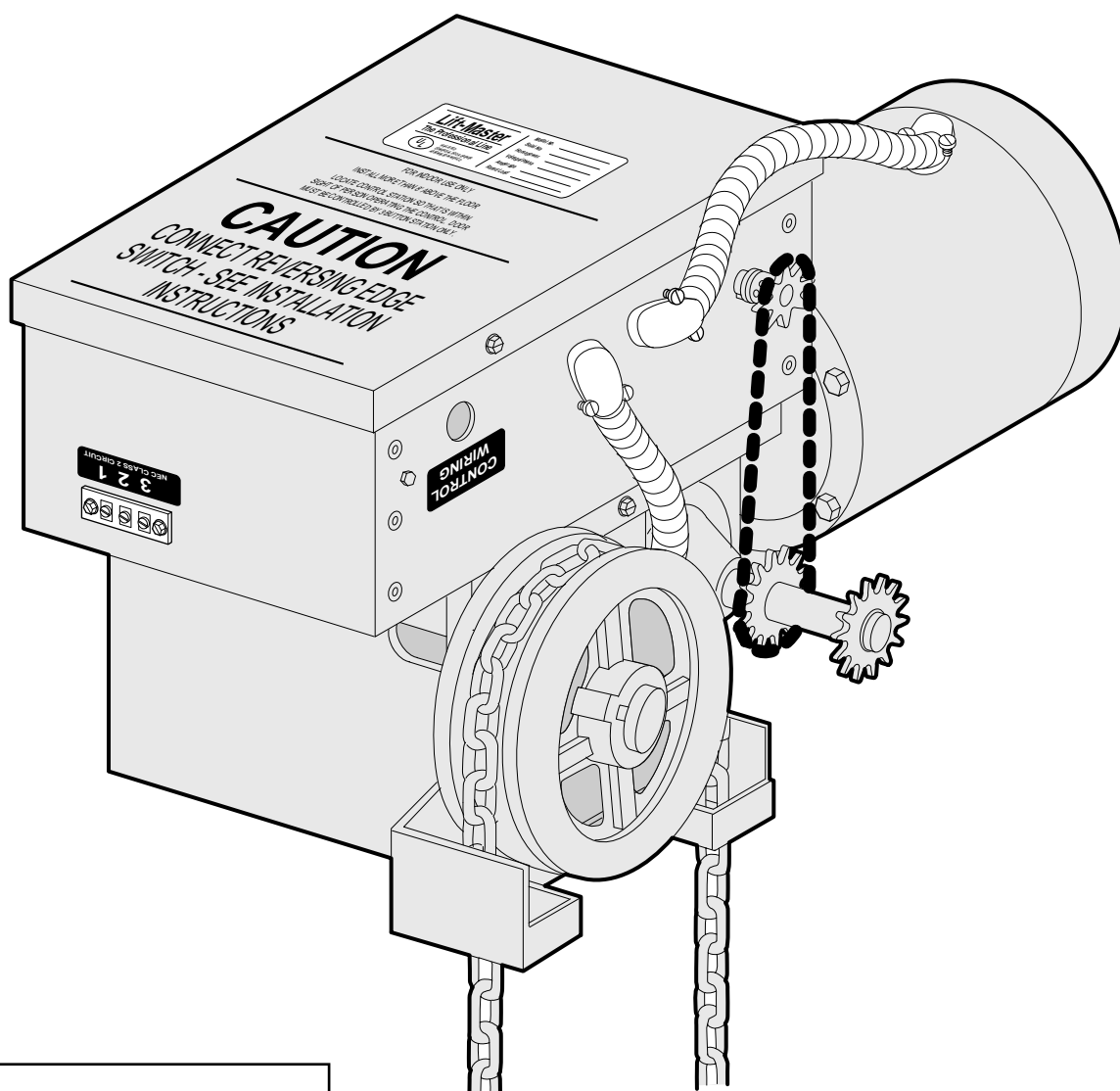


OWNER'S MANUAL

SERIES 3000

MODEL GJ

INDUSTRIAL DUTY GEARHEAD JACKSHAFT OPERATOR



Serial # _____
(located on electrical box cover)

Installation Date _____

Wiring Type _____



**COMMERCIAL DOOR OPERATOR
LISTED
NOT FOR RESIDENTIAL USE**

SPECIFICATIONS

MOTOR

TYPE:Continuous Duty
HORSEPOWER:1/3, 1/2, 3/4 & 1 Hp
 Single or Three Phase
 1-1/2 & 2 HP Three Phase
SPEED:1725 RPM
VOLTAGE:115/230 Single Phase
 208-230/460 Three Phase
CURRENT:See Motor Nameplate

ELECTRICAL

TRANSFORMER:24VAC
CONTROL STATION:.....3 Button
 OPEN/CLOSE/STOP, NEMA 1
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

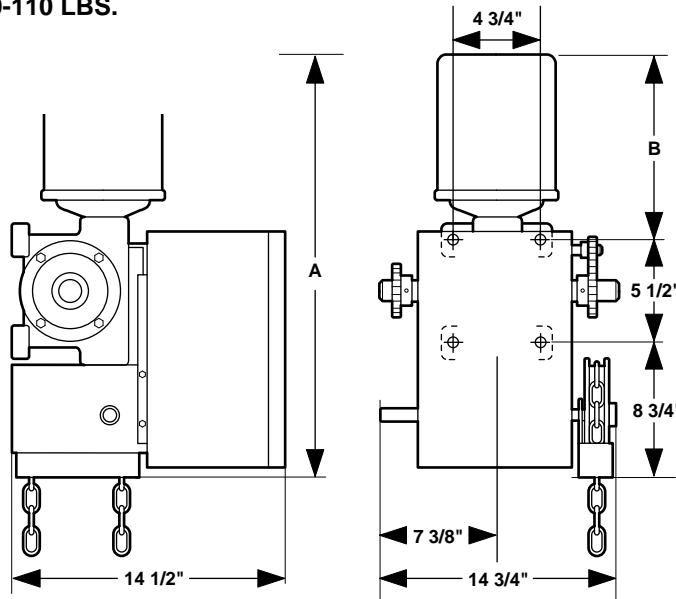
DRIVE REDUCTION:**40:1 Reduction**
 Heavy Duty Bronze Worm
 Gear Reducer
OUTPUT SHAFT SPEED: .43 R.P.M.
DOOR SPEED:4 - 10" per sec.
 depending on door
BRAKE:Solenoid Drum Brake
HOIST WHEEL:Standard Mounting on
 left or right side

SAFETY

DISCONNECT:Spring Loaded Floor Level
 Disconnect Arm
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. SEE PAGE 7.**

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 9/16"	24 13/16"	28 11/16"	24 15/16"	28 15/16"	25 3/16"	29 1/16"	25 5/16"	29 11/16"	25 15/16"
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"

INSTALL OPERATOR



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.

FOR SECTIONAL AND ROLLING TYPE DOORS

CAUTION: AT LEAST 2 PERSONS AND A SAFE WORKING PLATFORM ARE REQUIRED FOR INSTALLATION.

Check the operator name plate mounted on the electrical box to be sure the voltage, phase and h.p. are correct for your needs.

1. Close door.
2. For metal buildings, fasten 2"x2"x3/16" (or larger) angle iron frames to the building purlins. Retain 2-1/4" between frames. See Figure 1.
3. Place door sprocket and shaft support bracket (sectional door only) on door shaft as shown. Attach shaft support bracket to angle brace.

On concrete buildings, attach shaft support bracket to wall of building.

