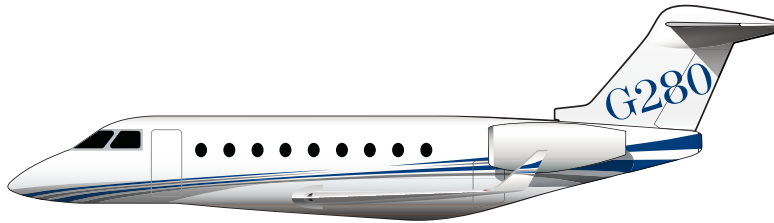


Gulfstream G280



SERVICE BULLETIN

NUMBER 280-57-099

SUBJECT

WINGS (ATA 57) – ADDING A DOUBLER TO
THE FORWARD SPAR AND RIB 0
ATTACHMENT

FEBRUARY 26, 2019

SERVICE BULLETIN

WINGS - ADDING A DOUBLER TO THE FORWARD SPAR AND RIB 0 ATTACHMENT

PLANNING INFORMATION

1. Effectivity

Aircraft serial numbers 2003 through 2033

2. Concurrent Requirement

None

3. Reason

During full scale fatigue testing, a crack was found in the area of the attachment of wing Rib 0 to the front spar and it was determined that a doubler is needed to be added at that location.

4. Description

This service bulletin provides instructions to install a doubler at the attachment location of the wing Rib 0 and the front spar.

5. Compliance

Compliance with this service bulletin is mandatory at not later than 5,000 flight cycles.

NOTE: It is recommended, and a condition for qualifying for full warranty coverage, that this service bulletin be accomplished during a 4C check, when access is already created.

NOTE: This modification may only be accomplished at a Gulfstream facility or a facility approved by Gulfstream in writing to perform this specific modification.

6. Approval

This service bulletin has been reviewed by the Civil Aviation Authority of Israel (CAAI). The design content herein complies with the applicable Civil Aviation Regulations and is CAAI-approved.

7. Manpower

The following information is for planning purposes only:

Estimated labor-hours: 80

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8. Weight and Balance

None

9. Electrical Load Data

No Change

10. Software Accomplishment Summary

None

11. References

G280 Aircraft Maintenance Manual (AMM), Chapters 06, 12, 20, 28 and 57
G280 Illustrated Parts Catalog (IPC), Chapter 27
Gulfstream Aerospace LP G280 TC design change MOD G25-10709

NOTE: This Service Bulletin incorporates design data approved under G280 TC design change MOD G25-10709 for installation on the standard type certificated aircraft. Approval for any deviation from the instructions contained in this service bulletin should be obtained, if required, from the local regulatory authority in accordance with the local relevant regulations.

NOTE: All references in this document are intended to be inclusive of any amendments or revisions unless otherwise stated.

12. Other Publications Affected

G280 IPC, Chapter 57

13. Interchangeability or Intermixability of Parts

None

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MATERIAL INFORMATION

1. Material - Availability

The parts required to accomplish this service bulletin are available by contacting Spare Parts Sales at 800-810-GULF (4853) or 912-965-4178.

2. Opportunity for No Charge Compliance

This service bulletin will be accomplished at no charge regardless of warranty status if performed at a Gulfstream Authorized Warranty Facility or Factory Authorized Service Center with related aircraft model certification with the recommended compliance time stated in this document. *

*Coverage is granted per the terms and conditions of the Gulfstream Aircraft Sales Agreement to the original purchaser or subsequent owner with appropriate Assignment of Warranties on file with Gulfstream.

NOTE: This service bulletin must be accomplished at a Gulfstream facility.

NOTE: Additional labor hours incurred due to aircraft configuration or mechanical difficulties must be charged as a separate discrepancy and submitted for warranty consideration.

NOTE: Additional labor hours incurred due to this service bulletin not being accomplished in conjunction with a 4C check, Operators will incur the labor cost of access and closure.

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3. Material Necessary for Each Aircraft

A. Material to be Procured:

<u>New P/N</u>	<u>Keyword</u>	<u>Qty</u>
30P163000058-501	Kit, Service Bulletin	1
M25988/1-226	O-ring	8
M25988/1-142	O-ring	2
HST70GG-8	Hi-Lite collar	10

B. Materials Supplied by Operator:

PR1776 or PR1776M

4. Reidentified Parts

None

5. Special Tooling

Local manufactured shop aid tool: 0.245-inch diameter x 0.500-inch bullets with an approximate one-degree taper.

Local manufactured shop aid tool: 0.258-inch diameter x 0.500-inch bullets with an approximate one-degree taper.

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ACCOMPLISHMENT INSTRUCTIONS

CAUTION: PROTECT WIRE BUNDLES, CONNECTORS AND SURROUNDING STRUCTURE DURING ANY MAINTENANCE PROCEDURES FROM SHAVINGS, DEBRIS AND CONTAMINATION. MAINTAIN A PROPERLY CLEANED WORK AREA THROUGHOUT THE PROCEDURE TO ENSURE THE INTEGRITY OF THE AFFECTED COMPONENT/SYSTEM. VISUALLY INSPECT WORK AREA USING ADDITIONAL LIGHT AS NECESSARY TO VERIFY ABSENCE OF ANY DEBRIS PRIOR TO COMPLETION OF PROCEDURE. FAILURE TO COMPLY MAY RESULT IN DAMAGE TO COMPONENTS AND/OR SYSTEMS.

1. Prepare aircraft for safe maintenance. Refer to AMM, Chapter 20.

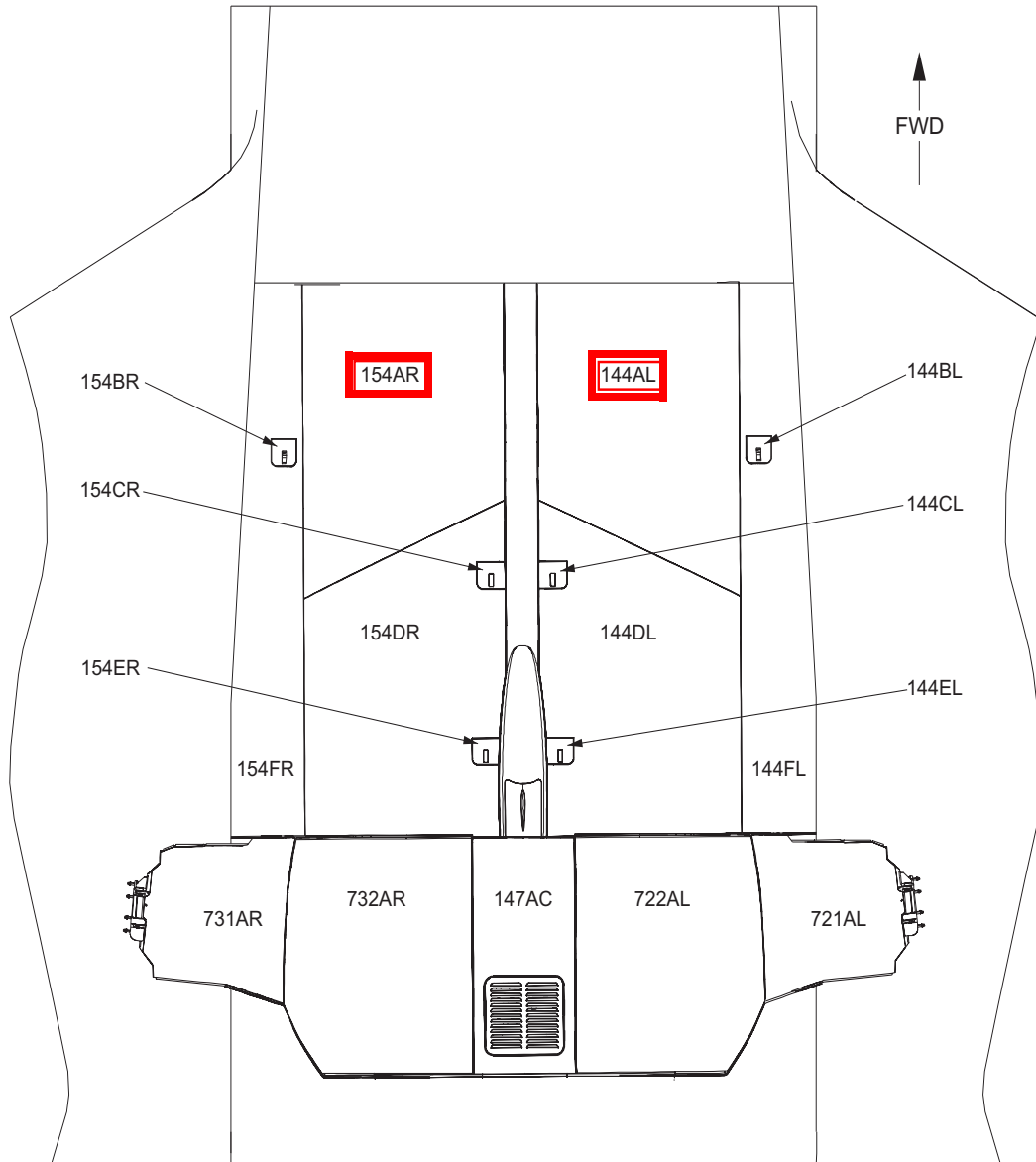
WARNING: FAILURE TO SUPPLY FRESH AIR DURING EXPOSURE TO FUEL OR FUMES MAY RESULT IN SERIOUS INJURY OR DEATH

