

INSTALLATION AND OWNER'S MANUAL

MO SERIES

COMMERCIAL VEHICULAR DOOR OPERATORS

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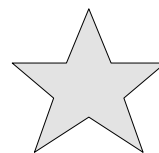
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As of date of manufacture,
meets all ANSI/UL 325
Safety Requirements for
Vehicular door operators

Serial #:
Date Installed:
Your Dealer:



**READ THIS MANUAL
CAREFULLY BEFORE
INSTALLATION OR USE**

SAVE THESE INSTRUCTIONS



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READ THESE STATEMENTS CAREFULLY AND FOLLOW THE INSTRUCTIONS CLOSELY.

The Warning and Caution boxes throughout this manual are there to protect you and your equipment. Pay close attention to these boxes as you follow the manual.


WARNING
Indicates a MECHANICAL hazard of INJURY OR DEATH. Gives instructions to avoid the hazard.


CAUTION
Indicates a MECHANICAL hazard of DAMAGE to your operator or equipment. Gives instructions to avoid the hazard.


WARNING
Indicates an ELECTRICAL hazard of INJURY OR DEATH. Gives instructions to avoid the hazard.


CAUTION
Indicates an ELECTRICAL hazard of DAMAGE to your operator or equipment. Gives instructions to avoid the hazard.



The purpose of this booklet is to provide assembly, installation and operation information concerning Allstar Model MO Commercial Vehicular Garage Door Operators and related Accessory Products.

NOTICE

IT IS IMPORTANT THAT THIS INSTRUCTION MANUAL BE READ AND UNDERSTOOD COMPLETELY BEFORE INSTALLATION OR OPERATION IS ATTEMPTED. IT IS INTENDED THAT THE INSTALLATION OF THIS UNIT WILL BE DONE ONLY BY PERSONS TRAINED AND QUALIFIED IN THE INSTALLATION, ADJUSTMENT AND SERVICE OF COMMERCIAL OVERHEAD DOORS AND DOOR OPERATORS AND BY QUALIFIED ELECTRICIANS.

NOTICE

THE IMPORTANT SAFEGUARDS AND INSTRUCTIONS IN THIS MANUAL CANNOT COVER ALL POSSIBLE CONDITIONS AND SITUATIONS WHICH MAY OCCUR DURING ITS USE. IT MUST BE UNDERSTOOD THAT COMMON SENSE AND CAUTION MUST BE EXERCISED BY THE PERSON(S) INSTALLING, MAINTAINING AND OPERATING THE EQUIPMENT DESCRIBED HEREIN. DO NOT USE THIS EQUIPMENT FOR ANY OTHER THAN ITS INTENDED PURPOSE - OPERATING OVERHEAD COMMERCIAL VEHICULAR GARAGE DOORS.

STANDARD FEATURES:

Limit Switches: Driven limit switches, easily adjusted over a wide range. The motor may be removed without affecting the limit switch adjustments

Manual Release: Permits manual operation of the door in the event of a power failure. The Model MO is equipped with a chain hoist to aid in manual operation.

Control Circuit: Standard three button open, close and stop. 24 Volts AC.

Connections For Auxiliary Entrapment Protection Devices: Use with foam or pneumatic reversing door edge components or a photoelectric beam (across the opening) device.

Constant Contact To Close: Feature can be activated by simply moving a wire on the terminal strip.

Momentary Contact To Close: Standard operation.

MODEL MO OPERATOR APPLICATIONS:

MO operators are intended for commercial and industrial use to raise or lower rolling steel or sectional overhead doors by chain coupling to the door shaft. MO operators are suitable where all or part of the door remains in a vertical position when fully open such as doors with at least 18 inches of lift clearance or full vertical lift doors. MO operators may also be used with roll up service doors and grills when specified on order from factory.

An MO operator **DOES NOT LOCK THE DOOR IN ITS CLOSED POSITION**. However, because the cross-header shaft is prevented by the operator from turning, the torsion springs provide no assistance in lifting the door should an attempt be made to raise it manually.

MO operators are used in the following applications:

- Continuous Duty, Medium and Heavy Duty Cycle Commercial installations.
- Indoor Use Only
- Doors with a maximum area of 560 square feet (2 HP) - maximum area slightly higher for lighter doors - consult factory
- Use with foam/pneumatic reversing door edge or photoelectric device - **REQUIRED** where the 3-button station is out of sight of the door, or any other automatic, remote or manual control is used to activate the door

OPTIONAL FEATURES:

Digital Radio Controls: Open, Close and Stop operation. Radio units are available to control up to 27 doors from one transmitter

Digital Timer to Close: Adjustable from 0 to 17 minutes in one second intervals.

Keyless Entry System: Connection terminals provided for hard wired keyless entry system. Optional radio receiver will allow operation of a wireless keyless system.



WARNING

ELECTRIC DOOR OPENERS ARE DESIGNED FOR DOORS IN GOOD WORKING CONDITION, PROPERLY COUNTERBALANCED AND PROPERLY ADJUSTED IN ACCORDANCE WITH THE DOOR MANUFACTURER'S INSTALLATION INSTRUCTIONS.

Before starting the installation of the operator, the door must be in good working condition and properly counterbalanced. Inspect the door and door guides for loose or missing hardware. Test the door manually for balance and ease of operation. Lubricate door hinges and rollers. If necessary, employ a qualified technician to adjust the springs for proper counterbalance of the door.

Stops should be installed at the top end of each track to prevent the possibility of the door rollers moving beyond the ends of the track.

If the cross header shaft is made from hollow tubing rather than solid rod, it is recommended that it be plugged with a short length of solid bar for a more secure installation of the shaft sprocket or flange coupler. Before removing the operator powerhead from the shipping carton,

inspect the nameplate on the cover of the operator control box to verify that it is the correct model for the intended application and that the voltage and phase are in accordance with electrical power provided at the job site.

Warning: Rope off the area to keep personnel and vehicles clear of the door and floor space in the vicinity of the operator during the installation.



WARNING

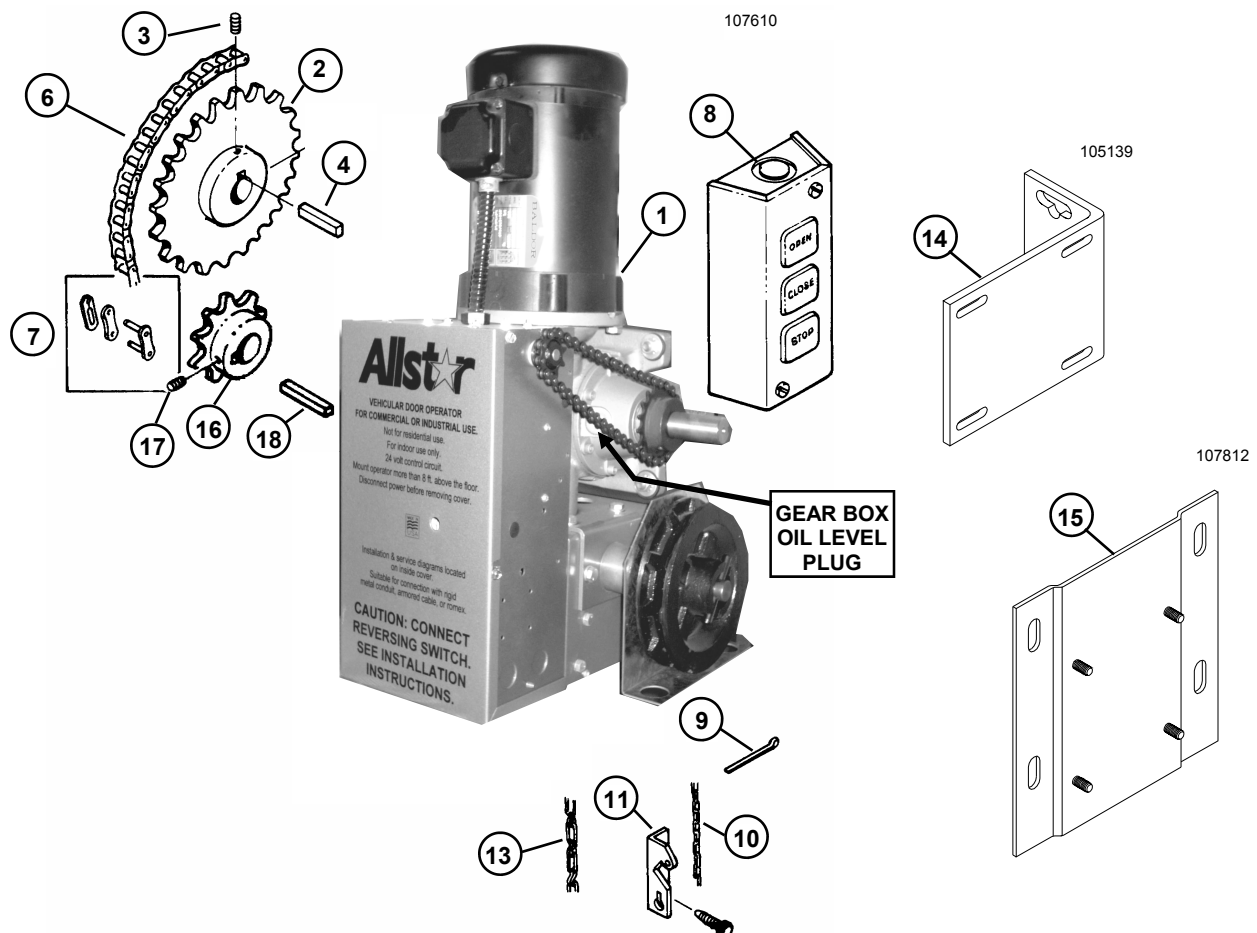
SPRINGS ARE SUBJECT TO VERY HIGH FORCES AT ALL TIMES AND ADJUSTMENTS MUST BE MADE ONLY BY A QUALIFIED PROFESSIONAL DOOR INSTALLER.



WARNING

REMOVE OR DISABLE ANY LOCKING DEVICES FROM DOOR AND REMOVE ALL ROPES

FIGURE 1 - COMPONENT IDENTIFICATION





WARNING

TO REDUCE THE RISK OF SEVERE INJURY OR DEATH: READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS!

- Install only on a properly balanced garage door. An improperly balanced door could cause severe injury. Have a qualified service person make repairs to cables, spring assemblies and other hardware before installing the opener.

- Remove all ropes and remove or make inoperative all locks (unless mechanically and/or electrically interlocked to the power unit) that are connected to the garage door before installing the opener.

- Lightweight doors (fiberglass, aluminum etc.) must be reinforced to avoid door damage. Check the door manufacturer's instruction manual for a bracing procedure or the availability of a Reinforcement Kit.

- The MO Series Operator is a Commercial Vehicular Door Operator and as such is NOT recommended for pedestrian traffic. In installations where it is known that pedestrians will be nearby ensure a pedestrian door is available for entrance and exit to the building. In addition YOU MUST install an auxiliary entrapment protection device (reversing door edge or photoelectric beam device) as part of the complete operator system.

- Connect an auxiliary entrapment protection device (reversing edge or photoelectric device across the door opening). A device of this type is

STRONGLY ADVISED FOR ALL commercial operator installations. An auxiliary entrapment protection device is *REQUIRED* when the three button control station is out of sight of the door or any other automatic or manual control is used.

