



• MANUFACTURERS OF WIPLINE FLOATS & SKIS
• SPECIALISTS IN AIRCRAFT MODIFICATION

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Rev / Latest
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Original
Release
11-3-10

Prepared by Ellen Parker	Aircraft Make / Model All models of the Air Tractor modified by the Wipaire Fire Boss conversion	Float / Ski Model 10000 amphibious	Page 1 5
FAA Reviewed <input checked="" type="checkbox"/>	Title Forward Strut Attach Bulkhead Fatigue Crack		

ALL INFORMATION IN THIS SERVICE DOCUMENT BASED ON FAA APPROVED DATA

SERVICE KIT: 78

EFFECTIVITY	All models of the Air Tractor modified by the Wipaire Fire Boss conversion with 10000 floats installed.
COMPLIANCE	<p>Mandatory visual inspection of the forward strut attach bulkhead at the next 100 Hour or Annual Inspection. If there is a crack, two options are acceptable:</p> <p>Repairs can be made immediately before return to service. OR Repairs can be temporarily deferred after a case by case evaluation by Wipaire Engineering.</p> <p>The doubler is a recommended installation even if there are not cracks, especially if heavy seas operations are expected.</p>
BACKGROUND	Wipaire received two reports of a slowly progressing fatigue crack on the forward strut attach bulkhead. The cracks were found with a careful visual inspection. Fatigue cracking of this nature could result from extended offshore operations in heavy seas. Regular inspection of this area after this kind of intense operation should be considered by the operator.
COMPLIANCE METHOD	<p>The inspection can be visual and should include both sides of the bulkhead, closely examining the bolt holes in the area indicated on drawing 1005016. Repairs if necessary are outlined on attached Wipaire Drawing 1005016 and this Service Kit. Two versions of the service kit are available:</p> <p>1005016-01 - Doublers and associated hardware only (no cracks found) 1005016-02 - Doublers/Bulkhead Replacement Panels/Repair Kit and associated hardware (if cracks are found)</p>
SHOP HOURS	Approximately 8 hours for installation of 1005016-01 per float. Approximately 40 hours for cracked panel removal and installation of 1005016-02 per float.
WARRANTY	No warranty offered.
NOTES	Special tools required: Right angle drill, right angle CherryMax rivet puller

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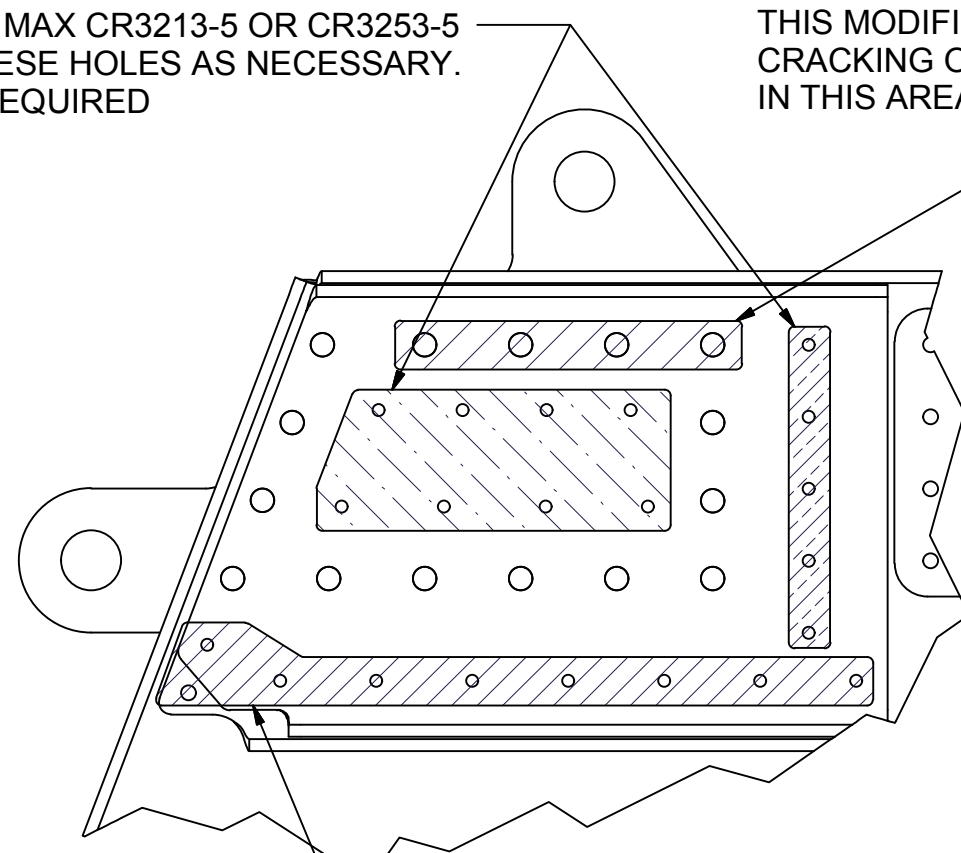
NOTES:

