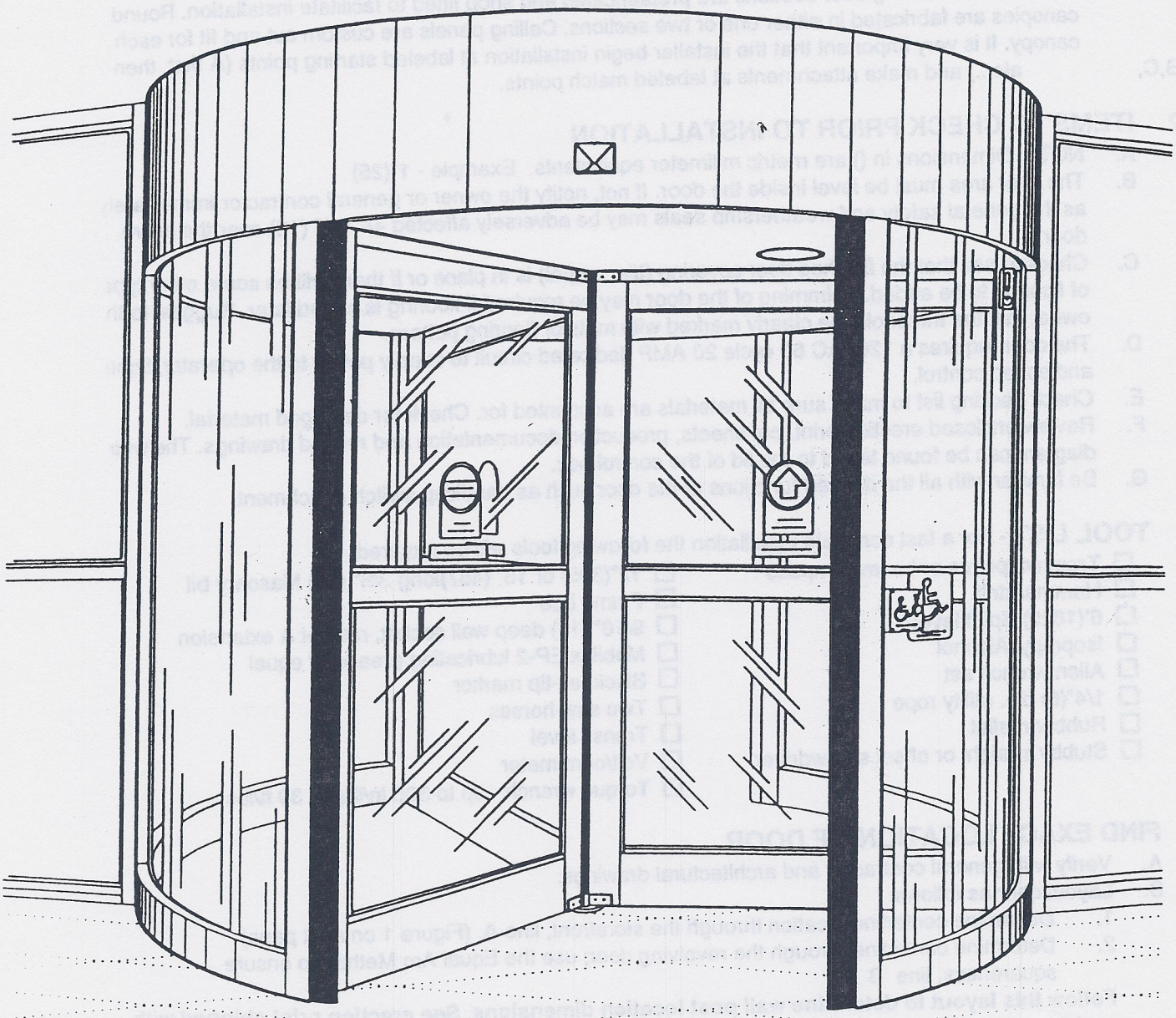
Round Revolving Door

Drum Assembly Instruction Manual



Horton AUTOMATICS

G915
JAN97

1. 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 th the door is placed properly. Holes must be drilled in the correct places and the door in its entirety m be plumb and level. Therefore the door must be installed under the supervision of a trained professic 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 begin installation at labeled starting points (A first, then B,C, etc...) and make attachments at labeled match points.

2. ITEMS TO CHECK PRIOR TO INSTALLATION

A. NOTE: Dimensions in () are metric milimeter equivalents. Example - 1"(25)

B. The floor area must be level inside the door. If not, notify the owner or general contractor immediatel 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 th owner that the threshold be clearly marked with mats or flooring pattern.

D. The door requires a 120VAC 60 cycle 20 AMP dedicated circuit to supply power to the operator, light and speed control.

E. Check packing list to make sure all materials are accounted for. Check for damaged material.

F. Review enclosed erection print, cut sheets, production documentation and related drawings. The wiri 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.

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

- ☐ Trammel points or beam compass
- ☐ Hammer drill
- ☐ 6'(1829) 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
- ☐ Transit level
- ☐ Volt/ohm meter
- ☐ Torque wrench - up to 300 in/lbs or 30 ft/lbs

4. FIND EXACT LOCATION OF DOOR

A. Verify with general contractor and architectural drawings.

B. Layout door as follows:

1. Determine centerline location through the storefront, line **A**. (Figure 1 on next page)
2. Determine centerline through the revolving door; use the Equal Arc Method to ensure squareness, line **B**.

Follow this layout to determine wall post location dimensions. See erection print shipped with each door.

EQUAL ARC METHOD (Figure 1 & 2)

1. Measure 3'(991) on line **A** from each side of center point.
2. Draw 5'(1524) arc from these points on line **A** (top and bottom).

C. Draw a circle from the center point representing the outside diameter of the door, line **C**. This will serv as a reference point for anchoring the wall section. Layout the revolver using the erection print. A black felt-tip marker should be used to prevent accidental erasure of layout lines. The outside edge o the wall post should touch this circle (Figure 2 on next page). The door location is now laid out and you should proceed to the assembly phase.

Figure 1 - Equal Arc Method

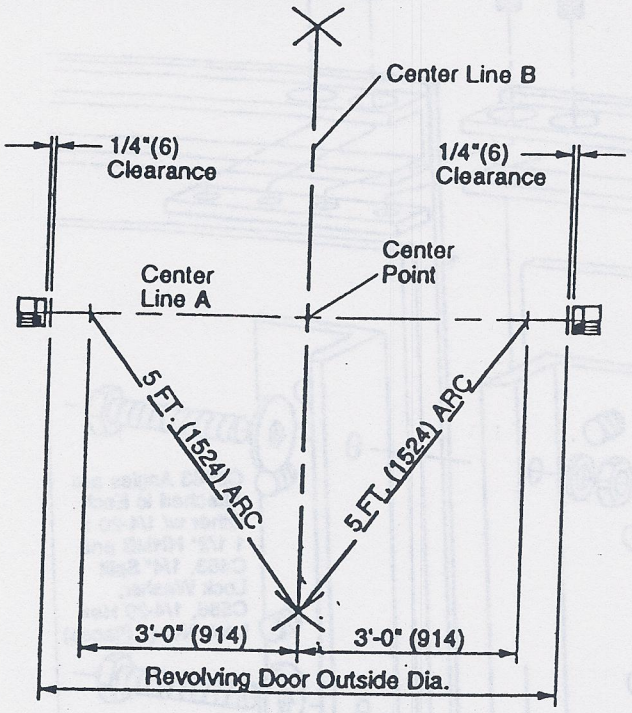
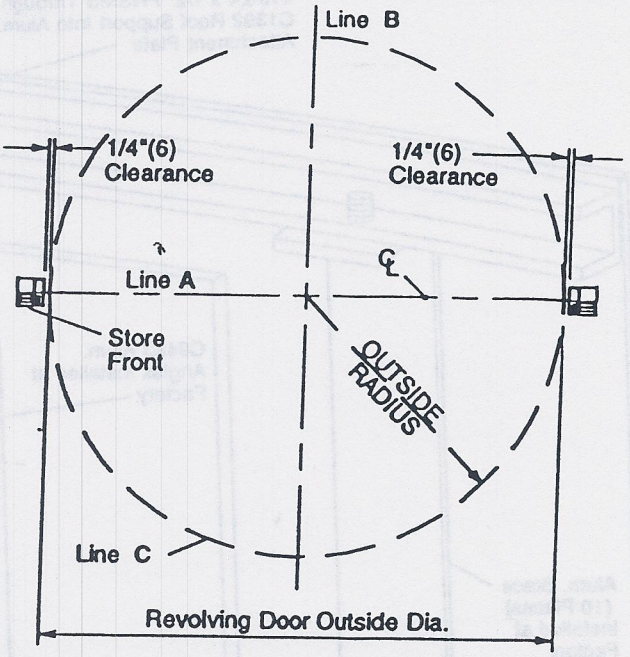


Figure 2 - Revolving Door Layout



5. DRUM ASSEMBLY

A. See figures (3 & 4 on this page) for plan and section views of rails required for drum assembly. Canopies are usually shipped in two, four or six sections, depending on the diameter of the revolver. Assemble canopy sections as needed, see (Figure 5 on G915.3 & Figure 6 G915.4). On small diameter revolvers (7' I.D. and under) canopies are sent as one fully assembled unit.

B. Using a lift, scaffold, or a 2x4 frame, support the canopy approximately 2" (50.8) above the height of the drum section see (Figure 7 on G915.4). Postion the support tube/bracket assembly inside canopy. Next, position vertical and throat rails under the canopy and bolt together see (Figure 8 on G915.4).

C. Remove and discard shipping screws located on the bottom of either side of the bottom rail assemblies to allow for removal of C2957 outer bottom rail, see (Figure 9 on G915.5). Remove the C2957 bottom rail half to access the brackets and mounting holes. Assemble vertical, throat and bottom rail sections, see (Figure 10 & G915.5). Vertical, throat and bottom rails are usally not match-marked and can be used in any position.

Figure 3 - Plan Velw of 3 & 4 Wing Revolver

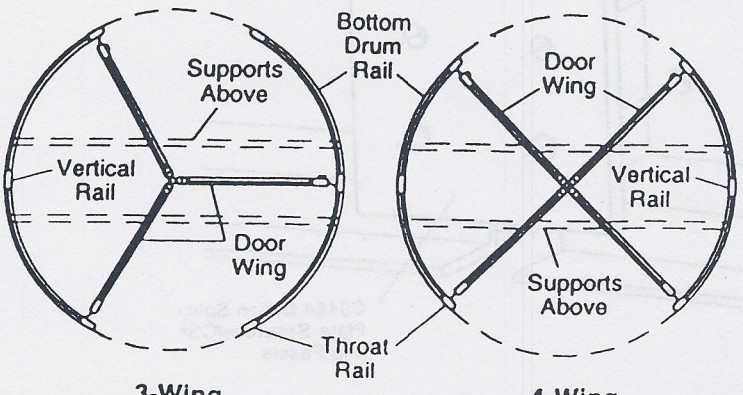
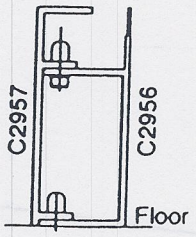
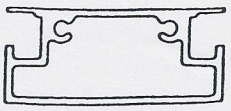


