



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 N536JR	Serial No. 17262831	
	Make CESSNA	Model 172M	Series N/A
2. Owner	Name (As shown on registration certificate) REGIONAL CONSULTANTS LLC	Address (As shown on registration certificate) Address 100 POST OAK TRI	
		City ATHENS	State GA
		Zip 30606-1300	Country USA

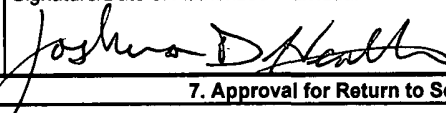
3. For FAA Use Only

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 HEATH AVIATION		☐ U. S. Certificated Mechanic	☐ Manufacturer
Address 219 AIRPORT DRIVE		☐ Foreign Certificated Mechanic	C. Certificate No.
City WINONA State MS		☒ Certificated Repair Station	HVDR337X
Zip 38967 Country USA		☐ Certificated Maintenance Organization	

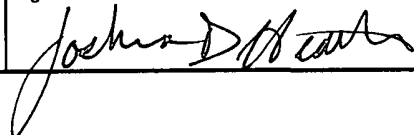
D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and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

Extended range fuel per 14 CFR Part 43 App. B ☐	Signature/Date of Authorized Individual  12/19/2019
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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 Transport Other (Specify)
	FAA Designee ☒	Repair Station	Inspection Authorization	

Certificate or Designation No. HVDR337X	Signature/Date of Authorized Individual  12/19/2019
---	---

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.)

N536JR

12/19/2019

Nationality and Registration Mark

Date

REMOVED: VERTICAL GYRO; ALTIMETER; VSI; AIRSPEED IND.; EXHAUST TEMP.; TACHOMETER; S-TEC 30; SUCTION GUAGE; DRY AIR PUMP; ROLL SERVO; PITCH SERVO; AP PIEZO; TRANSDUCER; PITCH COMPUTER; GI 106A; KN 64 DME.

INSTALLED THE FOLLOWING:

G3X TOUCH - GDU 460 P/N 011-02920-05 S/N [REDACTED] IN ACCORDANCE TO STC# SA01899WI WHICH APPROVES THIS INSTALLATION IN A CESSNA 172M ALONG WITH THE FOLLOWING: GAD 29B P/N 011-03236-11 S/N 5DL008683; GTP 59 P/N 011-00978-00 S/N 47947589; GEA 24 P/N 011-02848-01 S/N 2J2005404; FUEL FLOW TRANSDUCER P/N FT-60 S/N 219036; OIL PRESSURE SENSOR 150 P/N 011-04202-30 S/N 4TK003509; GSU 25D P/N 011-02929-51 S/N 5Q3000772; GMU 11 P/N 011-03439-01 S/N 56J016273; GDL 52R P/N 011-03910-35 S/N 4RF300900; GAD 27 P/N 011-03876-01 S/N 4A8001240; GA 55 ANTENNA P/N 011-01033-00 S/N 87502620.

GFC 500 AUTO PILOT GMC 507 P/N 011-054548-01 S/N 5H1002563 IN ACCORDANCE TO STC# SA01866WI WHICH APPROVES THIS INSTALLATION IN A CESSNA 172M ALONG WITH THE FOLLOWING: GSA 28 TRIM SERVO P/N 011-02927-11 S/N 5G9003758; GSA 28 ROLL SERVO P/N 011-02927-11 S/N 5G9005214; GSA 28 PITCH SERVO P/N 011-02927-11 S/N 5G9005250

GARMIN G5 P/N 011-03809-00 S/N 4JQ034101 IN ACCORDANCE TO SA01818WI WHICH APPROVES THIS INSTALLATION IN A CESSNA 172M.

WEIGHT AND BALANCE HAS BEEN AMENDED.

PROVIDED INSTRUCTIONS FOR CONTINUED AIRWORTHINESS AND FAA APROVED AFMS .

ALL WORK ACCOMPLISHED LISTED ON WORK ORDER # 6948

End Report

☐ Additional Sheets Are Attached

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

FAA Approved
AIRPLANE FLIGHT MANUAL SUPPLEMENT
or
SUPPLEMENTAL AIRPLANE FLIGHT MANUAL
for the
GARMIN G5 ELECTRONIC FLIGHT INSTRUMENT
as installed in

CESSNA 172M
Make and Model Airplane

Registration Number: N536JR Serial Number: 17262831

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 SA01818WI for the installation and operation of the Garmin G5 Electronic Flight Instrument. This document must be carried in the airplane at all times.

The information contained herein supplements or supersedes the information made available to the operator by the aircraft manufacturer in the form of clearly stated placards or markings, or in the form of an FAA approved Airplane Flight Manual, only in those areas listed herein. For limitations, procedures and performance information not contained in this document, consult the basic placards or markings, or the basic FAA approved Airplane Flight Manual.

FAA APPROVED BY: David G. Armstrong

David G. Armstrong
ODA STC Unit Administrator
GARMIN International, Inc
ODA-240087-CE

DATE: 7/19/19

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Log of Revisions
FAA Approved AIRPLANE FLIGHT MANUAL SUPPLEMENT
or
SUPPLEMENTAL AIRPLANE FLIGHT MANUAL
GARMIN G5 ELECTRONIC FLIGHT INSTRUMENT

REV NO.	PAGE NO(S)	DESCRIPTION	DATE OF APPROVAL	FAA APPROVED
1	ALL	Original Issue	7/22/2016	Robert Murray ODA STC Unit Administrator
2	ALL	Added information regarding G5 DG/HSI.	4/28/2017	Robert Murray ODA STC Unit Administrator
3	ALL	Added interface to 3 rd party autopilots.	10/18/2017	Robert Murray ODA STC Unit Administrator
4	ALL	Added note to General section.	10/26/17	Paul Mast ODA STC Unit Administrator
5	ALL	Reformatted document. Updated system messages interface. Added DG/HSI reversion description.	12/20/17	Robert Murray ODA STC Unit Administrator
6	ALL	Added interface description to GAD 13. Added information regarding multiple NAV source inputs.	See Cover	See Cover

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Table of Contents

Section 1 – General	1-1
Abbreviations and Terminology	1-2
Section 2 – Limitations	2-1
System Software Requirements	2-1
Use of Secondary Instruments	2-1
Kinds of Operations	2-1
Section 3 – Emergency Procedures	3-1
G5 Failure Indications	3-1
Attitude Failure	3-1
Heading Failure, Loss of Magnetometer Data, or Magnetic Field Error	3-1
GPS Failure	3-2
Attitude Aligning	3-2
Attitude Aligning / Keep Wings Level	3-2
Loss of Electrical Power to the G5 Display	3-2
Loss of Electrical Power to the GAD 29B (If Installed)	3-3
Loss of Electrical Power to the GAD 13 (If Installed)	3-3
Section 4 – Normal Procedures	4-1
G5 Power Button and Knob	4-1
Backlight Intensity Adjustment	4-1
Prior to Flight in Instrument Meteorological Conditions	4-1
Autopilot Operations with the G5 HSI	4-2
Course / NAV Selection Coupling to the Autopilot (If Configured)	4-2
Heading Bug Coupling Capability to the Autopilot (If Configured)	4-2
Roll Steering (GPSS) Emulated via HDG Mode (If Configured)	4-2
HSI Source Selection (If Configured)	4-3
Section 5 – Performance	5-1
Section 6 – Weight and Balance	6-1
Section 7 – System Description	7-1
System Messages	7-1

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SECTION 1 – GENERAL

The G5 Electronic Flight Instrument can display the following information to the pilot depending on the installation and location of the G5 instrument.

- Primary attitude
- Primary slip and turn rate information
- Primary heading
- Secondary airspeed
- Secondary altimeter
- Secondary ground track

When installed in place of the attitude indicator, the primary function of the G5 is to provide attitude information to the pilot. When installed in place of the rate of turn indicator, the primary function of the G5 is to provide turn rate and slip ball information to the pilot. When installed in place of the directional gyro, the primary function of the G5 is to provide directional information to the pilot.

NOTE:

The pilot is reminded to perform appropriate flight and navigation instrument cross checks for the type of operation being conducted.

In case of a loss of aircraft electrical power, a backup battery (optional when installed as a DG/HSI) sustains the G5 Electronic Flight Instrument for up to four hours.

An optional GAD 29B may be installed to provide course and heading datum to an autopilot based on the data selected for display on the HSI.

An optional GAD 13 and OAT probe may be installed to provide measured outside air temperature (OAT) to the G5 for display of true airspeed (TAS), outside air temperature, winds, and density altitude.

This STC allows the removal of the aircraft's vacuum system if it is not required to support any other airframe system.

Abbreviations and Terminology

The following glossary is applicable within the airplane flight manual supplement

ADI	Attitude Direction Indicator
AFMS	Airplane Flight Manual Supplement
ATT	Attitude
CDI	Course Deviation Indicator
DG	Directional Gyro
DR	Dead Reckoning
FAA	Federal Aviation Administration
GPS	Global Positioning System
GPSS	GPS Roll Steering
HDG	Heading
HSI	Horizontal Situation Indicator
ILS	Instrument Landing System
LOC	Localizer (no glideslope available)
LOI	Loss of Integrity
OAT	Outside Air Temperature
TAS	True Airspeed
VFR	Visual Flight Rules
VHF	Very High Frequency
VOR	VHF Omni-directional Range

SECTION 2 – LIMITATIONS

System Software Requirements

The G5 must utilize the following or later FAA approved software versions for this AFMS revision to be applicable:

Component	Software Version
G5 Electronic Flight Instrument	6.20

Use of Secondary Instruments

The original type design approved instruments for airspeed, altitude and vertical speed remain the primary indications for these parameters.

If the G5 Electronic Flight Instrument is installed in place of the rate of turn indicator, the original type design approved instrument for attitude remains in the primary indication for attitude.

If the G5 Electronic Flight Instrument is installed in place of the directional gyro, the original type design approved instruments for attitude remains the primary indication for attitude.

NOTE:

For aircraft approved for VFR-only operations, the G5 Electronic Flight Instrument may be installed as an attitude indicator and rate of turn indicator.

Kinds of Operations

No Change except for the following:

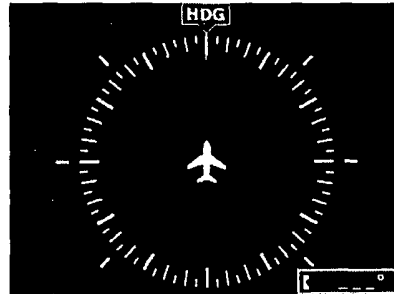
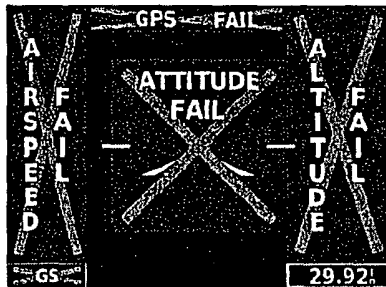
- When a portable navigation source is selected on the G5, it shall not be used for the primary means of navigation for IFR operations.

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SECTION 3 – EMERGENCY PROCEDURES

G5 Failure Indications

If a G5 function fails, a large red 'X' is typically displayed over the instrument(s) or data experiencing the failure. Upon G5 power-up, certain instruments remain invalid as equipment begins to initialize. All instruments should be operational within one minute of power-up. If any instrument remains flagged and it is not likely an installation related problem, the G5 should be serviced by a Garmin-authorized repair facility.



Attitude Failure

Attitude failure is indicated by removal of the sky/ground presentation, a red X, and a yellow "ATTITUDE FAIL" on the display.

Rate-of-turn and slip information will not be available.

1. Use standby instruments.
2. Seek VFR conditions or land as soon as practical.

Heading Failure, Loss of Magnetometer Data, or Magnetic Field Error

A heading failure, loss of magnetometer data, or magnetic field error is indicated by removal of the digital heading readout, a red X, and a yellow "HDG" on the display.

1. Use standby magnetic compass.

NOTE:

If the G5 DG/HSI has a valid GPS signal the G5 DG/HSI instrument will display the GPS track information in magenta.

GPS Failure

If GPS navigation receivers and/or navigation information are not available or invalid, the G5 will display Dead Reckoning mode (DR) or Loss of Integrity mode (LOI) on the HSI in the lower left corner.

If Alternate Navigation Sources (ILS, LOC, VOR) Are Available:

1. Use alternate navigation source.

If No Alternate Navigation Sources Are Available:

If DR is Displayed on HSI:

1. Use the amber CDI for course information.
2. Fly toward known visual conditions.

If LOI is Displayed on HSI:

1. Fly toward known visual conditions.

For aircraft equipped with a GAD 29B interfaced to an autopilot, GPSS will be displayed in amber text when GPSS emulation has been selected from the G5 menu.

1. Deselect GPSS from the G5 menu and select a different autopilot mode.

Attitude Aligning

During system initialization, the G5 displays the message 'ALIGNING' over the attitude indicator. The G5 will typically display valid attitude within the first minute of power-up. The G5 can also align itself while taxiing and during level flight.

If the "ALIGNING" indication occurs during flight and attitude remains displayed, the attitude display is acceptable for use for flight in instrument conditions. The message will clear when the attitude solution is within the systems internal accuracy tolerances. It is recommended to maintain wings level to reduce the time for the system to align.

Attitude Aligning / Keep Wings Level

If the "ALIGNING KEEP WINGS LEVEL" indication occurs during flight, the G5 has detected an invalid attitude solution and will not display any attitude information.

1. Use standby instruments to maintain wings level flight. The system will display attitude when internal accuracy tolerances have been met.
2. If attitude does not return, seek VFR conditions or land as soon as practical.

Loss of Electrical Power to the G5 Display

In the event of a loss of aircraft electrical power to the G5 attitude display, the indicator will continue to function on its internal battery. If an internal battery is installed on the optional G5 HSI, the indicator will continue to function on the internal battery if aircraft power is lost. Internal battery endurance is indicated on the G5 display in hours and minutes. The charging symbol will be removed and the internal battery will not be charged.

In the event the G5 attitude display powers down, the optional G5 HSI will automatically revert to displaying attitude information. It will not revert back to the DG/HSI format if the G5 attitude unit regains power. The DG/HSI presentation may be selected from the G5 menu on the G5 DG/HSI unit after reversion to the attitude display.

Loss of Electrical Power to the GAD 29B (If Installed)

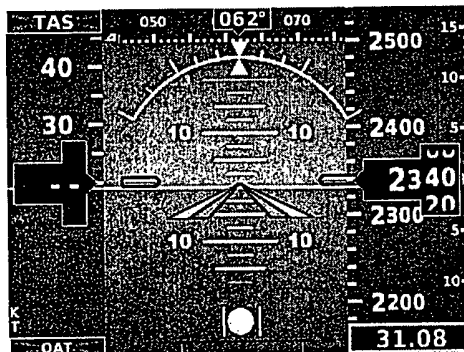
In the event of a loss of aircraft electrical power to the optional GAD 29B, the heading and course datum will be unavailable to the autopilot and the autopilot may deviate from the intended path or may disconnect. GPS flight plan course information may be displayed on the HSI and VFR will be displayed in amber text on the HSI. GPSS will be displayed in amber text, if GPSS mode is selected.



1. Deselect GPSS from the G5 menu and select a different autopilot mode.
2. Lateral GPS course guidance may only be used in VFR conditions.

Loss of Electrical Power to the GAD 13 (If Installed)

In the event of a loss of aircraft electrical power to the optional GAD 13, the OAT and TAS indications will be replaced with a red X. The Density Altitude indication will be removed, and "No Wind Data" will be displayed in the wind field.



1. Use an alternate source of outside air temperature to calculate true airspeed, density altitude, and winds.

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SECTION 4 – NORMAL PROCEDURES

G5 Power Button and Knob

The G5 display will power on with the application of aircraft power. The G5 power button is used to turn the display on and off. Press and hold the power button to turn the display off.

The knob performs the following functions:

Press	Press to access the Menu. From the Menu, press to select the desired menu item. Press to accept the displayed value when editing numeric data or selecting from a list. Press to sync the heading or track bug for the HSI.
Turn	From the Menu, turn the Knob to move the cursor to the desired menu item. For the ADI, rotate to adjust the baro setting on the secondary altitude display. For the HSI, rotate to adjust the heading or track bug. Turn to select the desired value when editing numeric data or selecting from a list.

Backlight Intensity Adjustment

The power up state of the G5 backlight is in Auto adjustment mode.

To adjust the backlighting:

To select Manual mode from Auto mode:

1. While the unit is turned on, press the Power button.
2. Turn the knob to manually adjust the backlight intensity.
3. Press the knob to close the backlight page.

To select Auto mode from Manual mode:

1. While the unit is turned on, press the Power button.
2. Press the Power button again to select Auto.
3. Press the knob to close the backlight page.

Prior to Flight in Instrument Meteorological Conditions

1. Press the Power button on the G5 attitude indicator.
2. Verify the battery status indicator is green on the G5 attitude indicator.

Autopilot Operations with the G5 HSI

The G5 and optional GAD 29B offer various integration capabilities dependent upon the type of autopilot installed in a particular aircraft.

The G5 Electronic Flight Instrument installation in this aircraft provides the following autopilot functions (appropriate boxes will be checked):

- ☐ This installation does not interface with the autopilot (basic wing leveling autopilot or no autopilot is installed in the aircraft).
 - ☐ A GAD 29B Adapter is installed in this aircraft.
 - ☐ Course / NAV Selection coupling to the autopilot.
 - ☐ Heading Bug coupling capability to the autopilot.
 - ☐ Roll Steering (GPSS) emulated via heading mode.
- OR
- ☐ Roll Steering capable autopilot (GPSS menu function for emulation not applicable).

Course / NAV Selection Coupling to the Autopilot (If Configured)

When operating the autopilot in NAV mode, the deviation information from the installed navigation sources (i.e. GPS or NAV) is switched via the navigation source. The NAV source displayed on the HSI is the NAV source the autopilot is following. Many autopilots also use the course datum to determine the best intercept angles when operating in NAV mode.

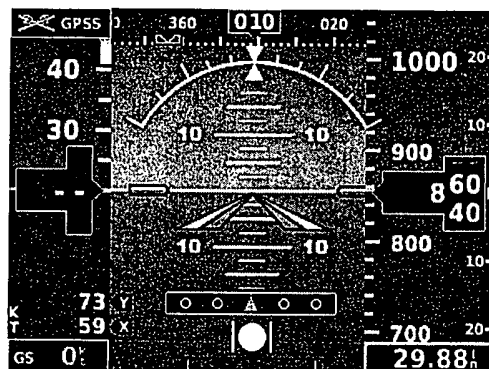
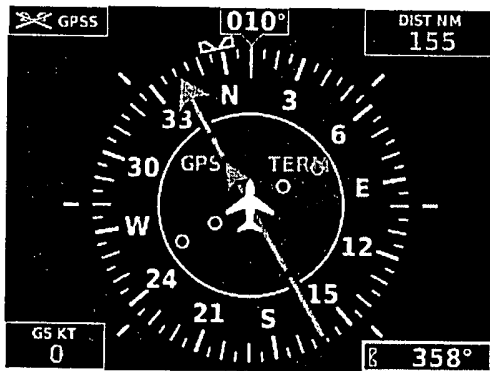
Heading Bug Coupling Capability to the Autopilot (If Configured)

When operating the autopilot in HDG mode, the difference between the HDG bug location on the HSI and the actual aircraft heading creates an error signal which the autopilot will minimize by turning in the direction of the bug. If the bug is turned more than 180 degrees, the autopilot may turn the airplane in the opposite direction of the desired turn.

Roll Steering (GPSS) Emulated via HDG Mode (If Configured)

For autopilots that do not support digital GPSS signals, GPSS functionality may be emulated by operating the autopilot in HDG mode and selecting GPSS from the G5 menu. If the autopilot is already designed to receive roll steering information, the data is transmitted digitally from the navigator to the autopilot.

When GPSS is selected on the G5 menu, the heading bug on the HSI changes to a hollow outline and a crossed-out heading bug appears on the G5 HSI display indicating that the autopilot is not coupled to the heading bug. The bug is still controllable and may still be used for reference.

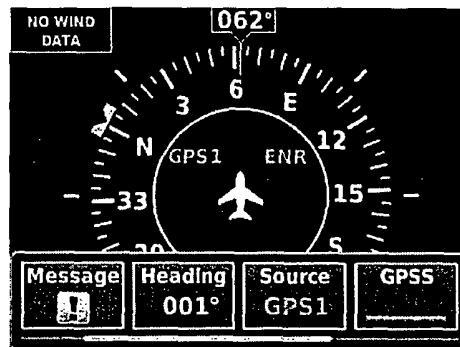


When GPSS is selected on the G5, GPSS turn commands are converted into a heading error signal to the autopilot. When the autopilot is operated in HDG mode, the autopilot will fly the turn commands from the GPS

navigator. If the GPSS data is invalid (for example, if there is no active GPS leg) or the selected HSI source on the G5 HSI is not GPS, the annunciated GPSS text will be yellow and a zero turn command will be sent to the autopilot.

HSI Source Selection (If Configured)

For aircraft configured with two navigation inputs to the G5, the desired source may be selected using the G5 knob and menu selection. Press the G5 knob to cycle between the NAV1 and NAV2 input.



HSI Portable Navigation Device GPS VFR Annunciation (If Configured)

For aircraft configured for a portable navigation device input to the G5, a GPS VFR indicated in magenta will be displayed on the HSI. When the G5 with a portable navigation device is interfaced there is not enough guidance data for IFR use.



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SECTION 5 – PERFORMANCE

No change.

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SECTION 6 – WEIGHT AND BALANCE

See current weight and balance data.

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SECTION 7 – SYSTEM DESCRIPTION

Refer to Garmin G5 Electronic Flight Instrument Pilot's Guide for Certified Aircraft, part number 190-01112-12 Rev A (or later approved revisions), for a description of the G5 electronic flight instrument. This reference material is not required to be on board the aircraft but does contain a more in depth description of all the functions and capabilities of the G5.

The ATT circuit breaker supplies power to the G5 instrument for normal power operation and to charge the internal battery.

The DG circuit breaker supplies power to the G5 instrument for normal power operation when configured as a DG, and to charge the internal battery (if installed).

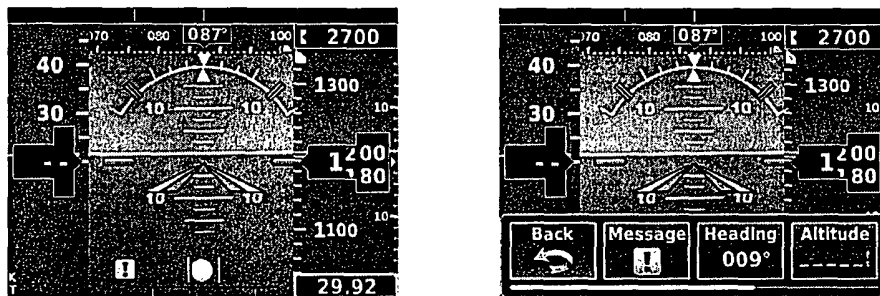
The HSI circuit breaker supplies power to the G5 instrument for normal power operation when configured as an HSI, and to charge the internal battery (if installed).

The GAD circuit breaker supplies power to the optional GAD 29 adapter and optional GAD 13 adapter for normal power operation.

System Messages

The G5 has the capability to display system messages to the crew along the bottom of the display. A system message is indicated through a white  indication on the G5.

Messages can be displayed by pressing the G5 knob, and selecting the Message menu item.



(For Reference Only)

The following table shows the meaning of each message. System messages are displayed in white text.

Message	Meaning
External Power Lost	Aircraft power has been removed from the G5.
Critical battery fault! Powering off	Battery has critical fault condition and the unit is about to power off to avoid damage to the battery.
Battery fault	Battery has a fault condition – unit needs service.
Battery charger fault	Battery charger has a fault condition – unit needs service.
Low battery	Battery charge level is low.
Hardware fault	Unit has a hardware fault – unit needs service.
Power supply fault	Unit power supply fault detected – unit needs service.
Unit temperature limit exceeded	Unit is too hot or too cold.
Network address conflict	Another G5 with the same address is detected on the network (most commonly a wiring error on one of the units).
Communication error	General communication error (most commonly appears in conjunction with Network Address Conflict message).
Factory calibration data invalid	Unit calibration data not valid – unit needs service.
Magnetic field model database out of date	Internal magnetic field database is out of date - software update required.
Magnetometer Hardware fault	The magnetometer has detected a fault – unit needs service. Heading data may not be available.
Using external GPS data	GPS data from another network LRU is being used. The unit's internal GPS receiver is enabled, but unable to establish a GPS fix.
Not receiving RS-232 data	The G5 is not receiving RS-232 data from the GPS navigator – system needs service.
Not receiving ARINC 429 data	The G5 is not receiving ARINC 429 data from the navigation source – system needs service.
GPS receiver fault	The G5 on-board GPS receiver has a fault.
ARINC 429 interface configuration error	The G5 ARINC 429 port is receiving information from an incorrect source – system needs service.
Software version mismatch	The G5 attitude indicator and the G5 HSI units have different software. Cross fill of baro, heading and altitude bugs is disabled.

These messages remain while the condition persists.

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FAA APPROVED AIRPLANE FLIGHT MANUAL SUPPLEMENT

GFC 500 Autopilot with ESP

Installed in

**Textron Aviation 172E / 172F / 172G / 172H / 172I / 172K / 172L / 172M /
172N / 172P / 172Q / 172R / 172S**

And

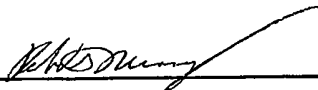
Cessna F172F / F172G / F172H / F172K / F172L / F172M / F172N / F172P

Dwg. Number: 190-02291-02 Rev. 4

This Supplement must be attached to the FAA Approved Airplane Flight Manual when the GFC 500 Autopilot system is installed in accordance with STC SA01866WI. The information contained herein supplements the information of the basic Airplane Flight Manual. For Limitations, Procedures, and Performance information not contained in this Supplement consult the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.

Airplane Serial Number: 17262831

Airplane Registration Number: N536JR

FAA Approved By: 

**Robert G. Murray
ODA STC Unit Administrator
Garmin International, Inc
ODA-240087-CE**

Date: 1/18/2019

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172N / 172P / 172Q / 172R / 172S / R172K**

And

**Cessna F172E / F172F / F172G / F172H / F172K / F172L / F172M / F172N /
F172P / FR172K**

REV NO.	PAGE NO(S)	DESCRIPTION	DATE OF APPROVAL	FAA APPROVED
1	ALL	Original Issue	12/21/2017	Robert G. Murray Garmin ODA STC Unit Administrator
2	ALL	Add model 172E	5/11/2018	Robert G. Murray Garmin ODA STC Unit Administrator
3	ALL	Add VNAV Procedures	07/27/2018	Paul Mast Garmin ODA STC Unit Administrator
4	ALL	Correct Typographical errors	01/18/19	Robert G. Murray Garmin ODA STC Unit Administrator
5	ALL	Add G3X Information	03/15/19	Robert G. Murray Garmin ODA STC Unit Administrator
6	ALL	Added R172K/FR172K/F172E	See Cover	See Cover

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Table of Contents

Section 1 – General	1-1
USE OF THE SUPPLEMENT	1-1
ABBREVIATIONS AND TERMINOLOGY	1-2
INSTALLED EQUIPMENT INTERFACES.....	1-3
INSTALLED FEATURES CHECKLIST	1-4
Section 2 – Limitations	2-1
Section 3 – Emergency Procedures	3-1
AUTOPILOT MALFUNCTION / PITCH TRIM RUNAWAY.....	3-1
AUTOPILOT FAILURE / ABNORMAL DISCONNECT	3-2
PITCH TRIM FAILURE	3-2
ESP ACTIVATION	3-2
OVERSPEED PROTECTION (MAXSPD).....	3-3
UNDERSPEED PROTECTION (MINSPD)	3-3
Section 3A – Non-Normal Procedures.....	3-5
AUTOPILOT ABNORMAL DISCONNECT.....	3-5
AUTOPILOT PRE-FLIGHT TEST FAIL.....	3-5
LOSS OF NAVIGATION INFORMATION.....	3-5
LOSS OF AIRSPEED DATA	3-6
LOSS OF ALTITUDE DATA.....	3-6
LOSS OF GPS INFORMATION.....	3-6
HEADING DATA SOURCE FAILURE.....	3-7
ELEVATOR MISTRIM (AUTOTRIM)	3-7
Section 4 – Normal Procedures	4-1
GFC 500 POWER UP	4-1
FLIGHT DIRECTOR / AUTOPILOT NORMAL OPERATING PROCEDURES.....	4-1
MANUAL AUTOPILOT DISCONNECT	4-1
VERTICAL MODES	4-2
VERTICAL SPEED (VS) MODE	4-2
INDICATED AIRSPEED (IAS) MODE	4-2
ALTITUDE HOLD (ALT) MODE, MANUAL CAPTURE	4-2
VERTICAL NAVIGATION (VNAV).....	4-3
GO AROUND.....	4-4
MANUAL PITCH TRIM WITH AUTOPILOT ENGAGED	4-4
LATERAL MODES.....	4-5
HEADING MODE (HDG)	4-5

TRACK MODE (TRK)	4-5
NAVIGATION (VOR).....	4-5
NAVIGATION (GPS).....	4-6
APPROACHES	4-7
ILS APPROACH	4-7
LOC APPROACH (GS out).....	4-8
GPS APPROACH (LPV, LNAV/VNAV, LP+V, or LNAV+V)	4-9
GPS APPROACH (LP, LNAV).....	4-9
LOC BC APPROACH	4-10
VOR APPROACH.....	4-11
DISABLING ESP	4-12
Section 5 – Performance	5-1
Section 6 – Weight and Balance	6-1
Section 7 – System Description.....	7-1
AFCS OVERVIEW	7-1
AUTOPILOT CONTROL UNIT AND DISPLAY	7-4
PREFLIGHT TEST	7-7
MESSAGES AND ANNUNCIATIONS	7-7
LIGHTING.....	7-8

SECTION 1 – GENERAL

The information in this supplement is FAA-approved material and must be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (POH/AFM) when the airplane has been modified by installation of the Garmin GFC 500 Autopilot system in accordance with Garmin International, Inc. approved data.

