

Appendix - 1 – LCS Message Lights (Error Codes)

Code Version 3.25

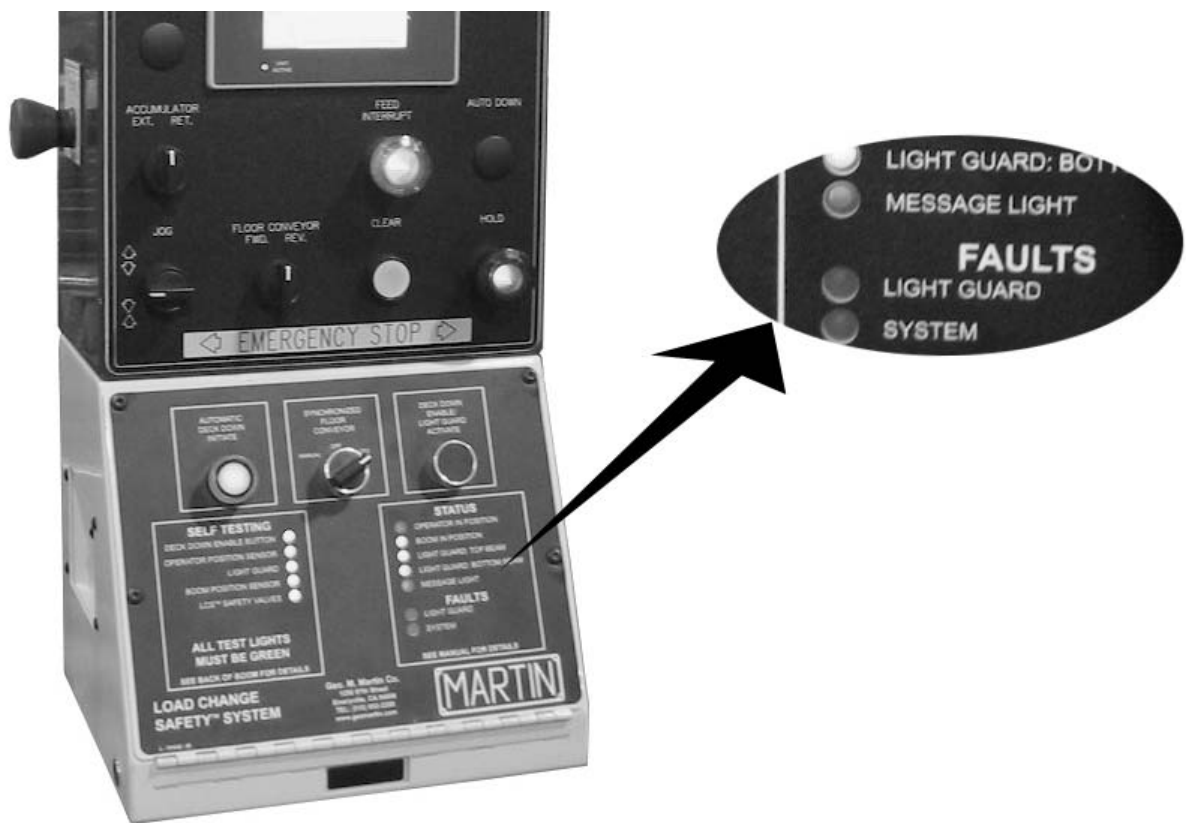


Figure 1 – Message Lights (023375.jpg)

Overview

Since the LCS system is external to the main control system, it needs to be able to communicate to the operator or maintenance personnel information about faults, errors, warnings, etc that have been detected by the LCS program. This is done using Faults Lights and a Message Light that will blink a coded message if required.

On retrofitted LCS systems the fault and message lights are located either on the main face panel if a new boom has been retrofitted or on the “boom buddy” panel which is attached to the bottom of the existing boom.



Figure 2 – Retrofit & “Boom Buddy” Fault & Message Lights (023375/6.jpg)

On new LCS-Series stackers where the LCS has been integrated into the machine, the message light is located on the left side of the operator boom panel.



