



# Curtain Controller

*Featuring The Enclosed Limit Switch And Pulley Covers*

Operating and Installation Manual

**PNEG-620-2**

**Date: 05-07-07**



PNEG-620-2

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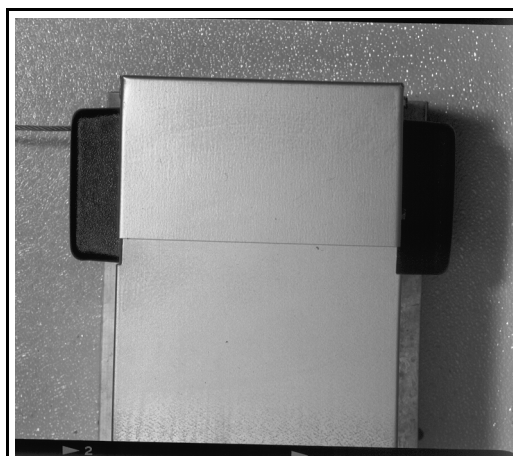
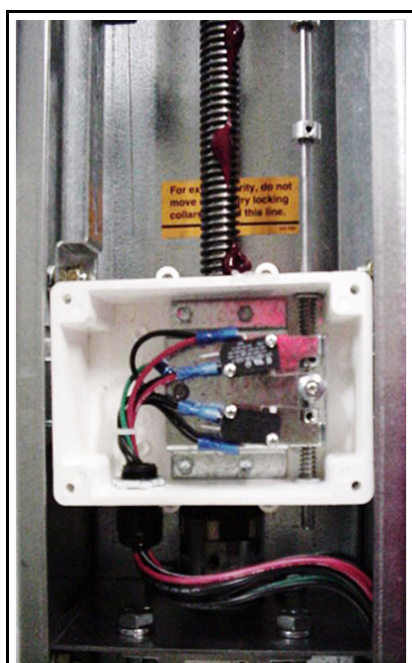
## User Manual

This manual contains information and instructions essential to the safe installation and use of this Curtain Controller system. The manual should be read thoroughly **before** attempting any installation or use of the Curtain Controller system. This manual should be kept with the Curtain Controller system, or in a location where it can be readily accessed. Failure to read this manual and its safety instructions is a misuse of the equipment.

### Correct Use of Your Curtain Controller System

The Curtain Controller system is designed solely for the purpose of controlling temperature curtains in livestock (swine and chicken) houses. Use of the system in any other way is a misuse of the system and may endanger your or another person's safety and health.

In the installation and use of the Curtain Controller system, only genuine GSI parts are to be used. Use of other non-genuine parts is a misuse of the system, and may lead to dangerous situations risking the safety and health of you and others.



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## 1. SAFETY

### 1.1 General Safety Statements

The GSI Group Inc.'s Principal concern is your safety and the safety of others associated with grain handling equipment. We want to keep you as a customer. This manual is to help you understand safe operating procedures and some problems which may be encountered by the operator and other personnel.

As owner and/or operator, it is your responsibility to know what requirements, hazards and precautions exist and inform all personnel associated with, or in the area of the machine. Safety precautions may be required from the personnel. Avoid any alteration to the equipment. Such alterations may produce a very dangerous situation, where serious injury or death may occur.



**This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.**



**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.



**NOTE** indicates information about the equipment that you should pay special attention to.



### **Danger!! Electrical Safety**

Provision of an adequate and safe power supply to the Curtain Controller unit is essential to your safety. GSI recommends that a competent and qualified electrician undertakes all electrical wiring. All wiring is to be installed in accordance to the Local and National Standards and Regulations. Electrical safety devices, Emergency Stop and Mains Isolator are provided with the Curtain Controller system and are essential for your safety. These should be installed as indicated in the enclosed installation instructions and in accordance with the relevant directives in force.

## **1.2 Controls**

The Curtain Controller is designed for use with manual or automatic temperature control. GSI Inc's. recommends the use of genuine GSI Controls. Use of any controllers that do not meet this specification can pose a risk to health and safety and will lead to malfunction and failure of the Curtain Controller.

This machine is not designed for use in atmospheres where the risk of explosion is foreseen. Use in such an environment is prohibited. If in doubt, contact your dealer or GSI.

## **1.3 Safety Guards**

The Curtain Controller system contains moving and electrical parts, which could cause serious injury, even death if touched. Guards are placed on the machine to protect you. Operating the machine at any time with guards removed or incorrectly fitted is a serious misuse of the machine and endangers you and other people's safety.

## 1.4 Safety in Handling the Curtain Controller System

The Curtain Controller Unit Weights

| <b>Model #</b> | <b>Weight</b>         |
|----------------|-----------------------|
| CC2415         |                       |
| CC2430         | <b>104 Lb / 47 Kg</b> |
| CC2460         |                       |
| I2430-50       |                       |
| CC3615         |                       |
| CC3630         | <b>119 Lb / 54 Kg</b> |
| CC3660         |                       |
| I3630-50       |                       |
| CC4815         |                       |
| CC4830         | <b>135 Lb / 61 Kg</b> |
| CC4860         |                       |
| I4830-50       |                       |
| CC6015         |                       |
| CC6030         | <b>151 Lb / 69 Kg</b> |
| CC6060         |                       |
| I6030-50       |                       |

All precautions should be taken when lifting and/or moving the unit to prevent the risk of physical injury.

## Safety

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### 1.5 Maximum Load

The Curtain Controllers with 15 RPM and 30 RPM gearmotors can lift a maximum of 4000 Lbs / 1814 Kg at a 1:2 pulley ratio. 60 RPM gearmotors can lift a maximum of 1000 Lbs / 453 Kg at a 1:2 pulley ratio.

### 1.6 Safety In Maintenance

While the Curtain Controller System is designed to keep maintenance to a minimum, some repairs will be necessary in the course of the life of the machine. Do not attempt any repairs on the machine unless you are competent to do so. Remember that the Curtain Controller operates under automatic control and will start without warning. Never attempt any work on the Curtain Controller without first isolating the machine from the main power, and locking the isolator so that only you can turn the power back on.

For your safety, follow the guidelines given in the maintenance section of this manual.

Before restarting the Curtain Controller, ensure that all electrical enclosures are locked closed, and all guards and other safety measures are correctly fitted.

If in any doubt, contact your dealer or GSI for assistance.

### 1.7 Noise

Tests on this machine have indicated noise levels at a position 1 meter from the drive unit, 1.6 meters above the ground do not exceed 70 dBa, continuous 'A' weighted sound pressure or 63 Pa, instantaneous 'C' weighted sound pressure.

## 2. SAFETY DECALS AND WARNINGS

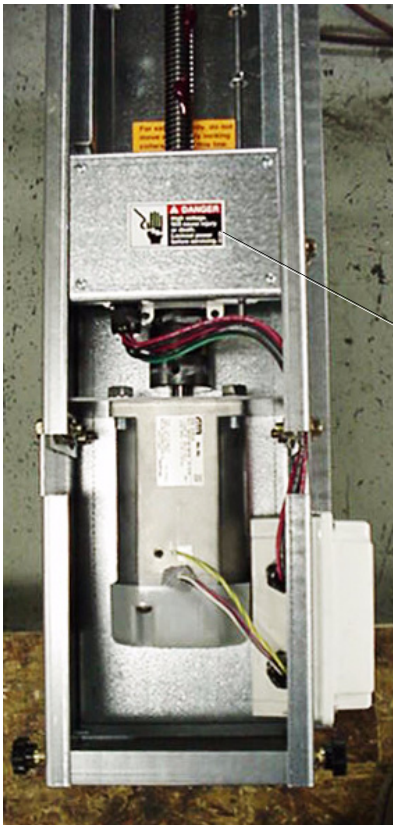
The following pages show you exactly where the safety signs and warnings (decals) should be placed on your Curtain Controller. If a decal is missing, damaged or unreadable, please contact your dealer or The GSI Group for a free replacement.

For Guidance or assistance on any issues relating to the safe use of your curtain controller system contact the GSI Group, Inc. at 1-(217)-226-4449, or fax us at 1-800-432-4233.

The GSI Group, Inc.  
1004 East Illinois Street  
Assumption, Illinois 62510



Decal-889 is located above the electrical box on the outside of the Curtain Controller



DC-889 is located on the electrical unit within the Curtain Controller





### 3. INSTALLATION

This manual outlines the recommended sequence for the installation of the Curtain Controller system. Following the sequence will provide the safest and easiest method of installation. Above all, connection of the system to the electrical mains should be the final stage of installation. Failure to observe this could lead to a fatal accident.

1. Unpack the Curtain Controller, remove the front cover and inspect the machine for visible defects.
2. Select mounting configuration. (See examples of: wall mounts [on page 32-34](#)).
3. Screw one 3/8" x 3" lag bolt 6 1/2" below the desired height of the Curtain Controller.

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**Note:** Leave 1 1/2" between the bolt head and the wall. (See Figure 3A)

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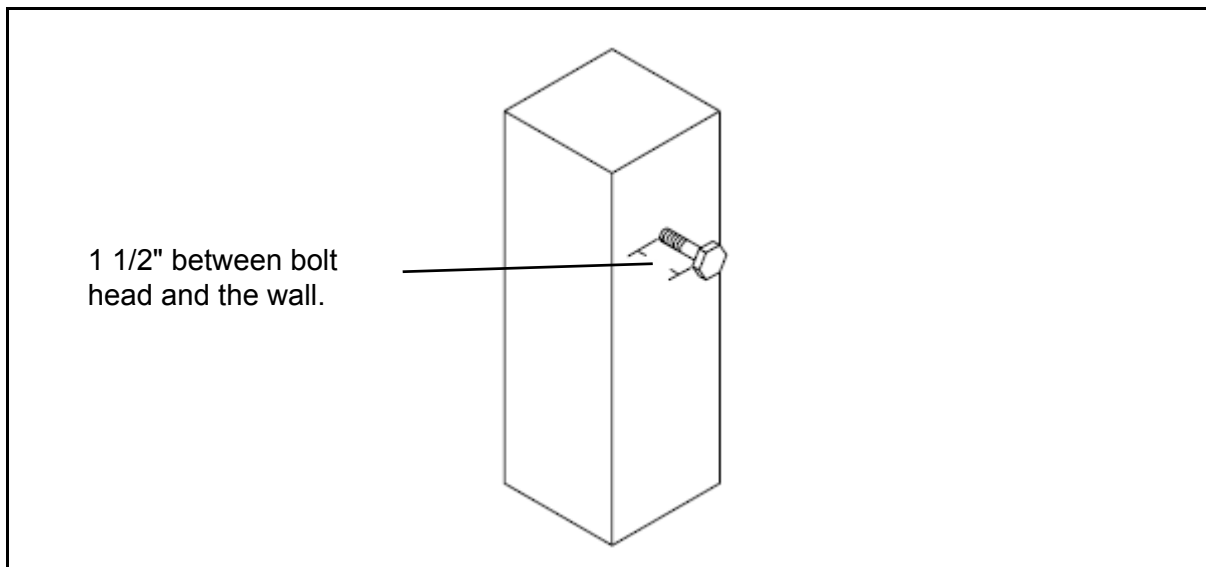


Figure: 3A

- Using the “keyhole” slot in the back of the Curtain Controller, hang the machine on the 3" lag bolt. (See [Figure 3B](#))

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**Note:** *The 3" lag bolt should only be used to hang the machine to the wall. Do not attempt to operate the machine until it is fully secured.*

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- Secure the machine to the wall by using the (6) 3/8" x 2" lag bolts provided. (See [Figure 3C](#))
- Install pulleys, brackets, hand winches etc., according to the appropriate mounting configuration.
- Install the cabling through the pulleys, brackets, hand winches etc. according to appropriate mounting configuration.
- Install the cable into the Curtain Controller pulley cover and loop the cable around the pulley.
- While the drive block is near the closed position (bottom of the drive screw), loop the incoming cable through the U-bolt and fasten the cable to itself using (3) 3/16" cable clamps per cable.
- Wire the Curtain Controller to the appropriate control. (See Wiring Diagram [on page 35](#)).
- Close the curtains / vents fully using the manual mode of the controls. Set the lower limit using the lower limit adjustment collar.

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**Note:** *Be sure to tighten the limit switch adjustment collar. Failure to do so can cause damage to the machine and barn. Take up excess slack in the cable using the manual winch while paying close attention not to overtighten.*

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- Open the curtains / vents to the desired height using the manual mode of the controls. Set the upper limit switch adjustment collar.

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**Note:** *Be sure to tighten the limit switch adjustment collar. Failure to do so can cause damage to the machine and barn.*

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- Attach the door to the machine. This will protect the integrity of the machine and insure the safety of those working on or near the machine.

