PART NO. TODEE-EN-00

HITACHI

Reliable solutions

Technical Manual

Operational Principle

ZX85USB-5A

Hydraulic Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TODEE-EN
Technical Manual (Troubleshooting)	: Vol. No.TTDEE-EN
Workshop Manual	: Vol. No.WDEE-EN
Engine Manual	: Vol. No.ETADB-EN, EWADB-EN

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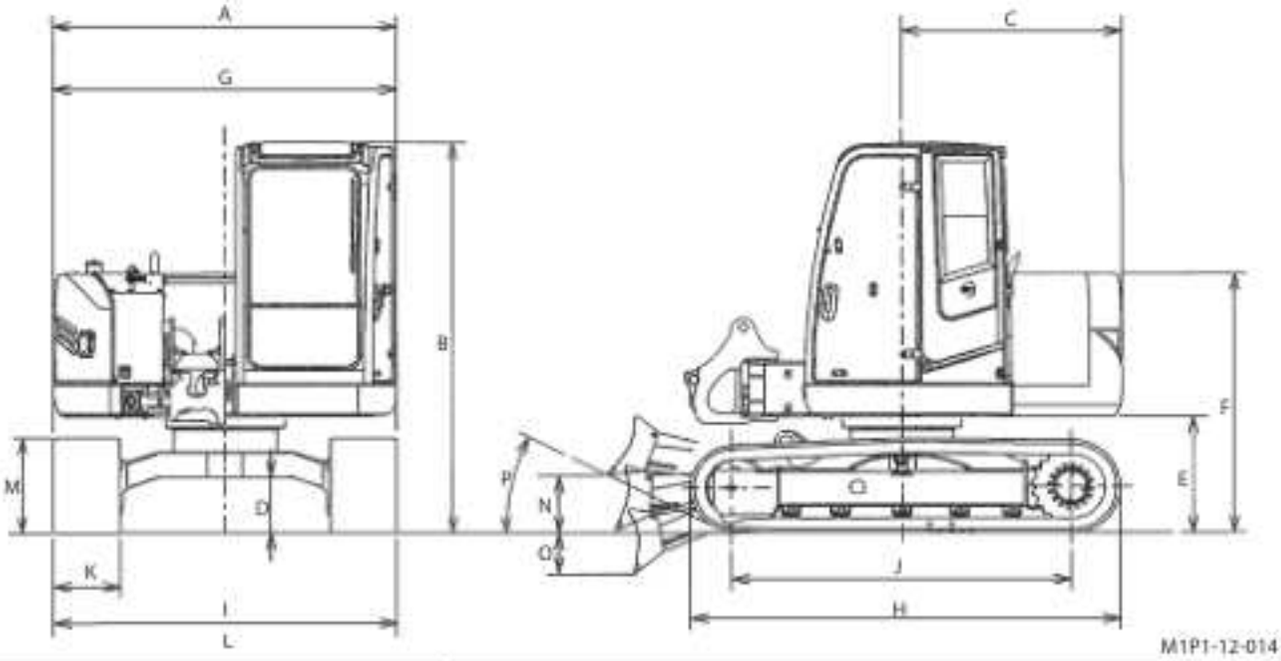
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Specifications ZX85USB-5A (with 2-piece Boom)



