4.4.13 System Failure 15

System failure 15 indicates: Safety Relay 1 test failure. Unable to turn incubator heater on or off by switching safety relay 1. When troubleshooting this error code, have on hand at least the 50 pin ribbon cable.

Cause(s)	Action(s)
If this error occurs during system calibration, J1, J2, and J4 were not unplugged, or calibration jumper JP1 is not installed properly.	Before calibrating make sure J1, J2 and J4 on the control board are disconnected. Verify jumper JP1 is correctly positioned. (Refer to section "3.3 System Calibration" on page 21.)
Air temperature sensor is above 40C at power-up.	If the unit was shut off when the heater was hot, allow the fan to run for a few minutes to cool to below 40C, then power down and back up.
Defective sensor in compartment air probe.	Disconnect connector J1 from the control board. Power cycle the unit. If the error clears either the compartment air probe or the air probe cable is defective. Reconnect J1 and disconnect the compartment air probe connector at the compartment probe. If the unit now powers up OK the compartment air probe is defective.
Defective compartment air probe cable	If system failure 15 persists with connector J1 connected, and the compartment air probe disconnected, then the compartment air probe cable is defective.
No output from heater isolation transformer. Defective relay board.	In service mode, check the output voltage of the heater isolation transformer at the one pin connectors on the black and white wires on the transformer secondary. This secondary voltage should always read 115 volts. • If 115 volts is present, then replace the relay board. • If 115 volts is not present, check that the mains voltage is input to the transformer primaries. • Be sure J49 on the relay board is properly connected. • Verify the configuration plug on the transformer primary is seated properly. To measure primary input voltage on 115 volt units: • Verify mains voltage is present at pins 2-5 (brown and orange wires) on the transformer primary configuration plug. • Verify mains voltage is present at pins 3-6 (yellow and blue wires) on the transformer primary configuration plug. To measure primary input voltage on 230 volt units: • Verify mains voltage is present at pins 2-6 (brown and blue wires) on the transformer primary configuration plug . • If voltages are not present, verify mains voltage is present at pins 1-4 (black and red wires) on the transformer primary configuration plug. • If not, replace the relay board.

Cause(s)	Action(s)
Defective heater isolation transformer	If voltage is present at primaries but no voltage output at secondaries, replace the heater isolation transformer.
Defective DAC circuit on control board.	If failure persists, replace control board.
Defective solid state relay (SSR)	Power up the unit in service mode. Run status test on the second service screen and verify that the I/HTROFF (incubator heater off) test fails. If the status test fails, then it is an SSR problem. If the status test does not fail, then try the recommended action for a defective current sense circuit on relay board, below.
Defective incubator heater SSR	Disconnect the black wire (larger diameter) from the AC side of the incubator heater solid state relay. Run status test. If I/HTROFF test passes replace the incubator heater SSR. If it still fails reconnect the wire to the SSR.
Defective current sense circuit on relay board.	Replace relay board.
Defective 50-pin ribbon cable	If failure persists, replace 50 pin ribbon cable.

4.4.14 System Failure 16

System failure 16 indicates: When the unit performed Power-on Self Test, the incubator heater could not be turned off.

Cause(s)	Action(s)
If this error occurs during System Calibration	Reconnect J1, J2 and J4 on the control board. Put JP1 in Normal position. (Refer to section “3.3 System Calibration” on page 21.) Power up unit in normal operating mode and follow instructions for the error that occurs.
Defective incubator heater SSR	Disconnect the black wire (larger diameter) from the AC side of the incubator heater solid state relay. Run status test. If I/HTROFF (incubator heater off) test passes replace the incubator heater SSR. If it still fails reconnect the wire to the SSR.
Defective current sense circuit on relay board.	If failure persists, replace relay board.

4.4.15 System Failure 18

System failure 18 indicates: Defective Variables.

Cause(s)	Action(s)
Defective SRAM circuit on control board.	Replace the control board.