

Item	Alarm	Detection Method/Condition	Detecting Location in Logic Card
E0	Right Motor, Overheating	Thermal switch signal input for right motor [150°C (302°F)]	CN1-26
E1	Left Motor, Overheating	Thermal switch signal input for left motor [150°C (302°F)]	CN1-28
E2	Pump Motor, Overheating	Thermal switch signal input for pump motor [150°C (302°F)]	CN1-30
E3	Controller, Overheating	Thermal sensor signal input for controller [80°C (176°F) thermistor]	CN2-43
E4	Right Motor, Worn Brushes	Brush wear signal input for right motor	CN1-27
E5	Left Motor, Worn Brushes	Brush wear signal input for left motor	CN1-29
E6	Pump Motor, Worn Brushes	Brush wear signal input for pump motor	CN1-31
	Brake Oil, Low Level	Level sensor signal input for brake oil	(CN1-32)
10	Right Motor, Faulty Armature Circuit	Armature error under various conditions	Combination from CN2-34, 39, 41, 45
11	Right Motor, Transistor Wire Breakage	Armature error under ARM output ON	Combination from CN2-34, 39, 41, 45
12	Right Motor, Shorted Transistor	Armature error under ARM output OFF	Combination from CN2-34, 39, 41, 45
13	Right Motor, Faulty Transistor Drive	Abnormal over-current for right IGBT of drive board	CN2-30 is less than 1 V
14	Right Motor, Faulty Current Sensor	Right current sensor error under ARM output OFF	Combination from CN2-34, 39, 41, 45
15	Right Motor, Armature Over-current	Right motor armature current is 350 A or more	CN2-45 is 2.45 V or more
16	Right Motor, Stall Timer	The time set with setup option elapsed	
17	Right Motor, Faulty Field Circuit	Error in line voltage or field current	Combination from CN2-15, 34
18	Right Motor, Faulty Field Drive	H bridge board detected abnormal over current for right FET	CN2-13 is less than 1 V
19	Right Motor, Field Over-current	Right motor field over-current is 45 A or more (continues 5 msec)	CN2-15 is 4.5 V or more
20	Left Motor, Faulty Armature Circuit	Armature error under various conditions	Combination from CN2-34, 39, 42, 47
21	Left Motor, Transistor Wire Breakage	Armature error under ARM output ON	Combination from CN2-34, 39, 42, 47
22	Left Motor, Shorted Transistor	Armature error under ARM output OFF	Combination from CN2-34, 39, 42, 47
23	Left Motor, Faulty Transistor Drive	Abnormal detection signal from drive board	CN2-31 is less than 1 V
24	Left Motor, Faulty Current Sensor	Left current sensor error under ARM output OFF	Combination from CN2-34, 39, 42, 47
25	Left Motor, Armature Over-current	Left motor armature current is 350 A or more	CN2-47 is 2.45 V or more
26	Left Motor, Stall Timer	The time set with setup option elapsed	
27	Left Motor, Faulty Field Circuit	Error in line voltage or field current	Combination from CN2-17, 34
28	Left Motor, Faulty Field Drive	H bridge board detected abnormal over-current for left FET	CN2-14 is less than 1 V
29	Left Motor, Field Over-current	Left motor field over-current is 45 A or more (continues 5 msec)	CN2-17 is 4.5 V or more
30	Pump Motor, Faulty Circuit	Checks voltage level and current level for main circuit	Combination from CN2-34, 39, 40, 49
31	Pump Motor, Transistor Wire Breakage	Checks voltage level and current level for main circuit	Combination from CN2-34, 39, 40, 49
32	Pump Motor, Shorted Transistor	Checks voltage level and current level for main circuit	Combination from CN2-34, 39, 40, 49
33	Pump Motor, Faulty Transistor Drive	Abnormal detection signal from drive board	CN2-32 is less than 1 V

TROUBLESHOOTING FOR CONTROL CIRCUITS

Item	Alarm	Detection Method/Condition	Detecting Location in Logic Card
34	Pump Motor, Faulty Current Sensor	Checks current sensor output	Combination from CN2-34, 39, 40, 49
35	Pump Motor, Armature Over-current	Pump motor current is 450 A or more	CN2-49 is 3.15 V or more
40	Line Contactor, Abnormality	Contactor error under line contactor ON	Contactor over-current (/EERR3)
41	Regeneration Contactor, Abnormality	Contactor error under traction and regeneration output	Contactor over-current (/EERR3)
43	Regeneration Diode, Abnormality	Error during traction	Combination from CN2-34, 39, 41, 42, 45, 47
44	Right Armature Diode, Abnormality	Armature error under ARM output ON	Combination from CN2-34, 39, 41, 45
45	Left Armature Diode, Abnormality	Armature error under ARM output ON	Combination from CN2-34, 39, 42, 47
46	Pump Armature Diode, Abnormality	Checks voltage level and current level for main circuit	Combination from CN2-34, 39, 40, 49
47	Right Motor, Wire Breakage	Error under ARM output OFF during regeneration	Combination from CN2-34, 39, 41, 45
48	Left Motor, Wire Breakage	Error under ARM output OFF during regeneration	Combination from CN2-34, 39, 42, 47
49	Pump Motor, Wire Breakage	Checks voltage level and current level for main circuit	Combination from CN2-34, 39, 40, 49
51	Accelerator, Abnormality	Out of input range	CN1-33
52	Right Vehicle Speed Sensor, Abnormality	Wire breakage or short circuit	CN1-43, 45 (/ERR1)
53	Left Vehicle Speed Sensor, Abnormality	Wire breakage or short circuit	CN1-47, 49 (/ERR3)
54	FC Lever Abnormality	Abnormal signal from FC controller	
55	FC Solenoid, Abnormality	Abnormal signal from FC controller	
57	FC Controller, Abnormality	Abnormal signal from FC controller	
E	Direction Lever and Accelerator, Faulty Setting	Lever is not in neutral or accelerator is not "0" when power is turned on	
(E)	Seat Switch, Faulty Setting	No signal input when power is turned on	CN1-9
H1	Lift Lever, Faulty Setting	Signal input when power is turned on	CN1-16, 17
H2	Tilt Lever, Faulty Setting	Signal input when power is turned on	CN1-18
H3	Attachment 1 Lever, Faulty Setting	Signal input when power is turned on	CN1-19
H4	Attachment 2 Lever, Faulty Setting	Signal input when power is turned on	CN1-20
H5	FC Controller Lever, Faulty Setting	Abnormal signal from FC controller	
60	Data Communication, Abnormality	Display unit shows undefined characters during no communication made	Logic power supply failure or CN1-59, 61
61	EEPROM, Abnormality	Executes parity check for SUO data when power is turned on	
65	Logic Card, Faulty Initial Setting	Incorrect DSW setting (no setting for truck speed selection)	
66	Controller, Abnormality	ROM/RAM check when power is turned on	
68	Battery Voltage, Excessively Low	Voltage is less than 42 V when power is turned on (48 V truck)	CN2-33
69	Battery Voltage, Excessively High	Voltage is more than 42 V when power is turned on (36 V truck)	CN2-33
	Battery Voltage, Low	Battery voltage is between 22 V to 25 V during truck operation	CN2-33
(L0)	(Battery Voltage, Low)	Each voltage is less than 22 V when line contactor ON	CN2-34, 39, 40, 41, 42
80	Steering Sensor, Abnormality	Signal input when power is turned on	