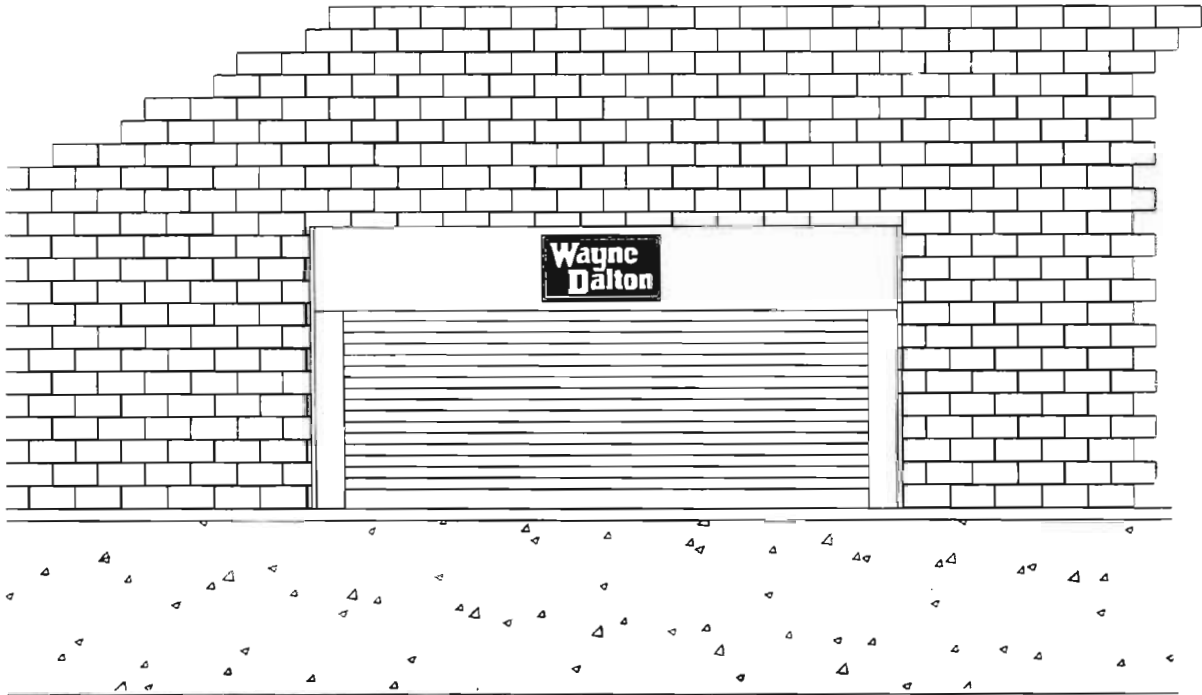




Rolling Counter Shutters

(500, 510 and 520 Series)

Installation Instructions and Operation and Maintenance Manual



IMPORTANT NOTICE !!

READ THE ENCLOSED INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO REMOVE EXISTING SHUTTER OR INSTALLING THIS SHUTTER. PAY CLOSE ATTENTION TO ALL WARNING LABELS AND THE IMPORTANT SAFETY NOTICES ON THE FOLLOWING PAGE.


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




IMPORTANT SAFETY NOTICES

[Read the enclosed instructions carefully before attempting installation. If there are any questions about any of the procedures, do not perform the work. Instead, have a qualified door agency do the installation or repairs.]

1. Operate the counter shutter ONLY when properly adjusted and free of obstructions.
2. All repair, adjustment, installation or removal of any parts, especially of adjusting wheel, is dangerous since the counter shutter is constantly under extreme spring tension and can cause severe injury or death. Such work should be performed only by qualified door service personnel.
3. Do not permit children to play with the counter shutter or electrical controls, since a child could get caught between the counter shutter and counter top causing severe injury or death.
4. If the counter shutter is now or later becomes electrically operated, any locking devices must be disengaged or electrically interlocked to prevent damage to shutter or operator.
5. Avoid having any part of the body in the opening while the counter shutter is moving, or injury could result by being caught between the counter shutter and the counter top.
6. Should counter shutter become hard to operate or completely inoperative, it is recommended that a qualified door agency correct the problem to prevent possible injuries or counter shutter damage.
7. Avoid installing exterior shutters on windy days to prevent shutter from falling and thereby causing damage or possible injury.
8. Frequently check all bolted connections to make sure they are secure during the lifetime of the shutter to prevent injuries and accidents due to loose connections.
9. To avoid injury, never place hands or fingers between the gears, chain and sprockets, while the counter shutter is being operated or severe injury could result.
10. This manual is not intended to direct "take-down" procedures of existing counter shutters. Consult your local door authority if this is required before new shutters are to be installed.
11. Thoroughly familiarize yourself with the construction codes required in the region where the counter shutter is to be installed before initiating work.
12. Wear the proper safety clothing and protective safety gear as needed.
13. Crew chiefs should consider using a 2-person (or larger) crew for larger shutters.
14. Definition of key words used in this manual are as follows:

 **WARNING** -- Indicates a potential 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 shutter operation.

NOTE: -- Information assuring proper installation of the shutter.

HINT: -- Suggested step to simplify installation based on experience.



Model 500 Rolling Counter Shutter Limited Warranty

Wayne Dalton, a division of Overhead Door Corporation ("Seller") warrants to the original purchaser of the Model 500 Rolling Counter Shutter ("Product"), subject to all of the terms and conditions hereof, that the Product and all components thereof will be free from defects in materials and workmanship for the following period(s) of time, measured from the date of installation:

- **24 MONTHS** against defects in materials and workmanship

Seller's obligation under this warranty is specifically limited to repairing or replacing, at its option, any part which is determined by Seller to be defective during the applicable warranty period. Any labor charges are excluded and will be the responsibility of the purchaser.

This warranty is made to the original purchaser of the Product only, and is not transferable or assignable. This warranty does not apply to any unauthorized alteration or repair of the Product, or to any Product or component which has been damaged or deteriorated due to misuse, neglect, accident, failure to provide necessary maintenance, normal wear and tear, acts of God, or any other cause beyond the reasonable control of Seller or as a result of having been exposed to toxic or abrasive environments, including blowing sand, salt water, salt spray and toxic chemicals and fumes.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL SELLER BE RESPONSIBLE FOR, OR LIABLE TO ANYONE FOR, SPECIAL, INDIRECT, COLLATERAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES, even if Seller has been advised of the possibility of such damages. Such excluded damages include, but are not limited to, loss of use, cost of any substitute product, or other similar indirect financial loss.

Claims under this warranty must be made promptly after discovery, within the applicable warranty period, and in writing to the authorized dealer or installer whose name and address appear below. The purchaser must allow Seller a reasonable opportunity to inspect any Product claimed to be defective prior to removal or any alteration of its condition. Proof of the purchase and/or installation date, and identification as the original purchaser, may be required.

SELLER: _____

SELLER'S ADDRESS: _____

Rolling Counter Shutter

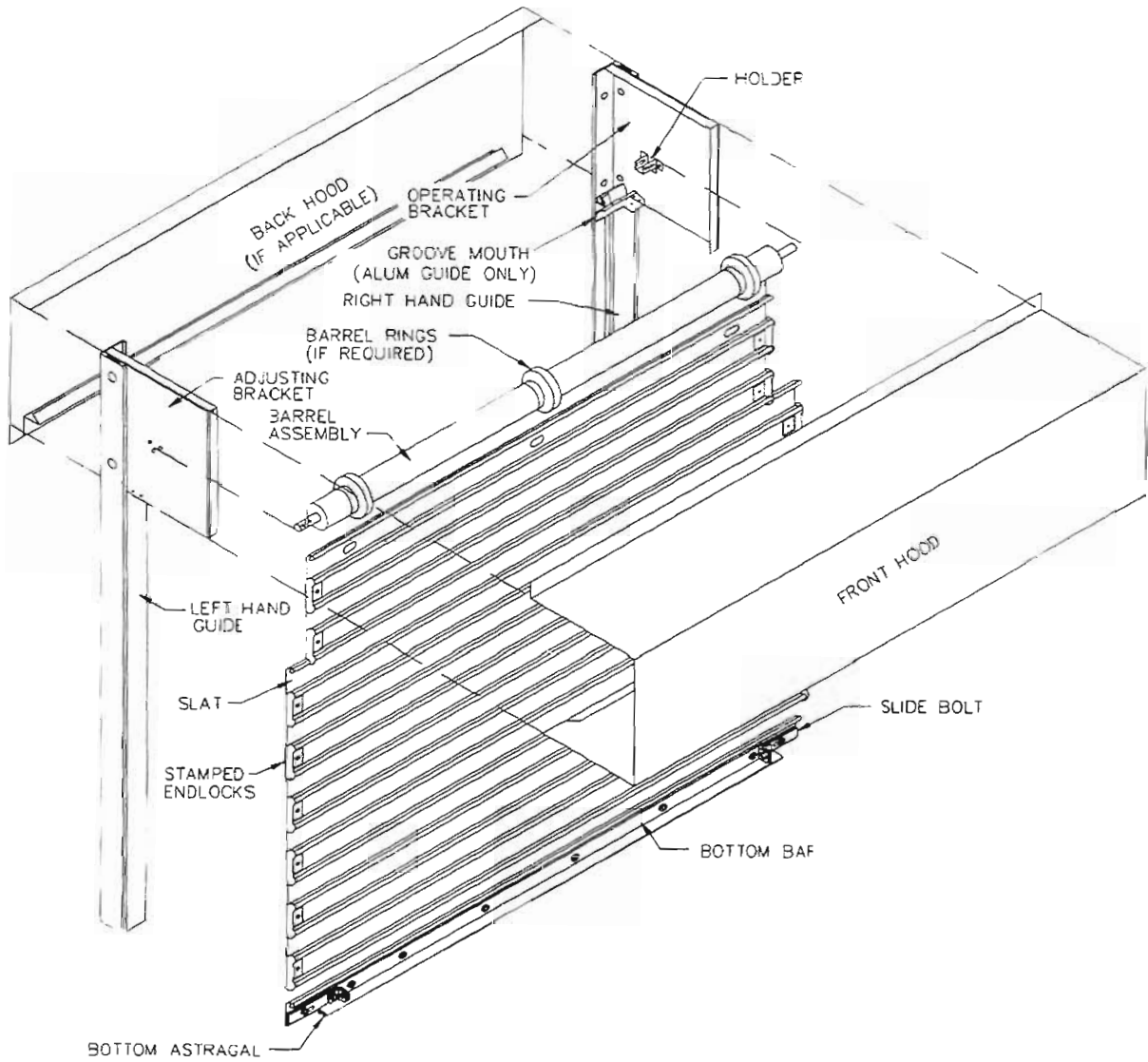


FIGURE #1

Table of Contents

	Page
About this manual	i
Preparation	i
Counter Shutter Components and Hardware	ii
Step 1 : Opening Checks	1
Step 2 : Guide Mounting	2
Step 3 : Attach Brackets to Wall Angle	7
Step 4 : Attaching Curtain to Barrel Assembly	8
Step 5 : Applying Tension	14
Step 6 : Testing Counter Shutter Balance	16
Step 7 : Installing Hood, Fascia & Hood Supports	18
Step 8 : Miscellaneous Final Checklist	19
Optional Components	Appendix A
Service Record	Appendix B
Trouble Shooting	Appendix C

INTRODUCTION

This manual's main function is to assist the installer in correctly mounting counter shutters with due regard for safety, operation, and sound construction practices. Reference should be made to construction codes in your area.

