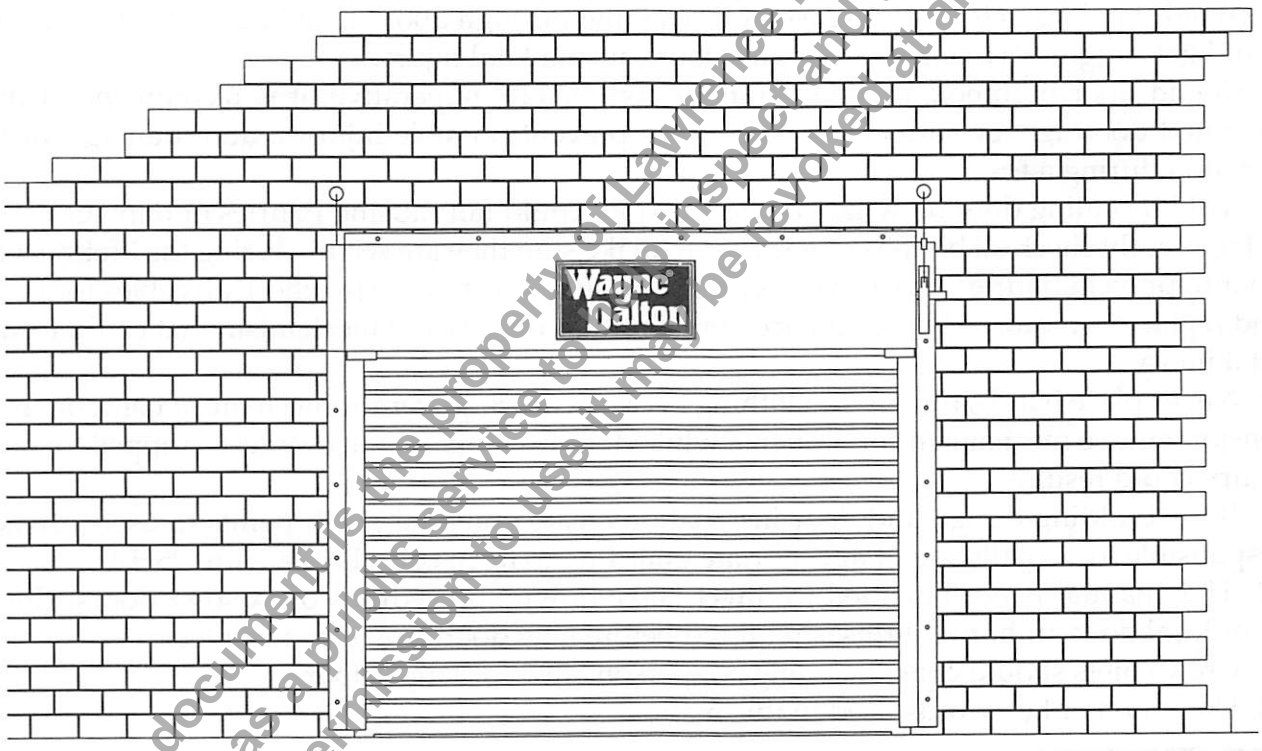
Akbar® 89

Rolling Steel Fire Door

Installation Instructions and Owners Operation and Maintenance Manual



IMPORTANT NOTICE !!

CAREFULLY READ EVERYTHING IN THIS MANUAL BEFORE ATTEMPTING INSTALLATIONS OR REPAIRS. PAY CLOSE ATTENTION TO ALL WARNING LABELS AND THE IMPORTANT SAFETY NOTICES ON THE FOLLOWING PAGE. IF IN QUESTION ABOUT ANY OF THE PROCEDURES, DO NOT PERFORM THE WORK. INSTEAD, HAVE A QUALIFIED DOOR AGENCY DO THE INSTALLATION OR REPAIRS.

THIS MANUAL MUST BE ATTACHED TO THE WALL IN CLOSE PROXIMITY OF THE DOOR.

P/N 273626

IMPORTANT SAFETY NOTICES

1. Installation must be in **FULL** compliance with **ALL** provisions of the regulations contained in **NFPA 80.** This is the installer's responsibility.
2. Operate door **ONLY** when properly adjusted and free of obstructions.
3. Door is constantly under **EXTREME SPRING TENSION**. Repairs, adjustments, installation and removal, **ESPECIALLY** of **ADJUSTING WHEEL** or **SPRING,** are dangerous so that such work should be performed **ONLY** by qualified door service people.
4. **DO NOT PERMIT** children to play with the door or the electrical controls. The child could get caught between the door and floor causing fatal injury.
5. If the door is now or later becomes electrically operated any locking devices **MUST** be disengaged or electrically interlocked.
6. Avoid standing in the open doorway or walking through doorway while door is moving. One could get caught between the door and floor causing fatal injury.
7. Should door become hard to operate or completely inoperative, it is recommended that a qualified door agency correct the problem to prevent possible injuries, door damage, or malfunction during a fire.
8. Avoid installing door on windy days. The door could fall causing injuries or damage.
9. Frequently check all bolted connections to make sure they are secure during the lifetime of the door to prevent injuries and accidents due to loose connections. Also check all cables for fraying and replace as required to prevent accidental release of fire drop mechanism that could result in fatal injury.
10. Never place hands, fingers, or clothing between gears, governor mechanism components, or tension release mechanism components while door is being operated or test dropped, or severe injury could result.
11. If the building design and door installation create potential pinch points to users, owner is responsible for installation of appropriate guarding to be in compliance with OSHA.
12. This manual is not intended to direct "take-down" procedures of existing doors. Consult your local door authority if this is required before new doors are to be installed.
13. Crew chiefs should consider using a 2-person crew for larger doors.
14. Definition of key words used in this manual:

⚠ WARNING - Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

⚠ CAUTION - Alerts against unsafe practices and potential property damage accidents.

IMPORTANT! - Required step for safe and proper door operation.

NOTE: - Information assuring proper installation of the door.

Wayne-Dalton Corp.
Limited One Year Warranty

Wayne-Dalton Corp., Dalton, Ohio 44618 warrants that every door and its hardware and fittings will be free of defects in workmanship and material. Should any defect in workmanship or material appear within ONE YEAR of installation, **Wayne-Dalton Corp**. shall, upon notification, correct such non-conformity at its option, by repairing or replacing any defective part or parts.

THIS WARRANTY GIVES YOU SPECIFIC RIGHTS WHICH VARY FROM STATE TO STATE.

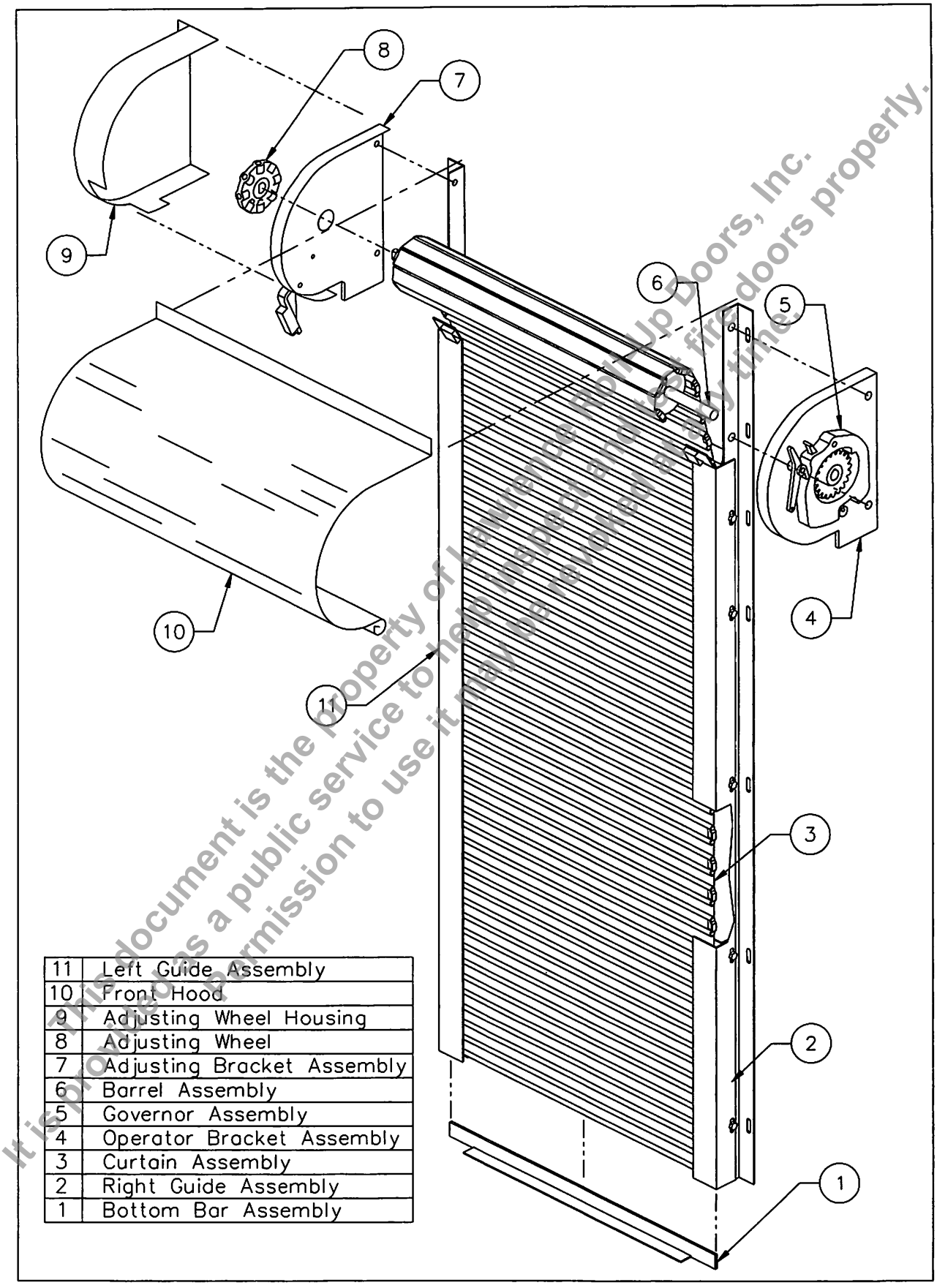
This warranty does not include normal wear, damage beyond the manufacturer's control or replacement labor.

NO WARRANTIES EXPRESSED OR IMPLIED (INCLUDING, BUT NOT LIMITED TO, A WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE) SHALL EXTEND BEYOND THE APPLICABLE TIME PERIOD STATED IN BOLD FACE TYPE ABOVE.

Claims for the defective parts must be made to the Wayne-Dalton Corp. dealer from whom the purchase was made. Notification of defects in workmanship and material must be given to the dealer within the governing warranty period.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES. IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. HOWEVER, SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Akbar®89 Fire Door



11	Left Guide Assembly
10	Front Hood
9	Adjusting Wheel Housing
8	Adjusting Wheel
7	Adjusting Bracket Assembly
6	Barrel Assembly
5	Governor Assembly
4	Operator Bracket Assembly
3	Curtain Assembly
2	Right Guide Assembly
1	Bottom Bar Assembly

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INTRODUCTION

This manual's main function is to assist the installer in correctly mounting doors with due regard for safety, operation, and sound construction practices. NFPA 80 and local fire and building codes take precedence with regard to any discrepancies among them.

All Wayne-Dalton rolling fire doors follow the general guidelines set forth here. Additional installation information for each door shipped is found in the packing slip and supplementary drawings. There are also bolts and small parts bags sealed separately with accessory lists describing what part goes where.

PREPARATION

Read the installation instructions to become familiar with the names of the various components and their relation to each other. It is a necessity for the installer to determine the following:

- The type of mounting (face-of wall or between jambs).
- Method of operation (hoist, crank, motor, or push-up).
- The hand of operation determined from the coil side (right or left).
- Type of jamb on which the door guides mount and the fasteners required.
- The dimensions for the opening width, opening height, head room, and sideroom.

MATERIAL

Inspect your door prior to leaving for the job site for possible damage or shortage of parts. Report any claims to your door supplier immediately.

CLEARANCES

The installation drawings supplied in the hardware bag contain information on bracket size and head and side room for each door. Be sure that the dimensions are correct for the opening you are working on. Take special note of the "C" dimension (FIG 6.). **THIS DIMENSION MUST BE HELD**. Be sure the required clearances are available prior to installation.

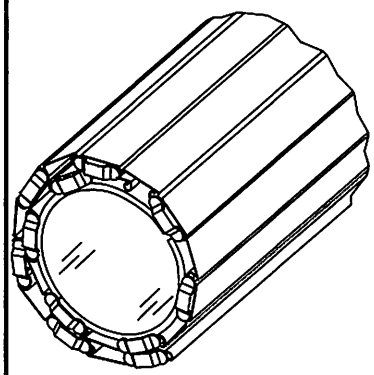
TOOLS

The tools recommended for proper installation of each door will vary, but commonly used tools are:

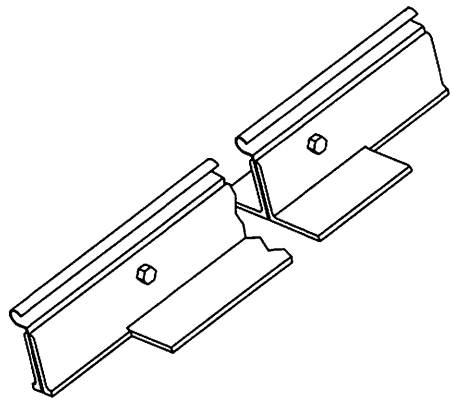
- Electric drill with $\frac{3}{8}$" or $\frac{1}{2}$" chuck.
- Masonry drill or impact hammer and bits.
- Chain hoist and sling for raising barrel and curtain assembly.
- Ladders and scaffolding.
- Wrenches, screwdrivers, hammer, level, drills, center punch, tape measure, chalk line, visegrips or C-clamps, water-level hose.
- Two hardened steel bars, $\frac{1}{2}$" diameter and approximately 36" long.

