



C O N V E Y O R S

A DURAVANT COMPANY

# BestReach Rigid Roller Drive-Out Conveyor System

## Operator's Manual



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FMH Conveyors Operator's Manual  
BestReach Rigid Roller Conveyor

Dear Operator,

We at FMH Conveyors would like to thank you for selecting our BestReach® power conveyor system as the solution to your conveying needs.

Your BestReach® system is supported by a group of factory trained customer service representatives. They can be reached via our toll free number **1-800-327-9209**. Whether your needs require assistance from the factory or in the field, please do not hesitate to call. Our team is eager to help.

Thank you once again for purchasing our BestReach conveyor system. We look forward to fulfilling your future requirements.

Sincerely,  
FMH Conveyors



**Underwriter's Laboratories Certification Statement**

FMH Conveyors has been thoroughly tested by Underwriter's Laboratories, and have been found to meet their strict standards for Factory Automation Equipment. Our conveyors are certified to UL508 Standards when shipped from our plant. Our UL file number is E230497. All standards can be found on-line at [www.ul.com](http://www.ul.com).

ANY MODIFICATION FROM ORIGINAL FACTORY CONDITION OR REPAIRS NOT PERFORMED BY FMH CONVEYORS TECHNICIANS OR CERTIFIED CONTRACTORS MAY VOID UL CERTIFICATION.

For specific assistance regarding any UL issues, please contact your FMH Conveyors sales representative at 1-800-327-9209.

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## Specifications

Overall Extended Length	61'9"
Overall Stored Length	49'
Overall Width	33 ½"
Bed Width	29"
Shipping Weight	4,800 lbs.
Ground Clearance	12"
Left to Right Steering	10 degrees
Fixed Infeed Height	36" to 48"
Fixed Discharge Height	28" to 40"
Bed Speed	0-120 FPM
Traversing Speed	45 FPM
Traversing Drive	1 ½ HP
Capacity per Linear Foot	100 lbs.
Maximum Line Load	1,000 lbs.
Axle Centers	3" or 4 ½"
Accumulation Zone Lengths	40" to 49"
Wheels (width x diameter)	5.7" x 8"
Tires	17" Solid Rubber Tires
Rollers	1.9" x 16 gauge with precision bearings
Voltage	480V/230V
Full Load Current	7A/14A
Interlock Signals	Full Line Signal Emergency Stop

## Safety Information

- Avoid wearing excessively loose clothing when working with moving machinery.
- Keep long hair pulled up to prevent it from becoming caught in moving parts.
- Remove any obstructions from the path of conveyor.
- Make sure others move away from conveyor before moving unit or starting the bed.
- Best conveyors and their electrical systems must only be serviced by properly trained and qualified technicians.
- Never service conveyor with power applied. Always disconnect and lock out power in accordance with OSHA Regulations for the control of hazardous energy (Lockout/Tagout).
- Never operate conveyor with any electrical enclosure open.
- Conveyor equipment should only be used to convey the specified materials within the rated capacities.
- Routine inspections should be conducted to ensure that all guards and safety features function properly. (see page 6)

## Warranty Statement

Your Best conveyor is protected by our premier warranty. Best Conveyors will replace, free of charge, parts that are damaged during the course of normal operation due to material or workmanship defects. This warranty extends for a period of two (2) years on all mechanical components and one (1) year on all electrical components (measured from the date you took possession of your conveyor.)

This warranty does not cover damage due to accident, misuse, abuse, and negligence. This warranty does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair/modification by anyone other than authorized Best Conveyors service personnel.

For specific warranty information or assistance, please contact your Best Conveyors sales representative at 800-327-9209.

## Maintenance Schedule

The BestReach Rigid Roller Conveyor is designed to be virtually maintenance free. We do recommend that you regularly inspect the unit to ensure proper operation of mechanical and safety systems.

### **Daily:**

- Make sure all guards and caution decals are in place and secure.
- Keep the conveyor clean and free of debris, dirt and grease accumulation.
- Test all Emergency Stop switches and Bumper Stop Switches to verify proper operation.
- Ensure photoeyes are clean and unobstructed.
- Clean floor track of debris or other objects that may interfere with electrical cable carrier.

### **Weekly:**

- Inspect roller drive belts for wear. Replace excessively worn belts.
- Verify the Extend and Retract Limit Switches stop the conveyor at both ends of travel.
- Check drive chain tension.
- Test conveyor pull-out extension brake. Adjust as needed.
- Inspect the electrical cable carrier running in floor track for damage from foreign objects.

### **Annually:**

- Inspect conveyor bed DC motor brushes. Replace as needed.

## Maintenance Schedule, Motors

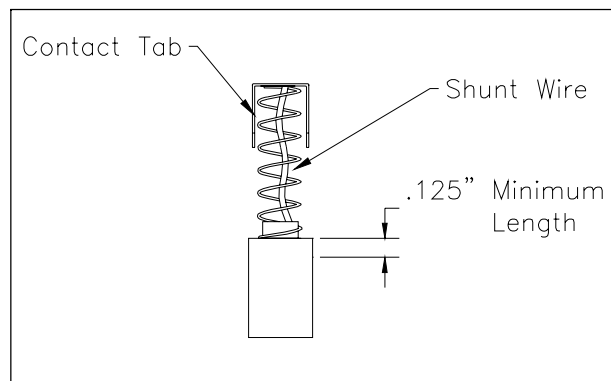
### DC Motor Brush Maintenance

All motors used to power the conveying surfaces of the Best Reach Rigid Roller and Best Flex conveyors are DC permanent magnet motors. These motors have a pair of serviceable brushes that wear with use. Brush life is affected by the speed of the motor, the loads being conveyed, the number of start-stop cycles and other factors. Therefore, brush life will vary from application to application.

To ensure long motor life, brush inspection should be included in the normal maintenance schedule of the conveyor. Brushes should be periodically removed, visually inspected and measured.

The brushes are accessed by removing the two caps on the end of the motor opposite of the gearbox (see photo 1 on page 8). With the cap removed, the brush may be removed from its holder by pulling on the spring. Visually inspect the brushes for chips or grooves. The shunt wire should not be frayed or broken. The brush should be replaced if it measures 0.125 inches or less as shown in Figure 1. Possible armature damage could result from running the brushes beyond this wear point.

When being installed, the brush should slide freely into the holder. The brass contact connected to the top of the spring should be installed so its tabs are aligned with the motor shaft (photo 2). One tab should be facing the rear of the motor and the other tab toward the front. The tabs should go easily into the brush holder. Do not over tighten the plastic cap that holds the brush in place.



**Figure 1**

(continued)

## Maintenance Schedule, Motors (cont.)



Photo 1: Typical Brush Location



Photo 2



## Installation

### Unloading Units

- 1) Upon arrival all conveyors will be secured with wood blocks mounted to the trailer floor. All wood blocks must be removed prior to moving the conveyors.
- 2) **Warning:** Conveyors must not be picked up utilizing forks on the rear of the unit. Failure to adhere to this warning may cause damage to the main electrical panel on the back of the unit, or the electrical connections coming into this panel. This damage will not be covered under warranty.
- 3) To unload, the unit may be either manually pushed from the front of the conveyor, or by utilizing a lifting strap placed around the rear frame of the conveyor and attached to a forklift. If using the strap method, make sure that the strap does not come in contact with any electrical wiring under the conveyor.
- 4) The steering actuator on the front axle of the conveyor has been disconnected for ease of movement. When using either unloading method, someone must manually steer the front of the unit to prevent damage to the front control panel.

### Installation

*Installation should only be performed by Best Conveyor Installers or qualified personnel, and must be completed in accordance with all applicable codes and regulations.*

- 1) Locate and mark the center of the spur. Chalk a line from the dock leveler back approximately 50 feet. Measure 2 inches off each side of the centerline, this will give you the inside dimension on track placement location, 5 inches off the center will give you the outside line placement. NOTE: It might be helpful to cut 2, 4-inch blocks. Center these blocks on your chalk line at the front and back of each piece of track, so that you have 2 inches on either side of the line. Proceed to assemble the track as instructed below.
- 2) Mark location for the front of floor track as shown on supplied application specific drawing (if you do not have this drawing, please contact the factory.)
- 3) Locate and position the individual pieces of floor track as shown on drawing A.
- 4) Assemble the rear sections of floor track as shown in drawing B.
- 5) Position and anchor floor track starting with the front and aligning the inside edge with the 2-inch or 5 inch measure out, or utilize your cut blocks for this placement.
- 6) Pull 2 lengths of SO cable (50' 18/10 and 60' 14/4) through flexible wire carrier.
- 7) Attach the included connection brackets to each end of the flexible wire carrier. These parts and hardware are shown in Drawing C on page 14.
- 8) Feed both lengths of SO cable under rear wire cover (C channel illustrated in Drawing B on page 13 Item # 7) exposing approximately 10" at the rear of the floor track. Attach the flexible carrier to the wire cover (C channel).
- 9) Install 2 cord grips (not included) in 7/8 holes of 8x6x5 junction box that is provided.

(continued)

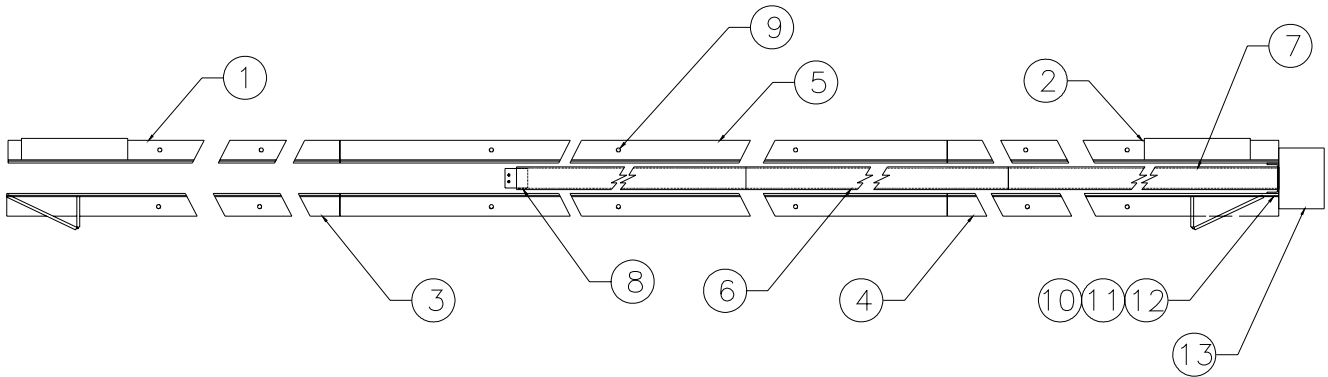
## Installation (cont.)

- 10) Feed Approximately 10" of the SO cables through the cord grips and install junction box on floor toward the rear of the floor track. Box should be held off the ground utilizing Uni-strut or some other suitable material. This material is not included and will need to be provided by the installer.
- 11) Pull slack cable through the opposite end of the flexible wire carrier.
- 12) Lay flexible wire carrier flat in the floor track.
- 13) If the conveyor is going to be installed from the dock end of the floor track, the stop bar must be removed from the conveyor. If the conveyor is to be installed from the rear of the floor track, the stop bar and the UHMW guide roller must be removed from the conveyor.
- 14) Roll the conveyor into position on guide track and re-install stop bar and guide roller.
- 15) Connect Flexible wire carrier to the underside of the conveyor.
- 16) Route and secure 14/4 SO cable into main electrical enclosure box and terminate as shown in Diagram B on page 21, connecting to the L1, L2, L3 and ground contacts.
- 17) Route and secure 18/10 SO cable into 12" x 12" box, and terminate as shown in Diagram A on page 20.
- 18) Terminate wires from both SO cables in the floor junction box as shown on page 18. Supply line voltage, as shown on the nameplate to 14/4 SO cable junction in floor track junction box. This line voltage must be connected to a separate fused disconnect rated at no more than 15 amps. This connection is shown as an option on page 19, or may be provided by the installer. Conduit, straps, wire, hardware, etc. that are used to connect the floor track box to the disconnect must be provide by the installer. All wires that are pulled must be labeled to correspond to those in the floor track box. The remaining 18/10 SO cable wires are interlock connections and should be connected as shown in the optional disconnect stand drawing on page 19. Connect applicable interlock wires to 18/10 SO cable in 8 x 6 x 4 junction box.
- 19) Remove chain guard and install and tension the chain.
- 20) Install the Herringbone transition to the end of the fixed feeder conveyor.
- 21) If purchased, install the full-line read assembly to the rear of the Transition plate as shown on page 71-72. The wheel bracket should be attached to the plate and the wheel should ride on the conveyor bed. When assembling the wheel bracket, be sure not to over tighten this assembly. The wheel should roll freely within the bracket.
- 22) Electrical connections to the proximity switch on the full-line read must be made as shown on page 74. The wire from the switch must be secured to the transition using standard wire ties. Be sure to leave a little slack in this wire, so that it is not pulled too tight. The box for this connection is not included and must be provided by the Installer.
- 23) The power and signal wire must then be routed back to the disconnect stand and secured to their corresponding numbers on the terminal strip. These wires must be ran in some type of electrical conduit, which is normally attached to the fixed feeder conveyor. Conduit, straps, wires etc. are not included and must be provided by the installer. These wires also must be numbered to correspond with the listed numbers on the drawing on page 19.

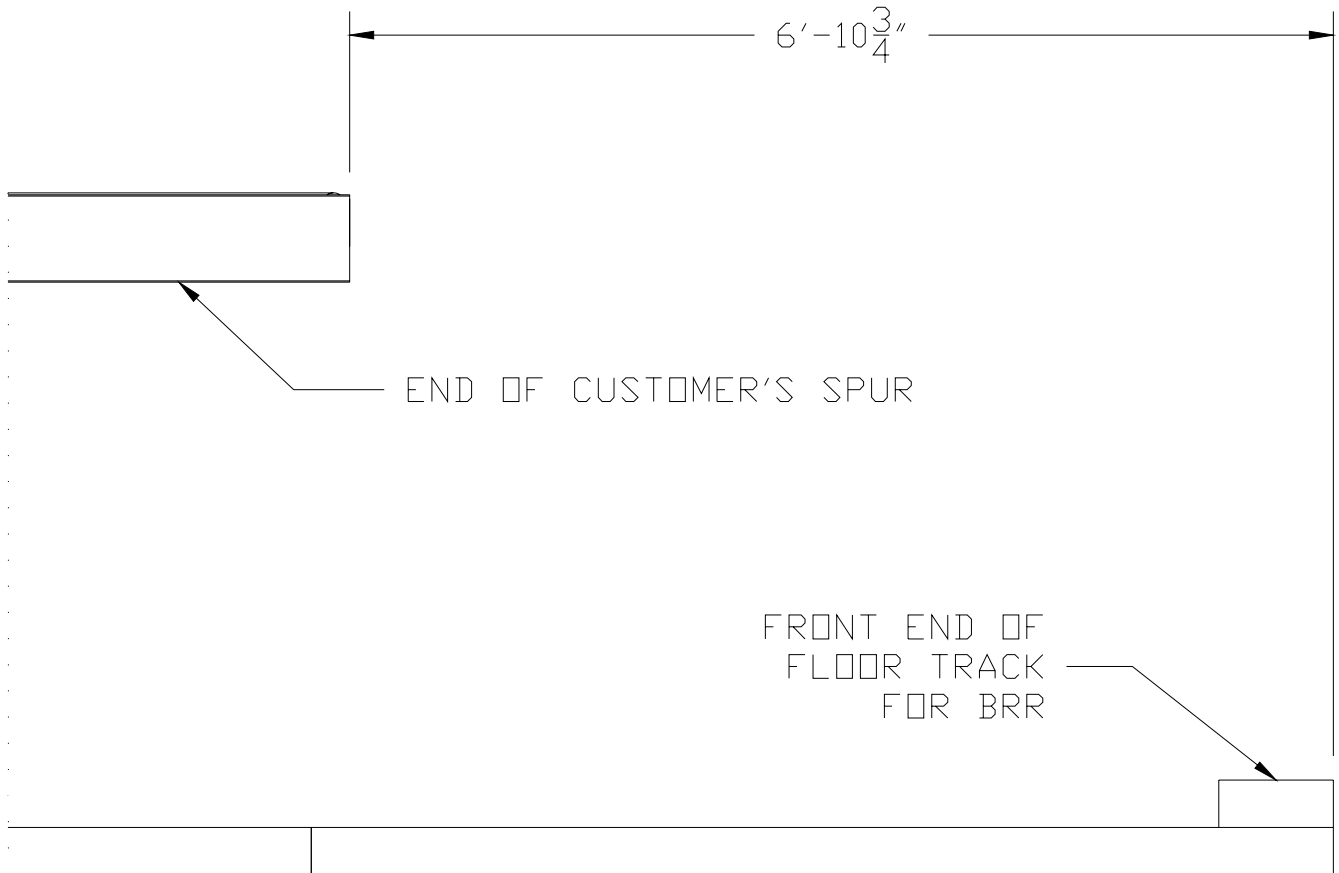
## Drawing A

### Floor Track Assembly

NO.	PART NUMBER	REQ'D	DESCRIPTION
1	750023	1	WT. FRONT RIGHT, FLOOR TRACK
2	750024	1	WT. REAR RIGHT, FLOOR TRACK
3	750020	1 </td <td>WT. FRONT LEFT, FLOOR TRACK</td>	WT. FRONT LEFT, FLOOR TRACK
4	750022	1	WT. REAR LEFT, FLOOR TRACK
5	350166	8	FLOOR TRACK, 86" SECTION
6	350204	1	CHANNEL, WIRE CABLES
7	750025	1	WT. REAR CHANNEL, WIRE CABLES
8	750026	1	WT. FRONT CHANNEL, WIRE CABLES
9	10565	28	BOLT ANCHOR 3/8-16 X 3 3/4"
10	12020	4	FLAT WASHER 3/8"
11	11140	4	LOCKNUT 3/8-16 NYLON
12	10042	4	SCREW, HHC, 3/8-16 X 1"
13	400092	1	ASSEMBLY ELECT. FLOOR TRACK



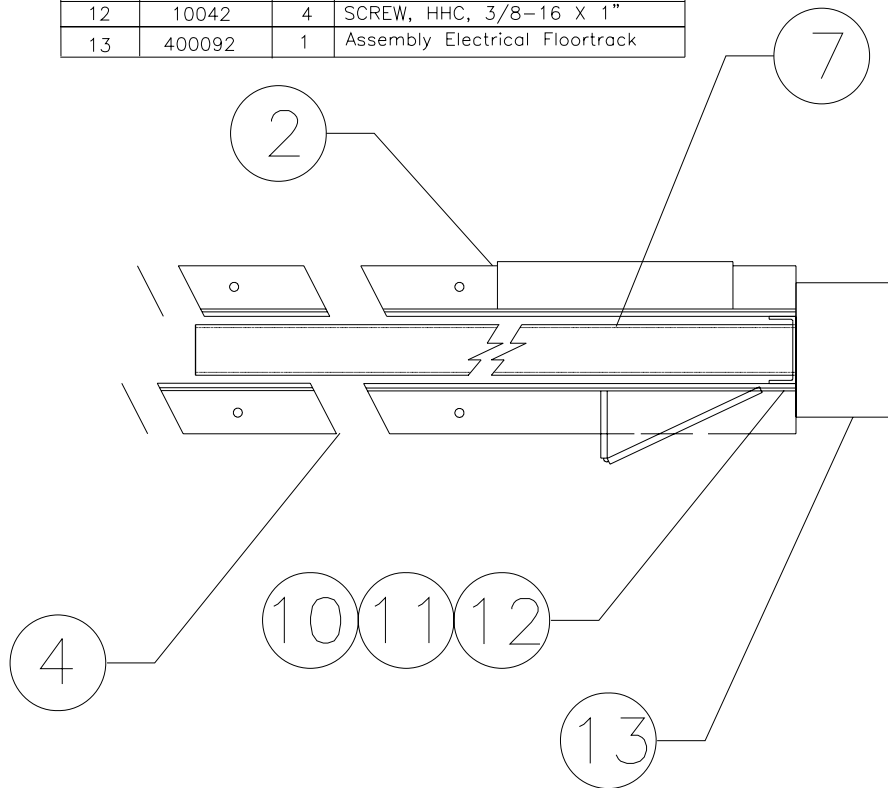
### Floortrack (front location from spur)



## Drawing B

### Floor Track Assembly

NO.	PART NUMBER	REQ'D	DESCRIPTION
2	750024	1	WT. REAR RIGHT, FLOOR TRACK
4	750022	1	WT. REAR LEFT, FLOOR TRACK
7	750025	1	WT. REAR CHANNEL, WIRE CABLES
10	12020	4	FLAT WASHER 3/8"
11	11140	4	LOCKNUT 3/8-16 NYLON
12	10042	4	SCREW, HHC, 3/8-16 X 1"
13	400092	1	Assembly Electrical Floortrack

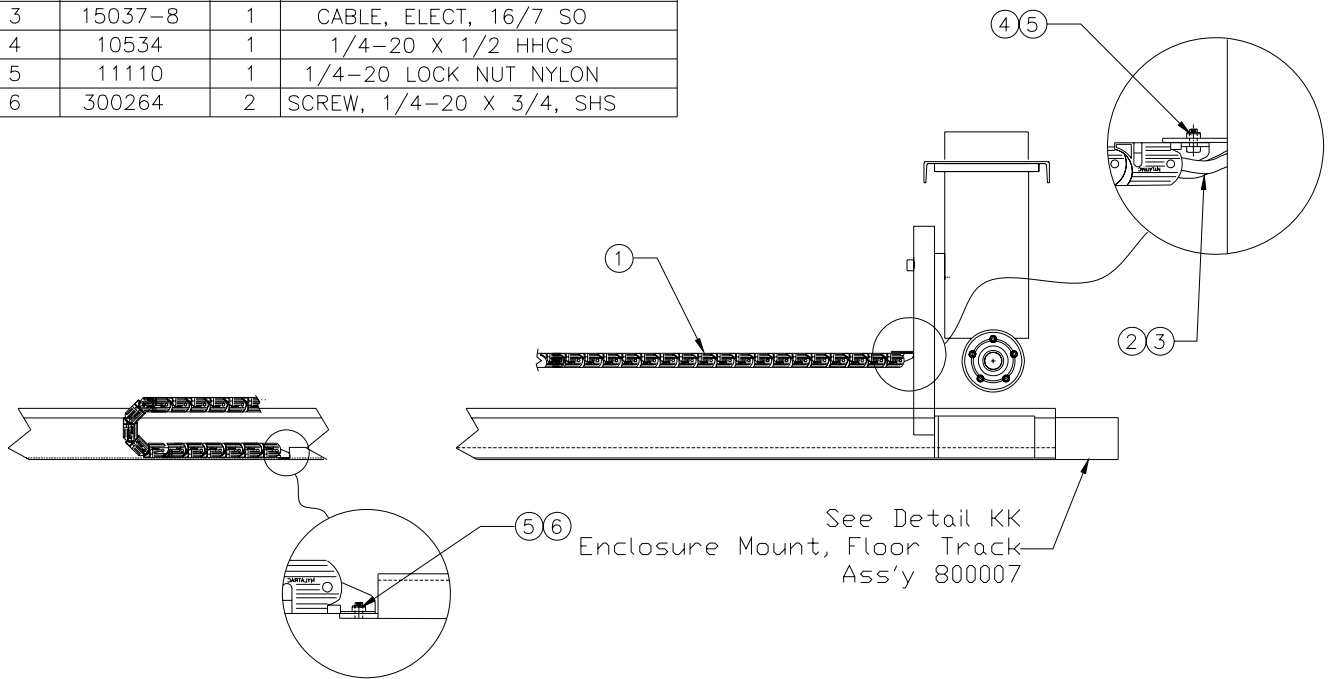


Refer to Drawings  
C and D

## Drawing C

### Floor Track, Electrical Assembly

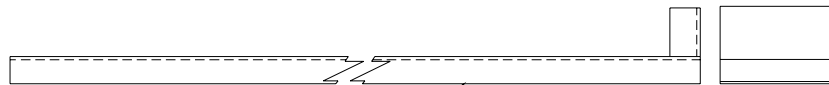
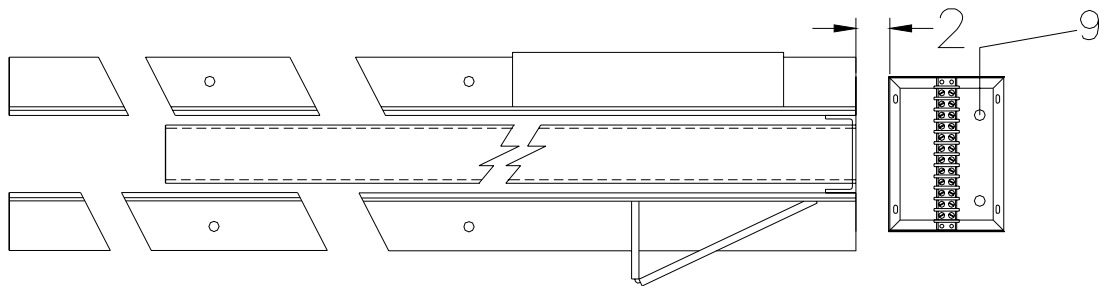
NO.	PART NUMBER	REQ'D	DESCRIPTION
1	300150	1	NYLATRAC, FLOORTRACK
2	15037-2	1	CABLE, ELECT, 14/4 SO
3	15037-8	1	CABLE, ELECT, 16/7 SO
4	10534	1	1/4-20 X 1/2 HHCS
5	11110	1	1/4-20 LOCK NUT NYLON
6	300264	2	SCREW, 1/4-20 X 3/4, SHS



