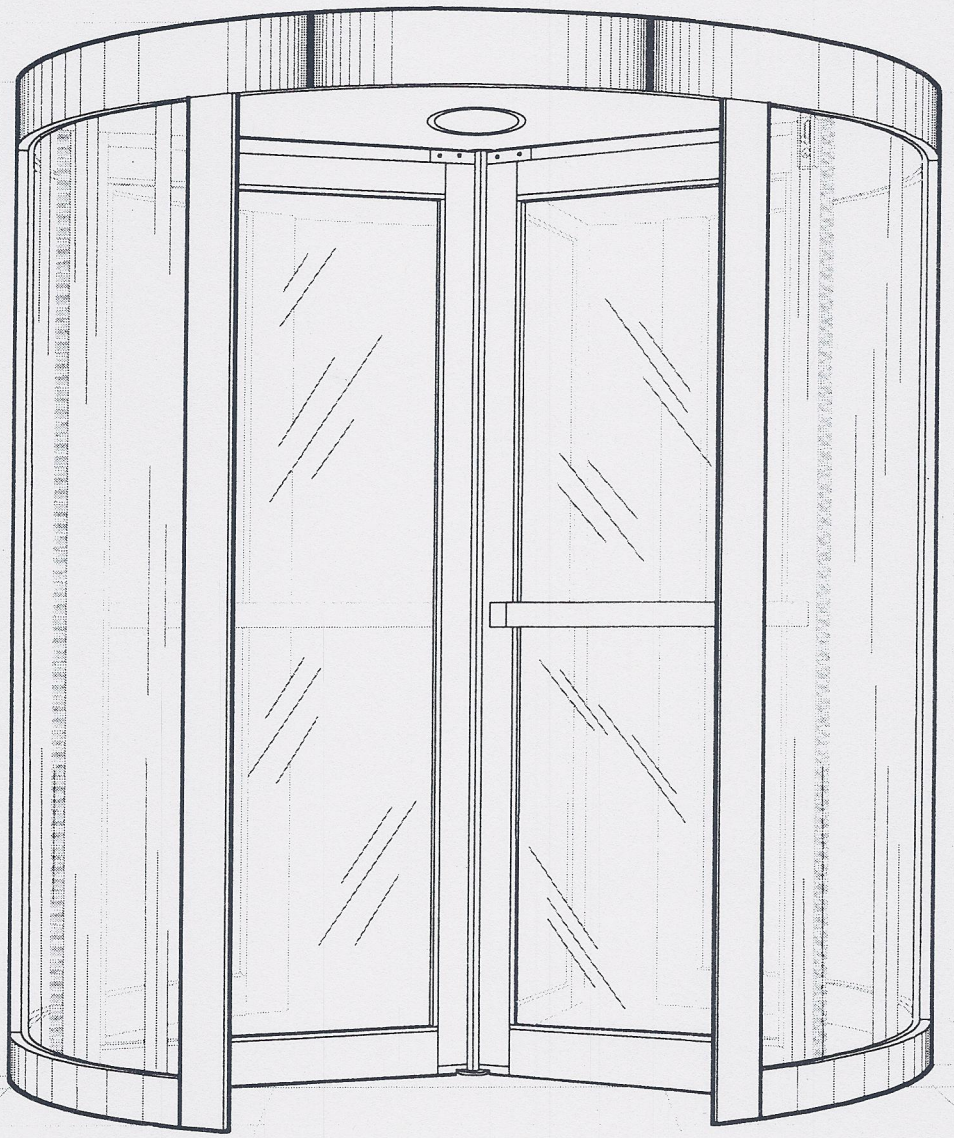
Manual Revolving Door
Series 9500

Installation Instructions



Horton
AUTOMATICS

G917
NOV. 97

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INSTALLATION INSTRUCTIONS FOR THE MANUAL REVOLVING DOOR SERIES 9500

1. OWNER'S INFORMATION

We are pleased that you have chosen a manual revolving door from Horton Automatics. This door system will provide many years of safe operation while conserving energy provided the unit is properly installed and maintained.

This Manual is Intended to Serve Two Purposes:

A. To assist the Horton distributor (Installer) in the installation / adjustment of a manual revolving door.
B. To serve as a guide for the Owner to become familiar with the operation and safety of his Manual Revolving Door Unit.

Regular inspections are required to keep each door in safe and proper working order. Please acquaint yourself with and follow all instructions in this manual.

Horton Automatics manual revolving doors are offered with many options. Consequently, it is possible that this manual may not address all of the possibilities. This manual, wiring diagrams, and individual shop drawings should be kept in your files.

2. SERVICE AVAILABILITY

Horton Automatics' products are manufactured at the company's plant facilities in Corpus Christi, Texas and Telford, England. A worldwide network of authorized independent distributors offers both installation and a maintenance program. For the local Horton Automatics distributor in your area call 1-800-531-3111 or 512-888-5591 (U.S. and Canada) or consult the Yellow Pages of your Telephone Book under "Door-Operating Devices." In Europe, call the Horton plant in Telford, England at 011-44-1952-670169 or fax at 011-1952-670181.

3. LIMITED WARRANTY

Horton Automatics (Seller) warrants to the Buyer all products they manufacture to be free from defects in material and workmanship, under normal use and service, for twelve months from the date product is placed in operation. The Seller's obligation under this warranty is limited to the repair or replacement at the factory, of any parts which shall be returned to the Seller with transportation charges prepaid and which after examination, prove to be defective. Said warranty shall not apply to such products which shall have been installed, altered, or repaired by any person not expressly authorized in writing for such purpose by the Seller, or subjected to misuse, negligence or accident. The aforesaid warranty is made expressly in lieu of other warranties, expressed or implied and in lieu of any other obligations or liabilities on the part of the Seller and the Seller neither assumes nor authorizes any person to assume for it any other liability or obligations in connection with the sale of such products to the Buyer.

THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, NOR IS THERE ANY WARRANTY, EXPRESSED OR IMPLIED, EXCEPT AS SPECIFICALLY STATED ABOVE. SELLER SHALL NOT BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGE, NOR FOR CLAIMS OF ANY THIRD PARTY AGAINST THE BUYER.

Generally, the installing distributor provides a one-year warranty covering the labor and transportation charges for defective parts replacement. if this is the customer's wish, it should be specified.

4. INFORMATION TO BE PROVIDED BY THE DISTRIBUTOR TO THE OWNER

A. Location of cutoff switches.
B. Instructions on circuit breaker locations.
C. Necessary warnings not covered in these general instructions.
D. Daily Check List.
E. Phone number to call regarding problems or request for service. If a potentially hazardous situation is suspected, lock the doors until a professional inspection is made and the problem is corrected.

The following information should be furnished by the Horton distributor to the owner.

Date equipment shipped from Horton:_____
Date equipment placed into service:_____
Horton invoice and serial number for warranty reference: _____
Equipment type:_____
Control logic version:_____
Accessories included: _____

See the product label located on the gear train support tubes next to the gear train or in the control enclosure box for work order number and serial number, power requirements, etc.

5. GENERAL INFORMATION

A revolving door installation is more involved and time consuming than most other types of doors. The floor area is larger and there are more parts to assemble. Skill must be used to assure that the door is placed properly. Holes must be drilled in the correct places and the door in its entirety must be plumb and level. Therefore, the door must be installed under the supervision of a trained professional distributor. Revolving door sections are prefabricated and shop fitted to facilitate installation. Round canopies are fabricated in either one or two sections. Ceiling panels are custom cut and fit for each canopy. It is very important that the installer begins installation at labeled starting points (A first, then B,C, etc...) and make attachments at labeled match points.

6. ITEMS TO CHECK PRIOR TO INSTALLATION

A. NOTE: Dimensions in () are metric millimeter equivalents. Example - 1"(25)
B. The floor area must be level inside the door. If not, notify the owner or general contractor immediately as the general safety and weatherstrip seals may be adversely affected +/- 1/2" (12) over the entire door.
C. Check to see that the finished floor covering (tile, carpet) is in place or if there will be some other type of flooring to be added. Shimming of the door may be required if flooring is added later. Suggest to the owner that the threshold be clearly marked with mats or flooring pattern.
D. The door requires a 120 VAC 60 cycle 20 AMP or optional 220/240 VAC dedicated circuit to supply power to the operator, lights and speed control.
E. Check packing list to make sure all materials are included. Check for damaged material.
F. Review enclosed erection print, cut sheets, production documentation and related drawings. The wiring diagram can be found taped to the lid of the control box.
G. Be familiar with all the desired functions of the door such as handicap switch attachment.

7. TOOL LIST - For a fast complete installation the following tools will be required:

- ☐ Trammel points or beam compass
- ☐ Hammer drill
- ☐ Transit or Spirit Level
- ☐ Isopropyl Alcohol
- ☐ Allen wrench set
- ☐ 1/4"(6) dia. utility rope
- ☐ Rubber mallet
- ☐ Stubby straight or offset screwdriver
- ☐ 12"(305) or 18" (457)long 3/8" (10) Masonry bit
- ☐ Plumb bob
- ☐ 9/16" (15) deep well socket, ratchet & extension
- ☐ Mobilux EP-2 lubricating grease or equal
- ☐ Black felt-tip marker
- ☐ Two saw-horses
- ☐ Volt/ohm meter
- ☐ Torque wrench - up to 300 in/lbs or 30 ft/lbs

8. SUPPORT TUBE ASSEMBLY INSTALLATION

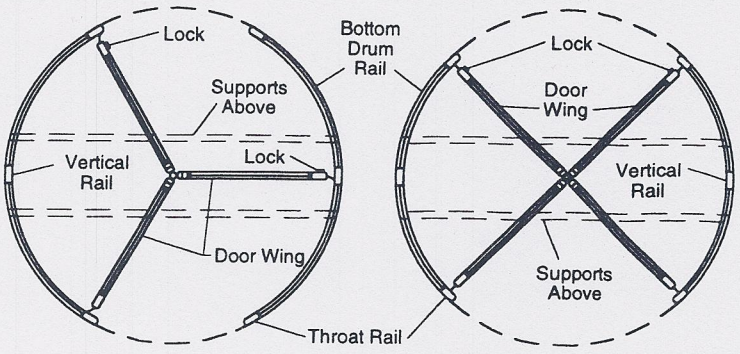
NOTE: Before proceeding further with this manual, you must first have completed drum assembly of revolving door. See Manuals (G915 - Round Revolving Door Drum Assembly Instruction Manual) or (G916 - Segmented Revolving Door Drum Assembly Manual) for instructions of drum assembly for the type of door that applies.

A. See (Figures 1 & 2) for floor plans of revolving doors and the location and layout of support tubes.

NOTE: The support tube assembly on small diameter round doors is preinstalled in canopy at the factory, or, on larger diameter doors, the support tube assembly is installed during the drum assembly (See Figure 4 on next page or Figure 8 in the G915 Instruction Manual). For segmented revolving doors the support tube assembly must be installed after drum assembly. See instructions below.

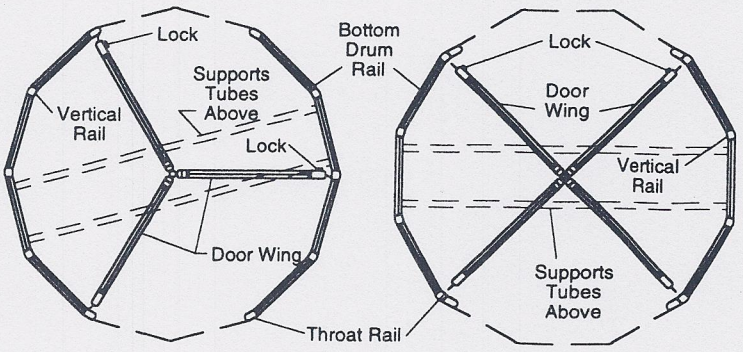
B. Determine proper placement of support tube assembly (Figure 2). See figure 3 for view of support tube assembly. Install the support tube assembly in the canopy by bolting to the predrilled ceiling rail with 3/8"(9.5) x 3/4"(19) FH socket cap screw (2 places each end) - use a 7/32" allen socket (See Figure 5).

Figure 1 - Plan View of Round Revolving Doors



3-Wing Floor Plan **4-Wing Floor Plan**

Figure 2 - Plan View of Segmented Revolving Doors



3-Wing Floor Plan **4-Wing Floor Plan**

Figure 3 - Support Tube Assembly

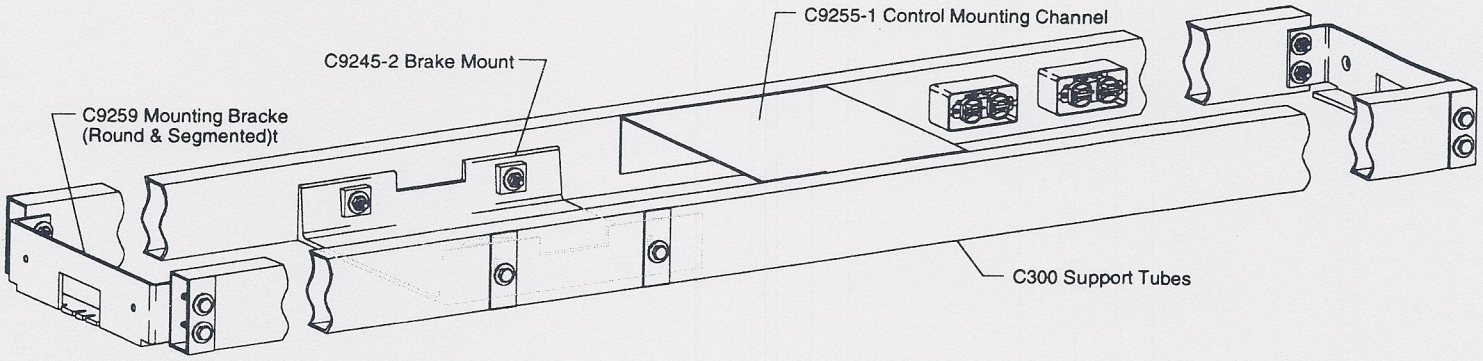


Figure 4 - Canopy & Vertical Rail Assembly (Round Revolver)

