Logic 3

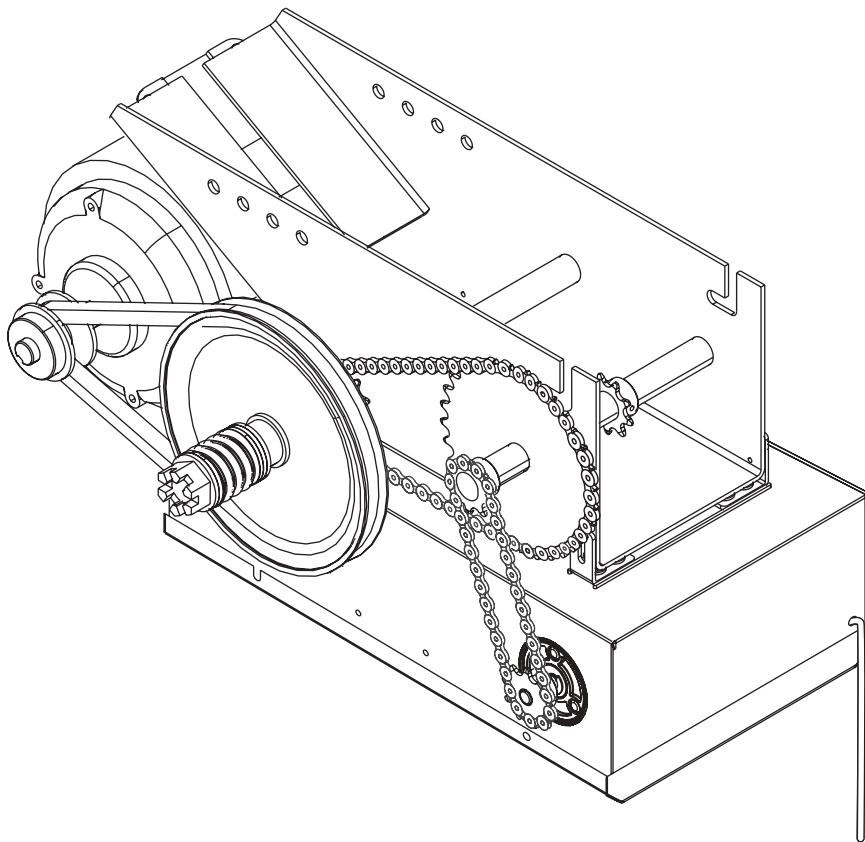# OWNER'S MANUAL

APT

INDUSTRIAL DUTY COMMERCIAL DOOR OPERATOR
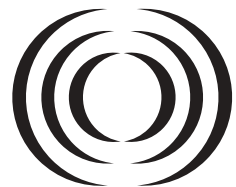
This Operator Features the Enhanced

MAINTENANCE ALERT SYSTEM

OPEN
CLOSE
STOP

PATENT PENDING

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

Radio Receiver Built on Board

315MHz

2 YEAR WARRANTY

Serial # Box _____

Installation Date _____

NOT FOR RESIDENTIAL USE

c UL us

TABLE OF CONTENTS

⚠ WARNING
Mechanical

⚡ WARNING
Electrical

CAUTION

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

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

IMPORTANT NOTES:

• BEFORE attempting to install, operate or maintain the operator, you must read and fully understand this manual and follow all safety instructions.

• DO NOT attempt repair or service of your commercial door and gate operator unless you are an Authorized Service Technician.

CARTON INVENTORY

Before beginning your installation check that all components were provided.

DESCRIPTION
POWER HEAD ASSEMBLY
OWNER'S MANUAL AND CAUTION LABELS
HARDWARE BOX (INCLUDES FASTENERS, TRACK SPACERS, DOOR ARM ASSEMBLY, FRONT IDLER AND HEADER MOUNTING BRACKET)
AUTO RECONNECT TROLLEY
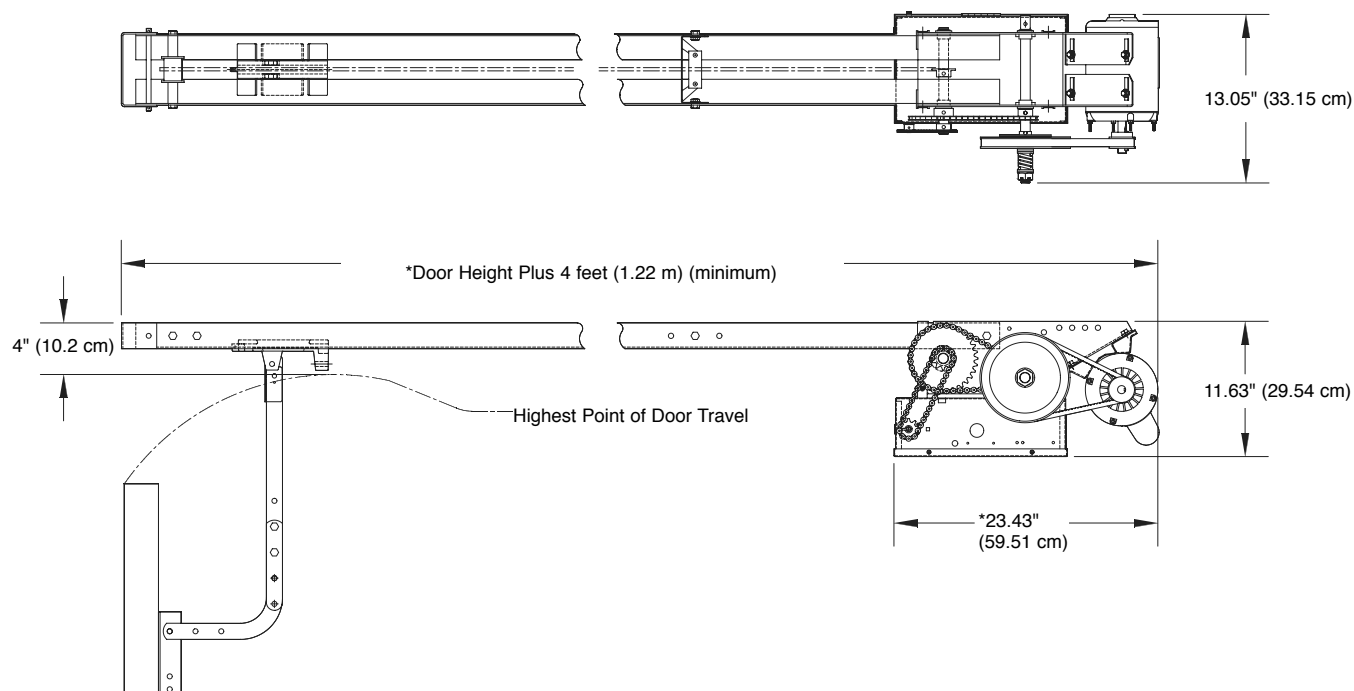3-BUTTON CONTROL STATION WITH LED
TROLLEY DRIVE CHAIN #48

NOTE: The tracks are shipped separately.

OPERATOR DIMENSIONS

WEIGHTS AND DIMENSIONS
HANGING WEIGHT: **80-110 LBS. (36.3-50 kg)**

13.05" (33.15 cm)

*Door Height Plus 4 feet (1.22 m) (minimum)

4" (10.2 cm)

Highest Point of Door Travel

11.63" (29.54 cm)

*23.43"
(59.51 cm)

OPERATOR SPECIFICATIONS

MOTOR

TYPE: . . . . .Continuous Duty
HORSEPOWER: . . . . .1/2 HP
SPEED: . . . . .1725 RPM
VOLTAGE: . . . . .115 Volts - Single phase
CURRENT: . . . . .See Motor Nameplate

ELECTRICAL

TRANSFORMER: 24VAC
CONTROL STATION: . . . . .NEMA 1 3-Button Station.
Open/Close/Stop w/ LED
WIRING TYPE: . . . . .C2 (Factory Shipped)
Momentary contact to OPEN & STOP, constant pressure to
CLOSE, plus wiring for sensing device to reverse and auxiliary
devices to open and close with open override. See pages 16 and
17 for optional wiring types and operating modes.
LIMIT ADJUST: . . . . . .Linear driven, fully adjustable screw type
cams. Adjustable to 24'.

MECHANICAL

DRIVE REDUCTION: . . . . .Primary: Heavy duty (5L) V-Belt.
Secondary: #41 chain/sprocket.
Output: #48 chain
OUTPUT SHAFT SPEED: . . . . .96 R.P.M.
DOOR SPEED: . . . . .7-8" per second depending on door
BRAKE: .Solenoid actuated disc brake
BEARINGS: . . . . .Output Shaft: Shielded Ball Bearing.
Clutch Shaft: Iron Copper sintered and oil impregnated.

SAFETY

DISCONNECT: . . . . .Quick disconnect door arm for
emergency manual door operation.
SAFETY PHOTO EYES (Optional CPS-L):   Through beam or retro
reflective devices used to provide non-contact
safety protection.
SAFETY EDGE (Optional): Electric or pneumatic sensing device
attached to the bottom edge of door.

TRACK ASSEMBLY

1. Using the 3/8"-16 x 3/4" bolts and flange hex nuts provided, assemble the operator track by installing and tightening the track spacer brackets. Position the spacers evenly over the length of the track. *NOTE: The nylon pad on the spacer bracket should face up.*

2. Using (2) 3/8"-16 x 1" bolts and lock washers, install the front idler assembly to the second set of holes of one end of the track. Refer to the illustration below.

3. Slide the trolley carriage onto the track so that the hole of the door arm faces the front (towards door).

POWERHEAD ATTACHMENT

1. Position the track assembly on the frame of the powerhead so that the motor side of operator is in back (away from door).

2. Using (2) 3/8"-16 x 3/4" bolts and flange hex nuts, install the front idler assembly to the second set of holes of one end of the track. Be sure the take-up bolt faces toward end of track. Refer to the illustration below.

