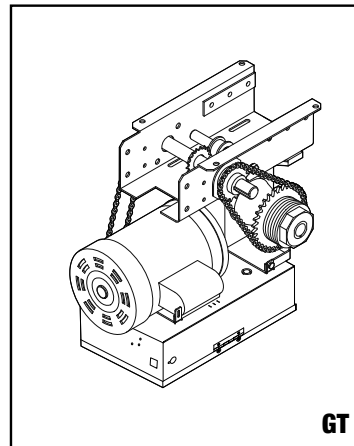
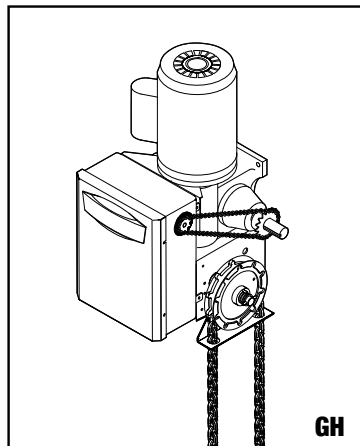
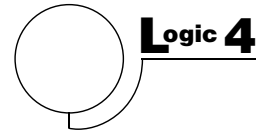
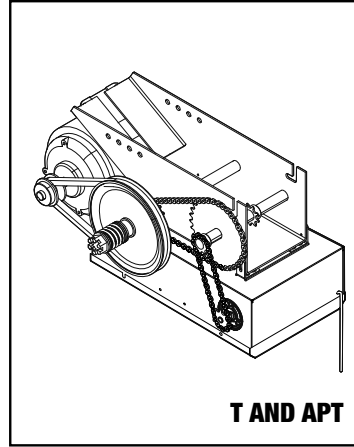
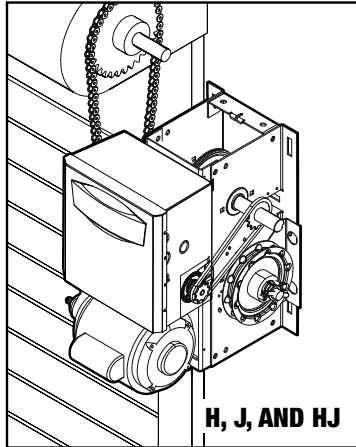


LiftMaster®

Commercial Door Operators

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 to locate a professional installing dealer in your area.

2 YEAR WARRANTY

Serial # Box _____

Installation Date _____

CONTACT INFORMATION

THIS OPERATOR FEATURES THE ENHANCED



The Maintenance Alert System™ allows the installer to set an internal Maintenance Cycle Counter. The Logic 4 operator incorporates a self-diagnostic feature built into the (MAS) Maintenance Alert System LED. An LED on the 3-button station will signal when the set number of cycles/months is reached or when the operator requires immediate service.

NOT FOR RESIDENTIAL USE



**315MHz
Radio Receiver
Built on Board**

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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 LED

Trolley drive chain: #48 for 1/3 and 1/2 HP,

#41 for 3/4 HP and higher (all GT models)

Entrapment Protection Device: Model CPS-U photoelectric sensors (standard)

NOTE: The tracks are shipped separately.

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 (Standard)

Momentary contact to OPEN & STOP, constant pressure to CLOSE, plus wiring for sensing 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.

SAFETY

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

ENTRAPMENT PROTECTION:

LiftMaster Monitored Entrapment Protection (LMEP)

Photoelectric Sensors (CPS-U): Through beam used to provide non-contact safety protection.

Safety Edge (Optional): Electric or pneumatic sensing device attached to the bottom edge of door.

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 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.
1/3 HP	310	285	260	175	125
1/2 HP	400	350	320	250	200
3/4 HP	560	500	450	325	275
1 HP	640	625	560	400	310

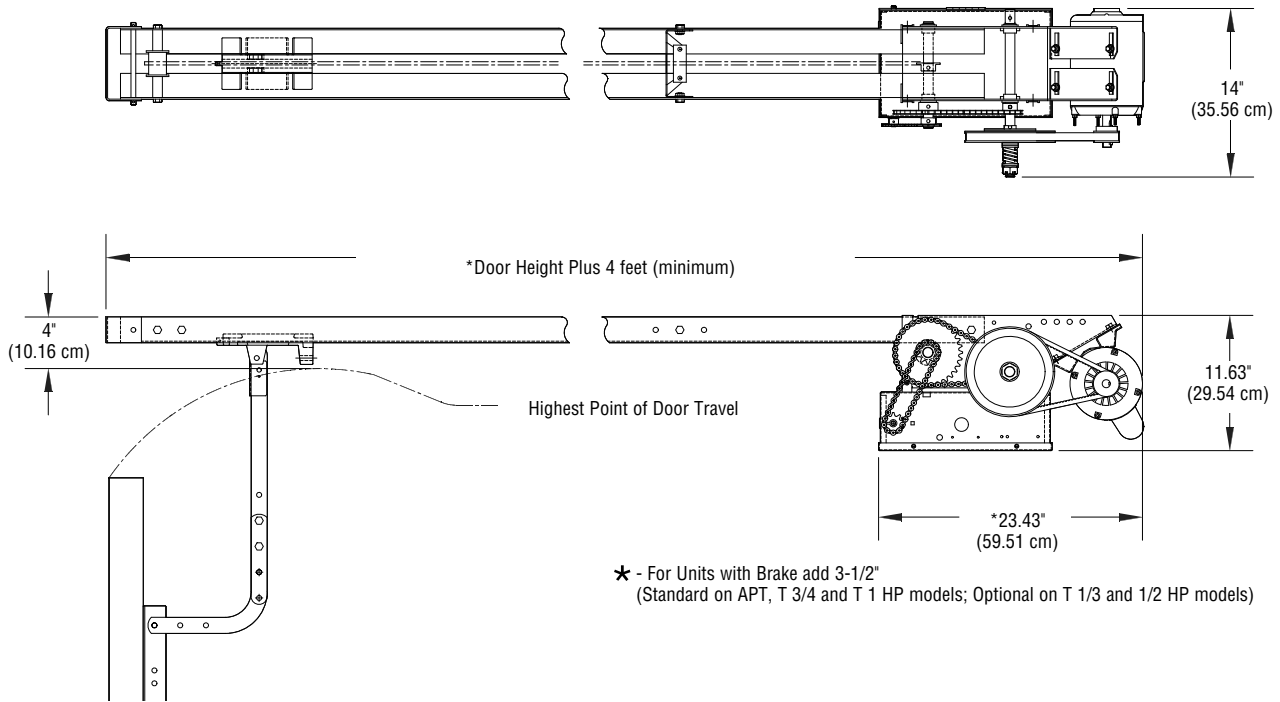
MODEL APT				
STANDARD SECTIONAL	24 ga. 22 ga. Steel	20 ga. Steel	16 ga. Steel	---
	Alum. Doors	Wood Doors	---	---
	Fiberglass Doors	24 ga. Steel Insul.	20 ga. Steel Insul.	16 ga. Steel Insul.
1/2 HP	250	225	150	100

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.
1/2 HP	400	350	320	250	200
3/4 HP	560	500	450	325	250
1 HP	625	575	500	400	300
1-1/2 HP	---	625	550	475	380

WEIGHTS AND DIMENSIONS

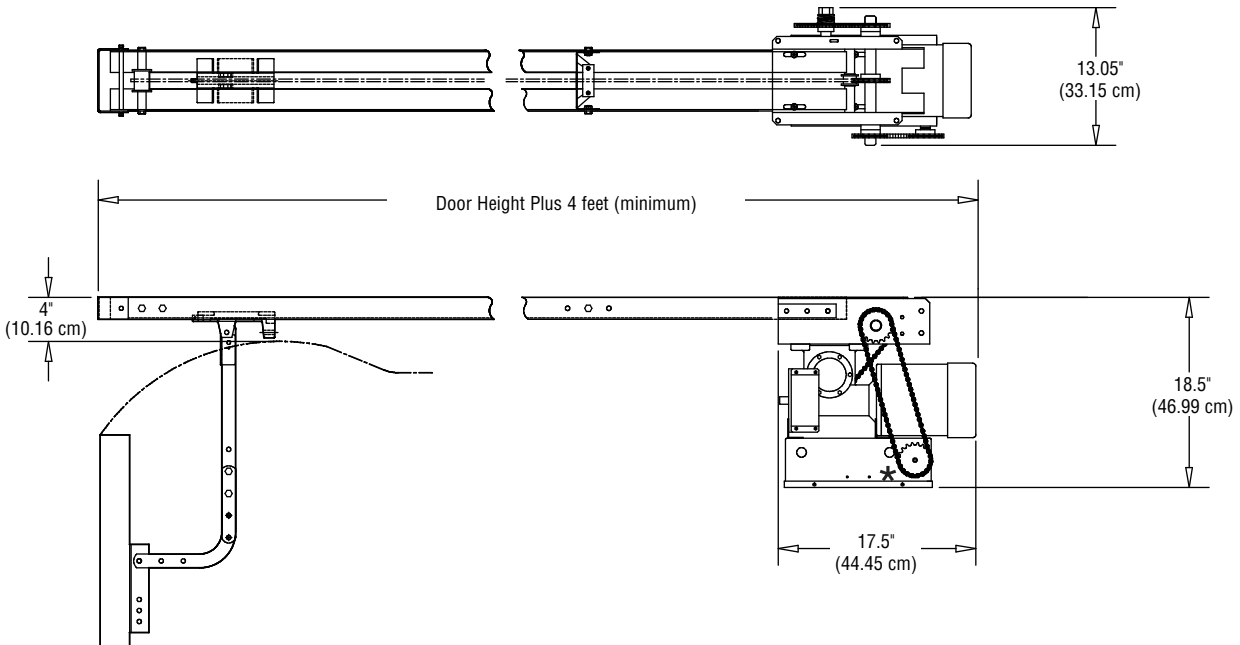
MODELS T AND APT

Hanging Weight: 80-110 lbs.



MODEL GT

Hanging Weight: 140 lbs.

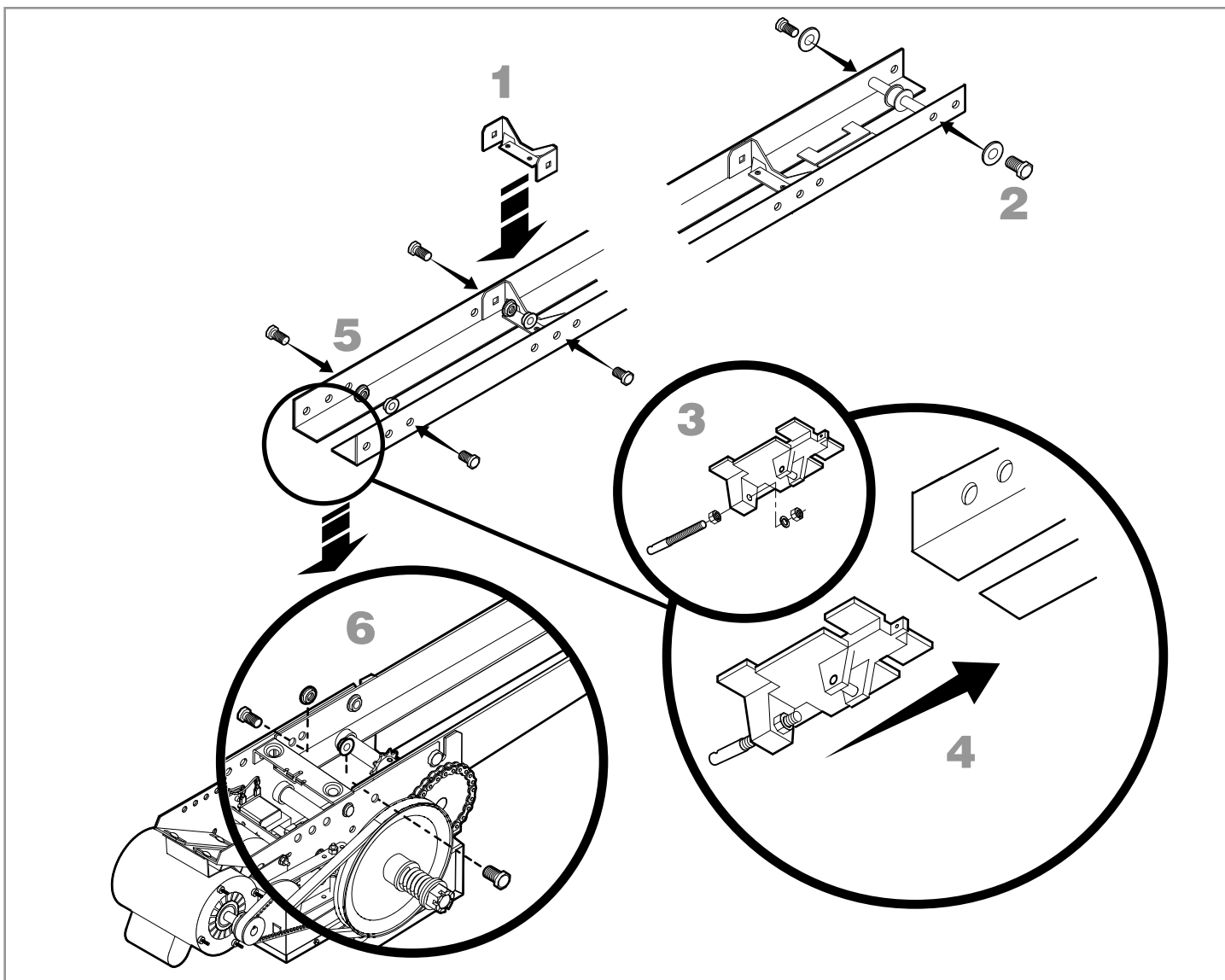
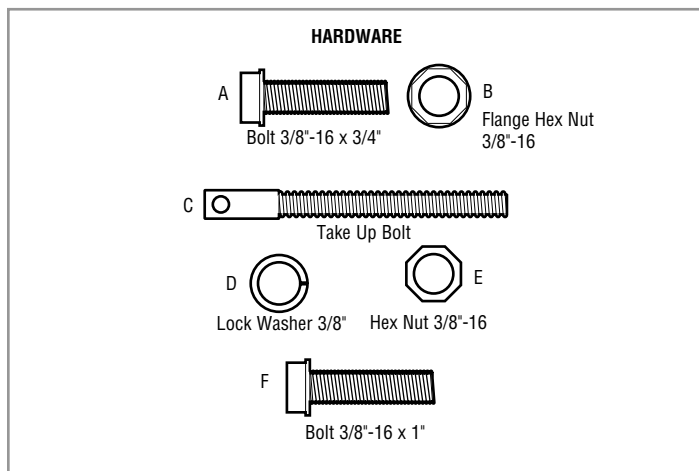


ASSEMBLY

ASSEMBLE THE OPERATOR (MODELS T AND GT)

NOTE: For Model APT assembly refer to page 9.

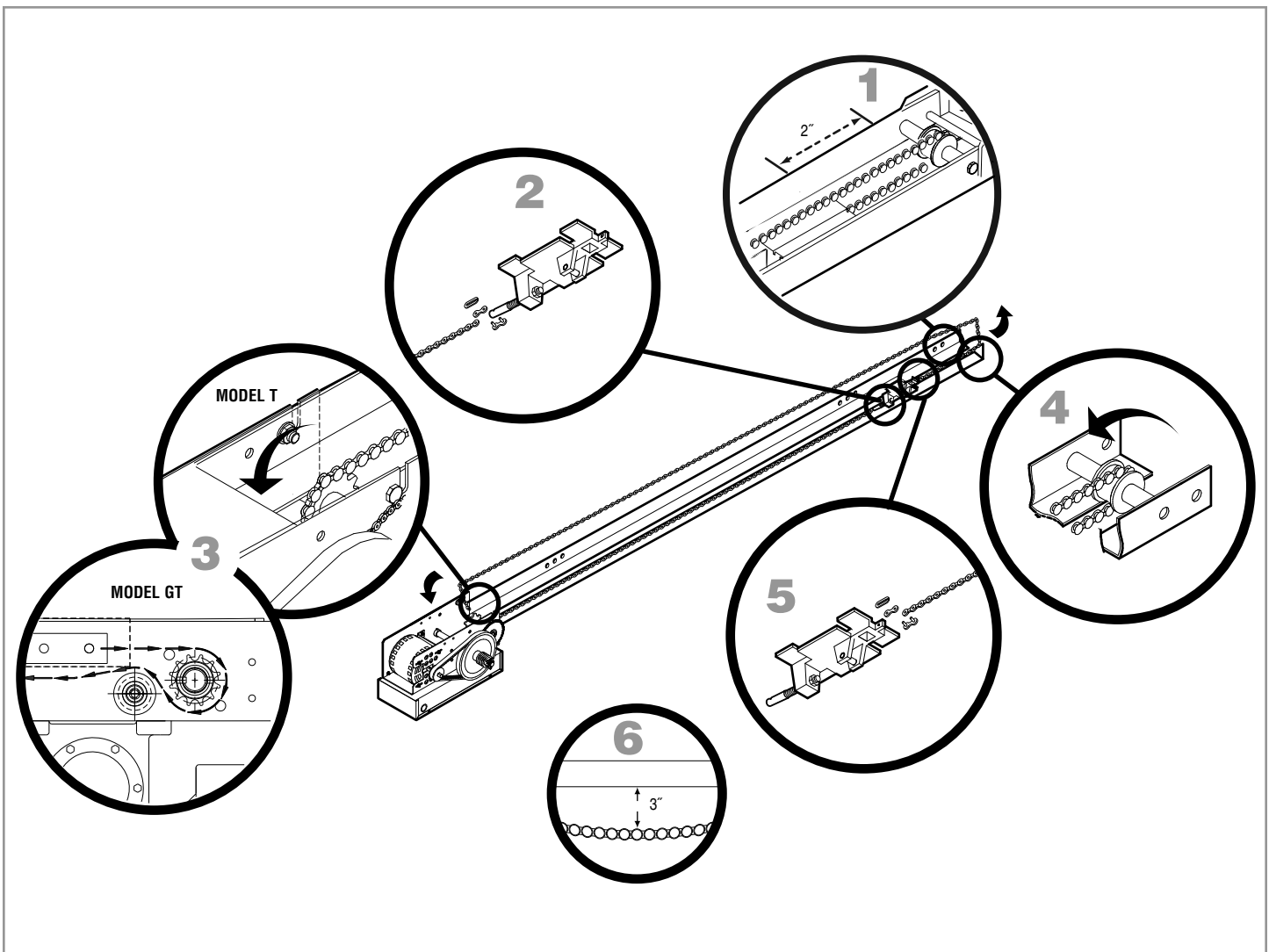
- 1** Install the track spacers evenly over the length of the track. Fasten the spacers to the track with bolt (A) and flange hex nuts (B).
- 2** Install the front idler to the track with bolts (F) and washers (D).
- 3** Assemble the trolley with the take up bolt (C), hex nuts (E), and lock washer (D).
- 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.

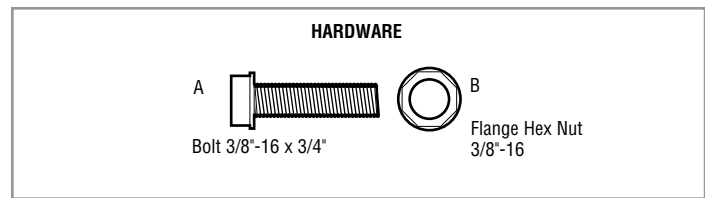
- 1** Position the trolley 2 inches away from the front idler.
- 2** Attach the chain to the trolley threaded shaft using the master link.
- 3** Run the chain along the track to the operator. Wrap the chain around the operator drive sprocket.
- 4** Run the chain along the track to the front idler. Wrap 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.