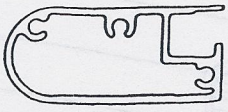
Figure 4 - Sections Through Rails



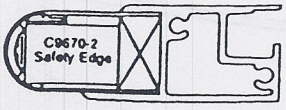
Bottom Drum Rail Vertical Section



C2955 Vertical Rail Horizontal Section



C2950 Throat Rail (Manual Revolver) Horizontal Section



C2951-1 Throat Rail (Automatic Revolver) Horizontal Section

Figure 5 - Extended Canopy Assembly

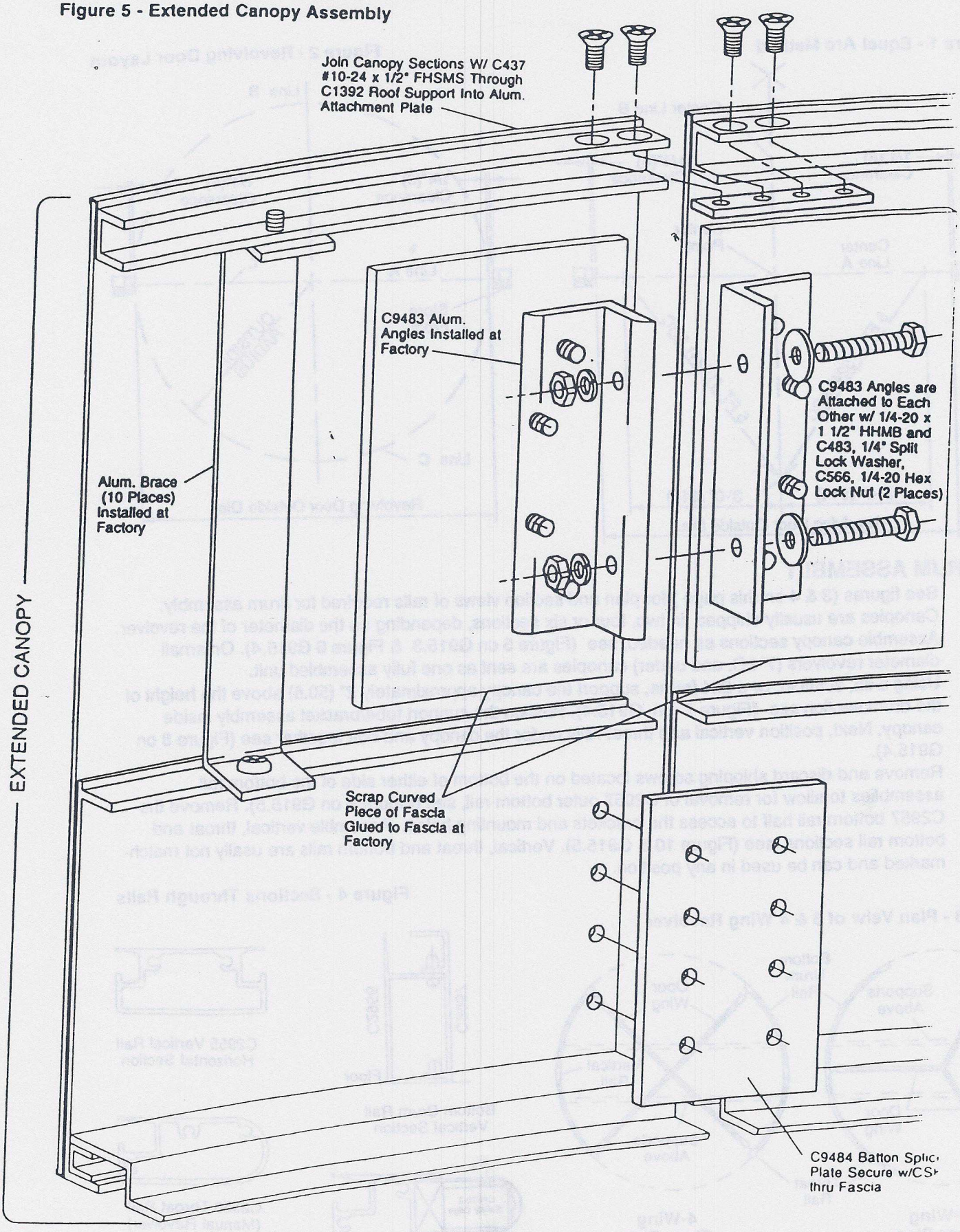
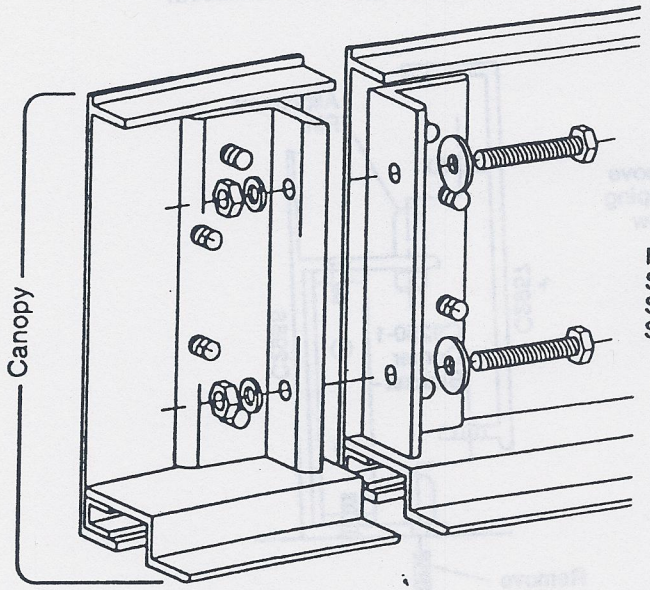


Figure 6 - 4" & 6" Canopy Assembly (Manual Revolvers)



C9483 Angles are Attached to Each Other w/ 1/4-20 x 1 1/2" HHMB and C483, 1/4" Split Lock Washer, C566, 1/4-20 Hex Lock Nut (2 Places)

Figure 7 - Canopy Support

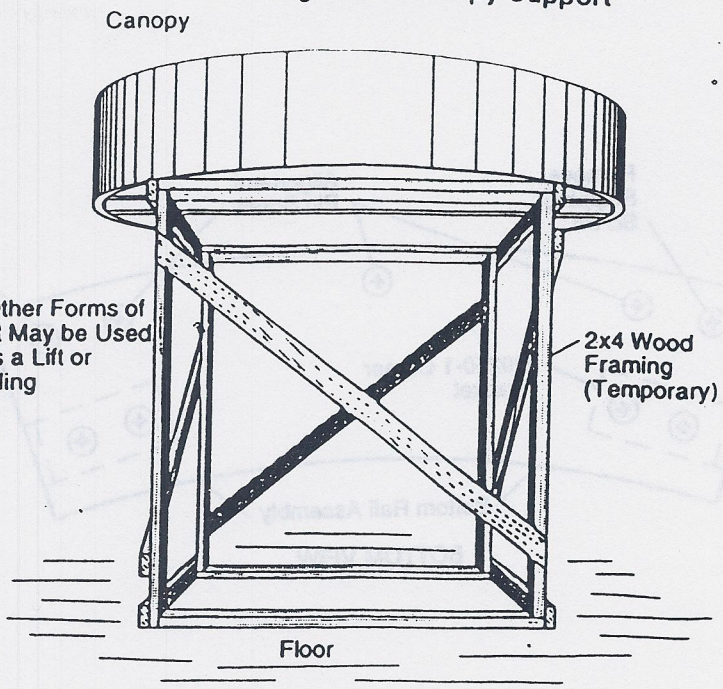
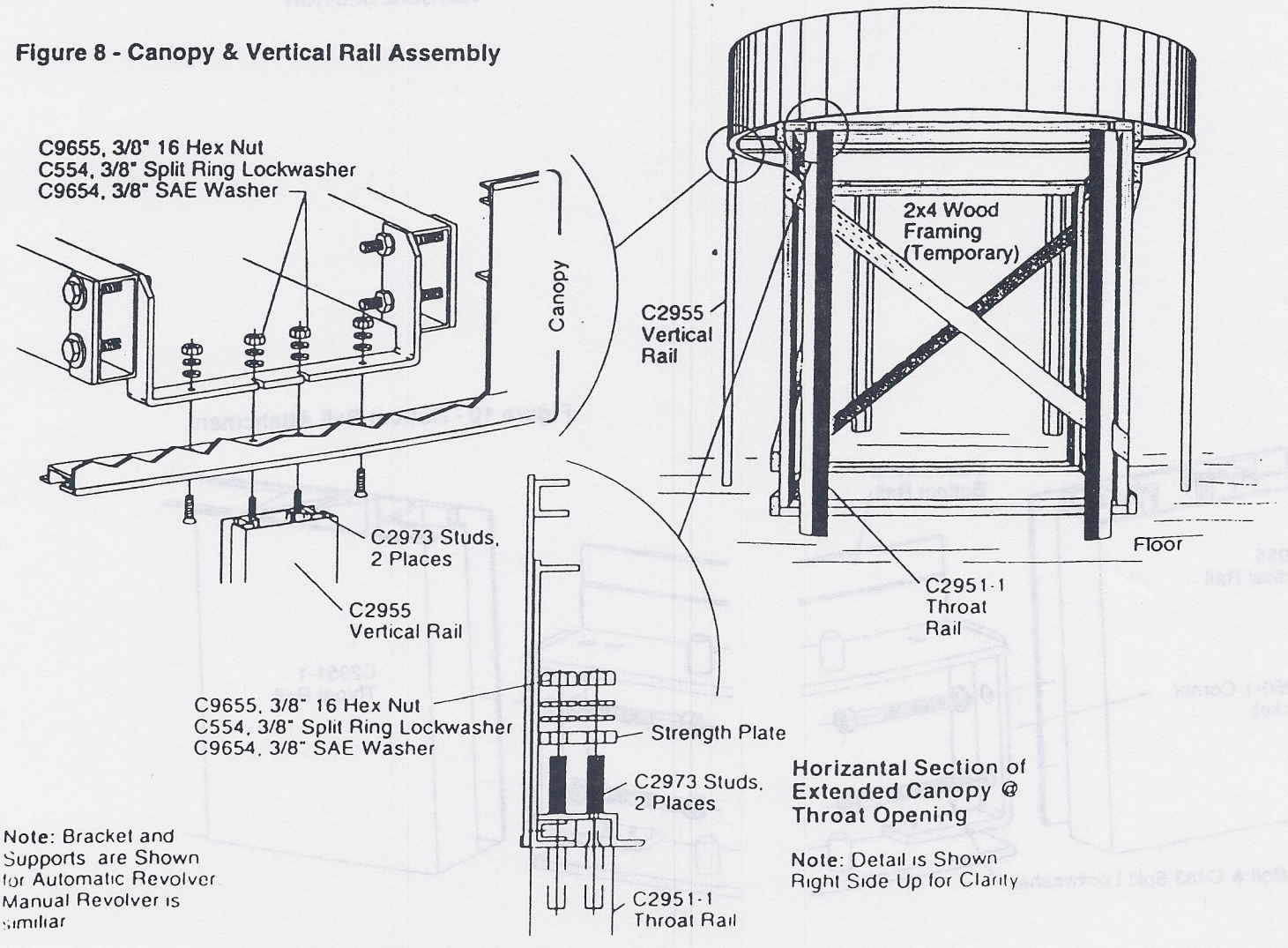


Figure 8 - Canopy & Vertical Rail Assembly



Horizantal Section of Extended Canopy @ Throat Opening

Note: Detail is Shown Right Side Up for Clarity

Note: Bracket and Supports are Shown for Automatic Revolver Manual Revolver is similar

