PART NO. TTDC450-EN-00

HITACHI

Reliable solutions

# Technical Manual
## Troubleshooting

# ZX
# 210-6
# 210LC-6
# 210LCN-6
# 240N-6
# Hydraulic Excavator

Service Manual consists of the following separate Part No.

| | |
|---|---|
| Technical Manual (Operational Principle) | : Vol. No.TODC450-EN |
| Technical Manual (Troubleshooting) | : Vol. No.TTDC450-EN |
| Workshop Manual | : Vol. No.WDC450-EN |
| Engine Manual | : Vol. No.ETDC150-EN, EWDC150-EN |

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## ECM Fault Code List

(Refer to the Engine Manual for ECM Fault Codes.)

| Fault Code | | Trouble | Cause | Symptoms in Machine Operation When Trouble Occurs | Operating Rank | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SPN-FMI | DTC | | | | A | B | C | D | E | F |
| 100-3 | P0523 | Engine Oil Pressure Sensor Circuit High Input | Voltage: more than 4.9 V. | Nothing special. | ○ | | | | | |
| 100-4 | P0522 | Engine Oil Pressure Sensor Circuit Low Input | Voltage: less than 0.1 V. | Nothing special. | ○ | | | | | |
| 102-0 | P0234 | Over Boost-Pressure | Boost pressure is 20 kPa higher than the max. target boost pressure. | The output power decreases. | | ○ | | | | |
| 102-3 | P0238 | Boost Pressure Sensor Circuit High Input | Voltage: more than 4.9 V. | Engine power decreases. Engine speed decreases. | | | | | ○ | |
| 102-4 | P0237 | Boost Pressure Sensor Circuit Low Input | Voltage: less than 0.1 V. | Engine power decreases. Engine speed decreases. | | | | | ○ | |
| 105-3 | P1098 | Boost Temperature Sensor (Intercooler Outlet) High Input | Voltage: more than 4.9 V. | Nothing special. | ○ | | | | | |
| 105-4 | P1097 | Boost Temperature Sensor (Intercooler Outlet) Low Input | Voltage: less than 0.1 V. | Nothing special. | ○ | | | | | |
| 108-3 | P2229 | Abnormal Atmospheric Pressure Sensor Circuit (High Input) | Voltage: more than 4.9 V. | The output power decreases. | | ○ | | | | |
| 108-4 | P2228 | Abnormal Atmospheric Pressure Sensor Circuit (Low Input) | Voltage: less than 0.1 V. | The output power decreases. | | ○ | | | | |

Operating Rank

A: Digging is operable.

B: Machine can travel with the boom raised.

C: The engine only runs. (Only operation with light load is possible.)

D: The engine cannot stop/start.

E: Malfunction of urea SCR system (Engine output power and speed are restricted in a phased manner. Finally engine output power and speed are set to operating rank (C).) * Malfunction of urea SCR system (first time): Engine output power and speed are set to operating rank (C) after 3.5 hours, Malfunction of urea SCR system (second time): Engine output power and speed are set to operating rank (C) after 0.5 hours.

F: Malfunction of EGR system (Engine output power and speed are restricted in a phased manner. Finally engine output power and speed are set to operating rank (C).) * Malfunction of EGR system (first time): Engine output power and speed are set to operating rank (C) after 100 hours, Malfunction of EGR system (second time): Engine output power and speed are set to operating rank (C) after 5 hours.



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| Fault Code | Trouble | Cause | Remedy |
|---|---|---|---|
| 20100-2 | Overheat Alarm | Coolant temperature is high while the engine runs. | Check the wire harness.<br>Replace the overheat switch. |
| 20101-2 | Engine Warning Alarm | Faulty engine system. | Refer to Engine Troubleshooting Manual. |
| 20102-2 | Engine Oil Pressure Alarm | Engine oil pressure decreases. | Check the wire harness.<br>Replace the engine oil pressure sensor. |
| 20105-2 | Hydraulic Oil Filter Restriction Alarm | Clogged hydraulic oil filter.<br>Open circuit in wire harness. | Check the wire harness.<br>Replace the hydraulic oil filter restriction switch. |
| 20106-2 | Air Cleaner Restriction Alarm | Clogged air cleaner. | Check the wire harness.<br>Replace the air cleaner restriction switch. |
| 20107-2 | Water Separator Alarm | The water separator is full. | Check the wire harness.<br>Replace the water separator alarm switch. |
| 20109-2 | Pilot Control Shut-Off Lever Alarm | Faulty pilot shut-off switch. | Check the wire harness.<br>Replace the pilot shut-off switch. |
| 20110-2 | Fuel Filter Restriction Alarm | Clogged fuel filter. | Check the wire harness.<br>Replace the fuel filter restriction switch. |
| 20114-2 | Overheat Alarm (Immediately after the key is turned ON) | Coolant temperature is high within ten seconds after the engine starts. | Check the wire harness.<br>Replace the overheat switch. |
| 20141-2 | Exhaust Temperature Alarm | Exhaust temperature is high. | Check the wire harness.<br>Replace the exhaust temperature sensor. |
| 20142-2 | Intake Air Temperature Alarm | Intake air temperature increases. | Check the wire harness.<br>Replace the intake-air temperature sensor. |
| 20145-2 | Boost Temperature Increase Alarm | Boost temperature increases. | Check the wire harness.<br>Replace the boost temperature sensor. |
| 20146-2 | Fuel Temperature Increase Alarm | Fuel temperature increases. | Check the wire harness.<br>Replace the fuel temperature sensor. |
| 20149-2 | EGR Gas Temperature Alarm | EGR gas temperature increases. | Check the wire harness.<br>Replace the intake manifold temperature sensor. |