All Wayne-Dalton rolling counter shutters follow the general guidelines set forth herein. Additional installation information for each shutter shipped is found in the packing slip and supplementary drawings. There are also bolt 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 mounted or between jambs mounted).
- Method of operation (hoist, crank, motor, or push-up).
- The hand of operation determined from the coil side (right or left).
- Type of jamb (masonry or steel) on which the counter shutter guides mount and the fasteners required.
- The dimensions for the opening width, opening height, head room, and side room.

MATERIAL

Inspect your counter shutter for possible damage or shortage of parts. Report any claims or shortages 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 shutter. Be sure that the dimensions are correct for the opening you are working on. Take special note of the "C" dimension (Figure #4). **THIS DIMENSION MUST BE HELD.** Be sure the required clearances are available prior to installation.

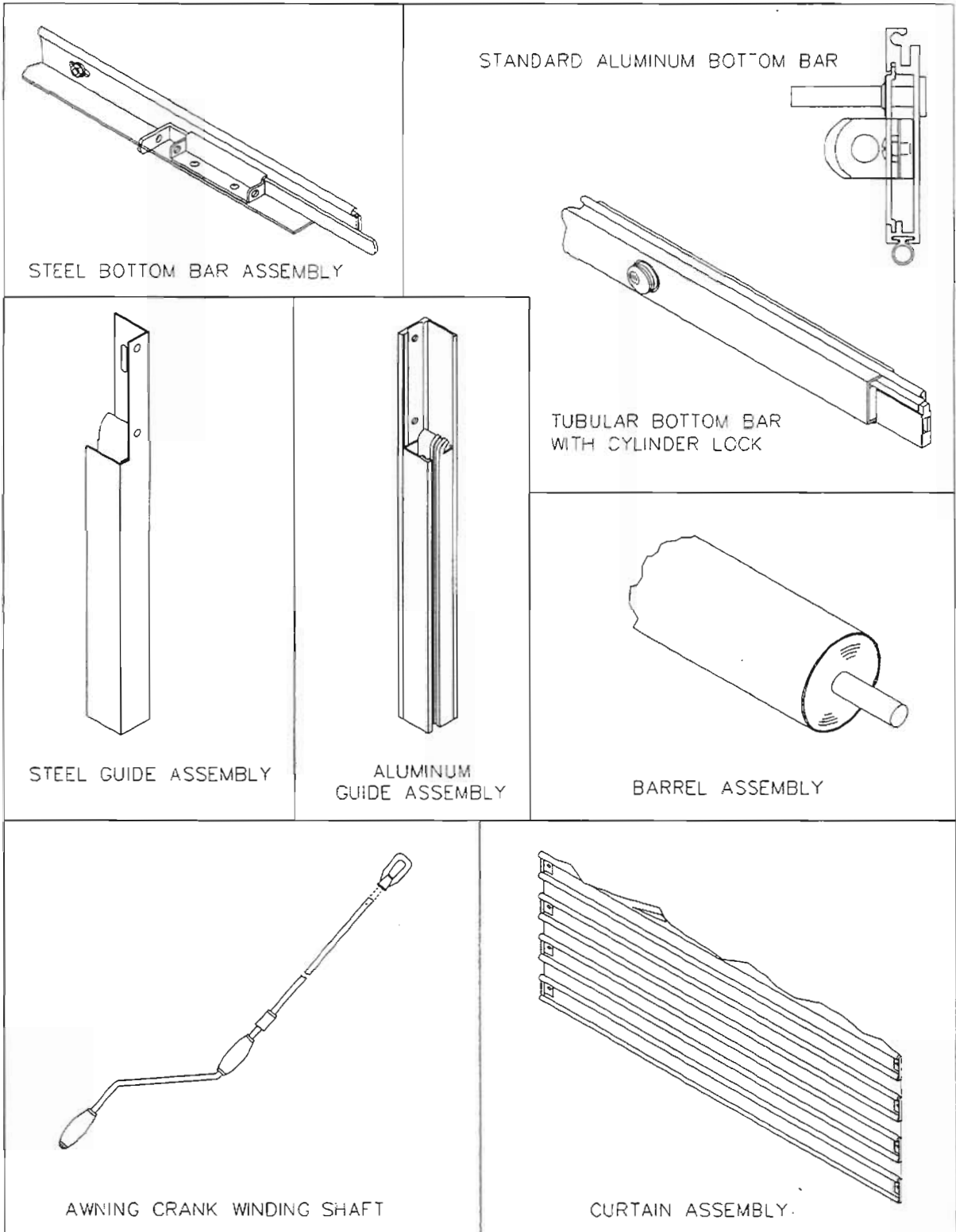
TOOLS

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

- Electric drill with 3/8" or 1/2" chuck.
- Masonry drill or impact hammer and bits.
- Chain hoist and sling for raising barrel and curtain assembly.
- Ladders and/or scaffolding.
- Wrenches, screwdrivers, hammer, level, drills, center punch, tape measure, chalk line, vise grips or C-clamps, water-level hose.
- Two hardened steel winding rods, 3/8" diameter and approximately 36" long.
- Two 5/8" diameter steel rods 24" long for checking and correcting guide openings.

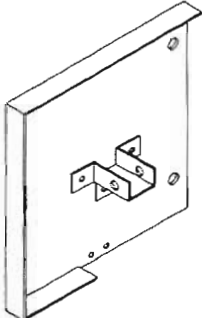
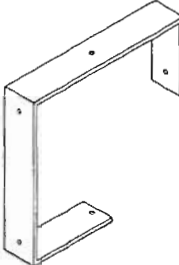
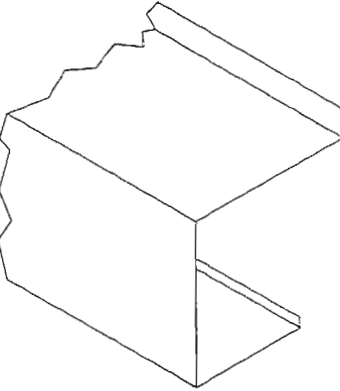
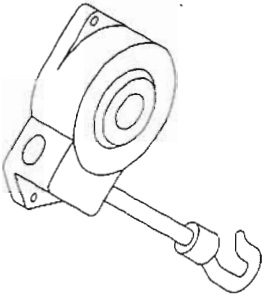

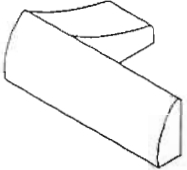
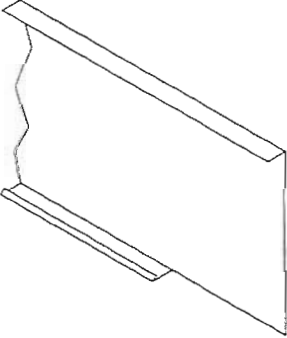
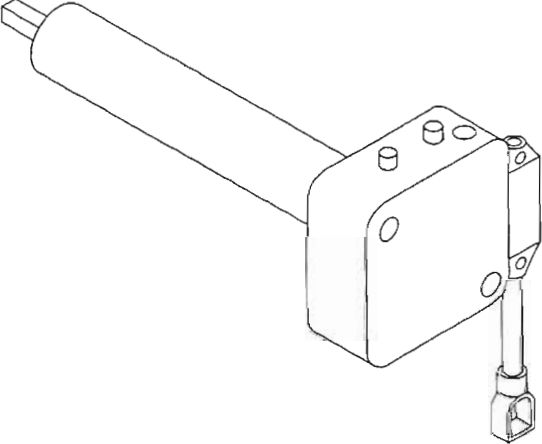
Section 1 - Supplied Parts List

Major Components and Assemblies



Section 2 - Supplied Parts List

Bracket Assemblies and Components

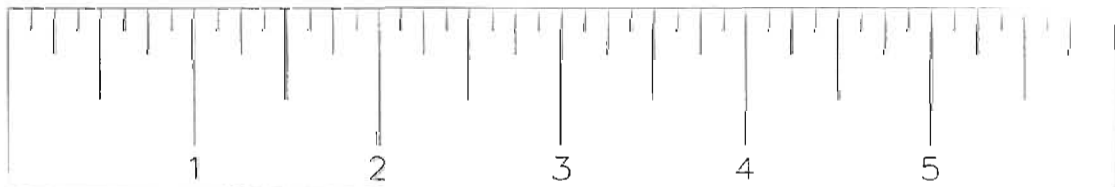
 <p>BRACKET ASS'Y</p>	 <p>HOOD STRAP</p>	 <p>FRONT HOOD</p>
 <p>AWNING CRANK</p>	 <p>PULL-DOWN POLE</p>	 <p>GROOVE MOUTH</p>
 <p>BACK HOOD</p>	 <p>TUBEMOTOR OPERATOR</p>	

Section 3 - Supplied Parts List

Miscellaneous Components and Hardware

In addition to this manual and an installation drawing, included is a bag of hardware with a packing slip to show where each piece is used. Below is an example including a ruler for you convenience :

No/ Shutter	Part Number	Description	Where Used
1	801-1122-05	5/16-18 x 2" Round Head M.S.	T. Shaft to Holder
1	802-0002-05	5/16-18 Hex Nut	T. Shaft to Holder
4	801-1463-05	5/16-18 x 1/2" Truss Head M.S.	Brackets to Guides
4	802-0052-10	5/16-18 Alum Cap Nuts	Brackets to Guides
4	804-0003-04	5/16 Flat Washers	Brackets to Guides
8	801-1412-05	1/4-20 x 1/2" Truss Head M.S.	Guides to Wall
10	803-1807-05	1/4" x 1/2" Self-Tapping Screws	Hood to Brackets/Strap
3	801-1412-05	1/4-20 x 1/2" Truss Head M.S.	Top Slat to Rings