Figure 9 - Shipping Screw Removal

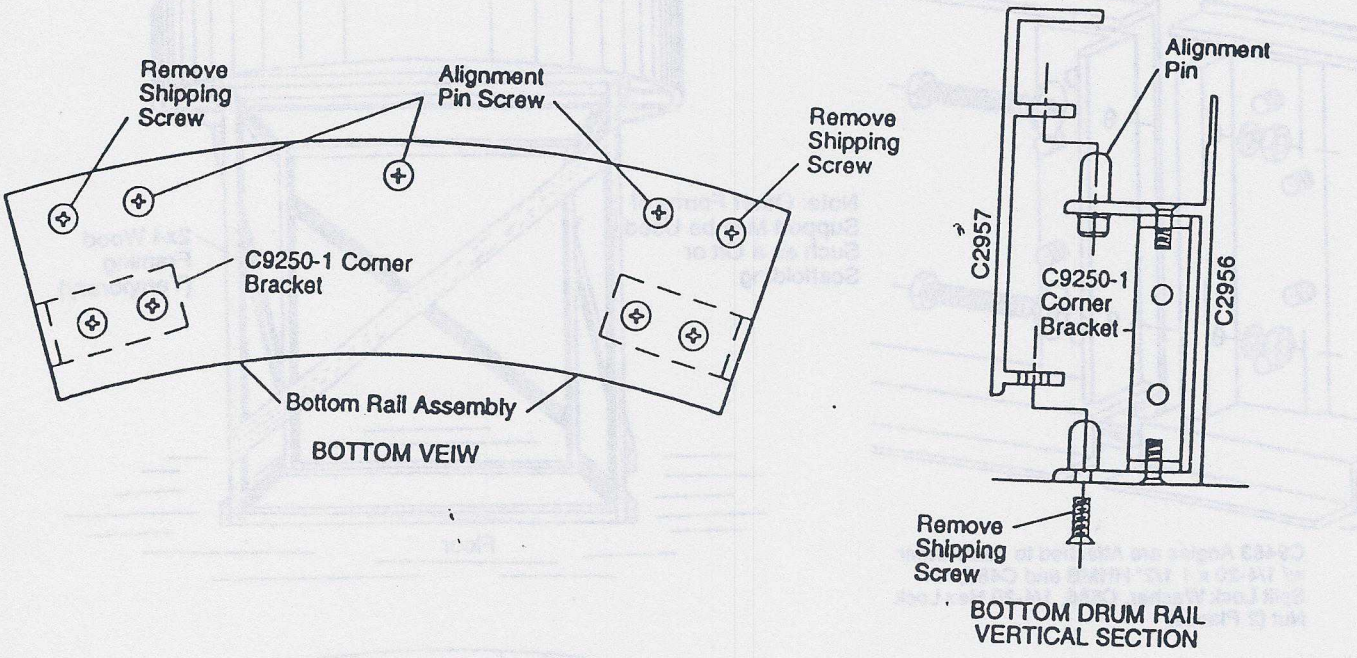


Figure 10 - Bottom Rail Attahcment

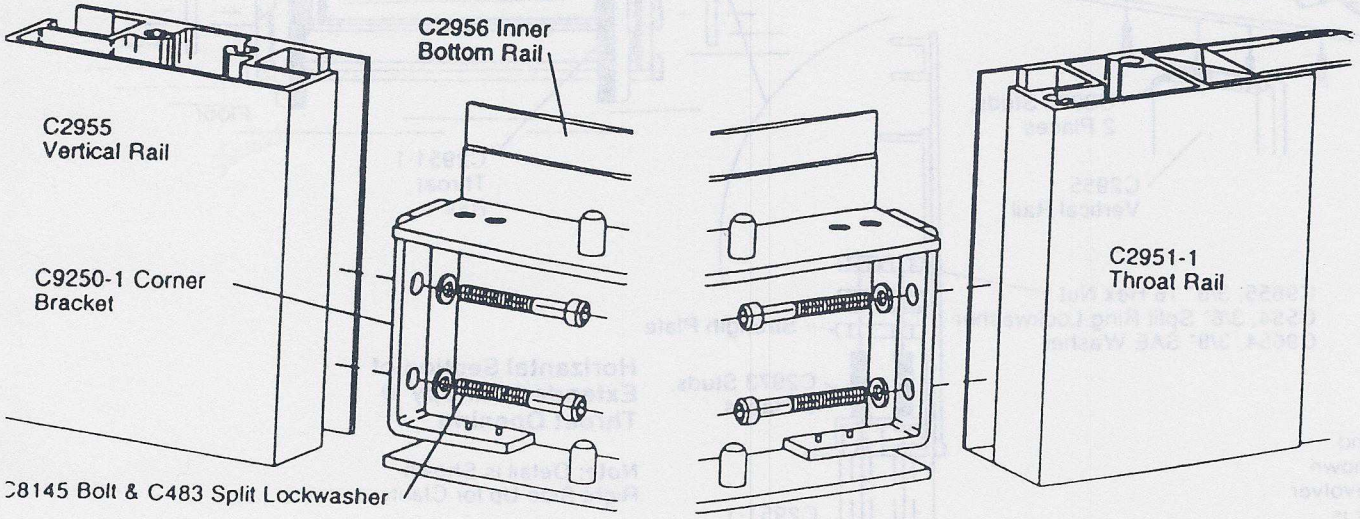
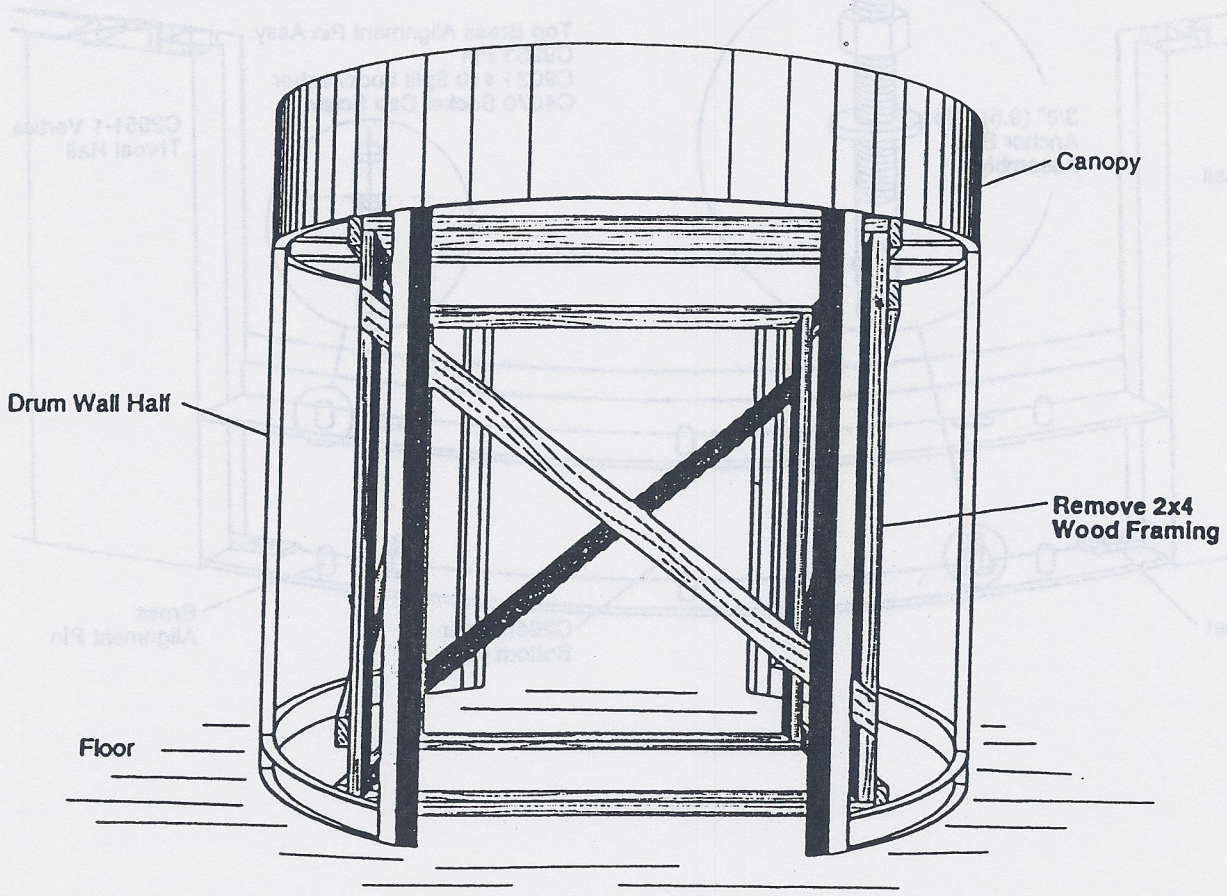


Figure 11 - Drum Positioning



6. DRUM POSITIONING

A. Remove temporary support (2x4 framing, etc.) after canopy, vertical rails, throat rails and bottom rails have all been secured together as one unit. See (Figure 11 on this page).

B. Position door and line up bottom rails on the I.D. line drawn in figure 1. Verify that the throat openings are equal after centering the door (Figure 12 on this page). To secure bottom rails to the floor, drill 3/8"dia. hole for Hilti anchor bolts (Figure 13 on next page).

C. Level door drum in all four directions using horseshoe shims provided (Figure 14 on next page). Then tighten Hilti anchor bolts.

Figure 12 - Centering Revolving Door (Plan Veiw)

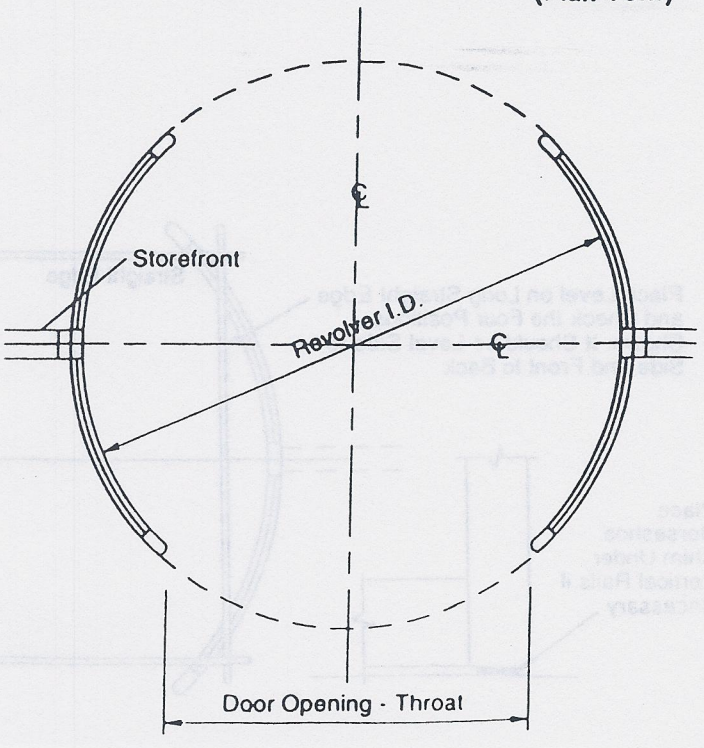


Figure 13 - Drum Anchorage

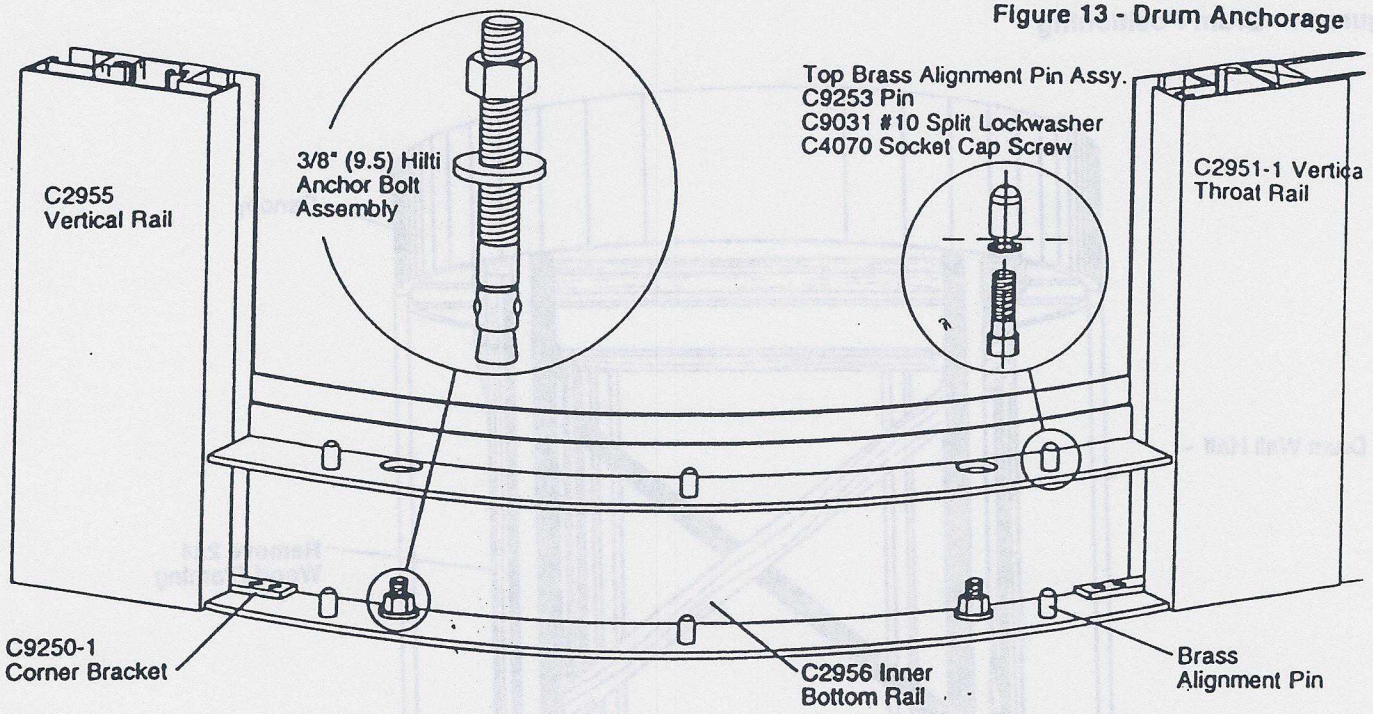
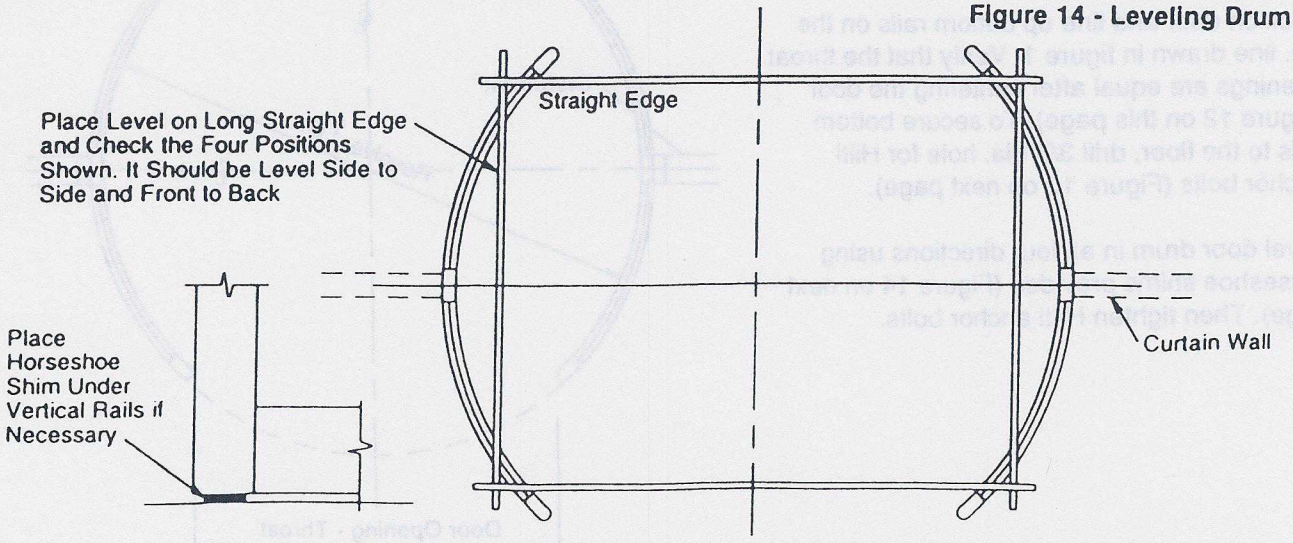


Figure 14 - Leveling Drum



7. DRUM GLAZING INSTALLATION

Special Tools:

- ☐ 1 or 2 special glass cups for curved glass, CR Laurence #W6450
- ☐ Beam Compass to check radius of door & glass
- ☐ Windex window cleaner

Note: A minimum of 2 people is suggested for successfully installing curved glass.

