



US Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020
Exp: 8/31/2014

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N450GG	Serial No. 4082	
	Make GULFSTREAM AEROSPACE	Model GIV-X	Series N/A
2. Owner	Name (As shown on registration certificate) TVPX AIRCRAFT SOLUTIONS INC TRUSTEE		Address (As shown on registration certificate) 39 E EAGLE RIDGE DR STE 201
			City NORTH SALT LAKE State UTAH Zip 84054-2533 Country UNITED STATES

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency	
Name <u>Duncan Aviation</u>		<input type="checkbox"/> U. S. Certified Mechanic	<input type="checkbox"/> Manufacturer
Address <u>262 S 3800 W</u>		<input type="checkbox"/> Foreign Certified Mechanic	C. Certificate No.
City <u>Provo</u> State <u>UT</u>		<input checked="" type="checkbox"/> Certified Repair Station	EBV2450D
Zip <u>84601</u> Country <u>United States</u>		<input type="checkbox"/> Certified Maintenance Organization	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual _____	26 MAY 2023
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7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Flt. Standards Inspector		Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transportation
	FAA Designee	<input checked="" type="checkbox"/>	Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. EBV2450D	Signature/Date of Authorized Individual _____	26 MAY 2023
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NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N450GG

26 MAY 2023

Nationality and Registration Mark

Date

- A) Installed **Mid-Continent Instruments Dual USB cockpit outlets** in accordance with Duncan Aviation Organization Designation Authorization (ODA) MRA Project No. MRA-015283, certified complete by FAA Form 8100-11 dated 26 MAY 2023.
 - 1) Reference MRA Master Document List No. CERTDOC-015912 Revision A.
 - 2) System was ground function tested satisfactorily.
 - 3) Instructions for Continued Airworthiness are identified under Duncan Aviation Document No. CERTDOC-015962, Revision A. A copy of the instructions has been provided to the customer for incorporation into the aircraft inspection/maintenance program.
- B) Removed existing Landing and Taxi light bulbs, and installed **Talon Aerospace, LLC LED Landing and taxi light assemblies** in accordance with **Aaxico Technical Services, Inc. STC No. ST04177AT**.
 - 1) Reference STC Master Data List No. MDL-728-01, revision 13.
 - 2) Instructions for Continued Airworthiness are identified under STC Document No. AA-728-LGB, Revision 2. A copy of the instructions has been provided to the customer for incorporation into the aircraft inspection/maintenance program.
- C) Alterations are recorded on Work Order No. **LVMDA**.
- D) The aircraft equipment list has been updated.
- E) The aircraft weight and balance record has been updated.

-----END-----

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45000

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Additional Sheets Are Attached



US Department of Transportation
Federal Aviation Administration

Organization Designation Authorization Statement Of Completion

GENERAL USE OF FORM: This form documents the completion of all FAA approvals required for the indicated project or repair or alteration. Signature by the organization's representative indicates that all required substantiation data has been reviewed and the design has been found to comply with all applicable regulatory requirements. For major repairs and major alterations, this form indicates that all required data to accomplish the repair or alteration are listed here and approved.

1. ODA HOLDER NAME: <p style="text-align: center;">Duncan Aviation, Inc.</p>	2. AUTHORIZATION NUMBER: <p style="text-align: center;">ODA-501013-CE</p>
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3. PROJECT DESCRIPTION: (Include model and serial number for repairs and alterations)
 MRA Project: MRA-015283, for major alteration in Gulfstream Aerospace Corp. GIV-X S/N 4082. This alteration entails the installation of 2ea Mid Continent USBs in the cockpit above the crew side ledges.

An ICA has been completed for this project. Refer to Master Document List for specific documents.

4. TYPE OF PROJECT:

<input type="checkbox"/> TC <input type="checkbox"/> STC <input type="checkbox"/> PMA <input type="checkbox"/> Major Type Design Change	<p>The type design, substantiating data, and operating limitations are complete, and comply with all applicable regulatory requirements. Authorized ODA unit members have accomplished and documented all required approvals and inspections. All actions defined by the agreed-to Program Notification Letter have been accomplished and FAA specific findings completed.</p>
<input type="checkbox"/> Major Repair	<p>The data listed here has been approved by authorized ODA unit members and found to comply with the listed airworthiness requirements. No other FAA data approvals are necessary for the repair or alteration as defined by this data.</p>
<input checked="" type="checkbox"/> Major Alteration	

5. AIRWORTHINESS REQUIREMENTS (For major repair or major alteration only):

TCDS: A12EA
 14 CFR 25.301(a)(b)(c) [Amdt. 25-23], 25.303 [Amdt. 25-0], 25.305(a)(b) [Amdt. 25-86], 25.307(a) [Amdt. 25-72], 25.561(a)(b)(3)(c)(d) [Amdt. 25-91], 25.601 [Amdt. 25-0], 25.603(a)(b)(c) [Amdt. 25-46], 25.605(a) [Amdt. 25-46], 25.609(a)(b) [Amdt. 25-0], 25.611 [Amdt. 25-23], 25.613(a)(b)(c)(f) [Amdt. 25-112], 25.619(a)(b)(c) [Amdt. 25-23], 25.625(a)(b)(c) [Amdt. 25-72], 25.789(a) [Amdt. 25-46], 25.869(a)(4) [Amdt. 25-72], 25.1301(a)(b)(c) [Amdt. 25-0], 25.1301(a) [Amdt. 25-0], 25.1307(c) [Amdt. 25-72], 25.1309(a)(g) [Amdt. 25-41], 25.1351(a)(1) [Amdt. 25-72], 25.1353(a)(b) [Amdt. 25-42], 25.1357(a)(c) [Amdt. 25-0], 25.1431(a) [Amdt. 25-0], 25.1431(c) [Amdt. 25-0] 25.1529 [Amdt. 25-54],

6. LIST OF DATA (For major repair or major alteration only):

Master Document List CERTDOC-015912 Rev A Dated May-25-2023.

7. CERTIFICATION: I certify that the above statements are true and that the organization has completed all necessary approvals.

Date MAY 26 2023	Name (ODA Administrator or ODA Unit Member) <p style="text-align: center;">Donald H. Shaffer</p>	Signature
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Cockpit USBs

MRA Project Number: MRA-015283	Make: Gulfstream Aerospace Corp.
Vendor: Mid Continent	Model: GIV-X
System: Cockpit USBs	S/N: 4082

Log of Revisions

For ODA Use Only FAA-ODA APPROVED	Rev	Description	Engineering Approved By (print name)	Date (mmm-dd-yyyy)
	MAY 26 2023	A	Initial Release	Randy Wilson
Number: QDA-501913-01 ODA admin: <i>[Signature]</i>			Engineering Approved: <i>[Signature]</i>	Digitally signed by Randy Wilson Date: 2023.05.25 12:00:59 -06'00'

MRA Proj. No. MRA-015283
 Cockpit USB Installation
 for use on
 GIV-X s/n 4082

FINAL
MAY 26, 2023
 Coordinate all changes with
 Engineering

Cockpit USBs

Substantiation Data

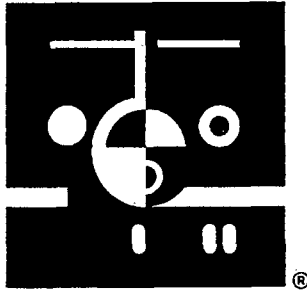
DOCUMENT	REV	TITLE
CERTDOC-015911	A	MRA Certification Plan
CERTDOC-015913	A	MRA Compliance Checklist
CERTDOC-015951	A	Equipment Qualification Report
CERTDOC-015940	A	Structural Analysis - Mid Continent Cockpit USB Installation
CERTDOC-015964	A	Electrical Load Analysis Amendment

Installation Data

DOCUMENT	REV	TITLE
DWG-011823	A	Mid Continent Instruments Cockpit USB Wiring Diagram
DWG-011821	A	Mid Continent Cockpit USB Installation
CERTDOC-015962	A	Instructions for Continued Airworthiness

Notes: N/A

**DUNCAN
AVIATION**



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Document No.: CERTDOC-015962

Revision: A

FOR

Cockpit USBs

IN


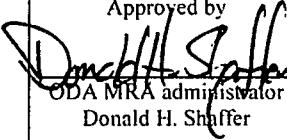
Gulfstream Aerospace Corporation, GIV-X, S/N 4082

This document must be incorporated into the aircraft inspection/maintenance program to provide Instructions for Continued Airworthiness with respect to the alterations listed herein. The information contained herein supplements or supersedes the aircraft's maintenance manuals only in those areas listed herein. For limitations and procedures not contained in this document, consult the aircraft's maintenance manuals.

This document meets the requirements of 14 CFR § 21.50 and has been prepared in accordance with 14 CFR § 25.1529, Instructions for Continued Airworthiness.



Cockpit USBs
 Log of Revisions

Rev.	Pages	Description	Prepared and Approved	Date
A	ALL	Initial Release	Matt Collins Prepared by  Approved by  ODA MRA administrator Donald H. Shaffer	May 24, 2023 <small>mmmm-dd-YYYY</small> May 26, 2023 <small>mmmm-dd-YYYY</small>

Note: When this document is revised, it will be revised in its entirety. The latest revision letter will be shown in the upper right-hand corner of each page. A vertical bar in the left-hand margin will indicate revised text.

Note: When an alphabetic revision occurs (i.e. from A to B, B to C, etc.), all revisions including in-process or temporary alpha-numeric revisions (i.e. A1, A2, B1, B2, etc.) may be deleted. Previous revision levels and revision records are maintained on file and will be made available upon request.



Cockpit USBs
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Cockpit USBs

1.0 Introduction

This document contains the necessary information for continued maintenance of the Mid Continent Instruments USB outlets installed in Gulfstream Aerospace Corporation, GIV-X, S/N 4082

Complete copies and/or the latest revision may be obtained by contacting:

Duncan Aviation, Inc.
 Engineering Document Control
 3701 Aviation Road
 Lincoln, NE 68524
 402-475-2611

Duncan Aviation, Inc.
 Engineering Document Control
 15745 South Airport Road
 Battle Creek, MI 49015
 269-969-8400

Reference the tables below for parts lists, Duncan Aviation documents, and/or manufacturer documents to support this installation. For detailed parts lists, reference the wiring diagram.

Duncan Aviation Documents

Document Number	Document Title
DWG-011823	Mid Continent Instruments Cockpit USB Wiring Diagram

Parts List

Description	Part Number	Manufacturer
TA-360 Dual USB Type A/Type C, Non-Lighted	6430360-1	Mid Continent Instruments

Manufacturer Documents

Manufacturer	Component/Equipment	Manual/Instructions
Mid Continent Instrument 9400 E. 34th St. N. Wichita, KS 67226 USA Phone: +1.316.630.0101 Fax: +1.316.630.0723 www.truebluepowerusa.com	TA-360 Dual USB	True Blue Power TA-360 series Installation Manual and Operating Instructions. Manual Number 9019411 Rev E. April 6, 2023

Cockpit USBs

2.0 Description

This alteration installs two dual USB outlets in the cockpit to allow charging for PED equipment.

The function and use of components installed during this alteration are typical and usual to aircraft installations.

Interface of these alterations with the aircraft and its systems is ordinary with respect to the alterations performed.

3.0 Operation

There are no specific operating instructions for the components referenced in this ICA as they are generally intuitive to use.

4.0 Servicing

There are no servicing requirements.

5.0 Maintenance

The components installed as part of this alteration are to be maintained in an 'on-condition' basis. Whenever a component is removed, perform a visual inspection for corrosion, wear and tear, attachment condition, loose items, and that the connecting cables and/or associated wiring is not frayed, cut or pinched for that particular component and immediate surrounding area.

In the event a system component failure occurs or a component does not perform its intended function, it should be removed and sent to a qualified maintenance facility for troubleshooting and repair.

The following visual inspections should be performed as a periodic maintenance inspection check at an interval not to exceed 48 calendar months.

NOTE: This inspection interval may be incorporated into other inspections provided that the referenced interval is not exceeded.

- Check that all components installed as part of this alteration are properly secured in their respective locations.
- Check that connecting cables and/or associated wiring is not frayed, cut or pinched.

6.0 Troubleshooting

In the event that failure or malfunction of the components installed for this alteration occurs refer to the wiring diagram and/or manufacturers manuals listed in Section 1.0 for troubleshooting. Should further troubleshooting assistance be required contact Duncan Aviation or the component manufacturer listed in Section 1.0.

7.0 Removal and Replacement

NOTE: The installer must determine proper fastener length to ensure a minimum of 2 thread protrusion beyond the locking feature of the retainer. The maximum thread protrusion shall be 3/8".

Cockpit USBs

NOTE: Torque values if not specified below, may be obtained from chapter 20 of the aircraft maintenance manual.

NOTE: Remove all aircraft power before removing or disconnecting any electrical/electronic component from the aircraft. Exercise extreme caution to avoid damage to the electrical connector(s), configuration module(s) and wiring harness(es).

NOTE: Removing components outside the scope of this ICA may require consulting other documents. Removal of components from the aircraft may require removal of other components.

7.1 TA-360 USB Outlets

This alteration installs two TA-360 USB outlets located in the cockpit sidewalls. The cockpit sidewall will need to be removed in order to gain access to the USB outlet. Removal and installation is typical for each USB Outlet.

Removal

1. Disconnect electrical connector and apply protective covering.
2. Remove the two (2) manufacturer supplied countersunk screws securing the bezel and USB Outlet to the sidewall.
3. Remove bezel and USB outlet from sidewall.

Install

1. Install USB outlet and bezel to the sidewall utilizing two (2) manufacturer supplied screws.
2. Remove protective covering and install electrical connector.
3. Function check USB outlets by connecting USB device and verify charging indication.

8.0 Diagrams

No access diagrams are required.

9.0 Special Inspection Requirements

There are no additional special inspection requirements.

10.0 Protective Treatments

No protective treatments are required.

11.0 Fastener Data

Any fastener that is worn or damaged should be replaced. All fasteners are identified in Section 7.0 of this ICA.

12.0 Special Tools

No special tools are required.



Cockpit USBs

13.0 Commuter Category

This is not a commuter category aircraft.

14.0 Recommended Overhaul Periods

No additional overhaul time limitations.

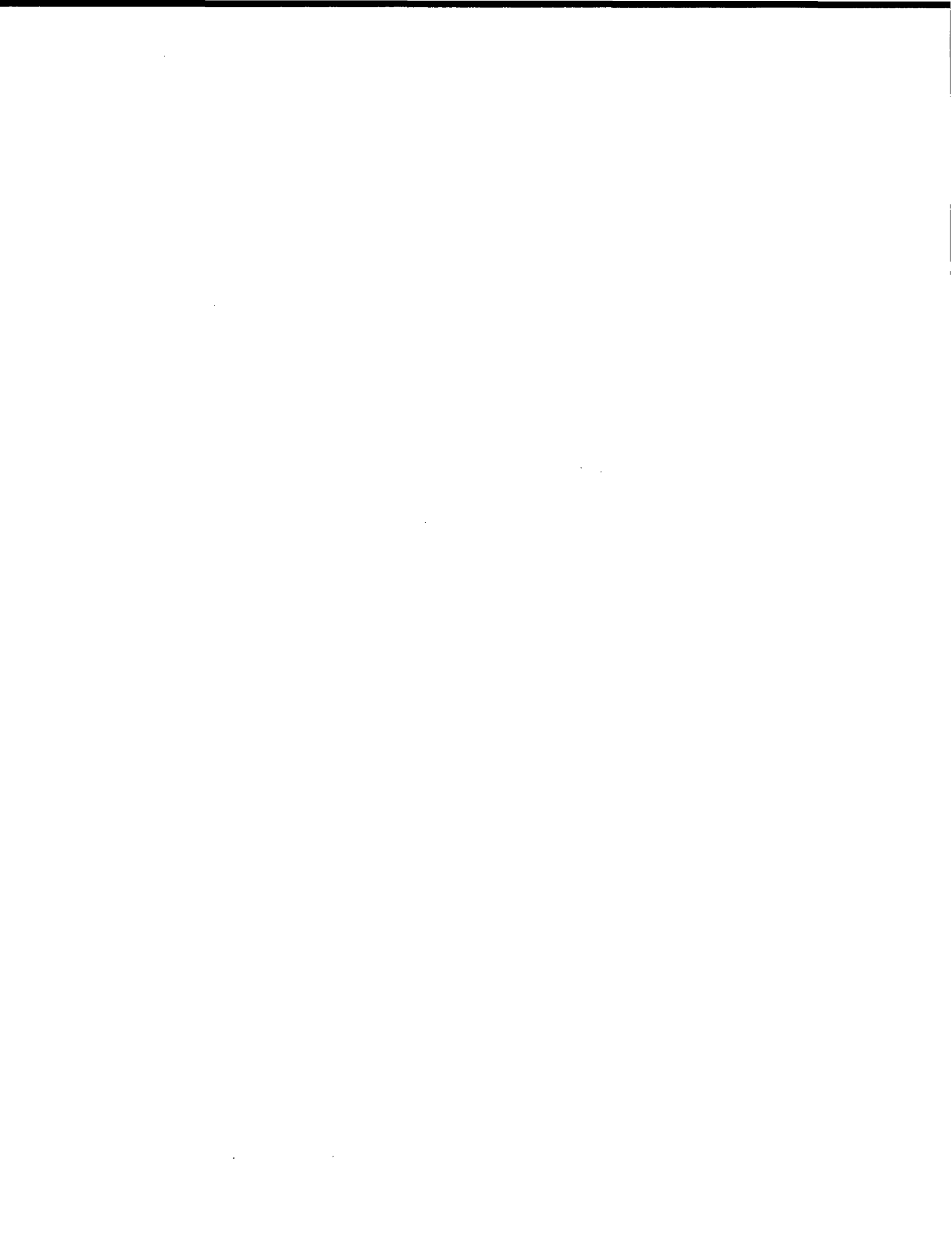
15.0 Airworthiness Limitations

The Airworthiness Limitations section is FAA approved and specifies maintenance required under 14 CFR §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

There are no new (or additional) Airworthiness Limitations associated with this equipment and/or installation.

16.0 Revisions

If a revision occurs, a (paper or electronic) copy of the revised ICA will be submitted to the appropriate ODA administrator (or Lead administrator) for acceptance. When the revision is determined to be applicable to previously altered aircraft, a copy of the revised ICA (paper or electronically) will be provided to the current owner/operator.



Letter of Authorization

This Letter of Authorization (“LOA”) has been granted as of April 1st, 2022 to Duncan Aviation, having its principal place of business at 3701 Aviation Road, Lincoln, NE 68524 (herein referred to as “Customer”) by Proponent Technical Services Inc, having its principal place of business at 10601 State Street, Suite 1 Tamarac, FL 33321 (herein after referred to as “PTS”) either or both of which may be referred to herein as a “Party” or the “Parties”, respectively.

Whereas, PTS is the holder of Supplemental Type Certificate (STC) ST04177AT.

Whereas, Customer desires to install and maintain Talon Aerospace LED sealed beam light replacement lamps covered under the STC on its own or its customer aircraft.

Grant of Authorization & License to Use STC ST04177AT

In accordance with Title 14, Code of Federal Regulations (CFR) §21.120, PTS authorizes Customer to use STC ST04177AT and its associated data package to alter its own or customer aircraft as follows:

- Customer is authorized to install and maintain LED sealed beam replacement lamps including TAE0728-1, TAE0628-1, TAE0628-2, TAE0528-1, TAE528-1X, TAE0528-2 and TAE0528-3 as long as they are obtained from PTS’s authorized distributor, Proponent, at standard list prices or special program pricing.
- Customer may install and maintain the lamps in accordance with this authorization at any of the Customer locations or at their assigned MROs.
- Authorization to use the STC is subject to the installation on aircraft listed on the latest revision of the Approved Model List included in the STC.
- PTS grants Customer a royalty free, worldwide, irrevocable license to use STC ST04177AT as long as used in accordance with this authorization.

In Witness Thereof, PTS has executed this Agreement through their duly authorized representative.

Proponent Technical Services Inc

By: *Frank Beyersbergen*

Frank Beyersbergen, Vice President Technical Services

M: 404 512 0720

Email: Fbeyersbergen@proponent.com



United States of America
 Department of Transportation
 Federal Aviation Administration
Supplemental Type Certificate

Number: ST04177AT

This certificate issued to: Aaxico Technical Services, Inc.
 10601 State Street, Suite 1
 Tamarac, FL 33321

Certifies that the change in the type design for the following product with the limitations and conditions therefore as specified hereon meets the airworthiness requirements of Part 25 of the Federal Aviation Regulations.

Original Product See FAA Approved Model List (AML) *Make:* See FAA Approved Model List (AML)
Type Certificate Number:

Model: Talon Aerospace AML-728-01 for list of approved airplane models

Description of Type Design Change:

Installation of Talon Aerospace LED Replacement General Purpose Lamps in accordance with the latest FAA approved revision of Talon Aerospace Master Data List MDL-728-01.

Limitations and Conditions:

(See Continuation Sheet 3 of 3)

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of Application: October 18, 2013 *Date Reissued:* April 23, 2021

Date of Issuance: September 24, 2014 *Date Amended:*

By Direction of the Administrator

Signature:

Digitally signed by DARBY J MIROCHA
 Date: 2021.04.27 08:52:18 -04'00'

(for)Christina Underwood, Manager

Title: Atlanta Aircraft Certification Office

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).



United States of America
Department of Transportation
Federal Aviation Administration
Supplemental Type Certificate

Number: ST04177AT

INSTRUCTIONS: The transfer endorsement below may be used to notify the appropriate FAA Aircraft Certification Office of the transfer of this Supplemental Type Certificate. The FAA will reissue the certificate in the name of the transferee and forward it to him.

Transfer Endorsement

Transfer the ownership of Supplemental Type Certificate Number: _____

To (Name and address of transferee):

From (Name and address of grantor):

Extent of Authority (if licensing agreement):

Date of transfer:

Signature of grantor: _____

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).



United States of America
Department of Transportation
Federal Aviation Administration
Supplemental Type Certificate

(Continuation Sheet)

Number: ST04177AT

Limitations and Conditions - cont.:


This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated, unless it is determined by the installer that the interrelationship between this change and any other previously approved modifications will produce no adverse effect upon the airworthiness of the airplane. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of the permission. Instructions for Continued Airworthiness (ICA) data must be made available to the operator at the time of the installation.

Any alteration of this certificate and/or the Type Certificate Data Sheet is punishable by a fine not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with Title 14 of the Code of Federal Regulations, part 21, section 21.47 (14 CFR 21.47). A transfer must be endorsed as provided on the reverse hereof. A Type Certificate holder who allows a person to use the Type Certificate to manufacture a new aircraft, aircraft engine, or propeller must provide that person with a written licensing agreement acceptable to the FAA. (Ref. 14 CFR 21.55).



**MASTER DATA LIST,
Installation of Talon Aerospace LED
Replacement General Purpose Lights on
Various 14 CFR Part 25 Aircraft**

FAA STC ST04177AT

FAA APPROVED:  Digitally signed by
DARBY J MIROCHA
Date: 2021.02.18
15:38:35 -05'00'

(for) Manager, Atlanta ACO Branch
Federal Aviation Administration
Atlanta, Georgia

DATE: February 18, 2021



Master Data List

STC Number
ST04177AT

Talon Aerospace LED Replacement General Purpose Lighting

Prepared By: *[Signature]* Date: 11/6/2020

Checked by: *William B. Cotney* Date: 11/6/2020

Approved by: *[Signature]* Date: 11/6/2020

This document and the information herein are proprietary data to Talon Aerospace. Neither this document nor the information contained herein shall be used, reproduced or disclosed to others without the written authorization of Talon Aerospace.

RECORD OF REVISIONS

Rev	Date	Pages Affected	Description of Revision	Approved By
1-9	Various		See Rev 12	
10-12	Various		See Rev 13	
13	6/11/2019	2 4 5 6 7 8 10 11 12 13 14	Removed Revision History for Revisions 1-9 Updated Table of Contents Revised: AA-128-01, AA-728-01, A2-428-01, inserted: AA-728-LGB, AA-728-MKC, AA-728-SEA Revised: A3-428-01, B3-428-01, B5-004, B5-428-01, B7-428-01, inserted: AMOC-AARDG 2019 A18, AMOC – AD 2014-15-17, B7-004, D9-428-01 Revised: 33-42-02, 33-47-07, 33-49-01, Inserted: EMI-428-G4, FMS-528-01, FMS528-01-TC, G4-001, G4-002, G5-001 Revised: 128-003-1, 128-021-1, 428-005-1, Inserted: DP044, DP045, DP046, DP047, DP051, DP052, DP053, DP054, 128-006-1, 428-001-2, 428-002-2, 428-003-3, 428-007-2, 428-008-2, 428-008-3, 428-008-4 Inserted: 428-070-2, 428-070-3, 428-071-1, 428-071-2, 428-071-3, 428-072-1, 428-073-1, 428-073-2, 428-074-1, 428-074-2, 428-075-1, 428-075-2, 428-075-3, 428-076-1, 428-078-1, 428-079-1, 428-080-1, 428-081-1 Revised: 428-015-3, Inserted: 428-015-8, 428-076-2 Revised: 428-006-1, K428-B5-LGL-001, K428-B5-LGL-002, K428-B5-LGL-003, K428-B5-LGL-004, Inserted: K428-G4-GWS-001, K428-G4-GWS-002, K428-G5-LGL-001, TAE0428, TAE428-3, TAE428-6, TAE0428-7, TAE0628-1-IR, TAE0628-1-IR-B Revised: AML-728-01, ELA-728-01, EMI-428-01, 428-021-2, Inserted TAE0628-3 Corrected: SIM-428-02 Inserted: WBR-428-01, SIM-428-03	Prepared by: Guy Mathews Checked by: Tyler Henderson Approved by: Patrick McLaughlin

14	4/14/2020	<p>6</p> <p>7</p> <p>8</p> <p>11</p> <p>13</p> <p>12</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>21</p> <p>22</p>	<p>Updated: G4-002; Added: G4-004, G5-002, G5-003, G5-004, G5-006, G5-007</p> <p>Updated: INS-728-01; Added G5-008, G5-009, G5-010</p> <p>Updated: 428-002-2; Added 128-100-2, 128-101-1, 128-103-2, 128-103-3, 128-103-4, 128-104-1, 128-105-1, 128-110-1, 128-111-1, 128-120-1, 128-121-1, 128-122-1, 128-131-1, 128-132-1, 128-134-2, 128-134-3, 128-134-4, 128-134-5, 228-100-2, 228-101-2, 228-102-1, 228-122-1, 228-124-1, 228-125-1, 228-130-1, 228-131-1, 228-132-1</p> <p>Updated: 428-075-1 428-072-1 nomenclature; Added: 428-100-1, 428-101-1, 428-102-1, 428-102-2, 428-102-3</p> <p>Updated: DP041 nomenclature Updated: 628-007-4B</p> <p>Added: DP064, DP065, DP066, DP070, DP071, DP072, DP073</p> <p>Updated: 428-015-8; Added 028-103-1, 128-101-1, 128-102-1, 128-102-1, 128-133-1, 228-121-1</p> <p>Added: BOM128-102-1</p> <p>Updated: 628-003-1B, 628-003-2, 728-003-1; Added: 128-103-1, 128-134-1, 128-120-1, 228-123-1</p> <p>Updated: K428-G-LGL-001, TAE0428; Added K428-G4-TAX-001, TAE0128-1, TAE0128-3, TAE0128-4, TAE0228-1, TAE0228-2, TAE0228-3, TAE0428-9</p> <p>Updated: AML-728-01; Added: CPS-CRJ-001, C(S-CRJ-002, CPS-CRJ-003, CRT-128-01, CRT-128-02, CRT-228-01, CRT-428-02, CRT-428-03</p> <p>Added: PR088961-01, PR088961-01TR</p> <p>Added: ECN19018, ECN19023, ECN19024, ECN20013, ECN20014, ECN20019, ECN20020, ECN20034, ECN20044, ECN20045, ECN2046</p>	<p>Prepared by: Guy Mathews</p> <p>Checked by: Tyler Henderson</p> <p>Approved by: Patrick McLaughlin</p>
15	See Front Page	<p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>12</p> <p>13</p> <p>15</p> <p>16</p> <p>17</p> <p>19</p>	<p>Updated: B3-006, B3-428-01</p> <p>Updated: ELA-728-01, G4-004; Added: EMI-G4-01, EMI-G5-01, FLA-428-03, FTP-228-02</p> <p>Updated: G5-001, G5-003, G5-005; Added: G4-428-02, G5-128-01, G5-228-01, G5-428-01, QTR-128-01, WBR-GULF-01</p> <p>Updated: 128-100-2, 228-100-2, 228-101-2, 228-101-2, 228-102-1, 123-1</p> <p>Updated: 428-002-2</p> <p>Updated: 428-064-1, 428-100-1, 428-101-1, 428-102-1, 428-102-3</p> <p>Updated: 528-005-2, 628-007-4B; Added: 428-104-1, 428-105-1, 528-007-3</p> <p>Added: DP076</p> <p>Added: 528-017-2, 528-018-1</p> <p>Added: BOM028-103-1, BOM028-104-1</p> <p>Updated: TAE0228-1, TAE0228-2, TAE0428-9</p>	<p>Prepared by: Guy Mathews</p> <p>Checked by: William B. Cotney, Jr</p> <p>Approved by: Guy Mathews</p>

		20	Updated: CRT-128-01, CRT-128-02, CRT-228-01; Added: FTP-228-02, GIV-EMI-01, GV-EMI-01, ICE-428-01, QTP-128-01, SIM-428-04	
		21	Added: SIM-428-04, STR-128-01	
		22	Added: TR-TAE0128-3-01, TAE0428-9-01, TAE0128-1-01, TAE0228-1-01, TR-TAE0428-8-01	
		23	Added: ECN20052, ECN20053, ECN20054, ECN20055, ECN20056, ECN20070, ECN20071, ECN20072, ECN20073, ECN20074, ECN20075,	
		24	Added: ECN20076, ECN20077, ECN20080, ECN20083, ECN20084, ECN20085, ECN20086, ECN20087, ECN20088, ECN20089, ECN20090, ECN20091, ECN20093, ECN20094	

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1 Documents

Document Number	Title	Revision	Date
A2-004	Installation Instructions Logo Light Assembly K428-A2-LGL-001 for Airbus A318 through A321 Series	0	12/15/2017
A2-428-01	Aircraft Maintenance Manual Supplement for Logo Light Assembly K428-A2-LGL-001 for Airbus A318 through A321 Series	0	5/21/2019
A3-004	Installation Instructions Logo Light Assembly K428-A3-LGL-001 /-002 for Airbus A330 and A340	3	5/24/2017
A3-428-01	Aircraft Maintenance Manual Supplement for Logo Light Assembly K428-A3-LGL-001 / -002 for Airbus A330 and A340 Series	7	8/14/2018
AA-128-01	Maintenance Manual Supplement LED Light Conversion Assembly for Grimes Cargo Light 15-0306-5	0	1/4/2018
AA-728-01	Aircraft Maintenance Manual Supplement, Landing, Taxi, Turn, Scan and Logo Lights-All Part 25 Aircraft – Cancelled, See AA-728-LGB, AA-728-MKC, and AA-728-SEA	6	1/12/2018
AA-728-LGB	Aircraft Maintenance Manual Supplement, Landing, Taxi, Turn, Scan and Logo Lights-All Part 25 Aircraft Long-Beach Directorate	1	12/19/2018
AA-728-MKC	Aircraft Maintenance Manual Supplement, Landing, Taxi, Turn, Scan and Logo Lights-All Part 25 Aircraft Kansas Directorate	0	2/13/2019
AA-728-SEA	Aircraft Maintenance Manual Supplement, Landing, Taxi, Turn, Scan and Logo Lights-All Part 25 Aircraft Seattle Directorate	0	12/19/2018
AMOC – AARDG 2019 A18	Alternate Means of Compliance to AD CF-2014-17 applicable to Bombardier CL-600-2B16 and CL604 Variant	0	4/24/2019
AMOC – AD 2014-15-17	Alternate Means of Compliance to AD 2014-15-17 applicable to Bombardier CL-600-2B16 and CL604 Variant	0	12/13/2017
B3-004	Installation Instructions Logo Light PN TAE0428-2, TAE0428-2W and Bracket Assembly PN K428-B3-LGL-001 and -002 for Boeing 737-600/-700/-800/-900.	7	5/12/2017
B3-006	Installation Instructions Navigation Light TAE0028-3 (LH) & TAE0028-4 (RH) for Aircraft installed with PN's 31-9289-1, 31-9289-2, 31-9289-3 or 31-9289-4	1	3/19/2020
B3-428-01	Aircraft Maintenance Manual Supplement, Logo light for Boeing 737-600/700/800/900.	10	4/7/2020
B5-004	Installation Instructions Logo Light PN TAE0428-1, TAE0428-1W and Bracket Assembly PN K428-B3-LGL-001/-002/-003/-004 for Boeing 757-Series	3	5/12/2017
B5-428-01	Aircraft Maintenance Manual Supplement for Talon Aerospace Logo Light TAE0428-1, TAE0428-1W, and K428-B5-LGL-001 / -002 / -003 / -004 for Boeing 757 Series	5	5/12/2017
B7-004	Installation Instructions Logo Light PN TAE0428-1, TAE0428-1W and Bracket Assembly PN K428-B7-LGL-001/-002/-003/-004 for Boeing 777-Series	3	4/30/2019
B7-428-01	Aircraft Maintenance Manual Supplement for Talon Aerospace Logo Light TAE0428-1, TAE0428-1W, and K428-B7-LGL-001 / -002 / -003 / -004 for Boeing 777 Series	5	2/22/2017
CMM 33-42-02	Component Maintenance Manual & IPL for Talon Aerospace LED Landing, Taxi, Turn, Scan and Logo Lights. Part Numbers TAE0728-1, TAE0628-1 / TAE0628-2, TAE0528-1/-1W/-2/-2W	5	12/12/2017

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CMM 33-47-07	Component Maintenance Manual & IPL for Talon Aerospace LED Logo Light Assembly. Part Numbers K428-A3-LGL-001, K428-A3-LGL-001W.	2	1/10/2017
CMM 33-49-01	Component Maintenance Manual w/ IPL for Talon Aerospace LED Logo and Wing-Engine Scan Lamps Part Numbers TAE0428-1 / TAE0428-2 / TAE0428-3 / TAE0428-4 / TAE0428-5	6	4/29/2019
D9-003	Installation Instructions Landing and Taxi Lights TAE0728-1 and TAE0728-1D for Boeing DC-9, MD-80, MD-90 and 717-200.	0	5/15/2017
D9-004	Installation Instructions Boeing Logo Light PN TAE0528-1, TAE0528-1W and Bracket Assembly PN K528-D9-LGL-001 for Boeing DC-9, MD-80, MD-90 and 717-200.	2	4/12/2016
D9-428-01	Aircraft Maintenance Manual Supplement, Logo light for Boeing DC-9, MD-80, MD-90 and 717-200.	3	1/10/2017
D9-728-01	Aircraft Maintenance Manual Supplement, Landing Light for Boeing DC-9, MD-80, MD-90 and 717-200.	0	5/23/2019
ELA-728-01	Electrical Load Statement Talon Aerospace LED Replacement General Purpose Lighting	7	8/3/2020
EMI-428-A3	Ground / EMI Test Report for Talon Aerospace Logo / Scan Light. Numbers TAE0428-1, TAE0428-1W, TAE0428-2 and TAE0428-2W for Airbus A330-243.	0	3/30/2016
EMI-428-B3	Ground / EMI Test Report for Talon Aerospace Logo / Scan Light Part Numbers TAE0428-1, TAE0428-1W, TAE0428-2 for Various Part 25 Airplanes.	0	8/25/2015
EMI-428-B5	Ground / EMI Test Report for Talon Aerospace Logo / Scan Light Part Numbers TAE0428-1, TAE0428-1W, TAE0428-2 and TAE0428-2W for Boeing 757-287.	0	1/6/2016
EMI-428-B7	Ground / EMI Test Report for Talon Aerospace Logo / Scan Light Part Numbers TAE0428-1, TAE0428-1W, TAE0428-2 and TAE0428-2W for Boeing 777-300ER.	0	3/30/2016
EMI-428-G4	Ground / EMI Test Report for Talon Aerospace Logo / Scan Light Part Numbers TAE0428-1, TAE0428-1W, TAE0428-2 and TAE0428-2W, TAE0428-3, TAE0428-4, TAE0428-5, TAE0428-6, TAE0428-7 for Gulfstream GIV.	0	5/9/2019
EMI-G4-01	Certification EMI Ground Test Report for Talon Aerospace Nose to Tail Lighting Package	0	8/20/2020
EMI-G5-01	Certification EMI Ground Test Report for Talon Aerospace Nose to Tail Lighting Package	0	9/20/2020
FLA-428-03	Flammability Statement Talon Aerospace Service and Taxi Lights STC Number ST04177AT	0	9/23/2020
FMS-528-01	AFM Supplement – Bombardier CL-600-2B16 & CL-604 Variant	0	11/29/2017
FMS-528-01-TC	AFM Supplement (Transport Canada) – Bombardier CL-600-2B16 & CL-604 Variant	1	4/15/2019
FTP-228-02	Flammability Test Plan/Report for LED Replacement Airstair Lighting	2	10/30/2020
G4-001	Installation Instructions: Winglet Flood Light PN's TAE0428-4 & TAE0428-5 for Gulfstream GIV	2	2/15/2019
G4-002	Installation Instructions: Wing scan Light PN's TAE0428-6 & TAE0428-7 for Gulfstream GIV & GIV	1	4/6/2020
G4-004	Installation Instruction - Wingtip Taxi	1	10/13/2020

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G4-428-01	Aircraft Maintenance Manual Supplement for Wingtip Flood, Logo, and Wing scan Light Assembly For Gulfstream GIV, GIV-SP, GIV-X, GV, GV-SP	2	4/29/2019
G4-428-02	Maintenance Manual Supplement for Talon Aerospace Wingtip Taxi (GIV) and Wingtip Taxi (GV) Light Assembly TAE0428-9 / K428-G4-TAX-01	0	5/7/2020
G5-001	Installation Instructions, Gulfstream Logo Light, PN TAE0428-3 with Bracket K428-G5-LGL-001 for Gulfstream GIV	3	10/13/2020
G5-002	Installation Instructions - Overwing Emergency	0	4/2/2020
G5-003	Installation Instructions - Flood/Pylon	1	10/13/2020
G5-004	Installation Instruction - Airstair	0	3/30/2020
G5-005	Installation Instructions - Wingtip Taxi Light GV	1	10/13/2020
G5-006	Installation Instruction - Wheel Well	0	3/23/2020
G5-007	Installation Instruction - Underwing Emergency	0	3/23/2020
G5-008	Installation Instruction - GV Wingtip Downwash	0	3/30/2020
G5-009	Installation Instruction - Airstair Lower	0	3/30/2020
G5-010	Installation Instruction - Airstair FWD Flood	0	4/2/2020
G5-128-01	Maintenance Manual Supplement for Talon Aerospace Overwing Emergency and Underwing Emergency Light Assembly TAE0128-1 / TAE0128-5	0	5/6/2020
G5-128-02	Maintenance Manual Supplement for Talon Aerospace Ramp Flood and Wheel Well Light Assemblies TAE0128-3 / TAE0128-4	0	5/1/2020
G5-228-01	Maintenance Manual Supplement for Talon Aerospace Airstair Riser, Flood and Emergency Light Assembly TAE228-1 / TAE0228-2 / TAE0228-3	0	4/30/2020
G5-428-01	Maintenance Manual Supplement for Talon Aerospace Wingtip Downwash Light Assembly TAE0428-8	0	7/22/2020
INS-128-01	Installation Instructions LED Light Conversion Assembly TAE0128-2 for Grimes Cargo Light Assembly 15-0306-5.	0	1/4/2018
INS-728-01	Installation Instructions LED Replacement General Purpose Lamps TAE0728-1 / TAE0728-1D / TAE0628-1 TAE0628-1V / TAE0628-2 / TAE0528-1 / TAE0528-1W / TAE0528-2 / TAE0528-2W / TAE0528-3 / TAE0528-3W	4	10/24/2019
QTR-128-01	Qualification Test Report Talon Aerospace Overwing and Underwing Emergency Lights TAE0128-1 & TAE0128-5	0	9/11/2020
WBR-428-01	Weight and Balance Report, Gulfstream GIV & GV	0	6/11/2019
WBR-GULF-01	Weight and Balance Report for Talon Aerospace Gulfstream GIV & GV Lighting Package Components	0	10/14/2020

2 Detail Drawings

2.1 Structural

Document Number	Title	Revision	Date
128-003-1	777 Harness Grip	1	7/3/2018
128-006-1	777 Cargo Thermal	0	12/22/2017
128-021-1	Cargo Light Base Plate	2	7/3/2018
128-100-2	Assy - Housing Underwing	1	8/20/2020
128-101-1	Gasket, Heat Thermal	0	3/31/2020
128-103-2	Lens - Underwing Emergency	0	3/31/2020
128-103-3	Bezel - Lens, Underwing Emergency	0	3/31/2020
128-103-4	Gasket - Underwing Emergency	0	3/31/2020
128-104-1	Cap	0	3/31/2020
128-105-1	Heatsink	0	3/31/2020
128-110-1	Housing - Wheel Well Light	0	11/22/2019
128-111-1	Lens - Wheel Well Light	0	11/22/2019
128-120-1	Housing - Pylon Light	0	11/22/2019
128-121-1	Lens Bezel - Pylon Light	0	11/22/2019
128-122-1	Lens - Pylon Light	0	11/22/2019
128-131-1	Plate - LED	0	11/20/2019
128-132-1	Plate - Side, Overwing Emergency Light	0	11/22/2019
128-134-2	BEZEL - OVERWING EMERGENCY LENS	0	3/31/2020
128-134-3	LENS - OVERWING EMERGENCY	0	3/31/2020
128-134-4	GASKET - OVERWING EMERGENCY LENS	0	3/31/2020
128-134-5	WASHER - OD 0.58, ID 0.143 X 0.040	0	3/31/2020
228-100-2	Assy - Housing Gulfstream Airstair Light	1	8/20/2020
228-101-2	Gasket - Thermal	1	8/20/2020
228-102-1	Assy - Lens Cover, Gulfstream Airstair	1	8/20/2020
228-120-1A	ASSY - AT2LAS HOUSING AIRSTAIR, BOTTOM	0	8/4/2020
228-122-1	Back cap	0	3/30/2020
228-123-1	Assy - Lens Airstair Flood	3	10/20/2020
228-124-1	Gasket - Lens Bezel	1	8/3/2020
228-125-1	LOGO HOLDER		3/31/2020
228-130-1	Housing - Airstair FWD	0	11/22/2019
228-131-1	Bezel - Airstair FWD Light	0	11/22/2019
228-132-1	Lens - Airstair FWD, Light	0	11/22/2019
428-001-1	Lens	2	4/27/2016
428-001-2	Lens	1	5/17/2019

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428-002-1	Bezel	3	3/6/2019
428-002-2	Plate	3	10/10/2020
428-005-1	Heat Sink	5	5/24/2019
428-005-2	Heat Sink	1	5/17/2019
428-007-1	Cap	1	11/17/2015
428-007-2	Back cap Cover	0	5/17/2019
428-008-1	Gasket	0	5/20/2015
428-008-2	Gasket	1	5/17/2019
428-008-3	Gasket	0	5/24/2019
428-008-4	Gasket – Cover	0	5/24/2019
428-009-1	Heat Thermal	0	5/20/2015
428-010-1	Transformer Box	0	5/13/2015
428-010-2	Transformer Box, 757	0	9/8/2015
428-010-3	Transformer Box, 777	0	9/24/2015
428-010-4	A320 Transformer Box	0	12/6/2017
428-011-1	737 Logo Bracket LH	1	8/19/2015
428-011-2	737 Logo Bracket RH	0	8/19/2015
428-012-1	Optics, Top	1	7/8/2016
428-013-1	Optics Board	2	7/8/2016
428-014-1	Bracket Base, LH	2	12/15/2017
428-014-2	Bracket Base, RH	1	12/15/2017
428-017-1	Bent Bracket	1	8/20/2015
428-018-1	Bent Box	0	5/13/2015
428-018-2	Bent Box, 757	1	1/22/2016
428-018-3	Bent Box, 777	0	9/24/2015
428-018-4	A320 Bent Box	0	12/6/2017
428-019-1	Box, End, Hole	0	5/12/2015
428-019-2	Box, End, Hole, 757	1	5/4/2016
428-019-3	A320 Box Conn, End	0	12/6/2017
428-020-1	Box, End	0	5/12/2015
428-022-1	Isolation Gasket	0	6/4/2015
428-023-1	757 Can Ring A	1	5/16/2017
428-023-2	757 Can Ring B	1	5/16/2017
428-023-3	777 Can Ring R-FWD	1	8/22/2018
428-023-4	777 Can Ring R-Aft	1	8/22/2018
428-023-5	777 Can Ring L-Aft	1	8/22/2018
428-023-6	777 Can Ring L-FWD	1	8/22/2018

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428-023-7	757 Can Ring C	1	5/16/2017
428-023-8	757 Can Ring D	1	5/16/2017
428-023-9	A320 Can Ring	0	12/6/2017
428-024-1	757 Bent Light Bracket	1	1/22/2016
428-024-2	757 Bent Light Bracket	0	5/16/2017
428-024-3	A320 Bent Light Bracket	0	12/6/2017
428-024-4	777 Bent Light Bracket	0	8/22/2018
428-025-1	757 Bent XFMR Bracket	1	1/22/2016
428-025-2	757 Bent XFMR Bracket	1	5/16/2017
428-025-3	A320 Bent XFMR Bracket	0	12/11/2017
428-025-4	777 BENT XFMR BRACKET	0	8/22/2018
428-026-1	757 Logo Bracket A	3	5/16/2017
428-026-2	757 Logo Bracket B	3	5/16/2017
428-026-3	777 Logo Bracket R-AFT	2	8/22/2018
428-026-4	777 Logo Bracket R-FWD	1	8/22/2018
428-026-5	777 Logo Bracket L-AFT	1	8/22/2018
428-026-6	777 Logo Bracket L-FWD	1	8/22/2018
428-026-7	757 Logo Bracket C	1	5/16/2017
428-026-8	757 Logo Bracket D	1	5/16/2017
428-026-9	A320 Logo Bracket	0	12/6/2017
428-031-1	Lens	2	3/14/2017
428-032-1	Bezel	2	11/17/2017
428-033-1	Gasket	0	4/22/2016
428-034-1	Rear Box	3	12/22/2017
428-035-1	Housing, Dual	0	4/22/2016
428-036-1	A330 Logo Ring	1	1/25/2017
428-037-1	A330 Logo Bracket	1	12/22/2017
428-039-1	Spacer	0	6/22/2016
428-040-1	A320 Lens Assembly	0	12/11/2017
428-041-1	A320 Outer Lens	0	12/11/2017
428-042-1	A320 Outer Lens Bezel	0	12/11/2017
428-043-1	A320 Outer Lens Ring	0	12/11/2017
428-050-1	Lens Assembly	1	7/25/2018
428-051-1	Lens	1	11/29/2017
428-052-1	Lens Bezel	0	5/18/2017
428-053-1	Outer Shell	1	11/17/2017
428-054-1	Lens Gasket	0	5/18/2017

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428-055-1	Lens Lanyard	1	1/3/2018
428-060-1	757 Lens Kit A L-IB	0	5/17/2017
428-060-2	757 Lens Kit B R-IB	0	5/17/2017
428-060-3	757 Lens Kit C L-OB	0	5/17/2017
428-060-4	757 Lens Kit D R-OB	0	5/17/2017
428-061-1	Lens, 757	1	11/29/2017
428-062-1	757 Lens Ring A (L-IB)	0	5/16/2017
428-062-2	757 Lens Ring B (R-IB)	0	5/16/2017
428-062-3	757 Lens Ring C (L-OB)	0	5/16/2017
428-062-4	757 Lens Ring D (R-OB)	0	5/16/2017
428-063-1	757 Lens Bezel	0	5/17/2017
428-064-1	Lens Gasket	1	6/4/2020
428-065-1	Lens Lanyard	1	1/3/2018
428-070-2	GWS Bent Plate, Right	1	6/4/2019
428-070-3	GWS Bent Plate, Left	1	6/4/2019
428-071-1	Gulfstream Lens	0	10/30/2018
428-071-2	GWS Angle Plate, Right	0	2/18/2019
428-071-3	GWS Angle Plate, Left	0	2/21/2019
428-072-1	Gulfstream Lens	0	10/30/2018
428-073-1	Gulfstream Gasket	0	10/30/2018
428-073-2	Optics Retainer	0	2/18/2019
428-074-2	Gasket, Optics Retainer	1	6/19/2019
428-075-1	Gulfstream Logo Base	1	7/26/2019
428-075-2	GWS Base Plate, Right	0	2/21/2019
428-075-3	GWS Base Plate, Left	0	2/21/2019
428-076-1	Gulfstream Light Bracket	0	10/30/2018
428-078-1	Gulfstream Logo Bracket	1	7/26/2019
428-079-1	Gulfstream Logo Housing	0	10/30/2018
428-080-1	Gulfstream Bezel	0	10/30/2018
428-081-1	Gulfstream Back Plate	0	10/30/2018
428-082-1	GULFSTREAM LOGO GASKET	0	10/30/2018
428-090-1	777 OUTER LENS A	0	5/31/2019
428-100-1	Bezel - Taxi Light	1	10/14/2020
428-101-1	Assy - Housing - Taxi Light	1	10/14/2020
428-102-1	Bracket - GIV Wingtip Taxi	1	10/14/2020
428-102-2	Bracket B - GIV Wingtip Taxi	0	4/2/2020
428-102-3	Bracket - GIV Strobe Light	1	10/14/2020

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Document Number	Title	Revision	Date
428-104-1	SHIM - TAXI LIGHT	0	10/14/2020
428-105-1	WASHER - TAPERED	0	10/14/2020
528-001-1	Lens	3	10/30/2017
528-001-2	PAR36 Flat Lens	0	12/21/2017
528-002-1	Bezel	3	7/21/2014
528-002-2	Bezel, Short	2	9/10/2018
528-005-1	Heat Sink	8	4/20/2018
528-005-2	Heat Sink	3	10/10/2020
528-007-2	Cap	0	8/9/2017
528-007-3	BACK CAP, MOD	0	8/3/2020
528-008-1	Key	0	4/6/2015
528-009-1	Heat Thermal	0	3/4/2014
528-010-1	Heat Thermal. PWS	1	4/2/2015
528-011-1	Gasket	2	3/17/2015
528-012-1	Optics Board. Top	1	10/30/2014
528-013-1	Optics Board	3	10/30/2014
528-014-1	Back Gasket	0	7/28/2014
528-017-1	Vent Receptacle	1	1/3/2018
528-031-1	Lamp Mount	5	7/19/2016
528-032-1	Ring, Mounting	4	4/25/2016
528-033-1	Gasket	0	8/20/2015
628-001-1	Lens	2	3/23/2015
628-002-1	Bezel	4	11/2/2016
628-002-1B	Bezel	1	2/6/2019
628-005-1	Heat Sink	7	5/31/2018
628-005-1B	Heat Sink, Black	2	5/2/2019
628-007-1	Cap, PAR46	5	3/12/2015
628-007-2B	Cap PAR46	0	5/18/2017
628-007-3	Cap. PAR46 Vent	0	12/18/2017
628-007-4	Back Cap, IR	0	6/4/2019
628-007-4B	Back Cap, IR Black	1	7/2/2019
628-008-1	Key	1	4/2/2014
628-009-1	Heat Thermal	0	12/13/2013
628-011-1	Gasket	2	3/17/2015
628-012-1	Optics Board, Top	3	10/31/2014
628-012-1B	Optics Board, Top Black	0	2/5/2019
628-013-1	Optics Board	4	10/31/2014

Document Number	Title	Revision	Date
628-013-1B	Optics Board, Black	0	2/5/2019
628-014-1	Back Gasket	0	7/25/2014
728-001-1	Lens	2	3/11/2015
728-001-2	Flat Lens	0	12/19/2017
728-002-1	Bezel	4	11/2/2016
728-005-1	Heat Sink	7	5/31/2018
728-007-1	Cap, PAR64	4	3/10/2015
728-007-2	Cap, Dual Mode	0	4/26/2016
728-007-3	Vent Back Cap	1	7/2/2019
728-007-4	Vent Back Cap Dual Mode	0	12/19/2017
728-009-1	Heat Thermal	1	3/10/2015
728-010-1	Heat Thermal, PWS	2	8/19/2015
728-011-1	Gasket	2	3/9/2015
728-012-1	Optics Board, Top	2	10/31/2014
728-013-1	Optics Board	3	10/31/2014
728-014-1	Back Gasket	0	3/6/2015
DP016	Data Plate	3	9/21/2017
DP017	Data Plate	4	9/21/2017
DP018	Data Plate	4	9/21/2017
DP019	Data Plate	3	9/21/2017
DP020	Data Plate	4	4/3/2018
DP021	Data Plate	3	12/18/2017
DP022	Data Plate	2	12/21/2016
DP027	Data Plate	2	12/21/2016
DP028	Data Plate	2	12/21/2016
DP029	Data Plate	2	12/21/2016
DP030	Data Plate	2	12/21/2016
DP031	Data Plate	1	12/21/2016
DP032	Data Plate	1	12/21/2016
DP033	Data Plate	2	9/21/2017
DP034	Data Plate	2	5/10/2017
DP039	Data Plate	1	9/21/2017
DP040	Data Plate	1	9/21/2017
DP041	TAE0628-11-B Data Plate	0	5/18/2017
DP042	Data Plate	0	12/13/2017
DP043	Data Plate	0	12/21/2017
DP044	Data Plate, K428-G5-LGL-001	0	10/30/2018

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Document Number	Title	Revision	Date
DP045	Data Plate, TAE0428-3	0	10/30/2018
DP046	Data Plate, TAE0428-4	0	10/30/2018
DP047	Data Plate, TAE0428-5	0	10/30/2018
DP051	Data Plate, TAE0428-6	0	2/21/2019
DP052	Data Plate, TAE0428-7	0	2/21/2019
DP053	Data Plate, K428-G4-GWS-001	1	6/4/2019
DP054	Data Plate, K428-G4-GWS-002	1	6/4/2019
DP057	Data Plate, TAE0628-3	0	6/4/2019
DP058	Data Plate, TAE0628-11R	0	6/4/2019
DP064	DATA PLATE, TEA0228-1	0	4/9/2020
DP065	DATA PLATE, TEA0228-5	0	3/31/2020
DP066	DATA PLATE, TEA0228-2	0	3/31/2020
DP070	Data Plate - TAE0128-1	0	3/5/2020
DP071	DATA PLATE - TAE0128-3	0	3/5/2020
DP072	DATA PLATE - TAE0128-4	0	3/5/2020
DP073	DATA PLATE - TAE0228-3	0	3/5/2020
DP076	Data Plate - TAE0428-9	0	3/31/2020

2.2 Electrical

Document Number	Title	Revision	Date
028-103-1	PCB, Nav Light	0	11/22/2019
128-004-1	B777 Cargo LED Board	1	7/3/2018
128-015-1	777 Harness	0	12/21/2017
128-101-1	LED Board	0	3/31/2020
128-102-1	Power Supply - 8-32VDC, 1 Channel	0	3/31/2020
128-133-1	LED Board - 4 & 8 Configurations	0	11/22/2019
228-101-1	LED Board	0	4/2/2020
228-121-1	LED Board, Airstair BTM	0	4/2/2020
428-004-1	LED Board Assembly	1	8/17/2015
428-004-2	LED Board Assembly	0	6/4/2015
428-006-1	Power Supply Board Assembly	1	6/11/2019
428-015-1	Light Housing Harness	0	6/4/2015
428-015-2	B737 Logo Light Harness	1	1/3/2018
428-015-3	B777 Logo Light Harness	4	5/24/2019
428-015-4	B777 Logo Light Harness FWD	1	1/3/2018
428-015-5	B777 Logo Light Harness Aft	2	1/3/2018
428-015-6	A330 Logo Light Harness	1	11/17/2017
428-015-7	A320 Logo Light Harness	1	12/22/2017
428-015-8	Gulfstream Logo Harness	1	7/26/2019
428-076-2	Harness, GWS	0	2/21/2019
528-004-1	PAR 36 Cool LED Board Assy.	2	7/28/2017
528-004-1X	PAR 36 High Intensity LED Board Assembly	1	2/22/2017
528-004-2	PAR 36 Warm LED Board Assy.	3	11/1/2017
528-006-1	PAR 36 Power Supply Assembly	3	3/29/2018
528-006-2	Power Supply Assembly, High	2	3/29/2018
528-015-1	PAR 36 Power Supply Input Harness	2	4/9/2015
528-017-2	VENT RECEPTACLE, OVERMOLDED	0	10/10/2020
528-018-1	Power Tab	0	10/10/2020
628-004-1	PAR 46 LED Board Assy.	3	7/28/2017
628-004-1V	Low Voltage LED Board	0	12/22/2017
628-004-2	LED Board, Flood	0	6/4/2019
628-006-1	PAR 46 Power Supply Board Assembly	2	8/22/2018
628-006-1V	Low Voltage Power Supply	0	12/22/2017
728-004-1	PAR 64 LED Board Assembly	3	7/28/2017
728-004-2	Led Board, Dual	1	7/28/2017

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Document Number	Title	Revision	Date
728-006-1	PAR 64 Power Supply Assembly	4	3/29/2018
728-006-2	Power Supply Dual Mode	2	12/21/2017
728-015-1	PAR 46/64 Power Supply Input Harness	2	4/9/2015
728-015-2	PAR 64 Dual Mode Power Supply Input Harness	0	4/25/2016
728-020-1	PAR 64 Attenuator	0	5/23/2017
728-021-1	Dual Mode Attenuator	0	5/24/2017
BOM028-103-1	Bill of Materials - 8-32 VDC Power Supply	0-0	12/9/2019
BOM028-104-1	Bill of Materials for LED Board 2 & 4 LED Configuration	0-0	11/12/2019
BOM128-102-1	POWER SUPPLY - 8-32 VDC, 1 Channel	0-0	2/11/2020

2.3 Assembly

Document Number	Title	Revision	Date
128-103-1	ASSY - LENS, UNDERWING EMERGENCY	0	3/31/2020
128-134-1	ASSY - OVERWING EMERGENCY LENS	0	3/31/2020
228-120-1	Assy - Housing, Airstair Bottom	0	3/30/2020
428-003-1	Optics Assembly	1	8/18/2015
428-003-2	Optics Assembly, Wide	0	6/4/2015
428-003-3	Optics Assembly, Tight	0	2/18/2019
428-021-1	Transformer Assembly	1	8/19/2015
428-021-2	Transformer Assembly, 757	2	5/24/2019
428-021-3	777 Transformer Assembly FWD	1	11/27/2018
428-021-4	777 Transformer Assembly AFT	1	11/27/2018
428-021-5	A330 Transformer Assembly	2	1/23/2019
428-021-6	A320 Transformer Assembly	0	12/6/2017
428-074-1	Gulfstream Lens Assembly	0	10/30/2018
528-003-1	Optics Assembly	1	3/14/2014
528-003-2	Optics Assembly, Wide	0	3/20/2014
528-003-3	Optics Assembly, Extra Wide	0	1/17/2017
628-003-1	Optics Assembly	0	12/1/2013
628-003-1B	Optics Assembly, Black	1	7/2/2019
628-003-2	Optics Assembly, Wide	2	7/2/2019
628-003-3	Optics Assembly, Flood	0	6/4/2019
728-003-1	Optics Assembly	2	7/2/2019
K428-A2-LGL-001	A320 Logo Kit	0	1/3/2018
K428-A3-LGL-001	A330 Cool Logo Light	7	2/28/2018
K428-A3-LGL-001W	A330 Warm Logo Light	6	2/27/2018
K428-B3-LGL-001	737 Logo Assembly LH	4	3/1/2018
K428-B3-LGL-002	737 Logo Assembly RH	3	3/1/2018
K428-B5-LGL-001	757 Logo Kit L-IB	3	5/23/2019
K428-B5-LGL-002	757 Logo Kit R-IB	3	5/23/2019
K428-B5-LGL-003	757 Logo Kit L-OB	2	5/23/2019
K428-B5-LGL-004	757 Logo Kit R-OB	2	5/23/2019
K428-B7-LGL-001	777 Logo Kit L-FWD	0	4/25/2016
K428-B7-LGL-002	777 Logo Kit R-FWD	0	9/24/2015
K428-B7-LGL-003	777 Logo Kit L-AFT	0	4/25/2016
K428-B7-LGL-004	777 Logo Kit R-AFT	0	9/24/2015
K428-G4-GWS-001	Wingscan Kit, Left	1	6/4/2019

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Document Number	Title	Revision	Date
K428-G4-GWS-002	Wing scan Kit, Right	2	4/3/2020
K428-G4-TAX-001	Assy - Bracket GIV Wingtip Taxi	0	4/2/2020
K428-G5-LGL-001	Gulfstream Logo Light	2	7/23/2019
K528-D9-LGL-001	MD88 Logo Kit	3	4/4/2016
TAE0128-1	Assy - Overwing Emergency Light	0	3/12/2020
TAE0128-2	777 Cargo Light	0	12/21/2017
TAE0128-3	Assy - Pylon Light	0	3/12/2020
TAE0128-4	Assy - Wheel Well Light	0	3/12/2020
TAE0128-5	Assy - Underwing Emergency	0	3/31/2020
TAE0228-1	Assy - Gulfstream Airstair Light	1	8/20/2020
TAE0228-2	Assy - Airstair Flood	1	8/4/2020
TAE0228-3	Assy - Airstair FWD Light	0	3/12/2020
TAE0428	PAR 20 Flood Light	4	3/23/2020
TAE0428-1	PAR 20, Spot Beam	4	10/13/2016
TAE0428-1W	PAR 20, Spot Warm	5	3/5/2019
TAE0428-2	PAR20, Wide Beam	4	10/13/2016
TAE0428-2W	PAR20, Wide Warm	3	10/13/2016
TAE0428-3	PAR 20, Wide Beam with Transformer	1	7/26/2019
TAE0428-6	RH-PAR20 Wing scan	0	2/21/2019
TAE0428-7	LH-PAR20 Wing scan	0	2/21/2019
TAE0428-9	Assy - Wingtip Taxi	1	10/14/2020
TAE0528-1	PAR 36 Lamp Cool Spot	7	12/20/2017
TAE0528-1W	PAR 36 Lamp Warm Spot	5	12/20/2017
TAE0528-1X	PAR 36 Lamp High Intensity	3	12/20/2017
TAE0528-2	PAR 36 Lamp Cool Wide	7	12/20/2017
TAE0528-2W	PAR 36 Lamp Warm Wide	7	12/20/2017
TAE0528-3	PAR36 Lamp, Extra Wide, Cool	3	12/20/2017
TAE0528-3W	PAR36 Lamp, Extra Wide, Warm	4	5/19/2018
TAE0628-1	PAR 46 Lamp Cool Spot	8	3/29/2018
TAE0628-1-IR	PAR 46 IR/White Lamp	0	6/4/2019
TAE0628-1-IR-B	PAR 46 IR/White Lamp, Black	4	5/2/2019
TAE0628-1V	PAR46 Lamp Low Voltage	0	12/22/2017
TAE0628-2	PAR 46 Lamp Cool Wide	6	3/29/2018
TAE0628-3	PAR 46 Lamp Cool Flood	0	6/4/2019
TAE0728-1	PAR 64 Lamp	6	12/21/2017
TAE0728-1D	PAR 64 Lamp Dual Mode	2	12/21/2017

3 Supporting Documents (Proprietary)

Document Number	Title	Revision	Date
* AML-728-01	Approved Model List for Talon Aerospace General Purpose Replacement Lamps	10	Pending
CPS-CRJ-001	Performance Summary for Bombardier CRJ Series Aircraft	0	9/14/2017
CPS-CRJ-002	Performance Summary for Bombardier CRJ Series Aircraft	0	9/20/2018
CPS-CRJ-003	Performance Summary for Bombardier CRJ Series Aircraft	0	9/20/2018
CRT-128-01	Emergency Lights	2	6/29/2020
CRT-128-02	Pylon & Cargo Light	1	6/29/2020
CRT-228-01	Gulfstream Airstair Lights	1	6/29/2020
CRT-428-01	Certification Plan LED General Purpose Replacement Lamps	3	6/4/2019
CRT-428-02	General Purpose Light - Gulfstream Wingtip Taxi	1	8/19/2019
CRT-428-03	GV Wingtip Flood Light	1	8/22/2019
CRT-428-05	Camera Light Cert Plan	0	9/24/2019
CRT-728-01	Certification Plan for an AML Supplemental Type Certificate for Installation of LED Replacement General Purpose Lamps for Various Part 25 Airplanes	5	4/10/2017
ECP-728-01	Electrical Wiring Interconnection System (EWIS) 14 CFR Part 26 Compliance Report Project Number ST14465AT-T Talon Aerospace LED Replacement General Purpose Lighting	0	3/18/2014
EMI-428-01	Ground / EMI Test Plan for Talon Aerospace Logo / Scan Light Part Numbers TAE0428-1, TAE0428-1W, TAE0428-2, TAE0428-2W, TAE0428-3, TAE0428-4, TAE0428-5, TAE0428-6, TAE0428-7 for Various Part 25 Airplanes.	3	2/18/2019
ETP-728-01	Environmental Test Plan for Talon Aerospace LED Replacement General Purpose Lamps Project Number ST14465AT-T	1	1/14/2014
FLA-728-01	Flammability Assessment Talon Aerospace LED Replacement General Purpose Lighting	0	9/11/2014
FTP-228-02	FLAMMABILITY TEST PLAN/REPORT FOR LED REPLACEMENT AIRSTAIR LIGHTING	1	9/18/2020
GIV-EMI-01	Certification Ground EMI Test Plan for Talon Aerospace Nose to Tail Lighting Package	0	6/29/2020
GLT-728-01	Ground / Glare Test of Talon Aerospace PAR 64 Landing Light	1	3/24/2014
GV-EMI-01	Certification Ground EMI Test Plan for Talon Aerospace Nose to Tail Lighting Package	0	6/29/2020
ICE-428-01	ICE Critical Surface Analysis for Talon Aerospace General Illumination Lights Part No's TAE0128-1, TAE0128-3, TAE0128-4, TAE0128-5, TAE0228-1, TAE0228-2, TAE0428-8, TAE0428-9	0	9/23/2020
INT-728-01	Light Intensity Test Report for Talon Aerospace LED Replacement Landing Light TAE0738-1 and Taxi Light TAE0628-1	0	8/7/2014
LSR-728-01	Similarity Report Landing Light Configuration of Various Transport Category Aircraft Relative to the Boeing 757	3	12/21/2017
QTP-128-01	Qualification Test Plan Talon Aerospace Overwing and Underwing Emergency Lights TAE0128-1, and TAE0128-5	0	8/12/2020
SIM-428-02	Similarity Between Talon Aerospace Logo Lights K428-A2-LGL-001 and K428-A3-LGL-001 / -001W	0	1/4/2018

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Document Number	Title	Revision	Date
SIM-428-03	Similarity Between Talon Aerospace TAE0428-3, TAE0428-4, TAE0428-5, TAE0428-5 and TAE0428-6	0	6/11/2019
SIM-428-04	Similarity Analysis for Talon Aerospace TAE0128-1, TAE0128-3, TAE0128-4, TAE0128-5, TAE0228-1, TAE0228-2 & TAE0228-3	0	10/10/2020
SIM-728-01	Similarity between Talon Aerospace LED lamps, TAE0528-1, TAE0628-1 and TAE0728-1	2	1/5/2018
STR-128-01	Structural Substantiation Report for Talon Aerospace General Illumination Light Components STC Number ST04177AT Project Numbers SA16285AT-T, SA16287AT-T, SA16288AT-T, SA16292AT-T, & SA16293AT-T	0	10/19/2020
STR-728-01	Structural Substantiation Report for Talon Aerospace LED Replacement General Purpose Lighting	4	12/15/2017
TR-GLT-728-01	Ground/Glare Test Report of Talon Aerospace PAR 64 Landing Light	0	7/10/2014
TTR-428-01	Transformer Input Voltage Test for Transformer 428-030-1	0	5/29/2015
TTR-428-02	Transformer Input Voltage Test Results for Transformer 428-030-1	0	5/29/2015

* This document Revision is in support of AML-728-01 Revision 10. Once AML-728-01 Revision 10 is approved, Revision 10 will be the approval authority revision level.

4 Environmental Test Reports

Document Number	Title	Revision	Date
08718-90395	Altitude Test Report for the P/N TAE0728-1 LED Replacement General Purpose Lamp	0	1/29/2014
08718-90396	Temperature Variation Test Report for the P/N TAE0728-1 LED Replacement General Purpose Lamp	0	2/5/2014
08718-90399	Humidity Test Report for the P/N TAE0728-1 LED Replacement General Purpose Lamp	0	1/29/2014
08718-90400	Shock Test Report for the P/N 0728-1 LED Replacement General Purpose Lamp	0	4/3/2014
08718-90408	Vibration Test Report for the P/N TAE0728-1 LED Replacement General Purpose Lamp	0	4/3/2014
08718-90411	Waterproofness Test Report for the P/N TAE0728-1 LED Replacement General Purpose Lamp	0	3/6/2014
08718-90412	Fluids Susceptibility Test Report for the P/N TAE0728-1 LED Replacement General Purpose Lamp	0	3/6/2014
08718-90494	Explosive Atmosphere Test Report for the P/N TAE0728-1 LED Replacement General Purpose Lamp	0	2/26/2014
08719-90336	Voltage Spike Test Report for the P/N TAE0728-1 PAR Lamp	0	1/14/2014
PR088961-01	Power Input	0	11/20/2018
PR088961-01TR	Dynamics and Electromagnetic Interference	0	2/18/2019
TR-TAE0128-3-01	DO160 CH24 Sim Report Navigation and Position Lights	0	9/28/2020
TR-TAE0428-9-01	DO-160 Chapter 24 Similarity Report for Taxi Lights	0	9/28/2020
TR-TAE0128-1-01	DO160 CH 24 Sim Report Underwing and Overwing Emergency	0	9/28/2020
TR-TAE0228-1-01	DO160 Ch24 Sim Report Airstair Lights	0	9/28/2020
TR-TAE0428-8-01	DO160 Sim Report Downwash Lights	0	9/28/2020

5 Engineering Change Notice (ECN)

ECN Number	Drawing	Starting Drawing Rev Level	Incorporated Drawing Rev Level	Incorporated	Approval Date
ECN19018	INS-728-01	3	4	YES	10/24/2019
ECN19023	K428-A3-LGL-001	7	8	NO	12/13/2019
ECN19024	K428-A3-LGL-001W	6	7	NO	12/13/2019
ECN20008	K428-G4-GWS-001	1	2	YES	4/3/2020
ECN20009	K428-G4-GWS-002	1	2	YES	4/3/2020
ECN20010	G4-002	0	1	YES	4/3/2020
ECN20013	428-002-2	1	2	YES	3/18/2020
ECN20014	TAE0428	3	4	YES	3/18/2020
ECN20019	628-005-1	7	8	YES	2/24/2020
ECN20020	428-035-1	0	1	YES	2/25/2020
ECN20034	528-005-2	2	3	NO	3/12/2020
ECN20042	DP018	4	5	NO	10/10/2020
ECN20043	DP020	4	5	NO	10/10/2020
ECN20044	DP017	4	5	NO	3/13/2020
ECN20045	DP022	2	3	NO	3/13/2020
ECN20046	DP033	2	3	NO	3/13/2020
ECN20048	DP021	3	4	NO	7/4/2020
ECN20049	TAE0528-1	7	8	NO	7/4/2020
ECN20050	TAE0528-2	7	8	NO	7/4/2020
ECN20051	TAE0528-1X	3	4	NO	7/4/2020
ECN20052	DP044	0	1	NO	4/29/2020
ECN20053	DP045	0	1	NO	4/29/2020
ECN20054	DP046	0	1	NO	4/29/2020
ECN20055	DP047	0	1	NO	4/29/2020
ECN20056	DP029	2	3	NO	4/29/2020
ECN20070	TAE0228-2	0	1	YES	8/3/2020
ECN20071	228-124-1	0	1	YES	8/3/2020
ECN20072	128-100-2	0	1	YES	8/20/2020
ECN20073	228-123-1	0	1	YES	8/20/2020
ECN20074	228-101-1	0	1	NO	8/20/2020
ECN20075	228-101-2	0	1	YES	8/20/2020

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ECN Number	Drawing	Starting Drawing Rev Level	Incorporated Drawing Rev Level	Incorporated	Approval Date
ECN20076	228-102-1	0	1	YES	8/20/2020
ECN20077	TAE0228-1	0	1	YES	8/20/2020
ECN20080	228-123-1	1	2	YES	10/5/2020
ECN20083	428-002-2	2	3	YES	10/10/2020
ECN20084	428-102-1	0	1	YES	10/14/2020
ECN20085	428-101-1	0	1	YES	10/14/2020
ECN20086	428-100-1	0	1	YES	10/14/2020
ECN20087	TAE0428-9	0	1	YES	10/14/2020
ECN20088	428-102-3	0	1	YES	10/14/2020
ECN20089	G5-001	2	3	YES	10/14/2020
ECN20090	G4-004 & G5-005	0, 0	1, 1	YES	10/14/2020
ECN20091	G5-003	0	1	YES	10/14/2020
ECN20093	228-123-1	2	3	YES	10/19/2020
ECN20094	TAE0528-1, 1X, 2, 2W, 3, 3W	7, 3, 7, 7, 3, 4	8, 4, 8, 8, 4, 5	NO	10/21/2020

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Maintenance Manual Supplement

For

Proponent Technical Services

Talon LED Landing, Taxi, Turn, Scan and Logo Lights

Part Numbers

TAE0728-1/ TAE0728-1D

TAE0628-1 / TAE0628-1V/ TAE0628-2

**TAE0528-1 / TAE0528-1W / TAE0528-1X / TAE0528-2 / TAE0528-2W /
TAE0528-3 / TAE0528-3W**

For

**Boeing: 707 Series, 717 Series, DC-9 Series, DC-10 Series, MD-10 Series, MD-11
Series, MD-80 Series, MD-90 Series**

**Bombardier: BD-100 Series, BD-700 Series, CL-215 Series, CL-600 Series, DHC-8
Series**

Fokker: F.27 Mark Series, F.28 Mark Series

**Gulfstream: G-1159 Series, G-IV Series, GIV-X Series, GV Series, GV-SP Series,
G-VI Series, 1125 Westwind, Astra Series, G100 Series, G150 Series, Galaxy, G-
200 Series, G280 Series**

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

RECORD OF REVISIONS

Rev	Date	Pages Affected	Description of Revision	Approved By
0	6/12/18	All	Initial Release	Prepared by: Guy Mathews Checked by: Tyler Henderson Approved by: Dillon Smith
1	12/19/18	4 6 7 8-10	Added which transport aircraft are affected. Added statement about LED design, clarified when lights should be removed due to findings. Broke out inspection criteria Updated Leading Particulars	Prepared by: Guy Mathews Checked by: Tyler Henderson Approved by: Patrick McLaughlin
2	4/11/2022	1, 4, 5, 7, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21	Changed Company Name and contact detail to Proponent Technical Services Added IPC details to AMM Added statement to inspect hardware and wiring for serviceability Added wiring diagram	Prepared by: Frank Beyersbergen Checked by: Humberto Macias Approved by: Albert Cepeda

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

INTRODUCTION

This manual contains Instructions for Continued Airworthiness for the Talon LED Replacement PAR 36, PAR 46 and PAR 64 Lamps, used as Landing, Taxi, Turn, Scan and Logo Lights on various air transport aircraft specified on the title page, and supersedes AMM AA-728-01 for these aircraft. These lamps include the following part numbers; TAE0728-1 (landing), TAE0728-1D (taxi/take-off), TAE0628-1 and TAE0628-1V (landing), TAE0628-2, (taxi) and TAE0528-1, -1W, and -1X, as well as TAE0528-2 and -2W (turn, taxi, engine/wing scan and logo) and TAE0528-3 and -3W (logo) as manufactured by PROPONENT TECHNICAL SERVICES.

These Instructions are provided as required by the Code of Federal Regulations Title 14 Part 25 Section 25.1529 and Part 21 Section 21.50(b).

Modification of an aircraft by this Supplement Type Certificate obligates the aircraft operator to include the maintenance information provided by this document in the operator's Aircraft Maintenance Manual and the operator's Aircraft Scheduled Maintenance Program.

The instructions apply only to the component part numbers listed above. Be sure the part numbers on the LED lamps are listed on the title page before performing any of these instructions.

In addition to supplying all owners of the Talon LED Landing, Taxi, Turn, Scan and Logo Lights with this initial Maintenance Manual Supplement, Proponent Technical Services will provide all revisions and updates to this manual to the owner in a timely manner as mandated by FAA Order 8110.54A.

Initial Maintenance Manual Supplements and all subsequent revisions and updates will be mailed in hard copy form to the Talon LED Landing, Taxi, Turn, Scan and Logo Lights owner, and/or provided in electronic format and directed to departments or personnel as specified by the owner.

If you feel that this manual does not meet your needs per the above-mentioned Regulations, feel free to contact Proponent Technical Services for clarification or additional information.

PROPONENT TECHNICAL SERVICES (1GHW3)
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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

AIRWORTHINESS LIMITATIONS

1. Notes.

- A. The Talon LED Landing, Taxi, Turn, Engine-Wing Scan and Logo Lights should be removed, and the LED Lamp assemblies replaced if light intensity is no longer adequate for the intended purpose as reported by flight crews or maintenance personnel.
- B. "The Airworthiness Limitations section is FAA-approved and specifies inspections and other maintenance required under §43.16 and § 91.403 of the Federal Aviation Regulations, unless an alternative program has been FAA approved".
- C. Bombardier Model CL-600-2B16 (604 Variant) AD CF-2014-17 Dated 17 June 2014 and AD 2014-15-17 dated 31 July 2014.

CAUTION: AD 2014-15-17, issued 31 July 2014, has been issued against CL-600-2B16 (604 Variant) Serial numbers 5301 through 5665, and 5701 and Subsequent. This AD was prompted by a determination that there is a potential fuel leakage from the auxiliary power unit (APU) boost pump component installations in the right landing lights compartment. This AD requires revising the airplane flight manual to incorporate temporary revisions that introduce additional limitations for operation of taxi and landing lights. High temperatures of the Type Certificated specified Taxi and Landing Lamps can reach the auto-ignition temperatures of the fuel. Proponent Technical Services obtained an Alternate Means of Compliance to mitigate the effects of AD 2014-15-17 when Talon LED lights are installed in the wing landing and taxi light positions. If the operator reinstalls incandescent lamps in the wing landing or taxi positions, which will invalidate the Alternative Means of Compliance, the operator must inform the flight crews that incandescent lamps are installed, and the AD is applicable again until the aircraft is brought back to full LED configuration.

NOTE: Talon tested a Type Certificated (TC) lamp (4596) for 15 minutes, the temperature of the TC Lamp reached a temperature of 588°F (309°C). The auto-ignition flashpoint for Jet A and Jet A-1 Fuel is 482°F (250°C) (Ref: ExxonMobil MSDS for Jet A and Jet A-1, Page 4). Reference Description and Operation Paragraph 6 for operational temperature of Talon LED lamps.

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

DESCRIPTION AND OPERATION

- Description.** The Talon LED Landing, Taxi, Turn, Engine-Wing Scan and Logo Lights (Refer to Table 1: Talon General LED Lights for a description) consist of the following components; aluminum housing, a power supply to convert the AC voltage to DC voltage, the LED assembly, the optical assembly, and a lens and bezel, along with a back cap, a harness, gaskets and hardware to seal the units against the environment. These units connect to the aircraft electrical system as the original incandescent lamps do. They are “plug and play”, requiring no alteration to the aircraft, as such, installation of these lights will not require any changes to the existing aircraft wiring. Refer to Tables 3-5 for the leading particulars, including the acceptable voltage ranges in which these lights are able to operate. For requirements outside of these ranges please contact Proponent Technical Services for further assistance. In addition to providing longer life than the incandescent lamps that they replace, these units are repairable. As these lamps are plug and play, there are no restrictions, except as specified by operator, or government policy, with intermixing with Type Certificated specified lamps.

Table 1: Talon General LED Lights

Talon Light PN	Description	Center Beam Brightness Lux @40ft (Avg New)	Beam Angle FWHM
TAE0528-1	PAR 36 Cool Spot	350	8°
TAE0528-1W	PAR 36 Warm Spot	350	8°
TAE0528-1X	PAR 36 High Intensity Spot	500	7°
TAE0528-2	PAR 36 Cool Wide	68	40° x 8°
TAE0528-2W	PAR 36 Warm Wide	72	40° x 8°
TAE0528-3	PAR 36 Cool Flood	37	30°
TAE0528-3W	PAR 36 Warm Flood	30	30°
TAE0628-1	PAR 46 Cool Spot	1015	8°
TAE0628-1V	PAR 46 Low Voltage	1015	8°
TAE0628-2	PAR 46 Cool Wide	440	20° x 8°
TAE0728-1	PAR 64 Cool Spot	2600	7°
TAE0728-1D	PAR 64 Dual Mode	1300 / 2600 (Taxi / Landing)	7°

- Basic Control and Operation.** The Par 64 Landing and Par 46 Landing/Taxi Lights operate between a range of 24-32 VAC / VDC, while the Par 36 Runway Turn Off/Engine/Wing Scan/Logo Light operates between 12-32 VAC / VDC. PAR 46 Landing light TAE0628-1V operates between 15-18 VAC / VDC. The Par 36 High Intensity lamp TAE0528-1X operates between 18-32 VAC / VDC. All lamps are controlled by the same switches in the cockpit that control the current lamps. There are no special procedures or limitations that apply to the operation of the Landing, Taxi, Turn, Scan and Logo Lamps. The design of the LED allows for individual LED's to be dim or non-operational and not cause the entire cluster to become non-operational.
- Warnings and Cautions.** There no special warnings and cautions concerning the Talon LED Landing, Taxi, Turn, Scan and Logo Lights. These lights use LED technology and eliminate the high temperatures associated with incandescent lamps, thereby eliminating any injuries to personnel associated with the incandescent lamps.

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

4. **Inspections.** Recommended inspection intervals: Inspections to be performed during Aircraft C Check interval or at 24 months of operation.

NOTE: The recommended inspection interval is to lessen the chance of replacing a light during normal service. The limits specified below are not intended to force removal during normal service intervals, but to provide guidance during a heavy maintenance check that the lamp is showing signs of failure and the operator may want to replace the light as to not impact operation due to a light failure.

NOTE: The damage limitations noted in Table 2 will not result in a safety of flight issue. If damage is noted during a walk around of the aircraft it is acceptable to defer removal of the unit until a convenient maintenance visit, unless the unit will not illuminate, or illumination is not enough for intended function, in that case replace immediately.

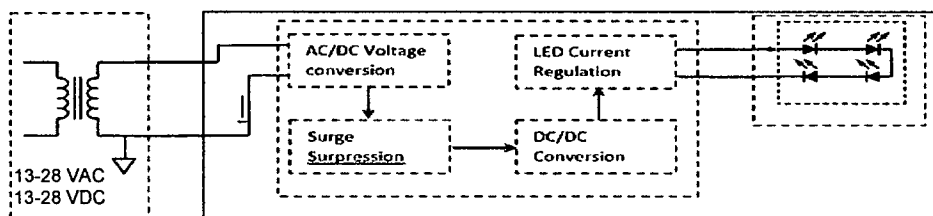
With the units installed in their respective housings, inspect the Talon LED Landing, Taxi, Turn, Scan and Logo Lights for the following:

Table 2: Allowable limits

Item	Allowable	Remove at next Major Maintenance Visit
Lens	<ul style="list-style-type: none"> Nicks & Scratches – Up to 0.030" Deep Discoloration 	<ul style="list-style-type: none"> Nicks & Scratches Outside of Allowable. Cracks
Light Housing Metal Surfaces	<ul style="list-style-type: none"> Corrosion – Up to 0.030" Deep Nicks & Scratches – Up to 0.030" Deep 	<ul style="list-style-type: none"> Corrosion – Covers more than 20% Nicks & Scratches deeper than 0.030" No cracks allowed.
LED Board	† Continued service is acceptable with 1 cluster of LED's out, or 8 max LED's may be out (or inoperative)	It is recommended to route light for repair if more than 3 LED's is out or dim during major maintenance visit to reduce risk of interruption to service

† Landing, Taxi, Turn, Scan, and Logo Lights do not have a minimum or maximum light output requirement, as the LED light will still produce a significant amount of light with reduced LED's, it is up to the pilot's discretion if the LED needs to be set up for replacement outside of a maintenance visit.

If any of the above conditions are found, remove the Talon LED Landing, Taxi, Turn, Scan and Logo Lights at the next convenient major maintenance visit and route to repair shop for repair in accordance with Proponent Technical Services Component Maintenance Manual & IPL 33-42-02.



TAE0728-X, TAE0628-X and TAE0528-X

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

5. Leading Particulars.

Table 3: Landing Light TAE0728-1 / TAE0728-1D

Dimensions					
Diameter	8.0 In. (203.2 mm)				
Height	2.75 In. (69.85 mm)				
Weight (Approx)	2.00 lb. (0.907 kg)				
Voltage	24-32 VAC /VDC				
Voltage Spike	72 Vpk				
Current Requirements	5A Minimum				
Number of LED's	32				
LED Layout	4 LED Clusters in series containing 8 LED's each				
Light Output VAC	<u>32VAC</u>	<u>28VAC</u>	<u>24VAC</u>	<u>20VAC</u>	<u>16VAC</u>
	102%	100%	100%	65%	8%
Light Output VDC	<u>32VDC</u>	<u>28VDC</u>	<u>24VDC</u>	<u>20VDC</u>	<u>16VDC</u>
	100%	100%	37%	0%	0%
Operating Temperature†:	Condition	Ambient		Operating	
	Normal			185°F (85°C)	
	Recommend Max			194°F (90°C)	
	Max Limited Exposure			212°F (100°C)	
	Temp after 5 min	77°F (25°C)			126°F (52°C)
	Temp after 10 min	77°F (25°C)			158°F (70°C)
	Temp after 15 min	77°F (25°C)			176°F (80°C)
	Temp after 20 min	77°F (25°C)			192°F (89°C)
Temp after 40 min	77°F (25°C)			214°F (101°C)	

† This light has been designed with and expected averaged operating time of 20 minutes of continuous use. Operating at temperatures higher than the recommended max temperature will cause the internal components to wear out a quicker rate.

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Table 4: Landing / Taxi Light TAE0628-1, TAE0628-1V and TAE0628-2

Dimensions					
Diameter	5.75 In. (146.05 mm)				
Height	2.75 In. (69.85 mm)				
Weight (Approx)	0.99 lb. (0.449 kg)				
Voltage					
	24-32 VAC / VDC (all except TAE0628-1V)				
	15-18 VAC / VDC (TAE0628-1V)				
Voltage Spike					
	72 Vpk				
Current Requirements					
	5A Minimum				
Number of LED's					
	32				
LED Layout					
	4 LED Clusters in series containing 8 LED's each				
Light Output VAC					
	<u>32VAC</u>	<u>28VAC</u>	<u>24VAC</u>	<u>20VAC</u>	<u>16VAC</u>
	102%	100%	100%	59%	6%
Light Output VDC					
	<u>32VDC</u>	<u>28VDC</u>	<u>24VDC</u>	<u>20VDC</u>	<u>16VDC</u>
	100%	100%	39%	0%	0%
Operating Temperature[†]:					
	Condition	Ambient		Operating	
	Normal			185°F (85°C)	
	Recommend Max			194°F (90°C)	
	Max Limited Exposure			212°F (100°C)	
Production prior to Sept 2018.					
	Temp after 5 min	77°F (25°C)	126°F (52°C)		
	Temp after 10 min	77°F (25°C)	158°F (70°C)		
	Temp after 15 min	77°F (25°C)	192°F (89°C)		
	Temp after 20 min	77°F (25°C)	244°F (118°C)		
	Temp after 40 min	77°F (25°C)	268°F (131°C)		
Production or Repair post Sept 2018.					
	Temp after 5 min	77°F (25°C)	131°F (55°C)		
	Temp after 10 min	77°F (25°C)	149°F (65°C)		
	Temp after 15 min	77°F (25°C)	163°F (73°C)		
	Temp after 30 min	77°F (25°C)	181°F (83°C)		
	Temp after 45 min	77°F (25°C)	185°F (85°C)		

[†] The original design had an expected operating time of 15 minutes of continuous use, however, some operators have longer average taxi times, resulting in longer usage times resulting in lights not making their intended 5-year minimum life expectancy. In August 2018 the power supply was modified to include a thermistor to prevent the temperature of the light to go above 90°C. This change was implemented in all units manufactured or repaired beginning in Sept. 2018.

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Table 5: Taxi / Turn / Engine-Wing Scan / Logo Light TAE0528-1, TAE0528-1X, TAE0528-1W, TAE0528-2, TAE0528-2W, TAE0528-3 and TAE0528-3W

Dimensions						
Diameter	4.5 In. (114.3 mm)					
Height	2.1 In. (53.34 mm)					
Weight (Approx)	0.60 lb. (0.27 kg)					
Voltage						
	12-32 VAC / VDC (all except TAE0528-1X)					
	18-32 VAC / VDC (TAE0528-1X)					
Voltage Spike						
	72 Vpk					
Current Requirements						
	1.4A Minimum					
Number of LED's						
	14					
LED Layout (All Except TAE0528-1X)						
	2 LED Clusters: 1 cluster containing 2 parallel sets of 3 LEDs in series and 1 cluster containing 2 parallel sets of 4 LEDs in series					
LED Layout (TAE0528-1X)						
	2 LED Clusters in series containing 7 LED's each					
Light Output VAC						
	<u>32VAC</u>	<u>28VAC</u>	<u>24VAC</u>	<u>16VAC</u>	<u>12VAC</u>	<u>8VAC</u>
(All Except TAE0528-1X)	103%	100%	99%	99%	97%	35%
(TAE0528-1X)	102%	100%	99%	85%	0%	0%
Light Output VDC						
	<u>32VDC</u>	<u>28VDC</u>	<u>24VDC</u>	<u>20VDC</u>	<u>12VDC</u>	<u>8VDC</u>
(All Except TAE0528-1X)	100%	100%	99%	98%	64%	3%
(TAE0528-1X)	102%	100%	100%	35%	0%	0%
Operating Temperature†:						
	Condition		Ambient		Operating	
	Normal				140°F (60°C)	
	Recommend Max				185°F (85°C)	
	Max Limited Exposure				212°F (100°C)	
(All Except TAE0528-1X)	Temp after 15 min		77°F (25°C)		128°F (53°C)	
	Temp after 30 min		77°F (25°C)		140°F (60°C)	
	Temp after 60 min		77°F (25°C)		150°F (65°C)	
TAE0528-1X)	Temp after 15 min		77°F (25°C)		155°F (68°C)	
	Temp after 30 min		77°F (25°C)		185°F (85°C)	
	Temp after 60 min		77°F (25°C)		205°F (96°C)	

† All testing was done without applying an external heat sink such as a housing on an aircraft would provide. Operating at temperatures higher than the recommended max temperature will cause the internal components to wear out a quicker rate.

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

REMOVAL AND REPLACEMENT

1) General.

- a) This document contains the following procedures for removal and replacement of the Talon LED Landing, Taxi, Turn, Scan and Logo Replacement Lamps.
 - i) LED Landing, Taxi, Turn, Scan and Logo Replacement Light Removal
- b) Inspect all wiring and hardware to be installed for damage:
 - i) Replace any fasteners that have damage.
 - ii) Consult the inspection table in Description and Operations section of this AMM Supplement for acceptable limits.
 - iii) Replace or repair any wiring that shows signs of damage in accordance with the Applicable Aircraft Manual on Standard Wiring Practices.
- c) Removal and replacement of the Talon LED Landing, Taxi, Turn, Scan and Logo Replacement Lamps is to be accomplished in accordance with the applicable Aircraft Maintenance Manual for removal, installation and aiming procedures.

TESTING AND FAULT ISOLATION

After removal from the aircraft due to failure, Testing and Fault Isolation of the Talon LED Landing, Taxi, Turn, Scan and Logo Replacements Lights is to be accomplished in accordance with the Proponent Technical Services Component Maintenance Manual 33-42-02.

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ILLUSTRATED PARTS LIST

1. Notes.

- A. This section provides an illustrated breakdown of components making up the Talon LED Landing / Taxi / Turn / Engine-Wing Scan / Logo Light Systems. All parts are listed, except for parts which lose their identities by being permanently fastened to other parts or are part of an assembly not subject to disassembly.
- B. Find part numbers by locating the part on the illustration (note the item number). Locate the item number on the Illustrated Parts List. The corresponding part number will be shown on the same line.

2. Reference Chart Column Definitions.

- A. Figure: Refers to the illustration number.
- B. Item: Refers to the item number identifying individual parts on the corresponding Illustrated Parts List Illustration as indicated by the figure number.
- C. Part Number: Defines the manufacturer part number for each illustrated item.
- D. Nomenclature: Identifies parts by name.
- E. Units per Assembly: Defines the quantity of each part listed needed to fully complete assembly of the LED sealed beam replacement light.

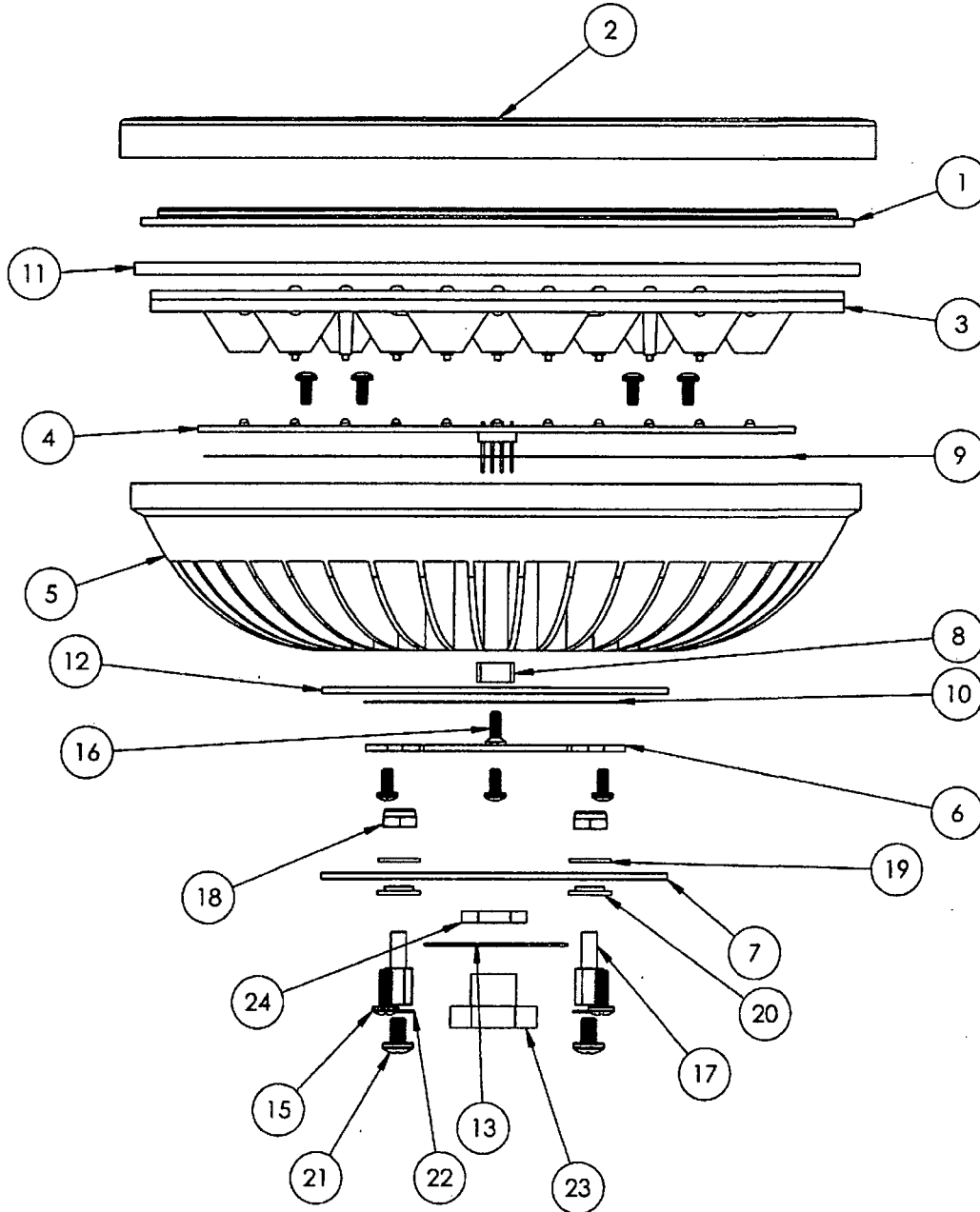
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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ILLUSTRATED PARTS LIST



LED Landing Light PAR 64 TAE0728-1 and Taxi/Take-Off Light TAE0728-1D

Figure 1

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ILLUSTRATED PARTS LISTING (SEE FIGURE 1 ON PAGE 13)

Fig Item	PART NUMBER	Nomenclature	Units per Assembly
1- 1	728-001-1/728-001-2 #	LENS	1
2	728-002-1 see note 1	BEZEL	1
3	728-003-1	OPTICS ASSEMBLY	1
4	728-004-1/728-004-2 ##	LED BOARD	1
5	728-005-1	HEAT SINK	1
6	728-006-1/728-006-2 *	POWER SUPPLY ASSEMBLY	1
7	728-007-1/728-007-2/728-007-3/728-007-4**	CAP	1
8	628-008-1	KEY	1
9	728-009-1	HEAT THERMAL	1
10	728-010-1	HEAT THERMAL, PWS	1
11	728-011-1	GASKET	1
12	728-014-1	BACK GASKET	1
13	DP022/DP034 ***	DATA PLATE	1
14	MS 51957-13	SCREW, PH, #4-40 .250	9
15	MS51957-28	SCREW, PH, #6-32 X .375	4
16	MS24693-C3	SCREW, FH, #4-40 X .313	1
17	7220 ****	#8-32 X.375 BRASS STANDOFF	2 or 3
18	AN 364-832A ****	#8 THIN LOCK NUT	2 or 3
19	5610-503-31 ****	#8 ROUND FLAT WASHER	2 or 3
20	5607-93 ****	#8 SHOULDER WASHER	2 or 3
21	MS51957-41 ****	SCREW, PH, #8-32 X .25	2 or 3
22	MS35333-38 ****	#8 STAR LOCK WASHER	2 or 3
23	PMF200444 Note 2	STAINLESS STEEL VENT	1
24	M10510008 Note 2	M12X1.5 NUT	1

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Lens 728-001-1 is replaced by 728-001-2, a flat lens design. 728-001-1 can continued to be used until lens failure

LED board 728-004-1 is replaced by 728-004-2. 728-004-1 can continued to be used until LED board failure

*For TAE0728-1 use Power Supply 728-006-1 and for TAE0728-1D use Power Supply 728-006-2

** For TAE0728-1 use Back Cap 728-007-1 (pre SIL) or 728-007-3 (post SIL) and for TAE0728-1D use Back Cap 728-007-2 (Pre Sil) or 728-007-4 (Post Sil)

*** For TAE0728-1 use Data Plate DP022 and for TAE0728-1D use Data Plate DP034

**** For TAE0728-1 use 2 ea of item 18-23, for TAE0728-1D use 3 ea

Note 1: for TAE0728-1 starting at serial number 01009 and TAE0728-1X at serial number 00105 Talon introduced a new lens bezel design to improve fit on some aircraft applications. Old style bezels can continue to be used.

Note 2: Talon added the vent to all new production PAR 64 units. Please see SIL-2017-004 for info on this modification.

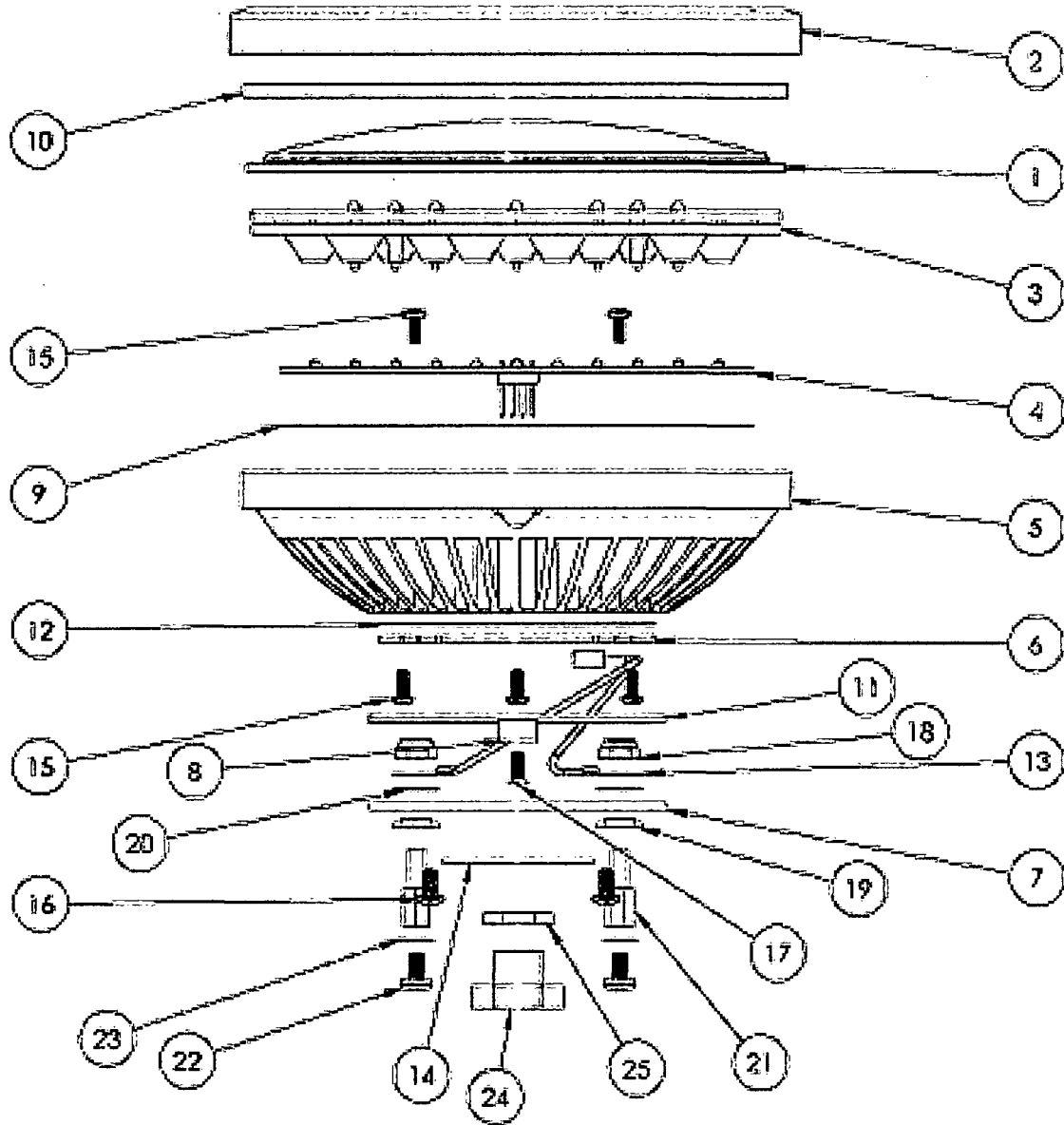
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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ILLUSTRATED PARTS LIST



LED Landing / Taxi PAR 46 TAE0628-1 , TAE0628-1V and TAE0628-2

Figure 2

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ILLUSTRATED PARTS LISTING (SEE FIGURE 2 ON PAGE 16)

Fig Item	PART NUMBER	Nomenclature	Units per Assembly
2- 1	628-001-1	LENS	1
2	628-002-1 See note 1	BEZEL	1
3	628-003-1/628-003-2 *	OPTICAL ASSEMBLY	1
4	628-004-1	LED BOARD	1
5	628-005-1	HEAT SINK	1
6	628-006-1/628-006-1L **	POWER SUPPLY ASSEMBLY	1
7	628-007-1 or 628-007-3 ***	BACK CAP	1
8	628-008-1	KEY	1
9	628-009-1	HEAT THERMAL	1
10	628-011-1	GASKET	1
11	628-014-1	BACK GASKET	1
12	728-010-1	HEAT THERMAL, PWS	1
13	728-015-1	HARNESS	1
14	DP020/DP021/DP042 ****	DATA PLATE	1
15	MS 51957-13	SCREW, PH, #4-40 .250	7
16	MS51957-26	SCREW, PH, #6-32 X .250	4
17	MS24693-C3	SCREW, FH, #4-40 X .313	1
18	AN 364-832A	#8 THIN LOCK NUT	2
19	5607-93	#8 SHOULDER WASHER	2
20	5610-503-31	#8 ROUND FLAT WASHER	2
21	7220	#8-32 X.375 BRASS STANDOFF	2
22	MS51957-41	SCREW, PH, #8-32 X .25	2
23	MS35333-38	#8 STAR LOCK WASHER	2
24	PMF200444 Note 2	STAINLESS STEEL VENT	1
25	M10510008 Note 2	M12X1,5 NUT	1

*For TAE0628-1 and TAE0628-1V use optics assembly 628-003-1 and for TAE0628-2 use optics assembly 628-003-2

EFFECTIVITY

ALL

AA-728-LGB

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

** For TAE0628-1 and TAE0628-2 use PSU 628-006-1, for TAE0628-1V use PSU 628-006-1L

*** Back Cap 628-007-1 is used pre SIL, 628-007-3 is used post SIL.

**** For TAE0628-1 use Data Plate DP020, for TAE0628-1V use DP042 and for TAE0628-2 use Data Plate DP021

Note 1: for TAE0628-1 starting at serial number 00270 and TAE0628-2 at serial number 00260 Talon introduced a new lens bezel design to improve fit on some aircraft applications. Old style bezels can continue to be used.

Note 2: Talon added the vent to all new production PAR 46 units. Please see SIL-2017-004 for info on this modification.

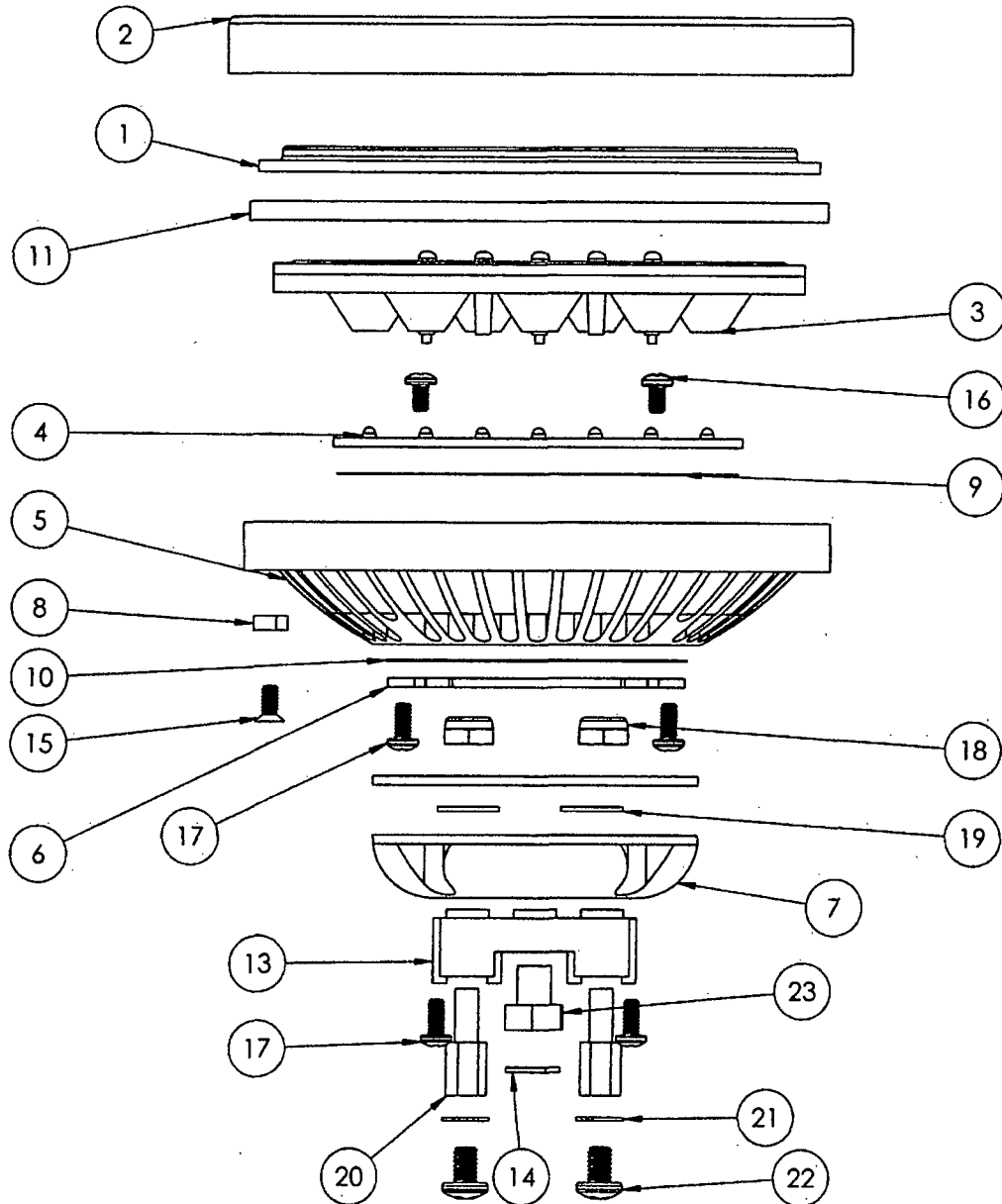
EFFECTIVITY

ALL

AA-728-LGB

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ILLUSTRATED PARTS LIST



LED Taxi / Turn / Engine-Wing Scan / Logo Light PAR 36 TAE0528-1, TAE0528-1W, TAE0528-2, TAE0528-2W, TAE0528-3 and TAE0528-3W

Figure 3

EFFECTIVITY

ALL

AA-728-LGB

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ILLUSTRATED PARTS LISTING (SEE FIGURE 3 ON PAGE 19)

Fig Item	PART NUMBER	Nomenclature	Units per Assembly
3-1	528-001-1/528-001-2 #	LENS	1
2	528-002-1 /528-002-2 See note 1	BEZEL	1
3	528-003-1/528-003-2 / 528-003-3 *	OPTICS ASSEMBLY	1
4	528-004-1/528-004-2/ 528-004-1X **	LED BOARD ASSEMBLY	1
5	528-005-1/ 528-005-2 ***	HEAT SINK	1
6	528-006-1/528-006-2 ****	POWER SUPPLY ASSEMBLY	1
7	528-007-2 Note 2	CAP	1
8	528-008-1	KEY	1
9	528-009-1	HEAT THERMAL	1
10	528-010-1	HEAT THERMAL, PSU	1
11	528-011-1	GASKET	1
12	528-014-1	GASKET	1
13	528-017-1 Note 2	VENT RECEPTACLE	1
14	DP016/DP017/DP018/DP019/DP033 /DP039/DP040 *****	DATA PLATE	1
15	MS24693-C1	SCREW, FH #4-40 X .188	1
16	MS51957-12	SCREW, PH, #4-40 X .188	4
17	MS 51957-13	SCREW, PH, #4-40 .250	6
18	AN 364-832A	#8 THIN LOCK NUT	2
19	5610-503-31	#8 ROUND FLAT WASHER	
20	7220	#8-32 X.375 BRASS STANDOFF	2
21	MS35333-38	#8 STAR LOCK WASHER	2
22	MS51957-41	SCREW, PH, #8-32 X .25	2
23	PMF100600 Note 2	PROTECTIVE VENT	1

Lens 528-001-1 is replaced by 528-001-2, a flat lens design. 528-001-1 can continued to be used until lens failure

EFFECTIVITY

ALL

AA-728-LGB

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

* For TAE0528-1, TAE0528-1X and TAE0528-1W use Optics assembly 528-003-1, for TAE0528-2 and TAE0528-2W use Optics assembly 528-003-2 and for TAE0528-3 and TAE0528-3W use 528-003-3

** For TAE0528-1, TAE0528-2 and TAE0528-3 use LED Board assembly 528-004-1 and for TAE0528-1W, TAE0528-2W and TAE0528-3W use LED Board assembly 528-004-2. For TAE0528-1X use LED Board assembly 528-004-1X

*** For TAE0528-1W use 528-005-1, for all others use 528-005-2

**** For TAE0528-1X use 528-006-2, for all others use 528-006-1

*****For TAE0528-1 use Data Plate DP016, for TAE0528-1W use Data Plate DP017, for TAE0528-1X use Data Plate DP033, for TAE0528-2 use Data Plate DP018, for TAE0528-2W use Data Plate DP019, for TAE0528-3 use Data Plate DP039 and for TAE0528-3W use Data Plate DP040

Note 1: for TAE0528-1 starting at serial number 00570, TAE0528-1X at serial number 00105, TAE0528-2 at serial number 00295, TAE0528-2W at serial number 00135 Talon introduced a new lens bezel design to improve fit on some aircraft applications. All units prior to this change used bezel part number 528-001-1. After the change 528-001-1 is only used on TAE0528-1W and all other PAR 36 units received new bezel upgrade with part number 528-002-2.

Note 2: Talon added the vent to all PAR 36 units. Failed units that do not have the vent should be upgraded in accordance with SIL-2017-003.

EFFECTIVITY

ALL

AA-728-LGB





US Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020
11/30/2007

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N450GG	Serial No. 4082	
	Make Gulfstream	Model GIV-X	Series
2. Owner	Name (As shown on registration certificate) TVPX Aircraft Solutions Inc. Trustee		Address (As shown on registration certificate) Address 39 E Eagle Ridge Dr. STE 201
			City North Salt Lake State UT Zip 84054-2533 Country UNITED STATES

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT	_____		
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No.	
Name <u>Duncan Aviation</u>		<input type="checkbox"/> U. S. Certified Mechanic		EBV2450D	
Address <u>262 S 3800 W</u>		<input type="checkbox"/> Foreign Certified Mechanic			
City <u>Provo</u> State <u>UT</u>		<input checked="" type="checkbox"/> Certified Repair Station			
Zip <u>84601</u> Country <u>United States</u>		<input type="checkbox"/> Certified Maintenance Organization			

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual 22 Jun 2023
--	---

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit. Standards Inspector		Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transportation
	FAA Designee	<input checked="" type="checkbox"/>	Repair Station	Inspection Authorization	Other (Specify)
Certificate or Designation No. EBV2450D		Signature/Date of Authorized Individual 22 Jun 2023			

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N450GG

22 Jun 2023

Nationality and Registration Mark

Date

Plank RPR-Wing, LWR, BL 0-59.5, Front Beam

- A) Repaired **Plank RPR-Wing, LWR, BL 0-59.5, Front Beam** in accordance with drawing SE45803191 Revision C and Repair SE45803191-9 Revision C approved on FAA Form 8100-9 dated 2 Jun 2023.
- 1) Reference Engineering Disposition Document No. CS760504 Step 1.6.1.
 - 2) Instructions for Continued Airworthiness are identified under Gulfstream Aerospace Document No. GIV-SGER-586, Revision -. A copy of the instructions has been provided to the customer for incorporation into the aircraft inspection/maintenance program.
 - 3) **The following statement is from Gulfstream Engineering:**
 - (i) **This disposition is Part 1 of a two-part approval in accordance with AC 25.1529-1A, the requirements of 14 CFR 25.571 require separate approval. FAA form 8100-9 will be provided (by Gulfstream) for the static strength requirements effective for the subsequent 12 months. This is considered to be an interim repair (by Gulfstream). The reviewed structure is acceptable for continued normal aircraft operations for this period while Damage Tolerance analysis is being developed (by Gulfstream) and FAA approved. We (Gulfstream) will issue the 8100-9 with Damage Tolerance requirements addressed before the 12 22month period has expired.**
- B) Repairs performed on Work Order No. LVMDA.
- C) The aircraft equipment list does not change with this Repair.
- D) The aircraft weight and balance record has been updated

----- **END** -----

Additional Sheets Are Attached

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS	FAA PROJECT NO. TR-00-2023-0003
---	---

AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
MAKE Gulfstream	MODEL NO. GIV-X	TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	NAME OF APPLICANT/AUTHORIZATION NO. Duncan Aviation Company

LIST OF DATA


IDENTIFICATION	TITLE
SE45803191 Rev. C 6/2/2023	PLANK RPR - WING, LWR, BL 0-59.5, FRONT BEAM
SE45803191A Rev. B 6/2/2023	STRUCTURAL SUBSTANTIATION FOR SE45803191 Note(s): This 8100-9 supersedes the 8100-9 previously submitted with signature(s) dated 6/2/2023 on ACES8100-9-0128825 to correct a typographical error in note 6. Note 1: The Gulfstream Organization Designation Authorization approves these data. This constitutes FAA approval of the major repair data listed and is not installation approval. Note 2: Valid only for Gulfstream, GIV-X, SN(s) 4082. Note 3: Only those Structures aspects of the repair listed are approved, additional approval for 14 CFR 25.571 are not included in this approval and require a separate approval. Note 4: The following ICA applies to this data: GIV-SGER-586 Rev.-. Note 5: Details of the AR Design Review Assessment for MOC 1 can be found in document: CD-571000041-001 REV. A. Note 6: This FAA approval is provided for the following repairs to Gulfstream GIV-X, Serial No. 4082 only: SE45803191-9, REV. C, PLANK RPR - WING, LWR, BL 0-59.5, FRONT BEAM

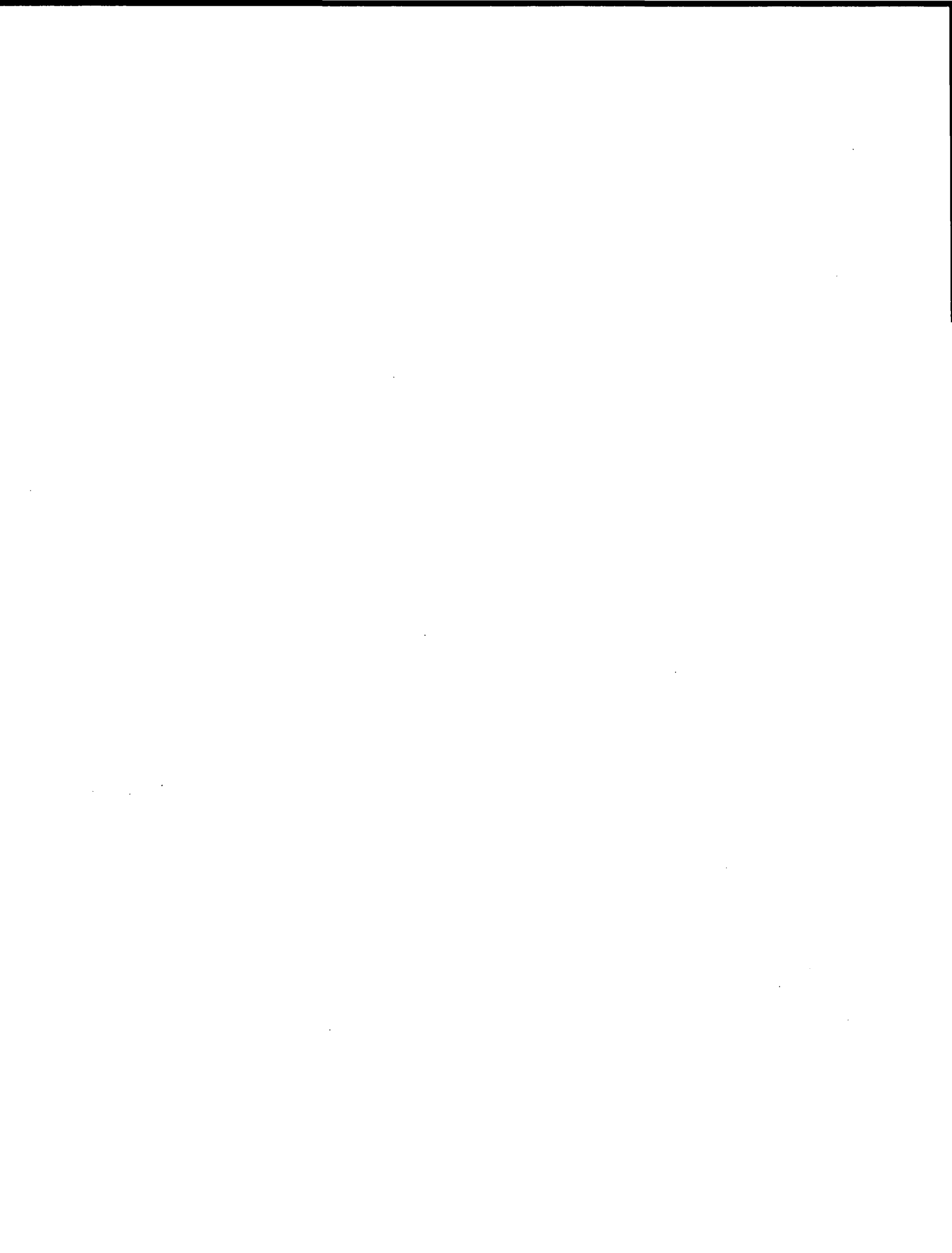
PURPOSE OF DATA
 Support of Major Repair to Gulfstream GIV-X, S/N 4082 to accomplish repair of RH Lwr Wing Plank at Front Beam. This approval is the first in a two-step approval in accordance with AC 25.1529-1A.

APPLICABLE REQUIREMENTS (List specific sections)
 14 CFR 25.301(a)(b) [25-23], 25.303 [25-23], 25.305(a)(b) [25-54], 25.307(a) [25-72], 25.601 [25-0], 25.603(a)(b) [25-46], 25.605(a) [25-46], 25.609(a) [25-0], 25.611 [25-23], 25.613(b) [25-72].

CERTIFICATION - As directed by the Administrator and in accordance with the conditions and limitations of authorization under 14 CFR, data listed above and on attached sheets numbered N/A have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.

