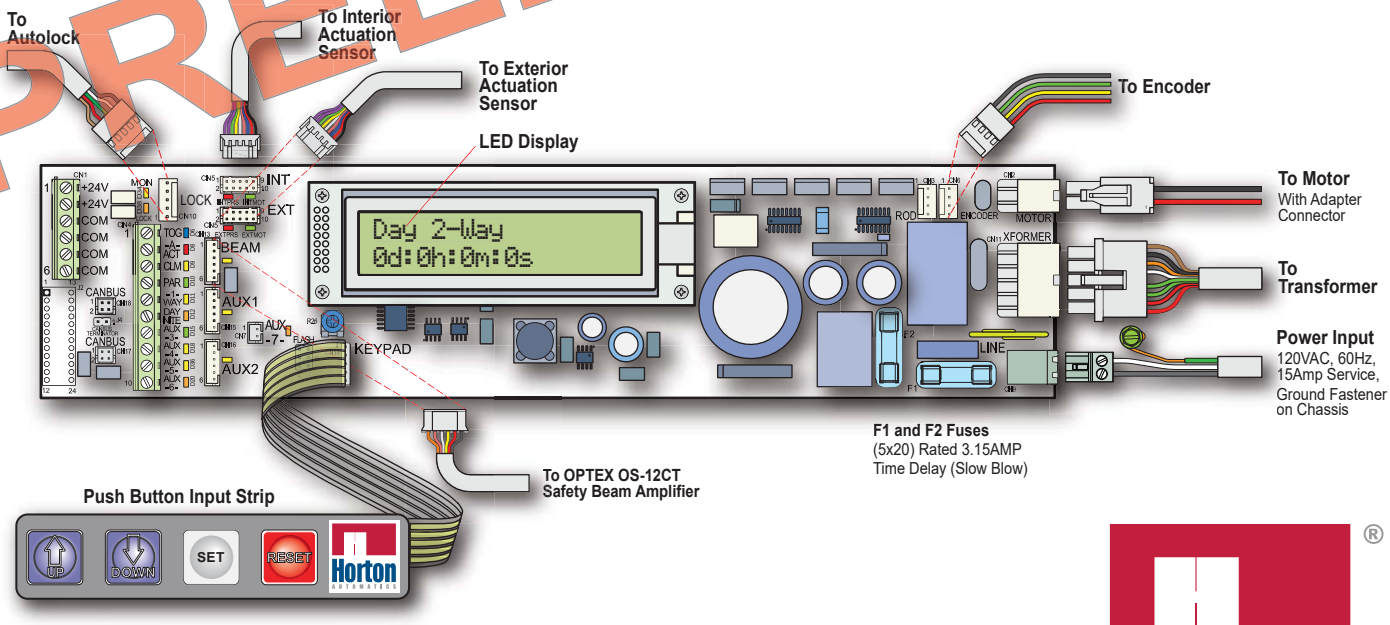
Setup Instructions & Troubleshooting

C3150 Microprocessor Control V15.00

for Electric Slide Door Operators

Series 2000, 2000B, 2001 and 2003

Use with G200, G2001, G230, G230T, G205 or G20B Installation Instructions.



H310 Setup Manual
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Horton Automatics, A Division of Overhead Door Corporation

Horton AUTOMATICS
The Automatic Choice

Table of Contents

LINEAR DRIVES

Section — Sheet

01. **SLIDE OPERATOR QUICK-START**
    C3150 Control for Series 2000 Linear Drives and S2000B, S20001 and S2003 Belt Drive Operators. H310.01
02. **C3150 Control Initialization**
    Step 1: Power-Up H310.02
    Step 2: Learn Cycle H310.02
    Step 3: Checking Door Cycle H310.04
03. **Adjusting Parameters**
    Step 1: Changing Parameter Settings H310.06
    Step 2: Saving Parameter Settings H310.07
04. **Adjustable Preset Parameters**
    Step 1: List 'Tech' Parameter Settings H310.07
05. **Actuation Features**
    Refer to Section 14 - 'Step 1: Setting Control Operating Modes' H310.18
06. **If Failed Autolock Setup**
    Step 1: Autolock Setup and Functions H310.08
07. **Setting Lock Parameters**
    Refer to Section 16 - 'Step 1: Lock Parameter Verification' H310.20
08. **Lock Error Codes**
    Refer to Section 17 - 'Step 1: Lock Diagnostics' H310.21
09. **Autolock Test Points**
    Step 1: Monitored Autolocks H310.10
10. **Microswitches**
    Step 1: Microswitch Wiring H310.11
    Step 2: Partial-Open Switch Wiring H310.11

BELT DRIVES

Section — Sheet

11. **C3150 Initialization**
    Step 1: Power-Up H310.12
    Step 2: Learn Cycle H310.12
    Step 3: Checking Door Cycle H310.14
12. **Adjusting Parameters**
    Step 1: Changing Parameter Settings H310.16
    Step 2: Saving Parameter Settings H310.17
13. **Adjustable Preset Parameters**
    Step 1: List 'Tech' Parameter Settings H310.17
14. **Actuation Features**
    Step 1: Setting Control Operating Modes H310.18
15. **Autolock Setup and Initialization**
    Step 1: Autolock Setup and Functions H310.19
16. **Setting Lock Parameters**
    Step 1: Lock Parameter Verification H310.20
17. **Lock Error Codes**
    Step 1: Lock Diagnostics H310.21
18. **Autolock Test Points**
    Step 1: Monitored Autolocks H310.22

Table of Contents

LINEAR AND BELT DRIVES

Section Sheet

19. **Diagnostics**

Step 1: Entering Diagnostic Menu H310.23
D01: Multifunction Test H310.23
A. Navigating thru Functions H310.23
B. Motor and Encoder Test - Belt Drive Units H310.24
C. Fail-Secure Lock Test - Belt Drive Units H310.24
D. Fail-Safe Lock Test - Belt Drive Units H310.25
E. Motor and Microswitch Test - Linear Drive Units H310.25
F. Fail-Secure Lock Test - Linear Drive Units H310.27
G. Fail-Safe Lock Test - Linear Drive Units H310.28
D02: Show Supply Voltages H310.29
D03: Read Counters H310.29
D04: Read Log H310.30
D05: Clear Cycle Counter H310.30
D06: Clear Log H310.31
D07: Zero Stroke H310.31
D08: Rholix Block H310.32

20. **Appendix**

A - Troubleshooting the C3150 Control V15.00.00 ..... H310.33
B - Status Messages - C3150 Control V15.00.00 ..... H310.37
C - Shortcuts - C3150 Control V15.00.00 ..... H310.42
D - Motor Test - C3150 Control V15.00.00 ..... H310.43
E - OPTEX OS12-CT - Photoelectric Safety Beam and Amplifier Sysetm H310.44

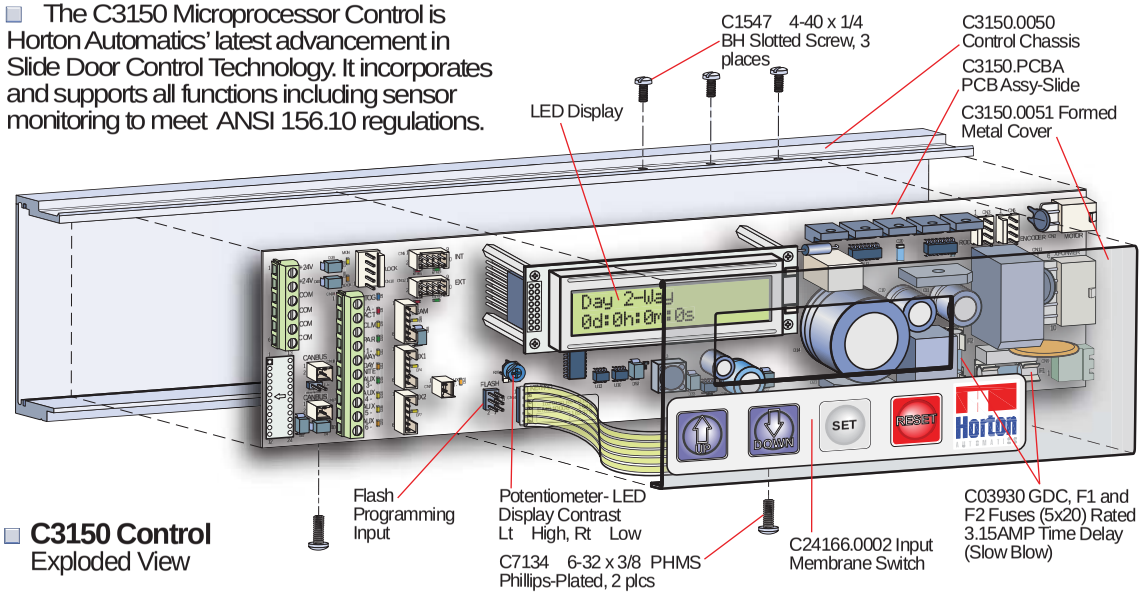
21. **Wiring Diagrams**

Linear Drives
Diagram 1: C3150 Control with Actuating and Switch Connections H310.45
Belt Drives
Diagram 2: C3150 Control with Actuating and Switch Connections H310.46

01. SLIDE OPERATOR - CONTROL HARNESS DETAIL

C3150 Control for Series 2000 Linear Drives and S2000B, S20001 and S2003 Belt Drive Operators

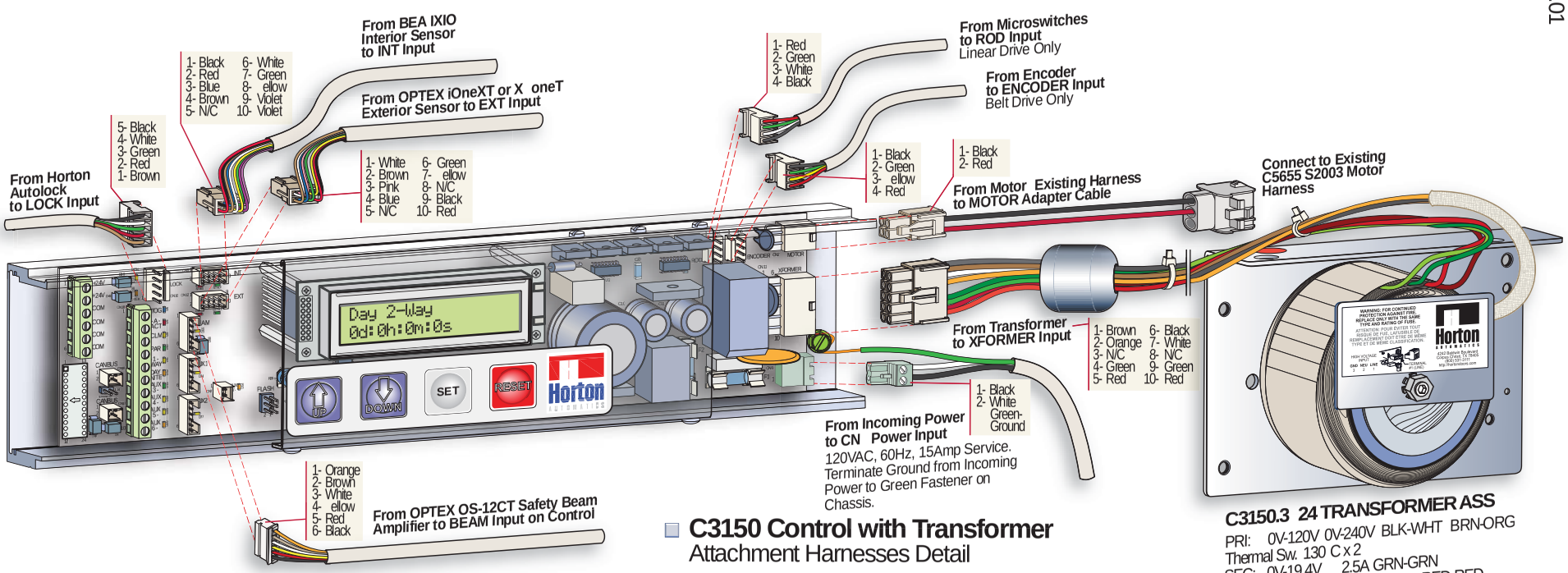
The C3150 Microprocessor Control is Horton Automatics' latest advancement in Slide Door Control Technology. It incorporates and supports all functions including sensor monitoring to meet ANSI 156.10 regulations.



C3150 Control
Exploded View

Instructions to Installer

- This Microprocessor Control and Slide Door Unit must be installed by a trained and experienced installer with the knowledge of local codes and ANSI A156.10 'Standards for Power Operated Doors'.
- To ensure safe and proper operation, the door must be installed and ad usted to conform to Horton Automatics recommendations, all code requirements, and ANSI A156.10.
- It is strongly advised by Horton Automatics to terminate a ground from incoming power at the indicated green fastener located on far right side of the Control Chassis (refer to illustration below).
- If there are any questions about these instructions, contact Horton Automatics Technical Assistance Team at the phone numbers listed on the back cover.



C3150 Control with Transformer
Attachment Harnesses Detail

C3150.3 24 TRANSFORMER ASS
PRI: 0V-120V 0V-240V BLK-WHT BRN-ORG
Thermal Sw. 130 C x 2
SEC: 0V-19.4V 2.5A GRN-GRN
0V-90V 1A INT: 60 RED-RED

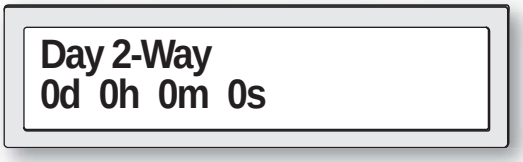
H310.01

02. C3150 CONTROL INITIALI ATION - LINEAR DRIVE

Step 1 Power-Up

Be sure the toggle circuit is complete before applying AC power to the unit.
Caution The Door will move.

- With power established, Control LED Displays the Door Mode and Type Traffic along with the Elapsed Time since last Reset.

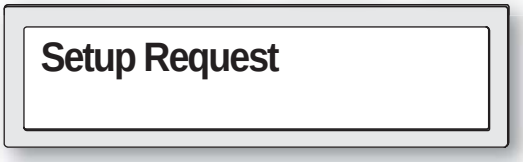


- The Display then shows the Control Version and Date.

Step 2 Learn Cycle

Instruct the control to perform a full learn cycle by:

- Holding down the **SET** button and the **RESET** button.
- Release the **RESET** button.
- Hold the **SET** button approximately 5 seconds until *'Setup Request'* appears on the screen.



Select Operator Type

- Display shows Default Operator Type: Current S2000B/S2003 Dunker/Merkle

- Select the required Operator Type. Then press **SET**.
- Press **UP** button to cycle through optional Operator Types.

- Press the **DOWN** button to display 2000 Linear .

- When the required 2000 Linear Operator is displayed, press the **SET** button.

- Press the **UP** button to confirm Operator Type.

- Press the **DOWN** button for unmonitored Sensors.
- Press the **UP** button if Sensors are connected and will be monitored.

- Press the **DOWN** button to Disable Day/Nite Switch.
- Press the **UP** button to Enable Day/Nite Switch.

Marker for Section 6 Only.

Step 2 Learn Cycle Cont

The Control then searches for a Lock Device connected to the Operator. The Display will show one of the following codes depending on the Lock type connected. In case of difficulty with the lock, refer to Section 06 - **Linear Drive - Autolock Setup and Initialization** on Sheet H310.08.

Checking for Lock

- **Lock Type Codes**: No Lock Detected.

Checking for Lock
No Lock Detected

- Fail Secure Lock Recognized.

Checking for Lock
Fail Secure Lock

- Fail Safe Lock Recognized.

Checking for Lock
Fail Safe Lock

The Control will save the data from the Learn Cycle.

Data Saved

Close Cushion

Learning Cycle Complete.

- The LED display returns to Initial read-out.

Day 2-Way
0d 0h 0m 0s

- Learning Reversing Peak Current for Close Accelerate.

Close Accelerate
Learning Rev Peak

- Learning Reversing Sensitivity for Closing Speed.

Close Speed
Learning Rev Sens

- Learning Reversing Sensitivity for Braking Door.

Braking Door
Learning Rev Sens

- Learning Reversing Sensitivity for Close Cushion.

Close Cushion
Learning Rev Sens

Step 2 Learn Cycle Cont

- Reversing Sensitivity Learning Complete

Rev Learn Complete

Learning Cycle Complete.

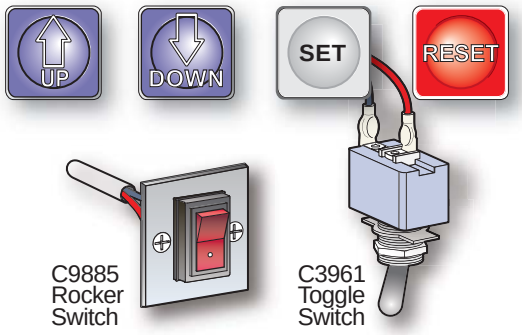
- The LED display returns to Initial read-out.

Day 2-Way
0d 0h 0m 0s

Step 3 Checking Door Cycle

When the toggle switch is on, the **DOWN** button acts as an actuation device. **Caution The Door will move.** Be sure the safety beam area is clear of obstructions. Activation devices should not yet be installed.

- Start with the door in the closed position.
- Press the **DOWN** button to actuate the door to open at factory selected default settings.
- Inspect the door unit for smooth operation free of binds and noise.



- The LED display's initial Door Cycle read-out.

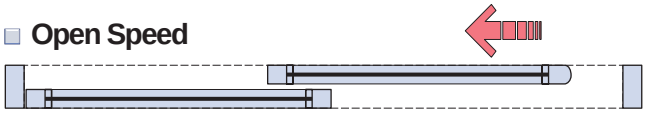
  Activate Cycle Code:
  DOWN Button

Open Accelerate
Act Down

The following Cycles are performed automatically by the C3150 Microprocessor Control. Illustrations below show the position of the door panels and the Display readout for each position.
**This demonstration assumes door was opened by the down button.*

OPEN C CLE

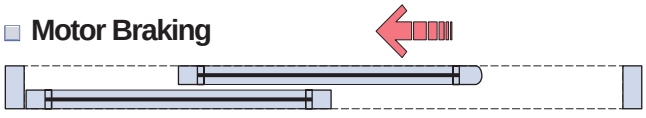
- **Open Speed**



**Door actuated by local (Down) Button.*

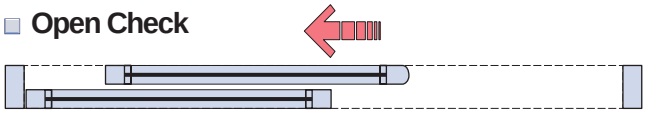
Open Speed
Act Down

- **Motor Braking**



Braking Door

- **Open Check**

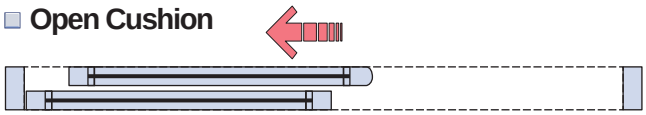


**Braking may override Open Check display.*
**Door actuated by local (Down) Button.*

Open Check
Act Down

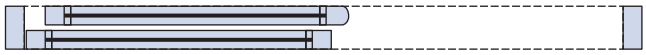
Step 3 Checking Door Cycle Cont

- **Open Cushion**



Open Cushion

- **Time Delay**



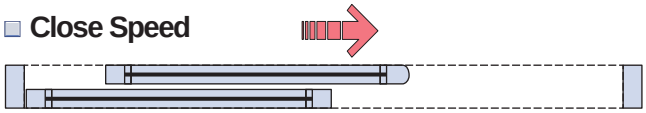
Time Delay 1

CLOSE C CLE

- The LED display's Initial Close Cycle read-out.

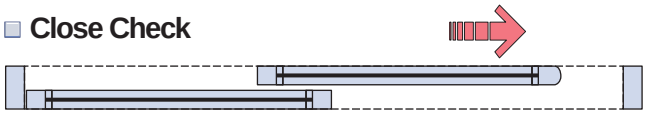
Close Accelerate

- **Close Speed**



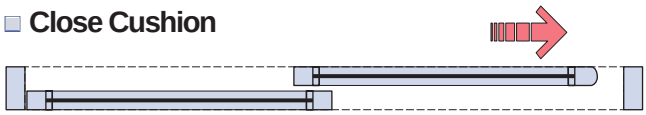
Close Speed

- **Close Check**



Close Check

- **Close Cushion**



Close Cushion

- The LED display returns to Initial read-out.

Day 2-Way
0d 0h 0m 0s

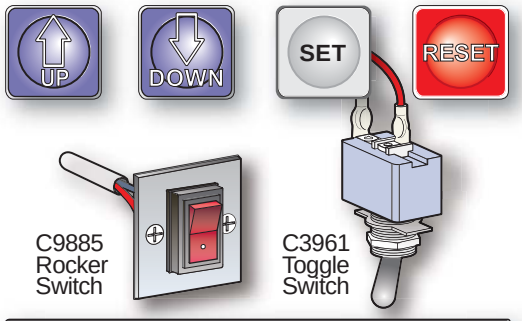
If there were no problems encountered during the Cycle Check procedure, if there are no parameters to be changed, and an Autolock is set-up, this concludes the C3150 Control's Initialization procedure.