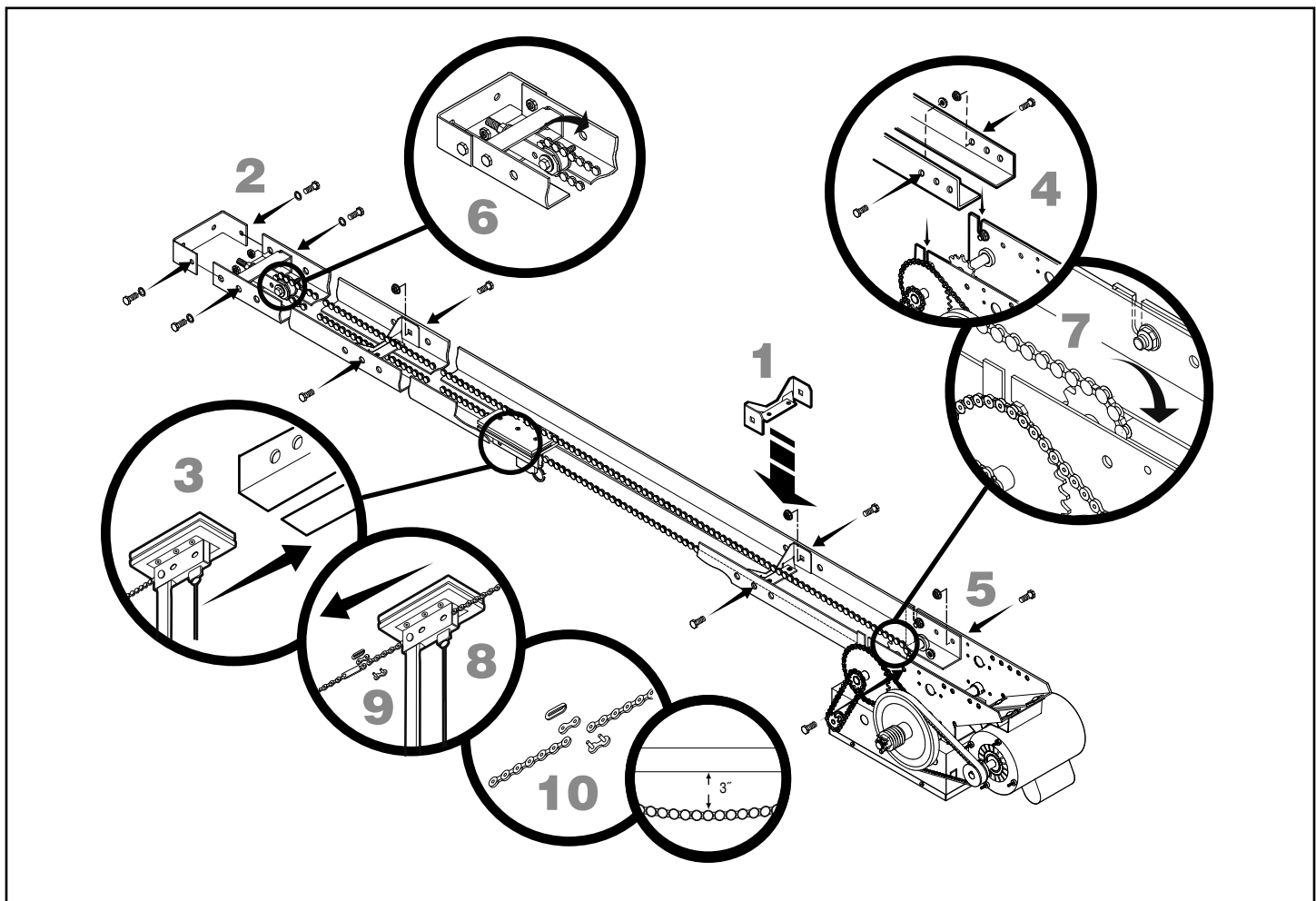
ASSEMBLE THE OPERATOR (MODEL APT)

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

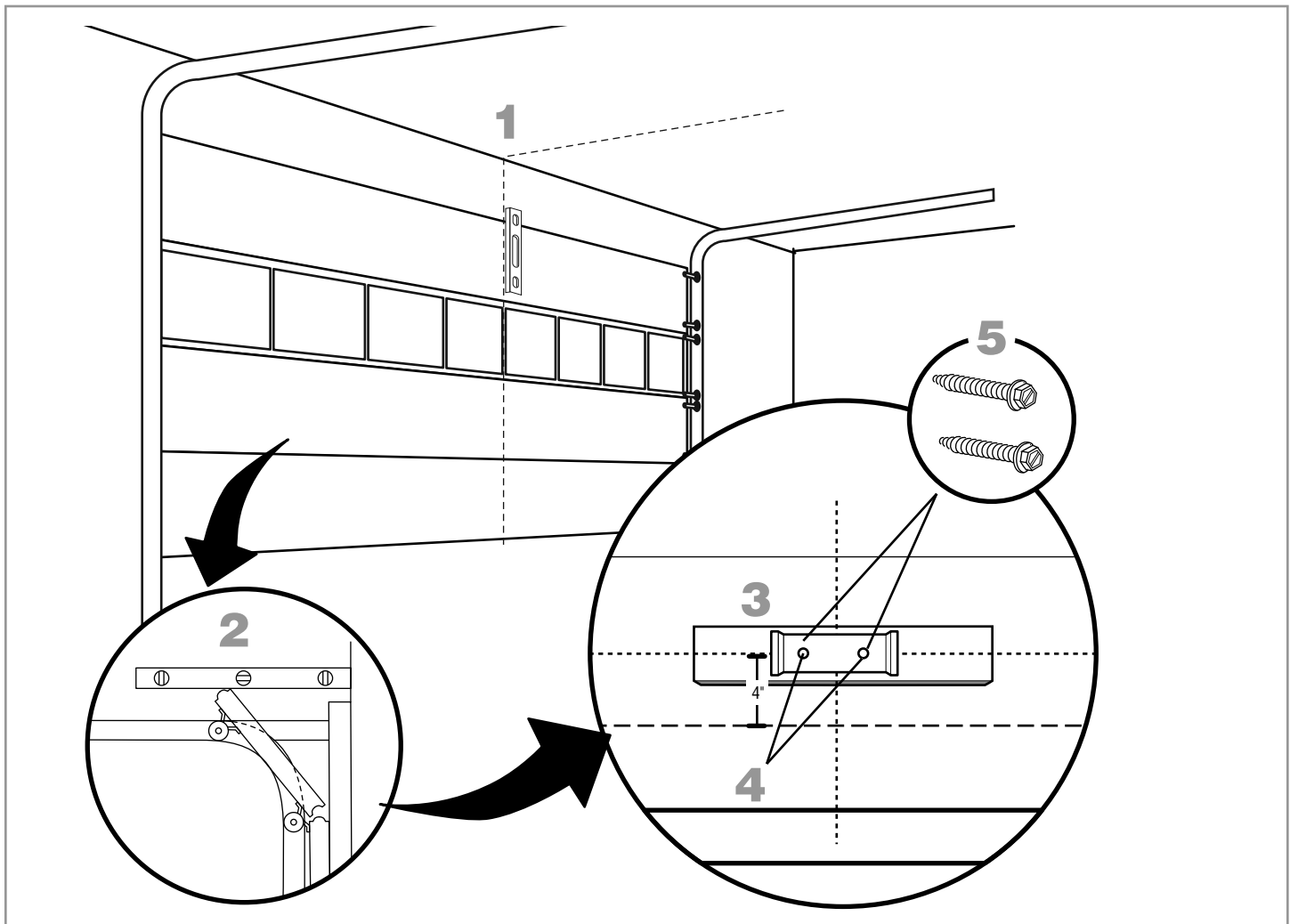
The trolley operator is generally mounted over the center of the door. However, off center mounting may be required due to interfering structures or location of door stile / top section support. Typically, the operator may be mounted up to 24 inches off center on torsion spring doors. Extension springs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

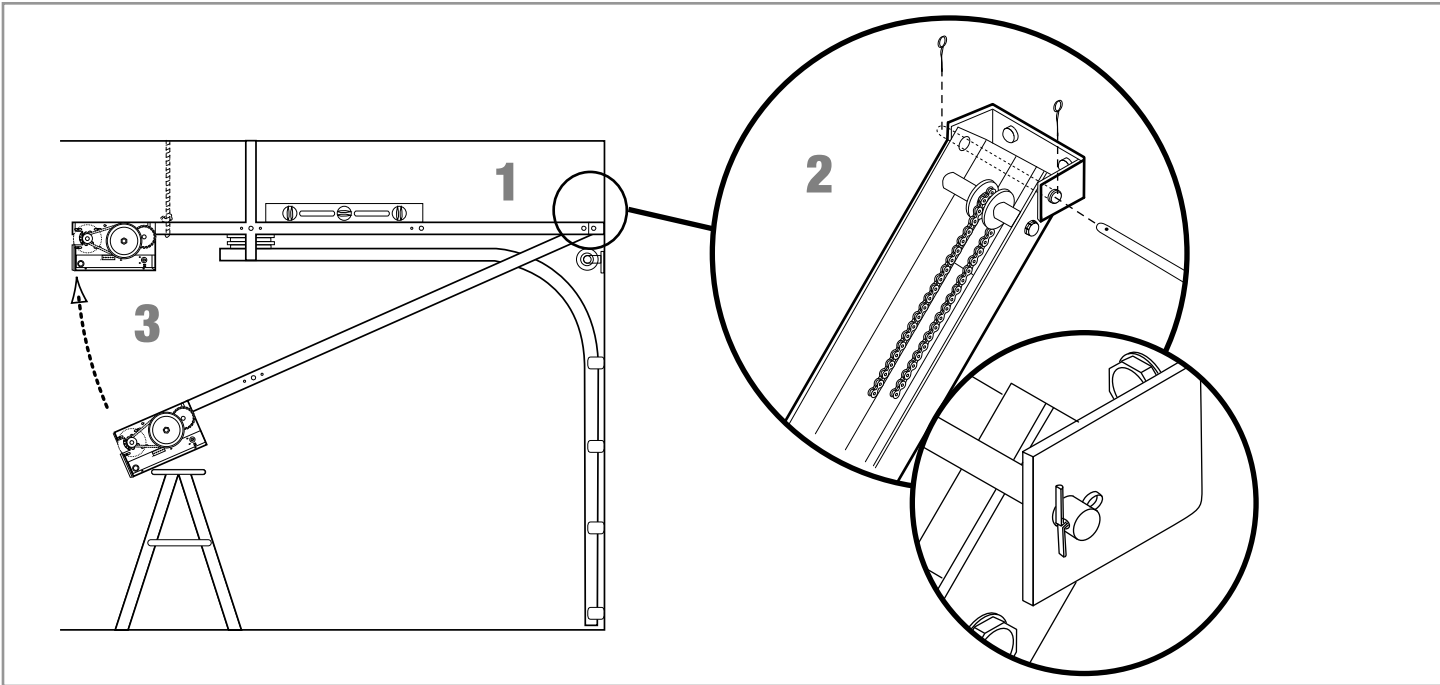
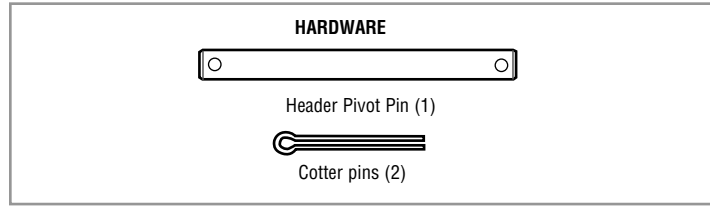
To prevent possible **SERIOUS INJURY** or **DEATH**:

- 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.



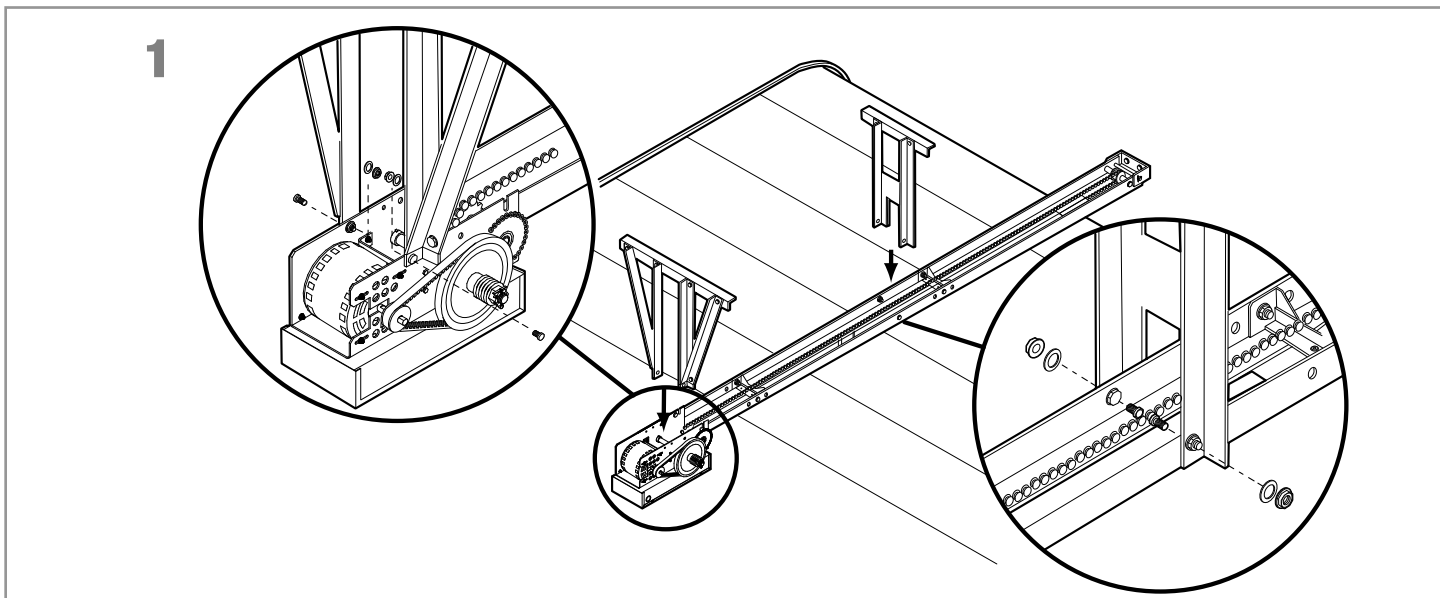
HANG THE OPERATOR

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

CAUTION

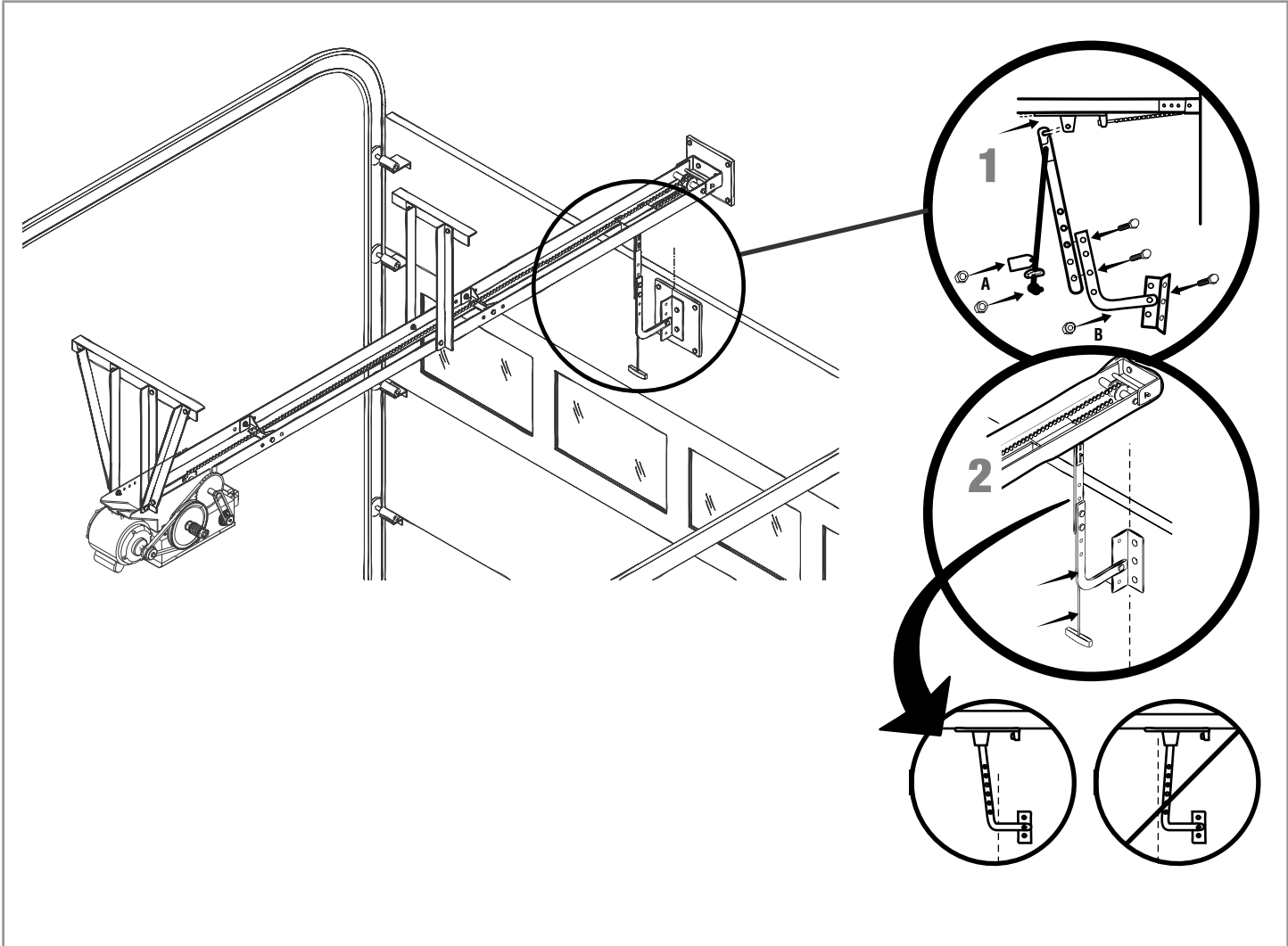
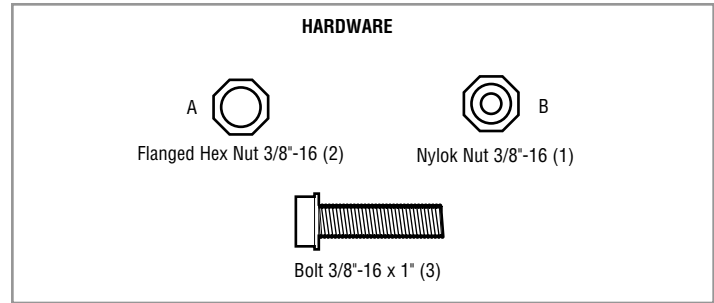
To avoid possible **SERIOUS INJURY** from a falling operator:

- 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.