3. Connect the track to the operator by fastening (2) 3/8"-16 x 3/4" bolts and nuts through the frame and the end holes in track. Tighten all four bolts to secure the track to the powerhead.
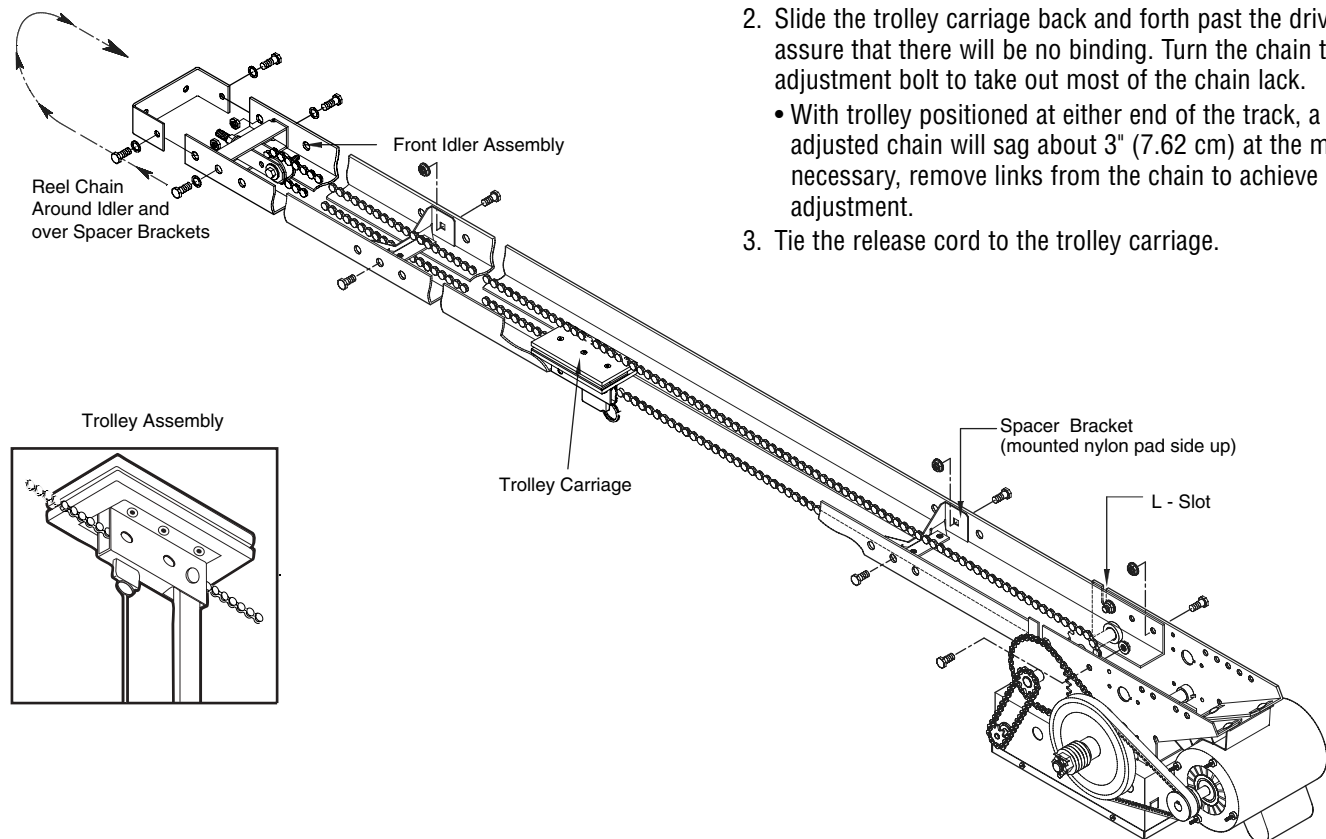
⚡⚠ WARNING

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 professional door serviceman 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, cables, 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.

TROLLEY CARRIAGE / CHAIN ATTACHMENT

1. Uncoil the chain and run it up through the idler on the chain take-up assembly. Pull it towards the operator running it over the nylon spacer brackets and over the top of the trolley carriage. Pull the chain around the final drive sprocket on the operator and back toward the trolley carriage. Pull the release clip on the carriage and push one end of the chain through the chain slot (see illustration). Using one of the masterlinks, connect the drive link to one end of the chain. Pull the drive link toward the free end of the chain and determine where to cut chain for proper adjustment. Be sure the chain tensioning bolt is loose before removing links. Using the other masterlink fasten the adjusted chain to the free end of the drive link.

2. Slide the trolley carriage back and forth past the drive link to assure that there will be no binding. Turn the chain tensioner adjustment bolt to take out most of the chain lack.
   - With trolley positioned at either end of the track, a properly adjusted chain will sag about 3" (7.62 cm) at the midpoint. If necessary, remove links from the chain to achieve proper adjustment.

3. Tie the release cord to the trolley carriage.

Front Idler Assembly

Reel Chain Around Idler and over Spacer Brackets

Trolley Assembly

Trolley Carriage

Spacer Bracket (mounted nylon pad side up)

L - Slot

IMPORTANT NOTE: *Before your operator is installed, be sure the door has been properly aligned and is working smoothly. The operator may be wall mounted or mounted on a bracket or shelf. If necessary, refer to the preparation on page 5. Refer to the illustrations and instructions below that suit your application.*

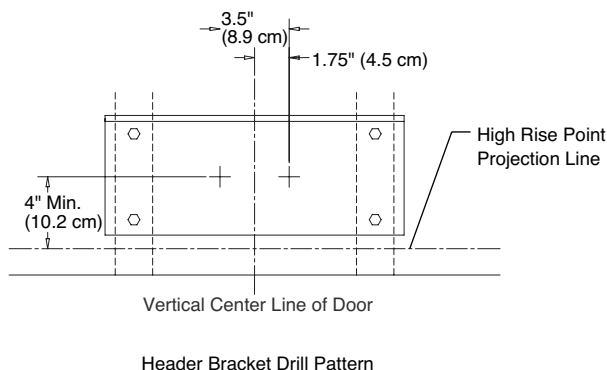## MOUNT THE HEADER BRACKET

1. Close the door and mark the inside vertical centerline of the door.
2. Extend the line onto the header wall above the door.

   You can fasten the header bracket within 2' (.61 m) of the left or right of the door center only if a torsion spring or center bearing plate is in the way.

3. Open your door to the highest point of travel as shown. Draw an intersecting horizontal line on the header wall 4" (10.2 cm) above the high point. This height will provide travel clearance for the top edge of the door.
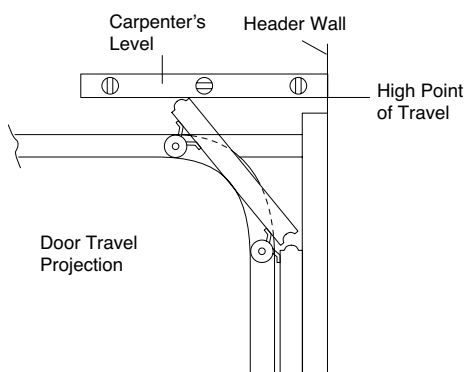
4. Using the projected lines for location, mount a suitable wood block or length of angle iron to the wall above the door opening. Refer to the illustration below. This will provide a mounting pad for the front header bracket of the operator. If necessary reinforce the wall with suitable mounting brackets to ensure adequate support of mounting pad. Using suitable hardware, mount the (U-shaped) front header bracket to the pad.

Header Bracket Drill Pattern

MOUNT THE OPERATOR

1. Position the operator on the floor below the header bracket.
2. Position the front idler assembly against the header bracket.
3. Align the bracket holes and join with hardware as shown.
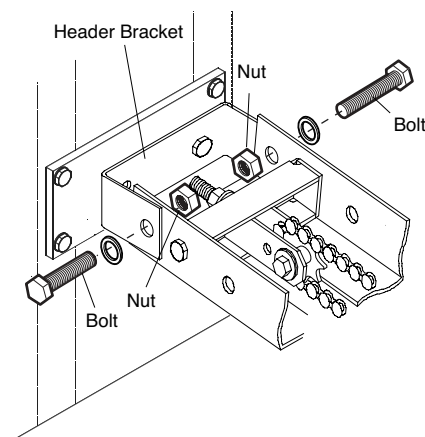
4. Raise the operator to a horizontal position above the guide rails and temporarily secure with a suitable rope, chain, or support from the floor. Open door slowly, being careful not to dislodge the temporary support. Using the door as a support, place a level against the rail and shim the operator until it is horizontal. Make sure that the operator is aligned with the center line of the door.

Operator Alignment
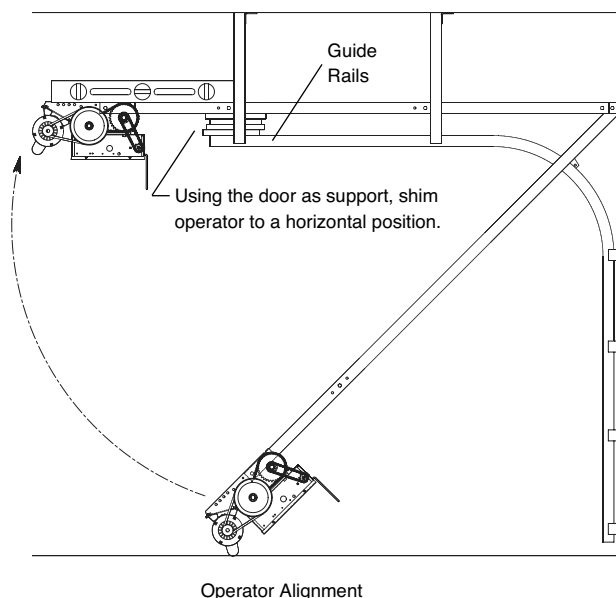
HANG THE OPERATOR

1. The illustration below shows a typical method of hanging the operator from the ceiling. Each installation may vary, but in all cases side braces should be used for additional strength.
2. For mounting of the support brace(s) to the powerhead. Four holes (clearance up to 3/8" bolts) are located on each side of frame.
3. Check to make sure the track is centered over the door (or in line with the header bracket if the bracket is not centered above the door).

NOTE: If the operator is longer than 15' (4.57 m) use of a mid-span support is recommended.

⚠ WARNING

To avoid possible SERIOUS INJURY from a falling operator, fasten it SECURELY to structural supports of the garage. Concrete anchors MUST be used if installing ANY brackets into masonry.

