LiftMaster®
Commercial Door Operators

INDUSTRIAL DUTY COMMERCIAL DOOR OPERATOR

LOGIC 5.0   Security+ 2.0™   myQ®

INSTALLATION MANUAL

H, J, AND HJ	**GH**	**T AND APT**	**GT**
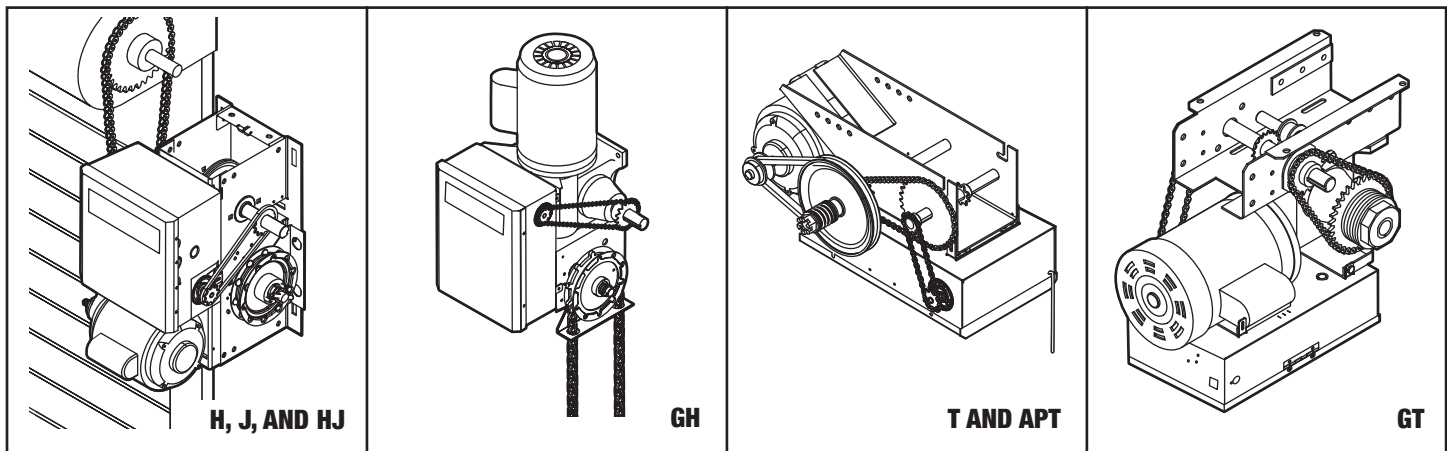
THIS PRODUCT IS TO BE INSTALLED AND SERVICED BY A TRAINED DOOR SYSTEMS TECHNICIAN ONLY.

Operators are shipped in C2 operating mode. Visit www.liftmaster.com to locate a professional installing dealer in your area.

2 YEAR WARRANTY

Serial # _____

Installation Date _____

CONTACT INFORMATION

c(UL)us

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SAFETY INFORMATION

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CAUTION

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

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

IMPORTANT NOTES:

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

IMPORTANT INSTALLATION INSTRUCTIONS

⚡ ⚠ WARNING

TO REDUCE THE RISK OF SEVERE INJURY OR DEATH:

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

TROLLEY OPERATORS

CARTON INVENTORY

Before beginning your installation check that all components were provided.

DESCRIPTION

Powerhead assembly

Owner's manual and caution labels

Hardware box (includes fasteners, track spacers, trolley, door arm assembly, front idler and header mounting bracket)

3-Button control station with MAS LED

Trolley drive chain: #48 for 1/3 and 1/2 HP,
                               #41 for 3/4 HP and higher (all GT models)

NOTE: *The tracks are shipped separately.*

ENTRAPMENT PROTECTION DEVICES:

LiftMaster Monitored Entrapment Protection (LMEP)

Monitored photoelectric sensors and/or door edge sensors are required for any momentary contact to close modes of operation. See pages 20-21 for additional information. Refer to the accessories page 42, 'Entrapment Protection Devices' for available options.

OPERATOR SPECIFICATIONS

MOTOR

TYPE: . . . . Continuous duty

HORSEPOWER:

  Model APT . . . . 1/2 HP

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

  Model T . . . . 1/3, 1/2, 3/4 and 1 HP

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

VOLTAGE: . . . .

  Model APT . . . . 115V 1 Phase

  Model GT and T . . . . 115/230V 1 Phase,

  . . . . 208/230/460/575V 3 Phase

CURRENT (Amperage):

  Model T and GT

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

  Model APT

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

ELECTRICAL

TRANSFORMER: . . . . 24Vac Secondary

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

WIRING TYPE: . . . . C2 (Factory default)
Momentary contact to OPEN & STOP, constant pressure to CLOSE, plus wiring for LMEP device to reverse and auxiliary devices to open and close with open override. See page 28 for optional wiring types and operating modes.

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

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

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

OPERATOR SPECIFICATIONS

MECHANICAL

DRIVE REDUCTION:

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

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

OUTPUT SHAFT SPEED:

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

DOOR SPEED (not adjustable):

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

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

BEARINGS: . . . . Output Shaft: Shielded ball bearing

Model APT and T . . . .Clutch Shaft: IronCopper sintered and oil impregnated

MAXIMUM DOOR AREA (SQ. FT.)

MODEL T

STANDARD SECTIONAL	---	24 ga. 22 ga. Steel	20 ga. Steel	16 ga. Steel	---
	Fiberglass Doors	Alum. Doors	Wood Doors	---	---
	---	---	24 ga. Steel Insul.	20 ga. Steel Insul.	16 ga. Steel Insul.
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.

14"
(35.56 cm)

*Door Height Plus 4 feet (minimum)

4"
(10.16 cm)

11.63"
(29.54 cm)

Highest Point of Door Travel

*23.43"
(59.51 cm)

* - For Units with Brake add 3-1/2"
(Standard on APT, T 3/4 and T 1 HP models; Optional on T 1/3 and 1/2 HP models)
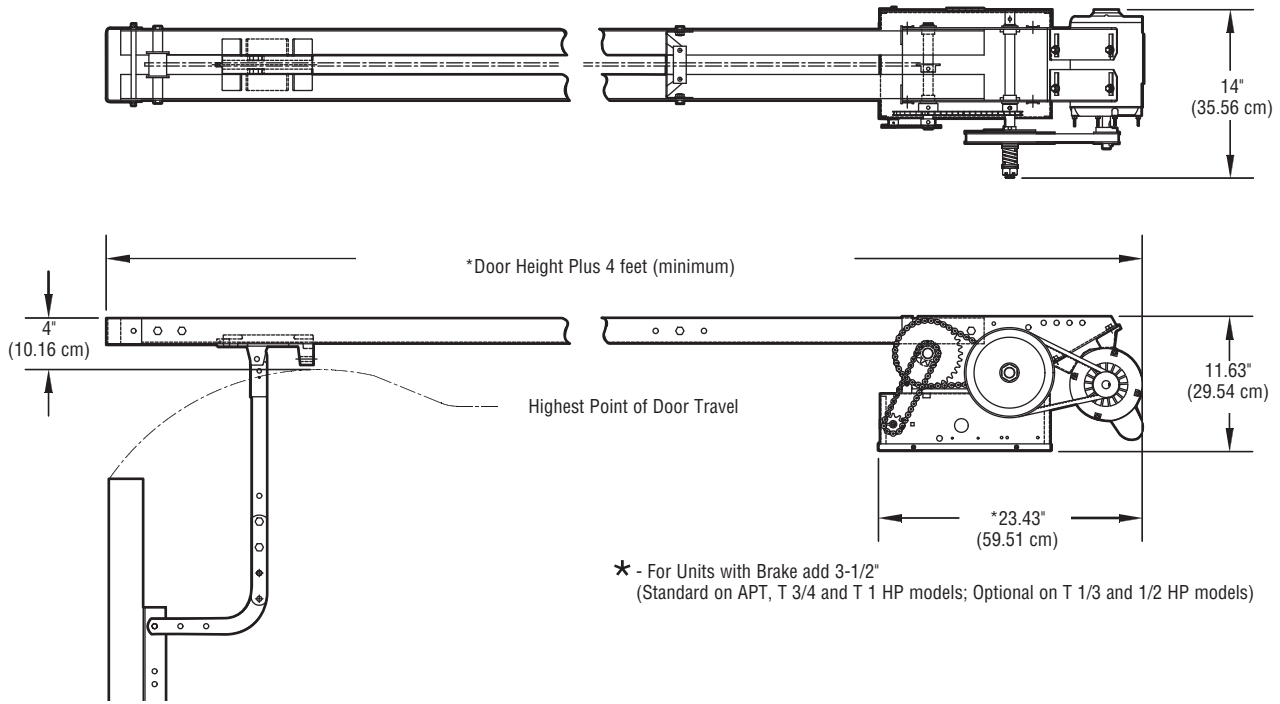
MODEL GT
Hanging Weight: 140 lbs.

13.05"
(33.15 cm)

Door Height Plus 4 feet (minimum)

4"
(10.16 cm)
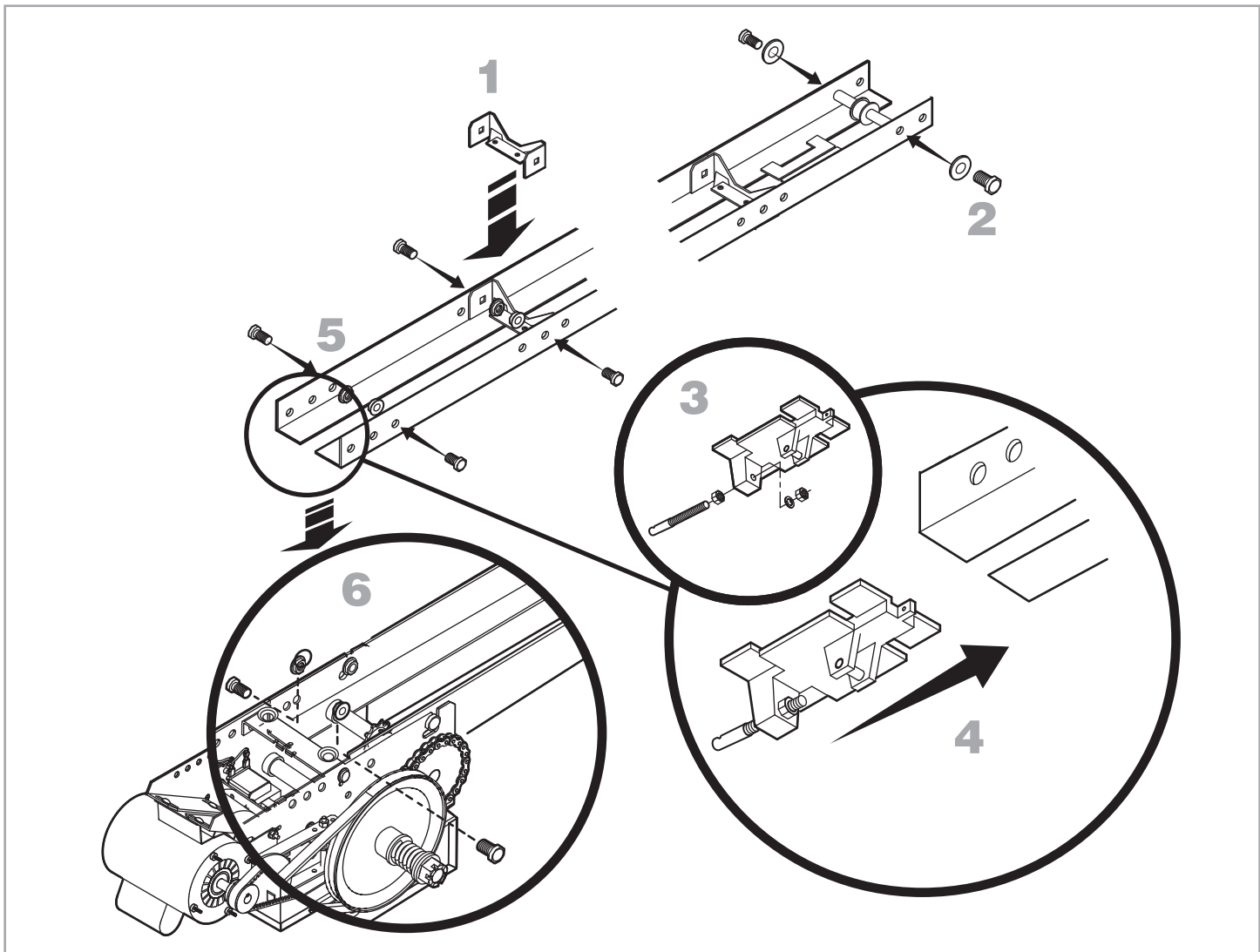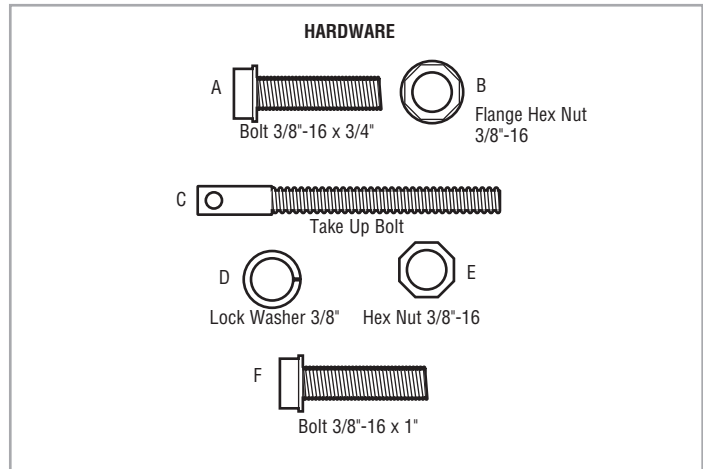
18.5"
(46.99 cm)

17.5"
(44.45 cm)
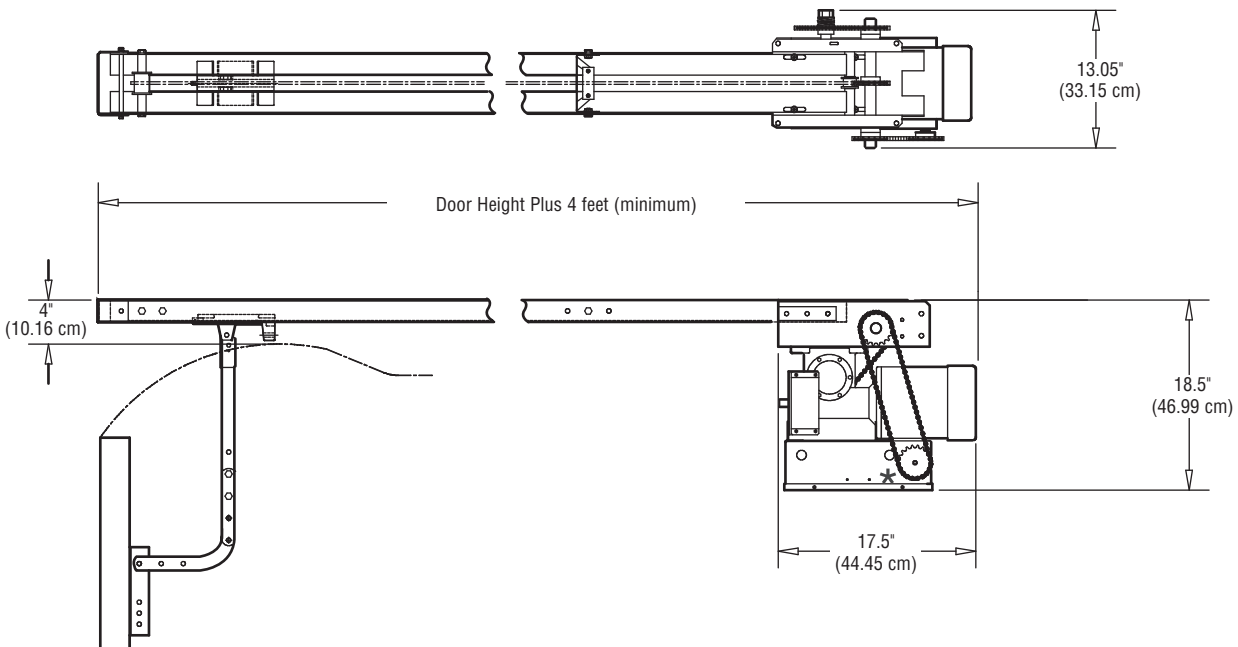
ASSEMBLY

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).

| SPACERS PROVIDED	TRACK LENGTH
2	8-14 Foot
3	16-20 Foot
4	22-24 Foot

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).

