

Dakota Cub Aircraft

Rib Installation Instruction

Read ALL instructions carefully before attempting any installation.

(Rib Installation Drawings DC-Install-1 and DC-Install-2 are included as the final 2 pages of this technical reference.)

The materials used in the construction of these replacement ribs are all aircraft type alloys. A great deal of effort has been expended in the design and testing of this product to ensure that it is "equal to or better than" the original Piper components which they are designed to replace.

Following the Installation Instructions will provide a high quality installation and years of satisfactory service.

Installation:

- Each rib is numbered according to its position along the spars, either right or left. Follow the installation cross reference carefully to position each rib correctly along the spar.
- The replacement ribs are of a "built-up" design as were the Piper originals. Because of this, the wing components will have to be disassembled to replace the ribs. The amount of disassembly will depend upon where the damage is located. Less disassembly would be required if damage is located near the inboard or outboard ends. Major disassembly would be required if the damage was located at mid-wing.

When dismantling a wing in preparation for accepting the new rib/ribs, it is advisable to identify or mark each part as it is removed so it can be returned to its original position. Inspect each part for defects (see DC-INSTALL-1, Section 1 for allowable rib splicing locations) and replace if necessary. Each rib is attached to the spars with 8 each, #4 type B (blunt point) sheet metal screws, (see DC-INSTALL-2, Section 6). It is advisable to replace any original screws that have been damaged during removal or are rusted/corroded. On wood spar wings, attach ribs as per DC-INSTALL-1, Section 2. When the rib/ribs have been reinstalled it is necessary to trammel or square the wings then tension the brace wires evenly while maintaining square.

- There are points at which the ribs will encounter interference from the brace wires, strut attach fittings, or spar attach fittings. These interference points are identical to the ones encountered by Piper. Each rib has been "manufactured to fit" each location. There may be occasions where a previously existing repair or damage may conflict with proper rib installation. Follow recommendations on drawing DC-INSTALL-2, Section 7 when applicable. Figures 4 thru 6 detail limits for brace wire clearance.

It is strongly recommended that all ribs be attached to the spars "temporarily" with a couple of screws/nails in each spar. Then proceed with the installation of compression struts and brace wires. Rib attachment screws/nails can be secured after all components are in place. This process can save time and materials should a rib be misplaced during assembly.

- The rib mounting holes (on metal spar ribs) have been drilled in a fixture to produce holes that are at

the correct center line distance and alignment from front to back on each spar. These holes are drilled with a #40 drill and provide a close fit on the #4 attachment screws.

- When attaching the leading edge to each rib, drill screw attachment holes offset from the capstrip center web; preferably between the web and the ball radius edge. See drawing DC-INSTALL-2, Section 4.
- It would be appropriate to establish a checklist by which the wing assemblies can be inspected prior to fabric installation. This would ensure that all component parts are placed and secured properly. Use all available sources (owner's manuals, parts manuals, assembly drawings, Airworthiness Directives, etc...) to ensure proper installation. A sample checklist is listed below. Use it as a starting point from which to complete your own list.