- Install the opener at least 8 feet or more above the floor.

- Do not connect the opener to the source of power until instructed to do so.

- Locate the control station:

- a) within sight of the door and;

- b) at a minimum height of five feet above the floor and;

- c) away from all moving parts of the door.

- Do not overtighten the clutch adjustment (where provided) to compensate for a poorly working door.

- Securely attach any WARNING signs or placards to either the door or above the control station as directed (see page 15).

- After installing the opener, all control features must be tested for proper operation (see page 19).

TABLE 1 - COMPONENT IDENTIFICATION LISTING

Item #	Part Number	Description	Qty.		Item #	Part Number	Description	Qty.	
1	Per Model	Operator Power Head	1		10	009149	Sash Chain	12 FT	
2	Per Model	Driven Sprocket on Door Shaft	1		11	105193	Wall Disconnect Bracket	1	
3	006119	Set Screw, 5/16-18 x 1, Sqr Head	2		13	100315	Hand Chain, Precut @ 26 FT	1	
4	Per Model	Steel Square Key	1		14	105139	Mounting Bracket	Optional	
6	Per Model	Drive Chain	1		15	107812	Wall Mounting Plate w/Studs	Optional	
7	Per Model	Master Link	1		16	Per Model	Drive Sprocket	1	
8	005031	3 Button Station	1		17	006119	Set Screw, 5/16-18 x 1, Sqr Head	2	
9	105531	Cotter Pin	1		18	100413	Key, 1/4 x 1/4 x 1	1	



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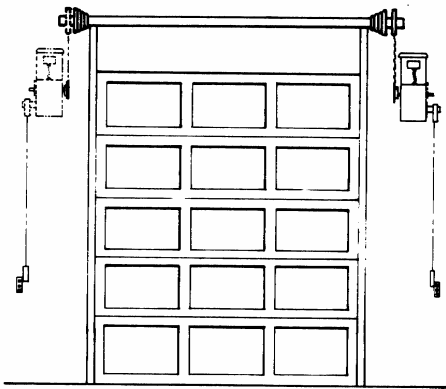
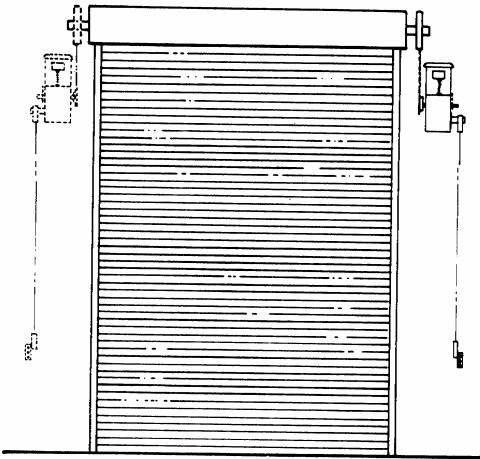
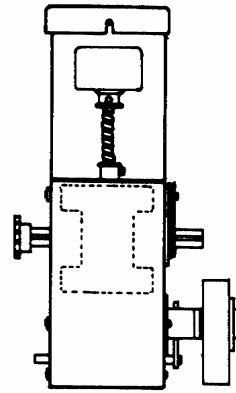


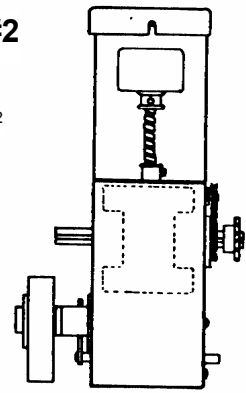
Figure 2

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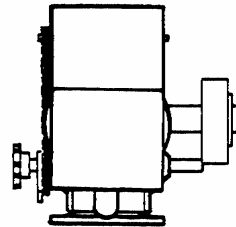


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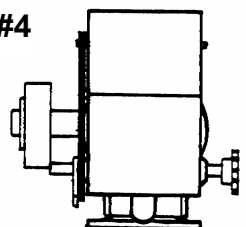
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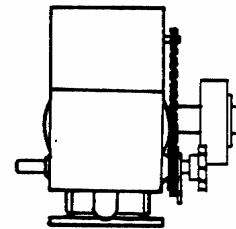
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#4



#5



#6

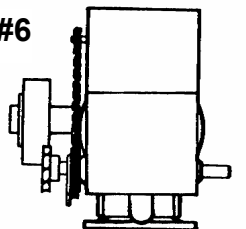


Figure 3

#1 Wall Mount, Right Hand

#2 Wall Mount, Left Hand

#3 Bracket (Shelf) Mount, Right Hand

#4 Bracket (Shelf) Mount, Left Hand

#5 Bracket (Shelf) Mount, Front of Hood,

#6 Bracket (Shelf) Mount, Front of Hood, Left

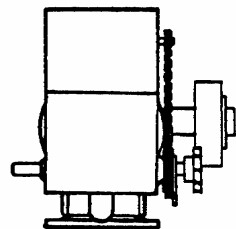
#7 Bracket (Shelf) Mount, Above Hood, Right

#8 Bracket (Shelf) Mount, Above Hood, Left

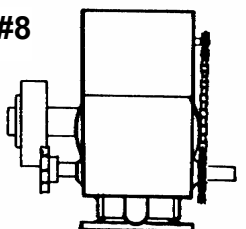
#9 Bracket (Vertical) Mount, Right Hand

#1 Bracket (Vertical) Mount, Left Hand

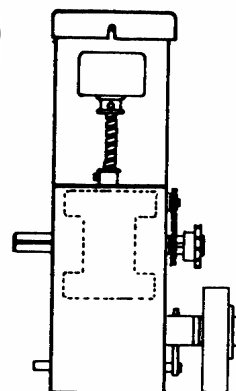
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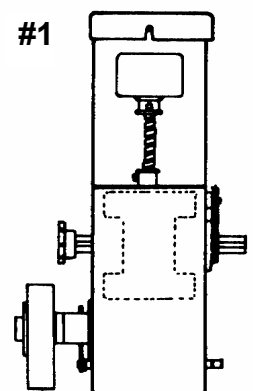
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#9



#1





WARNING

SPRINGS, PULLEYS, CABLES AND MOUNTING HARDWARE USED TO BALANCE YOUR GARAGE DOOR ARE UNDER EXTREME TENSION AT ALL TIMES AND CAN CAUSE SEVERE INJURY OR DEATH IF DISTURBED. DO NOT ATTEMPT ADJUSTMENT.

MOUNTING THE OPERATOR

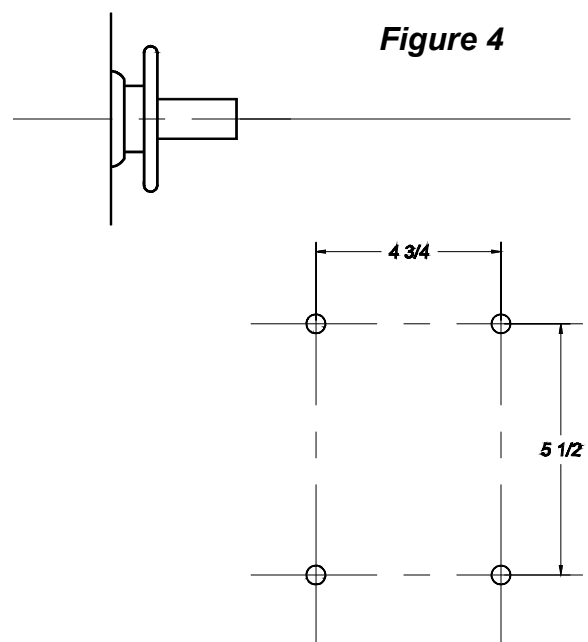
WHEN PREPARING THE MOUNTING SURFACE ENSURE THE OPERATOR WILL BE RIGID AND SECURE WHEN INSTALLED, THE MOUNTING SURFACE WILL PROVIDE A LEVEL BASE, AND THE OPERATOR'S DRIVE SHAFT WILL BE PARALLEL WITH THE DOOR SHAFT. FAILURE TO MEET THESE CONDITIONS WILL RESULT IN AN OVERALL UNSAFE DOOR OPERATION AND PREMATURE FAILURE OF THE DOOR AND DOOR OPERATOR.

1. **Figures 2 and 3**, page 6 illustrate several positions suitable for mounting the operator; right hand or left hand wall mount or horizontal (shelf) mount to the torsion shaft. For sectional doors, the MO operator must be wall mounted. For rolling steel doors the operator may be wall mounted or hood mounted by using an optional hood mounting bracket, [14]. A wall mounting plate [13] is also available from the factory (see **Figure 1**). The mounting plate/bracket provides for chain tension adjustment as well as aiding installation.

NOTE: THE OPERATOR DRIVE SPROCKET MAY BE INSTALLED ON EITHER SIDE OF THE GEAR REDUCER. SELECTION DEPENDS ON WHICH SIDE OF THE DOOR THE OPERATOR IS MOUNTED ON.

2. Determine which side of the door the operator will be located on. Fasten the sprockets [5] and [12] and the keys [4] on the chosen side of the torsion shaft of the door and on the corresponding end of the output shaft of the operator. Tighten the set screws enough to prevent the sprockets from sliding off the shaft. If the door shaft lacks a keyway you will need to drill and pin the sprocket in accordance with Step 6 (tightening the set screws is sufficient for this step). The sprockets should be kept as close as possible to the bearings. Fasten the wall mounting plate or the mounting bracket (as applicable and if available) to the operator gear box flange. Temporarily suspend the operator in its mounting position and such that the distance between the door shaft and the operator's output shaft is between 12" and 15". See **Figure 5** for wall mount and **Figure 6** for hood mount illustration. The distance between the shafts may be greater if the mounting conditions prohibit installation as suggested.
3. Connect the two drive sprockets [5 and 12] with the drive chain [6] and connecting link [7], shortening the chain to the proper length if necessary. To shorten the chain use a chain tool or drive out the appropriate rivets with a punch.

4. With the chain tight and straight and the operator's output shaft parallel with the door's torsion shaft, trace the mounting slots (holes) on the mounting surface then lower the operator to the floor. The MO operator gear box mounting hole pattern is shown in **Figure 4**.
5. The operator should be installed using 1/2" bolts through the wall. If the building's construction will not allow the usage of through bolts then use lag bolts and shields (or the equivalent type fasteners). Mount the operator, slipping the drive chain on before bolting the operator to the mounting surface but do not completely tighten the bolts at this time.
6. Re-align the door shaft and operator drive shaft sprockets and connecting drive chain. Secure the sprockets in place with their set screws. If no keyway exists in the door shaft, drill a 5/16" through the door sprocket and door shaft with the sprocket in its aligned position. Insert the 5/16" roller pin [2] through the sprocket and shaft to secure the sprocket in place. See **Figure 7**.
7. Adjust the drive chain tension such that there is no more than 1/4" slack when the chain is depressed between the sprockets. See **Figure 8**. The preferred mounting is with the motor end up and the operator below the door shaft. This results in better clearance for the hand chain and disconnect chain.
8. Attach sash chain, item 10, with cotter pin, item 9. See **Figure 9**, next page.