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 LED
Hoist hand chain (Models H, HJ and GH ONLY)
Door sprocket
Door/operator drive chain
Entrapment Protection Device: Model CPS-U photoelectric sensors (standard)

OPERATOR SPECIFICATIONS

MOTOR		ELECTRICAL				
TYPE:	Continuous duty	TRANSFORMER:	24Vac Secondary			
HORSEPOWER:		CONTROL STATION:	NEMA 3-Button Station Open/Close/Stop w/LED			
Model J, H and HJ.	1/3, 1/2, 3/4 and 1 HP	WIRING TYPE:	C2 (Standard)			
Model GH	1/2, 3/4, 1, 1-1/2, 2 and 3 HP	Momentary contact to OPEN and STOP, constant pressure to CLOSE, plus wiring for sensing device to reverse and auxiliary devices to open and close with open override. See page 29 for optional wiring types and operating modes.				
SPEED:	1725 RPM	LIMIT ADJUST:	Linear driven, fully adjustable screw type cams. Adjustable to 24 feet.			
VOLTAGE:		SAFETY				
Model J, H and HJ.	115/230V 1 Phase 208/230/460/575V 3 Phase	DISCONNECT:				
Model GH	115/230V 1 Phase 208/230/460/575V 3 Phase	Model J	Floor level disconnect for manual door operation			
CURRENT (Amperage):		Model H and GH	Floor level chain hoist with electrical interlock for manual door operation			
Models H, HJ, and J		Model HJ	Includes both floor level disconnect systems stated above			
Voltage-Phase	1/3 HP	1/2 HP	3/4 HP	1 HP		
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						
Voltage-Phase	1/2 HP	3/4 HP	1 HP	1-1/2 HP	2 HP	3 HP
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	-
		ENTRAPMENT PROTECTION:				
		LiftMaster Monitored Entrapment Protection (LMEP)				
		Photoelectric Sensors (CPS-U):		Through beam used to provide non-contact safety protection.		
		Safety Edge (Optional):		Electric or pneumatic sensing device attached to the bottom edge of door.		

HOIST AND JACKSHAFT

OPERATOR SPECIFICATIONS

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	
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.)

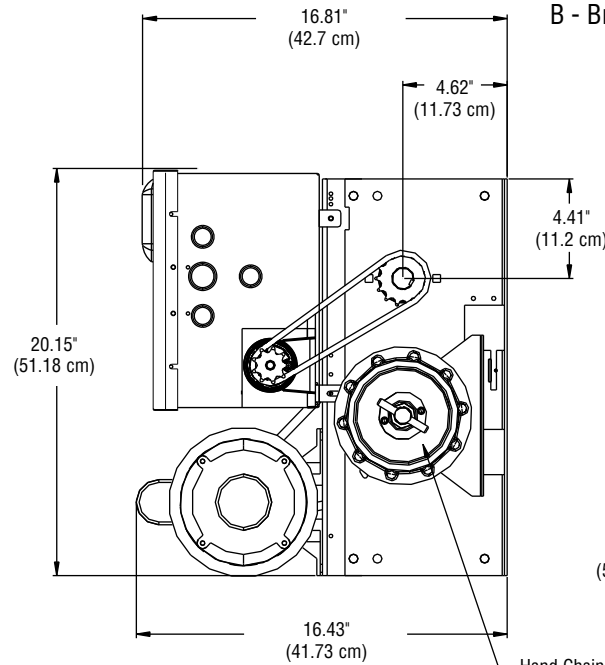
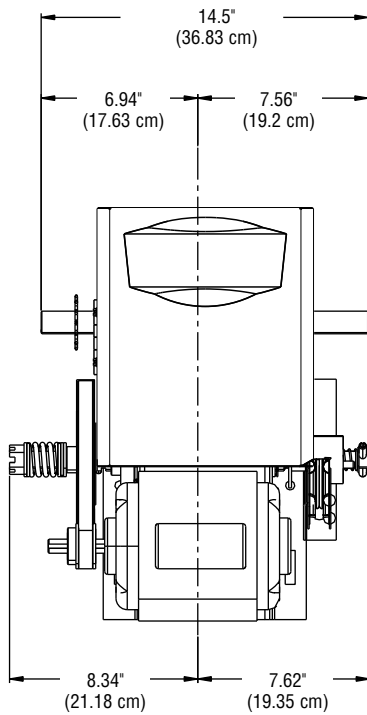
MODELS J, H, AND HJ						
ROLLING	24 ga. Steel	22 ga. Steel	---	20 ga. 18 ga. Steel	16 ga. Steel	---
	Alum. Grilles	Alum. Doors	---	Steel Grilles	---	---
SECTIONAL	---	24 ga. 22 ga. Steel	20 ga. Steel	---	16 ga. Steel	---
	Fiberglass Doors	Alum. Doors	Wood Doors	---	---	---
	---	---	24 ga. Steel Insul.	---	20 ga. Steel Insul.	16 ga. Steel Insul.
1/3 HP	310	285	260	210	175	125
1/2 HP	400	350	320	280	250	200
3/4 HP	560	500	450	380	325	250
1 HP	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.
1/2 HP	325	300	275	250	225	175
3/4 HP	480	430	390	340	275	225
1 HP	650	560	500	430	325	300
1-1/2 HP	---	---	680	540	425	375
2 HP	---	---	---	640	560	460
3 HP	---	---	---	875	840	620
5 HP	Call for specifications					

WEIGHTS AND DIMENSIONS

MODELS J, H AND HJ

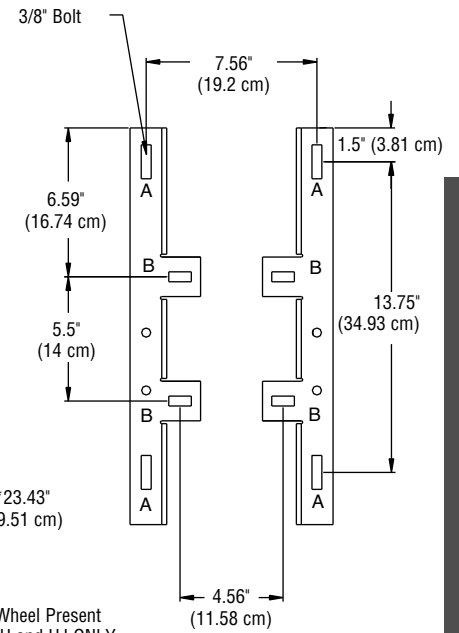
Hanging Weight: 80-110 lbs.



Door Height Plus 4 feet (minimum)

A - Wall Mounting

B - Bracket Mounting (rolling door)

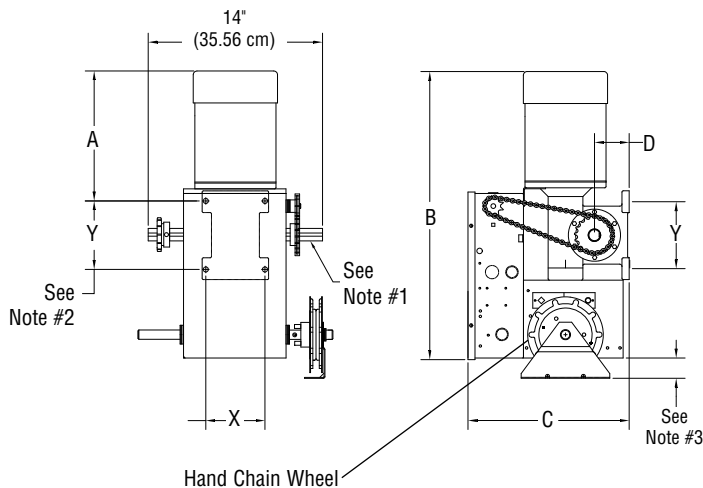


Hand Chain Wheel Present with Models H and HJ ONLY

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.

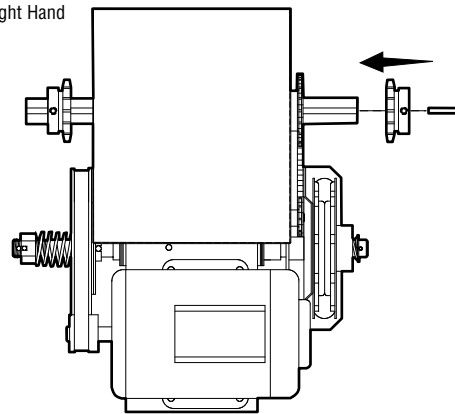
For models H and HJ with manual hand chain systems, the handing of the operator must be determined at the time of order. The handing is indicated by the last letter of the model number (R or L). The hand chain wheel cannot be switched. If your installation causes the hand chain to hang in the door opening,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



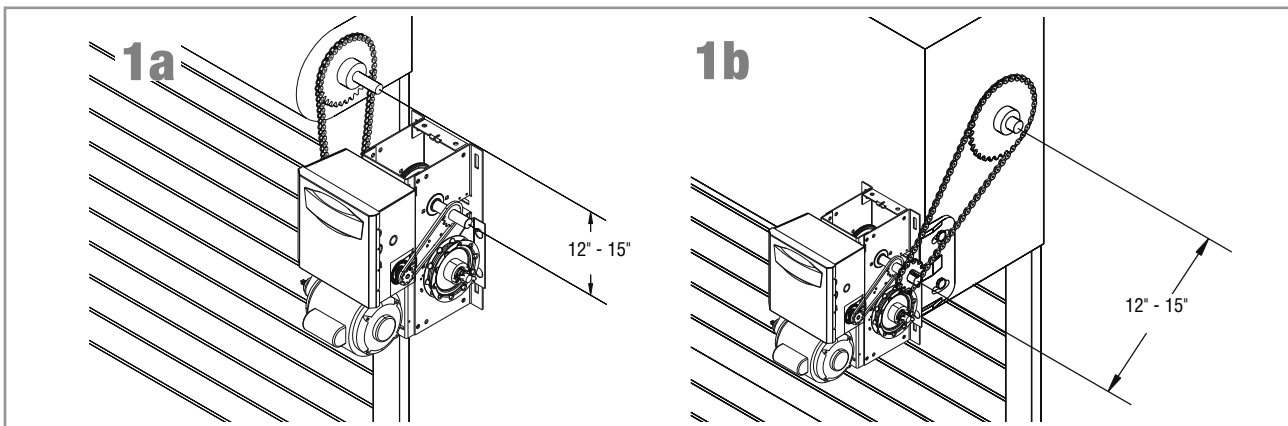
TYPICAL INSTALLATION

DETERMINE MOUNTING LOCATION

- 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.

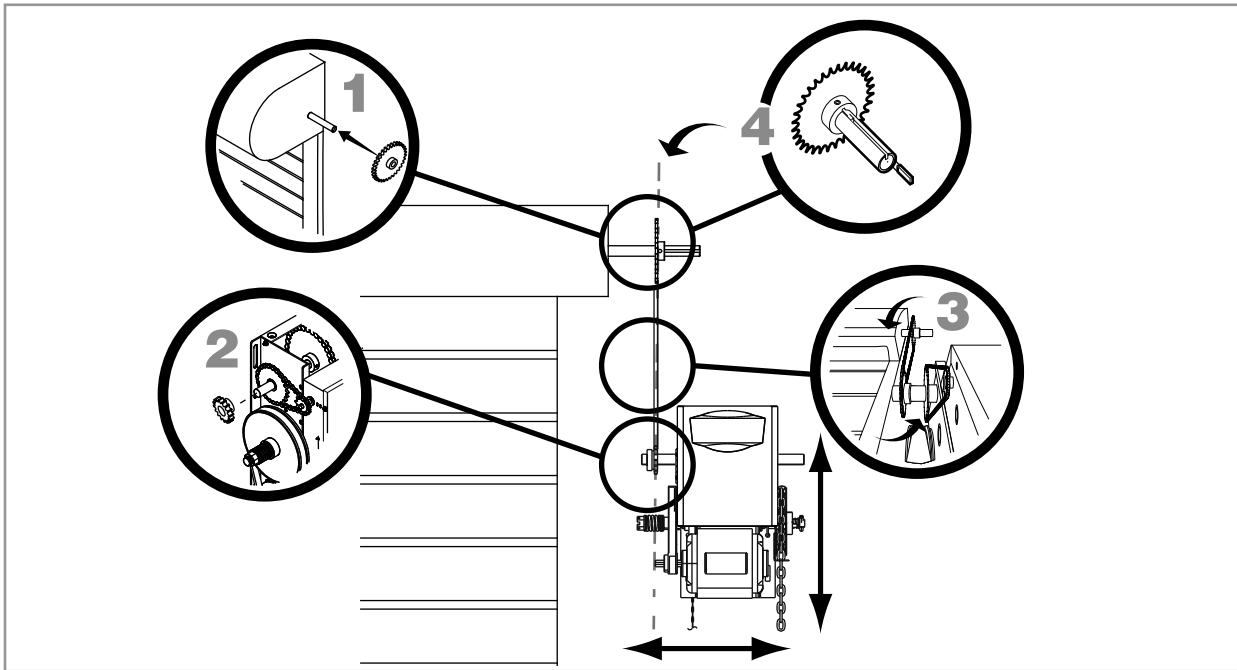
1a Wall mount

1b Shelf or bracket mount



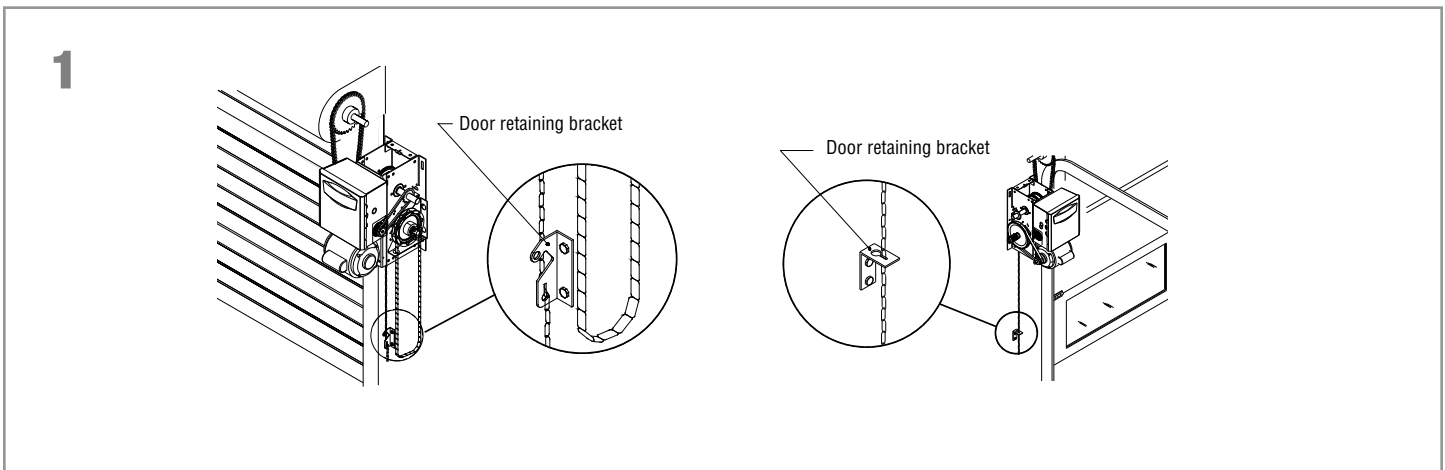
MOUNTING

- 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.



⚠️ ⚠️ 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.

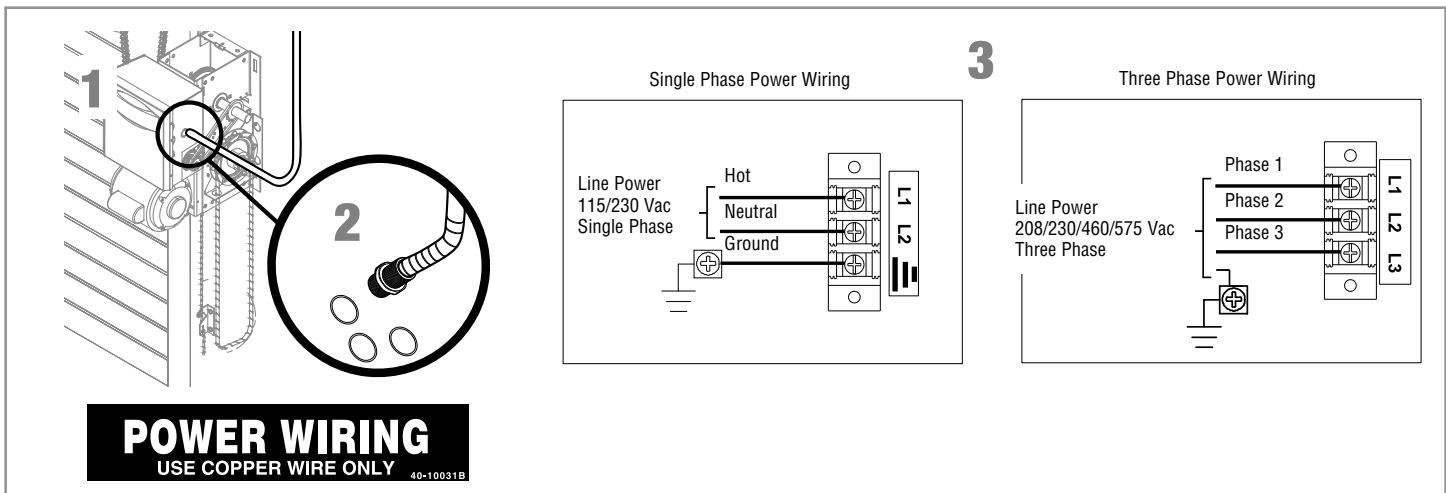
POWER WIRING CHART

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 safety limit switch (SLS) to the opposite side.
3. Remove CLOSE/OPEN decal and reattach appropriately.



