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	Serial No.	
N143EE	3218	
Make	**Model**	**Series**
Aviat	A-1C-180	

2. Owner

Name *(As shown on registration certificate)*	Address *(As shown on registration certificate)*
Stotts Boys Aviation LLC	Address 9925 High Bluff Ln
	City Corcoran State MN
	Zip 55340-9367 Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
☐	☒	AIRFRAME	———	*(As described in Item 1 above)*	———
☐	☐	POWERPLANT			
☐	☐	PROPELLER			
☐	☐	APPLIANCE	Type / Manufacturer		

6. Conformity Statement

A. Agency's Name and Address

Name NorthPoint Aviation
Address 16384 Airport Road, Suite 8
City Brainerd State MN
Zip 56401 Country USA

B. Kind of Agency

- ☐ U. S. Certificated Mechanic
- ☐ Foreign Certificated Mechanic
- ☒ Certificated Repair Station
- ☐ Certificated Maintenance Organization
- ☐ Manufacturer

C. Certificate No. 6DVR982C

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 ☐

Signature/Date of Authorized Individual: William J. Smith 7/17/2023

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 Flt. Standards Inspector	☐	Manufacturer	☐	Maintenance Organization	☐	Persons Approved by Canadian Department of Transport
	☐	FAA Designee	☒	Repair Station	☐	Inspection Authorization		Other *(Specify)*

Certificate or Designation No. 6DVR982C

Signature/Date of Authorized Individual: William J. Smith 7/17/2023

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.)

N143EE	7/17/2023
Nationality and Registration Mark	Date

1. Removed factory exhaust assembly. Installed new style Powerflow exhaust / muffler shroud system IAW Powerflow STC SA03858AT. Completed microvibe propeller Vibration procedure as requested by Powerflow. Installed minor weights as required. Final IPS 0.043 @ 355.7 Deg.
2. Removed engine air filter. Installed new style challenger air filter assembly IAW Challenger STC SA01669CH. Oiled element as instructions recommended. Weight and balance negligible.
3. Installed Microvortex generator kit on Wing leading edges & tail components IAW STC SA00668SE installation instructions. Weight and balance negligible.

----------END----------

☐ Additional Sheets Are Attached

United States of America
Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number SA03858AT

NOT VALID WITHOUT LETTER OF AUTHORIZATION FROM POWER FLOW SYSTEMS, INC.

This certificate issued to Power Flow Systems, Inc.
1585 Aviation Center Parkway
Hangar 804
Daytona Beach, FL 32114

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 23 of the Regulations.

Original Product - Type Certificate Number: A22NM

Make: Sky International

Model: A-1, A-1A, A-1B, A-1C-180

Description of Type Design Change: Installation of Power Flow Systems, Inc. (PFS) tuned exhaust system drawing PFS-18101, rev IR dated 10/14/2009 or later FAA approved revisions. Installed per Power Flow Systems, Inc. drawing 118101, rev IR, dated 10/14/2009 or later FAA approved revisions and Tuned Exhaust System Installation Instructions and Instructions for Continued Airworthiness, PFS-18150-00, rev A, dated 4/6/2010 or later FAA approved revisions.

Limitations and Conditions: Instructions for Continued Airworthiness contained in Tuned Exhaust System Installation Instructions and Instructions for Continued Airworthiness, PFS-18150-00, rev A, dated 4/6/2010 or later FAA approved revisions must be made available to the operator at the time of installation. Airplane Flight Manual Supplement AFMS-18101, Revision IR, dated June 21, 2010, or later FAA approved revision, is a required part of this STC.

(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: February 16, 2010

Date of issuance: June 21, 2010

Date reissued:

Date amended: December 01, 2010

By direction of the Administrator

(Signature)

Melvin Taylor – Manager, Atlanta Aircraft Certification Office

(Title)

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 in accordance with FAR 21.47.

United States of America
Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number SA03858AT

Date of Issuance: June 21, 2010
Date Amended: December 01, 2010

Limitations and Conditions (Continued):
The engine performance effects of this STC were evaluated and were found to be within the limitations of the engine, propeller and aircraft Type Certificates. Any additional modifications that contribute to HP increases could adversely affect the aircraft, engine or propeller airworthiness. 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 that 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 that permission.

Certification Basis:
Based on 14CFR §§ 21.115 and 21.101, this STC modification to the type design is considered not to be a major or significant change.

Original Certification Basis: Based on 14CFR §§ 23 effective February 1, 1965 as amended by 23-1 through 23-31, 14CFR §§ 36 through 36-28 and 14CFR §§ 21 through 21-57.

Regulations Addressed: At current amendment: 23.21, 23.65, 23.609, 23.907, 23.1101, 23.1105, 23.1123, 23.1152, G36.

Regulations at an intermediate amendment: At amendment 23-7: 23.611, 23.1041, 23.1091(2), (3); At amendment 23-10: 23.1; At amendment 23-14: 23.1017(2); At amendment 23-17: 23.607; At amendment 23-18: 23.1121; At amendment 23-20: 23.1301 At amendment 23-21: 23.51, 23.1043, 23.1047; At 23-23 amendment: 23.603, 23.605, 23.863; At amendment 23-29: 23.901, 23.1093 (a)(1); At amendment 36-14: 36.3; At amendment 36-15: 36.1501; At amendment 36-19: 36.9, 36.501(a)(1).

END

POWER FLOW SYSTEMS, INC
1585 Aviation Center Pkwy Hangar 804
Daytona Beach, FL 32114
Phone: 386-253-8833 Fax: 386-248-1587

Tuesday, June 27, 2023

Valair Limited Company Trustee
4605 Harrison Boulevard
Suite 202
Ogden, UT 84403
USA

As required by STC # SA03858AT, this letter documents your written permission by POWER FLOW SYSTEMS, INC. to install our exhaust system, PFS-18101, S/N 127 onto your aircraft, N143EE only.

Thank you for your order, we sincerely appreciate your business. Please give us your feedback on the installation, the quality of the product, and your impressions of the Power Flow Exhaust System.

This letter does not infer airworthiness of the Part(s) listed above. It is the installer's responsibility to determine the airworthiness of, and to install all parts (new or pre-owned) in accordance with the latest FAA approved revision of the Installation Instructions. If this letter authorizes the installation of a previously owned exhaust system not purchased directly from Power Flow Systems, Inc., any warranties expressed or implied by Power Flow Systems, Inc. do not transfer with the part(s).

Sincerely,

Darren Tilman
General Manager

United States of America
Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

Number SA01669CH

This certificate issued to

Challenger Aviation Products, Inc.
4433 Old Springfield Road
Vandalia, OH 45377

*certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part * of the * Regulations.*

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

Make: *No. SA01669CH for list of approved airplane models and

Model: *applicable airworthiness regulations

Description of Type Design Change:

Installation of Challenger re-useable air filter in accordance with Challenger Installation Instructions #0402 revision N, dated July 11, 2008, or later FAA approved revision.

Limitations and Conditions:

1. Compatibility of this design change with previous modifications must be determined by the installer.

2. A copy of this certificate must be maintained as part of the permanent records for the modified aircraft.

3. Installer must follow Challenger Air Filter Cleaning Instructions (Instructions for Continued Airworthiness) document #4003, revision D, dated August 31, 2005 or later FAA approved revision.

4. 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 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: November 9, 2001

Date of issuance: July 3, 2002

Date reissued: May 18, 2004

Date amended: March 10, 2004, May 3, 2004, May 27, 2004, December 10, 2004, October 27, 2008, January 27, 2009, April 21, 2009, July 28, 2010, November 5, 2010, August 18, 2011

By direction of the Administrator

Original Signed By:
Timothy Smyth

(*Signature*)

Timothy Smyth
Manager, Propulsion Branch
Chicago Aircraft Certification Office

United States of America

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number **SA00668SE**

This certificate, issued to **Micro AeroDynamics, Inc.**
4000 Airport Road, Suite D
Anacortes, WA 98221

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 23 *of the* Federal Aviation *Regulations.*

Original Product—Type Certificate Number: A22NM

Make: Aviat

Model: Husky A-1, A-1A, A-1B, A-1C-180, A-1C-200

Description of the Type Design Change: Installation of vortex generators on the wing leading edge and underside of the horizontal stabilizer, in accordance with Micro AeroDynamics Drawing List MA2089, Rev B, dated May 8, 2009, and Installation Manual MA2090, Rev B, dated May 8, 2009, or later FAA approved revisions.

NOTE: If more than five vortex generators are damaged or missing, the aircraft is not airworthy.

Limitations and Conditions: Approval of this change in type design applies to the above model aircraft only. This approval should not be extended to other aircraft on which other previously approved modifications are incorporated unless it is determined that the relationship between this change and any other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that aircraft. Additionally, if more than 5 vortex generators are damaged or missing, the aircraft is not to be considered airworthy. A copy of this certificate must be maintained as part of the permanent records for the modified aircraft.

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 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 1, 1998

Date of issuance: February 17, 1999

Date reissued:

Date amended: October 15, 1999, June 12, 2009

By direction of the Administrator

(Signature)

for Manager, Seattle Aircraft Certification Office

(Title)

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 in accordance with FAR 21.47.

FAA FORM 8110-2(10-68)

MICRO
AERODYNAMICS INC.
"Vortex Generator Technology"

Authorization for the use of Supplemental Type Certificate

Micro AeroDynamics, Inc is the owner of the following STC and hereby authorizes the use of this STC on the following aircraft:

STC Number:	SA00668SE
Make:	Aviat
Model:	A-1C-180
Registration Number:	N143EE
Serial Number:	3218

Signed: K Fritscher

Date of Authorization: May 18, 2023

Authorization Reference: 41270

Micro AeroDynamics, Inc.

Micro AeroDynamics, Inc. 4000 Airport Rd. Suite D Anacortes, WA 98221
360-293-8082 800-677-2370 360-293-5499 Fax

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION-FEDERAL AVIATION ADMINISTRATION

STANDARD AIRWORTHINESS CERTIFICATE

1 NATIONALITY AND REGISTRATION MARKS	2 MANUFACTURER AND MODEL	3 AIRCRAFT SERIAL NUMBER	4 CATEGORY
N143EE	AVIAT AIRCRAFT INC A-1C-180	3218	Normal

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:

NONE

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	FAA REPRESENTATIVE	DESIGNATION NUMBER
R- 22/Aug/2014	Digitally signed by CHARLES J KELLER Date: 2023.06.27 09:11:26 -05'00'	GL-15

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

UNITED STATES OF AMERICA

DEPARTMENT OF TRANSPORTATION-FEDERAL AVIATION ADMINISTRATION

STANDARD AIRWORTHINESS CERTIFICATE

1 NATIONALITY AND REGISTRATION MARKS	2 MANUFACTURER AND MODEL	3 AIRCRAFT SERIAL NUMBER	4 CATEGORY
N143EE	AVIAT AIRCRAFT INC A-1C-180	3218	NORMAL

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, 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:

NONE

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 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	FAA REPRESENTATIVE	DESIGNATION NUMBER
22AUG2014	DONALD A. BACON	SEA-FSDO

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.