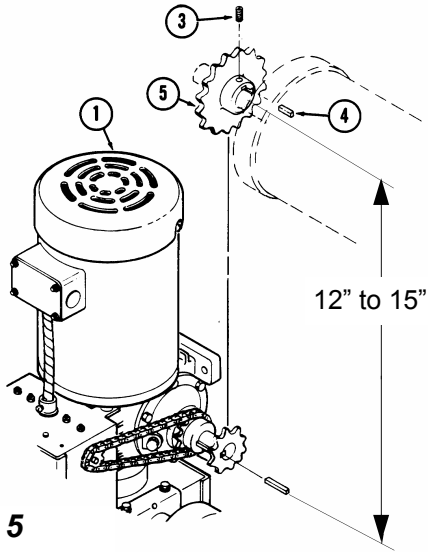


Figure 5

Figure 6

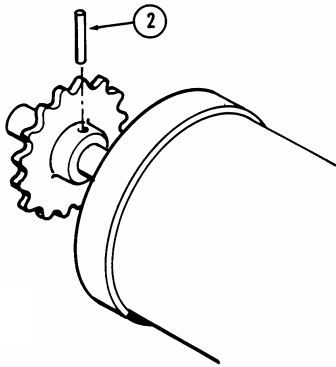
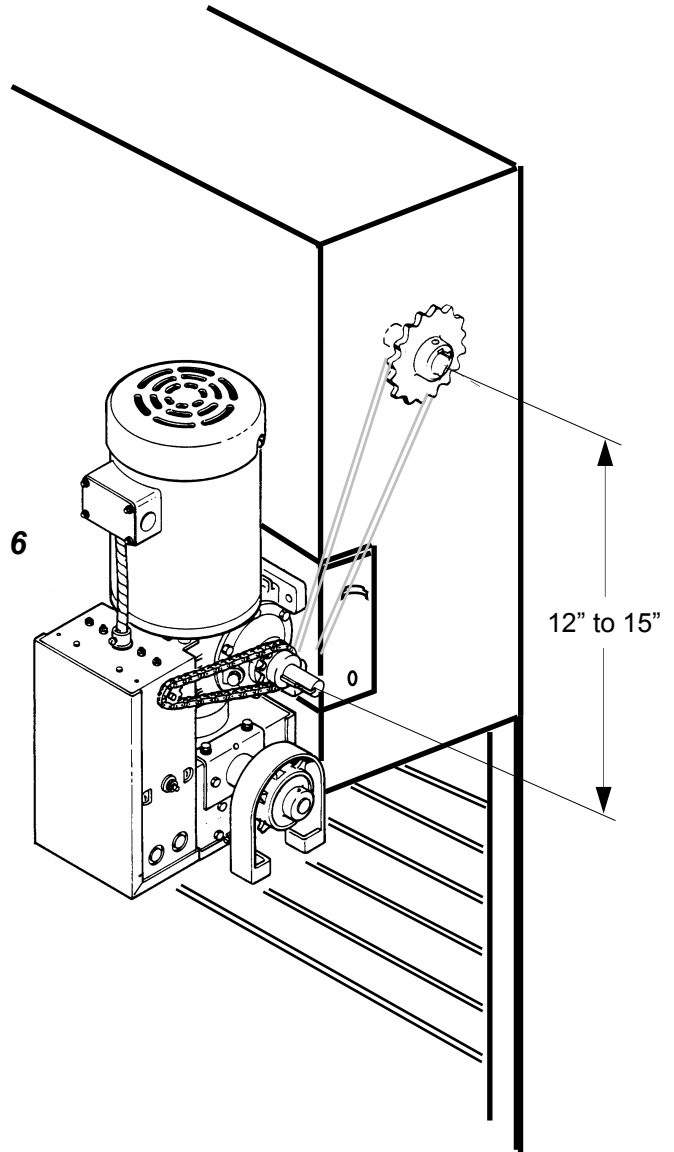


Figure 7

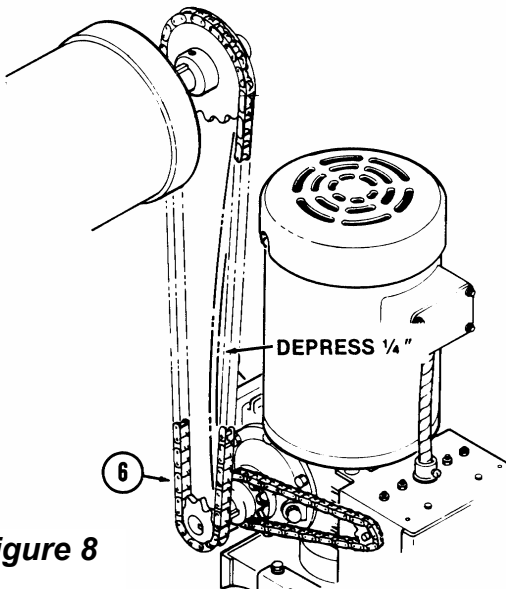


Figure 8

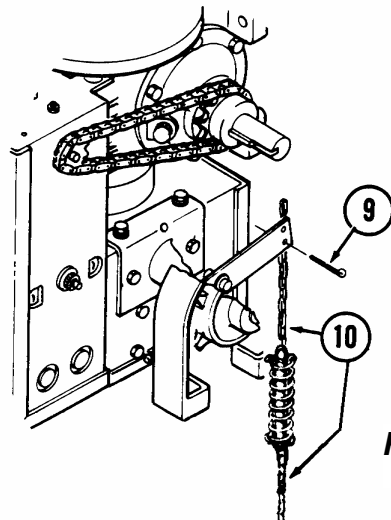


Figure 9

CHAIN HOIST INSTALLATION

1. Refer to **Figure 10** to install the chain hoist. Pass the hand chain, item 13 over the chain pocket wheel and through the chain guide holes on the operator clutch shaft (opposite end from the large pulley). Fasten the ends of the chain together (to make one continuous loop) by opening and re-closing one link using two pairs of pliers. If the chain is too long, shorten it to the desired length by removing links.
2. After attaching sash chain, item 10, with tension spring, (See **Figure 9**), pull the sash chain to engage the hand chain. This will actuate the interlock switch and disengage the solenoid brake.
3. Use lag screws to attach the disconnect bracket, item 11, vertically in line with the sash chain about four feet off the floor. See **Figure 11**.

BEFORE PROCEEDING WITH THE OPERATOR INSTALLATION AND SETTINGS, MAKE A FINAL CHECK FOR TIGHTNESS OF ALL MOUNTING HARDWARE AND SET SCREWS.

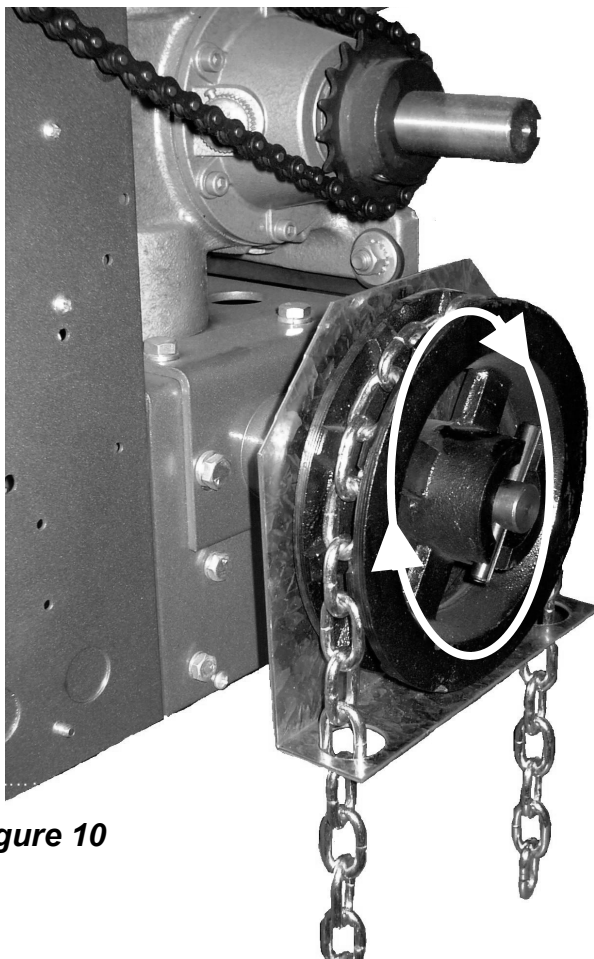
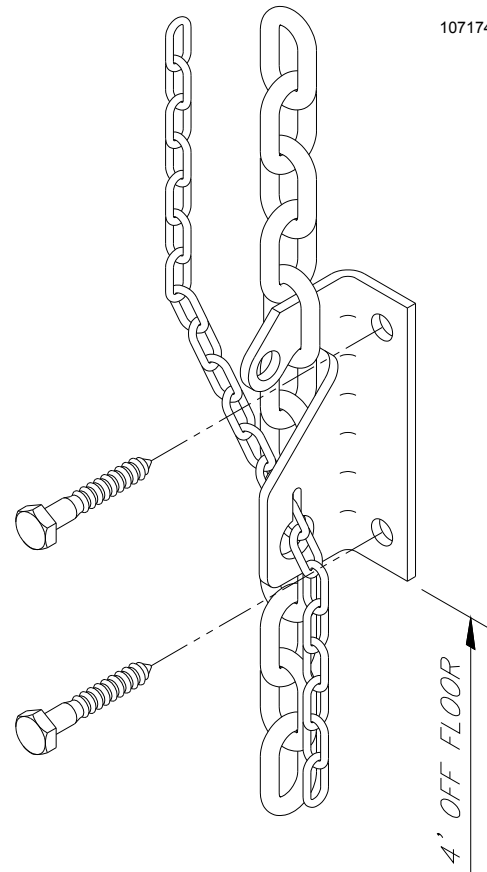


Figure 10



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Figure 11



WARNING

TO AVOID RISK OF ENTRAPMENT AND POSSIBLE DAMAGE TO THE DOOR AND OPERATOR THE LIMITS MUST BE ADJUSTED BEFORE APPLYING POWER TO THE OPERATOR.

SETTING THE LIMIT SWITCHES

1) With the cover open on the electrical enclosure, reference Figure 12 below. There are four (4) switches (A, B, C, and D) mounted to the 'V' bracket (H). The limit switches are mounted in a fixed position to the underside of the 'V' bracket; with the Close Limit switch (B) on the right and the Open Limit switch (D) on the left. The Reverse Cutout switch (A) and the Single Button Selector switch (C, also could be Timer Engage switch depending on the model) are mounted to the top side of the 'V' bracket as shown. The switches are activated by the two limit nuts (E & G) on the threaded shaft which move laterally along the shaft as the operator opens and closes the door. When a limit nut nears the end of the shaft it activates a set of switches, upper switch first then the lower fixed limit switch.

