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Alarm : Controller fault

The heart of the Packworld machine is the Pireg C2 heat seal controller. It has its own error detection system. If it detects a fault, The heat seal controller will trigger an alarm in the PLC on input X5.

This alarm is controller by a hard delay of 1 second and an additional delay of .6 seconds to retrieve the alarm data.

This alarm is disabled when all alarms are disabled.

Cause

When an alarm occurs, pressing diagnose will tell you what the problem is. There is also a code on the bottom right of the screen which is the raw alarm code as read from the heat seal controller.

I. Hardware Error Code 100X 0000 [FAULT ZONE D]

This alarm is a hardware fault internal to the heat seal controller.

Diagnose : Cycle power to the machine and see if the problem persists.
Solution : If it persists then the controller will need to be replaced.

II. Line Under Voltage Code 010X 0000 [FAULT ZONE E]

Service line voltage too low.

Diagnose : Check machine serial plate for voltage specifications. Check incoming line voltage.
120V limits : 85VAC – 140VAC
230V limits : 170VAC – 264VAC

III. Line Over Voltage Code 020X 0000 [FAULT ZONE E]

Service line voltage too high.

Diagnose : Check machine serial plate for voltage specifications. Check incoming line voltage.
120V limits : 85VAC – 140VAC
230V limits : 170VAC – 264VAC

IV. Line Frequency Error Code 030X 0000 [FAULT ZONE E]

Service line voltage unstable.

Diagnose : This alarm is usually caused by large motors starting or stopping on the same line the machine is on. Check surroundings. Check service line frequency.
Limits : 45hz – 65hz

Adding a line filter may resolve the problem.

V. Stored Cal Data Does Not Fit Code 001X 0000 [FAULT ZONE D]

This alarm means that a change to the heat seal controller configuration has occurred.

Diagnose : If this alarm is unexpected, Check all the settings MENU\CALIBRATE\SETTINGS
Solution : If the changes were not intended change the settings back and press reset on the MENU\CALIBRATE screen.
If the changes were expected simply run Autoal (MENU\CALIBRATE).

VI. Calibration Error Code 000X 000A

This alarm will occur if the calibration fails. “A” can vary from 1 – 6.

Diagnose :

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1. Check controller settings MENU\CALIBRATE\SETTINGS. An inappropriate setting could cause a failed calibration. [FAULT ZONE D]
2. Check the connections to the heat seal band. A bad or loose connection will trigger this alarm. . [FAULT ZONE A]
3. Check the connections to the transformer. Make sure the voltage being supplied to the band is appropriate for the length of the heat seal band. Approximately 1.5 X length of band. (IE: 16" would be 24V on the transformer.) [FAULT ZONE F]

VII. Point Value Range Exceeded Code 000X 0007

This alarm is in reference to the 8-point calibration and the single point calibration. If the expected value exceeds 20 percent correction auto calibration will be stopped and this code will be triggered.

Diagnose : Typically point correction is performed with the use of the type K thermocouple that is supplied with the machine.

1. MENU\CALIBRATE\SETTINGS\ALLOY TYPE. If the band material settings are not correct it will not heat to the proper temperature. [FAULT ZONE D]
2. Thermocouple location is very important. The Bi metal junction on the thermocouple must be on the center of the heat seal band within the heating zone.(in terms of width)
3. The thermocouple needs to be Type K.
4. The thermocouple may not be functioning properly. Test and replace as needed.

VIII. Start Signal Present, Calibration Code 000X 0008

This does not mean the foot pedal. If the heat seal controller is actively heating this alarm will occur.

This should not occur. However, if it does then the communication link between the heat seal controller and PLC is not functioning properly.

Diagnose : Turn the power off to the machine and restart. If the problem persists, Check the area for radio interference. Unlikely, the problem may be with the controller itself or wiring that should not be present.

IX. Temperature Alarm Code 000X 00A0 [FAULT ZONE F]

This is the heat seal controller internal monitor for temperature. If the temperature is either too high or too low this alarm will trigger.

This is usually related to the voltage being supplied to the band. If it is too low the controller will struggle to get to temperature. If the voltage is too high, the band will over shoot the target temperature.

Diagnose : Check the voltage selection on the transformer. Approximately 1.5 X length of band. (IE: 16" would be 24V on the transformer.)

The other possible cause is a loose or bad connection in the sealing circuit. Typically, a connection problem will be isolated to the heat seal band as this is changed periodically.