FAA Form 8100-2 (04-11) Supersedes Previous Edition

UNITED STATES OF AMERICA

DEPARTMENT OF TRANSPORTATION-FEDERAL AVIATION ADMINISTRATION

STANDARD AIRWORTHINESS CERTIFICATE

1 NATIONALITY AND REGISTRATION MARKS	2 MANUFACTURER AND MODEL	3 AIRCRAFT SERIAL NUMBER	4 CATEGORY
N151BF	Aviat Aircraft Inc. A-1C-180	3218	Normal

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, the aircraft to which issued has been inspected and found to conform to the type certificate thereto and 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:

None

Supercub 180

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 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	FAA REPRESENTATIVE	DESIGNATION NUMBER
08/22/2014	Albert G Humbert	810770852

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.

FAA Form 8100-2 (04-11) Supersedes Previous Edition

US Department of Transportation
Federal Aviation Administration

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

Form Approved OMB № 2120-0020 2/28/2011

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 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 USA N151BF	Serial № 3218	
	Make Aviat Aircraft Inc	Model A-1C-180	Series N/A
2. Owner	Name (As shown on registration certificate) Freeman William H	Address (As shown on registration certificate) 3810 Bedford Ave Ste 300 Nashville, TN 37215-2515	

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial №
☐	☒	**Airframe**	----------	*(As described in item 1 above)*	----------
☐	☐	**Powerplant**			
☐	☐	**Propeller**			
☐	☐	**Appliance**	Type Manufacturer		

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency			
Corporate Flight Management, Inc. 276 Doug Warpoole Road Smyrna, TN 37167 U.S.A	☐	US Certificated Mechanic	☐	Manufacturer
	☐	Foreign Certificated Mechanic	C. Certificate №	
	☒	Certificated Repair Station	FJTR920D	
	☐	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 ☐	Signature/Date of Authorized Individual	
	Ray F.	OCT 07 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 Flt. Standards Inspector	☐	Manufacturer	☐	Maintenance Organization	☐ Person Approved by Canadian Depart of Transportation
	☐	FAA Designee	☒	Repair Station	☐	Inspection Authorization	Other *(Specify)*

Certificate or Designation №	Signature/Date of Authorized Individual	
FJTR920D	Ray F.	OCT 07 2015

FAA Form 337 (10-06)

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.

Aviat Aircraft Inc/ A-1C-180/3218/N151BF

8. Description of Work Accomplished

U.S.A N151BF	10-7-15
Nationality and Registration Mark	Date

This modification consists of installing a Garmin GDL 88 ADS-B Transceiver into the aircraft. The GDL 88 system provides ADS-B out compliance and is interfaced to the Garmin GTN 750 system to provide ADS-B in data to the GTN 750 unit. The unit is mounted in the tail of the aircraft using the Garmin supplied mounting rack P/N 011-02621-00. The Garmin GDL 88 is circuit breaker protected with as 3 amp circuit breaker labeled (ADS-B).

INSTALLED UNIT	ARM
Garmin, 011-02369-00, GDL 88 ADS-B System	144.00
Comant, CI-110-41-30, Antenna	70.00

The Garmin GDL88 ADS-B System was installed in compliance with Garmin GDL88 Part 23 AML STC Installation Manual P/N 190-01310-00 REV 5 Dated December, 2014 and in accordance with SA02119SE dated December 28, 2012. The aircraft is listed on the Approved Model List. The GDL 88 is FAA TSO Compliant to TSO-C145c, TSO-C154c, TSO-C157a, TSO-166b, and TSO-C195a.

All work was accomplished as per AC 43-13-1B 7-14, 7-63, 7-85, 10-16, 11-47, 11-66.a-c, 11-85, 11-96a, 11-96ff, 11-107, 11-115, 11-158, 11-167, 11-186.a-b, 11-187.a, 11-230, 11-260, 12-1, 12-9a, 12-19, and 12-28 as approved data following the guidelines outlined in this chapter. The Weight and Balance / Equipment List data was updated and a log book entry was made.

FAA Approved Aircraft Flight Manual Supplement for "Garmin GDL 88 ADS-B Transceiver" P/N 190-01310-02 Rev 2 date January 7, 2015 was inserted into the AFM and must be maintained with the aircraft at all times.

Instructions for Continued Airworthiness, (Garmin document P/N 190-01310-01 Rev 2 dated January 7, 2015) and Pilot Operation Guide Garmin P/N 19001122-03 Rev E were given to the operator.

✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈ END ✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈✈

☐ **Additional Sheets are Attached**

FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT
or
SUPPLEMENTAL AIRPLANE FLIGHT MANUAL
for the
Garmin GDL 84/88 ADS-B Transceiver
as installed in

Aviat Aircraft A-1C-180
Make and Model Airplane

Registration Number: N151BF Serial Number: 3218

This document serves as an Airplane Flight Manual Supplement or as a Supplemental Airplane Flight Manual when the aircraft is equipped in accordance with Supplemental Type Certificate SA02119SE for the installation and operation of the Garmin GDL 84/88 ADS-B Transceiver. This document must be incorporated into the FAA Approved Airplane Flight Manual or provided as an FAA Approved Supplemental Airplane Flight Manual.

The information contained herein supplements the information in the FAA Approved Airplane Flight Manual. For limitations, procedures, loading and performance information not contained in this document, refer to the FAA Approved Airplane Flight Manual, markings, or placards.

FAA APPROVED 7-JAN-2015

Michael Warren
ODA STC Unit Administrator
GARMIN International, Inc
ODA-240087-CE

LOG OF REVISIONS		
Revision Number	Date	Description
1	12/18/2012	Complete Supplement
2	1/7/2015	Updated document to include "GDL 84" where applicable.

Table of Contents

Section 1. GENERAL

1.1 Garmin GDL 84/88 UAT Transceiver

The Garmin GDL 84/88 UAT Transceiver is an ADS-B system comprised of a Garmin TSO-C154c GDL 84/88, one or two UAT/1090 antenna(s), optional Garmin approved GPS/SBAS antenna, optional Garmin GPS/SBAS position source, and other interfaces as shown in the following block diagram.

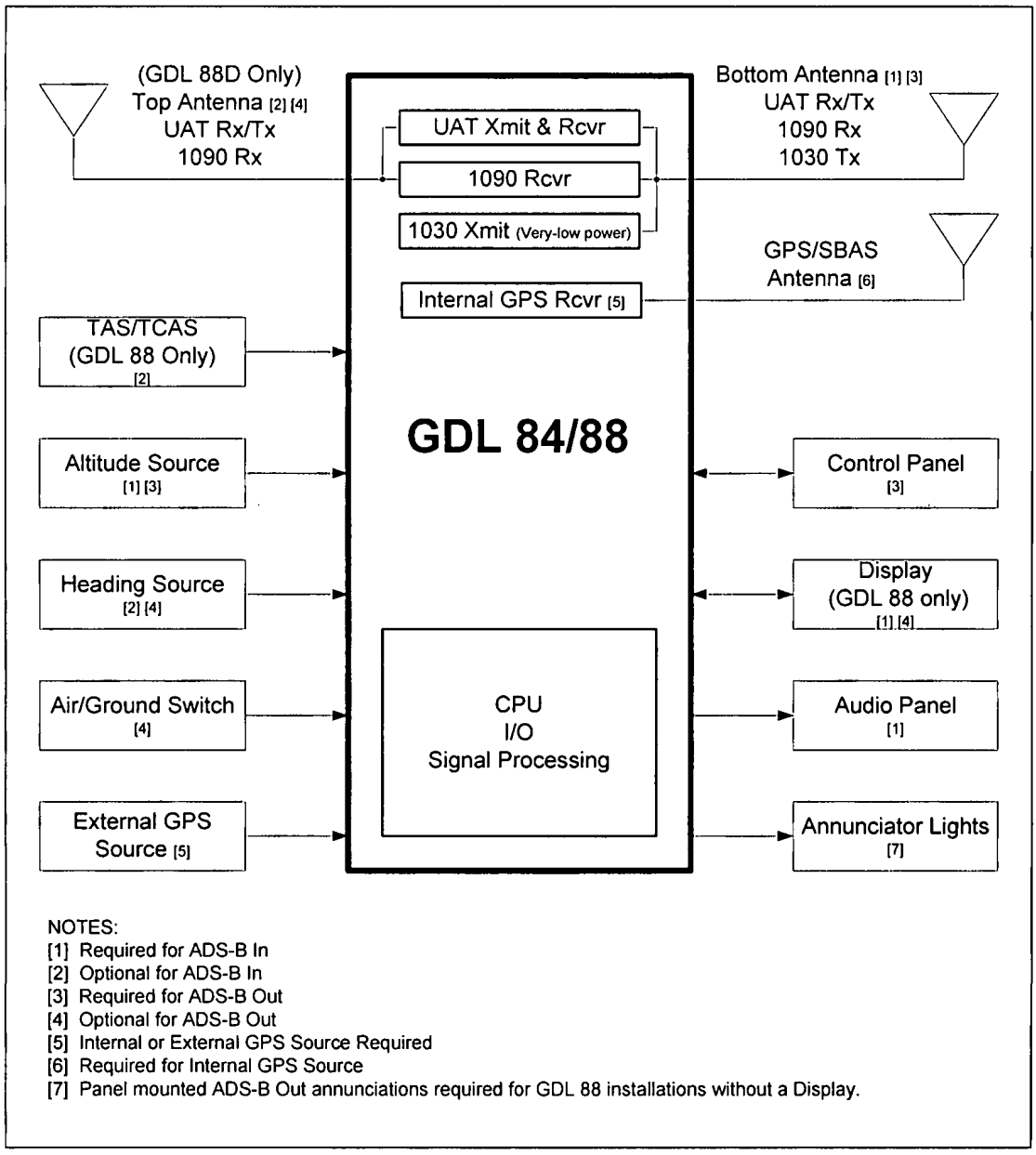

Figure 1 – GDL 84/88 Block Diagram

The GDL 84/88 system performs following functions:

- Transmission of ADS-B out data on UAT (978 MHz)
  - Integration of data from internal and external sources to transmit the following data per 14 CFR 91.227
    - GPS Position, Altitude, and Position Integrity
    - Ground Track and/or Heading, Ground Speed, and Velocity Integrity
    - Air Ground Status
    - Flight ID, Call Sign, ICAO Registration Number
    - Capability and Status Information
  - Transponder squawk code, IDENT, and emergency status
  - Anonymous Mode
  - Pressure Altitude Broadcast Inhibit
- Reception of ADS-B In data on UAT (978 MHz)
  - ADS-B (Data directly from another transmitting aircraft)
  - ADS-R (Rebroadcast of ADS-B data from a ground station)
  - TIS-B (Broadcast of secondary surveillance radar (SSR)-derived traffic information from a ground station)
  - FIS-B (Broadcast of aviation data from a ground station)
- Reception of ADS-B In data on 1090 MHz
  - ADS-B (Data directly from another transmitting aircraft)
  - ADS-R (Rebroadcast of ADS-B data from a ground station)
- Provide traffic alerting to the pilot via an optional annunciator lamp and audio output.
  - Correlation and consolidation of traffic data from multiple traffic sources
    - Aural and visual traffic alerting

The GDL 88 system performs the following additional functions:

- Provide traffic information and alerting to the pilot via an optional display
  - Correlation and consolidation of traffic data from multiple traffic sources
    - Output of traffic data to an external display
    - Aural and visual traffic alerting
- Provide FIS-B data to the pilot via an optional display
  - Processing and output of FIS-B data to an external display
    - Graphical and textual weather products
      - NEXRAD
      - PIREPs
      - AIRMET/SIGMETs
      - METARs

- TAFs
- Winds Aloft

- Aviation Data
  - TFRs
  - NOTAMs

The GDL 84/88 may be installed as a stand-alone ADS-B system. The GDL 88 may be, optionally, integrated with a compatible display for the display and control of traffic, FIS-B weather, and aviation data.