## Drawing D

### Floor Track, Enclosure Mount

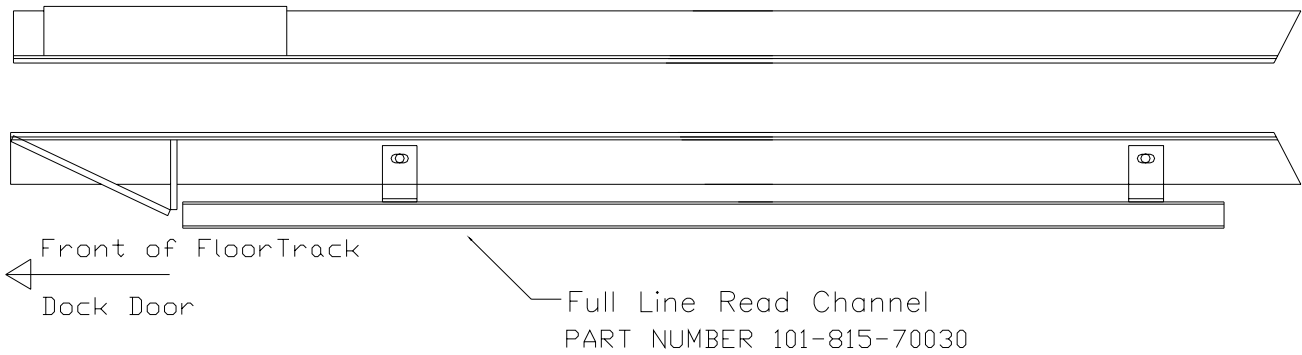
NO.	REQ'D	PART #	DESCRIPTION
9	2	10565	ANCHOR BOLT



WT. REAR CHANNEL,  
 WIRE CABLE, 101-808-07005

## Full Line Read Channel Placement

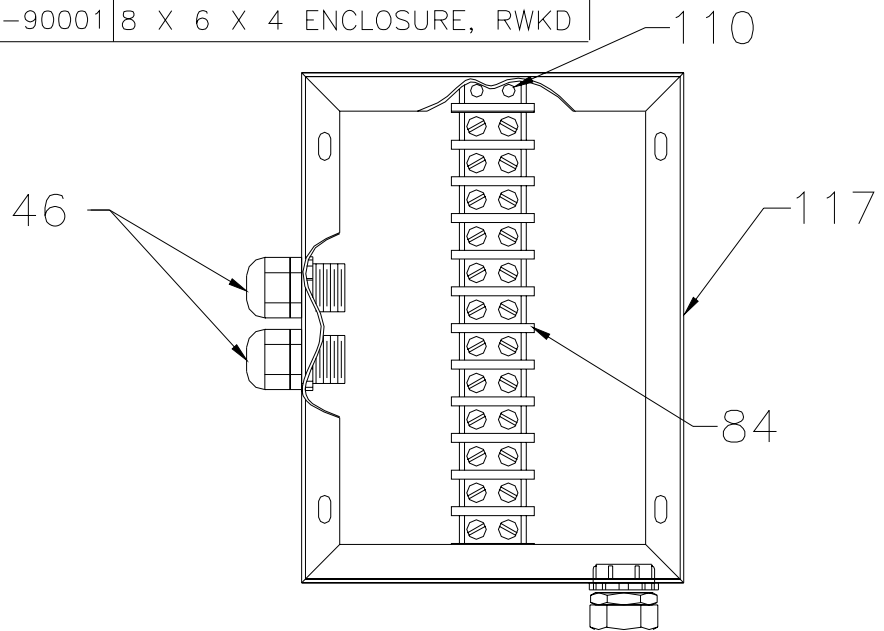
### Full Line Read Channel Placement



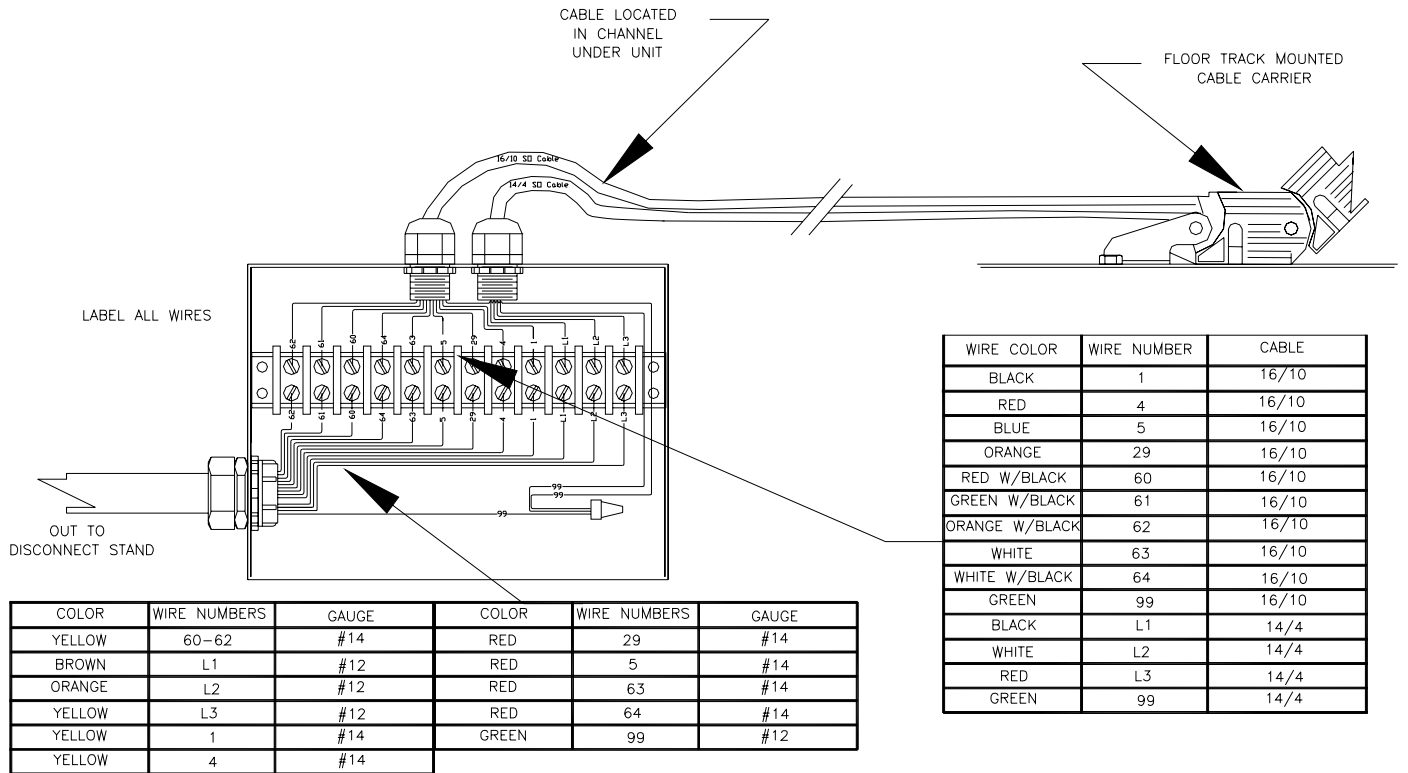


## Components, Electrical, Floor Track

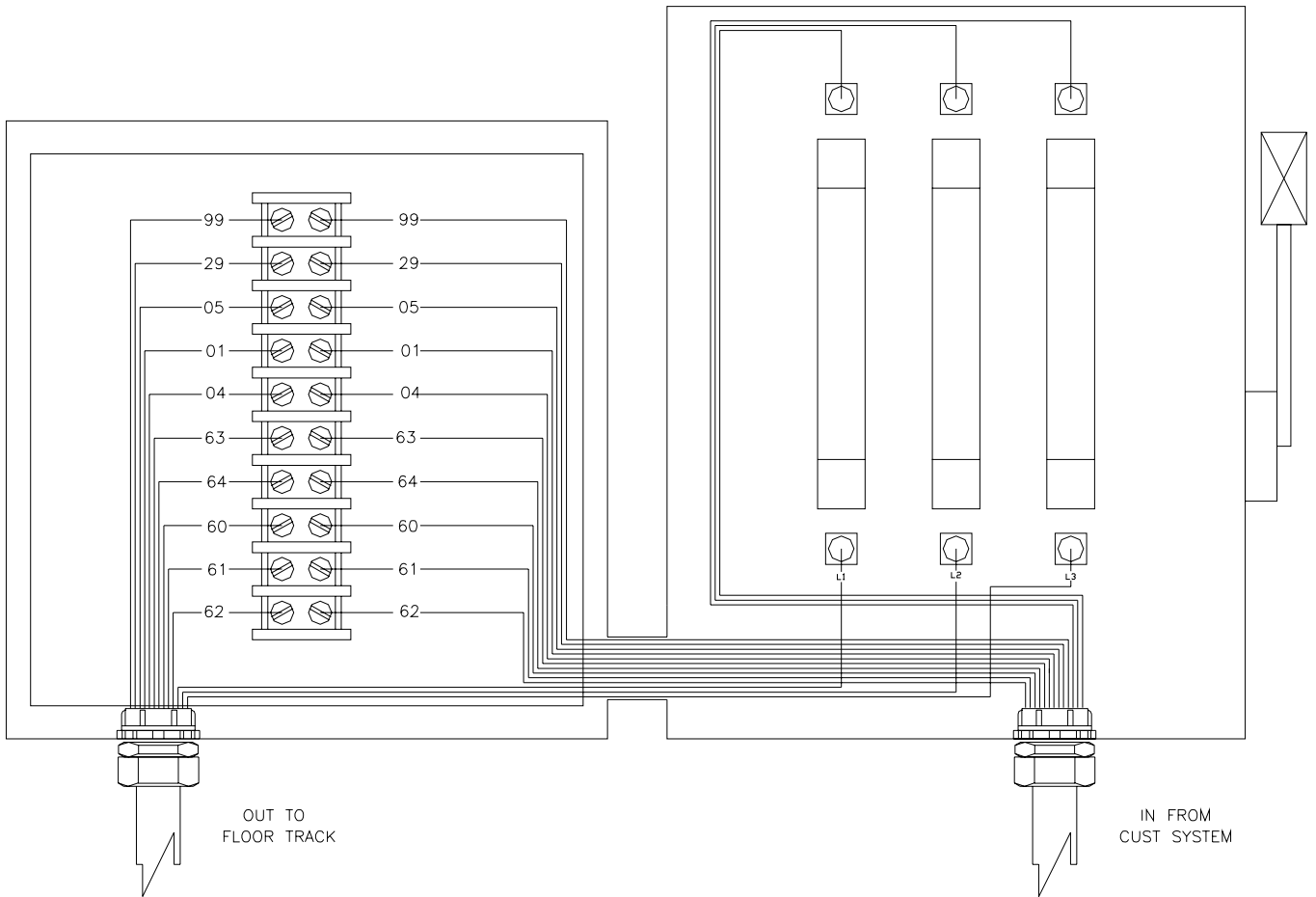
NO.	REQ'D	PART #	DESCRIPTION
46	2	300115	1/2" STRAIN RELIEF
84	1	300089	12 POS. TERMINAL BLOCK
110	2	300098	8-32 X 1/2 MACH. SCREW
117	1	101-808-90001	8 X 6 X 4 ENCLOSURE, RWKD



## Floor Track Junction Box, Front

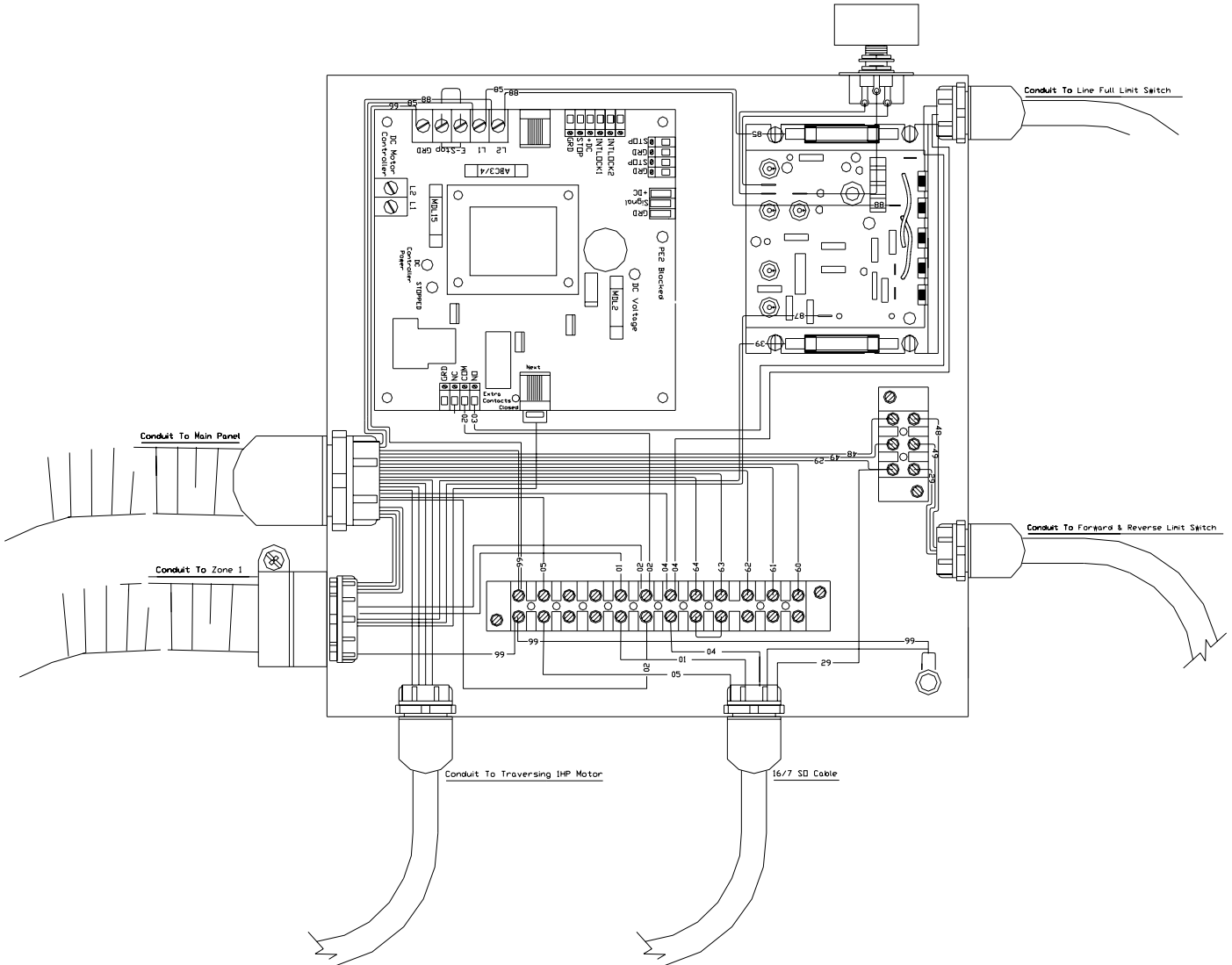


## Optional Disconnect Stand

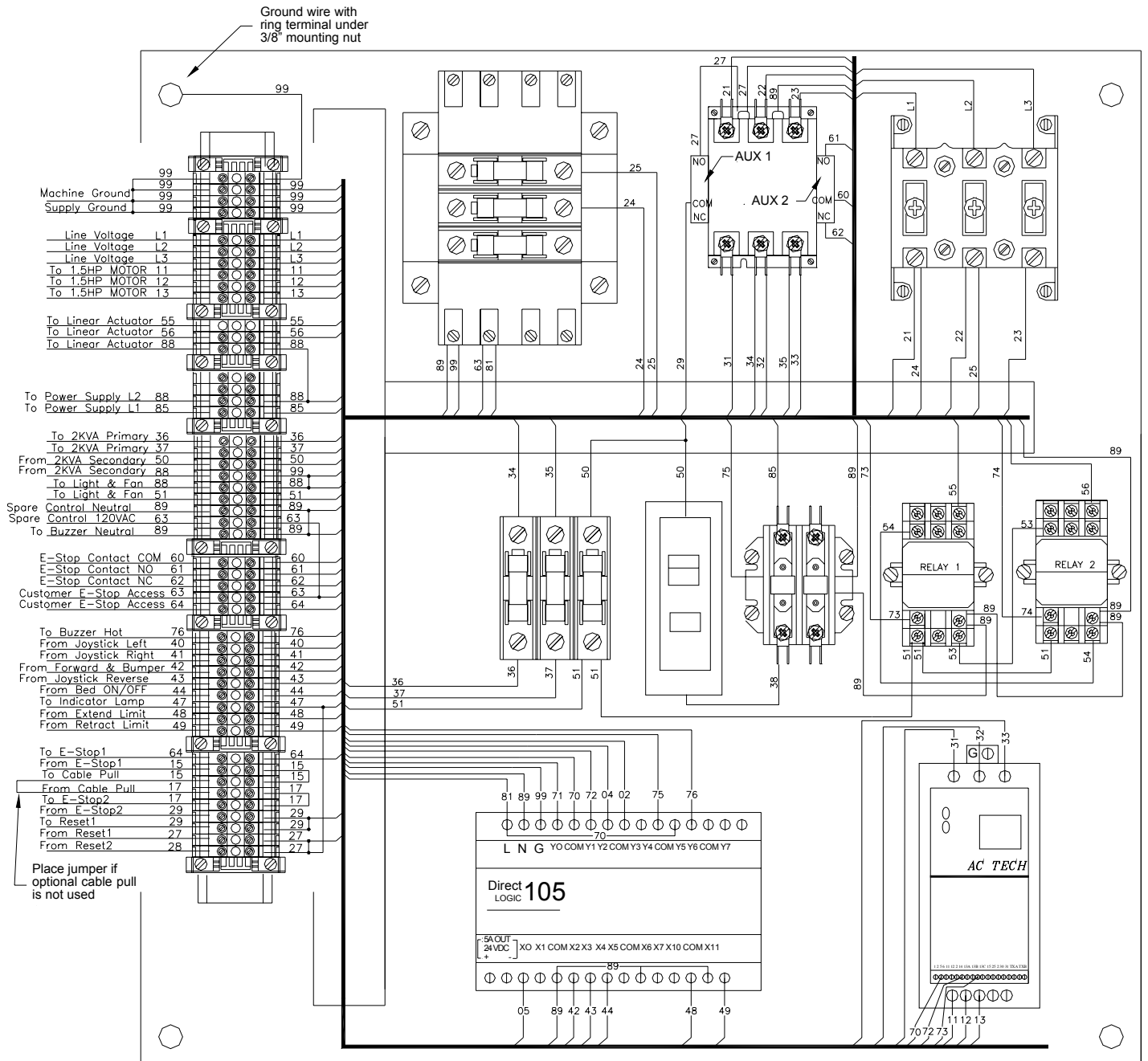


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# Diagram A



# Diagram B



## Operating Instructions

An emergency stop circuit controls electrical power to all parts of the conveyor. When any one emergency stop switch or optional cable pull switch is activated, power is removed from all motors and actuators stopping all movement of the conveyor frame and roller bed. All electrical power is also removed from the motors and actuators when the DOOR DISCONNECT HANDLE is in the OFF or OPEN positions.

### **ENERGIZE THE MASTER CONTROL CIRCUIT:**

- Make sure the door to the main electrical enclosure is closed and the DOOR DISCONNECT HANDLE is in the ON position.
- Both EMERGENCY STOP switches (one on the door of the MAIN CONTROL PANEL and one on the OPERATOR'S PANEL) must be in their out position. If depressed, twist the switch's knob to allow it to return to the out position.
- If the optional CABLE PULL stop switches are installed, both must have their RESET BUTTON depressed and the cable pulls tensioned in their RUN position.
- Press either RESET button (one on the door of the MAIN CONTROL PANEL and one on the OPERATOR'S PANEL) to energize the master control circuit. The CONTROL POWER INDICATOR light will be on when this circuit is energized.

### **MOVE CONVEYOR INTO POSITION:**

- Make sure the operator is the only person near the conveyor before moving it.
- Make sure there are no obstructions in the path of the conveyor.
- Push the joystick (located on the OPERATOR'S PANEL) down to drive the unit forward into a truck. A bumper bar is provided on the discharge end of the conveyor to stop the forward travel if there is an obstruction in the path of the conveyor. Forward travel will stop when this bumper is depressed. The unit will still drive in reverse with this bumper depressed. Pulling the joystick up will drive the unit in reverse toward its parked position. Pushing the joystick to the operator's left will steer the unit to the left when it is traveling forward toward the dock door. Right will move the conveyor right when traveling forward.
- Releasing the joystick will stop the conveyor's movement.

### **TURN ON CONVEYOR BED:**

- Check to make sure all personnel are away from the conveyor bed.
- Press the BED ON/OFF button on the OPERATOR'S PANEL.

### **TO STOP THE CONVEYOR BED:**

- When the bed is running , press the BED ON/OFF button on the operator's panel
- Pushing either emergency stop button will stop conveyor and traversing motor.

## AC Tech Frequency Drives

### Frequency Drive for Traversing Motor

The Best Reach Rigid Roller's traversing motor uses a 2 HP AC Tech frequency drive, model SF420 for 480V systems and model SF220 for 230V systems, to provide a soft start, programmable accel and decel times and braking.

Control wiring used for this drive is the ALTERNATE TWO-WIRE START/STOP CONTROL found on page 20 of AC Tech's SCF Series manual. In order for the drive to function properly in this mode, **a jumper must be in place between the drive's TB-2 terminals 1 and 2.** Forward and Reverse are controlled by the Best Reach's PLC relay outputs wired to the drive's TB-2 terminals 2 (common), 12 (forward) and 13A (reverse).

The AC Tech drive is field programmable. The following list shows the parameters that are programmed before being shipped with the Best Reach unit. All parameters not shown in this list remain set to the factory defaults.

### Parameter List for Traversing Motor

Parameter	Value
04	03
10	05
17	02
19	1.0
20	0.5
26	75
28	4.4
29	4.4

Frequency Setting: 60 HZ

This frequency drive has built-in over current protection. If an over current fault occurs, the drive will shut off current to the motor and will display "PF". While this error code is displayed, the conveyor cannot be driven. The frequency drive will reset itself after approximately 30 seconds. The conveyor can be driven after this reset time if the conditions that caused the fault have been removed.

## Controls

### Control Panel

Door Disconnect Removes line voltage from all motors and controls on the conveyor.

**Note:** 1) Line voltage remains on the conductors to the Door Disconnect. To remove this voltage, turn off the remote disconnect. Follow LOCK OUT/TAG OUT procedures when servicing conveyor.

2) Interlock signals wires have voltage supplied from the host conveyor system. These wires may be live with the door disconnect and remote disconnect in the off position.

Emergency Stop Stops all motion and removes power from all control devices.  
Emergency Stop Reset Energizes control relay to apply power to control devices. All emergency stops must be in the out position to reset.  
Indicator lamp Power is applied to control devices.  
Beeper Sounds before unit moves forward or reverse and before conveyor bed starts.

### Operator Panel

Emergency Stop Stops all motion and removes power from all control devices.  
Reset Energizes control relay to apply power to control devices. All emergency stops must be in the out position to reset.  
Bed Start/Stop Press once to start conveyor bed and again to stop conveyor bed.  
Joy Stick Press left to steer left, right to steer right, down to move forward and up to move reverse.  
Optional Feeder ON/OFF Stop feeder conveyor from feeding product when in the off position.

### Switches

Limit Switch LS1 Forward/Reverse Travel Stop  
Limit Switch LS2 Safety Bar Stop. Stops all forward motion when activated.

#### *Optional*

Limit Switch LS3 Full line read limit switch. Activates full line dry contact on power supply board.



## Troubleshooting: Conveyor Bed

To use this guide, find the heading that best fits your conveyor's condition and check the numbered items in the order they appear. *It is important to proceed in the order given since it is assumed at each item that all preceding items under that heading have passed inspection.*

### CAUTION:

Electrical systems should only be serviced by qualified personnel. Refer to and observe all local codes and OSHA regulations for the control of hazardous energy (LOCKOUT TAGOUT). Make sure all power has been disconnected before opening any enclosure. Keep hands and tools away from electrical circuits when power is applied.

### DIAGNOSTIC LEDs

To aid in troubleshooting, there are a number of LEDs mounted on the power supply printed circuit board (PCB) in the larger enclosure on the first leg of the system, and on each accumulation PCB in the smaller enclosures located at each motor. These LEDs are shown on the system wire connection diagrams and their meanings are listed here.