Model	ZX85USB-5A 2-piece Boom
Type of Front-End Attachment	Boom-Swing Type , 1.62 m (5 ft 4 in) Arm
Bucket Capacity (Heaped)	PCSA 0.28 m^3 (0.37 yd^3), CECE 0.24 m^3
Operating Weight	8850 kg (19600 lb)
Base Machine Weight	7200 kg (15900 lb)
Engine	YANMAR 4TNV94L-ZWHBW 34.1 kW/2000 min^{-1} (46.4 PS/2000 rpm)
A: Overall Width (Excluding back mirrors)	2260 mm (7 ft 5 in)
B: Cab Height	2530 mm (8 ft 4 in)
C: Rear End Swing Radius	1490 mm (4 ft 11 in)
D: Minimum Ground Clearance	*360 mm (14 in)
E: Counterweight Clearance	*720 mm (2 ft 4 in)
F: Engine Cover Height	*1810 mm (5 ft 11 in)
G: Overall Width of Upperstructure	2260 mm (7 ft 5 in)
H: Undercarriage Length	2920 mm (9 ft 7 in)
I: Undercarriage Width	2200 mm (7 ft 3 in)
J: Sprocket Center to Idler Center	2290 mm (7 ft 6 in)
K: Track Shoe Width	450 mm (18 in)
L: Blade Width	2200 mm (7 ft 3 in)
M: Blade Height	460 mm (18 in)
N: Blade Bottom Highest Position (above ground level)	*340 mm (13.5 in)
O: Blade Bottom Lowest Position (below ground level)	*320 mm (12.5 in)
P: Maximum Approach Angle	25.8 degree
Ground Pressure	39 kPa (0.40 kgf/cm^2, 5.7 psi)
Swing Speed	10.5 min^{-1} (rpm)
Travel Speed (fast/slow)	5.0/3.1 km/h (3.1/1.9 mph)
Gradeability	35 degree (tan θ = 0.70)

*NOTE: * The dimensions do not include the height of the shoe lug.*

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Pump Torque Decrease Control (Radiator Coolant Temperature)

Purpose:
When the coolant temperature increases, the pump torque decrease control (radiator coolant temperature) reduces the pump flow rate. Therefore, pump driving torque is decreased. Then, the engine overheating is prevented.

Operation:

1. When the coolant temperature is 100 °C or more, MC (2) activates the torque control solenoid valve (7).
2. The torque control solenoid valve (7) supplies the pilot pressure to regulator (6) according to the signal, and reduces the pump delivery flow rate.
3. Therefore, the engine overheating is prevented when the coolant temperature increases.

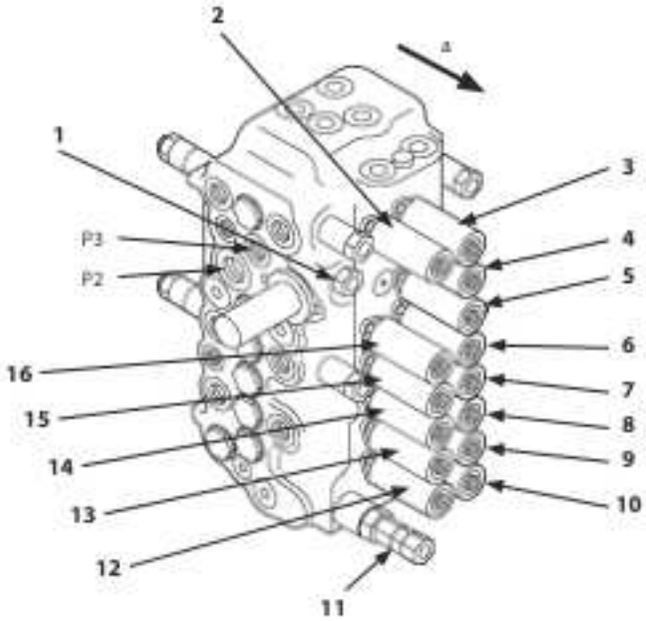
NOTE: The pump torque decrease control (radiator coolant temperature) can be made operable or inoperable by MPDr. (11).