JET FUEL IS TOXIC AND FLAMMABLE. WEAR PROPER PROTECTIVE EQUIPMENT WHILE HANDLING FUEL TANKS OR WORKING WHERE FUEL MAY COME IN CONTACT WITH EYES AND SKIN. KEEP FUEL AREAS VENTILATED. KEEP SPARKS, FLAME AND HEAT AWAY. DO NOT BREATHE FUEL VAPORS. IN CASE OF CONTACT WITH SKIN, WASH THE AFFECTED AREAS IMMEDIATELY. REMOVE AND WASH CONTAMINATED CLOTHING. TO REDUCE FIRE HAZARD, GROUND AIRCRAFT TO AN APPROVED GROUNDING POINT. PROPER GROUNDING PREVENTS STATIC DISCHARGE SPARKS WHICH CAN IGNITE FUEL VAPORS. FAILURE TO COMPLY MAY RESULT IN INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE ELECTRICAL POWER IS DISCONNECTED FROM AIRCRAFT. FAILURE TO COMPLY MAY RESULT IN INJURY TO PERSONNEL AND/OR DAMAGE TO AIRCRAFT.

2. Defuel aircraft, sump and vent tanks. Refer to AMM, Chapter 12.
3. Remove 143AL, 144AL, 144FL, 153BR, 153AC, 154AR, 154FR, 521AL and 621AR access panels. Refer to Figure 1.

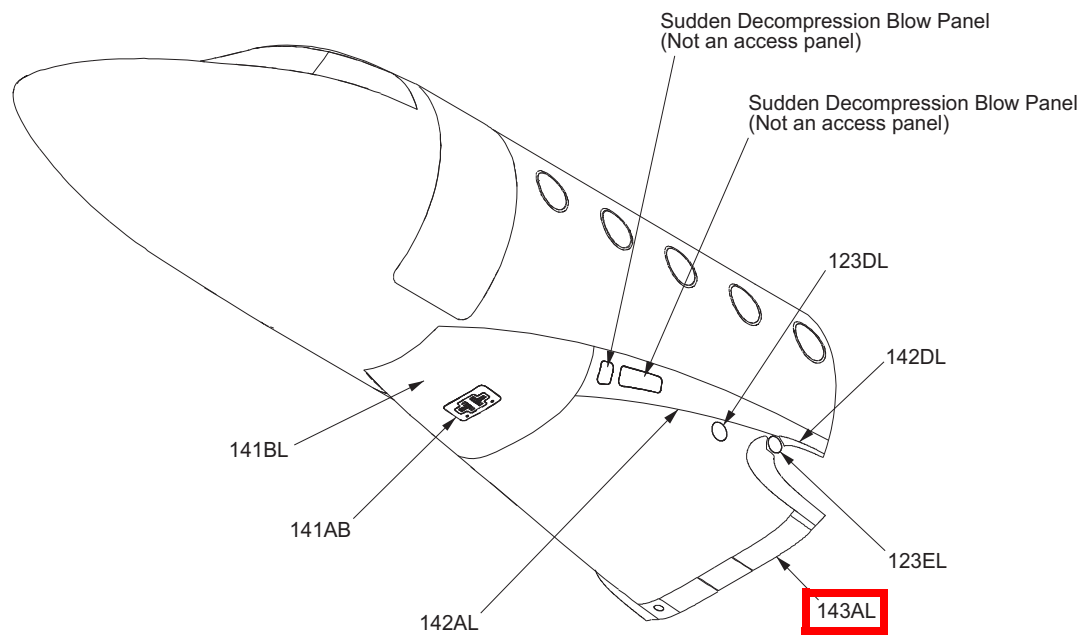
SERVICE BULLETIN



VIEW LOOKING UP

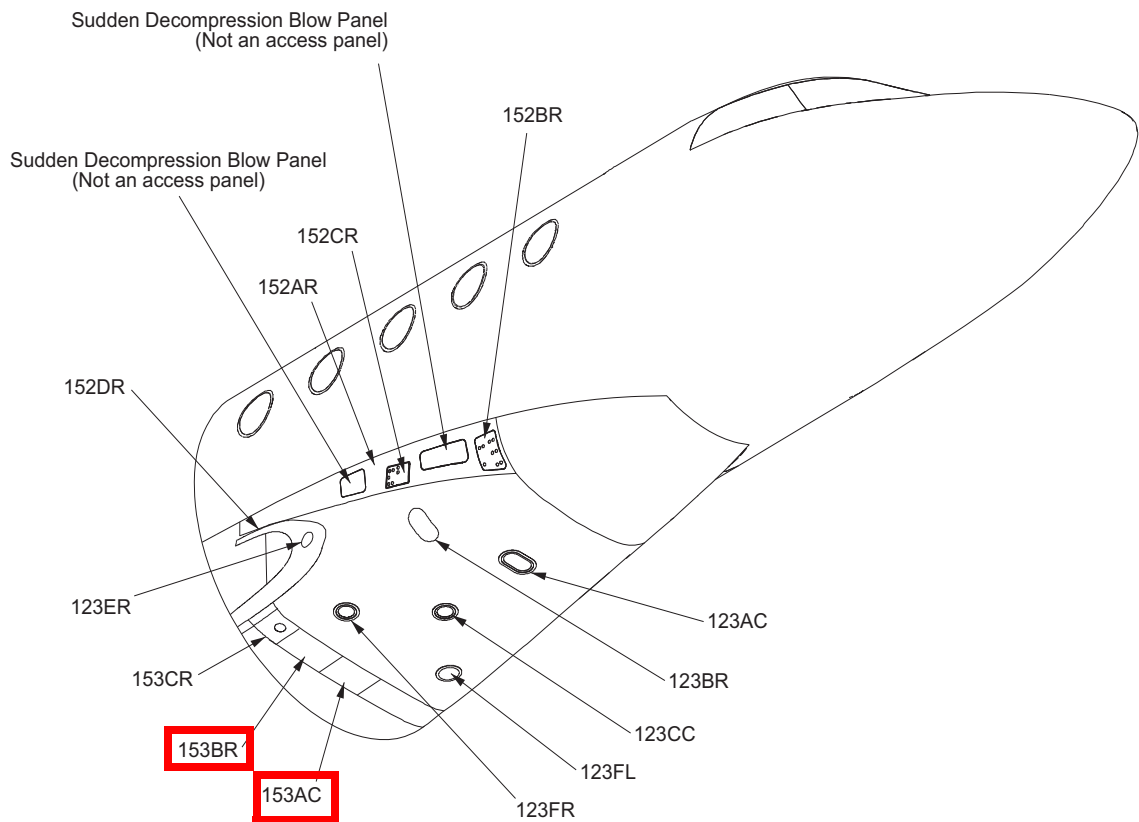
Access Panel Locations for Retrofit
Figure 1 (Sheet 1 of 4)

