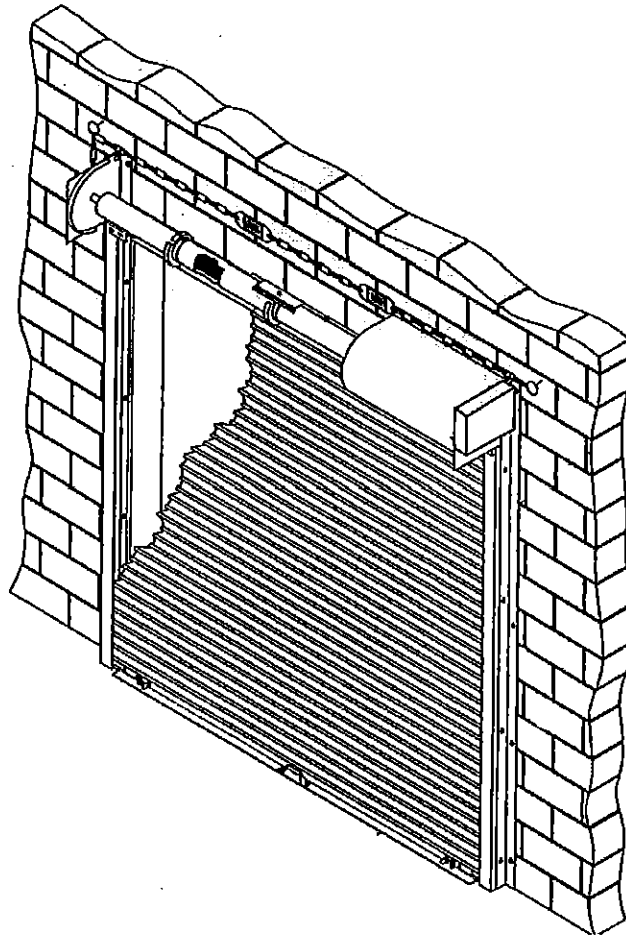




Fire Doors

MODEL ERD10



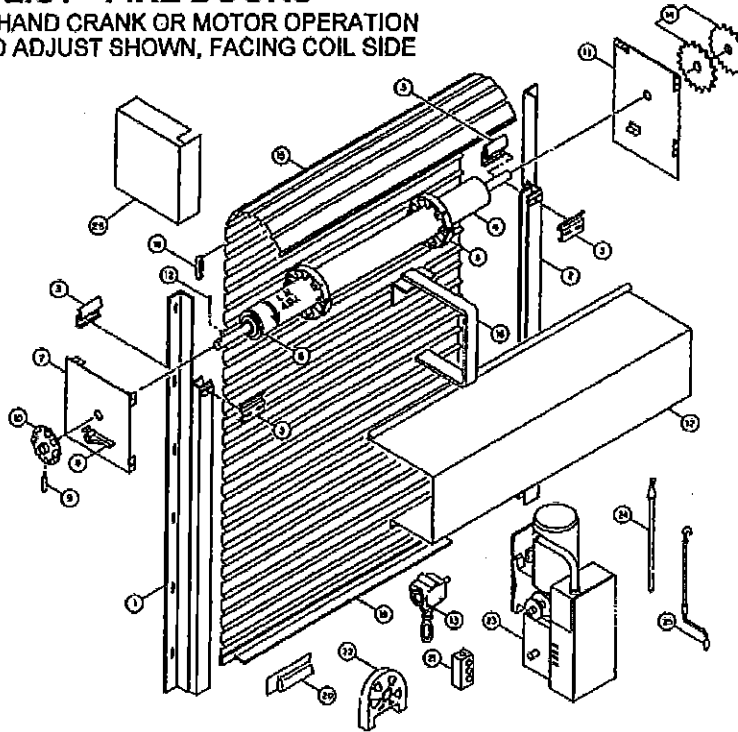
AN ISO 9001:2000 REGISTERED COMPANY

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CORNELL IRON WORKS, INC.

PARTS LIST - FIRE DOORS

PUSH-UP, HAND CRANK OR MOTOR OPERATION
LEFT HAND ADJUST SHOWN, FACING COIL SIDE



| | | | |
|----|-------------------------------|----|---|
| 1 | LEFT HAND GUIDE | 14 | SPROCKETS |
| 2 | RIGHT HAND GUIDE | 15 | DOOR CURTAIN SLATS |
| 3 | BELLMOUTHS | 16 | HOOD SUPPORT (IF SUPPLIED) WIDER UNITS ONLY |
| 4 | BARREL (COUNTERBALANCE SHAFT) | 17 | SHEET METAL HOOD |
| 5 | RINGS (WHEN USED) | 18 | ENDLOCK |
| 6 | ROLLER BEARING | 19 | BOTTOM BAR |
| 7 | ADJUSTOR BRACKET | 20 | SENSING EDGE (OPTIONAL MOTORIZED UNITS) |
| 8 | DROPOUT ASSEMBLY | 21 | PUSH BUTTON STATION (MOTORIZED UNITS) |
| 9 | STOP PIN | 22 | CHAIN OPERATOR (OPTIONAL) |
| 10 | ADJUSTING WHEEL | 23 | MOTOR OPERATOR (MOTOR UNITS) (OPTIONAL) |
| 11 | GOVERNOR BRACKET | 24 | POLE HOOK FOR PUSH UP OPERATION |
| 12 | ROLL PIN | 25 | REMOVABLE HAND CRANK (CRANK OPER UNITS) |
| 13 | CRANK BOX (OPTIONAL) | 26 | MECHANISM COVER |

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**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**
[Push-up, Hand Chain, Hand Crank, or Motor Operated]

Note: Read all instructions carefully, check shop drawings supplied for any special conditions. Open all crated materials and check with attached parts list prior to installation. All parts supplied should correspond with the type of door being installed. If any special devices such as electric releases, smoke or heat detectors are supplied see their individual instructions.

