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EXPEDITOR CENTER SECTION TRUSS INSPECTION
AND MODIFICATION PROGRAM

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4. Remove both forward main fuel tanks in accordance with E.O. 05-45B-2, Part 5, Section 2. All fuel vents, filler openings and fuel lines are to be drained and capped.
- NOTE
- A suitable combustible gas indicator is to be used to ensure that no dangerous gas concentration is present in areas to be magnetic particle inspected and welded.
5. Jack the aircraft sufficiently to permit removal of the main landing gear. Observe all applicable safety precautions.
 6. Remove both left hand and right hand main landing gear in accordance with E.O. 05-45B-2, Part 2, Section 6. Disconnect the landing gear chain from the slide. Remove the firewall slide tube access plate. After removing the upper and lower bolts through the slide tube, force the slide tube up through the firewall until it contacts the generator.

7. Remove the inboard hat section from the main fuel tank bay forward bulkhead. Cut out a section from the lower inboard corner of the forward bulkhead large enough to permit inspection and modification of the truss. (Refer to Figure 5). Retain the section removed for installation after inspection and modification of the truss. All miscellaneous equipment interfering with the inspection and modification is to be displaced or removed.
8. Cut the bulkhead aft of the slide tube cluster as per Figure 6. Release the lower portion and remove from the nacelle. Retain the section removed for installation after inspection and modification of the lower elliptical tube and clusters. All miscellaneous equipment interfering with the inspection and modification is to be displaced or removed.
9. Gauss check the control columns and all areas (See Para. 11) to be magnetic particle inspected.
10. Remove the paint from and clean all areas to be magnetic particle inspected. Refer to Para. 11 for affected areas.

NOTE

Remove all scale from the spar surface at the locations where the tapered ends of the reinforcement plates are to be welded to the spar. The use of grit No. 240 or finer emery discs is recommended. Do not use grinding stones.

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11. Magnetic particle inspect the following areas using the Sono-flux Model AH-7 Inspection Unit. (Refer to Figures 3 and 4.) Induce the magnetic field into the truss tube and clusters by coiling the electric cable around the tube in the area to be inspected. Approximately 1000 ampere turns will be sufficient. Use adequate illumination and a 5 to 10 power lens to facilitate examination.
- (a) The outboard portion of the left and right hand lower fuselage attach fitting clusters.
 - (b) The left and right hand lower slide tube clusters.
 - (c) The left and right hand nacelle inboard and jackpad tube clusters.
 - (d) The entire lower elliptical tube in both nacelles.
 - (e) The left and right hand main landing gear inboard and outboard hinge points and clusters.
 - (f) The left and right lower wing attachment fittings and tube clusters of both the center section and outboard wing panels.

NOTE: This operation is required for Aircraft Serial No.'s 1551, 2342, 2364, 1519 and 2362 only.

CAUTION

Before carrying out any magnetic particle inspection, check for possible explosive concentrations of flammable vapours using a suitable combustible gas indicator. If necessary, take appropriate action to purge the area of flammable vapours prior to starting the inspection.

12. All cracks and defects found on the inspections as per Para. 11 are to be referred to the Project Engineer for repair instructions. After inspection, the areas of the truss where reinforcement plates are to be installed are to be thoroughly cleaned with "Koyaline" to remove all traces of magnetic particles.

13. Carry out the Center Section Truss Modification in accordance with Paragraphs 14 (outboard) and 15 (inboard). Prior to welding, pack adjacent areas with wet asbestos mud to minimize heat transfer. Fuel tanks located near areas to be welded are to be insulated with asbestos blankets. The use of class 11018 electrode in lieu of class 10013 electrode specified by the subject drawings is recommended since the 11018 being a low hydrogen electrode is inherently superior from aspects of under bead cracking, crater cracking and other defects associated with hydrogen contamination. Where TIG welding is required by the drawing, Oxyweld No. 65 filler rod is to be used.

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13. Continued . . .

The reinforcement plates are to be securely clamped to match the contour of the Spar prior to welding. If necessary, the reinforcement plates may be tack welded in place then heated and formed around the Spar to produce a smooth contour. The maximum allowable gap between the Spar & reinforcement plate is one-sixteenth inch after forming.