HARDWARE

A — Bolt 3/8"-16 x 3/4"

B — Flange Hex Nut 3/8"-16

C — Take Up Bolt

D — Lock Washer 3/8"

E — Hex Nut 3/8"-16

F — Bolt 3/8"-16 x 1"

Assembly - Trolley

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.
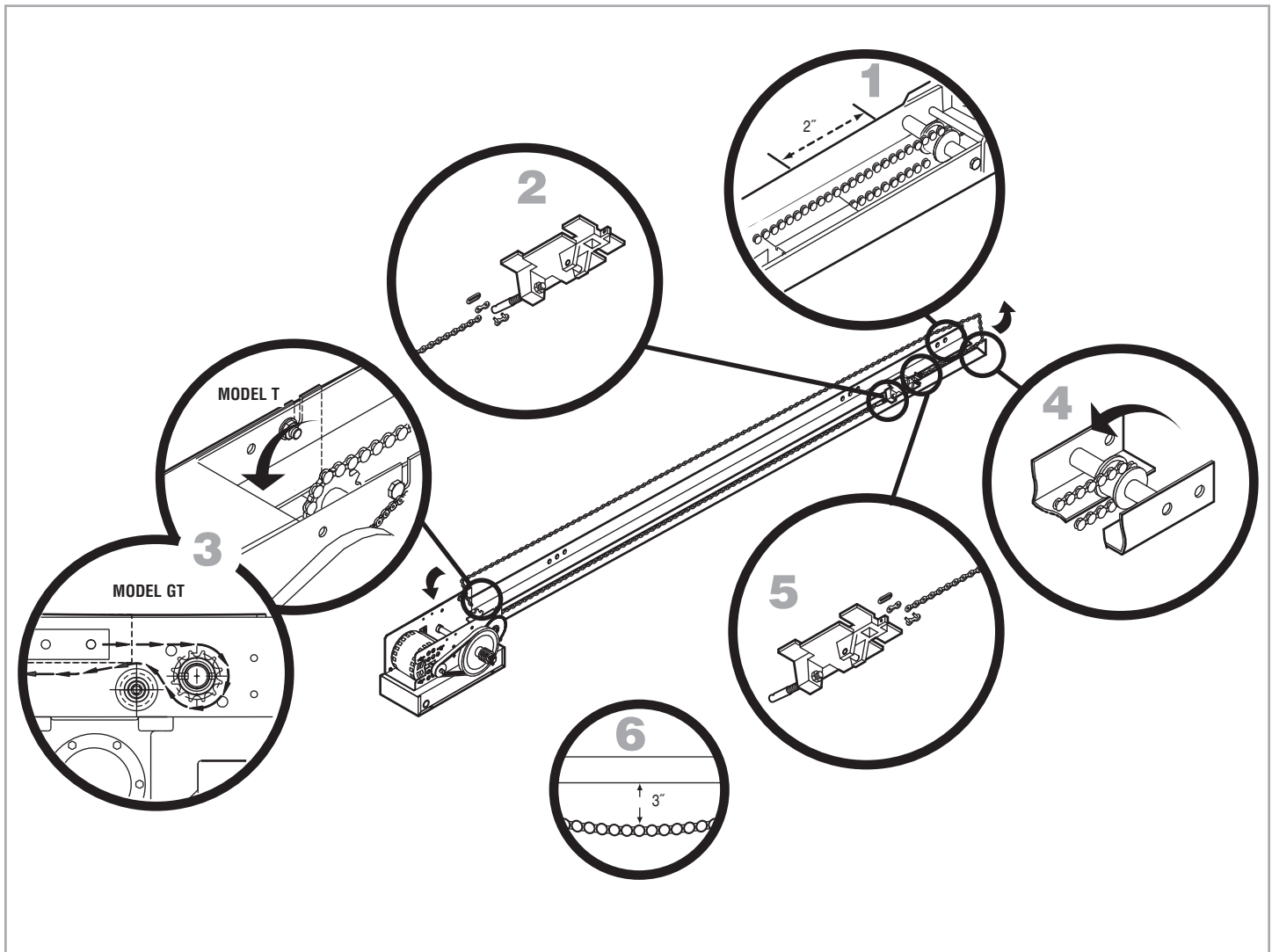
ASSEMBLE THE OPERATOR (MODEL APT)

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.

HARDWARE

A — Bolt 3/8"-16 x 3/4"

B — Flange Hex Nut 3/8"-16
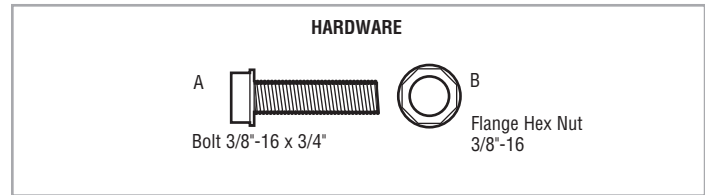
8 Pull the release clip on the trolley and push the end of the chain through the slot in the trolley.

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.

TROLLEY

3″

Assembly - Trolley
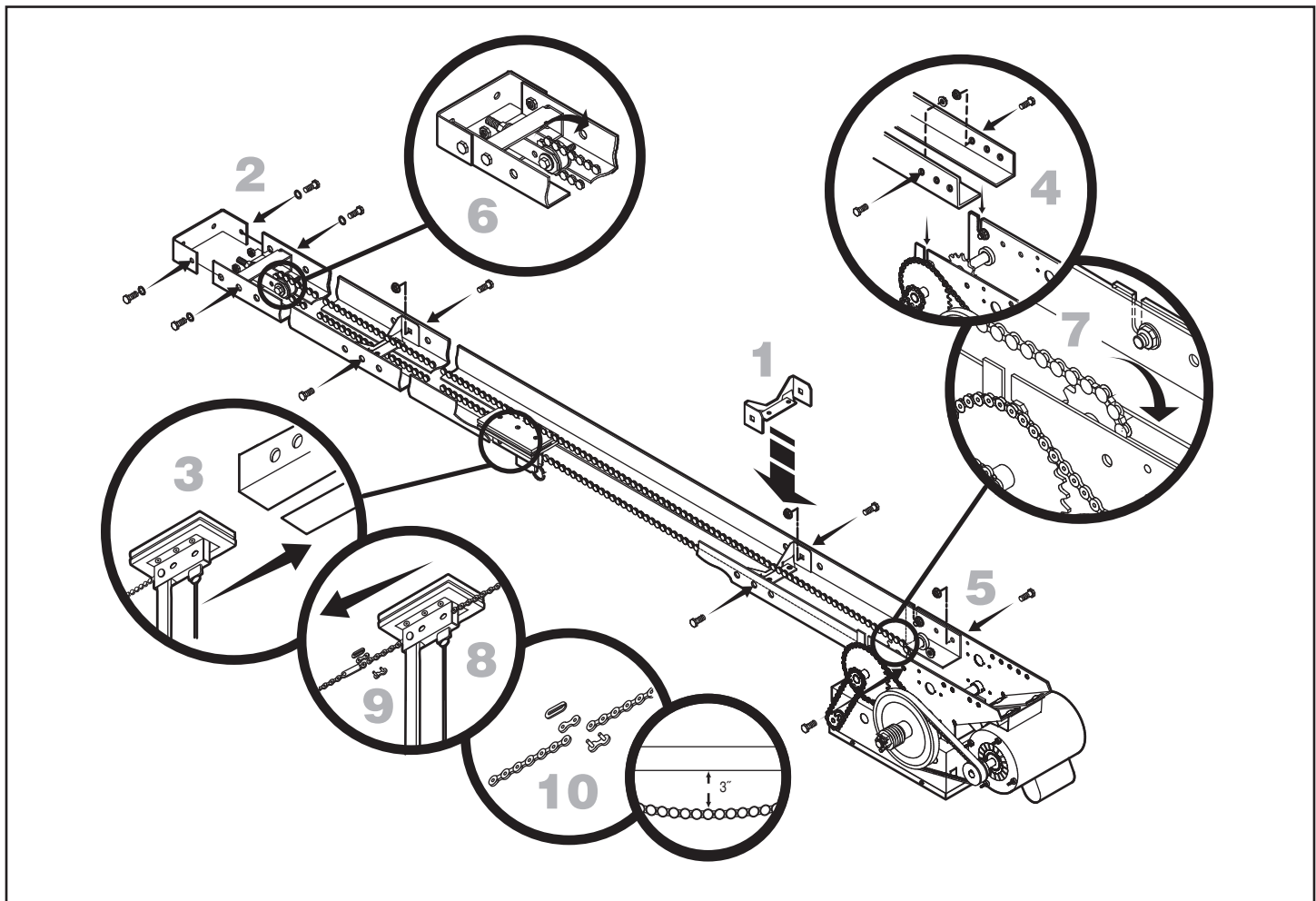
# TYPICAL INSTALLATION

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.

4 po
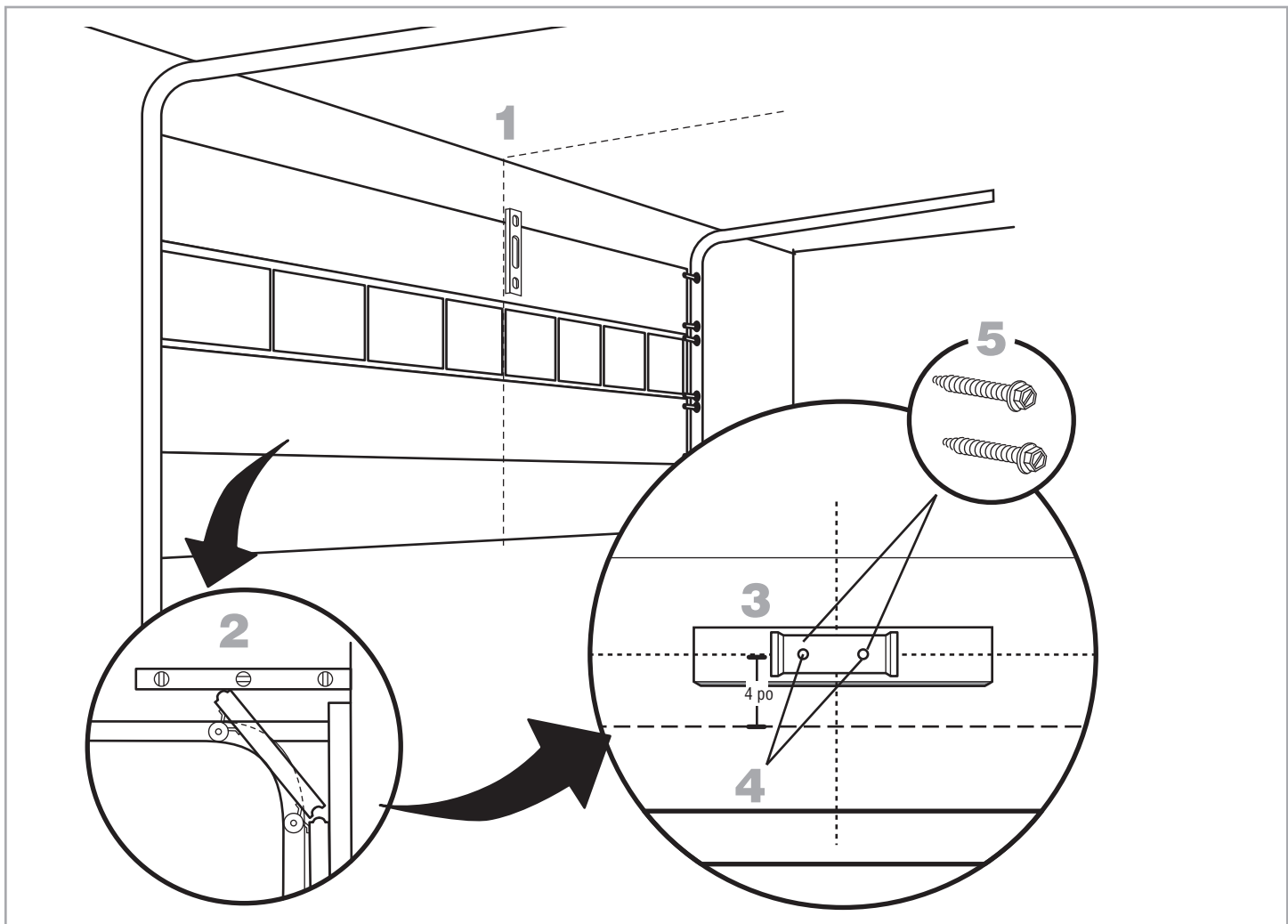
ATTACH THE TRACK TO THE HEADER BRACKET

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.