### POWER SUPPLY BOARD (LEDs AND NEON LAMP):

<b>RED</b>	<b>N/A</b>
<b>GREEN</b>	ON when 17VDC is present through the DC fuse
<b>LARGE AMBER</b>	ON when the photoeye connected to the power supply is blocked
<b>SMALL AMBER</b>	ON when RELAY2 is energized
<b>NEON LAMP</b>	<b>N/A</b>

### ACCUMULATION BOARD (LEDs):

<b>RED</b>	ON when that zone is stopped and stopped signal is sent to adjacent zones.
<b>AMBER</b>	ON when the photoeye used for <b>forward</b> accumulation is blocked
<b>GREEN</b>	ON when the photoeye used for <b>reverse</b> accumulation is blocked

### NO ZONES RUN:

- 1) Check AC power coming into conveyor.
  - a) Make sure the power supply board has 115VAC on its input terminals.
  - b) Check the circuit breaker mounted inside the main electrical enclosure. If the circuit breaker is tripped, the fault causing this condition must be cleared before continuing.
  - c) AC power can be verified with an appropriate voltage meter across the L1 and L2 terminals on the DC Control board.

(continued)

## Troubleshooting: Conveyor Bed (cont.)

- 2) Check DC control voltage.
  - a) Check that the Green LED on the power supply is on. If LED is off and AC voltage is present, check the 3/4 amp and 2 amp fuses on the power supply board. If a fuse is blown, repair any electrical shorts or overload conditions before continuing. If fuses are not blown and the GREEN LED is not on, the power supply board has failed
  - b) If the GREEN LED is on, check for DC voltage at accumulation zones. If DC power is present, LEDs on photoeyes should be lit. The AMBER LED on the accumulation board should also be lit when that zone's photoeye is blocked. If these LEDs are not on, make sure all communication cables are plugged in. Check the communication cable between power supply board and first zone accumulation board.
- 3) Check for AC power coming into the DC motor controller.
  - a) The neon lamp on the power supply board should be on whenever AC power is supplied to the DC controller. If this lamp is off, and the RED LED on the power supply board is also off, check the 15A fuse on the power supply board that powers the DC controller. If this fuse is good, the relay on the power supply board is bad.
  - b) Check the AC fuse on the DC motor controller.
  - c) AC power can be verified with a voltmeter at the DC controller.
- 4) Check for DC power on the output side of the DC motor controller.
  - a) Check the DC fuse on the DC controller. If the DC fuse is good, the plug-in resistor is in play and no DC voltage is present at the output of the DC motor controller, the controller has failed. If the fuse is blown, the cause could be either a shorted conductor, a motor drawing excessive current or a defective DC control unit.

### **ONE OR MORE ZONES WILL NOT RUN:**

- 1) Check accumulation board for control voltage.
- 2) Check zone's photoeye for proper functioning.
  - a) Observe photoeye's LEDs. They are powered from the accumulation's control voltage. If none are on, the photoeye may not have power. Control voltage is supplied to each accumulation board by the communication cable connected to the **previous** modular connector. Check cable for broken wires or defective connectors.
  - b) Block that zone's photoeye. The AMBER LED on the accumulation board should come on when the photoeye's beam is broken
- 3) Verify Photoeye is properly aligned with reflector across bed (if applicable).
- 4) Check for DC voltage at the motor cable's connector on the accumulation board.
  - a) If no voltage is present, check fuse. If the fuse is blown, check for shorts in the motor cable and in the motor.
  - b) If voltage is present at the motor cable's connector, the motor or cable is defective.

### **ONE PHOTOEYE STOPS TWO OR MORE ZONES:**

- 1) Check photoeyes in zones that stop when the next zone's photoeye is blocked.
- 2) Verify communications cable is secured.
- 3) Check alignment of photoeye and across bed reflector.

## Troubleshooting: Conveyor Bed (cont.)

### ***WILL NOT SHUT OFF WHEN PHOTOEYE IS BLOCKED AND NEXT ZONE IS OFF:***

- 1) Check photoeye for proper function.
  - a) Make sure the accumulation's AMBER LED is on when the photoeye is blocked. If it does not come on, check the connections from the photoeye cable at the board's connector. The photoeye could also be defective.

**CAUTION:** *Always LOCKOUT/TAGOUT the electrical power before working on the unit or opening any electrical enclosures. Never operate the conveyor with the enclosures open.*

### **Conveyor Host System Interface:**

A set of dry contacts, normally open, are provided to give an interface signal from the Rigid Conveyor to a host control system. The normally open contacts will be closed anytime one or more zones of the BEST/FLEX Accumulation conveyor are running. A terminal block for these contacts is provided in the 12 x 12 x 4 enclosure mounted over the rear axle. If host system signal is on when the bed is in operation check the following:

- 1) Verify that the transition-mounted wheel is rolling on top of the bed.
  - a) If wheel floats above bed when picked up, loosen fork mounts slightly and retest.
  - b) If wheel rolls properly on the bed, verify that the proximity switch is functioning by observing a red flashing light on the switch as the wheel turns.
  - c) If no flashing light is observed, verify that wiring is correct and that wire number 29 has 120VAC.
  - d) If power is available and the light is not observed, verify that the proximity switch is approximately 1.5 to 8 mm away from the screw faces mounted into the wheel face.
- 2) Verify that the Full Line Read proximity switch mounted on main suspension system is contacted with floor track channel when unit is fully extended.
- 3) Verify signal at interface is at 120VAC when bed is operating.
- 4) Verify connections are secure (including communications cable) in 12 x 12 x 4 electrical enclosure under rollers located near main electrical enclosure.

### ***UNIT WILL NOT DRIVE FORWARD OR REVERSE:***

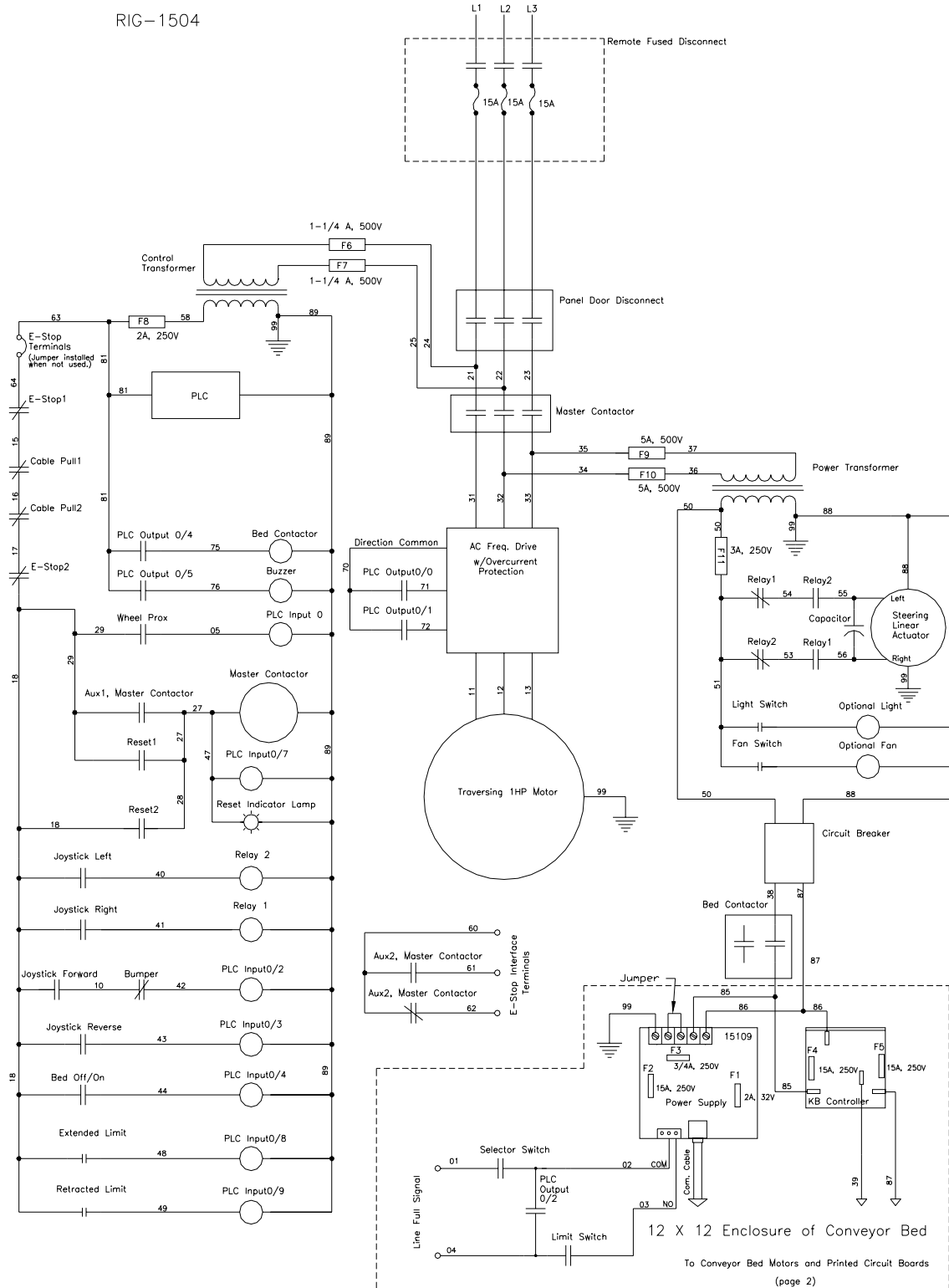
- 1) If the unit will not drive forward or reverse, but the beeper still sounds, push the E-Stop button in. System will turn off. After approximately 20 seconds, release the E-stop by turning clockwise and releasing. Push the Reset button and system should reactivate. Unit should drive forward and reverse.
- 2) If the unit will not drive forward and/or reverse and the buzzer will not sound, verify that unit has not reached one end or the other of the floor track. If unit is not at the end of the floor track, verify that the proximity switch that controls the forward/reverse stops is not contacting items on the floor, or the floor itself. If the feeler is contacting the floor, the feeler may need to be adjusted.

# **Schematic of Accmulation and Primary Electrical Enclosure**

# Schematic: BestReach Rigid Roller

Drawing Number

RIG-1504

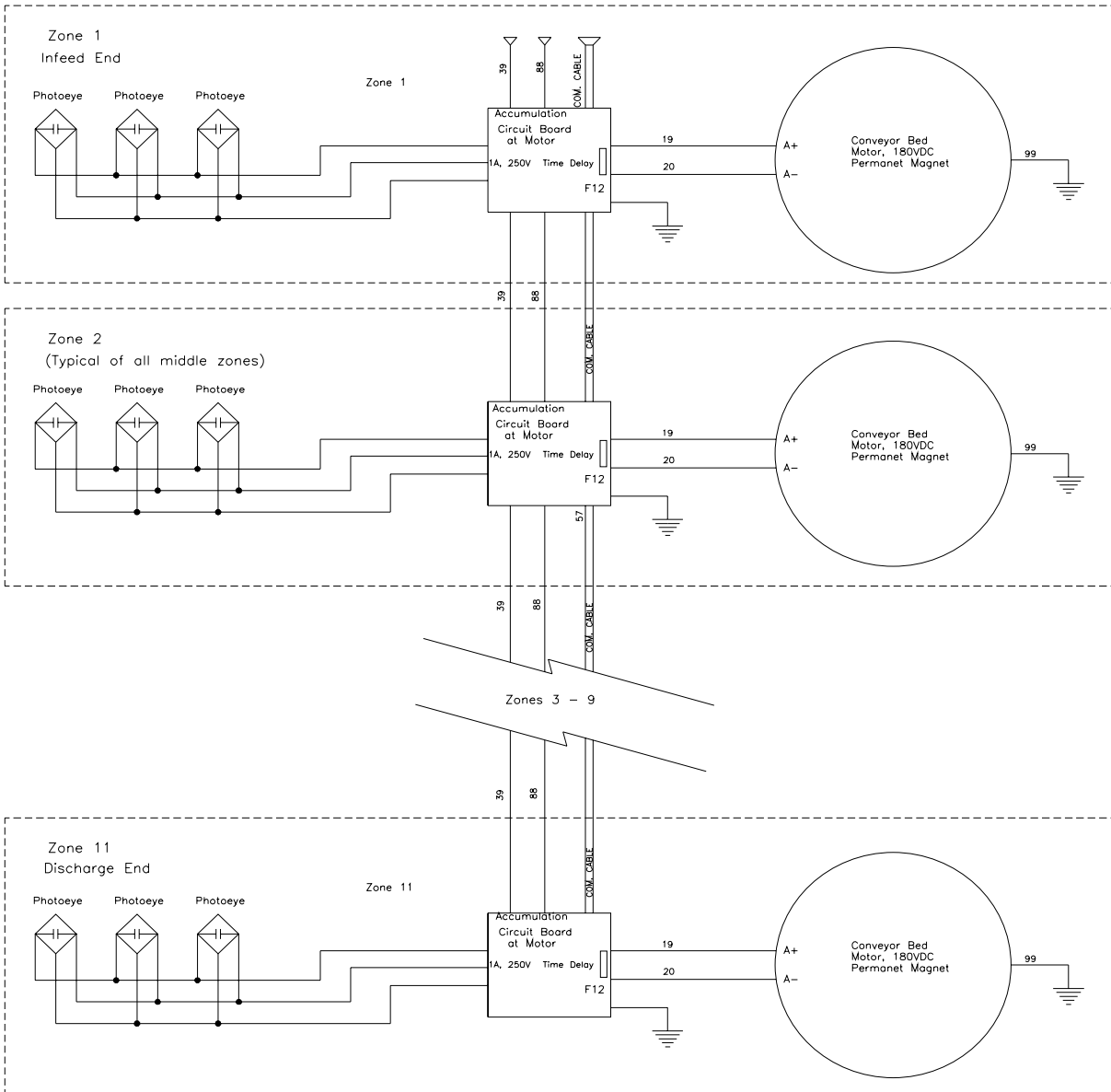


# Schematic: BestReach Rigid Roller

Drawing Number

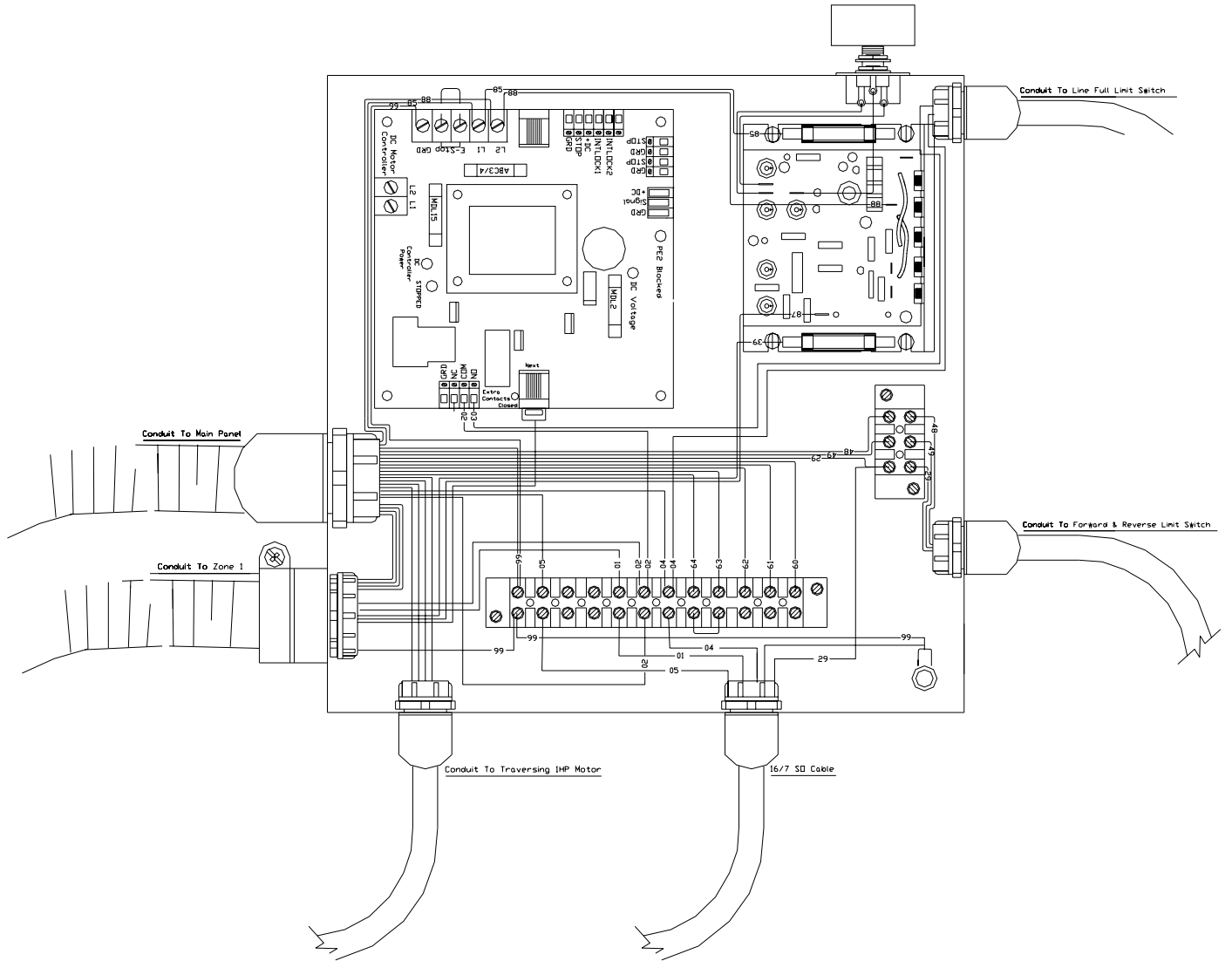
RIG-1504

Wiring from Control  
Panel (Page 1)



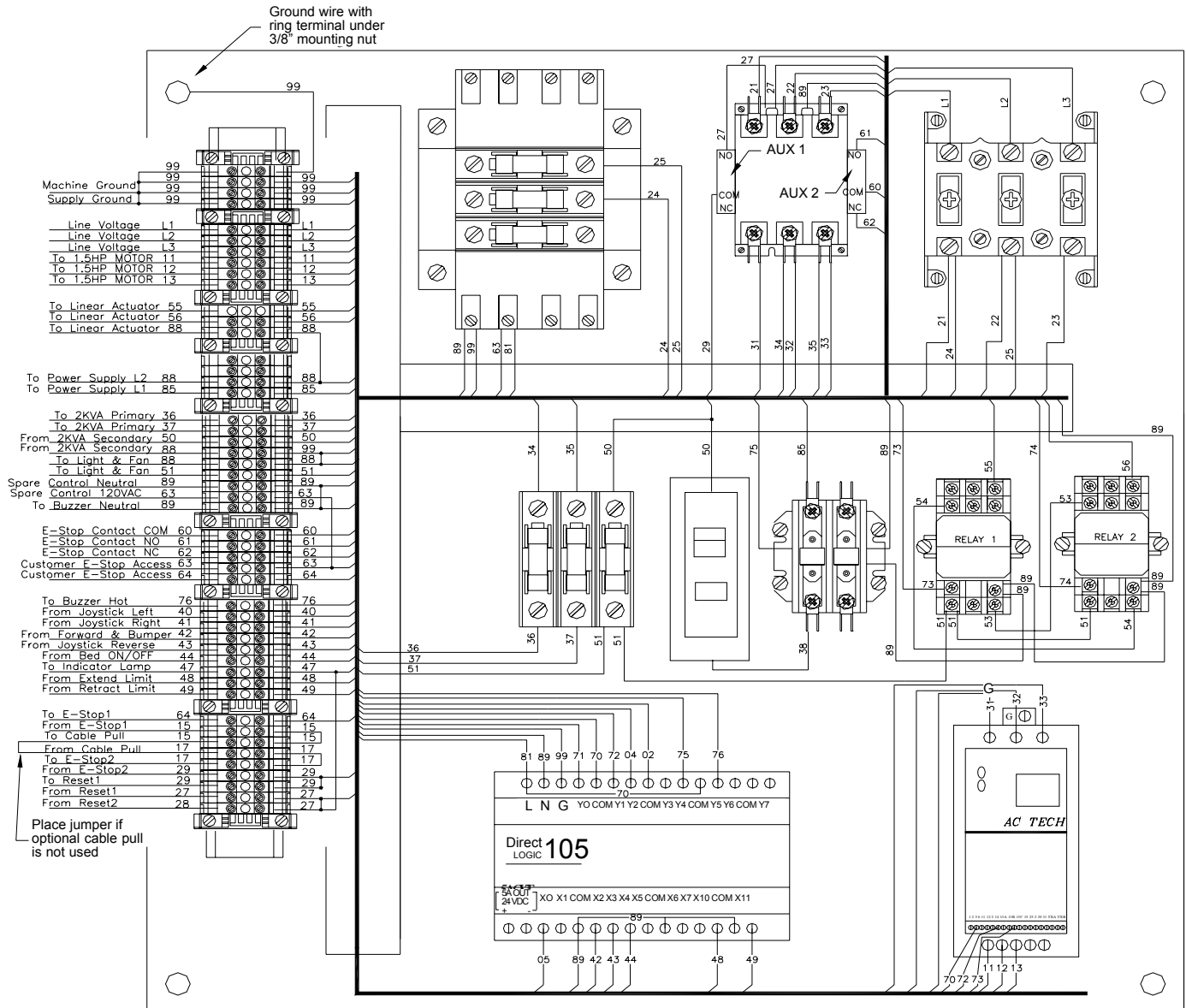
# Wiring Diagram: Accumulation

12 x 12 Enclosure, Rear Leg



# Primary Electrical Enclosure

## Main Electrical Panel



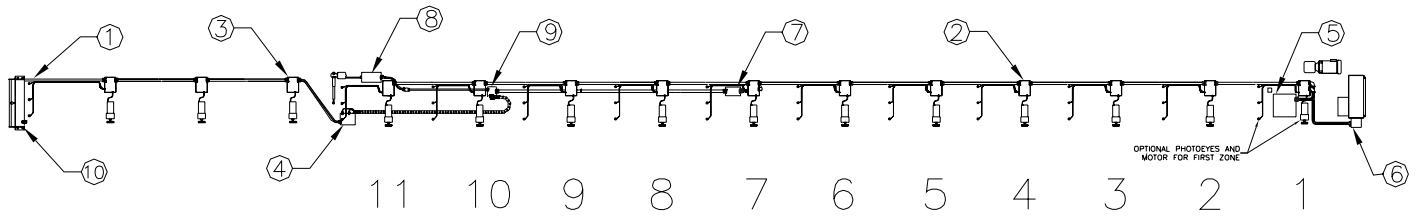


# **Electrical Component Layout with Zones**

(Wiring Diagrams for Zones 1-11,  
Wiring Diagrams for Control Panel)

## Layout, Electric Components

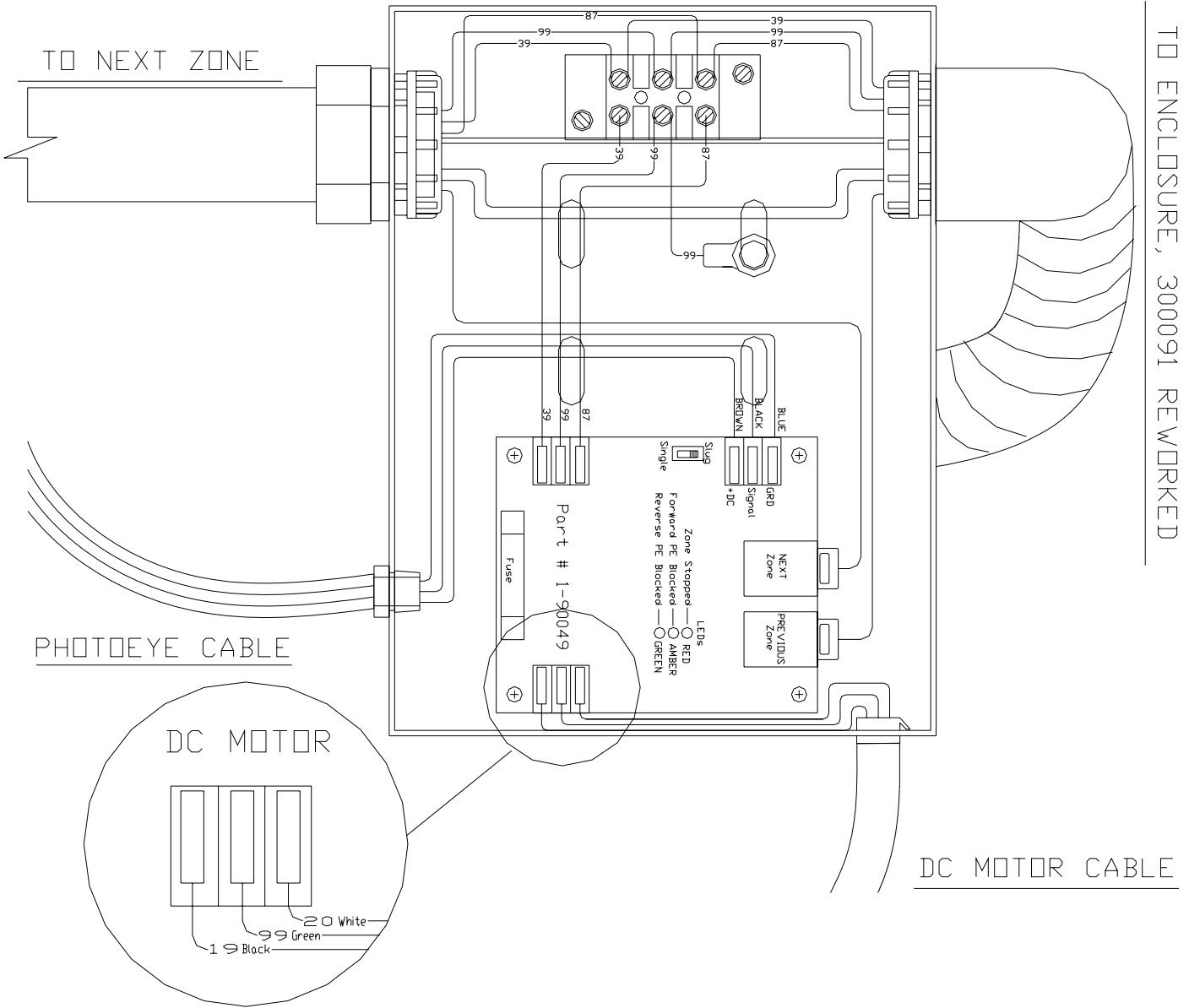
(Top View)