# Installation

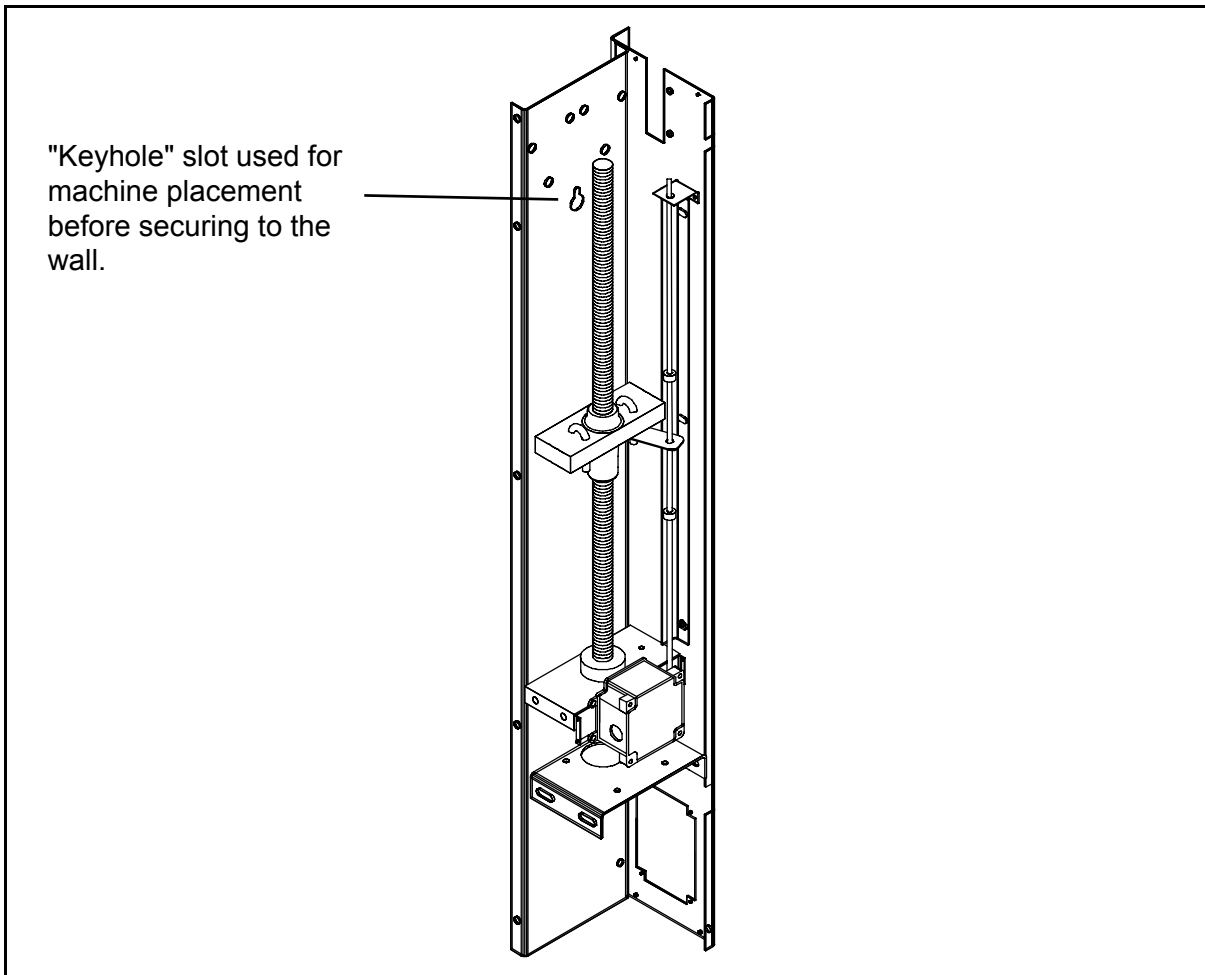


Figure: 3B

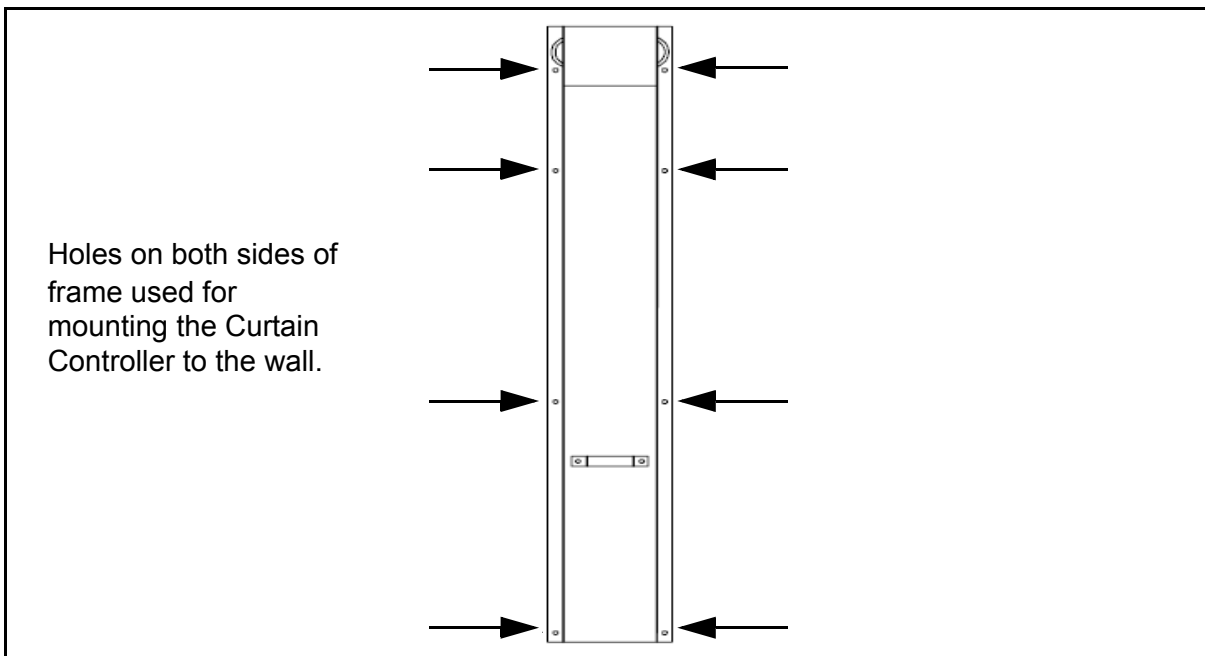


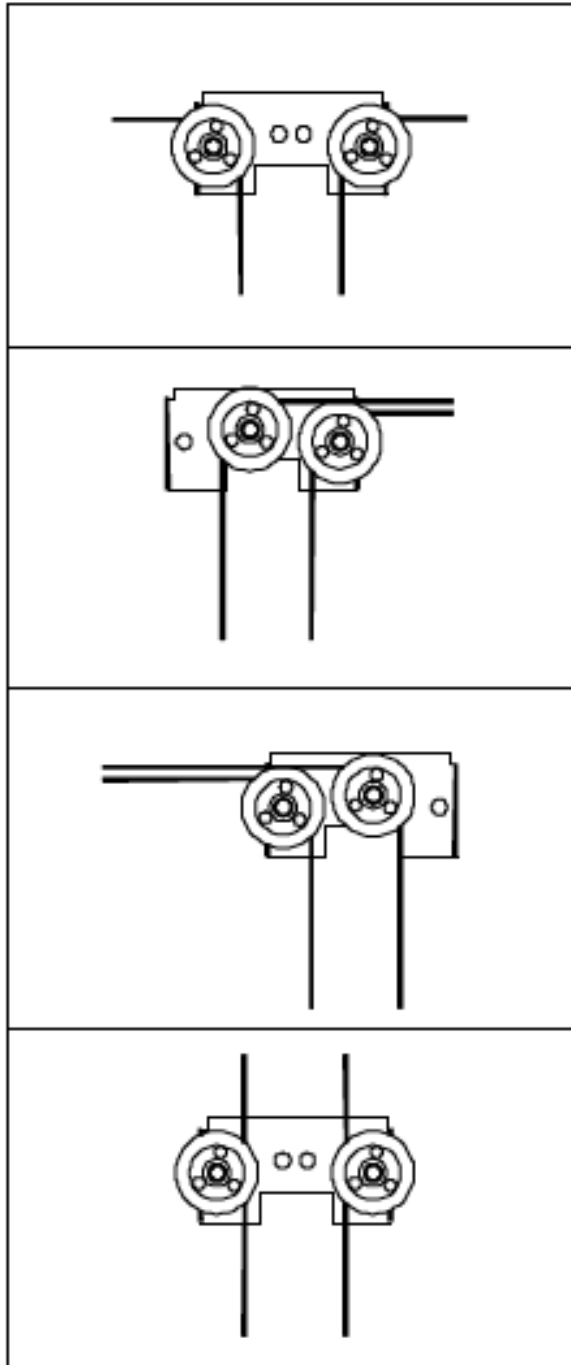
Figure: 3C

## 4. HEADER PULLEY

### Cable Configurations

#### Pulley Configuration(s):

#### Used When:



Pulling two curtains with the curtain controller.

Pulling one curtains to the right of the curtain controller.

Pulling one curtains to the left of the curtain controller.

Curtain controller is mounted horizontally. Remove the cap plugs in the top of the machine and run cables through the top holes.

## Pulley Cover Mounting Instructions

### 5. PULLEY COVER MOUNTING INSTRUCTIONS

#### 5.1 Attaching Pulley Covers to Pre-existing Cable:

*\* If you do not have preexisting cable, drill a 1/4" hole in the appropriate dimple and proceed to Step 4.*

Step 1: Determine on which side of the machine the pulley cover will be mounted. This will affect where the slot will be cut in Step 2.

Step 2: Using a saw, cut a slot from the bottom of the pulley cover lip to the dimple on the cover's face. When slotting the right pulley cover, use the right dimple for placement. When slotting the left pulley cover, use the left dimple for placement.  
(See [Figure 5A](#) for slot placement)

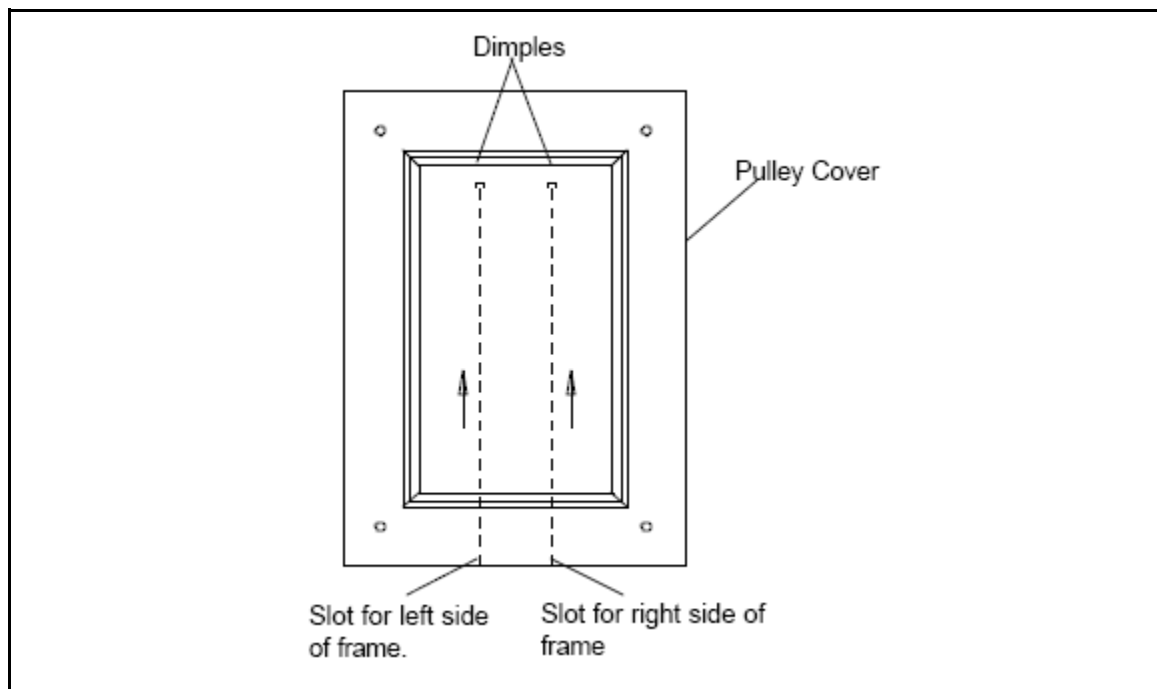


Figure : 5A

Step 3: Slide the existing cable into the slot until it reaches the dimple.