Figure 3 – New LCS-Series Stacker Fault & Message Lights (023379.jpg)

Fault Lights

There are two faults lights:

LIGHT GUARD FAULT – this light turns on constant when a fatal fault has occurred within the Light Guard Perimeter monitor circuit. Simply blocking the light beams will not cause this to occur. It is normally an indicator of some sort of hardware problem such as failure for the redundant circuits to be synchronized. Check the Message Light for a code to help determine and solve the problem.

NOTE: A LIGHT GUARD FAULT will not allow the Deck Down Enable button to RESET the light guard system but will still allow the LCS to function in the Manual Mode (operator has to hold the Deck Down Enable button during Load Change Cycle)

SYSTEM FAULT – this light turns on constant when a fatal fault has occurred within the Main LCS circuitry. Check the Message Light for a code to help determine and solve the problem.

Message Light

The message light will allow 1 message to be communicated to the user. An internal priority system makes sure that the most important message is displayed first should there be more than one error. You will want to address the issue of the active message first, once resolved the next message will be displayed until all message issues are resolved. Normally, there should be no message light flashing.

A quick-reference listing of the messages and error codes are posted either on the LCS Panel of and/or the back of the boom.

A message code is determined by three sets of short pulses. After a 3 second pause with the light off, the light will flash quickly 1-4 times, then a pause, then another 1-4 times, another pause and finally another 1-4 times. This then is followed by the 3 second pause and the cycle is repeated.

Putting these counts together gives you an error code. For example, if after the 3 second pause you count 1 pulse, 3 pulse, then 2 pulse your code message would be 1-3-2. The following table will then give you a short description of the message and some additional information on possible course of action.

Message Light

If you get a system fault or a light guard fault, the first thing that should be done is to reset the LCS system. Press and hold the LCS RESET BUTTON located on the main LCS enclosure for 5 seconds. If the error returns use the table below to trouble shoot the problem.

ID	Code	Message Type	Message Description
Errors			
0	1-1-2	Information	<p>Auto-Halt Active</p> <p><i>Details</i> The stacker is going through a Load Change Cycle and wants to extend the accumulator but can't since the operator was not holding the Deck Down Enable button. As a result, the system automatically went to Feed Interrupt and stopped the deck belt.</p> <p><i>Trouble Shooting</i> Normally, simply pressing the Deck Down Enable button will resume the stacker belts, the load change cycle will complete. The operator should try to make sure that the Light Guard is reset or that he is holding the Deck Down Enable button the next time the Load Change Cycle is about to occur.</p>
1	1-1-3	Error	<p>Deck Down Enable Button Stuck</p> <p><i>Details</i> There are two contacts on the Deck Down Enabled button (part of the redundancy) that acts as a primary controlling input into the LCS system. This error occurs should the system detect that these contacts are closed for a substantial period of time which is greater than normally required.</p> <p><i>Trouble Shooting</i> This will keep the operator from jamming a tool into the Deck Down Enabled button in an attempt to override the system. Make sure the button has not been modified. Check for shorts or other electrical wiring problems</p>
2	1-1-4	Error	<p>Operator Position Sensor Blocked</p> <p><i>Details</i> The output of this sensor is used to make sure that the operator is standing in front of the boom when pressing the Deck Down Enabled button. Normally the operator may stand there for many minutes at the most.</p> <p><i>Trouble Shooting</i> This will keep the operator from taping over the sensor in an attempt to override the system. Make sure the eye is not blocked or modified. Check for other electrical wiring problems that would simulate the eye being covered.</p>
3	1-2-2	Error	<p>Light Guard: Top Beam: Initialization Failed</p> <p><i>Details</i> On first power up the pulsing of the top beam the PLC input from the Top Beam never went off.</p> <p><i>Trouble Shooting</i> Check all emitters in the Top Beam to make sure they are pulsing. The Top Beam starts on the drive side of the machine.</p>

