PART NO. WDEG-EN-00

HITACHI

Reliable solutions

Workshop Manual

ZX60-5G

Hydraulic Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TODEG-E
Technical Manual (Troubleshooting)	: Vol. No.TTDEG-E
Workshop Manual	: Vol. No.WDEG-E
Engine Manual	: Vol. No.ETADB-EN, EWADB-EN

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Safety Alert Symbol and Headline Notations

In this manual, the following safety alert symbol and signal words are used to alert the reader to the potential for personal injury of machine damage.

⚠ This is the safety alert symbol. When you see this symbol, be alert to the potential for personal injury.
Never fail to follow the safety instructions prescribed along with the safety alert symbol.
The safety alert symbol is also used to draw attention to component/part weights.
To avoid injury and damage, be sure to use appropriate lifting techniques and equipment when lifting heavy parts.

⚠ **CAUTION:**
Indicates potentially hazardous situation which could, if not avoided, result in personal injury or death.

IMPORTANT:
Indicates a situation which, if not conformed to the instructions, could result in damage to the machine.

NOTE:
Indicates supplementary technical information or know-how.

Units Used

SI Units (International System of Units) are used in this manual. MKSA system units and English units are also indicated in parentheses just behind SI units.

Example: 24.5 MPa (250 kgf/cm², 3560 psi)

A table for conversion from SI units to other system units is shown below for reference purposes.

Quantity	To Convert From	Into	Multiply By
Length	mm	in	0.03937
	mm	ft	0.003281
Volume	L	US gal	0.2642
	L	US qt	1.057
	m^3	yd^3	1.308
Weight	kg	lb	2.205
Force	N	kgf	0.10197
	N	lbf	0.2248
Torque	N·m	kgf·m	0.10197
Pressure	MPa	kgf/cm^2	10.197
	MPa	psi	145.0
Power	kW	PS	1.360
	kW	HP	1.341
Temperature	°C	°F	°C×1.8+32
Velocity	km/h	mph	0.6214
	min^{-1}	rpm	1.0
Flow rate	L/min	US gpm	0.2642
	mL/rev	cc/rev	1.0

NOTE: The numerical value in this manual might be different from the above-mentioned table.

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5-Volt Circuit

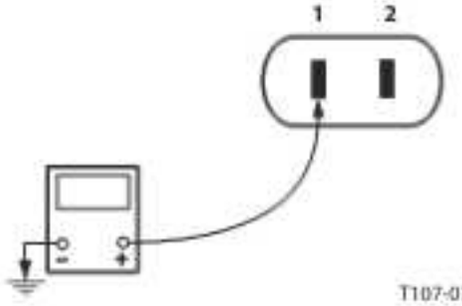
- Voltage between terminal #1 and the body

Disconnect the connector with the key switch OFF. Measure voltage between terminal #1 on the body harness end connector and the body (ground).

- Key Switch: ON
- Black (negative) probe terminal of circuit tester: To ground to the body
- Red (Positive) probe terminal of circuit tester: To terminal #1

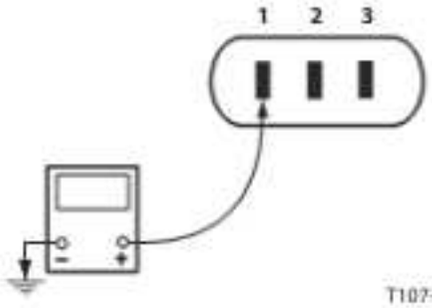
Evaluation: If the measuring voltage is within 5 ± 0.5 volts, the circuit up to terminal #1 is normal.

