PHANTOM X-1E ASSEMBLY MANUAL

ADDENDUM TO X-1 MANUAL

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X1E Parts List

1	Rear Enclosure Cover
1	RC-1 Lower Keel Tube
2	AN3-13A
2	W3
2	N3
1	RC-2 Center Tail Tube
3	AN3-10A
2	W3
3	N3
1	TC2 Threaded Insert
1	RC-3 Center Cross Tube
2	AN3-10A
3	W3
2	N3
3	TC2 Threaded Insert
1	AN4-15A
1	W4
2	Sport Doors
2	X1E -2 Triangle Plate
1	AN3-16A
1	W3
1	N3
1	TP1 Slotted Beaver Tip
1	Bulkhead (Aluminum or Fiberglass)
6	W3
1	F04E Windshield
54	W3P
27	AN525-10R12
27	N3S
25’	F03 Trim

Hardware for side of Windshield

2	WDG Clamps
2	1” Delrin Spacers
4	F05
2	W3B
2	AN3-17A
2	N3

Door Framing

2	X1E-1 (4 Parts of tubes)
1	X1E-2
2	X1E-3 (4 Parts of tubes)
2	X1E-4
2	X1E5
2	X1E-6
2	RC4
4	PT1 Beaver Tips
3	TC1 Tube Connector
1	RC1 Split Connector
1	Hummer Tang
1	3-Hole Tang
3	TC2
7	5/32 Rivets
46	1/8 Rivets
8	3/32 Rivets
8	6-32 Screws

Inserts

4	90 DEG With Threads
4	20 DEG No Holes
4	20 DEG With Threads
4	Metal Tube Inserts

The X-1E is assembled in 5 steps. They are

1) Installation of the Pod
2) Installation of the Fiberglass Bulkhead
3) Installation of the Rear Enclosure
4) Installation of the Doors
5) Installation of the Windshield

STEP 1 – POD INSTALLATION (Figures 1 thru 4)

The extended pod provided with the kit is pre-drilled for the mounting bolts. This pod is not provided as part of the X1-E Kit if you have bought the enclosure kit as a standalone product. Ignore this section if the pod is already installed. The nose gear will have to be removed for installation. The first step is to cut the holes for the front down tube and rudder pedal extensions. These holes are marked on the pod. A rotary dremel tool will be helpful in cutting the holes. The holes may require fine tuning to allow proper freedom of movement for the rudder pedal extensions and springs. Figures 1 thru 4 illustrate the pod installation.

Reinstall the nose gear and front down tube after the pod is installed. Trim supplied in the kit may be added to the down tube opening to finish out the detail on the aircraft.