## Zones

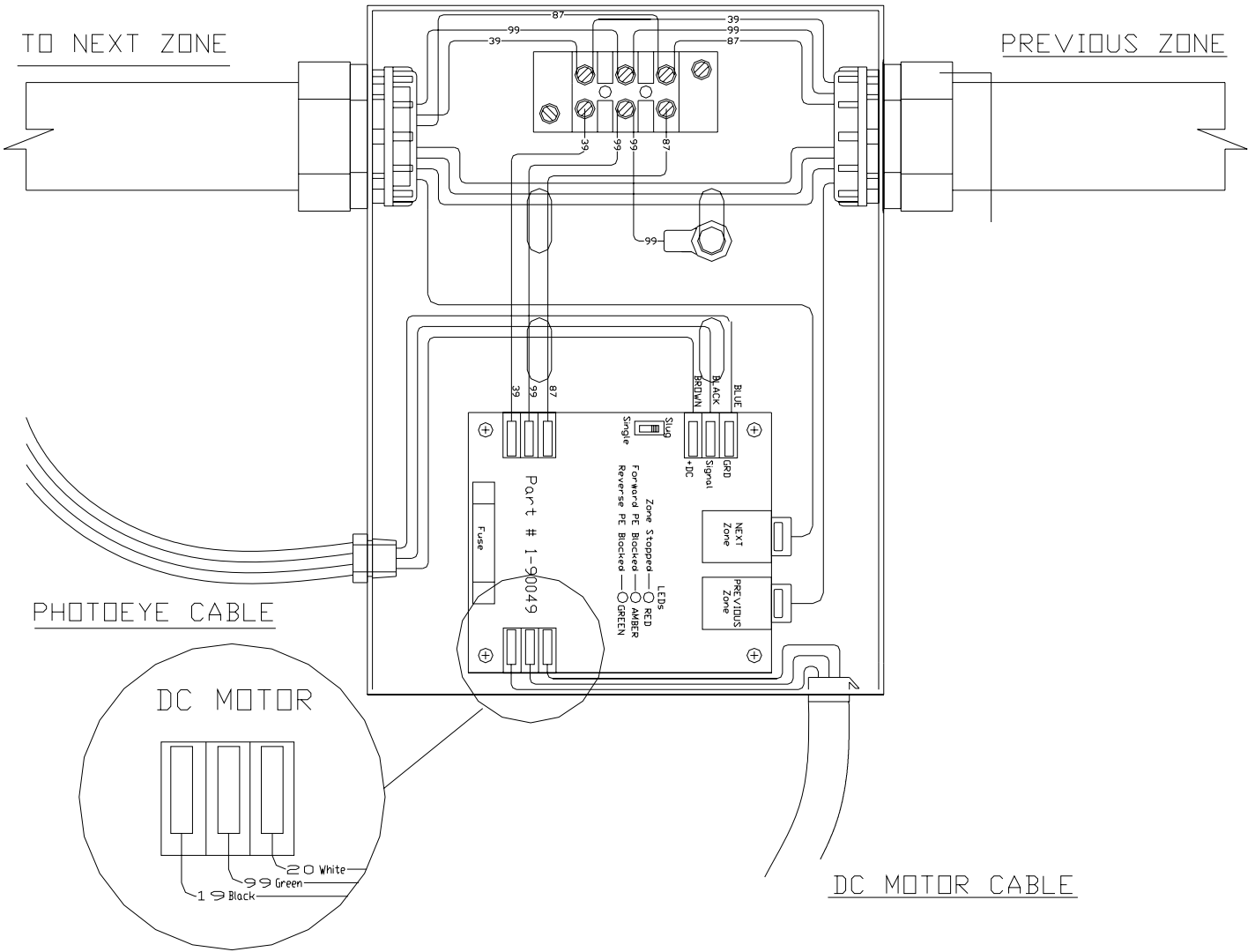
REF	DETAIL NO.	DESCRIPTION
1	A-A	Detail, Micro Switch Mount
2	B-B	Detail, Electrical Enclosure, Zones 1-11
3	C-C	Detail, Enclosure Mount, Extension Bed
4	D-D	Detail, Enclosure Mount, Cable Track, Front
5	E-E	Detail, Enclosure Mount, ACC.
6	F-F	Detail, Primary Electrical Enclosure
7	G-G	Detail, Enclosure Mount, S/O Junction
8	H-H	Detail, Enclosure Mount, Linear Actuator
9	I-I	Detail, Enclosure Mount, Cable Track, Rear
10	J-J	Detail, Electrical Control Panel

# Wiring Diagram: Zone 1

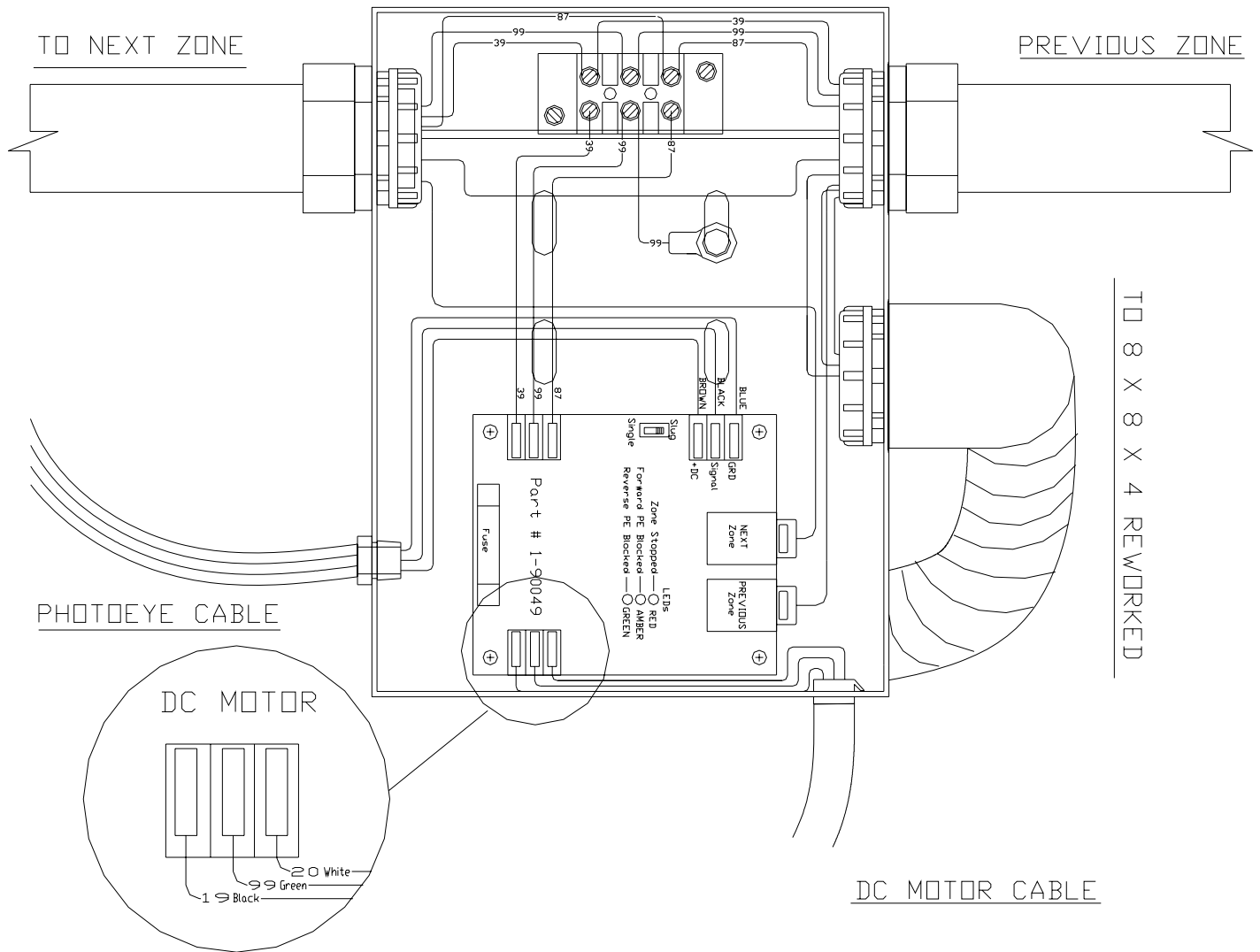


TD ENCLOSURE, 300091 REWORKED

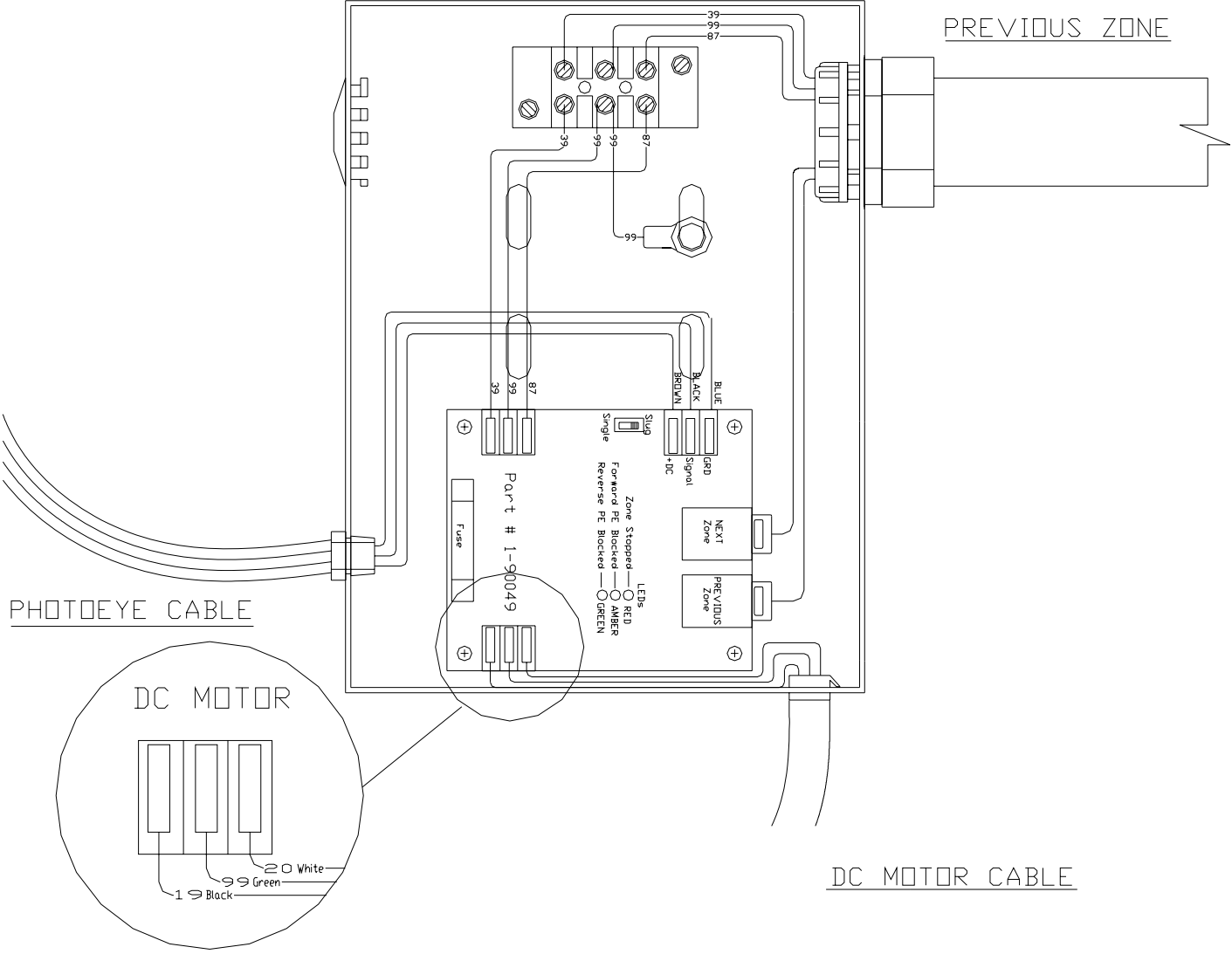
## Wiring Diagram: Zones 2-6, 8-10



## Wiring Diagram: Zone 7

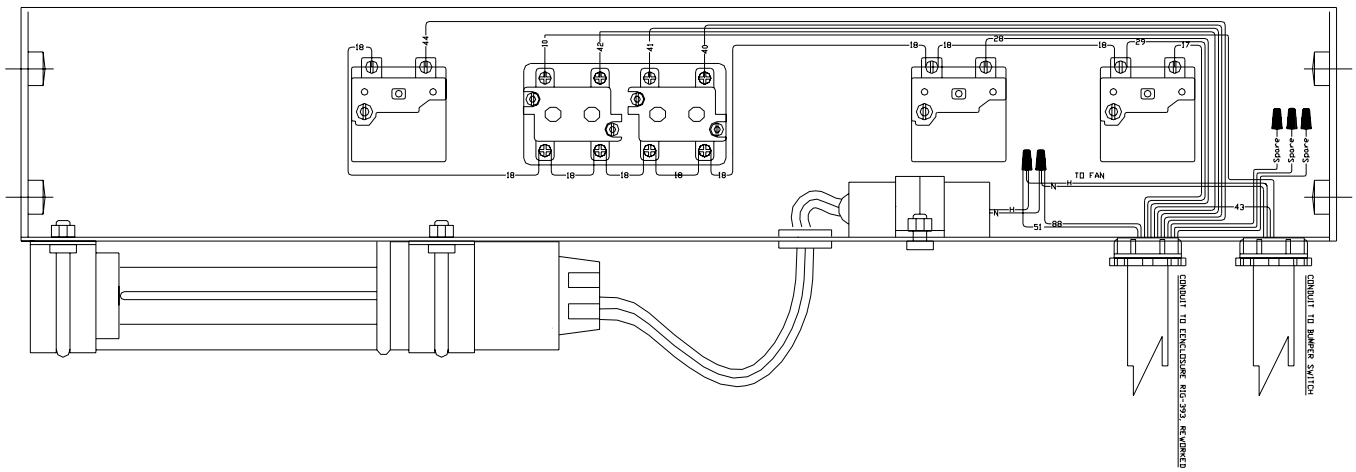


### Wiring Diagram: Zone 11

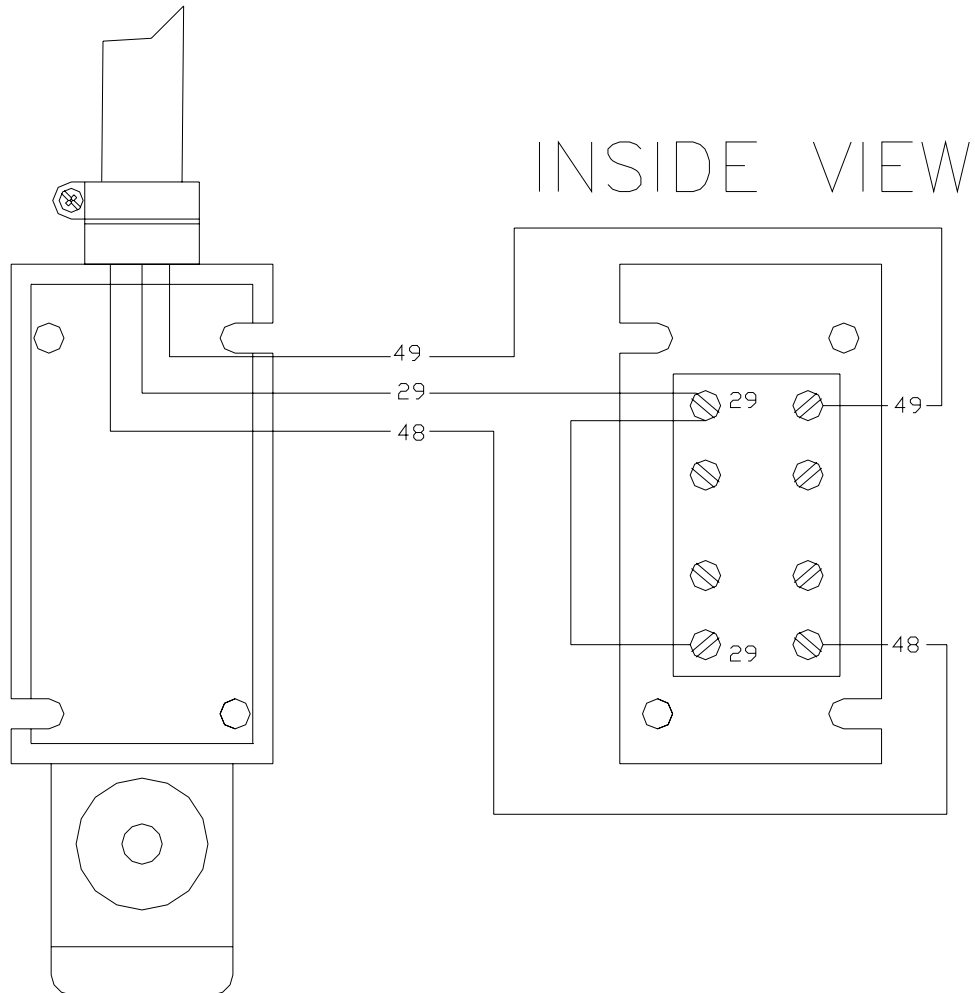


## Wiring Diagram: Control Panel

REAR VIEW



## Wiring Diagram: Limit Switch

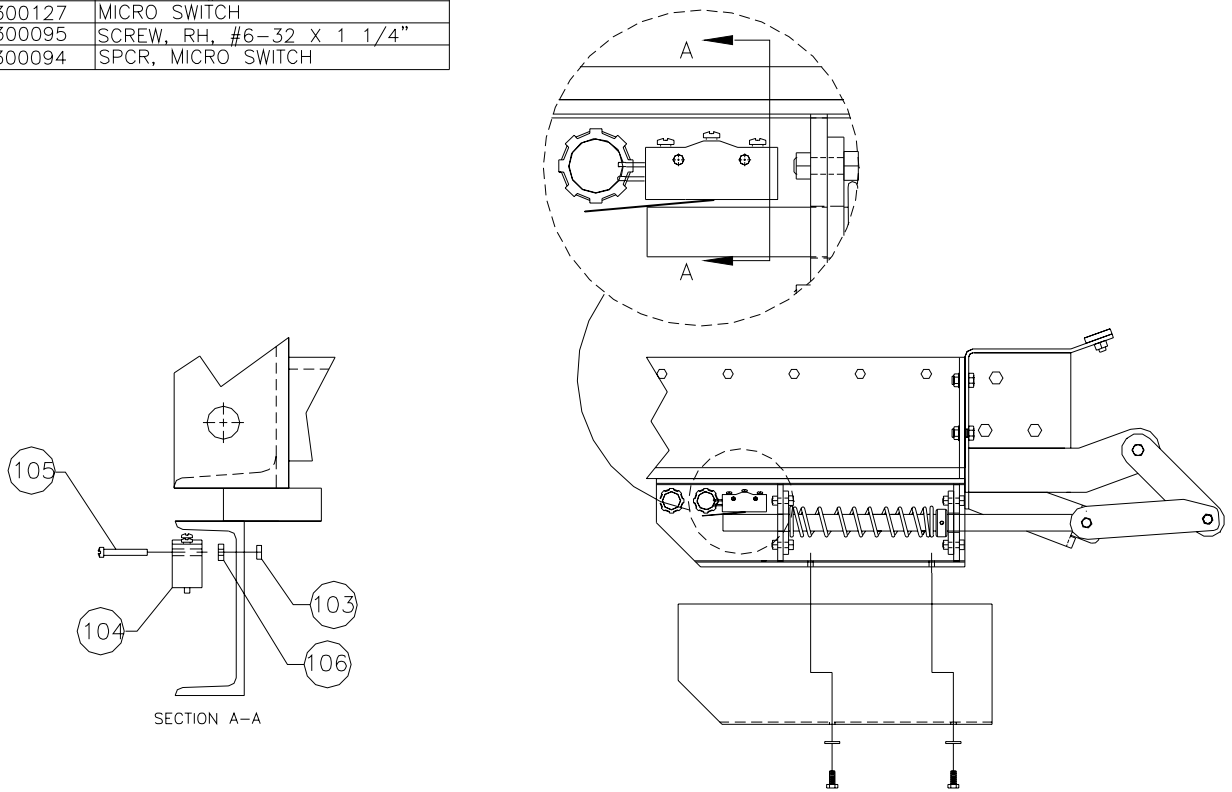




# **Assembly Diagrams and Parts List**

## Micro Switch Mount, (Detail A-A)

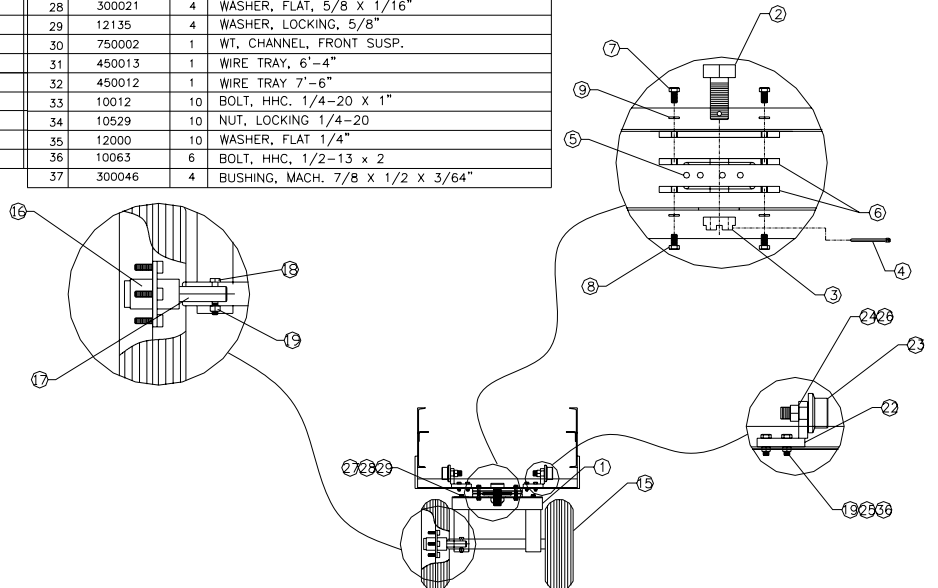
ITEM	QTY	PART NO	DESCRIPTION
103	2	11092	LOCKNUT, #6-32 STD NYLON
104	1	300127	MICRO SWITCH
105	2	300095	SCREW, RH, #6-32 X 1 1/4"
106	2	300094	SPCR, MICRO SWITCH



