CENTER WING SECTION (CWS) WORK REPORT

No.	Check	Parts / Description	Qty
PHASE 1: Preparations			
1	[ ]	6V1-3 Rear ribs	2R & 2L
1	[ ]	L Angle	6
2	[ ]	6V2-1 Rear Ribs .032	2R & 2L
2	[ ]	6V5-1 Gear Rib Doubler Channel	4
2	[ ]	6V5-2 Gear Slides extrusion	8
4	[ ]	6V6-1 Aileron Bellcrank Support	4
4	[ ]	6V6-2 Bellcrank Support Channel	4
5	[ ]	6V7-1 Rear Zee	1
5	[ ]	**TEMPLATE**: CWS-2 strip 1100 long marked with the Rib STA.	
6	[ ]	6V7-6HD I/B Splice Plate	2
7	[ ]	6V12-6 Rear Bearing Channel	1
8	[ ]	6V11-2 Center Wing Bottom Skin	1
		PRE-DRILLED FOR THE REAR RIBS, FOR THE REAR ZEE AND CHANNEL 6V12-6	
9	[ ]	**JIG**: 2" hole saw to drill through 1/8" aluminum plate.	
9	[ ]	6V11-4 Plate .090	2
10	[ ]	6L3-1 Lower Bearing Support (welded)	2
11	[ ]	6L3-2 Lower Bearing	2
11	[ ]	6V12-1 Seat Panel	1
Wing skeleton			
12	[ ]	6V4 Center Wing Spar	1
		PRE-DRILLED FOR THE RIB STA.	
16	[ ]	6V1-2 Nose ribs	5R & 5L
Skinning			
20	[ ]	6V11-3 Center Wing Bottom Skin	1
21	[ ]	6V11-2 Center Wing Nose Skin	1
25	[ ]	6V11-5 Extrusion	4
26	[ ]	6L1-1 Main Gear Leg	2
29	[ ]	**JIG**: 3/4" tube or spacer (200mm) to separation of the Gear Slides	
30	[ ]	6V11-1HD (t=.032") Center Wing Top Skin	1
		PRE-DRILLED FOR THE REAR RIBS AND THE REAR ZEE.	
31	[ ]	**TOOL**: Ratchet type straps: 12ft long	6
Upper gear leg alignment			
33	[ ]	6V5-3 Strip	2
Seat panel			
42	[ ]	6V12-3 Seat Belt Attachment	2
43	[ ]	6V12-5 Seat Back Channel	1
Compressing the bungee cords			
46	[ ]	1080HD Bungee chock chord.	4
48	[ ]	**JIG**: 3/4" square board 7x7" drilled with 4 corner holes 5" apart	2
48	[ ]	**JIG**: 1/4" threaded steel rod 2feet long with two nuts.	4
49	[ ]	6L3-3 Stop Plate	2

Signature Builder: _____ Date: _____

Inspector: _____ Date: _____

Walkway Rear Ribs: Two ribs at station 665 and 770 are reinforced with L angles.
Gear Ribs: The Gear Slides are riveted to the side of the .032 rib

1. Rivet the L Angles for the "walkway" to the side of the Rear Ribs 6V1-3 at STA. 665 & 770
   REFERENCE: Bottom right diagram on 6-V-6
   REQUIRED: 2 Lefts and 2 Rights

LAYOUT: The first (longest) L Angle is set at approximately 97 degrees to the top of the rib. The L Angles are parallel to each other and centered between the lightening holes.

2. Gear Rib Doubler Channel 6V5-1
   CUT: Taper the ends of the Gear Rib Doubler Channel 6V5-1 to match the shape of the top and bottom corners of the Rear Rib 6V2-1.
   POSITION: Aft flanges are flush.
   CHECK: Remember to check the position of the corner relief in the Rear Rib 6V2-1 when drilling the end holes in the Channel 6V5-1 to maintain proper edge distance.
3. Gear Slides 6V5-2
   REFERENCE 6V2-1
   SAW: On a band saw or with a hack saw, trim the width of the 1" flange to ¾" over the full length of the extrusion. Clamp the extrusion in a vise and file to remove the saw marks for a smooth finish. Also taper the bottom end on the 1-1/2" flange.
   LAYOUT: The position of the forward Gear Slide extrusion is referenced from the front flange of the rib, to measure around the tapered corner clamp an extrusion angle to the front rib flange – set 280.0mm along the bottom of the Rib and 330.0mm along the top, parallel to the bottom. The parallel distance between the two Gear Slides is 154.0mm (measured from outside to outside of the extrusion).