1.2 Capabilities

As installed in this aircraft, the Garmin GDL 84/88 system complies with the requirements of AC 20-165 and meets the equipment performance and functional requirements to comply with 14 CFR 91.227.

The GDL 84/88 meets the requirements of TSO-C154c for ADS-B Out operation.

> ***Applicable to installations consisting of a GDL 88 interfaced with one or more GTNs with software version 3.00 or later:***
>
> The GDL 88 meets the requirements of TSO-C195a Class C1, C2, C3, C5, TIS-B Services TSO-C166b Class A1, and FIS-B TSO-C157a for ADS-B In Operation and AC 20-172A for Airworthiness Approval for ADS-B In Systems and Applications

1.3 Installation Configuration

This aircraft is equipped with a GDL 84/88 system with the following interfaces/ features:

Equipment Installed:

☐ GDL 84

☒ GDL 88

Interfaced Active Traffic System (GDL 88 Only):

- ☐ None
- ☐ TCAD
- ☒ TAS/TCAS I

Interfaced Transponder(s):

- ☒ Single Transponder serially interfaced to the GDL 88
- ☐ Dual Transponders serially interfaced to the GDL 88
- ☐ Single Transponder interfaced to the GDL 88 via self-interrogation

Interfaced Radio Altimeter(s):

- ☐ Yes
- ☒ No

Interfaced GPS/SBAS Position Source(s):

GPS #1:

- ☐ GNS 4XXW/5XXW
- ☒ GTN 6XX/7XX
- ☐ None

GPS #2:

- ☐ GNS 4XXW/5XXW
- ☐ GTN 6XX/7XX
- ☒ None

Definitions

The following terminology is used within this document:

ADS-B:	Automatic Dependent Surveillance-Broadcast
ADS-R:	Automatic Dependent Surveillance-Rebroadcast
CSA:	Conflict Situational Awareness
FIS-B:	Flight Information Service-Broadcast
GDL:	Garmin Datalink
GPS:	Global Positioning System
GTN:	Garmin Touchscreen Navigator
LRU:	Line Replaceable Unit
PABI:	Pressure Altitude Broadcast Inhibit
SBAS:	Satellite-Based Augmentation System
TAS:	Traffic Awareness System
TCAD:	Traffic Collision Avoidance Device
TCAS:	Traffic Collision Avoidance System
TIS-B:	Traffic Information Service-Broadcast
UAT:	Universal Access Transceiver
VFR:	Visual Flight Rules

Section 2. LIMITATIONS

2.1 Minimum Equipment

The GDL 84 must have the following system interfaces fully functional in order to be compliant with the requirements for 14 CFR 91.227 ADS-B Out operations:

Interfaced Equipment	Number Installed	Number Required
External ADS-B Annunciators	2 lamps	2 lamps (NO POSN and FAULT)
Transponder	1 or more	1

Table 1 – Required Equipment

The GDL 88 must have the following system interfaces fully functional in order to be compliant with the requirements for 14 CFR 91.227 ADS-B Out operations:

	Interfaced Equipment	Number Installed	Number Required
O R	External ADS-B Annunciators	2 lamps	2 lamps (NO POSN and FAULT)
	Interfaced Display	1	1
	GPS SBAS Position Source (Interfaced or internal)	1 or more	1
	Transponder	1 or more	1

Table 2 – Required Equipment

2.2 ADS-B Out

The GDL 84/88 only complies with 14 CFR 91.227 for ADS-B Out when all required functions are operational as indicated by external annunciators not illuminated or interfaced display ADS-B messages not being present.

2.3 Anonymous Mode

Anonymous Mode must only be operated while operating under VFR while squawking a VFR code. If requested by Air Traffic Control, Anonymous Mode must be turned off.

2.4 Applicable System Software

This AFMS/SAFM is applicable to the software versions shown in Table 3.

The Main software version is displayed on the External LRU page available on some interfaced display devices.

Software Item	**Software Version** *(or later FAA Approved versions for this STC)*
Main SW Version	3.20

Table 3 - Software Versions

2.5 Pressure Altitude Broadcast Inhibit (PABI)

While operating within airspace requiring an ADS-B Out compliant transmitter, per 14 CFR 91.227, Pressure Altitude Broadcast Inhibit shall only be enabled when requested by Air Traffic Control.

2.6 Traffic Alerting

Traffic alerting is an aid to visual acquisition and may not be used as the sole basis for aircraft maneuvering.

Section 3. EMERGENCY PROCEDURES

3.1 Emergency Procedures

None.

3.2 Abnormal Procedures

3.2.1 Abnormal Indications

The loss of an interfaced input to the GDL 84/88 may cause the GDL 84/88 to stop transmitting ADS-B Out data or providing ADS-B In function.

Depending on the nature of the fault or failure, the GDL 84/88 may no longer be transmitting all of the required data in the ADS-B Out messages and Traffic Alerts may not be provided by the system.

- For GDL 84 and No Display GDL 88 installations:

  If the GDL 84/88 detects any internal faults or failures, the GDL 84/88 will annunciate this event via the two external annunciators on the ADS-B annunciator panel. Using these two lights, three messages/states are capable of being conveyed to the flight crew: NO POSN, FAULT, and TX FAIL.

  When the GDL 84/88 annunciates NO POSN, the GDL 88 has detected that it does not have a valid position from the internal or any of the external GPS/SBAS sources. (See Section 3.2.3 for further information.)

  When the GDL 84/88 annunciates FAULT to the flight crew, the GDL 84/88 has detected a loss of an input or internal fault resulting in the GDL 84/88 not transmitting full ADS-B information or degradation in performance.

  When both annunciator lights on the ADS-B annunciator panel are illuminated, the GDL 84/88 is annunciating TX FAIL. When the GDL 84/88 annunciates TX FAIL to the flight crew, the GDL 84/88 has detected a loss of required input or an internal failure resulting in the GDL 84/88 being unable to either transmit or receive ADS-B data.

  When a GDL 84/88 NO POSN, FAULT, or TX FAIL annunciation is received, verify proper operation of all interfaced equipment (refer to Section 1.3) as the failure of one of these devices could be the cause of the abnormal indication.

When the GDL 84/88 is interfaced to a transponder via self-interrogation, the FAULT annunciator will illuminate if the GDL 84/88 has not received communication from the transponder when the aircraft transitions from on the ground to airborne.

- For GDL 88 Installations with an interfaced display:

  Reference Display Device documentation for applicable annunciations.

3.2.2 LOSS OF AIRCRAFT ELECTRICAL POWER GENERATION

Loss of electrical power generation.....**REMOVE POWER FROM GDL 84/88**

If the GDL 84/88 is load shed due to a loss of electrical power generation, ADS-B Out, ADS-B In, and the display of interfaced traffic system data will no longer be available.

NOTE

This guidance is supplementary to any guidance provided in the POH or AFM for the installed aircraft for loss of power generation.

3.2.3 LOSS OF GPS/SBAS NAVIGATION DATA

When the GPS/SBAS receiver is inoperative or GPS position information is not available or invalid, the GDL 84/88 will no longer be transmitting ADS-B Out data and ADS-B traffic alerting functions will be unavailable.

- For GDL 84 and No Display GDL 88 installations:

  NO POSN annunciator illuminated:

  Interfaced GPS position sources.....**VERIFY VALID POSITION**

- For GDL 88 Installations with an interfaced display:

  Reference Display Device documentation for applicable annunciation:

  Interfaced GPS position sources.....**VERIFY VALID POSITION**

3.2.4 VISUAL/AURAL TRAFFIC ALERT

Traffic Alert Annunciation and Aural

Traffic.....**VISUALLY ACQUIRE**

Section 4. NORMAL PROCEDURES

The procedures described below are specific only to the GDL 88. Cockpit Reference Guides and Pilot Guides for interfaced displays will provide additional operating information specific to the displays or other traffic systems.

4.1 Unit Power On

GDL 84/88 Annunciations ..... **CONSIDERED**

NOTE

The GDL 84/88 Annunciators (or associated display annunciations) may illuminate as the unit powers on and begins to receive input from external systems, to include the SBAS position source.

The GDL 84/88 only complies with 14 CFR 91.227 for ADS-B Out when all required functions are operational as indicated by external annunciators not illuminated.

4.2 Before Takeoff

GDL 84/88 Annunciations ..... **CONSIDERED**

Section 5. PERFORMANCE

No change.

Section 6. WEIGHT AND BALANCE

See current weight and balance data.

Section 7. SYSTEM DESCRIPTIONS

7.1 Pilot's Guide

The Garmin GDL 84/88 Pilot's Guide, part number and revision listed below, contain additional information regarding GDL 84/88 system description, control, and function. Cockpit Reference Guides and Pilot Guides for interfaced displays provide additional operating information.

- GDL 84/88 ADS-B Transceiver Pilot's Guide
  P/N 190-01122-03 Rev E or later

7.2 Traffic Sources and Alerting

The GDL 84/88 is capable of receiving ADS-B, ADS-R, and TIS-B traffic reports in order to track traffic around the aircraft and provide alerts to the flight crew to aid in visual acquisition and avoidance.

Traffic alerting is provided via an installed visual annunciator and audio callouts for these alerts. The audio callout will include any available information regarding the intruder, to include direction, range, and relative altitude (high, low, same altitude).

Due to the nature of TIS-B, its service volumes, and incomplete equipage/adoption of ADS-B Out equipment, not all traffic will be tracked by the GDL 84/88. This is much like an active traffic system and does not track non-transponder equipped aircraft. The flight crew must use "see and avoid" procedures to visually acquire and avoid other aircraft.

7.3 Interfaced Active Traffic System (Optional, GDL 88 Only)

When an active traffic system is interfaced with a GDL 88, the GDL 88 receives traffic from the active traffic system and attempts to correlate – or match – this traffic with ADS-B traffic the GDL 88 has received and is already tracking. When a correlation is made, the active traffic system or ADS-B target with the most accurate information is displayed to the flight crew. Any active traffic system or ADS-B traffic that is not correlated will also be displayed for the flight crew. The correlation of traffic by the GDL 88 ensures that only the most accurate, and no duplicate, traffic targets are displayed for the flight crew's situational awareness.

In addition, the GDL 88 will use its air-ground logic or inputs to automatically switch the active traffic from Standby to Operate when transitioning from ground to air, and from Operate to Standby when transitioning from air to ground.

If the GDL 88 fails then external traffic device data is no longer sent to the display, however aural traffic alerts from these traffic systems may continue to be received.

When interfaced to an active traffic system, traffic alerts are provided as follows:

TCAS Target Correlated With ADS-B Target	TAS/TCAS Alert Active?	CSA Alert Active?	Aural Alert Source	Visual Alert Source
Yes	Yes	N/A	TCAS/TAS	TCAS/TAS
Yes	No	N/A	None	None
No	Yes	Yes	TCAS/TAS (prioritized) GDL 88	TCAS/TAS GDL 88
No	No	Yes	GDL 88	GDL 88

Table 3 – GDL 88 Traffic Alerting with Interfaced Active Traffic System

The optional interfaced display's Pilot's Guides and supplements provide additional information regarding the functionality and control of the traffic device.

