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REPRODUCED FOR INFORMATION OF CAA PERSONNEL

CULVER AIRCRAFT CORPORATION
WICHITA, KANSAS

SERVICE MEMORANDUM NO. 19

SUBJECT: Inspection of Bottom Surface of Main Wing Spar (Center Section).

TO: Owners of Culver Model LCA & LFA Airplanes, All Serial Nos. 100 thru 459.

INTRODUCTION: The purpose of this bulletin is to set forth the necessary information to properly conduct an inspection of the main spars at the wing interconnection. This inspection is to determine if moisture has affected the glue joints between the laminations on the bottom of the main spar at the area contacted by the inspection plate buffer strips. This bulletin also outlines a method of preventing such possible moisture damage in the future.

1. Remove rear fuselage bottom inspection plate as shown in Fig. 1. Pull fabric back where it overlaps spar as shown.

2. Carefully inspect bottom of spar butts in region shown in Fig. 2 for evidence of separation of glue joints, condition of wood in spar caps, and for signs of oil soaking. Separation of joints can be checked by attempting to insert a .005 inch thickness gage in the glue joints. If any signs of glue joint separation are found, contact the factory immediately before further flight. Refer to Fig. 2.

3. If no signs of separation or deteriation are found, scrape all finish off section of bottom of spar as shown in Fig. 3. Do not remove any wood but be sure that clean bare wood is exposed. Also, put 10 to 1 scarf on wing plywood on bottom side of spar as shown.

4. On a piece of 1/16 thick mahogany plywood 18 inches long and 2-1/2 inches wide, make a matching scarf on one end. Fit in place and trim off excess length so that inner end just clears the saddle near the inner end of the spar. This is shown in Fig. 4.

5. Glue the plywood plate, using aircraft quality Casein glue, to the bottom of the spar. The airplane must be in a level position with the tail supported. Use a pressure pad as shown in Fig. 5. Glue only one piece at a time, using jacks as shown to obtain glue pressure.

6. Finish all bare wood surfaces with two coats of lionoil or equivalent aircraft spar varnish.

7. Remove the felt buffing strips from the inside of the spar butt inspection plate. Remove all traces of the felt and be sure that the plate is clean.

8. Replace inspection plate.

9. The above inspection and work is to be performed by a certificated mechanic. An entry of this inspection is to be made in the Aircraft Log Book.

10. If you have sold your aircraft, please forward this bulletin to the new owner.

ENGINEERING DEPARTMENT

C. M. Jamieson

C. M. JAMIESON,
Chief Engineer

Attachments (5)