NOTE 1: On concrete or block walls, install the operator as shown in Figure 2.

NOTE 2: For standard rolling steel doors, install operator as shown in Figure 3. (If mounting to a steel building, make an angle iron mounting frame as shown in Figure 1.)

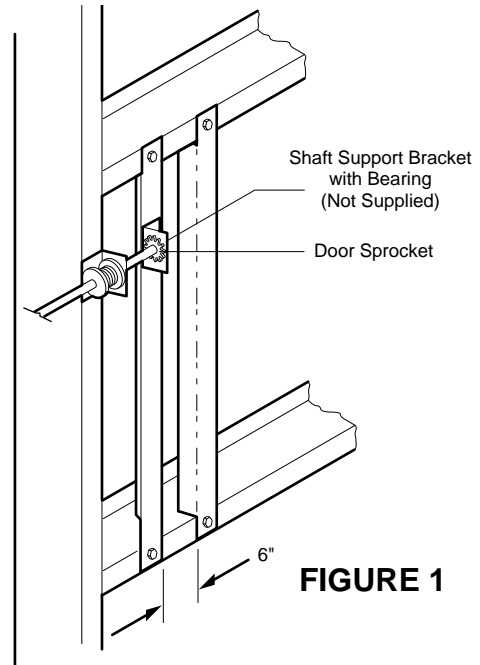


FIGURE 1

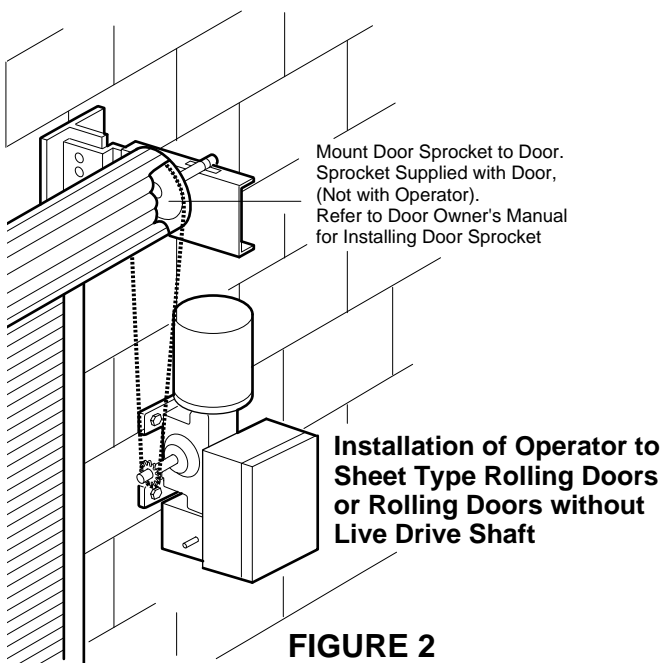


FIGURE 2

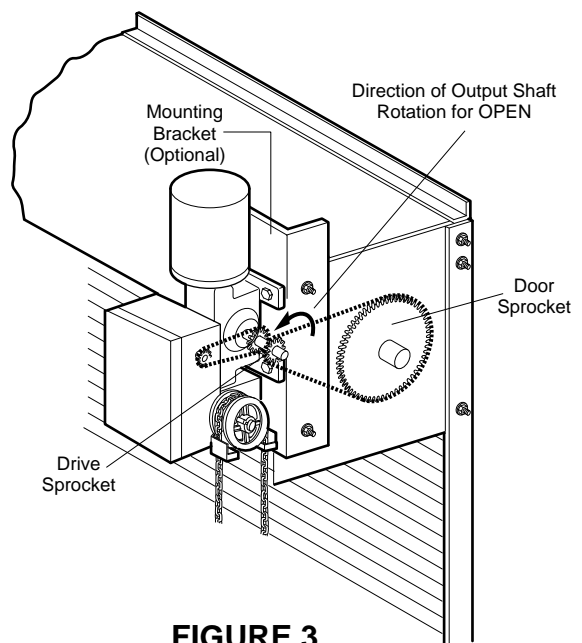


FIGURE 3

4. Place drive sprocket on the appropriate side of the operator. Do not insert the key at this time.
5. Join roller chain ends together with master link.
6. Raise operator to approximate mounting position and position chain over door and operator sprockets.
7. 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.
8. Hand chain wheel is factory installed. To change position to opposite side of operator, remove E-ring, chain guide, hand chain wheel and re-install on operator in reverse order of disassembly.

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.

FIGURE 5

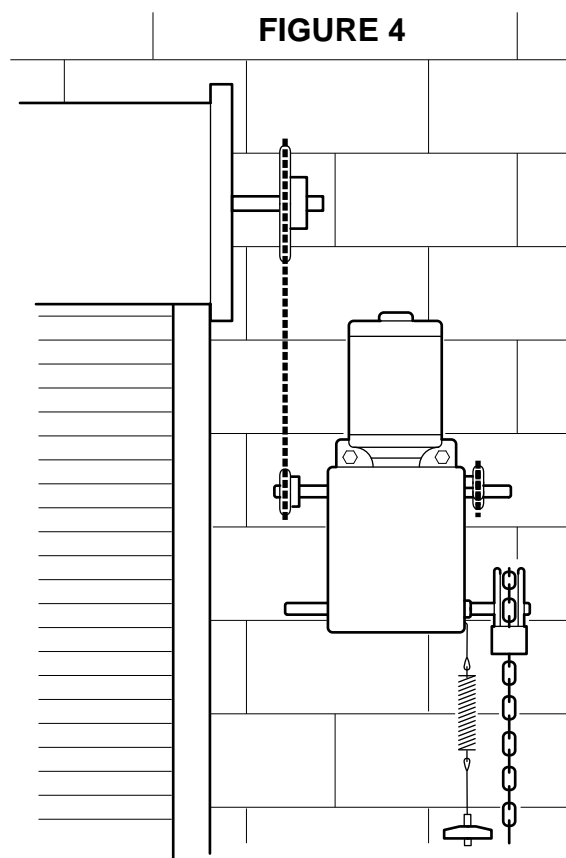
Position of cable sheave bracket for VERTICAL (standard) mounting of operator.

Position of cable sheave bracket for HORIZONTAL mounting of operator.

Relocate bracket using existing hardware. Cable must exit through slot "B" provided in cover (Item F).

9. Uncoil emergency operating cable assembly and mount the chain keeper bracket to the wall of the building four feet above the floor, using two 1/4" dia. bolts.
10. Insert cable assembly into bracket (Figure 6) and remove slack from the cable by sliding spacer, handle and set collar up the cable until spacer touches underside of bracket. Temporarily tighten set screw in set collar.
11. Remove cable assembly from bracket and slide spacer, handle and set collar up the cable for a distance of $3" \pm 1/4"$. Permanently tighten set screw in set collar and cut off excess cable about 1/4" from collar.
12. To engage the gears for manual hand chain operation, pull down on handle and insert chain keeper into bracket (Figure 6).

NOTE: To maintain proper cable tension during manual operation, the cable assembly must be pre-tensioned. Refer to steps 11 and 12 above.



Installation of Operator to Standard Rolling Steel Doors.

NOTE: Vertical installations are standard, as shown in Figures 2, 3 and 4.

For horizontal mounting applications, relocate the cable sheave bracket (Figure 5) before proceeding with the cable assembly installation.