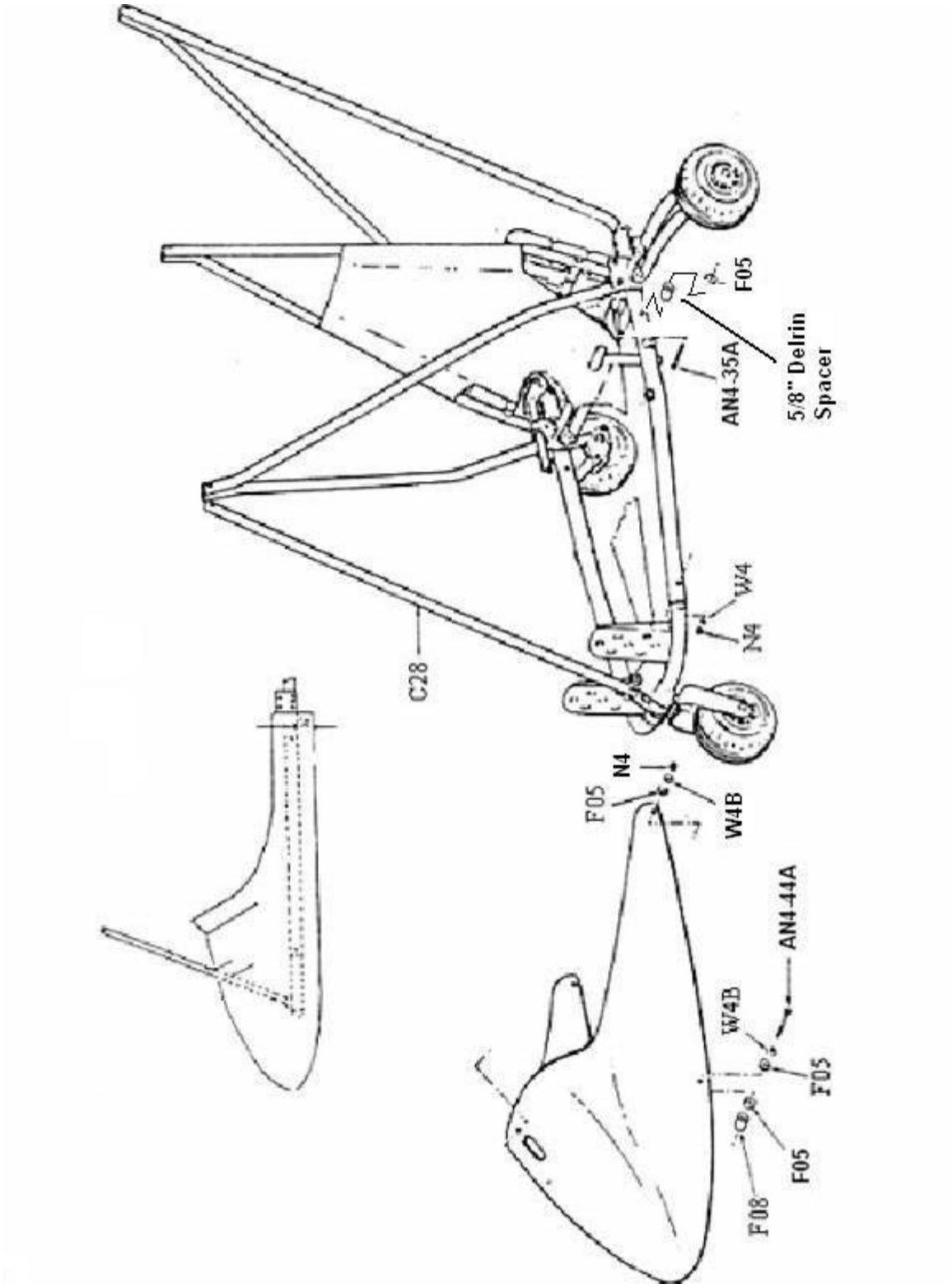

Figure 1 – F01E Pod Assembly

Figure 2 – Underbelly Cut Line

Figure 3 – Front Down Tube Opening

Figure 4 – Installed Pod

STEP 2 – BULKHEAD INSTALLATION (Figures 5 thru 7)

Aluminum Bulkhead

Earlier installations of the enclosure will have a fiberglass bulkhead. More recent installations will have an aluminum bulkhead. The aluminum bulkhead comes pre-assembled. The aluminum bulkhead should be mounted in the same manner that is described for the fiberglass bulkhead with the following exceptions.

1) The aluminum bulkhead will have slots for the seatbelt brackets, aileron cables and control stick torque tube already cut into the bulkhead. You will not need to perform this task like you would if you had the fiberglass bulkhead.

2) You will not need to remove the control stick torque tube or belcrank to install the aluminum bulkhead. There is an opening already present in the lower right corner to allow for the torque tube and belcrank.

Fiberglass Bulkhead Installation

Installation of the bulkhead will require disassembly of the fuel tank mounting hardware. When installed the top flat fuel tank bracket will be mounted on the backside of the bulkhead. The lower fuel tank bracket will be in front of the bulkhead. The control stick aileron belcrank will also need to be removed. Slots will need to be cut in the bulkhead at the top for the aileron cables and seatbelt brackets, and on the lower right side for the control stick aileron belcrank. A hole will need to be drilled for the control stick torque tube on the lower right hand side. Mounting holes will also need to be drilled to mount the bulkhead. The bulkhead is mounted using all the fuel tank mounting bolts. The bulkhead should be clamped to the rear down tubes and set in position before drilling begins. Holes can then be marked with the bulkhead clamped in place. The hole for the control stick torque tube is 1 ½ inches in diameter and the center of the hole is located approximately 2 inches from the bottom of the bulkhead and 2 inches from the side. Fine tuning of slots and holes will be required. The control stick torque tube hole can also be marked after the initial mounting is complete. A rotary dremel tool will be useful during this portion of the construction.

After holes have been drilled in the bulkhead assemble and install the RC-3 enclosure tube shown in Figure 8. Using the same AN4-23A bolt that holds the C31 tubes to the side cage rails, secure the RC-3 tube in place. Next install the bulkhead , fuel tank and fuel tank mounting brackets.

Install the triangle bracket at the top of the bulkhead in front of the C30 tubes as shown in Figure 5. A hole will need to be drilled in the bulkhead just below and on the inside of the C30 tubes. Use an AN3-16A, W3 and N3 to bolt the triangle in place.