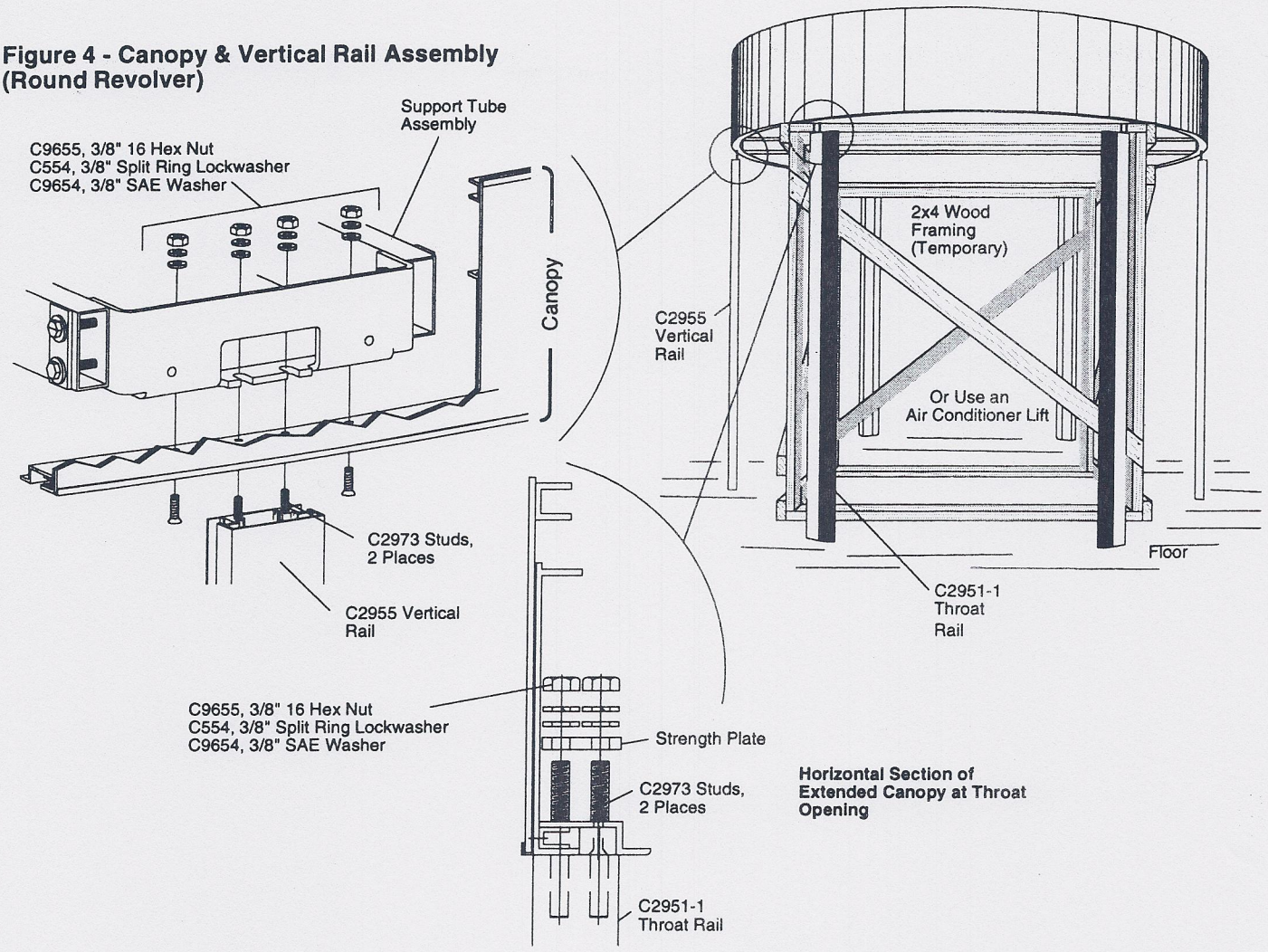


Figure 5 - Support Tube Assembly Installation (Segmented Revolver)

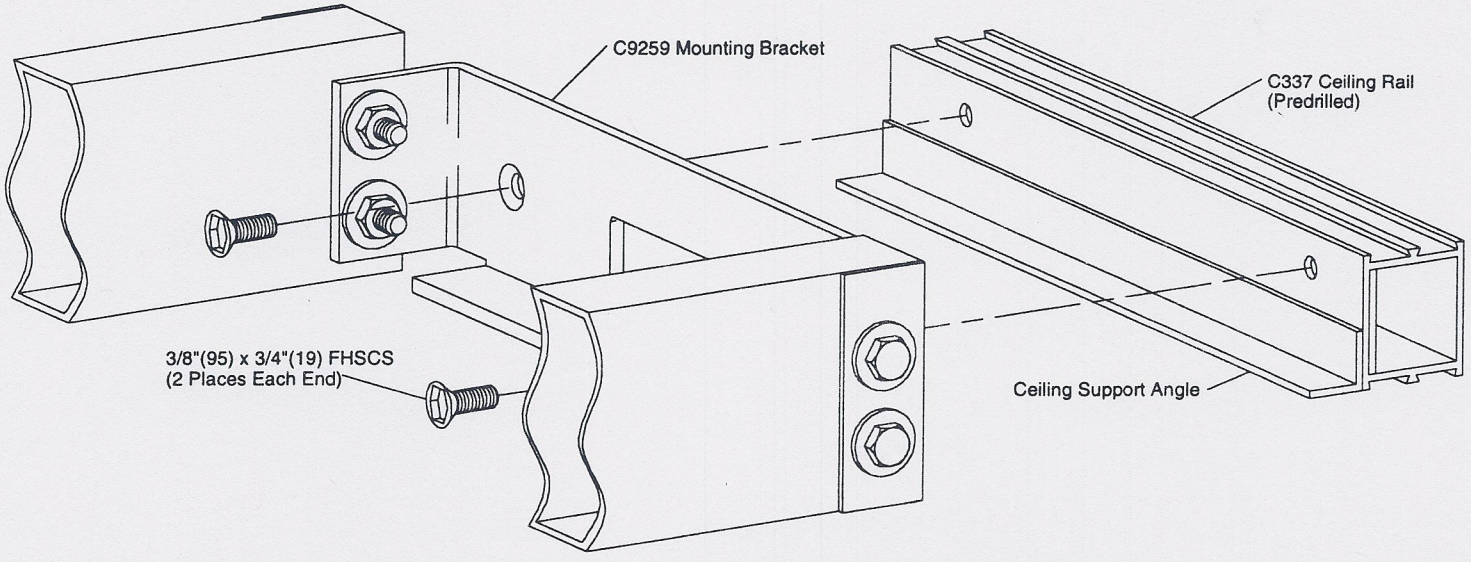
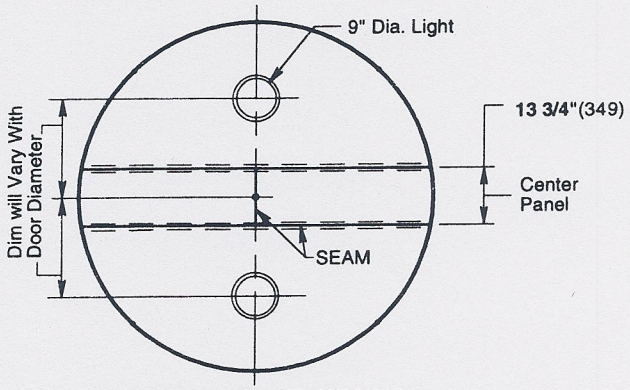
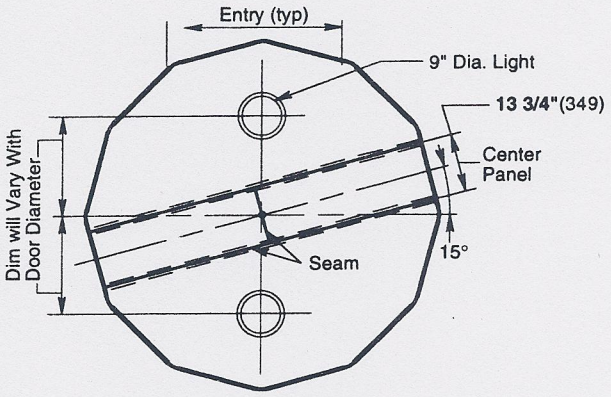


Figure 6 - Ceiling Plans

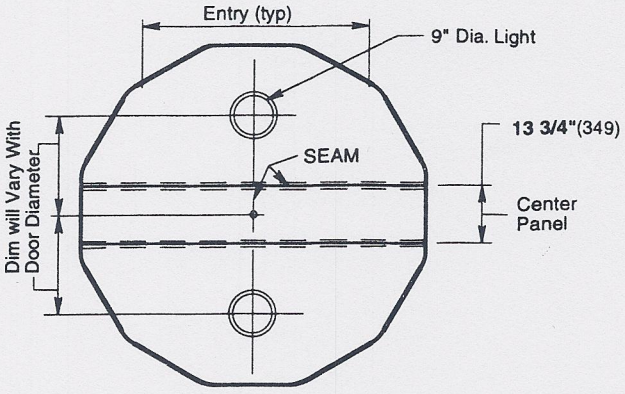
NOTE:
- All Ceilings are 3/4"(19) Plywood Laminated with .06(1.5) Alum. or Matching Clad.



3 &4-WING ROUND MANUAL
(Ceiling with Center Panel)



3- WING SEGMENTED MANUAL
(Ceiling with Center Panel)



4- WING SEGMENTED MANUAL
(Ceiling with Center Panel)

9. CEILING INSTALLATION

A. See Figure 6 for ceiling plans.
NOTE: The ceiling halves should be installed at the factory If thay are not, install as per figure 7.

Figure 7 - Ceiling Installation

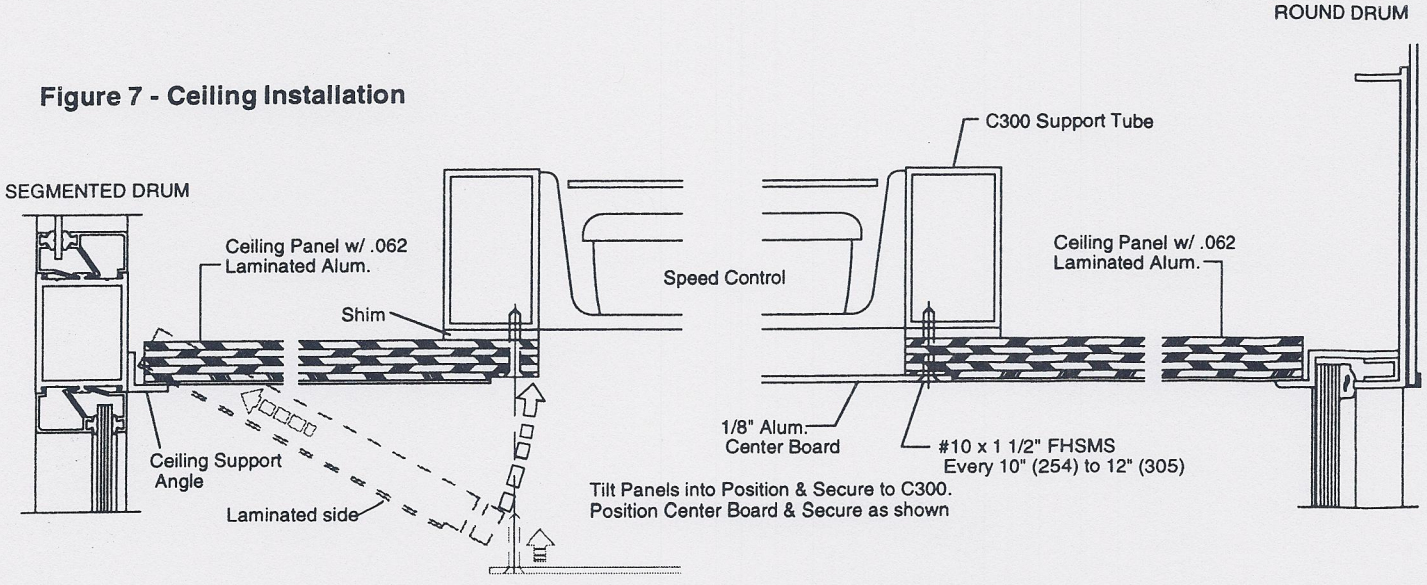


Figure 8 - Exploded View of Speed Control Assembly (3 & 4 Wing Revolvers)

