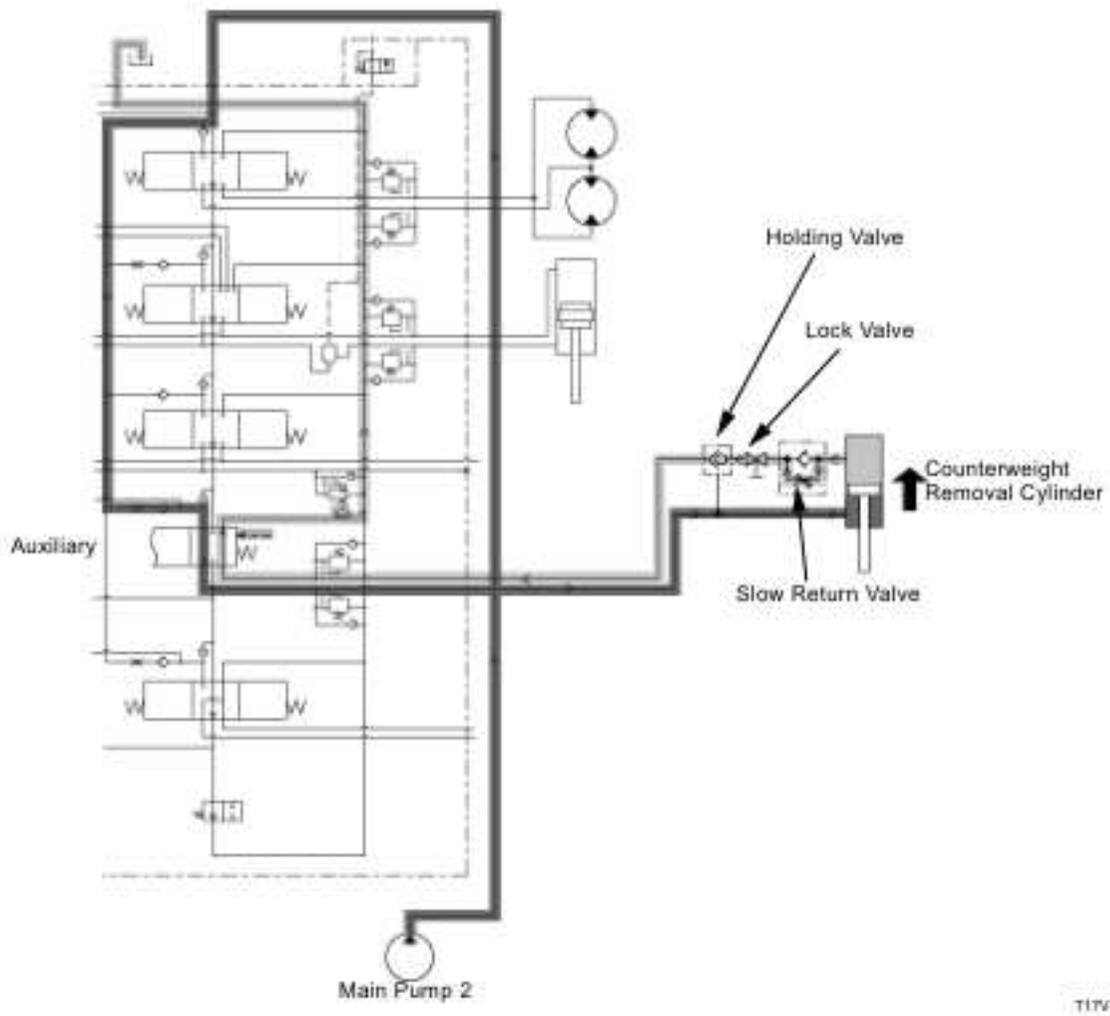


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## COUNTERWEIGHT REMOVAL CIRCUIT (Optional)

When the counterweight hoist/lower control lever (optional) is operated, pressure oil from the pilot pump flows through the counterweight pilot valve and shifts the auxiliary spool in the 5-spool control valve to remove/install the counterweight.
Pressure oil from main pump 2 flows into the counterweight removal cylinder via the parallel passage and auxiliary spool in the 5-spool control valve.
When hoisting the counterweight, pressure oil flows into the cylinder bottom via the check valve in the slow return valve.

When lowering the counterweight, pressure oil flows into the cylinder rod side.
The return oil flow from the cylinder bottom is regulated by the slow return valve and flows to the hydraulic oil tank via the holding valve.
The holding valve is opened by the pressure in the rod side, allowing the return oil from the bottom side to flow through.