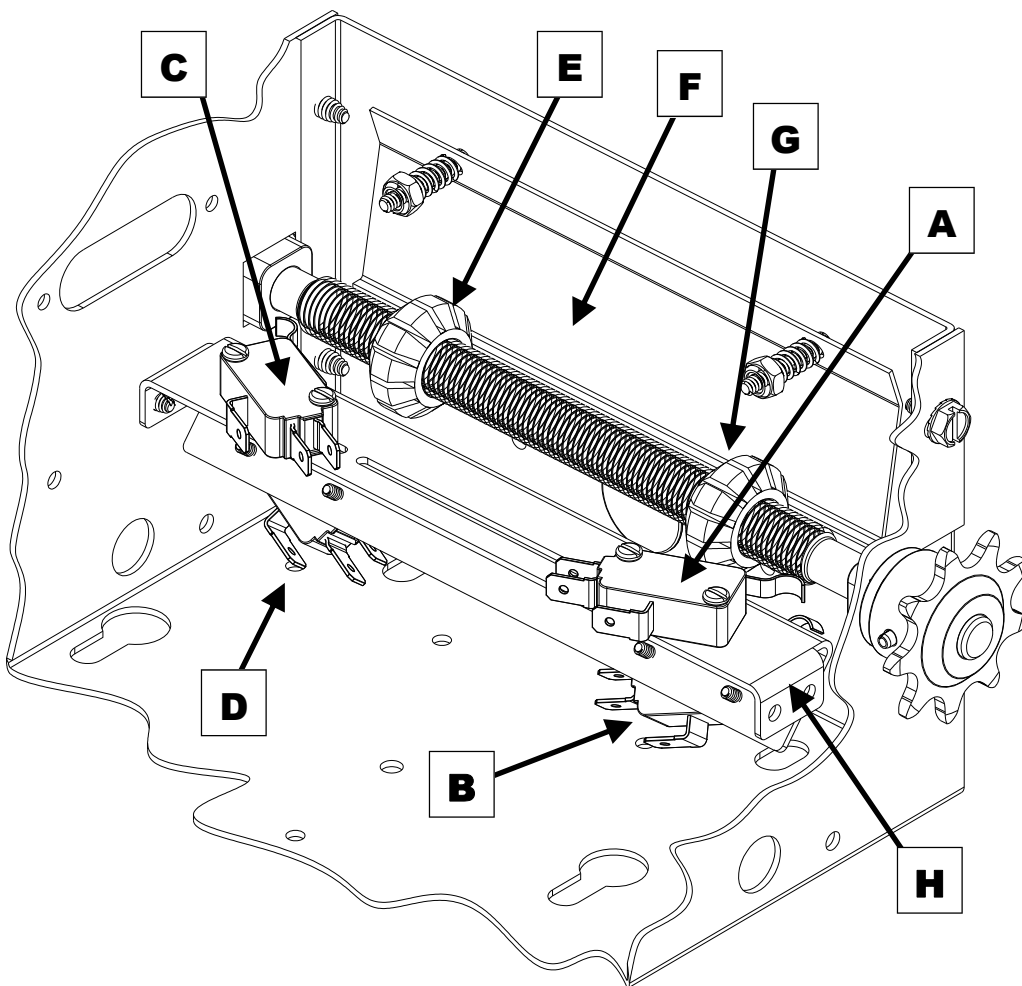
2) Depress the Limit Nut Retention Plate (F) so it disengages from the slots in the limit nuts and move the Limit nuts to the center of the threaded shaft.

- 3) Manually raise the door to a nearly open position.
- 4) Depress the limit nut retaining bracket (F) so it disengages from the slots in the limit nuts. Turn the OPEN limit nut (E) on the shaft until it engages both the Single Button Selector switch (C) and the Open Limit Switch (D). You will need to listen for two audible clicks. Release the retaining bracket and be sure that it engages in slots of both limit nuts.
- 5) Manually lower the door to the fully closed position and repeat Step #3 with the Close Limit nut (G) and Reverse Cutout switch (A) and the Close Limit switch (B).
- 6) Manually move the door to a half open position. With the door in a mid position there will be time to stop the door if something or someone were in the door path when initially starting the door.
- 7) A final limit adjustment will be necessary after the connection of the power supply in order to ensure the door stops at the proper Open and Close positions.
- 8) Adjustment of the Reverse Cutout switch (A) or Single Button Selector switch (C) is done at the factory and should not be needed in the field. Moving the Reverse Cutout switch closer to the center of the box will increase the point where the reversing feature cuts out (to allow for irregularity in the floor, etc.). The reverse cutout point is factory adjusted to approx. 4 inches off the floor.

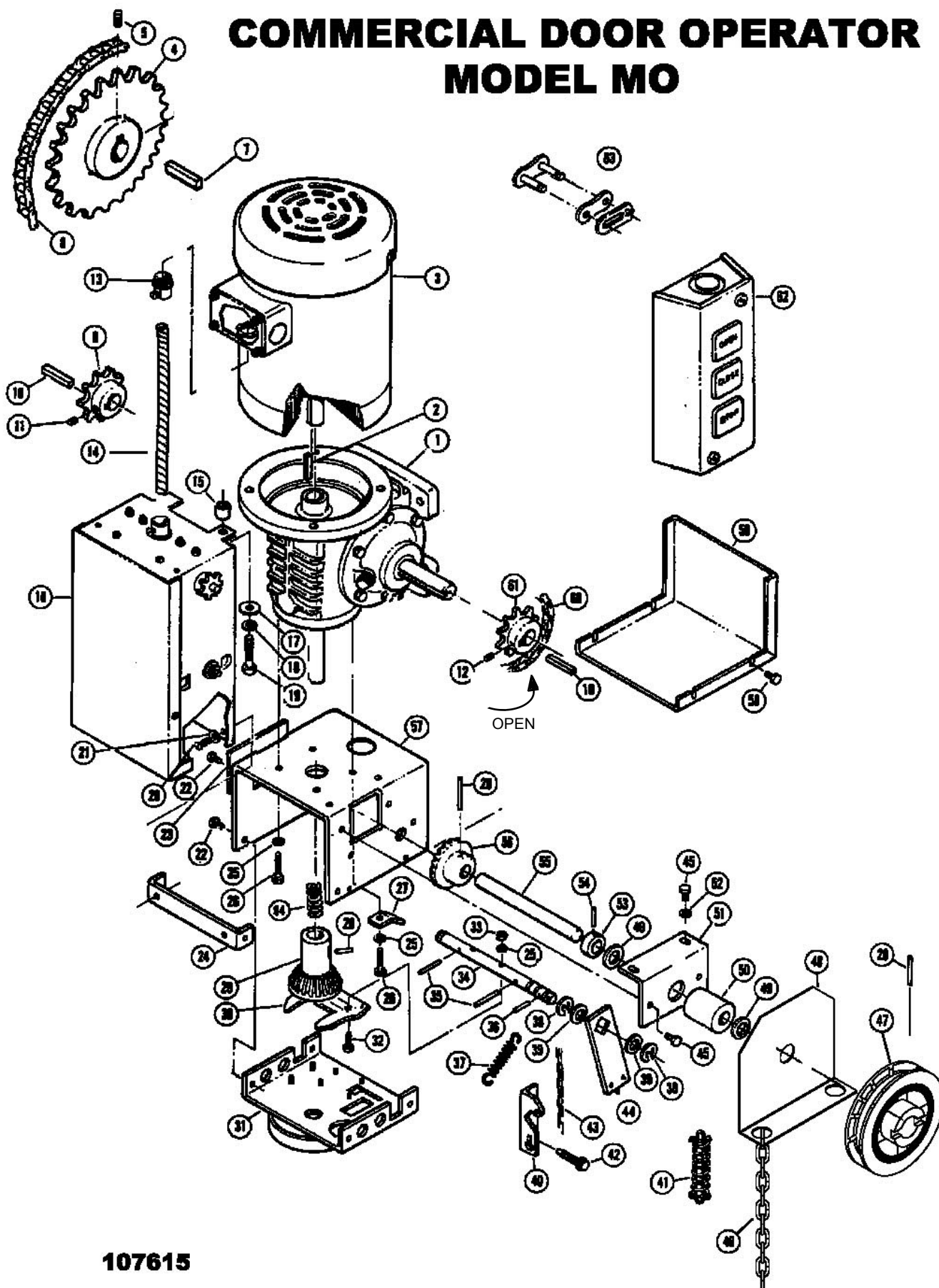
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Figure 12
Limit Assembly

- A - REVERSE CUTOUT SWITCH (LS4, ADJUSTABLE)
- B - CLOSE LIMIT SWITCH (LS2, FIXED POSITION)
- C - SINGLE BUTTON SELECTOR or TIMER ENGAGE SWITCH (LS3, ADJUSTABLE)
- D - OPEN LIMIT SWITCH (LS1, FIXED POSITION)
- E - OPEN LIMIT NUT
- F - LIMIT NUT RETAINING BRCKT
- G - CLOSE LIMIT NUT
- H - "V" BRACKET



