Lift-Master©
The Professional Line

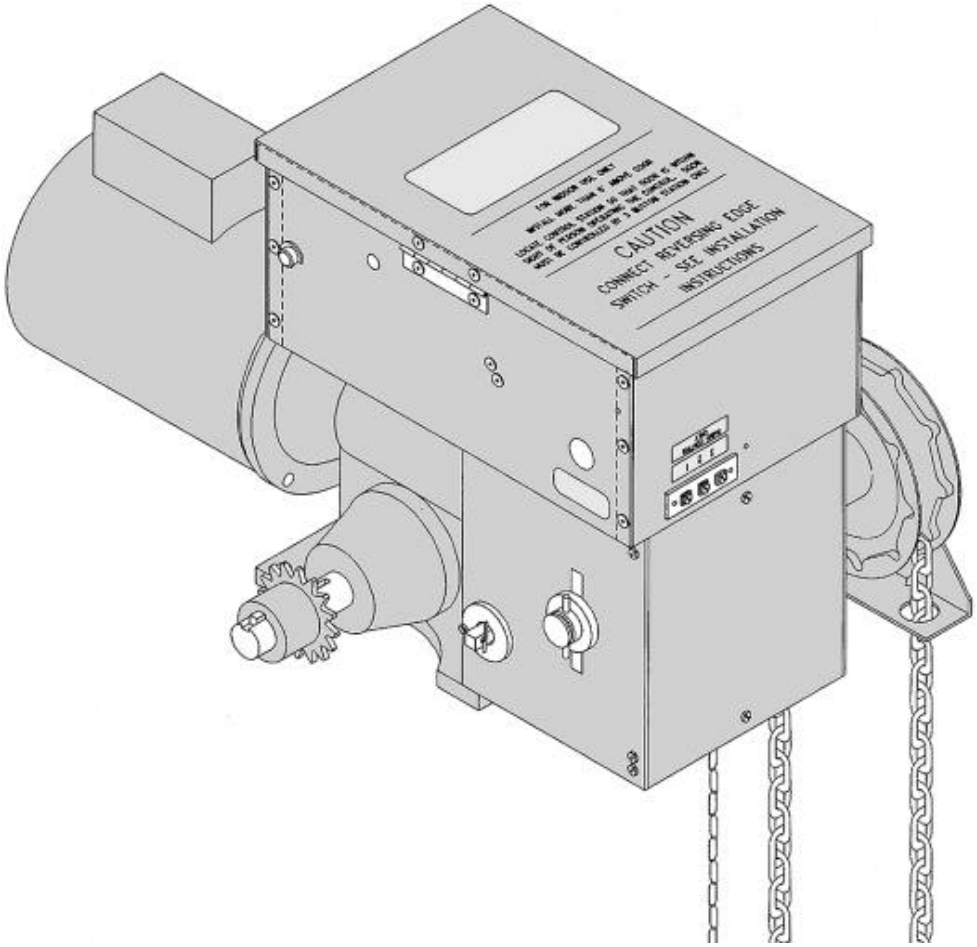
The Chamberlain Group, Inc.
A DUCHOSSOIS ENTERPRISE
845 Larch Avenue
Elmhurst, Illinois 60126

OWNER'S MANUAL

MODEL GJ

SOLID STATE

INDUSTRIAL DUTY
GEARHEAD JACKSHAFT OPERATOR



Serial # _____
(located on electrical box cover)

Installation Date _____

Wiring Type _____

NOT FOR RESIDENTIAL USE

LR78500
CERTIFIED
DOOR
OPERATOR

41B6
LISTED
DOOR
OPERATOR

SPECIFICATIONS

MOTOR

TYPE:.....Continuous duty

HORSEPOWER:.....1/2, 3/4 & 1 Hp Single or Three phase
1-1/2 & 2 HP Three phase

SPEED:.....1725 RPM

VOLTAGE:.....115/208-230 Single phase
208-230 Three phase

CURRENT: .....See motor nameplate

ELECTRICAL

CONTROL VOLTAGE: ....5V dc

AUXILIARY VOLTAGE:...24V dc

CONTROL STATION: .....NEMA 1 three button station. OPEN/CLOSE/STOP

WIRING TYPE:.....B2 (Standard)
Momentary contact to OPEN/CLOSE/STOP plus wiring for sensing device to reverse and auxiliary devices to open and close with open override.
(Other types available. See chart, Pg. 14)

LIMIT ADJUST:.....Linear driven, fully adjustable screw type cams. Adjustable to 30 feet.

MECHANICAL

DRIVE REDUCTION:.....**40:1 Reduction**
Heavy duty bronze worm gear reducer

OUTPUT SHAFT SPEED: .....43 R.P.M.

DOOR SPEED: .....4 - 10" per sec. depending on door

BRAKE: .....Solenoid actuated disc brake

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

SAFETY

DISCONNECT: .....Floor level chain hoist with electrical interlock for emergency manual door operation

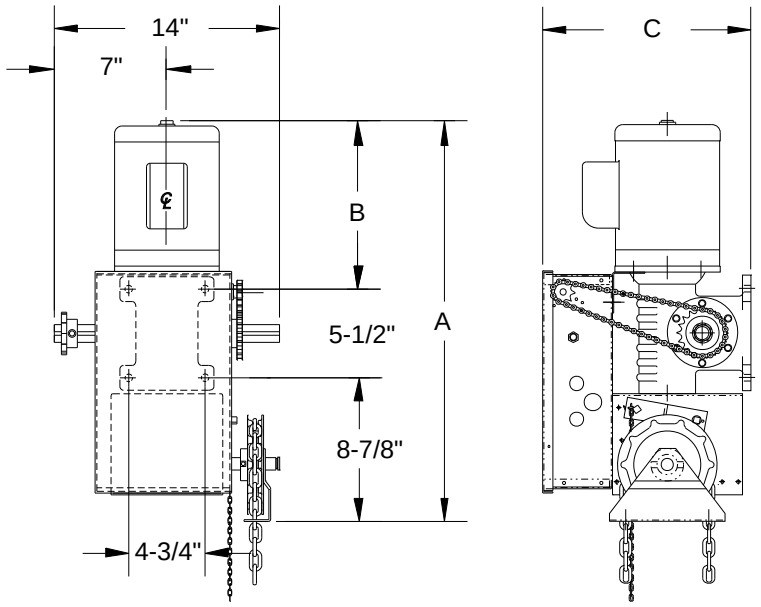
CLUTCH: (optional)....Adjustable torque limiter type

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

A REVERSING EDGE IS STRONGLY RECOMMENDED FOR *ALL* COMMERCIAL OPERATOR INSTALLATIONS. *REQUIRED* WHEN THE 3 BUTTON CONTROL STATION IS OUT OF SIGHT OF DOOR OR ANY OTHER CONTROL (AUTOMATIC OR MANUAL) IS USED.

WEIGHTS AND DIMENSIONS

HANGING WEIGHT: .....**80-110 LBS.**



GJ OPERATOR	1/2 HP		3/4 HP		1 HP		1 1/2 HP		2 HP	
CLUTCH	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
DIMENSION - A	28-11/16”	24-15/16”	28-13/16”	25-1/16”	29-1/16”	25-5/16”	29-3/16”	25-7/16”	29-13/16”	26-1/16”
DIMENSION - B	14-5/16”	10-9/16”	14-7/16”	10-11/16”	14-11/16”	10-15/16”	14-13/16”	11-1/16”	15-7/16”	11-11/16”
DIMENSION - C	13-1/16”	13-1/16”	13-1/16”	13-1/16”	13-1/16”	13-1/16”	13-9/16”	13-9/16”	13-9/16”	13-9/16”

IMPORTANT SAFETY NOTES

CAUTION

TO AVOID DAMAGE TO DOOR AND OPERATOR, MAKE ALL DOOR LOCKS INOPERATIVE. SECURE LOCK(S) IN "OPEN" POSITION.

IF THE DOOR LOCK NEEDS TO REMAIN FUNCTIONAL, INSTALL AN INTERLOCK SWITCH.

DO NOT CONNECT ELECTRIC POWER UNTIL INSTRUCTED TO DO SO.

WARNING

KEEP DOOR BALANCED. STICKING OR BINDING DOORS MUST BE REPAIRED. DOORS, DOOR SPRINGS, CABLES, PULLEYS, BRACKETS AND THEIR HARDWARE MAY BE UNDER EXTREME TENSION AND CAN CAUSE SERIOUS PERSONAL INJURY. CALL A PROFESSIONAL DOOR SERVICEMAN TO MOVE OR ADJUST DOOR SPRINGS OR HARDWARE.