## Pulley Cover Mounting Instructions

Step 4: Remove existing sheet metal screw. (See Figure 5B for pulley cover fastening)

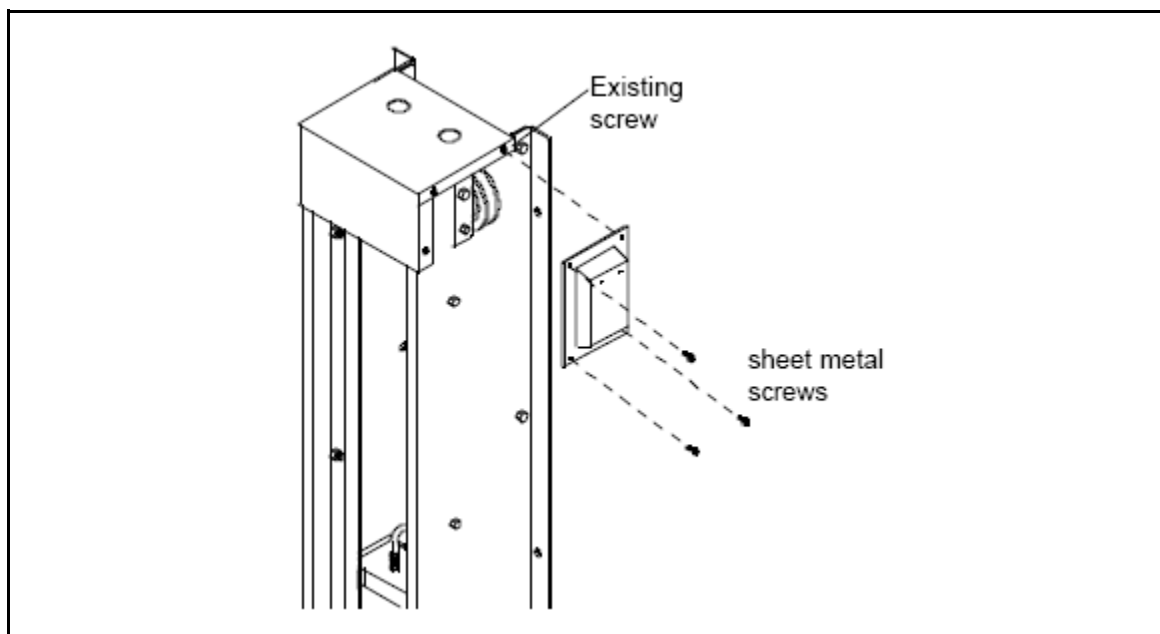


Figure : 5B

Step 5: Fasten the pulley cover to the machine using (4) #10-16 x 5/8" sheet metal screws. The top of the pulley cover should be flush with the top of the machine.

### 6. MAINTENANCE

#### 6.1 Safety in Maintenance and Repairs

Before starting any repairs or maintenance on you Curtain Controller system or control units, observe the following safety steps:

1. Isolate the system from the electricity supply by switching off the power isolator and lock it in the off position.
2. Keep the key in your possession.
3. Do not reconnect the power supply until all work is completed and all guards are correctly refitted.

It is recommended that the end user practices a monthly inspection of the Curtain Controller and all items used in conjunction (cables, pulleys, brackets, hand winches etc.,) with the machine.

1. Inspect the drive screw. Lubricate liberally with a lithium grease of an NLGI No. 2 consistency (extreme pressure properties).
2. Inspect and tighten the locking collars on the adjustment rod to insure activation of limit switches.
3. Inspect cable, pulleys, brackets, hand winches etc. for alignment and premature wear. Realign and / or replace as needed.
4. Inspect bearings checking for smooth rotation and listening for squeaks.
5. Inspect set screws in couplers and in pillow block bearing.
6. Manually run machine in both directions to insure positive shut-off and unrestricted cable movement.
7. Inspect drive screw for debris in the threads. Debris in threads may cause premature failure of drive block.
8. Inspect the thrust bearing. Lubricate as needed.

## 7. TROUBLE SHOOTING GUIDE

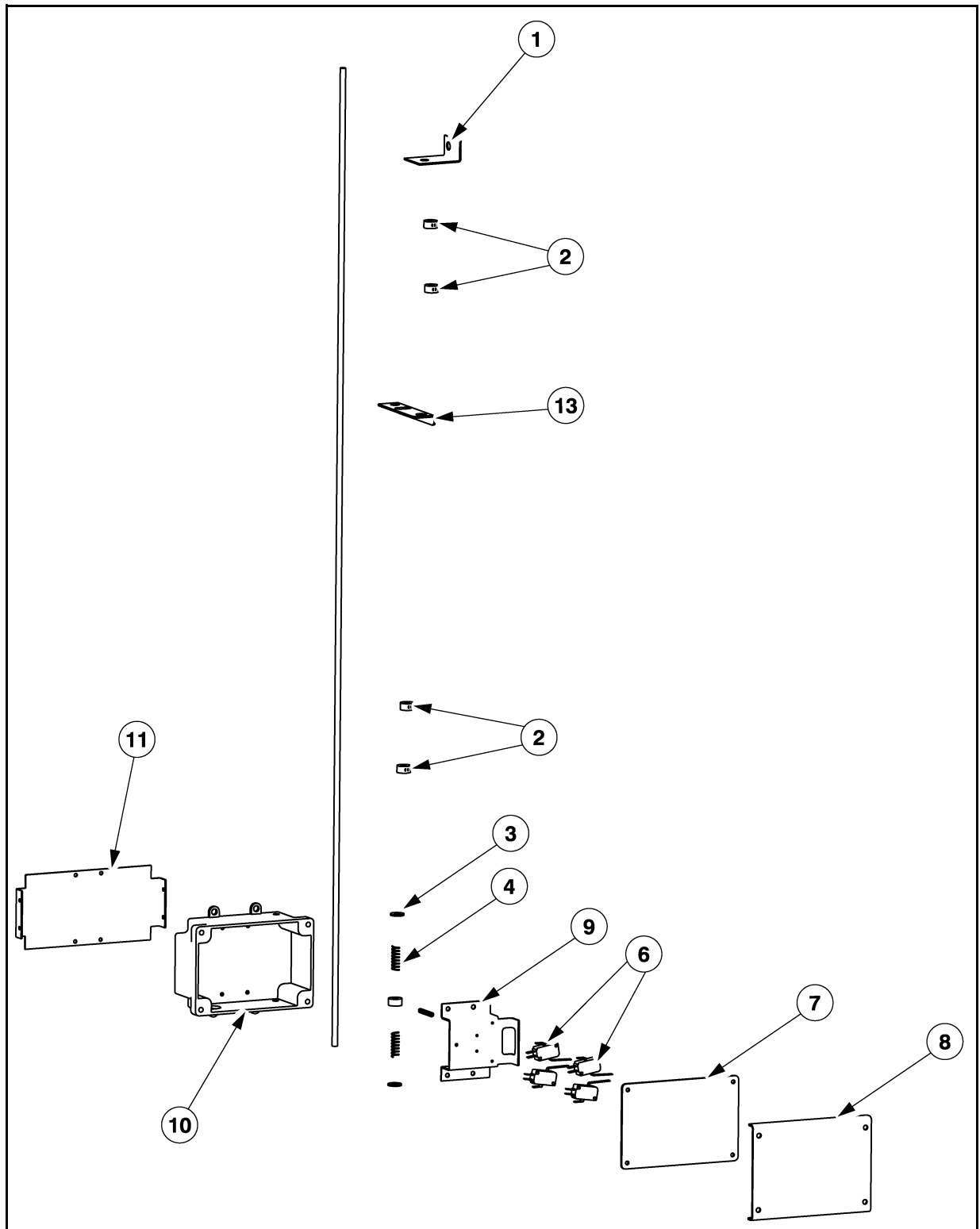
| Problem   | Possible Cause  | Corrective Action   |
|---|---|---|
| Will not run in manual mode.  | Control not in manual mode.   | Move switch to manual setting. Check for loose wire connection. |
|   | Toggle switch failure.  | Replace toggle switch.  |
| Machine operates in opposite direction in response to temperature change.   | Control wired incorrectly.  | Re-wire to wiring schematic instruction.                        |
| <p>Runs in both directions (automatic mode), but only one direction (manual mode).</p> <p>Will not run in either direction (manual or automatic modes).</p> | Control failure.  | Check for loose wire connection.                                |
|   | No power (circuit breaker or fuse).   | Replace control. Check main panel circuit breaker or fuse.      |
|   | Tripping may indicate machine overload or electrical wire short. Repair or replace before reenergizing circuit. | Check control circuit breaker and/or fuse.                      |
|   | Motor failure.  | Replace primary switch.   |
|   | Control Failure.  | Check to see if secondary switch is not depressed.              |
| Will not run in automatic but <b>does</b> operate in manual.  | Control not in automatic mode.  | Move switch to automatic setting.                               |
|   | Control failure.  | Replace control.  |
| Runs in one direction only, both auto. and manual   | Broken or loose wire.   | Repair broken or loose wire.                                    |
|   | Limit switch catching on adjustment rod mechanism.  | Free switch and adjust as needed.                               |
|   | Limit switch failure.   | Replace switch.   |
|   | Control failure.  | Replace control.  |



## **8. PART LIST**

1. Enclosed Limit Switch Assembly
2. Motor Components
3. Header Pulley and Components

1. Enclosed Limit Switch Assembly



## Part List

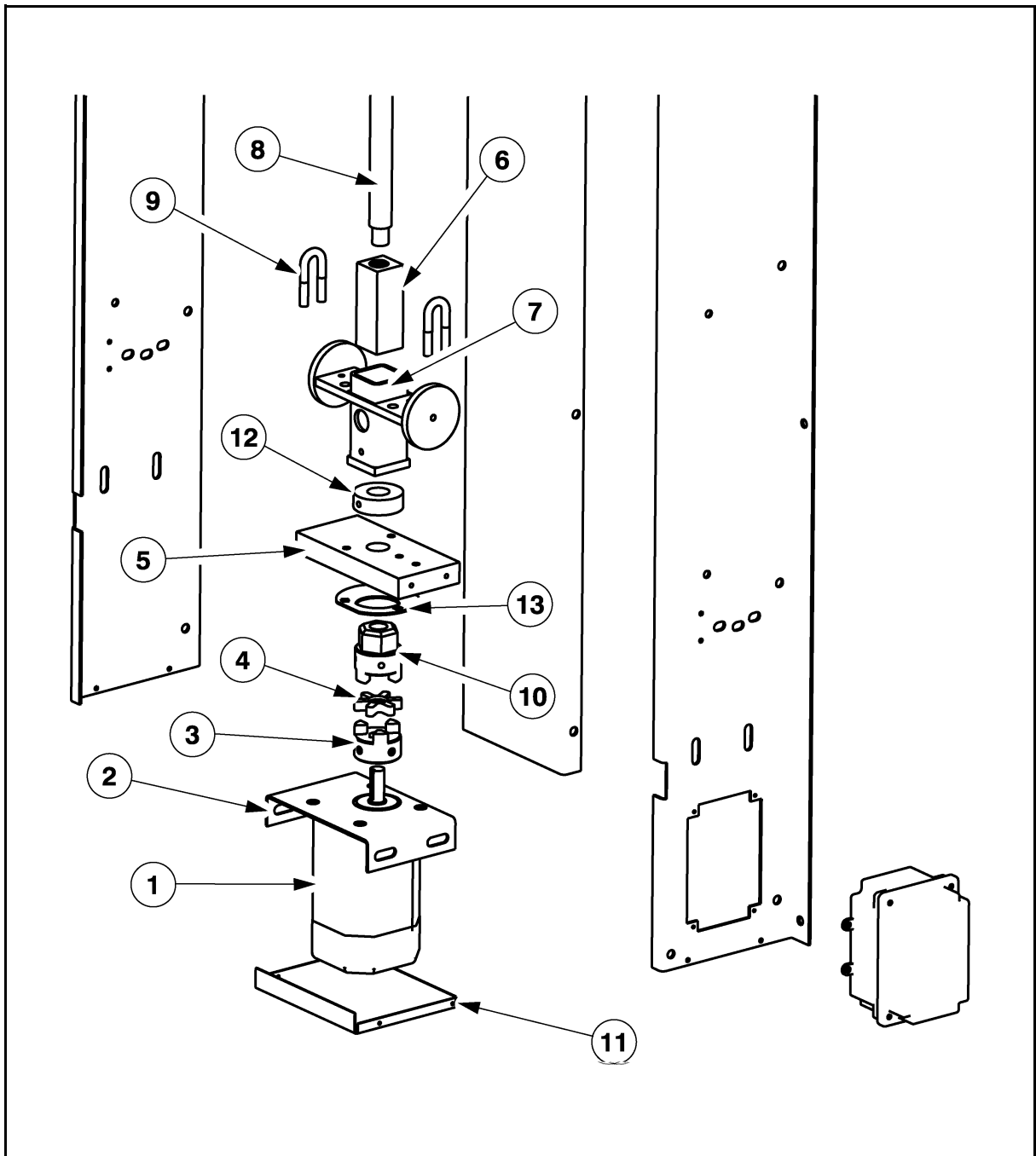
### Enclosed Limit Switch Parts

| Key | Part #  | Description                    |
|-----|---------|--------------------------------|
| 1   | 52-0321 | Adjustment Rod Retainer        |
| 2   | 50-0159 | Adjustment Collar w/ Setscrew  |
| 3   | S-1430  | Washer 1/4"                    |
| 4   | 52-0170 | Spring, Adjustment Rod         |
| 5   | S-7967  | Setscrew #10-32 x 1-1/4"       |
| 6   | S-7974  | Limit Switch                   |
| 7   | 52-0322 | Gasket                         |
| 8   | 52-0318 | Cover                          |
| 9   | 52-0319 | Limit Switch Mounting Plate    |
| 10  | 52-0323 | Enclosed Switch Box            |
| 11  | 52-0320 | Enclosed Switch Mounting Plate |
| 12  | 50-0144 | Adjustment Rod 24" Travel      |
|     | 50-0145 | Adjustment Rod 36" Travel      |
|     | 50-0146 | Adjustment Rod 48" Travel      |
|     | 50-0147 | Adjustment Rod 60" Travel      |
| 13  | 52-0171 | Actuator                       |