   RIVETING: a) Wait to rivet the Channel to the Rib (it is better to drill the Gear Ribs to the Spar using a 95mm spacer against the ribs to maintain the Ribs parallel).
   b) Rivet the Gear Slide extrusion and the L Angle with the rivet heads on the Rib web.

4. Rivet the Ailerons Bellcrank Support and Channel to the Gear Rib Sub-assembly
   REFERENCE: 6-V-6
   METHOD: Layout the 230mm line from the end of the Rib, and draw the center line on the Channel and Support. Super-impose the center line over the 230mm line.
   DRILL: Clamp two extrusions together (back to back with the 1" flange flush and level) and drill the 3/16" hole in a drill press through both pieces.
   SAW: a) Cut the 1" flange to 20mm
   b) Taper the 1-1/2" flange maintaining proper edge distance around the 3/16" hole.
   BOLT: Make a 16.5mm spacer and bolt it between the two Aileron Bellcrank Supports to keep them parallel.
   CLECO: The two upper and two lower holes to hold the Bellcrank Support Channel 6V6-2 to the Rear Rib 6V2-1 and trim the Channel to fit the Rib.
   DRILL: The top of the bottom extrusion is at 45mm from the bottom of the rib measured up along the 230mm line.
   RIVET: 12x A5 rivets.

5. Pre-drill the Rear Zee 6V7-1 (t=.032) for the Rear Ribs.
   REFERENCE: 6-V-7
   NOTE: The Ribs are at 90 degrees to the Rear Zee bottom flange.
   TEMPLATE CWS-2: A very useful template is a strip 1100mm long marked with the Rib stations. The length of the template automatically locates the aircraft center line on the skins and Spar. Check by comparing template CWS-2 against the pre-drilled holes in the Main Spar.
   LAYOUT: Use the above template CWS-2 to locate the Rib station on the Rear Zee. There are three rivets in the Rear Rib flange at 12, 41 and 70 referenced from the Rear Zee bottom flange.

6. Cleco the I/B Splice Plate 6V7-6HD (t=.063") to the Rear Zee.
   REFERENCE: 6-V-7
   LAYOUT: Mark the "+" and "o" in accordance with the drawing 6V7-6HD. The "o" are at 86mm from the O/B end and the "+" are at 70mm from the O/B end of the Plates.
   CLAMP & PRE-DRILL: Stack the Plates together and pre-drill with #40
   CLAMP: The Splice Plates on the forward side of the Rear Zee. Back-drill the "+" with #20 and "o" with #40 pilot holes.
   PRE-DRILL: Finish drilling the three holes at the Rib SAT 1014 with #40

7. Back-drill the Rear Bearing Channel 6V12-6 through the pre-drilled Bottom Skin 6V11-2
   REFERENCE: 6-V-12
   LAYOUT: Mark the flange center line and drill a #40 hole on the aircraft center line.
   DRILL & CLECO: Cleco the Channel (facing back) to the Skin through their common pre drilled center hole. Back drill with #30 when the center line is visible.

8. Cut the holes in the Center Wing Bottom Skin 6V11-2 (t=.025) for the Landing Gear Slides.
   REFERENCE: 6-V-11
   LAYOUT: The Cut-out co-ordinates are 95 and 195mm from the O/B edge and 472 and 634mm from the aft edge. The size of the opening is approximately 97 wide x 160mm long. Allow sufficient clearance (approximately 2mm) around the extrusions!
   CUT: Use hand snips starting from a hole in the middle.
   FILE: Use a round 1/4" rat tail file to radius corner relief holes.

9. Drill the 2" hole in the Plate 6V11-4
   RECOMMENDED: Drill a few practice holes in some scrap material with the 2" hole saw to determine if the tool is suitable for the job.
   DEBURR: With a flat file.

10. Bolt the Lower Bearing 6L3-2 inside the Lower Bearing Support 6L3-1
    REFERENCE: 6-L-3
    FILE: Radius the bottom edge along the 154mm sides to bring the two parts flat against one another.
    LAYOUT: With the parts clamped together, trace the 2" hole on 6L3-1. Locate the center and drill with a pilot hole. With a hole saw, drill the 2" hole.
    CHECK: Check the alignment of the two 2" holes. If necessary, file along the 154mm edge to align the two holes. Clamp in place and check for free movement of the Gear Leg 6L1-1
    DRILL: The four AN3-5A bolts. Deburr with a flat file and tighten the bolts (one washers under the head and one washer under the nut).