If you are experiencing difficulty with the Control, refer to APPENDIX - A, Sheet H310.33

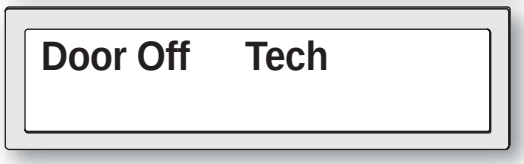
03. LINEAR DRIVE - ADJUSTIN PARAMETERS

Step 1 Changing Parameter Settings

A chart of preset parameter values is shown on the next page. If any speeds or other settings need to be changed, follow the procedure listed below.

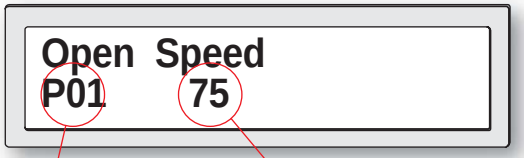


- Turn the toggle (rocker) switch **OFF** (Blue LED on Control turns **OFF**).
- Or, double-click the **SET** button.
  - *'Door Off'* Message blinks once, then **P01** display window is shown.



- The display switches to the menu of ad ustable parameters.
  - Display window for **P01** shown as example for changing the Open Speed.

Current Selected Parameter



Parameter Number

Current, Default or Last Saved Value.

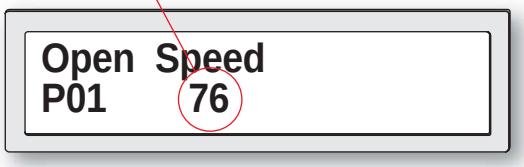
(Refer to Chart for Range-Upper and Lower Limits).

- Refer to Sheet H310.07 for a list of ad ustable parameter codes.
- Scroll through the parameter list using the **UP** and **DOWN** buttons until the parameter to be changed is found.

EXAMPLE:

- Hold the **SET** button and simultaneously press the **UP** or **DOWN** button to modify the Speed setting.
  - Pressing the **UP** button changes the Speed Value to 76.

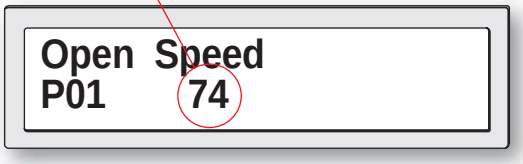
Increased Speed Value to 76



EXAMPLE:

- Hold the **SET** button and simultaneously press the **UP** or **DOWN** button to modify the Speed setting.
  - The **DOWN** button was pressed to change the Speed Value back to 75 (Default).
  - The **DOWN** button was pressed a second time to change the Value to 74 (shown).

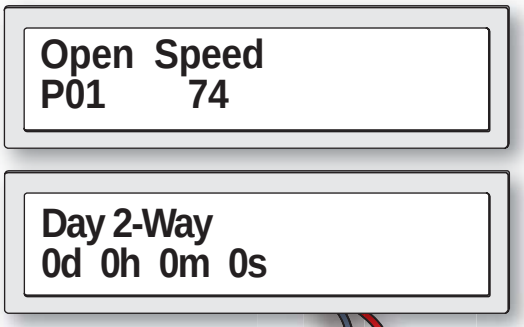
Decreased Speed Value to 74



Step 1 Changing Parameter Settings Cont

EXAMPLE:

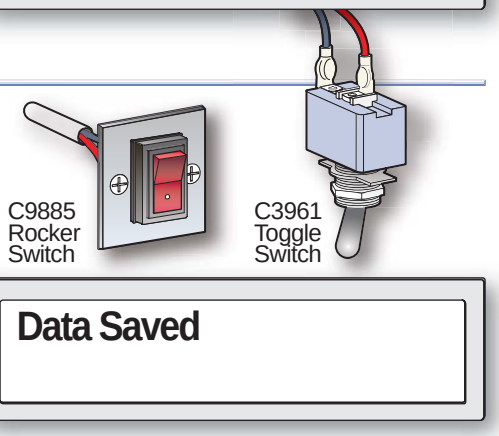
- When the **SET** button is released, the display then shows the parameter that was changed along with the new value. Other parameters may be changed, or the toggle switch turned on to check the changes made.



- The **SET** button may be double-clicked to exit the menu (toggle must be on).

Step 2 Saving Parameter Settings

The toggle switch must be on after all ad ustments have been made and checked.



- Press and hold the **SET** button until *'Data Saved'* is displayed. All changes are now stored in the control s memory. **This step must be performed** or the control, in the event of a power failure, will revert to the last *'Data Saved'* settings.

04. LINEAR DRIVE - ADJUSTABLE PRESET PARAMETERS

Step 1 List Tech Parameter Settings

The Chart below shows all the ad ustable parameters. To make changes, follow the procedure in Step 1 outlined on the previous sheet.

NO.	PARAMETER	FACTOR DEFAULT	RAN E
P01	Open Speed	75	10-97
P02	Open Check	14	5-31
P03	Open Cushion	14	5-31
P05	Close speed	38	8-56
P06	Close Check	14	5-31
P07	Close Cusion	12	5-31
P09	Delay 1	2 sec	2-255s
P10	Delay 2	2 sec	2-255s
P11	Close Speed Rev Force		20-500
P12	Close Check Rev Force		20-500
P13	Braking Level	6	0-8
P16	Control Password		0-9999
P34	Cycle Test	Off	On/Off
P35	Auto Seal	Off	On/Off

NO.	PARAMETER	FACTOR DEFAULT	RAN E
P36	Day/Night Sw Enable	Off	On/Off
P37	Reduced Open Acceleration	Off	On/Off
P42	Lock Present	As Learned	On/Off
P43	Lock Type Fail Safe	As Learned	On/Off
P44	Lock Has No Mon Sw	Off	On/Off
P45	Lock in Day Mode	Off	On/Off
P46	Lock in 1 Way Mode	Off	On/Off
P47	Resume on Aux 1/2 Clr	Off	On/Off
P58	Remote Mode Enable	Off	On/Off
P61	Int Sensor Monitored	Off	On/Off
P62	Ext Sensor Monitored	Off	On/Off
P63	Safety Beam Monitored	Off	On/Off
P64	Aux 1 Snsr Monitored	Off	On/Off
P65	Aux 2 Snsr Monitored	Off	On/Off

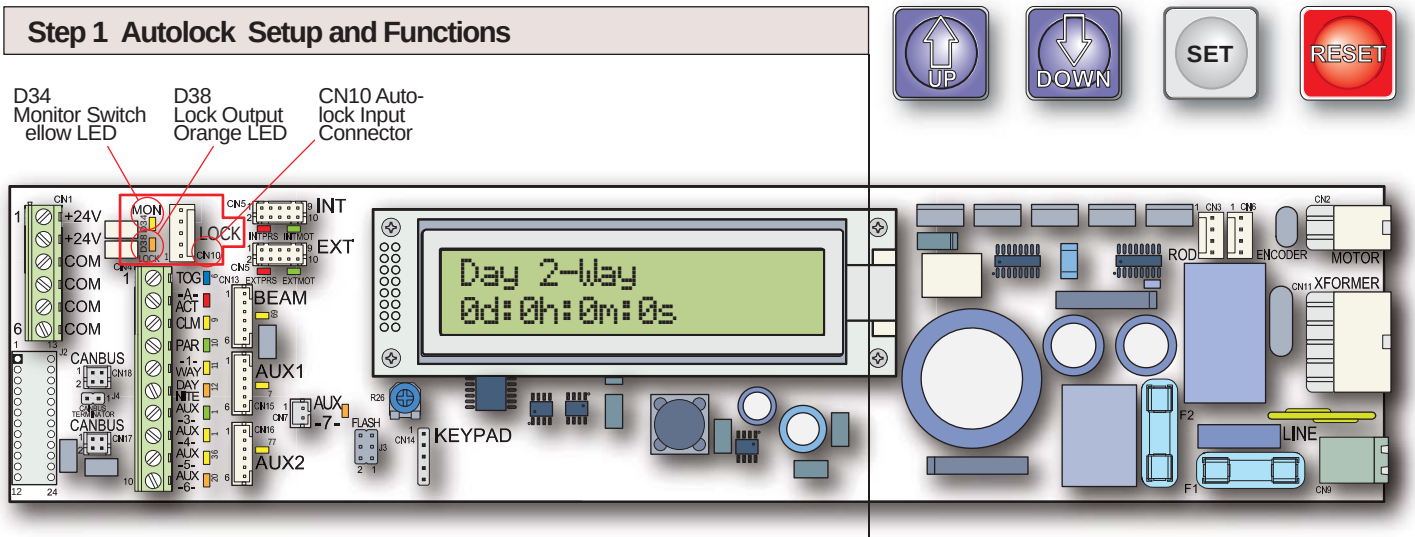
* *200% of Learned Max Close Speed Current Units 1/10 Amp.*
** *200% of Learned Max Check Speed Current Units 1/10 Amp.*

05. LINEAR DRIVE - ACTUATION FEATURES

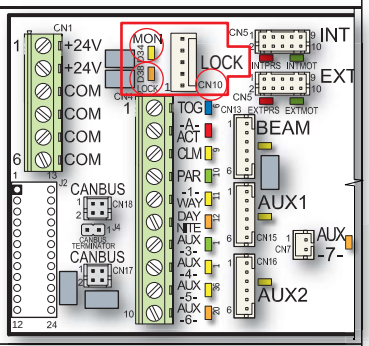
Refer to Section 14 - **BELT DRIVE - ACTUATION FEATURES** on Sheet H310.18.

06. LINEAR DRIVE - IF FAILED AUTOLOCK SETUP

Step 1 Autolock Setup and Functions



Procede to **Section 02**: **Step 2 Learn Cycle** for Linear Drive Slide Door Operator on sheets H310.02 thru marker 2 on bottom of sheet.

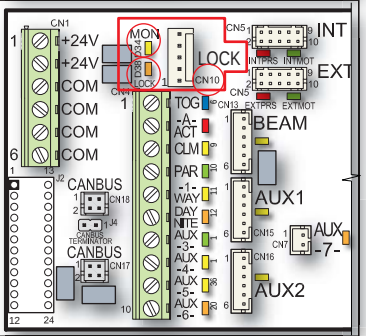


- **Fail Secure Lock Installed**

  D34 ellow Lock Monitor LED light is **OFF**.

  D38 Orange Lock Monitor light comes **ON** followed immediately by Lock Monitor light which indicates Fail-Secure Lock detected .

Checking for Lock
Fail Secure Lock

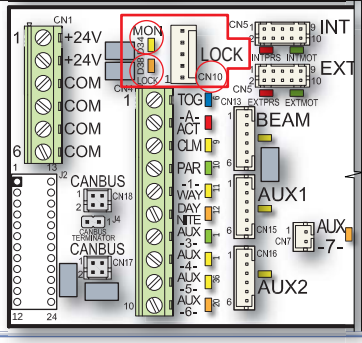


- **Fail Safe Lock Installed**

  D34 ellow Lock Monitor LED light is **ON** which indicates there may be a Fail-Safe Lock connected.

  D38 Orange Lock Monitor light comes **ON** and ellow Monitor Light immediately goes **OFF** indicating that a functional Fail-Safe Lock is

Checking for Lock
Fail Safe Lock



- **No Lock Detected**

  D34 ellow Lock Monitor LED light is **OFF**. **D38** Orange Lock Monitor light comes **ON** with no change to **D34** ellow Lock Monitor Light indicates a *'No Lock'* situation or a malfunction of Lock.

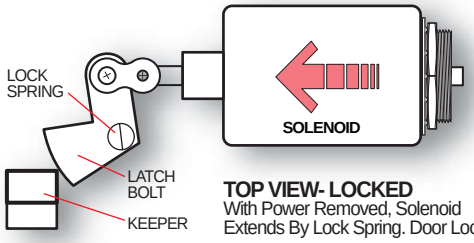
  There is a slight delay before the *'No Lock Detected'* message appears.

Checking for Lock

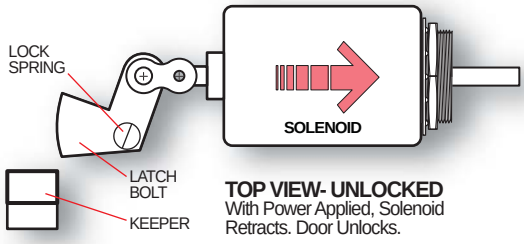
Checking for Lock
No Lock Detected

Step 1 Autolock Setup and Functions Cont

Fail-Secure Lock The most common type of Autolock.

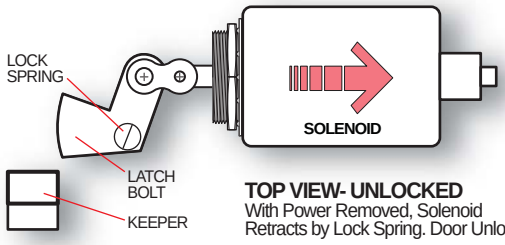


TOP VIEW- LOCKED
With Power Removed, Solenoid Extends By Lock Spring. Door Locks.

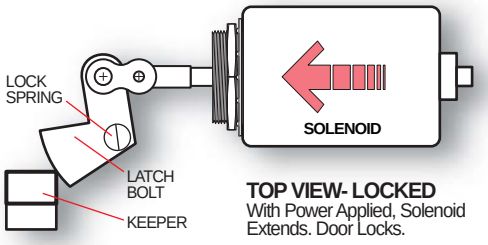


TOP VIEW- UNLOCKED
With Power Applied, Solenoid Retracts. Door Unlocks.

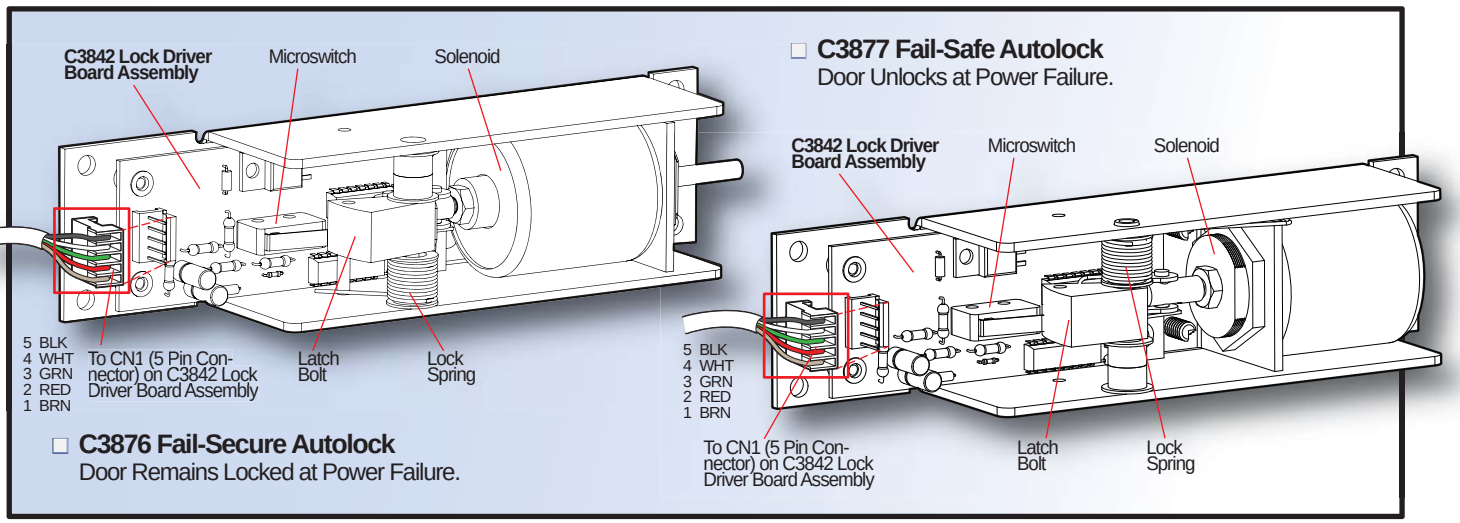
Fail-Safe Lock A less common type of Autolock.



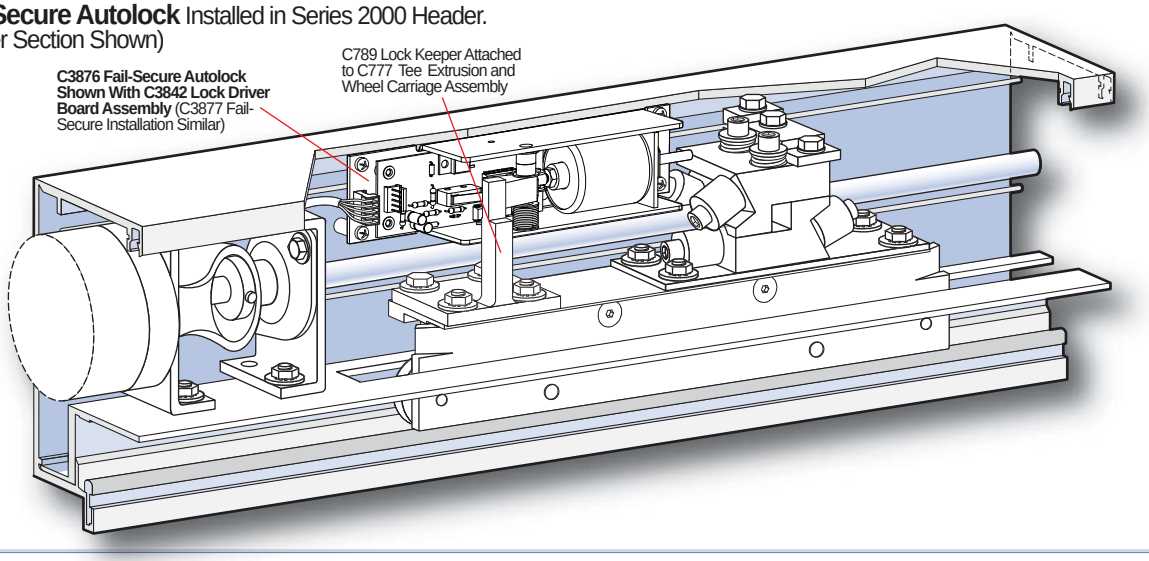
TOP VIEW- UNLOCKED
With Power Removed, Solenoid Retracts by Lock Spring. Door Unlocks.



TOP VIEW- LOCKED
With Power Applied, Solenoid Extends. Door Locks.



C3876 Fail-Secure Autolock Installed in Series 2000 Header.
(Partial Header Section Shown)



07. SETTIN LOCK PARAMETERS

Refer to Section 16 - **STEP 1 Lock Parameter Verification** on Sheet H310.20.

08. LOCK ERROR CODES

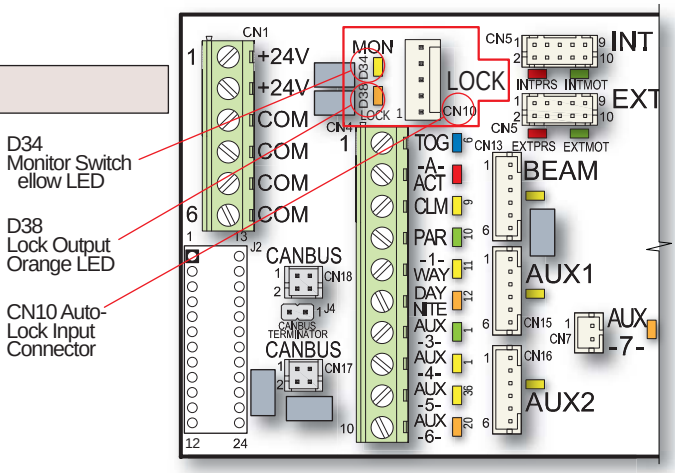
Refer to Section 17 - **STEP 1 Lock Diagnostics** on Sheet H310.21.