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:

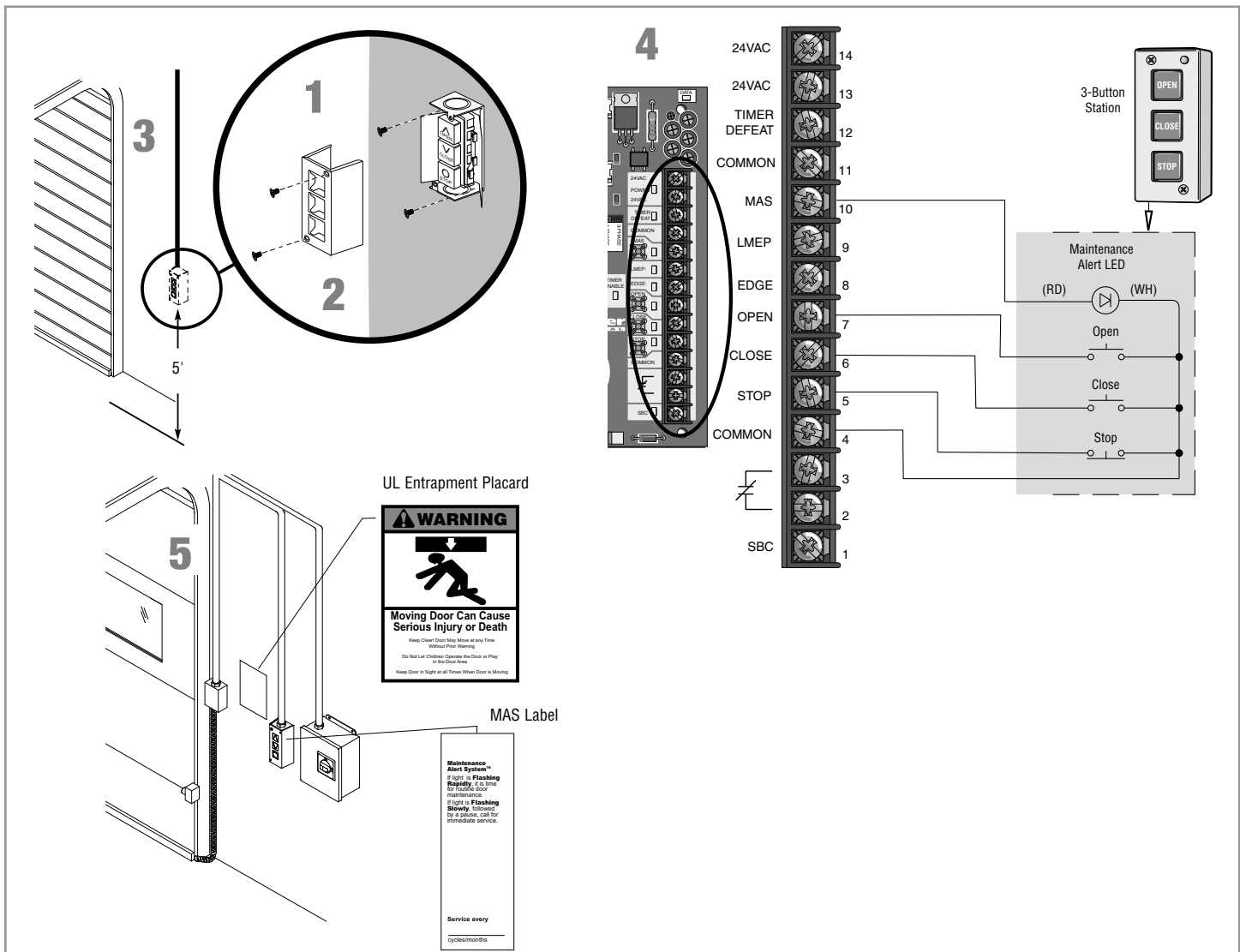
- Install door control within sight of door, out of reach of children at a minimum height of 5 feet (1.5 m) and away from ALL moving parts of door.
- Install the control station far enough from the door to prevent the user from coming in contact with the door while operating the controls.

- 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 29). The operator comes standard with the photoelectric sensors model CPS-U, additional entrapment devices are available for purchase (see accessories). If a LiftMaster Monitored Entrapment Protection device is not installed, constant pressure to close will be required from the control station.

When properly connected and aligned, the photoelectric sensors will detect an obstruction in the path of its invisible light beam. If an obstruction breaks the light beam while the door is closing, the door will stop and typically reverse to the full open position.

The photoelectric sensors must be installed facing each other across the door, no more than 6" (15 cm) above the floor.

Each photoelectric sensor has an LED that will glow steady when the sensor is properly connected and aligned. The LEDs on both photoelectric sensors will flicker rapidly when obstructed or misaligned.

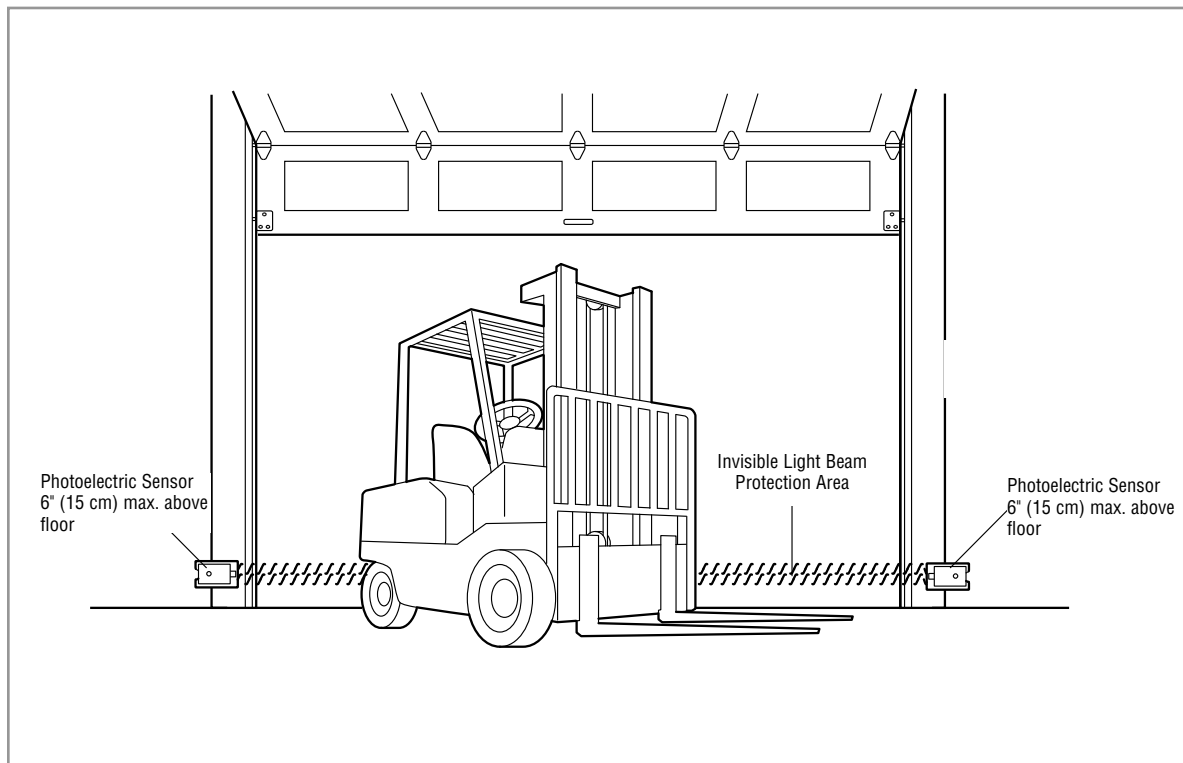
WARNING

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 safety 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 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 one or more edge sensors on the bottom edge of the door.

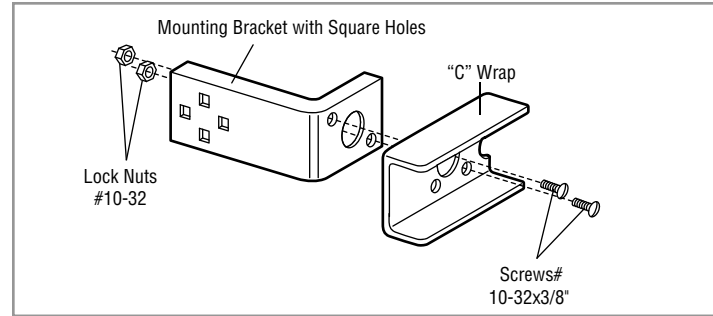


INSTALL THE PHOTOELECTRIC SENSORS (PROVIDED)

The following instructions show recommended assembly of the bracket(s) and "C" wrap based on the wall installation of the photoelectric sensors on each side of the door or on the door tracks themselves. There are also alternate mounting methods which may fit your installation requirements better.

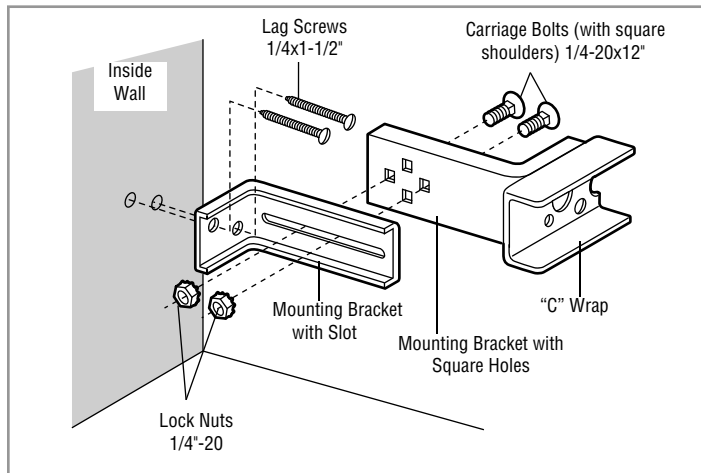
Make sure the wraps and brackets are aligned so the photoelectric sensors will face each other across the door.

- 1 Fasten the "C" wraps to the mounting brackets having square holes, using hardware shown.



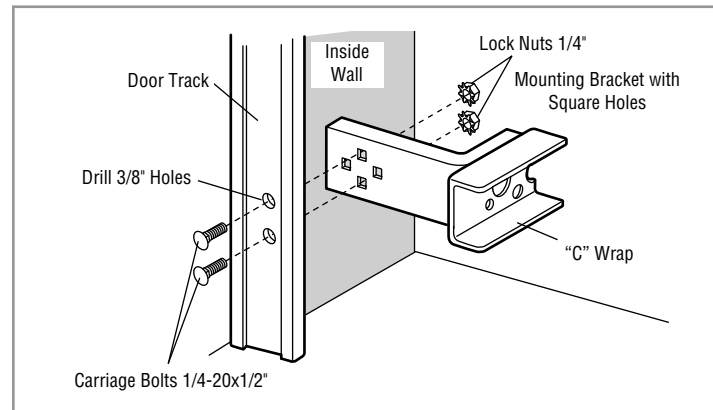
WALL INSTALLATION

- 2 Connect each assembly to a slotted bracket, using the hardware shown. **Note alignment of brackets for left and right sides of the door.**
- 3 Finger tighten the lock nuts.
- 4 Use bracket mounting holes as a template to locate and drill (2) 3/16" diameter pilot holes on both sides of the garage door, 4-6 inches (10-15 cm) above the floor. Do not exceed 6 inches (15 cm).
- 5 Attach bracket assemblies with 1/4"x1-1/2" lag screws.
- 6 Adjust right and left side bracket assemblies to the same distance out from mounting surface. Make sure all door hardware obstructions are cleared. Tighten the nuts securely.

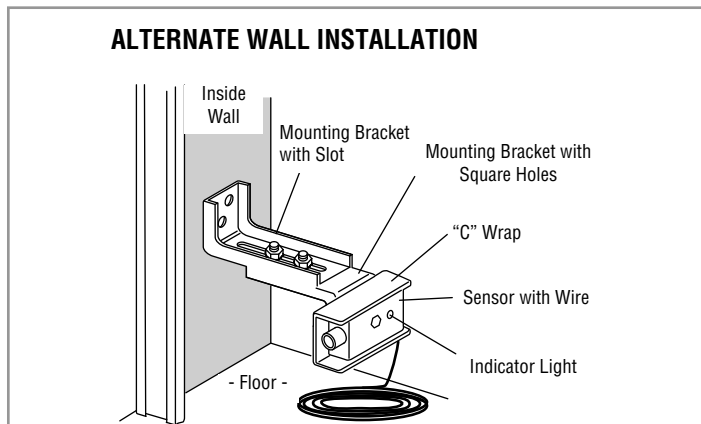


DOOR TRACK INSTALLATION

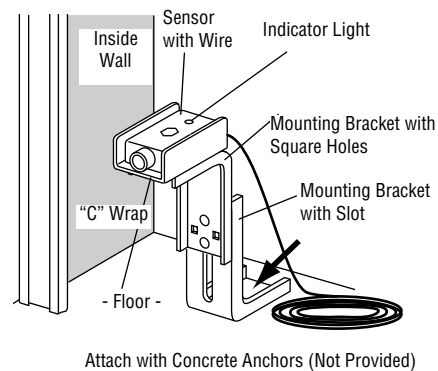
- 2 Discard slotted bracket. Drill 3/8" holes in each track and fasten securely with hardware.



ALTERNATE WALL INSTALLATION

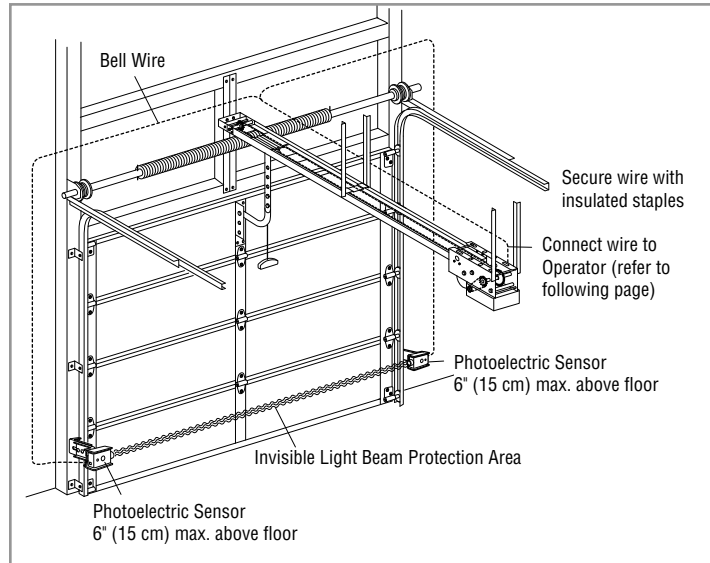
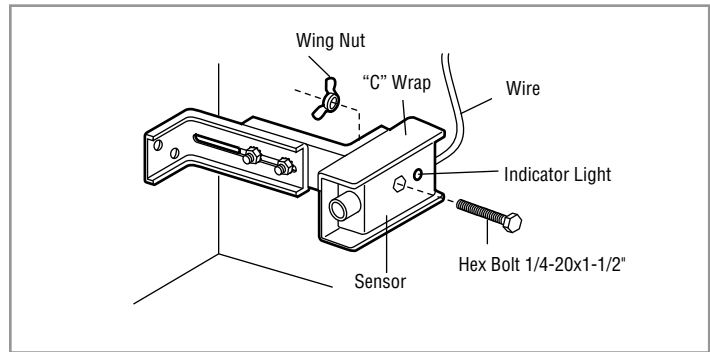


ALTERNATE FLOOR INSTALLATION



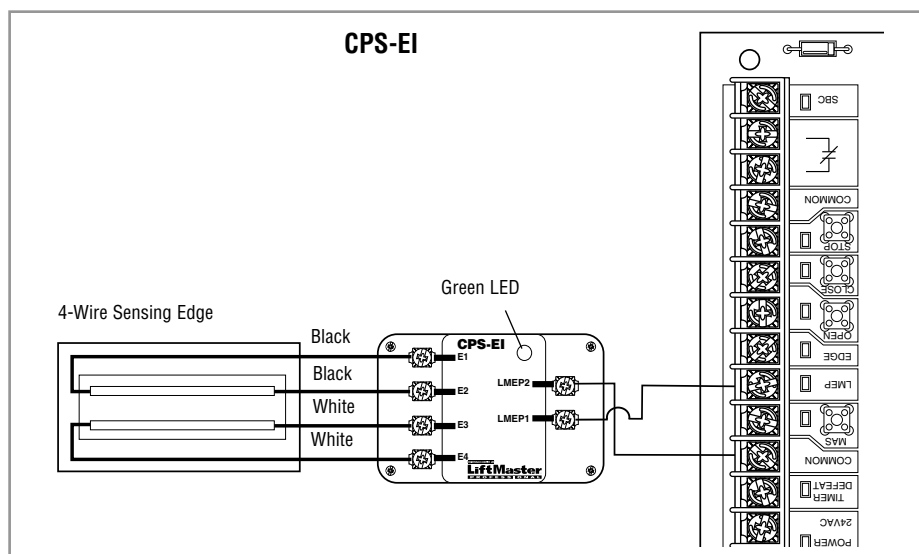
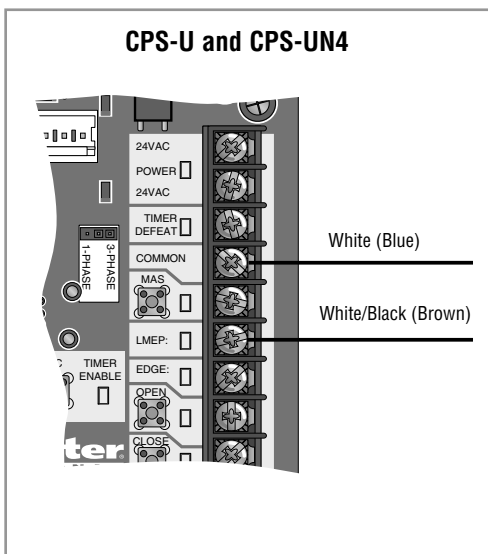
MOUNT THE PHOTOELECTRIC SENSORS (PROVIDED)

- 1 Center each sensor in the bracket with the lenses pointing toward each other across the door.
- 2 Attach the sensors to the brackets with the provided hardware. Finger tighten the *receiving sensor* wing nut. Securely tighten the *sending sensor* wing nut.
- 3 Run the wires from both sensors to the operator. Use insulated staples to secure wire to the wall and ceiling.
- 4 Connect the sensor wires to the operator (see below).



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:



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 Safety 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).

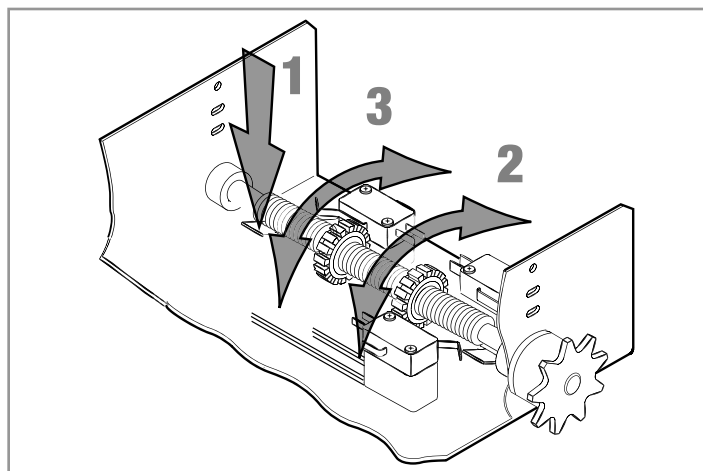
NOTE: The Open Limit Switch (OLS) LED on the logic board will illuminate when the switches are activated and the power is on.

- 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.



CLUTCH ADJUSTMENT (BELT DRIVE MODEL OPERATORS)

- 1 Remove the cotter pin from the clutch nut on the clutch shaft.
- 2 Turn the clutch nut to release tension.
- 3 Re-tighten the clutch nut until there is just enough tension to permit smooth operation of the door and to allow the clutch to slip if the door is obstructed.
- 4 Secure the clutch nut with the cotter pin.

ADJUST TORQUE LIMITER CLUTCH (MODEL GT)

- 1 Loosen set screws of torque adjustment nut on the gear reducer.
- 2 Back off torque nut until there is very little tension on the belleville washers.
- 3 Tighten torque nut gradually until there is just enough tension to permit the operator to move the door smoothly through a complete open/close cycle, but to allow the reducer to slip if the door is obstructed.
- 4 Re-tighten the set screw that is directly over the flat portion of the shaft.

MODEL GH (OPTIONAL MODIFICATION)

- 1 Loosen set screws on clutch nut.
- 2 Back off clutch nut until there is very little tension on the clutch spring.
- 3 Tighten clutch nut gradually until there is just enough tension to permit the operator to move the door smoothly but to allow the clutch to slip if the door is obstructed. When the clutch is properly adjusted, it should generally be possible to stop the door by hand during travel.