HARDWARE

Header Pivot Pin (1)

Cotter pins (2)
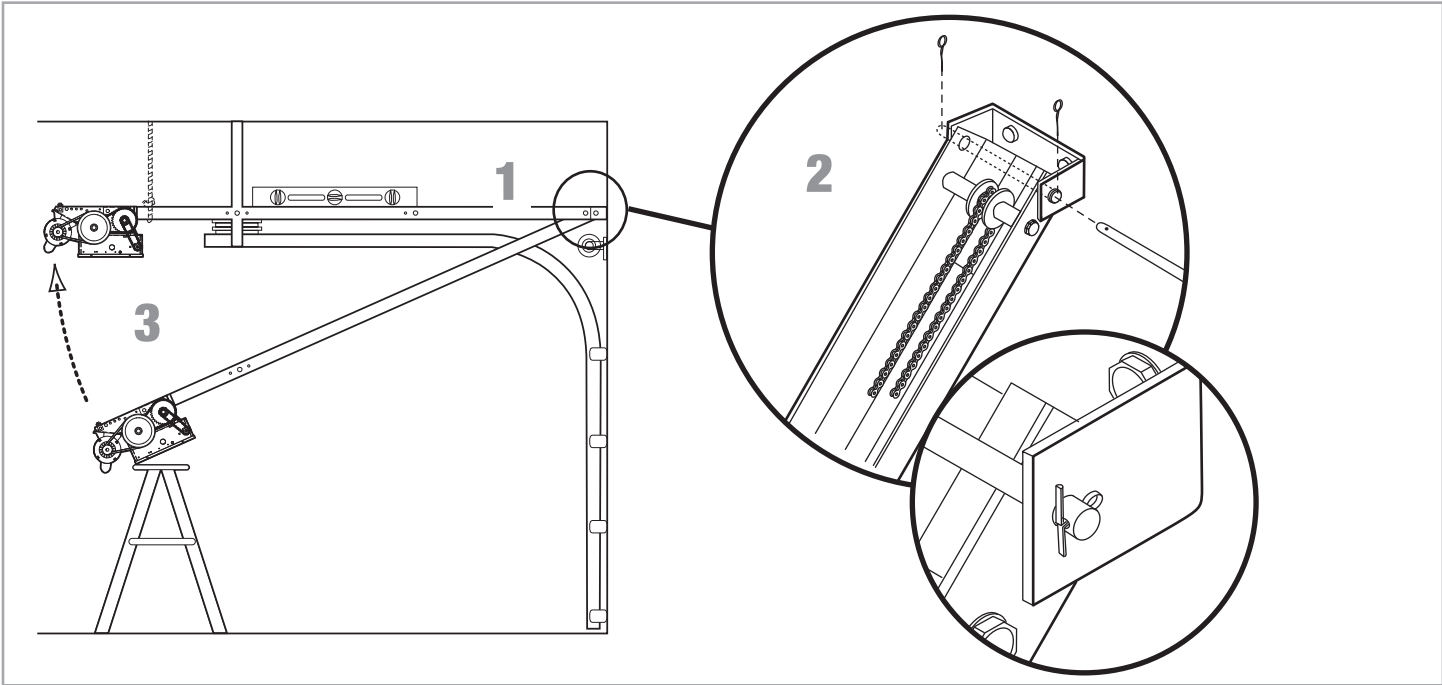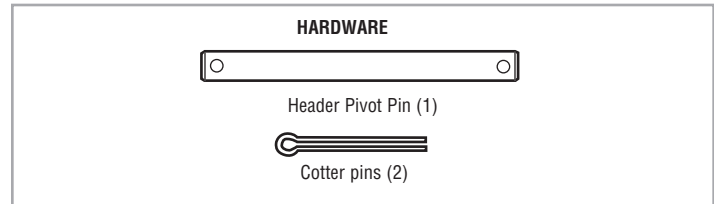
HANG THE OPERATOR

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

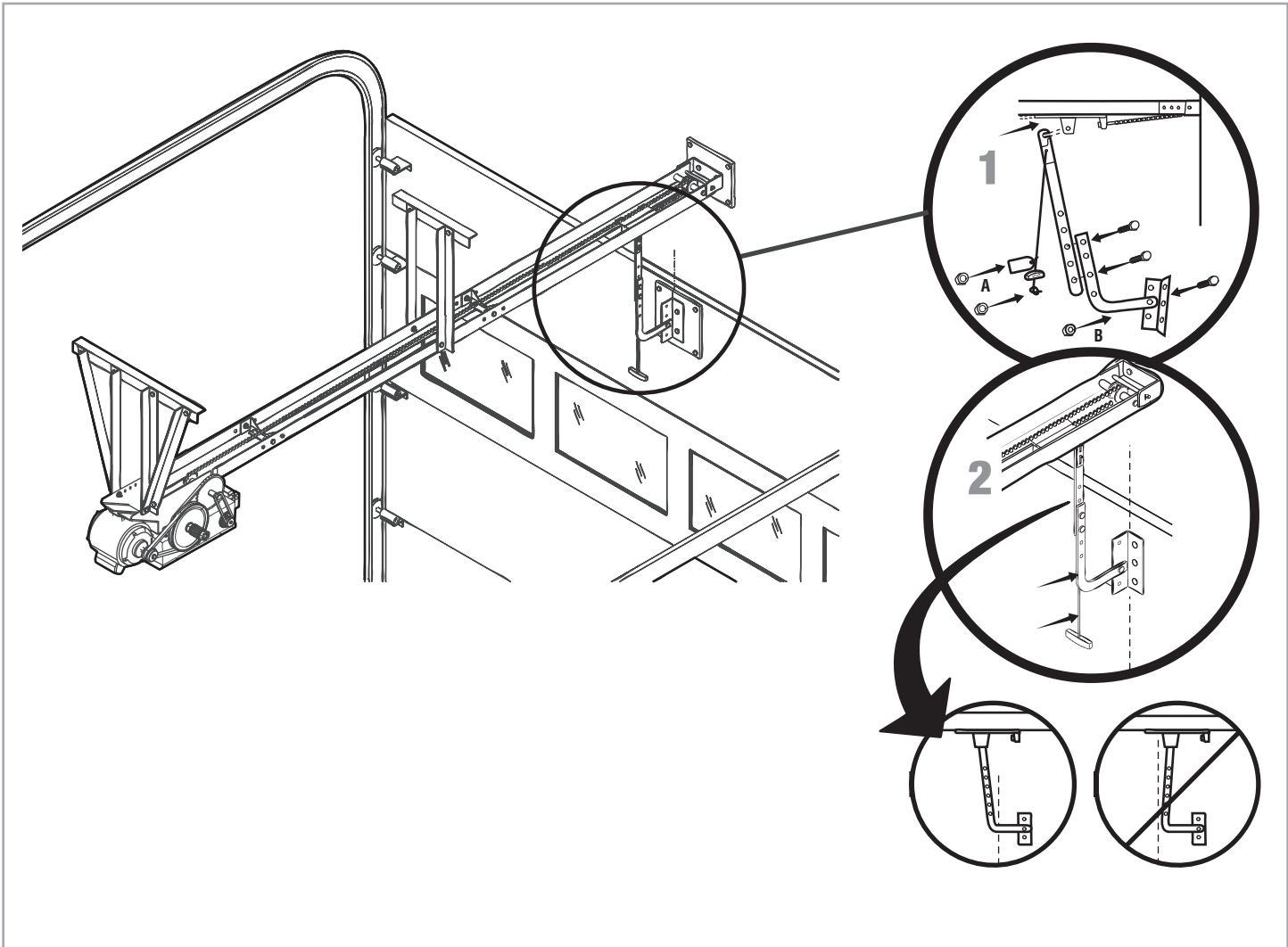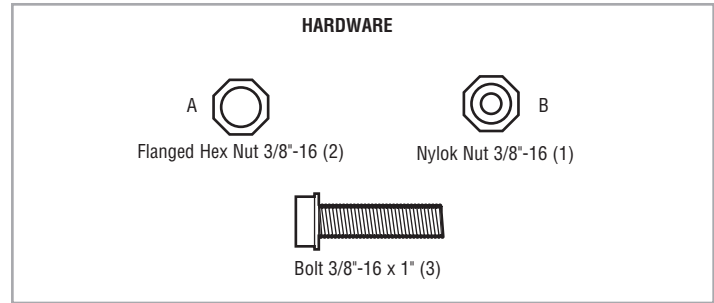### CAUTION

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.

Typical Installation - Trolley
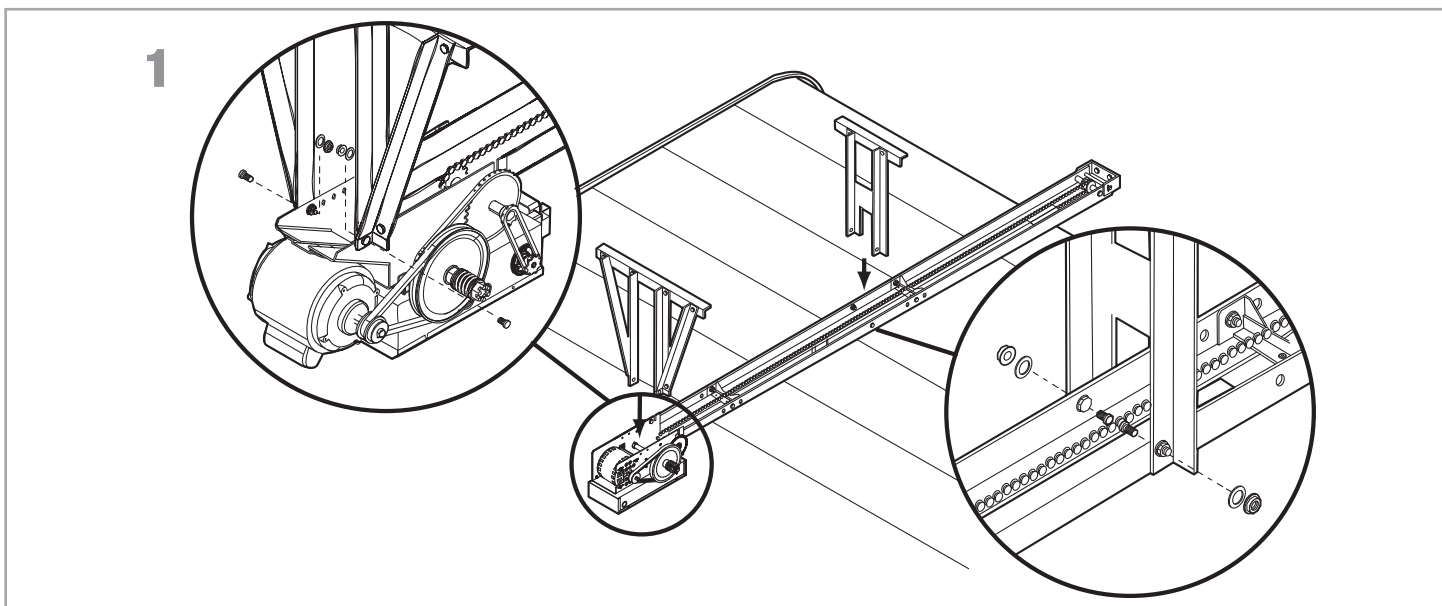
ATTACH THE DOOR ARM

1 Latch the door arm to the trolley. Make sure the open side of the notch on the door arm faces the door.

2 Position the door bracket to the center line of the door and attach the door bracket to the door using appropriate hardware (not included). **NOTE:** *When properly installed and adjusted the door arm should be leaning back toward the operator slightly.* Refer to door manufacturer's instructions for recommended installation guidelines.

HARDWARE

A — Flanged Hex Nut 3/8"-16 (2)

B — Nylok Nut 3/8"-16 (1)

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

HOIST AND JACKSHAFT OPERATORS

CARTON INVENTORY

Before beginning your installation check that all components were provided.

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

ENTRAPMENT PROTECTION DEVICES:

LiftMaster Monitored Entrapment Protection (LMEP)

Monitored photoelectric sensors and/or door edge sensors are required for any momentary contact to close modes of operation. See pages 20-21 for additional information. Refer to the accessories page 42, 'Entrapment Protection Devices' for available options.

OPERATOR SPECIFICATIONS

MOTOR

TYPE:	Continuous duty

HORSEPOWER:

Model J, H and HJ. . . . . 1/3, 1/2, 3/4 and 1 HP

Model GH . . . . 1/2, 3/4, 1, 1-1/2, 2 and 3 HP

SPEED:. . . . . .1725 RPM

VOLTAGE:

Model J, H and HJ. . . . . .115/230V 1 Phase
208/230/460/575V 3 Phase

Model GH . . . . .115/230V 1 Phase
208/230/460/575V 3 Phase

CURRENT (Amperage):

Models H, HJ, and J

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	-

ELECTRICAL

TRANSFORMER: . . . . 24Vac Secondary

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

WIRING TYPE:. . . . . C2 (Factory default)
Momentary contact to OPEN & STOP, constant pressure to CLOSE, plus wiring for LMEP device to reverse and auxiliary devices to open and close with open override. See page 28 for optional wiring types and operating modes.

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

DISCONNECT:

Model J . . . . .Floor level disconnect for manual door operation

Model H and GH . . . . Floor level chain hoist with electrical interlock for manual door operation

Model HJ . . . . Includes both floor level disconnect systems stated above

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: Standard on Models
GH and GT (available as an option on Models J, H, and HJ)

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.

14.5" (36.83 cm)

6.94" (17.63 cm)

7.56" (19.2 cm)

20.15" (51.18 cm)

8.34" (21.18 cm)

7.62" (19.35 cm)

16.81" (42.7 cm)

4.62" (11.73 cm)

4.41" (11.2 cm)

10.5" (26.67 cm)

5.5" (14 cm)

*23.43" (59.51 cm)

16.43" (41.73 cm)

Hand Chain Wheel Present with Models H and HJ ONLY
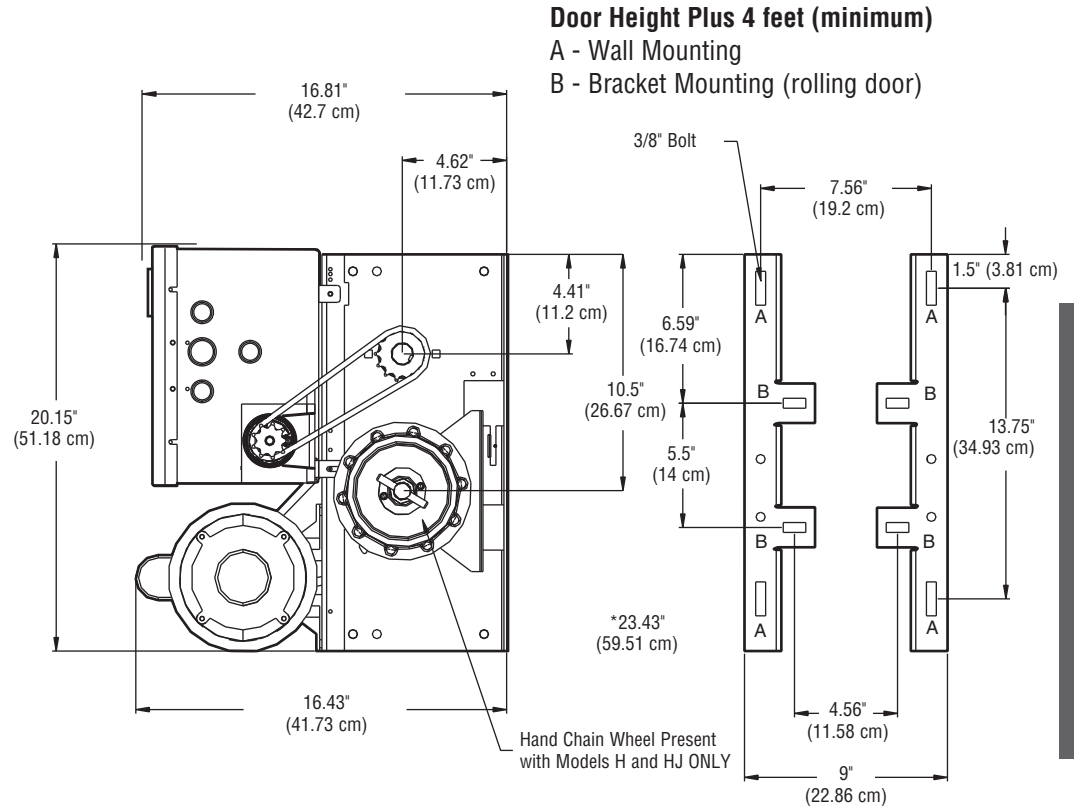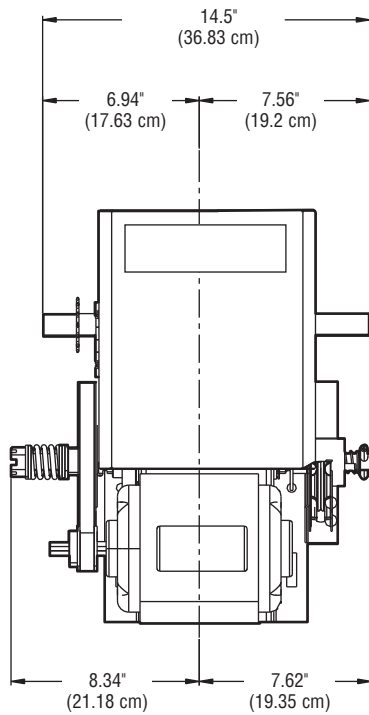
Door Height Plus 4 feet (minimum)
A - Wall Mounting
B - Bracket Mounting (rolling door)

3/8" Bolt

7.56" (19.2 cm)

6.59" (16.74 cm)

1.5" (3.81 cm)

13.75" (34.93 cm)

4.56" (11.58 cm)

9" (22.86 cm)

MODEL GH

Hanging Weight: 140 lbs.