A. Check door framework for accuracy. Use a beam compass or layout lines to check door radius. refer to (Figure 15 on this page) for floor plan of a typical 3 & 4-wing round Revolver.

B. Lay glass crate down with arrows pointing up and carefully remove crate top.

C. Check glass dimensions vs. cut sheet.

Note: All cut sheet dimensions are outside radius and arc length. Check glass height against frame opening.

D. The exterior half of the bottom rail should be removed (match mark during removal). Check all setting edges on bottom rail, top rail, throat rails and center rails for straightness and correct with appropriate tool if necessary (Figures 16 & 17 on this page).

E. Horton recommends removing the brass alignment pins to avoid glass breakage during installation (Figure 17). Mark pin locations before removal.

Figure 15 - Plan Veiw of 3 & 4 Wing Revolver

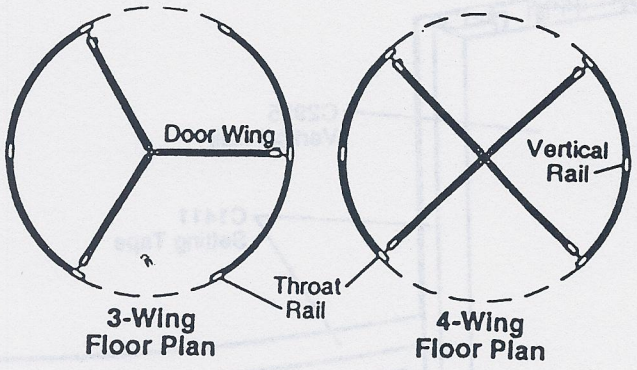
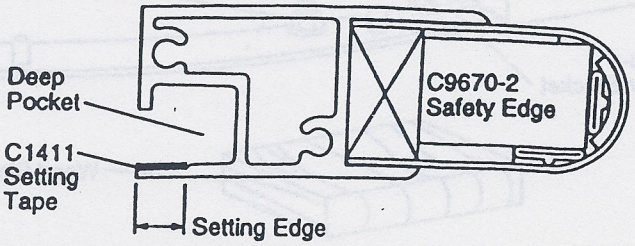
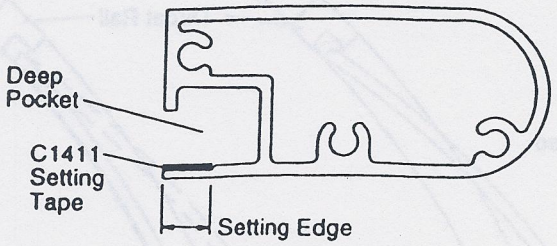


Figure 16 - Horizontal Section at Throat Rails



C2951-1 Throat Rail (Automatic Revolver)
Horizontal Section



C2950 Throat Rail (Manual Revolver)
Horizontal Section

Figure 17 - Inner Bottom Rail

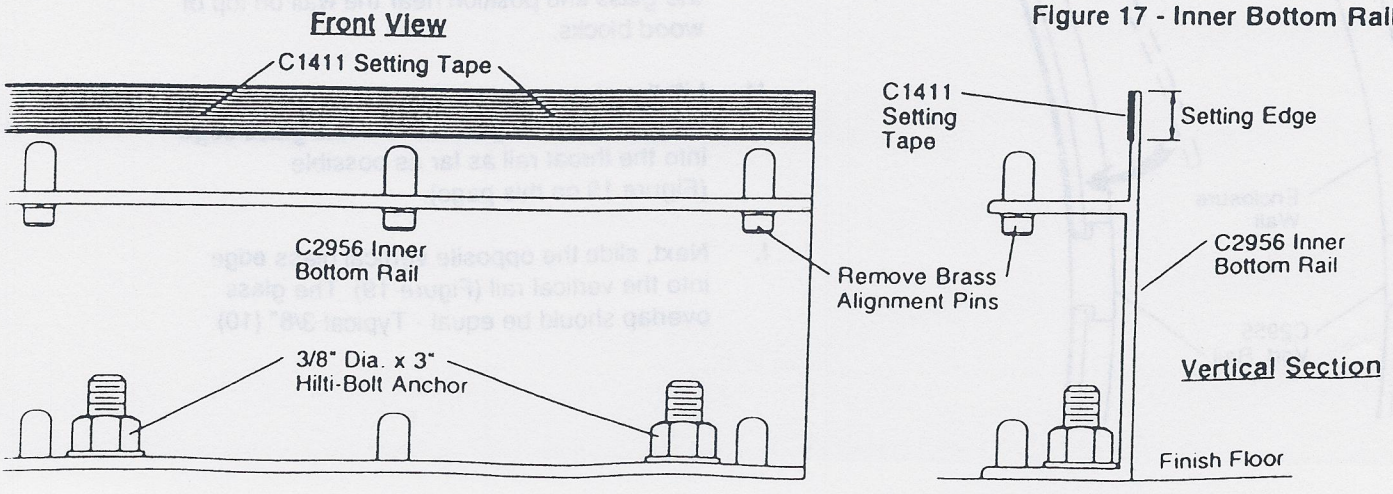


Figure 18 - Bottom View of Enclosure Wall

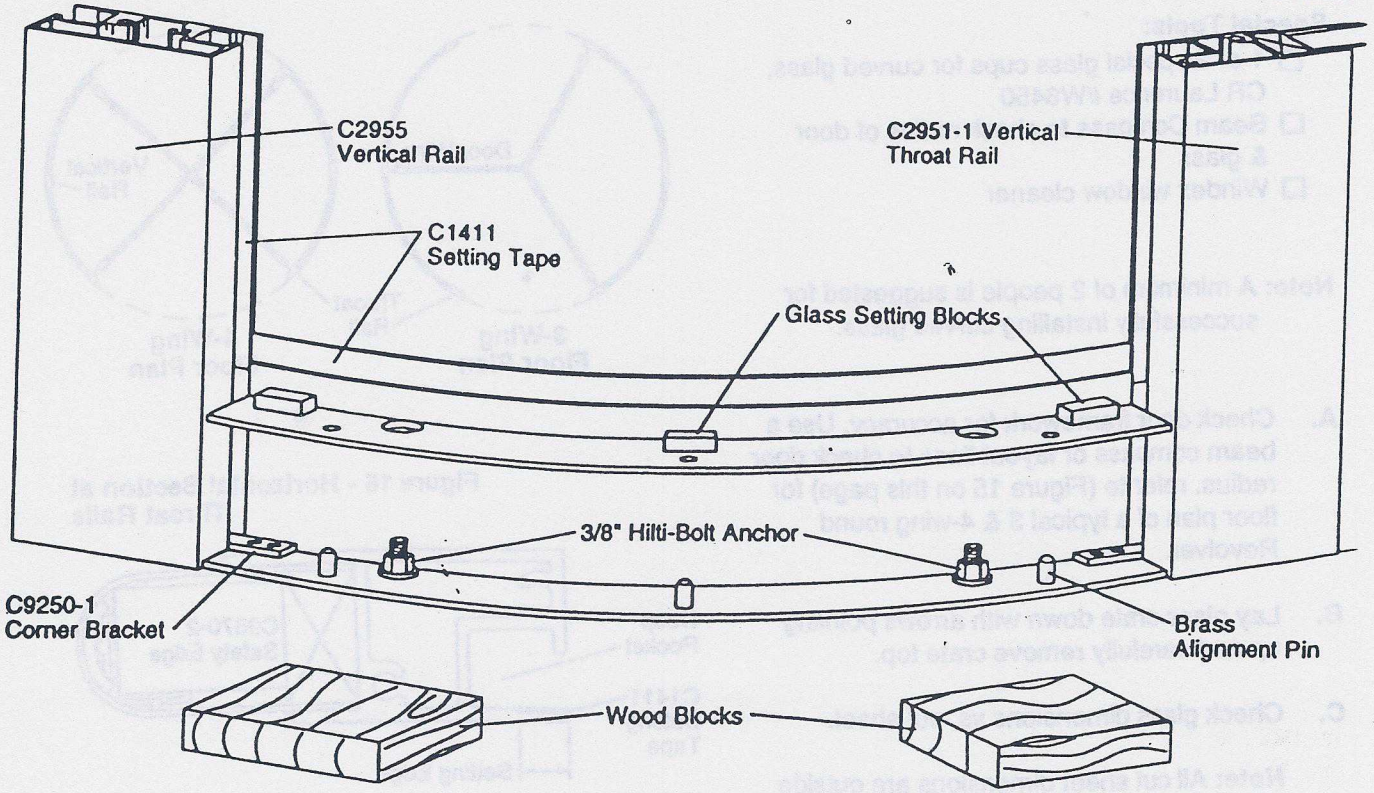
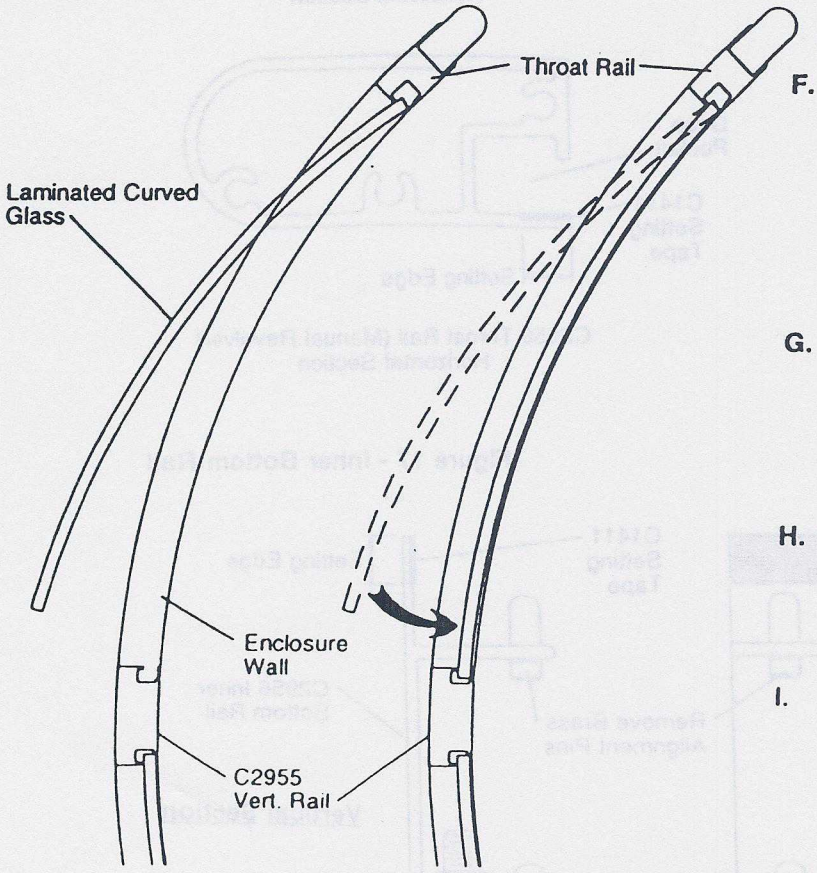


Figure 19 - Partial Plan Views



F. Install C1411 setting tape on all four edges of enclosure wall (Figure 18 on this page). Remove backing paper and spray with Windex. **Note:** You must apply Windex to the tape. The Windex allows the glass to slide during installation. It will dry in approx. 1-2 hours.