- 1. WHEN INSTALLING CHERRY MAX RIVET, DIP RIVET TAIL IN STRUCTURAL ADHESIVE AND PULL WET. ALLOW TO CURE. ADHESIVE TYPE NOT CRITICAL.

THESE PARTS MUST BE REPLACED IF CRACKS ARE FOUND

USE CHERRY MAX CR3213-5 OR CR3253-5 RIVETS IN THESE HOLES AS NECESSARY. LENGTH AS REQUIRED

THIS MODIFICATION ADDRESSES CRACKING OF ITEMS ① AND ② IN THIS AREA ONLY.



DETAIL A

OPTIONAL:
USE CR3213-5 OR CR3253-5 TO REPLACE SOLID RIVETS AS NEEDED. LENGTH AS REQUIRED

TO INSTALL THE RECOMMENDED DOUBLERS WHEN NO CRACKS ARE FOUND:

1. REMOVE FRONT AIRCRAFT STRUTS FOR ACCESS TO TOP DECK- HOIST/SUPPORT AIRCRAFT AS NECESSARY TO DO THIS.
2. USE FIGURE 1, INSTRUCTIONS FOR BULKHEAD ACCESS HOLES IN SERVICE KIT 78, AS NECESSARY.
3. DRILL OUT NECESSARY EXISTING RIVETS AND REMOVE BOLTS FOR THE STRUT FITTING.
4. PUT DOUBLER (1005020/1005021) INTO POSITION, ALIGN TO PANELS (1001674/1001675) AND FITTING USING 0.250" BOLTS. REAM HOLES USING 0.250" REAMER TO AID IN ALIGNMENT AS REQUIRED.
5. MATCH DRILL PANEL 1001674/1001675 THROUGH NEW DOUBLER HOLES.
6. MATCH DRILL DOUBLER 1005020/1005021 THROUGH TOP DECK HOLES.

NOTE:
BEFORE RIVETING THE DOUBLER, MAKE SURE THE FRONT STRUT FITTING IS IN PLACE.

7. CLEAN AND DE-BURR THE HOLES. INSTALL SOLID RIVETS WHEN IT IS POSSIBLE AND CR3213 OR CR3253 WHEN IT IS NOT.

TO INSTALL THE RECOMMENDED DOUBLERS WHEN CRACKS ARE FOUND:

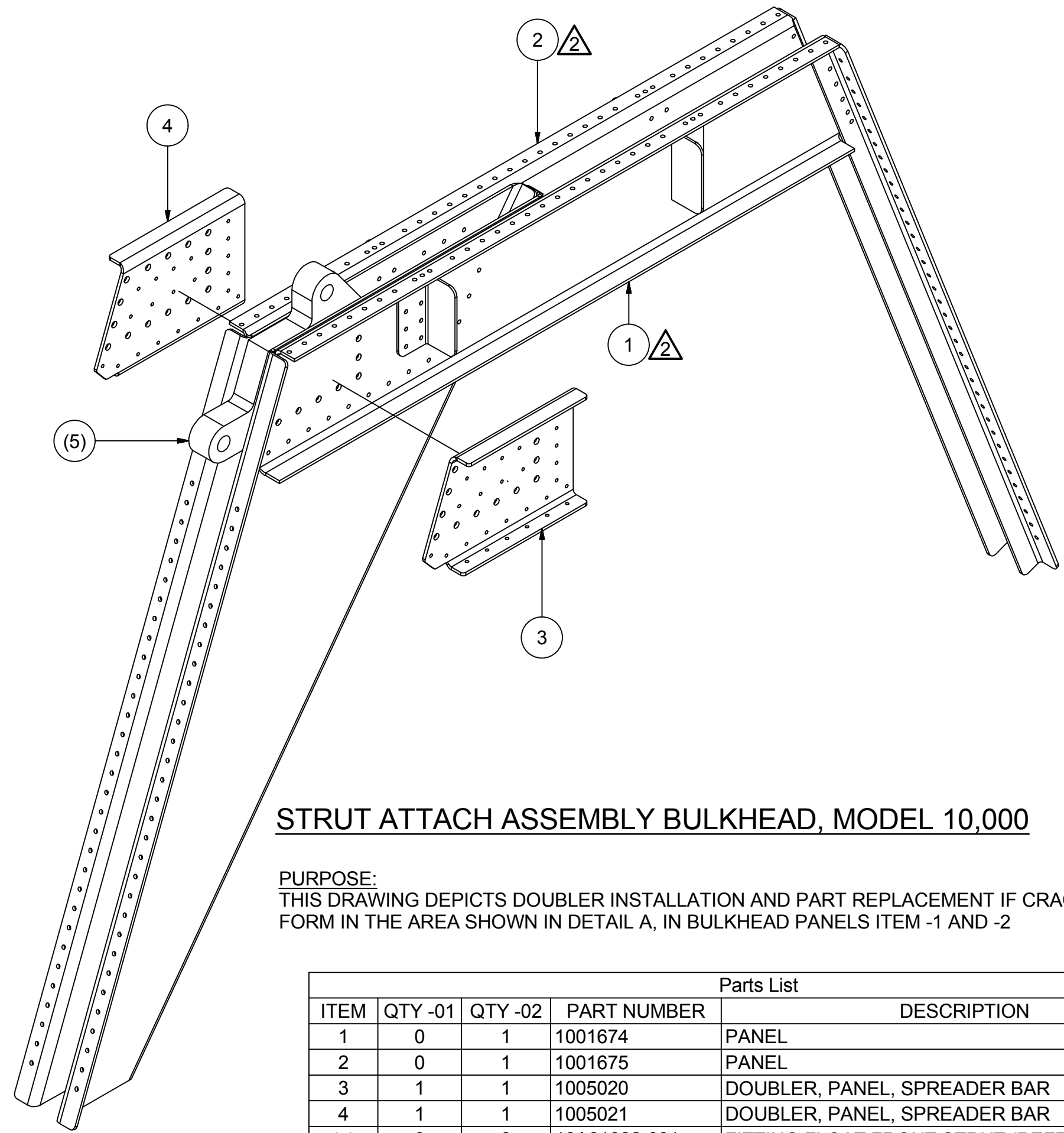
1. REMOVE FRONT AIRCRAFT STRUTS FOR ACCESS TO TOP DECK- HOIST/SUPPORT AIRCRAFT AS NECESSARY TO DO THIS.
2. USE FIGURE 1, INSTRUCTIONS FOR BULKHEAD ACCESS HOLES IN SERVICE KIT 78, AS NECESSARY.

OPTIONAL:
IT IS ACCEPTABLE TO CUT A HOLE IN THE SIDE SKIN BETWEEN BULKHEAD RIVET LINES TO REMOVE THE TOP DECK FITTING, IF DESIRED. THIS HOLE MAY THEN BE REPAIRED ACCORDING TO FIREBOSS SERVICE MANUAL 1002545 FIGURE 10.1. REMOVAL OF THE FITTING SHOULD NOT BE NECESSARY, BUT IS ACCEPTABLE IF IT MAKES THE PANEL REPLACEMENT EASIER TO ACCOMPLISH.