FMH Conveyors Operator's Manual  
BestReach Rigid Roller Conveyor

## Front Suspension Assembly

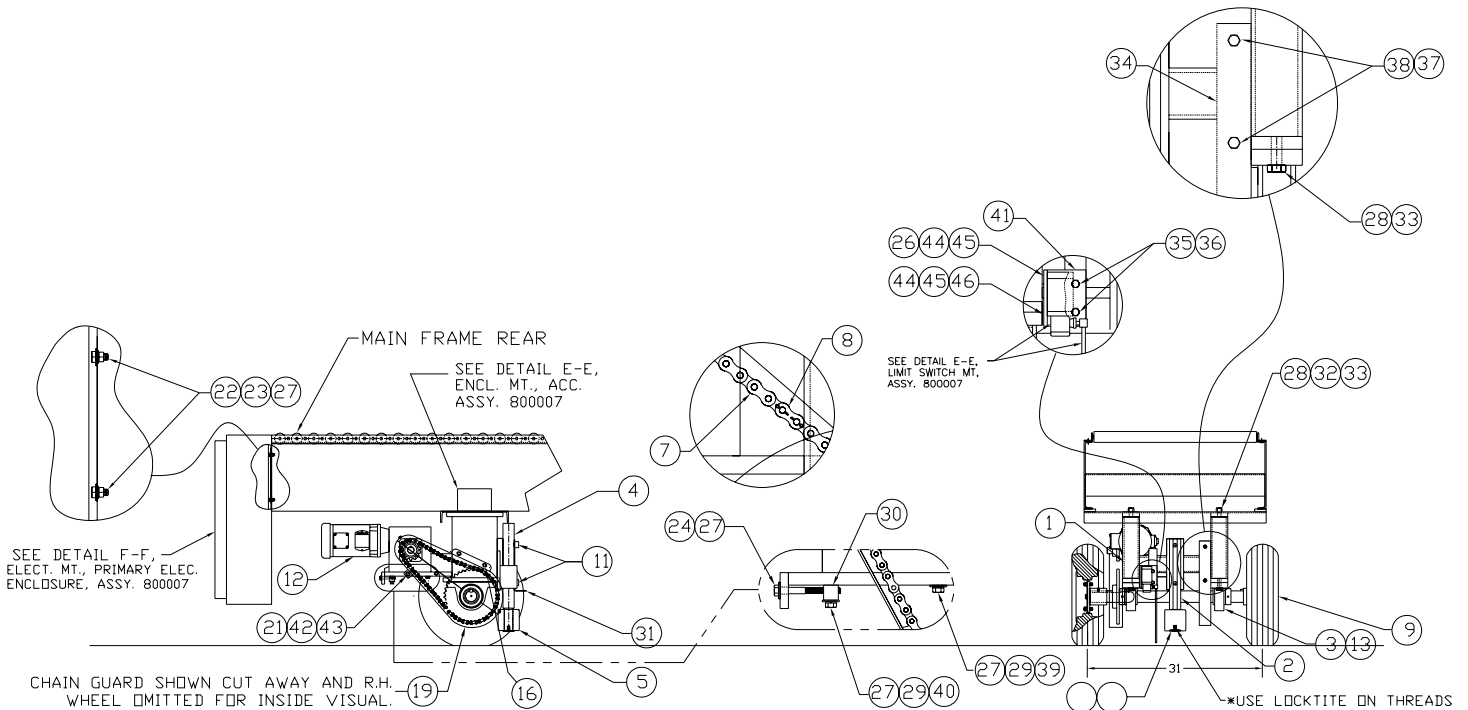
ITEM	PART NUMBER	QTY	DESCRIPTION	ITEM	PART NUMBER	QTY	DESCRIPTION
1	750004	1	WT. FRONT SUSPENSION	19	11142	8	LOCKNUT 1/2 -13 NYLON
2	300013	1	BOLT, HHCS 1 1/2 - 12 X 3 1/2 GRD8	20	750001	2	WT. STOP BLOCK, EXTENDABLE
3	300014	1	NUT, 1 1/2 X 12 CASTLE HEX	21	10061	2	BOLT, 1/2-13 X 1 1/4
4	300015	1	PIN, 3/8"ø X 2 1/2"	22	750003	2	WT. MNT. BLOCK, CAM 2 1/2
5	300012	34	BEARING, 1/2 BALL STEEL GRD 25	23	300016	2	CAM FOLLOWER, 2 1/2
6	350169	2	BEARING PLATE, FRONT STEERING	24	300028	2	HEX NUT, 1-14
7	300024	4	BOLT, 1/2" - 13 X 1"	25	12030	12	FLAT WASHER, 1/2"
8	300025	4	BOLT, 1/2" - 13 X 3/4"	26	300023	2	LOCK WASHER, ø1"
9	300006	8	LOCK WASHER, 1/2"	27	300020	4	BOLT, HHC, 5/8-11 X 2
10	300011	1	LINEAR ACUTATOR, 5" STROKE	28	300021	4	WASHER, FLAT, 5/8 X 1/16"
11	11111	1	LOCKNUT, 5/16-18	29	12135	4	WASHER, LOCKING, 5/8"
12	300019	1	FLAT WASHER, 5/16 ID X .0625"	30	750002	1	WT. CHANNEL, FRONT SUSP.
13	300026	1	BOLT, SH. 3/8 X 2 w5/16-18	31	450013	1	WIRE TRAY, 6'-4"
14	300027	1	BOLT, SH. 1/2 X 1 1/4" w3/8-16	32	450012	1	WIRE TRAY 7'-6"
15	300010	2	ASY. WHEEL 570/8 FOAMED FILLED	33	10012	10	BOLT, HHC. 1/4-20 X 1"
16	300017	2	ASY HUB, 5 BOLT HIGH SPEED	34	10529	10	NUT, LOCKING 1/4-20
17	400011	2	SPINDLE, WHEEL 1" REWORKED	35	12000	10	WASHER, FLAT 1/4"
18	---	2	BOLT, 1/2-13 X 2 3/4 HHC	36	10063	6	BOLT, HHC, 1/2-13 X 2
				37	300046	4	BUSHING, MACH. 7/8 X 1/2 X 3/64"



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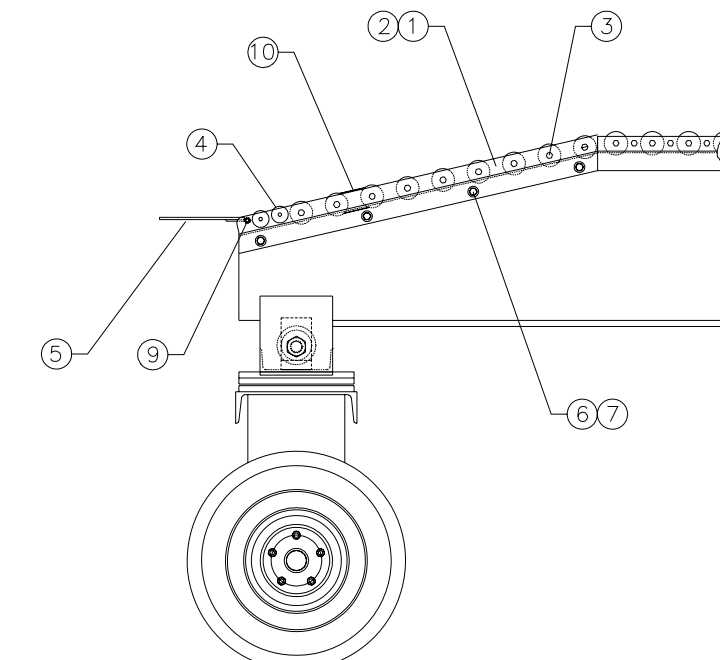
## Rear Suspension Assembly

ITEM	PART NUMBER	QTY	DESCRIPTION	ITEM	PART NUMBER	QTY	DESCRIPTION
1	700005	1	WT., REAR LEG	24	10062	1	SCREW, HHC 3/8-16 X 3 1/2 AL
2	300177	1	DRIVE AXLE	25	300045	1	SCREW, 1/2-13 X 1" CSK SOC
3	300029	2	PILLOW BLOCK BEARING, 2" ECC.	26			
4	300185	1	BAR, DELRON ROLLER	27	12020	5	FLAT WASHER 3/8"
5	300186	1	ROLLER, DELRON	28	300020	4	BOLT, 5/8-11 X 2" HHC
6	300184	2	WT. HUB, REAR AXLE	29	12130	4	LOCKWASHER 3/8"
7	400094	1	CHAIN #60 ROLLER	30	300188	1	ADJ. BLOCK, MOTOR MOUNT
8	300037	1	MASTER LINK #60 CHAIN	31	400322	1	PLASTTRACK REAR BRACKET
9	300010	2	ASY. WHEEL 5.70/8 FOAM FILLED	32			NOT USED
10	300187	1	WASHER, RETAINER ROLLER	33	12135	6	LOCK WASHER, 5/8"
11	10066	2	SCREW, HHC 5/8-11 X 3"	34	300175	1	POST, POS. STOP
12	300268	1	MOTOR 1 1/2 HP/GEARBOX 50:1 ASSEMBLY	35	300006	4	LOCKWASHER, 1/2 DIA.
13	300021	4	WASHER, 5/8 FLAT	36	300024	3	BOLT, HHC, 1/2-13 X 1
14	400951	1	SPROCKET #60 10 TOOTH 1 1/8" BORE	37	11142	2	LOCKNUT, 1/2-13 NYLON
15	300039	1	SPROCKET #60-39 TOOTH 2" BORE	38	VF0007	2	SCREW, 1/2-13 X 3 1/2" HHC
16	300001	3	SCREW, 1/4-20 X 3/8 HHC	39	300030	2	BOLT, 3/8-16 X 1 1/2"
17	400096	1	KEY, 1/2 SQ. X 3"	40	10053	2	BOLT, 3/8-16 X 2 1/2"
18	400097	1	KEY, 1/2 SQ. X 5 1/2"	41	300176	1	BRACKET, STOP SWITCH
19	400033	1	ASSY., CHAIN GUARD	42	12000	3	FLATWASHER, 1/4" DIA.
20	300034	10	LUG BOLT, 1/2-20 X 1"	43	12121	3	LOCKWASHER, 1/4" DIA.
21	10010	3	BOLT, 1/4-20 X 3/4" HHC	44	11279-2	2	LOCKNUT, #10-32
22	-	4	BOLT, 3/8-16 X 3/4" HHC	45	300207	2	LOCKWASHER, #10
23	300025	1	SCREW, 1/2-13 X 3/4" HHC	46	300208	2	SCREW, RHM #10-32 X 1 3/4"



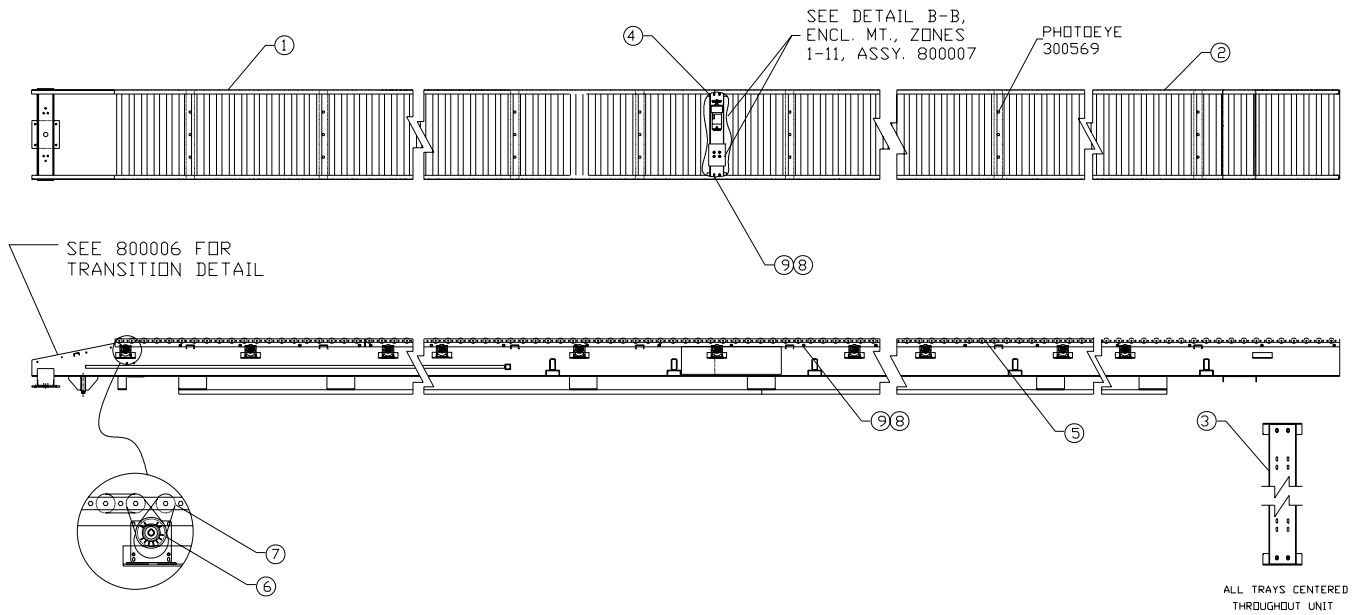
## Transition Assembly

NO.	PART NUMBER	REQ'D	DESCRIPTION
1	300163	1	SIDE FRAME LH TRANSITION
2	300162	1	SIDE FRAME RH TRANSITION
3	300075	9	ROLLER, 1.9 X 29" HEX POP-IN
4	300076	2	ROL GRV. 1-3/8" X 29" POP-IN
5	400080	1	ASSY. TRANSITION PLATE
6	10676	8	BOLT, CARR, 3/8-16 X 1"
7	11490	8	NUT FLANGE 3/8-16 SERRATD
8	-	-	-
9	10620	2	BOLT SH 3/8-16 X 1"
10	300058	6	IDLER BELT, .210 X 9-7/8" 85A



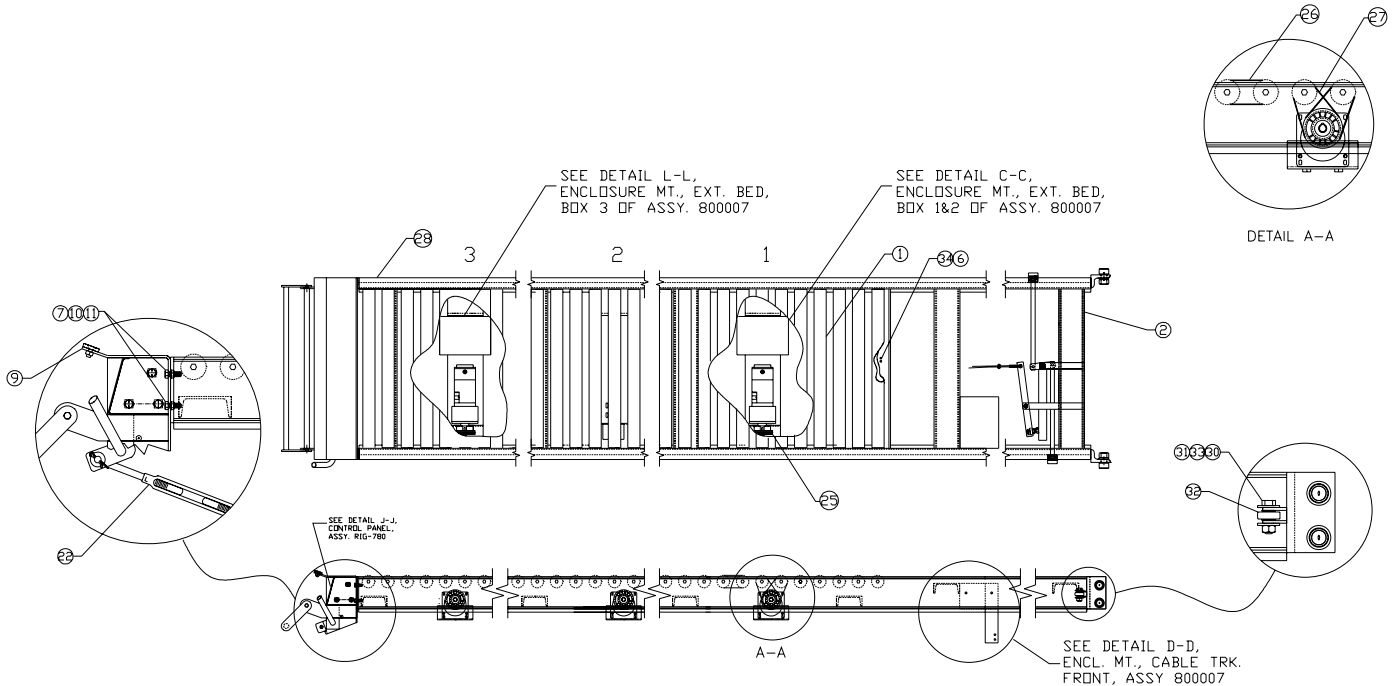
## Power Bed Assembly

Item	Qty	Part Number	Description	Item	Qty	Part Number	Description
1	2	300161	Rail, Roller, 7-1/2'	5	10	19006	Drive Pulley
2	8	300160	Rail, Roller, 9'	6	105	12459	Drive Belt, .210 x 12", 85A
3	11	350159	Support Tray Motor Common	7	94	10676	Bolt, Carriage, 3/8-16 x 1"
4	116	30075	Roller, 1.9 x 29, Pop-in	8	94	11490	Nut, Flange, 3/8-16, Serrated



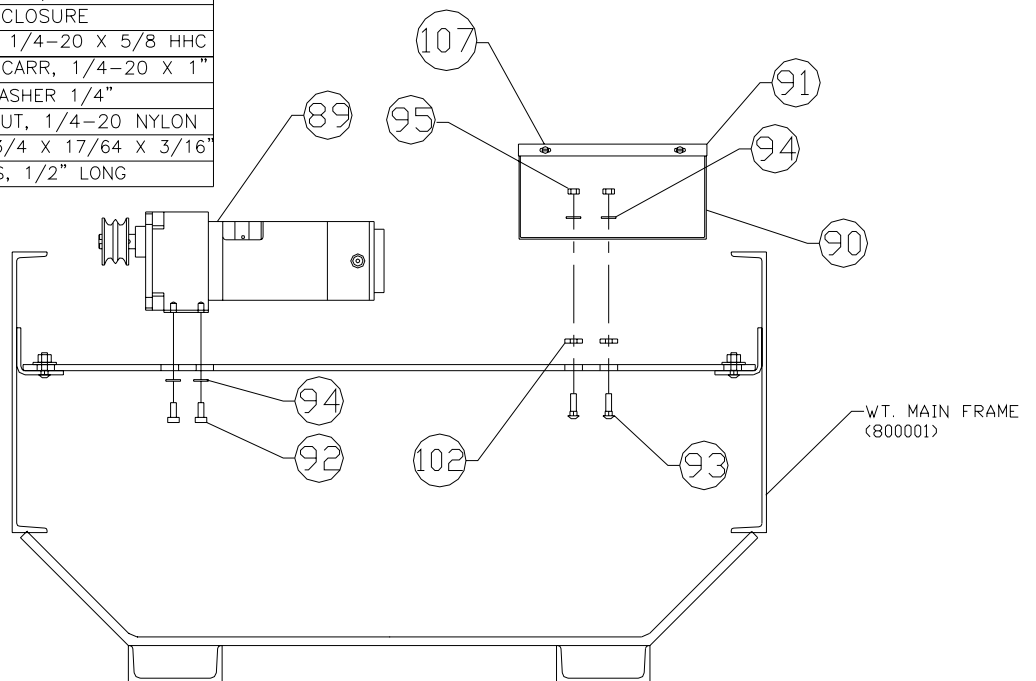
## Extendable 24" Power Roller Assembly

ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION
1	54	300070	ROLLER 1.9 X 24-5/8", HEX, POP-IN	18	2	300065	BOLT, SH, 5/16 X 1 1/2 - 1/4-20
2	1	300035	WT. FRAME EXTENDABLE	19	2	10529	LOCKNUT, 1/4-20
3	4	300051	CAM FOLLOWER, 1 1/2 X 7/8-14 THRD	20	1	300066	BOLT, SH, 1/2 X 2 3/4 - 3/8-16
4	4	300049	LOCK WASHER, 7/8	21	1	300067	BOLT, SH, 1/2 X 1 1/2 - 3/8-16
5	4	300050	HEX NUT, 7/8-14	22	1	400045	ASSY., BRAKE CABLE
6	3	300052	EYE BOLT, 1/4-20 X 3"	23	1	300069	JAM NUT, 1/2-13
7	2	12020	FLAT WASHER, 3/8	24	1	300007	BOLT, HHC, 1/2-13 X 1 1/2
8	2	11140	LOCKNUT, 3/8-16, NYLON	25	3	19006	DRIVE PULLEY
9	1	400058	ASSY., OPERATOR CONTROL PANEL	26	42	300058	IDLER BELT, .210 X 9 7/8", 85A
10	4	11490	NUT, 3/8-16, SERRATED	27	6	12459	DRIVE BELT, .210 X 12", 85A
11	4	10042	BOLT, HHC, 3/8-16 X 1"	28	1	400046	ASSY., PUSH STOP
12	1	750010	WT. SECONDARY BRAKE LEVER	29	-	-	NOT USED
13	1	750013	WT. PRIMARY BRAKE LEVER	30	2	300048	BOLT, HHC, 1/2-13 X 1 3/4
14	1	750011	WT. BRAKE ROD, LH	31	2	11142	LOCKNUT, 1/2-13
15	1	750012	WT. BRAKE ROD, RH	32	2	300047	BALL BEARING, 1 3/8 X 1/2 X 7/16"
16	2	300059	SPRING, BRAKE ROD, L & R	33	9	300046	BUSHING, MACH., 7/8 X 1/2 X 3/64"
17	-	-	NOT USED	34	3	300068	HEX NUT, 1/4-20



## Enclosure Mount

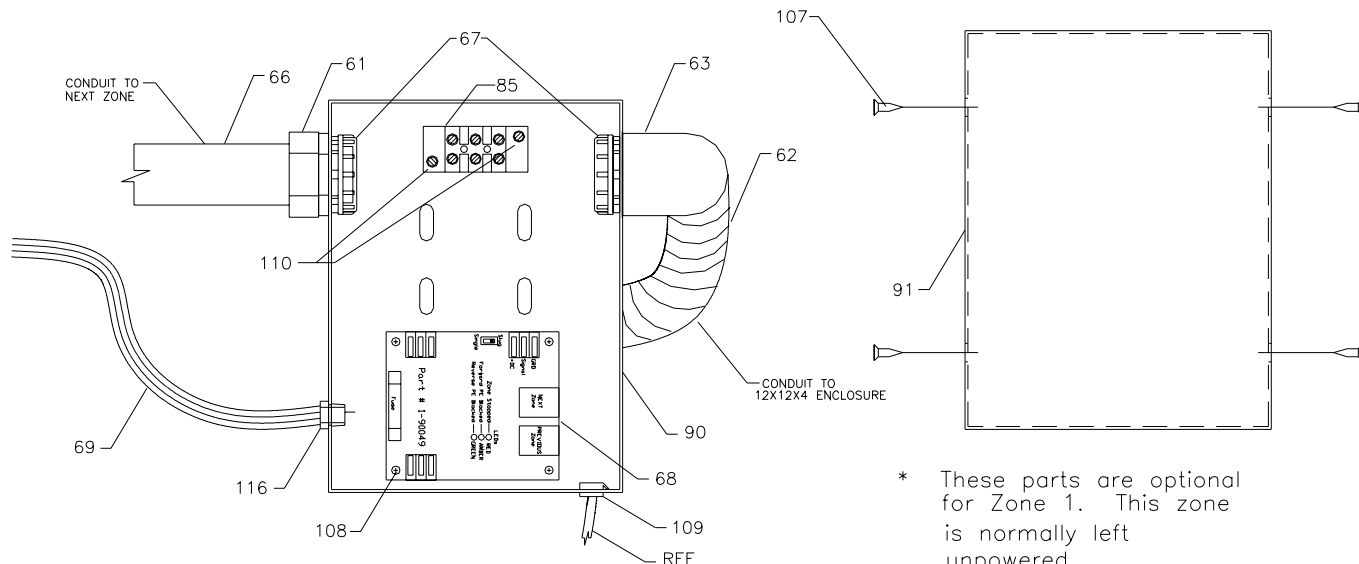
NO.	PART NUMBER	REQ'D	DESCRIPTION
89	70247	10	MOTOR, DC 1/8 HP BALDOR
90	300106	11	ENCLOSURE, ELECT. ACCUM.
91	300107	11	LID, ENCLOSURE
92	10000	40	SCREW, 1/4-20 X 5/8 HHC
93	300096	44	BOLT, CARR, 1/4-20 X 1"
94	12000	64	FLATWASHER 1/4"
95	11110	40	LOCKNUT, 1/4-20 NYLON
102	12501	40	SPCR, 3/4 X 17/64 X 3/16"
107	300097	44	#8 SMS, 1/2" LONG





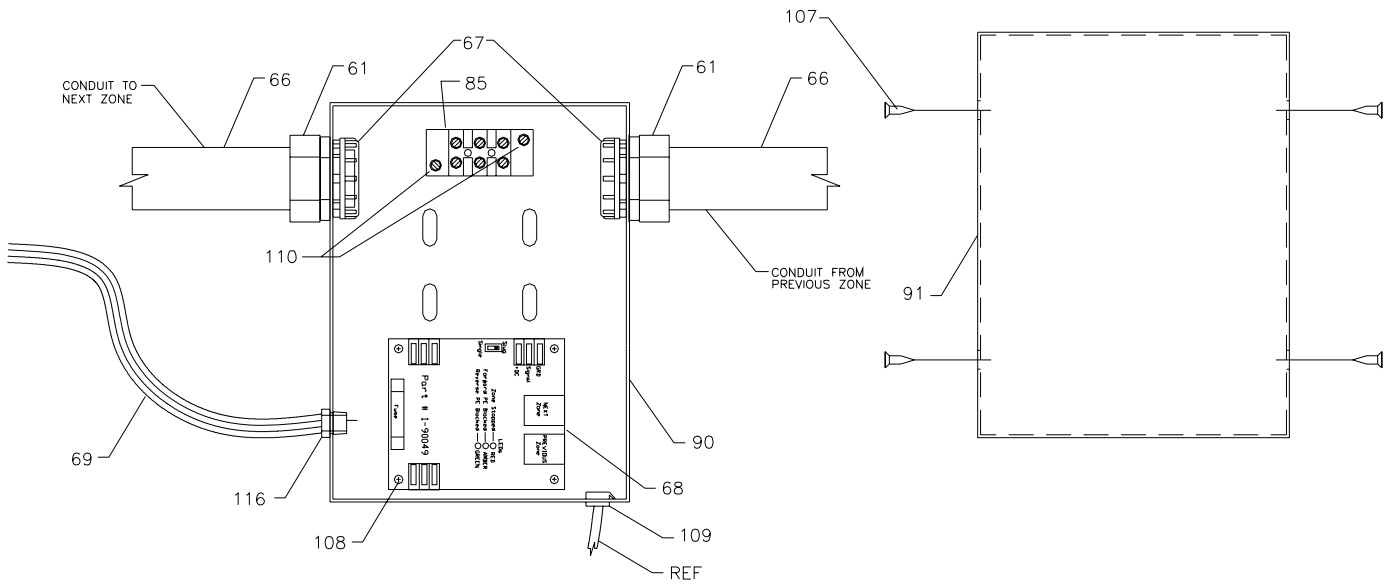
## Electrical Enclosure, Zone 1, (Detail B-B)

