

Operational & Maintenance Maintenance Maintenance

Products:

Installation Site

Contractor

Architect

Distributor



Dear Customer:

Thank you for choosing [\(^{\alpha}\) \(^{\alpha}\) \(^{\alpha}\) your custom door installation specialist.

The Operation and Maintenance Manual, which is enclosed, has been supplied by Overhead Door Corporation to meet your needs as our customer. Appropriate information for the products installed has been compiled in this manual for your use. We recommend compliance with all of the safety information provided within the manual.

We strongly recommend implementing a preventative maintenance program. Benefits of properly maintaining your door system include:

- Increased operational efficiency and reliability.
- Extended useful life of your equipment.
- Increased probability of dependable equipment performance.
- Elimination of non-budgeted maintenance cost for door service.

As an Overhead Door distributor, we offer you complete product support for your service and maintenance needs. Do not hesitate to call us for assistance.

We hope that you will also continue to consider [* | Æ[{] æ} ^ for your future product and installation needs. We are firmly committed to providing the finest in Overhead Door products, accessories, and a level of customer support unmatched in the industry.

Sincerely,



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GENERAL INFORMATION



OVERHEAD DOOR CORPORATION

Overhead Door Corporation, based in Dallas, Texas, is a leading single-source manufacturer of integrated door and operator systems for commercial and residential applications.

Overhead Door is the door solutions provider that delivers expert service and the highest level of performance and reliability. Our comprehensive product line encompasses a wide variety of commercial door solutions including: commercial operators, commercial sectional and rolling service doors, advanced performance rolling doors, and security grilles.

With our nationwide network of more than 400 authorized distributors, we are a leading provider of overhead and garage door systems, and we continue to lead the way with reliable solutions and unmatched professional installation, service and support that keeps customers coming back. The brand trusted for over 90 years, Overhead Door gives home and business owners confidence and peace of mind.



To locate a distributor:

From the United States, call 1-800-929-3667 (DOOR)

International: 1-717-248-0131

http://www.overheaddoor.com/Pages/distributor-locator.aspx

Contact Information:

Overhead Door Corporation 2501 S. State Hwy. 121, Suite 200 Lewisville, TX 75067

Telephone: 1-800-275-3290 www.overheaddoor.com



PREVENTATIVE MAINTENANCE



BENEFITS OF PREVENTATIVE MAINTENANCE PROGRAM

- Increase operational efficiency, safety and reliability
- Extend useful life of your equipment
- Reduce probability of equipment malfunctioning
- Decrease costly downtime
- Decrease long-term repair expense
- Priority scheduling for service
- Establish relationship with experienced, service-oriented professionals



SCOPE OF WORK FOR ELECTRIC OPERATORS

For the period _	, 20, through	, 20_	_, the following services and
inspections will I	be provided as part of the Prever	ntative Maintenance Prog	ram for operator(s):

ELECTRIC OPERATORS:

- 1) Inspect and adjust limit switches.
- 2) Inspect and adjust belts.
- 3) Inspect and adjust brake.
- 4) Inspect gear reducer.
- 5) Inspect operator mounting.
- 6) Inspect and test disconnect.
- 7) Inspect and lubricate roller chain.
- 8) Inspect and tighten all sprockets.
- 9) Inspect safety labels, placement and condition.



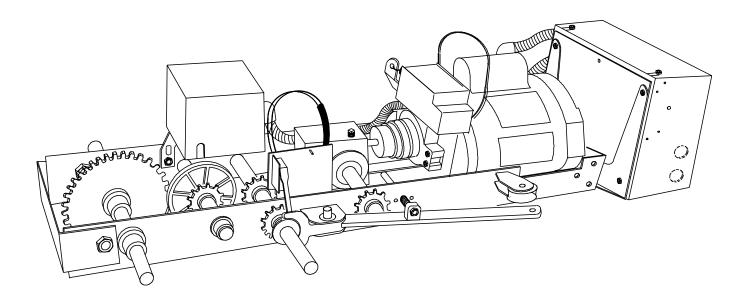
INSTALLATION INSTRUCTIONS

COMMERCIAL OPERATOR

Assembly - Installation - Operation and Service Instructions



MODEL L+



NOT FOR RESIDENTIAL USE

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After installation, keep these instructions in area of push button station.

P/N 109472-0001 REV. A 01/23/03

SAFETY INFORMATION

The terms opener and operator mean the same thing when used in the following text.

WARNING

Overhead doors are large, heavy objects that move with the help of springs under high tension and electric motors. Since moving objects, springs under tension, and electric motors can cause injuries, your safety and the safety of others depend on you reading the information in this manual. If you have questions or do not understand the information presented, call your nearest service representative.

POTENTIAL HAZARD	EFFECT	PREVENTION	
		Do Not operate unless the doorway is in sight and free of obstructions. Keep people clear of opening while door is moving.	
7	Can Cause Serious Injury or Death	Do Not allow children to play with the door operator.	
MOVING DOOR		Do Not change control to momentary contact unless an external reversing means is installed.	
ELECTRICAL SHOCK	Can Cause Serious Burns or Death	Turn off electrical power before removing powerhead cover. Operator must be electrically grounded.	
	Can Cause Serious Injury or Death	Do Not try to remove, repair or adjust any structure, wood block, steel bracket, cable or anything else to which door spring parts are fastened. Repairs and adjustments must be made by a trained	
HIGH SPRING TENSION		service person using proper tools and instructions.	

SAFETY INSTRUCTIONS

- Read manual and warnings carefully.
- 2. Keep the door in good working condition. Periodically oil all moving parts of door.
- 3. If the door has a safety edge, check its operation daily. Make any necessary repairs to keep it functional.
- 4. At least twice a year, manually operate the door by disconnecting it from the operator. The door should open and close freely. If it does not, correct the condition causing the malfunction.
- 5. The operator motor is protected against burnout by an internal overload protector. If the operator ceases to function because the motor protector has tripped, correct any condition which may have caused the overload. When the motor has cooled, the overload protector will automatically reset and normal operation can be resumed.

6. a. Sidemount

In case of power failure, the door can be operated manually by pulling the release cable to release the motor drive and engage the hand chain hoist.

Cable **MUST** remain pulled while operating the hand chain.

b. Drawbar

In case of power failure, the door can be operated manually by disconnecting the drawbar arm from the carriage.

7. Keep these instructions in a prominent location near the push button station.

In the following text, the words **Danger, Warning, and Caution** are used to emphasize important safety information. The word:

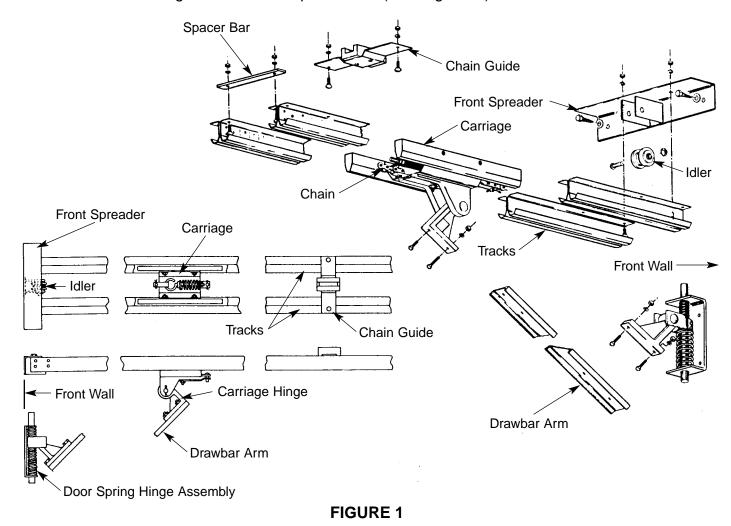
DANGER means that severe injury or death will result from failure to follow instructions. **WARNING** means that severe injury or death can result from failure to follow instructions. **CAUTION** means that property damage or injury can result from failure to follow instructions.

The word **NOTE** is used to indicate important steps to be followed or important differences in equipment.

DRAWBAR INSTRUCTIONS

The Model L+ Drawbar Operator consists of the power unit, drawbar tracks, chain guide, carriage, drawbar arm, spring hinge, front spreader, spacer bar and chain.

In order to facilitate storage and shipping, the Model L+ Operator is shipped from the factory without the tracks being attached to the power unit. (See Figure 1.)



Following is a step-by-step procedure which will be helpful in completing the assembly of the

STEP 1

drawbar units.

- Attach drawbar tracks to power unit. The flat edge of the track must be toward the power unit frame.
- Locate spacer bar above the frame and secure with the bolts at the rear of the track.

STEP 2

Insert carriage in the tracks oriented as shown.

Attach front spreader to the front end of the drawbar tracks.

STEP 4

Attach chain guide to drawbar tracks midway between the power unit and the front spreader.
 Drawbar tracks longer than 12 feet will require two chain guides which should be installed at equally spaced intervals between the power unit and the front spreader.

STEP 5

- Insert the eye bolt through the ear on the carriage bracket as shown.
- Place the spring and a flat washer over the threaded end of the eye bolt and thread a nut onto the eye bolt only far enough to hold the bolt in place.

STEP 6

Pass the end of the chain around the sprocket on the output shaft of the power unit and attach
to the rear end of the carriage using the rivet and cotter pin.

STEP 7

- · Lay the chain along the drawbar tracks with the chain resting on the chain guide.
- Make sure the drive sprocket is engaging the chain.
- Make sure the chain is not twisted.

STEP 8

- Pass the chain around the idler on the front spreader and back toward the carriage and eye bolt.
- Connect the chain to the eye bolt using the clevis, rivet, and cotter pin.

STEP 9

 Tighten the nut on the eye bolt to remove excessive slack from the chain. Then use a second nut as a lock nut.