I (We) Therefore: Recommend Approval of These Data
 Approve These Data

SIGNATURE(S) OF AUTHORIZED REPRESENTATIVE(S)	NAME	CLASSIFICATION(S)	DATE
 william.white1@gulfstream.com	White, William	AR-E-1246 Structures	Jun 19, 2023
Gulfstream ODA-511131-CE			



500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: CS760504

Title: Duncan Aviation Company

Department: IS TO - WO (GAC)

Customer: **Duncan Aviation Company**

Contact Name: **Paco Velez**

Status: **Open**

Address: **BILLING ADDRESS**

Account Code: **CD302**

P.O. #: **N71924**

Attn: **Accounts Payable**

Target Date: **5/23/2023**

Invoice #:

Created: **5/9/2023**

Date Closed:

Posted:

Aircraft: G450 4082

ICAO:KPVU

Reg: N450GG

HRS: 7184.0

LNDS: 3386.0

Operator: TXPX Aircraft Solutions, INC

F Rep: Jones,Scott

Company: Duncan Aviation

Acct. Code: CD302

P.O. #: N71924

Status: AOG P3

Phone: 13859856397

Mobile:

Email: paco.velez@duncanaviation.com

Ship to: ,,,,

Mx: MSG3

Visnetic Ticket #: 7203731

Opened By: K Smith

Warranty:

Item: 1 **Airframe Gulfstream G450 RH**
plank corrosion

Part #: **G450**

Serial #: **4082**

Squawk: 1.1

Discrepancy: **We found corrosion on the RH FWD Plank. From BL 0 -BL20. there was a previous GAC repair. (SE45803191 performed 04/04/2013). This repair also had corrosion / exfoliated. From BL20 - 40.5 we found additional corrosion.**

500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: CS760504

Title: Duncan Aviation Company

Department: IS TO - WO (GAC)

Status: **Completed**

Resolution: **Preliminary Engineering Disposition:**

Gulfstream Service Engineering requires more information to evaluate the discrepancy. Do the following:

- 1) Verify the previously installed repair is SE45803191-3, Rev -. If this is not accurate, provide correct dash number and revision.
- 2) The SE45803191-3 repair has one trimmed location, between BL 5 and BL 20. The submitted photos show a two additional trimmed locations in the wing plank, one approximately 2" deep and 9" wide and one approximately 1" deep and 3" wide. Consult aircraft logbooks and provide all available information regarding these repairs (repair number, approval authority, date of repair, etc).
- 3) Blend the minimum amount required to remove all corrosion in the wing plank, maintaining a minimum 20:1 width-to-depth blend ratio and a 125 Ra (micro-inch) or smoother surface finish. Perform a High Frequency Eddy Current (HFEC) NDT inspection per GIV Non-Destructive Procedure Testing Manual (NDTPM) 01-00-11 to verify all corrosion has been removed.
- 4) In all blended areas, mark a 1/2" x 1/2" or finer grid. Perform an Ultrasonic (UT) NDT inspection per GIV NDTPM 01-00-12 to determine remaining thicknesses in the blended areas, then mark those values in the gridded area. Take new photos where remaining thicknesses can be clearly seen.
- 5) Inspect all fastener holes in the affected area to see if corrosion is present within. If corrosion is found, note those locations and take photos so corrosion can be clearly seen.
- 6) Submit all the above requested information, as well as any additional information deemed relevant, to Gulfstream Technical Operations for further engineering evaluation.

Sent PL 05-10-23

Signed Off: 5/10/2023 4:50:08AM

By: LAWRENCE, PAUL-960278

Completed: 5/10/2023 4:50:08AM

By: LAWRENCE, PAUL-960278

Step: 1.1.1

Description: **Preliminary Engineering Disposition:**

Gulfstream Service Engineering requires more information to evaluate the discrepancy. Do the following:

- 1) Verify the previously installed repair is SE45803191-3, Rev -. If this is not accurate, provide correct dash number and revision.
- 2) The SE45803191-3 repair has one trimmed location, between BL 5 and BL 20. The submitted photos show a two additional trimmed locations in the wing plank, one approximately 2" deep and 9" wide and one approximately 1" deep and 3" wide. Consult aircraft logbooks and provide all available information regarding these repairs (repair number, approval authority, date of repair, etc).
- 3) Blend the minimum amount required to remove all corrosion in the wing plank, maintaining a minimum 20:1 width-to-depth blend ratio and a 125 Ra (micro-inch) or smoother surface finish. Perform a High Frequency Eddy Current (HFEC) NDT inspection per GIV Non-Destructive Procedure Testing Manual (NDTPM) 01-00-11 to verify all corrosion has been removed.
- 4) In all blended areas, mark a 1/2" x 1/2" or finer grid. Perform an Ultrasonic (UT) NDT inspection per GIV NDTPM 01-00-12 to determine remaining thicknesses in the blended areas, then mark those values in the gridded area. Take new photos where remaining thicknesses can be clearly seen.
- 5) Inspect all fastener holes in the affected area to see if corrosion is present within. If corrosion is found, note those locations and take photos so corrosion can be clearly seen.
- 6) Submit all the above requested information, as well as any additional information deemed relevant, to Gulfstream Technical Operations for further engineering evaluation.

Status: **Completed**

Comments/notes:

500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: CS760504

Title: Duncan Aviation Company

Department: IS TO - WO (GAC)

Signed Off: 5/10/2023 2:23:40AM

By: SCHEIDT, PETER OWEN-313962

Completed: 5/10/2023 2:23:40AM

By: SCHEIDT, PETER OWEN-313962

Squawk: 1.2

Discrepancy: Response to engineering questions.

1. we do not have a copy of the SE45803191-3, Rev - print. All we have is a copy of the log book entry. If you can provide a copy of said print for us to verify. That would be ideal.

2.the SE45803191-3 repair between BL 5 and BL 20 was removed due to exfoliation. The 2" deep and 9" wide and one approximately 1" deep was just done here due to also having exfoliation . We removed all affected corrosion and submitted the engineering request. We also complied with a NDT scan to confirm all corrosion in this area was removed

3. the SE45803191-3 repair between BL 5 and BL 20 was removed due to exfoliation. The 2" deep and 9" wide and one approximately 1" deep was just done here due to also having exfoliation . We removed all affected corrosion and submitted the engineering request. We also complied with a NDT scan to confirm all corrosion in this area was removed

4. Please see attached photos

5. No defects noted in the affected area

6. complied with requested task and added pictures for review

Status: Completed

Resolution: Preliminary Engineering Disposition:

Remove any filler or doubler remaining from the SE45803191-3 Repair.

NDT (Eddy Current) the discrepant area for cracks and to ensure complete removal of all corrosion per G450 Nondestructive Testing Procedure Manual (NDTPM) 01-00-11.

Do not trim any material at this time. If cracks or corrosion remain, Mark the areas, photograph, and submit to Gulfstream Technical Operations for further analysis.

Gulfstream Engineering may approve a minor deviation to the major repair GSL405700002 Rev "-" by extending the inboard side of the GSL repair to include the cutout and doubler of the SE45803191 repair.

Review GSL405700002 Rev - and sketch the current cutouts on Figure 202 of the GSL.

Return the sketch to Gulfstream Technical Operations for further review.

QA/QC on site is to review the GSL and the sketch of the current cutouts on Figure 202 of the GSL. QA/QC can then confirm or oppose the Minor deviation to a Major repair.

Return all information including the QA/QC comments to Gulfstream Technical Operations for further review.

Sent 5-12-23 Luciano

Signed Off: 5/12/2023 12:43:15PM

By: LUCIANO, WALTER-307776

Completed: 5/12/2023 12:43:15PM

By: LUCIANO, WALTER-307776

Work Order: CS760504

Title: Duncan Aviation Company

Department: IS TO - WO (GAC)

Step: 1.2.1

Description: Preliminary Engineering Disposition:

Remove any filler or doubler remaining from the SE45803191-3 Repair. NDT (Eddy Current) the discrepant area for cracks and to ensure complete removal of all corrosion per G450 Nondestructive Testing Procedure Manual (NDTPM) 01-00-11. Do not trim any material at this time. If cracks or corrosion remain, Mark the areas, photograph, and submit to Gulfstream Technical Operations for further analysis. Gulfstream Engineering may approve a minor deviation to the major repair GSL405700002 Rev "-" by extending the inboard side of the GSL repair to include the cutout and doubler of the SE45803191 repair. Review GSL405700002 Rev - and sketch the current cutouts on Figure 202 of the GSL. Return the sketch to Gulfstream Technical Operations for further review. QA/QC on site is to review the GSL and the sketch of the current cutouts on Figure 202 of the GSL. QA/QC can then confirm or oppose the Minor deviation to a Major repair. Return all information including the QA/QC comments to Gulfstream Technical Operations for further review.

Status: Completed

Comments/notes:

Signed Off: 5/12/2023 12:39:52PM By: THEISS, BRIAN J.-313426

Completed: 5/12/2023 12:39:52PM By: THEISS, BRIAN J.-313426

Squawk: 1.3

Discrepancy: Customer submits the following information requested by engineering prelim dispo 1.2.1

- Doubler was previously removed due to corrosion
- All areas were worked to remove corrosion and then eddy current. No corrosion present at this time.
- Per disposition. No corrosion or cracks found. No material was removed.
- Please review the attached file.
- No objection to Minor or Major repair.

G:\Techops\CORRIDOR RFA ATTACHMENTS\G350 & G450\Sn_4082\CS760504 RH plank corrosion\Photos\1.3

Status: Completed

Resolution: Preliminary Engineering Disposition:

Additional information is required to support the final repair configuration of the noted discrepant conditions. On the lower spar cap common to the area where the SE45803191-3 filler was removed, mark a 0.25 inch grid and ultrasonically inspect the area per GIV Nondestructive Testing Procedures Manual 01-00-12 for remaining thickness. Provide a thickness reading for each grid square. Submit thickness results to Gulfstream Technical Operations for further engineering evaluation.

Signed Off: 5/16/2023 10:14:41AM By: ROUNTREE, FREDERICK JACKSON-316610

Completed: 5/16/2023 10:14:41AM By: ROUNTREE, FREDERICK JACKSON-316610

Step: 1.3.1

Description: Preliminary Engineering Disposition:

Additional information is required to support the final repair configuration of the noted discrepant conditions. On the lower spar cap common to the area where the SE45803191-3 filler was removed, mark a 0.25 inch grid and ultrasonically inspect the area per GIV Nondestructive Testing Procedures Manual 01-00-12 for remaining thickness. Provide a thickness reading for each grid square. Submit thickness results to Gulfstream Technical Operations for further engineering evaluation.

Status: Completed

Comments/notes:

Signed Off: 5/16/2023 9:48:32AM By: BOGER, CHRISTOPHER-311865

500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: CS760504

Title: Duncan Aviation Company

Department: IS TO - WO (GAC)

Completed: 5/16/2023 9:48:32AM

By: BOGER, CHRISTOPHER-311865

Squawk: 1.4

Discrepancy: Please see the attached NDT report requested from item 1.3

Status: Completed

Resolution: Engineering Disposition:

See attached file "SE45803191 REV.C_ADVANCE.pdf" for an advance release of the SE45803191-9 repair. This advance release approved for the following:

1. For trim out and inspection.
2. For part, material and fastener procurement.
3. For manufacturing of repair parts.

This advance release IS NOT approved for parts installation or final QA/QC acceptance or buy off.

Sent 5-26-23 Luciano

Signed Off: 5/26/2023 5:25:17PM

By: LUCIANO, WALTER-307776

Completed: 5/26/2023 5:25:17PM

By: LUCIANO, WALTER-307776

Step: 1.4.1

Description: Engineering Disposition:

See attached file "SE45803191 REV.C_ADVANCE.pdf" for an advance release of the SE45803191-9 repair. This advance release approved for the following:

1. For trim out and inspection.
2. For part, material and fastener procurement.
3. For manufacturing of repair parts.

This advance release IS NOT approved for parts installation or final QA/QC acceptance or buy off.

Status: Completed

Comments/notes: File: SE45803191 REV.C_ADVANCE.pdf

File Location: \\gsrv01\gv1\Techops\CORRIDOR RFA ATTACHMENTS\G350 & G450\Sn_4082\CS760504 wing plank corrosion\Engineering Disposition

Signed Off: 5/26/2023 4:37:01PM

By: BOGER, CHRISTOPHER-311865

Completed: 5/26/2023 4:37:01PM

By: BOGER, CHRISTOPHER-311865

Squawk: 1.5

Discrepancy: We are unable to Find the correct material size for the 17-7ph the only stocked material is available near the specified .15" in .125". We need to know if this is an acceptable substitute. See drawing SE45803191 part -39

Status: Completed

Resolution: Engineering disposition:

Stock material thickness ordered was .105" only stock available is .125"

It is unacceptable to fabricate the requested SE45803191-39 doubler from thicker material or machined down to thickness material. The required material is available through contacting Gulfstream parts/procurement or Gulfstream Technical Operations.

Sent 6-2-23 Luciano

Signed Off: 6/2/2023 3:10:40PM

By: LUCIANO, WALTER-307776

Completed: 6/2/2023 3:10:40PM

By: LUCIANO, WALTER-307776

Step: 1.5.1

Description: Engineering disposition:

It is unacceptable to fabricate the requested SE45803191-39 doubler from thicker material or machined down to thickness material. The required material is available through contacting Gulfstream parts/procurement or Gulfstream Technical Operations.

Status: Completed

Comments/notes:

Signed Off: 6/2/2023 2:49:58PM

By: LANG, ERIC MICHAEL-310035

Completed: 6/2/2023 2:49:58PM

By: LANG, ERIC MICHAEL-310035

500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: CS760504

Title: Duncan Aviation Company

Department: IS TO - WO (GAC)

Squawk: 1.6

Discrepancy: Continue engineering support, ref item 1.4

Status: Completed

Resolution: Engineering Disposition:

Repair the Wing Plank Trailing Edge Attach Flange in accordance with SE45803191-9 - PLANK RPR-WING,LWR,BL 0-59.5, FRONT BEAM, Rev. "C".

Gulfstream considers repair in accordance with SE45803191-9 to be Major. This disposition is Part I of a two-part approval in accordance with AC 25.1529-1A, the requirements of 14 CFR 25.571 require separate approval. FAA Form 8100-9 will be provided for the static strength requirements effective for the subsequent 12 months. This is considered to be an interim repair. The reviewed structure is acceptable for continued normal aircraft operations for this period while Damage Tolerance analysis is being developed and FAA approved. We will issue the 8100-9 with Damage Tolerance requirements addressed before the 12 month period has expired.

Sent Chuck Holmes 06/05/23

Signed Off: 6/5/2023 2:10:07PM

By: HOLMES, CHARLES-311357

Completed: 6/5/2023 2:10:07PM

By: HOLMES, CHARLES-311357

Step: 1.6.1

Description: Engineering Disposition:

Repair the Wing Plank Trailing Edge Attach Flange in accordance with SE45803191-9 - PLANK RPR-WING,LWR,BL 0-59.5, FRONT BEAM, Rev. "C".

Gulfstream considers repair in accordance with SE45803191-9 to be Major. This disposition is Part I of a two-part approval in accordance with AC 25.1529-1A, the requirements of 14 CFR 25.571 require separate approval. FAA Form 8100-9 will be provided for the static strength requirements effective for the subsequent 12 months. This is considered to be an interim repair. The reviewed structure is acceptable for continued normal aircraft operations for this period while Damage Tolerance analysis is being developed and FAA approved. We will issue the 8100-9 with Damage Tolerance requirements addressed before the 12 month period has expired.

Status: Completed

Comments/notes:

Signed Off: 6/5/2023 1:45:13PM

By: LANG, ERIC MICHAEL-310035

Completed: 6/5/2023 1:45:13PM

By: LANG, ERIC MICHAEL-310035

Squawk: 1.7

Discrepancy: Continued Engineering Support

Status: Open

Resolution:

Item: 2

Airframe Gulfstream G450 LH
plank corrosion

Part #: G450

Serial #: 4082

Squawk: 2.1

Discrepancy: Corrosion found on the LH wing plank on the flange. See attached photos and NDT after removal.

Work Order: CS760504

Title: Duncan Aviation Company

Department: IS TO - WO (GAC)

Status: **Completed**

Resolution: **Engineering Disposition:**
 The reported material thicknesses are acceptable as is for continued service. Verify a 20:1 width to depth blend ratio and a surface finish of 125 Ra (micro-inch) or smoother. Verify blending has not resulted in the removal of visible fastener head markings or visually evident fastener diameter reduction. Remove and replace any fastener with this type of excessive blending per B/P requirements. Prior to fastener removal operation, ensure that there is sufficient access to allow for installation of noted fasteners. Refinish reworked surfaces with finish 213 (chromate conversion coating) per G450 Structural Repair Manual (SRM) Chapter 51-21-00 and finish 3012 (epoxy primer, skydrol resistant, waterborne) per G450 SRM Chapter 51-07-10 and apply customer topcoat as required. Taper shim gaps and mismatches of .025" or less with Hysol EA9377 per the manufacturer's instructions. Hysol EA9334NA is an acceptable alternate product. Let cure fully prior to re drilling. Maintain aerodynamic contour smoothness per G450 SRM Chapter 51-14-00. If additional discrepancies are found, document discrepancy and submit to Gulfstream Technical operations for further evaluation. Gulfstream Service Engineering considers this a minor repair. This disposition is based on information provided by the customer.

Signed Off: 5/24/2023 11:13:38AM By: ROUNTREE, FREDERICK JACKSON-316610

Completed: 5/24/2023 11:13:38AM By: ROUNTREE, FREDERICK JACKSON-316610

Step: 2.1.1

Description: **Engineering Disposition:**
 The reported material thicknesses are acceptable as is for continued service. Verify a 20:1 width to depth blend ratio and a surface finish of 125 Ra (micro-inch) or smoother. Verify blending has not resulted in the removal of visible fastener head markings or visually evident fastener diameter reduction. Remove and replace any fastener with this type of excessive blending per B/P requirements. Prior to fastener removal operation, ensure that there is sufficient access to allow for installation of noted fasteners. Refinish reworked surfaces with finish 213 (chromate conversion coating) per G450 Structural Repair Manual (SRM) Chapter 51-21-00 and finish 3012 (epoxy primer, skydrol resistant, waterborne) per G450 SRM Chapter 51-07-10 and apply customer topcoat as required. Taper shim gaps and mismatches of .025" or less with Hysol EA9377 per the manufacturer's instructions. Hysol EA9334NA is an acceptable alternate product. Let cure fully prior to re drilling. Maintain aerodynamic contour smoothness per G450 SRM Chapter 51-14-00. If additional discrepancies are found, document discrepancy and submit to Gulfstream Technical operations for further evaluation. Gulfstream Service Engineering considers this a minor repair. This disposition is based on information provided by the customer.

Status: **Completed**

Comments/notes: Review & Signature for J. Simons, provided by C. Boger QSE#E389

Signed Off: 5/24/2023 9:56:23AM By: BOGER, CHRISTOPHER-311865

Completed: 5/24/2023 9:56:23AM By: BOGER, CHRISTOPHER-311865

500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: **CS760504**

Title: **Duncan Aviation Company**

Department: **IS TO - WO (GAC)**

* End of Report *

UNITED STATES OF AMERICA
 DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
STANDARD AIRWORTHINESS CERTIFICATE

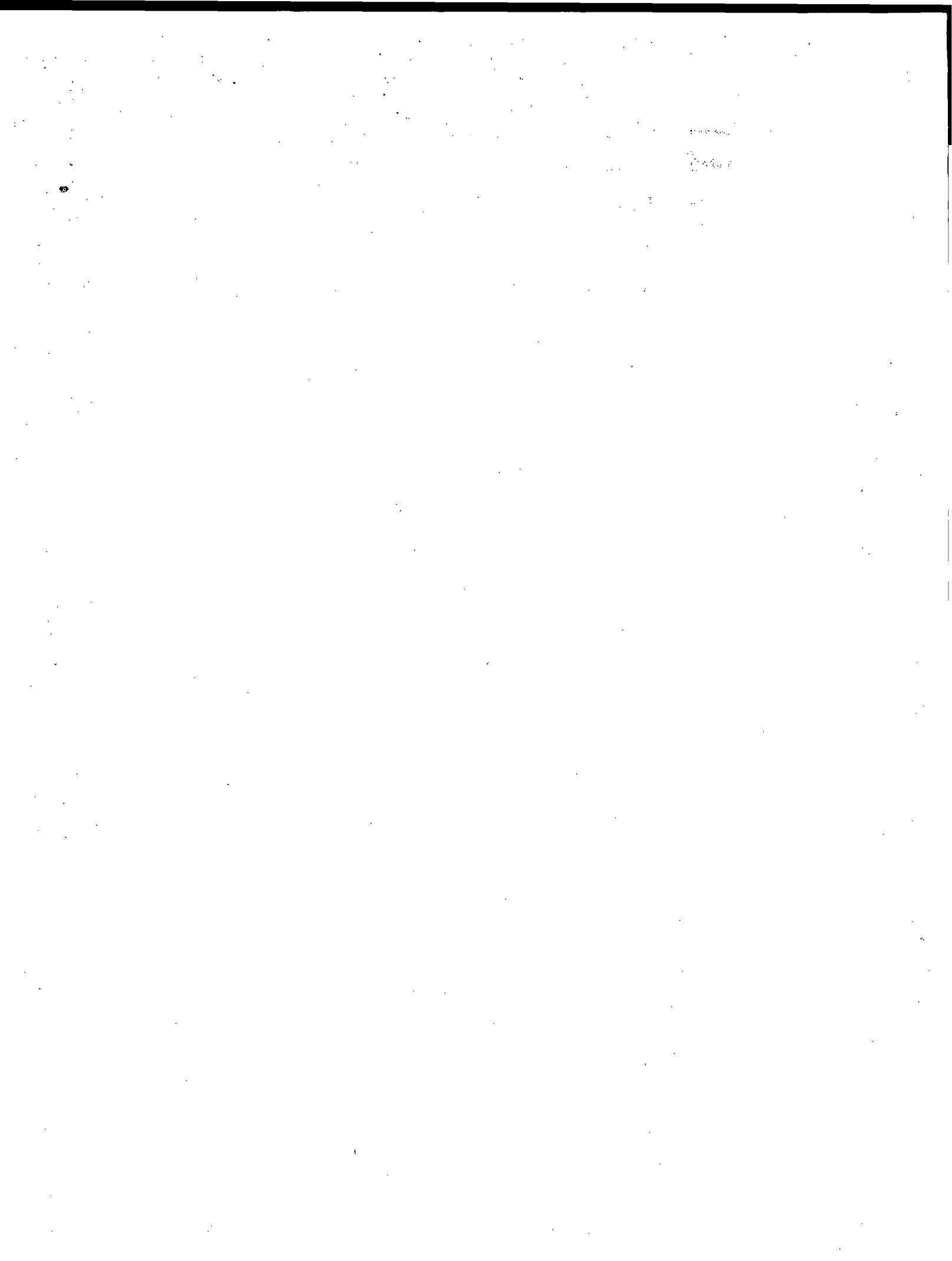
1 NATIONALITY AND REGISTRATION MARKS N451NS	2 MANUFACTURER AND MODEL Gulfstream Aerospace GIV-X (G450)	3 AIRCRAFT NUMBER 4082	SERIAL NUMBER 2028	CATEGORY Transport
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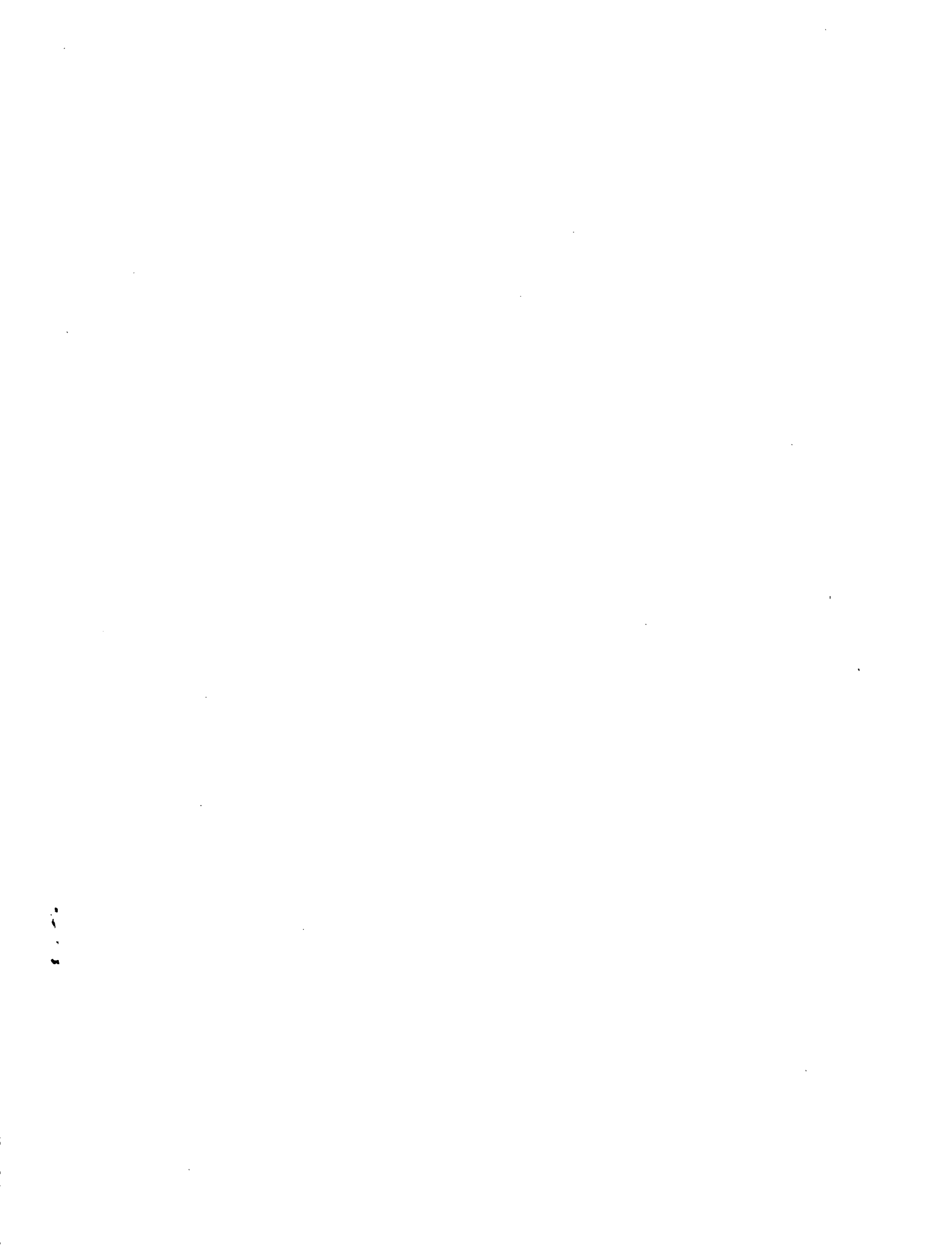
5. AUTHORITY AND BASIS FOR ISSUANCE
 This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the type certificate therefor, to be in condition for safe operation, and has been shown to meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation, except as noted herein.
 Exceptions:
Exemption No. 8142-25.901 (c) Single Failure Criteria

6. TERMS AND CONDITIONS
 Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States.

DATE OF ISSUANCE R05/09/2007	FAA REPRESENTATIVE John P. Bohannon Jr.	DESIGNATION NUMBER ODART-200023-SQ
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Any alteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.







26 May 2022

Mr. Dennis Mueller
Federal Aviation Administration
Flight Standards District Office
10801 Pear Tree Lane
St. Ann, MO 63074

Dear Mr. Mueller,

Enclosed is the return Standard Airworthiness FAA Form 8100-2 for Gulfstream GIV-X (G450), Aircraft Serial Number 4082, registration N451NS. This aircraft was a change of registration from N451NS to N450GG . Thank you for your assistance in this matter.

If you have any questions, please feel free to call me at (573) 605-6145.

Sincerely,

A handwritten signature in cursive script that reads "George Elder".

George Elder
Manager of Quality
Authorized Agent
State of Missouri
County of Perry
1390 Highway H
Perryville, Mo. 63775
Cell 314-368-0607
Enclosures



US Department
of Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

OMB No. 2120-0020
Exp: 01/31/2023

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark U.S.A. N450GG	Serial No. 4082			
	Make GULFSTREAM	Model GIV-X (G450)	Series N/A		
2. Owner	Name (As shown on registration certificate) TVPX Aircraft Solutions Inc. Trustee		Address (As shown on registration certificate) Address 39 E Eagle Ridge Dr. Ste.201		
			City N Salt Lake City	State Utah	
			Zip 84054	Country U.S.A.	

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		
Name Enrique Aceves	Address 1401 Superior Ave. Ste E City Newport Beach State Ca Zip 92663 Country USA	<input checked="" type="checkbox"/>	U. S. Certificated Mechanic	Manufacturer
		<input type="checkbox"/>	Foreign Certificated Mechanic	C. Certificate No.
		<input type="checkbox"/>	Certificated Repair Station	2753282
		<input type="checkbox"/>	Certificated Maintenance Organization	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual 13 JUN 2022
--	--

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Flt. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	Repair Station	<input checked="" type="checkbox"/>	Inspection Authorization
				Other (Specify)

Certificate or Designation No. 3395175	Signature/Date of Authorized Individual 13 JUN 2022
--	--

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

U.S.A./ N450GG

13 JUN 2022

Nationality and Registration Mark

Date

PAGE 2 of 2

MODEL: GIV-X (G450) SERIAL NO.: 4082 TAIL NO.: N450GG ACTT: 7071.6 ACTL: 3337

The following items were accomplished at Falcon Landing, LLC, Hawthorne California, and installed per the approve data shown:

1. Installed Starlink Kit System per Space Exploration Technology Drawing 01666294-501 Rev. A dated 06 Jun 2022 and Master Data List Starlink Alteration G450 SN 4082 SPX-00003367 Rev. 05 dated 08 Jun 2022.

a) 8110-3 (Structures) approval by DERT-605221-NM Dated 13 Jun 2022:

SPX-00003367 Rev. 5.0 Dated 06/08/2022 G450 SN 4082 Starlink Alteration - Master Drawing List.

SPX-00003374 Rev 1.0 Dated 06/06/2022 G450 SN 4082 Starlink Alteration - Aircraft Substantiation.

b) 8110-3 (Electrical Systems & Equipment) approvals by DERT-834301-CE Dated 09 Jun 2022:

SPX-00003367 Rev. 5.0 Dated 06/08/2022 G450 SN 4082 Starlink Alteration - Master Drawing List.

SPX-00003370 Rev. 1.0 Dated 06/06/2022 G450 SN 4082 Starlink Alteration - Electrical, Installation Instructions.

SPX-00003369 Rev. 1.0 Dated 06/06/2022 G450 SN 4082 Starlink Alteration - Electrical, Flammability and Test Substantiation.

SPX-00003371 Rev. 1.0 Dated 06/06/2022 G450 SN 4082 Starlink Alteration - Ground Functional Test.

SPX-00003372 Rev. 1.0 Dated 06/06/2022 G450 SN 4082 Starlink Alteration - EMI Ground Test.

SPX-00003373 Rev. 1.0 Dated 06/06/2022 G450 SN 4082 Starlink Alteration - EMI Flight Test.

- Wire Harness installed at Westar Aviation Perryville MO, CRS4W5R536D in accordance with SPX-00003334 Rev. 1.0 Dated 19 May 2022. Airframe Log dated 20 May 2022 W.O. 20579 page 10 item 2.

- Weight and balance have been updated as required.

- See attached Instructions for Continued Airworthiness

-----END-----

Additional Sheets Are Attached

Advanced Air LLC
Gulfstream G450
SN: 4082
N450GG

Airframe Log
Work Order: 20579

Date: 20 May 2022
ACTT: 7040.7
LDGS: 3322

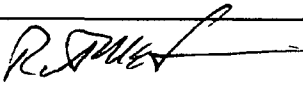
The following items were installed:

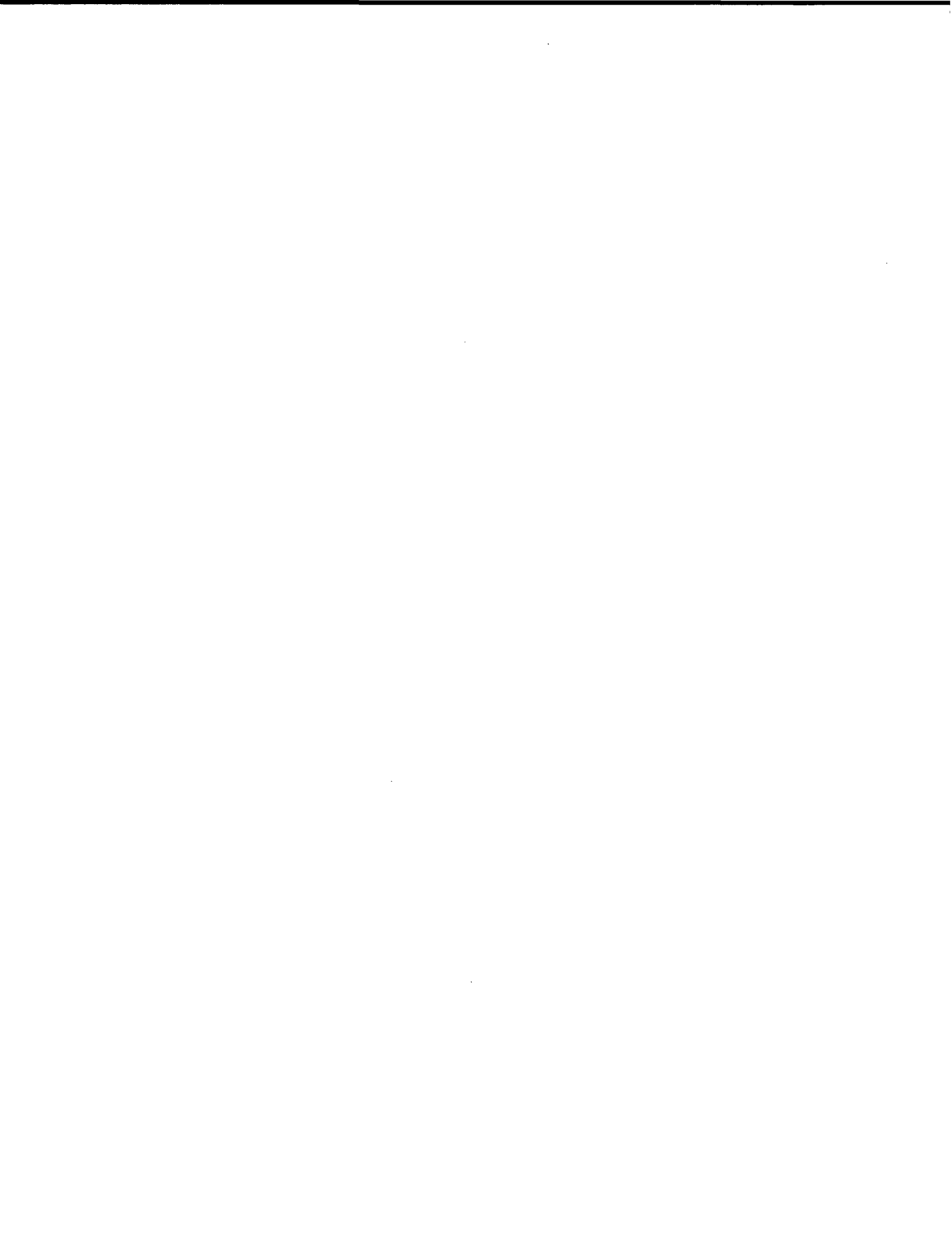
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FWD LH DOWNWASH LT P/N L5800-300-35 S/N 024200-001
FWD LH DOWNWASH LT P/N L5800-300-35 S/N 024200-003
FWD LH DOWNWASH LT P/N L5800-300-35 S/N 024200-005
FWD LH DOWNWASH LT P/N L5800-300-35 S/N 024200-002
FWD LH DOWNWASH LT P/N L5800-300-35 S/N 024200-016
FWD LH DOWNWASH LT P/N L5800-090-35 S/N 024203-003
FWD LH DOWNWASH LT P/N L5800-090-35 S/N 024203-002
AFT LH DOWNWASH LT P/N L5800-300-35 S/N 024200-020
AFT LH DOWNWASH LT P/N L5800-300-35 S/N 024200-019
AFT LH DOWNWASH LT P/N L5800-120-35 S/N 024202-004
AFT LH DOWNWASH LT P/N L5800-120-35 S/N 024202-003
AFT LH DOWNWASH LT P/N L5800-105-35 S/N 024204-001
FWD LH UPWASH LT P/N L5800-300-35 S/N 024200-022
FWD LH UPWASH LT P/N L5800-300-35 S/N 024200-024
FWD LH UPWASH LT P/N L5800-300-35 S/N 024200-025
FWD LH UPWASH LT P/N L5800-300-35 S/N 024200-026
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AFT LH UPWASH LT P/N L5800-300-35 S/N 024200-028
AFT LH UPWASH LT P/N L5800-285-35 S/N 024201-002
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AFT LH UPWASH LT P/N L5800-090-35 S/N 024203-008
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FWD RH DOWNWASH LT P/N L5800-300-35 S/N 024200-008
FWD RH DOWNWASH LT P/N L5800-090-35 S/N 024203-005
FWD RH DOWNWASH LT P/N L5800-090-35 S/N 024203-004
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AFT RH DOWNWASH LT P/N L5800-300-35 S/N 024200-017
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AFT RH DOWNWASH LT P/N L5800-120-35 S/N 024202-002
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FWD RH UPWASH LT P/N L5800-300-35 S/N 024200-011
FWD RH UPWASH LT P/N L5800-300-35 S/N 024200-021
FWD RH UPWASH LT P/N L5800-090-35 S/N 024203-010
FWD RH UPWASH LT P/N L5800-090-35 S/N 024203-012
AFT RH DOWNWASH LT P/N L5800-120-35 S/N 024202-005
AFT RH UPWASH LT P/N L5800-300-35 S/N 024200-023
AFT RH UPWASH LT P/N L5800-120-35 S/N 024202-010
AFT RH UPWASH LT P/N L5800-285-35 S/N 024201-003
AFT RH UPWASH LT P/N L5800-090-35 S/N 024203-009
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AFT LAV MIRROR LT P/N L1235250 S/N 024196-004
AFT LAV MIRROR LT P/N L1235250 S/N 024196-003
AFT LAV MIRROR LT P/N L1235250 S/N 024196-001
AFT LAV MIRROR DIMMER P/N N2024 S/N 1252
AFT LAV SINK LT P/N L1235800 S/N 024199-002
AFT LAV SINK LT P/N L1235800 S/N 024199-001
LH GALLEY WORK LT P/N L1235360 S/N 024197-004
LH GALLEY WORK LT P/N L1235360 S/N 024197-002
LH GALLEY EFFECT LT P/N L1235360 S/N 024197-001
LH GALLEY EFFECT LT P/N L1235360 S/N 024197-003
RH GALLEY WORK LT P/N L1235642 S/N 024198-002
RH GALLEY WORK LT P/N L1235642 S/N 024198-003
RH GALLEY EFFECT LT P/N L1235642 S/N 024198-001
RH GALLEY EFFECT LT P/N L1235642 S/N 024198-004

2. Installed Customer Supplied Starlink Wire Harness in accordance with the following documents:

- a) SpaceX Technical Memo - G450 SN 4082 Starlink Alteration - Electrical Installation Instructions - SPX-00003334 Version 1.0 dated 19 May 2022



DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION			I. DATE June 13, 2022
STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream	3. MODEL NO. GIV-X	4. TYPE (Aircraft, Engine, Propeller, etc.) Airplane	5. NAME OF APPLICANT Space Exploration Technologies, Hawthorne, CA
LIST OF DATA			
6. IDENTIFICATION	7. TITLE		
SpaceX Documents: SPX-00003367 Revision 5.0 dated 2022-06-08 SPX-00003374 Revision 1.0 Dated 2022-06-06 END END END	G450 SN 4082 Starlink Alteration – Master Drawing List G450 SN 4082 Starlink Alteration – Aircraft Substantiation Notes: 1. This approval is for the engineering design and substantiation data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "Applicable Requirements". This form may not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration. It is not an installation approval. 2. Static structural approval only.		
8. PURPOSE OF DATA In support of a major alteration. GIV-X (G450) N450GG S/N 4082 only.			
9. APPLICABLE REQUIREMENTS (List specific sections) 14 CFR through Amdt. 25-101: 25.301(a)(b) Amdt. 25-23, 25.303 Amdt. 25-23, 25.305(a)(b) Amdt. 25-86, 25.307(a) Amdt. 25-72, 25.561(c) Amdt. 25-91, 25.601 Amdt. 25-0, 25.603(a)(b) Amdt. 25-46, 25.605(a) Amdt. 25-46, 25.609(a) Amdt. 25-0, 25.611 Amdt. 25-23, 25.625(a)(b)(c) Amdt. 25-72, 25.789(a) Amdt. 25-46 [end]			
10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and attached sheets numbered <u>none</u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.			
<input type="checkbox"/> Recommend approval of these data <input checked="" type="checkbox"/> Approve these data I (We) Therefore			
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S) Robert M. Halvorson 	12. DESIGNATION NUMBER(S) DERT-605221-NM	13. CLASSIFICATION (S) Structures	



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS

1. DATE
June 9, 2022

AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION

2. MAKE Gulfstream Aerospace	3. MODEL NO. GIV-X (G450)	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT Space Exploration Technologies, Hawthorne, CA
---------------------------------	------------------------------	---	--

LIST OF DATA

6. IDENTIFICATION	7. TITLE
SPX-00003367 Rev. 5.0 Dated 06/08/2022	G450 SN 4082 Starlink Alteration - Master Drawing List
SPX-00003370 Rev. 1.0 Dated 06/06/2022	G450 SN 4082 Starlink Alteration - Electrical Installation Instructions
<p>-----</p> <p>This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "Applicable Requirements." This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration/repair.</p> <p>Approval is for Electrical Aspects Only.</p> <p>This approval is in support of major alteration to Gulfstream GIV-X (G450), S/N 4082 for Starlink Alteration.</p>	


8. PURPOSE OF DATA In support of major alteration to Gulfstream GIV-X (G450), S/N 4082 for Starlink Alteration.

9. APPLICABLE REQUIREMENTS (List specific sections)
14 CFR Part 25.1301(a)(b)(c) [Amdt. 25-0], 25.1351(a) [Amdt. 25-41], 25.1357(a)(c) [Amdt. 25-0]

10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered NONE have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.

Recommend approval of these data

I (We) Therefore Approve these data

11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)	12. DESIGNATION NUMBERS(S)	13. CLASSIFICATION(S)
Robert S. Chupka 	DERT-834301-CE	Systems & Equipment (Electrical)



AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream Aerospace	3. MODEL NO. GIV-X (G450)	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT Space Exploration Technologies, Hawthorne, CA

LIST OF DATA

6. IDENTIFICATION	7. TITLE
SPX-00003369 Rev. 1.0 Dated 06/06/2022	G450 SN 4082 Starlink Alteration - Electrical, Flammability and Test Substantiation
<p>-----</p> <p>This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "Applicable Requirements." This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration/repair.</p> <p>Approval is for Electrical Aspects Only.</p> <p>This approval is in support of major alteration to Gulfstream GIV-X (G450), S/N 4082 for Starlink Alteration.</p>	

8. PURPOSE OF DATA	In support of major alteration to Gulfstream GIV-X (G450), S/N 4082 for Starlink Alteration.
--------------------	--

9. APPLICABLE REQUIREMENTS (List specific sections)	14 CFR Part 25.1301(a)(b)(c) [Amdt. 25-0], 25.1351(a) [Amdt. 25-41], 25.1353(a) [Amdt. 25-42], 25.1357(a)(c) [Amdt. 25-0], 25.1431(a) [Amdt. 25-0]
---	--

10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered <u>NONE</u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.	
I (We) Therefore	<input type="checkbox"/> Recommend approval of these data <input checked="" type="checkbox"/> Approve these data

11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)	12. DESIGNATION NUMBERS(S)	13. CLASSIFICATION(S)
Robert S. Chupka	DERT-834301-CE	Systems & Equipment (Electrical)



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS

1. DATE
June 9, 2022

AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION

2. MAKE Gulfstream Aerospace	3. MODEL NO. GIV-X (G450)	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT Space Exploration Technologies, Hawthorne, CA
---------------------------------	------------------------------	---	--

LIST OF DATA

6. IDENTIFICATION	7. TITLE
SPX-00003371 Rev. 1.0 Dated 06/06/2022	G450 SN 4082 Starlink Alteration - Ground Functional Test (Plan)
SPX-00003372 Rev. 1.0 Dated 06/06/2022	G450 SN 4082 Starlink Alteration - EMI Ground Test (Plan)
SPX-00003373 Rev. 1.0 Dated 06/06/2022	G450 SN 4082 Starlink Alteration - EMI Flight Test (Plan)
<p>-----</p> <p>This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "Applicable Requirements." This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration/repair.</p> <p>Approval is for Electrical Aspects Only.</p> <p>This approval is in support of major alteration to Gulfstream GIV-X (G450), S/N 4082 for Starlink Alteration.</p>	


8. PURPOSE OF DATA In support of major alteration to Gulfstream GIV-X (G450), S/N 4082 for Starlink Alteration.

9. APPLICABLE REQUIREMENTS (List specific sections)
14 CFR Part 25.1301(d) [Amdt. 25-0], 25.1353(a) [Amdt. 25-42], 25.1431(a) [Amdt. 25-0]

10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered NONE have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.

Recommend approval of these data

I (We) Therefore Approve these data

11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S) Robert S. Chupka 	12. DESIGNATION NUMBERS(S) DERT-834301-CE	13. CLASSIFICATION(S) Systems & Equipment (Electrical)



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

A/C Make: Gulfstream **Model:** GIV-X (G450) **S/N:** 4082 **Reg. #:** N450GG

Revision: 0 **Date:** June 10, 2022

This sixteen item checklist are Instructions for Continued Airworthiness (ICA), to comply with FAA Order 8900.1, Vol. 4, Para. 1186, are applicable to the aircraft listed above when the following equipment is installed:

SYSTEM: Starlink V3 Antenna

ITEM	CHECKLIST INFORMATION
1.	<p>Introduction: This section briefly describes the aircraft, engine, propeller, or component that has been altered. Include any other information on the content, scope, purpose, arrangement, applicability, definitions, abbreviations, precautions, units of measurement, referenced publications, and distribution of the ICA as applicable.</p> <p>Comment: This alteration is for the G450 aircraft. A consumer Starlink antenna is attached inside the vertical tail radome and its associated PoE cable is routed through existing wire runs in the vertical stabilizer to a wifi router in the cabin (credenza cabinet). Intent of the alteration is to provide satellite internet to passengers.</p>
2.	<p>Description: Of the major alteration, its functions, including an explanation of its interface with other systems, if any.</p> <p>Comment: The antenna is attached to existing mounting points in the tail fairing and is secured using bolt/nut fasteners . The antenna receives PoE via the WiFi router powered by an existing 60 HZ 115VAC circuit, which is on a nonessential electrical bus.</p>
3.	<p>Control, Operation information: Or special procedures, if any.</p> <p>Comment: <u>None</u></p>
4.	<p>Servicing information: Such as types of fluids used, servicing points, and location of access panels, as appropriate.</p> <p>Comment: Antenna can be accessed by removing the vertical tail fairing. Router can be accessed in the credenza cabinet.</p>
5.	<p>Maintenance Instructions: Such as recommended inspection/maintenance periods in which each of the major alteration components are inspected, cleaned, lubricated, adjusted, and tested, including applicable wear tolerances and work recommended at each scheduled maintenance period. This section can refer to the manufacturers' instructions for the equipment installed where appropriate (e.g., functional checks, repairs, inspections.) It should also include any special notes, cautions, or warnings, as applicable.</p> <p>Comment: <u>None</u></p>
6.	<p>Troubleshooting information: Information describing probable malfunctions, how to recognize those malfunctions, and the remedial actions to be taken.</p> <p>Comment: <u>Power cycle 60 Hz Master switch in the cockpit in the event of wifi outage.</u></p>



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

7.	<p>Removal and replacement information: This section describes the order and method of removing and replacing products, parts and any necessary precautions. This section should also describe or refer to manufacturer's instructions to make required tests, trim checks, alignment, calibrations, center of gravity changes, lifting or shoring, etc., if any.</p> <p>Comment: Remove the vertical tail fairing to gain access to the attachment hardware and cable. Access the router in the credenza cabinet, Remove and replace the hardware using standard practices and techniques as described in the G450 maintenance manual.</p>
8.	<p>Diagrams: Of access plates and information, if needed, to gain access for inspection.</p> <p>Comment: None</p>
9.	<p>Special inspection requirements: Such as X-ray, ultrasonic testing, or magnetic particle inspection, if required.</p> <p>Comment: In the event of a blade out engine condition, lightning strike, or FOD impact during flight, remove radome and inspect brackets, fasteners, and antenna for damage or loosening of fastener torques.</p>
10.	<p>Application of protective treatments: To the affected area after inspection and/or maintenance, if any.</p> <p>Comment: Standard practices and techniques apply</p>
11.	<p>Data: Relative to structural fasteners such as type, torque, and installation requirements, if any.</p> <p>Comment: Standard practices for fasteners apply</p>
12.	<p>List of special tools: Special tools that are required, if any.</p> <p>Comment: None</p>
13.	<p>For commuter category aircraft: The following additional information must be furnished, as applicable:</p> <ul style="list-style-type: none"> A. Electrical loads B. Methods of balancing flight controls C. Identification of primary and secondary structures D. Special repair methods applicable to the airplane. <p>Comment: N/A</p>
14.	<p>Recommended overhaul periods: Are required to be noted on the ICA when an overhaul period has been set by the manufacturer of a component, or equipment. If there is no overhaul period, the ICA should state for item 14: "No additional overhaul time limitations."</p> <p>Comment: No additional overhaul time limitations</p>



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

15.	<p>Airworthiness Limitation Section: Include any "approved" airworthiness limitations identified by the manufacturer or FAA Type Certificate Holding Office (e.g., an STC incorporated in a larger field approved major alteration may have an airworthiness limitation.) The FAA inspector shall not establish, alter, or cancel airworthiness limitations without coordinating with the appropriate FAA Type Certificate Holding Office. If there are no changes to the airworthiness limitations, the ICA should state for item 15: "No additional airworthiness limitations" or "Not Applicable."</p> <p>Comment: <u>No additional airworthiness limitations.</u></p> <hr/> <hr/>
16.	<p>Revision: This section should include information on how to revise the ICA. For example, a letter will be submitted to the local FSDO with a copy of the revised FAA Form 337 and revised ICA. The FAA inspector accepts the change by signing block 3 and including the following statement: "The attached revised/new Instructions for Continued Airworthiness (date _____) for the above aircraft or component major alteration have been accepted by the FAA, superseding the Instructions for Continued Airworthiness (date _____)." Once the revision has been accepted, a maintenance record entry will be made, identifying the revision, its location, and date of the Form 337.</p> <p>Comment: <u>The method of revision will be per the above example in this section.</u></p> <hr/> <hr/>

Note:

Implementation and Record Keeping: For major alterations performed in accordance with FAA Field Approval policy, the owner/operator operating under part 91 is responsible for ensuring that the ICA is made part of the applicable section 91.409 inspection program for their aircraft. This is accomplished when a maintenance entry is made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location (e.g., Block 8 of FAA Form 337, dated 10/06) along with a statement that the ICA is now part of the aircraft's inspection/maintenance requirements.

For major alterations performed in accordance with a field approval on air carrier aircraft, the air carrier operator is responsible for ensuring that the ICA is made part of the applicable inspection/maintenance program for their aircraft. If a procedure is not currently included in the operator's manual to incorporate ICA, this process will need to be appropriately addressed (i.e. the operator submits a revision to its maintenance program to the applicable certificate-holding district office (CHDO)).

For aircraft inspected under an Approved Aircraft Inspection Program (AAIP), the operator will submit a change to the CHDO in accordance with section 135.419 b).

For air carrier aircraft inspected using an annual/100 hour inspection program, a reference to the new ICA will be made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location (e.g., ICA are located/attached to Block 8 of FAA Form 337, dated 10/06). In addition, the operator will request a revision to the operator's Operations Specifications, additional maintenance requirements, which incorporates the ICA into the inspection program.

TVPX
39 EAST EAGLE RIDGE DRIVE, STE. 201
NORTH SALT LAKE, UT 84054
+1 801.877.0478 (PHONE)

TVPX

Accepted GS Jun/10/2022

West Star Aviation PCD
1390 Highway H
Perryville, Missouri 63775

Date: May 3, 2022

To whom it may concern:

TVPX Aircraft Solutions Inc., as Owner Trustee, authorizes West Star Aviation employees George Elder and Robert Moorehead to act as its agent and signatory if needed for the purpose of acquiring a Standard Airworthiness Certificate from the FAA. The authorization requested is for the below-mentioned aircraft registered to:

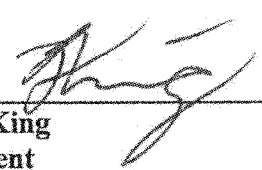
TVPX Aircraft Solutions Inc., as Owner Trustee
39 Eagle Ridge Drive, Suite 201
North Salt Lake City, Utah 84054

Make: Gulfstream Aerospace Corporation
Model: GIV-X (G450)
Registration Number: N450GG
Serial Number: 4082

This aircraft is operated by Falcon Landing, LLC.

TVPX Aircraft Solutions, Inc., Owner Trustee

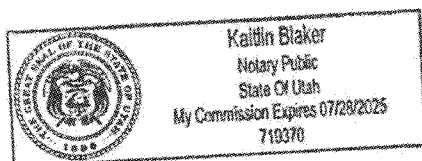
By: _____


Brett King
President

Subscribed and Sworn to before me, Kaitlin Blaker, on this ____ of _____, in the year 2021, by Brett King.



Notary Public



UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION-FEDERAL AVIATION ADMINISTRATION STANDARD AIRWORTHINESS CERTIFICATE			
1 NATIONALITY AND REGISTRATION MARKS N450GG	2 MANUFACTURER AND MODEL GULFSTREAM AEROSPACE GIV-X (G450)	3 AIRCRAFT SERIAL NUMBER 4082	4 CATEGORY Transport
5 AUTHORITY AND BASIS FOR ISSUANCE This airworthiness certificate is issued pursuant to 49 U.S.C. § 44704 and certifies that, as of the date of issuance, this aircraft has been inspected and found to conform to its type certificate and be in condition for safe operation. This aircraft meets the requirements of the applicable airworthiness standards in Annex 8 to the Convention on International Civil Aviation, except as follows: Exemption No. 8142 FAR 25.901(c) Uncontrolled High Thrust Failure Condition			
6 TERMS AND CONDITIONS Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the FAA, this airworthiness certificate is effective as long as maintenance, preventative maintenance, and alterations are performed per the applicable Federal Aviation Regulations and the aircraft is registered in the United States.			
DATE OF ISSUANCE R- 09/May/2007	FAA REPRESENTATIVE DENNIS J MUELLER	Digitally signed by DENNIS J MUELLER Date: 2022.05.12 06:44:18 -05'00'	DESIGNATION NUMBER CE-FSDO-03
Any alteration, misuse, or reproduction of this certificate for a fraudulent purpose may be punishable by certificate revocation, fine, and / or imprisonment. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT PER THE APPLICABLE FEDERAL AVIATION REGULATIONS.			
FAA Form 8100-2 (9-2019) Previous Edition May be Used Until Depleted			



10 May 2022

Mr. Dennis Mueller
Federal Aviation Administration
Flight Standards District Office
10801 Pear Tree Lane
St. Ann, MO 63074

Dear Mr. Mueller,


Please accept this request for replacement of the Airworthiness Certificate FAA Form 8100-2 for Gulfstream Aerospace GIV-X (G450), Aircraft Serial Number 4082, present registration N451NS to Special Registration Number assigned by AC Form 8050-64, issued Dec 08, 2021, as Registration Number N450GG.

Thank you for your assistance in this matter.

If you have any questions, please feel free to call me at (573) 605-6145.

Sincerely,

George Elder
Manager of Quality
Authorized Agent
State of Missouri
County of Perry
1390 Highway H
Perryville, Mo. 63775
Cell 314-368-0607
Enclosures

 U.S. Department of Transportation Federal Aviation Administration	MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)	OMB No. 2120-0020 Exp: 5/31/2018	Electronic Tracking Number
	For FAA Use Only		

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

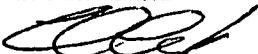
1. Aircraft	Nationality and Registration Mark N450GG U.S.A.	Serial No. 4082	
	Make Gulfstream	Model GIV-X (G450)	Series N/A
2. Owner	Name (As shown on registration certificate) TVPX Aircraft Solutions Inc. Trustee	Address (As shown on registration certificate) Address: 39 E Eagle Ridge Dr Ste 201 City: N Salt Lake City State: Utah Zip: 84054 Country: U.S.A.	

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		


6. Conformity Statement		
A. Agency's Name and Address	B. Kind of Agency	C. Certificate No.
Name: PREMIER AIR CENTER LLC d/b/a West Star Aviation. Address: 1390 HWY H City: PERRYVILLE State: MO Zip: 63775 Country: USA	<input type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input checked="" type="checkbox"/> Certificated Repair Station <input type="checkbox"/> Certificated Maintenance Organization	Manufacturer CRS 4W5R536D

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual Chad Ozark  20 May 2022
--	---

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA Fit Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	X Repair Station	Inspection Authorization	Other (Specify)
Certificate or Designation No. 4W5R536D		Signature/Date of Authorized Individual Michael Skinner  20 May 2022		

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

USA / N450GG

20 May 2022

Nationality and Registration Mark

Date

G450-4082, TT: 7040.7 LDG: 3322 Work Order: 20579

Complied with the following Interior Refurbishments as Indicated:

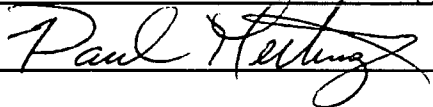
1. The existing Baggage closet was stripped and recovered using Tapis GVFR2781 Pearl - Geneva Grospoint Lot No. T. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10718 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
2. The existing Aft Lav Closets were stripped and recovered using Tapis GVFR2781 Pearl - Geneva Grospoint Lot No. T. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10718 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
3. The existing Lower Cabin Sidewalls were stripped and recovered using Garrett C607 Chatham Brezza Leather Lot No. 89784, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10718 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
4. The existing Main Cabin Ledge Compartments were stripped and recovered using Tapis GPF0094 Block Grospoint Lot No. G. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10718 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
5. The existing Galley Shelf was stripped and recovered using Tapis GPF0094 Block Grospoint Lot No. G. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10718 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
6. The existing Cockpit Window Trim was stripped and recovered using Tapis ULFR6797 Dolphin Ultraleather Lot No. V, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10718 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
7. The existing Cockpit upper Sidewalls were stripped and recovered using Tapis ULFR6797 Dolphin Ultraleather Lot No. V, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10718 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
8. The existing Cockpit Headliner was stripped and recovered using Tapis ULPROFR3412 Ermine Ultraleather Lot No. J, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10719 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
9. The existing Entryway Headliner was stripped and recovered using Tapis ULPROFR3412 Ermine Ultraleather Lot No. J, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10719 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
10. The existing Cabin Headliner was stripped and recovered using Tapis ULPROFR3412 Ermine Ultraleather Lot No. J, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10719 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
11. The existing Lav Headliners were stripped and recovered using Tapis ULPROFR3412 Ermine Ultraleather Lot No. J, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10719 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
12. The existing Cabin PSU's were stripped and recovered using Tapis ULPROFR3412 Ermine Ultraleather Lot No. J, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10719 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
13. The existing Cabin Valance were stripped and recovered using Tapis ULPROFR3412 Ermine Ultraleather Lot No. J, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10719 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
14. The existing Cabin Sidewalls were stripped and recovered using Tapis ULPROFR3412 Ermine Ultraleather Lot No. J, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10719 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
15. The existing Cabin Windowlines were stripped and recovered using Tapis ULPROFR3412 Ermine Ultraleather Lot No. J, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10719 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
16. The existing Conference Table Pads were stripped and recovered using Garrett A206 Avion Haze Leather Lot No. 82903, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10713 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.
17. The existing Lav Cushions were stripped and recovered using Garrett C607 Chatham Brezza Leather Lot No. 89784, Skandia DAX26.5 Foam. Materials used passed burn testing in accordance with 14 CFR 25.853(a) [Amdt 25-83] Appendix F Part I (a)(1)(i) as documented on ACCS Flammability Lab Report FLR-10714 Rev IR dated 15 Feb 2022, DER approved on FAA Form 8110-3 dated 15 Feb 2022, by Robert F. Clossin DERT-230227-CE.

1. Equipment List - Aircraft Records Updated, Reference Supplemental Equipment List dated 20 May 2022.
2. Weight & Balance - Actual Aircraft Empty W&B, Reference W&B Report dated 20 May 2022.
3. An appropriate entry has been made in the Aircraft Records dated 20 May 2022.

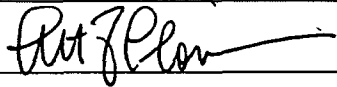
END



Additional Sheets Are Attached

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			1. DATE March 1, 2022
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream Aerospace Corporation	3. MODEL NO. GIV-X	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT West Star Aviation
LIST OF DATA			
6. IDENTIFICATION	7. TITLE		
REPORT: A022522-01TR Rev. A 02/28/22	TEST PLAN/RESULTS REPORT – SLIP RESISTANCE – GULFSTREAM AEROSPACE CORPORATION MODEL GIV-X SN 4082 Note: <ol style="list-style-type: none"> The slip resistance aspects only of the above listed data are approved herein. This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "Applicable Requirements." This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration/repair. Compliance with additional regulations such as 14 CFR § 25.853(a) is required. 		
=====	=====		
END	END		
=====	=====		
8. PURPOSE OF DATA In support of a major alteration to Gulfstream Aerospace Corporation Model GIV-X SN 4082.			
9. APPLICABLE REQUIREMENTS (List specific sections) 14 CFR § 25.793 at Amendment 25-51			
10. CERTIFICATION -Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered <u>N/A</u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed. <input type="checkbox"/> Recommend approval of these data I (We) Therefore <input checked="" type="checkbox"/> Approve these data			
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)		12. DESIGNATION NUMBERS(S)	13. CLASSIFICATION(S)
PAUL NETHING 		DERT-834673-CE	STRUCTURES



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			1. DATE December 20, 2021
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream	3. MODEL NO. GIV-X	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT West Star Aviation Perryville, MO
LIST OF DATA			
6. IDENTIFICATION		7. TITLE	
Document FLR-10424 Rev. IR, 12/20/2021 3085-FD-001, Rev. IR, 12/20/2021		Title Flammability Lab Report Flammability Definition Drawing: Specimen Configuration, Bunsen Burner Testing Note(s): 1. This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as Applicable Requirements. This form may not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration.	
8. PURPOSE OF DATA To present flammability definition drawing and flammability test results of interior materials to support a major alteration on Gulfstream Model GIV-X, S/N 4082.			
9. APPLICABLE REQUIREMENTS (List specific sections) 14 CFR 25.853(a) [Amdt. 25-83] Ref. TCDS A12EA, Rev. 51			
10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered <u> N/A </u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed. I (We) Therefore <input type="checkbox"/> Recommend approval of these data <input checked="" type="checkbox"/> Approve these data			
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)		12. DESIGNATION NUMBERS(S)	13. CLASSIFICATION(S)
Robert F. Clossin 		DERT-230227-CE	Structures - Interiors 14 CFR Part 23 & 25



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS	1. DATE April 21, 2022
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AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream	3. MODEL NO. GIV-X	4. TYPE <i>(Aircraft, Engine, Propeller, etc.)</i> Aircraft	5. NAME OF APPLICANT West Star Aviation Perryville, MO

LIST OF DATA

6. IDENTIFICATION	7. TITLE
Document FLR-11224 Rev. IR, 4/21/2022 3244-FD-001, Rev. IR, 4/21/2022	Title Flammability Lab Report Flammability Definition Drawing: Specimen Configuration, Bunsen Burner Testing <p style="margin-left: 40px;">Note(s): 1. This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as Applicable Requirements. This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration.</p>

8. PURPOSE OF DATA
 To present flammability definition drawing and flammability test results of interior materials to support a major alteration on Gulfstream Model GIV-X, S/N 4082.

9. APPLICABLE REQUIREMENTS *(List specific sections)*
 14 CFR 25.853(a) [Amdt. 25-83] Ref. TCDS A12EA, Rev. 51

10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered N/A have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.

I (We) Therefore Recommend approval of these data
 Approve these data

11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)	12. DESIGNATION NUMBERS(S)	13. CLASSIFICATION(S)
Robert F. Clossin	DERT-230227-CE	Structures - Interiors 14 CFR Part 23 & 25



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS	1. DATE March 4, 2022
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AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream	3. MODEL NO. GIV-X	4. TYPE <i>(Aircraft, Engine, Propeller, etc.)</i> Aircraft	5. NAME OF APPLICANT West Star Aviation Perryville, MO

LIST OF DATA

6. IDENTIFICATION	7. TITLE
Document FLR-10857 Rev. IR, 3/04/2022 3187-FD-001, Rev. IR, 3/04/2022	Title Flammability Lab Report Flammability Definition Drawing: Specimen Configuration, Bunsen Burner Testing <p style="margin-top: 20px;">Note(s): 1. This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as Applicable Requirements. This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration.</p>

8. PURPOSE OF DATA
 To present flammability definition drawing and flammability test results of interior materials to support a major alteration on Gulfstream Model GIV-X, S/N 4082.

9. APPLICABLE REQUIREMENTS *(List specific sections)*

14 CFR 25.853(a) [Amdt. 25-83] Ref. TCDS A12EA, Rev. 51

10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered N/A have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.

I (We) Therefore Recommend approval of these data
 Approve these data

11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)	12. DESIGNATION NUMBERS(S)	13. CLASSIFICATION(S)
Robert F. Clossin	DERT-230227-CE	Structures - Interiors 14 CFR Part 23 & 25



AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream	3. MODEL NO. GIV-X	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT West Star Aviation Perryville, MO


LIST OF DATA	
6. IDENTIFICATION	7. TITLE
Document	Title
FLR-11017 Rev. IR, 3/24/2022	Flammability Lab Report
FLR-11018 Rev. IR, 3/24/2022	Flammability Lab Report
FLR-11019 Rev. IR, 3/24/2022	Flammability Lab Report
3210-FD-001, Rev. IR, 3/23/2022	Flammability Definition Drawing: Specimen Configuration, Bunsen Burner Testing
<p>Note(s): 1. This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as Applicable Requirements. This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration.</p>	

8. PURPOSE OF DATA
 To present flammability definition drawing and flammability test results of interior materials to support a major alteration on Gulfstream Model GIV-X, S/N 4082.

9. APPLICABLE REQUIREMENTS (List specific sections)
 14 CFR 25.853(a) [Amdt. 25-83] Ref. TCDS A12EA, Rev. 51

10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered N/A have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.

I (We) Therefore Recommend approval of these data
 Approve these data

11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)	12. DESIGNATION NUMBER(S)	13. CLASSIFICATION(S)
Robert F. Crossin 	DERT-230227-CE	Structures - Interiors 14 CFR Part 23 & 25



U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS

1. DATE
 February 25, 2022

AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION

2. MAKE Gulfstream	3. MODEL NO. GIV-X	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT West Star Aviation Perryville, MO
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LIST OF DATA

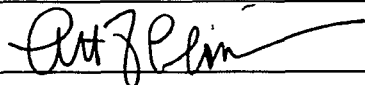
6. IDENTIFICATION	7. TITLE
Document	Title
FLR-10798 Rev. IR, 2/25/2022	Flammability Lab Report
FLR-10799 Rev. IR, 2/25/2022	Flammability Lab Report
FLR-10800 Rev. IR, 2/25/2022	Flammability Lab Report
FLR-10801 Rev. IR, 2/25/2022	Flammability Lab Report
FLR-10802 Rev. IR, 2/25/2022	Flammability Lab Report
FLR-10803 Rev. IR, 2/25/2022	Flammability Lab Report
FLR-10804 Rev. IR, 2/25/2022	Flammability Lab Report
3173-FD-001, Rev. IR, 2/24/2022	Flammability Definition Drawing: Specimen Configuration, Bunsen Burner Testing
<p>Note(s): 1. This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as Applicable Requirements. This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration.</p>	

8. PURPOSE OF DATA
 To present flammability definition drawing and flammability test results of interior materials to support a major alteration on Gulfstream Model GIV-X, S/N 4082.

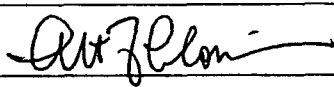
9. APPLICABLE REQUIREMENTS (List specific sections)
 14 CFR 25.853(a) [Amdt. 25-83] Ref. TCDS A12EA, Rev. 51

10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered N/A have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.

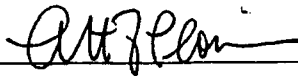
I (We) Therefore Recommend approval of these data
 Approve these data

11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S) Robert F. Clossin 	12. DESIGNATION NUMBERS(S) DERT-230227-CE	13. CLASSIFICATION(S) Structures - Interiors 14 CFR Part 23 & 25
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U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			1.DATE February 15, 2022
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream	3. MODEL NO. GIV-X	4. TYPE <i>(Aircraft, Engine, Propeller, etc.)</i> Aircraft	5. NAME OF APPLICANT West Star Aviation Perryville, MO
LIST OF DATA			
6. IDENTIFICATION	7. TITLE		
Document	Title		
FLR-10711 Rev. IR, 2/15/2022	Flammability Lab Report		
FLR-10712 Rev. IR, 2/15/2022	Flammability Lab Report		
FLR-10713 Rev. IR, 2/15/2022	Flammability Lab Report		
FLR-10714 Rev. IR, 2/15/2022	Flammability Lab Report		
FLR-10715 Rev. IR, 2/15/2022	Flammability Lab Report		
FLR-10716 Rev. IR, 2/15/2022	Flammability Lab Report		
<p>Note(s): 1. This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as Applicable Requirements. This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration.</p>			
8. PURPOSE OF DATA To present flammability definition drawing and flammability test results of interior materials to support a major alteration on Gulfstream Model GIV-X, S/N 4082.			
9. APPLICABLE REQUIREMENTS <i>(List specific sections)</i> 14 CFR 25.853(a) [Amdt. 25-83] Ref. TCDS A12EA, Rev. 51			
10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered <u> N/A </u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed. I (We) Therefore <input type="checkbox"/> Recommend approval of these data <input checked="" type="checkbox"/> Approve these data			
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)		12. DESIGNATION NUMBERS(S)	13. CLASSIFICATION(S)
Robert F. Clossin 		DERT-230227-CE	Structures - Interiors 14 CFR Part 23 & 25



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			1. DATE February 15, 2022
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream	3. MODEL NO. GIV-X	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT West Star Aviation Perryville, MO
LIST OF DATA			
6. IDENTIFICATION	7. TITLE		
Document	Title		
FLR-10717 Rev. IR, 2/15/2022	Flammability Lab Report		
FLR-10718 Rev. IR, 2/15/2022	Flammability Lab Report		
FLR-10719 Rev. IR, 2/15/2022	Flammability Lab Report		
3149-FD-001, Rev. IR, 2/14/2022	Flammability Definition Drawing: Specimen Configuration, Bunsen Burner Testing		
<p>Note(s): 1. This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as Applicable Requirements. This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration.</p>			
8. PURPOSE OF DATA To present flammability definition drawing and flammability test results of interior materials to support a major alteration on Gulfstream Model GIV-X, S/N 4082.			
9. APPLICABLE REQUIREMENTS (List specific sections)			
14 CFR 25.853(a) [Amdt. 25-83]		Ref. TCDS A12EA, Rev. 51	
<p>10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered <u> N/A </u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.</p> <p>I (We) Therefore <input type="checkbox"/> Recommend approval of these data <input checked="" type="checkbox"/> Approve these data</p>			
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)		12. DESIGNATION NUMBER(S)	13. CLASSIFICATION(S)
Robert F. Clossin 		DERT-230227-CE	Structures - Interiors 14 CFR Part 23 & 25



U.S. Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

OMB No. 2120-0020
Exp: 5/31/2018

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N450GG U.S.A.	Serial No. 4082	
	Make Gulfstream	Model GIV-X (G450)	Series N/A
2. Owner	Name (As shown on registration certificate) TVPX Aircraft Solutions Inc. Trustee		Address (As shown on registration certificate) Address: 39 E Eagle Ridge Dr Ste 201 City: N Salt Lake City State: Utah Zip: 84054 Country: U.S.A.

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency	Manufacturer
Name: PREMIER AIR CENTER LLC d/b/a West Star Aviation. Address: 1390 HWY H City: PERRYVILLE State: MO Zip: 63775 Country: USA	<input type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input checked="" type="checkbox"/> Certificated Repair Station <input type="checkbox"/> Certificated Maintenance Organization	C. Certificate No. GRS 4W5R536D

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual Chad Ozark 20 May 2022
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7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA Fit Standards Inspector		Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	<input checked="" type="checkbox"/>	Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. 4W5R536D	Signature/Date of Authorized Individual Michael Skinner 20 May 2022
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NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

USA / N450GG

20 May 2022

Nationality and Registration Mark

Date

G450-4082, TT: 7040.7 LDG: 3322 Work Order: 20579

Complied with the following Flammability / Fireblocking as Indicated:

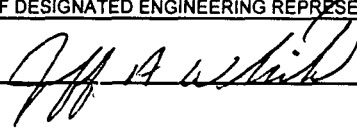
1. The existing Crew Seats were stripped and recovered using Garrett C645 Chatham Thundercloud Leather Lot No. 93102, Garrett S541 Violet Mist Sheepskin Lot No. 88538, Skandia AL76 Foam. Materials used passed burn testing in accordance with 14 CFR Part 25.853(a), Appendix F, Part I (a)(1)(ii) [Amdt. 25-51] as documented on ACCS Flammability Lab Reports FLR-10711 Rev IR, and FLR-10712 Rev IR dated 16 Feb 2022, DER approved on FAA Form 8110-3 dated 16 Feb 2022, by Robert F. Clossin DERT-230227-CE. Existing Seat Pan Cushion Assy's were removed and new cushions P/N: 0A317-0203 were installed, reference Ipeco Cert No. UK.21G.2071 CAA Form 1 dated 28 Aug 2021 Work Order 4561020830 Tracking No. 80457436. Existing Back Cushions were removed and new cushions P/N: 0A227-0419 were installed, reference Ipeco Cert No. UK.21G.2071 CAA Form 1 dated 12 Aug 2021, Work Order 4561020553 Tracking No. 80456212.
2. The existing Cabin Seats were stripped and recovered using Garrett A206 / Avion Haze Leather Lot No. 92903, Skandia DAX 26.5 Foam, Skandia DAX262.0 Foam and Skandia DAX261.0 Foam. Materials used passed burn testing in accordance with 14 CFR Part 25.853(a) [Amdt 25-116] Appendix F Part I (a)(1)(ii) [Amdt 25-142], and 14 CFR Part 25.853(c) [Amdt 25-116] Appendix F Part II [Amdt 25-94] as documented on ACES Flammability and Oil Burner Test Report A012522-02FR Rev C dated 15 Mar 2022, DER approved on FAA Form 8110-3 dated 16 Mar 2022, by Jeff A White DERT-230318-CE, and in accordance with 14 CFR 25.561(b1) [Amdt 25-84] 25.562(a1)(c2) [Amdt 25-64] 25.603(a) [Amdt 25-46] 25.785(b)(c) [Amdt 25-88] as documented on ACES Substantiation Report A021522-02SR Rev A dated 14 Mar 2022, DER approved FAA Form 8110-3 dated 14 Mar 2022, by Jeffrey S Miller DERT-410358-CE.
3. The existing Cabin Divan was stripped and recovered using Leni's Y-316 / S 38 Ancient Pewter Fabric, Skandia DAX26.5 Foam, Skandia DAX262.0 Foam, Skandia DAX261.0 Foam. Materials used passed burn testing in accordance with 14 CFR Part 25.853(a) [Amdt 25-116] Appendix F Part I (a)(1)(ii) [Amdt 25-142], and 14 CFR Part 25.853(c) [Amdt 25-116] Appendix F Part II [Amdt 25-94] as documented on ACES Flammability and Oil Burner Test Report A012522-02FR Rev C dated 15 Mar 2022, DER approved on FAA Form 8110-3 dated 16 Mar 2022, by Jeff A White DERT-230318-CE, and in accordance with 14 CFR 25.561(b1) [Amdt 25-84] 25.562(a1)(c2) [Amdt 25-64] 25.603(a) [Amdt 25-46] 25.785(b)(c) [Amdt 25-88] as documented on ACES Substantiation Report A021522-02SR Rev A dated 14 Mar 2022, DER approved FAA Form 8110-3 dated 14 Mar 2022, by Jeffrey S Miller DERT-410358-CE.

1. Equipment List – Aircraft Records Updated, Reference Supplemental Equipment List dated 20 May 2022.
2. Weight & Balance – Actual Aircraft Empty W&B, Reference W&B Report dated 20 May 2022.
3. An appropriate entry has been made in the Aircraft Records dated 20 May 2022.

END



Additional Sheets Are Attached

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			1. DATE March 16, 2022
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream Aerospace Corporation	3. MODEL NO. GIV-X	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT West Star Aviation
LIST OF DATA			
6. IDENTIFICATION	7. TITLE		
REPORT: A012522-02FR Rev. C 03/15/22	FLAMMABILITY AND OIL BURNER TEST REPORT – SEATING PRODUCTS – GULFSTREAM AEROSPACE CORPORATION MODEL GIV-X SN 4082 Notes: 1. Flammability aspects only of the above listed data are approved herein. This approval is for the engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "Applicable Requirements." 2. This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration/repair. Compliance with additional regulations such as 14 CFR §§ 25.562 and 25.785 is required.		
=====	=====		
END	END		
=====	=====		
8. PURPOSE OF DATA In support of a major alteration to Gulfstream Aerospace Corporation Model GIV-X SN 4082.			
9. APPLICABLE REQUIREMENTS (List specific sections) 14 CFR §§ 25.853(a)(c) at Amendment 25-116			
10. CERTIFICATION -Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered <u>N/A</u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed. <input type="checkbox"/> Recommend approval of these data <input checked="" type="checkbox"/> Approve these data I (We) Therefore			
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S) Jeff A. White 	12. DESIGNATION NUMBERS(S) DERT-230318-CE	13. CLASSIFICATION(S) Structures	



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS

1. DATE

MARCH 14, 2022

AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION

2. MAKE Gulfstream Aerospace Corporation	3. MODEL NO. GIV-X	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT West Star Aviation
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LIST OF DATA

6. IDENTIFICATION	7. TITLE
Report: A021522-02SR Rev. A 03/14/22 Drawings: GV-010019 Rev. L 04/05/19 GV-010020 Rev. A 11/30/12 GV-010039 Rev. G 12/20/21 GV-010040 Rev. IR 03/02/15 GV-010007 Rev. N 11/02/20 GV-010008 Rev. B 07/02/14	SUBSTANTIATION REPORT – SEAT CUSHION REPLACEMENT – SEATING PRODUCTS – GULFSTREAM AEROSPACE CORPORATION MODEL GIV-X SN 4082 GULFSTREAM GV/GV-SP CUSHION ASSY 4 PLACE DIVAN GULFSTREAM GV CUSHION ASSY 4 PLACE DIVAN TOOLS GULFSTREAM GV & GV-SP CUSHION ASSY PASSENGER SINGLE SEAT GULFSTREAM GV & GV-SP CUSHION ASSY TOOLS PASSENGER SINGLE SEAT GULFSTREAM GV CUSHION ASSY CABIN SEAT DOUBLE GULFSTREAM GV CUSHION ASSY CABIN SEAT TOOLS DOUBLE Notes: 1. Structural approval of the seat installations is not included as part of this 8110-3. 2. This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "Applicable Requirements." 3. This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration/repair. Compliance with additional regulations such as 14 CFR §§ 25.853(a)(c), is beyond the scope of this design data. Aircraft interior compliance inspection is not included in the approval. Additional approvals may be required.
=====	=====
END	END
=====	=====

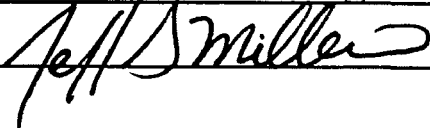
8. PURPOSE OF DATA
 In support of a major alteration to Gulfstream Aerospace Corporation Model GIV-X SN 4082.

9. APPLICABLE REQUIREMENTS (List specific sections)
 14 CFR §§ 25.561(b1) Amdt. 25-64, 25.562(a1)(c2) Amdt. 25-64, 25.603(a) Amdt. 25-46, and 25.785(b)(c) Amdt. 25-88.

10. CERTIFICATION -Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered N/A have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.

Recommend approval of these data
 Approve these data

I (We) Therefore

11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S) JEFFREY S. MILLER 	12. DESIGNATION NUMBER(S) DERT-410358-CE	13. CLASSIFICATION(S) STRUCTURES



U.S. Department of
Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

OMB No. 2120-0020
Exp: 5/31/2018

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for Instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N450GG	U.S.A.	Serial No. 4082	
	Make Gulfstream	Model GIV-X (G450)	Series N/A	
2. Owner	Name (As shown on registration certificate) TVPX Aircraft Solutions Inc. Trustee		Address (As shown on registration certificate) Address: 39 E Eagle Ridge Dr Ste 201 City: N Salt Lake City State: Utah Zip: 84054 Country: U.S.A.	
	3. For FAA Use Only			

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement		
A. Agency's Name and Address	B. Kind of Agency	C. Certificate No.
Name: PREMIER AIR CENTER LLC d/b/a West Star Aviation. Address: 1390 HWY H City: PERRYVILLE State: MO Zip: 63775 Country: USA	<input type="checkbox"/> U.S. Certificated Mechanic	CRS 4W5R536D
	<input type="checkbox"/> Foreign Certificated Mechanic	
	<input checked="" type="checkbox"/> Certificated Repair Station	
	<input type="checkbox"/> Certificated Maintenance Organization	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual Chad Ozark 20 May 2022
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7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA Fit Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	<input checked="" type="checkbox"/> Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. 4W5R536D	Signature/Date of Authorized Individual Michael Skinner 20 May 2022
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NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

USA / N450GG

20 May 2022

Nationality and Registration Mark

Date

G450-4082, TT: 7040.7 LDG: 3322 Work Order: 20579

1. Installed Rosen 22" Monitor In accordance with the following West Star Aviation drawings:

- a) Fwd LH Cabin Monitor Instl - P22372N-113 Rev. IR, dated 04 Mar 2022
- b) Cabin Entertainment System Mod - P22372W-109 Rev. IR dated 25 Jan 2022

The following items were removed:

- a) LH Fwd Cabin Monitor P/N: 2710-1-1702 S/N: 207130205

The following items were installed:

- a) LH Fwd Cabin Monitor P/N: SDM220-001 S/N: 22030064

2. Installed Rosen 17.5" Monitor In accordance with the following West Star Aviation drawings:

- a) Mid Cabin RH Windowline Monitor Instl - P22372N-114 Rev. IR, dated 24 Feb 2022
- b) Cabin Entertainment System Mod - P22372W-109 Rev. IR dated 25 Jan 2022

The following items were removed:

- a) Mid Cabin RH Windowline Monitor P/N: 2710-1-1702 S/N: 206360220

The following items were installed:

- a) RH Mid Cabin RH Windowline Monitor P/N: 1702-003 S/N: 22030075

3. Installed Mid Continent Bluetooth Receiver In accordance with the following West Star Aviation drawings:

- a) Cabin Entertainment System Mod - P22372W-109 Rev. IR dated 25 Jan 2022

The following items were removed:

- a) Dual Analog DVD P/N: 888-0027-005 S/N: 725-0648

The following items were installed:

- a) Bluetooth Receiver P/N: 105065-1 S/N: 260422

4. Installed Rosen Media Input Panel (MIP) In accordance with the following West Star Aviation drawings:

- a) Cabin Entertainment System Mod - P22372W-109 Rev. IR dated 25 Jan 2022

The following items were installed:

- a) Media Input Panel P/N: MIP100-002 S/N: 22030077

5. Installed True Blue Power Dual USB Power Outlets In accordance with the following West Star Aviation drawings:

- a) Cabin USB Chargers - P22376W-110 Rev. IR, dated 25 Jan 2022

The following items were installed:

- a) LH FWD Dado #1 Seat USB Outlet PN: 64030202-11 SN: C22-13545
- b) LH FWD Dado #2 Seat USB Outlet PN: 64030202-11 SN: C22-13449
- c) LH MID Dado #3 Seat USB Outlet PN: 64030202-11 SN: C22-13458
- d) LH MID Dado #4 Seat USB Outlet PN: 64030202-11 SN: C22-13451
- e) LH Conference Group Dado #5 seat USB Outlet PN: 64030202-11 SN: C22-13452
- f) LH Conference Group Dado #8 seat USB Outlet PN: 64030202-11 SN: C22-13457
- g) RH FWD Dado #1 Seat USB Outlet PN: 64030202-11 SN: C22-13455
- h) RH FWD Dado #2 Seat USB Outlet PN: 64030202-11 SN: C22-13450
- i) RH FWD Divan Cabinet USB Outlet PN: 64030202-11 SN: C22-13448
- j) RH AFT Divan Cabinet USB Outlet PN: 64030202-11 SN: C22-13453


The above West Star Aviation drawings were DER approved on FAA forms 8110-3 (Electrical) dated 19 May 2022, (File no. JSM-22-005) by Jeffery S. Maszkiewicz no. DERT-834075-CE.

1. Equipment List -- Aircraft Records Updated, Reference Supplemental Equipment List dated 20 May 2022.
2. Weight & Balance -- Actual Aircraft Empty W&B, Reference W&B Report dated 20 May 2022.
3. An appropriate entry has been made in the Aircraft Records dated 20 May 2022.

END



Additional Sheets Are Attached

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION			1. DATE May/19/2022	
STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS				
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION				
2. MAKE Gulfstream	3. MODEL NO. GIV-X S/N 4082	4. TYPE (Aircraft, Engine, Propeller, etc.) Airplane	5. NAME OF APPLICANT West Star Aviation PCD	
LIST OF DATA				
6. IDENTIFICATION		7. TITLE		
P22372W-109 Rev. I/R		[Item 1] Cabin Entertainment System Mod Jan/25/2022		
P21339W-138 Rev. I/R		[Item 2] Gogo Avance L5 Broadband Nov/11/2021		
P22376W-110 Rev. I/R		[Item 3] Cabin USB Chargers Jan/25/2022		
P21367R-139 Rev. I/R		[Item 4] Electrical Load Analysis Nov/11/2021		
END				
This approval is for electrical aspects only.				
Gogo WAP requires STC ST11071SC to be applied to aircraft.				
This approval is for engineering design data only and is not an installation approval. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and sub paragraph listed below as "APPLICABLE REQUIREMENTS." (Compliance with additional regulations not listed here may be required). This form does not constitute FAA approval of all the engineering design data necessary for substantiation of compliance to necessary requirements for the entire alteration.				
8. PURPOSE OF DATA Supports major alteration on the above aircraft GIV-X S/N 4082 only.				
9. APPLICABLE REQUIREMENTS (List specific sections)				
14 CFR 25.1301(a)(b)(c) [Amdt. 25-0], 25.1307(c) [Amdt. 25-72], 25.1322(d) [Amdt. 25-38], 25.1351(a)(1) [Amdt. 25-72], 25.1353(a) [Amdt. 25-42], 25.1357(a)(c) [Amdt. 25-0], 25.1431(c) [Amdt. 25-0].				
10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered <u>N/A</u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.				
<input type="checkbox"/> Recommend approval of these data				
I Therefore <input checked="" type="checkbox"/> Approve these data				
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)		12. DESIGNATION NUMBERS(S)		13. CLASSIFICATION(S)
 Jeffrey S. Maszkiewicz		DERT-834075-CE		Systems and Equipment

THE INFORMATION, TECHNICAL DATA AND DESIGNS DISCLOSED HEREIN ARE THE EXCLUSIVE PROPERTY OF WEST STAR AVIATION OR CONTAIN PROPRIETARY RIGHTS OF OTHERS AND ARE NOT TO BE USED OR REPRODUCED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF WEST STAR AVIATION. THE FOREGOING SHALL NOT APPLY TO PERSONS HAVING DESIGN RIGHTS IN DESIGNS CONTAINED HEREIN. THE FOREGOING SHALL NOT APPLY TO PERSONS HAVING DESIGN RIGHTS IN DESIGNS CONTAINED HEREIN. THE FOREGOING SHALL NOT APPLY TO PERSONS HAVING DESIGN RIGHTS IN DESIGNS CONTAINED HEREIN. THE FOREGOING SHALL NOT APPLY TO PERSONS HAVING DESIGN RIGHTS IN DESIGNS CONTAINED HEREIN.

WRING USED IN THIS INSTALLATION SHALL MEET THE SPECIFICATION CONTAINED IN CHAPTER 20 OF THE AIRPLANE MANUFACTURER'S MAINTENANCE MANUAL. STANDARD WIRING PRACTICES AS CONTAINED IN CHAPTER 20 OF THE AIRPLANE MANUFACTURER'S MAINT. MAN. SHALL BE USED AS THE PRIMARY SOURCE OF WIRING INSTALLATION INFORMATION.

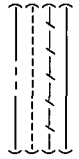
REV	DESCRIPTION	DATE
I/R	INITIAL RELEASE	JAN/25/2022

1. THIS DRAWING DEPICTS THE ELECTRICAL CONNECTIONS AND WIRING INSTALLATION FOR MODIFICATION TO A CABIN ENTERTAINMENT SYSTEM FOR VIDEO AND AUDIO UPGRADES.
2. PERFORM EMI/EMC SOURCE VICTIM TESTING IN ACCORDANCE WITH WEST STAR EMI/EMC TEST PROCEDURE DOCUMENT NUMBER 183851-279 REV. 1/R.
3. ALL WIRE JUMPERS SHALL BE 22 GAUGE AND LESS THAN 6" IN LENGTH UNLESS OTHERWISE NOTED.
4. ALL DIODES ARE 1M4005 UNLESS OTHERWISE NOTED.
5. LOWER CASE LETTERS ARE PRECEDED BY AN ASTERISK I.E. d = *d.
6. SINGLE STRAND WIRE IS TO BE PART NUMBER M22759/34-XXXX-9, (XXX) = WIRE GAUGE TWISTED PAIR WIRE IS TO BE PART NUMBER M27500-XXXXSK(W)T23, (XXX) = WIRE GAUGE (*) = * CONDUCTORS ALL WIRE IS 22 GAUGE UNLESS OTHERWISE NOTED.
7. REFERENCE WEST STAR DOCUMENT P21367R-139 FOR CHANGES TO THE ELECTRICAL LOAD.

- ① REMOVE DVD 1/2, CAP & STOP WIRING TO ACCOMMODATE NEW TERMINATION.
- ② REMOVE MONITOR, CAP & STOP WIRING TO ACCOMMODATE NEW TERMINATION.
- ③ RELABEL CB AS SHOWN VAS, 'DVD 1/2'.
- ④ CONFIGURE POWER MODE OF MONITOR FOR 'GROUND ON'.
- ⑤ REFERENCE GULFSTREAM DRAWING G41 5020317, CABIN ENTERTAINMENT.

REV	QTY.	DESCRIPTION	PART NO.	MANUFACTURER
22	1	MEDIA INPUT PANEL	MPI00-002	ROSEN AVIATION
21	2	CONNECTOR B/KHD BNC	190728	PIC WIRE & CABLE
20	1	BACKSHELL	3357-9215	3M
19	1	CONNECTOR, 26 PIN	1658682-1	AMP
18	2	BACKSHELL	3357-9209	3M
17	2	CONNECTOR, 15 PIN	1658681-1	AMP
16	4	HD BNC	110717	PIC WIRE & CABLE
15	2	REMOTE CONTROL	0500-027	ROSEN AVIATION
14	1	IR SENSOR	0500-006	ROSEN AVIATION
13	A/R	75 OHM COAX	V76261	PIC WIRE & CABLE
12	4	BNC PLUG	190712	ROSEN AVIATION
11	1	INSTALL KIT, P2	0300-052	ROSEN AVIATION
10	1	INSTALL KIT, P1	0300-043	ROSEN AVIATION
9	1	17.5 INCH MONITOR	1702-003	ROSEN AVIATION
8	1	BACKSHELL D-SUB SIZE 1	SIM220-001	ROSEN AVIATION
7	2	CONNECTOR D-SUB 9 PIN RECEPTACLE	M24308/2-1F	ORL
6	1	CONNECTOR D-SUB 9 PIN PLUG	M24308/4-1F	ORL
5	1	CONNECTOR PLUG	18-200	APPLIED AVIONICS
4	1	BLUETOOTH PAIRING SWITCH	LE0-52-11-141-E2YEU	APPLIED AVIONICS
3	1	CONNECTOR KIT	856019-1	MID CONTINENT CONTROLS
2	1	CONNECTOR KIT	105065-1	MID CONTINENT CONTROLS
1	1	BLUETOOTH RECEIVER		MANUFACTURER

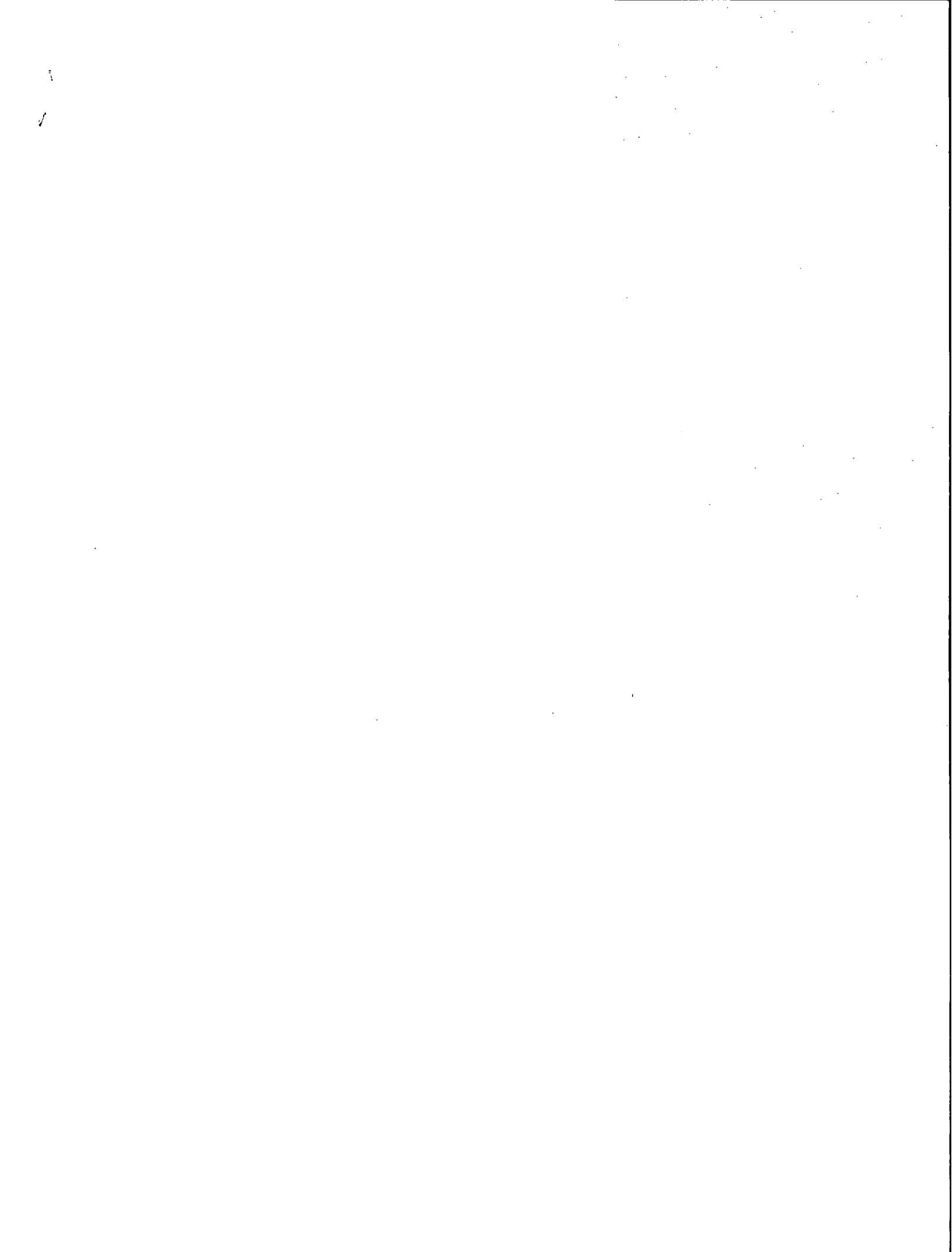
DESIGNER: P. CRAWFORD		TITLE: CABIN ENTERTAINMENT SYSTEM MODD
CHECKED BY: T. RAMSEY		DWG No: P22372W-109
REV. I/R	AIRCRAFT MODEL: GULFSTREAM G450 S/N 4082	SHT 1 OF 3

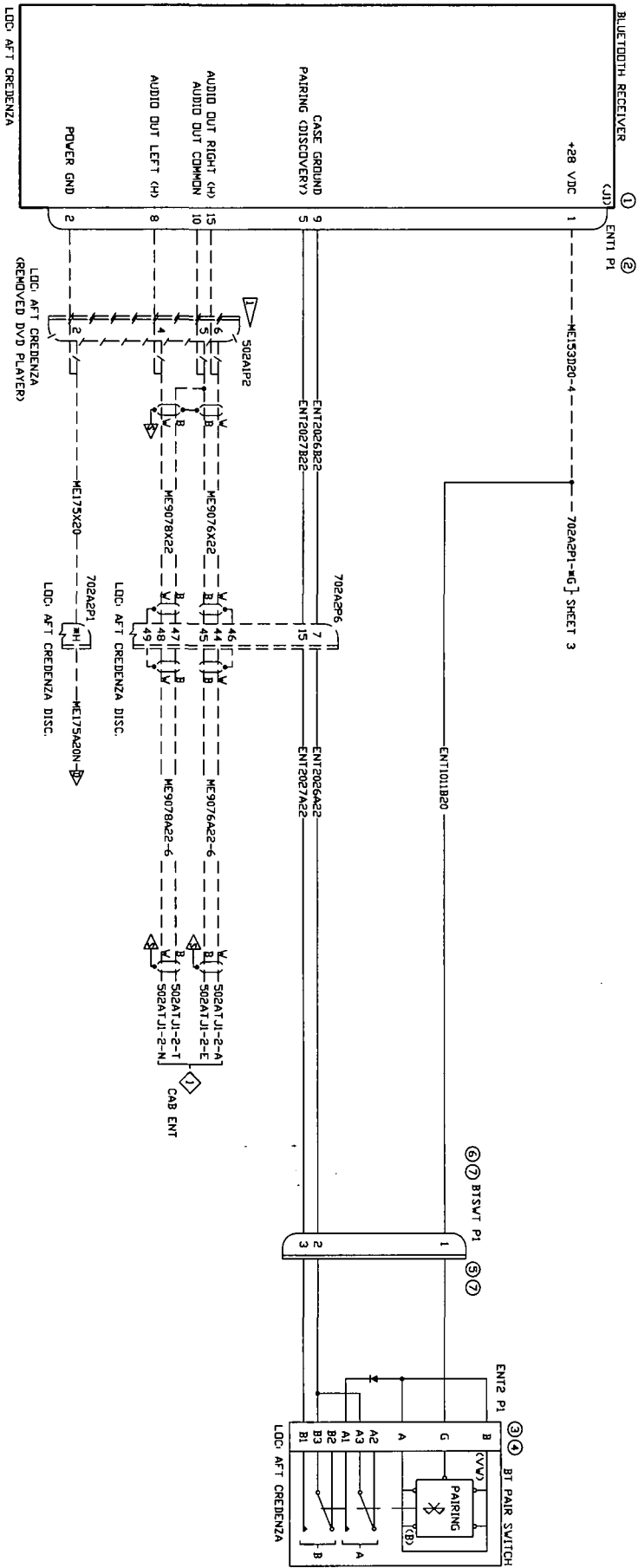


NEW WIRE
REMOVED WIRE
EXISTING WIRE
REF. ONLY

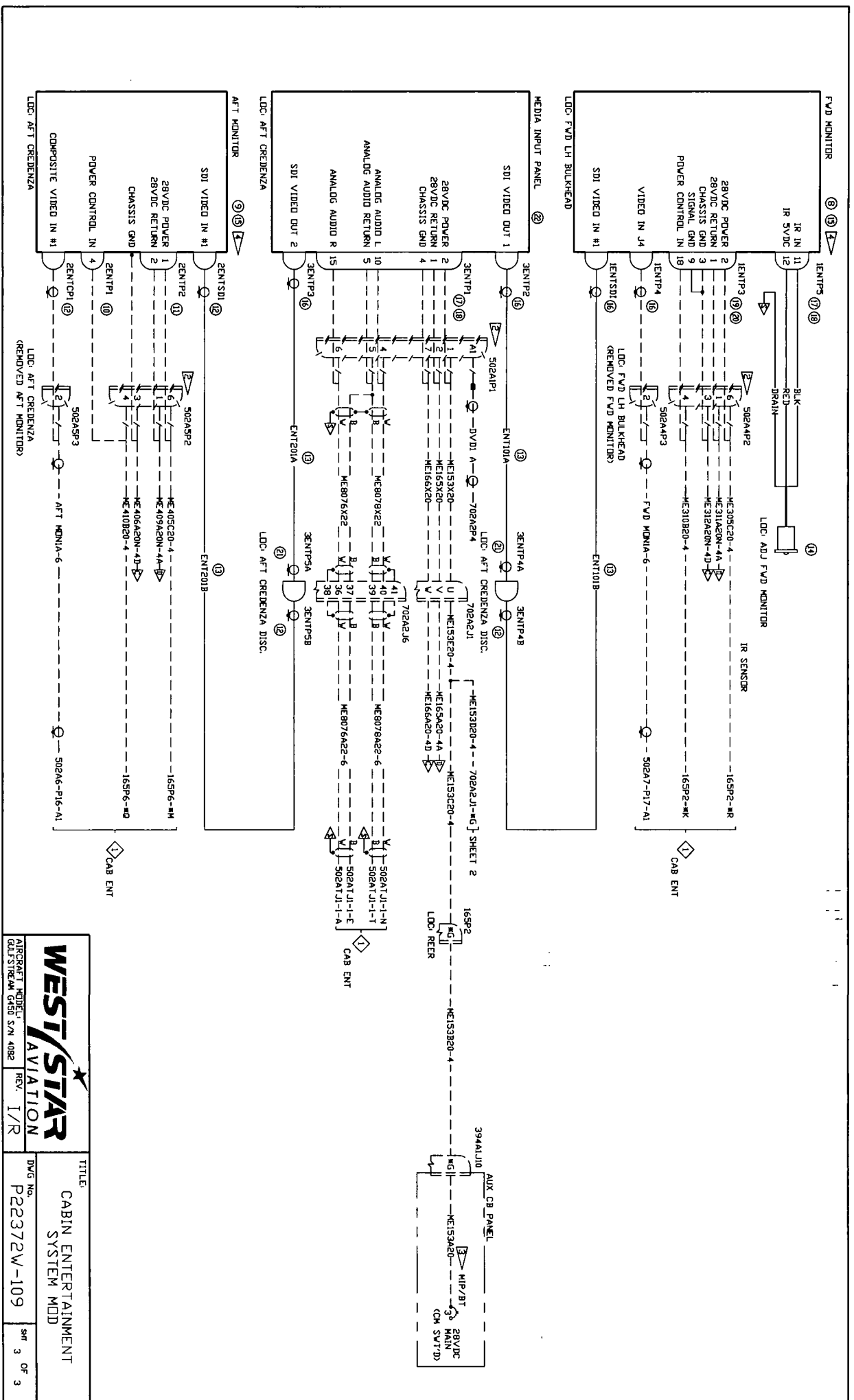
GEN. NOTES:

- ▷ = AC GND
- ▷ = DC GND
- ▷ = SHIELD GND
- ▷ = LOGIC/SIGNAL GND
- ▷ = CHS GND
- = CAPPED WIRE





AIRCRAFT MODEL	REV	TITLE
GULFSTREAM G450 S/N 4082	I/R	CABIN ENTERTAINMENT SYSTEM MDD
Dwg No P22372W-109		SHF 2 OF 3



	TITLE:	CABIN ENTERTAINMENT SYSTEM MDD
	DWG NO.	P22372W-109
AIRCRAFT MODEL: 737-4000 PARTS/ASSEMBLY: 4000	REV:	1/R
SHEET: 3 OF 3		

THE INFORMATION, TECHNICAL DATA AND DESIGNS DISCLOSED HEREIN ARE THE EXCLUSIVE PROPERTY OF WEST STAR AVIATION OR CONTAIN PROPRIETARY RIGHTS OF OTHERS AND ARE NOT TO BE USED OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN CONSENT OF WEST STAR AVIATION. THE RECIPIENT OF THIS DOCUMENT BY ITS RETENTION AND USE AGREES TO HOLD IN CONFIDENCE THE TECHNICAL DATA AND DESIGNS CONTAINED HEREIN. THE FOREGOING SHALL NOT APPLY TO PERSONS HAVING PROPRIETARY RIGHTS TO SUCH INFORMATION, TECHNICAL DATA OR SUCH DESIGNS TO THE EXTENT THAT SUCH RIGHTS EXIST.

WIRING USED IN THIS INSTALLATION SHALL MEET THE SPECIFICATION CONTAINED IN CHAPTER 20 OF THE AIRPLANE MANUFACTURER'S MAINTENANCE MANUAL. STANDARD WIRING PRACTICES AS CONTAINED IN CHAPTER 20 OF THE AIRPLANE MANUFACTURER'S MAINT. MAN. SHALL BE USED AS THE PRIMARY SOURCE OF WIRING INSTALLATION INFORMATION.

REV	DESCRIPTION	DATE
I/R	INITIAL RELEASE	JAN/29/2022

1. THIS DRAWING DEPICTS THE ELECTRICAL CONNECTIONS AND WIRING INSTALLATION FOR A MID CONTINENT INSTRUMENTS USB CHARGER SYSTEM.
2. PERFORM EMI/EMC SOURCE VIBRIM TESTING IN ACCORDANCE WITH WEST STAR EMI/EMC TEST.
3. TEST PROCEDURE DOCUMENT NUMBER 189851-279 REV. I/R.
4. ALL WIRE JUMPERS SHALL BE 22 GAUGE AND LESS THAN 6' IN LENGTH UNLESS OTHERWISE NOTED.
5. ALL DIODES ARE 1M4003 UNLESS OTHERWISE NOTED.
6. LOWER CASE LETTERS ARE PRECEDED BY AN ASTERISK I.E. D = *D.
7. SINGLE STRAND WIRE IS TO BE PART NUMBER H22759/34-(XXX)-9, (XXX)= WIRE GAUGE TWISTED PAIR WIRE IS TO BE PART NUMBER H27500-(XXX)SD(X)T23, (XXX)= WIRE GAUGE (*X)= # CONDUCTORS ALL WIRE IS 22 GAUGE UNLESS OTHERWISE NOTED.
8. REFERENCE WEST STAR DOCUMENT P21367R-139 FOR CHANGES TO THE ELECTRICAL LOAD.

PLACARD MUST BE DISPLAYED IN A CONSPICUOUS PLACE, AND MAY NOT BE EASILY ERASED, DISTURBED, OR OBLISCURED. PLACARD AS FOLLOWS:

USB CHARGING
PART
3.0 AMPS MAX
PER PORT

SEE BELOW FOR USB OUTLET CONFIGURATIONS:

NON-LIGHTED	LIGHTED	POWER INPUT LOCATION	USB CONNECTOR
6430202-1	6430202-11	REAR	DUAL, TYPE A + TYPE C
6430202-2	6430202-12	BOTTOM	

REFERENCE GULFSTREAM DRAWING GC41 394030J, AUX CB PANEL (MDD).

2

ITEM	QTY.	DESCRIPTION	PART NO.	MANUFACTURER
1	1	CIRCUIT BREAKER 7.5 AMP	2TC14-7.5	KLIXON
2	1	CIRCUIT BREAKER 10 AMP	2TC14-10	KLIXON
3	10	CONNECTOR	1-480698-0	TYCO/AMP
4	10	CONNECTOR	1-480698-0	TYCO/AMP
5	10	MOUNTING KIT	9017897	MID CONTINENT INST
6	10	CONNECTOR KIT	9017960	MID CONTINENT INST
7	10	DUAL PORT USB CHARGER, LIGHTED	6430202-XX	MID CONTINENT INST

DESIGNER: P. CRAWFORD
CHECKED BY: T. RAMSEY
REV. I/R

WEST STAR AVIATION

AIRCRAFT MODEL: GULFSTREAM G450 S/N 4082

TITLE: CABIN USB CHARGERS
DWG No. P22376W-110

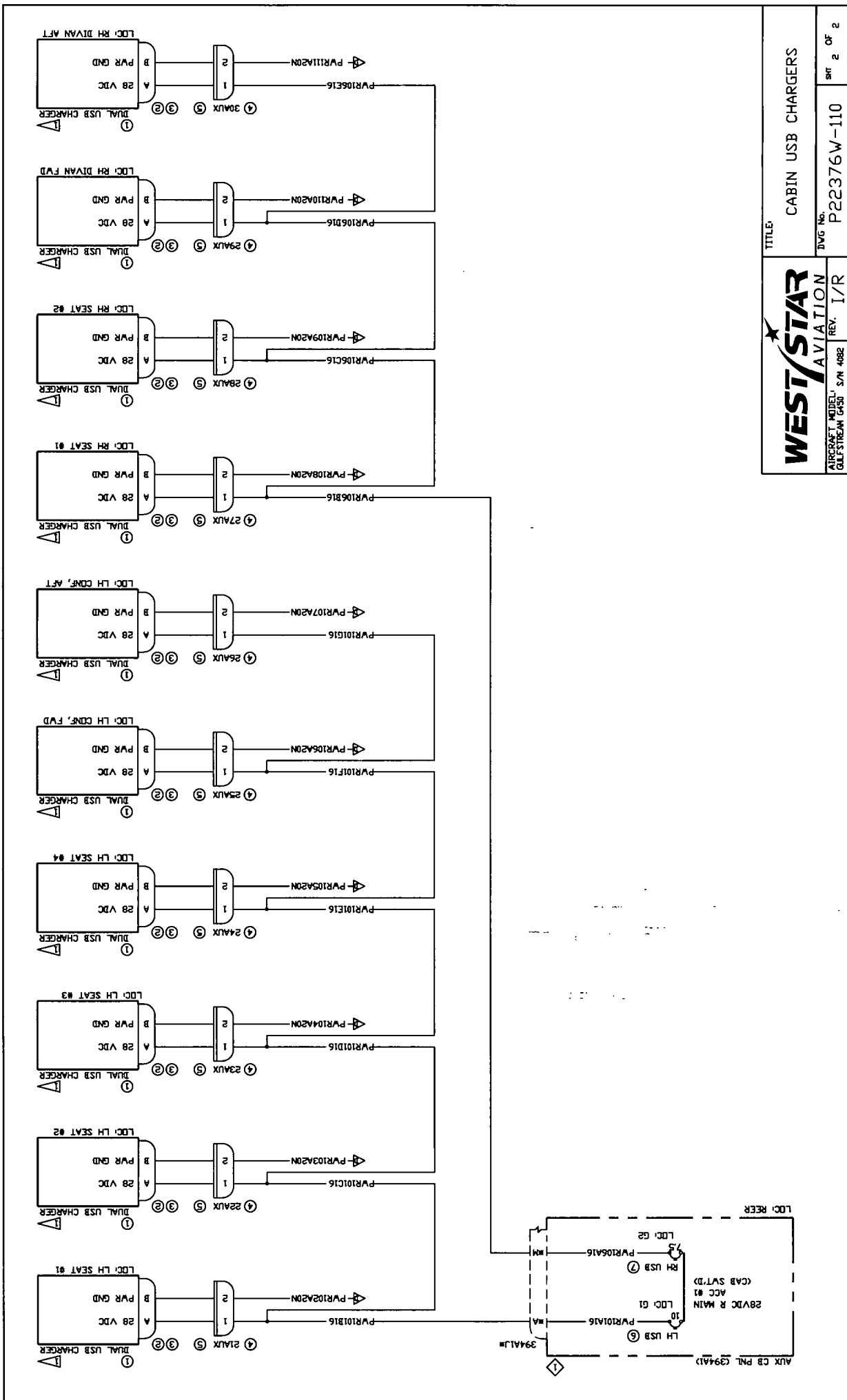
sh 1 of 2

GEN. NOTES:

AC GND = AC GND
DC GND = DC GND
CHS GND = CHS GND

SHIELD GND = SHIELD GND
LOGIC/SIGNAL GND = LOGIC/SIGNAL GND
CAPPED WIRE = CAPPED WIRE

NEW WIRE REMOVED WIRE EXISTING WIRE REF. ONLY



WEST STAR AVIATION
 AIRCRAFT MODEL: GULFSTREAM G450 S/N 4882
 REV: I/R

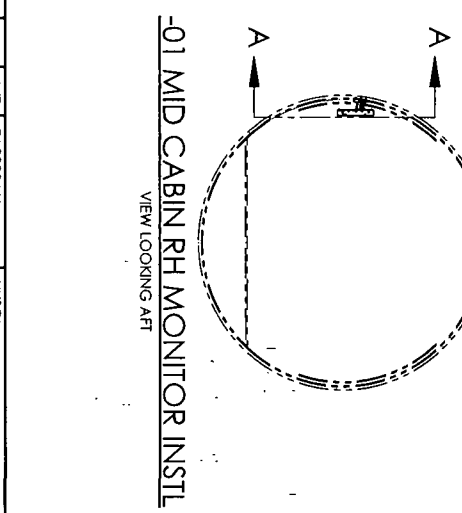
TITLE: CABIN USB CHARGERS
 DWG NO: P22376W-110
 SHEET 2 OF 2

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REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE		FEB/24/2022

NOTES

- BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
- FASTENER GRIP LENGTHS DETERMINED/VERIFIED AT INSTALLATION.
 - APPROPRIATE SOLID FASTENER LENGTH(S) SHALL BE CONFIRMED WITH REFERENCE TO AC43.13-18, SECT. 4-57.
 - THREADED FASTENER LENGTH(S) SHALL BE SUFFICIENT LENGTH TO ACCOMMODATE A MINIMUM OF TWO (2) THREADS BEYOND NUT/NUTPLATE THREADING.
- TREAT ALL APPLICABLE PARTS WITH BONDERITE (ALODINE 1201) PER MIL-DTL-5541, AND APPLY EPOXY PRIMER PER MIL-PRF-23377 OR EQUIVALENT.
- ROUTE OUT ALL EXPOSED EDGES OF HONEYCOMB PANEL CORE MATERIAL UP TO 1.5 CELLS. FILL ALL PERIMETER ROUTERED EDGES WITH ATR-1000 POLYESTER FILLER PER MANUFACTURER'S INSTRUCTIONS AND ALLOW TO CURE.
- POT ALL INSERTS BY CUTTING OUT NEAR SIDE FACE SHEET TO THE SIZE OF THE INSERT. POT THRU INSERTS BY CUTTING OUT BOTH FACE SHEETS TO THE SIZE OF THE INSERT. REMOVE THE CORE MATERIAL ALONG WITH AN ADDITIONAL 2 CELLS UNDER THE FACE SHEET(S) AROUND THE PERIMETER OF THE HOLE CUT OUT. SECURE INSERT IN PLACE AND INJECT WITH ATR-525 A/B ADHESIVE PER MANUFACTURER'S INSTRUCTIONS UNTIL CAVITY IS FILLED AND ALLOW TO CURE.



FLAG NOTES

- FORM PART TO MATCH OUTBD SIDE OF OUTBD SHELL PANEL RADIUS.
- LOCATE DISPLAY FACE PERPENDICULAR TO CABIN FLOOR. REMOVE EXISTING BRACKETS MOUNTED TO OUTBD SHELL PANEL AS REQUIRED FOR MONITOR INSTALLATION.
- CUTOUT CLEARANCE FOR P22372D-117-03 RECEIVER MOUNT TO PASS THRU INNER LINER PANEL WITH A MINIMAL GAP AROUND PERIMETER OF RECEIVER MOUNT.
- PREPARE FAYING SURFACES BY REMOVING ANY PRIMER/PAINT OR FOREIGN RESIDUE AND BOND -21 INDUPLATE STRAP TO OUTBD SHELL PANEL USING EA9309 JNA HYSOL.

