



LAYOUT: Mark the bottom of the windshield on the bubble door. Remove the door and trim the Plexiglas along the reference line up to the bottom of the windshield line. Use a round rat tail file to radius a corner relief hole in the corner. Remember to allow for the EXT.050" along the front edge.

Reinstall the door to see how it closes.

CHECK: When the bottom of the bubble door makes contact with the cabin sides, check that there is no gap between the fuselage and the front bottom portion of the door. If there is a gap, trim back the overhang, see right door.

The Front bottom portion of the bubble door is the area below the windshield that overlaps the Front Side Skin 7F14-3



RIGHT DOOR (if there is a gap at the front)

Extend the reference line down; re-trim the Plexiglas to shorten the overlap with 7F14-3. Repeat as often as necessary, cut approx. 15mm at a time.



Left door on our demo, aft edge of bubble door overlap fuselage skin

Note: on our demo we did not have to trim the aft edge of the right door.

**DOOR IN CLOSED POSITION** (bottom edge overlaps cabin side)  
 If there appears to be stress along the aft overlap with the fuselage side skin, then it is best to trim the bubble door to fit along the front edge of the fuselage. Mark sure to mark the aft edge with the bottom of the door closed.



Detail bottom aft corner of left door on our demo: door overlap fuselage.

Right door, on our demo, we trimmed the aft edge of the right door to eliminate the overlapping portion with the fuselage side skin. At the bottom, the bubble door still overlaps the cabin side.



(Look through the next few pages for additional photos of the bottom edge of the bubble door (trimmed above the rivet lines)

Remove the bubble door from the fuselage to finish trimming the bottom flange. The door may have to go on and off a number of times to trim for the best fit.



Use snips or a hack saw to cut the extrusion.



Left door



Cut the length of the EXT.50" from the top of the door to the notch for the front overlap.



**CUT:** Trim the top of the Bent Door Frame even with the top edge of the Bubble Door (front & back)



Inside view of top rear corner of right door.

**Bent Door Frame 7F19-2**

**SPACER:** Tape ¼" spacer (plywood) along the top of the cabin sides.

**ADJUSTMENT:** Position the Bent Door Frame on the ¼" spacers, if necessary adjust bottom bends to keep the tubes parallel with the fuselage and side tube of the cabin frame.

**POSITION:** The front edge of the Bent Door Frame is positioned even with the front edge of the bubble door, EXT.50" will be screwed to the Frame.

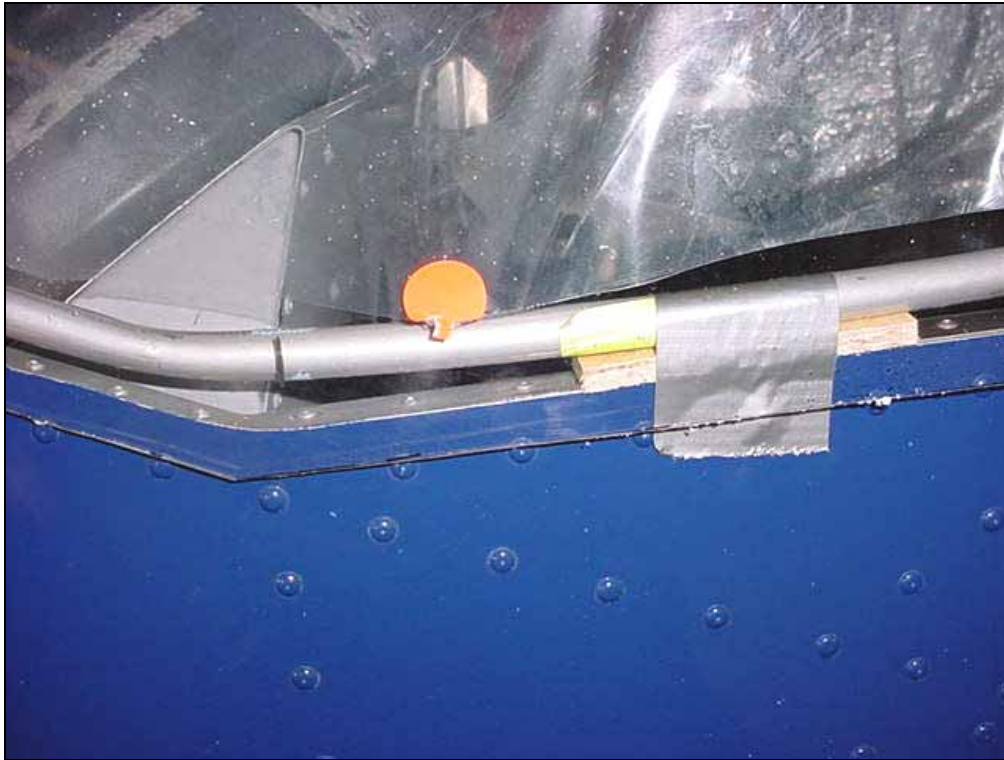
Bottom edge of Bubble door above the rivet line in the Rear Upright 7F9-8