INSTALLATION INSTRUCTIONS

WARNING

DO NOT apply line voltage until instructed to do so.

Repairs and adjustments, especially to cables and spring assemblies, must be made by a trained service person using proper tools and instructions.

CAUTION

Check the working condition of the door before installing the operator. The door should be free from sticking and binding.

STEP 1

• If the door is equipped with a latching device, secure the locking bar in the open (unlocked) position. This style operator will act as a latching device when the door is down so the door's lock is no longer needed. (If the door lock is to remain functional, an interlock switch must be added which will prevent operation of the operator whenever the door lock is engaged. Refer to the "Wiring Instructions" section of this manual for proper connection of the interlock switch). (See Figure 18, page 22.)

STEP 2

- Measure width of door to determine the center.
- Make a vertical line. (See Figure 2.)
- If the vertical line is not in line with a door stile, a means of attaching the spring box to the door must be provided. This can be accomplished by spanning the center of the top door section (between the top and bottom rail) with a suitable material such as wood or steel.

NOTE: On torsion spring doors with an uneven number of panels, the operator may be attached to the stile nearest center.

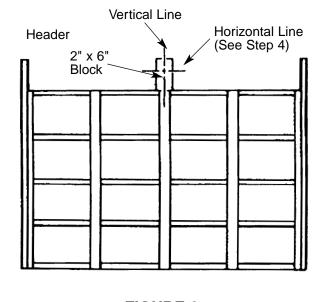


FIGURE 2

STEP 3

- If suitable woodwork is not already in place, securely affix a 2" x 6" block of wood as shown in Figure 2.
- Center this block on the header.
- Mark the center vertical line of this block.

STEP 4 (See Figure 3.)

- Use a level to locate the high arc of door travel.
- Make a horizontal line on the header 1" above the high arc.

STEP 5 (See Figure 4.)

- Raise the operator into a position approximately 4" above the horizontal door tracks.
- Temporarily suspend the operator from the ceiling superstructure with rope or by some other safe and suitable means.

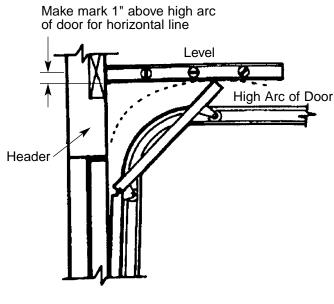


FIGURE 3

STEP 6

- Position the bottom edge of the front spreader bracket on the horizontal line of Step 4 and center on the vertical line of Step 2.
- Use two (2) 5/16" x 1-3/4" lag bolts with flat washers to attach bracket to the header.

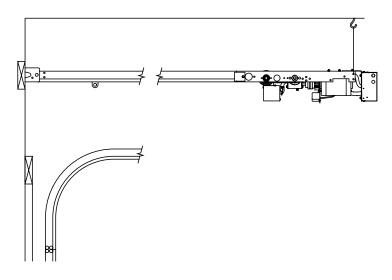


FIGURE 4

- Raise the door and position the operator so that the drawbar tracks are level and the operator chain is in line with the center of the door (or the stile to which the spring box is to be attached).
- Secure the operator in this position by installing steel angles (not furnished) between the ceiling superstructure and the operator power unit. (See Figure 5.)

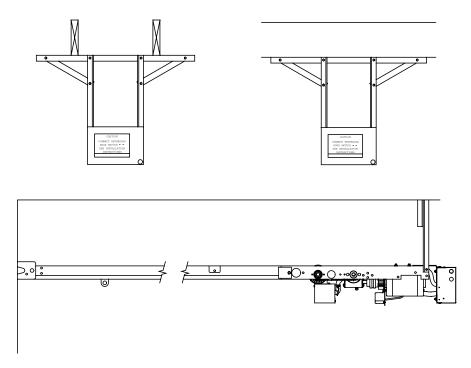


FIGURE 5

STEP 8 (See Figure 15, page 18.)

Install vent plug in the gear reducer.

STEP 9

 Make electrical power connections to the operator. Refer to the "Wiring Instructions" Step 1 page 20.

STEP 10 (See "Limit Switch Adjustment", page 23.)

- Limit switches are not preset at the factory because the operator is field assembled. To properly
 position the carriage:
 - A. Be certain a brass jumper is between "T" and "T".
 - B. Connect a short jumper wire to Control Terminal "C" and touch the other end to:
 - "DN" to run carriage Down.
 - "UP" to run carriage Up.
 - Removing jumper from "DN" or "UP" will stop carriage travel.

- C. On three (3) phase operators, if the direction of travel is opposite to direction stated above; disconnect power and interchange any two of the three input power leads.
- Run carriage down until carriage drawbar arm pin is 8-1/2" from header. If down limit switch stops carriage before reaching 8-1/2", adjust down limit switch to permit more travel.

- With door closed, attach spring box as shown in Figure 6 and in line with center of front spreader (from Step 6, page 8).
- If the door strut interferes with mounting the spring box, locate box below the strut.
 DO NOT, in any way cut or modify the strut.
- Use two (2) 1/4-20 x 2-1/4" carriage bolts to mount spring hinge.

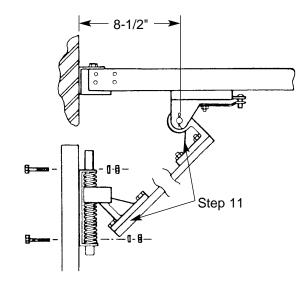


FIGURE 6

STEP 12

- Bolt drawbar arm to the carriage hinge.
- Hold the drawbar arm against the spring hinge and mark the bolt mounting hole locations.
- Drill marked holes to 7/16" diameter.
- Bolt drawbar arm to spring hinge.
- Drawbar arm will have to be cut off if it strikes the door.

STEP 13

- Touch jumper wire to Terminal "UP" to raise door until bottom of door is even with the top of the door opening.
- Adjust "UP" limit switch setting.
- Close door and check "Down" limit switch setting readjust if needed.
- Check "Up" limit switch setting and adjust if required.

STEP 14

- Remove jumper wire from Terminal "C".
- Wire push button(s) and other control items. See External Wiring Diagram on page 29.

STEP 15

 Adjust the clutch to assure safe and proper operation. Refer to Clutch Adjustment section page 24.

SIDEMOUNT INSTRUCTIONS DIRECT COUPLED INSTALLATION

The side mounted operator may be installed on either the right or left side of the door. Normally the output shaft of the operator is connected directly to the door cross-header shaft with an adjustable keyed coupling. For many reasons it may be desirable or necessary to use chain and sprockets to couple between the door and operator shaft.

For direct coupled installations, the operator shaft must be carefully aligned with the door shaft. Any misalignment of the shafts will result in excessive stress and wear. Proceed as follows:

STEP 1

See Step 1 of Drawbar Installation, page 7.

NOTE: A side mounted or center mounted operator will not act as a positive door locking device.

STEP 2

 Slide one half of the adjustable coupling and its square key onto the end of the door shaft. (See Figure 7.)

STEP 3

 Temporarily secure the other half of the coupling and its square key to the output shaft of the operator. The coupling should be positioned so that the shaft is extending beyond the coupling to aid in aligning the two shafts.

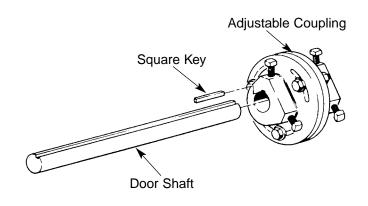


FIGURE 7

STEP 4

• Position the operator with its output shaft aligned with the door shaft, then secure the front of the operator to the wall or support pad. (See Figure 8.)

STEP 5

 Secure the rear of the operator by installing steel hangers (not furnished) between the operator frame and ceiling or any suitable support member.

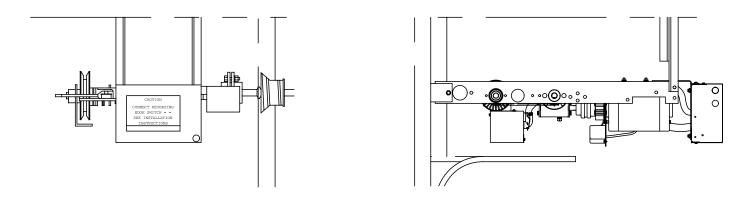


FIGURE 8

Install vent plug in the gear reducer. (See page 18.)

STEP 7

 Refer to "Wiring Instructions", page 20, and make electrical connections to the operator in accordance with the wiring diagrams furnished with the unit.

STEP 8

Run the operator down until it is stopped by the down limit switch.

STEP 9

• With the door in a closed position, slide the two coupling halves together and bolt securely using flat washers next to the coupling and lockwashers next to the nuts.

STEP 10

- Make sure that the square keys are properly positioned and under the set screws.
- Tighten the set screws on both halves of the coupling.

STEP 11

Adjust the limit switches, page 23, to stop the door in a fully opened and a fully closed position.

STEP 12

Adjust the clutch to insure safe and proper operation, page 24.

STEP 13

Adjust the brake in accordance with instructions in "Brake Adjustment", page 25.

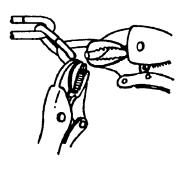
 Assemble handwheel and chain guard on hoist shaft as shown in Figure 9.

STEP 15

- Thread an end of the hand chain through one hole in the chain guide, around the handwheel and through the other side.
- Open one end link and connect the ends of the chain together. (See Figure 11.)
- Due to frictional forces, the handwheel will have a tendency to turn when the operator is running; employ a holding device to secure the hand chain when not in use. (See Figure 14, page 17.)

STEP 16

- Thread one end of the emergency disconnect rope up through the pulley on the side of the operator then down through the hole in the end of the disconnect arm. (See Figure 10.)
- Tie a knot in the end of the rope so it cannot be pulled back through the hole.
- Attach the other end of the rope to the front wall next to the hand chain.



