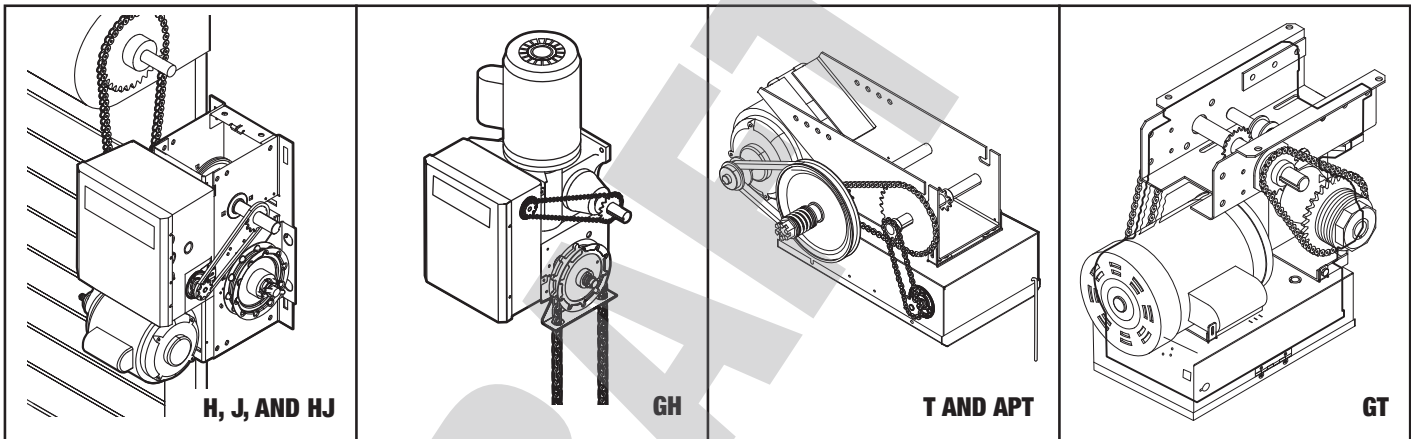


## INDUSTRIAL DUTY COMMERCIAL DOOR OPERATOR

LOGIC 5.0      *Security+* 2.0™      myQ®

### INSTALLATION MANUAL



**THIS PRODUCT IS TO BE INSTALLED AND SERVICED BY A TRAINED DOOR SYSTEMS TECHNICIAN ONLY.**

Operators are shipped in C2 operating mode.  
Visit [www.liftmaster.com](http://www.liftmaster.com) to locate a professional installing dealer in your area.

**2 YEAR WARRANTY**

Serial # \_\_\_\_\_

Installation Date \_\_\_\_\_

#### CONTACT INFORMATION



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# SAFETY INFORMATION

## WARNING

Mechanical

## WARNING

Electrical

## CAUTION

When you see these Safety Symbols and Signal Words on the following pages, they will alert you to the possibility of **serious injury** or **death** if you do not comply with the warnings that accompany them. The hazard may come from something mechanical or from electric shock. Read the warnings carefully.

When you see this Signal Word on the following pages, it will alert you to the possibility of damage to your door and/or the door operator if you do not comply with the cautionary statements that accompany it. Read them carefully.

### IMPORTANT NOTES:

- *BEFORE attempting to install, operate or maintain the operator, you must read and fully understand this manual and follow all safety instructions.*
- *DO NOT attempt repair or service of your commercial door and gate operator unless you are an Authorized Service Technician.*
- *Operator intended to be installed on a properly balanced door only. Make sure door is properly balanced before installing.*

## IMPORTANT INSTALLATION INSTRUCTIONS

### WARNING

### TO REDUCE THE RISK OF SEVERE INJURY OR DEATH:

1. READ AND FOLLOW ALL INSTALLATION WARNINGS AND INSTRUCTIONS.
2. Install door operator ONLY on properly balanced and lubricated door. An improperly balanced door may NOT reverse when required and could result in SEVERE INJURY or DEATH.
3. ALL repairs to cables, spring assemblies and other hardware MUST be made by a trained door systems technician BEFORE installing operator.
4. Disable ALL locks and remove ALL ropes connected to door BEFORE installing operator to avoid entanglement.
5. Install door operator 8 feet (2.44 m) or more above floor.
6. NEVER connect door operator to power source until instructed to do so.
7. NEVER wear watches, rings or loose clothing while installing or servicing operator. They could be caught in door or operator mechanisms.
8. Install control station:
  - within sight of the door.
  - out of reach of children at minimum height of 5 feet (1.5 m).
  - away from ALL moving parts of the door.
9. Install the control station far enough from the door to prevent the user from coming in contact with the door while operating the controls.
10. Install the entrapment warning placard on wall next to the control station in a prominent location that is visible from the door.
11. Place manual release/safety reverse test label in plain view on inside of door.
12. Upon completion of installation, test entrapment protection device.
13. **SAVE THESE INSTRUCTIONS.**

# TROLLEY OPERATORS

## CARTON INVENTORY

Before beginning your installation check that all components were provided.

### DESCRIPTION

- Powerhead assembly
- Owner's manual and caution labels
- Hardware box (includes fasteners, track spacers, trolley, door arm assembly, front idler and header mounting bracket)
- 3-Button control station with MAS LED
- Trolley drive chain: #48 for 1/3 and 1/2 HP,  
#41 for 3/4 HP and higher (all GT models)

**NOTE:** The tracks are shipped separately.

### ENTRAPMENT PROTECTION DEVICES:

#### LiftMaster Monitored Entrapment Protection (LMEP)

Monitored Photoelectric Sensors and/or Door Edge Sensors are required for any momentary contact to close modes of operation. See pages 20-21 for additional information. Refer to the Accessories page 42, 'Entrapment Protection Devices' for available options.

## OPERATOR SPECIFICATIONS

### MOTOR

**TYPE:** ..... Continuous duty

### HORSEPOWER:

- Model APT ..... 1/2 HP
- Model GT ..... 1/2, 3/4, 1 and 1-1/2 HP
- Model T ..... 1/3, 1/2, 3/4 and 1 HP

**SPEED (At rated load):** ..... 1725 RPM

### VOLTAGE:

- Model APT ..... 115V 1 Phase
- Model GT and T ..... 115/230V 1 Phase,  
..... 208/230/460/575V 3 Phase

### CURRENT (Amperage):

Model T and GT

Voltage-Phase	1/3 HP	1/2 HP	3/4 HP	1 HP	1-1/2 HP
115-1Ø, 60Hz	8.5	11.2	13.6	16	20
230-1Ø, 60Hz	4.2	5.6	6.8	8	10
208/230-3Ø, 60Hz	3	3.1	4	6	7
460-3Ø, 60Hz	1.5	1.75	2	3	3.5
575-3Ø, 60Hz	1.3	1.4	1.6	1.8	2.75

Model APT

Voltage-Phase	1/2 HP
115-1Ø, 60Hz	11.2

### ELECTRICAL

**TRANSFORMER:** ..... 24Vac Secondary

**CONTROL STATION:** ..... NEMA 3-Button Station  
Open/Close/Stop w/LED

**WIRING TYPE:** ..... C2 (Factory default)  
Momentary contact to OPEN & STOP, constant pressure to CLOSE, plus wiring for LMEP device to reverse and auxiliary devices to open and close with open override. See page 29 for optional wiring types and operating modes.

**LIMIT ADJUST:** ..... Linear driven, fully adjustable screw type cams. Adjustable to 24 feet.

**BRAKE:** ..... Standard on APT, GT and 3/4-1 H.P. T's

**DISCONNECT:** ..... Quick disconnect door arm for emergency manual door operation.

# OPERATOR SPECIFICATIONS

## MECHANICAL

### DRIVE REDUCTION:

Model APT and T..... Primary: Heavy duty (5L) V-Belt  
 Secondary: #41 chain/sprocket;  
 Output: #48 chain (1/3 and 1/2 HP Model T and APT)  
 or #41 chain (3/4 and 1 HP Model T ONLY)

Model GT.....Primary: 20:1 Heavy duty  
 worm gear-in-oil-bath speed reducer  
 Output: #41 chain

### OUTPUT SHAFT SPEED:

Model APT.....96 RPM  
 Model GT.....113.5 RPM  
 Model T.....140 RPM

### DOOR SPEED (not adjustable):

Model APT.....6-7" per second  
 Model GT.....11-12" per second  
 Model T.....11-12" per second

**BRAKE:** Solenoid actuated disc brake on 3/4 and 1 HP, standard on Model APT and GT (Available as an option for 1/3 and 1/2 HP)

**BEARINGS:**..... Output Shaft: Shielded ball bearing  
 Model APT and T....Clutch Shaft: IronCopper sintered and oil impregnated

## MAXIMUM DOOR AREA (SQ. FT.)

MODEL T					
STANDARD SECTIONAL	---	24 ga. 22 ga. Steel	20 ga. Steel	16 ga. Steel	---
	Fiberglass Doors	Alum. Doors	Wood Doors	---	---
	---	---	24 ga. Steel Insul.	20 ga. Steel Insul.	16 ga. Steel Insul.
<b>1/3 HP</b>	310	285	260	175	125
<b>1/2 HP</b>	400	350	320	250	200
<b>3/4 HP</b>	560	500	450	325	275
<b>1 HP</b>	640	625	560	400	310

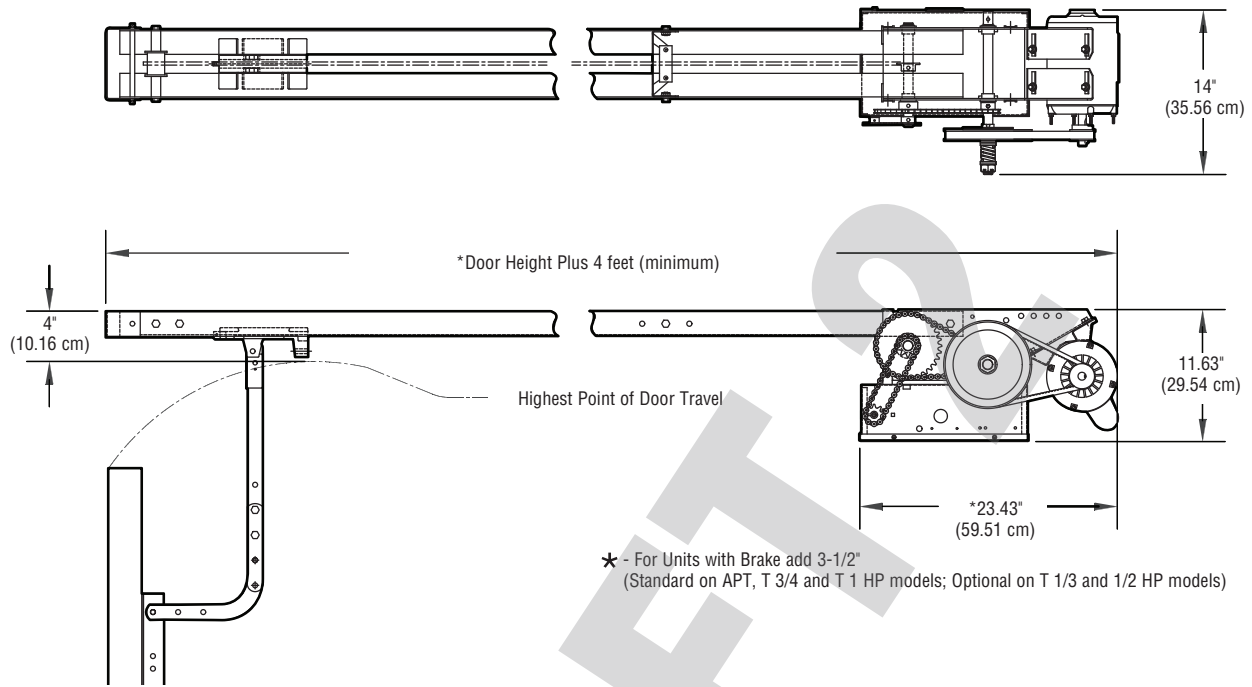
MODEL APT				
STANDARD SECTIONAL	24 ga. 22 ga. Steel	20 ga. Steel	16 ga. Steel	---
	Alum. Doors	Wood Doors	---	---
	Fiberglass Doors	24 ga. Steel Insul.	20 ga. Steel Insul.	16 ga. Steel Insul.
<b>1/2 HP</b>	250	225	150	100