Approved July 24, 1943

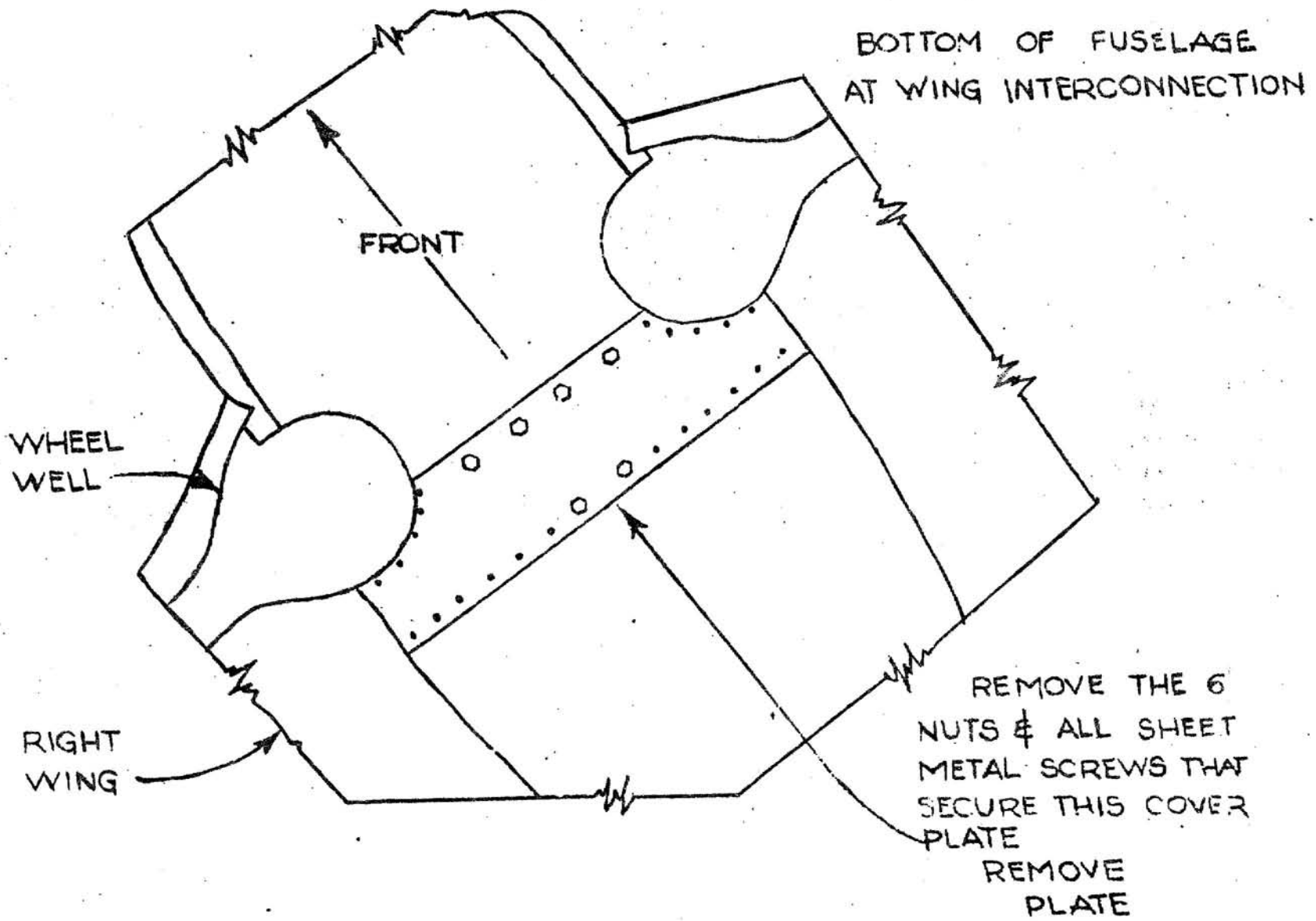