SERVICE BULLETIN



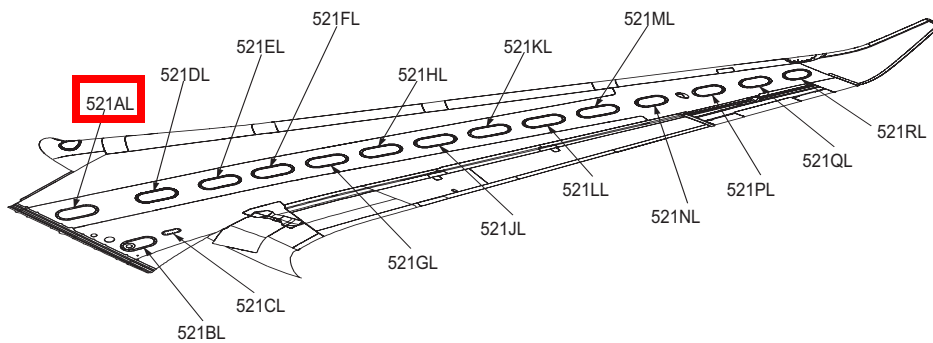
Access Panel Locations for Retrofit
Figure 1 (Sheet 2 of 4)

SERVICE BULLETIN

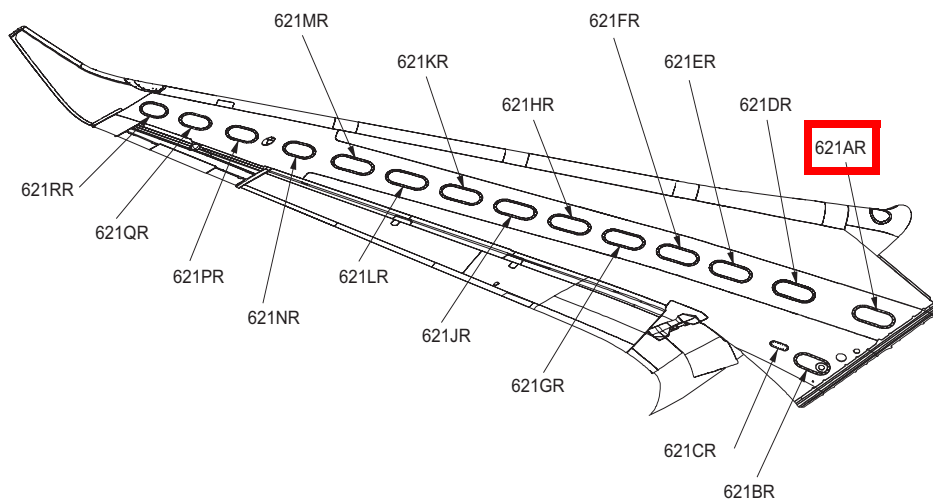


Access Panel Locations for Retrofit
Figure 1 (Sheet 3 of 4)

SERVICE BULLETIN



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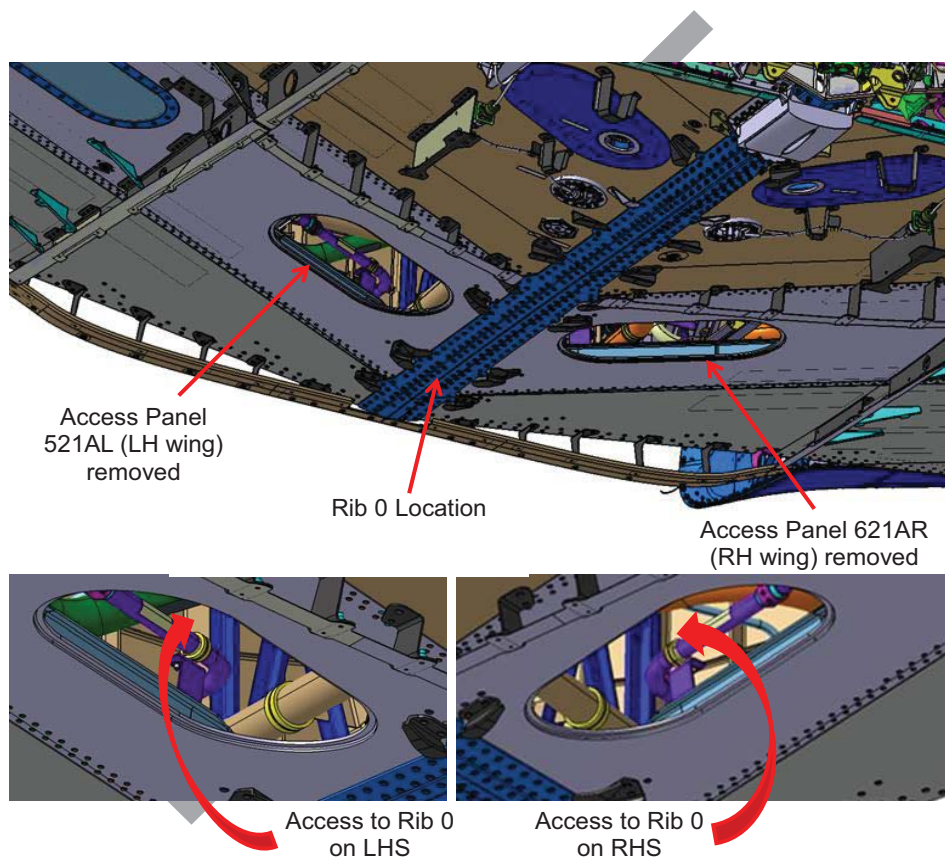


VIEW LOOKING UP

Access Panel Locations for Retrofit
Figure 1 (Sheet 4 of 4)

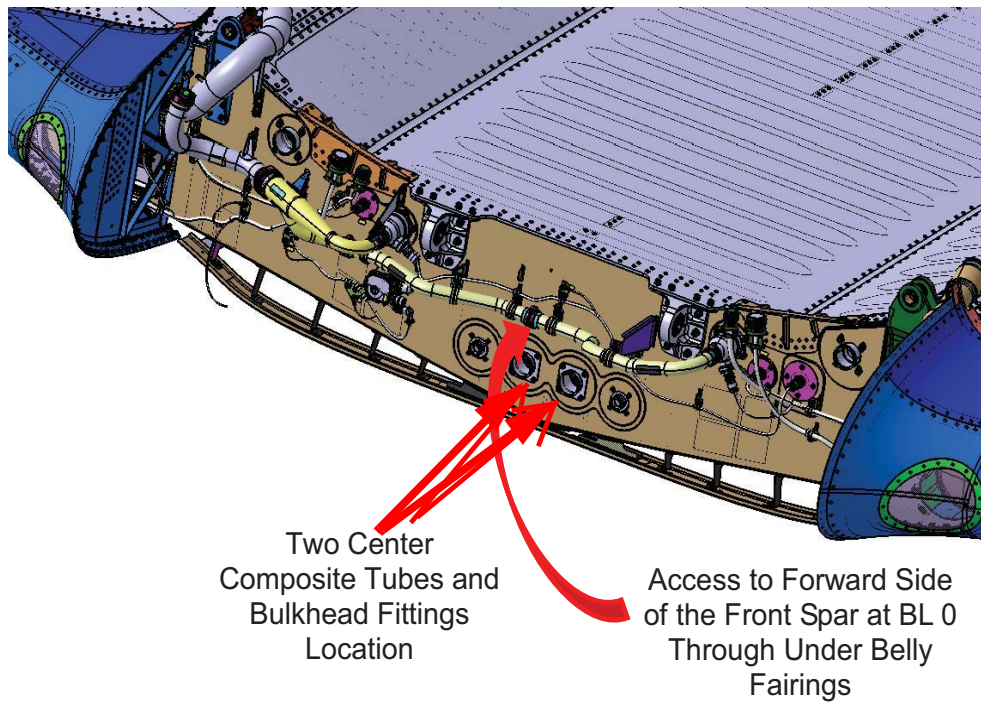
SERVICE BULLETIN

4. Access to the area to be retrofitted can be gained through the wing center tank access panels located either side of Rib 0 on the wing lower skin and through the belly fairing access panel to the forward side of the front spar. Refer to Figure 2.