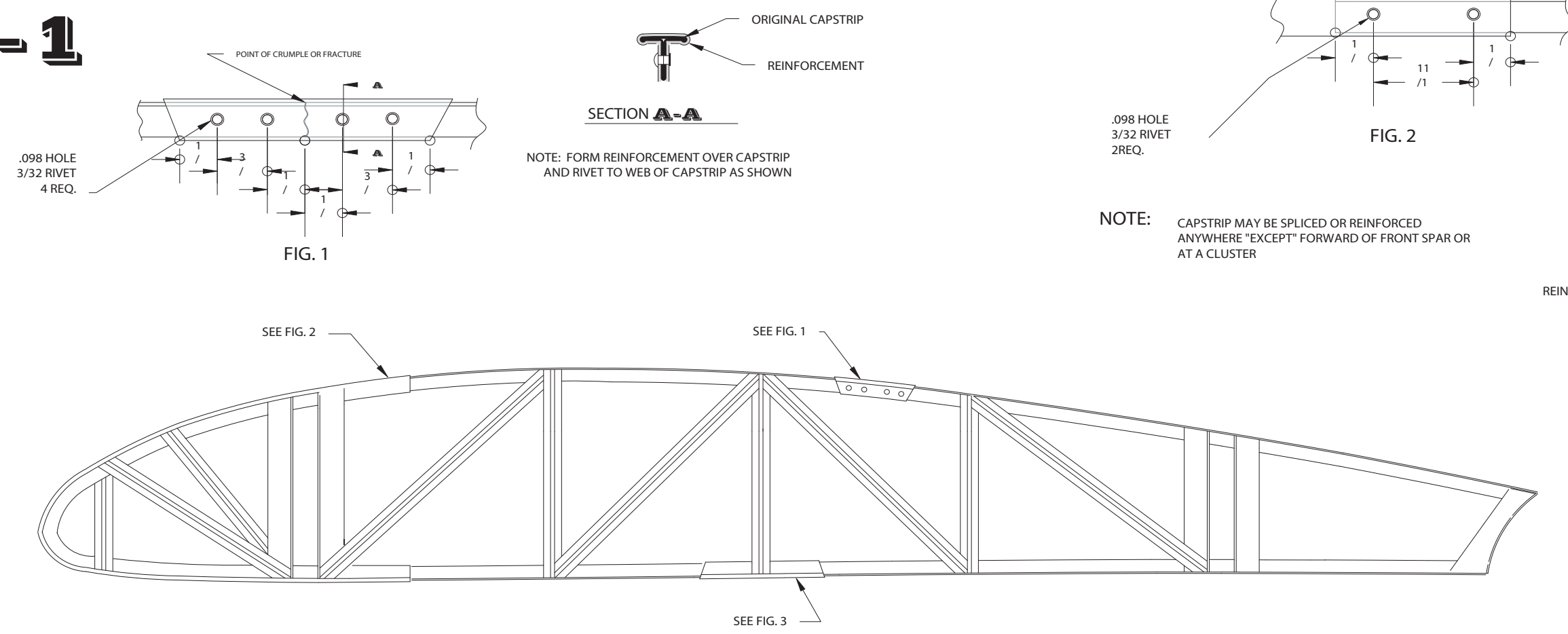
Note: There are many wing assembly drawings available from the "Cub Club" 1002 Heather Lanes, Hartford, WI 53027-9045. Phone number 262-966-7627 or e-mail sskrog@aol.com. They also publish the newsletter "Cub Clues" which features informative articles written by Clyde Smith Jr. on the restoration and maintenance of the fabric pipers. This newsletter series provides a wealth of information.

