

STANDARD CANOPY WORK REPORT

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No.	Check	Parts / Tools	Qty
<i>Canopy Lock</i>			
1	[]	6E2-3 Canopy Hinge Block	1
2	[]	6E4-5 Canopy Side Frame	2
2	[]	6E2-1 Canopy Lock Assembly	1L + 1R
3	[]	6E2-4 Rear Lock Bearing	2
5	[]	Gusset 6F6-2	2
6	[]	Flat Head Machine Screw + SL Nuts	4
6	[]	1x19-.0625 1/16" Cable	4ft
8	[]	S-11-002 1/16 Nicopress Sleeves	2
8	[]	SNB-612 Tension Spring	1
9	[]	6E2-2 Lock Handle	1
10	[]	Lock Fairing (p.31 of manual)	2
<i>Bubble & Frame</i>			
12	[]	TC Bubble Canopy	1
14	[]	6E4-1 Rear Canopy Frame	1
14	[]	6E4-2 Front Canopy Frame	1
15	[]	6E4-H Canopy Side Extension	4
20	[]	NST-18T Oval Screws	50
20	[]	SNW-2012 Finishing Washers	50
<i>Canopy Open Arm</i>			
	[]	A.5x.035 Canopy Open Tube	100mm
	[]	A.75x.049 Canopy Open Tube	1
	[]	TA 897 Trim Seal	10ft

SIGNATURES: Builder _____ date

Inspector _____ date

The front bearing is a 3/8" hole drilled in the Main Upright 6F6-1, the rear bearing is a 3/8" hole drilled in the Rear Lock Bearing 6E2-4.

The height location of the front bearing is determined by hooking the Canopy Lock over the Canopy Side Frame as it sits on the Canopy Hinge Block 6E2-3.

1. Canopy Hinge Block 6E2-3; the part supplied in the kit is a single piece approximately 30x76mm with two 3/4" pre-drilled holes. Saw the 1/2" plastic block in the middle and again in half to make four identical parts.
 CHECK: That the 3/4" Canopy Side Frame 6E4-5 fit into the Hinge Block: on a good fit the tube makes even contact and touches the bottom of the Hinge Block.
 COMMENT: Wait to drill the 3/16" hole to assure correspondence with the middle of the Longerons.

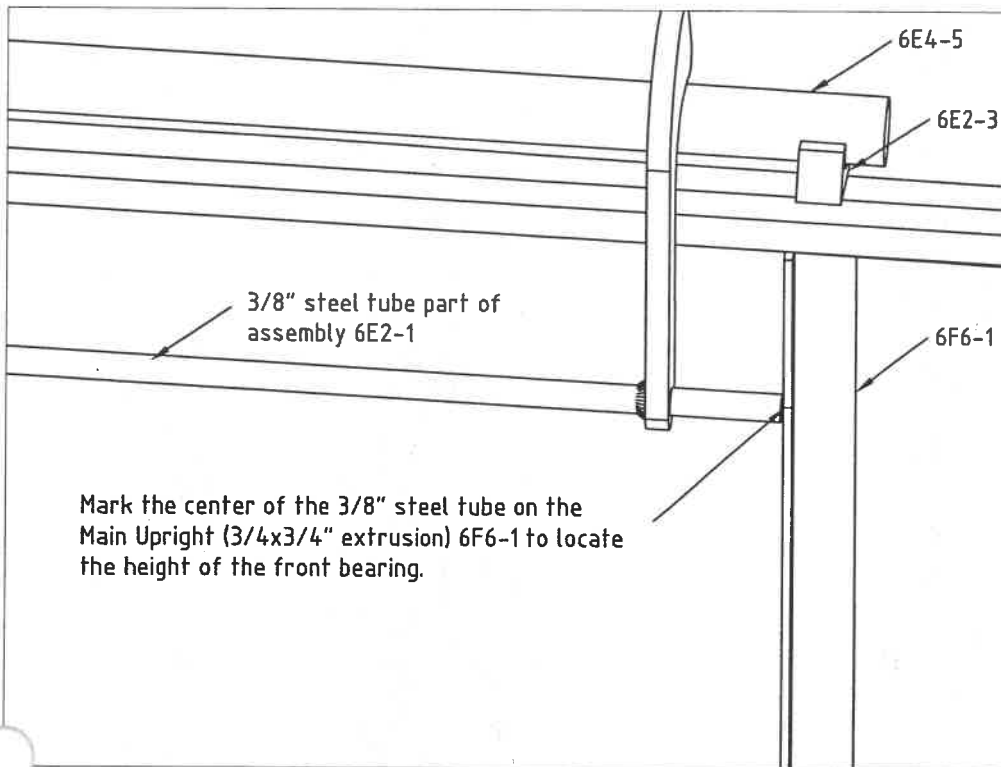
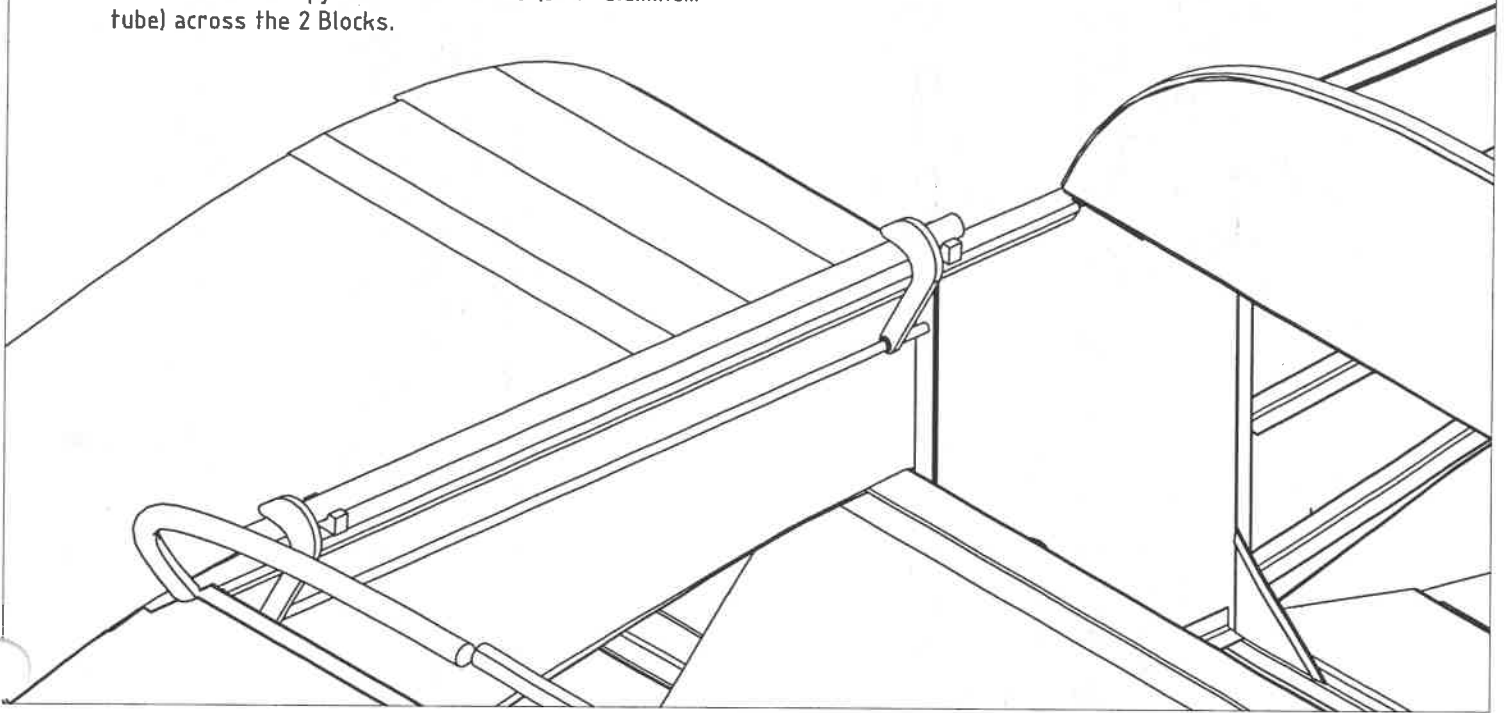
2. Drill the front bearing in the Main Upright.
 POSITION:
 - 1) Remove the Seat Back Side Channel 6F13-3 to avoid interference with the Canopy Lock 6E2-1
 - 2) Place the Canopy Side Frame 6E4-5 across the two Canopy Hinge Blocks positioned on top of the Upper Fuselage Longeron Doubler 6F13-5
 - 3) Hook the welded Canopy Lock Hook 6E2-1 over the Canopy Side Frame 6E4-5 pushing it firmly against the Upper Fuselage Longeron Doubler 6F13-5
 CHECK: The Hinge blocks are lined up underneath the Hooks.
 LAYOUT: Mark the centerline of the 3/8" tube on the Main Upright 6F6-1
 DRILL: Remove the Main Upright and drill the 3/8" hole in the middle of the 3/4" flange of the Main Upright 6F6-1
 BOLT: The Main Upright 6F6-1 to the Wing Pick up 6V4-2 with 4 AN3-5A, see drawing 6F6