MODEL GT					
STANDARD SECTIONAL	---	24 ga. 22 ga. Steel	20 ga. Steel	16 ga. Steel	---
	Fiberglass Doors	Alum. Doors	Wood Doors	---	---
	---	---	24 ga. Steel Insul.	20 ga. Steel Insul.	16 ga. Steel Insul.
<b>1/2 HP</b>	400	350	320	250	200
<b>3/4 HP</b>	560	500	450	325	250
<b>1 HP</b>	625	575	500	400	300
<b>1-1/2 HP</b>	---	625	550	475	380

**WEIGHTS AND DIMENSIONS**

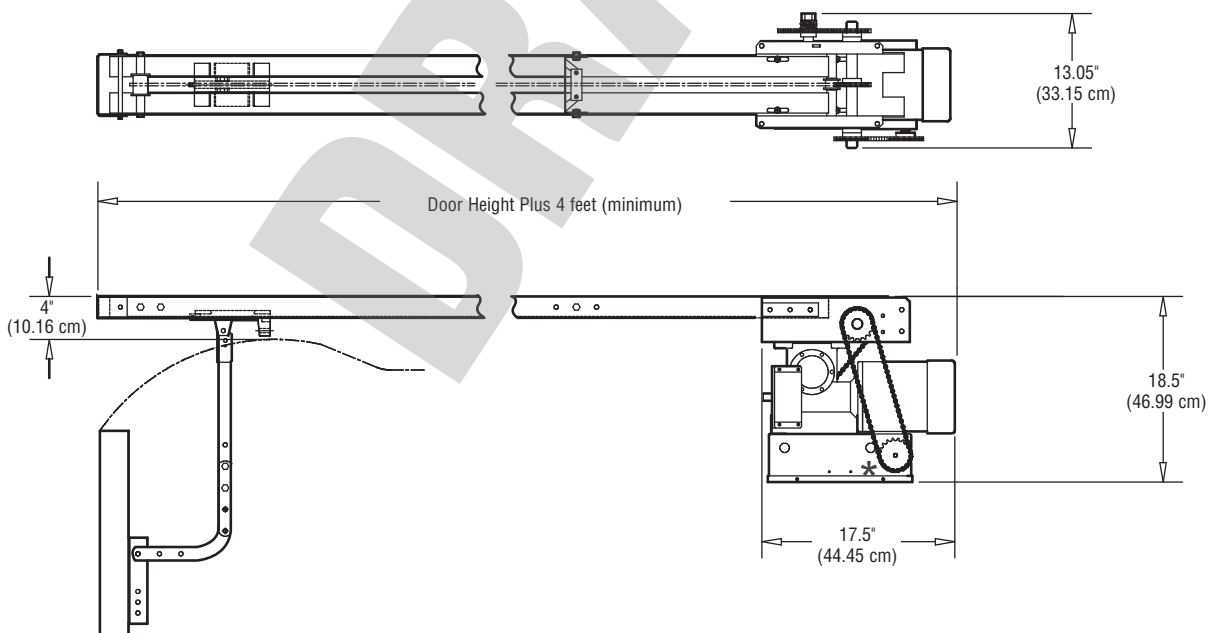
**MODELS T AND APT**

Hanging Weight: 80-110 lbs.



**MODEL GT**

Hanging Weight: 140 lbs.

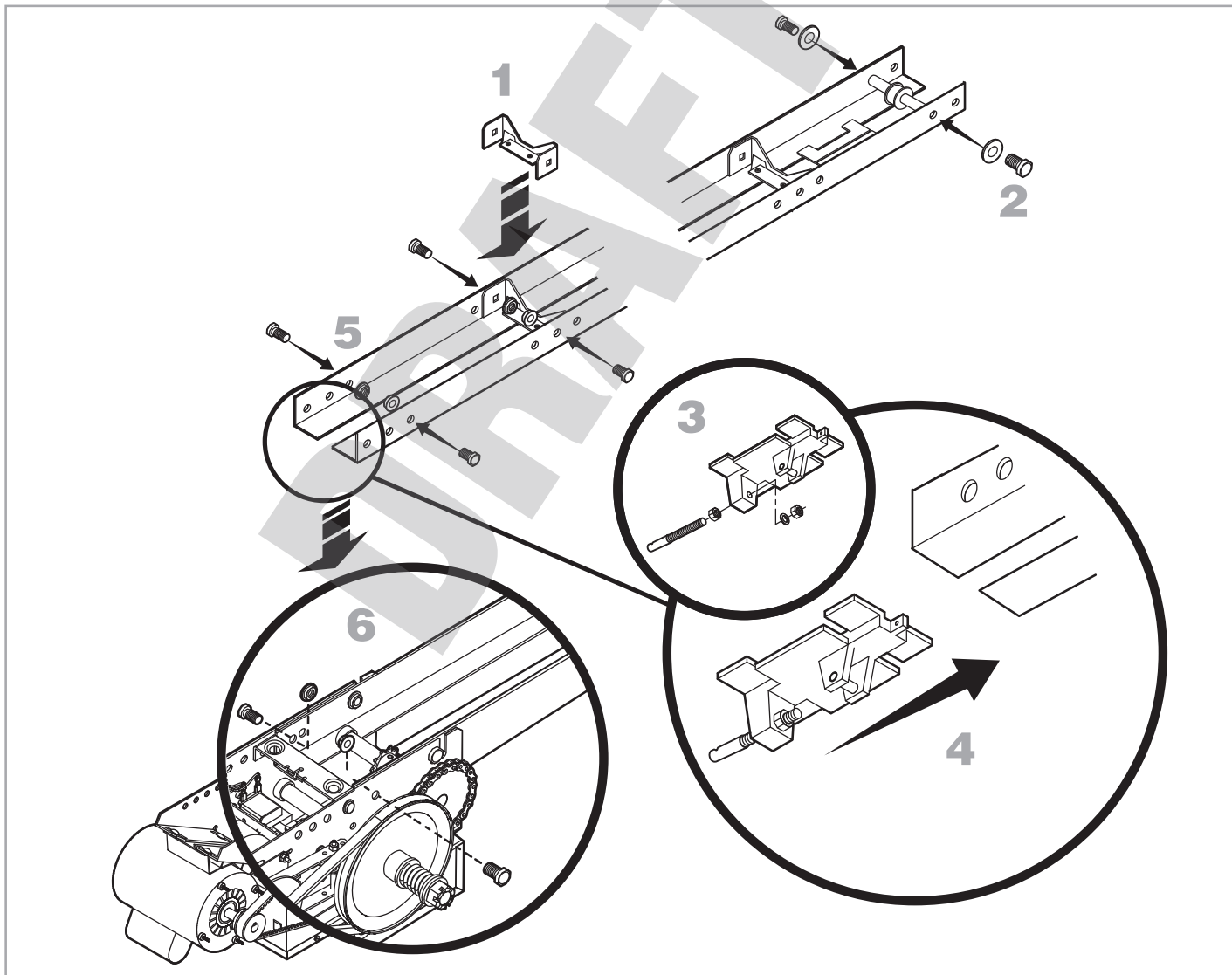
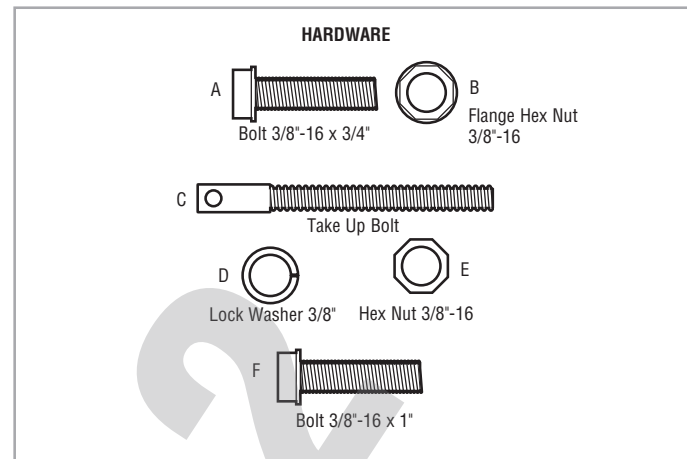


