3.11.1.33 LANG-100 Device error

Cause: Could not access the device.

Remedy: Connect the correct device to the correct port.

3.11.2 LECO Alarm Code

3.11.2.1 LECO-017 Action db failed (%d^1,%d^2,%d^3)

Cause:A message was sent to another part of the system through the digital communications link (ArcLink) but no response was received. This often occurs when a part of the system is turned OFF or disconnected.

Remedy: Verify all devices in the system are properly powered. Notify FANUC or FANUC America Corporation if problem persists.

3.11.2.2 LECO-019 Failure to restore non-volatile attributes

Cause: Machine settings that are saved during power down could not be restored because the data is corrupt. The two backup copies of the machine settings are not complete or do not contain valid data. Default values have been restored. Calibration of system needs to be verified.

Remedy: Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.3 LECO-020 Primary non-volatile section failure

Cause: Machine settings that are saved during power down could not be restored because the data is corrupt. The first of two copies did not verify correctly.

Remedy: Cycle power on system. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.4 LECO-021 Secondary non-volatile section failure

Cause: Machine settings that are saved during power down could not be restored because the data is corrupt. The second of two copies did not verify correctly.

Remedy: Cycle power on system. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.5 LECO-022 Non-volatile attributes restore fault (%d^1,%d^2,%d^3)

Cause: Machine settings that are saved during power down could not be restored because the data does not match the current configuration. This can be caused if the software in the machine has been updated.

Remedy: Cycle power on system. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.6 LECO-024 ArcLink mapping failed (%d^1)

Cause: An attempt to establish communications between the robot and a Lincoln PowerWave welding power supply failed.

Remedy: Verify that the weld power supply is turned on. Verify the ArcLink communications cable is installed properly.

3.11.2.7 LECO-049 Primary over current (%s^1,%s^2)

Cause: The input current to the machine exceeded the safe limit. This is normally caused by low input voltage or a missing phase (with 3 phase input power) but it could be caused by a faulty switch board, output diode, or main transformer.

Remedy: Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.8 LECO-050 Cap A under voltage (Cap A volts, Cap B volts)

Cause: The voltage on one of the two input capacitor banks (bank A) has fallen below the normal operating limit. This is normally caused by low input voltage or a missing phase (with 3 phase input power) but it could be caused by a faulty switch board, main capacitor, contactor, or V-to-F feedback signal.

Remedy: Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage.

3.11.2.9 LECO-051 Cap B under voltage (Cap A volts, Cap B volts)

Cause: The voltage on one of the two input capacitor banks (bank B) has fallen below the normal operating limit. This is normally caused by low input voltage or a missing phase (with 3 phase input power) but it could be caused by a faulty switch board, main capacitor, contactor, or V-to-F feedback signal.

Remedy: Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage.

3.11.2.10 LECO-052 Cap A over voltage (Cap A volts, Cap B volts)

Cause: The voltage on one of the two input capacitor banks (bank A) has exceeded the high voltage limit. This is normally caused by high input voltage but it could be caused by a faulty switch board, main capacitor, contactor, or V-to-F feedback signal.

Remedy: Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage.

3.11.2.11 LECO-053 Cap B over voltage (Cap A volts, Cap B volts)

Cause: The voltage on one of the two input capacitor banks (bank B) has exceeded the high voltage limit. This is normally caused by high input voltage but it could be caused by a faulty switch board, main capacitor, contactor, or V-to-F feedback signal.

Remedy: Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage.

3.11.2.12 LECO-054 Thermostat tripped (%s^1,%s^2)

Cause: The machine has shutdown because it has overheated. This will normally occur because the output duty cycle has been exceeded but it could be caused by insufficient air flow through the machine, a faulty fan, or a faulty thermostat.

Remedy: Verify the welding procedure does not exceed the duty cycle limits of the machine. Check the setup for proper air flow around and through the system. Check that the system has been properly maintained, including removal of accumulated dust and dirt from the intake and outlet louvers and the cooling channels in the machine. Notify FANUC or FANUC America Corporation if problem persists.

3.11.2.13 LECO-055 Soft start failed (%s^1,%s^2)

Cause: During the start up sequence, the capacitor banks failed to reach an expected minimum voltage. This can be caused by a faulty contactor or low input voltage; this error is typically accompanied by other errors that should also be reviewed.

Remedy: Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage. Notify FANUC or FANUC America Corporation if problem persists.