AUXILIARY REVERSAL SYSTEM / RPM SENSOR

The **Auxiliary Reversal System** is designed to protect the door and motorized operator. It is NOT a substitute for a safety sensing device.

Feature: This feature utilizes the RPM sensor connected to the logic board to detect when the clutch slips and reverses the door (clutch must be properly adjusted). In addition, the RPM eliminates the need for a centrifugal switch on single phase motors.

Benefit: The Auxiliary Reversal System reverses the operator upon hitting an obstruction, preventing excessive door and operator damage. We require the use of safety devices for primary safety protection. By removing the centrifugal switch on single phase motors, the leading cause of motor failures is eliminated. (Auxiliary Reversal System not applicable on models GH and GT.)

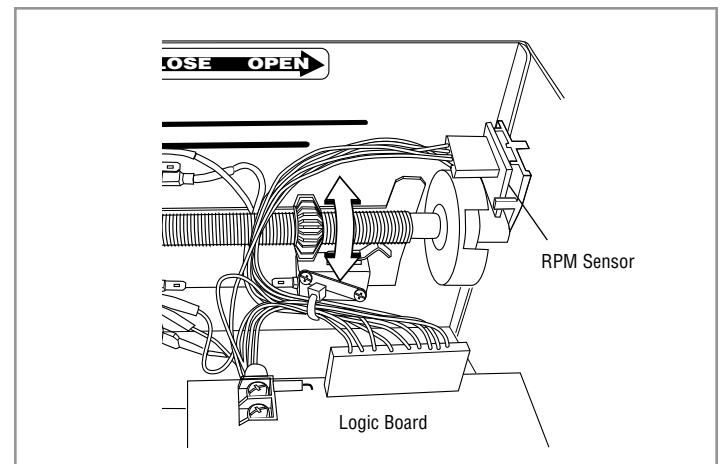
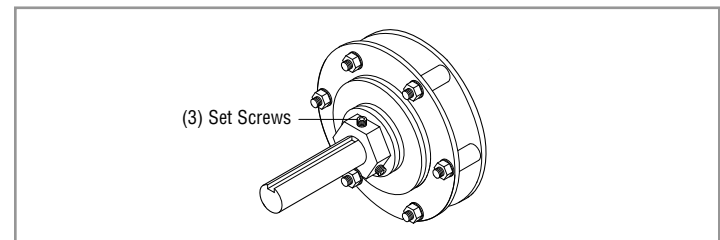
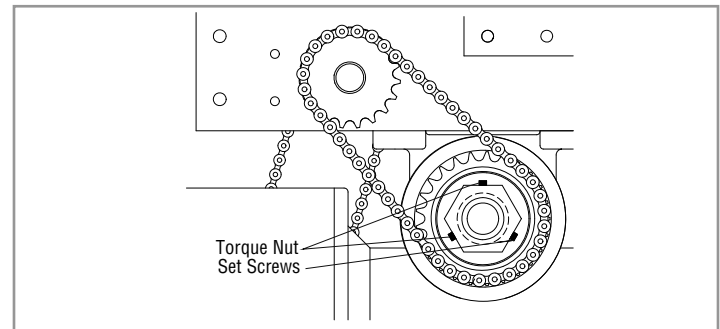
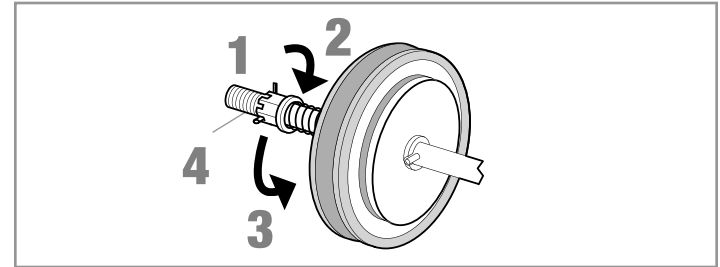
NOTE: This feature is automatically learned and does not require programming.

Adjustment - Clutch adjustment

⚠️ ⚠️ WARNING

To avoid **SERIOUS** personal **INJURY** or **DEATH** from electrocution:

- Disconnect electric power **BEFORE** performing **ANY** adjustments or maintenance.



TESTING

Apply power to the operator.

When power is applied to the operator, the following LED's will illuminate: STOP, CLOSE, OPEN, LMEP, 24Vac, RADIO, DATA, TIMER ENABLE, OLS MID, SLS, CLS, and MAS. Once the power up process is completed (approximately 2-3 seconds) only the appropriate LED's will continue to be lit:

- Between limits: 24Vac and STOP
- Fully closed position: 24Vac, STOP, CLS and SLS
- Fully opened position: 24Vac, STOP and OLS

Additional LED's will light when device(s) are activated.

NOTE: When the power up process is over, the MAS LED will blink a code indicating the version of firmware. If the selector dial is in the DIAG, OPTN, or PROG position, the MAS will not provide this code. After the code has been provided the MAS LED will go out.

ALIGN THE PHOTOELECTRIC SENSORS

1. After power is connected to the operator, the green indicator lights in both the sending and receiving sensors will glow steadily if wiring connections and alignment are correct.
2. If the green indicator lights are flashing rapidly (and the invisible light beam path is not obstructed), alignment is required:
 - Loosen the *receiving sensor* wing nut to allow slight rotation of the sensor. Adjust sensor vertically and/or horizontally until the green indicator light glows steadily.
 - When the indicator lights are glowing in both sensors, tighten the receiving sensor wing nut.

TEST THE PHOTOELECTRIC SENSORS

1. Open the door.
2. Place an obstruction in the path of the photoelectric sensors. The LMEP LED will blink on the logic board and the receiving eye LED will turn off.
3. Press and hold the CLOSE button. The door should not close if photoelectric sensors are installed.
4. Remove the obstruction.
5. Press and hold the CLOSE button. Door should close. If door did not reverse from obstruction, check photoelectric sensors.

NOTE: The Logic 4 control board will automatically learn the photoelectric sensors (LMEP) once they are properly connected. If the LMEP is misaligned or disconnected the LMEP LED on the logic control board will blink on and off. You can close the door by entering the Restricted Close (RC) mode by holding the close button. The operator will begin closing after 5 seconds and will continue to close to the Close Limit or when the close button is released.

To unlearn the photoelectric sensors, turn the selector dial to DIAG, push and hold the stop button until the MAS LED flashes. Without the photoelectric sensors connected the only mode of operation will be B2, D1 or E2.

WARNING

To avoid SERIOUS personal INJURY or DEATH:

- Disconnect electric power BEFORE performing ANY adjustments or maintenance.
- ALL maintenance MUST be performed by a trained door systems technician.

TEST 3-BUTTON CONTROL STATION

1. Press OPEN button. (The door should move in the open direction.)
2. Press STOP button. (The door should stop.)
3. Press and hold the CLOSE button. (The door should move in the close direction.)
4. Release CLOSE button. Door should stop if in C2 or D1 mode. Door will reverse to full open position in E2 mode. The door should continue closing in all other modes.
5. Press STOP button. (The door should stop.)

TEST LIMIT ADJUSTMENT

1. Press OPEN button. (The door should open.)
2. Allow the door to fully open.
3. Press and hold the CLOSE button. (The door should close.)
4. Allow the door to fully close.
5. If the limits are not set properly, remove power and adjust limits (refer to Limit Adjustment section).

IMPORTANT NOTES:

- Do not leave power to the operator on unless all safety and entrapment protection devices have been tested and are working properly.
- Be sure you have read and understand all safety instructions included in this manual.
- Be sure the owner or person(s) responsible for operation of the door have read and understand the safety instructions, know how to electrically operate the door in a safe manner and how to manually disconnect the door from the operator.

MANUAL RELEASE

EMERGENCY DISCONNECT SYSTEM MODEL GT AND T

TO DISCONNECT DOOR FROM OPERATOR

The door should be in the fully closed position if possible.

- 1 Pull emergency release handle straight down. Emergency disconnect will open.

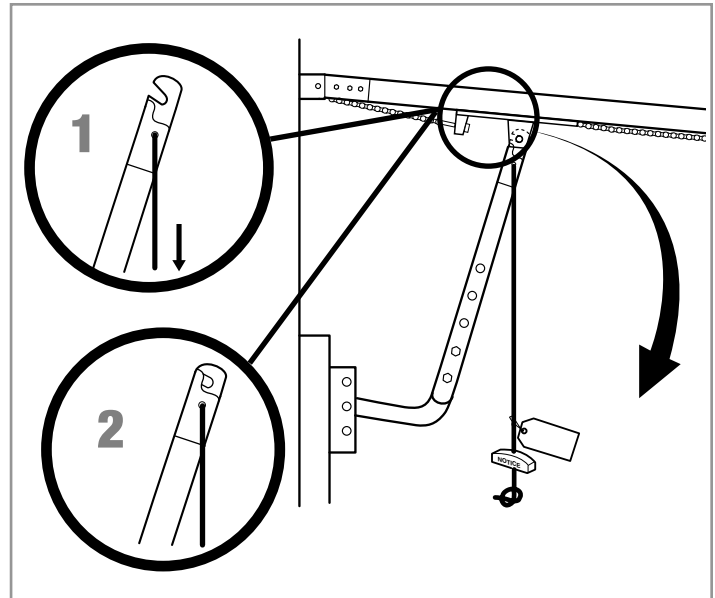
TO RECONNECT DOOR ARM TO TROLLEY

- 2 Lift free end of door arm to trolley. Pull emergency release handle to allow arm to engage roll pin. Release handle. Emergency disconnect will close.

⚠ WARNING

To prevent possible SERIOUS INJURY or DEATH from a falling door or arm:

- DO NOT stand under the door arm when pulling the emergency release.
- If possible, use emergency release handle to disengage trolley ONLY when door is CLOSED. Weak or broken springs or unbalanced door could result in an open door falling rapidly and/or unexpectedly.
- NEVER use emergency release handle unless doorway is clear of persons and obstructions.



EMERGENCY DISCONNECT SYSTEM MODEL APT

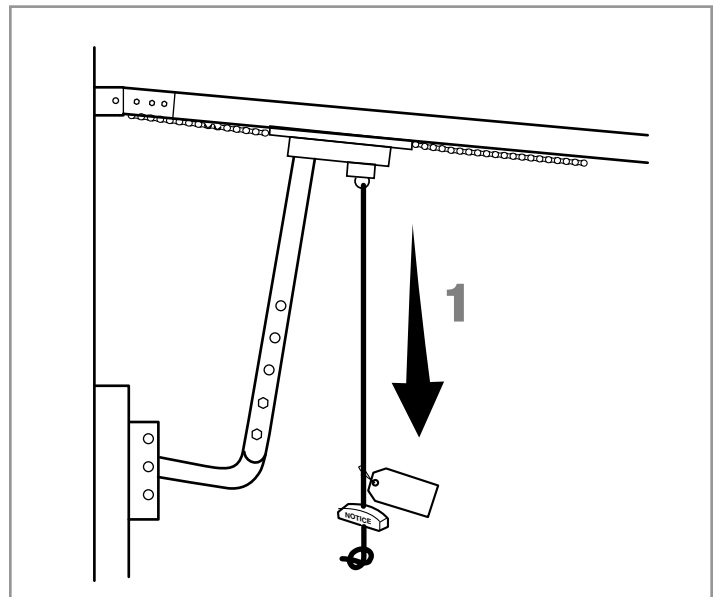
TO DISCONNECT DOOR FROM OPERATOR

The door should be in the fully closed position if possible.

- 1 Pull down on the emergency release handle and raise or lower the door manually.

TO RECONNECT DOOR ARM TO TROLLEY

- 2 The trolley will reconnect on the next UP or DOWN operation, either manually or by using the door control or remote.



EMERGENCY DISCONNECT SYSTEM MODEL H, GH, J, AND HJ

This operator has provisions for manually operating the door in case of emergency or power failure. Refer to the appropriate instructions below for your model operator.

MODEL H AND GH

These operators are equipped with a manual hoist. An electrical interlock will disable the electrical controls when the hoist is used. To operate the hoist:

- 1** Pull the disconnect chain (sash chain) to engage the hoist mechanism. The disconnect chain may be locked in position by slipping the end through the keyhole of the chain keeper mounted on the wall.
- 2** Operate the door in the desired direction by pulling on one side or the other of the continuous loop hoist chain.
- 3** The disconnect chain must be released from the chain keeper before the door will operate again electrically.

MODEL J

This operator has a floor level disconnect chain to disconnect the door from the door operator.

- 1** To disengage, pull the disconnect chain (sash chain) and secure in the disengaged position by slipping the end through the keyhole bracket mounted on the wall.
- 2** The door may now be pushed up or pulled down manually.
- 3** Release the disconnect chain to operate the door again electrically.

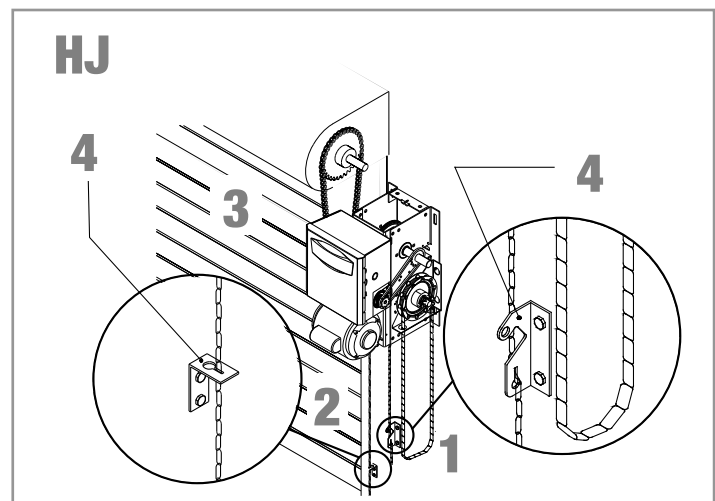
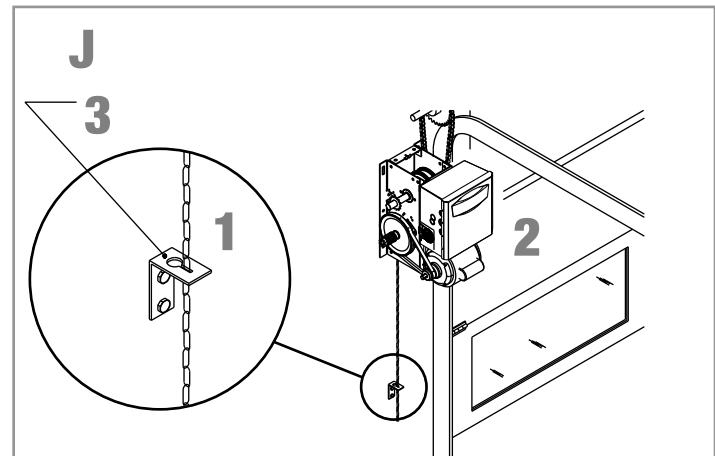
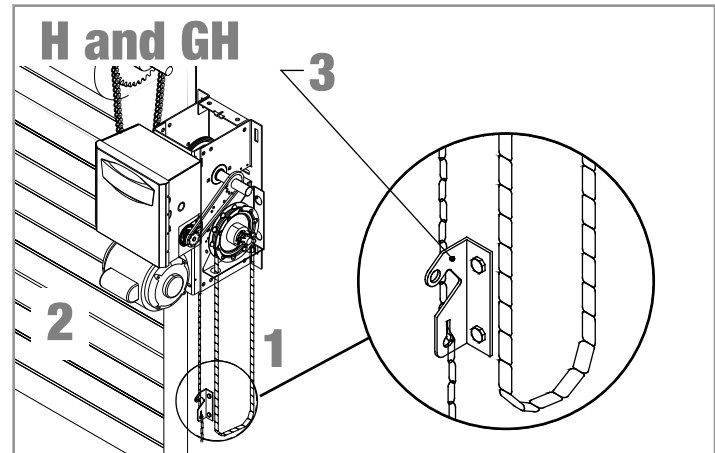
MODEL HJ

This operator includes both a floor level disconnect chain (sash chain) to disconnect the door from the door operator and a disconnect chain with manual hoist to electrically disable the operator controls.

- 1** Pull the disconnect chain to engage the hoist mechanism. The disconnect chain may be locked in position by slipping the end through the keyhole of the chain keeper mounted on the wall.
- 2** To disengage, pull the disconnect chain and secure in the disengaged position by slipping the end through the keyhole bracket mounted on the wall.
- 3** Operate the door in the desired direction by pulling on one side or the other of the continuous loop hoist chain.
- 4** Release the disconnect chain to operate the door again electrically.

CAUTION

- To prevent possible **SERIOUS INJURY** from a moving chain:
- **DISCONNECT** electric power to the operator **BEFORE** manually operating your door.
 - If possible, use emergency disconnect **ONLY** when door is **CLOSED**. Weak or broken springs or unbalanced door could result in an open door falling rapidly and/or unexpectedly.
 - **NEVER** use emergency disconnect unless doorway is clear of persons and obstructions.

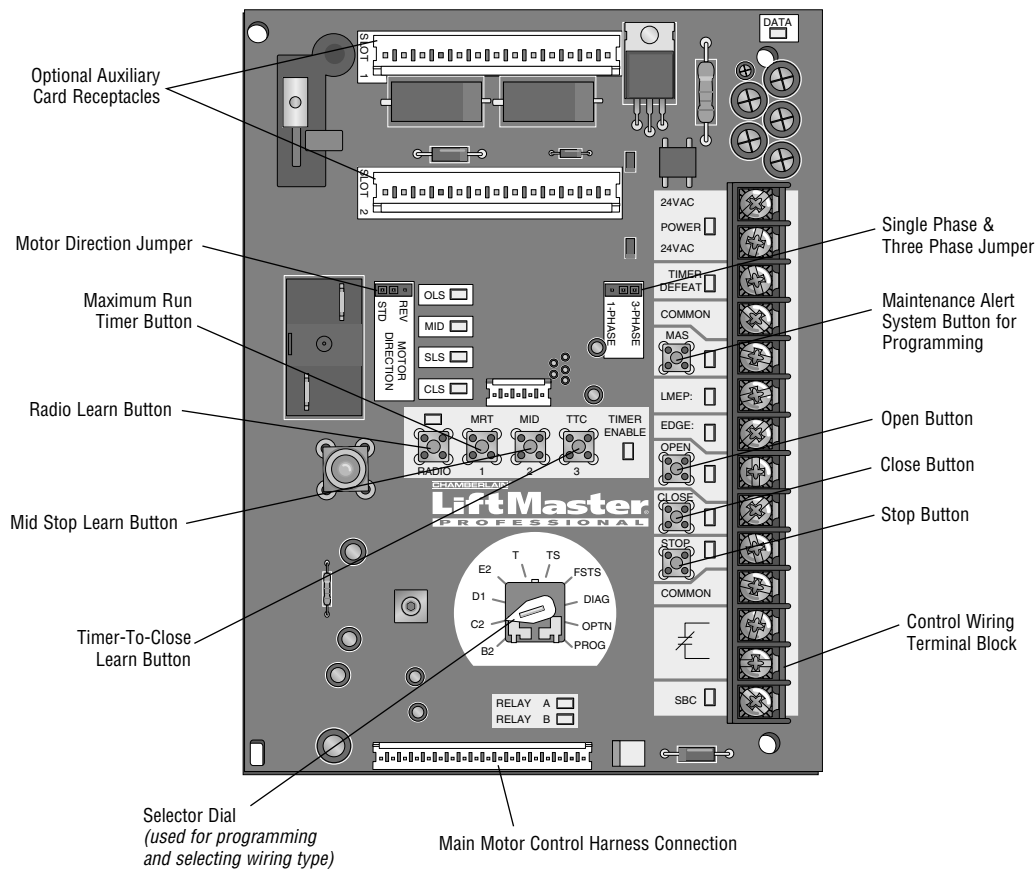


PROGRAMMING

INTRODUCTION TO PROGRAMMING

Many programmable functions require that a LiftMaster Entrapment Protection (LMEP) device be installed in order to function. Refer to the *Entrapment Protection* section.