Step 1 : Opening Checks

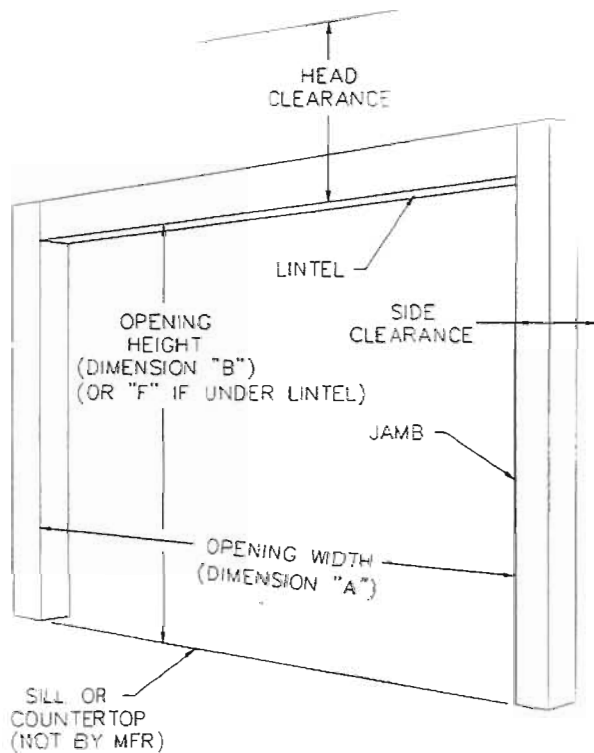


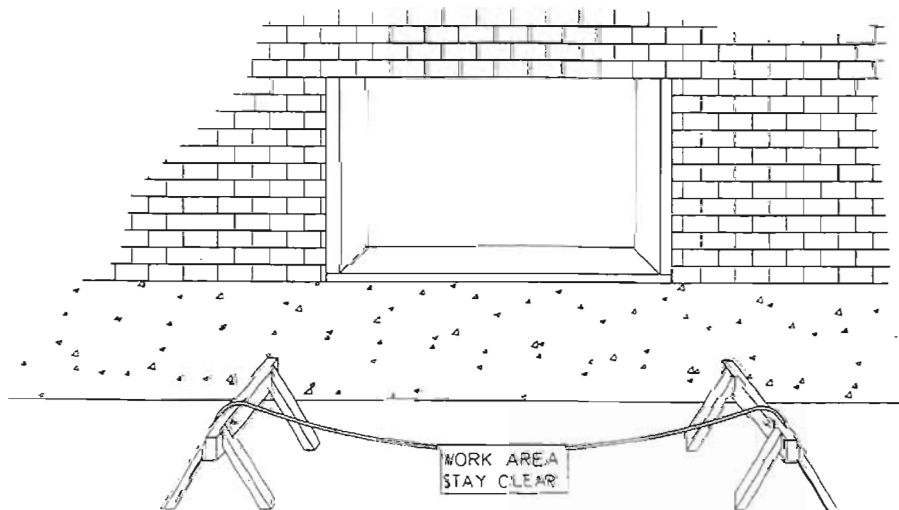
FIGURE #2

Refer to Figure #2. Check the opening width "A" and the opening height "B" (or "F") in the wall and compare with the installation drawing to be sure the opening is the proper size for the shutter. 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.

NOTE: Unpack and lay out all door components (prior to leaving for the job site, if possible) and review the following:

1. Does barrel hand of operation match the required hand on the drawings?
2. Do guide mounting angles match the required arrangement for masonry or steel?
3. Are all "extras" included such as operator, weatherstripping, etc.

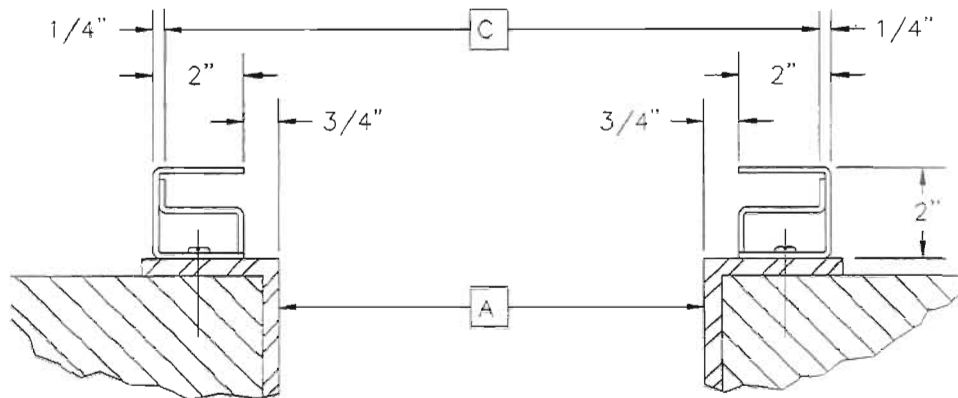
If **no** is the answer to any of these questions, stop and check with the factory for clarification before proceeding.



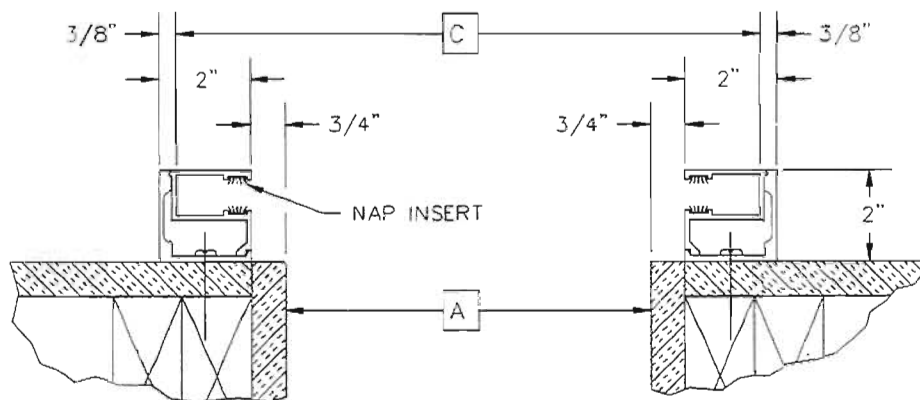
Rope off the opening prior to beginning work!

Step 2 : Guide Mounting

2a. Face Mounted Counter Shutter (skip to Step 2b if shutter is "between jambs mounted")



FACE MOUNTED STEEL GUIDES



FACE MOUNTED ALUMINUM GUIDES

FIGURE #3

Refer to Figure #3. Obtain the "C" dimension from the installation drawing. Steel or stainless steel guides are shipped pre-assembled and pre-punched with mounting slots. Aluminum guides are a two piece snap-together style consisting of an "L" section which attaches to the wall and a channel section (with wool pile). The mounting holes must be field-drilled in the "L" section. **DO NOT SNAP TOGETHER THE ALUMINUM GUIDES AT THIS TIME.** (Follow this procedure for either masonry, steel or wood jambs.) Pre-drill the appropriate size mounting holes in the aluminum "L" section's smooth leg. Start 6" up from the bottom and drill holes on 2'-0" centers (or less) depending on guide length. There should be no less than three bolts per guide. For masonry walls, avoid locating fasteners at mortar joints.

To transfer the location of the guide mounting bolts on the wall, first locate and mark the center of the opening above the countertop or lintel (see Figure #4). Divide "C" in half (C/2). For aluminum guides, add 3/8" to this dimension (C/2 + 3/8") and measure this distance either side of the opening center mark to obtain the back edge of each guide. For steel guides, add 1/4" (C/2 + 1/4").

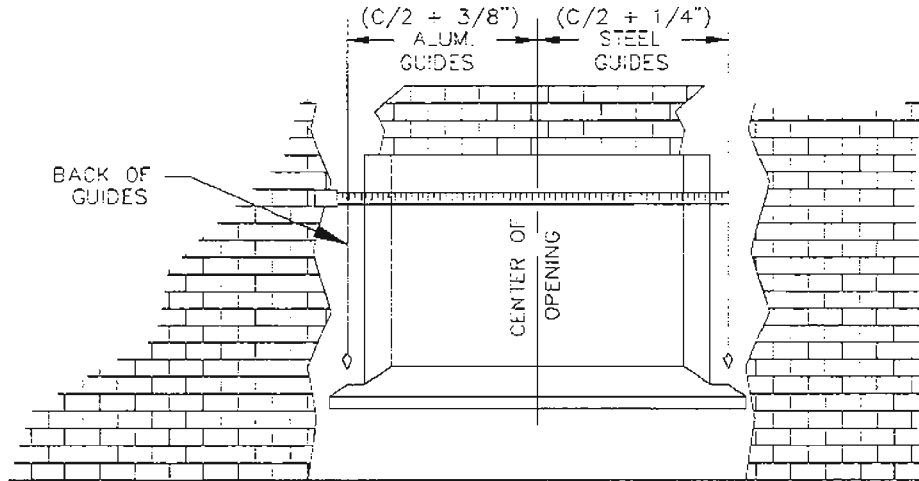


FIGURE #4

Drop a plumb line down and make a second mark on the wall at the bottom of each jamb. Using a chalk line, snap a vertical line between these two marks the length of the "F" dimension (per installation drawing).

⚠ WARNING THE STEEL GUIDE ASSEMBLIES ON LARGER COUNTER SHUTTERS MAY BE HEAVY. PERSONS WITH BACK PROBLEMS OR OTHER PHYSICAL CONDITIONS WHICH MAY LIMIT THEM FROM LIFTING HEAVY OBJECTS SHOULD NOT PERFORM THIS NEXT STEP.

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

Guide Material	Opening Height			
	4'	6'	8'	10'
Aluminum	7	10	13	16
Steel or Stainless	18	26	34	42
2x2 Tube	4	7	9	11
4x2 Tube	6	9	12	15
2" Channel	10	15	20	25
4" Channel	16	24	32	40

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

NOTE: IF COUNTERTOP IS NOT LEVEL, MARK ON JAMB WHERE IT SHOULD BE IF IT WERE LEVEL. SHIM GUIDE TO THIS MARK PRIOR TO SCRIBING GUIDE HOLE LOCATIONS.

HINT: A water level is handy to determine if the countertop is level. Mark the water level at both jambs. Measure from this mark to the countertop. If dimensions are equal, the countertop is level. If not, shim the guide on the low side by the difference between the two measurements.

NOTE: GUIDE "L" SECTIONS ARE HANDED AND NOT INTERCHANGEABLE; MARK "LH" AND "RH" SO THEY WILL NOT BE MOUNTED IN REVERSE.

Disassemble the two piece steel guide. NOTE: Take care not to lose the flat head screws provided, as these screws are a special aircraft type and difficult to replace. Temporarily but securely, clamp or hold the "L" section to the proper jamb (ie, left angle in left jamb) carefully aligning the back edge of the each guide along the chalk line. After determining that the "L" section is plumb, level and properly spaced, scribe the location of each guide mounting hole on the jamb. Repeat this procedure for the opposite side.

Remove the "L" section and drill (or tap) the appropriate size mounting holes for the fasteners provided (listed as "Guides-to-Wall" on hardware shipping list) at each hole location.

Install both "L" sections on each jamb starting with the top and bottom bolts using the hardware provided (Figure #6). Check the "C" dimension and compare with the installation drawing.

IMPORTANT! THE GUIDE TO GUIDE DISTANCE, OR "C" DIMENSION ON THE INSTALLATION DRAWING MUST BE HELD. (See Figure #3.)