Two Polarities



T107-07-05-006

Three Polarities



T107-07-05-007

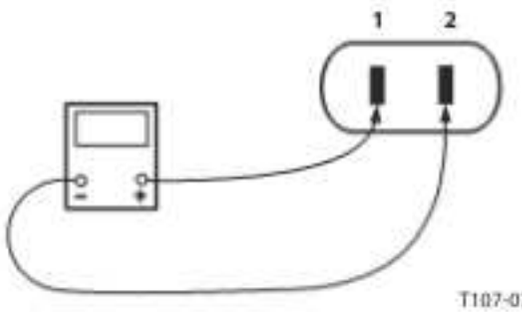
- Voltage between terminal #1 and the ground terminal

Turn OFF the key switch, and disconnect the sensor connector. Measure the voltage between terminal #1 (5 V power supply) on the body harness end connector and the ground terminal (terminal #2 for two-polarities or terminal #3 for three-polarities connector) under the following conditions.

- Key Switch: ON
- Black (negative) probe terminal of circuit tester: To ground terminal (Terminal #2 or #3)
- Red (Positive) probe terminal of circuit tester: To terminal #1

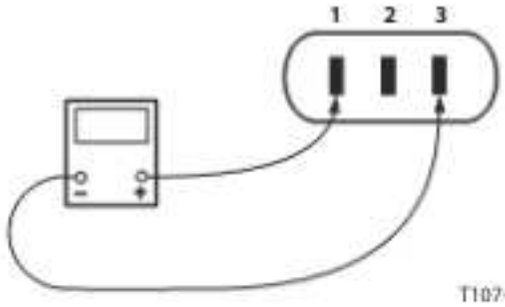
Evaluation: If the measuring voltage is within 5 ± 0.5 volts, the circuit up to terminal #1 and the ground terminal (terminal #2 or #3) is normal.

Two Polarities



T107-07-05-008

Three Polarities



T107-07-05-009

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Front Attachment System Troubleshooting

Trouble Symptom / Parts	F-1	F-2	F-3	F-4
	All front attachment operation speed are slow or all front attachment actuator power are weak.	Some cylinders are not operated or speeds are slow.	Front attachment drifts remarkably.	When boom raise or arm roll-out is operated, boom or arm starts to move after moving slightly down.
Spool		●	●	
Main Relief Valve	●			
Overload Relief Valve		●	●	
Load Check Valve				●
Boom Anti-Drift Valve			●	●
Pilot Valve	●	●	●	
Cylinder		●	●	●
Main Pump	●			
Pilot Pump	●			
Pilot Relief Valve	●			
Remarks				

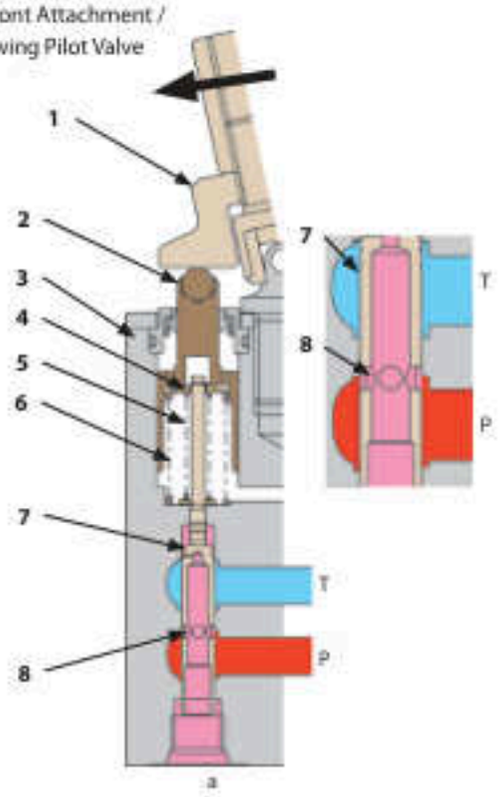
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CYLINDER		Boom	Arm	Bucket
	Rod Diameter	60 mm (2.36")	55 mm (2.17")	50 mm (1.97")
	Cylinder Bore	105 mm (4.13")	85 mm (3.35")	80 mm (3.15")
	Stroke	736 mm (2'5.0")	843 mm (2'9.2")	581 mm (1'10.9")
	Fully Retracted Length	1140 mm (3'8.9")	1282 mm (4'2.5")	891 mm (2'11.1")
	Plating Thickness	30 µm (1.18 µin)	30 µm (1.18 µin)	30 µm (1.18 µin)