7.4 Power

Power to the GDL 84/88 is provided through a circuit breaker labeled "ADS-B."

7.5 External Switches

External switches may be installed in conjunction with the GDL 84/88. Table 4 lists the switches and function they perform:

Switch Label	Function
ALTITUDE REPORTING	Enables and disables Pressure Altitude Broadcast Inhibit functionality.
ANONYMOUS	Enables and disables Anonymous Mode functionality.
TRAFFIC MUTE	Acknowledges and mutes a currently playing aural Traffic Alert.
BRT/DIM	Enables GDL 88 annunciators to be dimmed appropriately for lighting conditions.

Table 4 – External Switches

Instructions for Continued Airworthiness
GDL 84/88 Part 23 AML STC

as installed in

Aviat Aircraft A-1C-180

(Make and Model Airplane)

Reg. No. N61BF **S/N** 3218

Dwg. Number:
190-01310-01 Rev. 2

Garmin International, Inc.
1200 E. 151st Street
Olathe, Kansas 66062 USA

Record of Revision

Rev.	Date	Description of Change
1	11/21/2012	Initial Release
2	1/7/2015	Updated to add GDL 84

Company Proprietary Information

GARMIN.

Garmin International, Inc.
1200 E. 151st Street
Olathe, Kansas 66062 U.S.A.

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1. INTRODUCTION

1.1 Purpose

This document is designed for use by the installing agency of the Garmin GDL 84/88 as Instructions for Continued Airworthiness in response to 14 CFR §23.1529, and Part 23 Appendix G. This ICA includes information required by the operator to adequately maintain the Garmin GDL 84/88 installed under Approved Model List (AML) STC.

1.2 Scope

This document provides the Instructions for Continued Airworthiness for aircraft modified by the installation of the Garmin GDL 84/88 under AML STC.

1.3 Document Control

This document shall be released, archived, and controlled in accordance with the Garmin document control system. When this document is revised, refer to Section 2.15 for information on how to gain FAA acceptance or approval and how to notify customers of changes.

1.4 Permission to Use Certain Documents

Permission is granted to any corporation or person applying for approval of a Garmin GDL 84/88 to use and reference appropriate STC documents to accomplish the Instructions for Continued Airworthiness and show compliance with STC engineering data. It is the responsibility of the applicant to determine the suitability of the documents for the ICA.

1.5 Definitions

The following terminology is used within this document:

1) **ADS-B:** Automatic Dependent Surveillance-Broadcast
2) **AML:** Approved Model List
3) **BIT:** Built-In Test
4) **CDTI:** Cockpit Display of Traffic Information
5) **CFR:** Code of Federal Regulations
6) **CPU:** Central Processing Unit
7) **FAA:** Federal Aviation Administration
8) **GDL:** Garmin Datalink Transceiver
9) **GPS:** Global Positioning System
10) **ICA:** Instructions for Continued Airworthiness
11) **IM:** Installation Manual
12) **I/O:** Input/Output
13) **LRU:** Line Replaceable Unit
14) **MHz:** Mega Hertz
15) **PMI:** Principal Maintenance Inspector
16) **RX:** Receive
17) **SBAS:** Satellite-Based Augmentation System
18) **STC:** Supplemental Type Certificate
19) **TAS:** Traffic Awareness System
20) **TCAS:** Traffic Collision Avoidance System
21) **TSO:** Technical Standard Order
22) **TX:** Transmit
23) **UAT:** Universal Access Transceiver

1.6 Terminology

The GDL 84 is a remote-mounted unit available in one variant that does not support diversity (TSO-C154c Class A1S) and contains an internal GPS/SBAS receiver.

The GDL 88 is a remote-mounted unit available in four variants. The variants support diversity (TSO-C154c Class A1H) or do not support diversity (TSO-C154c Class A1S) and contain internal GPS/SBAS receiver or utilizes external GPS/SBAS source.

Except where specifically noted, references made to the 'GDL 84/88' applies equally to all units: GDL 84, GDL 88, GDL 88D, GDL 88 with GPS/SBAS, and GDL 88D with GPS/SBAS.

2. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

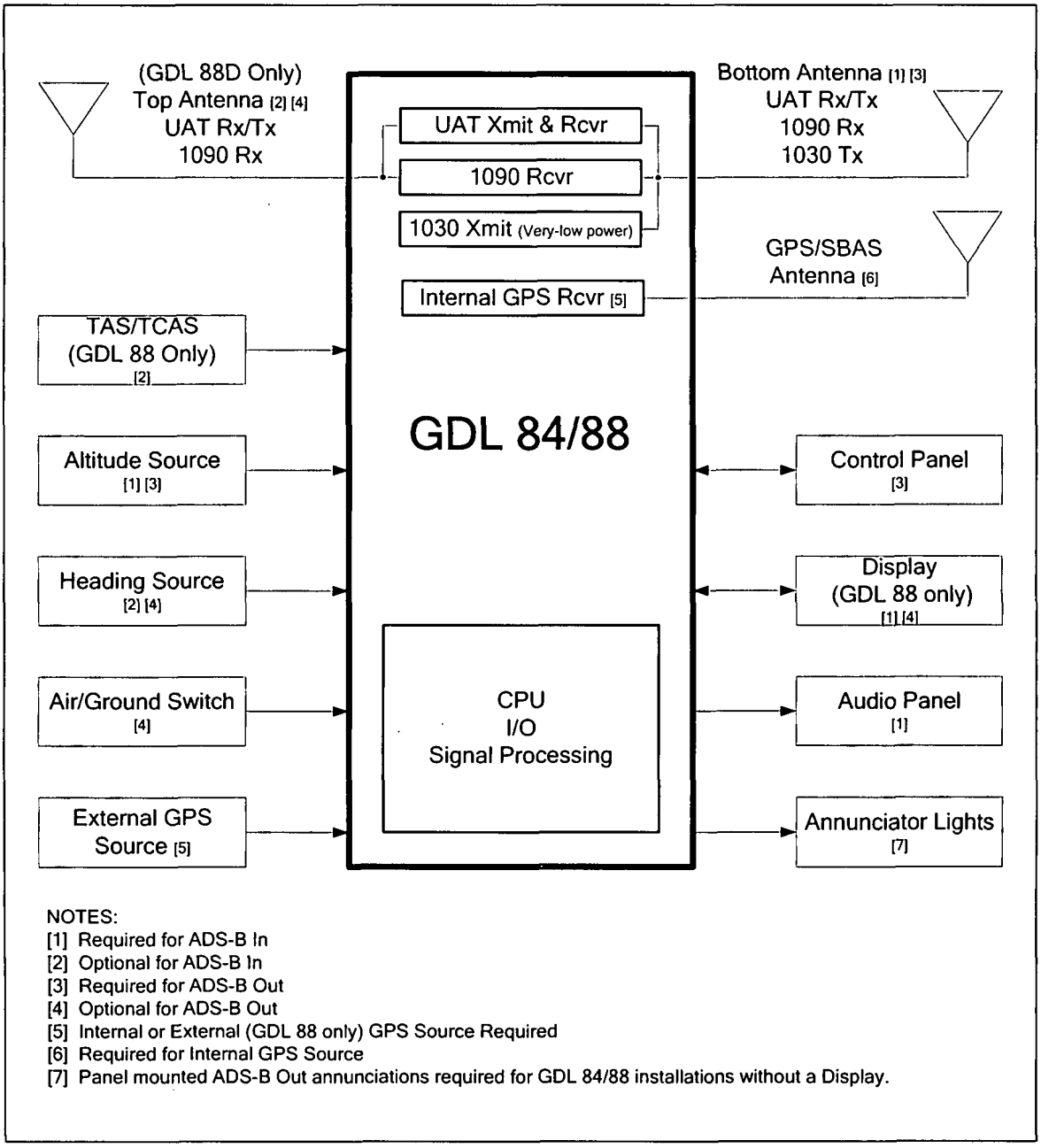
2.1 Introduction

Content, Scope, Purpose and Arrangement:	This document identifies the Instructions for Continued Airworthiness for the modification of the aircraft by installation of the Garmin GDL 84/88.
Applicability:	Applies to aircraft altered by installation of the Garmin GDL 84/88.
Definition of Abbreviations:	See Section 1.5 and Section 1.6.
Precautions:	None
Units of measurement:	None
Referenced publications:	Garmin 190-01310-00 Rev. 5, "Installation Manual, GDL 84/88 Part 23 AML STC" or later revisions; Garmin 190-01122-03 Rev. E, "GDL 84/88 ADS-B Transceiver Pilot's Guide" or later revisions.
Retention:	This document, or the information contained within, will be included in the aircraft's permanent records.

The GDL 84/88 AML STC Installation Manual (190-01310-00) is referenced extensively throughout this document. To improve readability, references to the installation manual are abbreviated as GDL-IM.

2.2 Description of Alteration

The GDL 84/88 is a remote-mounted UAT Datalink Transceiver that provide ADS-B functionality as part of an ADS-B Out configuration, ADS-B In configuration, or ADS-B Out and In configuration. ADS-B Out transmissions are via 978 MHz UAT and ADS-B In reception is via 978 MHz UAT and 1090 MHz extended squitter. In addition, the GDL 88 correlates traffic from multiple sources and provides traffic to a cockpit display (CDTI). Installation configuration is dependent on desired functionality and access to required sensors and equipment and also antenna inputs. The GDL 84/88 System Block Diagram in Figure 1 shows the various interfaces for the GDL 84/88.



NOTES:
[1] Required for ADS-B In
[2] Optional for ADS-B In
[3] Required for ADS-B Out
[4] Optional for ADS-B Out
[5] Internal or External (GDL 88 only) GPS Source Required
[6] Required for Internal GPS Source
[7] Panel mounted ADS-B Out annunciations required for GDL 84/88 installations without a Display.

Figure 1. GDL 84/88 System Block Diagram

2.3 Control, Operating, and Testing Information

See the *GDL 84/88 Pilot's Guide* for system operating information. See Section 2.1 for document part numbers. See *GDL-IM* for a system description and system limitations.

See *GDL-IM*, Section 5 for system configuration and checkout information. See *GDL-IM*, Section 5.7 for general ground checks and system test procedures.

2.4 Servicing Information

The GDL 84/88 does not require servicing.

2.5 Periodic Maintenance

All maintenance associated with the GDL 84/88 AML STC installation is on condition. The GDL 84/88 is designed to detect internal failures. A thorough self-test is executed automatically upon application of power to the unit, and built-in tests (BIT) are continuously executed. Detected errors are indicated as failure annunciations, system messages, or a combination of the two.

Operation of the GDL 84/88 is not permitted unless the inspections described in this section have been completed within time intervals prescribed in Table 1. All antennas connected to the GDL 84/88 should be maintained in accordance with appropriate inspection data for the antenna installation.