### Enclosed Limit Switch Assemblies

| Part #  | Description               |
|---------|---------------------------|
| 52-0175 | 24" Limit Switch Assembly |
| 52-0172 | 36" Limit Switch Assembly |
| 52-0176 | 48" Limit Switch Assembly |
| 52-0177 | 60" Limit Switch Assembly |

2. Motor Components

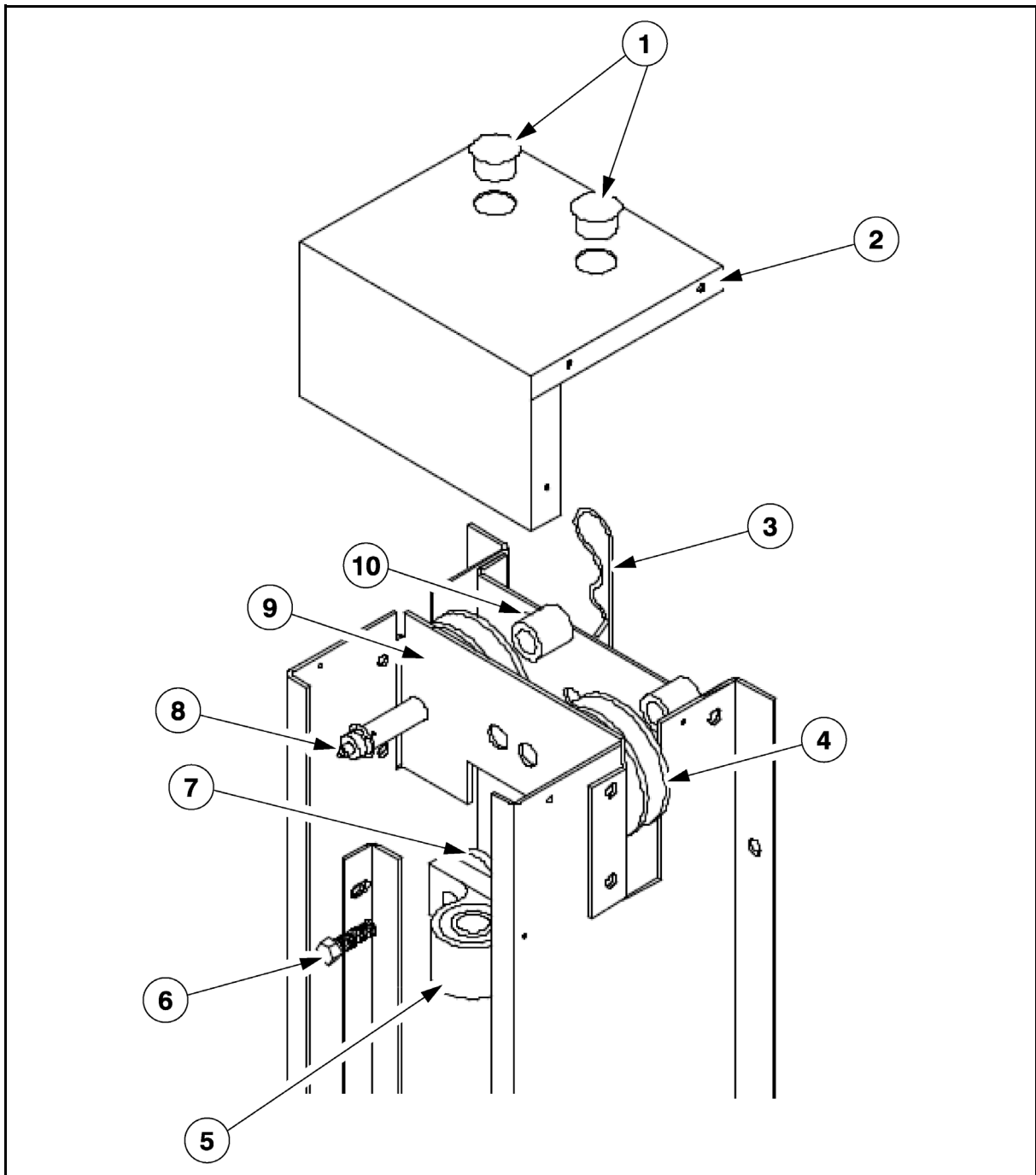


## Part List

### Motor Components

| Key | Part #    | Description                                     |
|-----|-----------|---|
| 1   | 53-0116BA | Baldor Gearmotor 15 RPM                         |
|     | 53-0131BA | Baldor Gearmotor 30 RPM                         |
|     | 53-0161BA | Baldor Gearmotor 60 RPM                         |
| 2   | 52-0005PT | Motor Mount                                     |
| 3   | 50-0009   | Coupler LO95 x 5/8"                             |
| 4   | 52-0012   | Hytrel Spider Gear                              |
| 5   | AC52-0174 | Bearing Support w/Bearing                       |
| N/S | 52-0180   | Thrust Bearing                                  |
| 6   | 52-0275   | Nylon Insert                                    |
| 7   | 52-0276   | Drive Block Assy w/Nylon Insert                 |
| 8   | 50-0055   | Drive Screw 24" Travel                          |
|     | 50-0056   | Drive Screw 36" Travel                          |
|     | 50-0057   | Drive Screw 48" Travel                          |
|     | 50-0084   | Drive Screw 60" Travel                          |
| 9   | S-9206    | U-Bolt 1" Center                                |
| 10  | 50-0006   | Coupler w/Welded Nut                            |
| 11  | 52-0022   | End Cap   |
| N/S | 53-0162   | Capacitor 36 uF for Brother 120 V / 60          |
|     | 50-0151   | Capacitor 30 uF for Brother & Baldor 120 V / 60 |
| 12  | 52-0178   | Cover Nut for Thrust Bearing                    |
| 13  | 52-0179   | Flange To Hold Thrust Bearing                   |

### 3. Header Pulley and Components



## Part List

---

### Header Pulley & Components

| Key | Part #  | Description                 |
|-----|---------|-----------------------------|
| 1   | 52-0044 | Cap Plug 1"                 |
| 2   | 52-0021 | Top Cover                   |
| 3   | 52-0190 | Hitch Pin                   |
| 4   | 50-0089 | Pulley w/Enclosed Bearing   |
| 5   | 52-0058 | Pillow Block Bearing 1"     |
| 6   | S-7767  | Bolt 3/8"-16 x 1 1/4"       |
| 7   | S-8739  | Washer 3/8" x 1 1/2" x 1/4" |
| 8   | 52-0188 | Greasable Shoulder Bolt     |
| 9   | 52-0006 | Pulley Support Plate        |
| 10  | 52-0010 | Pulley Spacer               |

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## 9. INSTALLATION KIT

1. AC 180-A Installation Kit (Purchased Separately)
2. AC 180-B Installation Kit (Purchased Separately)
3. AC 180-C Installation Kit (Purchased Separately)
4. AC 180-T Installation Kit (Purchased Separately)



# Installation Kit

## 1. AC 180-A Installation Kit (Purchased Separately)

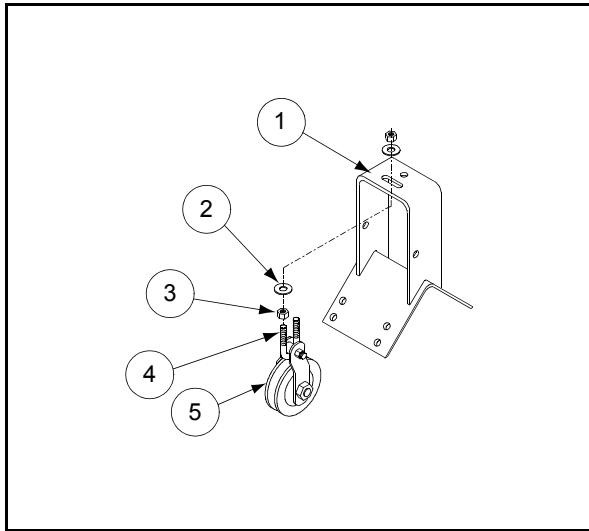


Figure: 9A AC 1820 ASSEMBLY

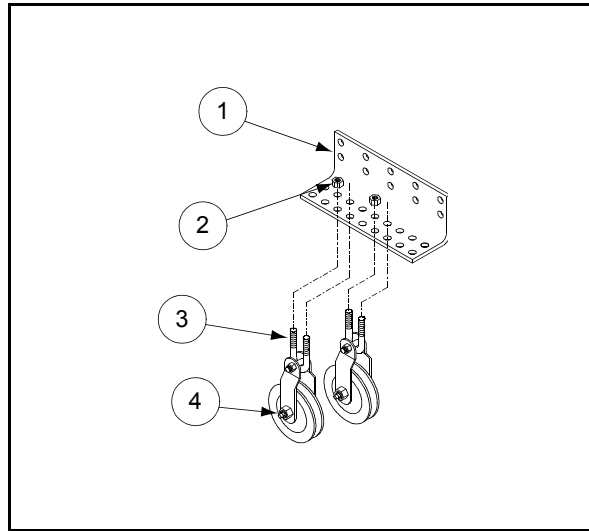


Figure: 9B AC 1821 ASSEMBLY

| Item | Part # | Qty | Description                   |
|------|--------|-----|-------------------------------|
| 1    | 1820   | 1   | Bracket Outside Corner        |
| 2    | S-248  | 4   | 3/8" Wrought Iron Washer      |
| 3    | S-456  | 4   | 3/8"-16 Hex Nut               |
| 4    | 1835   | 1   | U-Bolt 1" Center              |
| 5    | 1902AA | 1   | 3" CI Pulley w/Needle Bearing |

| Item | Part # | Qty | Description                   |
|------|--------|-----|-------------------------------|
| 1    | 1821   | 1   | Bracket - 3" x 3" x 9"        |
| 2    | S-456  | 4   | 3/8"-16 Hex Nut               |
| 3    | 1835   | 2   | U-Bolt 1" Center              |
| 4    | 1902AA | 2   | 3" CI Pulley w/Needle Bearing |

1. AC 180-A Installation Kit (Purchased Separately) (Cont.)

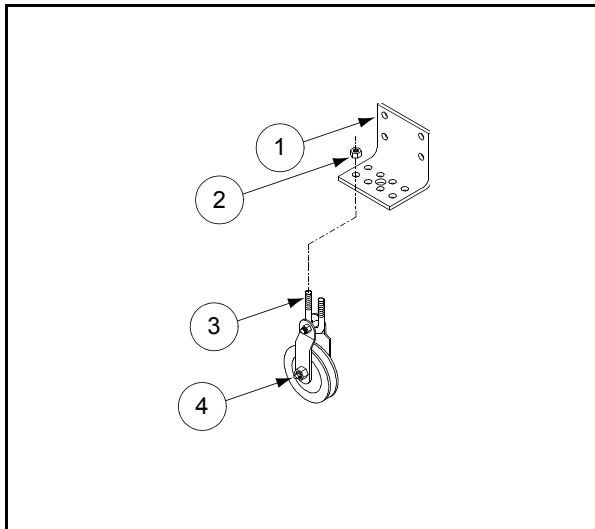


Figure: 9C AC 1822 ASSEMBLY

| Item | Part # | Qty | Description                   |
|------|--------|-----|-------------------------------|
| 1    | 1822   | 1   | Bracket - 3" x 3" x 3"        |
| 2    | S-456  | 2   | 3/8" - 16 Hex Nut             |
| 3    | 1835   | 1   | U-Bolt 1" Center              |
| 4    | 1902AA | 1   | 3" CI Pulley w/Needle Bearing |