SITE PREPARATIONS

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 operator and 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.

The safety and wear of the operator will be adversely affected if any of the above requirements are not met.

For metal buildings, fasten 2” x 2” x 3/16” (or larger) angle iron frames to the building purlins. Retain 2-1/4” between frames. See Figure 1.

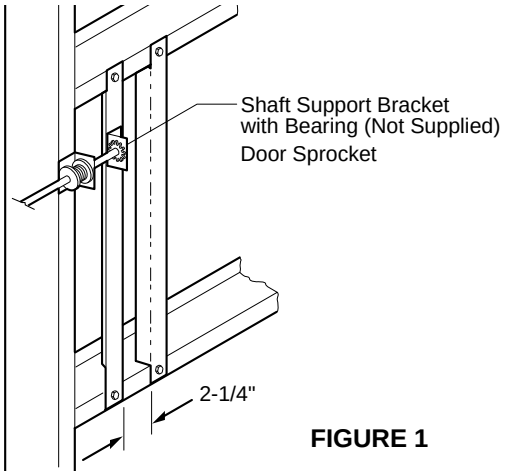


FIGURE 1

MOUNTING CONVERSIONS

The GJ operator may be mounted on either the right (standard) or left side of door, and in either a vertical (standard) or horizontal mounting position. Refer to the steps below if you require the hand chain and/or disconnect chain to be on the opposite side of the operator; Or if the operator is being mounted in a horizontal position.

Hand Chain Right/Left Conversion
Remove the two snap rings (1 pc. outer, 1 pc inner) on hand chain shaft assembly. Position roll-pin to fit through cutout in frame and slide complete shaft assembly through housing and bevel gear. Insert shaft assembly on opposite side of housing, and replace bevel gear, bearing, hardware, and snap rings on the opposite side of shaft in the same manner.

Disconnect Lever Right/Left Conversion
Remove cotter pins on the ends of the disconnect shaft (square shaft), move the disconnect lever arm to the opposite side, and replace the cotter pins. Be sure to keep two(2) 12ga. washers on the side without the lever arm.

Horizontal Mounting Conversion
Remove cotter pins on the ends of the disconnect shaft (square shaft), and remove lever. Replace lever using square hole on opposite end of lever. Reposition sash chain to opposite end of lever also. Replace cotterpins.

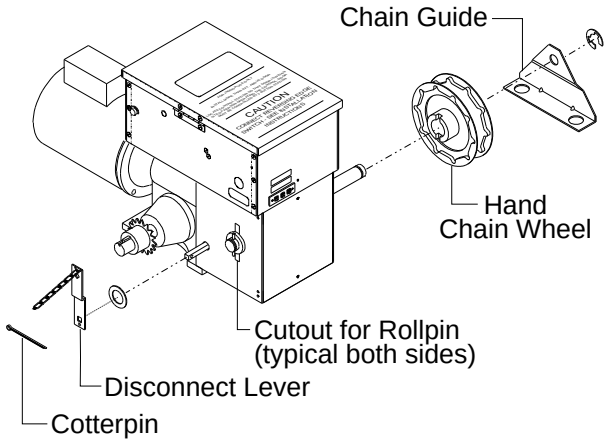
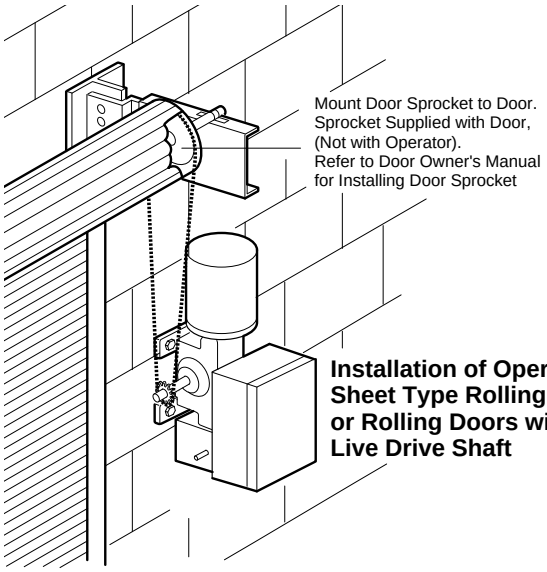


FIGURE 2

OPERATOR MOUNTING

The standard GJ operator is setup for mounting on right side of the door and in vertical position. If necessary, refer to the operator mounting conversions on page 3. Refer to the illustrations and instructions below that suits your application.

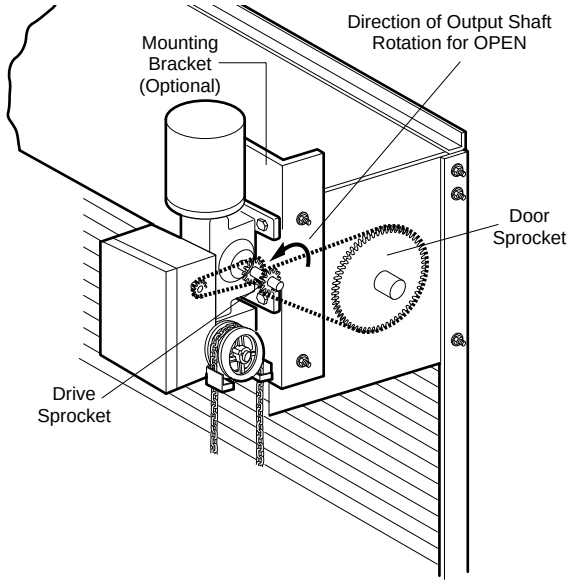
1a. **Wall Mounting**
The operator should generally be installed below the door shaft, and as close to the door as possible. The optimum distance between the door shaft and operator drive shaft is between 12" - 15". On concrete buildings, attach a shaft support bracket to the wall of the building. Refer to Figure 3.



IMPORTANT: An additional wall mounting plate (P/N 10-9098) or equivalent is recommended to provide additional support and to allow for adjustment of the drive chain.

FIGURE 3

1b. **Bracket or Shelf Mounting**
The operator may be mounted either above or below the door shaft. The optimum distance between the door shaft and operator drive shaft is between 12" - 15". Refer to Figure 4.



IMPORTANT: The shelf or bracket must provide adequate support, prevent play between operator and door shaft, and permit operator to be fastened securely and with the drive shaft parallel to the door shaft.

FIGURE 4

1c. Place door sprocket on the door shaft. Do not insert the key at this time.

2. Place drive sprocket on the appropriate side of the operator. Do not insert the key at this time.
3. Wrap drive chain around door sprocket and join roller chain ends together with master link.
4. Raise operator to approximate mounting position and position chain over operator sprocket.
5. Raise or lower operator until the chain is taut (not tight). Make sure the operator output shaft is parallel to door shaft and sprockets are aligned. When in position, secure the operator to wall or mounting bracket.
6. Align sprockets and secure, (see Figure 5).

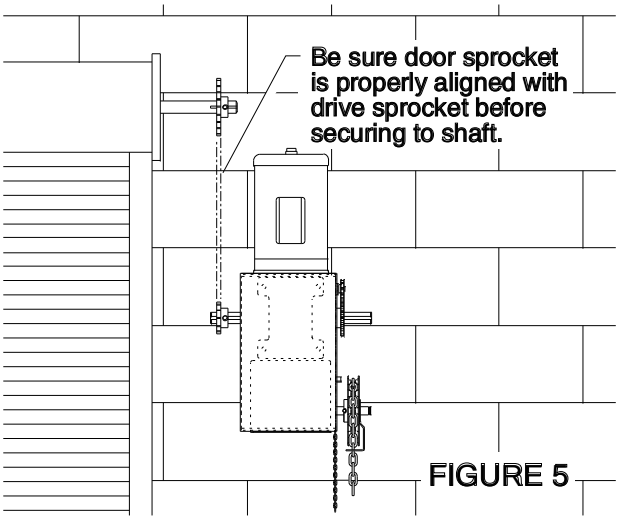


FIGURE 5

7. **Install Hand Chain**
   Place hand chain around hand chain wheel. Be sure to pass it through both openings in the chain guide. Remove enough links so chain hangs approximately two feet above the floor.

8. **Mount Chain Keeper**
   Using suitable hardware mount the chain keeper approximately 4 feet above the floor, near the free hanging chain. Remove disconnect sash chain from bag and place the end through the keyhole in the the chain keeper. Remove excess links if necessary.