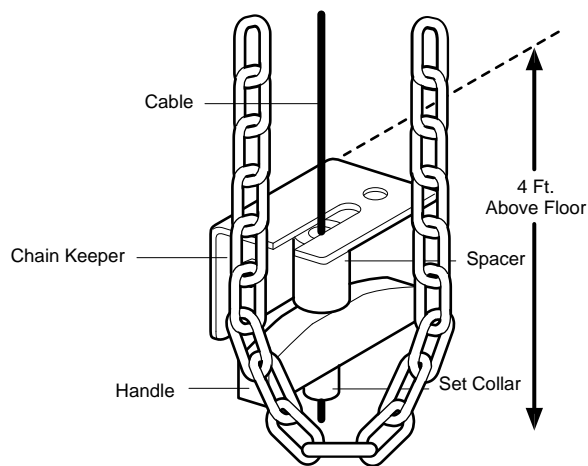


FIGURE 6

OPTIONAL FEATURES AVAILABLE

REEL (OPTIONAL)

Take-up reel should be installed 12" above the top of the door.

COIL CORD (OPTIONAL)

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

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

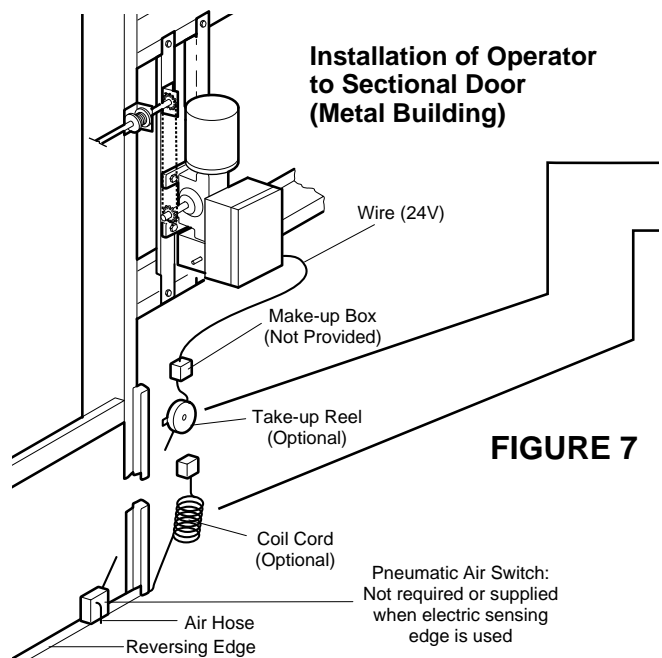


FIGURE 7

INSTALL CONTROL STATION

Install the optional Reversing Edge before proceeding with the Control Station Installation.



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.



WARNING

DISCONNECT POWER TO THE FUSE BOX BEFORE PROCEEDING.

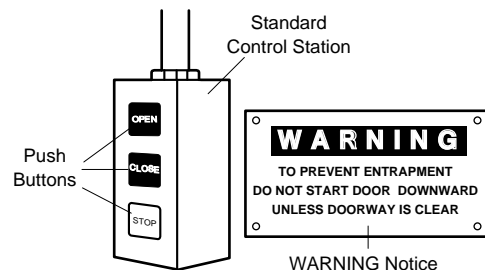
OPERATOR MUST BE PROPERLY GROUNDED AND CONNECTED IN ACCORDANCE WITH LOCAL ELECTRICAL CODES. THE OPERATOR SHOULD BE ON A SEPARATE FUSED LINE OF ADEQUATE CAPACITY.

ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED INDIVIDUAL.



WARNING

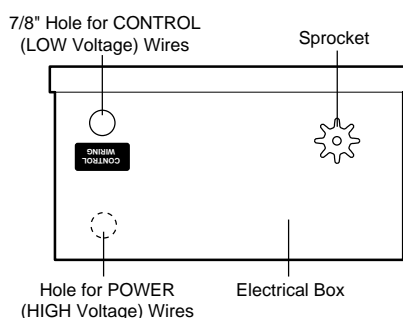
INSTALL THE CONTROL STATION WHERE THE DOOR IS VISIBLE, BUT AWAY FROM THE DOOR AND ITS HARDWARE. IF CONTROL STATION CANNOT BE INSTALLED WHERE DOOR IS VISIBLE, OR IF ANY DEVICE OTHER THAN THE CONTROL STATION IS USED TO ACTIVATE THE DOOR, A **REVERSING EDGE** **MUST BE INSTALLED ON THE BOTTOM OF THE DOOR**.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



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.



13. 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 BUTTONS**.
14. Apply power to the operator. Press OPEN push button and observe direction of output shaft rotation. See Figure 3, page 3. 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

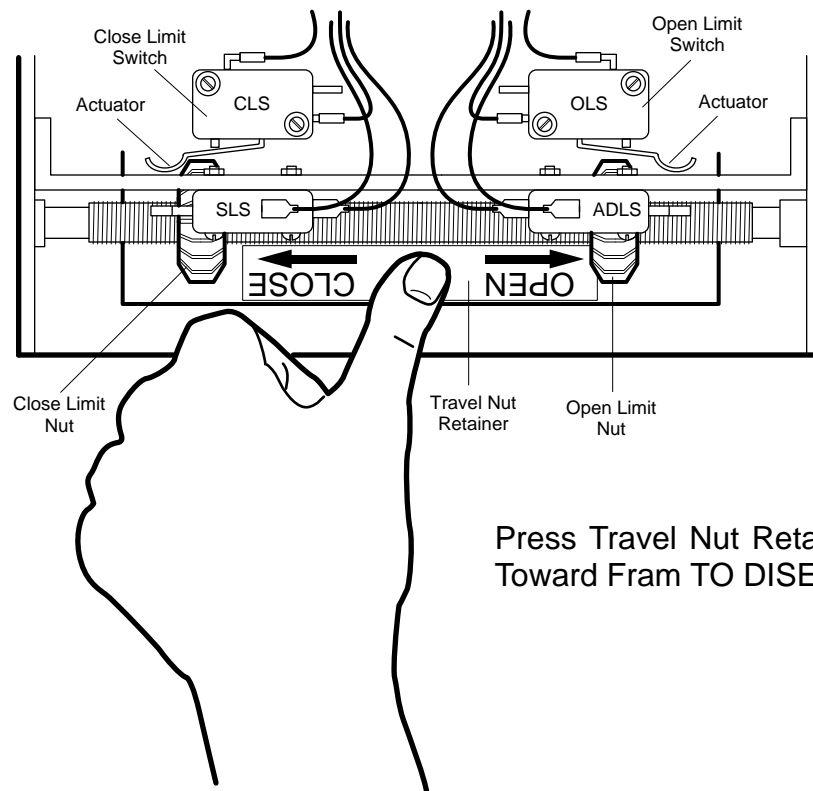


WARNING

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. Depress open limit switch. The operator should stop.
 2. To **increase** door travel, spin nut **away** from actuator. To **decrease** door travel, spin limit nut **toward** actuator.
 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. 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.



Press Travel Nut Retainer Down
Toward Fram TO DISENGAGE.

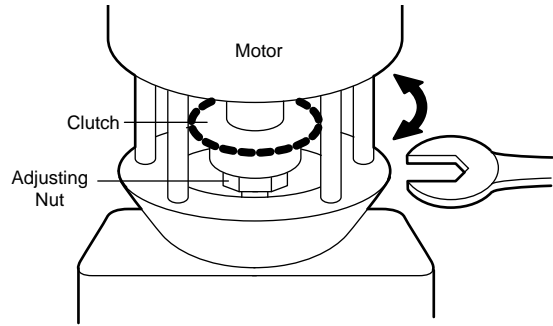
ADJUST CLUTCH (OPTIONAL)



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 T6 and T8 on the low voltage terminal block. A cut-off switch will deactivate the safety device during the last few inches of the door's downward travel.