Sample Wing Assembly Checklist

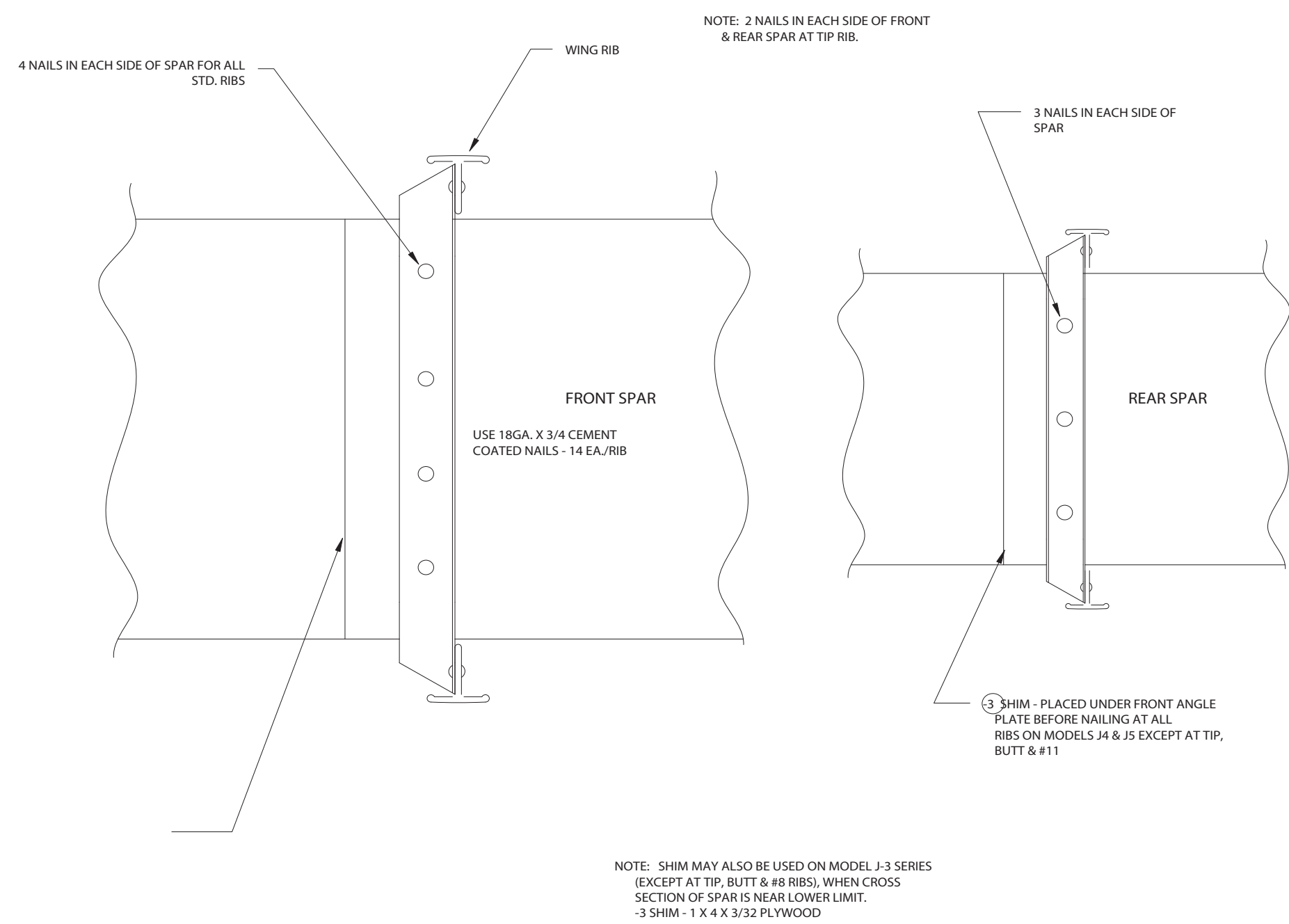
1. "Temporarily" install ribs onto spars.
2. Install drag struts and brace wires, brace wires should alternately overlap on alternating bays.
3. Trammel wings for square ness and set lock tabs on ends of drag struts.
4. Tension drag wires, set locknuts, and tape wires at cross points.
5. Install landing and position light wiring (usually under leading edge skin).
6. Pilot Lines installed, connected, and secured.
7. Install diagonal bracing at butt rib, inboard aileron rib, tank bay rib, and tip bow.
8. Install leading edge. See drawing DC-INSTALL-2, Section 4 for screw size and placement.
Note: use drill stops on drill bits to keep bits from penetrating skin too deeply which may cause bit to hit and nick spar material, (drill stops can be fabricated from small diameter wooden dowel available at any hardware store). It is also desirable to build in the proper amount of wing washout during leading edge installation. This will prevent oil canning of the leading edge during wing installation and washout adjustment. Check maintenance manuals for washout dimensions.
9. Install aileron false spar. See drawing DC-INSTALL-1, Section 3 for screw size and placement.
10. Check aileron and flap hinge alignment before riveting attach bracket to false spar. Using the aileron/flap as an alignment tool works well providing they are not bent or damaged. Drill the attach holes then cleco the bracket in place. Remove aileron/flap and rivet bracket to false spar.
11. Install control cables and verify routing.

12. Lubricate pulley bushings and pins. (Check pulleys for excessive wear or misalignment).
13. Install rib interlace tape at midpoint of rib to hold rib in position during fabric installation.
14. Protect fabric from sharp edges with anti-chafe tape.
15. Adhere to fabric manufacturers procedures for attachment of fabric to structure. Shrink fabric uniformly to prevent fabric from distorting wing components.