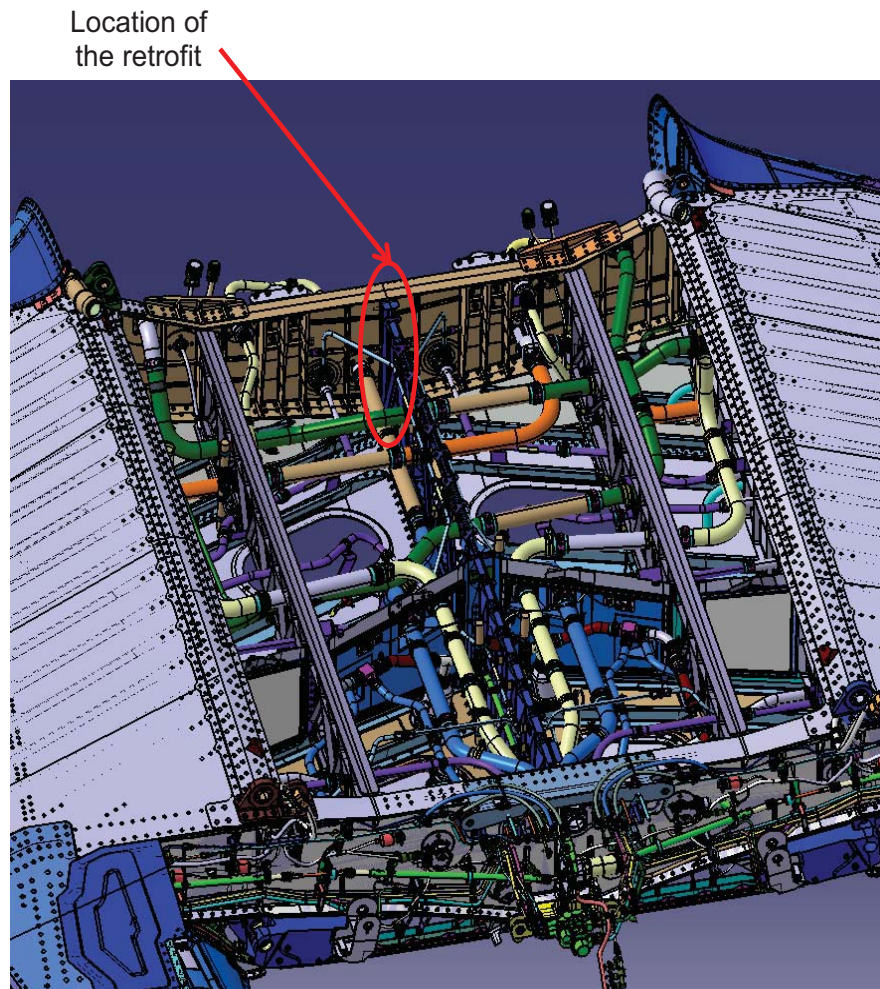
Access to the Location of the Retrofit in the Wing (Looking up)
Figure 2

SERVICE BULLETIN



Composite Tubes and Bulkhead Fittings and Retrofit Location at Front Spar
Figure 3

SERVICE BULLETIN



Location of the Retrofit in Center Tank (Wing Skin Removed for Clarity)
Figure 4

SERVICE BULLETIN

5. Refer to Figures 3 and 4 for additional access locations for the retrofit.
6. Remove the two center composite tubes, P/N 30P654010550 at the location shown in Figure 3.
7. Remove the two center bulkhead fittings, P/N W954G124F32 at the location shown in Figure 3.

CAUTION: ENSURE ALL REMOVED/DISASSEMBLED TUBES AND CONNECTIONS ARE CAPPED TO PREVENT CONTAMINATION AND/OR FOD.

8. Remove the fuel tubes and associated Wiggins fittings, P-clamps and related hardware as shown in Figure 5. Retain fuel tubes Wiggins fittings, P-clamps and related hardware for re-installation. Discard existing O-rings.

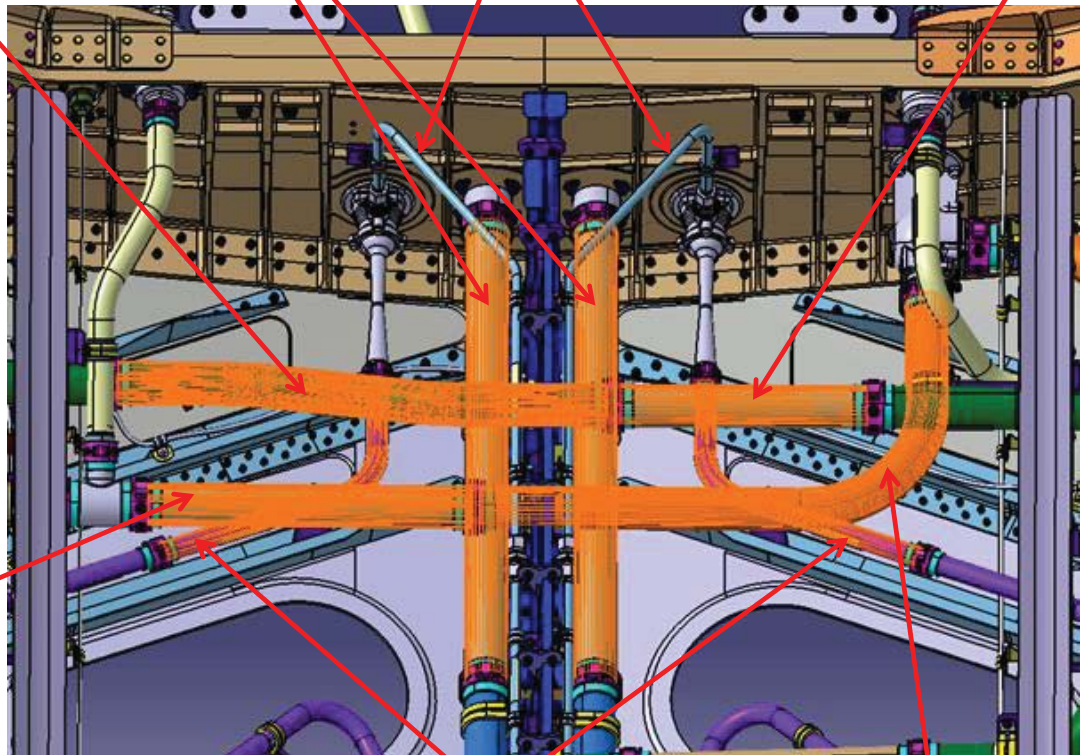
SERVICE BULLETIN

Remove these Forward Aft Overflow Tubes
LH Wing: CA511-32-2650
RH Wing: CA511-32-2650

Remove these Motive Flow Fuel
Tube Assy.
LH Wing: 30P653720001-501
RH Wing: 30P653720001-502

Remove this Vent
System Tube Assy.
30P65318000-501

Remove this Vent
System Tube
CA511-32-1214



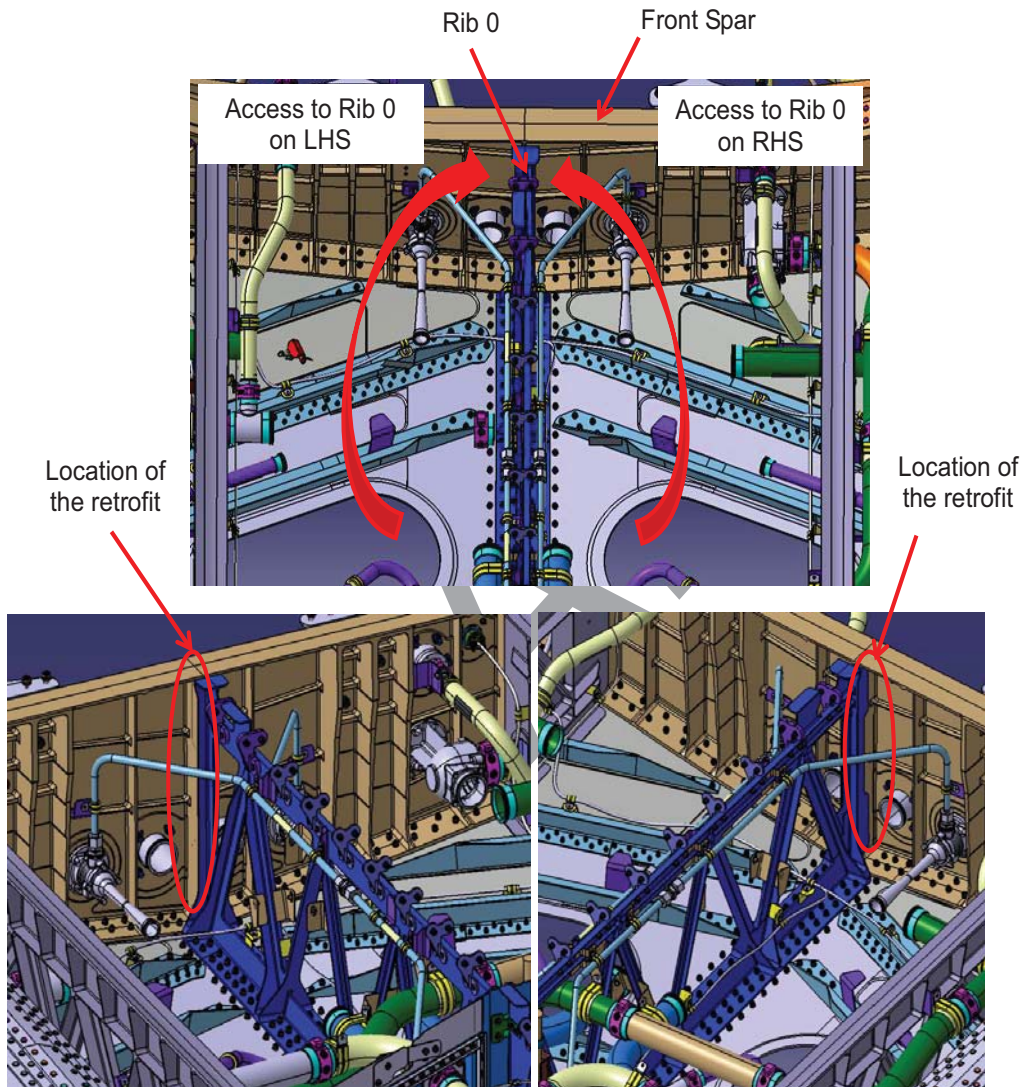
Remove this
Gravity Cross
Flow Tube
CA511-32-
1554