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		●	✓
Bearings & Shafts	Check for wear & lubricate	●		✓

* 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.

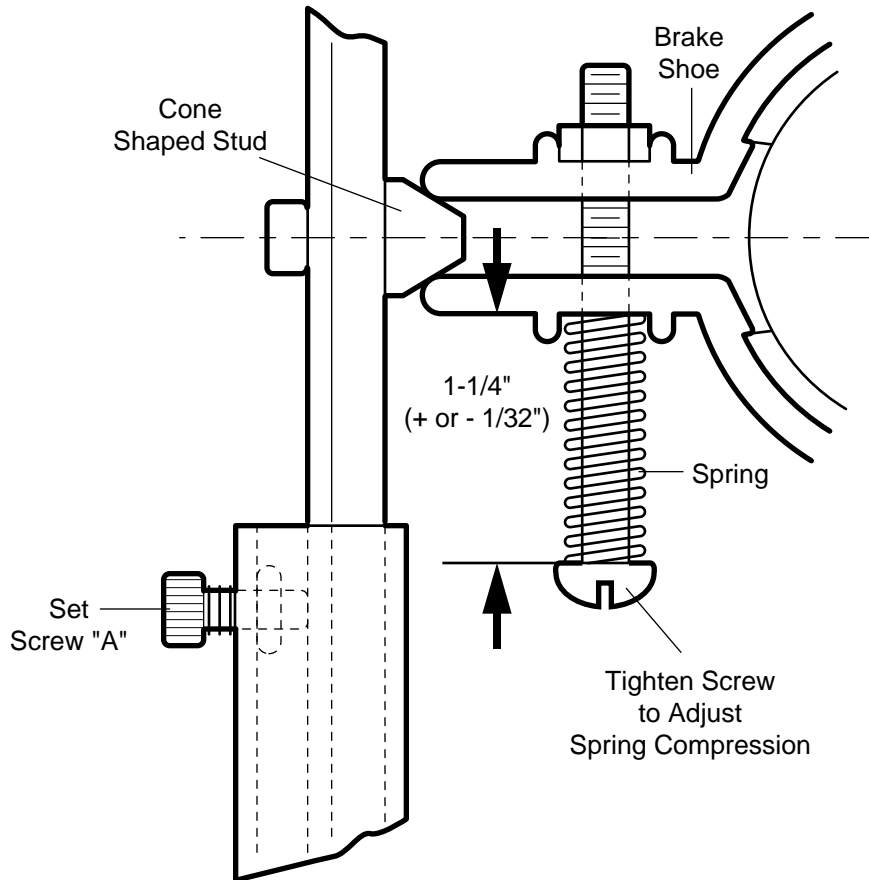
■ Inspect and service whenever a malfunction is observed or suspected.

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

ADJUST THE BRAKE

Refer to illustration below. Tighten the screw until the spring compresses to the 1-1/4" dimension. Adjust screw "A" until cone shaped stud just touches the two brake shoes as shown.

CAUTION: Do NOT over-adjust screw "A". If the cone shaped stud spreads the shoes, the brake will not function correctly.



HOW TO ORDER REPAIR 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

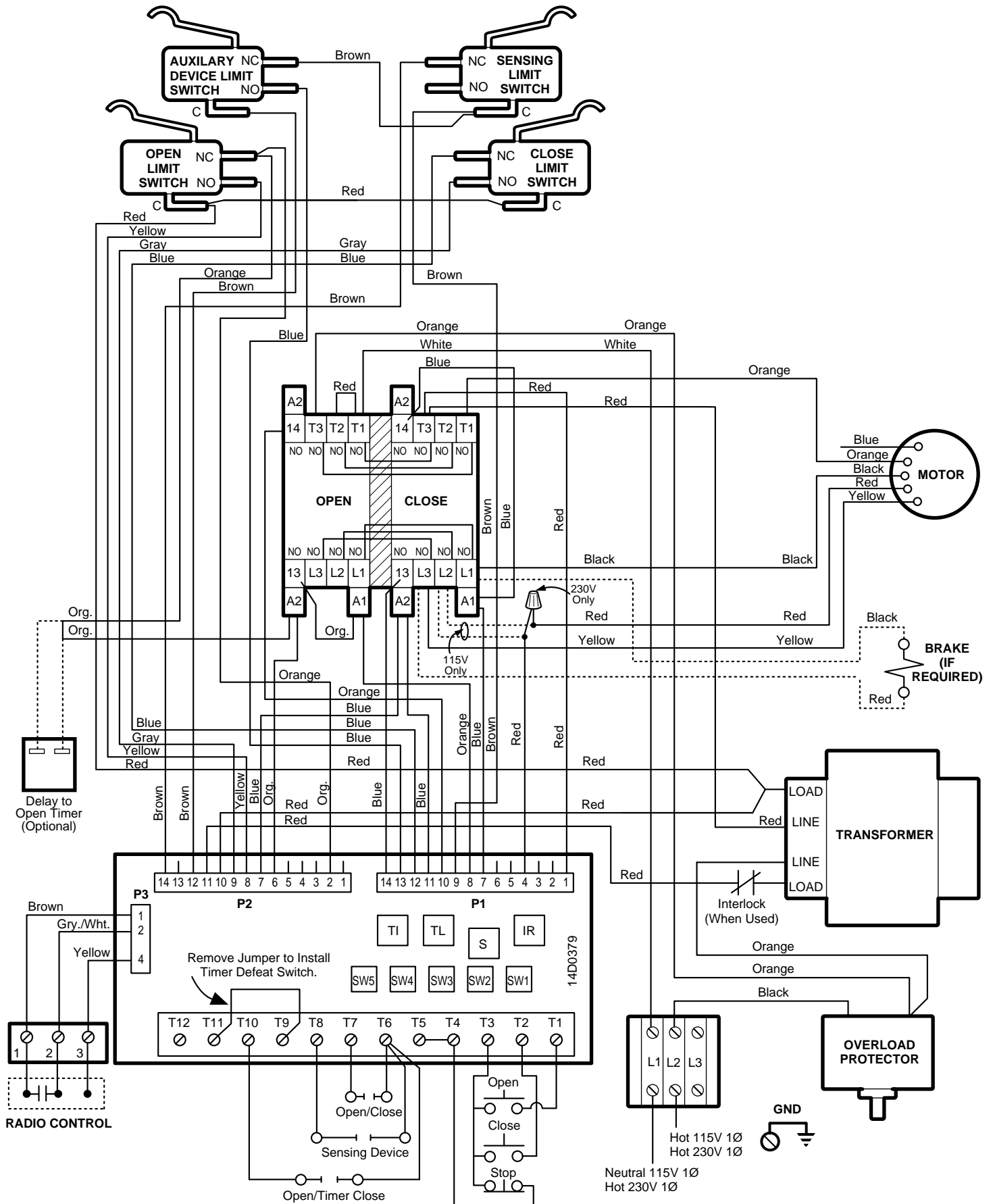
WHEN ORDERING REPAIR PARTS
PLEASE SUPPLY THE FOLLOWING INFORMATION:
PART NUMBER DESCRIPTION MODEL NUMBER

ADDRESS ORDER TO:

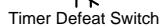
THE CHAMBERLAIN GROUP, INC.
Electronic Parts & Service Dept.
2301 N. Forbes Blvd., Suite 104
Tucson, AZ 85745