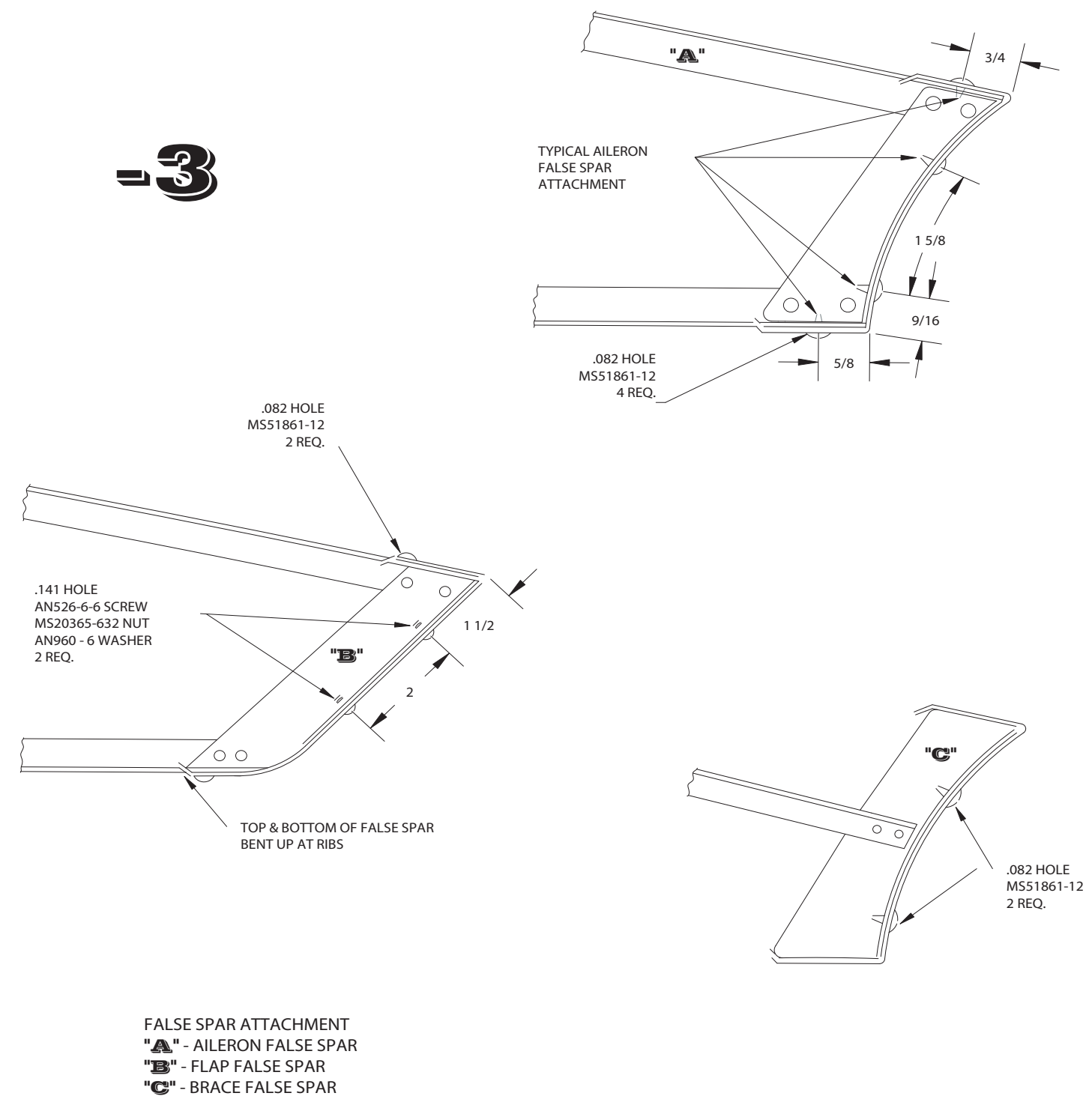
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-2