G. Lay 3 or 4 glass setting blocks on the bottom rail. Set wood blocks on the floor near the enclosure wall (Figure 18). Attach the cups to the glass and position near the wall on top of wood blocks.

H. Lift the glass over the glass setting blocks and begin working the the vertical glass edge into the throat rail as far as possible (Figure 19 on this page).

I. Next, slide the opposite vertical glass edge into the vertical rail (Figure 19). The glass overlap should be equal - Typical 3/8" (10).

J. Remove the excess glass setting blocks leaving only one 6" (152) from each corner. Do not use more than 2 sets of glass setting blocks per glass section. Lift the glass up and begin working the top glass edge into the ceiling support bracket (Figure 20 on this page).

K. Next, have your partner place the required number of glass setting blocks directly on top of each of the two existing glass setting blocks (Figure 21 on this page). **Note:** It is important that the glass top and bottom "overlap" on the extrusion setting edge be equal. Shim with glass setting blocks on the bottom rail to obtain this correct glass height.

L. Cut several scrap pieces of glazing rubber approximately 3" (76) long and gently insert them at several locations between the glass and both the vertical and throat rails to temporarily hold the glass in place (Figure 21). **CAUTION: DO NOT FORCE IN.**

M. Reinstall the alignment pins and the exterior half of the bottom rail. **Caution: Do not** use excessive force to install. This can cause the laminated glass to crack. Wet glaze with silicone caulking. Refer to **Figure 22**, on next page, for a "before" and "after" Vertical Section.

N. Finally, glaze the remaining three sides of the revolver by repeating steps **A-M** for each side.

Figure 20 - Vertical Section

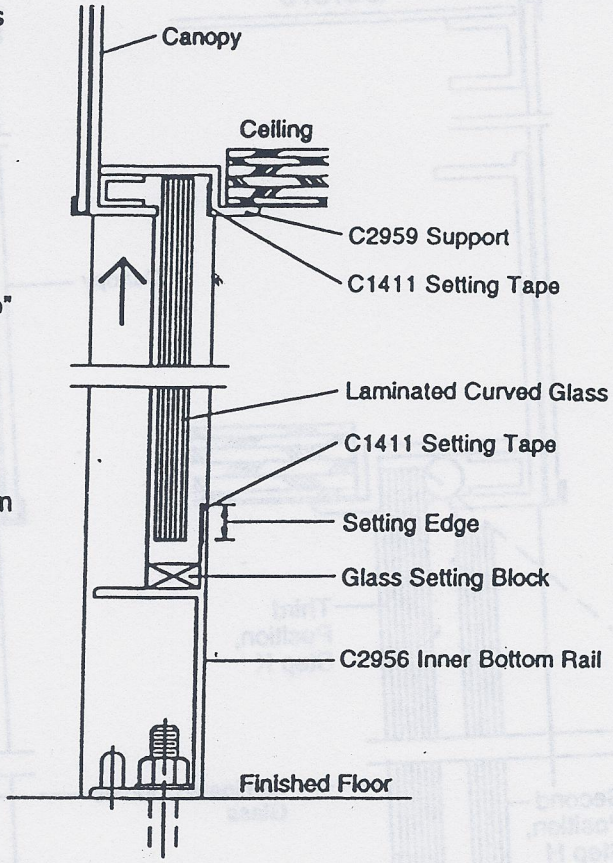


Figure 21 - Bottom View of Enclosure Wall

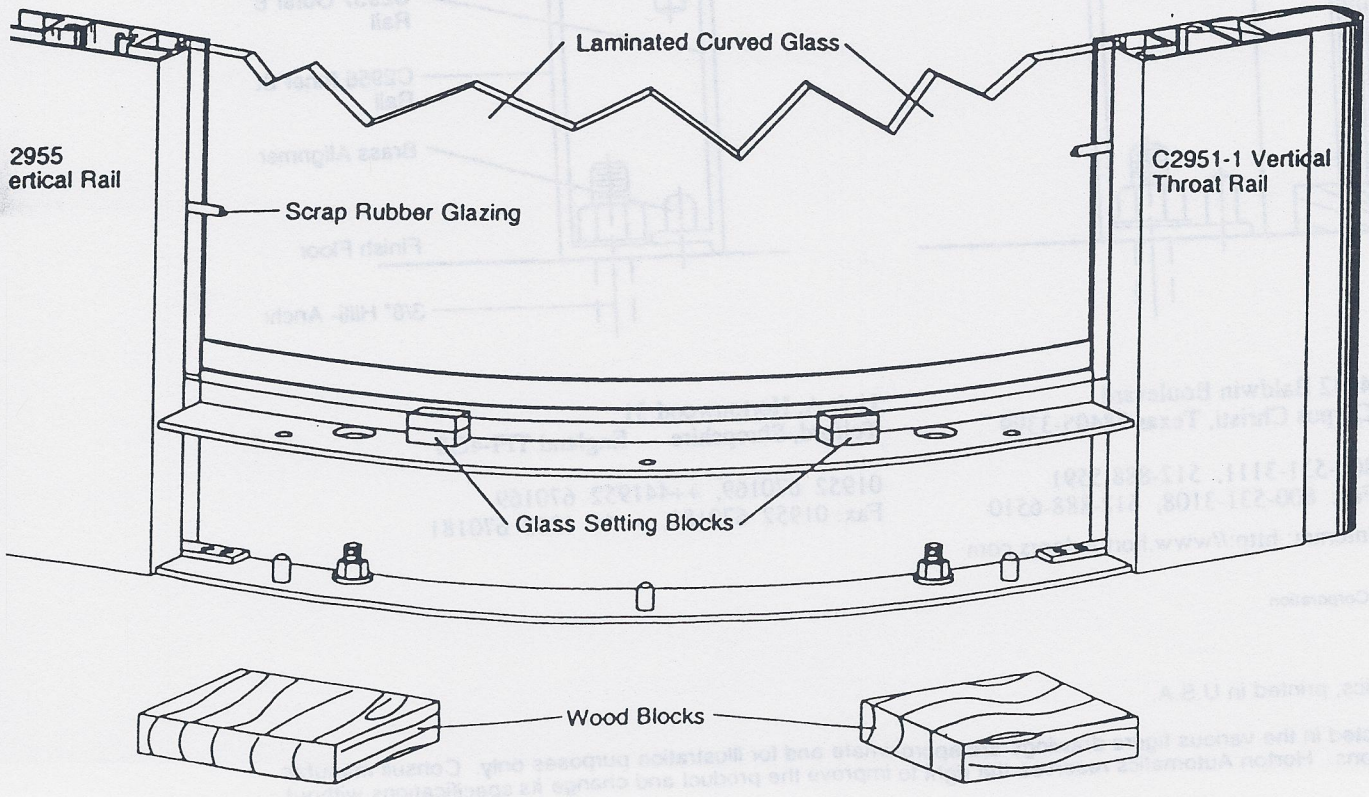
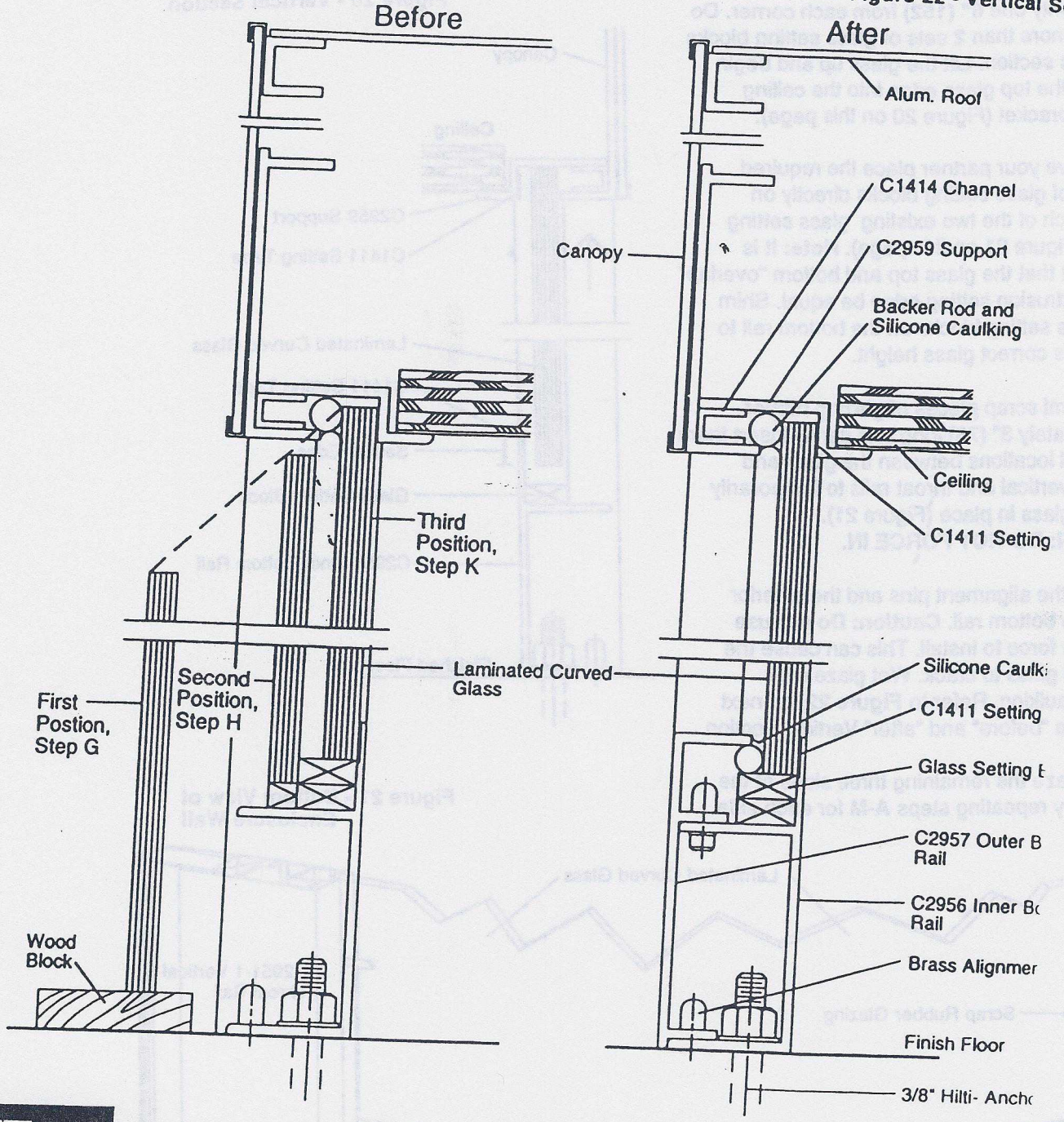


Figure 22 - Vertical Se



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, Division of Overhead Door Corporation