MEMO:

(For P.C. Board #14D0379)

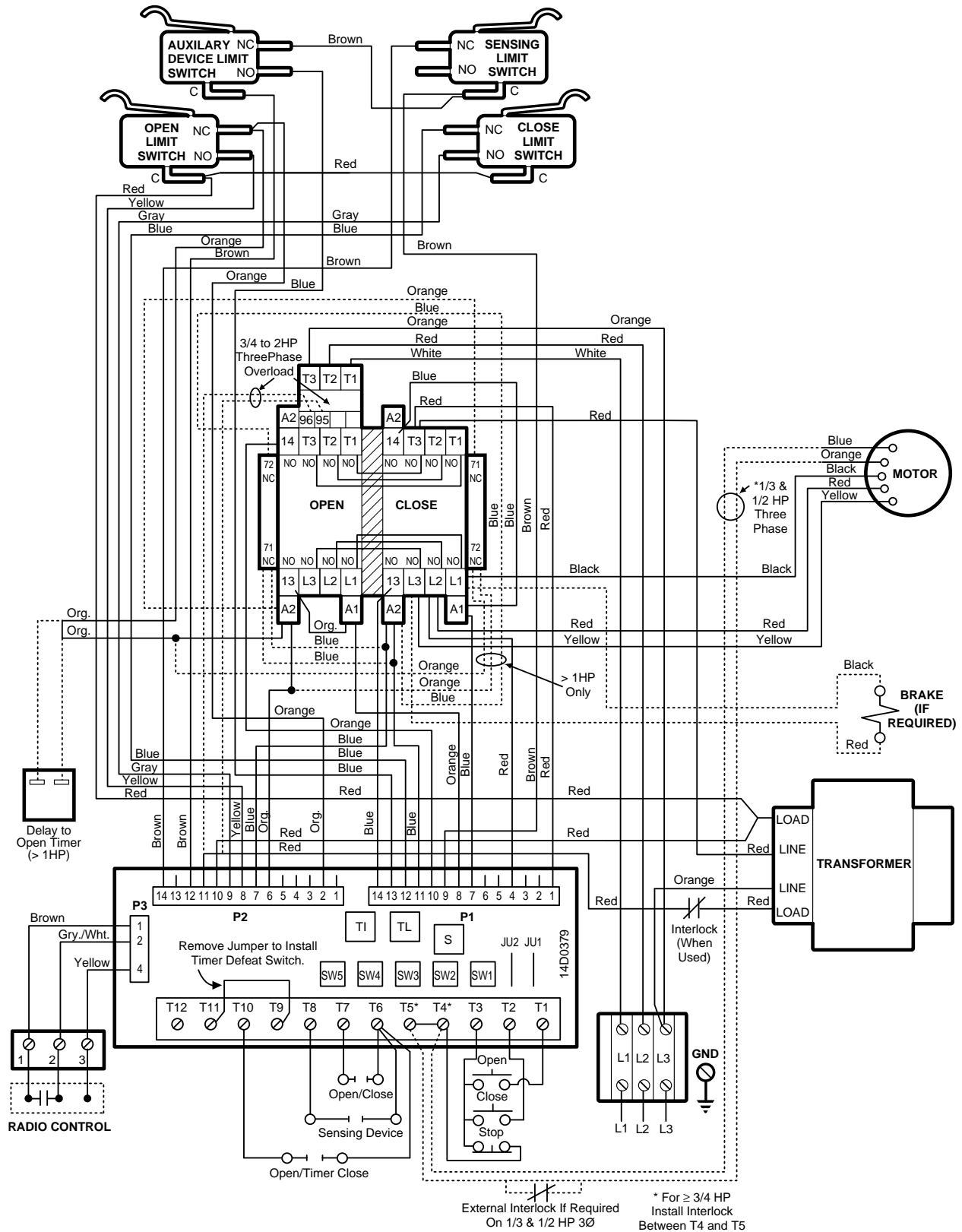


(For P.C. Board #14D0379)



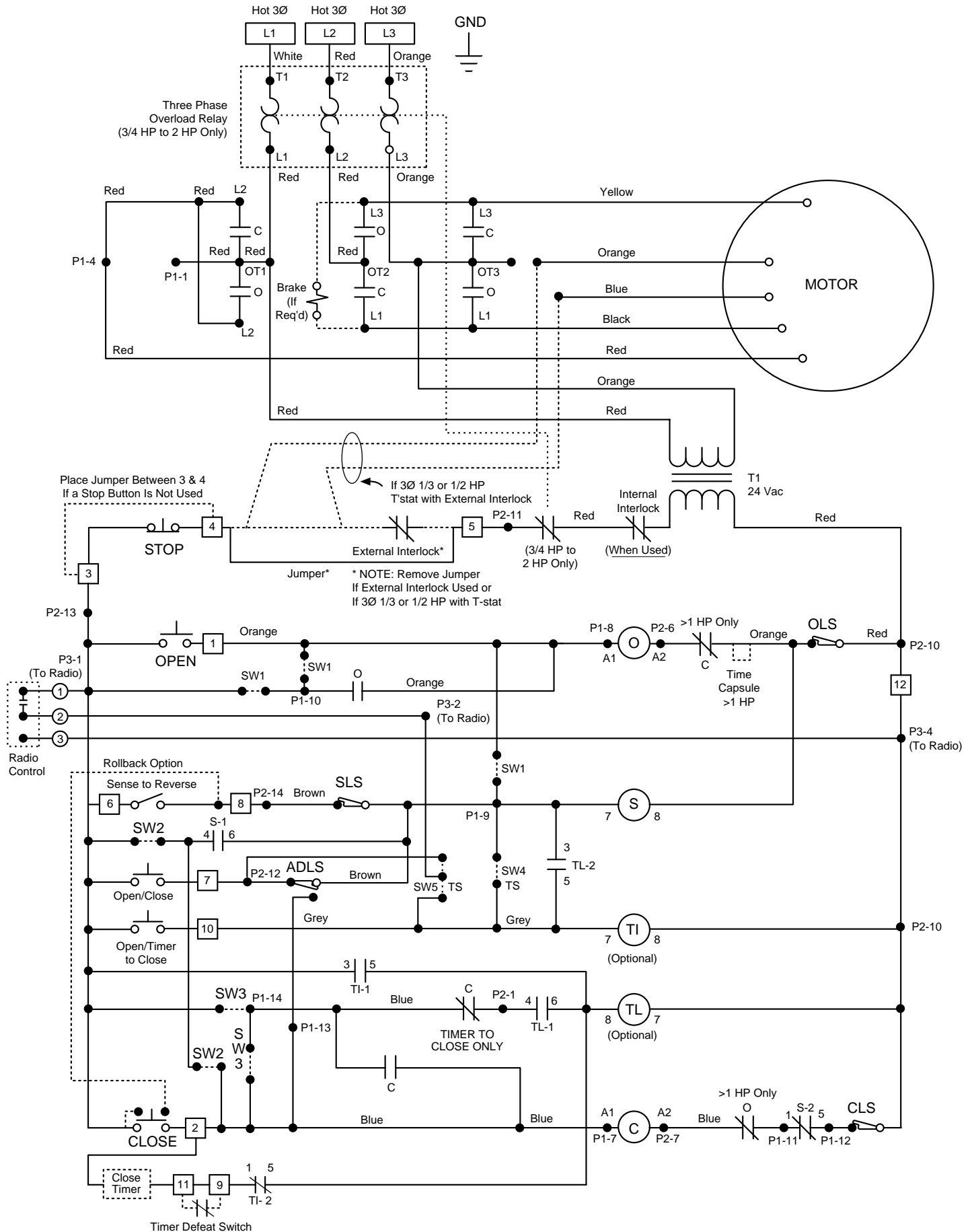
HJ THREE PHASE WIRING DIAGRAM

(For P.C. Board #14D3079)



