PART NO. TTJAC91-EN-00

HITACHI

Reliable solutions

# Technical Manual
## Troubleshooting

# ZX470LC-5G
## Hydraulic Excavator

Service Manual consists of the following separate Part No.

| | |
|---|---|
| Technical Manual (Operational Principle) | : Vol. No.TOJAC91-EN |
| Technical Manual (Troubleshooting) | : Vol. No.TTJAC91-EN |
| Workshop Manual | : Vol. No.WJAC91-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:**
Indicated 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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| TECHNICAL MANUAL (Operational Principle) | WORKSHOP MANUAL |
|---|---|
| SECTION 1 GENERAL<br>Group 1 Specification<br>Group 2 Component Layout<br>Group 3 Component Specifications<br>SECTION 2 SYSTEM<br>Group 1 Controller<br>Group 2 Control System<br>Group 3 Hydraulic System<br>Group 4 Electrical System<br>SECTION 3 COMPONENT OPERATION<br>Group 1 Pump Device<br>Group 2 Swing Device<br>Group 3 Control Valve<br>Group 4 Pilot Valve<br>Group 5 Travel Device<br>Group 6 Signal Control Valve<br>Group 7 Others (Upperstructure)<br>Group 8 Others (Undercarriage) | SECTION 1 GENERAL INFORMATION<br>Group 1 Precautions for Disassembling and Assembling<br>Group 2 Tightening Torque<br>Group 3 Painting<br>Group 4 Bleeding Air from Hydraulic Oil Tank<br>Group 5 Hydraulic Circuit Pressure Release Procedure<br>Group 6 Preparation<br>SECTION 2 MAINTENANCE STANDARD<br>Group 1 Upperstructure<br>Group 2 Undercarriage<br>Group 3 Attachment<br>SECTION 3 UPPERSTRUCTURE<br>Group 1 Cab<br>Group 2 Counterweight<br>Group 3 Main Frame<br>Group 4 Engine<br>Group 5 Radiator<br>Group 6 Hydraulic Oil Tank<br>Group 7 Fuel Tank<br>Group 8 Pump Device<br>Group 9 Control Valve<br>Group 10 Swing Device<br>Group 11 Pilot Valve<br>Group 12 Solenoid Valve<br>Group 13 Signal Control Valve<br>Group 14 Shockless Valve<br>SECTION 4 UNDERCARRIAGE<br>Group 1 Swing Bearing<br>Group 2 Travel Device<br>Group 3 Center Joint<br>Group 4 Track Adjuster<br>Group 5 Front Idler<br>Group 6 Upper and Lower Roller<br>Group 7 Track<br>SECTION 5 ATTACHMENT<br>Group 1 Front Attachment<br>Group 2 Cylinder |

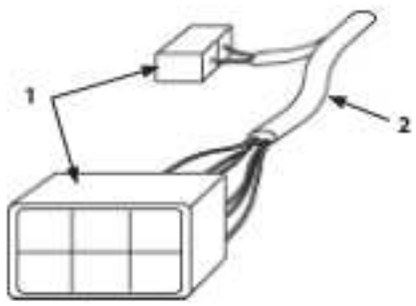
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## Troubleshooting B (Machine Diagnosis by Using Troubleshooting Symptom) Procedure

Refer to troubleshooting B procedures for diagnosis by using trouble symptom when no fault codes are displayed.

- Diagnosis Procedure
  - The diagnosis procedures for the displayed fault codes are explained in this group.
  - Perform diagnosis by using MPDr. or the service menu of monitor first.
  - In case any fault code has not been displayed by diagnosis, perform inspection according to the procedures when diagnosing.
  - When the fault code is displayed, refer to the troubleshooting A group and diagnose.
  - On the front section pages of this group, there are the 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.

*NOTE: Harness end connector viewed from the open end side by the all connectors image shown in this section.*




T6L4-05-03-001

1- Harness End Connector 2- Harness



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## Air Conditioner Controller Fault Codes 43 to 92

**Preparation**

- Check the wiring connections first.
- Before inspection, set the key switch to the ON position.

| Fault Code | Trouble | Inspection Method | Evaluation | Cause |
|---|---|---|---|---|
| 43 | Abnormal air vent damper servo motor | Measurement of voltage between air vent damper servo motor harness end 7C and body. (AUTO/OFF switch / blower switch: ON) | 0 V | Faulty controller or open circuit in harness between controller and air vent damper servo motor. |
| | | Measurement of voltage between air vent damper servo motor harness end 7C and 25D. (AUTO/OFF switch / blower switch: ON) | 0 V | Faulty controller or open circuit in harness between controller and air vent damper servo motor. |
| | | - | Normal in above check. | Faulty air vent damper servo motor. |
| 44 | Abnormal air mix damper servo motor | Measurement of voltage between air mix damper servo motor harness end 7D and body. (AUTO/OFF switch / blower switch: ON) | 0 V | Faulty controller or open circuit in harness between controller and air mix damper servo motor. |
| | | Measurement of voltage between air mix damper servo motor harness end 7D and 25E. (AUTO/OFF switch / blower switch: ON) | 0 V | Faulty controller or open circuit in harness between controller and air mix damper servo motor. |
| | | - | Normal in above check. | Faulty air mix damper servo motor. |
| 51 | Abnormal high/ low refrigerant pressure | Measurement of voltage between high/low pressure switch harness end A21 and A05. (AUTO/OFF switch / blower switch: ON) | 0 V | Faulty controller or open circuit in harness between controller and high/low pressure switch. |
| | | - | Normal in above check. | Faulty high/low pressure switch. |
| 91 | CAN communication error | Continuity check in CAN1 harness. | Normal | Faulty controller. |
| | | | Abnormal | Faulty CAN1 harness. |
| 92 | CAN bus off error | Continuity check in CAN1 harness. | Normal | Faulty controller. |
| | | | Abnormal | Faulty CAN1 harness. |



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