The information in this supplement supersedes or adds to the basic POH/AFM only as set forth below. Users of the manual are advised to always refer to the supplement for possibly superseding information and placarding applicable to operation of the airplane.

USE OF THE SUPPLEMENT

The following definitions apply to WARNINGS, CAUTIONS and NOTES found throughout the supplement:

WARNING

Operating procedures, techniques, etc., which may result in personal injury or loss of life if not carefully followed.

CAUTION

Operating procedures, techniques, etc., which may result in damage to equipment if not carefully followed.

NOTE

Operating procedures, techniques, etc., which is considered essential to emphasize.

ABBREVIATIONS AND TERMINOLOGY

The following glossary is applicable within the airplane flight manual supplement

AFCS	Automatic Flight Control System	LNAV/VNAV	Lateral Navigation / Vertical Navigation Approach
AFM	Airplane Flight Manual	LOC	Localizer (no glideslope available)
AFMS	Airplane Flight Manual Supplement	LP	Localizer Performance
AGL	Above Ground Level	LP+V	Localizer Performance with Advisory Vertical Guidance
AHRS	Attitude and Heading Reference System	LPV	Localizer Performance with Vertical Guidance
ALT	Altitude	LVL	Level
AP	Autopilot	MDA	Minimum Descent Altitude
APR	Approach	PFT	Preflight Test
ATC	Air Traffic Control	POH	Pilot's Operating Handbook
BC	Back Course Approach	STC	Supplemental Type Certificate
CDI	Course Deviation Indicator	TO	Takeoff
DA	Decision Altitude	TRK	Track
DISC	Disconnect	VHF	Very High Frequency
DWG	Drawing	VOR	VHF Omni-directional Range
ESP	Electronic Stability and Protection	VS	Vertical Speed
FAA	Federal Aviation Administration		
FAF	Final Approach Fix		
FD	Flight Director		
GA	Go Around		
GFC 500	Garmin Autopilot		
GMC 507	Autopilot Mode Control Panel		
GNSS	Global Navigation Satellite System		
GPS	Global Positioning System		
GS	Glideslope		
GSA	Garmin Servo Actuator		
HDG	AFCS heading mode		
IAS	Indicated Airspeed		
ILS	Instrument Landing System		
INT	Interrupt		
KIAS	Knots Indicated Airspeed		
LNAV	Lateral Navigation		
LNAV+V	Lateral Navigation with Advisory Vertical Guidance		

INSTALLED EQUIPMENT INTERFACES

The following is the list of installed equipment and functions associated with the GFC 500 Autopilot installation in this airplane.

Table 1-1: Table of Installed Equipment Interfaces

DEVICE TYPE	Manufacturer / Model If not installed, note N/A	Additional Information
GPS Navigator #1		Is Navigator #1 interfaced to GFC 500? ☐ YES ☐ NO
VHF Nav Radio #1		Is VHF Nav Radio #1 interfaced to GFC 500? ☐ YES ☐ NO
VHF Nav Radio #2		
Pitch Trim Servo		

INSTALLED FEATURES CHECKLIST

The checked autopilot modes and features are available on this aircraft.

Basic AP Features

- ☒ Flight Director
- ☐ Electric Pitch Trim
- ☒ Overspeed Protection
- ☒ Underspeed Protection

Vertical Autopilot Modes

- ☒ Pitch (PIT)
- ☒ Level (Zero vertical speed)
- ☒ Go Around (GA)
- ☒ Altitude Hold
- ☒ Vertical Speed
- ☒ Altitude Capture via Altitude Preselect
- ☒ Indicated Airspeed (IAS)
- ☐ Vertical Navigation (VNAV)
- ☐ GPS Approach Glidepath
- ☐ ILS Glideslope

Electronic Stability and Protection

- ☒ Pitch/Roll Attitude
- ☒ High Speed Protection
- ☐ Low Speed Protection

Lateral Autopilot Modes

- ☒ Roll (ROL)
- ☒ Level (Wings Level)
- ☒ Go Around (GA)
- ☐ Heading
- ☒ Track
- ☐ GPS Navigation
- ☐ VHF Navigation
- ☐ Approach Mode
 - ☐ GPS
 - ☐ VOR/LOC

SECTION 2 – LIMITATIONS

The Garmin G5 Electronic Flight Instrument Pilot's Guide for Certified Aircraft, part number 190-01112-12 Rev A (or later approved revisions), must be immediately available to the flight crew (when G5 is installed).

The Garmin G3X Touch Pilot's Guide for Certified Aircraft, part number 190-02472-00, Rev A (or later approved revisions) must be immediately available to the flight crew (when G3X EFIS system is installed).

This AFMS is applicable to the software versions shown below:

Software Item	Software Version (or later FAA Approved version for this STC)
G5 Software Version	5.70
G3X Software Version	8.00

A pilot must be seated in the left pilot's seat, with seatbelt fastened, during all autopilot operations.

Do not use autopilot during takeoff and landing.

The GFC 500 AFCS preflight test must complete successfully prior to use of the autopilot, flight director or manual electric trim.

The maximum fuel imbalance with the autopilot engaged is 10 gallons.

Autopilot maximum engagement speed is 150 KIAS.

Autopilot engagement is limited to flap positions no greater than 10 degrees.

The autopilot must be disengaged below 200 feet AGL during approach operations and below 800 feet AGL during all other operations.

The GFC 500 autopilot is approved for Category 1 precision approaches and non-precision approaches only.

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SECTION 3 – EMERGENCY PROCEDURES

Some emergency situations require immediate memorized corrective action. These steps are printed in bold in the emergency procedures and should be accomplished without the aid of the checklist.

AUTOPILOT MALFUNCTION / PITCH TRIM RUNAWAY

If the airplane deviates unexpectedly from the planned flight path:

1. **Control Wheel**.....**GRIP FIRMLY**
2. **AP DISC / TRIM INT Button****PRESS AND HOLD**

CAUTION

Be prepared for high elevator control forces.

3. **Aircraft Attitude**.....**MAINTAIN / REGAIN AIRCRAFT CONTROL**
4. **Elevator Trim**..... **RE-TRIM** if necessary using Elevator Tab Wheel
5. **AUTOPILOT Circuit Breaker**..... **PULL**

NOTE

Do not release the AP DISC / TRIM INT Button until after pulling the AUTOPILOT Circuit Breaker.

Pulling the AUTOPILOT circuit breaker will render the autopilot and ESP inoperative.

6. **AP DISC / TRIM INT Button**..... **RELEASE**

WARNING

In flight, do not overpower the autopilot. The trim will operate in the direction opposing the overpower force, which will result in large out-of-trim forces.

Do not attempt to re-engage the autopilot or use manual electric pitch trim until the cause of the malfunction has been corrected.

AUTOPILOT FAILURE / ABNORMAL DISCONNECT

(Red AP in autopilot status box on display, continuous aural disconnect tone.)

- 1. AP DISC / TRIM INT Button or G5 Knob or G3X Autopilot Status Bar..... PRESS AND RELEASE
(to cancel disconnect tone)
- 2. Aircraft Attitude..... MAINTAIN / REGAIN AIRCRAFT CONTROL

NOTE

The autopilot disconnect may be accompanied by a red AFCS in the autopilot status box, indicating the automatic flight control system has failed. The flight director will not be available and the autopilot cannot be re-engaged with this annunciation present.

If the disconnect is accompanied by an amber AP with a red X, the autopilot will not be available however the flight director will still be functional.

In the event of a GMC failure, pressing the G5 knob or G3X Autopilot status bar will acknowledge the disconnect tone.

PITCH TRIM FAILURE

(Red PTRIM on G5 or G3X display.)

This failure will only occur if the optional pitch trim servo is installed.

- 1. Indicates a failure of the pitch trim servo.
- 2. Control Wheel GRIP FIRMLY
- 3. AP DISC / TRIM INT Button..... PRESS and RELEASE
(Be prepared for high elevator control forces)
- 4. Elevator Trim..... AS REQUIRED USING ELEVATOR TAB WHEEL

NOTE

The autopilot may be re-engaged. Refer to the normal procedures section of this AFMS, MANUAL PITCH TRIM WITH AUTOPILOT ENGAGED.

ESP ACTIVATION

- 1. Throttle AS REQUIRED
- 2. Aircraft Attitude..... MAINTAIN / REGAIN AIRCRAFT CONTROL

NOTE

If ESP is active for approximately 10 seconds, the autopilot will automatically engage in LVL mode, an aural 'ENGAGING AUTOPILOT' will be played, (or a Sonalert tone will sound for installations without a supported audio panel) and the autopilot will roll the wings level and fly at zero-vertical speed. Refer to Section 7, System Description for further information.

ESP will be disabled by pressing and holding the AP DISC / TRIM INT button. Releasing the button will allow ESP to function.

OVERSPEED PROTECTION (MAXSPD)

(MAXSPD displayed on G5 or G3X, AIRSPEED – AIRSPEED Aural sounds.)

1. ThrottleREDUCE
2. Aircraft Attitude and Altitude MONITOR

After overspeed condition is corrected:

3. AutopilotRESELECT VERTICAL AND LATERAL MODES (if necessary)
4. ThrottleADJUST as necessary

NOTE

Overspeed protection mode provides a pitch up command to decelerate the airplane at or below the maximum autopilot operating speed.

UNDERSPEED PROTECTION (MINSPD)

(MINSPD displayed on G5 or G3X, AIRSPEED – AIRSPEED Aural sounds.)

1. Throttle INCREASE POWER AS REQUIRED TO CORRECT UNDERSPEED
2. Aircraft Attitude and Altitude MONITOR

After underspeed condition is corrected:

3. AutopilotRESELECT VERTICAL AND LATERAL MODES (if necessary)
4. ThrottleADJUST as necessary

NOTE

Autopilot Underspeed Protection Mode provides a pitch down command to maintain 50 KIAS.

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SECTION 3A – NON-NORMAL PROCEDURES

AUTOPILOT ABNORMAL DISCONNECT

(Red AP in the G5 or G3X autopilot status box, continuous aural disconnect tone.)

1. AP DISC / TRIM INT Button.....PRESS AND RELEASE
(to cancel disconnect tone)
2. Aircraft Attitude..... MAINTAIN / REGAIN AIRCRAFT CONTROL

NOTE

The autopilot disconnect may be accompanied by a red AFCS in the autopilot status box, indicating the automatic flight control system has failed. The flight director will not be available and the autopilot cannot be re-engaged with this annunciation present.

If the disconnect is accompanied by an amber AP with a red X, the autopilot will not be available however the flight director will still be functional.

AUTOPILOT PRE-FLIGHT TEST FAIL

(Amber AP with a red X in G5 or G3X autopilot status box.)

1. Indicates the AFCS system failed the automatic Pre-Flight test.

NOTE

The autopilot, ESP, and electric elevator trim are inoperative. Flight director will still function.

LOSS OF NAVIGATION INFORMATION

This procedure applies only if the optional GPS and/or VHF navigator is installed.

(Amber GPS, VOR, LOC, or BC flashes for 10 seconds on G5 or G3X.)

NOTE

If a navigation signal is lost while the autopilot is tracking it, the autopilot will roll the aircraft wings level and default to roll mode (ROL).

1. GMC 507 Mode Panel..... SELECT HDG mode and SET desired heading
2. NAV Source SELECT a valid NAV source
3. NAV Key.....PRESS

If on an instrument approach at the time the navigation signal is lost:

4. Missed Approach Procedure..... EXECUTE (as applicable)

LOSS OF AIRSPEED DATA

(Red X through airspeed tape on the G5 or G3X display, amber AP with a red X in autopilot status box.)

NOTE

If airspeed data is lost while the autopilot is tracking airspeed, the flight director will default to pitch mode (PIT).

1. AP DISC / TRIM INT Button..... PRESS AND RELEASE
(to cancel disconnect tone)
2. Aircraft Attitude..... MAINTAIN / REGAIN AIRCRAFT CONTROL
3. Manual Elevator Trim TRIM as required

NOTE

The autopilot cannot be re-engaged. The flight director is available however IAS mode cannot be selected. Loss of airspeed will be accompanied by a red PTRIM indication on the G5 or G3X (if a pitch trim servo is installed).

LOSS OF ALTITUDE DATA

(Red X through altitude tape on the G5 or G3X display.)

NOTE

If altitude data is lost while the autopilot is tracking altitude, the autopilot will default to pitch mode (PIT).

1. Autopilot SELECT different vertical mode

LOSS OF GPS INFORMATION

(GPS position information is lost to the autopilot.)

NOTE

If GPS position data is lost while the autopilot is tracking a GPS, VOR, LOC or BC course, the autopilot will default to roll mode (ROL). The autopilot will default to pitch mode if GPS information is lost while tracking an ILS. The autopilot uses GPS aiding in VOR, LOC and BC modes.

1. AutopilotSELECT different lateral and vertical mode (as necessary)

If on an instrument approach:

1. AP DISC / TRIM INT buttonPRESS, Continue the approach manually
Or
2. Missed Approach Procedure..... EXECUTE (as applicable)

HEADING DATA SOURCE FAILURE

1. Autopilot SELECT different lateral mode

NOTE

Track information will be displayed on the G5 or G3X.

Without a heading source to the navigator, GPSS will not be provided to the autopilot for heading legs. Navigator map cannot be oriented heading up.

ELEVATOR MISTRIM (AUTOTRIM)

(Amber TRIM UP or TRIM DOWN displayed on the G5 or G3X.)

WARNING

Do not attempt to overpower the autopilot in the event of a pitch mistrim. The autopilot servo will oppose pilot input and will cause pitch trim to run opposite the direction of pilot input. This will lead to a significant out-of-trim condition, resulting in large control wheel force when disengaging the autopilot.

NOTE

Indicates a mistrim of the elevator while the autopilot is engaged.

If a pitch trim servo is not installed, refer to the normal procedures section of this AFMS, MANUAL PITCH TRIM WITH AUTOPILOT ENGAGED. If a pitch trim servo is installed, the autopilot will normally trim the airplane as required. However, during rapid acceleration, deceleration, configuration changes, or near either end of the elevator trim limits, momentary illumination of this message may occur. If the autopilot is disconnected while this message is displayed, high elevator control forces are possible.

If a pitch trim servo is not installed:

1. Refer to the normal procedures section of this AFMS, MANUAL PITCH TRIM WITH AUTOPILOT ENGAGED.

If a pitch trim servo is installed:

NOTE

Momentary display of the TRIM UP or TRIM DOWN message during configuration changes or large airspeed changes is normal.

1. Control Wheel GRIP FIRMLY

WARNING

Be prepared for significant sustained control forces in the direction of the mistrim annunciation. For example, TRIM DOWN indicates nose down control wheel force will be required upon autopilot disconnect.

2. AP DISC / TRIM INT Button..... PRESS AND RELEASE

3. Manual Elevator Trim RE-TRIM as required

Electric pitch trim should be considered inoperative until the cause of the mistrim has been investigated and corrected.

SECTION 4 – NORMAL PROCEDURES

GFC 500 POWER UP

During the preflight test the G5 or G3X will display PFT in the autopilot status box. When the GFC 500 passes preflight test, PFT will be removed from the autopilot status box.

FLIGHT DIRECTOR / AUTOPILOT NORMAL OPERATING PROCEDURES

Autopilot/Flight Director mode annunciations are displayed at the top of the G5 Electronic Flight Instrument or the top of the G3X Electronic Flight Instrument System PFD. Green text indicates active autopilot/flight director modes. Armed modes are indicated in white text. Normal mode transitions will flash inverse video for 10 seconds before becoming steady. Abnormal mode transitions will flash for 10 seconds in amber text before the default mode is annunciated as the active mode in green text. Default autopilot/flight director modes are Roll (ROL) and Pitch (PIT) modes.

The autopilot status box displays the autopilot engagement status as well as armed and active flight director modes.

Autopilot Engagement with Flight Director Off — Upon engagement, the autopilot will be set to hold the current attitude of the airplane if the flight director was not previously on. In this case, 'ROL' and 'PIT' will be annunciated.

Autopilot Engagement with Flight Director On — If the flight director is on, the autopilot will smoothly pitch and roll the airplane to capture the FD command bars. The prior flight director modes remain unchanged.

Autopilot Disengagement — The most common way to disconnect the autopilot is to press and release the AP DISC / TRIM INT button located on the control yoke. An autopilot disconnect tone will sound and an amber AP will be annunciated on the G5 or G3X autopilot status box. Other ways to disconnect the autopilot include:

- Pressing the AP Key on the GMC 507 Mode Controller
- Operating the Electric Pitch Trim Switch (located on the control wheel)
- Pulling the AUTOPILOT circuit breaker

In the event of unexpected autopilot behavior, press and holding the AP DISC / TRIM INT button will disconnect the autopilot and remove all power to the servos.

MANUAL AUTOPILOT DISCONNECT

If necessary, the autopilot may be manually disconnected using any one of the following methods:

1. AP DISC / TRIM INT Button.....PRESS and RELEASE
(Pilot's control wheel)
2. AP KeyPRESS
3. Pitch Trim SwitchACTIVATE
4. AUTOPILOT Circuit BreakerPULL

VERTICAL MODES

VERTICAL SPEED (VS) MODE

1. Altitude Preselect SET to Desired Altitude
2. VS KeyPRESS, autopilot synchronizes to the airplane's current vertical speed
3. Vertical Speed ReferenceADJUST using UP / DN Wheel
4. Green ALT..... VERIFY Upon Altitude Capture

INDICATED AIRSPEED (IAS) MODE

1. Altitude Preselect SET to Desired Altitude
2. Press IAS Key, autopilot synchronizes to the airplane's current indicated airspeed.
3. AIRSPEED ReferenceADJUST using UP / DN Wheel
4. Throttle ADJUST, INCREASE POWER to climb
DECREASE POWER to descend
5. Green ALT..... VERIFY Upon Altitude Capture

ALTITUDE HOLD (ALT) MODE, MANUAL CAPTURE

1. When at the desired altitudePRESS ALT key

NOTE

If climbing or descending at a high rate when the ALT key is pressed, the airplane will overshoot the reference altitude and then return to it. The amount of overshoot will depend on the vertical speed when the ALT key is pressed.

The altitude reference is displayed in the autopilot status box. The reference may be changed by +/- 200 FT using the UP / DN wheel.

VERTICAL NAVIGATION (VNAV)

1. Navigation Source..... SELECT CDI to GPS
2. Vertical Navigation Profile.....LOAD into the GPS navigator's flight plan
3. Altitude Preselect SET to the vertical clearance limit
When ATC clearance received.
4. GMC 507 Mode Panel..... PRESS VNAV within 5 minutes of the top of descent (TOD)

NOTE

Vertical navigation will not function for the following conditions:

- Selected navigation source is not GPS navigation. VNAV will not function if the navigation source is VOR or Localizer.
- VNAV is not enabled on the GPS Navigator
- If the altitude preselect is not set below the current aircraft altitude.
- No waypoints with altitude constraints in the flight plan
- Glideslope or Glidepath is the active flight director pitch mode.
- OBS mode is active
- Dead Reckoning mode is active
- Parallel track is active
- Aircraft is on the ground

Vertical navigation is not available between the final approach fix (FAF) and the missed approach point (MAP)

ALTV will be the armed vertical mode during the descent if the altitude preselect is set to a lower altitude than the VNAV reference altitude. This indicates the autopilot / flight director will capture the VNAV altitude reference. ALTS will be the armed mode during the descent if the altitude preselect is set at or above the VNAV reference altitude, indicating that the autopilot / flight director will capture the altitude preselect altitude reference.

GO AROUND

1. GO AROUND buttonPRESS – Verify GA / GA on G5 or G3X
autopilot will not disengage
2. Autopilot (if engaged)VERIFY airplane pitches up following flight director command bars
3. ThrottleAPPLY Go Around power
4. GMC 507 Mode Panel.....PRESS NAV to couple to selected navigation source
OR
PRESS HDG to Fly ATC Assigned Missed Approach Heading
5. Altitude PreselectVERIFY
Set to appropriate altitude.

NOTE

The pilot is responsible for initial missed approach guidance in accordance with published procedure. When the GA button is pressed the Flight Director command bars will command go-around pitch attitude and wings level. The pilot must select the CDI to the appropriate navigation source and select the desired lateral and vertical flight director modes.

MANUAL PITCH TRIM WITH AUTOPILOT ENGAGED

(Amber TRIM UP or TRIM DOWN displayed on G5 or G3X.)

NOTE

If the aircraft is not equipped with a pitch trim servo, the pilot must manually adjust the pitch trim when airspeed and aircraft configuration changes are made.

A message will be displayed on the G5 or G3X display to indicate the pitch servo is holding sustained force, and the pilot must manually trim the aircraft.

1. If TRIM UP message is displayedMANUALLY TRIM nose up
2. If TRIM DOWN message is displayed MANUALLY TRIM nose down

LATERAL MODES

HEADING MODE (HDG)

1. HDG KeyPRESS
The autopilot will turn the airplane in the direction of the heading bug.
2. HDG/TRK Knob.....Rotate to set heading bug to desired heading.

TRACK MODE (TRK)

1. TRK KeyPRESS
The autopilot will turn the airplane in the direction of the track bug.
2. HDG/TRK Knob.....Rotate to set track bug to desired track.

NAVIGATION (VOR)

1. Navigation Source.SELECT CDI to VHF NAV
Tune and identify the station frequency.
2. Course PointerSET CDI to the Desired Course
3. Intercept Heading ESTABLISH in HDG, TRK or ROL mode
4. NAV KeyPRESS

NOTE

If the Course Deviation Indicator (CDI) is greater than one dot from center, the autopilot will arm the VOR mode. The pilot must ensure that the current heading will result in a capture of the selected course. If the CDI is one dot or less from center, the autopilot will enter the capture mode when the NAV key is pressed.

NAVIGATION (GPS)

1. Navigation Source..... SELECT CDI to GPS
2. Waypoint SELECT on Navigation Source
3. Course PointerVERIFY CDI set to the Desired Course
4. Intercept Heading.....ESTABLISH in HDG or ROL mode
5. NAV Key.....PRESS

NOTE

If the Course Deviation Indicator (CDI) is greater than one dot from center, the autopilot will arm the GPS mode. The pilot must ensure that the current heading will result in a capture of the selected course. If the CDI is one dot or less from center, the autopilot will enter the capture mode when the NAV key is pressed.

APPROACHES

ILS APPROACH

1. Navigation Source..... SELECT CDI to VHF Nav
Tune and Identify an ILS station frequency.
2. CDI SET to front LOC course

NOTE

Ensure that the current heading will result in a capture of the selected course.

3. APR Key..... PRESS, verify LOC and GS ARMED
 4. LOC and GS Mode..... VERIFY airplane Captures and Tracks LOC and GS
 5. Missed Approach Altitude SET in Altitude preselect.
- At Decision Altitude (DA),

6. AP DISC / TRIM INT button PRESS, Continue visually for a normal landing
Or
7. GO AROUND (GA) button PRESS, Execute Missed Approach Procedure
8. Apply GA power.

NOTE

Pressing the GA button will not disconnect the autopilot. Select NAV or HDG mode to fly the missed approach procedure.

If the Course Deviation Indicator (CDI) is greater than half scale deflection, the autopilot will arm the LOC mode. The pilot must ensure that the current heading will result in a capture of the selected course. If the CDI is within half scale deflection, the autopilot will enter the capture mode when the APR key is pressed.

When the selected navigation source is an ILS, glideslope coupling is automatically armed when the APR key is pressed. The glideslope cannot be captured until the localizer is captured. The autopilot can capture the glideslope from above or below the glideslope.

LOC APPROACH (GS out)

1. Navigation Source.....SELECT CDI to VHF Nav
Tune and Identify an ILS station frequency.
2. Course Pointer SET to front LOC course

NOTE

Ensure that the current heading will result in a capture of the selected course.

3. NAV Key.....PRESS, verify LOC ARMED
4. LOC Mode..... VERIFY airplane Captures and Tracks LOC Course
5. Altitude PreselectSET to next required step down altitude
6. Missed Approach AltitudeSET when in ALT mode at the MDA

At Missed Approach Point,

7. AP DISC / TRIM INT button PRESS, Continue visually for a normal landing
Or
8. GO AROUND (GA) buttonPRESS, Execute Missed Approach Procedure
9. Apply GA power.

NOTE

Pressing the GA button will not disconnect the autopilot. Select NAV or HDG mode to fly the missed approach procedure.

GPS APPROACH (LPV, LNAV/VNAV, LP+V, or LNAV+V)

1. Navigation Source..... SELECT CDI to GPS
2. Course PointerVERIFY CDI set to the Desired Course

NOTE

Ensure that the current heading will result in a capture of the selected course.

3. APR Key..... PRESS, verify GPS and GP ARMED
4. GPS and GP ModeVERIFY airplane Captures and Tracks GPS and GP
5. ALT KeyPRESS to level off at the MDA for a LP+V or LNAV+V approach
At DA (LPV or LNAV/VNAV approach), or MDA and Missed Approach Point (LP+V or LNAV+V),
6. AP DISC / TRIM INT button PRESS, Continue visually for a normal landing
Or
7. GO AROUND (GA) buttonPRESS, Execute Missed Approach Procedure
8. Apply GA power.
9. Set missed approach altitude in the altitude preselect.

NOTE

Pressing the GA button will not disconnect the autopilot. Select NAV or HDG mode to fly the missed approach procedure.

GPS APPROACH (LP, LNAV)

1. Navigation Source..... SELECT GPS on the CDI
2. Course PointerVERIFY CDI set on the Desired Course

NOTE

Ensure that the current heading will result in a capture of the selected course.

3. NAV Key..... PRESS, verify GPS ARMED
4. GPS Mode..... VERIFY airplane Captures and Tracks GPS Course
5. Altitude PreselectSET to next required step down altitude
6. Missed Approach AltitudeSET when in ALT mode at the MDA
At Missed Approach Point,
7. AP DISC / TRIM INT button PRESS, Continue visually for a normal landing
Or
8. GO AROUND (GA) buttonPRESS, Execute Missed Approach Procedure
9. Apply GA power.

NOTE

Pressing the GA button will not disconnect the autopilot. Select NAV or HDG mode to fly the missed approach procedure.

LOC BC APPROACH

1. Navigation Source SELECT CDI to VHF Nav
Tune and Identify an ILS station frequency
2. Course Pointer SET CDI to LOC Front Course

NOTE

Ensure that the current heading will result in a capture of the selected course.

3. NAV Key PRESS, verify BC ARMED
(when heading is within 75 degrees of BC course)
4. BC Mode VERIFY airplane Captures and Tracks BC Course
5. Altitude Preselect SET to next required step down altitude
6. Missed Approach Altitude SET when in ALT mode at the MDA

At Missed Approach Point:

7. AP DISC / TRIM INT button PRESS, Continue visually for a normal landing
Or
8. GO AROUND (GA) button PRESS, Execute Missed Approach Procedure
9. Apply GA power.

NOTE

Pressing the GA button will not disconnect the autopilot. Select NAV or HDG mode to fly the missed approach procedure.

VOR APPROACH

1. Navigation Source.....SELECT CDI to VHF Nav
Tune and identify the station frequency
2. Course PointerSET CDI to the Desired Course

NOTE

Ensure that the current heading will result in a capture of the selected course.

3. NAV Key.....PRESS, verify VOR ARMED
4. VOR ModeVERIFY airplane Captures and Tracks VOR Course
5. Altitude PreselectSET to next required step down altitude
6. Missed Approach AltitudeSET when in ALT mode at the MDA

At Missed Approach Point,

7. AP DISC / TRIM INT buttonPRESS, Continue visually for a normal landing
Or
8. GO AROUND (GA) buttonPRESS, Execute Missed Approach Procedure
9. Apply GA power.

