PART NO. TTMCA-E-00

HITACHI

Reliable solutions

Technical Manual
Troubleshooting

MA
200-G
Amphibious
Soft Terrain Backhoe

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TOMCA-E
Technical Manual (Troubleshooting)	: Vol. No.TTMCA-E
Workshop Manual	: Vol. No.WMCA-E
Engine Manual	: Vol. No.EDCD-EN

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SECTION 4
OPERATIONAL PERFORMANCE TEST

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TROUBLESHOOTING B PROCEDURE

Apply troubleshooting B procedure when no fault code is displayed on the Dr.ZX (or the built-in diagnosing system) although the machine's operation is abnormal.
On the front section pages of this group T5-4, are tables indicating the relationship between machine trouble symptoms and related parts which may cause such trouble if failed.
Start the troubleshooting with more probable causes selected by referring to these tables.

- How to Read the Troubleshoting Flow Charts



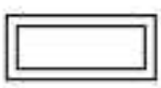
- After checking or measuring item (1), select either YES (OK) or NO (NOT OK) and proceed to item (2) or (3), as appropriate.


Key switch: ON

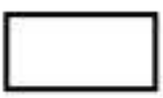
- Special instructions or reference item are indicated in the spaces under the box. Incorrect measuring or checking methods will render troubleshooting impossible, and may damage components as well.



- Explanation of how to use test harness kit required. Refer to "Electrical System Inspection" Group (Group 6) in this section.



- Use Dr.ZX (or the built-in diagnosing system) function.