FIGURE #5

Use a string and a level as in Figure #5 to ensure that the guides are parallel to each other, shimming if necessary to achieve vertical and horizontal leveling. Now install the remaining bolts.

IMPORTANT! USE OF ANY OTHER TYPE FASTENER THAN THOSE PROVIDED MUST BE ON THE APPROVED SUBSTITUTION LIST AND CANNOT BE OF A LESSER DIAMETER.

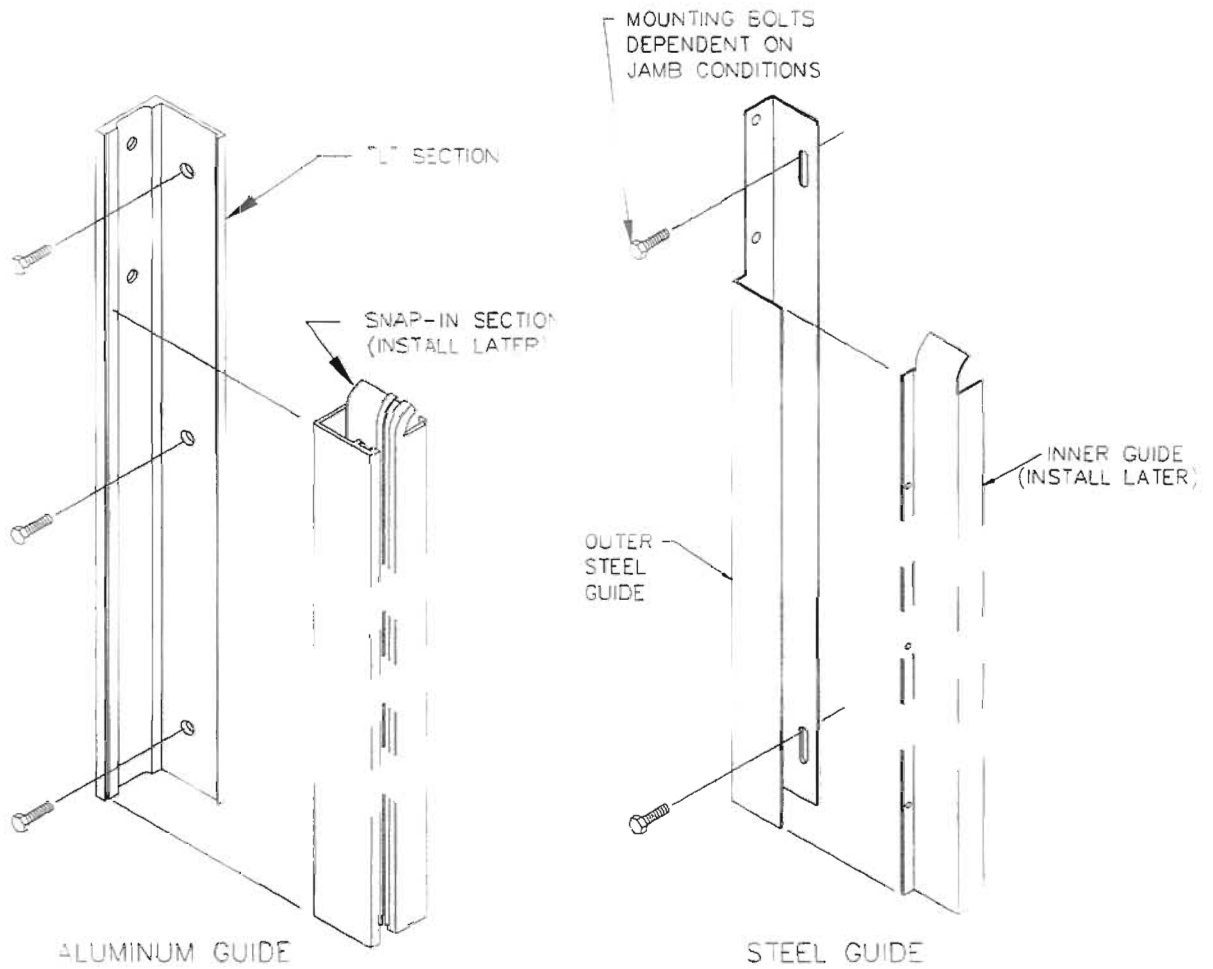


FIGURE #6

2b. Between Jamb Mounted Counter Shutters:

The mounting procedure for between jamb mounted guides is similar to face mounted, only the location of the mounting holes change. Steel or stainless steel guides are pre-assembled and pre-punched with mounting slots.

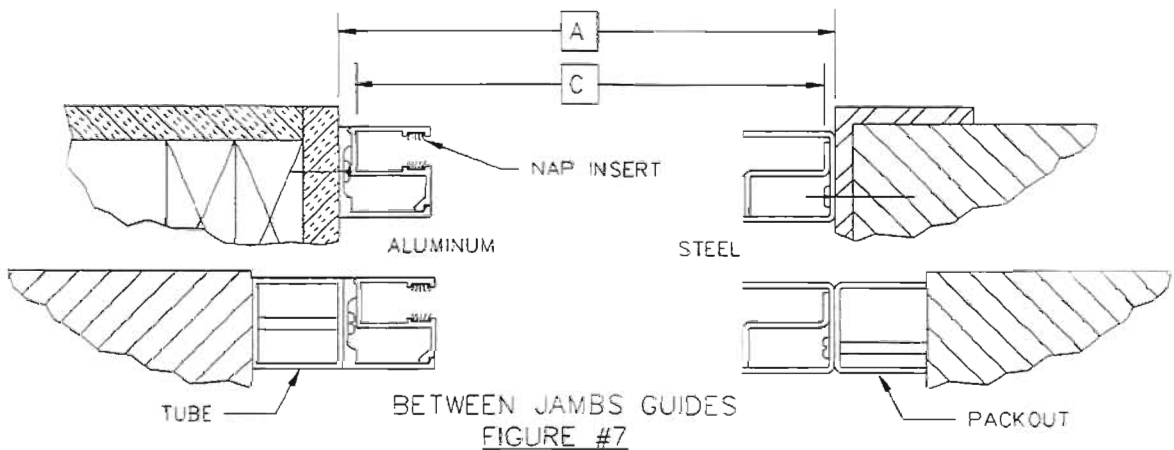
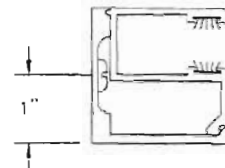


FIGURE #7

Aluminum guides must be pre-drilled with the appropriate size mounting holes in the "L" section's leg having the extruded recess.

Start approximately 6" up from the bottom and drill holes on 2'-0" centers (or less) depending on guide length.

There should be no less than three holes per guide. Locate the holes approximately in the center of this recess.



IMPORTANT! IT IS CRITICAL TO GET THE BOLTS IN THE PROPER LOCATION TO ALLOW THE ALUMINUM GUIDE PIECES TO SNAP TOGETHER LATER.

Avoid locating holes at mortar joints on masonry walls. **DO NOT SNAP TOGETHER THE ALUMINUM GUIDES AT THIS TIME.**

Next, determine the location of the back of the guides on the wall. Follow this procedure for either wood, masonry or steel jambs. Mark the top of the jamb where the back of the guide is to be located and drop a plumb line to the bottom of the jamb. Mark a point there and snap a chalk line between these two points. Repeat this procedure for the opposite jamb making sure the guide is located exactly the same distance into the opening.

NOTE: IF COUNTERTOP IS NOT LEVEL, MARK ON JAMB WHERE IT SHOULD BE IF IT WERE LEVEL. SHIM GUIDE TO THIS MARK PRIOR TO SCRIBING GUIDE HOLE LOCATIONS.

See above HINT in section 2a for using a water level.

NOTE: GUIDE "L" SECTIONS ARE HANDED AND NOT INTERCHANGEABLE; MARK "LH" AND "RH" SO THEY WILL NOT BE MOUNTED IN REVERSE.

Disassemble the two-piece steel guide. NOTE: Take care not to lose the flat head screws provided, as these screws are a special aircraft type and difficult to replace. Temporarily, but securely clamp the "L" section in the proper jamb (ie, left angle in left jamb) aligning the back of the guide with the chalk line. After determining that the "L" section is plumb, level and properly spaced into the opening, carefully scribe the location of each guide mounting hole on the jamb.

Repeat this procedure for the opposite side making sure that the "L" section is located at exactly the same distance into the opening. Remove the "L" section and drill (or tap) the appropriate size mounting holes for the fasteners provided (listed as "Guides-to-Wall" on hardware shipping list) at each hole location.

Install both the "L" sections on each jamb starting with the top and bottom bolts using the hardware provided. Using a string and a level, ensure that the guides are parallel to each other, shimming if necessary to achieve vertical and horizontal leveling (see Figure #4). Now install the remaining bolts.

IMPORTANT! REFER TO THE INSTALLATION DRAWING PROVIDED FROM THE FACTORY. THE CORRECT "C" DIMENSION MUST BE HELD. THE IMPROPER "C" DIMENSION MAY PREVENT PROPER OPERATION OF THE SHUTTER. (See Figure #7 on page 5).

Step 3 : Attaching Brackets to Wall Angles ("L" SECTIONS)

If counter shutter is manually operated (push-up), attach both brackets to the inside of the "L" sections (Figure #8) with the screws provided. On shutters mounted between jambs, the screws will attach to the wall. On brackets that are face-of-wall, use the screws and acorn nuts provided. Start with the bottom bolt but do not tighten yet. HINT: It is generally easier to insert the bottom bolt first, but do not tighten the bolt yet. Pivot the bracket into place for installing the top bolt. Now tighten all bolts.

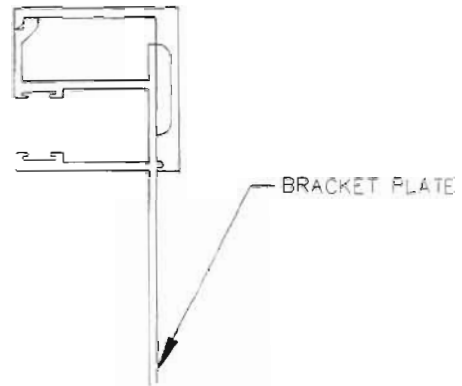


FIGURE #8

If counter shutter is crank or motor operated, install only the tensioning bracket at this time. The operating bracket is to be installed later.

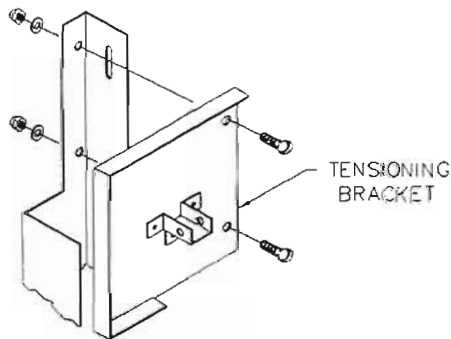


FIGURE #9

IMPORTANT! THE BOLT HEADS MUST BE ON THE INSIDE (THREADED SECTION OUT) TO PREVENT INTERFERENCE WITH THE OPERATION OF THE COIL. (See Figure #9).