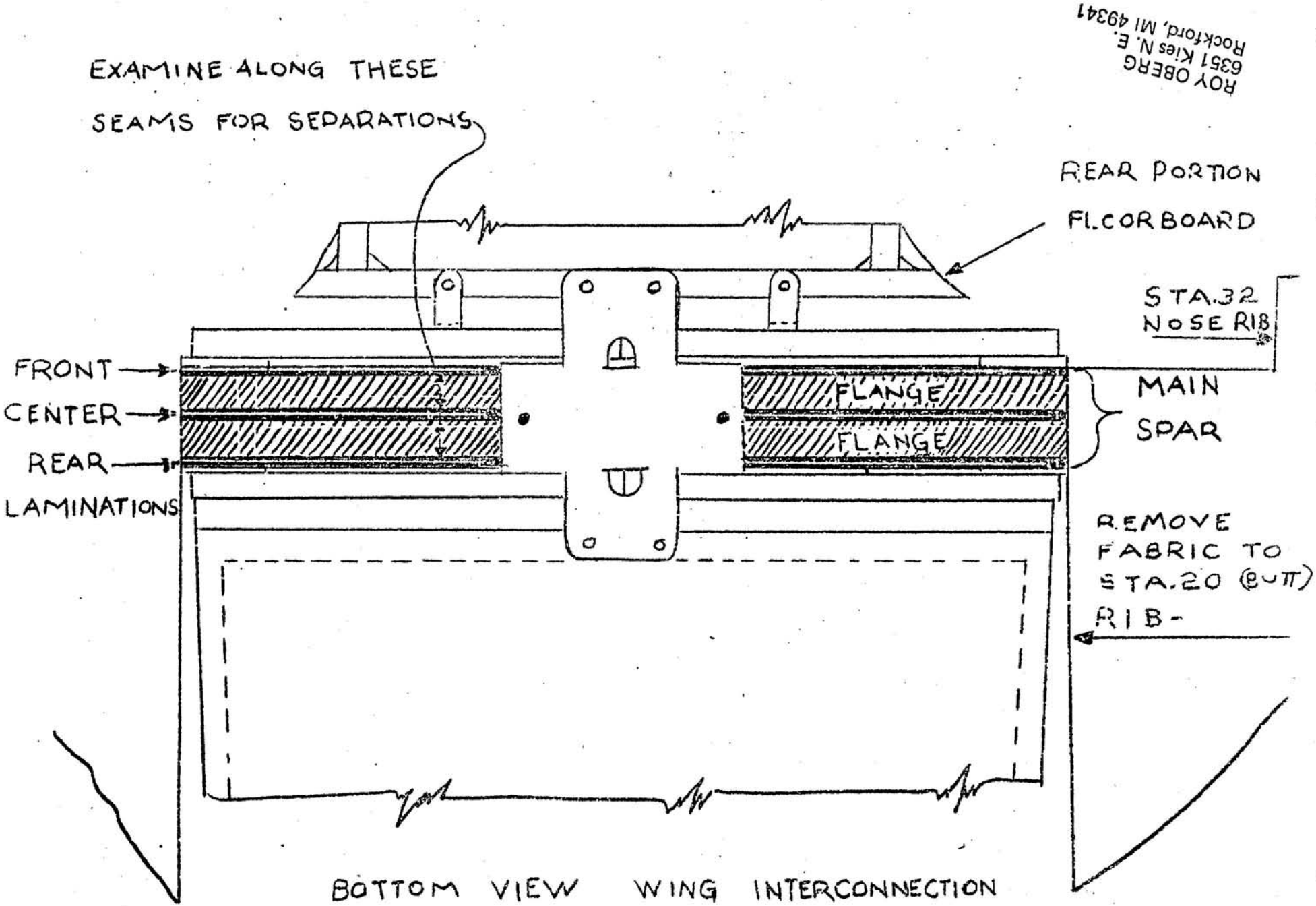