Table 1. Maintenance Intervals

Item	Description/Procedure	Interval
Equipment Removal & Replacement	Removal and replacement instructions for the GDL 84/88 are contained in Section 2.7 of this document and in *GDL-IM* Section 4.1.5.	**On Condition**
Equipment Visual Check (Metallic Aircraft)	Conduct a visual check of the GDL 84/88 unit and associated wire harness to ensure continued installation integrity. 1. Inspect the GDL 84/88 unit for security of attachment, including visual inspection of mounting rack and other supporting structure attaching the rack to aircraft structure. For installations using countersunk fasteners, verify the fastener heads are in full contact with unit mounting rack holes. Re-torque mounting fasteners to 12-15 in-lbs if required. 2. Inspect for signs of corrosion. 3. Inspect condition of wiring, shield terminations, routing, and attachment/clamping. 4. Inspect any bonding straps for corrosion, loose connections, or signs of lightning damage. Rework as needed.	**12 Calendar Months**

Item	Description/Procedure	Interval
Equipment Visual Check (Non-metallic Aircraft)	Conduct a visual check of the GDL 84/88 unit and associated wire harness to ensure continued installation integrity. 1. Inspect the GDL 84/88 unit for security of attachment, including visual inspection of mounting rack and other supporting structure attaching the rack to aircraft structure. For installations using countersunk fasteners, verify the fastener heads are in full contact with unit mounting rack holes. Re-torque mounting fasteners to 12-15 in-lbs if required. 2. Inspect for signs of corrosion. 3. Inspect condition of wiring, shield terminations, routing, and attachment/clamping. 4. For composite aircraft, inspect any aluminum foil tape used to ground the GDL 84/88 and verify that it is not torn, damaged or showing signs of corrosion. If any of these occurs then the tape must be replaced. 5. Inspect any bonding straps for corrosion, loose connections, or signs of lightning damage. Rework or replace as needed. Bonding straps must be replaced after a known or suspected lightning strike.	**12 Calendar Months**
Electrical Bonding Check	Perform an electrical bonding check: 1. Perform electrical bond check between the GDL 84/88 and nearby exposed portion of the aircraft metallic structure (or instrument panel for composite aircraft), and verify that it is less than or equal to 10 milliohms. 2. Remove GDL 84/88 unit from mounting rack. 3. Measure the resistance between the mounting rack and nearby exposed portion of aircraft metallic structure (or instrument panel for composite aircraft), and verify it is less than or equal to 10 milliohms. 4. Reinstall the GDL 84/88 unit in the mounting rack. In the event of bonding test failure, remove the GDL 84/88 rack and clean the attachment points at both the GDL 84/88 rack and the aircraft structure per Section 3.8 of the *GDL-IM* and reattach the rack. Re-verify the resistance between the mounting rack and nearby exposed portion of aircraft metallic structure (or instrument panel for composite aircraft), and ensure it is less than or equal to 2.5 milliohms (for metallic aircraft) or 5.0 milliohms (for composite aircraft).	**Every 2000 flight hours or ten (10) years, whichever is first**

2.6 Troubleshooting Information

If error indications are displayed on the GDL 84/88 annunciator, refer to the *GDL-IM*, Section 6, Troubleshooting. Refer to the GDL 84/88 System Configuration and Checkout Log retained in the aircraft permanent records for a list of the interfaced equipment and system configuration data (example log provided in *GDL-IM*).

2.7 Removal and Replacement Information

For GDL 84/88 removal and replacement instructions, refer to *GDL-IM* Section 4.1.5.

If the GDL 84/88 is removed and reinstalled, verify that the power-up self-test sequence is successfully completed and no failure messages are annunciated. If any work has been done on the aircraft that could affect the system wiring, or any interconnected equipment, verify the GDL 84/88 system unit power-up self-test sequence is successfully completed and no failure messages are annunciated. Also, if any work has been done on the GDL 84/88 mounting rack, verify the integrity of electrical bonding is maintained in accordance with Section 2.5 of this document.

Refer to Appendix A of this document or the GDL 84/88 System Configuration and Checkout Log retained in the aircraft permanent records for GDL 84/88 equipment locations.

Refer to the *GDL-IM* for removal/installation procedures and special handling precautions.

2.8 Diagrams

The installing agency should document aircraft specific locations for all LRUs and antennas installed by this STC. The installing agency should also provide wire routing diagram sketches for all GDL 84/88 system wiring and cables installed by this STC.

GDL-IM Section 4 provides diagrams showing sample installation for LRU locations. Appendix G provides point-to-point wiring diagrams for the GDL 84/88 and interfaced equipment.

Refer to the GDL 84/88 System Configuration and Checkout Log retained in the aircraft permanent records for a list of the interfaced equipment and unit configuration data (example log provided in *GDL-IM*).

2.9 Special Inspection Requirements

After a suspected lightning strike, the following actions must be performed (if applicable):

- Verify proper operation of ADS-B equipment and Traffic annunciators (if installed) following procedures in accordance with *GDL-IM* Section 5.7.3.2 Discrete Outputs.
- Inspect any aluminum foil used for grounding (if installed) in accordance with *GDL-IM* Sections 3.8.1, 3.8.2, or 4.1.3.2.
- Inspect any GDL 84/88 bonding strap (if installed) in accordance with *GDL-IM* Sections 3.8, 4.1.3.2 or 4.1.3.3.3.

2.10 Application of Protective Treatments

The GDL 84/88 installation does not require the application of protective treatments.

2.11 Data Relative to Structural Fasteners

Refer to the *GDL-IM*, Appendix D, for structural fastener information.

2.12 Special Tools

A milliohm meter is required for electrical bonding checks.

2.13 Additional Instructions

Refer to the *GDL-IM*, Section 4.2.5, for electrical load information.

2.14 Overhaul Period

The system does not require overhaul at a specific time period. Power on self-test and continuous BIT will monitor the health of the GDL 84/88 system. If an internal failure is detected, the unit may be removed and replaced. Reference the *GDL-IM*, Section 6, for troubleshooting information.

2.15 ICA Revision and Distribution

To revise this ICA, Garmin will follow the Garmin *ODA Procedures Manual* SOP-0055/ACP-0016 for Instructions for Continued Airworthiness. The latest revision of this ICA document is available on the Garmin website (www.flyGarmin.com). A Garmin Service Bulletin describing ICA revision will be sent to Garmin dealers if a revision is determined to be significant.

2.16 Assistance

Flight Standards Inspectors or the certificate holder's PMI have the required resources to respond to questions regarding this ICA. In addition, the customer may contact Garmin with questions regarding this equipment and its installation. Garmin Customer Support may be contacted during normal business hours via telephone 913-397-8200 or from the Garmin web site at www.flyGarmin.com.

2.17 Implementation and Record Keeping

Modification of an aircraft by this Supplemental Type Certificate obligates the aircraft operator to include the maintenance information provided by this document in the operator's aircraft maintenance manual and/or the operator's aircraft scheduled maintenance program.

3. AIRWORTHINESS LIMITATIONS SECTION

There are no additional Airworthiness Limitations as defined in 14 CFR § 23, Appendix G, G23.4 that result from this modification.

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

Jan. 7, 2015

FAA APPROVED

Michael Warren — Date

ODA STC Unit Administrator

ODA-240087-CE

APPENDIX A EQUIPMENT LOCATIONS AND WIRE ROUTING

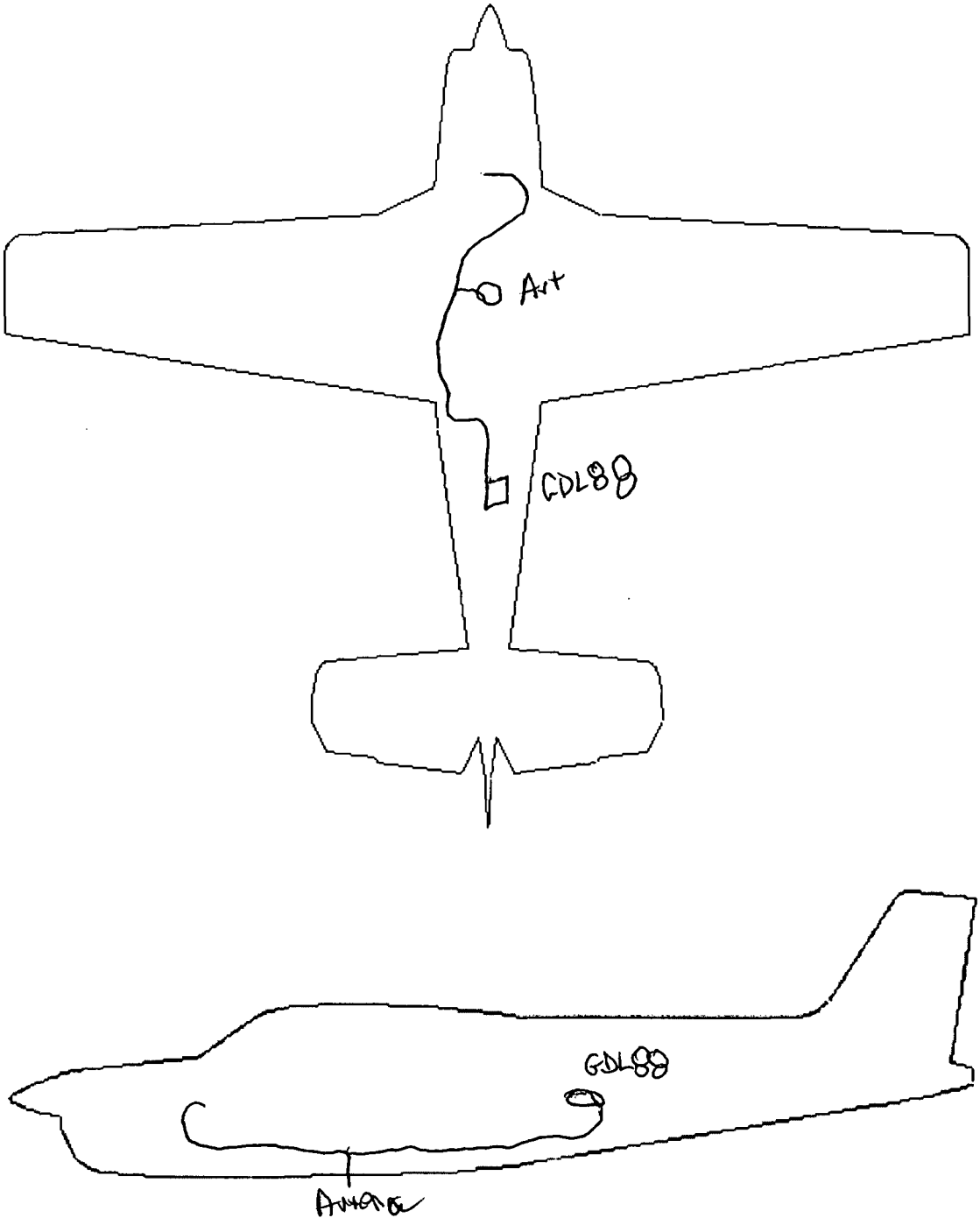
A.1 Equipment Locations

The table below describes the location of the GDL 84/88, antennas, and interfaced equipment. Document all interfaced equipment (model/part number) and installed locations in the following table. Also sketch equipment locations and wire routing on the diagrams in A.2 or A.3 as appropriate.