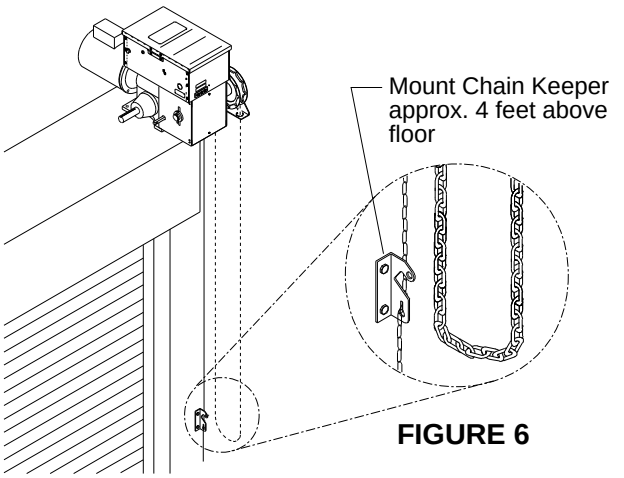


FIGURE 6

EMERGENCY MANUAL HOIST OPERATION

In case of emergency or power failure, the operator has provision for manually operating the door. An electrical interlock will disable the electrical controls when manual hoist is used. To operate the hoist:

a) Pull the disconnect chain (small chain) to engage the hoist mechanism. The disconnect chain may be locked in position by slipping the end through the keyhole of chain keeper mounted on the wall.

b) Operate the door in the desired direction by pulling on one side or the other of the continuous loop hoist chain (large chain).

c) The disconnect chain must be released from chain keeper before door will operate again electrically.

ENTRAPMENT PROTECTION ACCESSORIES (OPTIONAL)

SENSING EDGES

All types of sensing edges with an isolated normally open (N.O.) output are compatible with your operator. This includes pneumatic and electric edges. If your door does not have a bottom sensing edge and you wish to purchase one, contact the supplier of your operator.

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. Refer to the steps below

Important Notes:

a) Proceed with Limit Switch Adjustments before making any sensing edge wiring connections to operator as described on page 8

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

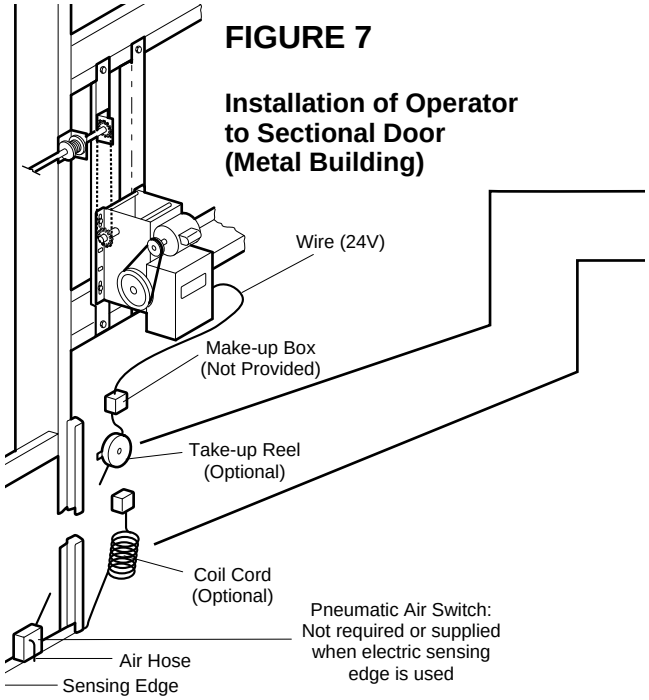
TAKE-UP REEL: Take-up reel should be installed 12" above the top of the door.

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

IT IS STRONGLY RECOMMENDED THAT A SENSING EDGE OR OTHER ENTRAPMENT PROTECTION DEVICE BE USED IN CONJUNCTION WITH THIS OPERATOR.

FIGURE 7

Installation of Operator to Sectional Door (Metal Building)



INSTALL CONTROL STATION

Before installing control station be sure to follow all warnings described below. Failure to so may result in severe injury to persons and/or damage to operator. Do not install any wiring or attempt to run the operator without consulting the wiring diagram. Install the optional Reversing Edge before proceeding with the Control Station installation.

IMPORTANT SAFETY NOTES

WARNING

INSTALL THE CONTROL STATION WHERE THE DOOR IS VISIBLE, BUT AWAY FROM THE DOOR AND ITS HARDWARE. IF CONTROL STATION CANNOT BE INSTALLED WHERE DOOR IS VISIBLE, OR IF ANY DEVICE OTHER THAN THE CONTROL STATION IS USED TO ACTIVATE THE DOOR, *A REVERSING EDGE MUST BE INSTALLED ON THE BOTTOM OF THE DOOR.* FAILURE TO INSTALL A REVERSING EDGE UNDER THESE CIRCUMSTANCES MAY RESULT IN SERIOUS INJURY OR DEATH TO PERSONS TRAPPED BENEATH THE DOOR.

WARNING

TO AVOID DAMAGE TO DOOR AND OPERATOR, MAKE ALL DOOR LOCKS INOPERATIVE. SECURE LOCK(S) IN "OPEN" POSITION.

IF THE DOOR LOCK NEEDS TO REMAIN FUNCTIONAL, INSTALL AN INTERLOCK SWITCH.

WARNING

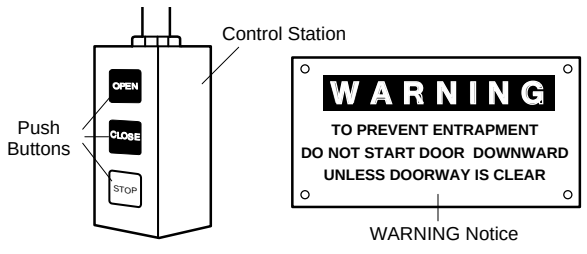
DISCONNECT POWER AT THE FUSE BOX BEFORE PROCEEDING.

OPERATOR MUST BE PROPERLY GROUNDED AND CONNECTED IN ACCORDANCE WITH LOCAL ELECTRICAL CODES. NOTE: THE OPERATOR SHOULD BE ON A SEPARATE FUSED LINE OF ADEQUATE CAPACITY.

ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED INDIVIDUAL.

MOUNT WARNING NOTICE

IMPORTANT: Mount WARNING NOTICE beside or below the push button station.

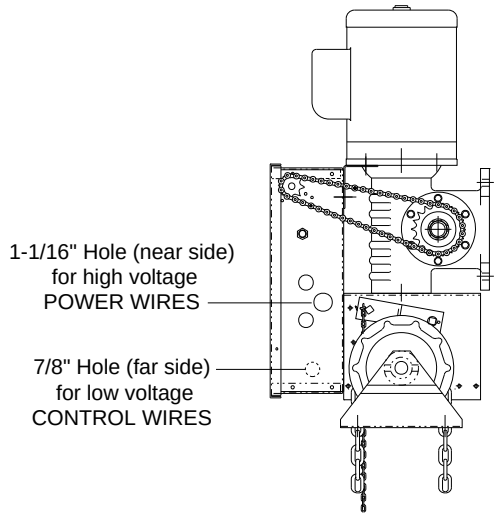


CONTROL STATION WIRING

Refer to Master Wiring Diagram. Make connection through holes labeled for power and control. Do not run control wires in the same conduit as power wires.

CABLE CONNECTION NOTE:

Be sure to use the control box opening with the 1-1/16" hole for the POWER cable. All control wires use the 7/8" hole.



1. Complete electrical connections to the operator and the control station. Fasten the control station to the wall and **MOUNT THE WARNING NOTICE BESIDE OR BELOW THE PUSH BUTTON STATION.**

2. Apply power to the operator. Press OPEN push button and observe direction of output shaft **rotation. See Figure 4, page 4. Press the STOP button.**

   If shaft does not rotate in the correct direction, check for improper wiring at the control station or between operator and control station.

   If the operator is three phase and control station wiring is correct, exchange any two of the three incoming power leads.

   If electrical problems persist, call our Toll Free number for assistance (1-800-528-6563).