Section 1 - Supplied Parts List

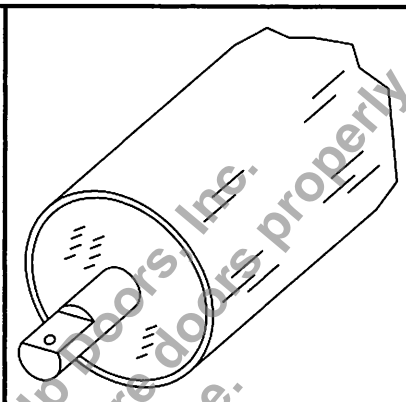
Major Components and Assemblies



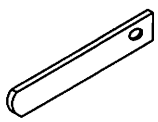
Curtain Assembly



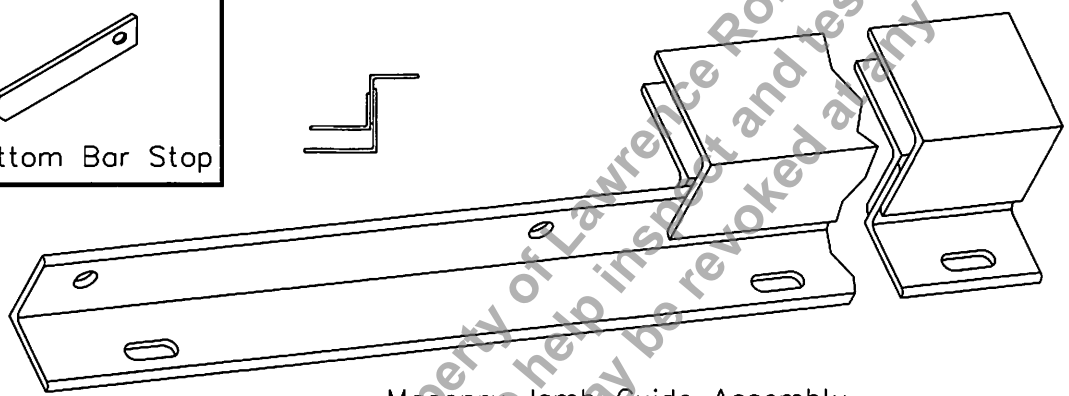
Bottom Bar Assembly



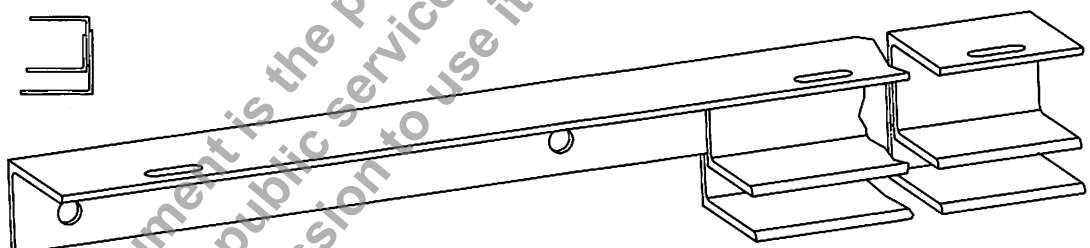
Barrel Assembly



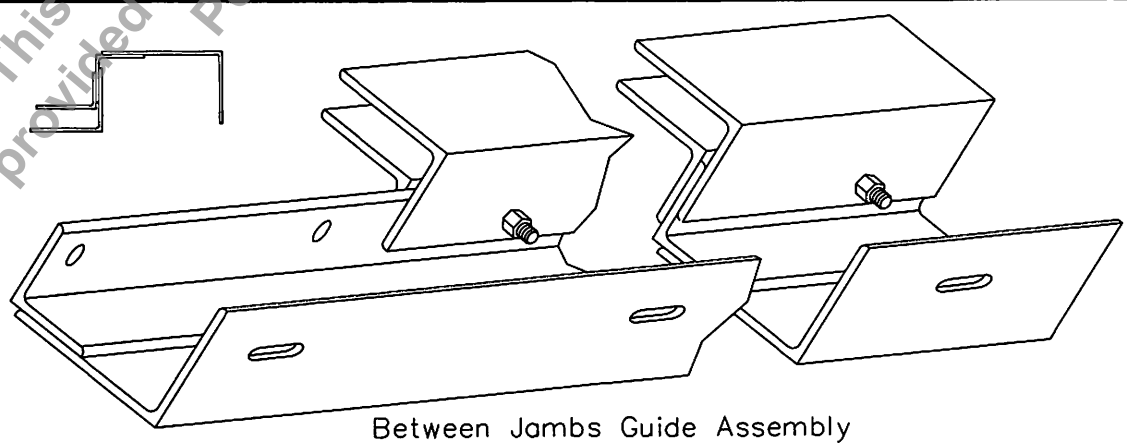
Bottom Bar Stop



Masonry Jamb Guide Assembly



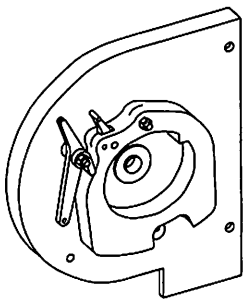
Steel Jamb Guide Assembly



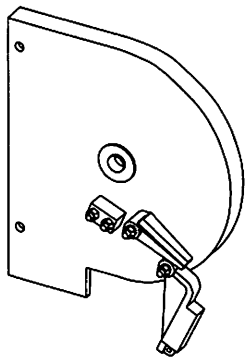
Between Jambs Guide Assembly

Section 2 - Supplied Parts List

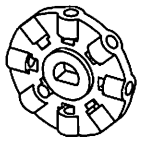
Typical Bracket Assemblies and Components



14" Capacity Operator Bracket Assembly

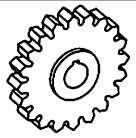


14" Capacity Adjusting Bracket Assembly

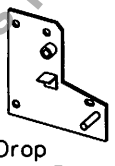


Adjusting Wheel
P/N 011-0090-09

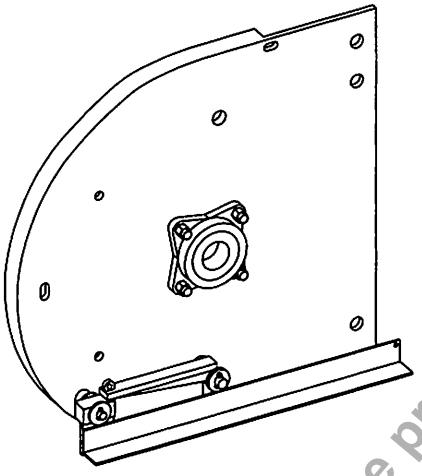
Support Arm
P/N 004-0867-20



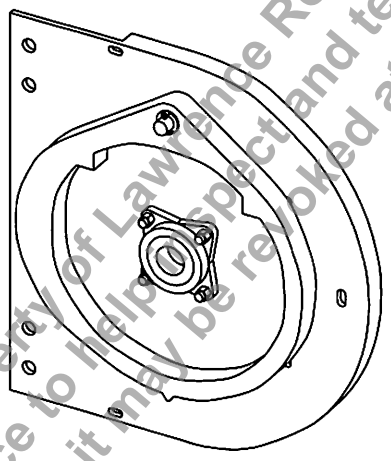
Retaining Wheel
P/N 013-0395-01



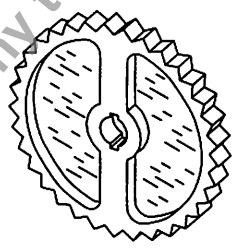
Operator Drop Out Mounting Plate



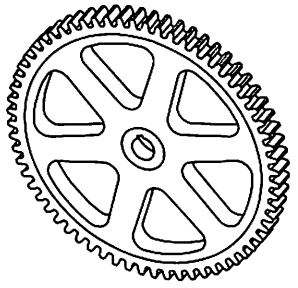
18" or 22" Capacity Adjusting Bracket Assembly



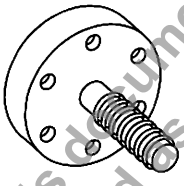
18" or 22" Capacity Operator Bracket Assembly



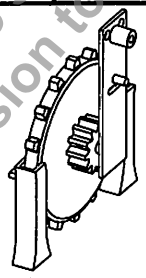
18"/22" Retaining Wheel
Mark RW133



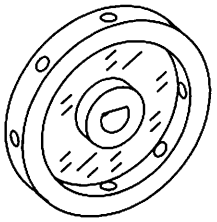
Main Gear



AW Stud Assembly
P/N 004-1215-20

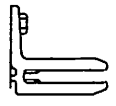


Chain Hoist Assembly

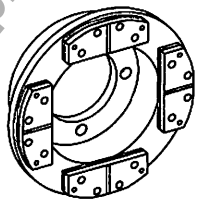


Adjusting Wheel
Mark AW843

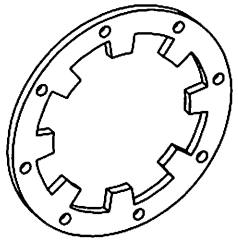
Adjusting Wheel Stop Pin



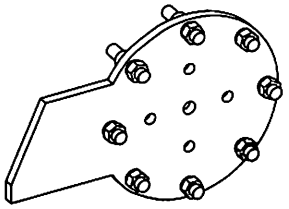
CHAIN LOCK



Friction Brake Assembly
P/N 013-0539-20



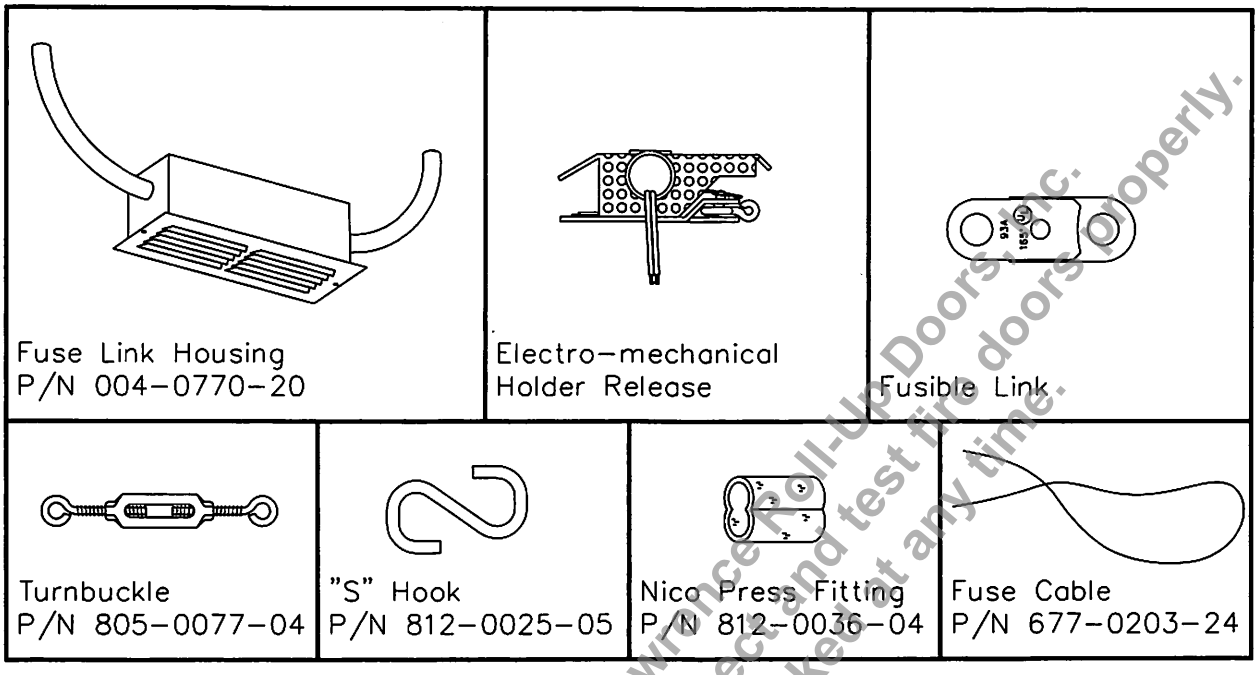
Retaining Ring
P/N 013-0540-01



Retaining Arm With Pins Assembly

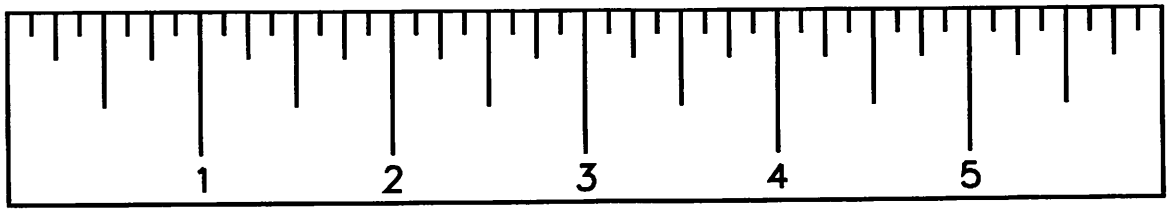
Section 3 - Supplied Parts List

Miscellaneous Components and Hardware



Also included is a bag of hardware with a packing slip to show where each piece is used. Below is an example (your's may vary in sizes and quantities shown) and a ruler for your convenience:

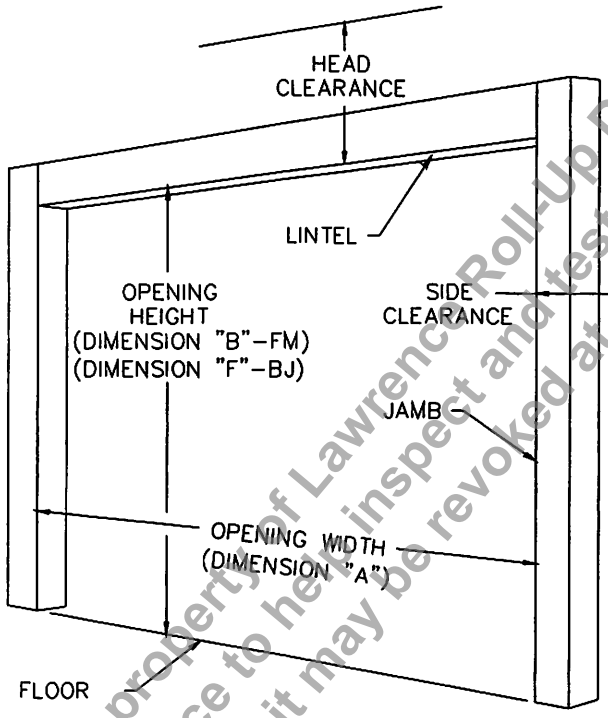
No/ Door	Part Number	Description	Where Used
2	004-0602-04	Pin - Adjusting Wheel (Bullet)	AW to Bracket
2	807-0696-04	Pin - #13 Hitch (Hair Pin)	AW to Bracket
2	807-0171-04	Cotter Pin - 3/16" x 1-1/2"	AW & Retaining Wheel
6	801-0350-05	1/2" -13 x 1-1/2" HH Cap Screw	Brackets to Guides
6	802-0004-05	1/2" -13 Hex Nut	Brackets to Guides
18	805-0100-04	3/8" x 3-3/4" Stud Anchors	Guides to Wall
5	801-1070-05	1/4" -20 x 1-1/2" RHMS	Hood to Wall
5	805-0129-04	1/4" x 1" Expansion Shield	Hood to Wall
5	804-0002-05	1/4" Flat Washer	Hood to Wall
10	803-1807-05	1/4" x 1/2" Self-Tapping Screws	Hood to Brackets Strap
4	801-2808-05	3/8" -16 x 3/4" Hex Hd Grade 5	BB Stops to Guides
10	801-0274-05	5/16" -18 x 1" HHCS	Top Slat to Ring
10	802-0031-05	5/16" -18 Square Nut	Top Slat to Ring
10	804-0025-05	5/16" Flat Washer	Top Slat to Ring