LOGIC BOARD OVERVIEW



LOGIC BOARD LED OVERVIEW

NOTE: Before programming the logic board, set the operator's open and close limits. LEDs on the logic board are provided to assist setting the limits. As each limit is activated the corresponding LED will light up. The abbreviations are Open Limit Switch (OLS), Close Limit Switch (CLS) and Sensing Limit Switch (SLS). Refer to page 19 for limit switch adjustment instructions.

When power is applied to the operator, the following LED's will illuminate: STOP, CLOSE, OPEN, LMEP, 24Vac, RADIO, DATA, TIMER ENABLE, OLS MID, SLS, CLS, and MAS. Once the power up process is completed (approximately 2-3 seconds) only the appropriate LED's will continue to be lit (i.e., STOP, 24Vdc, limit LED(s) if limit(s) is activated).

NOTE: When the power up process is over, the MAS LED will blink a code indicating the version of firmware. If the selector dial is in the DIAG, OPTN, or PROG position, the MAS will not provide this code. After the code has been provided the MAS LED will go out.

LOGIC BOARD PUSH BUTTONS (OPEN, CLOSE, STOP)

Open, Close and Stop buttons are mounted directly on the logic board. Thus, making it easy to program as well as have door control at the electrical box.

Either the stop control or a jumper MUST be wired between terminals 4 and 5 for the on board push buttons to function.

DETERMINE AND SET WIRING TYPE

Read the descriptions of the different wiring types to determine which setting will be correct for each application. Once the wiring type is determined, set the selector dial accordingly.

LIFTMASTER MONITORED ENTRAPMENT PROTECTION (LMEP) DEVICE IS REQUIRED

A LiftMaster Entrapment Protection (LMEP) device is **required** for the following wiring types.

- B2** Momentary contact to open, close and stop, plus wiring for sensing device to reverse and auxiliary devices to open and close with open override. Programmable mid stop available with this wiring type. **Compatible with 3-Button Station, 1-Button Station, 1 and 3-Button Remote Control.**

TS (TIMER SECURE)

This mode will attempt to close the door from any position except when fully closed, or when a safety input is present. The stop button will not disable the Timer-To-Close at any position. To disable the Timer-To-Close in this mode, installation of a defeat switch is required (see wiring diagram).

Momentary contact to open, close, and stop with open override and Timer-To-Close. Every device that causes door to open, including a reversing device, activates the Timer-To-Close. Auxiliary controls can be connected to open input to activate the Timer-To-Close. If the timer has been activated, the open button and radio control can recycle the timer. The Timer-To-Close will function from the programmable mid stop with this wiring type. **Compatible with 3-Button Station, 1-Button Station and 1 and 3-Button Remote Control.**

NOTE: A Programmable "Car Dealer Mode" available.

- T** Momentary contact to open, close, and stop, with open override and Timer-To-Close. Every device that causes the door to open, except any safety edge input device, activates the Timer-To-Close. Auxiliary controls can be connected to open input to activate the Timer-To-Close. If the Timer-To-Close has been activated, the open button and radio control can recycle the timer. The stop button will deactivate the timer until the next command input. The Timer-To-Close will function from the programmable mid stop with this wiring type. **Compatible with 3-Button Station, 1-Button Station and 1 and 3-Button Remote Control.**

NOTE: Programmable "Car Dealer Mode" available.

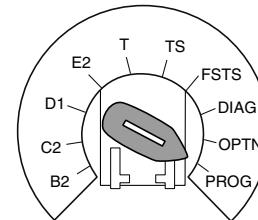
- FSTS** Momentary button contact for open, close and stop programming. User set mid stop. User set Timer-To-Close. The single button station opens the door to the full open limit bypassing the mid stop and activates the Timer-To-Close, putting the operator in TS mode until the door reaches the down limit, or is stopped in travel. At which time the operator enters the B2 mode. **Compatible with 3-Button Station, 1-Button Station, 1 and 3-Button Remote Control.** A 1-Button remote control in FSTS mode will open only with the Timer-To-Close, bypassing a programmed mid stop. The Timer-To-Close will reset and reverse when closing.

LIFTMASTER MONITORED ENTRAPMENT PROTECTION (LMEP) DEVICE IS RECOMMENDED

A LiftMaster Entrapment Protection (LMEP) device is recommended for the following wiring types.

- C2** Momentary contact to open and stop with constant pressure to close, open override plus wiring for sensing device to reverse. Programmable mid stop available with this wiring type. **Compatible with 3-Button Station and 1-Button Station.**
- E2** Momentary contact to open with override and constant pressure to close. Release of close button will cause door to reverse (roll-back feature) plus wiring for sensing device to reverse. **Compatible with 3-Button Station.**
- D1** Constant pressure to open and close with wiring for sensing device to stop. **Compatible with 2 or 3-Button Station.**

SELECTOR DIAL



IMPORTANT NOTES:

1. External interlocks may be used with all functional modes.
2. Auxiliary devices are any devices that have only dry contacts. Examples: photocell, loop detector, pneumatic or electrical treadles, radio controls, one button stations, pull cords, etc.
3. Open override means that the door may be reversed while closing by activating an opening device without the need to use the stop button first.
4. When the door is in a stopped position other than fully closed, and a safety input is activated (LMEP or EDGE), the Restricted Close (RC) feature will allow a close command when the close button is pressed and held. The operator will begin closing after 5 seconds. If the close button is released the door will stop. When in E2 mode, the door will move to the fully open position.

PROGRAMMING REMOTE CONTROLS

⚠ WARNING

To prevent possible SEVERE INJURY or DEATH:

- Install a LiftMaster Monitored Entrapment Protection (LMEP) device.
- 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 the path of closing door.

Built in 3-channel, 315 MHz radio receiver allows you to add as many as 23 Security® remotes or dip switch remote controls.

NOTE: The following programming requires a LiftMaster Monitored Entrapment Protection (LMEP) device.

STANDARD REMOTE CONTROL

1. To enter programming press and release the RADIO button on the logic board (RADIO LED will light).
2. Press and hold the remote control button until the RADIO LED flashes rapidly, then release remote control button. The RADIO LED will then remain on solid after releasing the button. Repeat to add additional remote control(s).
3. Press and release the RADIO button to complete the programming. The programming mode is exited if no activity is performed within 30 seconds.

SINGLE BUTTON REMOTE CONTROL PROGRAMMED AS A SINGLE BUTTON CONTROL (SBC)

This function programs a remote control as a wireless single button control. This function will work in the following modes:

In B2 mode, operation is OPEN/STOP/CLOSE/REVERSE/STOP.

In T and TS modes, operation is OPEN/STOP/CLOSE/REVERSE/STOP and Timer-To-Close start/refresh. **NOTE:** If Car Dealer mode is enabled, SBC will be open only stopping at the Open Mid-Stop.

In FSTS mode, operation is OPEN with Timer-To-Close start/refresh only, bypassing a programmed Open Mid Stop.

1. Press and release the RADIO button on the logic board (RADIO LED will light).
2. Press and release the SBC externally wired button or TIMER on the logic board (RADIO LED flashes rapidly and then remains on solid).
3. Press and hold the remote control button until the RADIO LED flashes rapidly. The RADIO LED will then remain on solid after releasing.
4. Press and release the RADIO button on the logic board (RADIO LED flashes rapidly and then turns off). The programming mode is exited if no activity is performed within 30 seconds.

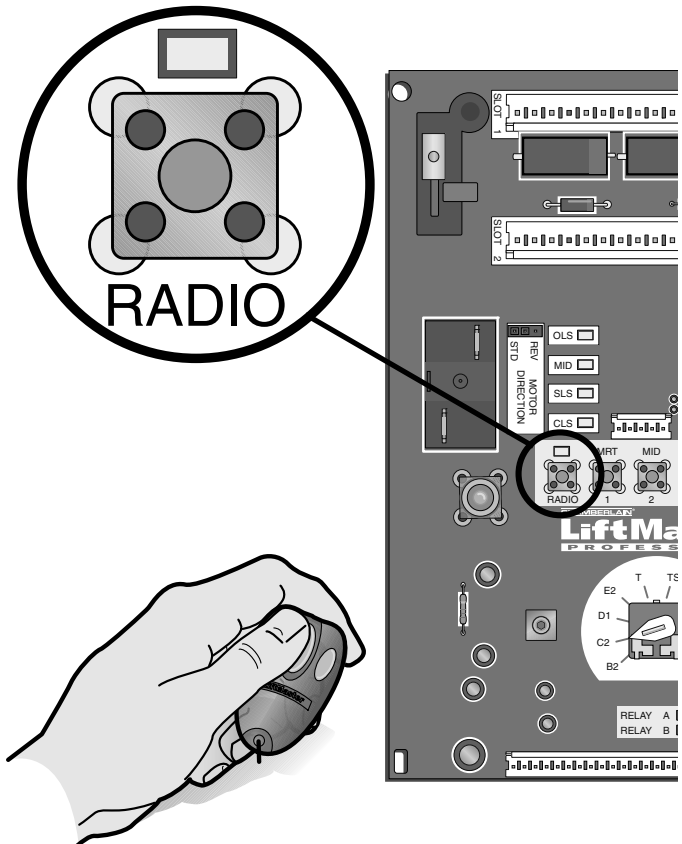
NOTE: Single button remote control is not supported with D1 and E2 wiring modes. C2 mode will only open and stop while opening.

ERASING REMOTE CONTROLS

Press and hold the RADIO button on the logic board until the RADIO LED flashes rapidly (approximately 5 seconds). All remote controls will be erased.

NOTICE: To comply with FCC and or Industry Canada (IC) rules, adjustment or modifications of this receiver and/or transmitter are prohibited, except for changing the code setting or replacing the battery. THERE ARE NO OTHER USER SERVICEABLE PARTS.

Tested to Comply with FCC Standards FOR HOME OR OFFICE USE. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

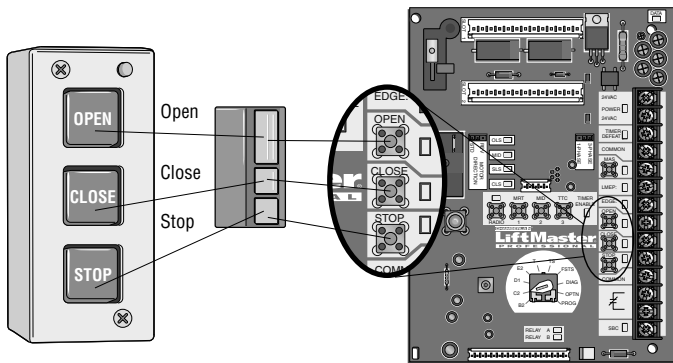


PROGRAMMING REMOTE CONTROLS

NOTE: The following programming requires a LiftMaster Monitored Entrapment Protection (LMEP) device.

Your 315 MHz Security+® or dip switch remote control can be programmed to operate as a 3-button wireless control station: the large button will open the door, the middle button will close the door, and the third button will stop the door's movement. You may set up this feature as follows:

1. To enter programming press and release the RADIO button on the logic board (the RADIO LED will light).
2. To program the OPEN button to a remote control press and release the OPEN button on the logic board. The RADIO LED will flash and then stay on solid. Then press the corresponding button on the remote control. The RADIO LED on the logic board will flash, this confirms that the remote control has been programmed. (By programming the remote you use 1 channel of the 23 channels on the radio receiver.)
3. To program the CLOSE button to a remote control press and release the CLOSE button on the logic board. The RADIO LED will flash and then stay on solid. Then press the corresponding button on the remote control. The RADIO LED on the logic board will flash, this confirms that the remote control has been programmed. (By programming the remote you use 1 channel of the 23 channels on the radio receiver.)
4. To program the STOP button to a remote control press and release the STOP button on the logic board. The RADIO LED will flash and then stay on solid. Then press the corresponding button on the remote control. The RADIO LED on the logic board will flash, this confirms that the remote control has been programmed. (By programming the remote you use 1 channel of the 23 channels on the radio receiver.)
5. After learning remote controls press the RADIO button on the logic board (RADIO LED will turn off). **NOTE:** If no activity within 30 seconds the radio will automatically exit programming mode.



REMOTE CONTROL PROGRAMMING FEATURE

Program Remote Controls from the 3-button control station (3BCS).

This feature allows the user to add additional remote controls from the 3BCS. By default the remote control learn option is off.

NOTE: Requires access to the operator electrical box to enable or disable this feature.

To turn this feature on:

1. Turn the SELECTOR DIAL to PROG.
2. Press and release the RADIO button. The RADIO LED will be lit.
3. Press and release the MID button. The RADIO LED will flash quickly 6 times.
4. Press and release the RADIO button. The RADIO LED will turn off.
5. Return the SELECTOR DIAL to the desired wiring type.

To add remote controls from the 3BCS:

1. With the door in the fully closed position (close limit activated), press and hold STOP.
2. While holding STOP, press and hold CLOSE.
3. While holding STOP and CLOSE, press and hold OPEN.
4. Release all three buttons once the MAS LED has lit.
5. Learn a remote control by one of the following methods:
 - a. Programming a **standard single button/single function remote control**, push and hold the remote control button until the MAS LED goes out. Repeat steps 1 through 4 to add additional remote controls.
 - b. Programming a **3-button/three function remote control (OPEN/CLOSE/STOP)**, first push the button on the 3BCS (Example: OPEN) and then press and hold the button on the remote control (Example: large button) that you want to correspond with the selected (Example: OPEN) command until the MAS LED flashes and goes out. Repeat steps 1 through 4 to add additional buttons (CLOSE AND STOP).

To turn this feature off:

1. Turn the SELECTOR DIAL to PROG.
2. Press and release the RADIO button. The RADIO LED will be lit.
3. Press and release the MRT button. The RADIO LED will flash quickly 3 times.
4. Press and release RADIO button. The RADIO LED will turn off.
5. Return SELECTOR DIAL to desired wiring type.

NOTE: Restoring the operator to Factory Default (see **RESETTING FACTORY DEFAULTS**) will also disable this feature. The remote controls will still be learned.

MAINTENANCE ALERT SYSTEM (MAS)

Feature: An internal cycle counter will activate a flashing LED on the 3-button control station when the preset number of cycles or months has elapsed (whichever occurs first). Setting this feature is optional. By default this feature will never activate. Logic 4 operators incorporate a self diagnostic feature built into the MAS LED. In addition to indicating when routine maintenance is due, the MAS LED can be used to troubleshoot some problems with the operator.

Benefit: The Maintenance Alert System (MAS) assists the installing dealer in setting up a routine maintenance program. Once programmed, the MAS notifies the end user (with a flashing LED on the 3-button station) when a preset number of cycles/ months has elapsed and scheduled maintenance is due.

To Program:

1. Close the door.
2. Turn the selector dial to PROGRAM.
3. Press and release the MAS SET button.
4. Press the STOP button once to clear the MAS memory.
5. Press the OPEN button once for every 5,000 cycles increments. Press the CLOSE button once for every 3 month increments.
6. Press and release the MAS button to complete the programming. The on board LED will flash back the programmed settings. The OPEN LED will flash once for every 5,000 cycles. The CLOSE LED will flash once for every 3 months.
7. Turn the selector dial back to the desired wiring type.

NOTE: If MAS LED flashes 2 or more flashes in a row followed by a pause, an operator error occurred. Turn to page 35 to diagnose problem.

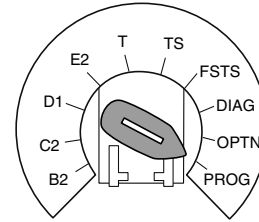
Example: A door is installed with 30,000 cycle springs and has an annual service contract. To set the MAS, turn selector dial to PROGRAM, press MAS button, press the STOP button to clear the memory and then press the OPEN button 6 times (30,000 cycles) and CLOSE 4 times (12 months). Press the MAS again to complete the programming. Turn the selector dial back to desired wiring type.

Special Notes about MAS: A 5th wire must be run to the control station to activate the MAS LED. The MAS LED on the logic board is always enabled. When the operator is serviced after the MAS LED has started to flash, repeat the setup procedure to program in the number or cycles desired until the next service visit OR press and hold the MAS button for 5 seconds in the PROGRAM mode to reset the MAS with its current programmed value. To disable the MAS, follow the programming procedure above and press the STOP button to reset the counter to zero. Every time the operator leaves the close limit is counted as one cycle.

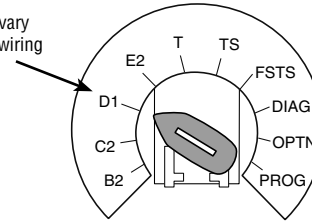
To view how many cycles are programmed into the MAS, set the selector dial to DIAGNOSTIC and press the MAS button. The OPEN button LED will flash once for every 5,000 cycle increment programmed and the CLOSE button LED will flash once for every 3 month increment programmed.

To view how many cycles have elapsed since the last time the MAS was programmed, set the selector dial to DIAGNOSTIC and press the MAS button. Press the OPEN button; the OPEN LED will flash once for every 5,000 cycles that has elapsed. Press the CLOSE button; the CLOSE LED will flash once for every (3) months that has elapsed. Press the MAS button to exit. Turn the selector dial back to desired wiring type.

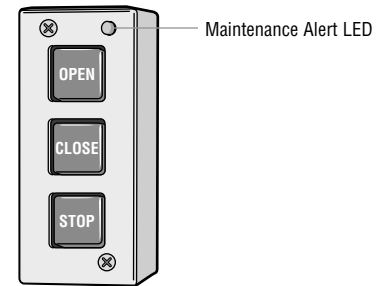
SELECTOR DIAL



Operation will vary depending on wiring type



3-BUTTON STATION



Press This	To Get This
OPEN	Adds 5,000 cycles to Maintenance Alert System Activation Counter.
CLOSE	Adds 3 Months to Maintenance Alert System Activation Timer.
STOP	Clears memory, sets Maintenance Alert System Activation Counter to 0 cycles and 0 months.

OPEN MID STOP

Feature: The Mid Stop feature is to open the door to a preset point prior to the fully open position.

Benefit: The door opens to a midpoint between open and close reducing heating and cooling costs. The door will not cycle fully, providing longer door and operator life.

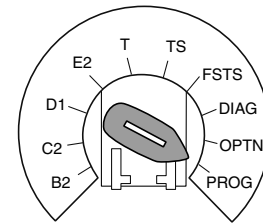
To Program:

1. Close the door.
2. Turn selector dial to PROGRAM.
3. Press and release the MID button on logic board.
4. Press the OPEN button, wait until the door reaches the desired mid stop height, then press and release the STOP button.
5. Press and release the MID button to complete programming.
6. Turn selector dial back to desired wiring type.