ADJUST LIMITS

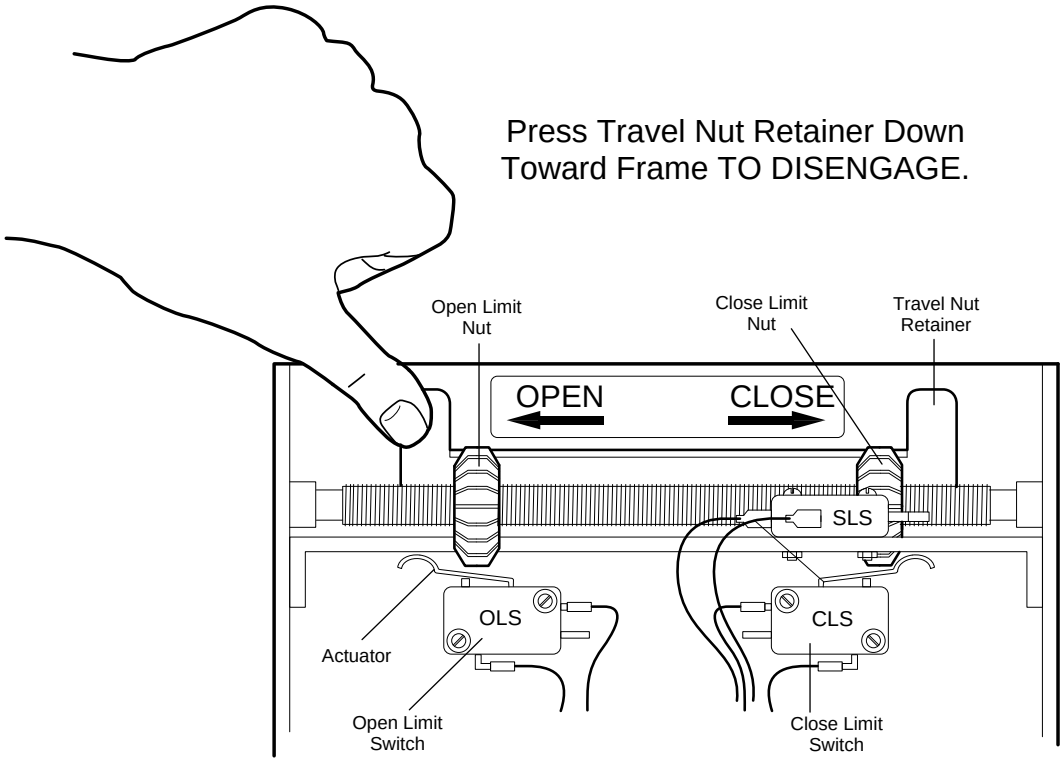
WARNING

TO AVOID SERIOUS PERSONAL INJURY OR DEATH FROM ELECTROCUTION, DISCONNECT ELECTRIC POWER BEFORE MANUALLY MOVING LIMIT NUTS.

MAKE SURE THE LIMIT NUTS ARE POSITIONED BETWEEN THE LIMIT SWITCH ACTUATORS BEFORE PROCEEDING WITH ADJUSTMENTS.

1. To **increase** door travel, spin nut **away** from actuator. To **decrease** door travel, spin limit nut **toward** actuator.
2. Adjust open limit nut so that door will stop in open position with the bottom of the door even with top of door opening.
3. Repeat Steps 1 and 2 for close cycle. Be sure close limit actuator is engaged as door fully seats at the floor.

If other problems persist, call our toll-free number for assistance - 1-800-528-6563.

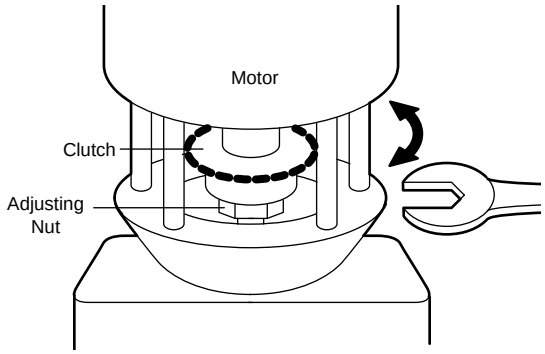


ADJUST CLUTCH (OPTIONAL)

WARNING

TO AVOID SERIOUS PERSONAL INJURY OR DEATH FROM ELECTROCUTION, DISCONNECT ELECTRIC POWER TO OPERATOR BEFORE ADJUSTING SLIP CLUTCH.

Remove clutch cover and adjust clutch so that it is tight enough to open and close the door but will slip when the door meets an obstruction. Either loosen or tighten the clutch nut with 1/4 turn increments. After adjustment is completed, tighten locking set screw and re-install clutch cover. Reconnect power to operator and test for proper operation. The clutch will require periodic inspection and adjustment.



CAUTION: The torque limiter clutch is NOT an automatic reversing device. An electric or pneumatic reversing edge can be added to bottom edge of door if desired.

CONNECT REVERSING EDGE DEVICE (OPTIONAL)

WARNING

IF CONTROL STATION CANNOT BE INSTALLED WHERE DOOR IS VISIBLE, OR IF ANY DEVICE OTHER THAN THE CONTROL STATION IS USED TO ACTIVATE THE DOOR, *A REVERSING EDGE MUST BE INSTALLED ON THE BOTTOM OF THE DOOR.* FAILURE TO INSTALL A REVERSING EDGE UNDER THESE CIRCUMSTANCES MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH TO PERSONS TRAPPED BENEATH THE DOOR.

The operator has been pre-wired to accept connection of a reversing edge device. Connect the normally open contacts to terminals T4 and T8 on the low voltage terminal block. A cut-off switch will de-activate the safety device during the last few inches of the door's downward travel.

NOTICE:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

HOW TO ORDER PARTS

OUR LARGE SERVICE ORGANIZATION
SPANS AMERICA

INSTALLATION AND SERVICE INFORMATION
ARE AVAILABLE 6 DAYS A WEEK

CALL OUR TOLL FREE NUMBER – 1-800-528-6563

HOURS 7:00 TO 3:30 p.m. (Mountain Std. Time)
MONDAY Through SATURDAY

IN CANADA
CALL OUR TOLL FREE NUMBER – 1-800-654-4736

WHEN ORDERING REPAIR PARTS
PLEASE SUPPLY THE FOLLOWING INFORMATION:

PART NUMBER DESCRIPTION MODEL NUMBER

ADDRESS ORDER TO:

THE CHAMBERLAIN GROUP, INC.
Electronic Parts & Service Dept.
2301 N. Forbes Blvd., Suite 104
Tucson, AZ 85745

MAINTENANCE SCHEDULE

Check at the intervals listed in the following chart.

ITEM	PROCEDURE	EVERY 3 MONTHS	EVERY 6 MONTHS	EVERY 12 MONTHS
Drive Chain	Check for excessive slack. Check & adjust as required. Lubricate.*	●		✔
Sprockets	Check set screw tightness	●		✔
Clutch (Optional)	Check & adjust as required		●	✔
Gear Reducer**	Check for leaks and replace seals as needed		●	✔
Fasteners	Check & tighten as required		●	✔
Manual Disconnect	Check & Operate		●	✔

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

⁕⁕ **Use Mobil SHC75W90 all climate synthetic oil.**

✔ **Repeat ALL procedures.**

■ **Do not lubricate motor. Motor bearings are rated for continuous operation**

■ **Do not lubricate clutch.**

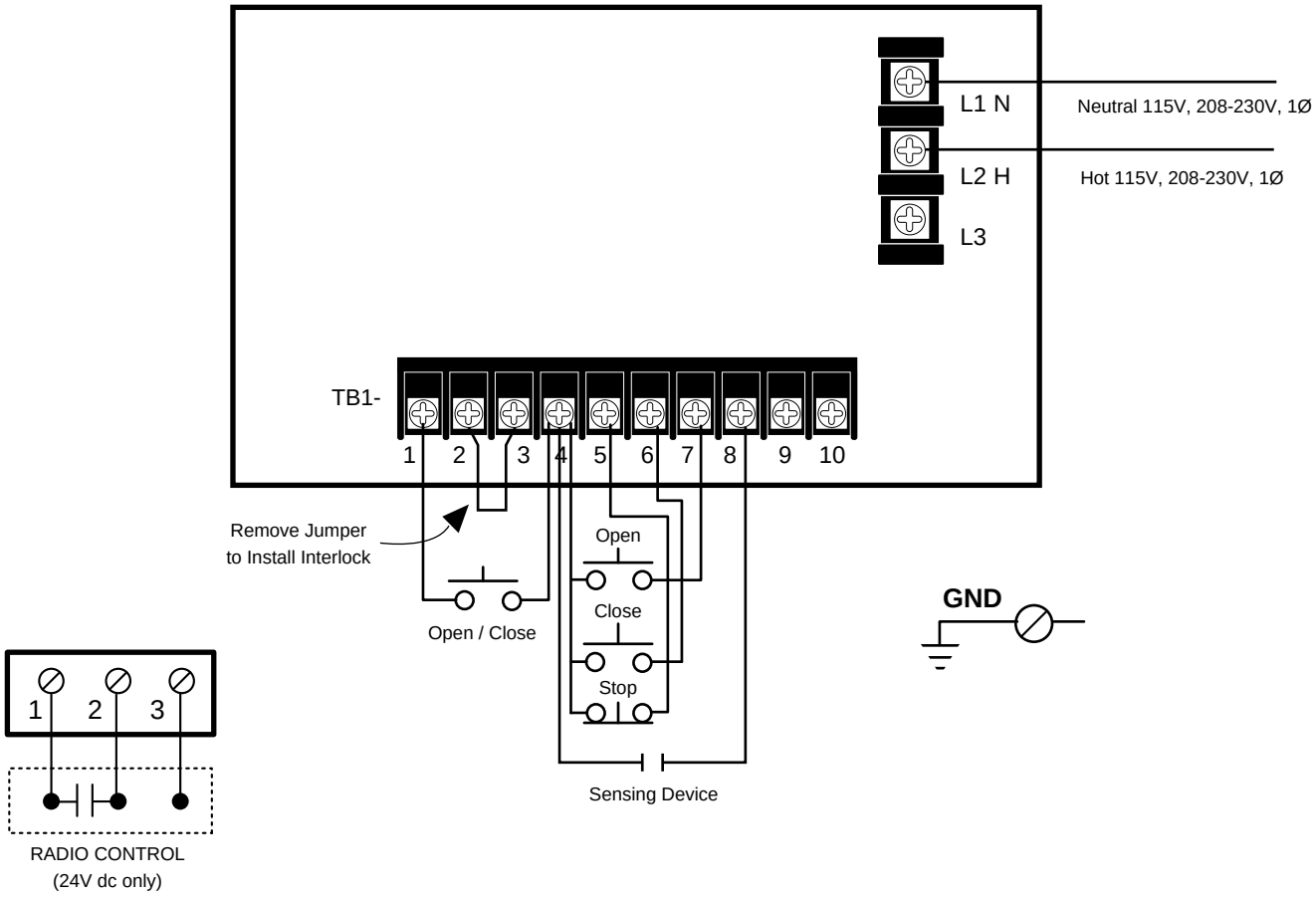
■ **Inspect and service whenever a malfunction is observed or suspected.**

