PART NO. TTNFB50-EN-00

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Technical Manual
Troubleshooting

ZW

310-6
Wheel Loader

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TONFB50-EN
Technical Manual (Troubleshooting)	: Vol. No.TTNFB50-EN
Workshop Manual	: Vol. No.WNFB50-EN

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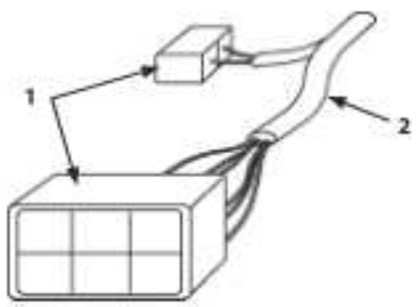
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Troubleshooting B (Machine Diagnosis by Using Troubleshooting Symptom) Procedure

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

- Diagnosis Procedure
  - The diagnosis procedures for the observed machine abnormality without any 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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Front Attachment System Troubleshooting

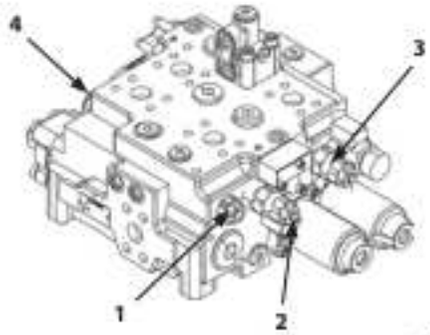
F-1 All front attachment actuator power are weak.

Main Relief Valve Set Pressure	Specification	Remark
Lift arm and bucket relief operation	31.4 ± 0.5 MPa (4554 ± 73 psi)	

Preparation

- If operating speeds are extremely slow, pump control may be faulty.
  Faulty pilot system may also cause this trouble.

Procedure	Inspection Method	Condition	Evaluation	Cause
1	Monitor Pump Delivery Pressure	Lift arm relief operation	The measured values are out of the specified range.	Faulty main relief valve (readjust)
2	-	-	The check (1) above resulted normal.	Find out cause of trouble by tracing other trouble symptoms



90Z7-04-05-06

1- Main Relief Valve
2- Overload Relief Valve (Bucket Bottom Side, Roll Back)
3- Overload Relief Valve (Lift Arm Rod Side, Lower)
4- Overload Relief Valve (Bucket Rod Side, Dump)