OPENING LINK

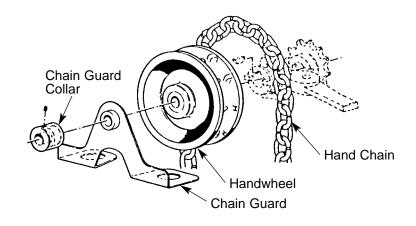


FIGURE 9

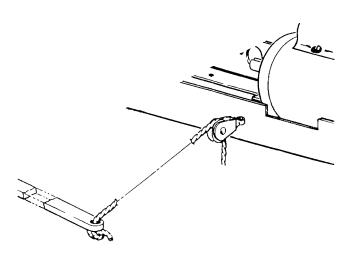
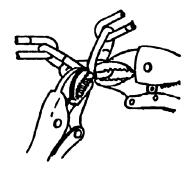


FIGURE 10



CLOSING LINK

FIGURE 11

CHAIN COUPLED

For chain coupling to the door shaft, drive sprockets must be keyed to both the door shaft and the operator shaft.

STEP 1

See Step 1 of Drawbar Installations, page 7.

NOTE: A side mounted or center mounted operator will not act as a positive door locking device.

STEP 2

Slide the door shaft sprocket and its key onto the door shaft. If necessary, shift door shaft so
that enough shaft is exposed for attaching a shaft support bracket.

STEP 3

 Mount support bracket near the end of the door shaft. This will prevent deflection of the door shaft when maximum load conditions are encountered.

STEP 4

• Temporarily secure the operator drive sprocket to the operator output shaft but without the key. The sprocket should be positioned as close as possible to the operator frame.

STEP 5

• Temporarily install the operator so that the two drive sprockets are aligned. If necessary, slide the sprockets on their respective shafts to obtain correct alignment.

STEP 6

- Determine the length of the chain to be used by wrapping the chain around both sprockets.
- Punch out the pins on the ends of the chain so that both ends terminate with an inside link.

STEP 7

Install the chain around both drive sprockets and connect together with a master link.

STEP 8

 Adjust the position of the operator to tighten the chain and secure the front of the operator to the wall or support pad. Make sure that the drive sprockets are kept in alignment.

 Secure the rear of the operator by installing steel hangers (not furnished) between the operator frame and ceiling or any suitable support member.

STEP 10

Install vent plug in the gear reducer, page 18.

STEP 11

 Refer to "Wiring Instructions", page 20, and make electrical connections to the operator in accordance with the wiring diagrams furnished with the unit.

STEP 12

 Loosen the set screws on the operator drive sprocket and run the operator down until it is stopped by the down limit switch.

STEP 13

 With the door in the closed position, manually lift it slightly until the keyways in the operator shaft and the sprocket are aligned.

STEP 14

- Insert the key into the operator drive sprocket and secure in position by tightening the set screws.
- Tighten the set screws in the door shaft sprocket making sure that its key is properly positioned and that the sprockets are in alignment.

STEP 15

 To complete the installation, refer to the instructions, Steps 11 through 16, for a DIRECT COUPLED operator, pages 12 & 13.

CENTERMOUNT INSTALLATION

To install the center mounted operator, refer to the first 13 steps of the instructions for installing a Sidemount Direct Coupled Operator. (See Figure 12.)

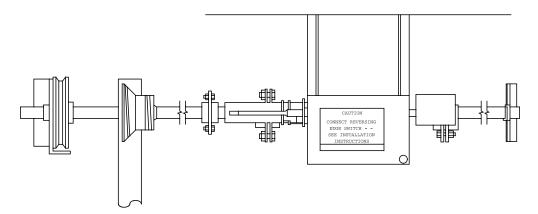


FIGURE 12

NOTE: Because the operator is mounted over the center of the door, there are some differences from sidemount installation.

- A. For a DIRECT COUPLED installation, the door shaft will have a gap to accept the 16" operator shaft, and two couplings will be required instead of one.
- B. For CHAIN COUPLED installation, the door shaft has to be split and a sprocket added.
- C. The emergency hand hoist has to be installed with an extension shaft to put the chain at the edge of the door.

STEP 14 (See Figure 13.)

• Slide the hand hoist coupling onto the end of the throwout shaft. The slotted end of the coupling should seat against the shoulder of the shaft.

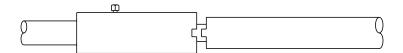


FIGURE 13

STEP 15

• Insert the handwheel extension shaft into the hand hoist coupling and secure in position by tightening the set screws.

 With the set screws toward the operator, slide the handwheel and chain guard onto the end of the handwheel extension shaft. Next, slide on a shaft support bracket, then a set collar.

STEP 17 (See Figure 14.)

Attach the shaft support bracket to the front wall or support pad.

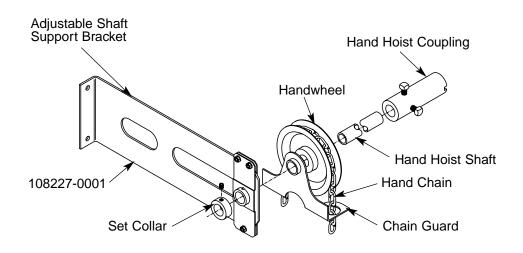


FIGURE 14

STEP 18

• With the extension shaft forced against the operator, slide the handwheel and chain guard against the support bracket and tighten the set screws on the handwheel and set collar.

STEP 19

Install hand chain the same as for a Sidemount operator.

STEP 20

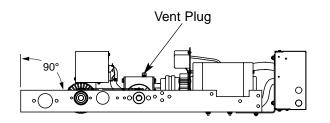
 Attach one end of the disconnect rope to the operator in the same manner as for a Sidemount operator. Pass the other end of the rope through a wall mounted pulley and attach it to the front wall next to the hand chain.

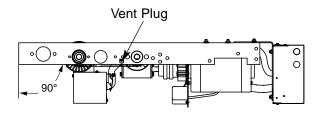
NOTE: Before the adjustable couplings on the operator shaft and the door shaft are bolted together, it is important that both spring shafts are rotated so that an equal amount of tension is placed on each door lift cable.

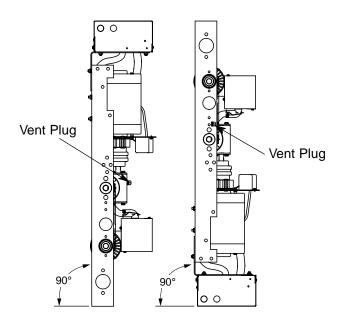
VENT PLUG INSTALLATION

All Model L+ operators are shipped with two solid plugs in the gear reducer. A vent plug is attached to the reducer and MUST be inserted in place of a solid plug when the operator is installed. If the operator is installed in a vertical position, a 1/4" street "L" (purchased locally) must be used in addition to the vent plug.

The following drawings show typical installations with proper locations for the vent plugs.







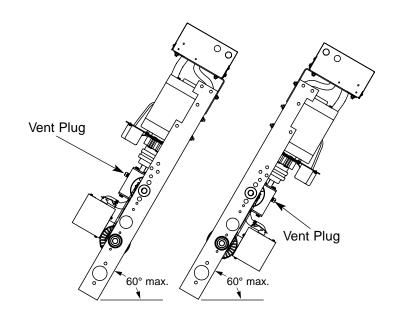


FIGURE 15

Information from Figure 16 can be used to determine the correct wiring diagrams for many types of installations. SEE ALSO PAGE 21.

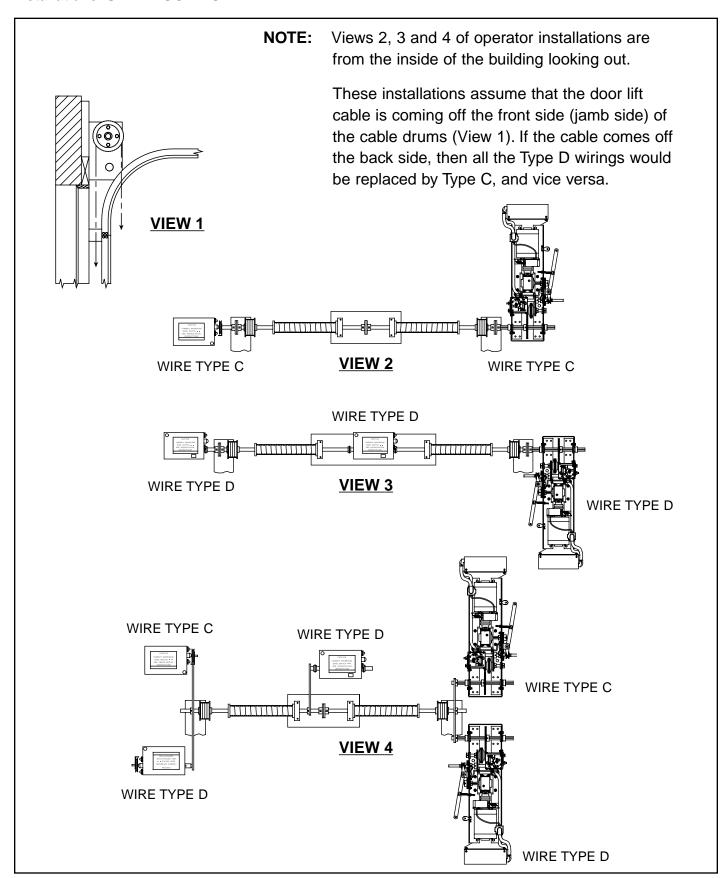


FIGURE 16

WIRING INSTRUCTIONS

WARNING

The electrical power to the operator **MUST BE** turned off when operator covers are removed. Electrical power MUST remain off while making electrical connections.