## ASSEMBLY

### ASSEMBLE THE OPERATOR (MODELS T AND GT)

**NOTE:** For Model APT assembly refer to page 9.

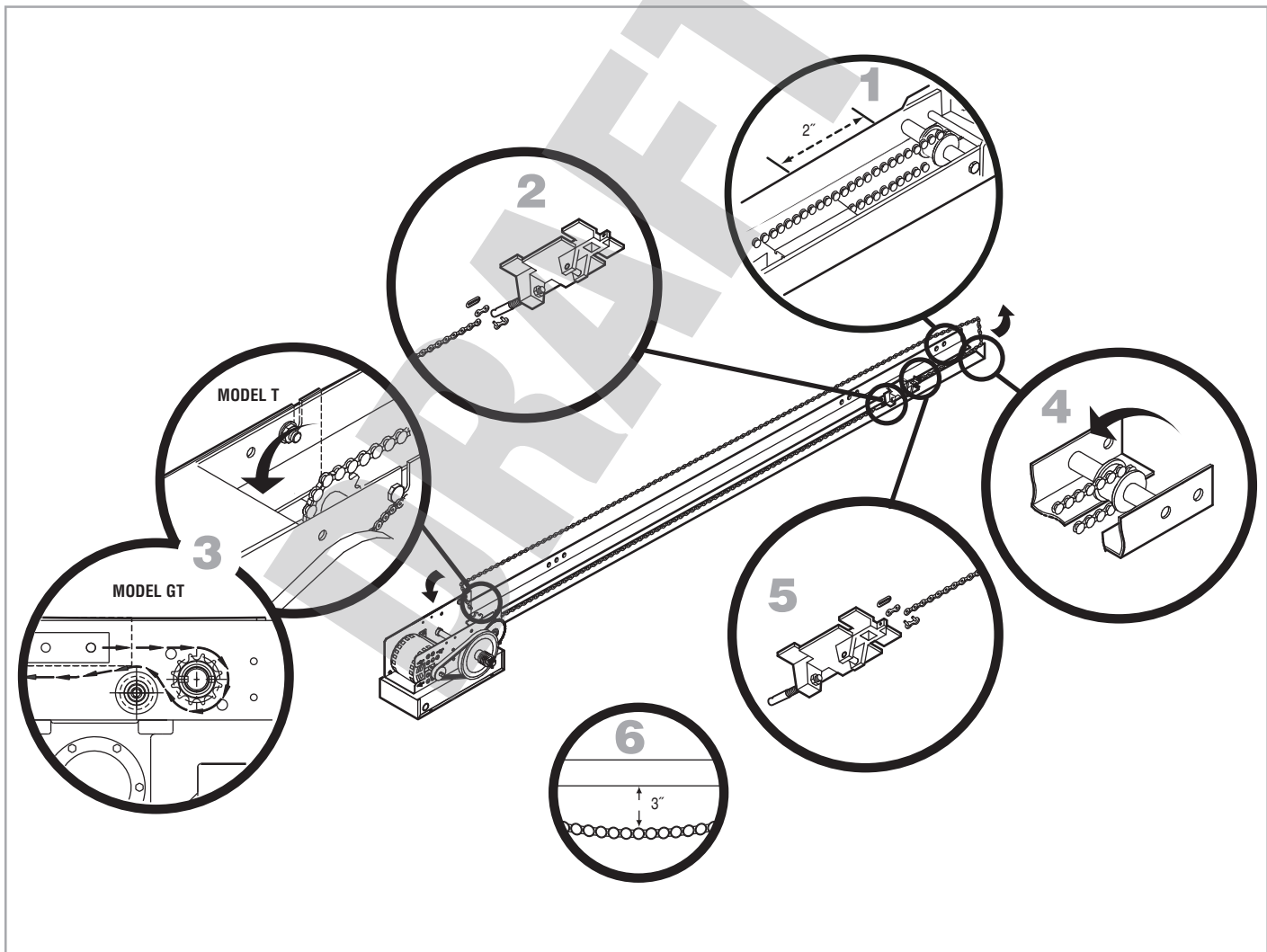
- 1** Install the track spacers evenly over the length of the track. Fasten the spacers to the track with bolt (A) and flange hex nuts (B). Two spacers are supplied for 8'-14' tracks, three spacers are supplied for 16'-20' tracks, and four spacers are supplied for 22'-24' tracks.
- 2** Install the front idler to the track with bolts (F) and washers (D).
- 3** Assemble the trolley with the take up bolt (C), hex nuts (E), and lock washer (D).
- 4** Slide the trolley onto the track.
- 5** Insert bolts (A) into the end of the track and loosely thread the nuts (B) onto the ends of the bolts.
- 6** Slide bolts (A) on the end of the track assembly into the "L" slot in the operator and tighten nuts (B). Insert bolts (A) into the holes on the end of the track and the operator. Secure the track with nuts (B).



## INSTALL THE CHAIN (MODELS T AND GT)

**NOTE:** For Model APT assembly refer to page 9.

- 1** Position the trolley 2 inches away from the front idler.
- 2** Attach the chain to the trolley threaded shaft using the master link.
- 3** Run the chain along the track to the operator. Wrap the chain around the operator drive sprocket.
- 4** Run the chain along the track to the front idler. Wrap the chain around the front idler.
- 5** Attach the chain to the front of the trolley using the master link.
- 6** Tighten the chain until the chain sags about 3 inches at the mid point of the track.

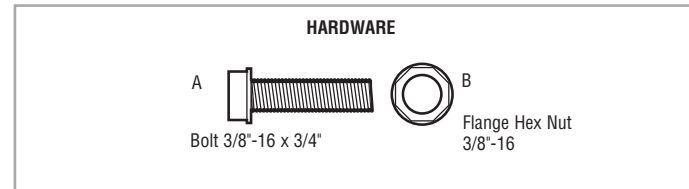




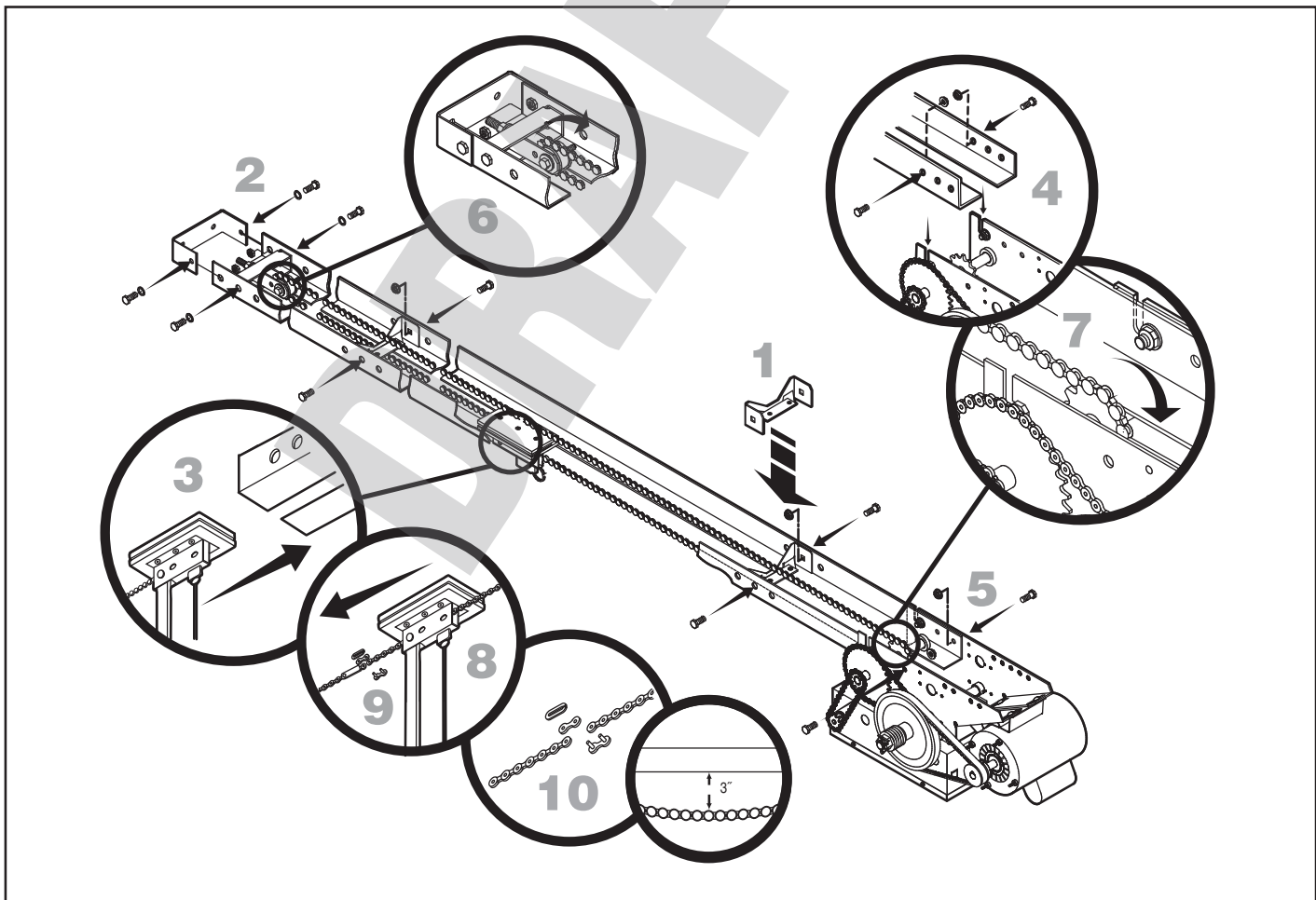
## ASSEMBLE THE OPERATOR (MODEL APT)

**NOTE:** If your model is not an APT, proceed to the next page.

- 1 Install the track spacers evenly over the length of the track. Fasten the spacers to the track with bolt (A) and flange hex nuts (B).
- 2 Install the front idler in the second set of holes on the end of the track with bolts (A) and nuts (B).
- 3 Slide the trolley onto the track so the door arm hole faces the front (towards the door).
- 4 Insert bolts (A) into the end of the track and loosely thread the nuts (B) onto the ends of the bolts. Slide bolts (A) on the end of the track assembly into the "L" slot in the operator and tighten nuts (B).
- 5 Insert bolts (A) into the holes on the end of the track and the operator. Secure the track with nuts (B).
- 6 Run the chain along the track to the front idler. Wrap the chain around the front idler.
- 7 Run the chain along the track to the operator. Wrap the chain around the operator drive sprocket.



- 8 Pull the release clip on the trolley and push the end of the chain through the slot in the trolley.
- 9 Attach one end of the chain to the drive link using a master link.
- 10 Attach the other end of the chain to the free end of the drive link using a master link and making sure the chain has the correct tension (the chain should sag about 3 inches at the mid point of the track). The chain will need to be cut for proper adjustment. The take-up bolt can be loosened or tightened to adjust the slack of the chain. Slide the trolley back and forth past the drive chain to ensure there is no binding.



## TYPICAL INSTALLATION

### INSTALL THE HEADER BRACKET

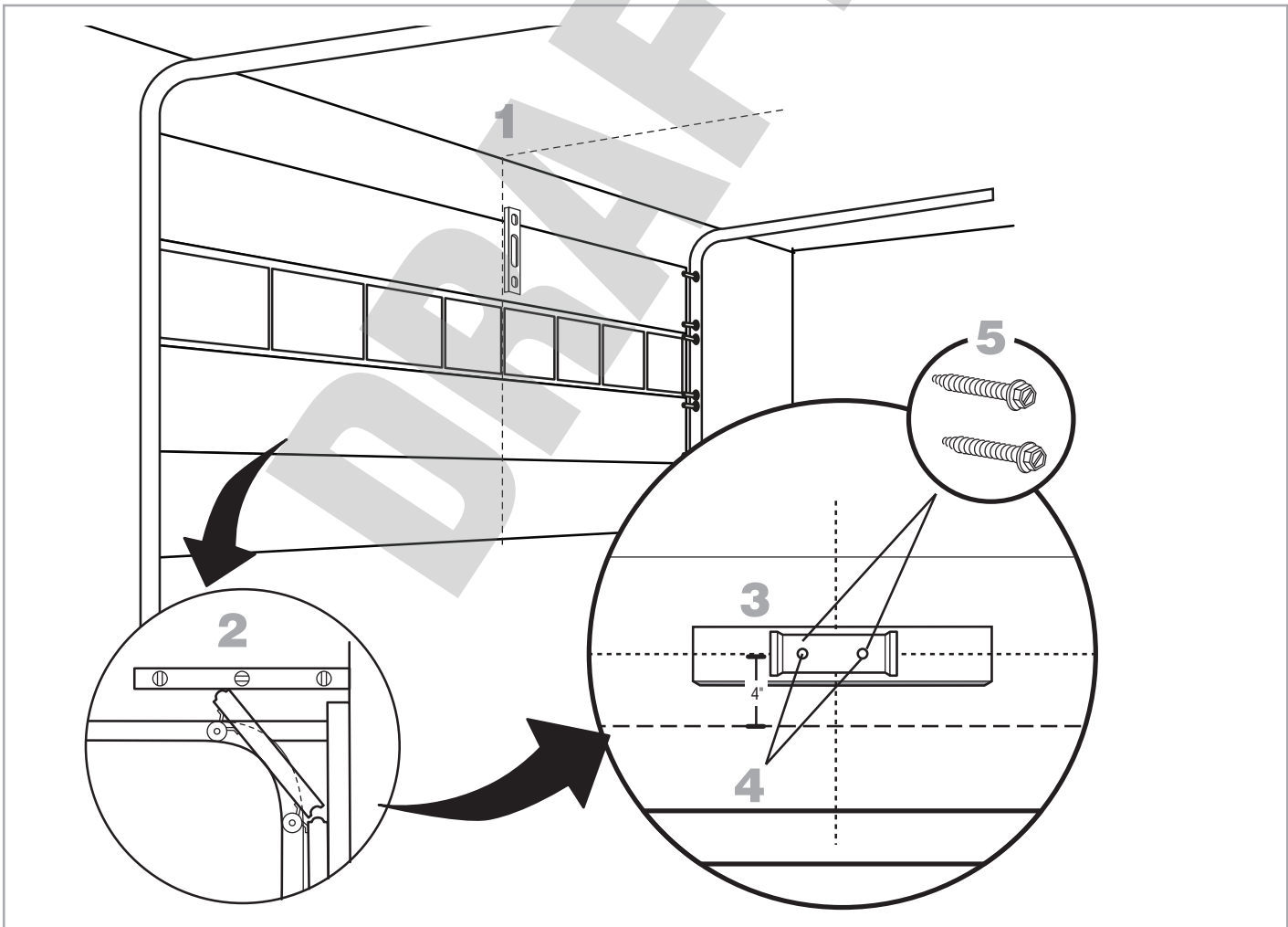
The trolley operator is generally mounted over the center of the door. However, off center mounting may be required due to interfering structures or location of door stile / top section support. Typically, the operator may be mounted up to 24 inches off center on torsion spring doors. Extension springs require center mounting.