On aluminum guides, remove and do not attach the groove mouths to the brackets at this time, as they will interfere with the installation of the curtain.

Snap together the mating aluminum guide section to the "L" section making sure the bottom of each sections are aligned and the top of the guide is contacting the bracket.

HINT: Use a C-clamp to snap guides together if guides are found to be unusually difficult to snap together.

IMPORTANT! ONCE ALUMINUM SECTIONS ARE SNAPPED TOGETHER, THEY ARE DIFFICULT TO SEPARATE. IF SEPARATION IS REQUIRED, FOLLOW THE PROCEDURE BELOW OR DAMAGE CAN RESULT TO THE GUIDES EFFECTING SHUTTER PERFORMANCE.

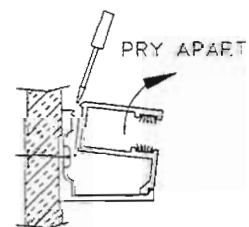


FIGURE #10

If separation of aluminum guides is required, a thin screwdriver used as a prying tool between snap-joint will initiate separation. Carefully continue to pry until units separate freely. Do not use excessive force or gouging action to separate. (See Figure #10.) If guides are steel, proceed to install the mating half using "low profile" flathead screws provided.

IMPORTANT! USE ONLY FASTENERS PROVIDED (OR APPROVED SUBSTITUTIONS). ANY OTHER FASTENERS MAY EFFECT COUNTER SHUTTER PERFORMANCE.

Step 4 : Attaching Curtain to Barrel Assembly

4a. Installing Barrel Assembly (manually operated shutters):

NOTE: On manually operated (push-up) counter shutters, the curtain and barrel cannot be installed at one time because the brackets create an interference. These items must be installed separately, starting with the barrel.

Lay out the barrel assembly in front of the opening. Note the green sticker located on the right hand end of the barrel (see Figure #11). This sticker will indicate the right hand end, the direction the curtain uncoils to close the shutter, and the spring turns required to balance the shutter. Orient the barrel with its right hand end on the right side of the opening.

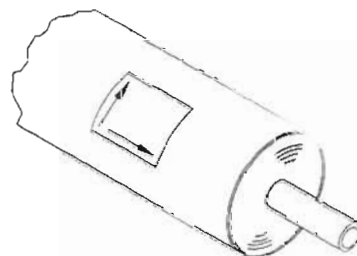


FIGURE #11

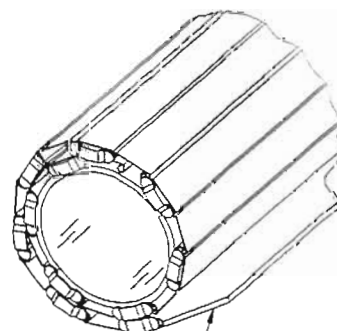
IMPORTANT! TO DETERMINE THE HAND OF OPERATION OF THE SHUTTER, FACE THE OPENING ON THE SIDE THE SHUTTER MOUNTS (THE COIL SIDE). THE SHUTTER'S RIGHT HAND SIDE IS TO YOUR RIGHT.

NOTE: GENERALLY THE SPRINGS ARE CLOSER TO THE ADJUSTER SIDE MAKING THE COIL ASSEMBLY HEAVIER AT THAT END.

Lift the barrel in place (from underneath the brackets) and rest each shaft extension in the holders mounted on each bracket. Take note which end is the adjusting end for applying tension later (Step 5: Applying Tension).

4b. Installing Curtain (manually operated shutters):

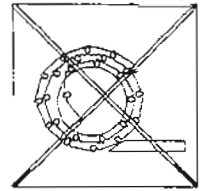
For smaller shutters (under 20 square feet) that are not crank or motor operated, roll the curtain into a coil so the bottom bar is exposed (Figure #12). Take care not to telescope the coil (keep even edges). The coil generally is shipped in a banded coil with the top slats exposed. It must be rerolled so the bottom bar is exposed.



BOTTOM BAR
FIGURE #12

For larger shutters, see "Optional Method of Attaching Curtain to Barrel".

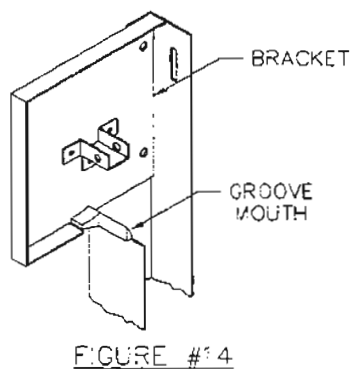
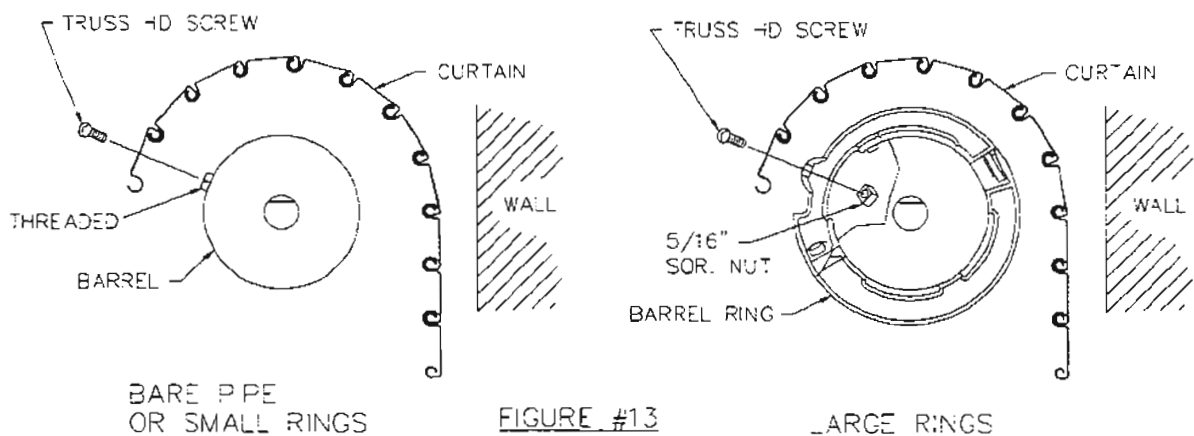
NOTE: TAKE PRECAUTIONS TO PREVENT THE CURTAIN FROM BEING DAMAGED WHEN SLIDING ON THE FLOOR OR OVER THE TOP OF THE GUIDES.



⚠ WARNING IF THE COUNTERTOP WAS NOT INSTALLED PRIOR TO THE INSTALLATION OF THE SHUTTER, ANGLE STOPS MUST BE CLAMPED TO THE BOTTOM OF THE GUIDES PRIOR TO FEEDING THE SHUTTER CURTAIN INTO THE GUIDES. FAILURE TO CLAMP THESE STOPS TO THE GUIDES WILL ALLOW THE SHUTTER CURTAIN TO FALL THROUGH THE BOTTOM OF THE GUIDES RESULTING IN DAMAGE OR POSSIBLE SEVERE INJURY.

Lift the coil and carefully feed the bottom bar into the top of the guides. Continue to feed the entire curtain down the guides until the bottom bar comes to rest on the countertop. Center the top slat of the curtain with the barrel assembly and connect it to the barrel rings as shown in Figure #13. If rings are not provided, attach the top slat to bare pipe at weld nut locations. Tighten the bolts such that the head of the bolt will not interfere with the curtain as it coils. The top slat may distort slightly during tightening of the bolts.

IMPORTANT! LONGER BOLTS THAN PROVIDED MUST NOT BE USED, AS THEY MAY INTERFERE WITH THE INTERNAL PARTS OF THE BARREL.



If the shutter was provided with aluminum guides, re-attach the groove mouths to each bracket as shown in figure #14. Proceed to Step 5: "Applying Tension".

⚠ CAUTION ALL PARTS (EXCEPT KEYS) ARE DESIGNED FOR A SLIP-FIT. FORCING PARTS TOGETHER CAN CAUSE DAMAGE RESULTING IN MALFUNCTION OF THE SHUTTER.

4c. Installing Curtain and Barrel Assembly (Crank or Motor Operated):

Lay out the curtain and barrel assembly in front of the opening. Note the green sticker located on the right hand end of the barrel (see Figure #11). This sticker will indicate the right hand end, the direction the curtain uncoils to close the shutter, and the spring turns required to balance the shutter.

Orient the barrel with its right hand end on the right side of the opening. Center the top slat of the curtain with the barrel assembly and attach it to bare pipe or rings (see Figure #13). Tighten the bolts such that the head of the bolt will not interfere with the curtain as it coils. The top slat may distort slightly during tightening of the bolts.

IMPORTANT! LONGER BOLTS THAN PROVIDED MUST NOT BE USED, AS THEY MAY INTERFERE WITH THE INTERNAL PARTS OF THE BARREL.

CAUTION ALL PARTS (EXCEPT KEYS) ARE DESIGNED FOR A SLIP-FIT. FORCING PARTS TOGETHER CAN CAUSE DAMAGE RESULTING IN MALFUNCTION OF THE SHUTTER.

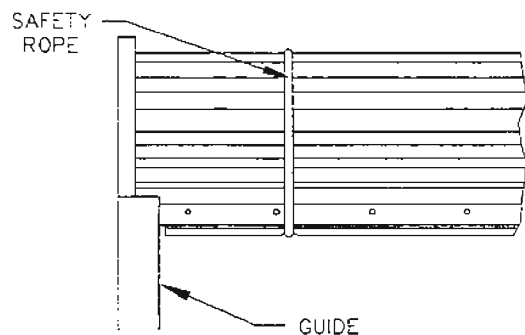


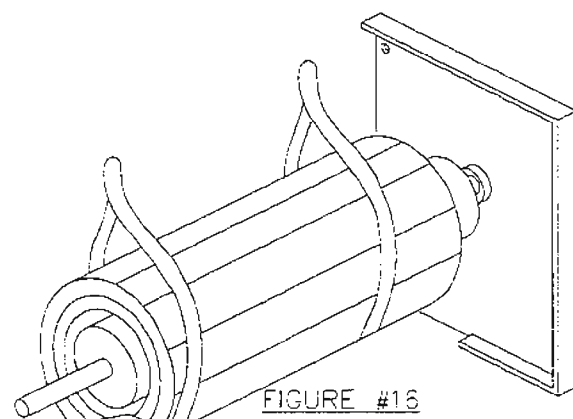
FIGURE #15

NOTE: TAKE PRECAUTIONS TO PREVENT THE CURTAIN FROM BEING DAMAGED WHEN SLIDING ON THE FLOOR.

Roll the curtain onto the barrel assembly. Tie a rope around the coil to keep the curtain from uncoiling (Figure #15).