3. The Rear Lock Bearing 6E2-4 is cut from a piece of 1/8" extrusion 1x 1/1/2" 1 = 65.
 Reinstall the Canopy Lock 6E2-1 over the Canopy Side Frame to locate the hole in the Rear Bearing 6E2-4.
 CHECK: The Canopy Hook is up against the Upper Fuselage Longeron Doubler 6F13-5.
 DRILL: The 3/8" hole in the side of the Rear Lock Bearing.
 DRILL & CLECO: The Rear Lock Bearing to the Fuselage Side Skin 6F5-1 with 3 A4

4. Drill a clearance hole in the Seat Back Channel for the end of the Canopy Lock.
 LAYOUT: Install the Canopy Lock through the front bearing and Cleco the Rear Lock Bearing to the Side Skin. Measure the distance from the Fuselage Side Skin to the center of the 3/8" tube.
 DRILL: An oversized 3/8" hole in the Seat Back Channel 6F13-3 to allow the rear portion of the 3/8" tube of the Canopy Hook to go through the Seat Back Channel.

CANOPY LOCK 6E2-1 LEFT SIDE

Temporarily place two Canopy Hinge Blocks 6E2-3 on top of the Upper Fuselage Longeron Doubler 6F13-5, then add the Canopy Side Frame 6E4-5 (3/4" aluminum tube) across the 2 Blocks.



Mark the center of the 3/8" steel tube on the Main Upright (3/4x3/4" extrusion) 6F6-1 to locate the height of the front bearing.

Locate the height of the front bearing on the Main Upright 6F6-1 by positioning the Canopy Lock 6E2-1 over the Canopy Side Frame 6E4-5.

Remove the Main Upright to drill the 3/8" hole for the front bearing of the Canopy Lock 6E2-1

Suggestion: Remove the Seat Back Side Channel 6F13-3 to more effectively locate the front and Rear Lock Bearing.