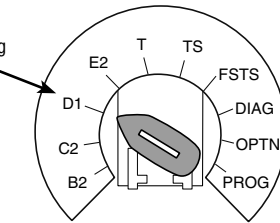
NOTE: A momentary open command will open the door fully from the Mid Stop position. Once at the Mid Stop, photoelectric sensors and other safety devices will not open the door beyond the mid stop position, except in E2 mode. The Timer-To-Close will work from the Mid Stop.

To clear the Mid Stop set the selector dial to PROG and press and hold the MID button for 5 seconds. The MID LED will flash rapidly and turn off once the Mid Stop has been cleared. Turn selector dial back to desired wiring type.

SELECTOR DIAL



Operation will vary depending on wiring type



⚠ WARNING

To prevent possible SEVERE INJURY or DEATH:

- Install a LiftMaster Monitored Entrapment Protection (LMEP) device.
- 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.

TIMER-TO-CLOSE

Feature: Timer automatically closes door after preset time. All safety devices must be unobstructed.

Benefit: The door will automatically close after preset amount of time. Great for apartment buildings, fire stations and other applications where the end user wants the door to close automatically after a specified amount of time.

Requirements: Must have at least one LiftMaster Monitored Entrapment Protection (LMEP) device installed (refer to page 20). Wiring type must be set to TS, T or FSTS.

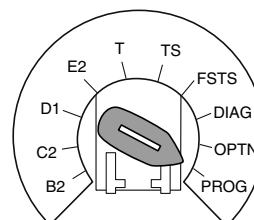
TO PROGRAM MANUALLY (METHOD 1):

1. Close the door.
2. Turn the selector dial to PROGRAM.
3. Press and release the TIMER button on the logic board.
4. Press and release the STOP button to clear the timer.
5. Press and release the OPEN button for every second the operator should wait before attempting to close the door. Press and release the CLOSE button for every 15 seconds the operator should wait before closing the door.

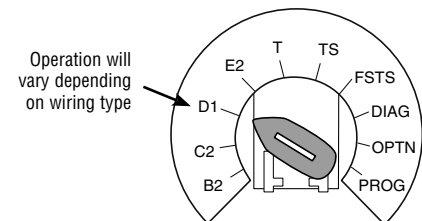
6. Press and release the TIMER button to complete programming. The OPEN/CLOSE button LEDs will flash to confirm the timer setting. The OPEN LED will flash once for every second programmed and the CLOSE LED will flash once for every 15 seconds programmed.
7. Turn the selector dial to desired timer wiring type (TS, T or FSTS).

Example: To close the door after 70 seconds. Turn selector dial to PROGRAM, press and release the TIMER button, press and release the STOP button to clear the timer, press and release the CLOSE button four times for 60 seconds and press and release the OPEN button 10 times for 10 seconds. Press the TIMER button to finish programming the timer. Turn selector dial to desired timer wiring type. (TS, T, FSTS).

SELECTOR DIAL



Operation will vary depending on wiring type



TIMER-TO-CLOSE

PROGRAM TIMER-TO-CLOSE BY EXAMPLE (Method 2):

TO PROGRAM:

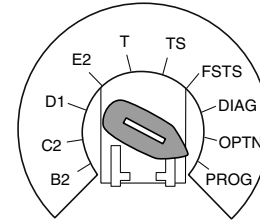
1. Close the door.
2. Turn the selector dial to PROGRAM.
3. Press and hold TIMER button for 5 seconds until OPEN and OLS flashes then release.
4. Press and release the OPEN button and wait for the door to reach full open or mid stop position.
5. Wait for desired amount of time to pass. (An internal stop watch starts counting when the door stops moving.)
6. Press and release the TIMER button, CLOSE button or STOP button to stop the timer. (TIMER SET LED will turn on.)
7. Turn the selector dial to the desired wiring type (T, TS, FSTS).

NOTE: To read back the Timer-To-Close setting, turn the selector dial to DIAGNOSTIC and press the TIMER button. The OPEN LED will flash once for every second programmed and the CLOSE LED will flash once for every 15 seconds programmed.

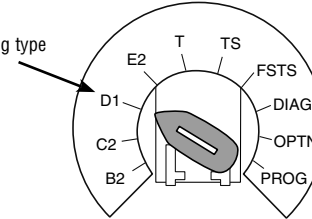
To deactivate the timer from the open position press the STOP button. The timer will be reactivated on the next operation command. To deactivate the timer for more than one cycle, attach a switch to 11 and 12 (Common and Timer Defeat).

Reminders: FSTS wiring mode allows the Timer-To-Close to be activated by the Single Button Control (terminal 1) only. T wiring mode allows the door to attempt to close only one time for safety purposes.

SELECTOR DIAL



Operation will vary depending on wiring type



CAR DEALER MODE

Feature: The car dealer mode uses the SBC (Single Button Control input) to bring the door from a closed position to the programmed Open Mid-Stop position and keep it at that location even with multiple inputs.

Benefit: Provides energy cost savings by limiting the door opening height.

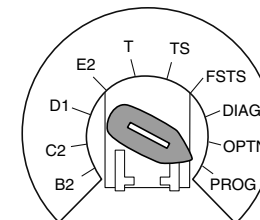
Requirements: This feature works in conjunction with the programmable Timer-To-Close feature. To enable this feature you must first connect a treadle, photoelectric sensor or loop detector accessory to the SBC input and must have at least one LiftMaster Monitored Entrapment Protection (LMEP) device installed (refer to page 20). Wiring type must be set to TS or T.

TO PROGRAM:

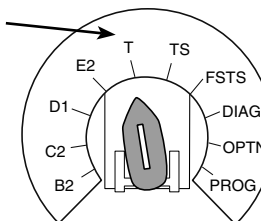
1. Start with the door in the closed position.
2. Turn the SELECTOR DIAL to PROG.
3. Push the TIMER button and release (Green Timer LED will be lit).
4. Push the MID button and release. This turns on the Car Dealer Mode. (The GREEN TIMER LED will flash 6 times indicating the Car Dealer Mode is turned on.)
5. Push the TIMER button and release.
6. Turn the SELECTOR DIAL to the desired wiring type (TS or T).

NOTE: To disable the Dealer Mode follow steps 2 and 3, then press the MRT button and release. (The GREEN TIMER LED will flash 3 times indicating that the Car Dealer Mode is off.)

SELECTOR DIAL



Operation will vary depending on wiring type



MAXIMUM RUN TIMER (MRT)

Feature: The operator can learn the time it takes to open or close the door plus and an additional 10 seconds.

Benefit: If the operator does not meet its open or close limit within the set time it will stop, limiting damage to the door and operator.

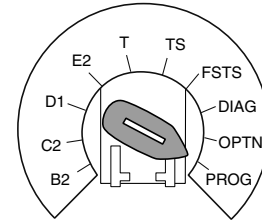
To Program:

NOTE: The default setting for the MRT is 90 seconds. In the event the application requires the MRT be manually learned for a longer duration follow steps below.

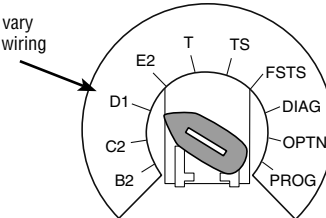
1. Start with the door in the closed position.
2. Set the selector dial to PROGRAM.
3. Press and release the MRT button on logic board.
4. Press the OPEN button and wait for the door to reach the full open limit.
5. Once the door has reached the open position, programming is complete.
6. Turn dial to desired wiring type.

NOTE: To reset MRT only, turn selector dial to program and press and hold the MRT button until the MAS led flashes rapidly.

SELECTOR DIAL



Operation will vary depending on wiring type



RESETTING FACTORY DEFAULTS - CLEARING MEMORY

To reset most of the user installed settings back to factory defaults:

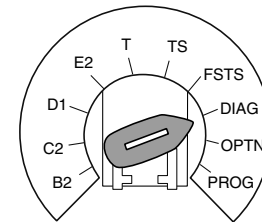
1. Turn the selector dial to DIAGNOSTIC.
2. Press and hold the STOP button for 5 seconds. The MAS LED will flash momentarily when the factory defaults have been restored.
3. Return the selector dial to the desired wiring type.

Factory Defaults:

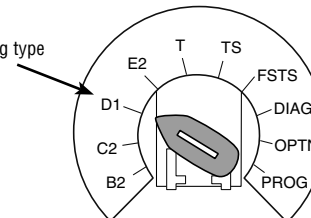
- a. Timer-To-Close = 0 seconds
- b. The Mid Stop is deactivated
- c. The Maintenance Alert System is deactivated
- d. The Maximum Run Timer is set to 90 seconds
- e. Car Dealer Mode is deactivated
- f. The remote controls will still be learned
- g. Remote control programming via the 3-button station
- h. The LiftMaster Monitored Entrapment Protection (LMEP) device will be unprogrammed

NOTE: Life of Operator feature (Odometer/Cycle Counter) and programmed remote controls are not cleared.

SELECTOR DIAL



Operation will vary depending on wiring type



MAINTENANCE

MAINTENANCE SCHEDULE

For use with Maintenance Alert System.

Check at the intervals listed in the following chart:

⚠️ WARNING

To avoid **SERIOUS** personal **INJURY** or **DEATH**:

- Disconnect electric power **BEFORE** performing **ANY** adjustments or maintenance.
- **ALL** maintenance **MUST** be performed by a trained door systems technician.

ITEM	PROCEDURE	EVERY MONTH	EVERY 3 MONTHS OR 5,000 CYCLES	EVERY 6 MONTHS OR 10,000 CYCLES	EVERY 12 MONTHS OR 20,000 CYCLES
Drive Chain	Check for excessive slack. Check and adjust as required. Lubricate.		●●		
Sprockets	Check set screw tightness.		●		◆
Clutch	Check and adjust as required.			●	◆
Belt	Check condition and tension.			●	◆
Fasteners	Check and tighten as required.			●	◆
Manual Disconnect	Check and operate.			●	◆
Bearings and Shafts	Check for wear and lubricate.		●●		
LiftMaster Monitored Entrapment Protection (LMEP)	Check alignment and functionality.	●			

◆ **Use SAE 30 Oil (Never use grease or silicone spray).**

- Do not lubricate motor. Motor bearings are rated for continuous operation.
- Do not lubricate clutch or V-belt.

◆ **Repeat ALL procedures.**

- Inspect and service whenever a malfunction is observed or suspected.

HOW TO ORDER REPAIR PARTS

OUR LARGE SERVICE ORGANIZATION SPANS AMERICA

Installation and service information are available.

Call our TOLL FREE number:

1-800-528-2806

www.liftmaster.com

LIFE OF OPERATOR FEATURE (ODOMETER/CYCLE COUNTER)

The operator is equipped with an odometer to show how many months and cycles the operator has performed from the time it as installed. This feature can help determine how long the operator has been in service.

1. Start with the door in the closed position.
2. Turn the SELECTOR DIAL to DIAG (diagnostic mode).
3. Press and release the MAS button on the logic board.
4. Press and release the MRT button on the logic board.
5. The open and close lights will flash. OPEN for every 5,000 cycles and CLOSE for every 3 months.
6. Return the SELECTOR DIAL to the desired wiring type.

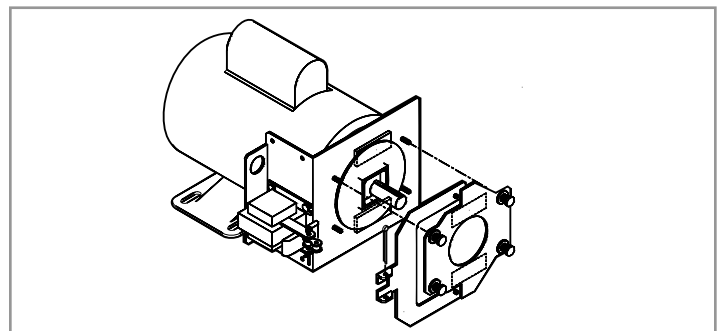
NOTE: If the operator has not reached 5,000 cycles or 3 months, there will be no indications.

BRAKE (IF PRESENT)

A solenoid brake is available as an option for some models. The brake is adjusted at the factory and should not need additional adjustment for the life of the brake assembly.

Inspect the brake pad and replace brake assembly when necessary.

NOTE: Your operator may look different than the operator shown.



TROUBLESHOOTING

DIAGNOSTIC CHART

The logic board has several LEDs to assist in the installation and troubleshooting of the operator. The following chart should assist in verifying the operator is functioning properly. Turn the selector dial to DIAGNOSTIC to keep the door from moving while troubleshooting.

LED	COLOR	DEFINITION
Power	Green	Indicates that power is being generated for the logic board.
Stop	Green	Indicates a closed circuit between common and terminal 5. Pressing stop should turn off this LED.
Open	Yellow	Indicates a closed circuit between common and terminal 7. Pressing the open button should turn ON this LED.
Close	Yellow	Indicates a closed circuit between common and terminal 6. Pressing the close button should turn ON this LED.
LMEP	Green	Solid on indicates photoelectric sensors learned. Flashing indicates photoelectric sensors need to be connected or obstructed. Solid off indicates no sensors learned.
Timer Defeat	Yellow	Solid on indicates a closed circuit between common and terminal 12. Timer-To-Close will not close.
OLS	Yellow	Pressing the Open Limit Switch should turn ON this LED.
CLS	Yellow	Pressing the Close Limit Switch should turn ON this LED.
SLS	Yellow	Pressing the Sensing Limit Switch should turn ON this LED.
Edge	Yellow	Indicates a closed circuit between common and terminal 8. Pressing the edge should turn ON this LED.
Mid Stop	Yellow	Solid on indicates door is stopped on up or down mid stop. Flashing indicates MID STOP is being set.
Timer Enabled	Green	Solid on indicates TIMER is programmed and will activate from open or mid stop position. Flashing indicates Timer is counting down and door will close after preset time.
SBC	Yellow	Indicates a closed circuit between common and terminal 1. Pressing the single button control station should turn ON this LED.
MAS	Yellow	Indicates the Maintenance Alert System has been activated or an error code has been triggered.
Relay A	Yellow	Indicates open or close command has been given to the motor. LED turns on when OPEN/CLOSE button is pressed.
Relay B	Yellow	Indicates open or close command has been given to the motor. LED turns on when OPEN/CLOSE button is pressed.
DATA	Green	Indicates communication between the Logic 4 board and optional TLSCARD.

TROUBLESHOOTING GUIDE

FAULT	POSSIBLE CAUSE	FIX
THE OPERATOR WILL NOT RESPOND TO ANY COMMANDS	<ul style="list-style-type: none"> a) No power supply b) Operator control station is wired wrong c) Interlock switch is activated d) Dial still in programming, option, or diagnostic mode e) Motor is malfunctioning f) Motor thermal overload tripped g) Possible accessory malfunction h) Off Board relay may need to be replaced see wiring diagram i) Possible logic board failure 	<ul style="list-style-type: none"> ➤ Verify primary line voltage from power source. Green POWER LED must be on. ➤ Use the OPEN, CLOSE and STOP LEDs to help check correct wiring. Verify that the board is accepting commands by using the onboard station. Green LED next to stop button must be on. ➤ Check Interlock(s). If more than one external interlock is present they must be wired in series. Green LED next to stop button must be on. ➤ Set dial to desired wiring type. ➤ Verify proper voltage getting to the motor (Check motor name plate). ➤ Check to see if motor is hot. Allow motor to cool before attempting to move door. Cycle operator in constant pressure one full cycle open and close to reset fault. ➤ Disconnect all devices, reattach them one at a time testing for a failure after each one is replaced. ➤ When the OPEN or CLOSE button is pressed, Relay A or B LED should turn on and the door should move in the corresponding direction. If Relay A or B lights and the door does not move, off board relay may need to be replaced (see wiring diagram Off Board Relays). ➤ Replace logic board.
POWER LED IS NOT ON	<ul style="list-style-type: none"> a) Loose secondary wiring connections or a faulty control transformer b) Hoist interlock switch 	<ul style="list-style-type: none"> ➤ Repair or replace connections or control transformer. ➤ Check interlock. Verify the manual release chain is not engaged.
STOP BUTTON LED IS NOT ON	<ul style="list-style-type: none"> a) Control station not connected or wired correctly b) Interlock switch 	<ul style="list-style-type: none"> ➤ Check wiring to control station. ➤ Check interlock switch(es) for continuity.
THE DOOR WILL MOVE ABOUT A FOOT THEN STOP. AFTER STOPPING, ONLY CONSTANT PRESSURE COMMANDS WILL MOVE THE DOOR	<ul style="list-style-type: none"> a) RPM sensor is not connected properly or may need to be replaced b) Clutch slipping 	<ul style="list-style-type: none"> ➤ Check the RPM assembly for loose connections. Check that RPM wheel is turning when operator is running. Check for foreign matter blocking optical lens. ➤ Replace RPM sensor. ➤ Adjust clutch and verify that door is not binding.
THE DOOR WILL MOVE MOST OF THE WAY TOWARDS A LIMIT THEN STOP. AN EXTRA OPEN OR CLOSE COMMAND IS ABLE TO GET DOOR TO COMPLETE CYCLE	The Maximum Run Timer is not set correctly	➤ Manually reprogram the Maximum Run Timer (page 35). OR reset the factory defaults (page 35).
THE DOOR WILL OPEN SOME BUT NOT COMPLETELY. AN EXTRA OPEN IS ABLE TO GET THE DOOR TO OPEN COMPLETELY	There may be a Mid Stop set	➤ Check to see if the Mid Stop LED is on. Clear the Mid Stop by turning the selector dial to program. Press and hold the MID STOP button for 5 seconds. Return dial to desired wiring type. To reset Open Mid Stop refer to page 33.
THE DOOR WILL OPEN BUT WILL ONLY CLOSE AFTER A FIVE SECOND DELAY WITH CONSTANT PRESSURE ON THE CLOSE BUTTON	<ul style="list-style-type: none"> a) The photoelectric sensors, edge or other sensing device is obstructed or activated b) The logic board thinks that the direct connect photoelectric sensors are attached and blocked 	<ul style="list-style-type: none"> ➤ If the on board LMEP LED is flashing, the photoelectric sensor are misaligned or not connected. Remove any obstructions, check the safety device wires for continuity and shorts. ➤ Unlearn the photoelectric sensors from the memory by resetting factory defaults.

TROUBLESHOOTING ERROR CODES

Logic 4.0 operators incorporate a self diagnostic feature built into the MAS LED. In addition to indicating when routine maintenance is due, the MAS LED can be used to troubleshoot some problems with the operator.

If the MAS LED is flashing on and off rapidly, the Maintenance Alert System has been triggered and the schedule operator service is due. If the MAS LED flashes 2 or more pulses in a row followed

by a pause, an operator error has occurred. To view how many errors currently exist, turn the selector dial to DIAGNOSTIC and press the OPEN button. To read out each individual error code (if more than one exists) press CLOSE. It is possible to have more than one error at a time.

The chart below can assist with identifying the flashes on the MAS LED.