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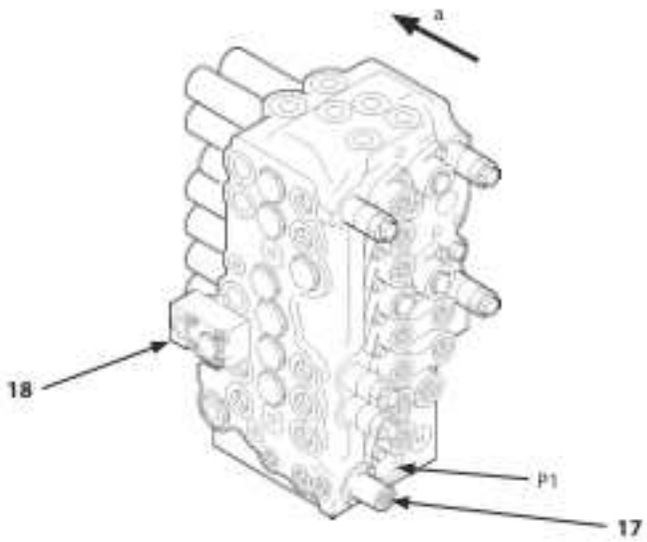
Outline

The control valve controls the pressure, flow rate, and flow direction in the hydraulic circuit.
The main components are main relief valves (1, 11), overload relief valves, flow combiner valve (12), boom anti-drift valve (18), and spools.
The spools are operated by pilot oil pressure.

Viewed from the machine upper side, the spools at 8-spool side are arranged as follows: blade (3), swing (4), auxiliary flow combiner (6), arm 2 (7), boom 1 (8), bucket (9), and travel (left) (10). Viewed from the machine upper side, the spools at 5-spool side are arranged as follows: boom swing (2), auxiliary (16), arm 1 (15), boom 2 (14), and travel (right) (13).



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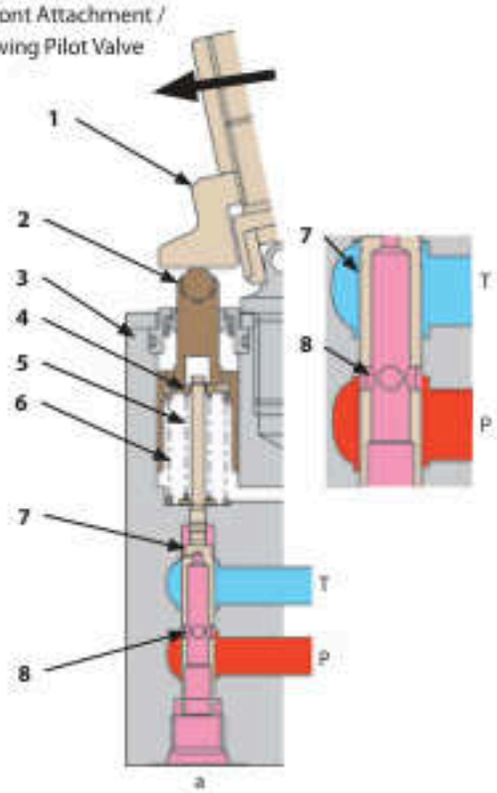
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a- Machine Front
P1- Port P1
P2- Port P2
P3- Port P3

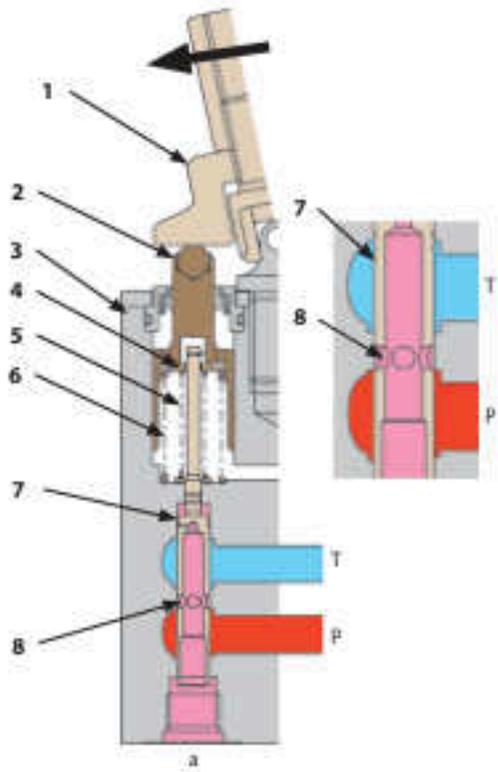
1- Main Relief Valve (Main Pump 3)
2- Boom Swing
3- Blade
4- Swing
5- Arm Roll-In Flow Combiner Selector Valve
6- Auxiliary Flow Combiner
7- Arm 2
8- Boom 1
9- Bucket
10- Travel (Left)
11- Main Relief Valve (Main Pumps 1, 2)
12- Flow Combiner Valve
13- Travel (Right)
14- Boom 2
15- Arm 1
16- Auxiliary
17- Swing Parking Brake Selection Valve
18- Boom Anti-Drift Valve