DRILL A 3/8" HOLE IN THE MAIN UPRIGHT 6F6-1 FOR THE FRONT BEARING OF THE CANOPY LOCK 6E2-1

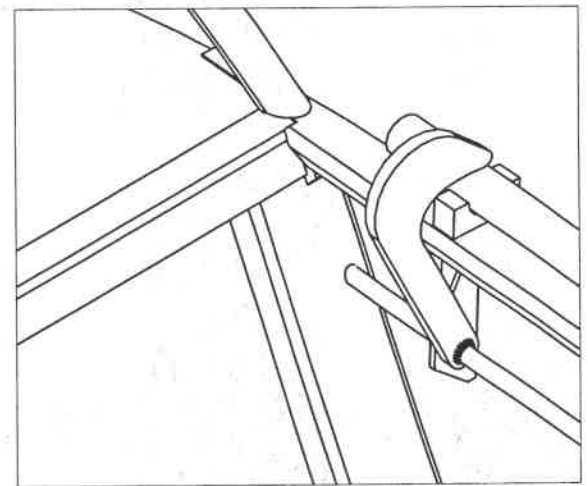
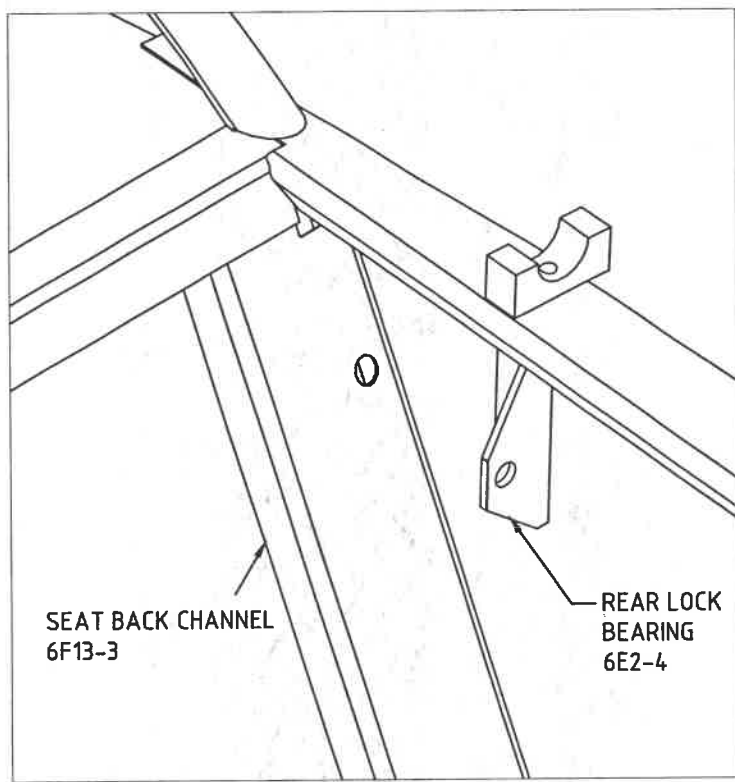
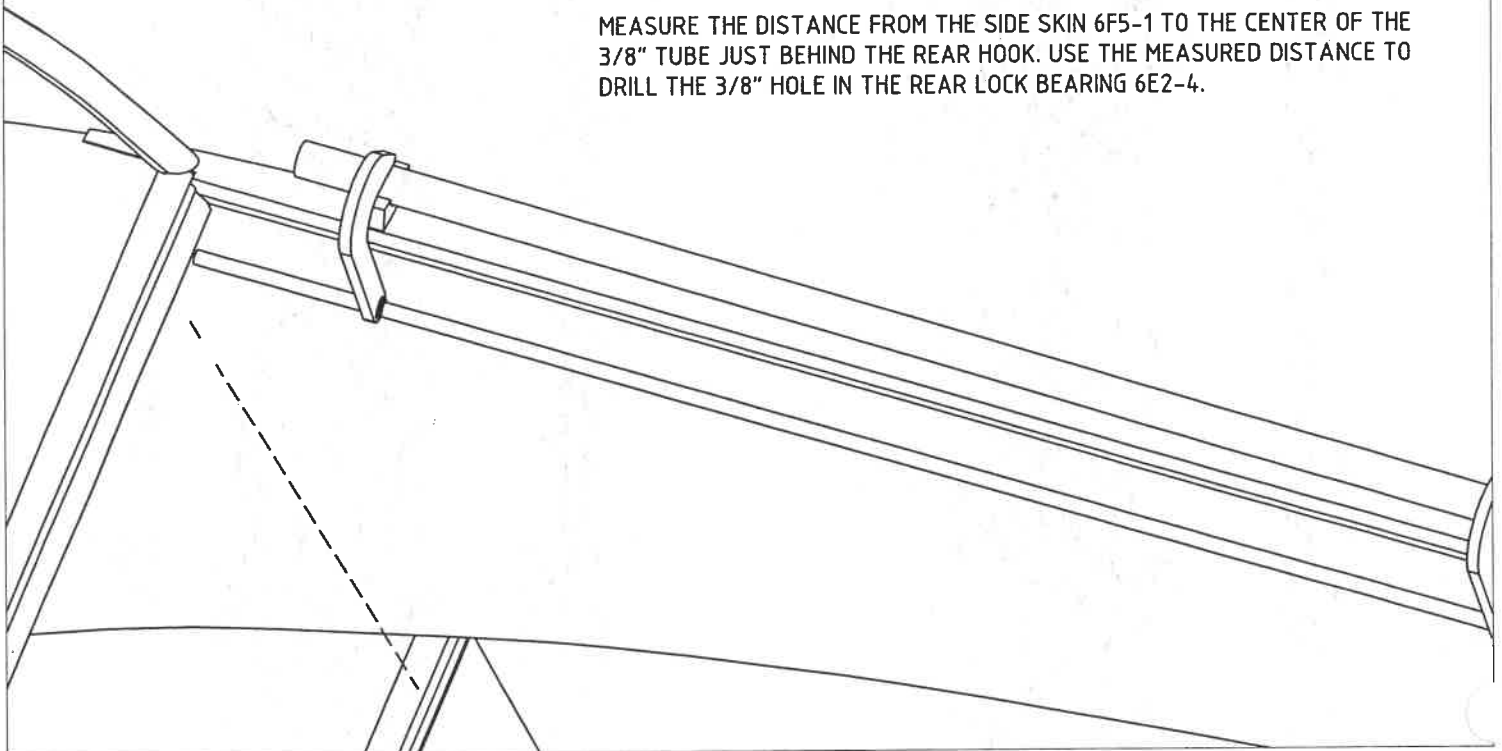
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HOOK THE LOCK 6E2-1 OVER THE SIDE TUBE 6E4-5 WITH THE FRONT OF THE 3/8" TUBE IN THE DRILLED HOLE IN THE MAIN UPRIGHT 6F6-1.

THE POSITION OF THE REAR BEARING IS BEHIND THE REAR CANOPY LOCK HOOK, THE EXTRUSION WILL KEEP THE LOCK ASSEMBLY FROM SLIDING BACK.

MEASURE THE DISTANCE FROM THE SIDE SKIN 6F5-1 TO THE CENTER OF THE 3/8" TUBE JUST BEHIND THE REAR HOOK. USE THE MEASURED DISTANCE TO DRILL THE 3/8" HOLE IN THE REAR LOCK BEARING 6E2-4.



6E2-4 IS BEHIND THE BEAR HOOK

REAR CANOPY LOCK BEARING 6E2-4

GUSSET, CONNECTING SPRING.

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Add a Gusset between the Rear Lock Bearing and the Upper Front Longeron.

Bend the 3/16" rod welded at the end of the Canopy Lock down approximately 15 degree to the right of the vertical.

5. Add a Gusset between 6E2-3 and the Longeron similar to 6F6-2
GUSSET: $t = .250$ ", 4X A4
RIVET: Wait to rivet until after the 3/16" rod on 6E2-1 is bent.
6. Bolt the Canopy Hinge Blocks 6E2-3 through the middle of the 3/4" wide extrusion of the Upper Front Longeron 6F5-3
LAYOUT: Mark the Longeron centerline on top of the Longeron Doubler
POSITION: Center the Canopy Hinge Blocks underneath the Canopy Hooks. Check that the Hook is pushed up against the Longeron Doubler 6F13-5. Transfer the Longeron center to the Canopy Hinge Block
CHECK: The outside edge of the Canopy Hook extends at least to the outside edge of the 3/4" tube of the Canopy Side Frame.
COUNTER-SINK: First drill the 3/16" hole for the flat head machine screw, then counter sink for the head.
CAUTION: If a larger drill bit is used to countersink the head, drill very slowly: the large drill bit will grab when drilling in the soft plastic material - clamp in a vise and use a hand drill on very low speed!
Self-Locking Nuts: Tighten to keep the blocks from spinning!
NOTE: The 3/16" in the rear Blocks is approximately midway between the outside edge of the block and the centerline 3/4" hole.
TRIM: The overhand of the Canopy Hinge Block beyond the outside edge of the Fuselage Side Skins.
7. Bend the solid 3/16" steel rod down so as to clear the Fuselage Side Skin when the Canopy Lock is pulled open.
REFERENCE: 15degrees on drawing 6E2: Canopy Lock Hook.
ORIENTATION: Pull the Canopy Hook in the open position (the front of the hook is approximately 4mm past the inside edge of the Canopy Side Frame) measure the distance from the front of the hook to the center of the Canopy Side Frame. Clamp the Canopy Hook assembly in a vise on the 3/8" tube and set the measured distance from a vertical line through the 3/8" tube to the front of the hook (the Canopy hook assembly is clamped in the vise in the open position). Bend the 3/8" rod down at 90degrees along the vertical line. Allow for a generous bend radius to avoid cracking. Pre-heat with a blow torch if in doubt!
DRILL: Drill a 1/16" hole through the end of the steel rod for the cable to connect the spring.
NICO-PRESS: Secure the 1/16" cable to one side of the Canopy Lock using a swaging tool to squeeze the sleeve.
8. Connect the Tension Spring SNB-612 to the 1/16" cable with a nico press at each end.
INSTALLATION: Stretch the Spring SNB-612 approximately 30mm with the Hooks in the closed position.