11. Cut the two 110mm openings for the Torque Tube 6V13-3 in the Seat Panel 6V12-1. Each side of the cutout is reinforced by an L Angle (used later to rivet the Arm Rest Sides 6F16-1).
    REFERENCE: 6-V-12
    NOTE: The L Angles are parallel to the bends in the Seat Panel 6V12-1
    CLAMP: The 3 L Angles around the opening to plan for a rivet at the intersection of the flange center lines.
    PITCH: Also use pitch of 25 in the horizontal L Angles.
    DRILL & CLECO: The top end-holes are drilled later when the Seat Panel is installed to the Main Spar 6V4-2 and when the Seat Back Channel 6F12-5 is positioned.
    RIVET: Use A4

Center Section Skeleton.

12. The Ribs are positioned to the Center Wing Spar 6V4 by lining up the Rib flanges between the top and bottom Rib stations marked on the Spar Extrusion as follows:
    a) With the Spar upright, set template CWS-2 along the top Extrusion to mark the Rib STA. along the top side. Use a square to extend the mark across the Extrusion flange. Repeat on the opposite side and on the bottom extrusion.
    b) Also use template CWS-2 to mark the aircraft centerline on the front bottom Spar Cap Doubler 6V4-6HD. Remember to double check the center from the opposite side!

13. Start by positioning the I/B Rear Ribs 6V1-3 at STA585
    REFERENCE: 6-V-6
    TIP: To avoid a mix up, separate the LEFT and RIGHT Ribs into two stacks in the order that they will be used, with 6V6-1 on the bottom, see 6-V-6
    LAYOUT: Mark the Rib flange center lines.
    SUGGESTION: Work with the Spar flat on the workbench and with the forward side facing up. Let the Spar overhang over the edge of the workbench to back -drill from the bottom.

Rib Support

Since the Rear Bibs have "day-light" corners (cut outs) at the top and bottom to clear the Spar extrusions, there is some flex in the Rib. Therefore, to assure that the Rib is installed flat a jigging support (such as 3/4" piece of extrusion) is clamped to the side of the Rib. The support is positioned as follows:

a) Hold the Rib on the Spar Web.
b) Position the Support across the Spar extrusions and against the side of the Rib. Clamp the support to the Rib with two clamps.
c) Center the Rib flange over the rivet line.
d) When the Rib is flush with the Spar Extrusions 6V4-5 (top and bottom) clamp the support to the Spar with two more clamps.
e) *Check* for proper alignment: The Rib center line is lined up with the Rib station as marked on the top and bottom Spar Extrusion. The Rib is flush at the top and bottom (if uneven, gently hammer the end of the support to center the Rib).
f) Back-drill with #40

BACK-DRILL: Remove the Ribs and back drill the flange with #20
REPEAT: For Ribs at STA. 585, 665 , 770 and 900
CHECK: Rib at STA. 900 is perpendicular to the top and bottom of the Spar extrusion.

14. Cleco the O/B Gear Rib Assemblies at STA. 1014. With the Doubler Channels 6V5-1 removed, position the O/B Gear Ribs to the Main Spar using a 95mm spacer block between the Ribs.
    REFERENCE: 6-V-5 and 6-V-6
    JIG CWS-11: 95mm spacer: 95mm wide by 300mm (from a 3/4" plywood).
    PITCH: For the Gear Ribs, refer to bottom left diagram on 6-V-5 (9 x A5 per flange).
    NOTE: 95mm is the inside width of the Lower Bearing Support 6L3-1
    POSITION: Same procedure as in Step #6 except that the separation is determined by the JIG CWS-9 spacer.

15. The Doubler Channel 6V5-1 can now be riveted to the Gear Rib assemblies. Cleco the Ribs in place and drill the Doubler Channel from the Web.
    PITCH: 9 x A5 see bottom left diagram on 6-V-5

16. Cleco the Nose Ribs 6V1-2 to the Spar against the L Angles (work with the Rear Ribs removed).
    REFERENCE: 6-V-1, 6-V-6
    LAYOUT: Mark the flange center lines.
    CUTOUT: Snip the corners to clear the upper and lower Spar cap doublers.
    FILE: Use a round ¼" file to radius the corner relief holes.
    CLAMP & BACK-DRILL: Clamp the Rib to the L Angle Stiffeners at STA. 585, 665 and 700 (one Rib at a time!) and back-drill with #20
    CLAMP: Clamp the L Angle at STA. 900 and 1014 over the pre-drilled holes in the Spar caps. Next clamp the Rib to the L Angle and check the alignment of the pre-drilled holes in the Spar Web with the Rib flange. Back drill with #20