3.11.2.14 LECO-065 Secondary over current (%s^1,%s^2)

Cause:A high level of output current (long average) has caused an overload. This is commonly seen if the wrong output stud is used on an STT machine or if there is a missing phase (with 3 phase input power). When this fault occurs, the output current will be reduced to 100A and a welding condition referred to as "noodle welding" may occur.

Remedy: For process related issues, verify the welding procedure does not exceed the output limits of the machine. Verify the stick out, wire size, and gas are correct for the process that is selected. Check the weld circuit for short circuits and other leakage paths. Verify all three legs of the input power are present at the input contactor. When the contactor closes, be sure all three legs are present on the output side as well (toward the rectifier). Machines equipped with an STT output stud use a lower secondary output limit to protect the STT circuitry. If the machine is equipped with an STT output stud, consider using the standard output stud for more demanding applications. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware.

3.11.2.15 LECO-067 Cap balance error (%s^1,%s^2)

Cause: The voltage difference between the two input capacitor banks has exceeded the safe limit. This will normally occur when the power is turned ON (if the machine has not been used for a long period) or if there is a missing phase (with 3 phase input power) but it could also be caused by a faulty switch board, main capacitor, or main transformer.

Remedy: Check input line voltage. Check reconnect links and cables. AC/DC Systems: Check for shorts in the welding circuit. Make sure feedhead is properly isolated.

3.11.2.16 LECO-069 Output voltage high (%d^1,%d^2,%d^3)

Cause: The machine detected that the welding voltage was to high. Verify the correct input voltage selection has be made on the main reconnect switch.

Remedy: Verify input line voltage.

3.11.2.17 LECO-070 Secondary over current (%s^1,%s^2)

Cause:A high level of output current (short average) has caused an overload. This is commonly seen when there is a short in the welding circuit outside of the machine. It can also be caused if the wrong output stud is used on an STT machine or if there is a missing phase (with 3 phase input power) and this can also occur when starting high current welding processes.

Remedy: Verify that the welding circuit does not have a short in it. Verify stick out, wire size, and gas are correct for the process that is selected. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware.

3.11.2.18 LECO-073 Single phase (%s^1,%s^2)

Cause: Single phase input power has been detected so the machine may operate at a reduced output level. Refer to the instruction manual of the machine for more information on single phase operation.

Remedy: Verify all fuses are good. Verify all three legs of the input power are present at the input contactor. When the contactor closes, be sure all three legs are present on the output side as well (toward the rectifier). If single phase operation is intentional, and secondary over current errors are a problem, verify the welding procedure does not exceed the reduced output limits of the machine. Check the weld circuit for short circuits and other leakage paths.

3.11.2.19 LECO-084 Secondary overcurrent fault

Cause:A high level of output current (long average) has caused an overload. This is commonly seen if the wrong output stud is used on an STT machine or if there is a missing phase (with 3 phase input power). When this fault occurs, the machine output will be turned OFF.

Remedy: For process related issues, verify the welding procedure does not exceed the output limits of the machine. Verify the stick out, wire size, and gas are correct for the process that is selected. Check the weld circuit for short circuits and other leakage paths. Verify all three legs of the input power are present at the input contactor. When the contactor closes, be sure all three legs are present on the output side as well (toward the rectifier). Machines equipped with an STT output stud use a lower secondary output limit to protect the STT circuitry. If the machine is equipped with an STT output stud, consider using the standard output stud for more demanding applications. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware.

3.11.2.20 LECO-098 Seq. weld cycle data retry (%d^1,%d^2)

Cause: Weld settings could not be updated properly while the system was welding. This normally occurs when a device is not operating properly or it is busy handling other operations such as external communications.

Remedy: Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.21 LECO-129 Wire drive motor overload (%d^1,%d^2)

Cause: The wire feeder drive motor has been overloaded. This can be caused by a wire tangle or a high resistance from pulling wire off of the spool or drum.

Remedy: Check Drive tension. Check drive rolls alignment and gears. Check Wire feed ability and control cables are not run along current currying conduit. If the system is in a constant current welding mode and the feeder is operating at its upper limit then configure the to run at a faster gear ratio. Change the voltage sensing locating to be closer to the arc. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware.

3.11.2.22 LECO-130 Wire drive motor overcurrent (%d^1,%d^2)

Cause: The wire feeder drive motor has been overloaded by exceeding the current limit. This can be caused by a wire tangle or a high resistance from pulling wire off of the spool or drum.

Remedy: Check Wire feed ability.