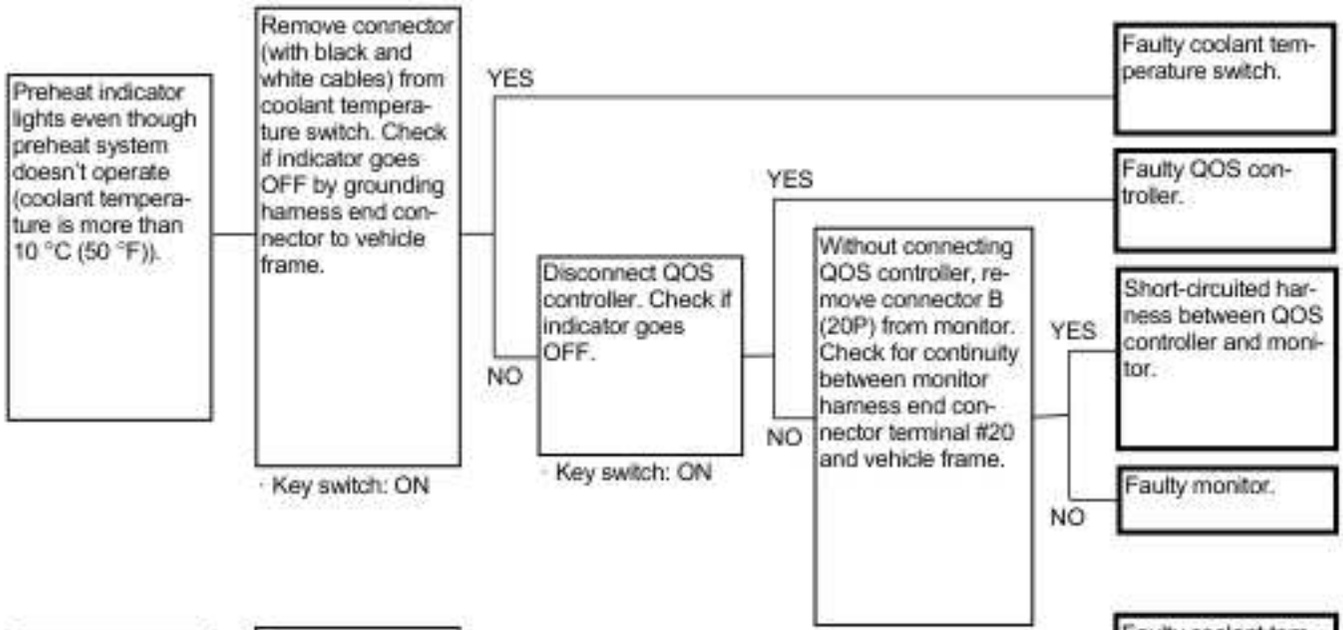


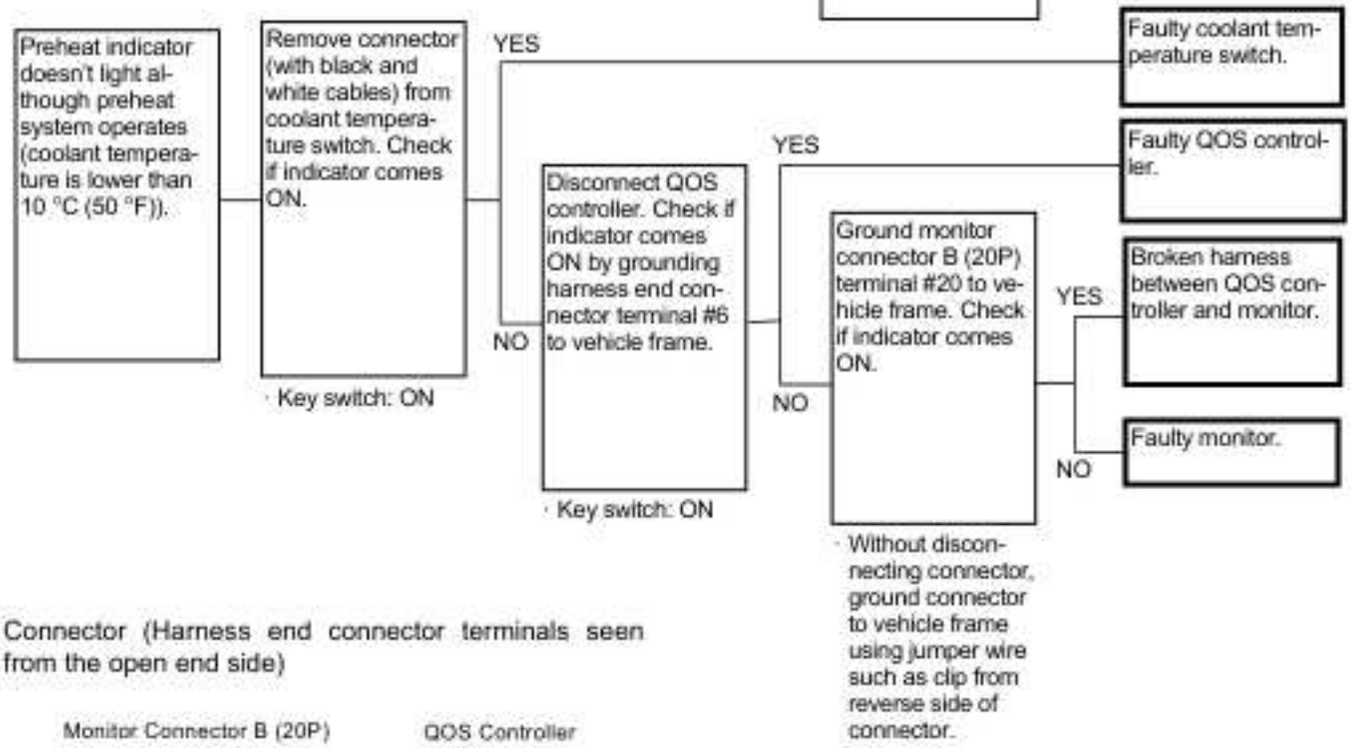
- Causes are stated in a thick-line box. Scanning through thick-line boxes, possible causes can be seen without going through the flow chart.

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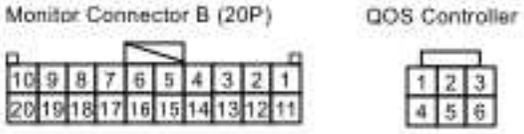
MALFUNCTION OF PREHEAT INDICATOR

- The preheat system operates only when coolant temperature is below 10 °C (50 °F), lighting the preheat indicator for 8 seconds. (Refer to the SYSTEM /Electrical Circuit group.)
- In case the preheat system malfunctions, refer to the troubleshooting B for E-16 Engine is difficult to start at low temperature.
- Check for loose harness connections beforehand.





Connector (Harness end connector terminals seen from the open end side)



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Engine	Key Switch	Location to be Measured	Specification
Power Source Circuit			
Stopped	OFF	Between (2) and (1): One Battery	10 to 12.5 V
Stopped	OFF	Between (3) and (2): One Battery	10 to 12.5 V
Stopped	OFF	Between (3) and (1): Two Batteries	20 to 25 V
Stopped	OFF	Between (4) and Ground: Battery Power	20 to 25 V
Stopped	OFF	Between (5) and Ground: Fusible Link	20 to 25 V
Stopped	OFF	Between (1) and Ground: Backup Current*	6 mA
Preheat Circuit			
Stopped	ON or START	Between (6) and Ground: Key Switch	20 to 25 V
Stopped	ON or START	Between (7) and Ground: Glow Plug	20 to 25 V
Starting Circuit			
Started	START	Between (8) and Ground: Key Switch	20 to 25 V
Started	START	Between (9) and Ground: Battery Relay (Coil)	20 to 25 V
Started	START	Between (10) and Ground: Battery Relay (Switch)	20 to 25 V
Started	START	Between (11) and Ground: Starter (B)	20 to 25 V
Started	START	Between (12) and Ground: Starter (C)	20 to 25 V
Started	START	Between (13) and Ground: Starter Relay (S)	20 to 25 V
Charging Circuit			
Fast Speed	ON	Between (14) and Ground: Alternator (B) / Generating Voltage	26 to 30 V
Fast Speed	ON	Between (10) and Ground: Battery Relay / Generating Voltage	26 to 30 V
Fast Speed	ON	Between (15) and Ground: Fuse Box / Starter Relay (R) / Generating Voltage	26 to 30 V
Fast Speed	ON	Between (16) and Ground: Generating Voltage	13 to 30 V
Fast Speed	ON	Between (17) and Ground: Monitor	13 to 30 V
Surge Voltage Prevention Circuit			
Slow Idle	ON	Between (14) and Ground: Alternator (B)	26 to 30 V
Slow Idle	ON	Between (16) and Ground: Starter Relay (R)	13 to 30 V
Slow Idle	ON	Between (18) and Ground: Load Damp Relay	26 to 30 V
Slow Idle	ON	Between (10) and Ground: Battery Relay	26 to 30 V
Accessory Circuit			
Stopped	ON	Between (19) and Ground: Auxiliary	20 to 25 V
Stopped	ON	Between (20) and Ground: Room light	20 to 25 V
Stopped	ON	Between (21) and Ground: Lighter	20 to 25 V
Stopped	ON	Between (22) and Ground: Radio	20 to 25 V
Stopped	ON	Between (23) and Ground: Horn	20 to 25 V
Stopped	ON	Between (9) and Ground: Battery Relay	20 to 25 V

*NOTE: *Measure after disconnecting the negative cable from the battery.*

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