LRU	Installed Location (F.S.)	Description of Location
GDL 84/88	1441	Tail of Acft

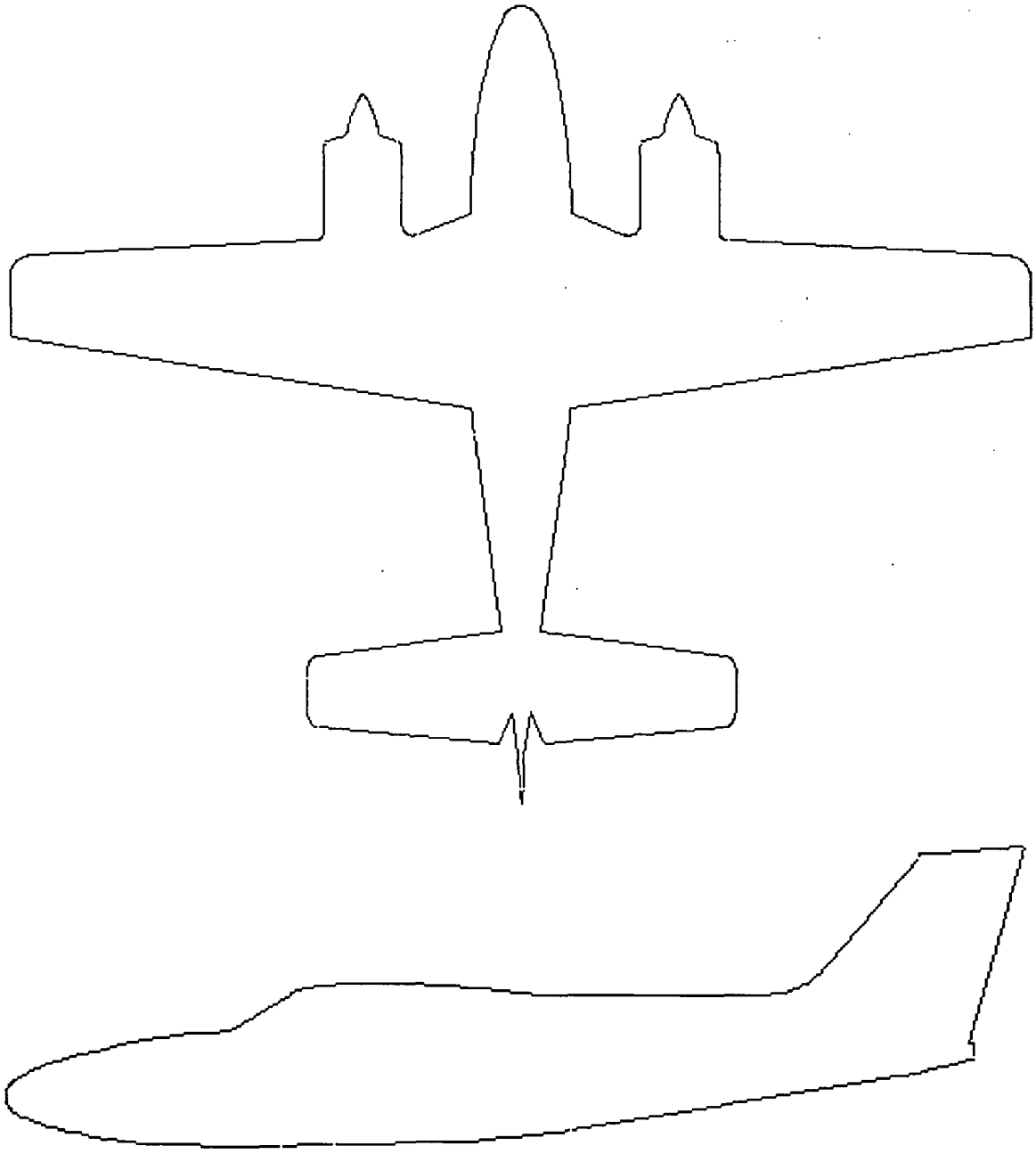
A.2 GDL 84/88 Installation – Single Engine

The following diagram depicts approximate location of all LRUs and antenna(s) along with the wire routing for the GDL 84/88 throughout the aircraft structure for a single-engine aircraft.



A.3 GDL 84/88 Installation – Twin Engine

The following diagram depicts approximate location of all LRUs and antenna(s) along with the wire routing for the GDL 84/88 throughout the aircraft structure for a twin-engine aircraft:



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: USA N151BF	Serial No.: 3218	
	Make: AVIAT Aircraft Inc.	Model: A-1C-180	Series:
2. Owner	Name *(As shown on registration certificate)*: William H. Freeman	Address *(As shown on registration certificate)*: Address: 3810 BEDFORD AVE STE 300	
		City: NASHVILLE	State: TN
		Zip: 37215-2515	Country: USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
☐	☒	AIRFRAME	—	*(As described in Item 1 above)*	—
☐	☐	POWERPLANT			
☐	☐	PROPELLER			
☐	☐	APPLIANCE	Type / Manufacturer		

6. Conformity Statement

A. Agency's Name and Address
Name: THEODORE G LATCHAW JR
Address: 210 PONDEROSA DR
City: DELAND State: FL
Zip: 3274 Country: USA

B. Kind of Agency
- ☒ U. S. Certificated Mechanic
- ☐ Foreign Certificated Mechanic
- ☐ Certificated Repair Station
- ☐ Certificated Maintenance Organization
- ☐ Manufacturer

C. Certificate No.: 3015635

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 ☐

Signature/Date of Authorized Individual: T G Latchaw JR 05-17-2015

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 Flt. Standards Inspector	☐	Manufacturer	☐	Maintenance Organization	☐	Persons Approved by Canadian Department of Transport
	☐	FAA Designee	☐	Repair Station	X	Inspection Authorization		Other *(Specify)*

Certificate or Designation No.: IA 3015635

Signature/Date of Authorized Individual: T G Latchaw JR. 05-17-2015

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.)

USA N151BF	09/17/2015
Nationality and Registration Mark	Date

REMOVED:
1 each MT MTV-9-B/200-52 prop & spinner
1 each Hartzell S-1-16 propeller governor
INSTALLED:
1 each MT MTV-9-B-C-R(M)/CR200-52 propeller
1 each MT P-208-7 spinner
1 each MT P-980-45D propeller governor

INCLUDING ASSOCIATED SWITCHES, CIRCUIT BREAKER, WIRING HARNESS, HARDWARE AND PLACARDS PER STC# SA02870CH, USING FR0912-3 REV.C, ATA 61-05-04 E-504 REV. 34, ATA 61-20-46 REV. 11, A.C.43.13-1B & 2B AS A GUIDE. GROUND RUNS / LEAK CHECK & FLIGHT TEST PERFORMED WITH NO RELEVANT DEFECTS NOTED. W&B EQUIPMENT LIST UPDATED ACCORDINGLY. A.F.M.S. ADDED TO FLIGHT MANUAL, I.C.A. ARE ATTACHED

☑ Additional Sheets Are Attached

United States of America

Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

Number SA02870CH Authorized For use ON N151BF w/ Prop Stc 150598.

This certificate issued to: Flight Resource, LLC
760 28th St. P.O. Box 767
Chetek, WI 54728

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 23 of the Federal Aviation Regulations.

MPS 9-2-15

Original Product Type Certificate Number: A22NW

Make: Sky International (Aviat)

Model: A-1, A-1A, A-1B & A-1C

Description of Type Design Change:

Installation of MT Propeller, model MTV-9-B/(198-200) -52 or MT Propeller model MTV-9-B-C-R-M/CR198-200-52 or model MTV-15-B-C-R-M/CR210-58 with matching spinner, modification of aircraft in accordance with Flight Resource Installation Instructions No. FR0912-3, Rev. B dated March 12, 2012 or FR0912-3R, Rev. C, dated July 6, 2014 or later FAA approved revision.

Limitations and Conditions:

1. Compatibility of this design change with previously approved modifications must be determined by the installer.
2. The approved Sky International models shall be maintained in accordance with Flight Resource, LLC. Report FR0912-8, Instructions For Continued Airworthiness, Rev. B dated July 6, 2014 or later FAA accepted revision,
3. Airplane Flight Manual Supplement, Report FR0912-7, Rev. B, dated February 7, 2012 or FR0192-7R, Rev IR dated October 14, 2014 or later FAA approved revision is required.
4. 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 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: December 19, 2009

Date of issuance: August 25, 2010

Date reissued:

Date amended: April 21, 2015

By direction of the Administrator

(Signature)

Roy Boffo
Acting Manager, Propulsion & Program Management Branch
Chicago 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 in accordance with FAR 21.47.

Flight-Resource, LLC

World's Largest Volume MT Propeller Distributor

mt-propeller

Supplemental Type Certificate
Letter of Authorization

Pursuant to Title 49 United States Code ss 44704 (b) (3) (effective October 19, 1996) the signature below constitutes agreement and permission of and by Flight Resource, LLC authorizing the installation of one MT Propeller with serial number: 150598 under STC Number: (select only one) ~~SA02294CH~~ or ~~SA02023CH~~ or ~~SA02535CH~~ or SA02870CH or ~~SA02924CH~~ or ~~SA02990CH~~ or ~~SA03165CH~~ or ~~SA03303CH~~ or ~~SA3282CH~~ or ~~SA02245CH~~ to the specific aircraft identified as follows:

Make: Aviat Model: Husky N: 151BF s/n: 3218

Flight Resource, LLC
Executive Sales & ~~Leasing~~

By John A. Nielsen, Mgr Member

5-3-15
Date

This STC is valid and authorized for an exact match between the above named aircraft and propeller. This propeller can not be transferred to another aircraft, nor can the propeller be replaced by another MT Propeller without a revised Letter of Authorization from Flight Resource.

Keep this document with Aircraft Logs and STC Cover Sheet to show compliance with this regulation. Installation of an un-authorized propeller is a Federal crime and punishable by fines in excess of $10, 000 and/or prison.

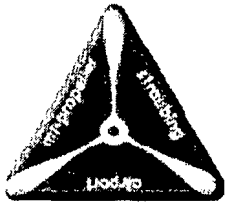
Sales & Administration:
108 N. Duncan Road
Post Office Box 4
Bloomer, WI 54724

Contact:
Office #: 866-717-1117
Fax # : 866-517-5047
www.Flight-Resource.com

Warehouse:
2111 W. 20th Ave
Unit # 12
Bloomer, WI 54724

Flight Resource LLC
P.O. Box 767
Chetek, WI 54728

STC # SA02870CH



AIRPLANE FLIGHT MANUAL SUPPLEMENT

STC No. SA02870CH

Aircraft Registration No. _N151BF_____
Aircraft S/N __3218_____
Propeller S/N _140291_____

MT – PROPELLER
MODEL MTV-9-B/(198-200)-52
(AVIAT) HUSKY A-1, A-1A, A-1B & A-1C

This supplement is FAA approved and must be attached to the FAA-approved Airplane Flight Manual when the aircraft has been modified in accordance with Supplemental Type Certificate SA02870CH. *The information contained in this document supplements supersedes the Airplane Flight Manual only in those areas listed herein. For limitations, procedures, and performance not contained in this supplement, consult the Airplane Flight Manual.*

FAA APPROVED

__Signature on File___

Charles L. Smalley, Manager
System & Flight Test Branch
Chicago Certification Office
ACE-115C, Federal Aviation Administration
Des Plaines, IL 60018

Date: ___March 21, 2012

Flight Resource LLC
P.O. Box 767
Chetek, WI 54728

STC # SA02870CH

LOG OF REVISIONS

Revision Number	Revision Date	Review	Affected Pages	Description of Revision
IR	3/15/10		All	Initial Issue.
A	7/23/10	BWM	ALL	Final issue
B	02/07/12	BWM	1,3 & 4 4	Add 200cm propeller. Added weight limitation note.