NOTE

Pressing the GA button will not disconnect the autopilot. Select NAV or HDG mode to fly the missed approach procedure.

DISABLING ESP

ESP can be disabled on the G5 attitude indicator with the following procedure. ESP will default to "Enabled" on the next power cycle.

1. G5 KnobPRESS
2. ESPSELECT
3. G5 KnobPRESS

ESP can be disabled on the G3X with the following procedure. ESP will default to "Enabled" on the next power cycle.

1. Autopilot Status Box..... TOUCH
2. ESP Button..... TOUCH
3. Back Button.....PRESS

SECTION 5 – PERFORMANCE

No Change.

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SECTION 6 – WEIGHT AND BALANCE

No change to loading information. Refer to current weight and balance report and equipment list for changes to empty weight/moment and installed equipment.

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SECTION 7 – SYSTEM DESCRIPTION

AFCS OVERVIEW

The GFC 500 is a digital Automatic Flight Control System (AFCS). It is a two-axis autopilot and flight director system which provides the pilot with the following features:

G5 Outputs to Autopilot — The G5 flight instrument (when installed) provides attitude, rate, and acceleration information to the servos. Additionally, indicated airspeed, vertical speed, pressure altitude and GPS information are sent to the autopilot for mode control.

G3X Outputs to Autopilot — The G3X electronic flight instrument system provides attitude, rate, and acceleration information to the servos. Additionally, indicated airspeed, vertical speed, pressure altitude and GPS information are sent to the autopilot for mode control.

Flight Director (FD) — The flight director processing occurs in the G5 or G3X instrument. Selected modes for the flight director are displayed on the G5 or G3X autopilot status box.

The flight director provides:

- Command Bars showing pitch/roll guidance
- Vertical / lateral mode selection and processing

Autopilot (AP) — Autopilot operation occurs within the pitch, roll, and optional pitch trim servo. It also provides servo monitoring, and automatic flight control in response to flight director steering commands, attitude and rate information, and airspeed.

Optional Electric Pitch Trim — The pitch trim servo provides manual electric pitch trim capability when the autopilot is not engaged. The trim servo provides automatic pitch trim when the autopilot is engaged and the airplane is in the air. Automatic trim functionality is disabled on the ground.

GMC 507 — Pilot commands to the autopilot and flight director are entered through the GMC 507 autopilot mode panel. The GMC 507 contains internal sensors which calculate the aircraft attitude, attitude rate and accelerations. These inertial sensors are completely independent from the sensors within the G5 or G3X and the rest of the autopilot system, and are not used for the flight director, autopilot, trim or ESP functions. They are used solely to provide independent monitoring of the GFC 500.

Airspeed and Altitude Information — The GFC 500 requires airspeed and altitude information from the G5 instrument or the G3X system.

Other components of the AFCS include the GSA 28 pitch, roll, and optional pitch trim servo that also contain autopilot processors, control wheel mounted elevator trim switch (if trim servo is installed), control wheel mounted autopilot disconnect and trim interrupt button (AP DISC / TRIM INT), and a Go-Around (GA) button.

Underspeed Protection (USP) — The GFC 500 will provide Underspeed Protection when the autopilot is engaged.

When the minimum airspeed of 60 KIAS is reached, a visual MINSPD message will appear above the airspeed tape and the autopilot will lower the nose to maintain 60 KIAS. An aural "AIRSPEED, AIRSPEED" voice alert will sound for installations connected to an audio panel.

Underspeed Protection is exited automatically when airspeed exceeds 65 KIAS.

Overspeed Protection (OSP) — The GFC 500 will provide Overspeed Protection when the autopilot is engaged.

When the maximum airspeed of 150 KIAS is reached, visual MAXSPD message will appear above the airspeed tape and the autopilot will raise the nose of the aircraft to avoid exceeding the maximum configured airspeed. An aural "AIRSPEED, AIRSPEED" voice alert will sound for installations connected to an audio panel.

Overspeed Protection is exited automatically when airspeed is reduced below 145 KIAS.

Coupled Go-Around — Pressing the GA button will not disengage the autopilot. Instead, the autopilot will attempt to capture and track the flight director command bars. If insufficient airplane performance is available to follow the commands, the autopilot will enter Underspeed Protection mode at the minimum airspeed.

Electronic Stability and Protection (ESP) — The GFC 500 will provide Electronic Stability and Protection when the autopilot is not engaged.

Electronic Stability and Protection (ESP) uses the autopilot servos to assist the pilot in maintaining the airplane in a safe flight condition within the airplane's normal pitch, roll and airspeed envelopes.

Electronic Stability and Protection is invoked when the pilot allows the airplane to exceed one or more conditions beyond normal flight defined below:

- Pitch attitude beyond normal flight (+20°, -15°)
- Roll attitude beyond normal flight (45°)
- High airspeed beyond normal flight (above 161 KIAS)
- Low airspeed below normal flight (below 50 KIAS)

The conditions that are required for ESP to be available are:

- Pitch and Roll servos available
- Autopilot not engaged
- The GPS altitude above ground is more than 200 feet (for low airspeed mode)
- Aircraft is within the autopilot engagement envelope (+/-50° in pitch and +/-75° in roll)

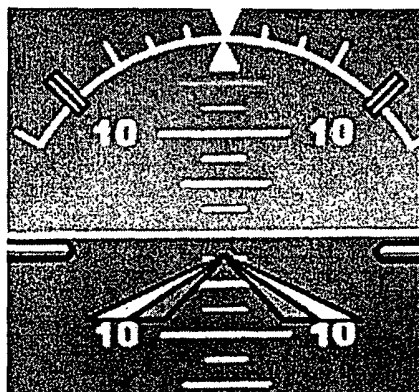
Protection for excessive Pitch, Roll, and Airspeed is provided when the limit thresholds are first exceeded, which engages the appropriate servo in ESP mode at a nominal torque level to bring the airplane back within the normal flight envelope. If the airplane deviates further from the normal flight envelope, the servo torque will increase until the maximum torque level is reached in an attempt to return the airplane into the normal flight envelope. Once the airplane returns to within the normal flight envelope, ESP will deactivate the autopilot servos.

When the normal flight envelope thresholds have been exceeded for more than 10 seconds, ESP Autolevel Mode is activated. Autolevel Mode engages the autopilot to bring the airplane back into straight and level flight based on 0° roll angle and 0 FPM vertical speed. An aural "ENGAGING AUTOPILOT" alert (or a Sonalert tone) sounds and the Flight Director mode annunciation will indicate LVL for the pitch and roll modes.

Anytime an ESP mode is active, the pilot can interrupt ESP by using the Autopilot Disconnect (AP DISC / TRIM INT) switch, or simply override ESP by overpowering the autopilot servos. The pilot may also disable ESP through the G5 menu.

The engagement and disengagement attitude limits are displayed with double hash marks on the roll indicator depending on the airplane attitude and whether or not ESP is active in roll. When ESP is inactive (roll attitude within nominal limits) only the engagement limit indications are displayed in order to reduce clutter on the roll indicator.

Display symbology implemented for ESP is illustrated in the following figures.



Engagement Limit
Indication at 45°

Figure 7-1: Nominal Roll Attitude ESP Engagement Limit Indications

Once ESP becomes active in roll, the engagement limit indication that was crossed (either Left or Right) will move to the lower disengagement limit indication. The opposite roll limit remains at the engagement limit.

Lower Disengagement Limit
Indication depicted at 30° after ESP
activation

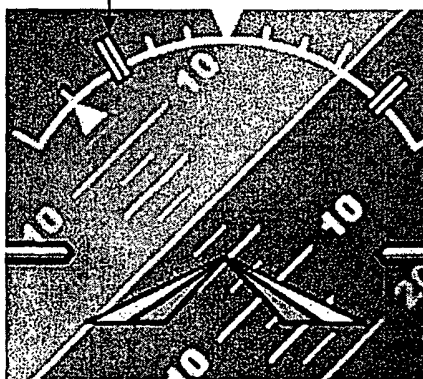


Figure 7-2: Engagement Limit Indications Upon ESP Activation

Disconnect Methods

The following conditions will cause the autopilot to automatically disconnect:

- Electrical power failure, including pulling the AUTOPILOT circuit breaker.
- Internal autopilot system failure (including internal AHRS failure).

The following pilot actions will cause the autopilot to disconnect:

- Pressing the red AP DISC / TRIM INT button on the pilot's control wheel.
- Actuating the manual electric trim switch (if installed).
- Pushing the AP Key on the GMC 507 mode controller when the autopilot is engaged.
- Pulling the AUTOPILOT circuit breaker.

The red AP DISC / TRIM INT button on the pilot's control wheel will interrupt power to the manual electric trim for as long as the switch is depressed.

AUTOPILOT CONTROL UNIT AND DISPLAY

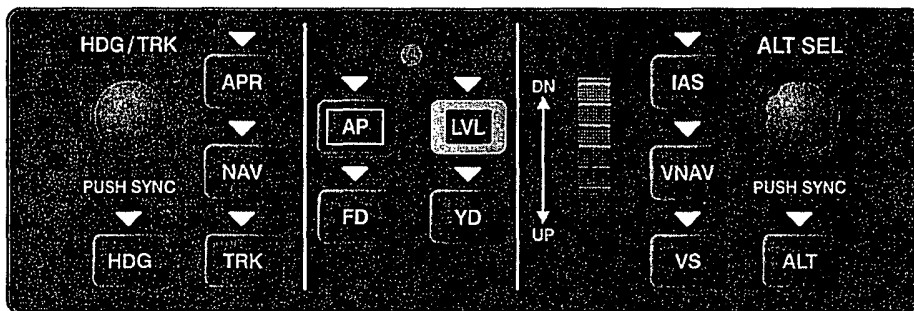


Figure 7-3: GMC 507 Control Unit (Reference Only)

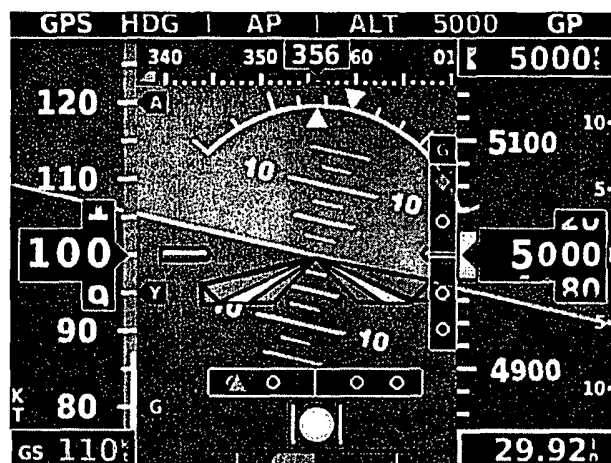


Figure 7-4: G5 Display (Reference Only)

The following tables list the available AFCS vertical and lateral modes with their corresponding controls and annunciations. The UP/DN wheel can be used to change the vertical mode reference while operating in Pitch Hold, Vertical Speed, Altitude Hold, or IAS mode. Increments of change and maximum ranges of values for each of these references using the UP/DN wheel are also listed in the table.

AFCS VERTICAL MODES

Vertical Mode	Control	Annunciation	Reference Range	Reference Change Increment
Pitch Hold	(default)	PIT	20° Nose Up 15° Nose Down	0.5°
Selected Altitude Capture	*	ALTS		
Altitude Hold	ALT Key	ALT nnnnn		10 FT
Vertical Speed	VS Key	VS nnnn	-2000 to +2000 FPM	100 FPM
IAS Hold	IAS Key	IAS nnn	60 to 150 KT	1 KT
Vertical Path Tracking (VNAV)	VNV Key	VNAV		
VNAV Target Altitude Capture	**	ALTV		
Glidepath	APR Key	GP		
Glideslope		GS		
Takeoff or Go Around	GA Button	TO or GA	7°	
Level (LVL)	LVL Key	LVL	Zero Vertical Speed	
ESP High Pitch Engagement			ESP High Pitch Attitude engages at 20° nose up	
ESP Low Pitch Engagement			ESP Low Pitch Attitude engages at 15° nose down	
ESP High Airspeed Engagement			ESP High Airspeed engages at 161 KIAS	
ESP Low Airspeed Engagement			When above 200 FT AGL, ESP Low Airspeed engages at 50 KIAS. (This mode only available if height above terrain is available from a compatible Garmin GPS).	

* ALTS arms automatically when PIT, VS, IAS, or GA is active.

** ALTV arms automatically if the VNAV Target Altitude is to be captured instead of the Selected Altitude.

AFCS LATERAL MODES

Lateral Mode	Control	Annunciation	Maximum Roll Command Limit
Roll Mode	(default)	ROL	30°
Heading Select	HDG Key	HDG	30°
Track Select	TRK Key	TRK	30°
Navigation, GPS Arm/Capture/Track	NAV Key	GPS	30°
Navigation, VOR Enroute and Approach Arm/Capture/Track		VOR	30°
Navigation, LOC Arm/Capture/Track (No Glideslope)		LOC	30°
Backcourse Arm/Capture/Track		BC	30°
Approach, GPS Arm/Capture/Track (Glidepath Mode Automatically Armed, if available)	APR Key	GPS	30°
Approach, ILS Arm/Capture/Track (Glideslope Mode Automatically Armed)		LOC	30°
Takeoff or Go Around	GA Button	TO or GA	Wings Level
LVL (Level)	LVL Key	LVL	Wings Level
ESP Roll Attitude Engagement	ESP Roll Attitude engages at 45°		

The autopilot may be engaged within the following ranges:

Pitch 50° nose up to 50° nose down

Roll $\pm 75^\circ$

If the above pitch or roll limits are exceeded while the autopilot is engaged, the autopilot will disconnect. Engaging the autopilot outside of its command limits, but within its engagement limits, will cause the autopilot to return the aircraft within command limits. The autopilot is capable of commanding the aircraft in the following ranges:

Pitch 20° nose up to 15° nose down

Roll $\pm 30^\circ$

PREFLIGHT TEST

During the preflight test the G5 or G3X will display PFT in the autopilot status box. The PFT annunciation is removed at the completion of the preflight test. If GFC 500 fails the PFT, a yellow AP with a red X is displayed in the autopilot status box on the G5 or G3X.

MESSAGES AND ANNUNCIATIONS

Autopilot Messages	
AFCS Controller Key Stuck	The system has sensed a key input on the GMC 507 for 30 seconds or longer.
AFCS Controller Audio Database Missing	The audio database is missing from the GMC 507. The aural voice alerts will not be heard.
Servo Clutch Fault	One or more autopilot servos has a stuck clutch. The servo needs service.
Servo Trim Input Fault	The inputs to the trim system are invalid. The trim system needs service.
Autopilot Annunciations	
AFCS	Autopilot has failed. Autopilot and trim are inoperative and flight director is not available.
AP	Autopilot normal disconnect.
AP	Autopilot abnormal disconnect.
AP	Autopilot has failed. The autopilot is inoperative. FD modes may still be available.
MAXSPD	Autopilot Overspeed Protection mode is active. Autopilot will raise the nose to limit the aircraft's speed.
MINSPD	Autopilot Underspeed Protection mode is active. Autopilot will lower the nose to prevent the aircraft's speed from decreasing.
PFT	Autopilot preflight test is in progress.
PTRIM	Pitch Trim Fail – Manual Electric Pitch Trim is inoperative.
TRIM DOWN	Elevator Trim Down – Autopilot is holding elevator nose down force. The pitch trim needs to be adjusted nose down.
TRIM UP	Elevator Trim Up – Autopilot is holding elevator nose up force. The pitch trim needs to be adjusted nose up.

LIGHTING

When the aircraft's dimming bus is selected off, or full dim, GMC 507 mode control panel lighting is controlled by integrated photocells which sense the ambient cockpit lighting.



4. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

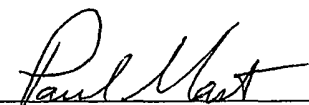
4.1 Airworthiness Limitations

The G3X Touch EFIS is airworthy when installed, configured, and maintained in accordance with this section.

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

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

FAA APPROVED


Paul Mast
STC Unit Administrator
ODA-240087-CE

4-5-19
Date

4.2 Servicing Information

G3X Touch EFIS LRUs maintenance is 'on condition' only. No component-level overhaul is required for the G3X Touch EFIS Part 23 AML STC installation. See section 6 for equipment removal and installation.

4.2.1 On-condition Servicing

'On Condition' replacement and/or servicing should occur when an item exhibits conditions, symptoms, and/or abnormalities defined in Section 5 of this manual. Replacement and/or servicing should be made only after the technician troubleshoots the system to the extent determined necessary by using the guidance in this manual along with common avionics maintenance practices.



NOTE

It is impossible to provide guidance for every conceivable failure scenario within the scope of this manual. Every effort has been made to provide comprehensive guidance for possible failures. The information in this document should always be combined with sound aviation maintenance practices and a thorough knowledge of the system. Use sound avionics maintenance practices when working around or on G3X equipment.



NOTE

After replacing or servicing electrical components near the GMU 11 magnetometer, the Magnetometer Interference Test (reference Section 5) and Magnetometer Calibration Procedure (reference Section 7) must be performed.

The remainder of this document is organized in the following fashion:

- Section 4.3 lists maintenance requirements related to the G3X system.
- Section 5 provides troubleshooting guidance
- Section 6 gives instructions regarding the removal and replacement of physical G3X Touch EFIS equipment and parts.
- Section 7 gives configuration and testing instructions to be accomplished if G3X Touch EFIS equipment or parts are removed or replaced.
- Section 8 specifies system return-to-service procedure.

4.2.2 Required Tools

The following tools are needed to perform maintenance tasks on G3X equipment:

- SanDisk brand SD card, 8GB or smaller
- Calibrated Milliohm meter with Kelvin probes or equivalent
- Calibrated digital level
- Calibrated air data test set (pitot/static ramp tester)
- Calibrated VHF NAV/COM/ILS ramp tester or equivalent
- Outdoor line-of-site to GPS satellite signals or GPS indoor repeater
- Headset/microphone
- Ground Power Unit
- Calibrated torque wrench
- Standard sockets & wrenches
- 3/32" Hex tool

4.3 Maintenance Intervals

Table 4-1 shows systems and items installed by this STC, which must undergo tests or checks at specific intervals.

Table 4-1 – Maintenance Intervals

Item	Description/Procedure	Manual Section No.	Interval
G3X Touch System Visual Inspections	Complete Visual Inspection of all installed G3X system LRUs and wiring harnesses must be performed to ensure continued integrity of the installation.	0	12 Calendar Months (During annual inspection)
Electrical Bonding Check	Perform an electrical bonding check of the G3X Touch system LRUs in accordance with Section 4.5.	4.5	Every 2000 flight hours or 10 years, whichever comes first
GDU 4X0 (Qty 1 or 2)	Removal & Replacement	6.1	On Condition
GSU 25D (ADAHRS)	Removal & Replacement	6.2	On Condition
	AHRS Magnetic Field Model Update	4.6	When available (5-year update cycle)
GMU 11	Removal & Replacement	6.3	On Condition
GTP 59	Removal & Replacement	6.4	On Condition
	Special Inspection Requirements	4.6	On Condition
GAD 27	Removal & Replacement	6.5	On Condition
GEA 24	Removal & Replacement	6.6	On Condition
GAD 29B	Removal & Replacement	6.7	On Condition
GDL 5XR	Removal & Replacement	6.8	
G3X Alerts	Check for and troubleshoot any alerts provided in the alert window per the referenced manual section	5	On Condition
GPS Antenna	Removal & Replacement	6.9	On Condition
G3X Accessories			
GDU Configuration Module (Qty 1)	Removal & Replacement	6.1.1	On Condition
G3X Lightning Protection			
Lightning Strike to Antenna Actual or Suspected	Inspect the GTP 59 and surrounding installation	4.7	On Condition
Engine/Airframe Sensors			
Oil Pressure	Removal & Replacement:	6.6.1	On Condition
Oil Temperature			
Manifold Pressure			
Carb Air Temp			
Fuel Pressure			
Fuel Flow			

4.4 Visual Inspection

Operation of the G3X Touch system is not permitted unless a visual inspection, as described in this section, has been completed within the preceding 12 calendar months. Check for corrosion, damage, or other defects for each of the G3X Touch LRUs. Replace any damaged parts as required. Inspection may require the temporary removal of a unit or units to gain access to connectors. Follow guidance in Section 6 for equipment removal and replacement.

Conduct the following visual inspection of the G3X Touch EFIS system LRUs and associated wiring harnesses to ensure installation integrity:

1. Inspect all units for security of attachment, including visual inspection of brackets and other supporting structure attaching all units to the airframe.
2. Inspect all switches, annunciators, knobs, and buttons for legibility.
3. Inspect displays for legibility and acceptable brightness. Reference Section 5.3.1.
4. Visually inspect each unit's wiring (including electrical bonding straps), overbraid, and connectors for chafing, deterioration, damage, or wear.
5. Visually check for any signs of corrosion.

4.4.1 Aluminum Foil Tape (Non-metallic Aircraft Only)

Any aluminum foil tape if used in the G3X Touch installation for grounding of a GSU 25D, GEA 24, GAD 29B or GAD 27, (refer to Appendix A of this document) must be inspected every 12 calendar months. The inspection must verify that the foil tape is not torn, damaged, or showing signs of corrosion. If any of these conditions are found, the tape must be replaced in accordance with Section 4 of *G3X Touch EFIS Part 23 AML STC Installation Manual*.

4.5 Electrical Bonding Test

G3X Touch EFIS LRU electrical bonding must be checked every 2,000 flight hours or 10 years, whichever occurs first.

4.5.1 Requirements

- Disconnect any cables and connectors normally attached to the LRU.
- Resistance must be measured from a bare metal portion of the LRU to an airframe grounding location.

The airframe grounding location should be as close to the LRU as possible, unless otherwise noted in Table 4-2.

4.5.2 Test Equipment

Calibrated 4 wire Milliohm meter and Kelvin probes are required for this test.

4.5.3 Electrical Bonding Test Procedures.

- Using a calibrated milliohm meter and Kelvin probes measure the resistance of each G3X Touch LRU between the locations noted in
- Table 4-2, and record the result of each installed LRU. Some equipment on the list are optional and may not be installed.
- Ensure the resistance does not exceed 10 milliohms.
- If the measured resistance is greater 10 milliohms, bonding must be improved to meet applicable requirements for a new installation in accordance with Section 4 of *G3X Touch EFIS Part 23 AML STC Installation Manual* (190-02472-01).

Table 4-2 – Electrical Bonding Procedure

Unit	Measurement Location (3)	Result (milliohm)
GDU 4X0 (PFD)	J4X02 backshell to ground stud (2)	mΩ
GDU 4X0 (MFD) (if installed)	J4X02 backshell to ground stud (2)	mΩ
GSU 25D (1)	Chassis mounting screw to adjacent aircraft ground	mΩ
	P251 backshell to ground stud (2)	
GMU 11	P111 backshell to ground stud (2)	mΩ
GAD 29B	Chassis mounting screw to adjacent aircraft ground	mΩ
GAD 27	Chassis mounting screw to adjacent aircraft ground	mΩ
GEA 24	Chassis mounting screw to adjacent aircraft ground	mΩ
GDL 5XR	P5X1 backshell to ground stud (2)	mΩ

Notes:

- (1) For remote mounted – it is bonded via the chassis mounting to aircraft ground.
For GDU-mounted – it is bonded via bonding strap to a ground stud
- (2) This is the ground stud that the LRU bonding strap is connected to.
- (3) For remote LRUs bonded to the back of the instrument panel via an installed aluminum foil ground plane, the bonding measurement must be taken between the remote LRU and the instrument panel.

4.6 GSU 25D Earth Magnetic Field Updates

The GSU 25D utilizes an Earth magnetic field model which is updated once every five years. The IGRF (International Geomagnetic Reference Field) update is expected to be available from Garmin in July 2020 and every five years thereafter, as long as the GSU 25D remains a Garmin-supported product.

The IGRF model is automatically updated with a GDU software update. The G3X system alerts the operator the magnetic field database is out of date by issuing the message "AHRS SERVICE – AHRS Magnetic-field model needs update". Garmin will distribute update instructions when updates are available.

4.7 Special Inspection Requirements

After a suspected lightning strike, the following actions must be performed for the specific LRU.

GTP 59 Temperature Probe

Inspect the GTP 59 temperature probe for signs of lightning damage. Check the self-sealing washer (P/N 212-00026-00) used on the probe tip outside of the aircraft for any evidence of melting or lack of seal. Replace the washer if damaged. If there is evidence of lightning strike to the GTP 59 temperature probe or any lightning damage, replace the probe.

Tube-and-fabric aircraft must replace the GTP 59 bond strap (if installed) in accordance with Section 4 of the *G3X Touch EFIS Part 23 AML STC Installation Manual* (190-02472-01).

G3X Equipment

All G3X equipment should be checked per Section 7. If equipment is not functioning correctly, troubleshoot using information in Section 5. Contact Garmin Product Support before replacing G3X LRUs to verify all troubleshooting options were exhausted.



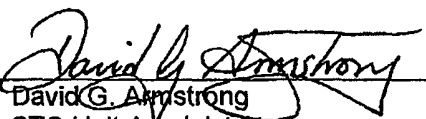
4 INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

4.1 Airworthiness Limitations

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

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

FAA APPROVED


David G. Armstrong
STC Unit Administrator
ODA-240087-CE

Date

7/19/2019

4.2 Servicing Information

This section addresses servicing information for the G5 Electronic Flight Display, Battery, GMU 11 magnetometer and the GAD 29/29B data bus converter.

4.2.1 G5 Electronic Flight Instrument

The G5 unit maintenance is 'on condition' only. See section 6 for equipment removal and installation. No component-level overhaul is required. Reference Table 4-1 for necessary tests or checks and the specific intervals for the G5.

4.2.2 GMU 11 Magnetometer

The GMU 11 unit maintenance is 'on condition' only. See section 6 for equipment removal and installation. No component-level overhaul is required. Reference Table 4-1 for necessary tests or checks and the specific intervals for the GMU 11.



NOTE

After replacing or servicing electrical components near the GMU 11 magnetometer, the Magnetometer Interference Test (reference Section 7.8) and Magnetometer Calibration Procedure (reference Section 7.5.3) must be performed.

4.2.3 GAD 29/29B Data Bus Converter

The GAD 29/29B unit maintenance is 'on condition' only. See section 6 for equipment removal and installation. No component-level overhaul is required. Reference Table 4-1 for necessary tests or checks and the specific intervals for the GAD 29/29B.

4.2.4 GAD 13 Data Bus Converter

The GAD 13 unit maintenance is 'on condition' only. See section 6 for equipment removal and installation. No component-level overhaul is required. Reference Table 4-1 for necessary tests or checks and the specific intervals for the GAD 13.



4.2.5 GTP 59 Temperature Probe

The GTP 59 unit maintenance is 'on condition' only. See section 6 for equipment removal and installation. No component-level overhaul is required. Reference Table 4-1 for necessary tests or checks and the specific intervals for the GTP 59.

4.2.6 Maintenance Intervals

Table 4-1 shows items installed by this STC which must undergo tests or checks at specific intervals.

Table 4-1, Maintenance Intervals

Item	Description/Procedure	Manual Section No.	Interval
G5 unit	Removal & Installation	6.1	On Condition
	Altimeter System Test	7.7	24 calendar months
G5 battery	Removal & Installation	0	On Condition
	Capacity Check	4.2.7	12 calendar months
G5 mounting ring	Removal & Installation	6.3	On Condition
GMU 11 unit	Removal & Installation	6.5	On Condition
GAD 29/29B unit	Removal & Installation	6.6	On Condition
GAD 13 unit	Removal & Installation	6.7	On Condition
GTP 59 unit	Removal & Installation	6.8	On Condition
	Special Inspection Requirements	4.4	On Condition

4.2.7 Battery Capacity Check

1. Without power applied to the aircraft, turn on the G5 by pressing the power button in the lower left corner of the unit.
2. Note the remaining battery capacity (%) at the top left corner of the display.
3. After about a minute, the remaining capacity will change from (%) to time (hour:min).
4. If the remaining capacity is less than one hour (1:00), allow the battery to charge until the capacity shows greater than 95% and repeat the check.
5. If the remaining capacity is less than one hour (1:00) after charging, the battery must be replaced.



4.3 Electrical Bonding Test

LRU electrical bonding must be checked every 2,000 flight hours or 10 years, whichever occurs first.

4.3.1 Requirements

- Disconnect any cables and connectors normally attached to the LRU.
- Resistance must be measured from a bare metal portion of the LRU (chassis or connector) to an airframe grounding location.
- The airframe grounding location should be as close to the LRU as possible, unless otherwise noted in
- Table 4-2.

4.3.2 Test Equipment

Calibrated 4 wire Milliohm meter and Kelvin probes are required for this test.