17. Drill the L Angle to the side of the each Nose Rib.
    REFERENCE: 6-V-6
    TIP: Use a long drill bit or an angle drill!
    DRILLING: a) Each L Angle is riveted to the Nose Rib with 7 x A5, see bottom middle diagram on 6-V-3
    b) The L Angles at STA. 900 and 1014 are back drilled with a 3/16" hole at the top and bottom for an A6 rivet, see bottom diagram on 6-V-6
    RIVETING: Wait to rivet the L Angles at STA. 900 and 1014, they are riveted later after the Doubler Channel 6V5-1 has been riveted to the web.

18. Rivet the Ribs and L Angles to the Main Spar in the following order:
    a) Rivet the L Angles to Nose Ribs at STA. 1014 and 900 with 7 A5 (rivet from the inside of the Rib - with the Ribs removed!).
    b) Rivet the L Angle to the side of the Nose Ribs starting at STA. 585, 665 and 700 (rivet from the inside of the Rib).
    c) Cleco the Gear Ribs and rivet the Doubler Channel 6V5-1 from the Spar Web.
    d) Rivet the Nose and Rear Ribs together through the common Web holes starting at STA. 585, 665 and 700 (Rivet from the Rear Ribs for easier access).
    e) Rivet the Nose and Rear Ribs at STA. 1014 and 900 from the front.
    f) Rivet the L Angle at the top and bottom with one A6 through the Spar cap.

19. Cleco the Center Wing Zee 6V7-1 to the end of the Rear Ribs (the skeleton is upside down supported along the rear).
REFERENCE: 6-V-7, 6-V-8
NOTE: The Rear Zee overlaps on top of the Rear Ribs.
CLAMP: Use two clamps per ribs: a) Clamp the top flanges together.
b) Clamp the web and aft Rib flange when the Rib is at 90 degrees with the bottom Zee flange.
BACK-DRILL & CLECO: a) Start at STA. 1014 (the Ribs center line is at 86mm from the O/B of the Zee) with #20
b) Next, back drill Rear Rib at STA. 585, 665 and 700 with #20
c) Position jig CWS-7 between STA. 1014 and 900 to maintain even separation. for the gear.
RIVETING: Position the Splice Plate 6V7-6 to overlaps on top of the Rib flange at STA. 1014 ; see top middle diagram on 6-V-7 A5

Skinning the Skeleton (with the Spar upside down on the workbench)

20. Cleco the Center Wing Bottom Skin 6V11-2 flush with the Rear Zee bottom flange.
    REFERENCE: 6-V-11, 6-F-1-5, 6-E-1-1
    CLAMP: a) The tailing edge is flush with the aft edge of the Rear Zee flange and flush with the O/B ends of the Spars.
    b) Carefully clamp a 3/4" tube or spacer between the protruding Gear Slides.
    NOTE: The "no rivet zone" forwards of the last hole at 325mm measured from the aft edge of the sheet for STA. 1014 and 900, the remainder of the rivet line is drilled through the Extrusion 6V11-5 LAYOUT: The rivet line through the Rear Zee 6V7-1. Plan for a "no rivet zone" between 400 and STA. 585mm for 6F1-5. The pitch from center line to 400 is 40mm and from STA. 585 to 1100 is 30mm, see 6E1-1
    BACK-DRILL & CLECO: With #40 through the Zee. Center the Gear Rib Assembly in the cut-out and back-drill STA. 1014 and 900 with #20. Back drill the remaining Rear Ribs when the centerline is visible.
21. Pre-drill the Center Wing Nose Skin 6V11-3 for the Nose Rib.
    REFERENCE: 6-V-11
    NOTE: The formed Leading Edge Skin is shorter on the bottom i.e. the bend is off-set towards the bottom trailing edge.
    LAYOUT: Mark the Rib STA. and the rivet pitch:
    a) Use template CWS -2 to mark the Rib STA. on the bottom aft trailing edge. Extend the lines with a large square . Repeat for the top.
    b) The rivet pitch for the Nose Ribs is 40mm. Referenced from the trailing edge the rivets are at:
    CHECK: The bottom and top line meet at the leading edge.