STRETCH THE SPRING
APPROXIMATELY 3" WHEN
INSTALLING THE CABLE.

SNB-612
TENSION SPRING (3lbs/inch)

S-11-002
1/16" NICO PRESS SLEEVE

1X19-.0625
1/16" CABLE

6F13-4

LOOKING DOWN THROUGH THE BAGGAGE FLOOR.

6F13-3

REAR VIEW OF LEFT SIDE

FRONT HOOK

REAR HOOK

BEND THE 3/16" ROD
WELDED TO THE
CANOPY LOCK
TOWARDS THE CENTER
OF THE AIRCRAFT - TO
AVOID CONTACT WITH
THE SIDE SKIN WHEN
THE CANOPY HOOK IS
PULLED OPEN.

15°

PULL CANOPY
HOOK TO OPEN

1/16" HOLE DRILLED
THROUGH THE 3/16"
ROD TO CONNECT THE
CABLE.

BENT 3/16" ROD WITH CONNECTING SPRING

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LOCK HANDLE, SIDE FRAME

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Lock Handles are mounted on the forward hooks to open the canopy from the outside of the cabin. Pull the latch to open, to close push the canopy down; the spring action will close the hook over the side tube.

9. Install the Lock Handle 6E2-2

MATERIAL: Angle material $t = .063$ "

BEARING: The slot in the Fuselage Side Skin is doubled up with a piece of 1/8" plastic bearing material to add rigidity.

10. On the inside of the cabin, add a protection fairing around the Lock Handle 6E2-2

MATERIAL: $t = .025$ 120 x 150 riveted to the Fuselage Side Skin, installed on both sides.

PITCH: 2X A4 in each side to the Fuselage Side Skin.

NOTE: The Seat Back cushion slide behind the Rear Hook and rest against the Corner Stiffener 6F13-4

11. Drill and Cleco the Inside Frame 6E4-3H and Outside Flashing 6E4-4H to the Canopy Side Frame; make a small cutout to clear the Canopy Hinge Block and a slot for the Hooks to go through.

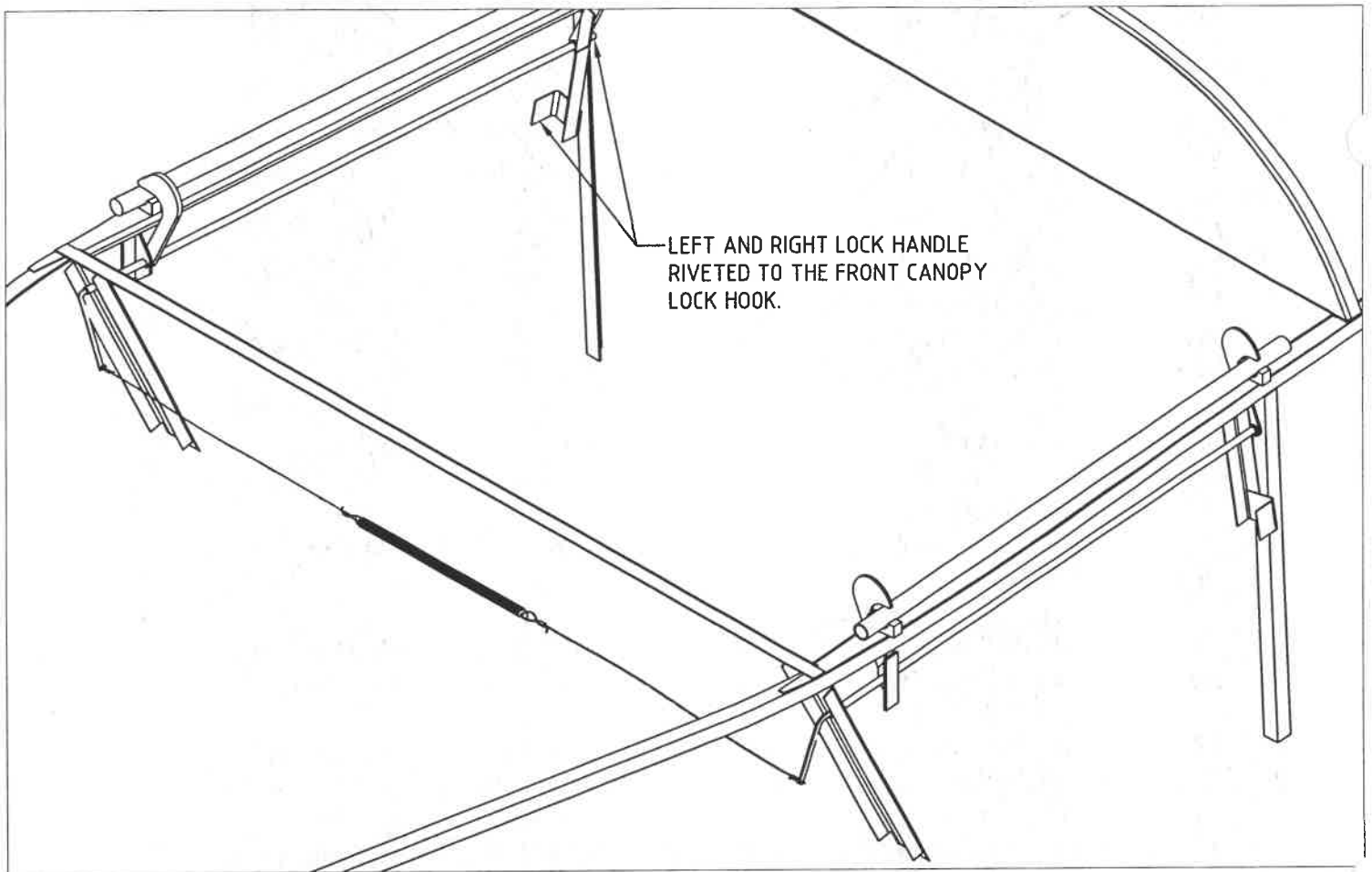
LAYOUT: Center the Canopy Side Frame with equal distance to the front and rear Canopy Hinge Block. Mark the front and rear edge of each Canopy Hinge Block 6E2-3 on the Canopy Side Frame 6E3-5

PITCH: Mark a 10mm rivet line along the bottom edge of both pieces. Center the 6E4-3H and 6E4-4H on the Side Tube 6E4-5. Use the inside marks of the Hinge Blocks as marked on 6E4-5 to locate the two end holes of the rivet line.