ERROR CODE	DISPLAY	DESCRIPTION	EFFECT	CORRECTION
E1	1 blink	MAS triggered (cycles or months)	None normal operation	Reset MAS (page 32).
E2	2 blinks	No RPM input during opening	The door only responds to constant pressure commands	Clutch is slipping, adjust clutch, or verify RPM sensor connection or replace RPM sensor. NOTE: To relearn the RPM sensor, move the door with a constant pressure command. The door will stop once relearned and normal operation will resume.
E3	3 blinks	(MRT) Maximum Run Time timed out	The door stops before reaching set open or close limit(s)	First check Operator for any faults (i.e., Bad Limit switch), manually learn Max Run Timer (page 35) OR reset factory defaults (page 35).
E4	4 blinks	Obstruction sensed on closing	Operator will reverse to OPEN position	Cleared by removing obstruction or realigning photoelectric sensors and giving a close command.
E5	5 blinks	Stuck button pressed for greater than 2 minutes	Stuck button on 3-button station will not respond	Stuck button must be unstuck before it will be recognized as an input.
E6	6 blinks	Invalid option card plugged into option card receptacles	Option card will not function properly	Refer to accessories page for list of supported option card(s).
E7	7 blinks	LiftMaster Monitored Entrapment Protection (LMEP) device faulted or removed for greater than 2 minutes	Normal operation (5 second constant pressure override required to close)	Cleared when safety device is cleared or connected.
E8	8 blinks	Brownout Detected	Operator will run as long as enough power is present	1. Check AC line for voltage. 2. Check transformer secondary for low voltage. Too many accessories may be connected to the transformer.
E9	Flash on start of movement	Motor movement at invalid time	Operator will continue to function normally for 5 operations and then default to a constant pressure mode	Check relays and the drive circuitry to ensure that they are turning off. Operator must know that they are turning off. Operator must run correctly for two starts for the error to be cleared.
E10	10 blinks	Motor Phase Jumper changed while unit is not in programming mode	The phase will not change	Enter programming mode and move phase jumper to change phase.

NOTE: Error codes take priority over normal MAS LED operation. Error codes will repeat on the MAS every 1.5 seconds until cleared. There may be more than one error present, but only the highest priority will flash. If the highest error is cleared, the next highest will flash. All errors self-correct when the corrective action is taken and a reset is not needed.

TROUBLESHOOTING RADIO FUNCTIONALITY

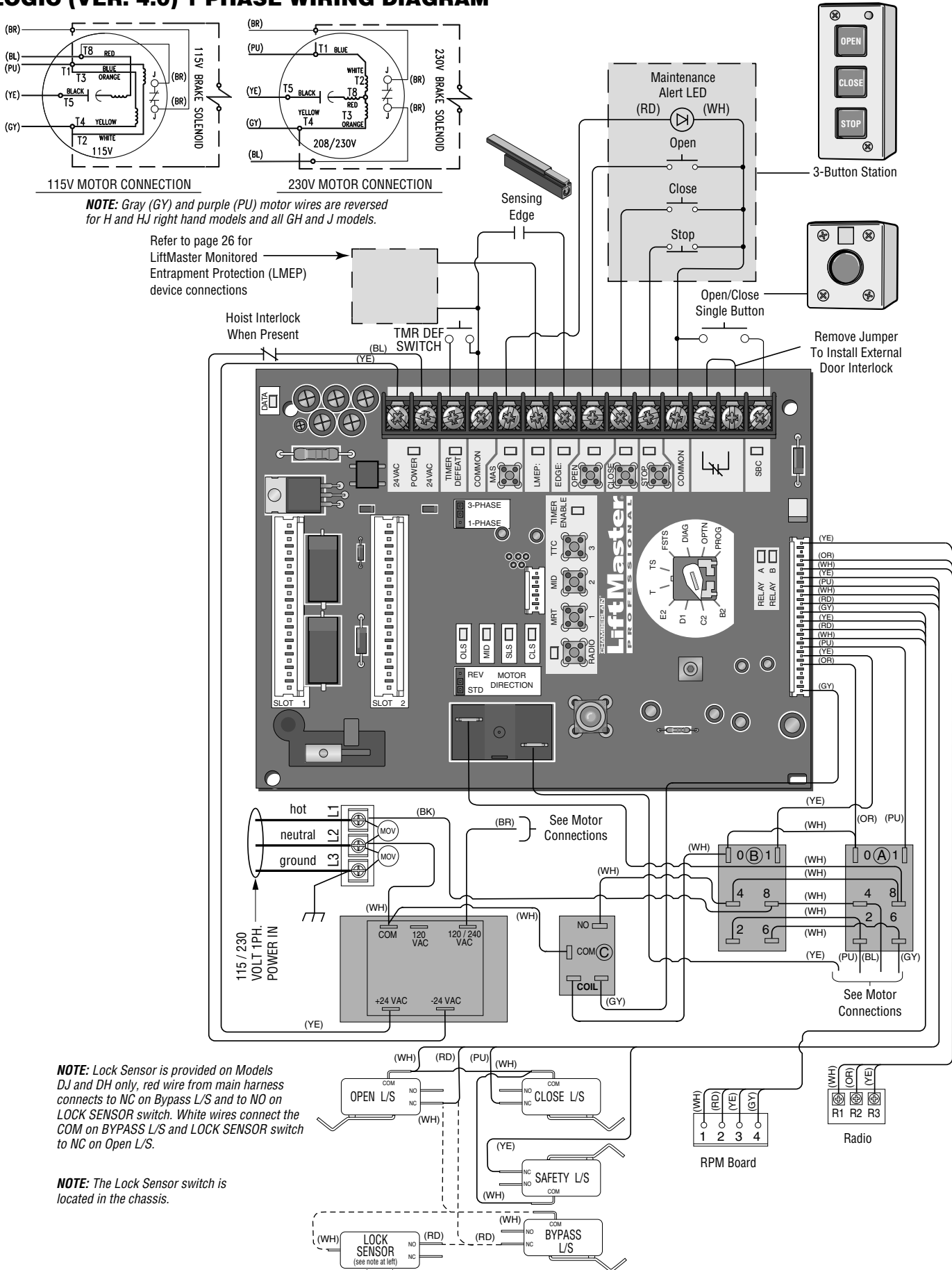
The error codes will display at the radio LED.

NOTE: Radio receiver is compatible with 315 MHz remotes.

ERROR CODE	DISPLAY	SYMPTOM	POSSIBLE PROBLEM	CORRECTION
R1	Quick Flash	No response from the remote	Unlearned remote - A user tries to use a remote, but the RADIO LED only flashes briefly and there is no response from the operator.	Try re-learning the remote (page 30).
R2	No LED activity	No response from the remote	Cannot recognize remote - A weak signal caused by a discharged battery or outside interference with the remote(s) - OR - the remote(s) being learned is not compatible with the operator. Antenna not installed or damaged.	Replace battery - OR - eliminate interference - OR - obtain a qualified remote - OR - check antenna connections.
R3	Radio LED turns off after 30 seconds	The remote cannot be learned	Cannot recognize remote - A weak signal caused by a discharged battery or outside interference interfering with the learn process - OR - the remote(s) being learned is not compatible with the operator. Antenna not installed or damaged.	Replace battery - OR - eliminate interference - OR - obtain a qualified remote - OR - check antenna connections.
R4	2 blinks	The remote cannot be learned	Receiver memory full - A user enters RADIO function learning mode but there is no space left to add another remote.	Erase all learned remotes and re-learn the desired remote.
R5	3 blinks	The remote cannot be learned	Duplicate remote - A user enters RADIO function learning and selects the function to be learned. When the remote button is pressed for learning, a search reveals that remote is already learned.	This remote already has a function associated with it. To change the function, erase all learned remotes and re-learn the desired remote.
R6	LMEP LED flashes	Cannot close via constant pressure in C2, D1 or E2 modes.	No safety device present - A safety device is required to close via constant pressure.	Must connect a LiftMaster Monitored Entrapment Protection (LMEP) device.

WIRING DIAGRAMS

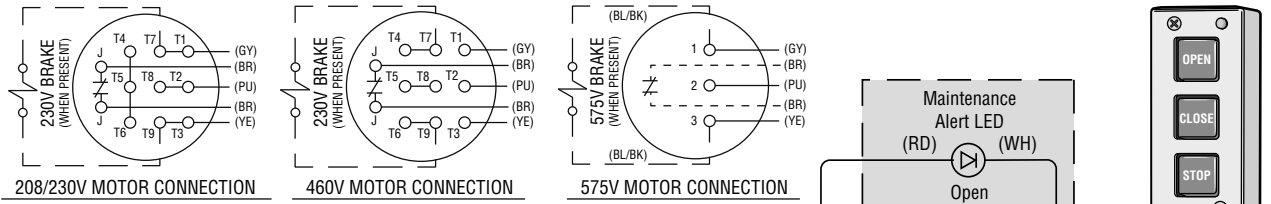
LOGIC (VER. 4.0) 1 PHASE WIRING DIAGRAM



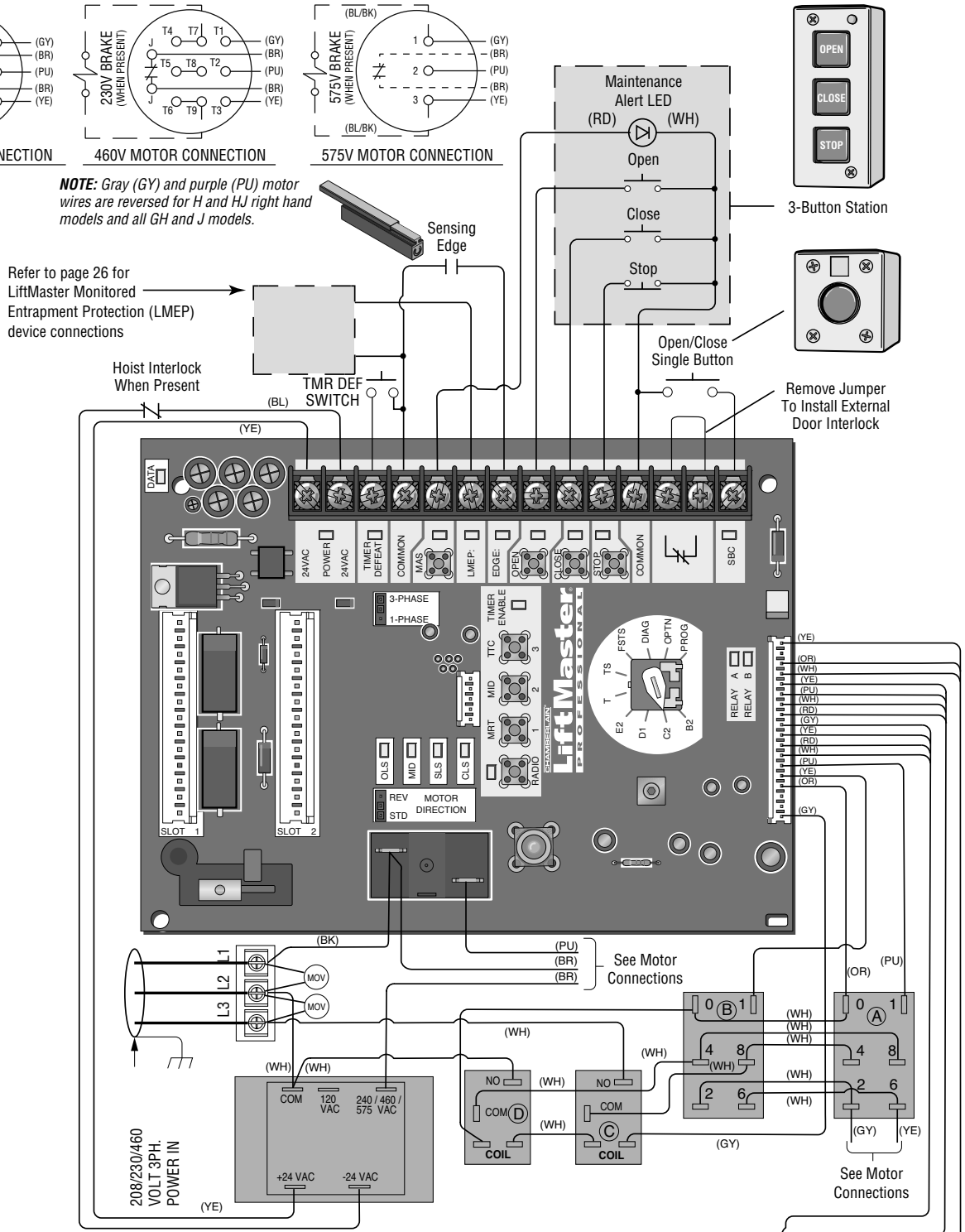
NOTE: Lock Sensor is provided on Models DJ and DH only, red wire from main harness connects to NC on Bypass L/S and to NO on LOCK SENSOR switch. White wires connect the COM on BYPASS L/S and LOCK SENSOR switch to NC on Open L/S.

NOTE: The Lock Sensor switch is located in the chassis.

LOGIC (VER. 4.0) 3 PHASE WIRING DIAGRAM

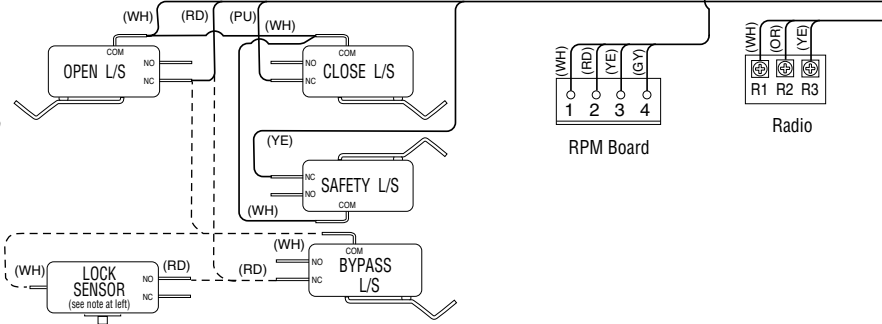


NOTE: Gray (GY) and purple (PU) motor wires are reversed for H and HJ right hand models and all GH and J models.



NOTE: Lock Sensor is provided on Models DJ and DH only, red wire from main harness connects to NC on BYPASS L/S and to NO on LOCK SENSOR switch. White wires connect the COM on BYPASS L/S and Lock Sensor switch to NC on Open L/S.

NOTE: The Lock Sensor switch is located in the chassis.



WIRING DIAGRAMS

ACCESSORIES

REMOTE CONTROLS 315MHZ



LiftMaster offers a variety of **SECURITY+** Remote Controls for your application needs. Single to 4-Button, visor or key chain. Contact your authorized dealer.

- 371LM 1-Button SECURITY+ Remote Control:**
Includes visor clip.
- 373LM 3-Button SECURITY+ Remote Control:**
Includes visor clip.
- 333LM 3-Button Tri-Colored Dip Switch Remote Control:**
Includes visor clip.
- WPB1LM3 Wireless Single Push Button Control SECURITY+:**
Rugged composite housing. (Wireless controls cannot be used in place of hard wired controls.)



- WPB3LM3 Wireless 3 Button Control Station SECURITY+:**
Rugged composite housing. (Wireless controls cannot be used in place of hard wired controls.)



- WKP5LM3 (5 4-digit entry codes)**
WKP250LM3 (250 4-digit entry codes)
Wireless Access Control Keypads SECURITY+:
Rugged composite housing. (Wireless controls cannot be used in place of hard wired controls.)



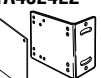
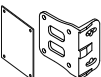
CONTROL STATIONS

- 02-101 1-Button Control Station:**
Steel enclosure.
- 02-102 2-Button Control Station:**
Steel enclosure.
- 02-103L 3-Button Control Station:**
Steel enclosure with Maintenance Alert System.
- 02-110 Key Control Station:**
Indoor flush mount, NEMA 1 with Stop button.



MOUNTING BRACKETS

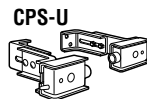
- 10-12360** Heavy gauge steel bracket for vertical or horizontal mount on either front or top of coil on a rolling door. Has a variety of mounting hole patterns compatible with many OEM manufacturers. For use with J, H, DJ, and DH operators. May be welded.
- 08-9098** Cast iron bracket to mount J, H, DH, DJ, and GH side mount operators on end bracket of a rolling door or grill. For vertical or horizontal mount on either front or top of coil. Cannot be welded.
- 08-9098EZ** Same as 08-9098, but with adapter plate to hold mounting bolts in place for easy mounting.
- 1A4324** Heavy gauge steel bracket for vertical or horizontal mount on either front or top of coil on a rolling door. May be welded. For use with J, H, DJ, and DH operators.
- 1A4324EZ** Same as 1A4324, but with adapter plate to hold mounting bolts in place for easy mounting.



Accessories

ENTRAPMENT PROTECTION DEVICES MONITORED

- CPS-UN4 Commercial Protector System:**
Provides protection on doors up to 45' wide. NEMA-4 rated.
- CPS-U Commercial Protector System:**
Provides protection on doors up to 30' wide.
- CPS3CARD Option Logic Board:**
For use when more than one set of photoelectric sensors are required. Also available pre-packaged with a second set of photoelectric sensors; see CPS3 or CPS3-N4 in Commercial Door Operator Product and Accessories Price List for more information.
- CPS-EI Monitored Safety Edge Interface:**
For use with the approved 4-wire safety edge (see below).
- 65ME1234 Miller ME123 4-Wire Monitored Safety Edge:**
For sectional or rolling doors.
- 65ME110 Miller ME110 4-Wire Monitored Safety Edge:**
For rolling grilles and counter shutters.

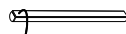


MOUNTING CHANNELS

- 65ME123C U-Shaped Mounting Channel:**
For 65ME1234 edge when installed on sectional doors.
- 65ME123C1 T-Shaped Mounting Channel:**
For 65ME1234 edge when installed on rolling doors. Fits between L-shaped angles used to construct a bottom bar on rolling doors.
- 65ME123CA3 L-Shaped Mounting Channel:**
For 65ME1234 edge when installed on sectional doors.

NON-MONITORED

- 65-8202 Vehicle Detection System:**
Pneumatic Sensing Edge Kit with exterior air switch, 2-wire coil cord and 14' air hose.
- 65-5202 Vehicle Detection System:**
Pneumatic Sensing Edge Kit with exterior air switch, 2-wire take-up reel (20' extended) and 14' air hose.



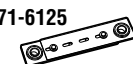
OPTION CARDS

- TLS1CARD Timer Light Status Card:**
The TLS option card provides special functionality to activate and flash auxiliary devices such as lights, bells, and horns/strobes at various door positions, and to provide special timer functions.
- AUXCARD Auxiliary Contact Card:**
The Auxiliary Contact option card has both Normally-Open and Normally-Closed contacts that actuate when the door is idle, opening, or closing.

CHAIN TENSIONERS

For Jackshaft Type Operators

- 71-6023** For 1" shafts. Recommended to properly tension drive chain between operator shaft and door shaft.
- 71-6125** Same as 71-6023, but for 1-1/4" shafts.



MISCELLANEOUS

- 1A3982 Operator Cover:**
For use with wall-mounted J, H, GH, DH or DJ operators. Measures 31" x 19" x 18" (L x W x D). Assembly required. Recommended for damp environments where direct spray is present. Required when the operator is installed less than 8 feet above the floor.
- 86LM (15') 86LMT (25') Antenna Extension Kit:**
The antenna extension kit can be used with EXT-ANT for maximum radio receiver range.



CONTROL CONNECTION DIAGRAM

IMPORTANT NOTES:

1. The 3-Button Control Station provided must be connected for operation.
2. If a STOP button is not used, a jumper must be placed between terminals 4 and 5.
3. When adding accessories, install them one at a time and test each one after it is added to ensure proper installation and operation with the Commercial Door Operator.