Remove these Fuel Transfer Pump Tube Assy.
LH Wing: 30P653410001-501
RH Wing: 30P653410001-501

Remove this Gravity
Cross Flow Tube Assy.
30P653120000-501

Removal of Center Tank Fuel System Tubes for Access to Retrofit
Figure 5

SERVICE BULLETIN

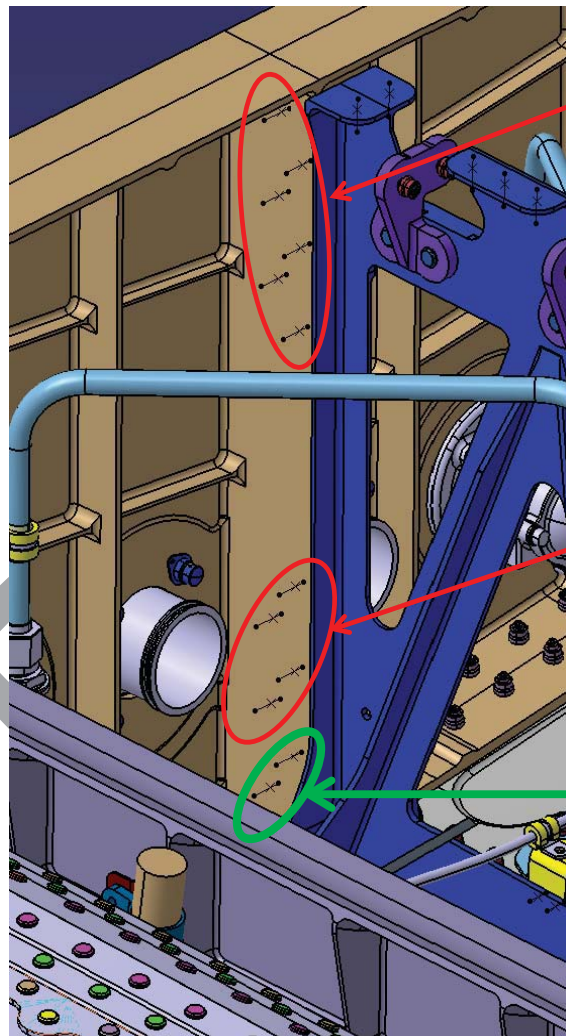


Location for Adding a Doubler Where Rib 0 is Attached to the Front Spar
Figure 6

SERVICE BULLETIN

9. Remove 2 existing hi-lites and collars to allow for installation of 0.245-inch shop aid bullets. Refer to Figure 7.
10. Remove paint around the fastener holes to allow for a better visual inspection and NDT.
11. Visually inspect the two (2) hole locations where the hi-lites were removed in previous step for cracks inside and around each hole.
12. Temporarily install two (2) 0.245-inch shop aid bullets in the locations where the hi-lites were removed in step 9.
13. Remove the remaining eight (8) existing hi-lites at the upper and lower locations. Refer to Figure 10.
14. Remove paint around the fastener holes to allow for a better visual inspection and NDT.
15. Visually inspect the eight (8) hole locations where the hi-lites were removed in previous step for cracks inside and around each hole.
16. Verify that holes are acceptable for 1st oversize after the remaining eight (8) fasteners were removed in step 13. If necessary, it is acceptable to use 2nd oversize fasteners. Contact Gulfstream Customer Support if necessary.
17. On the front spar vertical stiffener and Rib 0, perform the following NDT to inspect for cracks (refer to Figure 8):
 - High Frequency Eddy Current - HFEC (PS810300, PS810310)
 - Mid Frequency Eddy Current - MFEC (PS810300, PS810310)
 - Bolt Hole Eddy Current (High Frequency) - BHEC (PS810300, PS810310)
 - Liquid (Dye) Penetrant (PS810100)
18. If any cracks are found, contact Gulfstream Customer Support.

SERVICE BULLETIN



Remove two Collars and Hi-Lite pins in this area for the install of shop aid bullets. Remove the remaining Collars & Hi-Lite pins at the remaining locations

Remove the existing Collars & Hi-Lite pins at these 4 locations

CAUTION:
DO NOT
REMOVE THESE
TWO HI-LITES
OR THE
COLLARS

Existing Fasteners to be Removed (and shop aid bullet location) at Rib 0 & Front Spar Joint
Figure 7

SERVICE BULLETIN

Possible crack

about 70 mm Length

Rib 0
t = 0.06"

0.25" Dia

Front Spar Inbd. Integral Stiffener
t = 0.06"

Possible crack

Fwd. Mid. Spar

Possible crack

On Spar Stiffener side:

- HFEC & MFEC surface scan around & in-between all fastener holes (total of 12 fastener holes).
- Liquid (Dye) Penetrant NDT only in case cracking indication is found via one of the Eddy Current NDT methods.
- BHEC to the 10 fastener holes of which the fasteners were removed.

On Rib 0 side:

- HFEC surface scan around & in-between all fastener holes (total of 12 fastener holes).
- BHEC to the 10 fastener holes of which the fasteners were removed.

Fastener holes code:
 Removed fastener – ■
 Non-Removed fastener – ■

Rib 0

NDT Area to be Performed on Forward Spar Vertical Stiffener and Rib 0
Figure 8

SERVICE BULLETIN

19. Locate the doubler, P/N 30P171632200-001 flat on the spar vertical stiffener and spar web as shown in Figure 9 and clamp the doubler in place. Make sure the doubler is centered between the horizontal stiffeners on the forward spar and verify there is a minimum of 0.030 inch clearance around the doubler and the spar fillet radii.
20. Using a drill block, back drill the doubler from Rib 0 and the spar vertical stiffener to match the existing hole size on Rib 0 and the spar vertical stiffener at eight (8) locations where existing fasteners were removed. refer to Figure 10.
21. Verify all holes for dimensional size and roundness before enlarging holes to 1st oversize.
22. Using a drill block, enlarge eight (8) holes on the doubler, the spar vertical stiffener and Rib 0 completely to 0.2606 - 0.2636 inch (1st oversize, interference fit) by drilling through doubler, spar vertical stiffener and Rib 0 at the locations shown in Figure 10. (see step 30 for fastener definition).
23. If 2nd oversize is required, enlarge the hole size diameter on the doubler, spar vertical stiffener and Rib 0 for these eight (8) holes completely to 0.2762 - 0.2792 inch (2nd oversize interference fit). Contact Gulfstream Customer Support for the fasteners.
24. Using the pilot holes on the doubler, drill twelve (12) 0.2450 - 0.2480 inch holes (interference fit) from the doubler through the spar web at the locations shown in Figure 11 (see step 32 for fastener definition). Maintain 0.500 inch minimum edge margin on the doubler.
25. Using the pilot holes and drill block on the doubler, drill fifteen (15) 0.1580 - 0.1880 inch holes (interference fit) from the doubler through the spar vertical stiffener and Rib 0 at the locations shown in Figures 12 and 13 (see steps 33 and 34 for fastener definition). Maintain 0.375 minimum edge margin on all parts.
26. Remove the doubler and deburr all the fastener holes except on the mating surfaces of Rib 0 and the spar vertical stiffener since Rib 0 is still attached to the spar vertical stiffener with two (2) hi-lites on the bottom as shown in Figure 7.
27. Install two (2) 0.258-inch shop aid bullets in previously oversized holes and remove the two 0.245-inch shop aid bullets installed in step 12.
28. Repeat steps 20 through 25 for the two upper fastener locations.
29. Repeat steps 16 through 18 for the two upper fastener locations.