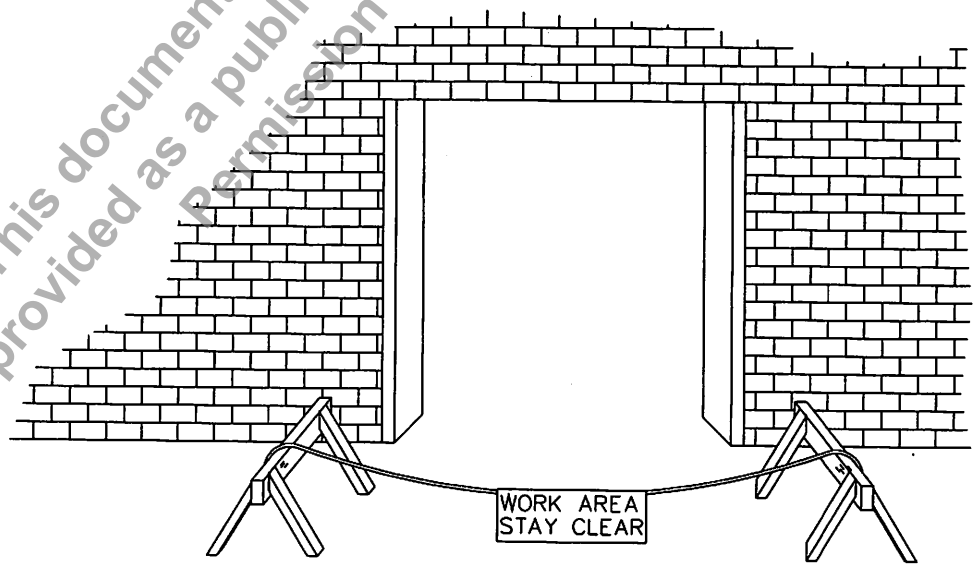


Step 1: Opening Checks

Check the door width **"A"** and the door height **"B"** or **"F"** to be sure the opening is the proper size for the door. Any variations in the actual opening width or height, or plumbness of the jambs is to be disregarded when installing the guides. Verify the clearances available meet or exceed those given on the installation drawing. **Rope off the opening prior to beginning work!**

NOTE: WAYNE-DALTON CORP. IS UL/FM APPROVED FOR MOUNTING TO STRUCTURAL STEEL AND MASONRY JAMBS.

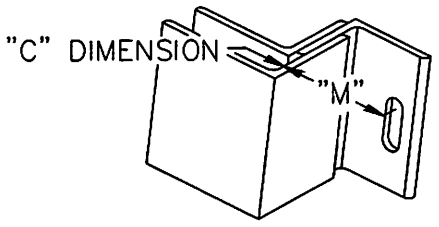




Step 2: Guide Mounting

Face Mounted Doors

Record the **"C"** dimension from the installation drawing on the line provided below. Measure the distance from the inside of the left guide to the centerline of the slots on the wall angle and record. Repeat for the right guide. On masonry jambs (with mounting leg out, or "Z" guides), add the **"C"** dimension and the recorded dimension(s) to obtain a "bolt line" dimension (for steel jambs, or "E" guides subtract).



"C" Dimension (from Dwg) _____

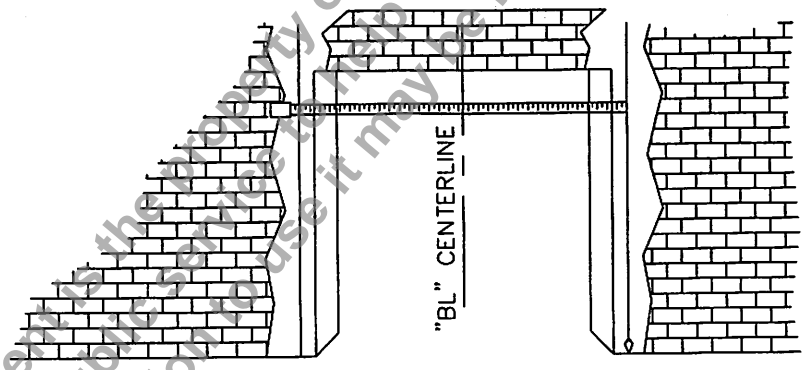
"M" (Left Guide) _____

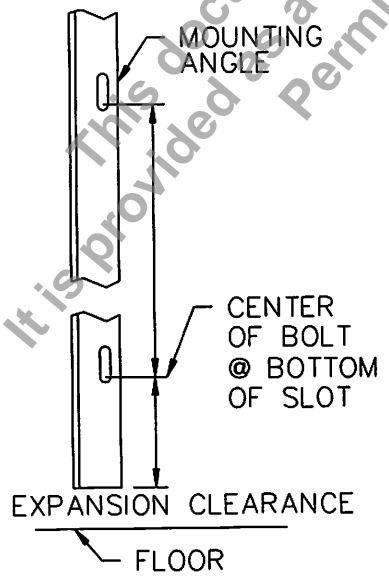
"M" (Right Guide _____

(+ Masonry jamb; - Steel jamb)

Bolt line _____

Center the bolt line dimension in the top of opening and make a mark on the wall. Drop a plumb line down and make a second mark on the wall at the bottom. Using a chalk line, make a vertical line the length of the **"F"** dimension. Measure "BL" horizontally onto the other jamb and repeat the process.





Next, measure from the bottom of the mounting angle to the center of the bottom of the slot. Add the expansion clearance (found on the installation drawing) to this dimension and mark on wall.

NOTE: IF FLOOR IS NOT LEVEL, MAKE MARK ON JAMB WHERE FLOOR IS HIGHER.

Using a water level or string and a level, make a mark on the other jamb at the same height. On the mounting angle, measure from this point to the center of the bottom of the next slot. Repeat this process for the remaining holes.

NOTE: ON STEEL JAMBS WHERE THE GUIDES ARE GOING TO BE WELDED IN PLACE, MEASURE TO THE LAST (TOP) SLOT.

Below is a *chart listing the weight (in pounds) for each jamb's guide assembly to be used for reference in handling:

Opening Width	Opening Height 10	12	14	16	18	20	22	24
Up to 12'	65	77	89	146	164	182	200	218
12' - 13'6"	76	90	128	146	164	182	200	218
13'6" - 16'	92	109	128	146	164	182	200	218
16' - 20'	120	143	165	187	210	232	254	277
20' - 24'	149	176	204	232	260	288	316	344

*This chart is based on standard products. Special guide angles or unusual mounting conditions do not apply. In event that the opening falls in between sizes, use the next higher size up.

Next drill the appropriate size hole for the fasteners provided (listed as "Guides to Wall" on hardware shipping list).

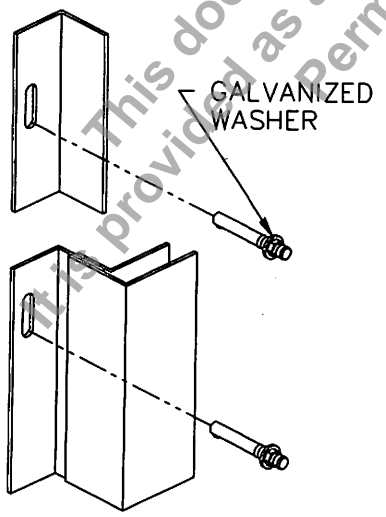
⚠ CAUTION - THE FASTENERS SUPPLIED MEET ALL NFPA 80 REQUIREMENTS SET FORTH. USE OF ANY OTHER TYPE FASTENER MUST BE ON THE APPROVED SUBSTITUTION LIST IN NFPA 80 AND CANNOT BE OF A LESSER DIAMETER.

⚠ WARNING - THE GUIDE ASSEMBLIES ARE EXTREMELY HEAVY. PERSONS WITH BACK PROBLEMS OR OTHER PHYSICAL CONDITIONS WHICH MAY LIMIT THEM FROM LIFTING HEAVY OBJECTS SHOULD NOT PERFORM THIS NEXT STEP.

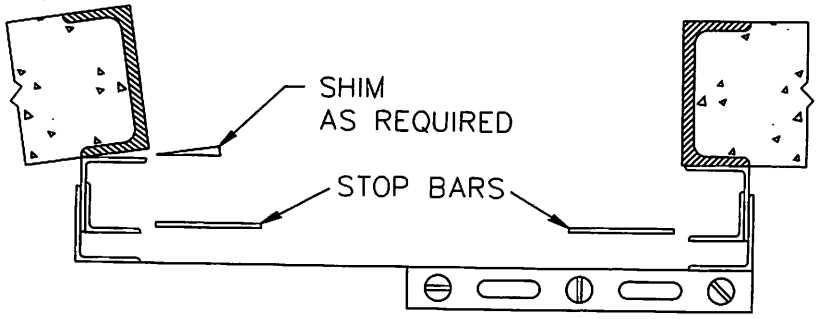
Stand up the guide assembly against the wall and install the top and bottom bolts in the slots provided. Repeat for the other jamb.

IMPORTANT! THE GALVANIZED WASHERS MUST BE INSTALLED TO ENSURE PROPER GUIDE EXPANSION IN EVENT OF FIRE.

NOTE: THIS FIRE DOOR IS DOWNWARD EXPANDING. IT IS NECESSARY TO SET THE GUIDES OFF THE FLOOR THE REQUIRED EXPANSION CLEARANCE PER THE INSTALLATION DRAWING PROVIDED.



Using a string and a level, ensure that the guides are parallel to each other and shim at the wall as required. Now install the remaining bolts (for welding of guides see next page). Install the back stop bars (see Step 8).



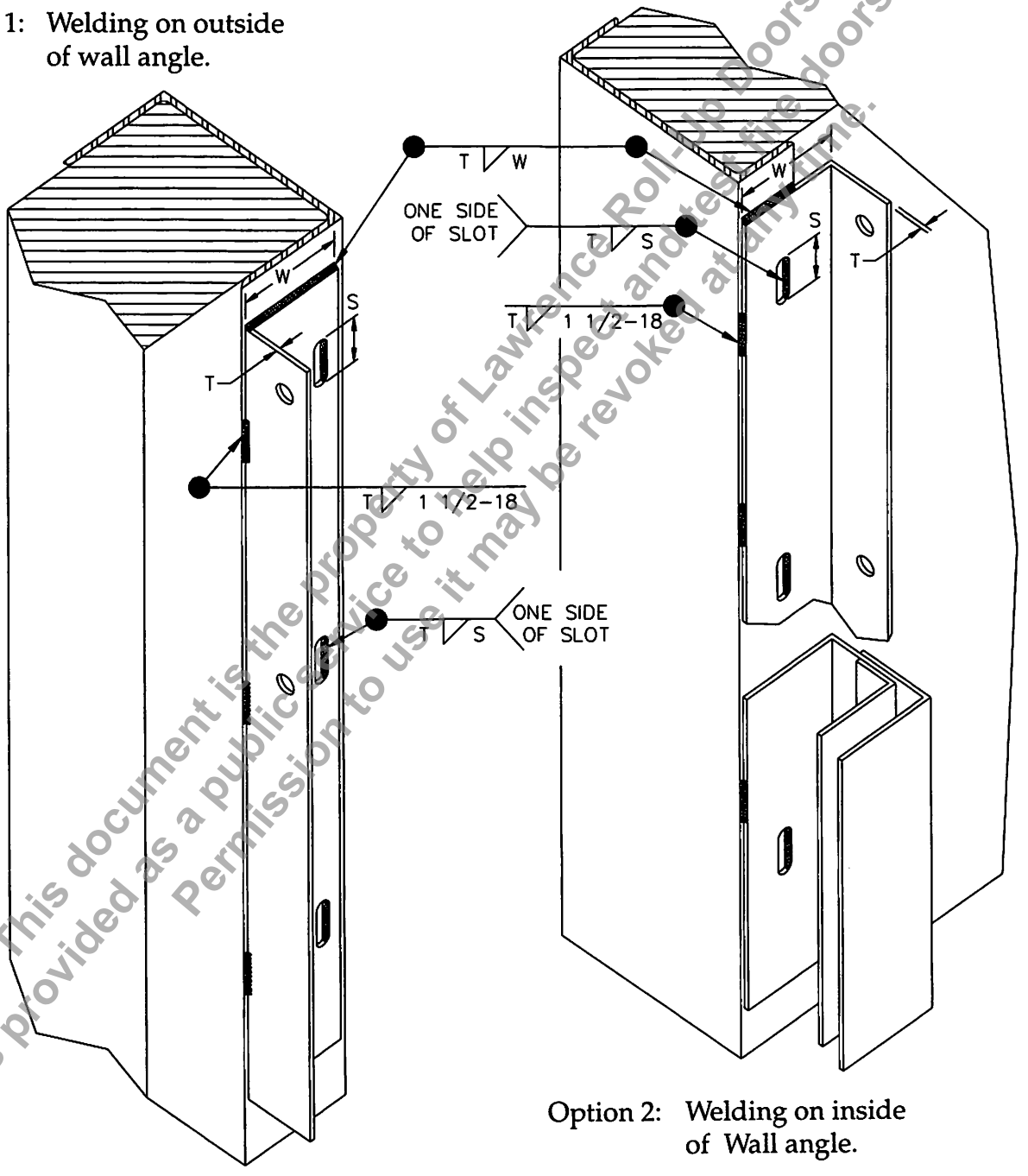
Alternate Welding of Guides to Steel

On jambs with steel channel, welding of the guides is an approved method of installation providing it is done following the procedures set forth in this manual.