4	1-2-3	Error	<p>Light Guard: Bottom Beam: Initialization Failed</p> <p><u>Details</u> On first Power Up the pulsing of the Bottom beam the PLC input from the Top Beam never went off.</p> <p><u>Trouble Shooting</u> Check all emitters in the Bottom Beam to make sure they are pulsing. The Bottom Beam start on the Operator side of the machine.</p>
5	1-2-4	Error	<p>Light Guard: Top Beam: Pulse Test Failed</p> <p><u>Details</u> During pulsing of the top beam the PLC input from the Top Beam never went off.</p> <p><u>Trouble Shooting</u> Check all emitters in the Top Beam to make sure they are pulsing. The Top Beam starts on the drive side of the machine.</p>
6	1-2-5	Error	<p>Light Guard: Bottom Beam: Pulse Test Failed</p> <p><u>Details</u> During the pulsing of the Bottom beam the PLC input from the Top Beam never went off.</p> <p><u>Trouble Shooting</u> Check all emitters in the Bottom Beam to make sure they are pulsing. The Bottom Beam start on the Operator side of the machine</p>
7	1-3-1	Error	<p>Asynchronous LCS Safety Valves</p> <p><u>Details</u> When the Deck Down Enable Reset Light Guard button was push one of the contactors did not receive power. This error will go away after 10 seconds.</p> <p><u>Trouble Shooting</u> Make sure the button is being push in all the way. Check all connection in push button chain</p>
8	1-3-3	Error	<p>Electrical Fault:</p> <p><u>Details</u> The Hardware Fault 2 relay came on.</p> <p><u>Trouble Shooting</u> This relay is powered by the Fault TDR relay. Check to make sure FLT TDR is on if it is see the error above for trouble shooting tips. If the FLT relay is not on check contact on the HFLT2 relay or replace relay.</p>
9	1-3-4	Error	<p>PCB Fault, Not Seeing PLC Watchdog</p> <p><u>Details</u> The LCS Hardware Test Board is giving the PLC an input indicating it is not receiving a watchdog signal from the PLC.</p> <p><u>Trouble Shooting</u> Check terminal 866 and 867 to 0v. There should be 24 volts on those terminals that get pulsed off every second for about 20 ms. If those signals are present check Terminal J4-3 on the PCB to 24 volts, the PCB should be pulling this terminal down to 0V and check input 23 on the PLC Main CPU. If there is no voltage and the input is off, replace the PCB.</p>

10	1-3-5	Error	<p>PCB Light Guard Fault</p> <p><i>Details</i> The LCS Hardware Test Board is giving the PLC an input indicating that the light beams are not functioning properly.</p> <p><i>Trouble Shooting</i> Check to see if all the Emitters are pulsing. If they are check to see if CR41 is energized in the LCS control cabinet. If CR41 is energized the PLC is not indicating there is a light guard fault and the PCB needs to be replaced.</p>
11	2-1-1	Error	<p>Operator Side Top Limit Not Made</p> <p><i>Details</i> The LCS PLC is not receiving an operator side top limit input when trying to perform the safety valve test.</p> <p><i>Trouble Shooting</i> Be sure the stacker is jogged all the way up. Then check to see if limit switch is depressed. Check the LCS PLC input. If there is no input, check for electrical wiring errors.</p>
12	2-1-2	Error	<p>Drive Side Top Limit Not Made</p> <p><i>Details</i> The LCS PLC is not receiving a drive side top limit input when trying to perform the safety valve test.</p> <p><i>Trouble Shooting</i> Be sure the stacker is jogged all the way up. Then check to see if limit switch is depressed. Check the LCS PLC input. If there is no input, check for electrical wiring errors.</p>
13	2-1-3	Error	<p>No Lift Up Valve Power</p> <p><i>Details</i> The LCS PLC is not receiving a lift up valve input. When performing the safety valve test.</p> <p><i>Trouble Shooting</i> Check that the lift limit switches are functioning correctly.</p>
15	1-4-1	Error	<p>ODDE Power Deck Down Enable Not Pushed</p> <p><i>Details</i> This error only occurs on manual system. The plc is receiving an input indicating the ODDE contactor is energized but the Deck Down Enable push button is not pushed.</p> <p><i>Trouble Shooting</i> Check power at ODDE relay to make sure it is not getting power. Check power at plc input from the normally open contact of ODDE to see if the contactor has failed. .</p>
16	1-2-6	Error	<p>DDDE Contactor On and Notice Light On</p> <p><i>Details</i> The PLC is receiving an input indicating the DDDE contactor is on and the Notice Light Power is on. This is a non safe condition</p> <p><i>Trouble Shooting</i> Check DDDE contactor, and PLC inputs to determine what is wrong</p>