SERVICE BULLETIN

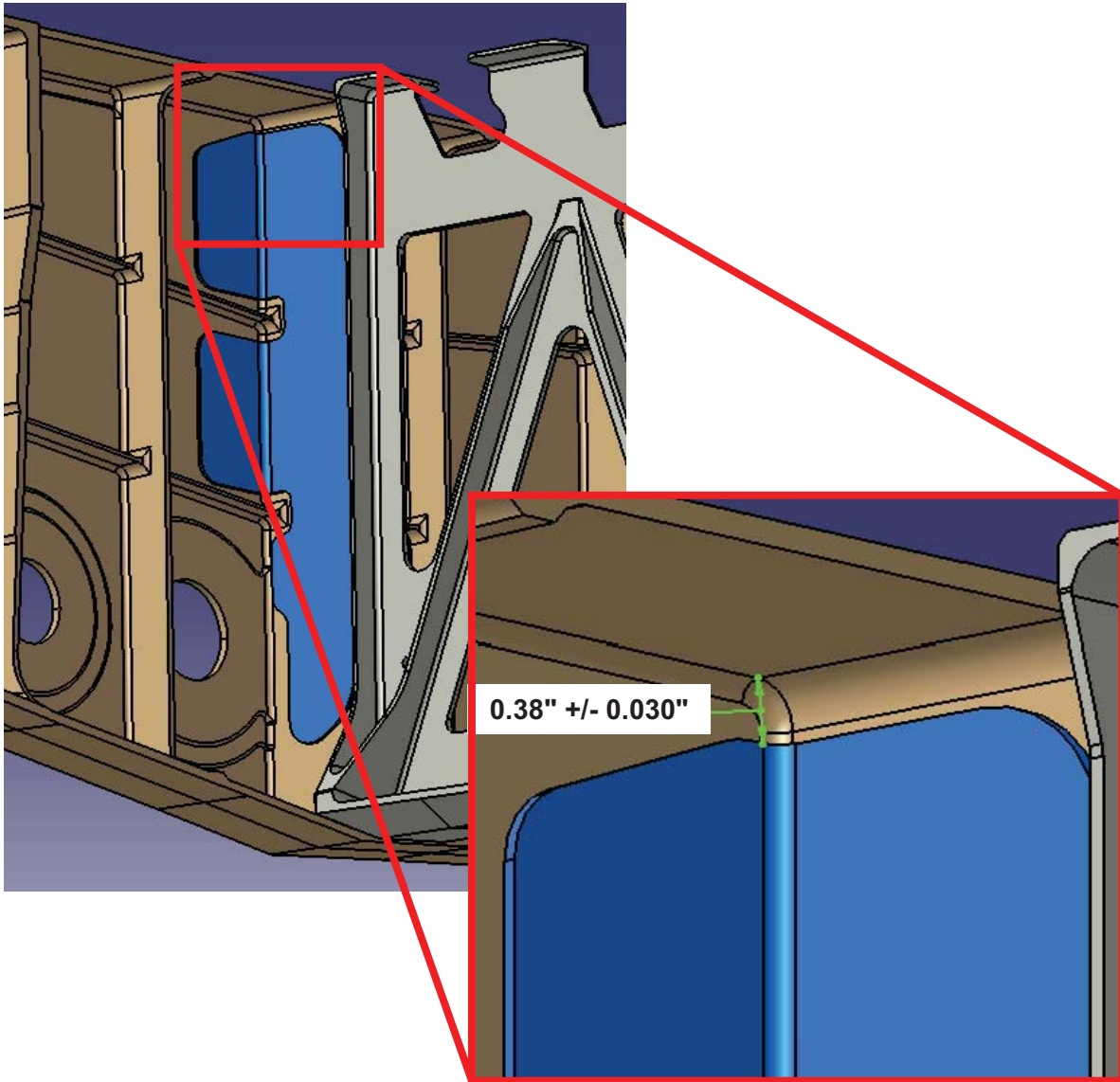
30. Install eight (8) 1st oversize fasteners, P/N HST110AZ8-4 Hi-lite pins and eight (8) collars, P/N HST184GG-8 collars. Refer to Figure 10.
31. Remove the two (2) 0.258-inch shop aid bullets and repeat step 30 for the remaining two locations.
32. Install twelve (12) Hi-lite pins, P/N HST12AZ8-3 and twelve (12) collars, P/N HST1078TB8 wet with PR1776M in the holes attaching the doubler to the front spar we as shown in Figure 11.
33. Install nine (9) Hi-lite pins, P/N HST12AZ6-3 and nine (9) collars, P/N HST1078TB6 wet with PR1776M in the holes as shown in Figure 12.
34. Install six (6) Hi-lite pins, P/N HST12AZ6-4 and six (6) collars, P/N HST1078TB6 wet with PR1776M in the holes as shown in Figure 13.

CAUTION: ENSURE ALL REMOVED/DISASSEMBLED TUBES AND CONNECTIONS ARE NOT CAPPED AND ARE CLEAN AND FREE FROM FOD PRIOR TO INSTALLATION.

CAUTION: TO AVOID FUEL LEAKS, PAY SPECIAL ATTENTION ON THE PROPER RE-INSTALLATION OF FUEL TUBES BY MAKING SURE THE WIGGINS FITTINGS AND NEW O-RINGS ARE INSTALLED PROPERLY. FAILURE TO COMPLY MAY RESULT IN A FUEL LEAK.