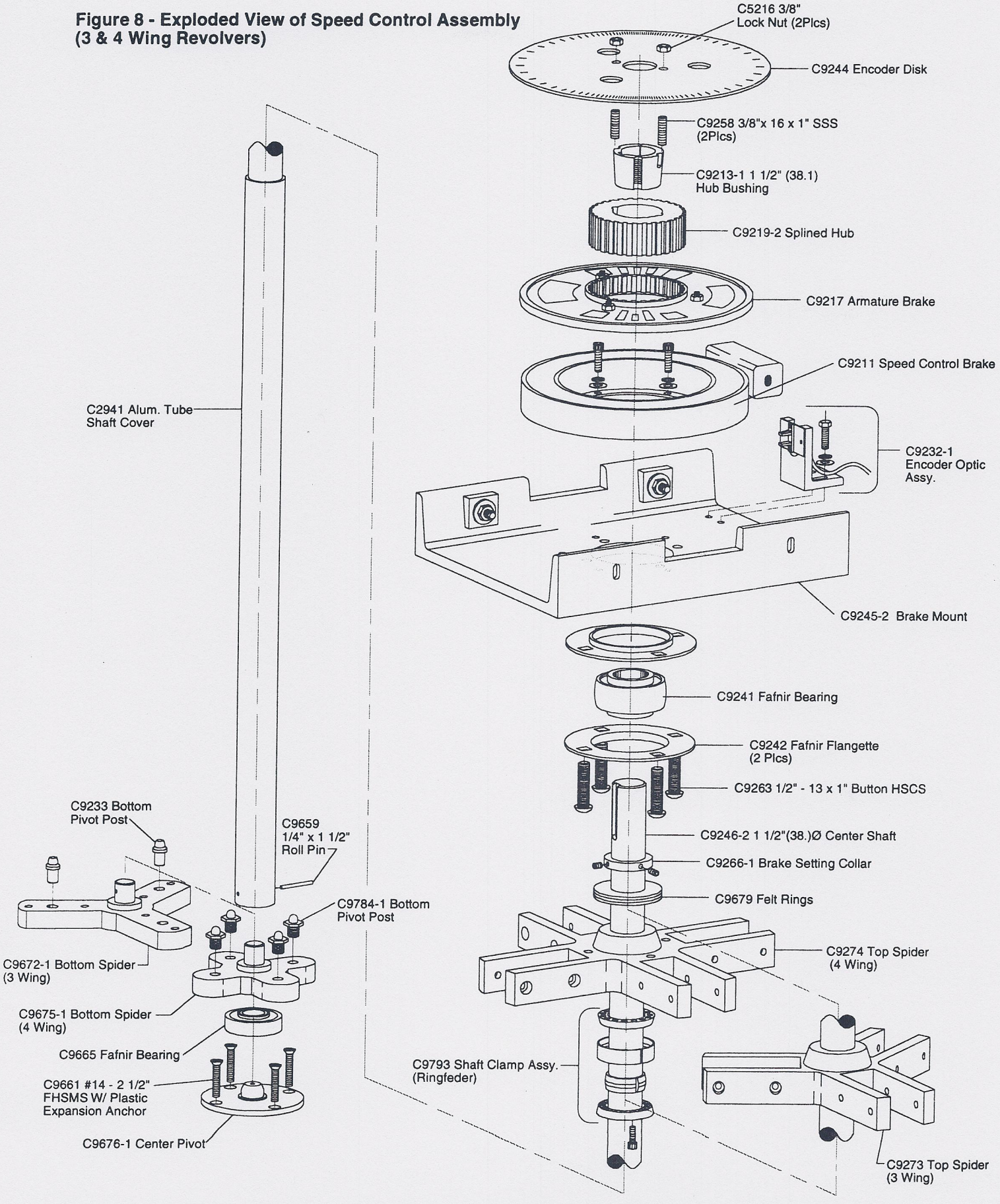
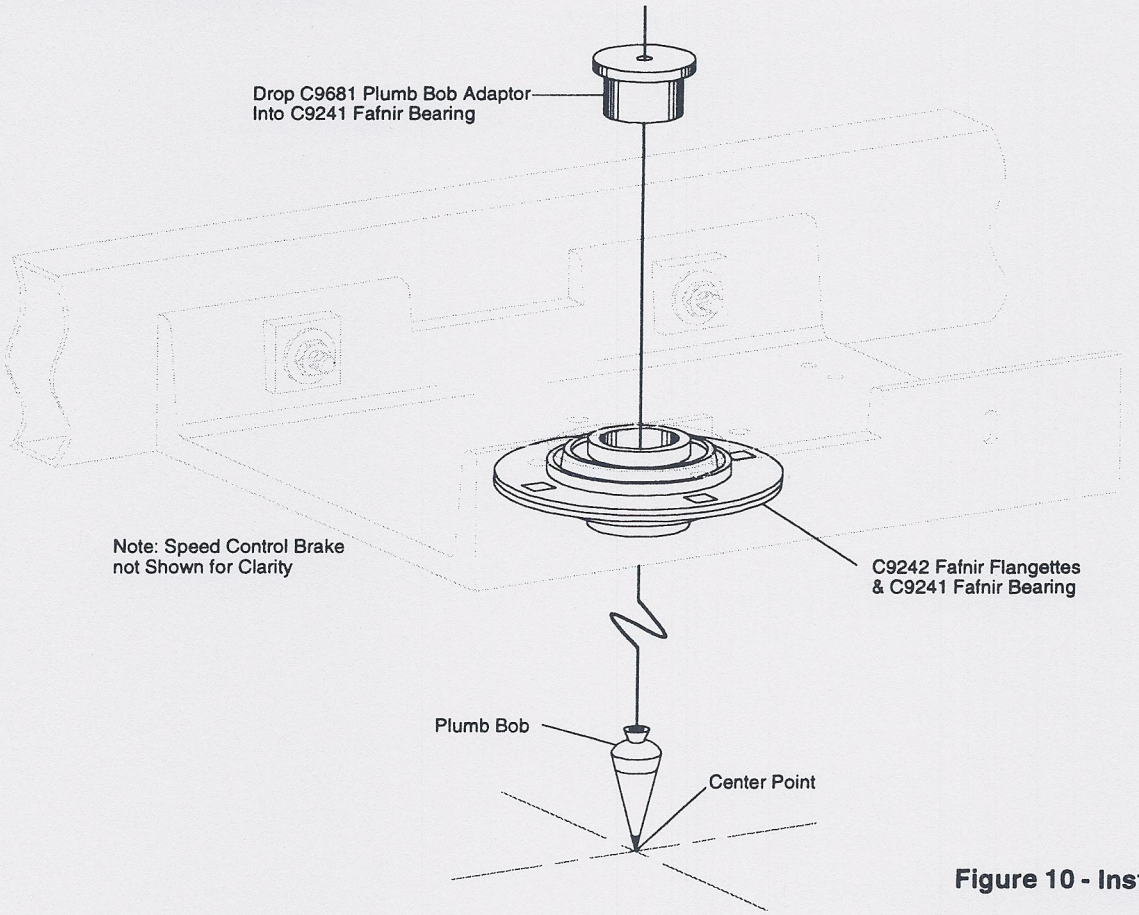


Figure 9 - Mark Center Point



NOTE: See Figure 8 for an exploded view of a typical speed control assembly. Familiarize yourself with these components to allow for easier installation of the revolver unit. Also, take note that some of the components shown have been preinstalled at the Horton factory.

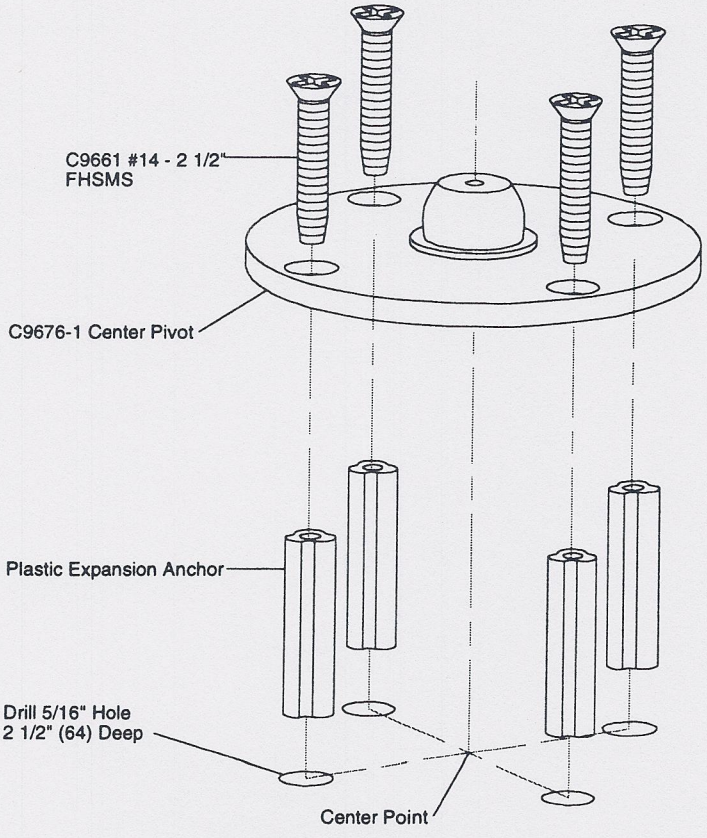
10. MOUNT CENTER PIVOT

A. Locate bottom pivot by placing the C9681 Plumb Bob Adaptor provided into top of Fafnir bearing. Run plumb line through adaptor and mark center point on floor (Figure 9).

B. Place C9676-1 center pivot on center point and mark hole locations. Remove center pivot and drill 5/16"(7.9) at hole locations. Mount center pivot using #14-2 1/2" FHSMS with plastic expansion anchors (Figure 10).

Note: For floor mats, see Section 21 on G917.20 for installation instructions.

Figure 10 - Install Center Pivot



11. CENTER SHAFT INSTALLATION

A. Angle in top portion of center shaft through the underside of the brake mount. Position spider on top of the center pivot.

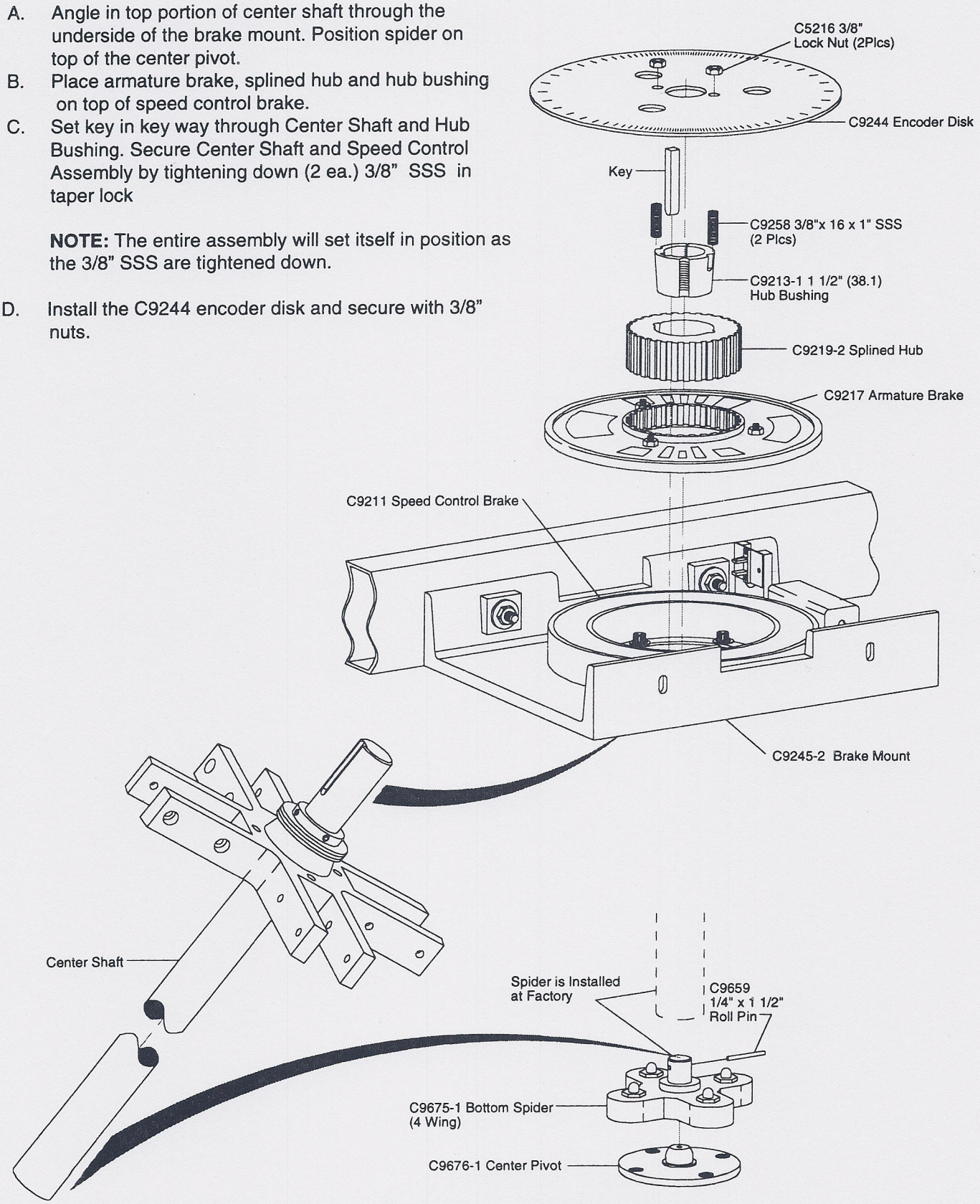
B. Place armature brake, splined hub and hub bushing on top of speed control brake.

C. Set key in key way through Center Shaft and Hub Bushing. Secure Center Shaft and Speed Control Assembly by tightening down (2 ea.) 3/8" SSS in taper lock

NOTE: The entire assembly will set itself in position as the 3/8" SSS are tightened down.

D. Install the C9244 encoder disk and secure with 3/8" nuts.

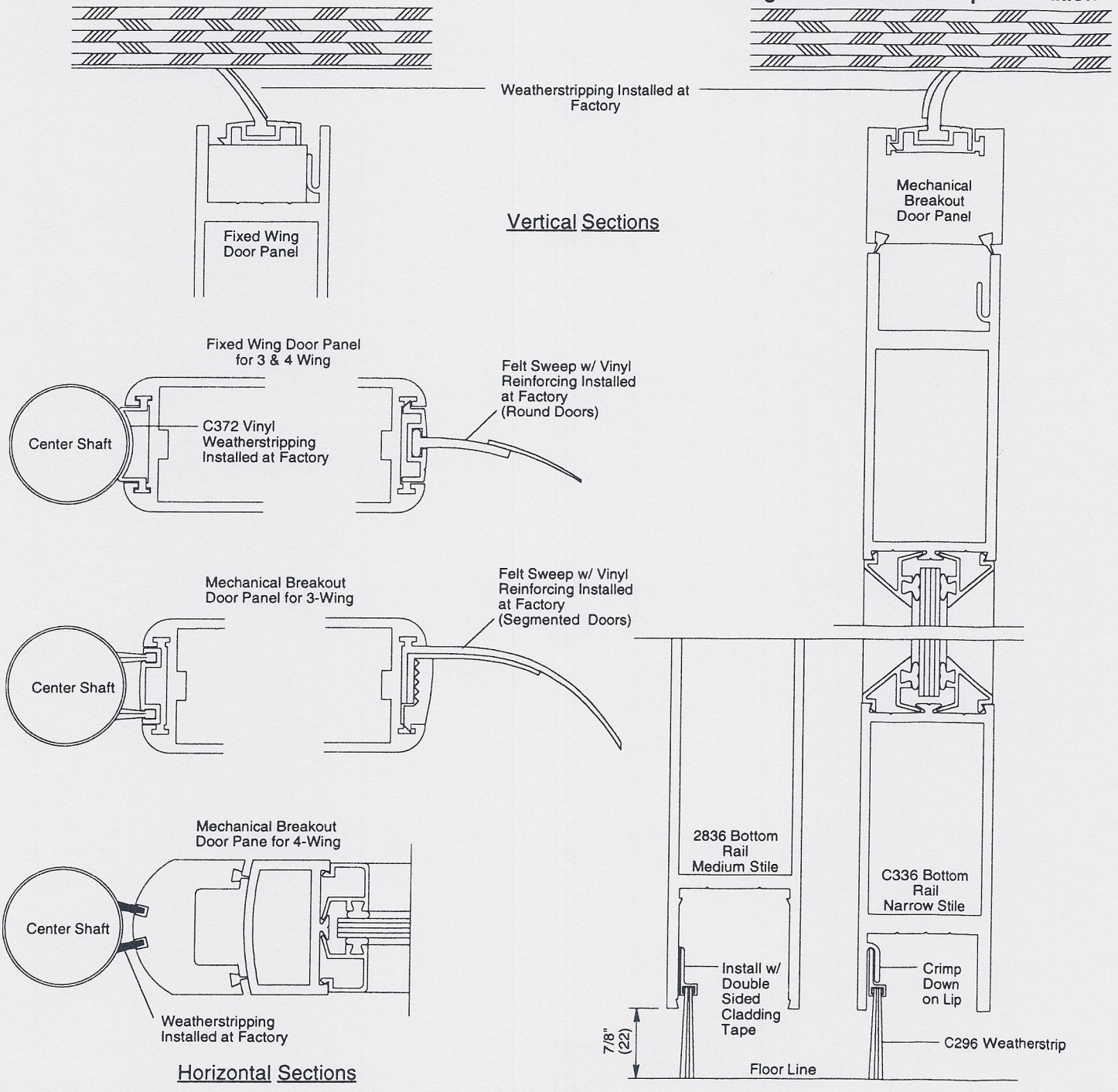
Figure 11 - Center Shaft Installation



12. WEATHERSTRIP INSTALLATION

A. Weatherstripping must be installed prior to door panel installation. Most of the weatherstripping has been preinstalled at the factory. The only weatherstripping that must be applied in the field is that which is located on the bottom of the door panels. For narrow stile doors the C296 weatherstrip must be slipped under the existing lip on the interior side of bottom rail, then the lip must be crimped down to hold weatherstrip in place. For medium stile doors, the C296 weatherstripping is applied to the bottom rail with two-sided cladding tape. The tape is already applied to the weatherstripping when shipped. So, remove the paper backing on tape and apply weatherstrip in proper location and height (Figure12).