If Tubemotor operated, attach the operating bracket to the operator at this time. If crank operated, slide the operating bracket over operating shaft.

NOTE: GENERALLY THE SPRINGS ARE CLOSER TO THE ADJUSTER SIDE MAKING THE COIL ASSEMBLY HEAVY AT THAT END.



Sling the coil and barrel assembly near its balance point for lifting into place later (Figure #16). Determine the best method of lifting the curtain coil and barrel to prevent damage to the curtain during installation. Refer to optional suggested method on page 12.

WARNING CURTAIN AND BARREL ASSEMBLY ON LARGER SHUTTERS CAN BE EXTREMELY HEAVY. PERSONS WITH BACK

PROBLEMS OR OTHER PHYSICAL CONDITIONS WHICH MAY LIMIT THEM FROM LIFTING HEAVY OBJECTS SHOULD NOT PERFORM THE NEXT STEP.

Refer to the following table to verify that the lifting capacity of the hoist (or fork truck) exceeds the weights given for the barrel and curtain assemblies:

Aluminum Shutters			Steel or Stainless Steel Shutters		
Opening Width	Opening Height		Opening Width	Opening Height	
	4'	6'		4'	6'
6'	116	140	6'	165	205
8'	155	170	8'	205	260
10'	185	210	10'	245	320
16'	270	315	16'	375	495
20'	325	385	20'	450	600

Having previously slung the curtain coil and barrel assembly (Figure #15), lift the coil to the adjusting bracket mounted previously on the "L" section.

Lower the curtain and barrel assembly so that the barrel tension shaft rests in the holder provided on the adjusting bracket (Figure #17).

Holding curtain and barrel assembly in a horizontal position, attach the operating bracket to the inside of the "L" section (Figure #8). Bolt the bracket and guide "L" section together as shown in Figure #9.

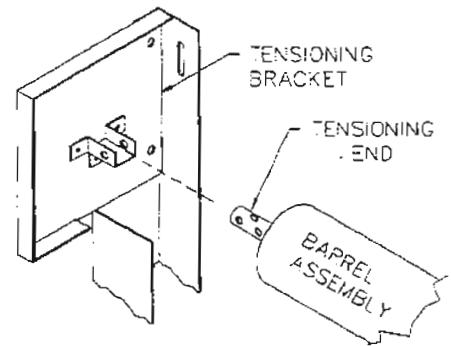


FIGURE #17

HINT: It is generally easier to insert the bottom bracket hole first, but do not tighten the bolt yet. As the coil is lifted higher, the operating bracket will pivot on this bolt for easily locating the top bracket bolt. Now tighten all bracket bolts.

IMPORTANT! THE BOLT HEADS MUST BE ON THE INSIDE (THREADED SECTION OUT) TO PREVENT INTERFERENCE WITH THE OPERATION OF THE COIL. (See Figure #9.)

WARNING TO AVOID INJURING ANYONE OR DAMAGING THE SHUTTER, DO NOT REMOVE HOIST SLING UNTIL CURTAIN AND BARREL ARE SECURELY INSTALLED.

WARNING TO AVOID INJURY DO NOT LET THE CURTAIN FREE FALL, SINCE NO TENSION HAS YET BEEN APPLIED TO THE SPRINGS.

Loosen the safety rope(s) to let the curtain uncoil. While restraining the coil from free falling, carefully feed the bottom bar into the top of the guides and allow the curtain to uncoil until the bottom bar is resting on the countertop.

On shutters with aluminum guides, re-attach the groove mouths to each bracket (see Figure #14) with the hardware provided.

Optional Method of Attaching Curtain to Barrel (larger shutters):

For some larger counter shutters, the combined weight of the coil and barrel may be too heavy to lift into place as one item as treated above. The optional method below describes how to lift each one separately. Attach the brackets to the guides as described above. Lift the barrel assembly into the holders provided on each bracket making sure the RH end of the barrel indicated on the REV tag is to your right.

HINT: The tensioning end of the barrel contains most of the springs and is generally the heavier end, so sling the barrel accordingly to best balance the load and prevent falling.

The curtain is shipped in a condition ready for this procedure (with the top slats exposed). If not, re-roll the curtain coil so the top slats are exposed.

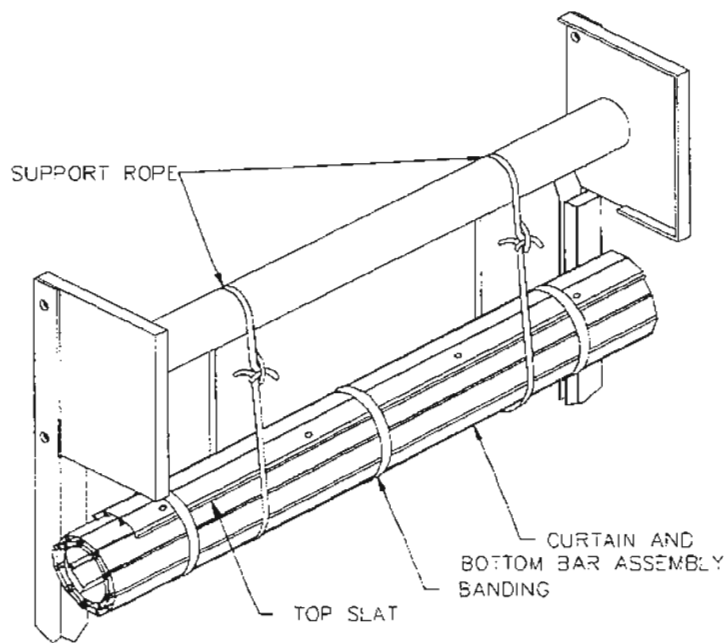


FIGURE #18

Choose two equal lengths of rope of adequate strength to support the curtain and bottom bar assembly's weight. Tie a large loop in these ropes around each end of the barrel about 1/4 way in from each end of the barrel so as to cradle the curtain and bottom bar assembly. (see Figure #18).

⚠ WARNING

SELECT ROPE OF SUFFICIENT STRENGTH AND TIE WITH NON-SLIP KNOTS TO SAFELY SUPPORT THE WEIGHT OF THE CURTAIN AND BOTTOM BAR ASSEMBLY. SHOULD ROPE BREAK OR KNOTS SLIP ALLOWING THE ASSEMBLY

TO FALL, CURTAIN DAMAGE AND POSSIBLE PERSONAL INJURY OR DEATH COULD RESULT.

The curtain and bottom bar assembly and barrel should be separated by a minimum of 18" and the curtain and bottom bar assembly should be positioned to have the top attachment slats exposed. Cut banding and manually rotate the barrel in the direction that causes the curtain to unroll. The rope loops will consequently uncoil the curtain and allow it to be stored on the barrel. When sufficient curtain has been unrolled, attach the top slat to the barrel's rings (or bare pipe as applicable) as described earlier on page 9. With the top slat attached, continue to completely unroll the curtain in a similar fashion until the entire curtain has been transferred to the barrel assembly.

HINT: Using the operator to wind the curtain around the barrel may prove easier than manually turning the barrel.

Tie a safety rope around the curtain to prevent it from uncoiling.

⚠ WARNING BEFORE REMOVING SUPPORT ROPES, TIE THE SAFETY ROPE AROUND CURTAIN TO PREVENT IT FROM UNCOILING IN FREE FALL. NO TENSION HAS YET BEEN APPLIED TO THE SPRINGS, SO CURTAIN COULD UNCOIL AND FREE FALL CAUSING DAMAGE TO THE CURTAIN OR SEVERE INJURY.

Snap the aluminum guides together, or assemble the steel guides together with flat head screws provided as described in Step 2.

Carefully untie the safety rope(s) securing the coil. While carefully controlling and restraining the curtain from turning freely, feed the bottom bar into the top of the guides allowing the curtain to uncoil until the bottom bar rests on the countertop.

⚠ WARNING SINCE NO TENSION HAS BEEN APPLIED TO THE SPRINGS, DO NOT LET CURTAIN ROTATE IN FREE FALL OR DAMAGE TO THE CURTAIN AND SEVERE INJURY COULD RESULT.

On aluminum guides re-attach the front groove mouths (or bottom bar stops to steel or stainless steel guides) to each bracket (see Figure #14) with the hardware provided.

Step 5 : Applying Tension

The amount of total revolutions (TR's) as indicated on the installation drawing and on the barrel "rev tag" is the THEORETICAL POINT for the required spring tension. In most cases this figure is correct, but due to variations in steel, springs, friction, etc., slight adjustments may be required.

⚠ WARNING TENSION CAN ONLY BE APPLIED WITH THE CURTAIN DOWN. EXERCISE EXTREME CAUTION AS TOTAL TENSION MUST BE APPLIED. BE EXTREMELY CAREFUL TO PREVENT ANY SUDDEN RELEASE OF TENSION, OTHERWISE SEVERE INJURY OR DEATH COULD RESULT.

By hand, rotate the barrel assembly slightly in both directions to determine the neutral point of the tension shaft. Mark the shaft near the holder on the tension bracket and use this mark to count revolutions. Using approved 3/8" diameter winding bar (see tool list in front of manual), insert the two winding rods securely into the holes in the tension shaft as shown in Figure #19.

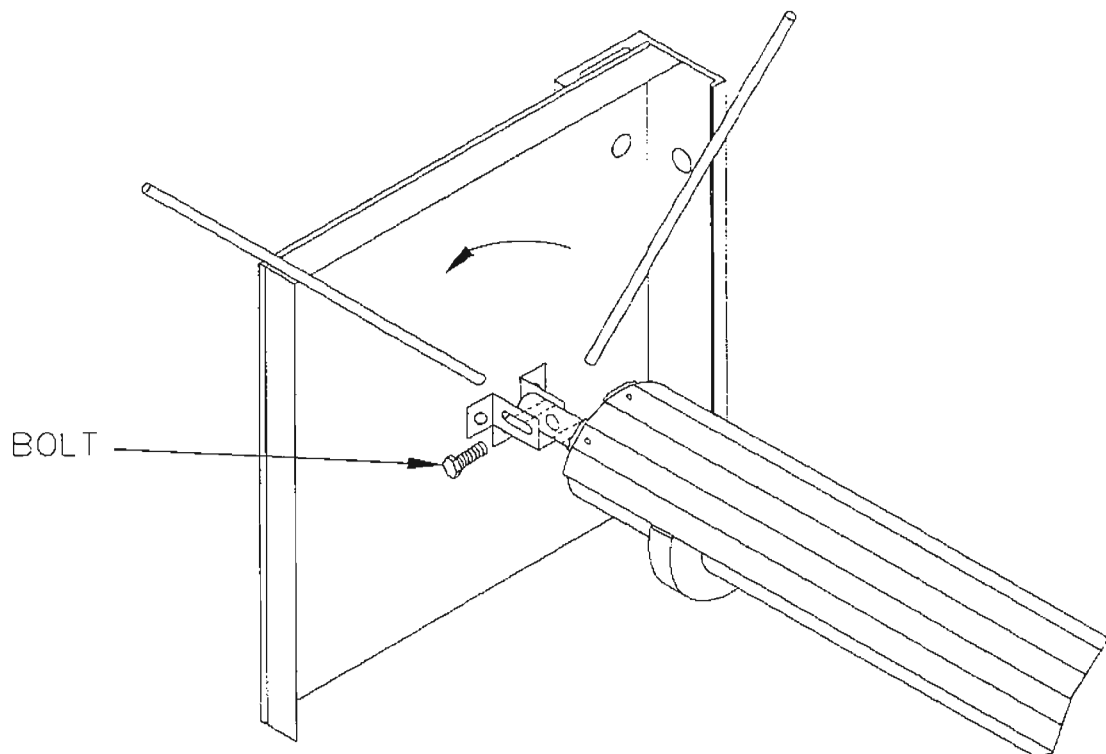


FIGURE #19

NOTE: TENSION IS APPLIED IN THE DIRECTION AS THE SHUTTER WOULD TURN AS IT COILS UPWARD (OPPOSITE THE DIRECTION OF THE ARROW ON THE "REV TAG").