	BOTTOM	**TOP**
"no rivet zone" at STA 900 & 1014 for 6V11-5	**10**	-
	44	-
	-	-
	-	40
	89	68
	129	109
	179	149
	211	189
	249	219
	294	247
	333	276
	359	301
	-	338
	-	377
	-	400
	-	425

22. Mark the cutout for the cabin area on the Center Wing Nose Skin 6V11-3
REFERENCE: 6-V-11-3, 6-V-12
NOTE: i) The bottom opening is the same width as the Front Floor Skin 6F5-2.
ii) The upright L Angles on the Side Skins shown on 6F9 are held in place at the bottom by a 90 degrees Gusset 6F9-1(the width at the leading edge is the same as at bottom).
iii) The top opening is cut to clear the Wing Pick Up 6V4-3
LAYOUT: a) Use template CWS-2 to mark the aircraft center line (longitudinal axis).
b) Draw a parallel offset line at 340mm from the bottom aft edge of the Nose Skin 6V11-3 (see top right diagram at 6V11-3).
c) Mark the width of the bottom opening equal to the width of the Front Floor Skin 6F5-2. , that is 960mm or 480mm on either side of the center line.
d) On the top side (along the aft edge) the opening is determined by the distance between the Wing Pick Up 6V4-3 or 515mm from the center line (remember to check against the Spar!).
e) Mark a third point on the leading edge also at 480mm, same as the aft bottom opening
f) Connect the top mark and leading edge mark with a straight edge and draw a line. Continue the line by connecting to the bottom mark.
g) Mark a 10mm radius in the bottom corner at the intersection of the cut lines.
SUGGESTION: Cut later when the Skin is riveted to the Center Wing Section.

23. Cleco the bottom side of the Center Wing Nose Skin 6V11-3 to the Nose Ribs.
REFERENCE: 6-V-11
CLAMP: Clamp the Nose Skin to the Main Spar so that:
a) The Nose Skin overlaps on top of the Rear Skin by 60mm
b) The tailing edge is flush with the aft edge of the Spar extrusion
c) The Skin is centered (flush) with the O/B ends of the Spar.
LAYOUT: The rear rivet line through the Spar extrusion.
a) 10mm off-set from the trailing edge.
b) “no rivet zone” at 50mm LEFT & RIGHT of center for 6F9-3
c) “no rivet zone” at 375mm LEFT & RIGHT of center for 6F5-4
d) Pitch of 35 between the Rib STA. intersections.
DRILL & CLECO: Rivet line through the Spar extrusion with #20
BACK-DRILL & CLECO: Through the Ribs when the center line is visible #20

24. Cleco the Lower Bearing Support 6L3-1 at the end of the Gear Slide Extrusion.
REFERENCE: 6-L-3
CHECK: Use the 95mm spacer CWS-11 to check the inside distance of the Lower Bearing Support at the front and rear.
LEVEL: With the Main Spar and Rear Zee level, slide 6L3-1 over the extrusions and adjust to make it level. Mark the end of the 4 Gear Slide extrusions on 6L3-1 to maintain good edge distance for the AN3 bolt.
LAYOUT: Mark the position of the AN3 bolt on the centerline (11mm from outside edge) of the Gear Slide extrusion (approximately 134mm between center lines).
DRILL & CLECO: Level, check 90 degrees between the Bottom Skin and the sides of 6L3-1. Wait to drill the holes through the extrusion, see next step.

25. Cleco the Extrusion Stiffener 6V11-5 against the Lower Bearing Support 6L3-1
REFERENCE: 6-V-11, 6-L-3
TIP: Rivets too close to the flange may be beyond the reach of most riveter. Drill test holes in a scrap piece of 3/4" extrusion to determine the maximum edge distance still within the reach of the riveter head.
LAYOUT & PRE-DRILL: Plan for a rivet at the intersection with:
a) the Main Spar extrusion
b) the 2 L Angles between Ribs STA. 770 and STA. 900 across from the Gear Slides, see bottom right diagrams on 6L11 Layout a pitch of 20 on the inside flange to avoid the crimps. Referenced from the aft edge of 6V11-5 the rivets are at:

9 - 23 - 43 - 63 - 84 - 104 - 130 - 150 - 169 - 189 - 209 - 229 - 249 - 267 -

284 - 298 - 318 - 357 - 397 - 418 - 438 - 458 - 478 - 499 - 519 - 577 - 593

CAUTION: A misplaced hole could seriously damage the spar!
A reliable check against positioning rivets over crimps or into the Spar is to remove the skin and to position the Extrusion directly on the Rib with the front end of the Extrusion 45mm from the Spar Web.
POSITION: a) For a better fit, slightly bend the extrusion 6V11-5 to the shape of the rib. Add curvature by clamping in a vise!
b) Position 6V11-5 against 6L3-1
c) The front of the Extrusion extends 45mm past the Spar Web.
PRE-DRILL: With #40 pilot holes.
CUT: Taper the ends in accordance with the drawings 6V11-5.
DRILL: Position and hold the Extrusion to the Lower Bearing Support to drill a #20 pilot hole into the Gear Slides. Next, back- drill the Extrusion Stiffener to the Ribs. 3/16"
CLECOES: If 3/16 Clecoes are available, back-drill the "bolt holes" with a 3/16 drill bit. Remember to deburr with a flat file.

26. Rivet the bottom side of the wing with A5
    Wait to rivet the Zee.
    Plan to leave the rivets out for the L Angle between Rib STA. 770 and 900, (See step #24)

27. Turn the Center section right side up. Because of the protruding Gear Slides it is a good idea to elevate the assembly. Lay two level and parallel beams across the workbench (raises assembly height to approximately 140mm) and lay the assembly to rest across the beams. Support the assembly at the rear by sliding spacers between the wing and the beams so that:
    a) The bottom of the wing is parallel with the beams and at 90 degrees with the Main Spar.
    b) The Rear Zee is level with the Main Spar.
    c) When the Main Spar is at 90 degrees, the Rear Zee web is at 85 degrees.

28. Install the two L Angles between the Rear Ribs at STA. 900 and STA. 770 in line with the Gear Slides.
    REFERENCE: Manual p. 20, 6-V-11 bottom right diagrams.
    REQUIRED: 4 L Angles, Length = 140mm
    LOCATE: The two short L Angles go span-wise in prolongation to the Gear Slides. Approximately 485 and 625 referenced from 6V7-1(web).
    PRE-DRILL: One end-hole in the L Angle at 8mm from the end with #20. Cleco to the Extrusion 6V11-5 through the common hole!

29. Rivet the two L Angles at the top of the Gear Extrusions, maintaining a 3/4" separation between the Gear Slides Extrusions 6V5-2
    REFERENCE: Left middle diagram on 6V5, right middle also on 6V5 and the right middle diagram on 6V11, 6L3
    REQUIRED: 4 L Angles, 90mm long each.
    CLAMP: a) To position the L Angles flush with the top of the Ribs, place an extrusion (or a board) across the top of the Ribs and clamp the L Angle to it.
    b) Hold a 3/4" tube between the Gear Slides and clamp the support extrusion to the Rib Flanges.
    DRILL & CLECO: 2 #20 in each Gear Slides.

30. Cleco the Center Wing Top Skin 6V11-1 to the Ribs.
    REFERENCE: 6-V-11, 6-F-5
    LEVEL: Use spacers to support the Rear Ribs so that:
        a) The bottom of the wing is parallel with the beams.
        b) The Rear Zee is level.
    CHECK: The Spar web must be vertical. Since the web is flexible it is a good idea to hold the level against the Spar caps. Also check that the Main Spar is level with the Rear Zee and the workbench.
    SUGGESTION: The Skin is trimmed later after the sides are installed.
    PITCH: Notice the "no rivet" for Plate 6V11-4. These holes are back-drilled through the Plate with the Gear Leg 6L1-1 positioned.
    CLAMP: a) Clamp the aft edge of the Top Skin short of the Rear Zee web.
        Otherwise the 2x4 used to support Leading Edge Nose Skin straps will push against the Top Skin (see step 28).
        c) Flush with the O/B ends of the spars.
    CHECK: The Rib STA. in the Rear Zee must line up with the pre-drilled lines.
    DRILL & CLECO: Back-drill when the rib center line is visible
        #40 in Rear Zee
        #40 in Rib STA. 1014 and 900 forward of the "no rivet zone".
        #20 in Ribs.
    RIVETING: Wait to rivet ---- the Seat Panel 6V12-1 is installed with the Top Skins removed.

