PART NO. TTDCS-EN-00

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Technical Manual
Troubleshooting

ZH210LC-5B
Hybrid Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TODCS-EN
Technical Manual (Troubleshooting)	: Vol. No.TTDCS-EN
Workshop Manual	: Vol. No.WDCS-EN
Engine Manual	: Vol. No.ETDCA-EN, EWDCA-EN

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SECTION 4

OPERATIONAL PERFORMANCE TEST

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Monitor Controller (Information) Fault Code List

Fault Code	Trouble	Cause	Remedy
14001-2	Flash Memory Read/ Write Error	The internal memory of monitor controller is abnormal.	After initializing the monitor controller (information) by using MPDr., retry the troubleshooting. If the fault code is displayed after retry, the monitor controller may be broken. Replace the monitor controller. When initializing the monitor controller (information), all stored data is deleted.
14002-2	External RAM Read/ Write Error	The internal memory of monitor controller is abnormal.	After initializing the monitor controller (information) by using MPDr., retry the troubleshooting. If the fault code is displayed after retry, the monitor controller may be broken. Replace the monitor controller. When initializing the monitor controller (information), all stored data is deleted.
14003-2	Abnormal EEPROM	The internal memory of monitor controller is abnormal.	Retry the troubleshooting by using MPDr. If the fault code is displayed after retry, the monitor controller may be broken. Replace the monitor controller.
14006-2	Communication Terminal : Communication Error	Communication error with communication equipment	Check the communication line, power line, and fuses for communication terminal. Then, retry the troubleshooting by using MPDr.. If the fault code is displayed after retry, the communication equipment may be broken. Replace the communication equipment.
14008-2	Abnormal Internal RAM	The internal memory of monitor controller is abnormal.	Retry the troubleshooting by using MPDr.. If the fault code is displayed after retry, the monitor controller may be broken. Replace the monitor controller.
14021-2	Communication Terminal Security Error	Security failure of mobile communication equipment	Check the communication line for communication terminal. Check the GPS antenna. In case the communication equipment has been replaced, it may be considered faulty. After disable the checking function for mobile phone number by MPDr. (security), enable it again. Retry the troubleshooting by using MPDr. after turning the key switch OFF. If the fault code is displayed after retry, the communication equipment may be broken. Replace the communication equipment.
14022-2	SIM Card Error	Abnormal SIM card in mobile communication equipment	Retry the troubleshooting by using MPDr.. If the fault code is displayed after retry, the communication equipment may be broken. Replace the communication equipment.
14023-2	Security Error	Communication error with MC	Check the CAN1 harness. Retry the troubleshooting by using MPDr.. If the fault code is displayed after retry, MC may be broken. Replace MC.

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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	Inspection Method	Evaluation	Cause
11	Open circuit in re-circulated air sensor	Measurement of resistance between sensor #1 and #2.	∞ Ω (Normal value: 300 to 430 kΩ)	Faulty sensor.
		Measurement of voltage between sensor harness end #1 and body.	0 V	Open circuit in harness #1.
		-	Normal in above check.	Open circuit in harness #2.
12	Shorted circuit in re-circulated air sensor	Measurement of resistance between sensor #1 and #2.	0 Ω (Normal value: 300 to 430 kΩ)	Faulty sensor.
		-	Normal in above check.	Shorted circuit in harness #1 and #2.
13	Open circuit in outdoor ambient temperature sensor	Measurement of resistance between sensor #1 and #2.	∞ Ω (Normal value: 100 to 210 kΩ)	Faulty sensor.
		Measurement of voltage between sensor harness end #1 and body.	0 V	Open circuit in harness #1.
		-	Normal in above check.	Open circuit in harness #2.
14	Shorted circuit in outdoor ambient temperature sensor	Measurement of resistance between sensor #1 and #2.	0 Ω (Normal value: 100 to 210 kΩ)	Faulty sensor.
		-	Normal in above check.	Shorted circuit in harness #1 and #2.
18	Shorted circuit in solar radiation sensor	Continuity check between sensor harness end #1 and #2.	0 Ω	Shorted circuit in harness #1 and #2.
		-	Normal in above check.	Faulty sensor.
21	Open circuit in frost sensor	Measurement of resistance between sensor #1 and #2.	∞ Ω (Normal value: 100 to 115 kΩ)	Faulty sensor.
		Measurement of voltage between sensor harness end #1 and body.	0 V	Open circuit in harness #1.
		-	Normal in above check.	Open circuit in harness #2.
22	Shorted circuit in frost sensor	Measurement of resistance between sensor #1 and #2.	0 Ω (Normal value: 100 to 115 kΩ)	Faulty sensor.
		-	Normal in above check.	Shorted circuit in harness #1 and #2.

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Harness Check between PCU and Capacitor Unit

Preparation

- Before continuity check, set the key switch to the OFF position.

Evaluation

	Continuity (0 Ω)	Discontinuity (∞ Ω)
Continuity check (open circuit)	Correct	Open circuit
Discontinuity check (shorted circuit)	Shorted circuit	Correct

Inspection	Harness	PCU	Capacitor Unit
Continuity check between PCU and capacitor unit	CAP-WARNING1	#4D	#4D
	CAP-WARNING2	#5D	#5D
	CAP-WARNING3	#1E	#1E
	CAP-ERROR	#2E	#2E
	CAP-24V	#3F	#3F
	CAP-GND	#4F	#4F
Discontinuity check between signal circuit and ground circuit in PCU to capacitor unit	CAP-WARNING1	#4D-#4F	#4D-#4F
	CAP-WARNING2	#5D-#4F	#5D-#4F
	CAP-WARNING3	#1E-#4F	#1E-#4F
	CAP-ERROR	#2E-#4F	#2E-#4F
	CAP-24V	#3F-#4F	#3F-#4F

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Rewrite of Muffler Filter Serial No.

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

1. Connect MPDr..
2. Set the key switch to the ON position.
3. Select Functions-Engine/Muffler Filter-Muffler Filter NO. with MPDr..
4. Input the following items of Oxidation Catalyst (DOC) and Filter (CSF).

- ASM
- SUB
- Serial No.

5. After inputting, select Setting.

IMPORTANT: After inputting Muffler Filter Serial No. is completed, upload the 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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