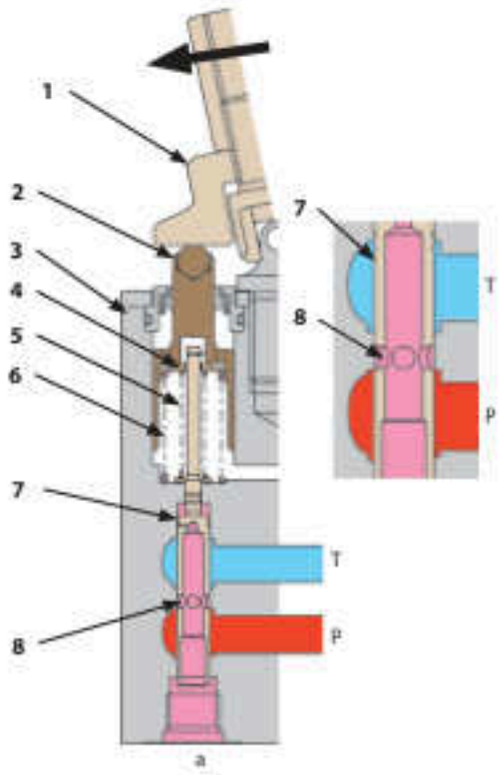
CYLINDER		Blade
	Rod Diameter	65 mm (2.56")
	Cylinder Bore	110 mm (4.33")
	Stroke	148 mm (5.83")
	Fully Retracted Length	548 mm (1'9.6")
	Plating Thickness	30 µm (1.18 µin)

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Front Attachment / Swing Pilot Valve

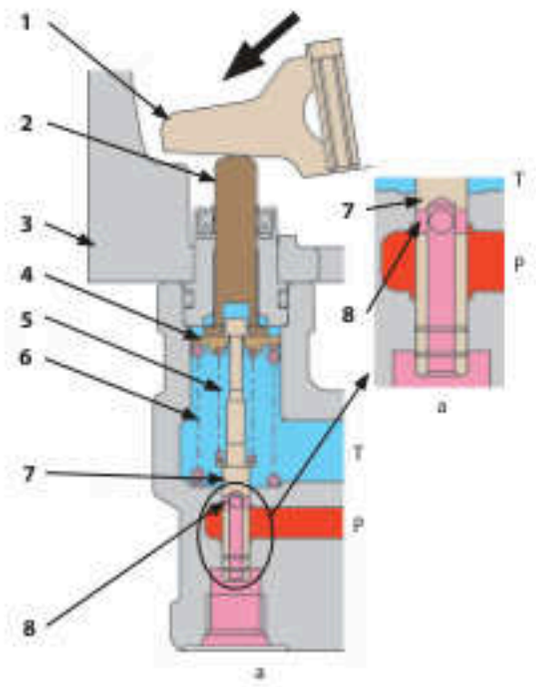


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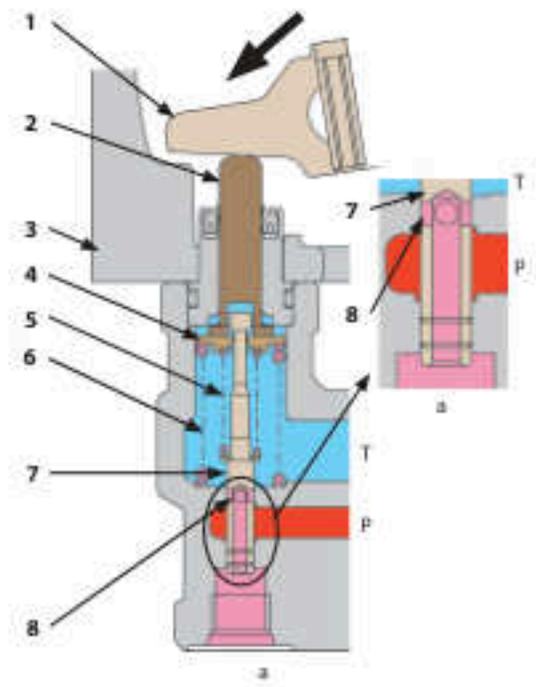