3.11.2.23 LECO-131 Shutdown 1 (%d^1,%d^2)

Cause: Shutdown circuit #1 on the wire drive external I/O connector is open. This open circuit generates an error in order to stop the machine.

Remedy: Verify the circuit "Shutdown1 Input" is closed. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware.

3.11.2.24 LECO-132 Shutdown 2, water fault (%d^1,%d^2)

Cause: Shutdown circuit #2 (typically a water cooler fault) on the wire drive external I/O connector is open. This open circuit generates an error in order to stop the machine.

Remedy: Verify the circuit "Shutdown2 Input (Water Fault)" is closed. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware.

3.11.2.25 LECO-356 Error sending email (%d^1)

Cause: The machine could not properly send an email. Verify the correct settings are entered into the email system and that there is a mail server on the Ethernet network.

Remedy: Use Production Monitoring software to verify E-mail configuration. Verify Ethernet connection.

3.11.2.26 LECO-357 Error access email mem (dir %d^1, image %d^2)

Cause: Email settings could not be properly restored. All email settings need to be verified.

Remedy: Use Production Monitoring software to verify E-mail configuration. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware.

3.11.2.27 LECO-769 PM save counters failed

Cause: Production Monitoring weld totals could not be saved when the machine was turned OFF. The values for the weld totals displayed in the Weld Totals tab of the application and the information included in the summary email report may be incomplete.

Remedy: Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.28 LECO-770 PM save weld cfg failed

Cause: Production Monitoring weld profiles configuration could not be saved when the machine was turned OFF.

Remedy: Verify the configuration of Production Monitoring weld profiles. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.29 LECO-771 PM save sys cfg failed

Cause: Production Monitoring system configuration could not be saved when the machine was turned OFF.

Remedy: Verify the configuration of Production Monitoring. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.30 LECO-772 PM read counters failed

Cause: Production Monitoring weld totals could not be restored when the machine was turned ON. The values for the weld totals displayed in the Weld Totals tab of the application and the information included in the summary email report may be incomplete.

Remedy: Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.31 LECO-773 PM read weld cfg failed

Cause: Production Monitoring weld profiles configuration could not be restored when the machine was turned ON.

Remedy: Verify the configuration of Production Monitoring weld profiles. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.32 LECO-774 PM read sys cfg failed

Cause: Production Monitoring system configuration could not be restored when the machine was turned ON.

Remedy: Verify the configuration of Production Monitoring. Notify FANUC or FANUC America Corporation for flashing system with latest Firmware. Notify FANUC or FANUC America Corporation if problem persists after firmware update.

3.11.2.33 LECO-849 PM I fault (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The output current is outside the Production Monitoring weld profile limits. The output current was less than the Current Low Limit or was greater than the Current High Limit.

Remedy: Verify welding set points, changes in setup, and work piece position. Setup includes but is not limited to: gas flow, wire type and size, stick out, welding cable length, spatter buildup, and tip wear. Verify the start delay and end delay are properly configured to remove the start and end of the weld.

3.11.2.34 LECO-850 PM V fault (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The output voltage is outside the Production Monitoring weld profile limits. The output voltage was less than the Voltage Low Limit or was greater than the Voltage High Limit.

Remedy: Verify welding set points, changes in setup, and work piece position. Setup includes but is not limited to: gas flow, wire type and size, stick out, welding cable length, spatter buildup, and tip wear. Verify the voltage limits for the weld profile are a reasonable range for the application. This would also include "Seconds Until Voltage Limit" in the General Settings section. Verify the start delay and end delay are properly configured to remove the start and end of the weld.

3.11.2.35 LECO-851 PM W fault (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The wire feed speed (WFS) is outside the Production Monitoring weld profile limits. The wire feed speed was less than the WFS Low Limit or was greater than the WFS High Limit.

Remedy: Verify the welding setting for wire feed speed is correct. Verify the wire feed limits for the weld profile are a reasonable range for the application. This would also include "Seconds Until WFS Limit" in the General Settings section. Verify the start delay and end delay are properly configured to remove the start and end of the weld.

3.11.2.36 LECO-853 PM T fault (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The welding time (arc time) is outside the Production Monitoring weld profile limits. The welding time was less than the Time Low Limit or was greater than the Time High Limit.

Remedy: Verify the weld was made at the proper travel speed and for the correct amount of time. Verify the time limits for the weld profile.