4.3.3 Electrical Bonding Test Procedures.

- Using a calibrated milliohm meter and Kelvin probes measure the resistance of each LRU between the locations noted in
- Table 4-2, and record the result of each installed LRU. Some equipment on the list are optional and may not be installed.
- Ensure the resistance does not exceed 10 milliohms except for the GTP that shall be less than 2.5 milliohms.
- If the measured resistance is greater 10 milliohms, bonding must be improved to meet applicable requirements for a new installation in accordance with Section 4 of *Garmin G5 Electronic Flight Instrument Part 23 AML STC Installation Manual* (190-01112-10).

Table 4-2 – Electrical Bonding Procedure

Unit	Measurement Location (2)	Result (milliohm)
G5	J51 backshell to local structure adjacent to the ground stud (1)	mΩ
GMU 11	P111 backshell to local structure adjacent to the ground stud (1)	mΩ
GAD 29 / 29B	Chassis mounting screw to adjacent aircraft ground	mΩ
GAD 13	Chassis mounting screw to adjacent aircraft ground	mΩ
GTP 59	Probe and adjacent local metal structure for metal and tube and fabric aircraft. For composite aircraft no bonding requirement	mΩ

Notes:

- (1) This is the ground stud to which the LRU bonding strap is connected
- (2) For remote LRUs bonded to the back of the instrument panel via an installed aluminum foil ground plane, the bonding measurement must be taken between the remote LRU and the instrument panel.



4.4 Special Inspection Requirements

After a suspected lightning strike, the following actions must be performed for the specific LRU.

GTP 59 Temperature Probe

Inspect the GTP 59 temperature probe for signs of lightning damage. Check the self-sealing washer (P/N 212-00026-00) used on the probe tip outside of the aircraft for any evidence of melting or lack of seal. Replace the washer if damaged. If there is evidence of lightning strike to the GTP 59 temperature probe or any lightning damage, replace the probe.

Tube-and-fabric aircraft must replace the GTP 59 bond strap (if installed) in accordance with Section 4 of the Garmin G5 Electronic Flight Instrument Part 23 AML STC Installation Manual (190-01112-10).

4. Instructions for Continued Airworthiness

This document is designed as Instructions for Continued Airworthiness in accordance with 14 CFR 23.1529 Appendix G for use by the owner/operator of the airplane to maintain the GFC 500 Automatic Flight Control System installed under STC SA01866WI.

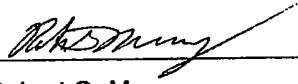
4.1 Airworthiness Limitations

The GFC 500 Autopilot is airworthy when installed, configured, and maintained in accordance with this section.

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

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

FAA APPROVED


Robert G. Murray
STC Unit Administrator
ODA-240087-CE

7/5/2019
Date

4.2 Servicing Information

Servicing of the GFC 500 Autopilot equipment is 'on condition'. In the event of system failure, troubleshoot the GFC 500 Autopilot in accordance with Section 5.

4.2.1 On Condition Servicing

'On Condition' replacement and/or servicing should occur when an item exhibits conditions, symptoms, and/or abnormalities defined in Section 5 of this manual. Replacement and/or servicing should be made only after the technician troubleshoots the system to the extent determined necessary by using the guidance in this manual along with common avionics maintenance practices.

The remainder of this document is organized in the following fashion:

- Section 4.3 lists maintenance requirements related to the GFC 500 Autopilot.
- Section 6 gives instructions regarding the removal and replacement of GFC 500 equipment and parts.
- Section 7 gives configuration and testing instructions to be accomplished if GFC 500 equipment or parts are removed or replaced.
- Section 9 specifies system return-to-service procedures.

4.2.2 Required Tools

The following tools are needed to perform maintenance tasks on GFC 500 Autopilot equipment:

- Calibrated Milliohm meter with Kelvin probes, OR
 - Ammeter capable of measuring 1.5 Amps of current with a minimum resolution of 0.1A.
 - Voltmeter capable of measuring millivolts with a minimum resolution of 0.1mV.
 - Variable DC Power Supply capable of providing 1 amp current
- 3/32" Hex tool
- Calibrated VHF NAV/COM/ILS ramp tester or equivalent
- Calibrated pitot/static ramp tester
- Outdoor line-of-site to GPS satellite signals or GPS indoor repeater
- Headset/microphone
- Ground Power Unit
- Calibrated Flight Control Cable Tension Meter or equivalent
- Calibrated torque wrench capable of measuring 0 – 70 in/lbs.
- Standard sockets & wrenches

4.2.3 Special Tools

There are no special tools required to perform maintenance on the GFC 500 Autopilot.

4.3 Maintenance Intervals

Table 4-1 shows systems and items, installed by this STC, which must undergo tests or checks at specific intervals. If the interval is shown to be in flight time as well as calendar months, the first interval reached should be used as the limit.

Those inspections that are based on flight time or calendar elapsed time or cycles shall have specific intervals stated in Table 4-1.

Table 4-1 – Maintenance Intervals

Item	Description/Procedure	Manual Section No.	Interval
Equipment electrical Bonding Test	Verify bonding of GMC 507 rack (if installed), GMC 507 (if installed without rack), GSA 28 mounting brackets, and any associated bonding components	4.5	Following removal and replacement of the racks or brackets AND Every 2000 flight hours or ten years, whichever is first
Equipment Bonding Visual Inspection – suspected lightning strike	Inspection of bonding Components	Table 4-3	At any suspected or actual lightning strike
GFC 500 Equipment Visual Inspection	Visual inspection of GFC 500 components	4.4	At every annual inspection
Disconnect Tone and Sonalert Test	Functional test of Audio output and/or Sonalert	4.6	At every annual inspection
GSA 28 Servos	Removal and Replacement	6.2	On Condition
GMC 507 Autopilot Mode Controller	Removal and Replacement	6.1	On Condition
Servos, Servo Control Cables and associated hardware	Visual Inspection	Table 4-2	With aircraft manufacturer's required primary control cable checks

4.4 Visual Inspection

Perform a visual inspection in accordance with requirements in Table 4-2. Check for corrosion, damage, or other defects of the GMC 507 and the GSA 28s. Replace any damaged parts as required. Inspection may require the temporary removal of a unit or units to gain access to connectors. Follow guidance in Section 6 for equipment removal and replacement. Refer to the aircraft manufacturer service or maintenance manual for instructions on access panel locations.

Table 4-2 – Visual Inspection Procedure

Item	Description/Procedure	Initials
GFC 500 Equipment Visual Inspections	a) Conduct a visual inspection of the GMC 507 and GSA 28 equipment installations in accordance with 14 CFR Part 43, Appendix D. If the equipment does not pass the visual inspection, complete the following procedure: i. Correct improper installations and ensure that all install racks, brackets, and fasteners are secure. Correct improper wire routing and ensure that the wire harness is securely mounted. Replace install racks, brackets, wiring and associated electrical bonding or shielding components with obvious defects ii. Complete the equipment electrical bonding test as described in section 4.5 for any components that are replaced. iii. Equipment shield terminations shall be free of corrosion and secure to the backshell or aircraft ground. b) Inspect all exposed wire harness for chafing, damage, proper routing of wire bundles and security of attachment in accordance with AC 43.13-1B, Chapter 11, Section 8, Paragraph 11-96.	
Servos, Servo Control Cables, and associated hardware	a) Using a flashlight, inspect the GSA 28 servos, connectors, support structure, and control cables to ensure that no corrosion, chafing, cracks, or other defects exist. b) Have an assistant manually move the control surfaces from stop to stop and visually observe the servo and control cabling/chain. Ensure there is no binding in the control cabling or chain, that the capstan/sprocket rotates freely, and that there is no rough turning or noise from the servo bearings. c) Check the servo control cables in accordance with AC 43.13-1B, Chapter 7, Section 8, Paragraph 7-149 to ensure no fraying, corrosion, or other damage exists. If the condition of any cable is questionable, replace it with a new one. Additionally, where servo cables wrap around capstans and pulleys, measure the cable diameter with cable tension applied. If the cable has lost 30% or more of its nominal diameter, replace the servo cable. d) Lubricate any aircraft cables which have been replaced by this STC (e.g. continuous travel pitch trim cables) in accordance with the service manual applicable to the aircraft model. e) Check the tension on the servo control cables. Refer to the appropriate Install Manual Addendum for the aircraft type for cable tension specifications: f) Ensure that each cable is correctly attached to the existing flight control system as shown in the appropriate Install Manual Addendum. If servo cable clamps are installed, inspect the torque seal tamper indicator at the intersection of the cable and clamps. If torque seal is cracked or damaged, remove cable clamps for further inspection. g) Visually inspect the condition of lock nuts, cable guard support plate, cable guard posts, self-locking castle nuts, cotter pin, split lock washer, flat washer and the output shaft to ensure no corrosion, cracks, or other defects exist. h) For continuous travel servos only, visually inspect the condition of the idler pulley, shaft, washer, and E-ring, to ensure no corrosion, chafing, cracks, or other defects exist.	

Table 4-3 – Lightning Strike Inspection Procedure

Item	Description/Procedure	Initials
GMC 507, GSA 28	In the event of a suspected or actual lightning strike to the aircraft, the bonding components for the GFC 500 Autopilot (bonding straps, mounting hardware etc.) must be inspected. If any damage is found, damaged components must be replaced in accordance with specifications and procedures shown in Section 6. If any bonding components are replaced, measure the resistance between the replaced component and aircraft ground. Verify the resistance is less than or equal to 2.5mΩ.	

4.5 Electrical Bonding Test

The following bonding tests are provided for aircraft that have a GFC 500 Autopilot installed as a requirement beyond any that may be given in the aircraft maintenance manual.

4.5.1 Requirements

All GFC 500 equipment must be installed. For the GMC 507, the tests are performed with the connectors connected. For the GSA 28, tests are conducted with the connector disconnected. Gain access for the procedure listed below in Section 4.5.3 as required and in accordance with the aircraft maintenance manual. It is recommended that these tests are conducted after visual inspection of the zone to minimize access requirements.

4.5.2 Test Equipment

A milliohm meter and Kelvin probes are recommended for this test. However, an alternate method may be used to provide equivalent results by using the following procedure and a standard voltmeter, power supply with adjustable current limit, and ammeter. The test set up for this alternate method is described below.

All test equipment used for the bond checks must be calibrated.

1. Connect the positive lead of the power supply to airframe ground. Connect/touch the positive lead of the voltmeter to the same point.

NOTE

Ensure that the voltmeter and power supply probes do not touch, so as not to induce contact resistance.

2. Touch negative lead of power supply to each of the test points listed while performing Step 3. At each required point, configure the power supply to produce 1 amp before measuring voltage. (Use an ammeter to ensure current is within minimum of 1 amp ± 100 milliamp at each point). Do not allow the reference current to exceed 1.5 amps for safety.
3. With the current set to 1A, the voltage reading will be the value of the bonding resistance. Set the voltmeter to measure millivolts and null the reading. Measure the voltage from airframe ground (step 1) to each required test points and record the voltage. (Perform Step 2 at each required point and ensure that minimum of 1 amp ± 100 milliamp is present when measuring the voltage.)

TIP: When a 1A current is used all the millivolt readings are the same as mΩ, and required no further calculation of bond resistance. If 1 amp reference current cannot

be maintained and is higher divide the measured voltage by current to get the resistance value.

4.5.3 Electrical Bonding Procedure

Using one of the two measurement methods in Section 4.5.2 record the bonding measurement for the following equipment. Some equipment in the list is optional and may not be installed.

Ensure that the measurements do not exceed the values shown in Table 2-2. If the values exceed those listed, perform the reconditioning procedure in Section 2.4.

- GMC 507 case: _____ mΩ
- GSA 28 (Roll) chassis: _____ mΩ
- GSA 28 (Pitch) chassis: _____ mΩ
- GSA 28 (Pitch Trim) chassis: _____ mΩ
- GSA 28 (Yaw Damper) chassis: _____ mΩ

4.6 Disconnect Tone and Sonalet Test

Perform the Disconnect Tone and Sonalet Functional Test at the intervals specified in Table 4-1.

1. Apply external electrical power to the aircraft and avionics systems.
2. Ensure that the GFC 500 Autopilot passes PFT.
3. Engage the autopilot by pressing the AP button on the GMC 507.
4. Disengage the autopilot by pressing the AP DISC/TRIM INT switch on the pilot's flight controls.
5. Verify that the normal autopilot disconnect tone plays.
 - a. If an audio panel is connected, verify that the autopilot disconnect tone plays through the speaker and headphones. **NOTE:** *The normal autopilot disconnect tone is three high-low tones approximately three seconds in duration.*
 - b. If a sonalert is connected, verify that the autopilot disconnect tone plays through the sonalert. **NOTE:** *The normal autopilot disconnect sonalert tone is a continuous 2000 Hz tone that plays for approximately 3 seconds.*



1200 East 151st Street
Olathe, KS 66062
P: 913-397-8200 F: 913-397-8282

March 25, 2019

SUBJECT: Authorization to use AML STC SA01899WI for Garmin G3X Touch EFIS (see AML)

Consistent with FAA Order 8110.4() and Advisory Circular (AC) 21-40(), Garmin International grants permission to Garmin authorized dealers, installers, and owners of the G3X Touch EFIS to use STC SA01899WI and deliverable data associated with it for the sole and express purpose of installation and approval of the installation of the G3X Touch EFIS and associated interfaces to other previously approved equipment.

A handwritten signature in dark ink, appearing to read "Robert Murray", written over a horizontal line.

Robert Murray
Director, Aircraft Certification
Garmin International, Inc.



Garmin International, Inc.
1200 East 151st Street
Olathe, Kansas 66062
P: 913-397-8200 F: 913-397-8282

December 19, 2019

**Subject: Permission to Use FAA STC SA01818WI or EASA STC 10060846 , or EASA STC 10064473
Installation of Garmin G5 Electronic Flight Instrument
See Approved Model List (AML) for Approved Aircraft Models**

Pursuant to 49 U.S.C. 44704, 14 CFR § 21.120, 14 CFR § 91.403(d), FAA Order 8110.48 and FAA Advisory Circular 21-40; Garmin International, Inc. hereby grants permission to KEVIN BARRY owner/operator of CESSNA 172M bearing manufacturer's serial number 17262831 to use FAA Supplemental Type Certificate SA01818WI and deliverable data associated with it, for the sole and express purpose of installation and approval of the installation of a Garmin G5 Electronic Flight Instrument into the above referenced aircraft. Installer must still verify airframe eligibility per STC SA01818WI and the associated Approved Model List (AML). Following modification per STC SA01818WI, a copy of this permission letter should be placed in the aircraft's permanent records. Alteration or reproduction of this letter is strictly prohibited.

For Aircraft registered in an EASA state, EASA STC **10060846** (EASA Validation of US FAA STC SA01818WI) may be used in the same manner as STC SA01818WI, provided the aircraft is listed on the AML for STC SA01818WI and the aircraft also has a EASA Type Certificate.

For Aircraft registered in an EASA state but not on the FAA STC, EASA STC **10064473** may be used in the same manner as STC SA01818WI, provided the aircraft is listed on the EASA Approved AML 005-01112-46 for STC 10064473.

Robert G. Murray
Director, Aircraft Certification
Garmin International, Inc.



1200 East 151st Street
Olathe, KS 66062
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December 21, 2017

SUBJECT: Authorization for STC Use
AML STC SA01866WI

Garmin authorized dealers are hereby granted permission to use Garmin AML STC SA01866WI data to modify aircraft.

A handwritten signature in cursive script, appearing to read "Robert Murray", written over a horizontal line.

Robert Murray
Director, Aircraft Certification
Garmin International, Inc.



United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

Number: SA01899WI

This certificate issued to: Garmin International, Inc.
1200 East 151st Street
Olathe, KS 66062

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 23* of the Federal Aviation Regulations.

Original Product - Type Certificate Number:
Multiple - AML STC

Make:
Model: See Approved Model List (AML) SA01899WI for approved aircraft models and applicable airworthiness regulations

Description of Type Design Change:

Installation of Garmin G3X Touch Electronic Flight Instrument System

Data Required:

- (1) Garmin Master Drawing List (MDL) 005-01320-00, Revision 1, dated March 15, 2019
- (2) Garmin G3X STC Maintenance Manual including ICA190-02472-02, Revision 1, dated March 15, 2019
- (3) Garmin G3X Airplane Flight Manual Supplement 190-01754-01, Revision 1, dated March 15, 2019

Later FAA-approved revisions to the data listed above are incorporated without amendment to this certificate

Limitations and Conditions:

- (1) Compatibility of this design change with previously approved modifications must be determined by the installer.
- (2) Installation of G3X in aircraft certified for IFR must have standby instruments for attitude, airspeed and altitude. Permitted standby instrument configurations and other limitations are defined in the data shown in the Master Drawing List (MDL) identified above.

(continued on Page 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 15, 2018

Date Reissued:

Date of Issuance: March 15, 2019

Date Amended:

By Direction of the Administrator

Signature

Title Robert G. Murray
ODASTC Unit Administrator
ODA-240087-CE

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:

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: SA01899WI

March 15, 2019

***Certification Basis**

Based on 14 CFR 21.115 and 21.101, and the FAA policy for significant changes in FAA Order 8110.48, the certification basis for this change is as follows:

- a. The certification basis for parts not changed or not affected by this change remains unchanged from the original approval.
- b. The certification basis for parts changed or affected by this change is:

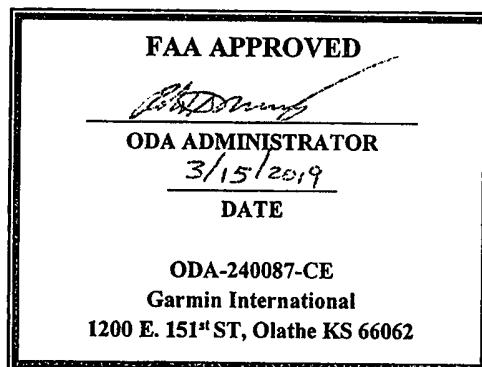
Section	Amdt.	Section	Amdt.
23.251(a)	23-62	23.1321	23-49
23.301(a)	23-48	23.1322	23-43
23.303	Original	23.1323(a)(b)(c)	23-62
23.305	23-45	23.1325(a)(b)(1)(2)	23-50
23.307(a)	Original	23.1327	23-20
23.337(a)(b)	23-48	23.1331	23-62
23.561(a)(b)(3)(e)	23-62	23.1337(a)(b)(1)(c)	23-51
23.601	Original	23.1351(a)(1)(2)(i)(e)	23-49
23.603	23-23	23.1353(h)(1)(i)(2)	23-62
23.605(a)	23-23	23.1357(a)(b)(c)(d)	23-43
23.607(a)(b)	23-48	23.1359	23-49
23.609	Original	23.1365(a)(b)(d)(e)	23-49
23.611	23-48	23.1367(c)(d)	Original
23.613(a)(b)(c)	23-45	23.1381(a)(b)	Original
23.627	Original	23.1419(a)(c)	23-43
23.771(a)	23-14	23.1431(a)(b)(e)	23-62
23.773(a)(2)	23-45	23.1501	23-21
23.777(a)(b)	23-62	23.1521(a)(b)(1)(2)(4)	23-50
23.853(a)	23-62	(c)(1)(2)(4)	
23.863(a)(b)	23-34	23.1523	23-34
23.901(a)(b)(1)(e)	23-53	23.1525	23-45
23.954(a)(b)	23-7	23.1529	23-26
23.955(a)(2)(3)(4) (b)(c)	23-51	23.1541	23-21
23.963(e)	23-51	23.1543(b)(c)	23-50
23.993	23-43	23.1545(a)(b)(1)(2)(3)(4)	23-62
23.1182	23-14	23.1549	23-45
23.1183	23-51	23.1553	23-50
23.1301	23-62	23.1555(a)(b)(d)(3)(e)(2)	23-62
23.1303(a)(b)(c)(d)(f)	23-62	23.1581(a)(b)(c)(f)	23-50
23.1305(a)(1)(2)(3)	23-52	23.1583(b)(h)(m)	23-62
(b)(2)(3)(i)(4)(i)(5)(6)		23.1585(a)(1)(j)	23-62
23.1307	23-49	23.2335	23-64
23.1309(a)(b)	23-62	23.2510	23-64
23.1310(a)	23-62	23.2515	23-64
23.1311(a)(b)	23-62	23.2520	23-64

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).

FAA Approved Model List (AML)

STC Number SA01899WI

Installation of Garmin G3X Touch Electronic Flight Instrument System



Issued Date: March 15, 2019

Amended Date: --

FAA Approved Model List (AML) STC Number SA01899WI

AML Amendment Log

Date	Description
3/15/2019	Original

FAA Approved Model List (AML) STC SA01899WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01320-00 Rev.**	AML Date	Limitations
Aermacchi S.p.A (Aermacchi S.p.A) [Siai Marchetti]	F.260, F.260B, F.260C, F.260D, F.260E, F.260F	A10EU	CAR 3	1	Mar 15, 2019	
Aermacchi S.p.A (Aermacchi S.p.A) [Siai Marchetti]	S.205-18/F, S.205-18/R, S.205-20/F, S.205-20/R, S.205-22/R, S.208, S.208A	A9EU	FAR 23	1	Mar 15, 2019	
Aero Commander (Dynac Aerospace Corp) [Volare]	10, 10A, 100, 100A, 100-180	1A21	CAR 3	1	Mar 15, 2019	
Aeronautica Macchi Aerfer (Aeronautica Macchi S.p.A. & Aerfer-Industrie Aerospaziali Meridionali S.p.A.)	AM-3	A19EU	FAR 23	1	Mar 15, 2019	
Alexandria Aircraft (Alexandria Aircraft, LLC) [Bellanca]	14-19, 14-19-2, 14-19-3, 14-19-3A, 17-30, 17-31, 17-31TC	1A3	CAR 3	1	Mar 15, 2019	(3)
Alexandria Aircraft (Alexandria Aircraft LLC) [Bellanca]	17-30A, 17-31A, 17-31ATC	A18CE	FAR 23	1	Mar 15, 2019	(3)
American Champion (American Champion Aircraft Corporation)	7ECA, 7GCAA, 7GCBC, 7KCAB	A-759	CAR 4a	1	Mar 15, 2019	(3)
American Champion (American Champion Aircraft Corporation)	8KCAB, 8GCBC	A21CE	FAR 23	1	Mar 15, 2019	
Aviat Aircraft, Inc. (Aviat Aircraft, Inc.) [Sky International]	A-1, A-1A, A-1B, A-1C-180, A-1C-200	A22NM	FAR 23	1	Mar 15, 2019	
Aviat Aircraft, Inc. (Aviat Aircraft, Inc.) [Sky International]	S-1S, S-1T, S-2, S-2A, S-2S, S-2B, S-2C	A8SO	FAR 23	1	Mar 15, 2019	(3)
Bellanca (Bellanca Aircraft Corporation)	14-13-2, 14-13-3W, 14-13-3, 14-13	A-773	CAR 4a	1	Mar 15, 2019	(3)
Boeing (The Boeing Company) [Rockwell International]	BC-1A, AT-6 (SNJ-2), AT-6A (SNJ-3), AT-6B, AT-6C (SNJ-4), AT-6D (SNJ-5), AT-6F (SNJ-6), SNJ-7, T-6G	A-2-575	CAR 4a	1	Mar 15, 2019	
Cessna (Cessna Aircraft Company)	Cessna FR172E FR172F, FR172G, FR172H, FR172J, FR172K	A18EU	CAR 3	1	Mar 15, 2019	
Cessna (Cessna Aircraft Company)	F172D, F172E, F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P, FP172D	A4EU	CAR 3 CAR 10	1	Mar 15, 2019	
Cessna (Cessna Aircraft Company)	F177RG	A26EU	FAR 23	1	Mar 15, 2019	
Cessna (Cessna Aircraft Company)	F182P, F182Q, FR182	A42EU	CAR 3 FAR 23	1	Mar 15, 2019	
Commander (Commander Aircraft Corporation) [CPAC, Inc.]	112, 112TC, 112B, 112TCA, 114, 114A, 114B, 114TC	A12SO	FAR 23	1	Mar 15, 2019	

Issued: March 15, 2019

Amended:

FAA Approved Model List (AML) STC SA01899WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01320-00 Rev.**	AML Date	Limitations
Cub Crafters (Cub Crafters Inc.)	CC19-180	A00053SE	FAR 23	1	Mar 15, 2019	(3)
DeHavilland Support Limited	Beagle B.121 Series 1, Beagle B.121 Series 2, Beagle B.121 Series 3	A22EU	FAR 23	1	Mar 15, 2019	
Diamond (Diamond Aircraft Industries, Inc.)	DA 40F, DA 40	A47CE	FAR 23	1	Mar 15, 2019	(2)(3)
Diamond (Diamond Aircraft Industries, Inc.)	DA20-A1, DA20-C1	TA4CH	FAR 23	1	Mar 15, 2019	
Discovery	XL-2	A00008DE	FAR 23	1	Mar 15, 2019	
EADS-PZL "Warszawa-Okecie" (EADS-PZL "Warszawa-Okecie" S.A.)	PZL-104 WILGA 80, PZL-104M WILGA 2000, PZL-104MA WILGA 2000	A55EU	FAR 23	1	Mar 15, 2019	
EADS-PZL "Warszawa-Okecie" (EADS-PZL "Warszawa-Okecie" S.A.)	PZL-KOLIBER 150A, PZL-KOLIBER 160A	A69EU	FAR 23	1	Mar 15, 2019	
Extra (Extra Flugzeugproduktions- und Vertriebs- GmbH)	EA-300L, EA-300S, EA-300/200, EA-300, EA 300/LC	A67EU	FAR 23	1	Mar 15, 2019	(3)
Found Brothers (Found Brothers Aviation Limited)	FBA Centennial "100"	A13EA	CAR 3	1	Mar 15, 2019	
FS2003 Corp. (FS 2003 Corporation) [The New Piper Aircraft, Inc.]	PA-12, PA-12S	A-780	CAR 3	1	Mar 15, 2019	(3)
Fuji (Fuji Heavy Industries, Ltd)	FA-200-160, FA-200-180, FA-200-180AO	A4PC	CAR 3/10	1	Mar 15, 2019	
Helio (Helio Aircraft, LLC)	H-250, H-295 (USAF U-10D), HT-295, H-391 (USAF YL-24), H-391B, H-395 (USAF L-28A or U-10B), H-395A, H-700, H-800	1A8	CAR 3	1	Mar 15, 2019	
Interceptor (Interceptor Aircraft Inc) [Prop-Jets, Inc.; Meyers]	200, 200A, 200B, 200C, 200D, 400	3A18	CAR 3	1	Mar 15, 2019	
JGS (JGS Properties, LLC) [Quartz Mountain Aerospace; Luscombe Aircraft]	11E	A-804	CAR 3	1	Mar 15, 2019	
Luscombe (Good Earthkeeping Organization Inc)	8A, 8B, 8C, 8D, 8E, 8F, 8, T-8F	A-694	CAR 4a	1	Mar 15, 2019	
Mooney (Mooney International Corporation) [Mooney Aviation Company, Inc.; Mooney Airplane Co.; Mooney Aircraft Corporation; Aerostar Aircraft Corp]	M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20J, M20K, M20L, M20M, M20R, M20S	2A3	CAR 3	1	Mar 15, 2019	(2)
Mooney (Mooney Aircraft Corporation)	M22	A6SW	CAR 3	1	Mar 15, 2019	

Issued: March 15, 2019

Amended:

FAA Approved Model List (AML) STC SA01899WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01320-00 Rev.**	AML Date	Limitations
Nardi (Nardi S.A.) [Siai Marchetti]	FN-333	7A5	CAR 3/10	1	Mar 15, 2019	
Navion (Sierra Hotel Aero, Inc.)	Navion (L-17A), Navion A (L-17B, L-17C), Navion B, Navion D, Navion E, Navion F, Navion G, Navion H	A-782	CAR 3	1	Mar 15, 2019	
Pacific Aerospace Limited. (Pacific Aerospace Ltd.) [Found Aircraft Canada, Inc]	FBA-2C, FBA-2C1 (Bush Hawk), FBA-2C2 (Bush Hawk XP)	A7EA	CAR 3 FAR 23	1	Mar 15, 2019	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-16, PA-16S	1A1	CAR 3	1	Mar 15, 2019	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-18, PA-18 "105", PA-18 "125" (Army L-21A), PA-18S, PA-18S "105", PA-18S "125", PA-18AS "125", PA-18 "135" (Army L-21B), PA-18A, PA-18A "135", PA-18S "135", PA- 18AS "135", PA-18 "150", PA-18A "150", PA-18S "150", PA-18AS "150", PA-19 (Army L-18C), PA-19S	1A2	CAR 3	1	Mar 15, 2019	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-20, PA-20S, PA-20 "115", PA-20S "115" PA-20 "135", PA-20S "135"	1A4	CAR 3	1	Mar 15, 2019	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160	1A6	CAR3	1	Mar 15, 2019	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-24, PA-24-250, PA-24-260, PA-24-400	1A15	CAR 3	1	Mar 15, 2019	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-28-140, PA-28-150, PA-28-151, PA-28-160, PA-28- 161, PA-28-180, PA-28-235, PA-28S-160, PA-28R-180, PA-28S-180, PA-28-181, PA-28R-200, PA-28R-201, PA- 28R-201T, PA-28RT-201, PA-28RT-201T, PA-28-201T, PA-28-236	2A13	CAR 3	1	Mar 15, 2019	(1)(2)
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-38-112	A18SO	FAR 23	1	Mar 15, 2019	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-32-260, PA-32-300, PA-32S-300, PA-32R-300, PA- 32RT-300, PA-32RT-300T, PA-32R-301(SP), PA-32R- 301(HP), PA-32R-301T, PA-32-301, PA-32-301T, PA-32- 301FT, PA32-301XTC	A3SO	CAR 3	1	Mar 15, 2019	(1)(2)
Polskie Zakłady Lotnicze Spolka zo.o (Polskie Zakłady Lotnicze Spolka zo.o) [PZL MIELEC]	PZL M26 01	A44CE	FAR 23	1	Mar 15, 2019	
Revo, Inc. (Revo, Incorporated) [Lake]	Colonial C-1, Colonial C-2, Lake Model 250	1A13	CAR 3	1	Mar 15, 2019	
SOCATA Morane Saulnier Rallye (SOCATA) [SOCATA - Groupe Aerospatiale]	Rallye 100S, Rallye 150ST, Rallye 150T, Rallye 235E, Rallye 235C, MS 880B, MS 885, MS 894A, MS 893A, MS 892A-150, MS 892E-150, MS 893E, MS 894E	7A14	CAR 3	1	Mar 15, 2019	

Issued: March 15, 2019

Amended:

FAA Approved Model List (AML) STC SA01899WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01320-00 Rev.**	AML Date	Limitations
Spartan Aircraft Company	Spartan 7W	TC 628	Aero 7A	1	Mar 15, 2019	
STOL (Sky Enterprises, Inc.) [Republic Sea-Bee]	RC-3	A-769	CAR 3	1	Mar 15, 2019	
Swift (Swift Museum Foundation Inc.) [Globe Aircraft Company]	GC-1A, GC-1B	A-766	CAR 4a	1	Mar 15, 2019	
Symphony Aircraft Industries Inc. (Symphony Aircraft Industries Inc.) [OMF]	OMF-100-160, SA 160	A46CE	FAR 23	1	Mar 15, 2019	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	D17S (Army UC-43, UC-43B, Navy GB-1, GB-2), SD17S	A-649	Aero 7A	1	Mar 15, 2019	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	G17S	TC 779	Aero 7A	1	Mar 15, 2019	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	19A, B19, M19A, 23, A23, A23A, A23-19, A23-24, B23, C23, A24, A24R, B24R, C24R	A1CE	CAR 3	1	Mar 15, 2019	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33, F33A, F33C, G33, H35, J35, K35, M35, N35, P35, S35, V35, V35A, V35B, 36, A36, A36TC, B36TC	3A15	CAR 3	1	Mar 15, 2019	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	35, A35, B35, C35, D35, E35, F35, G35	A-777	CAR 3	1	Mar 15, 2019	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	45 (YT-34), A45 (T-34A, B-45), D45 (T-34B)	5A3	CAR 3	1	Mar 15, 2019	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	77	A30CE	FAR 23	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	140A	5A2	CAR 3	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	120, 140	A-768	CAR 4a	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, A150K, 150L, A150L, 150M, A150M, 152, A152	3A19	CAR 3	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	170, 170A, 170B	A-799	CAR 3	1	Mar 15, 2019	

FAA Approved Model List (AML) STC SA01899WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01320-00 Rev.**	AML Date	Limitations
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	172, 172A, 172B, 172C, 172D, 172E, 172F (USAF T-41A), 172G, 172H (USAF T-41A), 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S	3A12	CAR 3 FAR 23	1	Mar 15, 2019	(2)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	175, 175A, 175B, 175C, P172D, R172E (USAF T-41B), (USAF T-41C or D), R172F (USAF T-41D), R172G (USAF T-41C or D), R172H (USAF T-41D), R172J, 172RG, R172K	3A17	CAR 3	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	177, 177A, 177B	A13CE	FAR 23	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	177RG	A20CE	FAR 23	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	5A6	CAR 3	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182S, 182T, R182, T182, TR182, T182T	3A13	CAR 3 FAR 23	1	Mar 15, 2019	(2)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24	CAR 3	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	190, 195 (LC-126A,B,C), 195A, 195B	A-790	CAR 3	1	Mar 15, 2019	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	206, P206, P206A, P206B, P206C, P206D, P206E, TP206A, TP206B, TP206C, TP206D, TP206E, U206, U206A, U206B, U206C, U206D, U206E, U206F, U206G, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G, 206H, T206H	A4CE	CAR 3 FAR 23	1	Mar 15, 2019	(2)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	210, 210A, 210B, 210C, 210D, 210E, 210F, T210F, 210G, T210G, 210H, T210H, 210J, T210J, 210K, T210K, 210L, T210L, 210M, T210M, 210N, T210N, 210R, T210R, 210-5 (205), 210-5A (205A),	3A21	CAR 3	1	Mar 15, 2019	
Trident (Viking Air, Ltd.)	TR-1	A19EA	FAR 23	1	Mar 15, 2019	
True Flight Holdings LLC (True Flight Holdings LLC) [American General]	AA-1, AA-1A, AA-1B, AA-1C	A11EA	FAR 23	1	Mar 15, 2019	

FAA Approved Model List (AML) STC SA01899WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01320-00 Rev.**	AML Date	Limitations
True Flight Holdings LLC (True Flight Holdings LLC) [American General]	AA-5, AA-5A, AA-5B, AG-5B	A16EA	FAR 23	1	Mar 15, 2019	(2)
Univair (Univair Corporation) [Stinson]	108, 108-1, 108-2, 108-3, 108-5	A-767	CAR 3	1	Mar 15, 2019	
WACO (The WACO Aircraft Company)	YMF	ATC 542	Aero 7A	1	Mar 15, 2019	
Zenair (Zenair Ltd.)	CH2000	TA5CH	FAR 23	1	Mar 15, 2019	
ZLIN Aircraft a.s. (ZLIN Aircraft a.s.) [Moravan a.s.]	Z-242L, Z-143L	A76EU	FAR 23	1	Mar 15, 2019	

[* TC Certification Basis - See Type Certificate Data Sheet applicable to aircraft for complete certification basis.]

[** Later FAA-approved revisions of the Master Drawing List may be used.]

Limitations:

- (1) Excluding aircraft equipped with Avidyne Integra
- (2) Excluding aircraft equipped with Garmin G1000
- (3) Cannot use the Garmin G5 Electronic Flight Instrument as a Standby Attitude indicator for IFR aircraft

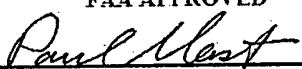
*****END*****

Issued: March 15, 2019

Amended:

MASTER DRAWING LIST
GARMIN G3X TOUCH
ELECTRONIC FLIGHT INSTRUMENT SYSTEM
PART 23 AML STC

STC No. SA01899WI

FAA APPROVED  _____ ODA ADMINISTRATOR 10-3-19 _____ DATE ODA-240087-CE GARMIN INTERNATIONAL 1200 E. 151ST STREET, OLATHE KANSAS, 66062
--

Document Number:
005-01320-00 Rev. 4

Garmin Ltd. or its subsidiaries
c/o Garmin International Inc.
1200 E. 151st Street
Olathe Kansas 66062 USA

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Drawn By: Paul Mast		Date: 3/15/19	
Rev.	Date	Description of Change	ECO #
2	4/05/19	Updates for minor change project	188678
3	5/29/19	Updates for minor change project	191145
4	10/03/19	Updates for minor change project	196964

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GARMIN G3X TOUCH EFIS IN PART 23 AIRCRAFT, AML STC SA01899WI

This document lists the documents that define the design for the installation of the Garmin G3X Electronic Flight Instrument System in Part 23 aircraft defined on the Approved Model List (AML).

Documents Required for Installation	P/N	Rev
Garmin G3X Touch Electronic Flight Instrument System Part 23 AML STC Installation Manual	190-02472-01	4
Garmin G3X Touch Electronic Flight Instrument System Part 23 AML STC Maintenance Manual Contains Instructions for Continued Airworthiness	190-02472-02	2
Airplane Flight Manual Supplement or Supplemental Airplane Flight Manual for the Garmin G3X Touch Electronic Flight Instrument	190-01754-01	3
Service Bulletin No.: 1975	SB No. 1975	A

Documents Not Required for Installation	P/N	Rev
Accy, Config Mdl, EEPROM, Temp, MFi, PMA	010-12253-01	A
Sub-Assy, Conn Kit, GDU 4XX, PMA	011-01921-15	A
Sub-Assy, Mounting Kit, GDU 46X, PMA	011-01921-25	A
Sub-Assy, Mounting Kit, GDU 47x, PMA	011-01921-27	A
Sub-Assy, GEA 24, FAA-PMA	011-02848-01	A
Sub-Assy, Conn Kit, GEA24, FAA-PMA	011-02886-01	A
Sub Assy, Unit, GDU 460, PMA	011-02920-05	A
Sub-Assy, GSU 25D, PMA	011-02929-51	A
Connector Kit, GSU 25, FAA-PMA	011-03002-04	A
Sub-Assy, GAD 27, FAA-PMA	011-03876-01	A
Sub-Assy, Conn Kit, GAD 27, FAA-PMA	011-03877-01	A
Sub-Assy, GDL50R, FAA-PMA	011-03910-15	A
Sub-Assy, GDL52R, FAA-PMA	011-03910-35	A
Sub-Assy, GDL51R, FAA-PMA	011-03910-55	A
Sub-Assy, Connector Kit, GDL5XR, FAA-PMA	011-04170-00	A
Sub Assy, Unit, GDU 470, PMA	011-04311-05	A
Sub-Assy, GMU 11, FAA-PMA	011-04349-01	C
Sub-Assy, GMU 11, Installation Kit	011-04349-90	C
Sub-Assy, GAD 29B PMA	011-03236-11	A
Sub-Assy, Conn Kit, GAD 29	011-03271-00	C
Conn, BNC Plug/TNC Jack, PMA, Fam Dwg	330-01754-XX	A
120Ω CANbus Cable	CAN24TST120(CIT)*	A

*Carlisle Interconnect Technologies (a Tensolite Company) document

GARMIN Ltd. or its subsidiaries
c/o GARMIN International, Inc.
1200 E. 151st Street
Olathe, Kansas 66062 U.S.A.

FAA APPROVED AIRPLANE FLIGHT MANUAL SUPPLEMENT

GFC 500 Autopilot with ESP

Installed in

**Textron Aviation 172E / 172F / 172G / 172H / 172I / 172K / 172L / 172M /
172N / 172P / 172Q / 172R / 172S / R172K**

And

**Cessna F172E / F172F / F172G / F172H / F172K / F172L / F172M / F172N /
F172P / FR172K**

Dwg. Number: 190-02291-02 Rev. 6

This Supplement must be attached to the FAA Approved Airplane Flight Manual when the GFC 500 Autopilot system is installed in accordance with STC SA01866WI. The information contained herein supplements the information of the basic Airplane Flight Manual. For Limitations, Procedures, and Performance information not contained in this Supplement consult the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.

Airplane Serial Number: _____

Airplane Registration Number: _____

FAA Approved By: Paul Mast

**Paul Mast
ODA STC Unit Administrator
Garmin International, Inc
ODA-240087-CE**

Date: 5-30-19

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Olathe, KS 66062 USA
Telephone: 913-397-8200
www.garmin.com



United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

Number: SA01818WI

This certificate issued to: Garmin International, Inc.
1200 East 151st Street
Olathe, KS 66062

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 23* of the Federal Aviation Regulations.

Original Product – Type Certificate Number:
Multiple - AML STC

Make:
Model: See Approved Model List (AML) SA01818WI for approved aircraft models and applicable airworthiness regulations

Description of Type Design Change:

Installation of Garmin G5 Electronic Flight Instrument

Data Required:

- (1) Garmin Master Drawing List (MDL) 005-01112-01, Revision 1, dated July 22, 2016
 - (2) Garmin G5 STC Maintenance Manual including ICA190-01112-11, Revision 1, dated July 22, 2016
 - (3) Garmin G5 Airplane Flight Manual Supplement 190-01112-13, Revision 1, dated July 22, 2016
- Later FAA-approved revisions to the data listed above are incorporated without amendment to this certificate

Limitations and Conditions:

- (1) Compatibility of this design change with previously approved modifications must be determined by the installer.
- (2) The installation of the G5 requires the retention of the mechanical airspeed indicator, altimeter, and vertical speed indicator. The installation of the G5 in configurations not approved by this STC, such as an electronic standby instrument, requires separate airworthiness approval.
- (3) For installations in aircraft approved for IFR operations:
 - (a) If the G5 is installed as the primary attitude indicator, the existing rate of turn indicator must be retained.
 - (b) If the G5 is installed as the rate of turn indicator, the existing primary attitude indicator must be retained.

(continued on Page 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 5, 2016

Date Reissued:

Date of Issuance: July 22, 2016

Date Amended: Apr 28, 2017; Oct 18, 2017; Mar 15, 2019, Jul 19, 2019

By Direction of the Administrator

Signature

Title David G. Armstrong
ODA STC Unit Administrator
ODA-240087-CE

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:

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: SA01818WI

July 19, 2019

Limitations and Conditions (Cont.)

- (4) For installations in aircraft approved for VFR-only operations, the G5 can be installed as the attitude indicator and rate of turn indicator without retention of either the existing attitude indicator or rate of turn indicator.
- (5) Aircraft modified by this STC must be operated in accordance with the Airplane Flight Manual Supplement (AFMS) identified above.
- (6) Aircraft modified by this STC must be maintained in accordance with the Instructions for Continued Airworthiness (ICA) identified above.
- (7) If the holder agrees to permit another person to use this certificate to alter the product, the holder must give the other person written evidence of that permission.
- (8) Unless a limitation is shown on the Approved Model List (AML), installations performed in accordance with MDL Revision 14 or later, or modified by Service Bulletin 1910, comply with 14 CFR 23.2515(a)(b) and 23.2520(a)(b), Amdt. 23-64, and are compatible with Garmin G3X and FIKI systems.

*Certification Basis

Based on 14 CFR 21.115 and 21.101, and the FAA policy for significant changes in FAA Order 8110.48, the certification basis for this change is as follows:

a. The certification basis for parts not changed or not affected by this change remains unchanged from the original approval.

b. The certification basis for parts changed or affected by this change is:*

Section	Amdt.	Section	Amdt.
23.251(a)	23-62	23.1323(a)(b)(c)	23-62
23.301(a)	23-48	23.1325(a)(b)	23-50
23.303	Orig.	23.1327(a)(1)(2)	23-20
23.305(a)(b)	23-45	23.1329(g)(h)	23-49
23.307(a)	Orig.	23.1331(a)(b)(1)(c)	23-62
23.337(a)(b)	23-48	23.1351(a)	23-49
23.561(a)(b)(3)(e)	23-62	23.1353(h)	23-62
23.601	Orig.	23.1357(a)(b)(c)(d)	23-43
23.603	23-23	23.1359	23-49
23.605(a)	23-23	23.1365(a)(b)(d)(e)	23-49
23.607(b)	23-48	23.1381(a)(b)	Orig.
23.613(a)(b)	23-45	23.1419(a)(c)	23-43
23.771(a)	23-14	23.1431(a)(b)	23-62
23.773(a)(2)	23-45	23.1529	23-26
23.777(a)(b)	23-62	23.1541	23-21
23.853(a)	23-62	23.1543(b)	23-50
23.867(a)(b)	23-49	23.1545(a)(b)(c)	23-62
23.1301	23-62	23.1555(a)(b)	23-62
23.1303(a)(b)(c)(f)	23-62	23.1581(a)(b)(d)(f)	23-50
23.1307	23-49	23.1585(a)	23-62
23.1309(a)(1)(2)	23-62	23.2510	23-64
23.1309(a)(b)(c)(d)(e)	23-49	23.2515(a)(b)	23-64
23.1311(a)(1)(2)(3)(6)(7)(b)	23-62	23.2520(a)(b)	23-64
23.1321(c)(d)(e)	23-49	23.2335	23-64
23.1322	23-43		

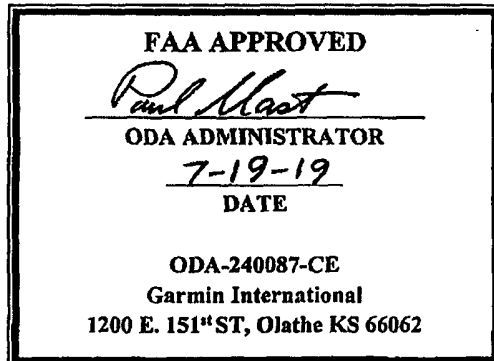
*Earlier amendments may apply to certain models; refer to the AML.

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).

FAA Approved Model List (AML)

STC Number SA01818WI

Installation of Garmin G5 Electronic Instrument System



Issued Date: July 22, 2016

Amended Date: July 19, 2019

FAA Approved Model List (AML) STC Number SA01818WI

AML Amendment Log

Date	Description
July 22, 2016	Original
Aug 22, 2016	Add models under the following TCDS: 1A2, 1A4, 1A6, A34CE, A-767
Apr 28, 2017	Add models under the following TCDS: A1EU, A27EU, A-773, A13EU, A67EU, TC 788, A-780, A4PC, A-694, 1A2, 1A13, A-766, 5A2, A-768, 3A21, A-787, A-718, A18EA, A68EU
Oct 18, 2017	Add models under the following TCDS: A17WE, A8SO, A18EU, A22EU, A43CE, A-734, 1A8, TC 628, 3A17, 3A25, A31EU
Mar 15, 2019	Add models under the following TCDS: 1A1, 1A3, 1A4, 5A4, A6CE, A57EU. Added limitations (4) and (5). Updated various Aircraft Makes/TCDS holders to match ACP-0019.
Jul 19, 2019	Add models under the following TCDS: A48EU, A-743, A00009, A62CE, A00066CE, A00053SE, A47CE, A00008DE, A34EU, A-754, A00003SE, 3A23, A46CE, A3SW, A4SW, A00006SE, 4A19

FAA Approved Model List (AML) STC SA01818W1

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01112-01 Rev.**	AML Amended Date	Limitations
Aermacchi S.p.A (Aermacchi S.p.A) [Siai Marchetti]	F.260, F.260B, F.260C, F.260D, F.260E, F.260F	A10EU	CAR 3	1	July 22, 2016	
Aermacchi S.p.A (Aermacchi S.p.A) [Siai Marchetti]	S.205-18/F, S.205-18/R, S.205-20/F, S.205-20/R, S.205-22/R, S.208, S.208A	A9EU	FAR 23	1	July 22, 2016	
Aero Commander (Dynac Aerospace Corp) [Volare]	10, 10A, 100, 100A, 100-180	1A21	CAR 3	1	July 22, 2016	
Aeromere (Aeromere S.A.) [Falco]	Falco F.8.L	7A11	CAR 3/10	1	July 22, 2016	(4)
Aeronautica Macchi Aerfer (Aeronautica Macchi S.p.A. & Aerfer- Industrie Aerospaziali Meridionali S.p.A.)	AM-3	A19EU	FAR 23	1	July 22, 2016	
Aerostar (Aerostar Aircraft Corporation)	PA-60-600 (Aerostar 600), PA-60-601 (Aerostar 601), PA-60-601P (Aerostar 601P), PA-60-602P (Aerostar 602P)	A17WE	FAR 23	8	October 18, 2017	(4)
Airbus Defense and Space GMBH (Airbus Defense and Space GMBH) [Bolkow]	Bolkow Jr.	A1EU	CAR 3/10	5	April 28, 2017	(4)
Airbus Defense and Space GMBH (Airbus Defense and Space GMBH) [Bolkow]	BO-209-150 FV & RV, BO-209-160 FV & RV, BO-209-150 FF	A27EU	FAR 23	5	April 28, 2017	(4)
Alexandria Aircraft (Alexandria Aircraft, LLC) [Bellanca]	17-30, 17-31, 17-31TC	1A3	CAR 3	1	July 22, 2016	
Alexandria Aircraft (Alexandria Aircraft LLC) [Bellanca]	14-19, 14-19-2, 14-19-3, 14-19-3A	A18CE	FAR 23	14	March 15, 2019	
Alpha Aviation Concept Ltd (Alpha Aviation Concept Limited)	17-30A, 17-31A, 17-31ATC	A48EU	FAR 23	1	July 22, 2016	
American Champion (American Champion Aircraft Corporation)	R2160	A-759	FAR 23	17	July 19, 2019	
American Champion (American Champion Aircraft Corporation)	7ECA, 7GCAA, 7GCBC, 7KCAB	A21CE	CAR 4a	1	July 22, 2016	
Aviat Aircraft, Inc. (Aviat Aircraft, Inc.) [Sky International]	8KCAB, 8GCBC	A22NM	FAR 23	1	July 22, 2016	
Aviat Aircraft, Inc. (Aviat Aircraft, Inc.) [Sky International]	A-1, A-1A, A-1B, A-1C-180, A-1C-200	A8SO	FAR 23	1	July 22, 2016	
Bellanca (Bellanca Aircraft Corporation)	S-1S, S-1T, S-2, S-2A, S-2S, S-2B, S-2C	A-773	FAR 23	8	October 18, 2017	
	14-13-2, 14-13-3W, 14-13-3, 14-13	CAR4a		5	April 28, 2017	

Issued: July 22, 2016

Amended: July 19, 2019

FAA Approved Model List (AML) STC SA01818WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01112-01 Rev.**	AML Amended Date	Limitations
Boeing (The Boeing Company) [Rockwell International]	BC-1A, AT-6 (SNJ-2), AT-6A (SNJ-3), AT-6B, AT-6C (SNJ-4), AT-6D (SNJ-5), AT-6F (SNJ-6), SNJ-7, T-6G	A-2-575	CAR 4a	1	July 22, 2016	
Boeing (The Boeing Company) [Stearman]	A75L3, 75, A75, B75, E75, A75J1, A75L300, A75N1, B75N1, D75N1, IB75A, E75N1	A-743	CAR 4a	17	July 19, 2019	
Cessna (Cessna Aircraft Company)	T-50 (Army AT-17, and UC-78 series, and Navy JRC-1)	A-722	CAR 4a	1	July 22, 2016	(4)
Cessna (Cessna Aircraft Company)	F150F, F152, F150G, FA150K, F150H, FA150L, F150J, FA150M, F150K, FA152, F150L, FRA150L, F150M, FRA150M	A13EU	CAR 3	5	April 28, 2017	
Cessna (Cessna Aircraft Company)	Cessna FR172K	A18EU	CAR 3	1	July 22, 2016	
	Cessna FR172E, FR172F, FR172G, FR172H, FR172J			8	October 18, 2017	
Cessna (Cessna Aircraft Company)	F172D, F172E, F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P, F172D	A4EU	CAR 3 CAR 10	1	July 22, 2016	
Cessna (Cessna Aircraft Company)	F177RG	A26EU	FAR 23	1	July 22, 2016	
Cessna (Cessna Aircraft Company)	F182P, F182Q, FR182	A42EU	CAR 3 FAR 23	1	July 22, 2016	
Cessna (Cessna Aircraft Company)	F337E, FT337E, F337F, FT337F, F337G, FT337GP, F337H, FT337HP	A23EU	FAR 23	1	July 22, 2016	(4)
Cirrus Design Corporation (Cirrus Design Corporation)	SR20, SR22, SR22T	A00009CH	FAR 23	17	July 19, 2019	
Commander (Commander Aircraft Corporation) [CPAC, Inc.]	112, 112TC, 112B, 112TCA, 114, 114A, 114B, 114TC	A12SO	FAR 23	1	July 22, 2016	
Costruzioni Aeronautiche Tecnam S.P.A. (Costruzioni Aeronautiche Tecnam S.P.A.) [Tecnam]	P2006T	A62CE	FAR 23	17	July 19, 2019	(8)
Costruzioni Aeronautiche Tecnam S.P.A. (Costruzioni Aeronautiche Tecnam S.P.A.) [Tecnam]	P2010	A00066CE	FAR 23	17	July 19, 2019	(8)
Cub Crafters (Cub Crafters Inc.)	CC19-180	A00053SE	FAR 23	17	July 19, 2019	
DeHavilland Support Limited	Beagle B.121 Series 1, Beagle B.121 Series 2, Beagle B.121 Series 3	A22EU	FAR 23	8	October 18, 2017	
Diamond (Diamond Aircraft Industries, Inc.)	DA20-A1, DA20-C1	TA4CH	FAR 23	1	July 22, 2016	
Diamond (Diamond Aircraft Industries, Inc.)	DA 40 NG, DA 40F, DA 40	A47CE	JAR23 FAR 23	17	July 19, 2019	(6)

FAA Approved Model List (AML) STC SA01818WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01112-01 Rev.**	AML Amended Date	Limitations
Discovery (Discovery Aviation, Inc.) [Liberty]	XL-2	A00008DE	FAR 23	17	July 19, 2019	
EADS-PZL "Warszawa-Okecie" (EADS-PZL "Warszawa-Okecie" S.A.)	PZL-104 WILGA 80, PZL-104M WILGA 2000, PZL-104MA WILGA 2000	A55EU	FAR 23	1	July 22, 2016	
EADS-PZL "Warszawa-Okecie" (EADS-PZL "Warszawa-Okecie" S.A.)	PZL-KOLIBER 150A, PZL-KOLIBER 160A	A69EU	FAR 23	1	July 22, 2016	
Extra (Extra Flugzeugproduktions- und Vertriebs- GmbH)	EA 300, EA 300/S, EA 300/L, EA 300/200, EA 300/LC	A67EU	FAR 23	5	April 28, 2017	
Extra (Extra Flugzeugproduktions- und Vertriebs- GmbH)	EA 400, EA 400-500	A43CE	FAR 23	8	October 18, 2017	(4)(8)
Fleet Aircraft, Ltd (Flight Aircraft Ltd)	FLEET 80	TC 788	CAR 3 EQUIVALENT	5	April 28, 2017	
Found Brothers (Found Brothers Aviation Limited)	FBA Centennial "100"	A13EA	CAR 3	1	July 22, 2016	
Frakes Aviation (Frakes Aviation) [Gulfstream American Corporation]	G-44, G-44A, SCAN Type 30	A-734	CAR 4A	8	October 18, 2017	(4)
FS2003 Corp. (FS 2003 Corporation) [The New Piper Aircraft, Inc.]	PA-12, PA-12S	A-780	CAR 3	5	April 28, 2017	
Fuji (Fuji Heavy Industries, Ltd)	FA-200-160, FA-200-180, FA-200-180AO	A4PC	CAR 3/10	5	April 28, 2017	
Gomolzig Flugzeug- und Maschinenbau GmbH (Gomolzig Flugzeug- und Maschinenbau GmbH) [FFA]	AS 202/15 "BRAVO", AS 202/18A "BRAVO", AS 202/18A4 "BRAVO"	A34EU	FAR 23	17	July 19, 2019	
Grob Aircraft AG (Grob Aircraft AG) [Grob]	G115, G115A, G115B, G115C, G115D, G115E, G115F, G115G	A57EU	FAR 23	14	March 15, 2019	(4)
Helio (Helio Aircraft, LLC)	H-250, H-295 (USAF U-10D), HT-295, H-391 (USAF YL-24), H-391B, H-395 (USAF L-28A or U-10B), H-395A, H-700, H-800	1A8	CAR 3	1	July 22, 2016	
Howard (Howard Aircraft Foundation)	DGA-15P (Army UC-70, Navy GH-1, GH-2, GH-3, NH-1), DGA-15J (Army UC-70B), DGA-15W	A-717	CAR 4a	1	July 22, 2016	
Interceptor (Interceptor Aircraft Inc) [Prop-Jets, Inc.; Meyers]	200, 200A, 200B, 200C, 200D, 400	3A18	CAR 3	1	July 22, 2016	
Interstate (STOL Aviation LLC)	S-1B1, S-1B2	A-754	CAR 4 FAR 23	17	July 19, 2019	
JGS (JGS Properties, LLC) [Quartz Mountain Aerospace; Luscombe Aircraft]	11E	A-804	CAR 3	1	July 22, 2016	