STRAIGHT ARM ATTACHMENT

1. Fully close the door and move the trolley slider to within 2" (5.08 cm) of the front idler.
2. Attach straight door arm to the fixed roll pin in the trolley carriage.
3. Attach the door bracket to the door arm using the 3/8"-16 x 1" bolt and nylon locking nut provided. Leave the nut and bolt loose enough to allow the two pieces to pivot freely.
4. Using 3/8" hardware provided, bolt the curved door arm to the straight arm, aligning the mounting holes in such a way that the door bracket pivot bolt will be in line with the top rollers on the door.
5. Position the door bracket to the center line on the door. Using suitable hardware, attach the door bracket to the door. Many installations, except solid wood doors, will require additional support for the door. Refer to the illustration below.

NOTE: At this time, ensure all bolts and lag screws are properly secured.
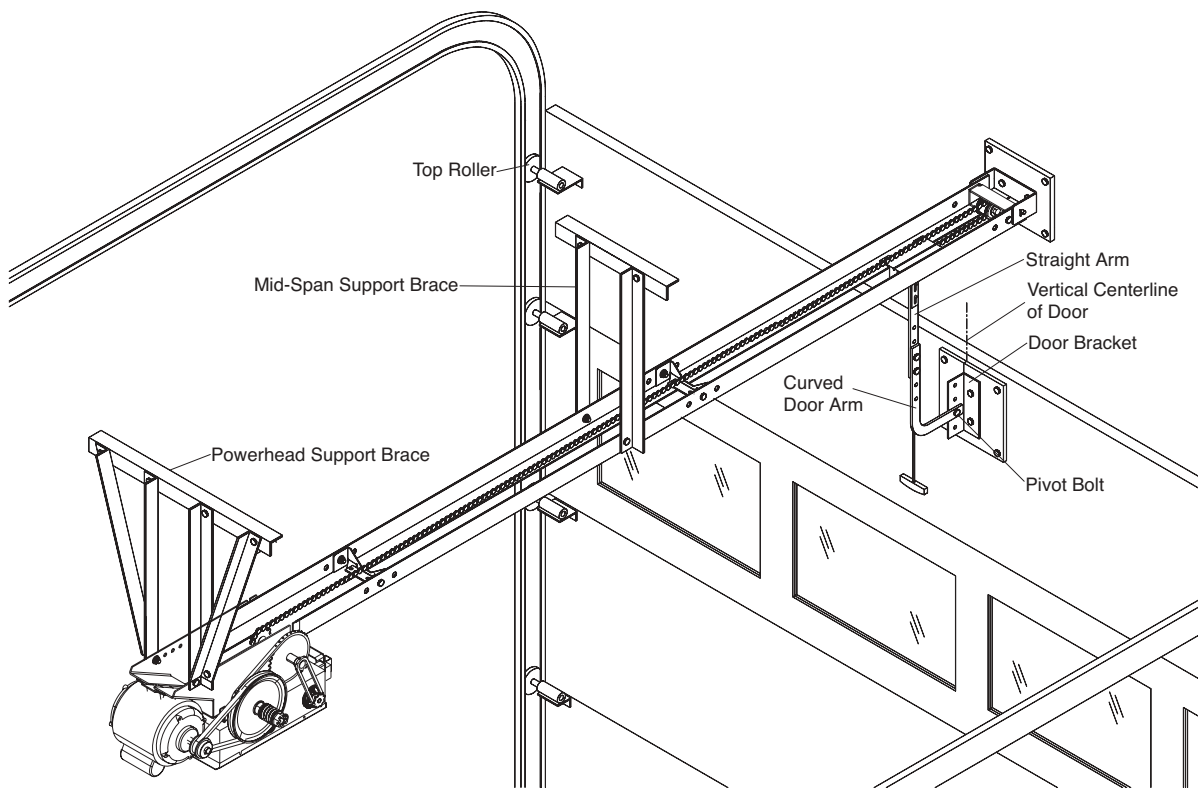
ENTRAPMENT PROTECTION ACCESSORIES (OPTIONAL)

PHOTO EYES & SENSING EDGES

Sensing devices provided for door industry type operators with an isolated normally open (N.O.) dry contact output are compatible with your operator. This includes pneumatic and electric edges, and through beam and retro reflective photo eyes. If you would like to order or receive more information on safety devices, please contact your local Authorized Dealer.

If not pre-installed by the door manufacturer, mount the sensing edge on the door according to the instructions provided with the edge. The sensing edge may be electrically connected by either coiled cord or take-up reel.

Important Notes:

a. Proceed with Limit Switch Adjustments described below before making any sensing edge wiring connections to operator.

b. Electrician must hardwire the junction box to the operator electrical box in accordance with local codes.

> ### ⚠ WARNING
>
> To reduce the risk of SEVERE INJURY or DEATH, ALWAYS install reversing sensors when the 3-button control station is out of sight of door or ANY other control (automatic or manual) is used. Reversing devices are recommended for ALL installations.

WIRING

For wiring of your sensing device to the operator, refer to the wiring diagram provided on page 14. See field connection terminals identified as Reversing Device.

TAKE-UP REEL

Take-up reel should be installed 12" (30.48 cm) above the top of the door.

COIL CORD

Connect operator end of coil cord to junction box (not provided) fastened to the wall approximately halfway up the door opening.

ADJUSTMENT

LIMIT SWITCH ADJUSTMENT

NOTE: Make sure the limit nuts are positioned between the limit switches before proceeding with adjustments.

1. Depress retaining plate to allow nut to spin freely. After adjustment, release plate and move nut back and forth to ensure it is fully seated in slot.

2. To **increase** door travel, spin nut **away** from limit switch. To **decrease** door travel, spin limit nut **toward** limit switch.

3. Adjust open limit nut so that door will stop in open position with the bottom of the door even with top of door opening.

4. Repeat steps 1 and 2 for close cycle. Adjust close limit nut so that the limit switch is engaged as door fully seats at the floor.

> ### ⚠⚠ WARNING
>
> To avoid SERIOUS PERSONAL INJURY or DEATH from electrocution, disconnect electric power BEFORE manually moving limit nuts.

SAFETY (Aux. Close) Limit Switch

CLOSE Limit Switch

OPEN Limit Switch
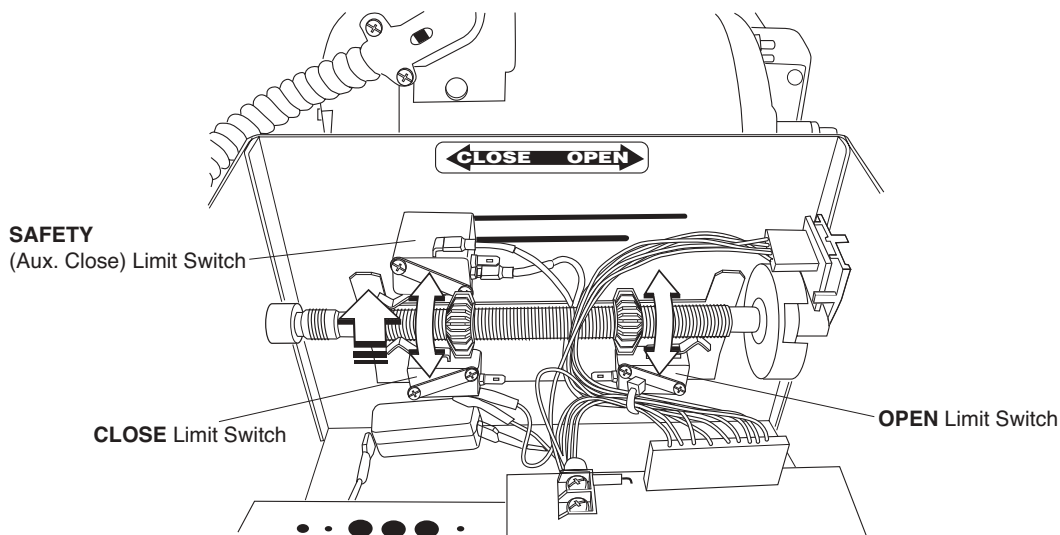
EMERGENCY DISCONNECT SYSTEM

TO DISCONNECT DOOR FROM OPERATOR
The door should be in the fully closed position, if possible. Pull down on the emergency release handle and raise or lower the door manually.

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

⚠ 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.

Header Bracket

Trolley

Track

Chain

Straight Door Arm Assembly

Emergency Disconnect

Door Bracket

Curved Door Arm

Door

NOTICE

Emergency Release Handle
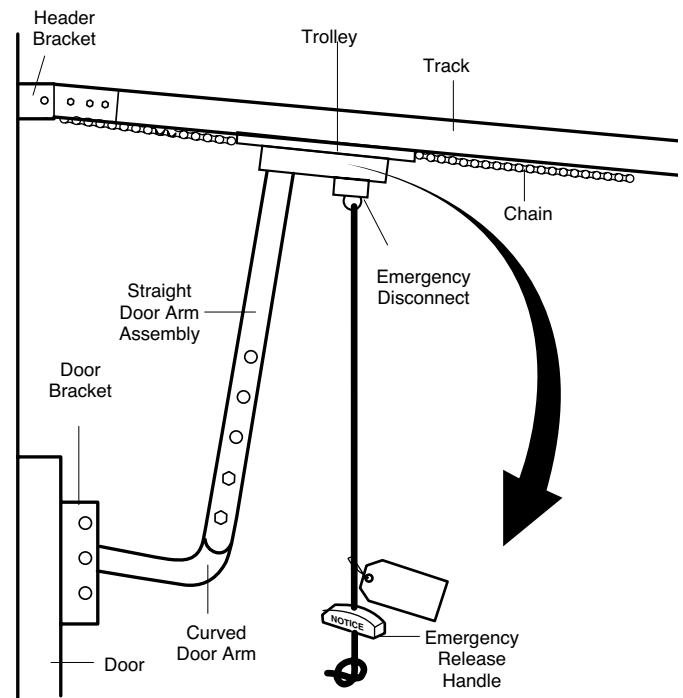
BRAKE ADJUSTMENT

The solenoid brake is adjusted at the factory and should not need additional adjustment for the life of the brake assembly.

Replace brake assembly when necessary. Refer to the illustration for identification of components for the solenoid type brake system.