0 . AUTOLOCK TEST POINTS

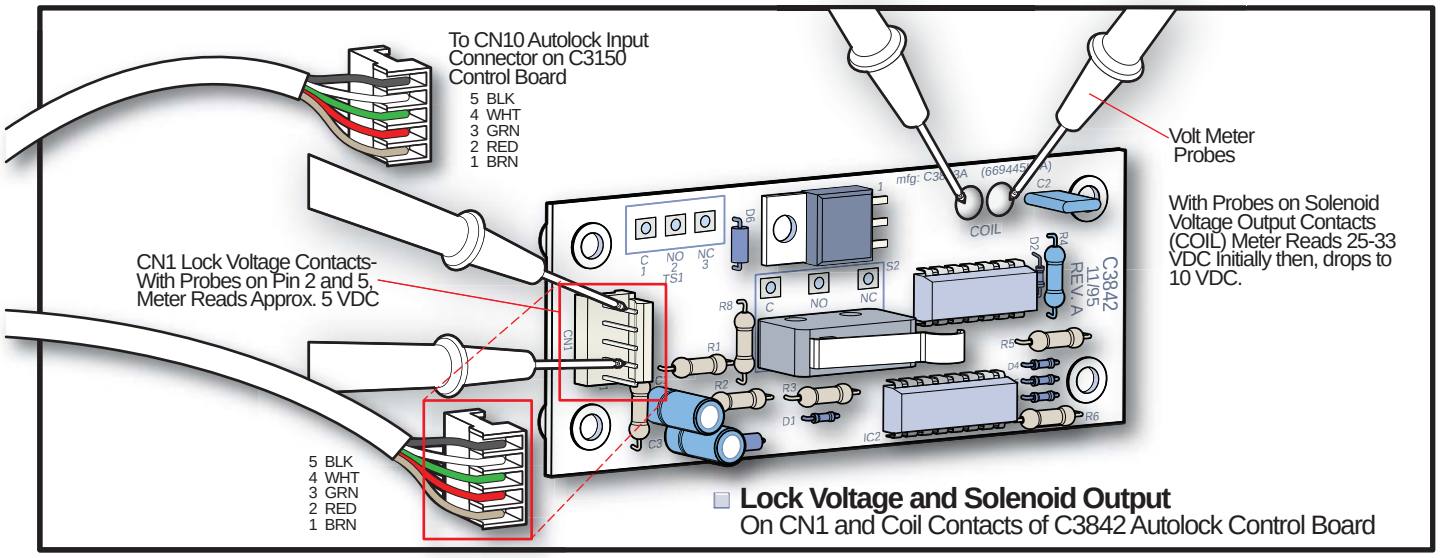
Step 1 Monitored Autolocks

The Horton Monitored Autolocks are controlled by an **output** signal from the C3150 Control referred to as **LOCK**. The status of this output is indicated by an Orange LED (**D38**) that illuminates when the output is active.

- **Lock Voltage Output at CN3 Autolock Board**
  Anytime **Lock output** is active, measured voltage between pin **2** and pin **5** on **CN3** of the Autolock Control Board should be approximately 5 Volts DC. For the Fail-Secure and Fail-Safe Lock, the solenoid should be energized.



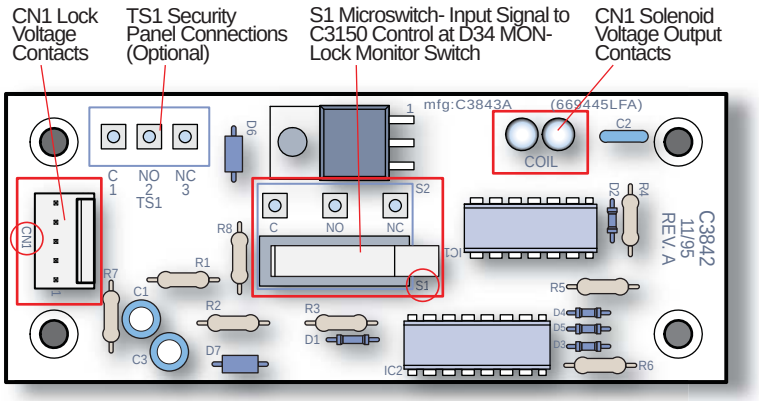
- **C3150 Control Board- Partial View**



- **Lock Voltage and Solenoid Output**
  On CN1 and Coil Contacts of C3842 Autolock Control Board

- **Solenoid Voltage Output at CN1**
  Initially, the solenoid will receive 25-33 volts to pull-in, but will quickly drop to approximately 10 volts in order to prevent overheating.

- **Lock Monitor Switch**
  Horton Monitored Autolocks are equipped with a microswitch that provides an **Input** signal to the C3150 referred to as **MON**. The status of this **output** is indicated by a ellow LED (**D34**).

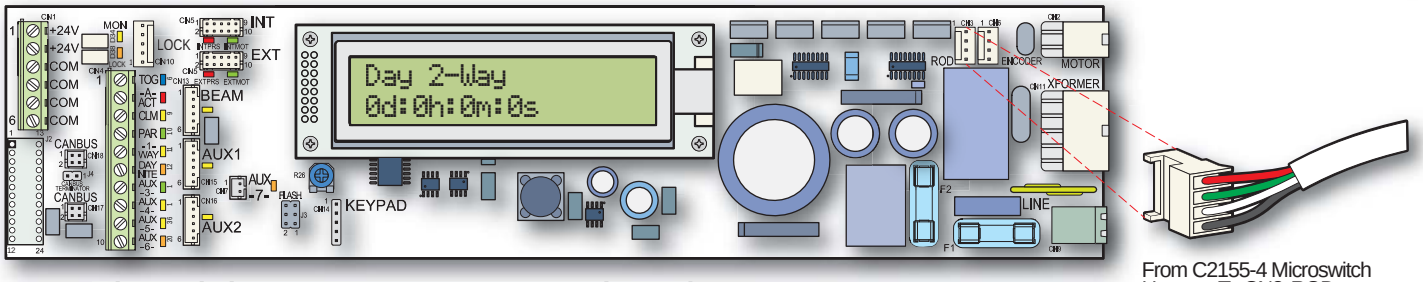


- **C3842 Control Board**
  For Fail-Secure and Fail-Safe Autolocks

10. MICROSWITCHES - LINEAR DRIVE

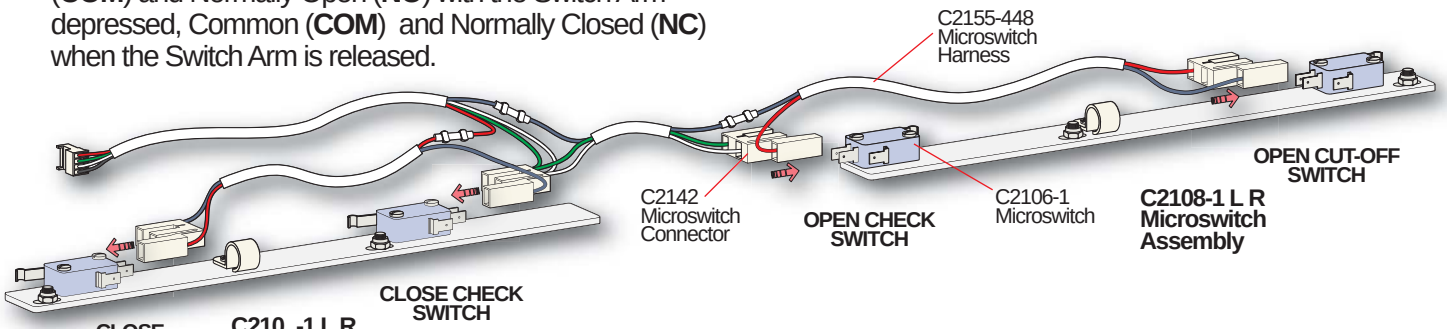
Step 1 Microswitch Wiring

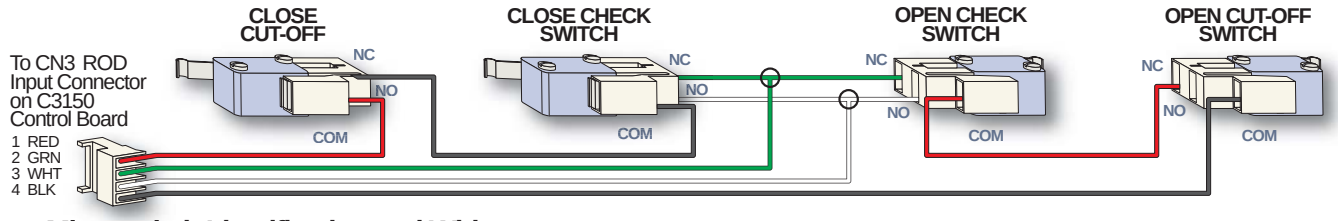
Microswitch harness (C2155-4) connects to **CN3** *'ROD'* Input connector on C3150 Control Board.



Microswitch Lace Input on C3150 Control Board

Microswitches will have continuity between Common (**COM**) and Normally Open (**NO**) with the Switch Arm depressed, Common (**COM**) and Normally Closed (**NC**) when the Switch Arm is released.



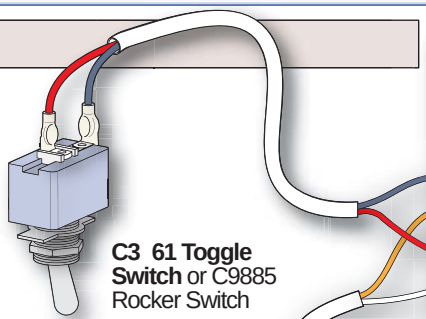


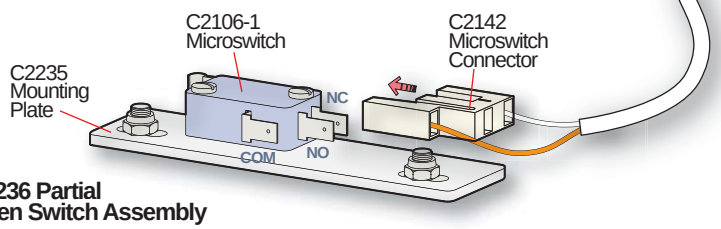
Microswitch Identification and Wiring

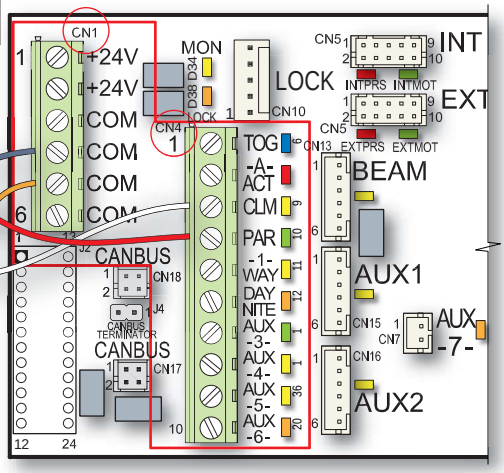
Step 2 Partial Open Switch Wiring

For Installation of Partial Open Switch and Toggle Switch, refer to Installation Instructions provided.

Wire the C2236 Partial Open Switch to **COM** (Common-Orange Wire) and **CLM** (Close Monitor - White Wire) as shown. Wire the C3961 Toggle Switch to **COM** (Common - Black Wire) and **PAR** (Partial Open - White Wire).







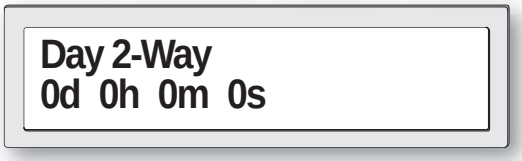
C3150 Control Board Partial View

11. C3150 CONTROL INITIALI ATION - BELT DRIVE

Step 1 Power-Up

Be sure the toggle circuit is complete before applying AC power to the unit.
Caution The Door will move.

- With power established, Control LED Displays the Door Mode and Type Traffic along with the Elapsed Time since last Reset.

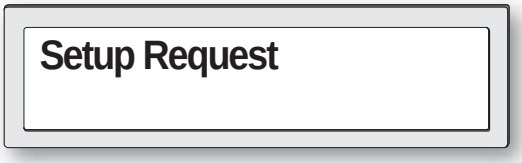


- The Display then shows the Control Version and Date.

Step 2 Learn Cycle

Instruct the control to perform a full learn cycle by:

- Holding down the **SET** button and the **RESET** button.
- Release the **RESET** button.
- Hold the **SET** button approximately 5 seconds until *'Setup Request'* appears on the screen.

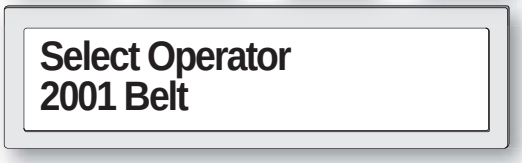


Select Operator Type

- Display shows Default Operator Type: Current S2000B/S2003 Dunker/Merkle

- Select the required Operator Type. Then press **SET**.
- Press **UP** button to cycle through optional Operator Types.

- If you press the **UP** button, the display shows next Operator Type: Current S2001 Dunker/Merkle



- If you press the **UP** button, the display shows next Operator Type: Early Litton 2003

- If you press the **UP** button, the display shows next Operator Type: Early Litton 2001

- When the required Operator is displayed, press the **SET** button.

- Press the **UP** button to Confirm Operator Type.
- Press the **DOWN** button to recycle through Operator Types.

For Section 15 Only.
Continue to Section 15 Marker

Step 2 Learn Cycle Cont

Starting learn Cycle

- Press the **DOWN** button for unmonitored Sensors.
- Press the **UP** button if Sensors are connected and will be monitored.

Monitored Sensors?
UP es, DOWN No

- Press the **DOWN** button to Disable Day/Nite Switch.
- Press the **UP** button to Enable Day/Nite Switch.

Enable Day/Nite SW?
UP es, DOWN No

Section 15 Marker

The Control then searches for a Lock Device connected to the Operator. The Display will show one of the following codes depending on the Lock type connected. In case of difficulty with the Lock, refer to Section 15 - **BELT DRIVE - AUTOLOCK SETUP AND INITIALI ATION** on Sheet H310.19.

Checking for Lock
No Lock Detected

Lock Type Codes:

- No Lock Detected.

Checking for Lock
Fail Secure Lock

- Fail Secure Lock Recognized.

Checking for Lock
Fail Safe Lock

- Fail Safe Lock Recognized.

Close Check
Learning Stroke

The Door will fully close at slow speed, looking for the fully closed position.

First Closed Paused

If the Door travels a short distance then stops, the pre-wired Safety Beams or other actuating devices are stopping the door and preventing the 'Learn Cycle' from completing.

- To continue the 'Learn Cycle', Press and Hold the **UP** button until the door closes.

Open Check
Learning Stroke

The Door will travel slowly in the open direction until it reaches the full open position.

Total Stroke
00 00 cm

- The Total Stroke will be displayed in inches and centimeters.

Step 2 Learn Cycle Cont

The Control will save the data from the Learn Cycle.

Data Saved

- Time Delay in seconds. Starts when Activation Signal releases and door is fully open.

Time Delay 1

- Learning Reversing Peak Current for Close Accelerate.

Close Accelerate Learning Rev Peak

- Learning Reversing Sensitivity for Closing Speed.

Close Speed Learning Rev Sens

- Learning Reversing Sensitivity for Braking Door.

Braking Door Learning Rev Sens

- Learning Reversing Sensitivity for Close Cushion.

Close Cushion Learning Rev Sens

- Reversing Sensitivity Learning Complete.

Rev Learn Complete

Learning Cycle Complete.

- The LED display returns to Initial read-out.

Day 2-Way 0d 0h 0m 0s

Step 3 Checking Door Cycle

When the toggle switch is on, the **DOWN** button acts as an actuation device. **Caution The Door will move.** Be sure the safety beam area is clear of obstructions. Activation devices should not yet be installed.

- Start with the door in the closed position.
- Press the **DOWN** button to actuate the door to open at factory selected default settings.
- Inspect the door unit for smooth operation free of binds and noise.

- The LED display's initial Door Cycle read-out.

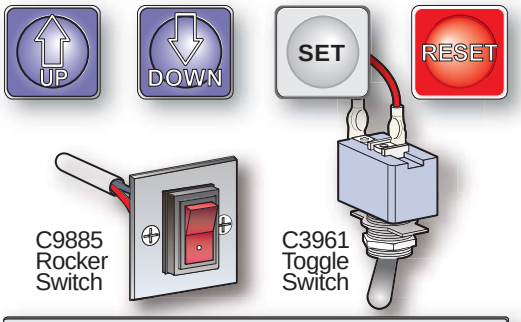
  Activate Cycle Code:
  DOWN Button

Open Accelerate Act Down

Step 3 Checking Door Cycle Cont

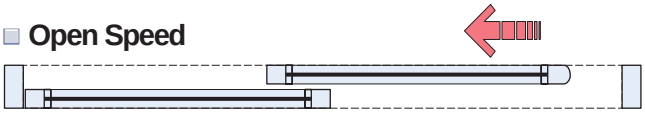
The following Cycles are performed automatically by the C3150 Microprocessor Control. Illustrations below show the position of the door panels and the Display readout for each position.

**This demonstration assumes door was opened by the down button.*



OPEN C CLE

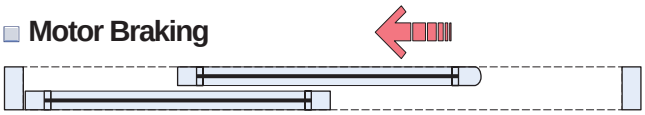
Open Speed



**Door actuated by local (Down) Button.*

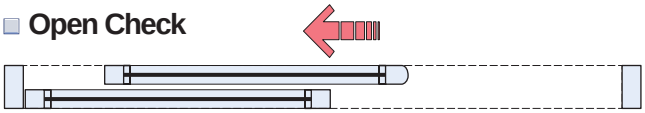
Open Speed
Act Down

Motor Braking



Braking Door

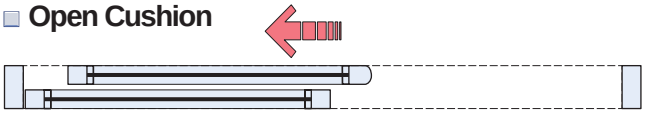
Open Check



Braking may override Open Check display.
**Door actuated by local (Down) Button.*

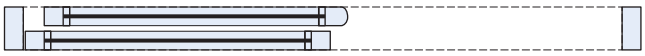
Open Check
Act Down

Open Cushion



Open Cushion

Time Delay



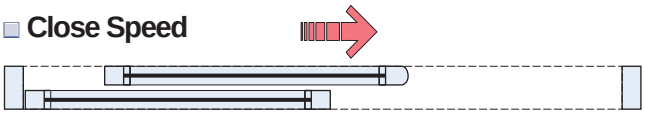
Time Delay 1

CLOSE C CLE

- The LED display's Initial Close Cycle read-out.

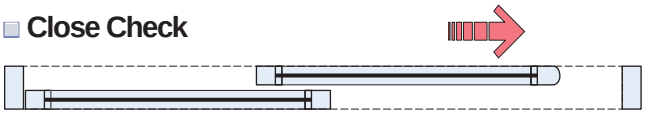
Close Accelerate

Close Speed



Close Speed

Close Check



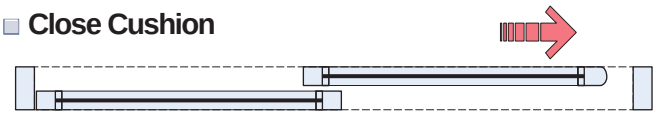
Close Check

Step 3 Checking Door Cycle Cont

The following graphics show the position of the door panels and the Display readout for each position.

OPEN C CLE Cont

- **Close Cushion**



Close Cushion

- The LED display returns to Initial read-out.

Day 2-Way
0d 0h 0m 0s

If there were no problems encountered during the Cycle Check procedure, if there are no parameters to be changed, and an Autolock is set-up, this concludes the C3150 Control's Initialization procedure.

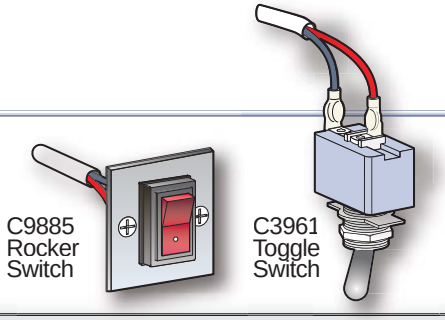
If you are experiencing difficulty with the Control, refer to APPENDIX - A.

12. BELT DRIVE - ADJUSTIN PARAMETERS

Step 1 Changing Parameter Settings

A chart of preset parameter values is shown on the next page. If any speeds or other settings need to be changed, follow the procedure listed below.

- Turn the toggle (rocker) switch **OFF** (Blue LED on Control turns OFF).
- Or, double-click the **SET** button.



- Door Off Message blinks once, then P01 display window is shown.

Door Off User

Door Off Tech

- The display switches to the menu of ad ustable parameters.

Current Selected Parameter

- Display window for P01 shown as example for changing the Open Speed.

Open Speed
P01 75

Parameter Number

Current, Default or Last Saved Value.
(Refer to Chart for Range-Upper and Lower Limits).

- Refer to attached chart for a list of ad ustable parameter codes.
- Scroll through the parameter list using the **UP** and **DOWN** buttons until the parameter to be changed is found.

EXAMPLE:

- Hold the **SET** button and simultaneously press the **UP** or **DOWN** button to modify the Speed setting.

Increased Speed Value to 76

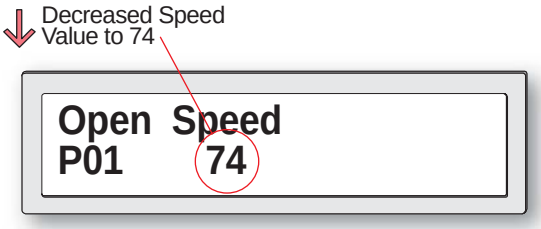
- Pressing the **UP** button changes the Speed Value to 76.