CAUTION

Before commencing any heating or welding, check for possible concentrations of flammable vapours using a suitable combustible gas indicator. If necessary, take appropriate action to purge the area of flammable vapours before commencing work.

(B) 14. Carry out the outboard spar reinforcement modification in accordance with Beech Drawing No. 18-001035. Record in the workbook the time of completion of post heat.

NOTE

(C) The final polishing of the reinforcement plate tip welds to eliminate transverse marks and scratches is to be accomplished using #240 or finer emery disc.

(B) 15. The inboard truss modification will be carried out as follows:

(C) 15.1 Drill a 0.086 (#44 drill) diameter drain hole in the truss lower spar cap tube as shown per Figure 1.

15.2 Drain all Lincoil from the lower spar cap tube. The tube is to be heated locally to 600° - 800°F to facilitate drainage.

15.3 Thoroughly clean all traces of Lincoil and foreign matters from the areas to be welded.

(C) 15.4 Remove the existing Lincoil plug from the lower spar cap tube.

(C) 15.5 Open the hole left by the removal of the Lincoil plug (Ref. Para. 15.4) by using a #33 (.113 dia.) drill.

(C) 15.6 Plug the hole (Ref. Para. 15.5) with an M320470M rivet and shear off the head.

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- (C) 15.7 Carry out the spar reinforcement modification in accordance with Beech Drawing No. 18-001034 (Inboard) with the following exceptions: (Note: Where TIG welding is required by the drawing, Oxyweld No. 65 filler rod is to be used.)
- (D) 15.7.1 Trim reinforcement plates P/N 18-001034-5 and P/N 18-001034-6 as shown per Figure 2.
- 15.7.2 The inboard ends of reinforcement plates P/N 18-001034-5 and -6 are to be welded by Metal Arc Process only, using weld rods per MIL-E-6843, Class 11018. The weld at the inboard end should be a 1/8 fillet weld.

CAUTION

- Avoid deposits of excessive amounts of weld metal.
- (C) 15.7.3 The final polishing of the reinforcement plate tip welds to eliminate transverse marks and scratches is to be accomplished using #240 or finer emery disc.
- (C) 15.7.4 Plug the drain hole drilled per Para. 15.1 with an AN535-2-2 drive screw.
- 15.7.5 Record the time of completion of post heat in the work book.
- 15.7.6 Dye check, per Bristol P.P.S. #39, the inboard end weld bead of the lower reinforcement plates P/N 18-001034-5 and -6 after the welds are completely cooled. Move the wing tips up and down several times prior to or during the inspection. After inspection, thoroughly clean to remove all residue dye and dye developer.
- (B) 16. Reinstall the main landing gear temporarily.
- (B) 17. Magnetic particle inspect all welds in accordance with the procedure set forth in Para. 11 at a minimum of 12 hours after the time of completion of welding, with the aircraft resting on the main gear. Move the wing tips up and down several times prior to or during the inspection. Report all discrepancies to the Project Engineer.
18. All areas which were magnetic particle inspected are to be thoroughly demagnetized and Gauss checked for the presence of residual magnetism.

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19. Remove the main landing gear.
20. Repair the forward bulkheads of the main fuel tank bays by splicing in place the section of bulkhead removed as per Para. 7. Refer to Fig. 5 for details.
21. Repair the nacelle bulkheads by splicing the section of bulkheads removed as per Para. 8. Refer to Figure 6 for details.
22. All areas magnetic particle inspected and repaired are to be refinished as follows:
 - (a) Repaint the main fuel tank bay forward bulkhead to match the existing finish.