3.11.2.37 LECO-865 PM I alarm (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The output current is outside the Production Monitoring weld profile limits. The output current was less than the Current Low Limit or was greater than the Current High Limit.

Remedy: Verify welding set points, changes in setup, and work piece position. Setup includes but is not limited to: gas flow, wire type and size, stick out, welding cable length, spatter buildup, and tip wear. Verify the current limits for the weld profile are a reasonable range for the application. This would also include "Seconds Until Current Limit" in the General Settings section. Verify the start delay and end delay are properly configured to remove the start and end of the weld.

3.11.2.38 LECO-866 PM V alarm (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The output voltage is outside the Production Monitoring weld profile limits. The output voltage was less than the Voltage Low Limit or was greater than the Voltage High Limit.

Remedy: Verify welding set points, changes in setup, and work piece position. Setup includes but is not limited to: gas flow, wire type and size, stick out, welding cable length, spatter buildup, and tip wear. Verify the voltage limits for the weld profile are a reasonable range for the application. This would also include "Seconds Until Voltage Limit" in the General Settings section. Verify the start delay and end delay are properly configured to remove the start and end of the weld.

3.11.2.39 LECO-867 PM W alarm (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The wire feed speed (WFS) is outside the Production Monitoring weld profile limits. The wire feed speed was less than the WFS Low Limit or was greater than the WFS High Limit.

Remedy: Verify the welding setting for wire feed speed is correct. Verify the wire feed limits for the weld profile are a reasonable range for the application. This would also include "Seconds Until WFS Limit" in the General Settings section. Verify the start delay and end delay are properly configured to remove the start and end of the weld.

3.11.2.40 LECO-869 PM T alarm (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The welding time (arc time) is outside the Production Monitoring weld profile limits. The welding time was less than the Time Low Limit or was greater than the Time High Limit.

Remedy: Verify the weld was made at the proper travel speed and for the correct amount of time. Verify the time limits for the weld profile.

3.11.2.41 LECO-881 Weld profile runt occurred (t:%d^1,wp:%d^2)

Cause: Production Monitoring could not perform limit checking on a weld because the welding time (arc time) was too short. The welding time was less than the combined time for the Start Delay and End Delay.

Remedy: Verify the duration of the weld is greater then the combination of the start delay and end delay. Verify the time limits for the weld profile.

3.11.2.42 LECO-882 Consumable low (weight:%s^1)

Cause: The wire package weight has dropped below the Production Monitoring "Warning Package Weight" limit. The supply of wire should be checked and replaced if necessary. The welding time was less than the combined time for the Start Delay and End Delay.

Remedy: Replenish the wire package and reset the current wire weight. Verify the following setup items have been correctly entered: Initial Package Weight, Warning Package Weight, Wire Diameter, and Metal Density.

3.11.2.43 LECO-897 PM I latched alarm (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The output current is outside the Production Monitoring weld profile limits. The output current was less than the Current Low Limit or was greater than the Current High Limit.

Remedy: Verify welding set points, changes in setup, and work piece position. Setup includes but is not limited to: gas flow, wire type and size, stick out, welding cable length, spatter buildup, and tip wear. Verify the current limits for the weld profile are a reasonable range for the application. This would also include "Seconds Until Current Limit" in the General Settings section. Verify the start delay and end delay are properly configured to remove the start and end of the weld.

3.11.2.44 LECO-898 PM V latched alarm (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The output voltage is outside the Production Monitoring weld profile limits. The output voltage was less than the Voltage Low Limit or was greater than the Voltage High Limit.

Remedy: Verify welding set points, changes in setup, and work piece position. Setup includes but is not limited to: gas flow, wire type and size, stick out, welding cable length, spatter buildup, and tip wear. Verify the voltage limits for the weld profile are a reasonable range for the application. This would also include "Seconds Until Voltage Limit" in the General Settings section. Verify the start delay and end delay are properly configured to remove the start and end of the weld.

3.11.2.45 LECO-899 PM W latched alarm (hi:%d^1,lo:%d^2,wp:%d^3)

Cause: The wire feed speed (WFS) is outside the Production Monitoring weld profile limits. The wire feed speed was less than the WFS Low Limit or was greater than the WFS High Limit.

Remedy: Verify the welding setting for wire feed speed is correct. Verify the wire feed limits for the weld profile are a reasonable range for the application. This would also include "Seconds Until WFS Limit" in the General Settings section. Verify the start delay and end delay are properly configured to remove the start and end of the weld.