COMMERCIAL DOOR OPERATOR MODEL MO





MO OPERATOR PARTS LIST

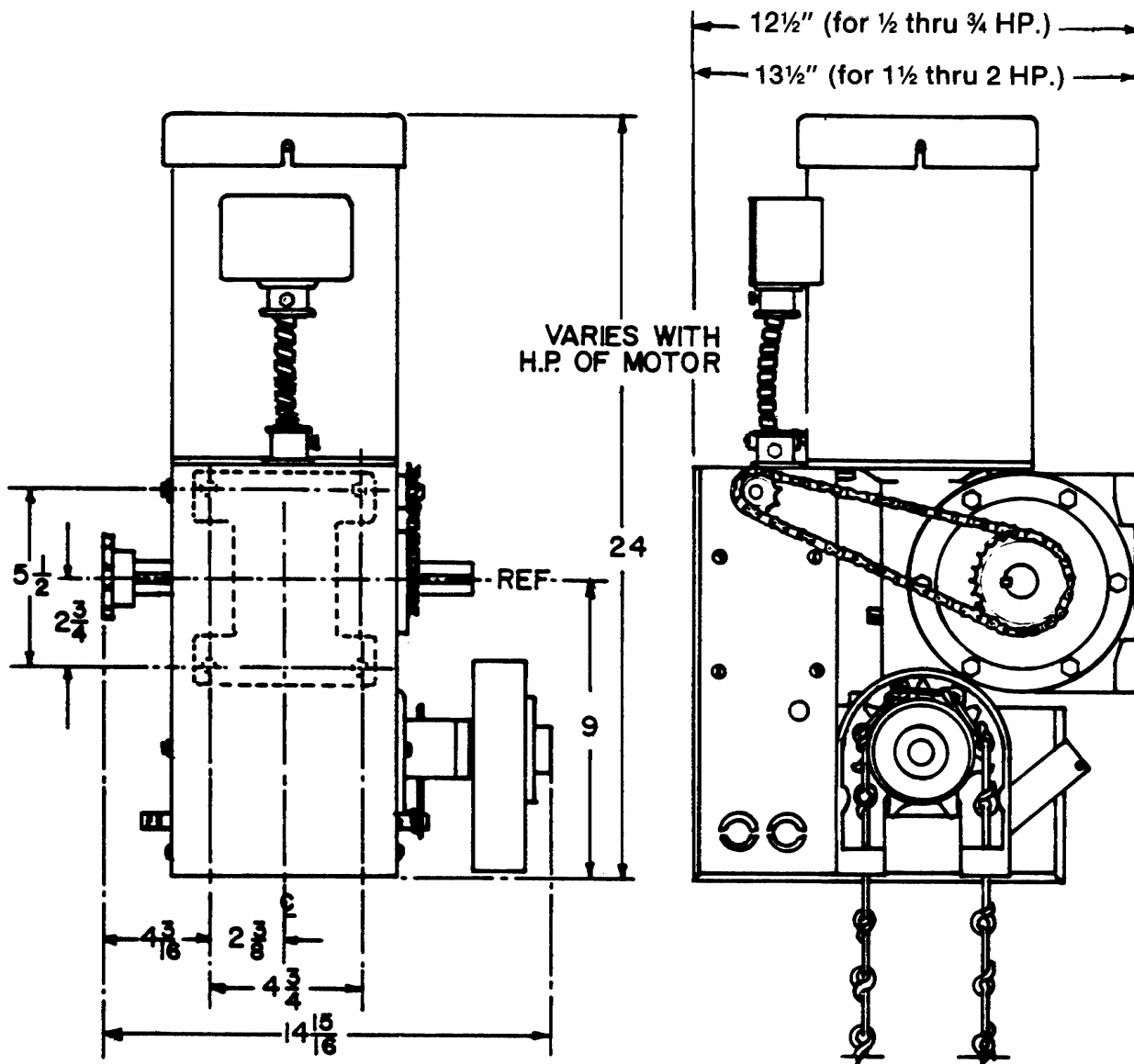
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Item #	Part #	Description	Qty
1	105462	Gear Reducer, 40:1 (1/2 through 1 HP)	1
	105458	Gear Reducer, 40:1 (1-1/2 through 2 HP)	
2	105817	Key, 3/16" x 3/16" x 1-1/8"	1
3	105359	Motor, 1/2 HP, 115/230V, Single Phase	1
	105362	Motor, 3/4 HP, 115/230V, Single Phase	
	105365	Motor, 1 HP, 115/230V, Single Phase	
	105367	Motor, 1-1/2 HP, 115/230V, Single Phase	
	105370	Motor, 1/2 HP, 208-230/460V, 3 Phase	
	105371	Motor, 3/4 HP, 208-230/460V, 3 Phase	
	105372	Motor, 1 HP, 208-230/460V, 3 Phase	
	105373	Motor, 1-1/2 HP, 208-230/460V, 3 Phase	
	106260	Motor, 2 HP, 208-230/460V, 3 Phase	
4	105274	Sprocket, 50B40	1
	105281	Sprocket 50B60	
	105292	Sprocket, 60B60 (1-1/2 and 2 HP)	
	105270	Sprocket, 50B24, (Sectional Door Only)	
5	006119	Set Screw, 5/16-18 x 1, Square Head	2
7	100413	Key, Steel, 1/4 x 1/4 x 1 (As Applicable)	1
7	105562	Key, Steel, 3/8 x 3/8 x 1-1/12 (As Applicable)	
	105560	Key, Steel, 1/4 x 1/4 x 1-1/2 (As Applicable)	
8	105349	Chain, #50, 6 Ft. Long	1
	105353	Chain, #60, 6 Ft. Long	
9	105268	Sprocket, 50B12	1
	105285	Sprocket, 60B12 (1-1/2 and 2 HP Only)	
10	100413	Key, Steel, 1/4 x 1/4 x 1	2
11	006119	Set Screw, 5/16 - 18 x 1, Square Head	2
12	105433	Sleeve, Insulating	2
13	105412	Connector, Conduit, Box	1
	005068	Connector, Conduit, Non-Metallic, Straight, Tyco 207370-1	
14	100626	Conduit, Non-Metallic, 3/8 Inch	1.1 FT
15	105226	Bearing, Spacer	2
16		Box, Electrical (To order, give voltage, phase, horsepower & wiring)	1
17	105520	Washer, Flat, 3/8 x 3/4 x 3/32	4
18	F051	Washer, Lock, 3/8 Split	4
19	F026	Screw, Machine, 3/8-16 x 1-1/2	4
20	F060	Screw, Machine, 1/4-20 x 3/8	2
21	10062	Washer, flat, 1/4 x 9/16 x 3/32	2
22	105571	Screw, Machine Hex, 1/4-20 x 1/2	4
23	105188	Plate, Cover	1
24	105189	Bracket, Electrical Box Mounting	1
25	F050	Washer, Lock Split 1/4	6
26	10046	Screw, Machine, 1/4-20 x 3/4	4

Item #	Part	Description	Qty
27	105153	Bracket, Spring Return (Bevel Gear Yoke)	4
28	105541	Roll Pin, 1/4 x 1-1/2	1
29	106122	Gear, Bevel Engaging	3
30	105151	Yoke, Bevel Gear	1
31	106126	Brake Assy, Complete, 115V, for 1 phase	1
	106127	Brake Assy, Complete, 230V, for 3 phase	1
32	006059	Screw, Machine, 1/4-20 x 1	2
33	006035	Nut, Hex, 1/4-20	2
34	105199	Shaft, Control	1
35	105532	Pin, Roll, 1/8 x 1-1/2	2
36	105537	Pin, Roll, 3/16 x 3/4	2
37	105304	Spring, Yoke	1
38	105548	Snap Ring, 1/2	2
39	105521	Spacer, 1/2 x 1 x 3/32	2
40	105193	Bracket, Floor Level	1
41	105305	Spring, MO Disconnect	1
42	102636	Lag Hex Bolt, 5/16 x 2	2
43	105323	Chain, Sash, #8A-12 Ft. Long	1
44	105150	Arm, Manual Engagement	1
45	006033	Screw, Machine, 5/16-18 x 1/2	4
46	100315	Chain, Hand, Precut to 26 FT	1
47	100184	Pocket Wheel with Bearing	1
48	100183	Chain Guide with Bearing	1
49	105216	Bushing, 3/4 ID, 1 OD, 3/4 L	2
50	106928	Post, 1/2 Inch Hex x 2-7/16L	1
51	105154	Plate, Mounting Hoist Shaft	1
52	006052	Washer, Split Lock	2
53	105443	Collar, 3/4 ID	1
54	105538	Pin, Roll, 3/16 x 1	1
55	105198	Shaft, Control Hoist	1
56	105820	Gear, Bevel Engaging	1
57	105152	Frame, BK/Hoist Mtg.	1
58	105574	Screw, Pan, 8-32 x 1/4	4
59	105155	Cover, Brake/Hoist Assy	1
60	105334	Chain, #48 Limit Switch, #65, 43 Pitch, 22 inch	1
	105335	Chain, #48 Limit Switch, #65, 45 Pitch, 23 inch (1-1/2 HP through 2 HP)	
61	105266	Sprocket, Limit Switch	1
62	005031	Control Station, 3 button	1
63	009224	Master Link, #48 Chain Limit Switch	1
	105351	Master Link, #50 Chain	
	105354	Master Link, #60 Chain, (1-1/2 HP & 2 HP)	
64	105303	Compression Spring	1
65	106927	Bracket w/Bearing Assy	1



107616



**WARNING**

TO PREVENT THE RISK OF PERSONAL INJURY OR DEATH :

- **DISCONNECT POWER AT THE FUSE BOX BEFORE PROCEEDING.**
- **ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED INDIVIDUAL.**
- **OBSERVE LOCAL ELECTRICAL CODES WHEN WIRING THE OPERATOR.**

WARNING: Allstar MO operators have been designed and constructed for use with voltages from 115 Volts AC to 480 Volts AC, in single or three phase. Check the operator nameplate label on the control box cover for the proper voltage and phase. The application of an improper input voltage or phase will result in catastrophic failure to the internal electrical components.

Observe local electrical codes when wiring the operator.

When hard wiring, observe state and local electrical codes. A wiring diagram is attached to the inside of the control box cover. Connect the appropriate voltage and phase power leads to the appropriate terminals as per the wiring diagram and connect a ground wire to the grounding screw. On three phase units, incorrect phasing of the power supply will cause the motor to rotate in the wrong direction (open when CLOSE button is pushed and vice versa). To correct this, interchange any two of the incoming three phase conductors.

The wiring diagram attached inside the cover of the control box details all of the field wiring terminal connections for the operator. Always connect the wires to the push-button controls and auxiliary devices exactly as shown.

Warning: Control voltage of the operator is 24 volts AC, Class 2. Do not run the power leads and control circuit wiring in the same electrical conduit.

**WARNING**

TO PREVENT THE RISK OF PERSONAL INJURY AND/OR DAMAGE TO DOOR OR PROPERTY, ONLY OPERATE DOOR CONTROL WHEN DOOR IS IN CLEAR VIEW. IF CONTROL STATION CANNOT BE LOCATED WHERE THE DOOR IS VISIBLE OR IF ANY OTHER DEVICE IS USED TO CONTROL THE DOOR AN AUXILIARY ENTRAPMENT DEVICE (DOOR EDGE OR PHOTOELECTRIC) *MUST BE CONNECTED.*

**WARNING**

RISK OF ENTRAPMENT THAT MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH. DISCONNECT POWER TO THE OPENER BEFORE AND DURING INSTALLATION OF AN ACCESSORY REVERSING DOOR EDGE OR PHOTOELECTRIC DEVICE. DO NOT RECONNECT POWER TO OPENER UNTIL INSTRUCTED TO DO SO. ENSURE DOORWAY IS CLEAR BEFORE STARTING TESTING OF UNIT.

Note: Most MO operators are pre-wired for door reversing edge components. To comply with code requirements, the door reversing edge components must be installed and wired to the operator. Refer to Figures 16 and 17 for Edge component wiring and installation.

For operator models not equipped with reversing edge components **ONLY ONE THREE BUTTON WALL STATION AND NO OTHER MEANS OF CONTROL** may be used to control the operator. This is to comply with safety requirements. In this case the pushbutton station must be located **WITHIN CLEAR SIGHT OF THE DOOR** adjacent to a placard (supplied with the operator) with this wording:

**WARNING
TO PREVENT ENTRAPMENT
DO NOT START DOOR DOWNWARD
UNLESS DOOR WAY IS CLEAR**

Operators which are equipped with a reversing edge circuit may have one or more additional means of control which should be wired in accordance with the diagram supplied in the operator. To add a second three button station, refer to **Figure 17**.

Number 18 gauge wire or heavier must be used for wiring the control stations and auxiliary control devices to the operator. Smaller gauge wire will cause operational problems, especially when multiple push-button stations are used or during summer months.