NOTE: WELDING OF GUIDES IS APPROVED FOR U.L. RATED DOOR ONLY - NOT APPROVED FOR F.M. RATED DOORS.

IMPORTANT! THE INSTRUCTIONS LISTED BELOW MUST BE FOLLOWED CLOSELY. FAILURE TO DO SO MAY CAUSE THE DOOR TO BE INOPERATIVE IN THE EVENT OF A FIRE!

Option 1: Welding on outside of wall angle.



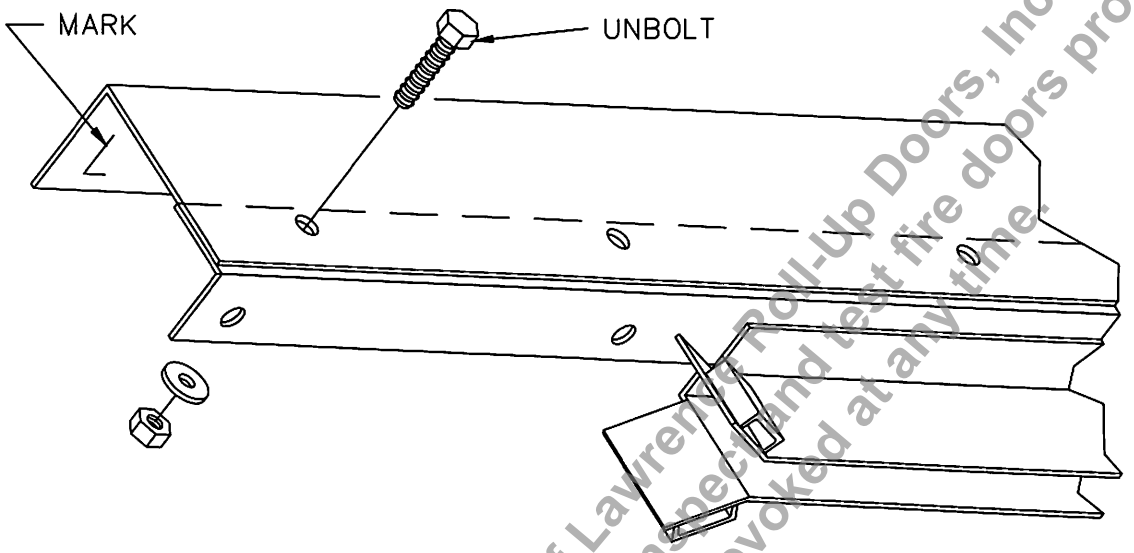
Option 2: Welding on inside of Wall angle.

Use E6010/E6011 electrodes or electrodes of equivalent strength. All welding to be done "vertical up" (i.e. starting from the base of an individual weld and welding upwards). Use fillet welds based on the information provided above.

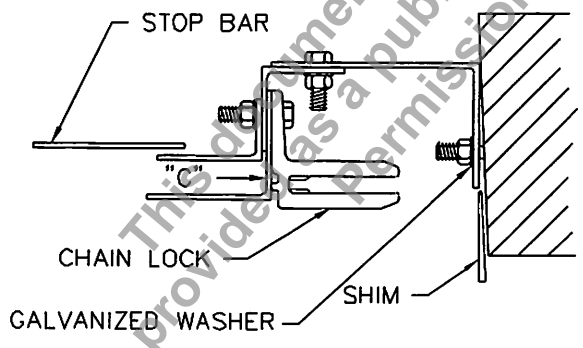
Between Jambs Mounted Doors

Unbolt the fourth angle (sometimes called the "packout" angle) from the three angle guide assembly (if supplied by factory).

NOTE: THE EXTRA ANGLES ARE SELDOM THE SAME SIZE (RIGHT AND LEFT) AND AFTER UNBOLTED MUST BE RE-ATTACHED TO THE CORRECT SIDE. MARK THE ANGLE "L" OR "R" ON THE ANGLE LEG THAT MOUNTS TO THE WALL.



IMPORTANT! HARDWARE AND BOLT SPACING REQUIREMENTS ARE DETERMINED BY DOOR SIZE. SPECIFIC INFORMATION ON PROPER HARDWARE IS LOCATED ON HARDWARE BILL WHICH IS IN HARDWARE BAG. GUIDE MOUNTING HOLES ARE PREDETERMINED AND PUNCHED AT THE FACTORY, SO MAKE SURE EACH HOLE IS FILLED WITH THE PROPER BOLT SUPPLIED WITH DOOR.



Guides that mount between the jambs install very similarly to face mounted doors. Follow the steps for face mounted doors except the "wall angle" is now the fourth or "packout" angle. Now reattach the guide assemblies to the packout angles. Next install the back stop bars (see Step 8).

NOTE: VERY OFTEN ROUGH OPENINGS ARE NOT SQUARE. HOLD THE "C" DIMENSION AND SHIM THE PACKOUT FROM THE WALL AS REQUIRED.

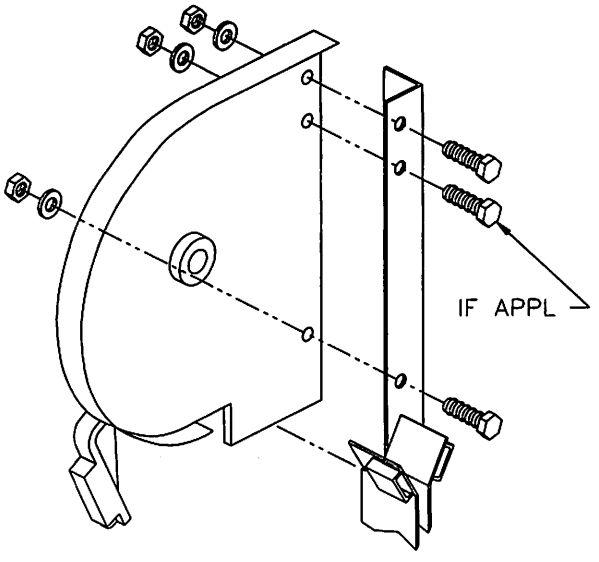
IMPORTANT! THE GALVANIZED WASHERS MUST BE INSTALLED TO ENSURE PROPER GUIDE EXPANSION IN EVENT OF FIRE.

Chain Lock Mounting

Once guides are completely installed, mount chain lock on operator side of the door, 3'-5' above finished floor, using guide assembly bolt.

Step 3: Bracket Installation

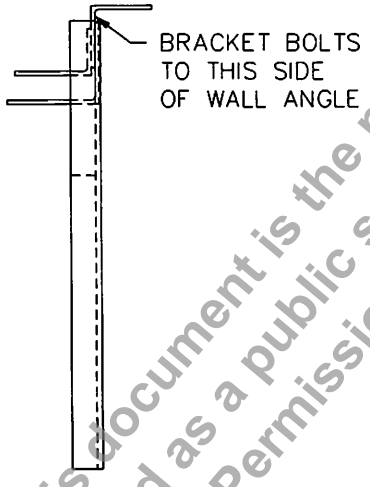
⚠ WARNING - BRACKET ASSEMBLIES ON LARGER DOORS CAN BE EXTREMELY HEAVY. PERSONS WITH BACK PROBLEMS OR OTHER PHYSICAL CONDITIONS WHICH MAY LIMIT THEM FROM LIFTING HEAVY OBJECTS SHOULD NOT PERFORM THIS NEXT STEP.



For your convenience, the adjuster bracket is shipped from the factory with some components temporarily wired to the bracket. The installation of these components is described later in Step #7: Adjusting Wheel and Release Mechanism. Remove these components now before proceeding.

Lift the adjuster side bracket assembly (this will be the one with the least amount of components mounted to it) to the holes provided at the top of the wall angle.

NOTE: THE BRACKET INSTALLS ON THE (OUTSIDE OF) WALL ANGLE ON THE SIDE AWAY FROM THE CLEAR OPENING.



IMPORTANT! INSTALL THE BRACKET BOLTS FROM THE INSIDE SO THAT THE NUTS ARE ON THE OUTSIDE OF THE WALL ANGLE TO KEEP BOLTS FROM INTERFERING WITH CURTAIN.

Some brackets are symmetrical and therefore have more holes in them than the wall angle. Doors using the 14" bracket assembly that are less than 13'6" wide and 12' high only require (2) bracket mounting bolts.

IMPORTANT! OVERSIZE (LARGER THAN 13'6" WIDE OR 12' HIGH OPENINGS) FIRE DOORS REQUIRE A MINIMUM OF (3) BRACKET MOUNTING BOLTS.

To insure proper operation, the operating bracket is shipped from the factory with its components completely assembled to a temporary shaft. This shaft must be disassembled, noting carefully the relationship of all components and their location to be reassembled in reverse order during Step #5: Governor and Operator Mechanism Installation. To prepare the operating bracket for installation, remove the temporary shaft by removing the two bolts holding the shaft to the bracket plate and all components mounted to this temporary shaft.

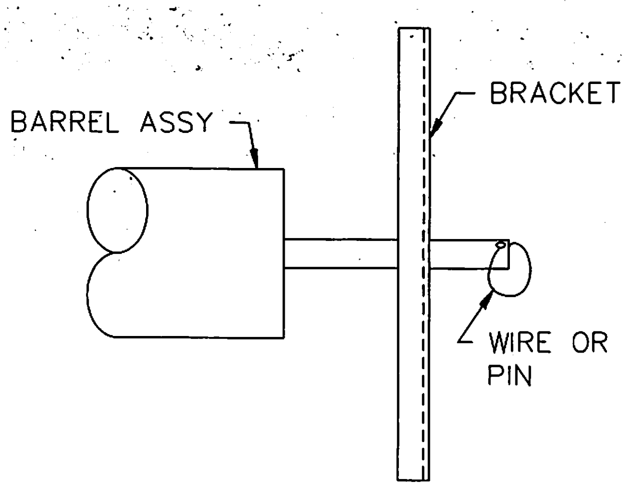
⚠ CAUTION - DISCARD THESE TWO BOLTS IMMEDIATELY TO AVOID THEIR REUSE. REUSING THESE TWO BOLTS MAY RESULT IN THE MALFUNCTION OF DOOR. USE ONLY APPROVED BOLTS FOUND IN THE HARDWARE BAG ATTACHED TO THE BRACKET.

Reattach the bearing and bearing holder with the proper bolts which can be found in the plastic hardward bag attached to the bracket.

Do not yet install the operating bracket. If it is installed now the barrel assembly will not be able to be installed.

Step 4: Counterbalance (Barrel) Assembly Installation

Slide the remaining bracket onto the barrel assembly shaft (if the adjuster side bracket is already on the guides, this will be the shaft **WITHOUT** the flat part).



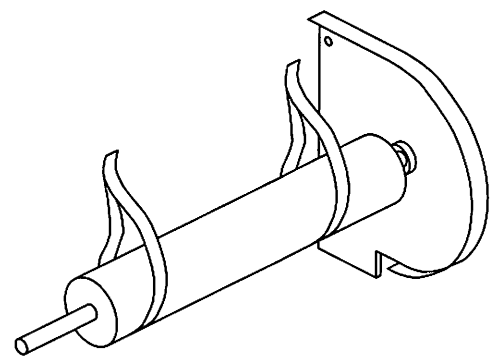
⚠ WARNING - PARTS ARE DESIGNED FOR A SLIDING FIT. TEMPORARILY AFFIX THE BRACKET TO THE BARREL ASSEMBLY TO PREVENT IT FROM SLIDING OFF DURING LIFTING.

Using a chain hoist, fork truck or some leverage, determine the center of gravity of the barrel assembly with the bracket on it.

⚠ WARNING - GENERALLY THE SPRINGS ARE CLOSER TO THE ADJUSTER SIDE. THE PIPE ASSEMBLY ITSELF WILL BE HEAVIER TOWARD THAT SIDE.

Using the chart below, verify that the lifting capacity of the hoist or fork truck exceeds the weights given for the barrel assemblies listed below:

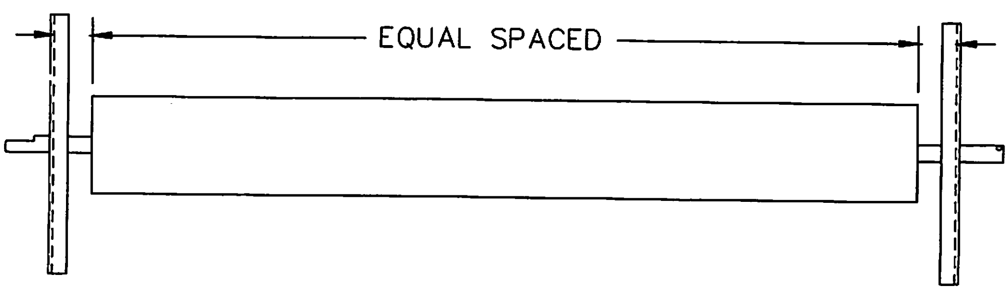
Opening Width	Opening Height 8	10	12	16	20	24
8	105	110	130			
10	125	135	155			
12		160	200	255		
16			350	450	740	865
20				565	1200	1300
24				1110	1510	1950



Lift the whole assembly into place, sliding the shaft into the hole in the bracket assembly previously installed. Next install the remaining bracket to the guide wall angle as described in Step 3.

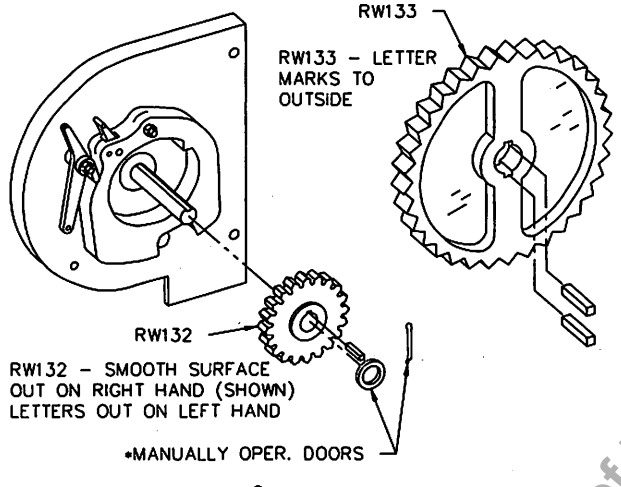
⚠ WARNING - DO NOT REMOVE HOIST UNTIL ALL BRACKET BOLTS ARE INSTALLED AND SECURE.