**LAYOUT:** with a grease pencil, layout the position of the screws, approx 45mm from the center of the bend.

**5 Screws** along the back of bubble door.

Detail of bottom rear corner of Bent Door Frame on top of ¼" spacer.





Bottom edge of the Bubble door above rivet line in the Top Stiffener 7F9-6

Detail of right door, Cabin side area in front of the seat. Bent tube Frame is taped on top of the 1/4" spacer.



Bottom edge of the Bubble door above rivet line in the Front Upright 7F9-7

First install the Striker Plate 7F15-3D on the fuselage before installing the Exterior Door handle on the bubble door.

LAYOUT: 3 screws in the front bottom bend.

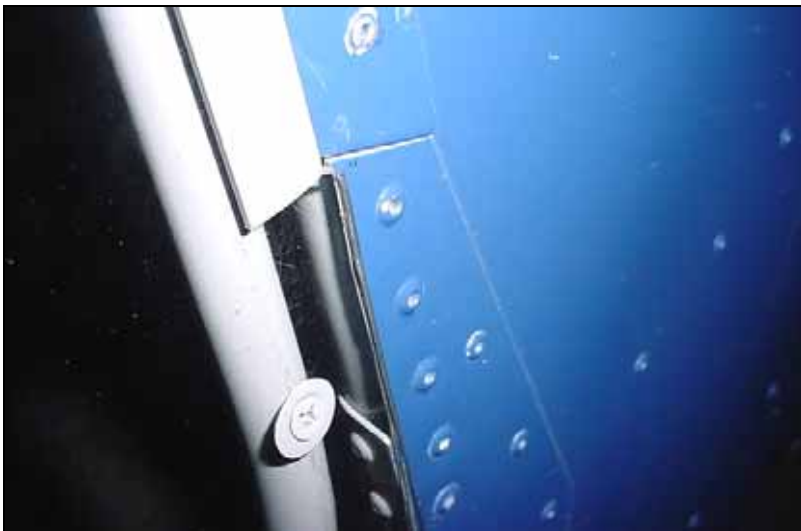
**11 Screws** along the bottom & front of the door (including 2 screws in the doubler for the exterior door handle)

Detail of right door, from bottom corner of door frame.



Approximately 2mm gap between front edge of EXT.50" and the aft edge of Side Windshield trim 7F19-8M

EXT.50" Along the front upper portion of the bubble door.  
 EDGE DISTANCE= approximately 6mm to keep the screws in middle of tube frame.  
 Layout **5 screws** (first screw approx 100mm below gusset) Pre-drill with #40 holes. Wait to Counter-sink EXT.50" until after it is drilled to the tube frame.



