QR-GTLE Softrol Electric Lift Overview:

Drn 3/7/2017

Basic Operation:

The Softrol QR-GTLE electric lift can be configured as a soil bag lift which is designed to be used by a lift operator or as an automatic re-elevation lift. The operation of the lift is set by jumpers on the main processor circuit board.

Types of lift:

1) Automatic
2) Soil Lift

Electric Soil Bag Lift

Basic Display:

- Line 1 :Safety Statuses
- Line 2 :Manual/Automatic Status
- Line 3 : Status of Lift
- Line 4 : Current Lift Operation

Example Screen:

I/O Usage of the Control

Notes:

Rx = Receive Position of the lift
Tx = Discharge Position of lift
Pos = Position

Input Group 8 (Board Label CN6)

- 801 = Lift Chain Slack OK
- 802 = Travel to Discharge Pos OK (connect to limit Switch) was Travel Up OK
- 803 = Travel to Receive Pos OK (was Lift Lower OK)
- 804 = Bag at Indexer before Lift (Rx Pos Sensor)
- 805 = Bag on Lift
- 806 = Bag Clear of lift (Note: This says the trolley left the lift at Tx, the input is made when trolley is no longer on lift and is onto the system)
- 807 = Lift at Rx (Receive) Pos (was at down Pos)
- 808 = Lift at Tx (Discharge) (was at up Pos)

Input Group 3 (addressed as 300 Series, board Label CN1)

- 301 = Lift Is At Pos. 3 (Bag Tag Position, only used when lift is programmed to tag a bag)
- 302 = Request Travel to Up Pos
- 303 = Request Lift to Tag Pos 3
- 304 = Request Lift Down
- 305 = Lift Is At Pos. 2 (Intermediate trolley load position)
- 306 = VFD is OK
- 307 = Unload Enabled (This is an input from the Rail System saying that it is OK to discharge the bag at Pos. 1)
- 308 = Auto On (This must be on for the automatic operation sequence to continue)

Outputs Group 2 (Addressed as 200 series)

- 201 = Travel to Tx (Discharge) Pos (was Lift Up)
- 202 = Travel to Rx (Receive) Pos (was Lift Down)
- 203 = Release Brake
- 204 = Index bag on to Lift
- 205 = Release bag from Lift (done when at Tx (discharge) Pos
- 206 = Intermediate Pos Pin (this is the device which lines up the lift to the empty return trolley indexer)
- 207 = In Auto
- 208 = In Auto and Ready to Receive

Control Inputs

- IN1 = Air Pressure OK (This is onboard input #1)
- IN2 = Intermediate Position Rest Deployed (This input is wired on when a stop is required at intermediate to load a trolley. Only used if 3 stage lift)
- IN3 = Jumper for Decline Lift (Turn on if the system Tx (discharge) Pos is lower than Rx (Receive) Pos. .
- OUT1= spare
- OUT2 = spare
- OUT3 = spare

Important Sequences:

When Operator straps sling and is done, Input 203 is made to move lift to Pos. 3, Bag Tag.

When at Bag Tag, a transitional input of Input 202 is expected after the lift has come to a complete rest. This input indicates that the bag is tagged and ready to be sent to Pos. 1

When the bag is at Pos. 1 to discharge, it will wait on Input 207 or it will not discharge the bag.

Input 208 is basically the auto/manual switch. There are some sequences that are finished when Input 208 is turned off, but a new bag cannot be sent to the tag position without this input.