Center the barrel assembly between the two brackets.



Step 5: Governor and Operator Mechanism Installation

Slide the retaining wheel onto the drive shaft with the letter marking on the outside and center it with the governor ring. **NOTE: THESE PARTS ARE MATCHED AT THE FACTORY AND ARE IDENTIFIED AS PAIRS. IF THERE IS MORE THAN ONE DOOR ON THE ORDER, VERIFY THE LETTER MARKING ON THE RETAINING WHEEL MATCHES THAT ON THE GOVERNOR RING.** Measure the distance from the retaining wheel hub to the bearing to determine the amount of $1/16$" thick washers required. Remove the retaining wheel and install the washers as required. Reinstall the retaining wheel.

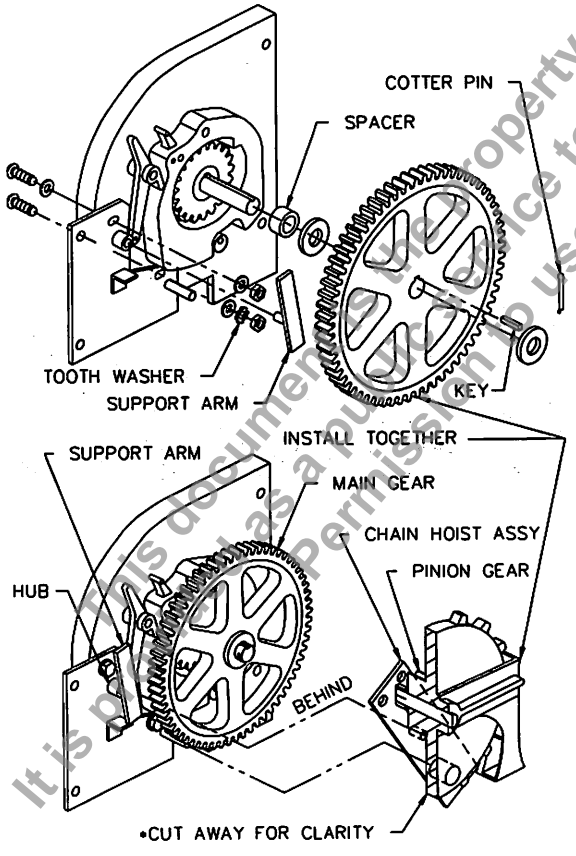


NOTE: THE WASHERS ENSURE THE RETAINING WHEEL WILL FULLY ENGAGE THE GOVERNOR RING WHEN ACTIVATED AND KEEP IT FROM INTERFERING WITH THE BEARING BOLTS.

Next install the key (two keys on larger fire doors) into the keyway. The key should go through the hub so that the outside is flush with the hub. If door is manually operated, install cotter pin in drive shaft and go to Step 6.

Mechanically Operated Doors: 14" Bracket (for awning crank operated doors see supplemental sheet)

Install the operator mounting plate using the two button head bolts provided with the nuts on the **OUTSIDE** of the bracket (do not tighten yet). Install support arm onto mounting plate assembly with the **LONG ARM UP** (see note below). Install spacer and washer on drive shaft. Slide the main gear onto the drive shaft and the hoist assembly onto the mounting plate assembly **TOGETHER.** Install key. Install washer on outside of gear then install cotter pin. Slide the hoist assembly on the rest of the way and install cotter pin.

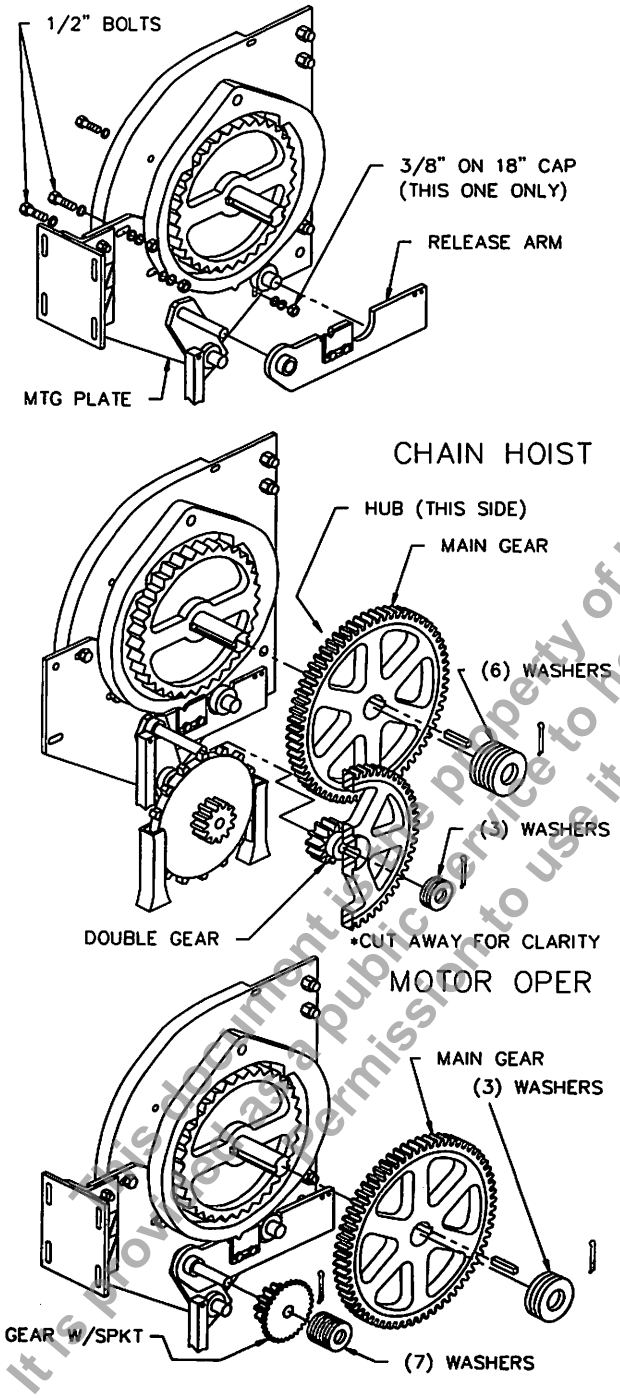


NOTE: THE PIN ON THE BACK OF THE HOIST ASSEMBLY GOES BEHIND THE SHORT LEG OF THE SUPPORT ARM. THE HOIST ASSEMBLY MUST SLIDE ALL THE WAY ON TO ENSURE PROPER ENGAGEMENT OF THE GEARS.

⚠ WARNING - KEEP HANDS, ARMS AND CLOTHING FREE OF MESHING GEARS. MECHANISM AND GEARS MOVE FREELY AND QUICKLY SO THAT THEY COULD CAUSE SERIOUS INJURY.

Lift governor pawl and verify gears will engage. Temporarily tie or clamp pawl to keep gears engaged. Adjust mounting plate as required and tighten bolts. On motor operated doors, install the power unit support to the inside of the mounting plate, using the two button head bolts provided.

NOTE: THE BOLT HEADS MUST BE ON THE OUTSIDE TO PREVENT INTERFERENCE WITH THE PIVOT ARM ASSEMBLY ROTATING.

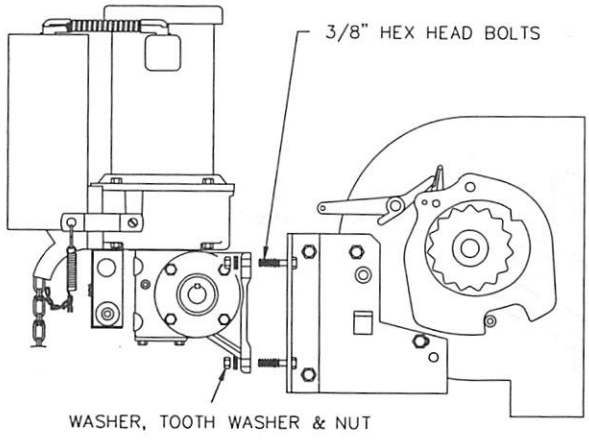


18" or 22" Bracket Assembly

Install the release mechanism assembly onto the bracket using the three bolts provided with the nuts to the **OUTSIDE** of the assembly. Slide the release arm assembly onto the shaft of the mounting plate assembly so that the engagement slot is toward the wall. Verify this part will rotate freely. Next install the double gear (or gear w/sprocket assembly on motor operated doors) onto the same shaft as the release arm assembly and install washers and cotter pin. Lift release arm so that the bearing on the mounting plate fits into the engagement slot on the release arm assembly and governor ring fits into "V" notch on release arm assembly (adjust as required). Temporarily tie or clamp release arm to keep gears engaged. Tighten nuts holding the mounting plate assembly to the bracket assembly.

⚠ WARNING - KEEP HANDS, ARMS AND CLOTHING FREE OF MESHING GEARS. MECHANISM AND GEARS MOVE FREELY AND QUICKLY SO THAT THEY COULD CAUSE SERIOUS INJURY.

Motor Operator Installation



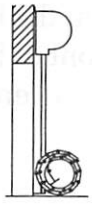
⚠ WARNING - PERSONS WITH BACK PROBLEMS OR OTHER PHYSICAL CONDITIONS WHICH MAY LIMIT THEM FROM LIFTING HEAVY OBJECTS SHOULD NOT PERFORM THIS NEXT STEP. MOTOR OPERATOR WEIGHT CAN EXCEED 150 LBS.

Lift motor operator into position and install the four bolts provided with the heads to the inside of the support. Slide motor (up) so that it is at the closest position to the driven sprocket.

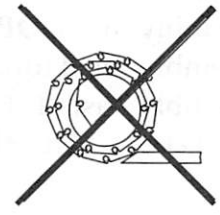
Install roller chain and master link. Loosen the nuts holding motor operator slightly so that the weight of the motor will tighten the roller chain.

Step 6: Curtain Assembly Installation

Position the curtain assembly parallel with the door opening so that the top attachment slat is in front of the rest of the curtain (the hinged part away from the opening).



⚠ CAUTION - DO NOT ATTEMPT TO SLIDE FORKS OF LIFT TRUCK DIRECTLY BETWEEN FLOOR AND CURTAIN. PERMANENT DOOR DAMAGE MAY RESULT.



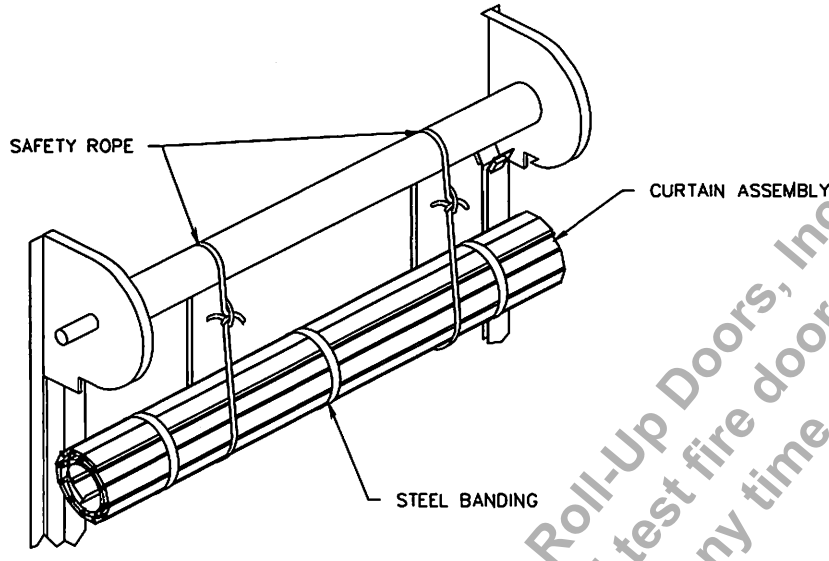
Using the chart below, verify that the lifting capacity of the hoist or fork truck exceeds the weights given for the curtain assemblies listed below :

Opening Width	Opening Height 8	10	12	16	20	24
8	210	250	285			
10	260	305	355			
12		365	420	620		
16			650	875	1025	1200
20				1050	1290	1500
24				1780	2130	2500

*This chart is based on standard products. Upgraded steel gauge or unusual mounting conditions do not apply. In event that the opening falls in between sizes, use the next higher size up.

⚠ WARNING - THE CURTAIN MUST BE SECURELY ATTACHED TO THE LIFTING MECHANISM. OTHERWISE, THE CURTAIN COULD FALL CAUSING SEVERE INJURY OR DEATH.

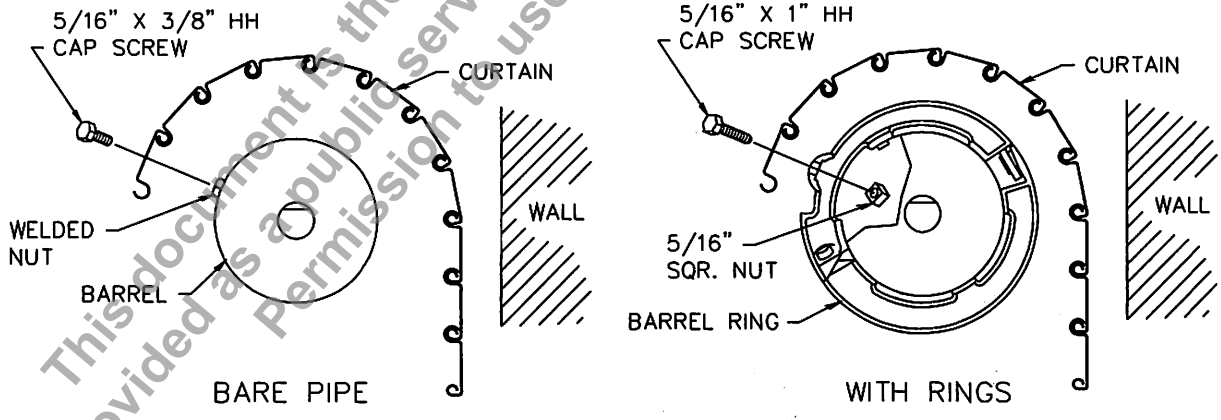
Tie safety ropes around barrel assembly and curtain (one for each 6' of door width, with at least two per door). Lift curtain (centered between guide assemblies) to approximately one foot below the barrel assembly.