■ **CAUTION: BEFORE SERVICING, ALWAYS DISCONNECT OPERATOR FROM POWER SUPPLY.**

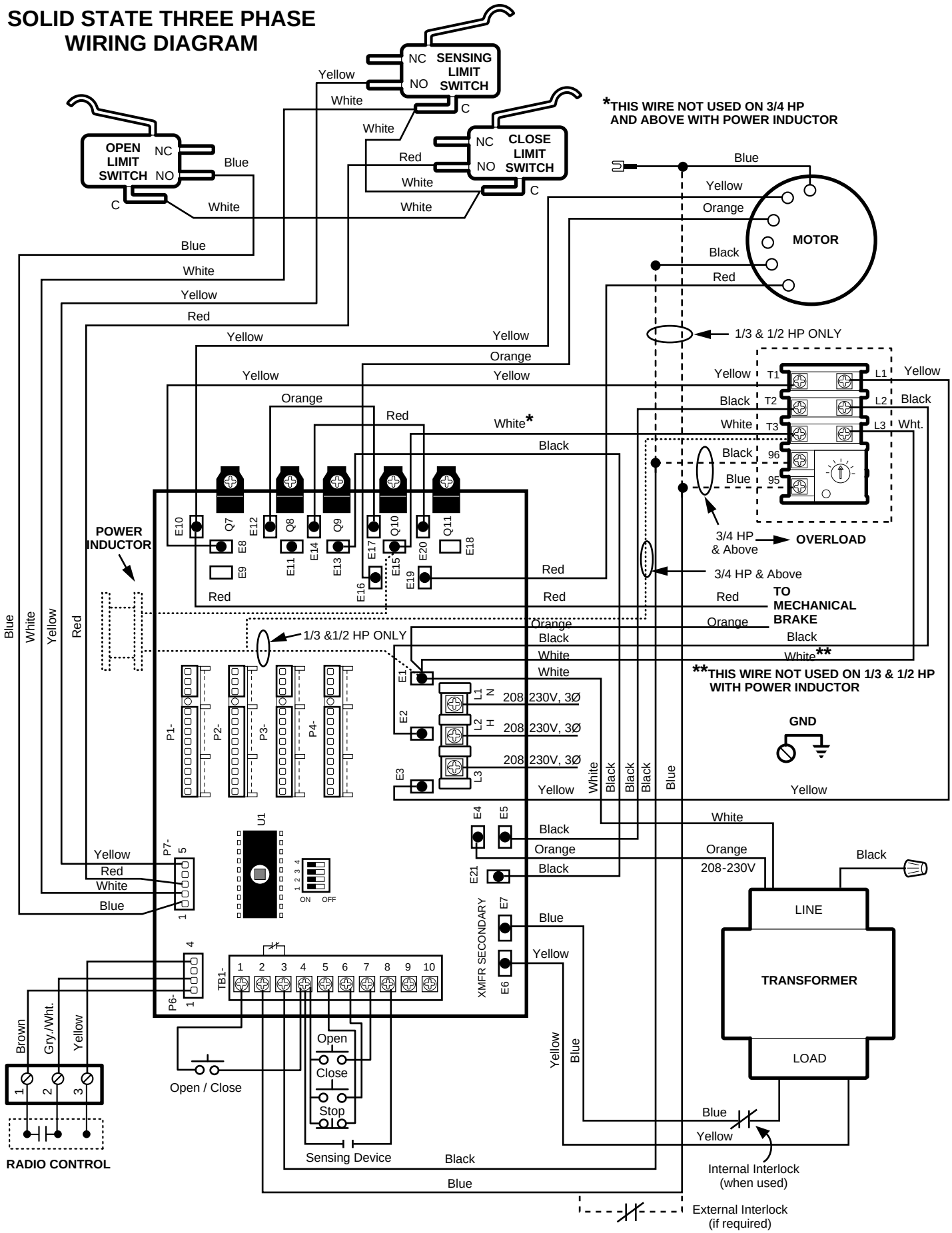
awaiting page 10

STANDARD POWER AND CONTROL CONNECTION DIAGRAM

(Solid State Board CDO - 115V, 208-230V, 1Ø)

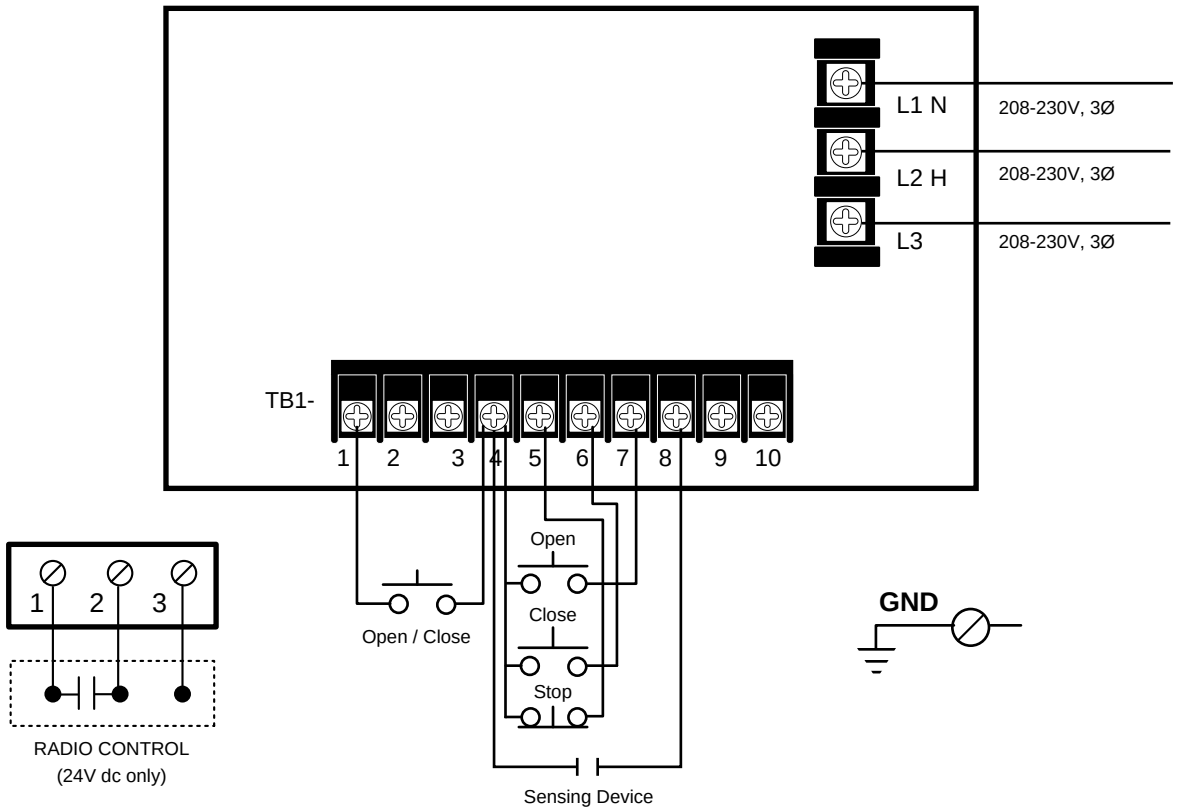


SOLID STATE THREE PHASE WIRING DIAGRAM



STANDARD POWER AND CONTROL CONNECTION DIAGRAM

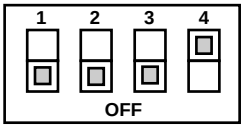
(Solid State Board CDO - 208-230V, 3Ø)



OPTIONAL SETTINGS

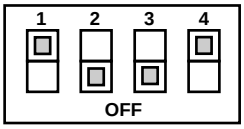
Set Maximum Run Timer
Begin with door in closed position. Set dip switch to max. run timer mode. Press control station open button to operate door from closed to full open position without stopping. Set dip switch to desired operating mode (B2, C2, D1, E2, T, TS).