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Travel Pilot Valve



TPPP-03-04-012

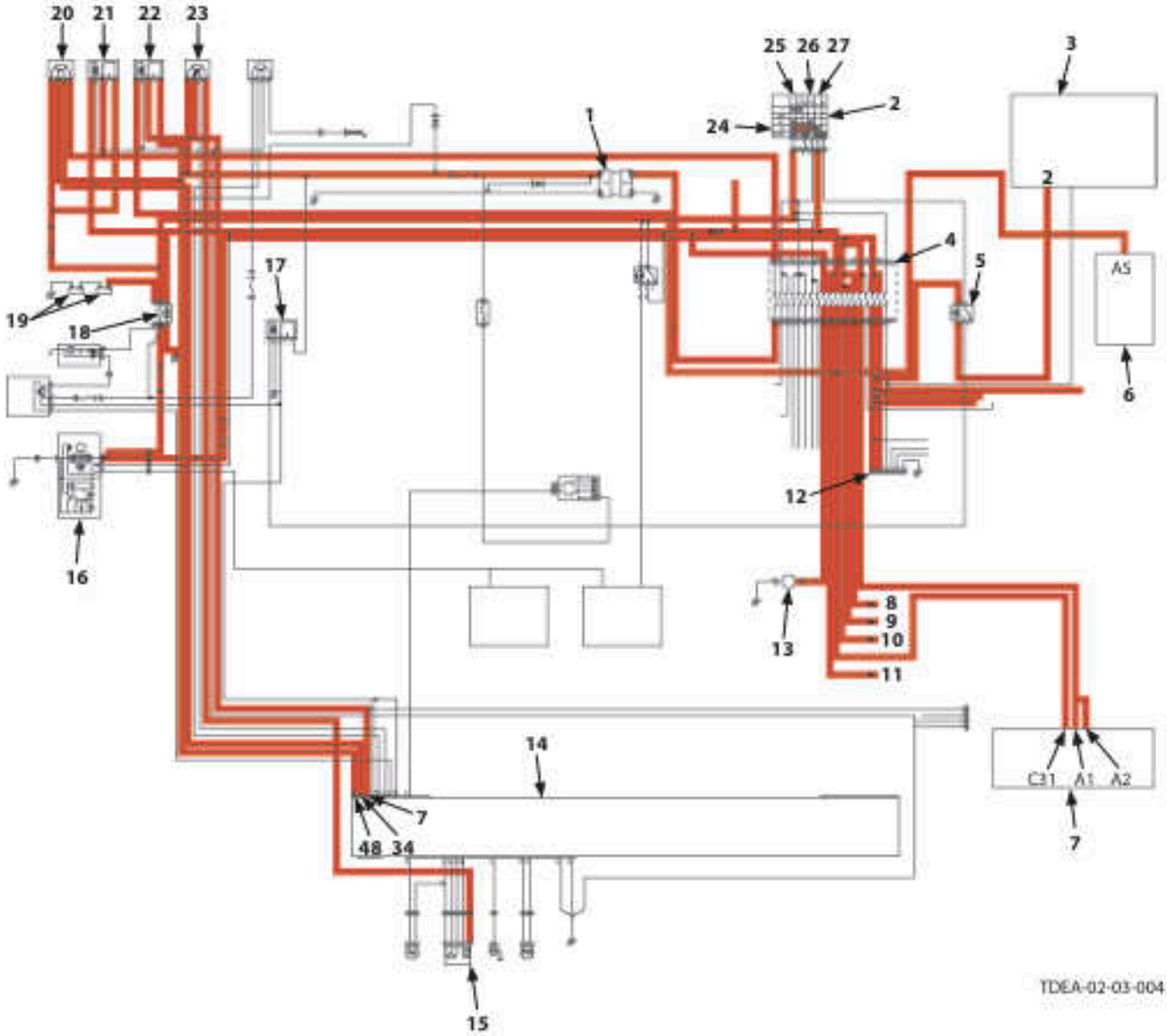


TPPP-03-04-013

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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1- DC/DC Converter
2- Key Switch
3- GSM
4- Fuse Box
5- Start Relay
6- ICX Controller
7- MC
8- Compressor
9- Light
10- Wiper
11- Air Conditioner
12- Option
13- Fuel Pump
14- E-ECU
15- Rack Actuator
16- Alternator
17- Starter Relay 2
18- Battery Relay
19- Battery
20- Main Relay 1
21- Main Relay 2
22- IGN Relay
23- Actuator Relay
24- ON Position
25- Terminal B
26- Terminal ACC
27- Terminal M