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Front Attachment /
Swing Pilot Valve

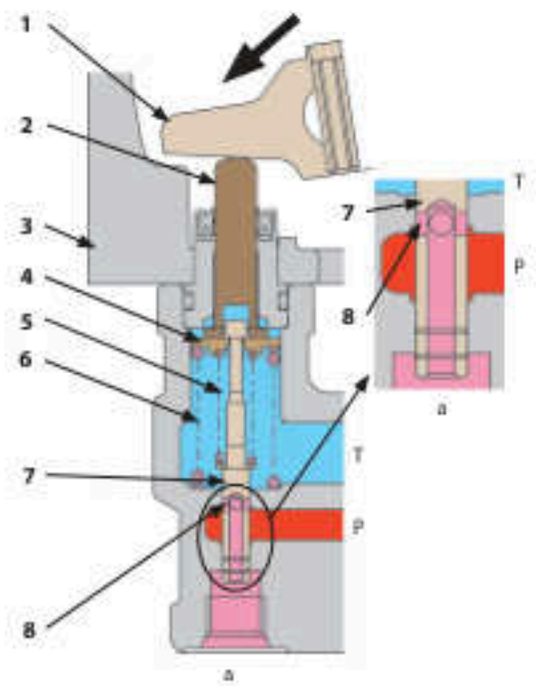


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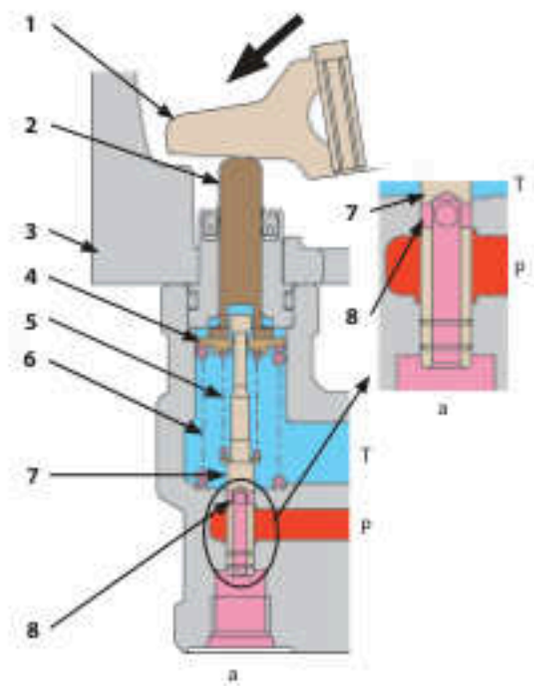