Issued: July 22, 2016

Amended: July 19, 2019

FAA Approved Model List (AML) STC SA01818WI

Aircraft Make (TCDS Holder) [Common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01112-01 Rev.**	AML Amended Date	Limitations
Legend Aviation & Marine (Legend Aviation & Marine LLC) [Republic Twin-Bee]	UC-1	A6EA	CAR 3	1	July 22, 2016	(4)
Lovaux Ltd (FLS Aerospace (Lovaux) Ltd.)	OA7 Optica Series 300	A64EU	FAR 23	1	July 22, 2016	
Luscombe (Good Earthkeeping Organization Inc)	8A, 8B, 8C, 8D, 8E, 8F, 8, T-8F	A-694	CAR 4a	5	April 28, 2017	
Maule (Maule Aerospace Technology, Inc.)	Bee Dee M-4, M-4, M-4C, M-4S, M-4T, M-4-180C, M-4-180S, M-4-180T, M-4-180V, M-4-210, M-4-210C, M-4-210S, M-4-210T, M-4-220, M-4-220C, M-4-220S, M-4-220T, M-5-180C, M-5-200, M-5-210C, M-5-210TC, M-5-220C, M-5-235C, M-6-180, M-6-235, M-7-235, MX-7-180, MX-7-180, MXT-7-180, MT-7-235, M-8-235, MX-7-160, MXT-7-160, MX-7-180A, MXT-7-180A, MX-7-180B, M-7-235B, M-7-235A, M-7-235C, MX-7-180C, M-7-260, MT-7-260, MX-7-260C, MX-7-160C, MX-7-180AC, M-9-235	3A23	CAR 3	1	July 22, 2016	
MICCO Aircraft Co., Inc. (MICCO Aircraft Company, Inc.) [Meyers]	MX-7-420, MT-7-420, M-7-420A, M-7-420AC			17	July 19, 2019	(4)
	MAC-125C, MAC-145, MAC-145A, MAC-145B	3A1	CAR 4a FAR 23	1	July 22, 2016	
Mooney (Mooney International Corporation) [Mooney Aviation Company, Inc.; Mooney Airplane Co.; Mooney Aircraft Corporation; Aerostar Aircraft Corp]	M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20I, M20K, M20L, M20M, M20R, M20S	2A3	CAR 3	1	July 22, 2016	
Mooney (Mooney Aircraft Corporation)	M22	A6SW	CAR 3	1	July 22, 2016	
Nardi (Nardi S.A.) [Siai Marchetti]	FN-333	7A5	CAR 3/10	1	July 22, 2016	
Navion (Sierra Hotel Aero, Inc.)	Navion (L-17A), Navion A (L-17B, L-17C), Navion B, Navion D, Navion E, Navion F, Navion G, Navion H	A-782	CAR 3	1	July 22, 2016	
Pacific Aerospace Limited. (Pacific Aerospace Ltd.) [Found Aircraft Canada, Inc]	FBA-2C, FBA-2C1 (Bush Hawk), FBA-2C2 (Bush Hawk XP)	A7EA	CAR 3 FAR 23	1	July 22, 2016	
Piaggio (Piaggio & C.)	P.136-L, P.136-L1	A-813	CAR 3/10	1	July 22, 2016	(4)
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-16, PA-16S	1A1	CAR 3	14	March 15, 2019	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-18 "125" (Army L-21A), PA-18S "125", PA-18AS "125", PA-18 "135" (Army L-21B), PA-18A "135", PA-18S "135", PA-18AS "135", PA-18 "150", PA-18A "150", PA-18S "150", PA-18AS "150", PA-19 (Army L-18C), PA-19S	1A2	CAR 3	1	July 22, 2016	

Issued: July 22, 2016

Amended: July 19, 2019

FAA Approved Model List (AML) STC SA01818W1

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01112-01 Rev.**	AML Amended Date	Limitations
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-18, PA-18S, PA-18A			1	Aug 22, 2016	
	PA-18S "105"			5	April 28, 2017	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-20, PA-20S, PA-20 "115", PA-20 "135", PA-20S "135"	1A4	CAR 3	1	Aug 22, 2016	
	PA-20S "115"			14	March 15, 2019	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160	1A6	CAR 3	1	Aug 22, 2016	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-23, PA-23-160, PA-23-235, PA-23-250, PA-E23-250	1A10	CAR 3	1	July 22, 2016	(4)
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-24, PA-24-250, PA-24-260, PA-24-400	1A15	CAR 3	1	July 22, 2016	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-28-140, PA-28-150, PA-28-151, PA-28-160, PA-28-161, PA-28-180, PA-28-235, PA-28S-160, PA-28R-180, PA-28S-180, PA-28-181, PA-28R-200, PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28RT-201T, PA-28-201T, PA-28-236	2A13	CAR 3	1	July 22, 2016	(1)(3)
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-38-112	A18SO	FAR 23	1	July 22, 2016	
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-44-180, PA-44-180T	A19SO	FAR 23	1	July 22, 2016	(1)(2)(3)(4)
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-30, PA-39, PA-40	A1EA	CAR 3	1	July 22, 2016	(4)
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-32-260, PA-32-300, PA-32S-300, PA-32R-300, PA-32RT-300, PA-32RT-300T, PA-32R-301(SP), PA-32R-301(HP), PA-32R-301T, PA-32-301, PA-32-301T, PA-32-301FT, PA-32-301XTC	A3SO	CAR 3	1	July 22, 2016	(1)(3)
Piper Aircraft, Inc. (Piper Aircraft, Inc.)	PA-34-200, PA-34-200T, PA-34-220T	A7SO	CAR 3	1	July 22, 2016	(4)
Polskie Zakłady Lotnicze Spółka z o.o (Polskie Zakłady Lotnicze Spółka z o.o) [PZL MIELEC]	PZL M26 01	A44CE	FAR 23	1	July 22, 2016	
Revo, Inc. (Revo, Incorporated) [Lake]	COLONIAL C-1, COLONIAL C-2, LAKE LA-4, LAKE LA-4A, LAKE LA-4P, LAKE LA-4-200, LAKE MODEL 250	1A13	CAR 3	5	April 28, 2017	
SOCATA Morane Saulnier Rallye (SOCATA) [SOCATA - Groupe Aerospatiale]	Rallye 100S, Rallye 150ST, Rallye 150T, Rallye 235E, Rallye 235C, MS 880B, MS 885, MS 894A, MS 893A, MS 892A-150, MS 892E-150, MS 893E, MS 894E	7A14	CAR 3	1	July 22, 2016	
SOCATA (SOCATA) [SOCATA - Groupe Aerospatiale]	TB 9, TB 10, TB 20, TB 21, TB 200	A51EU	FAR 23	1	July 22, 2016	
SOCATA, S.A. (SOCATA S.A.) [Gruuman]	GA-7 (Cougar)	A17SO	FAR 23	1	July 22, 2016	(4)
Spartan Aircraft Company	Spartan 7W	TC 628	Aero 7A	8	October 18, 2017	
STOL (Sky Enterprises, Inc.) [Republic Sea-Bee]	RC-3	A-769	CAR 3	1	July 22, 2016	

Issued: July 22, 2016

Amended: July 19, 2019

FAA Approved Model List (AML) STC SA01818W/I

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01112-01 Rev.**	AML Amended Date	Limitations
Swift (Swift Museum Foundation Inc.) [Globe Aircraft Company]	GC-1A, GC-1B	A-766	CAR 4a	5	April 28, 2017	
Symphony Aircraft Industries Inc. [OMF]	OMF-100-160, SA 160	A46CE	FAR 23	17	July 19, 2019	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	D17S (Army UC-43, UC-43B, Navy GB-1, GB-2), SD17S	A-649	Aero 7A	1	July 22, 2016	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	G17S	TC 779	Aero 7A	1	July 22, 2016	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	19A, B19, M19A, 23, A23, A23A, A23-19, A23-24, B23, C23, A24, A24R, B24R, C24R	AICE	CAR 3	1	July 22, 2016	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33, F33A, F33C, G33, H35, J35, K35, M35, N35, P35, S35, V35, V35A, V35B, 36, A36, A36TC, B36TC	3A15	CAR 3	1	July 22, 2016	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	35, A35, B35, C35, D35, E35, F35, G35	A-777	CAR 3	1	July 22, 2016	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	45 (YT-34), A45 (T-34A, B-45), D45 (T-34B)	5A3	CAR 3	1	July 22, 2016	
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	D55, D55A, E55, E55A, 56TC, A56TC, 58, 58A, 95, B95, B95A, D95A, E95, 95-55, 95-A55, 95-B55, 95-B55A, 95-B55B (T-42), 95-C55, 95-C55A	3A16	CAR 3	1	July 22, 2016	(4)
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	76	A29CE	FAR 23	1	July 22, 2016	(4)
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	77	A30CE	FAR 23	1	July 22, 2016	
Textron Aviation (Textron Aviation Inc.) [Beechcraft Corporation]	50, B50, C50	5A4	CAR 3	14	March 15, 2019	(4)(5)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	140A	5A2	CAR 3	5	April 28, 2017	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	120, 140	A-768	CAR 4a	5	April 28, 2017	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, A150K, 150L, A150L, 150M, A150M, 152, A152	3A19	CAR 3	1	July 22, 2016	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	170, 170A, 170B	A-799	CAR 3	1	July 22, 2016	

Issued: July 22, 2016

Amended: July 19, 2019

FAA Approved Model List (AML) STC SA01818W/

Aircraft Make (TCDS Holder) [Common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01112-01 Rev.**	AML Amended Date	Limitations
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	172, 172A, 172B, 172C, 172D, 172E, 172F (USAF T-41A), 172G, 172H (USAF T-41A), 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S	3A12	CAR 3 FAR 23	1	July 22, 2016	(3)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	175, 175B, P172D, R172E (USAF T-41B), (USAF T-41C or D), R172F (USAF T-41D), R172G (USAF T-41C or D), R172H (USAF T-41D), R172I, 172RG, R172K	3A17	CAR 3	1	July 22, 2016	
	175A, 175C			8	October 18, 2017	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	177, 177A, 177B	A13CE	FAR 23	1	July 22, 2016	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	177RG	A20CE	FAR 23	1	July 22, 2016	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180I, 180K	5A6	CAR 3	1	July 22, 2016	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182S, 182T, R182, T182, TR182, T182T	3A13	CAR 3 FAR 23	1	July 22, 2016	(3)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24	CAR 3	1	July 22, 2016	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	190, 195 (LC-126A,B,C), 195A, 195B	A-790	CAR 3	1	July 22, 2016	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	206, P206, P206A, P206B, P206C, P206D, P206E, TP206A, TP206B, TP206C, TP206D, TP206E, U206, U206A, U206B, U206C, U206D, U206E, U206F, U206G, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G, 206H, T206H	A4CE	CAR 3 FAR 23	1	July 22, 2016	(3)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	210, 210A, 210B, 210C, 210D, 210E, 210F, T210F, 210G, T210G, 210H, T210H, 210I, T210J, 210K, T210K, 210L, T210L, 210M, T210M, 210N, T210N, 210R, T210R, 210-5 (205), 210-5A (205A)	3A21	CAR 3	1	July 22, 2016	
	P210N, P210R			5	April 28, 2017	
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	T303	A34CE	FAR 23	1	Aug 22, 2016	(4)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	310, 310A (USAF U-3A), 310B, 310C, 310D, 310E (USAF U-3B), 310F, 310G, 310H, E310H, 310I, 310J, 310J-1, E310I, 310K, 310L, 310N, 310P, T310P, 310Q, T310Q, 310R, T310R	3A10	CAR 3	1	July 22, 2016	(4)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	320, 320A, 320B, 320C, 320D, 320E, 320F, 320-1, 335	3A25	CAR 3	1	July 22, 2016	(4)
	340, 340A			8	October 18, 2017	(4)

Issued: July 22, 2016

Amended: July 19, 2019

FAA Approved Model List (AML) STC SA01818WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01112-01 Rev.**	AML Amended Date	Limitations
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	336	A2CE	CAR 3	1	July 22, 2016	(4)
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna Aircraft Company]	337, 337A (USAF 02B), 337B, T337E, T337F, T337G, 337H, T337H, T337H-SP	A6CE	CAR 3 FAR 23	1	July 22, 2016	(4)
	P337H			14	March 15, 2019	(4)
Textron Aviation Inc. (Textron Aviation Inc.) [Lancair]	LC40-550FG, LC41-550FG, LC42-550FG	A00003SE	FAR 23	17	July 19, 2019	
Thrush Aircraft Inc. (Thrust Aircraft Inc.) [Snow, Rockwell, Ayres]	600 S-2D, S2R, S2R-T34, S2R-T15, S2R-T11, S2R-R3S, S2R-R1340	A3SW	CAR 3	17	July 19, 2019	(4)
Thrush Aircraft Inc. (Thrust Aircraft Inc.) [Snow, Rockwell, Ayres]	600 S-2D, S2R, S2R-T34, S2R-T15, S2R-T11, S2R-R3S, S2R-R1340, S2R-R1820, S2R-T65, S2R-T45, S2R-G6, S2R-G10, S2R-G5, S2R-G1	A4SW	CAR 3 FAR 23	17	July 19, 2019	(4)
Topcub Aircraft Inc. (Topcub Aircraft Inc.) [Cub Crafters]	CC18-180, CC18-180A	A00006SE	FAR 23	17	July 19, 2019	
Trident (Viking Air, Ltd.)	TR-1	A19EA	FAR 23	1	July 22, 2016	
True Flight Holdings LLC (True Flight Holdings LLC) [American General]	AA-1, AA-1A, AA-1B, AA-1C	A11EA	FAR 23	1	July 22, 2016	(3)
True Flight Holdings LLC (True Flight Holdings LLC) [American General]	AA-5, AA-5A, AA-5B, AG-5B	A16EA	FAR 23	1	July 22, 2016	
Univair (Univair Aircraft Corporation) [Stinson]	415-D, 415-E, 415-G, F-1, F-1A, A-2, A2-A, M10	A-787	CAR 3	5	April 28, 2017	
Univair (Univair Aircraft Corporation) [Stinson]	108, 108-1, 108-2, 108-3, 108-5	A-767	CAR 3	1	Aug 22, 2016	
Univair (Univair Aircraft Corporation) [Stinson]	415-C, 415-CD	A-718	CAR 4a	5	April 28, 2017	
Varga (Agustair, Inc)	2150, 2150A, 2180	4A19	CAR 3	17	July 19, 2019	
Vulcanair S.p.A (Vulcanair S.p.A) [Partenavia]	P.68, P.68B	A31EU	FAR 23	8	October 18, 2017	(4)(7)
WACO (The WACO Aircraft Company)	YMF	ATC 542	Aero 7A	1	July 22, 2016	
WACO* (WACO Classic Aircraft Corporation) [Great Lakes Aircraft Company]	2T-1A-2 *TCDS no longer lists Aircraft Make	A18EA	Aero 7A	5	April 28, 2017	
WSK "PZL-MIELEC" OBR (WSK PZL MIELEC and OBR SK MIELEC) [PZL]	PZL M20 03	A68EU	FAR 23	5	April 28, 2017	(4)

Issued: July 22, 2016

Amended: July 19, 2019

FAA Approved Model List (AML) STC SA01818W1

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model (alias)	Type Certificate Number	TC Certification Basis*	MDL 005-01112-01 Rev.**	AML Amended Date	Limitations
Zenair (Zenair Ltd.)	CH2000	TA5CH	FAR 23	1	July 22, 2016	
ZLIN Aircraft a.s. (ZLIN Aircraft a.s.) [Moravan a.s.]	Z-242L, Z-143L	A76EU	FAR 23	1	July 22, 2016	
ZLIN Aircraft a.s. (ZLIN Aircraft a.s.) [Moravan National Corporation]	ZLIN 526L	A30EU	FAR 23	1	July 22, 2016	

[* TC Certification Basis - See Type Certificate Data Sheet applicable to aircraft for complete certification basis.]

[** Later FAA-approved revisions of the Master Drawing List may be used.]

Limitations:

- (1) Excluding aircraft equipped with Avidyne Entegra
- (2) Excluding aircraft equipped with Garmin G500
- (3) Excluding aircraft equipped with Garmin G1000
- (4) Excluding aircraft equipped with Garmin G3X or FIKI systems. Aircraft complies with 14 CFR 23 through Amdt. 23-55.
- (5) Excluding aircraft configured for more than 6 seats or > 6,000 lb MTOW
- (6) VFR aircraft (without lightning protection per SB OSB 40-004/3) ONLY.
- (7) Excluding aircraft equipped with Garmin G950 or Sagem Avionics Integrated Cockpit
- (8) Excludes installation of G5 as the primary attitude indicator or HSI.

*****END*****

Issued: July 22, 2016

Amended: July 19, 2019



United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

Number: SA01866WI

This certificate issued to: Garmin International, Inc.
1200 East 151st Street
Olathe, KS 66062

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 23* of the Federal Aviation Regulations

Original Product – Type Certificate Number:
Multiple - AML STC

Make:
Model: See Approved Model List (AML) SA01866WI for approved aircraft models and applicable airworthiness regulations

Description of Type Design Change:

Installation of Garmin GFC 500 Autopilot with Electronic Stability and Protection

Data Required:

- (1) Garmin Master Drawing List (MDL) 005-01264-00, Revision 1, dated December 21, 2017
 - (2) Garmin GFC 500 Automatic Flight Control System Part 23 AML STC Maintenance Manual (includes Instructions for Continued Airworthiness) 190-02291-01, Revision 1, dated December 21, 2017
- Later FAA-approved revisions to the data listed above are incorporated without amendment to this certificate

Limitations and Conditions:

- (1) Compatibility of this design change with previously approved modifications must be determined by the installer.
 - (2) Aircraft modified by this STC must be operated in accordance with the Airplane Flight Manual Supplement (AFMS) identified on the Approved Model List.
 - (3) Aircraft modified by this STC must be maintained in accordance with the Instructions for Continued Airworthiness (ICA) identified above.
- (continued on Page 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: August 24, 2017

Date Reissued:

Date of Issuance: December 21, 2017

Date Amended: March 15, 2019

By Direction of the Administrator

Signature

Title

Robert G. Murray
ODA STC Unit Administrator
ODA-240087-CE

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:

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: SA01866WI

March 15, 2019

- (4) The installation of a Garmin G5 Electronic Flight Instrument per Garmin AML STC SA01818WI or a Garmin G3X Touch EFIS per Garmin AML STC SA01899WI must be accomplished prior to or concurrent with this STC installation.
- (5) If the holder agrees to permit another person to use this certificate to alter the product, the holder must give the other person written evidence of that permission.

***Certification Basis**

Based on 14 CFR 21.115 and 21.101, and the FAA policy for significant changes in FAA Order 8110.48, the certification basis

for this change is as follows:

- a. The certification basis for parts not changed or not affected by this change remains unchanged from the original approval.
- b. The certification basis for parts changed or affected by this change is:

Section	Amdt.	Section	Amdt.
23.143	23-50	23.853 (a)	23-49
23.301 (a)	23-48	23.863 (a)(b)	23-34
23.303	Orig.	23.1301 (a)(b)(c)(d)	23-20
23.305 (a)(b)	23-45	23.1309 (a)(1)(2)(b)(c)(d)(e)	23-49
23.307 (a)	Orig.		
23.337	23-48	23.1321 (e)	23-49
23.395 (a)(1)	23-7	23.1322	23-43
23.397 (a)(b)	23-45	23.1329	23-49
23.561 (a)(b)(3)(e)	23-48	23.1331 (b)(1)	23-43
23.601	Orig.	23.1335	23-20
23.603	23-23	23.1351 (a)(1)(2)(i)	23-49
23.605 (a)	23-23	23.1353 (h)	23-49
23.607 (a)(b)(c)	23-48	23.1357 (a)(b)(c)(d)	23-43
23.609	Orig.	23.1359	23-49
23.611	23-48	23.1365 (a)(b)(d)(e)	23-49
23.613 (a)(b)	23-45	23.1381 (a)	Orig.
23.627	Orig.	23.1431 (a)(b)	23-49
23.671 (a)(b)	Orig.	23.1501 (a)(b)	23-21
23.677 (a)(d)	23-49	23.1523 (a)(b)(c)	23-34
23.681 (a)	Orig.	23.1525	23-45
23.683	23-7	23.1529	23-26
23.685 (a)(c)(d)	23-17	23.1555 (a)(b)	23-21
23.689 (a)(2)(3)(b)	23-7	23.1581 (a)(b)(d)(f)	23-45
23.771 (a)	23-14	23.1583 (h)	23-45
23.773 (a)(2)	23-45	23.1585 (a)	23-45
23.777 (a)(b)	23-33	23.2515 (a)	23-64
23.779 (a)	23-33	23.2520 (a)	23-64

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).

FAA Approved Model List (AML)

STC Number SA01866WI

GFC 500 Autopilot with Electronic Stability and Protection



Issued Date: 12/21/2017

Amended Date: 10/15/2019

FAA Approved Model List (AML) STC Number SA01866WI

AML Amendment Log

Date	Description
12/21/17	Original
3/13/18	Add S35, V35, V35A, V35B
3/16/18	Add PA-28-150, -160, -180, -151, -161, -181
5/11/18	Add 172E
7/27/18	Added AA-5, AA-5A, AA-5B, AG-5B
8/9/18	Added 35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33/G33, F33A, F33C
8/29/18	Added PA-28-140
10/16/18	Added 210K, T210K, 210L, T210L, 210M, T210M, 210N, T210N
11/05/18	Added F33A (S/N CE-316 thru CE-1791)
1/18/19	Added M20M, M20R, M20S
3/7/19	Added 180/185 series
3/8/19	Added 36, A36, A36TC
3/14/19	Added M20J, M20K
5/30/19	Added R172K, FR172K, and F172E
7/03/19	Added R182, TR182, and FR182
7/30/19	Added PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T
7/30/19	Added PA-32R-300, PA-32R-301(SP), PA-32R-301(HP), PA-32R-301T
10/15/19	Reordered by Make/TC number, Added PA-28-201T, PA-28-236, PA-32-260, PA-32-300

FAA Approved Model List (AML) STC SA01866W1

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model	Type Certificate Number	TC Certification Basis*	MDL 005-01264-00 Rev.**	AML Amended Date	AFMS Part Number	AFMS Rev. **
Mooney (Mooney International Corporation) [Mooney]	M20M, M20R, M20S (except those with G1000)	2A3	CAR 3 FAR 23	11	1/18/19	190-02291-18	1
	M20J, M20K			14	3/14/19	190-02291-20	1
Piper Aircraft, Inc. (Piper Aircraft, Inc.) [Piper]	PA-28-150, PA-28-160, PA-28-180, PA-28-151, PA-28-161, PA-28-181 (except those with G1000)	2A13	CAR 3 FAR 23	4	3/16/18	190-02291-07	1
	PA-28-140			8	8/29/18	190-02291-07	3
	PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T			20	7/30/19	190-02291-29	1
	PA-28-201T			22	10/15/19	190-02291-48	1
	PA-28-236					190-02291-34	1
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna]	PA-32R-300, PA-32R-301(SP), PA-32R- 301(HP), PA-32R-301T	A3SO	CAR 3 FAR 23	21	7/30/19	190-02291-27	1
	PA-32-260, PA-32-300			22	10/15/19	190-02291-47	1
	172E			5	5/11/18	190-02291-02	2
	172F (USAF T-41A), 172G, 172H (USAF T-41A), 172L, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S (except those with G1000)			1	12/21/17	190-02291-02	1
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna]	182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182S, 182T, T182, T182T (except those with G1000)	3A13	CAR 3 FAR 23	1	12/21/17	190-02291-06	1
	R182, TR182			19	7/03/19	190-02291-32	1
Textron Aviation (Textron Aviation Inc.) [Beechcraft]	S35, V35, V35A, V35B	3A15	CAR 3	3	3/13/18	190-02291-09	1
	35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33/G33 (S/N CD-1244 thru CD-1304), F33A (S/N CE-290 thru CE-315), F33C (S/N CJ-52 thru CJ-179)			7	8/9/18	190-02291-16	1
	F33A (S/N CE-316 thru CE-1791)						
	36, A36, A36TC (S/N EA-1 thru EA- 272, except EA-242)			10	11/05/18	190-02291-16	1
				13	3/8/19	190-02291-25	1

FAA Approved Model List (AML) STC SA01866WI

Aircraft Make (TCDS Holder) [common name or previous make]	Aircraft Model	Type Certificate Number	TC Certification Basis*	MDL 005-01264-00 Rev.**	AML Amended Date	AFMS Part Number	AFMS Rev. **
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna]	R172K	3A17	CAR 3 FAR 23	17	5/30/19	190-02291-02	6
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna]	210K, T210K, 210L, T210L, 210M, T210M, 210N, T210N	3A21	CAR 3 FAR 23	9	10/16/18	190-02291-14	1
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna]	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24	CAR 3 FAR 23	12	3/7/19	190-02291-23	1
	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180I, 180J, 180K	5A6					
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna]	F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P	A4EU	CAR 3	1	12/21/17	190-02291-02	1
	F172E			17	5/30/19	190-02291-02	6
Textron Aviation Inc. (Textron Aviation Inc.) [Cessna]	FR172K	A18EU	CAR 3	17	5/30/19	190-02291-02	6
Textron Aviation (Textron Aviation Inc.) [Cessna]	F182P, F182Q	A42EU	CAR 3	1	12/21/17	190-02291-06	1
	FR182		CAR 3 FAR 23	19	7/03/19	190-02291-32	1
True Flight Holdings LLC (True Flight Holdings LLC) [Grunman]	AA-5, AA-5A, AA-5B, AG-5B (except those with G1000)	A16EA	FAR 23	6	7/27/18	190-02291-12	1

[* TC Certification Basis - See Type Certificate Data Sheet applicable to aircraft for complete certification basis.]

[** or later FAA-approved revision]

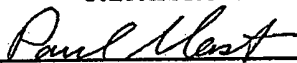
*****END*****

Issued: 12/21/2017

Amended: 10/15/2019

MASTER DRAWING LIST
GARMIN G3X TOUCH
ELECTRONIC FLIGHT INSTRUMENT SYSTEM
PART 23 AML STC

STC No. SA01899WI

FAA APPROVED  _____ ODA ADMINISTRATOR 10-3-19 _____ DATE ODA-240087-CE GARMIN INTERNATIONAL 1200 E. 151ST STREET, OLATHE KANSAS, 66062
--

Document Number:
005-01320-00 Rev. 4

Garmin Ltd. or its subsidiaries
c/o Garmin International Inc.
1200 E. 151st Street
Olathe Kansas 66062 USA

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Drawn By: Paul Mast		Date: 3/15/19	
Rev.	Date	Description of Change	ECO #
2	4/05/19	Updates for minor change project	188678
3	5/29/19	Updates for minor change project	191145
4	10/03/19	Updates for minor change project	196964

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GARMIN G3X TOUCH EFIS IN PART 23 AIRCRAFT, AML STC SA01899WI

This document lists the documents that define the design for the installation of the Garmin G3X Electronic Flight Instrument System in Part 23 aircraft defined on the Approved Model List (AML).

Documents Required for Installation	P/N	Rev
Garmin G3X Touch Electronic Flight Instrument System Part 23 AML STC Installation Manual	190-02472-01	4
Garmin G3X Touch Electronic Flight Instrument System Part 23 AML STC Maintenance Manual Contains Instructions for Continued Airworthiness	190-02472-02	2
Airplane Flight Manual Supplement or Supplemental Airplane Flight Manual for the Garmin G3X Touch Electronic Flight Instrument	190-01754-01	3
Service Bulletin No.: 1975	SB No. 1975	A

Documents Not Required for Installation	P/N	Rev
Accy, Config Mdl, EEPROM, Temp, MFi, PMA	010-12253-01	A
Sub-Assy, Conn Kit, GDU 4XX, PMA	011-01921-15	A
Sub-Assy, Mounting Kit, GDU 46X, PMA	011-01921-25	A
Sub-Assy, Mounting Kit, GDU 47x, PMA	011-01921-27	A
Sub-Assy, GEA 24, FAA-PMA	011-02848-01	A
Sub-Assy, Conn Kit, GEA24, FAA-PMA	011-02886-01	A
Sub Assy, Unit, GDU 460, PMA	011-02920-05	A
Sub-Assy, GSU 25D, PMA	011-02929-51	A
Connector Kit, GSU 25, FAA-PMA	011-03002-04	A
Sub-Assy, GAD 27, FAA-PMA	011-03876-01	A
Sub-Assy, Conn Kit, GAD 27, FAA-PMA	011-03877-01	A
Sub-Assy, GDL50R, FAA-PMA	011-03910-15	A
Sub-Assy, GDL52R, FAA-PMA	011-03910-35	A
Sub-Assy, GDL51R, FAA-PMA	011-03910-55	A
Sub-Assy, Connector Kit, GDL5XR, FAA-PMA	011-04170-00	A
Sub Assy, Unit, GDU 470, PMA	011-04311-05	A
Sub-Assy, GMU 11, FAA-PMA	011-04349-01	C
Sub-Assy, GMU 11, Installation Kit	011-04349-90	C
Sub-Assy, GAD 29B PMA	011-03236-11	A
Sub-Assy, Conn Kit, GAD 29	011-03271-00	C
Conn, BNC Plug/TNC Jack, PMA, Fam Dwg	330-01754-XX	A
120Ω CANbus Cable	CAN24TST120(CIT)*	A

*Carlisle Interconnect Technologies (a Tensolite Company) document

MASTER DRAWING LIST
PART 23 AML STC
GARMIN G5 ELECTRONIC FLIGHT INSTRUMENT

STC No. SA01818WI

FAA APPROVED  ODA ADMINISTRATOR 8-23-19 DATE ODA-240087-CE GARMIN INTERNATIONAL 1200 E. 151ST STREET, OLATHE KANSAS, 66062
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Document Number:
005-01112-01 Rev. 18

Garmin Ltd. or its subsidiaries
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1200 E. 151st Street
Olathe Kansas 66062 USA

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Drawn By: Paul Mast		Date: 7/22/16	
Rev.	Date	Description of Change	ECO #
16	4/16/19	Minor change for optional wire type	189087
17	7/19/19	Major change for Amendment 62 Update, GAD 13, and Dual Navigator Interface Update	193575
18	8/23/19	Minor change for Piper Altimatic IIIC autopilot approval	195263

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GARMIN G5 IN PART 23 AIRCRAFT

This document lists the documents that define the design for the installation of the Garmin G5 Electronic Flight Instrument in Part 23 aircraft defined on the Approved Model List (AML).