X. Voltage(UR) – Low Code 000X 0100 [FAULT ZONE A,B]

Voltage low only means that the heat seal controller is measuring a current but is failing to measure the band voltage.

Diagnose : There are 2 sets of wires connected to the heat seal band. 10AWG – this is the power wires delivering voltage to the heat seal band. 18AWG – This is the voltage measurement wires.

The 18AWG wires are either loose or completely disconnected. Check this connection to the heat seal band. If the connection is good trace the wires back to the controller and check the connection there. It is possible that the ring terminals may need to be replaced.

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XI. Voltage(UR) – High Code 000X 0200 [FAULT ZONE B]

Voltage high on a Packworld machine is not a typical alarm unless the voltage taps on the transformer have been changed.

Diagnose : Check all connections in the sealing circuit. Check the voltage selection on the transformer. Approximately 1.5 X length of band. (IE: 16" would be 24V on the transformer.)

XII. Current(IR) – Low Code 000X 1000 [FAULT ZONE C]

Low current only, usually means either a bad current transformer or connection between the current transformer and heat seal controller is bad.

Diagnose : Check the connection at the current transformer and the heat seal controller. Correct as needed.

XIII. Current(IR) – High Code 000X 2000 [FAULT ZONE A]

High current usually means a short in the sealing circuit. Another cause could be from dual band setups. When the bands come in contact with each other, if the resistance is too different it could cause a change in the current causing this alarm.

Diagnose : Check all connections and wires in the sealing circuit for breaks. Isolate the heat seal bands from each other with PTFE or Capton.

XIV. Current(IR) and Voltage(UR) – Low Code 000X 1100 [FAULT ZONE A,G]

This means that the heat seal band is not connected. No current or voltage.

Diagnose : Check the heat seal band and connections to the band.

XV. Current(IR) and Voltage(UR) – High Code 000X 2200 [FAULT ZONE A]

The current and voltage is too high. Most likely there is a short in the circuit. Check the wiring in the sealing circuit.

Diagnose : Check heat seal circuit, all wires and connections.

XVI. Sudden Temperature Jump UP Code 000X 0070 [FAULT ZONE A]

This means that the resistance suddenly decreased. This is usually a bad connection at the heat seal band.

Diagnosis : Check the connections at the heat seal band.

XVII. Sudden Temperature Jump Down Code 000X 0080 [FAULT ZONE A]

This means that the resistance suddenly increased. This is usually a bad connection at the heat seal band.

Diagnosis : Check the connections at the heat seal band.

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Decoding the code at the bottom right of the screen.

0000 0000
abcd efgh

a. Hardware error :
   0 = OK
   1 = Error non-descript.
   2 = Under voltage: Bus system supply (internal)
   3 = Over voltage: Bus system supply (internal)
   Diagnose : 1-3 : Cycle power to the heat seal controller.
   If persistent replace heat seal controller.
b. Power line error :
   0 = OK
   1 = Under voltage
   2 = Over voltage
   3 = Line frequency
   Diagnose : 1-2 : Check machine serial tag and verify that the machine is connected to the correct line voltage.
   Diagnose : 3 : Check for large equipment being operated on the same line. (A line filter may correct the problem.)
c. Data Error :
   0 = OK
   1 = Calibration values have changed
   2 = Read/write error to memory (Fatal error)
   3 = Communication monitoring (should not be enabled)
   4 = Heating time limit exceeded (should not be enabled)
   Diagnose : 1 : Perform Autocal. (MENU\CALIBRATE)
   Diagnose : 2 : This happens when the Eprom runs out of writes. Replace controller.
   Diagnose : 3-4 : Perform reset to factory settings
d. Calibration number :
   There are 8 possible calibrations used. 1 – 8
   Diagnose : This is just information about which calibration is currently being used.
e. Voltage signal (UR) :
   0 = OK
   1 = Too low
   2 = Too high
   3 = Unstable
   Diagnose : 1-3 : Check all wires and connections in the sealing circuit.
f. Current Signal (IR) :
   0 = OK
   1 = Too low
   2 = Too high
   3 = Unstable
   Diagnose : 1-3 : Check all wires and connections in the sealing circuit.
g. Heat seal band temp :
   0 = OK
   1 = Too low
   2 = Too high
   3 = Temp monitor: Temp too low (should not be enabled)
   4 = Temp monitor: Temp too high (should not be enabled)
   5 = Heat monitor: heating time exceeded (should not be enabled)
   6 = Heat monitor: heating time fell short (should not be enabled)
   7 = Temperature jump down