Open Speed
P01 76

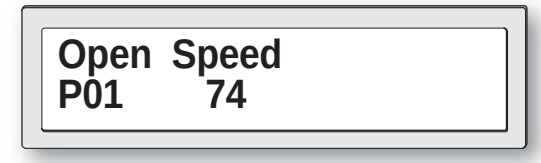
Step 1 Changing Parameter Settings Cont

EXAMPLE Cont:

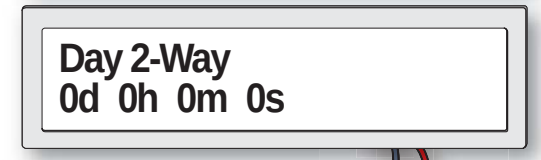
- Hold the **SET** button and simultaneously press the **UP** or **DOWN** button to modify the Speed setting.
  - The **DOWN** button was pressed to change the Speed Value back to 75 (Default).
  - The **DOWN** button was pressed a second time to change the Value to 74 (shown).



- When the **SET** button is released, the display then shows the parameter that was changed along with the new value. Other parameters may be changed, or the toggle switch turned on to check the changes made.



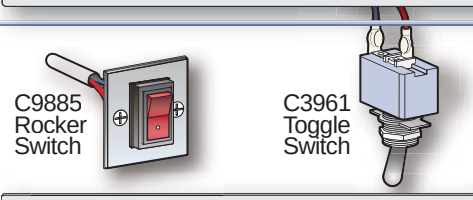
- The **SET** button may be double-clicked to exit the menu (toggle must be on).

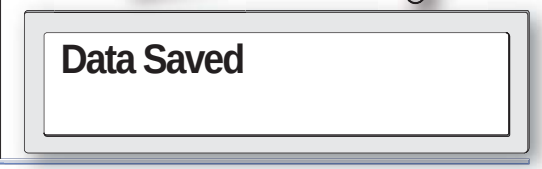


Step 2 Saving Parameter Settings

The toggle switch must be on after all ad ustments have been made and checked.

- Press and hold the **SET** button until Data Saved is displayed. All changes are now stored in the control s memory. **This step must be performed** or the control, in the event of a power failure, will revert to the last Data Saved settings.





13. BELT DRIVE - ADJUSTIN PARAMETERS

Step 1 List Tech Parameter Settings

The Chart below shows all the ad ustable parameters. To make changes, follow the procedure in Step 1 outlined on the previous sheet.

NO.	PARAMETER	FACTOR DEFAULT	RAN E
P01	Open Speed	75	10-97
P02	Open Check	14	5-31
P03	Open Cushion	14	5-31
P04	Open Check Point	75	50-90
P05	Close speed	38	8-56
P06	Close Check	14	5-31
P07	Close Cushion	12	5-31
P08	Close Check Point	6	3 -18
P09	Delay 1	2 sec	2-255s
P10	Delay 2	2 sec	2-255s
P11	Close Speed Rev Force		20-500
P12	Close Check Rev Force		20-500
P13	Braking Level	6	0-8
P14	Total Stroke (Read Only)		12 -299
P16	Control Password		0-9999
P17	Partial Open Point	50	25-100
P34	Cycle Test	Off	On/Off

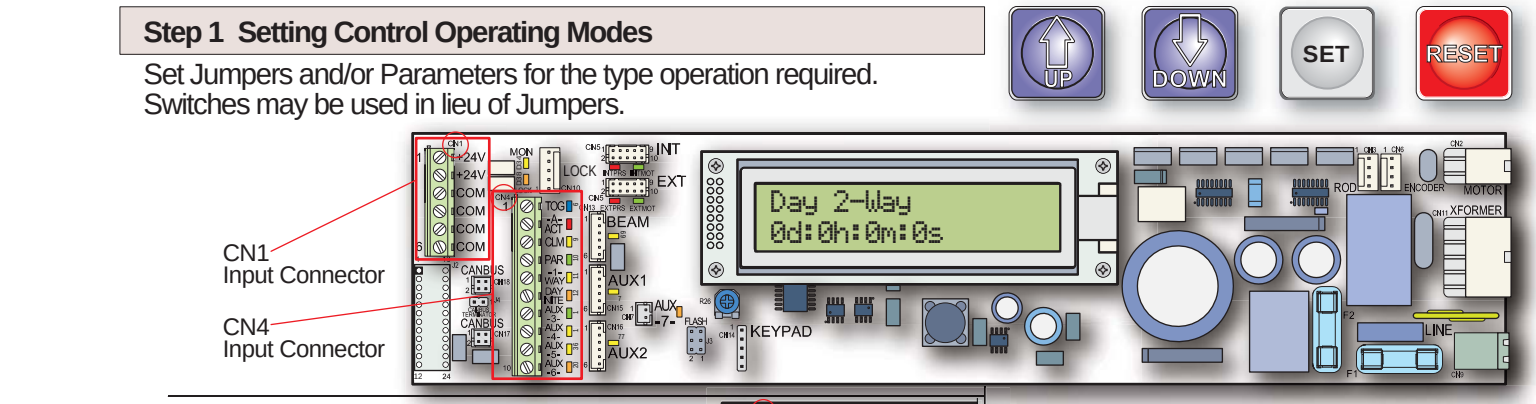
NO.	PARAMETER	FACTOR DEFAULT	RAN E
P35	Auto Seal	Off	On/Off
P36	Day/Night Sw Enable	Off	On/Off
P37	Reduced Open Acceleration	On	On/Off
P40	First Run Stop Okay	On	On/Off
P42	Lock Present	As Learned	On/Off
P43	Lock Type Fail Safe	As Learned	On/Off
P44	Lock Has No Mon Sw	Off	On/Off
P45	Lock in Day Mode	Off	On/Off
P46	Lock in 1 Way Mode	Off	On/Off
P47	Resume on Aux 1/2 Clr	Off	On/Off
P58	Remote Mode Enable	Off	On/Off
P61	Int Sensor Monitored	Off	On/Off
P62	Ext Sensor Monitored	Off	On/Off
P63	Safety Beam Monitored	Off	On/Off
P64	Aux 1 Snsr Monitored	Off	On/Off
P65	Aux 2 Snsr Monitored	Off	On/Off

* *200% of Learned Max Close Speed Current Units 1/10 Amp.*
** *200% of Learned Max Check Speed Current Units 1/10 Amp.*

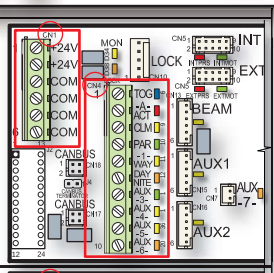
14. BELT DRIVE - ACTUATION FEATURES

Step 1 Setting Control Operating Modes

Set Jumpers and/or Parameters for the type operation required.
Switches may be used in lieu of Jumpers.

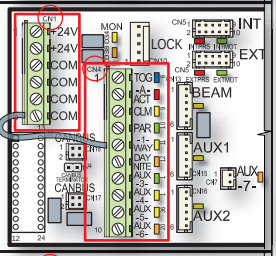


- **2-Way Day Mode**
  Default setting requires no connections.



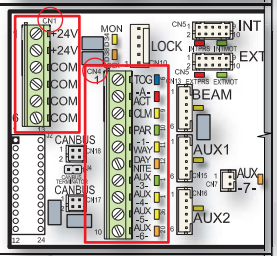
Day 2-Way
0d 0h 0m 0s

- **1-Way Day Mode**
  Connect **COM** Input on CN1 to **1-WA** Input on CN4.



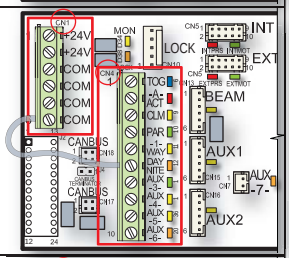
Day 1-Way
0d 0h 0m 0s

- **2-Way Night Mode**:
  Turn on **Parameter 36.**
  The Control is in **Night Mode** with no connections made.



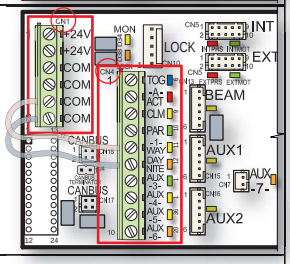
Night 2-Way
0d 0h 0m 0s

- **2-Way Day Mode**
  With **Parameter 36** turned on.
  Connect **COM** Input on CN1 to **DA -NITE** Input on CN4.



Day 2-Way
0d 0h 0m 0s

- **1-Way Night Mode**
  Connect **COM** Input on CN1 to **1 WA** Input on CN4 and **DA -NITE** Input on CN4.



Night 1-Way
0d 0h 0m 0s

Refer to Section 20, Diagram 1: **C3150 Control with Actuating and Switch Connections** on Sheet H310.45, for 4-Position Switch connection.

15. BELT DRIVE - IF FAILED AUTOLOCK SETUP

Step 1 Autolock Setup and Functions

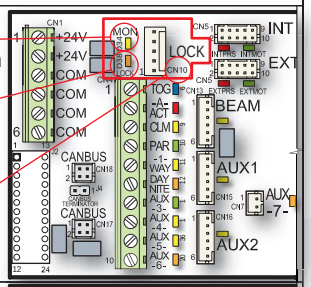
Procede to **Section 02**: **Step 2 Learn Cycle** for the Belt Drive Slide Door Operator on sheets H310.12 thru marker on H310.13.

Press the **UP** button when the Monitored Sensors message appears in the display. The Control then searches for a Lock Device connected to the Operator.

Monitored Sensors?
UP es, DOWN No

Fail Secure Lock Installed
ellow Lock Monitor LED light is **OFF**.

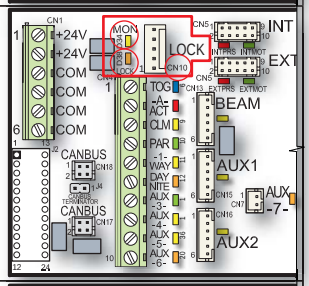
Orange Lock Monitor light comes **ON** followed immediately by Lock Monitor light which indicates Fail-Secure Lock detected .



Checking for Lock
Fail Secure Lock

Fail Safe Lock Installed
ellow Lock Monitor LED light is **ON** which indicates there may be a Fail-Safe Lock connected.

Orange Lock Monitor light comes **ON** and ELLOW Monitor Light immediately goes **OFF** indicating that a functional Fail-Safe Lock is installed .

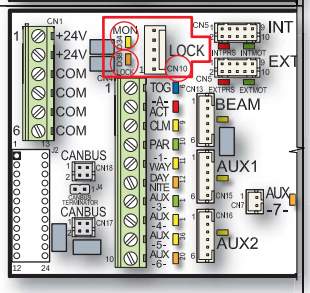


Checking for Lock
Fail Safe Lock

No Lock Detected
ellow Lock Monitor LED light is **OFF**.

Orange Lock Monitor light comes **ON** with no change to ELLOW Lock Monitor Light indicates a No Lock situation or a malfunction of Lock.

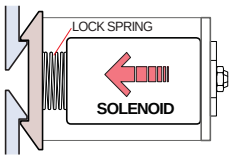
There is a slight delay before the No Lock Detected message appears.



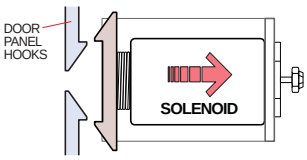
Checking for Lock

Checking for Lock
No Lock Detected

Fail-Secure Lock The most common type of Autolock.

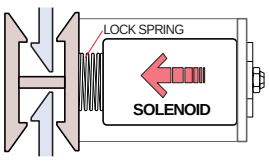


TOP VIEW- LOCKED
With Power Removed, Solenoid Extends By Spring. Door Locks.

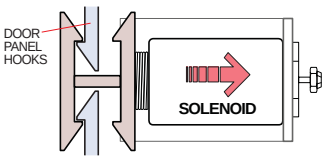


TOP VIEW- UNLOCKED
With Power Applied, Solenoid Retracts By Spring. Door Unlocks.

Fail-Safe Lock A less common type of Autolock.

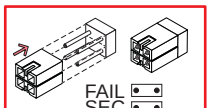


TOP VIEW- UNLOCKED
With Power Removed, Solenoid Extends By Spring. Door Unlocks.

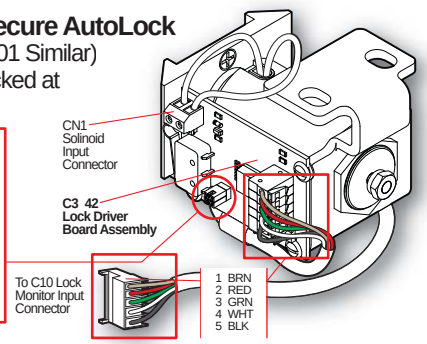


TOP VIEW- LOCKED
With Power Applied, Solenoid Retracts By Spring. Door Locks.

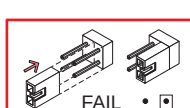
C5656-2 Fail Secure AutoLock
(2003 Shown- 2001 Similar)
Door remains Locked at Power Failure.



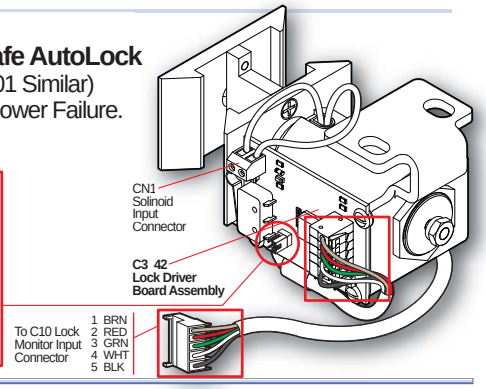
For Fail-Secure, Set both Jumpers on JB1 Pins as shown.



C5657-2 Fail Safe AutoLock
(2003 Shown- 2001 Similar)
Door Unlocks at Power Failure.



For Fail-Safe, Set one Jumper on JB1 Pins as shown.



16. SETTIN LOCK PARAMETERS

Step 1 Lock Parameter Verification

The following lock parameters will be set automatically if using a Horton Monitored Lock.

- For a Fail-Secure Lock, turn **ON** Parameter P42 Lock Present.
- For a Fail-Safe Lock, turn **ON** parameter P42 Lock Present and P43 Lock Type Fail Safe.

A Chart of preset lock parameters is shown at right for your reference.

NO.	PARAMETER	FACTOR DEFAULT	RAN E
P42	Lock Present	Off	On/Off
P43	Lock Type Fail Safe	Off	On/Off
P44	Lock Has No Mon Sw	Off	On/Off
P45	Lock in Day Mode	Off	On/Off
P46	Lock in 1-Way Mode	Off	On/Off

- The settings below will identify the lock type. Note that by default, the locks will engage only in the **NI HT MODE**.

  - The control has detected a lock device connected to the Operator.

    Lock Present
    P42 On

  - Control parameter indicates Lock is Fail-Secure.

    Lock Type Fail Safe
    P43 Off

  - Control parameter indicates Lock is Fail-Safe.

    Lock Type Fail Safe
    P43 On

- In order to implement locking of device in a setting other than **NI HT MODE**, one of the following parameters must be turned **ON**.

  - With parameter P45 **ON**, door will lock in Day Mode (Full Time).

    Lock in Day Mode
    P45 On

  - With parameter P46 **ON**, door will only lock in 1-Way Mode.

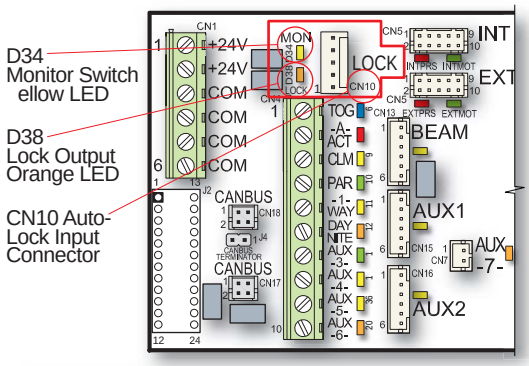
    Lock in 1-Way Mode
    P46 On

  - If using a non-monitored lock such as a magnetic lock, this parameter is used to provide a brief delay to allow the lock time to release before opening door.

    Lock Has No Monitor Sw
    P44 On

17. LOCK ERROR CODES

Step 1 Lock Diagnostics



Fail-Secure Lock - Failed To Unlock Condition

When the C3150 Control equipped with a Fail-Secure Lock is given an **Open** command, the control issues a **Lock** output signal (Orange LED) and waits for the **MON** (Lock Monitor Switch) ellow LED to illuminate.

If the Control fails to receive the **MON** unlock verification signal, the ellow LED does not come on.

- Failed to Unlock message displayed. Control then performs a Jog routine to unblock the door.

Failed to Unlock

Fail-Secure Lock - Door Binding

When a door with a C3150 Control and equipped with a Fail-Secure Lock closes, the solenoid releases its spring, engaging a mechanism that locks the door.

Lock Monitor Switch (yellow LED) remains **On** indicating a mechanical bind or displaced Monitor Switch.

- Failed to Lock message displayed for 1 second.

Failed to Lock

- Display then shows default Day 2-Way Mode Setting.

Day 2-Way
0d 0h 0m 0s

Fail-Safe Lock - Failed To Unlock Condition

When a door with a C3150 Control and equipped with a Fail-Safe Lock is given an Open command. Control turns Off **Lock** output signal (Orange LED) and waits for solenoid to de-energize and the **MON** input to illuminate.

If the Control fails to receive the **MON** unlock verification signal, the ellow LED does not come on.

- Failed to Unlock message displayed.

Failed to Unlock

Fail-Safe Lock - Door Binding

When a door with a C3150 Control and equipped with a Fail-Secure Lock closes, the Lock output (Orange LED) illuminates and the solenoid locks the door.

Lock Monitor Switch (yellow LED) remains **On** indicating a mechanical bind or displaced Monitor Switch.

- Failed to Lock message displayed for 1 second.

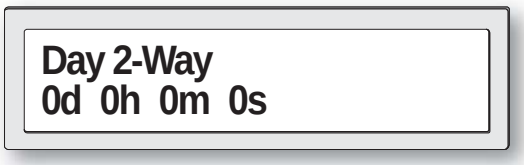
Failed to Lock

17. LOCK ERROR CODES

Step 1 Lock Diagnostics cont

Fail-Secure Lock - Failed to Lock Condition cont

- Display then shows default Day 2-Way Mode Setting.



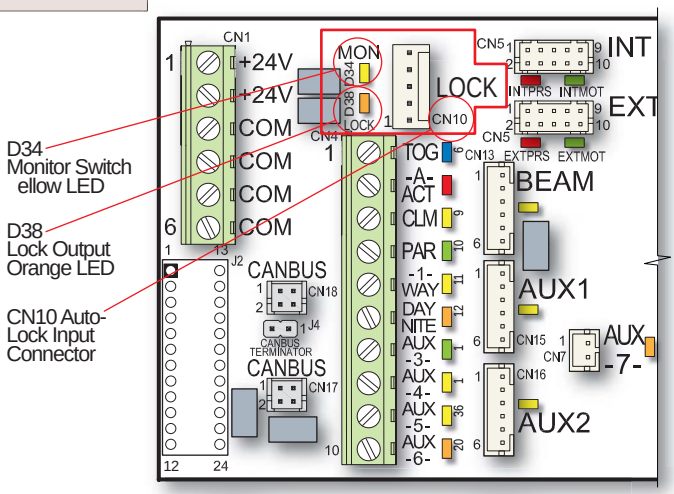
18. AUTOLOCK TEST POINTS

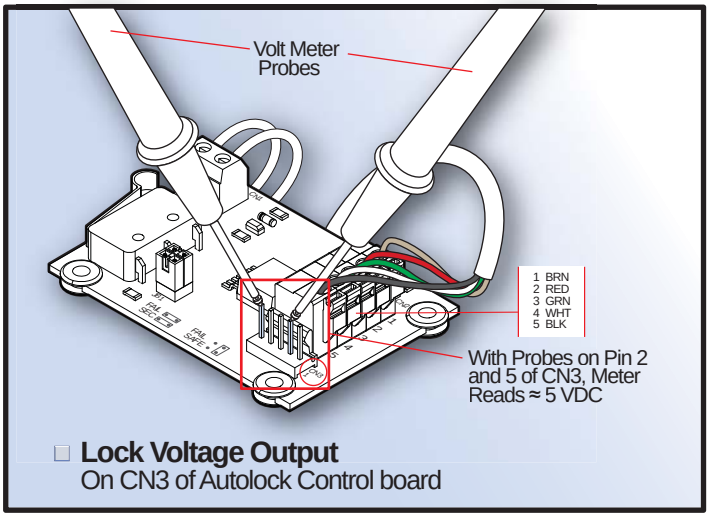
Step 1 Monitored Autolocks

The Horton Monitored Autolocks are controlled by an **output** signal from the C3150 Control referred to as **LOCK**. The status of this output is indicated by an Orange LED (D38) that illuminates when the output is active.