BOTTOM OF FUSELAGE
AT WING INTERCONNECTION
FRONT
WHEEL
WELL
RIGHT
WING
REMOVE THE 6
NUTS & ALL SHEET
METAL SCREWS THAT
SECURE THIS COVER
PLATE
REMOVE
PLATE

FIG. 1

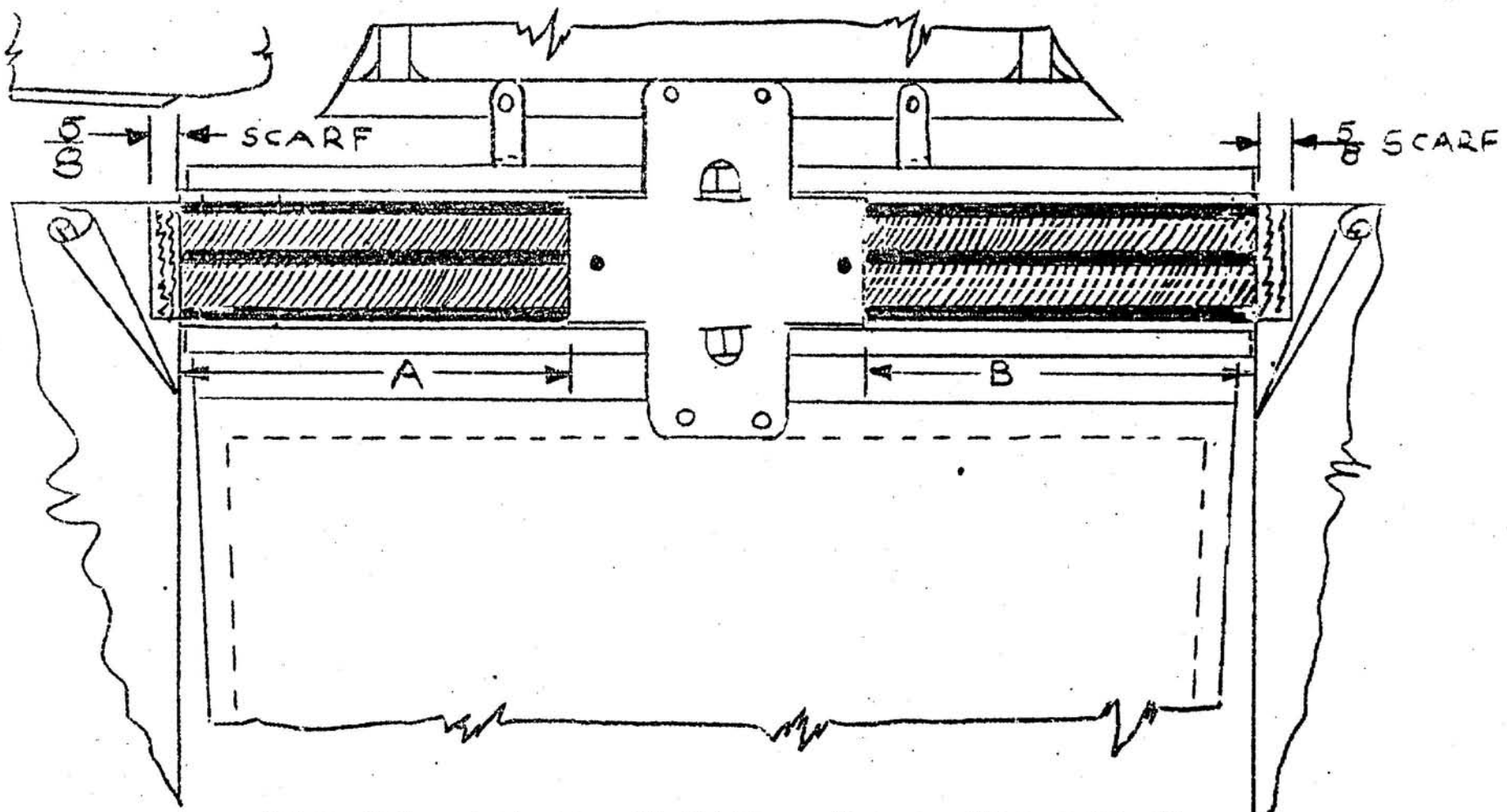
ROY OBERG
6351 Kies N. E.
Rockford, MI 49341