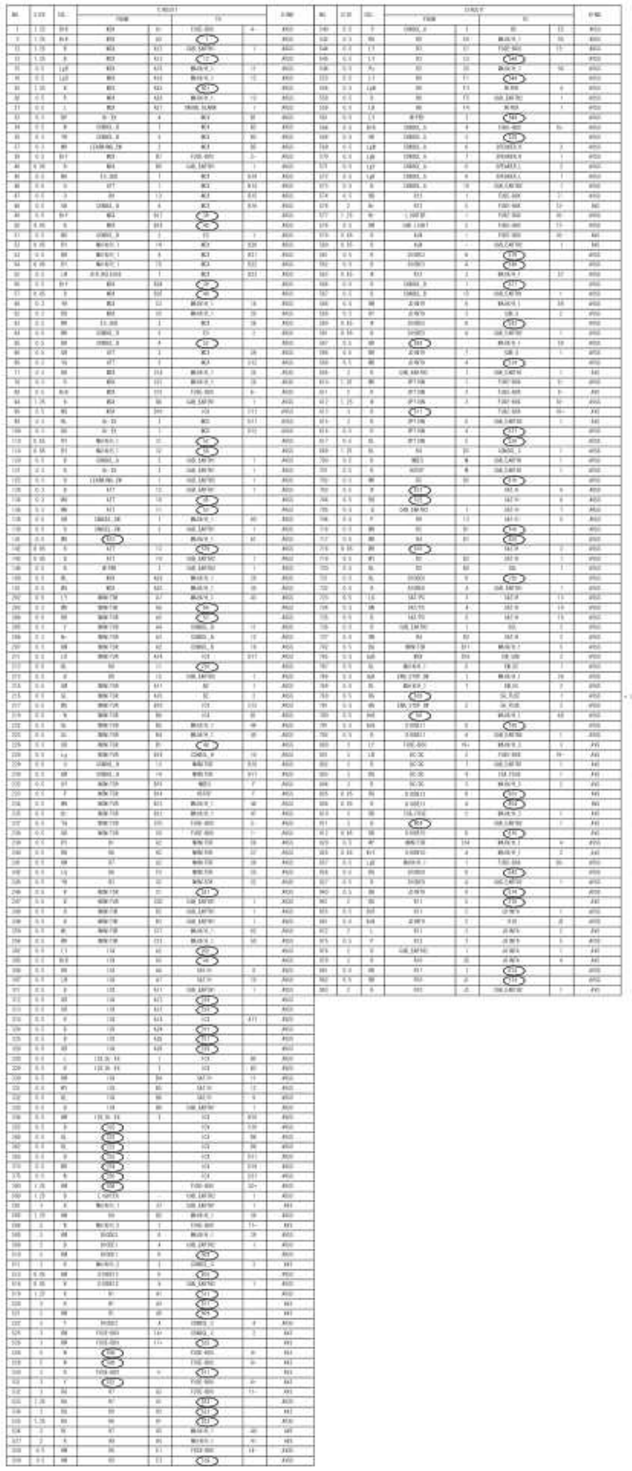
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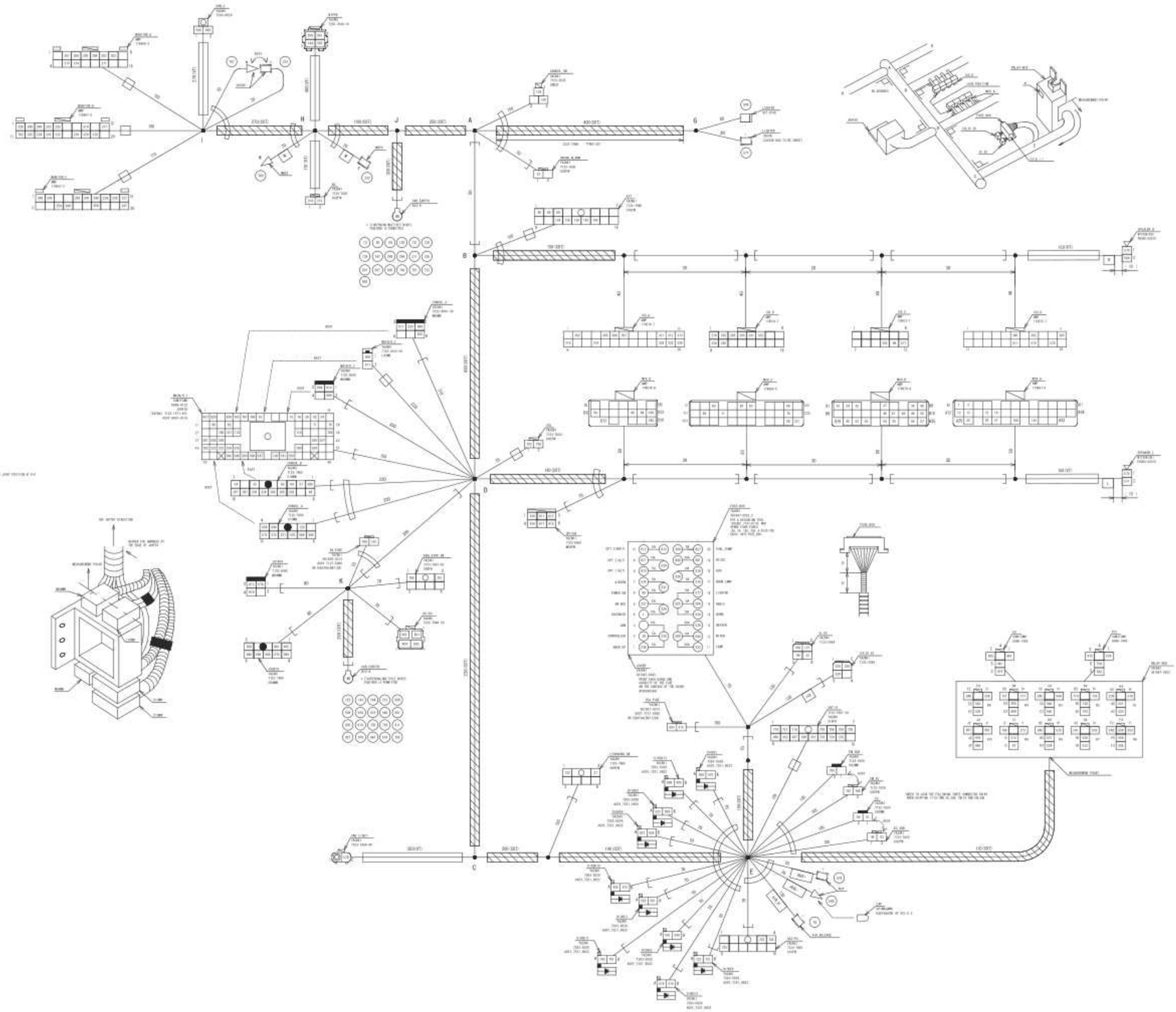
CAB HARNESS

Applicable Machine

Attach to vol. No.	Model
TTDEG-EN-00	ZX60-5G
TTDEA-EN-00	ZX70-5G

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.





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