-3



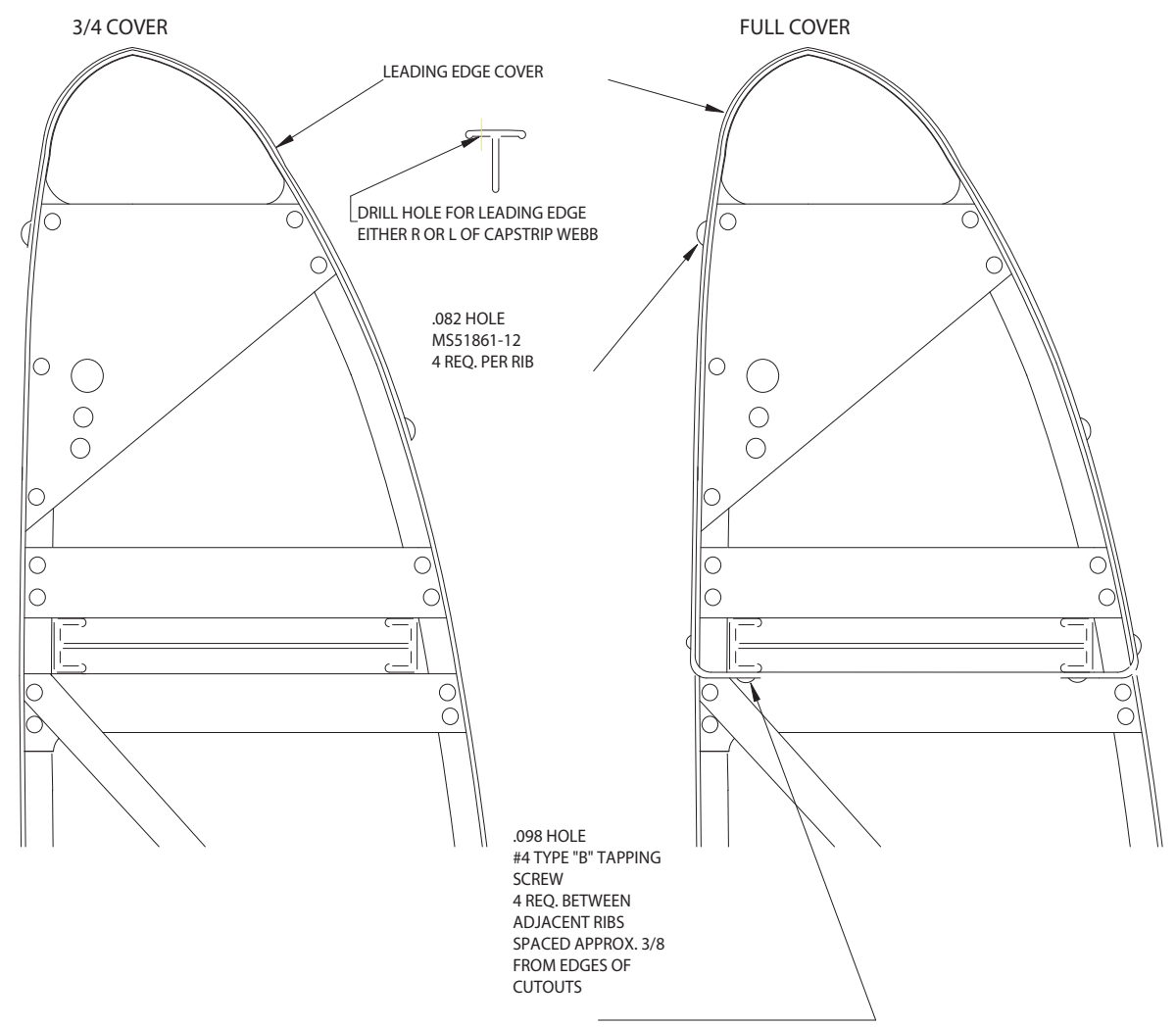
Unless Otherwise Specified Tolerances -
 Angles=±2°
 Fractions=± 1/32
 .00=±.030
 .000=±.010