SECTION I
GENERAL

The modification removes the existing constant speed propeller and spinner assembly replacing it with MT- Propeller model number MTV-9-B/(198-200)-52 and matching Spinner.

This Airplane Flight Manual Supplement (AFMS) presents changes associated with the installation of an M-T Propeller 3-blade model MTV-9-B/198-52 propeller for Aviat Husky models A-1, A1A, A-1B & A1C airplanes configured per type certificate (TC) number A22NM. The propeller data listed herein supersedes the propeller data listed in the original Airplane Flight Manual.

PROPELLER MANUFACTURER

MT-Propeller Entwicklung GmbH
Flugplatzstr. 1
4348 Atting Germany

MT-Propeller USA, Inc.
1180 Airport Terminal Drive
Deland, FL 32724

SECTION 2
LIMITATIONS

This Section presents additional and/or superseding operating limitations and placards necessary for the safe operation of the airplane as modified per the Supplemental Type Certificate. These limitations are approved by the Federal Aviation Administration and must be observed and followed at all times when operating this aircraft.

Aircraft Model	Engine	BHP / RPM	Propeller	Prop Dia - Inches	Governor
A-1	O-360-C1G	180 / 2700	MTV-9-B/(198-200)-52	78	Hartzell V3-6
	O-360-A1P	180 / 2700			
A-1A	O-360-A1P	180 / 2700	MTV-9-B/(198-200)-52	78	Hartzell V3-6
A-1B	O-360-A1P	180 / 2700	MTV-9-B/(198-200)-52	78	Hartzell V3-6
A-1C-180	O-360-A1P	180 / 2700	MTV-9-B/(198-200)-52	78	Hartzell V3-6
A-1C-200	IO-360-A1D6	200 / 2700	MTV-9-B/(198-200)-52	78	Hartzell V3-6
A-1B STC SA10463SC	IO-360-A1D6	200 / 2700	MTV-9-B/(198-200)-52	78	Hartzell V3-6

STC # SA02870CH

PROPELLER

PROPELLER MANUFACTURER MT-Propeller

PROPELLER MODEL NUMBER ..... MTV-9-B/(198-200)-52

HUB LENGTH ....145CM (5.70 in)

PROPELLER LIMITS ..... Max. Dia , 200 CM (78.8 in)
MIN. Dia., 193 CM (76 in)

NOTE: Aircraft weight limits as per the TCDS # A222NW and or 2250 Lb. gross weight unless otherwise approved by the FAA.

Pitch Limits

For aircraft models	Propeller	Low Pitch	High Pitch
Aviat Husky A1, A-1A & A-1B & A-1C-180	MTV-9-B/(198-200)-52	5.5º ± 0.2º	27.0º ± 1.0º
Aviat Husky A-1C-200	MTV-9-B/(198-200)-52	5.5º ± 0.2º	27.0º ± 1.0º

PROPELLER GOVERNOR

According to aircraft equipment list (all governors shown on the TCDS # A22NM are compatible with the MTV-9-B/(198-200)-52 propeller. A list of approved governors is listed in MT-Propeller Service Bulletin 14, latest revision.

PROPELLER SPINNER

MT-Propeller Part No. P-208-[ ] or as approved by MT Service Bulletin No. 13B
The airplane may be operated without a spinner but in this case the filter plates must be removed.

MAIN GEAR TIRE SIZE

All main gear tire sizes stated in the TCDS A22NM 8.0 x 6, 4 to 6-ply or 8.00x6 type III or larger are approved.

SECTION 3
EMERGENCY OPERATING PROCEDURES

SECTION 5
PERFORMANCE

This aircraft will perform equal to, or no less than the performance shown in the original Airplane Flight Manual due to increased propeller performance.

SECTION 6
WEIGHT AND BALANCE

For current empty weight and cg, see revised weight and balance record.

End

Flight Resource LLC
P.O. Box 767
Chetek, WI 54728

FR0912-8
Revision: B
Date: 02/15/12

STC SA02870CH

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Aircraft Registration No. _N151BF____
Aircraft S/N __3218_____
Propeller S/N _140291_____

MT – PROPELLER
MODEL MTV-9-B/(198-200)-52
INSTALLED ON
(AVIAT)
HUSKY A-1, A-1A, A-1B & A-1C

Date: February 15, 2012

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

LOG OF REVISIONS

Revision Number	Revision Date	Review	Affected Pages	Description of Revision
IR	3/15/10		All	Initial Issue.
A	7/23/10	BWM	All	Final Issue
B	02/15/12	BWM	All	Updated for the 200 CM propeller

1. INTRODUCTION

This document outlines the compliance with FAR 23.1529 "Instructions for Continued Airworthiness" for use of MT-Propeller model MTV-9-B/(198-200)-52 on Aviat Aircraft Inc. models A-1, A-1A, A1B and A-1C Aircraft.

Modifying Aviat Husky A-1, A-1A, A-1B or A-1C aircraft with this Supplemental 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.

2.0 Scope

Appendix G, Section G23.1, of 14 CFR Part 23 specifies "*Instructions for Continued Airworthiness for each airplane must include the Instructions for Continued Airworthiness for each engine and propeller (hereinafter designated 'products'), for each appliance required by this chapter, and any required information relating to the interface of those appliances and products with the airplane.*" Guidance for ICA as related to Supplemental Type Certificates is provided by Chapter 3, Section 3-3.d.(1)(2)(3) of FAA Order 8110.54 which states "*ICA for an STC or Amended STC should cover only the items changed or affected by the design change for which application is made. This includes other systems, parts, or areas of the aircraft.*"

In accordance with the above regulatory requirements and related guidance, the information and requirements provided within this document comprise the required ICA as related to those "*changed areas*" in the aircraft models affected by this STC, for those "*not changed areas*", refer to the original airplane manuals, service information, and operational procedures as listed in the ICA of previously installed modifications.

3.0 DESCRIPTION

The modification removes the existing constant speed propeller and spinner assembly replacing it with MT- Propeller model number MTV-9-B/(198-200)-52 and Spinner.

Note.....installation, operation, maintenance manuals are provided by the product manufacturer with the aircraft, propeller and engine.

PROPELLER

PROPELLER MANUFACTURER MT-Propeller

PROPELLER MODEL NUMBER ..... MTV-9-B/(198-200)-52

PROPELLER LIMITS ..... Max. Dia , 200 CM (78.7 in)
MIN. Dia., 193 CM (76 in)

Pitch Limits

For aircraft models	Propeller	Low Pitch	High Pitch
Aviat Husky A1, A-1A & A-B & A-1C-180	MTV-9-B/(198-200)-52	5.5º ± 0.2º	27.0º ± 1.0º
A-1C-200	MTV-9-B/(198-200)-52	5.5º ± 0.2º	27.0º ± 1.0º
A-1B-200 STC SA10463SC	MTV-9-B/(198-200)-52	5.5º ± 0.2º	27.0º ± 1.0º

Referenced Documents:

Author	Document Number	Document Title
Flight Resource LLC	FR0912-7	FAA approved Airplane Flight Manual Supplement
MT Propeller	E-124	Operation And Installation Manual, Issue 48 or later approved manual
MT Propeller	See Note	Service Letters
Flight Resource LLC	FR0912-3	Installation Instructions

Note: Owners and operators of MT Propellers should contact the MT Propeller factory, distributors or authorized MT Propeller Service Shops to obtain the latest information pertaining to MT products.
The list of valid MT Propeller manuals, service bulletins, AD's and their latest revision can be downloaded from the homepage of MT Propeller (www.mt-propeller.com). Hardcopies can also be obtaining from MT-Propeller Germany and MT-Propeller USA.

MT-Propeller Entwicklung GmbH
Flugplatzstr. 1
4348 Atting, Germany
Phone: ++49-(0)-9429-9409-0
Fax: +49-(0)-9429-8432

MT-Propeller USA, Inc.
1180 Airport Terminal Drive
DeLand, FL 32724
Phone: (386) 736-7762
Fax: (386) 736-7696

4.0 CONTROL, OPERATION INFORMATION / SPECIAL PROCEDURES

Operation and control of the powerplant using throttle, mixture, and propeller controls remain unchanged and the same as specified in the OEM manuals.

5.0 SERVICING INFORMATION

MT-Propeller publications contain the information necessary to operate, maintain, and perform scheduled maintenance. All other serving of the aircraft and engine are un-changed and the same as specified in the OEM manuals.

6.0 MAINTENANCE INSTRUCTIONS

Refer to MT-Propeller Operation & Installation Manual E-124

MT-Propeller publications contain the information necessary to operate, maintain, and perform scheduled maintenance. All other maintenance instructions of the aircraft and engine are un-changed and the same as specified in the OEM manuals.

7.0 REMOVAL AND REPLACEMENT INFORMATION

Refer to MT-Propeller Operation & Installation Manual E-124

MT-Propeller publications contain the information necessary to operate, maintain, and perform scheduled maintenance. All other maintenance instructions of the aircraft and engine are un-changed and the same as specified in the OEM manuals.

8.0 DIAGRAMS

Refer to MT-Propeller Operation & Installation Manual E-124

All other diagrams of the aircraft and engine are un-changed and the same as shown in the OEM manuals.

9.0 LIST OF SPECIAL TOOLS

Refer to MT-Propeller Operation & Installation Manual E-124

MT-Propeller publications contain the information necessary to maintain, and perform scheduled maintenance. All other maintenance instructions of the aircraft and engine are un-changed and the same as specified in the OEM manuals.

10.0 ADDITIONAL INFORMATION FOR COMMUTER CATEGORY AIRCRAFT

Not Applicable.

11.0 RECOMMENDED OVERHAUL PERIODS

Refer to MT-Propeller Service Bulletin # 1AG dated April 17, 2009 or later approved revision.

11. Airworthiness Limitations

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

There are no mandatory replacement times for any components.

12. REVISIONS

Any Revisions to this document will be logged in the Log of Revisions sheet and a copy of the revised document should be distributed as required.