BOTTOM VIEW WING INTERCONNECTION
COVER PLATE REMOVED ~

FIG. 2

ROY OBERG
6351 Kies N. E.
Rockford, MI 49341



SCRAPE WOOD CLEAN OF ALL PROTECTIVE COATING & FILM IN THE AREAS A&B

FIG. 2

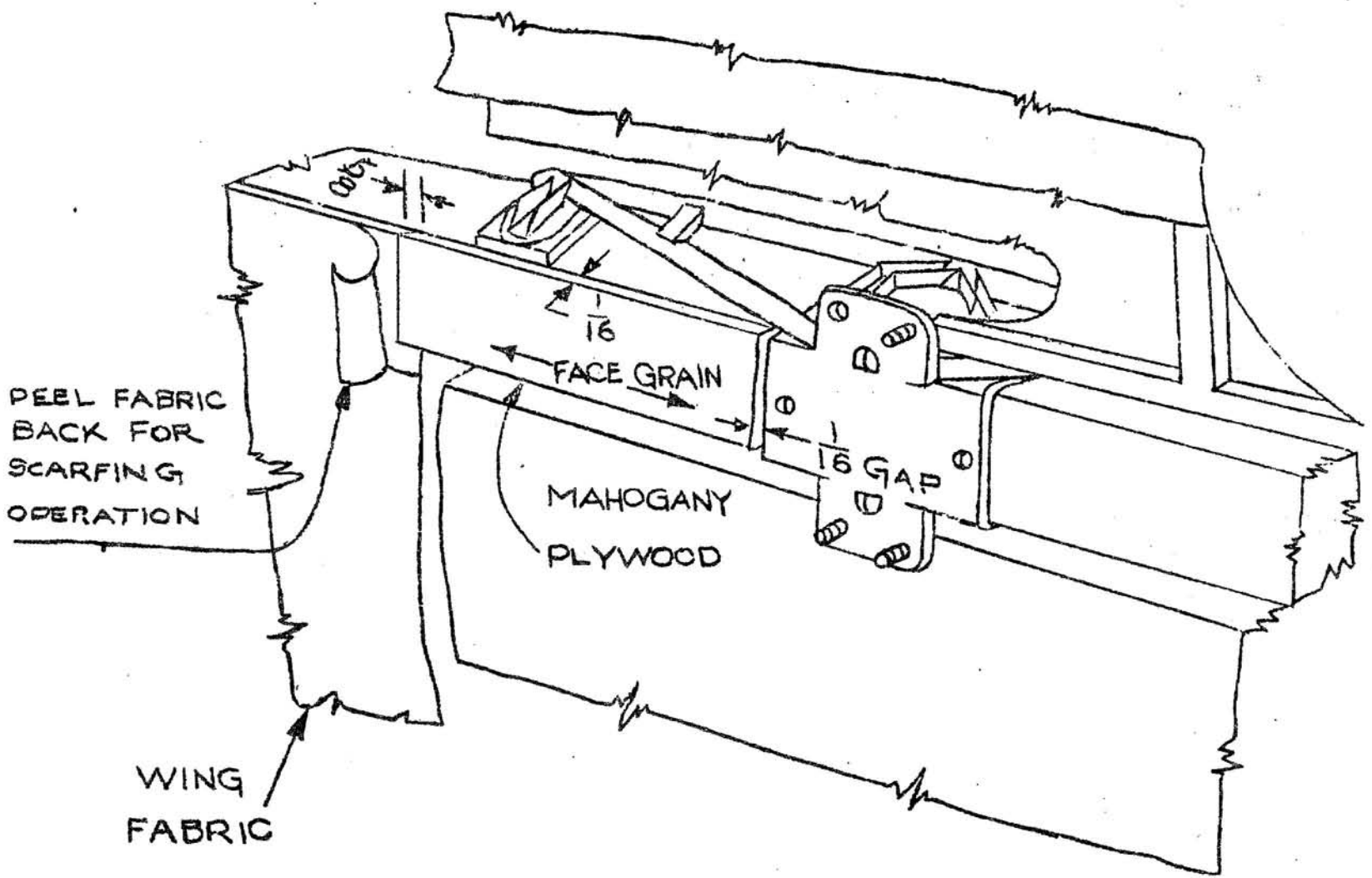
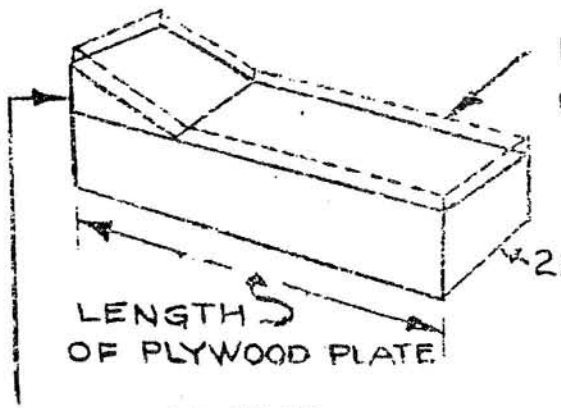
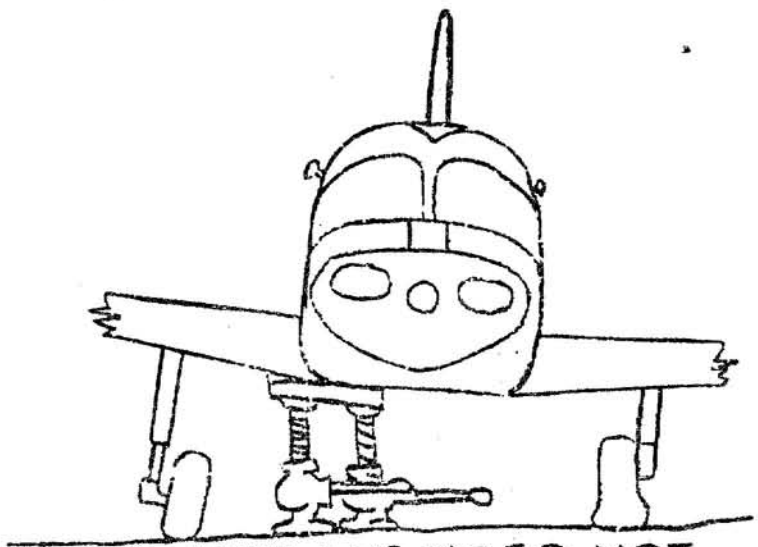