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## Air Conditioner Controller Fault Codes 11 to 22

**Preparation**

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

| Fault Code | Trouble | Procedure | Inspection Method | Evaluation | Cause |
|---|---|---|---|---|---|
| 11 | Open circuit in re-circulated air temperature sensor | 1 | Measure resistance between sensor #25H and #6B. | ∞ Ω (Specification: 300 to 430 kΩ) | YES: Faulty sensor. |
| | | | | | NO: Go to Procedure No. 2. |
| | | 2 | Measure voltage between sensor harness end #25H and the body. | 0 V | YES: Open circuit in wire harness #25H. |
| | | | | | NO: Open circuit in wire harness #6B. |
| 12 | Short circuit in re-circulated air temperature sensor | 1 | Measure resistance between sensor #25H and #6B. | 0 Ω (Specification: 300 to 430 kΩ) | YES: Faulty sensor. |
| | | | | | NO: Short circuit in wire harness #25H and #6B. |
| 13 | Open circuit in ambient temperature sensor | 1 | Measure resistance between sensor #A25T and #A4T. | ∞ Ω (Specification: 100 to 210 kΩ) | YES: Faulty sensor. |
| | | | | | NO: Go to Procedure No. 2. |
| | | 2 | Measure voltage between sensor harness end #A25T and the body. | 0 V | YES: Open circuit in wire harness #A25T. |
| | | | | | NO: Open circuit in wire harness #A4T. |
| 14 | Short circuit in ambient temperature sensor | 1 | Measure resistance between sensor #A25T and #A4T. | 0 Ω (Specification: 100 to 210 kΩ) | YES: Faulty sensor. |
| | | | | | NO: Short circuit in wire harness #A25T and #A4T. |
| 18 | Short circuit in solar radiation sensor | 1 | Check continuity between sensor harness end #A7T and #A3T. | 0 Ω | YES: Short circuit in wire harness #A7T and #A3T. |
| | | | | | NO: Faulty sensor. |
| 21 | Open circuit in frost sensor | 1 | Measure resistance between sensor #25C and #5E. | ∞ Ω (Specification: 100 to 115 kΩ) | YES: Faulty sensor. |
| | | | | | NO: Go to Procedure No. 2. |
| | | 2 | Measure voltage between sensor harness end #25C and the body. | 0 V | YES: Open circuit in wire harness #25C. |
| | | | | | NO: Open circuit in wire harness #5E. |
| 22 | Short circuit in frost sensor | 1 | Measure resistance between sensor #25C and #5E. | 0 Ω (Specification: 100 to 115 kΩ) | YES: Faulty sensor. |
| | | | | | NO: Short circuit in wire harness #25C and #5E. |



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## Rewrite of Aftertreatment Device Serial No.

When the aftertreatment device has been replaced, rewrite the serial No. of aftertreatment device and upload the data to e-Service.

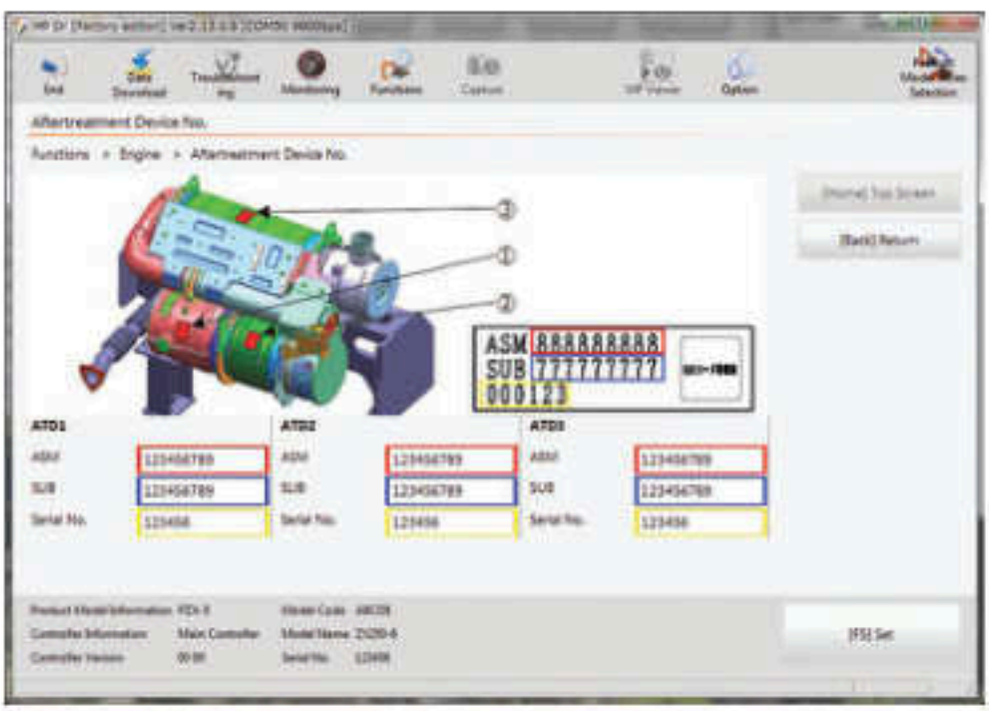
**Procedure**

1. Connect MPDr..
2. Set the key switch to the ON position.
3. Select Functions-Engine-Aftertreatment Device No. with MPDr..
4. Input the serial No. after the replacement to the following items of Oxidation Catalyst (DOC) and SCR Catalyst.

- ASM
- SUB
- Serial No.

5. After inputting, select Set.
6. Upload the input data to e-Service.

*NOTE: When the input data is uploaded to e-Service, the M-Find product specification and history will be updated.*




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