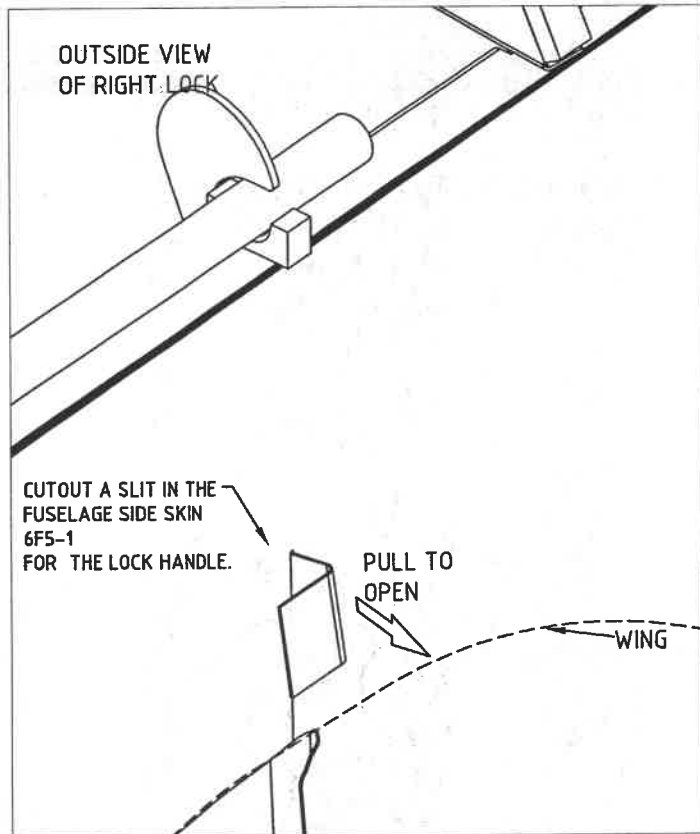
A4 pitch 40 in 6E4-5

CUTOUT: File corner relief holes in the Inside Frame 6E4-2 to clear the Canopy Hinge Block 6E2-4 and the Canopy Hook 6E2-1

BEND: Bend the bottom edge of the .025 sides round the Side Tube. To bend: Clamp the .025" sheet between two 2x4, adjust the edge to stick out approximately 8mm along the long edge of the 2x4. Use a small piece of board, sliding it back and forth along the edge of the .025" sheet to gradually and consistently bend the edge down. Bend the bottom edge of both 6E4-3H and 6E4-4H



LEFT AND RIGHT LOCK HANDLE
RIVETED TO THE FRONT CANOPY
LOCK HOOK.

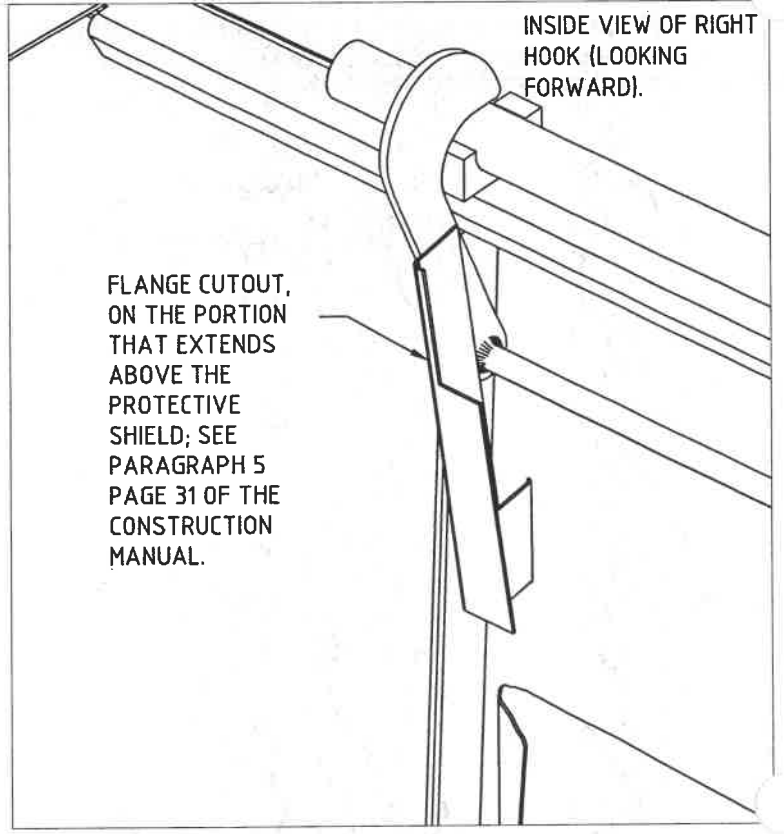


OUTSIDE VIEW
OF RIGHT LOCK

CUTOUT A SLIT IN THE
FUSELAGE SIDE SKIN
6F5-1
FOR THE LOCK HANDLE.