14" (35.56 cm)

A

Y

See Note #2

See Note #1

X

Hand Chain Wheel

B

D

Y

C

See Note #3
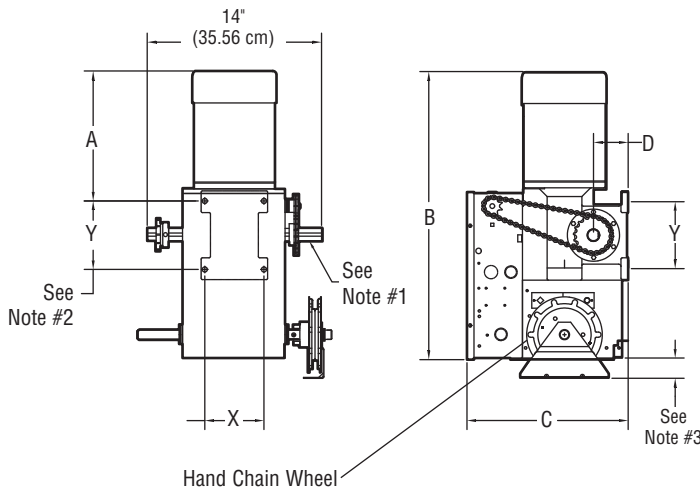
HP	PHASE	DIMENSIONS			
		A	B	C	D
1/2	1	11-1/2	25-3/4	12-63/64	3
3/4	1	12-1/2	26-3/4	12-63/64	3
1	1	12-3/4	27	12-63/64	3
1-1/2	1	12-3/4	27	13-63/64	3-1/2
1/2	3	11	25-1/4	12-63/64	3
3/4	3	11	25-1/4	12-63/64	3
1	3	12	26-1/4	12-63/64	3
1-1/2	3	12-1/2	26-3/4	13-63/64	3-1/2
2	3	12-3/4	27	13-63/64	3-1/2
3	3	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:

a. Be rigid to prevent play between the operator and the door shaft.

b. Provide a level base.

c. 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 installat on causes the hand chain to hang in the door opening, hook the chain to the side near the top of the door jamb.

⚡⚠ WARNING

To prevent possible SERIOUS INJURY or DEATH:

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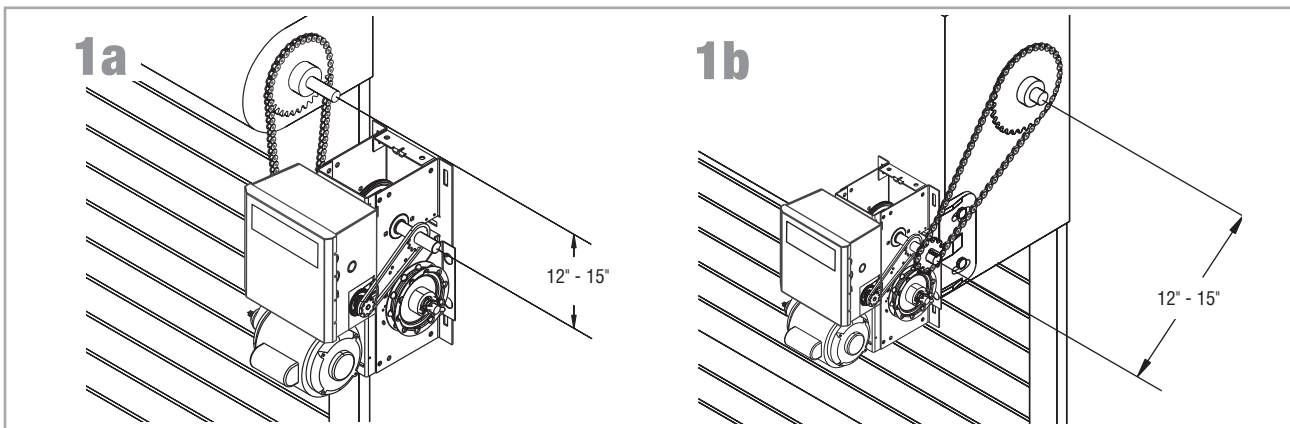- Concrete anchors MUST be used if installing ANY brackets.

EXAMPLE: Right Hand
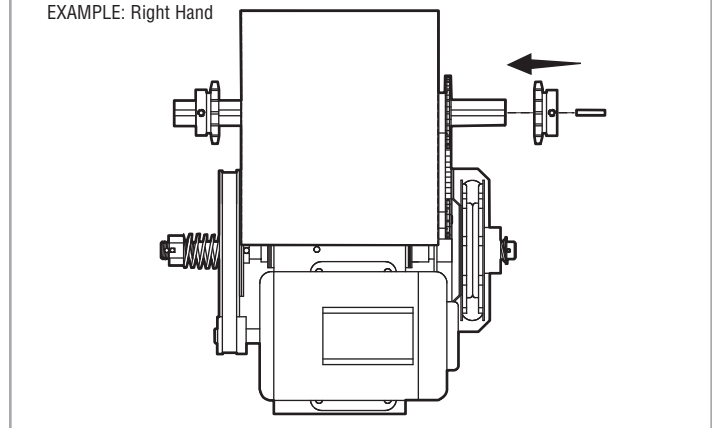
TYPICAL INSTALLATION

DETERMINE MOUNTING LOCATION

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

1a Wall mount

1b Shelf or bracket mount

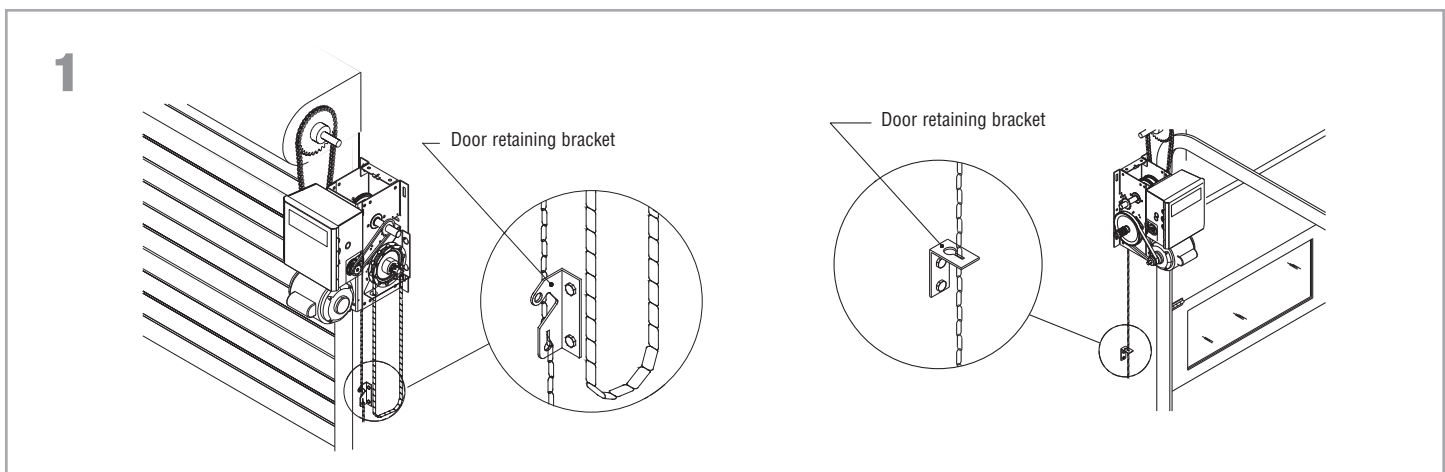1a   12" - 15"

1b   12" - 15"

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.*
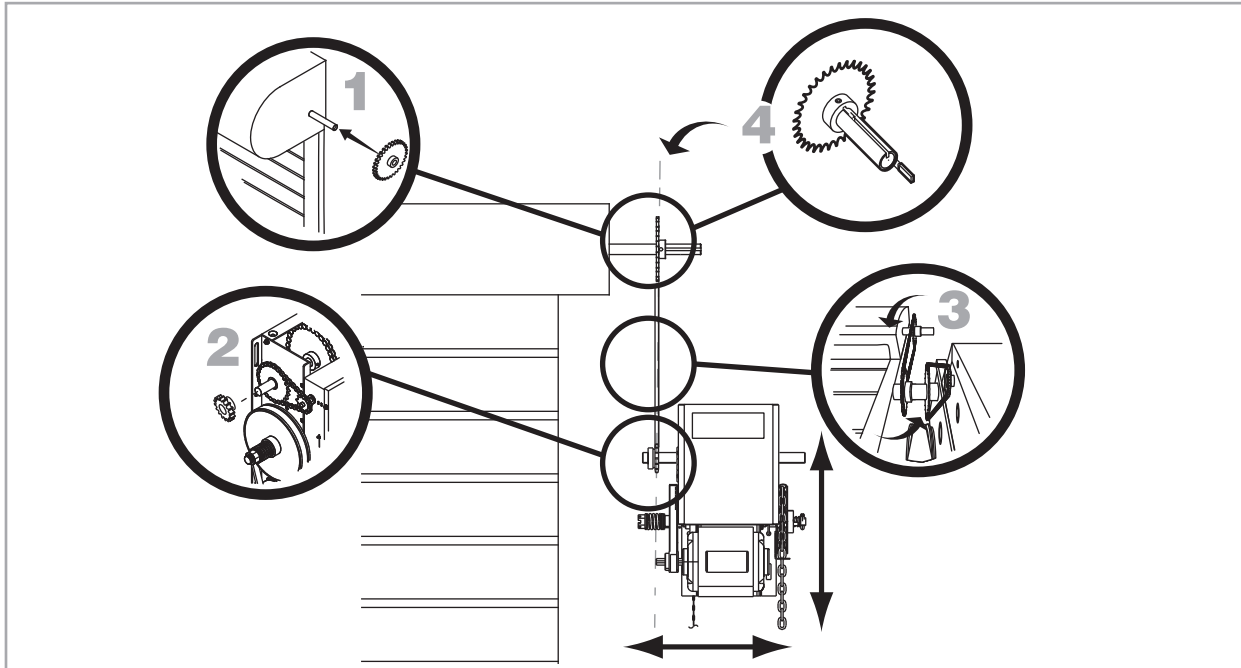
INSTALL THE MANUAL DISCONNECT

1 Fasten Door retaining bracket 4 feet above the floor.

Door retaining bracket

Door retaining bracket

Typical Installation - Hoist and Jackshaft

WIRING

POWER AND GROUND

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

1 Remove the operator cover.

2 Run power wires to electrical box according to national and local electrical codes.
ON THREE PHASE MACHINES ONLY: Incorrect phasing of the power supply will cause the motor to rotate in the wrong direction. To change motor rotation, exchange incoming power leads L1 and L2.

3 Attach power and ground wires to appropriate terminals.
IMPORTANT NOTE: This operator must be properly grounded. Failure to properly ground the operator could result in electric shock and serious injury.
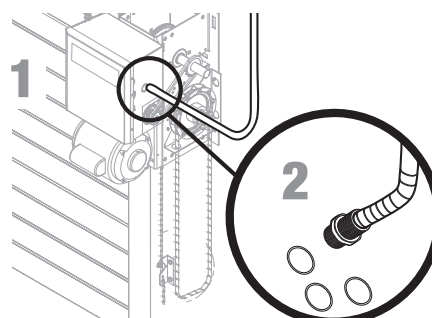
POWER WIRING CHART

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

* Maximum wire gauge that can be connected to the operator's terminal is 12 AWG. When a larger wire gauge is required, the wire must be gauged down to 12 AWG. USE COPPER WIRE ONLY.
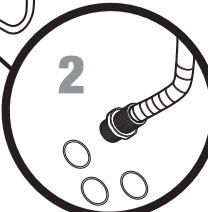
NOTE: In some installations, such as a through-wall-installation, the rotation of the motor and logic board may have to be changed.

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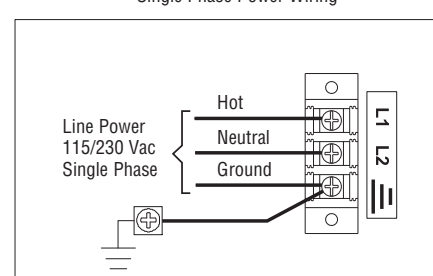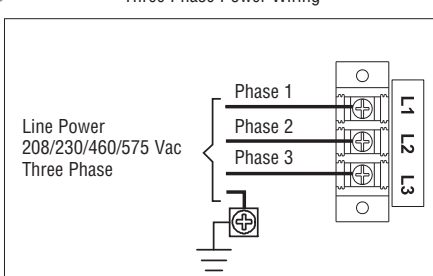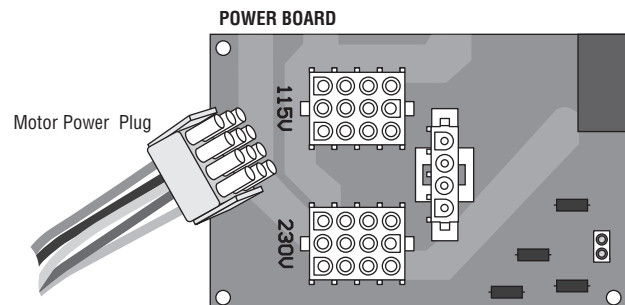3. Remove CLOSE/OPEN decal and reattach appropriately.