17	1-3-9	Error	<p>ODDE Contactor On and Notice Light On</p> <p><u>Details</u> The PLC is receiving an input indicating the ODDE contactor is on and the Notice Light Power is on. This is a non safe condition</p> <p><u>Trouble Shooting</u> Check ODDE contactor, and PLC inputs to determine what is wrong</p>
18	1-3-8	Error	<p>Danger Light is On and ODEM and DDEM are OFF</p> <p><u>Details</u> The danger light is on indicating that either the DDDE contactor or the ODDE contactor is on but the PLC is indicating that both contactors are off.</p> <p><u>Trouble Shooting</u> Check the Odem and Ddem relay to make sure they are working properly, also check the wiring from those relays to the plc inputs.</p>
19	1-3-7	Error	<p>ODDE Power Deck Down Enable Not Pushed LG Not Ok</p> <p><u>Details</u> This error only occurs on light guard systems. The plc is receiving an input indicating the ODDE contactor is energized but the Deck Down Enable push button is not pushed and the light guard is not ok.</p> <p><u>Trouble Shooting</u> Check power at ODDE relay to make sure it is not getting power. Check power at plc input from the normally open contact of ODDE to see if the contactor has failed. .</p>
20	1-3-6	Error	<p>ODDE Power System Not Ok</p> <p><u>Details</u> The plc is receiving an input indicating the ODDE contactor is energized but the System Ok Relay is not on.</p> <p><u>Trouble Shooting</u> Check power at ODDE relay to make sure it is not getting power. Check power at plc input from the normally open contact of ODDE to see if the contactor has failed. Check the System Ok relay to make sure is really off.</p>
21	3-2-6	Information	<p>Mute Upstream Near Beam Tripped</p> <p><u>Details</u> The Light Guard tripped because of the Inner Top Beam.</p> <p><u>Trouble Shooting</u> Check to make sure nothing is obscuring the inner top beam. Check to make sure emitter and receiver on the inner top beam is functioning.</p>
22	3-2-7	Information	<p>Mute Downstream Near Beam Tripped</p> <p><u>Details</u> The Light Guard tripped because of the Outer Top Beam.</p> <p><u>Trouble Shooting</u> Check to make sure nothing is obscuring the outer top beam. Check to make sure emitter and receiver on the outer top beam is functioning.</p>

23	3-2-8	Information	<p>Mute Upstream Far Beam Tripped</p> <p><i>Details</i> The Light Guard tripped because of the Inner Bottom Beam.</p> <p><i>Trouble Shooting</i> Check to make sure nothing is obscuring the inner bottom beam. Check to make sure emitter and receiver on the inner bottom beam is functioning.</p>
24	3-2-9	Information	<p>Mute Downstream Far Beam Tripped</p> <p><i>Details</i> The Light Guard tripped because of the Outer Bottom Beam.</p> <p><i>Trouble Shooting</i> Check to make sure nothing is obscuring the outer bottom beam. Check to make sure emitter and receiver on the outer bottom beam is functioning.</p>
25	3-3-1	Error	<p>Mute Upstream Near Beam Off then On:</p> <p><i>Details</i> The first auto mute beam which the load leaving the stacker breaks was broken an returned on without the second beam ever breaking.</p> <p><i>Trouble Shooting</i> Most likely a person accidentally broke the beam. Check to make sure Upstream Near Beam is functioning properly.</p>
26	3-3-2	Error	<p>Mute Downstream Near Beam Off then On:</p> <p><i>Details</i> The Downstream Near beams was broken an returned on without the second beam ever breaking.</p> <p><i>Trouble Shooting</i> Most likely a person accidentally broke the beam. Check to make sure Downstream Near Beam is functioning properly.</p>
27	3-3-3	Error	<p>ODDE Power while Hardware Fault Active</p> <p><i>Details</i> The plc is receiving an input indicating the ODDE contactor is energized but the Hardware Fault 2 Relay is on.</p> <p><i>Trouble Shooting</i> Check to see if fault relay is working properly and check to see if ODDE contactor is working properly.</p>
28	3-3-4	Error	<p>Mute Near Beams Fault</p> <p><i>Details</i> The pulsing test failed on one of the Muting Near Beams</p> <p><i>Trouble Shooting</i> Check to make sure the all emitters in the Near Muting beam are pulsing. These are the beams closest to the stacker on each stand.</p>
29	3-3-5	Error	<p>Mute Far Beams Fault</p> <p><i>Details</i> The pulsing test failed on one of the Muting Far Beams</p> <p><i>Trouble Shooting</i> Check to make sure the all emitters in the Far Muting beam are pulsing. These are the beams furthest away from the stacker on each stand.</p>