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22. (b) Refinish the truss in the battery compartment area with one coat primer per Spec. MIL-P-8585, Colour "Y" and two coats of black acid resisting lacquer per Spec. TT-L-54.
- (c) All other truss areas magnetic particle inspected and repaired are to be refinished with one coat of primer per Spec. MIL-P-8585 Colour "Y", and two coats of aluminium lacquer per MIL-P-7178, Colour 515-101 per CGSB Spec. 1-GP-12c.
23. Reinstall the outboard wing assemblies and flaps in accordance with EO 05-45B-2, Part 2, Section 2. NOTE: This operation is required for A/C S/N's 1551, 2342, 2364, 1519 and 2362 only.
24. Reinstall the main full tanks in accordance with EO 05-45B-2, Part 5 Section 2.
25. Reinstall and rig the main landing gear in accordance with EO 05-45B-2, Part 2, Section 6. Swing check the gear observing all applicable safety precautions.
26. Ensure that all equipment displaced or removed to permit work in the affected areas is reinstalled.
27. Remove the aircraft from the jacks.
28. Fabricate new wing lower leading edge skin using skin removed as per Para. 2 as a template. Splice in place new skin in a manner similar to Bristol E.M. 11973.
29. Carry out compass swing in accordance with the applicable R.C.A.F. E.O.
30. Carry out primary inspection prior to releasing the aircraft for R.C.A.F. acceptance test flight.

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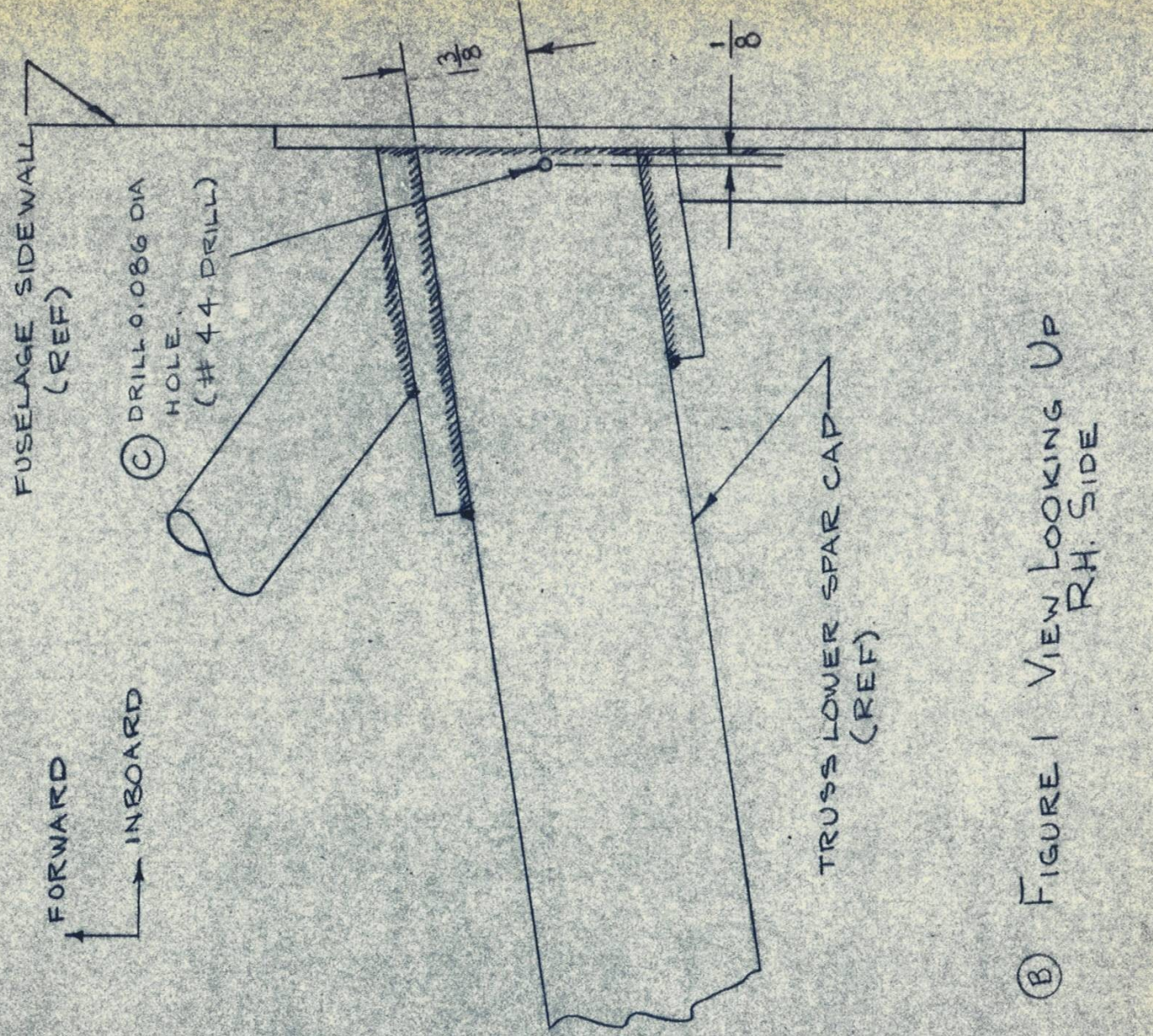
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ⓑ FIGURE 1 VIEW LOOKING UP
R.H. SIDE