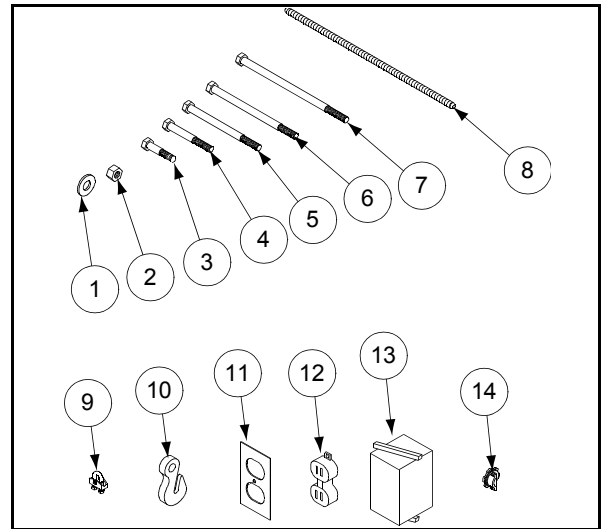


Figure: 9D

| Item | Part # | Qty | Description                    |
|------|--------|-----|--------------------------------|
| 1    | S-248  | 50  | 3/8" Wrought Iron Washer       |
| 2    | S-456  | 20  | 3/8" -16 Hex Nut               |
| 3    | S-7522 | 5   | 3/8" -16 x 2" Bolt             |
| 4    | S-7249 | 6   | 3/8" -16 x 3" Bolt             |
| 5    | S-7373 | 2   | 3/8" -16 x 5" Bolt             |
| 6    | S-7248 | 2   | 3/8" -16 x 6" Bolt             |
| 7    | S-8395 | 4   | 3/8" -16 x 7" Bolt             |
| 8    | 8195   | 4   | 3/8" x 12" Full Threaded rod   |
| 9    | S-8762 | 11  | 3/16" Cable clamp              |
| 10   | 1926   | 2   | 1/4" Grab Hook                 |
| 11   | 1780   | 1   | Handy Box Cover                |
| 12   | 1781   | 1   | Duplex Receptacle 115 V w/Grd. |
| 13   | 1785   | 1   | Handy Box, Surface Nail On     |
| 14   | 1782   | 1   | 12" Romex Connector            |

**Note: ASSEMBLY PARTS CAN BE PURCHASED SEPARATELY.**

# Installation Kit

## 2. AC 180-B Installation Kit (Purchased Separately)

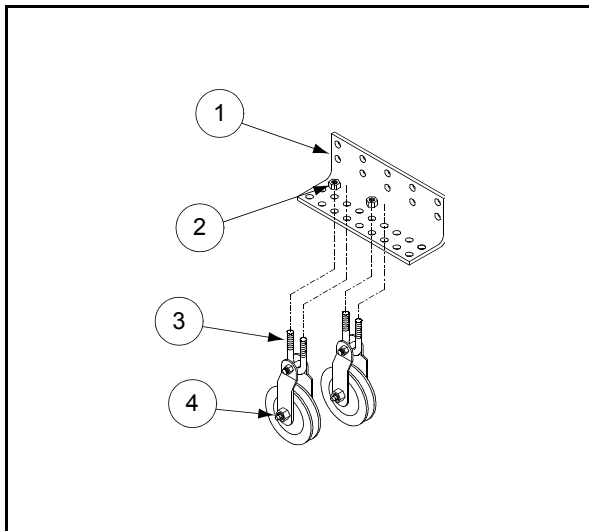


Figure: 9E AC 1821 ASSEMBLY

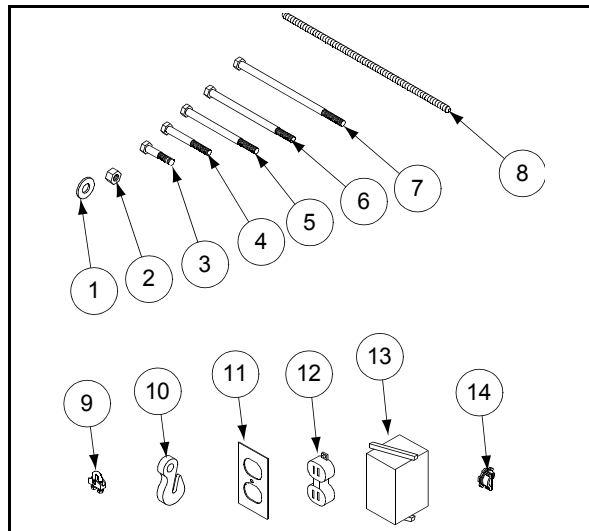


Figure: 9F

| Item | Part # | Qty | Description                   |
|------|--------|-----|-------------------------------|
| 1    | 1821   | 1   | Bracket - 3" x 3" x 9"        |
| 2    | S-456  | 4   | 3/8" -16 Hex Nut              |
| 3    | 1835   | 2   | U-Bolt 1" Center              |
| 4    | 1902AA | 2   | 3" CI Pulley w/Needle Bearing |

| Item | Part # | Qty | Description                    |
|------|--------|-----|--------------------------------|
| 1    | S-248  | 50  | 3/8" Wrought Iron Washer       |
| 2    | S-456  | 21  | 3/8" -16 Hex Nut               |
| 3    | S-7522 | 3   | 3/8" -16 x 2" Bolt             |
| 4    | S-7249 | 3   | 3/8" -16 x 3" Bolt             |
| 5    | S-7373 | 2   | 3/8" -16 x 5" Bolt             |
| 6    | S-7248 | 2   | 3/8" -16 x 6" Bolt             |
| 7    | S-8395 | 2   | 3/8" -16 x 7" Bolt             |
| 8    | 8195   | 4   | 3/8" x 12" Full Threaded rod   |
| 9    | S-8762 | 8   | 3/16" Cable clamp              |
| 10   | 1926   | 2   | 1/4" Grab Hook                 |
| w11  | 1780   | 1   | Handy Box Cover                |
| 12   | 1781   | 1   | Duplex Receptacle 115 V w/Grd. |
| 13   | 1785   | 1   | Handy Box, Surface Nail On     |
| 14   | 1782   | 1   | 12" Romex Connector            |

**Note: ASSEMBLY PARTS CAN BE PURCHASED SEPARATELY.**

3. AC 180-C Installation Kit (Purchased Separately)

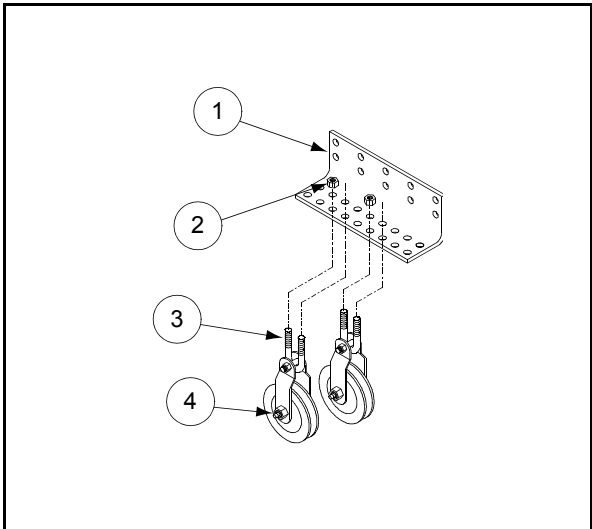


Figure: 9G AC 1821 ASSEMBLY

| Item | Part # | Qty | Description                   |
|------|--------|-----|-------------------------------|
| 1    | 1821   | 1   | Bracket - 3" x 3" x 9"        |
| 2    | S-456  | 4   | 3/8" -16 Hex Nut              |
| 3    | 1835   | 2   | U-Bolt 1" Center              |
| 4    | 1902AA | 2   | 3" CI Pulley w/Needle Bearing |

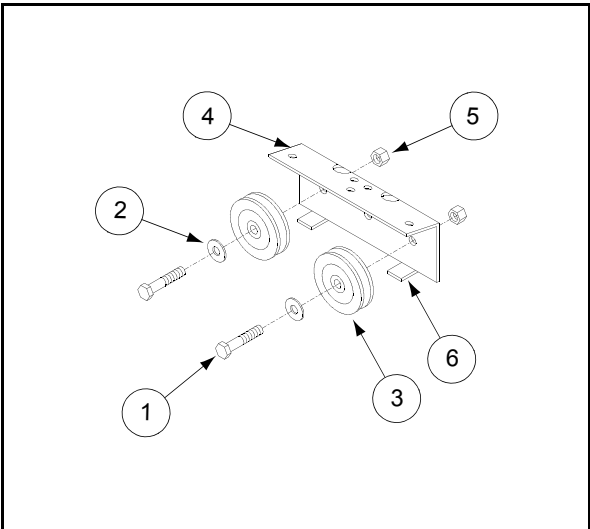


Figure: 9H AC 1824 ASSEMBLY

| Item | Part #  | Qty | Description              |
|------|---------|-----|--------------------------|
| 1    | S-6500  | 2   | 1/2 -13 x 2 1/2" bolt    |
| 2    | CH-0143 | 2   | 1/2" Wrought Iron Washer |
| 3    | 50-0089 | 2   | 3" CI Pulley Wheel Only  |
| 4    | 1824    | 1   | Double Roller Bracket    |
| 5    | 8260    | 2   | 1/2" - 13 Hex Nut        |
| 6    | 50-0022 | 2   | Cable Guard              |

# Installation Kit

## 3. AC 180-C Installation Kit (Purchased Separately) (Cont.)

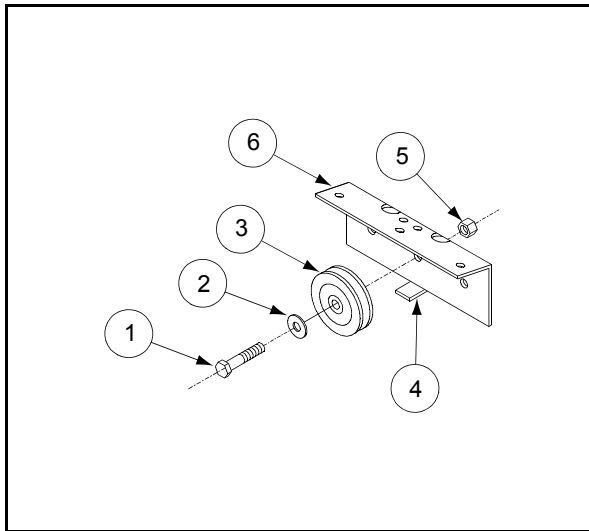


Figure: 9I AC 1824A ASSEMBLY

| Item | Part #  | Qty | Description              |
|------|---------|-----|--------------------------|
| 1    | S-6500  | 2   | 1/2 -13 x 2 1/2" bolt    |
| 2    | CH-0143 | 2   | 1/2" Wrought Iron Washer |
| 3    | 50-0089 | 2   | 3" CI Pulley Wheel Only  |
| 4    | 1824A   | 2   | Single Roller Bracket    |
| 5    | 8260    | 2   | 1/2" - 13 Hex Nut        |
| 6    | 50-0022 | 1   | Cable Guard              |