30	3-3-6	Information	<p>Muting Beams Blocked to long</p> <p><i>Details</i></p> <p>All of the Muting Beams have been blocked for too long.</p> <p><i>Trouble Shooting</i></p> <p>Check to make sure that there nothing blocking the muting stands and make sure all the emitters and receivers are working properly.</p>
31	3-3-7	Error	<p>PLC Light Guard Ok- PCB Light Guard Not Ok</p> <p><i>Details</i></p> <p>The PLC thinks the light guard perimeter beams are ok but the PCB circuit is showing that the light guard perimeter is not ok.</p> <p><i>Trouble Shooting</i></p> <p>Check to make sure the CR41 PLC Light Guard Ok relay is functioning properly. Check wiring from LCS PCB to PLC input to make sure it is wired properly.</p>
32	3-4-1	Error	<p>DDDE No ODDE</p> <p><i>Details</i></p> <p>The plc is receiving an input from the DDDE contactor but not from the ODDE contactor, problem with ODDE contactor or aux contact.</p> <p><i>Trouble Shooting</i></p> <p>Make sure all connections to the contactors are ok. Check contactor manually by pushing it in. Watch contactor when operator pushes deck down enable button. If bad contact change contactor</p>
33	3-4-2	Error	<p>ODDE No DDDE</p> <p><i>Details</i></p> <p>The plc is receiving an input from the ODDE contactor but not from the DDDE contactor, problem with DDDE contactor or aux contact.</p> <p><i>Trouble Shooting</i></p> <p>Make sure all connections to the contactors are ok. Check contactor manually by pushing it in. Watch contactor when operator pushes deck down enable button. If bad contact change contactor .</p>
34	3-4-3	Error	<p>ODDE Power And No DDDE Power</p> <p><i>Details</i></p> <p>The plc is receiving an input indicating power is flowing to the ODDE contactor but not the DDDE contactor</p> <p><i>Trouble Shooting</i></p> <p>Look at sheet 3 of 751050-00 LCS drawing. This print shows logic it take to energize the contactors.</p>
35	3-4-4	Error	<p>DDDE Power And No ODDE Power</p> <p><i>Details</i></p> <p>The plc is receiving an input indicating power is flowing to the DDDE contactor but not the ODDE contactor</p> <p><i>Trouble Shooting</i></p> <p>Look at sheet 3 of 751050-00 LCS drawing. This print shows logic it take to energize the contactors.</p>

36	3-4-5	Error	<p>DDEM No ODEM</p> <p><u>Details</u> These two relays monitor the power going to the safety valves. The plc read an input from the normally open contact of each of these relays. The DDEM relay is on but the ODEM relay is not. This generates a fault.</p> <p><u>Trouble Shooting</u> Check power at ODEM relay to make sure it is getting power. If it is replace relay to see if problem subsides.</p>
37	3-4-6	Error	<p>ODEM No DDEM</p> <p><u>Details</u> These two relays monitor the power going to the safety valves. The plc read an input from the normally open contact of each of these relays. The ODEM relay is on but the DDEM relay is not. This generates a fault.</p> <p><u>Trouble Shooting</u> Check power at DDEM relay to make sure it is getting power. If it is replace relay to see if problem subsides.</p>
38	3-4-7	Error	<p>DDDE Power Deck Down Enable Not Pushed LG Not Ok</p> <p><u>Details</u> This error only occurs on light guard systems. The plc is receiving an input indicating the DDDE contactor is energized but the Deck Down Enable push button is not pushed and the light guard is not ok.</p> <p><u>Trouble Shooting</u> Check power at DDDE relay to make sure it is not getting power. Check power at plc input from the normally open contact of DDDE to see if the contactor has failed. .</p>
39	3-4-8	Error	<p>DDDE Power Deck Down Enable Not Pushed</p> <p><u>Details</u> This error only occurs on manual system. The plc is receiving an input indicating the DDDE contactor is energized but the Deck Down Enable push button is not pushed.</p> <p><u>Trouble Shooting</u> Check power at DDDE relay to make sure it is not getting power. Check power at plc input from the normally open contact of DDDE to see if the contactor has failed. .</p>
40	3-4-9	Error	<p>DDDE Power System Not Ok</p> <p><u>Details</u> The plc is receiving an input indicating the DDDE contactor is energized but the System Ok Relay is not on.</p> <p><u>Trouble Shooting</u> Check power at DDDE relay to make sure it is not getting power. Check power at plc input from the normally open contact of DDDE to see if the contactor has failed. Check the System Ok relay to make sure is really off.</p>