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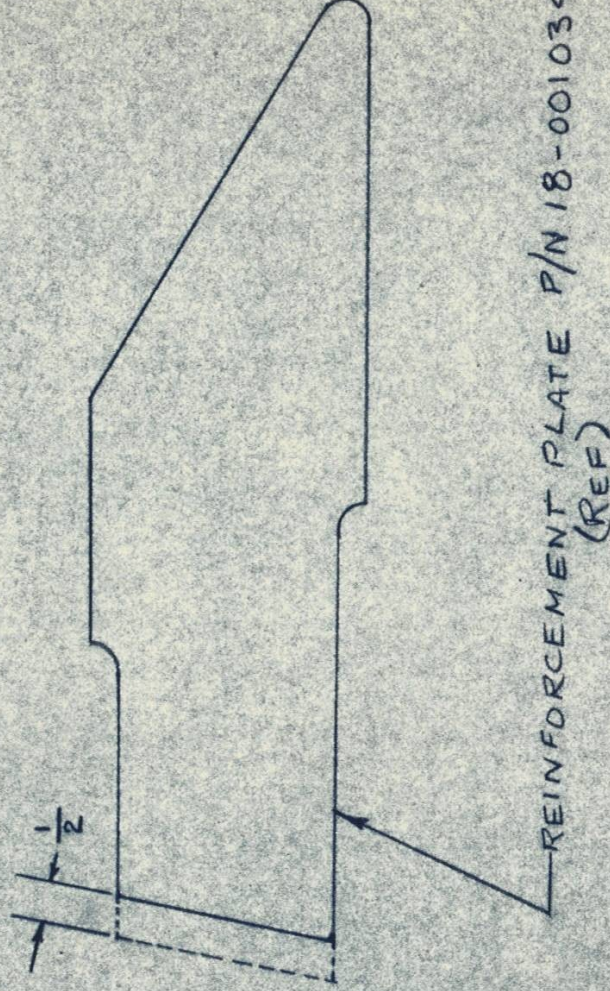
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MODIFY ALL LOWER INBOARD REINFORCEMENT
PLATES P/N 18-001034-5 & 6 AS FOLLOWS:

- (1) TRIM $\frac{1}{2}$ INCH FROM PLATE AS SHOWN
BELOW.
- (2) ROUND OFF CORNERS AND BREAK SHARP
EDGES.



Ⓑ FIGURE 2 REINFORCEMENT PLATE

○ THESE AREAS ARE TO BE MAGNETIC PARTICLE INSPECTED ON ALL AIRCRAFT.

★ THESE AREAS ARE TO BE MAGNETIC PARTICLE INSPECTED ON AIRCRAFT S/N'S
1551, 2342, 2364, 1519, AND 2362 ONLY.