Remove steel banding around curtain assembly.

⚠ WARNING - BANDING IS UNDER TENSION. WEAR EYE PROTECTION AND DO NOT STAND IN FRONT OF BANDING WHEN CUT.

Using chain hoist or emergency hoist (or safety ropes on manually operated doors), rotate barrel assembly in the **OPPOSITE** direction curtain uncoils as indicated on the "rev tag" on the barrel assembly. Feed top slat around back side of barrel assembly until top slat is out in front of barrel assembly. Install the top slat attachment bolts (and nuts) verifying that the curtain is centered **BETWEEN THE BRACKETS**.

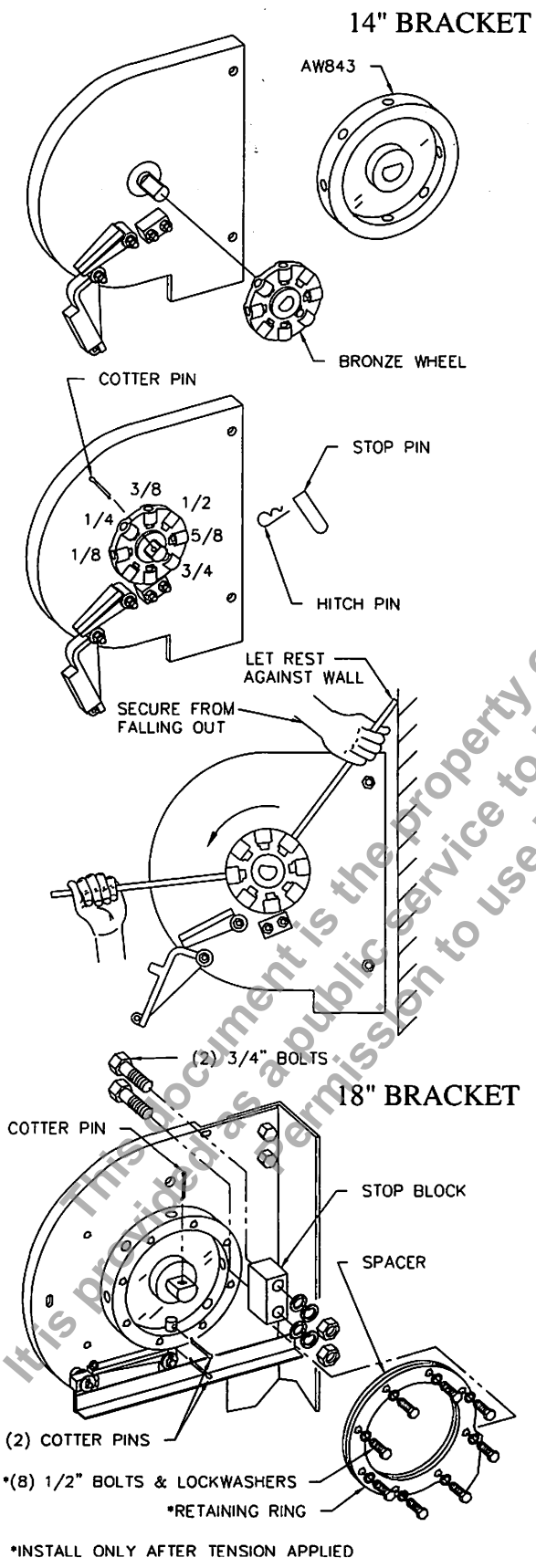


Continue rolling the curtain up around the barrel assembly until all the curtain is coiled on the barrel assembly. Clamp or block the guide assembly approximately 6" down from the top of the guides. Loosen the safety ropes enough to let the curtain feed into the guide grooves.

⚠ WARNING - NO TENSION HAS YET BEEN APPLIED TO THE DOOR. IF CURTAIN IS ALLOWED TO ROTATE AND FREE FALL, SEVERE INJURY OR DEATH COULD RESULT.

Step 7: Adjusting Wheel and Release Mechanism

Slide the adjusting wheel onto the flat of the shaft. By hand, rotate the adjusting wheel both directions to determine the neutral point of the spring counterbalance.



Install the cotter pin in the shaft outside of the adjusting wheel.In the direction the curtain **UN-COILS**, count around the adjusting wheel the fractional amount of the prescribed initial revs as noted on the "rev tag" and on the installation drawing. Insert the stop pin into the adjusting wheel at this location and install hitch pin(s) in hole(s).

⚠ WARNING - DURING RELEASE ADJUSTING WHEEL SPINS VERY QUICKLY AND FAILURE TO PIN STOP PIN OR ADJUSTING WHEEL COULD CAUSE STOP PIN TO FLY OUT OR ADJUSTING WHEEL TO COME OFF CAUSING INJURY TO PERSONNEL.

Using approved winding bar (per tool list in front of manual), wind the adjusting wheel in the direction as the door would turn as it coils up (opposite the direction of the arrow on the "rev tag".

⚠ WARNING - WINDING BAR MUST FIT SNUGLY INTO HOLES IN ADJUSTING WHEEL. DO NOT USE LOOSE FITTING BAR OR SCREWDRIVER WHICH COULD COME LOOSE AND CAUSE INJURY.

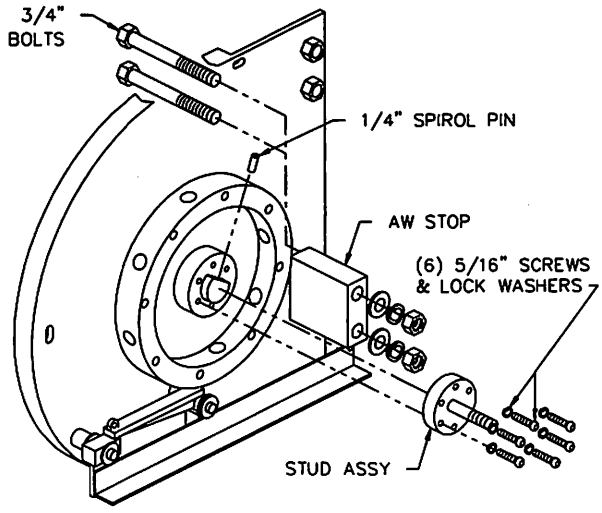
After winding the prescribed amount of initial tension on the springs, temporarily but securely tie back or clamp release arm in place.

18" Bracket Without Friction Brake
(for doors with brake wheel, see Step 7b)

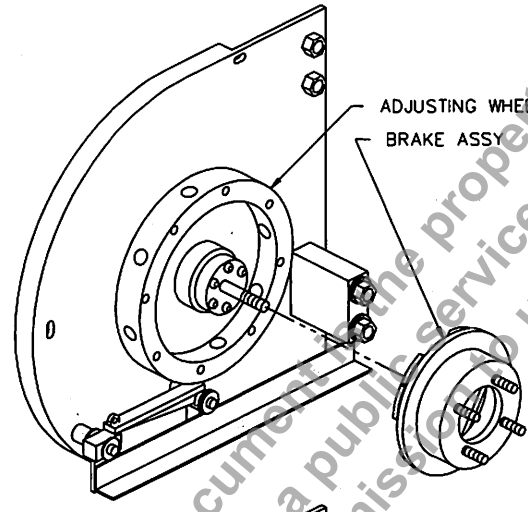
Install the AW stop block on the bracket using the two $^3/_4$" diameter bolts and nuts provided, with the nuts on the **OUTSIDE** of the bracket assembly. Next install the stop ring so that the flange part is just beneath the stop block. Tighten all eight $^1/_2$" diameter screws. **NOTE: THESE SCREWS MAY NEED TO BE REMOVED FOR ADJUSTMENT AT A LATER TIME. DO NOT WELD.**

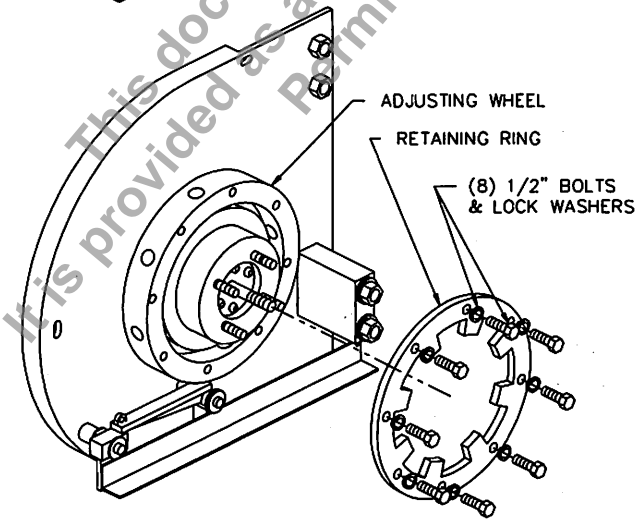
Step 7b: Release Mechanism With Friction Brake

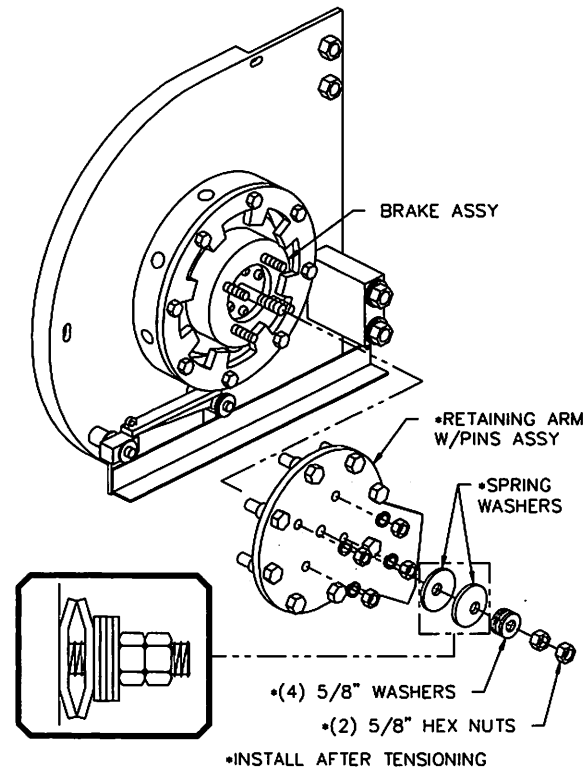
Some 18" bracket assemblies and all 22" bracket assemblies have a rotor and disc brake to decrease the speed of the adjusting wheel when tension is released and lessen the amount of shock load transferred (if your door does not have a brake, then go back to Step 7).



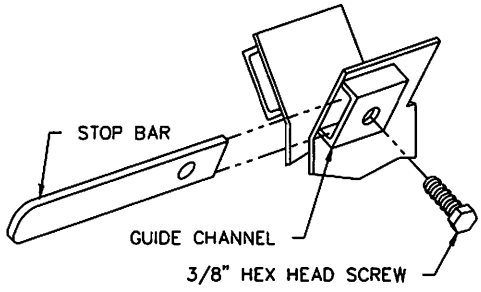
Install the AW stop block on the bracket using the two ¾" diameter bolts and nuts provided, with the nuts on the **OUTSIDE** of the bracket assembly. Bolt the AW stud assembly to the adjusting wheel using the six 5/16" diameter screws provided. Slide the friction brake assembly into the adjusting wheel with the brake pads against the adjusting wheel. **NOTE: TENSION MUST HAVE BEEN APPLIED AT THIS POINT.** Bolt the retaining ring to the adjuster using the eight $^1/_2$" diameter bolts provided. Slide the retaining arm with pins assembly onto the studs of the friction brake so that the stop arm is just beneath the AW stop block and install the four $^1/_2$" diameter nuts. Install the two spring washers onto the center $^3/_8$" diameter stud of the stud assembly followed by $^3/_8$"diameter washers and nuts. **NOTE: THE SPRING WASHERS MUST BE INSTALLED WITH HOLES AWAY FROM EACH OTHER.**







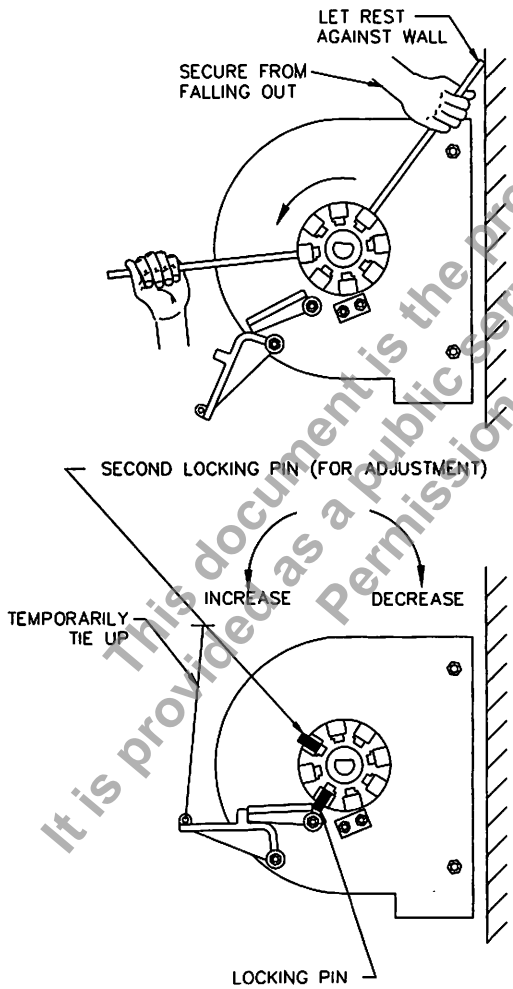
Step 8: Stop Bar Installation



With the curtain in the guide grooves and the bottom bar angle below the top of the guide, insert the stop bar into the channel at the stop of the guide. Using the $^3/_8$" diameter hex head bolts provided, secure the stop bar to the guide. Install the back stop bars prior to the curtain installation, the remaining after. Prior to Step 9 remove the safety ropes and clamps or blocks at the top of the guides.