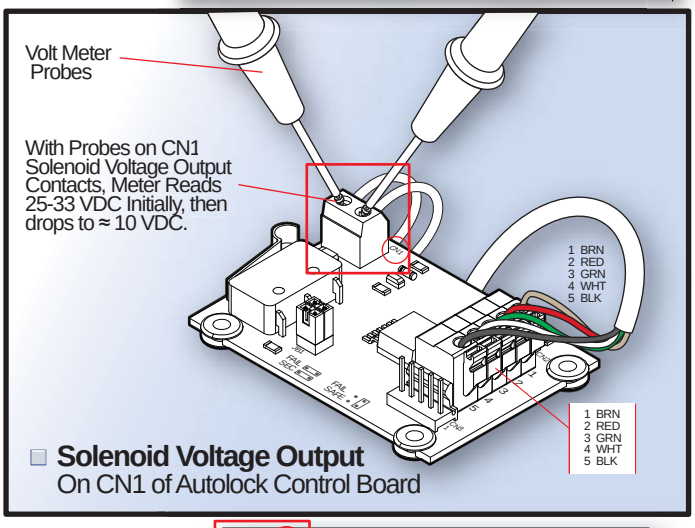
Lock Voltage Output at CN3

Anytime **Lock** output is active, measured voltage between pins 2 and pin 5 on CN3 of the Autolock Control Board should be approximately 5 Volts DC. For the Fail-Secure and Fail-Safe Lock, the solenoid should be energized.





Lock Voltage Output
On CN3 of Autolock Control board



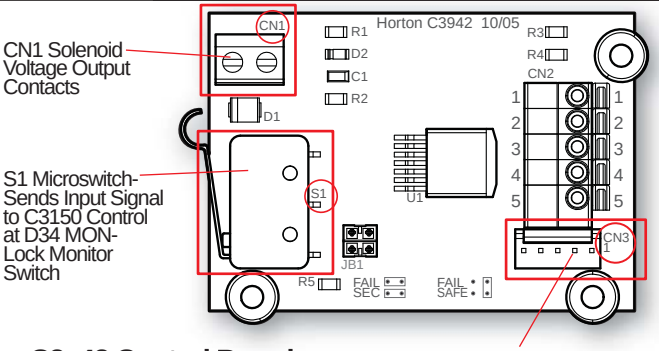
Solenoid Voltage Output
On CN1 of Autolock Control Board

Solenoid Voltage Output at CN1

Initially, the solenoid will receive 25-33 volts to pull-in, but will quickly drop to approximately 10 volts in order to prevent overheating.

Lock Monitor Switch

Horton Monitored Autolocks are equipped with a microswitch that provides an **Input** signal to the C3150 referred to as **MON**. The status of this output is indicated by a ellow LED (D34).



C3 42 Control Board
For Fail-Secure and Fail-Safe Autolocks

18. AUTOLOCK TEST POINTS

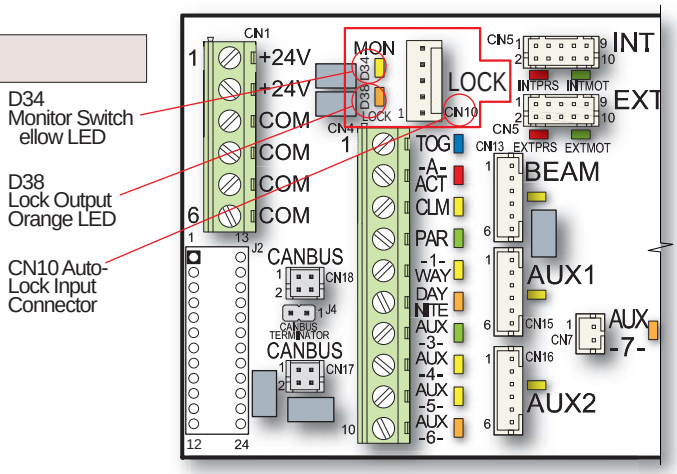
Step 1 Monitored Autolocks Cont

- **Monitor Switch Input Active**

  If **MON** Input is active (D34 ellow LED is on), for Fail-Secure or Fail-Safe locks, the door can be opened manually or via the motor.

  This function can be tested by manually cycling the lock and watching **MON** LED for status change.

  - Fail-Secure Locks **LOCK** and **MON** illuminate simultaneously.
  - Fail-Safe Locks **LOCK** and **MON** illuminate alternately.



C3150 Control Board- Partial View

1 . DIA NOSTICS- LINEAR AND BELT DRIVE

Step 1 Entering Diagnostic Menu

- To enter the Diagnostic Menu, double-click the **UP** button.
  - Display Message blinks:

Diagnostic Menu

  - Then Display message shows:

Multifunction Test
D01 SET o

- Or press the **UP** and **RESET** buttons simultaneously, then release the **RESET** button contining to hold the **UP** button.
  - Display Message blinks:

Diagnostic Menu

- Then release the **UP** button.
  - Display Message shows:

Multifunction Test
D01 SET o

D01- Multifunction Test
A. Navigating Thru Functions

The Multifunction Test is provided to enable the Technician the ability to isolate and verify features of the C3150 Control. This diagnostic tool can be used to verify Inputs from the encoder, microswitches, locks (Lock Monitor), and the Close-Monitor (optional- requires additional hardware). It also displays the Output from the Control that activates the Lock Solenoid.

In addition to these features, the Multifunction Diagnostic can be used to drive the motor forward and in reverse (at Open-Check or Close-Check speed) to verify proper motor function. Likewise, the Autolock can be tested for proper function using the **SET** button.

In the D01 Section, Motor/Encoder Test, the **UP** and **DOWN** buttons drive the door **OPEN** or **CLOSED** respectively. The **SET** button controls the Lock Function. Note that the display messages will vary depending on the door operator type.

- Display viewed with no buttons pushed.

Multifunction Test
D01 SET o

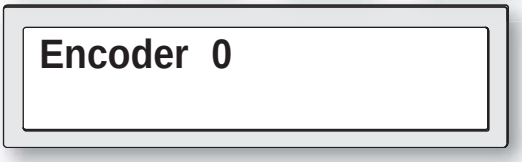
Encoder 0
LKMon

Only if Fail-Safe Lock installed.

1 . DIA NOSTICS- LINEAR AND BELT DRIVE

D01- Multifunction Test
B. Motor and Encoder Test - Belt Drive Units

- To Test the Motor and Encoder, press the **SET** button.
  - Display Message Reads:

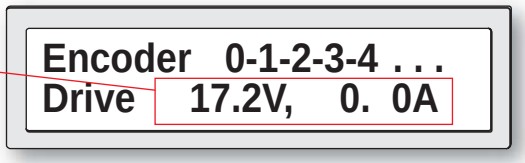


  - Display viewed with no buttons pushed.

Only if Fail-Safe Lock installed.

- Press the **UP** button to drive the door open. Encoder Counts are displayed at the top of the message with the Voltage and Current at the bottom of the message. *The oltages/Current settings shown are reflected in the Open-Check speed setting.*

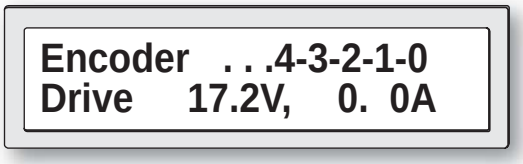
  Changing Open-Check will raise or lower Voltage/Current readings. *Temporarily lowering values will slow the encoder counter making it easier to read.*



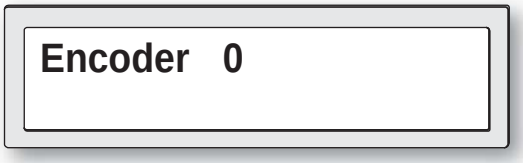
**Settings shown above and below will vary.*

- Press **DOWN** button to drive the door closed. Encoder Counts are displayed at the top of the message with the Voltage and Current at the bottom of the message. The Voltages/Current setting shown are reflected in the Close-Check speed setting.

  Changing Close-Check will raise or lower Voltage/Current readings. Temporarily lowering values will slow the encoder counting to make it easier to read. *t is not unusual for the Count to fail to return completely to 0 due to mechanical tolerances.*

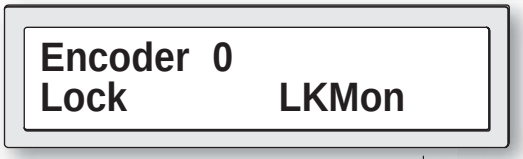


D01- Multifunction Test
C. Fail-Secure Lock Test - Belt Drive Units



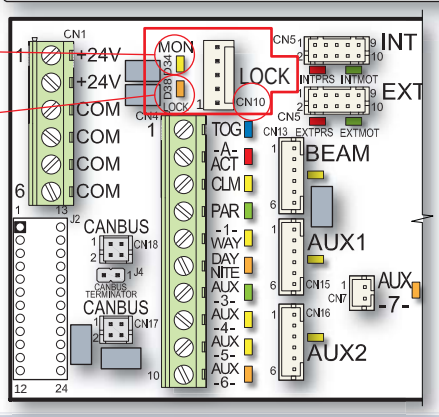
  - Display Initial Message reads:

- To Test the Fail-Secure Lock, press the **SET** button, Solenoid will engage.
  - Display Message shows Lock and Lock Monitor:



D34
Monitor Switch
ellow LED

D38
Lock Output
Orange LED

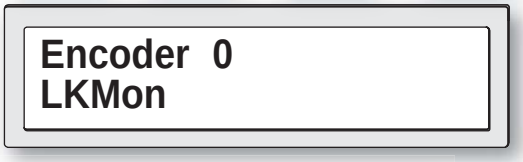


  - Lock (**D38**) and Lock Monitor (**D34**) LED Lights are illuminated on C3150 Control Board.

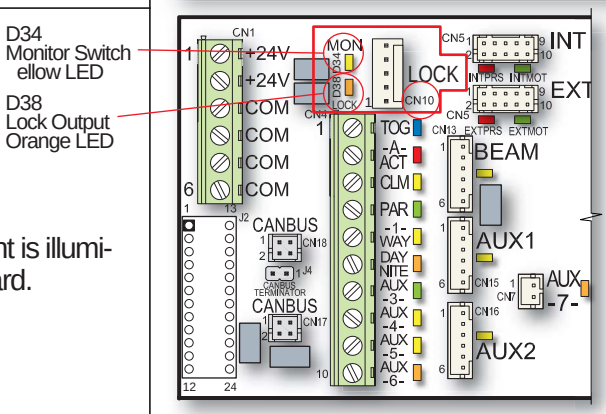
1 . DIA NOSTICS- LINEAR AND BELT DRIVE

D01- Multifunction Test
D. Fail-Safe Lock Test - Belt Drive Units Cont

- The Fail-Safe Lock and Lock Monitor are present and connected.

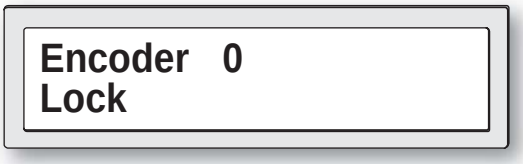


  - Display Initial Message reads:

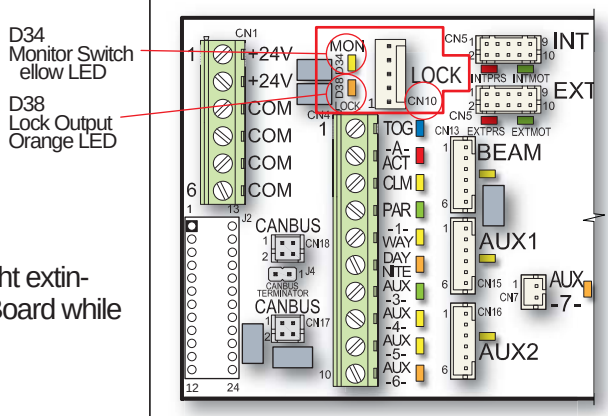


  - Lock Monitor (**D34**) LED Light is illuminated on C3150 Control Board.

- To Test the Fail-Safe Lock, press the **SET** button. The Solenoid then engages.



  - Display Message then changes from **LKMon** to **Lock** as shown:



  - Lock Monitor (**D34**) LED Light extinguishes on C3150 Control Board while Lock (**D38**) LED illuminates.

D01- Multifunction Test
E. Motor and Microswitch Test - Linear Drive Units

- To Test the Motor and Microswitches, press the **SET** button.

Only if Lock installed.

  - Display viewed with no buttons pushed.

    Depending on door position, display will read Close Cutoff, Close-Check, Door Mid-Stroke, Open-Check or Open-Cuoff.

1 . DIA NOSTICS- LINEAR AND BELT DRIVE

D01- Multifunction Test
E. Motor and Microswitch Test - Linear Drive Units Cont

- Press the **UP** button to drive the door open. The Voltage/Current setting shown are reflected in the Open-Check speed setting.

  Changing Open-Check will raise or lower Voltage/Current readings. *Temporarily lowering values will slow the encoder counter making it easier to read.*

  - Display Message at Close-Cutoff Switch reads:

    Close Cutoff
    Drive 17.2V, 0. 0A

  - Display Message in Close-Check Zone reads:

    Close Check
    Drive 17.2V, 0. 0A

  - Display Message at Mid-Stroke (No Switches Tripped) reads:

    Door Mid Stroke
    Drive 17.2V, 0. 0A

  - Display Message in Open-Check Zone reads:

    Open Check
    Drive 17.2V, 0. 0A

  - Display Message at Open-Cutoff Switch reads:

    Open Cutoff
    Drive 17.2V, 0. 0A

- Press the **DOWN** button to drive the door closed. The Voltage/ Current setting shown are reflected in the Close-Check speed setting.

  **Settings shown above and below will vary.*

  Changing Close-Check will raise or lower Voltage/Current readings.

  - Display Message at Open-Cutoff Switch reads:

    Open Cutoff
    Drive 17.2V, 0. 0A

  - Display Message in Open-Check Zone reads:

    Open Check
    Drive 17.2V, 0. 0A

  - Display Message at Mid-Stroke (No Switches Tripped) reads:

    Door Mid Stroke
    Drive 17.2V, 0. 0A

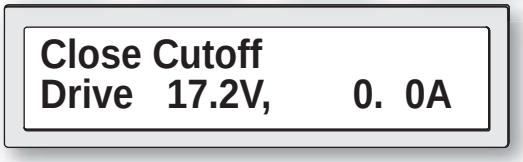
  - Display Message in Close-Check Zone reads:

    Close Check
    Drive 17.2V, 0. 0A

1 . DIA NOSTICS- LINEAR AND BELT DRIVE

D01- Multifunction Test
E. Motor and Microswitch Test - Linear Drive Units Cont

- Display Message at Close-Cutoff Switch reads:



**Settings shown above will vary.*

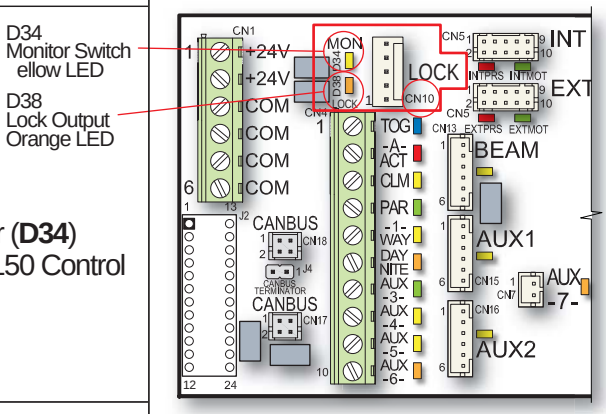
D01- Multifunction Test
F. Fail-Secure Lock Test - Linear Drive Units

- To Test the Fail-Secure Lock:
  (A) Press the **SET** button.

- Display Message reads:

- Solenoid will engage.

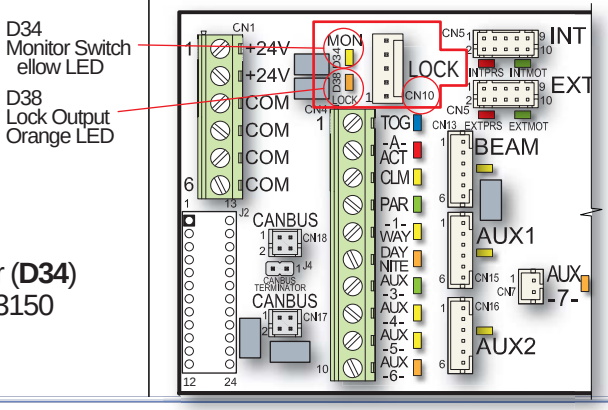
- Depending on door position, display will read Close Cutoff, Close-Check, Door Mid-Stroke, Open-Check or Open-Cutoff.
  Display Message shows Lock and Lock Monitor.



- Lock (**D38**) and Lock Monitor (**D34**) LEDs are illuminated on C3150 Control Board.

- (B) Release the **SET** button.

- Depending on door position, display will read Close Cutoff, Close-Check, Door Mid-Stroke, Open-Check or Open-Cuoff.



- Lock (**D38**) and Lock Monitor (**D34**) LEDs are extinguished on C3150 Control Board.

1 . DIA NOSTICS- LINEAR AND BELT DRIVE

D01- Multifunction Test
. Fail-Safe Lock Test - Linear Drive Units

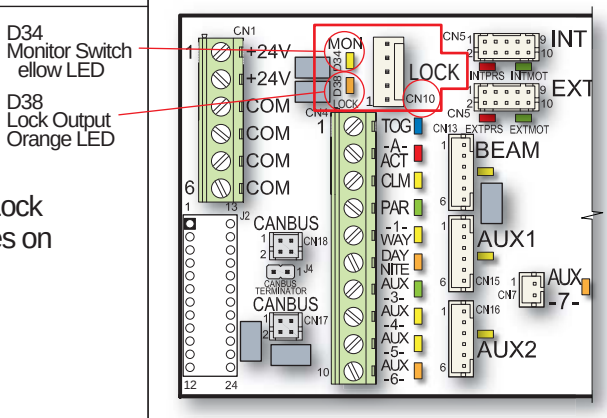
- To Test the Fail-Safe Lock:
  (A) Press the **SET** button.

  - Display Message reads:

- Solenoid will engage.

  - Depending on door position, display will read Close Cutoff, Close-Check, Door Mid-Stroke, Open-Check or Open-Cuoff.

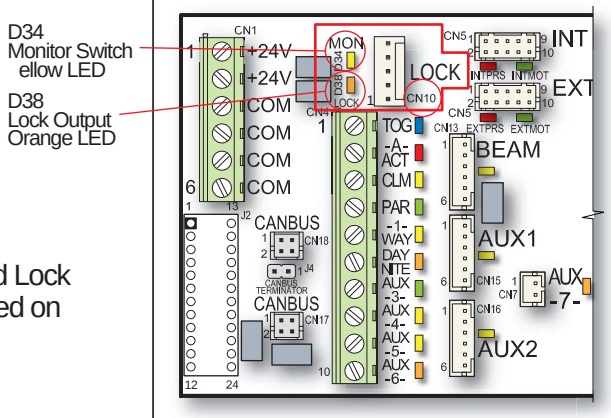
    Display Message shows Lock.



  - Lock (**D38**) is illuminated and Lock Monitor (**D34**) LED extinguishes on C3150 Control Board.

- (B) Release the **SET** button.

  - Depending on door position, display will read Close Cutoff, Close-Check, Door Mid-Stroke, Open-Check or Open-Cuoff.



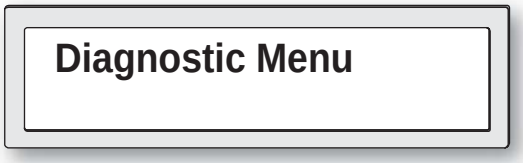
  - Lock (**D38**) is extinguished and Lock Monitor (**D34**) LED is illuminated on C3150 Control Board.

D02- Show Supply Voltages

D02 on the Diagnostics Menu shows supply voltages. Enter the Diagnostics Menu then press the **UP** or **DOWN** button to navigate to the various Sections D01 through D08.

Note that double-clicking the **SET** button returns you to the previously visited Section in Diagnostic Menu. Pressing the **RESET** button exits the Diagnostic Menu.