Single Phase Power Wiring

Line Power 115/230 Vac Single Phase — Hot / Neutral / Ground — L1 L2

3 Three Phase Power Wiring

Line Power 208/230/460/575 Vac Three Phase — Phase 1 / Phase 2 / Phase 3 — L1 L2 L3

POWER WIRING USE COPPER WIRE ONLY 40-10031B

MOTOR POWER PLUG SELECTION

1 Locate motor power lead with plug.

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

POWER BOARD

Motor Power Plug

115V

230V

CONTROL STATION

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.

UL Entrapment Placard

WARNING
Moving Door Can Cause Serious Injury or Death

MAS Label
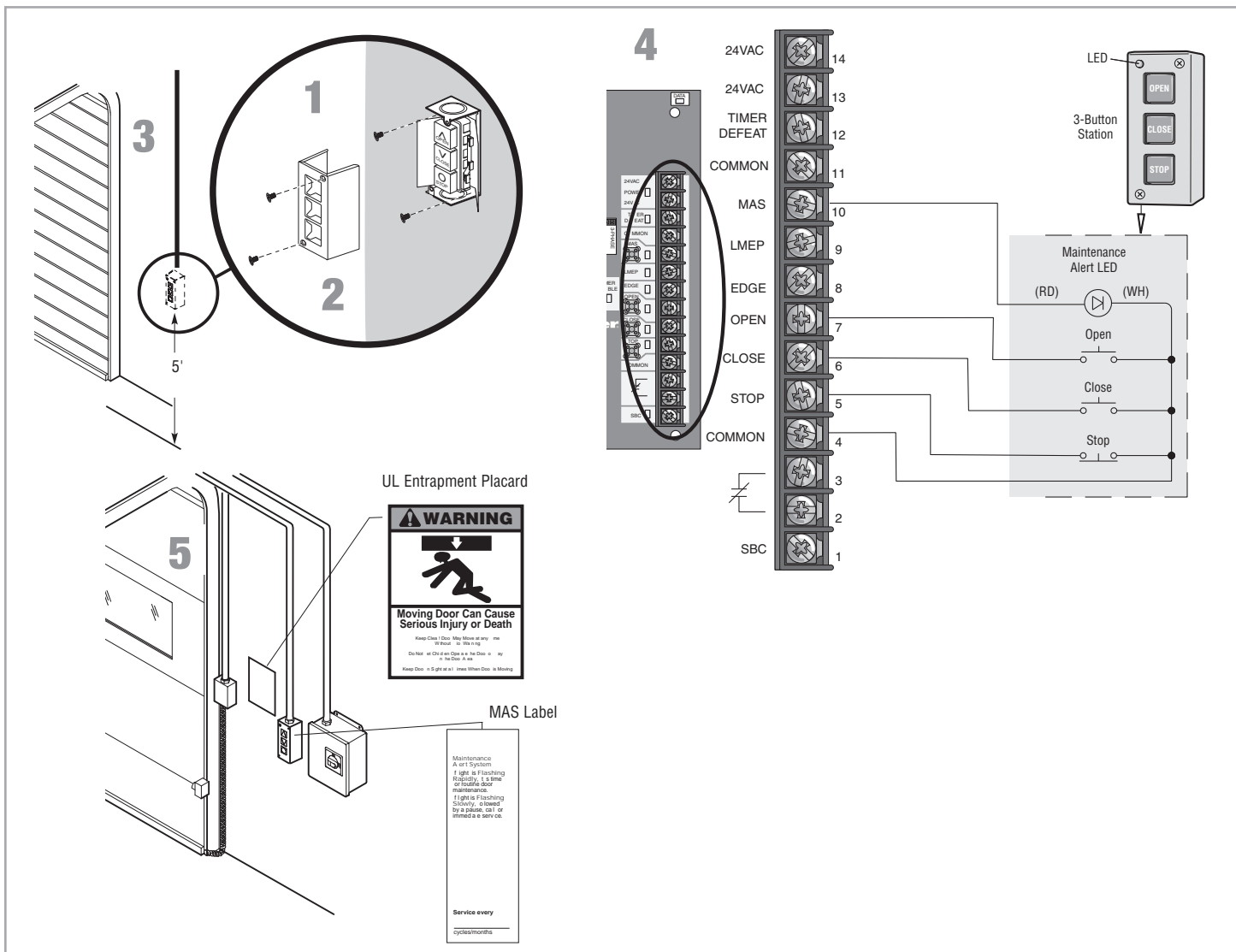
WIRING

ENTRAPMENT PROTECTION

LIFTMASTER MONITORED ENTRAPMENT PROTECTION (LMEP)

IMPORTANT INFORMATION ABOUT THE LIFTMASTER MONITORED ENTRAPMENT PROTECTION DEVICES

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

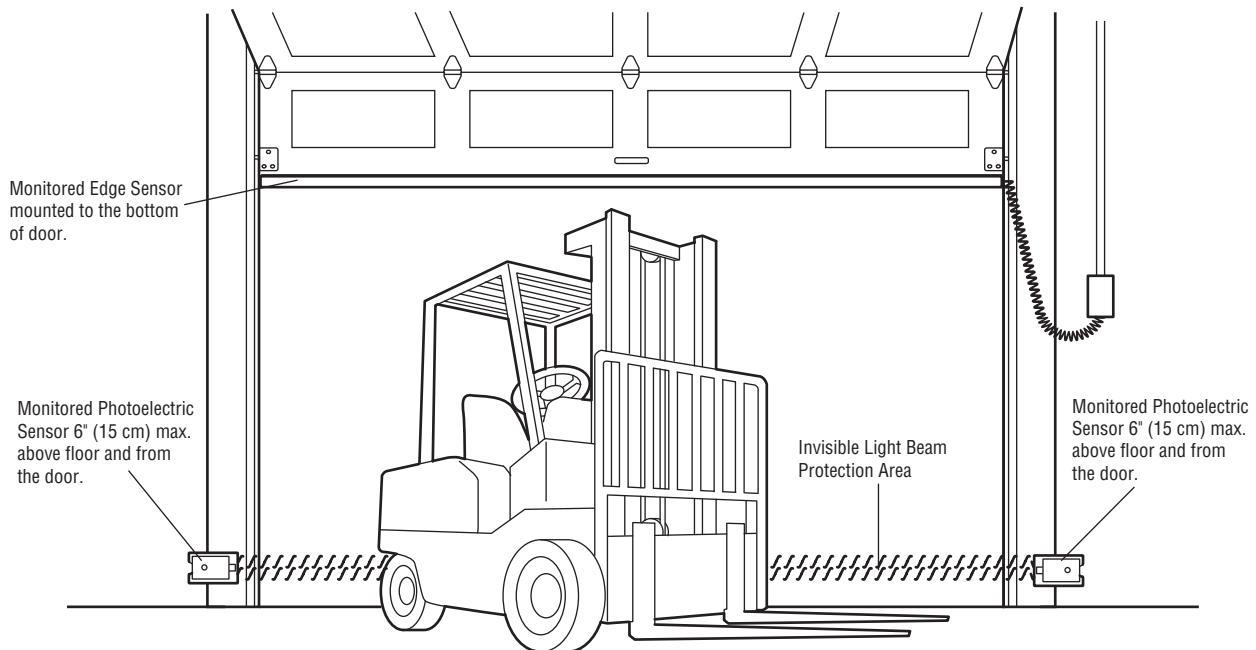Refer to Accessories page for a complete list of LMEP devices.

⚡⚠ WARNING

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

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

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

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

TYPICAL ENTRAPMENT PROTECTION DEVICE(S) OVERVIEW

Monitored Edge Sensor mounted to the bottom of door.

Monitored Photoelectric Sensor 6" (15 cm) max. above floor and from the door.

Invisible Light Beam Protection Area

Monitored Photoelectric Sensor 6" (15 cm) max. above floor and from the door.

INSTALL THE LIFTMASTER MONITORED ENTRAPMENT PROTECTION (LMEP) DEVICES (OPTIONAL)

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

WIRE THE LIFTMASTER MONITORED ENTRAPMENT PROTECTION (LMEP) DEVICES

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

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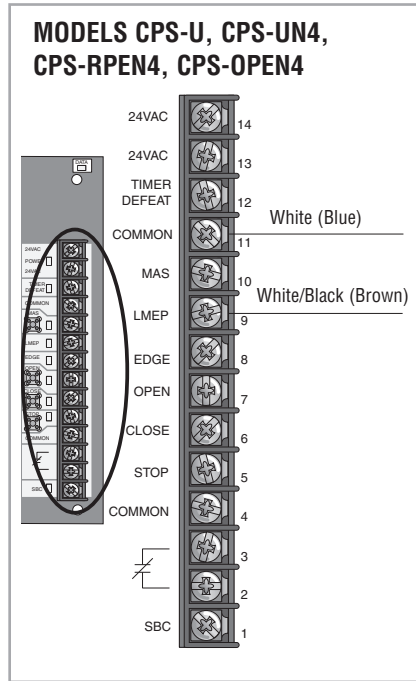
MONITORED EDGE SENSOR
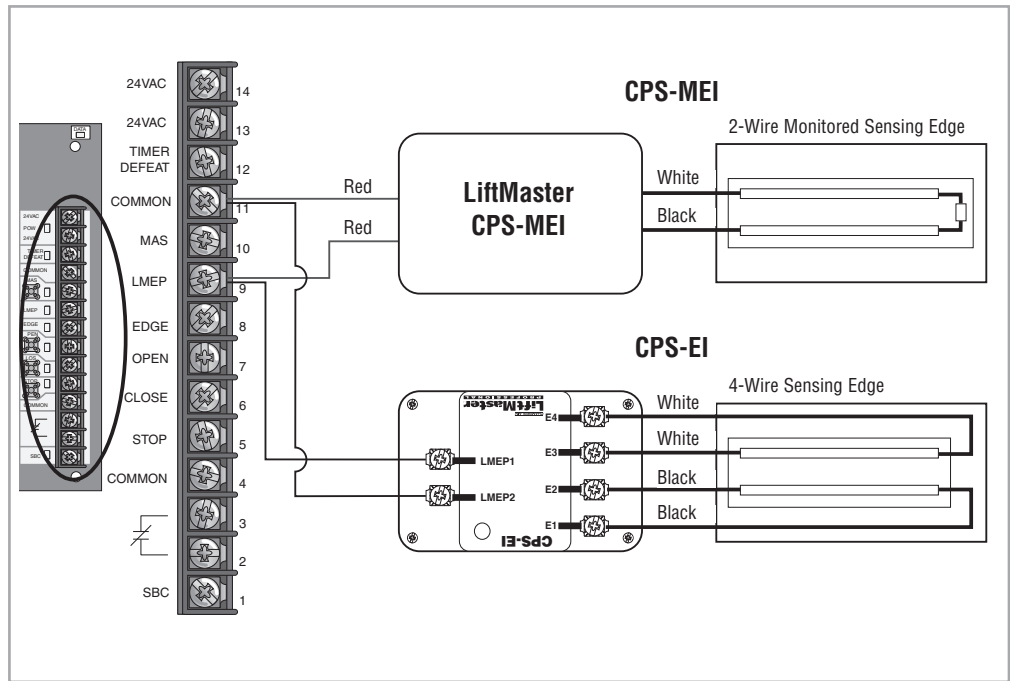
NOTE: Only one LMEP device can be connected to the logic board. To attach additional LMEP's, the CPS3CARD option card is required. Secondary (non-monitored) entrapment protection devices (with N.O. dry contact) will be wired to the EDGE and COMMON terminals.

IMPORTANT SAFETY INSTRUCTIONS

⚠ ⚠ WARNING

TO REDUCE THE RISK OF SEVERE INJURY OR DEATH:

1. READ AND FOLLOW ALL WARNINGS AND INSTRUCTIONS.
2. ALWAYS keep remote controls out of reach of children. NEVER permit children to operate or play with door control push buttons or remote controls.
3. ONLY activate door when it can be seen clearly, it is properly adjusted and there are no obstructions to door travel.
4. Personnel should keep away from a door in motion and ALWAYS keep door in sight until completely closed. NO ONE SHOULD CROSS THE PATH OF THE MOVING DOOR.
5. NO ONE SHOULD GO UNDER A STOPPED, PARTIALLY OPENED DOOR.
6. If possible, use manual release handle to disengage door ONLY when door is CLOSED. Weak or broken springs or unbalanced door could result in an open door falling rapidly and/or unexpectedly causing SEVERE INJURY or DEATH.
7. NEVER use manual release handle unless doorway is clear of persons and obstructions.

8. After ANY adjustments are made, the entrapment protection device MUST be tested. Failure to adjust the operator properly may cause SEVERE INJURY and DEATH.
9. Entrapment Protection device MUST be tested every month. Failure to adjust the operator properly may cause SEVERE INJURY and DEATH.
10. ALWAYS KEEP DOOR PROPERLY BALANCED. An improperly balanced door may NOT reverse when required and could result in SEVERE INJURY or DEATH. See door manufacturer's owners manual.
11. ALL repairs to cables, spring assemblies and other hardware, ALL of which are under EXTREME tension, MUST be made by a trained door systems technician.
12. ALWAYS disconnect electric power to door operator BEFORE making ANY repairs or removing covers.

13. **SAVE THESE INSTRUCTIONS.**

LIMIT ADJUSTMENT

1 Begin with the door in the fully closed position to set the CLOSE limit.

2 Depress the retaining plate (1) and move the limit nut to the CLOSE limits (2).

NOTE: *The Close Limit Switch (CLS) and Sensing Limit Switch (SLS) LEDs on the logic board will illuminate when the switches are activated and the power is on.*

3 When the retaining plate is released, verify that the retaining plate is fully seated with the notches of the limit nuts.

4 Open the door to the fully open position and set the OPEN limit (3).

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

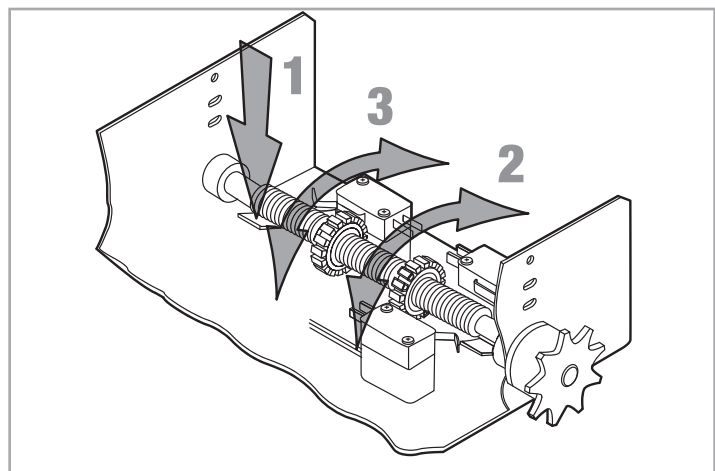**5** When the retaining plate is released, verify that the retaining plate is fully seated with the notches of the limit nuts.

⚠⚠ WARNING

To avoid SERIOUS personal INJURY or DEATH from electrocution:
• Disconnect electric power BEFORE performing ANY adjustments or maintenance.