Brake Assembly

Brake Plate Assembly

Solenoid

Cotterpin

Release Lever

CLUTCH ADJUSTMENT AND AUXILIARY REVERSAL SYSTEM

The **Auxiliary Reversal System** is designed to protect the door and motorized operator. It is NOT a substitute for a safety sensing device. The Auxiliary Reversal System works in tandem with the adjustable clutch to detect if a closing door runs into or comes across an obstruction. If an obstruction is met and causes the clutch to slip, the Auxiliary Reversal System will return the door to the full open position when closing or stops the door when opening.
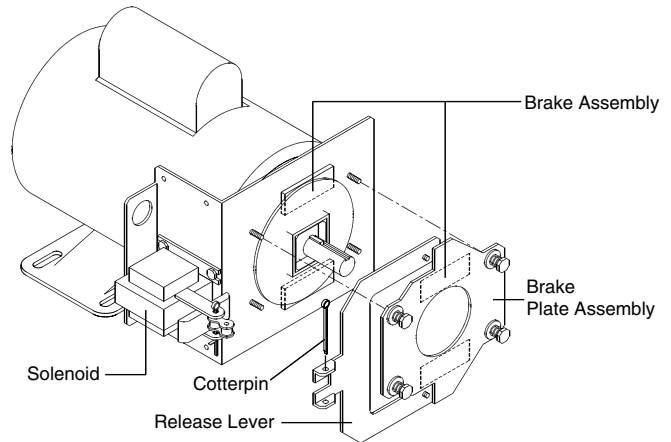
1. Remove cotterpin from nut on the clutch shaft.
2. Back off clutch nut until there is very little tension on the clutch spring.
3. Tighten clutch nut gradually until there is just enough tension to permit the operator to move the door smoothly but to allow the clutch to slip if the door is obstructed. When the clutch is properly adjusted, it should generally be possible to stop the door by hand during travel.
4. Reinstall cotterpin.

⚠ WARNING

To prevent possible SERIOUS INJURY or DEATH, install reversing sensors when the 3-button control station is out of sight of the door or ANY other control (automatic or manual) is used. Reversing devices are recommended for ALL installations.

Adjusting Nut

Clutch Pad

Spring

Clutch Plate

Cotterpin

Washer

Clutch Pulley
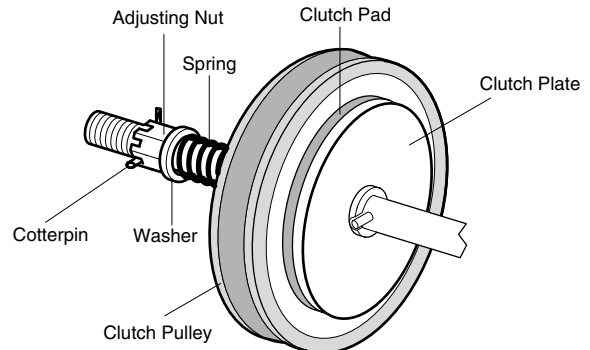
⚡⚠ WARNING

To reduce the risk of SEVERE INJURY or DEATH:

- ANY maintenance to the operator or in the area near the operator MUST NOT be performed until disconnecting the electrical power and locking-out the power via the operator power switch. Upon completion of maintenance the area MUST be cleared and secured, at that time the unit may be returned to service.

- Disconnect power at the fuse box BEFORE proceeding. Operator MUST be properly grounded and connected in accordance with local electrical codes. The operator should be on a separate fused line of adequate capacity.

- ALL electrical connections MUST be made by a qualified individual.

- DO NOT install ANY wiring or attempt to run the operator without consulting the wiring diagram. We recommend that you install an optional reversing edge BEFORE proceeding with the control station installation.

- ALL power wiring should be on a dedicated circuit and well protected. The location of the power disconnect should be visible and clearly labeled.

- ALL power and control wiring MUST be run in separate conduit.

POWER WIRING CONNECTIONS

1. Connect power wires coming from the main to the captive terminal block in the electrical box enclosure marked with the label. All power and control wiring must be run in separate conduit in accordance with local electrical codes.
2. Be sure to run all power wires through the conduit hole in the electrical box enclosure marked with the label shown below.

NOTE: Must use #14 AWG or thicker wire for power wiring.

POWER WIRING
USE COPPER WIRE ONLY 40-10031B

GROUND WIRING CONNECTIONS

1. Connect earth ground to the chassis ground screw in the electrical box enclosure.
2. Use same conduit entry into the electrical box as the power wiring.

IMPORTANT NOTE: This unit must be properly grounded. Failure to properly ground this unit could result in electric shock and serious injury.

Single Phase Power Wiring

Line Power 115/230 Vac Single Phase — Hot / Neutral / Gnd — L1 L2 L3
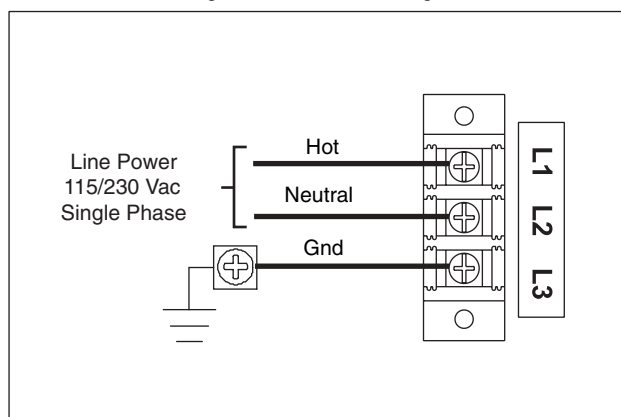
CONTROL WIRING CONNECTIONS

1. Connect control wires to the P1 terminal block located on the logic board as shown.
2. Connect conduit with all control wires through the conduit hole in the electrical box enclosure marked with the label shown below.

CONTROL WIRING
USE COPPER WIRE ONLY 40-10032B

3. Apply power to the operator. Press OPEN push button and observe direction of door travel and then **Press the STOP button.**

If door did not move in the correct direction, check for improper wiring at the control station or between operator and control station. *NOTE: In "Diag" mode the 3-button control station can be tested to verify correct wiring of Open, Close and Stop buttons without moving the door.*

If the door moves in the wrong direction and or the limits move in the wrong direction, simply move the motor direction jumper located on the logic board from the factory default setting (STD) to the (REV) pins. This will change the motor rotation as well as the functional position of the OPEN and CLOSE limit switch's. Then relocate the safety limit switch (SLS) only to the opposite side with the new functional close limit location. Orient the arm (lever) of the limit switch away from the center.

EXTERNAL RADIO WIRING CONNECTIONS

On all models a radio terminal bracket marked R1 R2 R3 is located on the outside of the electrical enclosure. In B2 mode the operator will then open a fully closed door, close a fully open door, stop an opening door, and reverse a closing door from the radio remote. In TS control wiring the operator will only open the door or reset the timer to close. However, for additional door control from a 3-button remote, a commercial three-channel radio receiver (with connections for OPEN/CLOSE/STOP) is recommended.

NOTE: If an external radio receiver is being used in place of the built-in receiver, remove or disconnect the coaxial cable from the logic board.

MOUNTING INSTRUCTIONS

1. Mount WARNING NOTICE beside or below the control station.
2. Mount MAINTENANCE ALERT label to either side of control station.
3. Mount control station(s) within line of sight of door(s).

⚠ WARNING

To prevent possible SERIOUS INJURY or DEATH, install reversing sensors when the 3-button control station is out of sight of the door or ANY other control (automatic or manual) is used. Reversing devices are recommended for ALL installations.
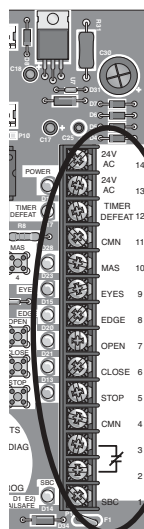
Terminal		Description
24V AC	14	24 VOLT AC
24V AC	13	24 VOLT AC
TIMER DEFEAT	12	TIMER DEFEAT
CMN	11	COMMON
MAS	10	MAINTENANCE ALERT SYSTEM
EYES	9	PHOTO EYES (LiftMaster Only)
EDGE	8	REVERSE
OPEN	7	OPEN
CLOSE	6	CLOSE
STOP	5	STOP
CMN	4	COMMON
	3	INTERLOCK
	2	INTERLOCK
SBC	1	SINGLE BUTTON CONTROL

WARNING
TO PREVENT ENTRAPMENT, DO NOT START DOOR DOWN UNLESS DOORWAY IS CLEAR

AVERTISSEMENT
POUR EVITER TOUT COINCEMENT, NE PAS ABAISSER LA PORTE TANT QUE L'EMBRASURE N'EST PAS LIBRE.

WARNING
ANY MAINTENANCE OTHER THAN PROGRAMMING OPTIONS IN THE OPERATOR OR IN THE AREA NEAR THE OPERATOR MUST NOT BE PERFORMED UNTIL DISCONNECTING THE ELECTRICAL POWER AND LOCKING-OUT THE POWER VIA THE MAIN DISCONNECT SWITCH. UPON COMPLETION OF MAINTENANCE THE AREA MUST BE CLEARED AND SECURED, AT THAT TIME THE UNIT MAY BE RETURNED TO SERVICE.

Control Station

Optional Controls

Maintenance Alert System™
If light is **Flashing Rapidly**, it is time for routine door maintenance.
If light is **Flashing Slowly**, followed by a pause, call for immediate service.

Service every
____ cycles/months

4' Approximate

LiftMaster
PROFESSIONAL

Radio Control
(24V DC only)

R3
R2
R1

Maintenance
Alert LED

(RD)   (WH)

Open

Close

Stop

3-Button
Station

Sensing Edge

CPS-L &
CPS-LN4

Timer Defeat
Switch

Open/Close
Single Button

Remove Jumper
To Install External
Interlock

C30

C17

U7

D7 D6 D5 D4

14
13
TIMER DEFEAT 12
CMN 11
MAS 10
EYES 9
EDGE 8
OPEN 7
CLOSE 6
STOP 5
CMN 4
3
2
SBC 1

24V AC
24V AC

P1

Single Phase Power Wiring

Line Power
115 Vac
Single Phase

Hot

Neutral

Gnd

L1 L2 L3

115V MOTOR CONNECTION

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

CPS-L & CPS-LN4

Hoist Interlock When Present

Sensing Edge

TMR DEF SWITCH

Maintenance Alert LED
(RD) (WH)

Open

Close

Stop

3-Button Station

Open/Close Single Button

Remove Jumper To Install External Door Interlock

115 / 230 VOLT 1PH. POWER IN

hot L1
neutral L2
ground L3

See Motor Connections

See Motor Connections

RPM Board

Radio

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.