HJ THREE PHASE SCHEMATIC DIAGRAM

(For P.C. Board #14D0379)

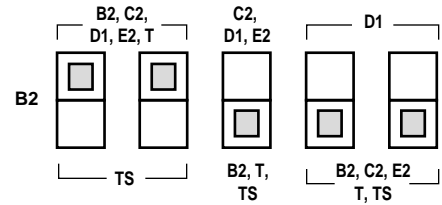


WIRING KITS

TYPE STATION

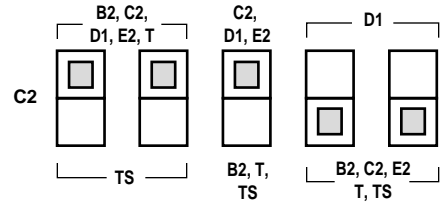
B2 3 Button

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.



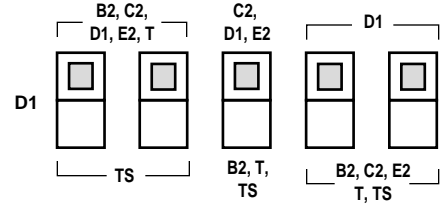
C2 3 Button

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



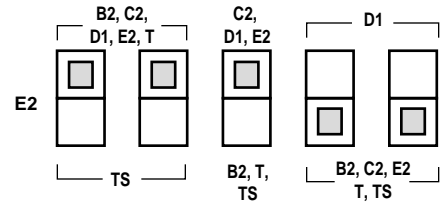
D1 2 Button

Function: Constant pressure to open and close with wiring for sensing device to stop.



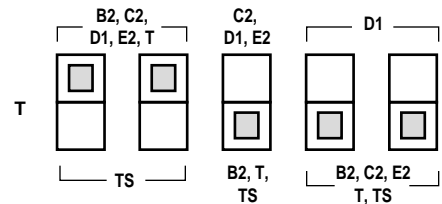
E2 2 Button

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.



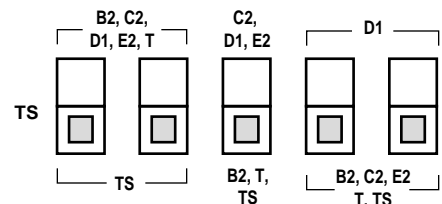
T* 3 Button

Function: Momentary contact to open, close and stop, with open override and timer to close. Open button can be connected to activate timer if desired. Auxiliary controls can be connected to open and activate timer to close or to open and close without activating timer. If timer has been activated, reinitiation of the timer to close circuit will recycle the timer. Includes wiring for sensing devices to reverse which will NOT activate time.



TS* 3 Button

Function: Momentary contact to open, close and stop with open override and timer to close. EVERY device that causes door to open will activate timer to close including sensing device to reverse. Timer may be deactivated until next opening signal is received by depressing stop button after door has reached open position or permanently by use of optional timer defeat switch. If timer has been activated, reinitiation of open circuit will recycle the timer.



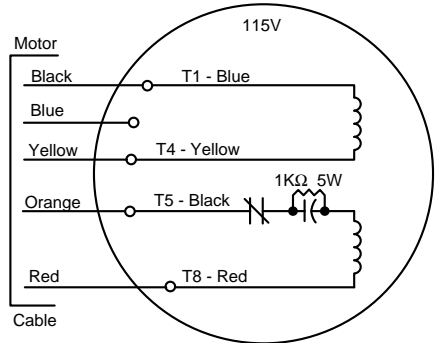
NOTE:

1. External interlocks may be used with all wiring types.
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.

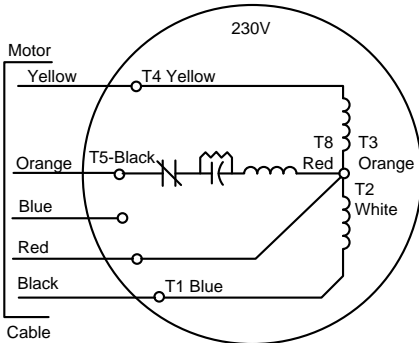
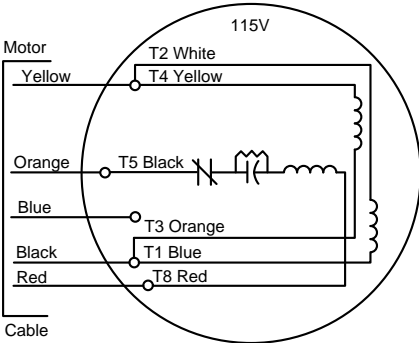
NEMA MOTOR WIRING DIAGRAMS

SINGLE VOLTAGE

1/3 & 1/2 H.P. 115 V only

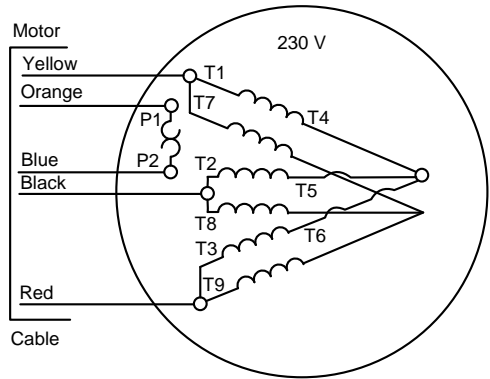


1 PHASE

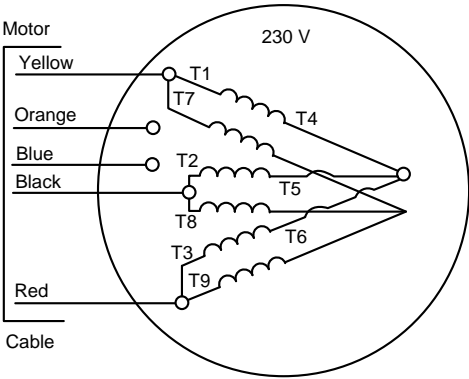


3 PHASE

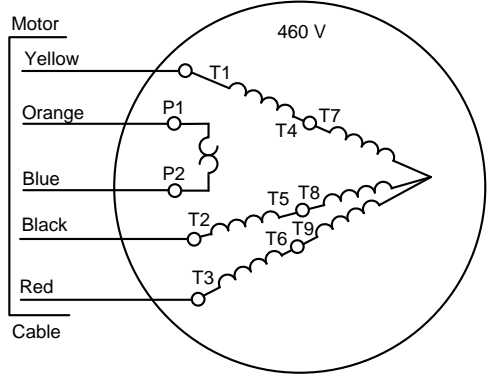
1/3 & 1/2 H.P.



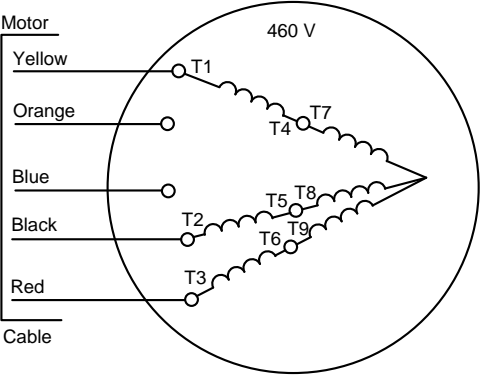
3/4 H.P. & OVER



1/3 & 1/2 H.P.