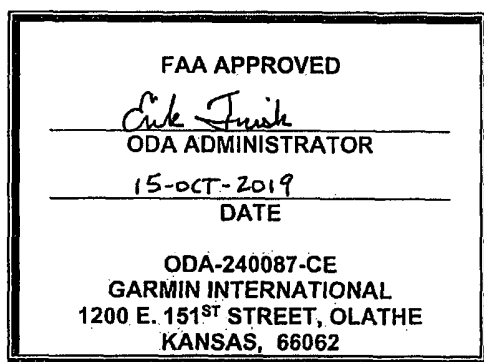
Documents Required for Installation	P/N	Rev
Garmin G5 Electronic Flight Instrument Part 23 AML STC Installation Manual	190-01112-10	20
Garmin G5 Electronic Flight Instrument Part 23 AML STC Maintenance Manual Including Instructions for Continued Airworthiness	190-01112-11	6
Airplane Flight Manual Supplement or Supplemental Airplane Flight Manual for the Garmin G5 Electronic Flight Instrument	190-01112-13	6

Documents Not Required for Installation	P/N	Rev
Sub-Assy, G5	011-03809-00	D
Installation Kit, G5	011-03892-00	C
Sub-Assy, Battery Pack, G5	011-03893-00	C
Sub-Assy, GMU 11, FAA-PMA	011-04349-01	C
Sub-Assy, GMU 11, Instal ation Kit	011-04349-90	C
Sub-Assy, GAD 29 PMA	011-03236-01	C
Sub-Assy, GAD 29B PMA	011-03236-11	A
Sub-Assy, Conn Kit, GAD 29	011-03271-00	C
Sub-Assy, GAD 13, FAA-PMA	011-04938-00	B
Connector Kit, 9 Pin, w/CAN Term, PMA	011-03002-10	B
SMP, G5 Adaptor Plate	115-02642-XX	A
SMP, Recessed Adapter Plate, Fam Dwg	115-02733-XX	B
Conn, BNC Plug/TNC Jack, PMA, Fam Dwg	330-01754-XX	A
120 Ohm Databus Cable	CAN24TST120*	A
120Ω CANbus Cable	CAN24TST120(CIT)*	A
120Ω Databus Cable	GF120-24CANB-1C**	NR

*Carlisle Interconnect Technologies (a Tensolite Company) document

**GigaFlight Connectivity, Inc. document

MASTER DRAWING LIST
GFC 500 AUTOPILOT WITH ELECTRONIC STABILITY
AND PROTECTION
PART 23 AML STC
STC No. SA01866WI



Document Number:
005-01264-00 Rev. 22

Garmin Ltd. or its subsidiaries
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Drawn By: Robbie Kieffer		Date: 12/20/17	
Rev.	Date	Description of Change	ECO #
18	06/14/19	Update to 185 Installation Data	191987
19	07/05/19	Added R182, TR182, FR182	192917
20	07/30/19	Added PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T	193905
21	07/30/19	Added PA-32R-300, PA-32R-301 (SP), PA-32R-301 (HP), PA-32R-301T	193922
22	10/15/19	Added PA-28-236, PA-28-201T, PA-32-260, PA-32-300	197495

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Table of Contents

Section	Description	Page
1.	APPROVED CONFIGURATIONS FOR GFC 500 AUTOPILOT WITH ESP PART 23 AML STC	3
1.1	Textron Aviation Inc (Cessna) 172E through 172S and F172E through F172P	4
1.2	Textron Aviation Inc (Cessna) 182E through T182T and F182P through F182Q.....	5
1.3	Textron Aviation (Beechcraft) S35, V35, V35A, and V35B	6
1.4	Piper Aircraft, Inc. PA-28-140/150/151/160/161/180/181	7
1.5	True Flight Holdings LLC AA-5, AA-5A, AA-5B, AG-5B.....	8
1.6	Textron Aviation (Beechcraft) 35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33/G33, F33A, F33C.....	9
1.7	Textron Aviation Inc. (Cessna) 210K, T210K, 210L, T210L, 210M, T210M, 210N, T210N	10
1.8	Textron Aviation (Beechcraft) F33A	11
1.9	Textron Aviation (Beechcraft) F33A	12
1.10	Mooney M20M, M20R, M20S	13
1.11	Textron Aviation Inc. (Cessna) 180/185 Series.....	14
1.12	Textron Aviation (Beechcraft) A36/A36TC	15
1.13	Textron Aviation (Beechcraft) 36/A36	16
1.14	Mooney M20J, M20K	17
1.15	Textron Aviation Inc. (Cessna) R182/TR182/FR182	18
1.16	Piper Aircraft, Inc. PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T	19
1.17	Piper Aircraft, Inc. PA-32R-300, PA-32R-301 (SP), PA-32R-301 (HP), PA-32R-301T	20
1.18	Piper Aircraft, Inc. PA-28-236	21
1.19	Piper Aircraft, Inc. PA-28-201T	22
1.20	Piper Aircraft, Inc. PA-32-260, PA-32-300	23
2.	DOCUMENTS NOT REQUIRED FOR INSTALLATION	24

1. APPROVED CONFIGURATIONS FOR GFC 500 AUTOPILOT WITH ESP PART 23 AML STC

Data required for installation and maintenance of the GFC 500 Autopilot with Electronic Stability and Protection covered by this Part 23 AML STC are captured as configuration tables for each specific Make/Model in the following sections. The Table of Contents identifies each Make/Model and the page on which the configuration can be found.

1.1 Textron Aviation Inc (Cessna) 172E through 172S and F172E through F172P

The documents in Table 1-1 apply to Textron Aviation Inc Model 172E, 172F, 172G, 172H, 172I, 172K, R172K, 172L, 172M, 172N, 172P, 172Q, 172R, and 172S. The 172R and 172S airplanes eligible for this STC are those that were manufactured without Garmin G1000 Integrated Flight Deck Systems.

The documents in Table 1-1 also apply to Textron Aviation Inc. (Cessna (Reims)) Model F172E, F172F, F172G, F172H, F172K, FR172K, F172L, F172M, F172N, and F172P.

Table 1-1: Textron Aviation Inc (Cessna) Model 172E through 172S and F172E through F172P

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Textron Aviation Model 172	190-02291-03	7
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Textron Aviation 172E/172F/172G/172H/172I/172K/172L/172M/172N/172P/172Q/172R/172S/R172K and Cessna F172E/F172F/F172G/F172H/F172K/F172L/ F172M/F172N/F172P/FR172K	190-02291-02	6

1.2 Textron Aviation Inc (Cessna) 182E through T182T and F182P through F182Q

The documents in Table 1-2 apply to Textron Aviation Inc (Cessna) model 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, T182, 182S, 182T, and T182T airplanes. The 182T and T182T airplanes eligible for this STC are those that were manufactured without Garmin G1000 Integrated Flight Deck Systems.

The documents in Table 1-2 also apply to Textron Aviation (Cessna (Reims)) F182P and F182Q.

Table 1-2: Textron Aviation Inc (Cessna) 182E through T182T and F182P through F182Q

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Textron Aviation Model 182	190-02291-04	5
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement, GFC 500 Autopilot with ESP Installed in Textron Aviation 182E/182F/182G/182H/182J/182K/182L/182M/182N/182P/182Q/182R/182S /182T/T182/T182T and Cessna F182P/F182Q	190-02291-06	4

1.3 Textron Aviation (Beechcraft) S35, V35, V35A, and V35B

The documents in Table 1-3 apply to Textron Aviation (Beechcraft) model S35, V35, V35A, and V35B airplanes.

Table 1-3: Textron Aviation (Beechcraft) S35, V35, V35A, and V35B

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Textron Aviation Bonanza S35, V35, V35A, and V35B	190-02291-08	6
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement, GFC 500 Autopilot with ESP Installed in Textron Aviation S35, V35, V35A, and V35B	190-02291-09	4

1.4 Piper Aircraft, Inc. PA-28-140/150/151/160/161/180/181

The documents in Table 1-4 apply to Piper Aircraft, Inc. PA-28-140, PA-28-150, PA-28-160, PA-28-180, PA-28-151, PA-28-161, PA-28-181 airplanes.

The following PA-28 models are not eligible for installation of the pitch trim option: PA-28-140 (S/N 28-20002 thru 28-7225612), PA-28-150, PA-28-160, and PA-28-180 (S/N 28-1 thru 28-4377 only).

Table 1-4: Piper Aircraft, Inc. PA-28-140/150/151/160/161/180/181

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Piper PA-28 Series	190-02291-05	13
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement, GFC 500 Autopilot with ESP Installed in Piper PA-28-180 / 160 / 150 / 140 and Piper PA-28-181 / 161 / 151	190-02291-07	5

1.5 True Flight Holdings LLC AA-5, AA-5A, AA-5B, AG-5B

The documents in Table 1-5 apply to True Flight Holdings LLC AA-5, AA-5A, AA-5B, and AG-5B airplanes. The AG-5B airplanes eligible for this STC are those that were manufactured without Garmin G1000 Integrated Flight Deck Systems.

Table 1-5: True Flight Holdings AA-5, AA-5A, AA-5B, AG-5B

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, True Flight Holdings AA-5, AA-5A, AA-5B, AG-5B	190-02291-11	6
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement, GFC 500 Autopilot with ESP Installed in True Flight Holdings AA-5, AA-5A, AA-5B, AG-5B	190-02291-12	2

1.6 Textron Aviation (Beechcraft) 35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33/G33, F33A, F33C

The documents in Table 1-6 apply to Textron Aviation (Beechcraft) models 35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33/G33 (S/N CD-1244 thru CD-1304), F33A (S/N CE-290 thru CE-315), and F33C (S/N CJ-52 thru CJ-179)

Table 1-6: Textron Aviation 35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33/G33, F33A, F33C

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum Textron Aviation (Beechcraft) 33 Series	190-02291-15	6
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Textron Aviation (Beechcraft) 33 Series	190-02291-16	3

1.7 Textron Aviation Inc. (Cessna) 210K, T210K, 210L, T210L, 210M, T210M, 210N, T210N

The documents in Table 1-7 apply to Textron Aviation Inc. (Cessna Aircraft Company) models 210K, T210K, 210L, T210L, 210M, T210M, 210N, T210N

Table 1-7: Textron Aviation 210K, T210K, 210L, T210L, 210M, T210M, 210N, T210N

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Textron Aviation, Cessna 210	190-02291-13	11
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Textron (Cessna) 210 K/L/M/N and Textron (Cessna) T210 K/L/M/N	190-02291-14	2

1.8 Textron Aviation (Beechcraft) F33A

The documents in Table 1-8 apply to Textron Aviation (Beechcraft) model F33A (S/N CE-316 thru CE-510).

Table 1-8: Textron Aviation F33A (S/N CE-316 thru CE-510)

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum Textron Aviation (Beechcraft) F33A CE316-CE510	190-02291-26	5
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Textron Aviation (Beechcraft) 33 Series	190-02291-16	3

1.9 Textron Aviation (Beechcraft) F33A

The documents in Table 1-9 apply to Textron Aviation (Beechcraft) model F33A (S/N CE-511 thru CE-1791).

Table 1-9: Textron Aviation F33A (S/N CE-511 thru CE-1791)

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum Textron Aviation (Beechcraft) F33A, CE511-CE1791	190-02291-21	5
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Textron Aviation (Beechcraft) 33 Series	190-02291-16	3

1.10 Mooney M20M, M20R, M20S

The documents in Table 1-10 apply to Mooney M20M, M20R, and M20S aircraft that were manufactured without Garmin G1000 Integrated Flight Deck Systems.

Table 1-10: Mooney M20M, M20R, M20S

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Mooney M20M/M20R/M20S	190-02291-17	6
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Mooney M20M/M20R/M20S Series	190-02291-18	3

1.11 Textron Aviation Inc. (Cessna) 180/185 Series

The documents in Table 1-11 apply to Textron Aviation Inc (Cessna) model 180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K, 185, 185A, 185B, 185C, 185D, 185E, A185E, and A185F.

Table 1-11: Textron Aviation Inc (Cessna) 180 Series and 185 Series

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Textron Aviation (Cessna) 180/185	190-02291-22	4
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement, GFC 500 Autopilot with ESP Installed in Textron Aviation (Cessna) 180/185 Series Aircraft	190-02291-23	2

1.12 Textron Aviation (Beechcraft) A36/A36TC

The documents in Table 1-12 apply to Textron Aviation (Beechcraft) model A36 (S/N E-572 and On), and A36TC (S/N EA-1 through EA-272, except EA-242).

Table 1-12: Textron Aviation A36/A36TC

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum Textron Aviation (Beech) Model A36 (S/N E-572 & On)/A36TC	190-02291-24	3
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Textron Aviation Model 36/A36/A36TC	190-02291-25	2

1.13 Textron Aviation (Beechcraft) 36/A36

The documents in Table 1-13 apply to Textron Aviation (Beechcraft) model 36/A36 (S/N E-1 Thru E-571).

Table 1-13: Textron Aviation 36/A36

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum Textron Aviation (Beech) Model 36/A36 (S/N E-1 Thru E-571)	190-02291-30	3
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Textron Aviation Model 36/A36/A36TC	190-02291-25	2

1.14 Mooney M20J, M20K

The documents in Table 1-14 apply to Mooney M20J and M20K aircraft.

Table 1-14: Mooney M20J, M20K

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Mooney M20J/M20K	190-02291-19	6
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Mooney M20J/M20K Series	190-02291-20	3

1.15 Textron Aviation Inc. (Cessna) R182/TR182/FR182

The documents in Table 1-15 apply to Textron Aviation (Cessna) R182, TR182, and FR182 aircraft.

Table 1-15: Textron Aviation R182, TR182, FR182

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Textron Aviation Model R182/TR182/FR182	190-02291-31	2
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Textron Aviation R182/TR182 and Cessna FR182	190-02291-32	1

1.16 Piper Aircraft, Inc. PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T

The documents in Table 1-16 apply to Piper Aircraft, Inc. PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T aircraft.

Table 1-16: Piper Aircraft, Inc. PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 IM Addendum Piper PA-28R	190-02291-28	2
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Piper PA-28(R) Series	190-02291-29	1

1.17 Piper Aircraft, Inc. PA-32R-300, PA-32R-301 (SP), PA-32R-301 (HP), PA-32R-301T

The documents in Table 1-17 apply to PA-32R-300, PA-32R-301 (SP), PA-32R-301 (HP), PA-32R-301T aircraft.

Table 1-17: Piper Aircraft, Inc. PA-32R-300, PA-32R-301 (SP), PA-32R-301 (HP), PA-32R-301T

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum Piper PA-32R Series	190-02291-10	3
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Piper PA-32(R) Series	190-02291-27	1

1.18 Piper Aircraft, Inc. PA-28-236

The documents in Table 1-18 apply to PA-28-236 aircraft.

Table 1-18: Piper Aircraft, Inc. PA-28-236

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Piper Dakota	190-02291-33	1
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Piper PA28-236 Series	190-02291-34	1

1.19 Piper Aircraft, Inc. PA-28-201T

The documents in Table 1-19 apply to PA-28-201T aircraft.

Table 1-19: Piper Aircraft, Inc. PA-28-201T

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Piper Dakota	190-02291-33	1
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Piper PA28-201T Series	190-02291-48	1

1.20 Piper Aircraft, Inc. PA-32-260, PA-32-300

The documents in Table 1-20 apply to PA-32-260 and PA-32-300 aircraft.

Table 1-20: Piper Aircraft, Inc. PA-32-260, PA-32-300

Title	P/N	Rev
GFC 500 Autopilot with Electronic Stability and Protection Part 23 AML STC Installation Manual	190-02291-00	10
GFC 500 Install Manual Addendum, Piper Cherokee Six	190-02291-46	1
GFC 500 Autopilot with Envelope Stability and Protection Part 23 AML STC Maintenance Manual	190-02291-01	5
Airplane Flight Manual Supplement GFC 500 Autopilot with ESP Installed in Piper PA32 Cherokee Six Series	190-02291-47	1

2. DOCUMENTS NOT REQUIRED FOR INSTALLATION

The documents in the following table are not required for the installation of the GFC 500 autopilot.

Documents not required for installation	P/N	Rev
Sub-Assy, Conn Kit, 15 Pin, Hi Den Male,w/Jackscrews	011-01824-01	A
Sub Assy, GSA 28, W/ Ball Bearings, PMA	011-02927-11	A
Sub-Assy, Capstan Kit, 1/16" Spiral, 5 Groove, GSA28	011-02951-10	C
Sub-Assy, Continuous Travel Kit, GSA28	011-02951-11	E
Sub-Assy, Continuous Travel Kit, 4" Capstan, GSA28	011-02651-12	B
Sub-Assy, CT Kit with Cable Guard, 4" Capstan, GSA28	011-02951-13	B
Sub-Assy, Output Device Hardware, GSA 28	011-02951-16	A
Sub-Assy, GSA28 Mounting Kit, Continuous Travel	011-02952-04	C
Sub-Assy, GMC 507, FAA-PMA	011-04548-01	A
Sub-Assy, Conn Kit, GSA 28, FAA-PMA	011-04755-00	A
Sonalert, Mallory, SC628MD, Family	013-00636-XX	C
SMP, Cable Guard Base Ring, GSA28, Fam Dwg	115-01737-2X	G
Pitch Trim Bracket Bottom	115-02523-XX	A
Pitch Link Top	115-02524-XX	B
Pitch Link Bottom	115-02525-XX	B
Pitch Trim Support Arm	115-02581-XX	A
SMP,Pitch Trim Plate, Fam Dwg	115-02731-XX	A
SMP,Shaft Adapter Plate, Fam Dwg	115-02732-XX	A
SMP,Pitch Trim Angle, Top, Fam Dwg	115-02735-XX	A
SMP,Pitch Trim Angle, Fam Dwg	115-02736-XX	A
SMP,Pitch Top Bracket, Fam Dwg	115-02737-XX	A
SMP,Pitch Bracket, Fam Dwg	115-02738-XX	B
SMP,Roll Top Bracket, Fam Dwg	115-02739-XX	A
SMP,Roll Bracket, Fam Dwg	115-02740-XX	A
SMP, Pitch Bracket, Fam Dwg	115-02754-XX	B
SMP, Roll Top, Fam Dwg	115-02755-XX	C
SMP, Roll Bottom, Fam Dwg	115-02756-XX	C
SMP, GSA28 Plate, Fam Dwg	115-02757-XX	A
SMP, PT Plate, Fam Dwg	115-02758-XX	D
SMP, Pitch Brace, Fam Dwg	115-02759-XX	A
SMP, PT Angle, Fam Dwg	115-02760-XX	C
SMP, Install Rack, GMC 507, Fam Dwg	115-02774-XX	B
Bracket, Pitch Servo, Piper PA-28, Family Drawing	115-02840-XX	C
Bracket, Roll Servo, Piper PA-28, Family Drawing	115-02841-XX	C
Bracket, Pitch Trim Servo, Piper PA-28-180/181, Family Drwg	115-02842-XX	E
BRACKET, ROLL SERVO, PIPER PA-32, FAM DWG	115-02888-XX	A
SMP, ROLLER GUARD, 1 INCH, FAM DWG	115-02891-XX	B

Documents not required for installation	P/N	Rev
SMP, BRACKET, PITCH SERVO, PIPER PA-28R, FAM DWG	115-02892-XX	A
STANDOFF RING, 4" CAPSTAN, 30 DEG. OFFSET, FAMILY DRAWING	115-02893-XX	A
Cable Guard, Top Ring, Piper PA-28-180/181 Family Drawing	115-02899-XX	C
SMP, Roll Bracket Aft, Fam Dwg	115-02900-XX	A
SMP, Roll Bracket Fwd, Fam Dwg	115-02901-XX	A
SMP, Pitch/Yaw Bracket 1, Fam Dwg	115-02902-XX	A
SMP, Pitch/Yaw Bracket 2, Fam Dwg	115-02903-XX	A
SMP, Pitch Trim Bracket 1, Fam Dwg	115-02904-XX	A
SMP, Pitch Trim Bracket 2, Fam Dwg	115-02905-XX	A
SMP, Roller Bracket, Fam Dwg	115-02910-XX	A
Bracket, Pitch Trim Servo, Cessna 210, Family Drawing	115-02925-XX	A
Bracket, Roll Servo, Cessna 210, Family Drawing	115-02926-XX	C
Bracket, Bridle Cable Idler, Cessna 210, Family Drawing	115-02927-XX	A
Bracket, Pitch Servo, Cessna 210, Family Drawing	115-02928-XX	B
SMP, Pitch Brace, 182, Fam Dwg	115-02929-XX	A
SMP, Fwd Roll Bracket, Fam Dwg	115-02962-XX	A
SMP, Aft Roll Bracket, Fam Dwg	115-02963-XX	A
SMP, Pitch Bracket, Fam Dwg	115-02964-XX	A
Bracket, Yaw Servo, Cessna 210, Family Drawing	115-02977-XX	B
Bracket, Yaw Idler, Cessna 210, Family Drawing	115-02978-XX	A
Bracket, MS20219-X Pulley Cover, Family Drawing	115-02980-XX	A
Roller Bracket, Match Drill Flange, Family Drawing	115-02986-XX	A
SMP, P Servo Shelf Upr Leg, RH, Fam Dwg	115-03003-XX	A
SMP, P Servo Shelf Upr Leg, LH, Fam Dwg	115-03005-XX	A
SMP, Yaw Base, Fam Dwg	115-03010-XX	A
SMP, Yaw Bracket Aft, Fam Dwg	115-03011-XX	A
SMP, Yaw Bracket Fwd, Fam Dwg	115-03012-XX	A
SMP, Pitch Bracket, Fam Dwg	115-03019-XX	A
SMP, Pitch Bracket 2, Fam Dwg	115-03020-XX	A
SMP, Trim Bracket, Fam Dwg	115-03021-XX	A
SMP, P Servo Shelf Lwr Leg 2, RH, Fam Dwg	115-03022-XX	A
SMP, P Trim Bracket 2, Fam Dwg	115-03023-XX	A
SMP, P Servo Shelf Lwr Leg 2, LH, Fam Dwg	115-03024-XX	A
SMP, Vertical Roll Bracket, Fam Dwg	115-03032-XX	A
Bracket, Pitch Servo, Aft, Piper, Family Drawing	115-03037-XX	A
SMP, Yaw Aft Bracket, Fam Dwg	115-03056-XX	A
SMP, Yaw Fwd Bracket, Fam Dwg	115-03057-XX	A
SMP, Yaw Clip, Fam Dwg	115-03058-XX	A
SMP, Yaw Angle, Fam Dwg	115-03059-XX	A
SMP, Pitch Trim Bracket 1, M20 Long, Fam Dwg	115-03076-XX	A

Documents not required for installation	P/N	Rev
SMP, Pitch Trim Bracket 2, M20 Long, Fam Dwg	115-03077-XX	A
SMP, Pitch Trim Bracket 3, M20 Long, Fam Dwg	115-03078-XX	A
SMP, Pitch Trim Bracket 4, M20 Long, Fam Dwg	115-03079-XX	A
SMP, Pitch Link Bottom Early S/N Fam Dwg	115-03082-XX	A
SMP, Pitch-Yaw Shelf Support RH, Fam Dwg	115-03083-XX	A
SMP, Pitch-Yaw Shelf Support LH, Fam Dwg	115-03084-XX	A
SMP, Pitch-Yaw Servo Shelf Assy, Fam Dwg	115-03085-XX	A
SMP, Cable Attachment Tab, Fam Dwg	115-03092-XX	C
Bracket, PT Servo, M20 Med Body, Family Drawing	115-03094-XX	A
Support, Upper, PT Bracket, M20 Med Body, Family Drawing	115-03095-XX	B
Support, Lower, PT Bracket, M20 Med Body, Family Drawing	115-03096-XX	A
SMP, PT Brace, RH, Fam Dwg	115-03101-XX	A
SMP, PT Brace, LH, Fam Dwg	115-03102-XX	A
SMP, Pitch Shelf Lower Leg, LH, Fam Dwg	115-03105-XX	B
SMP, Pitch Shelf Lower Leg, RH, Fam Dwg	115-03106-XX	B
SMP, Yaw Link, Fam Dwg	115-03109-XX	A
SMP, Roll Bracket Top, Fam Dwg	115-03128-XX	A
SMP, Roll Bracket Bottom, Fam Dwg	115-03129-XX	A
SMP, Roll Link, Fam Dwg	115-03130-XX	A
SMP, Roll Servo Plate, Fam Dwg	115-03131-XX	B
SMP, Roll Servo Bracket, Lower, Fam Dwg	115-03132-XX	A
SMP, Roll Servo Upper Bracket, Fam Dwg	115-03133-XX	A
SMP, Roll Pulley Bracket Assy, Fam Dwg	115-03135-XX	A
SMP, Pitch Shelf Angle, Fam Dwg	115-03136-XX	B
SMP, Pitch Shelf, Fam Dwg	115-03137-XX	B
SMP, Fwd Pitch Bracket, Fam Dwg	115-03138-XX	A
SMP, Aft Pitch Bracket, Fam Dwg	115-03139-XX	A
SMP, Roll Pulley Bracket, Fwd, Fam Dwg	115-03140-XX	A
SMP, Roll Pulley Bracket, Aft, Fam Dwg	115-03141-XX	A
SMP, Aft Roll Pulley Plate, Fam Dwg	115-03142-XX	A
SMP, Yaw Shelf, Fam Dwg	115-03145-XX	A
SMP, Yaw Angle, LH, Fam Dwg	115-03146-XX	A
SMP, Yaw Angle, RH, Fam Dwg	115-03147-XX	A
SMP, Yaw Link, Fam Dwg	115-03149-XX	A
SMP, SHELF, YAW SERVO, PIPER, FAM DWG	115-03151-XX	A
SMP, BRACKET HANGER, PIPER PT, FAM DWG	115-03152-XX	A
SMP, BRACKET, BASE CT, 4" CAPSTAN, FAM DWG	115-03153-XX	A
SMP, SUPPORT, PT, PIPER AFT, FAM DWG	115-03154-XX	A
SMP, SUPPORT, TRIM FLANGE, YAW BRACKET, PIPER, FAM DWG	115-03158-XX	A
SMP, Servo Adapter Plate, Fam Dwg	115-03162-XX	A