**CAUTION**

**TO AVOID DAMAGE TO DOOR AND OPERATOR ENSURE ALL DOOR LOCKS ARE DISABLED.
USE AN INTERLOCK SWITCH IF A LOCK IS REQUIRED TO RETAIN FUNCTIONALTY.**



PNEUMATIC DOOR EDGE INSTALLATION - FIELD WIRING — 16

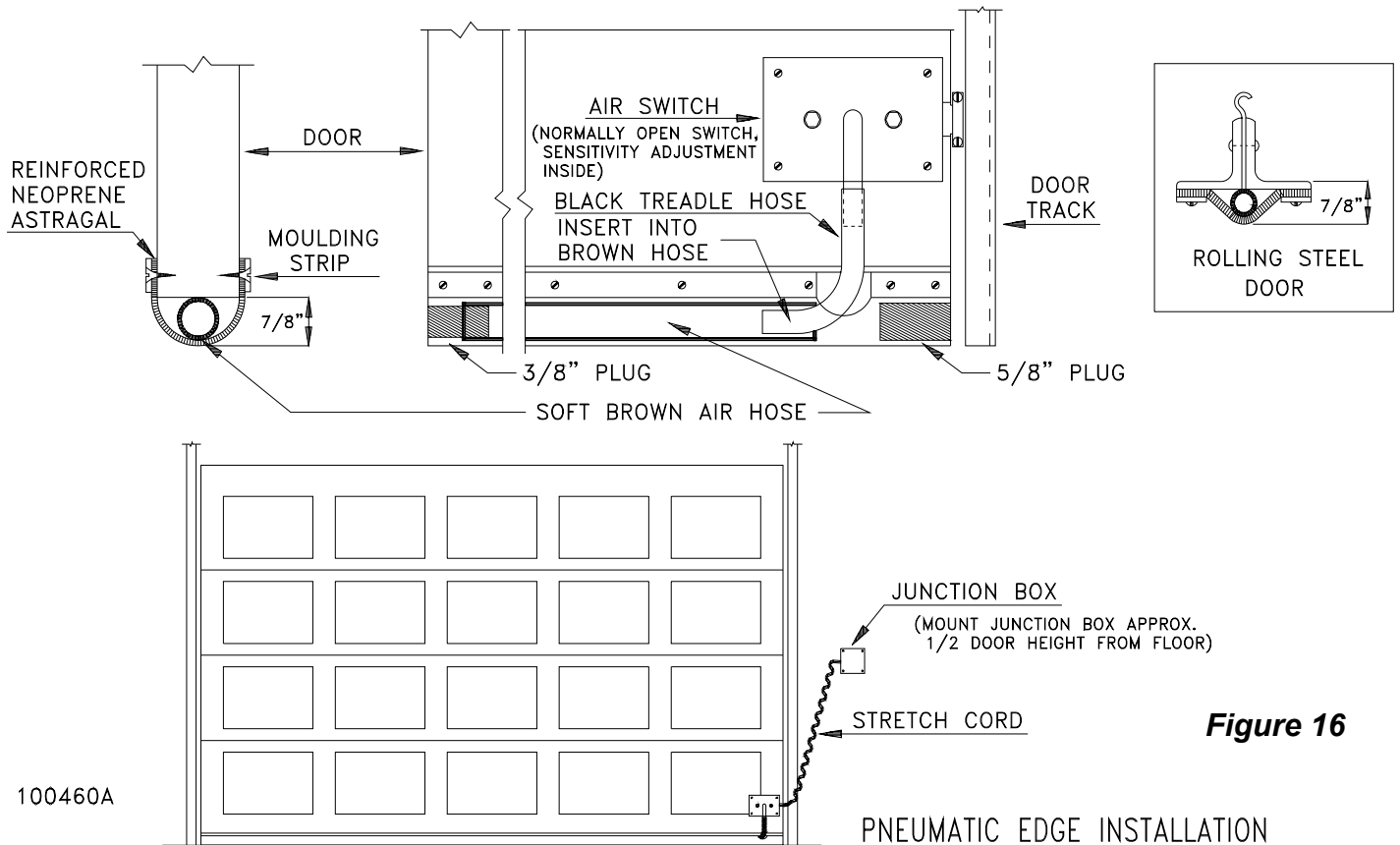
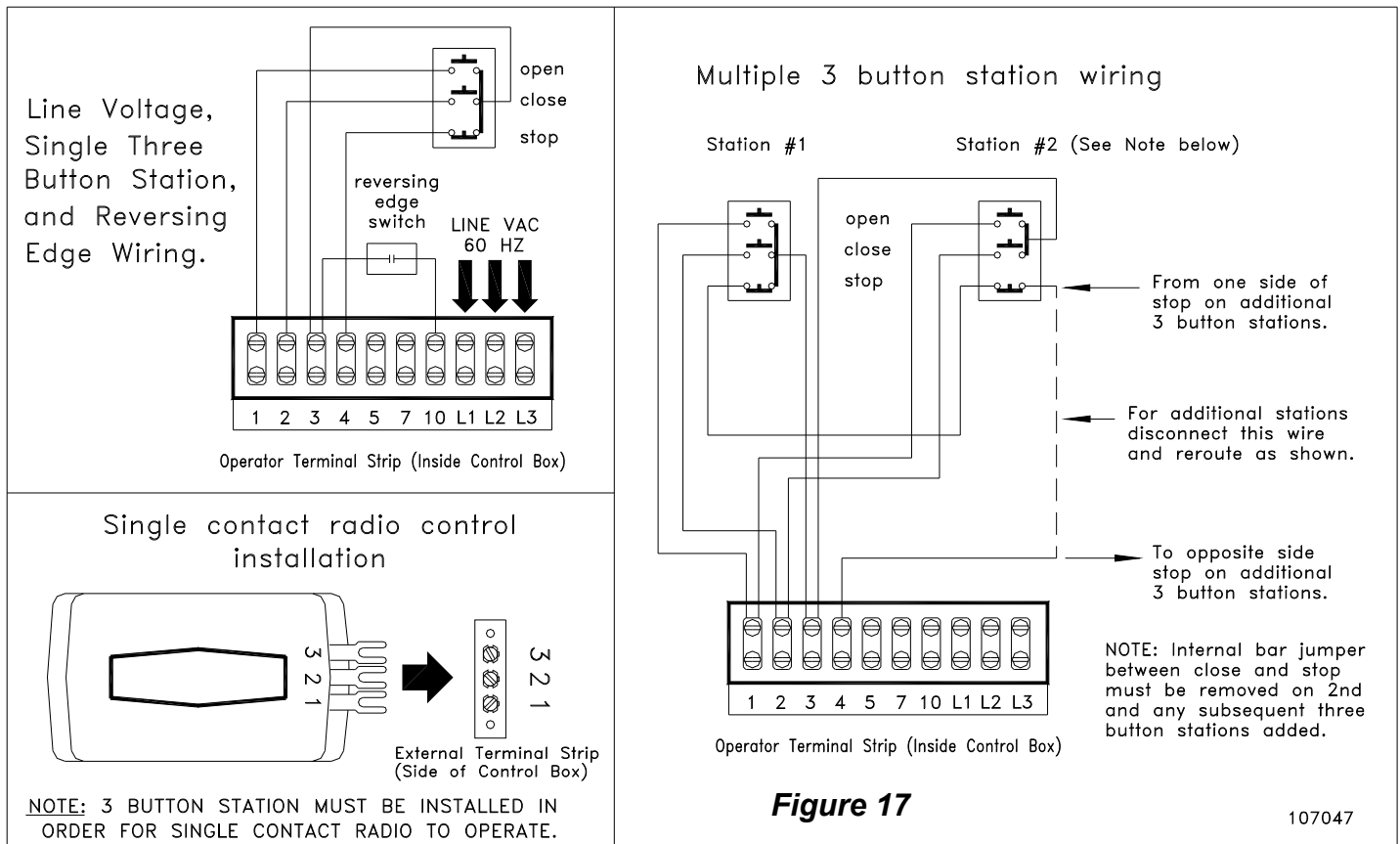


Figure 16

PNEUMATIC EDGE INSTALLATION

100460A



**IMPORTANT SAFETY INSTRUCTIONS FOR OWNER****WARNING****TO REDUCE THE RISK OF SEVERE INJURY OR DEATH: READ AND FOLLOW ALL**

- **NEVER** let children operate or play with door controls. Keep the Remote Control away from children.
- **ALWAYS** keep a moving door in sight and keep people and objects away from the door area until the door is completely closed. **NO ONE SHOULD CROSS THE PATH OF A MOVING DOOR.**
- **TEST THE DOOR OPENER'S REVERSING FEATURE** (where applicable) **MONTHLY**. The door **MUST** reverse upon contact with a 4" high object on the floor. After adjusting the force setting (clutch) or the limit of travel, **ALWAYS RETEST** the Opener. Failure to **ADJUST THE OPENER PROPERLY** may result in **SERIOUS INJURY OR DEATH**.
- **DO NOT** over adjust the force setting (clutch, where applicable) to compensate for a poorly working door. See page 19 for procedure to check the door operation and insert sheet for proper clutch adjustment.
- If possible, **USE THE MANUAL RELEASE** only when the door is closed. Use caution when using the Release with the door open. **WEAK OR BROKEN SPRINGS MAY ALLOW THE DOOR TO CLOSE RAPIDLY, CAUSING SEVERE INJURY OR DEATH.**
- **KEEP THE GARAGE DOOR PROPERLY BALANCED.** See the door owner's manual. An improperly balanced door **MAY CAUSE SEVERE INJURY OR DEATH**. Have a **QUALIFIED SERVICE PERSON** make repairs to cables, spring assemblies and other hardware.
- **SAVE THIS INSTRUCTION MANUAL FOR END USER.**

NOTE: It is now necessary to turn on the power in order to run the Opener to check for proper operation and limit settings. Before doing so, ensure that all mounting hardware are installed and properly tightened, that all electrical connections are per local code requirements, and that proper wiring practices have been followed. Also, double-check that all ropes have been removed from the door and that the doorway is clear.

**WARNING**

FAILURE TO TEST REVERSING SYSTEM COULD RESULT IN DEATH OR SERIOUS INJURY. TEST THIS SYSTEM ONCE A MONTH.

**WARNING**

**AVOID ELECTROCUTION:
DO NOT ROUTE LOW VOLTAGE WIRES IN
SAME CONDUIT AS HIGH VOLTAGE
WIRES. FOLLOW ALL LOCAL
ELECTRICAL CODES OR THE NATIONAL
ELECTRICAL CODE (NEC).**

WIRING TERMS

MOMENTARY CONTACT: Button can be pushed and then released and door will keep moving or stop without maintaining pressure on the button.

CONSTANT PRESSURE: Constant pressure is required on the button in order for continued door movement. When the button is released the door will stop and possibly reverse to full open depending on wiring type.

DOOR EDGE/PHOTOELECTRIC INPUT: The operator wiring provides for input from an optional pneumatic or electric door bottom edge or photoelectric device that will cause a closing door to stop and may reverse it to open depending on the wiring type.

OPEN OVERRIDE: When the door is closing a momentary push of the OPEN button will reverse the door to open.



WIRING TYPES

NOTE: Check the marking on the operator outer carton and the wiring diagram on the inside control box cover for the wiring type.

B WIRING

To Open - Momentary Contact
To Close - Momentary Contact
To Stop - Momentary Contact

B1 WIRING

To Open - Momentary Contact
To Close - Momentary Contact
To Stop - Momentary Contact
Door Edge/Photoelectric Input will *stop* the door when closing.

B2 WIRING

To Open - Momentary Contact
To Close - Momentary Contact
To Stop - Momentary Contact
Open Override - Standard
Door Edge/Photoelectric Input will reverse a closing door to full open - door can be stopped with the STOP button at all times.

C WIRING

To Open - Momentary Contact
To Close - Constant Pressure: Door will stop if pressure is released from CLOSE button
To Stop - Momentary Contact

C1 WIRING

To Open - Momentary Contact
To Close - Constant Pressure: Door will stop if pressure is released from CLOSE button
To Stop - Momentary Contact
Door Edge/Photoelectric Input will *stop* the door when closing.

D WIRING

To Open - Momentary Contact
To Close - Constant Pressure
To Stop - Door will stop if pressure is released or when the opener activates a limit switch at full open or full closed.