TPPP-03-04-008

Travel Pilot Valve



TPPP-03-04-012

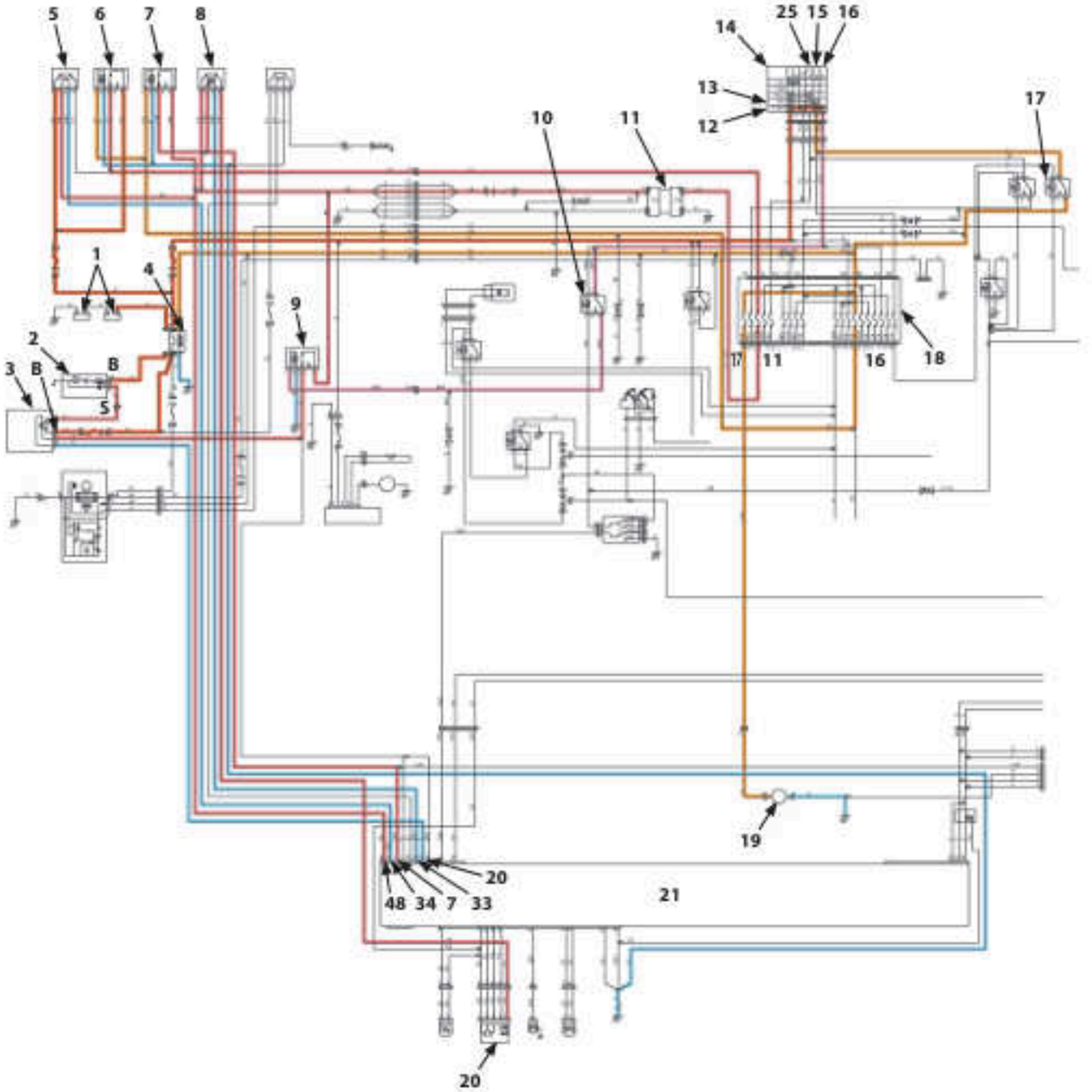


TPPP-03-04-013

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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TDEB-02-05-013

1- Battery
2- Starter
3- Starter Relay 1
4- Battery Relay
5- Main Relay 1
6- Main Relay 2
7- IGN Relay
8- Actuator Relay
9- Starter Relay 2
10- Starter Cut Relay
11- DC/DC Converter
12- START Position
13- ON Position
14- Key Switch
15- Terminal M
16- Terminal ST
17- Key Switch ON Cut Relay
18- Fuse Box
19- Fuel Pump
20- Rack Actuator
21- ECU