PULL TO
OPEN

WING



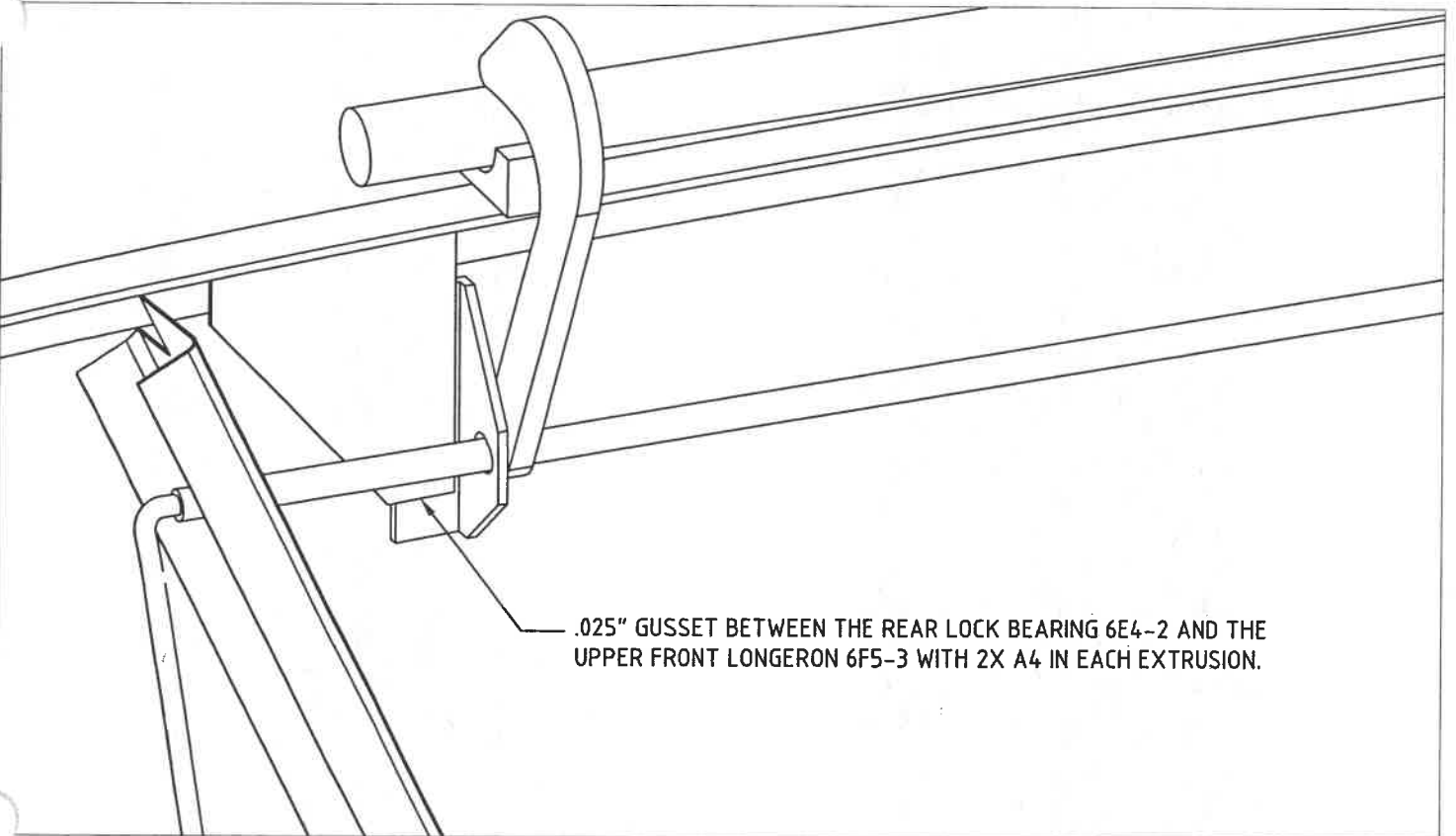
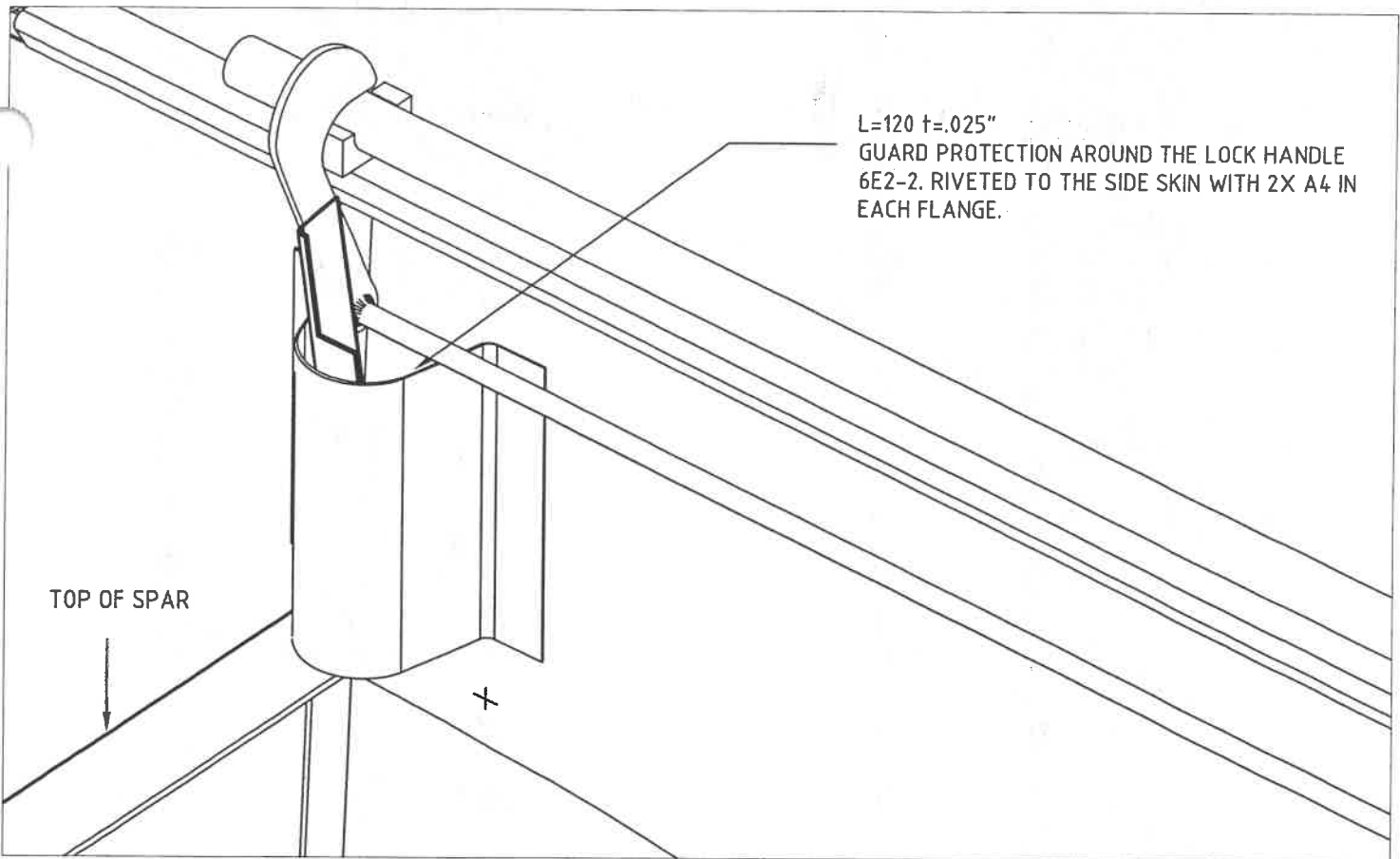
INSIDE VIEW OF RIGHT
HOOK (LOOKING
FORWARD).

FLANGE CUTOUT,
ON THE PORTION
THAT EXTENDS
ABOVE THE
PROTECTIVE
SHIELD; SEE
PARAGRAPH 5
PAGE 31 OF THE
CONSTRUCTION
MANUAL.

LOCK HANDLE 6E2-2

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CANOPY FRAME

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The supplied canopy is pre-cut to fit around the Middle Top Skin 6F14-2 and the Forward Top Skin 6F16-4. With the canopy fitted to the fuselage the Canopy Tubes 6E4-1 and 6E4-2 are cut to fit from the inside.