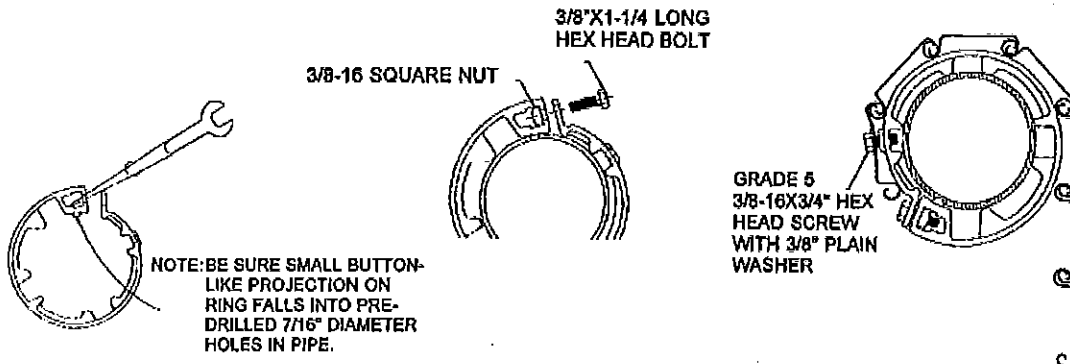
- STEP 1.** Check opening width and height dimensions with those shown on shop drawing. They should correspond.
- STEP 2.** Locate best working point such as the lintel and check for level. Refer to shop drawings for any set back of guides from face of opening.
- NOTE:** Set the bottom of the guides flush on the floor as indicated on shop drawing. Install the left-hand guide [1] plumb and true. Install the right hand guide [2] equal distance top and bottom and level with left hand guide as shown on plan view. Mark holes so that the fastener will be at the top of the wall fastener slot. This is to allow for upward expansion of the guides. Drill and tap for steel jambs. For masonry jambs, through bolts are specified by Underwriters Laboratories. Where through bolts cannot be used due to job conditions, use expansion shields and minimum 8" long bolts. Always use the fiber washers supplied. These sandwiched between two steel washers.
- NOTE:** Welded guides are acceptable to UL. "Do NOT weld" wall angles to steel jambs on FM labeled doors.
- STEP 3.** Locate a good hoisting point above the center of the opening and set in place a chain block [if no other hoisting equipment is available]. On larger doors, it is advisable to use two chain blocks.
- STEP 4.** Place the counterbalance shaft [4] at the base of the guides. The adjusting end will either be marked "L.H. Adjust" or "R.H. Adjust". Place barrel according to this mark. Left or right is always taken as you face the coil. Install rings [5], if supplied, on the counterbalance shaft, which will have holes drilled and/or tapped for ring attachment studs. (Take note of the direction of the coil to insure rings are installed in the proper direction.) (See detail below for ring attachment, on larger doors curtain may be attached directly to the shaft.)

RING INSTALLATION SP0251

TO INSTALL RING: With a twisting motion, drive the pointed end of a spud wrench or a tapered piece of round shaft into the closed portion of the cast iron ring as shown in the detail. This will pivot ring open far enough to allow it to slide on over the pipe. Slide ring down length of pipe and into position on 7/16" diameter holes.

TO FASTEN RING TO PIPE: Insert hex head bolt through holes in ring into square nut in recess. Tighten bolt until ring clamps down securely on pipe. Ring should be adjusted as bolt is tightened so it sits straight on pipe.

TO FASTEN CURTAIN TO RING: Position fastening section over raised boss on ring and line up holes. Insert 3/8" screw with flat washer into tapped hole and tighten down.



**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**

[Push-up, Hand Chain, Hand Crank, or Motor Operated]

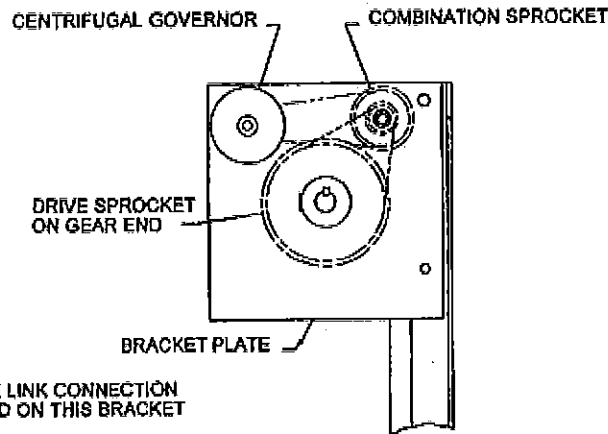
STEP 5. Hoist counterbalance shaft [4] two or three feet above the floor, remove adjusting wheel [10] and install adjustor bracket [7] on adjust end of shaft with the dropout assembly [8] on the outside as shown on attached drawing. Replace adjusting wheel [10] on shaft and depending on type of shaft, either insert roll pin [12] or insert key and tighten screws to secure the adjusting wheel on the shaft. Dropout assembly [8] to remain in lowered position.

STEP 6. Locate governor bracket [11] and remove attached sprocket(s) [14].

NOTE: The arrangement of sprocket(s), washers, etc, "as shipped" must remain the same for later installation on the shaft.