Step 9: Adjusting the Tension

The amount of initial revs as indicated on the installation drawing and on the barrel "rev tag" is a **STARTING PLACE** for the actual spring tension that may be required. Due to variances in steel, springs, friction, etc. the indicated revs are a **THEORETICAL** value. In most cases this will be correct, but sometimes an adjustment may be necessary. The easiest way to adjust door tension is with the door in the UP position.



If the door does not stay in the open position, increase the amount of tension. Using an approved winding bar (per tool list in front of manual), wind the adjusting wheel in the direction as the door would turn as it coils up (opposite the direction of the arrow on the "rev tag").

⚠ WARNING - WINDING BAR MUST FIT SNUGLY INTO HOLES IN ADJUSTING WHEEL. DO NOT USE LOOSE FITTING BAR OR SCREWDRIVER WHICH COULD COME LOOSE AND CAUSE INJURY.

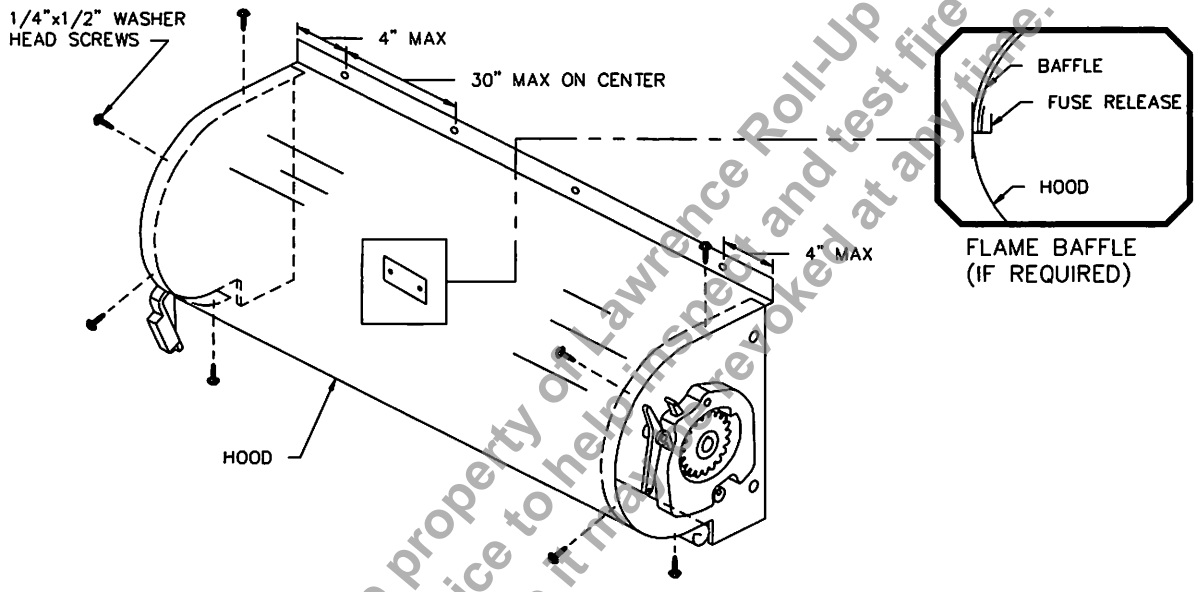
IMPORTANT! ONLY PUT ON OR TAKE OFF ENOUGH TENSION TO KEEP THE DOOR FROM FALLING. TOO MUCH INITIAL TENSION WILL PREVENT THE DOOR FROM DROPPING WHEN TENSION IS RELEASED.

If the door is hard to pull down or jumps off the floor, decrease the amount of tension. Using an approved winding bar (per tool list in front of manual), wind the adjusting wheel in the direction as the door would turn as ituncoils (the same direction of the arrow on the "rev tag"). Once door is "balanced" in the open position, reattach temporary tie back or clamp to keep release arm engaged.

Step 10: Hood Installation

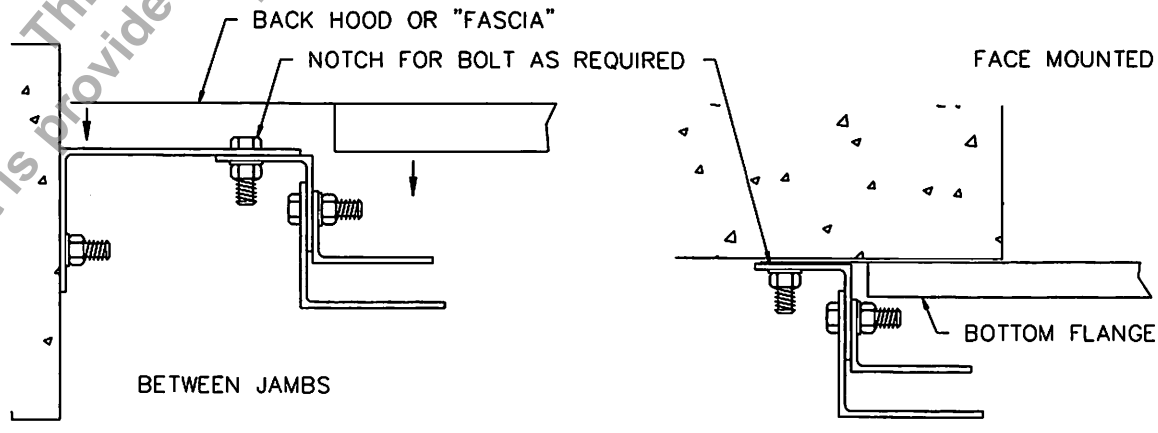
Hoods over 14' 6" long require the use of intermediate supports that are on the **OUTSIDE** of the hood. These are bolted to the hood using screws from the **INSIDE** of the hood. Some fire door hoods are equipped with a flame baffle inside the hood but U.L. does not require it. Raise the front hood and set over the flanges on the bracket assemblies. Fasten hood to brackets using the 1/4" diameter self-tapping washer head screws provided. Fasten hood securely to the wall using the fasteners provided.

⚠ CAUTION - NFPA 80 DOES NOT APPROVE THE USE OF LEAD ANCHORS ON ROLLING FIRE DOOR INSTALLATIONS.



Step 10b: Fascia/Back Hood Installation

Between jamb doors and some face mounted doors often require the use of a fascia on the back of the coil to cover the curtain assembly. Install the fascia onto the outermost angle on between jambs mounted doors and between the wall angle and the wall on face mounted doors. It may be necessary to cut a notch where the top one or two guide bolts are installed.



Step 11: Fusible Links and Cable Routing

Fusible links are designed to melt in the event of a fire and are shipped in a package with the door. The links must be located in such a way that they will be exposed to any fire that may be inside the building.

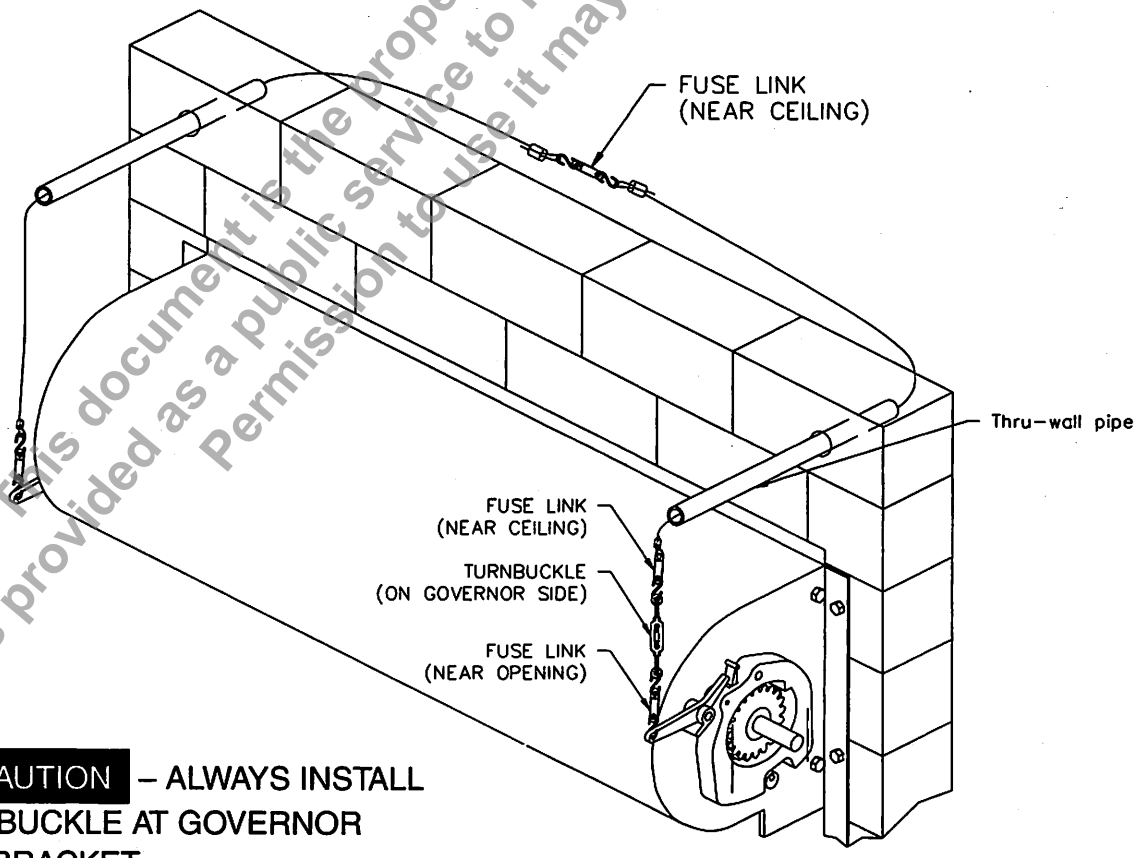
IMPORTANT! THE LEVERS AT BOTH ENDS MUST DROP REGARDLESS OF WHICH CONNECTION IN THE CABLE SEPARATES.

⚠ CAUTION - PER NFPA 80 FUSIBLE LINKS MUST BE LOCATED NO MORE THAN 18 INCHES BELOW THE CEILING ON BOTH SIDES OF THE DOOR OPENING, AND NEAR THE DOOR OPENING ON THE SIDE THE DOOR IS MOUNTED. STANDARD FUSE LINKS ARE RATED 165°F, SO MAKE SURE THIS TEMPERATURE IS COMPATIBLE WITH OTHER FIRE SYSTEMS.

In addition to fusible links, some codes and construction will require the door to be integrated into the building's fire alarm system. This can be done with electro-mechanical devices such as the WayneGuard™. For such devices, see the installation instructions included with them.

Generally any fusible link must be at least 6" away from any fixed point (ex: turnbuckle, pulleys etc.) or sufficient enough that the drop out mechanism and tension release arm can swing down (see Appendix D for additional information).

IMPORTANT! A FUSE LINK HOUSING IS REQUIRED IF A DROP CEILING EXISTS ABOVE THE DOOR OPENING IN ORDER TO COMPLY WITH THE PROVISIONS OF NFPA 80 AND IN ORDER TO KEEP THE FUSE LINK EXPOSED TO THE HEAT OF A POTENTIAL FIRE, RATHER THAN BEING LOCATED ABOVE THE DROP OR FALSE CEILING.



⚠ CAUTION – ALWAYS INSTALL TURNBUCKLE AT GOVERNOR SIDE BRACKET

Step 12: Test Drop Procedure

Prepare to Drop

IMPORTANT! PRIOR TO DROPPING ENSURE DOOR OPERATES FREELY AND PROPERLY IN NORMAL OPERATION.

Install a second locking pin in the adjusting wheel winding hole next to the one against the release lever toward the wall on top. Install hitch pin(s) in hole(s). Spread one loop of the "S" hook on the governor release lever. While holding lever up, slide "S" hook out from release lever. The fire door is now poised to drop.

⚠ WARNING - TO PREVENT INJURY, ALWAYS TEST DROP FROM THE GOVERNOR SIDE OF THE DOOR IN ORDER TO AVOID ALL CONTACT WITH THE ADJUSTING WHEEL. THE ADJUSTING WHEEL HAS STORED ENERGY AND IS RELEASED SUDDENLY IN A TEST DROP.

Drop the Door

⚠ WARNING - ROPE OFF OPENING TO KEEP PERSONS FROM ENTERING AREA DURING TEST DROP. ENSURE ALL PERSONS ARE KEPT CLEAR OF THE OPENING. DOOR DESCENDS RAPIDLY DURING TEST PROCEDURE AND COULD CAUSE SEVERE INJURY.

⚠ CAUTION - KEEP OPENING FREE OF OBJECTS AND DEBRIS. DOOR COULD STRIKE SUCH OBJECTS CAUSING INJURY OR DOOR DAMAGE.

Allow release lever to drop freely. Record the amount of time the door takes to close and verify it falls between 6 in and 24 in per second. Observe the travel of the adjusting wheel to ensure the locking pin or stop arm is resting securely against the stop block. Raise door to fully open position several times and repeat procedure to verify it is working correctly. Complete the release form in the back of this manual and return it to the factory.

Step 13 : Resetting Procedure

Open the Door

⚠ WARNING - DUE TO RELEASE OF SPRING TENSION DOOR MAY BE EXTREMELY HEAVY. PERSONS WITH BACK PROBLEMS OR OTHER PHYSICAL CONDITIONS WHICH MAY LIMIT THEM FROM LIFTING HEAVY OBJECTS SHOULD NOT PERFORM THIS NEXT STEP.

On manually operated doors, raise the door to the open position and clamp or block open. Some doors (larger than 8'x10') may require mechanical assistance to lift open, or require rewinding a portion of the spring tension that was released (see Step 9). On mechanically operated doors, re-engage the gear mechanism by temporarily tensioning the release cable at the drive end of the door.

⚠ WARNING - KEEP HANDS, ARMS AND CLOTHING FREE OF MESHING GEARS. MECHANISM AND GEARS MOVE FREELY AND QUICKLY SO THAT THEY COULD CAUSE SERIOUS INJURY.

Proceed to raise the door using the mechanical operator. Block or clamp the door in the open position.

NOTE: ON MOTOR OPERATED DOORS IF ELECTRICAL POWER IS AVAILABLE, DEPRESS THE DOWN BUTTON PRIOR TO ENGAGING GEAR MECHANISMS. THIS WILL ELIMINATE THE NEED TO RESET THE LIMIT SWITCHES.