41	3-5-1	Error	<p>DDDE Power while Hardware Fault Active</p> <p><u>Details</u> The plc is receiving an input indicating the DDDE contactor is energized but the Hardware Fault 2 Relay is on.</p> <p><u>Trouble Shooting</u> Check to see if fault relay is working properly and check to see if DDDE contactor is working properly.</p>
42	3-5-2	Error	<p>System Ok Relay Failure</p> <p><u>Details</u> The System Ok relay CR40 power and input signals do not match.</p> <p><u>Trouble Shooting</u> Check relay contacts and replace relay if necessary.</p>
43	3-5-3	Error	<p>Soft Light Guard Ok Relay Failure</p> <p><u>Details</u> The Soft Light Guard Ok relay CR41 power and input signals do not match.</p> <p><u>Trouble Shooting</u> Check relay contacts and replace relay if necessary.</p>
44	3-5-4	Error	<p>ODDE Ok Contactor Failure</p> <p><u>Details</u> The ODDE Contactor power and input signals do not match.</p> <p><u>Trouble Shooting</u> Check contacts and aux contacts and replace relay if necessary.</p>
45	3-5-5	Error	<p>DDDE Contactor Failure</p> <p><u>Details</u> The DDDE Contactor power and input signals do not match.</p> <p><u>Trouble Shooting</u> Check contacts and aux contacts and replace relay if necessary.</p>
46	3-5-6	Error	<p>ODEM Relay Failure</p> <p><u>Details</u> The ODEM relay power and input signals do not match</p> <p><u>Trouble Shooting</u> Check contacts and replace relay if necessary.</p>
47	3-5-7	Error	<p>DDEM Relay Failure</p> <p><u>Details</u> The Soft Light Guard Ok relay CR41 is power and input signals do not match.</p> <p><u>Trouble Shooting</u> Check contacts relay and replace relay if necessary.</p>

48	3-3-8	Error	<p>Mute Downstream Far Beam Blocked Then Clear While Near Beam Blocked</p> <p><u>Details</u> The far beam on the Downstream muting stand was blocked and the cleared while the near beam stayed blocked.</p> <p><u>Trouble Shooting</u> Make sure there is nothing blocking the Downstream Near Beam. This error will clear in 30 seconds or when the Light Guard Reset Button is pressed.</p>
49	3-3-9	Error	<p>Mute Upstream Far Beam Blocked Then Clear While Near Beam Blocked</p> <p><u>Details</u> The far beam on the Upstream muting stand was blocked and the cleared while the near beam stayed blocked.</p> <p><u>Trouble Shooting</u> Make sure there is nothing blocking the Upstream Near Beam. This error will clear in 30 seconds or when the Light Guard Reset Button is pressed.</p>
50	3-6-1	Information	<p>Top Light Guard Beam Tripped</p> <p><u>Details</u> This message is to let the operator know which beam was tripped. The error will be cleared in 30 seconds or when the Light Guard Reset Button is pressed.</p>
51	3-6-2	Information	<p>Bottom Light Guard Beam Tripped</p> <p><u>Details</u> This message is to let the operator know which beam was tripped. The error will be cleared in 30 seconds or when the Light Guard Reset Button is pressed.</p>