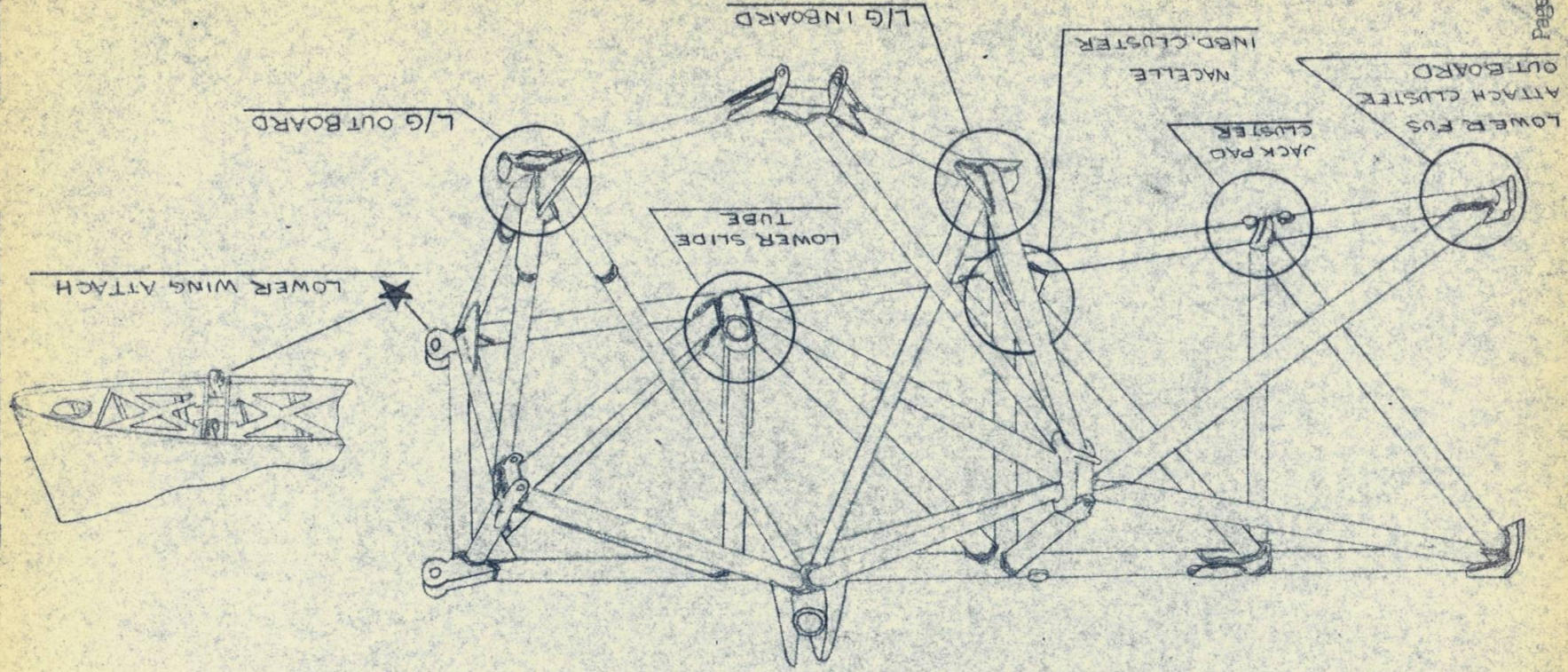