CONNECTION TO BUILDING ELECTRICAL POWER:

This operator has been wired and tested for the voltage, phase and frequency (Hertz) as shown on the operator nameplate located on the electrical box cover.

STEP 1

- Check nameplate ratings with building power line rating to make certain they agree.
- Make power connections to terminal strip located and identified in the electrical box.
- Follow local wiring codes for electrical wiring. If there is not a local code, make wiring connection in accordance with the National Electric Code.

CAUTION

It is important that the operator be properly grounded. Connect the power system grounding conductor to the green grounding screw.

CONNECTION OF CONTROL DEVICES:

Control voltage is supplied from a N.E.C. Class 2 - 24 volt transformer. Also inside the electrical box is a twelve terminal panel for connection of control equipment (push buttons, safety devices, etc.). A three screw strip is located on the side of the box for connecting a radio receiver.

For Centermount and Sidemount Operators

This operator was shipped from the factory wired for TYPE D output shaft rotation.

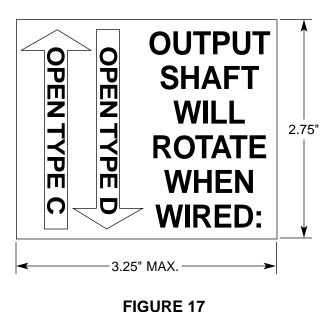
To verify the correct wiring requirements, compare the Decals (Figure 17, page 21) on the Mounting Plates. An arrow on these decals determines TYPE C or D wiring by pointing in the direction the top of the output shaft rotates as the door opens.

STEP 2

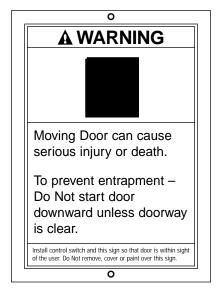
 Refer to page 29 for External Wiring Diagram for the desired wiring and Top Limit Switch and Cam positions.

For Centermount and Sidemount Operators

- If it has been determined TYPE C rotation is required:
 - Interchange the wires to Terminals "A" & "B".
 - Remove the two keps nuts holding the Top single pole limit switch and invert it as shown for TYPE C on Wiring Diagram, page 29.
 - Remove the top limit switch cam assembly and also invert it as shown for TYPE C on Wiring Diagram.
- DO NOT add Momentary Contact jumpers until AFTER Limit Switch Adjustment has been completed.







STEP 3

- To check for proper phase rotation when power source is three phase refer to Step 1, page 23.
- If rotation is wrong, interchange any two of the three input power leads.

STEP 4

- Connect external control devices as shown on page 29 for External Wiring Diagram.
- If a pedestrian pass door is to be used, or if the door locking system is to be retained, an interlock switch MUST be used to prevent motor operation when the pass door is open or the door is locked. Connect interlock switch as shown in Figure 18, page 22.

CAUTION

If control is by 3-button station only, locate the push button so that the door is within sight of the user. Attach the warning placard adjacent to the push button.

STEP 5

• If momentary contact control action is to be used, a sensing edge switch or some other reversing means must be used. See page 25 for installation of a sensing edge switch.

For special control actions not covered in the wiring diagrams shown on page 29, contact the Overhead Door Operator Division - Alliance, Ohio.

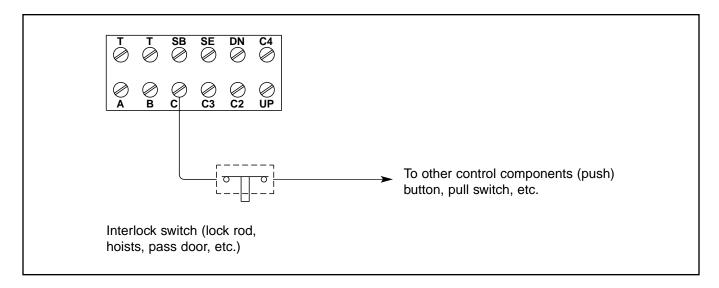


FIGURE 18

LIMIT SWITCH ADJUSTMENT

STEP 1

- So that limit switches accurately stop the door in the full open and closed position, the limit switch cams must operate their respective switches by striking the steep ramp of the switch lever. (See Figure 19.)
- If the cams are not striking the steep slope first, refer to Steps 1, 2 and 3 under "Wiring Instructions", pages 20 and 21.

STEP 2

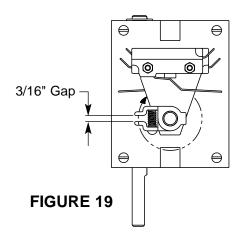
- Course adjustments of limit switches are made by:
 - Loosening the set screw in the appropriate cam (use 3/32" Allen wrench).
 - Rotating cam in required direction
 - Toward switch ramp will decrease amount of door travel.
 - Away from ramp will increase door travel.
- When adjustment is within 3" or less of the desired door stopping position, proceed to Step 3.

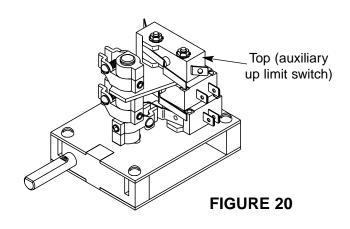
STEP 3

- Fine adjustment of limit switches is made by turning the slotted machine screws in the cams:
 - Rotating screws clockwise will increase the amount of door travel a little with each turn.
 - Rotating counterclockwise will decrease door travel.
- To insure consistent limit switch action, the gap between cam jaws should not exceed 3/16".
 (See Figure 19.)

STEP 4

 After UP and DOWN limit switches have been adjusted; adjust the top cam to actuate the TOP switch 6" to 12" before the door is fully open. This switch permits closing of door by Radio Control or single button. (See Figure 20.)





CLUTCH ADJUSTMENT

STEP 1

 The operator clutch is adjusted by loosening the locknut and turning the adjusting nut in the appropriate direction. (See Figure 21.)

STEP 2

• Turning the adjusting nut clockwise will increase the amount of tension on the clutch and turning it counterclockwise will decrease the amount of tension.

STEP 3

 The operator clutch should be adjusted so it will satisfactorily operate the door without slipping, but will slip if the door strikes an object.

NOTE: The clutch is intended to provide protection for the door, the operator and associated equipment in the event of a malfunction or overload condition during operation. It is not intended for entrapment protection.

STEP 4

After the clutch has been properly adjusted, tighten the locknut against the adjusting nut.

NOTE: Periodically check the operator clutch mechanism and make any necessary adjustments to insure proper operation.

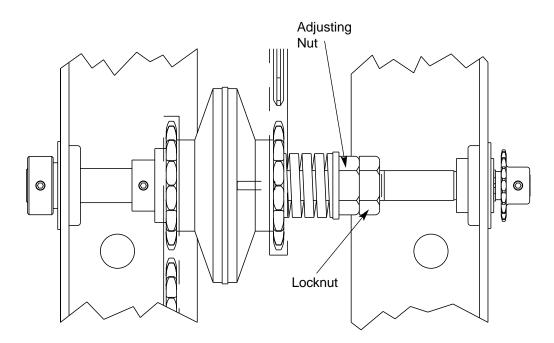


FIGURE 21

BRAKE ADJUSTMENT

Brake adjustment will normally not be required, but might be needed if the brake or motor has required service. For best performance and maximum life, the brake must be adjusted for correct brake tensioning when the solenoid is **NOT** energized.

STEP 1 (See Figure 22.)

- To increase brake tension, tighten locking nut "A". The amount of tension is critical to the life of the solenoid.
 - If there is excessive "hammering" when the solenoid is energized, there is too little tension on solenoid plunger. This will cause solenoid to self destruct.
 - Excessive noise indicates too much tension which will cause solenoid coil to heat and burn out.

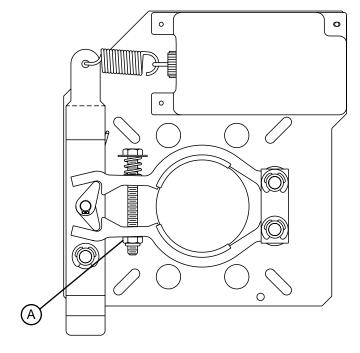


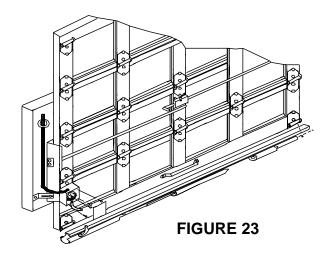
FIGURE 22

SENSING EDGE SWITCH INSTALLATION

Figure 23 shows an example of a typical sensing edge installation. Left hand side is shown but right hand is a mirror image of this. See also page 29 for wiring diagram.

STEP 1

- If wiring from sensing edge switch to operator is coiled cord or 2-wire jacketed cord:
 - Install junction box 12" above the center of the door opening on same side as sensing switch.
 - Secure one end of cord to junction box using a cable clamp.
- If connection is to be made through a take up reel cord:
 - Install on same side as sensing edge switch and above door opening and slightly to the side.
 - Install junction box adjacent to take up reel and route the stationary cord from the reel to the box and secure with a cable clamp.



 Secure other end of cord (straight, coiled or reel) to sensing edge switch enclosure using a cable clamp.

STEP 3

• Connect wires of cord to sensing edge switch using wire nuts or other suitable wire connectors.

STEP 4

- Run a straight 2-wire cord from the junction box (Step 1) to the operator electrical box.
- Secure using cable clamp on each end.

STEP 5

 Join wires in cord from operator to wires in cord from switch using wire nuts or other suitable wire connectors.