31. Strap the Center Wing Nose Skin 6V11-3 to overlap on top of the Center Wing Top Skin 6V11-1HD
    REFERENCE: 6-V-11
    LEVEL: Check that the assembly is still level.
    SUGGESTION: Rely on an assistant to hold the Leading Edge down while it is strapped.
    STRAP: Place a piece of 2x4 board or wood block between the Rear Zee and each strap to protect the bottom flange. Two straps per sides are wrapped around the wing and tightened. To keep the assembly from shifting, a third strap is wrapped underneath the workbench.
    DRILLING: a) Back drill when the rib center line is visible. Work from the I/B Ribs starting at the front of the wing working towards the spar & outwards.
        b) Mark and drill the aft rivet line centered on the Spar Extrusion With #20

32. Cut the Nose Skin 6V11-3 for the cabin area.
    REFERENCE: 6-V-11
    LAYOUT: See Step #18
    NOTE: The generous (10mm) radius in the bottom corners.
    CUTTING: First do a rough cut to remove the material. Do a second cut on the line. File rough edges to a smooth finish.

33. Back-drill the Strip 6V5-3 through the Center Wing Top Skin 6V11-1
    REFERENCE: 6-V-5, 6-V-11
    LAYOUT: a) Mark the O/B edge of the Main Spar Web on the Top Skin 6V11-1
    b) Remove 6V11-1 from the wing and center the Strip over STA. 1014 and 900. Trace around the Strip to check for proper edge distance.
    CLAMP: The front edge of the Strip is 45mm from the Spar Web reference line.
    BACK-DRILL & CLECO: With #40

34. Finish drilling the Nose Skin to the Strip.
    REFERENCE: 6-V-5, 6-V-11, 6-L-1
    CLECO: The Strip between the Ribs and the Top Skin.
    DOUBLE- CHECK: That the rivet lines are clear of the Spar cap!
    DRILL & CLECO: With #20

35. Locate the center point of the 2" Gear Leg 6L1-1
    REFERENCE: 6-V-5, 6-V-6, 6-V-11
    TIP: Use the Center Head on a combination square; or a similar method , i.e. cut a paper disc, etc...
    POSITION: Remove the Lower Bearing Support 6L3-1 and slide the Gear Leg 6L1-1 through the 2" hole & center the 3/4" tube (keep the bolt off, the tube is removed to install the Bungee chords).
    CHECK: - With the Gear Leg 6L1-1 at 90 degrees with the Lower Bearing Support 6L3-1, check that the center point is at the intersection of the diagonals connecting opposite corners of the Gear Slides, see 6-V-6.

36. Locate the Gear Leg center point on the Strip using the two arc intersection method.
    REFERENCE: The Gear Leg is perpendicular to the Lower Bearing Support and flush with the top of the Ribs.
    LAYOUT: The first compass arc is the distance between the center point and the first hole on Rib STA. 1014 (top flange). Transfer the arc to the Strip by holding the compass on the corresponding hole in the Strip. For a second arc, repeat using the nearest hole on Rib STA. 900. The intersection of the two arc is the Gear Leg center point.
    TIP: Check that the distance between the holes in the rib is equal to the distance on the Strip!
    DRILL: The center point with #40 or smaller pilot hole.
    CHECK: Cleco the Strip to the Ribs, and check the alignment of the eenter point through the pre-drilled hole.
    CLECO & BACK-DRILL: Cleco the Strip to the Skin 6V11-1 to back-drill the Gear Leg center hole.

37. Drill a 2” hole in the Strip using a hole saw.
    CHECK: Cleco the Strip to the Ribs and check for free unobstructed movement of the Gear Leg up and down through the 2” hole.

38. Drill a 2” hole in the Center Wing Top Skin 6V11-1
    REFERENCE: 6-V-11

39. Cleco the Plate 6V11-4 to the Ribs.
    REFERENCE: 6-V-11
    LAYOUT: a) With the Skin removed, slide the Gear Leg through the Plate to rest on the Ribs. Mark the Rib center lines on the Plate.
    b) Mark the rivet line through the two L Angles.
    c) Mark the front and rear rivet line maintaining the same edge distance as the rivet lines through the Ribs.
    PITCH: A5 pitch 20, see 6-V-11 middle left diagram.
    PRE-DRILL: Remove the Plate and pre-drill with #40
    CHECK: The Gear Leg is perpendicular to the Lower Bearing Support.
    BACK-DRILL & CLECO: Push the Gear Leg up to protrude approximately 2” above the Ribs. Cleco the Strip and the Top Skin to the Ribs and check the travel of the Gear Leg. Center the Plate on the Gear Leg and Back-drill with #20

Install the Seat Panel with the Top Skins removed.