1/16
FACE GRAIN
1/16 GAP
PEEL FABRIC BACK FOR SCARFING OPERATION
MAHOGANY PLYWOOD
WING FABRIC

FIG. 4


FELT, DOUBLE FACED CORRUGATED PAPER OR OLD PIECE OF INNER TUBE
2X4
LENGTH OF PLYWOOD PLATE
BUILD UP THIS END TO CONFORM TO BOTTOM OF SPAR AT STA. 18


THE AIRPLANE NEED NOT BE RAISED COMPLETELY OFF FLOOR.
IF JACKS ARE TOO SHORT PLACE THEM ON BLOCKS

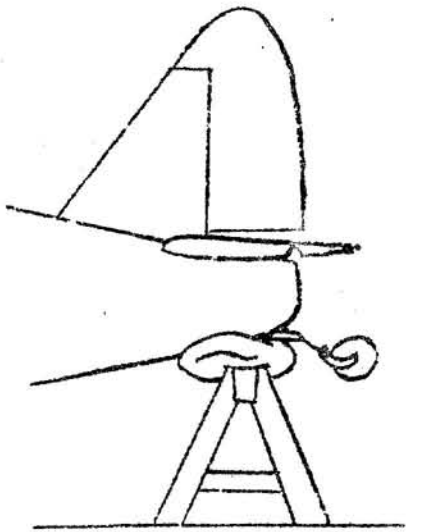
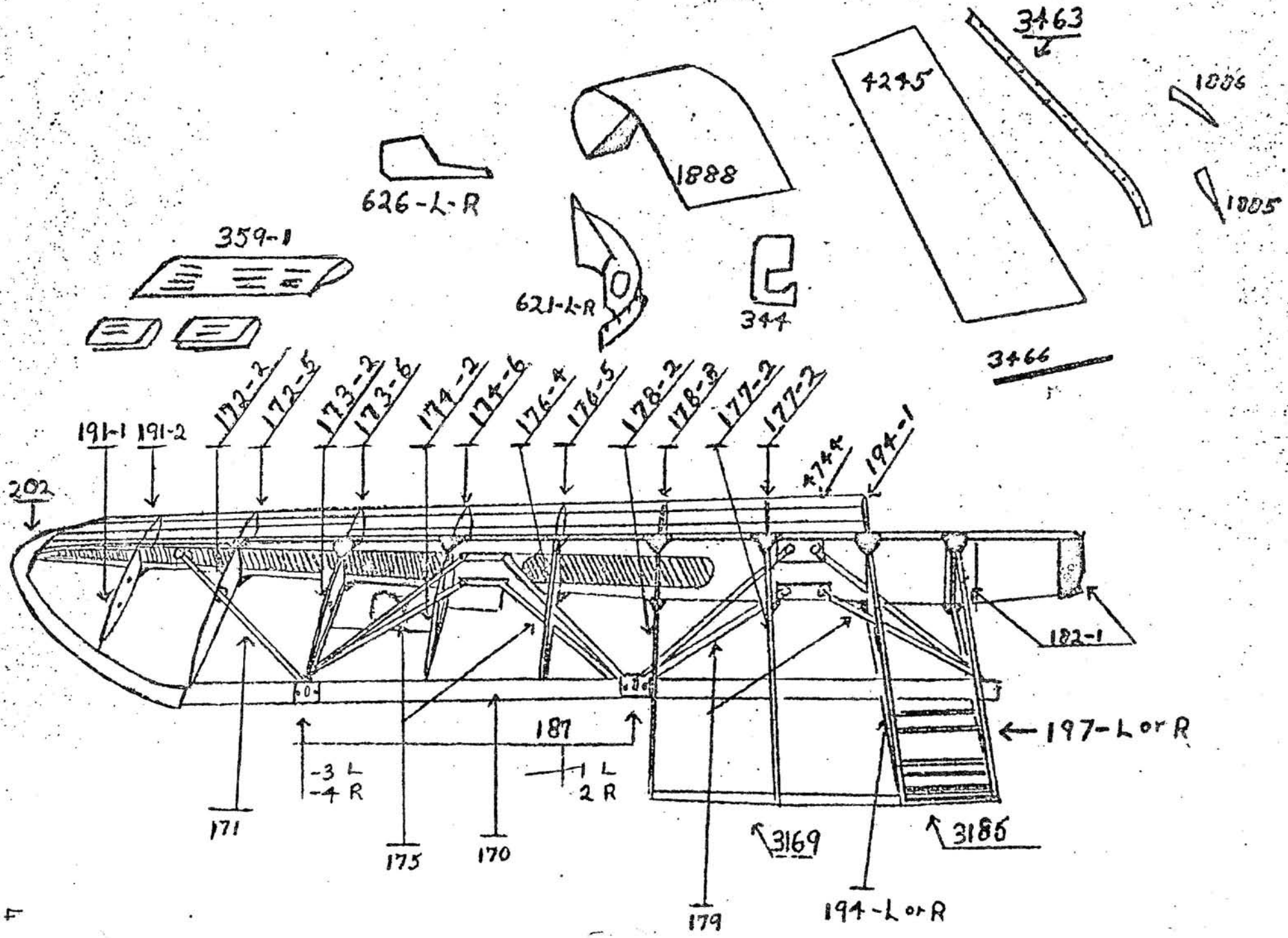
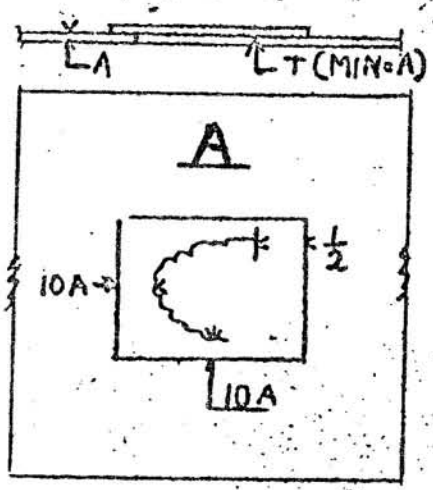