E WIRING

To Open - Momentary Contact
To Close - Constant Pressure: If pressure is released door will reverse to full open
To Stop - Door will stop when the opener activates a limit switch at full open or full closed. Door cannot be stopped in mid travel.

E2 WIRING

To Open - Momentary Contact
To Close - Constant Pressure: If pressure is released door will reverse to full open
To Stop - Door will stop when the opener activates a limit switch at full open or full closed. Door cannot be stopped in mid travel.
Door Edge/Photoelectric Input will reverse a closing door to full open and door cannot be stopped.

R2 WIRING

To Open - Momentary Contact
To Close - Momentary Contact
To Stop - Momentary Contact
Open Override - Standard
Optional Single Button Radio Control Input will open or close door but will not stop the door.

T1 WIRING

To Open - Momentary Contact
To Close - Momentary Contact
To Stop - Momentary Contact
Open Override - Standard
Door Edge/Photoelectric Input will reverse a closing door to full open - door can be stopped with the STOP button at all times.
Optional Adjustable Timer closes the door automatically. Time interval resets when open button, open override, door edge or auxiliary control is activated.
Optional Defeat Switch locks out timer when not required.

T2 WIRING

To Open - Momentary Contact
To Close - Momentary Contact
To Stop - Momentary Contact
Door Edge/Photoelectric Input will reverse a closing door to full open - door can be stopped with the STOP button at all times.
Optional Adjustable Timer closes the door automatically. Time interval resets when door edge or auxiliary control is activated. OPEN button will not start or reset timer.
Optional Defeat Switch locks out timer when not required.



BRAKE ADJUSTMENT

The solenoid operated brake may require occasional adjustment. Adjustment is necessary if door tends to drift downward after reaching the open limit. Follow the instructions below and use **Figure 18** as a guide.

- (1) Loosen shoe adjusting screw and bottom bracket arm of solenoid.
- (2) Move tab until drum has a slight drag.
- (3) Reverse drag slightly from tab and tighten shoe adjustment screw.

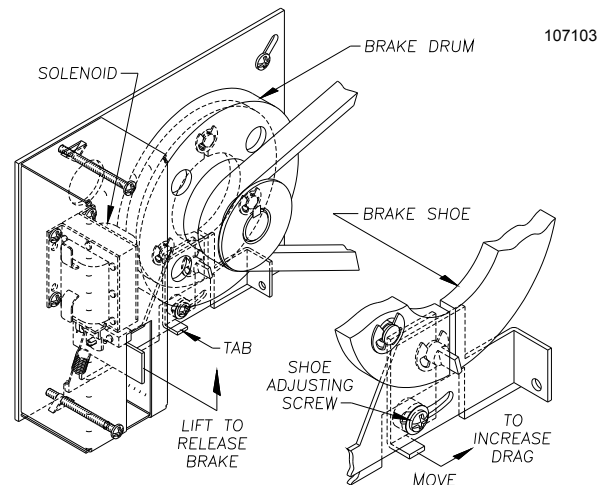


Figure 18

TESTING

Following installation, the operator **MUST** be tested and respond correctly to all controls as specified on the wiring diagram. **KEEP** personnel and equipment clear of the area beneath the door when performing the tests. When testing the 3-button wall station, first observe that each button operates the door in the direction indicated and that the STOP button performs that function. With the door stopped at its full open position, the OPEN button should be inoperative. This should be verified and, likewise, the CLOSE button should be inoperative with the door fully closed.

Certain operator control circuits use only a single button or a two button control station and may be designed to function differently than the more common three-button circuit described above. Test the controls in accordance with the description of operation as indicated on the wiring diagram and on page 18, Wiring Types.

Observe the door when traveling in each direction for smoothness of operation. Test the setting of the clutch by restraining the door by hand. The clutch should slip. Re-check the limit settings. The door should close tightly at the floor without excessive impact. Likewise, it should fully clear the door opening without the carrier striking the stops on the rail.

Allstar MO operators are equipped with a reversing edge circuit and to conform with code need to be connected to a pneumatic edge or foam edge door components. To test it for proper reversal, place an object beneath the leading edge of the door. The door should instantly reverse when it comes into contact with the object provided the height of the object exceeds the cut out point built into the close limit switch (approximately four inches).

CAUTION

**DO NOT STAND UNDER DOOR
TO TEST REVERSING EDGE
USE A CORRUGATED BOX
OR OTHER SIMILAR OBJECT**

If the operator is equipped with other means of control, such as additional 3 button stations or radio controls, each of these should be tested separately for proper operation.

To test the manual disconnect first move the door to the fully closed position. Then disconnect the power to the operator. Manual door operation mode should engage when the release chain is pulled. The door can then be manually opened or closed by physically moving the door or using the hoist chain. If it is difficult to engage and/or the jackshaft to doorshaft chain appears to be under compression, reset the CLOSE limit slightly to reduce the door travel in the close direction.



WARNING

**ALWAYS DISCONNECT POWER TO
THE OPERATOR BEFORE SERVICING,
CONNECTING ACCESSORY DEVICES
OR MAKING ADJUSTMENTS.**



Normally, very little maintenance is required. A monthly visual inspection must be made for loose or missing hardware and for excessive slack in the V-Belt and jackshaft chain. The brake is adjusted at the factory and will need periodic adjustment for wear. When adjustment becomes necessary see **Figure 18** on page 19 for the adjustment procedure.

Test the reversing edge circuit or components (where applicable) at least once a month by permitting the door to contact an obstruction while closing.

Periodic inspection of gear box oil level should be made by removing oil level plug. If oil level is below this plug, add Esso Gear Oil XP90 or Mobilube "C" SAE 140 or equivalent to bring to proper level.

CAUTION
DO NOT STAND UNDER DOOR TO TEST
REVERSING
EDGE - USE A CORRUGATED BOX
OR OTHER SIMILAR OBJECT

Lubrication of the operator is not required. It is important, for trouble free service from the operator, that the door be kept free from binding, properly counter balanced and periodically lubricated. **An annual inspection of the door by a qualified overhead door professional is recommended.**

Warning: Repairs and adjustments to the door and operator should be performed only by someone qualified to service commercial overhead doors and operators.



SYMPTOM	POSSIBLE CAUSE	SOLUTION
Motor runs but door does not move	Door jammed or obstructed.	Check manual operation of door.
	Sprocket key missing or drive chain broken.	Check drive chain for operation.
Limit switches do not hold setting	Drive chain too loose; permits chain to jump teeth on sprocket.	Adjust chain to proper tension. See Figure 7.
	Limit nuts binding on screw, causing them to jump position on retaining bracket.	Check for free rotation on limit screw. Lubricate screw or replace nuts if threads are defective.
	Limit nut retaining bracket not engaging notches in nuts.	Set nuts and be sure bracket is in notch on each nut. (See Figure 10.
Door drifts when operator shuts off.	Inoperative or improperly adjusted brake (when equipped).	Adjust brake. See Figure 15.
	Door tension incorrect.	Disconnect operator and check operation of door.
Motor hums — does not run.	Dead phase (on 3 phase).	Check power supply.
	Brake does not release.	Check wires to brake solenoid, check adjustment.
	*Door locked or jammed.	Check door. Try manual operation.
Motor does not run when open or close wall button is pressed.	Building fuse blown or circuit breaker tripped.	Check power supply fuses, circuit breakers, disconnect switch, check for cause.
	Overload protector tripped.	Reset and check for cause.
	NOTE: To isolate cause, operate contactor solenoid plunger manually. If motor runs, cause is in push button circuit.	Check pushbutton circuits for voltage against voltage indicated on wiring diagram. Check push button wiring. Check interlock switch wiring.
	Interlock switch broken or inoperative.	Check that hoist engagement yoke (hand chain) is making contact with interlock switch located on side of the control box. Check wiring to switch and switch function. Normally closed for operation electrically and normally open for hand chain operation.
Operator closes door when "open" button is pressed, and limit switches do not function properly.	On three phase operators power supply is connected out of phase.	Interchange connections of any two power supply leads. (See wiring diagram)
	Operator not installed correctly.	Remount operator so that motor is "up" or toward door wall or contact factory as to wiring changes required.
Operator fails to shut off at fully open closed position.	On three phase operators power supply is connected out of phase.	Check phase as above.
	Limit nuts not adjusted properly.	See limit adjustments page 10.
	Defective limit switch.	Operator limit switch manually while door is moving to determine if switch is operative.
	Single phase operator (without instant reverse motor). Stuck push button or short in control wiring.	If door overrides up limit, check down button and circuit. If door overrides down limit, check open button and circuit.
	Limit drive chain broken or inoperative.	Replace chain, check limit screw for rotating.

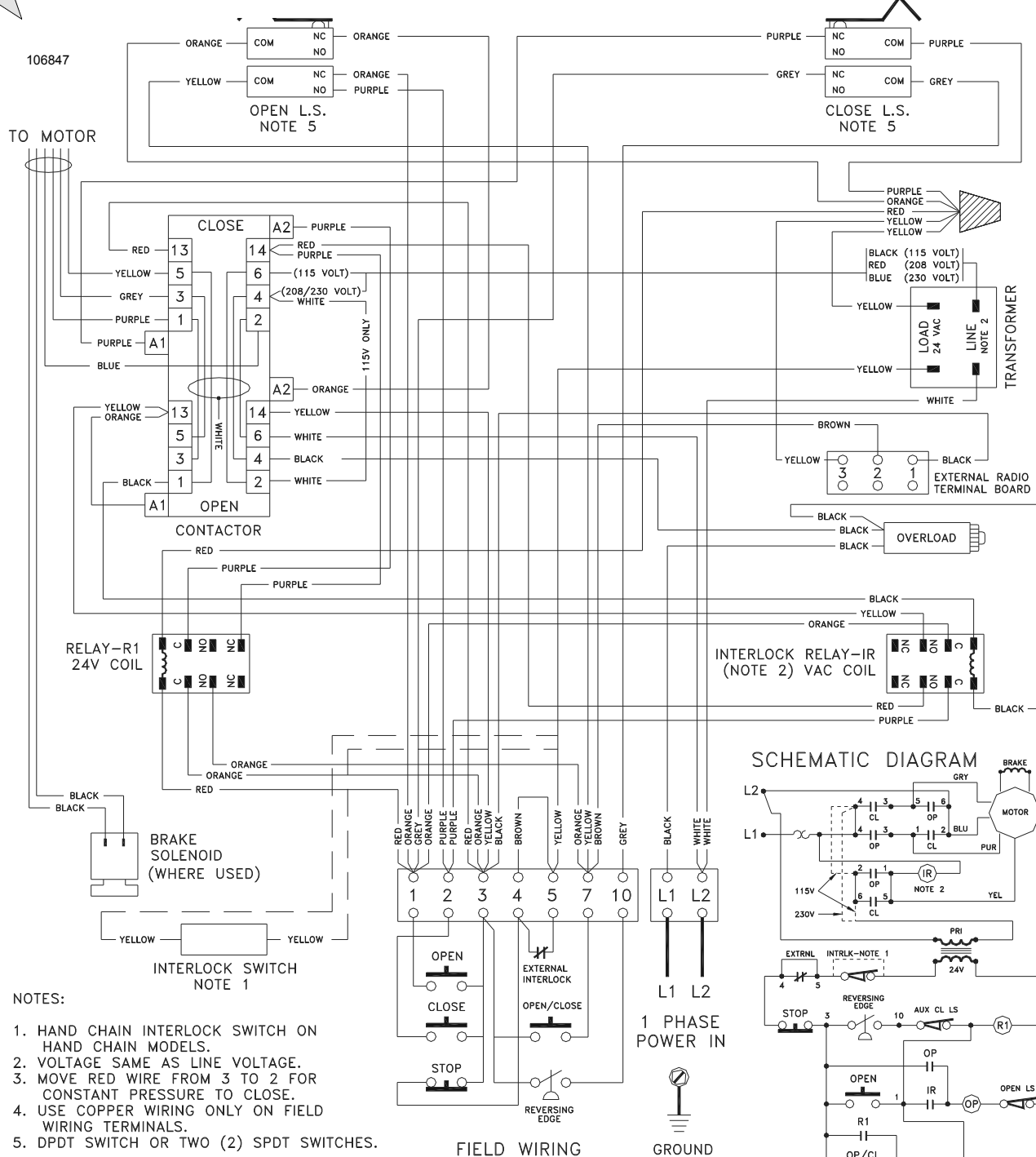
* Door must be in good operating condition.