Figure 12 - Weatherstrip Installation



13. DOOR WING PANEL INSTALLATION

NOTE: Be sure to place door panels with lock prep in proper locking positions. See Figures 1 & 2 on G917.4 for lock locations. Leave loose

A. INSTALLING 4-WING BOOK FOLD DOOR PANELS

1. Attach C9785 Breakout Arm to Top Spider using (2 ea.) C9796 3/8" SHCS provided (Figure 13 on G917.12).
2. Place bottom C9760 Pivot Bushing (located on underside of door panel) on C9784 Bottom Pivot Post which has been preinstalled at the factory (Figure 13). Grease Bottom Pivot before panel installation.
3. Install C9783 Pivot Post through Top Spider and into top C9760 Pivot Bushing (Located on top side of door panel). This should hold door panel in position and also allow door panel to swing on pivots. Engage the arm into the catch at the end and tighten the screws (Figure 13).
4. Door panel installation is now complete. Repeat steps 1-3 above for the rest of door panels. NOTE: See Figure 14, on G917.12, for 4-wing Bookfold Breakout details for + & x positions.

B. INSTALLING 4-WING EUROPEAN DOOR PANELS

1. Attach C9473 Breakout Arm to Top Spider using (2 ea.) C9796 3/8" SHCS provided (Figure 15 on G917.13).
2. Place bottom C9760 Pivot Bushing (located on underside of door panel) on C9784 Bottom Pivot Post which has been preinstalled at the factory (Figure 15). Grease Bottom Pivot before panel installation.
3. Install C9783 Pivot Post through Top Spider and into top C9760 Pivot Bushing (Located on top side of door panel). This should hold door panel in position and also allow door panel to swing on pivots (Figure 15).
4. Door panel installation is now complete. Repeat steps 1-3 above for the rest of door panels.

C. INSTALLING 4-WING FIXED DOOR PANELS

1. Attach C9727 Lower Arm to Bottom Spider using C9651 3/8"-16 x 1 1/2" FHSCS & C9654 1/4"Ø x 1 1/2" Roll Pin provided (Figure 16 on G917.13).
2. Attach bottom portion of door panel to C9727 Lower Arm using (4 ea.) C879R 1/4"-20 x 3/4" FHSCS provided (Figure 16).
3. Attach upper portion of door panel to Top Spider, by installing (2 ea.) C9796 3/8"SHCS through Top Spider & C9726-1 Upper arm which is preinstalled at the factory (Figure 16).
4. Door panel installation is now complete. Repeat steps 1-3 above for the rest of door panels.

D. INSTALLING 3-WING STANDARD BREAK-OUT DOOR PANELS

1. Attach C9730-1 Break-out Arm to Top Spider using (2 ea.) C9796 3/8" SHCS provided (Figure 17 on G917.14).
2. Place C5547-1 Bearing (located on underside of door panel) on C9733 Bottom Pivot Post which has been preinstalled at the factory (Figure 17). Grease Bottom Pivot before panel installation.
3. Install C9732 Pivot Post through Breakout Arm and into C542 Pivot Bushing (Located on top side of door panel). This should hold door panel in position and also allow door panel to swing on pivots (Figure 17).
4. Door panel installation is now complete. Repeat steps 1-3 above for the rest of door panels.

E. INSTALLING 3-WING FIXED DOOR PANELS

1. Attach C9727 Lower Arm to Bottom Spider using (2 ea.) C9651 3/8"-16 x 1 1/2" FHSCS provided (Figure 18 on G917.14).
2. Attach bottom portion of door panel to C9727 Lower Arm using (4 ea.) C879R 1/4"-20 x 3/4" FHSCS provided (Figure 18).
3. Attach upper portion of door panel to Top Spider, by installing (2 ea.) C9796 3/8" SHCS through Top Spider & C9726-1 Upper arm which is preinstalled at the factory (Figure 18).
4. Door panel installation is now complete. Repeat steps 1-3 above for the rest of door panels.

Figure 13 - Installing 4-Wing Bookfold Door Panel

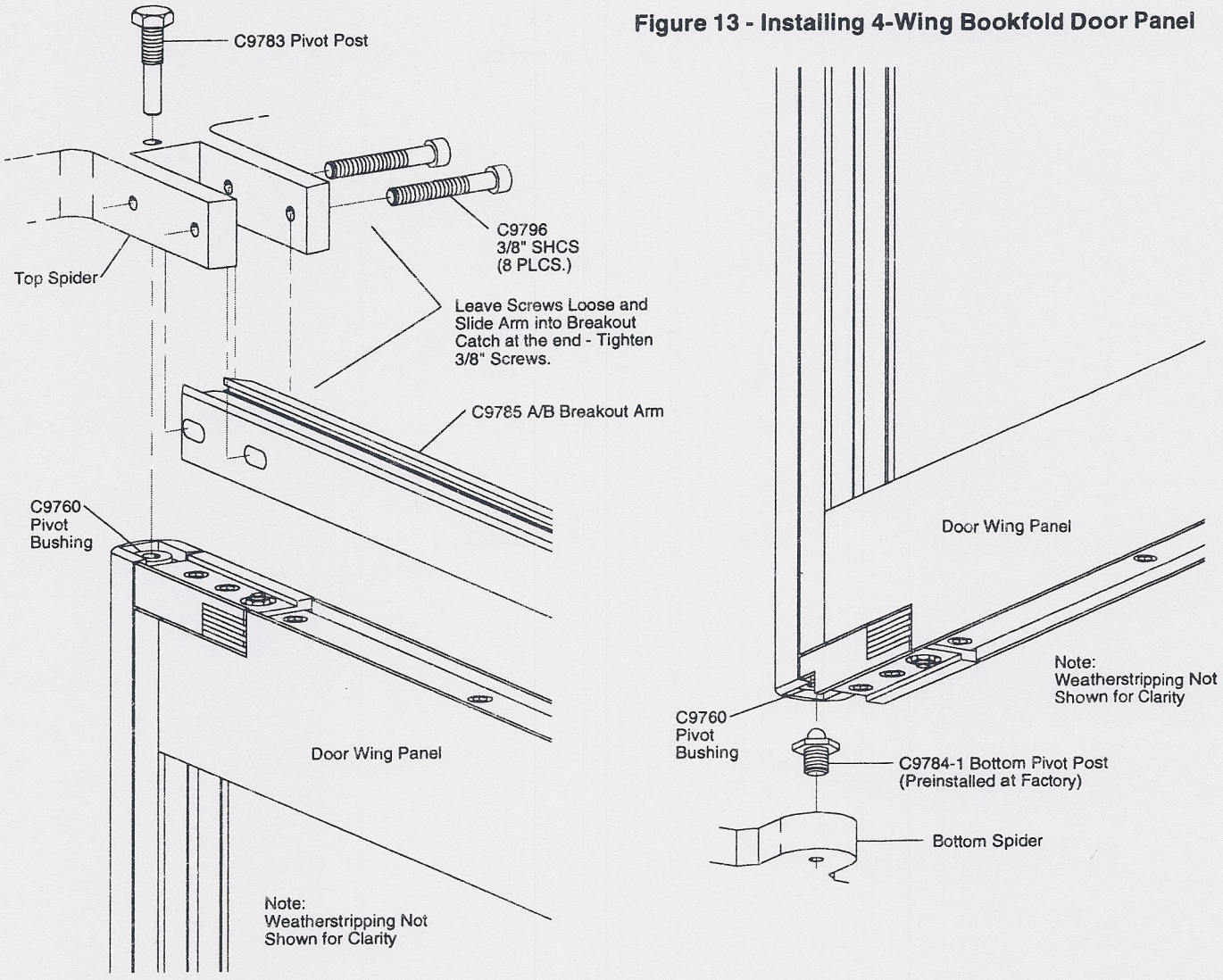
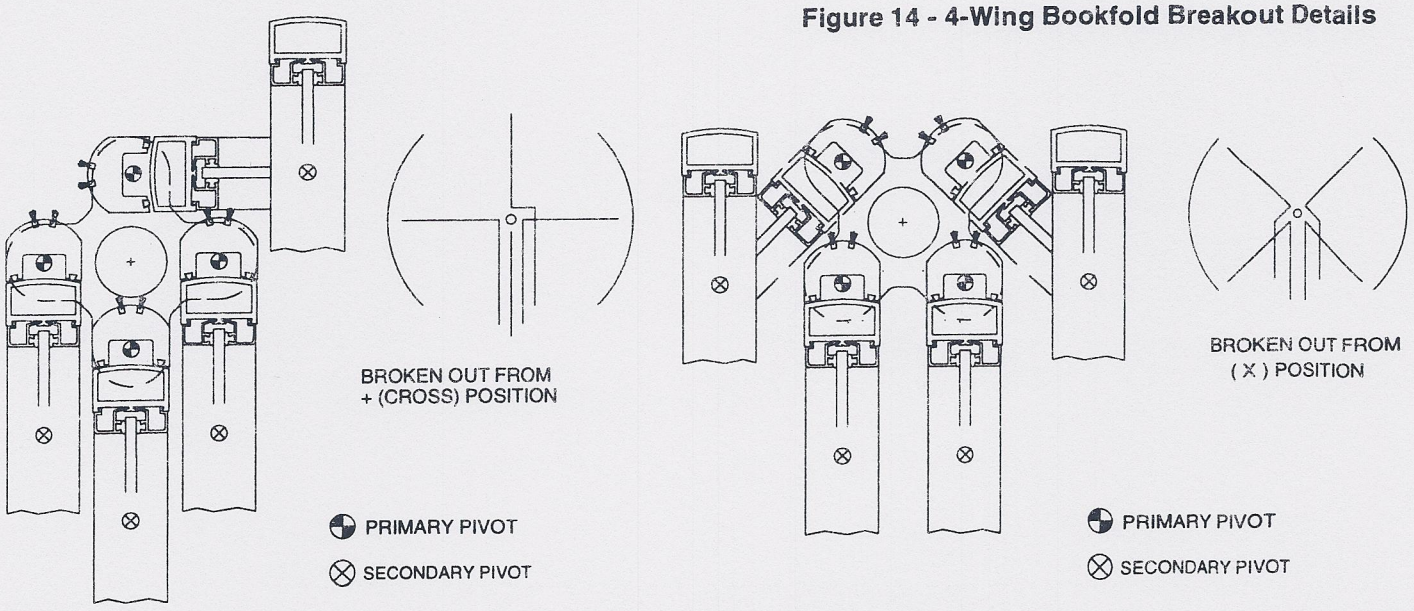