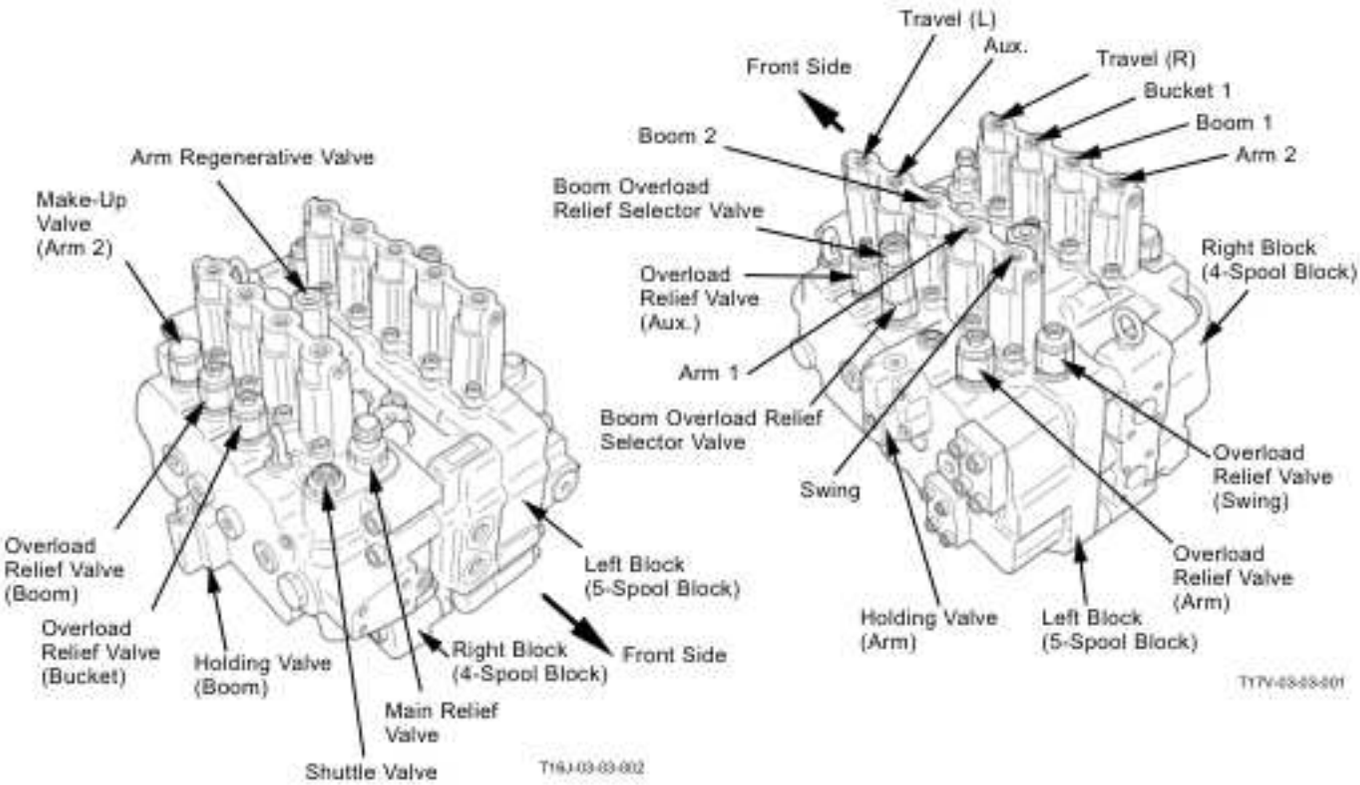





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## OUTLINE

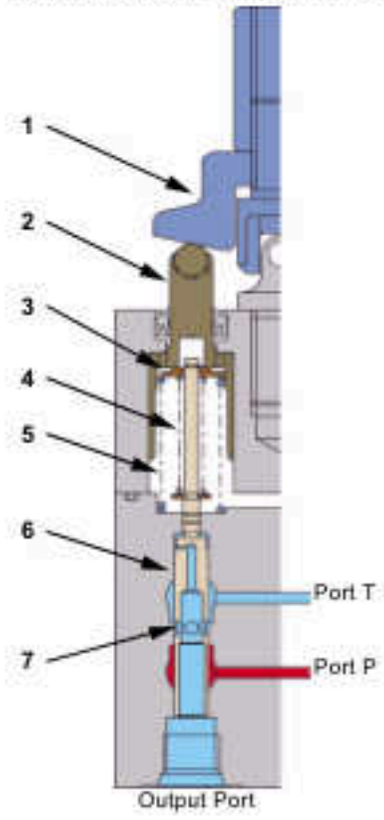
The control valve controls oil pressure, flow rate, and flow direction in the hydraulic circuit. The main control valve has two sections, i.e. 4-spool section and 5-spool section.
The major parts of the control valve are the main relief valve, flow combiner valve and spools. The spools are operated by pilot oil pressure.