- 1 Close the door. Mark the center of the door with a vertical line, extend the line onto the ceiling.
- 2 Open the door to the highest point of travel mark 4 inches above the highest point of travel.
- 3 Center the header bracket on the vertical center line and the horizontal line.
- 4 Drill the pilot holes for the header bracket.
- 5 Fasten the header bracket with appropriate hardware (not provided).

### ⚠ WARNING

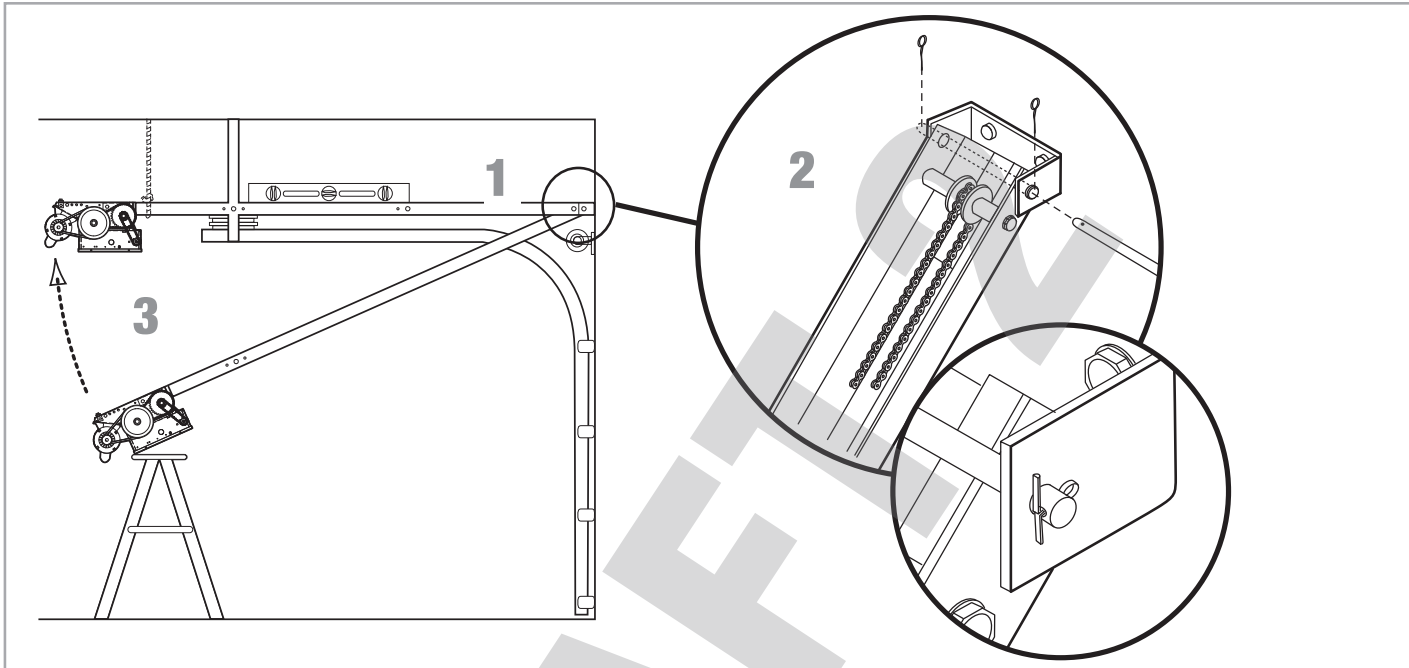
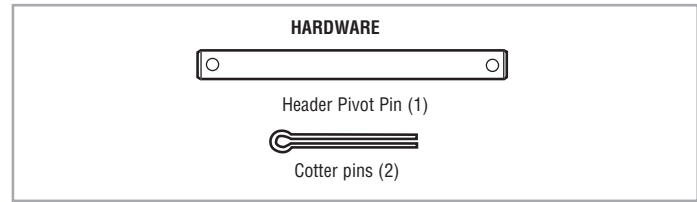
To prevent possible SERIOUS INJURY or DEATH:

- Header bracket **MUST** be RIGIDLY fastened to structural support on header wall or ceiling, otherwise door might NOT reverse when required. DO NOT install header bracket over drywall.
- Concrete anchors **MUST** be used if mounting header bracket or 2x4 into masonry.
- NEVER try to loosen, move or adjust door, springs, cables, pulleys, brackets, or their hardware, ALL of which are under EXTREME tension.
- ALWAYS call a trained door systems technician if door binds, sticks, or is out of balance.



## ATTACH THE TRACK TO THE HEADER BRACKET

- 1 Align the track with the header bracket.
- 2 Insert the pin through the track and header bracket holes. Secure with the fasteners.
- 3 Swing the operator up and ensure the operator is level.



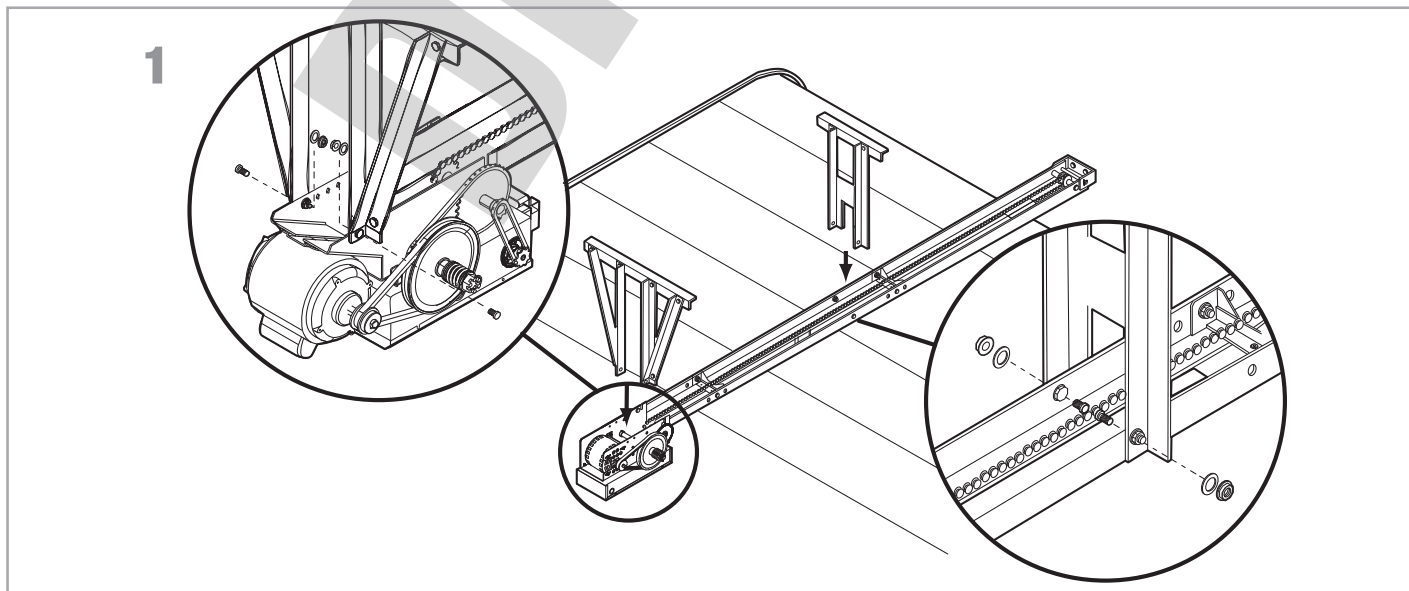
## HANG THE OPERATOR

- 1 Secure the operator using the appropriate fasteners and locking hardware that will support the weight of the operator.

### CAUTION

To avoid possible **SERIOUS INJURY** from a falling operator:

- Fasten the operator **SECURELY** to structural supports of the building.
- Concrete anchors **MUST** be used if installing **ANY** brackets into masonry.




## ATTACH THE DOOR ARM

- 1 Latch the door arm to the trolley. Make sure the open side of the notch on the door arm faces the door.
- 2 Position the door bracket to the center line of the door and attach the door bracket to the door using appropriate hardware (not included). **NOTE:** When properly installed and adjusted the door arm should be leaning back toward the operator slightly. Refer to door manufacturer's instructions for recommended installation guidelines.


**HARDWARE**

A




Flanged Hex Nut 3/8"-16 (2)