Figure 5 – Bulkhead Placement

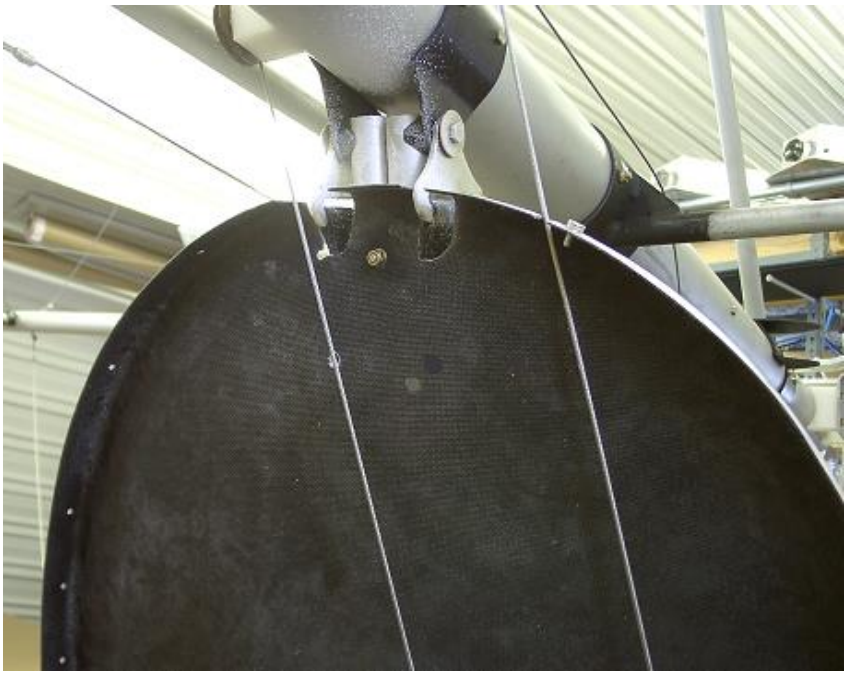

Figure 6 – Slots for Seatbelt and Aileron Cables

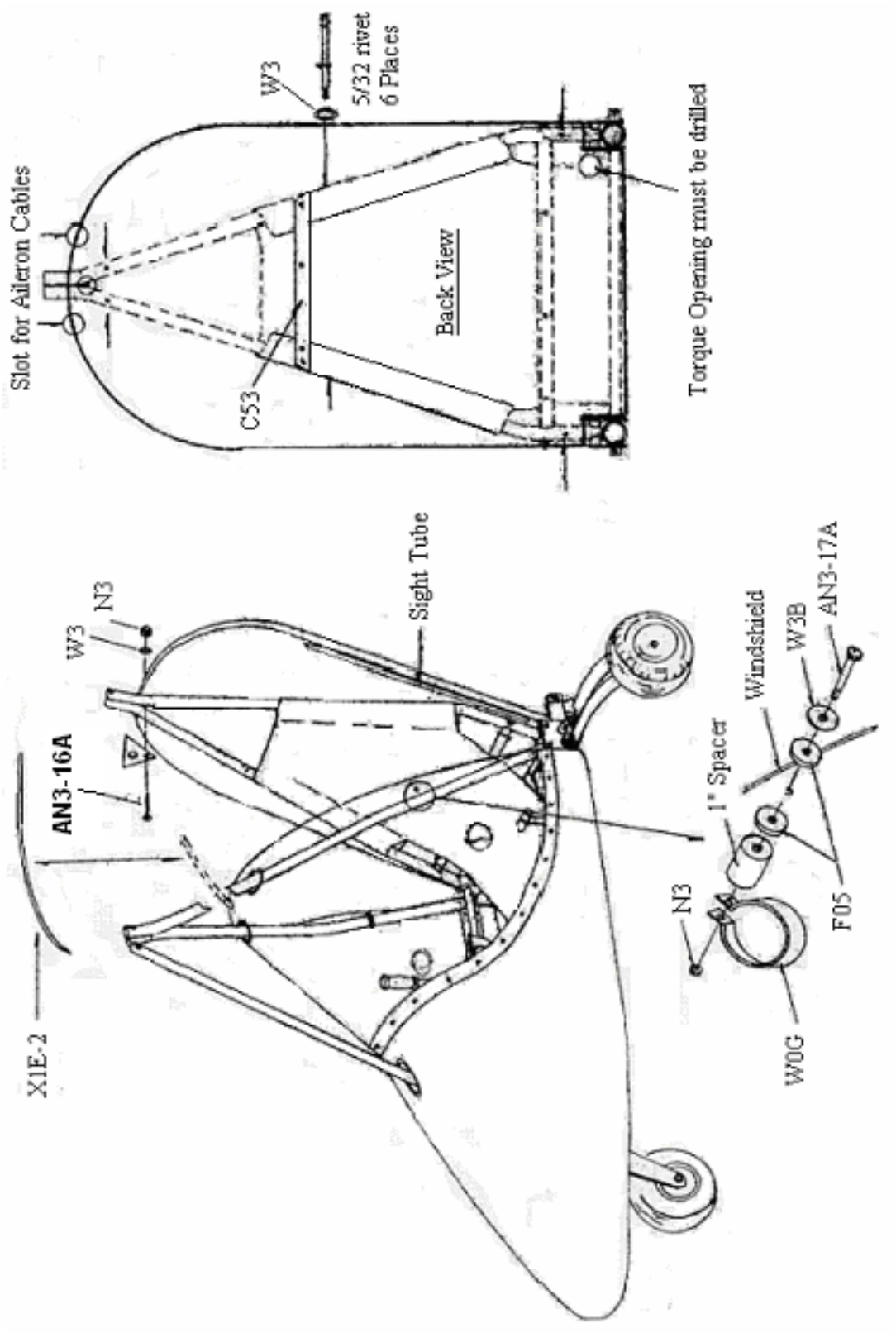

Figure 7 – Bulkhead Installation

STEP 3 – REAR ENCLOSURE INSTALLATION (Figures 8 thru

After the bulkhead is installed the rear enclosure should be installed. Do not tighten down nuts until the entire enclosure has been attached. There are Velcro sleeves on the inside of the rear enclosure that secure it to the tail struts and enclosure tubes. In assembling of the RC-1 upper enclosure tube, connect the two hole hummer tang between both C30 tubes and secure in place. This will require temporary removal of the bolt holding the C30 tubes together on the K07 down tube bracket. The rear enclosure should be slid over RC-1 before connection to K09. Assemble the RC-2 tube. The C31 tail strut tubes should be bolted to the C02/C03 side rail tubes. Connect RC-1, RC-2 and C31 tail strut tubes to the K09 bracket using the AN4-31A bolt and the W4 washer Drill and mount the K09 bracket. Make sure the main keel (K02) is level to the cage rails before the K09 is drilled and bolted to the keel. Velcro the enclosure around the RC-1 and RC-2 tubes.