3. DRILL OUT ALL RIVETS ON PANELS 1001674/1001675 AND REMOVE BOLTS FOR THE STRUT FITTING.
4. THE TOP DECK RAIL MUST BE CUT TO REMOVE PANELS 1001674 & 1001675. REFER TO FIGURES 2 AND 3, INSTRUCTIONS FOR DECK RAIL SPLICING, IN SERVICE KIT 78, AS NECESSARY.
5. REMOVE CRACKED PANELS FROM FLOAT.
6. FIT DOUBLERS ON NEW PANELS BEFORE REPLACING PANELS IN FLOAT.
7. PUT DOUBLER (1005020/1005021) INTO POSITION & ALIGN TO PANEL (1001674/1001675) USING 0.250" BOLTS. REAM BOLT HOLES USING 0.250" REAMER TO AID IN ALIGNMENT AS REQUIRED.
8. WITH BOLTS INSTALLED, MATCH DRILL PANEL 1001674/1001675 THROUGH NEW DOUBLER HOLES, CLEAN AND DE-BURR HOLES.
9. WITH BOLTS INSTALLED, MATCH DRILL DOUBLER FLANGES THROUGH EXISTING PANEL HOLES, CLEAN AND DE-BURR HOLES.
10. REINSTALL NEW PANELS/DOUBLERS INTO FLOAT AND INSTALL BOLTS THROUGH FWD DOUBLER, PANELS, FITTING, AFT PANELS, AND DOUBLER.
11. WITH DOUBLERS, PANELS, AND FITTING BOLTED TOGETHER, RIVET PANELS BACK INTO FLOAT. INSTALL SOLID RIVETS WHEN IT IS POSSIBLE AND CR3213 OR CR3253 WHEN IT IS NOT.
12. COMPLETE TOP DECK SPLICE REPAIR, REFER TO FIGURES 2 AND 3 IN SERVICE KIT 78.
13. COMPLETE PATCH OF SIDE SKIN HOLE, IF NECESSARY, REFER TO FIREBOSS SERVICE MANUAL FIGURE 10.1.

REVISION HISTORY

REV	DATE	ECO	DR	DESCRIPTION
A	11/02/10	22153	SSJ	INITIAL RELEASE
B	01/20/11	22199	DWG	UPDATE INSTRUCTIONS FOR REFERENCES TO SERVICE KIT 78 FIGURES, CLARIFY PROCEDURES



STRUT ATTACH ASSEMBLY BULKHEAD, MODEL 10,000

PURPOSE:
THIS DRAWING DEPICTS DOUBLER INSTALLATION AND PART REPLACEMENT IF CRACKS FORM IN THE AREA SHOWN IN DETAIL A, IN BULKHEAD PANELS ITEM -1 AND -2

Parts List				
ITEM	QTY -01	QTY -02	PART NUMBER	DESCRIPTION
1	0	1	1001674	PANEL
2	0	1	1001675	PANEL
3	1	1	1005020	DOUBLER, PANEL, SPREADER BAR
4	1	1	1005021	DOUBLER, PANEL, SPREADER BAR
(5)	0	0	13A01082-001	FITTING FLOAT FRONT STRUT (REFERENCE ONLY)
-	0	4	1005073	SPLICE, TOP DECK RAIL
-	0	6	1005074	CLEAT, TOP DECK RAIL SPLICE
-	0	4	1005075	SPACER, TOP DECK RAIL SPLICE
-	15	15	AN4-22 / AN4-22A	BOLT, HEX, 1/4" X 1.81" GRIP
-	0	20	CR3253-5-4	RIVET, CHERRY MAX, OVERSIZE, .188-.250 GRIP
-	0	18	CR3253-5-5	RIVET, CHERRY MAX, OVERSIZE, .251-.312 GRIP
-	22	38	CR3253-5-6	RIVET, CHERRY MAX, OVERSIZE, .313-.375 GRIP
-	30	30	CR3253-5-7	RIVET, CHERRY MAX, OVERSIZE, .376-.437 GRIP
-	15	15	MS21044N4	NUT, HEX, LOCKING NYLON, 1/4-28
-	20	20	NAS1149F0432P	WASHER, 1/4" BOLT, 0.032" THICK
-	50	50	NAS1149F0463P	WASHER, 1/4" BOLT, 0.063" THICK