FLAG	DESCRIPTION	QTY	UNIT	QTY	UNIT	QTY	UNIT	QTY	UNIT	QTY	UNIT
A/R	EA9309 JNA		HYSOL								
A/R	ATR-525 A/B		ADHESIVE								
A/R	ATR-1000		EDGE FILLER								
8	MS11834-3-XX		INSERT								
14	MS1149F0332P		WASHER								
8	MS27039 (10-32)		SCREW								
8	MS24694 (10-32)		CSK SCREW								
3	MS210751.4		NUTPLATE								
8	MS210751.3		NUTPLATE								
A/R	MS20426A03		RIVET								
3	MS24694 (1/4-28)		CSK SCREW								
1	P22372D-117-03		RECEIVER MOUNT								
1	P22372D-116-03		MONITOR POST								
1	P22372D-115-03		MONITOR PLATE								
1	P22372N-114-03		STRAP								
1	P22372N-114-21		NUTPLATE STRAP ASSY								
1	P22372N-114-11		MONITOR POST ASSY								
1	P22372N-114-01		MID CABIN RH MONITOR INSTL								

DASH NO	WEIGHT NOMENCLATURE	WEIGHT INSTALLED	WEIGHT REMOVED
-01	ORIGINAL MONITOR (REMOVED)		9.5 LBS
-01	ORIGINAL SHROUD (REMOVED)		1.54 LBS
-01	NEW MONITOR	7.4 LBS	

LINEAR TOLERANCES	ANGULAR TOLERANCES	ALL MACHINED SURFACES
.XX ±.03	.XXX ±.010	FRACTION ±1/32
		±0°30'

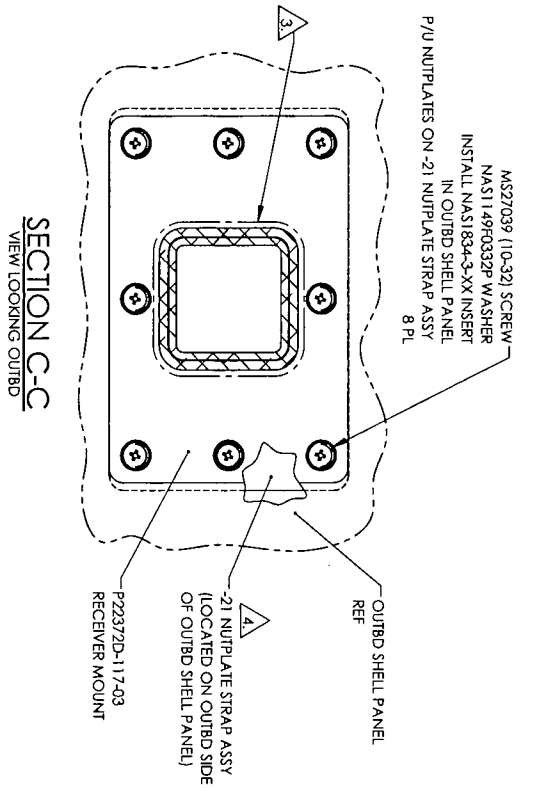
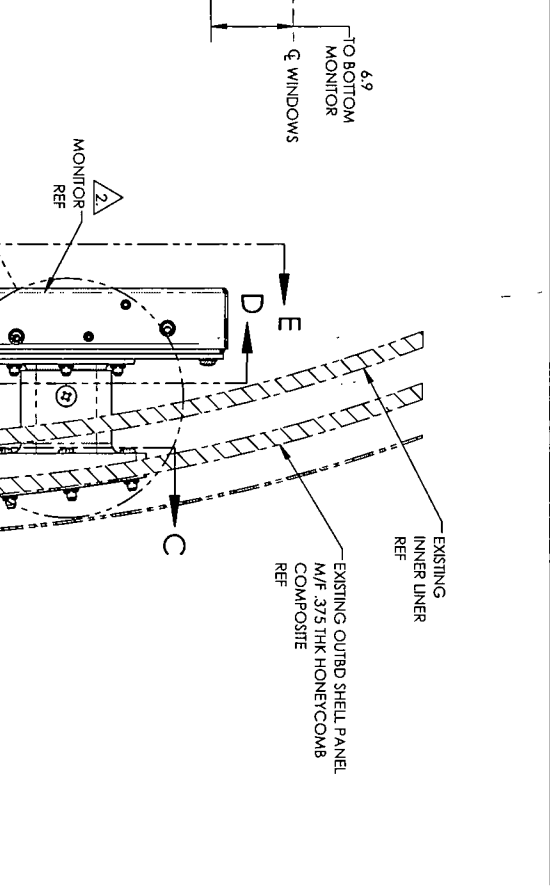
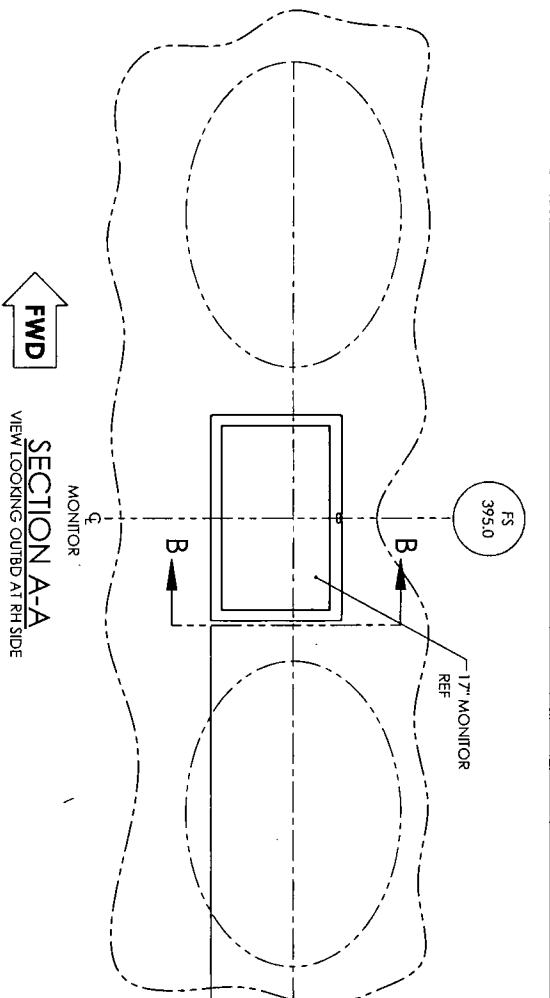
WEIGHT	WEIGHT INSTALLED	WEIGHT REMOVED
7.4 LBS		

DRAWN BY: L. SOVA
CHECKED BY: [Signature]
ARCRAFT MODEL: G450-4082
REV: I/R

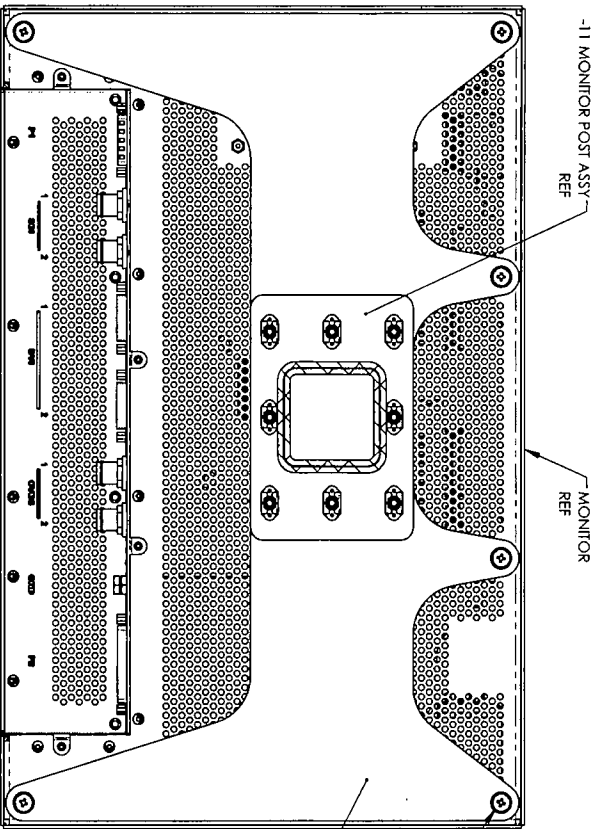


TITLE	DESCRIPTION	DATE
MID CABIN RH WINDOWLINE MONITOR INSTL		

DWG No. P22372N-114
SHT 1 OF 6



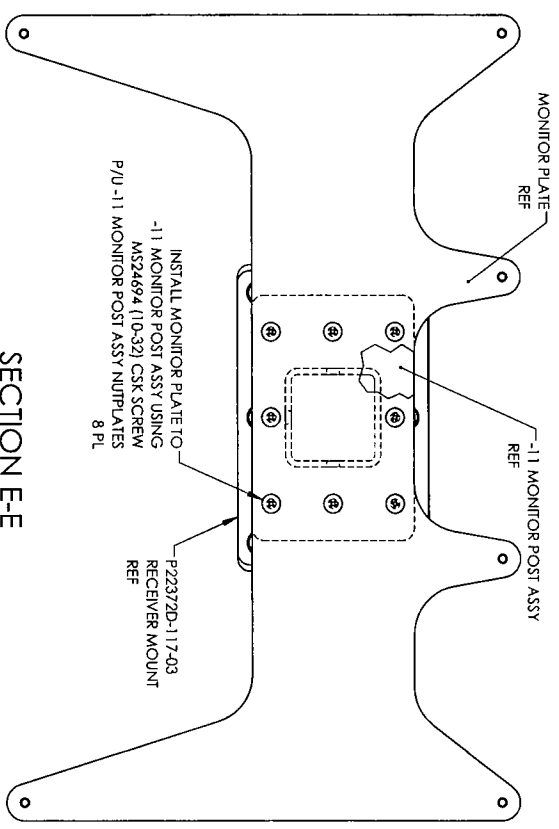
		TITLE: MID CABIN RH WINDOWLINE MONITOR INSTL	
AIRCRAFT MODEL: G450-4082	REV. I/R	DWG No. P22372N-114	SHIT 2 OF 6



SECTION D-D
VIEW LOOKING INBD

DRILL ϕ .191 HOLE
MS27039 (10-32) SCREW
NAS1149P0332P WASHER
P/U MONITOR MOUNT HOLES
6 PL

P22372D-11-5-03
MONITOR PLATE

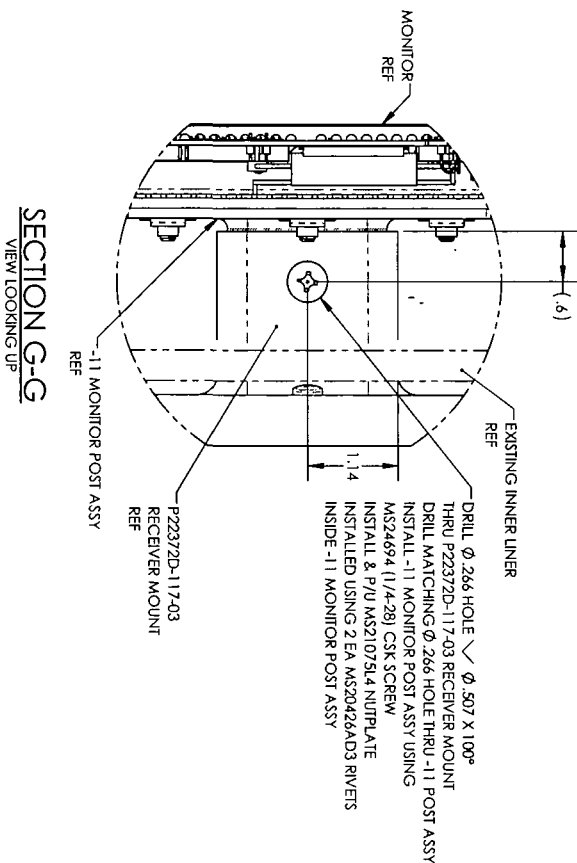
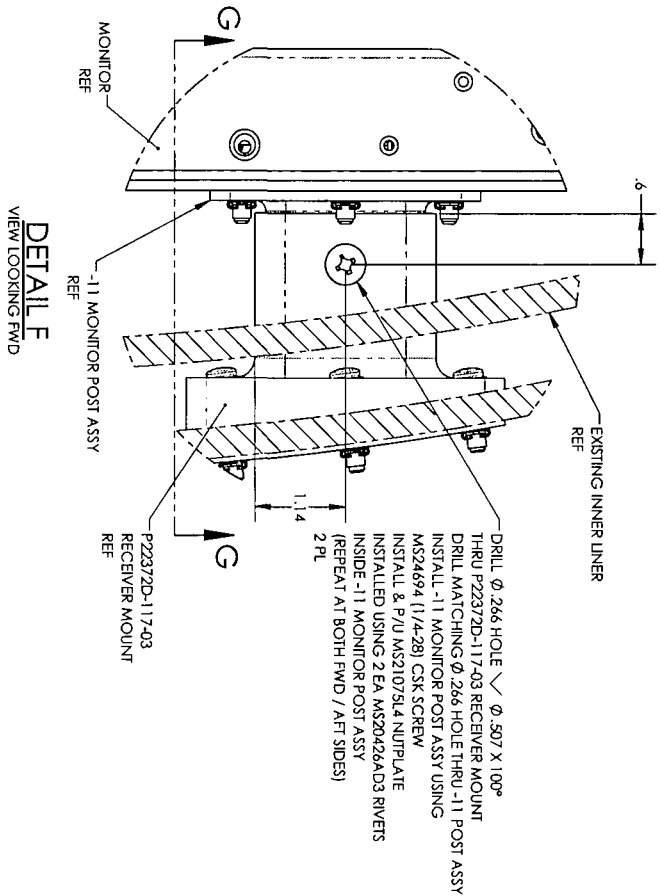


SECTION E-E
VIEW LOOKING OUTBD
MONITOR NOT SHOWN FOR CLARITY

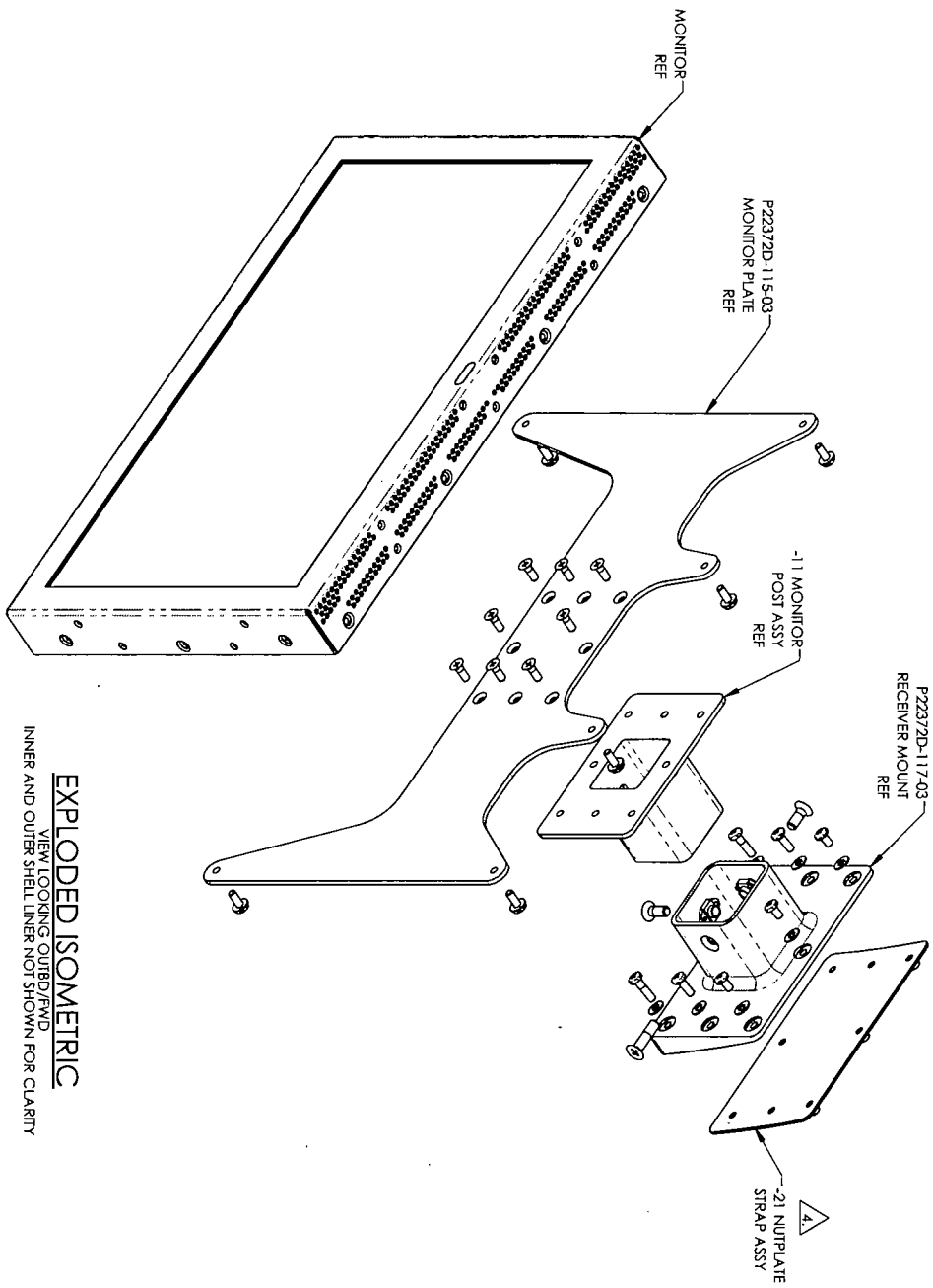
INSTALL MONITOR PLATE TO
-11 MONITOR POST ASSY USING
MS24694 (10-32) CSK SCREW
P/U -11 MONITOR POST ASSY NUT/PLATES
8 PL

P22372D-11-7-03
RECEIVER MOUNT
REF

		TITLE: MID CABIN RH WINDOWLINE MONITOR INSTL	
AIRCRAFT MODEL: G450-4082	REV. 1/R	DWG No. P22372N-114	SHT 3 OF 6

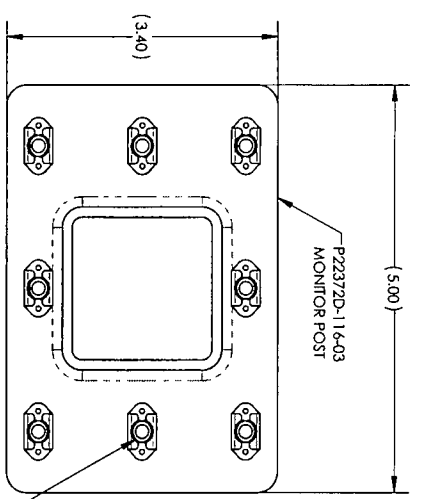


		TITLE: MID CABIN RH WINDOWLINE MONITOR INSTL	
		DWG No. P22372N-114	
AIRCRAFT MODEL: G450-4082	REV. I/R	SHT 4 OF 6	

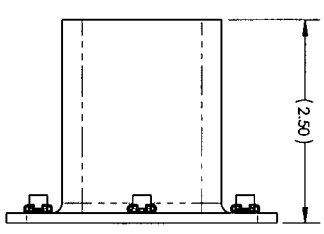


EXPLODED ISOMETRIC
 VIEW LOOKING OUTBD/FWD
 INNER AND OUTER SHELL LINER NOT SHOWN FOR CLARITY

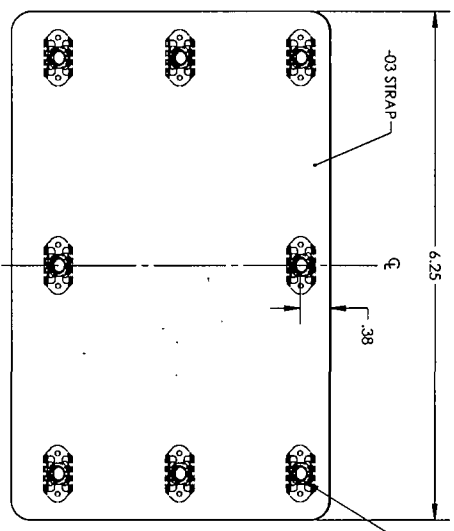
		TITLE: MID CABIN RH WINDOWLINE MONITOR INSTL	
		DWG No. P22372N-114	SHT 5 OF 6
AIRCRAFT MODEL: G450-4082	REV. I/R		



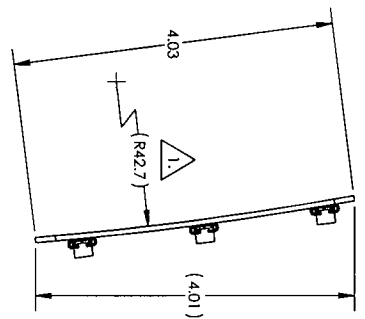
-11 MONITOR POST ASSY



MS21075L3 NUTPLATE INSTALLED
 USING 2 EA MS20426AD3 RIVETS
 MATCH WITH P22372D-116-03 MONITOR POST
 8 PL



-21 NUTPLATE STRAP ASSY
 -03 STRAP DETAILED ABOVE



DRILL ϕ .201 HOLE
 INSTALL MS21075L3 NUTPLATE (FS)
 USING 2 EA MS20426AD3 RIVETS
 MATCH W/P22372D-117-03
 RECEIVER MOUNT AT INSTL
 8 PL

		TITLE: MID CABIN RH WINDOWLINE MONITOR INSTL	
		DWG No. P22372N-114	SHT 6 OF 6
AIRCRAFT MODEL: G450-4082	REV. 1/R		

THE INFORMATION, TECHNICAL DATA AND DESIGNS DISCLOSED HEREIN ARE THE EXCLUSIVE PROPERTY OF WEST STAR AVIATION OR CONTAIN PROPRIETARY RIGHTS OF OTHERS AND ARE NOT TO BE USED OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN CONSENT OF PREMIER AIR CENTER INC. THE REGENT OF THIS DOCUMENT AND USE AGREES TO HOLD IN CONFIDENCE THE TECHNICAL DATA AND DESIGNS CONTAINED HEREIN. THE FOREGOING SHALL NOT APPLY TO PERSONS HAVING PROPRIETARY RIGHTS TO SUCH INFORMATION, TECHNICAL DATA OR SUCH DESIGNS TO THE EXTENT THAT SUCH RIGHTS EXIST.

REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE		MAR/04/2022

NOTES

- BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
- FASTENER GRIP LENGTHS DETERMINED/VERIFIED AT INSTALLATION:
 - A. APPROPRIATE SOLID FASTENER LENGTH(S) SHALL BE CONFIRMED WITH REFERENCE TO AC43.134.B, SECT. 4.57.
 - B. THREADFASTENERS LENGTH(S) SHALL BE SUFFICIENT LENGTH TO ACCOMMODATE A MINIMUM OF TWO (2) THREADS BEYOND NUT/PLATE THREADEDING.
- TREAT ALL APPLICABLE PARTS WITH BONDERITE (ALODINE 1201) PER MIL-DTL-5541, AND APPLY EPOXY PRIMER PER MIL-PRF-23377 OR EQUIVALENT.
- ROUTE OUT ALL EXPOSED EDGES OF HONEYCOMB PANEL CORE MATERIAL UP TO 1.5 CELLS. FILL ALL PERIMETER ROUTERED EDGES WITH ATR-1000 POLYESTER FILLER PER MANUFACTURER'S INSTRUCTIONS AND ALLOW TO CURE.
- POT ALL INSERTS BY CUTTING OUT NEAR SIDE FACE SHEET TO THE SIZE OF THE INSERT. POT THRU INSERTS BY CUTTING OUT BOTH FACE SHEETS TO THE SIZE OF THE INSERT. REMOVE THE CORE MATERIAL ALONG WITH AN ADDITIONAL 2 CELLS UNDER THE FACE SHEET(S) AROUND THE PERIMETER OF THE HOLE CUT OUT. SECURE INSERT IN PLACE AND INJECT WITH ATR-525 A/B ADHESIVE PER MANUFACTURER'S INSTRUCTIONS UNTIL CAVITY IS FILLED AND ALLOW TO CURE.
- REFER TO APPLICABLE WEST STAR ELECTRICAL DRAWING FOR P/N AND PROCUREMENT.

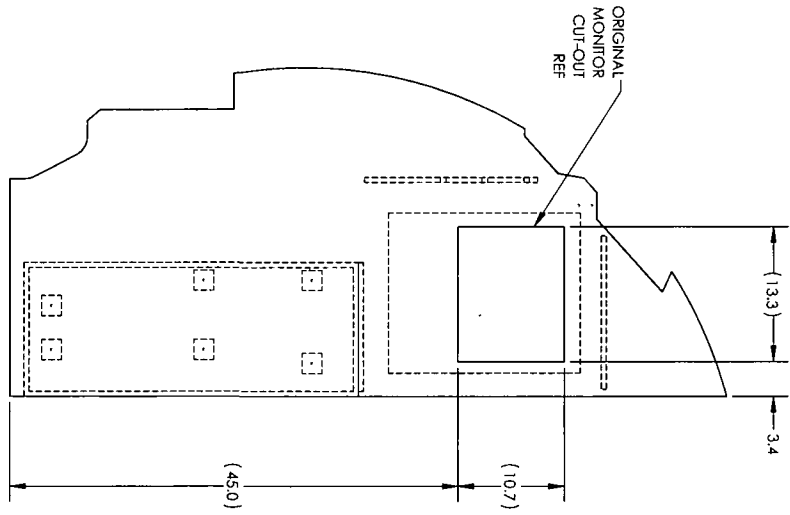
FLAG NOTES

- △ TRIM PART TO MATCH OUTBD CONTOUR OF SHELL PANEL AT INSTALLED LOCATION.
- △ PREPARE FAYING SURFACES BY REMOVING ANY PRIMER/PAIN OR FOREIGN RESIDUE AND BOND -13 & -15 SHIMS TO BULKHEADS FAYING SURFACE USING 1357 ADHESIVE.
- △ FILLER PANELS W/ F NL610-11233-750 NORDAM PANEL TO BE BLIND PINNED USING ATR-250-43/5F PANEL PINS INSTALLED 1.0 INCH FROM EACH END AND EQUALLY SPACED ACROSS SPAN WITH A MAXIMUM PITCH OF 4.0 INCHES BETWEEN FASTENERS. INSTALL PANEL PINS WITH ATR-525 A/B ADHESIVE. MIX PER MANUFACTURER'S INSTRUCTIONS.
- △ FABRICATE CLOSEOUT ASSY TO HAVE SAME DIMENSIONS AS ORIGINAL CLOSEOUT ASSY EXCEPT AS NOTED AND INCLUDE MATCHING THRU/THREADED INSERT LOCATIONS AND INSERT TYPES. RELOCATE ANGLES TO MATCH ORIGINAL LOCATIONS.
- △ REMOVE SKIN AND CORE TO DEPTH OF -.03 DOUBLER AND BOND DOUBLER TO HONEYCOMB USING EA9209 NA HYSOL.
- △ RELOCATE EXISTING ANGLES TO OPPOSITE SIDE OF PANEL MOUNTED TO AT THE SAME VERTICAL LOCATION. ATTACH USING SAME 4 EA EXISTING SCREWS/WASHERS. INSTALL & P/U 4 EA NAS1836-3-XX INSERTS.

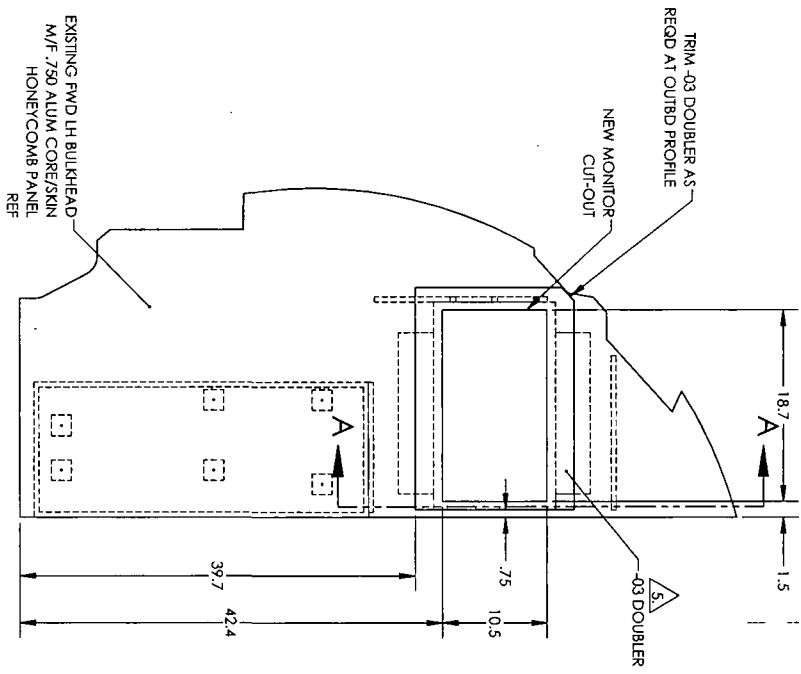
DASH NO	WEIGHT NOMENCLATURE	WEIGHT INSTALLED	WEIGHT REMOVED
-01	ORIGINAL MONITOR	9.5 LBS	
-01	NEW MONITOR	7.2 LBS	

LINEAR TOLERANCES	.XX	±.10	
ANGULAR TOLERANCES	±1/32		
ALL MACHINED SURFACES	40/30		
DRAWN BY:	L. SOVA	CHECKED BY:	J. FOX
AIRCRAFT MODEL:		REV.	I/R
G450-4082			
DWG NO.	P22372N-113	SH#	1 OF 6
TITLE: FWD LH CABIN MONITOR INSTL			

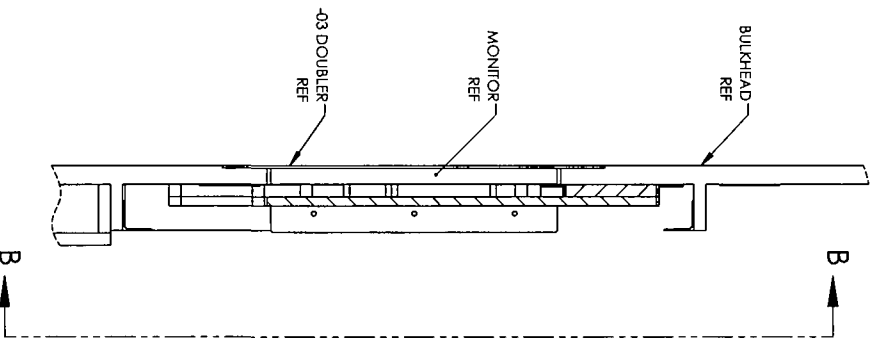
A/R	A/R	1357	ADHESIVE		REV	DESCRIPTION	APPROVED	DATE
A/R	A/R	ATR-1000	EDGE FILLER					
A/R	A/R	ATR-525 A/B	ADHESIVE					
11	15	NAS1836-3-XX	INSERT					
8	8	NAS1834-3-K300	INSERT					
	10	NAS1834-3-375	INSERT					
	2	NAS1833-3-500	INSERT					
	2	NAS11497036/2P	WASHER					
6	18	NAS11497033/2P	WASHER					
6	18	MS27039 (10-32)	SCREW					
A/R	A/R	ATR-250-43/5F	PANEL PIN					AAR
	4	AN970-3	WASHER					
1	1	P22372N-113-17	CLOSEOUT PANEL			NL610-11233-500 HONEYCOMB PANEL		NORDAM
1	1	P22372N-113-15	SHIM			NL610-11233-500 HONEYCOMB PANEL		NORDAM
1	1	P22372N-113-13	SHIM			NL610-11233-500 HONEYCOMB PANEL		NORDAM
1	1	P22372N-113-09	BRACE			NL610-11233-375 HONEYCOMB PANEL		NORDAM
1	1	P22372N-113-07	PLATE			1.00 THK 2024-T3 ALCLAD ALUM		GG-A-250/5
1	1	P22372N-113-05	ANGLE			AND10133-1401 2024-T3511 ALUM EXTR		GG-A-200/3
1	1	P22372N-113-03	DOUBLER			1.00 THK 2024-T3 ALCLAD ALUM		GG-A-250/5
1	1	P22372N-113-11	CLOSEOUT ASSY					
		P22372N-113-01	FWD LH CABIN MONITOR INSTL					
		PART NO.	NOMENCLATURE			DESCRIPTION		SPEC



ORIGINAL MONITOR CUT-OUT
VIEW LOOKING FWD

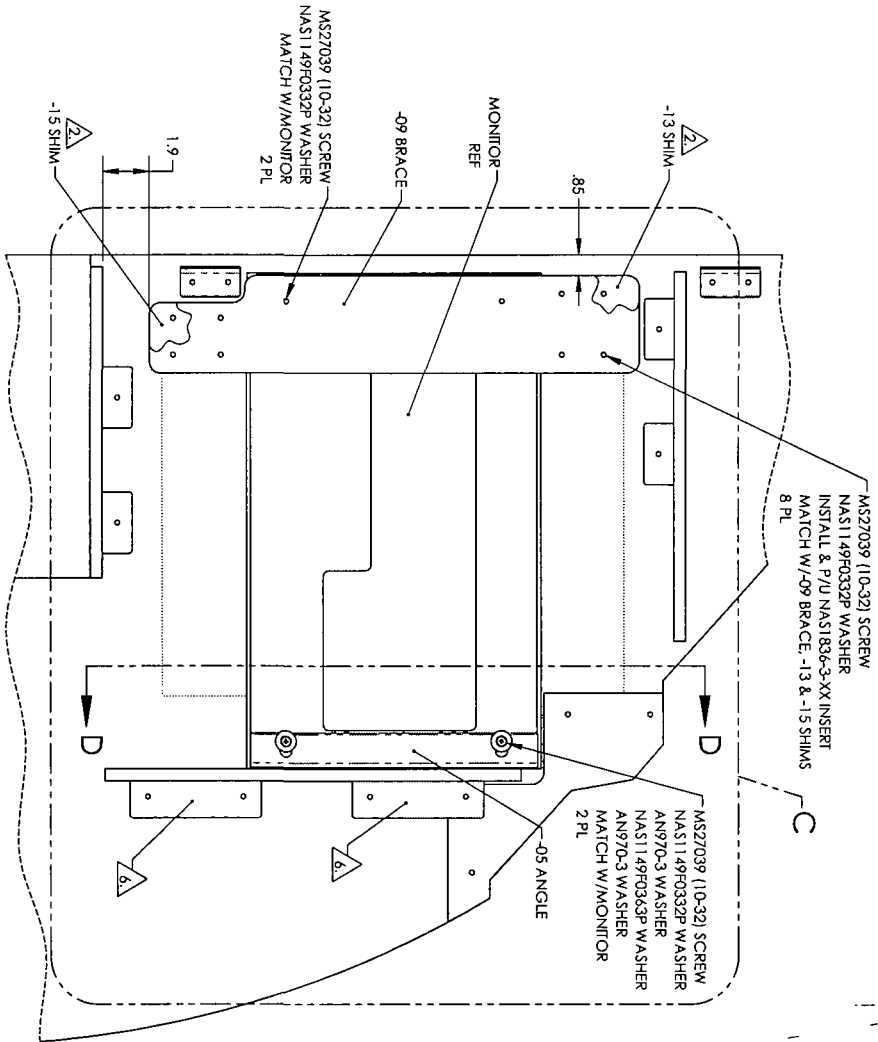


-01 LH FWD MONITOR INSTL
VIEW LOOKING FWD @ FS193AA



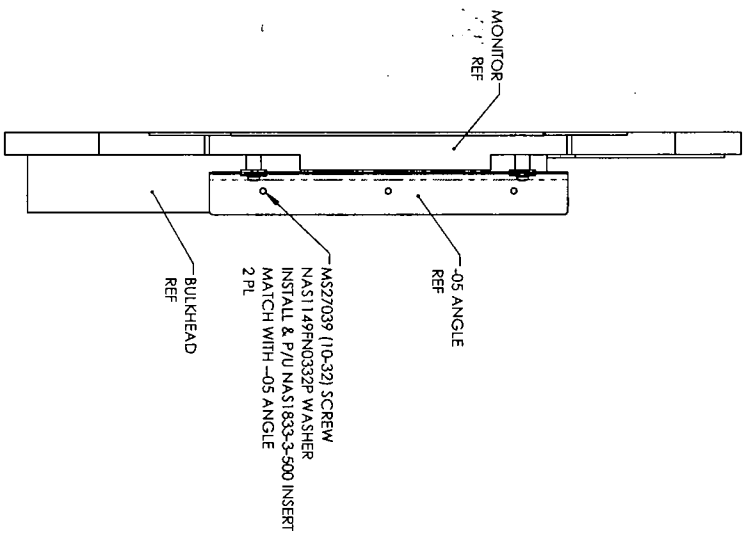
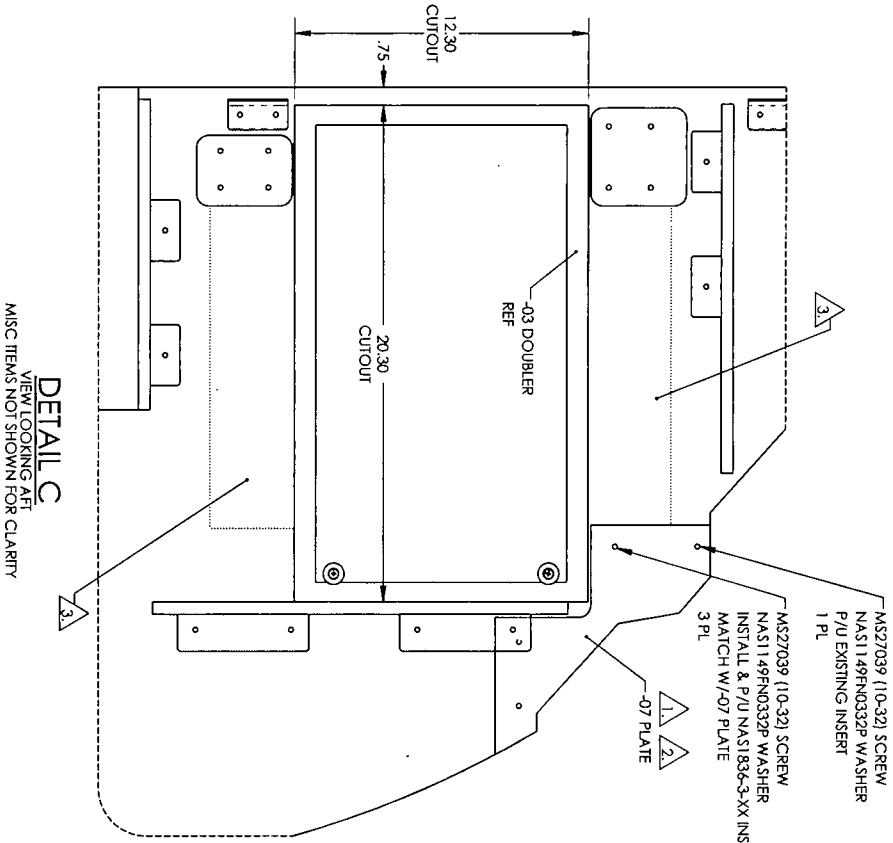
SECTION A-A
VIEW LOOKING OUTBD
CLOSEOUT AND FWD CABINET NOT SHOWN FOR CLARITY

		TITLE: FWD LH CABIN MONITOR INSTL	
		DWG No. P22372N-113	SHT 2 OF 6
AIRCRAFT MODEL: C450-4082	REV. 1/R		

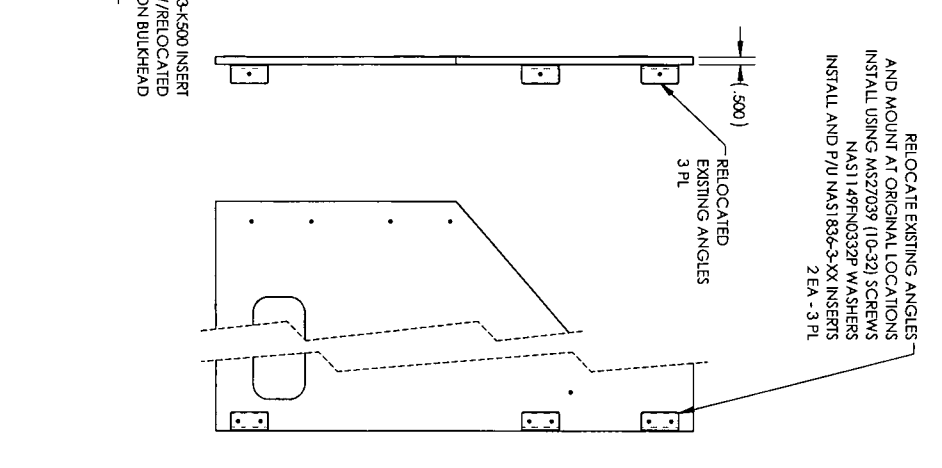
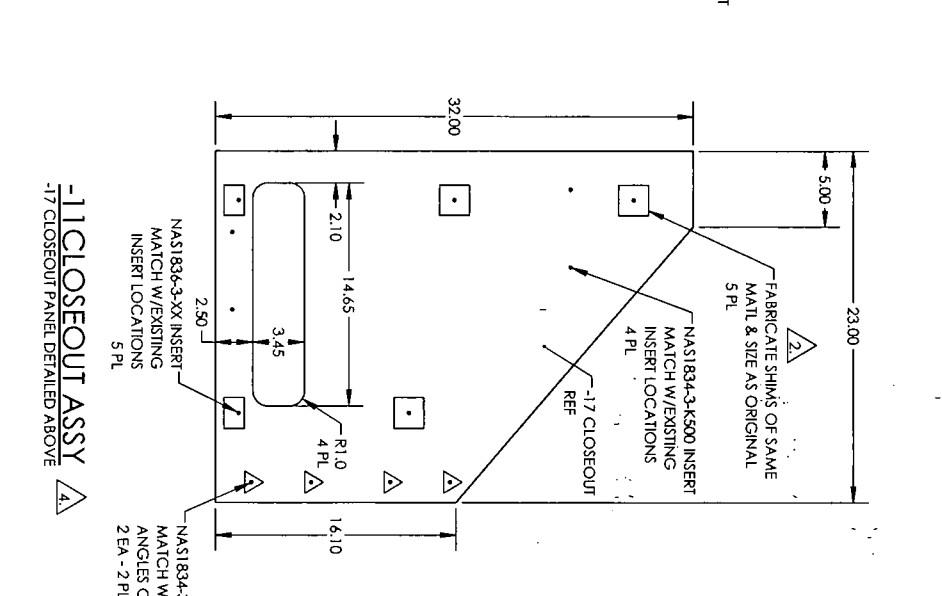
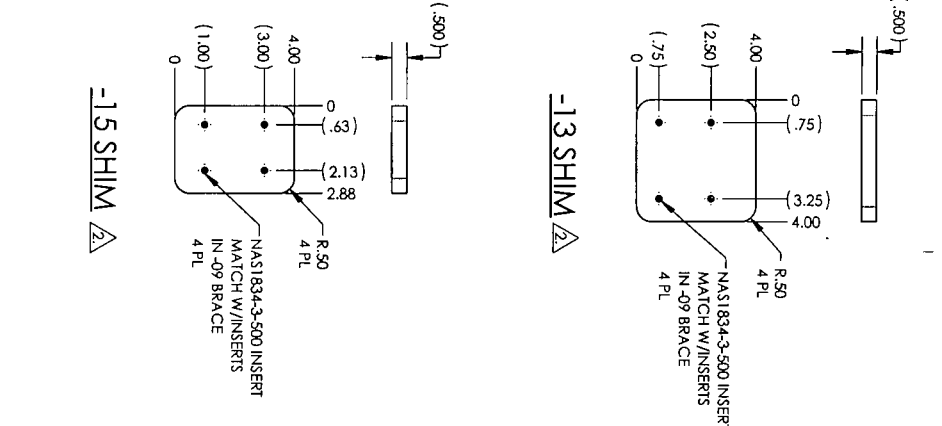
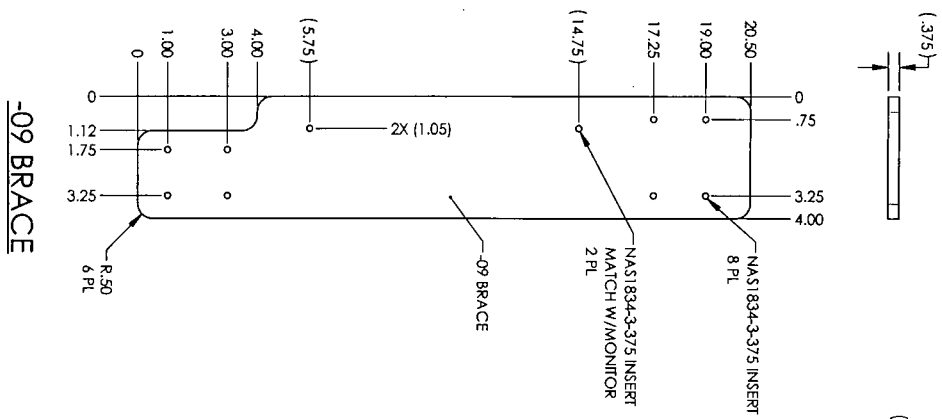


SECTION B-B
VIEW LOOKING AFT
-11 CLOSEOUT ASSY NOT SHOWN FOR CLARITY

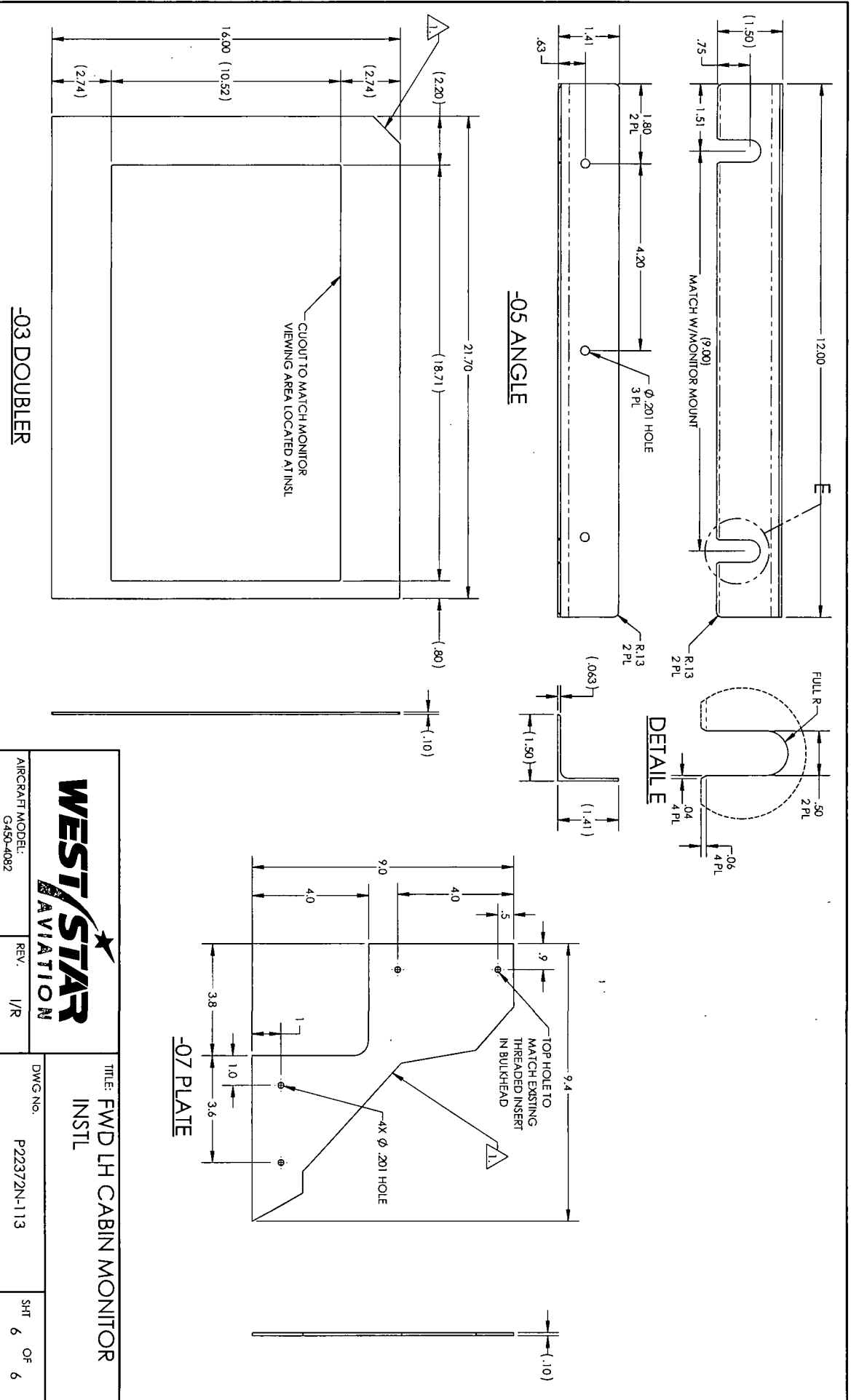
		TITLE: FWD LH CABIN MONITOR INSTL	
		AIRCRAFT MODEL: G450-4082	REV. 1/R



		TITLE: FWD LH CABIN MONITOR	
		INSTL	
AIRCRAFT MODEL: G450-4082	REV. 1/R	DWG No. P22372N-113	SHT 4 OF 6



	AIRCRAFT MODEL: G450-4082	REV. 1/R	DWG No. P22372N-113	TITLE: FWD LH CABIN MONITOR INSTL
	SHIT 5 OF 6			



		TITLE: FWD LH CABIN MONITOR INSTL	
		AIRCRAFT MODEL: C450-4082	
REV.	1/R	DWG No.	P22372N-113
SHT 6 OF 6			

NOTES

- BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
- TREAT ALL APPLICABLE PARTS WITH BONDERITE (ALODINE 1201) PER MIL-DTL-5541, AND APPLY EPOXY PRIMER PER MIL-PRF-23377D OR EQUIVALENT.
- DIMENSIONS HERIN ARE PROVIDED AS REFERENCE FOR CONFORMITY INSPECTION OF COMPLETED PART. GEOMETRIC DEFINITIONS ARE FULLY DEFINED WITHIN THE ASSOCIATED WEST STAR NATIVE 3D PART FILE.

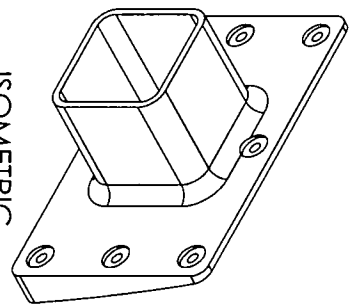
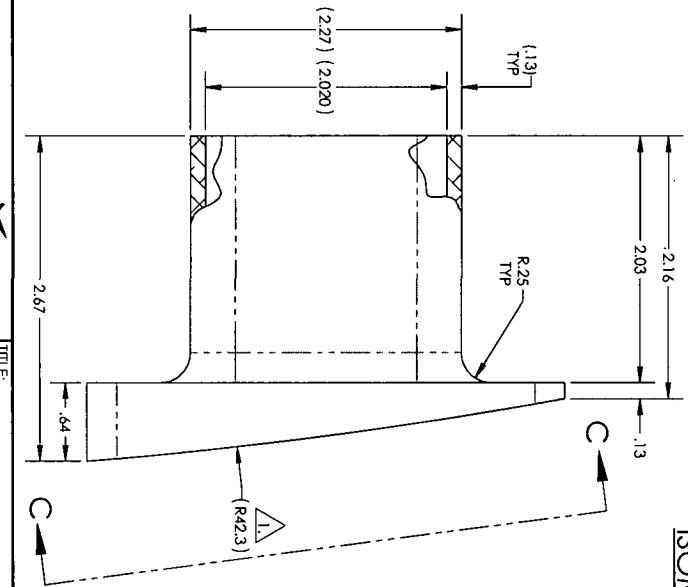
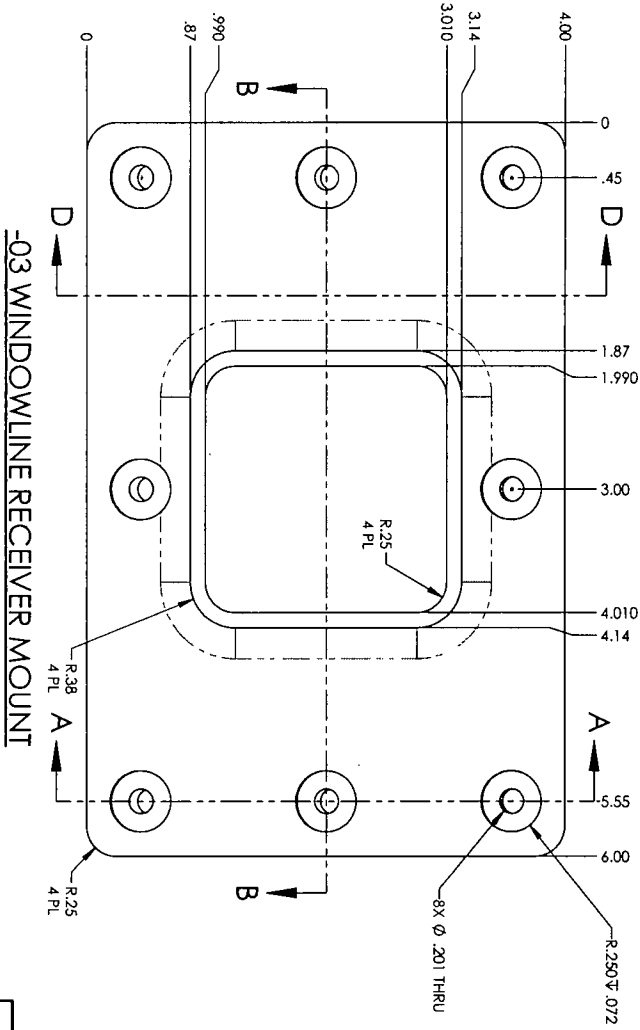
FLAG NOTES

1 RADIUS TO MATCH INBD SIDE OF OUTBD SHELL PANEL RADIUS

REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE		2/24/2022

P22372D-117-03		WINDOWLINE RECEIVER MOUNT		2024-1351 ALUM		QQ-A-250/4	
-03		PART NO.		NOMENCLATURE		DESCRIPTION	
DRAWN BY: L. SOVA		CHECKED BY: E. HANCAFT		PRODUCTION:		TITLE: WINDOWLINE RECEIVER MOUNT	
DASH NEXT ASSEMBLY DWG OR A/C G499-082		SERIAL #		ANGULAR TOLERANCES		DWG No. P22372D-117	
LINEAR TOLERANCES		FRACTION		ALL MACHINED SURFACES		REV. I/R	
.XX		1/32		125		SHT. 1 OF 3	
.XXX		1/16					
±.03							
±.010							
±1/32							
±.0030							
SEE NAS 623 FOR BASIC FASTENER CODE		SERIAL #		ANGULAR TOLERANCES		TITLE: WINDOWLINE RECEIVER MOUNT	
ALL INFORMATION CONTAINED IN THIS DOCUMENT IS PROPRIETARY TO WEST STAR AVIATION AND MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION OF WEST STAR AVIATION		DRAWN BY: L. SOVA		CHECKED BY: E. HANCAFT		DWG No. P22372D-117	
		PRODUCTION:		ANGULAR TOLERANCES		REV. I/R	
		125				SHT. 1 OF 3	



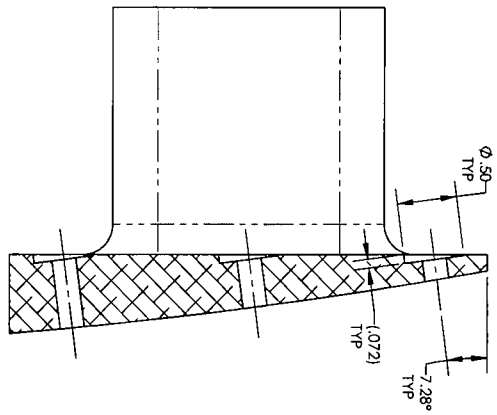


ISOMETRIC

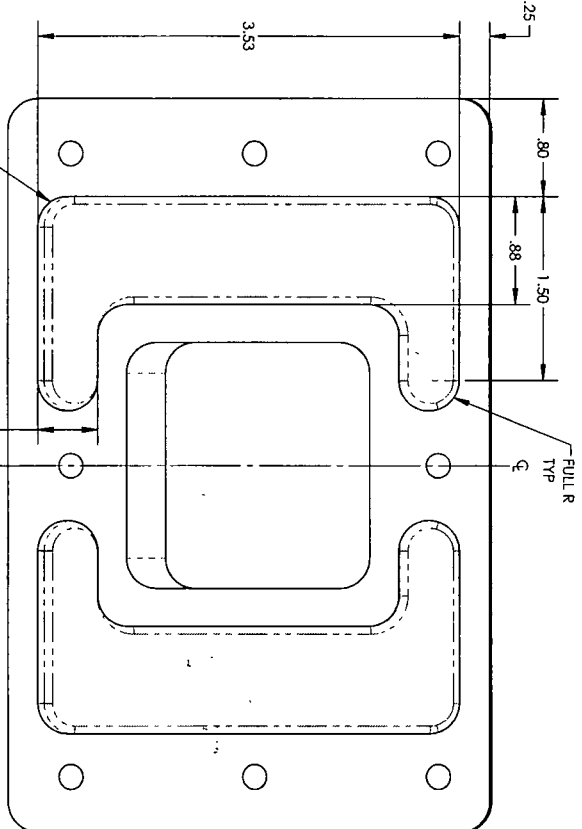


TITLE:	WINDOWLINE RECEIVER MOUNT
DWG No.	P22372D-117
REV.	I/R
SHT.	2 OF 3

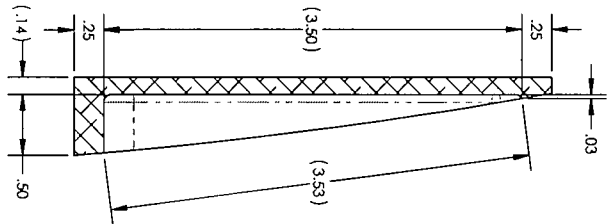
-03 WINDOWLINE RECEIVER MOUNT



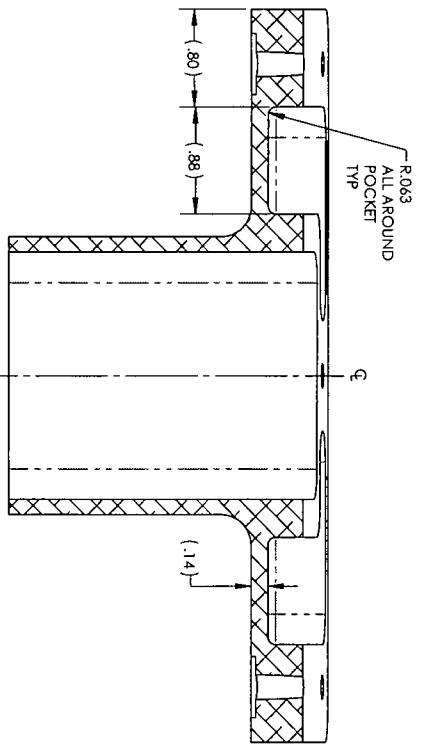
SECTION A-A



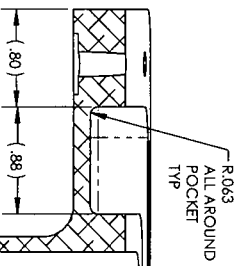
SECTION C-C
ROTATED 7.28° CW
PART FEATURES SYMMETRICAL ABOUT ϕ



SECTION D-D



SECTION B-B
PART FEATURES SYMMETRICAL ABOUT ϕ



TITLE:	WINDOWLINE RECEIVER MOUNT
DWG No.	P22372D-117
REV.	1/R
SHT	3 OF 3

NOTES

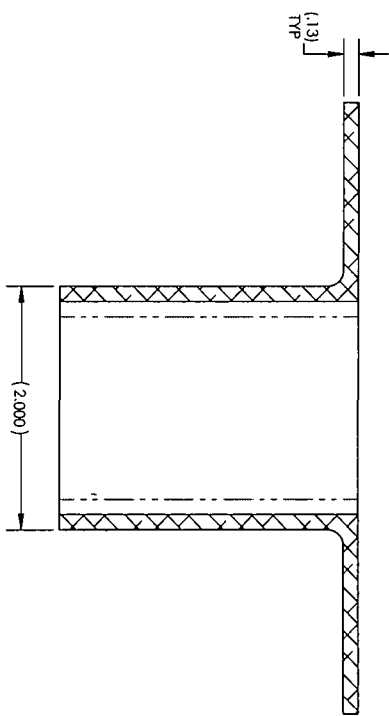
1. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
2. TREAT ALL APPLICABLE PARTS WITH BONDPRITE (ALODINE 1201) PER MIL-DTL-5541, AND APPLY EPOXY PRIMER PER MIL-PRF-23377D OR EQUIVALENT.
3. DIMENSIONS HERIN ARE PROVIDED AS REFERENCE FOR CONFORMITY INSPECTION OF COMPLETED PART. GEOMETRIC DEFINITIONS ARE FULLY DEFINED WITHIN THE ASSOCIATED WEST STAR NATIVE 3D PART FILE.

REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE		2/24/2022

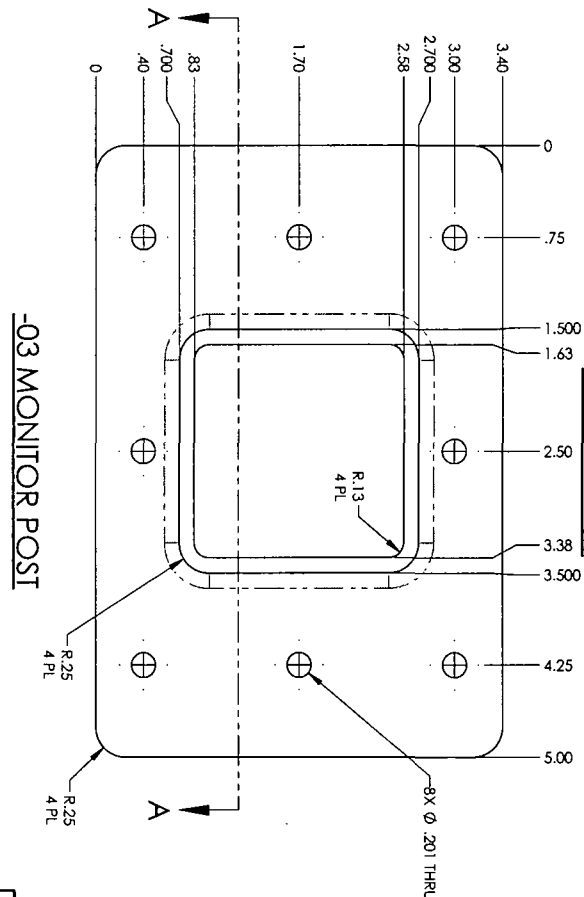
	P22372D-116-03	MONITOR POST	20241351 ALUM	QQ-A-250/4
-03	PART NO.	NOMENCLATURE	DESCRIPTION	SPEC
DRAWN BY: L. SOVA		TITLE: MONITOR POST		
CHECKED BY: E. HAYCRAFT		DWG No. P22372D-116		
PRODUCTION:		REV. I/R		
		SHT. 1 OF 2		

DASH NO.	NEXT ASSEMBLY DWG OR A/C SERIAL #	G-450-1082	LINEAR TOLERANCES	X	±.10
				XX	±.03
				XXX	±.010
			ANGULAR TOLERANCES	FRACTION	±1/32
				1/25	±0.30
SEE NAS 523 FOR BASIC FASTENER CODE			ALL MACHINED SURFACES		
ALL INFORMATION CONTAINED IN THIS DOCUMENT IS PROPRIETARY TO WEST STAR AVIATION AND MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION OF WEST STAR AVIATION					

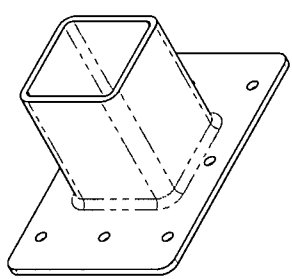




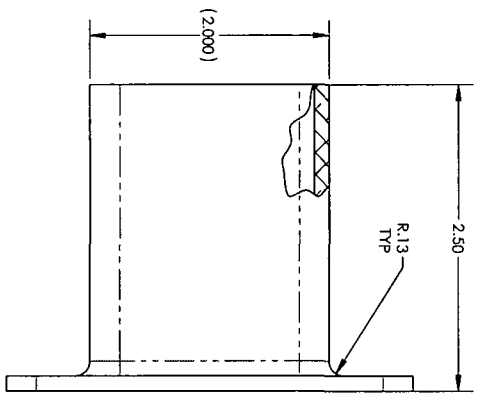
SECTION A-A



-03 MONITOR POST



ISOMETRIC



		TITLE:	MONITOR POST
		DWG No.	P22372D-116
REV.	I/R	SHT.	2 OF 2

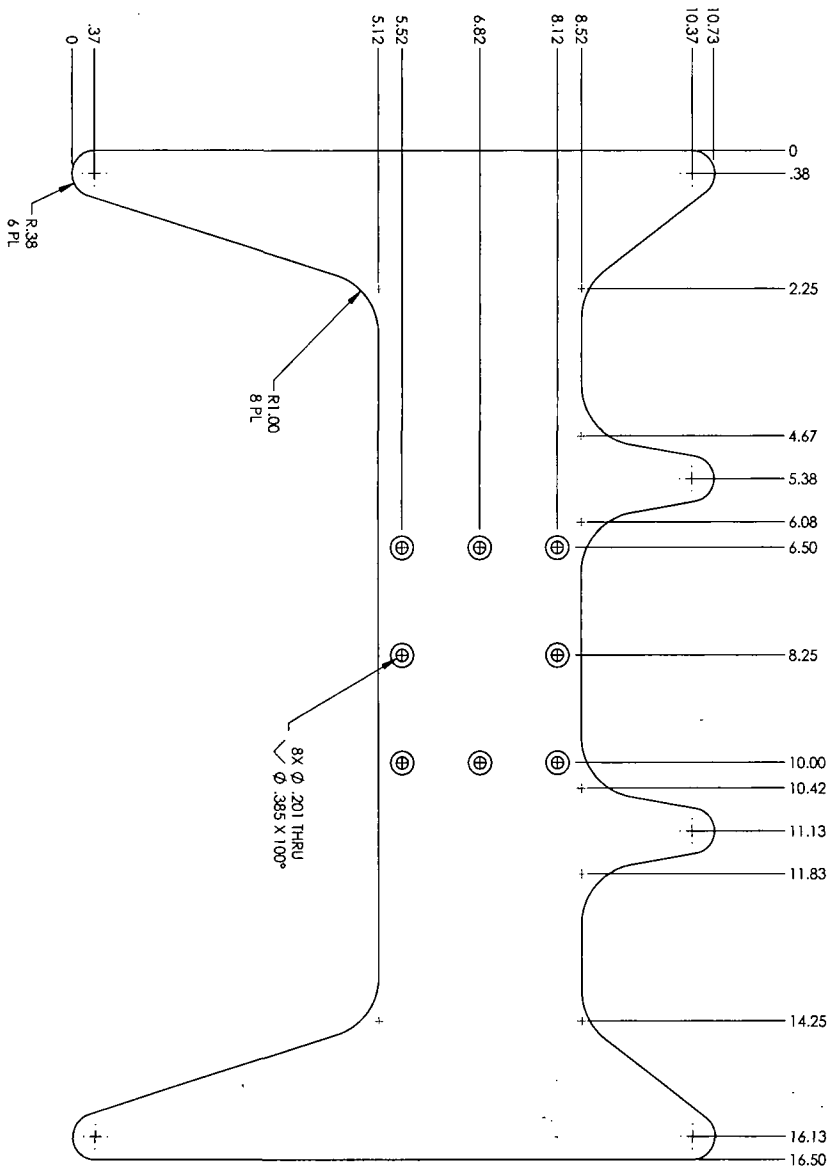
NOTES

1. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
2. TREAT ALL APPLICABLE PARTS WITH BONDPRITE (ALODINE 1201) PER MIL-DTL-5541, AND APPLY EPOXY PRIMER PER MIL-PRF-23377D OR EQUIVALENT.
3. DIMENSIONS HEREIN ARE PROVIDED AS REFERENCE FOR CONFORMITY INSPECTION OF COMPLETED PART. GEOMETRIC DEFINITIONS ARE FULLY DEFINED WITHIN THE ASSOCIATED WEST STAR NATIVE 3D PART FILE.

REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE	Les Soya 	2/24/2022

P22372D-115-03		MONITOR PLATE		.125 THK 2024-T3 ALCLAD ALUM		QQ-A-250/5	
-03		PART NO.		NOMENCLATURE		DESCRIPTION	
DRAWN BY: L. SOVA		CHECKED BY: E. HATCRIFT		PRODUCTION:		TITLE: MONITOR PLATE	
DASH NO. 1		G430-4082		NEXT ASSEMBLY DWG OR A/C SERIAL #		DWG No. P22372D-115	
SEE NAS 523 FOR BASIC FASTENER CODE		DASH NO. 1		NEXT ASSEMBLY DWG OR A/C SERIAL #		REV. I/R	
ALL INFORMATION CONTAINED IN THIS DOCUMENT IS PROPRIETARY TO WEST STAR AVIATION AND MUST NOT BE REPRODUCED OR IN PART WITHOUT WRITTEN PERMISSION OF WEST STAR AVIATION		LINEAR TOLERANCES		ANGULAR TOLERANCES		SHEET 1 OF 2	
		X XX XXX		F.10 F.03 F.010 F.1/2 F.3/30			
		FRACTION		F.1/2			
		ALL MACHINED SURFACES		25			





-03 MONITOR PLATE



TITLE: MONITOR PLATE
 DWG No. P22372D-115 REV. I/R SH. 2 OF 2

(.125)



U.S. Department of
Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

OMB No. 2120-0020
Exp: 5/31/2018

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N450GG	U.S.A.	Serial No. 4082	
	Make Gulfstream	Model GIV-X (G450)	Series N/A	
2. Owner	Name (As shown on registration certificate) TVPX Aircraft Solutions Inc. Trustee		Address (As shown on registration certificate) Address: 39 E Eagle Ridge Dr Ste 201 City: N Salt Lake City State: Utah Zip: 84054 Country: U.S.A.	

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address Name: PREMIER AIR CENTER LLC d/b/a West Star Aviation. Address: 1390 HWY H City: PERRYVILLE State: MO Zip: 63775 Country: USA	B. Kind of Agency <input type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input checked="" type="checkbox"/> Certificated Repair Station <input type="checkbox"/> Certificated Maintenance Organization	Manufacturer C. Certificate No. CRS 4W5R536D
---	--	---

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual Chad Ozark 20 May 2022
--	--

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA Fit Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	<input checked="" type="checkbox"/> Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. 4W5R536D	Signature/Date of Authorized Individual Michael Skinner 20 May 2022
---	---

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

USA / N450GG

20 May 2022

Nationality and Registration Mark

Date

G450-4082, TT: 7040.7 LDG: 3322 Work Order: 20579

Installed a new GoGo Business Aviation AVANCE L6 4G Inflight Internet System with activation using Liberty Partners Inc. STC no. ST11071SC titled "Demonstration of aircraft critical equipment and antenna system tolerance of radio frequency interference RFI from intentional or spurious transmissions from certain Portable Electronic Devices (PEDS)" and the following West Star Aviation drawings:

- a) Master Data List - L60-DL-001, Rev. H, Dated 17 Mar 2017
- b) AML STC Configuration Specification - LP-PS001, Rev. A, Dated 16 Mar 2017
- c) Aircraft Specific Compliance Report - L60-CR002, Rev. D, Dated 17 Mar 2017
- d) Approved Equipment List - GA1459-EL001, Rev. DM, Dated 23 Sep 2021
- e) Instructions for Continued Airworthiness Maintenance Manual Supplement - L60-CA-001, Rev. E, Dated 17 Mar 2017
- f) FAA Approved Airplane Flight Manual Supplement - L60-FM001, Rev. D, Dated 17 Mar 2017

Performed the following West Star Aviation drawings:

- a) Structural - A21339D-945, Rev. I/R, FWD Antenna Contour Plate Detail
- b) Structural - A21339D-948, Rev. I/R, AFT Antenna Contour Plate Detail
- c) Structural - P21339N-149, Rev. I/R, GOGO Avance L5 FWD Antenna INSTL
- d) Structural - P21339N-150, Rev. I/R, GOGO Avance L5 AFT Antenna INSTL
- e) Structural - P21339N-152, Rev. I/R, GOGO Avance L5 Equipment INSTL
- f) Electrical - P21339W-138, Rev. I/R, GOGO Avance L5 Broadband
- g) Structural - A21700N-151, Rev. I/R, Feed-Thru INSTL
- h) Structural - P22339R-141, Rev. I/R, Instructions for Continued Airworthiness and Maintenance Supplement
- i) Electrical - P21367R-139, Rev. I/R, Electrical Load Analysis
- j) Structural - P22339R-140 Rev. I/R, Structural Analysis and Compliance Report

The following items were installed:

- a) Gogo Avance L5 (with 2 Aircards) P/N: P34110-002 S/N: 3411000202033
- b) ACM P/N: P14126 S/N: 1412627001
- c) L5 Tray P/N: P34118 S/N: N/A
- d) Antenna Remote (Qty: 6) P/N: P16917-001 S/N's: 1691700119110, 1691700119146, 1691700119140, 1691700119123, 1691700119136, 1691700119109
- e) Antenna Terre (Qty: 2) P/N: P18350-001 S/N's: 18350008606, 18350008578
- f) Antenna ASE 90 (Qty: 2) P/N: P35500 S/N's: 3550004236, 3550004239

The above West Star Aviation drawings were DER approved on FAA forms 8110-3 (Structural) dated 29 Apr 2022, by Thomas W. McTigue no. DERT-760013-CE and (Electrical) dated 19 May 2022, (File no. JSM-22-22-055) by Jeffery S. Maszkiewicz no. DERT-834075-CE.

14 CFR -- FAR 25.129 "Instructions for Continued Airworthiness" are contained in West Star Aviation ICA Document no. P22339R-141, Rev. I/R dated 26 Apr 2022. Feed-Thru installed for this installation are subject to the following recurring Eddy Current inspections as outlined in West Star ICA Document no. P22339R-141, Rev. I/R.

- a) P21700N-151 Feed-Thru Install - Inspection Intervals: Threshold at 5,000 Cycles or 96 Months, and Recurring 5,000 Cycles or 96 Months.

Reference West Star Aviation Supplemental Electrical Load Analysis (ELA) Document No. P21367R-139, Rev. I/R, dated 11 Nov 2021.

1. Equipment List - Aircraft Records Updated, Reference Supplemental Equipment List dated 20 May 2022.
2. Weight & Balance - Actual Aircraft Empty W&B, Reference W&B Report dated 20 May 2022.
3. An appropriate entry has been made in the Aircraft Records dated 20 May 2022.

END

Additional Sheets Are Attached



United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

Number: ST11071SC

This certificate issued to: Liberty Partners Inc.
812 West 9th Street
Okmulgee, OK 74447

certifies that the change in the type design for the following product with the limitations and conditions therefore as specified hereon meets the airworthiness requirements of Part 25 of the Federal Aviation Regulations

Original Product – Type Certificate Number:

Make:

Model: See Approved Model List (AML), Report: LP-AML0001, for approved models, applicable AFMS and applicable airworthiness regulations.

Description of Type Design Change:

Demonstration of aircraft critical equipment and antenna systems tolerance of radio frequency interference (RFI) from intentional or spurious transmissions from certain Portable Electronic Devices (PEDs) in accordance with master drawing list L60-DL001, revision H, dated March 17, 2017, or later approved FAA revision. One of the following Airplane Flight Manual Supplements (AFMS), document L60-FM001 Revision D, L60-FM002 Revision IR, L60-FM003 Revision IR, L60-FM011 Revision IR, L60-FM012 Revision IR, or L60-FM013 Revision IR, dated March 17, 2017 or later FAA approved revision is required.

Limitations and Conditions:

The installer must determine whether this design change is compatible with previously approved modifications. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission. This STC does not constitute installation approval of a wireless radio frequency system using wireless data technologies. It only provides data that may partially support its installation or activation.

Certification Basis:

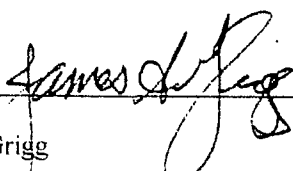
(See continuation sheet 3 of 3)

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, and revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of Application: May 16, 2011
Date of Issuance: July 03, 2012

Date Reissued: December 28, 2017
Date Amended: August 13, 2013; May 13, 2015; April 4, 2017

By Direction of the Administrator

Signature 
Title Jim Grigg
Manager, Fort Worth ACO Branch,
Compliance & Airworthiness Division

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).





United States of America
Department of Transportation
Federal Aviation Administration
Supplemental Type Certificate

INSTRUCTIONS: The transfer endorsement below may be used to notify the appropriate FAA Aircraft Certification Office of the transfer of this Supplemental Type Certificate. The FAA will reissue the certificate in the name of the transferee and forward it to him.

Transfer Endorsement

Transfer the ownership of Supplemental Type Certificate Number: ST11071SC

To (Name and address of transferee)

From (Name and address of grantor)

Extent of Authority (if licensing agreement):

Date of transfer:

Signature of grantor: _____

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).



United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate
(Continuation Sheet)

Number: ST11071SC

Date of Issuance: July 03, 2012
Date Amended: April 4, 2017
Date of Reissuance: December 28, 2017

Certification Basis (Continued):

Based on 14 CFR §§21.115 and 21.101(b)(1), and FAA Order 8110.48, the certification basis is per the Approved Model List (AML) Type Certificate Data Sheets (TCDS) plus the following:

Regulations at the latest amendment 25-0 through 25-129
None

Regulations at an intermediate amendment
14 CFR §25.1431 Amendment 25-102

Regulations at the amendment level in the TCDS
14 CFR §25.1309(a), 25.1353(a), 25.1431(c), 25.1529, and 25.1581(a)(2).

-END-

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).



APPROVED MODEL LIST

APPROVED MODEL LIST

Demonstration of Aircraft Tolerance of Radio Frequency Interference from Certain Portable Electronic Devices

FAA STC Number ST11071SC

FAA
Approved:

JAMES A
GRIGG

Digitally signed by JAMES A
GRIGG
Date: 2021.08.23 16:48:34
-05'00'

Jim Grigg
Manager, Fort Worth ACO Branch
Compliance & Airworthiness Division
Aircraft Certification Service



APPROVED MODEL LIST

AML REVISION LOG

Revision Level	Pages/ Sections Affected	Description of Changes	FAA Approval	Approved Date
X	Sect 3	1. See Revision X for Revision History pre-dating Revision Y.	J. Grigg	2/25/2020
Y	Sect 3	1. Added Dassault Aviation models listed on TCDS A7EU	J. Hardie	11/27/2020
Z	Sect. 3	1. Corrected typo from LJ1449-CR001 to LJ1449-EL001. 2. Corrected typo from AB2320-CR001 to AB2320-CR001. 3. Added AEL BD3290-EL002, was already listed on Minor Change List. 4. Added EMB4532-EL002, was already listed on Minor Change List. 5. Added De Havilland models DHC-8 listed on TCDS A13NM. 6. Re-sorted the AML List so that Make is in Alphabetical Order. 7. Updated Make to Current TCDS holder for all models.	J. Grigg	05/12/2021
AA	Sect. 3	1. Added Boeing Model DC-9-87 listed on TCDS A6WE and AEL B4711-EL001.	J. Grigg	07/21/2021
AB	Sect. 3	1. Added Boeing Model 767-200 Series listed on TCDS A1NM and AEL B5114-EL001	See Cover Page	See Cover Page

* Note that bold text reflects recent changes.



APPROVED MODEL LIST

1. INTRODUCTION

This document is the FAA Approved Model List for STC Number ST11071SC for the Demonstration of Aircraft Tolerance to Radio Frequency Interference from Certain Portable Electronic Devices (PED) in eligible aircraft.

Revisions to this AML require FAA approval.

2. STC CONFIGURATION

Beginning with Rev R of this specification, AML STC ST11071SC shall be applied to an aircraft selectively based on the type of testing/evaluation performed and the type(s) of PED's covered. Each combination of testing type and PED's covered is identified by an STC Configuration, as follows:

Typical STC Configuration LP-PS001-X##

In this example "X" stands for: Type(s) of testing/evaluation performed

In this example "##" stands for: Type(s) of PED's covered

STC Configurations are fully defined in LP-PS001 STC Configuration Specification. For all aircraft where this STC has been applied previously, AML STC Configuration LP-PS001-A01 is in effect by default. Each AML STC Configuration requires that a specific Aircraft Flight Manual Supplement (AFMS) be applied.

Table 2.a: AML STC Configuration Options and their corresponding AFMS

STC Configuration (Corresponding AFMS)			Phases of Flight	
			Non-Critical Phases only (A) ⁽²⁾	All Phases of Flight (B)
PED ⁽¹⁾ Combination	01	WiFi & Bluetooth	LP-PS001-A01 (L60-FM001)	LP-PS001-B01 (L60-FM011)
	02	WiFi, Bluetooth, & Cellular	LP-PS001-A02 (L60-FM002)	LP-PS001-B02 (L60-FM012)
	03	WiFi, Bluetooth, Cellular, plus customer specified PED's	LP-PS001-A03 (L60-FM003)	LP-PS001-B03 (L60-FM013)

⁽¹⁾ As defined in AML STC Configuration Specification L60-PS001.

⁽²⁾ Excludes Taxi (prior to takeoff), Take-off, Cruise below 10,000 feet, and Landing.

APPROVED MODEL LIST

Report: LP-AML0001
 Rev: AB

3. APPROVED MODEL LIST

Aircraft Make	Aircraft Model(s)	TCDS	Additional Approved Data	Remarks	Amendment Date
Airbus Defense and Space S.A.	CASA C-212-CB, C-212-CC, C-212-CD, C-212-CE, C-212-CF, C-212-DF, C-212-DE	A43EU	CS4188-EL001, AEL - Back Door Coupling CS4188-EL002, AEL - Front Door Coupling	None	Amendment 2/25/2020
Airbus SAS	A318 Series Models -111, -112, -121, & -122; A319 Series Models -111, -112, -113, -114, -115, -131, -132, & -133; A320 Series Models -111, -211, -212, -214, -231, -232, & -233; A321 Series Models -111, -112, -131, -211, -231, -212, -213, & -232	A28NM	AB2320-EL001, AEL - Back Door Coupling	None	Amendment 06/05/2015
The Boeing Company	727 Series, 727-100 Series, 727C Series, 727-100C Series, 727-200 Series, & 727-200F Series	A3WE	B2250-EL001, AEL - Back Door Coupling	None	Amendment 01/05/2015
The Boeing Company	737-100 Series, 737-200 Series, 737-200C Series, 737-300 Series, 737-400 Series, 737-500 Series, 737-600 Series, 737-700 Series, 737-700C Series, 737-800 Series, 737-900 Series, and 737-900ER Series	A16WE	B2369-EL001, AEL - Back Door Coupling	None	Amendment 11/10/2015
The Boeing Company	747-400 Series, 747-400D Series, and 747-400F Series	A20WE	B2378-EL001, AEL - Back Door Coupling	None	Amendment 10/23/2015
The Boeing Company	757-200 Series, 757-200PF Series, 757-200CB Series, and 757-300 Series	A2NM	B3734-EL001, AEL - Back Door Coupling	None	Amendment 7/26/2019



APPROVED MODEL LIST

Aircraft Make	Aircraft Model(s)	TCDS	Additional Approved Data	Remarks	Amendment Date
The Boeing Company	767-200 Series	A1NM	B5114-EL001, AEL - Back Door Coupling	None	See Cover Page
The Boeing Company	DC-9-87 (MD-87)	A6WE	B4711-EL001, AEL - Back Door Coupling	None	Amendment 7/21/2021
Bombardier, Inc.	CL-600-1A11 (CL-600), CL-600-2A12 (CL-601), CL-600-2B16 (CL601-3A, CL-601-3R, and CL-604 Variants, CL-605, Challenger 604, Challenger 605)	A21EA	CL1461-EL001, AEL - Back Door Coupling	Model Variants and Series Listed	Amendment 08/03/2016
Bombardier, Inc.	BD-700-1A10 (Global Express, Global 6000), BD-700-1A11 (Global 5000)	T00003NY	BD1463-EL001, AEL - Back Door Coupling BD3290-EL002, AEL - Front Door Coupling	(1)	Amendment 08/03/2016
Bombardier, Inc.	BD-100-1A10 (Challenger 300, Challenger 350)	T00005NY	BD1462-EL001, AEL - Back Door Coupling	None	Amendment 08/03/2016
Dassault Aviation	Falcon 2000, Falcon 2000EX (2000EX EASY, 2000DX, 2000LDX, 2000LX, 2000LXS, & 2000S)	A50NM	DA1444-EL001, AEL - Back Door Coupling	None	Amendment 08/03/2016
Dassault Aviation	Falcon 7X	A59NM	DA2297-EL001, AEL - Back Door Coupling	None	Amendment 03/13/2015
Dassault Aviation	MYSTERE-FALCON 50, FALCON 50EX, MYSTERE-FALCON 900, FALCON 900C, FALCON 900EX, FALCON 900EX EASY, FALCON 900DX, & FALCON 900LX	A46EU	DA1445-EL001, AEL - Back Door Coupling	None	Amendment 03/13/2015
Dassault Aviation	Fan Jet Falcon, Fan Jet Falcon Series C, Fan Jet Falcon Series D, Fan Jet Falcon Series E, Fan Jet Falcon Series F, Fan Jet Falcon Series G, Mystere-Falcon 200, Mystere-Falcon 20-C5, Mystere-Falcon 20-D5, Mystere-Falcon 20-E5 and Mystere-Falcon 20-F5	A7EU	DA4601-EL001, AEL - Back Door Coupling	None	Amendment 11/27/2020



APPROVED MODEL LIST

Aircraft Make	Aircraft Model(s)	TCDS	Additional Approved Data	Remarks	Amendment Date
De Havilland Aircraft of Canada Limited	DHC-8-100 Series, DHC-8-200 Series, DHC-8-300 Series, DHC-8-400 Series	A13NM	DHC4728-EL001 – Back Door Coupling	None	Amendment 5/12/2021
Embraer S.A.	EMB-545 (Legacy 450), EMB-550 (Legacy 550)	TC0000621B	EMB3197-EL001, AEL – Back Door Coupling EMB4532-EL002, AEL – Front Door Coupling	None	Amendment 4/10/2018
Gulfstream Aerospace Corporation	G-1159 (GII), G-1159A (GIIL), G-1159B (GIIB), G-IV (G300 & G400), GV, GV-SP (G500 & G550), & GIV-X (G350 & G450)	A12EA	GA1459-EL001, AEL – Back Door Coupling	SPZ-800 Avionics Suite, (1)	Amendment 08/03/2016
Gulfstream Aerospace Corporation	GVI (G650, G650ER)	T00015AT	GA2260-EL001, AEL – Back Door Coupling	None	Amendment 08/03/2016
Gulfstream Aerospace LP	GALAXY, GULFSTREAM 200	A53NM	GA1464-EL001, AEL – Back Door Coupling	None	Amendment 07/28/2014
Gulfstream Aerospace LP (Israel Aircraft Industries, LTD)	1125 Westwind Astra, 1125 IW, Astra SPX, Gulfstream 100, & Gulfstream G150	A16NM	GA2286-EL001, AEL – Back Door Coupling	None	Amendment 04/22/2015
Learjet Inc.	24, 24A, 24B, 24B-A, 24C, 24D, 24D-A, 24E, 24F, 24F-A, 25, 25A, 25B, 25C, 25D, 25F, 28, 29, 31, 31A, 35, 36, 35A (C-21A), 36A, 55, 55B, 55C & 60	A10CE	L60-EL001, AEL – Back Door Coupling	None	Amendment 07/28/2014
Learjet Inc.	Learjet 45, Learjet 40, Learjet 75, & Learjet 70	T00008WI	LJ1449-EL001, AEL – Back Door Coupling	None	Amendment 04/22/2015



APPROVED MODEL LIST

Aircraft Make	Aircraft Model(s)	TCDS	Additional Approved Data	Remarks	Amendment Date
MHI RJ Aviation ULC	CL-600-2B19 (RJ 100 & 440 Series, RJ200, Special Edition (SE) and Challenger 850), CL-600-2C10 (RJ 700, 701 & 702 Series), CL-600-2D15 (RJ 705 Series), CL-600-2D24 (RJ 900 Series), CL-600-2E25 (RJ 1000 Series)	A21EA-1	CL1461-EL001, AEL - Back Door Coupling	TCDS split from A21EA (2)	Amendment 08/03/2016
Textron Aviation Inc.	Hawker 4000	T00013WI	HB1448-EL001, AEL - Back Door Coupling	(1)	Amendment 11/25/2013
Textron Aviation Inc.	DH.125 Series 1A, HS.125 Series 1B, DH.125 Series 1A-522, HS.125 Series 1B-522, DH.125 Series 1A/R-522, HS.125 Series 1B/R-522, DH.125 Series 1A/S-522, HS.125 Series 1B/S-522, DH.125 Series 3A, HS.125 Series 3B, DH.125 Series 3A/R, HS.125 Series 3B/R, DH.125 Series 3A/RA, HS.125 Series 3B/RA, HS.125 Series 3B/RB, HS.125 Series 3B/RC, HS.125 Series F3B, HS.125 Series F3B/RA, BH.125 Series 400A, DH.125 Series 400A, HS.125 Series 400A, HS.125 Series 400B, HS.125 Series 400B/1, HS.125 Series 401B, HS.125 Series 403A(C), HS.125 Series 403B, HS.125 Series F400B, HS.125 Series F403B, BH.125 Series 600A, HS.125 Series 600A, HS.125 Series 600B, HS.125 Series 600B/1, HS.125 Series 600B/2, HS.125 Series 600B/3, HS.125 Series F600B, HS.125 Series 700A, HS.125 Series 700B, BAe.125 Series 800A,BAe.125 Series 800A (C-29A), BAe.125 Series 800A (U-125),BAe.125 Series 800B, BAe.125 Series 1000A, BAe.125 Series 1000B, Hawker 800, Hawker 800 (U-125A), Hawker 1000, Hawker 800XP, Hawker 850XP, Hawker 900XP, and Hawker 750	A3EU	HB1446-EL001, AEL - Back Door Coupling	None	Amendment 07/28/2014



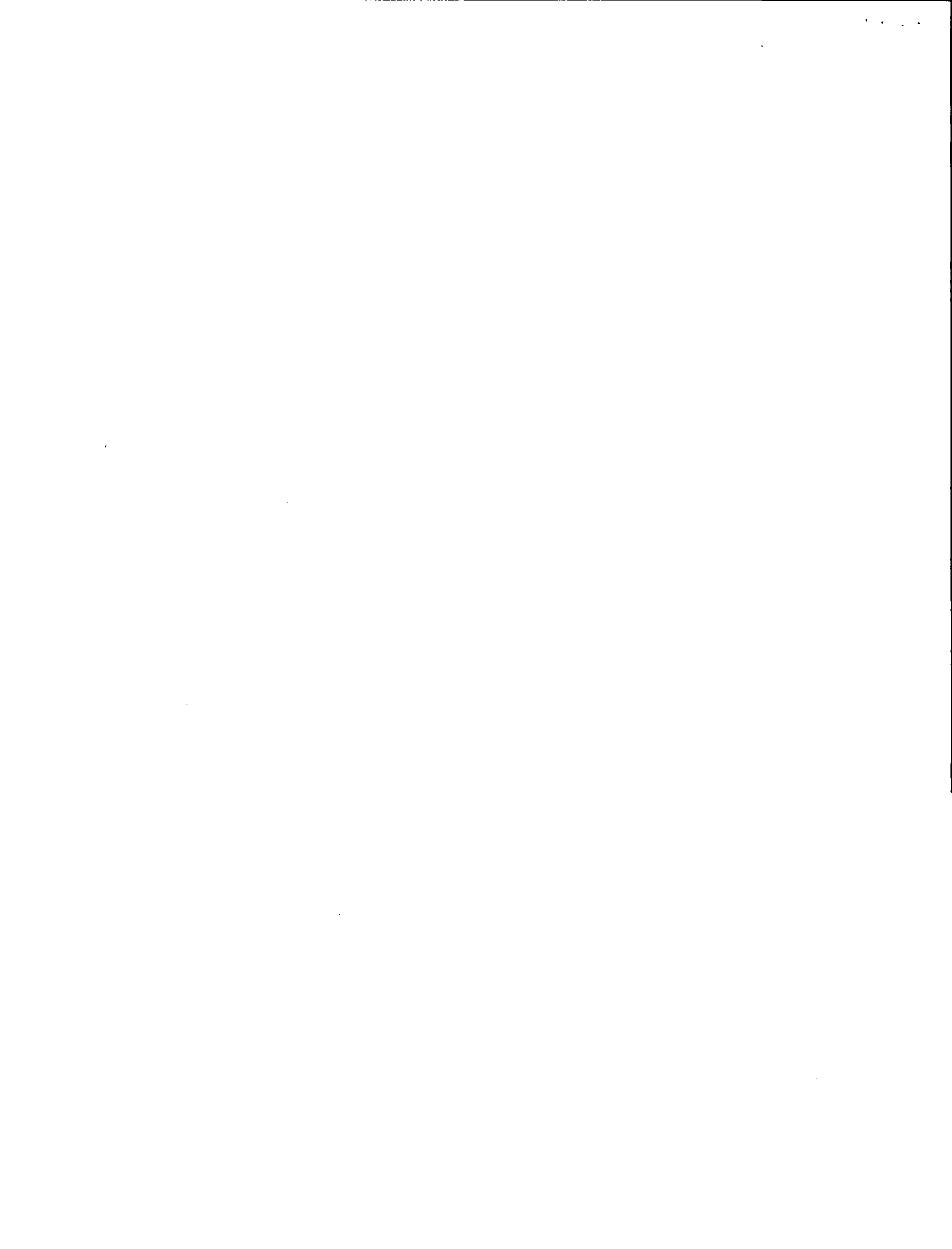
APPROVED MODEL LIST

Aircraft Make	Aircraft Model(s)	TCDS	Additional Approved Data	Remarks	Amendment Date
Textron Aviation Inc.	500, Citation, Citation I, 550, Citation II, S550, Citation S/II, 550 Bravo, 552, Navy T-47A, 560, 560 (Encore), 560 (Encore+), Citation V, Citation Ultra, 560XL (Excel), 560XL (XLS), & 560XL (XLS+)	A22CE	CAC1451-EL001, AEL - Back Door Coupling	None	Amendment 04/22/2015
Textron Aviation Inc	650 (Citation VII, Citation III and Citation VI)	A9NM	CACC2468-EL001, AEL - Back Door Coupling	None	Amendment 04/12/2016
Textron Aviation Inc.	680 Sovereign and 680A Latitude	T00012WI	CACC2523-EL001, AEL - Back Door Coupling	None	Amendment 08/03/2016
Textron Aviation Inc.	MU-300-10 (Diamond II), 400 (Beechjet), 400A (Beechjet Hawker 400XP), & 400T (T-1A & TX Beechjet)	A16SW	HB1447-EL001, AEL - Back Door Coupling	None	Amendment 08/03/2016
Textron Aviation Inc.	750 (Citation X)	T00007WI	CACC2596-EL001, AEL - Back Door Coupling	None	Amendment 11/14/2016
Viking Air Limited	SD3-30 200, SD3-60 200, SD3-30 SHERPA 200, SD3-60 SHERPA 200	A41EU	SH2601-EL001, AEL - Back Door Coupling SH2601-EL002, AEL - Front Door Coupling	None	Amendment 4/7/2017
Yabora Industria Aeronautica S.A.	EMB-145, EMB-145ER, (ERJ-145ER / RJ145ER) EMB-145MR, (ERJ-145MR / RJ145MR) EMB-145LR, (ERJ-145LR / RJ145LR) EMB-135ER, (ERJ-135ER / RJ135ER) EMB-135LR, (ERJ-135LR / RJ135LR) EMB-135KE, (EMB-140ER / ERJ-140ER / RJ-140ER) EMB-135KL, (EMB-140LR / ERJ-140LR / RJ-140LR) EMB-135BJ, (Legacy / Legacy 600 / Legacy 650) EMB-145XR, (ERJ-145XR / RJ145XR) EMB-145MP, (ERJ-145MP / RJ145MP) EMB-145EP, (ERJ-145EP / RJ145EP)	T00011AT	EMB2841-EL001, AEL - Back Door Coupling	None	Amendment 8/18/2017

APPROVED MODEL LIST

Aircraft Make	Aircraft Model(s)	TCDS	Additional Approved Data	Remarks	Amendment Date
Yabora Industria Aeronautica S.A.	ERJ 190-100 STD, ERJ 190-100 LR, ERJ 190-100 IGW, ERJ 190-100 ECJ (Lineage 1000), ERJ 190-200 STD, ERJ 190-200 LR, ERJ 190-200 IGW, and ERJ 190-300	A57NM	EMB3213-EL001, AEL - Back Door Coupling	None	Amendment 5/14/2018

(1) Also includes aircraft models equipped with FADEC (Engines fitted with Full Authority Digital Engine Control)
 (2) TCDS split for FAA administrative purposes.



LIBERTY PARTNERS INC

812 West 9th Street
Okmulgee, OK 74447

Report: LP-PS001
Rev: A

AML STC CONFIGURATION SPECIFICATION

AML STC CONFIGURATION SPECIFICATION

Definition of Testing/Evaluation and Approved Portable Electronic Device Options Available under this(these) STC(s)

FAA STC No's: ST11071SC/SA11158SC

Document No.: LP-PS001

Revision: A

Date: 16 March 2017

SUPPLEMENTAL TYPE CERTIFICATE (STC) PERMISSION STATEMENT

DATE: November 05, 2021

LIBERTY PARTNERS, INC (LPI) HEREBY
AUTHORIZES West Star Aviation

TO USE STC NUMBER ST11071SC
FOR ONE TIME INSTALLATION TO MODIFY THE
AIRCRAFT MODEL NUMBER GIV-X
IDENTIFIED BY SERIAL NUMBER 4082

SIGNED: 

ORIGINAL DOCUMENT WHEN THIS STAMP IS RED

AML STC CONFIGURATION SPECIFICATION

LOG OF REVISIONS

REVISION LEVEL	PAGES/ SECTIONS AFFECTED	DESCRIPTION OF CHANGES	APPROVED BY/ DATE
IR	All	Initial Release	Martha Diaz 14 March 2017
A	Pg 4/Sect 1 Pg 5/Sect 4 All	<ol style="list-style-type: none"> Added description of STC's Changed Section Title Adjusted page breaks and paragraph spacing 	Martha Diaz 16 March 2017

AML STC CONFIGURATION SPECIFICATION

Table of Contents

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2.	IDENTIFICATION OF STC CONFIGURATIONS.....	4
3.	TYPES OF TESTING/EVALUATION PERFORMED.....	5
4.	TYPES AND COMBINATIONS OF PED's.....	5
	Table 4.a: PED Types.....	5
	Table 4.b: Cellular Standards.....	6
	Table 4.c: Combinations of PED's.....	6
5.	POSSIBLE AML STC CONFIGURATIONS.....	7
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AML STC CONFIGURATION SPECIFICATION

1. INTRODUCTION

The purpose of this document is to define configurations that may be applied to Approved Model List (AML) Supplemental Type Certificate (STC) ST11071SC and/or SA11158SC for demonstration of aircraft critical equipment and antenna systems tolerance of radio frequency interference (RFI) from intentional or spurious transmissions from certain Portable Electronic Devices (PEDs.)

These configurations exist because there are multiple types of testing/evaluation possible under these STC's and there are multiple types of Personal Electronic Devices (PED's) that can be evaluated based on the needs of the aircraft owner/operator. The purpose of AML STC ST11071SC and SA11158SC is to Demonstrate Aircraft Tolerance of Radio Frequency Interference from Certain Portable Electronic Devices.

THIS SPECIFICATION BY ITSELF DOES NOT INDICATE THAT ANY AIRCRAFT HAS BEEN SHOWN TO BE TOLERANT. THIS SPECIFICATION ONLY DEFINES THE CONFIGURATION OPTIONS THAT ARE AVAILABLE AS PART OF THIS (THESE) STC(S).

For all aircraft to which these STC's are applied following the Initial Release of this specification, a specific configuration shall be identified in the Letter of Authorization, Aircraft Specific Compliance Report, Master Data List, Instructions for continued Airworthiness, and Flight Manual Supplement. For all aircraft, to which these STC's have been previously applied, configuration LP-PS001-A01 is applicable.

2. IDENTIFICATION OF STC CONFIGURATIONS

AML STC ST11071SC and SA11158SC shall be applied to an aircraft selectively based on the type of testing/evaluation performed and the type(s) of PED's covered. Each combination of testing type and PED's covered is identified by an STC Configuration that uses the following format:

Typical STC Configuration LP-PS001-X##

In this example "X" stands for: Type(s) of testing/evaluation performed

In this example "##" stands for: Type(s) of PED's covered

AML STC CONFIGURATION SPECIFICATION

3. TYPES OF TESTING/EVALUATION PERFORMED

Testing/evaluation Type A, which is also known as testing for “Back Door Coupling”, demonstrates tolerance of aircraft critical systems to transmissions from PED’s. Configuration A applies exclusively to Non-Critical Phases of flight. This type of testing/evaluation is mandatory for these STC’s.

Testing/evaluation Type B, which is also known as testing for “Front Door Coupling”, demonstrates aircraft antenna systems tolerance of spurious emissions from PED’s. This type of testing/evaluation is optional. In order for Type B to apply, Type A must also apply. Testing/evaluation Type B covers the aircraft during Critical as well as Non-Critical phases of flight (“Gate-to-Gate”).

4. TYPES AND COMBINATIONS OF PED’S

For Purposes of this STC, PED’s are grouped into types based on Standards, Frequency ranges, and/or specific owner/operator needs.

Table 4.a: PED Types

Type	Name	Standard / Description	Frequency Ranges
I	WiFi	IEEE 802.11 b/g/n/ac Includes Approved Wireless Router Installations operating under this standard.	2.400 - 2.500GHz and 4.910 - 5.8545 GHz
	Bluetooth	IEEE 802.15.1 (not maintained) Bluetooth BR/EDR	2.400 - 2.485 GHz
II	Cellular	Multiple ⁽¹⁾ - Cellular telephones used in the USA on a domestic network. Excludes phones operating on any network more advanced than LTE. Advanced such as the proposed 5G standard.	Multiple ⁽¹⁾
III	VHF Comms	VHF Transceiver	136 - 174 MHz at 6W
	UHF Comms	UHF Transceiver	380 - 520 MHz at 5W
		UHF Transceiver	764 - 870 MHz at 3W
	Wireless Intercom	Wireless Intercom Adaptor	1.92-1.93 GHz at 115mW max

⁽¹⁾ The standards for Type II PED’s (Cellular) are detailed in Table 4.b below

AML STC CONFIGURATION SPECIFICATION

Table 4.b: Cellular Standards

Cellular Category	Cellular Family	Cellular Standards
2G	GSM/3GPP	GSM (GSM-850)
2G	GSM/3GPP	GSM (PCS-1900)
2G Trans	GSM/3GPP	EDGE
2G Trans	GSM/3GPP	Evolved EDGE//EDGE Evolution
2G Trans	3GPP2	CDMA2000
3G	3GPP2	1xEV-DO 0
3G	3GPP	3GPP FDD
3G Trans	3GPP	3GPP FDD HSUPA
4G	3GPP	LTE FDD 5MHz
4G (Advanced)	3GPP	LTE TDD 20MHz

Table 4.c: Combinations of PED's

It is likely that aircraft owner/operators may want to evaluate their aircraft for tolerance to more than one type of PED. The table below identifies the combinations possible.

Combination	Type(s)	Name	Description
01	I	WiFi & Bluetooth	WiFi & Bluetooth only
02	I	WiFi & Bluetooth	WiFi, Bluetooth, and Cellular
	II	Cellular	
03	I	WiFi & Bluetooth	WiFi, Bluetooth, Cellular, UHF, VHF, and Wireless Intercom. This is a customer specific combination of PED's
	II	Cellular	
	III	UHF, VHF, Wireless Intercom	
End of List			

AML STC CONFIGURATION SPECIFICATION

5. POSSIBLE AML STC CONFIGURATIONS

As described in Section 2 above, based on types of STC testing/evaluation performed, and the combinations of PED's considered, different AML STC Configurations may be applied under these STC's. The table below identifies the current configurations possible under these STC's.

Table 5.a: Current STC Configurations

STC Configuration			Phases of Flight	
			Non-Critical Phases only (A) ⁽¹⁾	All Phases of Flight (B)
PED Combination	01	WiFi & Bluetooth	LP-PS001-A01	LP-PS001-B01
	02	WiFi, Bluetooth, & Cellular	LP-PS001-A02	LP-PS001-B02
	03	WiFi, Bluetooth, Cellular, and Add UHF & VHF Comms	LP-PS001-A03	LP-PS001-B03

⁽¹⁾ Non-critical phases of flight exclude Taxi (prior to takeoff), Take-off, Cruise below 10,000 feet, and Landing.

AML STC CONFIGURATION SPECIFICATION

6. STC CONFIGURATION EXAMPLES

LP-PS001-A01 – Indicates that critical aircraft equipment has been shown to be tolerant of intentional emissions from WiFi and Bluetooth devices during non-critical phases of flight. Based on this determination, aircraft flight crew may authorize use of WiFi and Bluetooth devices during non-critical phases of flight.

LP-PS001-A02 – Indicates that critical aircraft equipment has been shown to be tolerant of intentional emissions from WiFi, Bluetooth, and specific Cellular devices during non-critical phases of flight. Based on this determination, aircraft flight crew may authorize use of WiFi, Bluetooth, and specific Cellular devices during non-critical phases of flight.

LP-PS001-A03 – Indicates that critical aircraft equipment has been shown to be tolerant of intentional emissions from WiFi, Bluetooth, and specific Cellular, UHF, and VHF devices during non-critical phases of flight. Based on this determination, aircraft flight crew may authorize use of WiFi, Bluetooth, and specific Cellular, UHF, and VHF devices during non-critical phases of flight.

LP-PS001-B01 - Indicates that critical aircraft equipment and specific critical aircraft antenna systems have been shown to be tolerant of intentional and spurious emissions from WiFi and Bluetooth devices during both critical and non-critical phases of flight. Based on this determination, aircraft flight crew may authorize use of WiFi and Bluetooth devices during both critical and non-critical phases of flight.

LP-PS001-B02 - Indicates that critical aircraft equipment and specific critical aircraft antenna systems have been shown to be tolerant of intentional and spurious emissions from WiFi, Bluetooth, and specific Cellular devices during both critical and non-critical phases of flight. Based on this determination, aircraft flight crew may authorize use of WiFi, Bluetooth, and specific Cellular devices during both critical and non-critical phases of flight.

LP-PS001-B03 - Indicates that critical aircraft equipment and specific critical aircraft antenna systems have been shown to be tolerant of intentional and spurious emissions from WiFi, Bluetooth, and specific Cellular, UHF, and VHF devices during both critical and non-critical phases of flight. Based on this determination, aircraft flight crew may authorize use of WiFi, Bluetooth, and specific Cellular, UHF, and VHF devices during both critical and non-critical phases of flight.

LIBERTY PARTNERS INC

812 West 9th Street
Okmulgee, OK 74447

Report: L60-DL001

Rev: H

MASTER DATA LIST

MASTER DATA LIST

Demonstration of Aircraft Tolerance of Potential Radio Frequency Interference from Certain Portable Electronic Devices

FAA STC No: ST11071SC

STC Configuration LP-PS001-A01

Aircraft Make/Model: Gulfstream / G1V-X

Aircraft S/N 4082

Document No.: L60-DL001

Revision: H

Date: 17 March 2017

SUPPLEMENTAL TYPE CERTIFICATE (STC) PERMISSION STATEMENT

DATE: November 05, 2021

LIBERTY PARTNERS, INC (LPI) HEREBY
AUTHORIZES West Star Aviation

TO USE STC-NUMBER ST11071SC

FOR ONE-TIME INSTALLATION TO MODIFY THE
AIRCRAFT MODEL NUMBER G1V-X

IDENTIFIED BY SERIAL NUMBER 4082

SIGNED: 

ORIGINAL DOCUMENT WHEN THIS STAMP IS RED

MASTER DATA LIST

LOG OF REVISIONS

REVISION LEVEL	PAGES/ SECTIONS AFFECTED	DESCRIPTION OF CHANGES	APPROVED BY/ DATE
Previous Revisions	All	For details of previous Descriptions of Changes, see Revision E	N/A
F	Pg.5/Table 3.a Pg.5/Table 3.b	Update LP-REL0001 revision. Remove/relocate list of compliance reports to document LP-REL0001.	Martha Diaz 23 September 2013
G	All Pg.5/Section 2 Pg.5/Table 2.a Pg.5/Table 2.b Pg.3/Table 3.a Pg.3/Table 3.b	Updated date in footers, all pages. Updated to read IEEE 802.11 b/g/n/ac (2.400 and 5.0 GHz) Update revision of L60-CR002 to C. Update revision of L60-CA001 to D and L60-FM001 to B. Update revision of LP-REL0001 to H. Update revision of L60-TP001 to D.	Martha Diaz 29 September 2014
H	Cover Cover All Pg.5/Sect 1 Pg.5/Sect 2 Pg 5/Tbl 2.a Pg 6/Tbl 3.a Pg 6/Tbl 3.b " " Pg 6/Tbl 3.c Pg.7/Tbl 4.a " Pg.7/Tbl 4.b " " "	<ol style="list-style-type: none"> 1. Added "AML STC Configuration" to title block 2. Revised document description 3. Added total number of pages to each page 4. Removed unnecessary references to PED standards and frequencies. 5. Added Section 2, changing old Sections 2 and 3 to Sections 3 and 4 respectively. 6. Added Table 2.a 7. Revised L60-CR002 to Rev D. Added note (9) 8. Updated L60-CA001 to Rev E 9. Updated L60-FM001 to Rev D, added FMS L60-FM002, FM003, FM011, FM012, and FM013. 10. Added Table 3.c 11. Updated LP-REL001 to Rev AH 12. Updated LP-AMDT0001 to Rev A 13. Updated L60-TP001 to Rev F 14. Added L60-TP002 at Rev A 15. Added L60-TP003 at Rev A 16. Added L60-TP004 at Rev IR 17. Updated L60-AI001 to Rev B 	Martha Diaz 17 March 2017

Revisions to this Data List will result in a new release and revision level to the entire document.

MASTER DATA LIST

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MASTER DATA LIST

1. INTRODUCTION

This document presents the Master Data List (MDL) consisting of all Aircraft Specific Compliance and Certification Data in support of a Supplemental Type Certificate (STC) ST11071SC for demonstration of aircraft critical equipment and antenna systems tolerance of radio frequency interference (RFI) from intentional or spurious transmissions from certain Portable Electronic Devices (PEDs)

2. STC CONFIGURATION

Beginning with Rev H of this specification, AML STC ST11071SC shall be applied to an aircraft selectively based on the type of testing/evaluation performed and the type(s) of PED's covered. The configuration shall be identified in the Letter of Authorization, Aircraft Specific Compliance Report, Master Data List, Instructions for continued Airworthiness, and Flight Manual Supplement. For all aircraft, to which these STC's have been previously applied, configuration LP-PS001-A01 is applicable.

Each combination of testing type and PED's covered is identified by an STC Configuration, as follows:

Typical STC Configuration LP-PS001-X##

In this example "X" stands for: Type(s) of testing/evaluation performed

In this example "##" stands for: Type(s) of PED's covered

STC Configurations are fully defined in LP-PS001 STC Configuration Specification.

Table 2.a: Possible STC Configurations

STC Configuration			Phases of Flight	
			Non-Critical Phases only (A) ⁽²⁾	All Phases of Flight (B)
PED ⁽¹⁾ Combination	01	WiFi & Bluetooth	LP-PS001-A01	LP-PS001-B01
	02	WiFi, Bluetooth, & Cellular	LP-PS001-A02	LP-PS001-B02
	03	WiFi, Bluetooth, Cellular, plus customer specified UHF & VHF Comms	LP-PS001-A03	LP-PS001-B03

⁽¹⁾ In accordance with the STC Configuration Specification L60-PS001

⁽²⁾ Excludes Taxi (prior to takeoff), Take-off, Cruise below 10,000 feet, and Landing.

MASTER DATA LIST

3. AIRCRAFT SPECIFIC COMPLIANCE DATA

The documents listed in this section are FAA STC-approved data to be used in their entirety, and must become part of the permanent records of each aircraft model and serial number to which this STC has been applied.

Table 3.a: Compliance Data

Title	Config	Document #	Revision Level	Approved Date
Aircraft Specific Compliance Report	All	L60-CR002 ⁽³⁾	D	03/17/2017

(3) L60-CR002 and its current revision is a document template used to show Aircraft Specific Compliance to this STC. Each time the template is filled out with the data for a specific aircraft it is stamped and released as a unique controlled document delivered with the STC.

Table 3.b: Aircraft Manual Supplements

The Instructions for Continued Airworthiness (ICA) and one of the Flight Manual Supplements (FMS), corresponding to the appropriate AML STC Configuration shall be delivered with each application of the STC.

Title	Config	Document #	Revision Level	Approved Date
Instructions for Continued Airworthiness (ICA)	All	L60-CA001	E	03/17/2017
Flight Manual Supplement (FMS)	LP-PS001-A01	L60-FM001	D	03/17/2017
Flight Manual Supplement (FMS)	LP-PS001-A02	L60-FM002	IR	03/17/2017
Flight Manual Supplement (FMS)	LP-PS001-A03	L60-FM003	IR	03/17/2017
Flight Manual Supplement (FMS)	LP-PS001-B01	L60-FM011	IR	03/17/2017
Flight Manual Supplement (FMS)	LP-PS001-B02	L60-FM012	IR	03/17/2017
Flight Manual Supplement (FMS)	LP-PS001-B03	L60-FM013	IR	03/17/2017

Table 3.c: AML STC Configuration Specification

Title	Config	Document #	Revision Level	Approved Date
AML STC Configuration Specification	All	LP-PS001	A	03/16/2017

MASTER DATA LIST

4. CERTIFICATION DATA

The documents listed in this section consist of supporting STC compliance data that is listed for FAA reference only and shall not be delivered as part of the STC data package.

Table 4.a: Project Management Documents

Title	Document #	Revision Level	Approved Date
STC Project Specific Certification Plan	L60-CP001	A	09/08/2011
STC Compliance Checklist	L60-CC001	IR	05/13/2011
STC Project Specific Certification Plan	HB1446-CP001	IR	03/06/2013
STC Compliance Checklist	HB1446-CC001	IR	03/06/2013
AML STC Minor Change List	LP-REL0001	AH	3/14/2017 (or later approved revision level)
AML STC Change Procedure	LP-AMDT0001	A	03/17/2016

Table 4.b: Support Data

Title	Document #	Revision Level	Approved Date
RFI Ground Test (Back Door - WiFi and Bluetooth)	L60-TP001	F	3/17/2017
RFI Ground Test (Front Door)	L60-TP002	A	3/17/2017
RFI Ground Test (Back Door - Cellular)	L60-TP003	A	3/17/2017
RFI Ground Test (Back Door - Customer Specific Systems/Frequencies)	L60-TP004	IR	3/17/2017
Accomplishment Instructions	L60-AI001	B	3/17/2017

LIBERTY PARTNERS INC

812 West 9th Street
Okmulgee, OK 74447

Doc. No.: L60-CR002
Rev.: D

AIRCRAFT SPECIFIC COMPLIANCE REPORT

AIRCRAFT SPECIFIC COMPLIANCE REPORT

Demonstration of Aircraft Tolerance to Radio Frequency Interference from Certain Portable Electronic Devices

FAA STC No: ST11071SC

STC Configuration LP-PS001-A01

Aircraft Make/Model: Gulfstream / GIV-X

Aircraft S/N: 4082

Document No.: L60-CR002

Revision: D

Date: 17 March 2017

SUPPLEMENTAL TYPE CERTIFICATE (STC) PERMISSION STATEMENT

DATE: November 05, 2021

LIBERTY PARTNERS, INC (LPI) HEREBY
AUTHORIZES West Star Aviation

TO USE STC NUMBER ST11071SC

FOR ONE-TIME INSTALLATION TO MODIFY THE

AIRCRAFT MODEL NUMBER GIV-X

IDENTIFIED BY SERIAL NUMBER 4082

SIGNED: 

ORIGINAL DOCUMENT WHEN THIS STAMP IS RED

AIRCRAFT SPECIFIC COMPLIANCE REPORT

LOG OF REVISIONS

REVISION LEVEL	PAGES/ SECTIONS AFFECTED	DESCRIPTION OF CHANGES	APPROVED BY/ DATE
IR	All	Initial Release	Martha Diaz 26 April 2012
A	Cover Sheet Pg. 5/ Sect. 6 Pg. 6/ Sect. 7 Appendix A/B	<ol style="list-style-type: none"> Updated cover sheet for release. Added approved equipment list document number. Moved aircraft equipment list from Appendix A; updated table format. Provided Methods of Compliance table completion instructions. Deleted Appendix A/B. 	Martha Diaz 04 June 2012
B	All All Cover Sheet Pg. 4/ Sect. 1-2 Pg. 5/ Sect. 6	<ol style="list-style-type: none"> Revised for conversion to AML- STC. Updated date in footers. Updated to remove Learjet Inc. Model 60 and add STC ST11071SC, Make/Model. Update to remove Learjet Model 60 and add Aircraft Model _____. Update to remove Learjet Model 60 and add Aircraft Model _____. 	Martha Diaz 06 March 2013
C	Pg. 4/ Sect. 1 Pg. 4/ Sect. 2 All	<ol style="list-style-type: none"> Updated frequencies to IEEE 802.11 b/g/n/ac. Updated frequencies range to IEEE 802.11 b/g/n/ac range between 2.400 GHz through 2.500 GHz and 4.910 GHz through 5.845 GHz. Updated dates in footer, all pages. 	Martha Diaz 29 September 2014
D	Cover All All Pg. 4/ Sect 1 & 2 Pg. 4/ Sect 1 Pg. 4/ Sect 3 Pg. 5-6/ Sect 5 Pg. 7/ Tbl. 6.1.a Pg. 11/ Sect 6.2	<ol style="list-style-type: none"> Added "STC Configuration" to Cover Added total number of pages to each page Added Document Title to header. Removed unnecessary PED technical information Added the term AML- STC Configuration. Added Section 3.2 Added Sections 5.1 and 5.2 Added multiple PED Type indicators to Table 6.1.a Added Section 6.2 and Table 6.2.a 	Martha Diaz 17 March 2017

AIRCRAFT SPECIFIC COMPLIANCE REPORT

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AIRCRAFT SPECIFIC COMPLIANCE REPORT

1. PURPOSE

The purpose of this report is to document that the referenced aircraft has been shown to be tolerant of radio frequency interference (RFI) from certain Personal Electronic Devices (PED's.) Depending on the AML STC Configuration for this aircraft, different elements of this document apply and/or must be successfully completed. All AML STC Configurations are fully explained in LP-PS001.

2. GENERAL

An evaluation of the equipment in the referenced aircraft, has been performed in accordance with the Accomplishment Instructions Document Number L60-AI001, to establish that the equipment in this aircraft is tolerant of intentional RFI from certain portable electronic devices.

Where only Back Door Coupling has been evaluated and the letter "A" appears in the last three digits of the AML STC Configuration, (for example, LP-PS001-A01) the equipment list in Section 6.1 shall be completed; but the list in Section 6.2 shall not.

In those cases where Front Door Coupling has also been evaluated and the letter "B" appears in the last three digits (for example, LP-PS001-B01) all sections of this compliance report apply and both of the tables in Section 6.1 and Section 6.2 shall also be filled out completely.

This process determines that there are no interference issues from intentional (Back Door Coupling) or spurious (Front Door Coupling) emissions of RF energy with required avionics systems or other aircraft systems required by regulation which might have catastrophic, hazardous or major failure effects.

3. APPLICABLE 14 CFR REGULATIONS

3.1. 14 CFR Regulations

25.1309(a) Amdt 25-123 Equipment, Systems, and Installations

25.1353(a) Amdt 25-42 Electrical Equipment and Installations

25.1431 (c) No Amdt Electronic Equipment

3.2. 14 CFR Regulations affecting Owner/Operators

91.21(a)(b)(5) Portable Electronic Devices.

121.306(a)(b)(6) Amdt. 121-374 Portable Electronic Devices.

125.204(a)(b)(6) Amdt. 125-65 Portable Electronic Devices.

135.144(a)(b)(6) Amdt. 135-133 Portable Electronic Devices.

4. REFERENCE DOCUMENTS

FAA AC20-164 Designing and Demonstrating Aircraft Tolerance to Portable Electronic Devices

RTCA DO-307 Aircraft Design and Certification for Portable Electronic Device (PED) Tolerance

RTCA DO-307 Change 1

RTCA DO-294C Guidance on Allowing Transmitting Portable Electronic Devices (T-PEDS) on Aircraft

AIRCRAFT SPECIFIC COMPLIANCE REPORT

5. COMPLIANCE

5.1. Compliance under this STC

5.1.1. Compliance is found to 14 CFR Part 25:

Requirement:

25.1309(a) Amdt. 25-123 Equipment, systems, and installations

(a) The equipment, systems, and installations whose functioning is required by this subchapter, must be designed to ensure that they perform their intended functions under any foreseeable operating condition.

Requirement:

25.1353 Amdt. 25-42 Electrical equipment and installations.

(a) Electrical equipment, controls, and wiring must be installed so that operation of any one unit or system of units will not adversely affect the simultaneous operation of any other electrical unit or system essential to the safe operation.

Requirement:

25.1431(c) No Amdt Electronic equipment

(c) Radio and electronic equipment, controls, and wiring must be installed so that operation of any one unit or system of units will not adversely affect the simultaneous operation of any other radio or electronic unit, or system of units, required by this chapter.

Compliance:

Compliance has been found by verification per Approved Equipment List.

Approved Equipment List (Back Door Coupling - Mandatory): GA1459-EL001 Rev DM

Approved Equipment List (Front Door Coupling - Optional): N/A

This evaluation(s) has/have shown that Radio Frequency (RF) signals from identified PED's are compatible with the proposed Aircraft Model and operation of these signals during normal aircraft operations complies with 14 CFR Part 25, 25.1309(a) Amdt. 25-123, 14 CFR Part 25, 25.1353(a) Amdt 25-42, and 14 CFR Part 25, 25.1431(c) No Amdt.

AIRCRAFT SPECIFIC COMPLIANCE REPORT

5.2. Compliance with regulations for Owner/Operators

This document, on its own, does not show compliance with the regulations in this section. Owner/Operators, however, may use this document to show compliance using their standard practices.

5.2.1. Compliance may be found to 14 CFR Part 25:

Requirement:
25.1309(a) Amdt. 25-123 Equipment, systems, and installations.

5.2.2. Compliance may be found to 14 CFR Part 91:

Requirement:
91.21(a)(b)(5) Portable Electronic Devices.

5.2.3. Compliance may be found to 14 CFR Part 121:

Requirement:
121.306(a)(b)(6) Amdt. 121-374 Portable Electronic Devices.

5.2.4. Compliance may be found to 14 CFR Part 125:

Requirement:
125.204(a)(b)(6) Amdt. 125-65 Portable Electronic Devices.

5.2.5. Compliance may be found to 14 CFR Part 135:

Requirement:
135.144(a)(b)(6) Amdt. 135-133 Portable Electronic Devices.

6. AIRCRAFT SPECIFIC EQUIPMENT LISTS

The equipment lists in this document has been excerpted from the Approved Equipment Lists for the appropriate make and model. (EL001 for Back Door Coupling, and EL002 for Front Door Coupling.)