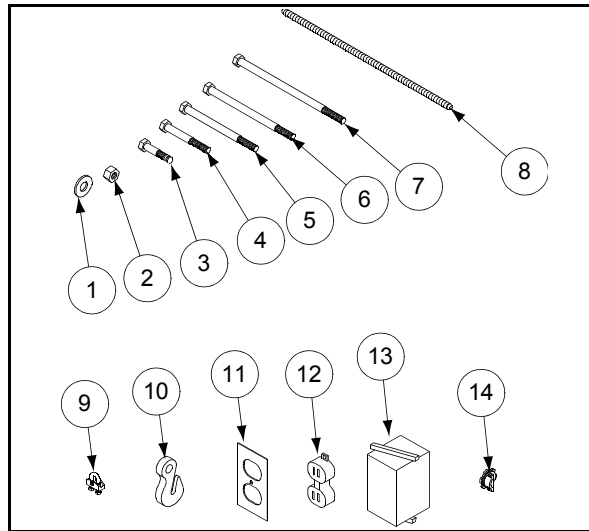


Figure: 9J

| Item | Part # | Qty | Description                    |
|------|--------|-----|--------------------------------|
| 1    | S-248  | 50  | 3/8" Wrought Iron Washer       |
| 2    | S-456  | 20  | 3/8" -16 Hex Nut               |
| 3    | S-7522 | 6   | 3/8" -16 x 3" Bolt             |
| 4    | S-7249 | 2   | 3/8" -16 x 5" Bolt             |
| 5    | S-7373 | 2   | 3/8" -16 x 6" Bolt             |
| 6    | S-7248 | 4   | 3/8" -16 x 7" Bolt             |
| 7    | S-8395 | 4   | 3/8" x 12" Full Threaded rod   |
| 8    | 8195   | 2   | J-Hook 3/8" x 4"               |
| 9    | S-8762 | 22  | 3/16" Cable clamp              |
| 10   | 1926   | 4   | 1/4" Grab Hook                 |
| 11   | 1780   | 1   | Handy Box Cover                |
| 12   | 1781   | 1   | Duplex Receptacle 115 V w/Grd. |
| 13   | 1785   | 1   | Handy Box, Surface Nail On     |
| 14   | 1782   | 1   | 12" Romex Connector            |

**Note: ASSEMBLY PARTS CAN BE PURCHASED SEPARATELY.**

4. AC 180-T Installation Kit (Purchased Separately)

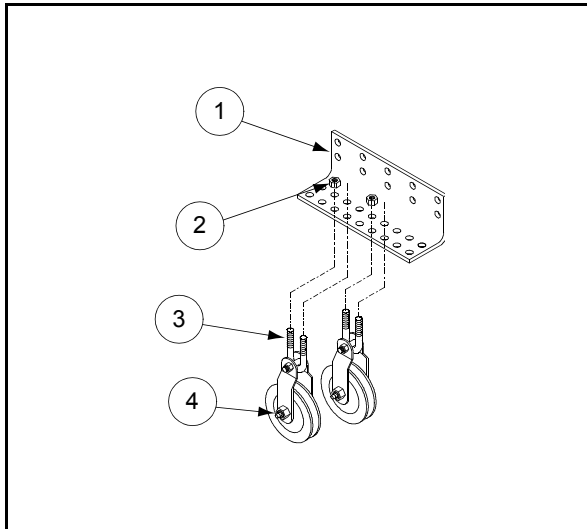


Figure: 9K AC 1821 ASSEMBLY

| Item | Part # | Qty | Description                   |
|------|--------|-----|-------------------------------|
| 1    | 1821   | 1   | Bracket - 3" x 3" x 9"        |
| 2    | S-456  | 4   | 3/8" -16 Hex Nut              |
| 3    | 1835   | 2   | U-Bolt 1" Center              |
| 4    | 1902AA | 2   | 3" CI Pulley w/Needle Bearing |

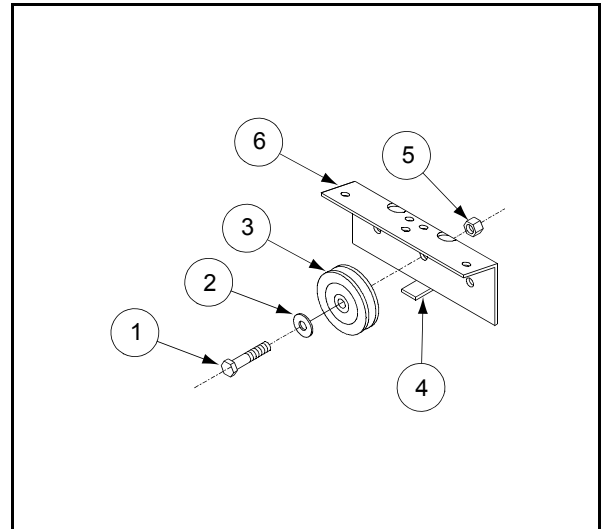


Figure: 9L AC 1824A ASSEMBLY

| Item | Part #  | Qty | Description              |
|------|---------|-----|--------------------------|
| 1    | S-6500  | 2   | 1/2 -13 x 2 1/2" bolt    |
| 2    | CH-0143 | 2   | 1/2" Wrought Iron Washer |
| 3    | 1901    | 2   | 3" CI Pulley Wheel Only  |
| 4    | 1824    | 2   | Single Roller Bracket    |
| 5    | 8260    | 2   | 1/2" - 13 Hex Nut        |
| 6    | 50-0022 | 1   | Cable Guard              |

## 4. AC 180-T Installation Kit (Purchased Separately) (Cont.)

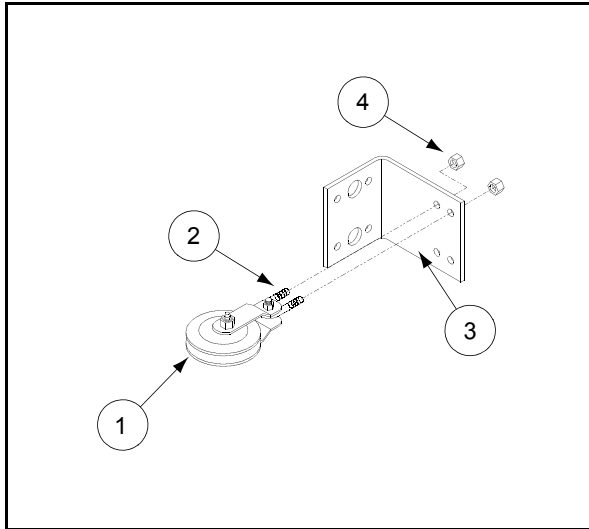


Figure: 9M AC 1823 ASSEMBLY

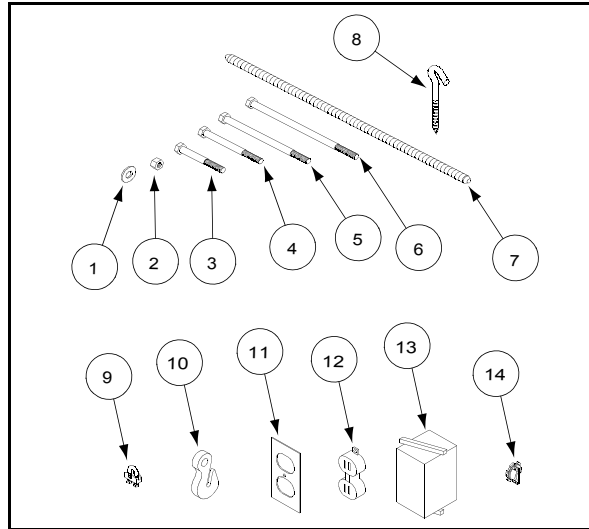


Figure: 9N

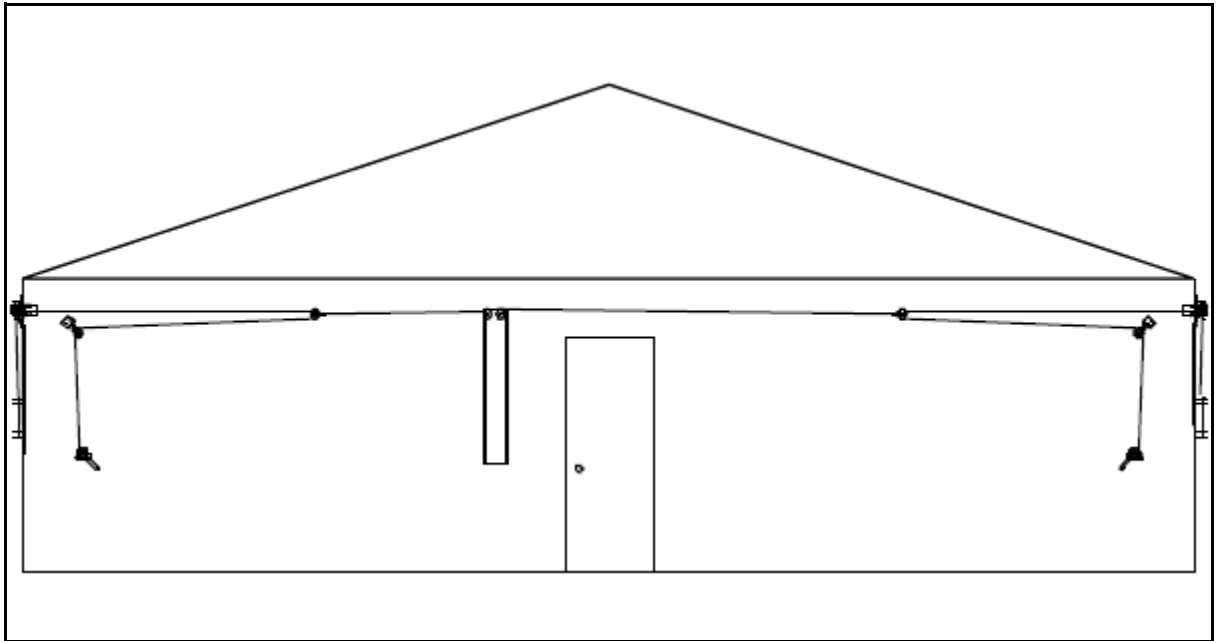
| Item | Part # | Qty | Description                   |
|------|--------|-----|-------------------------------|
| 1    | 1902AA | 1   | 3" CI Pulley w/Needle Bearing |
| 2    | 1835   | 1   | U - Bolt 1" Center            |
| 3    | 1823   | 1   | Bracket Through Wall          |
| 4    | S-456  | 2   | 3/8" - 16 Hex Nut             |

| Item | Part # | Qty | Description                    |
|------|--------|-----|--------------------------------|
| 1    | S-248  | 50  | 3/8" Wrought Iron Washer       |
| 2    | S-456  | 20  | 3/8" -16 Hex Nut               |
| 3    | S-7522 | 6   | 3/8" -16 x 3" Bolt             |
| 4    | S-7249 | 2   | 3/8" -16 x 5" Bolt             |
| 5    | S-7373 | 2   | 3/8" -16 x 6" Bolt             |
| 6    | S-7248 | 4   | 3/8" -16 x 7" Bolt             |
| 7    | S-8395 | 4   | 3/8" x 12" Full Threaded rod   |
| 8    | 8195   | 2   | J-Hook 3/8" x 4"               |
| 9    | S-8762 | 22  | 3/16" Cable clamp              |
| 10   | 1926   | 4   | 1/4" Grab Hook                 |
| 11   | 1780   | 1   | Handy Box Cover                |
| 12   | 1781   | 1   | Duplex Receptacle 115 V w/Grd. |
| 13   | 1785   | 1   | Handy Box, Surface Nail On     |
| 14   | 1782   | 1   | 12" Romex Connector            |

**Note: ASSEMBLY PARTS CAN BE PURCHASED SEPARATELY.**

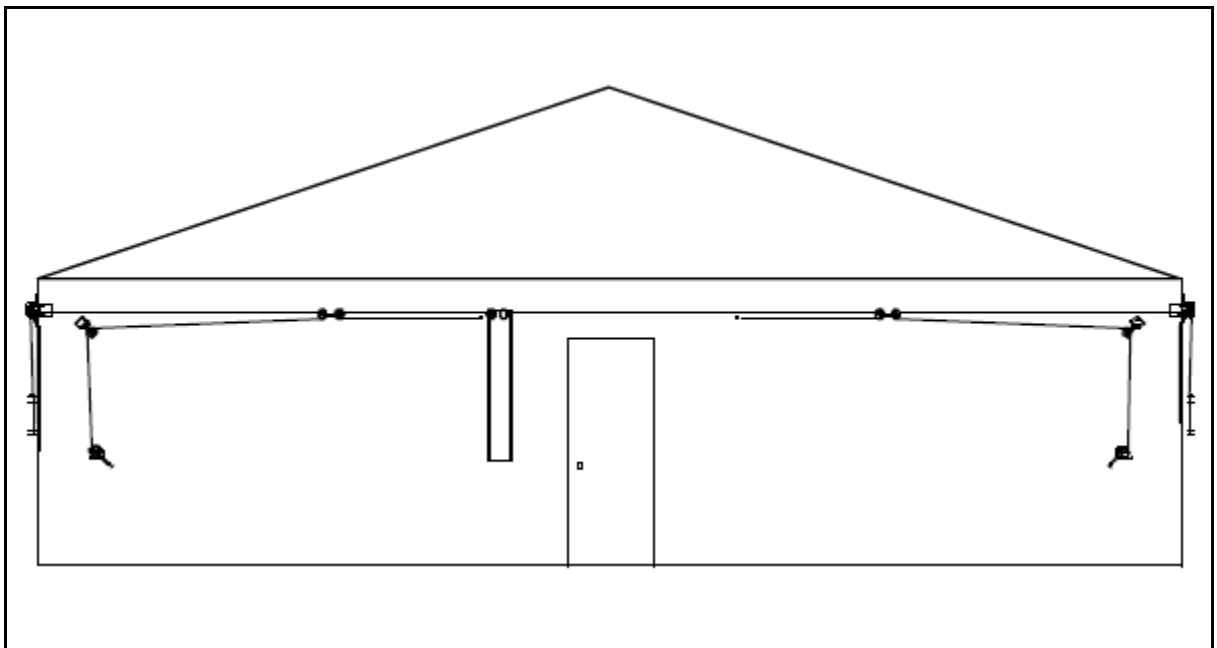
## 10. WALL MOUNT

### 10.1. Outside Endwall Mount



The above illustration shows 1:2 cable configuration. This means: 1 foot of cable movement at the machine equals 2 feet of cable movement at the curtain.