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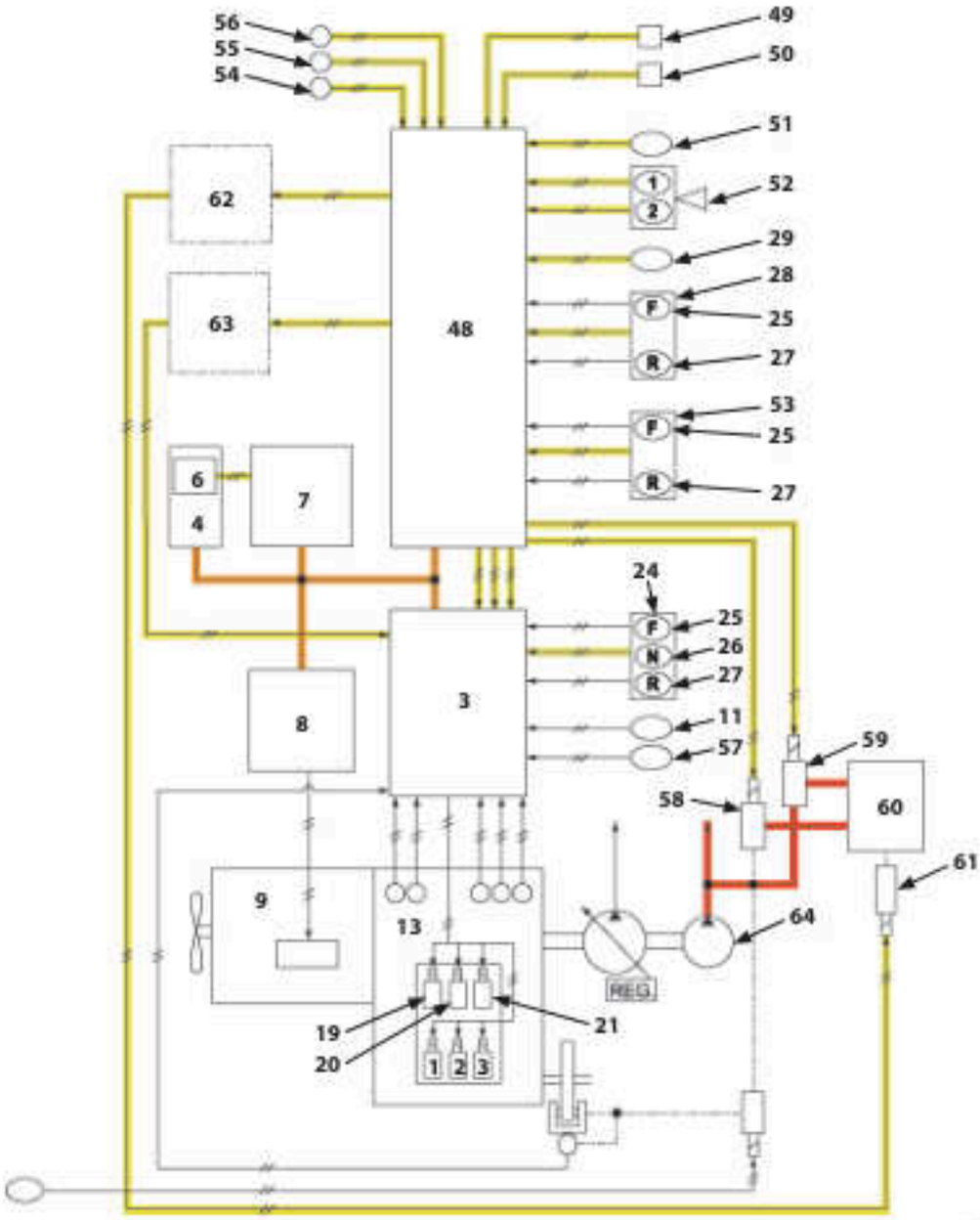
Air Conditioner Controller Fault Codes 11 to 22

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 chassis.	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 chassis.	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 chassis.	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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90TNEK-05-08-01

3- MC
4- Column Display Controller
5- CAN Communication
6- Monitor
7- Monitor Controller
8- ECM
9- Engine
11- Downshift Switch
13- Transmission
19- Slow-Speed Forward Clutch Solenoid Valve (YS)
20- Fast-Speed Forward Clutch Solenoid Valve (Y1)
21- Reverse Clutch Solenoid Valve (Y2)
24- Forward/Reverse Lever
25- Forward Position
26- Neutral Position
27- Reverse Position
28- Forward/Reverse Switch (OP)
29- Forward/Reverse Selector Switch (OP)
48- JCU (OP)
49- Armrest Switch 1 (OP)
50- Armrest Switch 2 (OP)
51- Joystick Steering Selector Switch (OP)
52- Joystick Steering Lever (OP)
53- Forward/Reverse Switch (Left) (OP)
54- Pressure Sensor (Steering Pilot Pressure) (OP)
55- Pressure Sensor (Right Steering Pilot Pressure) (OP)
56- Pressure Sensor (Left Steering Pilot Pressure) (OP)
57- Downshift Switch (JSS) (OP)
58- Right Steering Proportional Solenoid Valve (2-Spool Solenoid Valve Unit) (OP)
59- Left Steering Proportional Solenoid Valve (2-Spool Solenoid Valve Unit) (OP)
60- Joystick Steering Valve (OP)
61- Cut Off Solenoid Valve (OP)
62- Electrical Circuit (Joystick Steering)
63- Electrical Circuit (Forward/Reverse Switch)
64- Pilot Pump

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