AIRCRAFT SPECIFIC PORTION OF APPROVED EQUIPMENT LIST(S) FOLLOWS ON NEXT PAGE

AIRCRAFT SPECIFIC COMPLIANCE REPORT

Doc No: L60-CR002
 Rev.: D

6.1. Approved Equipment List for Back Door Coupling on this aircraft

Aircraft Make, Model, and SN:

Gulfstream, model GIV-X, sn 4082

AML STC Configuration:

LP-PS001-A01

SYSTEM	MODEL	PART NUMBER (ALTERN)	MOC (1)	MANUFACTURER	QUANTIFIED PEDS (PED TYPE)(2)	NOTE
Cabin Climate Equipment System(s) - Chapter 21						
Air Conditioning Controllers (1-2)		1152564-3	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cabin/Cockpit Temperature Indicator (1-3)		789575-1	E	Intertechnique	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cabin Pressurization System(s) - Chapter 21						
Cabin Pressure Selector Panel		2118936-1	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cabin Pressurization Control Panel		2119144-1	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cabin Pressure Controller		2119146-4	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cabin Pressure Acquisition Module		774984-1-1	E	Gulfstream Aerospace	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cabin Pressure Indicator		789537-1-2	E	Intertechnique	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Autopilot/Flight Director System(s) - Chapter 22						
Flight Guidance Panel		GP-500 7021852-901	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
AFC S Lane Units (1-4)		AIO-E01 7028432-1902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
AFC S Lane Units (1-4)		AIO-M01 7029305-1902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cockpit & Cabin Audio System(s) - Chapter 23						
Network Audio Interface Modules (1-3)		NI-900 7517964-918	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Audio Control Panels (1-3)		AV-900 7511900-90301	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Audio Control Panels (1-3)		AV-900 7511900-90302	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PA Amplifiers		990-1254-068 (M1050-G448-01)	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VHF Communication System(s) - Chapter 23						
VHF/MDR Module		TR-866B 7026201-813	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Transceiver, VHF COMM		NC-860A 7026203-801	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>

AIRCRAFT SPECIFIC COMPLIANCE REPORT

Doc. No.: L60-CR002
 Rev. 1.0
 ID

SYSTEM	MODEL	PART NUMBER (ALT P/N)	MOG (A)	MANUFACTURER	QUALIFIED PED'S (PED TYPE)(Z)
Modular Radio Cabinet COMM/NAV	MRC-855A	7517959-904	E	Honeywell	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
HF Communication System(s) - Chapter 23					
HF Antenna Couplers (1-2)	HF-9041	622-814-002	E	Rockwell Collins	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
HF Receiver/Transmitters (1-2)	HF-9034A	822-0102-001	E	Rockwell Collins	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Future Air Navigation System (FANS 1/A) - Chapter 23					
No System Installed or Tested	N/A	N/A	N/A	N/A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Fire Detection System(s) - Chapter 26					
Fire Detector Control Units (1-2)		51653-154	E	Kidde Aerospace	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Fire Detector Control Units (1-2)		51653-274	E	Pacific Scientific	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Smoke Detector		72-130001-006	E	Gulfstream Aerospace	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Trim System(s) - Chapter 27					
Horizontal Stab Elec Motor Control Unit		1159SCC611-1	E	Hamilton Sundstrand	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Flap/Horizontal Stab Control Unit		1159SCC612-17	E	Hamilton Sundstrand	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Flap Hydraulic Control Module		1159SCH600-1	E	Gulfstream Aerospace	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rudder and Aileron Trim Control Heads		528401-13	E	Eaton	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Fuel Quantity And Indicating System(s) Chapter 28					
Fuel Quantity Signal Conditioner		367-936-001	E	Gull Airbourne	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Fuel Control Unit		3882730-11	E	Honeywell	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Hydraulic Equipment Control System(s) - Chapter 29					
Horizontal Stab Elec Motor Control Unit		1159SCC611-1	E	Hamilton Sundstrand	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Flap/Horizontal Stab Control Unit		1159SCC612-17	E	Hamilton Sundstrand	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Flap Hydraulic Control Module		1159SCH600-1	E	Gulfstream Aerospace	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Anti-Ice System(s) - Chapter 30					
Ice Detector Probes (1-2)		0871HH (6340-01-570-9078)	E	Rosemount	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Windshield Temp Control Units (1-2)		1042-1	E	Astronics Advanced Electronic	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

AIRCRAFT SPECIFIC COMPLIANCE REPORT

Doc. No: L60-CR002
 Rev.: D

SYSTEM	MODEL	PART NUMBER (A/E/P/N)	MOC (1)	MANUFACTURER	QUANTIFIED PARTS (PED TYPE)(2)	NOTE
CVR	SSCVR	Cockpit Voice Recorder System(s) - Chapter 31 980-6023-002	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pilot/Co-Pilot Clocks (1-2)	M850A-5V G	Cockpit Clocks & Timer(s) - Chapter 31 1159SCAV40912	E	Dayton	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Digital Antiskid Control Unit		Nose Wheel Steering / Braking System(s) - Chapter 32 1159SCL470-3	E	Eaton Aerospace	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Nose Wheel Steering Unit		Aircraft Lighting System(s) - Chapter 33 1159SCL500-61	E	Eaton Aerospace	<input checked="" type="checkbox"/>	<input type="checkbox"/>
No System Installed or Tested	N/A	Aircraft Lighting System(s) - Chapter 33 N/A	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
No System Installed or Tested	N/A	Cockpit Lighting System(s) - Chapter 33 N/A	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
Master Warning Panel (system integrated in EICAS)		Warning & Caution System(s) - Chapter 33 N/A	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Data Module No.	AZ-200	Air Data System(s) - Chapter 34 HG1153CA04	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Standby Electronic Bearing Distance Indc.	EBDI	Heading And Attitude (AHRS/IRS/GYRO) System(s) - Chapter 34 501-1871-0101	E	L3 Communications	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Magnetometer	MAG-3000	501-1826-01	E	L3 Communications	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Inertial Reference Units (1-3)	IR-500	HG2100AB07	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cursor Control Devices (1-2)		Electronic Flight Information System(s) - Chapter 34 1159F57160-9	E	Gulfstream Aerospace	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cursor Control Devices (1-2)		1159F57160-10	E	Gulfstream Aerospace	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Display Controllers (1-2)	DC-884	7007540-809	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Panel Display Units Dimmer	DP-884	7007543-903	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>

AIRCRAFT SPECIFIC COMPLIANCE REPORT

Doc. No: L60-CR002
 Rev: D

SYSTEM	MODEL	PART NUMBER (ALT P/N)	MFG (A)	MANUFACTURER	QUALIFIED PRO'S (FED TYPE)(Z)	NOTE
Power Supplies (1-6)	PWR-200	7024440-1901	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
EFIS system/MAU (4-3)	PWR-200	7024404-1913	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SGI/O (1-6)	GIO-100	7025364-1901	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SGI/O (1-6)	GIO-100	7025364-1902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DGI/O (1-2)	GIO-200	7025365-1902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Video Control I/O Modules (10-4)	VID-100	7026531-1902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Control I/O #1 Modules (1-2)	CNT-100	7026534-1902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Custom I/O #1 Modules (1-3)	CIO-P01	7026540-1903	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Data Base Modules (1-2)	DU-1310	7027208-1903	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Display Unit	AGM-100	7028140-901	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Advance Graphics Modules (AGM) (1-4)	AGM-100	7036410-1901	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NIC/PROC Network Interface Units (1-6)		7038231-1902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NIC/RS Personality Modules (1-4)		7519272-901	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
EVS Window/Heat Controller		49322-101	E	Kollsman, Inc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Standby Indicator(s) - Chapter 34						
Electronic Standby Inst. System	GH-3100	501-1860-0102	E	L3 Communications	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Standby Compass - Chapter 34						
Standby Electronic Bearing Distance Indc.	EBDI	501-1871-0101	E	L3 Communications	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Flight Management System(s) - Chapter 34						
MCDU (1-3)	MC-850	7025725-951	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Modular Avionics Unit (MAU)	PWR-200	7024404-1913	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radio Altimeter System(s) - Chapter 34						
Radio Altimeters (1-2)	RAT-300	7001840-932	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Stall Computer System(s) - Chapter 34						
Stick Shakers (1-2)		C-36602	E	Safeflight Instrument	<input checked="" type="checkbox"/>	<input type="checkbox"/>

AIRCRAFT SPECIFIC COMPLIANCE REPORT

Doc. No: L60-CR002
 Rev: D

SYSTEM	MODEL	PART NUMBER (P/N)	MFG (1)	MANUFACTURER	QUALIFIED PED'S (PED TYPE)(2)	NOTE
EGPWS (1-2)	EGPWS-100	7028419-1904	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
EGPWS/Windshear/TAWS System(s) - Chapter 34						
#1 & #2 Transponder, Mode S (1-2)	XS-858B	7517402-970	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Traffic Collision and Avoidance System(s) - Chapter 34						
TCAS Computer	RT-951	7517900-55020	E	L3/ACSS	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ADS-B In/Out System - Chapter 34						
GPS Module (1-2)	XS-858B	245-604067-100	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
#1 & #2 Transponder, Mode S (1-2)	DF-855	7517402-970	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ADF Receiver System(s) - Chapter 34						
ADF Receiver (1-2)	MRC-855A	7510114-855	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VOR Navigation System(s) - Chapter 34						
Modular Radio Cabinet COMM/NAV	NV-875A	7517959-904	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
WDL (VOR/ILS) Modules (1-2)	MT-860	7026202-801	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COMM/NAV (Mini Cabinet) No. 1	ILS/GS System(s) - Chapter 34	7026240-902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DME System(s) - Chapter 34						
Modular Radio Cabinet COMM/NAV	MRC-855A	7517959-904	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
WDL (VOR/ILS) Modules (1-2)	NV-875A	7026202-801	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COMM/NAV (Mini Cabinet) No. 1	MT-860	7026240-902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Weather RADAR System(s) - Chapter 34						
DME Transceivers (1-2)	DM-855	7510184-855	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Weather Radar Controls (1-2)	WC-874	7006921-825	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Weather Radar RT	WU-880	7021450-801	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Global Positioning System(s) - Chapter 34						

AIRCRAFT SPECIFIC COMPLIANCE REPORT

Doc. No.: L60-CR002
 Rev. D

SYSTEM	MODEL	PART NUMBER (ALT P/N)	MOG (1)	MANUFACTURER	QUALIFIED PED'S (PED TYPE)(2)	NOTE
GPS Modules (1-2)	GPM-001	245-604067-001	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fuel Control Unit	Engine & Transmission Instrumentation System(s) - Chapter 77	3882730-11	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Engine Instrumentation Integ with DU-1310	DU-1310		E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Electronic Engine Controllers (1-2)	TEEC2000-04-AG		E	Rolls Royce	<input checked="" type="checkbox"/>	<input type="checkbox"/>
HUD System(s)						
EVS Camera (FLIR)	FLIR	48534-101	E	Kollsman, Inc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Enhanced Vision System Processor		48535-101	E	Gulfstream Aerospace	<input checked="" type="checkbox"/>	<input type="checkbox"/>
EVS Sapphire Window Assy		48856-101	E	Kollsman, Inc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
EVS Window Heat Controller		49322-101	E	Kollsman, Inc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Detachable Config Module	DCM-3100	501-1870-92	E	L3 Technologies	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Overhead Unit	EO-201	7023171-901	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
HUD Combiner	CB-200	7023172-902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VGS Display Driver Unit	DDU-200	7023173-902	E	Honeywell	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fly By Wire System(s)						
No System Installed or Tested	N/A	N/A	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
Other Installed Critical System(s)						
No System Installed or Tested	N/A	N/A	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>

EL001 NOTES:

- (1) MoC = Method of Compliance
 E - Equipment is found on an FAA Approved Equipment List (AEL)
 D - Equivalence is found using approved DO-160E Section 20 Category XR data
 T - Equipment was tested and approved before the AEL could be approved
- (2) Types of PED's against which the Aircraft equipment has been approved in accordance with LP-PS007/AML STC Configuration Specification
 Type I = WiFi (IEEE 802.11 b/g/n) and Bluetooth
 Type II = USA Domestic Cellular Communications Devices
 Type III = Customer-Specific UHF, VHF, and Wireless Intercom Devices

LIBERTY PARTNERS INC
 812 West 9th Street
 Okmulgee, OK 74447

AIRCRAFT SPECIFIC COMPLIANCE REPORT

Doc. No: L60-CR002
 Rev.: ID

6.2. Approved Equipment List for Front Door Coupling on this Aircraft (if Applicable)

Aircraft Make, Model, and SN: N/A AML STC configuration: N/A

Front Door Coupling Effectivity Date: N/A Equivalency to (AEL/SN): N/A

System	Antenna FS/STA Location	Antenna Manufacturer	Antenna Model	Antenna PN (1)	Antenna Cable Termination Location	Method of Compliance (2)
#1 VHF COM						
#2 VHF COM						
#1 VHF FM COM						
#2 VHF FM COM						
VHF DATA BROADCAST						
#1 GPS						
#2 GPS						
#1 VOR/LOC/GS						
#2 VOR/LOC/GS						
#1 ATC						
#2 ATC						
#1 DME						
#2 DME						

EL002 NOTES:

- (1) In those instances, where the part number of the reference successful Front door testing/evaluation (Front Door Coupling location, or antenna cable routing) shall require that the installation of testing/evaluation, it shall be stated that the Antenna as installed at the date of test of the Front Door Coupling Effectivity Date. Any subsequent modification of an antenna, its location, or antenna cable routing shall require that the installation of testing/evaluation is required.
- (2) Methods of Compliance
 - E - Equipment is found on an FAA Approved Equipment List
 - D - Equivalence is found using approved DO-160E Section 20 Agency, XR data
 - T - Equipment was tested and approved before the AEL could be approved

NOT APPLICABLE FOR
 CONFIGURATION
 LP-PS001-A01
 LP-PS001-A02
 LP-PS001-A03

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812 West 9th Street,
Okmulgee, OK 74447

Doc. No.: L60-CA001

Rev.: E

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS MAINTENANCE MANUAL SUPPLEMENT

Demonstration of Aircraft Tolerance of Radio Frequency Interference from Certain Portable Electronic Devices

This supplement must be attached to the Airplane Instructions for Continued Airworthiness (Maintenance Manuals). The information contained herein supplements the basic Instructions for Continued Airworthiness only in those areas listed when the aircraft has demonstrated tolerance to portable electronic devices in accordance with Liberty Partners, Inc. STC number ST11071SC. For limitations and procedures not contained in this supplement, consult the basic Airplane Instructions for Continued Airworthiness (Maintenance Manuals).

The inspections specified in this document are FAA accepted. If applicable, the identified airworthiness limitations are FAA approved. The Airworthiness Limitations section is FAA approved and specifies maintenance requirements under sections 43.16 and 91.403 of the Federal Aviation regulations unless an alternative program has been FAA approved.

All revisions to this document shall be submitted to the Aircraft Certification Office (ACO) and Aircraft Evaluation Group (AEG) for review and approval. Current approved revisions shall be maintained by the STC holder and paper copies shall be distributed to the operators of the aircraft incorporating this certification. A record of those aircraft serial numbers affected by this certification shall be maintained by the STC holder.

FAA STC No: ST11071SC

AML STC Configuration LP-PS001-A01

Aircraft Make/Model: Gulfstream / GIV-X

Serial No: 4082

Registration No: N451NS

Document No.: L60-CA001

Revision: E

Date: 17 March 2017

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

LOG OF REVISIONS

REVISION LEVEL	PAGES/ SECTIONS AFFECTED	DESCRIPTION OF CHANGES	APPROVED BY/ DATE
IR	All	Initial Release	Martha Diaz 26 April 2012
A	All Cover Sheet Pg.4, Sect.5 Pg.5, Sect.6 Pg.6, Sect.14	<ol style="list-style-type: none"> Updated total number of pages in footer. Removed SN/N-No. from cover sheet. Revised wording to add evaluation instructions. Added a troubleshooting flow chart. Revised to remove additional Appendix. 	Martha Diaz 04 June 2012
B	Cover Sheet Pg.5, Sect.5.c Pg.7, Sect.9	<ol style="list-style-type: none"> Updated third paragraph to define the distribution program for revisions to the Instructions for Continued Airworthiness. Added the RFI Ground Test document number "L60-TP001" and personnel qualifications for test performance. Added Special Inspection Requirements to provide aircraft annual inspection interval audit instructions. 	Martha Diaz 28 June 2012
C	All All Cover Sheet Pg.4, Sect.1 Pg.4, Sect.5 Pg.5, Sect.5c	<ol style="list-style-type: none"> Revised for conversion to AML STC. Updated date in footers. Updated to remove Learjet Inc. Model 60 and add STC ST11071SC, Aircraft Make/Model, Serial and Registration Numbers. Removed Specific Model: Learjet Model 60. Added FAA STC No. ST11071SC. Added EMC technician definition. 	Martha Diaz 06 March 2013
D	All Pg.4, Sect.1 Pg.6, Sect.6	<ol style="list-style-type: none"> Updated date in footers, all pages Updated introduction to read IEEE 802.11 b/g/n/ac range between 2.400 GHz through 2.500 GHz and 4.910 GHz through 5.845 GHz (WiFi). Updated trouble shooting information to read IEEE 802.11 b/g/n/ac range between 2.400 GHz through 2.500 GHz and 4.910 GHz through 5.845 GHz. 	Martha Diaz 29 Sept 2014

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

E	All All Cover Pg 4/ Sect 1	1. Updated date in footers, all pages 2. Added total number of pages to each page 3. Updated document description 4. Removed unnecessary references to PED standards and frequencies.	Martha Diaz 17 March 2017
	Pg 4/ Sect 5 Pg 6/ Sect 6	5. Added Sections 5.1, 5.1.1, and 5.1.2. 6. Updated Flowchart.	

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

1. INTRODUCTION

This Supplemental Type Certificate (STC) certifies that the Aircraft Model *SEE COVER PAGE* critical systems are tolerant of intentional and potentially spurious emissions from certain Portable Electronic Devices (PED's).

2. DESCRIPTION

This accomplished evaluation certifies that there are no interference issues from intentional or spurious emissions of RF energy with required avionics systems or other aircraft systems required by regulation which might have catastrophic, hazardous or major failure effects. The evaluation has shown that the aircraft systems remain compliant to 14 CFR Part 25, Sections 25.1309(a) Amdt 25-41 (Equipment, Systems, and Installations), 25.1353(a) Amdt 25-42 (Electrical Equipment and Installations), and 25.1431 (c) No Amdt (Electronic Equipment).

No modification of the aircraft is required for this STC certification.

3. CONTROL, OPERATION INFORMATION

General control and operation of the existing aircraft critical systems is not affected by this certification. Refer to the applicable sections of the existing aircraft operating manuals for general information regarding the existing aircraft critical systems.

4. SERVICING INFORMATION

No servicing is required for continued airworthiness of the STC certification.

5. MAINTENANCE INSTRUCTIONS

General maintenance of the existing aircraft critical systems is not affected by this STC certification.

If maintenance, repair, or alteration activity performed on this aircraft results in changes to any of the equipment part numbers listed in the completed Aircraft Specific Compliance Report (see document L60-CR002), then that equipment and the affected systems must be evaluated for continued compliance with FAA STC No. ST11071SC.

5.1. Analysis by Owner/Operator

5.1.1. Back Door Coupling Only

Follow these steps to evaluate the new equipment part numbers for continued compliance:

- a. Compare the model, part number and manufacturer to the Approved Equipment List – Back Door Coupling (XX####-EL001). If the aircraft specific equipment is included in the approved equipment list, then that piece of equipment is compliant and may be used. If the equipment is not on the Approved Equipment List, proceed to step "b" below.
- b. Analyze the specific model, part number, and manufacturer to verify if it has been tested to DO-160E Section 20 Category XR as stated in RTCA DO-307 Section 3.4 table 3-1. If part number has been shown to be DO-160E compliant, then that piece of equipment may be used. If the equipment is not demonstrated to be compliant with DO-160E Section 20 Category XR, proceed to step "c" below.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

- c. If the identified equipment has not been qualified by the processes listed above in steps (a) or (b), the owner/operator must contact the STC holder for guidance.

STC Holder

Liberty Partners, Inc.
812 West 9th Street
Okmulgee, OK 74447
Phone: (918) 756-6474
Fax: (866) 786-0501
E-mail: AOG@liberty-partners.com

5.1.2. Front Door Coupling (If applicable)

If Antennas identified in the Front Door Coupling Approved Equipment List are replaced with different part numbers, moved to new aircraft locations, or the antenna cables are re-routed from their configuration when the STC for Front Door Coupling was authorized, follow these steps to evaluate the new equipment part numbers for continued compliance:

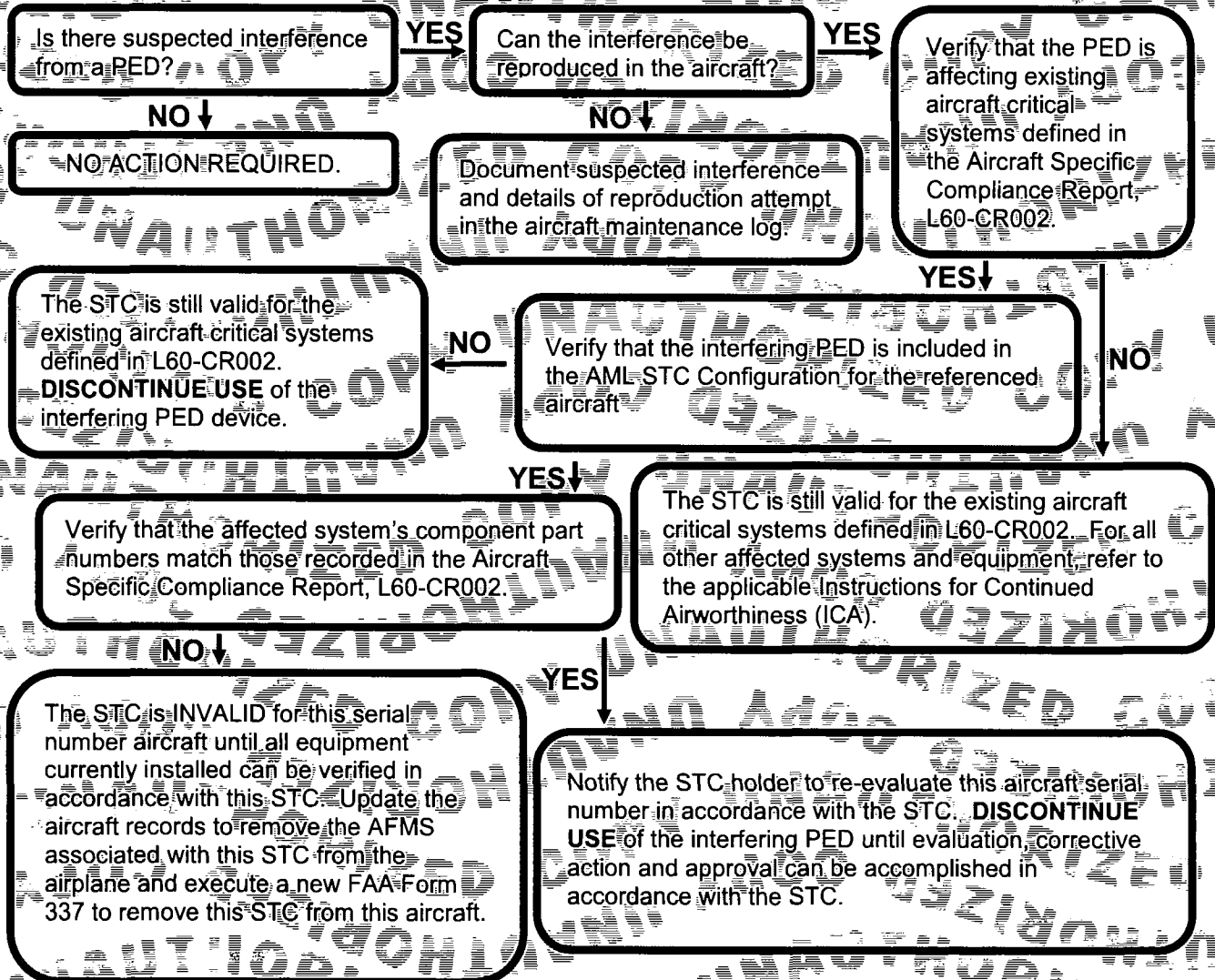
- a. Compare the model, part number, manufacturer, Antenna location, and antenna cable termination location to the Approved Equipment List – Front Door Coupling for the referenced aircraft (XX####-EL002). If 100% of the data matches, then that piece of equipment is compliant and may be used.
- b. If the identified antenna, and its associated data, does not match the Approved Equipment List – Front Door Coupling for the referenced aircraft (XX####-EL002), the owner/operator must contact the STC holder for guidance.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

6. TROUBLESHOOTING INFORMATION

General troubleshooting procedures for the existing aircraft critical systems are not affected by this certification. Refer to the applicable sections of the existing aircraft operating and maintenance manuals for information regarding troubleshooting of the existing aircraft critical systems.

If there is suspected interference from a PED:



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

7. REMOVAL AND REPLACEMENT INFORMATION

General removal and replacement procedures for the existing aircraft critical systems are not affected by this certification. Refer to the applicable sections of the existing aircraft operating and maintenance manuals for information regarding removal and replacement of the existing aircraft critical systems.

8. DIAGRAMS

Not applicable.

9. SPECIAL INSPECTION REQUIREMENTS

Annually, an aircraft equipment audit must be performed to compare the equipment part numbers currently installed to the Aircraft Specific Compliance Report (see document L60-CR002). Currently installed equipment shall match the part numbers listed in the Aircraft Specific Compliance Report. If a part number does not match this list, follow the steps provided herein in Section 5 to evaluate the new equipment part numbers for continued compliance.

10. APPLICATION OF PROTECTIVE TREATMENTS

Not applicable.

11. DATA

Not applicable.

12. LIST OF SPECIAL TOOLS

There are no special tools required for this certification.

13. AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is FAA-approved and specifies maintenance required under Sec. 43.16 and 91.403 of the Federal Aviation Regulations, unless an alternative program has been FAA approved.

There are no airworthiness limitations required for this certification.

14. ATTACHMENTS

A completed Aircraft Specific Compliance Report (L60-CR002) should accompany this ICA.

**FAA APPROVED AIRPLANE FLIGHT MANUAL
SUPPLEMENT
FOR THE DEMONSTRATION OF AIRCRAFT TOLERANCE
TO RADIO FREQUENCY INTERFERENCE
FROM TRANSMITTING PORTABLE ELECTRONIC DEVICES**

AFMS: L60-FM001

FAA AML STC: ST11071SC

STC Configuration: LP-PS001-A01

The information contained in this Flight Manual Supplement must be attached to the FAA Approved Airplane Flight Manual or placed with the Pilot's Operating Handbook or other operating information when the airplane has been approved to operate with transmitting portable electronic devices in accordance with FAA AML STC ST11071SC. This document must be carried in the aircraft at all times.

The information contained herein supplements or supersedes the basic manual only in the areas listed. For limitations, procedures, and performance information not contained in this supplement, consult the applicable section in the basic FAA Approved Airplane Flight Manual.

Aircraft Make/Model: Gulfstream / GIV-X

Applicable Aircraft S/N: 4082

Aircraft Registration #: N451NS

FAA Approved: See Page 2

FAA Approved Date: March 17, 2017

LIST OF EFFECTED PAGES

REV LEVEL	PAGES/ SECTIONS AFFECTED	DESCRIPTION	APPROVED BY/ DATE
IR	All	Original Release	Gary A. Sharon (for) S. Frances Cox May 28, 2012
A	All Cover Sheet Pg.5/Sec.I	<ol style="list-style-type: none"> Revised for conversion to AML STC. Updated to remove Learjet Inc. Model 60 and add STC ST11071SC, Aircraft Make/Model. Updated Limitations for clarification. 	S. Frances Cox August 12, 2013
B	Pg.4/ Introduction and Description Pg.5/Sec.I	<ol style="list-style-type: none"> Updated to read IEEE 802.11 b/g/n/ac 2.400 GHz through 2.500 GHz and 4.910 GHz through 5.845 GHz. Updated Limitations to read IEEE 802.11 b/g/n/ac 2.400 GHz through 2.500 GHz and 4.910 GHz through 5.845 GHz. 	S. Frances Cox September 29, 2014
C	Pg.4/ Intro and Desc Pg.5/Table 1.a Pg.5/Table 1.a Pg.5/Table 1.a	<ol style="list-style-type: none"> Moved PED standards from Introduction and Description to Section I Limitations Added Table 1.a Added Bluetooth Added Phases of Flight 	Martha Diaz March 17, 2017
			Martha Diaz March 17, 2017
D	All	1. <i>Revision correction. No additional document changes</i>	Martha Diaz March 17, 2017

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GENERAL**INTRODUCTION**

The purpose of this Airplane Flight Manual Supplement is to grant authority to the flight crew to allow the use of Portable Electronic Devices (PED) described in Section I Limitations. This Flight Manual Supplement supersedes any previous limitations on personal communication system installations (WiFi, Bluetooth, Cellular, etc.) as long as the aircraft is maintained in accordance with the aircraft instructions for continued airworthiness that accompany the FAA STC identified on the cover page of this flight manual supplement.

DESCRIPTION

Approval of this airplane flight manual supplement, together with the FAA STC identified on the cover page of this document, indicates that the communication, navigation, and all required systems installed on the subject aircraft have been evaluated and found to not be prone to radio frequency interference (RFI) from PED's in accordance with Section I Limitations.

The aircraft RFI evaluation for tolerance to PED's in accordance with Section I Limitations was accomplished in accordance with procedures specified in FAA Advisory Circular AC 20-164 and RTCA/DO-307 to ensure that the aircraft equipment, systems, and installations perform their intended functions under any foreseeable operating conditions.

The RFI evaluation accomplished for this aircraft may be used by the aircraft operator as a basis for determining whether to allow the use of certain portable electronic devices in accordance with 14 CFR 91.21, 121.306, 125.204 and 135.144.

SECTION I - LIMITATIONS

The operation of the following Portable Electronic Devices is allowed or forbidden as indicated.

Table I.a Personal Electronic Devices

PED Type ⁽¹⁾	Description	Phases of Flight	
		Non-Critical	Critical ⁽²⁾
I	Wireless Devices Such as, laptops, tablets, smart phones, portable gaming systems, etc.	YES	NO
	Bluetooth Devices Such as Bluetooth head phones, hands free headsets, speakers, locating devices, etc. which communicate with lap tops, smart phones, and other similar devices.	YES	NO
End of List			

(1) Technical information on allowed PEDS are provided in LP-PS001 – AML/STC Configuration Specification

(2) Critical phases of flight include taxi (prior to takeoff), takeoff, and landing.

SECTION II - NORMAL PROCEDURES

The use of Portable Electronic Devices has no change to the Normal procedures.

SECTION III - EMERGENCY PROCEDURES

The use of Portable Electronic Devices must cease during Emergency procedures.


SECTION IV - ABNORMAL PROCEDURES

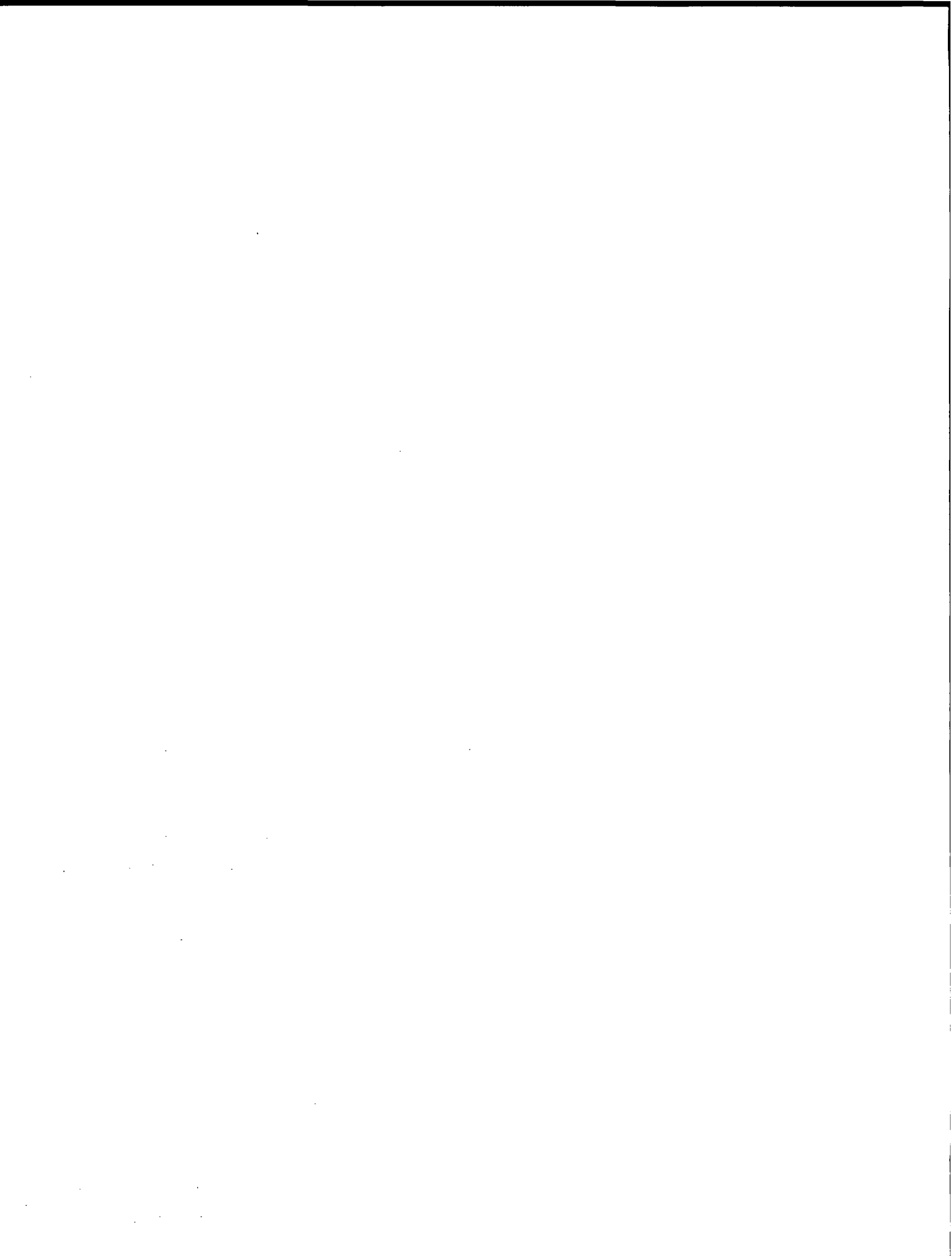
The use of Portable Electronic Devices must cease during Abnormal procedures.


SECTION V - PERFORMANCE

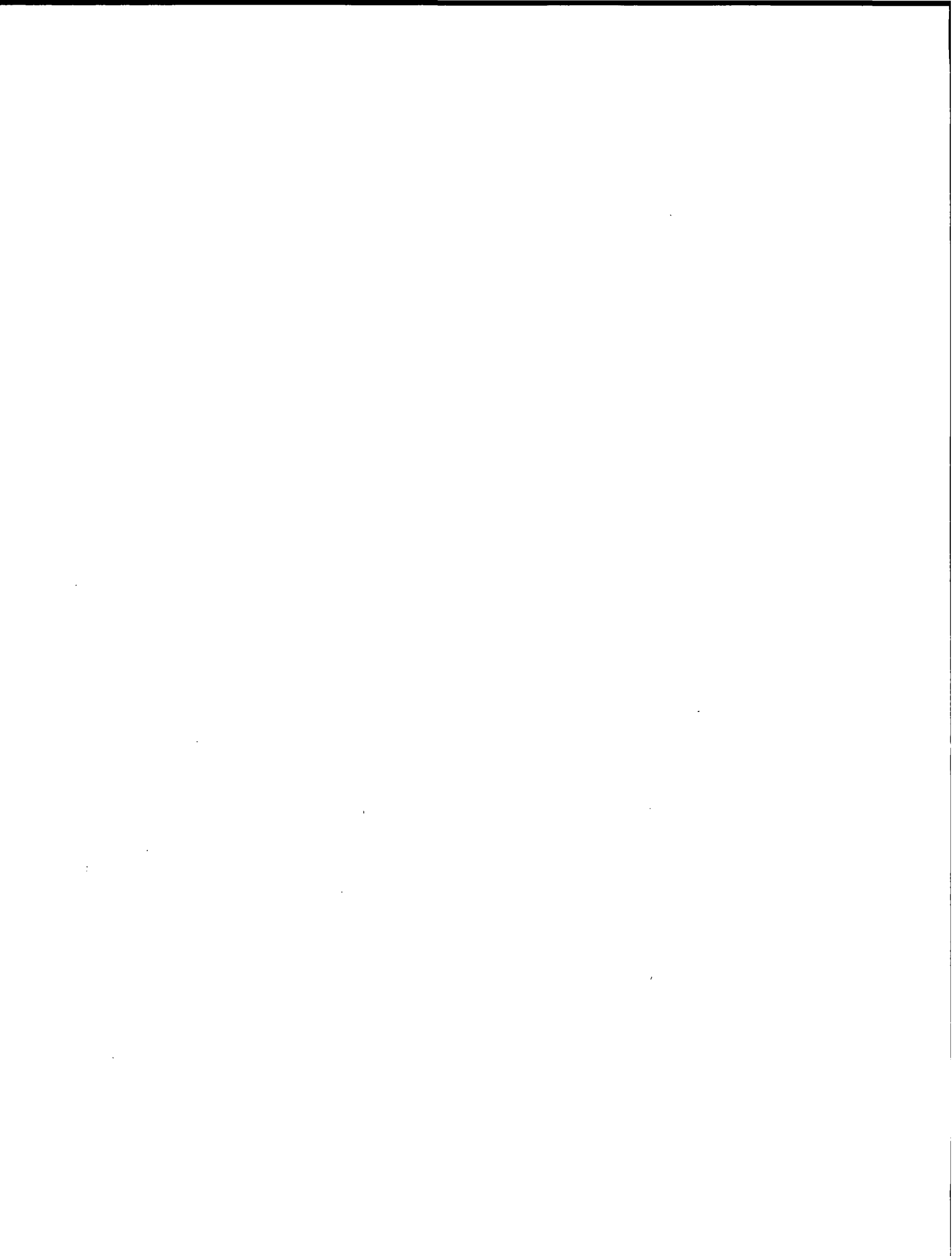
No change from the basic Airplane Flight Manual.

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U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		1. PROJECT NO. (If applicable)	
DETERMINATION OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE Gulfstream Aerospace Corp.	3. MODEL NO. GIV-X	4. TYPE (Aircraft, Engine, Propeller, Actuator etc.) Aircraft	5. NAME OF APPLICANT West Star Aviation
PURPOSE OF DATA			
6. IN SUPPORT OF: ___ TC/ATC ___ STC ___ PMA ___ Major Repair <input checked="" type="checkbox"/> Major Alteration ___ Other (Explain) Installation of Gogo Avance L5 Broadband System in Gulfstream Aerospace GIV-X, S/N 4082 only.			
PROJECT SPECIFIC INFORMATION: PURPOSE OF SUBMITTAL: Design Review and Structural Analysis approval to install 2 each directional antennas, transceiver equipment, and necessary wire feed throughs on Gulfstream Aerospace GIV-X, S/N 4082 only.			
LIST OF DATA			
List the data for this submittal including applicable drawings, material specifications, and process specifications and any other data that shows or contributes to a showing of compliance with the applicable requirements listed in block 9. A reference to a drawing list, including revision level, may be used.			
7. IDENTIFICATION	8. TITLE OF DATA		
P21339N-149, Rev. I/R Dated: NOV/11/2021 P21339N-150, Rev. I/R Dated: NOV/11/2021 P21339N-152, Rev. I/R Dated: DEC/03/2021 P21700N-151, Rev. I/R Dated: NOV/11/2021 P22339R-140, Rev. I/R Dated: APR/26/2022	GOGO AVANCE L5 FWD ANTENNA INSTL GOGO AVANCE L5 AFT ANTENNA INSTL GOGO AVANCE L5 EQUIPMENT INSTL FEED-THRU INSTL STRUCTURAL ANALYSIS AND COMPLIANCE REPORT Notes: This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as 'Applicable Requirements'. Structures aspects only are approved herein. Compliance is shown per the certification basis of the aircraft found in TC Data Sheet A21EA.		
9. APPLICABLE REQUIREMENTS (List specific sections and amendment levels) Title 14 CFR Part 25: .301(a)(b) Amdt.[25-23], .303 Amdt.[25-23], .305(a)(b) Amdt.[25-86], .307(a) Amdt.[25-72], 25.365(a)(b)(c)(d) Amdt.[25-87], .561(c)(d) Amdt.[25-91], .571(a)(b) Amdt.[25-96], .601 Amdt.[25-0], .603(a)(b)(c) Amdt.[25-46], .605(a) Amdt.[25-46], .609(a)(b) Amdt.[25-0], .611(a) Amdt.[25-23], .613(a)(b)(c)(d) Amdt.[25-72], .619(a)(b)(c) Amdt.[25-23], .625(a)(b) Amdt.[25-72]			
10. FAA DESIGNEE APPROVAL - As directed by the Administrator and in accordance with the conditions and limitations of authorization under 14 CFR, Part 183, data listed above, and on attached sheets numbered @____, have been examined in accordance with established procedures. I therefore <input checked="" type="checkbox"/> APPROVE the data above <input type="checkbox"/> RECOMMEND APPROVAL of the data above FOR MAJOR REPAIR OR MAJOR ALTERATION ONLY - Other data approvals <input type="checkbox"/> ARE REQUIRED <input checked="" type="checkbox"/> ARE NOT REQUIRED EXPLAIN: <input type="checkbox"/> MANAGING OFFICE WAS CONTACTED (required when approval was made outside the U.S and/or involved critical or life limited parts)			
11. DER/ODA NUMBER 756511619	12. PRINTED NAME Thomas McTigue		
13. TECHNICAL DISCIPLINE DER-T(Structural Engineering) :- Structural Engineering	14. SIGNATURE <i>Thomas McTigue</i> 	16. DATE 04/29/2022	
FAA APPROVAL (For FAA use when designee recommends approval above, or when approval is reserved for the FAA)			
17. PRINTED NAME/FAA OFFICE	18. TECHNICAL DISCIPLINE		
19. SIGNATURE	20. DATE		



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION			1. DATE May/19/2022	
STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS				
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION				
2. MAKE Gulfstream	3. MODEL NO. GIV-X S/N 4082	4. TYPE (Aircraft, Engine, Propeller, etc.) Airplane	5. NAME OF APPLICANT West Star Aviation PCD	
LIST OF DATA				
6. IDENTIFICATION		7. TITLE		
P22372W-109 Rev. I/R		[Item 1] Cabin Entertainment System Mod Jan/25/2022		
P21339W-138 Rev. I/R		[Item 2] Gogo Avance L5 Broadband Nov/11/2021		
P22376W-110 Rev. I/R		[Item 3] Cabin USB Chargers Jan/25/2022		
P21367R-139 Rev. I/R		[Item 4] Electrical Load Analysis Nov/11/2021		
END				
This approval is for electrical aspects only.				
Gogo WAP requires STC ST11071SC to be applied to aircraft.				
This approval is for engineering design data only and is not an installation approval. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and sub paragraph listed below as "APPLICABLE REQUIREMENTS." (Compliance with additional regulations not listed here may be required). This form does not constitute FAA approval of all the engineering design data necessary for substantiation of compliance to necessary requirements for the entire alteration.				
8. PURPOSE OF DATA Supports major alteration on the above aircraft GIV-X S/N 4082 only.				
9. APPLICABLE REQUIREMENTS (List specific sections) 14 CFR 25.1301(a)(b)(c) [Amdt. 25-0], 25.1307(c) [Amdt. 25-72], 25.1322(d) [Amdt. 25-38], 25.1351(a)(1) [Amdt. 25-72], 25.1353(a) [Amdt. 25-42], 25.1357(a)(c) [Amdt. 25-0], 25.1431(c) [Amdt. 25-0].				
10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered <u>N/A</u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed. <input type="checkbox"/> Recommend approval of these data I Therefore <input checked="" type="checkbox"/> Approve these data				
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)		12. DESIGNATION NUMBERS(S)		13. CLASSIFICATION(S)
 Jeffrey S. Maszkiewicz		DERT-834075-CE		Systems and Equipment





18 Terminal Drive
East Alton, IL 62024

Airplane Flight Manual Supplement
Gulfstream GIV-X S/N 4082
Gogo Avance L5 Broadband System

FAA APPROVED AIRPLANE FLIGHT MANUAL SUPPLEMENT

FOR A

GOGO AVANCE L5 AIRBORNE BROADBAND SYSTEM

INSTALLED IN

GULFSTREAM

GIV-X

SERIAL NUMBER: 4082

REGISTRATION: N451NS

This supplement must be attached to the Approved Airplane Flight Manual. The information contained herein supplements or supersedes the basic Flight Manual only in those areas listed, when the aircraft is modified by FAA STC ST11071SC for approval to operate with transmitting portable electronic devices and FAA Form 337 dated _____ for installation of a Gogo Avance L5 Broadband system. For limitations, procedures and performance data not contained in this supplement, consult the basic Airplane Flight Manual.

FAA APPROVED: See Page 2



18 Terminal Drive
East Alton, IL 62024

Airplane Flight Manual Supplement
Gulfstream GIV-X S/N 4082
Gogo Avance L5 Broadband System

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS				1. DATE
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION				
2. MAKE	3. MODEL NO.	4. TYPE (Aircraft, Engine, Propeller, etc.)	5. NAME OF APPLICANT	
Gulfstream Aerospace Corporation	GIV-X	Aircraft	West Star Aviation, Inc.	
LIST OF DATA				
6. IDENTIFICATION		7. TITLE		
Document Number: P21339M-163, Rev. I/R, dated May 19, 2022		<p>"FAA APPROVED AIRPLANE FLIGHT MANUAL SUPPLEMENT FOR A GOGO AVANCE L5 AIRBORNE BROADBAND SYSTEM INSTALLED IN GULFSTREAM GIV-X SERIAL NUMBER: 4082 REGISTRATION: N451NS"</p> <p>TCDS A12EA was referenced</p> <p>This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as 'APPLICABLE REQUIREMENTS'. This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration/repair. No structural, mechanical, or electrical aspects were considered. See FAA Form 337 for complete data package and certification basis.</p> <p style="text-align: center;">Nothing Follows</p>		
8. PURPOSE OF DATA				
In support of Major Alteration GIV-X SN: 4082				
9. APPLICABLE REQUIREMENTS (List specific sections)				
14CFR Part 25 25.1501(a), (b) Amendment 25-42 ; 25.1581(a), (b), (d) Amendment 25-72; 25.1585(a) Amendment 25-105				
10. CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under 14 CFR Part 183, data listed above and on attached sheets numbered ^{1A} have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.				
14(a) Therefore		<input type="checkbox"/> Recommend approval of these data <input checked="" type="checkbox"/> Approve these data		
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)		12. DESIGNATION NUMBER(S)	13. CLASSIFICATION(S)	
 Mark W. Anderson		DER-T-833691-CE	Flight Test Pilot	

FAA Form 8110-3 (03/10) SUPERSEDES PREVIOUS EDITION



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Airplane Flight Manual Supplement
Gulfstream GIV-X S/N 4082
Gogo Avance L5 Broadband System

LOG OF REVISIONS

REVISION NO.	REVISED PAGES	DESCRIPTION OF REVISION	FAA APPROVAL
I/R	ALL	Initial Release	See Page 2



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Airplane Flight Manual Supplement
Gulfstream GIV-X S/N 4082
Gogo Avance L5 Broadband System

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*Non-FAA Approved

SECTION 0 – PREFACE (Non-FAA Approved)

The purpose of this Airplane Flight Manual Supplement is to grant authority to the flight crew to allow the use of Portable Electronic Devices (PED). This Flight Manual Supplement supersedes any previous limitations on personal communication system installations (Wi-Fi, Bluetooth, Cellular, etc.) as long as the aircraft is maintained in accordance with the aircraft instructions for continued airworthiness that accompany the FAA STC identified on the cover page of this flight manual supplement.

The Gogo Avance L5 broadband system transmits data from the aircraft user via wired Ethernet connection or via Wi-Fi, and transmits that data through a Cellular based network while on the ground and a Terrestrial based network while airborne. The Gogo Avance L5 system consists of the Avance L5 Transceiver/Router line replaceable unit (LRU), two Cellular based terrestrial modem antennas, six Wi-Fi antennas, and two air-to-ground broadband communication antennas.

- 1) The “WLAN” control switch (OFF) is located in the cockpit overhead panel and is used to provide flight crew a means of control to limit the use of or disable the Wi-Fi transmitter.

Approval of this airplane flight manual supplement, together with the FAA STC identified on the cover page of this document, indicates that the communication, navigation, and all required systems installed on the subject aircraft have been evaluated and found to not be prone to radio frequency interference (RFI) from PED's in accordance with Section 1 Limitations. The aircraft RFI evaluation for tolerance to PED's in accordance with Section 1 Limitations was accomplished in accordance with procedures specified in FAA Advisory Circular AC 20-164 and RTCA/D0-307 to ensure that the aircraft equipment, systems, and installations perform their intended functions under any foreseeable operating conditions. The RFI evaluation accomplished for this aircraft may be used by the aircraft operator as a basis for determining whether to allow the use of certain portable electronic devices in accordance with 14 CFR 91.21, 121.306, 125.204 and 135.144.

SECTION 1 – LIMITATIONS

1. The operation of the following Portable Electronic Devices is permitted as indicated.

PED Type ⁽¹⁾	Description	Phases of Flight	
		Non-Critical	Critical ⁽²⁾
	Wireless Devices Such as laptops, tablets, smart phones, portable gaming systems, etc.	PED Permitted	PED Permitted
		YES	NO
	Bluetooth Devices Such as Bluetooth head phones, hands Free headsets, speakers, locating devices, etc. which communicate with laptops, smart phones, and other similar devices	PED Permitted	PED Permitted
		YES	NO
End Of List			

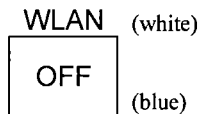
⁽¹⁾ Technical information on allowed PEDS are provided in LP-PS001 - AML STC Configuration Specification

⁽²⁾ Critical phases of flight include taxi (prior to takeoff), takeoff, and landing

2. The use of Portable Electronic Devices must cease during Emergency Procedures.

SECTION 2– NORMAL PROCEDURES

- 1) In the event it is necessary for the flight crew to limit the use of the Wi-Fi system or the crew desires to disable the Wi-Fi signal, the “WLAN” control switch is placed into the “OFF” position. The Wi-Fi signal is not transmitting when the switch is in the OFF position. The “WLAN” control switch is located in the cockpit overhead panel and is labeled as follows:



The upper visible white aircraft panel section labeled “WLAN” is visible during the day and illuminated at night. The blue switch section labeled “OFF” is illuminated when the Gogo Avance L5 Wi-Fi transmitter is OFF.

SECTION 3 – ABNORMAL PROCEDURES

- 1) During any phase of flight where possible EMC interference in aircraft systems is experienced or suspected
 - a. WLAN switch--push OFF and
 - b. Instruct passengers to turn off carry on PEDs until source of interference can be determined.
 - c. If the Wi-Fi is determined to be the source, it shall remain turned off for the remainder of the flight and reported to maintenance personnel.

- 2) In the event of malfunction or suspected malfunction of the Gogo L5 system's electrical equipment resulting in generation of excessive heat or smoke:
 - a. De-energize the equipment by switching the Cabin Master to the "OFF" position.

CONTROL

The following circuit breakers provide protection for the GOGO Avance L5 Broadband system:

SYSTEM	CB LEGEND	SIZE	28VDC BUS	LOCATION
GOGO L5	GOGO L5	10	RH Main 28Vdc Bus ACC 1	REER AUX Circuit Breaker Panel
GOGO L5	ACM	2	RH Main 28Vdc Bus ACC 1	REER AUX Circuit Breaker Panel

SECTION 4 – EMERGENCY PROCEDURES

The use of Portable Electronic Devices must cease during Emergency Procedures.

SECTION 5 – PERFORMANCE

No change.





STRUCTURAL ANALYSIS AND COMPLIANCE REPORT

Title: Installation of GOGO L5
Broadband System

Effectivity: Gulfstream Aerospace Corp.
GIV-X
4082

REVISIONS			
REV	DESCRIPTION	APPROVED.	DATE
I/R	Initial Release	Thomas W McTigue	APR/26/2022



I. INTRODUCTION

A Applicable Drawings

The following report will evaluate the structural aspects for the modification(s) delineated in the West Star Aviation drawing(s) listed below by showing compliance with the applicable airworthiness standards for the subject aircraft to support the aforementioned modification(s).

P22339N-149	I/R	GOGO AVANCE L5 FWD ANTENNA INSTL	NOV/11/2021
P22339N-150	I/R	GOGO AVANCE L5 AFT ANTENNA INSTL	NOV/11/2021
P22339N-152	I/R	GOGO AVANCE L5 EQUIPMENT INSTL	DEC/03/2021
P22700N-151	I/R	FEED-THRU INSTL	NOV/11/2021

B Applicable Regulations

The following report will show compliance with the structural regulations as prescribed in the in the compliance section of this report. These regulations are defined by Section and Amendment along with their necessary paragraphs and sub-paragraphs in the following section of this report based on the certification basis of the aircraft along with a compliance statement in which it is explained how compliance is shown (either by design or analysis). Damage Tolerance regulations will be addressed in a separate appendix to this report.

II. COMPLIANCE

Regulation	Description	Compliance Statement
25.301 25-23	(a) Strength requirements are specified in terms of limit loads (the maximum loads to be expected in service) and ultimate loads (limit loads multiplied by prescribed factors of safety). Unless otherwise provided, prescribed loads are limit loads.	Analysis shows that ultimate loads produce reactions that do not exceed the allowable limit loading for the materials and fasteners.
	(b) Unless otherwise provided, the specified air, ground, and water loads must be placed in equilibrium with inertia forces, considering each item of mass in the airplane. These loads must be distributed to conservatively approximate or closely represent actual conditions. Methods used to determine load intensities and distribution must be validated by flight load measurement unless the methods used for determining those loading conditions are shown to be reliable.	Analysis shows all items of mass are placed in equilibrium in order to determine the reaction loads at the point of attachment using standard analytical statics relationships under ultimate load conditions prescribed in 25.561 along with applicable factors of safety.

Regulation	Description	Compliance Statement
25.303 25-23	Unless otherwise specified, a factor of safety of 1.5 must be applied to the prescribed limit load which are considered external loads on the structure. When a loading condition is prescribed in terms of ultimate loads, a factor of safety need not be applied unless otherwise specified.	All limit loads are multiplied by the prescribed factor of safety (1.5) to make it ultimate whenever necessary.
25.305 25-86	<p>(a) The structure must be able to support limit loads without detrimental permanent deformation. At any load up to limit loads, the deformation may not interfere with safe operation.</p> <p>(b) The structure must be able to support ultimate loads without failure for at least 3 seconds. When analytical methods are used to show compliance with the ultimate load strength requirements, it must be shown that-- (1) The effects of deformation are not significant; (2) The deformations involved are fully accounted for in the analysis; or (3) The methods and assumptions used are sufficient to cover the effects of these deformations.</p>	Analysis shows the structure will support ultimate loads at this condition and compare within the limit (or yield) strength of the material and fasteners present.
25.307 25-72	(a) Compliance with the strength and deformation requirements of this subpart must be shown for each critical loading condition. Structural analysis may be used only if the structure conforms to those for which experience has shown this method to be reliable. The Administrator may require ultimate load tests in cases where limit load tests may be inadequate.	Analysis shows that all structure conforms to static based formulation where a free body diagram is used in order to determine the reaction loads on the structure.
25.365 25-72	<p>For airplanes with one or more pressurized compartments the following apply:</p> <p>(a) The airplane structure must be strong enough to withstand the flight loads combined with pressure differential loads from zero up to the maximum relief valve setting. (b) The external pressure distribution in flight, and stress concentrations and fatigue effects must be accounted for.</p> <p>(b) The external pressure distribution in flight, and stress concentrations and fatigue effects must be accounted for.</p>	When applicable, the maximum relief valve setting is used to calculate the applied pressure with consideration to all fatigue and stress concentrations based on proven methods.

Regulation		Description	Compliance Statement
25.365 25-87	(c)	If landings may be made with the compartment pressurized, landing loads must be combined with pressure differential loads from zero up to the maximum allowed during landing.	Static analysis for pressure vessel penetrations utilize the ultimate strength of materials that are prescribed in the drawing to show the installation satisfactory. This is a more conservative approach than that which is prescribed herein.
	(d)	The airplane structure must be strong enough to withstand the pressure differential loads corresponding to the maximum relief valve setting multiplied by a factor of 1.33 for airplanes to be approved for operation to 45,000 feet, or by a factor of 1.67 for airplanes to be approved for operation above 45,000 feet, omitting other loads.	
25.561 25-91	(c)	For equipment, cargo in the passenger compartments and any other large masses, the following apply: (1) Except as provided in paragraph(c)(2) of this section, items must be positioned so that if they break loose, they will be unlikely to: (i) Cause direct injury to occupants; (ii) Penetrate fuel tanks or lines or cause fire or explosion hazard by damage to adjacent systems; or (iii) Nullify any of the escape facilities provided for use after an emergency landing.	All equipment is shown to be satisfactory under ultimate loading and installation is made outside the view of passengers (i.e. inside cabinets or other containment structure).
	(d)	Seats and items of mass (and their supporting structure) must not deform under any loads up to those specified in paragraph(b)(3) of this section in any manner that would impede subsequent rapid evacuation of occupants.	
25.601 25-0		The airplane may not have design features or details that experience has shown to be hazardous or unreliable. The suitability of each questionable design detail and part must be established by tests.	The design features defined in the design data are common to the industry.
25.603 25-46	(a)	The suitability and durability of materials used in the structure must be established on the basis of experience or tests	No unique materials are prescribed in the design data that are not common to the industry.

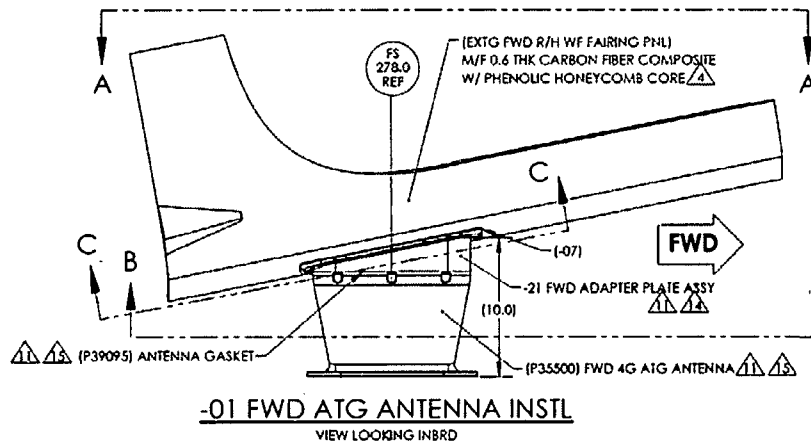
Regulation	Description	Compliance Statement
25.603 25-46	(b) The suitability and durability of materials used in the structure must conform to approved specifications (such as industry or military specifications, or Technical Standard Orders) that ensure their having the strength and other properties assumed in the design data. (c) Take into account the effects of environmental conditions, such as temperature and humidity, expected in service	All materials have MIL specifications or an equivalent proven method to determine their strength over a range of environmental conditions. When this is not available, a suitable factor of safety is applied.
25.605 25-46	(a) The methods of fabrication used must produce a consistently sound structure. If a fabrication process requires close control to reach this objective, the process must be performed under an approved process specification.	All fabrication methods are standard to the industry and comply with the acceptable methods prescribed in AC 43.13 as applicable.
25.609 25-0	(a) Each part of the structure must be suitably protected against deterioration or loss of strength in service due to any cause, including weathering, corrosion, and abrasion	All parts are protected with the necessary coating, primer, and/or paint to protect from the elements.
	(b) Have provisions for ventilation and drainage where necessary for protection.	Compliance is shown by design.
25.611 25-23	Means must be provided to allow inspection (including inspection of principal structural elements and control systems), replacement of parts normally requiring replacement, adjustment, and lubrication as necessary for continued airworthiness. The inspection means for each item must be practicable for the inspection interval for the item. Nondestructive inspection aids may be used to inspect structural elements where it is impracticable to provide means for direct visual inspection if it is shown that the inspection is effective and the inspection procedures are specified in the maintenance manual required by Sec. 25.1529.	The installation has access to inspect in the same way as the previous CVR that is removed and replaced with this installation in the same general vicinity.
25.613 25-72	(a) Material strength properties must be based on enough tests of material meeting approved specifications to establish design values on a statistical basis.	Data indicates the design aspects of materials conform to those having tested allowable strength data as specified.

Regulation	Description	Compliance Statement
25.613 25-72	(b) Design values must be chosen to minimize the probability of structural failures due to material variability. Compliance with this paragraph must be shown by selecting design values which assure material strength with the following probability: (1) Where applied loads are eventually distributed through a single member within an assembly, the failure of which would result in loss of structural integrity of the component, 99 % probability with 95 % confidence. (2) For redundant structure, in which the failure of individual elements would result in applied loads being safely distributed to other load carrying members, 90 % probability with 95 % confidence	Material design values used are published with A-Basis and B-Basis material allowable data in the MMPDS-10 (or other acceptable documentation) and will always be the most conservative. When this data is not available, a conservative factor of safety is applied.
	(c) The effects of temperature on allowable stresses used for design in an essential component or structure must be considered where thermal effects are significant under normal operating conditions.	Material design values will be subject to a factor of safety to comply with this when applicable.
	(d) The strength, detail design, and fabrication of the structure must minimize the probability of disastrous fatigue failure, particularly at points of stress concentration.	Data indicates the design aspects of fabrication removes all sharp edges and burrs as to prevent stress concentrations
25.619 25-23	The factor of safety prescribed in Sec. 25.303 must be multiplied by the highest pertinent special factor of safety prescribed in Secs. 25.621 through 25.625 for each part of the structure whose strength is -- (a) Uncertain (b) Likely to deteriorate in service before normal replacement (c) Subject to appreciable variability because of uncertainties in manufacturing processes or inspection methods.	Of the special factor cases that are prescribed in this section, the fitting factor defined in 25.625 is the only one deemed applicable in this situation.
25.625 25-72	(a) For each fitting whose strength is not proven by limit and ultimate load tests in which actual stress conditions are simulated in the fitting and surrounding structures, a fitting factor of at least 1.15 must be applied to each part of the fitting, the means of attachment, and the bearing on the joined members.	Analysis will show compliance by showing a Margin of Safety greater than the prescribed fitting factor.

III. ANALYSIS

FWD AND AFT DIRECTIONAL ANTENNA INSTALLATIONS

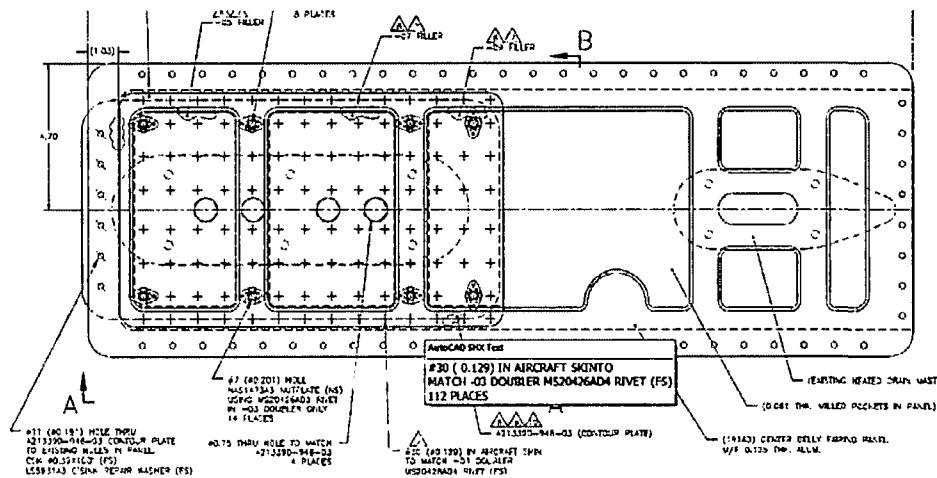
The forward antenna is installed on a composite fairing as shown below.



The load is conservatively 250 pounds applied at the tip resulting in a couple moment of 2500 inch pounds that is reacted by the mounting plate installation fasteners spaced at 4.1 inches results in a reaction load per side of 610 pounds which is reacted by 5 each MS24694(8-32) screws for a reaction load per screw of 122 pounds per screw. This is deemed to be negligible in comparison to the material and hardware used.

Because there is both an internal and external doubler installing the antenna, the reaction load per side of 610 pounds applies a crush pressure on the panel that is equal to the load divided by the area of the doubler. The doubler is 13.99 X 8.27, or 115 in². Therefore, half of that area is subject to the 610 pounds load or an applied pressure of 10.6 psi which is well within the allowable strength of the most conservative materials. Therefore, the forward antenna is substantiated.

The aft antenna is installed on a removable access panel as shown below.



Due to its relatively negligible load of the ACM ($0.5 \times 12 = 6$ pounds) that is distributed among 4 each MS35206(4-40) screws, the reaction load of 1.5 pounds per fastener is deemed satisfactory by observation with the potted inserts in the existing honeycomb panel.

The applied load is conservatively considered to be 12g in all directions and the most critical load case is considered, justifying all other load cases by comparison.

$$P = 23 \times 12 = 276 \text{ pounds}$$

The shear load reaction is taken up by the 10 each fasteners that install the rack resulting in a reaction load of 27.6 pounds per fastener. This reaction load is a bearing load on the aluminum honeycomb panel facing that is 0.020 thick, resulting in a stress of 1380 psi. This is deemed negligible, even if a commercial grade aluminum alloy is used having a conservative bearing strength allowable of 6500 psi. Therefore, the shear reaction is shown to be substantiated.

The side view shown below shows that all LRUs are approximately the same height. Therefore, using the largest mass of the VDR will be subjected to the most conservative attachment showing that all installations are substantiated by the one analysis.

The figure on the previous page shows a maximum height of the LRU to be 8.87 inches from the point of attachment. The applied load is made at this conservative height.

$$M = 276 \times 8.87 = 2450 \text{ inch pounds}$$

The tension couple is determined using the spacing of the edge of the LRU with the center of the fastener as shown in the calculation below.

$$R_{\text{tension}} = 2450 / 5.66 = 433 \text{ pounds per side}$$

As mentioned previously, the applied couple will be divided by half of the area of the nutplate strip (6.365 in^2) that installs the mounting fasteners resulting in a crush load of 68 psi which compares well with the commercial grade aluminum core allowable of 100 psi.

$$\text{Fastener Tension} \quad \text{M.S.} = 100 / 68 - 1 = + 0.47$$

This is very conservative because 12g load factor is used and the moment arm is the height of the equipment. Also it should be noted that the installation is within a closed out cabinet in the aft lavatory where no occupants are to be during emergency landing conditions.

FEED-THRU INSTALLATION

The feed-thru is made in a provisioned area where the skin thickness is doubled (2 each panels of 0.062 inch thickness). An existing rivet is removed and the hole is upsized to 1.375 diameter where a CES-3 fitting is installed.

This analysis was previously made with the resulting inspection intervals shown to be greater than the existing inspection required in this area of 5,000 cycles or 96 months. Therefore, the instructions for continued airworthiness must include the following.

Drawing No.	Description	Inspection Interval	
		Threshold	Recurring
P21700N-151 Feed-Thru Install	Access the area for inspection at the external location of the feed-thru See Page 6 for Location and Details	5,000 Cycles or 96 Months	5,000 Cycles or 96 Months

Inspection Method:

Inspect the surface of the provisioned panels around the fitting flange using High Frequency Eddy Current to detect cracks or corrosion.

A visual inspection is to be made around the periphery of the feed-thru in order to detect any abnormalities.



Document No. P22339R-140

Rev. I/R

Appendix A

NOT NEEDED





Document No. P22339R-141
Rev. I/R

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS AND MAINTENANCE SUPPLEMENT

Feed-Thru Installation Supporting the Broadband System Installation

Onboard

**Gulfstream Aerospace Corp.
GIV-X
4082**

This document provides the results of the analysis showing inspection intervals and is to supplement the existing maintenance program for the aircraft. This document is not FAA approved.



LOG OF REVISIONS			
REV.	PAGE No.	DESCRIPTION	DATED
I/R	ALL	INITIAL RELEASE	APR/26/2022

Note: For all revision a letter should be submitted with a FAA Form 337 and a copy of the new/revised Instruction for Continued Airworthiness to the local Flight Standards District Office (FSDO).



LIST OF EFFECTIVE PAGES	PAGE NO.	REV.
COVER PAGE	1	I/R
LOG OF REVISIONS	2	I/R
LIST OF EFFECTIVE PAGES	3	I/R
INTRODUCTION	4	I/R
SCHEDULED MAINTENANCE PROGRAM	4	I/R
REMOVAL/INSTALLATION INSTRUCTIONS	5	I/R
LOCATION AND TEMPLATE INFORMATION	5	I/R

NOTE:

Implementation and Record Keeping: For major alterations performed in accordance with FAA policy, the owner/operator operating under part 91 is responsible for ensuring that the ICA is made part of the applicable section 91.409 inspection program for their aircraft. This is accomplished when a maintenance entry is made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location along with a statement that the ICA is now part of the aircraft's inspection/maintenance requirements. For major alterations performed in accordance with a field approval on air carrier aircraft, the air carrier operator is responsible for ensuring that the ICA is made part of the applicable inspection/maintenance program for their aircraft. If a procedure is not currently included in the operator's manual to incorporate ICA, this process will need to be appropriately addressed (i.e. the operator submits a revision to its maintenance program to the applicable certificate-holding district office (CHDO). For aircraft inspected under an Approved Aircraft Inspection Program (AAIP), the operator will submit a change to the CHDO in accordance with section 135.419 (b). For air carrier aircraft inspected using an annual/100 hour inspection program, a reference to the new ICA will be made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location. In addition, the operator will request a revision to the operator's Operations Specifications, additional maintenance requirements, which incorporates the ICA into the inspection program.

Introduction

Modification of an aircraft by the approved data referenced herein obligates the aircraft operator to include the maintenance information provided by this document in the Operator's Aircraft Maintenance Manual and the operator's Aircraft Scheduled Maintenance Program.

Scheduled Maintenance Program

1. The equipment installed on the aircraft is either on condition or have instructions for continued airworthiness documented by the equipment manufacturer.
2. All Line Replaceable Unit (LRU) part numbers and other necessary part numbers within the systems listed in item 1 above are contained in the installation data package.
3. Scheduled Maintenance Program tasks to be added as follows:
 - a. Recommended Periodic Scheduled Servicing Tasks: No change
 - b. Recommended Periodic Scheduled Preventative Maintenance Test/Checks to Determine System Condition and/or Latent Failure: No change
 - c. Required Periodic Inspections/Calibrations: No change
 - d. Recommended Special / Overhaul Inspections: No change
 - e. Recommended Periodic Structural Inspections: See Instructions Below Determined using DTA

Drawing No.	Description	Inspection Interval	
		Threshold	Recurring
P21700N-151 Feed-Thru Install	Access the area for inspection at the external location of the feed-thru See Page 6 for Location and Details	5,000 Cycles or 96 Months	5,000 Cycles or 96 Months

Inspection Method:

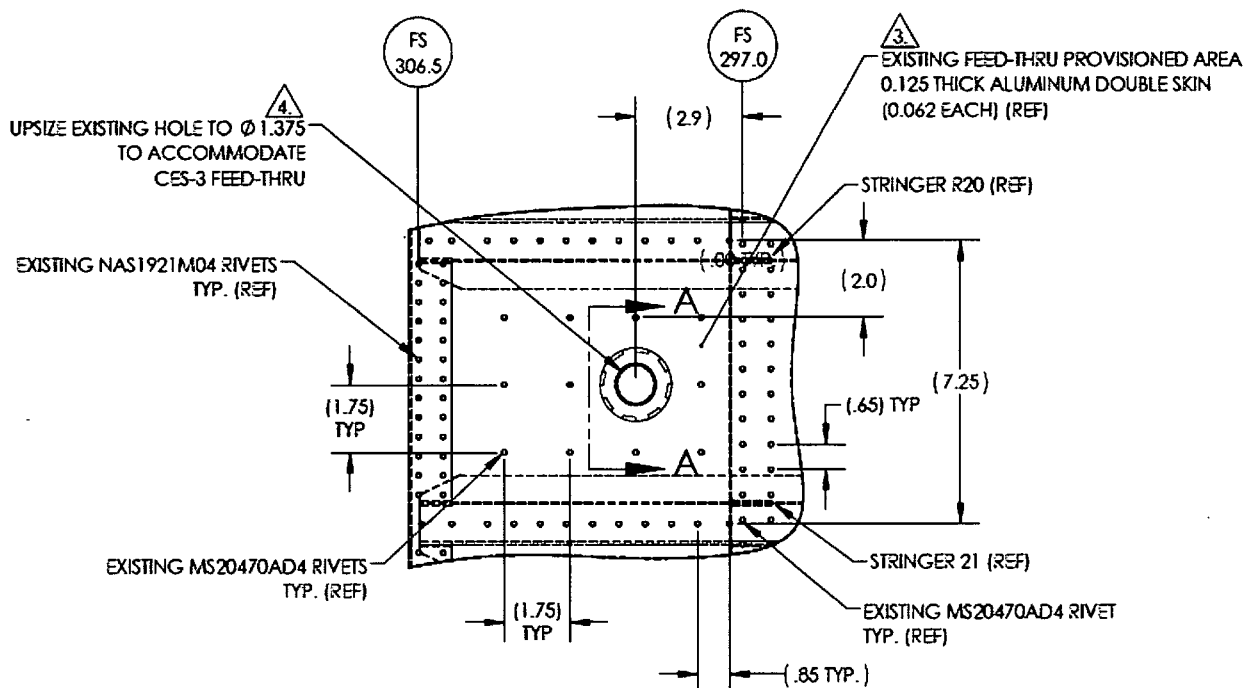
Inspect the surface of the provisioned panels around the fitting flange using High Frequency Eddy Current to detect cracks or corrosion.

A visual inspection is to be made around the periphery of the feed-thru in order to detect any abnormalities.

Removal/Installation Instructions

1. Access the area for the Feed-Thru:
 - a. Open and tag the applicable circuit breakers that supply power to the system.
 - b. Remove external fairing panel in the location of the Feed-Thru as defined below using standard operating procedures and the aircraft maintenance manual.
 - c. Access the location.
2. Troubleshooting
 - a. Make sure the cables are properly sealed in the fitting.
 - b. Make sure all cable connectors are properly tightened using standard operating procedures.

LOCATION AND TEMPLATE INFORMATION



-01 FEED-THRU INSTL
VIEW LOOKING INBOARD @ R/H (WING) CHEEK PANEL AREA
OBJECTS REMOVED FOR CLARITY

ELECTRICAL LOAD SUPPLEMENT

For Aircraft Electrical Modifications

On

Gulfstream

Model GIV-X (G450)

Serial Number 4082

LOG OF REVISIONS			
REV.	PAGE No.	DESCRIPTION	DATED
I/R	ALL	Initial Release	Nov/11/2021

1.0 Introduction

This document has been prepared for Gulfstream GIV-X S/N 4082 to determine the electrical load effect for the Left Main 28VDC ACC #1 Bus shown in Table 1, the Right Main 28VDC ACC #1 Bus shown in Table 2, the Right Main 28VDC Galley DC Bus shown in Table 3, and the Aircraft Total DC Summary shown in Table 4.

The items listed in Tables 1 through 3 of this analysis include the removed electrical loads and new additions. The items listed in Table 4 represent a summary of the total Aircraft DC Load. Pre-modification electrical loads were taken from Gulfstream Aerospace Corp. document number GC41 4696240 Electrical Load Analysis Supplement shown in Appendix A.

2.0 Electrical Load Changes

Modification of the Left Main 28VDC ACC #1 Bus was accomplished for the upgrade to the cabin entertainment system. (Table 1)

Modification of the Right Main 28VDC Bus ACC #1 Bus was accomplished for the upgrade to the AFT LAV lighting, the installation of the Gogo L5 equipment, and installation of the Cabin USB outlets. (Table 2)

Modification of the Right Main 28VDC Galley DC Bus was accomplished for the upgrade to the Galley lighting. (Table 3)

3.0 Summary and Conclusions

The total Left Main 28VDC ACC #1 Bus loads are designed for a 50 amp capacity. Pre-modification continuous maximum load was 19.96 amps. Alterations to the DC loads resulted in a decrease of 2.14 amps and a new continuous max load of 17.82 Amps. The remaining capacity available for the Left Main 28VDC ACC #1 Bus is 32.18 amps.

The total Left Main DC loads are designed for a 250 amp capacity. Pre-modification continuous maximum load was 129.32 amps. Alterations to the DC loads resulted in a decrease of 2.14 amps and a new continuous max load of 127.18. The remaining capacity available for the Left Main DC load is 122.82 amps.

The total Right Main 28VDC Bus ACC #1 loads are designed for a 50 amp capacity. Pre-modification continuous maximum load was 12.17 amps. Alterations to the DC loads resulted in an increase of 20.22 amps and a new continuous max load of 32.39 Amps. The remaining capacity available for the Right Main 28VDC Bus ACC #1 is 17.61 amps.

The total Right Main 28VDC Galley DC Bus loads are designed for a 50 amp capacity. Pre-modification continuous maximum load was 6.68 amps. Alterations to the DC loads resulted in a decrease of 0.44 amps and a new continuous max load of 6.24 Amps. The remaining capacity available for the Right Main 28VDC Galley DC Bus is 43.76 amps.

The total Right Main DC loads are designed for a 250 amp capacity. Pre-modification continuous maximum load was 132.21 amps. Alterations to the DC loads resulted in an increase of 19.78 amps and a new continuous max load of 151.99 Amps. The remaining capacity available for the Right Main DC load is 98.01 amps.

The total DC loads increased 17.64 amps to a new total of 460.53 with a remaining capacity of 539.47 amps.

The VAC and other VDC busses have no change in values.

From the perspective of the electrical load, the aircraft can be safely operated by the addition of the systems incorporated.

Table 1

28VDC Left Main - ACC #1

Description	CB Location	CB Value	No. of units	Amps
Equipment Removed				
DVD 1/2	AUX Panel	3	1	2.50
FWD Cabin Monitor	AUX Panel	3	1	1.61
AFT Cabin Monitor	AUX Panel	3	1	1.61
Equipment Installed				
MIP/BT	AUX Panel	3	1	0.75
FWD Cabin Monitor	AUX Panel	3	1	1.40
AFT Cabin Monitor	AUX Panel	3	1	1.43
PREVIOUS CONTINUOUS MAXIMUM LOAD (Ref. Gulfstream report no. GC41 4696240)				19.96
NET CHANGE				-2.14
NEW CONTINUOUS MAXIMUM LOAD				17.82
CAPACITY ALLOWABLE				50.00
REMAINING CAPACITY AVAILABLE				32.18

Table 2

28VDC Right Main - ACC #1

Description	CB Location	CB Value	No. of units	Amps
Equipment Removed				
AFT LAV Vanity LTS	AUX Panel	3	1	2.00
Equipment Installed				
AFT LAV Vanity LTS	AUX Panel	3	1	1.60
LH USB	AUX Panel	10	1	7.50
RH USB	AUX Panel	7.5	1	5.00
GOGO L5	AUX Panel	10	1	7.86
ACM	AUX Panel	2	1	0.26
PREVIOUS CONTINUOUS MAXIMUM LOAD (Ref. Gulfstream report no. GC41 4696240)				12.17
NET CHANGE				20.22
NEW CONTINUOUS MAXIMUM LOAD				32.39
CAPACITY ALLOWABLE				50.00
REMAINING CAPACITY AVAILABLE				17.61

Table 3

28VDC Right Main - Galley DC Bus

Description	CB Location	CB Value	No. of units	Amps
Equipment Removed				
Galley Effect LTS	Galley	3	1	1.42
Galley Work LTS	Galley	3	1	1.42
Equipment Installed				
Galley Effect LTS	Galley	3	1	1.20
Galley Work LTS	Galley	3	1	1.20
PREVIOUS CONTINUOUS MAXIMUM LOAD (Ref. Gulfstream report no. GC41 4696240)				6.68
NET CHANGE				-0.44
NEW CONTINUOUS MAXIMUM LOAD				6.24
CAPACITY ALLOWABLE				50.00
REMAINING CAPACITY AVAILABLE				43.76

Table 4

28VDC Left Main - Summary

PREVIOUS CONTINUOUS MAXIMUM LOAD (Ref. Gulfstream report no. GC41 4696240)	129.32
NET CHANGE	-2.14
NEW CONTINUOUS MAXIMUM LOAD	127.18
CAPACITY ALLOWABLE	250.00
REMAINING CAPACITY AVAILABLE	122.82

28VDC Right Main - Summary

PREVIOUS CONTINUOUS MAXIMUM LOAD (Ref. Gulfstream report no. GC41 4696240)	132.21
NET CHANGE	19.78
NEW CONTINUOUS MAXIMUM LOAD	151.99
CAPACITY ALLOWABLE	250.00
REMAINING CAPACITY AVAILABLE	98.01

Aircraft DC - Summary

PREVIOUS CONTINUOUS MAXIMUM LOAD (Ref. Gulfstream report no. GC41 4696240)	442.89
NET CHANGE	17.64
NEW CONTINUOUS MAXIMUM LOAD	460.53
CAPACITY ALLOWABLE	1000.00
REMAINING CAPACITY AVAILABLE	539.47



Appendix A

Gulfstream Aerospace Corp.

Electrical Load Analysis

Document number GC41 4696240

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 1
Author: Davis	TABLE OF CONTENTS	Report: GC41 4696240
		REV -

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(con't)

Gulfstream®
AIRCRAFT INCORPORATED



REPORT NUMBER
GC41 4696240

ELECTRICAL LOAD ANALYSIS
SUPPLEMENT
FOR
Serial Number: 4082
GULFSTREAM AEROSPACE GIV-X AIRCRAFT (A12EA)

PREPARED BY:

APPROVED BY:

Kenton F. Davis

Kenton F. Davis
Avionics Engineer

7/18/07

Date

Eric Lathrop

Eric Lathrop
Lead Engineer

7/23/07

Date

UNCONTROLLED COPY
REVISION SERVICE NOT PROVIDED

Mike Eddy

Mike Eddy
DER

7/31/07

Date

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 2
Author: Davis	TABLE OF CONTENTS	Report: GC41 4696240
	(Continued)	REV -

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COPILOT #2	85
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PILOT #5	98
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(con't)

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 3
Author: Davis	TABLE OF CONTENTS <i>(Continued)</i>	Report: GC41 4696240
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L EMERG DC BUS	121
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FWD AND AFT EMERG BATT SUMMARY	124
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Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 4
Author: Davis	INTRODUCTION	Report: GC41 4696240
		REV -

This ELECTRICAL LOAD ANALYSIS has been prepared as a supplement to the GULFSTREAM AEROSPACE CORPORATION REPORT NO: GIVX-GER-400.00, Rev. C GULFSTREAM GIV-X ELECTRICAL LOAD ANALYSIS; Effectivity Aircraft 4001 & SUBQ in accordance with FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR 43.13-1B-428 and FAR 25. It is the summary of the factory "GREENIE" loads and the outfitter installed avionics and electrical equipment system loads for the aircraft accomplished by the following:

GC41 3036048 REV -	D.I.L. - WIRELESS LAN
GC41 4866182 REV -	D.I.L. - INTERIOR EMERGENCY LIGHTS
GC41 5046052 REV -	D.I.L. - AIRSHOW (MOVING MAP & IN-FLIGHT INFORMATION SYSTEM)
GC41 4960332 REV -	AV/ELEC DRAWING LIST
GC41 4538130 REV -	D.I.L. - OXYGEN SYSTEM

The following tabulation of AC and DC loads have been extracted from this report:

(A) CRUISE AC LOAD	(Reference page 72)	42,783.80	VA
(B) CRUISE DC LOAD	(Reference page 119)	442.89	A
(C) MAIN BATTERY LOAD	(Reference page 120)	152.47	A
(D) LEFT EMERGENCY BATTERY LOAD	(Reference page 124)	7.85	A
(E) RIGHT EMERGENCY BATTERY LOAD	(Reference page 124)	7.95	A
(F) FWD EMERG LTG BATT PACK LOAD	(Reference page 125)	8.16	A
(G) AFT EMERG LTG BATT PACK LOAD	(Reference page 126)	8.16	A

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 5
Author: Davis	GENERAL NOTES	Report: GC41 4696240
		REV -

1 - PRODUCTION LOADS

All "Greene Loads" have been obtained from Gulfstream Aerospace Report number, GIVX-GER-400.00, Rev. C, GULFSTREAM IV-X ELECTRICAL LOAD ANALYSIS; Effectivity Aircraft 4001 & SUBQ ; Dated: 12-13-2006.

2 - COMPLETION CENTER ADDED LOADS

The added loads listed in this report are calculated from vendor published data which are usually conservative. The actual loads are normally less than the calculated load.

3 - PRODUCTION AND ADDED LOADS

All added and existing production loads listed in this report are for a cruise condition and continuous operation unless otherwise noted.

4 - NORMAL AND EMERGENCY OPERATING CONDITIONS

Refer to GIVX-GER-400.00, Rev. C; GULFSTREAM GIV-X ELECTRICAL LOAD ANALYSIS; Effectivity: Aircraft 4001 & SUBQ ; Dated: 12-13-2006 ; Section 2 for Electrical Power System Characteristics.

5 - EMERGENCY BATTERY OPERATION

This summary considers an emergency condition involving multiple failures of all power sources (Left, Right, APU and Standby Electrical Power) in which the existing FWD and AFT emergency batteries will supply power to most essential instruments and the additional FWD and AFT lighting batteries supplying power to the interior and exterior emergency lighting system.

CAUTION

REFER TO THE FLIGHT MANUAL FOR COMPLETE OPERATING PROCEDURES.

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 6
Author: Davis	ESSENTIAL AC ACCESS (PHASE A)		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 36.) (10 AMP FEEDER)				
ESSENTIAL AC - ACCESS BUS FEEDER (PHASE A)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 7
Author: Davis	ESSENTIAL AC ACCESS (PHASE B)		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 36.) (10 AMP FEEDER)				
ESSENTIAL AC - ACCESS BUS FEEDER (PHASE B)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 8
Author: Davis	ESSENTIAL AC ACCESS (PHASE C)		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
ADDED: NONE			0.00
TOTAL ADDED			0.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 36.) (10 AMP FEEDER)			
ESSENTIAL AC - ACCESS BUS FEEDER (PHASE C)			0.00 VA
REVISED TOTAL			0.00 VA
NOTES: NONE			



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 9
Author: Davis	ESSENTIAL AC PDB FEEDS (PHASE A)		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 37.)				
ESSENTIAL AC - PDB FEEDER (PHASE A)			<u>5.00</u>	VA
REVISED TOTAL			<u>5.00</u>	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 10
Author: Davis	ESSENTIAL AC PDB FEEDS (PHASE B)		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 37.)				
ESSENTIAL AC - PDB FEEDER (PHASE B)			5.00	VA
REVISED TOTAL			5.00	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 11
Author: Davis	ESSENTIAL AC	Report: GC41 4696240
	PDB FEEDS (PHASE C)	REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 37.)				
ESSENTIAL AC - PDB FEEDER (PHASE C)			<u>5.00</u>	VA
REVISED TOTAL			<u>5.00</u>	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 12
Author: Davis	ESSENTIAL AC PILOT (PHASE A)		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			0.00 VA
ADDED: NONE			0.00
TOTAL ADDED			0.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 33.) (10 AMP FEEDER)			
ESSENTIAL AC - PILOT (PHASE A)			234.50 VA
REVISED TOTAL			234.50 VA
NOTES: NONE			



Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 13		
Author: Davis	ESSENTIAL AC PILOT (PHASE B)	Report: GC41 4696240 REV -		
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 33.) (10 AMP FEEDER)				
ESSENTIAL AC - PILOT (PHASE B)			<u>377.00</u>	VA
REVISED TOTAL			<u>377.00</u>	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 14
Author: Davis	ESSENTIAL AC PILOT (PHASE C)		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 33.) (10 AMP FEEDER)				
ESSENTIAL AC - PILOT (PHASE C)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 34.) (10 AMP FEEDER)				
ESSENTIAL AC - COPILOT (PHASE A)			<u>142.50</u>	VA
REVISED TOTAL			<u>142.50</u>	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 16		
Author: Davis	ESSENTIAL AC COPILOT (PHASE B)	Report: GC41 4696240 REV -		
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 34.) (10 AMP FEEDER)				
ESSENTIAL AC - COPILOT (PHASE B)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 34.) (10 AMP FEEDER)				
ESSENTIAL AC - COPILOT (PHASE C)			377.00	VA
REVISED TOTAL			377.00	VA
NOTES: NONE				



Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 18
Author: Davis		ESSENTIAL AC SUMMARY		Report: GC41 4896240
				REV -
PHASE A:		FEEDER TITLE		CRUISE
	• ACCESS	(None added page 6)		0.00
	• PDB FEEDS	(None added page 9)		5.00
	• PILOT	(None added page 12)		234.50
	• COPILOT	(None added page 15)		142.50
REVISED TOTAL (PHASE A)				382.00 VA
PHASE B:		FEEDER TITLE		CRUISE
	• ACCESS	(None added page 7)		0.00
	• PDB FEEDS	(None added page 10)		5.00
	• PILOT	(None added page 13)		377.00
	• COPILOT	(None added page 16)		0.00
REVISED TOTAL (PHASE B)				382.00 VA
PHASE C:		FEEDER TITLE		CRUISE
	• ACCESS	(None added page 8)		0.00
	• PDB FEEDS	(None added page 11)		5.00
	• PILOT	(None added page 14)		0.00
	• COPILOT	(None added page 17)		377.00
REVISED TOTAL (PHASE C)				382.00
TOTAL EXISTING ESSENTIAL AC				1,146.00 VA
TOTAL REVISED ESSENTIAL AC				1,146.00 VA
(Ref.: GIVX-GER-400.00, Rev. C, Page 32.)				
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 41.) (35 AMP FEEDER)				
LEFT MAIN AC - PILOT #1 (PHASE A)			614.20	VA
REVISED TOTAL			614.20	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 20
Author: Davis	LEFT MAIN AC PILOT #1 (PHASE B)		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			0.00 VA
ADDED: NONE			0.00
TOTAL ADDED			0.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 41.) (35 AMP FEEDER)			
LEFT MAIN AC - PILOT #1 (PHASE B)			1,610.00 VA
REVISED TOTAL			1,610.00 VA
NOTES: NONE			



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED :			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED :			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 41.) (35 AMP FEEDER)				
LEFT MAIN AC - PILOT #1 (PHASE C)			1,610.00	VA
REVISED TOTAL			1,610.00	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 22
Author: Davis	LEFT MAIN AC PILOT #2 (PHASE A)		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 42.) (25 AMP FEEDER)				
LEFT MAIN AC - PILOT #2 (PHASE A)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 23	
Author: Davis	LEFT MAIN AC PILOT #2 (PHASE B)		Report: GC41 4696240	
			REV -	
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 42.) (25 AMP FEEDER)				
LEFT MAIN AC - PILOT #2 (PHASE B)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 24
Author: Davis	LEFT MAIN AC PILOT #2 (PHASE C)		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			0.00 VA
ADDED: NONE			0.00
TOTAL ADDED			0.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 42.) (25 AMP FEEDER)			
LEFT MAIN AC - PILOT #2 (PHASE C)			0.00 VA
REVISED TOTAL			0.00 VA
NOTES: NONE			

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 43.) (35 AMP FEEDER)				
LEFT MAIN AC - PILOT #3 (PHASE A)			307.20	VA
REVISED TOTAL			307.20	VA
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
Report: Electrical				
Author: Davis				
ELECTRICAL LOAD ANALYSIS			Page: 26	
LEFT MAIN AC			Report: GC41 4696240	
PILOT #3 (PHASE B)			REV -	
DELETED: NONE				
TOTAL DELETED			0.00	VA
ADDED: NONE				
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 43.) (35 AMP FEEDER)				
LEFT MAIN AC - PILOT #3 (PHASE B)			342.00	VA
REVISED TOTAL			342.00	VA
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 43.) (35 AMP FEEDER)				
LEFT MAIN AC - PILOT #3 (PHASE C)			<u>564.20</u>	VA
REVISED TOTAL			<u>564.20</u>	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 28
Author: Davis	LEFT MAIN AC		Report: GC41 4696240
	CABIN AC (PHASE A) V34/1XX111		REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: L WATER SUPPLY HTR	394CB22	AUX PANEL	0.00	⊖
TOTAL DELETED			0.00	VA
ADDED: CABIN AMP NO. 1	501CB2	AUX PANEL	575.00	
CABIN AMP NO. 2	501CB3	AUX PANEL	575.00	
L WTR SPLY HEATER	394CB22	AUX PANEL	73.60	
TOTAL ADDED			1,223.60	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 44.) (35 AMP FEEDER)				
LEFT MAIN AC - CABIN AC (PHASE A)			220.80	VA
REVISED TOTAL			1,444.40	VA
NOTES: ⊖ Collar removed from CB, production load revised				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 29
Author: Davis	LEFT MAIN AC		Report: GC41 4696240
	CABIN AC (PHASE B) V35/1XX112		REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
..... TOTAL DELETED			0.00 VA
ADDED: FWD LAV WATER HTR	394CB34	AUX PANEL	750.00
..... TOTAL ADDED			750.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 44.) (35 AMP FEEDER)			
LEFT MAIN AC - CABIN AC (PHASE B)			413.50 VA
REVISED TOTAL			1,163.50 VA
NOTES:			

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 30
Author: Davis	LEFT MAIN AC		Report: GC41 4696240
	CABIN AC (PHASE C) V36/1XX113		REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: FWD LAV WATER HEATER	394CB34	AUX PANEL	0.00 ①
AFT LAV WATER HEATER	394CB35	AUX PANEL	0.00 ①
TOTAL DELETED			<u>0.00</u> VA
ADDED: AFT LAV WATER HTR	394CB35	AUX PANEL	750.00 ①
TOTAL ADDED			<u>750.00</u> VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 44.) (35 AMP FEEDER)			
LEFT MAIN AC - CABIN AC (PHASE C)			<u>278.30</u> VA
REVISED TOTAL			<u>1,028.30</u> VA
NOTES: ① Production outfitter provisions; no load from production			
② 1000VA MAX, 863VA NOM			

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: CREW HOT LIQUID	646CB1	AUX PANEL	120.00	
TOTAL ADDED			<u>120.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 45.) (35 AMP FEEDER)				
LEFT MAIN AC - ACC #1 (PHASE A)			<u>0.00</u>	VA
REVISED TOTAL			<u>120.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 32
Author: Davis	LEFT MAIN AC	Report: GC41 4896240
	ACC #1 (PHASE B) - 1XX202	REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 45.) (35 AMP FEEDER)				
LEFT MAIN AC - ACC #1 (PHASE B)			272.00	VA
REVISED TOTAL			272.00	VA
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 45.) (35 AMP FEEDER)				
LEFT MAIN AC - ACC #1 (PHASE C)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 34
Author: Davis	LEFT MAIN AC		Report: GC41 4696240
	ACC #2 (PHASE A) - 1XX401		REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 46.) (35 AMP FEEDER)				
LEFT MAIN AC - ACC #2 (PHASE A)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 46.) (35 AMP FEEDER)				
LEFT MAIN AC - ACC #2 (PHASE B)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 36
Author: Davis	LEFT MAIN AC		Report: GC41 4696240
	ACC #2 (PHASE C) - 1XX403		REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 46.) (35 AMP FEEDER)				
LEFT MAIN AC - ACC #2 (PHASE C)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 47.) (25 AMP FEEDER)				
LEFT MAIN AC - ACC #3 (PHASE A)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 38
Author: Davis	LEFT MAIN AC	Report: GC41 4698240
	ACC #3 (PHASE B) - 1XX502	REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 47.) (25 AMP FEEDER)				
LEFT MAIN AC - ACC #3 (PHASE B)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 39
Author: Davis	LEFT MAIN AC	Report: GC41 4696240
	ACC #3 (PHASE C) - 1XX503	REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 47.) (25 AMP FEEDER)				
LEFT MAIN AC - ACC #3 (PHASE C)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 40
Author: Davis	LEFT MAIN AC	Report: GC41 4696240
	MISC FEEDS (PHASE A)	REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 48.)				
LEFT MAIN AC - MISC FEEDS (PHASE A)			2,948.80	VA
REVISED TOTAL			2,948.80	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 41		
Author: Davls	LEFT MAIN AC MISC FEEDS (PHASE B)	Report: GC41 4696240		
		REV -		
CB TITLE	CB No.	CB LOC.	LOAD	NOTES
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 48.)				
LEFT MAIN AC - MISC FEEDS (PHASE B)			2,948.00	VA
REVISED TOTAL			2,948.00	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 42
Author: Davis	LEFT MAIN AC MISC FEEDS (PHASE C)		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			<u>0.00</u> VA
ADDED: NONE			0.00
TOTAL ADDED			<u>0.00</u> VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 48.)			
LEFT MAIN AC - MISC FEEDS (PHASE C)			<u>2,948.00</u> VA
REVISED TOTAL			<u>2,948.00</u> VA
NOTES: NONE			



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 43
Author: Davis	LEFT MAIN AC SUMMARY		Report: GC41 4696240
			REV -
	FEEDER TITLE		CRUISE
PHASE A:	<ul style="list-style-type: none"> • PILOT #1 (None added page 19) • PILOT #2 (None added page 22) • PILOT #3 (None added page 25) • CABIN AC (Revised page 28) • ACC #1 (Revised page 31) • ACC #2 (None added page 34) • ACC #3 (None added page 37) • MISC FEEDS (None added page 40) 		614.20 0.00 307.20 1,444.40 120.00 0.00 0.00 2,948.80
	REVISED TOTAL (PHASE A)		5,434.60 VA
PHASE B:	<ul style="list-style-type: none"> • PILOT #1 (None added page 20) • PILOT #2 (None added page 23) • PILOT #3 (None added page 28) • CABIN AC (Revised page 29) • ACC #1 (None added page 32) • ACC #2 (None added page 35) • ACC #3 (None added page 38) • MISC FEEDS (None added page 41) 		1,610.00 0.00 342.00 1,163.50 272.00 0.00 0.00 2,948.00
	REVISED TOTAL (PHASE B)		6,335.50 VA
PHASE C:	<ul style="list-style-type: none"> • PILOT #1 (None added page 21) • PILOT #2 (None added page 24) • PILOT #3 (None added page 27) • CABIN AC (Revised page 30) • ACC #1 (None added page 33) • ACC #2 (None added page 36) • ACC #3 (None added page 39) • MISC FEEDS (None added page 42) 		1,610.00 0.00 564.20 1,028.30 0.00 0.00 0.00 2,948.00
	REVISED TOTAL (PHASE C)		6,150.50 VA
	TOTAL REVISED LEFT MAIN AC		17,920.60 VA
	(Ref.: GIVX-GER-400.00, Rev. C, Page 47.)		
NOTES: NONE			



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
Report: Electrical				
Author: Davis				
ELECTRICAL LOAD ANALYSIS			Page: 44	
RIGHT MAIN AC			Report: GC41 4696240	
COPILOT #1 (PHASE A)			REV -	
DELETED: NONE				
			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE				
			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 53.) (35 AMP FEEDER)				
RIGHT MAIN AC - COPILOT #1 (PHASE A)			1,610.00	VA
REVISED TOTAL			1,610.00	VA
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 53.) (35 AMP FEEDER)				
RIGHT MAIN AC - COPILOT #1 (PHASE B)			<u>1,610.00</u>	VA
REVISED TOTAL			<u>1,610.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 46
Author: Davis	RIGHT MAIN AC COPILOT #1 (PHASE C)		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			<u>0.00</u> VA
ADDED: NONE			0.00
TOTAL ADDED			<u>0.00</u> VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 53.) (35 AMP FEEDER)			
RIGHT MAIN AC - COPILOT #1 (PHASE C)			<u>326.70</u> VA
REVISED TOTAL			<u>326.70</u> VA
NOTES: NONE			



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
Report: Electrical				
Author: Davis				
ELECTRICAL LOAD ANALYSIS			Page: 47	
RIGHT MAIN AC			Report: GC41 4696240	
COPILOT #2 (PHASE A)			REV -	
DELETED: NONE				
			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE				
			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 54.) (25 AMP FEEDER)				
RIGHT MAIN AC - COPILOT #2 (PHASE A)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 48
Author: Davls	RIGHT MAIN AC COPILOT #2 (PHASE B)		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			0.00 VA
ADDED: NONE			0.00
TOTAL ADDED			0.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 54.) (25 AMP FEEDER)			
RIGHT MAIN AC - COPILOT #2 (PHASE B)			0.00 VA
REVISED TOTAL			0.00 VA
NOTES: NONE			



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 54.) (25 AMP FEEDER)				
RIGHT MAIN AC - COPILOT #2 (PHASE C)			<u>37.00</u>	VA
REVISED TOTAL			<u>37.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 50
Author: Davis	RIGHT MAIN AC COPILOT #3 (PHASE A)		Report: GC41 4696240
			REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			0.00 VA
ADDED: NONE			0.00
TOTAL ADDED			0.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 55.) (35 AMP FEEDER)			
RIGHT MAIN AC - COPILOT #3 (PHASE A)			433.20 VA
REVISED TOTAL			433.20 VA
NOTES: NONE			



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 51
Author: Davis	RIGHT MAIN AC COPILOT #3 (PHASE B)		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 55.) (35 AMP FEEDER)				
RIGHT MAIN AC - COPILOT #3 (PHASE B)			<u>285.20</u>	VA
REVISED TOTAL			<u>285.20</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 52
Author: Davis	RIGHT MAIN AC COPILOT #3 (PHASE C)		Report: GC41 4896240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			0.00 VA
ADDED: NONE			0.00
TOTAL ADDED			0.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 55.) (35 AMP FEEDER)			
RIGHT MAIN AC - COPILOT #3 (PHASE C)			678.20 VA
REVISED TOTAL			678.20 VA
NOTES: NONE			

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 56.) (25 AMP FEEDER)				
RIGHT MAIN AC - COPILOT #4 (PHASE A)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 56.) (25 AMP FEEDER)				
RIGHT MAIN AC - COPILOT #4 (PHASE B)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Report: Electrical</td> <td style="width: 40%; text-align: center;">ELECTRICAL LOAD ANALYSIS</td> <td style="width: 10%; text-align: right;">Page:</td> <td colspan="2" style="text-align: right;">55</td> </tr> <tr> <td>Author: Davis</td> <td style="text-align: center;">RIGHT MAIN AC COPILOT #4 (PHASE C)</td> <td style="text-align: right;">Report:</td> <td colspan="2" style="text-align: right;">GC41 4696240</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">REV -</td> <td colspan="2"></td> </tr> </table>					Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page:	55		Author: Davis	RIGHT MAIN AC COPILOT #4 (PHASE C)	Report:	GC41 4696240				REV -		
Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page:	55																
Author: Davis	RIGHT MAIN AC COPILOT #4 (PHASE C)	Report:	GC41 4696240																
		REV -																	
DELETED: NONE			0.00																
TOTAL DELETED			0.00	VA															
ADDED: NONE			0.00																
TOTAL ADDED			0.00	VA															
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 56.) (25 AMP FEEDER)																			
RIGHT MAIN AC - COPILOT #4 (PHASE C)			989.00	VA															
REVISED TOTAL			989.00	VA															
NOTES: NONE																			

Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 56	
Author: Davis		RIGHT MAIN AC		Report: GC41 4896240	
		GALLEY AC (PHASE A) - 2XX101/V25		REV -	
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	
DELETED: NONE			0.00		
TOTAL DELETED			<u>0.00</u>	VA	
ADDED: OVEN			541CB1	GALLEY	616.00
COFFEE MAKER			543CB1	GALLEY	333.00
ESPRESSO			543CB2	GALLEY	600.00
GALLEY WATER HTR			394CB28	AUX PANEL	750.00
TOTAL ADDED			<u>2,299.00</u>	VA	
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 57.) (35 AMP FEEDER)					
RIGHT MAIN AC - GALLEY AC (PHASE A)			0.00	VA	
REVISED TOTAL			<u>2,299.00</u>	VA	
NOTES: NONE					



Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 57	
Author: Davis		RIGHT MAIN AC		Report: GC41 4696240	
		GALLEY AC (PHASE B) - 2XX102/V26		REV -	
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	
DELETED: NONE			0.00		
TOTAL DELETED			0.00	VA	
ADDED: OVEN	541CB1	GALLEY	1030.00		
COFFEE MAKER	543CB1	GALLEY	333.00		
ESPRESSO	543CB3	GALLEY	600.00		
TOTAL ADDED			1,963.00	VA	
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 57.) (35 AMP FEEDER)					
RIGHT MAIN AC - GALLEY AC (PHASE B)			0.00	VA	
REVISED TOTAL			1,963.00	VA	
NOTES: NONE					

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 58
Author: Davis	RIGHT MAIN AC		Report: GC41 4896240
	GALLEY AC (PHASE C) - 2XX103/V27		REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: GALLEY WATER HTR	394CB28	AUX PANEL	0.00	⓪
TOTAL DELETED			0.00	VA
ADDED: OVEN	541CB1	GALLEY	616.00	
COFFEE MAKER	543CB1	GALLEY	333.00	
TOTAL ADDED			949.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 57.) (35 AMP FEEDER)				
RIGHT MAIN AC - GALLEY AC (PHASE C)			0.00	VA
REVISED TOTAL			949.00	VA

NOTES: ⓪ Production outfilter provisions; no load from production, CB removed and replaced



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 58.) (35 AMP FEEDER)				
RIGHT MAIN AC - ACC #1 (PHASE A)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 60
Author: Davis	RIGHT MAIN AC ACC #1 (PHASE B)		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			0.00 VA
ADDED: NONE			0.00
TOTAL ADDED			0.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 58.) (35 AMP FEEDER)			
RIGHT MAIN AC - ACC #1 (PHASE B)			0.00 VA
REVISED TOTAL			0.00 VA
NOTES: NONE			



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 58.) (35 AMP FEEDER)				
RIGHT MAIN AC - ACC #1 (PHASE C)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 62
Author: Davis	RIGHT MAIN AC ACC #2 (PHASE A)		Report: GC41 4696240 REV -
CB TITLE	CB No.	CB LOC.	LOAD NOTES
DELETED: NONE			0.00
TOTAL DELETED			<u>0.00</u> VA
ADDED: NONE			0.00
TOTAL ADDED			<u>0.00</u> VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 59.) (35 AMP FEEDER)			
RIGHT MAIN AC - ACC #2 (PHASE A)			<u>0.00</u> VA
REVISED TOTAL			<u>0.00</u> VA
NOTES: NONE			

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 59.) (35 AMP FEEDER)				
RIGHT MAIN AC - ACC #2 (PHASE B)			0.00	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 64		
Author: Davis	RIGHT MAIN AC ACC #2 (PHASE C)	Report: GC41 4696240 REV -		
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 59.) (35 AMP FEEDER)				
RIGHT MAIN AC - ACC #2 (PHASE C)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	VA
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 60.) (25 AMP FEEDER)				
RIGHT MAIN AC - ACC #3 (PHASE A)			<u>0.00</u>	VA
REVISED TOTAL			<u>0.00</u>	VA
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 66
Author: Davis	RIGHT MAIN AC ACC #3 (PHASE B)		Report: GC41 4896240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 60.) (25 AMP FEEDER)				
RIGHT MAIN AC - ACC #3 (PHASE B)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 67
Author: Davis	RIGHT MAIN AC ACC #3 (PHASE C)		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 60.) (25 AMP FEEDER)				
RIGHT MAIN AC - ACC #3 (PHASE C)			0.00	VA
REVISED TOTAL			0.00	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 68
Author: Davis	RIGHT MAIN AC MISC FEEDS (PHASE A)		Report: GC41 4896240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			0.00 VA
ADDED: NONE			0.00
TOTAL ADDED			0.00 VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 61.)			
RIGHT MAIN AC - MISC FEEDS (PHASE A)			2,635.30 VA
REVISED TOTAL			2,635.30 VA
NOTES: NONE			



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 61.)				
RIGHT MAIN AC - MISC FEEDS (PHASE B)			2,520.30	VA
REVISED TOTAL			2,520.30	VA
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 70
Author: Davis	RIGHT MAIN AC		Report: GC41 4696240
	MISC FEEDS (PHASE C)		REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	VA
ADDED: NONE			0.00	
TOTAL ADDED			0.00	VA
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 61.)				
RIGHT MAIN AC - MISC FEEDS (PHASE C)			2,520.30	VA
REVISED TOTAL			2,520.30	VA
NOTES: NONE				



Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 71	
Author: Davis		RIGHT MAIN AC SUMMARY		Report: GC41 4696240	
				REV -	
		FEEDER TITLE		CRUISE	
PHASE A:	• COPILOT #1	(None added page 44)	1,610.00		
	• COPILOT #2	(None added page 47)	0.00		
	• COPILOT #3	(None added page 50)	433.20		
	• COPILOT #4	(None added page 53)	0.00		
	• GALLEY AC	(Revised page 56)	2,299.00		
	• ACC #1	(None added page 59)	0.00		
	• ACC #2	(None added page 62)	0.00		
	• ACC #3	(None added page 65)	0.00		
	• MISC FEEDS	(None added page 68)	2,635.30		
	• MISC FEEDS	(60HZ added page 127)	1,620.33		⊕
REVISED TOTAL (PHASE A)			8,597.83		VA
PHASE B:	• COPILOT #1	(None added page 45)	1,610.00		
	• COPILOT #2	(None added page 48)	0.00		
	• COPILOT #3	(None added page 51)	285.20		
	• COPILOT #4	(None added page 54)	0.00		
	• GALLEY AC	(Revised page 57)	1,963.00		
	• ACC #1	(None added page 60)	0.00		
	• ACC #2	(None added page 63)	0.00		
	• ACC #3	(None added page 66)	0.00		
	• MISC FEEDS	(None added page 69)	2,520.30		
	• MISC FEEDS	(60HZ added page 127)	1,620.33		⊕
REVISED TOTAL (PHASE B)			7,998.83		VA
PHASE C:	• COPILOT #1	(None added page 46)	326.70		
	• COPILOT #2	(None added page 49)	37.00		
	• COPILOT #3	(None added page 52)	678.20		
	• COPILOT #4	(None added page 55)	989.00		
	• GALLEY AC	(Revised page 58)	949.00		
	• ACC #1	(None added page 61)	0.00		
	• ACC #2	(None added page 64)	0.00		
	• ACC #3	(None added page 67)	0.00		
	• MISC FEEDS	(None added page 70)	2,520.30		
	• MISC FEEDS	(60HZ added page 127)	1,620.33		⊕
REVISED TOTAL (PHASE C)			7,120.53		VA
TOTAL REVISED RIGHT MAIN AC			23,717.20		VA
(Ref.: GIVX-GER-400.00, Rev. C, Page 52.)					
NOTES: ⊕ Load values transferred from 115V AC / 60HZ CONVERTER, page 127.					

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 72
Author: Davis	AIRCRAFT AC SUMMARY	Report: GC41 4696240
		REV -

	<u>NOTES</u>
LEFT MAIN AND ESSENTIAL AC LOAD	
Capacity	40,000.00
Demand (ESSENTIAL AC) (None added page 18)	1,146.00
Demand (LEFT MAIN AC) (Revised page 43)	17,920.60
Reserve	<u>22,079.40</u> VA
	Ⓞ
	Ⓞ
 RIGHT MAIN AC LOAD	
Capacity	40,000.00
Demand (Revised page 71)	<u>23,717.20</u>
Reserve	<u>16,282.80</u> VA
 AC LOAD GRAND TOTAL	
Total AC Capacity	80,000.00
Total Demand	<u>42,783.80</u>
Reserve	<u>37,216.20</u> VA
 (Ref.: GIVX-GER-400.00, Rev. C, Page 20.)	
 NOTES:	
Ⓞ Existing ESSENTIAL AC loads are included in the LEFT MAIN AC total.	



Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 73
Author: Davis	LEFT ESSENTIAL DC PILOT #1 P325	Report: GC41 4696240
		REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 67.) (25 AMP FEEDER)				
LEFT ESSENTIAL DC - PILOT #1			<u>5.70</u>	A
REVISED TOTAL			<u>5.70</u>	A
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 68.) (25 AMP FEEDER)				
LEFT ESSENTIAL DC - PILOT #2			4.90	A
REVISED TOTAL			<u>4.90</u>	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 75	
Author: Davis	LEFT ESSENTIAL DC		Report: GC41 4696240	
	PILOT #3 - P45		REV -	
DELETED: NONE			0.00	
TOTAL DELETED			0.00	A
ADDED: NONE			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 69.) (25 AMP FEEDER)				
LEFT ESSENTIAL DC - PILOT #3			4.10	A
REVISED TOTAL			4.10	A
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 76
Author: Davis	LEFT ESSENTIAL DC PILOT #4 - P46		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	A
ADDED: NONE			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 70.) (30 AMP FEEDER)				
LEFT ESSENTIAL DC - PILOT #4			10.80	A
REVISED TOTAL			10.80	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 71.) (30 AMP FEEDER)				
LEFT ESSENTIAL DC - PILOT #5			<u>9.30</u>	A
REVISED TOTAL			<u>9.30</u>	A
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 78	
Author: Davis	LEFT ESSENTIAL DC PILOT #6 P44		Report: GC41 4696240	
			REV -	
DELETED: NONE			0.00	
TOTAL DELETED			0.00	A
ADDED: NONE			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 72.) (50 AMP FEEDER)				
LEFT ESSENTIAL DC - PILOT #6			19.50	A
REVISED TOTAL			19.50	A
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 79		
Author: Davis	LEFT ESSENTIAL DC PILOT #7 P47	Report: GC41 4696240 REV -		
CB TITLE	CB No.	CB LOC.	LOAD	NOTES
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 73.) (50 AMP FEEDER)				
LEFT ESSENTIAL DC - PILOT #7			<u>12.80</u>	A
REVISED TOTAL			<u>12.80</u>	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 75.) (50 AMP FEEDER)				
LEFT ESSENTIAL DC - ACC #1			0.00	A
REVISED TOTAL			<u>0.00</u>	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 76.) (50 AMP FEEDER)				
LEFT ESSENTIAL DC - ACC #2			0.00	A
REVISED TOTAL			<u>0.00</u>	A
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 82																																			
Author: Davis	LEFT ESSENTIAL DC MISC DC FEEDS		Report: GC41 4696240 REV -																																			
<table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>CB TITLE</u></th> <th style="text-align: left;"><u>CB No.</u></th> <th style="text-align: left;"><u>CB LOC.</u></th> <th style="text-align: left;"><u>LOAD</u></th> <th style="text-align: left;"><u>NOTES</u></th> </tr> </thead> <tbody> <tr> <td colspan="3">ADDED: NONE</td> <td style="text-align: right;">0.00</td> <td></td> </tr> <tr> <td colspan="3">TOTAL ADDED</td> <td style="text-align: right; border-top: 1px solid black;">0.00</td> <td style="text-align: left;">A</td> </tr> <tr> <td colspan="5">EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 74.)</td> </tr> <tr> <td colspan="3">LEFT ESSENTIAL DC - MISC FEEDS</td> <td style="text-align: right;">20.50</td> <td style="text-align: left;">A</td> </tr> <tr> <td colspan="3">REVISED TOTAL</td> <td style="text-align: right; border-top: 1px solid black;">20.50</td> <td style="text-align: left;">A</td> </tr> <tr> <td colspan="5">NOTES: NONE</td> </tr> </tbody> </table>				<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	ADDED: NONE			0.00		TOTAL ADDED			0.00	A	EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 74.)					LEFT ESSENTIAL DC - MISC FEEDS			20.50	A	REVISED TOTAL			20.50	A	NOTES: NONE				
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>																																		
ADDED: NONE			0.00																																			
TOTAL ADDED			0.00	A																																		
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 74.)																																						
LEFT ESSENTIAL DC - MISC FEEDS			20.50	A																																		
REVISED TOTAL			20.50	A																																		
NOTES: NONE																																						

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 83
Author: Davis	LEFT ESSENTIAL DC SUMMARY	Report: GC41 4696240
		REV -

<u>FEEDER TITLE</u>		<u>DEMAND (AMPS)</u>
• PILOT #1	(None added page 73)	5.70
• PILOT #2	(None added page 74)	4.90
• PILOT #3	(None added page 75)	4.10
• PILOT #4	(None added page 76)	10.80
• PILOT #5	(None added page 77)	9.30
• PILOT #6	(None added page 78)	19.50
• PILOT #7	(None added page 79)	12.80
• ACC #1	(None added page 80)	0.00
• ACC #2	(None added page 81)	0.00
• MISC DC FEEDS	(None added page 82)	20.50

TOTAL REVISED LEFT ESSENTIAL DC **87.60** **A**

(Ref.: GIVX-GER-400.00, Rev. C, Pages 65 & 66.)

NOTES: NONE

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Report: Electrical</td> <td style="width: 40%; text-align: center;">ELECTRICAL LOAD ANALYSIS</td> <td style="width: 30%;">Page: 84</td> </tr> <tr> <td>Author: Davis</td> <td style="text-align: center;">RIGHT ESSENTIAL DC COPILOT #1 - P64</td> <td>Report: GC41 4696240 REV -</td> </tr> </table>					Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 84	Author: Davis	RIGHT ESSENTIAL DC COPILOT #1 - P64	Report: GC41 4696240 REV -
Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 84								
Author: Davis	RIGHT ESSENTIAL DC COPILOT #1 - P64	Report: GC41 4696240 REV -								
DELETED: NONE			0.00							
TOTAL DELETED			0.00	A						
ADDED: NONE			0.00							
TOTAL ADDED			0.00	A						
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 79.) (50 AMP FEEDER)										
RIGHT ESSENTIAL DC - COPILOT #1			11.30	A						
REVISED TOTAL			11.30	A						
NOTES: NONE										

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 80.) (50 AMP FEEDER)				
RIGHT ESSENTIAL DC - COPILOT #2			<u>17.10</u>	A
REVISED TOTAL			<u>17.10</u>	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Report: Electrical</td> <td style="width: 40%; text-align: center;">ELECTRICAL LOAD ANALYSIS</td> <td style="width: 10%; text-align: right;">Page:</td> <td style="width: 10%; text-align: right;">86</td> <td style="width: 10%;"></td> </tr> <tr> <td>Author: Davis</td> <td style="text-align: center;">RIGHT ESSENTIAL DC COPILOT #3 - P58</td> <td style="text-align: right;">Report:</td> <td style="text-align: right;">GC41 4696240</td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">REV -</td> <td></td> <td></td> </tr> </table>					Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page:	86		Author: Davis	RIGHT ESSENTIAL DC COPILOT #3 - P58	Report:	GC41 4696240				REV -		
Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page:	86																
Author: Davis	RIGHT ESSENTIAL DC COPILOT #3 - P58	Report:	GC41 4696240																
		REV -																	
DELETED: NONE			0.00																
TOTAL DELETED			0.00	A															
ADDED: NONE			0.00																
TOTAL ADDED			0.00	A															
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 81.) (25 AMP FEEDER)																			
RIGHT ESSENTIAL DC - COPILOT #3			15.30	A															
REVISED TOTAL			15.30	A															
NOTES: NONE																			

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 82.) (25 AMP FEEDER)				
RIGHT ESSENTIAL DC - COPILOT #4			<u>3.00</u>	A
REVISED TOTAL			<u>3.00</u>	A
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 83.) (25 AMP FEEDER)				
RIGHT ESSENTIAL DC - COPILOT #5			15.10	A
REVISED TOTAL			<u>15.10</u>	A
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: DOME LIGHT	328CB311	REER PANEL	0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: DOME LIGHT	328CB311	REER PANEL	1.32	⓪
TOTAL ADDED			<u>1.32</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 84.) (25 AMP FEEDER)				
RIGHT ESSENTIAL DC - COPILOT #6			<u>4.20</u>	A
REVISED TOTAL			<u>5.52</u>	A
NOTES: ⓪ Added interior load of 0.62A and included the 0.7A not shown on Production load.				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 85.) (25 AMP FEEDER)				
RIGHT ESSENTIAL DC - ACC #1			0.00	A
REVISED TOTAL			<u>0.00</u>	A
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 91
Author: Davis	RIGHT ESSENTIAL DC ACC #2 - PX304	Report: GC41 4698240 REV -
DELETED: PAX OXY IND	394CB2 AUX PANEL	0.10
TOTAL DELETED		0.10 A
ADDED: PAX OXY IND	394CB2 AUX PANEL	1.86
CABIN PA	501CB1 AUX PANEL	4.00 ⓪
LAV AISLE LTS	584CB1 AUX PANEL	0.09
TOTAL ADDED		5.95 A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 86.) (50 AMP FEEDER)		
RIGHT ESSENTIAL DC - ACC #2		0.10 A
REVISED TOTAL		5.95 A
NOTES: ⓪ Normal load is 0.20 Amps, 4.00 Amps maximum with PA keyed.		

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 92
Author: Davis	RIGHT ESSENTIAL DC MISC DC FEEDS		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
ADDED: NONE			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 87.)				
RIGHT ESSENTIAL DC - MISC FEEDS			20.50	A
REVISED TOTAL			20.50	A
NOTES: NONE				



Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 93
Author: Davis	RIGHT ESSENTIAL DC SUMMARY	Report: GC41 4696240
		REV -

<u>FEEDER TITLE</u>		DEMAND (AMPS)	DELTA (AMPS)
• COPILOT #1	(None added page 84)	11.30	0
• COPILOT #2	(None added page 85)	17.10	0
• COPILOT #3	(None added page 86)	15.30	0
• COPILOT #4	(None added page 87)	3.00	0
• COPILOT #5	(None added page 88)	15.10	0
• COPILOT #6	(Revised page 89)	5.52	1.32
• ACC #1	(None added page 90)	0.00	0
• ACC #2	(Revised page 91)	5.95	5.85
• MISC DC FEEDS	(None added page 92)	20.50	0
TOTAL REVISED-RIGHT ESSENTIAL DC		93.77	7.17

(Ref.: GIVX-GER-400.00, Rev. C, Pages 77 & 78.)

NOTES: NONE



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	A
ADDED: NONE			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 90.) (25 AMP FEEDER)				
LEFT MAIN DC - PILOT #1			6.10	A
REVISED TOTAL			6.10	A
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	A
ADDED: NONE			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 91.) (25 AMP FEEDER)				
LEFT MAIN DC - PILOT #2			4.60	A
REVISED TOTAL			4.60	A
NOTES: NONE				

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 92.) (30 AMP FEEDER)				
LEFT MAIN DC - PILOT #3			15.70	A
REVISED TOTAL			<u>15.70</u>	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
Report: Electrical				
Author: Davis				
ELECTRICAL LOAD ANALYSIS			Page: 97	
LEFT MAIN DC			Report: GC41 4696240	
PILOT #4 - P52			REV -	
DELETED: NONE				
			0.00	
TOTAL DELETED			0.00	A
ADDED: NONE				
			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 93.) (30 AMP FEEDER)				
LEFT MAIN DC - PILOT #4			17.20	A
REVISED TOTAL			17.20	A
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 98
Author: Davis	LEFT MAIN DC PILOT #5 - P53		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: PILOT OVHD/YOKE MAP LTS.	327CB210	L EER	0.00
TOTAL DELETED			0.00 A
ADDED: PILOT OVHD/YOKE MAP LTS	327CB210	L EER	0.28 ①
TOTAL ADDED			0.28 A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 94.) (50 AMP FEEDER)			
LEFT MAIN DC - PILOT #5			10.00 A
REVISED TOTAL			10.28 A
NOTES: ① Corrected production load to reflect production roll-back of the cockpit ovhd map lights			



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	A
ADDED: NONE			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 95.) (50 AMP FEEDER)				
LEFT MAIN DC - PILOT #6			11.30	A
REVISED TOTAL			11.30	A
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 100	
Author: Davis	LEFT MAIN DC		Report: GC41 4696240	
	ACC #1 - PX102/PX112		REV -	
CB TITLE	CB No.	CB LOC.	LOAD	NOTES
DELETED: NONE			0.00	
TOTAL DELETED			0.00	A
ADDED: WLAN CONT	428CB1	AUX PANEL	1.14	
LAN COOLING	429CB1	AUX PANEL	0.11	
AV CTLR NO.2	502CB2	AUX PANEL	1.00	
CRED FAN	502CB3	AUX PANEL	0.11	
DVD 1/2	502CB4	AUX PANEL	2.50	
CD	502CB5	AUX PANEL	0.70	
FWD CABIN MONITOR	502CB7	AUX PANEL	1.61	
AFT CABIN MONITOR	502CB8	AUX PANEL	1.61	
RH SEAT MONITORS	502CB9	AUX PANEL	0.62	
LH SEAT MONITORS	502CB10	AUX PANEL	1.24	
CABIN DISPLAY	504CB1	AUX PANEL	3.85	⓪
RH SW PNL PWR	569CB4	AUX PANEL	0.73	
EXTERNAL CAMERA SYSTEM	505CB1	AUX PANEL	1.74	
WATER STERILIZER	548CB4	AUX PANEL	3.00	
TOTAL ADDED			19.96	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 96.) (50 AMP FEEDER)				
LEFT MAIN DC - ACC #1			0.00	A
REVISED TOTAL			19.96	A
NOTES: ⓪ 2.75A NOM, 3.85A MAX				

Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 101	
Author: Davis		LEFT MAIN DC ACC #2 - PX404		Report: GC41 4696240	
				REV -	
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	
DELETED: NONE			0.00		
TOTAL DELETED			<u>0.00</u>	A	
ADDED: FLOORPATH LTG			486CB1	AUX PANEL	1.05 ①
BAG FANS			199CB1	AUX PANEL	0.50
SECURITY SYS PWR			456CB1	AUX PANEL	1.00 ②
SECURITY SYS DISABLE			456CB2	AUX PANEL	0.02
TOTAL ADDED			<u>2.57</u>	A	
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 97.) (50 AMP FEEDER)					
LEFT MAIN DC - ACC #2			<u>0.00</u>	A	
REVISED TOTAL			<u>2.57</u>	A	
NOTES: ① Battery charging power					
② 7.50A CHG, 1.00A NORM					

Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page:	102
Author: Davis		LEFT MAIN DC		Report:	GC41 4698240
		CABIN DC - V33/V37		REV -	
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	
DELETED: CAB SW'D AUX CONT	394CB1	AUX PANEL	0.60		
TOTAL DELETED			<u>0.60</u>		A
ADDED:					
CAB SW'D-AUX CONT	394CB1	AUX PANEL	2.28		
CABIN 60HZ CONT	494CB2	BAG COMPT	0.00		⓪
FWD LH UPPER EFFECT LTS	581CB1	AUX PANEL	2.83		
FWD RH UPPER EFFECT LTS	581CB2	AUX PANEL	2.83		
FWD LH LOWER EFFECT LTS	581CB3	AUX PANEL	2.83		
FWD RH LOWER EFFECT LTS	581CB4	AUX PANEL	2.83		
AFT UPPER EFFECT LTS	581CB5	AUX PANEL	3.13		
AFT LOWER EFFECT LTS	581CB6	AUX PANEL	2.58		
TOTAL ADDED			<u>19.31</u>		A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 98.) (50 AMP FEEDER)					
LEFT MAIN DC - CABIN DC			<u>2.80</u>		A
REVISED TOTAL			<u>21.51</u>		A
NOTES: ⓪ Load reflected on 394CB1					

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 103																																			
Author: Davis	LEFT MAIN DC MISC DC FEEDS		Report: GC41 4696240 REV -																																			
<table border="1"> <thead> <tr> <th><u>CB TITLE</u></th> <th><u>CB No.</u></th> <th><u>CB LOC.</u></th> <th><u>LOAD</u></th> <th><u>NOTES</u></th> </tr> </thead> <tbody> <tr> <td>ADDED: NONE</td> <td></td> <td></td> <td>0.00</td> <td></td> </tr> <tr> <td colspan="3">TOTAL ADDED</td> <td><u>0.00</u></td> <td>A</td> </tr> <tr> <td colspan="5">EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 99.)</td> </tr> <tr> <td>LEFT MAIN DC - MISC FEEDS</td> <td></td> <td></td> <td><u>20.10</u></td> <td>A</td> </tr> <tr> <td colspan="3">REVISED TOTAL</td> <td><u>20.10</u></td> <td>A</td> </tr> <tr> <td colspan="5">NOTES: NONE</td> </tr> </tbody> </table>				<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	ADDED: NONE			0.00		TOTAL ADDED			<u>0.00</u>	A	EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 99.)					LEFT MAIN DC - MISC FEEDS			<u>20.10</u>	A	REVISED TOTAL			<u>20.10</u>	A	NOTES: NONE				
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>																																		
ADDED: NONE			0.00																																			
TOTAL ADDED			<u>0.00</u>	A																																		
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 99.)																																						
LEFT MAIN DC - MISC FEEDS			<u>20.10</u>	A																																		
REVISED TOTAL			<u>20.10</u>	A																																		
NOTES: NONE																																						

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 104
Author: Davis	LEFT MAIN DC	Report: GC41 4696240
	SUMMARY	REV -

<u>FEEDER TITLE</u>	<u>DEMAND (AMPS)</u>	
• PILOT #1 (None added page 94)	6.10	
• PILOT #2 (None added page 95)	4.60	
• PILOT #3 (None added page 96)	15.70	
• PILOT #4 (None added page 97)	17.20	
• PILOT #5 (Revised page 98)	10.28	
• PILOT #6 (None added page 99)	11.30	
• ACC #1 (Revised page 100)	19.96	
• ACC #2 (Revised page 101)	2.57	
• CABIN DC (Revised page 102)	21.51	
• MISC FEEDS (None added page 103)	20.10	
TOTAL REVISED LEFT MAIN DC	129.32	A

(Ref.: GIVX-GER-400.00, Rev. C, Pages 88 & 89.)