STEP 6

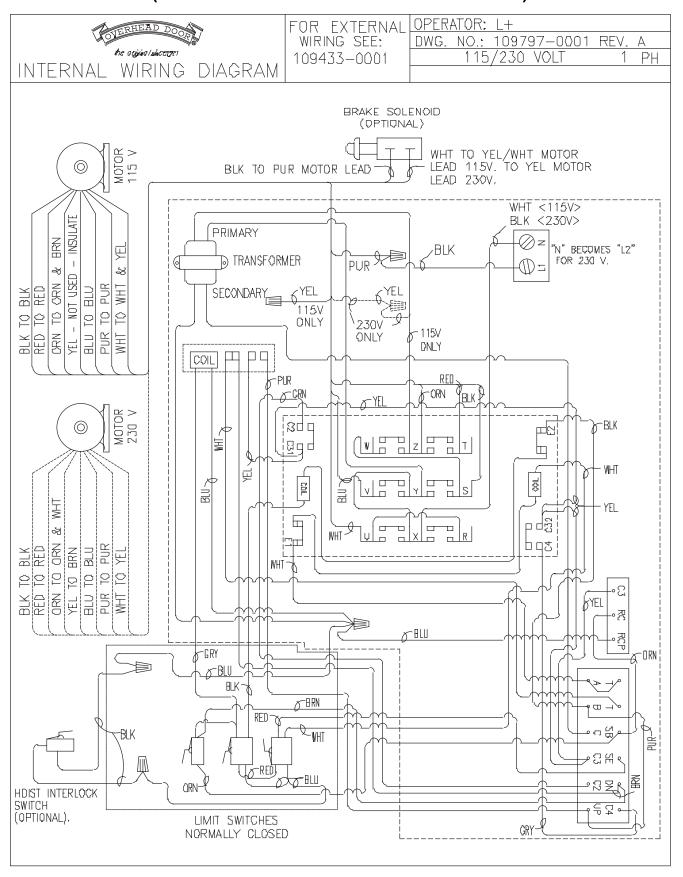
• Connect one wire of the cord to Terminal "C3" and the other wire to Terminal "SE". See Wiring Diagram page 29.

STEP 7

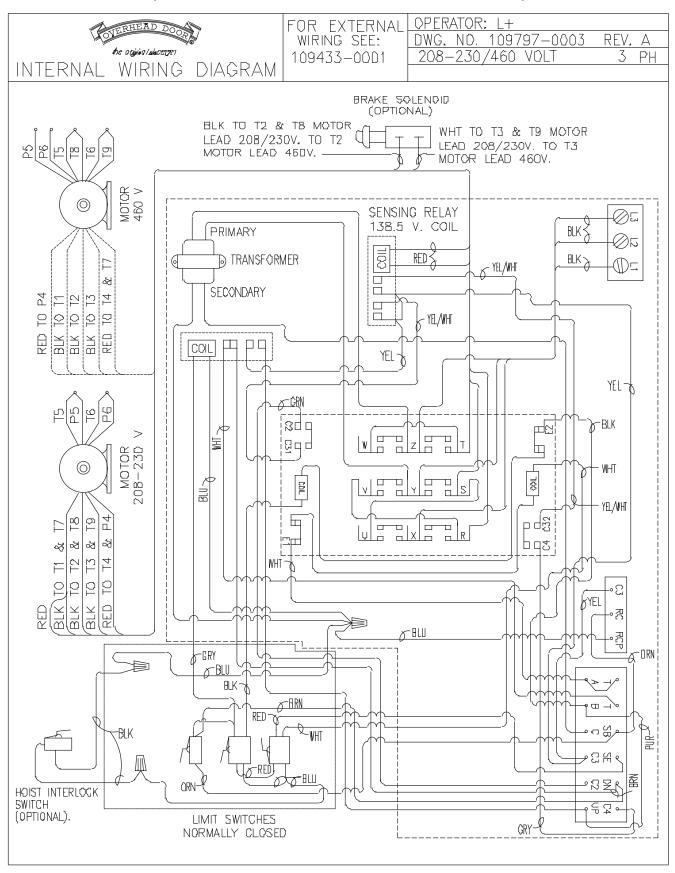
- Operate the door to make certain cord is free to travel and does not become snared during door opening or closing.
- Check sensing edge switch for proper operation.

WIRING DIAGRAM INTERNAL SINGLE PHASE L+

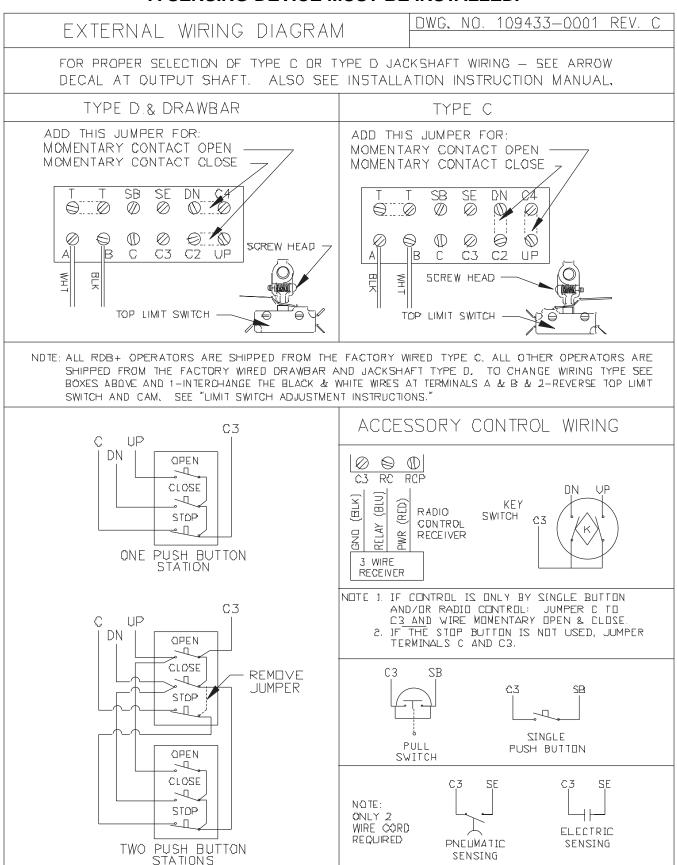
(FOR EXTERNAL WIRING DIAGRAM SEE PAGE 29)



WIRING DIAGRAM INTERNAL THREE PHASE L+ (FOR EXTERNAL WIRING DIAGRAM SEE PAGE 29)



EXTERNAL WIRING DIAGRAM IF THE DOOR IS TO HAVE MOMENTARY CONTACT CLOSE, A SENSING DEVICE MUST BE INSTALLED.





Commercial / Industrial

INSTALLATION AND SERVICE INSTRUCTIONS

EXPLOSION-PROOF DOOR OPERATOR MOTOR CONTROL PANEL ENCLOSURE with INTRINSICALLY SAFE CONTROL WIRING

NOTE:

FOR OPERATOR MOTOR AND FRAME INSTALLATION
REFER TO INSTALLATION INSTRUCTIONS FOR
MODEL OF OPERATOR BEING USED.

THIS ENCLO	IIS ENCLOSURE FOR: OPTIONS		
VOLTAGE	PHASE	WITHOUT DYNAMIC BRAKE	
115 🗌	1 🔲	WITH DYNAMIC BRAKE	
230 🗌	3 🗌	WITHOUT SAFETY EDGE CONTROL	
460 🗌		WITH SAFETY EDGE CONTROL	

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Approved

EXPLOSION-PROOF

with Intrinsically Safe Control Wiring Class I Division 1 Group D

DUST IGNITION-PROOF with Intrinsically Safe Control Wiring Class II Division 1 Groups F and G

IMPORTANT:

PLEASE READ THESE INSTRUCTIONS AND REVIEW WIRING DIAGRAM BEFORE PROCEEDING WITH INSTALLATION.

IMPORTANT:

ON MULTI-OPERATOR INSTALLATIONS, MATCH
THE SERIAL NUMBER ON THE OPERATOR FRAME
WITH THE SERIAL NUMBER ON THE CONTROL ENCLOSURE.

For specific examples of Explosive Atmospheres see page 12.

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IMPORTANT NOTICES

This equipment is designed for use in rooms or buildings where highly volatile gases or dust are, or
could be present. If the instructions outlined in this manual and particularly the items listed on this
page are observed, such gases or dust will not be ignited by this door operator system.
CAUTION
Confirm that the power available in the building for this Door Operator matches the rating marked on the front page of this manual.
WARNING
Confirm that the explosive atmosphere of this installation is not more severe than Class I, Division 1 Group D or Class II, Division 1, Groups F and G (see Page 12).
DO NOT connect intrinsically safe control wires to any powered switching device such as radio control receivers, time clocks, photocells, etc., even when such devices are enclosed within an explosion-proof enclosure or in an non-hazardous area. Any such connection nullifies the intrinsically safe rating. Contact factory for additional data.
GAUITUN
Should motor require repair service, contact factory for location of motor service center authorized for explosion-proof motor repair.
CAUTION
Should motor control panel require service, contact Overhead Door Corporation distributor from which the unit was purchased, or contact factory.
CAUTION
A good ground connection to the explosion-proof enclosure is required for proper operation of the intrinsically safe barriers. A grounding lug is provided in the upper left corner of the enclosure panel for this purpose.
WARNING
Keep All high voltage wiring at least 2" from any intrinsically safe wiring. This means that all intrinsically safe wiring MUST be run in separate conduit.
CAUTION

PAGE 2

and/or local requirements for hazardous wiring.

ALL high voltage wiring from the power source and to the motor MUST be in rigid conduit and must be installed in accordance with the current National Electrical Code, Articles 500 through 516



DEFINITIONS

1. Intrinsically Safe Wiring, Intrinsically Safe Control System, etc.:

Intrinsically safe controls and associated wiring are designed so as to limit energy levels to less than that which is sufficient to cause ignition of a hazardous atmospheric mixture in its most volatile concentration.