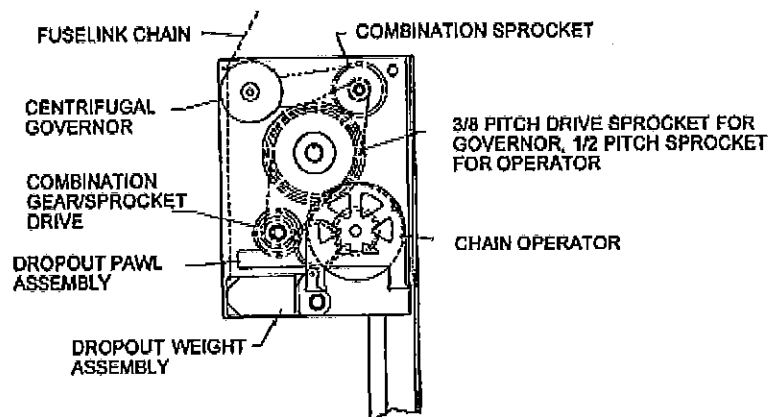
Place governor [11], mechanism on the outside, on the opposite end of the shaft from adjustor bracket. Install drive sprocket(s) [14] with key on the end of the shaft against the bracket arranged in the same order as previously removed. [Ref: Governor Mechanism for Push-up Operated & Governor/Automatic Release Mechanism for Chain Operated]

**GOVERNOR MECHANISM FOR PUSH-UP OPERATED FIRE DOORS
OUTSIDE RIGHT HAND BRACKET SHOWN**



**GOVERNOR/AUTOMATIC RELEASE MECHANISM FOR CHAIN OPERATED FIRE DOORS
[MOTOR OPERATED DOORS SIMILAR]**

OUTSIDE RIGHT HAND OPERATOR BRACKET SHOWN



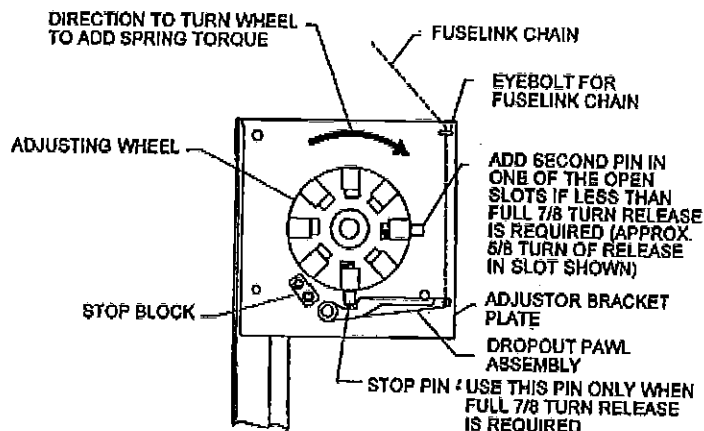
**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**

[Push-up, Hand Chain, Hand Crank, or Motor Operated]

- STEP 7.** Hoist complete assembly and position brackets on the outside leg of the wall angles, bolt in place using carriage bolts supplied.
- NOTE:** It is advisable to locate and drill hood support fastening holes prior to installing curtain. The support is centered between the brackets. If more than one support is required, layout should be checked relative to length of hood sections supplied.
- STEP 8.** Place two blocks about 4" high in the opening, re-roll the curtain [15], place on top of blocks with the bottom bar [19] on top. Hoist curtain, bottom bar first, and pass it over the rings [5] on the counterbalance shaft [4] in the same direction as colling and feed slowly into guides down to the blocks on the floor.
- STEP 9.** With the bottom bar resting on the blocks, set the curtain edges equal distance from the end brackets at both sides. Next slide counterbalance shaft [4] away from adjustor bracket [7] as far as possible to insure proper alignment between the adjusting wheel [10] and the dropout assembly [8]. Align sprocket(s) [14] on shaft with respective sprocket(s) on governor bracket [11]. Install roller chains, from hardware pack, on sprocket(s). [Ref: Governor Mechanism for Push-up Operated & Governor/Automatic Release Mechanism for Chain Operated]. Tighten sprockets [14] on shaft with set screws. Attach curtain [15] to rings [5] as shown on ring Installation sheet or directly to pipe. [Ref: Ring Installation SP0251]. Install removable bellmouth/stoppers on guide assemblies with self-tapping screws supplied. Re-align sprocket(s) [14] if necessary and tighten set screws at this time.
- STEP 10.** [Refer to Automatic Spring Release Mechanism for Adjustor Bracket]. To apply spring charge, remove cotter and stop pin [9] from adjusting wheel [10] and lower the dropout assembly [8]. Using two 1/2" diameter steel rods, approximately 18" long, apply spring torque by inserting both rods into adjustor wheel one above the other. Rotate wheel in a direction of raising the curtain. Maintain applied torque with upper rod, while removing lower rod. RE-insert this rod above the other and continue applying torque one notch at a time using this hand over hand procedure until full spring charge has been applied. The total number of turns to be applied [with the curtain in the closed position] will be written on the counterbalance shaft. The number of turns shown is approximate and more or less torque maybe required to achieve ideal curtain balance. For larger units, it may be necessary to apply tension and raise the curtain alternately until full spring charge is applied. Replace stop pin [9] into adjustor wheel as shown in Automatic Spring Release Mechanism using cotter pin to retain it and raise dropout assembly to engage with stop pin. Temporarily secure dropout assembly in position with C-clamp or vise grips until final spring tension adjustment is completed and fusible link chain has been stretched into position. Proceed to Step #11 for instructions concerning finer spring tension adjustment.

NOTE: Use Extreme caution in above procedure.