In the 4-spool section, the right travel, bucket 1, boom 1, and arm 2 spools are arranged in that order as viewed from the machine front.
In the 5-spool section, the left travel, auxiliary, boom 2, arm 1, and swing spools are arranged in that order as viewed from the machine front.

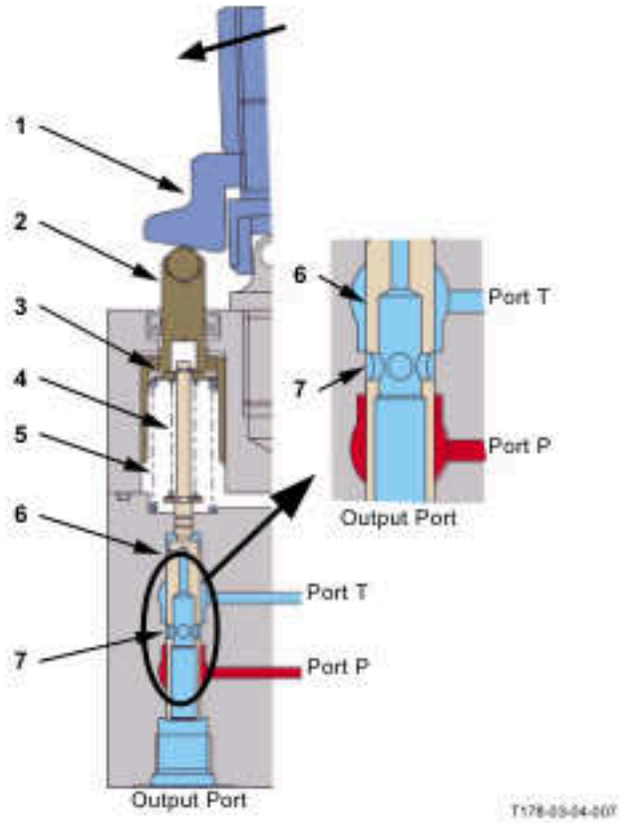




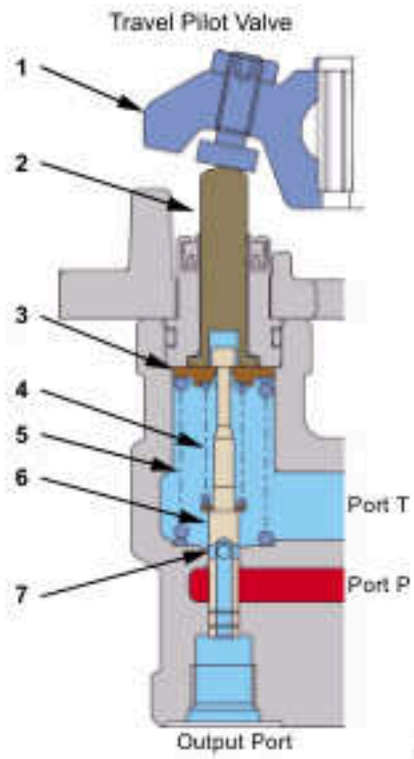

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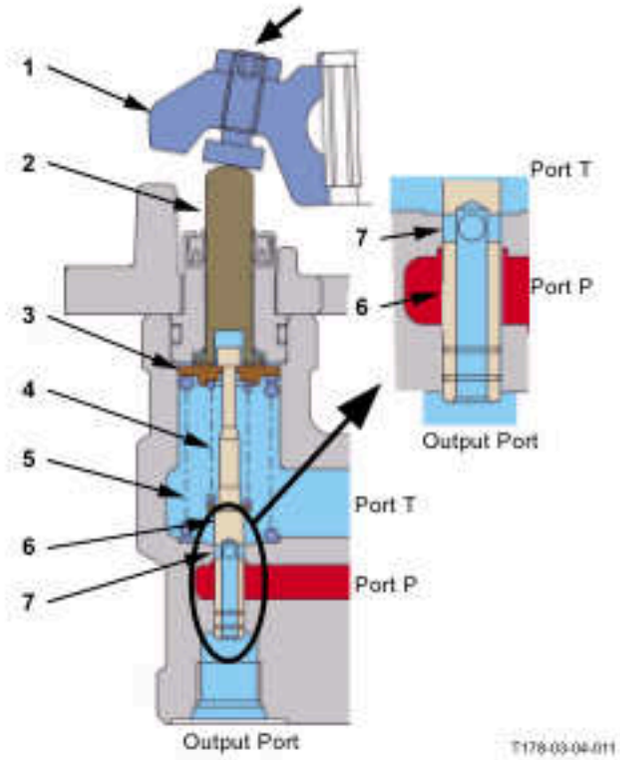
Front Attachment / Swing Pilot Valve