The intrinsically safe barrier relays used with this door operator control system have been rated by Factory Mutual as being safe for wiring run in the most hazardous atmospheres (i. e., Class I, Division I, Group A) and have been tested to assure that any malfunction (either normal or abnormal) that might occur in the intrinsically safe barrier does not create a hazardous condition. The limitation on this operator, to Class I, Division I, Group D, is due to motor and enclosure rating.

The use of an intrinsically safe control system allows the use of standard NEMA l rated equipment such as push buttons, pull switches, and safety edges. The intrinsically safe rating is voided if the intrinsically safe wiring is connected to electrically powered switching devices such as timers, relays, radio controls, etc. The voiding occurs even when the electrically powered device is placed in an explosion-proof enclosure, since the electrical power source to such devices cannot be sufficiently insulated from the switching mechanism to guarantee complete isolation.

2. Dynamic Braking:

The Dynamic Braking used on this equipment applies a D. C. voltage for 2 seconds to the motor winding at the moment A. C. power to the motor is interrupted. This low D. C. voltage sets up a magnetic field to stop the motor.

WARNING

Our standard drum type brake cannot be used with explosion-proof operators.

3. Delay on Reverse Timer:

To permit the full impact of the dynamic brake and also to protect the operator/door systems from the mechanical shock of reversing large doors, this timer prevents the motor from being reversed during the 2 second braking period. This delay does not occur when restarting is done in the original direction of travel. Also see Page 8 for other timer information.

4. Auxiliary Motor Relay:

This relay is used on single phase operators with dynamic braking. The relay is energized whenever either reversing contactor is energized. When energized, this relay applies power to the auxiliary run winding of the motor. When de-energized, the D. C. voltage is applied through this relay to the auxiliary motor run winding. This isolates the D. C. voltage completely.

On three phase motors, the D. C. voltage is isolated by 600 volt rated, double pole auxiliary contacts controlled by the reversing contactor coils.

5. Motor Overheating and Restart Protection:

Motors that have explosion-proof approval from recognized test agencies are protected from motor surface overheating by thermal overload protectors or thermostats located within the motor enclosure. These protectors are always of the automatic reset type. For physical safety reasons, this operator system has been designed to prevent automatic start-up in either direction when the overload resets.

On single phase operators, power to the control transformer primary is routed through the overload protector. If the thermal protector trips, the reversing contactor is de-energized and cannot be re-activated until thermal reset occurs.

On three phase operators that use motors with thermal overload protectors, a 138 volt relay is connected across one of the motor windings to detect overload trip. If overload trip occurs, the 138 volt relay initiates a time delay relay which in turn removes power to the reversing contactor coils.

On three phase operators that use motors with thermostat type protectors, the thermostat controls the secondary voltage from the control transformer to release the reversing contactor.

In both single phase and three phase applications, motor operation can be resumed(after the motor protector has been reset) by the push buttons.



INSTALLATION DIAGRAMS

POWER INPUT/MOTOR WIRING

CAUTION

ALL high voltage wiring from the power source and to the motor MUST be in rigid conduit and must be installed in accordance with the current National Electrical Code, Articles 500 through 516 and/or local requirements for hazardous wiring.

-MOTOR WIRING-

FOR SINGLE PHASE

Units without brake - 5 wire
Units with Brake - 7 wire

FOR THREE PHASE

All models - 5 wire

- see Power Wire Size Charts, page 5.

CAUTION

A good ground connection to the explosionproof enclosure is required for proper operation of the intrinsically safe barriers. A grounding lug is provided for this purpose (see Page 9).

CAUTION

Keep ALL high voltage wiring at least 2" from any intrinsically safe wiring. This means that all intrinsically safe wiring MUST be run in separate conduit.

For additional information, see Page 6, plus drawing D-106648 and wiring diagram supplied with operator.

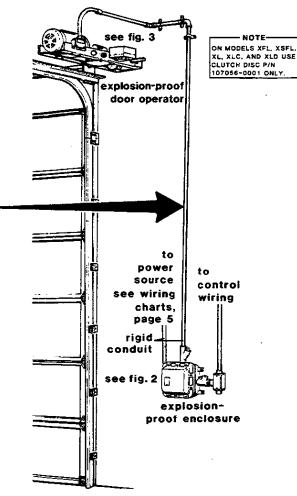


Fig. 1 Typical Mounting Arrangement Power Input and Motor Wiring of Explosion-Proof Operator

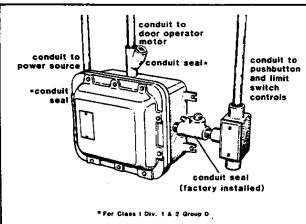


Fig. 2 Explosion-Proof Enclosure with

Intrinsically Safe Control Wiring (Houses Motor Control and Intrinsically Safe Relays)

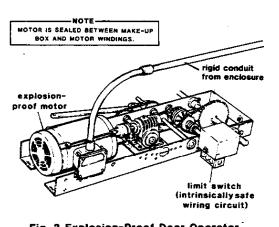


Fig. 3 Explosion-Proof Door Operator (Model L - Shown as Typical)



INSTALLATION DIAGRAMS

INTRINSICALLY SAFE CIRCUIT

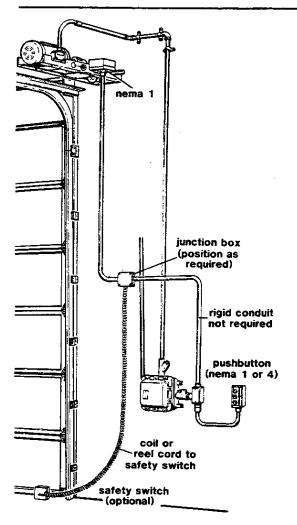


Fig. 4 Typical Mounting Arrangement Power Input and Motor Wiring of Explosion-Proof Operator

Intrinsically Safe Wiring and switches do not have to meet N. E. C. Code for Hazardous Wiring. (See Article 500–2, N. E. C. 1987 Handbook)

Intrinsically Safe Relays interface the control elements (pushbutton, limit switch, etc.) with the motor reversing contactor.

The Intrinsically Safe Relay is housed within the explosion-proof control enclosure and the control wiring is rated safe to Class 1, Div. 1, Group A (See Page 3, Item 1).

Intrinsically Safe Circuits limit the energy levels in the circuit to less than the energy capable of igniting the explosive atmosphere.

CAUTION

Do Not connect intrinsically safe control wires to any powered switching device such as radio control receivers, time clocks, photocells, etc., even when such devices are enclosed within an explosion-proof enclosure or in a non-hazardous area. Any such connection nullifies the intrinsically safe rating. Contact factory for additional data.

CAUTION

When conducting continuity checks of field wiring of the intrinsically safe circuits, disconnect all incoming wires to control circuit makeup wires. Externally applied voltage of the continuity tester could damage the barrier and require replacement.

POWER WIRE SIZE CHARTS

SINGLE PHASE TWO WIRE PLUS GROUND

	WIRE SIZE					
MOTOR SIZE	14	12	10	8	6	
1/3 HP	75	120	200	240	450	
1/2 HP	60	100	150	190	350	
3/4 HP	50	70	120	150	275	
1 HP		60	100	120	210	

Maximum conduit run to major power source in feet by wire size vs motor HP 115 voit 1 phase. For 230 voit, 1 Phase, multiply distance by 4.

THREE PHASE THREE WIRE PLUS GROUND

		WIRE SIZE				
MOTOR SIZE	14	12	10	8		
1/3 HP	720	1150	1800	2200		
1/2 HP	575	725	1440	1800		
3/4 HP	450	720	1125	1380		
1 HP	360	575	900	1100		
2 HP	190	310	490	600		

For 460 voit, 3 phase, multiply distance by 4.



INSTALLATION

POWER UNIT

Install the door operator unit containing the motor, speed reduction system, and limit switches as shown in the installation manual for the model operator being installed. Disregard references made to electrical equipment since the manual is intended for standard environmental conditions. Before installing, check motor data to make certain that the voltage and phase is in agreement with job site conditions.

EXPLOSION-PROOF ENCLOSURE

The preferred enclosure mounting location is on the wall, within sight of the door operator and close enough to the floor to permit service without the use of a ladder.

Some alternate locations might be; in an adjacent room, on the wall in close proximity to the operator power unit, or on the operator support hangers (if sufficiently rigid or reinforced). Unless the conduit run to the motor dictates otherwise, the mounting position shown in Figure 1 (Page 5) is preferred.

WIRING

All power input wiring to the explosion-proof enclosure and between the enclosure and the motor must be contained in rigid conduit and installed in compliance with the latest National Electrical Code requirements for hazardous location, unless superceded by local codes. A conduit seal must be used near the entrance to the enclosure. Wire size should be in accordance with standard practice for the motor size except in single phase motor installations where the distance between the circuit panel and enclosure is more than 250 feet. On such single phase installations, the next larger wire size should be used to guard against excessive voltage drops when the motor is attempting to start. The power input wires enter the left conduit hole and connect to terminals Ll and L2 (single phase) or Ll, L2, and L3 (three phase). In addition, a grounding wire must be connected to the lug provided in the enclosure (see Figure 5). Wiring to the motor must also be run in rigid conduit according to hazardous location codes. The conduit runs must have conduit seals at each end of the run, plus, additional seals, if required, for long runs. The exit from the enclosure should be as shown in Figure 2 and the entrance to the motor should be as shown in Figure 3. The wires to the motor connect to the terminals on the right side of the large terminal strip. The wires from the terminal strip must be routed through the insulated bushing (see Figure 6) to prevent the motor wires from coming within 2" of the intrinsically safe barrier terminals. Routing through this bushing also assures ample room for servicing components. See wiring diagram for connections.