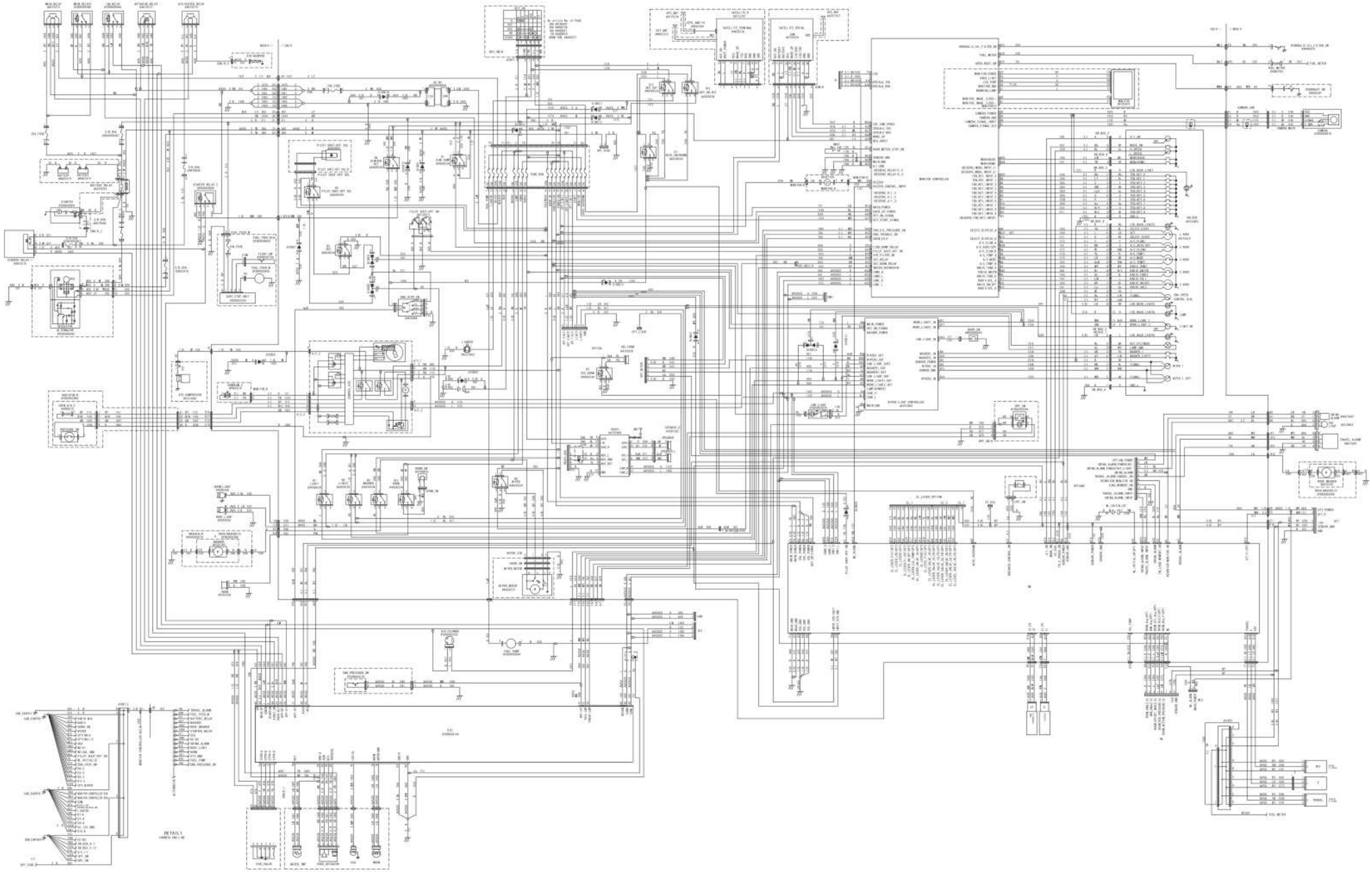
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ELECTRICAL CIRCUIT DIAGRAM

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
TTDEB-EN-00	ZX85US-5A



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