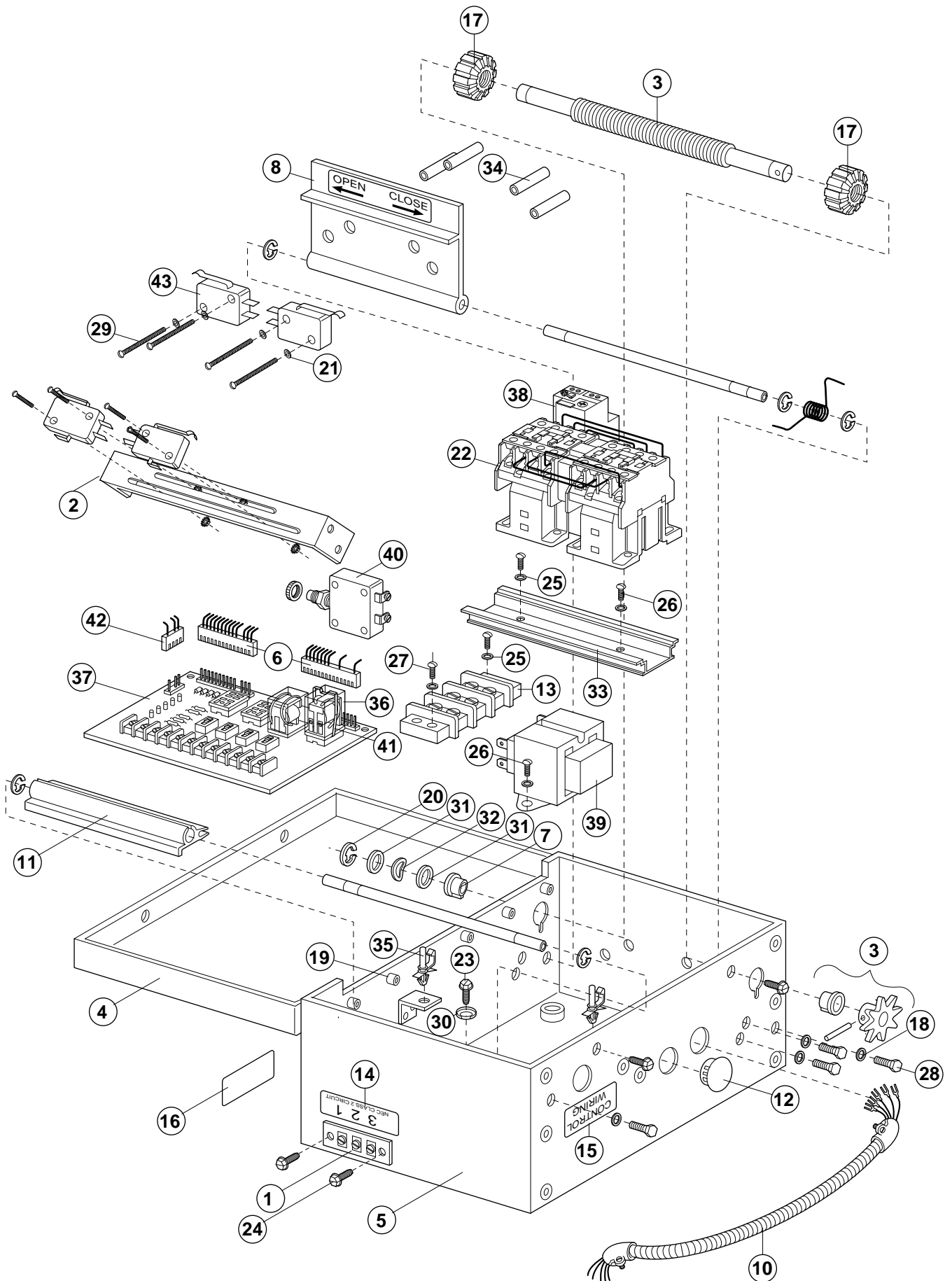


3/4 H.P. & OVER



○ DENOTES WIRENUT CONNECTION

ILLUSTRATED PARTS – ELECTRICAL BOX GJ SERIES



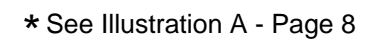
REPAIR PARTS – ELECTRICAL BOX GJ SERIES

ITEM NO.	PART NO.	QTY	DESCRIPTION
1	1B3727	1	Terminal Assy. 3-Lug
2	41K4304	1	Switch Bracket Assy. (Aux. & Sensing)
3	1B3796	1	Ltd. Shaft-Sprocket Assy.
4	1B3938	1	Cover & Hinge Assy.
5	1C3937	1	Electric Box Assy.
6	1D4017	1	Wire Harness
7	11A012	1	Flanged Sleeve Bearing
8	41K4303	1	Limit Bracket (Adj.) Kit
10	1B4080	1	Motor Cable Assy.
11	41K4305	1	PCB Holder Assy. Kit
12	31A388	1	Dome Plug, for Brake Conduit Assy. (1B4091)
13	203A177	1	Terminal Strip 3 Lug
14	132A2011	1	Label - Class 2 NEC Circuit
15	132B1931	1	Control Wiring Label
16	132B1930	1	Label - Power Wiring
17	133A182	2	Limit Nut 1/2"
18	216A10	7	Washer #6 Internal Lock
19	157A84	4	Rivet
20	158A49	1	Retaining Ring 3/8
21	216A43	4	Washer #4 Internal Lock
22	160C86	1	Reversing Contactor
23	171A220	1	Screw #8F 1/2 SL Hex Green
24	171A311	4	S.T. SCR #8TF 3/8" Hex/Washer
25	216A140	6	Washer #8 Lock-Split
26	171A337	4	Machine Screw 8-32 x 1/2" Hex
27	171A339	2	Machine Screw 8-32 x 3/4" Sl. Pan
28	171A386	7	Screw 6-32 x 1/2" - Hex Head
29	171A411	4	Screw 4/40 x 1-1/2" Pan Head
30	216A149	1	Washer #8 Terminal Cup
31	216A184	2	Thrust Washer
32	216A191	1	Washer, Spring Curved
33	183B139	1	DIN Rail - 4-3/4"
34	184A109	4	Spacer - Stand Off - Round
35	184A112	2	PCB Stand Off
43	180B133	2	Limit Switch