DAKOTA CUB AIRCRAFT

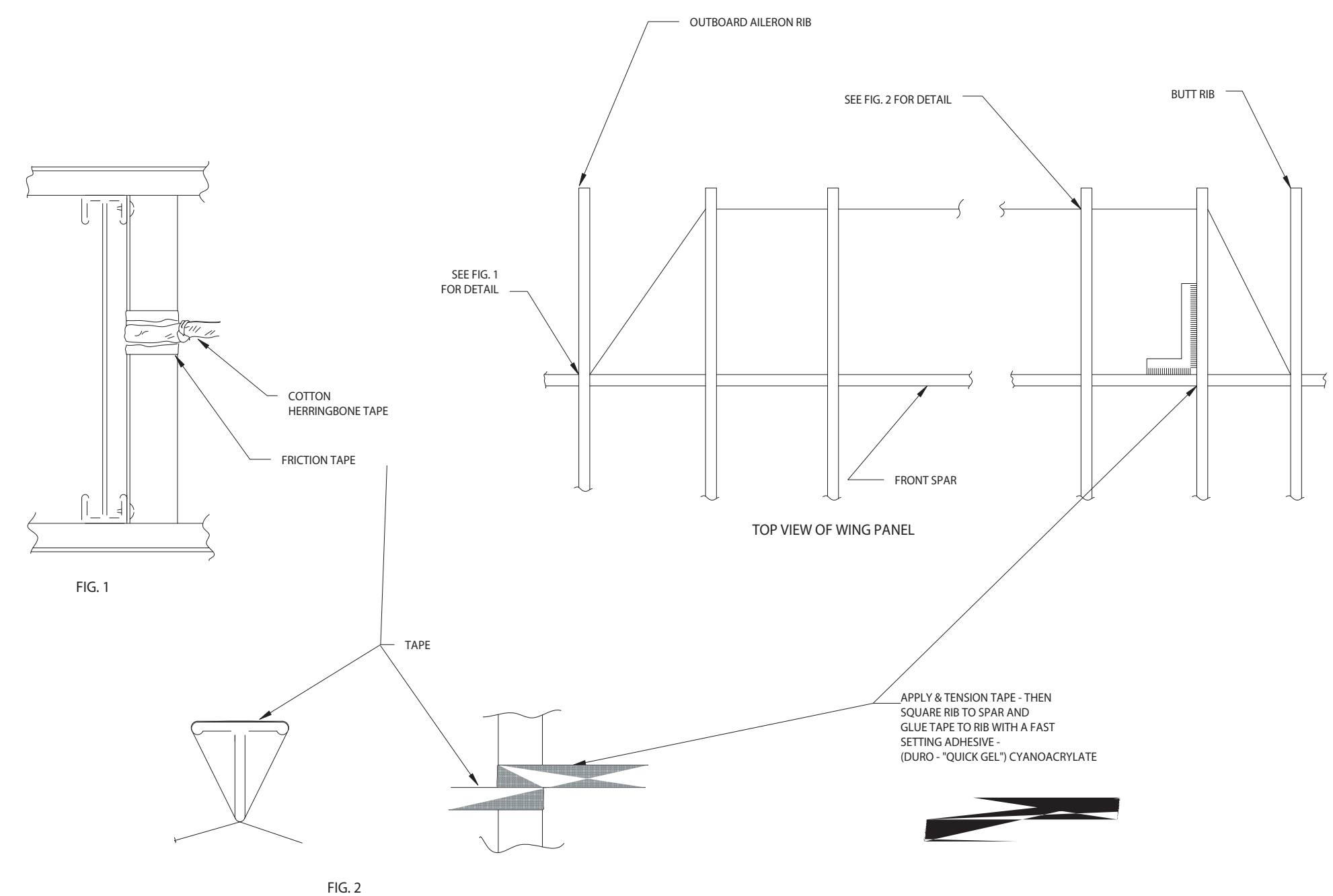
Box 797
 Brandon, SD

Part No.	No. Req.	Size	Material	Description
Scale: NOT TO SCALE				
4 - LEADING EDGE INSTALL				
5 - SUPPORT TAPE INSTALL				
6 - RIB TO SPAR ATTACH				
7 - BROKEN SCREWS / INTERFERENCE PROBLEMS				
MDE	MDE	Drawing No. DC-INSTALL-1		
Date 9-08-94	Date 9-08-94			
DWG	Check			