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 an entrapment 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. UL325 requires the use of monitored entrapment protection devices for primary entrapment protection. By removing the centrifugal switch on single phase motors, the leading cause of motor failures is eliminated. (Auxiliary Reversal System is not applicable on GH models unless the clutch modification is installed.)
NOTE: *This feature is automatically learned and does not require programming.*

⚡⚠ WARNING

To avoid SERIOUS personal INJURY or DEATH from electrocution:
• Disconnect electric power BEFORE performing ANY adjustments or maintenance.

Torque Nut
Set Screws

(3) Set Screws

CLOSE   OPEN

RPM Sensor

Logic Board

ADJUSTMENT

Adjustment
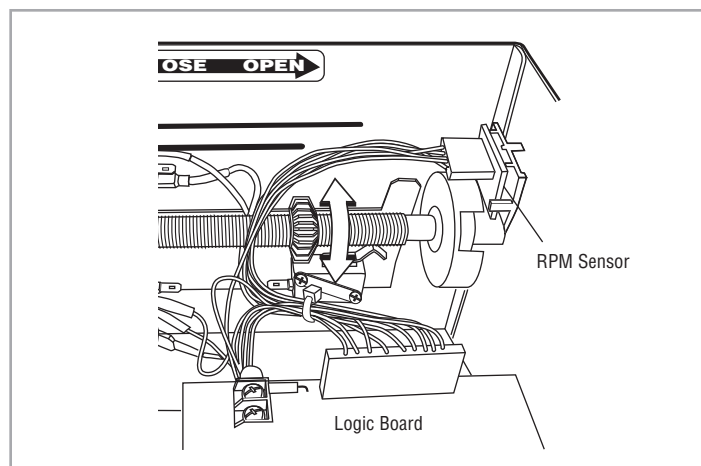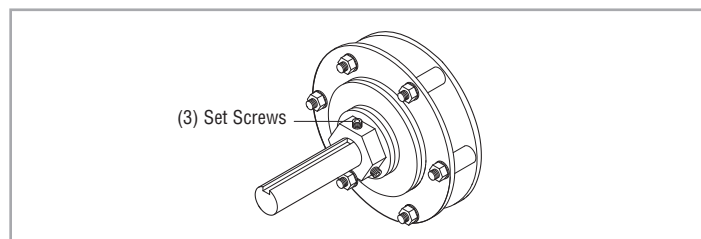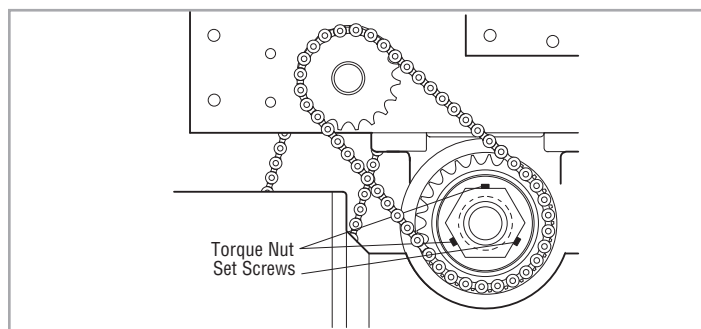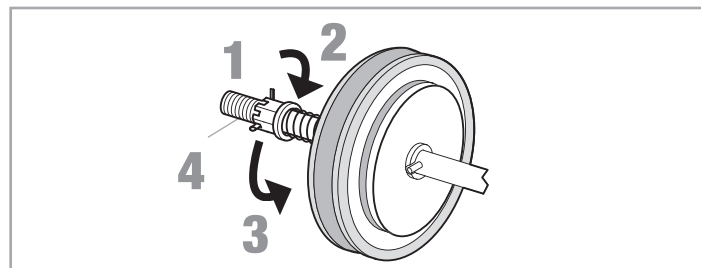
TESTING

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.

TEST PHOTOELECTRIC SENSORS (IF APPLICABLE)
1. Open the door.
2. Place an obstruction in the path of the photoelectric sensors. The LMEP LED will blink on the logic board.
3. Press and hold the CLOSE button. The door should not close.
4. Remove the obstruction.
5. Press and hold the CLOSE button. Door should close. If the LMEP is activated while closing the door should reverse.

TEST EDGE SENSORS (IF APPLICABLE)
1. Open door.
2. Place an obstruction in the path of the door.
3. Press and hold the CLOSE button. The door should stop and/or reverse.
4. Remove obstruction and hold the CLOSE button. Door should fully close.

NOTE: The Logic 5 control board will automatically learn the LMEP device once it is properly connected. If the LMEP device is misaligned, activated, 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 LMEP device, turn the selector dial to DIAG, push and hold the stop button until the MAS LED flashes. Without the LMEP device 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:
• *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.*

TESTING

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.
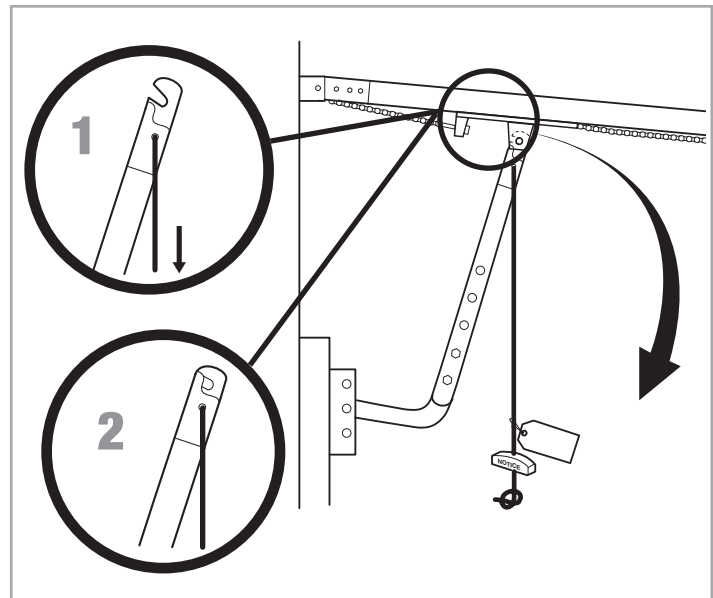
EMERGENCY DISCONNECT SYSTEM MODEL APT

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.
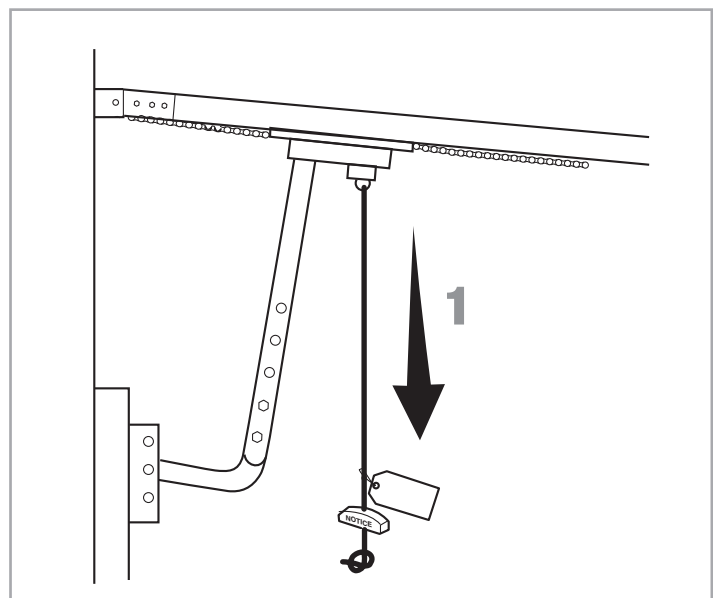
TO RECONNECT DOOR ARM TO TROLLEY
2. The trolley will reconnect on the next UP or DOWN operation, either manually or by using the door control or remote.

Manual Release

MANUAL RELEASE

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.

MANUAL RELEASE

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.
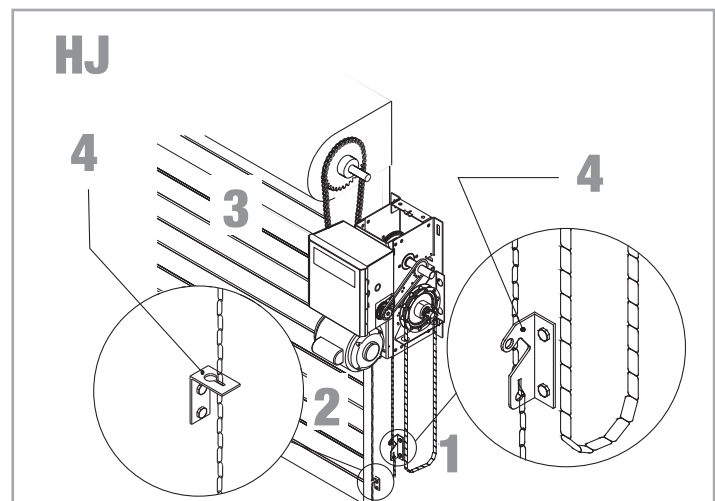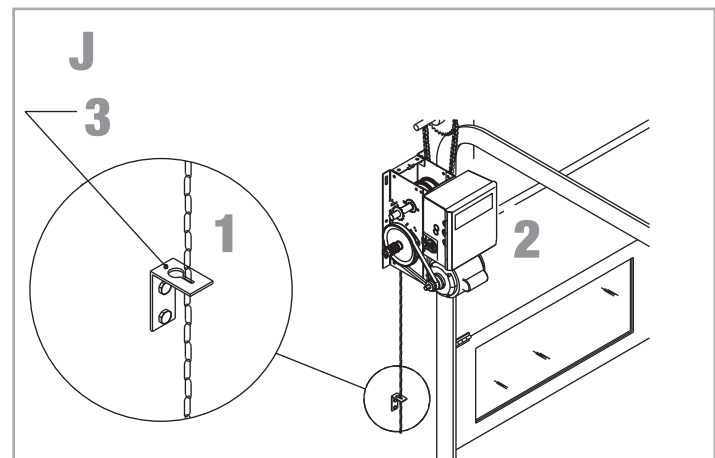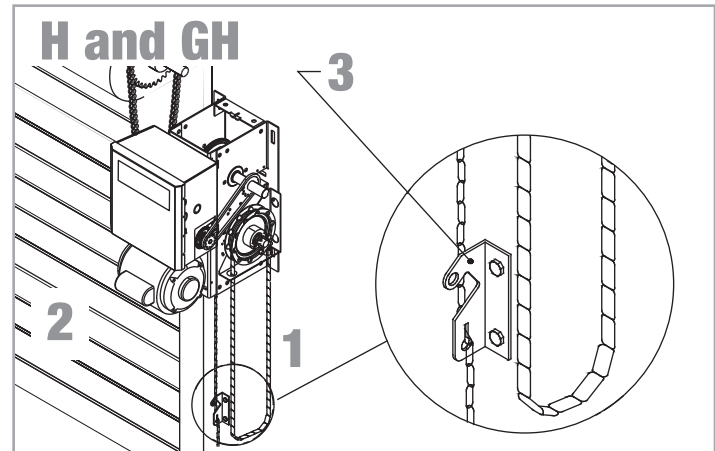
PROGRAMMING

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.

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.

LOGIC BOARD OVERVIEW
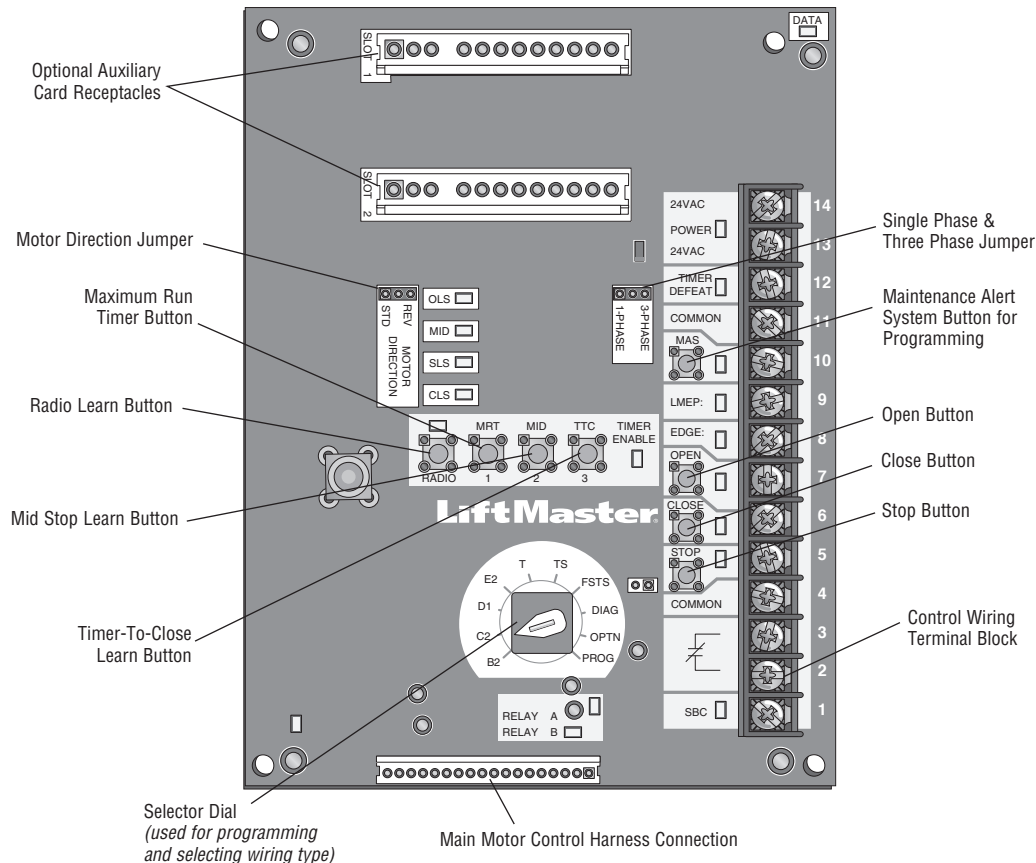
DETERMINE AND SET WIRING TYPE

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 sensing 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
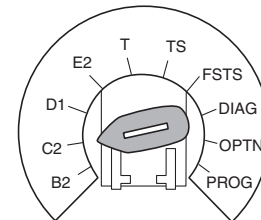
IMPORTANT NOTES:

1. External interlocks may be used with all functional modes.

2. Auxiliary devices are any devices that have only dry contacts. Examples: 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 an LMEP or EDGE input is activated, 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, Security✚ 2.0™ radio receiver that allows you to add up to 90 remote control devices and up to 30 keyless entry devices.

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 RADIO programming mode will exit if no activity is performed within 30 seconds. The MAS and RADIO LED's will flash briefly to indicate the RADIO has exited the programming mode for remote controls and keyless entry devices. The RADIO will remain in program mode for another 150 seconds for MyQ® devices and then will completely exit with no activity.

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 TTC 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. The MAS and RADIO LED's will flash briefly to indicate the RADIO has exited the programming mode for remote controls and keyless entry devices. The RADIO will remain in program mode for another 150 seconds for MyQ® devices and then will completely exit with no activity.