Set max. run timer



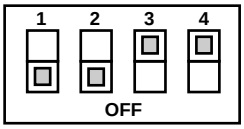
Set Adjustable Mid Stop
Begin with door in closed position. Set dip switch to adj. mid stop mode. Press control station open button to operate door from closed to mid stop position and stop with control station stop button. Set dip switch to desired operating mode (B2, C2, D1, E2, T, TS).

Set adj. mid stop



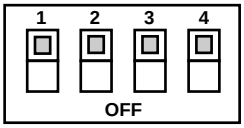
Set Timer to Close (NOTE: Requires P/N 1A4811 CPSII Option Board with Timer to Close Function.)
Set dip switch to timer to close mode. Momentarily press control station open button to set timer duration in 5 second increments. (Red diagnostic L.E.D. will flash to indicate the entry of each 5 second increment into memory). To re-set timer memory to zero, press control station close button. Set dip switch to (T or TS) operating mode after timer is programmed.

Set timer to close



Diagnostic Mode
Set dip switch to diagnostic mode. Flashing red diagnostic L.E.D. indicates proper microprocessor function. If the diagnostic L.E.D. does not light, the control logic board requires replacement.

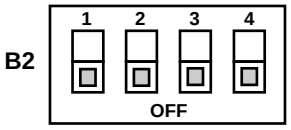
Diagnostic mode



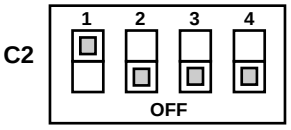
OPERATING MODE

TYPE STATION

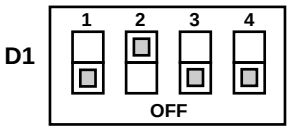
B2 3 Button, 1 Button, 1 & 3 Button Radio Control
Function: Momentary contact to open, close and stop, plus wiring for sensing device to reverse and auxiliary devices to open and close with open override.



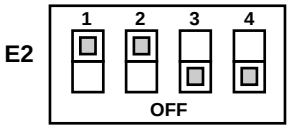
C2 3 Button, 3 Button Radio Control
Function: Momentary contact to open and stop with constant pressure to close, open override plus wiring for sensing device to reverse.



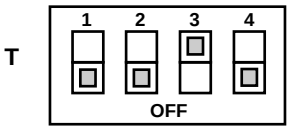
D1 2 Button, 3 Button Radio Control
Function: Constant pressure to open and close with wiring for sensing device to stop.



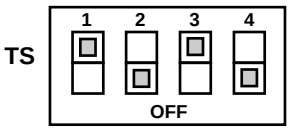
E2 2 Button, 3 Button Radio Control
Function: Momentary contact to open with override and constant pressure to close. Release of close button will cause door to reverse (roll-back feature) plus wiring for sensing device to reverse.



T* 3 Button, 1 Button, 1 & 3 Button Radio Control
Function: Momentary contact to open, close, and stop, with open override and timer to close. Every device that causes door to open, except a reversing device, activates 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 until the close button is used to close the door. **(NOTE: Requires P/N 1A4811 CPSII Option Board with Timer to Close Function.)**



TS* 3 Button, 1 Button, 1 & 3 Button Radio Control
Function: 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 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 until the close button is used to close the door. **(NOTE: Requires P/N 1A4811 CPSII Option Board with Timer to Close Function.)**



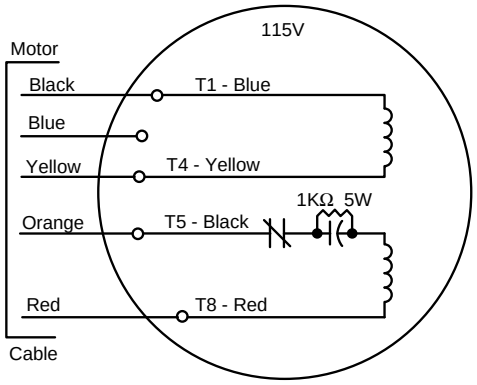
NOTE:

1. External interlocks may be used with all functional modes.
2. Auxiliary devices are any devices that have only one set of contacts. Examples are: photocell, loop detector, pneumatic or electrical treadles, residential 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.