Right door, detail of bottom corner of EXT.50"

Drill and Cleco through the Plexiglas Bubble door into the center of the tube frame with a standard #40 drill bit. Drill with the door positioned on the fuselage, have someone on the inside hold the tube frame. Drill the EXT.50" along the front of the door. Remove the door from the fuselage to install the gussets.

#40 holes in Plexiglas under EXT.50" will be opened to 3/16" instead of 1/4" hole.

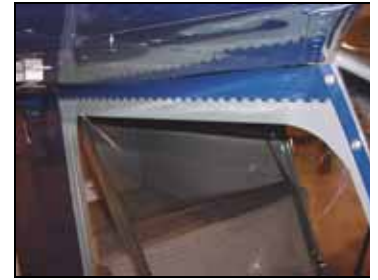


**Rear outside gusset 7F19-6**

First position the strip along the top of the door, trim the height of the strip to overlap the flange along the top of the bubble door. Remove the hinge from the door, overlap hinge on top of strip and back drill with #40 holes. Reinstall the strip and piano hinge to the door.

**CUT:** Cut the gusset to match the front edge of the rear fuselage skin. The width of the gusset at the front is the same as the width of the strip and approx. 13mm at the rear bottom.

**DRILL:** First drill #40 pilot holes in the Gusset, then position the gusset over the Plexiglas to drill through the Bubble Door and into the tube frame with #40 drill bit.



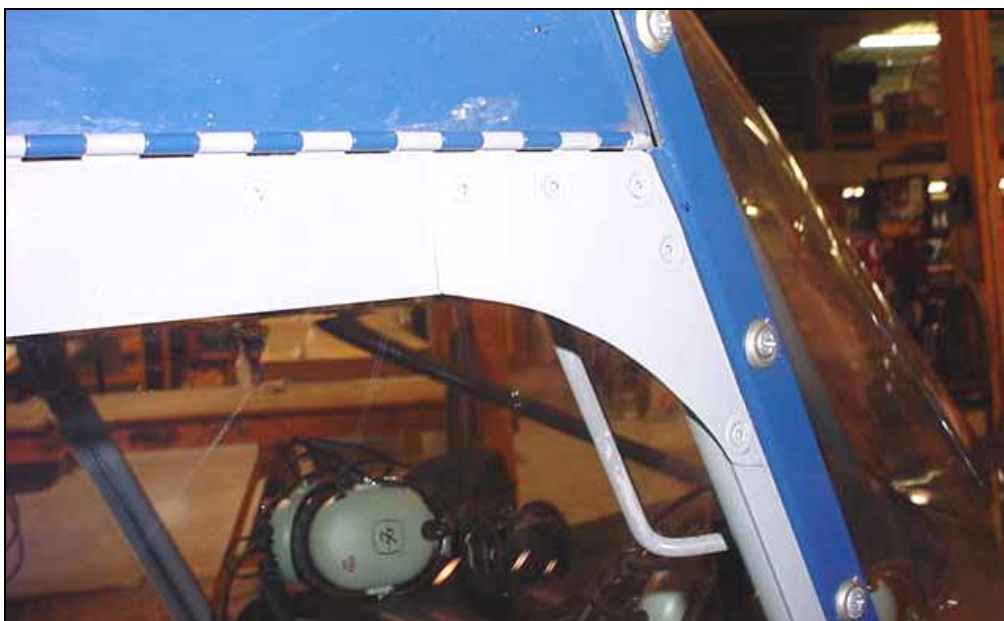
**P/N TS**

**TOP STRIP**  
35mm x 700mm  
t=.025 6061-T6

The purpose of the strip is to cover up the optical distortion along the bottom edge of the top flange on the bubble door. Overlaps on top of the piano hinge.

Remove the gusset and open the pilot holes with 1/4" hole for the finishing washers.

Gussets overlap on top of Top Strip



**Front outside gusset 7F19-6**



**7F15-4D**

Interior detail of left door handle.

Note: the two mounting screws on the exterior handle are replaced with longer screws.