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 transceiver are prohibited. THERE ARE NO USER SERVICEABLE PARTS. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This device complies with Part 15 of the FCC rules and IC RSS-210. 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. This Class B digital apparatus complies with Canadian ICES-003. This device must be installed in a way where a minimum 8" (20 cm) distance is maintained between users/bystanders and device.
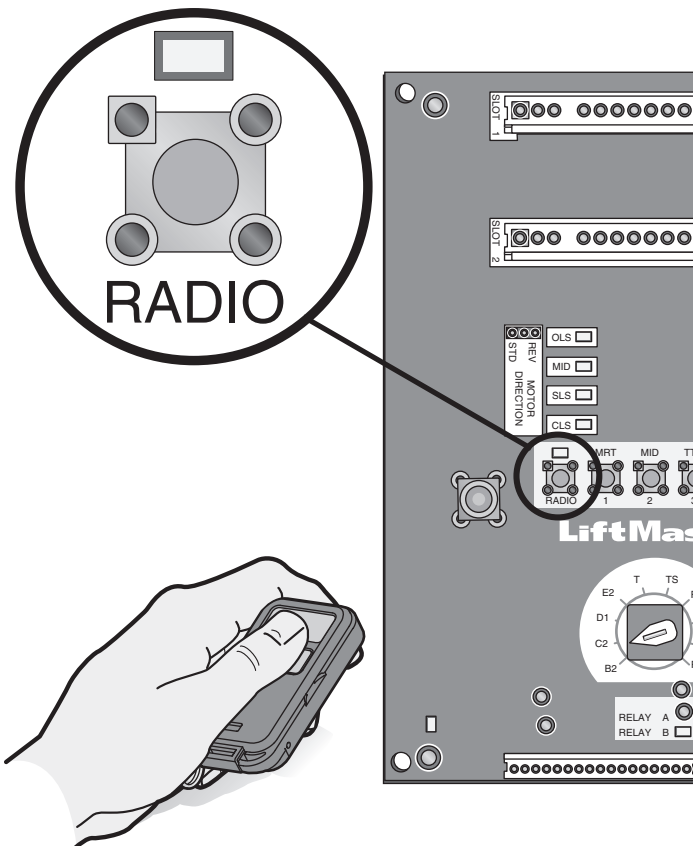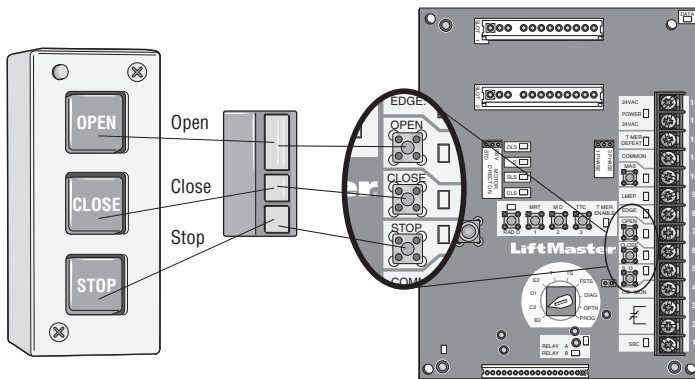
PROGRAMMING REMOTE CONTROLS

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

Your Security✚ 2.0™ 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 90 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 90 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 90 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 MAS and RADIO LED's will flash briefly to indicate the RADIO has exited the programming mode for remote controls and keyless entry devices. The RADIO will remain in program mode for another 150 seconds for MyQ® devices and then will completely exit with no activity.*

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.*

PROGRAMMING MyQ® DEVICES (OPTIONAL)

To Program MyQ Devices:
1. To enter programming mode, press and release the RADIO button on the logic board (the RADIO LED will light).
2. To program the MyQ device, place the MyQ device into learn mode (see instructions for the specific MyQ device).
3. When the programming is complete the RADIO LED will turn off.

NOTE: If the programming is not completed within 3 minutes, the program mode will be exited and the RADIO LED will turn off.

To Erase All MyQ Devices:
1. Press and release the RADIO button on the logic board (the RADIO LED will light).

2. Press and hold the MAS button for 5 seconds. The RADIO LED will flash for approximately 5 seconds and the RADIO LED will turn off.
   All MyQ devices are now erased.

To Erase One MyQ Device:
1. See instructions for the specific MyQ device to erase the programming.
2. When the erase is complete, the MyQ device will be erased on the operator. The operator does not need to be reprogrammed to erase the MyQ device.

NOTE: Power the operator to complete the erase operation.

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 5 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
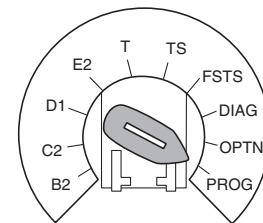
Operation will vary depending on wiring type

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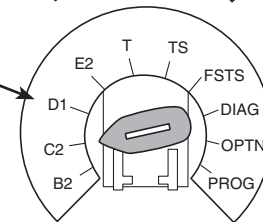
Maintenance Alert LED
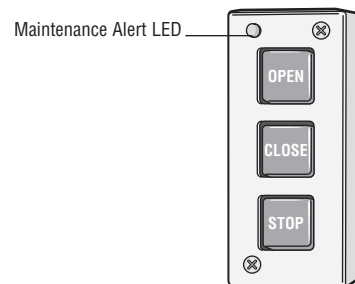
Press This	To Get This
OPEN	Adds 5,000 cycles to Maintenance Alert System Activation Counter.
CLOSE	Adds 3 Months to Maintenance Alert System Activation Timer.
STOP	Clears memory, sets Maintenance Alert System Activation Counter to 0 cycles and 0 months.

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 entrapment protection 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.
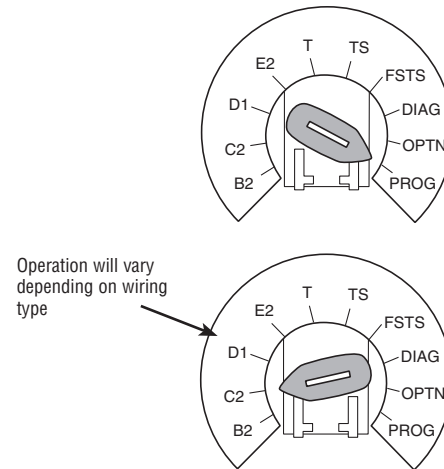
SELECTOR DIAL

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 entrapment protection 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.*

In T Mode, timer can be deactivated from the open position by pressing the STOP button. The timer will be reactivated on the next operation command. The STOP button WILL NOT deactivate the timer in the TS mode. To deactivate the timer for more than one cycle in T mode or in TS mode, attach a defeat switch to 11 and 12 (COMMON and TIMER DEFEAT).

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.
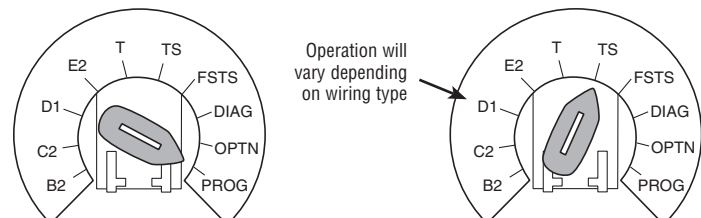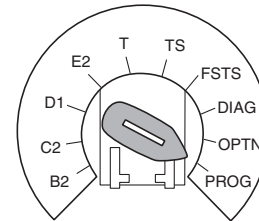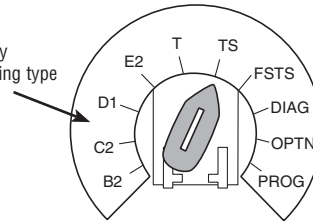
TO PROGRAM:

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

Programming

PROGRAMMING
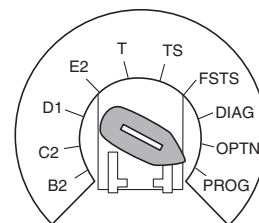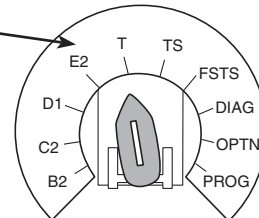
MAXIMUM RUN TIMER (MRT)

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.*
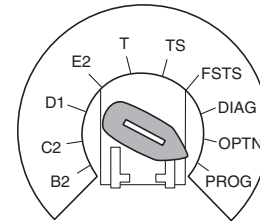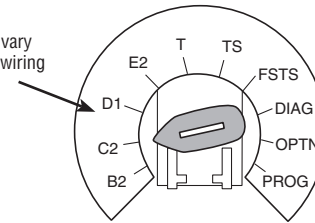
RESETTING FACTORY DEFAULTS - CLEARING MEMORY

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 and MyQ® devices 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 and MyQ devices are not cleared.*

SELECTOR DIAL

Operation will vary depending on wiring type

SELECTOR DIAL
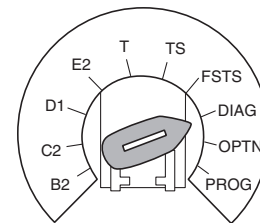
Operation will vary depending on wiring type
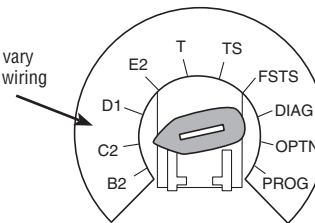
MAINTENANCE

MAINTENANCE SCHEDULE

For use with Maintenance Alert System.
Check at the intervals listed in the following chart:

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.
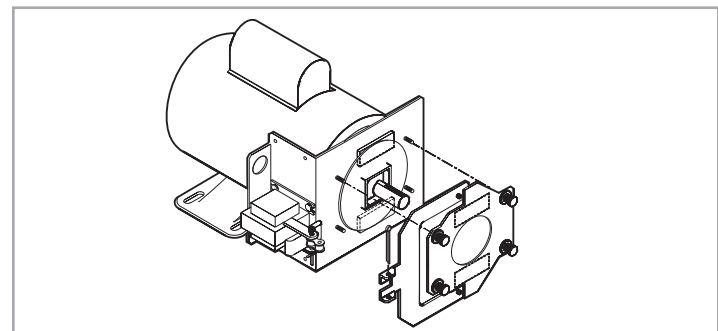
TROUBLESHOOTING

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 LMEP learned. Flashing indicates sensors need to be re-connected or activated, or unlearned if removed**. 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. Indicates the Open Limit Switch is activated.
CLS	Yellow	Pressing the Close Limit Switch should turn ON this LED. Indicates the Close Limit Switch is activated.
SLS	Yellow	Pressing the Sensing Limit Switch should turn ON this LED. Indicates the Sensing Limit Switch is activated.
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. Each flash represents 1 second of programmed 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 5 board and optional TLS1CARD.

** RESTRICTED CLOSE. This method will allow you to close the door when LMEP device(s) are no longer working. Press and hold the CLOSE button until the door reaches the closed limit. If the CLOSE button is released before the door reaches the closed limit the operator will stop and the procedure will need to be repeated to fully close the door.

TROUBLESHOOTING GUIDE

FAULT	POSSIBLE CAUSE	FIX
THE OPERATOR WILL NOT RESPOND TO ANY COMMANDS	a) No power supply	➤ Verify primary line voltage from power source. Green POWER LED must be on.
	b) Operator control station is wired wrong	➤ 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.
	c) Interlock switch is activated	➤ 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.
	d) Dial still in programming, option, or diagnostic mode	➤ Set dial to desired wiring type.
	e) Motor is malfunctioning	➤ Verify proper voltage getting to the motor (Check motor name plate).
	f) Motor thermal overload tripped	➤ 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.
	g) Possible accessory malfunction	➤ Disconnect all devices, reattach them one at a time testing for a failure after each one is replaced.
	h) Power Board may need to be 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, the Power Board may need to be replaced.
	i) Possible logic board failure	➤ Replace logic board.
POWER LED IS NOT ON	a) Loose secondary wiring connections or a faulty control transformer	➤ Repair or replace connections or control transformer.
	b) Hoist interlock switch	➤ Check interlock. Verify the manual release chain is not engaged.
STOP BUTTON LED IS NOT ON	a) Control station not connected or wired correctly	➤ Check wiring to control station.
	b) Interlock switch	➤ 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	a) RPM sensor is not connected properly or may need to be replaced	➤ 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.
	b) Clutch slipping	➤ 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 34). **OR** reset the factory defaults (page 34).
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 32.
THE DOOR WILL OPEN BUT WILL ONLY CLOSE AFTER A FIVE SECOND DELAY WITH CONSTANT PRESSURE ON THE CLOSE BUTTON (RESTRICTED CLOSE MODE)	a) The LMEP attached is obstructed or activated	➤ If the on board LMEP LED is flashing, the photoelectric sensor are misaligned or not connected. Remove any obstructions, check the entrapment protection device wires for continuity and shorts. If more than one LMEP is installed with the use of a CPS3CARD the LMEP will not flash when one of the LMEP's is blocked.
	b) The logic board thinks that the direct connect photoelectric sensors are attached and blocked	➤ Unlearn the photoelectric sensors from the memory by resetting factory defaults.