END

FAA FORM 8130-6, APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE

Form Approved O.M.B. No. 2120-0018
Expiration Date 02/28/2013

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 DESCRIPTION

1. REGISTRATION MARK	2. AIRCRAFT BUILDER'S NAME (Make)	3. AIRCRAFT MODEL DESIGNATION	4. YR. MFR.	FAA CODING
N151BF	Aviat Aircraft Inc.	A-1C-180	2014	
5. AIRCRAFT SERIAL NO.	**6. ENGINE BUILDER'S NAME (Make)**	**7. ENGINE MODEL DESIGNATION**		
3218	Lycoming	O-360-A1P		
8. NUMBER OF ENGINES	**9. PROPELLER BUILDER'S NAME (Make)**	**10. PROPELLER MODEL DESIGNATION**	**11. AIRCRAFT IS (Check if applicable)**	
1	Hartzell	HC-C2YK-1BF/F7666A	☐ IMPORT	

II. CERTIFICATION REQUESTED

APPLICATION IS HEREBY MADE FOR: (Check applicable items)

- A 1 ✓ STANDARD AIRWORTHINESS CERTIFICATE (Indicate category) — ✓ NORMAL ☐ UTILITY ☐ ACROBATIC ☐ TRANSPORT ☐ COMMUTER ☐ BALLOON ☐ OTHER
- B ☐ SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)
  - 7 ☐ PRIMARY
  - 9 ☐ LIGHT-SPORT (Indicate Class) ☐ Airplane ☐ Power-Parachute ☐ Weight-Shift-Control ☐ Glider ☐ Lighter than Air
  - 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; 3 ☐ AERIAL ADVERTISING; 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 ☐ OPERATING LIGHT-SPORT — 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; 9 ☐ UNMANNED AIRCRAFT — 9A ☐ RESEARCH AND DEVELOPMENT; 9B ☐ MARKET SURVEY; 9C ☐ CREW TRAINING
  - 8 ☐ SPECIAL FLIGHT PERMIT (Indicate operation to be conducted, then complete Section VI or VII as applicable on reverse side) — 1 ☐ FERRY FLIGHT FOR REPAIRS, ALTERATIONS, MAINTENANCE, OR STORAGE; 2 ☐ EVACUATE 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 ☐

NAME	ADDRESS
Aviat Aircraft Inc.	PO Box 1240 Afton, Wyoming 83110

B. AIRCRAFT CERTIFICATION BASIS (Check applicable blocks and complete items as indicated)

✓ AIRCRAFT SPECIFICATION OR TYPE CERTIFICATE DATA SHEET (Give No. and Revision No.) A22NM Rev. 24	✓ AIRWORTHINESS DIRECTIVES (Check if all applicable ADs are complied with and give the number of the last AD SUPPLEMENT available in the biweekly series as of the date of application) 2014-16
☐ AIRCRAFT LISTING (Give page number(s)) N/A	✓ SUPPLEMENTAL TYPE CERTIFICATE (List number of each STC incorporated) SE00825WI, SA01435SE & SA02015SE-D

C. AIRCRAFT OPERATION AND MAINTENANCE RECORDS

CHECK IF RECORDS IN COMPLIANCE WITH 14 CFR section 91.417	TOTAL AIRFRAME HOURS	3 EXPERIMENTAL ONLY (Enter hours flown since last certificate issued or renewed)
✓	3.2	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	NAME AND TITLE (Print or type)	SIGNATURE
08/22/2014	Kelly Christensen Manager	Kelly Christensen

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.) ☐ 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 VII meets requirements for ✓ THE CERTIFICATE REQUESTED; 4 ☐ AMENDMENT OR MODIFICATION OF CURRENT AIRWORTHINESS CERTIFICATE

B. Inspection for a special flight permit under Section VII was conducted by: ☐ FAA INSPECTOR ☐ FAA DESIGNEE ☐ CERTIFICATE HOLDER UNDER ☐ 14 CFR part 65 ☐ 14 CFR part 121 OR 135 ☐ 14 CFR part 145

DATE	MIDO/FSDO OFFICE	4 FAA INSPECTOR'S SIGNATURE or DESIGNEE'S SIGNATURE AND NO.	1 FAA INSPECTOR'S CERTIFICATION FILE REVIEW SIGNATURE
08/22/2014	NM-50	Albert G Humbert 810770852	Brandon Crose

VI. PRODUCTION FLIGHT TESTING

A. MANUFACTURER

NAME	ADDRESS

B. PRODUCTION BASIS *(Check applicable item)*

- ☐ PRODUCTION CERTIFICATE *(Give production certificate number)*
- ☐ TYPE CERTIFICATE
- ☐ OTHER:

C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS

DATE OF APPLICATION	NAME AND TITLE *(Print or type)*	SIGNATURE

VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST

A. DESCRIPTION OF AIRCRAFT

REGISTERED OWNER	ADDRESS
BUILDER *(Make)*	MODEL
SERIAL NUMBER	REGISTRATION MARK

B. DESCRIPTION OF FLIGHT — CUSTOMER DEMONSTRATION FLIGHTS ☐ *(Check if applicable)*

FROM	TO	
VIA	DEPARTURE DATE	DURATION

C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT

☐ PILOT ☐ CO-PILOT ☐ FLIGHT ENGINEER ☐ OTHER *(Specify)*

D. THE AIRCRAFT DOES NOT MEET THE APPLICABLE AIRWORTHINESS REQUIREMENTS AS FOLLOWS:

E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED NECESSARY FOR SAFE OPERATION: *(Use attachment if necessary)*

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 *(Print or type)*	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 *(Attach when required)*
☐ B. Current Operating Limitations Attached	☐ H. Foreign Airworthiness Certification for Import Aircraft *(Attach when required)*
☐ C. Data, Drawings, Photographs, etc. *(Attach when required)*	☐ I. Previous Airworthiness Certificate Issued in Accordance With 14 CFR Section _____ CAR _____ *(Original attached)*
✓ D. Current Weight and Balance Information Available in Aircraft	
☐ E. Major Repair and Alteration, FAA Form 337 *(Attach when required)*	✓ J. Current Airworthiness Certificate Issued in Accordance With 14 CFR Section 21.183 (a) *(Copy attached)*
✓ F. This inspection Recorded in Aircraft Records	☐ K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 *(Attach when required)*

UNITED STATES OF AMERICA

DEPARTMENT OF TRANSPORTATION-FEDERAL AVIATION ADMINISTRATION

STANDARD AIRWORTHINESS CERTIFICATE

1 NATIONALITY AND REGISTRATION MARKS	2 MANUFACTURER AND MODEL	3 AIRCRAFT SERIAL NUMBER	4 CATEGORY
N151BF	Aviat Aircraft Inc. A-1C-180	3218	Normal

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, 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:

None

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 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	FAA REPRESENTATIVE	DESIGNATION NUMBER
08/22/2014	Albert G Humbert	810770852

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.

FAA Form 8100-2 (04-11) Supersedes Previous Edition

US Department of Transportation **Federal Aviation Administration**

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

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	Serial No.	
USA N151BF	3218	
Make	**Model**	**Series**
Aviat	Husky	

2. Owner

Name *(As shown on registration certificate)*	Address *(As shown on registration certificate)*
William H Freeman	Address 6114 Hillsboro Pike
	City Nashville State TN
	Zip 37215 Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
☐	☒	AIRFRAME	—	*(As described in Item 1 above)*	—
☐	☐	POWERPLANT			
☐	☐	PROPELLER			
☐	☐	APPLIANCE	Type / Manufacturer		

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency			
Name	x	U. S. Certificated Mechanic		Manufacturer
Address		Foreign Certificated Mechanic	C. Certificate No.	
City State		Certificated Repair Station	3357142	
Zip Country		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 ☐	Signature/Date of Authorized Individual
	8/2/2014 [signature]

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	X	Inspection Authorization		Other *(Specify)*

Certificate or Designation No. 3357142	Signature/Date of Authorized Individual
	8/2/14 [signature]

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 N151BF	8/2/14
Nationality and Registration Mark	Date

Removed:
OEM Hartzell propeller and spinner HC-C2YK-1BF.

Installed:
MT MTV-9-B/200-52 propeller and spinner per STC SA02870CH.
Installed per the manufacturers instructions and instructions contained in the body of the STC.
Continued airworthiness and POH supplement contained in the STC.
All work accomplished IAW AC 43.13 1B/2A
Weight and balance revised accordingly
Aircraft test flown and authorized for return to service.

end

☐ 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: N151BF	Serial No.: 3218
	Make: Aviat Aircraft Inc.	Model: A-1C-180 / Series:
2. Owner	Name *(As shown on registration certificate)*: Aviat Aircraft Inc.	Address *(As shown on registration certificate)*: Address 672 S Washington; City Afton; State WY; Zip 83110; Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
☐	☑	AIRFRAME	—	*(As described in Item 1 above)*	—
☐	☐	POWERPLANT			
☐	☐	PROPELLER			
☐	☐	APPLIANCE	Type / Manufacturer		

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency			
Name: Dale L Smith	☑	U. S. Certificated Mechanic	☐	Manufacturer
Address: 672 S Washington	☐	Foreign Certificated Mechanic	C. Certificate No.	
City: Afton State: WY	☐	Certificated Repair Station		
Zip: 83110 Country: USA	☐	Certificated Maintenance Organization	3689540	

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 ☐	Signature/Date of Authorized Individual
	Dale L Smith 08/28/2014

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 Flt. Standards Inspector	☐	Manufacturer	☐	Maintenance Organization	☐ Persons Approved by Canadian Department of Transport
	☐	FAA Designee	☐	Repair Station	☒	Inspection Authorization	Other *(Specify)*

Certificate or Designation No.	Signature/Date of Authorized Individual
3689540	Dale L Smith 08/28/2014

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 appicable airworthiness requirements.

N151BF	08/28/2014
Nationality and Registration Mark	Date

8. Description of Work Accomplished

Aviat Aircrat Inc. A-1C-180 N151BF S/N 3218 TT3.2
System: Fuselage
Removed instrument panel P/N 38620-002, GPS coaxial P/N 37503-078, Comm coaxial P/N 37503-065, Nav ant. splitter P/N AV-570, G/S Coaxial P/N 37403-034, Avionics Harness P/N 38430-501, GMA 340 S/N 96294173, GNS 430W S/N 23437158, GTX 327 S/N 83749228, GTP 59 S/N 47912966.
Installed: GMA 35 Audio Panel P/N 0011-02299-00, GTN 750 Nav/GPS/Comm P/N 011-02282-00, SL 30 Nav/Comm P/N 430-6040-303, Comm Antenna P/N DMC63-1A, GTP 59 OAT Probe P/N 011-00978-00, GTS * 00 Traffic Unit P/N 011-01356-00, GTS 800 Top Antenna P/N 011-01346-00, GTS 800 Bottom Antenna P/N 011-01346-00, GTX 32 Transponder P/N 011-00768-00, Encoder P/N A-30, Instrument Panel P/N 38620-702, Main Avionics Harness P/N 38430-911, Avionics Box P/N 38620-019, Nav Antenna Splitter P/N 013-00112-00, GTN 750 Mounting Hardware, GPS Coaxial P/N 35430-064, Comm Coaxial P/N 38430-065, Comm Coax P/N 38430-039, Transponder Harness P/N 38430-912, GDL69 Harness P/N 38326-502, GTS 800 Rack P/N 115-00784-00, Cover Strap P/N 38800-013, Cover P/N 38800-014, Cover P/N 38800-015, GTS m800 Shelf Backing Plate P/N 38800-013, GTS 800 Mounting Shelf P/N 38800-012, GTS 800 Harness P/N 38800-501, GTS 800 Antenna Top Backing Plate P/N 38800-011, GTS 800 Bottom Antenna Backing Plate P/N 38800-011.
Installation in accordance with Drawing 38401.
Traffic Instillation In Accordance with Drawing 38800.
Weight & Balance: Revised
Instructions for Continued Airworthiness: Revised
Airmans Flight Manual: Updated
---------- END ----------

[ ] Additional Sheets Are Attached