Figure 14 - 4-Wing Bookfold Breakout Details



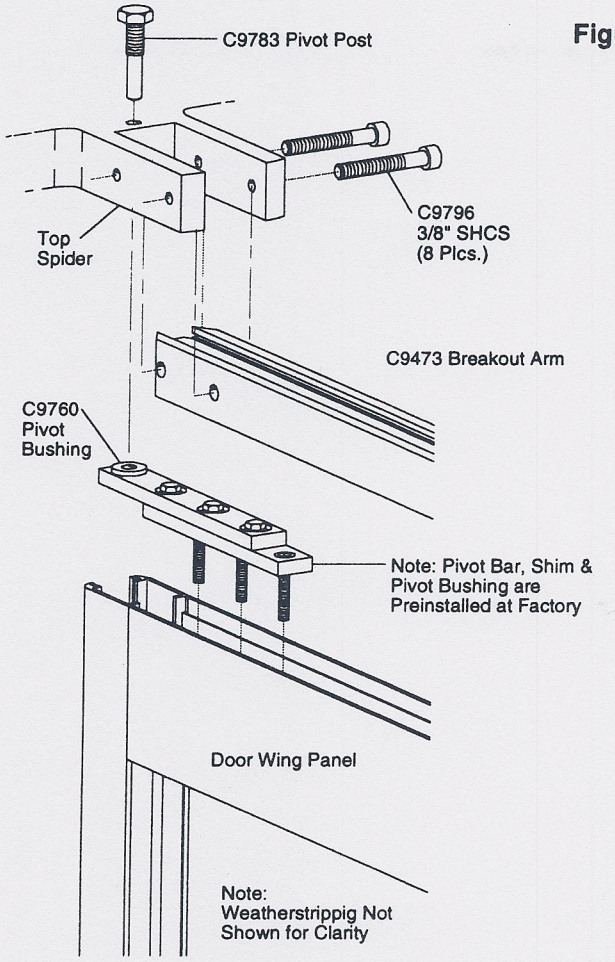


Figure 15 - Installing 4-Wing Euoropean Door Panel

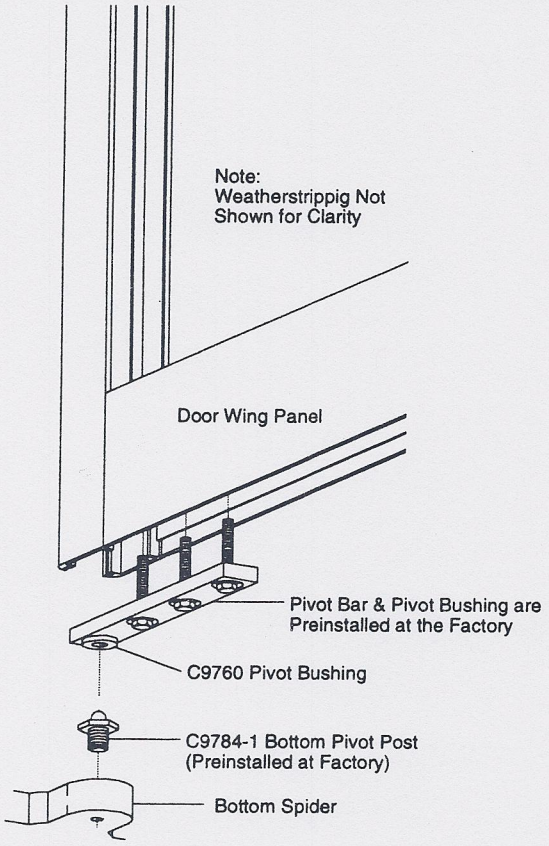
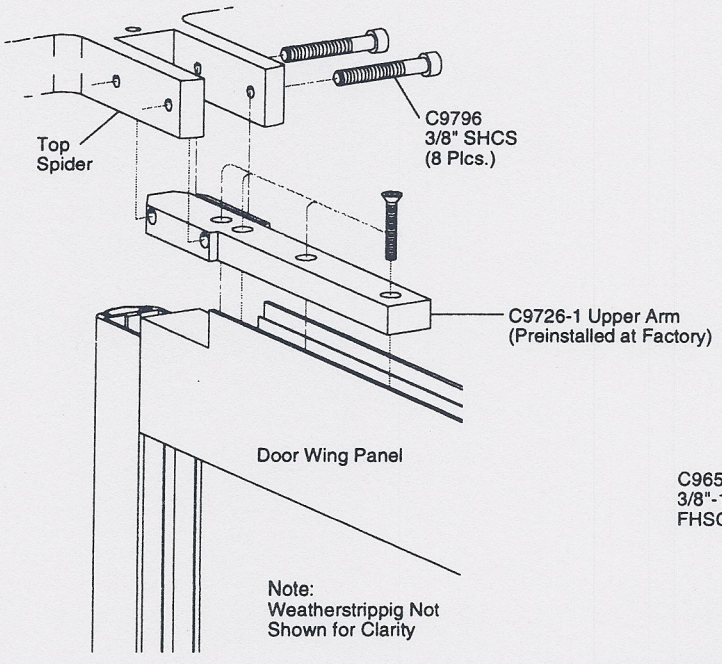
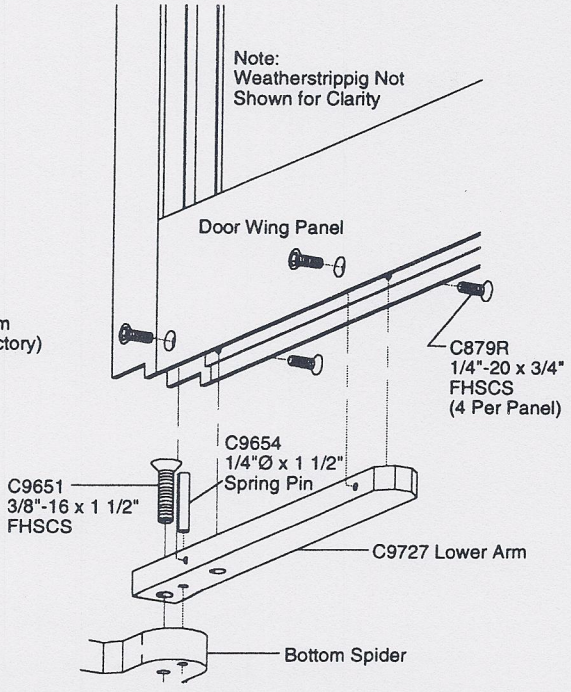


Figure 16 - Installing 4-Wing Fixed Door Panel





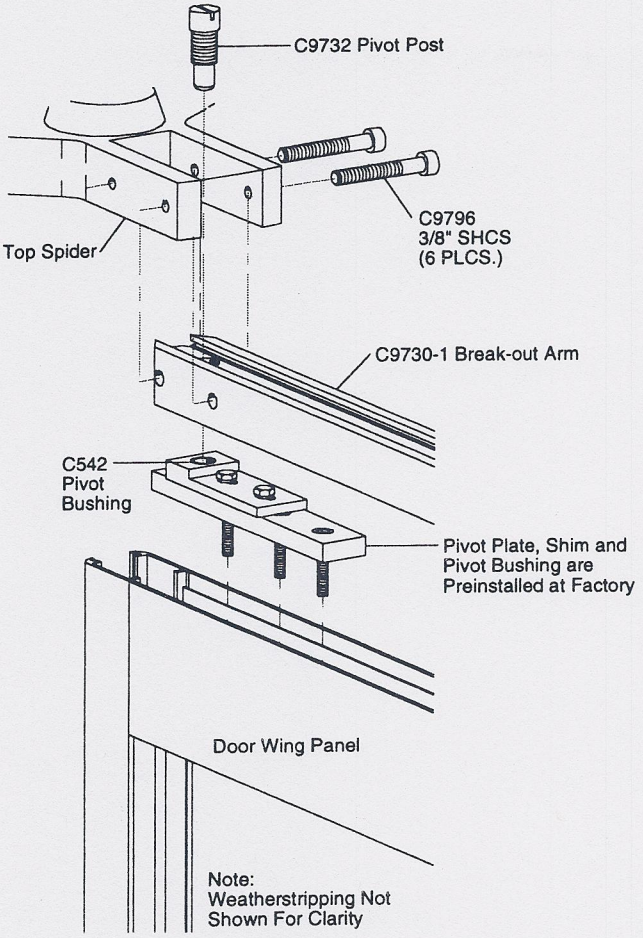


Figure 17 - Installing 3-Wing Standard Breakout Door Panel

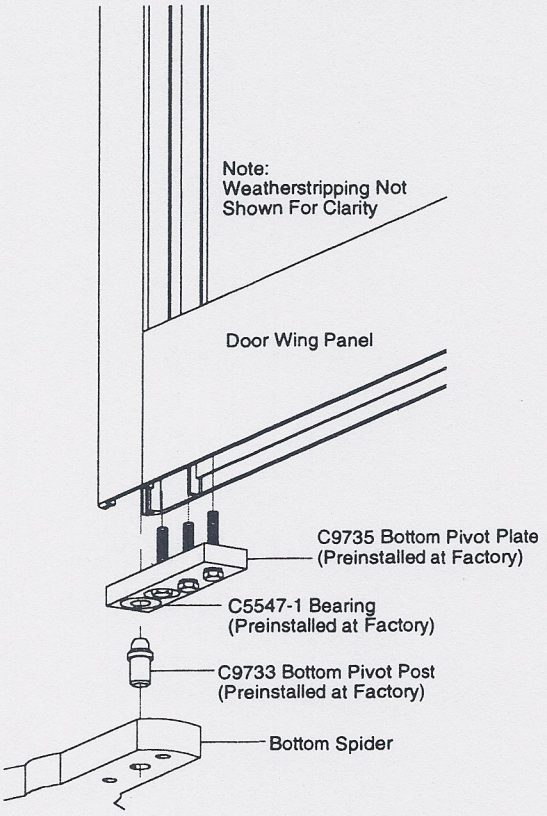
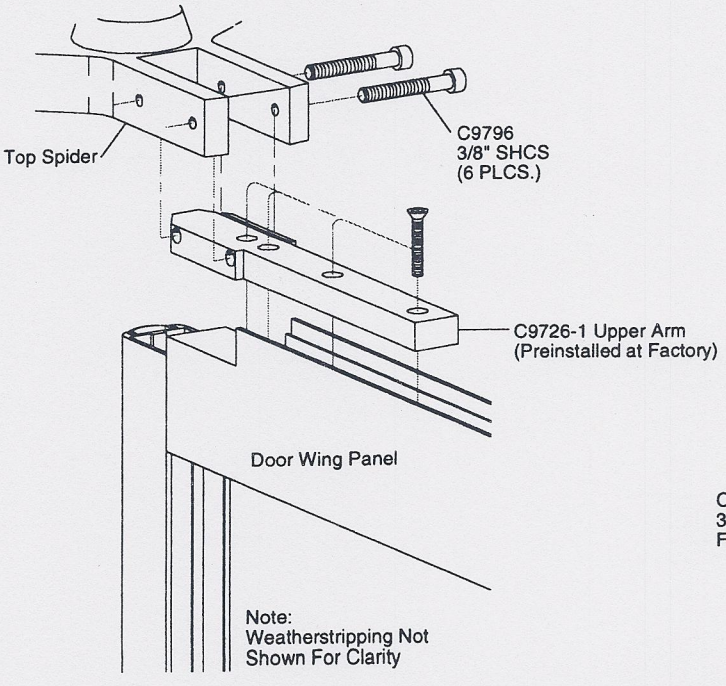
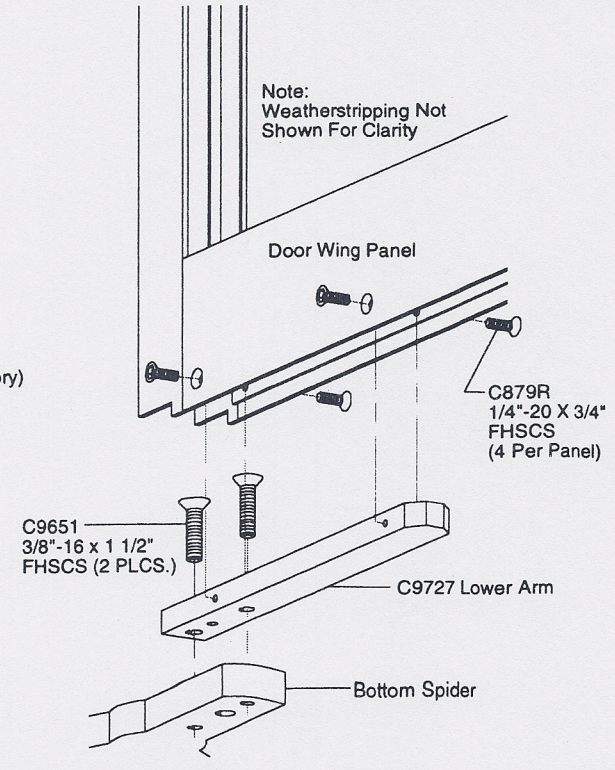


Figure 18 - Installing 3-Wing Fixed Door Panel





14. BALL CATCH ADJUSTMENT FOR 4-WING REVOLVERS

Figure 19 - Ball Catch Removal

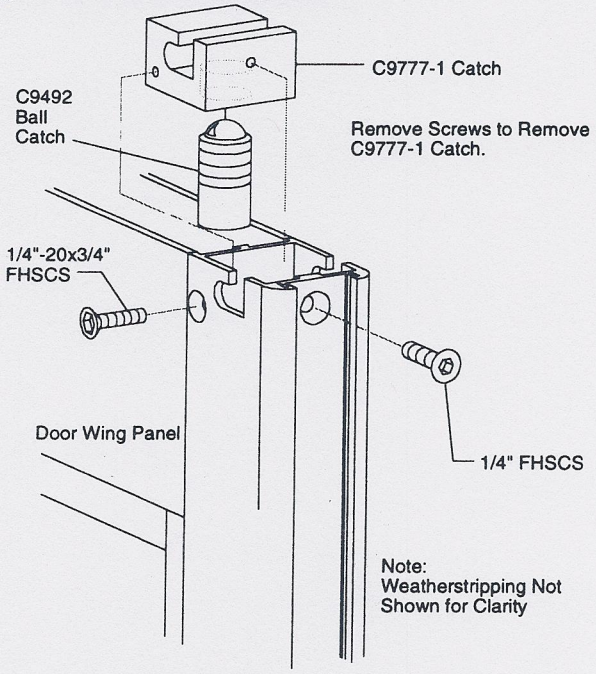
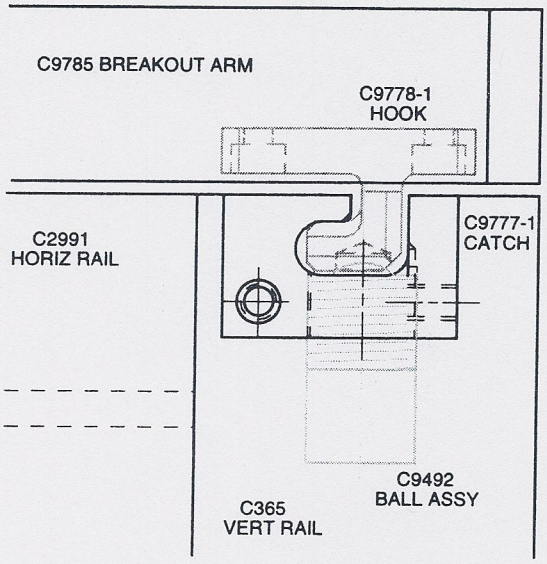


Figure 20 - Side View At Ball Catch



BEFORE REMOVING THE BALL CATCH, TEST THE DOOR FOR PROPER BREAKOUT FORCE (80lbs. to 100lbs.)

-If adjustment is required, remove the ball catch as shown in Figures 19 & 21.
-Adjust the ball catch as shown in Figure 22.
-Reinstall the ball catch and test the breakout for proper force.
-Repeat if necessary.