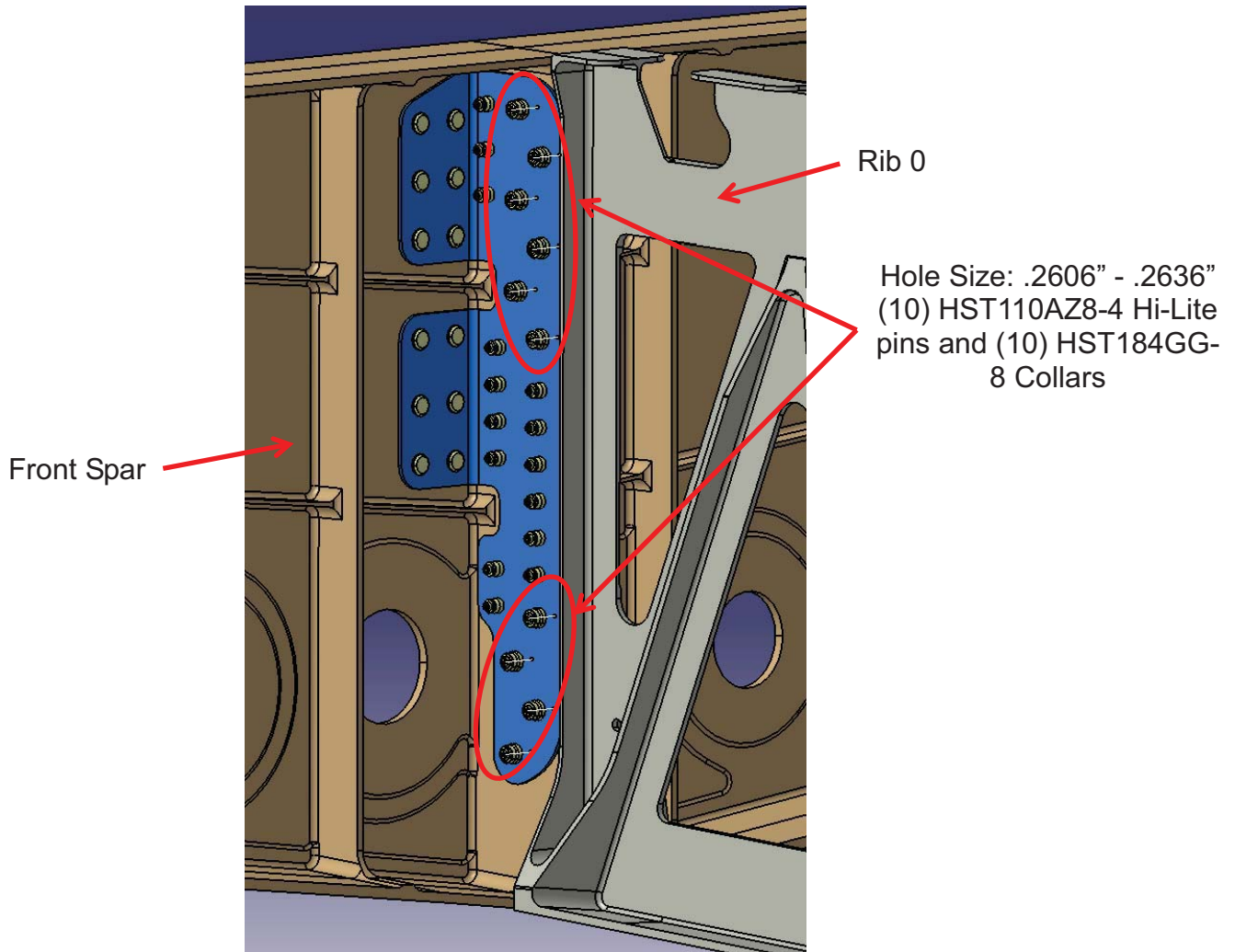
35. Install the two center bulkhead fittings, P/N W954G124F32, O-rings, P/N M25988/1-142 and bolts. Torque the bolts 63 - 77 inch-pounds.
36. Apply fillet seal at center bulkhead fittings with PR1776 or PR1776M.
37. Reinstall the two composite tubes, P/N 30P654010550 removed in Step 6.

SERVICE BULLETIN



Location of Doubler on Front Spar Vertical Stiffener and Spar Web
Figure 9

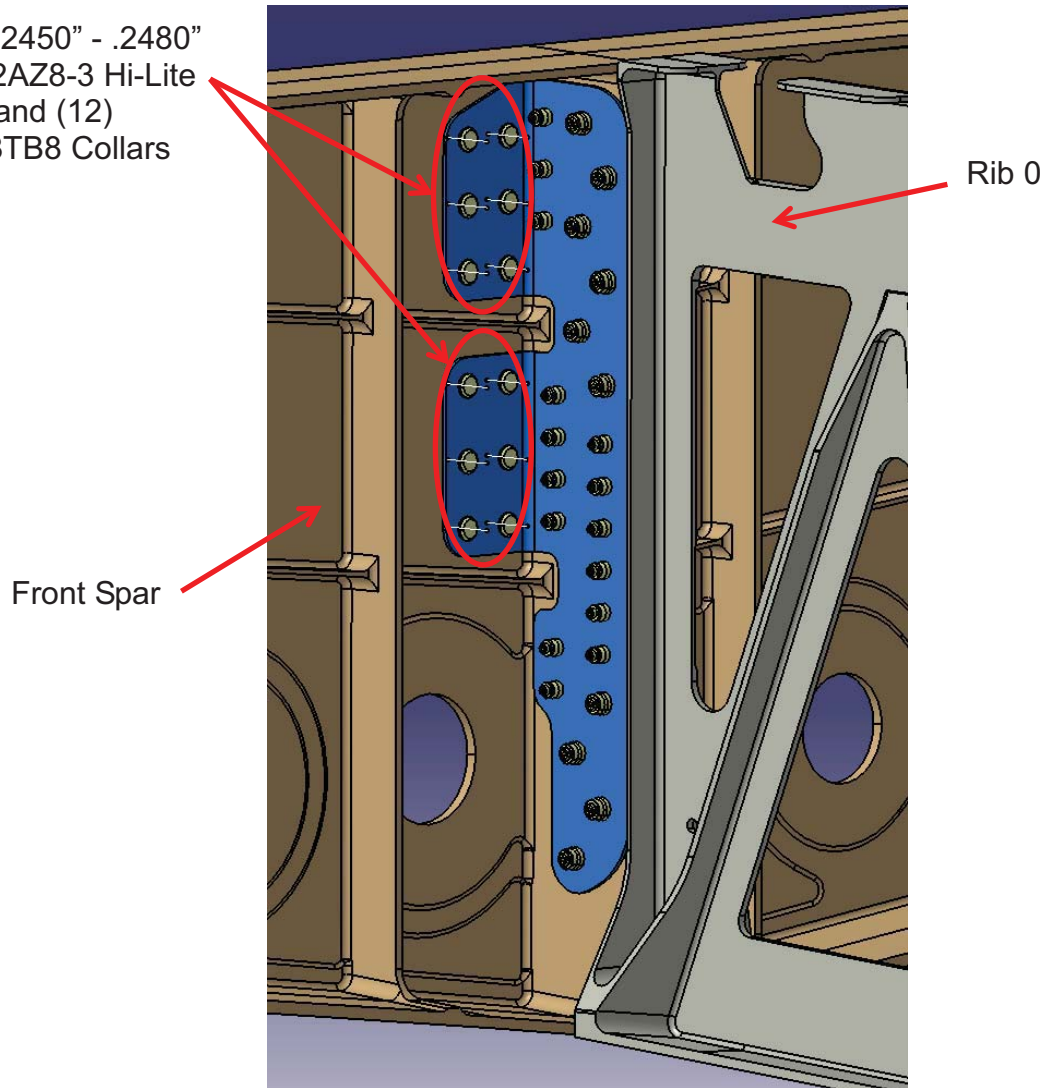
SERVICE BULLETIN



Installation of Fasteners Attaching Doubler to Rib 0 in Oversized Holes
Figure 10