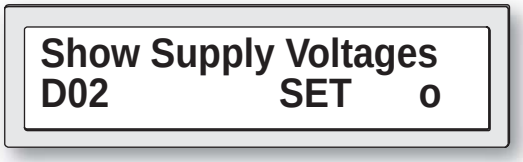
- To enter the Diagnostic Menu, double-click the **UP** button.
  - Display Message blinks:



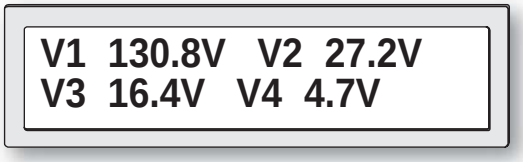
  - Then Display message shows:

D02 Show Supply Voltages

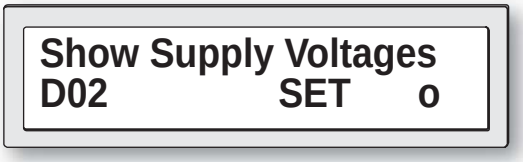
- To enter the D02 Show Supply Voltages Section, press the **UP** button.
  - Display message shows:



- To show the supply voltages, press the **SET** button.
  - Display Message shows:
    1- igh oltage - Factory Only
    2- Low oltage - Factory Only



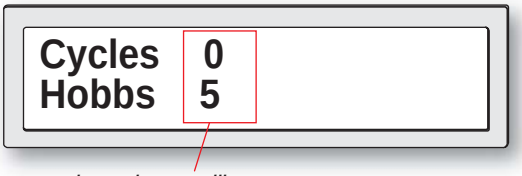
- Double-click the **SET** button to return to the last section visited in the Diagnostic Menu.
  - Display flashes the message, *Returning to Menu* or D02 in this case. Message then reads:



D03 - Read Counters

- To enter the D03 *Read Counters* Section, press the **UP** or **DOWN** button to navigate to D03.
  - Display message reads:

- To view the counters, press the **SET** button.
  - Display Message reads:



alues shown will vary.

- Double-click the **SET** button to return to the last section visited in the Diagnostic Menu.
  - Display flashes the message, *Returning to Menu* or D03 in this case. Message then reads:

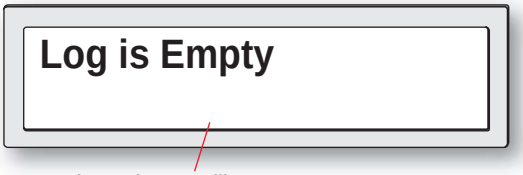
1 . DIA NOSTICS- LINEAR AND BELT DRIVE

D04 - Read Log

- To enter the D04 *Read Log* Section, press the **UP** or **DOWN** button to navigate to D04.
  - Display message reads:

- To view the log, press the **SET** button.
  - Display Message reads:

*(Use the **P** or button to scroll through the Log vents).*



alues shown will vary.

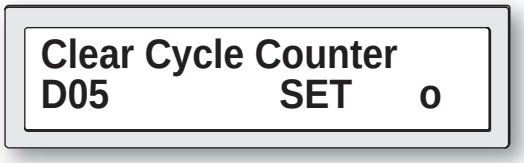
- Double-click the **SET** button to return to the last section visited in the Diagnostic Menu.
  - Display flashes the message, *Returning to Menu* or D04 in this case. Message then reads:

- List of possible D04 Event Codes - Always Logged that would be viewed on the *Read Log* if applicable.

D04 EVENT CODES ALWA S LO ED		D04 EVENT CODES ALWA S LO ED		D04 EVENT CODES ALWA S LO ED	
1.	15V Supply Failure	14.	Cls Speed Pulse Loss	27.	Motor Drive Failure
2.	24V Supply Failure	15.	EEPROM Failure	28.	Motor Failure
3.	120V Supply Failure	16.	Encoder Failure	29.	No Close Spd Harness
4.	Attempting Restart	17.	Ext Motion On 60s	30.	No Open Spd Harness
5.	Aux Act On 60s	18.	Ext Presnc On 60s	31.	Open Accel Pulse Loss
6.	Aux1 On 60s	19.	Ext Sensor Test Fail	32.	Open Check Pulse Loss
7.	Aux1 Test Fail	20.	Failed to Lock	33.	Open Check Timeout
8.	Aux2 On 60s	21.	Failed to Unlock	34.	Open Speed Timeout
9.	Aux2 Test Fail	22.	Full Open	35.	Opn Speed Pulse Loss
10.	Close Check Timeout	23.	Illegal Instruction	36.	Saf Beam On 60s
11.	Close Speed Timeout	24.	Int Motion On 60s	37.	Saf Beam Test Fail
12.	Cls Accel Pulse Loss	25.	Int Presnc On 60s	38.	Watchdog Timeout
13.	Cls Check Pulse Loss	26.	Int Sensor Test Fail		

D05 Clear Cycle Counter

- To enter the D05 *Clear Cycle Counter* Section, press the **UP** or **DOWN** button to navigate to D05.
  - Display message reads:



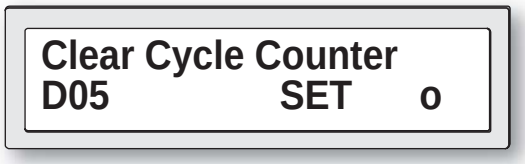
- To clear the counter, press the **SET** button.
  - Display Message reads:

1 . DIA NOSTICS- LINEAR AND BELT DRIVE

D05 Clear Cycle Counter Cont

- Press the **UP** button to proceed or press the **DOWN** button to return to D05 *Clear Cycle Counter* Section.
  - If the **UP** button is pressed, display reads:

- Double-click the **SET** button to return to the last section visited in the Diagnostic Menu.
  - Display flashes the message, *Returning to Menu* or D05 in this case. Message then reads:

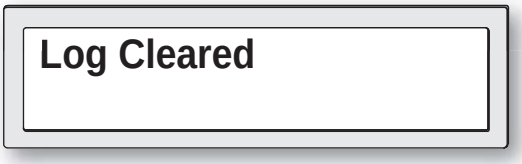


D06 Clear Log

- To enter the D06 *Clear Log* Section, press the **UP** or **DOWN** button to navigate to D06.
  - Display message reads:

- To clear the log, press the **SET** button.
  - Display Message reads:

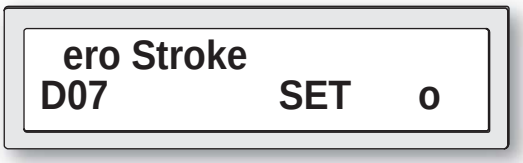
- Press the **UP** button to proceed or press the **DOWN** button to return to D06 *Clear Log* Section.
  - If the **UP** button is pressed, display reads:



- Double-click the **SET** button to return to the last section visited in the Diagnostic Menu.
  - Display flashes the message, *Returning to Menu* or D06 in this case. Message then reads:

D07 - ero Stroke

- To enter the D07 *ero Stroke* Section, press the **UP** or **DOWN** button to navigate to D07.
  - Display message reads:



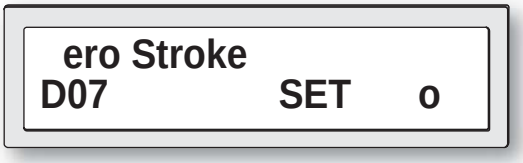
- To Zero the Stroke, press the **SET** button.
  - Display Message reads:

1 . DIA NOSTICS- LINEAR AND BELT DRIVE

D07 - ero Stroke Cont

- Press the **UP** button to proceed or press the **DOWN** button to return to D07 *ero Stroke* Section.
  - If the **UP** button is pressed, display reads:

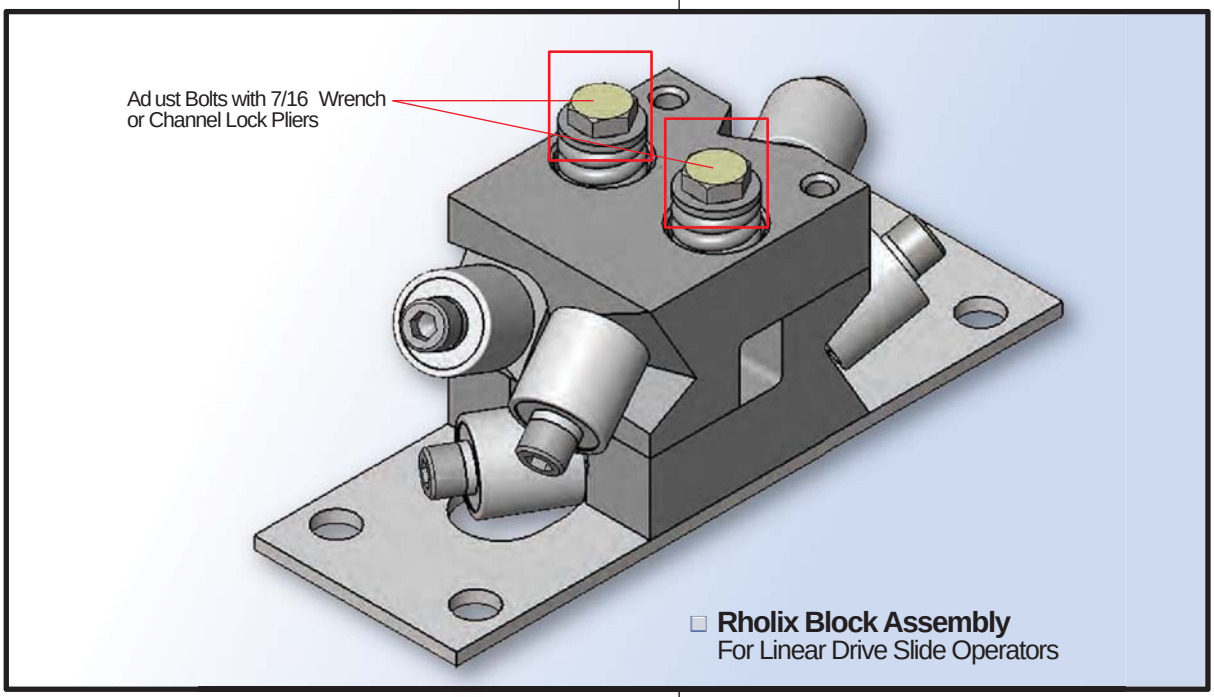
- Double-click the **SET** button to return to the last section visited in the Diagnostic Menu.
  - Display flashes the message, *Returning to Menu* or D07 in this case. Message then reads:



D08 - Rholix Block

- To enter the D08 *Rholix Block* Section, press the **UP** or **DOWN** button to navigate to D08.
  - Display message reads:

- When the **SET** button is pressed, the motor will spin the rod in a direction that will close the door ignoring all motion sensors. Place a Force Gauge between the amb and the strike edge of the door. Ad ust to 28 lbs. by tightening or loosening the bolts shown in the illustration below with a wrench of channel lock pliers.



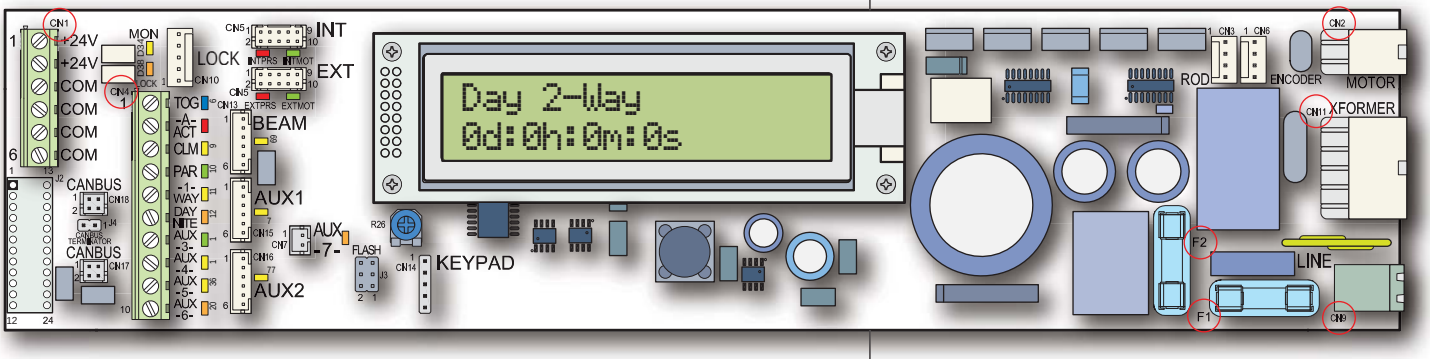
Rholix Block Assembly
For Linear Drive Slide Operators

- For Linear Drive Operators only. To procede, press the **SET** button. Note that the Control knows the Operator is a Belt Drive Unit and will respond accordingly.
  - Display Message reads:

20. APPENDIX - A

Troubleshooting Power Supply on C3150 Control V15.00.00

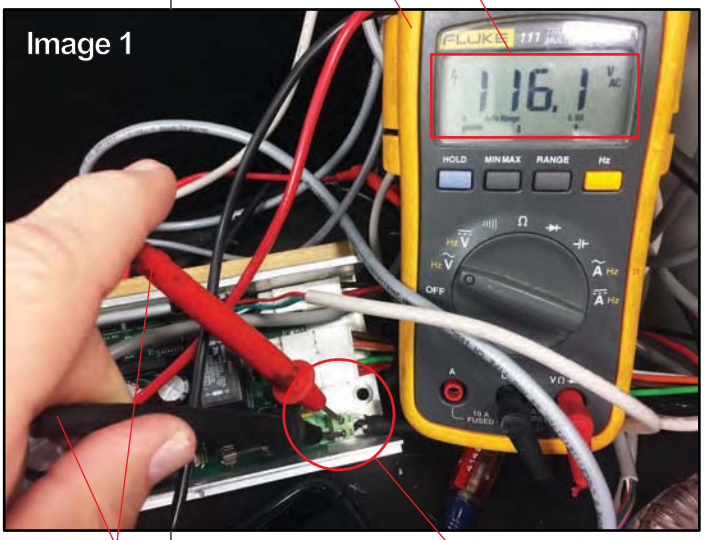
The C03150.0000 Control has line voltage coming into connector CN9. Pin 1 is line voltage (black) and pin 2 is neutral (white). Refer to Image 1 below.

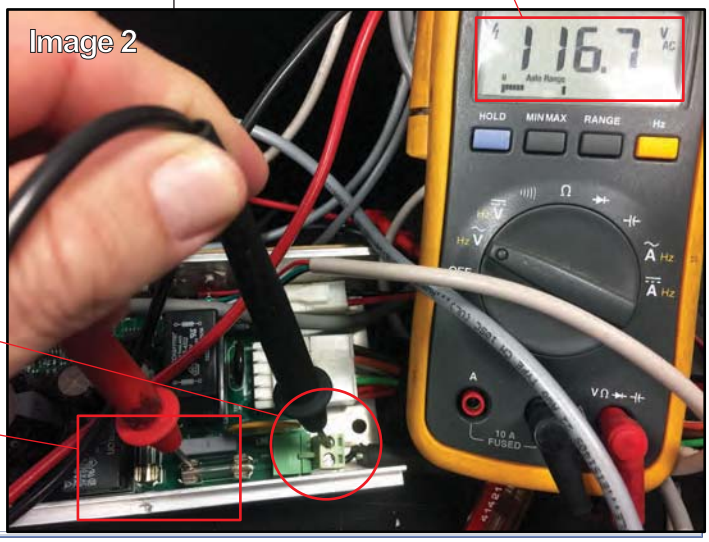


C3150 Slide Door Microprocessor Control Board

1. The 120 Volt AC Line Voltage (pin 1 on CN9) is connected directly to the right side Fuse F1 (3.15 amp slow blow 5x20) via the printed circuit board. The left side of F1 Fuse supplies current to one side of the transformer s primary winding via connector CN11 pin 7 (white wire) and CN11 pin 2 (orange wire) which is connected in-parallel to the primary winding of the transformer via connector CN11 pin 6 (black wire) and CN11 pin 1 (brown wire).

   If incoming power AC voltage is detected at CN9 pin 1 and 2 (Image 1), leave multimeter lead on CN9 pin 2 (neutral- white wire) and move the other lead to the farside of F1 fuse (Image 2 below).



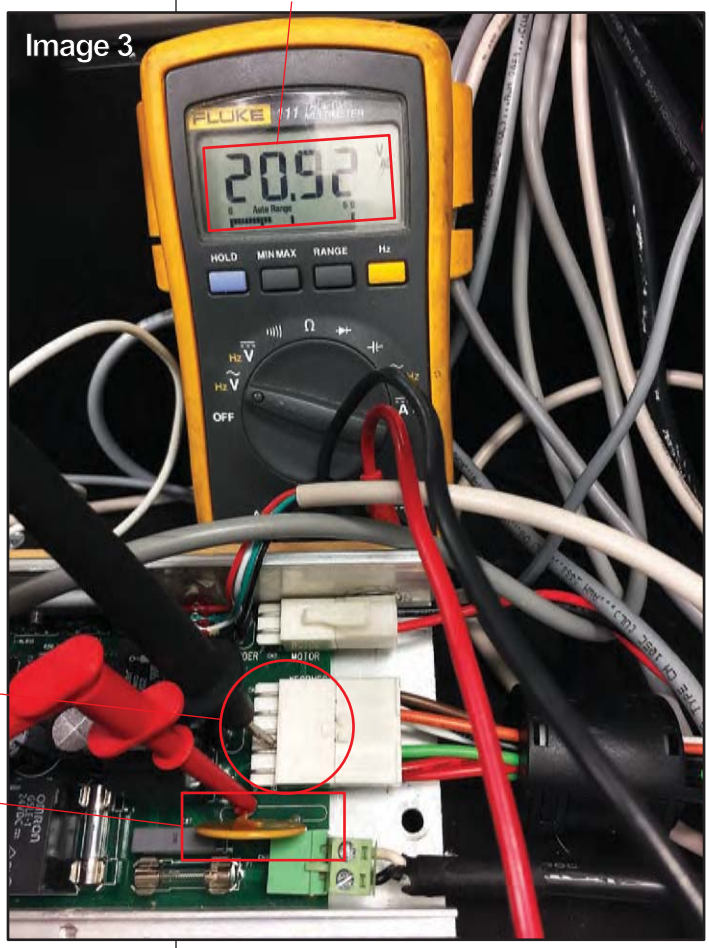


20. APPENDIX - A Cont:

Troubleshooting Power Supply on C3150 Control V15.00.00 Cont

2. Return from the transformer to the neutral side of the incoming power is via a parallel connection CN11 pin 7 (white wire) and CN11 pin 2 (orange wire).

3. The Transformer s 18 volt secondary winding is connected to the C3150 control through the green wires at CN11 pin 4 and CN11 pin 9. It can be tested by connecting multimeter to CN11 pin 4 (green wire) and lead of RT1 that is closest to the fuse (Image 3 at right). If the transformer is good, multimeter should detect 18-20 volts AC. Move red lead to the opposite lead on RT1, voltage should be approximately the same. If RT1 contact has opened because of overcurrent, voltage here will be much less.



4. The 24 Volt DC supply is produced by connecting the 18 Volt AC secondary tap to rectifier D5 through (RT1) which is a PPTC and can be thought of as a resettable fuse. This rectified circuit is filtered by capacitors C110 and C11 to produce an unregulated 24 Volts DC for motion detector and auxiliary use. This circuit can be tested / connected to on connector CN1 between 24V and common. If an overcurrent condition occurs in this circuit, the PPTC will heat up and gradually reduce the current flow to the point that the components fed by this circuit quit working. RT1 will feel warm to the touch. Remove all components that can cause an overcurrent condition such as motion detectors, safety beam, autolock and anything connected to the 24V terminals of CN1. It will usually be necessary to kill power for 30 seconds or more to allow the PPTC to cool and resume normal conduction. Faulty circuit can sometimes be identified by reintroducing components one at a time (killing power each time) until the circuit opens again.

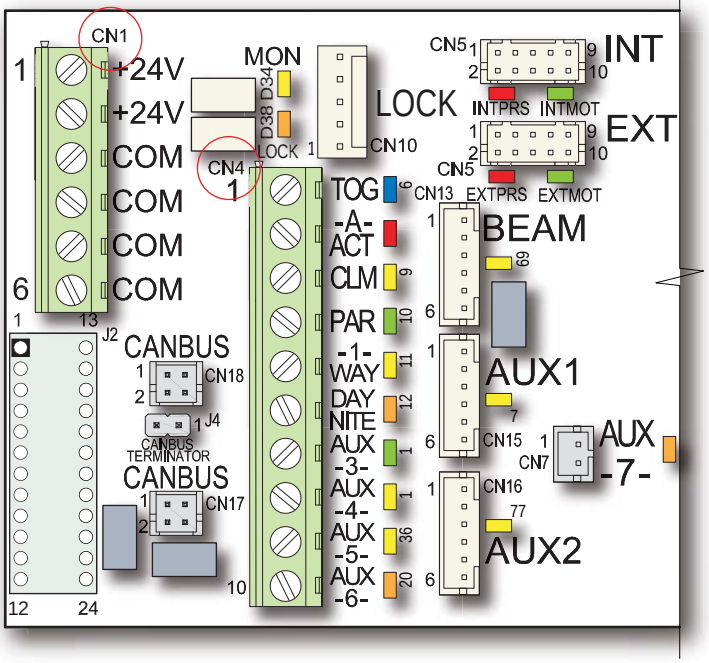


Figure 2, Control Board Partial View Left Side

20. APPENDIX - A Cont:

Troubleshooting Power Supply on C3150 Control V15.00.00 Cont

5. The 5 volt supply is provided by the U8 switching regulator which provides for the microprocessor, all of the LEDs and the input. This circuit can be tested at pins 1 and 4 of CN6 (Encoder) or between common of CN1 and any of the 10 inputs at CN4. Most devices connected to the 5 volt supply draw very little current. The overall load is limited to 500ma. If this threshold is exceeded (or shorted), the regulator will shut down to protect itself and other components. Shorted encoder or autolock would be the most likely culprit. Unplug the devices, kill power for 30 seconds and retry. Bridge circuit to drive the motor. The 90 Volt AC circuit can be tested as shown below.