SUPPORT TAIL WITH AIRPLANE IN LEVEL OR FLYING POSITION

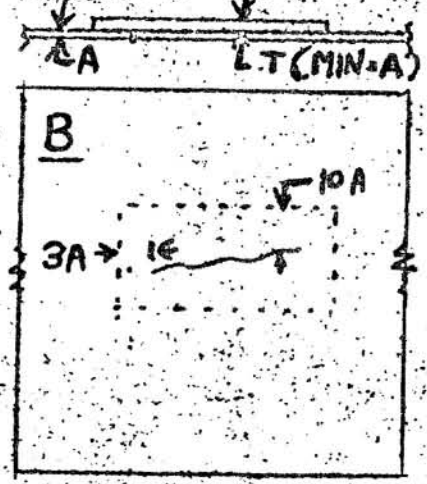
FIG. 5


3463
4245
1806
1888
626-L-R
1805
359-1
621-L-R
344
3466
191-1
191-2
172-2
172-5
173-2
173-6
174-2
174-6
176-4
176-5
178-2
178-3
177-2
177-2
744
194-1
202
182-1
187
-3 L
-4 R
1 L
2 R
197-L or R
171
175
170
179
3169
3186
194-L or R

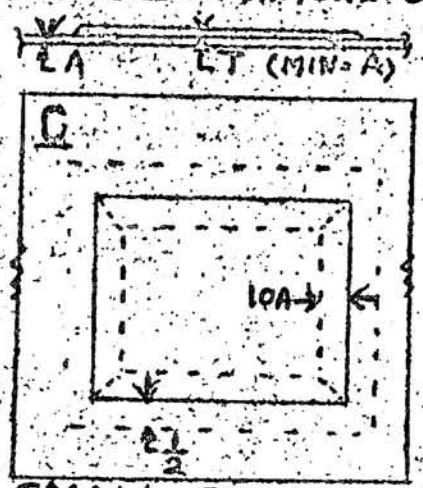
"A" THICKNESS ORIGINAL POPLAR, RED GUM OR MAHOGANY PLYWOOD
"T" " DOUBLE OF ANYONE OF ABOVE PLYWOODS



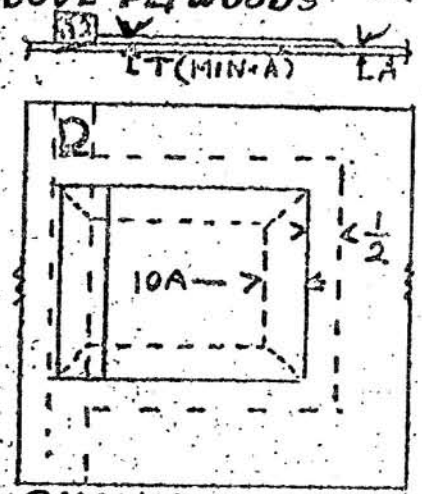
FRACTURE AREA



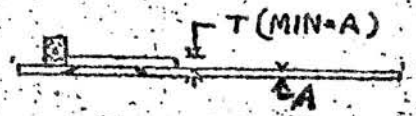
CRACK

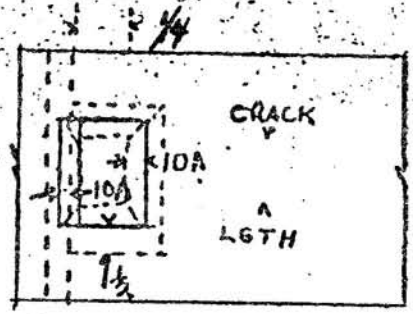


SMALL BROKEN OUT AREA AWAY FROM STRUCTURAL MEMBER

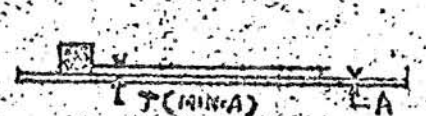


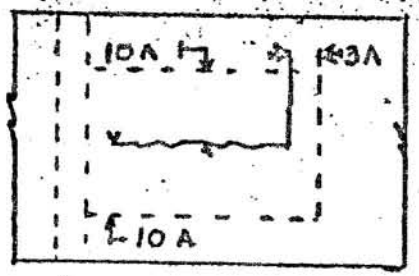
SMALL BROKE OUT AREA NEXT TO STRUCTURAL MEMBER



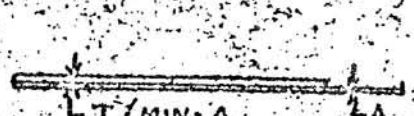


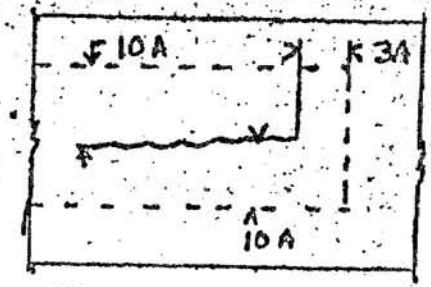
CRACK NEXT AND PARALL TO STRUCTURAL MEMBER





CRACK NEXT AND PERPENDICULAR TO STRUCTURAL MEMBER





CRACK TO UNREINFORCED EDGE

H

LARGE BREAKS SPLITS, ETC.

REPLACE ENTIRE PANEL USING 10 TO 1 SLOPE SCARF JOINTS. LAG MEMBER IF NECESSARY SO AS TO GIVE BACKING TO FULL WIDTH OF JOINT.

FIG. 1A - TYPICAL PLYWOOD SKIN REPAIR