⚠ WARNING TO PREVENT SEVERE INJURY OR DEATH, USE ONLY WINDING BARS THAT FIT SNUGLY INTO HOLES IN TENSION SHAFT. DO NOT USE LOOSE FITTING BARS OR SCREWDRIVERS WHICH COULD COME LOOSE AND CAUSE SEVERE INJURY OR DEATH.

⚠ WARNING TO PREVENT SEVERE INJURY OR DEATH, STAND TO ONE SIDE WHILE WINDING SPRINGS. NEVER WIND SPRINGS DIRECTLY IN FRONT OF YOU. THIS WILL AVOID CONTACT WITH THE WINDING BAR IN CASE CONTROL OF THE BAR IS LOST WHILE WINDING SPRINGS.

Apply the total revolutions (TR's) marked on the rev tag and installation drawing counting from the mark on the tension shaft made earlier. The TR's are the required number of turns (of the spring) to hold the curtain in the open position.

⚠ WARNING EXERCISE EXTREME CAUTION. DO NOT REMOVE WINDING BARS UNTIL BOLT IS INSERTED AND SECURELY TIGHTENED TO LOCK IN TENSION. OTHERWISE, RELEASE OF TENSION CAN RESULT IN SEVERE INJURY OR DEATH AND DAMAGE TO SHUTTER.

While holding the TR's with the winding rod firmly in one hand, insert the 5/16" or 3/8" diameter bolt through the shaft and both sides of the holder to locking the tension at the desired number of revolutions (see Figure #20). Remove winding rods and install nut.

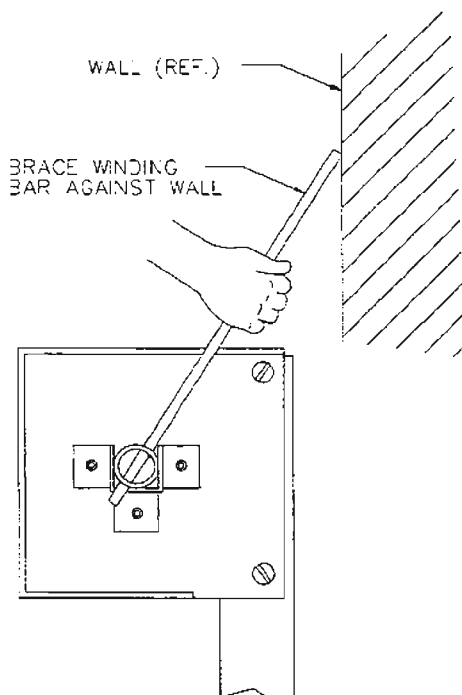


FIGURE #20

HINT: If installation permits, use wall above brackets as brace for winding rod for a safe, hands free procedure of installing the 5/16" or 3/8" bolt into the holder (see Figure #20).

IMPORTANT! APPLY ONLY ENOUGH TENSION SO THAT THE BOTTOM BAR JUST BEGINS TO RISE OFF THE COUNTER. TOO MUCH TENSION WILL MAKE THE SHUTTER DIFFICULT TO CLOSE AND MAY DAMAGE THE INNER WORKINGS OF THE SPRING BARREL ASSEMBLY.

STEP 6 : Testing Counter Shutter Balance

For steel or stainless steel guides, it is generally a good practice to have on hand a pair of 5/8" to 3/4" diameter round rods to use as a gage for the guide opening. Sliding the rods down the entire length of the inside of the guides will reveal any pinched areas where the rods will not pass. Use the pair of rods in a scissors fashion to pry the guide to the 5/8" to 3/4" opening dimension as required.

Operate the counter shutter through several cycles to check shutter balance if possible. If the shutter does not balance properly and requires further spring adjustment, repeat the procedure for "Applying Tension" to add or remove spring tension. Ideally, the shutter should have sufficient spring tension to just allow the shutter to stay up in the open position and no more.

IMPORTANT! INCREASING THE INITIAL TENSION WILL REDUCE THE LIFT EFFORT BUT CAN PREVENT COUNTER SHUTTER FROM COMPLETELY CLOSING.

Methods Of Operation Of Counter Shutters

Manually Operated Counter Shutter (Push-up):

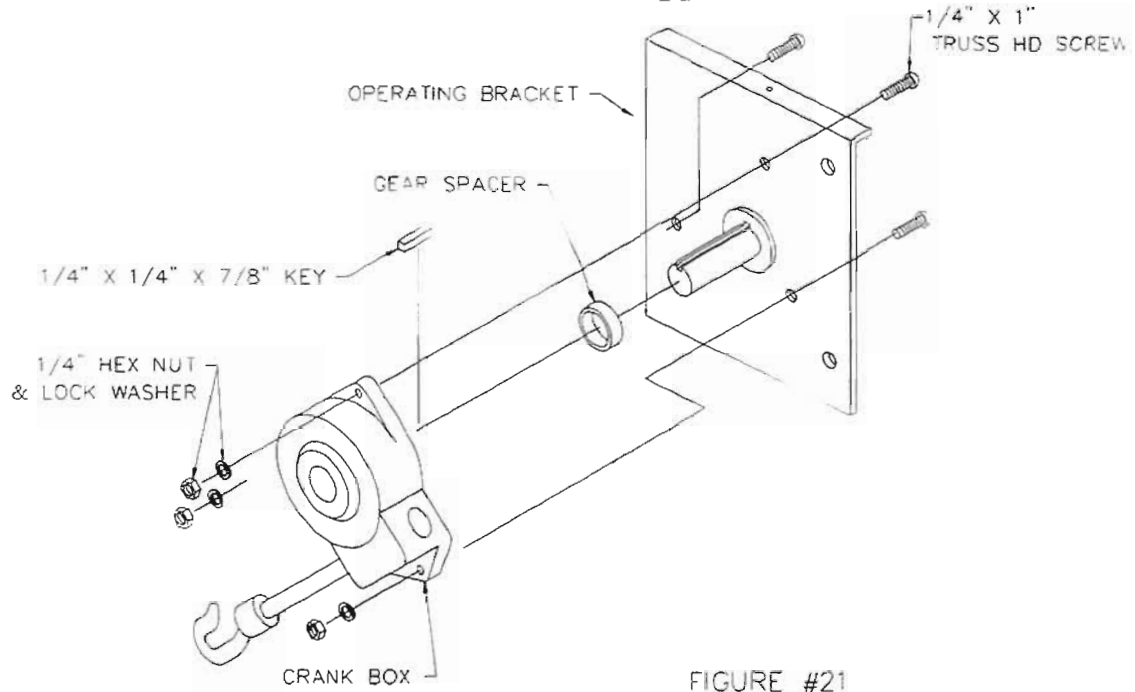
No operator of any kind is required. Generally, shutters under 10' wide are opened and closed manually by pushing up or down on the bottom bar.

Awning Crank Operated: Some shutters may be provided with an awning crank and a removable handle. Install the awning crank as shown in Figure #21.

Motor Operated (Tubemotor): A factory-installed optional Tubemotor is contained inside the barrel and may or may not contain counterbalance springs depending on the weight of the door (See Figure #22).

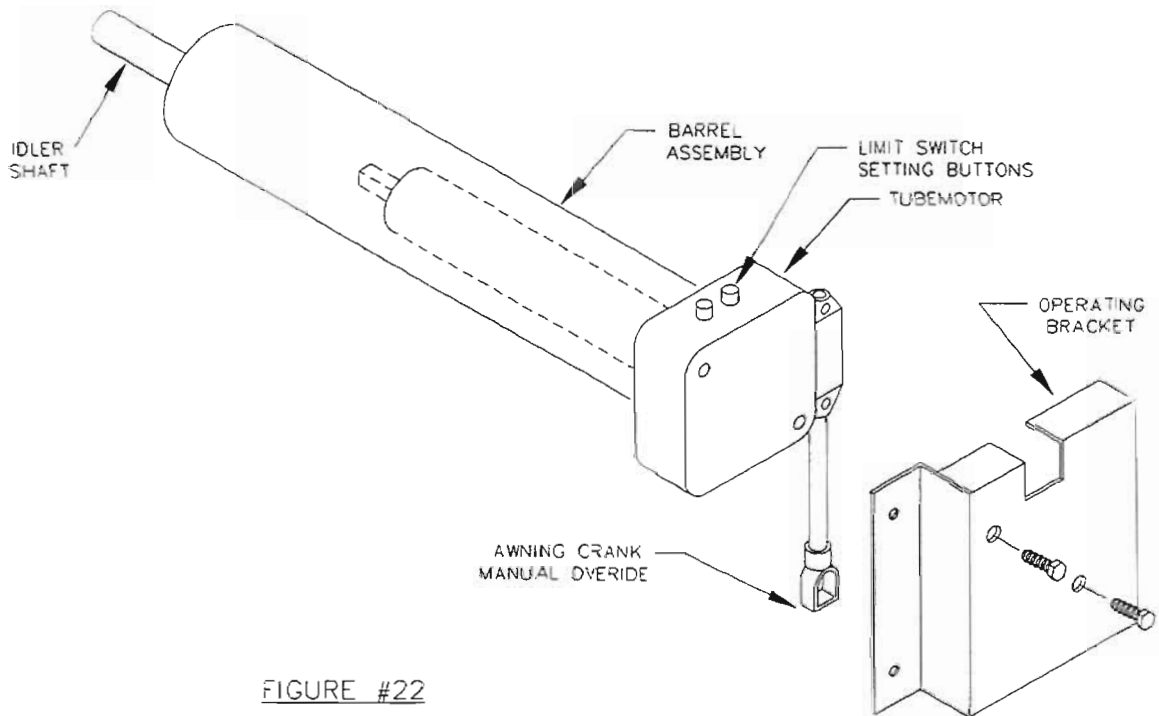
Awning Crank Operated Counter Shutter

(RH Shown, LH Opposite)