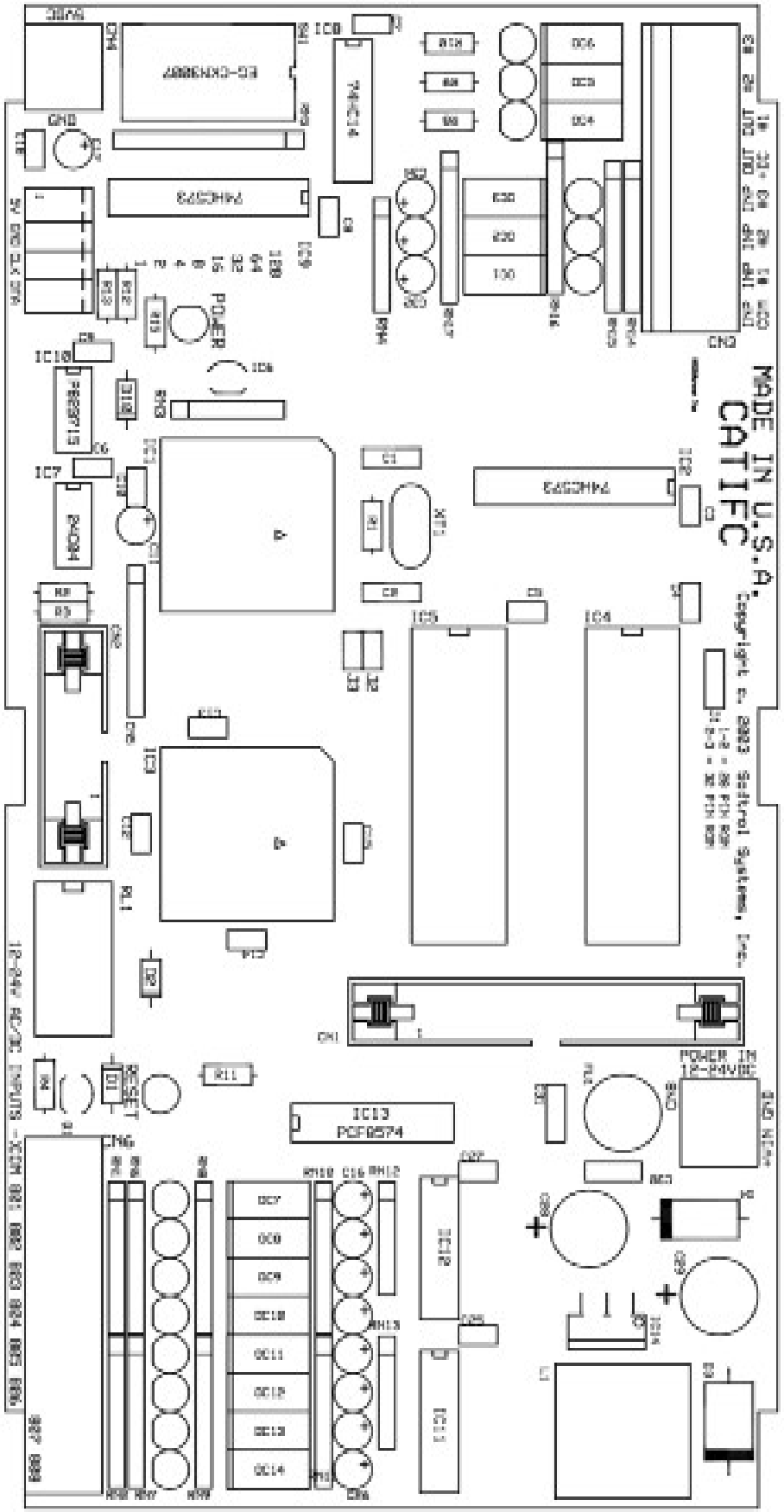
Solenoid Definitions Internal:

Left to Right Sol 1 = ? , Sol 2 = Raise Pin on Rail, Sol 3 = ?

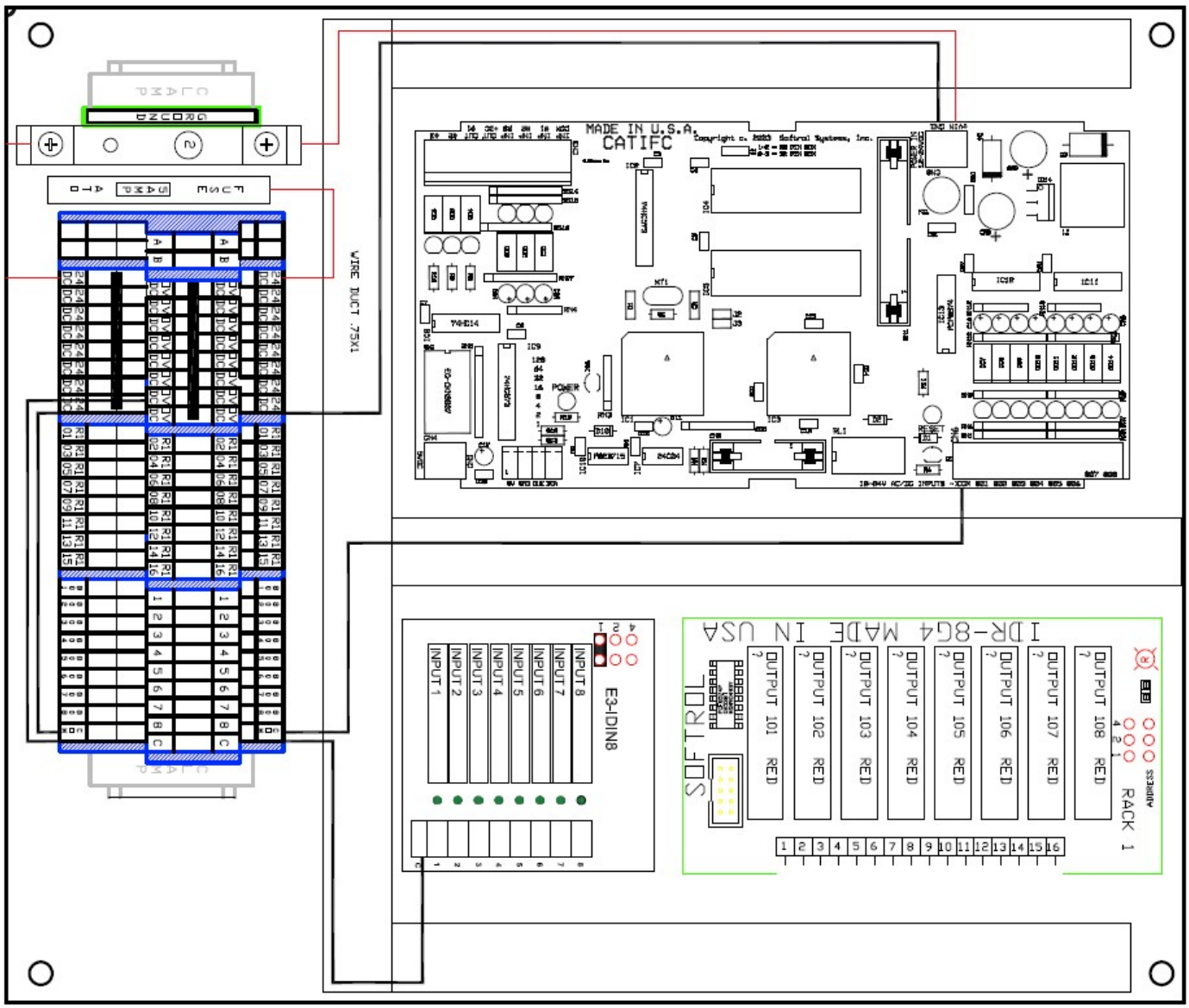
Process to Remove Trolley:

1) Move lift to down position
2) Index trolley to lift
3) Move Lift to a middle pos
4) Remove Trolley manually by lifting dog and sliding backward.
5) Move to down position index trolley to lift.

Cat IFC Board:



Control Layout



Electric Lift Operation: Maintenance Mode

When power is lost to an electric lift (Lift 1 or Lift 4) the control will come up in manual maintenance mode. The lift needs to be brought to the trolley loading position (all the way down) and then the system can be put into automatic.

To get to the Maintenance screen from the automatic mode: the control should be powered off and back on. Or the following key sequence can be pressed: **777777**

The lift control is normally in the standard operating mode:

It is important that the second line is as shown to run in automatic. The Auto/Manual Switch controls the mode.

The Maintenance Mode Screen:

When in Maintenance mode the objective is to get the lift in the load position and then go to automatic mode.

Prior to moving the lift the following should be checked:

- There are no trolleys past the indexer to the lift.
- There are no obstructions anywhere on the rails.
- Check the state of the Auto/Manual Switch. It should be in Automatic.

From here you can press 1 to move the lift, 2 to index trolleys and NO key to exit Maintenance mode

If the lift is in the load position: Just press the "No" to exit and make sure the Auto/Manual Switch is in the Auto position. If it is in Auto the lift should display the main screen and be ready for operation

If the lift is not in the load position use Option 1 Lift Movements to control the movement of the lift.

Two Stage Lift Movement Screen:

Three Stage Lift Movement Screen

Moves to standard positions are achieved by pressing the correct number from this screen. The Load Position (Load Pos) is the location where items are loaded on the lift. This is the start position

To stop a full move to a position, press the CLR key.

To move the lift by small amounts Press:

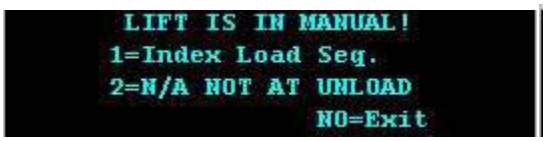
- Up Arrow + YES at the same time to move it up.
- Down Arrow + YES at the same time to move it down.

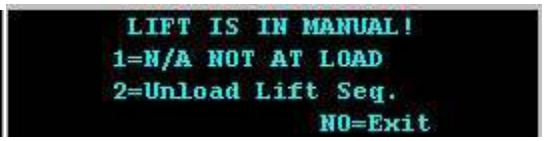
Releasing the key press stops the movement in this case.

Once the lift is in the load position press NO to exit and NO again at the Maintenance Screen. The system will return to standard operating mode screen. Check Auto/Manual Screen for Auto selection

Working the Indexers:

To work with indexing the trolleys on the lift press 2?





In this mode the index bags on to the lift and off the lift is also available. Operations available are dependent on the positon of the lift. Press the option desired and the control will move the trolley.

Exit this screen by pressing the NO key