MAT'L		FINISH		N/A	
<p>WIPAIRE, INC. 1700 HENRY AVE. SOUTH ST. PAUL, MN 55075 (651) 451-1205</p>				TITLE	
				INSTALLATION, 1005020 & 1005021 DOUBLER	
ALL DIMS IN INCHES & AFTER FINISH		THIRD ANGLE PROJECTION	TOLERANCES .X= ±.05 .XX= ±.015 .XXX= ±.005 X' = ±.5	SIZE C	SCALE 1:1
PART NO.				REV	
1005016				B	
Sheet 1 of 1					

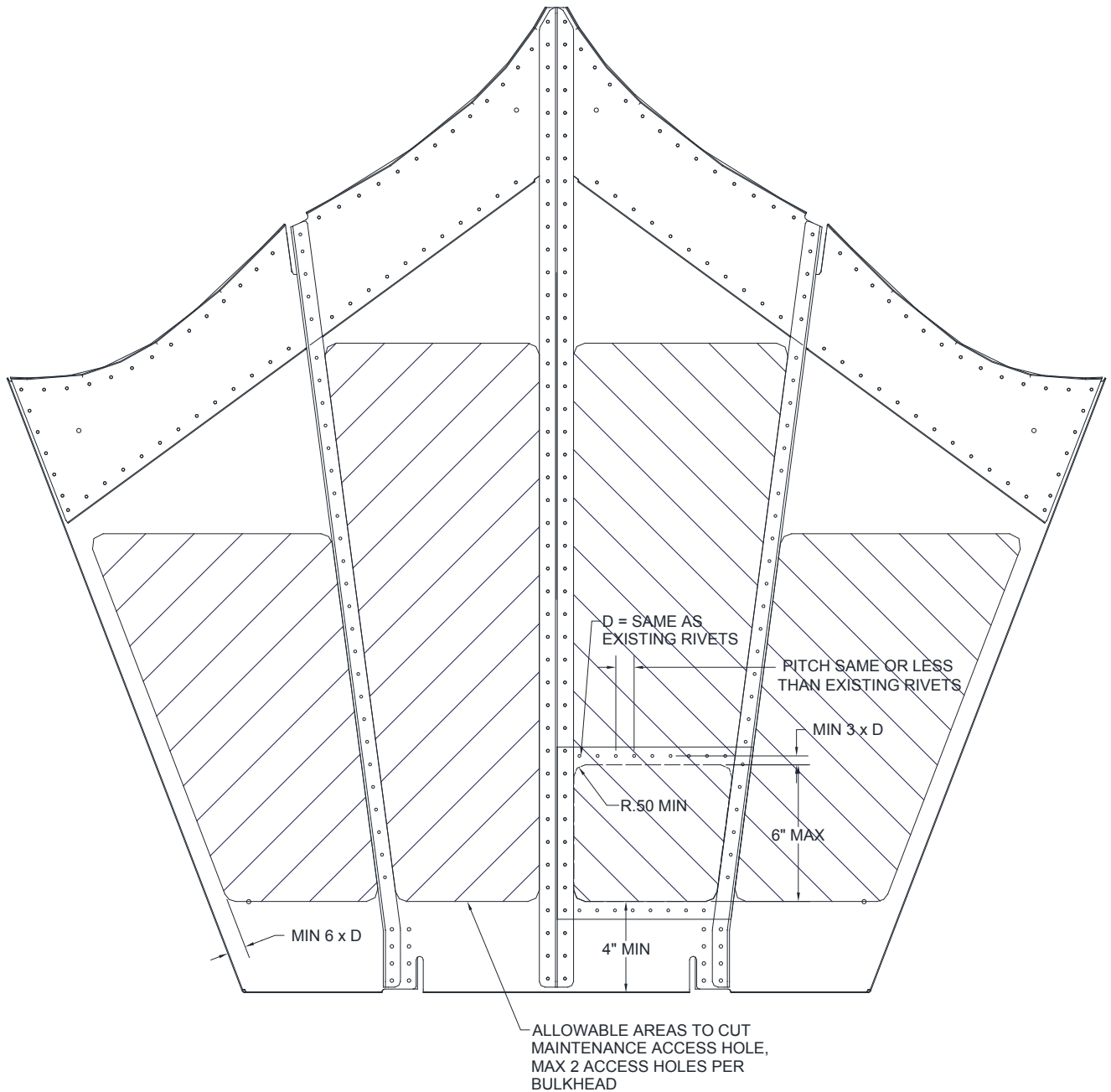
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FIGURE 1