An electrical door operator cannot move a garage door that is in poor condition. The door must operate freely in the track, with no binding or obstructions, and must be well balanced. Check the spring balance of your door by bringing the door to a half-open position and leaving it there. If the door stays in that position, it is well balanced. If it moves more than a few inches the springs possibly need adjustment. Call a qualified door service company.



WIRING DIAGRAM/SCHEMATIC - SINGLE PHASE

22



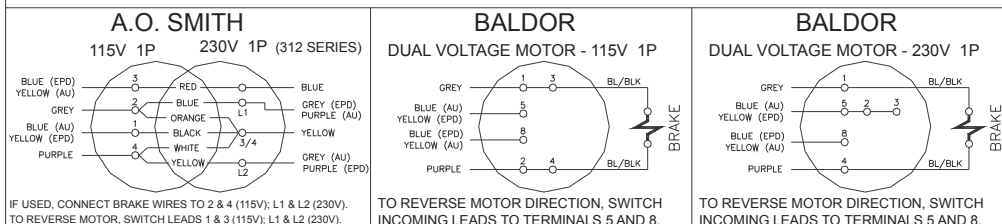
CONNECT REVERSING
EDGE & TEST MONTHLY.

CAUTION: DISCONNECT
POWER BEFORE ATTEMPTING
SERVICE OR ADJUSTMENTS.

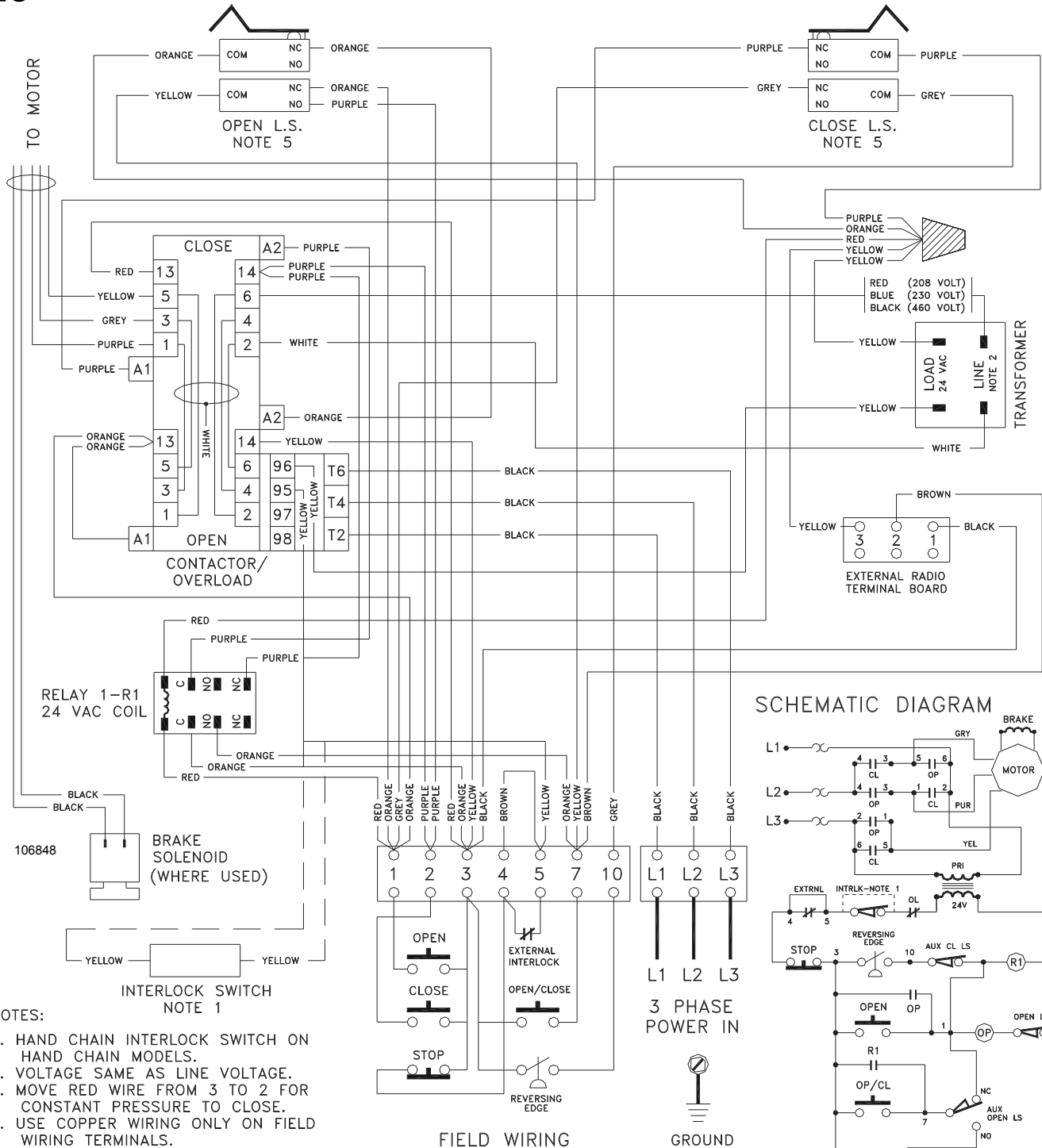
SINGLE PHASE MOTOR WIRING CHART

(EPD) - ALLSTAR SERIES T, J, AND H

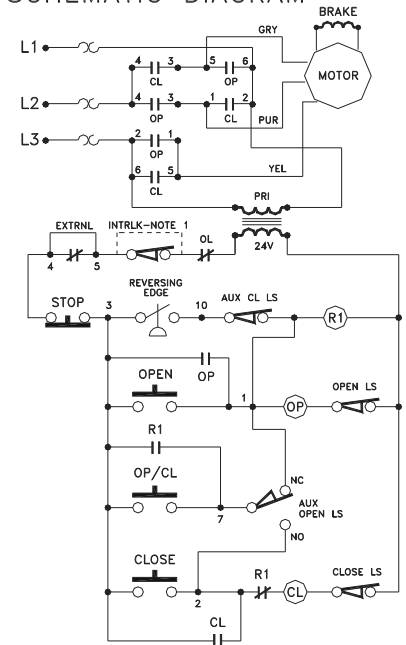
(AU) - ALLSTAR SERIES AUD, AUJ, AND AUH



107304



SCHEMATIC DIAGRAM



NOTES:

1. HAND CHAIN INTERLOCK SWITCH ON HAND CHAIN MODELS.
2. VOLTAGE SAME AS LINE VOLTAGE.
3. MOVE RED WIRE FROM 3 TO 2 FOR CONSTANT PRESSURE TO CLOSE.
4. USE COPPER WIRING ONLY ON FIELD WIRING TERMINALS.
5. DPDT SWITCH OR TWO (2) SPDT SWITCHES.

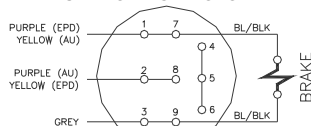
CONNECT REVERSING EDGE
AND TEST MONTHLY.

CAUTION: DISCONNECT
POWER BEFORE ATTEMPTING
SERVICE OR ADJUSTMENTS.

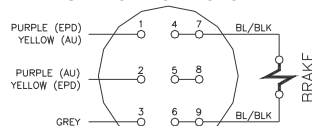
3 PHASE MOTOR WIRING CHART

(EPD) - ALLSTAR SERIES T, J, AND H

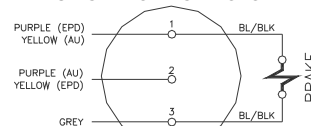
(AU) - ALLSTAR SERIES AUD, AUJ, AND AUH

230 VOLTS, 3 PHASE
DUAL VOLTAGE MOTOR

TO REVERSE MOTOR DIRECTION, SWITCH
ANY TWO INCOMING LEADS.

460 VOLTS, 3 PHASE
DUAL VOLTAGE MOTOR

TO REVERSE MOTOR DIRECTION, SWITCH
ANY TWO INCOMING LEADS.

575 VOLTS, 3 PHASE
SINGLE VOLTAGE MOTOR

TO REVERSE MOTOR DIRECTION, SWITCH
ANY TWO INCOMING LEADS.

107304

Manufacturer's Limited Warranty

Linear LLC warrants its Allstar brand commercial door operators to be free from defect in material and workmanship for a period of two (2) years from the date of purchase. To obtain service contact your dealer.

To obtain service under this warranty the buyer must obtain authorization instructions for the return of any goods from Linear before returning the goods. The goods must be returned with complete identification, with copy of proof-of-purchase, freight prepaid and in accordance with Linear's instructions or they will not be accepted. In no event will Linear be responsible for goods returned without proper authorization or identification.

Goods returned to Linear for warranty repair within the warranty period, which upon receipt by Linear are confirmed to be defective and covered by this limited warranty, will be repaired or replaced at Linear's sole option, at no cost and returned pre-paid. Defective parts will be repaired or replaced with new or factory rebuilt parts at Linear's sole option.

This limited warranty does not cover non-defect damage, damage caused by unreasonable use, damage caused by improper installation or care, vandalism or lightning, fire or excessive heat, flood or other acts of God (including, but not limited to misuse, abuse or alterations, failure to provide reasonable and necessary maintenance), labor charges for dismantling or reinstalling a repaired or replaced unit, or replacement batteries.

These warranties are in lieu of all other warranties, either expressed or implied. All implied warranties of merchantability and/or fitness for a particular purpose are hereby disclaimed and excluded. Under no circumstances shall Linear be liable for consequential, incidental or special damages arising in connection with the use or inability to use this product. In no event shall Linear's liability for breach of warranty, breach of contract, negligence or strict liability exceed the cost of the product covered hereby. No person is authorized to assume for Linear any other liability in connection with the sale of this product.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state. Warranty effective after October 1st, 2007.

For Information:
877-441-9300 800-421-1587 www.allstarcorp.com

**This Door Operator is built in the USA and
complies with all requirements of
ANSI/UL Standard 325.**