NOTES: NONE



Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 105	
Author: Davis		RIGHT MAIN DC COPILOT #1 - P66		Report: GC41 4696240	
				REV -	
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	
DELETED: PASSENGER SIGN LIGHTS	328CB57	R EER	0.00		
TOTAL DELETED			0.00	A	
ADDED: SIGN LTS	328CB57	R EER	1.90		
TOTAL ADDED			1.90	A	
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 102.) (50 AMP FEEDER)					
RIGHT MAIN DC - COPILOT #1			3.10	A	
REVISED TOTAL			5.00	A	
NOTES:					

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 103.) (50 AMP FEEDER)				
RIGHT MAIN DC - COPILOT #2			<u>19.00</u>	A
REVISED TOTAL			<u>19.00</u>	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 104.) (50 AMP FEEDER)				
RIGHT MAIN DC - COPILOT #3			<u>8.10</u>	A
REVISED TOTAL			<u>8.10</u>	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	A
ADDED: NONE			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 105.) (25 AMP FEEDER)				
RIGHT MAIN DC - COPILOT #4			13.70	A
REVISED TOTAL			13.70	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			0.00	A
ADDED: NONE			0.00	
TOTAL ADDED			0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 106.) (25 AMP FEEDER)				
RIGHT MAIN DC - COPILOT #5			9.60	A
REVISED TOTAL			9.60	A
NOTES: NONE				

Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 110	
Author: Davis		RIGHT MAIN DC COPILOT #6 - P68		Report: GC41 4696240	
				REV -	
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	
DELETED: RADIO TEL CONT	328CB6	R EER	0.10	①	
COPILOT OVHD/YOKE MAP LTS	328CB310	R EER	0.30		
RADIO TEL RT	328CB5	R EER	1.90		
TOTAL DELETED			2.30		A
ADDED: RADIO TEL CONT	328CB6	R EER	3.10	①	
COPILOT OVHD/YOKE MAP LTS	328CB310	R EER	0.68	②	
RADIO TEL RT	328CB5	R EER	9.60	③	
TOTAL ADDED			13.38		A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 107.) (25 AMP FEEDER)					
RIGHT MAIN DC - COPILOT #6			4.60		A
REVISED TOTAL			15.68		A
NOTES:					
① Production outfitter provisions; load added for system activation.					
② Corrected production load to reflect production roll-back of the cockpit ovhd map lights					
③ Normal load is 7.6 Amps, 9.60 Amps maximum.					

Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 111	
Author: Davis		RIGHT MAIN DC COPILOT #7 - P69		Report: GC41 4696240 REV -	
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	
DELETED: SATCOM CTL	328CB7	R EER	0.10		
TOTAL DELETED			<u>0.10</u>	A	
ADDED: SATCOM CTL	328CB7	R EER	1.05		
TOTAL ADDED			<u>1.05</u>	A	
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 108.) (50 AMP FEEDER)					
RIGHT MAIN DC - COPILOT #7			<u>1.70</u>	A	
REVISED TOTAL			<u>2.65</u>	A	
NOTES: NONE					

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 112
Author: Davis	RIGHT MAIN DC ACC #1 - PX202/PX212		Report: GC41 4696240 REV -
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u> <u>NOTES</u>
DELETED: NONE			0.00
TOTAL DELETED			0.00 A
-ADDED: DVD 3/4	502CB6	AUX PANEL	2.50
FWD RH SPOT LTS	582CB1	AUX PANEL	1.68
AFT RH SPOT LTS	582CB2	AUX PANEL	0.46
AFT LH SPOT LTS	582CB3	AUX PANEL	1.24
FWD LH SPOT LTS	582CB4	AUX PANEL	1.68
CLOSET LTS	587CB1	AUX PANEL	0.36
CREW REFRESH LTS	646CB2	AUX PANEL	0.07
LH SW PNL PWR	569CB5	AUX PANEL	1.00
AFT LAV VANITY LTS	696CB2	AUX PANEL	2.00
A/V CTLR NO.1	502CB1	AUX PANEL	1.00
AFT LAV READ LT	696CB3	AUX PANEL	0.18
TOTAL ADDED			12.17 A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 109.) (50 AMP FEEDER)			
RIGHT MAIN DC - ACC #1			0.00 A
REVISED TOTAL			12.17 A
NOTES: NONE			



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 110.) (50 AMP FEEDER)				
RIGHT MAIN DC - ACC #2			<u>0.00</u>	A
REVISED TOTAL			<u>0.00</u>	A
NOTES: NONE				



<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 111.) (50 AMP FEEDER)				
RIGHT MAIN DC - ACC #3			0.00	A
REVISED TOTAL			<u>0.00</u>	A
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 115	
Author: Davis	RIGHT MAIN DC		Report: GC41 4696240	
	GALLEY DC - PX124/PFI24		REV -	
CB TITLE	CB No.	CB LOC.	LOAD	NOTES
DELETED: NONE			0.00	
TOTAL DELETED			<u>0.00</u>	A
ADDED: GALLEY FDR R MAIN SW'D	394CB3	AUX PANEL	3.34	Ⓚ
GALLEY 60HZ CONT	494CB3	BAG COMPT	0.00	Ⓚ
GALLEY SW'D DC	540CB1	GALLEY	0.50	
GALLEY EFFECT LTS	590CB2	GALLEY	1.42	
GALLEY WORK LTS	590CB3	GALLEY	1.42	
TOTAL ADDED			<u>6.68</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 112.) (50 AMP FEEDER)				
RIGHT MAIN DC - GALLEY DC			0.00	A
REVISED TOTAL			<u>6.68</u>	A
NOTES:				
Ⓚ Feeder for the breakers 540CB1, 590CB2, 590CB3				
Ⓚ Load shown on 540CB1.				

Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 116	
Author: Davis		RIGHT MAIN DC		Report: GC41 4696240	
		GROUND SERVICE BUS - P37		REV -	
<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>	
DELETED: WATER SYS DC	394CB26	AUX PANEL	1.60		
TOTAL DELETED			1.60		A
ADDED: GALLEY FDR R MAIN/GND SVCE	394CB4	AUX PANEL	1.28		⊙
WATER SYS DC	394CB26	AUX PANEL	2.44		
AIRSTAIR LTS	482CB1	AUX PANEL	0.00		⊙
VEST DOME LTS	482CB2	AUX PANEL	0.67		
DATA 1	569CB1	AUX PANEL	1.93		
DATA 2	569CB2	AUX PANEL	1.61		
GND SVCE SW PNL PWR	569CB3	AUX PANEL	1.22		
CABIN AISLE LTS	584CB2	AUX PANEL	0.36		
GALLEY DOME LTS	590CB1	GALLEY	1.28		
LH WINDOW SHADES	506CB1	AUX PANEL	1.20		
RH WINDOW SHADES	506CB2	AUX PANEL	1.20		
FWD LAV LTS	596CB1	AUX PANEL	1.11		
AFT LAV DOME LTS	696CB1	AUX PANEL	1.93		
TOTAL ADDED			16.23		A
(Ref.: GIVX-GER-400.00, Rev. C, Page 113.) (50 AMP FEEDER)					
EXISTING: RIGHT MAIN DC - GROUND SERVICE BUS			4.90		A
REVISED TOTAL			19.53		A
NOTES:					
⊙ Ground use only.					
⊚ Aux CB panel feeder to the galley CB panel. Loads shown on 590CB1.					

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 117
Author: Davis	RIGHT MAIN DC MISC DC FEEDS		Report: GC41 4696240
			REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
ADDED: NONE			0.00	
TOTAL ADDED			<u>0.00</u>	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 114.)				
RIGHT MAIN DC - MISC FEEDS			<u>20.10</u>	A
REVISED TOTAL			<u>20.10</u>	A
NOTES: NONE				

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 118
Author: Davis	RIGHT MAIN DC SUMMARY	Report: GC41 4696240 REV -
<u>FEEDER TITLE</u>		<u>DEMAND (AMPS)</u>
• COPILOT #1	(Revised page 105)	5.00
• COPILOT #2	(None added page 106)	19.00
• COPILOT #3	(None added page 107)	8.10
• COPILOT #4	(None added page 108)	13.70
• COPILOT #5	(None added page 109)	9.60
• COPILOT #6	(Revised page 110)	15.68
• COPILOT #7	(Revised page 111)	2.65
• ACC1	(Revised page 112)	12.17
• ACC2	(None added page 113)	0.00
• ACC3	(None added page 114)	0.00
• GALLEY	(Revised page 115)	6.68
• GROUND SERVICE BUS	(Revised page 116)	19.53
• MISC FEEDS	(None added page 117)	20.10
TOTAL REVISED RIGHT MAIN DC		132.21 A
(Ref.: GIVX-GER-400.00, Rev. C, Pages 100 & 101.)		
NOTES: NONE		

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 119
Author: Davis	AIRCRAFT DC SUMMARY	Report: GC41 4696240
		REV -

NOTES

LEFT ESSENTIAL DC LOAD

Capacity		250.00
Demand	(None added page 83)	<u>87.60</u>
Reserve		162.40 A

RIGHT ESSENTIAL DC LOAD

Capacity		250.00
Demand	(Revised page 93)	<u>93.77</u>
Reserve		156.23 A

LEFT MAIN DC LOAD

Capacity		250.00
Demand	(Revised page 104)	<u>129.32</u>
Reserve		120.69 A

RIGHT MAIN DC LOAD

Capacity		250.00
Demand	(Revised page 118)	<u>132.21</u>
Reserve		117.80 A

DC LOAD GRAND TOTAL

Total DC Capacity		1000.00
Total Demand		<u>442.89</u>
Total Reserve		557.11 A

(Ref.: GIVX-GER-400.00, Rev. C, Page 21.)

NOTES:

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 120
Author: Davis	ESSENTIAL BATTERY ANALYSIS	Report: GC41 4696240
	MAIN AIRCRAFT BATTERIES	REV -
<u>FEEDER TITLE</u>	DEMAND (AMPS) DES (20 Minutes)	DEMAND (AMPS) LDG (10 Minutes)
LEFT ESSENTIAL DC:		
• PILOT #1	5.7	5.7
• PILOT #2	4.9	4.3
• PILOT #3	4.1	4.1
• PILOT #4	10.8	10.8
• PILOT #5	9.5	9.5
• PILOT #6	8.4	11.6
• PILOT #7	11.8	13.1
• MISC DC FEEDS	38.7	38.7
• L BATT BUS A	0.6	0.6
• L BATT BUS B	0.4	0.4
• ACC #1	0.0	0.0
• ACC #2	0.0	0.0
(Ref.: GIVX-GER-400.00, Rev. C, Page 25 & 79 to 87.)		
RIGHT ESSENTIAL DC:		
• COPILOT #1	11.3	11.6
• COPILOT #2	17.1	17.1
• COPILOT #3	6.5	7.2
• COPILOT #4	3.0	3.1
• COPILOT #5	5.4	5.1
• COPILOT #6	4.2	4.2
• ACC #1	0.0	0.0
• ACC #2	0.1	0.1
• MISC DC FEEDS	0.0	0.0
• R BATT BUS A	0.6	0.6
• R BATT BUS B	0.6	0.7
(Ref.: GIVX-GER-400.00, Rev. C, Page 25 79 to 87.)		
TOTAL MEAN AMP LOAD	143.7	148.5 A Ⓣ
OUTFITTER ADJUSTMENTS		
• LEFT ESSENTIAL DC (None Added)	0.0	0.0
• RIGHT ESSENTIAL DC (Revised page 93)	7.2	7.2
TOTAL REVISED ESSENTIAL DC	150.9	155.7 A Ⓣ
TOTAL REVISED MEAN AMP LOAD		152.5 A
BATTERY DEPLETION TIME = 28.6558 MINUTES Ⓣ		
NOTES:		
Ⓣ Battery only loads, (Ref.: GIVX-GER-400.00, Rev. C, Page 23.)		
Ⓣ Battery time is based on two 53Ah SAFT batteries loaded at the calculated mean amps as shown at 80% capacity and 90% state of charge minus 474 amp-minutes for two APU start attempts and 80% load utilization factor minus 5 minutes for crew reaction time.		

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 121	
Author: Davis	EMERGENCY BATTERY ANALYSIS	Report: GC41 4696240	
	L EMERG DC BUS	REV -	
<u>FEEDER TITLE</u>	DEMAND (AMPS) DES (20 Minutes)	DEMAND (AMPS) LDG (10 Minutes)	NOTES
LEFT EMERG DC BUS	4.10	5.40	
DELETED: NONE	0.00	0.00	
TOTAL DELETED	0.00	0.00	A
ADDED: NONE	0.00	0.00	
TOTAL ADDED	0.00	0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 27.) (15 AMP FEEDER)			
IRU #1	0.80	0.80	A Ⓣ
L EMERG DC BUS	4.10	5.40	A
REVISED TOTAL L EMERG DC	4.90	6.20	A
NOTES: Ⓣ IRU's draw power from the E-BATT's only when MAIN AC and ESSENTIAL DC are not available. (Ref.: GIVX-GER-400.00, Rev. C, Page 26.)			

Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page:	122
Author: Davis		EMERGENCY BATTERY ANALYSIS		Report:	GC41 4696240
		FLT INST EMERG BUS - 1PU16		REV:	-
<u>FEEDER TITLE</u>		DEMAND (AMPS) DES (20 Minutes)	DEMAND (AMPS) LDG (10 Minutes)	<u>NOTES</u>	
FLT INST EMERG BUS		3.30	3.30		
DELETED: NONE		0.00	0.00		
TOTAL DELETED		0.00	0.00	A	
ADDED: NONE		0.00	0.00		
TOTAL ADDED		0.00	0.00	A	
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 28.) (7.5 AMP FEEDER)					
FLT INST EMERG BUS		3.30	3.30	A	
REVISED TOTAL FLT INST EMERG		3.30	3.30	A ①	
NOTES: ① Loads on the FLT INST EMERG BUS are distributed evenly between the Right and Left Emergency Batteries when on emergency, and between the LEFT and RIGHT ESSENTIAL DC BUS under normal conditions, (reference page 73 and 84).					

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 123	
Author: Davis	EMERGENCY BATTERY ANALYSIS	Report: GC41 4696240	
	R EMERG DC BUS	REV -	
<u>FEEDER TITLE</u>	DEMAND (AMPS) DES (20 Minutes)	DEMAND (AMPS) LDG (10 Minutes)	NOTES
RIGHT EMERG DC BUS	4.40	4.70	
DELETED: NONE	0.00	0.00	
TOTAL DELETED	0.00	0.00	A
ADDED: NONE			
TOTAL ADDED	0.00	0.00	A
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 29.) (15 AMP FEEDER)			
IRU #2	0.80	0.80	A Ⓣ
IRU #3	0.80	0.80	A Ⓣ
R EMERG DC BUS	4.40	4.70	A
REVISED TOTAL R EMERG DC	6.00	6.30	A
NOTES: Ⓣ Load adjustments transferred to RIGHT ESSENTIAL DC BUS, reference page 84.			

Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 124	
Author: Davis	EMERGENCY BATTERY ANALYSIS	Report: GC41 4696240	
	FWD AND AFT EMERG BATT SUMMARY	REV -	
<u>FEEDER TITLE</u>	DEMAND (AMPS)	DEMAND (AMPS)	NOTES
	DES (20 Minutes)	LDG (10 Minutes)	
• L EMERG DC BUS ②	4.90	6.20	A
• FLT INST EMERG BUS ③	3.30	3.30	A ①
• R EMERG DC BUS ④	6.00	6.30	A
(Ref.: GIVX-GER-400.00, Rev. C, Page 26.)			
TOTAL REVISED LEFT EMERGENCY DC	6.55	7.85	A
TOTAL REVISED L EMERGENCY MEAN AMP LOAD ...		6.98	
LEFT BATTERY DEPLETION TIME =		55.68	MINUTES
AVERAGE DEMAND =	$\frac{6.98}{30.00}$	0.23	A
	6.983333	A x 22.5 V =	157.13 VA
TOTAL REVISED RIGHT EMERGENCY DC	7.65	7.95	A
TOTAL REVISED R EMERGENCY MEAN AMP LOAD ...		7.75	
RIGHT BATTERY DEPLETION TIME =		50.17	MINUTES
AVERAGE DEMAND =	$\frac{7.75}{30.00}$	0.26	A
	7.75	A x 22.5 V =	174.38 VA
NOTES:	① Loads on the FLT INST EMERG BUS are distributed evenly between the existing Left and Right Securaplane 9.0 AMP-HOUR Emergency Batteries. (Reference GIVX-GER-400.00, Rev. C, Page 6, Figure 5.)		
	② (None added page 121)		
	③ (None added page 122)		
	④ (None added page 123)		

Report: Electrical		ELECTRICAL LOAD ANALYSIS		Page: 125	
Author: Davis		EMERGENCY BATTERY ANALYSIS		Report: GC41 4696240	
		FWD EMERG LTG BATT PACK		REV -	
(Securaplane 9.0 Amp-Hour Battery)					
	<u>CB TITLE</u>	<u>CB NO.</u>	<u>CB LOC</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED:	NONE				
	TOTAL DELETED			0.00	
ADDED: FLIGHT (30 MIN REQUIRED)					
	CABIN SPOT LIGHTS	486	AUX PANEL	1.98	
	VEST/LAV DOME LIGHT	486	AUX PANEL	0.17	
	EXIT SIGNS	486	AUX PANEL	0.72	
	TOTAL			<u>2.87</u>	A
GROUND (10 MIN REQUIRED)					
	CABIN SPOT LIGHTS	486	AUX PANEL	1.98	
	VEST/LAV DOME LIGHT	486	AUX PANEL	0.17	
	EXIT SIGNS	486	AUX PANEL	0.72	
	AIRSTAIR LIGHTS	486	AUX PANEL	3.29	
	TOTAL			<u>6.16</u>	A
	TOTAL FLIGHT LOAD:			2.87	
	TOTAL GROUND LOAD:			6.16	
EXISTING:	(Ref.: GIVX-GER-400.00, Rev. C, Page 30.)				⓪
	FWD EMERG LTG BATT PACK			2.00	
	REVISED TOTAL:				
	TOTAL FLIGHT LOAD:			<u>4.87</u>	A
	TOTAL GROUND LOAD:			8.16	A
		DEMAND		DEMAND	
		(AMPS)		(AMP-MIN)	
	FLIGHT:	4.87		146.10	⓪
	GROUND:	8.16		81.60	⓫
	TOTAL DEMAND AMP-MINUTES			<u>227.70</u>	
	TOTAL AVAILABLE AMP-MINUTES			540.00	
	UNUSED AVAILABLE AMP-MINUTES			<u>312.30</u>	⓬
	NUMBER OF MINUTES REQUIRED	FLIGHT		30.00 MINUTES	
		GROUND		10.00 MINUTES	
NOTES:					
	⓪	Existing Securaplane 9.0 AMP-HOUR Battery, reference GIVX-GER-400.00, Rev. C-			
	⓫	Number of amp-minutes required in flight = flight load times 30 minutes.			
	⓬	Number of amp-minutes required on ground = ground load times 10 minutes.			
	⓭	The unused amp-minutes are calculated by subtracting the used amp-minutes from the total available 540 amp-minutes on the 9 amp-hour battery.			

Report: Electrical	ELECTRICAL LOAD ANALYSIS		Page: 126		
Author: Davis	EMERGENCY BATTERY ANALYSIS		Report: GC41 4696240		
	AFT EMERG LTG BATT PACK		REV -		
(Securaplane 9.0 Amp-Hour Battery)					
	<u>CB TITLE</u>	<u>CB NO.</u>	<u>CB LOC</u>	<u>LOAD</u>	<u>NOTES</u>
DELETED:	NONE				
	TOTAL DELETED			0.00	
ADDED: FLIGHT (30 MIN REQUIRED)					
	CABIN SPOT LIGHTS	486	AUX PANEL	1.98	
	VEST DOME LIGHTS	486	AUX PANEL	0.17	
	EXIT SIGNS	486	AUX PANEL	0.72	
	TOTAL			<u>2.87</u>	A
GROUND (10 MIN REQUIRED)					
	CABIN SPOT LIGHTS	486	AUX PANEL	1.98	
	VEST DOME LIGHTS	486	AUX PANEL	0.17	
	EXIT SIGNS	486	AUX PANEL	0.72	
	AIRSTAIR LIGHTS	486	AUX PANEL	3.29	
	TOTAL			<u>6.16</u>	A
	TOTAL FLIGHT LOAD:			2.87	
	TOTAL GROUND LOAD:			6.16	
EXISTING: (Ref.: GIVX-GER-400.00, Rev. C, Page 30.)					Ⓚ
	AFT EMERG LTG BATT PACK			2.00	
REVISED TOTAL:					
	TOTAL FLIGHT LOAD:			<u>4.87</u>	A
	TOTAL GROUND LOAD:			8.16	A
		DEMAND (AMPS)		DEMAND (AMP-MIN)	
	FLIGHT:	4.87		146.10	Ⓜ
	GROUND:	8.16		81.60	Ⓝ
	TOTAL DEMAND AMP-MINUTES			<u>227.70</u>	
	TOTAL AVAILABLE AMP-MINUTES			<u>540.00</u>	
	UNUSED AVAILABLE AMP-MINUTES			<u>312.30</u>	Ⓞ
NUMBER OF MINUTES REQUIRED		FLIGHT		30.00 MINUTES	
		GROUND		10.00 MINUTES	
NOTES:	Ⓚ Existing Securaplane 9.0 AMP-HOUR Battery, reference GIVX-GER-400.00, Rev. C- Ⓜ Number of amp-minutes required in flight = flight load times 30 minutes. Ⓝ Number of amp-minutes required on ground = ground load times 10 minutes. Ⓞ The unused amp-minutes are calculated by subtracting the used amp-minutes from the total available 540 amp-minutes on the 9 amp-hour battery.				

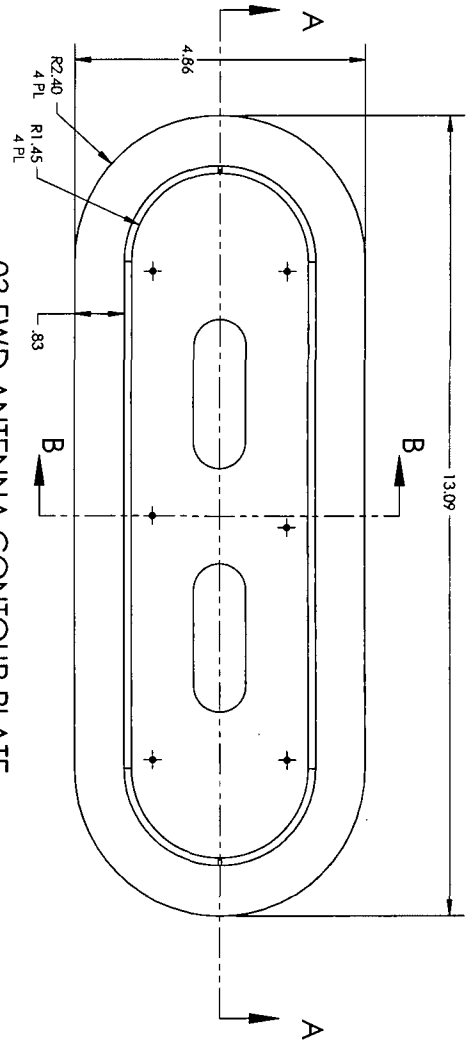
Report: Electrical	ELECTRICAL LOAD ANALYSIS	Page: 127
Author: Davis	115V AC 60 HZ CONVERTER SUMMARY	Report: GC41 4696240
		REV -

<u>CB TITLE</u>	<u>CB No.</u>	<u>CB LOC.</u>	<u>LOAD</u>	<u>NOTES</u>
ADDED: CABIN/GALLEY 60HZ CONVERTER				
60 HZ - 60HZ FEED	494CB1	BAG CPMT	0.00	①
60 HZ - LH CAB GFI	494CB4	BAG CPMT	0.00	⑥
60 HZ - RH CAB GFI	494CB5	BAG CPMT	0.00	⑥
60 HZ - LAV GFI	494CB6	BAG CPMT	0.00	⑥
60 HZ - FAX	494CB10	BAG CPMT	0.00	④
60 HZ - CABIN LAN	494CB11	BAG CPMT	0.00	④
60 HZ - BAG COMPT	494CB9	BAG CPMT	0.00	⑥
60 HZ - GALLEY GFI	494CB7	BAG CPMT	0.00	⑥
60 HZ - MICROWAVE	494CB8	BAG CPMT	0.00	⑥
60 HZ - LH GALLEY	494CB18	BAG CPMT	0.00	⑥
60 HZ - RH GALLEY	494CB19	BAG CPMT	0.00	⑥
60 HZ - LH SEAT 2	494CB20	BAG CPMT	0.00	⑤
60 HZ - LH SEAT 4	494CB21	BAG CPMT	0.00	⑤
60 HZ - RH SEAT 2	494CB12	BAG CPMT	0.00	⑤
60 HZ - CREDENZA-FWD	494CB13	BAG CPMT	0.00	⑤
60 HZ - FWD LAV	494CB14	BAG CPMT	0.00	⑥
60 HZ - AFT LAV	494CB15	BAG CPMT	0.00	⑥
60 HZ - CONF TABLE-FWD	494CB22	BAG CPMT	0.00	⑤
60 HZ - CONF TABLE-AFT	494CB23	BAG CPMT	0.00	⑤
TOTAL LOAD			0.00	VA
BUS INPUT LOADING			4,861.00	VA ②
PER PHASE			1,620.33	VA ③
NOTES:				
① Total load for the converter is approximately 30 amps and those are the values shown under notes ② and ③.				
② Represents input load, with a typical output load of 3,500.00 VA.				
③ Load values transferred to RIGHT MAIN AC, page 71.				
④ Circuit breakers for individual outlets are rated at 5 amps.				
⑤ Circuit breakers for individual outlets are rated at 3 amps.				
⑥ Circuit breakers and outlets are rated at 15 amps.				

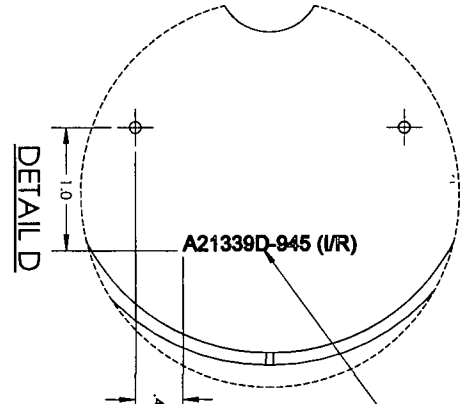
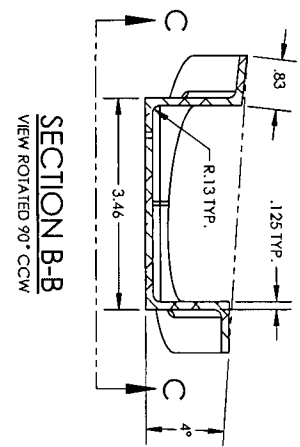
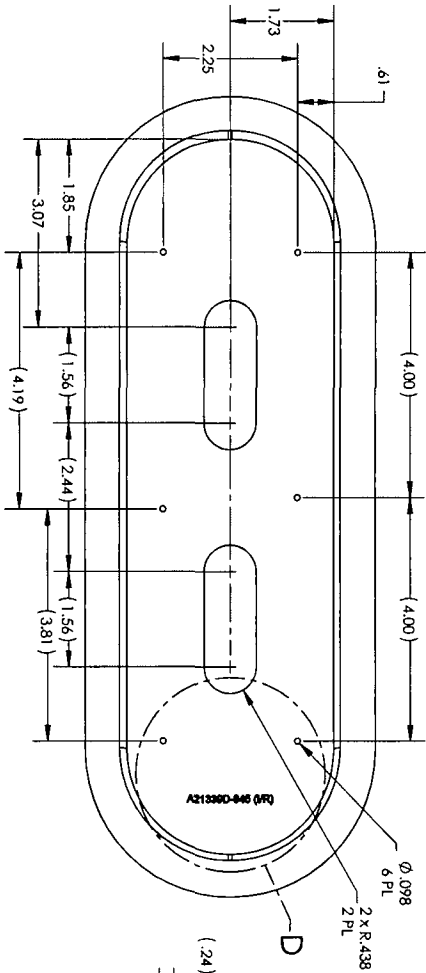


-03 FWD ANTENNA CONTOUR PLATE

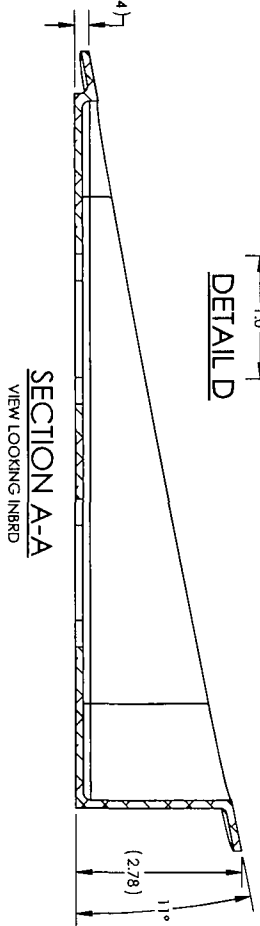
VIEW LOOKING DOWN



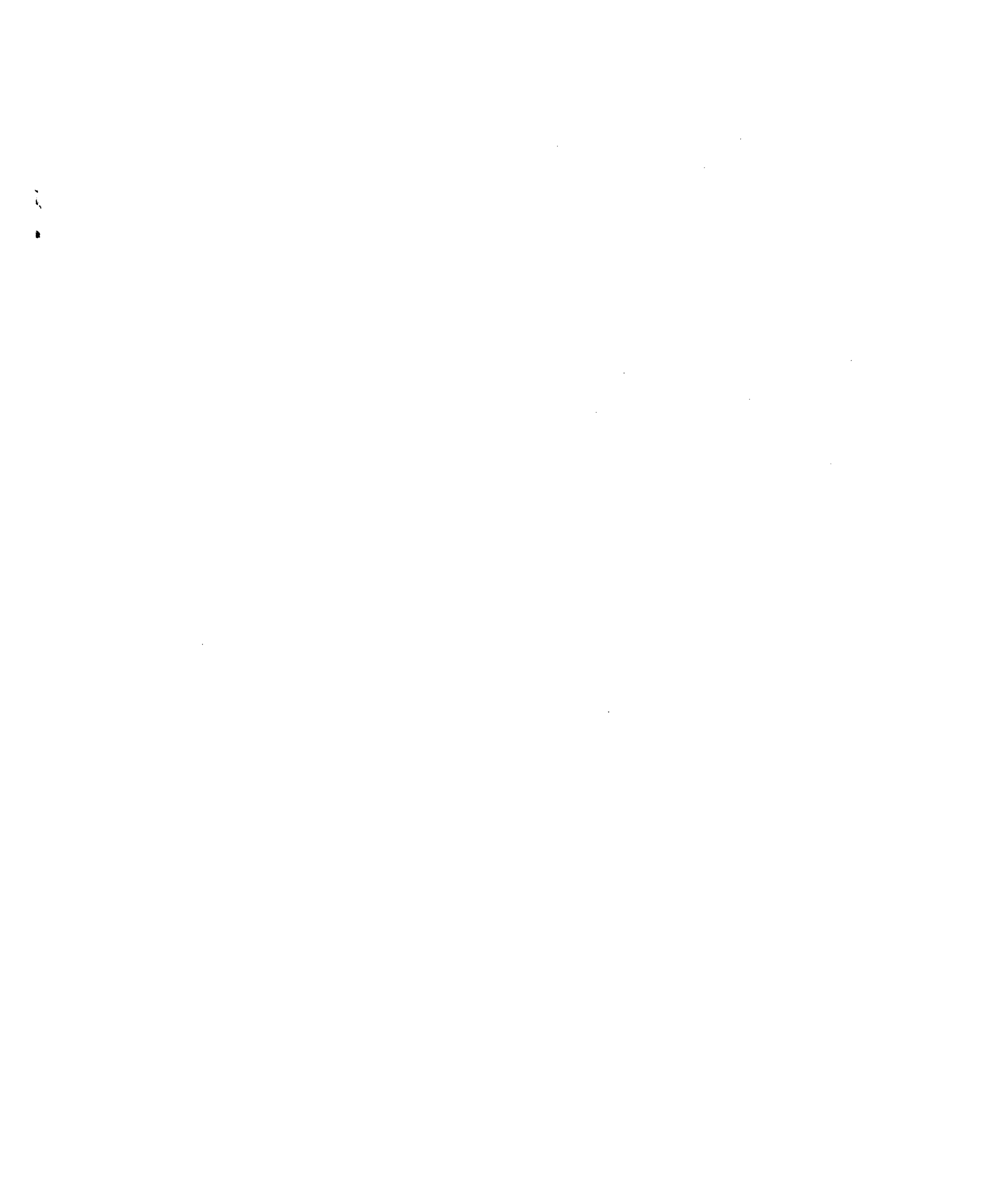
SECTION C-C
VIEW LOOKING UP AND ROTATED 90° CW



SECTION A-A
VIEW LOOKING INBRD



		TITLE: FWD ANTENNA CONTOUR PLATE DETAIL	
		AIRCRAFT MODEL: G450-N/A	
REV.	I/R	DWG No.	A21339D-945
SHT 2 OF 2			

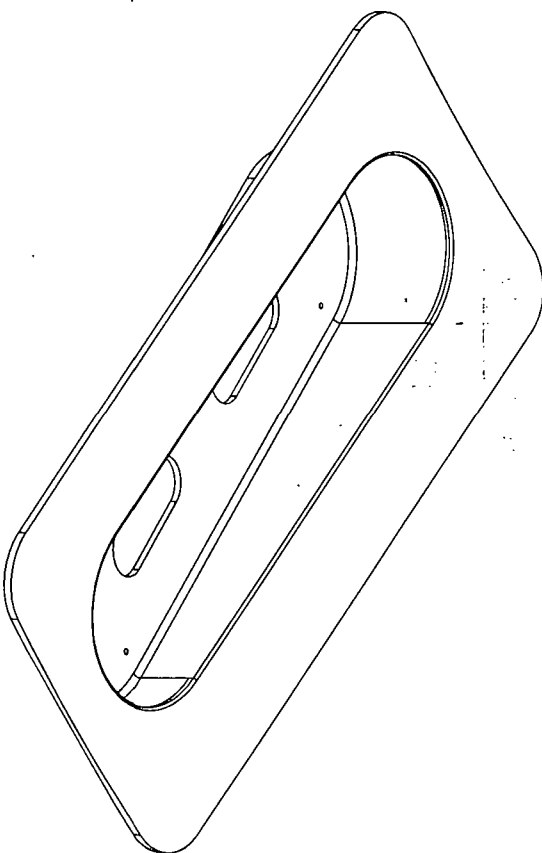


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REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE	Las Vegas	NOV/11/2021

NOTES

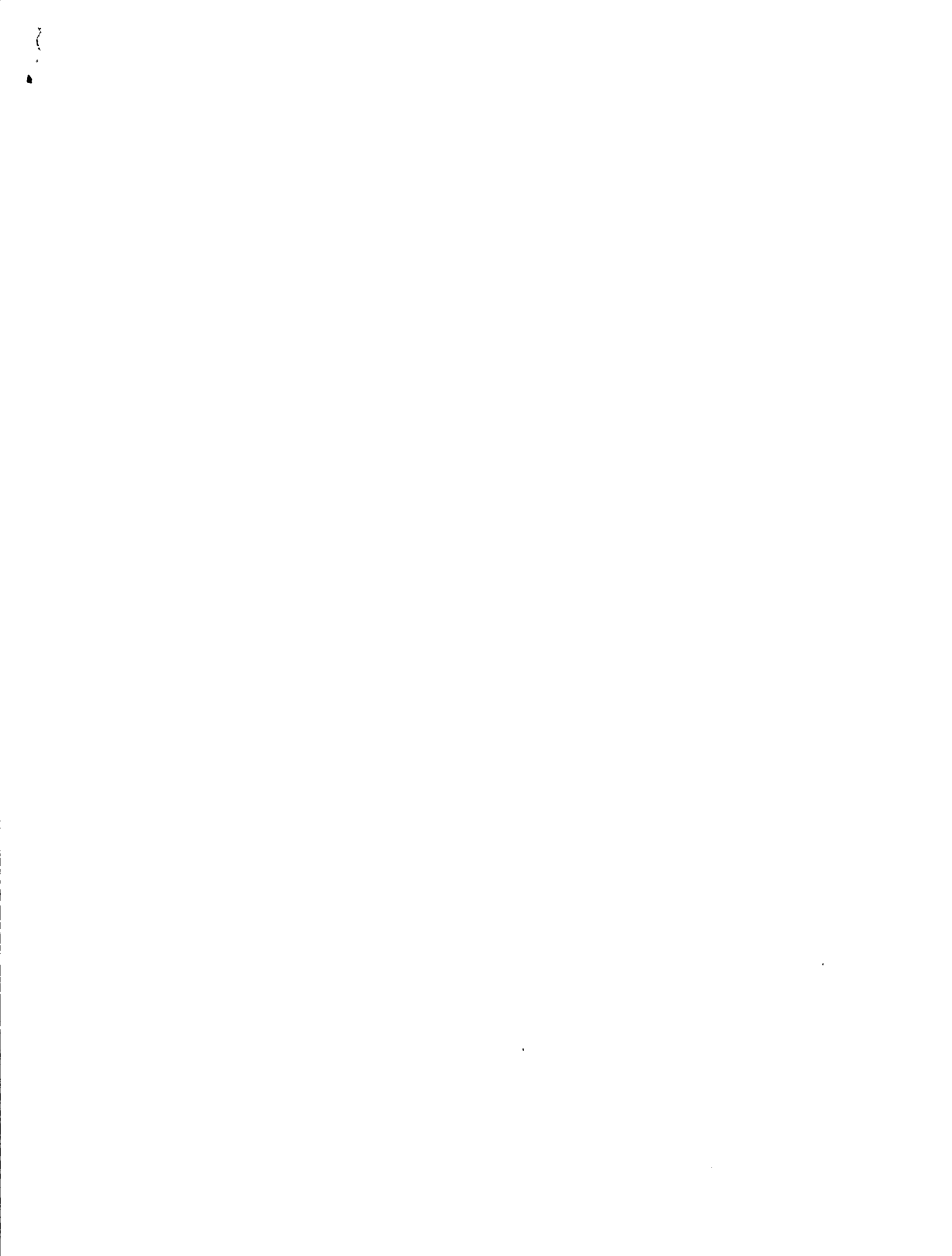
- BREAK ALL SHARP EDGES AND REMOVE ALL BURRS. ALL DIMENSIONS ARE IN INCHES.
- ENGRAVE PART IDENTIFICATION (AS SHOWN) USING 9 PT. ARIAL FONT @DEPTH OF 0.010" TO 0.030". IT IS PERMISSIBLE TO MARK PART AS SHOWN WITH INDELEBIL INK AS ALTERNATIVE IDENTIFICATION METHOD. F/N LOCATION IDENTIFIES FWD DIRECTION.
- FOR DIMENSIONS NOT SHOWN, REFERENCE CORRESPONDING 3D MODEL.

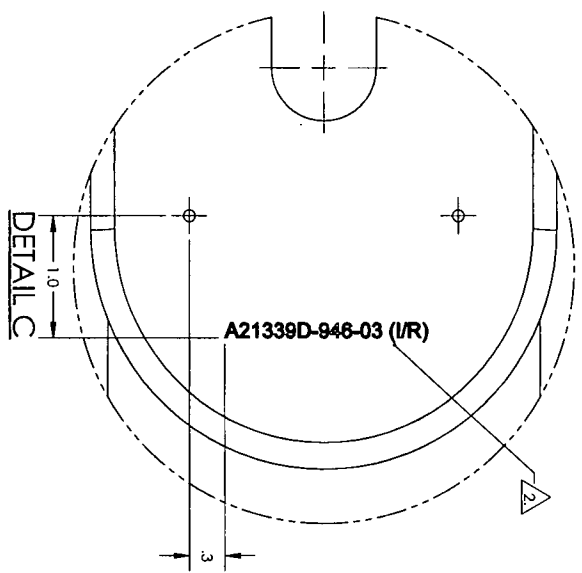
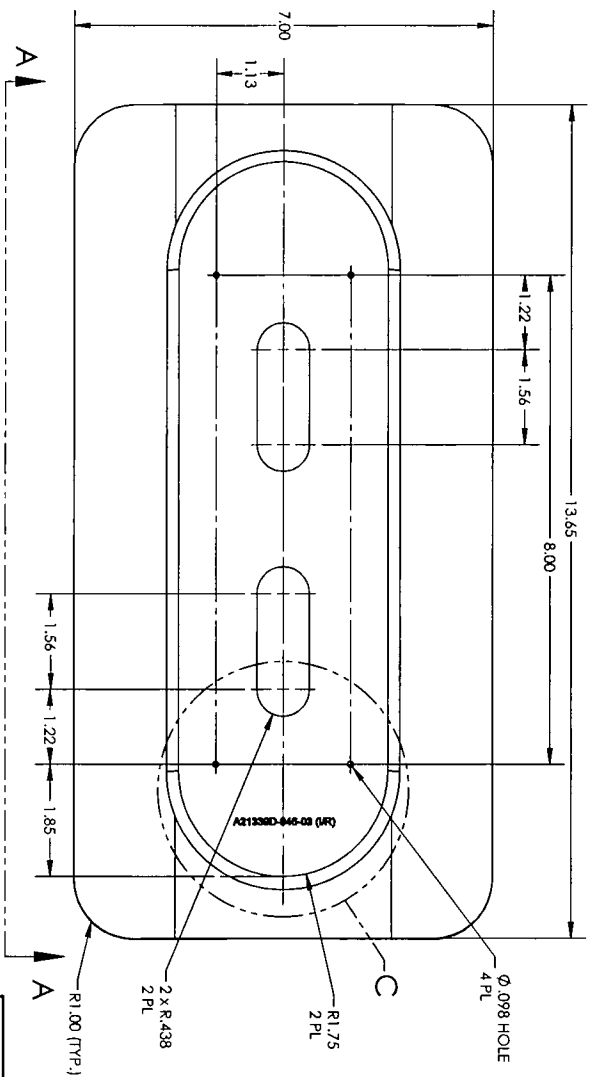
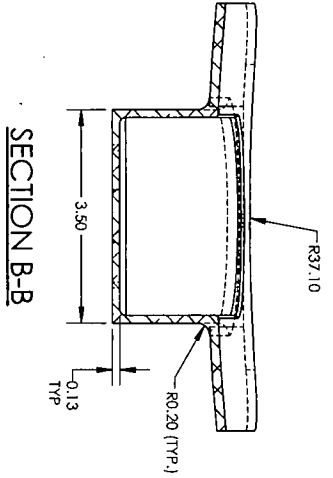
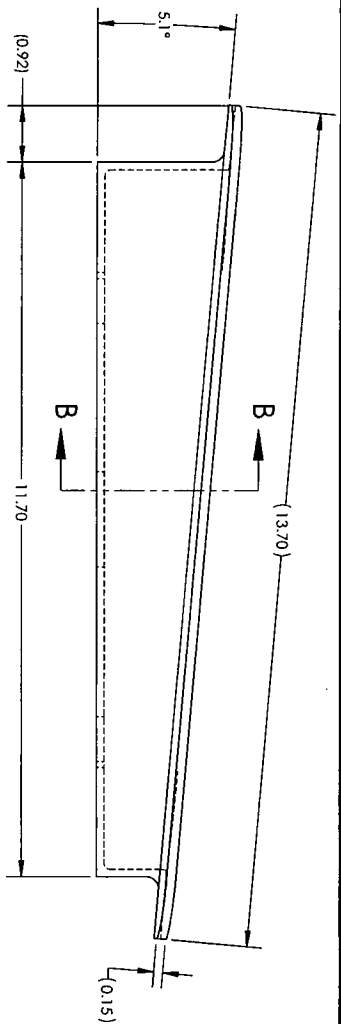


ISOMETRIC VIEW

DASH NO		WEIGHT NOMENCLATURE		WEIGHT INSTALLED		WEIGHT REMOVED	
-03		AFT ANTENNA CONTOUR PLATE		1.78 LBS			
DRAWN BY:		CHECKED BY:		AIRCRAFT MODEL:		REV.	
L. SOVA		E. HAYGRAFT		G450-N/A		I/R	
PART NO.		NOMENCLATURE		DESCRIPTION		SHEET	
-03		A21339D-946-03		AFT ANTENNA CONTOUR PLATE		1 OF 2	
LINEAR TOLERANCES		ANGULAR TOLERANCES		TITLE:		SPEC	
.XX ±.03		1/32 ±0°30'		AFT ANTENNA CONTOUR		A21339D-946	
.XXX ±.010		1/25		PLATE DETAIL		GQ-A-250/4	
FRACTION 1/32		1/25		DWG No.		A21339D-946	
ALL MACHINED SURFACES		1/25		SHEET		1 OF 2	







-03 AFT ANTENNA CONTOUR PLATE
VIEW LOOKING UP

	AIRCRAFT MODEL:	DWG No.:	TITLE: AFT ANTENNA CONTOUR PLATE DETAIL
	G450N/A	A21339D-946	
REV.	1/R	SHT	2 OF 2

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REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE		NOV/11/2021

DASH NO	WEIGHT NOMENCLATURE	WEIGHT INSTALLED	WEIGHT REMOVED	LINEAR TOLERANCES	FRACTION	ANGULAR TOLERANCES	ALL MACHINED SURFACES	DRAWN BY:	CHECKED BY:	AIRCRAFT MODEL:	REV:	DESCRIPTION	APPROVED	DATE
-01	4G ANTENNA	4.0 LBS		.XXX	±.010	±1/32	±.030	L.SOVA	J.FOX	G450-4082	I/R	P/N OF HYSOL		NOV/11/2021
-01	CONTOUR PLATE	1.2 LBS		±1/32	±.010	±.030	±.030			G450-4082	I/R	P/N OF AAR COMPOSITE		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	BONDING AGENT		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	SEALANT		MIL-S-8802
				±1/32	±.010	±.030	±.030			G450-4082	I/R	NON-CORROSIVE SEALANT		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	ANTENNA GASKET		P/N OF GOGO BIZ
				±1/32	±.010	±.030	±.030			G450-4082	I/R	4G ANTENNA		P/N OF GOGO BIZ
				±1/32	±.010	±.030	±.030			G450-4082	I/R	RING TERMINAL		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	BONDING BRAD		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	NUT		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	NUT/PLATE		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	LOCKING NUT		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	1/4-28 NUT/PLATE		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	SS SPACER		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	LOCK WASHER		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	1/4 SS THIN/THK WASHER		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	#8 SS WASHER		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	#8 WASHER		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	1/4-28 BOLT		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	8-32 PAN HEAD SCREW		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	8-32 SS CSK SCREW		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	8-32 CSK SCREW		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	P/N OF WEST STAR AVIATION		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	EXTERNAL DOUBLER		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	EXTERNAL DOUBLER INSULATOR		GG-A-250/5
				±1/32	±.010	±.030	±.030			G450-4082	I/R	INTERNAL DOUBLER INSULATOR		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	BONDING STRAP ASSY		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	FWD ADAPTER PLATE ASSY		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	INTERNAL DOUBLER ASSY		GG-A-250/5
				±1/32	±.010	±.030	±.030			G450-4082	I/R	FWD 4G ATG ANTENNA INSTL		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	FWD 4G ATG ANTENNA INSTL		
				±1/32	±.010	±.030	±.030			G450-4082	I/R	NOMENCLATURE		SPEC.




TITLE: GOGO AVANCE L5 FWD ANTENNA INSTL
 DWG No. P21339N-149
 SH 1 OF 6

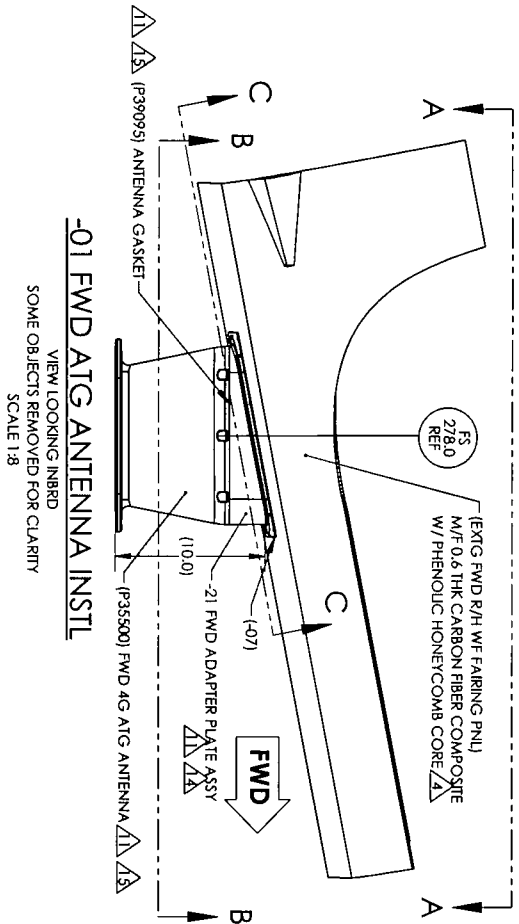


NOTES

1. BREAK ALL SHARP EDGES & REMOVE ALL BURRS. ALL DIMENSIONS ARE INCHES.
2. FASTENER GRIP LENGTH(S) DETERMINED/VERIFIED AT INSTALLATION:
 - A. APPROPRIATE SOLID FASTENER LENGTH(S) SHALL BE CONFIRMED WITH REFERENCE TO AC43.13-18, SECT. 4-57.
 - B. THREADED FASTENER LENGTH(S) SHALL BE SUFFICIENT LENGTH TO ACCOMMODATE A MINIMUM OF TWO (2) THREADS BEYOND NUT/NUTPLATE THREADING.
3. TREAT ALL APPLICABLE PARTS WITH CHEMICAL CONVERSION COATING (CHEMFLU) PER MIL-DTL-5541F, & APPLY EPOXY PRIMER PER MIL-P-23377K.
4. WING TO FUSELAGE (WF) FAIRING/PANEL M/F INCONSISTENT OVER-ALL THICKNESS OF GRAPHITE EPOXY SKIN WITH NOMEK CORE COMPOSITE. OVER-ALL THICKNESS RANGES FROM (0.50 TO 0.85) INCHES.
5. ALIGN ANTENNA(S) WITH LONGITUDINAL AXIS OF THE FUSELAGE WITHIN 2°. ENSURE LOCATION & ORIENTATION OF ANTENNA INSTALLATION(S) ACCOMMODATE ANY/ALL AVIONICS SYSTEM LEVELING & SPACING REQUIREMENTS. LOCATION MAY BE ADJUSTED WITHIN GIVEN TOLERANCES TO ACCOMMODATE REQUIREMENTS.
6. FORM DOUBLER(S) TO FIT INSIDE CONTOUR OF WF FAIRING/PANEL. MATCH DRILL MOUNTING SCREW/CONNECTOR HOLE PATTERN IN FAIRING/PANEL & DOUBLER(S) FROM -21 ADAPTER PLATE FOOTPRINT(S). LOCATE SLOTTED HOLES APPROXIMATELY AS SHOWN TO ACCOMMODATE COAX WIRE ROUTING.
7. EDGE FILL COMPOSITE CUTOUT(S) BY REMOVING CORE MATERIAL 1/4 INCH AROUND CUTOUT PERIMETER. FILL VOID WITH EA9394 EPOXY ADHESIVE & APPLY VACUUM AS REQUIRED. ALLOW ADHESIVE TO CURE PER MANUFACTURERS INSTRUCTIONS.
8. POT ALL INSERTS BY CUTTING OUT NEAR SIDE FACE SHEET TO THE SIZE OF THE INSERT & REMOVE THE CORE MATERIAL ALONG WITH AN ADDITIONAL 2 CELLS UNDER THE FACE SHEET AROUND THE PERIMETER OF THE HOLE CUT OUT. SECURE INSERT IN PLACE & INJECT WITH AIR-525 A/B ADHESIVE MIX PER MANUFACTURERS INSTRUCTIONS UNTIL CAVITY IS FILLED & ALLOW TO CURE. INSERT LENGTH(S) DETERMINED/VERIFIED BASED UPON THICKNESS OF SUBJECT (WF FAIRING/PANEL).
9. ATTACH INDICATED NUTPLATES TO -11 INTERNAL DOUBLER ASSY USING MS20242AD3 RIVETS (2 EA).
10. DO NOT REMOVE PAINT FROM EXTERNAL A/C SURFACES. INSTALL -07 EXTERNAL DOUBLER TO EXTERNAL SURFACES OF WF FAIRING/PANEL WITH -05 DOUBLER INSULATOR USING EA9394 EPOXY ADHESIVE. INSTALL -11 INTERNAL DOUBLER ASSY(S) TO INTERNAL SURFACES OF WF FAIRING/PANEL WITH -03 DOUBLER INSULATOR USING EA9394 EPOXY ADHESIVE.
11. REMOVE PAINT FROM ADAPTER PLATE ASSY (-21) IN AREA OF ANTENNA FOOTPRINT WITHIN 0.50 INCH OF OUTSIDE PERIMETER. REMOVE PAINT FROM ADAPTER PLATE(S) AND CORRESPONDING AREA OF EXTERNAL DOUBLER(S) WITHIN 0.20 INCH OF THE ADAPTER PLATE FOOT PRINT OUTSIDE PERIMETER(S). CHEMICAL CONVERSION COAT & APPLY PENETROX A-13 BONDING AGENT TO TREATED SURFACE(S) OF ADAPTER PLATE(S) AND EXTERNAL DOUBLER(S) AS WELL AS ANTENNA MATING SURFACE(S). INSTALL (R39099) ANTENNA GASKET BETWEEN THE ADAPTER PLATE AND ANTENNA. IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT THE ELECTRICAL RESISTANCE VALUE BETWEEN ANTENNA & AIRFRAME GROUND IS WITHIN AVIONICS SYSTEM REQUIREMENTS. SEE NOTE 14.
12. INSTALL/LOCATE ONE (1) Ø0.125 INCH MOISTURE DRAIN HOLE APPROXIMATELY AS SHOWN IN AFT WALL OF EACH ADAPTER PLATE.
13. FAY SEAL THE ANTENNA(S)/ADAPTER PLATE(S) 1/8" AROUND CONNECTOR HOLE PERIMETER(S) & FILL/SEAL ANTENNA & ADAPTER PLATE MOUNTING HOLES USING DOW CORNING 748 NON-CORROSIVE SEALANT. FINISH WITH A FILET SEAL OF PR-14228-1/2 AROUND THE ANTENNA & ADAPTER PLATE PERIMETER(S).
14. COUNTERSINK CENTER OF ADAPTER PLATE/ANTENNA MOUNTING FACE FOR MS24693S50 SCREW. FABRICATE -31 BONDING STRAP ASSY LENGTH(S) TO BE NO LONGER THAN THAT REQUIRED TO REACH ADJACENT A/C GROUND. BURNISH WASHER CONTACT AREA AT EACH (-31) MOUNT POINT. CHEMICAL CONVERSION COAT, & APPLY PENETROX A-13 BONDING AGENT TO WASHER CONTACT AREAS. INSTALL (-51) AT ADAPTER PLATE/ANTENNA MOUNTING FACE USING CSK SCREW WITH OPPOSITE END INSTALLED AT A/C GROUND USING PAN HEAD SCREW. SEE DETAIL G SHT. 7 REFERENCE NOTE 11.
15. COMPONENTS SHOWN FOR REFERENCE ONLY. DO NOT PROCURE FROM THIS DRAWING. SEE WIRING DIAGRAM FOR PART PROCUREMENT.

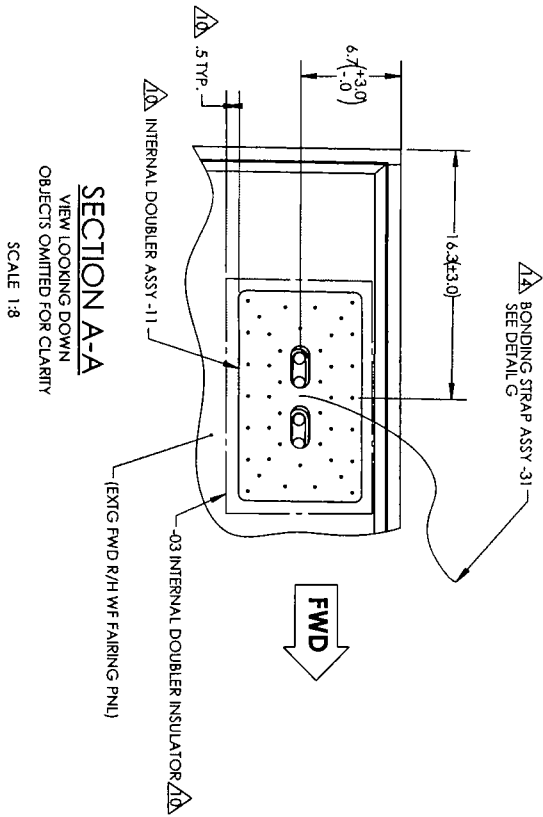
		TITLE: GOGO AVANCE L5 FWD	
		ANTENNA INSTL	
AIRCRAFT MODEL: C450-4082	REV. 1/R	DWG NO. P21339N-149	SHT 2 OF 6





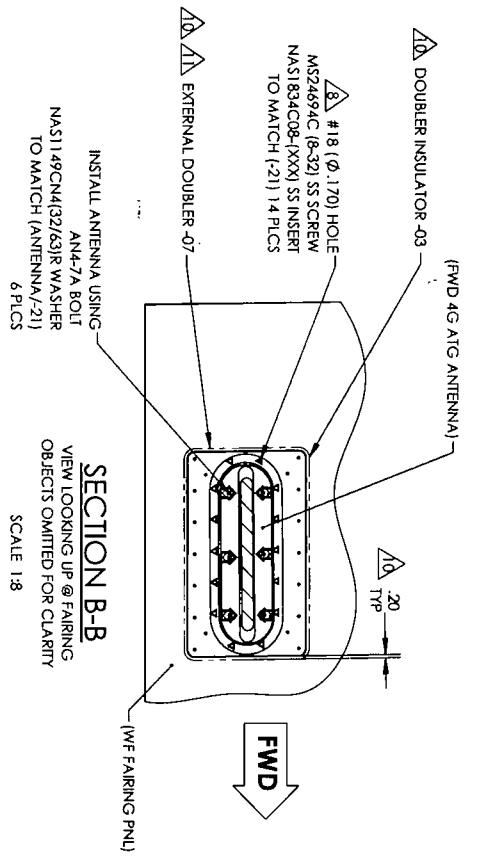
-01 FWD ATG ANTENNA INSTL

VIEW LOOKING INBRD
SOME OBJECTS REMOVED FOR CLARITY
SCALE 1:8



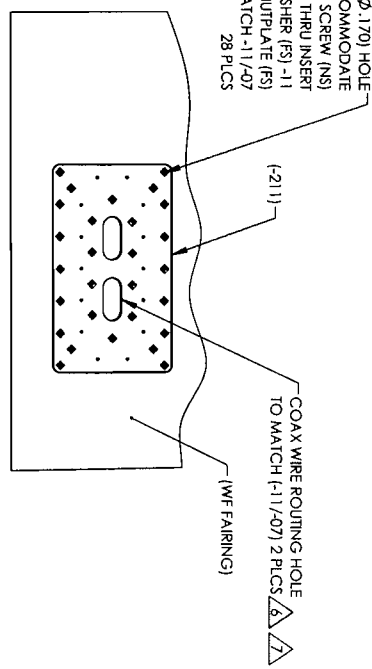
SECTION A-A

VIEW LOOKING DOWN
OBJECTS OMITTED FOR CLARITY
SCALE 1:8



SECTION B-B

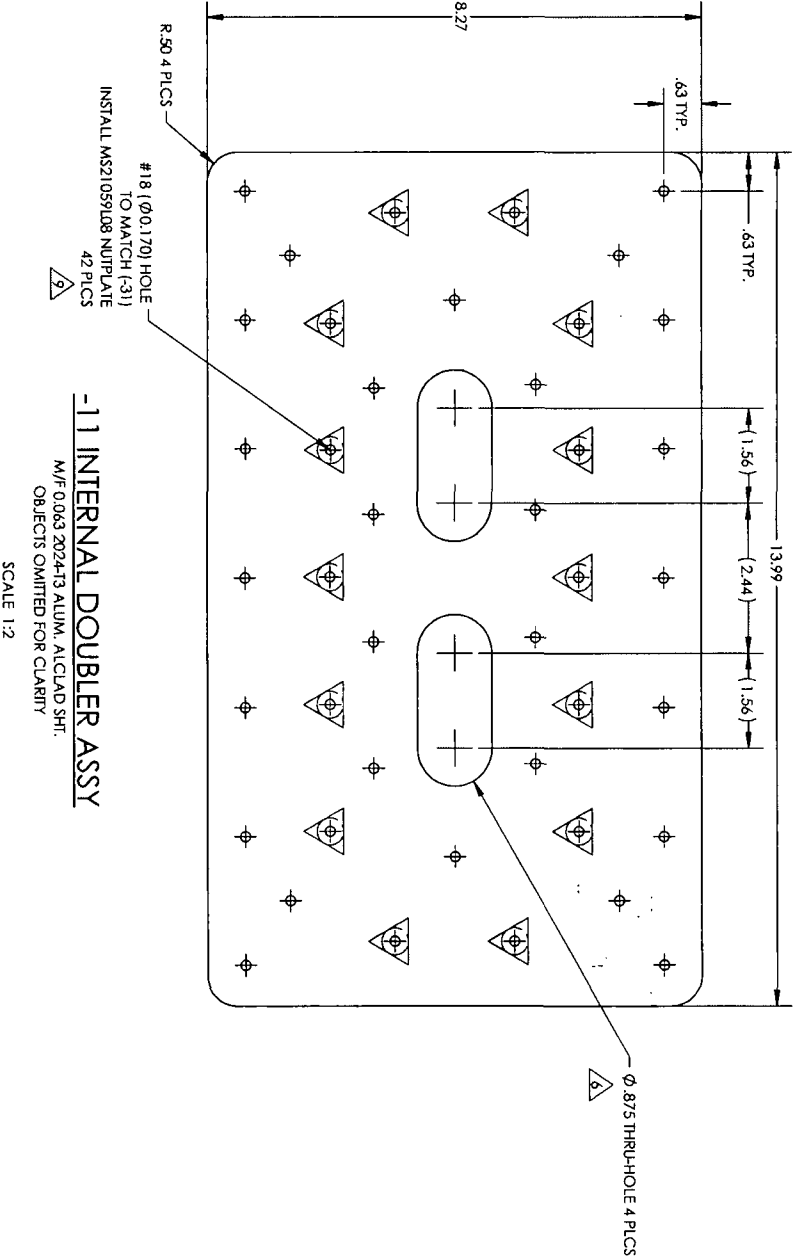
VIEW LOOKING UP @ FAIRING
OBJECTS OMITTED FOR CLARITY
SCALE 1:8



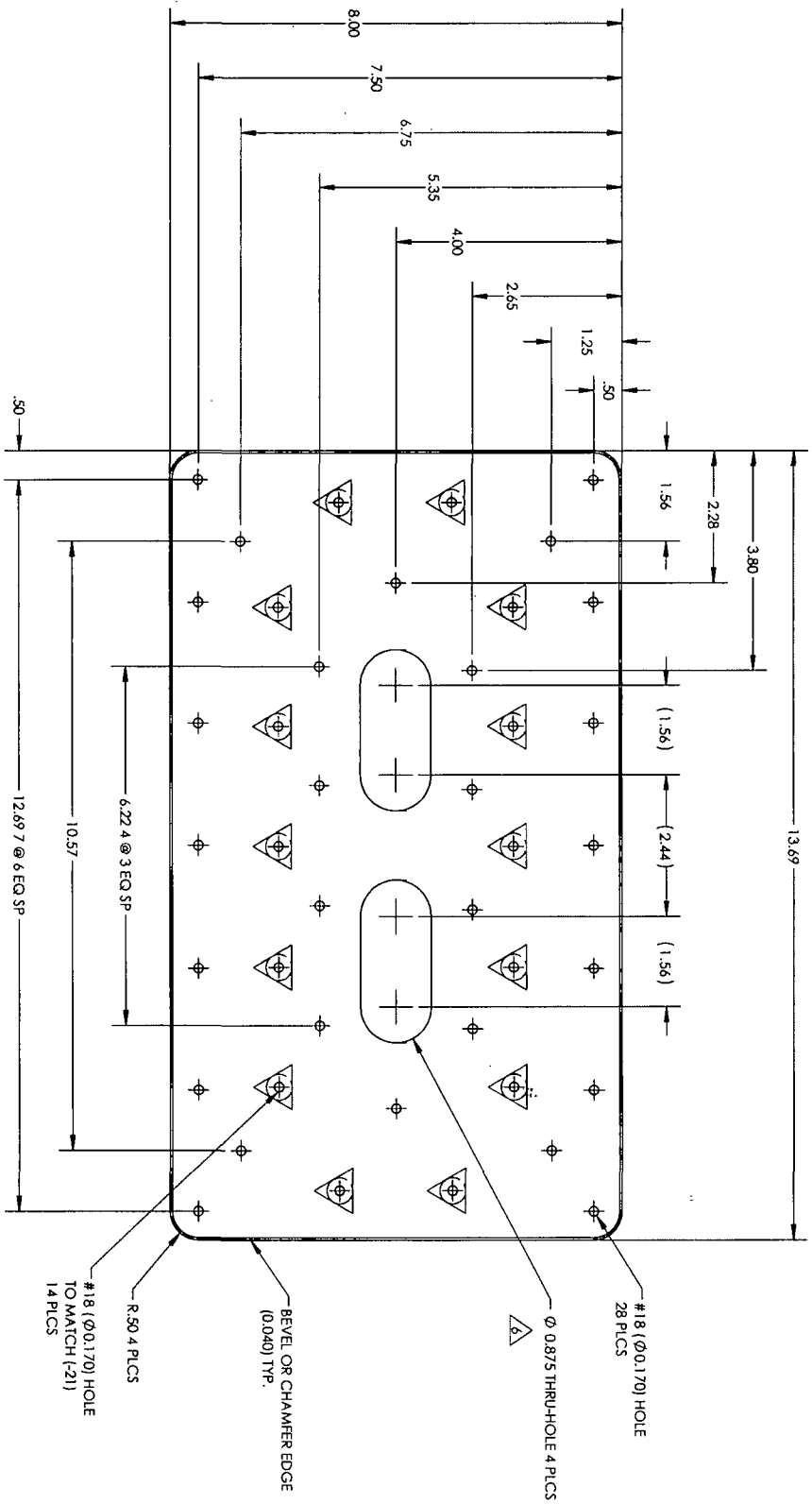
SECTION C-C

VIEW LOOKING UP @ FAIRING PANEL
OBJECTS OMITTED FOR CLARITY
SCALE 1:8

		TITLE: GOGO AVANCE L5 FWD ANTENNA INSTL	
		AIRCRAFT MODEL: G450-4082	REV. 1/R

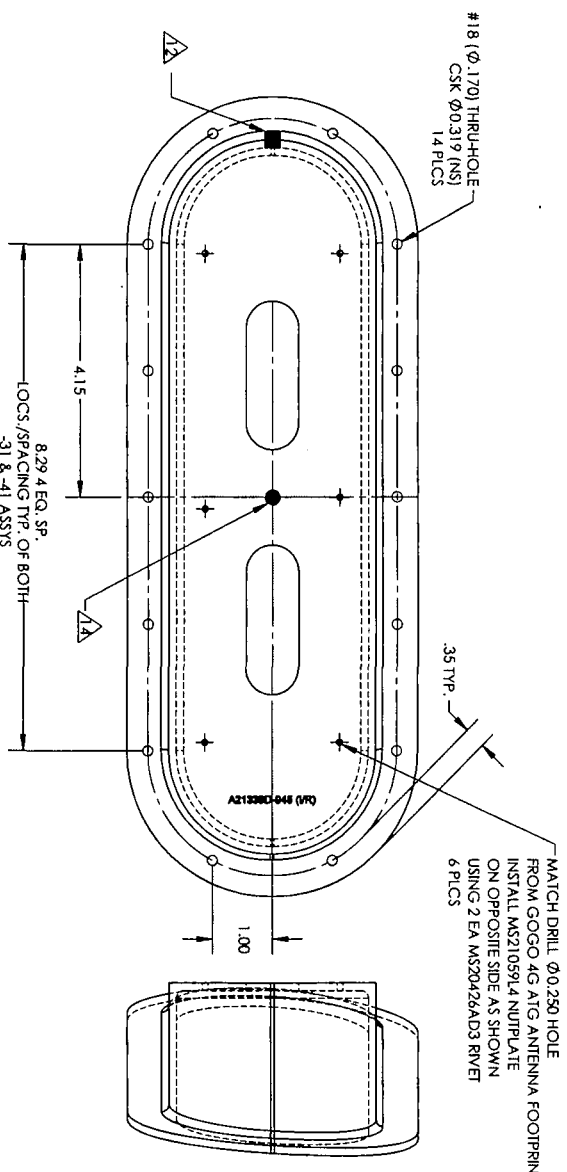


		TITLE: GOGO AVANCE L5 FWD ANTENNA INSTL	
		DWG No.	P21339N-149
AIRCRAFT MODEL:	REV.	SHT	OF
G450-4082	1/R		
		4	6



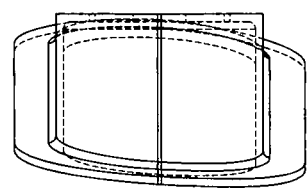
-07 EXTERNAL DOUBLER
 M/F 0090 202473 ALUM. ALCLAD SHF.
 SCALE 1:2

		TITLE: GOGO AVANCE L5 FWD ANTENNA INSTL	
		DWG No: P21339N-149	SHT 5 OF 6
AIRCRAFT MODEL: G450-4082	REV: 1/R		

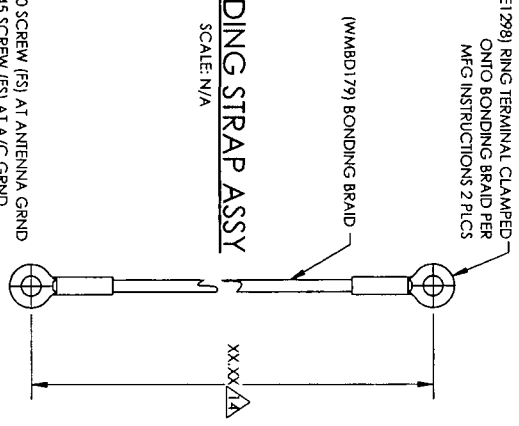


-21 FWD ATG ANTENNA CONTOUR PLATE ASSY
 BASE P/N: A21339D-945-03
 SCALE 1:2

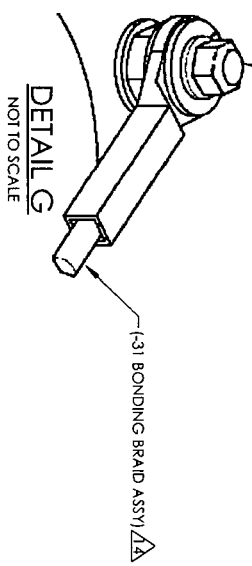
MATCH DRILL \varnothing 0.290 HOLE
 FROM GOGO 4G ATG ANTENNA FOOTPRINT
 INSTALL MS21059L4 NUPLATE
 ON OPPOSITE SIDE AS SHOWN
 USING 2 EA MS29426AD3 RIVET
 6 PLCS



-31 BONDING STRAP ASSY
 SCALE: N/A



- MS24693550 SCREW (FS) AT ANTENNA GRND
- MS35206-245 SCREW (FS) AT A/C GRND
- NAS1149FN81 6P WASHER (NS)
- MS35338-42 LOCK WASHER (NS)
- MS35249-282 NUT (NS)
- NAS1149FN81 6P WASHER (NS)
- MS35338-42 LOCK WASHER (NS)
- NAS1149FN81 6P WASHER (NS)
- MS35338-42 LOCK WASHER (NS)
- MS21042-08 LOCKING NUT (NS)



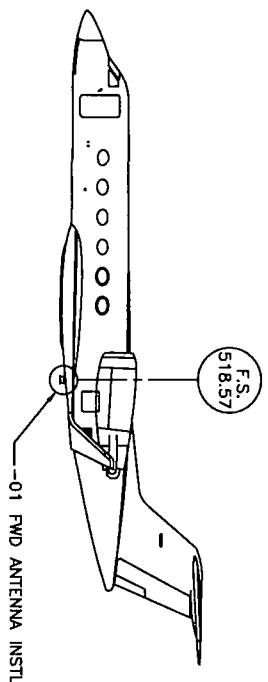
		TITLE: GOGO AVANCE L5 FWD ANTENNA INSTL	
		DWG No. P21339N-149	SHT 6 OF 6
AIRCRAFT MODEL: G450-4082	REV. 1/R		

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REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE		NOV/11/2021

NOTES

1. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS. ALL DIMENSIONS ARE IN INCHES.
2. FASTENER GRIP LENGTHS DETERMINED/VERIFIED AT INSTALLATION:
 - a. APPROPRIATE SOLID FASTENER LENGTH(S) SHALL BE CONFIRMED WITH REFERENCE TO ACA3.13-1B, SECT. 4-57.
 - b. THREADED FASTENER LENGTH(S) SHALL BE SUFFICIENT LENGTH TO ACCOMMODATE A MINIMUM OF TWO (2) THREADS BEYOND NUT/NUTPLATE THREADING.
3. TREAT ALL APPLICABLE PARTS WITH BONDERRITE (ALODINE 1201) PER MIL-DTL-5541F, AND APPLY EPOXY PRIMER PER MIL-PRF-23377K OR EQUIVALENT.
4. LOCATE ALL FASTENERS APPROX. AS SHOWN AND MAINTAIN A MINIMUM EDGE DISTANCE OF 2D AND A PITCH RANGE OF 4D TO 6D UNLESS OTHERWISE NOTED, INCLUDING ALL UNDERSTRUCTURE.
5. ALIGN ANTENNA WITH LONGITUDINAL AXIS OF FUSELAGE WITHIN 2°. ORIENT ANTENNA SO THAT BOTTOM DISH OF THE ANTENNA IS PARALLEL WITHIN 2° OF A/C LEVEL.
6. FORM/SHAPE -03 DOUBLER, AND -05, -07 AND -09 FILLERS TO CONFORM WITH INSIDE CONTOUR OF BELLY FAIRING PANEL. DRILL PATTERN IN FAIRING PANEL, -05, -07 AND -09 FILLERS TO MATCH THAT OF -03 DOUBLER. DRILL CONTOUR PLATE TO MATCH MOUNT HOLES IN -03 EXTERNAL DOUBLER ONLY.
7. SEAL FAIRING SURFACES OF THE BELLY FAIRING PANEL, -03 DOUBLER, AND -05, -07 AND -09 FILLERS. INSTALL ALL RIVETS WET USING PRI 422B-1/2.
8. REMOVE PAINT FROM INTERFACE SURFACE(S) BETWEEN FAIRING PANEL, CONTOUR PLATE AND ANTENNA. APPLY BONDERRITE TO ALL UNPAINTED MOUNTING SURFACE(S) AND APPLY PENETROX A-13.
9. SEAL FAIRING SURFACE OF CONTOUR PLATE 1/2" INSIDE THE ADAPTER PLATE PERIMETER WITH PRI 422B-1/2. FILET SEAL ANTENNA AND ADAPTER PLATE FOOTPRINT USING PRI 422B-1/2.
10. SEAL THE ANTENNA AND CONTOUR PLATE AROUND THE PERIMETER OF THE CONNECTOR HOLE (Ø MINIMUM) WITH DOW CORNING 748.
11. COMPONENT SHOWN FOR REFERENCE ONLY. REFER TO WIRING DIAGRAM FOR PART PROCUREMENT.
12. ANTENNA MUST BE ELECTRICALLY BONDED TO AIRFRAME GROUND. MAXIMUM TOLERANCE SHALL BE MAINTAINED (2.5 MILLIOHMS MAX) IAW APPLICABLE AIRCELL EQUIPMENT INSTALLATION MANUAL REQUIREMENTS.



GENERAL LAYOUT
NO SCALE

DASH NO.	WEIGHT NOMENCLATURE	WEIGHT INSTALLED	WEIGHT REMOVED	X		Y		TITLE:	DWG No.	SHEET	OF
				.XX	±.10	.XXX	±.03				
-01	GOGO L5 ANTENNA CONTOUR PLATE	4.0 LBS	1.8 LBS						P21339N-150	1	6
				LINEAR TOLERANCES		ANGULAR TOLERANCES		DRAWN BY: L. SOVA CHECKED BY: J. FOX AIRCRAFT MODEL: GA50-4082 REV: I/R			
				TOLEANCES FRACTION		ALL MACHINED SURFACES		WEST STAR AVIATION GOGO L5 ANTENNA INSTL P21339N-150 1 OF 6			

A/R	748							
A/R	PENETROX A-13	NON-CORROSIVE SEALANT	PIN OF DOW CORNING					
A/R	PR1422B-1/2	BONDING AGENT						
A/R	MS20426AD3	SEALANT						MIL-S-8802
A/R	MS20426AD4	RIVET						
A/R	US931A3	RIVET						
6	US931A3	C/SINK REPAIR WASHER						
6	NAS1743A4	NUT/PLATE						
8	NAS1743A3	NUT/PLATE						
6	NAS1149C0432K	WASHER						
6	MS27039C4-10	SCREW						
14	MS24694S31	SCREW						
1	A21339D-944-03	AFT ANTENNA CONTOUR PLATE	PIN OF WEST STAR AVIATION					
1	P21339N-150-09	FILLER	0.063 THICK 2024-13 ALCLAD					QQ-A-250/5
1	P21339N-150-07	FILLER	0.063 THICK 2024-13 ALCLAD					QQ-A-250/5
1	P21339N-150-05	FILLER	0.063 THICK 2024-13 ALCLAD					QQ-A-250/5
1	P21339N-150-03	DOUBLER	0.063 THICK 2024-13 ALCLAD					QQ-A-250/5
-01	P21339N-150-01	FWD ANTENNA INSTL	LOC A1F.S. 518.6 ON (181AB) BELLY FAIRING PANEL					
	PART NO.	NOMENCLATURE	DESCRIPTION					SPEC



AIRCRAFT MODEL: G450-4082

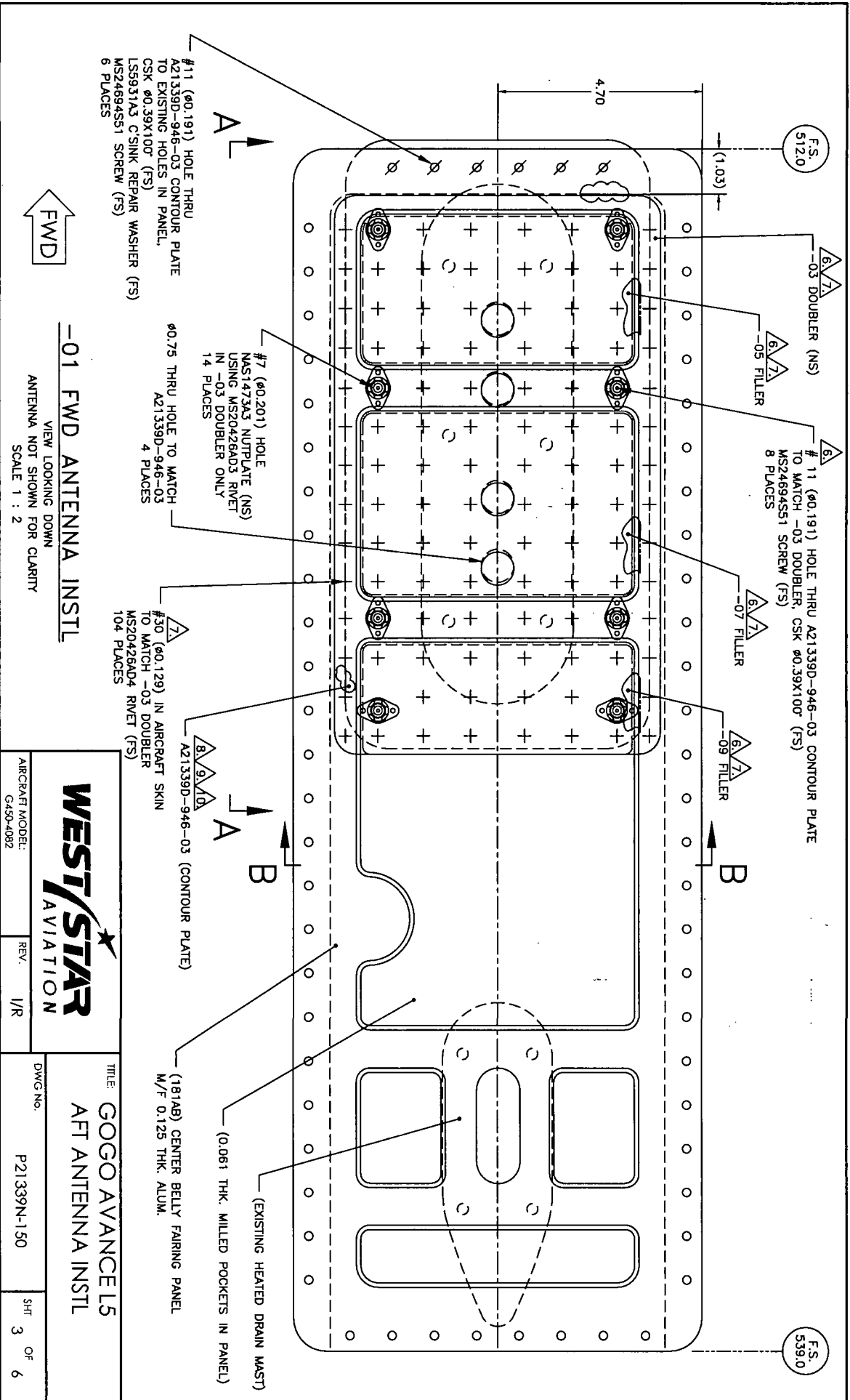
REV. 1/R

DWG No. P21339N-150

SHT 2 OF 6

TITLE: GOGO AVANCE L5
AFT ANTENNA INSTL

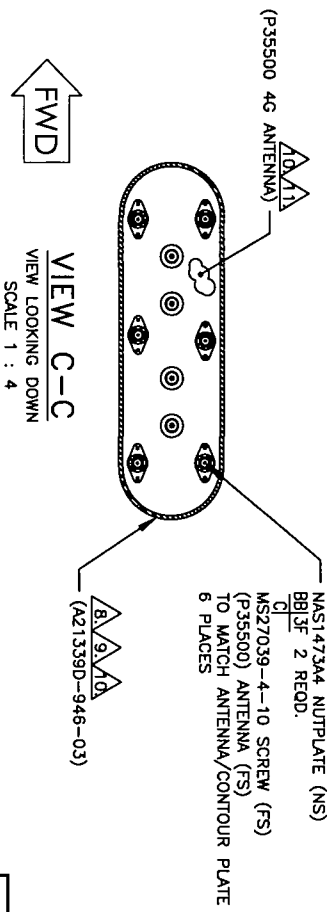
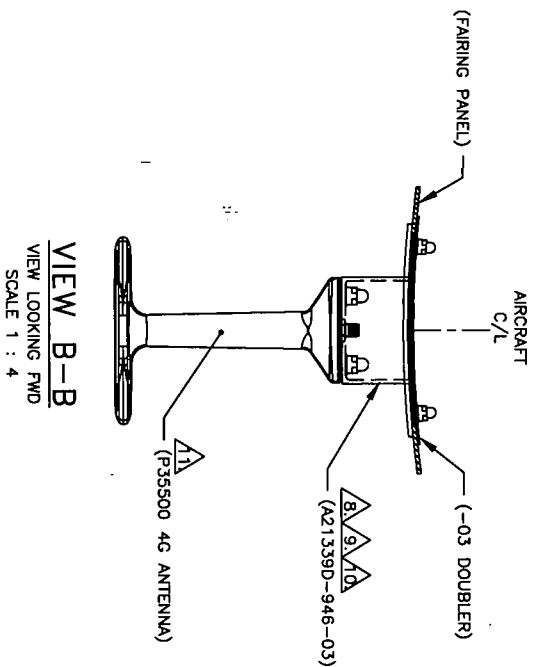
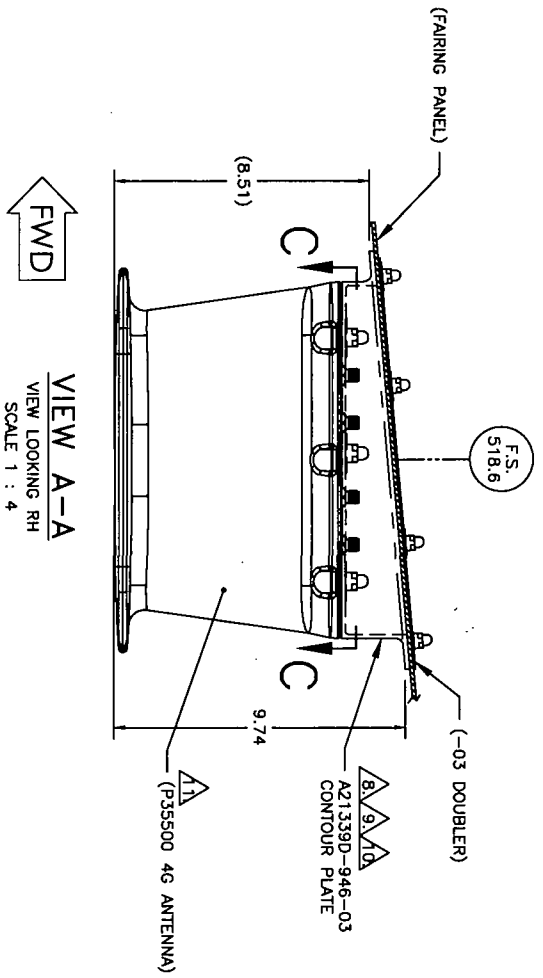




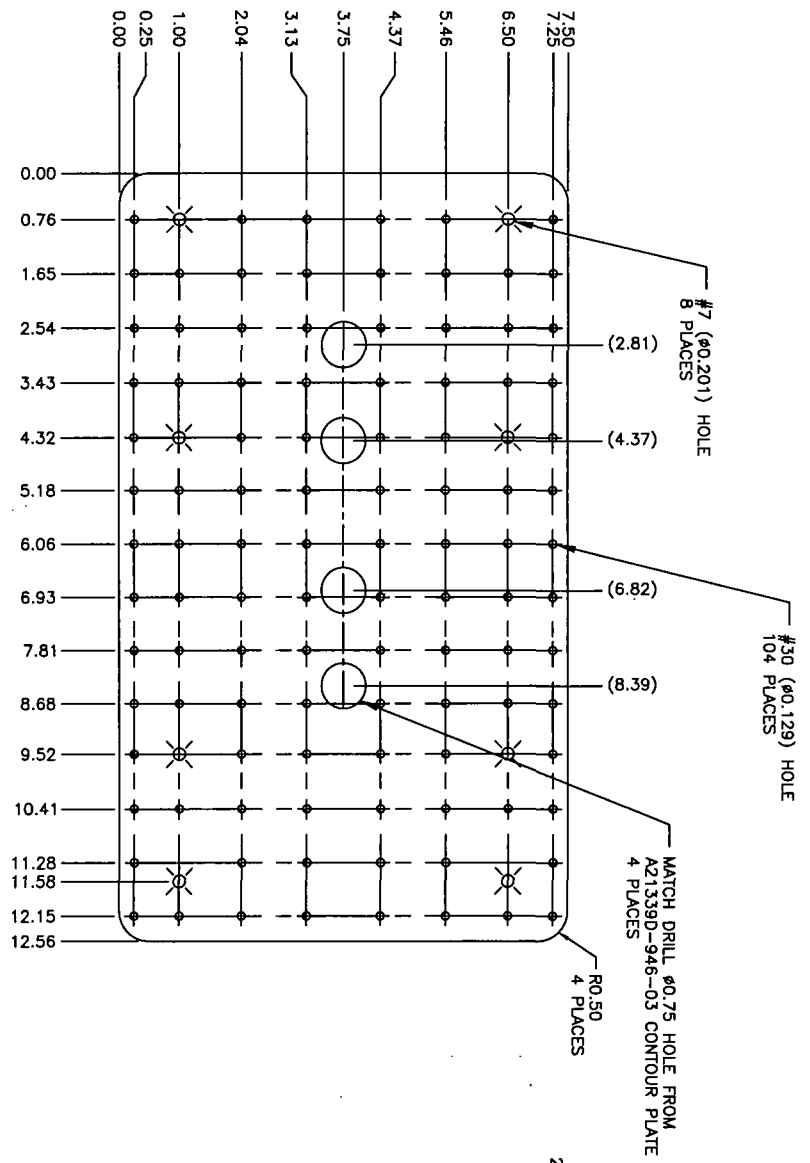
-01 FWD ANTENNA INSTL

VIEW LOOKING DOWN
ANTENNA NOT SHOWN FOR CLARITY
SCALE 1 : 2

		TITLE: GOGO AVANCELS	
		AFT ANTENNA INSTL	
AIRCRAFT MODEL: GA50-4082	REV. 1/R	DWG No. P21339N-150	SHT 3 OF 6

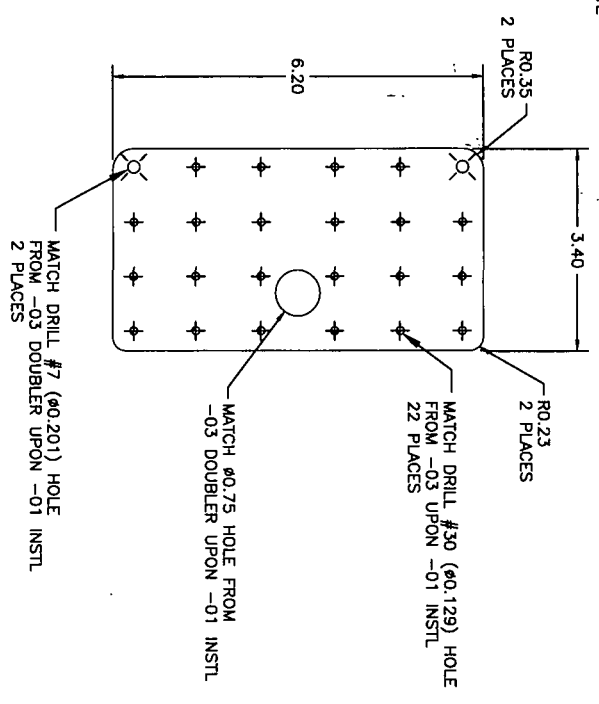


		TITLE: GOGO AVANCE L5 AFT ANTENNA INSTL	
		AIRCRAFT MODEL: G450-4082	REV: I/R



-03 DOUBLER

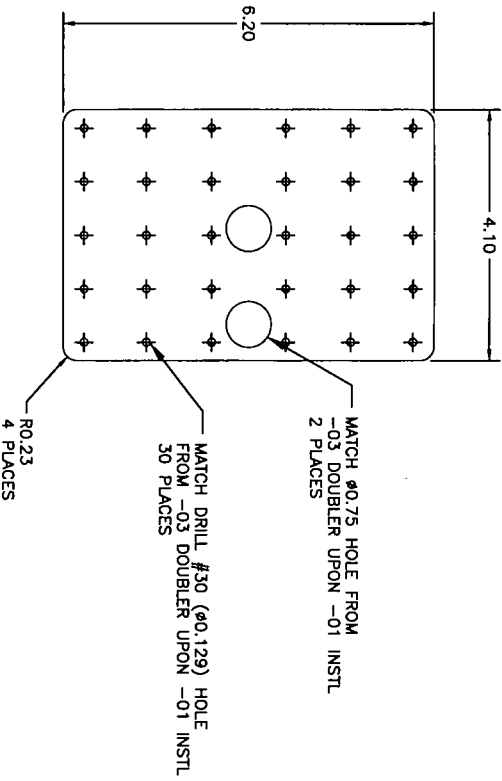
M/F 0.0653" THK. 2024-T3
ALUM. ALCLAD SHT.



-05 FILLER

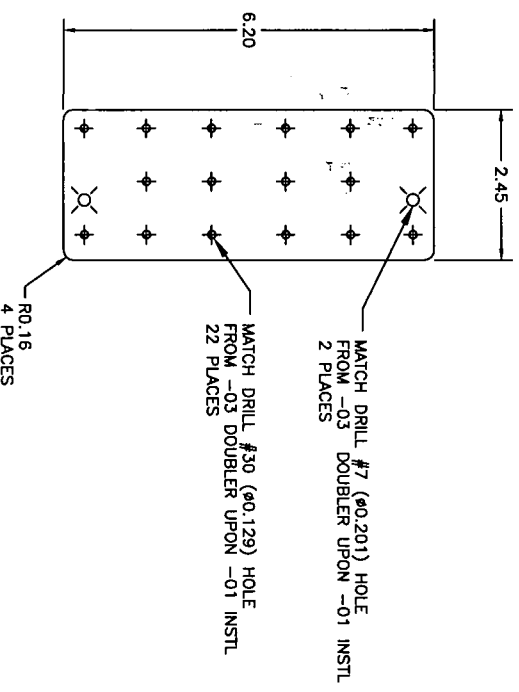
M/F 0.0653" THK. 2024-T3
ALUM. ALCLAD SHT.

		TITLE: GOGO AVANCE L5	
		AFT ANTENNA INSTL	
AIRCRAFT MODEL: G450-4082	REV: I/R	DWG No. P21339N-150	SHT 5 OF 6



-07 FILLER

M/F 0.063" THK. 2024-T3
ALUM. ALCLAD SHT.



-09 FILLER

M/F 0.063" THK. 2024-T3
ALUM. ALCLAD SHT.

		TITLE: GOGO AVANCE L5	
		AFT ANTENNA INSTL	
AIRCRAFT MODEL: G450-4082	REV. 1/R	DWG No. P21339N-150	SHT 6 OF 6

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REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE	Lee Sooyoung	DEC/03/2021

NOTES

- BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
- FASTENER GRIP LENGTHS DETERMINED/VERIFIED AT INSTALLATION:
 - APPROPRIATE SOLID FASTENER LENGTH(S) SHALL BE CONFIRMED WITH REFERENCE TO ACQ4.13-1B, SECT. 4-57.
 - THREADED FASTENER LENGTH(S) SHALL BE SUFFICIENT LENGTH TO ACCOMMODATE A MINIMUM OF TWO (2) THREADS BEYOND NUT/NUTPLATE THREADING.
- TREAT ALL APPLICABLE PARTS WITH BONDERITE (ALODINE 120) PER MIL-DTL-5541, AND APPLY EPOXY PRIMER PER MIL-PRF-23377 OR EQUIVALENT.
- POT ALL INSERTS BY CUTTING OUT NEAR SIDE FACE SHEET TO THE SIZE OF THE INSERT AND REMOVE THE CORE MATERIAL ALONG WITH AN ADDITIONAL 2 CELLS UNDER THE FACE SHEET AROUND THE PERIMETER OF THE HOLE CUT OUT. SECURE INSERT IN PLACE AND INJECT WITH AIR-525 A/B ADHESIVE, MIX PER MANUFACTURER'S INSTRUCTIONS UNTIL CAVITY IS FILLED AND ALLOW TO CURE.
- EQUIPMENT MUST BE ELECTRICALLY BONDED TO AIRFRAME GROUND. MAXIMUM TOLERANCE SHALL BE MAINTAINED (2.5 MILLIOMS MAX) LAW APPLICABLE AIRCELL EQUIPMENT INSTALLATION MANUAL REQUIREMENTS.
- CLEAN SURFACES OF NUTPLATE STRAPS AND EXISTING SHELF. BOND NUTPLATE STRAPS TO EXISTING SHELF USING HYSOL EA9309 3NA. INSTALL WET WITH SCREWS AND ALLOW TO CURE PER MANUFACTURER'S INSTRUCTIONS.

- ROUTE OUT ALL EXPOSED EDGES OF HONEYCOMB PANEL CORE MATERIAL UP TO 1.5 CELLS. FILL ALL PERIMETER ROUTED EDGES WITH AIR 1000 POLYESTER FILLER PER MANUFACTURER'S INSTRUCTIONS AND ALLOW TO CURE.

FLAG NOTES

- INSTALL -13 PLACARD NEXT TO "MAXIMUM ALLOWABLE WEIGHT THIS COMPARTMENT 55 LBS" PLACARD. TEXT SIZE COLOR AND FONT TO MATCH EXISTING PLACARDS.
- FABRICATE CLOSEOUT FOR LS UNIT AS REQUIRED. MAINTAIN 0.5 INCH MINIMUM CLEARANCE FROM LS UNIT/LAW GOGO LS INSTALLATION MANUAL.

QTY	DESCRIPTION	UNIT	REV	REASON	DATE	BY	CHKD	APPROVED	DATE
1	EA9309 3NA	A/R	A/R						
1	AIR 1000	A/R	A/R						
1	HYSOL 9309	A/R	A/R						
1	AIR-525 A/B	A/R	A/R						
4	MS20426AD3	A/R	A/R						
4	MS1149FN416P	A/R	A/R						
4	MS35206 (4-40)	A/R	A/R						
10	MS27039 (110-32)	A/R	A/R						
6	MS21059L3	A/R	A/R						
4	MS1834-3-500	A/R	A/R						
20	MS1834-3-500	A/R	A/R						
1	P21339N-152-13								
1	P21339N-152-09								
1	P21339N-152-07								
1	P21339N-152-05								
1	P21339N-152-03								
1	P21339N-152-21								
1	P21339N-152-11								
1	P21339N-152-01								

DASH NO	WEIGHT NOMENCLATURE	WEIGHT INSTALLED	WEIGHT REMOVED	LINEAR TOLERANCES	ANGULAR TOLERANCES	ALL MACHINED SURFACES	DRAWN BY:	CHECKED BY:	AIRCRAFT MODEL:	REV	I/R
-01	AVANCE LS BOX/BACK ACM	22.2 LBS 0.5 LBS		.XX XXX ±.010 ±1/32	±0°30'	±.003 ±.010 ±1/32	L. SOVA	S. CRITER	G450-4082		I/R

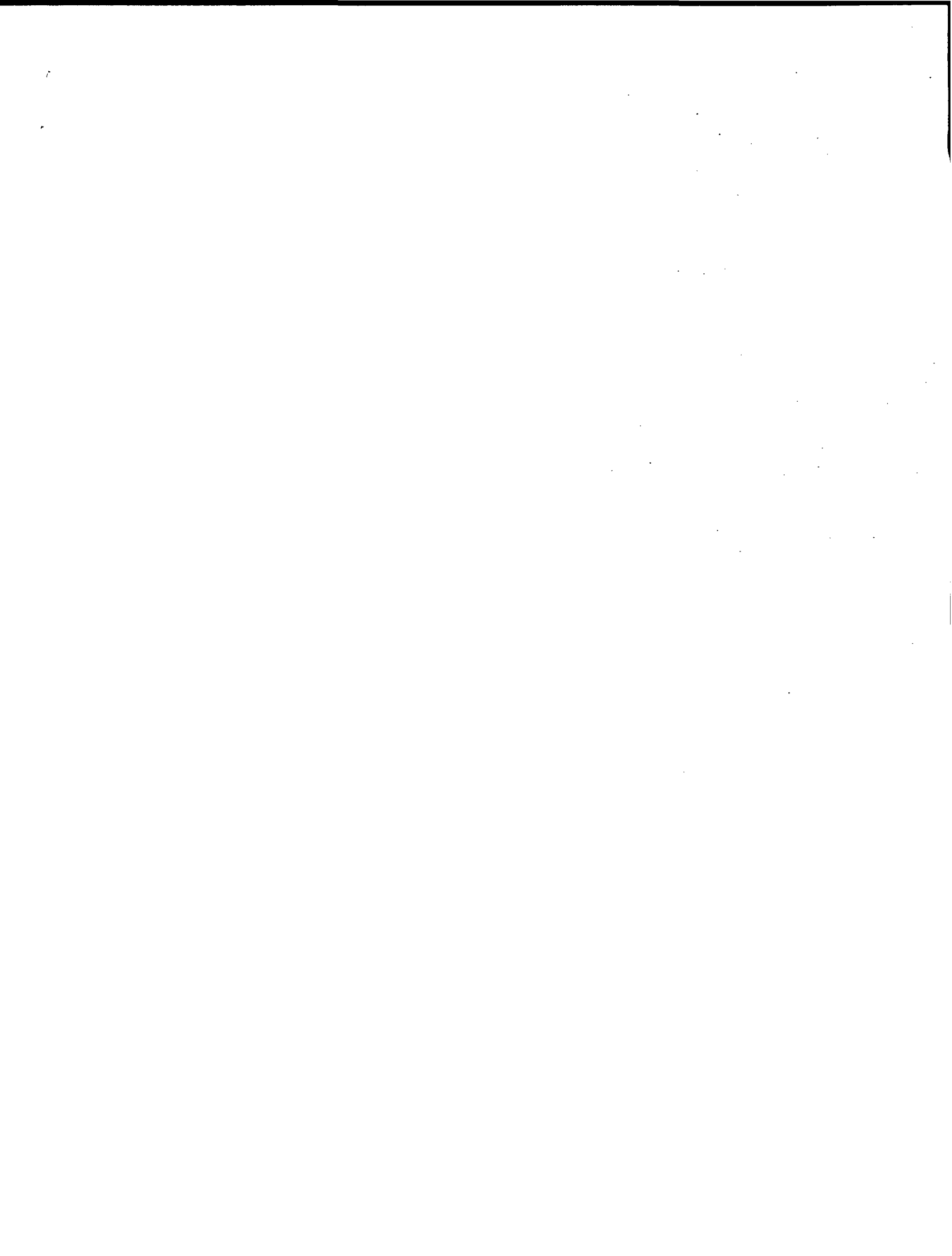
WEIGHT NOMENCLATURE	WEIGHT INSTALLED	WEIGHT REMOVED	LINEAR TOLERANCES	ANGULAR TOLERANCES	ALL MACHINED SURFACES	DRAWN BY:	CHECKED BY:	AIRCRAFT MODEL:	REV	I/R	DWG No.	SHT	OF
AVANCE LS BOX/BACK ACM	22.2 LBS 0.5 LBS		.XX XXX ±.010 ±1/32	±0°30'	±.003 ±.010 ±1/32	L. SOVA	S. CRITER	G450-4082		I/R	P21339N-152	1	4

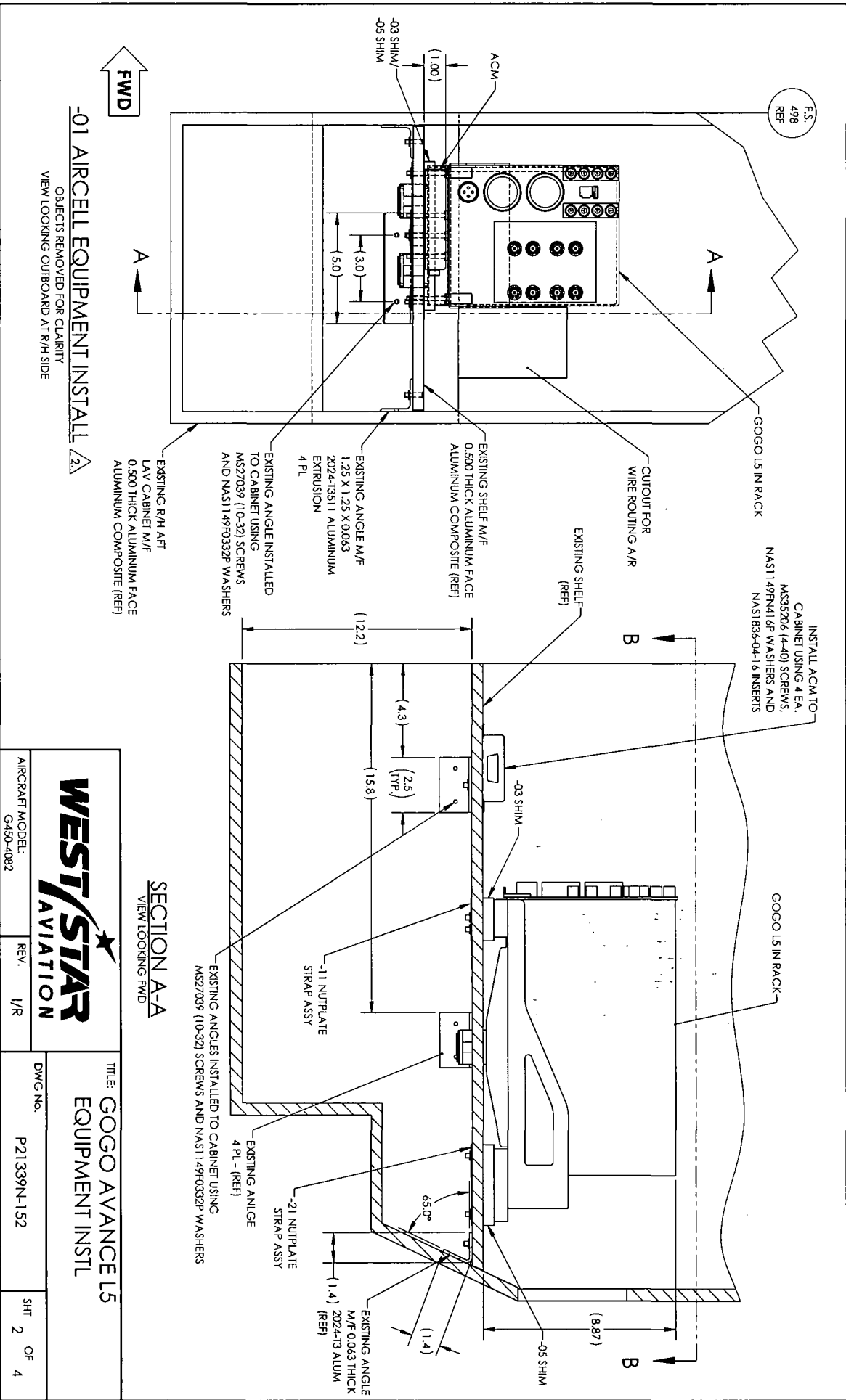


TITLE: GOGO AVANCE LS EQUIPMENT INSTL

DWG No. P21339N-152

SHT 1 OF 4

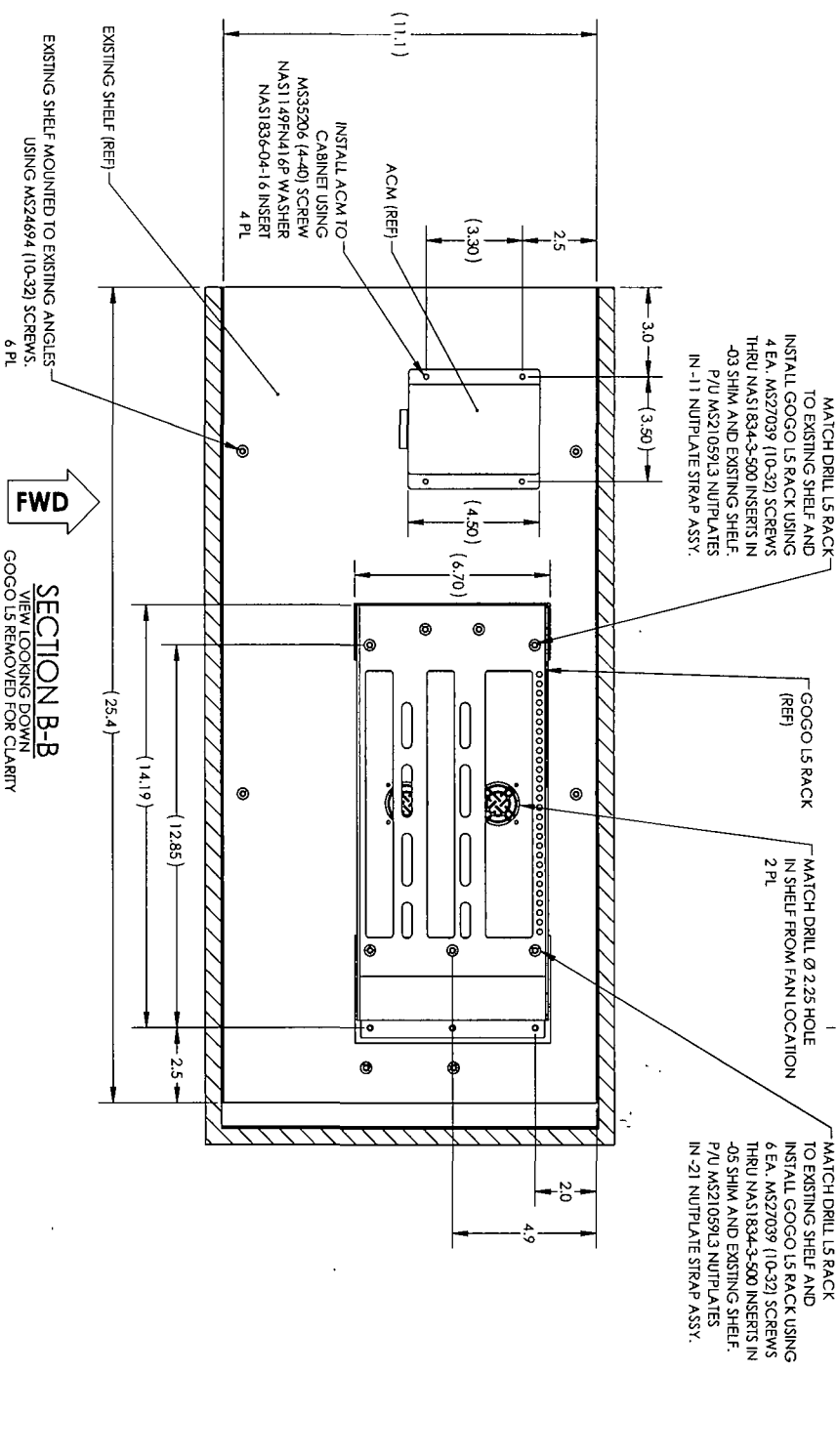




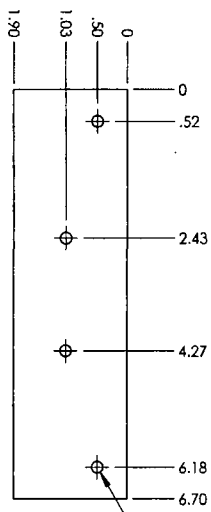
-01 AIRCELL EQUIPMENT INSTALL

OBJECTS REMOVED FOR CLARITY
VIEW LOOKING OUTBOARD AT R/H SIDE

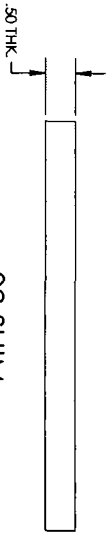
	AIRCRAFT MODEL:	REV.	DWG No.	TITLE:
	G450-4082	I/R	P21339N-152	GOGO AVANCE L5 EQUIPMENT INSTL
			SHT 2 OF 4	



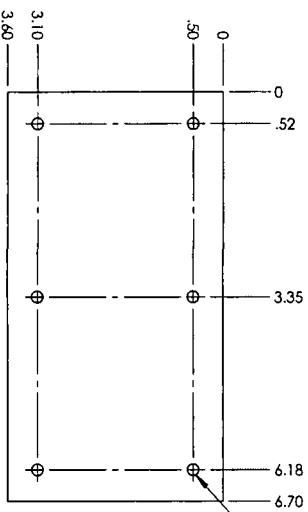
WEST STAR AVIATION		TITLE: GOGO AVANCE L5 EQUIPMENT INSTL	
		AIRCRAFT MODEL: G450-4082	REV: 1/R



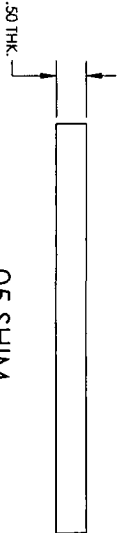
NAS1834-3-500 INSERTS
LOCATE FROM GOGO L5 RACK
4 PL



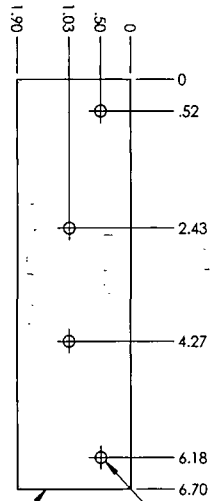
-03 SHIM
M/F 1/2" ALUMINUM SKIN/CORE COMP



NAS1834-3-500 INSERTS
LOCATE FROM GOGO L5 RACK
6 PL

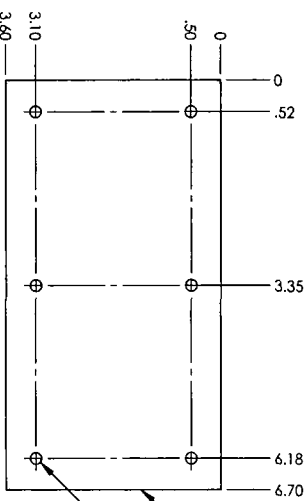


-05 SHIM
M/F 1/2" ALUMINUM SKIN/CORE COMP



MATCH DRILL \varnothing .191 HOLE
FROM GOGO L5 RACK
INSTALL MS21059L3 NUTPLATES
USING 2 EA. MS20426AD3 RIVETS.
4 PL

-11 NUTPLATE STRAP ASSY
M/F 0.040 202413 AL



MATCH DRILL \varnothing .191 HOLE
FROM GOGO L5 RACK
INSTALL MS21059L3 NUTPLATES
USING 2 EA. MS20426AD3 RIVETS.
6 PL

-21 NUTPLATE STRAP ASSY
M/F 0.040 202413 AL

L5 EQUIPMENT
23 LBS.

-13 PLACARD

		TITLE: GOGO AVANCE L5 EQUIPMENT INSTL	
		AIRCRAFT MODEL: G450-4082	
REV: 1/R	DWG No. P21339N-152	SHIT 4 OF 4	

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WIRING USED IN THIS INSTALLATION SHALL MEET THE SPECIFICATION CONTAINED IN CHAPTER 20 OF THE AIRPLANE MANUFACTURER'S MAINTENANCE MANUAL. STANDARD WIRING PRACTICES AS CONTAINED IN CHAPTER 20 OF THE AIRPLANE MANUFACTURER'S MAINT. MAN. SHALL BE USED AS THE PRIMARY SOURCE OF WIRING INSTALLATION INFORMATION.

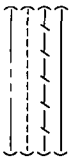
1. THIS DRAWING DEPICTS THE ELECTRICAL CONNECTIONS AND WIRING INSTALLATION FOR A GOOD AVANCE LS HIGH SPEED BROADBAND SYSTEM.
2. PERFORM EMI/EMC SOURCE VIBRATION TESTING IN ACCORDANCE WITH WEST STAR EMI/EMC TEST PROCEDURE DOCUMENT NUMBER 183951-279 REV. 1/R.
3. ALL WIRE JUMPERS SHALL BE 22 GAUGE AND LESS THAN 6' IN LENGTH UNLESS OTHERWISE NOTED.
4. ALL DIODES ARE 1M4005 UNLESS OTHERWISE NOTED.
5. LOWER CASE LETTERS ARE PRECEDED BY AN ASTERISK I.E. D = *D.
6. SINGLE STRAND WIRE IS TO BE PART NUMBER M22759/34-XXX-9, (XXX) = WIRE GAUGE TWISTED PAIR WIRE IS TO BE PART NUMBER M27500-XXXSD*4723. (XXX) = WIRE GAUGE (* = # CONDUCTORS ALL WIRE IS 22 GAUGE UNLESS OTHERWISE NOTED).
7. GOOD AVANCE WIFI IS ACTIVATED. AIRCRAFT HAS BEEN DETERMINED TOLERANT OF RADIO FREQUENCY INTERFERENCE PER LIBERTY PARTNERS STC STUDIOS/SC SYSTEM TO BE UTILIZED FOR CABIN IN FLIGHT ENTERTAINMENT PURPOSES ONLY, OTHER APPLICATIONS WILL REQUIRE ADDITIONAL APPROVAL.
8. REFERENCE WEST STAR DOCUMENT P21367R-139 FOR CHANGES TO THE ELECTRICAL LOAD.

1. A MAX OF 2.5 MILLIOMHS BETWEEN THE MOUNT TRAY AND AIRFRAME GROUND.
2. REFERENCE PIC PRODUCT BULLETIN US282422, MAX CABLE LENGTH 17 FEET. RED AND BLACK WIRES ARE 22 AVG. WHITE AND GREEN WIRES ARE 24 AVG.
3. IDENTIFY JACK AS GOOD MAINTENANCE.
4. IDENTIFY JACK AS GOOD INTERNET.
5. EACH TM ANTENNA SHALL BE MOUNTED NO CLOSER THAN 15 INCHES APART, AND HAVE DIRECT LINE OF SITE TO A WINDOW.
6. WIFI ANTENNAS SHOULD BE MOUNTED A MINIMUM OF 5 INCHES APART, AND A MAXIMUM OF 20 INCHES APART IN A LINEAR ARRAY, ANTENNAS SHALL BE INSTALLED A MINIMUM OF 36 INCHES ABOVE THE AIRCRAFT CABIN FLOOR, COAX CABLE LENGTH TO BE A MAXIMUM OF 35 FEET IN LENGTH.
7. REFERENCE GULFSTREAM DRAWING 34-44-00.
8. WEATHER RADAR SYSTEM.
9. REFERENCE GULFSTREAM DRAWING GP41 4280004, WIRELESS LAN.
10. REFERENCE GULFSTREAM DRAWING GC41 5040251, CABIN DISPLAY (AIRSHOW 4000).
11. REFERENCE GULFSTREAM DRAWING GC41 3940301, AUX CB PANEL (XDD).