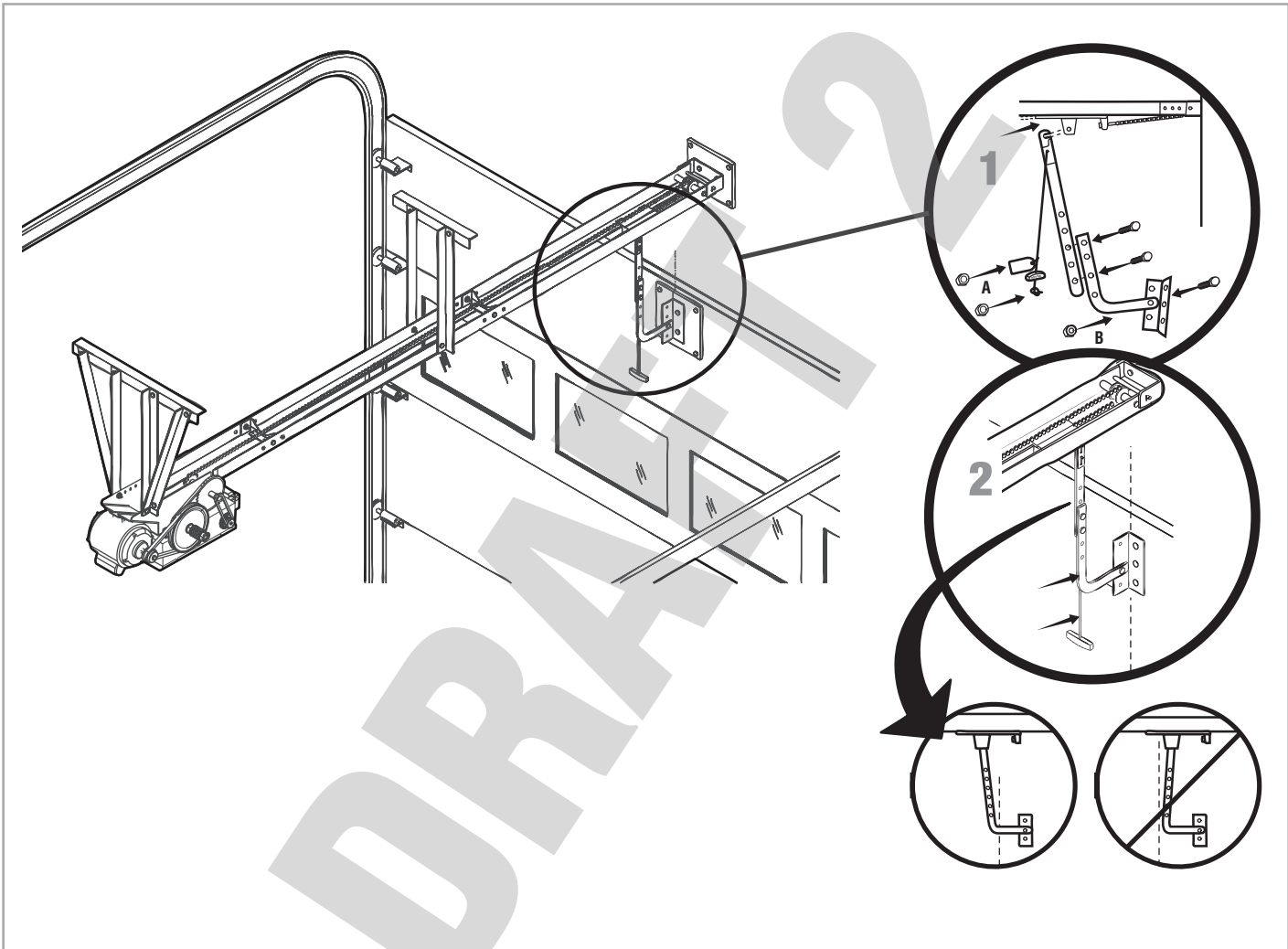
B



Nylok Nut 3/8"-16 (1)



Bolt 3/8"-16 x 1" (3)



# HOIST AND JACKSHAFT OPERATORS

## CARTON INVENTORY

Before beginning your installation check that all components were provided.

DESCRIPTION
Powerhead assembly
Owner's manual and caution labels
Hardware box (includes fasteners, track spacers, trolley, door arm assembly, front idler and header mounting bracket)
3-Button control station with MAS LED
Hoist hand chain (Models H, HJ and GH ONLY)
Door sprocket
Door/operator drive chain

### ENTRAPMENT PROTECTION DEVICES:

#### LiftMaster Monitored Entrapment Protection (LMEP)

Monitored Photoelectric Sensors and/or Door Edge Sensors are required for any momentary contact to close modes of operation. See pages 20-21 for additional information. Refer to the Accessories page 42, 'Entrapment Protection Devices' for available options.

### OPERATOR SPECIFICATIONS

MOTOR		ELECTRICAL				
<b>TYPE:</b> .....	Continuous duty	<b>TRANSFORMER:</b> .....	24Vac Secondary			
<b>HORSEPOWER:</b>		<b>CONTROL STATION:</b> .....	NEMA 3-Button Station Open/Close/Stop w/LED			
Model J, H and HJ.....	1/3, 1/2, 3/4 and 1 HP	<b>WIRING TYPE:</b> .....	C2 (Factory default)			
Model GH.....	1/2, 3/4, 1, 1-1/2, 2 and 3 HP	Momentary contact to OPEN & STOP, constant pressure to CLOSE, plus wiring for LMEP device to reverse and auxiliary devices to open and close with open override. See page 29 for optional wiring types and operating modes.				
<b>SPEED:</b> .....	1725 RPM	<b>LIMIT ADJUST:</b> .....	Linear driven, fully adjustable screw type cams. Adjustable to 24 feet.			
<b>VOLTAGE:</b>		<b>DISCONNECT:</b>				
Model J, H and HJ.....	115/230V 1 Phase	Model J.....	Floor level disconnect for manual door operation			
	208/230/460/575V 3 Phase	Model H and GH.....	Floor level chain hoist with electrical interlock for manual door operation			
Model GH.....	115/230V 1 Phase	Model HJ.....	Includes both floor level disconnect systems stated above			
	208/230/460/575V 3 Phase					
<b>CURRENT (Amperage):</b>						
Models H, HJ, and J						
<b>Voltage-Phase</b>	<b>1/3 HP</b>	<b>1/2 HP</b>	<b>3/4 HP</b>	<b>1 HP</b>		
115-1Ø, 60Hz	8.5	11.2	13.6	16		
230-1Ø, 60Hz	4.2	5.6	6.8	8		
208/230-3Ø, 60Hz	3	3.1	4	6		
460-3Ø, 60Hz	1.5	1.75	2	3		
575-3Ø, 60Hz	1.3	1.4	1.6	1.8		
Model GH						
<b>Voltage-Phase</b>	<b>1/2 HP</b>	<b>3/4 HP</b>	<b>1 HP</b>	<b>1-1/2 HP</b>	<b>2 HP</b>	<b>3 HP</b>
115-1Ø, 60Hz	11.2	13.6	16	20	-	-
230-1Ø, 60Hz	5.6	6.8	8	10	-	-
208/230-3Ø, 60Hz	3.1	4	6	7	8	10.6
460-3Ø, 60Hz	1.75	2	3	3.5	4	4.8
575-3Ø, 60Hz	1.4	1.6	1.8	2.75	3	-

HOIST AND JACKSHAFT

# OPERATOR SPECIFICATIONS

HOIST AND JACKSHAFT

**MECHANICAL**

**DRIVE REDUCTION:**

Model J, H, and HJ . . . . . Primary: Heavy duty (5L) V-Belt  
 Secondary: #48 chain/sprocket;  
 Output: #50 chain

Model GH . . . . . Primary: 45:1 for 1/2, 3/4 and 1 HP  
 Worm gear-in-oil bath gear reducer 44:1 for 1-1/2 and 2 HP  
 42:1 for 3 HP  
 Output: #50 chain

**OUTPUT SHAFT SPEED:**

Model J, H and HJ. . . . . 36 RPM  
 Model GH . . . . . 38.3 for 1/2, 3/4 and 1 HP  
 39.2 for 1-1/2 and 2 HP  
 41.1 for 3 HP

**DOOR SPEED:**

Model J, H and HJ. . . . . 8-9" per second depending on door  
 Model GH . . . . . 8-9" per second depending on door

**BRAKE:** . . . Solenoid actuated disc brake: Standard on GH & GT  
 (available as an option on J, H, HJ models)

**BEARINGS** . . . . . Output shaft: Shielded ball bearing  
 Clutch shaft: IronCopper sintered and oil impregnated  
 Models H and HJ ONLY

**HAND CHAIN WHEEL:** . . . . . Left or right handing  
 Models H and HJ ONLY

**HOIST WHEEL:** . . . . . Standard mounting on left or right side

**MAXIMUM DOOR AREA (SQ. FT.)**

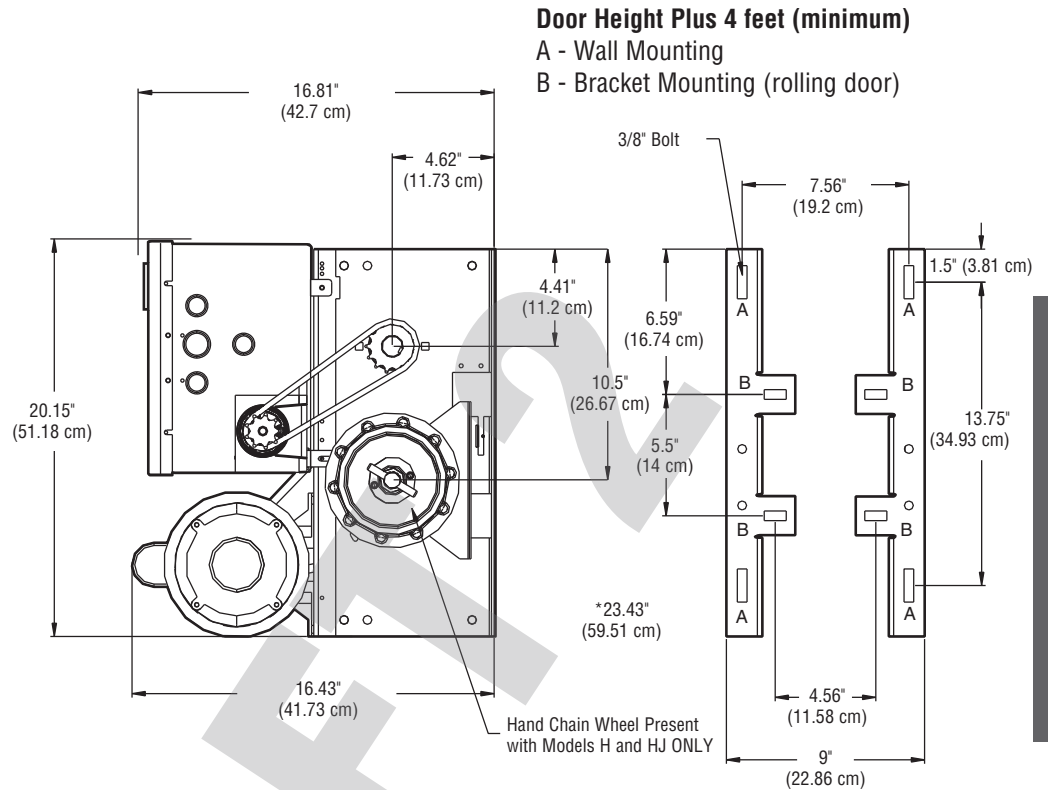
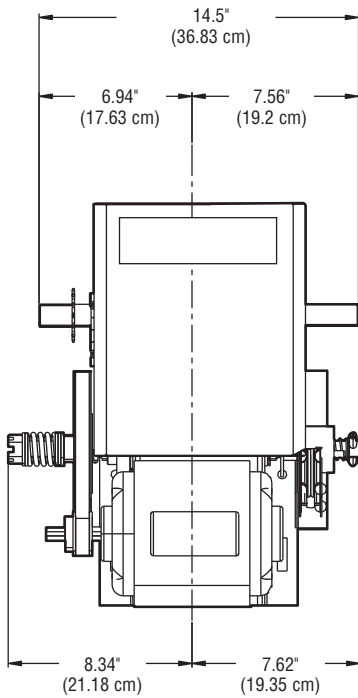
MODELS J, H, AND HJ						
ROLLING	24 ga. Steel	22 ga. Steel	---	20 ga. 18 ga. Steel	16 ga. Steel	---
	Alum. Grilles	Alum. Doors	---	Steel Grilles	---	---
SECTIONAL	---	24 ga. 22 ga. Steel	20 ga. Steel	---	16 ga. Steel	---
	Fiberglass Doors	Alum. Doors	Wood Doors	---	---	---
	---	---	24 ga. Steel Insul.	---	20 ga. Steel Insul.	16 ga. Steel Insul.
<b>1/3 HP</b>	310	285	260	210	175	125
<b>1/2 HP</b>	400	350	320	280	250	200
<b>3/4 HP</b>	560	500	450	380	325	250
<b>1 HP</b>	640	625	560	475	400	310