Handle the Bubble Canopy with care! The best way is with two people: one at each end holding the bubble in the middle.

CAUTION: The acrylic becomes more brittle as it gets colder

12. With someone sitting inside the cabin, position the Bubble canopy on the airframe

REFERENCE: Manual page 30

POSITION: 1) Even out the bottom gap between the left and right side.

- 2) Approximate position of the Bubble fore & aft: from the front edge, approximately 200mm to the Instrument Panel, from the back edge approximately 250mm to the Bulkhead B2.

NOTE: There is a front and rear to the Bubble. The gap between the bottom of the Bubble and the top of the Longeron is uneven being wider at the rear.

SUGGESTION: Trace the edge of the bubble on the fuselage for future reference.

13. Work from the inside to fit the tube frame to the bubble. Adjust the length of the Rear Canopy Frame 6E4-1 and the Front Canopy Frame 6E4-2 to rest on top of the Canopy Side Frame 6E4-5

NOTE: Position the Rear Canopy Frame parallel with the Tube Frame 6E1-2 (B2)

CHECK: The overhang of the Forward Top Skin 6F13-4 past the Instrument panel is trimmed, the corner radius is approximately 100mm with a "sun visor" of approximately 10 to 30 overhand.

SAW: Keep passing the Tubes back and forth through the gap underneath the Bubble to someone to outside to saw the ends of the tube frame. Saw the ends parallel to the Canopy Side Frame.

SUGGESTION: Keep the length of the tubes symmetric to the centerline: lay the tube flat on the workbench and trace around the outer edge to mark the workbench: transfer the centerline as marked on the tube to the workbench. Connect the ends of the tube with a straight line, drop a perpendicular through the aircraft centerline – adjust if necessary.

LAYOUT: With a marker, mark the tube centerline where it touches the Bubble.

DRILL & CLECO: Hold the Tubes from the inside and drill #40 pilot holes from the outside into the middle of the Tube Frames.

PITCH: 100mm

14. Cleco the Outside Flashing 6E4-3H to the Canopy Side Frame 6E4-5 to drill and Cleco the Front and Rear tube to the Outside Flashing.

DRILL/CLECO: 3X #40 in the Rear Tube 6E4-1

4X #40 in the Front Tube 6E4-2

Remove the Front and Rear Tube from the canopy frame, then lift the Bubble off the fuselage, store it upside down on a soft flat surface.

Cleco the Front and Rear Tube to the Outside Flashing, check that the tube frame are exactly the same width as the fuselage. Cut the top flange of the Outside Frame 6E4-4H to fit in between the two tube frames.

15. Trim the Inside Frame 6E4-4H to fit against the Bubble. Bend a front and rear flange from the ends of the Canopy Side Frame to the tube frame.

LAYOUT: Trace the front and rear Canopy Tube on the Outside Flashing 6E4-3H. Remove the front and rear Tube Frame and Cleco the Inside Frame 6E4-4H to the Canopy Side Frame 6E4-5. Transfer the position of the Front and Rear tube frame as marked on the Outside Flashing to the Inside Frame. Draw a $\frac{3}{4}$ " radius circle on the top flange of 6E4-4H tangent with the inside edge of 6E4-4H.

CUT: Cut along the inside bend to trim away the outside and top flange up to the front of the Front Tube and to the rear of the Rear Tube. File a $\frac{3}{4}$ " Radius where the top flange join up with the Canopy Frames 6E4-1 and 6E4-2.

BEND: Draw a line from the front of the Side Frame 6E4-5 to the front of the Front Canopy Frame 6E4-2. From the first line, draw a cutting line on a 18mm offset and cut. To bend the flange along the line, clamp two pieces of 2x4 and with a rubber hammer fold the flange outwards.

FLANGE CURVATURE: To adjust the straight flange to the curvature of the tube frame, use a steel hammer on a steel block to stretch the 18mm flange.

16. Assemble the frame on the fuselage and check that the width of the frame fit the fuselage.
CHECK: Opens and closes the frame to determine if it stretches. Adjust the Rear and/or Front Frame in or out for an exact fit.

17. Back drill the pilot holes in the bubble for the plastic bushings.

SPACER: For plastic spacers, cut little pieces of the $\frac{1}{4}$ " O/D poly tube used for the brake lines.

DRILL: 1) Use a $\frac{1}{2}$ " step drill to drill a hole slightly larger than $\frac{1}{4}$ " to allow for expansion around the poly-tube spacer.

2) Back drill the pilot holes for the screws with a $\frac{9}{64}$ " drill.

18. Paint the Tubes and side extension flat black.

HINT: To paint the screws in a vertical position, poke them in a flat piece of cardboard.

19. Screw the Bubble to the Frame.

CLECO & RIVET: The inside extension to the Front and Rear Canopy Frames.

SCREW: Add the poly-tube spacer, finishing washer and screw into the pre-drilled pilot holes Front and Rear Canopy Tubes.

SUGGESTION: Add a handle on the outside of the canopy to raise and push it closed. Use a small piece of extrusion $\frac{1}{2}$ "x $\frac{1}{2}$ " approximately 150mm long. Place the extrusion flush with the top of the outside extension and back drill into the extrusion. Rivet with the bubble in place in-between the outside and inside extension.

RIVET: The outside Extension sheet with the bubble in-between the outside and inside extensions.

Articulated arm to hold the canopy open.

20. Canopy open arm.

REFERENCE: Manual page 31

MATERIAL: Bottom support angles: $t = .025$ " 18 x 24 angle.