NO.	REQ'D	PART #	DESCRIPTION	NO.	REQ'D	PART #	DESCRIPTION
67	2	300111	1 1/4" PLASTIC BUSHING	91	1	300107	LID, ELEC. BOX
63	2	300081	1 1/4" 90 FLEX CONNECTOR	107	4	300097	#8 SHEET METAL SCREW 1/2" LONG
62	2	400107	1 1/4" FLEX CONDUIT	85	1*	300080	3 POLE TERMINAL BLOCK
109	1*	1-90070	STRAIN RELIEF 7P2	REF	1*	REF	CORD, DC MOTOR
69	3*	300569	PHOTO EYE	108	4*	1-90056	PLASTIC STAND-OFF, CIRCUIT BOARD
68	1*	1-90049	ACCUMULATION BOARD	110	2*	300098	8-32 X 1/2 MACHINE SCREW
90	1	300106	ENCLOSURE, ELEC. ACC.	61	1	300110	1 1/4" STRAIGHT COMP. FITTING FOR EMT
				66	1	400100	1 1/4" EMT CONDUIT
				116	1*	15012-2	STRAIN RELIEF 8-P2



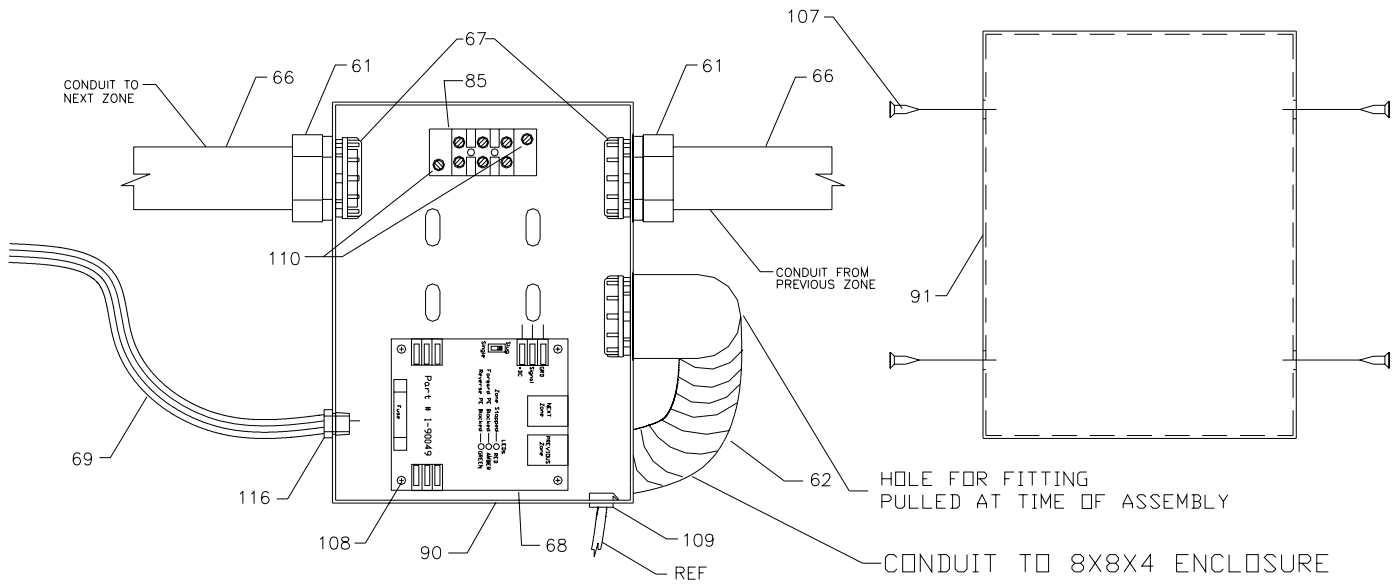
## Electrical Enclosure, Zones 2-6, 8-10, (B-B)

NO.	REQ'D	PART #	DESCRIPTION	NO.	REQ'D	PART #	DESCRIPTION
61	2	300110	1 1/4" STRAIGHT COMP. FITTING FOR EMT	91	1	300107	LID, ELEC. BOX
66	2	400100	1 1/4" EMT CONDUIT	107	4	300097	#8 SHEET METAL SCREW 1/2" LONG
67	2	300111	1 1/4" PLASTIC BUSHING	108	4	1-90056	PLASTIC STAND-OFF, CIRCUIT BOARD
68	1	1-90049	ACCUMULATION BOARD	109	1	1-90070	STRAIN RELIEF 7P2
69	3	300569	PHOTO EYE	110	2	300098	8-32 X 1/2 MACHINE SCREW
85	1	300080	3 POLE TERMINAL BLOCK	REF	1	REF	CORD, DC MOTOR
90	1	300106	ELECTRIC BOX, ACC.	116	1	15012-2	STRAIN RELIEF 8-P2



## Electrical Enclosure Zone 7, (Detail B-B)

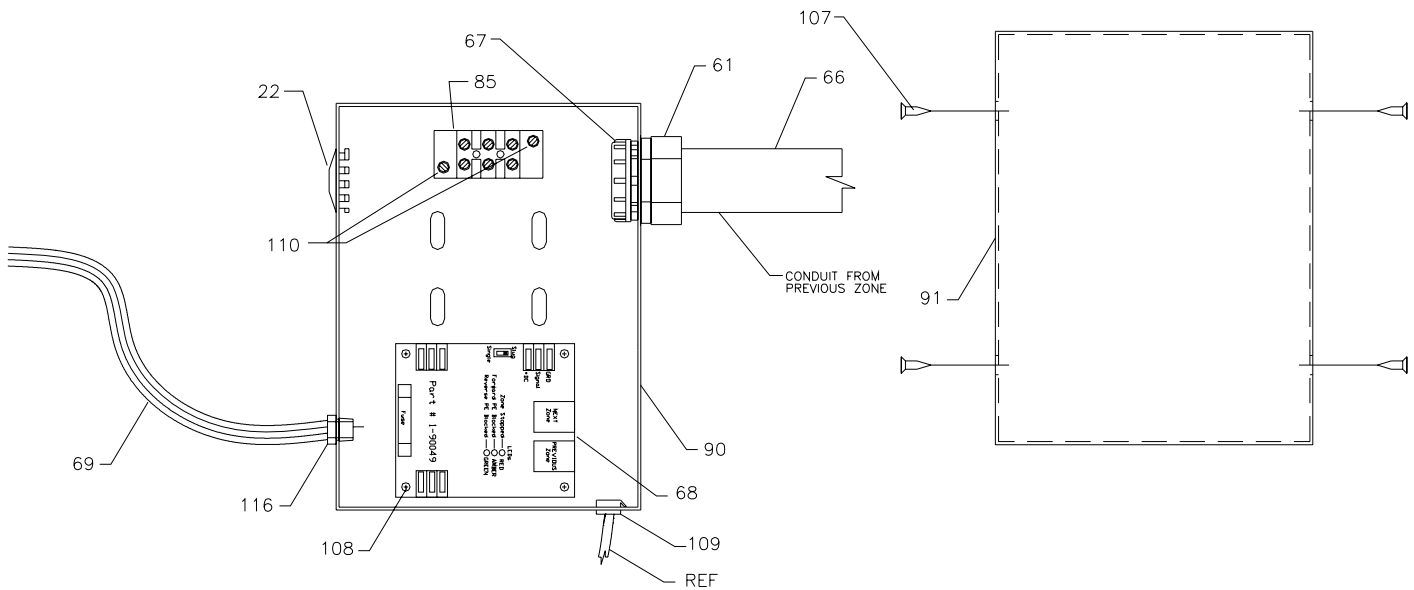
NO.	REQ'D	PART #	DESCRIPTION	NO.	REQ'D	PART #	DESCRIPTION
61	2	300110	1 1/4" STRAIGHT COMP. FITTING FOR EMT	85	1	300080	3 POLE TERMINAL BLOCK
62	1	400107	1-1/4 METAL FLEX CONDUIT	90	1	300106	ELECTRIC BOX, 16 GA.
63	1	300081	1-1/4 90 FLEX CONNECTOR	91	1	300107	LID, ELEC. BOX
66	2	400100	1 1/4" EMT CONDUIT	107	4	300097	#8 SHEET METAL SCREW 1/2" LONG
67	2	300111	1 1/4" PLASTIC BUSHING	REF	1	REF	CORD, DC MOTOR
68	1	1-90049	ACCUMULATION BOARD	108	4	1-90056	PLASTIC STAND-OFF, CIRCUIT BOARD
69	3	300569	PHOTO EYE	109	1	1-90070	STRAIN RELIEF 7P2
				110	2	300098	8-32 X 1/2 MACHINE SCREW
				116	1	15012-2	STRAIN RELIEF 8-P2



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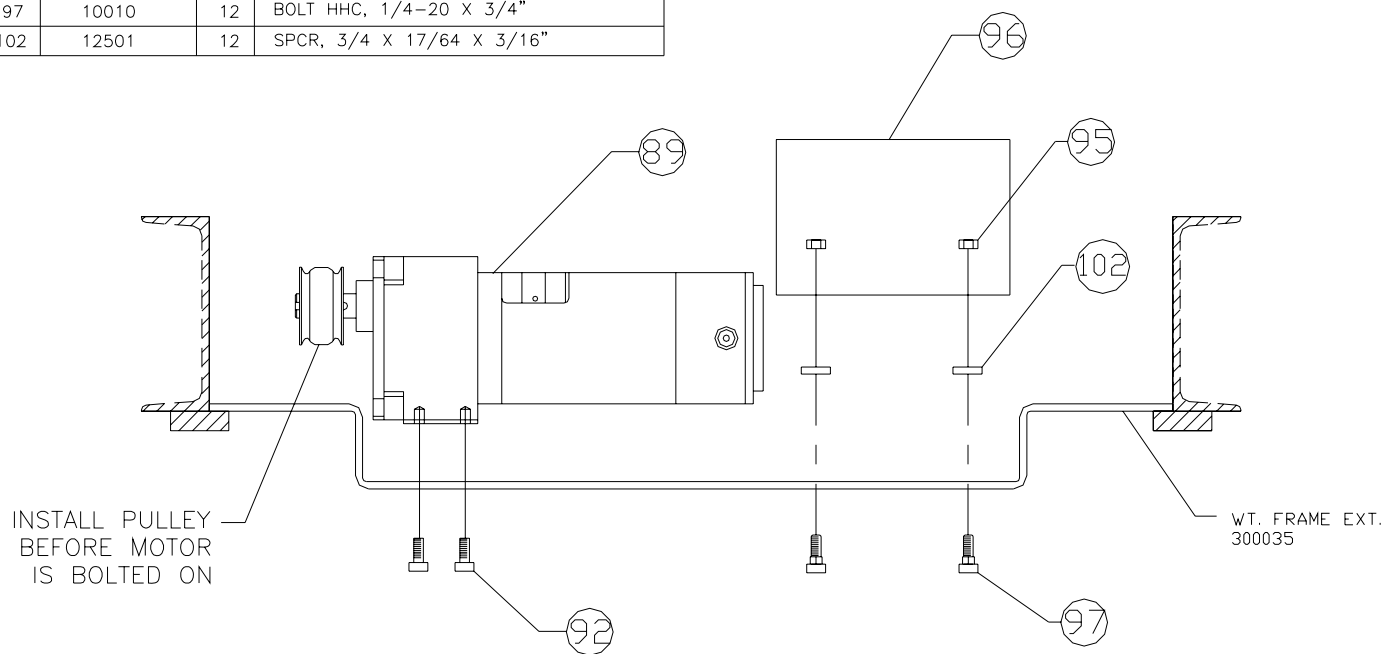
## Electrical Enclosure, Zone 11, (Detail B-B)

NO.	REQ'D	PART #	DESCRIPTION	NO.	REQ'D	PART #	DESCRIPTION
22	1	300137	1-1/4" KO SNAP IN BLANK	90	1	300106	ENCLOSURE, ELECTRIC ACC.
61	1	300110	1 1/4" STRAIGHT COMP. FITTING FOR EMT	91	1	300107	LID, ELEC. BOX
66	1	400100	1 1/4" EMT CONDUIT	107	4	300097	#8 SHEET METAL SCREW 1/2" LONG
67	1	300111	1 1/4" PLASTIC BUSHING	108	4	1-90056	PLASTIC STAND-OFF, CIRCUIT BOARD
68	1	1-90049	ACCUMULATION BOARD	109	1	1-90070	STRAIN RELIEF 7P2
69	3	300569	PHOTO EYE	110	2	300098	8-32 X 1/2 MACHINE SCREW
85	1	300080	3 POLE TERMINAL BLOCK	REF	1	REF	CORD, DC MOTOR
				116	1	15012-2	STRAIN RELIEF 8-P2



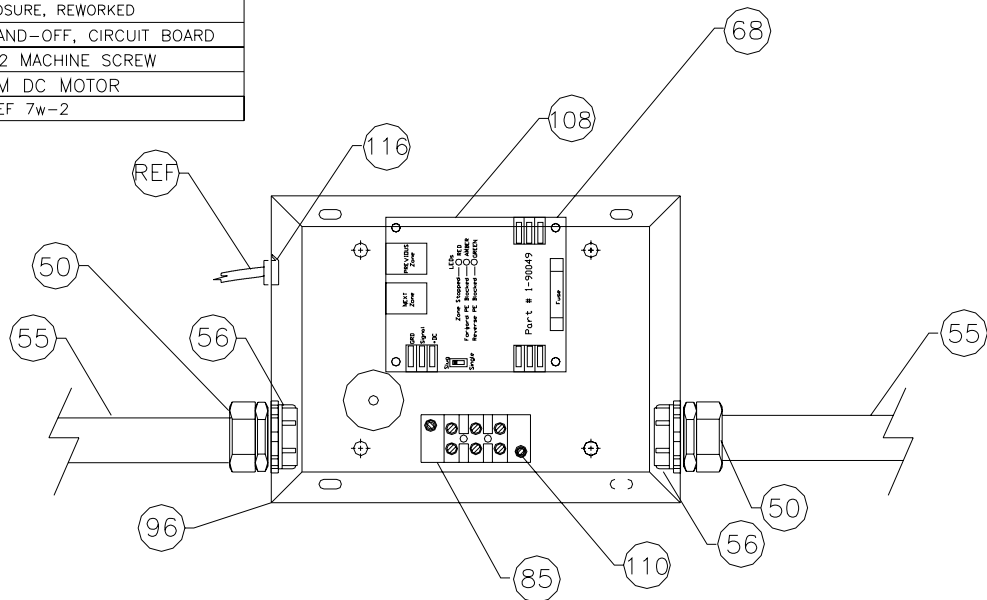
## Enclosure Mount, Extendable, (Detail C-C)

ITEM	PART NUMBER	QTY	DESCRIPTION
89	70247	3	MOTOR, DC 1/8 HP BALDOR
92	10000	12	SCREW, 1/4-20 X 5/8"
95	11110	12	LOCKNUT, 1/4-20 NYLON
96	400005	3	ENCLOSURE, 8 X 6 X 4, REWORKED
97	10010	12	BOLT HHC, 1/4-20 X 3/4"
102	12501	12	SPCR, 3/4 X 17/64 X 3/16"



## Electrical Extension Boxes 1 & 2, (Detail C-C)

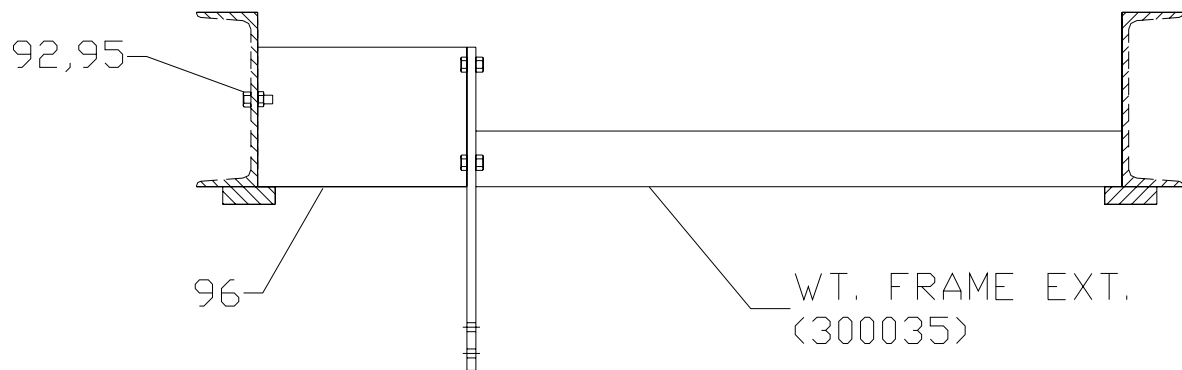
NO.	REQ'D	PART #	DESCRIPTION
50	2	300114	3/4" STRAIGHT COMP. CONN. FOR EMT
55	2	400101	3/4" EMT CONDUIT
56	2	300112	3/4" PLASTIC BUSHING
68	1	1-90049	ACCUMULATION BOARD
85	1	300080	3 POLE TERMINAL BLOCK
96	1	400005	8X6X4 ENCLOSURE, REWORKED
108	4	1-90056	PLASTIC STAND-OFF, CIRCUIT BOARD
110	2	300098	8-32 X 1/2 MACHINE SCREW
REF	1	REF	CORD FROM DC MOTOR
116	1	15012-1	STRAIN RELIEF 7w-2



NOTE: SCREWS FOR LID INCLUDED.

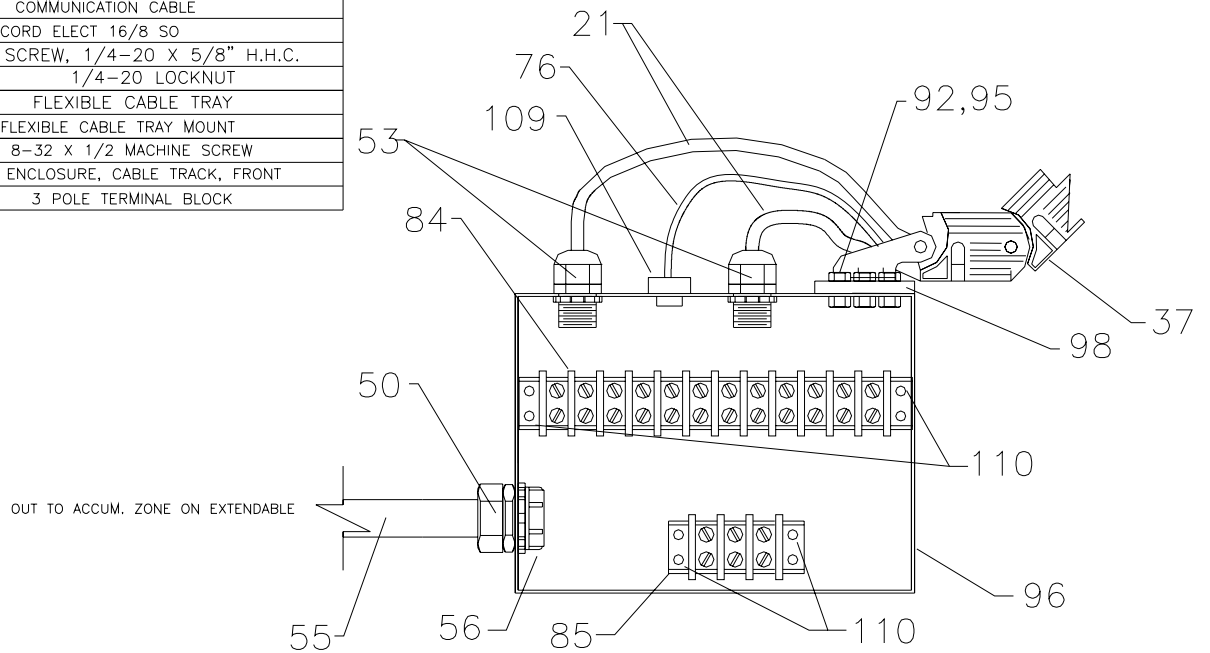
## Enclosure Mount, Cable Track, Front (D-D)

ITEM	PART NUMBER	DESCRIPTION
92	10000	SCREW, 1/4-20 X 5/8"
95	11110	LOCKNUT, 1/4-20 NYLON
96	400006	ENCLOSURE, CABLE TRACK, FRONT



## Component Mount, Cable Track, Front (D-D)

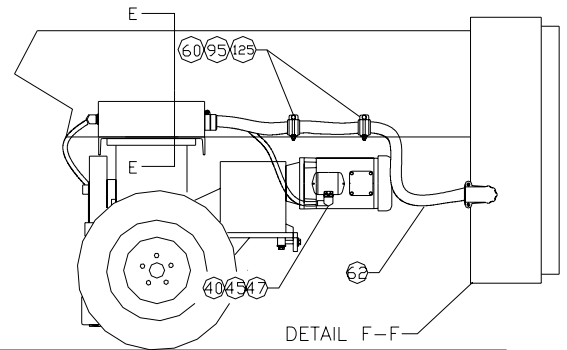
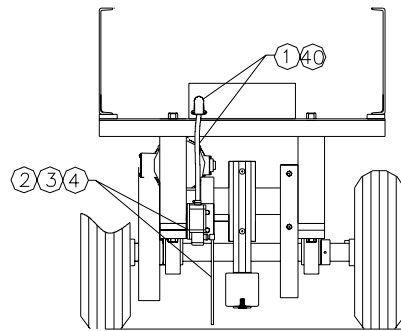
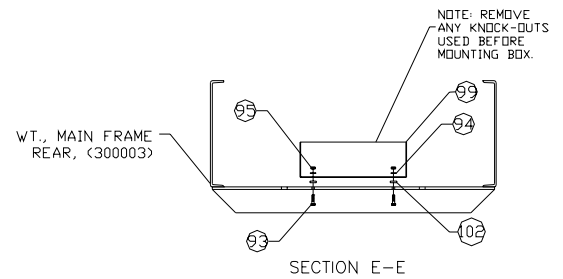
NO.	REQ'D	PART #	DESCRIPTION
55	1	400101	3/4" EMT CONDUIT
50	1	300114	3/4" STRAIGHT COMP. CONN FOR EMT
56	1	300112	3/4" PLASTIC BUSHING
84	1	300089	12 POSITION TERMINAL BLOCK
53	2	300123	3/4" STRAIN RELIEF
109	1	1-90071	STRAIN RELIEF
76	1	400105	COMMUNICATION CABLE
21	2	15037-10	CORD ELECT 16/8 SO
92	4	10000	SCREW, 1/4-20 X 5/8" H.H.C.
95	4	11110	1/4-20 LOCKNUT
37	1	300108	FLEXIBLE CABLE TRAY
98	1	400003	FLEXIBLE CABLE TRAY MOUNT
110	4	300098	8-32 X 1/2 MACHINE SCREW
96	1	400006	ENCLOSURE, CABLE TRACK, FRONT
85	1	300080	3 POLE TERMINAL BLOCK





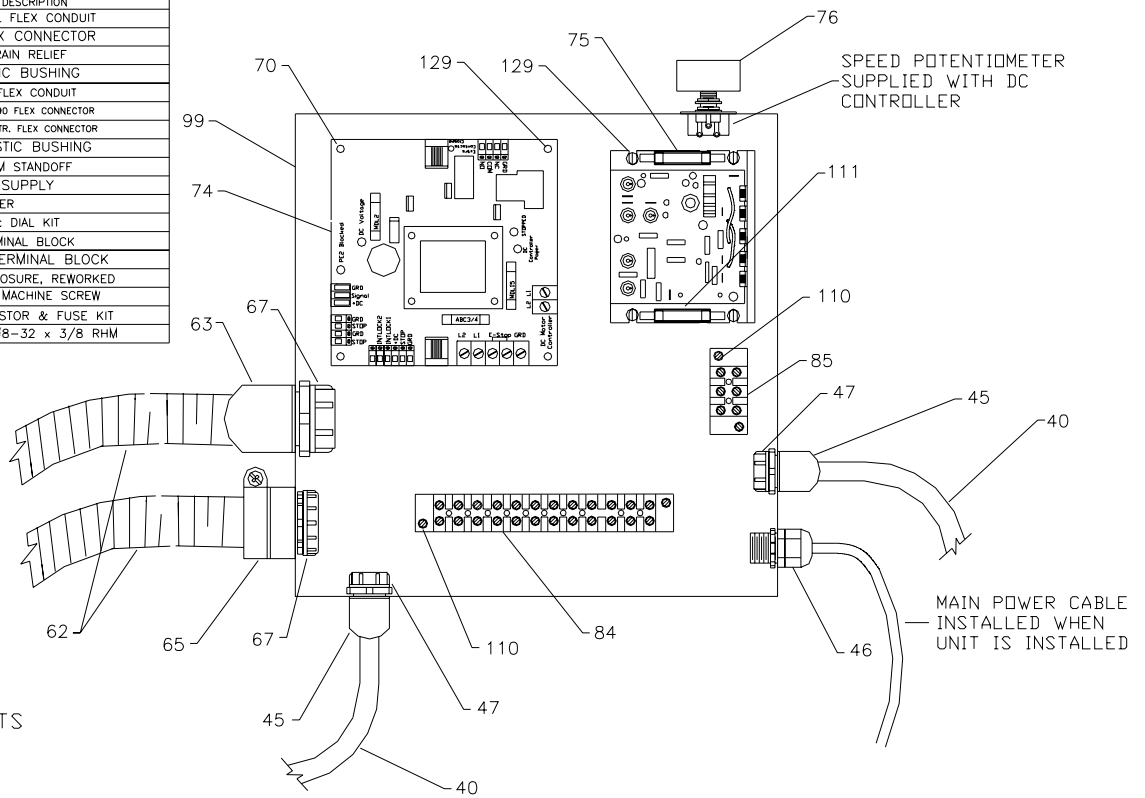
## Enclosure Mount, (Detail E-E)