Metric screw M3-10-.05mm

**PN 92005A120**

TOOTH WASHER

**PN 91120A120**

**Qty=4**

Right door

Exterior Door Handle **P/N 1226A62**, Ref 7-F-15



**Inside Handle Gusset**

30x60mm t.040" 6061-T6

Drill the 3 holes in the gusset to fit the exterior handle

left side, in closed position

**Exterior Handle Gusset**

50x80mm t=.040" 6061-T6

First drill the holes in the Exterior Handle Gusset to fit the shaft and two mounting screws. Use the gusset to position the holes in the bubble door. Trim the corners of the gusset, 10mm edge distance for the two bottom screws.





**7F19-6**  
Door gussets

**6 RIVETS A4**

Wait to rivet the inside gussets until aft the bubble door is screwed to the tube frame.

Front inside gusset

CUT: Trim the front edge of the Top Strip P/N TP to overlap one screw in the outside gusset.



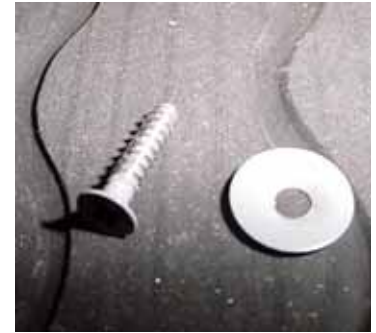
**7F19-6**  
Door gussets

Rear inside gusset

**6 RIVETS A4**

Trim the aft edge of the Top Strip even with the aft edge of the top tube.

Remove the outside gusset, Top Strip and piano hinge and Exterior handle gusset from the door to open the #40 holes to 1/4" hole for the countersunk washers.



100degrees FLAT HEAD  
TAPPING SCREWS  
No. 6 x 1/2"  
**P/N NAS548P6-8**  
QTY = 80 both door

WASHERS  
**P/N A3236-012-24A**  
QTY=80 both door

Remove the Bubble door from the tube frame to open the #40 pilot holes to 1/4" holes. We used a unibit on an electric drill, see page 12 section 13A



Paint the screws washers  
and all other parts, then  
reassembly door  
assembly.

The screws are self tapping into the #40 holes drill in the tube frame. Do not over tighten the screws!

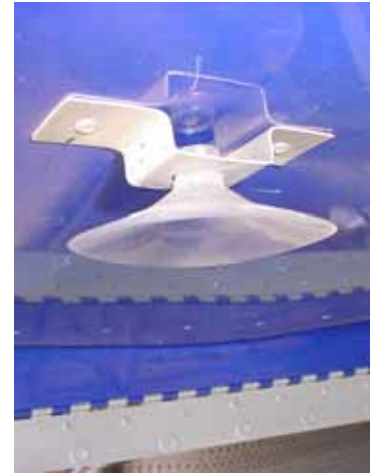


Suction Cup Assembly **P/N 7-SC**

Drill a 1/4" hole in the middle portion of the bracket, cut a slot to the edge to insert suction cut.



Rivet a retainer strip with **2 RIVETS A4**



Installed by drilling out 2 existing rivets in the first rear rib. First rivet approximately 200mm back from spar rivet line. **2 RIVETS A4**



Suction cup on bottom of wing to hold door open. Bubble door in the open position. Simply pull along the bottom of the door to break the suction. Larger suction cups are available if the door does not want to stay open during taxiing and engine run up.

**CAUTION: DO NOT OPEN THE DOOR DURING FLIGHT.** Check that the doors are latched closed before flight.



Inside view of left vent as seen from inside the aircraft.  
 The doors are supplied with a pre-cut for the 3-1/4" SNAP VENTS  
**P/N CC3251**  
 If necessary debur the edge of the hole with fine sand paper, check  
 there are sharp edge around the door.

Front view of right side.



Modified vent

Note: for additional ventilation the back flange can be trimmed down parallel  
 to the window (with the vent in the open position).