			DESCRIPTION MOTOR P/N	1/2 HP, 115V, 1 PHASE 123D0135	1/2 HP, 230V, 1 PHASE 123D0135	1/2 HP, 230V, 3 PHASE 123D0138	1/2 HP, 460V, 3 PHASE 123D0138	3/4 HP, 115V, 1 PHASE 123D0136	3/4 HP, 230V, 1 PHASE 123D0136	3/4 HP, 230V, 3 PHASE 123D0139	3/4 HP, 460V, 3 PHASE 123D0139	1 HP, 115V, 1 PHASE 123D0137	1 HP, 230V, 1 PHASE 123D0137	1 HP, 230V, 3 PHASE 123D0140	1 HP, 460V, 3 PHASE 123D0140	1-1/2 HP, 230V, 3 PHASE 123D0143	1-1/2 HP, 460V, 3 PHASE 123D0143	2 HP, 230V, 3 PHASE 123D0142	2 HP, 460V, 3 PHASE 123D0142
ITEM	PART NO.	DESCRIPTION	QUANTITY																
		Motor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
36	160B83	Relay 115V	1					1				1					1		
	160B84	Relay 230V		1					1				1					1	
37	1C4198	PCB 1 Phase	1	1				1	1			1	1				1	1	
	1C4197	PCB 3 Phase				1	1				1	1			1	1			1
38	160B73-01	Overload 1-1.6A*																	1
	160B73-02	Overload 1.6 - 2.5A*				1										1			
	160B73-03	Overload 2.5 - 4.0A*																1	1
	160B73-04	Overload 4.0 - 6.0A*													1		1		
	160B73-05	Overload 5.5 - 8.0A*																	1
39	204C122-08	Transformer 115V	1					1					1					1	
	204C122-09	Transformer 230V			1	1				1	1			1	1			1	1
	204C122-07	Transformer 460V					1					1				1			1
40	180B159-1	Overload 5A			1														
	180B159-2	Overload 7A									1								
	180B159-3	Overload 8A												1					
	180B159-4	Overload 10A	1																
	180B159-5	Overload 15A											1						
	180B159-9	Overload 12A						1											
41	029A132	Relay Clip	1	1				1	1			1	1				1	1	
42	1B448	Radio Cntrl Harness	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

*Overload to be set at 115% maximum of motors rated current

18



REPAIR PARTS – MODEL GJ

ITEM	PT. NO.	DESCRIPTION	QTY.
1	See Chart	Motor	1
2	80D8	Gear Reducer, 1-1/2 & 2 HP	1
	80D9	Gear Reducer up to 1 HP	1
3	See Detail	Electric Box, Basic w/P.C.B	1
4	1D4098	Frame Assembly, GJ Brake/Hoist	1
5	31C373	Cover, GJ Brake Housing	1
6	1B4421	Brake Shoe/Lining Assembly	2
7	81B127	Gear, 12 D.P. 18T. Bevel Pinion	1
8	81B128	Gear, 12 D.P. 36T. Bevel	1
9	60B32	Drum, Brake	1
10	177A138	Spring, Compression	1
11	1C4205	Bracket Assembly, Pivot Bar	1
12	See Chart	Brake Solenoid	1
13	142A143	Plate, Brake Pivot	1
14	41K4106	Bearing w/Key, 3/4" I.D. & Washer	2
15	181B120	Shaft, GJ Hoist	1
16	1B3885	Emergency Cable Assembly	1
17	23A89	1/4" x 1/4" x 1" Key	2
18	81B86	Sprocket 50B11 x 1	1
19	177B128	Spring, Extension	1
20	1B4091	Brake Cable	1
21	1A4092	Chain 45P #48 1-1/2 & 2 HP	1
	1A3742	Chain 43P #48 up to 1 HP	1
22	1A995	Master Link #48	1
23	81A72	Sprocket 43B14 x 1	1
24	158A53	Retaining Ring, .750 "E"	3
25	184A124	Spacer, 1-1/2 & 2 HP	4
	184A123	Spacer up to 1 HP - .625	4
26	146B68-2	Pin, Cotterless Clevis	1
27	25B13	Coupling, Bevel Gear	1
28	146A81	Cotter Pin	1
29	1C3758	Hoist Wheel Assembly	1
30	22A14	Hand Chain, Gold Color	1
31	12C513	Chain Guide	1
32	184A102	Tie Bar	1
33	113B50	Lever Brake Pivot	1
34	179A46	Stud - Brake Release	1
35	12B393	Chain Keeper	1
36	2B377	Pulley Assembly	1
37	12B517	Bracket, Electrical Box	1
38	12B515	Bracket Right	1
39	12B516	Bracket Left	1

CHART

GJ ELECTRICAL BOX	1/2 HP 115V 1 Phase	1/2 HP 230V 1 Phase	1/2 HP 230V 3 Phase	1/2 HP 460V 3 Phase	3/4 HP 115V 1 Phase	3/4 HP 230V 1 Phase	3/4 HP 230V 3 Phase	3/4 HP 460V 3 Phase	1 HP 115V 1 Phase	1 HP 230V 1 Phase	1 HP 230V 3 Phase	1 HP 460V 3 Phase	1-1/2 HP 230V 3 Phase	1-1/2 HP 460V 3 Phase	2 HP 230V 3 Phase	2 HP 460V 3 Phase
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ITEM	PT. NO.	DESCRIPTION	QUANTITY													
1	123D135	Motor 1/2 HP. 115V 1 Phase	1													
		Motor 1/2 HP. 230V 1 Phase		1												
	123D138	Motor 1/2 HP. 230V 3 Phase			1											
		Motor 1/2 HP. 460V 3 Phase				1										
	123D136	Motor 3/4 HP 115V 1 Phase					1									
		Motor 3/4 HP 230V 1 Phase						1								
	123D139	Motor 3/4 HP 230V 3 Phase							1							
		Motor 3/4 HP 460V 3 Phase								1						
	123D137	Motor 1 HP. 115V 1 Phase									1					
		Motor 1 HP. 230V 1 Phase										1				
	123D140	Motor 1 HP. 230V 3 Phase											1			
		Motor 1 HP. 460V 3 Phase												1		
	123D143	Motor 1-1/2 HP. 230V 3 Phase													1	
		Motor 1-1/2 HP 460V 3 Phase														1
12	123D142	Motor 2 HP. 230V 3 Phase														1
		Motor 2 HP. 460V 3 Phase														1
	204B118	Brake Solenoid 115V	1				1			1						
	204B118-1	Brake Solenoid 230V		1	1			1	1		1	1		1	1	
	204B118-2	Brake Solenoid 460V				1				1			1	1		1

CONTROL CONNECTION DIAGRAM



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			
<p>STANDARD</p> <p>WIRING TYPES - B2, C2, T & TS</p>	<p>2 OR MORE</p> <p>WIRING TYPES - B2, C2, T & TS</p>	<p>OPEN TO ACTIVATE TIMER</p> <p>WIRING TYPES - T & TS</p>	<p>KEY LOCKOUT</p> <p>WIRING TYPES - B2, C2, T & TS</p>
2 BUTTON STATION OR 3 POSITION KEYSWITCH WITH SPRING RETURN TO CENTER			
<p>STANDARD</p> <p>WIRING TYPES - D1</p>	<p>2 OR MORE</p> <p>WIRING TYPES - D1</p>	<p>OPEN TO ACTIVATE TIMER</p> <p>WIRING TYPES - T & TS</p>	<p>ROLLBACK</p> <p>WIRING TYPES - E2</p>
1 BUTTON STATION OR ANY AUXILIARY DEVICE		ROLLBACK	
<p>OPEN / CLOSE</p> <p>WIRING TYPES - B2, T & TS</p>	<p>OPEN TIMER TO CLOSE</p> <p>WIRING TYPES - T & TS</p>	<p>WIRING TYPES - T & TS</p>	
1 BUTTON STATION OR ANY AUXILIARY DEVICE		RESIDENTIAL RADIO CONTROLS	
		<p>OPEN TIMER TO CLOSE</p> <p>WIRING TYPES - T & TS</p>	
SENSING DEVICE TO REVERSE OR STOP		EXTERNAL INTERLOCK	
<p>WIRING TYPES - B2, C2, D1, E2, T & TS</p>		<p>REMOVE JUMPER</p> <p>WIRING TYPES - ALL</p>	
SENSING DEVICE TO REVERSE OR STOP		TIMER DEFEAT SWITCH	
		<p>WIRING TYPES - T & TS</p>	