After pulling the cover over the tube structure and the structure is bolted to the K09 bracket insert both RC-4 tubes into the rear cover as shown in Figure 13. It is best to leave both beaver tips loose and rotate in the tubes. The RC-4 tubes should rest against the tail strut at the rear of the cover. Next pull the cover up to the bulkheads front edge. Center the cover at the top, drill and pop rivet male snaps to the bulkhead using 1/8” pop rivets. Alternate from side to side keeping the enclosure taught and aligned with the front edge of the bulkhead. It is important to space the (8) rivets per side equally to assure even tension pulling on the rear cover.

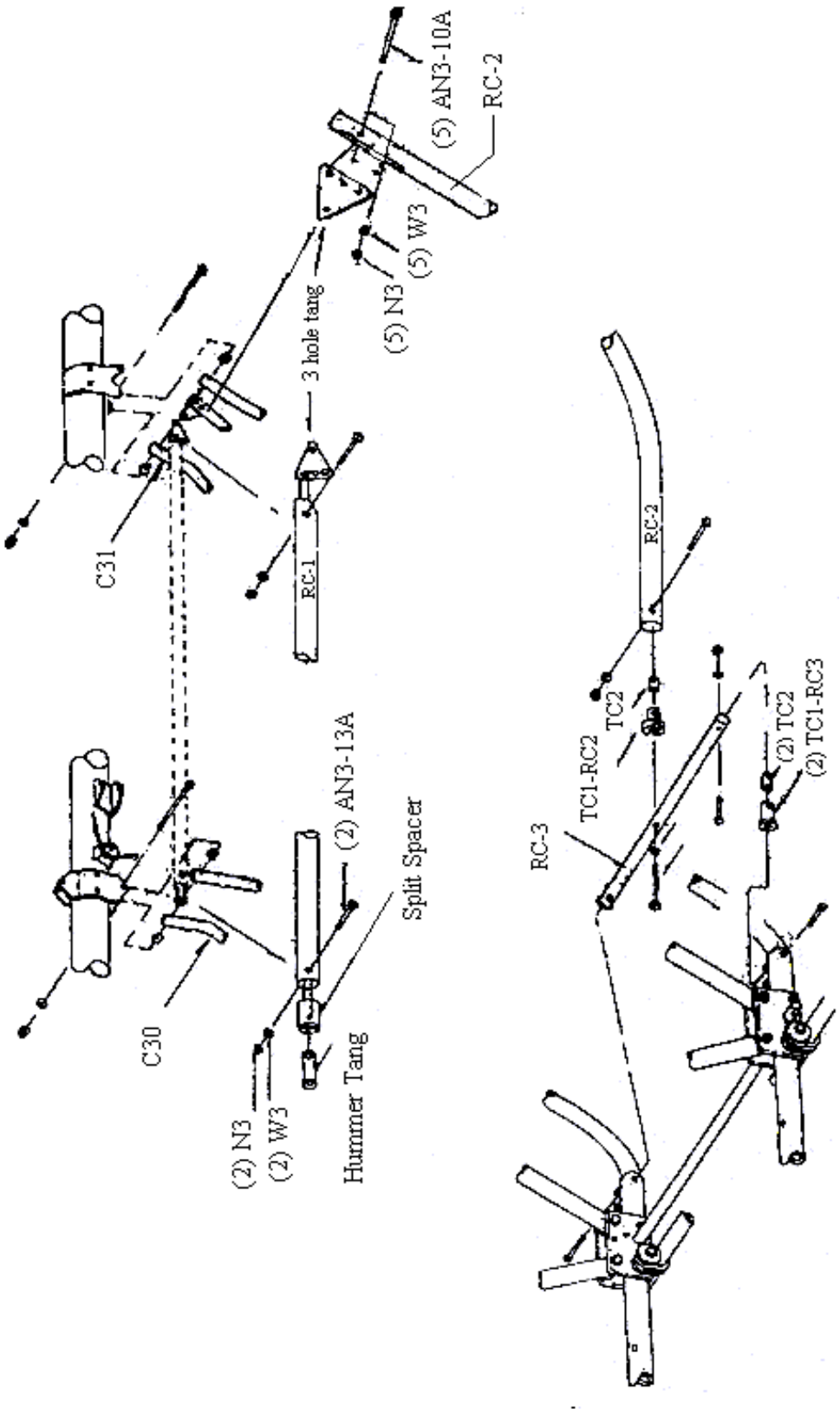

Figure 8 - Rear Enclosure Installation

Figure 9 – Rear Enclosure

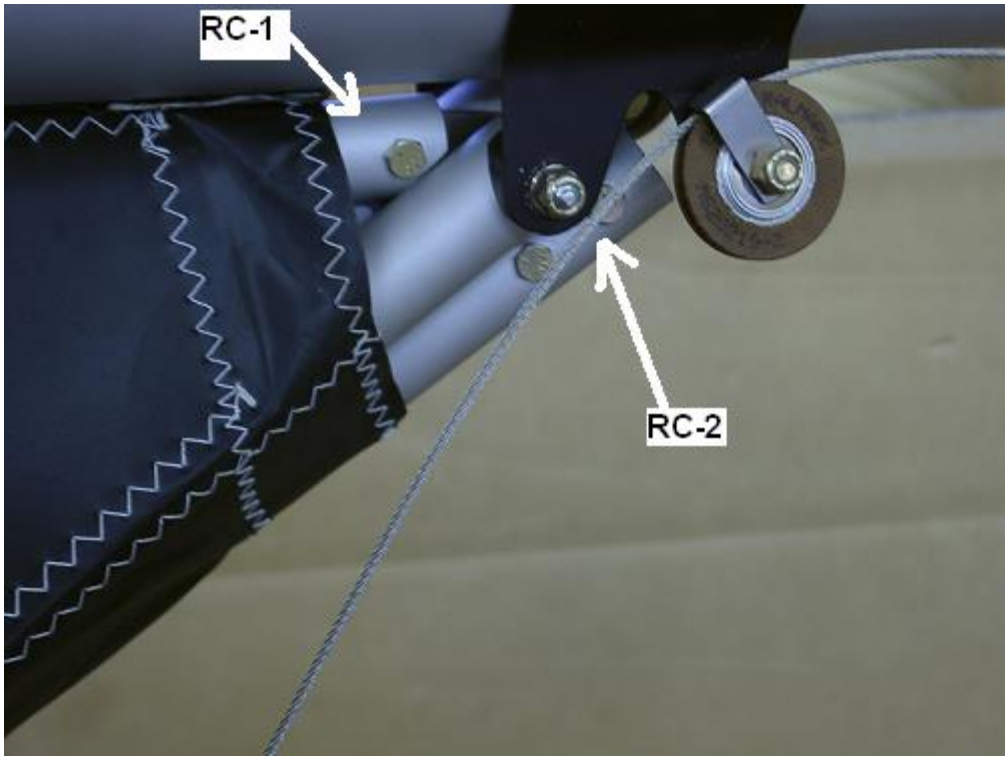

Figure 10 – Tail Strut Mounting Bracket (RC-1, RC-2 and Tail Struts)