OPEN L/S

CLOSE L/S

BYPASS L/S

SAFETY L/S

LOCK SENSOR (see note at left)

Auxilliary Board Connectors

Motor Direction Jumper

Single Phase & Three Phase Jumper

Programmed Chip

Maintenance Alert System Button for Programming

Maximum Run Timer Button

Open Button

Radio Learn Button

Close Button

Mid Stop Learn Button

Stop Button

Timer to Close Learn Button

Control Wiring Terminal Block

Wiring Type Selector Dial

Failsafe Switch

014LG0657-A   014GP0657-A

CHAMBERLAIN
LiftMaster
PROFESSIONAL

SECURITY+

P4   E1   R29   C11   D302   X1   P10   U1   K3

POWER   TIMER DEFEAT   MAS   EYES   EDGE   OPEN   CLOSE   STOP

OLS   MID   SLS   CLS

J1   J300   R8

REV→   STD→   CONTACTOR/3 PH →   SINGLE PHASE →

MOTOR DIRECTION

D16   MRT   MID   TIMER   RADIO   1   2   3

TIMER ENABLE

RELAY A   RELAY B

P7   C77   C73   C54   L1   C78   C71   L5

T   TS   E2   FSTS   D1   DIAG   C2   B2   PROG

FAILSAFE   (B2 C2 D1 E2) NON FAILSAFE   S8

SBC   P1   F1   D34

P6

24V AC   14
24V AC   13
TIMER DEFEAT   12
CMN   11
MAS   10
EYES   9
EDGE   8
OPEN   7
CLOSE   6
STOP   5
CMN   4
3
2
SBC   1

15

## LOGIC CONTROL PUSHBUTTONS 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.

NOTE: Refer to logic board illustration on page 15 for all component locations. Before programming the logic board, set the operators 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 8 for limit switch adjustment instructions.

SELECTOR DIAL
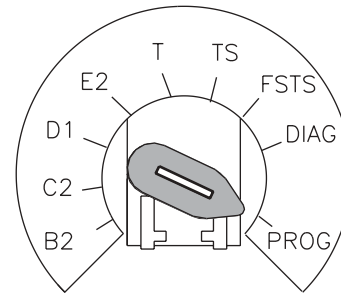
FAILSAFE SWITCH

DETERMINE AND SET WIRING TYPE

Read the descriptions of the different wiring types to determine which setting will be correct for each application.

SET THE SELECTOR DIAL TO THE DESIRED WIRING MODE:

NOTE: For failsafe wiring you must also set failsafe switch to FAILSAFE.

TYPE

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**.

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 and 1 & 3 Button Remote Control**.

D1   Constant pressure to open and close with wiring for sensing device to stop. **Compatible with 2-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**.

FAILSAFE WIRING TYPES

TYPE

TS   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 stop button will deactivate the Timer To Close 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 & 3 Button Remote Control**. *(**NOTE:** Requires Optional self monitoring photo eyes to operate.)*

T   Momentary contact to open, close, and stop, with open override and Timer To Close. Every device that causes the door to open, except 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 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 & 3 Button Remote Control**. *(**NOTE:** Requires Optional self monitoring photo eyes to operate.)*

FSTS   Momentary button contact for open, close and stop programming. Radio controls allowing open, close and stop. 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 & 3 Button Remote Control.** *(**NOTE:** Requires Optional self monitoring photo eyes to operate this feature/wire type.)*

C2 Failsafe   Same functions as C2. Self Monitoring safety device must be installed to operate door for each of the following failsafe wiring types. See Self Monitoring Safety Device Options. **Compatible with 3-Button Station, 1-Button Station, 1 & 3 Button Remote Control.**

B2 Failsafe   Same functions as B2. Self Monitoring safety device must be installed to operate door for each of the following failsafe wiring types. See Self Monitoring Safety Device Options. **Compatible with 3-Button Station, 1-Button Station and 1 & 3 Button Remote Control.**

D1 Failsafe   Same functions as D1. Self Monitoring safety device must be installed to operate door for each of the following failsafe wiring types. See Self Monitoring Safety Device Options. **Compatible with 2-Button Station and 2-Button Remote.**

E2 Failsafe   Same functions as E2. Self Monitoring safety device must be installed to operate door for each of the following failsafe wiring types. See Self Monitoring Safety Device Options. **Compatible with 3-Button Station and 3-Button Remote.**

SELF-MONITORING SAFETY DEVICE OPTIONS

To use the operator in any of the Failsafe wiring modes, or Timer To Close wiring modes (TS, T, FSTS), a self monitoring safety device or CPS3 card with photo eyes or safety edges must be installed.

RECOMMENDED SELF-MONITORING SAFETY DEVICES:
CPS-L   NEMA 1 Direct Connect Eyes
CPS-LN4   NEMA 4 Direct Connect Eyes

IMPORTANT NOTES:

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

2. Auxiliary devices are any devices that have only dry contacts. Examples: photocell, loop detector, pneumatic or electrical treadles, radio controls, one button stations, pull cords, etc.

3. Open override means that the door may be reversed while closing by activating an opening device without the need to use the stop button first.

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

PROGRAMMING REMOTES

STANDARD SINGLE BUTTON REMOTE

1. To enter programming press and release the RADIO button on the logic board (LED will light).

2. Press and hold the remote button until the LED flashes rapidly, then release remote button. The LED will then remain on solid after releasing the button. Repeat to add additional remote(s).

3. Press and release the RADIO button to complete the programming. The programming mode is exited if no activity is performed within 30 seconds.

NOTE: Single button remote is not supported with D1 and E2 failsafe wiring modes.

NOTE: Requires self-monitoring photo eyes when using constant pressure to close (wiring C2, D1 and E2).

SINGLE BUTTON CONTROL (SBC) REMOTE

This function programs a remote as a wireless single button control. In B2 mode, operation is OPEN / STOP / CLOSE / REVERSE / STOP. In C2 mode, operation is OPEN / STOP/ Constant pressure to CLOSE / STOP on release. There is no operation in D1 mode. In T and TS modes, operation is OPEN / STOP / CLOSE / REVERSE / STOP and Timer to Close start/refresh. In FSTS mode, operation is OPEN with Timer to Close start/refresh only bypassing all up mid stops. Momentary and constant pressure commands are processed in this function.

	OPERATION					
MODE	OPEN	STOP	CLOSE	Reverse	Constant Pressure	Timer To Close
B2	✓	✓	✓	✓		
C2	✓	✓			✓	
D1						
E2	✓	✓			✓	
T, TS	✓	✓	✓	✓		✓
FSTS	✓					✓

1. Press and release the RADIO button on the logic board (LED will light).

2. Press and release the SBC externally wired button or TIMER on the logic board (LED flashes rapidly and then remains on solid).

3. Press and hold the remote button until the LED flashes rapidly. The LED will then remain on solid after releasing.

4. Press and release the RADIO button on the logic board (LED flashes rapidly and then turns off). The programming mode is exited if no activity is performed within 30 seconds.
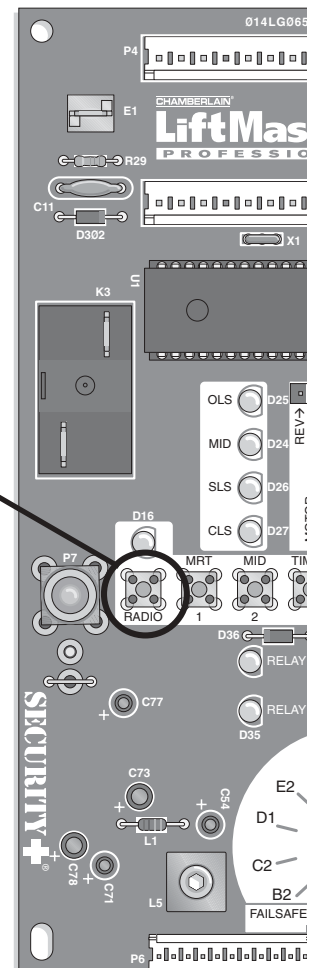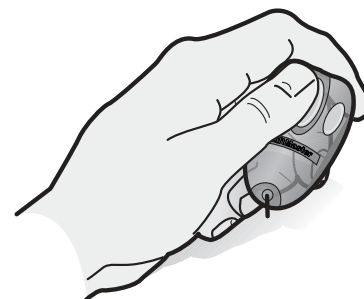
ERASING REMOTES

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

RADIO

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

1. To enter programming press the RADIO button on the logic board (the RADIO LED will light).

2. To program the OPEN button to a remote control press the OPEN button on the logic board. The RADIO LED will flash and then stay on solid. Then press the corresponding button on the remote control. The RADIO LED on the logic board will flash, this confirms that the remote control has been programmed. (By programming the remote you use 1 channel of the 23 channels on the radio receiver.)

3. To program the CLOSE button to a remote control press the CLOSE button on the logic board. The RADIO LED will flash and then stay on solid. Then press the corresponding button on the remote control. The RADIO LED on the logic board will flash, this confirms that the remote control has been programmed. (By programming the remote you use 1 channel of the 23 channels on the radio receiver.)

4. To program the STOP button to a remote control press the STOP button on the logic board. The RADIO LED will flash and then stay on solid. Then press the corresponding button on the remote control. The RADIO LED on the logic board will flash, this confirms that the remote control has been programmed. (By programming the remote you use 1 channel of the 23 channels on the radio receiver.)