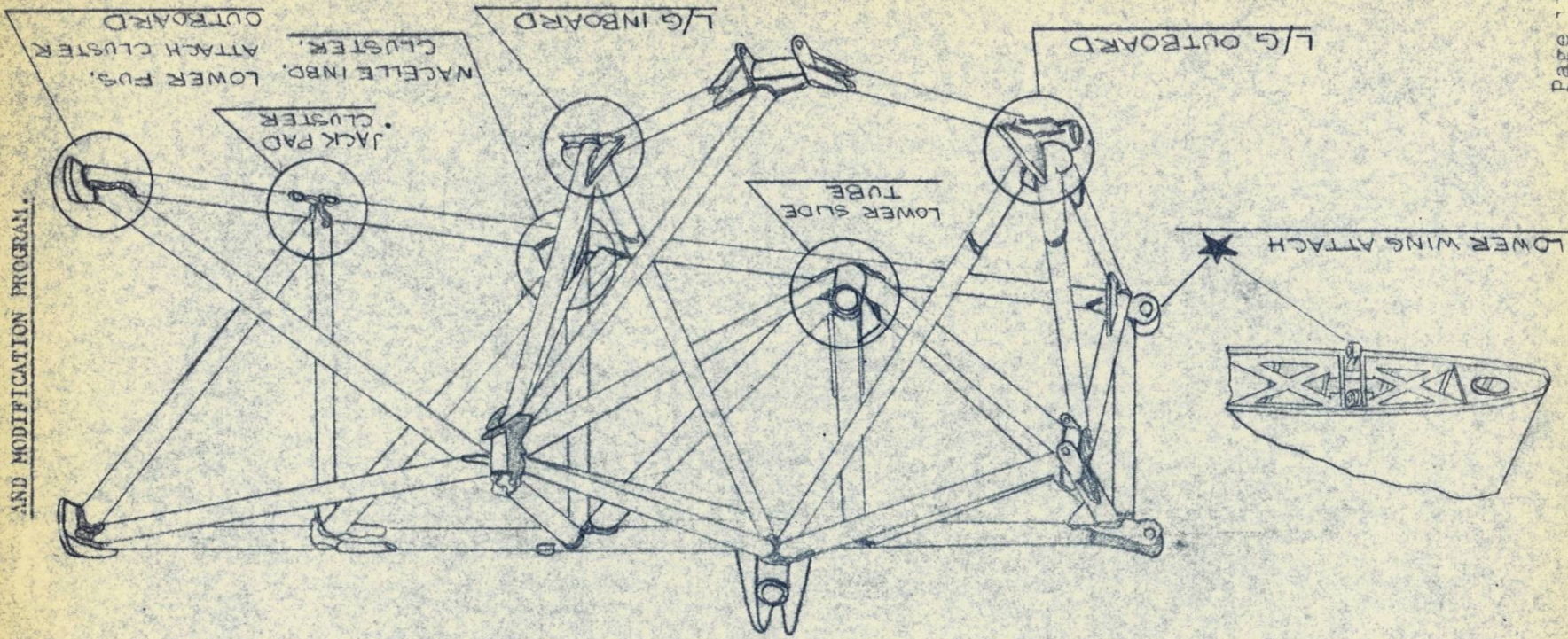