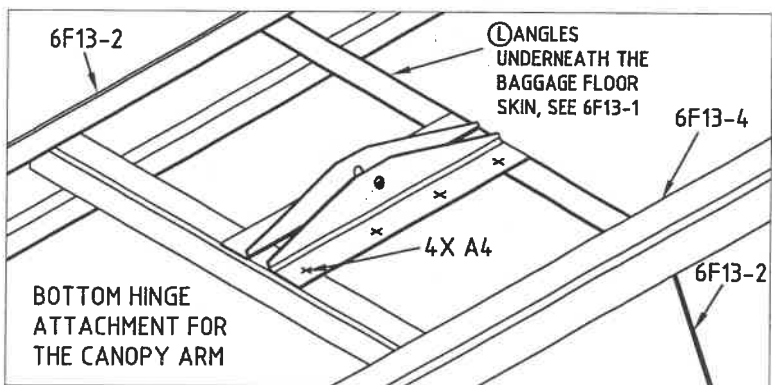
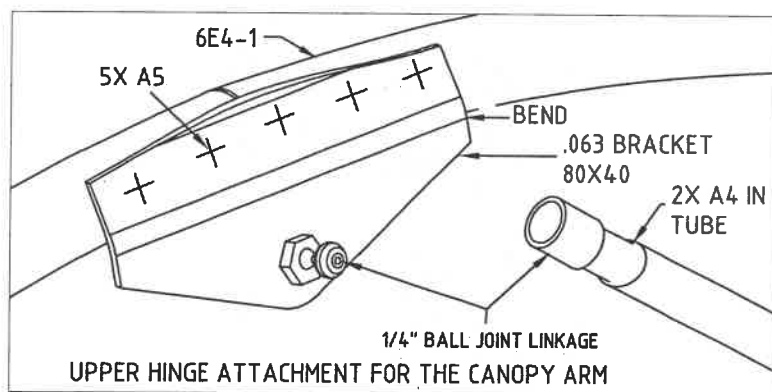
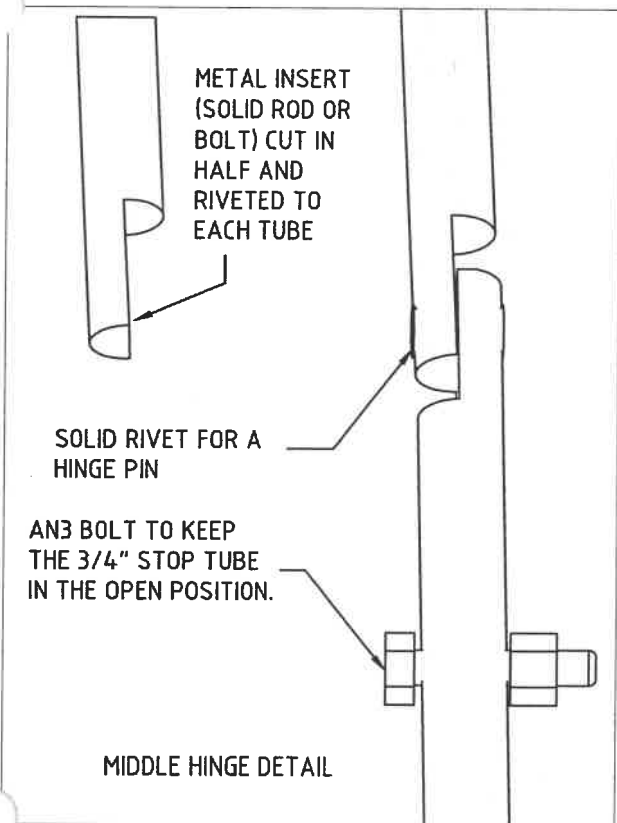
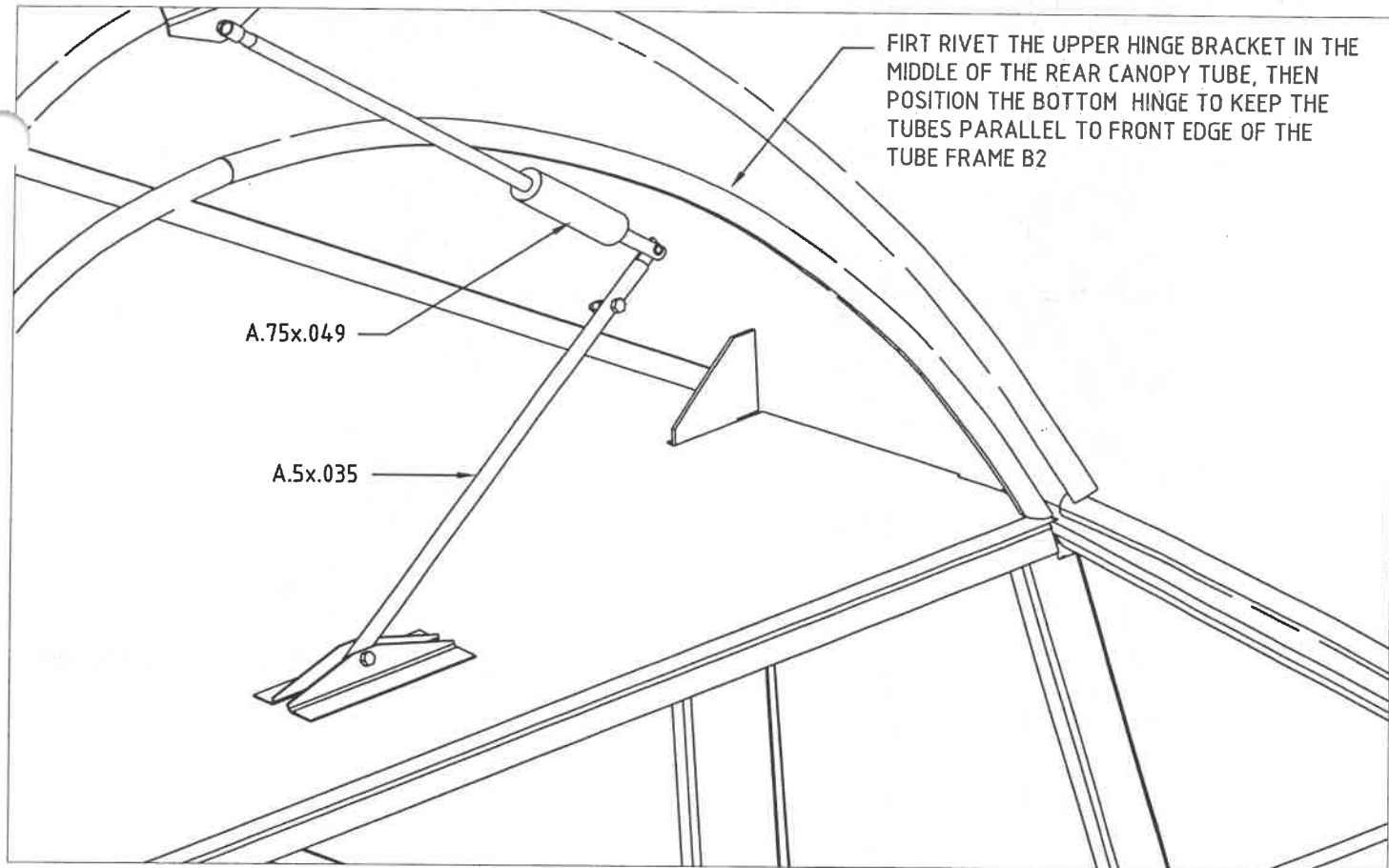
SUGGESTION: Insert a bolt inside the 1/2" O/D tube, and cut in accordance with the manual.

21. Glue the rubber seal to the bubble with the canopy closed.

RUBBER SEAL: The supplied 11 feet is plenty for the front and rear contact with the fuselage.

22. Glue a 1/2" foam self-adhesive weather strip directly to the Upper Fuselage Longeron Doubler to close the gap between the Longeron and the bottom of the Canopy.

23. PREFLIGHT CHECK: Manually inspect that the four Canopy hooks are closed and free from obstructions.



CANOPY HOLD OPEN TUBE

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