Troubleshooting

TROUBLESHOOTING

TROUBLESHOOTING ERROR CODES

Logic 5.0 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 31).
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 34) **OR** reset factory defaults (page 34).
E4	4 blinks	Obstruction sensed or lost RPM sensor input on closing	Operator will reverse to OPEN position	Remove obstructions, check sensing devices, possible clutch slippage.
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 entrapment protection 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
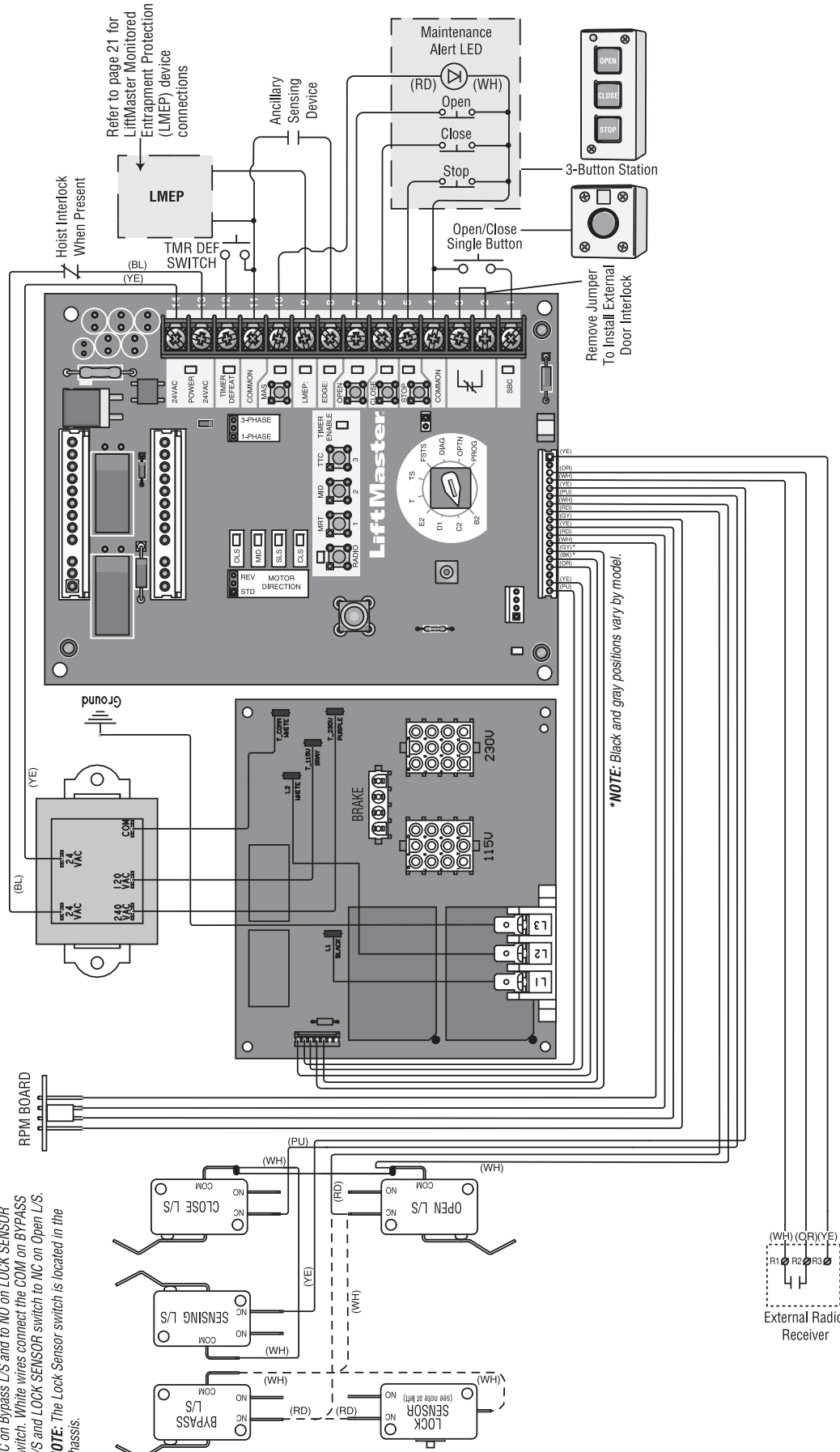
TROUBLESHOOTING RADIO FUNCTIONALITY

The error codes will display at the radio LED.

NOTE: *Radio receiver is compatible with SECURITY+ 2.0™ remotes and keyless entry devices.*

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 29).
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 entrapment protection device present - A sensing device is required to close via constant pressure.	Must connect a LiftMaster Monitored Entrapment Protection (LMEP) device.

Troubleshooting

TROUBLESHOOTING

LOGIC (VER. 5.0) 1 PHASE WIRING DIAGRAM

Refer to page 21 for LiftMaster Monitored Entrapment Protection (LMEP) device connections

Ancillary Sensing Device

Maintenance Alert LED

(RD) (WH)

Open

Close

Stop

3-Button Station

OPEN

CLOSE

STOP

LMEP

Hoist Interlock When Present

TMR DEF SWITCH

(BL)

(YE)

Open/Close Single Button

Remove Jumper To Install External Door Interlock

24VAC POWER 24VAC TIMER DEFEAT COMMON MAS LMEP EDGE OPEN CLOSE STOP COMMON SBC

3-PHASE
1-PHASE

TIMER ENABLE

TTC

MID

MRT

TS

T

DIAG

OPTN

PROG

FSTS

E2 D1 C2 B2

3

2

1

RADIO

LiftMaster

OLS MID SLS CLS

REV MOTOR
STD DIRECTION

(YE)
(OR)
(WH)
(PU)
(WH)
(RD)
(GY)
(YE)
(RD)
(WH)
(GY)*
(OR)
(YE)
(PU)

*NOTE: Black and gray positions vary by model.

Ground

(YE)

T.COMM WHITE

T.115U GRAY

T.230U PURPLE

L2 WHITE

BRAKE

230U

115U

24 VAC COM

24 VAC 120 VAC

24 VAC 240 VAC

(BL)

L1 BLACK

L3
L2
L1

RPM BOARD

(PU)

(WH)

CLOSE L/S
COM NO NC

(RD)

OPEN L/S
COM NO NC

(WH)

(YE)

(WH)

SENSING L/S
NO NC COM

(WH)

BYPASS L/S
COM NO NC

(WH)

(RD) (RD)

LOCK SENSOR
(see note at left)
NO NC

(WH)

(WH) (OR)(YE)
R1 R2 R3

External Radio Receiver

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.

NOTE: 32 Vdc power supplied from White and Yellow wires located within the electrical box.

WIRING DIAGRAMS

LOGIC (VER. 5.0) 3 PHASE WIRING DIAGRAM

41   Wiring Diagrams
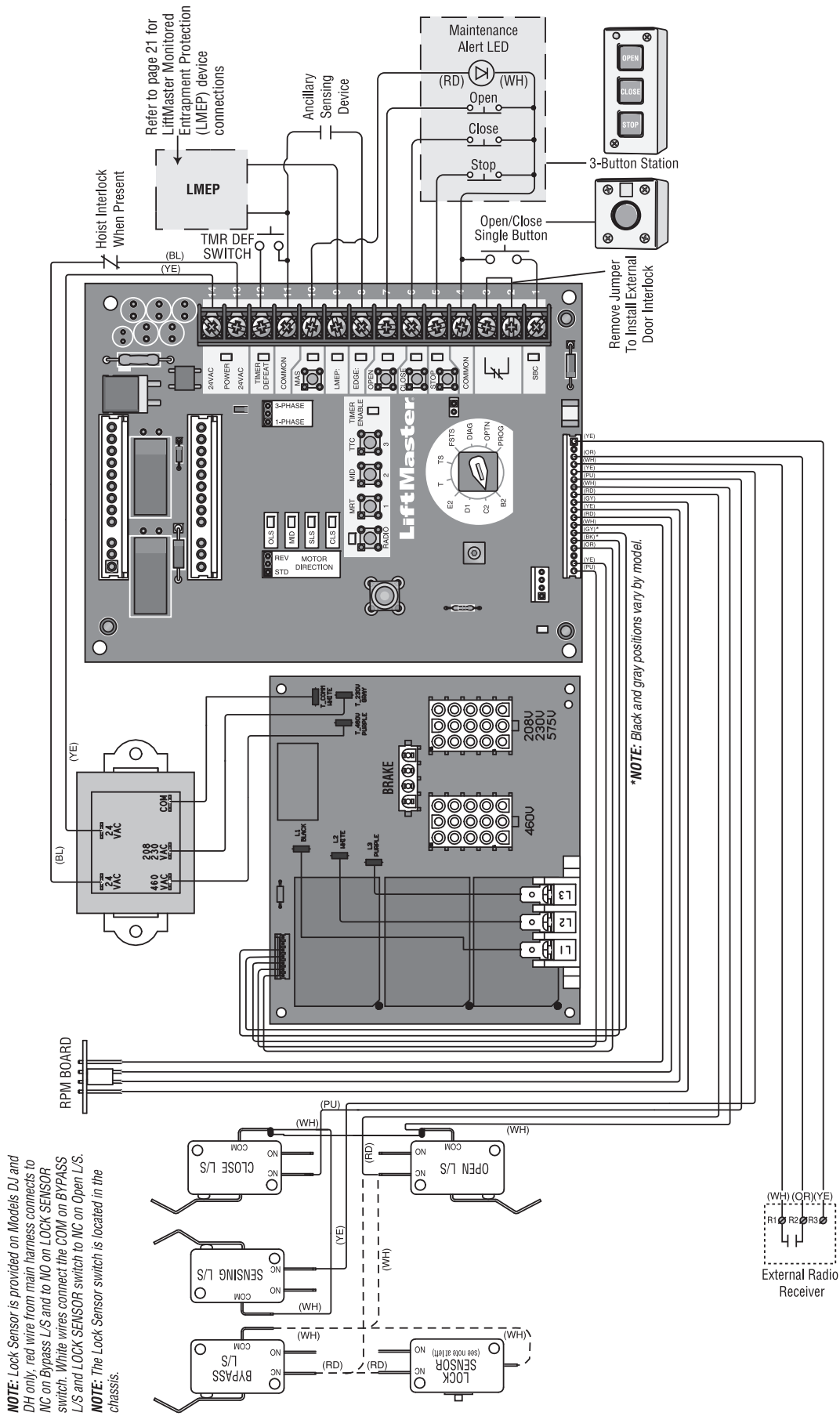
ACCESSORIES

REMOTE CONTROLS WITH SECURITY✚ 2.0™ & CONNECTIVITY

LiftMaster offers a variety of **SECURITY✚ 2.0™** Remote Controls for your application needs. Single to 4-Button. Contact your authorized dealer.

811LM   **Universal DIP Single-Button Remote Control:**
Ideal for commercial door applications requiring a large number of remotes for a common space.

813LM   **Universal DIP Three-Button Remote Control:**
Includes Red, Yellow and Green markings which Indicates
Open, Close, Stop.

893MAX   **3-Button Remote Control:**
Can also control up to 3 MyQ® enabled light devices. Compatible with all LiftMaster® commercial door operators manufactured since January 1993.

877LM   **Wireless Keypad:**
Able to be programmed with temporary access codes for visitors or delivery personnel.

STAR1000   **Commercial Access Control Receiver:**
Connects up to 1000 LiftMaster® remote controls. Supports suspending and unsuspending remote controls to withhold and reinstate access.

828LM   **LiftMaster® Internet Gateway:**
Enables owners of Commercial Door Operators to open and close their doors and turn on/off lights in or around their facility using a smart phone or computer from anywhere in the world.
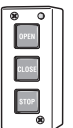
CONTROL STATIONS

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.
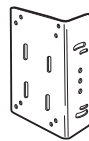
02-110   **Key Control Station:**
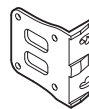Indoor flush mount, NEMA 1 with Stop button.
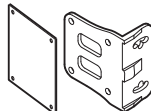
MOUNTING BRACKETS

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.
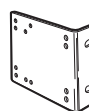
08-9098   Cast iron bracket to mount J, H, DH, DJ, and GH side mount operators on end bracket of a rolling door or grill. For vertical or horizontal mount on either front or top of coil. Cannot be welded.
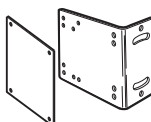
08-9098EZ   Same as 08-9098, but with adapter plate to hold mounting bolts in place for easy mounting.

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.

ENTRAPMENT PROTECTION DEVICES

MONITORED
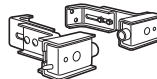
CPS-U   **Commercial Protector System® Photoelectric Sensor:**
Provides protection on doors up to 30' wide.

CPS-UN4   **Commercial Protector System® Photoelectric Sensor:**
Provides protection on doors up to 45' wide. NEMA-4 rated.
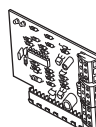
CPS3CARD   **Option Logic Board:**
For use when more than one set of photoelectric sensors are required. Also available pre-packaged with a second set of photoelectric sensors; see CPS3 or CPS3-N4 in Commercial Door Operator Product and Accessories Price List for more information.
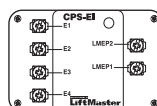
CPS-EI   **Monitored Sensing Edge Interface:**
For use with the approved 4-wire edge.

ACCESSORIES

ENTRAPMENT PROTECTION DEVICES

MONITORED

CPS-RPEN4

Photoelectric Sensor:
For Commercial Door Applications. Detects obstructions and communicates with the reflector up to 50 feet. NEMA4 waterproof enclosure.

CPS-OPEN4

Photoelectric Sensor:
Provides primary entrapment protection on doors up to 45 feet wide. NEMA4X rated.

OES-SD16

16' Sectional Door Kit:
Includes rubber extrusion, photoelectric sensors, coil cord, junction box, and mounting kit. PVC Channel sold separately.

OES-SD24

24' Sectional Door Kit:
Includes rubber extrusion, photoelectric sensors, coil cord, junction box, and mounting kit. PVC Channel sold separately.

OES-RD16

16' Rolling Door Kit:
Includes rubber extrusion, photoelectric sensors, coil cord, junction box, and mounting kit. PVC Channel sold separately.

65-CPT-223-15S

2-Wired Monitored Electric Edge:
For up to 15 foot wide sectional doors. Kit includes mounting channels. Cut in field to required length. Requires CPS-MEI.

65-CPT-223-25S

2-Wired Monitored Electric Edge:
For up to 25 foot wide sectional doors. Kit includes mounting channels. Cut in field to required length. Requires CPS-MEI.

65-CPT-223-15R

2-Wired Monitored Electric Edge:
For up to 15 foot wide rolling doors. Kit includes mounting channels. Cut in field to required length. Requires CPS-MEI.

65-CPT-223-25R

2-Wired Monitored Electric Edge:
For up to 25 foot wide rolling doors. Kit includes mounting channels. Cut in field to required length. Requires CPS-MEI.

CPS-MEI

Required interface for connection of 65-CPT223-15 or 65-CPT223-25.

ENTRAPMENT PROTECTION DEVICES

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.
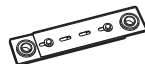
MISCELLANEOUS

86LM (15')
86LMT (25')
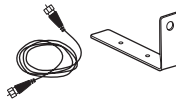
Antenna Extension Kit:
The antenna extension kit can be used with EXT-ANT for maximum radio receiver range.

RDGRNTL/
RGL24LY

Red/Green Traffic Light:
24 Vdc used in conjunction with the TLS1CARD.

Accessories

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.

3 BUTTON STATION OR 3 POSITION KEYSWITCH WITH SPRING RETURN TO CENTER AND STOP BUTTON

STANDARD

10 7 6 4 5

(RED)

Maintenance Alert LED

Open
Close
Stop

(WHITE)

2 OR MORE

10 7 6 4 5

(RED)

Maintenance Alert LED

Open   Open
Close   Close
Stop   Stop

(WHITE)

**NOTE:** Stop circuit must be wired in series for all stop buttons to function. This may require removal of factory installed jumper bar in the 3-button station.

KEY LOCKOUT

10 7 6 4 5

(RED)

Maintenance Alert LED

Open
Close
Stop

(WHITE)

Keyswitch

2 BUTTON STATION OR 3 POSITION KEYSWITCH WITH SPRING RETURN TO CENTER

STANDARD

7 6 4

Open
Close

D1 & E2 MODE ONLY

See note 2.

2 OR MORE

7 6 4

Open   Open
Close   Close

D1 & E2 MODE ONLY

See note 2.

TIMER DEFEAT SWITCH

11 12

Keyswitch

1 BUTTON STATION OR ANY AUXILIARY DEVICE

OPEN / CLOSE

1 4

B2, T, TS & FSTS MODE ONLY

See note 2.

RADIO CONTROLS

(WH) (OR) (YE)

R1 R2 R3   EXTERNAL RADIO RECEIVER

NOTE: 32 Vdc power supplied from white and yellow wires located within the electrical box.

NON-MONITORED EDGE SENSOR TO REVERSE OR STOP

Note: 11 and 4 are both the same common. Either is acceptable.

11 8

Edge Sensor

EXTERNAL INTERLOCK

Remove Factory Installed Jumper When Interlock is Used

2 3   2 3

ONE   2 OR MORE

All Wiring Types