FIGURE 3 CENTER SECTION TRUSS - L.H.

AND MODIFICATION PROGRAM.

FIGURE 4 CENTER SECTION TRUSS - R.H.



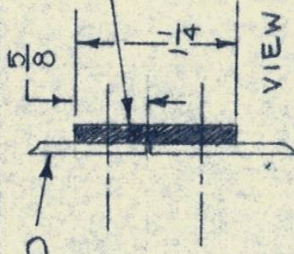
○ THESE AREAS ARE TO BE MAGNETIC PARTICLE INSPECTED ON ALL AIRCRAFT.

★ THESE AREAS ARE TO BE MAGNETIC PARTICLE INSPECTED ON AIRCRAFT S/N'S 1551, 2342, 2364, 1519 AND 2362 ONLY.

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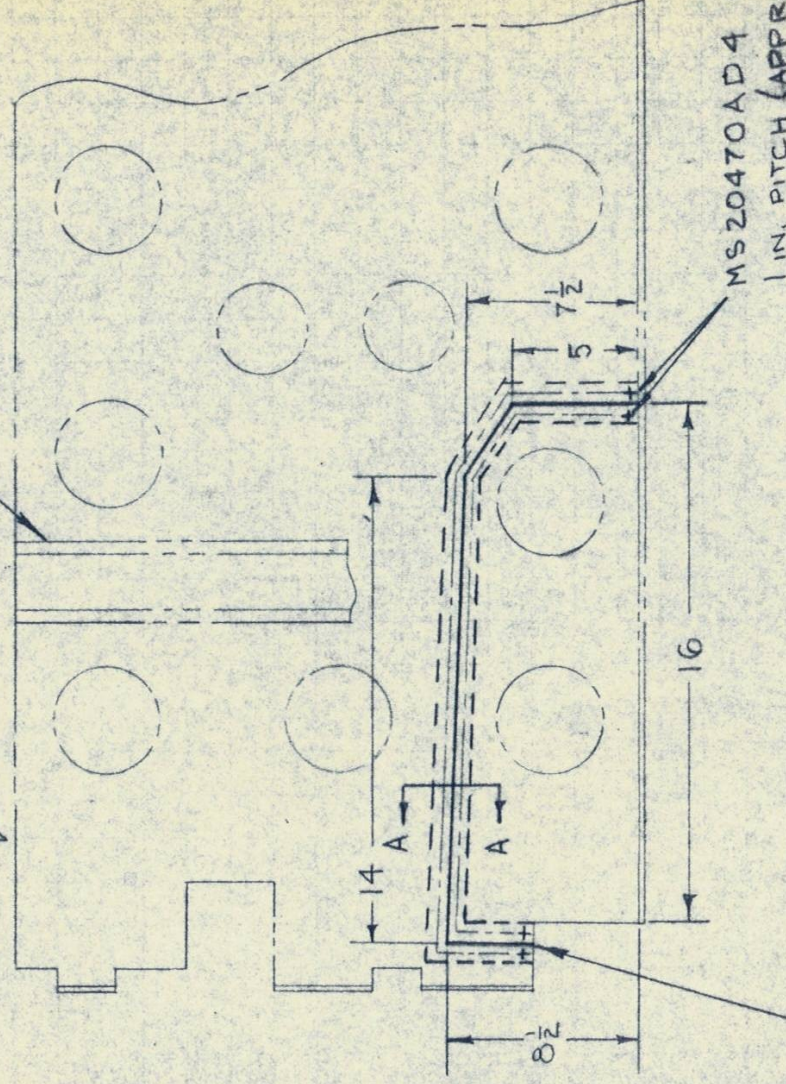
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BULKHEAD
(REF)

VIEW A-A

DOUBLER (IREQ'D). MAKE FROM .032 IN.
2024-T4 (ALCLAD) ALUMINUM PER SPEC
QQ-A-250/5. FINISH WITH 1 COAT PRIMER
MIL-P-8585 COLOR Y BEFORE INSTALLING.

EXISTING HAT SECTION



CUT BULKHEAD ALONG THIS

LINE AND REMOVE SECTION. REINSTALL

AS SHOWN AFTER INSPECTION & MODIFICATION OF TRUSS.

NOTE:

WHEN REINSTALLING THE SECTIONS REMOVED, PICK
UP EXISTING RIVET PATTERN WHERE POSSIBLE.

FIGURE 5 MAIN FUEL TANK BAY FORWARD BULKHEAD
(R.H. LOOKING FORWARD)