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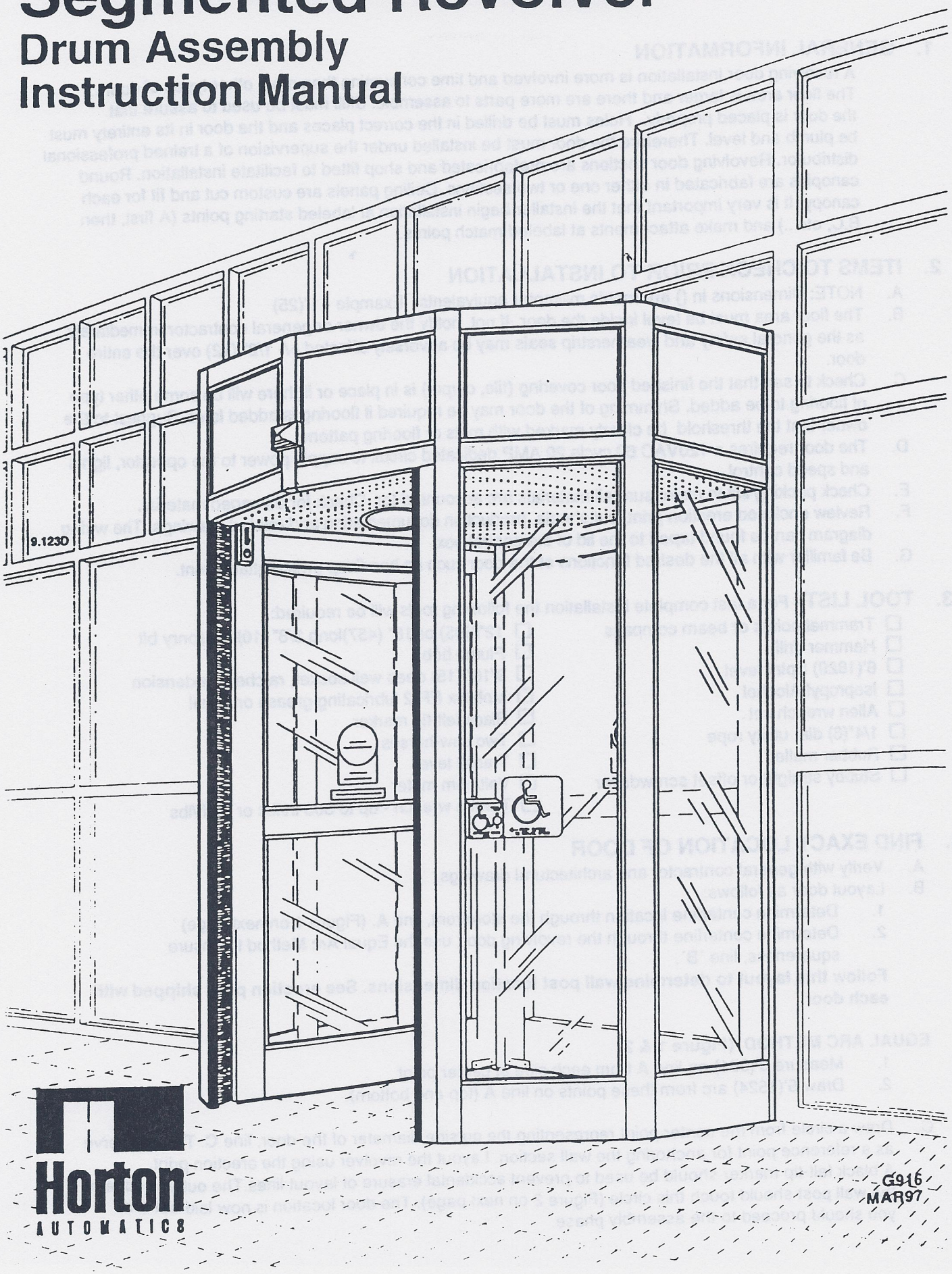
Segmented Revolver

Drum Assembly
Instruction Manual



Horton
AUTOMATICS

G916
MAR97

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- ☐ 9/16" (15) deep well socket, ratchet & extension
- ☐ Mobilux EP-2 lubricating grease or equal
- ☐ Black felt-tip marker
- ☐ Two saw-horses
- ☐ Transit level
- ☐ Volt/ohm meter
- ☐ Torque wrench - up to 300 in/lbs or 30 ft/lbs

4. FIND EXACT LOCATION OF DOOR

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B. Layout door as follows:

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EQUAL ARC METHOD (Figure 1 & 2)

1. Measure 3'(991) on line A from each side of center point.
2. Draw 5'(1524) arc from these points on line A (top and bottom).

C. Draw a circle from the center point representing the outside diameter of the door, line C. This will serve as a reference point for anchoring the wall section. Layout the revolver using the erection print. A black felt-tip marker should be used to prevent accidental erasure of layout lines.The outside edge of the wall post should touch this circle (Figure 2 on next page). The door location is now laid out and you should proceed to the assembly phase.

Figure 1 - Equal Arc Method

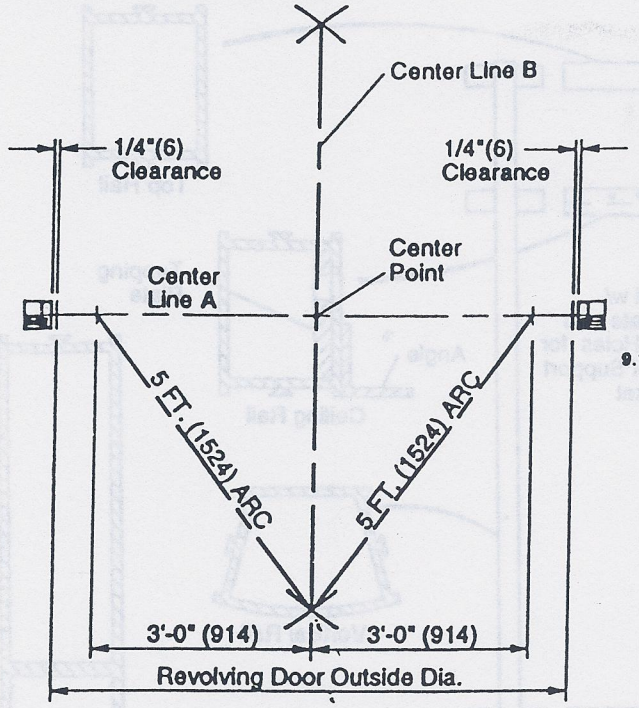
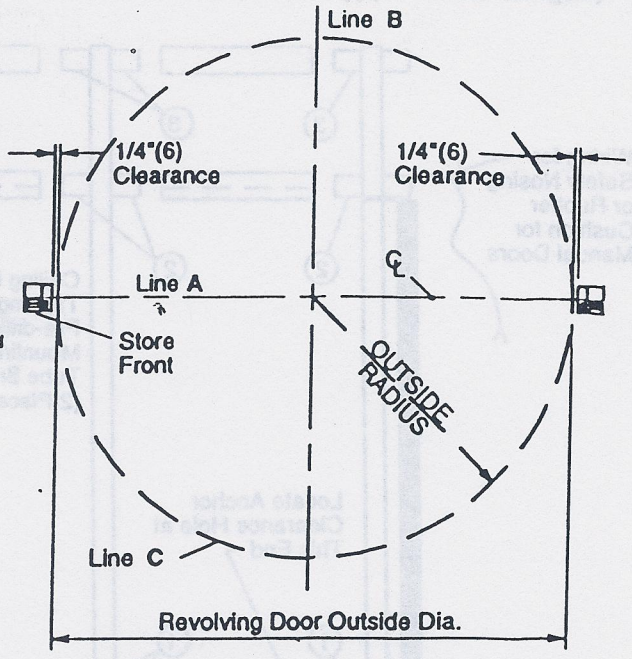


Figure 2 - Revolving Door Layout



5. DRUM ASSEMBLY

A. See figures (3 & 4 on this page) for plan and section views of rails required for drum assembly.

B. Place all extrusions into groups to match all like parts. Lay out materials on provided packing or similar material to protect finishes. Orient the parts as to which are vertical (corner blocks installed) and horizontal members. Group the horizontal top rails, ceiling support rails with 1" (25) angle) and bottom rails together. These extrusions must be placed in the proper position in the drum assembly (Figure 5 & 6 on G916.3).