Wiring to the push buttons(s), safety edge, and limit switches is made in the electrolet box. Wiring from the explosion-proof enclosure has been routed through a factory installed conduit seal. Since this wiring is intrinsically safe, the protective housing and subsequent conduit runs do not have to conform to hazardous wiring codes.

The push buttons, limit switches, safety edges, etc., may be in NEMA 1 enclosures without risk of creating a hazard.

CONTROL CIRCUIT WIRING

(See wiring diagram included with this manual for control action desired.)

Note that with control actions requiring use of a "stop" push button switch, such a switch must be of the double pole, normally closed type. This is required to prevent interaction between the intrinsically safe barrier relays under certain control conditions.



INSTALLATION (con't)

CONTROL CIRCUIT WIRING (con't)

When interlock switches are to be used (lock rod interlocks, pass door interlocks, etc.) the switch must be of the double-pole type and wired as shown in the External Wiring Diagram.

The limit switch selection, as to which switch controls travel in the "open" direction, and which controls travel in the "close" direction, may be determined from the chart below in conjunction with the operator installation manual. The operator manual indi-

cates under the heading "WIRING INSTRUCTION", whether the wiring should be in accordance with type "C" or type "D" wiring diagrams (Note: type "D" and drawbar have the same wiring configuration). When type wiring is determined, the "open" and "close" limit can be identified as shown here.

LIMIT SWITCH FUNCTION	TYPE "C"	TYPE "D"/ DRAWBAR			
"OPEN" limit switch (stops upward travel)	White Set of Leads	Black Set of Leads			
"CLOSE" limit switch (stops downward travel)	Black Set of Leads	White Set of Leads			

For clarification of type "C" and type "D", see operator installation manual. Red set of leads are for safety edge when used.

(Note: On operators intended for use with safety edge switches, the limit switch also has a set of "red" leads. These are wired in the safety switch circuit only.)

CHECKING AND ADJUSTING THE INSTALLATION

Unlike other operators manufactured by Overhead Door Corporation, the reversing contactor is arranged so that one coil always causes the motor to open the door while the other coil causes the motor to close the door. Since the motor is wired to the contactor in the field, proper rotation must be accomplished at the job site.

The contactor which opens the door has a small decal, marked "up", affixed to that side of the reversing contactor. In enclosures using the style of reversing contactor depicted as item 23 in the Exploded View (Page 11) the contacts and coil nearest the Power Terminal Strip (15) control upward travel. In enclosures using a Reversing Contactor of the style depicted as item 12 in the Exploded View, the contacts and coil nearest the grounding lug (36) are intended to open the door.

To check for proper motor rotation (as outlined below) make test before connecting to door.

The contactor may be manually actuated by pressing firmly on the contactor plunger with a non-conducting probe. If the motor does not operate in the intended direction, interchange the following wires to the motor at the power terminal strip:

Single Phase: Interchange motor leads at terminals 5 and 6. This will reverse the motor "Start" winding.

Three Phase: Interchange any two motor wires connected to "T1", "T2", or "T3".

LIMIT SWITCH ADJUSTMENT

See detailed instructions in operator installation manual.

CLOSING ENCLOSURE COVER

When limit switches are adjusted and the operator electrical system is functioning properly, replace the cover. Insert all cover bolts and tighten slightly. Then, partially tighten each bolt in an alternating manner (as you would wheel lugs) until all bolts are firmly tightened.



SERVICING THE OPERATOR

Do not attempt to operate this equipment in an explosive atmosphere with the enclosure cover open.

MOTOR

If, at any time, the motor is deemed as being in need of repair, such work MUST be performed by an authorized motor service center that has been certified by U. L., C. S. A., and/or Factory Mutal to service explosion-proof motors. If the motor has been dismantled by an unauthorized person, the explosion-proof rating is voided.

ENCLOSURE

Remove bolts holding cover in place, then swing cover open. Take precautions not to mar the mating faces of the cover and enclosure.

Components in this enclosure have been arranged to permit most circuit checks without removing other components or removing the Main Mounting Base. The only component that requires removal of the entire base for replacement is the control/brake transformer.

Intrinsically Safe Barriers (3) and the Timer Board Assembly (9) are mounted on a Relay Mounting Plate (2) which is secured to the Main Mounting Base (18) with two 8-32 nuts in conjunction with two Weld Bolts (24) in the Main Mounting Base. To extract the Relay Mounting Plate, remove the two nuts and gently pull the panel from the Weld Bolts. The electrical connection to the panel can be disconnected at the multiple pin plugs.

To remove the Main Mounting Base, first remove the Relay Mounting Plate and then the Screws (22 and 35) in the four corners of the Base.

To test the P. C. dynamic brake voltage, connect a D. C. voltmeter across the gray (+ positive) and violet (- negative) leads from the Bridge Rectifier (21). These leads can be reached easily at the Auxiliary Contact Block (11) atop the Reversing Contactor (12) or at the Auxiliary Relay contacts. The 24 volt potential will only be available for approximately 2 seconds immediately after the Reversing Contactor drops out and removes A. C. power to the motor.

TIME LIMIT TIMER

The delay on the reverse timer board also has an electronic timer designed to prevent this operator from running for a prolonged time in a single direction. Prolonged running could be caused by clutch slippage (due to a locked door or broken door spring) or failure of a mechanical drive system component. The running time is restricted to 45 seconds for drawbar type operators and 90 seconds on all other units. In normal operation, the maximum running time for drawbar operators is 30 seconds, but other types may require up to 60 seconds.

If the operator is shut off by a limit switch or the "stop" push button, the timer resets to zero time. However, if the operator runs until the timer setting is reached, a relay in the timer will latch in and remove power to all control elements and the reversing contactor will remove power to the motor. To restore control action, momentarily disconnect power to the operator at the power distribution panel

If the timer relay ever latches in, thoroughly check door and operator to determine problem and correct before again trying to use the operator.



MISCELLANEOUS

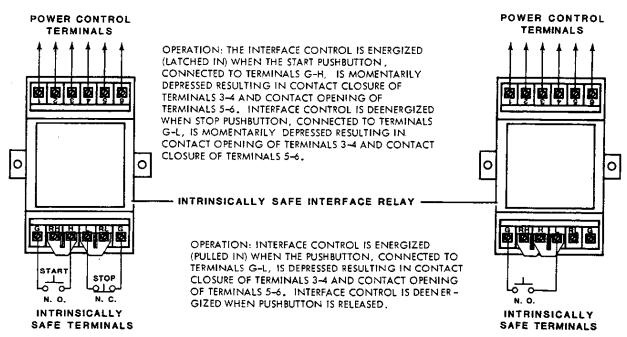
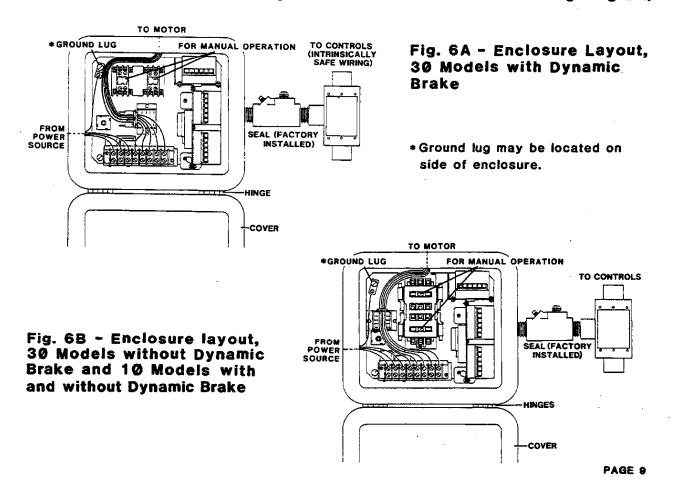


Fig. 5 - Control Jumper Arrangement (see external control wiring diagram)