40. Cleco the Seat Panel 6V12-1 to the Upper Cap Doubler 6V4-2 and to the Center Wing Bottom Skin 6V11-2
    REFERENCE: 6-V-12
    PRE-DRILL: a) The front rivet line through the Upper Cap Doubler. The end holes are drilled later through the side L Angles.
    b) The two parallel rivet lines at the bottom of the Seat Panel. Plan for a “no rivet zone” from 130 to 200 measured from the O/B ends for the Lower Front Longerons 6F5-4
    RECOMMENDATION: Use a drill stop to avoid any possible damage to the Spar Web when drilling through the Upper Cap Doubler.
    BACK-DRILL & CLECO: Center the Seat Panel and clamp it to Upper Cap Doubler. Back drill the front rivet line with #30. Next, drill the Seat Panel to the Bottom Skin.

41. Cleco the L Angle between the front Seat Panel and the Rear Ribs #1 (6V1-3)
    CUT: Trim the top of the L Angle flush with the top of the Rib

42. Position the aft end of the Seat Belt Attachment 6V12-3 against the Rear Bearing Channel 6V12-6.
    SUGGESTION: Raise the front end of the Seat Belt Attachment to bring it flush with the bend tangent line of the lightening hole (second from rear).
    LAYOUT: a) Mark the angle of the Seat Panel on 6V12-3 and bend it in a vise (approximately 30 degrees).
    b) Plan for a rivet at the intersection with the L Angles (overlap at the front and rear).
    DRILL: The 1/4" hole for the Seat Belts.
    BACK-DRILL & CLECO: With #20

43. Clamp the Seat Back Channel 6V12-5 to the Center Wing Top Skin 6V11-1 at 535mm from the Spar cap.
    REFERENCE: 6-V-12
    LAYOUT: a) Cleco the Center Wing Top Skin to the Ribs.
    b) The rear edge of the Seat Panel is at 535mm from the Spar cap, see top right diagram on 6-V-12
    CLAMP: a) Clamp the Seat Back Channel to the Skin 6V11-1 with the web on the 535 mark.
    b) Clamp the rear Seat Back to the Channel.
    PITCH: Leave a "no rivet zone" for the Seat Back Channels 6F13-3 which will slide in-between the Seat Back and the Channel against the Fuselage Side Skins 6F5-1, see 6-F-0
    DRILL & CLECO: With #30 in the middle of the Channel.

44. Cleco L Angles between the rear Seat Panel and at Rib STA. 585
    CUT: The top of the L Angles flush with the top of the Ribs.
    POSITION: The L Angle overlaps on top of the Seat Belt Attachment 6V12-3

45. Cleco short length of L Angles along the ends of Rear Bearing Channel 6V12-6 win the corner with the Rear Rib #1 6V1-3.
    LAYOUT: Hold the Channel parallel to the Main Spar Web.
    CUT: The top of the L Angles flush with the top of the Ribs.
    POSITION: The L Angle overlaps on top of the Seat Belt Attachment 6V12-3

Compressing the Bungee Chords

46. Install the Bungee chords to the Gear Leg and Lower Support. Remove the Gear Leg to slide the two Bungees under the welded tubes. Carefully tighten the bolt through the 3/4" tube.
    REFERENCE: 6-L-3
    SUGGESTION: To keep the bungee chords in place, temporarily tie them together with a piece of string.

47. Bolt the Lower Bearing Support 6L3-1 to the Gear Slides with AN3 bolts
    REFERENCE: 6-L-3
    COMMENT: Work with the Top Skin removed to facilitate internal access.
    BOLTS: For ease of access, place the nuts on the outside!
    TIP: Hold the bolt with sticky putty!

48. Stretch the Bungee (with the Top Skins removed).
    JIG: a) In a 3/4" square board (7X7), Drill 1/4" hole in each corner (5" apart).
    b) In a vise, bend a 1/4" threaded steel rode in a "U" shape, each leg is approximately 8" long by 5" across the top. 2 required.
    SUGGESTION: Partially unbend the U rods to slide them through the tubes in the Lower Bearing Supports. Insert the rods through holes in the 7x7 board and tighten the nuts to stretch the Bungee. Bring the top of the Gear Leg flush with the top of the Ribs.
    COMMENT: Wait to rivet the Top Skin until the Fuselage Side Skins are Clecoed.

49. Cut and drill the two holes in the Stop Plate.
    COMMENT: The Stop Plate is bolted (and safety wired) after the Top Skin is riveted.

- end-

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