ITEM	PART NUMBER	QTY	DESCRIPTION
1	300085	1	1/2" 90° FLEX CONN.
2	300131	1	1/2" STRT FLEX CONN.
3	300078	1	LIMIT SWITCH, FRD/REV
4	300079	1	ACTUATOR ROD, LIMIT SWITCH
40	400098	1	1/2" METAL FLEX CONDUIT
45	300085	2	1/2" 90 FLEX CONNECTOR
47	300113	2	1/2" PLASTIC BUSHING
60	300130	2	1 1/4" EMT HANGER
62	400107	2	1 1/4" FLEX CONDUIT
93	10012	4	BOLT, HHC, 1/4-20 X 1"
94	12000	4	FLAT WASHER, 1/4"
95	11110	6	LOCKNUT, 1/4-20 NYLON
99	300091	1	ENCLOSURE, 12x12x4", REWORKED
102	12501	4	SPCR, 3/4 X 17/64 X 3/16 THK.
125	10010	2	BOLT, HHC, 1/4-20 X 3/4"



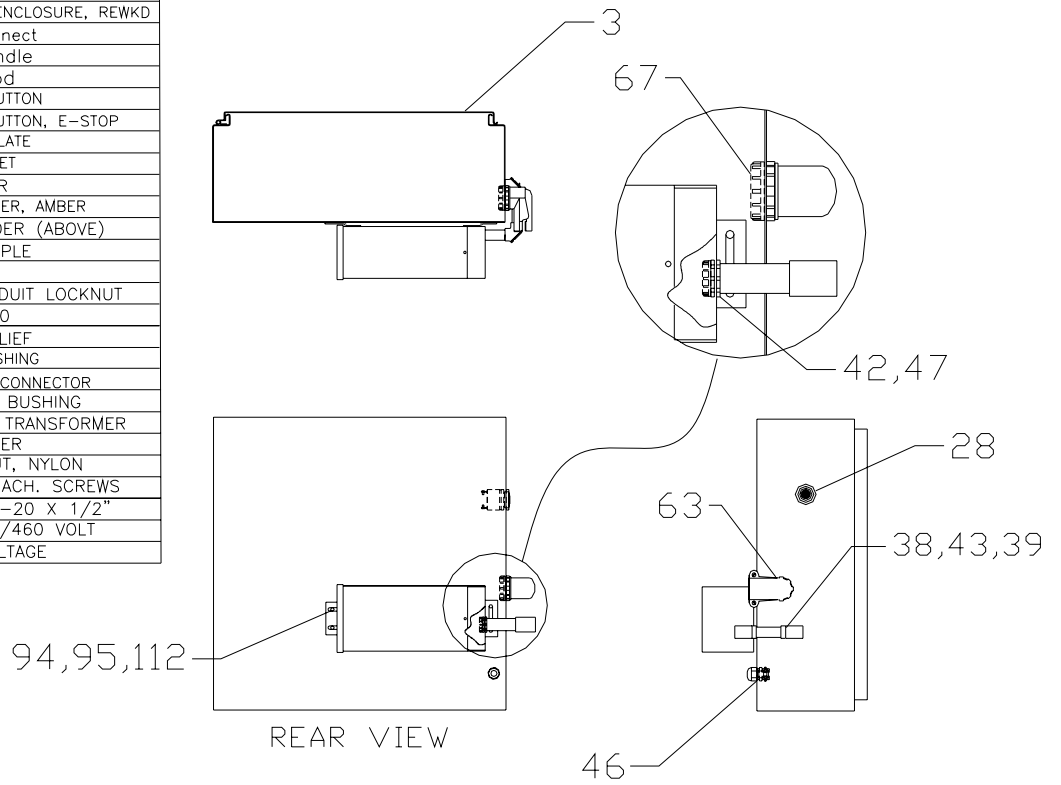
## Electrical Layout, (Detail E-E)

NO.	REQ'D	PART #	DESCRIPTION
40	2	400098	1/2" METAL FLEX CONDUIT
45	2	300085	1/2" 90 FLEX CONNECTOR
46	1	300115	1/2" STRAIN RELIEF
47	2	300113	1/2" PLASTIC BUSHING
62	2	400107	1-1/4" METAL FLEX CONDUIT
63	1	300081	1-1/4" 90 FLEX CONNECTOR
65	1	300116	1 1/4" STR. FLEX CONNECTOR
67	2	300111	1-1/4" PLASTIC BUSHING
70	4	1-90069	HEX ALUMINUM STANDOFF
74	1	15109	POWER SUPPLY
75	1	1-90066	DC CONTROLLER
76	1	1-90065	KNOB & DIAL KIT
84	1	300089	12 POLE TERMINAL BLOCK
85	1	300080	3 POLE TERMINAL BLOCK
99	1	300091	12x12x4 ENCLOSURE, REWORKED
110	4	300098	8-32 x 1/2 MACHINE SCREW
111	1	12544	HP RESISTOR & FUSE KIT
129	12	15030-3	SCREW #8-32 x 3/8 RHM

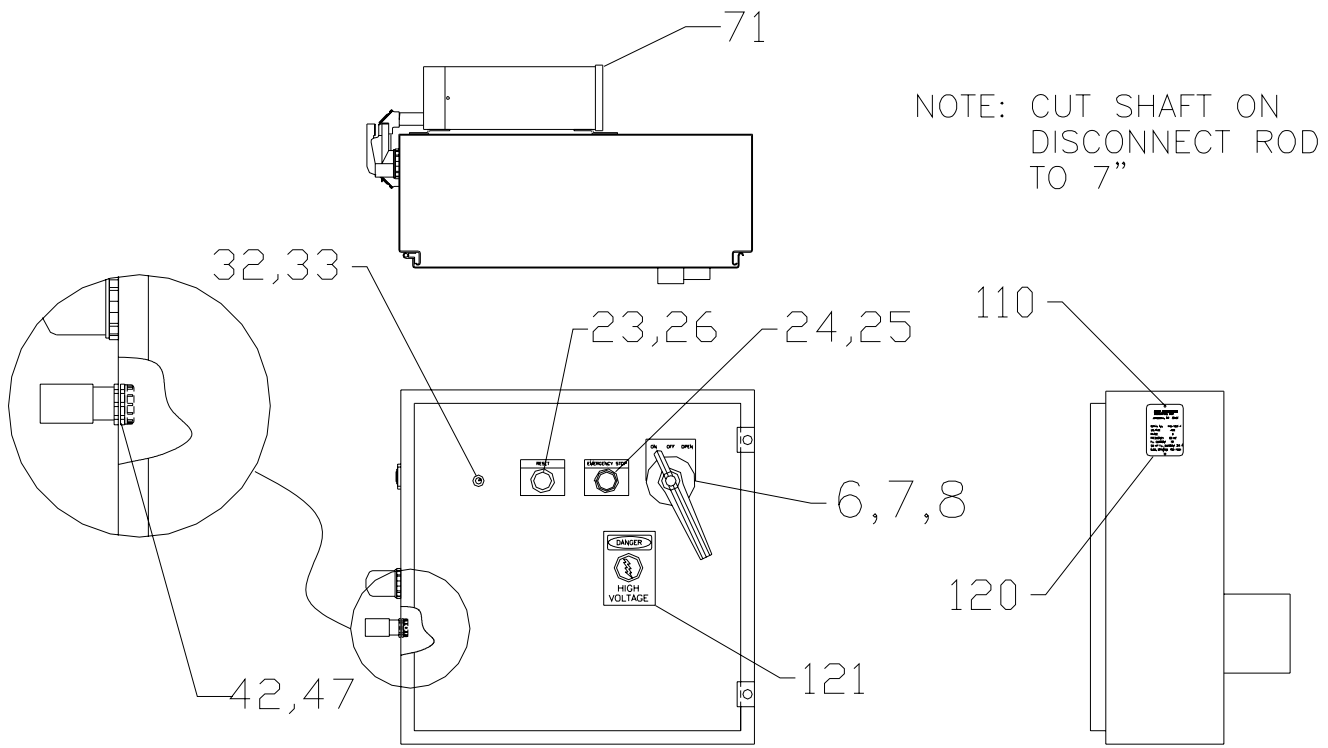


## Mount Detail, Electrical Hardware, (F-F)

REF.	QTY.	PART #	DESCRIPTION
3	1	300238	24x24x8" ELEC. ENCLOSURE, REWKD
6	1	300357	30A Door Disconnect
7	1	300358	Disconnect Handle
8	1	300359	Disconnect Rod
23	1	300099	30.5mm PUSH BUTTON
24	1	300100	30.5mm PUSH BUTTON, E-STOP
25	1	300927	E- STOP, NAMEPLATE
26	1	300138	NAME PLATE, RESET
28	1	300239	120V AC BUZZER
32	1	300240	PILOT LAMP HOLDER, AMBER
33	1	300241	LAMP FOR HOLDER (ABOVE)
38	1	300132	1/2" CLOSE NIPPLE
39	2	300084	1/2 X 3" NIPPLE
42	4	15010-N	1/2" RIGID CONDUIT LOCKNUT
43	2	300129	1/2" PULLING 90
46	1	300125	1/2" STRAIN RELIEF
47	2	300113	1/2" PLASTIC BUSHING
63	1	300081	1 1/4" 90 FLEX CONNECTOR
67	1	300111	1 1/4" PLASTIC BUSHING
71	1	300143	2.0 KVA POWER TRANSFORMER
94	4	12000	1/4" FLAT WASHER
95	4	11110	1/4-20 LOCKNUT, NYLON
110	2	300098	8-32 X 1/2" MACH. SCREWS
112	4	300142	BOLT, HHC, 1/4-20 X 1/2"
120	1	300102	NAMEPLATE, 230/460 VOLT
121	1	300103	DECAL: HIGH VOLTAGE



## Mount Detail, Electrical Hardware, (F-F)

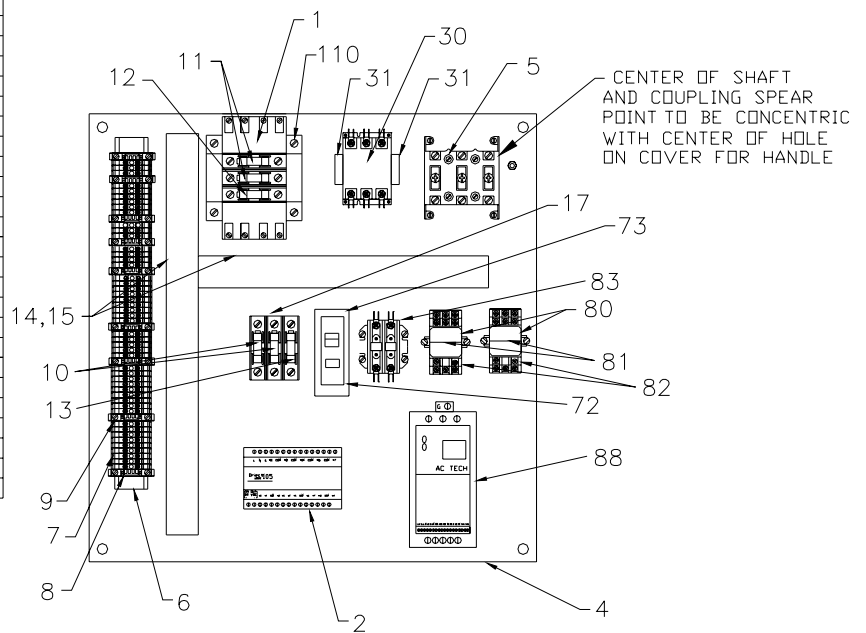


Refer to table on previous page.

## Electrical Panel Layout, (Detail F-F)

REF.	QTY.	PART #	DESCRIPTION
1	1	300242	CONTROL TRANSFORMER
2	1	300351	PLC
4	1	300244	BACK PANEL
5	1	300357	30A DOOR DISCONNECT
6	2	300246	35mm DIN RAIL
7	47	300247	TERMINAL BLOCK
8	8	300248	ANCHOR BLOCK
9	8	300249	END CAPS
10	2	300250	10A, 600V FUSE
11	2	300251	1.25A, 600V TIME DELAY FUSE
12	1	300252	2A, 250V FUSE
13	1	300253	3A, 250V FUSE
14	2	300254	1"X 1.5" WIRE DUCT
15	2	300255	1" WIRE DUCT COVER
17	3	300256	FUSE HOLDER
30	1	300273	4 POLE CONTACTOR
31	2	300274	AUXILIARY CONTACTS
72	1	300259	15A CIRCUIT BREAKER
73	1	300260	BREAKER MOUNTING BASE
80	2	15066	RELAY
81	2	15066-1	HOLD DOWN BAIL
82	2	15067	RELAY BASE
83	1	15060	CONTACTOR
88	1	NOTE 1	AC FREQ. DRIVE
110	35	300098	8-32 x 1/2" MACHINE SCREW

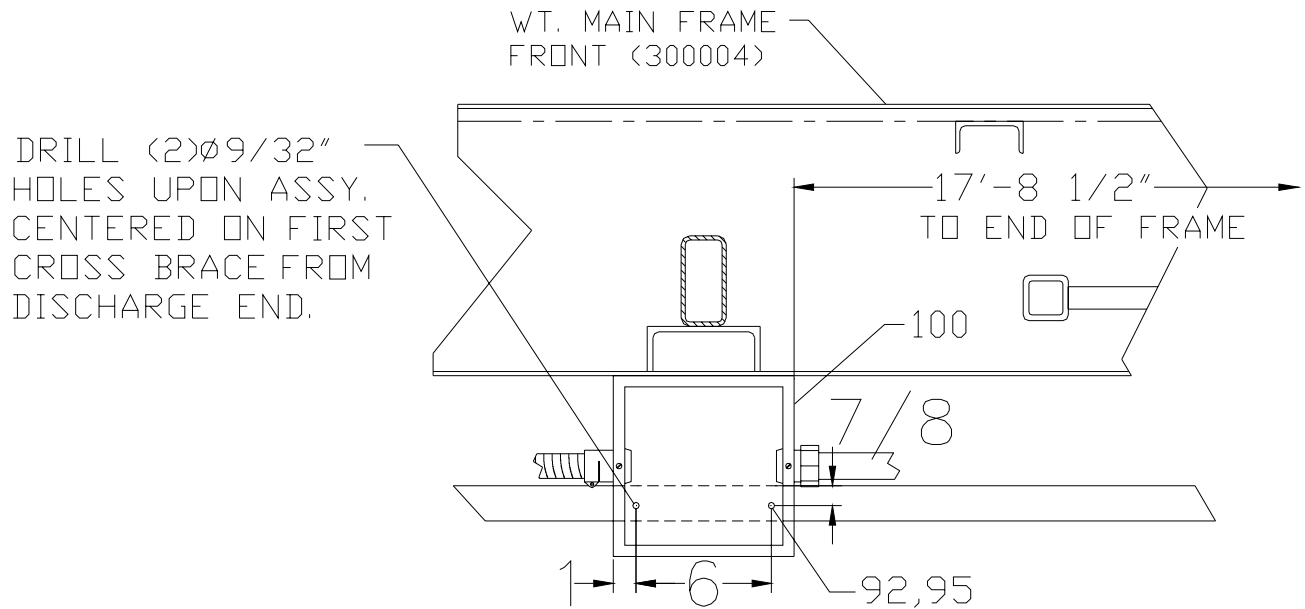
NOTE 1: 230V OPTION USES 300272  
460V OPTION USES 300271



COMPONENT LAYOUT OF MAIN PANEL

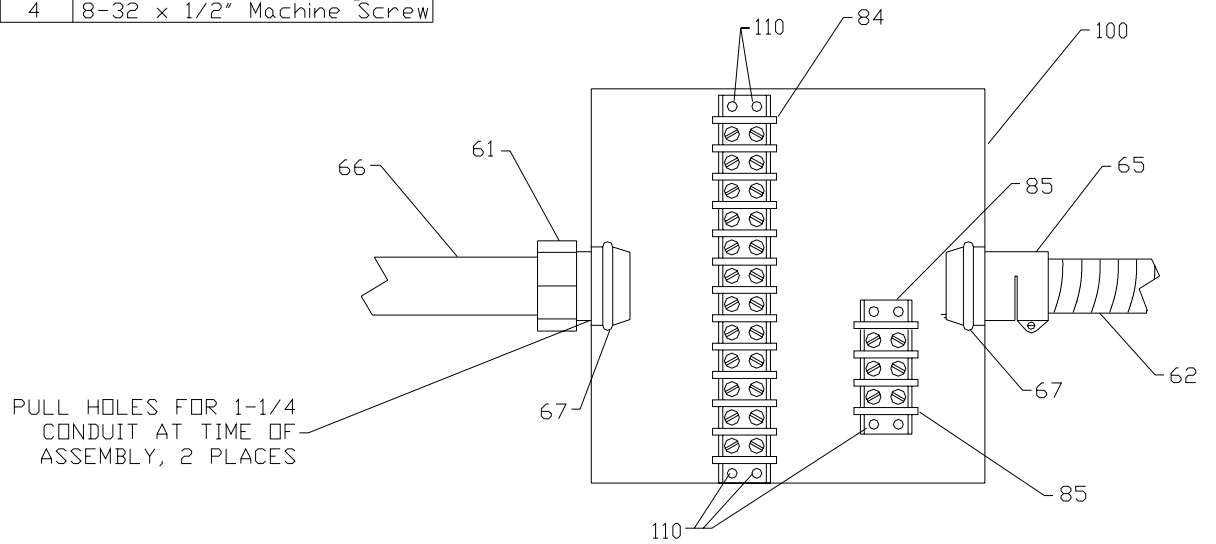
## Enclosure Mount, S/O Junction Box, (G-G)

ITEM	PART #	QTY.	DESCRIPTION
92	10000	2	SCREW, 1/4-20 X 5/8 HHC
95	11110	2	LOCKNUT, 1/4-20 NYLON
100	300093	1	8x8x4 ENCLOSURE, REWORKED



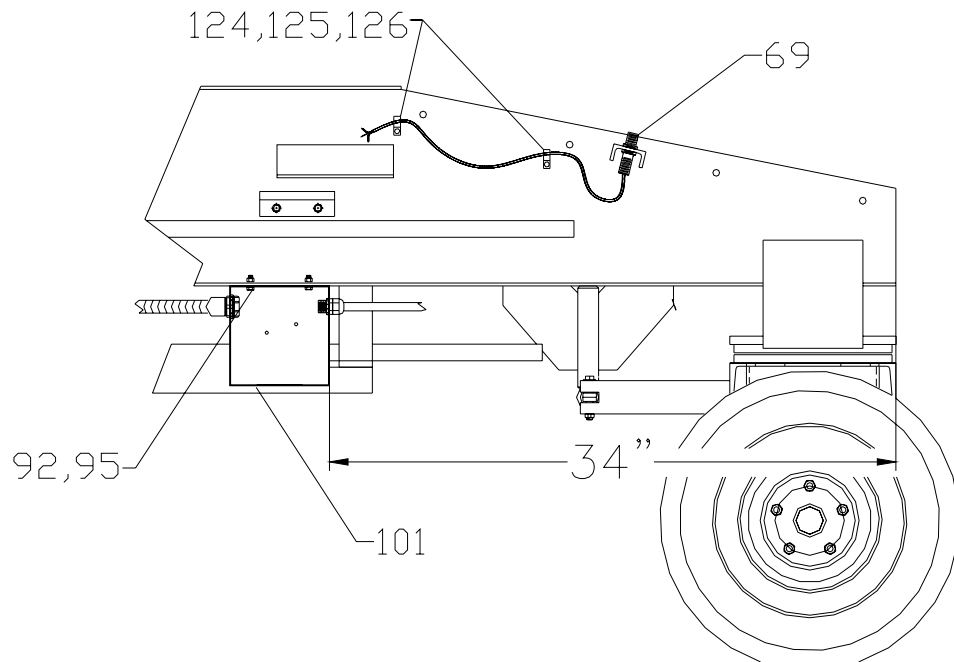
## Electrical Components, S/O Junction Box, (G-G)

ITEM	PART #	QTY	DESCRIPTION
66	400100	1	1-1/4" EMT Conduit
61	300110	1	1-1/4" EMT Comp. Conn
84	300089	1	12 Pole Terminal Strip
100	300093	1	Electric Enclosure,REWORKED
62	400107	1	1-1/4" Metal Flex Conduit
65	300116	1	1-1/4" Straight Flex Conn.
85	30080	1	3 Pole Terminal Strip
67	300111	2	1-1/4" Plastic Bushing
110	300098	4	8-32 x 1/2" Machine Screw



## Enclosure Mount, Linear Actuator, (H-H)

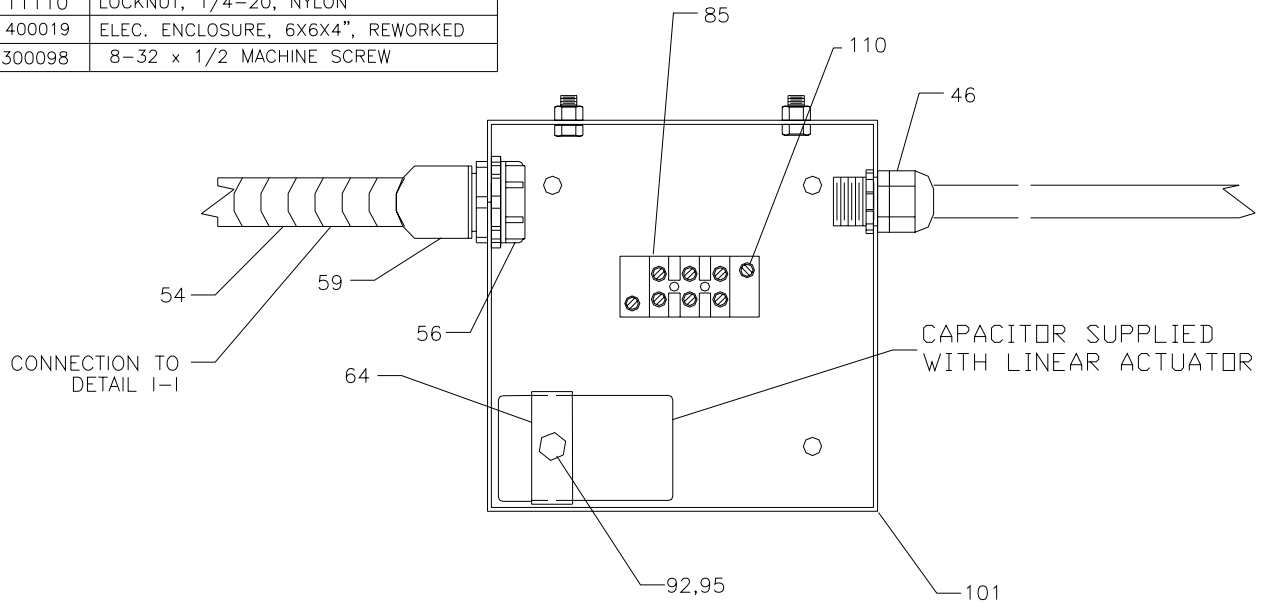
ITEM	PART #	QTY.	DESCRIPTION
69	300569	3	DIFFUSED PHOTOEYE
92	10000	2	SCREW, 1/4-20 X 5/8 HHC
95	11110	2	LOCKNUT, 1/4-20 NYLON
101	400019	1	6x6x4 ENCLOSURE, REWORKED
124	10530-2	2	SCREW, RHM #10-32 X 3/4"
125	11279-2	2	LOCKNUT, #10-32
126	15097	2	1/2" CABLE CLAMP HANGER





