PART NO. TTDAS50-EN-00

HITACHI

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# Technical Manual
## Troubleshooting

# ZX
# 135US-6
## Hydraulic Excavator

Service Manual consists of the following separate Part No.

| | |
|---|---|
| Technical Manual (Operational Principle) | : Vol. No.TODAS50-EN |
| Technical Manual (Troubleshooting) | : Vol. No.TTDAS50-EN |
| Workshop Manual | : Vol. No.WDAS50-EN |
| Engine Manual | : Vol. No.EDBR50-EN |

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**Electrical Lever System Fault Code List**

CAN Data Reception Failure

| Fault Code | Trouble | Cause | Symptoms in Machine Operation When Trouble Occurs | Remedy |
|---|---|---|---|---|
| 15002-2 | (Optional Controller) Main Controller Communication Error 2 | Faulty controller. Faulty CAN1 harness. | - | Check the CAN1 harness. Replace the controller. |

Pilot Failure

| Fault Code | Trouble | Cause | Symptoms in Machine Operation When Trouble Occurs | Remedy |
|---|---|---|---|---|
| 15016-3 | Right Analog Stroke Signal Sensor Circuit High Input | Voltage: more than 4.75 V | The corresponding actuator stops. | Check the wire harness. Replace the sensor. |
| 15016-4 | Right Analog Stroke Signal Sensor Circuit Low Input | Voltage: less than 0.25 V | The corresponding actuator stops. | Check the wire harness. Replace the sensor. |
| 15017-3 | Left Analog Stroke Signal Sensor Circuit High Input | Voltage: more than 4.75 V | The corresponding actuator stops. | Check the wire harness. Replace the sensor. |
| 15017-4 | Left Analog Stroke Signal Sensor Circuit Low Input | Voltage: less than 0.25 V | The corresponding actuator stops. | Check the wire harness. Replace the sensor. |
| 11810-3 | Abnormal Electric Lever Control Pressure 1 Sensor High Voltage | Voltage: more than 4.60 V | All solenoid valves stop output due to pilot cut-off. | Check the wire harness. Replace the sensor. |
| 11810-4 | Abnormal Electric Lever Control Pressure 1 Sensor Low Voltage | Voltage: less than 0.10 V | All solenoid valves stop output due to pilot cut-off. | Check the wire harness. Replace the sensor. |
| 11811-3 | Abnormal Electric Lever Control Pressure 2 Sensor High Voltage | Voltage: more than 4.60 V | All solenoid valves stop output due to pilot cut-off. | Check the wire harness. Replace the sensor. |
| 11811-4 | Abnormal Electric Lever Control Pressure 2 Sensor Low Voltage | Voltage: less than 0.10 V | All solenoid valves stop output due to pilot cut-off. | Check the wire harness. Replace the sensor. |
| 15011-3 | (Pilot) Hydraulic Oil Temperature Sensor Circuit High Input | Voltage: more than 4.25 V | - | Check the wire harness. Replace the sensor. |
| 15011-4 | (Pilot) Hydraulic Oil Temperature Sensor Circuit Low Input | Voltage: less than 0.10 V | - | Check the wire harness. Replace the sensor. |



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## MC Fault Code 11428

**Preparation**

- Check the wiring connections first.

| Fault Code | Trouble | Procedure | Inspection Method | Evaluation | Cause |
|---|---|---|---|---|---|
| 11428-2 | Arm 2 Flow Rate Control P/S Valve Abnormal FB (4-Spool Solenoid Valve Unit (SD)) | 1 | Measure resistance between solenoid valve #1 and #2. | 0/∞ Ω (Specification: 22 Ω) | YES: Faulty solenoid valve. |
| | | | | | NO: Go to Procedure No. 2. |
| | | 2 | Measure voltage between solenoid valve harness end #1 and the body. | 0 V | YES: Open circuit in wire harness #1. |
| | | | | | NO: Go to Procedure No. 3. |
| | | 3 | Monitor Arm 2 Flw Cont P/S O/P FB. | 0 mA | YES: Open circuit in wire harness #2. |
| | | | | | NO: Short circuit in wire harness #1 and #2. |
| 11428-3 | Arm 2 Flow Rate Control P/S Valve FB High Current (4-Spool Solenoid Valve Unit (SD)) | 1 | Measure resistance between solenoid valve #1 and #2. | 0 Ω (Specification: 22 Ω) | YES: Faulty solenoid valve. |
| | | | | | NO: Short circuit in wire harness #1 and #2. |
| 11428-4 | Arm 2 Flow Rate Control P/S Valve FB Low Current (4-Spool Solenoid Valve Unit (SD)) | 1 | Measure resistance between solenoid valve #1 and #2. | ∞ Ω (Specification: 22 Ω) | YES: Faulty solenoid valve. |
| | | | | | NO: Go to Procedure No. 2. |
| | | 2 | Measure voltage between solenoid valve harness end #1 and the body. | 0 V | YES: Open circuit in wire harness #1. |
| | | | | | NO: Open circuit in wire harness #2. |

*NOTE: The stamped mark on the port SD in the 4-spool solenoid valve unit indicates "SI".*

**Connector (Wire harness end)**

- Solenoid Valve Connector




TDC1-05-05-026



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## F-3 Boom, arm, or bucket single operation is not operated. Boom, arm, or bucket single operation speed is slow.

| Overload Relief Valve Set Pressure | Specification (MPa) | Remark |
|---|---|---|
| Boom Lower, Arm Roll-In, Bucket Roll-In | $37.3^{+1.0}_{-0}$ | |
| Boom Raise, Arm Roll-Out, Bucket Roll-Out | $39.2^{+1.0}_{-0}$ | |

**Preparation**

- When other actuators (travel and swing motors) are operated normally, the pilot pump (primary pilot pressure) is considered to be normal.
- If bucket single operation speed is slow, also refer to F-6.
- If arm roll-in single operation speed is slow, also refer to F-7.
- In case boom lower single operation speed is slow, also refer to F-8.

| Procedure | Inspection Method | Condition | Evaluation | Cause |
|---|---|---|---|---|
| 1 | Monitor Boom Raise Pilot Pressure and Arm Roll-In Pilot Pressure. | Fully operate boom raise and arm roll-in. | The measured values are out of the specification. (Specification: 3.4-4.0 MPa) | YES: Faulty pilot valve or stuck spool of shockless valve in signal control valve (only boom raise) |
| | | | | NO: Go to Procedure No. 2 |
| 2 | Monitor Pump 1 Control Pressure and Pump 2 Control Pressure. | Slowly operate the control lever. | The measured values are out of the specification. (Specification: 2.9-3.9 MPa) | YES: Faulty shuttle valve in signal control valve |
| | | | | NO: Go to Procedure No. 3 |
| 3 | Switch overload relief valves, of which the set pressure are same. | - | Symptom is reversed. | YES: Faulty overload relief valve |
| | | | | NO: Stuck control valve spool or faulty cylinder (faulty seal kit) |



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