MODEL GH						
ROLLING	24 ga. Steel	22 ga. Steel	---	20 ga. 18 ga. Steel	16 ga. Steel	---
	Alum. Grilles	Alum. Doors	---	Steel Grilles	---	---
SECTIONAL	---	24 ga. 22 ga. Steel	20 ga. Steel	---	16 ga. Steel	---
	Fiberglass Doors	Alum. Doors	Wood Doors	---	---	---
	---	---	24 ga. Steel Insul.	---	20 ga. Steel Insul.	16 ga. Steel Insul.
<b>1/2 HP</b>	325	300	275	250	225	175
<b>3/4 HP</b>	480	430	390	340	275	225
<b>1 HP</b>	650	560	500	430	325	300
<b>1-1/2 HP</b>	---	---	680	540	425	375
<b>2 HP</b>	---	---	---	640	560	460
<b>3 HP</b>	---	---	---	875	840	620
<b>5 HP</b>	Call for specifications					

## WEIGHTS AND DIMENSIONS

### MODELS J, H AND HJ

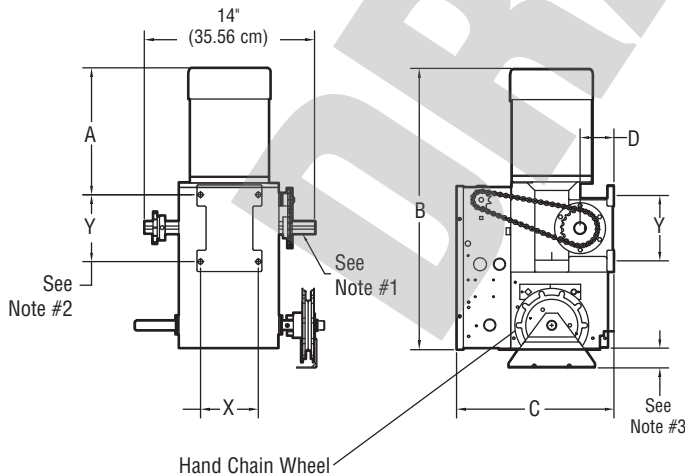
Hanging Weight: 80-110 lbs.



HOIST AND JACKSHAFT

### MODEL GH

Hanging Weight: 140 lbs.



HP	PHASE	DIMENSIONS			
		A	B	C	D
1/2	1	11-1/2	25-3/4	12-63/64	3
3/4	1	12-1/2	26-3/4	12-63/64	3
1	1	12-3/4	27	12-63/64	3
1-1/2	1	12-3/4	27	13-63/64	3-1/2
1/2	3	11	25-1/4	12-63/64	3
3/4	3	11	25-1/4	12-63/64	3
1	3	12	26-1/4	12-63/64	3
1-1/2	3	12-1/2	26-3/4	13-63/64	3-1/2
2	3	12-3/4	27	13-63/64	3-1/2
3	3	13-1/4	28-5/8	15-15/64	3-15/16

### NOTES:

- 1) Output shaft with 1" x 1/4" key for 1/2 thru 1 HP operators, 1-3/16" x 5/16" key for 1-1/2 and 2 HP operators, 1-1/4" x 1/4" key for 3 HP operators.
- 2) Mounting centers: X = 4-3/4"; Y = 5-1/2" for 1/2 thru 2 HP operators.  
X = 3-5/8"; Y = 9-1/16" for 3 HP operators.
- 3) Hand chain wheel extends 1-5/8" beyond operator in vertical mounting position as shown.

# ASSEMBLY

## ASSEMBLE THE OPERATOR

It is imperative that the wall or mounting surface provide adequate support for the operator.

This surface must:

- Be rigid to prevent play between the operator and the door shaft.
- Provide a level base.
- Permit the operator to be fastened securely and with the drive shaft parallel to the door shaft.

**1** Select handing. Right (R) or Left (L).

On models J, H, HJ and GH operators the drive sprocket can be mounted on either the right or left side.

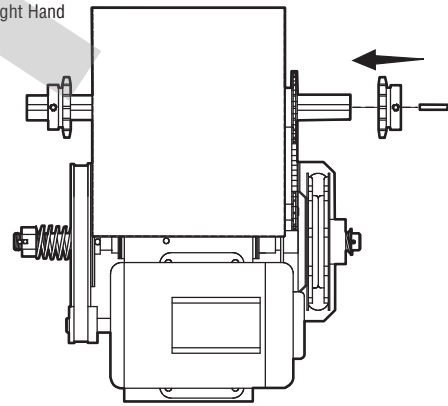
For models H and HJ with manual hand chain systems, the handing of the operator must be determined at the time of order. The handing is indicated by the last letter of the model number (R or L). The hand chain wheel cannot be switched. If your installation causes the hand chain to hang in the door opening, hook the chain to the side near the top of the door jamb.

## WARNING

To prevent possible SERIOUS INJURY or DEATH:

- DO NOT connect electric power until instructed to do so.
- If the door lock needs to remain functional, install an interlock switch.
- ALWAYS call a trained door systems technician if door binds, sticks or is out of balance. An unbalanced door may NOT reverse when required.
- NEVER try to loosen, move or adjust doors, door springs, cable, pulleys, brackets or their hardware, ALL of which are under EXTREME tension and can cause SERIOUS PERSONAL INJURY.
- Disable ALL locks and remove ALL ropes connected to door BEFORE installing and operating door operator to avoid entanglement.
- Fasten the operator SECURELY to structural supports of the building.
- Concrete anchors MUST be used if installing ANY brackets.

EXAMPLE: Right Hand



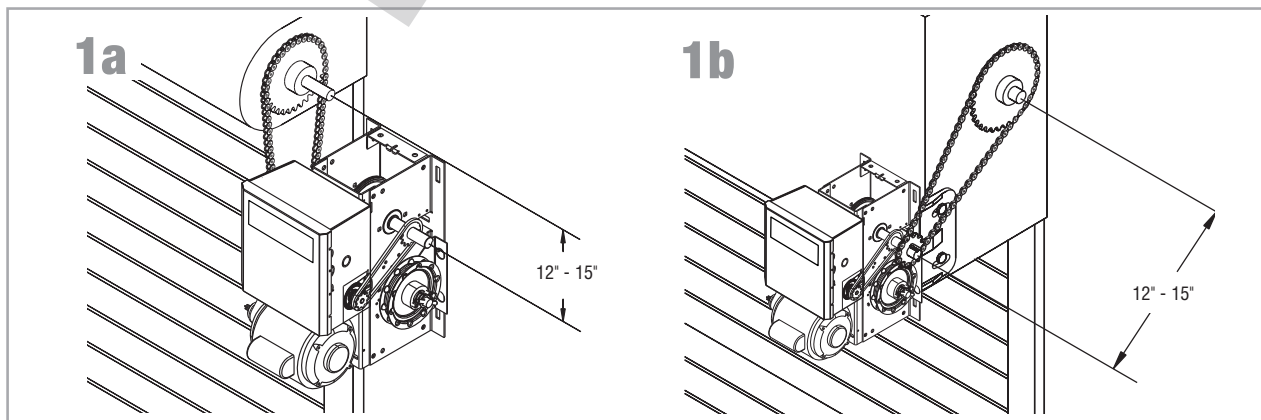
## TYPICAL INSTALLATION

### DETERMINE MOUNTING LOCATION

**1** The operator may be mounted on the wall, shelf or bracket (not provided, see accessories). The optimum distance between the door shaft and operator drive shaft is 12 - 15 inches.

**1a** Wall mount

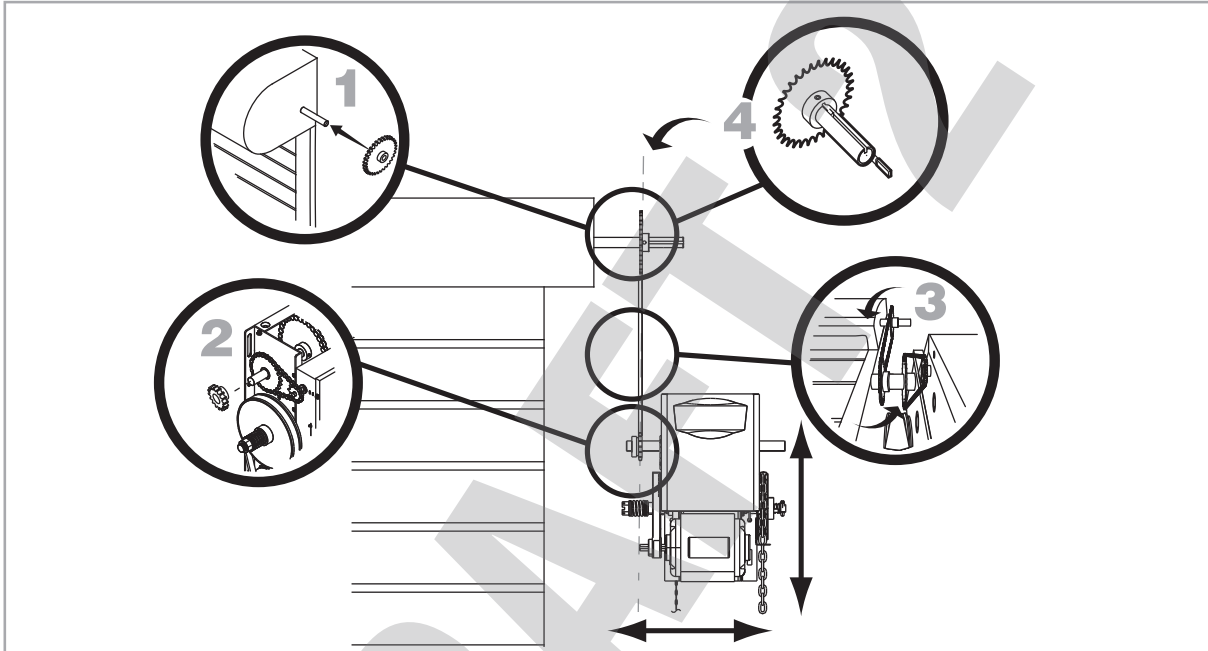
**1b** Shelf or bracket mount





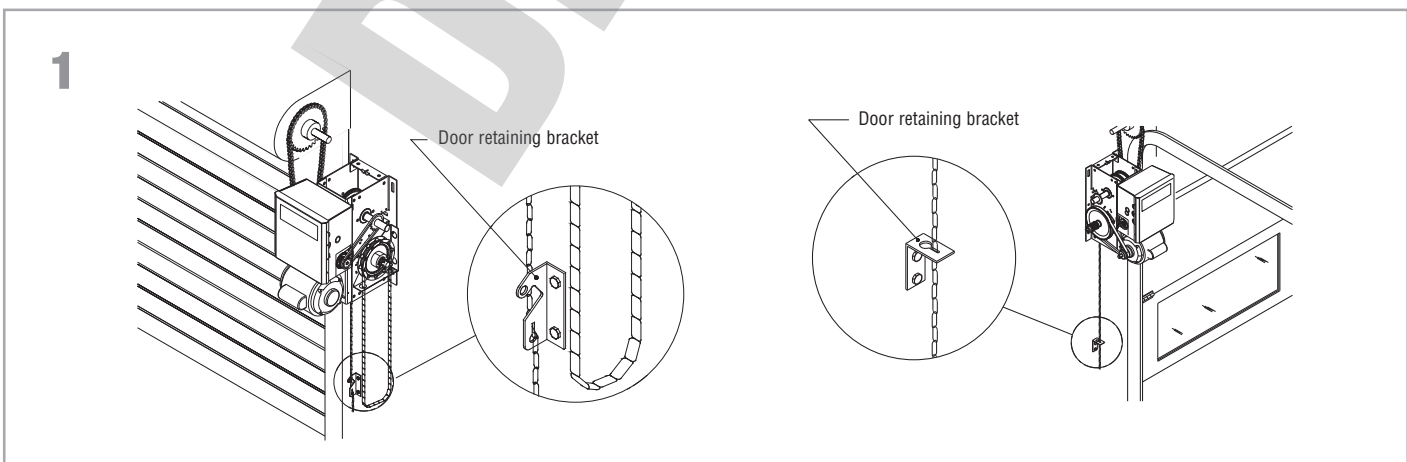
## MOUNTING

- 1 Place the door sprocket on the door shaft.
- 2 Place the operator drive sprocket on the appropriate side of the operator for your installation type.
- 3 Wrap the drive chain around the door sprocket and the drive sprocket then secure with the master link.
- 4 Align the door and the drive sprockets. Insert keys and fasten the sprockets with the set screws. **NOTE:** It is highly recommended to add a thread adhesive to secure the set screws in place.