Travel Pilot Valve

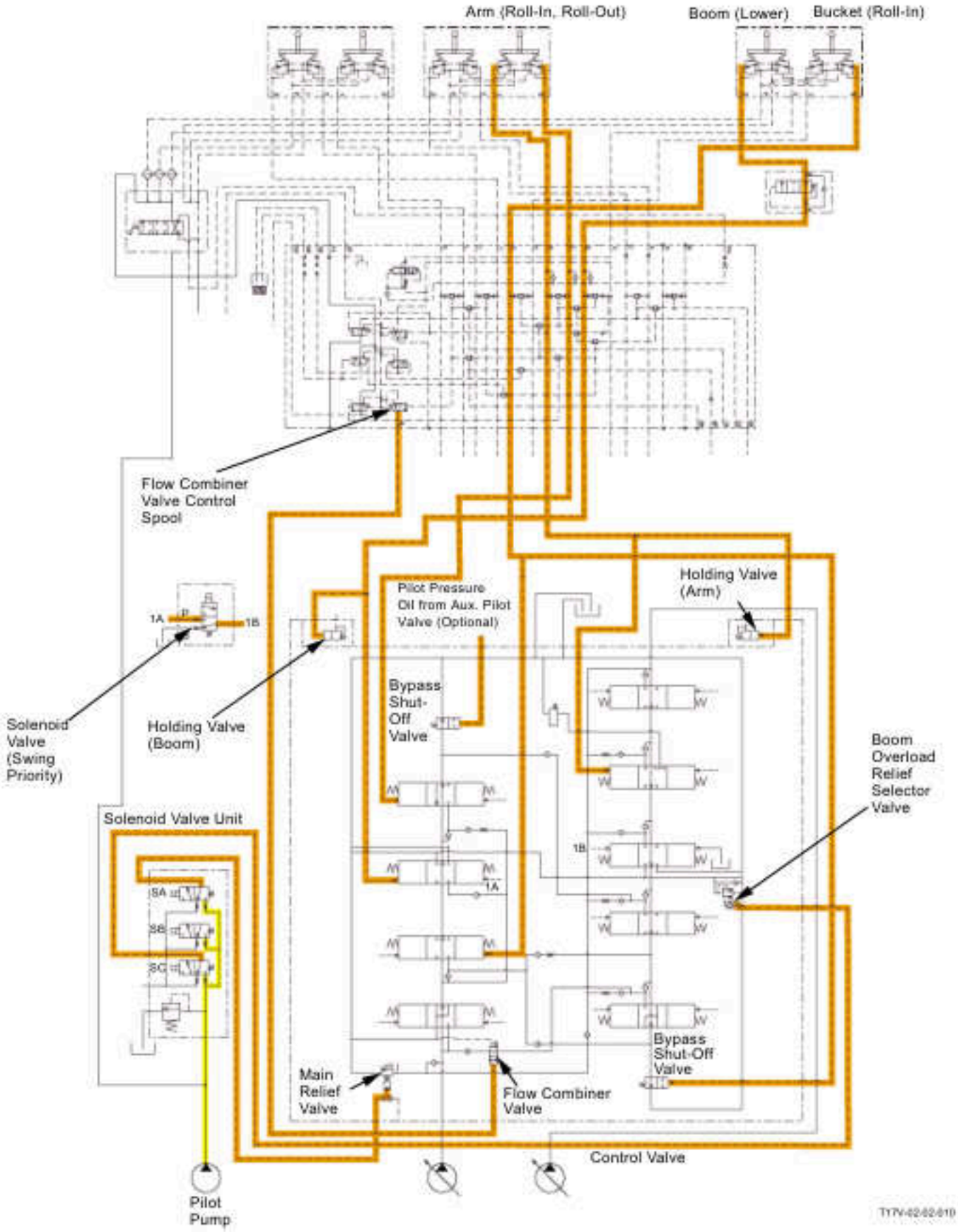



1 - Cam
2 - Pusher
3 - Spring Guide
4 - Balance Spring
5 - Return Spring
6 - Spool
7 - Hole