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8 = Temperature jump up
Diagnose : 1-2 : Check transformer voltage or band buildup.
Diagnose : 3-6 : Perform factory reset on the heat seal controller.
Diagnose : 7-8 : Check connections on the jaw bar. They are likely loose.

h. Calibration error :
0 = OK
1 = Parameter error
2 = Voltage or current signal defective
3 = Error in determining Phase shift
4 = Resistance at 20C could not be determined.
5 = Error in determining P-Factor
6 = Selected reference temperature too high
7 = Range of temperature correction exceeded
8 = Start signal during calibration
9 = Data error on access
Diagnose :

Factory reset of the Pireg C2 controller

1. Open the black cover on the top of the heat seal controller to reveal the 10 dip switches.
2. Make sure dip switches 1 – 4 are all in the off position.
3. Go to MENU\CALIBRATE and press and hold the reset button until the calibrate
   And Alarm lights are both on solid.
4. Quickly, switch dip switch 1 on then off. This will reset the controller.
5. The reset button can now be released.
6. Go back to the main operating screen and wait for the machine to go into Com fault.
   Com Fault will trigger a re-initialization of the communication link during re-start.
7. Cycle power to the machine.
8. Go to MENU\CALIBRATE. This will take you automatically to settings. if not, go to settings.
9. Press back, this will transfer configuration data to the heat seal controller.
10. Press close bar.
11. Perform Autocal.

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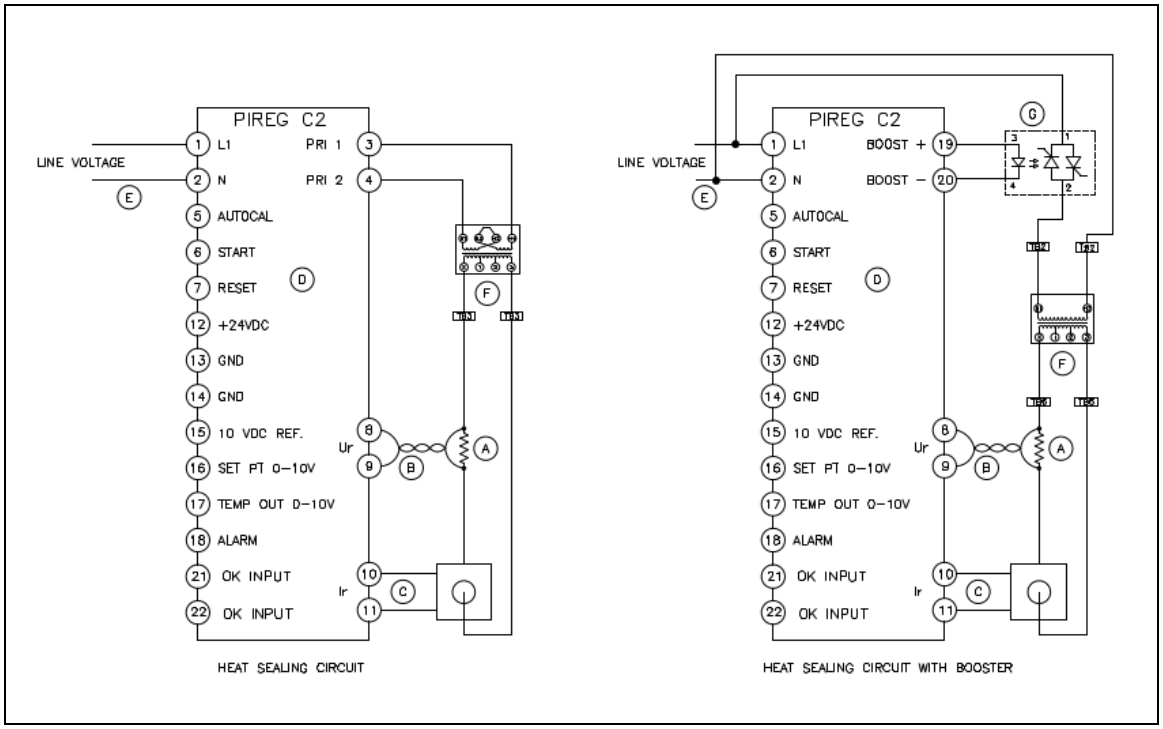

HEAT SEALING CIRCUIT WITH FAULT ZONES

Disconnect all electrical and compressed air sources from the Heat Sealer before doing any maintenance work. Only qualified technicians should perform this work. Improper installation of the components may result in serious personal injury and damage to equipment. Call PackworldUSA Ltd if further information is needed.