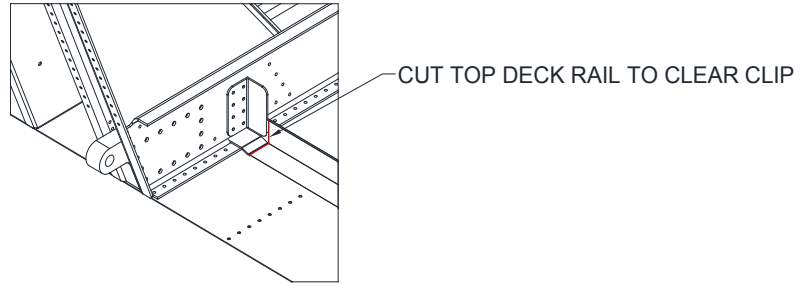
NOTE(S):

1. ACCESS HOLES MAY BE CUT FOR THE PURPOSE OF MAINTENANCE
2. MAX 2 ACCESS HOLES PER BULKHEAD
3. RIVET PATCH OVER ACCESS HOLE ONCE MAINTENANCE IS COMPLETE
4. PATCH MUST BE OF THE SAME, OR STRONGER ALLOY (6061-T6 OR 2024-T3), WITH THE SAME THICKNESS AS THE ORIGINAL PANEL, OR ONE GAGE THICKNESS GREATER
4. USE SOLID RIVETS OF SAME DIAMETER AS EXISTING RIVETS, OR 1 SIZE LARGER; ALTERNATELY USE CHERRY MAX (OR EQUIVALENT) FASTENER OF SAME DIAMETER, OR 1 SIZE LARGER