**AUTOMATIC SPRING RELEASE MECHANISM FOR ADJUSTOR BRACKET
OUTSIDE LEFT HAND ADJUST SHOWN**



- STEP 11.** Check curtain for ease of operation. Final spring tension adjustment, if necessary, should be increased or decreased with the curtain in the fully open position. Insert one [two if necessary] 1/2" diameter steel rods into adjustor wheel [10] [Ref. to Step#10]. Holding the rod(s) firmly, disconnect the dropout assembly and lower until it clears stop pin [9]. Holding the rod(s) firmly, disconnect the dropout assembly and lower until it clears stop pin [9] on the adjustor wheel. Remove cotter pin and stop pin [9] from adjustor wheel and begin to increase or decrease tension. To increase tension turn the wheel in the direction of raising the curtain, one notch at a time; to decrease tension wheel will

**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**

[Push-up, Hand Chain, Hand Crank, or Motor Operated]

rotate under its own power in the direction of lowering the curtain. Do this 1/8 turn increments re-inserting stop pin, cotter pin and engaging dropout assembly into operating position [See Automatic Spring Release Mechanism for Adjustor Bracket] immediately after each turn of wheel and re-checking curtain for proper balance.

NOTE: Use **Extreme** caution in above procedure.

STEP 12. ALL FIRE DOORS MUST BE TESTED FOR AUTOMATIC CLOSING. Before testing, check to see that all mechanism parts are properly aligned and all set screws tightened. Once the proper spring adjustment has been set, the amount of spring torque to be released for automatic closing must be determined. [Ref. Automatic Spring Release Mechanism for Adjustor Bracket]. With the curtain in the full open position, place a "C" clamp in each guide 6" below the stopper to prevent the curtain from crashing down during dropout torque adjustment.

Using 1/2" adjustor bars [Ref. Step#10] to maintain spring torque, disengage the dropout assembly [8]. Gradually let off spring torque while watching from the curtain to begin to fall from the stoppers. When the curtain begins to close, note the hole position in the adjustor wheel [10] that is closest to the bar stop on the original "Balanced" position and re-engage dropout assembly [8]. Remove "C" clamp for guides and drop test the curtain by releasing the dropout assembly [8]. This will allow spring torque to decrease and the curtain will close to the floor. If curtain begins to close slowly, relocate additional stop pin [9] to let off more spring torque one notch at a time. If the curtain closes too fast, [Ref. Governor Mechanism Adjustment Instructions] for adjustment of the centrifugal governor mechanism.

GOVERNOR MECHANISM ADJUSTMENT INSTRUCTIONS

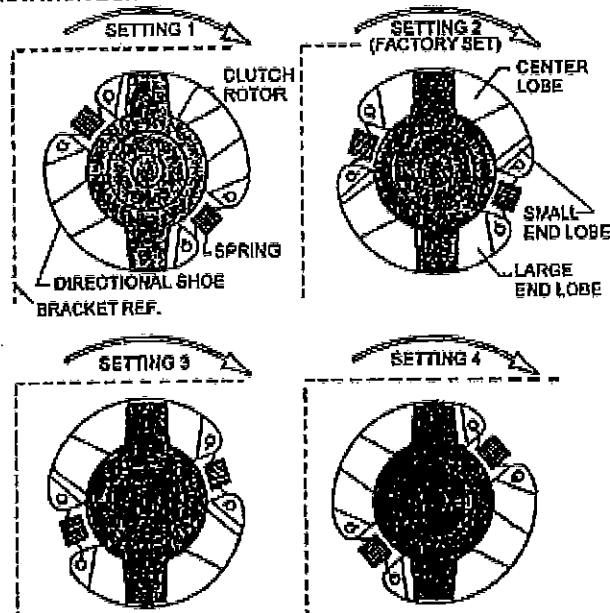
Governor Mechanism [Housing Removed] as seen on a R.H. Bracket Assembly

The Centrifugal Governor Mechanism has four basic settings [See Below] in which to adjust and control the closing rate of the door curtain. The closing rate is the time it takes for the curtain to close completely. The slowest closing rate is most desirable.

The Governor is adjusted by arranging the "Directional" shoes in a different combination. Each shoe has three lobes; small end lobe; center lobe; large end lobe. Verify that the factory setting agrees with Setting 2 below. The closing rate [time] decreases as you progress through Settings 1, 2, 3, & 4 on a R. H. Bracket Assembly as show below. [Setting #1 is the slowest closing rate and Setting #4 is the fastest closing rate.]

IMPORTANT NOTE: For L. H. Governor Bracket Assemblies, Setting #4 is the slowest closing rate and Setting #1 is the fastest closing rate, due to the opposite rotation.

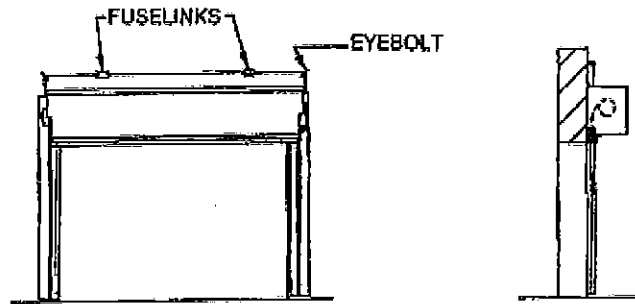
ROTATION DURING CLOSING



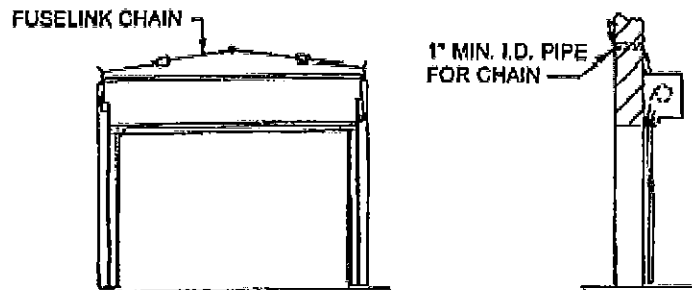
**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**
[Push-up, Hand Chain, Hand Crank, or Motor Operated]