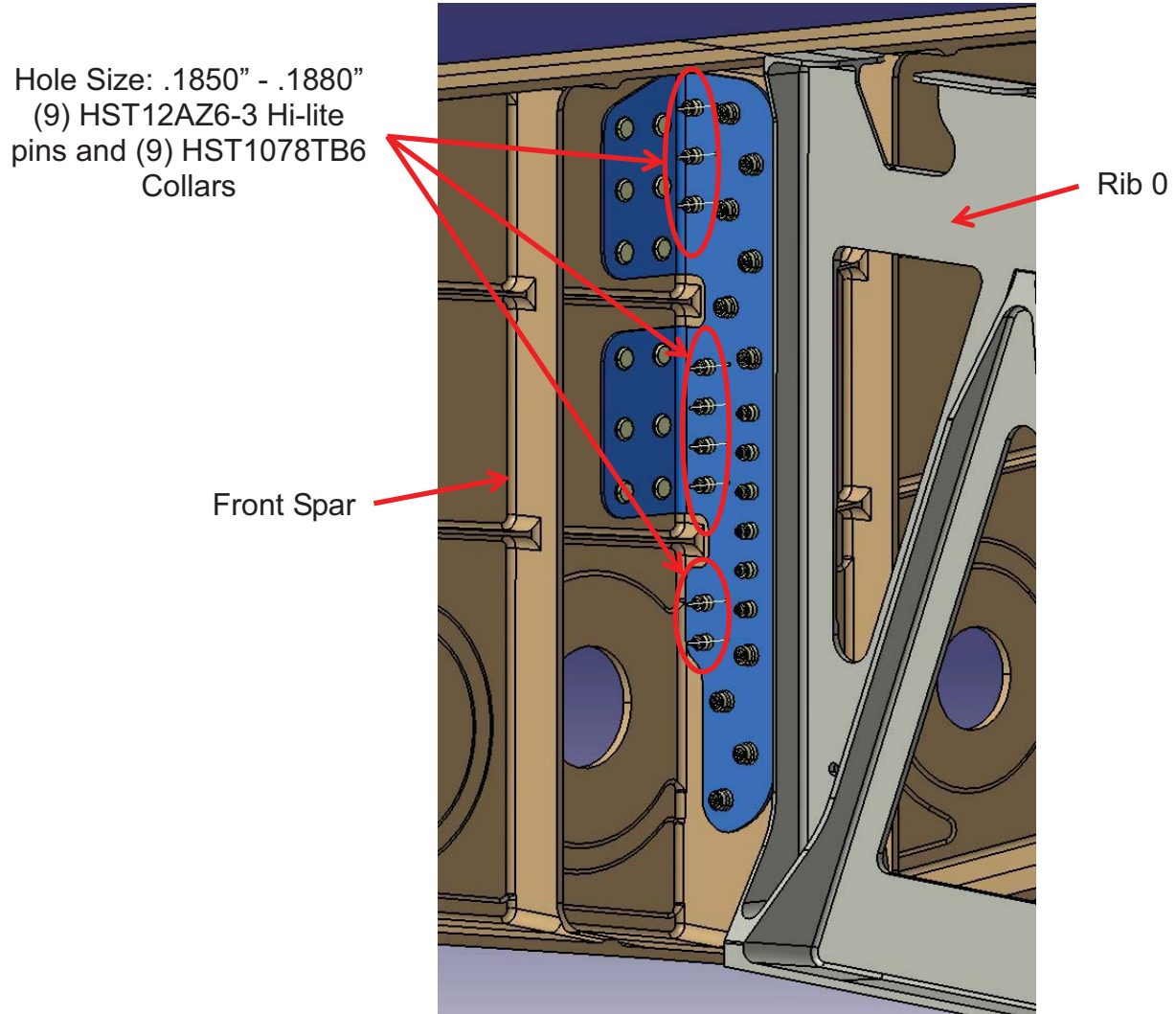
SERVICE BULLETIN

Hole Size: .2450" - .2480"
(12) HST12AZ8-3 Hi-Lite
pins and (12)
HST1078TB8 Collars



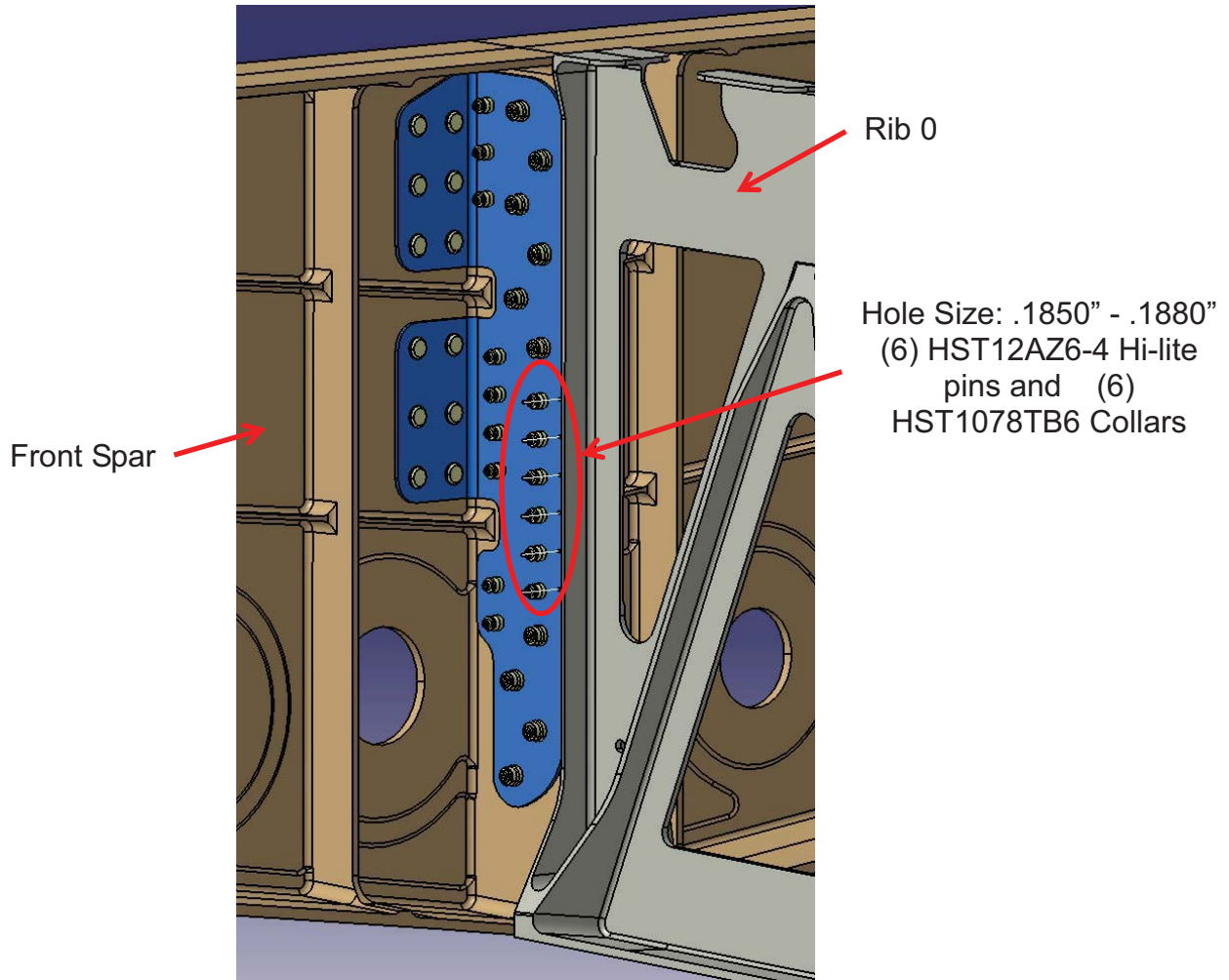
Installation of Fasteners Attaching the Doubler to the Front Spar Web
Figure 11

SERVICE BULLETIN



Installation of HST12AZ6-3 Hi-Lites Attaching the Doubler to Rib 0
Figure 12

SERVICE BULLETIN



Installation of HST12AZ6-4 Hi-Lites Attaching the Doubler to Rib 0
Figure 13

SERVICE BULLETIN

38. Reinstall all the fuel tubing, two center bulkhead fittings and two center composite tubes removed in steps through 8.

CAUTION: TO AVOID FUEL LEAKS, PAY SPECIAL ATTENTION ON THE PROPER RE-INSTALLATION OF FUEL TUBES BY MAKING SURE THE WIGGINS FITTINGS AND NEW O-RINGS ARE INSTALLED PROPERLY. FAILURE TO COMPLY MAY RESULT IN A FUEL LEAK.

39. Use a lint free cloth to clean all fuel spills and drains on the aircraft floor.
40. Ensure work area is clean and clear of foreign objects (FOD).
41. Reinstall the access panels removed in step 3.
42. Refuel aircraft per AMM, Chapter 12-13-00 and perform fuel access panel fuel leak check.
43. Ensure work area is clean and clear of foreign objects (FOD).
44. Record compliance with this service bulletin in the aircraft's permanent maintenance records and return aircraft to flight status.
45. Report compliance with this service bulletin to Computerized Maintenance Program (CMP) by uploading the attached service reply card, along with the CMP task card(s) sign-off using MyGulfstream, MyCMP Document Upload or e-mail to cmp.docproc@gulfstream.com or fax to Gulfstream CMP at 800-944-1775 or 912-963-0265.

If technical assistance is required, contact your area Gulfstream Field Service Representative or call Gulfstream Customer Support at 800-810-GULF (4853).

GULFSTREAM G280
SERVICE BULLETIN NO. 280-57-099
SERVICE REPLY CARD

Please upload this page, along with the CMP task card(s) sign-off using MyGulfstream, MyCMP Document Upload, or e-mail to cmp.docproc@campsystems.com

The following Service Bulletin (SB) has been addressed:

SB CMP NUMBER	A/C	AIRCRAFT TYPE	COMPLIANCE DATE
980990		Gulfstream G280	

Aircraft Hours _____
Aircraft Landings _____

This Service Bulletin is not applicable because:

- _____ Serial Number not affected
- _____ Equipment not installed
- _____ Previously complied with (annotate method of compliance below)
- _____ Other (explain reason below)

SIGNATURE	TITLE / CERTIFICATE NUMBER	COMPANY
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COMMENTS / SUGGESTIONS / ACTIONS TAKEN:

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