Figure 3 - Plan Velw of 3 & 4 Wing Revolver

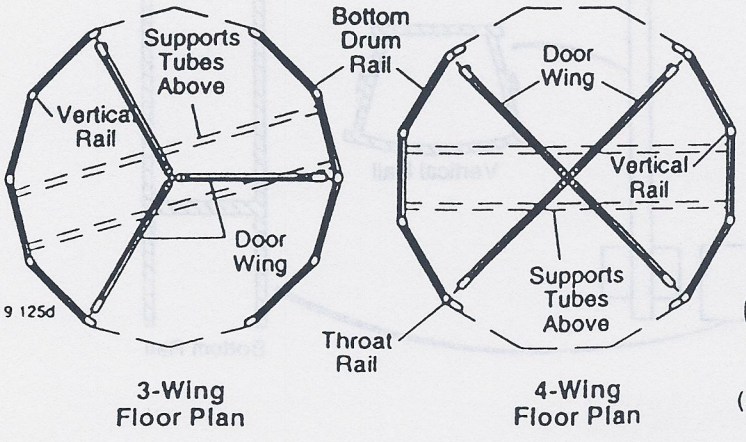


Figure 4 - Horizantal Sections Through Rails

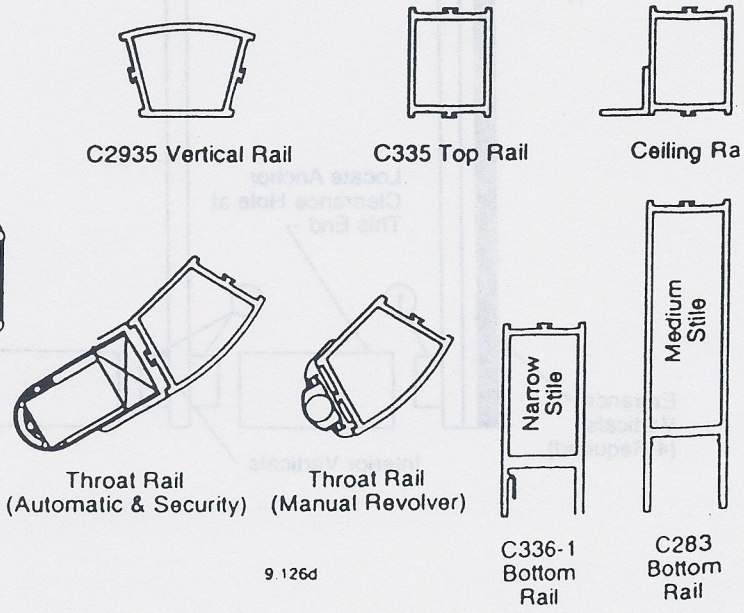


Figure 5 - Placement of Extrusions
(Segmented Canopy) - View from Inside Door

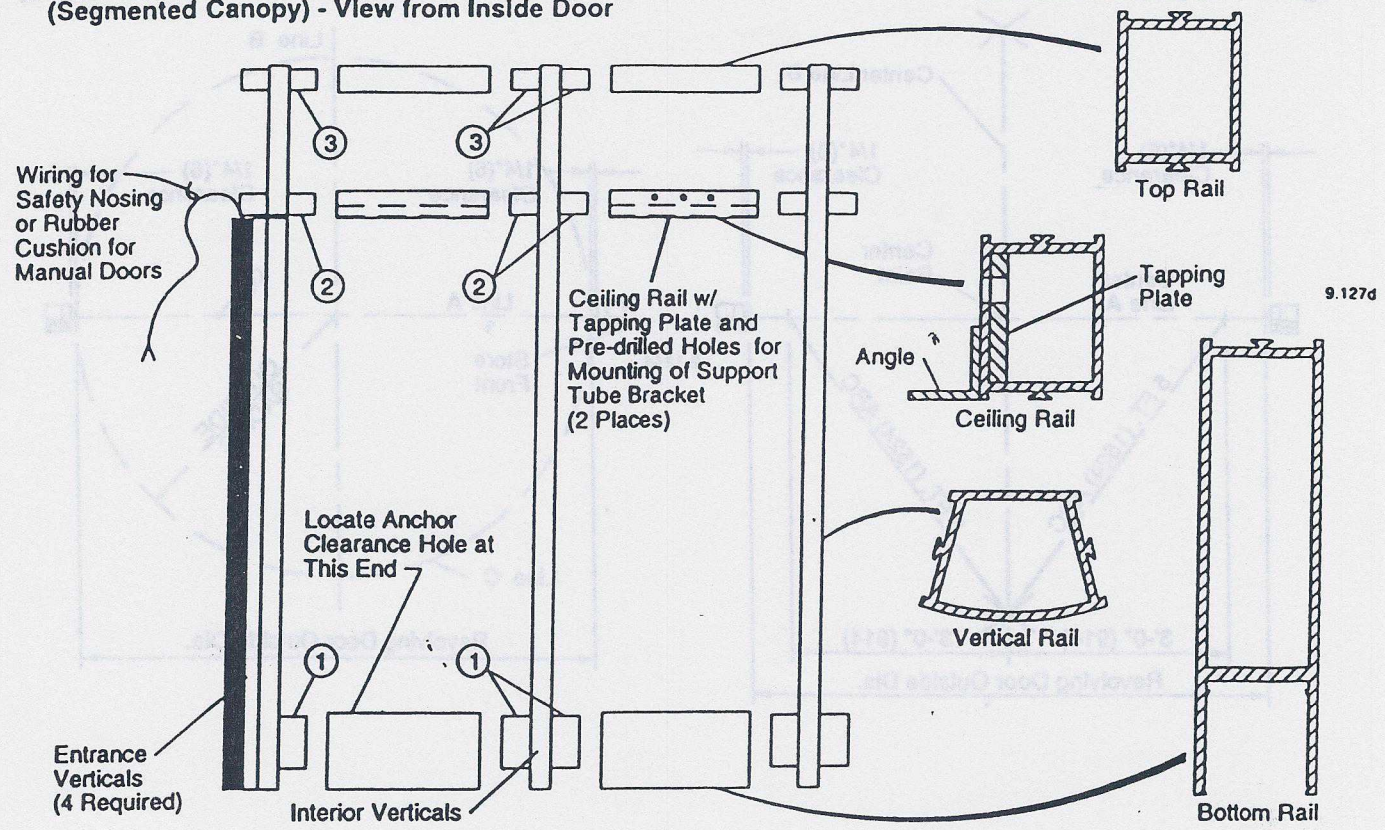


Figure 6 - Placement of Extrusions
(Round Canopy) - View from Inside Door

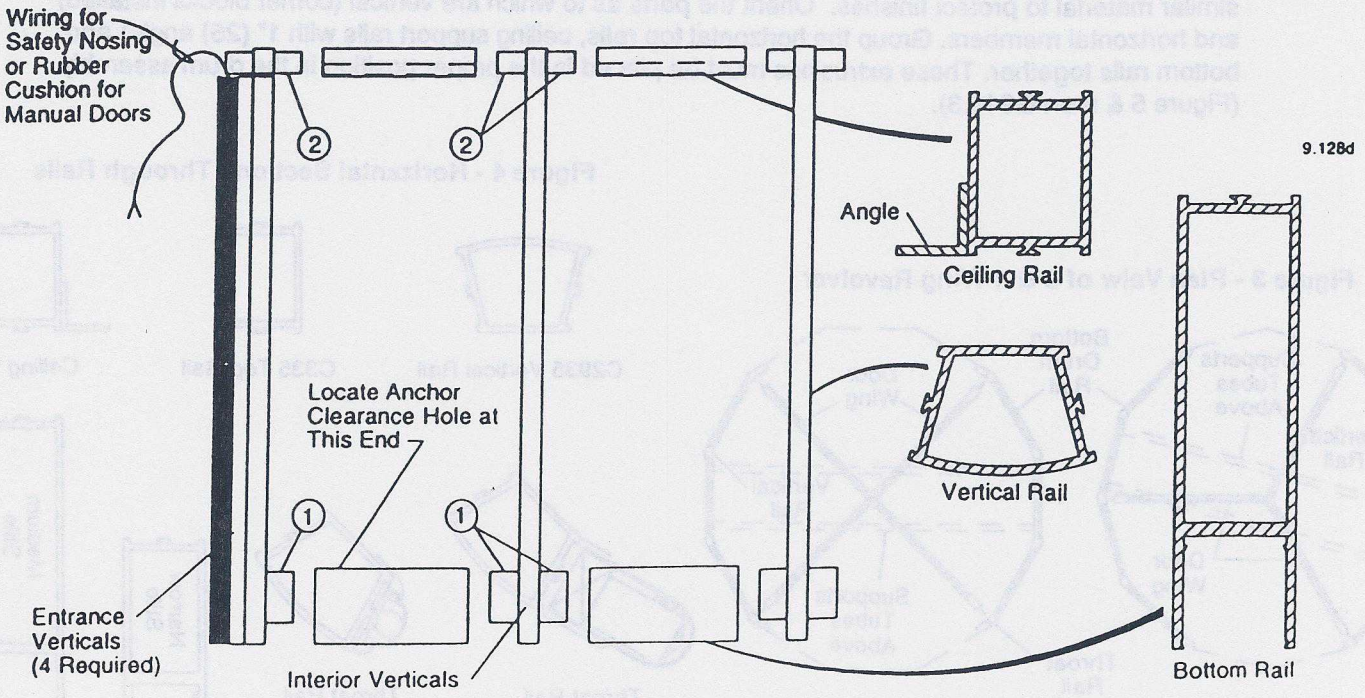


Figure 7 - Drum Assembly

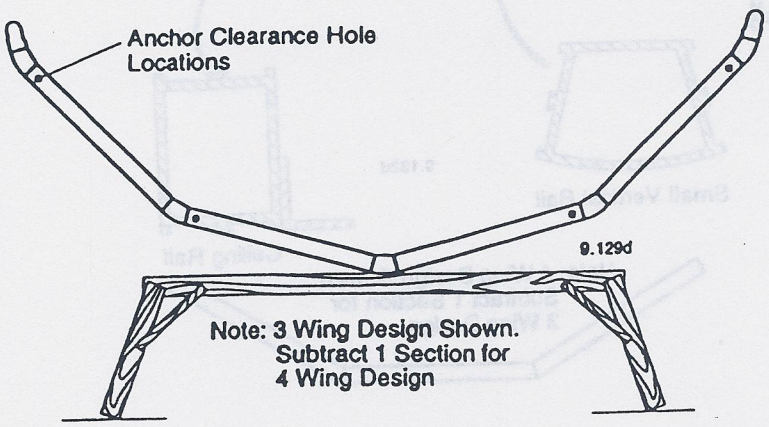
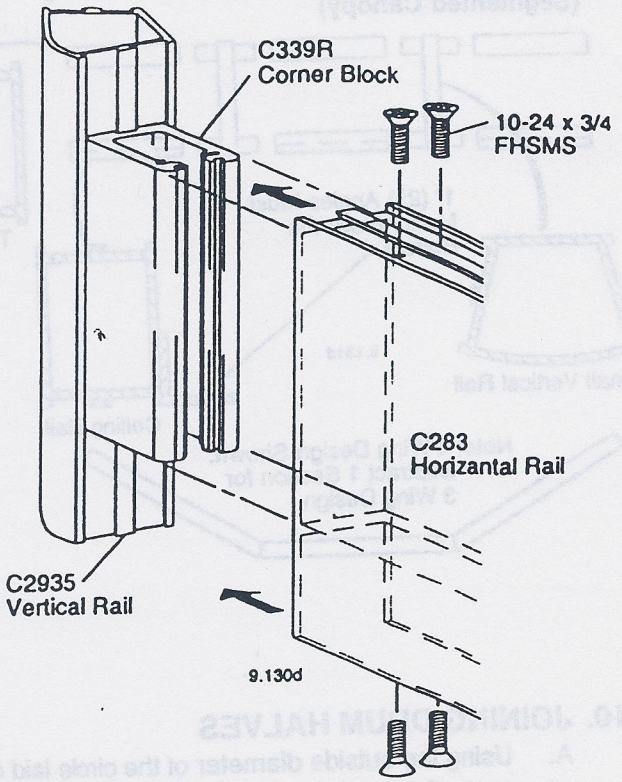


Figure 8 - Vertical/Horizantal Rail Attachment



C. Starting with the vertical drum rails, place one entrance vertical rail on your left and one interior vertical rail on your right, across 2 saw-horses (Figures 7 on this page). Place one bottom horizontal rail on the corner block of the entrance vertical rail at point `1` (Figures 5 & 6). Make sure the anchor clearance hole is next to the entrance vertical rail. Place the ceiling support horizontal rail (The one with the 1" (25) angle attached to it) at point `2` (Figures 5 & 6). The short piece of 1" (25) angle on the vertical rails should line up with the 1" (25) angle on the ceiling support horizontal rail. If canopy is segmented, place one top rail at point `3` on the entrance vertical rail. Mate points 1, 2 & 3 (segmented canopy - Figure 5) or points 1 & 2 (round canopy - Figure 6) of the interior vertical rail to the horizontal rails on the entrance vertical (Figures 7 & 8). Secure drum sections first, then canopy sections with #10-24 x 3/4" flat head self tapping screws that are provided in the accessory pack.

D. Add horizontal rails at point 1, 2 & 3 of the interior vertical rail. Note: At point 2 add a ceiling rail with tapping plate in it (Rail with 3 pre-drilled holes). This is where the support tube bracket will be mounted (1 per drum halve) - See figure 3 to match up locations for support tube brackets. Add another interior vertical rail and mate 1, 2 (& 3) to the horizontals above. Tap joints with rubber mallet to completely close gaps. Secure with flat head screws as in previous step.

E. Join the remaining interior vertical rail and the associated horizontals followed by the entrance or throat vertical. Check the sequence with Figures 5,6, 7, & 8.

F. Repeat the above steps for the opposite side of the drum. If you build both halves identically, as described, the gear train support plates end up opposite each other when the halves face each other as in plan (Figure 3).

G. Assemble the center (throat) sections using the short vertical rails, ceiling rails & top rails on each side. If round canopy, the short vertical rails and top horizontal rails are not used. (Figures 9 & 10 on next page).

H. Assemble round canopy sections and attach to segmented drum halves (Figure 11 on G916.6).

Figure 9- Center Canopy Section Assembly (Segmented Canopy)

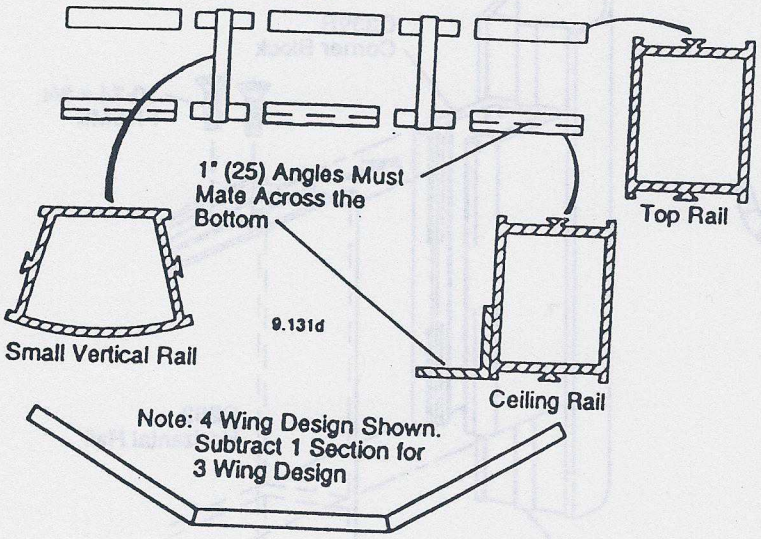
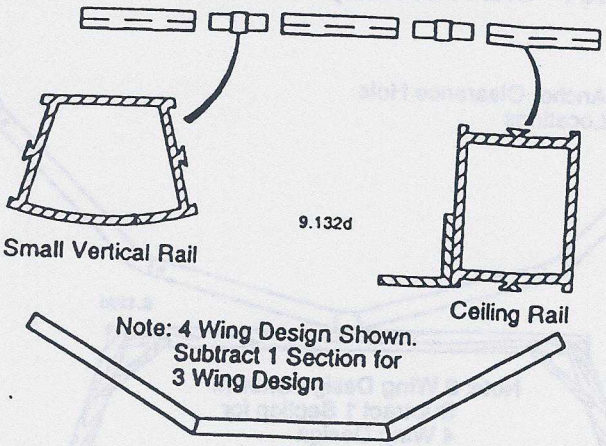


Figure 10- Center Canopy Section Assembly (Round Canopy)



10. JOINING DRUM HALVES

A. Using the outside diameter of the circle laid out previously (Figure 1 & 2) place the drum halves in their approximate positions as shown in Figures 10 & 11 and join them together with the center (canopy) sections assembled in Figures 12 & 13.

B. Line up the drum halves by centering the center vertical rail on the centerline. The rounded part of the vertical rails should touch the circle drawn in Figure 2 (See Figure 13 - Detail A).

C. When you are sure of the accuracy of the previous steps you will be ready to anchor the drum to the floor with the 5" (127) Hilti type expanding anchors that are provided . For best results start in the center, making sure that the drum has not shifted out of alignment. Place 3/8" (10) x 12" (305), or longer, masonry bit through clearance hole in the bottom rail and drill at least 4" (102) into the concrete. Place each anchor through the bottom web and drive it into the concrete until it bottoms against the web taking care not to damage threads. **HINT: To prevent thread damage, take a spare Hilti type anchor with a nut just barely started on threads. Use this anchor as a tool to drive anchor into concrete . If threads are damaged, the anchor could spin in the concrete and fail to tighten. Use a 9/16" (15) deep socket with an extension to tighten nuts. HINT: Tape socket to extension to avoid dropping the socket inside the rail (Figure 14).**

D. Determine if the drum is level with a transit or by using a straight edge with a spirit level across the bottom rails as shown in (Figure 15). If necessary, place horseshoe shims (provided) under the vertical rails to make the drum level, front to back and side to side. It is not possible to shim under the horizontal rails because of the hollow web (Figure 15).

11. INSTALLING SEGMENTED DRUM GLAZING

A. Glazing stops are the snap-in type and can be installed using hand pressure. If inner stop is the narrow profile type, as commonly used for 1" (25) glazing (Figure 16), install this glass stop first at all four sides. Position nylon setting blocks to support glass. Carefully set glass in place. Install short outer stops first, then the longer outer stops next. If adjacent wall construction prevents glazing from exterior, the procedure can be reversed with added difficulty. A rubber mallet may be used to gently tap glass stops into place. Use caution if laminated glass is used as it can easily be cracked (Figure 16).