- STEP 13.** Re-check curtain for ease of operation. If satisfactory, align mechanism cover [26] on adjuster bracket [7]. Place hood [17] to overlap the mechanism cover and install with steel metal screws supplied. For hoods with more than one section, a hood support [16] is supplied.
- STEP 14.** Set up a permanent fusible arrangement as shown on shop drawings. If a fusible link is required on opposite side of the wall, drill a hole large enough to place a 1" I.D. pipe sleeve through wall. Overhead space permitting, chain arrangement should be 2 to 3 feet above hood. Install an eyebolt in wall above brackets at either side of the door. Run fusible link chain from dropout assembly on one bracket through eyebolt and up to pipe through wall supplying one fusible link between pipe and eyebolt. Feed chain through pipe and install eyebolt on opposite side of wall. Run chain through eyebolt, fasten a fusible link on chain and feed chain back through pipe in wall and over the eyebolt above remaining bracket again supplying a fusible link between pipe and eyebolt. Run chain through eyebolt and own the dropout assembly. Pull slack out of chain and fasten end of chain to dropout assembly. Disconnect temporary fusible link hood-ups from dropout assemblies at this time. [Ref. Fusible link Arrangements and Fusible Link Arrangements].

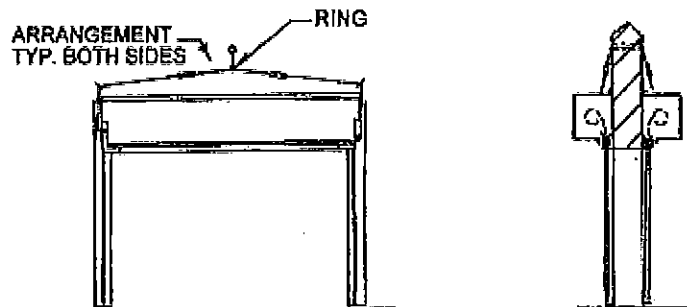
FUSELINK ARRANGEMENTS



FUSELINKS ONE SIDE OF OPENING ONLY



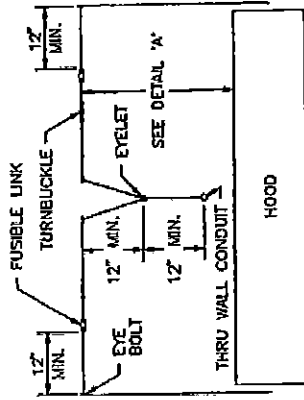
FUSELINKS BOTH SIDES OF OPENING



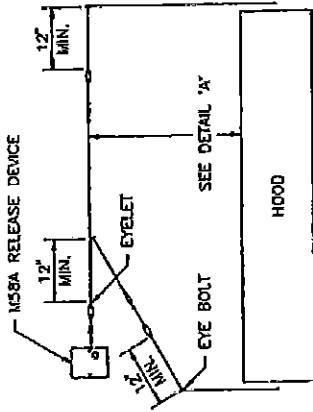
DOORS AND FUSELINKS BOTH SIDES OF OPENING, DOORS CLOSE SIMULTANEOUSLY WHEN FUSELINKS ON EITHER SIDE OF OPENING BREAK.

**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**

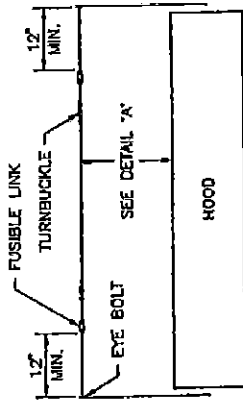
[Push-up, Hand Chain, Hand Crank, or Motor Operated]



ARRANGEMENT 3

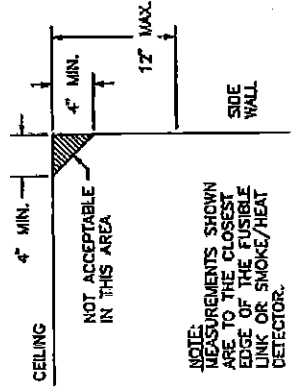


ARRANGEMENT 2

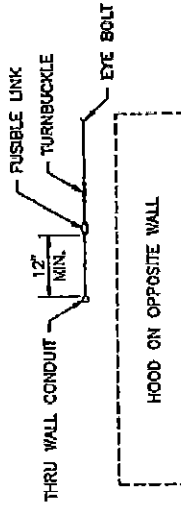


ARRANGEMENT 1

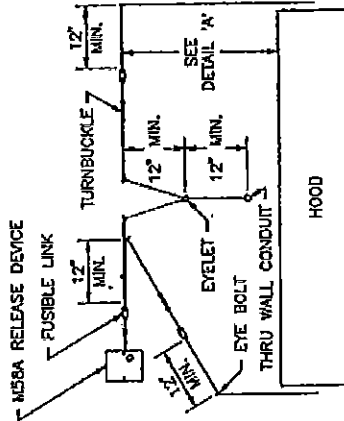
INSTALLER NOTE:
ALL DOORS MUST BE DROP TESTED
TWICE AFTER INSTALLATION TO INSURE
PROPER AUTOMATIC CLOSING OPERATION.