15. BALL CATCH ADJUSTMENT FOR 3-WING REVOLVERS

Figure 21 - Ball Catch Removal

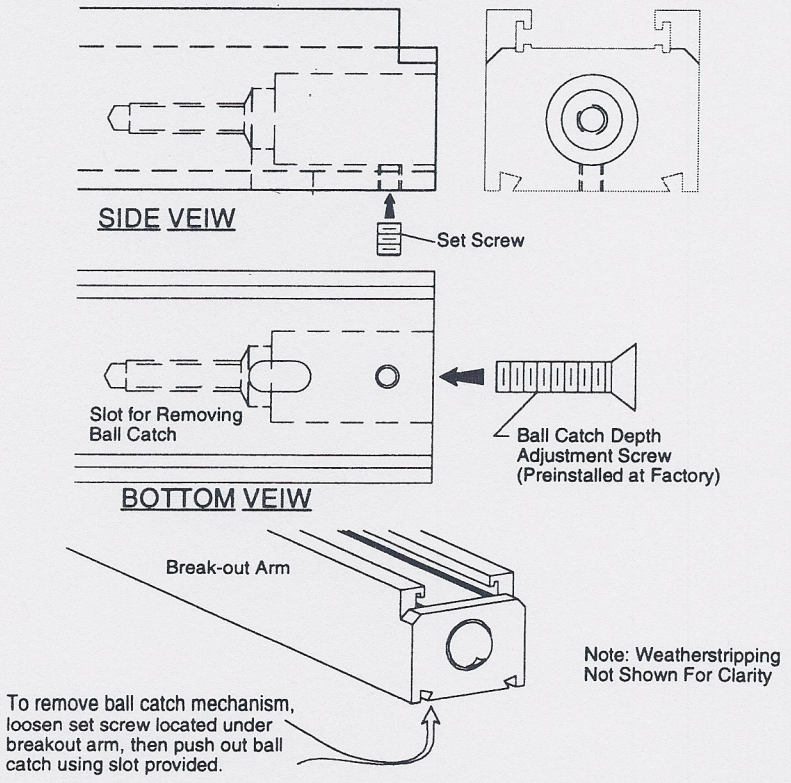
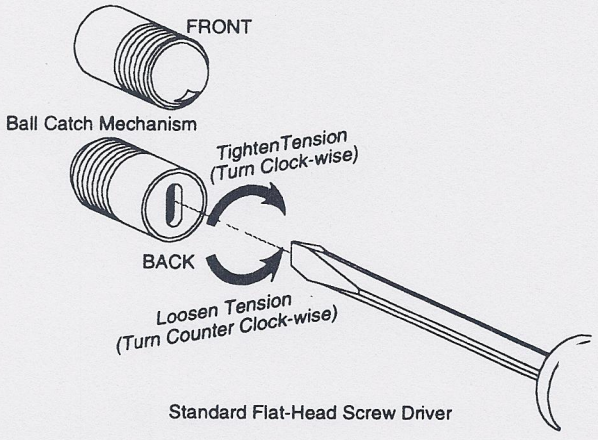


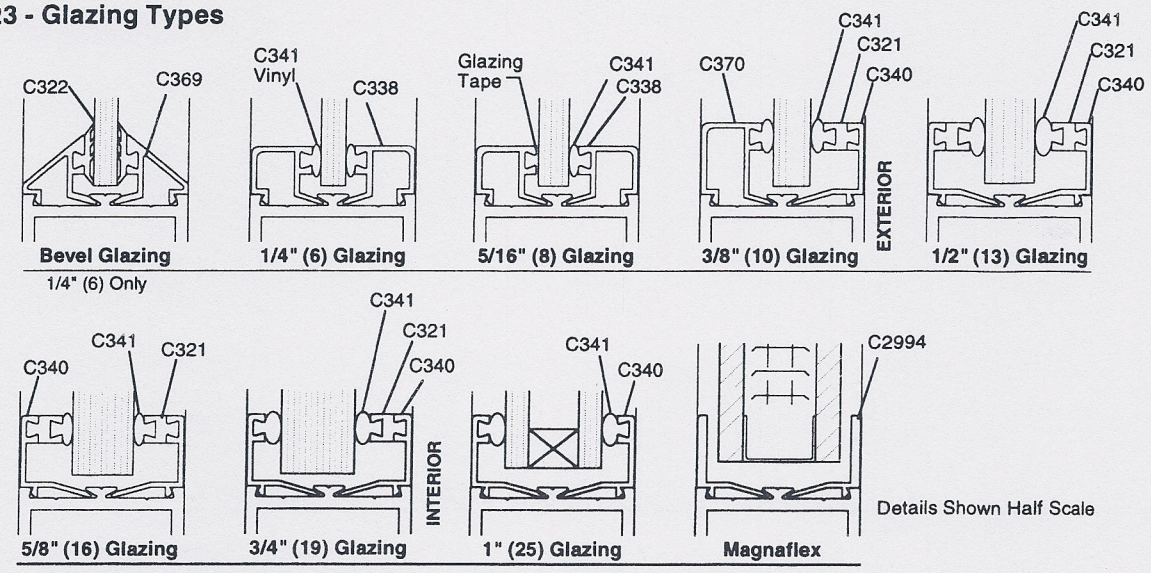
Figure 22 - Ball Catch Adjustment



16. INSTALLING DOOR WING GLAZING

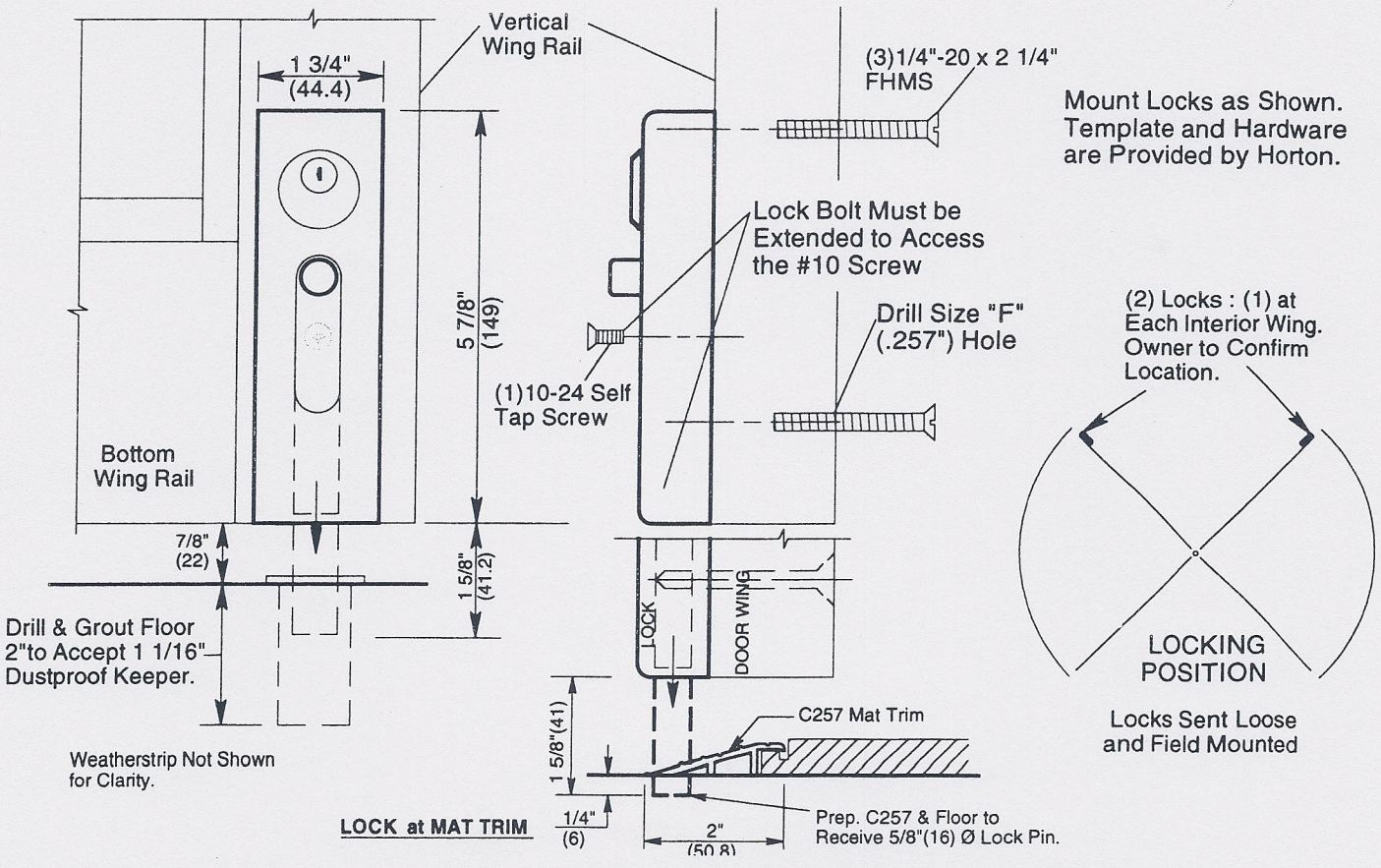
A. Be sure all nylon glazing blocks are in place. Panels may be glazed before or after installation.
- Install all stops to one side (horizontal then vertical).
- Install Glass.
- Snap stops in other side (a rubber mallet may be used to tap stops into place).
- Square up wings with shims at the setting blocks or using the jack screw in the top rail if necessary.