GEN. NOTES:

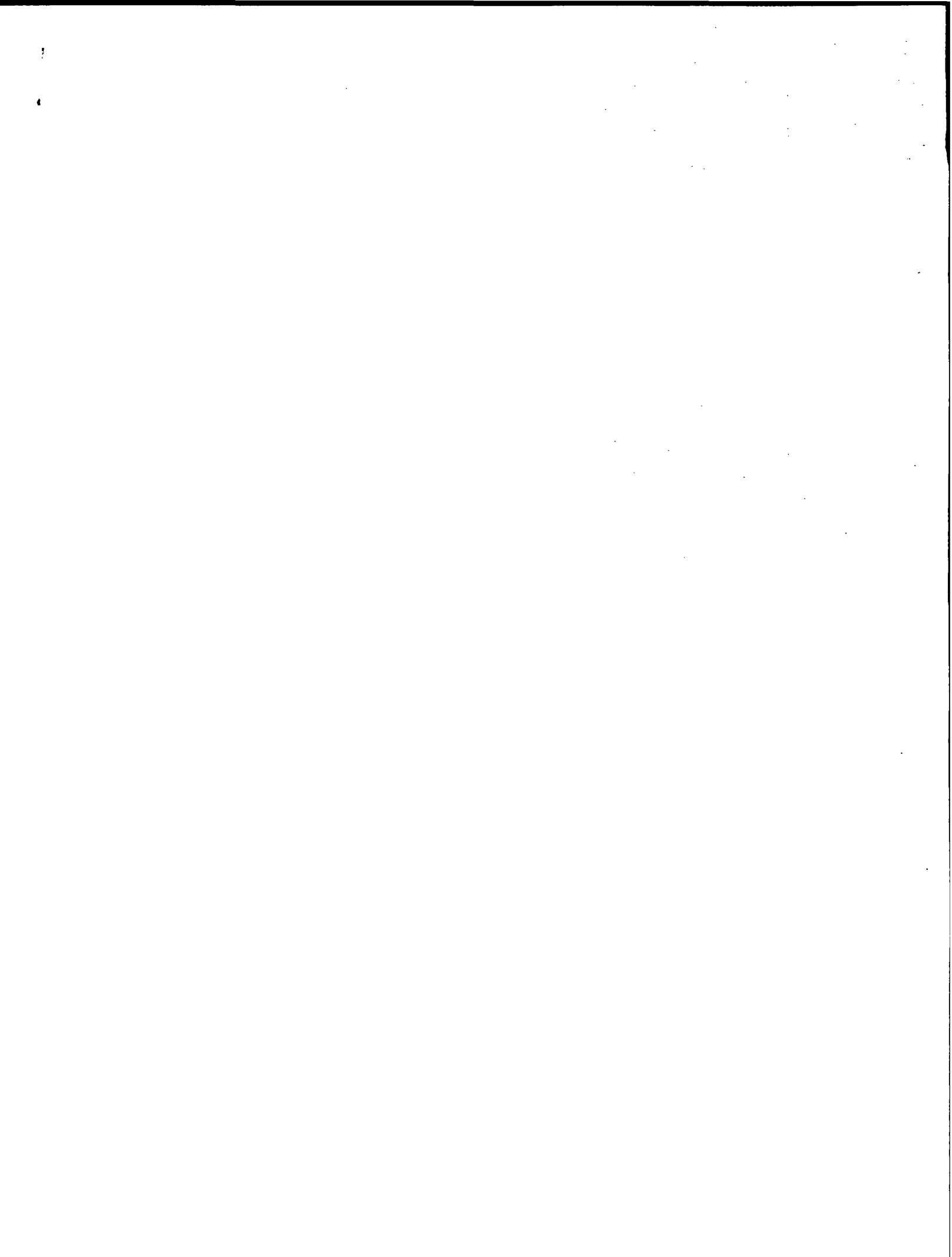
▷ = AC GND
 ▷ = SHIELD GND
 ▷ = DC GND
 ▷ = LOGIC/SIGNAL GND
 ◁ = CHS GND
 ◁ = CAPPED WIRE

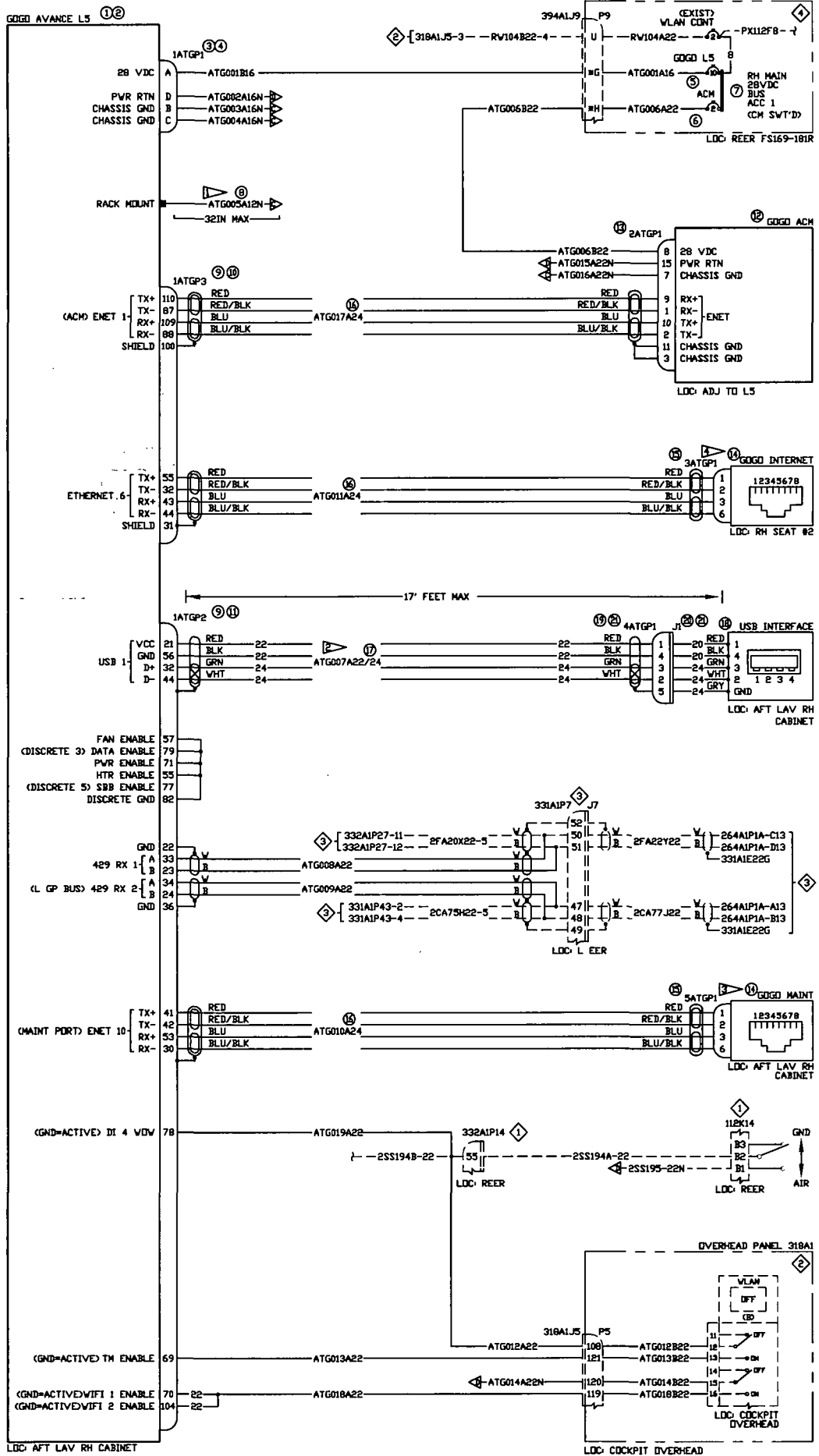
NEW WIRE
 REMOVED WIRE
 EXISTING WIRE
 REF. ONLY



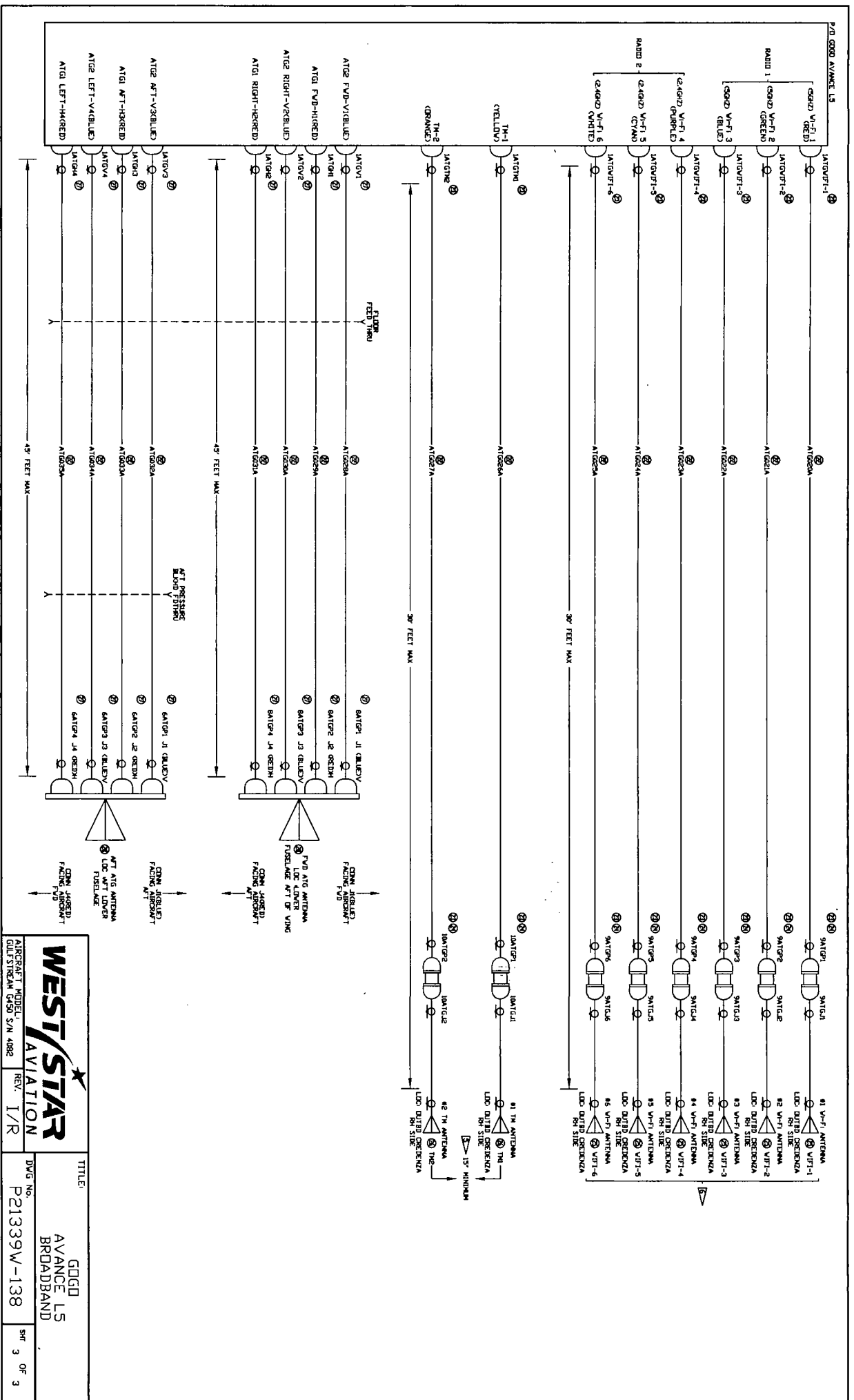
REV	DESCRIPTION	DATE
I/R	INITIAL RELEASE	NOV/11/2021

REV	DESCRIPTION	DATE
I/R	INITIAL RELEASE	NOV/11/2021
28	BROADBAND ANTENNA	P33500
27	COAX CONNECTOR (TNC STR JACK MALE CONTACT)	GF-5-1371T
26	TM ANTENNA	P18350-001
25	WI-FI ANTENNA	P16917-001
24	COAX ADAPTER (SMA JACK TO JACK FEMALE CONTACT)	10534499-1
23	COAX CONNECTOR (SMA STRAIGHT)	GF-5-3371T
22	COAX CABLE 50 OHM	GF-5-21T
21	BACKSHELL - SHELL SIZE 1	M8504/9748-1-1
20	CONNECTOR PLUG WITH PIN CONTACTS	M24308/2-1
19	CONNECTOR RECEPT WITH SOCKET CONTACTS	M24308/2-1
18	USB RECEPTACLE	EC35048-0A
17	USB CABLE	US282422
16	A/R DATA CABLE	NF240100
15	RJ45 CONNECTOR	1656725
14	CONNECTOR FEEDTHROUGH RJ45	ECF504-SCSE
13	CONNECTOR WITH EMI BACKSHELL, ACH	P12527
12	CONFIGURATION MODULE (ACH)	P14126
11	CONNECTOR (P2)	M52746725F395A (P18125)
10	CONNECTOR (P2)	M52746725F395 (P14427)
9	BACKSHELL (P2, P3)	P19237
8	BONDING BRAD, 32 INCH, #10 LUG	M834132B-A322B
7	BUS BAR, 4 POSITION	GA415-3-4
6	CIRCUIT BREAKER, 2A	21C14-2
5	CIRCUIT BREAKER, 10A	21C14-10
4	BACKSHELL (P1)	M8504/9748-2-12M
3	CONNECTOR (P1)	M52746713F43
2	GRID BIZ 4G MOUNTING TRAY	P34118
1	GRID BIZ 4G (TWO AIRCRAFTS)	P34118-002
ITEM	QTY.	
DESCRIPTION		
PART NO.		
MANUFACTURER		
DESIGNER:	TITLE:	
P. CRAVDFORD	GOOGD AVANCE LS BROADBAND	
CHECKED BY:		
T. RAMSEY		
REV:	DWG NO.	
I/R	P21339W-138	
AIRCRAFT MODEL: GULFSTREAM G450 S/N 4082		
SHEET 1 OF 3		





AIRCRAFT MODEL: WEST STAR AVIATION
 QUALITY STREAM G550 S/N 4082
 REV: I/R
 TITLE: GOGO AVANCE L5 BROADBAND
 DWG No.: P21339W-138
 SHEET 2 OF 3



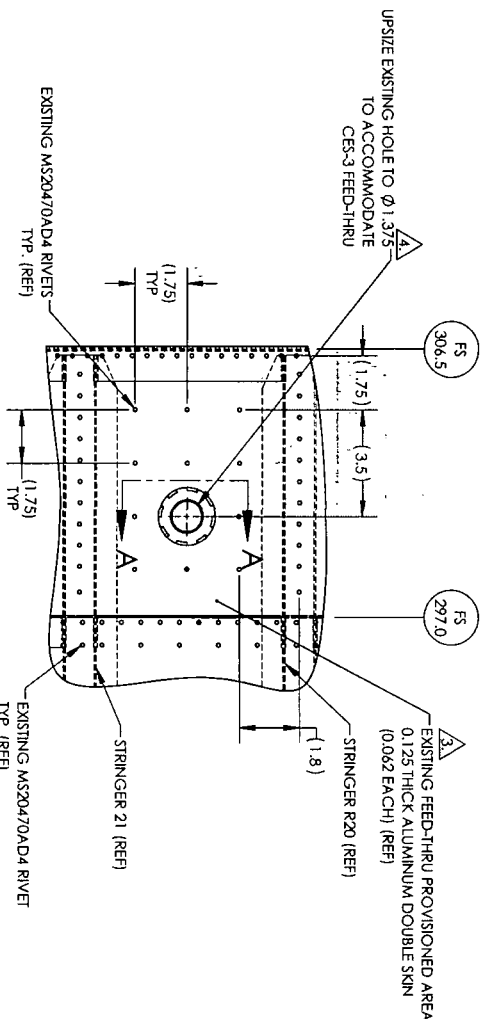
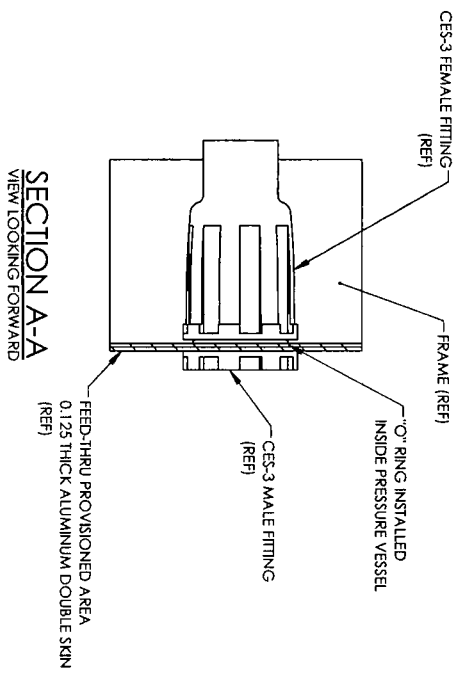
WEST STAR AVIATION	TITLE	GOOD AVANCE LS BRADDBAND
	AIRCRAFT MODEL: GULFSTREAM G450 S/N 4082 REV: I/R	

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REV	DESCRIPTION	APPROVED	DATE
I/R	INITIAL RELEASE	100 5000	NOV/11/2021

NOTES

1. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
2. FASTENER GRIP LENGTHS DETERMINED/VERIFIED AT INSTALLATION:
 A. APPROPRIATE SOLID FASTENER LENGTH(S) SHALL BE CONFIRMED WITH REFERENCE TO ACA3 13-18 SECT 457.
3. 0.062 THICK DOUBLER EXTENDS ONE BAY ABOVE AND SEVERAL BAYS FORWARD, AFT AND BELOW THE AREA SHOWN.
4. INSTALL FEED-THRU WET USING PR1422B-1/2 SEALANT. INSTALLATION TO BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



DASH NO	WEIGHT NOMENCLATURE	WEIGHT INSTALLED	WEIGHT REMOVED	LINEAR TOLERANCES	ANGULAR TOLERANCES	ALL MACHINED SURFACES	DRAWN BY:	CHECKED BY:	AIRCRAFT MODEL:	REV	DWG No.	SHT	OF
				X ±.10 XX ±.03 XXX ±.010	FRAC TION ±1/32 ±0°30'	125	L SOVA	S. CISLER	G450-4082	I/R	P21700N-151	1	1



A/R	PR1422B-1/2	SEALANT	TITLE: FEED-THRU INSTL
1	CES-3	FEED-THRU	
	P21700N-151-01	FEED-THRU INSTL	
	01	PART NO.	
		NOMENCLATURE	
		DESCRIPTION	
			SPEC



US Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

OMB No. 2120-0020
Exp: 5/31/2018

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N451NS	Serial No. 4082
	Make GULFSTREAM	Model G450
2. Owner	Name (As shown on registration certificate) BANK OF UTAH TRUSTEE	
	Address (As shown on registration certificate) Address 200 E SOUTH TEMPLE STE 210	
	City SALT LAKE CITY	State UTAH
	Zip 84111-1346	Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	GULFSTREAM	(As described in Item 1 above)	4082
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No.	
Name	JET AVIATION DUBAI	<input type="checkbox"/>	U. S. Certificated Mechanic	<input type="checkbox"/>	Manufacturer
Address	DUBAI INTERNATIONAL AIRPORT	<input type="checkbox"/>	Foreign Certificated Mechanic	<input checked="" type="checkbox"/>	Certificated Repair Station
City	DUBAI State DUBAI	<input type="checkbox"/>	Certificated Maintenance Organization	U8JY426Y	
Zip	P.O. BOX 84933 Country UNITED ARAB EMIRATES				

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/> NA	Signature/Date of Authorized Individual <i>Adnan</i> 04 July 2019	
---	--	--

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	<input checked="" type="checkbox"/> Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. U8JY426Y	Signature/Date of Authorized Individual <i>Adnan</i> 04 July 2019	
---	--	--

2

3

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N451NS

04 JULY 2019

Nationality and Registration Mark

Date

FOLLOWING ALTERATIONS PERFORMED UNDER JDXB WO #066940/00

1) ASC 106: (ATA 25) SUB: 8.8 KHZ UNDERWATER ACOUSTIC BEACON (UAB) INSTALLATION ACTION: PERFORMED ASC 106: (ATA 25) SUB: 8.8 KHZ UNDERWATER ACOUSTIC BEACON (UAB) INSTALLATION IAW G450 ASC 106 DT. 03/NOV/2017, MODIFICATION INSTRUCTIONS. KIT PN: ASC101-1 INSTALLED INTO THE REAR EQUIPMENT BAY IAW GAC TOP DRAWING 1159ASC47106, FOUND SATIS. AIRCRAFT WEIGHT BALANCE CHANGE = +2.7LBS +1853 IN LBS. KIT PN: ASC106-1 X 1, GRN: R60542; UAB PN: DK180, SN: DF10547 X 1, GRN: R60537, REPLACE BEACON - END FEB 2024

APPROVED DOCUMENT USED: ASC 106 (ATTACHED)

2) ASC 59D: (ATA 34) SUB: ENHANCED NAVIGATION ACTION: PERFORMED ASC 59D: (ATA 34) SUB: ENHANCED NAVIGATION IAW G450 ASC 59D, DT. 19/OCT/2016, MODIFICATION INSTRUCTIONS. PERFORMED RETURN TO SERVICE TESTS IAW GIVX-GER-0019, FOUND SATIS. KIT PN: ASC059D-1, GRN: R60740.

APPROVED DOCUMENT USED: ASC 059D (ATTACHED)

3) ASC 079B: (ATA 34) AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST (ADS-B) OUT INSTALLATION ACTION: PERFORMED ASC 079B: (ATA 34) AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST (ADS-B) OUT INSTALLATION IAW G450 ASC 079B DT. 14/JUN/2016, MODIFICATION INSTRUCTIONS & GAC TOP LEVEL DRAWING NO. 1159ASC47079. NEW SOFTWARE CONFIGURATION VERIFICATION PERFORMED IAW GIVX-GER-0020, SATIS. KIT PN: ASC079B-1 G4X, GRN: R60792

APPROVED DOCUMENT USED: ASC 079B (ATTACHED)

4) ASC 912A: (ATA 31) PLANEVIEW MASTER OPERATING SYSTEM SOFTWARE UPDATE ACTION: PERFORMED ASC 912A: (ATA 31) PLANEVIEW MASTER OPERATING SYSTEM SOFTWARE UPDATE IAW G450 ASC 912A DT. 05/APR/2019, MODIFICATION INSTRUCTIONS. PERFORMED RETURN TO SERVICE CHECK OUT PROCEDURE IAW GIVX-GER-7132, FOUND SATIS. KIT PN: ASC912A-1 G4X, GRN: R60652

APPROVED DOCUMENT USED: ASC 912A (ATTACHED)

5) ASC 099A: (ATA 31) PLANEVIEW AVIONICS ENHANCEMENT ACTION: PERFORMED ASC 099A: (ATA 31) PLANEVIEW AVIONICS ENHANCEMENT IAW G450 ASC 099A DT. 05/APR/2019, MODIFICATIONS INSTRUCTIONS. SOFTWARE BACK / RESTORE PERFORMED IAW GAC SGER-033, SATIS. KIT PN: ASC099A-1, GRN: R60652

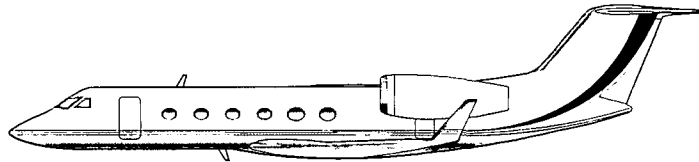
APPROVED DOCUMENT USED: ASC 099A (ATTACHED)

Additional Sheets Are Attached



REGN: N451NS
MSN: 4082
WO: 066940/00
RTS DATE: 04/07/2019

Gulfstream G450



AIRCRAFT SERVICE CHANGE

NUMBER 106

SUBJECT

EQUIPMENT AND FURNISHINGS (ATA 25)
8.8 KHz UNDERWATER ACOUSTIC BEACON
INSTALLATION

NOVEMBER 3, 2017

Gulfstream®
A GENERAL DYNAMICS COMPANY

PILOTS INFORMATION SHEET

8.8 kHz UNDERWATER ACOUSTIC BEACON INSTALLATION

This service change provides instructions for the installation of either one or two 8.8 kHz, 90 day duration Underwater Acoustic Beacons (UAB). The UAB may be located in the aft equipment bay and / or the baggage compartment.

There are no cockpit procedural changes as a result of this installation.

PLEASE DETACH AND GIVE TO FLIGHT DEPARTMENT PERSONNEL

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PILOTS INFORMATION SHEET

8.8 kHz UNDERWATER ACOUSTIC BEACON INSTALLATION

This service change provides instructions for the installation of either one or two 8.8 kHz, 90 day duration Underwater Acoustic Beacons (UAB). The UAB may be located in the aft equipment bay and / or the baggage compartment.

There are no cockpit procedural changes as a result of this installation.

PLEASE RETAIN THIS COPY WITH THE AIRCRAFT SERVICE CHANGE (ASC) BOOKLET

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November 3, 2017

The design change effected by this Aircraft Service Change (ASC) has been classified as Major by the United States Federal Aviation Administration (FAA). The design change data contained here-in and effected by this document is approved and accepted by the FAA under Project No. TD-01-2017-0018.

The design of this ASC is approved by aircraft type design data for installation on aircraft registered for operation in accordance with applicable regulations of the FAA.

The design of an ASC is configured to a standard (green) production aircraft. If spare wires, pin connections or locations called out have been used for another modification, the installing agency must ensure the development, documentation and approval of any required deviations.

The following instructions, in step-by-step form, are written as a guide to perform this ASC. Compliance with safe maintenance practices as defined in the Aircraft Maintenance Manual (AMM), and by the FAA is required.

Gulfstream considers this ASC a means to enhance aircraft capabilities to meet individual operator requirements. The modification is not related to any safety or airworthiness condition.

Subject: Equipment and Furnishings (ATA 25) – 8.8 kHz Underwater Acoustic Beacon installation.

Purpose / Discussion: This service change provides instructions for the installation of a Dukane Seacom 8.8 kHz Low Frequency Underwater Acoustic Beacon (UAB). Two locations are provided and operators may install a UAB in either location, or both, based on local regulatory authority requirements. Options exist for the mounting of the new UAB in the aft equipment bay and / or the baggage compartment. The 8.8 kHz UAB provides a greater detection distance compared to the 37.5 kHz beacons that are currently mounted to the Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR) and is fitted with a 90 day duration battery.

Description / Labor-Hours Required Per Aircraft: The -1 kit installs the UAB in the aft equipment bay on the right side equipment shelf forward and inboard of the CVR. Inserts are installed in the shelf, and the UAB mounting kit is attached directly to the shelf.

The -2 kit installs the UAB in the baggage compartment. Baggage compartment installation provides two options. The first option installs the UAB mount kit to the outside of the Baggage Electronic Equipment Rack (BEER) forward bulkhead.

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Description / Labor-Hours Required Per Aircraft continued: Due to production differences in bulkhead construction, the second option is only effective for aircraft 4110 and subsequent. This option installs the UAB mount kit to the bulkhead directly forward of the water tank, inside the water tank cabinet. Either of these options may be selected based on aircraft configuration, customer preference and aircraft effectivity.
Approximately 10 labor-hours will be required for this installation.

Approved Engineering Data: The source data for this aircraft service change is:
1159ASC47106 Rev “-” Top Drawing GIV-X Dukane Seacom Low Frequency Underwater Acoustic Beacon.

Prerequisites: None

Concurrent Requirement: None

Associated Documents: Aircraft Maintenance Manual (AMM), Chapters 20 and 25
Structural Repair Manual (SRM), Chapter 51
CE52423A005 Instructions for Continued Airworthiness – Dukane Seacom Low Frequency Underwater Acoustic Beacon, (available in the G450 Technical Library section of MyGulfstream.com).

Flight Manual Revision / Supplement Required: None

Publications Data: Data concerning this service change will be published in a future revision of the affected manual(s). This booklet will provide technical data until the revision(s) is published.

Effectivity: This ASC is applicable to aircraft serial numbers 4001 - 4365.

Effect on Spares: None

Special Equipment / Tools Required: Dukane Seacom Ultrasonic Test Set Model TS500

Gulfstream G450

Aircraft Service Change 106

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Skill Type Required:

Knowledge of the G450 equipment and furnishings and standard structural practices is required for this installation.

Price:

Contact your Regional Sales Manager for pricing information.

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MODIFICATION INSTRUCTIONS:

CAUTION:	PROTECT WIRE BUNDLES, CONNECTORS AND SURROUNDING STRUCTURE DURING ANY MAINTENANCE PROCEDURE 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.
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A. Prepare aircraft as follows:

1. Review pages 1 - 3 of this ASC for any applicable actions or requirements. Ensure aircraft meets all configuration requirements prior to beginning modification.
2. Prepare aircraft for safe maintenance. Refer to AMM, Chapter 20, Safe Ground Maintenance Procedures.

B. Underwater Acoustic Beacon (UAB) -1 installation in aircraft aft equipment bay (-1 kit). Reference Figure 1 for general location:

1. Gain access to the equipment shelf on the right side of the aft equipment bay between FS 666.74 and FS 674.00 and RBL 12.49. The UAB will be mounted horizontally in a forward / aft orientation on the forward inboard area of the shelf.
2. Using mount kit, PN N30A28, as a template, locate and mark insert hole locations (4 places). Reference Figure 2 for location details.
3. Drill a pilot hole through panel skin at center of each new insert location mark using a drill bit matching the pilot of the appropriate counterbore (\varnothing 0.499 - 0.504 inch counterbore).
4. Counterbore each hole to \varnothing 0.499 - 0.504 inch and a depth of 0.434 inch ensuring not to cut into opposite panel skin layer. Test fit insert to ensure it will fit flush with panel skin surface.
5. Rout an additional 5/32 inch of panel core material from inside of each hole to allow for adequate potting material upon installation.
6. Clean panel skin surface around holes with isopropyl alcohol to ensure adhesion in step 7.
7. Place each insert, PN NAS1836-4-14 (4 ea), with the tabs attached into the holes centering the inserts and pressing the tab firmly against panel skin surface. Mix EPOCAST 1633-A50/B (or equivalent) potting material according to manufacturer's instructions, and inject into one of the potting holes using an appropriate gun or syringe. Inject material uninterrupted until material comes out of the other hole and forms a bead. Use isopropyl alcohol to remove any excess potting material.
8. Allow potting material to cure in accordance with manufacturer's instructions, then remove and discard tab.

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9. Install the mounting kit, PN N30A28, to the surface of the panel with bolts, PN NAS6304-5 (4 ea), and washers, PN NAS1149D0432K (4 ea). Torque bolts to 20-25 inch-pounds. Ensure mounting kit is installed with the removable securing plate on the forward end of the assembly. Reference Figure 3.
10. Install DK180 UAB into the mount with the water switch facing forward and rotate to ensure the label can be easily read. Reference Figure 3.
11. Clean surface of panel adjacent to UAB using a clean, lint free cloth and isopropyl alcohol. Solvent wipe and dry surface repeatedly until no residue remains. Apply decals CE524236001-13 and GAD12C-5-ASC 106, as shown in Figure 2.
12. Overcoat decals using clear epoxy topcoat 3020 (GMS 5006 Type I).

NOTE:	Installation of the UAB in the baggage compartment may be performed in two different configurations. These installations will be indicated as -3 and -5 and will be explained separately in this booklet. The different installations are provided to allow the customer maximum flexibility to place the UAB in a location that is convenient for maintenance but does not obstruct use of baggage compartment storage areas. The -5 installation is only available on aircraft 4110 and subsequent.
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C. UAB -3 installation in baggage compartment on upper forward bulkhead of Baggage Electronic Equipment Rack (BEER) (-2 kit):

1. Gain access to the aircraft baggage compartment forward bulkhead of the BEER at FS 584.89 and WL 127.19. UAB and a protective cover will be installed on the forward side of the bulkhead. Reference Figure 4.
2. Using mount kit, PN N30A28, as a template, locate and temporarily mark insert hole locations (4 places). Reference Figure 5 for location details.
3. Before proceeding with installation, ensure adequate spacing in reference to any existing inserts already installed in the panel and adjust mounting location as needed. Clearance must also be checked for the CE524236001-15 hat section. Reference Figures 6 and 7 for minimum spacing requirements.

NOTE:	Use appropriate means to remove grosspoint for installing inserts. Take special precaution to prevent damage to covering that will remain installed.
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4. Remove grosspoint only under the footprint of the mount kit, PN N30A28.
5. Using mount kit, PN N30A28, as a template, locate and mark insert hole locations (4 places).
6. Drill a pilot hole through panel skin at center of each new insert location mark using a drill bit matching the pilot of the appropriate counterbore (Ø 0.499 - 0.504 inch counterbore)

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7. Counterbore each hole to Ø 0.499 - 0.504 inch and a depth of 0.341 inch ensuring not to cut into opposite panel skin layer. Test fit insert to ensure it will fit flush with panel skin surface.
8. Rout an additional 5/32 inch of panel core material from inside of each hole to allow for adequate potting material upon installation.
9. Clean panel skin surface around holes with isopropyl alcohol to ensure adhesion in step 10.

NOTE:	Use appropriate means to protect surrounding surfaces due to the likelihood of potting material dripping during insert installation.
--------------	--

10. Place each insert, PN NAS1836-4-11 (4 ea), with the tabs attached into the holes centering the inserts and pressing the tab firmly against panel skin surface. Mix EPOCAST 1633-A50/B (or equivalent) potting material according to manufacturer's instructions, and inject into one of the potting holes using an appropriate gun or syringe. Inject material uninterrupted until material comes out of the other hole and forms a bead. Use isopropyl alcohol to remove any excess potting material.
11. Allow potting material to cure in accordance with manufacturer's instructions, then remove and discard tab.
12. Install the mount kit, PN N30A28, to the surface of the panel with bolts, PN NAS6304-4 (4 ea), and washers, PN NAS1149D0432K (4 ea). Torque bolts to 20-25 inch-pounds. Install mounting kit with the removable securing plate on the bottom of the assembly to ensure clearance to remove and install the DK180 UAB. Reference Figure 3.
13. Install DK180 UAB into the mount with the water switch facing down and rotate to ensure the label can be easily read. Reference Figure 3.
14. Secure UAB to mount (water switch facing down) with securing plate and supplied cap screws and lock washers. Torque screws to 15 – 20 inch-pounds ensuring the securing plate makes contact with body of the mounting cradle.
15. Place hat section, PN CE524236001-15, over the UAB. Position -15 hat section centered over, but covering the entire N30A28 mount. It is permissible for the cap screws of the N30A28 mount securing plate to protrude beyond the edge of the -15 hat section. Locate and mark insert location holes (4 places) ensuring proper clearance between N30A28 mount kit and -15 hat section. Clearance should be approximately 0.30 inch. Reference Figures 5 and 7 for minimum insert location distances and installation details.

NOTE:	Use appropriate means to remove grosspoint for installing inserts. Take special precaution to prevent damage to covering that will remain installed.
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16. Carefully remove grosspoint from panel in a 0.46 inch circle directly centered around each insert location (4 places).

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17. Drill a pilot hole through panel skin at center of each new insert location mark using a drill bit matching the pilot of the appropriate counterbore (Ø 0.452 - 0.457 inch counterbore).
18. Counterbore each hole to Ø 0.452 - 0.457 inch and a depth of 0.341 inch ensuring not to cut into opposite panel skin layer. Test fit insert to ensure it will fit flush with panel skin surface.
19. Rout an additional 5/32 inch of panel core material from inside of each hole to allow for adequate potting material upon installation.
20. Clean panel skin surface around holes with isopropyl alcohol to ensure adhesion in step 21.

NOTE:	Use appropriate means to protect surrounding surfaces due to the likelihood of potting material dripping during insert installation.
-------	--

21. Place each insert, PN NAS1836-3-11 (4 ea), with the tabs attached into the holes centering the inserts and pressing the tab firmly against panel skin surface. Mix EPOCAST 1633-A50/B (or equivalent) potting material according to manufacturer's instructions, and inject into one of the potting holes using an appropriate gun or syringe. Inject material uninterrupted until material comes out of the other hole and forms a bead. Use isopropyl alcohol to remove any excess potting material.
22. Allow potting material to cure in accordance with manufacturer's instructions, then remove and discard tab.
23. Attach hat section, PN CE524236001-15, to panel using screws, PN MS27039-1-06, and washers, PN NAS1149D0332K (4 ea).
24. Clean surface of hat section, PN CE524236001-15, using a clean, lint free cloth and isopropyl alcohol. Solvent wipe and dry surface repeatedly until no residue remains. Apply decals CE524236001-13 and GAD12C-5-ASC 106, as shown in Figure 5.
25. Overcoat decals using clear epoxy topcoat 3020 (GMS 5006 Type I).

NOTE:	The following -5 installation is only available for aircraft 4110 and subsequent.
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- D.** UAB -5 Installation in baggage compartment inside water tank cabinet on forward water tank bulkhead (-2 kit). Reference Figure 8 for general location.
1. Gain access to the aircraft baggage compartment.
 2. Remove close out for water tank cabinet and access the vertical bulkhead directly forward of the water tank at FS 562.30.
 3. Using mount kit, PN N30A28, as a template, locate and mark insert hole locations (4 places). Reference Figures 9 and 10.

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4. Drill a pilot hole through panel skin at center of each new insert location mark using a drill bit matching the pilot of the appropriate counterbore (Ø 0.499 - 0.504 inch counterbore).
 5. Counterbore each hole to Ø 0.499 - 0.504 inch and a depth of 0.434 inch ensuring not to cut into opposite panel skin layer. Test fit insert to ensure it will fit flush with panel skin surface.
 6. Rout an additional 5/32 inch of panel core material from inside of each hole to allow for adequate potting material upon installation.
 7. Clean panel skin surface around holes with isopropyl alcohol to ensure adhesion in step 8.
 8. Place each inset, PN NAS1836-4-14 (4 ea), with the tabs attached into the holes centering the inserts and pressing the tab firmly against panel skin surface. Mix EPOCAST 1633-A50/B (or equivalent) potting material according to manufacturer's instructions, and inject into one of the potting holes using an appropriate gun or syringe. Inject material uninterrupted until material comes out of the other hole and forms a bead. Use isopropyl alcohol to remove any excess potting material.
 9. Allow potting material to cure in accordance with manufacturer's instructions, then remove and discard tab.
 10. Install the mount kit, PN N30A28, to the surface of the panel with bolts, PN NAS6304-5 (4 ea), and washers, PN NAS1149D0432K (4 ea). Torque bolts to 20-25 inch-pounds. Install mounting kit with the removable securing plate on the top of the assembly to ensure clearance to remove and install the DK180 UAB. Reference Figure 3.
 11. Install DK180 UAB into the mount with the water switch facing down and rotate to ensure the label can be easily read. Reference Figure 3.
 12. Secure UAB to mount (water switch facing down) with securing plate and supplied cap screws and lock washers. Torque screws to 15 – 20 inch-pounds ensuring the securing plate makes contact with body of the mounting cradle.
 13. Clean surface of panel above UAB using a clean, lint free cloth and isopropyl alcohol. Solvent wipe and dry surface repeatedly until no residue remains. Apply decals, CE524236001-13 and GAD12C-5-ASC 106, as shown in Figure 10.
 14. Overcoat decals using clear epoxy topcoat 3020 (GMS 5006 Type I).
- E.** Follow on.
1. Test any DK180 UAB's installed by this ASC per Instructions for Continued Airworthiness – Dukane Seacom Low Frequency Underwater Acoustic Beacon, CE52423A005 (available in the G450 Technical Library section of MyGulfstream.com)
- F.** Ensure work area is clean and clear of foreign objects and debris (FOD).
- G.** Record compliance with this aircraft service change in the aircraft's permanent maintenance records and return aircraft to flight status.

H. Report compliance with this aircraft service change to Gulfstream 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@campsystems.com or fax to Gulfstream CMP at 800-944-1775 or 912-963-0265.

	The effect of this change with regard to aircraft basic weight and balance is as follows:		
	MOD	Δ WEIGHT	Δ MOMENT
	ASC 106-1 (Aft equipment bay)	≈ 2.7 lb	1,853 in·lb
WEIGHT AND BALANCE DATA:	ASC 106-2 (Baggage compartment) (Configuration -3. Installed outside of cabinet with protective cover)	≈ 3.2 lb	1,921 in·lb
	ASC 106-2 (Baggage compartment) (Configuration -5. Installed inside cabinet without protective cover)	≈ 2.7 lb	1,551 in·lb
ELECTRICAL LOAD ANALYSIS DATA:	The aircraft electrical loading is not affected by this ASC.		

Kit Effectivity:	-1 Kit = Aft Equipment Bay Installation -2 Kit = Baggage Compartment Installation
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PARTS REQUIRED PER AIRCRAFT:					
Item	Part Number	Nomenclature	Qty.		Notes/Alt/Sub
			-1 Kit	-2 Kit	
1.	1159ASC47106	Top Drawing ASC 106	1	1	
2.	CE524236001-13	Decal	1	1	
3.	CE524236001-15	Hat	-	1	
4.	DK180	Underwater Beacon	1	1	Must be ordered separately see note below
5.	GAD12C-5-ASC 106	Decal	1	1	
6.	N30A28	DK180 Mounting Kit	1	1	
7.	NAS1149D0432K	Washer	4	4	
8.	NAS1836-4-11	Insert	-	4	
9.	NAS1836-4-14	Insert	4	4	
10.	NAS6304-4	Bolt, Hex Head	-	4	

Item	Part Number	Nomenclature	Qty.		Notes/Alt/Sub
			-1 Kit	-2 Kit	
11.	NAS6304-5	Bolt, Hex Head	4	4	
12.	GMS5005 TY I or TY II (3012)	Primer, Epoxy, Skydrol Resistant, Water Reducible	A/R	A/R	
13.	GMS 5006 TY I (3013)	Topcoat, Epoxy, Gloss, Untinted White	A/R	A/R	
14.	GMS 5006 TY I (3020)	Topcoat, Epoxy, Clear	A/R	A/R	
15.	EPOCAST 1633-A50/B (or equivalent)	Potting Material	A/R	A/R	
16.	CE52423A005	Instructions for Continued Airworthiness – Dukane Seacom Low Frequency Underwater Acoustic Beacon	1	1	

NOTE :	Item 4, DK180 Underwater Beacon is not included in the ASC kit and must be ordered separately. Contact Gulfstream Parts Sales to acquire this item.
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NOTE:	Installing either the -1 kit or the -2 kit will meet the requirements of this ASC. If both installations are desired, the -1 and -2 kits must be ordered separately. The kits are priced and sold individually.
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NOTE:	All drawings will be issued to the latest revision. All materials having a QTY of A/R are not provided with this kit.
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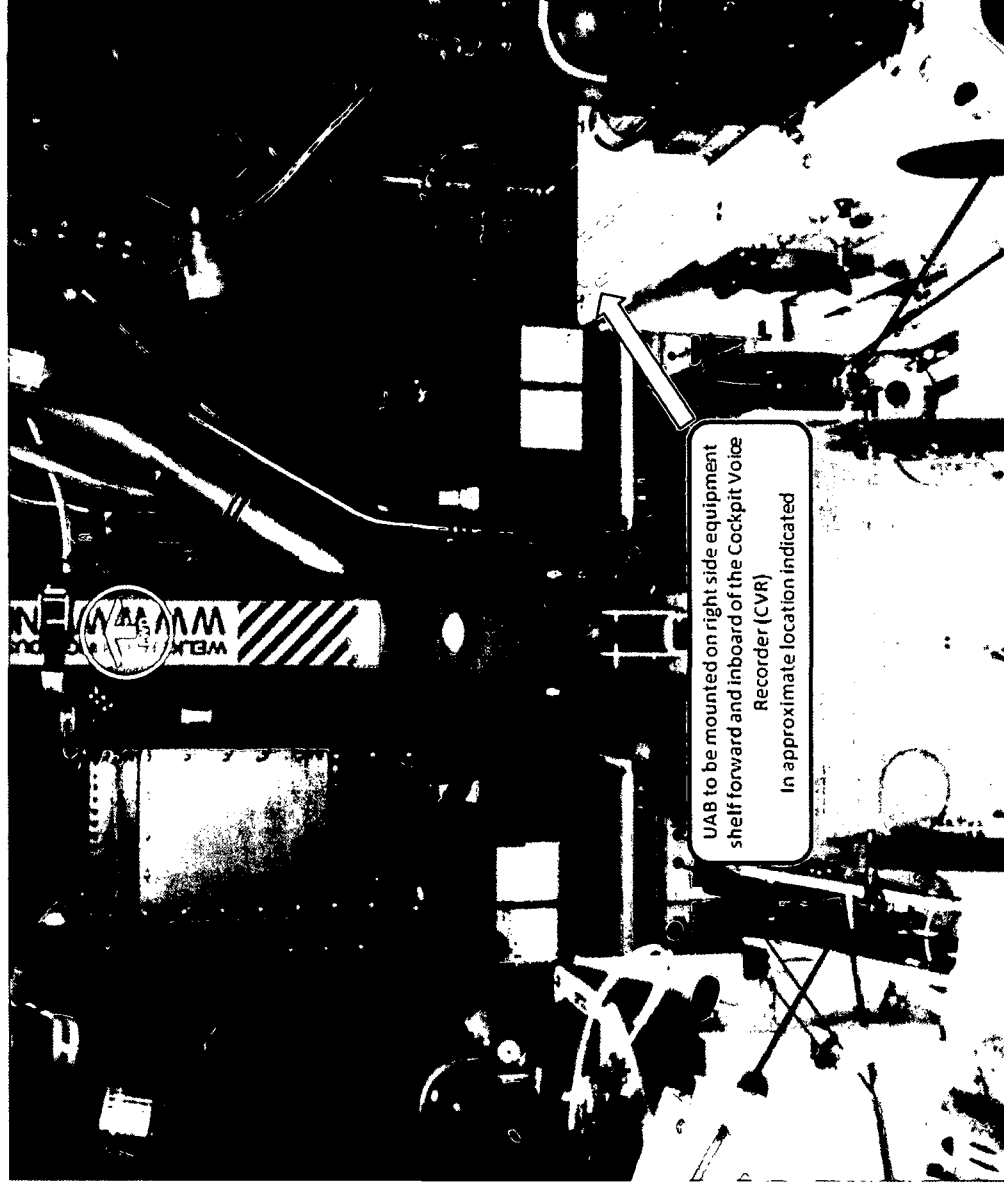


FIGURE 1

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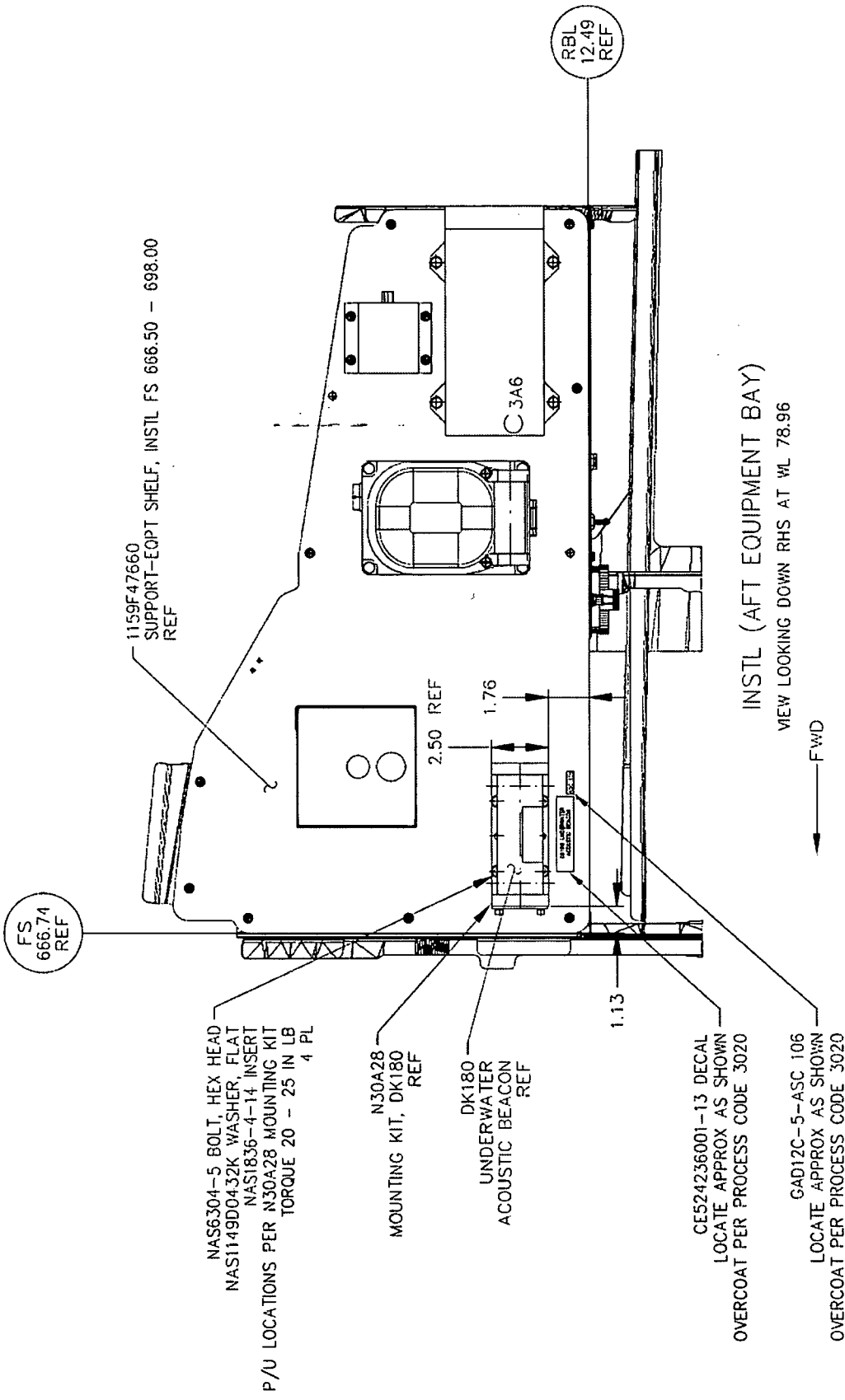


FIGURE 2

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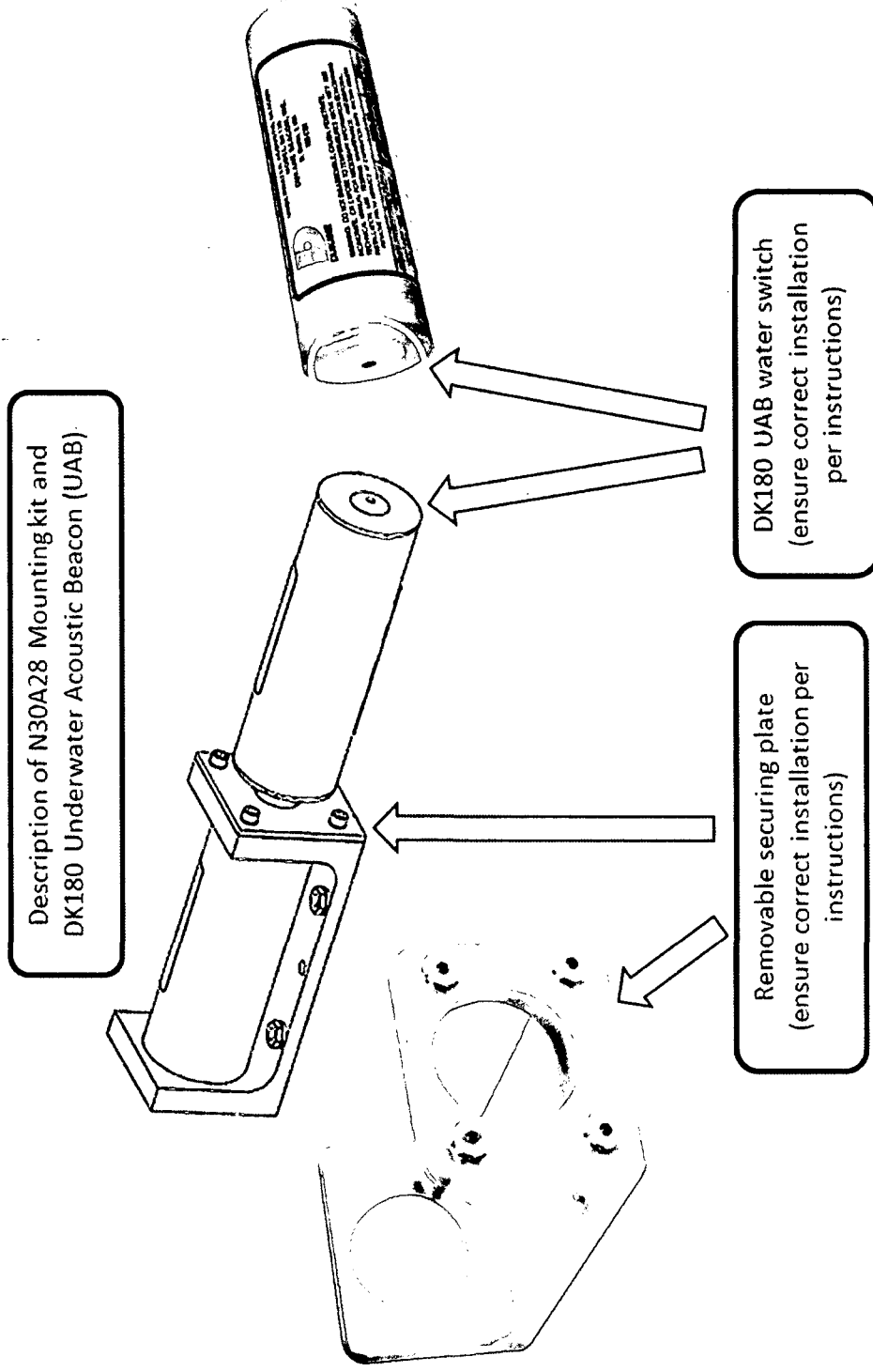


FIGURE 3

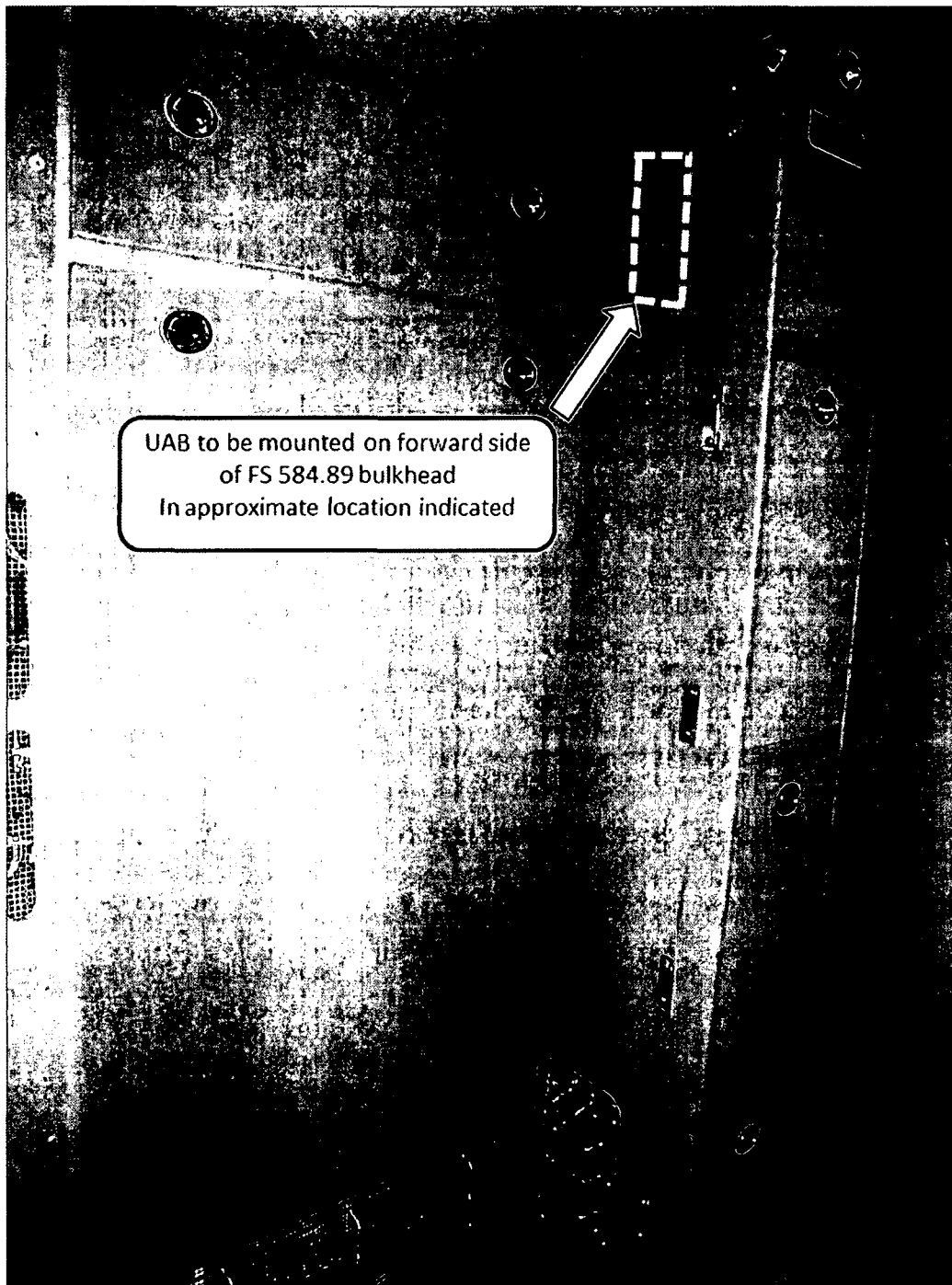


FIGURE 4

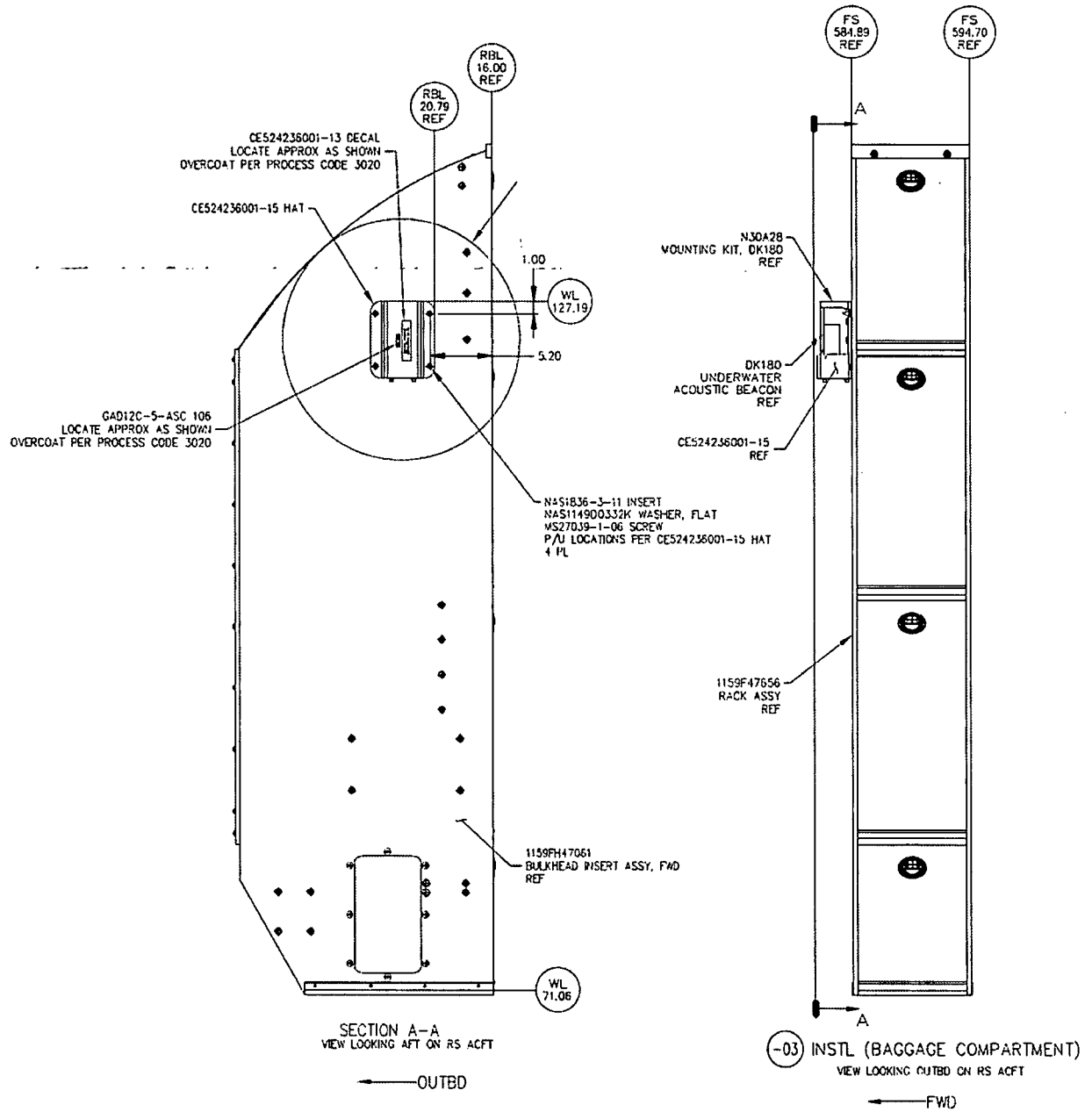


FIGURE 5

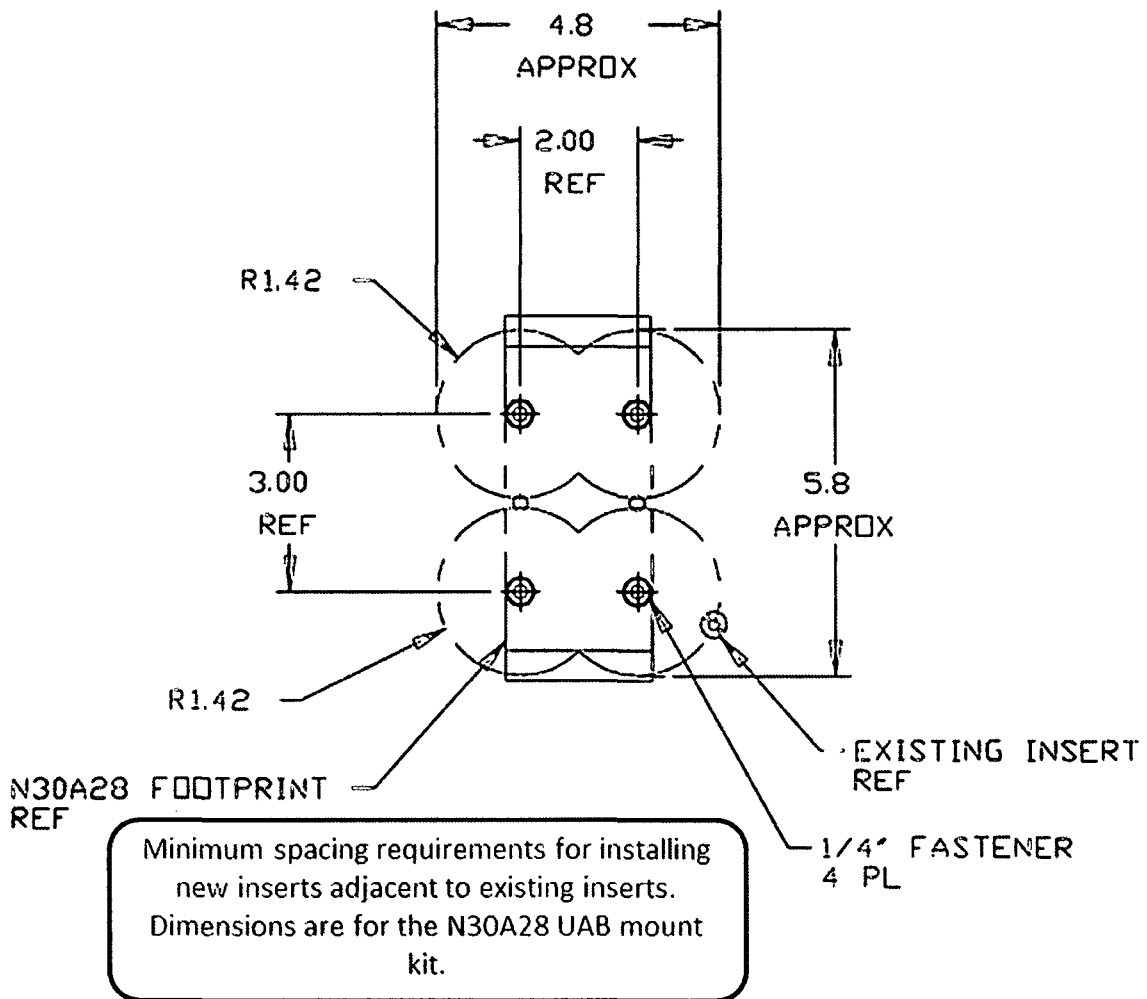


FIGURE 6

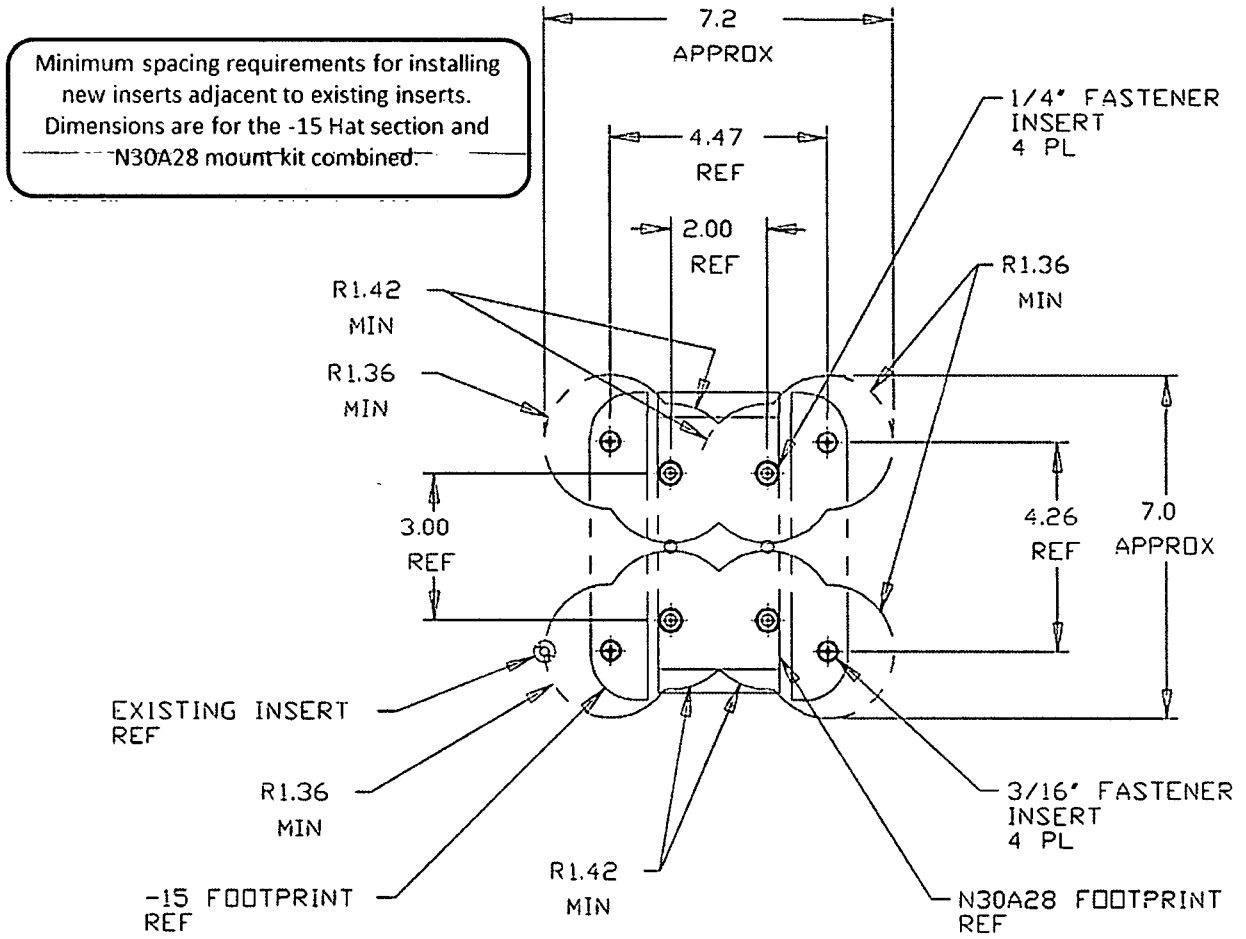


FIGURE 7

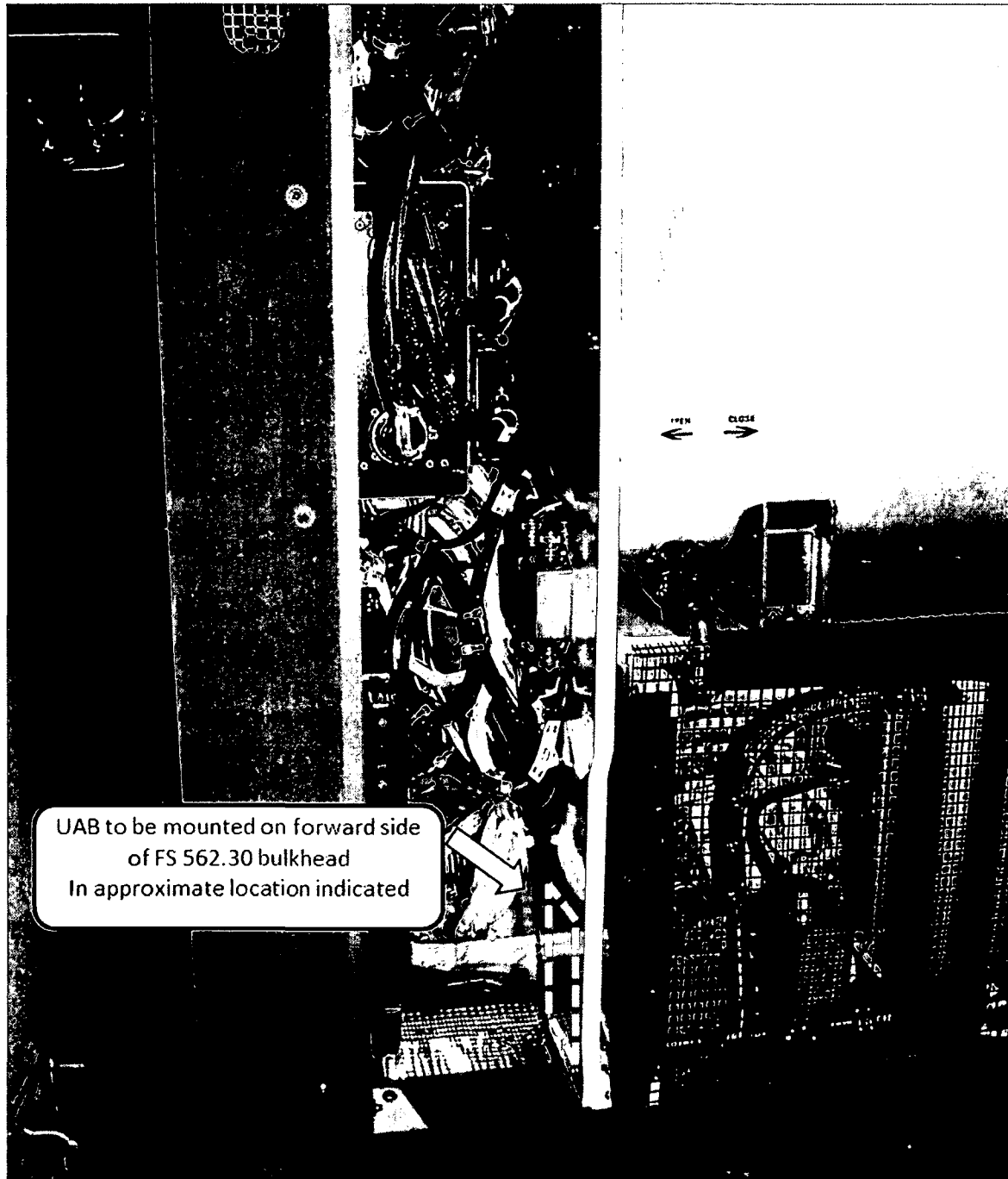


FIGURE 8

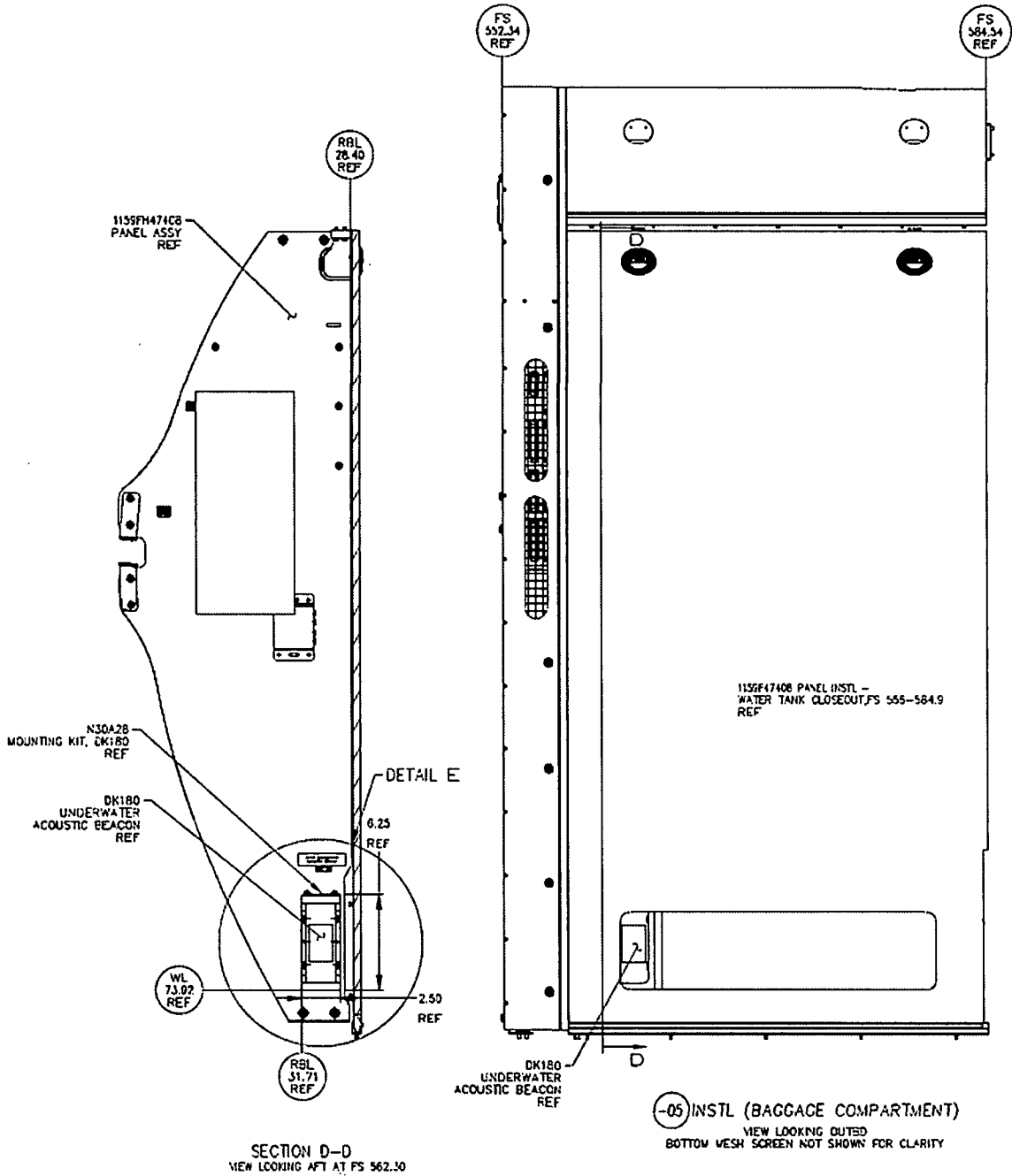
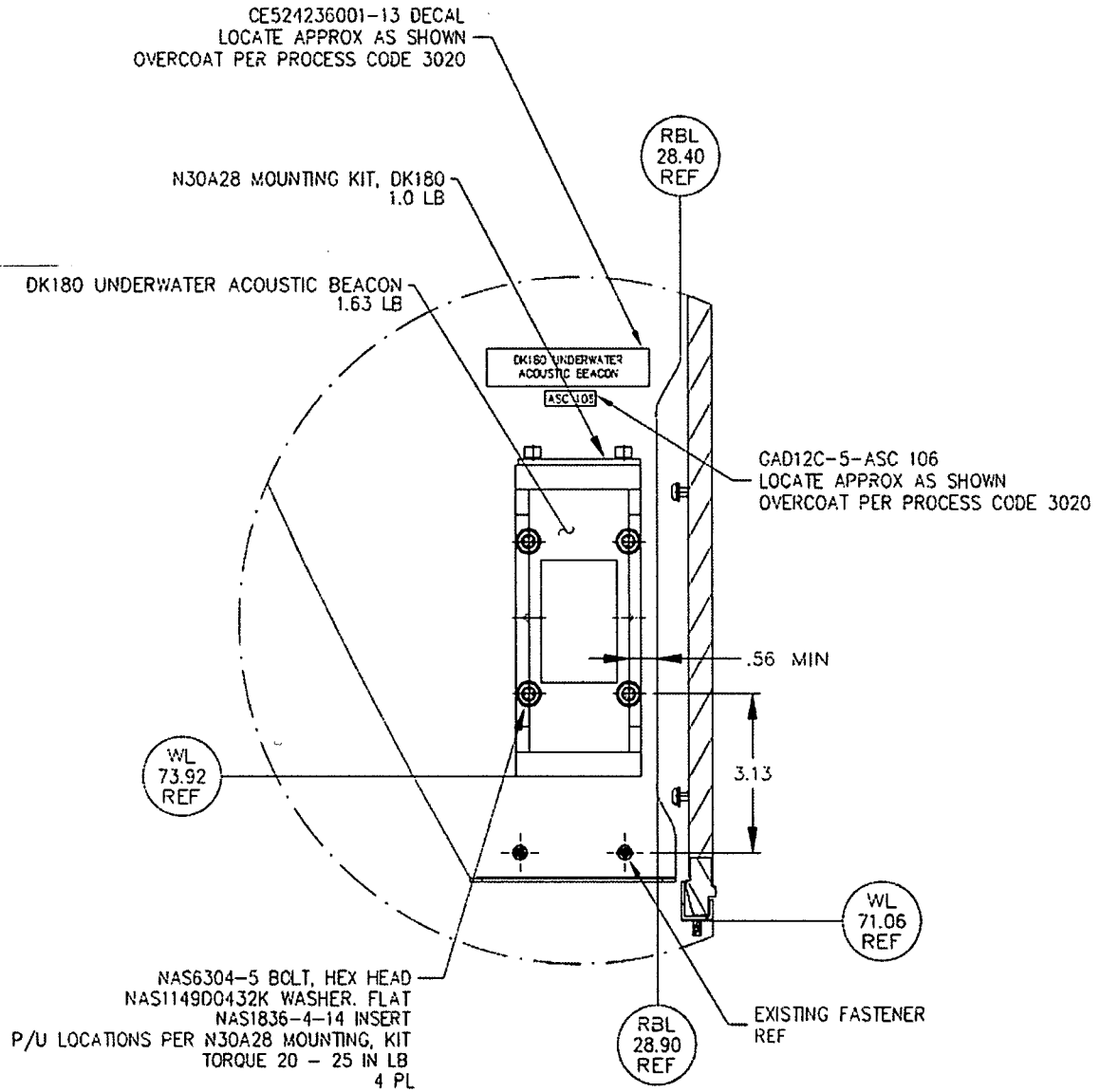


FIGURE 9



DETAIL E
VIEW LOOKING AFT AT FS 562.30

FIGURE 10

November 3, 2017

SERVICE REPLY CARD (Sheet 1 of 2)

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 or fax to Gulfstream CMP at 800-944-1775 or 912-963-0265.

THE FOLLOWING AIRCRAFT SERVICE CHANGE HAS BEEN COMPLIED WITH:

ASC NUMBER	A/C	AIRCRAFT TYPE	COMPLIANCE DATE
971060		G450	

AIRCRAFT HOURS: _____

AIRCRAFT LANDINGS: _____

PREVIOUSLY COMPLIED WITH (PCW): _____ DATE: _____

NOT APPLICABLE: _____ DATE: _____

NOMENCLATURE		PART NUMBER	SERIAL NUMBER	CMP CODE
8.8 kHz Underwater Acoustic Beacon Kit 1 (Aft Equipment Bay) Removal / Installation (SEE NOTES 1 and 2)	ON:	DK180		257050
8.8 kHz Underwater Acoustic Beacon Kit 2 (Baggage Compartment) Removal / Installation (SEE NOTES 1 and 3)	ON:	DK180		257051

NOTE 1: Update for installation only. Code to be activated for aircraft with ASC 106.

NOTE 2: Upon installation of Kit 1, the following CMP codes must also be activated:

- 257052 - 8.8 kHz Underwater Acoustic Beacon Cleaning and Testing
- 257054 - 8.8 kHz Underwater Acoustic Beacon Restore

NOTE 3: Upon installation of Kit 2, the following CMP codes must also be activated:

- 257053 - 8.8 kHz Underwater Acoustic Beacon Cleaning and Testing
- 257055 - 8.8 kHz Underwater Acoustic Beacon Restore

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November 3, 2017

SERVICE REPLY CARD (Sheet 2 of 2)

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

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REGN: NYSINS
MSN: 4082
WO: 066940/00
RTS DATE: 04/07/2019



TRANSMITTAL SHEET

This sheet transmits Revision D, dated October 19, 2016, to Gulfstream G450 Aircraft Service Change 059, dated June 4, 2010, and titled Navigation (ATA 34) – Enhanced Navigation.

Reason for Revision:

This revision reflects the incorporation of GPS modules into current production standard.

Approving Authority:

Updated language to current format

Description:

Updated effectivity of GPS modules
Added kit 4 labor estimate

Approved Engineering Data:

Updated revision level and drawing title (minor change)

Effect on Spares:

Added effectivity range for GPS modules

Modification Instructions:

Step B. Added effectivity range
Step B. 3. Added effectivity range
Step C. Added effectivity specific instructions
Step C. 1. Added effectivity specific instructions
Step C. 1. Updated effectivity of GPS modules in parts table
Step C. 3. Updated language
Step D. 5. Added language to clarify return to service testing instructions

Kit Effectivity:

Created new kit to accommodate additional configuration

Parts:

Created new kit to accommodate additional configuration and added a second note.

Effect of Revision on Prior Accomplishment:

This ASC revision replaces all previous versions of ASC 059. Aircraft operators who have previously complied with any version of ASC 059 are in compliance with this revision and should return the service reply card marked "Previously Complied With".

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List of Effective Pages:

<u>Page</u>	<u>Date</u>	<u>Page</u>	<u>Date</u>
1 - 5	October 19, 2016	7 -8	October 19, 2016

Revision History:

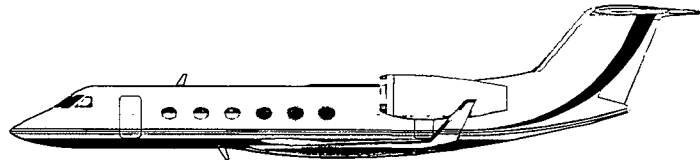
Original Issue:	June 4, 2010	Revision C:	May 13, 2015
Revision A:	August 19, 2010	Revision D:	October 19, 2016
Revision B:	December 22, 2011		

October 19, 2016

Transmittal

Page 1

Gulfstream G450



AIRCRAFT SERVICE CHANGE

NUMBER 059 REVISION D

SUBJECT

NAVIGATION (ATA 34)

ENHANCED NAVIGATION

OCTOBER 19, 2016

Gulfstream®
A GENERAL DYNAMICS COMPANY

PILOTS INFORMATION SHEET

ENHANCED NAVIGATION

This service change provides hardware and software necessary to modify the aircraft with a package of navigational system optional functions.

Aircraft operating under FAA regulations will require FAA Airplane Flight Manual (AFM) Revision 29, or later approved version, as a result of this service change.

Aircraft operating under EASA / JAA regulations will require JAA Airplane Flight Manual (AFM) Revision 15, or later approved version, as a result of this service change.

PLEASE DETACH AND GIVE TO FLIGHT DEPARTMENT PERSONNEL

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Revision D
October 19, 2016

PILOTS INFORMATION SHEET

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PLEASE RETAIN THIS COPY WITH THE ASC BOOKLET

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Revision D
October 19, 2016

The design change effected by this Aircraft Service Change (ASC) has been classified as Major by the United States Federal Aviation Administration (FAA) and Level 1 Major by the European Aviation Safety Agency (EASA). The design change data contained here-in and effected by this document is approved and accepted by the FAA under project number TD9612AT-T and by the EASA under project number EASA.IM.A.C.01793.

ASC 059 Revision "D" has been classified as Minor by the FAA and EASA. This design change data is approved and accepted by the FAA under Gulfstream Organization Designation Authorization (ODA) Project No. TG-01-2016-0001 and EASA accepted under the provision of the EU/USA BASA effective 05-01-2011.

The design of this ASC is approved by aircraft type design data for installation on aircraft registered for operation in accordance with applicable regulations of the FAA and EASA.

The design of an ASC is configured to a standard (green) production aircraft. If spare wires, pin connections or locations called out have been used for another modification, the installing agency must ensure the development, documentation and approval of any required deviations.

The following instructions, in step-by-step form, are written as a guide to perform this ASC. Compliance with safe maintenance practices, as defined in the Aircraft Maintenance Manual and FAA or EASA regulations, is required.

Gulfstream considers this ASC a means to enhance aircraft capabilities to meet individual operator requirements. The modification is not related to any safety or airworthiness condition.

Subject: Navigation (ATA 34) – Enhanced Navigation

Purpose / Discussion: Enhanced Navigation is a package of options providing several new or upgraded navigational and display features. This service change provides hardware and software necessary to modify the aircraft with a package of navigational system optional functions. New or improved features include:

- Circling approaches
- Temperature compensated VNAV
- SRN / LRN transition
- Automatic preview LRN / SRN
- WAAS / LPV approaches
- Peaks display
- Paperless charts (4001 – 4310)
- RNP 0.1
- CPDLC - FANS 1/A (4001 – 4229)

Description / Labor-Hours
Required Per Aircraft:

This service change loads new software and installs new or upgraded:

- 2 GPS antennas (4001 – 4193)
- 2 GPS modules (4001 – 4353)
- 1 CMC module (4001 – 4193)
- 3 IRUs (4001 – 4229)

Installation of kit 1 will require approximately 38 labor-hours.

Installation of kit 2 will require approximately 26 labor-hours.

Installation of kit 3 will require approximately 12 labor-hours.

Installation of kit 4 will require approximately 4 labor-hours.

Approved Engineering Data:

The source data for this aircraft service change is:
1159ASC47059 Rev. "D" Top Drawing – ASC 059
Enhanced Navigation

Prerequisites:

G450 ASC 908 – PlaneView Master Operating Software Update (Cert Fox), or later approved version
Prior to, or at the time this ASC is ordered, operators will be required to supply a configuration report of the Central Maintenance Computer (CMC). The CMC report can be stored on the aircraft PC laptop then electronically submitted to Gulfstream at asc.software@gulfstream.com. **Creation of a new Options Data disk may take up to 10 days.**

Concurrent Requirements:

None

Associated Documents:

Aircraft Maintenance Manual (AMM), Chapters 20, 31 and 34
GER-9238 – IRU APM Configuration File Backup and Loading
GIVX-GER-1694 - Aerodynamic Contour Smoothness General Specification
GIVX-GER-9934 – PlaneView Software Loading, Verification and Return To Service Procedures. Includes appropriate Data Load Guide based on aircraft Cert level and is located in Maintenance Applications on the aircraft laptop.
GIVX-GER-0019 – RTS for PlaneView Specific ASCs
GIVX-GER-0020 – APM Options Configuration

Flight Manual Revision / Supplement Required:

Aircraft operating under FAA regulations will require FAA Airplane Flight Manual (AFM) Revision 29 or later approved version, as a result of this service change.

Aircraft operating under EASA / JAA regulations will require JAA Airplane Flight Manual (AFM) Revision 15, or later approved version, as a result of this service change.

Publications Data:

Data concerning this service change will be published in a future revision of the affected manual(s). This booklet will provide technical data until the revision(s) is published.

Effectivity

This service change is applicable to aircraft serial numbers 4001 – subsequent.

Effect on Spares:

The following, or later approved, components should be used for spares following incorporation of this modification:

GPS Modules (2) – PN 245-604067-100 (4001 – 4353)

IRUs (3) – PN HG2100AB07 (4001 – 4229)

CMC Module (1) – PN 7034055-1901 (4001 – 4193)

Special Equipment / Tools Required:

Aircraft PC Laptop with Remote Terminal Tool version 20.2 or later. Refer to Gulfstream PlaneView Maintenance Applications disk, PN 1159LAP59000.

26019960-215 – APM Config Index File (Fox)

1159GSE50527 - IRS Alignment Harness or approved alternates as noted in GER-9238

26018704 (-103/-104 for 95/98/98NT, -205 for Windows 2000/XP, -206 for XP) – IRS Alignment Software

Skill Type Required:

Knowledge of the G450 navigation, indicating / recording systems and electrical standard practices will be required for this installation.

Price:

Contact your Regional Sales Manager for pricing information.

NOTE:	<p>This ASC is managed by Product Support Program Management (PSPM). Incorporation MUST be coordinated through PSPM via email at pspm@gulfstream.com or through Gulfstream Aircraft Scheduling at 800-810-GULF (4853) or 912-965-4178. If not scheduled, aircraft downtime could increase significantly.</p> <p>This ASC may only be accomplished at a Gulfstream facility or a facility that has been approved by Gulfstream in writing to perform this specific modification.</p>
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MODIFICATION INSTRUCTIONS:

CAUTION:	PROTECT WIRE BUNDLES, CONNECTORS AND SURROUNDING STRUCTURE DURING ANY MAINTENANCE PROCEDURE 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.
----------	---

A. Software preparation for modifications:

1. Verify a CMC configuration report has been submitted.

B. Prepare aircraft 4001 - 4353 for safe maintenance / modification as follows:

1. Remove all electrical power, turn all cockpit switches off and disconnect battery quick disconnects. Refer to AMM, Chapter 20.
2. Pull, tag and install safety clips on all circuit breakers (CBs) as noted in AMM, Chapters 31-44-01, and / or 34-42-01 and 34-52-01 and others as required.
3. Gain access to the left and right electronic equipment racks (LEER/REER) as required for aircraft 4001 – 4353.
4. Gain access to the #2 IRU located in the REER and #1 and #3 IRUs located under the floorboards at fuselage stations (FS) 242.5 and 255.5 on aircraft 4001 – 4229.

C. Modify aircraft as follows (aircraft 4354 – subsequent skip to Step D.):

1. Using appropriate AMM procedures, remove the following components for update or replacement as applicable to aircraft 4001 - 4353:

NOTE:	<p>Prior to removing Honeywell components, coordinate the shipment with Gulfstream Scheduling at 800-810-GULF (4853) or 912-965-4178, for availability of component upgrades and turn times. If not scheduled, aircraft downtime could increase significantly.</p> <p>Verify component part numbers and MOD level. Any component meeting the new part number and minimum MOD level criteria will not require removal.</p> <p>Part number and MOD level listed below is the minimum level required for functionality with this service change. Later approved versions will be acceptable as they become available.</p>
-------	--

Component	Qty	Old Part Number	New Part Number	Update / Replace	Minimum MOD Level	Effectivity
CMC module	1	71026548-XXXX	7034055-1901	Replace	N/A	4001-4193
GPS module	2	245-604067-001	245-604067-100	Replace	N/A	4001-4353
IRUs	3	HG2100AB02	HG2100AB07	Update	N/A	4001-4229

2. Aircraft 4001 – 4229: Remove the #2 IRU located in the REER and #1 and #3 IRUs located under the floorboards at fuselage stations (FS) 242.5 and 255.5 for modification. Install updated components or exchange units as coordinated with Scheduling.
3. Replace the CMC module and GPS modules (if required). Refer to AMM, Chapters 31 and 34.

NOTE:	Instructions concerning GPS antenna replacement only apply to aircraft 4001–4193. Aircraft 4194-sub should proceed to Step D.
-------	---

4. Gain access to GPS antennas located in the over head area forward of the main entry door (MED) on aircraft serial numbers 4001 - 4193. Refer to AMM, Chapter 34 and Figure 1.
5. Remove existing GPS antennas, PN S67-1575-232. Hardware may be retained and reused or replaced. Refer to Figure 1.

NOTE:	Bonding area on the aircraft must conform to the antenna footprint. If needed, burnish the aircraft structure to a dimension 0.12 inches larger than the actual footprint of the antenna. Treat with Alodine 600.
-------	---

6. Install new GPS antennas, PN S67-1575-237, and gaskets, PN GAG810GG1-9, using screws, PN MS24694-C48 and MS24694-C52. Orient antennas so the right angle connectors point towards the rear of the aircraft. Ensure appropriate hardware is utilized in correct location. Refer to Figures 1 and 2.
7. Touch up exposed areas on external structure with epoxy primer per finish code 3012 prior to sealing.
8. Fillet seal external seams existing between antenna, gasket and aircraft structure using AMS-S-8802 or equivalent. Sealing must comply with aero smoothness requirements per GIVX-GER-1694.
9. Place vinyl dots, PN 1159SCF457-15, on each screw head and fill recesses flush to area using sealant AMS-S-8802 or equivalent. Sealant may extend above the countersinks but must comply with aero smoothness requirements per GIVX-GER-1694.
10. Locate decals approximately as shown in Figure 2, view C-C. Overcoat with clear epoxy top-coat extending 1/8th inch beyond edge of decal. Remove any existing decals if necessary.

D. Software Modifications and Follow-on Procedures:

1. Prepare aircraft for safe maintenance and application of electrical power. Refer to AMM, Chapter 20.

NOTE:	When updating IRU software, the APM data must be READ and then backed up prior to attempting to change the configuration index file. Read GER-9238 in its entirety prior to accessing IRU APM data. Failure to properly back up IRU APM data could result in full IRU tray alignment procedure being required.
-------	--

2. On aircraft 4001 – 4229, connect IRU test equipment and start up alignment software. Update IRU APM in accordance with to GER-9238. Remove IRU test equipment upon completion.

NOTE:	When multiple ASCs containing software are compiled with simultaneously, only the Loadable Avionics Software Configurations (Options) disk containing the final configuration will be provided. Upon completion of software installation, a verification of the new configuration as stated on the AR will be conducted in accordance with GIVX-GER-0020 - APM Options Configuration Checkout. Additionally, the appropriate sections of GIVX-GER-0019 – Return to Service Procedures for PlaneView Specific ASCs, as stated on the AR must be completed at the time of initial installation.
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NOTE:	Correct setup of the aircraft laptop with the CMC Remote Terminal Tool is critical to the successful loading and operation of all software. Follow Data Load Guide procedures CAREFULLY. Ensure any firewalls, anti-virus programs or wireless LAN connections are disabled and the laptop is connected to 60 Hz aircraft power.
-------	--

NOTE:	Refer to the appropriate Data Load Guide for aircraft Cert level for software procedures when loading and verifying software. Data Load Guide is included in GIVX-GER-9934 – PlaneView Software Loading, Verification and Return To Service Procedures located in Maintenance Applications on the aircraft laptop.
-------	--

NOTE:	Options CDs are security enabled. Note the security code on the disk label before loading into aircraft laptop. Enter security code when prompted.
-------	--

3. Install Loadable Avionics Software Configurations (Options) software using Data Load Guide Procedures.
4. Verify software loads in accordance with Data Load Guide procedures.

NOTE:	New software is issued with an Authorization Report (AR). The information contained on the report will match the information on the disk including aircraft specific information. Individual return-to-service procedures for new software, as stated on the AR, must be completed in addition to any other RTS procedure identified within an ASC. ARs for current software load should be maintained with aircraft current configuration software for availability anytime it is necessary to reload software.
-------	--

- 5. Perform test procedures in accordance with GIVX-GER-0019 – Return to Service (RTS) Procedures for PlaneView Specific ASCs as identified on the AR. This includes the RTS procedures for the Enhanced Navigation functions and the CPDLC function if CPDLC is not previously installed.
- 6. Perform applicable operational checks for replaced or updated components in accordance with AMM.
- E. Submit a CMC configuration report to reflect completion of software installation and verify aircraft configuration. Attach the report to an email and send to asc.software@gulfstream.com noting the aircraft serial number in the subject line.
- F. If any firewalls, anti-virus programs or wireless LAN connections were disabled as part of this installation, re-enable these applications.
- G. Remove electrical power from aircraft. Refer to AMM, Chapter 20.
- H. Remove disk from laptop and store on board the aircraft. Discard previous version of Options disk.
- I. Ensure work area is clean and clear of foreign objects and debris (FOD).
- J. Close all areas accessed for modification.
- K. Record compliance with this aircraft service change in the aircraft permanent maintenance records and return aircraft to flight status.
- L. Report compliance with this aircraft service change to Gulfstream CMP by uploading the attached service reply card with the CMP task card(s) sign-off using MyGulfstream, MyCMP document upload, or e-mail to cmp.docproc@campsystems.com, or fax to Gulfstream CMP at 800-944-1775 or 912-963-0265.

WEIGHT AND BALANCE DATA:	The effect of this service change, when performed in a stand alone configuration, is negligible with regards to aircraft basic weight and balance. It is the responsibility of the installing facility to perform weight and balance computations in accordance with the AMM and Gulfstream Aircraft Weight and Balance manual. Changes to the weight and balance shall be documented in the aircraft permanent records.			
	MOD	WEIGHT	HORIZONTAL	MOMENT
	ASC 059 (4001 – 4193)	-0.2 lbs	84.836	-16.967
	ASC 059 (4194 – sub)	≈0.0 lbs	-	-

ELECTRICAL LOAD ANALYSIS DATA:	The effect of this change on the aircraft electrical loading is 0.
--------------------------------	--

Kit Effectivity:	Kit 1 – Aircraft serial numbers 4001 – 4193 Kit 2 – Aircraft serial numbers 4194 – 4229 Kit 3 – Aircraft serial numbers 4230 – 4353 Kit 4 – Aircraft serial numbers 4354 – subsequent
------------------	--

PARTS REQUIRED PER AIRCRAFT:							
Item	Part Number	Nomenclature	Qty.				Notes/Alt./Substitutes
			-1 Kit	-2 Kit	-3 Kit	-4 Kit	
1.	S67-1575-237	GPS antennas	2	-	-	-	
2.	GAG810GG1-9	Gasket	2	-	-	-	
3.	MS24694-C48	Screw	8	-	-	-	
4.	MS24694-C52	Screw	8	-	-	-	
5.	1159SCF457-15	Vinyl dot	16	-	-	-	
6.	GAD12C-3-ASC059A1	Decal	1	-	-	-	
7.	GAD12C-3-ASC059A2	Decal	1	-	-	-	
8.	1159ASC47059-SW	Software Package	1	1	1	1	*Item 9 included ✓
9.	1159SB51000	Loadable Avionics Software Configurations	✓	✓	✓	✓	Options disk
10.	245-604067-100	GPS module	2	2	2	-	**Items 10-12 are not part of the ASC kit. New or upgraded parts must be arranged through scheduling.
11.	7034055-1901	CMC module	1	-	-	-	
12.	HG2100AB07	IRUs	3	3	-	-	
13.	GIVX-GER-0019	RTS for PlaneView ASCs	1	1	1	1	
14.	GIVX-GER-0020	APM Options	1	1	1	1	

*NOTE:	All software media required for this ASC will be issued as a separate package by PN 1159ASC47059-SW. Prior to ordering this ASC kit a CMC configuration report must be submitted.
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**NOTE:	Aircraft having previously complied with ASC 084 – Mandates Package (CPDLC / ADS-B Out) will not require GPS modules.
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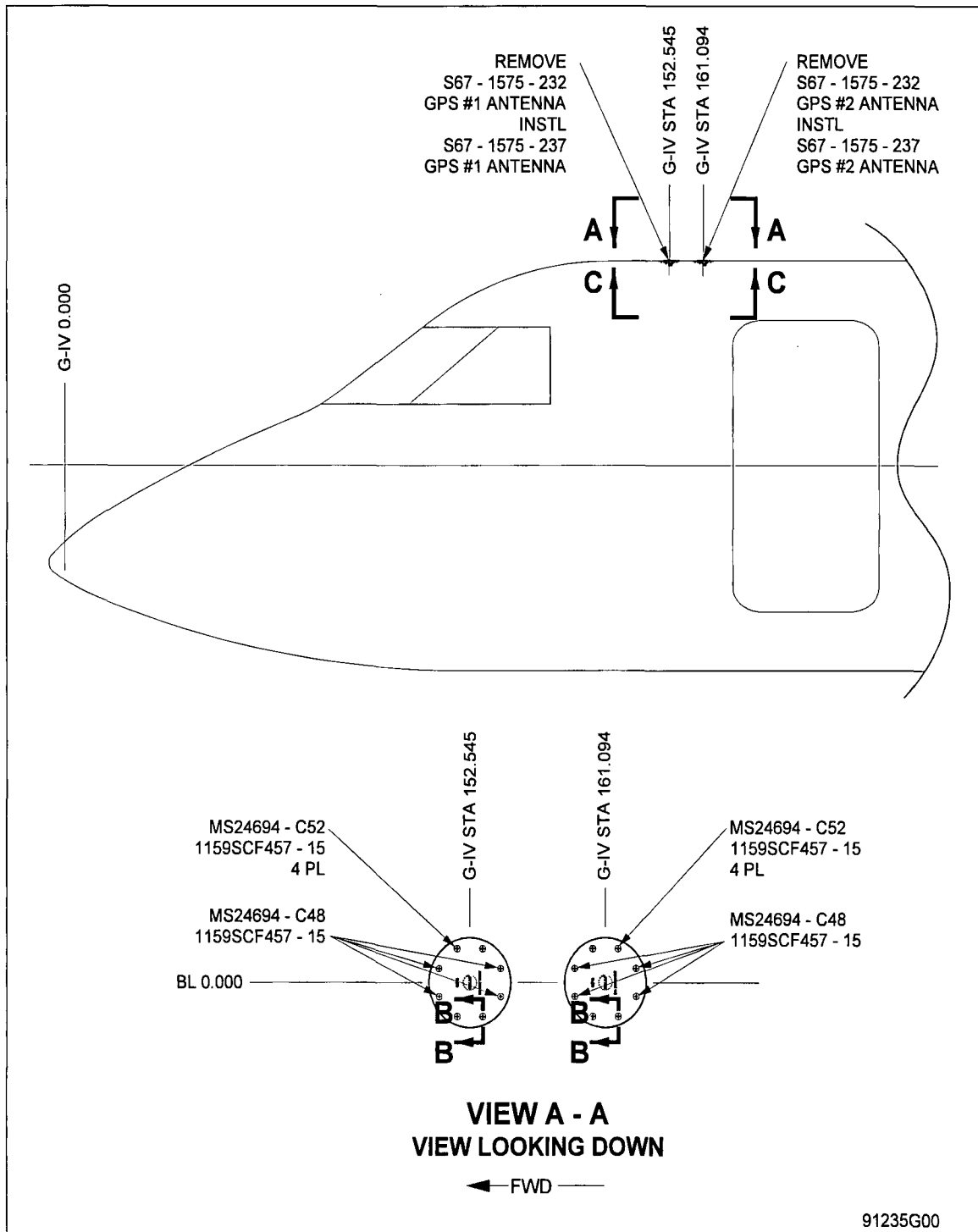


FIGURE 1 (4001 - 4193)

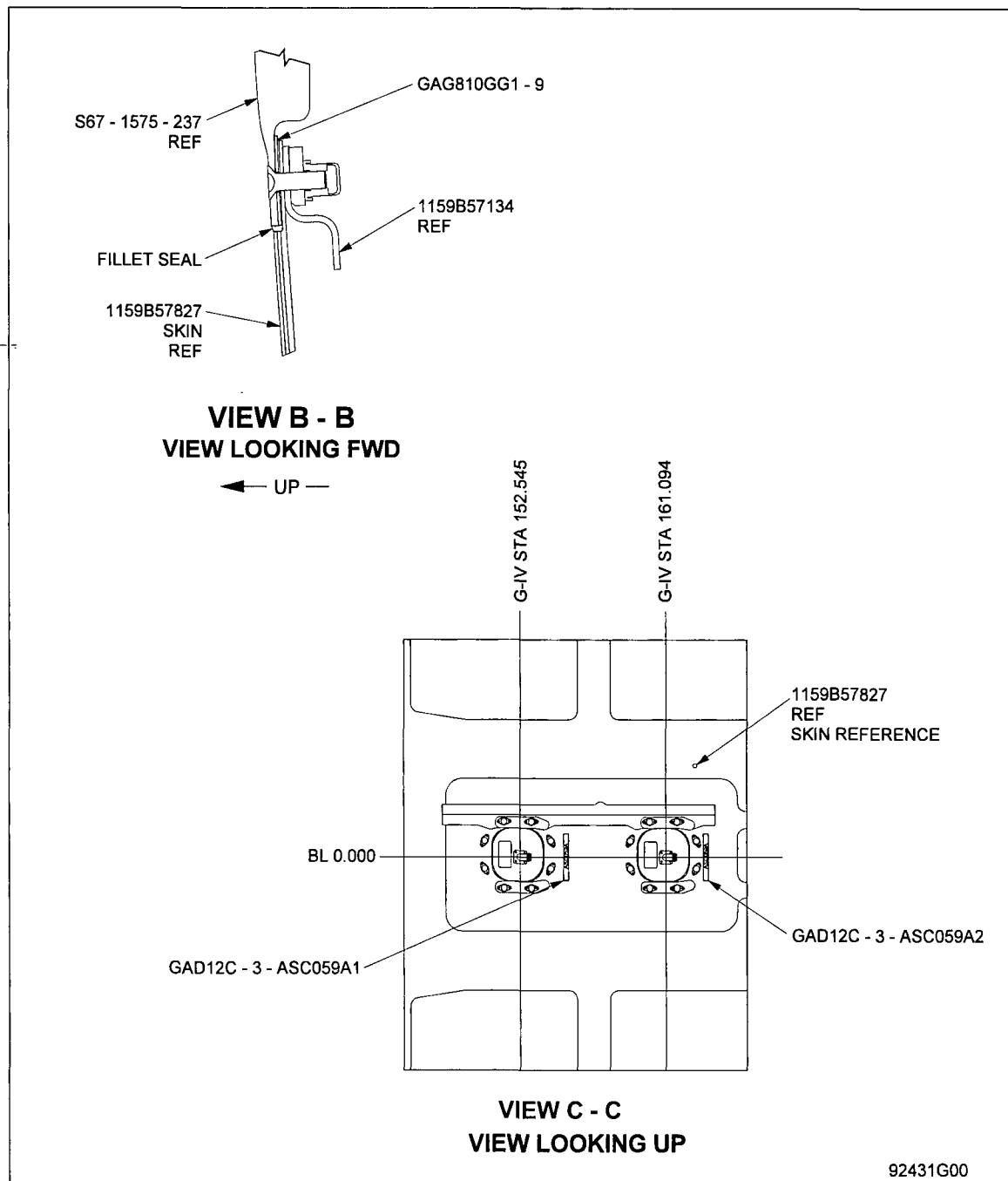


FIGURE 2 (4001 - 4193)

SERVICE REPLY CARD

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THE FOLLOWING AIRCRAFT SERVICE CHANGE HAS BEEN COMPLIED WITH:

ASC NUMBER	A/C	AIRCRAFT TYPE	COMPLIANCE DATE
970594		G450	

AIRCRAFT HOURS: _____
 AIRCRAFT LANDINGS: _____
 NOT APPLICABLE: _____ DATE: _____

NOMENCLATURE	PART NUMBER	SERIAL NUMBER	CMP CODE
CMC MODULE	OFF:		
	ON:		
GPS ANTENNA #1	OFF:		
	ON:		
GPS ANTENNA #2	OFF:		
	ON:		
GPS MODULE	OFF:		
	ON:		
GPS MODULE	OFF:		
	ON:		
IRU #1	OFF:		
	ON:		
IRU #2	OFF:		
	ON:		
IRU #3	OFF:		
	ON:		

DISC INFORMATION

MEDIA TITLE	TOP LEVEL SYSTEM PART NUMBER	MEDIA PART NUMBER	MEDIA SERIAL NUMBER	CMP CODE
OPTIONS DATA	OFF:			
	ON:			

SIGNATURE	TITLE / CERTIFICATE NUMBER	COMPANY
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10

REGN: N451NS
MSN: 4082
WO: 066940/w
RTS DATE: 04/07/2019



TRANSMITTAL SHEET

This sheet transmits Revision B, dated June 14, 2016, to Gulfstream G450 Aircraft Service Change 079, issued April 12, 2013, titled Navigation (ATA 34) – Automatic Dependent Surveillance-Broadcast (ADS-B) Out Installation.

Reason for Revision:

Purpose / Discussion:

Added Note regarding FAA LOAs for ADS-B Out

Effectivity:

Updated aircraft effectivity to reflect production cut-in

Price:

Updated pricing information and format

Modification instructions:

Updated effectivity of Step B.4. note
Step Q. Updated language

Kit Effectivity:

Updated Kit 3 effectivity

NOTE: This ASC revision does not change the approved ASC design / configuration and therefore does not require further regulatory agency approval.

Effect of Revision on Prior Accomplishment:

This ASC revision replaces ASC 079 and 079A. Aircraft operators who have previously complied with ASC 079 or 079A are in compliance with this revision and should return the service reply card marked "Previously complied with."

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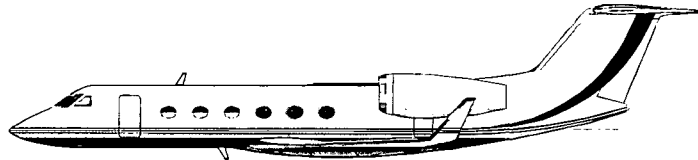
List of Effective Pages:

<u>Page</u>	<u>Date</u>
2-4	June 14, 2016
7-8	June 14, 2016

Revision History:

Original Issue:	April 12, 2013
Revision A:	July 25, 2014
Revision B:	June 14, 2016

Gulfstream G450



AIRCRAFT SERVICE CHANGE

NUMBER 079 REVISION B

SUBJECT

NAVIGATION (ATA 34)

AUTOMATIC DEPENDENT SURVEILLANCE –
BROADCAST (ADS-B) OUT INSTALLATION

JUNE 14, 2016

PILOTS INFORMATION SHEET

AUTOMATIC DEPENDENT SURVEILLANCE –
BROADCAST (ADS-B) OUT INSTALLATION

This service change provides hardware, software and wiring modifications necessary to equip the aircraft with Automatic Dependent Surveillance-Broadcast (ADS-B) Out functionality.

Airplane Flight Manual Supplement G450-2013-01, if present, will be removed upon completion of this modification.

PLEASE DETACH AND GIVE TO FLIGHT DEPARTMENT PERSONNEL

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Revision B
June 14, 2016

PILOTS INFORMATION SHEET
AUTOMATIC DEPENDENT SURVEILLANCE –
BROADCAST (ADS-B) OUT INSTALLATION

This service change provides hardware, software and wiring modifications necessary to equip the aircraft with Automatic Dependent Surveillance-Broadcast (ADS-B) Out functionality.

Airplane Flight Manual Supplement G450-2013-01, if present, will be removed upon completion of this modification.

PLEASE RETAIN THIS COPY WITH THE ASC BOOKLET

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Revision B
June 14, 2016

The design change effected by this Aircraft Service Change (ASC) has been classified as Major by the United States Federal Aviation Administration (FAA) and Level 1 Major by the European Aviation Safety Agency (EASA). The design change data contained in this document is approved and accepted by the FAA under Gulfstream Organization Delegation Authorization (ODA) project number:

- FAA – Project Number TD-01-2011-0039 and EASA Major Change Approval 10043969

The design of this ASC is approved by aircraft type design data for installation on aircraft registered for operation in accordance with applicable regulations of the FAA and EASA.

The design of an ASC is configured to a standard (green) production aircraft. If spare wires, pin connections or locations called out have been used for another modification, the installing agency must ensure the development, documentation and approval of any required deviations.

The following instructions, in step-by-step form, are written as a guide to perform this ASC. Compliance with safe maintenance practices, as defined in the Aircraft Maintenance Manual and FAA or EASA regulations, is required.

Gulfstream considers this ASC a means to enhance aircraft capabilities to meet individual operator requirements. The modification is not related to any safety or airworthiness condition.

Subject: Navigation (ATA 34) – Automatic Dependent Surveillance-Broadcast (ADS-B) Out Installation

Purpose / Discussion: This service change equips the aircraft with ADS-B Out functionality. ADS-B is a next generation surveillance technology incorporating air and ground aspects that provide Air Traffic Control (ATC) with a more accurate picture of the aircraft's three-dimensional position in the en route, terminal, approach and surface environments.

This new capability improves aircraft separation assurance by improving surveillance in remote regions that are beyond the range of existing ATC radar systems. This technology provides the avenue for aircraft to continuously broadcast a message containing aircraft position, heading, velocity, and intent; permitting air-to-ground surveillance coverage in non-radar airspace. This installation is compliant with DO-260B standards which will meet upcoming European and U.S. ADS-B minimum requirements as well as satisfy existing DO-260A standards already in effect in many areas.

NOTE:	<p>Certain countries require that foreign operators obtain operational approval from their State of Registry to access ADS-B airspace. Gulfstream has compiled a data package to assist U.S. operators in obtaining a Letter of Authorization (LOA) from the FAA. This information is available in the <u>Waypoints</u> section of <u>MyGulfstream.com</u>.</p> <p>U.S. operators who have already procured an LOA for use with ASC 091 ADS-B Out Version 1 (or production equivalent) will not be required to apply for another LOA upon completion of this ASC.</p> <p>U.S. operators who have not obtained an LOA for ADS-B Out previously should apply for one from the FAA using the data package available on MyGulfstream.com upon completion of this service change.</p>
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Description / Labor-Hours
Required Per Aircraft:

This service change installs new transponders, loads new software and incorporates wiring modifications to the aircraft as applicable.

Approximately 37 labor-hours will be required for aircraft installing a -1 kit.

Approximately 19 labor-hours will be required for aircraft installing a -2 or -3 kit.

Approved Engineering Data:

The source data for this aircraft service change is:
1159ASC47079 Rev. "A" Top Level Drawing for ADS-B Out (ASC 079)

Prerequisites:

ASC 909B – PlaneView Master Operating System (MOS) Software Update or later, or production equivalent is the minimum cert level required.

ASC 059 – Enhanced Navigation

Prior to, or at the time this ASC is ordered, operators will be required to supply a configuration report of the Central Maintenance Computer (CMC). The CMC configuration report can be stored on the aircraft PC laptop then electronically submitted to Gulfstream at asc.software@gulfstream.com. **Allow up to 10 days for the creation of a new Options Data disk.**

Concurrent Requirements:

None

Associated Documents:

Aircraft Maintenance Manual (AMM), Chapters 20, 31 and 34

GIVX-GER-9934 – PlaneView Software Loading, Verification and Return To Service Procedures. Includes appropriate Data Load Guide based on aircraft Cert level and is located in Maintenance Applications on the aircraft laptop.

Associated Documents continued:

SGER-906 – Electrostatic Discharge Sensitive Device (ESDS) Handling Procedure For PlaneView Aircraft
 GIVX-GER-0019 – Return To Service Procedures for PlaneView Specific ASCs
 MEPS 2600-95 – Raychem Hexashield Adaptors

Flight Manual Revision / Supplement Required:

Airplane Flight Manual Supplement G450-2013-01, if present, will be removed upon completion of this modification.

Publications Data:

Data concerning this service change will be published in a future revision of the affected manual(s). This booklet will provide technical data until the revision(s) is published.

Effectivity

This service change is applicable to aircraft serial numbers 4002 – 4353.
 This or a similar change will be installed during production on aircraft serial numbers 4354 and subsequent.

Effect on Spares:

Transponder module, PN 7517402-970, should be used for spares following incorporation of this modification.

Special Equipment / Tools Required:

Aircraft PC Laptop with Remote Terminal Tool version 26.0 or later. Refer to Gulfstream PlaneView Maintenance Applications disk version 8.4, or later PN 1159LAP59000.

Skill Type Required:

Knowledge of the navigation, indicating / recording systems; electrical standard practices; and software loading procedures will be required for this installation.

Price:

Contact your Regional Sales Manager for pricing information.

NOTE:	This ASC is managed by Product Support Program Management (PSPM). Incorporation MUST be coordinated through PSPM via email at pspm@gulfstream.com or through Gulfstream Aircraft Scheduling at 800-810-GULF (4853) or 912-965-4178. If not scheduled, aircraft downtime could increase significantly.
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MODIFICATION INSTRUCTIONS:

CAUTION:	PROTECT WIRE BUNDLES, CONNECTORS AND SURROUNDING STRUCTURE DURING ANY MAINTENANCE PROCEDURE 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.
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NOTE:	Prior to, or at the time this ASC is ordered, operators are required to supply a configuration report of the Central Maintenance Computer (CMC). The CMC will be reviewed for current configuration. The CMC report may be stored on the aircraft PC laptop then electronically submitted to Gulfstream Technical Operations at asc.software@gulfstream.com .
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A. Software preparation for modifications:

1. Verify a CMC configuration report has been submitted.

B. Prepare aircraft for safe maintenance / modification as follows:

1. Remove all electrical power, turn all cockpit switches off and disconnect battery quick disconnects. Refer to AMM, Chapter 20.
2. Pull, tag and install safety clips on all circuit breakers (CBs) as noted in AMM, Chapters 31-44-01, and / or 34-42-01 and 34-52-01 and others as required to support equipment removed for maintenance access.
3. Gain access to the left and right electronic equipment racks (LEER/REER).

NOTE:	Prior to removing Honeywell components, coordinate the shipment with Gulfstream PSPM via email at pspm@gulfstream.com for availability of components. If not scheduled, aircraft downtime could increase significantly. Components are not included with the ASC kit.
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4. Disconnect the left and right Network Interface Module (NIM) and remove #1 and #2 transponder modules. Return transponders for upgrade or exchange.

NOTE:	Aircraft serial numbers 4307 - 4353, or having ASC 091 installed, skip to Step G. of this ASC and install updated transponders and software.
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5. Using appropriate AMM procedures, remove MAU #3 to permit access to the modification area in the LEER on aircraft 4002 - 4207.

6. Using appropriate AMM procedures, remove the following components as required to permit access to the modification area in the REER on aircraft 4002 - 4207:

MAU #2

MRC #2

NAV/COM

CABIN PRESSURE CONTROLLER

APU GCU

- C. Modify aircraft **4002 - 4207** as follows. Refer to Figures 1, 2, 5 and 6 as applicable.

NOTE:	For information regarding hexashield type terminations conducted at the NIM connectors, refer to GIVX-GER-9934 Appendix D or MEPS 2600-95 – Raychem Hexashield Adaptors.
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1. In the LEER, remove existing wires from 331TJ3M as shown.

NOTE:	Approximately 10 ft of wire will be required for the left side and 15 ft for the right side installation. Identify wire segments as noted for each side.
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2. Install new TJ module SB052TJ3R or SB052TJ3P as applicable and terminate new and existing wires as shown.
3. Route new wire 1RG1E24/1RG2E24 from new TJ module to NIM located at MRC #1. Follow established routing path. Refer to Figure 5.
4. Terminate new wire 1RG1E24/1RG2E24 at NIM connector 026A1A6P1 as shown.
5. In the REER, remove existing wires from 332TJ6N as shown.
6. Install new TJ module SB052TJ6V and terminate new and existing wires as shown.
7. Route new wire 2RG1E24/2RG2E24 from new TJ module to NIM located at MRC #2. Follow established routing path. Refer to Figure 6.
8. Terminate new wire 2RG1E24/2RG2E24 at NIM connector 026A2A6P1 as shown.
9. Ensure all wiring and terminations are secure.

- D. Modify aircraft **4208 and 4284** as follows. Refer to Figure 3.

1. In the LEER, at 331TJ3P locate capped wire 1RG1E24/1RG2E24 and install as shown (contact should already be crimped on wire).
2. At the NIM, depin wire 2RG1H24/2RG2H24 from connector 026A1A6P1. Cap and stow as shown.
3. At NIM connector 026A1A6P1, reposition wire 1RG1E24/1RG2E24 terminations as shown.
4. In the REER, at 332TJ6V locate capped wire 2RG1E24/2RG2E24 and install as shown (contact should already be crimped on wire).
5. At the NIM, depin wire 1RG1H24/1RG2H24 from connector 026A2A6P1. Cap and stow as shown.

- 6. At NIM connector 026A2A6P1, reposition wire 2RG1E24/2RG2E24 terminations as shown.
- 7. Ensure all wiring and terminations are secure.
- E. Modify aircraft **4285 - 4307** as follows. Refer to Figure 4.
 - 1. In the LEER, at 331TJ3P locate capped wire 1RG1E24/1RG2E24 and install as shown (contact should already be crimped on wire).
 - 2. In the REER, at 332TJ6V locate capped wire 2RG1E24/2RG2E24 and install as shown (contact should already be crimped on wire).
- F. Verify continuity and accuracy of wiring and terminations.
- G. Install new or upgraded transponders. Refer to AMM Chapter 34.
- H. Install all equipment removed in Steps B. 5. – 6. as applicable.
- I. Software modifications:
 - 1. Prepare aircraft for safe maintenance and application of electrical power. Refer to AMM, Chapter 20.

NOTE:	When multiple ASCs containing software are compiled with simultaneously, only the Loadable Avionics Software Configurations (Options) disk containing the final configuration will be provided. Upon completion of software installation, a verification of the new configuration as stated on the AR will be conducted in accordance with GIVX-GER-0020 - APM Options Configuration Checkout. Additionally, the appropriate sections of GIVX-GER-0019 – Return to Service Procedures for PlaneView Specific ASCs, as stated on the AR must be completed at the time of initial installation.
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NOTE:	Correct setup of the aircraft laptop with the CMC Remote Terminal Tool is critical to the successful loading and operation of all software. Follow Data Load Guide procedures CAREFULLY . Ensure any firewalls, anti-virus programs or wireless LAN connections are disabled and the laptop is connected to 60 Hz aircraft power.
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NOTE:	Refer to the appropriate Data Load Guide for aircraft Cert level for software procedures when loading and verifying software. The Data Load Guide, included in GIVX-GER-9934 – PlaneView Software Loading, Verification and Return To Service Procedures, is located in Maintenance Applications on the aircraft laptop.
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NOTE:	Options CDs are security enabled. Note the security code on the disk label before loading into aircraft laptop. Enter security code when prompted.
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- 2. Install Loadable Avionics Software Configurations (Options) software using Data Load Guide Procedures.
- 3. Verify software loads in accordance with Data Load Guide procedures.

NOTE:	All new software is issued with an Authorization Report. The information contained on the report will match the information on the disk including aircraft specific information. Individual return-to-service procedures for new software, as stated on the Authorization Report, must be completed.
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- 4. Perform test procedures found on the Authorization Report.
- 5. Perform applicable operational checks for removed, replaced or updated components in accordance with AMM.
- J. A CMC configuration report **MUST** be submitted to reflect completion of software installation and verify aircraft configuration. Attach the report to an email and send to asc.software@gulfstream.com-noting the aircraft serial number in the subject line.
- K. If any firewalls, anti-virus programs or wireless LAN connections were disabled as part of this installation, re-enable these applications.
- L. Remove electrical power from aircraft. Refer to AMM, Chapter 20.
- M. Remove disk from laptop and store on board the aircraft. Discard previous version of Options disk.
- N. Ensure work area is clean and clear of foreign objects and debris (FOD).
- O. Close all areas accessed for modification.
- P. Record compliance with this aircraft service change in the aircraft permanent maintenance records and return aircraft to flight status.
- Q. Report compliance with this service change to Gulfstream 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.