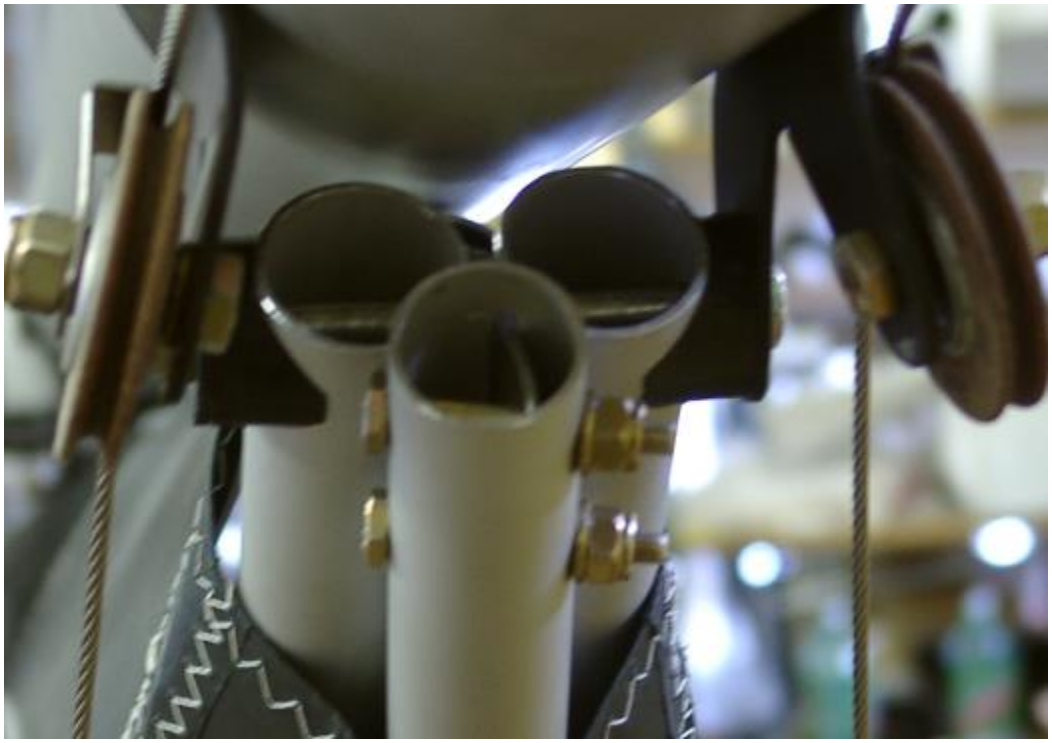

Figure 11 – Tail Strut Mounting Bracket Rear View

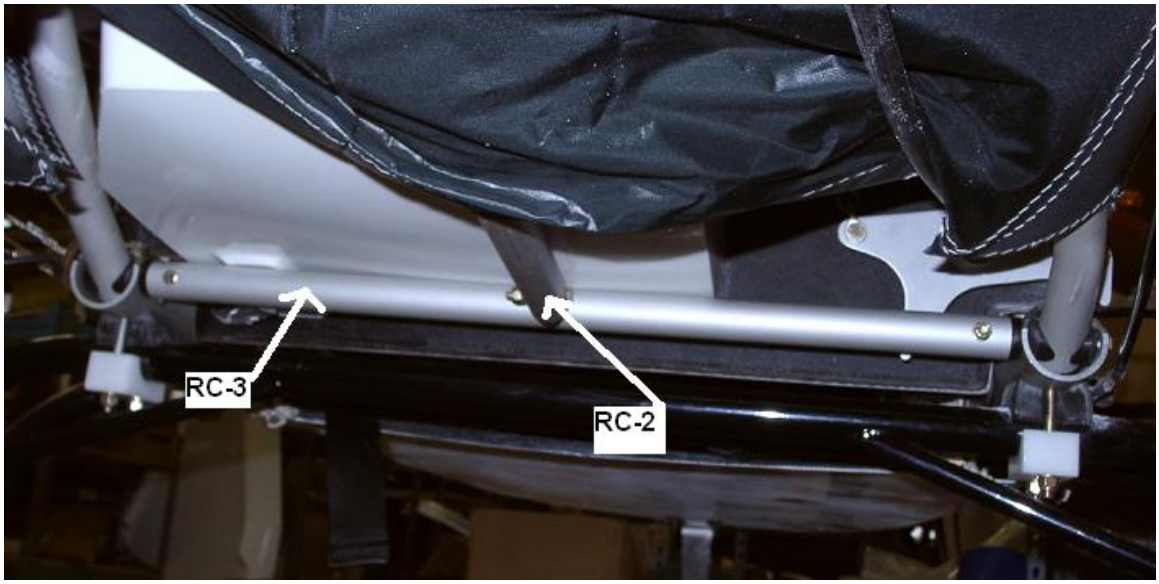

Figure 12 – Underbelly RC-2 and RC-3

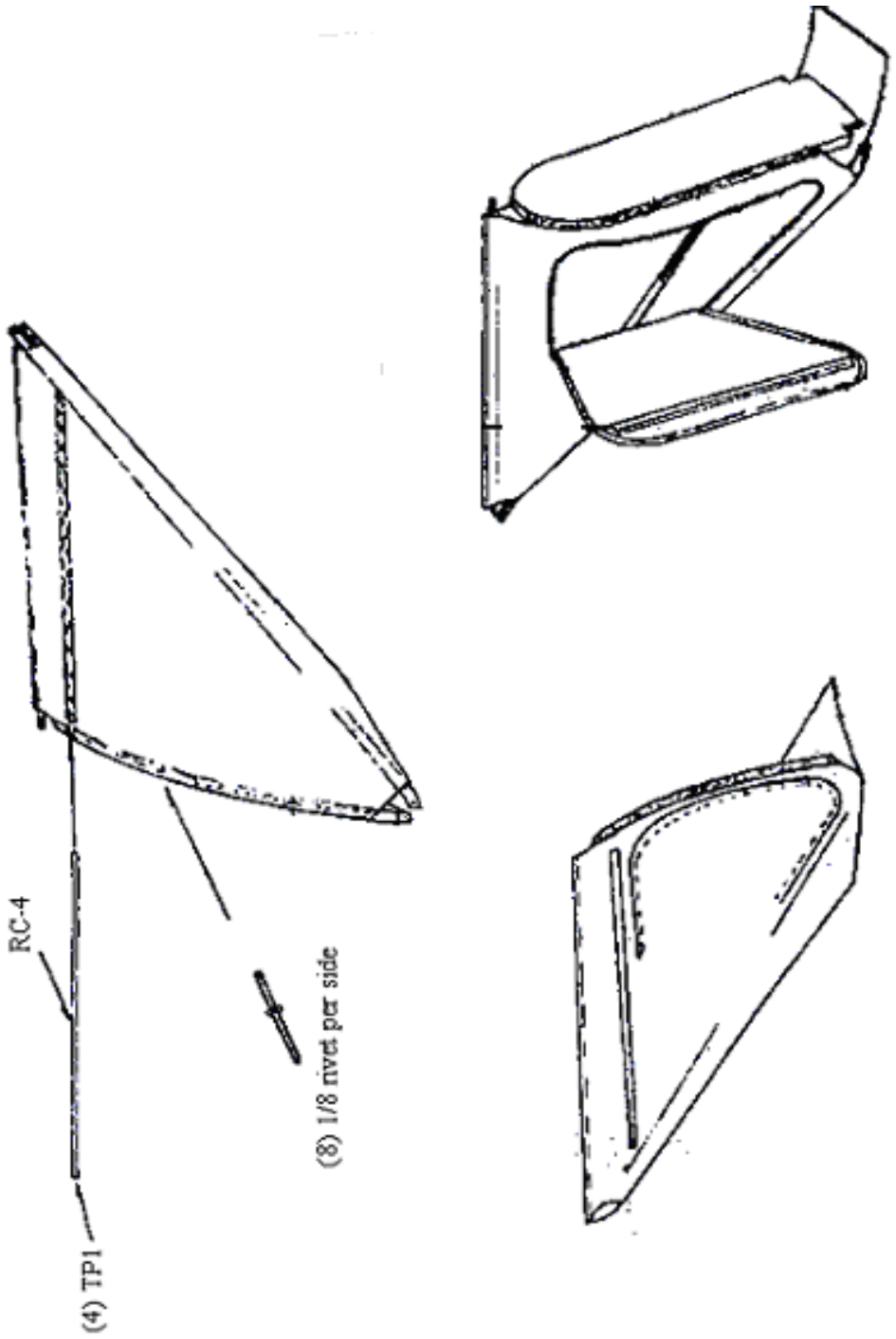

Figure 13 – Rear Enclosure Tubes

STEPS 4 and 5 – DOORS AND WINDSHIELD

Unzip the doors from the zipper framing. Figure 15 shows the inside of the door. Note the location of the start of the zipper; this is the rear of the door. Each tube assembly has its own hardware and aluminum inserts. Assemble doors as shown in Figures 14 and 15. Start with the bottom of the door. Insert all tubes into sleeves. Next put the aluminum inserts in the tube and bolt each tube to the threaded inserts. One end of the insert is left to move freely for door shape adjustment. 6-32 screws are used to bolt these together. After the doors are assembled zip them back into the door framing.

Remove the he-man bars (C29A) and place the new windshield on the pod using clamps. Reinstall the he-man bars. Attach the enclosed Velcro to the rear edge of the windshield. The Velcro is used to hold the doors on. Snap the doors to the rear bulkhead and attach them to the windshield using the Velcro. Install X1-E2 tube in the top of the door fabric framing. Insert one end into the triangle plate. The other end will rest on the windshield using a specially slotted beaver tip (PT1). This tip is similar to the one used on the wing ribs. Adjust windshield placement and openings until the door is properly in place with no loose fabric between the bulkhead and the doors. Once everything is in place to your satisfaction start drilling holes through the windshield and pod to mount the windshield. Start from the front center of the pod and work your way back alternating sides. As you drill one hole insert a bolt and finger tighten it into place. This will require two people, one inside the enclosure with the nuts and one on the outside drilling.

After the windshield is in place mark and drill holes on the windshield to mount the male snaps for the front of the doors. Mount the snaps using 1/8” pop rivets. The wrap around dash will be mounted using the bolts that attach the windshield to the pod.

There are two extra holes for air vents in the windshield. The windshield should also be bolted to the he-man bars using a WOG clamp, 1” delrin spacer, 4 F05’s, 2 W3B’s, 2 AN3-17A’s and 2 N3 nuts. There is a hole marked on the side of the windshield showing the location of the bolt. Refer to Figure 7 for this installation.