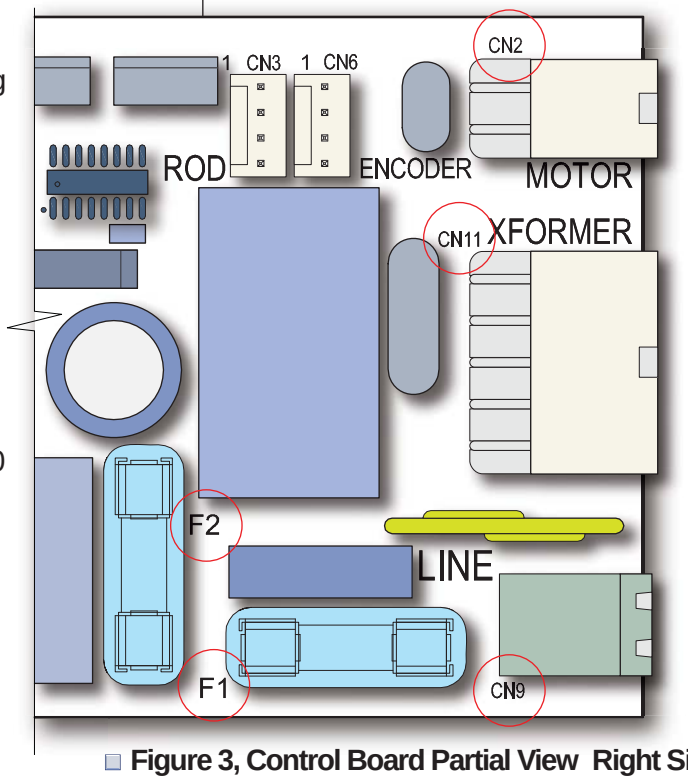
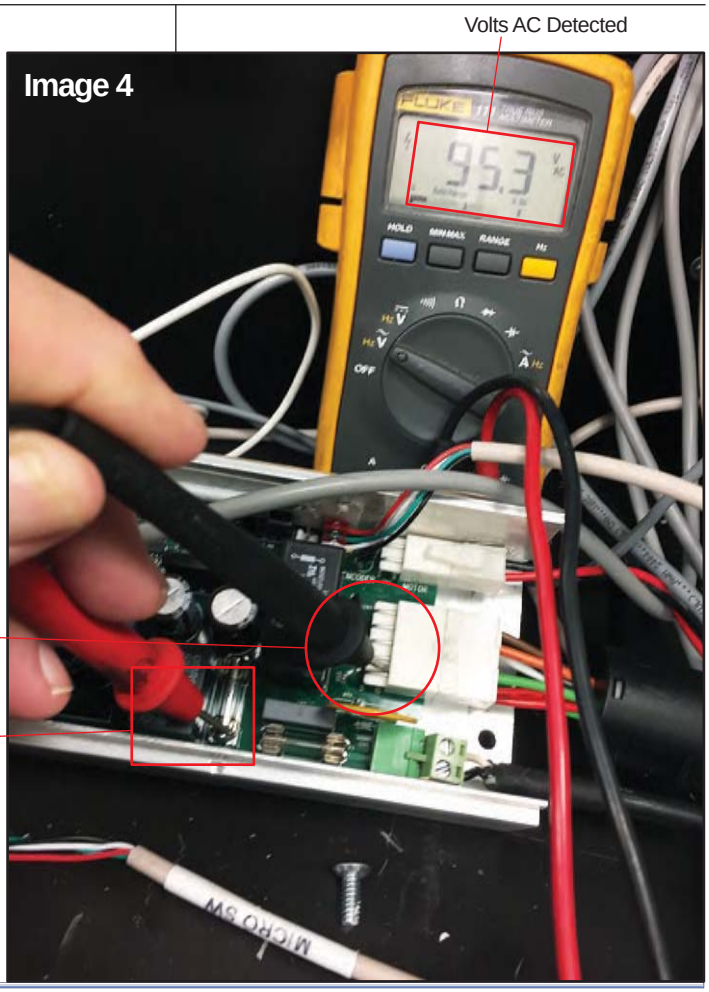


Figure 3, Control Board Partial View Right Side

6. The 130 Volts DC Motor Voltage: One red wire from the 90 Volts AC transformer tap terminates at CN11 pin 5 red wire of the C3150. The other red wire is terminated at CN11 pin 10 of the C3150 and is connected to one side of Fuse F2 (3.15 amp slow blow 5x20). The other side of the fuse is connected to rectifier D21 with a return to the other transformer red wire which terminates at CN11 pin 5. The rectified output of D21 is filtered by capacitor C14 and provides 130 Volts filtered DC for the H Bridge circuit to drive the motor. The 90 Volt AC circuit can be tested as shown (Image 4 at right).

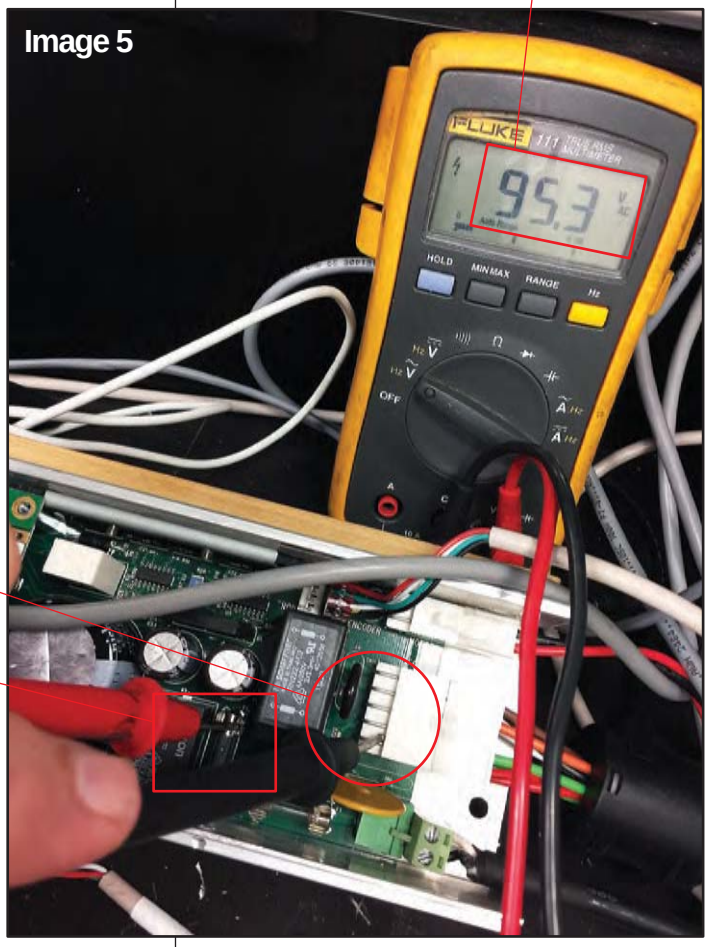


20. APPENDIX - A Cont:

Troubleshooting Power Supply on C3150 Control V15.00.00 Cont

7. Check F2 Fuse with Red Multimeter Lead on farside of F2 Fuse and Black Lead on CN11 pin 10 (Image 4 at right). If voltage is present, fuse is good.

Image 5



20. APPENDIX - B

Status Messsages C3150 Control V15.00.00

MESSA E	DOOR T PE	DESCRIPTION
Act (Aux Act)	Both	Door was actuated to open by auxiliary input.
Act (Com)	Both	Door was actuated to open by communications port.
Act (Cycle Test)	Both	Door was actuated to open by cycle test option.
Act (Down)	Both	Door was actuated to open by local (DOWN) button.
Act (Ext Sensor)	Both	Door was actuated to open by exterior sensor.
Act (Fire Input)	Both	Door was actuated to open by fire alarm.
Act (Int Sensor)	Both	Door was actuated to open by interior sensor.
Are you sure UP es, DOWN No	Both	Confirmation message before certain critical tasks will be executed.
Attempting Restart	Both	Control is attempting a restart following a fatal error. Restart request was issued by placing door in off mode, or remotely via communications port.
Autoseal	Both	Door is executing periodic autoseal routine to insure weatherstrip seal. Autoseal runs approximately every twenty (20) seconds if Autoseal parameter is enabled, provided door is closed and idle.
Aux1 On 60s	Both	Warning message, Aux1 input has been on continuously for over 60 seconds.
Aux1 Test Fail	Both	Aux1 sensor reported failure when self-test was requested by control.
Aux2 On 60s	Both	Warning message, Aux2 input has been on continuously for over 60 seconds.
Aux2 Test Fail	Both	Aux2 sensor reported failure when self-test was requested by control.
Aux Act On 60s	Both	Warning message, auxiliary actuate input has been on continuously for over 60 seconds.
Braking Door	Both	Control is decelerating door to either Open Check speed (while opening) or Close Check speed (while closing).
Check Fuse F2	Both	Informative message for possible cause of 120V power supply failure.
Check 24V Wiring	Both	Informative message for possible cause of 24V power supply failure.
Checking for lock	Both	During setup, control is checking for presence of a monitored lock.
Clear Cycle Counter	Both	Diagnostic menu item, press SET to clear cycle counter. Confirmation is required. Hobbs counter is not cleared.
Clear Log	Both	Diagnostic menu item, press SET to clear data log. Confirmation is required.
Close Accelerate	Both	Door is accelerating from zero velocity to selected close speed setting.
Close Check	Both	In normal operation, door is traveling at the selected close check setting.
Close Check	Linear	In multifunction diagnostic, a linear drive door s switches show it in the close check zone.
Close Check Timeout	Linear	During closing, close cushion condition not encountered when expected.
Close Cushion	Both	Door is almost fully closed and is traveling at the selected close cushion setting.
Close Cutoff	Linear	In multifunction diagnostic, a linear drive door s switches show it at the close cutoff position.
Close Speed	Both	Door is traveling at the selected close speed setting.
Close Speed Timeout	Linear	During closing, close check condition not encountered when expected.
Cls Accel Pulse Loss	Belt	Cessation of encoder pulses unexpectedly encountered during close accelerate portion of close cycle.
Cls Check Pulse Loss	Belt	Cessation of encoder pulses unexpectedly encountered during close check portion of close cycle.
Cls Speed Pulse Loss	Belt	Cessation of encoder pulses unexpectedly encountered during close speed portion of close cycle.
Cmon	Both	During multifunction diagnostic, this is displayed if close monitor/partial open switch input contact is present.

20. APPENDIX - B Cont

Status Messsages C3150 Control V15.00.00 Cont

MESSA E	DOOR T PE	DESCRIPTION
Control is Locked	Both	A set password is preventing an attempt was made to access diagnostics or setup mode following control reset.
Counter Cleared	Both	A Clear Counter request has been successfully processed. The user resettable cycle counter has been set to 0 .
Cycle Test Mode	Both	Displays when Cycle Test parameter has been turned on. Door will self cycle open and closed, with an approximate two (2) second pause at full close before next cycle self-initiates. Used for test purposes only.
Cycles:	Both	Total opening cycles (including recycles) since cycle counter was last reset.
Diagnostics Menu	Both	Informative message that the diagnostics menu has been entered.
Data Saved	Both	Site specific parameters and/or user data have been successfully stored in control s permanent memory.
Day 1-Way, Day 1-Way Partial	Both	Door is idle and is in day 1-way mode. Message is followed by Partial if partial open mode is also enabled.
Day 2-Way, Day 2-Way Partial	Both	Door is idle and is in day 2-way mode. Message is followed by Partial if partial open mode is also enabled.
Day Mode Ready	Both	Logged message only, control is idle in day mode state.
Door Mid Stroke	Linear	During multifunction diagnostic, this is displayed if no microswitches are tripped on a linear drive door type.
Door Off (User)	Both	Door has been placed in the menu (off) mode by user interface or remote serial command.
Door Off (Tech)	Both	Door has been placed in the menu (off) mode by technician (double click of SET button).
Door Position	Belt	When displayed within a data log entry, this is the position of a belt drive door (in pulses) at which the event occurred.
Door Stopped	Both	Door has been stopped by local or remote stop command and will restart automatically when stop command clears.
Drive:	Both	In multifunction diagnostic, this is followed by the motor voltage and current.
EEPROM Failure	Both	Internal failure, replace control.
Encoder:	Belt	In multifunction diagnostic, this is followed by the current door position (in pulses).
Encoder Failure	Belt	Insufficient encoder pulses unexpectedly encountered. Reported at the end of an attempted open cycle.
ERROR	Both	An error of some type has occurred.
Exiting Diagnostics	Both	Informative message when control is exiting diagnostic mode. Normal operation will resume.
Ext Sensor On 60s	Both	Warning message, exterior sensor has been on continuously for over 60 seconds.
Ext Sensor Test Fail	Both	Exterior sensor reported failure when self-test was requested by control.
Fail Safe Lock	Both	During setup, a fail safe lock has been detected when a control query was made.
Fail Secure Lock	Both	During setup, a fail secure lock has been detected when a control query was made.
Lock Failure	Both	The autolock has failed to successfully lock following a request to do so.
Failed To Unlock	Both	The autolock has failed to successfully unlock following a request to do so.
First Close Paused	Belt	Progress of First Close routine has been halted by some type of actuating or safety device input.
First Close Run	Belt	Control is learning fully closed/home position following startup or initiation of Learn cycle.
First Open Run	Belt	Control is learning fully open position during Learn cycle.
Full Open	Both	Logged message only, door is at full open position.
Hobbs:	Both	Total opening cycles (including recycles). Not field resettable.
Hold: Interior Motion	Both	Door is at full open position and is being held open by the indicated device.

20. APPENDIX - B Cont

Status Messsages C3150 Control V15.00.00 Cont

MESSA E	DOOR T PE	DESCRIPTION
Hold: Interior Prsnc	Both	Door is at full open position and is being held open by the indicated device.
Hold: Exterior Motion	Both	Door is at full open position and is being held open by the indicated device.
Hold: Exterior Prsnc	Both	Door is at full open position and is being held open by the indicated device.
Hold: Aux Actuate	Both	Door is at full open position and is being held open by the indicated device.
Hold: DOWN Button	Both	Door is at full open position and is being held open by the indicated device.
Hold: Safety Beam	Both	Door is at full open position and is being held open by the indicated device.
Hold: Com Channel	Both	Door is at full open position and is being held open from a remote location (communications port).
Home Position Pending	Belt	In a belt drive system with NO close monitor switch, shows that stroke is not yet confirmed. Slow speed operation only.
Illegal Instruction	Both	An internal failure or programming error has issued an illegal instruction to the microcontroller. Consult factory.
Int Sensor On 60s	Both	Warning message, interior sensor has been on continuously for over 60 seconds.
Int Sensor Test Fail	Both	Interior sensor reported failure when self-test was requested by control.
Learn Cycle Complete	Belt	Learn cycle successfully completed and data stored. Control is ready for regular operation.
Learning Rev Peak	Both	Control is learning maximum motor current sampled during close accelerate portion of close cycle.
Learning Rev Sens	Bolt	Control is learning maximum motor current sampled during close speed and close check portions of close cycle.
Learning Stroke	Belt	Control is learning encoder count during Learn cycle.
LKMon	Both	In multifunction diagnostic, this is displayed if the lock monitor contact is triggered.
LOCK	Bolt	In multifunction diagnostic, this is displayed if the lock is being triggered (SET button is pushed).
Log Cleared	Both	A Clear Log request has been successfully processed and the data log is purged.
Log is Empty	Both	The data log is empty and there are no items to display.
Motor Drive Failure	Both	An internal failure has occurred and the control is not supplying motor drive energy. Replace control.
Motor Failure	Both	Motor drive energy is being supplied, but the motor is not responding. Check motor and replace if necessary.
Multifunction Test	Both	Diagnostic menu item, press SET to enter Multifunction Test.
Night 1-Way, Night 1-Way Partial	Both	Door is idle and is in night 1-way mode. Message is followed by Partial if partial open mode is also enabled.
Night 2-Way, Night 2-Way Partial	Both	Door is idle and is in night 2-way mode. Message is followed by Partial if partial open mode
Night Mode Ready	Both	Logged message only, control is idle in night mode state.
No Cls Speed Harness	Linear	Close speed microswitch(es) missing or defective, detected and reported when door begins closing.
No Lock Detected	Both	During setup, no lock was detected when a control query was made.
No Opn Speed Harness	Linear	Open speed microswitch(es) missing or defective, detected and reported when door begins opening.

20. APPENDIX - B Cont

Status Messsages C3150 Control V15.00.00 Cont

MESSA E	DOOR T PE	DESCRIPTION
No Switches Found	Linear doors.	During multifunction diagnostic, this is displayed if no microswitch harness is detected on linear drive
Not For Belt Drives	Belt	Rholix block setting test cannot be executed if control is currently set for a belt drive door type.
Obst (Beam)	Both	The external safety beam has recycled the door during its closing cycle.
Obst (CAcl I)	Both	Motor current over the predetermined threshold has recycled the door during its closing acceleration routine.
Obst (CChk I)	Both	Motor current over the predetermined threshold while within the close check zone has recycled the door.
Obst (CChk LOP)	Both	An unexpected cessation of encoder pulses within the close check zone has recycled the door.
Obst (CSpd I)	Both	Motor current over the predetermined threshold while within the close speed zone has recycled the door.
Obstruction Stop	Both	Obstruction encountered while opening, door temporarily halted. Operation automatically resumes at check speed.
Off	Both	In menu mode, the parameter currently displayed is disabled.
On	Both	In menu mode, the parameter currently displayed is enabled.
Open Accelerate	Both	Door is accelerating from zero velocity to selected open speed setting.
Open Check	Both	In normal operation, door is traveling at the selected open check setting.
Open Check	Linear	In multifunction diagnostic, a linear drive door s switches show it between the open check and open cutoff positions.
Open Check Timeout	Linear	During opening, open cushion condition not encountered when expected.
Open Cushion	Both	Door is almost fully open and is traveling at the selected open cushion setting.
Open Cutoff	Linear	In multifunction diagnostic, a linear drive door s switches show it at the open cutoff position.
Open Resume	Both	Sidelight protection has cleared. Door has resumed normal open speed.
Open Resume (Partial)	Belt	Sidelight protection has cleared. Door has resumed normal open speed and is traveling to partial open position.
Open Speed	Both	Door is traveling to open position at the selected open speed setting.
Open Speed (Partial)	Belt	Door is traveling to partial open position at the selected open speed setting.
Open Speed Timeout	Linear	During opening, open check condition not encountered when expected.
Opn Accel Pulse Loss	Belt	Cessation of encoder pulses unexpectedly encountered during open accelerate portion of open cycle.
Opn Check Pulse Loss	Belt	Cessation of encoder pulses unexpectedly encountered during open check portion of open cycle.
Opn Speed Pulse Loss	Belt	Cessation of encoder pulses unexpectedly encountered during open speed portion of open cycle.
Partial Open	Both	Logged message only, door is at partial open position.
Password:	Both	Control is requesting technician to enter the set password before menu may be accessed.
Password Bad: Turn Door On to Restart	Both	Entered password does not match set value. Technician must cycle on/off contact before trying again.
Press SET to Accept	Both	Press SET to accept the value shown on the screen.
Read Counters	Both	Diagnostic menu item, press SET to read cycle and Hobbs counters.
Read Log	Both	Diagnostic menu item, press SET to read data log.
Recycl (Aux Act)	Both	Door was recycled during closing by auxiliary input.
Recycl (Beam)	Both	Door was recycled during closing by safety beam.
Recycl (Com)	Both	Door was recycled during closing by communications port.
Recycl (Down)	Both	Door was recycled during closing by local (DOWN) button.
Recycl (Ext Sensor)	Both	Door was recycled during closing by exterior sensor.
Recycl (Fire Input)	Both	Door was recycled during closing by fire alarm.
Recycl (Int Sensor)	Both	Door was recycled during closing by interior sensor.
Replace Control	Both	A fatal error has occurred. Replace control.
Returning To Menu	Both	A diagnostic test has been exited and the control is returning to the main diagnostics menu.