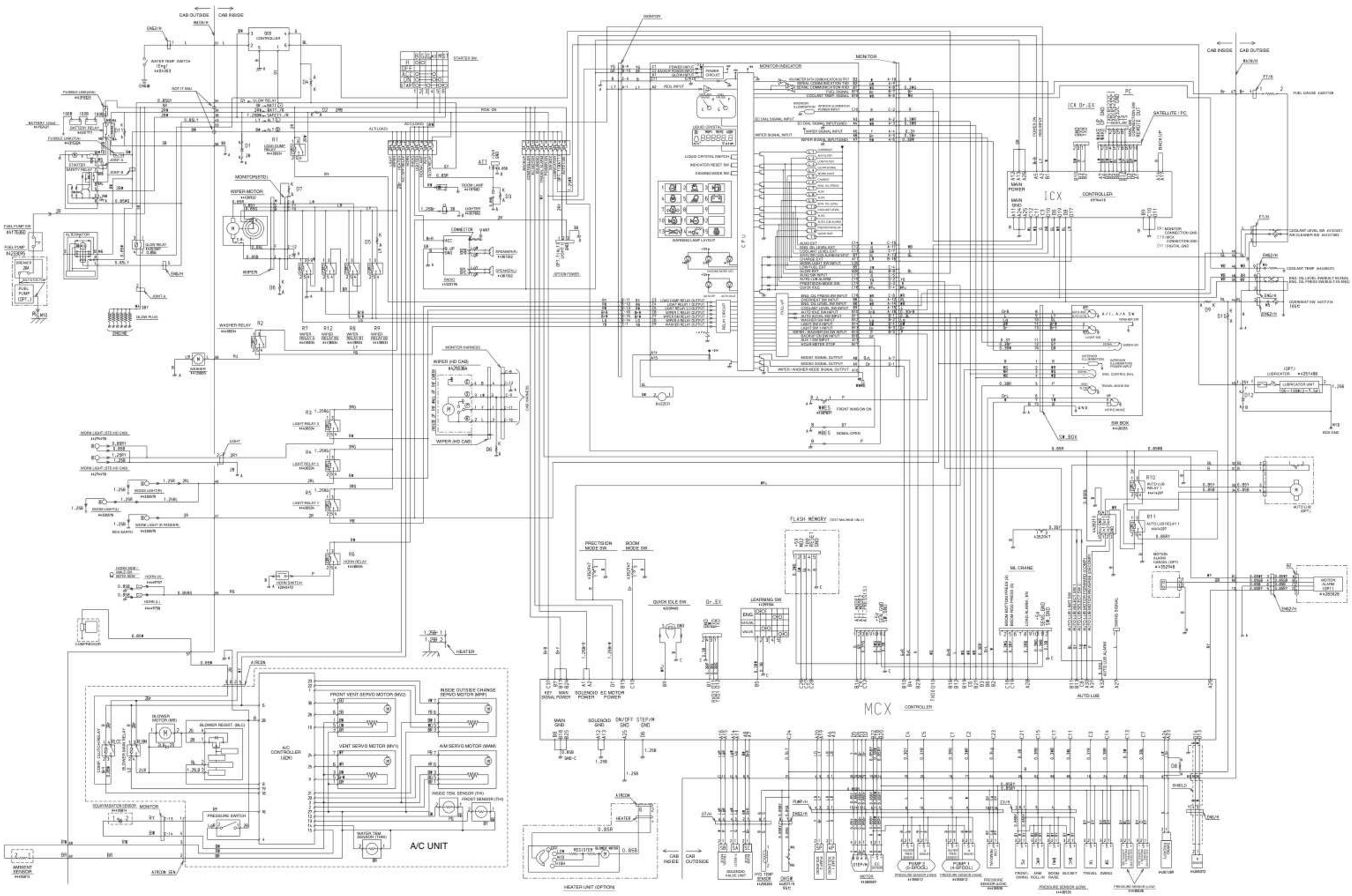
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# ZAXIS800 ELECTRICAL CIRCUIT DIAGRAM






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