## INSTALL THE MANUAL DISCONNECT

- 1 Fasten Door retaining bracket 4 feet above the floor.



# WIRING

## ⚠️ ⚠️ WARNING

To reduce the risk of SEVERE INJURY or DEATH:

- ANY maintenance to the operator or in the area near the operator MUST NOT be performed until disconnecting the electrical power and locking-out the power. Upon completion of maintenance the area MUST be cleared and secured, at that time the unit may be returned to service.
- Disconnect power at the fuse box BEFORE proceeding. Operator MUST be properly grounded and connected in accordance with national and local electrical codes. The operator should be on a separate fused line of adequate capacity.

- ALL electrical connections MUST be made by a qualified individual.
- DO NOT install ANY wiring or attempt to run the operator without consulting the wiring diagram.
- ALL power wiring should be on a dedicated circuit and well protected. The location of the power disconnect should be visible and clearly labeled.
- ALL power and control wiring MUST be run in separate conduit.

## POWER AND GROUND

Power and control wiring must be run in separate conduit in accordance with national and local electrical codes. Must use 14 AWG or heavier wire for power wiring. Use conduit knockouts for wiring as indicated on the electrical box labels.

- 1 Remove the operator cover.
- 2 Run power wires to electrical box according to national and local electrical codes.  
ON THREE PHASE MACHINES ONLY: Incorrect phasing of the power supply will cause the motor to rotate in the wrong direction. To change motor rotation, exchange incoming power leads L1 and L2.
- 3 Attach power and ground wires to appropriate terminals.  
**IMPORTANT NOTE:** This operator must be properly grounded. Failure to properly ground the operator could result in electric shock and serious injury.

## POWER WIRING CHART

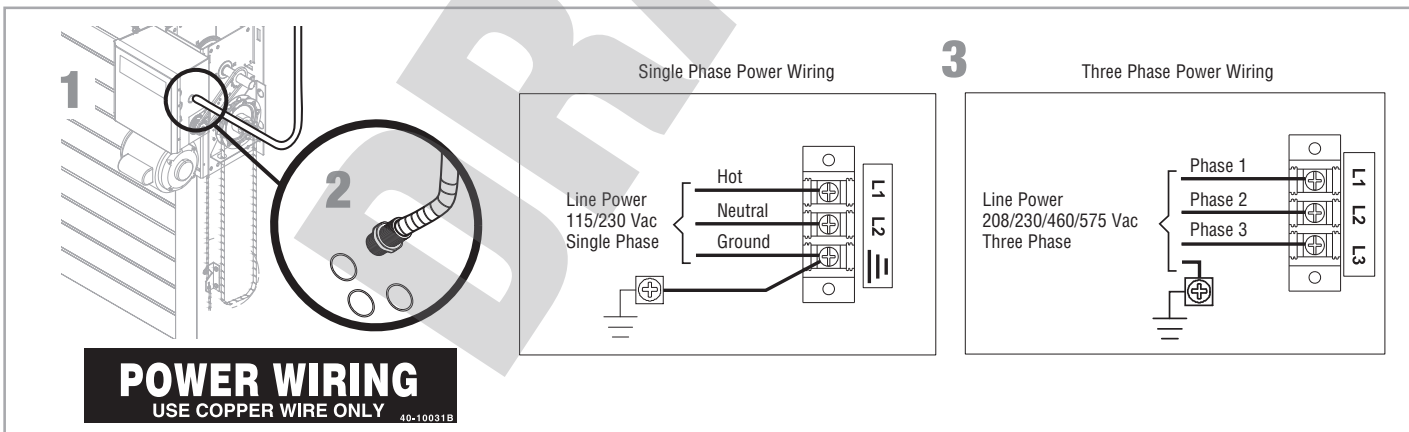
DISTANCE	GAUGE
50 feet	14 AWG
100 feet	12 AWG
200 feet	8 AWG*
350 feet	6 AWG*
500 feet	4 AWG*
1000 feet	2 AWG*

\* Maximum wire gauge that can be connected to the operator's terminal is 12 AWG. When a larger wire gauge is required, the wire must be gauged down to 12 AWG. USE COPPER WIRE ONLY.

**NOTE:** In some installations, such as a through-wall-installation, the rotation of the motor and logic board may have to be changed.

1. Locate the MOTOR DIRECTION jumper on the logic board. Remove jumper and relocate from STD to REV.
2. Relocate the sensing limit switch (SLS) to the opposite side.
3. Remove CLOSE/OPEN decal and reattach appropriately.

WIRING



## MOTOR POWER PLUG SELECTION

- 1 Locate motor power lead with plug.
- 2 On the POWER BOARD find the appropriate receptacle that matches the incoming line voltage. Remove the label and insert the motor power cable fully until locked in place.

**ILLUSTRATION TO SHOW POWER BOARD AND MOTOR CONDUIT/WIRE/HEADER PLUG**

## CONTROL STATION

### WARNING

To prevent possible SERIOUS INJURY or DEATH from electrocution:

- Be sure power is NOT connected BEFORE installing door control.

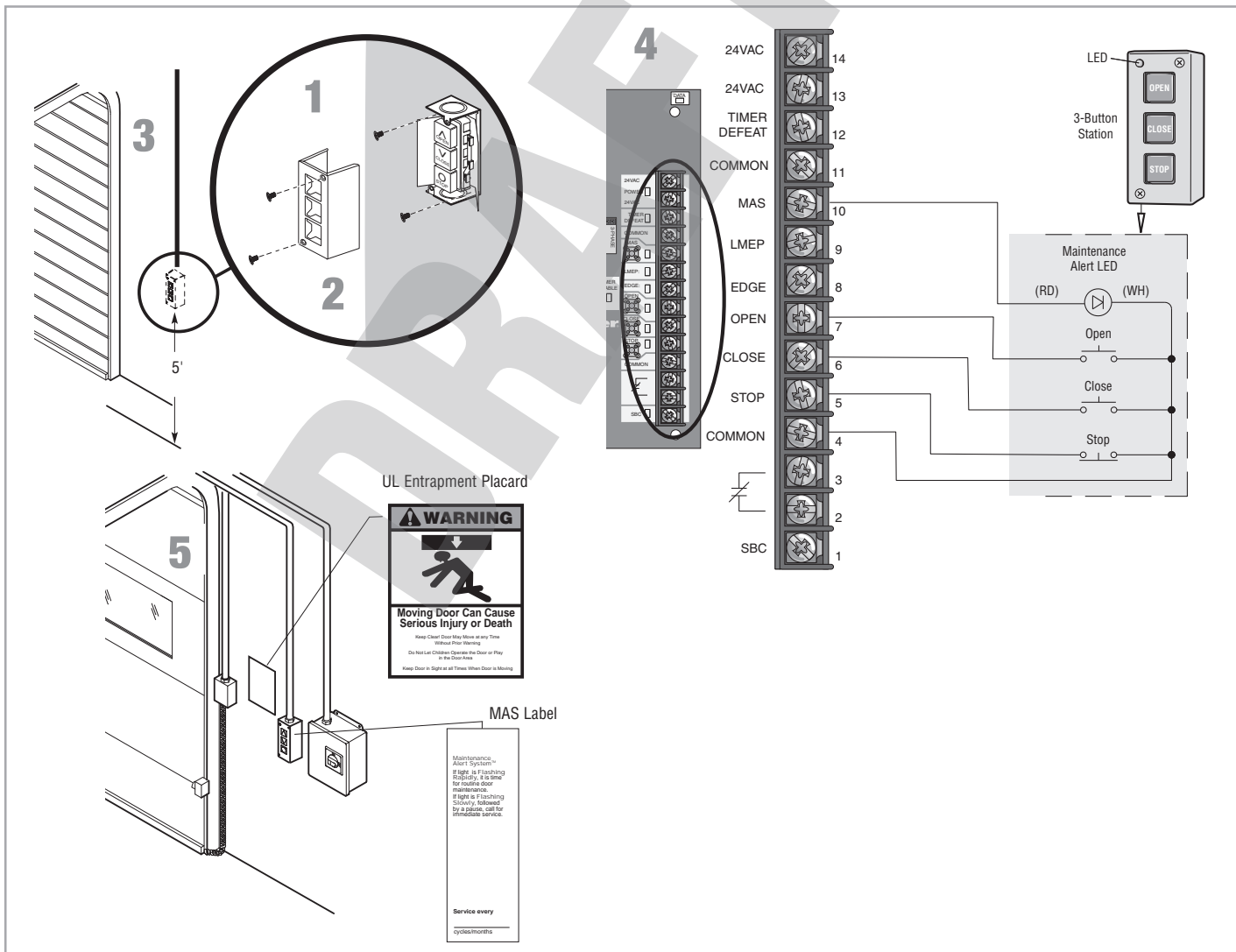
To prevent possible SERIOUS INJURY or DEATH from a closing door:

- Install door control within sight of door, out of reach of children at a minimum height of 5 feet (1.5 m) and away from ALL moving parts of door.
- Install the control station far enough from the door to prevent the user from coming in contact with the door while operating the controls.

- Install the entrapment warning placard on wall next to the control station in a prominent location that is visible from the door.
- NEVER permit children to operate or play with door control push buttons or remote controls.
- Activate door ONLY when it can be seen clearly, is properly adjusted and there are no obstructions to door travel.
- ALWAYS keep door in sight until completely closed. NEVER permit anyone to cross path of closing door.

**NOTE:** The low voltage control circuit wiring requires insulated, 20 AWG or greater wire. Refer to back page for additional control wiring.

- 1 Remove the control station cover.
- 2 Fasten the control station to the wall at least 5 feet above the ground. **The installation surface must be smooth and flat.** Attach the MAS label to the side of the control station.
- 3 Select appropriate knockout and run the wires to the operator.
- 4 Connect wires to the control station and replace the control station cover.
- 5 Fasten the entrapment warning placard next to the control station.