Figure 23 - Glazing Types



17. INSTALLING FLOOR LOCKS FOR 4-WING BOOK FOLD

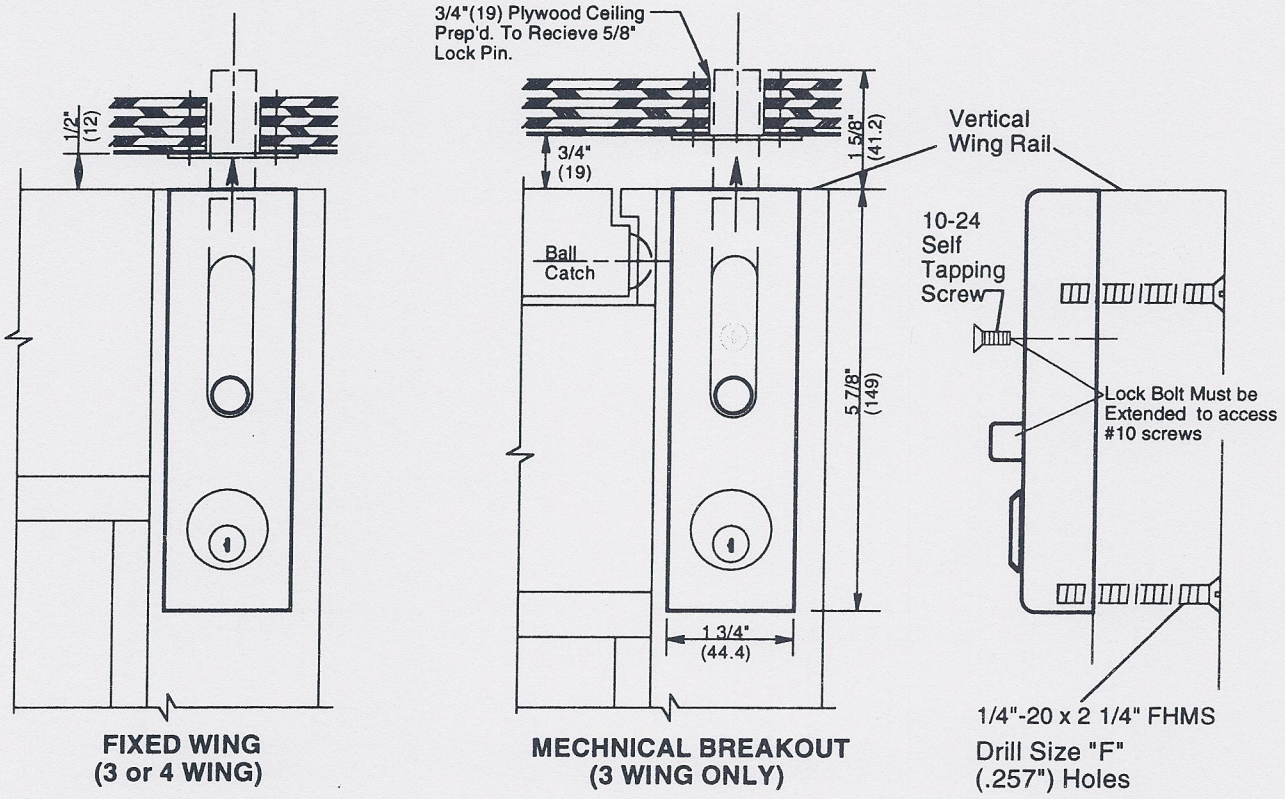
Figure 24

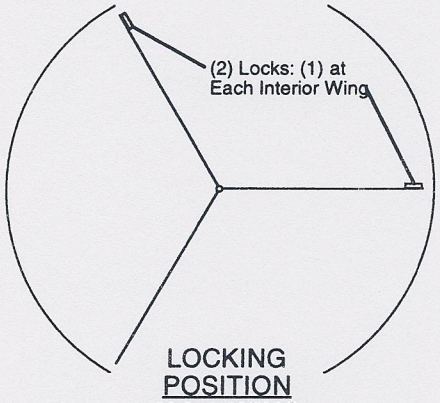


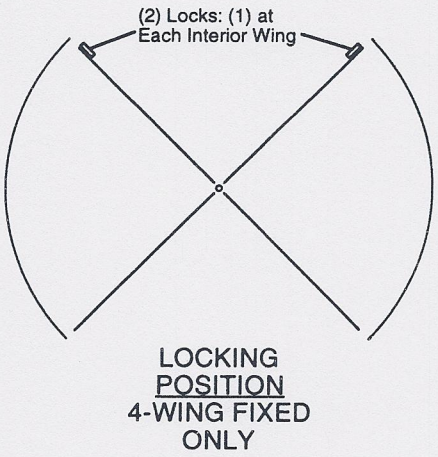
18. INSTALLING CEILING LOCKS

A. Mount locks as shown. Template and hardware are provided by Horton.

Figure 25- 3 or 4 Wing Fixed and 3 Wing Mechanical Breakout







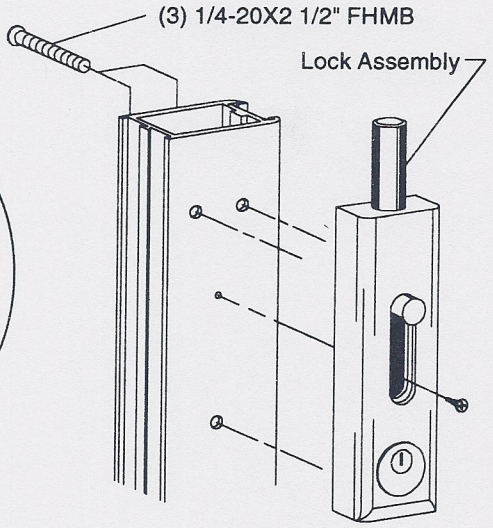
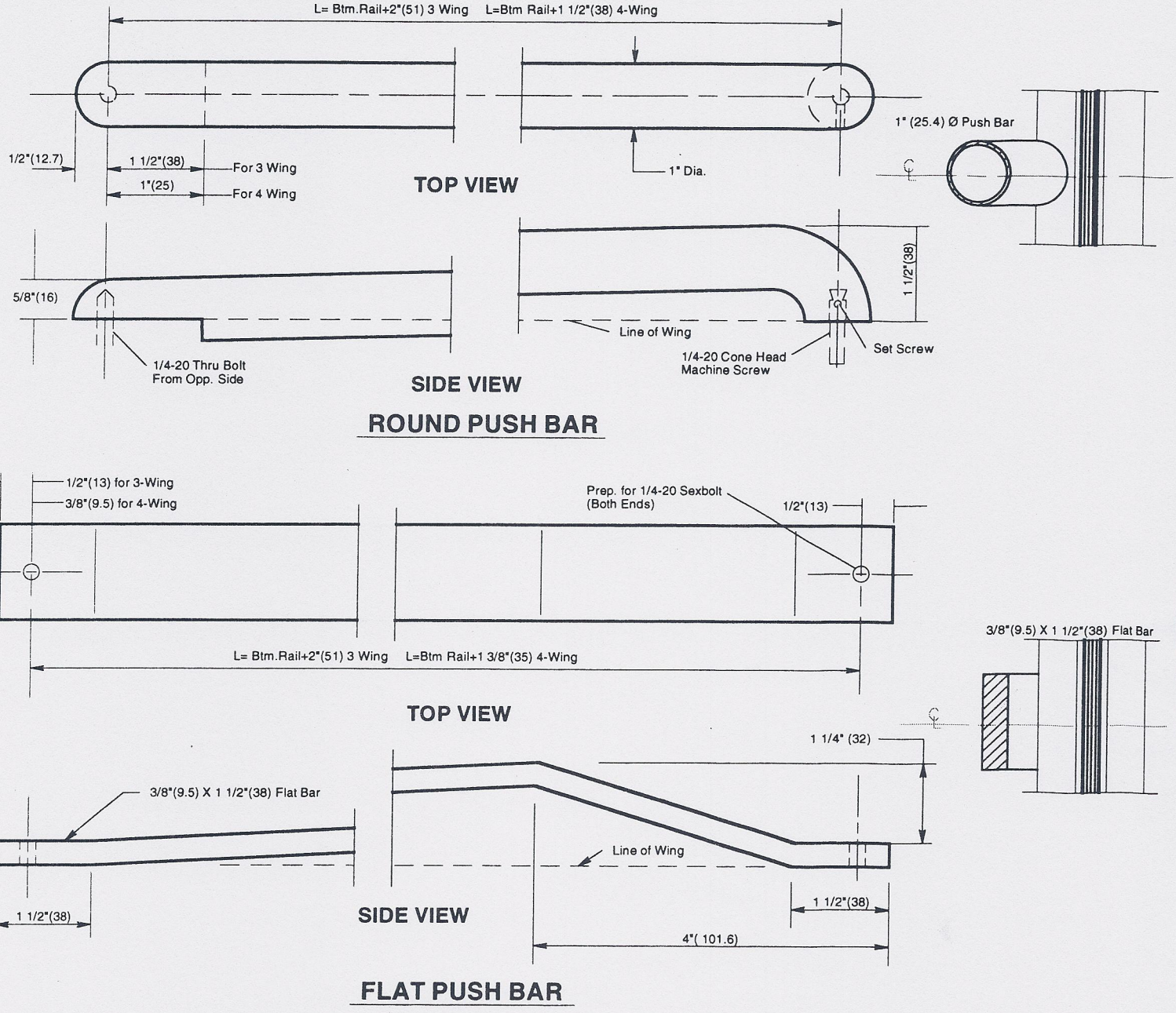


Figure 26 - Push Bar Installation



19. PUSH BAR INSTALLATION

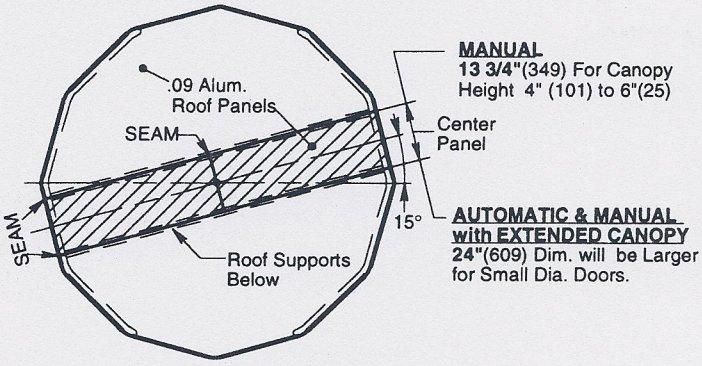
A. ROUND PUSH BAR INSTALLATION - Prep door wings (3'-9 7/8" from finish floor) for 1/4"-20 Thru Bolt & 1/4"-20 Cone Head Machine Screw (See Figure 29 above).

B. FLAT PUSH BAR INSTALLATION - Prep door wings (3'-9 7/8" from finish floor) for 1/4"-20 Sexnut at both ends (See Figure 26 above).

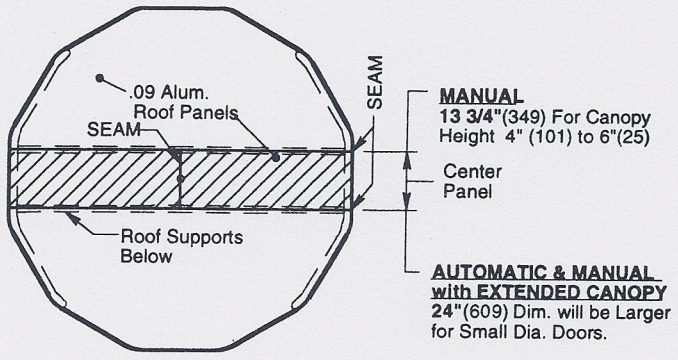
20. ROOF PANEL INSTALLATION

A. See Figure 27 on G917.19 for the different type of roof plans. Install roof panels using 1/4"-20x3/4" FHSMS screws provided. For round canopies, caulk seam where roof meets canopy edge to make weather tight (Figure 28).

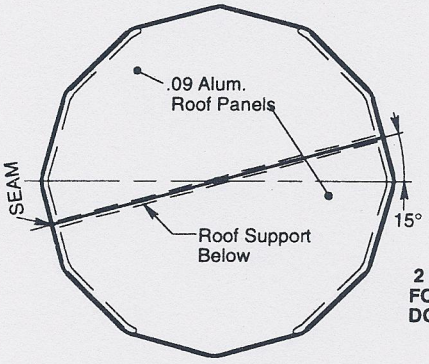
Figure 27 - Roof Plans



3- WING SEGMENTED
(Roof with Center Panel for Center Connected Applications)

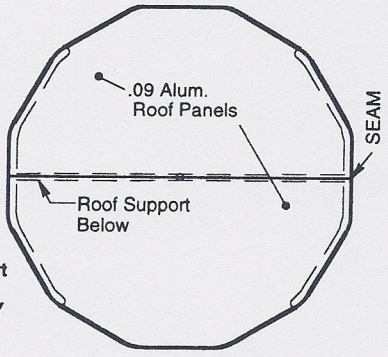


4- WING SEGMENTED
(Roof with Center Panel for Center Connected Applications)

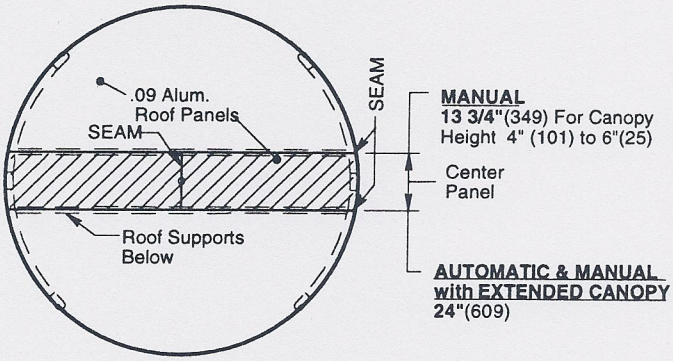


3- WING SEGMENTED
(2- Piece Roof for Entry Connected Applications)

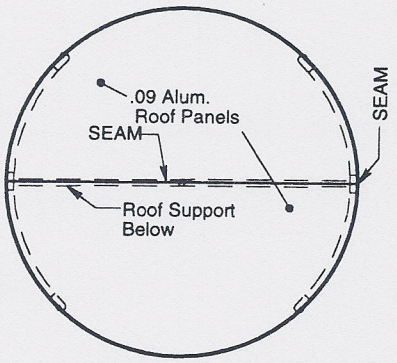
2 Piece Roof with Center Support
FOR AUTOMATIC & MANUAL
DOORS with EXTENDED CANOPY



4- WING SEGMENTED
(2- Piece Roof for Entry Connected Applications)



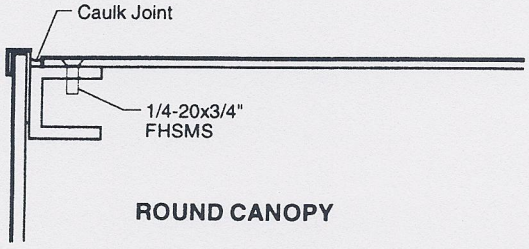
3 &4-WING ROUND
(Roof with Center Panel for Center Connected Applications)



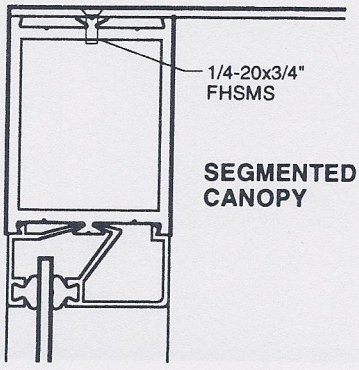
3 &4-WING ROUND
(2- Piece Roof for Entry Connected Applications)

ROUND ROOF PLANS ALSO APPLY TO ROUND CANOPY ON SEGMENTED DRUM

Figure 28 - Section at Roof



ROUND CANOPY



SEGMENTED CANOPY

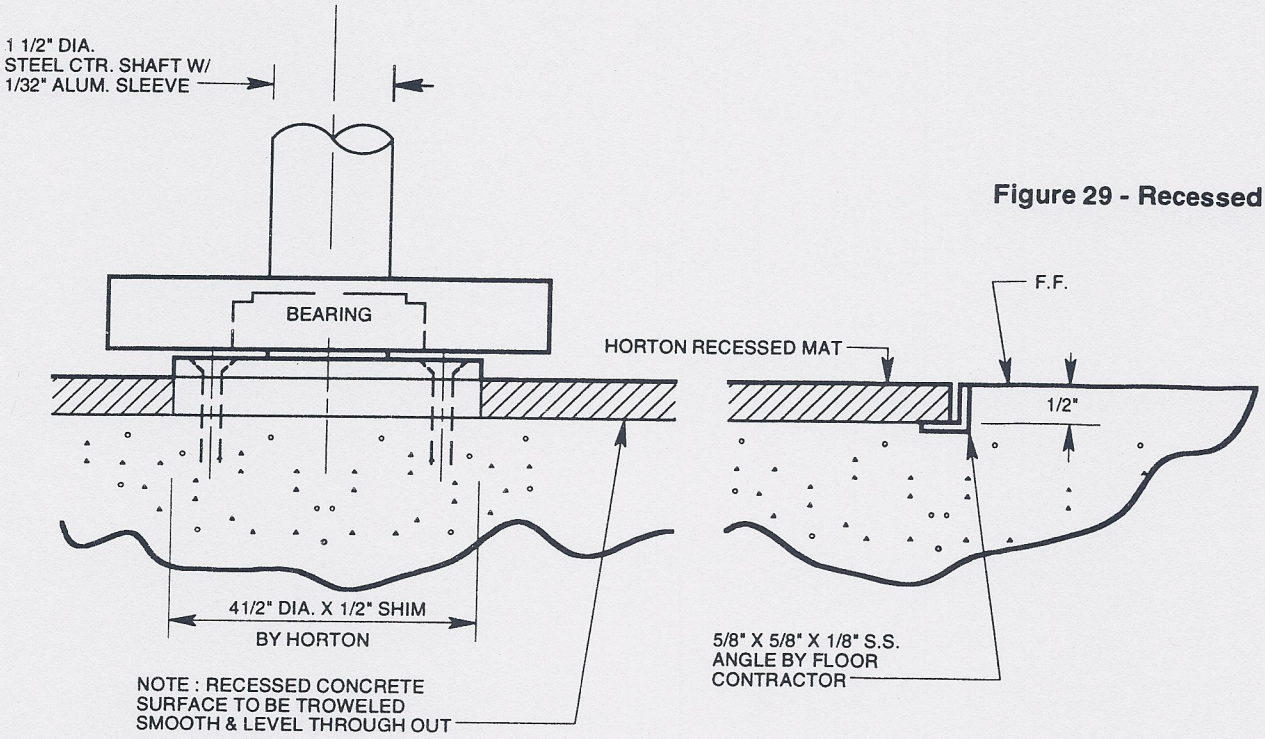


Figure 29 - Recessed Mat

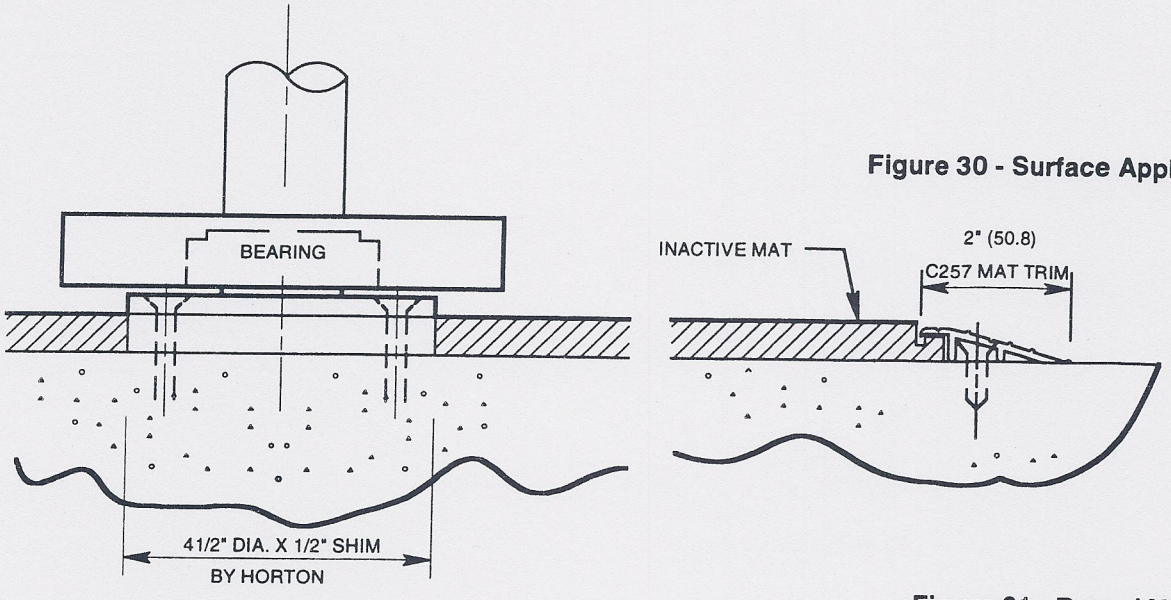
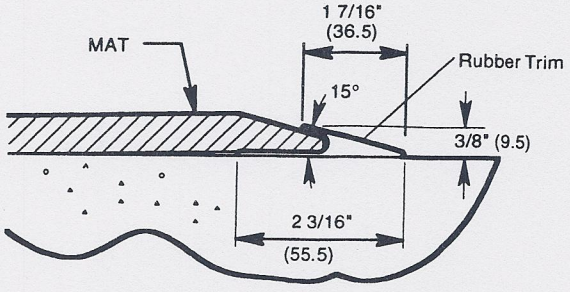