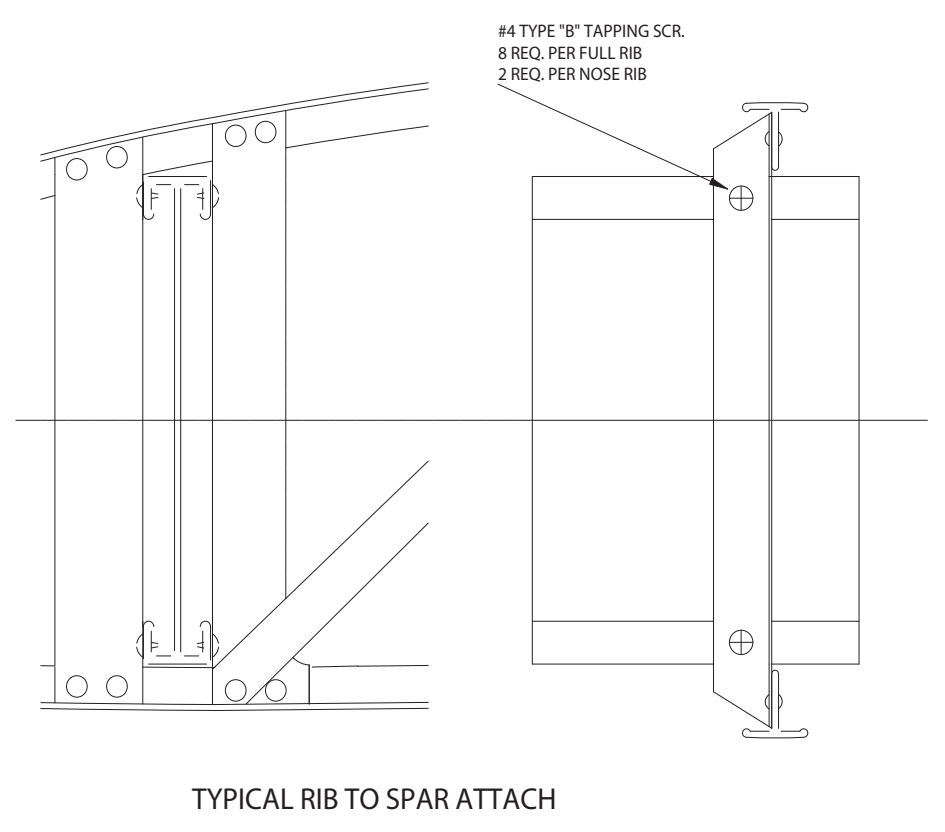
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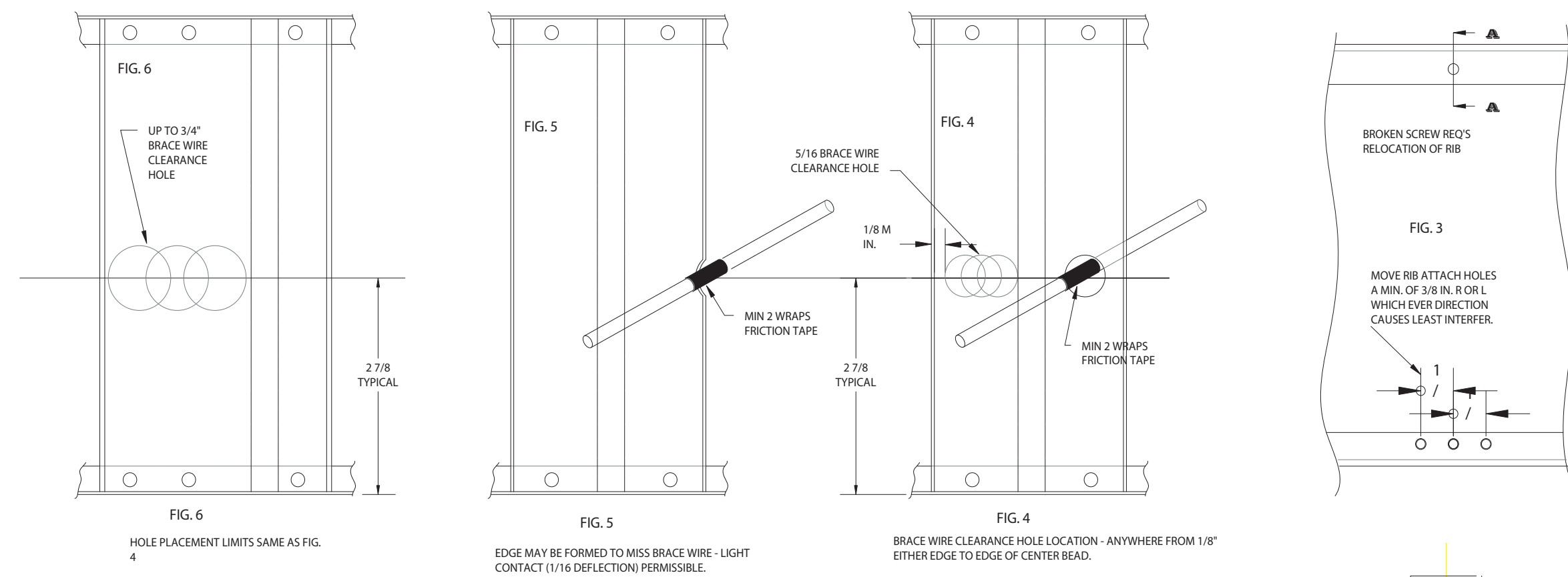
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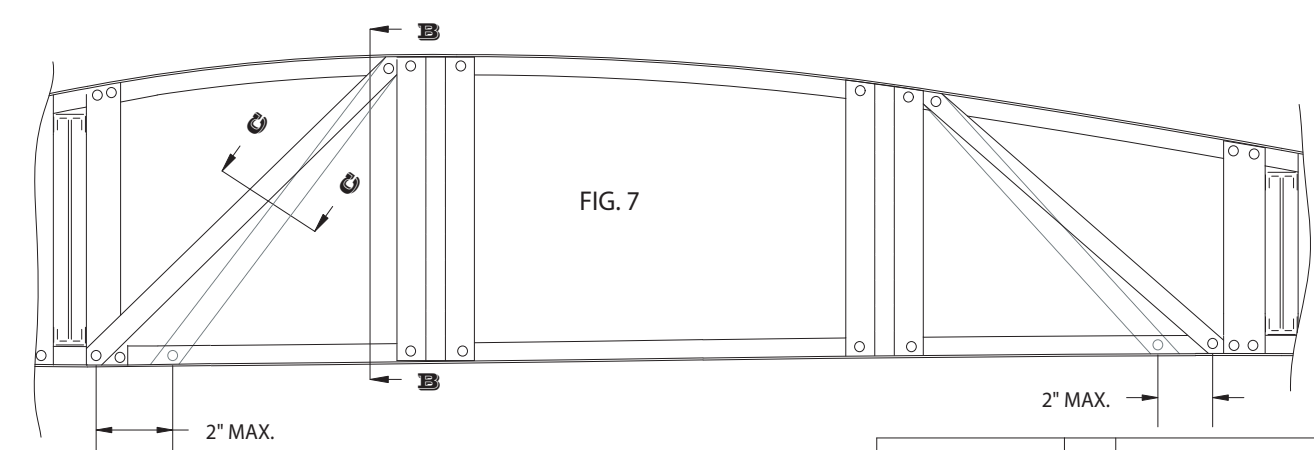
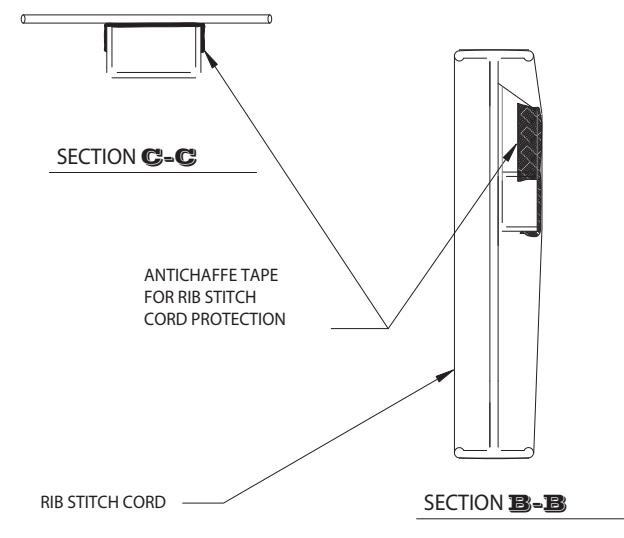
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TYPICAL RIB TO SPAR ATTACH



-7-



DIAGONAL BRACING MAY BE RELOCATED AS NECESSARY TO AVOID BRACE WIRE INTERFERENCE. DRILL OUT EXISTING RIVET, TRIM BRACE FOR NEW LOCATION, RIVET WITH MS20470A4-4 RIVETS.

Unless Otherwise Specified
Tolerances -
Angles = ±2°
Fractions = ±
.00 = ± .030
.000 = ± .010

LET.	REVISION	DATE	BY

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Box 797
Brandon, SD

Scale: NOT TO SCALE

Part No.	No. Req.	Size	Description

4 - LEADING EDGE INSTALL
5 - SUPPORT TAPE INSTALL
6 - RIB TO SPAR ATTACH
7 - BROKEN SCREWS / INTERFERENCE PROBLEMS

MDE	MDE	Drawing No.
Date	Date	
DWG	Check	
9-08-04	9-08-04	

DC-INSTALL-2