WEIGHT AND BALANCE DATA:	It is the responsibility of the installing facility to perform weight and balance computations in accordance with the AMM and Gulfstream Aircraft Weight and Balance manual. Changes to the weight and balance shall be documented in the aircraft permanent records. The effect of this service change with regard to aircraft basic weight and balance is approximately as follows:		
	MOD	Δ WEIGHT	Δ MOMENT
	ASC 079 Kit 1	≈0.2 lbs	≈17 in-lbs
	ASC 079 Kit 2 or 3	≈0.0 lbs	≈0.0 in-lbs

ELECTRICAL LOAD ANALYSIS DATA:	The effect of this change on the aircraft electrical loading is 0.
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Kit Effectivity:	Kit 1 – Aircraft serial numbers 4002 – 4207 Kit 2 – Aircraft serial numbers 4208 – 4284 Kit 3 – Aircraft serial numbers 4285 – 4353, or having ASC 091, or having production equivalent
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PARTS REQUIRED PER AIRCRAFT:						
Item	Part Number	Nomenclature	Qty.			Notes/Alt./Substitutes
			-1 Kit	-2 Kit	-3 Kit	
1.	1159ASC47079	Top Drawing – ADS-B Out	1	1	1	
2.	GIVX-GER-0019	RTS PlaneView Specific	1	1	1	
3.	GIVX-GER-0020	APM Options Config	1	1	1	
4.	SGER-906	ESDS Handling	1	-	-	
5.	1159ASC47079-SW	Software Package	1	1	1	Item 6 included ✓
6.	1159SB51000	Loadable Avionics Software Configurations	✓	✓	✓	Options disk
7.	7517402-970	Transponder module	2	2	2	Not part of the ASC kit. New or upgraded parts must be coordinated through PSPM.
8.	GAC860K-1	End cap	-	4	-	
9.	GAC875AD224S	Cable Shield	25'	-	-	
10.	GAM820DB04F	TJ module	2	-	-	CTJ122E04F-513 (alternate)
11.	GAS24A2	Splice	2	-	-	
12.	GAS830AH2	Shield sleeve	2	-	-	
13.	HET-A-02C	Hexashield ferrule	2	-	-	
14.	M39029/57-354	Contacts, socket	6	6	-	NIM contacts
15.	M39029/22-191	Contacts	-	A/R	A/R	TJ contacts; Alternates:CTS-S22/22 or GAC835PR22

NOTE:	All software media required for this ASC will be issued as a separate package by PN 1159ASC47079-SW. Prior to ordering this ASC kit a CMC configuration report must be submitted. All drawings will be issued to the latest revision level. Items with a quantity of A/R are “as required” and not included in the kit.
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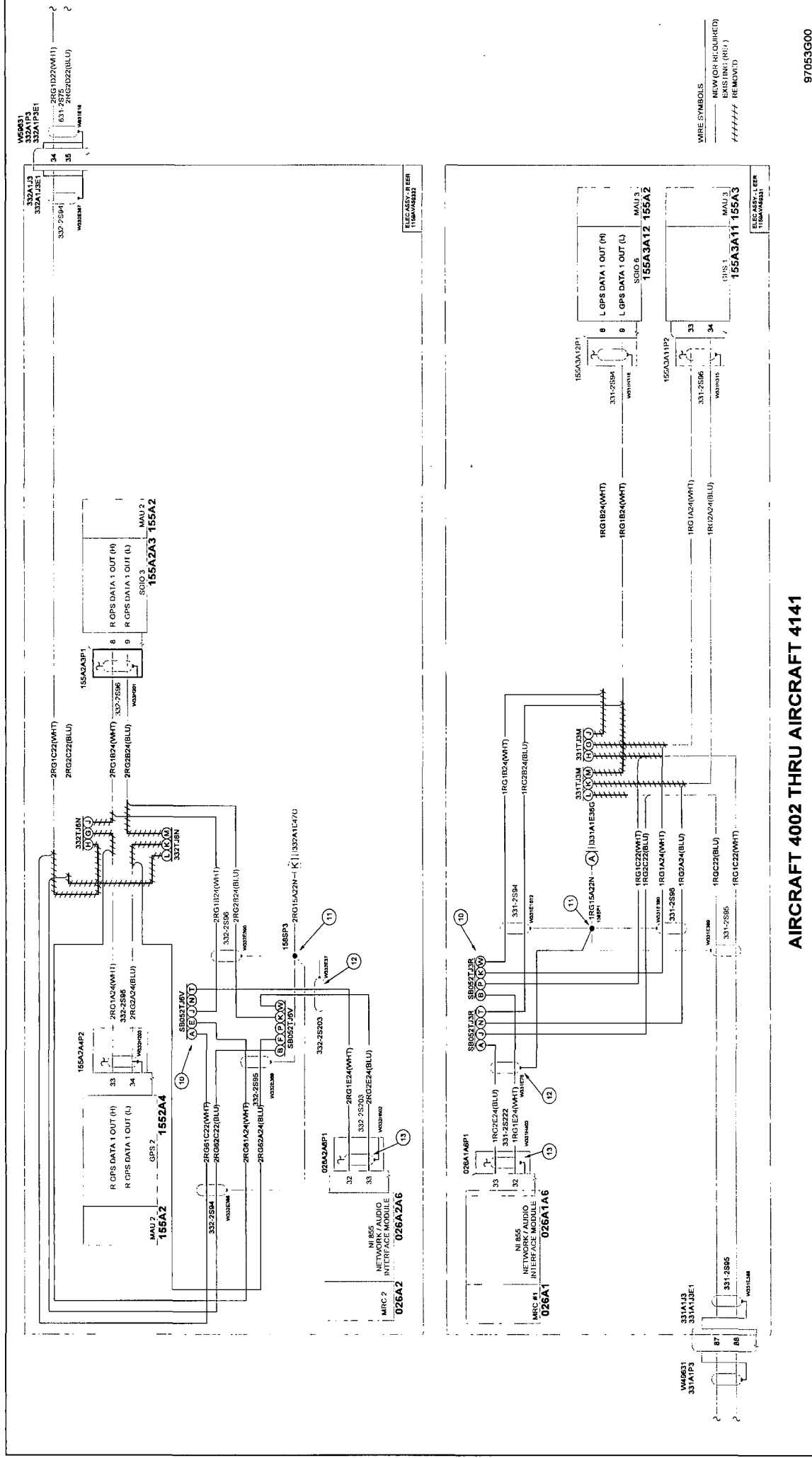
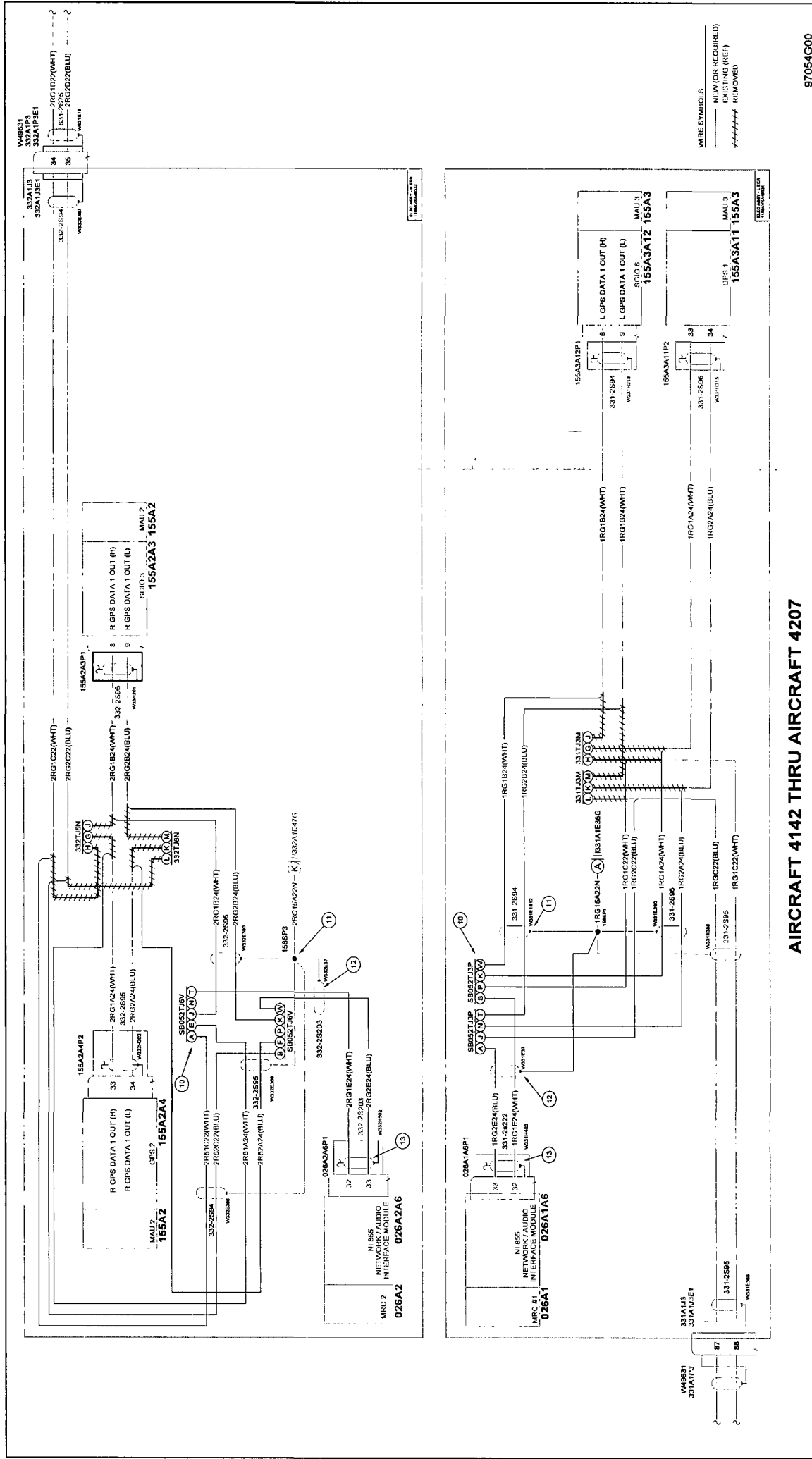


FIGURE 1

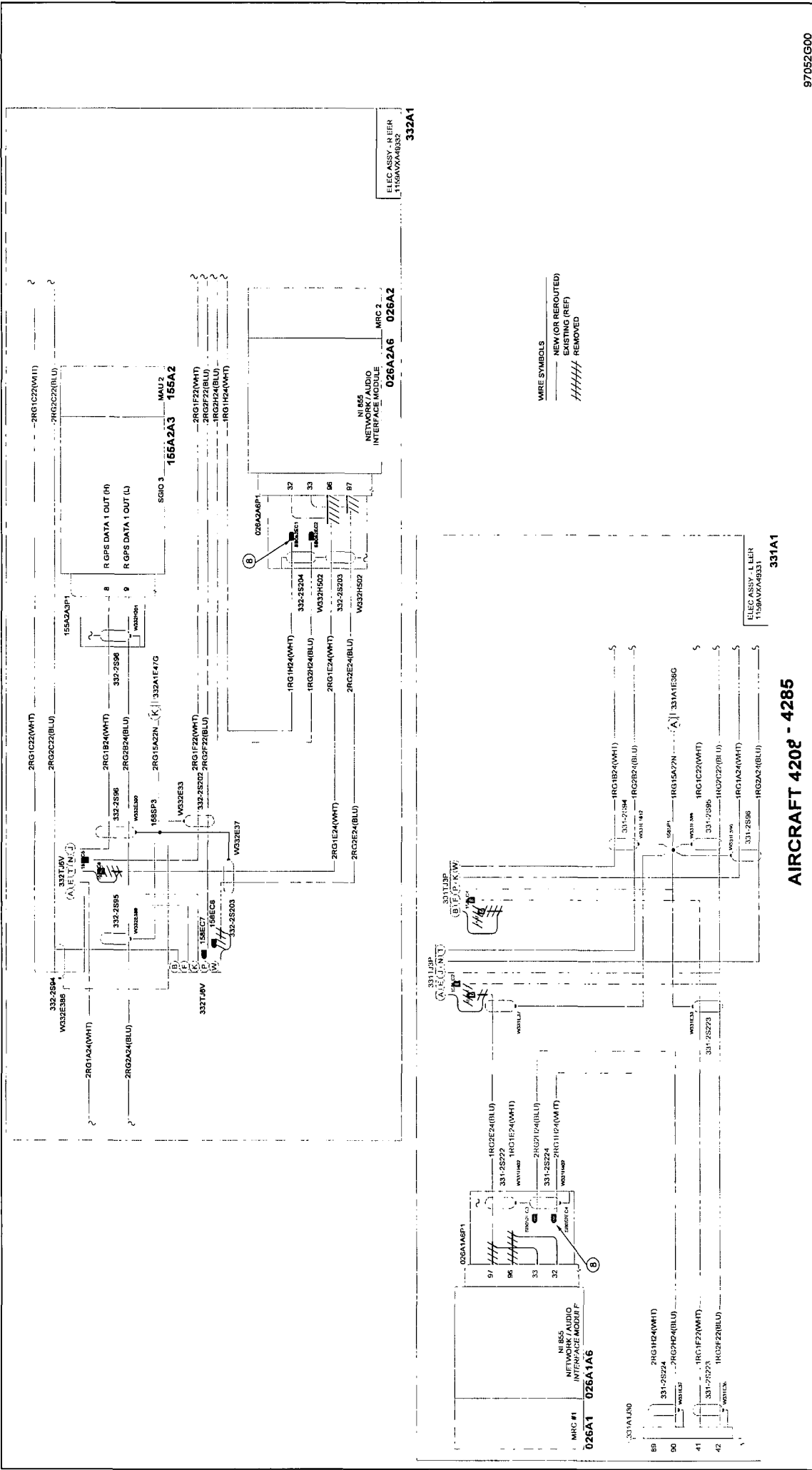
AIRCRAFT 4002 THRU AIRCRAFT 4141

97053G00



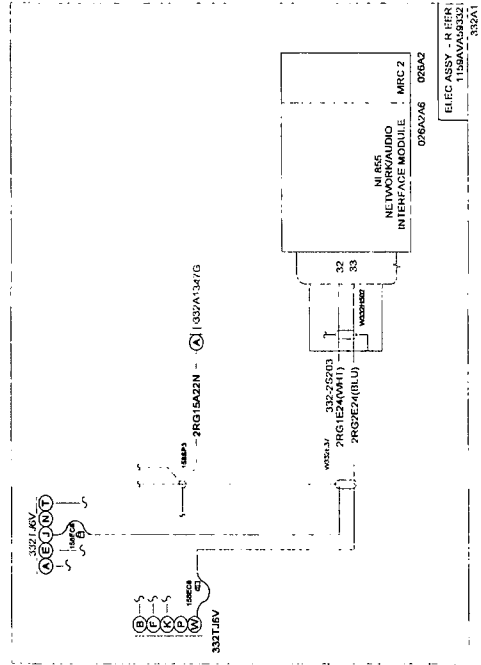
AIRCRAFT 4142 THRU AIRCRAFT 4207

FIGURE 2

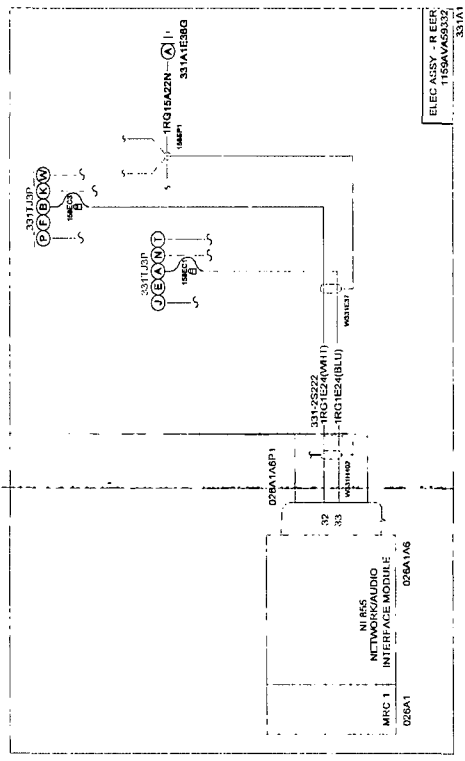


97052G00

FIGURE 3



**AIRCRAFT 4285 - 4303
NOT HAVING DWG 1159SB49053
OR ASC 091 INCORPORATED**



WIRE SYMBOLS
 — NEW (OR REROUTED)
 - - - EXISTING (REF)
 / / / / / REMOVED

97191G00

FIGURE 4

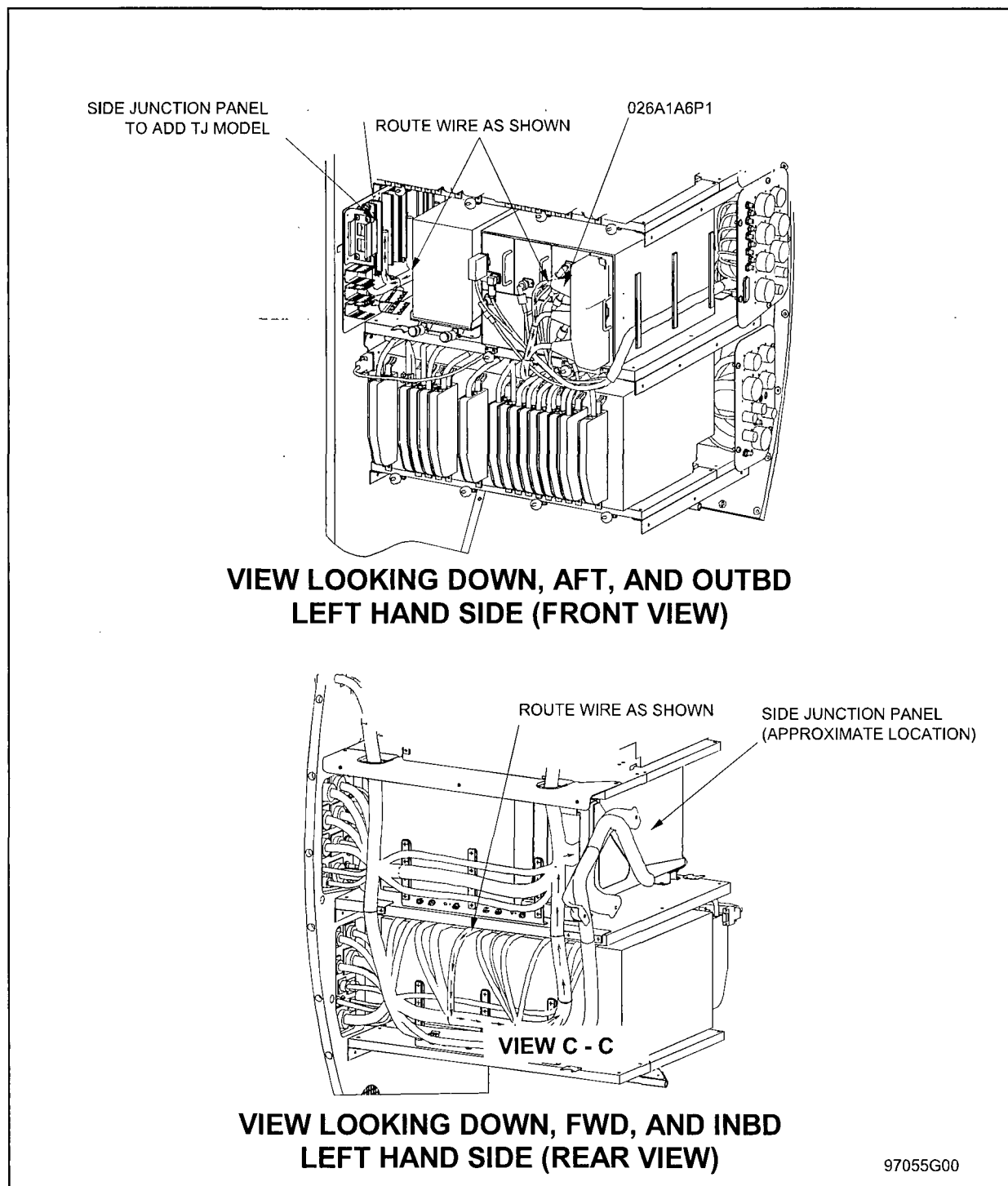


FIGURE 5

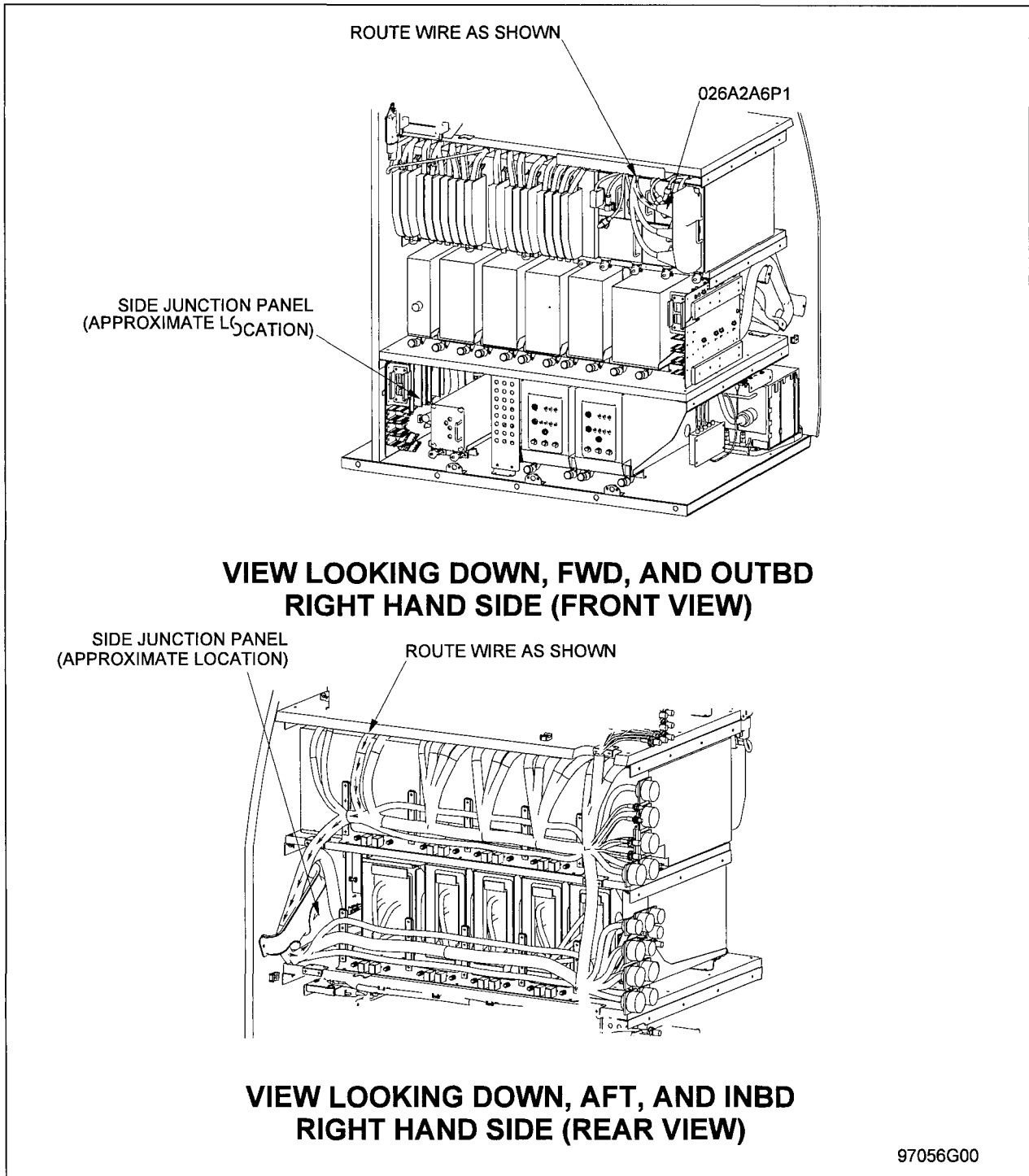


FIGURE 6

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@gulfstream.com or fax to Gulfstream CMP at 800-944-1775 or 912-963-0265.

THE FOLLOWING AIRCRAFT SERVICE CHANGE HAS BEEN COMPLIED WITH:

ASC NUMBER	A/C	AIRCRAFT TYPE	COMPLIANCE DATE
970792		G450	

AIRCRAFT HOURS: _____
 AIRCRAFT LANDINGS: _____
 PREVIOUSLY CW _____ DATE: _____
 NOT APPLICABLE: _____ DATE: _____

NOMENCLATURE		PART NUMBER	SERIAL NUMBER	CMP CODE
TRANSPONDER MODULE #1	OFF:			
	ON:	7517402-970		
TRANSPONDER MODULE #2	OFF:			
	ON:	7517402-970		

DISC INFORMATION

MEDIA TITLE		TOP LEVEL SYSTEM PART NUMBER	MEDIA PART NUMBER	MEDIA SERIAL NUMBER	CMP CODE
OPTIONS DATA	OFF:				
	ON:				

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

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Revision B
 June 14, 2016



TRANSMITTAL SHEET

This sheet transmits Revision A, dated April 5, 2019, to Gulfstream G450, Aircraft Service Change 912, dated September 15, 2016, titled Indicating / Recording (ATA 31) – PlaneView Master Operating System Software Update.

Reason for Revision:

This revision updates aircraft software to address implementation errors that prevent the aircraft from meeting Performance Based Communication and Surveillance (PBCS) mandate requirements.

Planning Information

Effectivity

Expanded effectivity to 4001 - 4365

Prerequisites

Updated to reflect latest requirements

Concurrent Requirements

Updated ASC number with revision level

Reason

Updated to new MOS part number

Updated ASC revision level

Added notes explaining revision level changes

Description

Updated to new MOS part number

Approval

Added revision approval information

Approved Engineering Data

Updated drawing revision level

Publications Affected

Updated AFM revision levels

Added AFM Supplement requirement for the revision

Material Information

Industry Support Information

Updated information to include 18 month opportunity for no charge compliance with revision

Material Necessary for Each Aircraft

Added ASC kit part number and effectivity

Updated part number for item 1

Special Equipment / Tools Required

Updated DLS and Maintenance Applications disk versions

April 5, 2019

Transmittal

Page 1 of 2

TRANSMITTAL SHEET

Modification Instructions

Step A

Added step to review aircraft configuration

Step C

Updated ASC revision level

Step D

Updated MOS part number

Step E

Updated ASC revision level

Step I

Updated ASC revision level

Figure 1

Updated image to reflect part number change

Effect of Revision on Prior Accomplishment:

This aircraft service change revision replaces and supersedes ASC 912. To meet the intent of this revision, operators of aircraft that have previously incorporated ASC 912 should comply with this revision in its entirety. New ASC kits will be required.

NOTE: This aircraft service change has been reproduced in its entirety and in a new format. A black bar in the left margin indicates a change in that line of text or figure. There are no change bars for format differences.

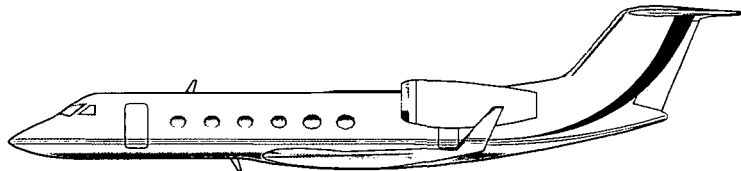
List of Effective Pages:

<u>Page No.</u>	<u>Date</u>
1 – 5, 7	April 5, 2019

Revision History:

Original Issue	September 15, 2016
Revision A	April 5, 2019

Gulfstream G450



AIRCRAFT SERVICE CHANGE

NUMBER 912A

SUBJECT

INDICATING / RECORDING (ATA 31)

PLANEVIEW™ MASTER OPERATING SYSTEM
SOFTWARE UPDATE

APRIL 5, 2019

AIRCRAFT SERVICE CHANGE

PILOTS INFORMATION SHEET

**PLANEVIEW™ MASTER OPERATING SYSTEM
SOFTWARE UPDATE**

This service change installs the PlaneView Master Operating System (MOS) software Media Part Number (PN) MM7033384-025. The new MOS supports software modifications necessary to address chart memory allocation, record additional parameters by the Digital Flight Data Recorder (DFDR), inhibit specific Central Maintenance Computer (CMC) messages, and permits the aircraft to meet Performance Based Communication and Surveillance (PBCS) mandate requirements.

Aircraft operating under FAA regulations will require G450 FAA Airplane Flight Manual (AFM) Revision 41, or later approved version, as a result of this service change.

Aircraft operating under EASA / JAA regulations will require G350/G450 AFM Supplement Number EASA-G450-2014-02 Revision 1, or later approved version, as a result of this service change.

AFM Supplement No. G450-2019-01 for FANS 1/A+ Latency Time Requirements will be required as a result of this revision.

PLEASE DETACH AND GIVE TO FLIGHT DEPARTMENT PERSONNEL

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September 15, 2016

Aircraft Service Change 912

Revision A, April 5, 2019

AIRCRAFT SERVICE CHANGE

PILOTS INFORMATION SHEET

**PLANEVIEW™ MASTER OPERATING SYSTEM
SOFTWARE UPDATE**

This service change installs the PlaneView Master Operating System (MOS) software Media Part Number (PN) MM7033384-025. The new MOS supports software modifications necessary to address chart memory allocation, record additional parameters by the Digital Flight Data Recorder (DFDR), inhibit specific Central Maintenance Computer (CMC) messages, and permits the aircraft to meet Performance Based Communication and Surveillance (PBCS) mandate requirements.

Aircraft operating under FAA regulations will require G450 FAA Airplane Flight Manual (AFM) Revision 41, or later approved version, as a result of this service change.

Aircraft operating under EASA / JAA regulations will require G350/G450 AFM Supplement Number EASA-G450-2014-02 Revision 1, or later approved version, as a result of this service change.

AFM Supplement No. G450-2019-01 for FANS 1/A+ Latency Time Requirements will be required as a result of this revision.

PLEASE RETAIN THIS COPY WITH THE ASC BOOKLET

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September 15, 2016

Aircraft Service Change 912

Revision A, April 5, 2019

AIRCRAFT SERVICE CHANGE

Indicating / Recording (ATA 31) – PlaneView Master Operating System Software Update

The design of an Aircraft Service Change (ASC) is configured to a standard production aircraft. If spare wires, pin connections or locations called out have been used for another modification, the installing agency must ensure the development, documentation and approval of any required deviations.

The instructions provided incorporate the designed modification alone, in step by step form, and are independent of other aircraft maintenance. No accommodation for other maintenance, modifications, inspections, or system operation is made unless specifically identified within this document. If any of these actions are performed concurrent with this ASC, it is the responsibility of the performing facility to coordinate all maintenance activity and to follow established safe maintenance practices as defined in the Aircraft Maintenance Manual, (AMM) and by the Federal Aviation Administration (FAA) and European Aviation Safety Agency (EASA):

Gulfstream considers this ASC a means to enhance aircraft capabilities to meet individual operator requirements. The modification is not related to any safety or airworthiness condition.

I. Planning Information:

A. Effectivity

This service change is applicable to aircraft serial numbers 4001 – 4365.

B. Prerequisites

ASC 910 PlaneView Master Operating System Software Update, or later, or equivalent

Submit APM Settings & Riggings form (aircraft operating at ASC 910 only)

Prior to, or at the time this ASC is ordered, operators will be required to supply a configuration report of the Central Maintenance Computer (CMC). The CMC report can be stored on the aircraft PC laptop then electronically submitted to Gulfstream at asc.software@gulfstream.com. **Creation of a new Options Disk may take up to 10 days.**

Aircraft currently operating at ASC 910 and utilizing a Custom Electronic Checklist (ECL) must order new software prior to or at the time this ASC is ordered from the Custom ECL page on MyGulfstream.com located under the Communications tab in the Forms & Surveys section. Custom ECL disks may take up to 4 weeks to create and are subject to a separate fee.

Contact INDS to report aircraft MOS level change and ensure appropriate updates are available during modification. If operator is utilizing the generic INDS charts serial number VNX5-93IM-VL6R-ATN9, then the operator's unique INDS 16 digit subscription serial number will be required for full charts information.

C. Concurrent Requirements

ASC 099A PlaneView Avionics Enhancement, or later approved revision

D. Reason

This service change installs PlaneView Master Operating System (MOS) software Media Part Number (PN) MM7033384-025. The new MOS, in conjunction with the software contained in ASC 099A, will address three key issues. First, operators are currently unable to load the entire Integrated Navigation Data Service (INDS) chart database to the aircraft due to

AIRCRAFT SERVICE CHANGE

limitations in the Advanced Graphics Module (AGM) memory. This condition results in the Multi-function Display chart filtering out airports with runway lengths of 5000 feet or less. The AGM memory capacity is reallocated with this software update to remove these restrictions and enable full chart loading.

Second, two additional parameters will be recorded by the Digital Flight Data Recorder (DFDR) following this modification. The active/not active state of the CHECK PFD 1-2 red Crew Alerting System (CAS) message, and the data required to determine magnetic or true heading selection.

Finally, the NIC 3 and / or NIC 5 LAN NETWORK FAIL Central Maintenance Computer (CMC) message(s) are inhibited with a new Loadable Diagnostics Information (LDI) file. These messages will no longer be reported when both are present.

This revision updates software to address the following Flight Management System (FMS) issues:

- FMS Latency Timer
- FMS CPDLC Uplink Direct-To & Place/Bearing/Distance bearing conversion
- Initial FANS 1/A connection rejected

Aircraft updated to this revision will be able to meet Performance Based Communication and Surveillance mandate requirements:

E. Description

This service change installs new MOS software, Media PN MM7033384-025.

F. Approval

The design change effected by this ASC has been classified as Major by the United States FAA and Level 2 Major by the EASA. The design change data contained here-in and effected by this document is approved and accepted by the FAA under Gulfstream Organization Designation Authorization (ODA) Project Number, TD-01-2015-0035 and EASA accepted under the provisions of the EU/USA BASA effective 05/01/2011.

The design of this ASC is approved by aircraft type design data for installation on aircraft registered for operation in accordance with applicable regulations of the FAA and EASA.

This ASC revision has been classified as Major/Not Significant by the FAA and Basic/Not Significant for EASA. This revision is approved and accepted by the FAA under ODA Project Number TD-01-2018-0041 and EASA accepted under the provisions of the EU/USA BASA effective 05/01/2011.

G. Approved Engineering Data

The source data for this aircraft service change is:

1159ASC47912 Rev. "A" Top Drawing – ASC 912 PlaneView Master Operating Software

H. Labor Requirements

Approximately 10 labor-hours will be required for this installation.

Knowledge of the avionics system and software loading procedures will be required for this installation.

I. Weight and Balance

No change

AIRCRAFT SERVICE CHANGE

J. Electrical Load Data

No change

K. References

Aircraft Maintenance Manual (AMM), Chapters 20 and 31

GIVX-GER-7132 – Return-to-service Checkout Procedure

GIVX-GER-0020 – APM Options Configuration

GIVX-GER-9934 – PlaneView Software Loading, Verification and Return To Service Procedures (located on Maintenance Applications disk and stored on the aircraft laptop during the installation process)

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

L. Publications Affected

Flight Manual Revision / Supplement Required:

Aircraft operating under FAA regulations will require G450 FAA Airplane Flight Manual (AFM) Revision 41 or later approved version, as a result of this service change.

Aircraft operating under EASA / JAA regulations will require G350/G450 AFM Supplement Number EASA-G450-2014-02 Revision 1, or later approved version, as a result of this service change.

AFM Supplement No. G450-2019-01 for FANS 1/A+ Latency Time Requirements will be required as a result of this revision.

Data concerning this service change will be published in a future revision of the affected manual(s). This booklet will provide technical data until the revision(s) is published.

AIRCRAFT SERVICE CHANGE

II. Material Information:

A. Material – Price and Availability

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

B. Industry Support Information (Warranty)

Labor and material will be provided at no charge regardless of warranty status for a period of 18-months from the release date noted on the cover of this Aircraft Service Change if installed at a Gulfstream G450 Authorized Warranty Facility or Factory Authorized Service Center. All other installations shall be subject to the prevailing labor rate of the installing agency. After the 18-month period has expired, labor and material will be available at operator expense.

C. Material Necessary for Each Aircraft

1. Materials required and kit effectivity:

-1 Kit PN: ASC912A-1-G4X (sn 4001 – 4365)

PARTS REQUIRED PER AIRCRAFT:				
Item	Part Number	Nomenclature	Qty.	Notes/Alt./Subs.
			-1 Kit	
1.	MM7033384-025	Master Operating Software	1	Note 1; EB7031236-00422
2.	GIVX-GER-7132	Return to Service Checkout Procedure	1	Note 1

NOTE 1 All drawings and media software will be issued to the latest revision.

2. Materials required to be procured separate from ASC kits:

None

D. Re-identified Parts

None

E. Special Equipment / Tools Required

1. Aircraft Maintenance Laptop with:

- o LAN (Local Area Network) Cable
- o CMC Remote Terminal Tool version 26.1 / DLS 8.5.0 or later
- o PlaneView Maintenance Utilities version 9.3 or later

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III. Modification Instructions:

CAUTION: PROTECT WIRE BUNDLES, CONNECTORS AND SURROUNDING STRUCTURE DURING ANY MAINTENANCE PROCEDURE 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.

- A. Review pages 1 - 4 of this ASC for any applicable actions or requirements. Ensure aircraft meets all configuration requirements prior to beginning modification.
- B. Prepare the aircraft for safe maintenance. Refer to AMM, Safe Ground Maintenance Procedures, Chapter 20.
- C. Complete Steps C.1 through C.6 of ASC 099A - PlaneView Avionics Enhancement, then continue to Step D. of this ASC.
- D. Load PlaneView MOS software, Media PN MM7033384-025, to the aircraft. Remove MOS disk from laptop and store in the aircraft after loading.

NOTE: Testing of the MOS and the installations found in ASC 099A should be conducted only after all of the associated hardware and software installations are completed. GIVX-GER-7132 is the only required test.
- E. Comply with ASC 099A Steps D.1 through D.13 then continue to Step F of this ASC.
- F. Perform a fault history database (FHDB) reset as follows:
 - 1. Select Administrative Tools under the Settings tab from the CMC Remote Terminal on the aircraft laptop. Refer to Figure 2.
 - 2. On the Administrative Options page, enter password "GPV" and select execute. Refer to Figure 3.
- G. Perform GIVX-GER-7132 Return to Service (RTS) Checkout Procedure.
- H. Verify Top-Level System software part number on Configuration Management Software (CMS) screen matches the part number on the MOS disk. Refer to Figure 1.
- I. Comply with ASC 099A Steps D.14 through H. then continue to Step J of this ASC.
- J. If any firewalls, anti-virus programs or wireless LAN connections were disabled as part of this installation, be sure to re-enable these applications.
- K. Submit a CMC configuration report to reflect completion of software installation and verify aircraft configuration. Attach the report to an email and send to asc.software@gulfstream.com noting the aircraft serial number in the subject line.
- L. Discard previously used version of the PlaneView MOS disk. Retain the current MOS disk with all other current software on board the aircraft.
- M. Remove electrical power from aircraft. Refer to AMM, Chapter 20.
- N. Ensure work area is clean and clear of foreign objects and debris (FOD).

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- O. Document the following software information (as applicable) on the attached service reply card and on the PlaneView Configuration Record in the aircraft permanent maintenance records.
- Top Level System Part Number
 - Media Part Number
 - Media Serial Number
- P. Record compliance with this aircraft service change in the aircraft permanent maintenance records and return aircraft to flight status.
- Q. Report compliance with this aircraft service change to Gulfstream 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@campsystems.com or fax to Gulfstream CMP at 800-944-1775 or 912-963-0265.

AIRCRAFT SERVICE CHANGE

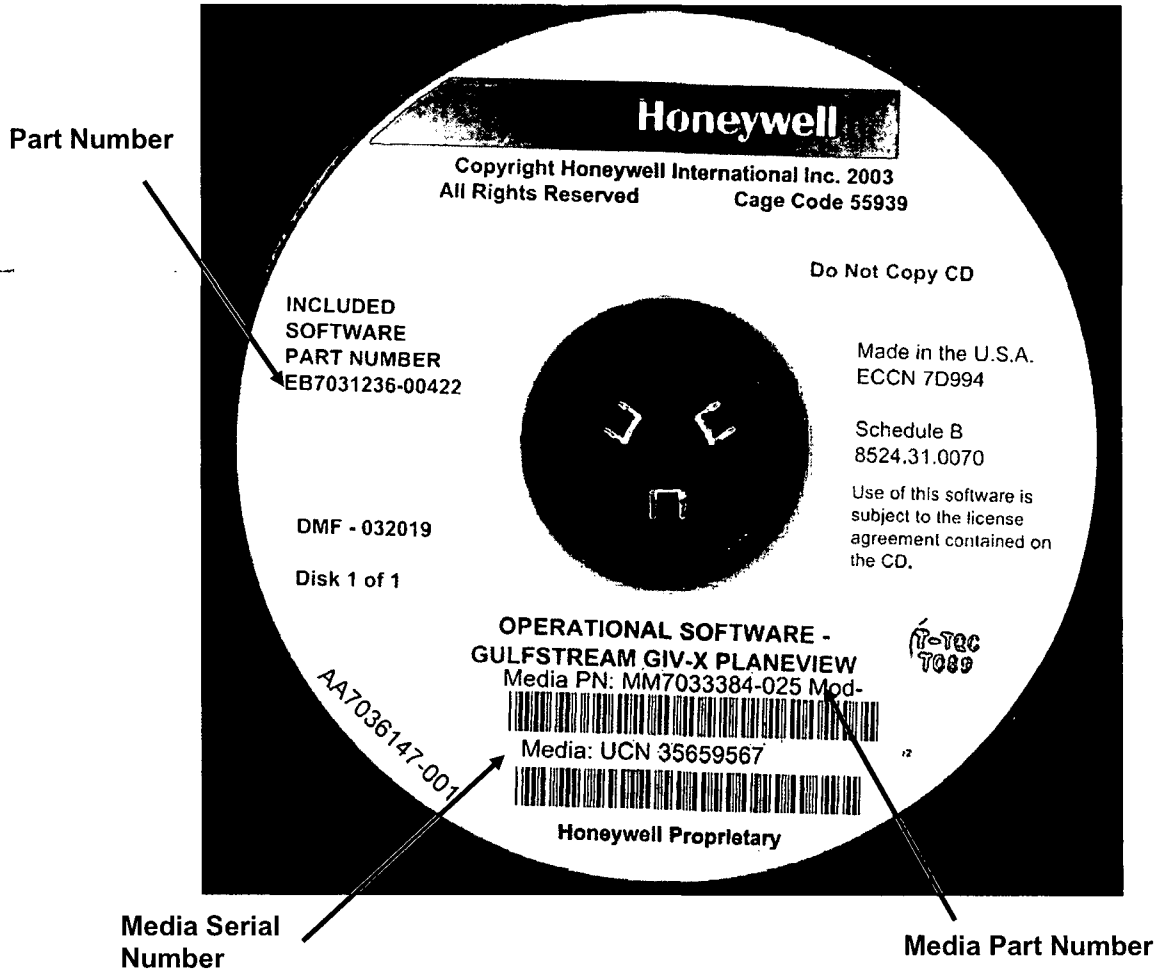


FIGURE 1

AIRCRAFT SERVICE CHANGE

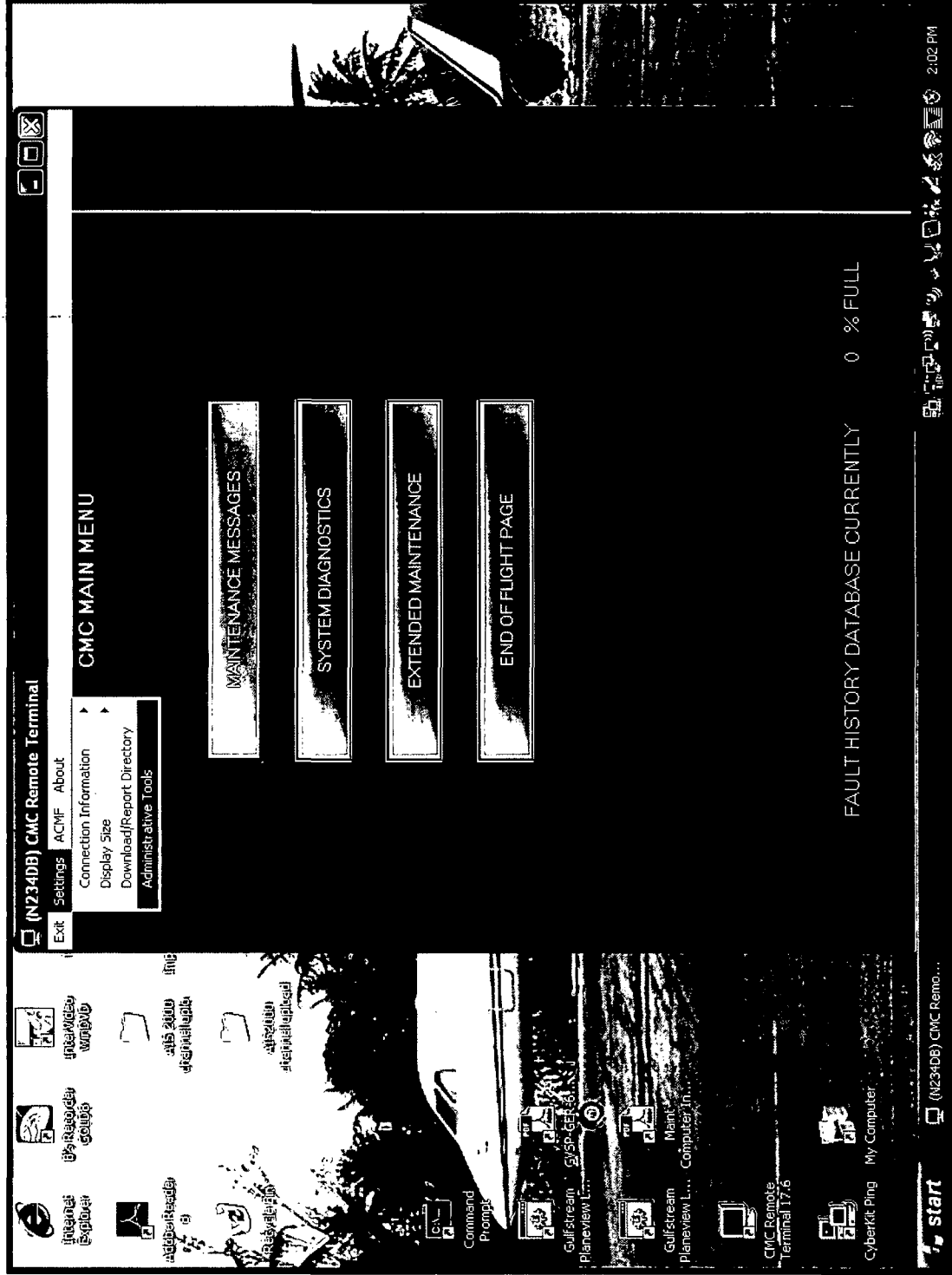


FIGURE 2

AIRCRAFT SERVICE CHANGE

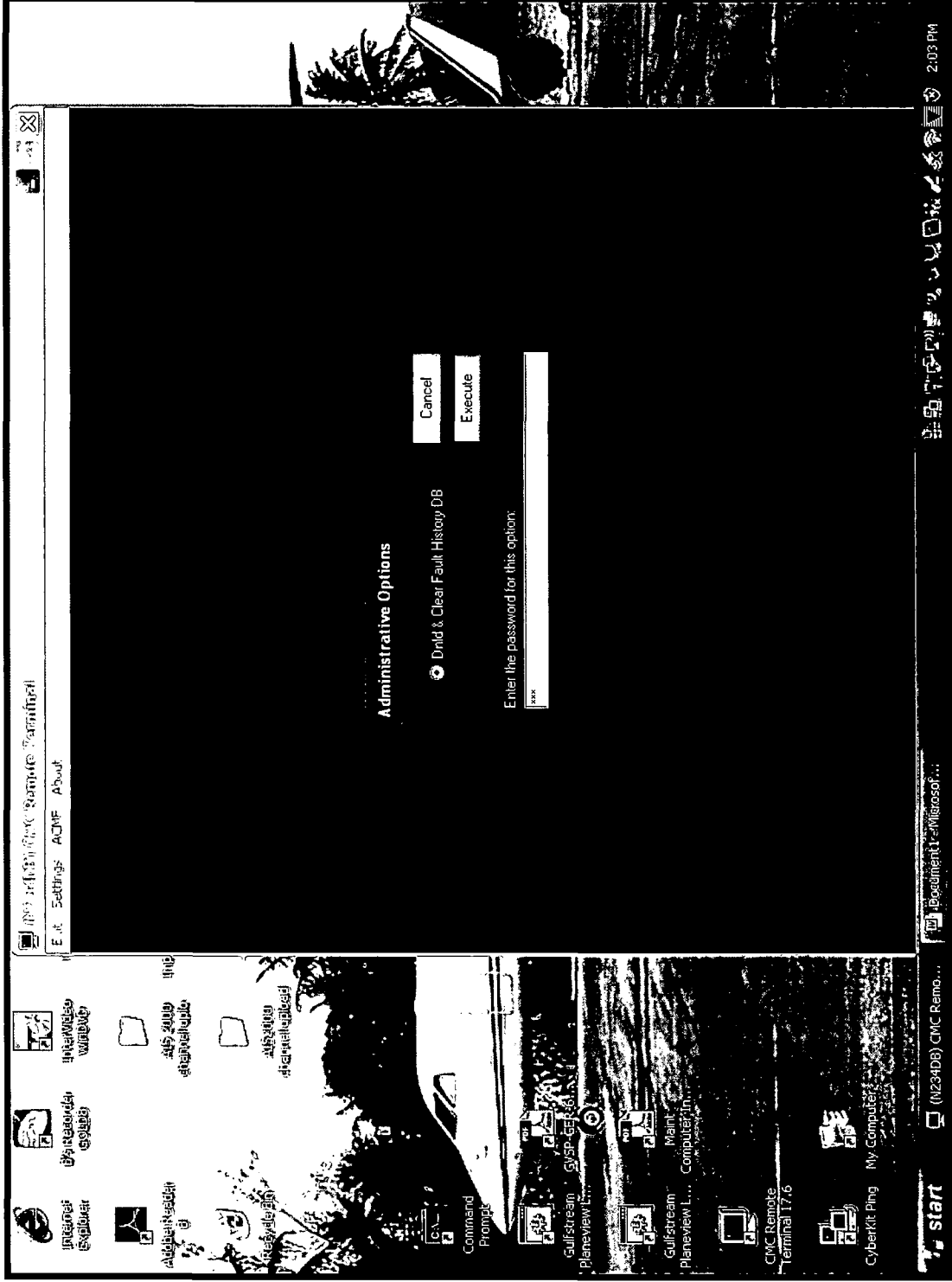


FIGURE 3

AIRCRAFT SERVICE CHANGE

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 or fax to Gulfstream CMP at 800-944-1775 or 912-963-0265.

THE FOLLOWING AIRCRAFT SERVICE CHANGE HAS BEEN COMPLIED WITH:

ASC NO.	CMP CODE	ACFT SERIAL NO.	COMPLIANCE DATE
912A	979121		

AIRCRAFT HOURS: _____

AIRCRAFT LANDINGS: _____

PREVIOUSLY COMPLIED WITH (PCW): _____ DATE: _____

NOT APPLICABLE: _____ DATE: _____

SOFTWARE INFORMATION					
MEDIA TITLE		TOP LEVEL SYSTEM PART NUMBER	MEDIA PART NUMBER	MEDIA SERIAL NUMBER	CMP CODE
MOS	OFF:	EB	MM		
	ON:	EB7031236-00422	MM7033384-025		

SIGNATURE	TITLE / CERTIFICATE NUMBER	COMPANY

COMMENTS / SUGGESTIONS / ACTIONS TAKEN:

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TRANSMITTAL SHEET

This sheet transmits Revision A, dated April 5, 2019, to Gulfstream G450, Aircraft Service Change 099, dated September 15, 2016, titled Indicating / Recording (ATA 31) – PlaneView Avionics Enhancement.

Reason for Revision:

This revision updates aircraft software to address implementation errors that prevent the aircraft from meeting Performance Based Communication and Surveillance (PBCS) mandate requirements.

Planning Information

Effectivity

Expanded effectivity to 4001 - 4365

Prerequisites

Updated to reflect latest requirements

Concurrent Requirements

Updated ASC number with revision level

Reason

Updated ASC revision level

Added notes explaining revision level changes

Approval

Added revision approval information

Approved Engineering Data

Updated drawing revision level

Publications Affected

Updated AFM revision levels

Added AFM Supplement requirement for the revision

Material Information

Industry Support Information

Updated information to include 18 month opportunity for no charge compliance with revision

Material Necessary for Each Aircraft

Added ASC kit part number and effectivity

Updated reference number for item 13

Added item 16 AFMS

Special Equipment / Tools Required

Updated DLS and Maintenance Applications disk versions

Modification Instructions

Step A

Added step to review aircraft configuration

TRANSMITTAL SHEET

Step B

Updated ASC revision level

Step C. 4

Updated DLS and Maintenance Applications disk version levels

Step D. 13

Updated step reference

Step D. 15

Updated Maintenance Applications disk version level

Step D. 17

Added step to include AFMS in AFM

Effect of Revision on Prior Accomplishment:

This aircraft service change revision replaces and supersedes ASC 099. To meet the intent of this revision, operators of aircraft that have previously incorporated ASC 099 should comply with this revision in its entirety. New ASC kits will be required.

NOTE: This aircraft service change has been reproduced in its entirety and in a new format. A black bar in the left margin indicates a change in that line of text or figure. There are no change bars for format differences.

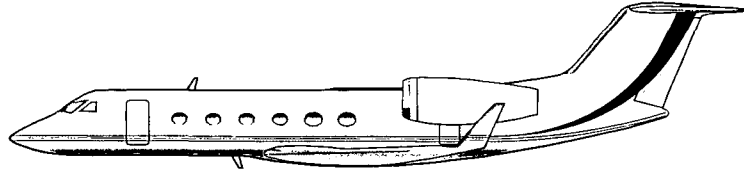
List of Effective Pages:

<u>Page No.</u>	<u>Date</u>
1 - 7	April 5, 2019

Revision History:

Original Issue	September 15, 2016
Revision A	April 5, 2019

Gulfstream G450



AIRCRAFT SERVICE CHANGE

NUMBER 099A

SUBJECT

INDICATING / RECORDING (ATA 31)

PLANEVIEW™ AVIONICS ENHANCEMENT

APRIL 5, 2019

AIRCRAFT SERVICE CHANGE

PILOTS INFORMATION SHEET

PLANEVIEW™ AVIONICS ENHANCEMENT

This service change installs the software modifications necessary to address chart memory allocation, record additional parameters by the Digital Flight Data Recorder (DFDR), and inhibit specific Central Maintenance Computer (CMC) messages.

This revision updates aircraft software to permit the aircraft to meet Performance Based Communication and Surveillance (PBCS) mandate requirements.

Aircraft operating under FAA regulations will require G450 FAA Airplane Flight Manual (AFM) Revision 41 or later approved version, as a result of this service change.

Aircraft operating under EASA / JAA regulations will require G350/G450 AFM Supplement Number EASA-G450-2014-02 Revision 1, or later approved version, as a result of this service change.

AFM Supplement No. G450-2019-01 for FANS 1/A+ Latency Time Requirements will be required as a result of this revision.

PLEASE DETACH AND GIVE TO FLIGHT DEPARTMENT PERSONNEL

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September 15, 2016

Aircraft Service Change 099

Revision A, April 5, 2019

AIRCRAFT SERVICE CHANGE

PILOTS INFORMATION SHEET
PLANEVIEW™ AVIONICS ENHANCEMENT

This service change installs the software modifications necessary to address chart memory allocation, record additional parameters by the Digital Flight Data Recorder (DFDR), and inhibit specific Central Maintenance Computer (CMC) messages.

This revision updates aircraft software to permit the aircraft to meet Performance Based Communication and Surveillance (PBCS) mandate requirements.

Aircraft operating under FAA regulations will require G450 FAA Airplane Flight Manual (AFM) Revision 41 or later approved version, as a result of this service change.

Aircraft operating under EASA / JAA regulations will require G350/G450 AFM Supplement Number EASA-G450-2014-02 Revision 1, or later approved version, as a result of this service change.

AFM Supplement No. G450-2019-01 for FANS 1/A+ Latency Time Requirements will be required as a result of this revision.

PLEASE RETAIN THIS COPY WITH THE ASC BOOKLET

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September 15, 2016

Aircraft Service Change 099

Revision A, April 5, 2019

AIRCRAFT SERVICE CHANGE

Indicating / Recording (ATA 31) – PlaneView Avionics Enhancement

The design of an Aircraft Service Change (ASC) is configured to a standard production aircraft. If spare wires, pin connections or locations called out have been used for another modification, the installing agency must ensure the development, documentation and approval of any required deviations.

The instructions provided incorporate the designed modification alone, in step by step form, and are independent of other aircraft maintenance. No accommodation for other maintenance, modifications, inspections, or system operation is made unless specifically identified within this document. If any of these actions are performed concurrent with this ASC, it is the responsibility of the performing facility to coordinate all maintenance activity and to follow established safe maintenance practices as defined in the Aircraft Maintenance Manual, (AMM) and by the Federal Aviation Administration (FAA) and European Aviation Safety Agency (EASA).

Gulfstream considers this ASC a means to enhance aircraft capabilities to meet individual operator requirements. The modification is not related to any safety or airworthiness condition.

I. Planning Information:

A. Effectivity

This service change is applicable to aircraft serial numbers 4001 – 4365.

B. Prerequisites

ASC 910 PlaneView Master Operating System Software Update, or later, or equivalent

Submit APM Settings & Riggings form (aircraft operating at ASC 910 only)

Prior to, or at the time this ASC is ordered, operators will be required to supply a configuration report of the Central Maintenance Computer (CMC). The CMC report can be stored on the aircraft PC laptop then electronically submitted to Gulfstream at asc.software@gulfstream.com. **Creation of a new Options Disk may take up to 10 days.**

Aircraft currently operating at ASC 910 and utilizing a Custom Electronic Checklist (ECL) must order new software prior to or at the time this ASC is ordered from the Custom ECL page on MyGulfstream.com located under the Communications tab in the Forms & Surveys section. Custom ECL disks may take up to 4 weeks to create and are subject to a separate fee.

Contact INDS to report aircraft MOS level change and ensure appropriate updates are available during modification. If operator is utilizing the generic INDS charts serial number VNX5-93IM-VL6R-ATN9, then the operator's unique INDS 16 digit subscription serial number will be required for full charts information.

C. Concurrent Requirements

ASC 912A PlaneView Master Operating System Software Update

D. Reason

This service change installs the software modifications necessary to address key operational issues. The new software, in conjunction with the Master Operating System (MOS) software contained in ASC 912A, will address three key issues. First, operators are currently unable to load the entire Integrated Navigation Data Service (INDS) chart database to the aircraft due to

AIRCRAFT SERVICE CHANGE

limitations in the Advanced Graphics Module (AGM) memory. This condition results in the Multi-function Display chart filtering out airports with runway lengths of 5000 feet or less. The AGM memory capacity is reallocated with this software update to remove these restrictions and enable full chart loading.

Second, two additional parameters will be recorded by the Digital Flight Data Recorder (DFDR) following this modification. The active/not active state of the CHECK PFD 1-2 red Crew Alerting System (CAS) message, and the data required to determine magnetic or true heading selection.

Finally, the NIC 3 and / or NIC 5 LAN NETWORK FAIL Central Maintenance Computer (CMC) message(s) are inhibited with a new Loadable Diagnostics Information (LDI) file. These messages will no longer be reported when both are present.

This revision updates software to address the following Flight Management System (FMS) issues:

- FMS Latency Timer
- FMS CPDLC Uplink Direct-To & Place/Bearing/Distance bearing conversion
- Initial FANS 1/A connection rejected

Aircraft updated to this revision will be able to meet Performance Based Communication and Surveillance mandate requirements.

E. Description

This service change loads a combination of new and existing software based on current aircraft configuration.

F. Approval

The design change effected by this ASC has been classified as Major by the United States FAA and Level 2 Major by the EASA. The design change data contained here-in and effected by this document is approved and accepted by the FAA under Gulfstream Organization Designation Authorization (ODA) Project Number, TD-01-2015-0035 and EASA accepted under the provisions of the EU/USA BASA effective 05/01/2011.

The design of this ASC is approved by aircraft type design data for installation on aircraft registered for operation in accordance with applicable regulations of the FAA and EASA.

This ASC revision has been classified as Major/Not Significant by the FAA and Basic/Not Significant for EASA. This revision is approved and accepted by the FAA under ODA Project Number TD-01-2018-0041 and EASA accepted under the provisions of the EU/USA BASA effective 05/01/2011.

G. Approved Engineering Data

The source data for this aircraft service change is:

1159ASC47099 Rev. "C" Top Drawing – ASC 099 PlaneView Avionics Hotel II/III Enhancements

H. Labor Requirements

Approximately 14 labor-hours will be required for this installation.

Knowledge of the avionics system and software loading procedures will be required for this installation.

AIRCRAFT SERVICE CHANGE

I. Weight and Balance

No change

J. Electrical Load Data

No change

K. References

Aircraft Maintenance Manual (AMM), Chapters 20 and 31

SGER-033 – Software Backup and Restore

GIVX-GER-7132 – Return-to-service Checkout Procedure

GIVX-GER-0020 – APM Options Configuration

GIVX-GER-9934 – PlaneView Software Loading, Verification and Return To Service Procedures (located on Maintenance Applications disk and stored on the aircraft laptop during the installation process)

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

L. Publications Affected

Flight Manual Revision / Supplement Required:

Aircraft operating under FAA regulations will require G450 FAA Airplane Flight Manual (AFM) Revision 41 or later approved version, as a result of this service change.

Aircraft operating under EASA / JAA regulations will require G350/G450 AFM Supplement Number EASA-G450-2014-02 Revision 1, or later approved version, as a result of this service change.

AFM Supplement No. G450-2019-01 for FANS 1/A+ Latency Time Requirements will be required as a result of this revision.

Data concerning this service change will be published in a future revision of the affected manual(s). This booklet will provide technical data until the revision(s) is published.

AIRCRAFT SERVICE CHANGE

II. Material Information:

A. Material – Price and Availability

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

B. Industry Support Information

Labor and material will be provided at no charge regardless of warranty status for a period of 18-months from the release date noted on the cover of this Aircraft Service Change if installed at a Gulfstream G450 Authorized Warranty Facility or Factory Authorized Service Center. All other installations shall be subject to the prevailing labor rate of the installing agency. After the 18-month period has expired, labor and material will be available at operator expense.

C. Material Necessary for Each Aircraft

1. Materials required and kit effectivity:

-1 Kit PN: ASC099A-1-G4X (sn 4001 – 4365)

PARTS REQUIRED PER AIRCRAFT:				
Item	Part Number	Nomenclature	Qty.	Notes/Alt./Subs.
			-1 Kit	
1.	SGER-033	Software Back-up and Restore	1	Note 1
2.	1159ASC47099-SW	Software Package	1	Notes 1 – 3; Items 3 - 13 included ✓ except as noted
3.	Reference 1159SB51000	Loadable Avionics Software Configurations (Options)	✓	As Required
4.	Reference 1159LAP59000	Maintenance Applications	✓	
5.	Reference 1159SB57020	AMI with GDC provider	✓	Only one disk included dependent upon service provider; As required
6.		AMI with ARINC provider	✓	
7.		AMI with Satcom Direct provider	✓	
8.	Reference 1159SB57021	APM Settings & Rigging	✓	As Required
9.	Reference 1159SB57022	Programmable CAS	✓	As Required
10.	Reference 1159SB57023	ECL	✓	As Required
11.	Reference 1159SB57024	LDI	✓	
12.		Navigation Chart Updates	-	Customer Supplied
13.	Reference 72BSWCD059	ATC Database	✓	As Required
14.	GIVX-GER-0019	Return to Service Procedures for PlaneView Specific ASCs	1	Note 1
15.	GIVX-GER-0020	APM Options Configuration Checkout	1	Note 1
16.	G450-2019-01	AFMS for FANS 1/A+ Latency	1	Note 1

NOTE 1 All drawings and media software will be issued to the latest revision.

NOTE 2 All software media required for this ASC will be issued as a separate package by PN 1159ASC47099-SW. When multiple ASCs containing software are compiled with simultaneously, only the Loadable Avionics Software Configuration (Options) disk containing the final configuration will be provided.

AIRCRAFT SERVICE CHANGE

NOTE 3 New software is issued with an Authorization Report (AR) and contains data which will match the information on the disk; including aircraft specific information. Individual RTS procedures for new software, as stated on the AR, must be completed in addition to any other RTS procedure identified within an ASC. ARs for current software load should be maintained with aircraft current configuration software for availability anytime it is necessary to reload software.

2. Materials required to be procured separate from ASC kits:

D. Re-identified Parts

None

E. Special Equipment / Tools Required

1. Aircraft Maintenance Laptop with:

- LAN (Local Area Network) Cable
- CMC Remote Terminal Tool version 26.1 / DLS 8.5.0 or later
- PlaneView Maintenance Utilities version 9.3 or later

AIRCRAFT SERVICE CHANGE

III. Modification Instructions:

NOTE: Correct setup of the aircraft laptop with the CMC Remote Terminal Tool is **critical** to the successful loading and operation of all software. Follow Data Load Guide procedures **CAREFULLY**. **Ensure any firewalls, anti-virus programs or wireless LAN connections are disabled and the laptop is connected to 60 Hz aircraft power.**

- A. Review pages 1 - 5 of this ASC for any applicable actions or requirements. Ensure aircraft meets all configuration requirements prior to beginning modification.
- B. Begin modification in ASC 912A – PlaneView MOS Update.
- C. Software backup and preparation for modifications:

- 1. Verify a CMC configuration report has been submitted.
- 2. Apply power to aircraft. Refer to AMM, Chapter 20.

NOTE 1 If operator is utilizing the generic INDS charts serial number VNX5-93IM-VL6R-ATN9, then the operator's unique INDS 16 digit subscription serial number will be required to restore full charts information.

- 3. Record the 16-digit INDS serial number from the Charts Revision page. This number will be needed to access the aircraft charts after the software loading is complete.

-
- 4. Install Maintenance Applications software version 9.3, reference PN 1159LAP59000, to aircraft laptop. Load Remote Terminal Tool version 26.1 DLS 8.5.0, or later approved version. Uninstall previous version of Maintenance Applications only after verifying all new software is successfully installed.

- 5. Perform a backup of the Custom Database on the aircraft laptop. Refer to SGER-033, Software Backup and Restore, Chapter 4.1.

- 6. Perform a backup of the Rigging Settings on the aircraft laptop. See SGER-033, Software Backup and Restore, Chapter 4.2.

- D. Software loading procedures:

NOTE: Utilize existing on-board software if new has not been provided as part of the kit.

- 1. Load APM Settings & Riggings software.
- 2. Load Options software.

NOTE: Options disks are security enabled. Note the security code on the disk label before loading into aircraft laptop. Enter security code when prompted.

- 3. Load aircraft database (file name PDB). This file is located on the settings disk.

- 4. Load the following Primus Epic INDS software from the aircraft laptop:

- a. Red Disk - Honeywell / Jeppesen - Airspace, Communication, Navigation Data

NOTE: Select FULL CHARTS file for loading.

- b. Blue Disk - Honeywell / Jeppesen - Electronic Terminal Charts, Geopolitical Boundaries, Airport Information Obstacle Data (14-day interval)

- c. Green Disk - Honeywell / Jeppesen - Terrain Data (on condition)

AIRCRAFT SERVICE CHANGE

5. Load Airline Modifiable Information (AMI) software.

6. Load Air Traffic Control (ATC) database software.

NOTE: This is the initial installation of the ATC database software for aircraft operating at ASC 910 MOS levels.

7. Load Electronic Checklist (ECL) software.

8. Load Programmable CAS software.

9. Load CMC Loadable Diagnostic Information (LDI) software.

NOTE: Aircraft Condition Monitoring Function (ACMF) files (e.g. Engine Health Monitoring (EHM) files) that were previously loaded to the aircraft prior to modification may require reloading.

10. Restore the Custom Database from the aircraft laptop. See SGER-033, Software Backup and Restore, Chapter 4.3.

11. Restore the Rigging Settings from the aircraft laptop. See SGER-033, Software Backup and Restore, Chapter 4.4.

12. Enter 16-digit INDS serial number recorded in Step C.3 to access charts information as required.

13. Verify all software loads and perform all test procedures on all Authorization Reports (ARs).

14. Uninstall any previous version of Maintenance Applications prior to version 9.3.

15. Store all current configuration software on board the aircraft with accompanying ARs. Software that is not part of the current configuration should be discarded.

16. Insert AFMS No. G450-2019-01 into AFM.

E. Ensure work area is clean and clear of foreign objects and debris (FOD).

F. Document the following software information (as applicable) on the attached service reply card and on the PlaneView Configuration Record in the aircraft permanent maintenance records.

- Top Level System Part Number
- Media Part Number
- Media Serial Number

G. Record compliance with this aircraft service change in the aircraft permanent maintenance records and return aircraft to flight status.

H. Report compliance with this aircraft service change to Gulfstream 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@campsystems.com or fax to Gulfstream CMP at 800-944-1775 or 912-963-0265.

AIRCRAFT SERVICE CHANGE

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 or fax to Gulfstream CMP at 800-944-1775 or 912-963-0265.

THE FOLLOWING AIRCRAFT SERVICE CHANGE HAS BEEN COMPLIED WITH:

ASC NO.	CMP CODE	ACFT SERIAL NO.	COMPLIANCE DATE
099A	970991		

AIRCRAFT HOURS: _____

AIRCRAFT LANDINGS: _____

PREVIOUSLY COMPLIED WITH (PCW): _____ DATE: _____

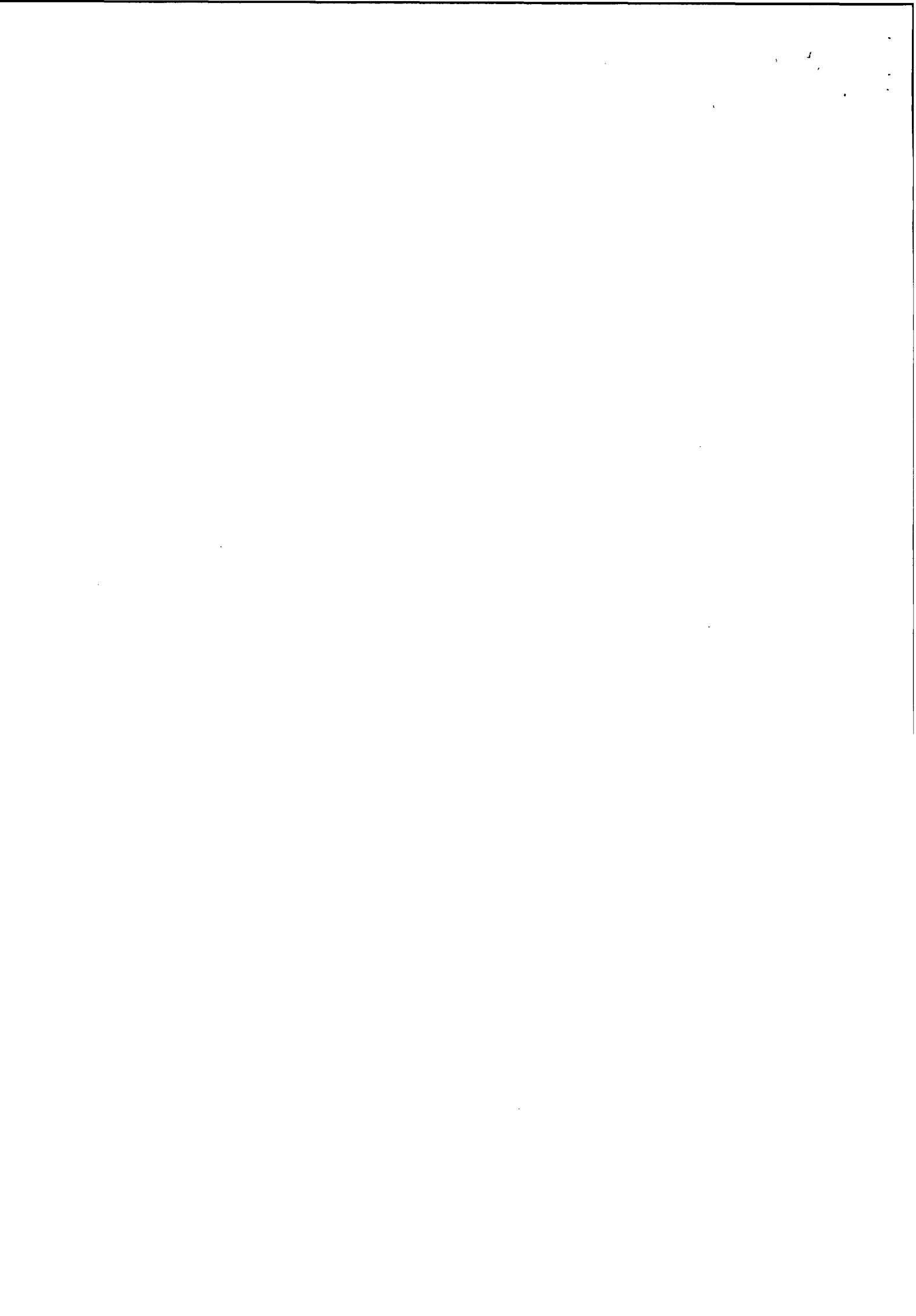
NOT APPLICABLE: _____ DATE: _____

SOFTWARE INFORMATION					
MEDIA TITLE		TOP LEVEL SYSTEM PART NUMBER	MEDIA PART NUMBER	MEDIA SERIAL NUMBER	CMP CODE
AMI	OFF:				
	ON:				
APM SETTINGS & RIGGING	OFF:				
	ON:				
LDI	OFF:				
	ON:				
ECL	OFF:				
	ON:				
ATC	OFF:				
	ON:				
OPTIONS	OFF:	TT	DM		
	ON:	TT	DM		
CAS	OFF:				
	ON:				
AMI	OFF:				
	ON:				

SIGNATURE	TITLE / CERTIFICATE NUMBER	COMPANY
-----------	----------------------------	---------

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US Department of Transportation
Federal Aviation Administration

**MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)**

OMB No. 2120-0020
Exp. 5/31/2018

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N451NS	Serial No. 4082		
	Make Gulfstream	Model G450	Series	
2. Owner	Name (As shown on registration certificate) Wilmington Trust CO Trustee		Address (As shown on registration certificate) Address 110 N Market ST	
			City Wilmington	State Delaware
			Zip 19890	Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	<u>Gulfstream</u>	(As described in Item 1 above)	<u>4082</u>
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No. QV1Y440K
Name Jet Aviation AG		<input type="checkbox"/> U. S. Certificated Mechanic	<input type="checkbox"/> Manufacturer	
Address Flughafenstrasse		<input type="checkbox"/> Foreign Certificated Mechanic		
City Basel State BS		<input type="checkbox"/> Certificated Repair Station		
Zip 4030 Country Switzerland		<input checked="" type="checkbox"/> Certificated Maintenance Organization		

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual 10. AUGUST 2016 JBSL / CH-145 0232 MICHAEL FRAULIN AUTH. REF.: 201542
--	--

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee <input checked="" type="checkbox"/>	Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. QV1Y440K	Signature/Date of Authorized Individual 10. AUG. 2016 JBSL / CH 145 0232 MICHAEL FRAULIN AUTH. REF.: 201542
---	--

Paperwork Reduction Act Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0020. Public reporting for this collection of information is estimated to be approximately 30 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandated by 14 CFR Part 43. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ASP-110.

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N451NS

10 AUG 2015

Nationality and Registration Mark

Date

Subject:

Installation of mQAR (quick access recorder)

Installation:

Performed installation iaw with Gulfstream ASC 046A

Electrical wiring modification performed iaw DWG.No 1159B47003 and 1159SB47970

Mechanical modification performed iaw DWG. No 1159B40396

As well used G450 AMM Rev.22 chapter 20,24,31

Result: PASSED

Certification and Test:

Performed certification and ground test iaw Gulfstream Engineering Report Doc. No. SGER-131

Result: PASSED

Maintenance and Continued Airworthiness:

Instructions for maintenance and continued airworthiness for L3 communication -aviation recorders uQAR on Model G450 (ASC46) are discribed in Gulfstream Engineering Report Doc. No. SGER-132.

Airworthiness Limitations:

There are no unique items associated with this alteration that require periodic structural inspections.

Additional Sheets Are Attached



G450

Gulfstream®
COMPUTERIZED MAINTENANCE PROGRAM

Gulfstream
MYCMP

REGISTRATION N451NS	SERIAL NO. 4082	TITLE ASC 046A Indicating / Recording (ATA 31) - Micro Quick Access Recorder (QAR) Installation	970461 Page 1 of 1
LOGBOOK Airframe	ZONE/ACCESS		PARENT CODE / OPERATION
AIRFRAME HOURS 5614.7	AIRFRAME CYCLES 2466		TASK TYPE Service Information
			AUTHORITY U.S.A. - Federal Aviation Administration Part 129.14
		COMPLIANCE REMARKS	REQUIREMENTS REFERENCE
ESTIMATED HOURS	SKILL		PROCEDURE REFERENCE G450_ASC_046A

NOTE: SERVICE CODES ARE COLLECTED AND ANALYZED BY THE MANUFACTURER TO IMPROVE THE MAINTENANCE PROGRAM AND TO INCREASE THE RELIABILITY OF THE AIRCRAFT. IT IS IMPORTANT THAT TECHNICIANS PROVIDE ACCURATE SERVICE CODES AND INSPECTION FINDINGS WHEN COMPLETING A MAINTENANCE WORK CARD.

Submit Cards to the CMP Group by emailing them to cmp.docproc@gulfstream.com or by using the CMP.net Document Upload feature on mygulfstream.com. Documents must be scanned .pdf files. Cards can also be faxed to 912-963-0265 or Toll Free 1-800-944-1775.

COMPLIED WITH <input checked="" type="checkbox"/> C MARK AS APPLICABLE	DECLINE <input type="checkbox"/> D MARK AS APPLICABLE	PROD. EQUIVALENT <input type="checkbox"/> P MARK AS APPLICABLE	NOT APPLICABLE <input type="checkbox"/> N MARK AS APPLICABLE	P/N: _____ S/N: _____
				MAT'L COST: _____ LABOR HRS: _____

TECHNICIAN SIGNATURE <i>[Signature]</i>	CERTIFICATE # JBSL 208103	DATE 27.07.16
INSPECTOR SIGNATURE <i>[Signature]</i>	CERTIFICATE # JBSL / CH.145 0232 MICHAEL FRAULIN AUTH. REF.: 201542	DATE 27.07.16

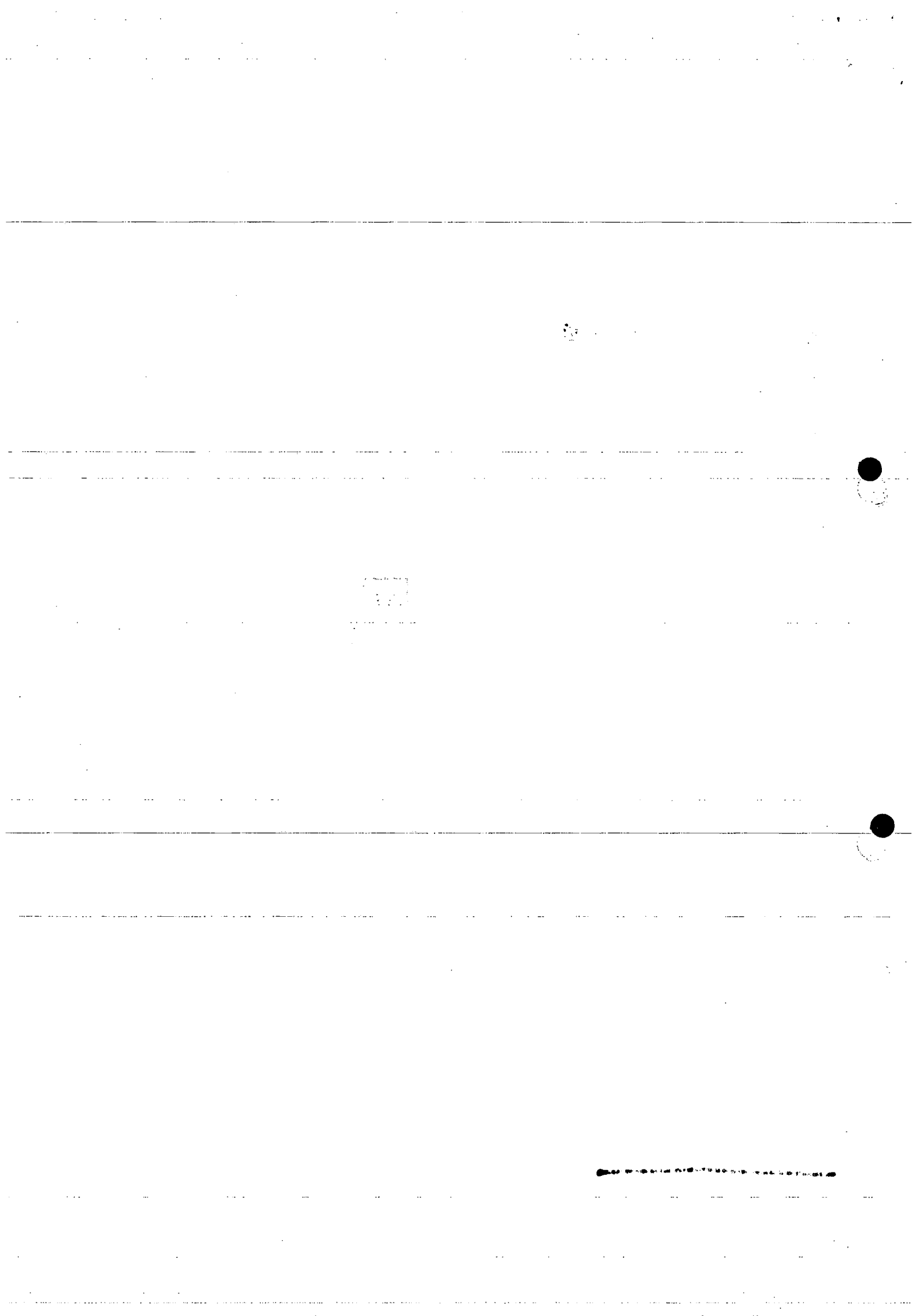
WORK ORDER: BN451012 / Rev.2006703

FACILITY: JET AVIATION BASEL

CERTIFICATE: QV1Y440K

COPY





TRANSMITTAL SHEET

This sheet transmits Revision A, dated August 19, 2013, to Gulfstream G450 Aircraft Service Change 046, dated March 3, 2008, titled Indicating / Recording (ATA 31) – Micro Quick Access Recorder (μQAR) Installation

Reason for Revision:

Purpose / Discussion:

Added statement regarding addition of new installation configurations, reformatting of ASC and added reminder CMP code activation for 30 day downloads

Description:

Added note regarding installation hours

Special Equipment / Tools Required:

Updated equipment to permit equivalent tools

Price:

Updated pricing information

Added note regarding FORMS enrollment

Modification Instructions:

Reformatted all modification instructions to drawing package

Parts Required:

Updated parts list to reflect latest drawing changes and include copies of appropriate drawings

Effect of Revision on Prior Accomplishment:

This service change revision supersedes the original issue of ASC 046 and is now re-issued as ASC 046A. Aircraft having previously complied with ASC 046 have met the intent of this revision and should return the service reply card marked "Previously Complied With" noting the date of the installation.

Note: This bulletin has been completely rewritten and restructured. No revision bars are used.

List of Effective Pages:

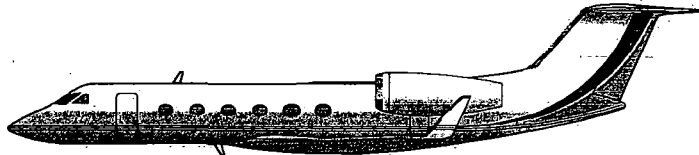
<u>Page</u>	<u>Date</u>	<u>Page</u>	<u>Date</u>	<u>Page</u>	<u>Date</u>
2	August 19, 2013	5	August 19, 2013		
3	August 19, 2013	6	August 19, 2013		
4	August 19, 2013	7	August 19, 2013		

Revision History:

Original Issue: March 3, 2008

Revision A: August 19, 2013

Gulfstream G450



AIRCRAFT SERVICE CHANGE

NUMBER 046A

SUBJECT

INDICATING / RECORDING (ATA 31)

MICRO QUICK ACCESS RECORDER (μ QAR)
INSTALLATION

AUGUST 19, 2013

Gulfstream®
A GENERAL DYNAMICS COMPANY

PILOTS INFORMATION SHEET

MICRO QUICK ACCESS RECORDER (μ QAR) INSTALLATION

This service change installs the Micro Quick Access Recorder (μ QAR). This installation allows for quick access to the flight and maintenance data as recorded on the Flight Data Recorder.

There will be no cockpit procedural changes required as a result of this installation.

PLEASE DETACH AND GIVE TO FLIGHT DEPARTMENT PERSONNEL

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PILOTS INFORMATION SHEET

MICRO QUICK ACCESS RECORDER (μ QAR) INSTALLATION

This service change installs the Micro Quick Access Recorder (μ QAR). This installation allows for quick access to the flight and maintenance data as recorded on the Flight Data Recorder.

There will be no cockpit procedural changes required as a result of this installation.

PLEASE RETAIN THIS COPY WITH THE ASC BOOKLET

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"August 19, 2013"

The design change effected by this Aircraft Service Change (ASC) has been classified as Level 2 Major. This modification is approved and accepted by:

- The United States Federal Aviation Administration (FAA) – Project Number TD10308AT-T
- This modification is accepted by the European Aviation Safety Agency (EASA), European Union Directive, Decision No. 2004/04/CF.

The design of this ASC is approved by aircraft type design data for installation on aircraft registered for operation in accordance with applicable regulations of the FAA and EASA.

The design of an ASC is configured to a standard ("green") production aircraft. If spare wires, pin connections or locations called out have been used for another modification, the installing agency must ensure the development, documentation and approval of any required deviations.

The following instructions, in step-by-step form, are written as a guide to perform this ASC. Compliance with safe maintenance practices, as defined in the Aircraft Maintenance Manual and FAA or EASA regulations, is required. It is the responsibility of the installing facility to read all instructions contained in this service change and refer to all associated documents, drawings and manuals for applicable actions.

Gulfstream considers this ASC a means to enhance aircraft capabilities to meet individual operator requirements. The modification is not related to any safety or airworthiness condition.

Subject: Indicating / Recording (ATA 31) – Micro Quick Access Recorder (μ QAR) Installation

Purpose / Discussion: This service change installs the Micro Quick Access Recorder (μ QAR). The μ QAR is an efficient lightweight component that taps into the Flight Data Recorder (FDR) information from the flight deck. This allows for faster, simpler, high-speed downloads of flight and maintenance data as recorded by the FDR. Specialized download tools are not required with the μ QAR and this, combined with its flight deck location, enables quicker access and retrieval of FDR data.

This information may be utilized by maintenance departments to analyze trends and monitor performance data requiring no interface or action from the flight crew. In addition, it provides easy access to data required for Flight Operations Quality Assurance (FOQA) / Flight Data Monitoring (FDM) analysis. FOQA/FDM programs are intended to support an operators' Safety Management System and has shown significant benefit in aircraft operations.

"August 19, 2013"

Purpose / Discussion continued:

Each μ QAR comes standard with a removable flash card and has a solid state memory capable of storing over 320 hours of flight data. The compact flash memory card can be read using a standard PCMCIA interface reader connected to a personal computer (PC) running L3 Communications-Aviation Recorder's " μ QAR Flight Data Processor" software utility program.

Alternatively, flight data can be directly downloaded from the μ QAR with the compact flash memory still installed, whether the μ QAR is on or off the aircraft, using a PC, laptop or PDA running Microsoft Windows™ with the μ QAR Flight Data Processor software utility program connected to the μ QAR through an interface cable. Both the interface cable and the necessary software are included with the ASC kit. Additional flash cards are available in a variety of storage capacities.

This ASC revision adds additional installations to address system changes during initial phase manufacturing. In addition, the ASC has been reformatted to a drawing package as a result of an increase in the variety of aircraft configurations. This format allows quicker adaptation to a given aircraft configuration. All illustrations and specific instructions have been removed from the ASC and the relevant drawings are provided to accomplish this modification.

Upon installation of the μ QAR, a new Computerized Maintenance Program (CMP) code (317050 - Monthly QAR Download) will become available as a reminder to perform monthly downloads. Monthly downloads are a requirement of the FORMS program. This code is set as a 30 day advisory and will be activated at the time of modification.

**Description / Labor-Hours
Required Per Aircraft:**

This service change installs the L3 μ QAR, a circuit breaker (CB), associated wiring and bracket in the Left Electronic Equipment Rack (LEER).

Approximately 45 labor-hours will be required for this installation. Installations requiring wiring between LEER and REER may require additional hours.

Approved Engineering Data:

The source data for this aircraft service change is:
1159ASC47046 Rev. "-" Top Drawing – Micro Quick Access Recorder (ASC 046)

Prerequisites:

None

Associated Documents:

Aircraft Maintenance Manual (AMM), Chapters 20, 24 and 31

"August 19, 2013"

Associated Documents cont.: Wiring Diagram Manual (WDM), Chapters 20, 24 and 31
 SGER – 131, Certification Ground Test Plan for L3 Communications-Aviation Recorders
 SGER – 132, Instructions for Continued Airworthiness for L3 Communications-Aviation Recorders
 SGER-906 - ESDS for PlaneView Aircraft

Flight Manual Revision / Supplement Required: None

Publications Data: Data concerning this service change will be published in a future revision of the affected manual(s). This booklet will provide technical data until the revision(s) is published.

Effectivity: This service change is applicable to aircraft serial numbers 4001 and subsequent.

Effect on Spares: None

Special Equipment / Tools Required: Ruggedized Service Unit (RSU) DFDR Download Kit, P/N 801-0108-02, or equivalent
 Honeywell PTI Cable, P/N 650-0173 (must be requested specifically for inclusion with RSU kit)
 Hand Held Down Load Unit (HHDLU), PN 964-0446-021, or equivalent (may be used in place of RSU kit and Cable)

Skill Type Required: Knowledge of the G450 Digital Flight Data Recorder system, electrical and sheetmetal standard practices will be required for this installation.

Price: Prices are subject to change without notice.

Installed Price: Installed price is subject to the prevailing labor rate of the installing facility.

Kit Price only: Domestic: \$ 10,000.00
International: \$ 10,200.00

NOTE:	Gulfstream provides Flight Data Monitoring services for aircraft having installed this ASC. A Flight Operations Risk Management Service (FORMS) enrollment form is available in the Forms & Surveys section of myGulfstream.com. For additional information and/or current subscription pricing, contact Gulfstream Technical Information Business Office via email at pubs@gulfstream.com or by phone at 800-810-GULF (4853) or 912-965-4178.
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MODIFICATION INSTRUCTIONS:

CAUTION:	PROTECT WIRE BUNDLES, CONNECTORS AND SURROUNDING STRUCTURE DURING ANY MAINTENANCE PROCEDURE 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.
-----------------	---

- A. Prepare aircraft for safe maintenance as follows:
 1. Remove all electrical power, turn all cockpit switches off and disconnect battery quick disconnects. Refer to AMM, Chapter 20.
 2. Gain access to LEER as required to perform installation.
 3. Remove and store equipment from LEER as required to gain access to the modification area. Refer to SGER-906 and AMM.
 4. Remove LEER CB overlay for modification.
- B. Modify aircraft using installation drawings listed in the following table in conjunction with procedures outlined in this ASC:

NOTE:	Drawing revisions called out in this table reflect the latest revisions at the time of this ASC release. Revision levels are subject to change pending amendments of the original release. The latest revision for each drawing will be provided when the ASC kit is purchased. In the event a drawing revision or Engineering Order (EO) is issued after the release of this service change, the latest drawing revision or EO will take precedence over the written instructions in this document.
--------------	---

INSTALLATION DRAWINGS AND REPORTS		
Drawing	Title	Rev. Level
1159ASC47046	Top Drawing – Micro Quick Access Recorder (ASC 046)	-
1159SB40396	QAR ASC Installation	B
1159SB47003	FDR (Micro-QAR)	D
1159SB47970	Wire Routing (Micro-QAR)	-

- C. Verify continuity of all newly installed or rerouted wiring.
- D. Using the appropriate AMM procedures, re-install any equipment removed for access to the modification area noted in Step A.3. as applicable.
- E. Prepare aircraft for safe application of electrical power in accordance with the AMM.

"August 19, 2013"

NOTE:	It is not necessary to perform a full FDR analysis as a function of this test. It is only necessary to sample a small number of data points from each source (analog inputs and digital inputs) and compare the results from the FDR to the μ QAR in order to verify that they are essentially the same.
-------	--

- F.* Perform return to service procedure as instructed in Section 1.2 of SGER-131.
Refer to W/O BN457012 - 4048
- G.* Perform operational checks of any components removed for modification access as required by the AMM. *Refer to W/O BN457012 - 4048*

NOTE:	The operational check of this installation requires downloads of the DFDR and μ QAR to be compared. Information from the μ QAR is downloaded via processing software included with this ASC. DFDR downloading equipment (RSU kit) is available at most Gulfstream facilities. The data to be compared may be placed on the Avionics Lab FTP website or transmitted to Gulfstream Avionics Lab for comparison. Alternatively, the DFDR may be removed and shipped to Gulfstream for download and comparison to the μ QAR data.
-------	---

- H.* Perform DFDR download using RSU download kit and cable or equivalent. Refer to G450 AMM, Chapter 31-31-01.
- I.* Download Data from the μ QAR via the cable using the μ QAR Flight Data Processor software included in this kit.
- J.* Turn off avionics and aircraft power. Refer to AMM, Chapter 20.
3. Send the data files for the FDR and μ QAR to Gulfstream Avionics Lab (912) 965-4594 or, place data on the Avionics Lab FTP site for analysis and comparison.
- I.* Ensure work area is clean and clear of foreign objects and debris (FOD).
- J.* Close and secure LEER access panels.
- K.* Notify CMP to activate CMP code 317050 – Monthly QAR Download for aircraft.
- L.* Record compliance with this aircraft service change in the aircraft permanent maintenance records and return aircraft to flight status.
- M.* Report compliance with this customer bulletin to Gulfstream CMP by faxing the attached service reply card with the CMP task card(s) sign-off or uploading PDF forms to myGulfstream.com, CMP.Net document upload.

"August 19, 2013"

WEIGHT AND BALANCE DATA:	The effect of this service change, when performed in a stand alone configuration, will be negligible with regard to aircraft basic weight and balance. It is the responsibility of the installing facility to perform weight and balance computations in accordance with the AMM and Gulfstream Aircraft Weight and Balance manual. Changes to the weight and balance shall be documented in the aircraft permanent records.			
	MOD	WEIGHT	HORIZONTAL	MOMENT
	ASC 046	≈ 0.8 lbs	-	-

ELECTRICAL LOAD ANALYSIS DATA:	The effect of this modification on the aircraft electrical load adds 1.6 VA (0.014A) to the Essential 115Vac 400 Hz Phase A bus. This statement of electrical loads is provided for incorporation in the aircraft records. It is the responsibility of the installing agency to verify that these loads are compatible with the current electrical capacities for the applicable aircraft.
--------------------------------	--

Item	Part Number	Nomenclature	QTY.	Notes/Alt/Sub
			-1 kit	
1.	1159ASC47046	Micro-QAR	1	
2.	1159SB40396	QAR ASC Installation	1	
3.	1159SB47003	FDR (Micro-QAR)	1	
4.	1159SB47970	Wire Routing (Micro-QAR)	1	
5.	SGER-131	Test Plan for L3 uQAR	1	
6.	SGER-132	Instructions for Continued Airworthiness	1	
7.	QAR200-03-04	Micro-QAR; wrap	1	Removable compact card supplied w/ QAR
8.	1159AV33022-1	Circuit Breaker, 1 amp	1	2TC14-1
9.	M83723/71R1415N	Connector	1	
10.	M85049/31-14N	Backshell	1	
11.	M39029/58-363	Pin	2	
12.	M39029/5-115	Socket	6	
13.	GAD12C-5-ASC046A1	Decal, QAR designator	1	
14.	GAD12C-5-ASC046CB1	Decal, CB designator	1	
15.	GAD12C-5-ASC046A1J1	Decal, Connector designator	1	

"August 19, 2013"

Item	Part Number	Nomenclature	QTY	Notes/Alt/Sub
			-1 kit	
16.	GAD12C-5-MODIFIED BY ASC046 DWG 1159SB47003	Decal, LEER CB Overlay designator	1	
17.	GAT805H18-08	Terminal lug	1	
18.	AB14-8A	Terminal Lug	3	
19.	M39029/22-193	Pin	2	
20.	GAA800AH16	Pin Adapter	2	
21.	GAS805BB-37	Splice	2	
22.	1159SB40396-11	Bracket	1	CE544200001-11
23.	1159SB40396-13	Placard	1	
24.	MS27039-1-07	Screw	4	
25.	MS35206-215	Screw	4	
26.	NAS1149DN432K	Washer	4	
27.	NAS1149DO332K	Washer	4	
28.	NAS1836-3-16	Insert	4	
29.	FSU14	Nut Ring	1	
30.	17TES0090	Download Cable	1	Loose equipment
31.	883E2822-03	Download Software	1	Loose equipment

NOTE:	All wiring will be issued as a wire bundle, PN 1159SB47003-1AWB. Verify wire bundle inventory upon receipt of kit.
--------------	--

Item	Wire Part Number	Wire Number Designator	Length	Notes/Alt/Sub
32.	GAW805AB16	X55AA16A	2'	1159SB47003-1AWB
33.	GAC875AB222	FR100B22-4W/4B	8'	
34.	GAC875AB222S	FR438A22-5W/5B	30'	
35.	GAW805AB22	FR100A22	3'	
36.	GAW805AB22	FR100BB22N	3'	
37.	GAW805AB22	FR451A22N-5D	10'	
38.	GAW805AB22	FR452A22N-5D	10'	

NOTE:	Drawings will be issued to the latest revision level.
--------------	---

Gulfstream G450

Aircraft Service Change 046A

"August 19, 2013"

SERVICE REPLY CARD

Please fax this page, with the CMP task card(s) sign-off, to gulfstream CMP at 800-944-1775 or 912-963-0265, or upload PDF forms to myGulfstream.com, CMP.net document upload.

THE FOLLOWING AIRCRAFT SERVICE CHANGE HAS BEEN COMPLIED WITH:

ASC NUMBER	A/C	AIRCRAFT TYPE	COMPLIANCE DATE
970461	4082	G450	27.07.2016

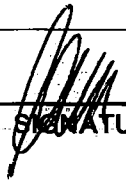

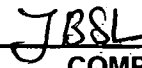
AIRCRAFT HOURS: 5614.42

AIRCRAFT LANDINGS: 2466

PREVIOUSLY COMPLIED WITH (PCW): _____ DATE: _____

NOT APPLICABLE: _____ DATE: _____

NOMENCLATURE	PART NUMBER	SERIAL NUMBER	CMP CODE
GAR	OFF: /	/	
	ON: GAR 200-63-04	01145753	
	OFF:		
	ON:		
	OFF:		
	ON:		

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

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US Department of Transportation
Federal Aviation Administration

**MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)**

OMB No. 2120-0020
Exp. 5/31/2018

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N451NS	Serial No. 4082
	Make Gulfstream	Model G450
2. Owner	Name (As shown on registration certificate) Wilmington Trust CO Trustee	Address (As shown on registration certificate) Address 110 N Market Street City Wilmington State Delaware Zip 19890 Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	Gulfstream	(As described in Item 1 above)	4082
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No. QV1Y440K
Name Jet Aviation AG	Address Flughafenstrasse	U. S. Certificated Mechanic	Manufacturer	
City Basel State BS	Zip 4030 Country Switzerland	Foreign Certificated Mechanic	Certificated Repair Station	
		<input checked="" type="checkbox"/> Certificated Maintenance Organization		

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual JBSL / CH 145 0232 MICHAEL FRAULIN AUTH. REF: 201542 <i>10 AUGUST 2016</i>
--	--

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee <input checked="" type="checkbox"/>	Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. QV1Y440K	Signature/Date of Authorized Individual <i>10 AUG 2016</i>	JBSL / CH 145 0232 MICHAEL FRAULIN AUTH. REF: 201542
---	---	--

Paperwork Reduction Act Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0020. Public reporting for this collection of information is estimated to be approximately 30 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandated by 14 CFR Part 43. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ASP-110.

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N451NS

10 AUG 2016

Nationality and Registration Mark

Date

Subject:

FSECU software change, HSEMU change and circuit breaker change iaw Gulfstream ASC086

Modification:

FSECU software changed iaw Doc. No. GIVX-GER-0040. HSEMU replaced and CBs on cockpit overheadpanel replaced iaw ASC086 , AMM chapter 20 and 27 , GIVX GER-9934 planeviewsoftware loading procedure.New LDI loaded.

Certifikation and Test:

Performed certification and test iaw Gulfstream Document No. 1159ASC47086 , AMM chapter 27-50-00, 27-41-03 and instructions of ASC086.

Result: PASSED

Maintenance and Continued Airworthiness:

Instructions for maintenance and continued airworthiness as per AMM chapter 5. There will be no cockpit procedural changes required as a result of this installation. the simular change will be installed during initial phase manufacturing on aircraft SN 4311 and subsequent.

Additional Sheets Are Attached



JBSL / CH.145.0232
DENIS STIMPLING
AUTH. REF.: 200192

Gulfstream
MYCMP

G450

Gulfstream®
COMPUTERIZED MAINTENANCE PROGRAM

REGISTRATION N451NS	SERIAL NO. 4082	TITLE ASC 86 - Flap and Stabilizer Electronic Control Unit (FSECU) - Software Upgrade	970860 Page 1 of 1
LOGBOOK Airframe	ZONE/ACCESS		PARENT CODE / OPERATION
AIRFRAME HOURS	AIRFRAME CYCLES		TASK TYPE Service Information
			AUTHORITY U.S.A. - Federal Aviation Administration Part 129.14
		COMPLIANCE REMARKS Effectivity: This ASC is applicable to aircraft serial numbers 4001-4310. This or a si...	REQUIREMENTS REFERENCE
ESTIMATED HOURS	SKILL		PROCEDURE REFERENCE G450_ASC_086

NOTE: SERVICE CODES ARE COLLECTED AND ANALYZED BY THE MANUFACTURER TO IMPROVE THE MAINTENANCE PROGRAM AND TO INCREASE THE RELIABILITY OF THE AIRCRAFT. IT IS IMPORTANT THAT TECHNICIANS PROVIDE ACCURATE SERVICE CODES AND INSPECTION FINDINGS WHEN COMPLETING A MAINTENANCE WORK CARD.
Submit Cards to the CMP Group by emailing them to cmp.docproc@gulfstream.com or by using the CMP.net Document Upload feature on mygulfstream.com. Documents must be scanned .pdf files. Cards can also be faxed to 912-963-0265 or Toll Free 1-800-944-1775.

COMPLIED WITH C <input checked="" type="checkbox"/> MARK AS APPLICABLE	DECLINE D <input type="checkbox"/> MARK AS APPLICABLE	PROD. EQUIVALENT P <input type="checkbox"/> MARK AS APPLICABLE	NOT APPLICABLE N <input type="checkbox"/> MARK AS APPLICABLE	P/N: _____ S/N: _____
		MAT'L COST: _____		LABOR HRS: _____

TECHNICIAN SIGNATURE <i>[Signature]</i>	CERTIFICATE # JBSL 208103	DATE 22.7.2016
INSPECTOR SIGNATURE <i>[Signature]</i>	CERTIFICATE # JBSL / CH.145.0232 MICHAEL FRAULIN AUTH. REF.: 201542	DATE 22.07.16

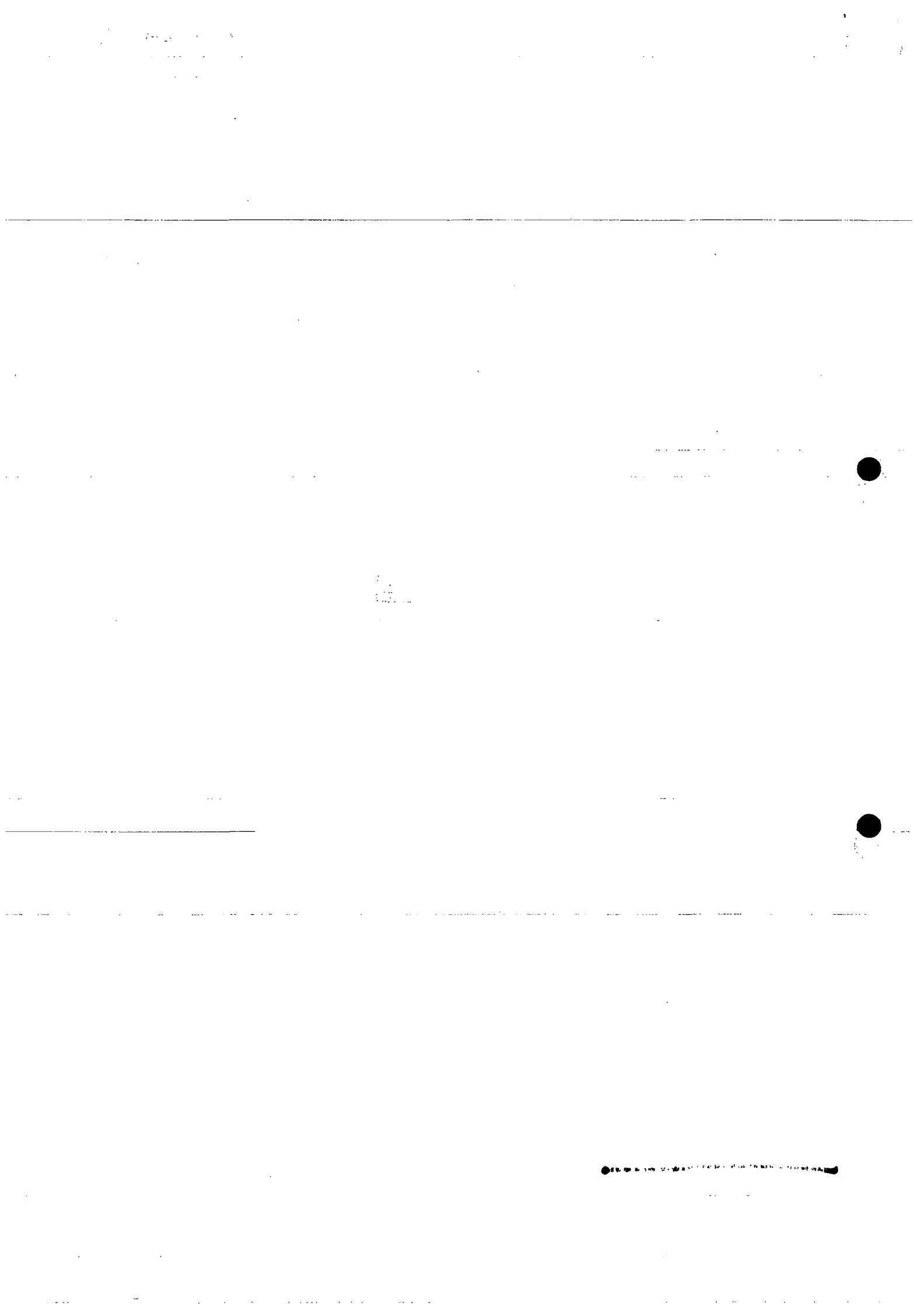
WORK ORDER: **BN451012 / Rev.20006703**

FACILITY: **JET AVIATION BASEL**

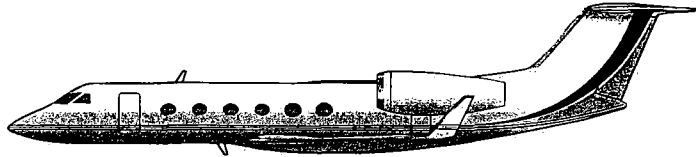
CERTIFICATE: **QV1Y440K**

COPY





Gulfstream G450



AIRCRAFT SERVICE CHANGE

NUMBER 086

SUBJECT

FLIGHT CONTROLS (ATA 27)

FLAP AND STABILIZER ELECTRONIC CONTROL
UNIT (FSECU) – SOFTWARE UPGRADE

JULY 25, 2014

Gulfstream®
A GENERAL DYNAMICS COMPANY

PILOTS INFORMATION SHEET

FLAP AND STABILIZER ELECTRONIC CONTROL UNIT (FSECU) – SOFTWARE UPGRADE

This service change upgrades the Flap and Stabilizer Electronic Control Unit (FSECU) to the latest software configuration (-005 SW) and, if required, installs an improved configuration Horizontal Stabilizer Electric Motor Unit (HSEMU). The new configuration is designed to correct the timing of the FSECU System Power On Self-Test (SPOST) to allow the FSECU to properly detect latent failures of the HSEMU brake and the Flap Hydraulic Control Module.

There will be no cockpit procedural changes required as a result of this installation.

PLEASE DETACH AND GIVE TO FLIGHT DEPARTMENT PERSONNEL

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PILOTS INFORMATION SHEET

FLAP AND STABILIZER ELECTRONIC CONTROL UNIT (FSECU) – SOFTWARE UPGRADE

This service change upgrades the Flap and Stabilizer Electronic Control Unit (FSECU) to the latest software configuration (-005 SW) and, if required, installs an improved configuration Horizontal Stabilizer Electric Motor Unit (HSEMU). The new configuration is designed to correct the timing of the FSECU System Power On Self-Test (SPOST) to allow the FSECU to properly detect latent failures of the HSEMU brake and the Flap Hydraulic Control Module.

There will be no cockpit procedural changes required as a result of this installation.

PLEASE RETAIN THIS COPY WITH THE AIRCRAFT SERVICE CHANGE (ASC) BOOKLET

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July 25, 2014

The design change effected by this Aircraft Service Change (ASC) has been classified as Major by the United States Federal Aviation Administration (FAA) and Level 1 Major by the European Aviation Safety Agency (EASA). This modification is approved and accepted by the FAA and EASA under Gulfstream Organization Designation Authorization (ODA) Project Number TD-01-2012-0054 and TD-01-2012-0052.

The design of this ASC is approved by aircraft type design data for installation on aircraft registered for operation in accordance with applicable regulations of the FAA and EASA.

The design of an ASC is configured to a standard ("greenie") production aircraft. If spare wires, pin connections or locations called out have been used for another modification, the installing agency must ensure the development, documentation and approval of any required deviations.

The following instructions, in step-by-step form, are written as a guide to perform this ASC. Compliance with safe maintenance practices, as defined in the Aircraft Maintenance Manual (AMM) and by the FAA and EASA, is required.

The modification is related to a safety or airworthiness condition (reference AD 2012-25-07). This modification may be terminating action for the AD, but only in accordance with the AD or AMOC. This ASC does not authorize deviation from the AD.

Subject: Flight Controls (ATA 27), Flap and Stabilizer Electronic Control Unit (FSECU) – Software Upgrade

Purpose/Discussion: This service change upgrades the Flap and Stabilizer Electronic Control Unit (FSECU) to the latest software configuration (-005 SW) and, if required, installs an improved configuration Horizontal Stabilizer Electric Motor Unit (HSEMU). The new configuration is designed to correct the timing of the FSECU System Power On Self-Test (SPOST) to allow the FSECU to properly detect latent failures of the HSEMU brake and the Flap Hydraulic Control Module. Additionally, the Loadable Diagnostic Information (LDI) software is upgraded and the circuit breakers associated with the manual System Power On Self-Test (SPOST) are replaced.

Description/Man-Hours Required Per Aircraft: The FSECU is removed from the aircraft and upgraded (or exchanged) and reinstalled. For FSECU PNs 1159SCC612-9, -11 and -13, the new software is bench loaded and the unit is reidentified using the appropriate label. FSECU PNs 1159SCC612-1 and -7 must be returned to Moog Aircraft Group for upgrade and an upgraded FSECU from a component exchange pool will be provided.

July 25, 2014

Description/Man-Hours Required
Per Aircraft Continued:

If HSEMU, PN 1159SCC610-13 is not currently installed, the existing -11 unit is removed and a -13 unit from a component exchange pool is installed.

The ~~FLAP/STAB PRI L DC~~ ~~FLAP/STAB PRI R DC~~ and ~~FLAP/STAB SEC DC~~ circuit breakers are replaced and, if required, the latest Loadable Diagnostic Information (LDI) software is loaded.

Approximately 55 labor-hours will be required for this modification.

Incorporation of this ASC and the component exchange pool are program managed and must be coordinated through the Gulfstream Program Office and Gulfstream Scheduling. To schedule an aircraft into a Gulfstream facility for incorporation of this ASC, please contact Gulfstream Scheduling at 800-810-GULF (4853) or 912-965-4178.

For planning purposes, Operators requesting this modification are required to contact the Gulfstream Program Management Office at least thirty days in advance by email at pmoretro@gulfstream.com.

Approved Engineering Data:

The source data for this ASC is:

1159ASC47086 Rev "-", Top Drawing, Flap / Stabilizer Electronic Control Unit -005 Software Upgrade

Prerequisites:

Prior to, or at the time this ASC is ordered, operators are required to supply a configuration report of the Central Maintenance Computer (CMC). The CMC configuration report can be stored on the aircraft PC laptop then electronically submitted to Gulfstream at asc.software@gulfstream.com. A review of the CMC configuration report will determine if the existing LDI is compatible with the installation of this ASC and if required, a new LDI disk will be issued. If a new LDI disk is generated from the CMC configuration report, it should be loaded prior to upgrading the FSECU (refer to drawing 1159ASC47086).

Allow 3-5 days for the CMC review and up to 10 days for the shipment of a new LDI disk.

Concurrent Requirement:

G450 Customer Bulletin (CB) Number 170

July 25, 2014

Associated Documents: Aircraft Maintenance Manual (AMM), Chapters 20 and 27
GIVX-GER-9934 – PlaneView Software Loading, Verification and Return To Service Procedures. This document is located on the Maintenance Applications disk and is stored on the aircraft laptop.

Flight Manual Revision/ Supplement Required: There will be no cockpit procedural changes required as a result of this installation.

Publications Data: Data concerning this service change will be published in a future revision of the affected manual(s). This booklet will provide technical data until the revision(s) is published.

Effectivity: This ASC is applicable to aircraft serial numbers 4001-4310.
This or a similar change will be installed during initial phase manufacturing on aircraft serial numbers 4311 and subsequent.

Effect on Spares: None

Special Equipment/Tools Required:

- 28 Volt DC Power Supply (28V / 7.5A)
- PC Laptop with Microsoft Windows XP or Microsoft Windows 7 operating system (Laptop must be equipped with RS-232 Com port or a USB 2.0 port with a USB serial adapter cable)
- FSECU Loading Harness, PN CA89727-002
- FSECU Software CD-ROM, PN CA91758-002

Skill Type Required: Knowledge of the Gulfstream G450 Flight Control System will be required for this modification.

Price: Prices are subject to change without notice.
Installed Price: See Note*
Kit Price only: See Note**

*NOTE:	This ASC will be installed at no charge for a period of 24 months from the release date noted on the cover of this Aircraft Service Change if performed at a Gulfstream G450 Authorized Warranty Facility or Factory Authorized Service Center. After the recommended compliance time has expired, this installation shall be subject to the prevailing labor rate of the installing facility.
--------	--

**NOTE:	This ASC kit will be provided at no charge for a period of 24 months from the release date noted on the cover of this Aircraft Service Change. After the 24-month period has expired, this ASC kit/s will be priced and sold.
---------	---

MODIFICATION INSTRUCTIONS:

CAUTION:	DURING ANY MAINTENANCE PROCEDURE, PROTECT WIRE BUNDLES, CONNECTORS AND SURROUNDING STRUCTURE 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.
----------	--

- A. Prepare aircraft for safe maintenance. Refer to AMM, Chapter 20, Safe Ground Maintenance Procedures.
- B. Modify aircraft per drawing 1159ASC47086.
- C. Ensure work area is clean and clear of foreign objects and debris (FOD).
- D. If new Loadable Diagnostic Information (LDI) software was installed, document the following information on the attached service reply card and in the aircraft logbook.
 - Top Level System Part Number
 - Media Part Number
 - Media Serial Number
- E. Document the necessary information on the software configuration record located within the MISCELLANEOUS section of the aircraft's permanent maintenance records.
- F. Record compliance with this aircraft service change in the aircraft's permanent maintenance records and return aircraft to flight status.
- G. Report compliance with this aircraft service change to Gulfstream Computerized Maintenance Program (CMP) by faxing the attached service reply card with the CMP task card(s) sign-off or uploading PDF forms to MyGulfstream, MyCMP document upload.

WEIGHT AND BALANCE DATA:	The weight and balance of the aircraft is not affected by this ASC.
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ELECTRICAL LOAD ANALYSIS DATA:	The aircraft electrical loading is not affected by this ASC.
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PARTS REQUIRED PER AIRCRAFT:				
Item	Part Number	Nomenclature	Qty	Notes/Alt/Sub
			-1 Kit	
1.	1159ASC47086	Top Drawing	1	Note 1
2.	GIVX-GER-0040	FSECU Software Loading and Verification Procedure	1	Note 1
3.	GIVX-GER-0042	FSECU Software Load Report for -005 SW	1	Note 1
4.	CB72640-001	FSECU Sub-Label	1	
5.	CB72641-001	FSECU Sub-Label	1	
6.	CB72642-001	FSECU Sub-Label	1	
7.	CB72643-001	FSECU Sub-Label	1	
8.	CB72644-001	FSECU Sub-Label	1	
9.	CB72645-001	FSECU Sub-Label	1	
10.	1159AV33022-5	DC Circuit Breaker, 5 Amp	3	
11.	1159ASC47086-SW	Software Package	1	Note 2
12.	1159SB57024	Loadable Diagnostic Information (LDI)	-	Included with Item 11
13.	1159SCC610-13	HSEMU	-	Note 3
14.	1159SCC612-17 / -15	FSECU	-	Note 4

NOTE 1:	All documents and publications shall be issued to the latest revision.
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NOTE 2:	All software media required for this ASC will be issued as a separate package by PN 1159ASC47086-SW. Prior to ordering this ASC kit a CMC configuration report must be submitted. The LDI software for this ASC will be determined by review of the CMC report. If required, a new disk will be supplied. If no disk is needed then use existing LDI on board the aircraft. Refer to prerequisites, Page 2.
---------	---

NOTE 3:	HSEMU P/N 1159SCC610-13 is a rotatable part and must be ordered separately from the ASC kit.
---------	--

NOTE 4:	A replacement FSECU is only required if the existing unit cannot be upgraded (refer to drawing 1159ASC47086). If a replacement unit is required it must be ordered separately from the ASC kit.
---------	---

July 25, 2014

SERVICE REPLY CARD

Please fax this page, with the CMP task card(s) sign-off, to Gulfstream CMP at 800-944-1775 or 912-963-0265, or upload PDF forms to MyGulfstream, MyCMP document upload.

THE FOLLOWING AIRCRAFT SERVICE CHANGE HAS BEEN COMPLIED WITH:

ASC NUMBER	AIRCRAFT TYPE	A/C	COMPLIANCE DATE
970860	G450	408L	

AIRCRAFT HOURS: _____

AIRCRAFT LANDINGS: _____


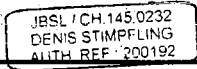
PREVIOUSLY COMPLIED WITH (PCW): _____ DATE: _____

NOT APPLICABLE: _____ DATE: _____

COMPONENT	PART NUMBER	SERIAL NUMBER	CMP CODE
FSECEL	OFF: 1159SCC61L-17	185	275104
	ON: 1159SCC61L-17	185	275104
	OFF: 1159SCL610-11	91	274107
	ON: 1159SCL610-13	258	274107

DISC INFORMATION

MEDIA TITLE	TOP LEVEL SYSTEM PART NUMBER	MEDIA PART NUMBER	MEDIA SERIAL NUMBER	CMP CODE
CMC LDI	OFF:			
	ON: 61V..908_00414_05_040914	-	-	

 SIGNATURE	 TITLE / CERTIFICATE NUMBER	 COMPANY
--	---	---

COMMENTS / SUGGESTIONS / ACTIONS TAKEN:

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US Department
of Transportation
Federal Aviation
Administration

**MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)**

OMB No. 2120-0020
Exp: 5/31/2018

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N451NS	Serial No. 4082
	Make Gulfstream	Model G450 Series
2. Owner	Name (As shown on registration certificate) Wilmington Trust CO Trustee	Address (As shown on registration certificate) Address 110 N Market ST
		City Wilmington State Delaware
		Zip 19890 Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	<u>Gulfstream</u>	(As described in Item 1 above)	<u>4082</u>
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No. QV1Y440K
Name Jet Aviation AG	Address Flughafenstrasse	City Basel State BS	Zip 4030 Country Switzerland	
		<input type="checkbox"/> U. S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input checked="" type="checkbox"/> Certificated Repair Station <input checked="" type="checkbox"/> Certificated Maintenance Organization		

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual 10 AUGUST 2016 JBSL / CH 145 0232 MICHAEL FRAULIN AUTH. REF.: 201542
--	--

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee <input checked="" type="checkbox"/>	Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. QV1Y440K	Signature/Date of Authorized Individual 10 AUG. 2016 JBSL / CH 145 0232 MICHAEL FRAULIN AUTH. REF.: 201542
---	--

Paperwork Reduction Act Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0020. Public reporting for this collection of information is estimated to be approximately 30 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandated by 14 CFR Part 43. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ASP-110.

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N451NS

10 AUG 2015

Nationality and Registration Mark

Date

Subject:

Installation of mQAR (quick access recorder)

Installation:

Performed installation iaw with Gulfstream ASC 046A

Electrical wiring modification performed iaw DWG.No 1159B47003 and 1159SB47970

Mechanical modification performed iaw DWG. No 1159B40396

As well used G450 AMM Rev.22 chapter 20,24,31

Result: PASSED

Certification and Test:

Performed certification and ground test iaw Gulfstream Engineering Report Doc. No. SGER-131

Result: PASSED

Maintenance and Continued Airworthiness:

Instructions for maintenance and continued airworthiness for L3 communication -aviation recorders uQAR on Model G450 (ASC46) are discribed in Gulfstream Engineering Report Doc. No. SGER-132.

Airworthiness Limitations:

There are no unique items associated with this alteration that require periodic structural inspections.