5. After learning remote controls press the RADIO button on the logic board (LED will turn off). *NOTE: If no activity within 30 seconds the radio will automatically exit programming mode.*
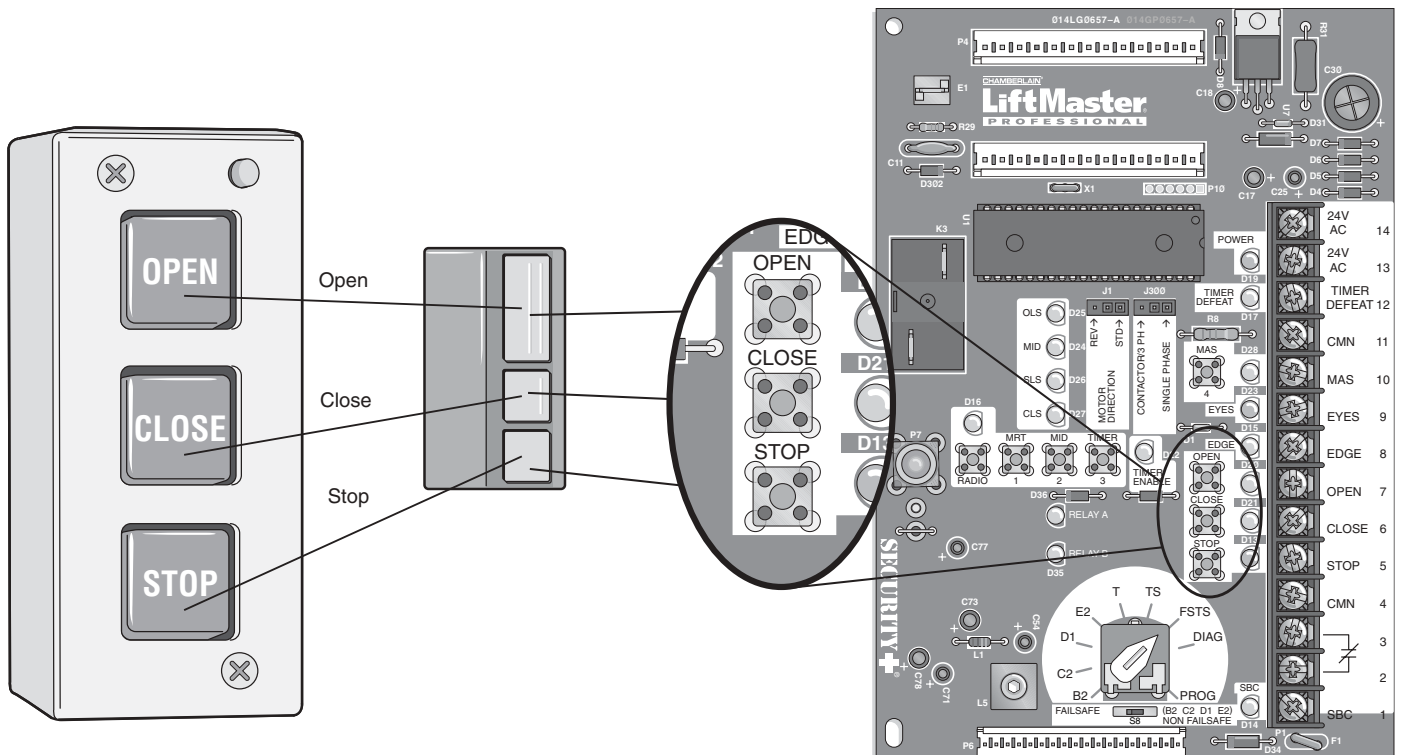
MAINTENANCE ALERT SYSTEM (MAS)

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 3.0 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.

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. 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.
2. Close the door.
3. Turn the selector dial to PROGRAM.
4. Press and release the MAS SET button.
5. Press the STOP button once to clear the MAS counter.
6. Press the OPEN button once for every 5,000 cycles increments. Press the CLOSE button once for every 3 month increments. Press the STOP button once to clear the MAS memory.
7. Press the MAS SET 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.
8. 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 27 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. Set the selector dial 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.

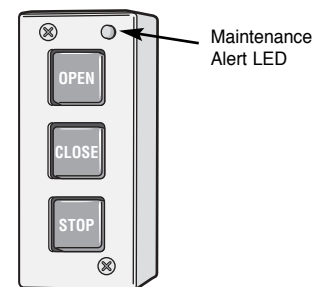To view how many cycles are programmed into the MAS, set the

SELECTOR DIAL
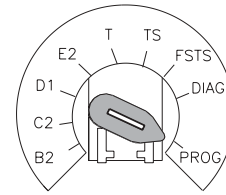
Operation will vary depending on wiring type

3-BUTTON STATION
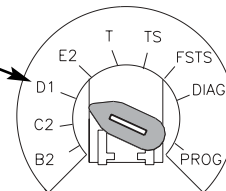
Maintenance Alert LED

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.

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.

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 the "MID SET" button on logic board.
4. Press the OPEN button, wait until the door reaches the desired mid stop height, then press the STOP button.
5. Press the "MID SET" 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," photo eyes and other safety devices will not open the door beyond the mid stop position, except in E2 mode. The Timer to Close will work from the Mid Stop.

To clear the Mid Stop set the selector dial to Program and press and hold the MID SET button for 5 seconds. The MID SET LED will flash rapidly and turn off once the Mid Stop has been cleared.
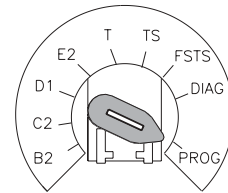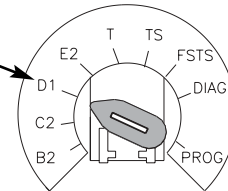
DOWN MID STOP

A new feature is the down mid stop which can be enabled with the purchase of the red/green light kit (RDGRNCARD). See kit instructions of how to enable this new feature.

TIMER TO CLOSE

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

Benefit: The door will automatically close after pre set 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 of the following safety devices attached: CPS-L, CPS-LN4 or CPS3 card with valid safety device. 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 the TIMER button on the logic logic board.
4. Press the STOP button to clear the timer.
5. Press the OPEN button for every 5 seconds the operator should wait before attempting to close the door. Press the CLOSE button for every 60 seconds the operator should wait before closing the door.
6. Press 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 5 seconds programmed and the CLOSE LED will flash once for every 60 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 the TIMER button, press the STOP button to clear the timer, press the CLOSE button once for 60 seconds and press the OPEN button twice 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

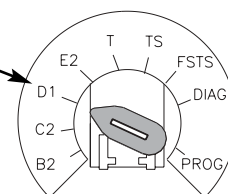Operation will vary depending on wiring type

⚠ WARNING

To reduce the risk of SEVERE INJURY or DEATH, ALWAYS install reversing sensors when the 3-button control station is out of sight of door or ANY other control (automatic or manual) is used. Reversing devices are recommended for ALL installations.

SELECTOR DIAL
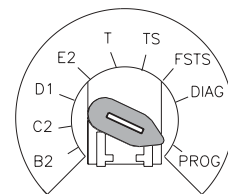
Operation will vary depending on wiring type

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 TIMER LED flashes.
4. Press 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 the TIMER button or CLOSE button to stop the timer. (TIMER SET LED will turn on.)
7. Turn the selector dial to the desired wiring type.

Example: The door should close 15 seconds after a truck enters a garage. To program the Timer to Close, turn the selector dial to PROGRAM, press the TIMER button until the TIMER LED blinks, press the OPEN button and wait until the door reaches the open position, wait for the truck to pass through, count 15 seconds and then press the CLOSE button.

NOTES: 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 5 seconds programmed and the CLOSE LED will flash once for every 60 seconds programmed.

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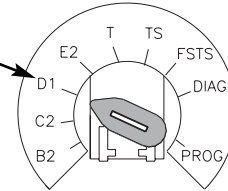
All timer modes require a supervised safety device to be installed.

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

SELECTOR DIAL
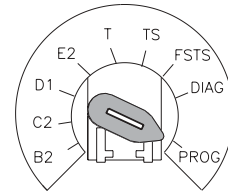
Operation will vary depending on wiring type

AUTOMATICALLY LEARNED PROGRAMMING

AUXILIARY REVERSAL SYSTEM / RPM SENSOR

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 1/3 and 1/2 horsepower single phase motors.

Benefit: The Auxiliary Reversal System reverses the operator upon hitting an obstruction, preventing excessive door and operator damage. We require the use of safety devices for primary safety protection. By removing the centrifugal for 1/3 and 1/2 horsepower single phase motors, the leading cause of motor failures is eliminated. (Auxiliary Reversal System not applicable on models GH and GT.)

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

RPM Sensor

Logic Board
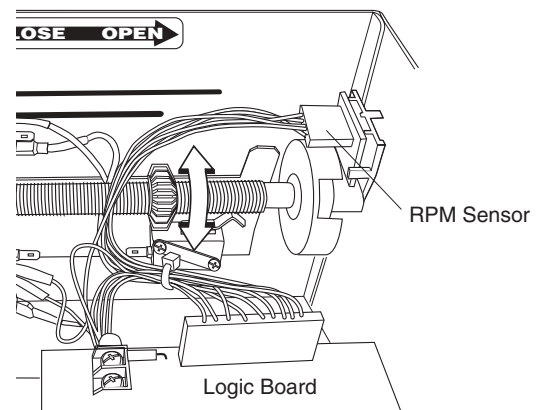
AUTOMATICALLY LEARNED PROGRAMMING

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 MRT button on logic board.
4. Press the OPEN button and wait for the door to reach the full open limit.
5. Once the door has reached the open position, programming is complete.
6. Turn dial to desired wiring type.

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

SELECTOR DIAL
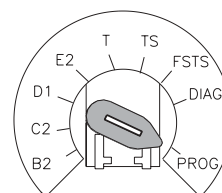
Operation will vary depending on wiring type
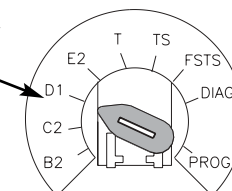
OPTIONAL PROGRAMMING

RED/GREEN WARNING LIGHT CARD

Feature: The Red/Green warning light card flashes a warning light for 10 seconds prior to the Timer to Close activating the door to close.

Benefit: Advanced warning of the door closing helps prevent traffic collisions with the door.

Light Control Module Operation: The green lights on the OPTION BOARD will turn on if the board is seated properly and the power is on. When the door reaches the full open limit or mid stop the timer circuit and the green lamp holder will be activated. (Green lamp will not be activated if timer setting is less than 10 seconds.) The red lamp holder will receive power as indicated at right.