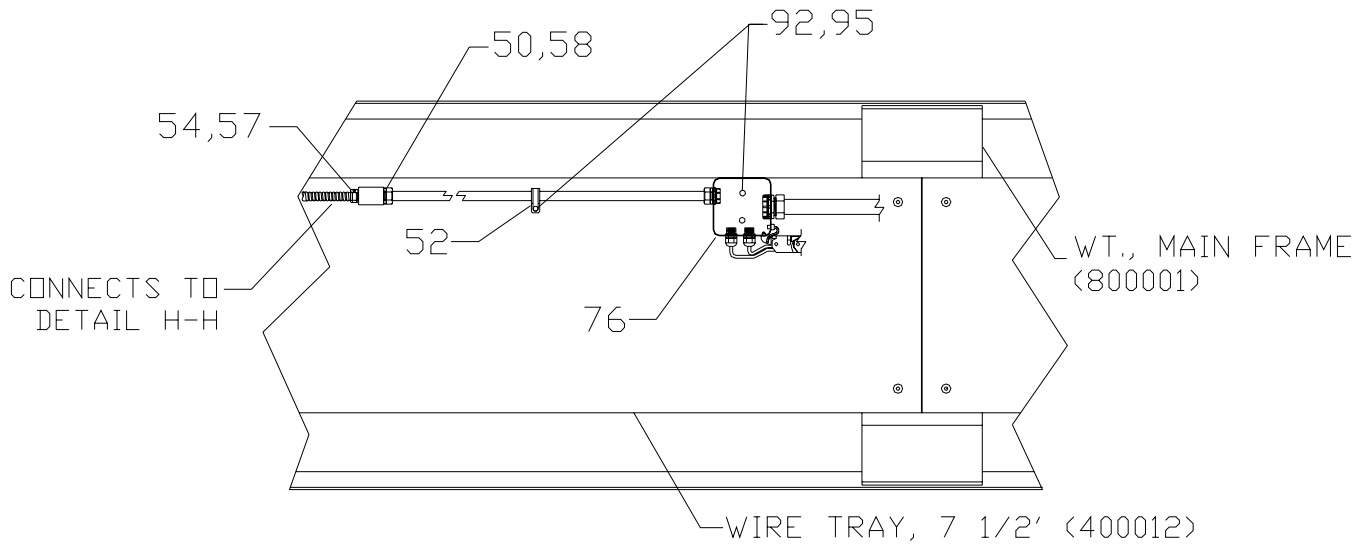
## Enclosure Mount, Linear Actuator, (H-H)

NO.	REQ'D	PART #	DESCRIPTION
46	1	300115	1/2" STRAIN RELIEF
54	1	400099	3/4" METAL FLEX CONDUIT
56	1	300112	3/4" PLASTIC BUSHING
59	1	300088	3/4" 90 FLEX CONNECTOR
64	1	300124	1 1/4" SINGLE BOLT EMT CLAMP
85	1	300080	3 POLE TERMINAL BLOCK
92	1	10000	SCREW, 1/4-20 X 5/8" H.H.C.
95	1	11110	LOCKNUT, 1/4-20, NYLON
101	1	400019	ELEC. ENCLOSURE, 6X6X4", REWORKED
110	2	300098	8-32 x 1/2 MACHINE SCREW



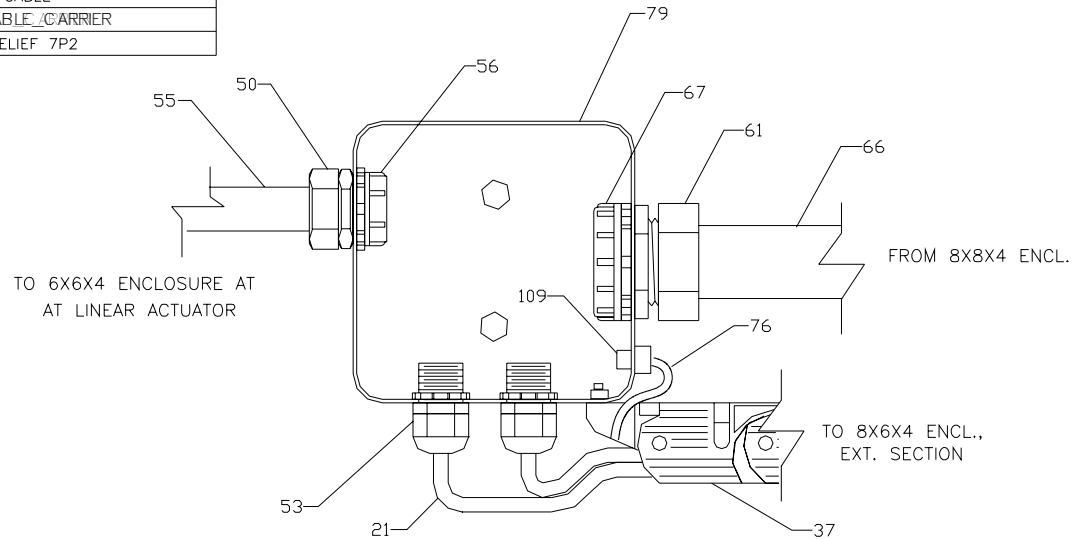
## Enclosure Mount, Cable Track, Rear, (I-I)

ITEM	PART #	QTY.	DESCRIPTION
50	300114	1	3/4" EMT STRAIGHT COMP.
52	300126	1	3/4" SINGLE BOLT EMT CLAMP
54	400099	REF	3/4" FLEX CONDUIT
57	300086	1	3/4" STRAIGHT FLEX CONN.
58	300087	1	3/4" RIGID COUPLING
76	300140	1	ENCL., 4 11/16" SQ., RE-WKD
92	10000	3	SCREW, 1/4-20 X 5/8 HHC
95	11110	3	LOCKNUT, 1/4-20 NYLON



## Enclosure Mount, Cable Track, Rear, (I-I)

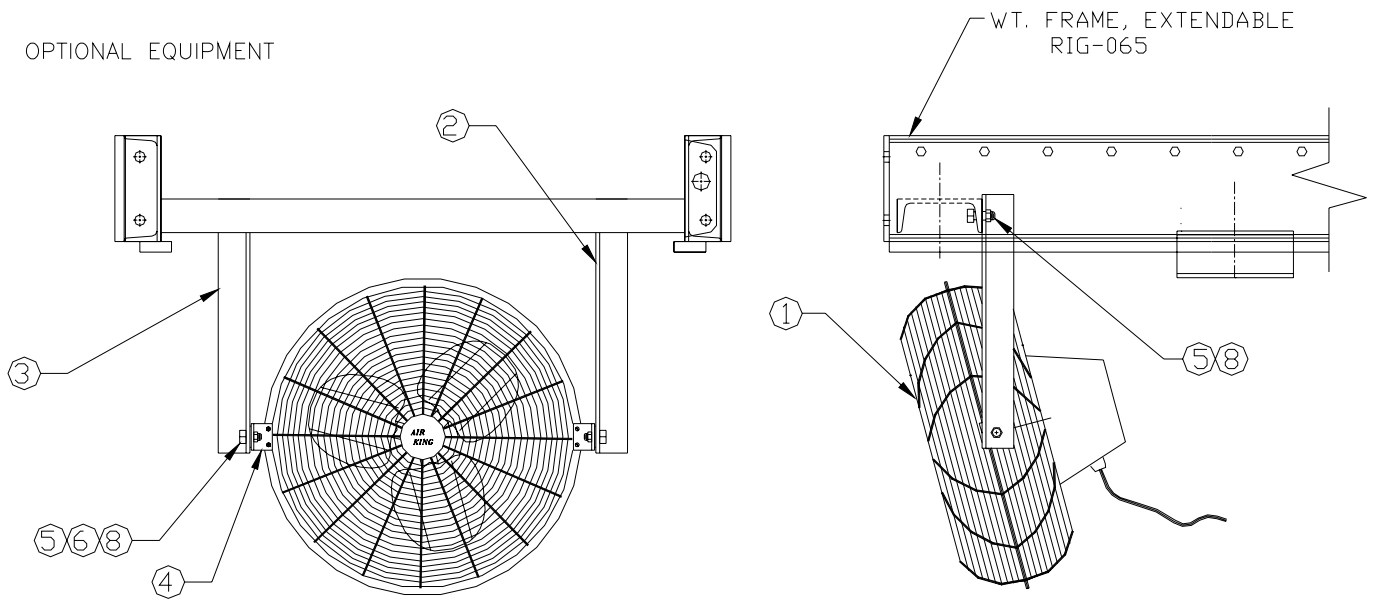
NO.	REQ'D	PART #	DESCRIPTION
21	2	15037-10	CORD ELEC. 16/8 SO
37	1	300108	FLEXIBLE CABLE TRAY
61	1	300110	1 1/4" STRAIGHT COMPRESSION FITTING FOR EMT
53	2	300123	3/4" STRAIN RELIEF
50	1	300114	3/4" STRAIGHT COMPRESSION FITTING FOR EMT
55	1	400101	3/4" EMT CONDUIT
56	1	300112	3/4" PLASTIC BUSHING
66	1	400100	1 1/4" EMT CONDUIT
67	1	300111	1 1/4" PLASTIC BUSHING
76	1	400105	COMMUNICATION CABLE
79	1	400004	ENCLOSURE_CABLE_CARRIER
109	1	1-90070	STRAIN RELIEF 7P2



## Fan (optional)

ITEM	PART NUMBER	QTY.	DESCRIPTION
1	300229	1	12" ELECTRIC FAN
2	450015	1	MOUNTING LEG, FAN-LH
3	450016	1	MOUNTING LEG, FAN-RH
4	450017	2	SWIVEL BRACKETS, FAN
5	11140	4	LOCKNUT, 3/8-16 NYLON
6	12187	2	WASHER, NYL. 1" O.D. X 1 13/32" I.D. X 1/16
7	15016	1	RING CONNECTOR, CRIMP-ON
8	10042	4	BOLT, HHC 3/8-16 X 1"
9	15026	2	NUT, WIRE YELLOW

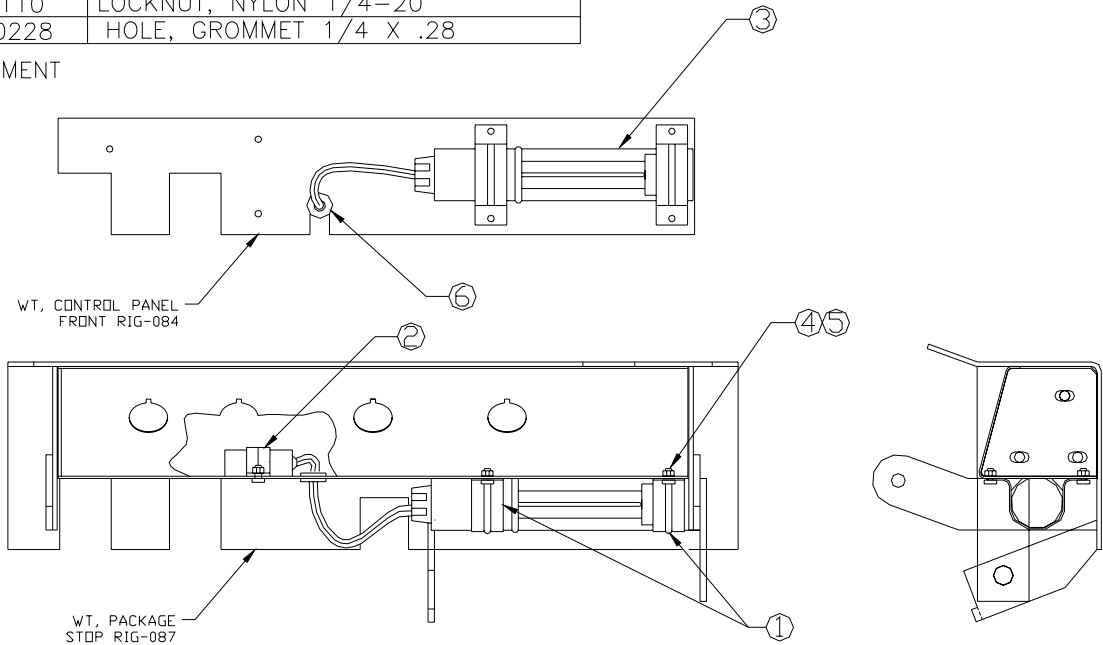
### OPTIONAL EQUIPMENT



### Light (optional)

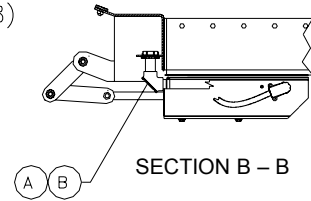
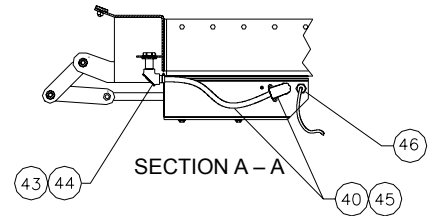
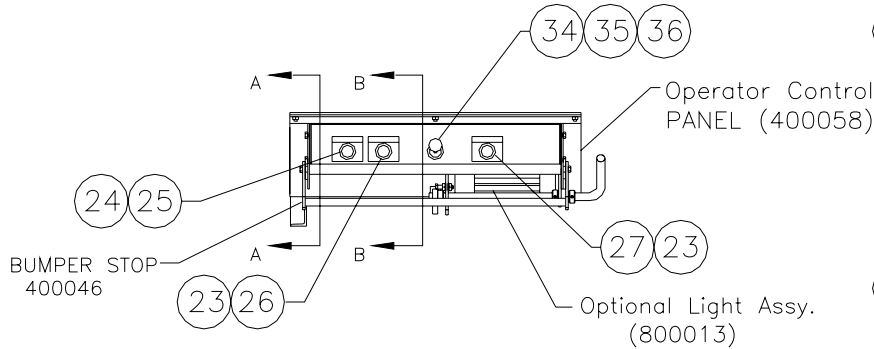
ITEM	QTY	PART NO	DESCRIPTION
1	2	300226	CONDUIT HANGER, 1 1/2" 2 HOLE
2	1	450014	BRACKET, BALLAST
3	1	300227	LIGHT, FLORESCENT
4	6	300142	BOLT, HHC 1/4-20 X 1/2"
5	6	11110	LOCKNUT, NYLON 1/4-20
6	1	300228	HOLE, GROMMET 1/4 X .28

OPTIONAL EQUIPMENT



## Electrical Control Panel, (Detail J-J)

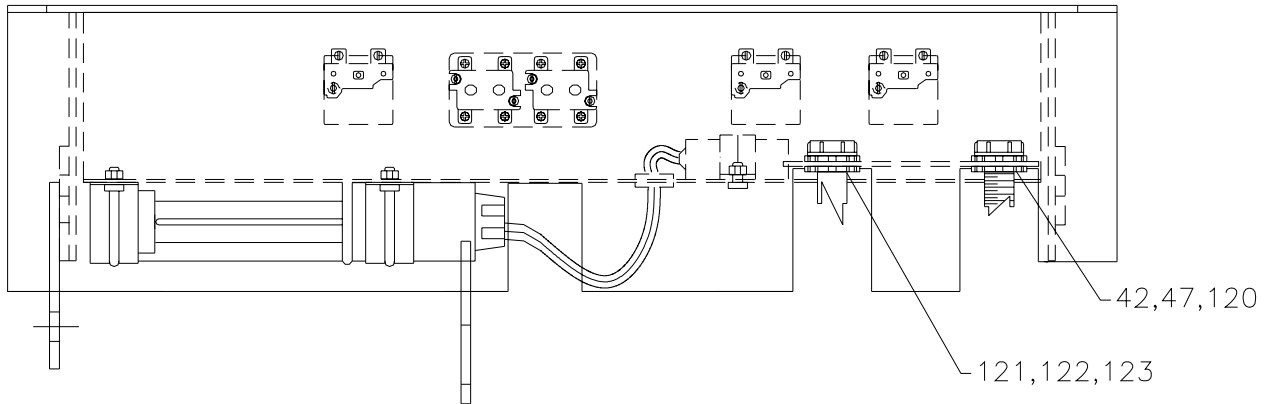
ITEM	QTY	PART NO	DESCRIPTION
23	2	300099	30.5 MM PUSH BUTTON
24	1	300100	30.5 MM PUSH BUTTON, E. STOP
25	1	300927	NAME PLATE, E. STOP
26	1	300138	NAME PLATE, RESET
27	1	300133	NAME PLATE ON/OFF
34	1	300145	8 POSITION JOY STICK
35	2	300146	(2) NORMALLY OPEN CONTACTS
36	1	300147	NAME PLATE, ARROWS
40	1	40098	1/2" METAL FLEX CONDUIT
43	1	300129	1/2" PULLING 90 ELBO
44	1	300131	1/2" STRAIGHT FLEX CONNECTOR
45	1	300085	1/2" 90 FLEX CONNECTOR
46	1	300115	1/2" STRAIN RELIEF
A	1	300118	3/4 CLOSE NIPPLE
B	1	300114	3/4" COMPRESSION FITTING



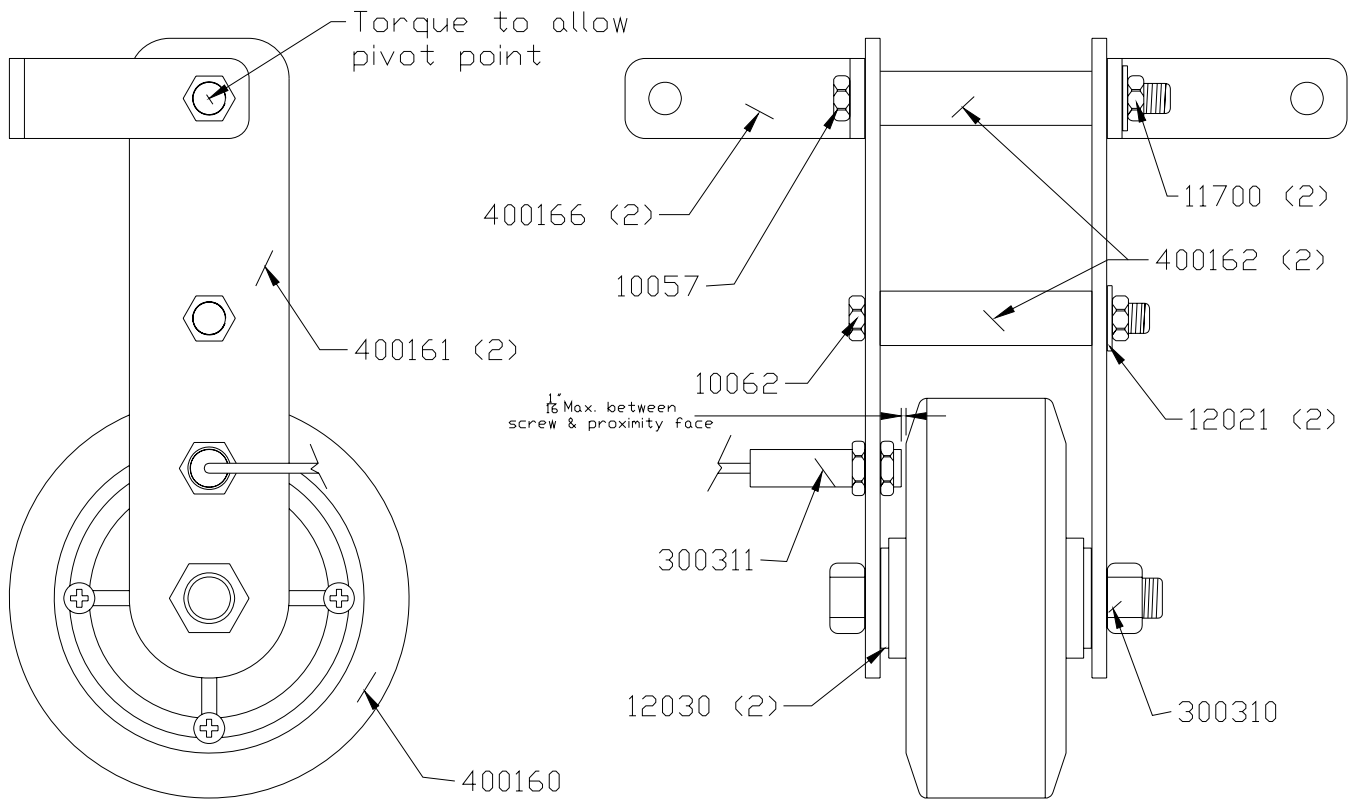
## Electrical Component, Control Panel, (J-J)

ITEM	QTY	PART NO	DESCRIPTION
42	2	11142	1/2" RIGID CONDUIT LOCKNUT
47	1	300113	1/2" PLASTIC BUSHING
120	1	300132	1/2 CLOSE NIPPLE
121	2	300119	3/4" RIGID CONDUIT LOCKNUT
122	1	300112	3/4" PLASTIC BUSHING
123	1	300118	3/4 CLOSE NIPPLE

REAR VIEW

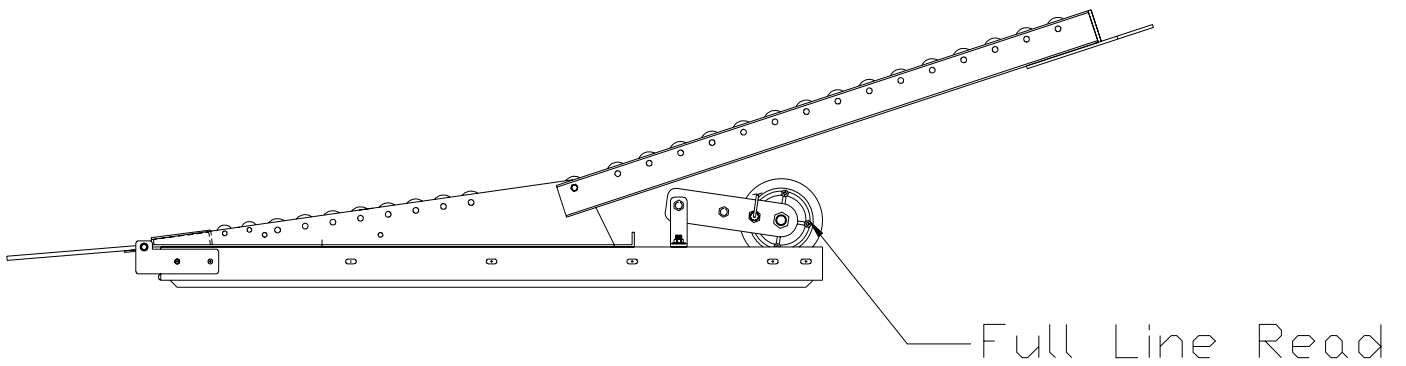


## Full Line Read



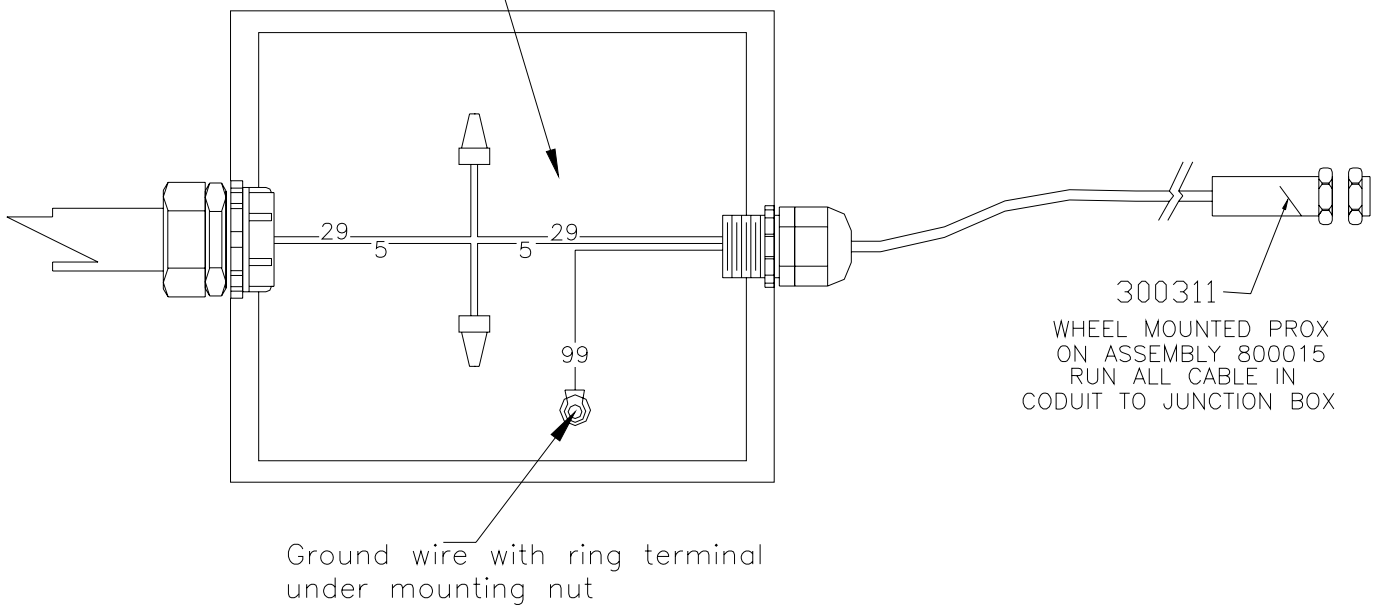


## Full Line Read on Transition



## Full Line Read Connection

WIRE COLOR	WIRE NUMBER	WIRE SIZE	CONNECTION TYPE
BROWN	29	#16 THHN	POWER
BLUE	5	#16 THHN	SIGNAL



## Full Line Read Switch