Additional Sheets Are Attached



US Department of Transportation
Federal Aviation Administration

**MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)**

OMB No. 2120-0020
Exp. 5/31/2018

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N451NS	Serial No. 4082
	Make Gulfstream	Model G450
2. Owner	Name (As shown on registration certificate) Wilmington Trust CO Trustee	
	Address (As shown on registration certificate) Address 110 N Market Street	
	City Wilmington	State Delaware
	Zip 19890	Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	Gulfstream	(As described in Item 1 above)	4082
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No. QV1Y440K
Name Jet Aviation AG	Address Flughafenstrasse	<input checked="" type="checkbox"/> U. S. Certificated Mechanic	<input type="checkbox"/> Manufacturer	
City Basel	State BS	<input type="checkbox"/> Foreign Certificated Mechanic	<input type="checkbox"/> Certificated Repair Station	
Zip 4030	Country Switzerland	<input checked="" type="checkbox"/> Certificated Maintenance Organization		

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual 10 AUGUST 2016
--	---

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee <input checked="" type="checkbox"/>	Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. QV1Y440K	Signature/Date of Authorized Individual 10. AUG 2016
---	---

Paperwork Reduction Act Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0020. Public reporting for this collection of information is estimated to be approximately 30 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandated by 14 CFR Part 43. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ASP-110.

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N451NS

10 AUG 2015

Nationality and Registration Mark

Date

Subject:

FSECU software change, HSEMU change and circuit breaker change iaw Gulfstream ASC086

Modification:

FSECU software changed iaw Doc. No. GIVX-GER-0040. HSEMU replaced and CBs on cockpit overheadpanel replaced iaw ASC086 , AMM chapter 20 and 27 , GIVX GER-9934 planeviewsoftware loading procedure.New LDI loaded.

Certifikation and Test:

Performed certification and test iaw Gulfstream Document No. 1159ASC47086 , AMM chapter 27-50-00, 27-41-03 and instructions of ASC086.

Result: PASSED

Maintenance and Continued Airworthiness:

Instructions for maintenance and continued airworthiness as per AMM chapter 5.

There will be no cockpit procedural changes required as a result of this installation.

the simular change will be installed during initial phase manufacturingon aircraft SN 4311 and subsequent.

Additional Sheets Are Attached





US Department
of Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020
2/28/2011

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N451NS	Serial No. 4082	
	Make Gulfstream	Model G450	Series
2. Owner	Name (As shown on registration certificate) Wilmington Trust CO Trustee		Address (As shown on registration certificate) Address 110 N Market Street
			City Wilmington State Dalaware Zip 19890 Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency	
Name Jet Aviation AG	Address Flughafenstrasse City Basel State BS Zip 4030 Country Switzerland	<input type="checkbox"/> U. S. Certificated Mechanic	<input type="checkbox"/> Manufacturer
		<input type="checkbox"/> Foreign Certificated Mechanic	C. Certificate No.
		<input type="checkbox"/> Certificated Repair Station	QV1Y440K
		<input checked="" type="checkbox"/> Certificated Maintenance Organization	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual 11 AUG 2015
--	---

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee <input checked="" type="checkbox"/>	Repair Station	Inspection Authorization	

Certificate or Designation No. QV1Y440K	Signature/Date of Authorized Individual 11 AUG 2015
---	---



NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N451NS

11.AUG.2016

Nationality and Registration Mark

Date

Discrepancy: During inspection found fuselage skin bent out around the lower corners of the baggage door opening.

Corrective Action:

1. Paint from affected fuselage skin at the baggage door opening stripped iaw SRM Rev.4 chapter 51-07-10. Residual seal from gap between skin and subjacent doublers removed iaw standard maintenance practices. NDT inspection performed on affected aft fuselage skin for cracks, corrosion and secondary damage around baggage door opening.
For details refer to NDT report ET2016-116.
Submitted results to GAC TechOps for further investigation and requested repair procedure and permit to fly possibilities.
2. As per Gulfstream engineering a fly on permit is not allowed and a time limited repair (12 month) is almost as work intensive and complex as the final repair.
Sent repair options (permanent- or time limited-repair) to the customer for selection.
As per customer requested carried on with the permanent repair iaw repair drawing SE451021076-3 REV.A
3. Wing to body fairing LH aft removed and cleaned for access iaw standard maintenance practices.
4. Fuselage skin at Baggage door repaired IAW GAC Disposition CS474917 related to Drawing No: SE451021076-3 REV.A
5. Wing to body fairing LH aft reinstalled and resealed iaw AMM Rev.22 chapter 20-42-00 and standard maintenance practices.
6. Repaired area around baggage door opening and LH AFT WTBF re-painted to match the aircraft paint scheme iaw SRM Rev.4 chapter 51-07-10.
7. Received top drawing FAA Form 8100-9 with tracking Nr: TR-07-2016-0014.
FAA Form 337 filled out and sent to the FAA and the aircraft owner.

Additional Sheets Are Attached



Paperwork Reduction Act Statement: The reason for collecting this information is to track major maintenance performed on aircraft. The collected information is used as part of the aircraft's historical file. The public reporting burden for this collection of information is estimated to average 30 minutes per response. Responses are mandated by 14 CFR Part 43. Collected information becomes part of the public record and no confidentiality is required. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control number associated with this collection is 2120-0020. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.



NDT Method:

<input type="checkbox"/>	X-Ray Inspection	(ASTM-E-1742 & PR-0223)
<input checked="" type="checkbox"/>	Ultrasonic Inspection	(ASTM-E-114 & PR-0224)
<input checked="" type="checkbox"/>	Eddy Current Inspection	(MIL-HDBK-728/2 & PR-0225)
<input type="checkbox"/>	Magnetic Particle Inspection	(ASTM-E-1444 & PR-0226)
<input type="checkbox"/>	Penetrant Inspection	(ASTM-E-1417 & PR-0227)
<input checked="" type="checkbox"/>	Visual Inspection	(AC 43-204 & PR-0222)

Equipment used: JBSL ID No.: 434113

Work Order No.: BN451012-4036

A/C Registration: N451NS

A/C Type: G450

A/C Flight Hours: 5614:42

A/C Serial Number: 4082

A/C Flight Cycles: 2466

Item:

Inspection i.a.w.:

Baggage door, surrounding skin check:
Inspect for cracks and corrosion on outer skin due to
outboard bended skin at lower corners

Jet Aviation Process Specification
PR-0225
Rev. 00, Dated 11 Aug. 2010
and GAC W/O CS 474917, dated 7/18/2016

Inspection Results: No cracks in skin panel can be reported

No corrosion noticed between outer skin and underlying structure.




JBSL ID: 145 0212
JÜRGEN LINDGENS
AUTH. PER. 20134

J. Lindgens
Technician/Inspector

COPY

19-Jul-16
Date



500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: CS474917

Title: Jet Aviation Basel A.G.

Department: IS TO - WO (GAC)

Customer: **Jet Aviation Basel A.G.**
Address: **BILLING ADDRESS**
Flughafenstrasse

Contact Name: **Kläy Samuel**
Account Code: **CJ014**
Target Date: **7/18/2016**
Invoice #:
Date Closed:

Status: **Open**
P.O. #: **744657**
Created: **7/18/2016**
Posted:

Aircraft: 4082
Reg:N451NS
Co Jetaviation Basel
Acc Code:cj014
P.O. #:744657
Contact:Kläy Samuel
Phone:+41581587276
Email:samuel.klaey@jetaviation.ch

Opened By: B Fowler

Item: 1

Airframe Gulfstream G450

Part #: **G450**

Serial #: **4082**

Squawk: 1.1

Discrepancy: **During routine maintenance we found the fuselage skin around the baggage door opening bent outwards at the lower corners. For details refer to the attached pictures.**

Please evaluate the above described defect and advise how to proceed for a permanent repair.

Note: We suspect that cold working of the affected skin will not bring the skin to the original contour.

Status: **Completed**

Resolution: **Preliminary Engineering Disposition:**

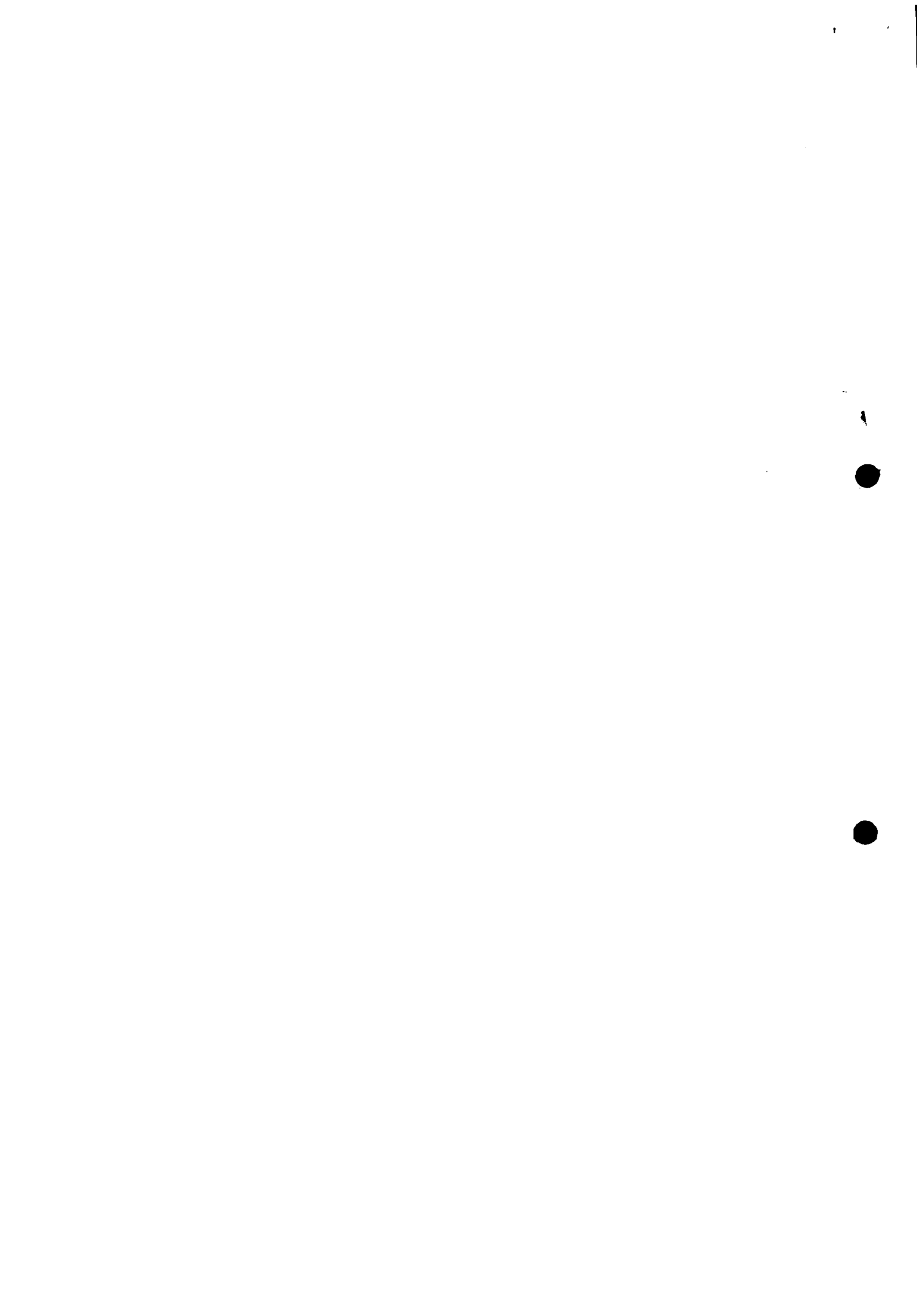
- 1. Locally remove finish common to the discrepant area and the surrounding four (4) inches.**
- 2. Mark fastener heads for all fasteners common to the area where finish has been removed.**
- 3. Mark the periphery of the discrepant conditions. Provide overall length and height dimensions for the size of the discrepant conditions.**
- 4. Measure skin stack up of the discrepant corners and at discrepant free areas adjacent to the discrepancies.**
- 5. NDT inspect discrepant areas to ensure a crack free condition.**
- 6. NDT inspect discrepant areas to ensure a corrosion free condition. If corrosion is found, the full extent of the corrosion must be mapped to ensure all corrosion is removed and repaired. Do not proceed with removal of corrosion at this time.**
- 7. Provide additional photographs of discrepant areas with surface finish removed and discrepant area profile, profile dimensions and all fastener heads marked.**
- 8. Document all NDT findings and requested information and submit to GAC TechOps for further evaluation.**

Sent Chuck Holmes 7/18/16

Signed Off: **7/18/2016 4:58:26PM** By: **HOLMES, CHARLES-311357**

Completed: **7/18/2016 4:58:26PM** By: **HOLMES, CHARLES-311357**

COPY



500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: **CS474917**

Title: **Jet Aviation Basel A.G.**

Department: **IS TO - WO (GAC)**

Step: **1.1.1**

Description: **Preliminary Engineering Disposition:**

1. Locally remove finish common to the discrepant area and the surrounding four (4) inches.
2. Mark fastener heads for all fasteners common to the area where finish has been removed.
3. Mark the periphery of the discrepant conditions. Provide overall length and height dimensions for the size of the discrepant conditions.
4. Measure skin stack up of the discrepant corners and at discrepant free areas adjacent to the discrepancies.
5. NDT inspect discrepant areas to ensure a crack free condition.
6. NDT inspect discrepant areas to ensure a corrosion free condition. If corrosion is found, the full extent of the corrosion must be mapped to ensure all corrosion is removed and repaired. Do not proceed with removal of corrosion at this time.
7. Provide additional photographs of discrepant areas with surface finish removed and discrepant area profile, profile dimensions and all fastener heads marked.
8. Document all NDT findings and requested information and submit to GAC TechOps for further evaluation.

Status: **Completed**

Comments/notes:

Signed Off: **7/18/2016 3:55:00PM**

By: **BOGER, CHRISTOPHER-311865**

Completed: **7/18/2016 3:55:00PM**

By: **BOGER, CHRISTOPHER-311865**

Squawk: **1.2**

Discrepancy: **1. Locally removed paint common to the discrepant area.**

2. All fasteners in the affected areas marked with an x.
3. Marked the periphery of the discrepant areas.
4. Skin stack up of the discrepant corners measured
 - FWD corner at discrepant area = 0.15 inch
 - FWD corner at NON discrepant area = 0.13 inch
 - FWD = 0.02 inch gap
 - AFT corner at discrepant area = 0.275 inch
 - AFT corner at NON discrepant area = 0.18 inch
 - AFT = 0.095 inch gap
5. No cracks in outer skin can be detected at discrepant areas. Refer to attached NDT report ET2016-116.
6. No corrosion notices between outer skin and underlying structure at the discrepant areas. Refer to attached NDT report ET2016-116.
7. Additional pictures provided see attached.
8. All Data submitted to tech ops for further evaluation



500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: CS474917

Title: Jet Aviation Basel A.G.

Department: IS TO - WO (GAC)

Status: **Completed**

Resolution: **Preliminary Engineering Disposition (Advanced Release):**
See attached file SE451021076 REV.A ADVANCED COPY SN4082.pdf for an advanced copy of SE451021076-3 Rev A, for damage trim out, and skin filler part fabrication and fastener procurement only. This does not authorize the doubler fabrication. This will be classified as a MAJOR repair.
Aaron Hess (Stress) concurs
Filename: SE451021076 REV.A ADVANCED COPY SN4082.pdf
location:\GSRV01\GVI\Techops\CORRIDOR RFA ATTACHMENTS\G350 & G450\Sn_4082\CS474917 baggage door skin repair\step 1.2\Dispo
Engineering Disposition and Advanced Drawing sent to Customer @ 1230 AM EST on 7-23-16 bt Brian Hughes @ ext 10122.

Signed Off: 7/23/2016 5:50:58PM By: METTS, DANIEL-301909

Completed: 7/23/2016 5:50:59PM By: METTS, DANIEL-301909

Step: 1.2.1

Description: **Preliminary Engineering Disposition (Advanced Release):**
See attached file SE451021076 REV.A ADVANCED COPY SN4082.pdf for an advanced copy of SE451021076-3 Rev A, for damage trim out, and skin filler part fabrication and fastener procurement only. This does not authorize the doubler fabrication. This will be classified as a MAJOR repair.

Status: **Completed**

Comments/notes: Aaron Hess (Stress) concurs
Filename: SE451021076 REV.A ADVANCED COPY SN4082.pdf
location:\GSRV01\GVI\Techops\CORRIDOR RFA ATTACHMENTS\G350 & G450\Sn_4082\CS474917 baggage door skin repair\step 1.2\Dispo

Signed Off: 7/22/2016 4:24:50PM By: BOGER, CHRISTOPHER-311865

Completed: 7/22/2016 4:24:50PM By: BOGER, CHRISTOPHER-311865

Squawk: 1.3

Discrepancy: **Customer States,-**
After Review of the repair drawing SE451021076-3 this is a time consuming major repair. As our customer would like to resume flight operations on Monday the 25.july.2016, could you please review to options of a temporary repair until the next scheduled MTX input.
12 months /500 hours

Status: **Completed**

Resolution: **Engineering Disposition:**
Due to the extent of the discrepancies no minor repair is available. A time-limited repair drawing will be required with an FAA Form 8100-9 to allow continued flight for 12 months with the existing discrepancies or after some required rework. It may be possible to provide a time-limited repair drawing by Monday, July 25th, but this may require additional rework and the possibility of required recurring inspections. If a time-limited repair drawing is requested return request to Gulfstream for further assessment.

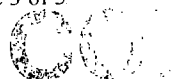
Sent out by Dan Metts, 07-23-16.

Signed Off: 7/23/2016 5:49:58PM By: METTS, DANIEL-301909

Completed: 7/23/2016 5:49:59PM By: METTS, DANIEL-301909

Step: 1.3.1

Description: **Engineering Disposition:**
Due to the extent of the discrepancies no minor repair is available. A time-limited repair drawing will be required with an FAA Form 8100-9 to allow continued flight for 12 months with the existing discrepancies or after some required rework. It may be possible to provide a time-limited repair drawing by Monday, July 25th, but this may require additional rework and the possibility of required recurring inspections. If a time-limited repair drawing is requested return request to Gulfstream for further assessment.





500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: CS474917

Title: Jet Aviation Basel A.G.

Department: IS TO - WO (GAC)

Status: **Completed**

Comments/notes:

Signed Off: 7/23/2016 11:09:33AM By: TITUS, SHAUN-319956

Completed: 7/23/2016 11:09:33AM By: TITUS, SHAUN-319956

Squawk: 1.4

Discrepancy: **Please provide the time line for repair options limited repair drawing, perment repair drawing and ok to fly on.**

Status: **Open**

Resolution: **See step 1.4.1 for engineering disposition and request.**

Sent B Fowler 7/25/16 10:39am

Step: 1.4.1

Description: **Engineering Disposition:**

A time limited repair allowing flight for 12 months is expected to be completed by Monday, Aug 1 provided a request to begin a time limited repair is received July 25. Extensive analysis to show the existing condition acceptable for 12 months is required prior to issuing a time limited repair drawing. It is likely that recurring inspections of the condition will be required. This will be considered a major repair.

The completion of the permanent repair (SE451021076-3) is estimated to be Friday, July 29, and an advance copy of the drawing allowing procurement and fabrication of parts is expected to be issued Monday, July 25 or Tuesday, July 26. This is also considered a major repair. Changes to the inspection requirements of this location are not expected.

Please return a request to begin work on a time-limited repair if this course is desired. Otherwise, engineering will continue with the permanent repair.

Status: **Completed**

Comments/notes:

Signed Off: 7/25/2016 10:26:34AM By: TITUS, SHAUN-319956

Completed: 7/25/2016 10:26:34AM By: TITUS, SHAUN-319956

Squawk: 1.5

Discrepancy: **Continue with permanent repair.**

Status: **Completed**

Resolution: **Preliminary Engineering Disposition:**

Repair of Baggage Door cutout skin may be started per SE451021076 Rev A - Advance copy. The following restrictions apply:

- For review of structural aspects
- For material and fastener procurement
- For cutting and material removal
- For part fabrication and fit up
- For review of approval and effectivity
- For part and structure pilot drilling
- This drawing is not approved for final QA/QC acceptance or buyoff

Sent by Mark Wilson 7/29/16 @ 7:15 pm

Signed Off: 7/29/2016 7:09:05PM By: WILSON, DOLPHUS-309040

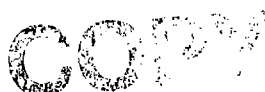
Completed: 7/29/2016 7:09:05PM By: WILSON, DOLPHUS-309040

Step: 1.5.1

Description: **Preliminary Engineering Disposition:**

Repair of Baggage Door cutout skin may be started per SE451021076 Rev A - Advance copy. The following restrictions apply:

- For review of structural aspects
- For material and fastener procurement
- For cutting and material removal
- For part fabrication and fit up
- For review of approval and effectivity
- For part and structure pilot drilling
- This drawing is not approved for final QA/QC acceptance or buyoff





500 Gulfstream Rd. - Savannah, Georgia 31407

Work Order: CS474917

Title: Jet Aviation Basel A.G.

Department: IS TO - WO (GAC)

Status: **Completed**

Comments/notes: **Advance drawing sheets 2 and 5 are located in the following network folder:**

\\Gsrv01\gv1\Techops\CORRIDOR RFA ATTACHMENTS\G350 &
G450\Sn_4082\CS474917 baggage door skin repair\Step 1.5\Dispo

Signed Off: 7/29/2016 6:11:59PM By: TITUS, SHAUN-319956

Completed: 7/29/2016 6:11:59PM By: TITUS, SHAUN-319956

Squawk: I.6

Discrepancy: **Ref Step 1.5 - After customer reviews advanced repair drawing SE451021076 Rev A, and is satisfied with the drawing, provide final repair drawing.**

Status: **Completed**

Resolution: **Engineering Disposition:**

Repair noted discrepant conditions in accordance with SE45021076-3 Rev A.

This is considered a MAJOR repair.

FAA Form 8100-9 will be provided.

This disposition is based on information provided by the customer.

Tech Ops sent 8/2/16 16:00hrs

Signed Off: 8/2/2016 4:13:36PM By: BLACK, JOSEPH L-303569

Completed: 8/2/2016 4:13:36PM By: BLACK, JOSEPH L-303569

Step: I.6.1

Description: **Engineering Disposition:**

Repair noted discrepant conditions in accordance with SE45021076-3 Rev A.

This is considered a MAJOR repair.

FAA Form 8100-9 will be provided.

This disposition is based on information provided by the customer.

Status: **Completed**

Comments/notes: **A. Hess (Stress) and G. Robben (Stress A/R) concur with this disposition**

Signed Off: 8/2/2016 3:44:47PM By: BOGER, CHRISTOPHER-311865

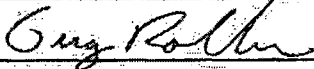
Completed: 8/2/2016 3:44:47PM By: BOGER, CHRISTOPHER-311865

* End of Report *

COPY



Cert 0284663

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION			FAA Project No. TR-07-2016-0014
STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
MAKE Gulfstream	MODEL NO.: GIV-X	TYPE (Aircraft, Engine, Propeller, etc.): Aircraft	NAME OF APPLICANT/AUTHORIZATION NO.: Jet Aviation Basel A.G.
LIST OF DATA			
IDENTIFICATION		TITLE	
SE451021076 REV. A Dated: 7/28/2016		FUS SKIN REPAIR - BELOW BAGGAGE DOOR, FS 539.75 - 580.00	
SE451021076A REV. A Dated: 7/28/2016		STRUCTURAL SUBSTANTIATION FOR SE451021076	
----- End of Data -----			
Notes:			
1) The Gulfstream Organization Designation Authorization approves these data. This constitutes FAA approval of the major repair data listed and are not installation data. Valid only for Gulfstream GIV-X, S/N 4082.			
2) Only the Structures aspects of the data listed above are approved herein.			
3) This repair has no impact on the ICA.			
4) This FAA approval is provided for the following repairs to Gulfstream GIV-X, Serial No 4082 only: SE451021076,3, REV.-, FUS SKIN REPAIR - BELOW BAGGAGE DOOR, FS 539.75 - 580.00			
PURPOSE OF DATA Support of Major Repair to Gulfstream GIV-X, S/N 4082, to accomplish repair of fuselage skin below baggage door at FS 539.75-580.00.			
APPLICABLE REQUIREMENTS (List specific sections) 14 CFR 25.601 Amdt.25-0; 25.603(a),(b) Amdt.25-46; 25.605(a) Amdt.25-46; 25.609(a) Amdt.25-0; 25.301(a),(b) Amdt.25-23; 25.303 Amdt.25-23; 25.305(a),(b) Amdt.25-54; 25.307(a) Amdt.25-72; 25.571(a),(b) Amdt.25-54.			
CERTIFICATION - As directed by the Administrator and in accordance with the conditions and limitations of authorization under 14 CFR, data listed above and attached sheets numbered <u>NONE</u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Airworthiness Standards listed.			
<input type="checkbox"/> Recommend approval of these data <input checked="" type="checkbox"/> Approve these data			
I-(We) Therefore:			
SIGNATURE(S) OF AUTHORIZED REPRESENTATIVE(S)	NAME	CLASSIFICATION(S)	DATE
	Greg Robben	AR-E-1174 Structures	8/02/2016
Gulfstream ODA-511131-CE			

COPY



REV LTR	NEW	A	B	C	D	E
DRAWN BY	<i>Chris Boger 5/5/16</i>	<i>Chris Boger 7/21/16</i>				
LAYOUT BY	CHRIS BOGER 05/31/16					
CHECKED BY	A. ELJAM 05/03/16	J. BEECHER 7/26/16				
GP LDR	J. BEECHER 6/3/16	J. BEECHER 7/26/16				
STRESS	<i>Chris Boger 6/10/16</i>	<i>Chris Boger 7/26/16</i>				
MATL/PRCS						
MASS PROP						
QUALITY						
PROJ ENGR	M. FOSTER 6/17/16	<i>V. Holt 7/26/16</i>				
REV LTR	F	G	H	J	K	L
DRAWN BY						
LAYOUT BY						
CHECKED BY						
GP LDR						
STRESS						
MATL/PRCS						
MASS PROP						
MFG						
QUALITY						
PROJ ENGR						

UNCONTROLLED COPY
REVISION SERVICE NOT PROVIDED

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NOT FOR RESALE

Gulfstream®

FUS SKIN REPAIR –
BELOW BAGGAGE DOOR,
FS 539.75 – 580.00

DWG NO.

SE451021076

REV.

A

CAGE CODE:
59734

NO SCALE

SHEET 1 OF 5

CCP



REV	DATE	BY	CHKD	APPD
1	11/23/78
2
3
4
5

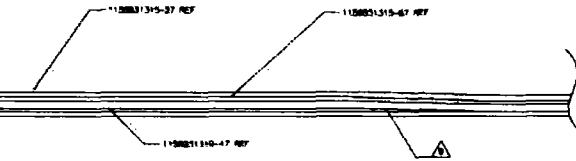
REV	LTN	NO	ZONE	DESCRIPTION	REVISED BY AND DATE	EFFECTIVE DATE	DISTRIBUTION OF EXIST PARTS	APPRO ENGR
A	1	MULTI		HOOD SHEET 8 CREATED - 3 INSTL. - 25/-26 DOUBLERS. - 25/-27 FILLERS HOOD FLARE, SOTE 17	C. ROBER 7/21/78			

NOTES:

- THIS DRAWING REPAIRS CORROSION DAMAGE TO THE FUSELAGE SKIN AND THE INTERNAL DOUBLERS, BY CUTTING OUT THE CORROSION AND INSTALLING MULTIPLE DOUBLERS AND FILLERS.
- ALL PROCESSES AND FINISH CODES IN ACCORDANCE WITH QATAF AND/OR GULFSTREAM STRUCTURAL REPAIR MANUAL (SRM). IF FURTHER INFORMATION IS REQUIRED ABOUT THE PROCESS/FINISH CODE CALLED OUT ON THIS DRAWING, CONTACT SAC TECHNICAL OPERATIONS FOR ADDITIONAL INFORMATION PERTAINING TO APPLICABLE SPECIFICATIONS AND MATERIALS.
- MAINTAIN A MINIMUM .300IN CORNER RADIUS WHILE TRIMMING.
- DATA IN THIS DRAWING CANNOT BE USED WITHOUT SPECIFIC APPROVAL. SEE THE SERIAL NUMBER SPECIFIC FOR FORM 8100-8 ASSOCIATED WITH THIS DRAWING FOR EFFECTIVITY AND APPROVAL OF REPAIRS.
- MAINTAIN A MIN. OF 125-FINE SURFACE FINISH ON ALL REQUIRED/TRIMMED SURFACES. REFINISH ALUMINUM PARTS WITH 813 (ALCOHOL) PER CIV DOW 31-21-00 AND 3012 (EPOXY PRIMER) PER CIV DOW 51-07-10. REFINISH STEEL PARTS WITH TWO (2) COATS OF 3012 (EPOXY PRIMER) PER CIV 51-07-10. TOPCOAT TO MATCH EXISTING STRUCTURE AS REQUIRED.
- DUE TO VARIATIONS IN THE ACTUAL AIRCRAFT FASTENER PATTERN, THE FINAL PART PROFILE MAY VARY FROM WHAT IS SHOWN ON THIS DRAWING.
- MAINTAIN A MINIMUM 7X FASTENER DIAMETER EDGE DISTANCE AND 4X FASTENER DIAMETER PITCH DISTANCE ON ALL FASTENERS.
- FAT SURFACE AND FILLER SEAL WITH PRO-SEAL 890 (OR EQUIVALENT PRODUCT) PER MIL-PRF-81733, TYPE IV, CLASS B.
- TAPEZ SKIN DAMPS AND MISMATCHES OF .015 OR LESS WITH MYCEL EAB377 PER PROCESS CODE CO. MYCEL EAB377 IS ACCEPTABLE ALTERNATE PRODUCT. LET CURE FULLY PRIOR TO RE-DRILLING.
- SET - INSTALL FASTENERS WITH PRO-SEAL 890 (OR EQUIVALENT PRODUCT) PER SAE AMS-S-8802, TYP 11.
 - 11 DOUBLER IS INSTALLED BETWEEN 1158831315-77 SKIN AND 1158831315-85 & 1158831315-47 DOUBLERS.
 - 13 DOUBLER IS INSTALLED BETWEEN THE 1158831315-87 AND 1158831315-27 DOUBLERS.
 - OUTOUT IS IN 1158831315-77 SKIN, 1158831315-85 & -87 DOUBLERS
 - FILL GAP BETWEEN FILLER AND ADJACENT STRUCTURE USING PRO-SEAL 890 OR EQUIVALENT PRODUCT PER SAE AMS-S-8802.
 - FORM PART TO MATCH FUSELAGE CENTER.
 - MAINTAIN A CONSISTANT .000-.001IN GAP BETWEEN TRIM LINES AND FILLERS.
 - 23 AND -26 DOUBLERS ARE INSTALLED BETWEEN 1158831315 SKIN AND 1158831315 DOUB ENDS.

RESTRICTED USE DOCUMENT

This document is provided to C014 for information only. Buyer agrees that price paid authorizes installer or buyer to modify aircraft 4024 Gulfstream. Accepts no responsibility for use of information on referenced aircraft. Document shall not be used for any other purpose or reproduced without written consent of Gulfstream Aerospace Corporation.



QTY REQ'D PER ASSEMBLY	PART OR IDENTIFYING NO.	MEMORANDUM OR DESCRIPTION	MATERIAL	GOVT SPEC	COAL SPEC	STOCK SIZE (L/A)	PROCESS CODE	FINISH CODE
1	-28	DOUBLER	17.7MM THICK Q193 SKT	MIL-S-20043		Q193 8 12 8 12	Q1, P8, S8	3021 (1)
1	-27	FILLER	2024-T3 CLAD AL ALLOY SH	Q1-A-220V8		Q193 8 12 8 12	Q1, P8, S8	313, 3021
1	-26	FILLER	2024-T3 CLAD AL ALLOY SH	Q1-A-220V8		Q193 8 8 8 8	Q1, P8, S8	313, 3021
1	-25	FILLER	17.7MM THICK Q193 SKT	MIL-S-20043		Q193 8 12 8 12	Q1, P8, S8	3021 (1)
1	-24	FILLER	2024-T3 CLAD AL ALLOY SH	Q1-A-220V8		Q193 8 12 8 12	Q1, P8, S8	313, 3021
1	-19	FILLER	2024-T3 CLAD AL ALLOY SH	Q1-A-220V8		Q193 8 8 8 8	Q1, P8, S8	313, 3021
1	-17	FILLER	2024-T3 CLAD AL ALLOY SH	Q1-A-220V8		Q193 8 8 8 8	Q1, P8, S8	313, 3021
1	-18	FILLER	2024-T3 CLAD AL ALLOY SH	Q1-A-220V8		Q193 8 8 8 8	Q1, P8, S8	313, 3021
1	-13	DOUBLER	17.7MM THICK Q193 SKT	MIL-S-20043		Q193 8 12 8 12	Q1, P8, S8	3021 (1)
1	-11	DOUBLER	17.7MM THICK Q193 SKT	MIL-S-20043		Q193 8 12 8 12	Q1, P8, S8	3021 (1)
1	-3	SKIN SKIN INSTL	SKIN SKIN INSTL					
1	-1	PART OR IDENTIFYING NO.	MEMORANDUM OR DESCRIPTION					

BE451081098-3	Q-IV	AIRCRAFT						
SE481021076-1	Q-IV	AIRCRAFT						
PART NUMBER	MODEL	SET REV	QPL NO.	QPL REV				

NO ORIGINAL ALTERATIONS

Gulfstream
FUS SKIN REPAIR -
BELOW BAGGAGE DOOR,
FS 539.75 - 580.00

30724 | SE451021076 | A

COMPUTER GENERATED DRG USING CATIA V5

COPY

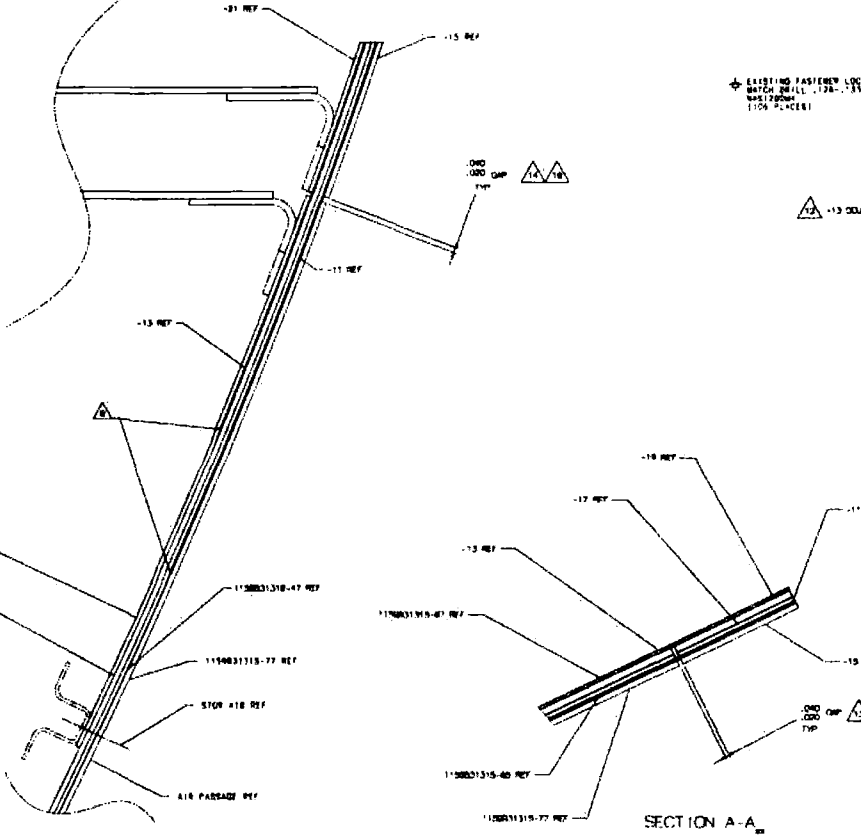
(1)





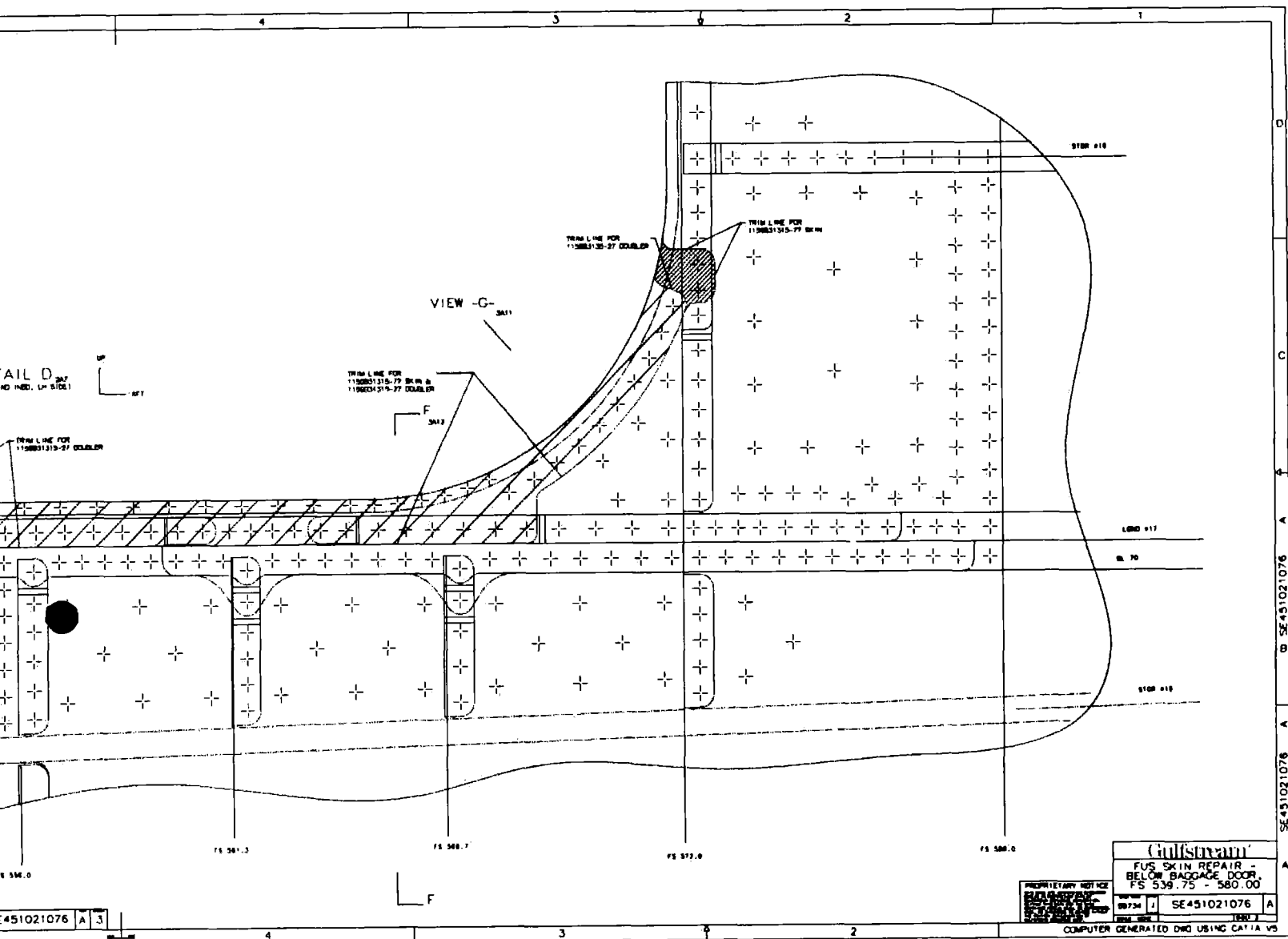
MANUFACTURING OPERATIONS	
NOTES CHECKED <input checked="" type="checkbox"/> APPLY TO THIS DRAWING	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATES	
TO BE MET TO .0005 DIA. WITH THICKNESS TO BE .0005 ON PLATED AREAS. NO ALLOWANCE FOR PLATING IS TO BE MADE EXCEPT AS NOTED.	
REMOVE ALL BURRS	
REMOVE ALL EDGES .015-.031 EXCEPT AS NOTED.	
SURFACE TOLERANCES INCLUDING 120° REAMED HOLES PER MIL-STD-1 EXCEPT AS NOTED.	
POOF FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.	
HOLES MUST BE KEPT FREE OF CADMIUM PLATING RESIDUE.	
REMOVE STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION IMPROVED USE BOTH SIDES IF NECESSARY.	
FILLET AND INCREASE CORNER RADIUS: TOLERANCES .010 TO .030 R .015 .030 TO .250 R .015 OVER .250 R .030	
DEPTH DIMENSION FOR TAPPED HOLES IS FULL THROU. 2-3 IMPROVED THROUGH SECTION FEASIBLE.	
EXTERNAL THREAD LENGTH FROM HOLES 2 IMPROVED THROUGH DIA.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK (**).	
REWORK REQUIRED IF WORK PRESENTS UNUSUAL CHANGE OF DIMENSIONS AT UNUSUAL SURFACES.	
FINISHES Δ DENOTES SURFACE TO BE MACHINED.	
UNLESS OTHERWISE SPECIFIED, TOLERANCE ON DIMENSIONS IS \pm 1/32.	
LENGTHS OF AN. HAS. & ME AL. ALLOY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON ALL TAPPED DIMENSIONS TO BE \pm 1/64 DIA.	
BRUSH CADMIUM PLATE HOLES MARKED WITH (**).	

NO.	FINISHER	QUALITY SPEC.	MIL. SPEC. / QPL. SPEC. NO.
313	ALUMINE	CHAMP 3113	MIL-C-5517, DL3
3012	SPORT PRIMER	CHAMP 3712	IMP 3000
300	PROCESSES	QUALITY SPEC.	MIL-17779/2001, SPEC. NO.
AV	FORMATION OF ALUMINE SLIPS	CHAMP 3101	
BV	FORMING & STRAIGHTENING OF STEELS & ALUMINUM ALLOYS	CHAMP 3113	
AE	INSTALLATION OF BLIND RIVETS	CHAMP 3000	
AD	INSTALLATION OF ALLOY RIVETS, 2024 & 7050	CHAMP 3000	
DB	NON-FORMING PART FINISHING	CHAMP 1100	
PS	16" RESISTANT ALLOYS	CHAMP 4103	MIL 3700



SECTION B-B (1718 LONGING MFT)

SECTION A-A



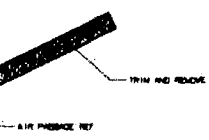
Gulfstream
 FUS SKIN REPAIR -
 BELOW BAGGAGE DOOR.
 FS 539.75 - 580.00

PROPRIETARY NOTICE	REV	DATE	BY
	00734	1	SE451021076
			1997

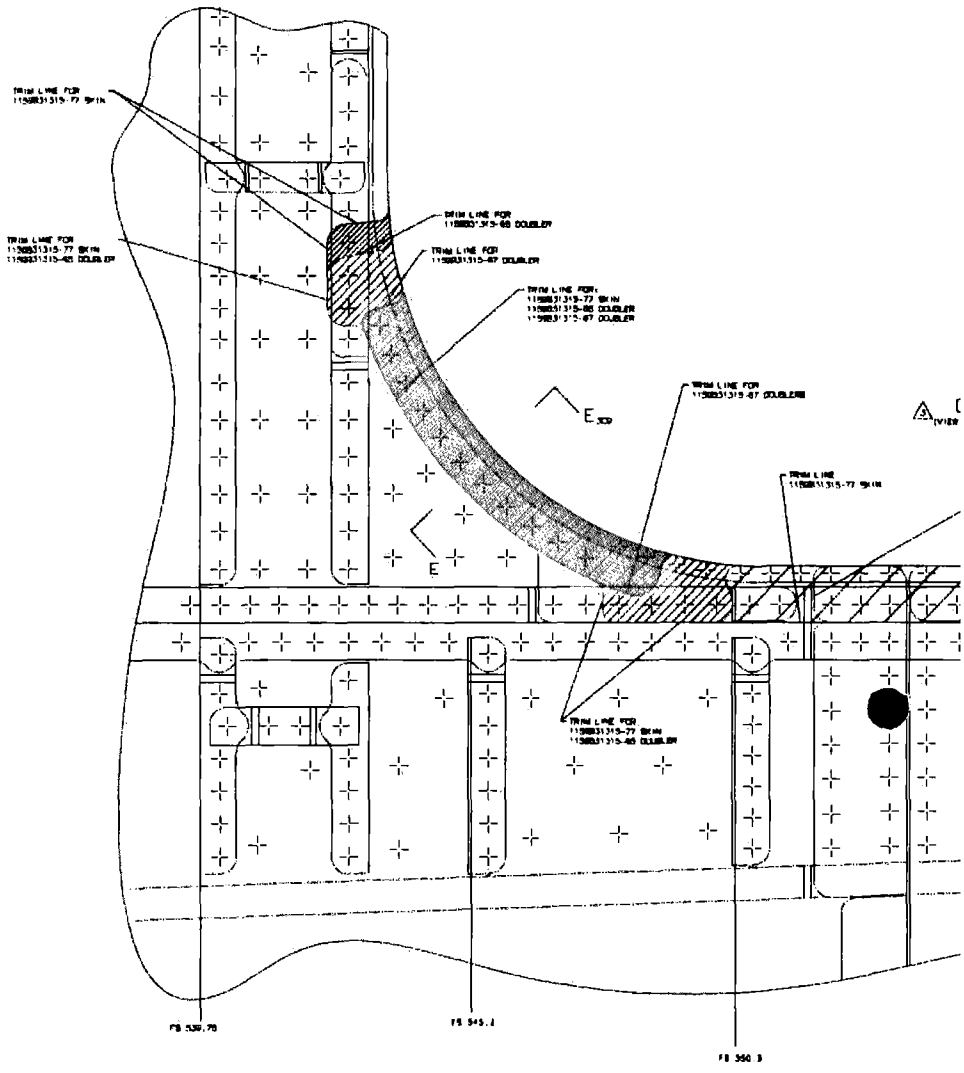
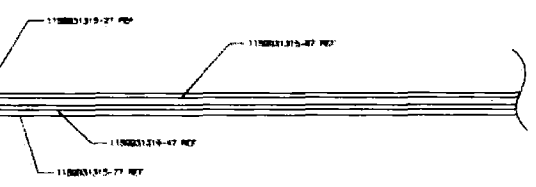
COMPUTER GENERATED DWG USING CATIA V5

COPY





E-E



59734 SE451021076 A 3

59734

2



12

11

10

D

C

B

A

TRAIN LINE FOR
1150001315-27 COOLER

TRAIN LINE FOR
1150001315-77 DRUM

1150001315-67 REF

1150001315-60 REF

1150001315-77 REF

SECT

1150001315-27 REF

AIR PASSAGE REF

1150001315-67 REF

1150001315-47 REF

1150001315-77 REF

STOP 415 REF

SECTION F-F
(WITH LOOKING M1)

TRAIN AND RAILCARE

VIEW -G-
-OF TRAINING DRUM

AIR PASSAGE REF

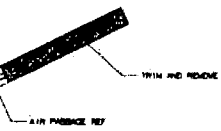
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11

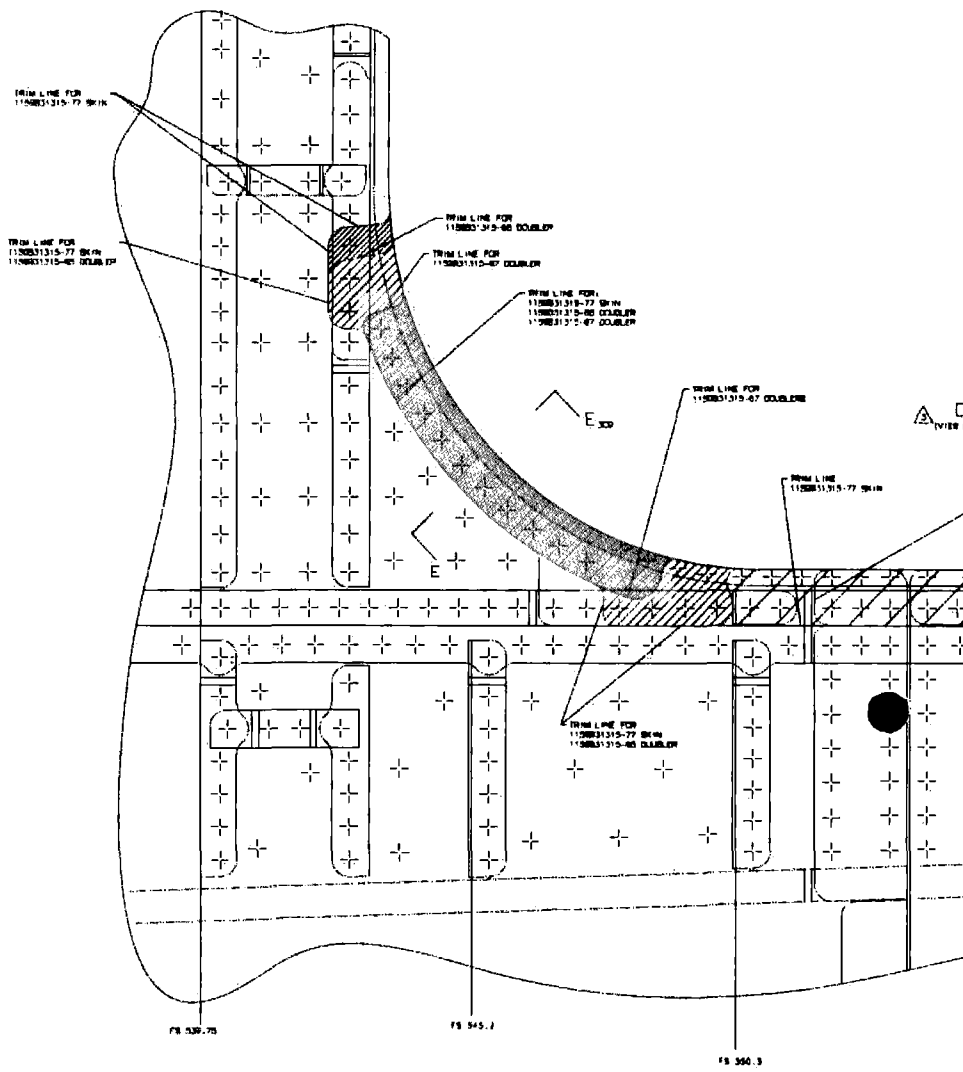
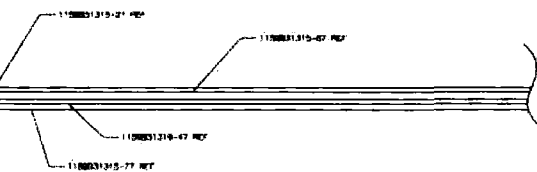
10

3





N E-E₃₀₃



58734 SE 451021076 A 3

58734

2



12

11

10

D

C

B

A

TRAIL LINE FOR
115883115-27 DOUBLE

TRAIL LINE FOR
115883115-77 SKIN

115883115-87 REF

115883115-88 REF

115883115-77 REF

SECT

115883115-77 REF

AIR PASSAGE REF

115883115-87 REF

115883115-47 REF

115883115-71 REF

STOP #16 REF

SECTION F-F
(VIEW LOOKING AFT)

TRAIL AND RIBS

VIEW -G-
(VIEW FROM SIDE)

AIR PASSAGE REF

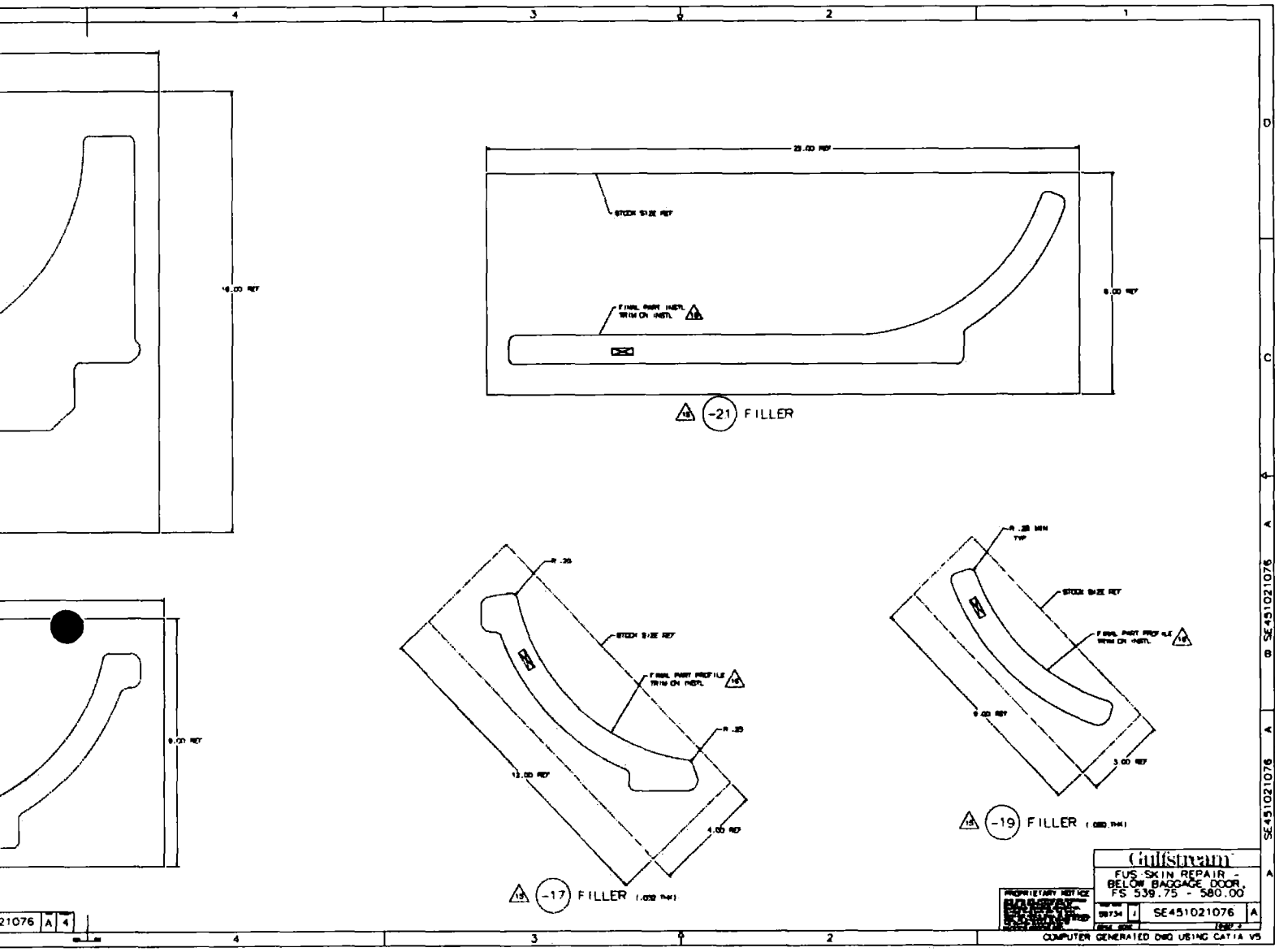
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11

10

3





21076 A 4

Gulfstream
 FUS SKIN REPAIR -
 BELOW BAGGAGE DOOR,
 FS 539.75 - 580.00

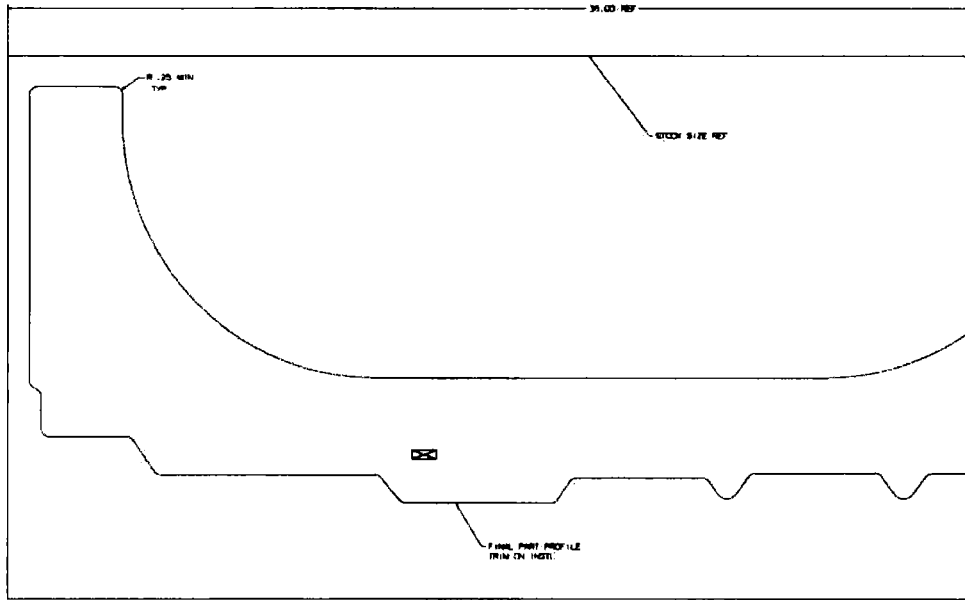
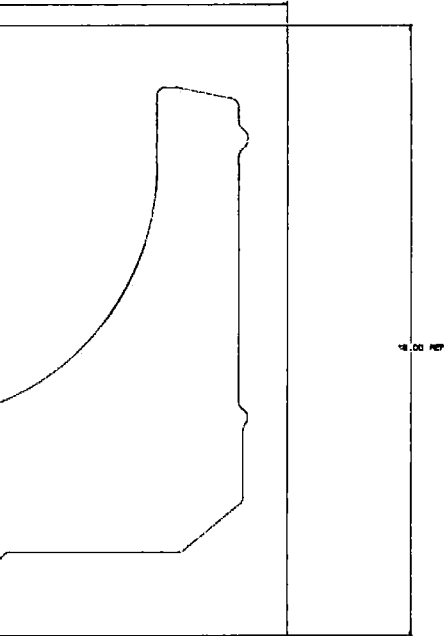
PROPERTY REFERENCE	REV	DATE
	1	08/27
	2	

SE451021076 A
 COMPUTER GENERATED DWG USING CATIA V5

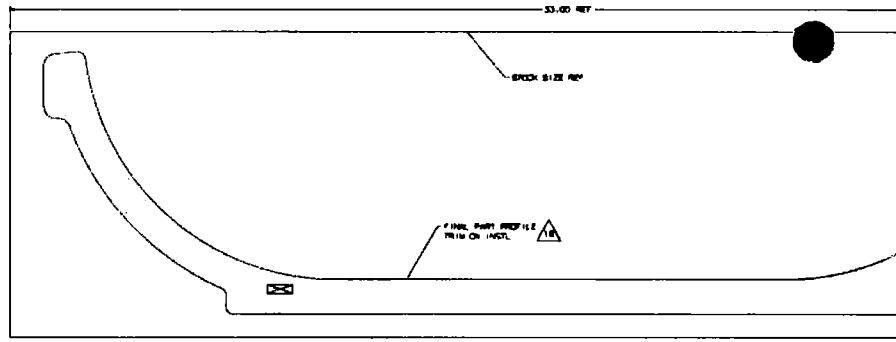
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1



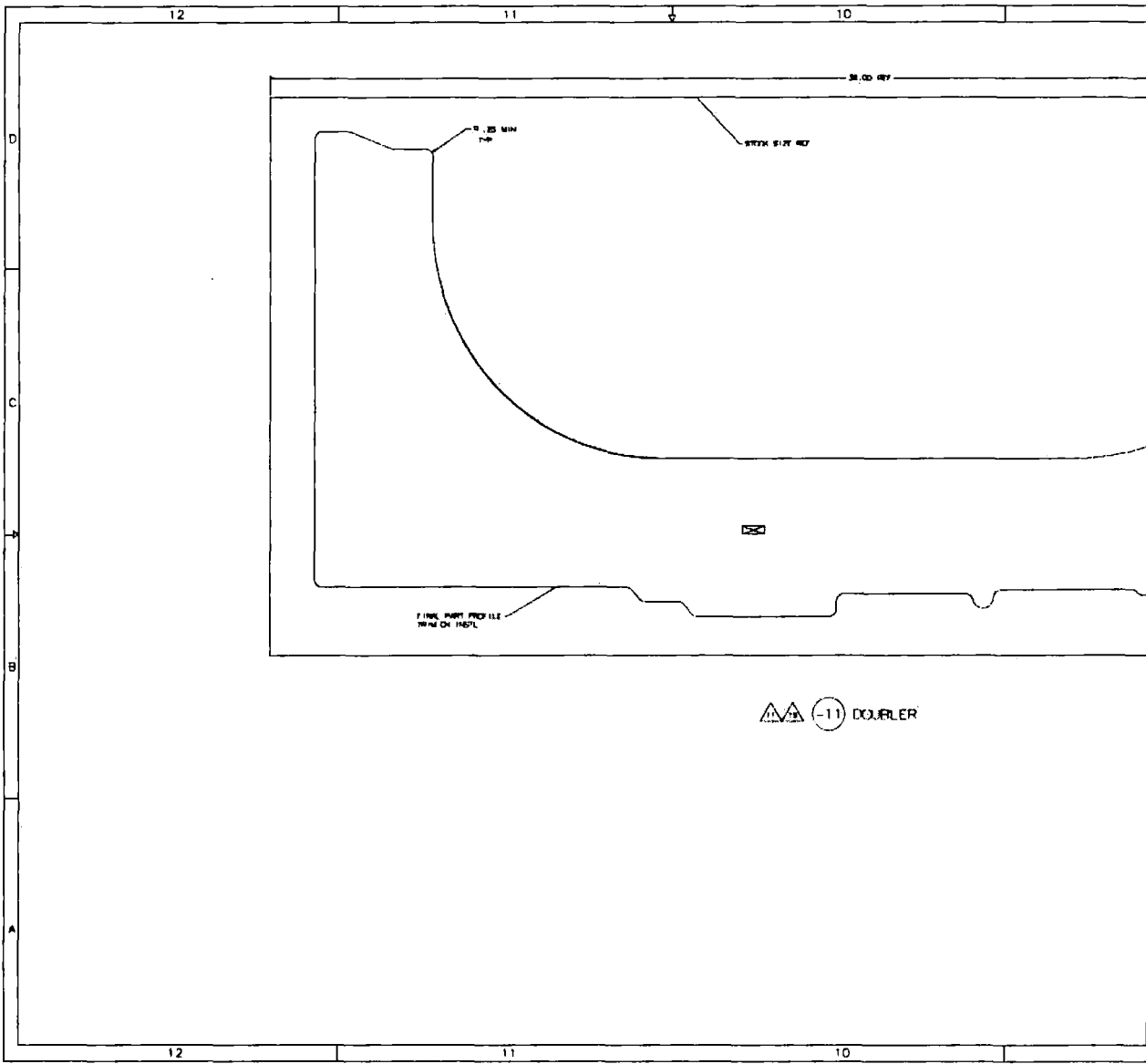


△△△ (-13) DOUBLER

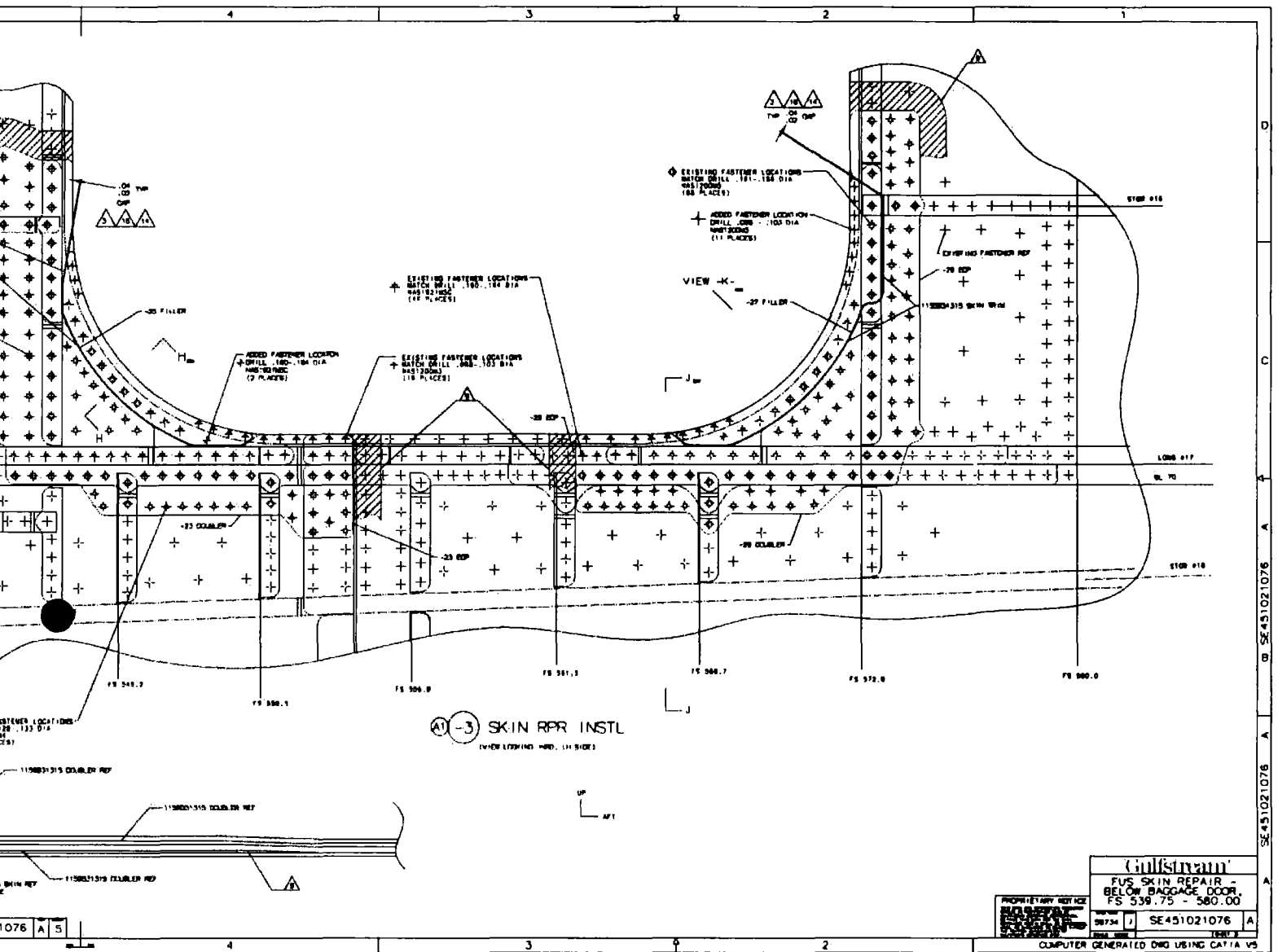


△ (-15) FILLER





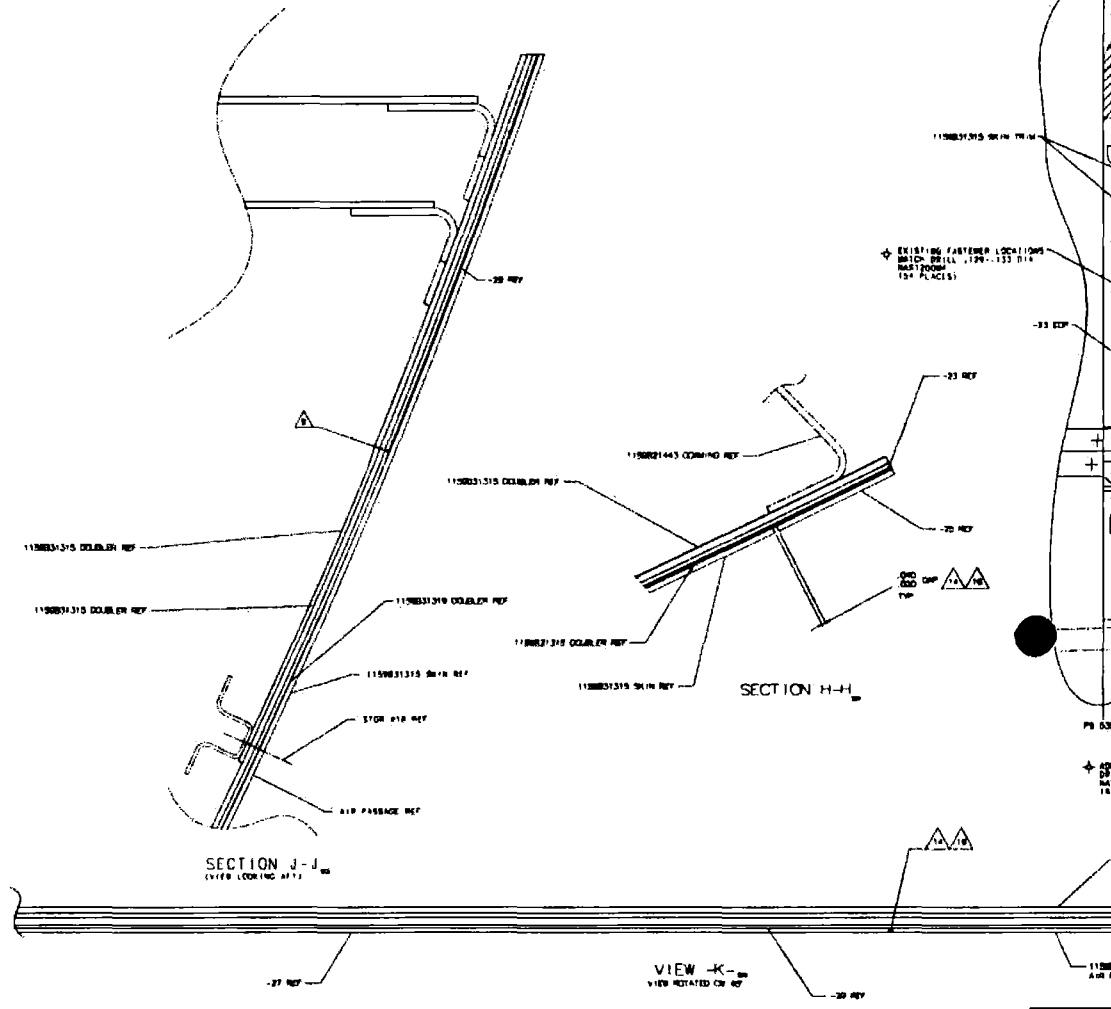
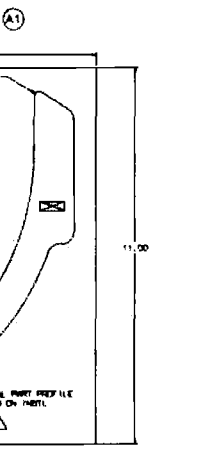
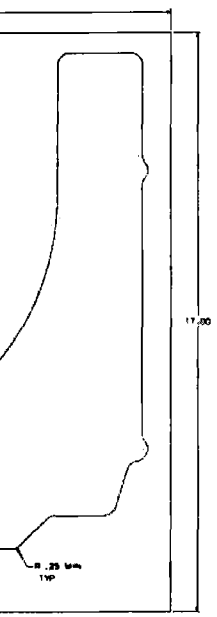




COPY

①

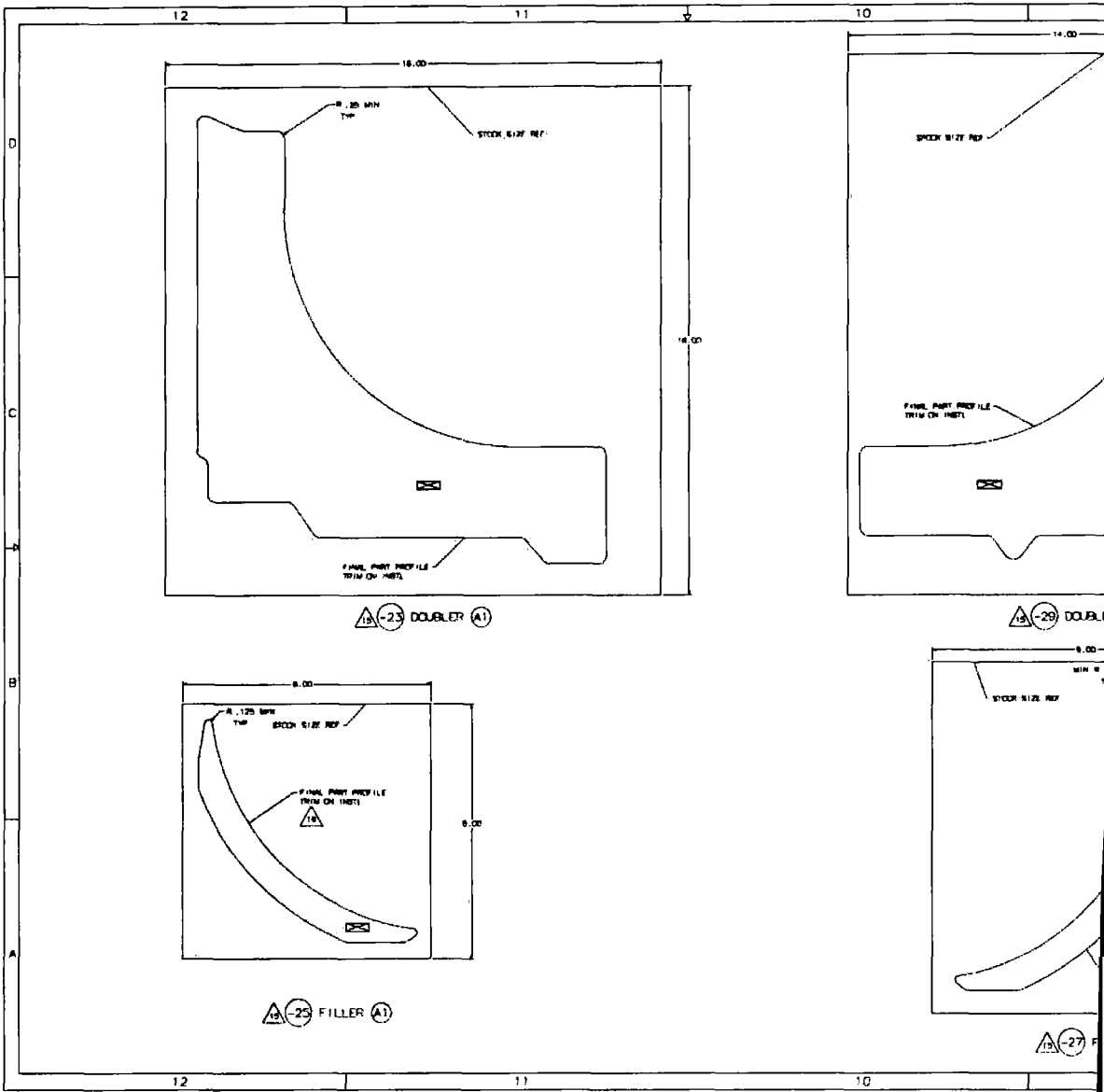




ER (A1)
30734 SE 451021076 A 5

30734 SE 451021076 A 5







US Department
of Transportation
Federal Aviation
Administration

**MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)**

Form Approved
OMB No. 2120-0020
2/28/2011

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS. Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N451NS	Serial No. 4082	
	Make Gulfstream	Model G450	Series
2. Owner	Name (As shown on registration certificate) Wilmington Trust CO Trustee	Address (As shown on registration certificate) Address 110 N Market Street	
		City Wilmington	State Dalaware
		Zip 19890	Country USA



3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No. QV1Y440K
Name Jet Aviation AG	Address Flughafenstrasse City Basel State BS Zip 4030 Country Switzerland	<input type="checkbox"/> U. S. Certificated Mechanic	<input type="checkbox"/> Manufacturer	
		<input type="checkbox"/> Foreign Certificated Mechanic		
		<input type="checkbox"/> Certificated Repair Station		
		<input checked="" type="checkbox"/> Certificated Maintenance Organization		

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual  11 AUG 2016	
--	--	---

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Flt. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee <input checked="" type="checkbox"/>	Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. QV1Y440K	Signature/Date of Authorized Individual  11 AUG 2016	
---	--	---

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N451NS

11.AUG.2016

Nationality and Registration Mark

Date

Discrepancy: During inspection found fuselage skin bent out around the lower corners of the baggage door opening.

Corrective Action:

1. Paint from affected fuselage skin at the baggage door opening stripped iaw SRM Rev.4 chapter 51-07-10. Residual seal from gap between skin and subjacent doublers removed iaw standard maintenance practices. NDT inspection performed on affected aft fuselage skin for cracks, corrosion and secondary damage around baggage door opening. For details refer to NDT report ET2016-116. Submitted results to GAC TechOps for further investigation and requested repair procedure and permit to fly possibilities.
2. As per Gulfstream engineering a fly on permit is not allowed and a time limited repair (12 month) is almost as work intensive and complex as the final repair. Sent repair options (permanent- or time limited-repair) to the customer for selection. As per customer requested carried on with the permanent repair iaw repair drawing SE451021076-3 REV.A
3. Wing to body fairing LH aft removed and cleaned for access iaw standard maintenance practices.
4. Fuselage skin at Baggage door repaired IAW GAC Disposition CS474917 related to Drawing No: SE451021076-3 REV.A
5. Wing to body fairing LH aft reinstalled and resealed iaw AMM Rev.22 chapter 20-42-00 and standard maintenance practices.
6. Repaired area around baggage door opening and LH AFT WTBF re-painted to match the aircraft paint scheme iaw SRM Rev.4 chapter 51-07-10.
7. Received top drawing FAA Form 8100-9 with tracking Nr: TR-07-2016-0014. FAA Form 337 filled out and sent to the FAA and the aircraft owner.

Additional Sheets Are Attached



US Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020
2/28/2011

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N451NS	Serial No. 4082	
	Make GULFSTREAM AEROSPACE	Model GIV-X (G450)	Series N/A
2. Owner	Name (As shown on registration certificate) WILMINGTON TRUST CO TRUSTEE		Address (As shown on registration certificate) Address 110 N MARKET ST
			City WILMINGTON State DE Zip 19890 Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No.	
Name GULFSTREAM AEROSPACE LTD		<input type="checkbox"/> U. S. Certificated Mechanic		MGTY330K	
Address HANGAR 125, PERCIVAL WAY, LONDON		<input type="checkbox"/> Foreign Certificated Mechanic			
City LUTON AIRPORT, LUTON State BEDS		<input checked="" type="checkbox"/> Certificated Repair Station			
Zip LU2 9PA Country UK		<input type="checkbox"/> Certificated Maintenance Organization			

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

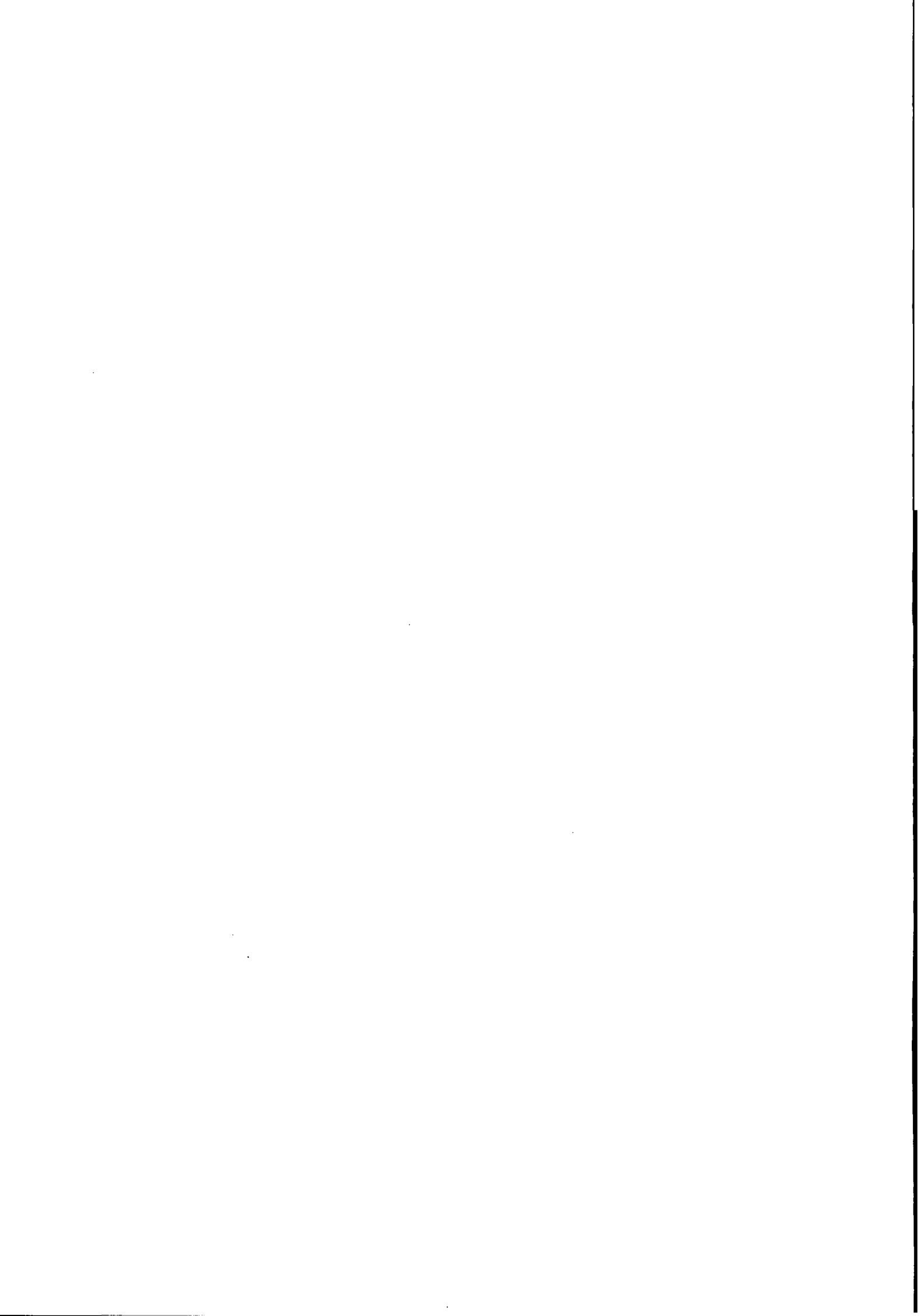
Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual 9 Jan 2014
--	--

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	<input checked="" type="checkbox"/> Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. MGTY330K	Signature/Date of Authorized Individual 9 Jan 2014
---	--



NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N451NS

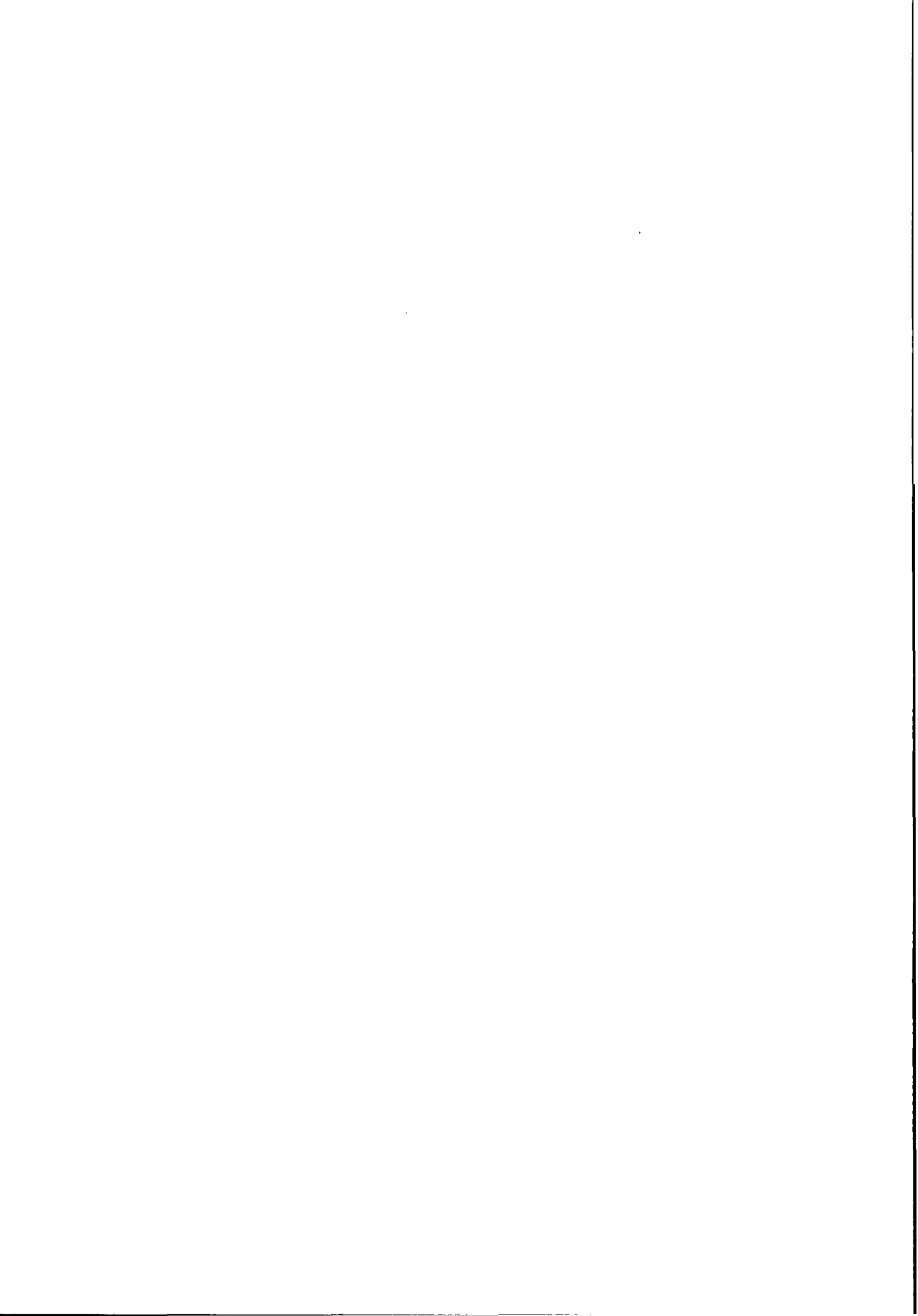
09 JAN 2014

Nationality and Registration Mark

Date

TEMPORARY REMOVAL OF ENHANCED VISION SYSTEM (EVS) FORWARD LOOKING INFRARED CAMERA (FLIR) IAW GULFSTREAM DRAWING CE41 3350053 REV A TO FACILITATE REPAIR OF DEFECTIVE CAMERA. WEIGHT AND BALANCE MANUAL AMENDED TO REFLECT TEMPORARY CHANGES. AIRCRAFT TO CONTINUE TO OPERATE IAW EXSISTING MEL ITEM 34-39 EXPIRES 25 FEB 2014. GULFSTREAM AEROSPACE LTD (LONDON LUTON AIRPORT) WORK ORDER LMX001441 REFERS.

Additional Sheets Are Attached





US Department
of Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020
2/28/2011

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark <p style="text-align: center;">N451NS</p>	Serial No. <p style="text-align: center;">4082</p>	
	Make <p style="text-align: center;">Gulfstream Aerospace</p>	Model <p style="text-align: center;">GIV-X (G450)</p>	Series
2. Owner	Name (As shown on registration certificate) <p style="text-align: center;">Wilmington Trust Co Trustee ATTN Corporate Trust ADM</p>		Address (As shown on registration certificate)
	Address 1100 N Market ST City Wilmington State DE Zip 19890 Country USA		

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address Name <u>Gulfstream Aerospace Corporation</u> Address <u>One Product Support Road</u> City <u>Savannah</u> State <u>GA</u> Zip <u>31408</u> Country <u>USA</u>			B. Kind of Agency <input type="checkbox"/> U. S. Certified Mechanic <input type="checkbox"/> Foreign Certified Mechanic <input checked="" type="checkbox"/> Certified Repair Station <input type="checkbox"/> Certified Maintenance Organization			C. Certificate No. <small>FAA CRS GR4R216M: Accessory Class: I, II & III / Radio Class: I, II, III / Instrument Class: I, II & III, NDT Specialized Services, Airframe, All Q-150, C-1159, G-1159A, G-IV, GIV-SP, GIV-X Series, GV, GV-SP Series, GV1, Aztec, G100, Galaxy, Q200 Series & G-280 Aircraft, Powerplant: RR MK-520, MK511-B, MK611-B Series & BMW RR 700-710 Series, RR 700-725 Series, TFE731-JA-2000, TFE731-JC-200G & PW308A, AS9007 Series</small>		
---	--	--	---	--	--	---	--	--

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual <div style="text-align: right;"> James M. Hickox 05/04/2013 </div>
--	--

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	<input checked="" type="checkbox"/> Repair Station	Inspection Authorizations	Other (Specify)

Certificate or Designation No. GR4R216M	Signature/Date of Authorized Individual <div style="text-align: right;"> James M. Hickox 05/04/2013 </div>
---	--

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N451NS

Nationality and Registration Mark

05/04/2013

Date

Reference: Gulfstream Aerospace Corporation Work Order No. SC314296

1. Performed right wing lower plank repair at front beam, between butline 8-20 in accordance with Gulfstream Service Engineering Drawing No. SE45803191, Rev. NC.
 - Reference FAA Form 8100-9 dated 04/04/2013 to substantiate Repair Drawing No. SE45803191 Rev. NC.

-----End-----

Additional Sheets Are Attached



MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020
11/30/2007

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N451NS	Serial No. 4082
	Make Gulfstream	Model GIV-X (G450) Series
2. Owner	Name (As shown on registration certificate) Wilmington Trust Co Trustee Attn Corporate Trust ADM	Address (As shown on registration certificate) Address 1100 N Market St City Wilmington State DE Zip 19890 Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No.	
Name <u>Gulfstream Aerospace Corporation</u>		U.S. Certified Mechanic		Manufacturer	
Address <u>One Product Support Road</u>		Foreign Certified Mechanic			
City <u>Savannah</u> State <u>GA</u>		<input checked="" type="checkbox"/>	Certificated Repair Station		
Zip <u>31408</u> Country <u>USA</u>		Certificated Maintenance Organization		<small>GR4R216M: Accessory Class: I, II & III / Radio Class: I, II, III / Instrument Class: I, II & III, NDT Specialized Services, Airframe: All G-159, G-1159, G-1159A, G-IV, QIV-SP, QIV-X Series, QV, QV- SF Series, Auro, Q100, Q100 Series Aircraft, Powerplant: R/R M62-25, M62-14, M62-11, B Series & BMW Rolls Royce 700-710 Series, TFE731-JA-200G, TFE731-JC-200G & PW306A</small>	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43, App. B <input type="checkbox"/>	Signature/Date of Authorized Individual <i>A. Bushara</i> Amgad M. Bushara	 08/11/2012
---	--	----------------

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA Flt. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	<input checked="" type="checkbox"/> Repair Station	Inspection Authorizations	Other (Specify)
Certificate or Designation No. GR4R216M	Signature/Date of Authorized Individual <i>A. Bushara</i> Amgad M. Bushara			
	 08/11/2012			

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets, Identify with aircraft nationality and registration mark and date work accomplished.)

Reference: Gulfstream Aerospace Corporation Work Order No. SC296430

N451NS

08/11/2012

Nationality and Registration Mark

Date

1. Complied with aft lavatory portable halon fire extinguisher replacement in accordance with Gulfstream Drawing No. CE52 8560025, Rev. D as listed on Gulfstream Custom Engineering Drawing List No. CE42 004082, Rev. NC.

Item Removed:

<u>Quantity</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Part Number</u>	<u>Wt/Lbs</u>	<u>F.S.</u>
1	Halon Fire Extinguisher	Walter Kidde	100-9750	6.20	512.00

Item Installed:

<u>Quantity</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Part Number</u>	<u>Wt/Lbs</u>	<u>F.S.</u>
1	Halon Fire Extinguisher	H3R Aviation	C354TS	5.60	512.00

- Reference FAA Form 8100-9 dated 08/11/2012 to substantiate Gulfstream Drawing No. CE52 8560025, Rev. D.
 - Reference GAC Document No. CE42 856A012, Rev. NC for Maintenance Requirements – Instructions for Continued Airworthiness.
2. Updated the Equipment List section of the Weight and Balance Manual.
 3. Aircraft was electronically weighed. The new Weight and Balance has been inserted into the Weight and Balance Manual.

-----End-----

Additional Sheets Are Attached

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION

STANDARD AIRWORTHINESS CERTIFICATE

1. NATIONALITY AND REGISTRATION MARKS N451NS	2. MANUFACTURER AND MODEL Gulfstream Aerospace GIV-X (G450)	3. AIRCRAFT SERIAL NUMBER 4082	4. CATEGORY Transport
--	---	--	---------------------------------

5. AUTHORITY AND BASIS FOR ISSUANCE

This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the type certificate therefor, to be in condition for safe operation, and has been shown to meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation, except as noted herein.

Exceptions:

Exemption No. 8142 25.901 (c) Single Failure Criteria

6. TERMS AND CONDITIONS.

Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States.

DATE OF ISSUANCE R05/09/2007	FAA REPRESENTATIVE  John P. Bohannon Jr.	DESIGNATION NUMBER ODART-200023-SO
--	---	--

Any alteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

6

1

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION
STANDARD AIRWORTHINESS CERTIFICATE

1. NATIONALITY AND REGISTRATION MARKS N382GA	2. MANUFACTURER AND MODEL Gulfstream GIV-X (G450)	3. AIRCRAFT SERIAL NUMBER 4082	4. CATEGORY Transport
--	---	--	---------------------------------

5. AUTHORITY AND BASIS FOR ISSUANCE

This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the requirements of this certificate therefor, to be in condition for safe operation, and has been shown to meet the requirements of the applicable compliance and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation hereinafter referred to as the Chicago Convention.

Exceptions:

Exemption No. 8100-25001 (c) Single Failure Criteria

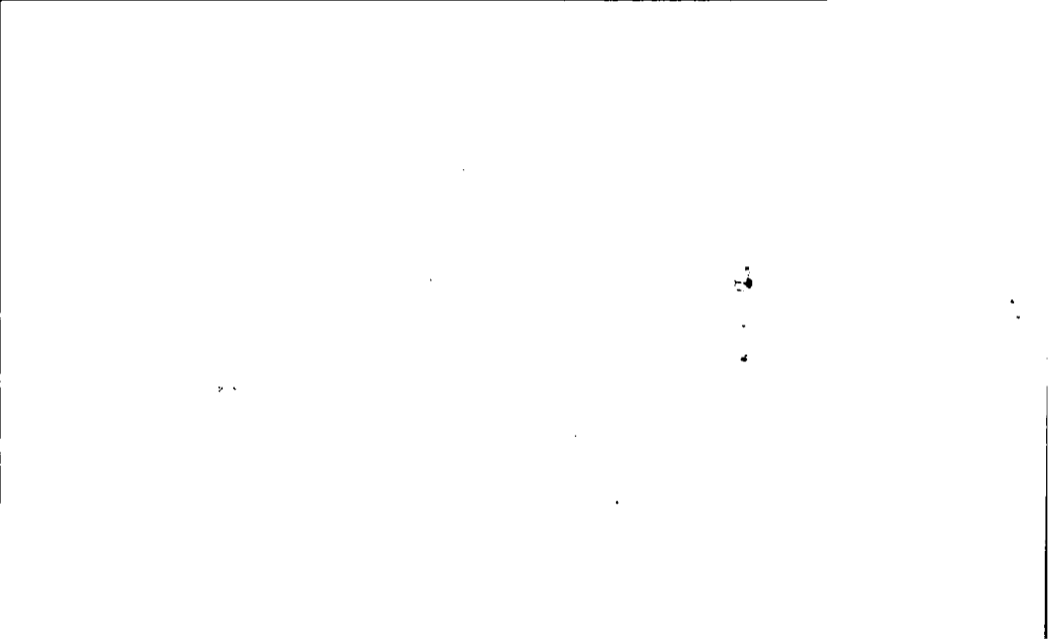
Preceded by Order of the Administrator dated 09/20/2007

6. TERMS AND CONDITIONS

Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations, as appropriate and the aircraft is registered in the United States.

DATE OF ISSUANCE A05/09/2007	FAA REPRESENTATIVE Paul D. Jacobs	DESIGNATION NUMBER ODARF100127CE
--	---	--

Any alteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.



Staple Duplicate Original Here.
N451NS

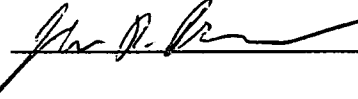
DUPLICATE OF ORIGINAL 8100-2

Staple Superceded Original Here
N382GA

SUPERCEDED ORIGINAL 8100-2

ORIGINALS ATTACHED:

ODAR



WITNESS



**NOTE: NO PHOTOCOPIES PERMITTED ORIGINAL
8100-2's ONLY. IF ORIGINALS NOT ENCLOSED
CONTACT JOHN BOHANNON IMEDIATELY AT
912-965-7075.**

2-1-53

Gulfstream

A GENERAL DYNAMICS COMPANY

July 19, 2007

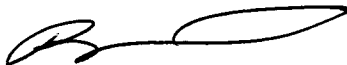
Mr. John P. Bohannon Jr.
FAA ODAR
Gulfstream Aerospace Corporation
Savannah, Georgia 31402

Subject: Request for Replacement Standard Airworthiness Certificate for Gulfstream Aerospace Corporation
Aircraft Model no.: GIV-X (G450), Production no.: 4082, N382GA, due to change to N451NS.

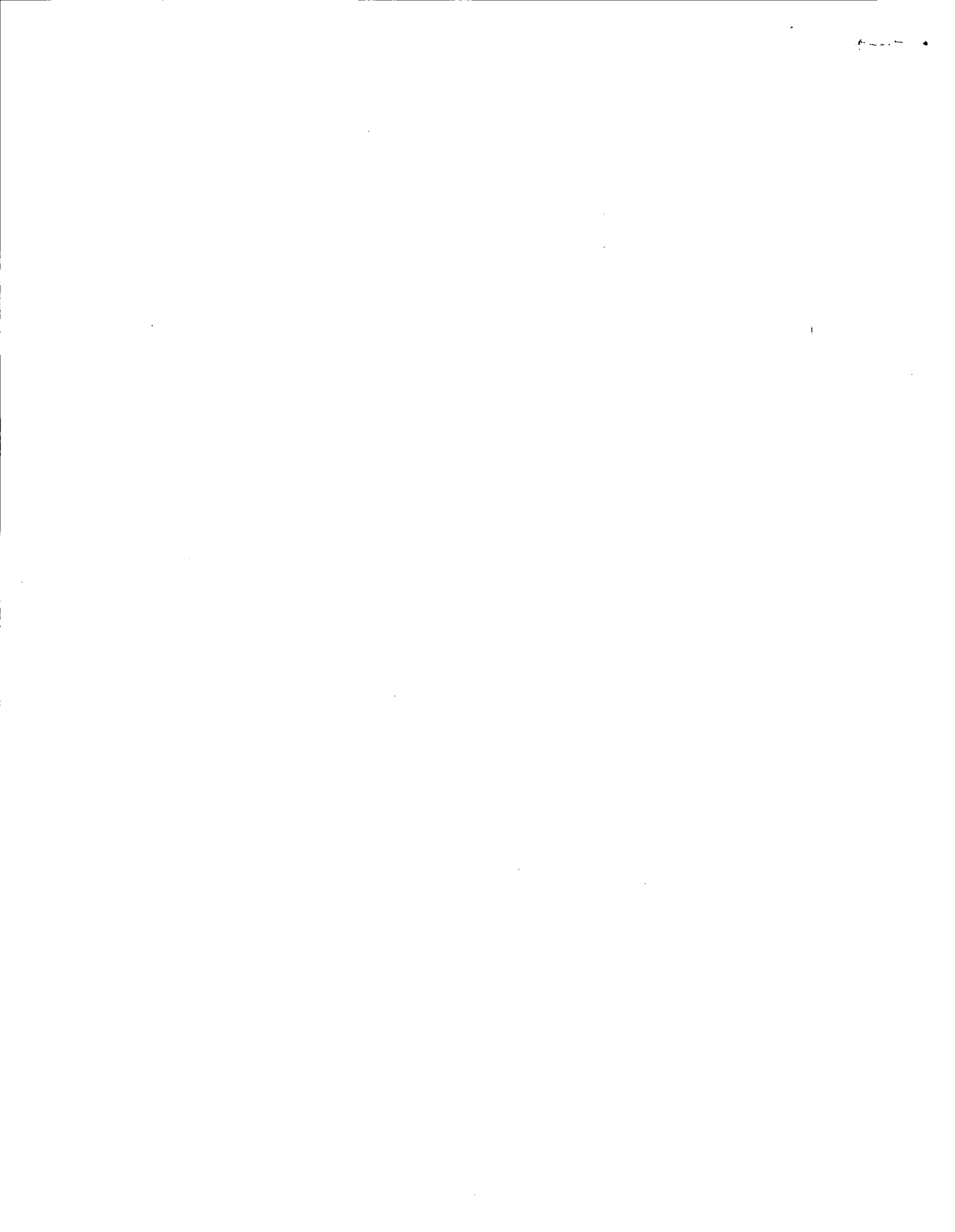
Dear Sir,

As registered owner of Gulfstream GIV-X (G450), S/N 4082, N382GA, please accept this letter as a request to issue a Replacement Standard Airworthiness Certificate due to a change to the Registration Number which is now N451NS, and has been affixed to the Aircraft in accordance with FAR part 45 subpart C.

Regards,


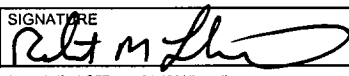
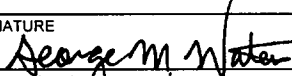


Bobby T. Strickland
Quality Control
Gulfstream Aerospace Corporation
Savannah, Georgia 31402



FAA FORM 8130-6, APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE

Form Approved
O.M.B. No. 2120-0018

 U.S. Department of Transportation Federal Aviation Administration		APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE		INSTRUCTIONS - Print or type. Do not write in shaded areas; these are for FAA use only. Submit original only to an authorized FAA Representative. If additional space is required, use attachment. For special flight permits complete Sections II, VI and VII as applicable.			
I. AIRCRAFT DESIGNATION	1. REGISTRATION MARK	2. AIRCRAFT BUILDER'S NAME (Make)	3. AIRCRAFT MODEL DESIGNATION	4. YR. MFR.	FAA CODING		5
	N382GA	Gulfstream Aerospace Corp.	GIV-X (G450)	2007	3980205		
	5. AIRCRAFT SERIAL NO.	6. ENGINE BUILDER'S NAME (Make)	7. ENGINE MODEL DESIGNATION		8. AIRCRAFT IS (Check if applicable)		
	4082	Rolls Royce	TAY 611-8C		54073		
8. NUMBER OF ENGINES	9. PROPELLER BUILDER'S NAME (Make)	10. PROPELLER MODEL DESIGNATION			11. AIRCRAFT IS (Check if applicable)		
(2)	N/A	N/A			IMPORT		
APPLICATION IS HEREBY MADE FOR: (Check applicable items)							
A 1 <input checked="" type="checkbox"/> STANDARD AIRWORTHINESS CERTIFICATE (Indicate Category) <input type="checkbox"/> NORMAL <input type="checkbox"/> UTILITY <input type="checkbox"/> ACROBATIC <input checked="" type="checkbox"/> TRANSPORT <input type="checkbox"/> COMMUTER <input type="checkbox"/> BALLOON <input type="checkbox"/> OTHER							
B <input type="checkbox"/> SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)							
7 PRIMARY							
9 LIGHT-SPORT (Indicate Class)							
<input type="checkbox"/> AIRPLANE <input type="checkbox"/> POWER-PARACHUTE <input type="checkbox"/> WEIGHT-SHIFT-CONTROL <input type="checkbox"/> GLIDER <input type="checkbox"/> LIGHTER THAN AIR							
2 LIMITED							
5 PROVISIONAL (Indicate Class)							
<input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II							
3 RESTRICTED (Indicate operation(s) to be conducted)							
<input type="checkbox"/> 1 AGRICULTURE AND PEST CONTROL <input type="checkbox"/> 2 AERIAL SURVEY <input type="checkbox"/> 3 AERIAL ADVERTISING <input type="checkbox"/> 4 FOREST (Wildlife Conservation) <input type="checkbox"/> 5 PATROLLING <input type="checkbox"/> 6 WEATHER CONTROL <input type="checkbox"/> 0 OTHER (Specify)							
4 EXPERIMENTAL (Indicate operation(s) to be conducted)							
<input type="checkbox"/> 1 RESEARCH AND DEVELOPMENT <input type="checkbox"/> 2 AMATEUR BUILT <input type="checkbox"/> 3 EXHIBITION <input type="checkbox"/> 4 AIR RACING <input type="checkbox"/> 5 CREW TRAINING <input type="checkbox"/> 6 MARKET SURVEY <input type="checkbox"/> 0 TO SHOW COMPLIANCE WITH THE CFR <input type="checkbox"/> 7 OPERATING (Primary Category) KIT BUILT AIRCRAFT							
8 SPECIAL FLIGHT PERMIT (Indicate operation(s) to be conducted, then complete Section VI or VII as applicable on reverse side)							
<input type="checkbox"/> 1 FERRY FLIGHT FOR REPAIRS, ALTERATIONS, MAINTENANCE, OR STORAGE <input type="checkbox"/> 2 EVACUATION FROM AREA OF IMPENDING DANGER <input type="checkbox"/> 3 OPERATION IN EXCESS OF MAXIMUM CERTIFICATED TAKE-OFF WEIGHT <input type="checkbox"/> 4 DELIVERING OR EXPORTING <input type="checkbox"/> 5 PRODUCTION FLIGHT TESTING <input type="checkbox"/> 6 CUSTOMER DEMONSTRATION FLIGHTS							
C 6 <input type="checkbox"/> MULTIPLE AIRWORTHINESS CERTIFICATE (check ABOVE "Restricted Operation" and "Standard" or "Limited" as applicable)							
III. OWNER'S CERTIFICATION							
A. REGISTERED OWNER (As shown on certificate of aircraft registration) IF DEALER, CHECK HERE <input checked="" type="checkbox"/>							
NAME Gulfstream Aerospace Corporation				ADDRESS 500 Gulfstream Rd., Savannah, GA			
B. AIRCRAFT CERTIFICATION BASIS (Check applicable blocks and complete items as indicated)							
<input checked="" type="checkbox"/> AIRCRAFT SPECIFICATION OR TYPE CERTIFICATE DATA SHEET (Give No. and Revision No.) A12EA Rev. 29				<input checked="" type="checkbox"/> AIRWORTHINESS DIRECTIVES (Check if all applicable AD's are compiled with and give the number of the last AD SUPPLEMENT available in the biweekly series as of the date of application) 2007-09-03			
<input type="checkbox"/> AIRCRAFT LISTING (Give page number(s)) N/A				<input type="checkbox"/> SUPPLEMENTAL TYPE CERTIFICATE (List number of each STC incorporated) N/A			
C. AIRCRAFT OPERATION AND MAINTENANCE RECORDS							
<input checked="" type="checkbox"/> CHECK IF RECORDS IN COMPLIANCE WITH 14 CFR Section 91.417				TOTAL AIRFRAME HOURS 3:48 Hrs.		3 EXPERIMENTAL ONLY (Enter hours flown since last certificate issued or renewed) N/A	
D. CERTIFICATION - I hereby certify that I am the registered owner (or his agent) of the aircraft described above, that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 et seq. and applicable Federal Aviation Regulations, and that the aircraft has been inspected and is airworthy and eligible for the airworthiness certificate requested.							
DATE OF APPLICATION 05/09/07		NAME AND TITLE (Print or type) Robert Lindamood, Production Manager			SIGNATURE 		
IV. INSPECTION AGENCY VERIFICATION							
A. THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSPECTED AND FOUND AIRWORTHY BY: (Complete the section only if 14 CFR part 21.183(d) applies.)							
2 14 CFR part 121 CERTIFICATE HOLDER (Give Certificate No.)		3 CERTIFICATED MECHANIC (Give Certificate No.)		6 CERTIFICATED REPAIR STATION (Give Certificate No.)		G02R813X	
5 AIRCRAFT MANUFACTURER (Give name or firm)							
DATE 05/09/07		TITLE Certification Inspector			SIGNATURE 		
V. FAA REPRESENTATIVE CERTIFICATION							
(Check ALL applicable block items A and B)							
A. I find that the aircraft described in Section I or IV meets requirements for				THE CERTIFICATE REQUESTED			
<input checked="" type="checkbox"/> 4 AMENDMENT OR MODIFICATION OF CURRENT AIRWORTHINESS CERTIFICATE				<input type="checkbox"/> 5			
B. Inspection for a special permit under Section VII was conducted by:				FAA INSPECTOR		FAA DESIGNEE	
DATE 05/09/07		DISTRICT OFFICE CE42		DESIGNEE'S SIGNATURE AND NO. Paul D. Jacobs ODARF100127CE		FAA INSPECTOR'S SIGNATURE RECEIVED ATLANTA	

MAY 9 2007


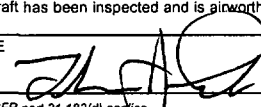
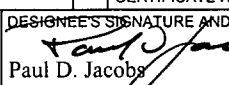
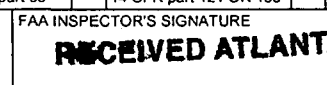
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5/16/07

VI. PRODUCTION FLIGHT TESTING	A. MANUFACTURER					
	NAME			ADDRESS		
	B. PRODUCTION BASIS <i>(Check applicable item)</i>					
	PRODUCTION CERTIFICATE <i>(Give production certificate number)</i>			→		
	TYPE CERTIFICATE ONLY					
	APPROVED PRODUCTION INSPECTION SYSTEM					
C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS						
DATE OF APPLICATION		NAME AND TITLE <i>(Print or Type)</i>			SIGNATURE	
VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST	A. DESCRIPTION OF AIRCRAFT					
	REGISTERED OWNER			ADDRESS		
	BUILDER <i>(Make)</i>			MODEL		
	SERIAL NUMBER			REGISTRATION MARK		
	B. DESCRIPTION OF FLIGHT					CUSTOMER DEMONSTRATION FLIGHTS <input type="checkbox"/> <i>(Check if applicable)</i>
	FROM			TO		
	VIA		DEPARTURE DATE		DURATION	
	C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT					
	PILOT		CO-PILOT		FLIGHT ENGINEER	
	OTHER <i>(Specify)</i>					
	D. THE AIRCRAFT DOES NOT MEET THE APPLICABLE AIRWORTHINESS REQUIREMENTS AS FOLLOWS:					
E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED NECESSARY FOR SAFE OPERATION: <i>(Use attachment if necessary)</i>						
F. CERTIFICATION – I hereby certify that I am the registered owner (or his agent) of the aircraft described above; that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 et seq. and applicable Federal Aviation Regulations; and that the aircraft has been inspected and is safe for the flight described.						
DATE		NAME AND TITLE <i>(Print or Type)</i>			SIGNATURE	
VIII. AIRWORTHINESS DOCUMENTATION (FAA DESIGNEE USE ONLY)	✓ A. Operating Limitations and Markings in Compliance with 14 CFR Section 91.9, as applicable.			G. Statement of Conformity, FAA Form 8130-9 <i>(Attach when required)</i>		
	B. Current Operating Limitations Attached			H. Foreign Airworthiness Certification for Import Aircraft <i>(Attach when required)</i>		
	C. Data, Drawings, Photographs, etc. <i>(Attach when required)</i>			✓ I. Previous Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>21.183 (a)</u> CAR _____ <i>(Original Attached)</i>		
	✓ D. Current Weight and Balance information Available in Aircraft			✓ J. Current Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>21.183 (d)</u> <i>(Copy Attached)</i>		
	E. Major Repair and Alteration, FAA Form 337 <i>(Attach when required)</i>			K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 <i>(Attach when required)</i>		
	✓ F. This inspection Recorded in Aircraft Records					

FAA FORM 8130-6, APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE

Form Approved
O.M.B. No. 2120-0018

 U.S. Department of Transportation Federal Aviation Administration		APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE		INSTRUCTIONS - Print or type. Do not write in shaded areas; these are for FAA use only. Submit original only to an authorized FAA Representative. If additional space is required, use attachment. For special flight permits complete Sections II, VI and VII as applicable.				
I. AIRCRAFT DESIGNATION	1. REGISTRATION MARK	2. AIRCRAFT BUILDER'S NAME (Make)	3. AIRCRAFT MODEL DESIGNATION	4. YR. MFR.	FAA CODING			
	N382GA	Gulfstream Aerospace Corp.	GIV-X	2007				
	5. AIRCRAFT SERIAL NO.	6. ENGINE BUILDER'S NAME (Make)	7. ENGINE MODEL DESIGNATION					
	4082	Rolls Royce	TAY 611-8C					
8. NUMBER OF ENGINES	9. PROPELLER BUILDER'S NAME (Make)	10. PROPELLER MODEL DESIGNATION		11. AIRCRAFT IS (Check if applicable)				
(2)	N/A	N/A		IMPORT				
APPLICATION IS HEREBY MADE FOR: (Check applicable items)								
A	1	<input checked="" type="checkbox"/>	STANDARD AIRWORTHINESS CERTIFICATE (Indicate Category)	NORMAL	UTILITY	ACROBATIC	<input checked="" type="checkbox"/> TRANSPORT	
B			SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)					
II. CERTIFICATION REQUESTED	7		PRIMARY					
	9		LIGHT-SPORT (Indicate Class)	AIRPLANE	POWER-PARACHUTE	WEIGHT-SHIFT-CONTROL	GLIDER	
	2		LIMITED					
	5			PROVISIONAL (Indicate Class)	1	CLASS I		
				2	CLASS II			
	3			RESTRICTED (Indicate operation(s) to be conducted)	1	AGRICULTURE AND PEST CONTROL	2	AERIAL SURVEY
					4	FOREST (Wildlife Conservation)	5	PATROLLING
					6	WEATHER CONTROL		
					0	OTHER (Specify)		
	4			EXPERIMENTAL (Indicate operation(s) to be conducted)	1	RESEARCH AND DEVELOPMENT	2	AMATEUR BUILT
					3	EXHIBITION		
					4	AIR RACING	5	CREW TRAINING
					6	MARKET SURVEY		
					0	TO SHOW COMPLIANCE WITH THE CFR	7	OPERATING (Primary Category) KIT BUILT AIRCRAFT
	8			SPECIAL FLIGHT PERMIT (Indicate operation(s) to be conducted, then complete Section VI or VII as applicable on reverse side)	8A	Existing Aircraft without an airworthiness certificate & do not meet § 103.1		
8B					Operating Light-Sport Kit-Built			
8C					Operating light-sport previously issued special light-sport category airworthiness certificate under § 21.190			
1					FERRY FLIGHT FOR REPAIRS, ALTERATIONS, MAINTENANCE, OR STORAGE			
2					EVACUATION FROM AREA OF IMPENDING DANGER			
3					OPERATION IN EXCESS OF MAXIMUM CERTIFICATED TAKE-OFF WEIGHT			
4	DELIVERING OR EXPORTING	5	PRODUCTION FLIGHT TESTING					
6	CUSTOMER DEMONSTRATION FLIGHTS							
C	6		MULTIPLE AIRWORTHINESS CERTIFICATE (check ABOVE "Restricted Operation" and "Standard" or "Limited" as applicable)					
III. OWNER'S CERTIFICATION	A. REGISTERED OWNER (As shown on certificate of aircraft registration)			IF DEALER, CHECK HERE <input checked="" type="checkbox"/>				
	NAME Gulfstream Aerospace Corporation			ADDRESS 500 Gulfstream Rd., Savannah, GA				
	B. AIRCRAFT CERTIFICATION BASIS (Check applicable blocks and complete items as indicated)							
	<input checked="" type="checkbox"/>	AIRCRAFT SPECIFICATION OR TYPE CERTIFICATE DATA SHEET (Give No. and Revision No.) A12EA Rev. 29			<input checked="" type="checkbox"/>	AIRWORTHINESS DIRECTIVES (Check if all applicable AD's are compiled with and give the number of the last AD SUPPLEMENT available in the biweekly series as of the date of application) 2007-09-03		
		AIRCRAFT LISTING (Give page number(s)) N/A				SUPPLEMENTAL TYPE CERTIFICATE (List number of each STC incorporated) N/A		
C. AIRCRAFT OPERATION AND MAINTENANCE RECORDS								
<input checked="" type="checkbox"/>	CHECK IF RECORDS IN COMPLIANCE WITH 14 CFR Section 91.417		TOTAL AIRFRAME HOURS 3:48 Hrs.		3	EXPERIMENTAL ONLY (Enter hours flown since last certificate issued or renewed) N/A		
D. CERTIFICATION - I hereby certify that I am the registered owner (or his agent) of the aircraft described above, that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 et seq. and applicable Federal Aviation Regulations, and that the aircraft has been inspected and is airworthy and eligible for the airworthiness certificate requested.								
DATE OF APPLICATION 05/08/07		NAME AND TITLE (Print or type) Tom Sesock, Production Manager			SIGNATURE 			
IV. INSPECTION AGENCY VERIFICATION	A. THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSPECTED AND FOUND AIRWORTHY BY: (Complete the section only if 14 CFR part 21.183(d) applies.)							
	2	14 CFR part 121 CERTIFICATE HOLDER (Give Certificate No.)	3	CERTIFICATED MECHANIC (Give Certificate No.)	6	CERTIFICATED REPAIR STATION (Give Certificate No.)		
	5	AIRCRAFT MANUFACTURER (Give name or firm)						
DATE		TITLE			SIGNATURE			
V. FAA REPRESENTATIVE CERTIFICATION	(Check ALL applicable block items A and B)							
	A. I find that the aircraft described in Section I or IV meets requirements for				<input checked="" type="checkbox"/>	THE CERTIFICATE REQUESTED		
					<input type="checkbox"/>	AMENDMENT OR MODIFICATION OF CURRENT AIRWORTHINESS CERTIFICATE		
	B. Inspection for a special permit under Section VII was conducted by:				FAA INSPECTOR		FAA DESIGNEE	
DATE		DISTRICT OFFICE		DESIGNEE'S SIGNATURE AND NO.		FAA INSPECTOR'S SIGNATURE		
05/08/07		CE42		Paul D. Jacobs 		1 		
				ODARF100127CE		14 CFR part 65		
						14 CFR part 121 OR 135		
						14 CFR part 145		

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VI. PRODUCTION FLIGHT TESTING	A. MANUFACTURER					
	NAME			ADDRESS		
	B. PRODUCTION BASIS <i>(Check applicable item)</i>					
	PRODUCTION CERTIFICATE <i>(Give production certificate number)</i>			→		
	TYPE CERTIFICATE ONLY					
	APPROVED PRODUCTION INSPECTION SYSTEM					
C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS						
DATE OF APPLICATION		NAME AND TITLE <i>(Print or Type)</i>			SIGNATURE	
VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST	A. DESCRIPTION OF AIRCRAFT					
	REGISTERED OWNER			ADDRESS		
	BUILDER <i>(Make)</i>			MODEL		
	SERIAL NUMBER			REGISTRATION MARK		
	B. DESCRIPTION OF FLIGHT					CUSTOMER DEMONSTRATION FLIGHTS <input type="checkbox"/> <i>(Check if applicable)</i>
	FROM			TO		
	VIA		DEPARTURE DATE		DURATION	
	C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT					
	PILOT		CO-PILOT		FLIGHT ENGINEER	
	OTHER <i>(Specify)</i>					
	D. THE AIRCRAFT DOES NOT MEET THE APPLICABLE AIRWORTHINESS REQUIREMENTS AS FOLLOWS:					
E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED NECESSARY FOR SAFE OPERATION: <i>(Use attachment if necessary)</i>						
F. CERTIFICATION - I hereby certify that I am the registered owner (or his agent) of the aircraft described above; that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 et seq. and applicable Federal Aviation Regulations; and that the aircraft has been inspected and is safe for the flight described.						
DATE		NAME AND TITLE <i>(Print or Type)</i>			SIGNATURE	
VIII. AIRWORTHINESS DOCUMENTATION (FAA DESIGNEE use only)	✓ A. Operating Limitations and Markings in Compliance with 14 CFR Section 91.9, as applicable.			G. Statement of Conformity, FAA Form 8130-9 <i>(Attach when required)</i>		
	B. Current Operating Limitations Attached			H. Foreign Airworthiness Certification for Import Aircraft <i>(Attach when required)</i>		
	C. Data, Drawings, Photographs, etc. <i>(Attach when required)</i>			I. Previous Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>21.197 (a) (3)</u> CAR _____ <i>(Original Attached)</i>		
	✓ D. Current Weight and Balance information Available in Aircraft			✓ J. Current Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>21.183 (a)</u> _____ <i>(Copy Attached)</i>		
	E. Major Repair and Alteration, FAA Form 337 <i>(Attach when required)</i>			K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 <i>(Attach when required)</i>		
	✓ F. This inspection Recorded in Aircraft Records					

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION
STANDARD AIRWORTHINESS CERTIFICATE

1. NATIONALITY AND REGISTRATION MARKS N382GA	2. MANUFACTURER AND MODEL Gulfstream GIV-X (G450)	3. AIRCRAFT SERIAL NUMBER 4082	4. CATEGORY Transport
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5. AUTHORITY AND BASIS FOR ISSUANCE

This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the type certificate therefor, to be in condition for safe operation, and has been shown to meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation, except as noted herein.

Exceptions:

Exemption No. 8142 25.901(c) Single Failure Criteria ★

6. TERMS AND CONDITIONS

Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States.

DATE OF ISSUANCE A05/09/2007	FAA REPRESENTATIVE Paul D. Jacobs	DESIGNATION NUMBER ODARE100127CE
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Any alteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION
STANDARD AIRWORTHINESS CERTIFICATE

1. NATIONALITY AND REGISTRATION MARKS N382GA	2. MANUFACTURER AND MODEL Gulfstream GIV-XAVIA	3. AIRCRAFT SERIAL NUMBER 4082	4. CATEGORY Transport
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5. AUTHORITY AND BASIS FOR ISSUANCE

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Exceptions:

Exemption No. 8142 25:901(c) Single Failure Criteria

6. TERMS AND CONDITIONS

Unless sooner surrendered, suspended, revoked, or a termination date otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 23, and 31 of the Federal Aviation Regulations, as appropriate and the aircraft is registered in the United States.

DATE OF ISSUANCE 05/08/2007	FAA REPRESENTATIVE Paul D. Jacobs	DESIGNATION NUMBER ODARF100127CE
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UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION
STANDARD AIRWORTHINESS CERTIFICATE

1. NATIONALITY AND REGISTRATION MARKS N382GA	2. MANUFACTURER AND MODEL Gulfstream GIV-XAVIAT	3. AIRCRAFT SERIAL NUMBER 4082	4. CATEGORY Transport
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DATE OF ISSUANCE 05/08/2007	FAA REPRESENTATIVE Paul D. Jacobs	DESIGNATION NUMBER ODARF100127CE
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