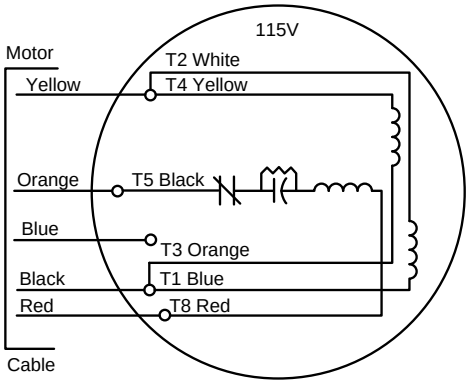
NEMA MOTOR WIRING DIAGRAMS

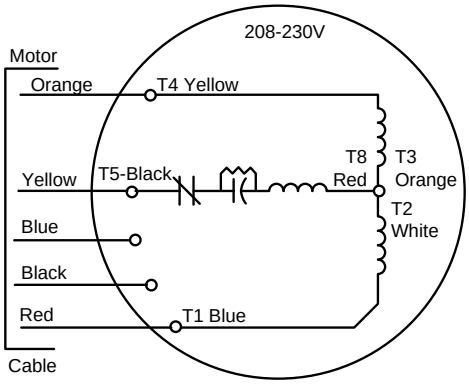
SINGLE VOLTAGE

1/3 & 1/2HP 115V only



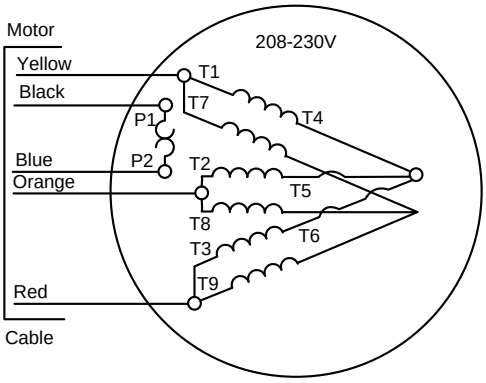
1 PHASE



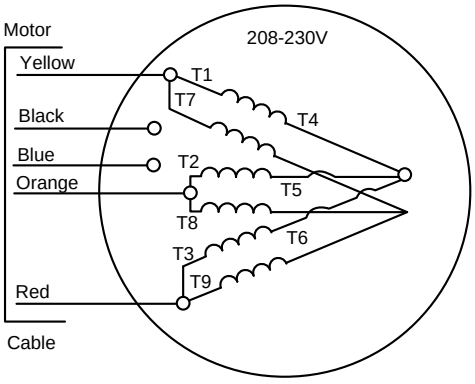


3 PHASE

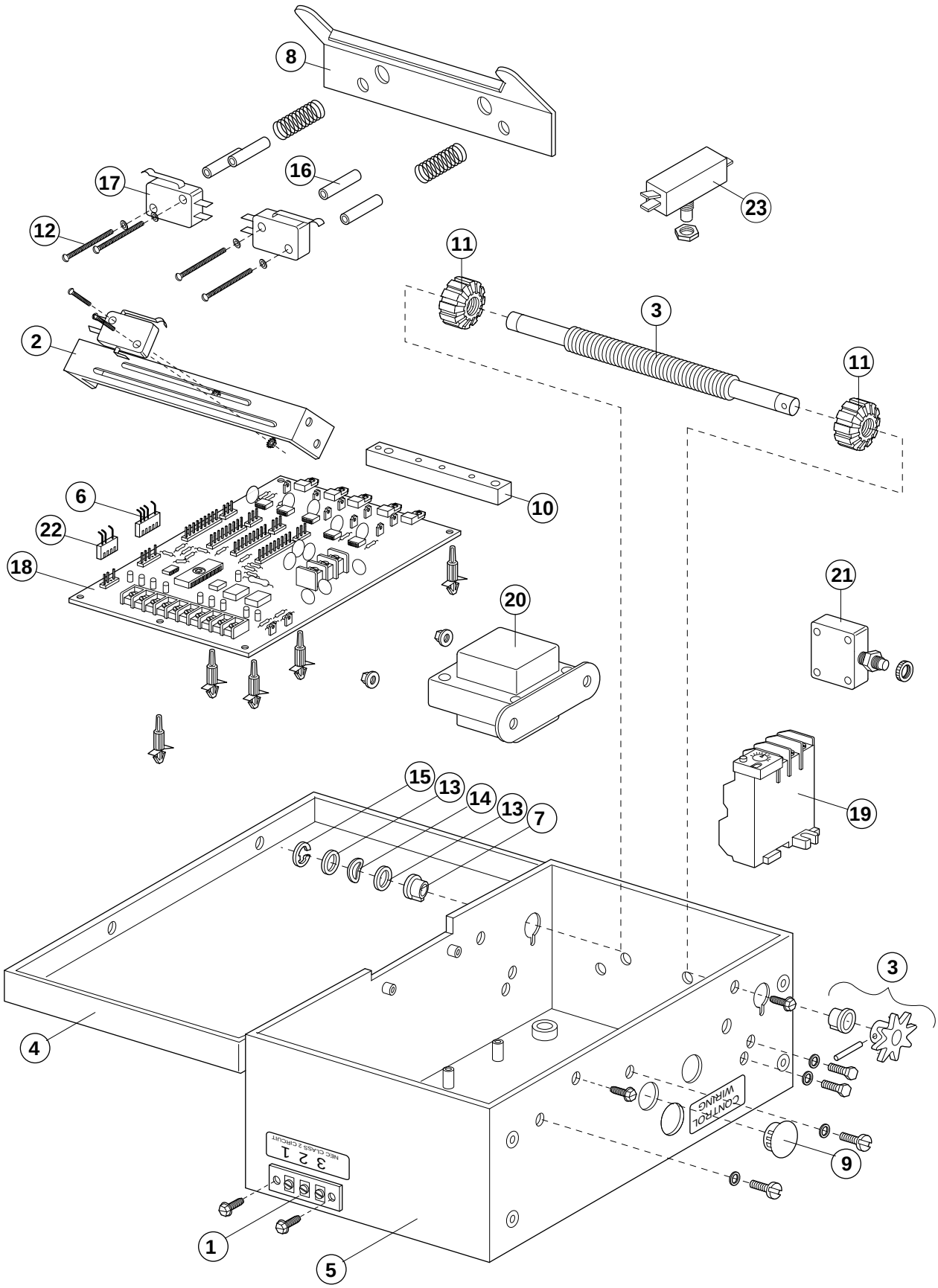
1/3 & 1/2HP



3/4HP & OVER



O DENOTES WIRENUT CONNECTION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CONTROL WIRING
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REPAIR PARTS LIST – ELECTRICAL BOX

SOLID STATE

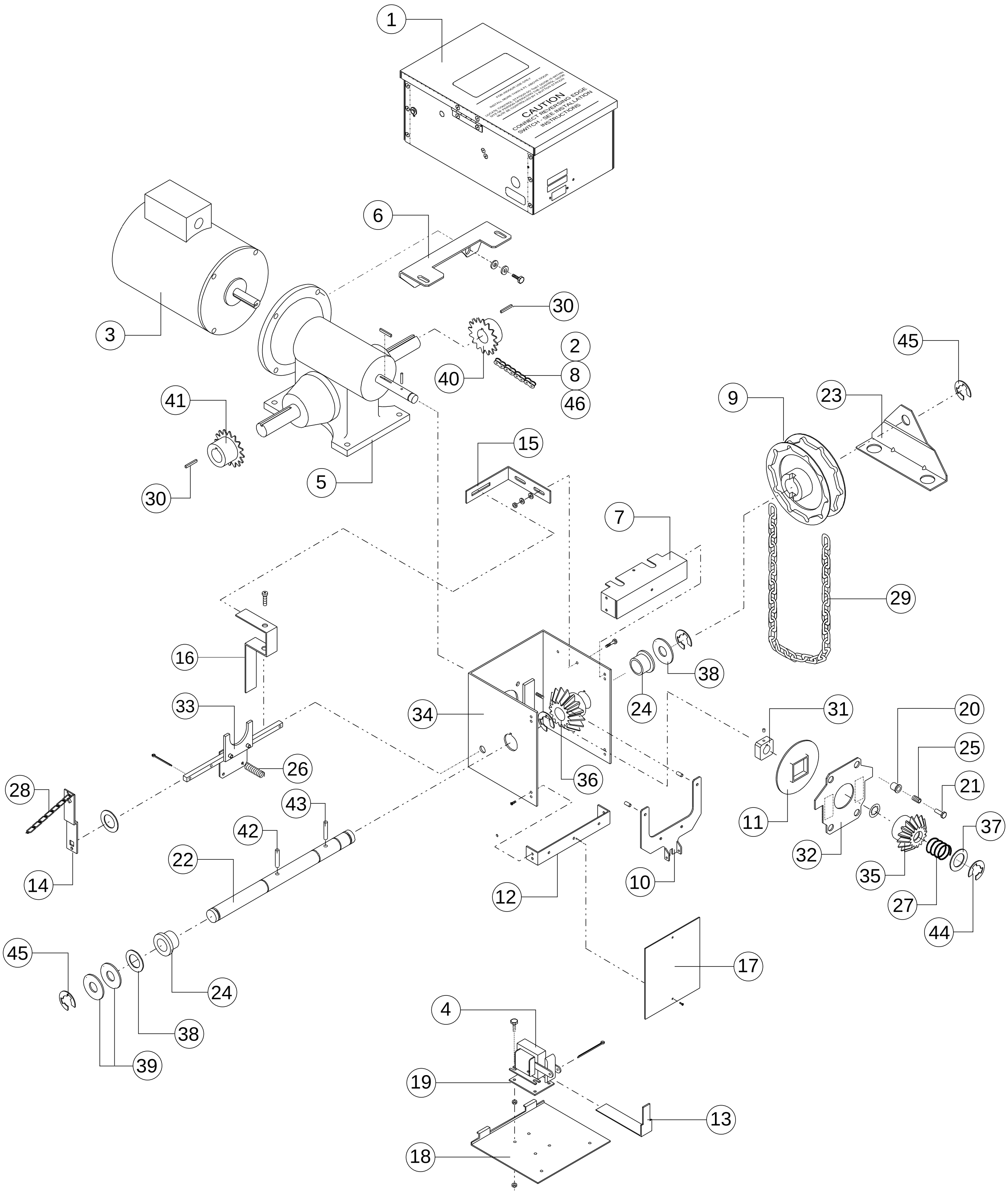
Below is a parts list for a standard model GJ electrical box. Optional modifications and/or accessories may add or remove certain parts from this list. Refer to page 9 for all repair part ordering information.