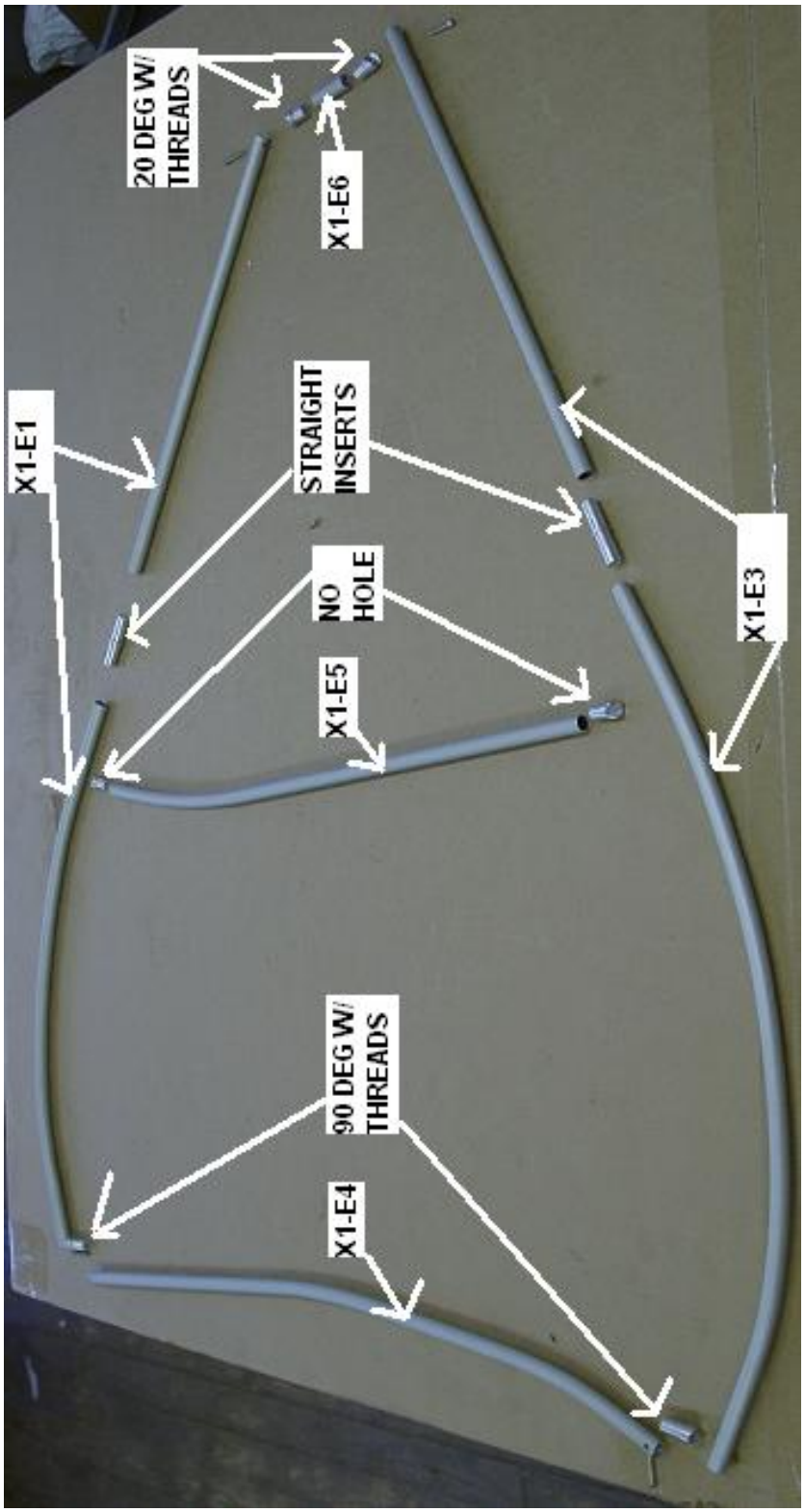

Figure 14 – Door Tubing

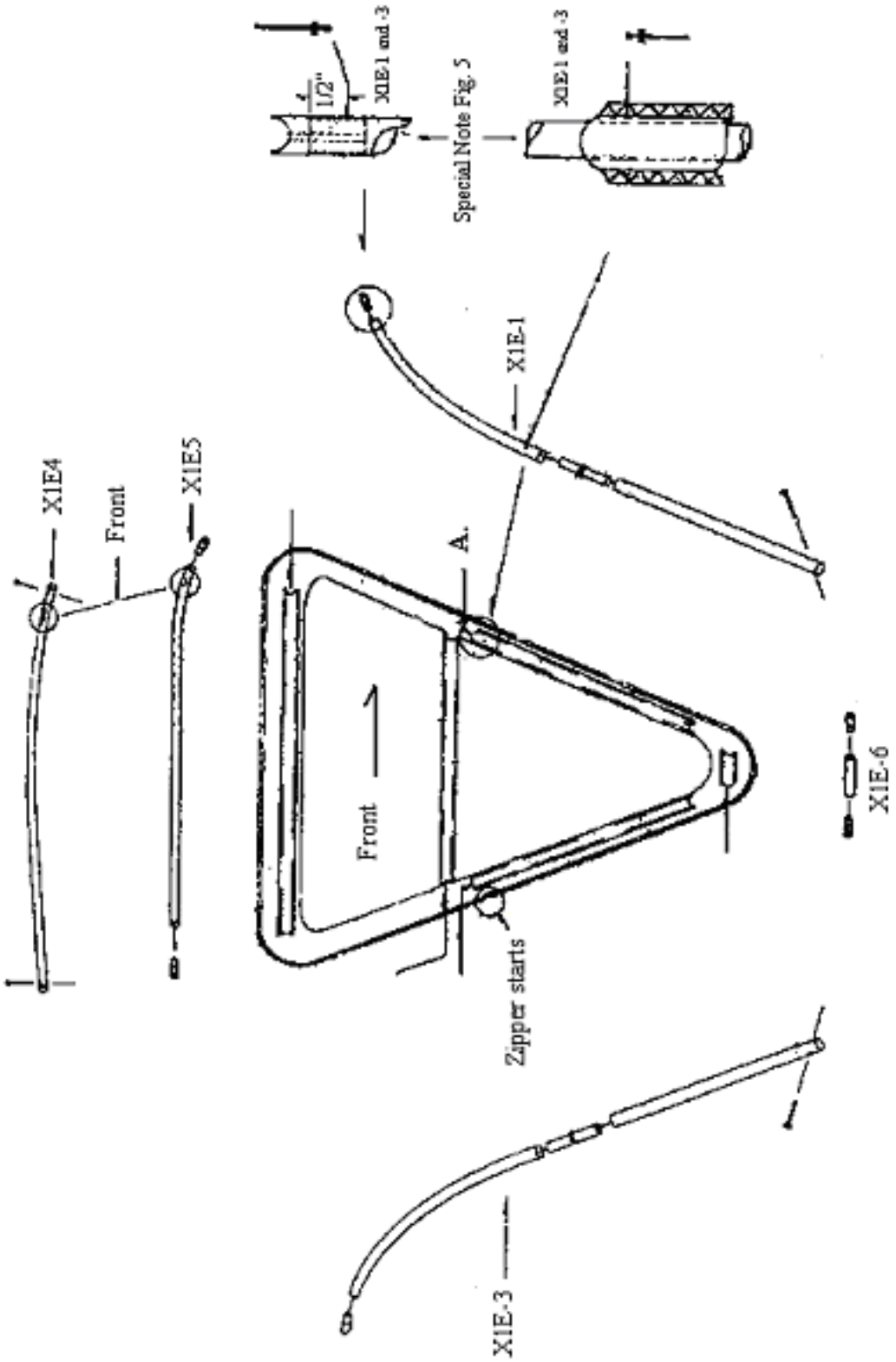

Figure 15 – Door Framing

Figure 16 – Snaps Mounted to Bulkhead

Figure 17 – Completed Enclosure