Figure 11 - Joining Round Canopy Sections

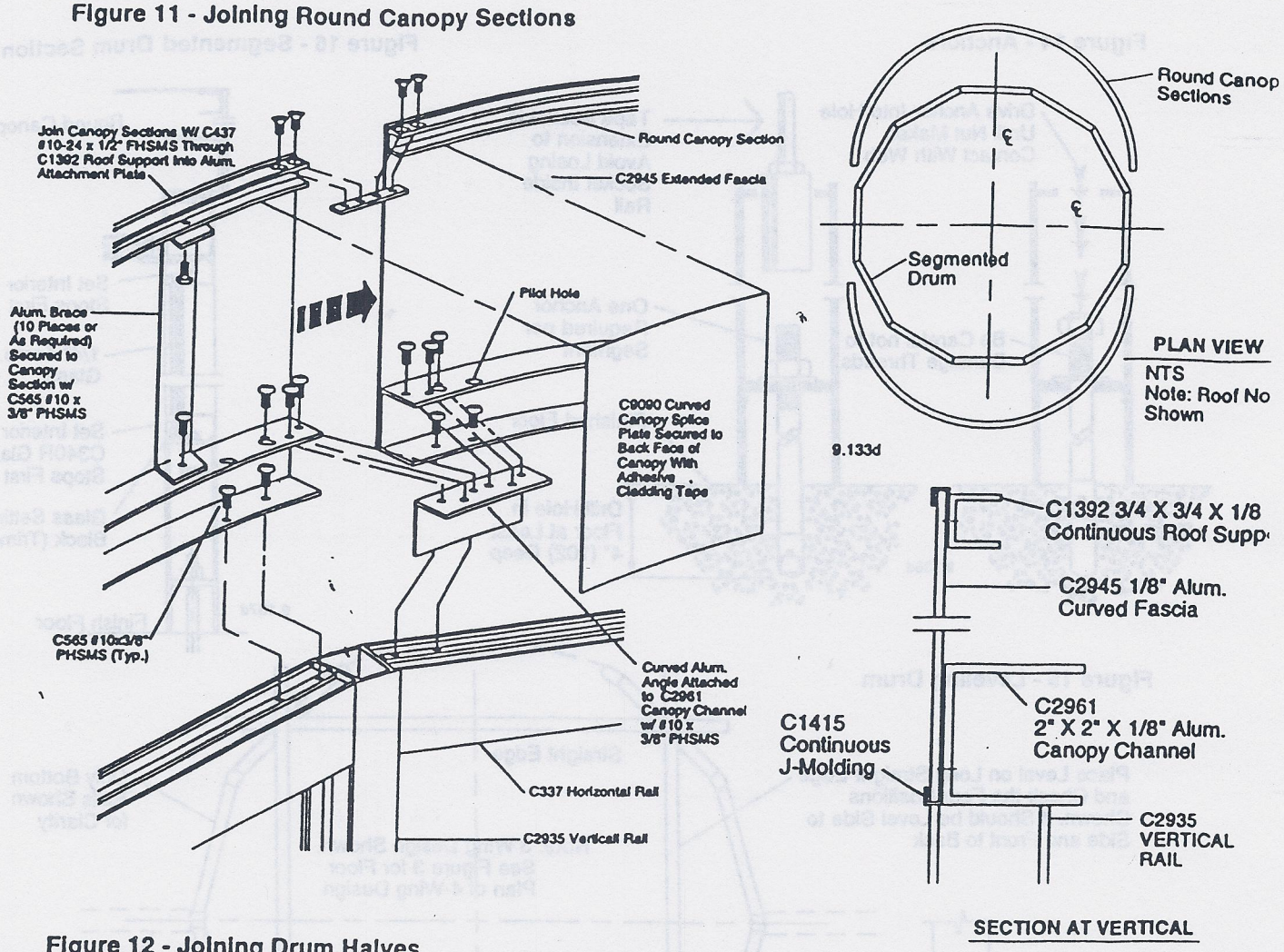


Figure 12 - Joining Drum Halves (Segmented Canopy)

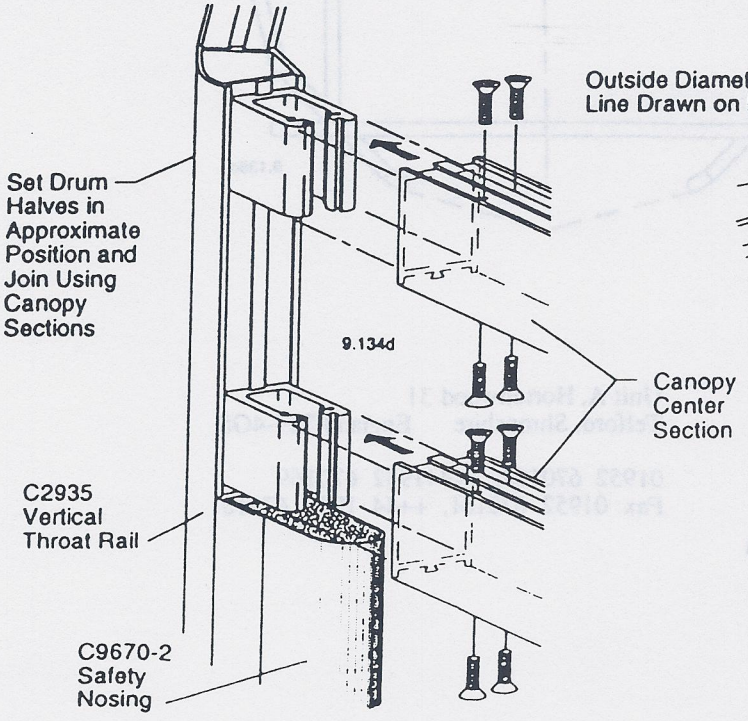


Figure 13 - Joining Drum Halves (Round Canopy)

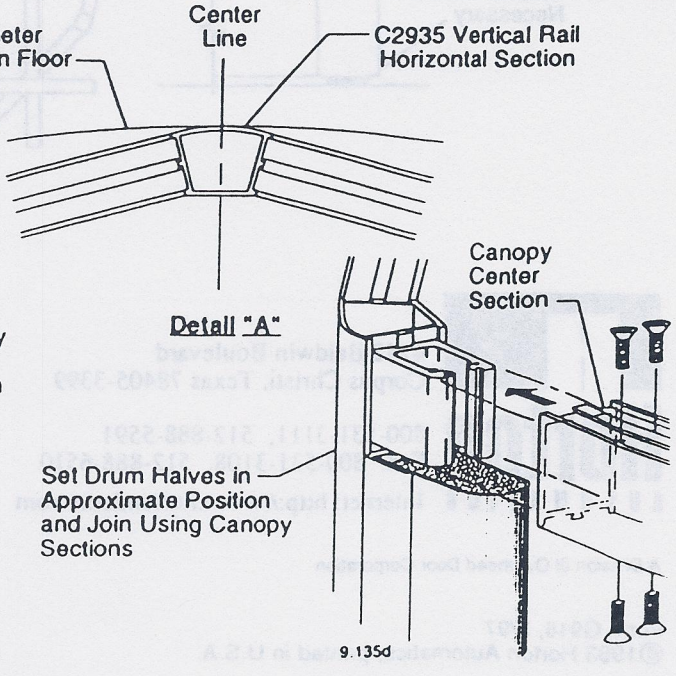


Figure 14 - Anchors

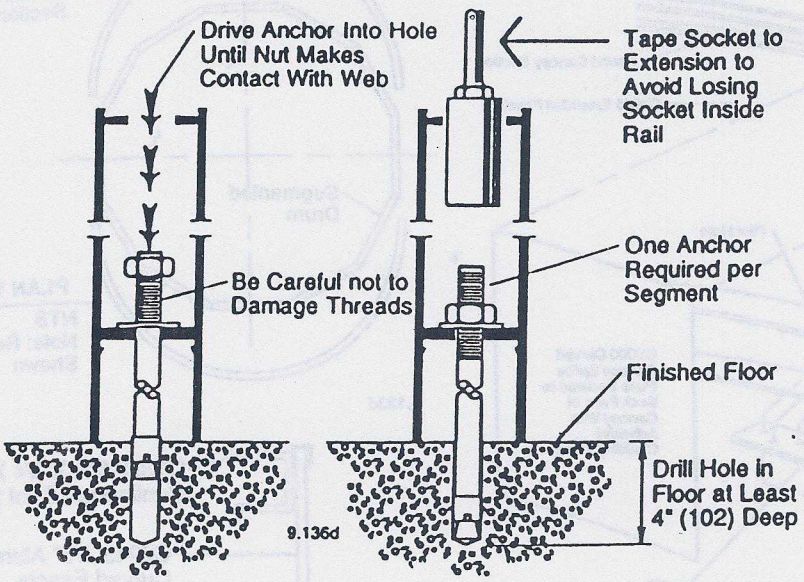


Figure 16 - Segmented Drum Section

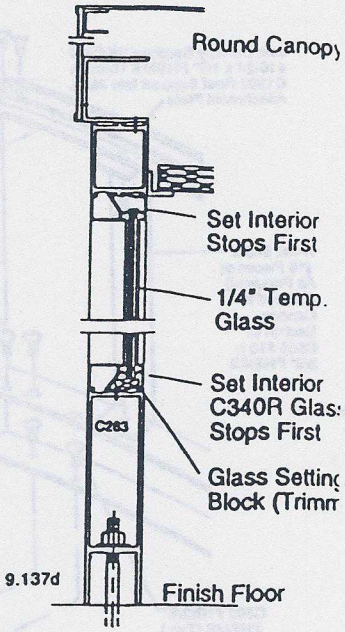
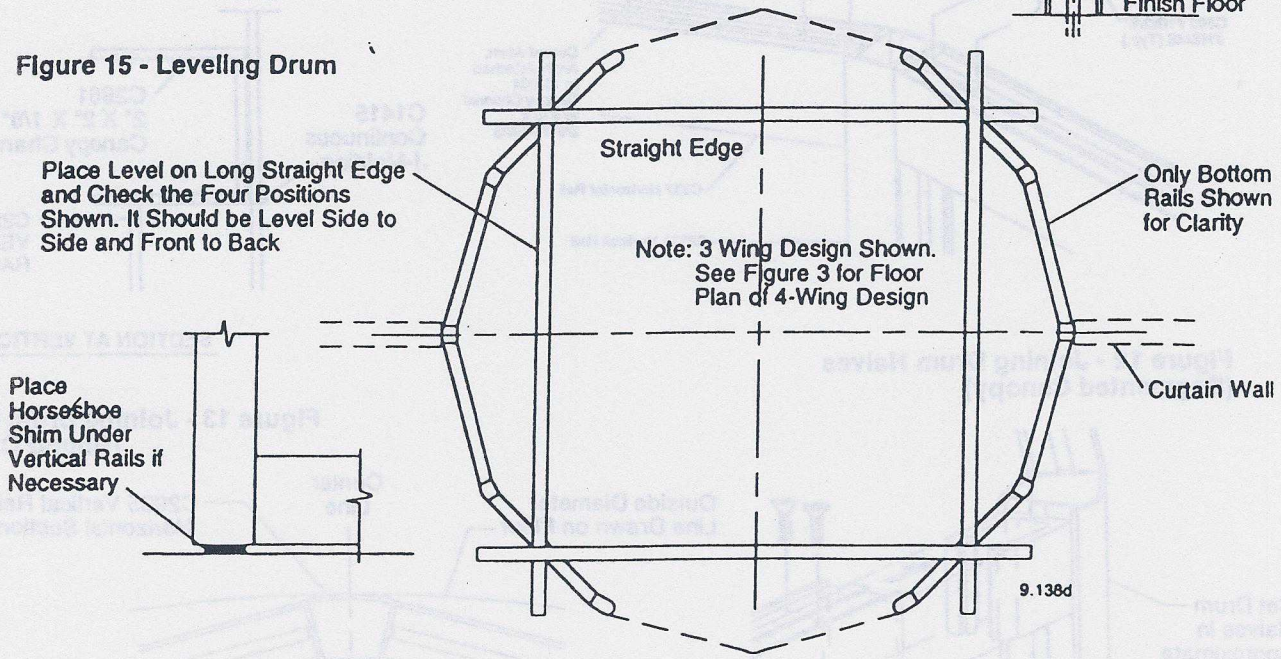


Figure 15 - Leveling Drum



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Form G916, 3/97