Requirements: Must have the Red/Green warning light kit RDGRNCARD and must have at least one of the following safety devices attached: CPS-L, CPS-LN4 or CPS3. See Red/Green warning light instructions for further details.

TIMER SETTING	RED LAMP HOLDER RECEIVES POWER
Timer setting equals zero	Activates when the door closes and until close limit is activated
Greater than 10 seconds	10 seconds before door starts to close and until close limit is activated
Less than or equal to 10 seconds	Activates when the door reaches the open limit or mid stop
	The red lamp holder receives power when the door opens and remains activated if the door is stopped manually before reaching the mid stop or the open limit

OPTIONAL PROGRAMMING

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. CPS-L photo eyes = unlearned
c. The Mid Stop is deactivated
d. The Maintenance Alert System is deactivated
e. The Maximum Run Timer is set to 90 seconds

SELECTOR DIAL
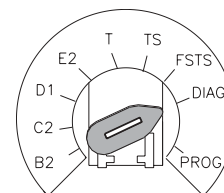
Operation will vary depending on wiring type
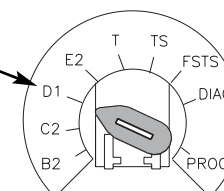
MAINTENANCE SCHEDULE

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

ITEM	PROCEDURE	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.	●♦		

⚡⚠ WARNING

To avoid SERIOUS PERSONAL INJURY or DEATH from electrocution, disconnect ALL electric power BEFORE performing ANY maintenance.

♦ **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.

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1-800-528-2806

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Saturday 7 a.m. to 3:30 p.m. (MST)

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.
Eyes	Green	Solid on indicates photo eyes learned. Flashing indicates photo eyes need to be connected or obstructed. Solid off indicates no eyes learned.
Timer Defeat	Yellow	Solid on indicates a closed circuit between common and terminal 12. Timer to close will not close.
OLS	Yellow	Pressing the Open Limit Switch should turn ON this LED.
CLS	Yellow	Pressing the Close Limit Switch should turn ON this LED.
SLS	Yellow	Pressing the Sensing Limit Switch should turn ON this LED.
Edge	Yellow	Indicates a closed circuit between common and terminal 8. Pressing the edge should turn ON this LED.
Mid Stop	Yellow	Solid on indicates door is stopped on up or down mid stop. Flashing indicates MID STOP is being set.
Timer Enabled	Green	Solid on indicates TIMER is programmed and will activate from open or mid stop position. Flashing indicates Timer is counting down and door will close after preset time.
SBC	Yellow	Indicates a closed circuit between common and terminal 1. Pressing the single button control station should turn ON this LED.
MAS	Yellow	Indicates the Maintenance Alert System has been activated or an error code has been triggered.
Relay A	Yellow	Indicates open or close command has been given to the motor. LED turns on when OPEN/CLOSE button is pressed.
Relay B	Yellow	Indicates open or close command has been given to the motor. LED turns on when OPEN/CLOSE button is pressed.

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.
	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 light 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.
	d) Dial still in programming 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 for obstructions and verify the door moves freely. Cycle operator in constant pressure one full cycle open and close to reset fault. Check to see if motor is hot. Allow motor to cool before attempting to move door.
	g) Failsafe switch is activated requiring photo eyes	➤ Move switch to non-failsafe or connect a failsafe sensing device.
	h) Off Board relay may need to be replaced see wiring diagram	➤ When the OPEN or CLOSE button is pressed, Relay A or B LED should turn on and the door should move in the corresponding direction. If Relay A or B lights and the door does not move, off board relay may need to be replaced (see wiring diagram Off Board Relays).
	i) Possible accessory malfunction	➤ Disconnect all devices, reattach them one at a time testing for a failure after each one is replaced.
	j) 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) Logic board failure	➤ Replace logic board.
	c) Interlock switch	➤ Check interlock(s).
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	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.
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 24). **OR** reset the factory defaults (page 25).
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.
THE DOOR WILL OPEN BUT WILL ONLY CLOSE AFTER A FIVE SECOND DELAY WITH CONSTANT PRESSURE ON THE CLOSE BUTTON	a) The photo eyes, edge or other sensing device is obstructed or activated	➤ If the on board EYES LED is flashing, the photo eyes are misaligned or not connected. Remove any obstructions, check the safety device wires for continuity and shorts.
	b) The logic board thinks that the direct connect photo eyes are attached and blocked	➤ Unlearn the photo eyes from the memory by resetting factory defaults.
	c) Failsafe switch set	➤ Slide switch to Non-Failsafe mode.

TROUBLESHOOTING ERROR CODES

Logic 3.0 operators incorporate a self diagnostic feature built into the MAS LED. In addition to indicating when routing 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	DESCRIPTION	EFFECT	DISPLAY	CORRECTION
E1	MAS triggered (cycles or months)	None normal operation	1 blink	Reset MAS.
E2	No RPM input during opening or closing	The door only responds to constant pressure commands	2 blinks	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	(MRT) Maximum Run Time timed out	The door stops before reaching the desired time	3 blinks	First check Operator for any faults (i.e., Bad Limit switch), manually learn Max Run Timer (see page 23) **OR** reset factory defaults (see page 24).
E4	Obstruction sensed on closing	Operator will be in the OPEN position	4 blinks	Cleared by removing obstruction or realigning photo eyes and giving a close command.
E5	Stuck key button pressed for greater than 2 minutes.	Stuck key on 3-button station will not respond	5 blinks	Stuck key must be unstuck before it will be recognized as an input.
E6	Rotary dial in invalid position for greater than 30 seconds.	The door will not respond to the 3-button station or any other input	6 blinks	Rotary dial must be set to a valid position.
E7	Failsafe Safety device faulted or not connected for greater than 2 minutes	Normal operation (5 second constant pressure override required to close)	7 blinks	Cleared when safety device is cleared or connected.
E8	Brownout Detected	Operator will run as long as enough power is present	8 blinks	1. Check AC line for voltage. 2. Check transformer secondary for low voltage. To many accessories may be connected to the transformer.
E9	Motor movement at invalid time	Operator will continue to function normally for 5 operations and then default to a constant pressure mode.	Flash on start of movement	Check relays and the drive circuitry to insure that they are turning off. Operator must run correctly for two starts for the error to be cleared.

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

TROUBLESHOOTING RADIO FUNCTIONALITY

The error codes will display at the radio LED.

NOTE: *Radio receiver is compatible with 315MHz remotes*

ERROR CODE	SYMPTOM	DISPLAY	POSSIBLE PROBLEM	CORRECTION
R1	No response from the remote	Quick Flash	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 18).
R2	No response from the remote	No LED activity	Cannot recognize remote - A weak signal caused by a discharged battery or outside interference with the radio - OR - the radio being learned is not compatible with the operator.	Replace battery - OR - eliminate interference - OR- obtain a qualified remote.
R3	The remote cannot be learned	Radio LED turns off after 30 seconds	Cannot recognize remote - A weak signal caused by a discharged battery or outside interference interfering with the learn process - OR - the radio being learned is not compatible with the operator.	Replace battery - OR - eliminate interference - OR- obtain a qualified remote.
R4	The remote cannot be learned	2 Blinks	No free records - 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	The remote cannot be learned	3 Blinks	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	Cannot close via constant pressure in C2, D1 or E2 modes.	IR LED flashes	No safety device present - A safety device is required to close via constant pressure.	Obtain direct connect eyes or a CPS3 device - OR - change to a mode that does not require constant pressure.

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K2 (K72-12515-1)

4

7

2

11

8

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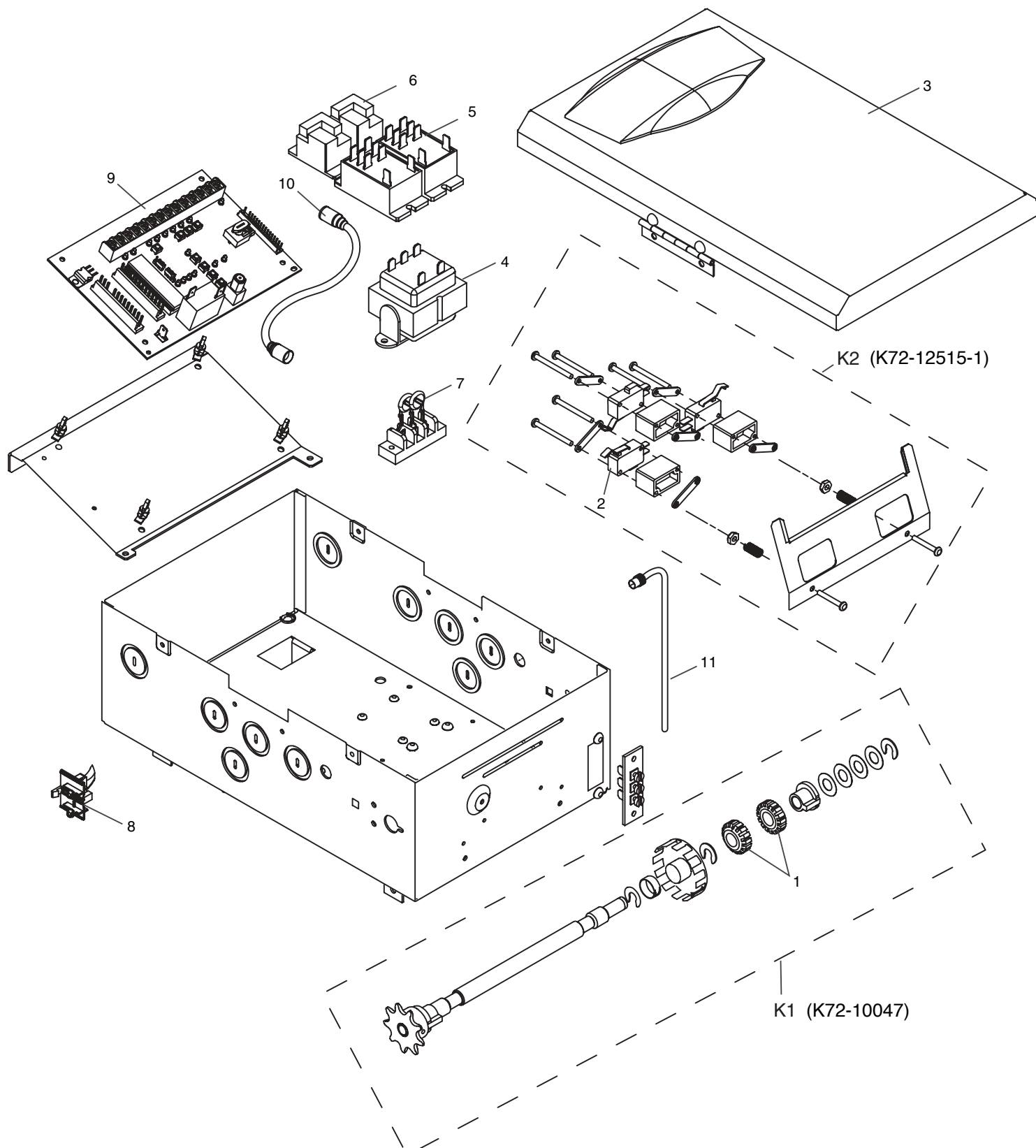
K1 (K72-10047)

ELECTRICAL BOX LOGIC (VER 3.0)

For replacement of electrical box, motor or brake components be sure to match model number of your unit to kit number below to ensure proper voltage requirements.