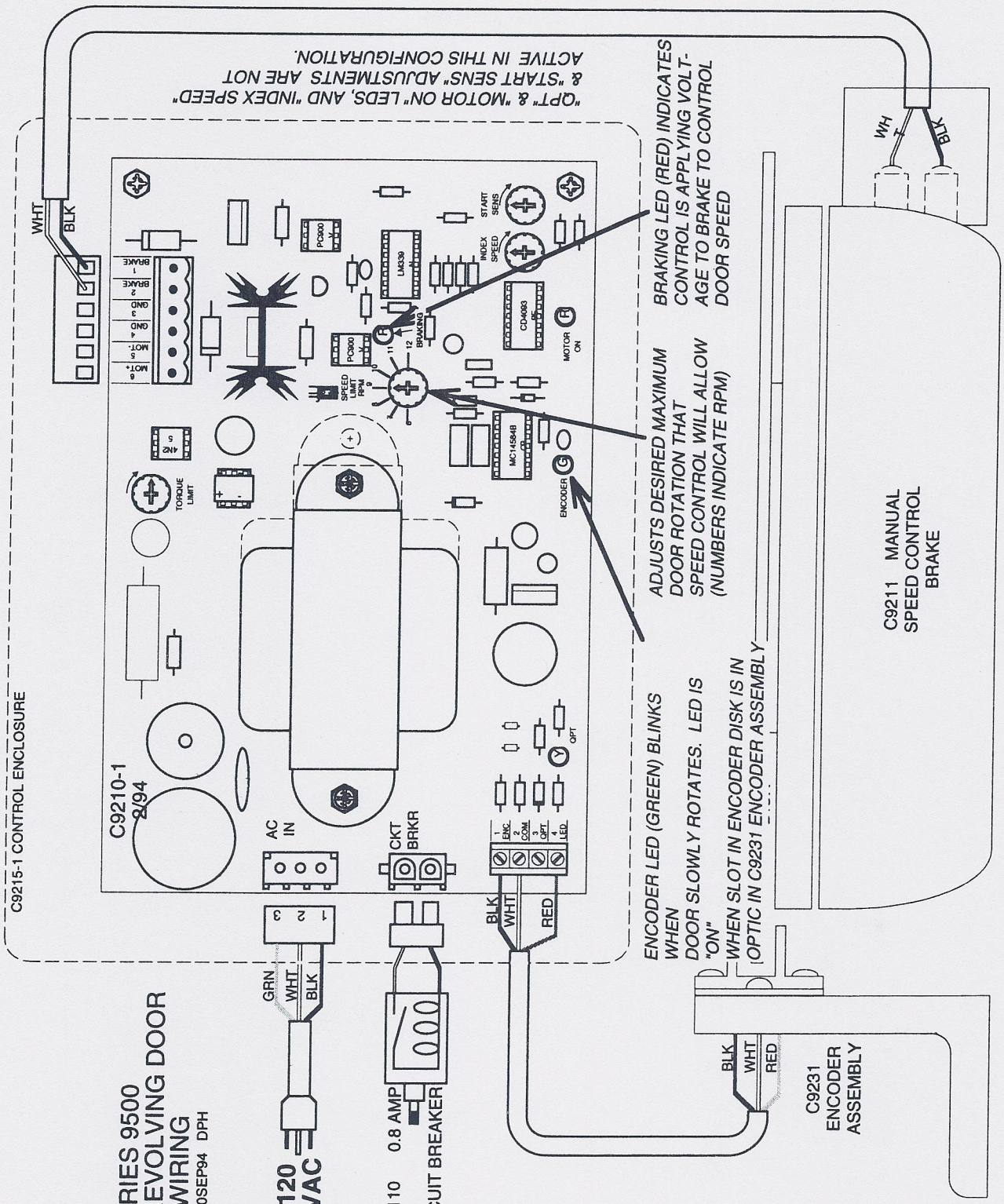
Figure 30 - Surface Applied Mat

Figure 31 - Round Mat Trim

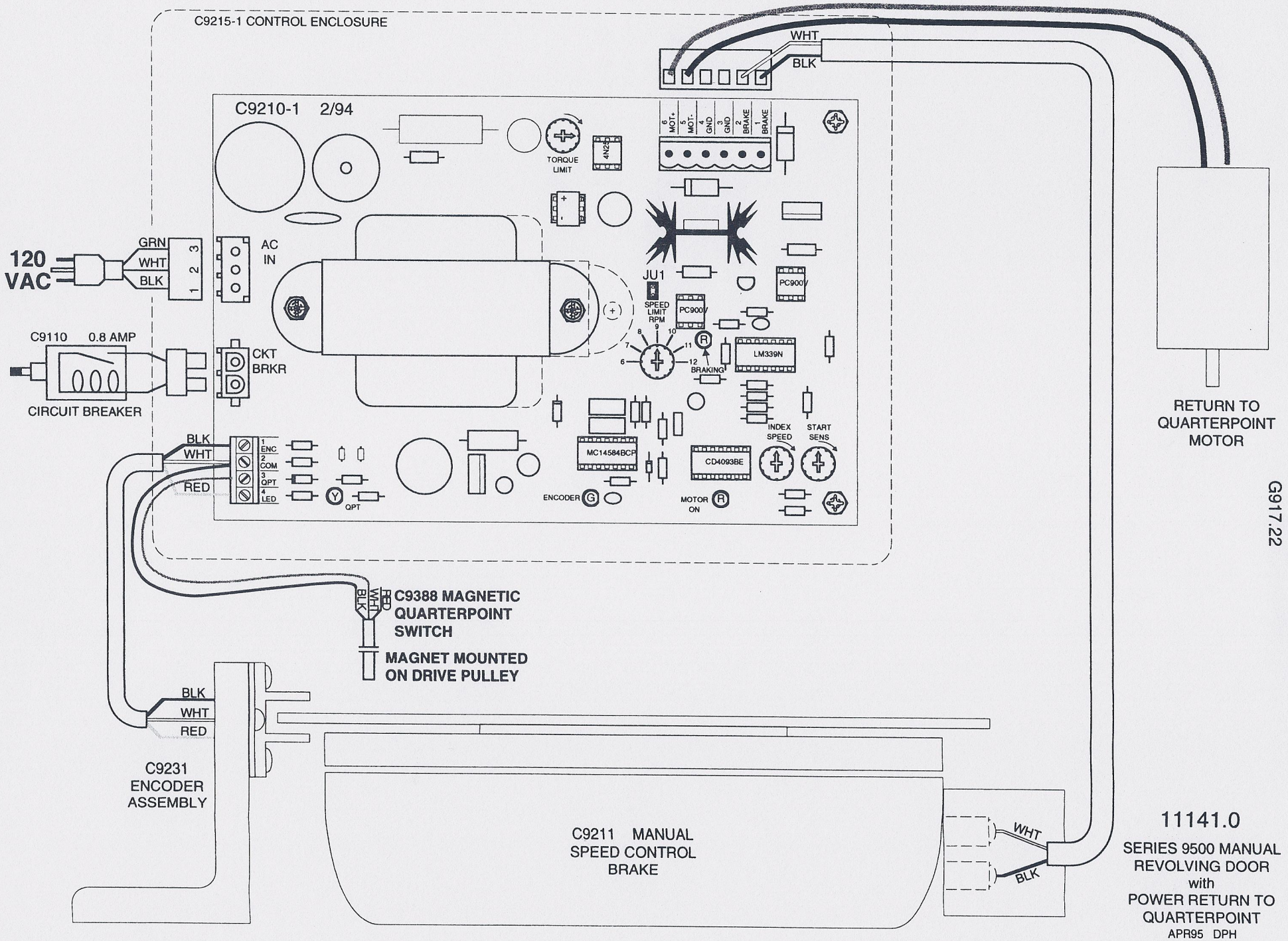
21. INSTALLING MATS

A. When mats are installed, a 1/2" alum. shim must be placed below the center pivot. Shim should be installed at the same time that center pivot is installed (See Section 10 on G917.8). After center pivot & shim are in place, install mat sections prior to proceeding with installation of center shaft and door wings (Figures 29,30 & 31 on this page).




SERIES 9500
MANUAL REVOLVING DOOR
WIRING
20SEP94 DPH
120
VAC
C9110 0.8 AMP
CIRCUIT BREAKER
C9215-1 CONTROL ENCLOSURE
C9210-1
2/94
"QPT" & "MOTOR ON" LEDS, AND "INDEX SPEED"
& "START SENS" ADJUSTMENTS ARE NOT
ACTIVE IN THIS CONFIGURATION.
ADJUSTS DESIRED MAXIMUM
DOOR ROTATION THAT
SPEED CONTROL WILL ALLOW
(NUMBERS INDICATE RPM)
BRAKING LED (RED) INDICATES
CONTROL IS APPLYING VOLT-
AGE TO BRAKE TO CONTROL
DOOR SPEED
ENCODER LED (GREEN) BLINKS
WHEN
DOOR SLOWLY ROTATES. LED IS
"ON"
WHEN SLOT IN ENCODER DISK IS IN
OPTIC IN C9231 ENCODER ASSEMBLY
C9211 MANUAL
SPEED CONTROL
BRAKE
C9231
ENCODER
ASSEMBLY
WHT
BLK
GRN
RED
AC
IN
CKT
BRKR
TORQUE
LIMIT
SPEED
LIMIT
RPM
BRAKING
MOTOR
ON
ENCODER
QPT
INDEX
SPEED
START
SENS
LM339
CD4093
MC145848
PQ900
BRAKE
GND
MOT+
MOT-
ENC
COM
LED

10865.1


C9215-1 CONTROL ENCLOSURE
C9210-1 2/94
WHT
BLK
RETURN TO QUARTERPOINT MOTOR
120 VAC
GRN
WHT
BLK
AC IN
C9110 0.8 AMP
CIRCUIT BREAKER
CKT BRKR
JU1
SPEED LIMIT RPM
TORQUE LIMIT
4N28
PC900V
LM339N
BRAKING
INDEX SPEED
START SENS
MC14584BCP
CD4093BE
ENCODER
MOTOR ON
QPT
BLK
WHT
RED
C9388 MAGNETIC QUARTERPOINT SWITCH
MAGNET MOUNTED ON DRIVE PULLEY
C9231 ENCODER ASSEMBLY
C9211 MANUAL SPEED CONTROL BRAKE
G917.22
11141.0
SERIES 9500 MANUAL REVOLVING DOOR
with
POWER RETURN TO QUARTERPOINT
APR95 DPH

C9210-1 CONTROL ADJUSTMENT 10FEB94

1. Temporarily disable the quarterpoint switch by removing its wire from pin 3 ("QPT") of the connector CN1. Set TORQUE LIMIT adjustment R31 and INDEX SPEED adjustment R25 fully counter-clockwise. Set START SENS adjustment R21 fully clockwise.
2. Adjust SPEED LIMIT SET adjustment R4 to the desired maximum manual door speed in RPM. This speed may be set from 6-12 RPM - the circuit board is marked in 1 RPM increments for your convenience.
3. Turn on the circuit breaker to apply power to the control. If the red MOTOR ON indicator is NOT illuminated, manually push the door to turn on the indicator. The motor will not run yet.
4. Increase INDEX SPEED adjustment R25 until the desired indexing speed is achieved. Recommended speed is 1 RPM (1 door leaf passing every 20 seconds [3-wing] or 15 seconds [4-wing]).
5. Obstruct the door and observe the pressure required to stop it. If the pressure is deemed excessive, increase TORQUE LIMIT adjustment R31 until the pressure is limited to a suitable value. NOTE: If the torque limit is made too sensitive, the door may not index in severe weather conditions (frozen weatherstrip, high winds, etc.)
6. Re-connect the quarterpoint switch wire to pin 3 of CN1. Slowly turn START SENS adjustment R21 counter-clockwise until the door indexes when the yellow QPT indicator comes on. After this point is found, rotate the START SENS adjustment counter-clockwise an additional 10-15 to ensure that the door will quarterpoint reliably.
NOTE: If the START SENS pot is too far clockwise, the motor and the MOTOR ON indicator will never go off. If the START SENS pot is too far counter-clockwise, the control will not start the motor when a slow-moving pedestrian passes through and the MOTOR ON indicator will never illuminate. In either case, the door will not index properly.
7. Check all door functions by passing through the door. When a person passes through the door, the MOTOR ON indicator should light and the motor should begin running. If the door speed is increased above the indexing speed, at approximately 2 RPM below the set speed limit, the BRAKE ON indicator should also come on and resistance should be felt. The required force to push the door should increase gradually and smoothly as an attempt is made to push the door even faster, and it should be virtually impossible to make the door rotate faster than the set speed limit. When the door is exited, it should drop to the set index speed and begin seeking its index (quarterpoint) position. When the switch trips, the door should die in place and remain off until the next pedestrian arrives.
NOTE: If the index position is incorrect, make appropriate mechanical adjustments to the quarterpoint switch indicators.

The above sequence must be followed EXACTLY to properly set the C9210-1 control.

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