WIRING

# ENTRAPMENT PROTECTION

## LIFTMASTER MONITORED ENTRAPMENT PROTECTION (LMEP)

### IMPORTANT INFORMATION ABOUT THE LIFTMASTER MONITORED ENTRAPMENT PROTECTION DEVICES

A LiftMaster Monitored Entrapment Protection (LMEP) device is required for most wiring types (refer to page 28). If a LiftMaster Monitored Entrapment Protection device is not installed, constant pressure to close will be required from the control station. Refer to Accessories page for a complete list of LMEP devices.

## WARNING

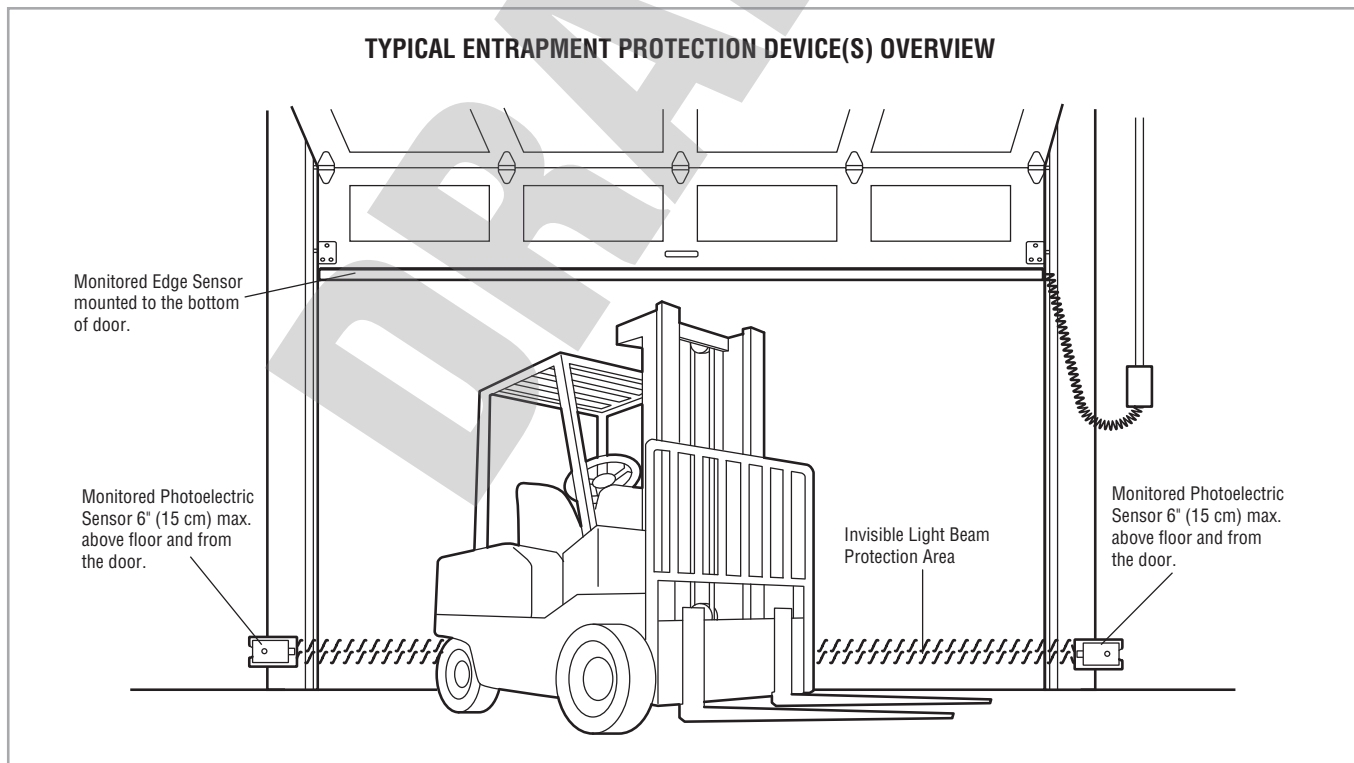
To prevent possible SERIOUS INJURY or DEATH from a closing door:

- Be sure power is NOT connected to the door operator BEFORE installing the photoelectric sensor.
- The door MUST be in the fully opened or closed position BEFORE installing the LiftMaster Monitored Entrapment Protection device.

To prevent SERIOUS INJURY, DEATH, ENTRAPMENT, or PROPERTY DAMAGE:

- Correctly connect and align the photoelectric sensor.
- Install the photoelectric sensor beam NO HIGHER than 6" (15 cm) above the floor.
- This is a required LMEP device for B2, TS, T, and FSTS wiring types and MUST NOT be disabled. For D1, C2, and E2 wiring the installation of an entrapment protection device is recommended.
- LiftMaster Monitored Entrapment Protection devices are for use with LiftMaster Commercial Door Operators ONLY. Use with ANY other product voids the warranty.
- If an edge sensor is being used on a horizontal slide door, then place one or more edge sensors on both the leading and trailing edge.
- If an edge sensor is being used on a vertically moving door, then place edge sensors on the bottom edge of the door.

### TYPICAL ENTRAPMENT PROTECTION DEVICE(S) OVERVIEW



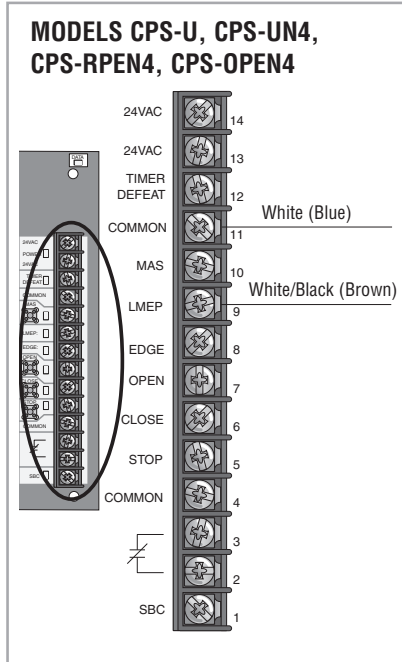
## INSTALL THE LIFTMASTER MONITORED ENTRAPMENT PROTECTION (OPTIONAL)

Always refer to the installation instructions that are included with your LiftMaster Entrapment Protection (LMEP) devices. Without an LMEP properly installed, the operator will only work with constant pressure to close mode of operation.

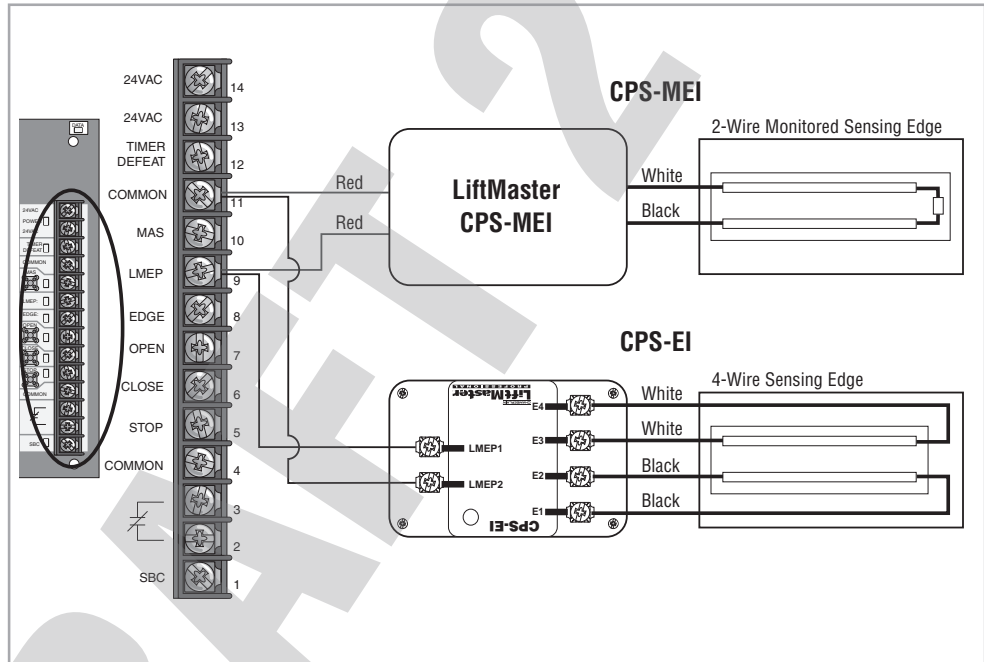
## WIRE THE LIFTMASTER MONITORED ENTRAPMENT PROTECTION (LMEP) DEVICES

- 1 Connect the LiftMaster Monitored Entrapment Protection (LMEP) device to the logic board according to the models shown below:

### MONITORED PHOTOELECTRIC SENSOR



### MONITORED EDGE SENSOR



**NOTE:** Only one LMEP device can be connected to the logic board. To attach additional LMEP's, the CPS3CARD option card is required. Secondary (non-monitored) entrapment protection devices (with N.O. dry contact) will be wired to the EDGE and COMMON terminals.

# ADJUSTMENT

## IMPORTANT SAFETY INSTRUCTIONS

### **WARNING**

### TO REDUCE THE RISK OF SEVERE INJURY OR DEATH:

1. READ AND FOLLOW ALL WARNINGS AND INSTRUCTIONS.
2. ALWAYS keep remote controls out of reach of children. NEVER permit children to operate or play with door control push buttons or remote controls.
3. ONLY activate door when it can be seen clearly, it is properly adjusted and there are no obstructions to door travel.
4. Personnel should keep away from a door in motion and ALWAYS keep door in sight until completely closed. NO ONE SHOULD CROSS THE PATH OF THE MOVING DOOR.
5. NO ONE SHOULD GO UNDER A STOPPED, PARTIALLY OPENED DOOR.
6. If possible, use manual release handle to disengage door ONLY when door is CLOSED. Weak or broken springs or unbalanced door could result in an open door falling rapidly and/or unexpectedly causing SEVERE INJURY or DEATH.
7. NEVER use manual release handle unless doorway is clear of persons and obstructions.
8. After ANY adjustments are made, the entrapment protection device MUST be tested. Failure to adjust the operator properly may cause SEVERE INJURY and DEATH.
9. Entrapment Protection device MUST be tested every month. Failure to adjust the operator properly may cause SEVERE INJURY and DEATH.
10. ALWAYS KEEP DOOR PROPERLY BALANCED. An improperly balanced door may NOT reverse when required and could result in SEVERE INJURY or DEATH. See door manufacturer's owners manual.
11. ALL repairs to cables, spring assemblies and other hardware, ALL of which are under EXTREME tension, MUST be made by a trained door systems technician.
12. ALWAYS disconnect electric power to door operator BEFORE making ANY repairs or removing covers.
13. **SAVE THESE INSTRUCTIONS.**

## LIMIT ADJUSTMENT

- 1 Begin with the door in the fully closed position to set the CLOSE limit.
- 2 Depress the retaining plate (1) and move the limit nut to the CLOSE limits (2).  
**NOTE:** The Close Limit Switch (CLS) and Sensing Limit Switch (SLS) LEDs on the logic board will illuminate when the switches are activated and the power is on.
- 3 When the retaining plate is released, verify that the retaining plate is fully seated with the notches of the limit nuts.
- 4 Open the door to the fully open position and set the OPEN limit (3).  
**NOTE:** The Open Limit Switch (OLS) LED on the logic board will illuminate when the switches are activated and the power is on.
- 5 When the retaining plate is released, verify that the retaining plate is fully seated with the notches of the limit nuts.

### **WARNING**

To avoid SERIOUS personal INJURY or DEATH from electrocution:

- Disconnect electric power BEFORE performing ANY adjustments or maintenance.