### 10.2. Outside Endwall Mount

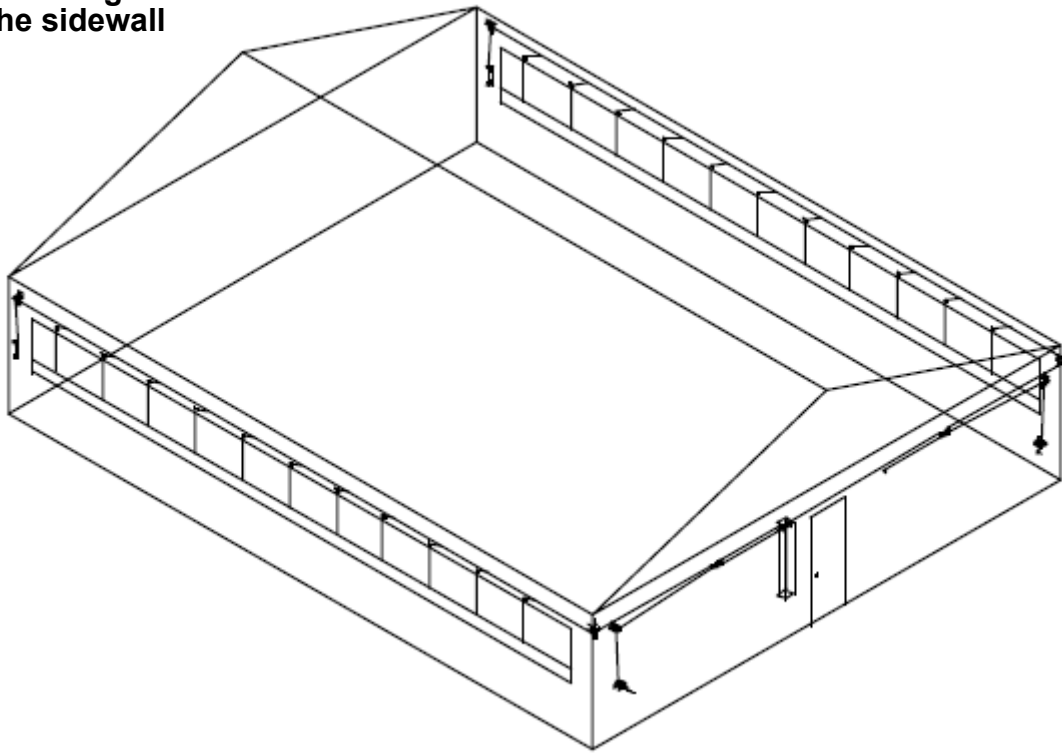


The above illustration shows 1:1 cable configuration. This means: 1 foot of cable movement at the machine equals 1 foot of cable movement at the curtain.



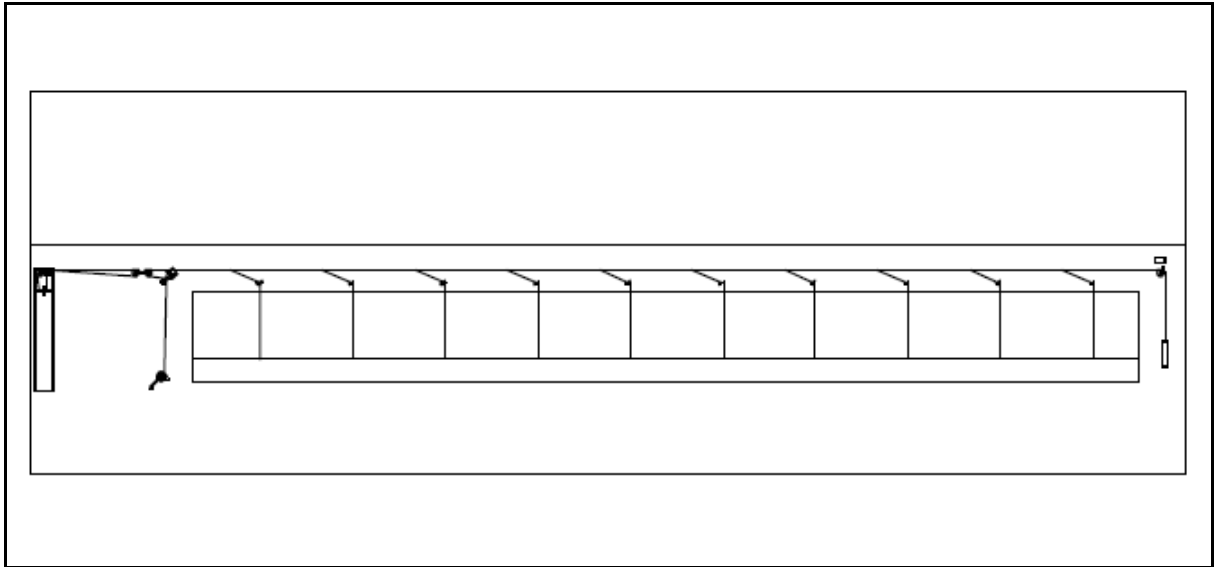
### 10.3. Outside Endwall Mount

Illustration Shows  
cable configuration  
on the sidewall



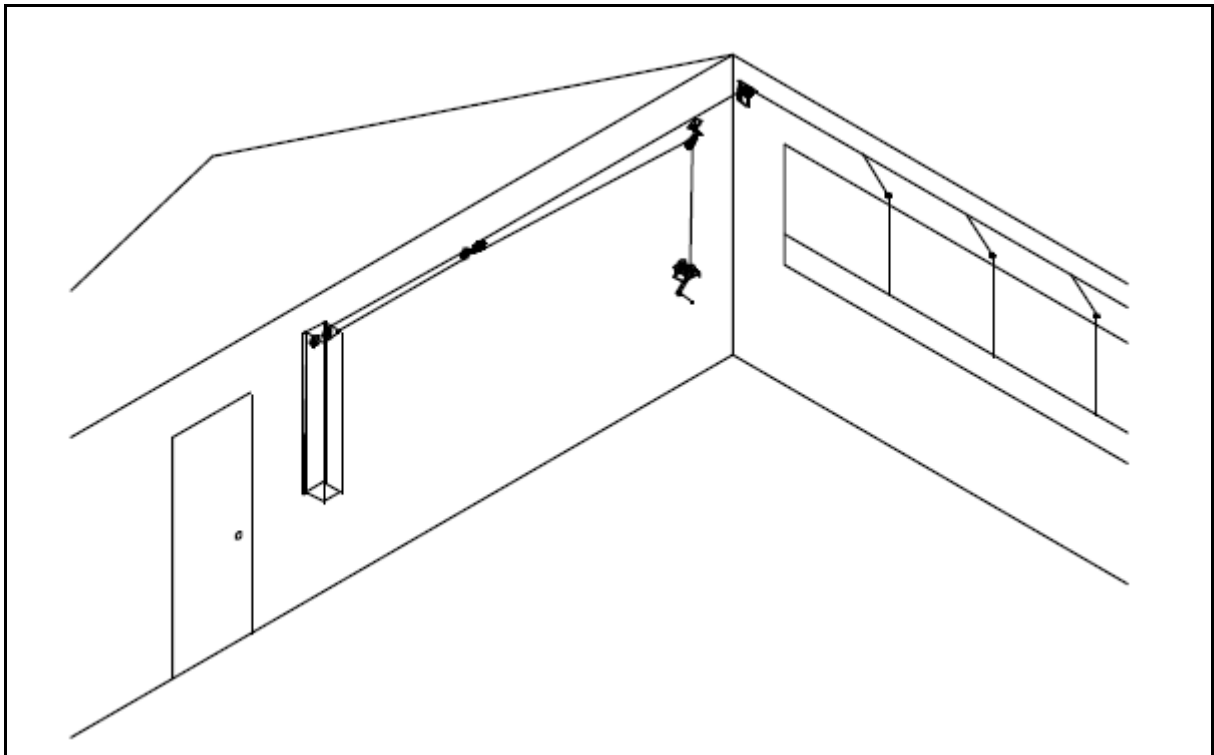
The above illustration shows 1:1 cable configuration. This means: 1 foot of cable movement at the machine equals 1 foot of cable movement at the curtain.

### 10.4. Outside Sidewall Mount



The above illustration shows 1:2 cable configuration. This means: 1 foot of cable movement at the machine equals 2 feet of cable movement at the curtain.

### 10.5. Inside Endwall Mount



The above illustration shows 1:1 cable configuration. This means: 1 foot of cable movement at the machine equals 1 foot of cable movement at the curtain.