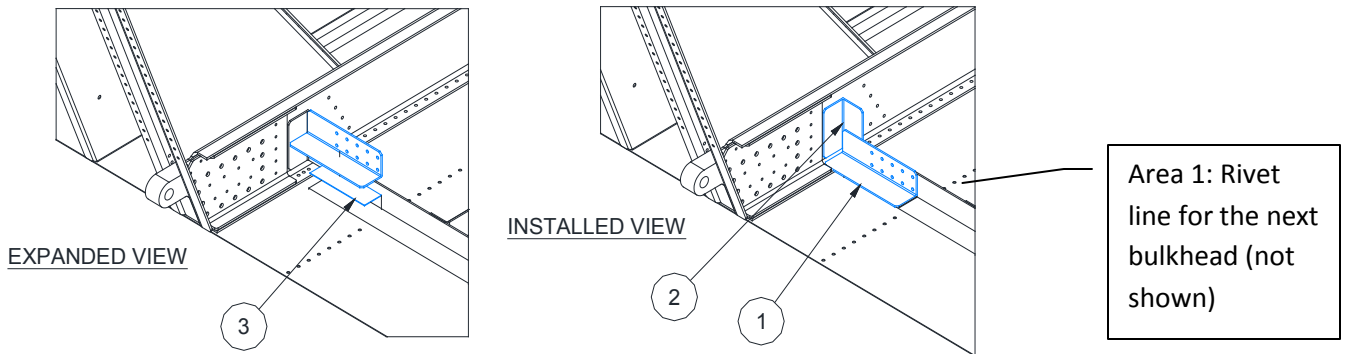
KEY:
 D = DIAMETER
 R = RADIUS

FIGURE 2

ORIGINAL STRUCTURE
AT EXAMPLE BULKHEAD/CLIP INTERFACE



SPLICE REPAIR
AT EXAMPLE BULKHEAD/CLIP INTERFACE



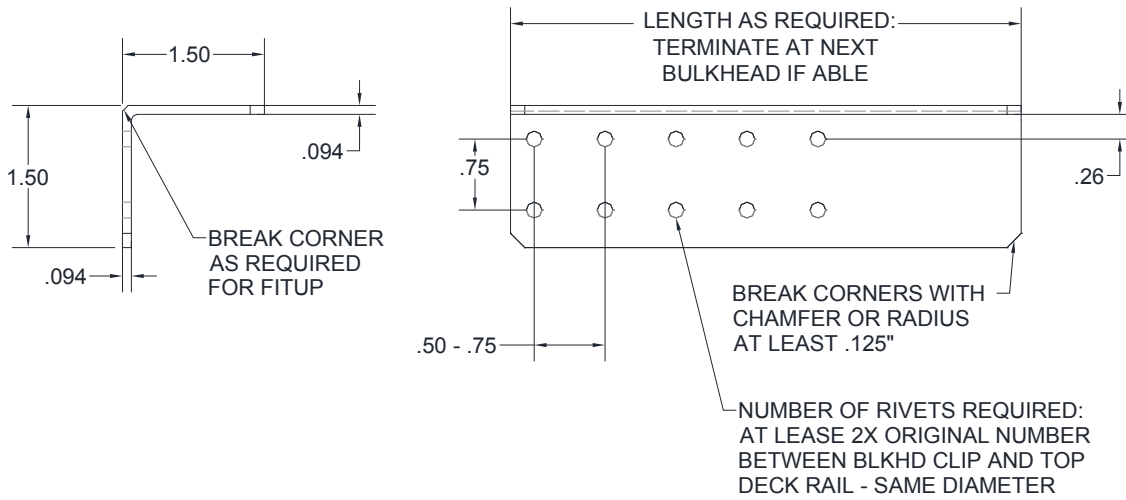
Parts List		
ITEM	QTY	DESCRIPTION
1	A/R	SPLICE, TOP DECK RAIL
2	A/R	CLEAT, TOP DECK RAIL SPLICE
3	A/R	SPACER, TOP DECK RAIL SPLICE

PROCEDURE:

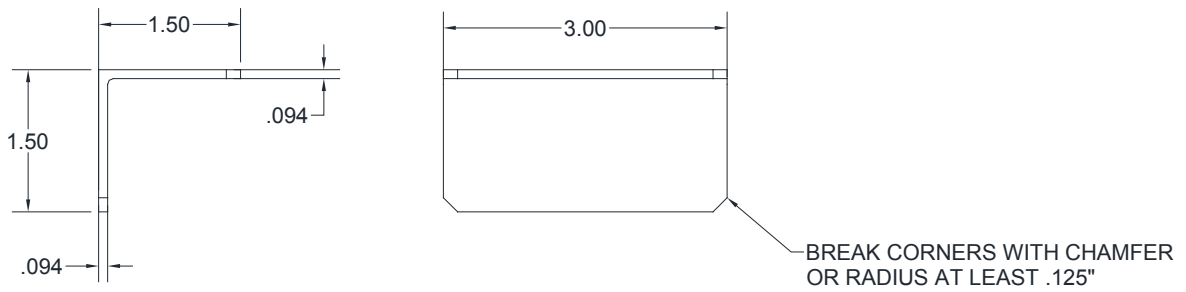
1. Cut the existing top deck rail near the bulkhead clip to enable whatever the required repairs are.
2. Replace the bulkhead panels or whatever other repairs are needed.
3. To cut and fit the splice repair: End the splice at the next bulkhead if able, as shown in Area 1.
4. Insert the spacer between the splice and the existing top deck rail.
5. Using the existing holes in the top deck rail, match-drill to the splice and spacer. Add new holes in the vertical flange, a minimum of 8 x 5/32" rivets.
6. Leave the existing bulkhead clip if the rail splice can be fit to it. Or replace with new clip if necessary. The rail can attach to either side of the bulkhead clip as desired for proper fit.
7. Fit together the original and the new layers with clecos to make sure they all fit together well.
8. Remove the new pieces and de-burr the match-drilled holes. Spray them with a self-etching primer or other preferred corrosion proofing.
9. Install the new pieces, preferably, with solid aluminum rivets or, alternatively, with cherry max rivets as needed depending on the specific repair.

FIGURE 3

1. SPLICE TOP DECK RAIL
WIPAIRE RM382 (6061-T6)
(OR EQUIVALENT 6061-T6 OR 2024-T3 PROFILE)



2. CLEAT TOP DECK RAIL SPLICE
WIPAIRE RM382 (6061-T6)
(OR EQUIVALENT 6061-T6 OR 2024-T3 PROFILE)



3. SPACER, TOP DECK RAIL SPLICE
6061-T6 OR 2024-T3