Barrel Mounted Tubemotor

(LH Shown, RH Opposite)



Step 7 : Installing Hoods, Fascias and Hood Supports

7a. Hood (and Hood Support) Attachment:

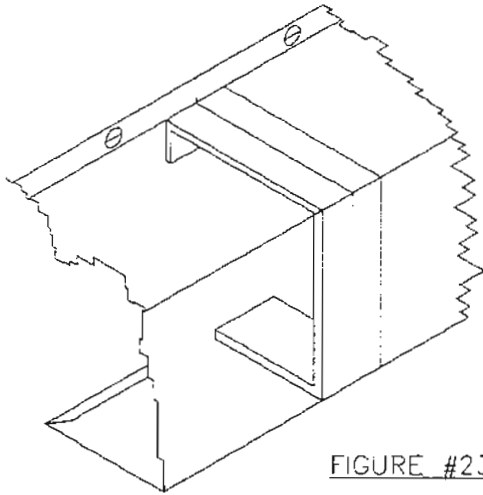


FIGURE #23

MARK HOOD STRAP
MTC HOLE LOCATIONS
IN BOTTOM OF LINTEL

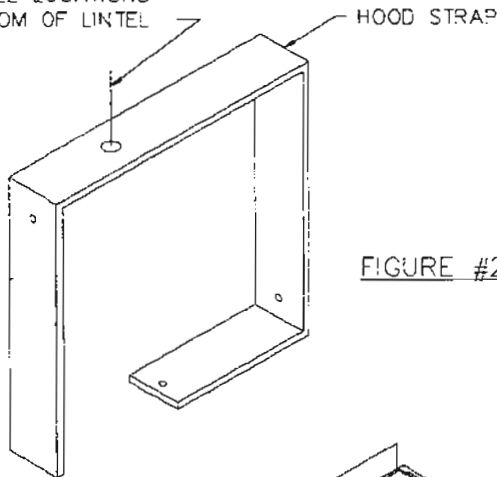


FIGURE #24

ATTACH TOP
FLANGE TO WALL
WITH SCREWS

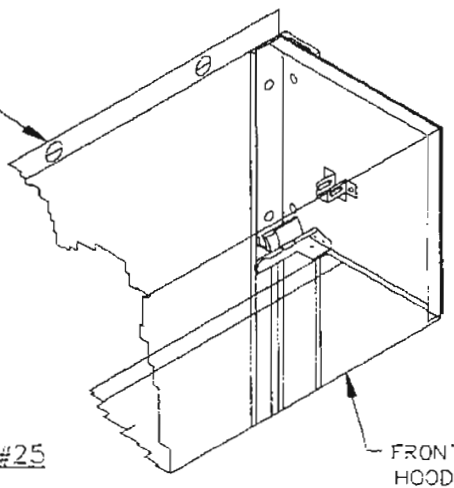


FIGURE #25

HINT: Lower the shutter to offer the maximum clearance between the coil and the wall. Rest hood strap(s) on coil near its attachment location.

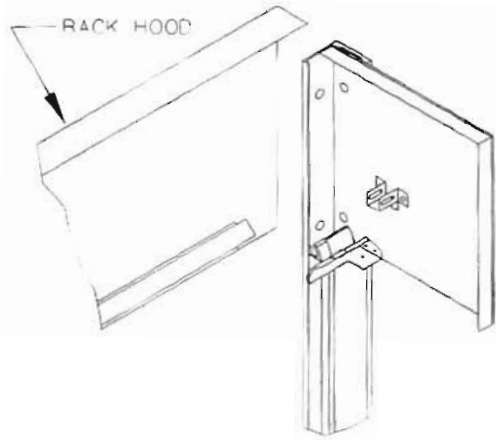
WARNING TO PREVENT SEVERE INJURY, DISCONNECT OPERATOR (IF APPLICABLE) PRIOR TO WORKING NEAR THE OPERATOR END OF THE SHUTTER WHEN ATTACHING HOOD. OTHERWISE, SEVERE INJURY COULD RESULT BY ANY ACCIDENTAL USE OF THE OPERATOR WHILE WORK IS BEING PERFORMED.

When a two or more piece hood is furnished, fasten the hood support (sometimes called "hood strap") to the wall where the hood is spliced together (see Figure #23). This may require additional structure not furnished by door manufacturer.

If counter shutter is under lintel, clamp the hood strap in place and scribe the location of mounting hole on the lintel as shown in Figure #24. Remove, drill the appropriate size hole and then mount hood strap.

Raise the hood carefully over the brackets so the ends of the hood are approximately 3/16" from the outside edge of the brackets. Set the top flange tight against the wall and fasten with hardware provided (see Figure #25). Fasten the hood to the existing holes in the brackets (and supports) with self-tapping screws.

HINT: Use a center punch to locate position of screws in brackets before attachment.



If a fascia (back hood) is provided, attach it as shown in Figure #26 with self-tapping screws. Line up the edge of the back hood with the edge of the front hood before tightening screws.

FIGURE #26

STEP 8 : 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, and 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 counter shutter and any optional equipment before leaving the job site

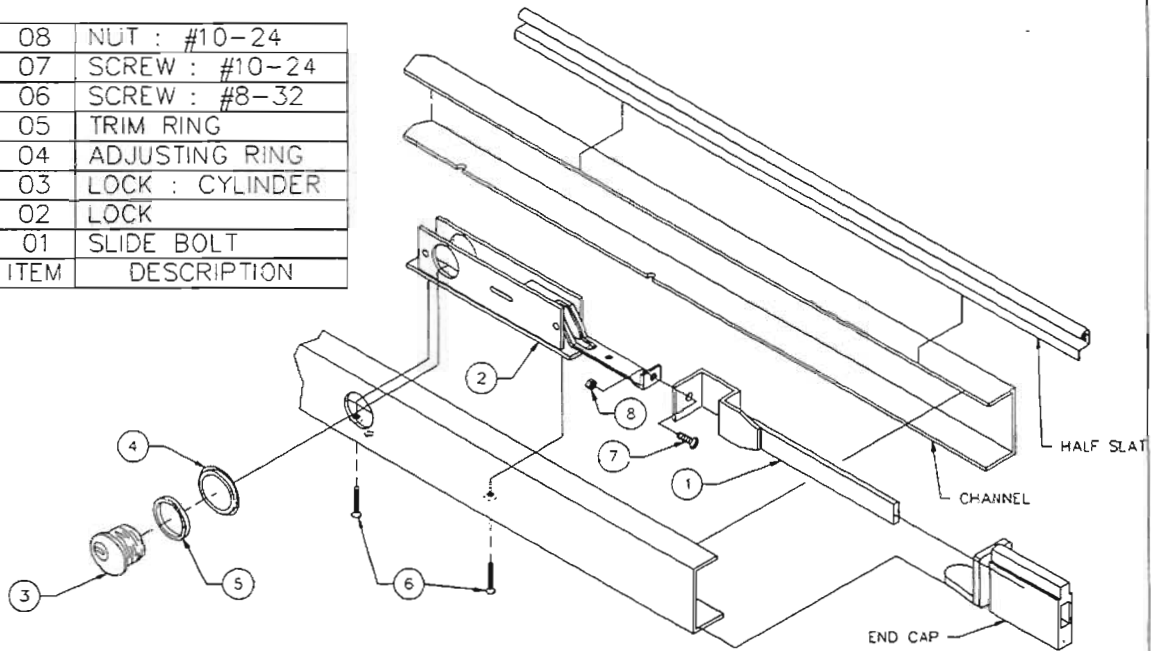
Don't leave a mess. Clean up the area and make sure the area is secure if you're the last one to leave.

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.

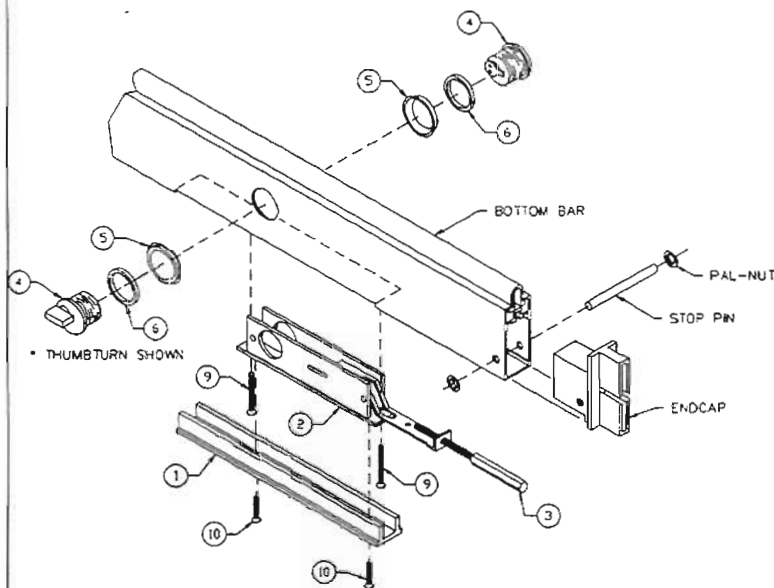
Appendix A : Optional Equipment

CYLINDER LOCKS

08	NUT : #10-24
07	SCREW : #10-24
06	SCREW : #8-32
05	TRIM RING
04	ADJUSTING RING
03	LOCK : CYLINDER
02	LOCK
01	SLIDE BOLT
ITEM	DESCRIPTION



TYPICAL TUBULAR BOTTOM BAR W/CYL LOCK



10	SCREW : #8-32
9	SCREW : #10-24
8	LABEL : UNLOCK
7	LABEL : LOCK
6	TRIM RING : 1/4"
5	ADJUSTING RING
4	CYLINDER
3	LOCK ROD END
2	LOCK
1	COVER PLATE
ITEM	DESCRIPTION

TYPICAL ALUMINUM BOTTOM BAR W/CYL LOCK

Appendix C : Trouble Shooting

The chart below is a list of possible problems with the operation of the counter shutter. 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.

TROUBLE	PROBABLE CAUSE	REMEDY
Shutter raises hard, closes easily	Insufficient counterbalance	Increase spring tension (see Step 7)
Shutter closes hard, raises easily	Too much counterbalance	Decrease spring tension (see Step 7)
Shutter jumps up from counter	Too much counterbalance	Decrease spring tension (see Step 7)
Curtain runs to one side	Broken end-locks Barrel not level	Check and replace Check and level barrel
Shutter sticks when closing	Bent guides	Inspect for bent or kinked guides. Straighten guides and check width of groove.
Shutter coil makes cracking sound	Bent slats	Inspect, remove and straighten or replace
Shutter 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.
Shutter is difficult to raise, will not stay open	Insufficient Counterbalance Broken spring or wrong hand springs	Increase spring tension. Remove barrel and replace spring.
Motor runs, Shutter does not operate	Curtain jammed	Inspect and remove obstruction.