SERVICE KITS

ITEM	PART #	DESCRIPTION
K1	K72-10047	Limit shaft kit Complete with: Limit shaft, limit nuts, limit bearings, limit sprocket, interrupter cup, shim washers, compression ring, roll pin, and e-rings.
K2	K72-12515-1	Limit switch kit Complete with: Limit nut retainer, switch plates, backup plate, depress plates, limit switches, standoffs, screws, and locknuts.

*To order a complete electrical box kit, add a K- prefix to the model number of your operator. For example:
APT5011L3 (Operator) = K-APT5011L3 (Electrical box kit)

INDIVIDUAL PARTS

ITEM	PART #	DESCRIPTION
1	13-10024	Limit nut
2	23-10041	Limit switch
3	K75-32268	Cover
4	21-14182	Transformer, 115/230V
5	29-31244	Relay 24VDC DPST (A & B relay)
6	29-31229	Relay 24VDC SPDT (C relay)
7	K74-31243	MOV 580V
8	K79-15016-1	RPM sensor assembly
9	K1A5729	Logic board - Logic 3
10	K2A761	Coaxial cable
11	K1C3196-3	Antenna

*Non stocked item. Please allow additional delivery time.

K4 (K75-13074)

K3 (K72-13059)

K5 (K72-13058)

K2 (K72-13057)

K1 (71-AB120)

Drive Chain
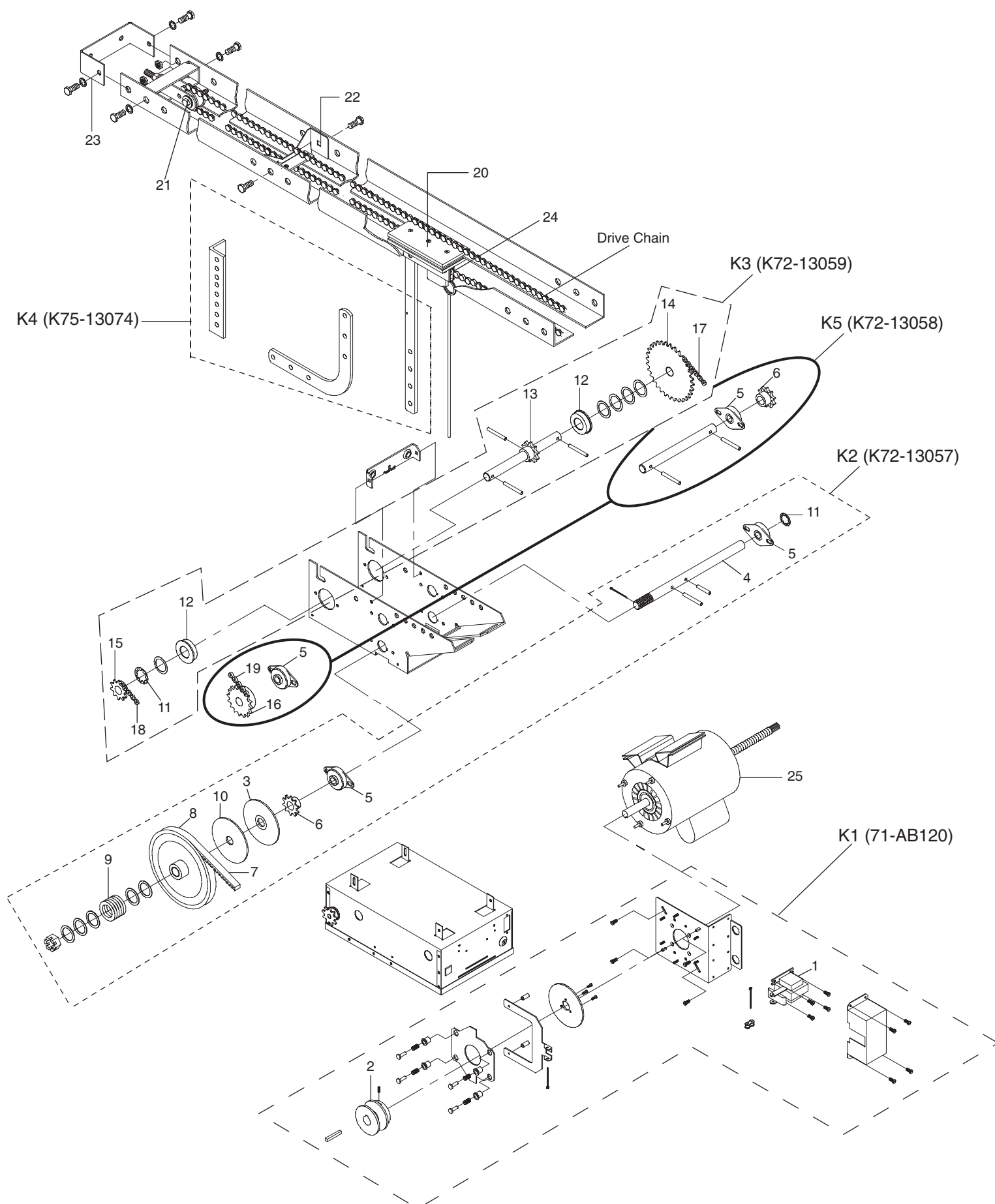
SERVICE KITS

ITEM	PART #	DESCRIPTION
K1	71-AB120	Brake kit - 115 Volt models. Complete with: Brake solenoid cover, brake release lever, brake disk, spring cup, studs, compression springs, brake solenoid, spacers, mounting plate, pressure plate, feather key and conduit.
K2	K72-13057	Clutch shaft kit. Complete with: Clutch plate, clutch shaft, bearing 3/4" I.D, sprocket 41B10x3/4", 5L belt, motor pulley, spring, clutch disc, shim washers, castle nut, flatwashers, cotterpin, roll pins, and push on fastener.
K3	K72-13059	Output shaft kit. Complete with: Output shaft, bearing, roller chain with master link, limit chain, shim washers, roll pins, push ring 3/4", and sprockets (41B32 & 48B10).
K4	K75-13074	Door arm kit. Complete with: Curved arm, straight arm, door bracket, and hardware.
K5	K72-13058	Intermediate shaft kit. Complete with: Shaft, bearings, roll pins, washers and sprockets (41B10 x 3/4" & 41B16 x 3/4")

DOOR DRIVE CHAIN KITS

DOOR HEIGHT	#48 CHAIN
Doors 8' to 10'	19-5810
Doors to 12'	19-5812
Doors to 14'	19-5814
Doors to 16'	19-5816
Doors to 18'	19-5818
Doors to 20'	19-5820
Doors 20' to 24'	19-5824

INDIVIDUAL PARTS

ITEM	PART #	DESCRIPTION
1	22-120	Brake solenoid, 115V
2	17-6014-1	Motor pulley
3	10-10166	Clutch plate
4	11-10014	Clutch shaft
5	12-729	Pillow flange bearing
6	15-41B10G1	Sprocket, 41B10 x 3/4"
7	16-5L300	Cogged belt
8	17-10165	Clutch pulley - 7" O.D. 5L
9	18-10164	Spring, clutch
10	39-10167	Clutch disc
11	87-P-075	Push on fastener
12	12-10331	Bearing
13	15-48B10GXX	Sprocket, 48B10 x 3/4"
14	15-41B32GXX	Sprocket, 41B32 x 3/4"
15	15-41B10G1	Sprocket, 41B10 x 3/4"
16	15-41B16GXX	Sprocket, 41B16 x 3/4"
17	19-41047	Roller chain, #41 x 47 pitches
18	19-48033M	Limit chain, #48 x 33 pitches
19	19-41023	Intermediate chain, #41 x 23 pitches
20	75-10387	Trolley assembly
21	K75-10388	Front idler/chain tension assembly
22	K75-10259	Tracker spacer
23	10-10205	Header bracket
24	K75-10406	Drive link assembly
25	K20-1050B-2RLP	Motor

NOT SHOWN

	01-32851	Owner's Manual - English
	01-32851SP	Owner's Manual - Spanish
	01-32851FR	Owner's Manual - French

OPERATOR NOTES

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)

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.

1 BUTTON STATION OR ANY AUXILIARY DEVICE

OPEN / CLOSE

1 4

B2, T, TS & FSTS MODE ONLY

See note 2.

RADIO CONTROLS

OPEN / CLOSE

R1 R2 R3

Any Commercial Type LiftMaster Brand Receiver

SENSING DEVICE TO REVERSE OR STOP

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

11 8

Sensing Device

EXTERNAL INTERLOCK

Remove Factory Installed Jumper When Interlock is Used

2 3

ONE

2 3

2 OR MORE

All Wiring Types

01-32851B

HOW TO ORDER REPAIR PARTS

DEK CANADA INC
1928 ST-REGIS BLVD.
DORVAL, QC
H9P 1H6

TEL: 514-685-5800
TOLL-FREE: 1-800-361-3198
FAX: 514-685-5804

www.dekcanada.com

WHEN ORDERING REPAIR PARTS
PLEASE SUPPLY THE FOLLOWING INFORMATION:
PART NUMBER   DESCRIPTION   MODEL NUMBER