ITEM	PART NO.	DESCRIPTION	QTY
1	1B3727	Terminal Assy., 3-Lug	1
2	1B3757	Switch Bracket Assy.	1
3	1B3796	Ltd. Shaft - Sprocket Assy.	1
4	1B4681	Cover & Hinge Assy.	1
5	1C4691	Electric Box Assy.	1
6	1B4683	Wire Harness Limit Switch	1
7	11A012	Flanged Sleeve Bearing	1
8	12B552	Limit Bracket	1
9	31A388	Dome Plug	1
10	155B16	Heat Sink	1
11	133A182	Limit Nut, 1/2”	2
12	171A411	Screw, #4-40 x 1-1/2” Pan Head	4

ITEM	PART NO.	DESCRIPTION	QTY
13	216A184	Thrust Washer	2
14	216A191	Washer, Spring Curved	1
15	158A49	Retaining Ring, 3/8”	1
16	184A109	Spacer - Round Stand Off	4
17	180B133	Limit Switch	3
18	1D4650	PCB Assy.	1
19	*See Below	Overload	0 / 1
20	204B0134	Transformer, 115/230V	1
21	*See Below	Overload	0 / 1
22	1B4682	Radio Control Harness	1
23	23-9032	Interlock Switch	1

**** VARIABLE PARTS -*** Refer to the operator specifications to determine appropriate variable components

ITEM	PART NO.	DESCRIPTION	OPERATOR SPECIFICATIONS (HORSEPOWER / VOLTAGE / PHASE)										
			1/2Hp 115V 1Ø	1/2Hp 230V 1Ø	1/2Hp 230V 3Ø	3/4Hp 115V 1Ø	3/4Hp 230V 1Ø	3/4Hp 230V 3Ø	1Hp 115V 1Ø	1Hp 230V 1Ø	1Hp 230V 3Ø	1-1/2Hp 230V 3Ø	2Hp 230V 3Ø
19	180C0104-3	Overload, 2.8 - 4.4A						1			1		
	180C0104-4	Overload, 5.2 - 8A										1	1
21	180B0159-1	Overload, 5A		1									
	180B0159-2	Overload, 7A					1						
	180B0159-3	Overload, 8A								1			
	180B0159-4	Overload, 10A	1										
	180B0159-5	Overload, 15A							1				
	180B0159-9	Overload, 12A				1							



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CAUTION
CONNECT REVERSING EDGE
SWITCH. SEE INSTALLATION
INSTRUCTIONS
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Below is a parts list for a standard model GJ operator. Optional modifications and/or accessories may add or remove certian parts from this list. Refer to page 9 for all repair part ordering information.

ITEM	PART NO.	DESCRIPTION	QTY
1	See page 17	Electrical Box Assembly	1
2	*See Below	Chain, #48	1
3	*See Below	Motor	1
4	*See Below	Brake Solenoid	1
5	*See Below	Gear Reducer	1
6	012C0580	Elect. Box Mounting Bracket	1
7	012B0581	Top Front Support Bracket	1
8	1A995	Master link, #48	1
9	1C3758	Hoist wheel Assembly	1
10	10-5206	Brake Release Lever	1
11	10-5209	Brake Disc	1
12	10-9005	Bottom Front Support Bracket	1
13	10-9008	Actuator Plate	1
14	10-9009	Disconnect Lever	1
15	10-9010	Actuator Bracket	1
16	10-9012	Switch Actuator	1
17	10-9022	Front Cover	1
18	10-9023	Solenoid Plate	1
19	10-9024	Baffle Plate	1
20	11-5206	Spring Cup	4
21	11-5207	Brake Stud	4
22	11-9013	Hand Chain Shaft	1
23	12C513	Hand Chain Guide	1

ITEM	PART NO.	DESCRIPTION	QTY
24	12-9014	Flange Bearing, 3/4”	2
25	18-5206	Spring, Compression	4
26	18-9012	Sring, Tension	1
27	18-9034	Spring, Compression	1
28	19-9010	Chain, Disconnect	1
29	22A14	Hand Chain, Gold	1
30	80-207-19	Key, 1/4” x 1/4” x 1-1/2”	2
31	305-075209	Brake Hub	1
32	305-105205	Brake Plate Assembly	1
33	305-119008	Disconnect Shaft Assembly	1
34	305-109004	Brake Housing Assembly	1
35	32-9003	Bevel Gear, 5/8”	1
36	32-9015	Bevel Gear, 3/4”	1
37	80-206-65	Spacer	1
38	80-206-75	Spacer	2
39	80-206-76	Spacer	2
40	15-9004	Sprocket, 43B18 x 1”	1
41	81B86	Sprocket, 50B11 x 1”	1
42	86-RP10-110	Roll Pin, 5/16” x 1-5/8”	1
43	86-RP10-208	Roll Pin, 5/16” x 2-1/2”	1
44	87-E-062	Snap Ring, 5/8”	1
45	87-E-075	Snap Ring, 3/4”	4
46	*See Below	Offset Link	1

**** VARIABLE PARTS -*** Refer to the operator specifications to determine appropriate variable components

ITEM	PART NO.	DESCRIPTION	OPERATOR SPECIFICATIONS (HORSEPOWER / VOLTAGE / PHASE)										
			1/2Hp 115V 1Ø	1/2Hp 230V 1Ø	1/2Hp 230V 3Ø	3/4Hp 115V 1Ø	3/4Hp 230V 1Ø	3/4Hp 230V 3Ø	1Hp 115V 1Ø	1Hp 230V 1Ø	1Hp 230V 3Ø	1-1/2Hp 230V 3Ø	2Hp 230V 3Ø
2	1A4950	Chain, #48, 47P	1	1	1	1	1	1	1	1	1		
	1A4951	Chain, #48, 51P										1	1
3	123D0135	Motor, 1/2Hp, 115/230V, Single phase	1	1									
	123D0138	Motor, 1/2Hp, 230/460V, Three phase			1								
	123D0136	Motor, 3/4Hp, 115/230V, Single phase				1	1						
	123D0139	Motor, 3/4Hp, 230/460V, Three phase						1					
	123D0137	Motor, 1Hp, 115/230V, Single phase							1	1			
	123D0140	Motor, 1Hp, 230/460V, Three phase									1		
	123D0143	Motor, 1-1/2Hp, 230/460V, Three phase										1	
	123D0142	Motor, 2Hp, 230/460V, Three phase											1
4	22-120	Brake Solenoid, 115V	1			1			1				
	22-240	Brake Solenoid, 230V		1	1		1	1		1	1	1	1
5	32-9001-1C	Gear Reducer, 1 Hp	1	1	1	1	1	1	1	1	1		
	32-9001-2C	Gear Reducer, 2 Hp										1	1
46	109A0036	#48 Offset Link	1	1	1	1	1	1	1	1	1		

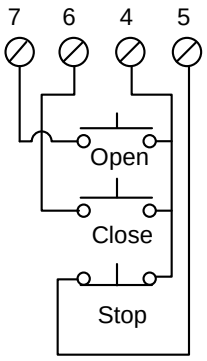
CONTROL CONNECTION DIAGRAM

LR78500 41B6

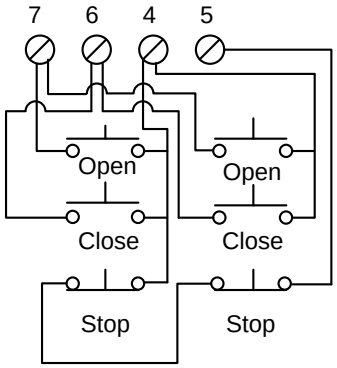
ATTENTION: The 3-Button Control Station provided must be connected for operation.

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

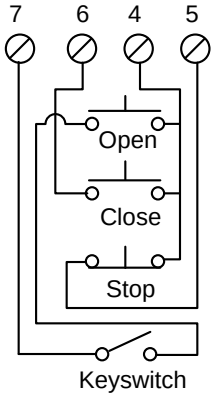
STANDARD



2 OR MORE

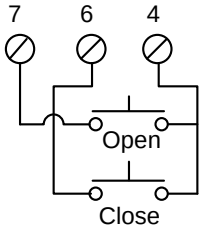


KEY LOCKOUT



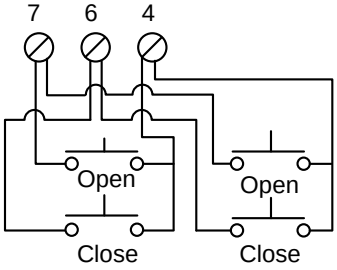
2 BUTTON STATION OR 3 POSITION KEYSWITCH WITH SPRING RETURN TO CENTER

STANDARD



D1 & E2
MODE ONLY

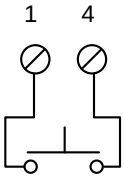
2 OR MORE



D1 & E2
MODE ONLY

1 BUTTON STATION OR ANY AUXILIARY DEVICE

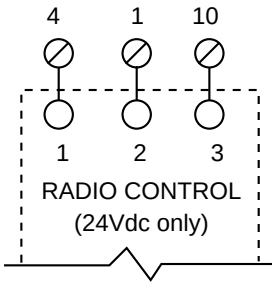
OPEN / CLOSE



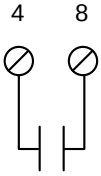
B2, T & TS
MODE ONLY

RESIDENTIAL RADIO CONTROLS

OPEN TIMER TO CLOSE

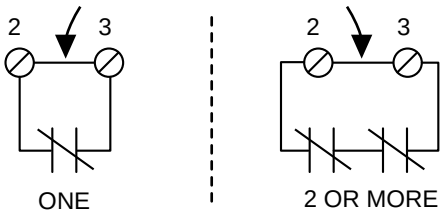


SENSING DEVICE TO REVERSE OR STOP



EXTERNAL INTERLOCK

REMOVE JUMPER



WIRING TYPES - ALL