20. APPENDIX - B Cont

Status Messsages C3150 Control V15.00.00 Cont

MESSA E	DOOR T PE	DESCRIPTION
Rev Learn Complete	Both	The control has successfully learned site specific obstructin (motor overcurrent) settings.
Rev Re-Learn Enabled	Both	During next closing cycle, control will attempt to re-learn site specific obstruction (motor overcurrent) settings.
S2000 Linear	Both	Selected door type is S2000 linear (Rholix drive) type.
S2003 Belt	Both	Selected door type is S2003 belt type with current operator.
S2001 Belt	Both	Selected door type is S2001 belt type with current operator.
S2003 Belt (Early)	Both	Selected door type is S2003 belt type with earlier operator. Provided for compatibility.
S2001 Belt (Early)	Both	Selected door type is S2001 belt type with earlier operator. Provided for compatibility.
Saf Beam On 60s	Both	Warning message, safety beam sensor has been on continuously for over 60 seconds.
Saf Beam Test Fail	Both	Safety beam system reported failure when self-test was requested by control.
Select Operator:	Both	Control is requesting operator type during setup routine. Use UP or DOWN to select, then press SET.
Set Rholix Now	Linear	Control is requestion confirmation that a Rholix block setup is to be performed. Press UP to begin or DOWN to cancel.
Setup Request	Both	A setup (initialization) request has been received.
Setup - Confirm	Both	Control is requesting confirmation that a setup is to be performed. Press UP to begin setup or DOWN to cancel.
Show Supply Voltages	Both	Diagnostic menu item, press SET to show internal power supply voltages.
Starting Learn Cycle	Belt	Control is starting Learn Cycle to determine stroke and other site specific parameters.
Stop Command	Both	Door has been stopped by local or remote stop command and will restart automatically when stop command clears.
Stroke Confirmed	Belt	In a belt drive system with NO close monitor switch, shows that stroke is valid and normal speed operation will commence.
Stroke Out of Range	Belt	Stroke measured during Learn cycle is less than 12 (30.5 cm)or greater than 299 (759.5 cm).
Stroke Zeroed	Belt	A Zero Stroke request has been successfully processed. Control will automatically execute a complete Learn Cycle next time it is started.
System Boot	Both	Logged message only, occurs when control initially starts up following a power failure.
Time Delay 1	Both cycle.	Door is full open position and all open commands have ceased. Delay 1 is counting down prior to close
Time Delay 2	Both	Door is in partial open position and all open commands have ceased. Delay 2 is counting down prior to close cycle.
Total Cycles	Both	Total cycles as stored in Hobbs counter, displayed immediately after control reset or startup.
Total Stroke:	Belt	Displays measured stroke of door in both inches and centimeters.
Unlock Delay	Both	When an unmonitored lock is in use, this message displays during the unlock delay.
UP/DOWN: Find SET: Go	Both	In diagnostic menu, use UP or DOWN to find diagnostic to execute, then press SET to run it.
Version x.xx.xx	Both	Informational message, where x.xx.xx represents firmware version currently loaded into control.
V1	Both	Diagnostic item, displays value of 120V power supply.
V2	Both	Diagnostic item, displays value of 24V power supply.
V3	Both	Diagnostic item, displays value of 15V power supply.
V4	Both	Diagnostic item, displays value of 5V power supply.
Watchdog Timeout	Both	An internal failure or programming error has created a watchdog timerout condition. Consult factory.
Zero Stroke	Belt	Diagnostic menu item, press SET to zero stored stroke. Confirmation is required. Control will automatically execute a complete Learn Cycle next time it is started, if belt drive operator type is chosen.

20. APPENDIX - B Cont

Status Messsages C3150 Control V15.00.00 Cont

MESSA E	DOOR T PE	DESCRIPTION
15V Supply Failure	Both	An internal failure of the control s 15V supply has occurred. Replace control.
120V Supply Failure	Both	The control s 120V power supply is out of tolerance. Check appropriate fuse.
24V Supply Failure	Both	The control s 24V power supply is out of tolerance. Check external devices supplied by 24V control output for shorts.
Currently implemented only on belt drive door types.		

20. APPENDIX - C

Shortcuts C3150 Control V15.00.00

TASK	DOOR T PE	PROCEDURE
1. Initiate Setup	Both	Hold SET button for at least 2 seconds following a reset or power-up.
2. Initiate Diagnostics Menu	Both	Hold UP button for at least 2 seconds following a reset or power-up **or**, double-click the UP button during normal operation.
3. Standard Parameter Menu	Both	Turn OFF toggle input (if remote mode not enabled) **or**, double-click the SET button during normal operation.
4. Cycle Door	Both	Press DOWN button during normal operation.
5. Begin Cycle Testing	Both	Press and hold UP button while pressing DOWN button during normal operation.
6. Force Stroke Re-Learn	Both	Hold SET and DOWN buttons for at least 2 seconds following a reset or power-up. Does not disturb any other parameter settings.
7. Zero Stroke	Both	Hold UP, DOWN and SET buttons for at least 2 seconds following a reset or power-up. Choose Zero Stroke from the following sub-menu.
8. Show Encrypted Password	Both	Hold UP, DOWN and SET buttons for at least 2 seconds following a reset or power-up. Choose Show Code Key from following sub-menu.
9. Set Rholix Block	Linear	Hold UP and DOWN buttons for at least 2 seconds following a reset or power-up (door must be Linear Drive).
10. Re-Learn Reversing Sensitivities	Both	Double-click the DOWN button during Open-Check or Full-Open portion of door cycle. Display will confirm.

20. APPENDIX - D

Motor Test C3150 Control V15.00.00

This test is conducted to determine the resistance across the motor. A low or zero resistance will cause high current draw and damage to the control.

-Place OHM meter in range to measure :
10 to 50 Ω analog Rx1 range
R200 Ω digital.

-Unplug the motor and place probes in pins 1 and 2

-Read and record the resistance.

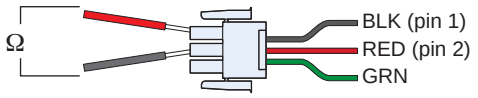
-Rotate the motor a little bit to move to the next section of the commutator.
(Feel for the brushes to make contact with the next segment on the commutator.)

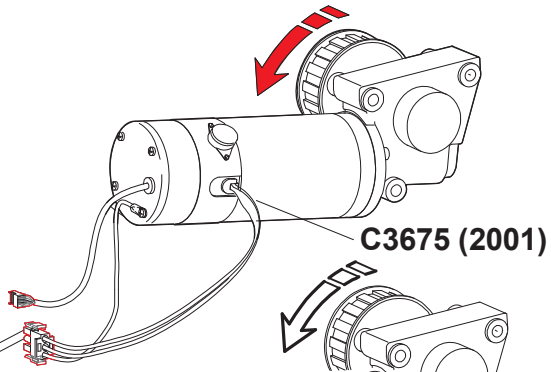
-NOTICE: a voltage will be induced into the meter when the motor is moved, so wait for the meter to stabilize before taking a reading.

-Continue taking readings for about 1/4 revolution of the output pulley. (Pulley is 8:1 ratio)

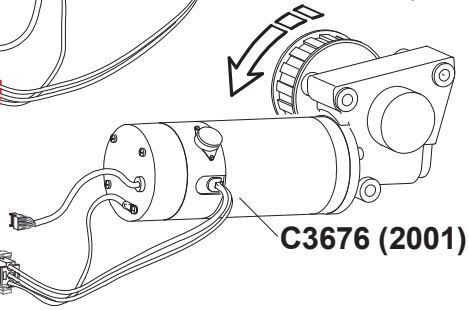
-Acceptable ranges are shown by each motor type.

NOTE: A low reading is critical and will cause damage to the control.



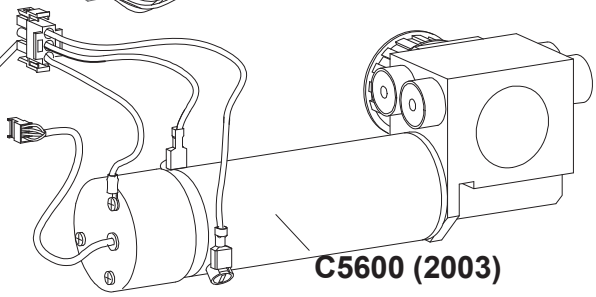


15 to 20 Ω

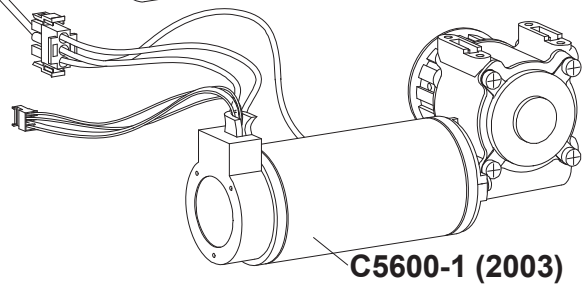


7 to 8 Ω

28 to 32 Ω



18 to 26 Ω

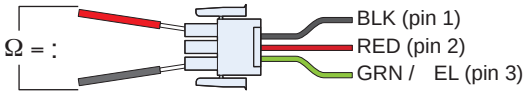


FRAME SHORT TEST

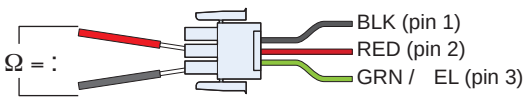
-Place the OHM meter in the range to measure at least 20,000 Ω
The meter should show infinite resistance when connected .

-Place probes in pins 1(BLK) & 3(GRN/YEL)

THEN... The meter should not move when the probes are connected.

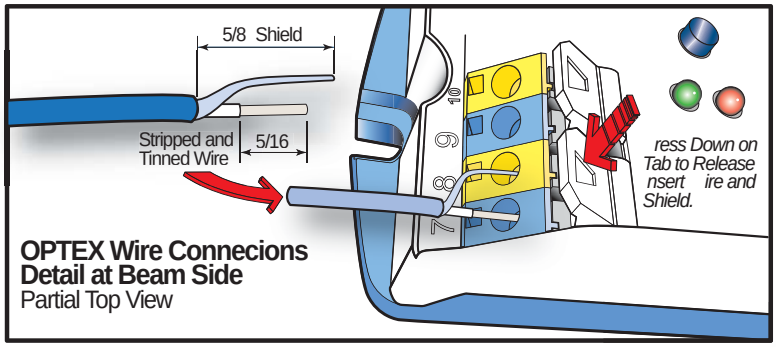


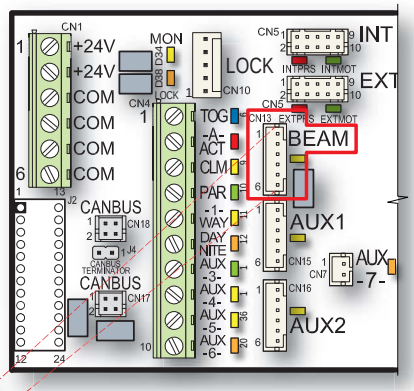
-Place probes in pins 2(RED) & 3(GRN/YEL)



20. APPENDIX - E

Belt or Linear Drives
OPTEX OS12-CT 2 Channel Photoelectric Safety Beam with Amplifier System





C3150 Control
Partial View

OPTEX Amplifier
Mounted to C1089 Bracket

6- Black
5- Red
4- ellow
3- White
2- Brown
1- Orange
Heat Shrink

1- Orange
2- Brown
3- White
4- ellow
5- Red
6- Black

14 - Gray Shield
13 - Gray Wire - Emitter

12 - Gray Shield
11 - Gray Wire - Emitter

10 - Blue Shield
09 - Blue Wire - Receiver

08 - Blue Shield
07 - Blue Wire - Receiver

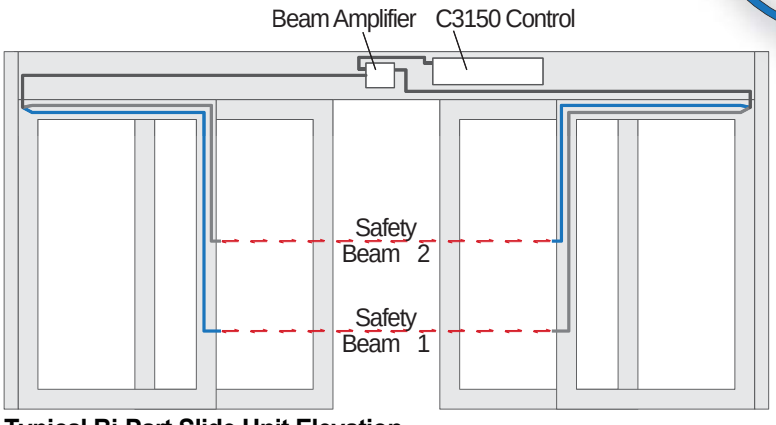
Blue Wire
Receiver

ray Wire
Emitter

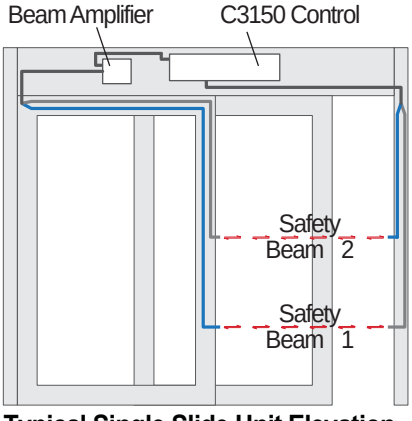
ray Wire
Emitter

Blue Wire
Receiver

Locate Beam Amplifier as close to the C3150 Control.



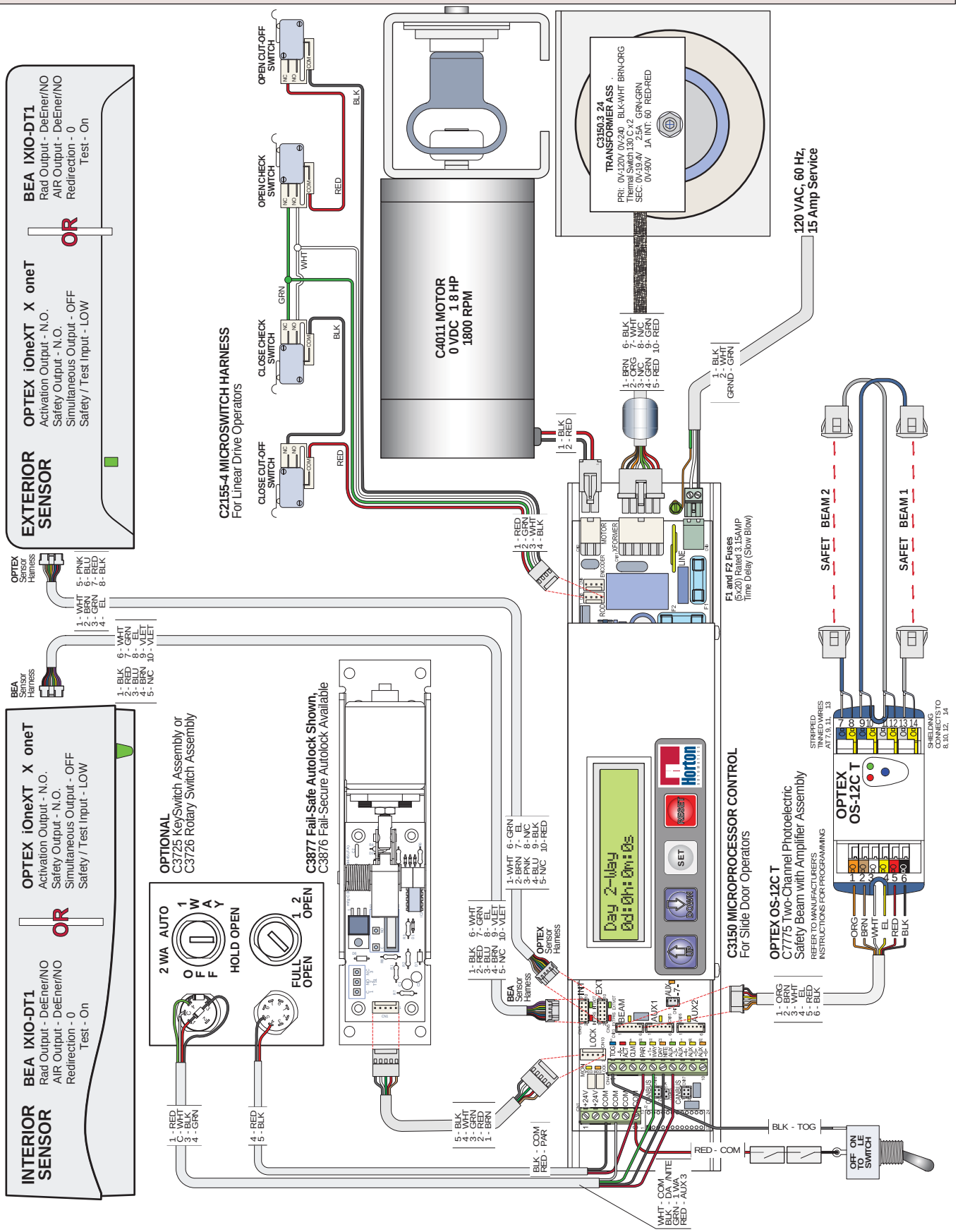
Typical Bi-Part Slide Unit Elevation



Typical Single Slide Unit Elevation

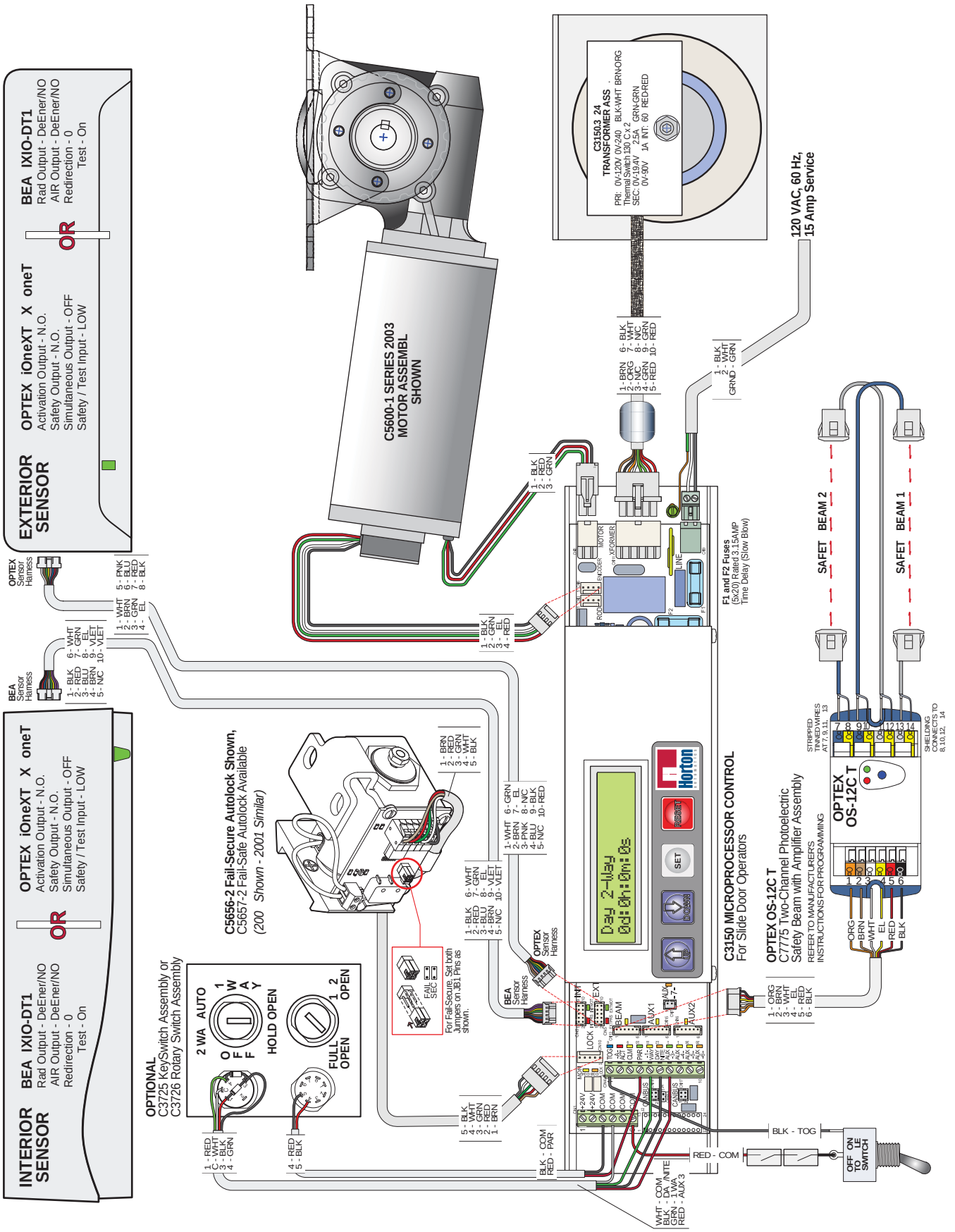
21. WIRIN DIA RAMS

Linear Drives
Diagram 1 C3150 Control with Actuating and Switch Connections



21. WIRIN DIA RAMS Cont:

Belt Drives
Diagram 2 C3150 Control with Actuating and Switch Connections



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