DETAIL 'A'



ARRANGEMENT 5



ARRANGEMENT 4

FUSIBLE LINK ARRANGEMENTS

**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**
[Push-up, Hand Chain, Hand Crank, or Motor Operated]

Motor Operated Doors Are Operating Correctly When:

- Door runs to full open position and shuts off without slamming against upper guide stops.
- Door runs to full closed position and stops without buckling; bottom bar should make adequate contact with the floor.
- Safety bottom edge stops or reverses door travel when tested as door is closing.
- Functions of all control stations work properly (open, close, and stop).
- Door does not drift more than 6 in. when stop button is depressed while door is closing and at middle of travel.
- Door operates full cycle without catching or binding.
- Door is level in open and closed position.
- Emergency hand chain on operator raises and lowers door adequately (use only in emergencies; do not run door for long periods through the emergency hand chain).
- Emergency disconnect on operators allows door to be manually raised or lowered.

Manual Doors Are Operating Correctly When:

- Door stays open without drifting down.
- Door balances in closed position or has slight lift.
- Door operates without excessive force to lift (less than 25 pounds).
- Door operates full cycle without catching or binding.
- Door is level in full-open and full-closed position.
- No excessive component wear exists.

| SUGGESTED LUBRICANTS | |
|---|---|
| To Lubricate: | Use: |
| Roller Chains | Roller chain lubricant with penetrating agent. Available in spray cans. |
| Spur Gears | Open gear lube designed for spur gears having a tacky consistency. Available in spray cans. |
| Wear Points on Guides, End Brackets, also for Endlocks. | Paraffin based lubricant in stick form or spray dry graphite lubricant. |
| Bearings with Grease Fittings | Multi purpose grease. |
| Lock Mechanisms, and Stub Shafts | General purpose lubricant in spray form. |

DOOR MAINTENANCE STEPS

Improper maintenance procedures can damage a good door and injure the technician doing the work. The "Door Maintenance Steps" lists recommended procedures for keeping a door performing at its maximum.

1. Inspect door for alignment, level, and proper working clearances.
2. Check curtain for damaged, loose, or missing endlocks.
3. Check guides for damage and secure attachment.
4. Inspect upper guide stops for damage, proper alignment, and secure attachment.
5. Inspect guide, head, and bottom bar weatherstripping for wear or damage.
6. Examine curtain to shaft attachment.
7. Inspect end brackets for secure attachment. Check inside of end brackets for curtain rubbing. Adjust curtain and lubricate wear points on bracket.
8. Test the operation of the door for proper spring balance (on motor operated doors use emergency hand chain operator to test balance). When the door has proper balance, the curtain should have lift at the stops in the open position and not drift down. At the floor, the curtain should be balanced or lift up slightly. The door should not be difficult to raise through the middle of travel. The door may run through the middle of travel.
9. Lubricate roller bearings which have grease fittings. Bearings are located at the operator end bracket and at adjuster end of pipe shaft.
10. Operate the door while closely watching curtain movement, correct any deficiencies which may cause the door to catch or snag.
11. Inspect, align and lubricate the chains, stub shafts and gears of manual chain hoists or crank operators. Tighten all set screws and check roller chain tension.
12. Inspect hand operating chain, crank eye, and removable crank for damage or wear.
13. Check spring adjusting wheel and keeper for damage and secure installation.
14. Check hood for secure attachment.
15. Check operation of locks or slide bolts. Tighten cylinder locking set screws and lubricate the lock mechanism.

For motor operated doors refer to the motor maintenance section.

**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**
[Push-up, Hand Chain, Hand Crank, or Motor Operated]

FIRE DOOR DROP TESTING

Perform door and electrical operator maintenance.

It is important to make sure that the door operates properly in the normal mode of operation before testing the automatic closing mechanisms.

1. Inspect the fusible links and chain arrangements. Links and chain should be clean and unpainted. Links and "S" hooks should be at least 12" away from any eyebolts or thru wall fixtures to insure enough chain travel for mechanisms to drop out. Check for any other points where the chain may hang up.
2. Check release arms on brackets. Make sure that they are NOT tied up in place and that nothing will block proper drop out of arms.
3. Drop test door to check automatic closing mechanism. Make sure that the door is in full open position. Initiate automatic closing by melting a fusible link or by separating the chain at the "S" hook. Door closing speed shall not be less than 6" per second nor more than 2' per second. The door must close completely with the bottom bar resting on the sill.
4. If problems occur during the drop test, consult installation instructions or door manufacturer.
5. Reset door mechanisms following manufacturer's instructions.
6. A second drop test should be preformed. This one should be witnessed by a representative of the owner.
7. Reset door.
8. Door releasing devises, smoke detectors and other special control equipment may be tested if owner requests. Follow manufacturer's instructions for testing. If smoke detectors are connected to a central fire alarm system, they should not be tested.
9. When repair parts are required, they must be purchased from the original door manufacturer.

**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**
[Push-up, Hand Chain, Hand Crank, or Motor Operated]

INSTALLING MOTOR OPERATORS

On doors with wall mounted motors angle or flat is supplied mounted to the guide with pre-drilled and tapped holes matching the motor base plate. Using these holes lay out the tow outboard holes for the motor base plate. Drill and insert expansion shields. Hoist and bolt motor in place. Fit and align roller chain around sprockets, adjust for correct tension and tighten bolts securely. It is important to use the lock washers provided. Operator must be mounted securely to prevent movement during operation. Additional bracing may be required to meet field conditions.

NOTE: On some jobs, special motor mounting maybe required. Refer to shop drawings provided and mount motor accordingly.

Refer to motor operator manufacturer's instructions for additional information.

MOTOR OPERATOR MAINTENANCE

Operators require practically no special maintenance other than periodic checking to see that mechanical parts where necessary are lubricated and the electrical compartments are clear of dirt.