Retension the Springs (see Step 9, page 14 for picture representation)

⚠ WARNING - WINDING BAR MUST FIT SNUGLY INTO HOLES IN ADJUSTING WHEEL. DO NOT USE LOOSE FITTING BARS OR SCREWDRIVERS WHICH COULD COME LOOSE AND CAUSE INJURY.

Proceed to replace all initial tension by rotating the adjusting wheel in the direction the door coils UP so that the first locking pin is now just beneath the release lever.

⚠ WARNING - KEEP HANDS, ARMS AND CLOTHING FREE OF ADJUSTING WHEEL. STORED ENERGY COULD BE RELEASED SO AS TO ROTATE THE ADJUSTING WHEEL SUDDENLY WHICH COULD CAUSE INJURY.

While holding the release lever up, re-insert the "S" hook and bend the loop to prevent the hook from accidentally coming off. Ensure all cables and "S" hooks at attachment points are secure.

Restore Cable Tension

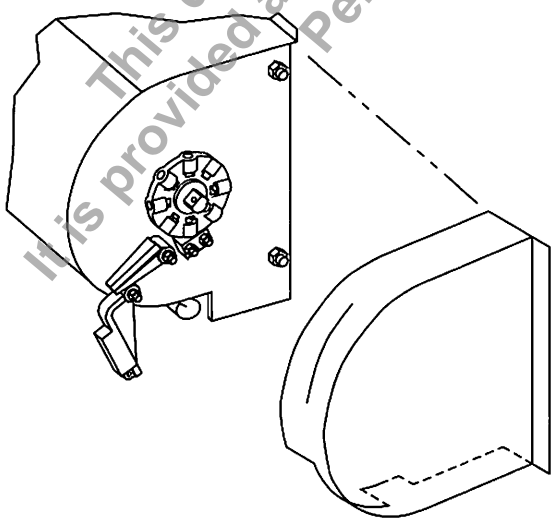
Restore adequate cable tension (by using turnbuckles provided) to keep release levers in place and to engage gears (if required).

NOTE: TOO MUCH CABLE TENSION MAY INTERFERE WITH NORMAL OPERATION OF DOOR.

Check Door Operation

Push (or operate) the door up and down several times. Observe the governor end. Listen for any ratcheting noise. If there is any noise, increase the cable tension.

Step 14: Adjusting Wheel Housing Installation



Remove the hood screws at the adjusting wheel bracket. Slide the adjusting wheel cover over the adjusting wheel mechanism with the cable and the levers going into the notches provided. Match drill holes in housing with those in hood and bracket assembly. Attach housing using same screws through both housing and hood.

Step 15: Miscellaneous Final Checklist

Apply all warning labels in the appropriate locations before leaving the installation site.

Check the area for any extra parts, and be sure these were not omitted in the installation process.

Have the customer or his representative sign off on the installation using "Rolling Fire Door Test Drop Release Form" in the back of this manual. Return a copy of test drop form to Wayne-Dalton and keep a copy in your maintenance files. Exchange all documentation and keys to locks at this time. Be sure the customer receives a copy of this manual and of the installation drawing.

If the customer is unfamiliar with the product, demonstrate the operation of the door and any optional equipment before leaving the job site.

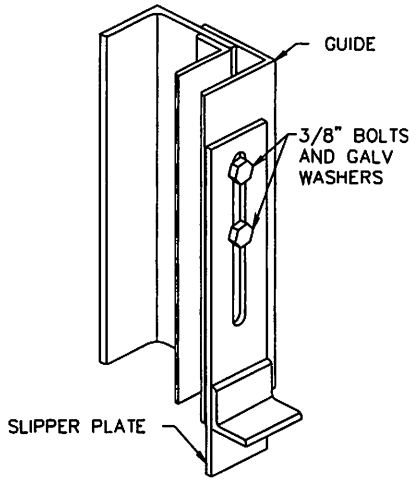
Don't leave a mess. Clean up the area and make sure the area is secure if you're the last one to leave.

Be sure to report (in writing) to the factory any complaints or recommendations the customer may register at the completion of the installation that may have a bearing on future designs.

Appendix A: Optional Components

The following are some examples of common options and adjustments for fire doors:

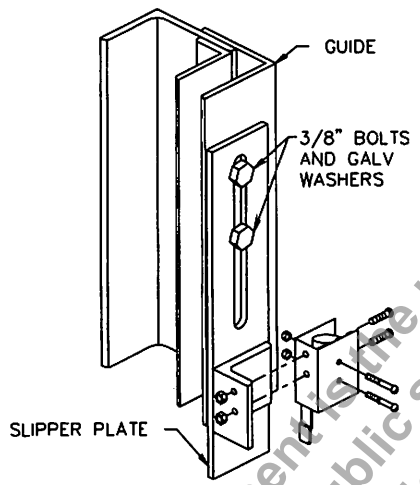
SLIDE BOLTS OR CYLINDER LOCKS



Loosen the two screws holding the slipper plate to the guide. Slide the slipper plate to the floor and re-tighten the screws.

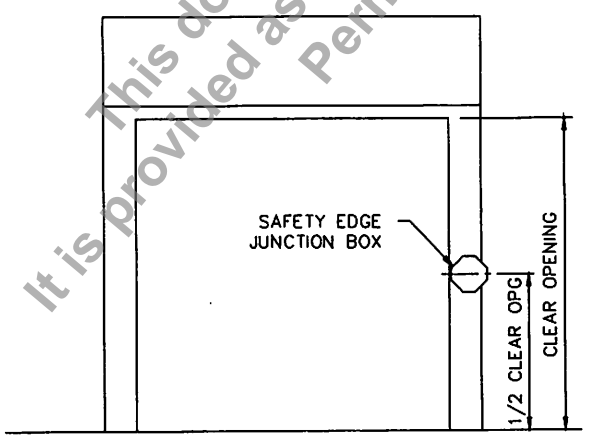
IMPORTANT! **THE GALVANIZED WASHERS MUST BE INSTALLED TO ENSURE PROPER GUIDE EXPANSION IN EVENT OF FIRE.**

ELECTRICAL INTERLOCKS



Adjust the slipper plate as described in the above step for slide bolts or cylinder locks. Remove the bolts and nuts holding the microswitch in the switch housing. Install the switch housing to the striker plate with the lever pointing down with the #10 bolts and nuts provided. Re-install the microswitch (see the wiring diagram provided with the motor operator for wiring of the electrical interlocks).

ELECTRICAL OR PNEUMATIC SAFETY EDGE



Mount the junction box to the outside of the guide angles using one of the assembly bolts.

IMPORTANT! **THE JUNCTION BOX NEEDS TO BE AT A HEIGHT OF HALF THE OPENING OR DOOR TRAVEL HEIGHT TO ENSURE THE COILED WIRE OR HOSE WILL REACH THE BOTTOM BAR WITH THE DOOR IN THE FULLY OPEN OR FULLY CLOSED POSITION.**

See the wiring diagram included with the motor operator for wiring of the electric or pneumatic safety edge.

Appendix B: Service Record

This manual is intended for the use of the installer on he job site. It is meant to be informative but not exhaustive. The final word is set out in the specifications and drawings approved by the purchaser before the door was shipped.

Wayne-Dalton doors should be installed by trained industrial door technicians. Wayne-Dalton dealers have access to technical training courses on rolling fire door products.

This space is for comments regarding maintenance and service. The installer is asked to forward a note to Wayne-Dalton of any unusual facts or damage regarding the installation or shipment. This manual should be given to the building maintenance supervisor as a guide to maintenance and future repairs.

SERVICE RECORD

DATE	DOOR #	SUMMARY OF SERVICE	BY

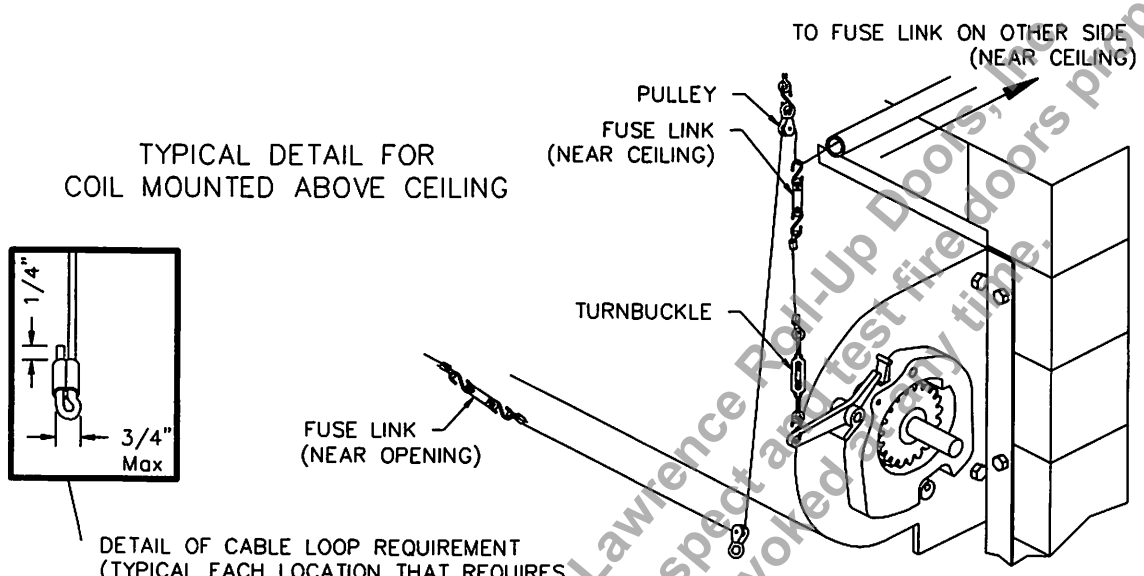
Appendix C: Troubleshooting

The chart below is a list of possible problems with the operation of the fire door. The probable causes listed are the most common, and are not meant to include ALL possibilities. With the variety of the product and the field conditions, other factors may be involved. If assistance beyond this troubleshooting chart is needed, please contact your Wayne-Dalton dealer. Factory support is available to him, should it be necessary, in order to resolve your problem.

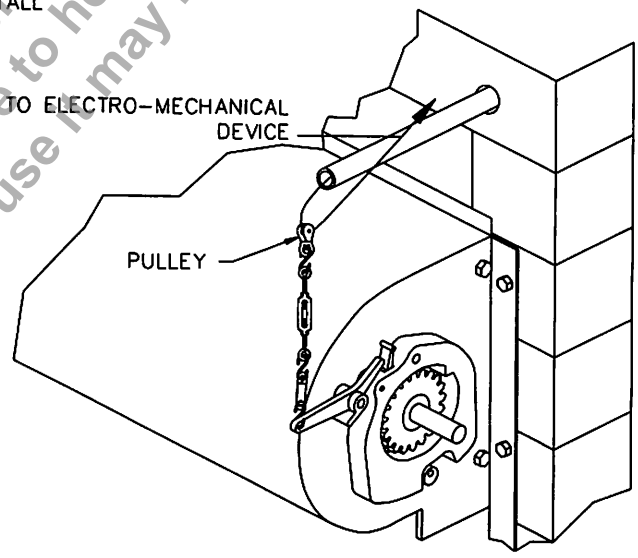
TROUBLE	PROBABLE CAUSE	REMEDY
Door raises hard, closes easily	Insufficient counterbalance	Increase spring tension (see Step 9)
Door closes hard, raises easily	Too much counterbalance	Decrease spring tension (see Step 9)
Door jumps up from floor	Too much counterbalance	Decrease spring tension (see Step 9)
Curtain runs to one side	Broken endlock Barrel not level	Check and replace Check and level barrel
Door sticks when closing	Bent guide angle(s)	Inspect for bent or Kinked guides. Straighten guides and check width of groove.
Door coil makes cracking sound	Bent slats	Inspect,remove and straighten or replace
Door squeaks when operating	Tight guides Dirty guides	Check alignment and distance between guides. Inspect and clean inside of guide. Do not lubricate with grease. Use WD-40 or silicone spray.
Door is difficult to raise, will not stay open	Broken spring	Remove barrel and replace spring.
Motor runs, door does not operate	Curtain jammed	Inspect and remove obstruction.

Appendix D: Additional Fusible Link Cabling

Below is additional details for fire doors with the coil mounted above ceiling, or a typical modification for electro-mechanical release devices.



CAUTION – ALWAYS INSTALL TURNBUCKLE AT GOVERNOR SIDE BRACKET



TYPICAL DETAIL FOR ELECTRO-MECHANICAL DEVICES

SEE STEP 11 FOR ADDITIONAL INFORMATION AS TO LOCATION OF FUSIBLE LINKS AND ADJUSTER SIDE BRACKET

ROLLING FIRE DOOR TEST DROP RELEASE FORM

Job Name _____ **Date**_____

WAYNE-DALTON CORP.

CONTRACT NO :

The rolling fire door(s) installed on he above project by_____

_____ have been properly tested in my pesence and in accordance with the Wayne-Dalton installation instructions set forth in this manual. The door(s) release automatically and come down to a fully closed position.

Quantity of Akbar®89 Fire Doors on his job _____

Door Mark(s) _____

_____

Tests Performed By:

_____

Tests Witnessed By:

_____

Title: _____

Company: _____

Date: _____

⚠ CAUTION - DOORS MUST BE MOUNTED ON U.L. AND NFPA 80 APPROVED JAMBS. WOOD STUD OR DRYWALL OVER STEEL STUD ARE NOT APPROVED WALL CONDITIONS.

NOTICE

FIRE DOOR PERIODIC TEST REQUIREMENT

This door has been installed and tested for proper operation according to procedures set forth in this manual to ensure that it performs as designed at the time of installation.

Date _____ _____

Installer

_____

Phone

To Possessor of the Premises

The installer has certified that this door has been properly installed, that it has been tested, and that it performs as designed at time of installation. From now on, you should have it inspected regularly and tested periodically for any subsequent damage or wear which might preclude it from closing properly in event of a fire.

Date: _____ Tested By: _____

_____ _____

_____ _____

_____ _____

Fire Marshall

Be aware that the local Fire Marshall is the final authority on the rigging and operation of a fire door. He may require steps not listed in NFPA 80 or these instructions.