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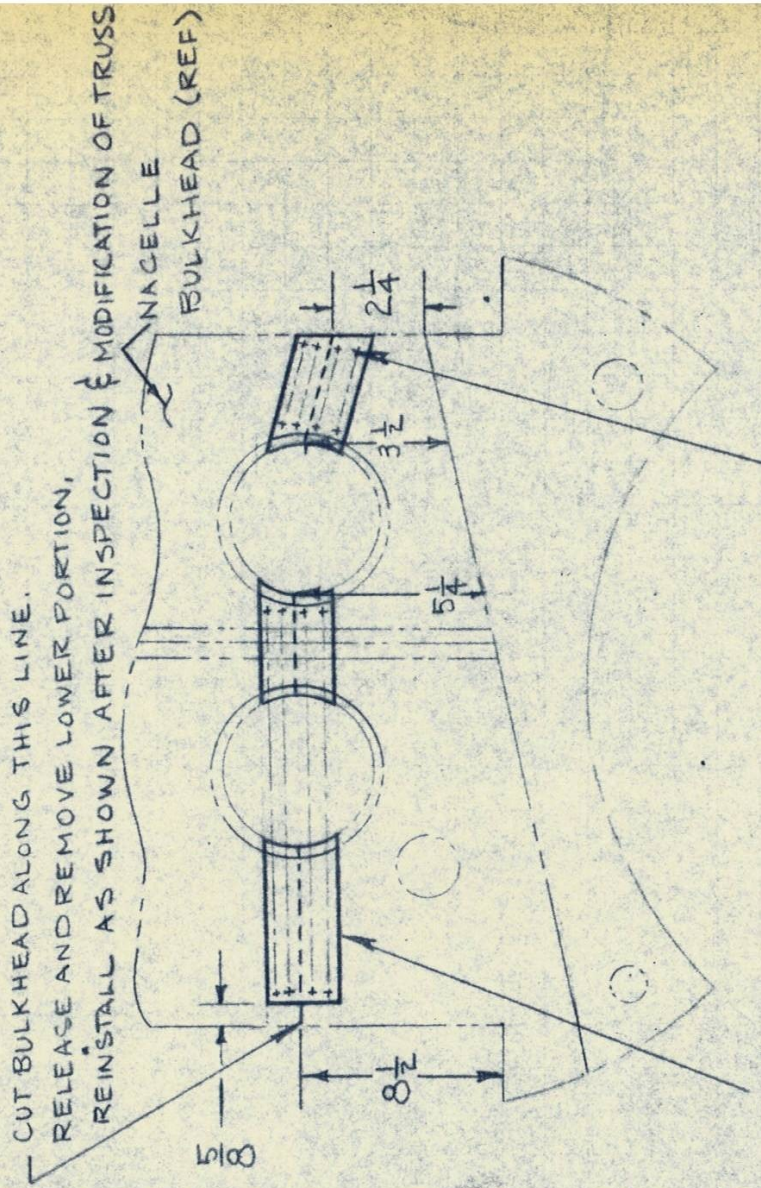
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DOUBLER (3 REQ'D). MAKE FROM
.032 IN. X $2\frac{1}{4}$ IN. 2024-T4 (ALCLAD)
ALUMINUM PER SPEC QQ-A-250/5,
FORM TO AREA CONTOUR AS
REQUIRED. FINISH WITH 1 COAT
PRIMER MIL-P-8585 COLOURY
BEFORE INSTALLING.

MS 20470AD 4 RIVETS
 $\frac{3}{4}$ " PITCH (APPROX). $\frac{1}{4}$ " MIN. EDGE
DISTANCE, 2 ROWS PER SIDE.
STAGGER THE ROWS.

NOTES:

1. ALL DIMENSIONS APPROXIMATE
2. WHEN REINSTALLING SECTION REMOVED, PICK UP EXISTING RIVET PATTERNS WHERE POSSIBLE.

FIGURE 6. NACELLE BULKHEAD (L.H. LOOKING AFT)

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Issue "B" - 28 September, 1967

- (a) Page 13 added to list revisions.
- (b) First sentence of Para. 13 was "Carry out the spar reinforcement in accordance with Beech Drawings Nos. 18-001034 (Inboard) and 18-001035 (Outboard)."
- (c) Added Paragraphs 14, 15 16 and 19 and Figures 1 and 2. The numbering of paragraphs, pages and figures and figure references changed as required.
- (d) Para. 17 (Issue "B") was Para. 15 (Issue "A"). Changed to include time and procedure requirement.
- (e) Para. 10 - note added.

Issue "C" - 11 October, 1967

- Under Note of Para. 10
- (a) Second sentence was "The use of emery discs is recommended"
- (b) Note added to Para. 14
- (c) Para. 15.1 was "Drill a 3/32 dia. drain hole . . ."
- (d) Paras. 15.4, 15.5 and 15.6 added.
- (e) Para. 15.7 Issue "C" was Para. 15.4 of Issue "B". Added sub-para. 15.7.3. Sub-para. 15.7.4 was "Reweld the drain hole drilled per Para. 15.1. Note: Deposit only enough weld metal to fill the hole."
- (f) Figure 1 - Hole size changed. Was drill 3/32 dia. hole.

Issue "D" - 24 October, 1967

- (a) Para. 12 - Cleaning requirement added.
- (b) Para. 13 - Added requirement for TIG welding rods.
- (c) Para. 15.7 Note added
- (d) Para. 15.7.6 - Cleaning requirement added.