Service technician should first familiarize him/herself with proper sequence of operation or operator and all related controls. Power to operator must be SHUT OFF when removing or replacing covers on electrical components, making adjustments, or performing maintenance.

1. Check wire connections for tightness and wire insulation for defects or abrasions.
2. Check to see that all conduit connections are secure.
3. Check wires to sensing edge if unit is equipped with a safety to reverse feature.
4. Inspect, align and adjust V-Belt. [Belt operator]
5. Check pulley clutch mechanism for slippage. [Belt operator]
6. Inspect operation of brake. [Gear operator]
7. Inspect gearbox for leaks. [Gear operator]
8. Inspect roller chain and drive sprockets. Align, lubricate the sprockets and tighten the set screws. Adjust chain tension.
9. Generally inspect the motor mounting, and tighten the fasteners and bracing.
10. Test the operation of the emergency disconnects or hand chain mechanisms and lubricate friction points.
11. Check the disconnect cutoff switch for correct mechanical and electrical operation.
12. Verify that all conduit connections are tight and have no exposed wires.
13. Inspect that wiring panel for debris, arching or moisture. Check for and tighten loose wiring connections.
14. Test motor operation through all control stations.
15. Check limit switch setting.
16. Examine safety edge, coil cord and take up reel for damage.
17. Test the operation of the safety edge.
18. Check motor amperage draw for a full open and close cycle. Compare readings to those listed on the amperage table.
19. Inspect and test track mounted lock cutout switches for correct mechanical and electrical operation.



**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**
[Push-up, Hand Chain, Hand Crank, or Motor Operated]

OPERATORS TROUBLE SHOOTING GUIDE

| SYMPTOM | POSSIBLE CAUSE | CURE |
|--|---|---|
| Motor does not run when OPEN or CLOSE button is pushed. | Circuit breaker tripped or power fuse blown. | Check circuit breaker, power fuses, safety switch; check cause. |
| | Thermal overload tripped. | Reset; check cause. |
| | Manual interlock switch open. (on units with emergency operator) | Shift into MOTOR operation. |
| | Note: Operate contact on start by hand. If motor runs, cause is in control circuit. | Check pushbutton wires. Check wiring to the manual interlock. |
| | External interlock open. (if supplied) | Close interlocks. |
| Motor runs but door does not move. | Sprocket key missing or drive chain broken. | Check drive train for operation. |
| | Clutch slipping. (if furnished) | Adjust clutch. |
| Motor hums but does not run. | Door jammed. Drive train jammed. | Check door. Try to operate manually. |
| | Dead phase in 3 phase system. | Check power supply. |
| | Brake does not release. | Check power to brake solenoid. |
| | Open motor winding. | Check all motor connections. |
| Operator runs in wrong direction and limits do not function. | On 3 phase operators power supply is out of phase. | Interchange any 2 power leads to unit. |
| | Note: All units are checked for proper rotation at factory. Limit switch adjustment instructions in limit housing indicates proper direction of travel for OPEN and CLOSE limit nuts. | |
| Limit switches do not hold their setting. | Drive chain loose allows chain to jump sprocket teeth. | Adjust chain to proper tension. |
| | Limit nut retainer not engaging slots in limit nuts. | Be sure retainer is in slots of BOTH nuts. |
| | Limit nuts binding on screw threads which allows them to jump position on retainer. | Lubricate screw thread. Limit nuts should turn freely. |
| Door 'drifts' when motor shuts off. | Brake inoperative or improperly adjusted. | Check brake operation. Check solenoid. |
| Operator does not shut off at full OPEN or at full CLOSE position. | Limit nuts not properly adjusted. | Adjust. (see above) |
| | Sprocket on limit shaft loose or limit drive chain broken. | Tighten set screw. Replace chain. |
| | Defective limit switch. | Operate limit switch manually to determine. |

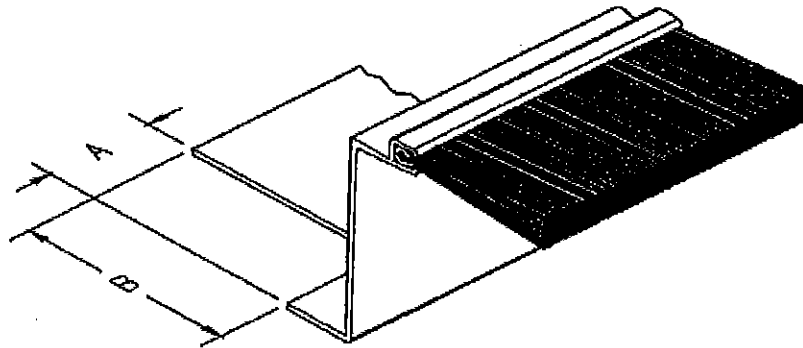
**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**
[Push-up, Hand Chain, Hand Crank, or Motor Operated]

LINTEL SEAL INSTALLATION INSTRUCTIONS

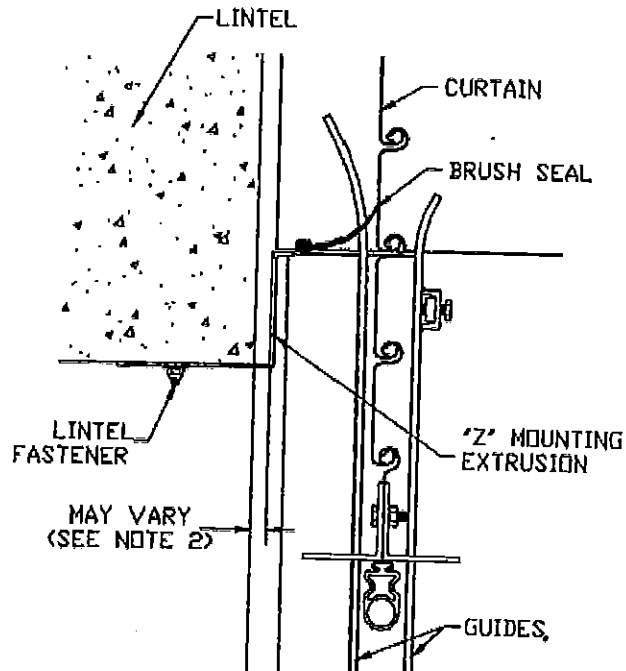
NOTE 1: The Lintel Seal should be installed before the hood and fascia, and after all other door components are installed and operational.