# 11. WIRING

## 11.1. Potentiometer Wiring Diagram

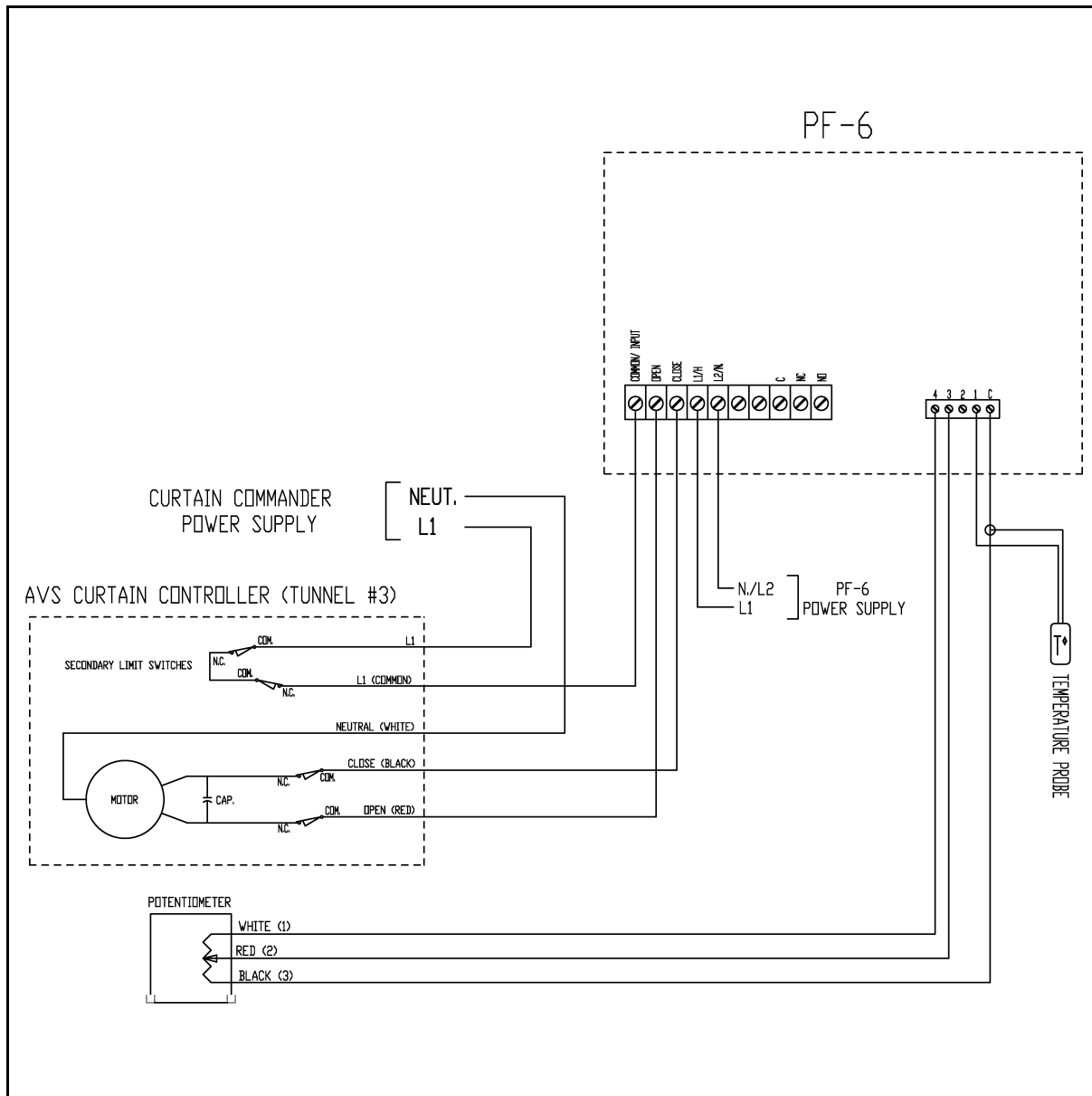


Figure: 11A

### 11.2. Control Box Wiring

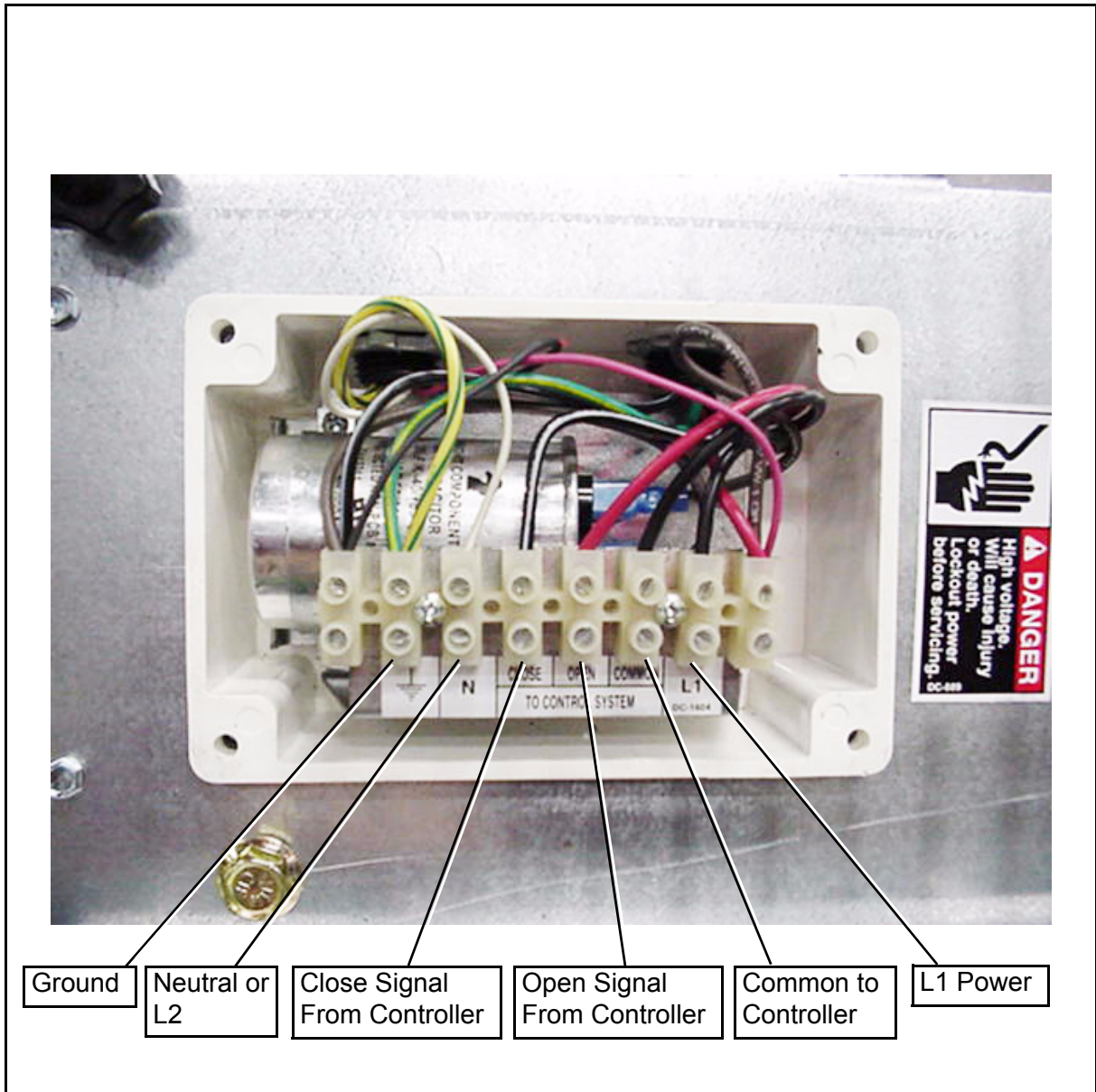


Figure: 11B

11.3. Wiring Diagram For 110 V 60 Hz

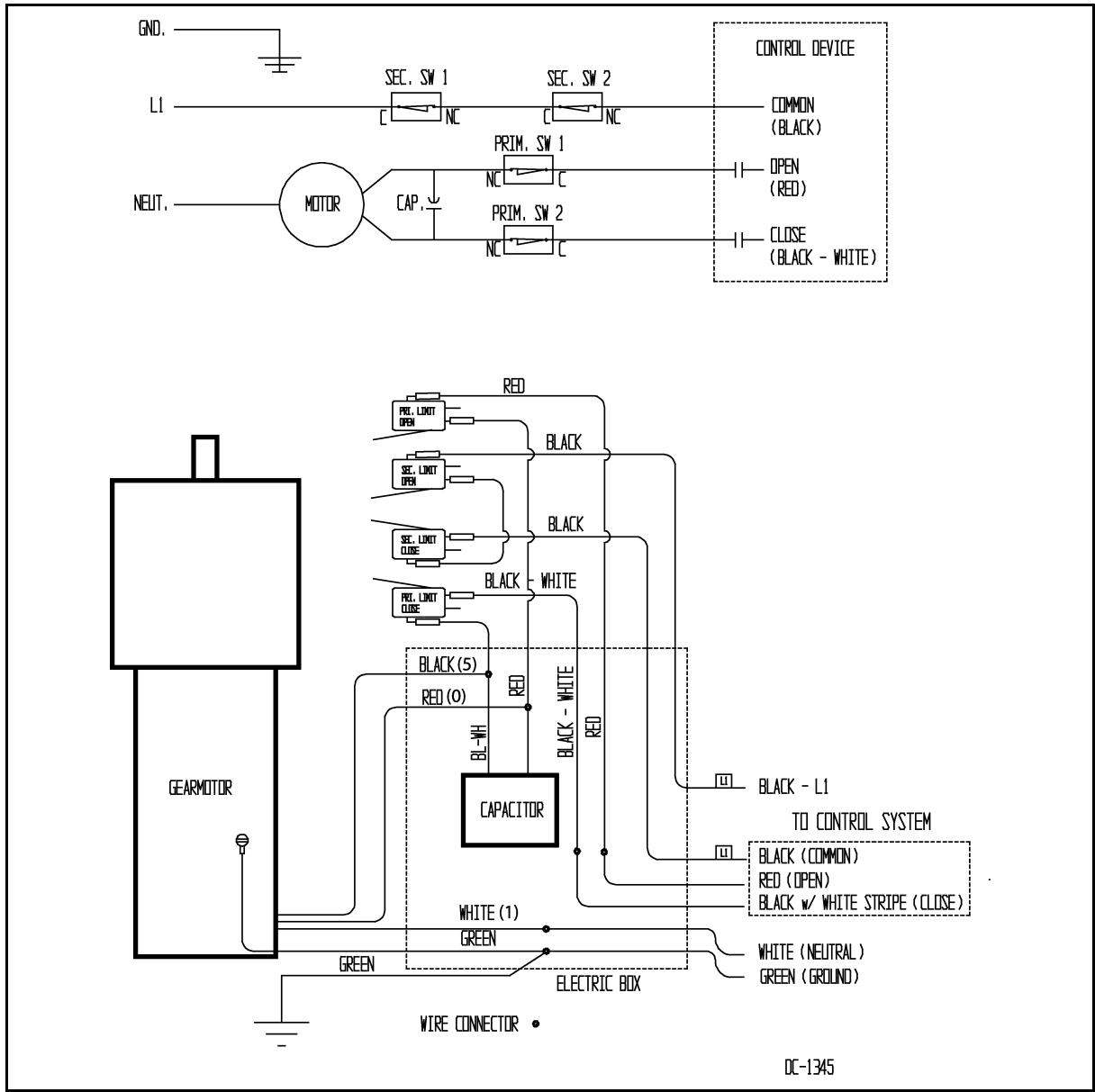


Figure: 11C

11.4. Wiring Diagram For 220 V 50/60 Hz

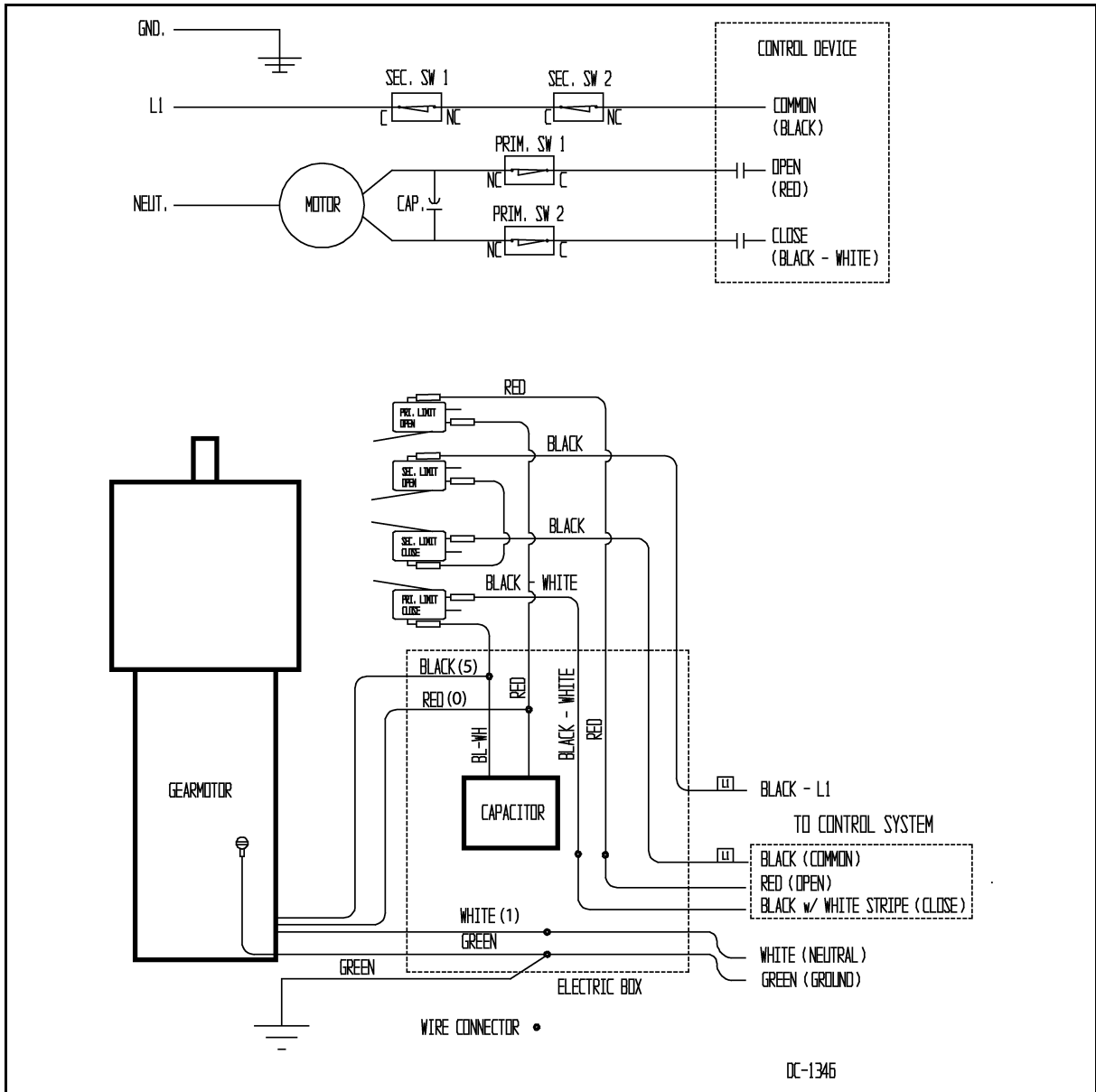


Figure: 11D

### 12. WARRANTY

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