PARTS LIST

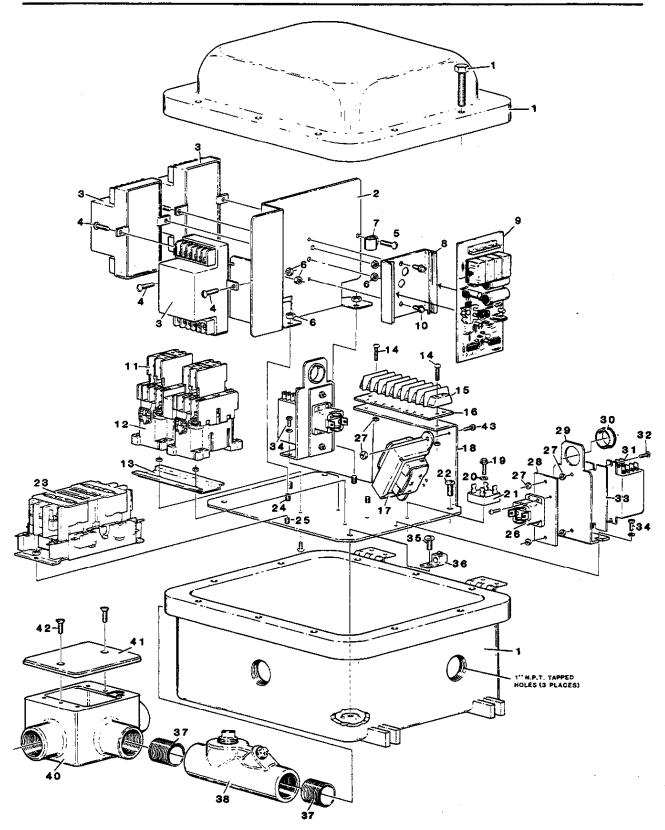
REF							CATIO		
NO	PART NO.	DESCRIPTION	10 W/ DYNB	o R	3 9 D Y I	w/o N BR	10 wit DYN B	3 6	with
1	106076-0001	Enclosure, Explosion-Proof	********	₩	****	******	***********		******
2	106391-0001	Plate, Relay Mounting	********	₩	****	****	*********	****	*******
3	106058-0001	Intrinsically Safe Barrier +	******	₩	****	*****	*****	***	*******
	080288-1206	Screw, RHMS Slot, 8-32 x 3/8"	*****	₩	*****	*****	*****	****	******
5	080288-1208	Screw, RHMS Slot, 8-32 x 3/8" Screw, RHMS Slot, 8-32 x 1/2"	*****	₩	****	******	*********	****	******
6	086480-1232	Nut, Hex 8-32	x	₩		****	********	****	x
7	080626-0001	Clamp, Plastic	******	₩	****	****	*****	****	******
8	106060-0001	Bracket, Timer Board Mounting	******	XXX	***	****		****	******
9	107193-0001	Timer Board Assembly	******	₩	****	****	*****	***	*****
10	086575-0504	Screw, Thread Forming, 6-32 x 1/2"	*******	₩	‱	****	*****	****	******
11	106057-0001	Auxiliary Contact Block	Not Use	вd	Not	Used	Not Use	ı XXX	******
12	106056-0001	Contactor, Reversing	Not Use	₽ď	Not	Used	Not Use	· XXX	*******
13	106084-0001	Bracket, Mounting Reversing Contactor	*******	₩	****	****		****	*******
14	086575-0512	Screw, Thread Forming, 6-32 x 3/4"		₩	₩₩	*****	**********	****	*******
15	106052-0001	Terminal Strip, 8 Lug, 600V	*******	₩	***	****		****	******
16	106075-0001	Marker Assembly, Terminal Strip 10						M	ot Used
10	106075-0002	Marker Assembly, Terminal Strip 30	Not Us	ec}	***	****	Not Use	***	******
	106072-0001	Transformer, Control, 120V Imp. Pro. 40VA* Transformer, Control, 208V Imp. Pro. 40VA*	********	W	****	****	**********	****	******
1.7	106072-0002	Transformer, Control, 208V Imp. Pro. 40VA*	*******	W	₩	****		XXX	*****
17		Transformer, Control, 230V Imp. Pro. 40VA*	********	***	****	****		****	******
	106072-0004	Transformer, Control, 460V imp. Pro. 40VA*	******	₩	₩	₩₩	*********	***	*****
18	105916-0001	Main Mounting Base	**************************************	~~	<u> </u>	******		****	******
. 19	086575-0612	Screw, Thread Forming, 8-32 x 3/4"	Not Us					₩₩	*****
	080302-1212	Washer, Flat, 3/16 x 3/8"	Not Us	ed	Not	Used		****	******
21	106051-0001	Rectifier, Bridge	Not Us	ed	Not	USed WWW		****	*****
22	086120-1604	Screw, Pan Head, Slot, 1/4-20 x 1/4"		₩	₩	*****		XXXX	*********
	076803-0001	Contactor, Reversing		₩	₩	*****	******	SO N	ot Used
	605909-1206	Screw, Spotweld, 8-32 x 3/8"		***	****	*****		****	*****
	605909-1006	Screw, Spotweld, 6-32 x 3/8"	*********	Ж	₩	₩₩	************	****	*****
	105921-0001	Relay, Thermal, Time Delay	Not Us	90)	****	*****	Not Use		
27	086480-1032	Nut, Hex Keps, 6-32	Not Us	××,	₩₩	*****	Not Use	₩	*****
28	105922-0001	Plate, Thermal Relay Mounting	MOT US	***	****	*****	not use	*****	
29	106061-0001	Bracket, Relay Mounting Bushing, Heyco, 7/8"	 	₩	₩	₩₩	***************************************	***	******
30	605905-0008	Relay, General Purpose, DPDT 138V	D00000000	<u>~~</u>	₩	******	Not Use	*****	***************************************
31	077151-0022	Relay, Motor Rated, DPDT	Not lie	90	Maria	20000000	Not use		ot Used
32	106059-0001 080288-1012	Screw, R.H. Machine, 6-32 x 3/4"	**********	***	·····	******	***************************************	XXXXX	*********
	077153-0000	Insulation, Relay	Not Us	**	₩	₩₩	Not Use	*****	*******
33 34	086575-0504	Screw, Thread Forming, 6-32 x 1/4"		\overline{x}	****	******	***************************************		********
	0003/3-0304	Screw, R.H., Slot, Grn., 1/4-20	*******	₩	₩	₩₩	***********	₩₩	*******
35 36		Grounding Lug	*******	₩	₩	*****		***	*******
	106406-0001	Nipple, 1" Close, 1" NPT	*******	₩	₩	******	************	₩	******
37 38	107210-0001	Seal Wiring Assembly	*******	₩	₩	*****			***************************************
39		Jedi Willing Masellolly	********	₩	****	******	***************************************	XXXXX	********
40	106404-0001	Electrolet Box	*******	₩	₩	₩₩	***************************************	₩₩	******
41	106405-0001	Lid, Electrolet Box	*************************************	₩	****	******	***************************************		*********
42	100403-0001	LIG. LIECTIOIEC DOX	*******	₩	****	******	***********	₩₩	*****
43	080288-1008	Screw, R.H. Machine, 6-32 x 1/2"	*****	₩	****	*****	**********		**********

^{*} Specify primary voltage

⁺ Two used per unit without safety Reverse Feature. Item 3A added for safety Reverse feature.



EXPLODED VIEW



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CLASSIFICATION OF HAZARDOUS ATMOSPHERES NATIONAL ELECTRICAL CODE ARTICLE 500 HAZARDOUS LOCATIONS

lammable gases Division	Group	Typical Atmosphere	Division	Group	Typical Atmosphere
	A	acetylene		-	
Normally			2	Ā	Same as Division 1
azardous	В	butadiene	Not	В	Same as Division 1
		ethylene oxide	normally	Ç	Same as Division I
		hydrogen	hazardous	Ď	Same as Division 1
		manufactured gases containing more			(not normally hazardous means that the
		than 30% hydrogen (by volume)			gases aren't normally present.)
		propylene oxide	CLASS	П	
	С	acetaldehyde			
	C	cyclopropane	Combustible		
		diethylether	dusts		
		ethylene		_	
			Division	Group	Typical Atmosphere
		unsymmetrical di methyl hydrazine			
		(UDMH1, 1-dimethyl hydrazine)	1	E	Metal dust, including aluminum, mag-
	D	acetone	Normally		nesium and their commercial alloys,
		acrylonitrile	hazardous		hazardous characteristics.
	•	ammonia			
		benzene		F	Carbon black, coal, coke dust with mor
		butane			than 8% volatile material.
		1-butanol (butyl alcohol)			
		2-butanol (secondary butyl alcohol)		G	Flour, starch, grain dusts.
		n-butyl acetate			
		isobutyl acetate	2	E, F, G	Same as Division 1
		ethane	Not		
		ethanol (ethyl alcohol)	normally		
		ethyl acetate	hazardous		
		ethylene dichloride			· · · · · · · · · · · · · · · · · · ·
		gasoline	CLASS	Ш	
		heptanes	Easily		
		hexanes	Ignitable		
		isoprene	fibers and		
		methane (natural gas)	flyings		•
		methanol (methyl alcohol)	, ,		
		3-methyl-1-butanol (isoamyl alcohol)	Division	Group	Typical Atmosphere
					,,
		methyl ethyl ketone	1,2	E. F	
		methyl isobutyl ketone	, .	_, -	
		2-methyl-i-propanol (isobutyl alcohol)			
		2-methyl-2-propanol (tertiary butyl			
		alcohol)			
		petroleum naphtha			
		octanes			
		pentanes			
		1-pentanol (amylalcohol)		-	
-		propane			
		1-propanel (propyl alcohol)			
		2-propanol (isopropl alcohol)			
		propylene			
		styrene	İ		
		toluene			
		vinyl acetate			
		vinyl acetate vinyl chloride			



WARRANTY

LIMITED WARRANTY

The authorized distributor of Overhead Door Corporation products whose name appears below ("Seller") warrants the product sold under this warranty to be free from defects in material and workmanship under normal use and service. This warranty extends only to the original consumer ("Buyer") and expires one year after the date of installation.

Seller's sole obligation under this warranty is limited to repairing or replacing any parts which shall be determined by Seller to be defective and is conditioned upon Buyer giving notice of any such defect to Seller within the warranty period. If Seller concludes that repair or replacement is necessary, Seller will commence work within a reasonable time after the decision to repair or replace is made.

This warranty does not apply to any product which has been altered or repaired by any person not authorized by the Seller, or which has been subjected to misuse, neglect, or accident.

THERE IS NO WARRANTY OF MERCHANTABILITY, WARRANT OF FITNESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER IMPLIED WARRANTY BEYOND THE ONE YEAR PERIOD DESCRIBED ABOVE. SELLER SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES NOR FOR ANY FURTHER LOSS WHICH MAY ARISE IN CONNECTION WITH ANY CLAIM.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitation of how long the implied warranty lasts and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Seller has not established any informal dispute settlement procedure of the type described in the Magnuson-Moss Warranty Act. Claims under this warranty must be made in writing to the Selling Distributor whose name and address appears below within the applicable warranty period. (Proof of purchase and identification as the original purchaser may be required.)

Inquiries to the Seller concerning this warranty should be directed to:

YOUR LOCAL DISTRIBUTOR



Overhead Door Corporation 2501 S. State Hwy 121 Bus., Suite 200 Lewisville, TX 75067 1-800-929-3667(DOOR) www.overheaddoor.com