"Z" shaped Seal

1. Clean and inspect the top of the opening where the Lintel Seal will be installed. See shop drawings for details.
2. Make the "A" & "B" cutouts to the ends of the extrusion(s) according to the dimensions on the shop sheet to fit guide setbacks and packoffs. [See detail below]



3. Place the Lintel Seal at the bottom of the lintel with the brush contacting the curtain [in the closed position] with the bristles pushed to about a 45-degree angle. [See detail below]



**FIRE DOORS WITH CONVENTIONAL SPRING RELEASE AUTO CLOSING MECHANISM
INSTALLATION INSTRUCTIONS**

[Push-up, Hand Chain, Hand Crank, or Motor Operated]

INSTALLATION INSTRUCTIONS
ECO # 1167 REVISION: #0001

LINTEL SEAL

BY: B.P.W.

ES 10-221
DATE: 04/28/2005

NOTE 2: Check the Lintel Brush for proper contact on the door curtain at the edges and in the middle when the door is both open and closed (*mounting extrusion will not sit flush with the corner of the lintel in most cases*). On large doors, toward the center, the multi-piece Lintel Seals may have to be angled inward and trimmed on the edges to follow the bow of the door curtain when closed. (*Make sure that the brush stays in contact with the door and that the door does not hit the extrusion when it is fully opened*)

- 4 Mark the position of the mounting holes on the extrusion, no farther than two feet apart and in the middle of the front edge of the lintel and the back edge of the extrusion (*For ease of marking the mounting hole locations correctly later on, scribe a line on the back edge of the extrusion and lintel before removing*).
- 5 Remove the Lintel Seal from the opening and drill the mounting holes slightly larger than the mounting fasteners in the lintel extrusion.
- 6 After drilling the mounting holes in the extrusion, place the extrusion back in the opening on the scribed line and mark the mounting holes on the lintel.
- 7 Remove the extrusion and prepare the mounting hole locations for the proper fasteners supplied with the unit.
- 8 Replace the Lintel Seal in the opening and insert the fasteners. Leave the fasteners loose in order to adjust the Lintel Seal and properly orient a multi piece Lintel Seal.
- 9 Tighten the fasteners and operate the door. Double check the Lintel Seal contact area on the curtain (*The curtain should always touch the Lintel Seal and not hit the extrusion*).

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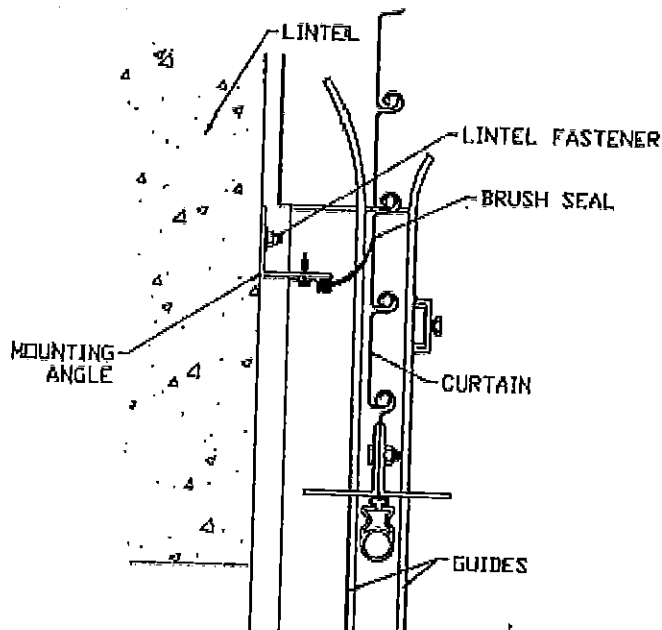
NOTE 1: The Lintel Seal should be installed before the hood and fascia, and after all other door components are installed and operational.

"L" Shaped Seal

- 1 Clean and inspect the top of the opening where the Lintel Seal will be installed. See shop drawings for details.
- 2 Mount the angle to the lintel with the correct fasteners according to the wall construction. (See the shop sheet for the correct location of the angle from the lintel)

NOTE 2: Check the Lintel Brush for proper contact on the door curtain at the edges and in the middle when the door is both open and closed. On large doors, toward the center, the multi-piece Lintel Seals may have to be angled inward and trimmed on the edges to follow the bow of the door curtain when closed. (Make sure that the brush stays in contact with the door and that the door does not hit the extrusion when it is fully opened)

- 3 Place the brush extrusion in place on the mounting angle so the brush makes contact with the door in the closed position and mark the mounting holes. (Brush should be at about a 45-degree angle) (For ease of marking the mounting hole locations correctly later on, scribe a line on the back edge of the extrusion and mounting angle before removing)
- 4 Drill the correct size pilot holes and attach the extrusion to the mounting angle with the proper screws.
- 5 Tighten the fasteners and operate the door. Double check the Lintel Seal contact area on the curtain (The curtain should always touch the Lintel Seal and not hit the extrusion).



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