Documents not required for installation	P/N	Rev
SMP, Roll Bracket, FWD, Fam Dwg	115-03163-XX	A
SMP, BRACKET, ROLL, AFT FACING, PIPER, FAM DWG	115-03170-XX	A
SMP, ROLLER COVER GUARD, FAM DWG	115-03171-XX	A
Brace, Pitch Trim, M20 Med body, Fam Dwg	115-03188-XX	A
SMP, BRACKET, ROLL SERVO, PA28R, FAM DWG	115-03231-XX	A
SMP, Yaw Servo Bracket, RH, 182, Fam Dwg	115-03237-XX	A
SMP, Yaw Servo Bracket, LH, 182, Fam Dwg	115-03238-XX	A
SMP, PT Servo Bracket, 182RG, Fam Dwg	115-03239-XX	A
SMP, PT Aft Brace, LH, 182RG, Fam Dwg	115-03240-XX	A
SMP, PT Aft Brace, RH, 182RG, Fam Dwg	115-03241-XX	A
SMP, Servo Brace Plate, Fam Dwg	115-03242-XX	A
SMP, PT Fwd Brace, 182RG, Fam Dwg	115-03243-XX	A
SMP, Pitch Link, Upper, Fam Dwg	115-03247-XX	A
SMP, Link, Yaw Bridle Attachment, Fam Dwg	115-03262-XX	A
SMP, Roller Bracket, Fam Dwg	115-03271-00	A
SMP, ROLL SERVO LOWER BRACKET MOD., FAM DWG	115-03276-XX	A
SMP, ROLL SERVO PLATE, MODIFIED, FAM DWG	115-03285-XX	A
Mounting Block, Idler Pully, GSA28, Fam Dwg	117-00079-1X	C
Capstan, 2" dia, 1/16" Spiral, 5 Turn GSA 28, Fam Dwg	117-00545-1X	D
Capstan, 2", 1/16" Continuous, GSA 28, Fam Dwg	117-00545-2X	C
Bridle Cable Clamp, .125 DIA	117-00930-XX	B
Bridle Cable Clamp, .156 Dia	117-00931-XX	B
Capstan, 4" dia, 1/16" Continuous, GSA 28, Fam Dwg	117-01198-XX	C
Pulley, Idler, Offset Counterbore, Family Drawing	117-01202-XX	A
MOUNTING BLOCK, IDLER, GSA28 4" CAPSTAN, FAMILY DRAWING	117-01214-XX	B
GFC Torque Tube Sleeve, Fam Dwg	117-01265-XX	A
Tube End, Fam Dwg	117-01318-XX	B
Spacer, M20 Yaw, Fam Dwg	117-01319-XX	B
Downspring Eye, Fam Dwg	117-01322-XX	B
Bridle Cable Clamp, Countersunk, Fam Dwg	117-01381-XX	B
Bridle Cable Clamp, 3 Hole, Fam Dwg	117-01412-XX	A
Extrusion, .75 X .75 X .063T, 5.19 L, Fam Dwg	135-00110-XX	B
Extrusion, 180 Stringer, Fam Dwg	135-00111-XX	B
Roller 1, Fam Dwg	147-00138-XX	B
Roller 2, Fam Dwg	147-00139-XX	B
Torque Tube Bushing, Delrin, Fam Dwg	147-00143-XX	A
Chafe Strip, Fam Dwg	147-00144-XX	A
CHAFE STRIP, 8 INCH, FAM DWG	147-00150-XX	A
Lbl, Placard Set, GFC500, Fam Dwg	161-04725-XX	C
Nut, Castellated, Nylon Insert, MS17825, Fam Dwg	210-00181-XX	A

Documents not required for installation	P/N	Rev
Nut, Conical, Switch, Fam Dwg	210-00183-XX	B
Nut, Self-Locking, Hex, MS17829, Family Drawing	210-00202-XX	A
Bolt, AN3 thru AN20, Fam dWG	211-00090-XX	K
Screw, Hex Drive, Flat Head, MS24667, Fam Dwg	211-00705-XX	A
Washer, Flat, AN960, Cad Plate	212-00035-XX	A
Washer, Flat, AN960, Thin, Cad Plate	212-00043-XX	B
Pin, Cotter, Mil Spec, Fam Dwg	231-00037-XX	H
CT Cable Extension, Fam Dwg	233-00241-XX	A
Cable Assembly, Pitch Trim, Piper PA-28-180, Family Drawing	233-00253-XX	A
Cable Assembly, Pitch and PT	233-20034-XX	B
Cable Assembly, Roll	233-20035-XX	B
Pitch Cable, Short, 182	233-20043-XX	A
Pitch Cable, Long, 182	233-20044-XX	A
Pitch Trim Cable, 182	233-20045-XX	B
Roll Cable, Baron, With Label	233-20060-XX	A
PR Bridle Cable, Fam Dwg	233-20062-XX	A
Pitch Trim Bridle Cable	233-20065-XX	A
Bridle Cable 100, Fam Dwg	233-20068-XX	A
Cable Assembly, Pitch and Roll, Piper PA-28, Family Drawing	233-20069-XX	A
Cable Assembly, Pitch Trim, Piper PA-28, Family Drawing	233-20070-XX	C
Bridle Cable 101, Fam Dwg	233-20072-XX	A
Bridle Cable 102, Fam Dwg	233-20073-XX	A
Bridle Cable 103, Fam Dwg	233-20074-XX	A
Cable Ext 104, Fam Dwg	233-20075-XX	A
CABLE ASSEMBLY, ROLL, AFT FACING, PA-32, FAM DWG	233-20076-XX	A
CABLE Assembly, ROLL, PIPER PA-32 CHEROKEE, FAM DWG	233-20077-XX	A
Bridle Cable 105, Fam Dwg	233-20078-XX	A
Bridle Cable 106, Fam Dwg	233-20079-XX	A
Bridle Cable 112, Family Drawing	233-20086-XX	B
Bridle Cable 115, Family Drawing	233-20089-XX	B
Cable Assembly 116, Family Drawing	233-20090-XX	C
Cable Assembly 117, Fam Dwg	233-20091-XX	A
Cable Assembly 118, Fam Dwg	233-20092-XX	A
Cable Assembly 119, Fam Dwg	233-20100-XX	A
Cable Assembly 127, Family Drawing	233-20103-XX	A
Cable Assy 128, Fam Dwg	233-20104-XX	A
Cable Assembly 129, Fam Dwg	233-20105-XX	A
Cable Assy 130, Fam Dwg	233-20106-XX	A
Cable Assy 131, Fam Dwg	233-20107-XX	B
Cable Assy 132, Fam Dwg	233-20108-XX	A

Documents not required for installation	P/N	Rev
CABLE ASSEMBLY 134, FAM DWG	233-20110-XX	B
Cable Assembly 135, Fam Dwg	233-20111-XX	A
CABLE ASSEMBLY 136, FAM DWG	233-20112-XX	A
Cable Assy 142, Fam Dwg	233-20117-XX	A
Cable Assy 143, Fam Dwg	233-20118-XX	A
Chain, .25 Pitch, 94 Link, W/ Master, Fam Dwg	233-30006-XX	B
Chain, .25 Pitch, 80 Link, W/Master, Family Drawing	233-30007-XX	A
Cable, Coil Cord, Cygnet, Fam Dwg	310-00149-XX	C
Switch, Push-Button, 400 Series, Fam Dwg	340-00232-XX	B
Switch, Push-Button, MB2000 Series, Fam Dwg	340-00233-XX	C
Switch, Trim, Cygnet, CA3112-G	340-00234-XX	C
Switch, Toggle, MS27717, Fam Dwg	340-00235-XX	C
Sprocket, .25 Pitch x 22T, with Hub, 1 Inch Bore, Family Drawing	380-00057-XX	B
Sprocket, .25 Pitch x 55T, GSA28, Fam Dwg	380-00059-XX	B
Ckt Brkr, Pnl Mnt Push-Pull, PMA, Fam Dwg	355-00010-XX	C
Trim Switch, Assy *	CA3112-G *	IR
Coil Cord *	CA3934-12	IR

*Cygnet Aerospace drawing



APPENDIX A INSTALLATION SPECIFIC INFORMATION

A copy of this appendix must be used to record information for a specific installation of the G3X Touch EFIS Part 23 AML STC system. The completed copy must be kept with the aircraft permanent records. This appendix includes the following information:

A.1 Maintenance Records

This Post-Installation Configuration Log should be completed during the initial installation, with any software modifications post initial installation, and maintained with the aircraft permanent records.

- G3X software version used to perform software updates.
- Record part and serial numbers of all LRU's at installation.
- Record Mod Status of all LRU's at installation.
- Record part and serial numbers of any LRU which was replaced.
- Record any database updates which were performed during maintenance.
- Any other applicable information related to the maintenance work performed on the aircraft.

Table A-1 – G3X Post-Installation Log

Post-Installation Configuration Log					
Date:		Aircraft Model:	172M	Aircraft Make:	Cessna
Aircraft Registration #:	N536JR	Aircraft Serial #:	17262831	Engine:	
Original Software Version:				New Software Version (if applicable):	
Unit/Option	Installed/Enabled? (check if installed or configured)	LRU Part Number	LRU Serial Number	Mod Status	
GDU 460	✓	011-02920-05	350005787		
GDU 470					
GMU 11	✓	011-04349-01	565016273		
GSU 25D	✓	011-02929-51	593000772		
GTP 59	✓	011-00978-00	47947589		
GAD 29B	✓	011-03236-11	506008683		
GAD 27	✓	011-03876-01	4A8001240		
GEA 24	✓	011-02848-01	252005404		
GDL 5XR	✓	011-03910-35	4RP300900		

A.2 Equipment Locations

Appendix B contains a documentation sheet for recording G3X Touch EFIS LRU's included in the installation and its location on the aircraft. The document will be completed during the initial installation and maintained with the aircraft records.

Table A-2 – G3X Equipment Locations

Date:	Aircraft Make/Model:	Aircraft Reg #/Serial #:
LRU	Station C.G	Description of Location
GDU 460	12 in.	Panel
GDU 470	N/A in.	
GMU 11	72 in.	Right wing
GSU 25D	10 in.	Behind Panel
GTP 59	14 in.	Left wing
GAD 29B	8 in.	Behind Panel - co-pilot
GAD 27	8 in.	Behind Panel - co-pilot
GEA 24	8 in.	Behind Panel - Pilot
GDL 5XR	117 in.	Tail

A.3 Wire Routing

Figure A-1 is a generic aircraft drawing to be used for documenting the wire routing for the installation of the G3X Touch EFIS LRUs. The drawing will be completed during the initial installation and maintained with the aircraft records.

Record equipment locations and sketch the approximate location of wire routing on the figure below as applicable.

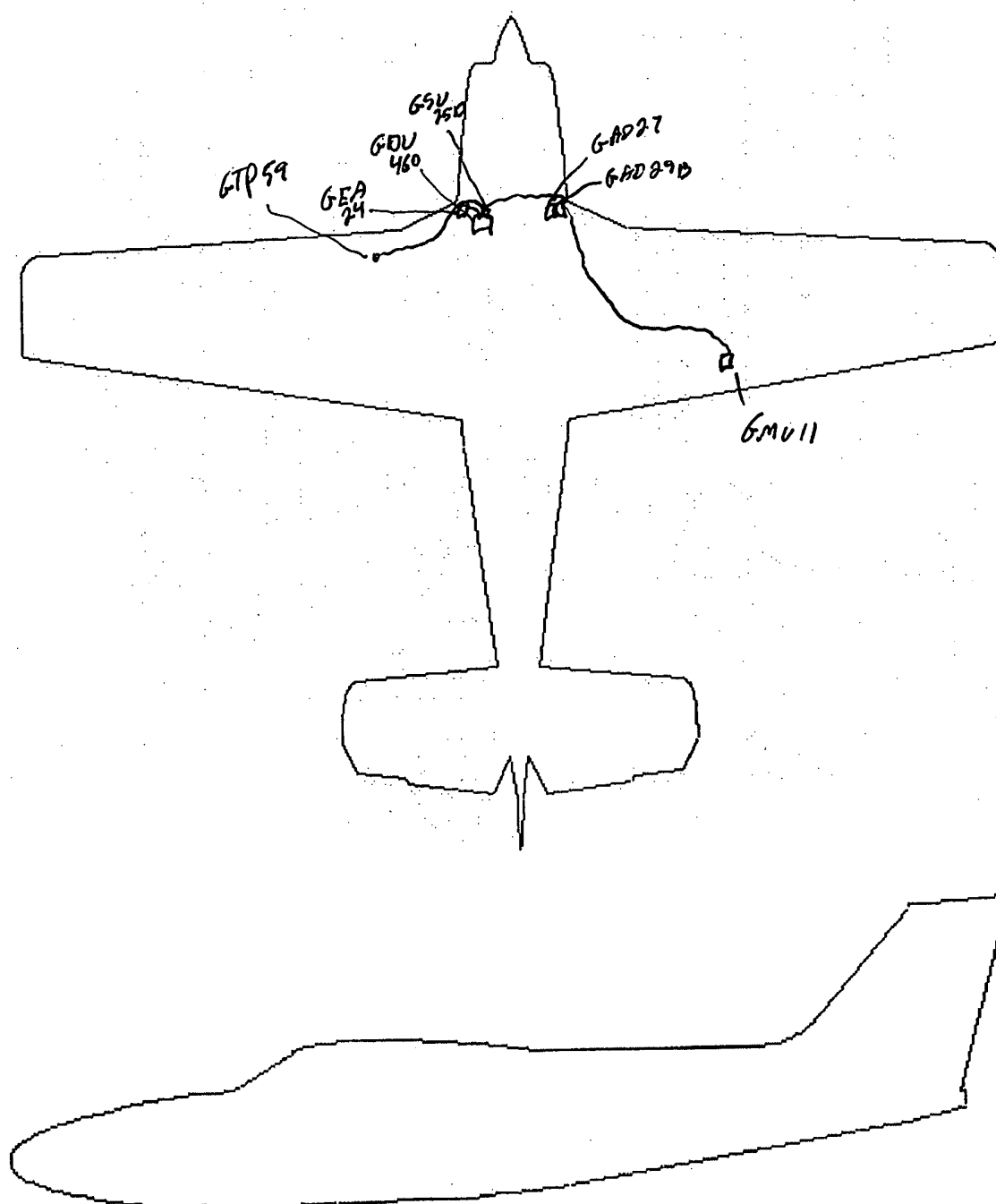


Figure A-1— Generic Aircraft Figure

Appendix A. Installation Specific Information

A copy of this appendix must be used to record information for a specific installation of the GFC 500 Autopilot system. The completed copy must be kept with the aircraft permanent records. This appendix includes the following information:

- General installation information
- Interfaced equipment
- GFC 500 Autopilot configuration log
- GFC 500 Autopilot wiring diagrams

A.1. General Installation Information

Aircraft

Aircraft Make and Model C. ESSNA 172M

Serial Number 17262831

Registration Number N536JR

GMC 507 Autopilot Mode Controller

Part Number 011-64548-01

Serial Number 5H1002563

Mod Level _____

GSA 28 Pitch Servo

Part Number 011-02927-11

Serial Number 5G9005250

Mod Level _____

GSA 28 Roll Servo

Part Number 011-02927-11

Serial Number 5G9005214

Mod Level _____

GSA 28 Pitch Trim Servo (if installed)

Part Number 011-02927-11

Serial Number 5G9003758

Mod Level _____

GSA 28 Yaw Damper Servo (if installed)

Part Number _____

Serial Number _____

Mod Level _____

A.2. Configuration Log (for G5 Equipped Aircraft)

Config Page	Config Option	Configuration Setting	Value
Navigation	Selected Course	Enabled/Disabled	☐ Enabled ☐ Disabled (H)
Flight Controls	Autopilot Servos	Pitch + Roll	Pitch + Roll
	Yaw Damper	Enabled/Disabled	☐ Enabled ☐ Disabled
	Autopilot Roll	Maximum Torque	%
		Servo Gain	
		Servo Direction	☐ Normal ☐ Reverse
		Clutch Monitor	☐ Enabled ☐ Disabled
		AP Disc Input = Open	(A)
		Expert Configuration	(G)
		Fine Adjust Amount	
		Fine Adjust Time	Sec
	Autopilot Pitch	Maximum Torque	%
		Servo Gain	
		Servo Direction	☐ Normal ☐ Reverse
		Clutch Monitor	☐ Enabled ☐ Disabled
		AP Disc Input = Open	(A)
		Minimum Airspeed Limit	Kt
		Maximum Airspeed Limit	Kt
		Vertical Speed Gain	
		Vertical Acceleration Gain	
		Airspeed Gain	
		Expert Configuration	(G)
		Fine Adjust Amount	
		Fine Adjust Time	Sec
		Airspeed Acceleration Gain	

		Airspeed Tracking Gain	
	Yaw Damper	Maximum Torque	%
		Servo Gain	
		Servo Direction	☐ Normal ☐ Reverse
		Clutch Monitor	☐ Enabled ☐ Disabled
		AP Disc Input = Open	(A)
		Expert Configuration	(G)
		Ball Centering Gain	
		Yaw Rate Filter Constant	
		Yaw Acceleration Filter Constant	
	Roll Trim	Trim Control	Disabled
	Pitch Trim	Trim Control	Garmin Servo
		Maximum Torque	%
		Clutch Monitor	☐ Enabled ☐ Disabled
		Servo Direction	☐ Normal ☐ Reverse
		Trim Direction	☐ Normal ☐ Reverse
		Auto Trim	☐ Enabled ☐ Disabled
		Low Airspeed Threshold	Kt
		High Airspeed Threshold	Kt
		Fastest Movement Speed	%
		Slowest Movement Speed	%
		Maximum Run Time	Sec
		AP Disc Input = Open	(A)
		Trim Input	(B)
		Test Trim Movement	(C)
		Expert Configuration	(G)

		Slowest Auto Trim Movement Speed	%
	Flight Director	Indicator Type	☐ Single Cue ☐ Dual Cue
		TO/GA Takeoff Pitch	°
		TO/GA Go Around Pitch	°
		Maximum Bank Angle	°
	Mode Control Panel	Audio Volume	%
		Annunciations	(D)
		AP DISC Input	(A)
		TO/GA Input	(A)
		Altitude Alert	☐ Enabled ☐ Disabled
		Lighting Bus Voltage	V
		Calibrate Pitch/Roll	(E)
		Calibrate Yaw Offset	(F)
	Electronic Stability Protection	Roll Attitude Protection	☐ Enabled ☐ Disabled
		Roll Limit	°
		Pitch Attitude Protection	☐ Enabled ☐ Disabled
		Pitch Up Limit	+ °
		Pitch Down Limit	- °
		Airspeed Protection	☐ Enabled ☐ Disabled
		Minimum Airspeed Limit	Kt
		Maximum Airspeed Limit	Kt
		Default ESP Powerup State	Enabled
		Auto Engage LVL Mode	☐ Enabled ☐ Disabled
	AFCS Setup Page	Disabled	Disabled

Notes:

Note (A) through (D) are used for troubleshooting purposes only.

- (A) AP DISC Input and TO/GA Input are to read the state of the switch. With the switches not depressed, this line should read Open or Open/High. With the switch depressed, the respective line should read Low.
- (B) Trim Input is to read the direction that the switch is being pressed. With the trim switch not pressed, this line will show a single dash "-". With the trim switch depressed in the Nose Down position, this line should read "Nose Down" and with the trim switch depressed in the Nose Up position, this line should read "Nose Up".
- (C) Test Trim Movement is used to verify that the trim moves the correct direction with the appropriate input. Selecting this line and then selecting Nose Up should cause the trim to move in the nose up direction. Selecting this line and then selecting Nose Down should cause the trim to move in the nose down direction..
- (D) Annunciators is used to test the GMC 507 annunciators as well as the sonalert output. Pushing and holding the knob while this row is highlighted will cause all of the mode annunciators (white arrows above each mode button) on the GMC 507 to illuminate and the sonalert output to be driven low (causing a tone in the sonalert, if installed) for approximately one second.
- (E) This row is utilized when installing a new GMC 507, or if the G5 has been recalibrated in Pitch and Roll. Refer to Section 9.1 for further details..
- (F) This row is utilized when installing a new GMC 507 to calibrate the GMC 507 if it is not installed in a panel which is perpendicular to the direction of flight. Refer to Section 9.1 for instructions.
- (G) To determine if Expert configuration is utilized for the specific airframe, refer to the appropriate Install Manual Addendum (190-02291-XX). If Expert Configuration is required, select the Expert Configuration row and then select OK on the following screen. This will then display (in amber) the additional fields shown below the Expert Configuration row in this table. Enter the appropriate values from the Install Manual Addendum.
- (H) Set this field to "Enabled for dual G5 installations.
Set this field to "Disabled" for G5 ADI-only installations that have an external CDI connected to the navigator.

A.3. Configuration Log (for G3X Equipped Aircraft)

G3X Page	Tab	Setting Name	Value
LRU	Autopilot	Garmin Autopilot Servos	Roll + Pitch
		Yaw Damper	☐ Enabled ☒ Disabled
		Roll Trim Servo	Disabled
		Pitch Trim Servo	☒ Enabled ☐ Disabled
Autopilot	Roll	Roll Servo Max Torque	100 %
		Roll Servo Gain	2.4
		Roll Servo Direction	☐ Normal ☒ Reverse
		Roll Servo Clutch Monitor	Enabled
		Roll Fine Adjust Amount	
		Roll Fine Adjust Time	
	Pitch	Pitch Servo Max Torque	70 %
		Pitch Servo Gain	1.55
		Pitch Servo Direction	☐ Normal ☒ Reverse
		Pitch Servo Clutch Monitor	Enabled
		Min Airspeed Limit	60 Kt
		Max Airspeed Limit	150 Kt
		Vertical Speed Gain	1.2
		Vertical Accel Gain	1
		Airspeed Gain	0.75
		Pitch Fine Adjust Amount	
		Pitch Fine Adjust Time	
		Airspeed Accel Gain	
		Airspeed Track Gain	

	Yaw Damper	Yaw Damper Max Torque	%
		Yaw Damper Servo Gain	
		Yaw Damper Servo Direction	☐ Normal ☐ Reverse
		Yaw Damper Clutch Monitor	Enabled
		Ball Centering Gain	
		Yaw Rate Filter Constant	
		Yaw Accel Filter Constant	
Trim (A)	Pitch Trim	Pitch Trim Servo Max Torque	60 %
		Pitch Trim Servo Direction	☐ Normal ☐ Reverse
		Pitch Trim Servo Switch Direction	☐ Normal ☐ Reverse
		Pitch Auto Trim	Enabled
		Pitch Trim Airspeed Threshold (Fastest Movement)	Kt
		Pitch Trim Airspeed Threshold (Slowest Movement)	Kt
		Pitch Trim Speed (Fastest Movement)	Kt
		Pitch Trim Speed (Slowest Movement)	Kt
		Maximum Run Time	Sec
		Pitch Trim Movement - Test	(C)
Trim (B)	Pitch Trim	Pitch Trim Servo Max Torque	60 %
		Pitch Auto Trim	Enabled
		Pitch Trim Movement - Test	(C)
	Trim Direction	Pitch Trim Servo Direction	☐ Normal ☒ Reverse
		Pitch Trim Servo Switch Direction	☐ Normal ☒ Reverse
	Trim Speed	Pitch Trim Airspeed Threshold (Fastest Movement)	60 Kt
		Pitch Trim Airspeed Threshold (Slowest Movement)	140 Kt
		Pitch Trim Speed (Fastest Movement)	30 % Kt
		Pitch Trim Speed (Slowest Movement)	20 % Kt

	Trim Run Time	Maximum Run Time	Sec
Trim		Pitch Auto Trim Minimum Speed	No Limit
Flight Director		Indicator Type	Single Cue or Dual Cue
		TO/GA Takeoff Pitch	7°
		TO/GA Go-Around Pitch	7°
		Maximum Bank Angle	30°
System Information	GMC	Annunciator Test	(D)
		AP Disc Input	(E)
		TO/GA Input	(F)
Autopilot	General	Mode Control Panel Pitch/Roll	(G)
		Mode Control Panel Yaw Offset	(H)
ESP		Roll Attitude Limiting	Enabled
		Bank Limit	45°
		Pitch Attitude Limiting	Enabled
		Up Limit	+80°
		Down Limit	-15°
		Airspeed Limiting	Enabled
		Min Airspeed	50 Kt
		Max Airspeed	161 Kt
		Default ESP Powerup State	Enabled
		Auto Engage LVL Mode	Enabled

-
- (A) Utilize the "Trim (A)" lines for "tab" and "setting name" for 28V aircraft and for 14V aircraft not equipped with a GAD 27.
 - (B) Utilize the "Trim (B)" lines for "tab" and "setting name" for 14V aircraft equipped with a GAD 27.
 - (C) "Pitch Trim Movement - Test" is used to verify that the trim moves in the correction. Selecting this line and then pressing the "Nose Up" button on screen should cause the trim to run in the nose up direction. Selecting this line and then pressing the "Nose Down" button on screen should cause the trim to run in the nose down direction.
 - (D) Annunciator Test is used to test the GMC 507 annunciators as well as the sonalert output. Pushing and holding the knob while this row is highlighted will cause all of the mode annunciators (white arrows above each mode button) on the GMC 507 to illuminate and the sonalert output to be driven low (causing a tone in the sonalert) for approximately one second.
 - (E) AP DISC Input is used to read the state of the switch. With the switch not depressed, this line should read Open or Open/High. With the switch depressed, this line should read Low.
 - (F) TO/GA Input is used to read the state of the switch. With the switch not depressed, this line should read Open. With the switch depressed, this line should read Low.
 - (G) This row is utilized when installing a new GMC 507, or if the G5 or GSU 25 has been recalibrated in Pitch and Roll. Refer to the GFC 500 AFCS Part 23 AML STC Maintenance Manual, p/n 190-02291-01 for instructions.
 - (H) This row is utilized to calibrate the GMC 507 if it is not installed in a panel which is perpendicular to the direction of flight. Refer to the GFC 500 AFCS Part 23 AML STC Maintenance Manual, p/n 190-02291-01 for instructions.

A.4. Equipment Locations and Wiring

For the locations of installed equipment, refer to the appropriate Install Manual Addendum (190-02291-XX).

Record equipment locations and sketch the approximate location of wire routing in or as applicable.

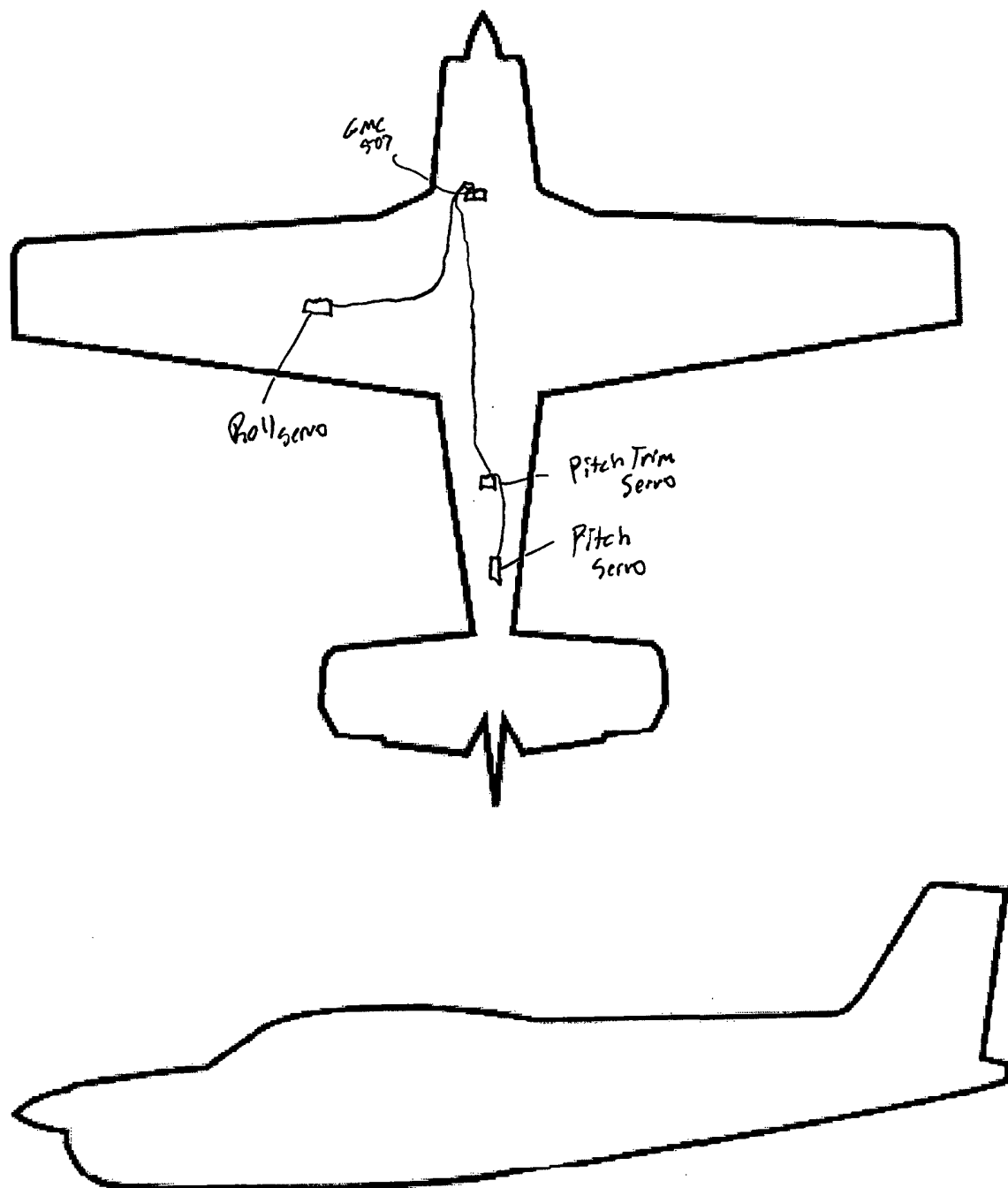


Figure A-1 – Equipment Location and Wire Routing – Single Engine Airplane

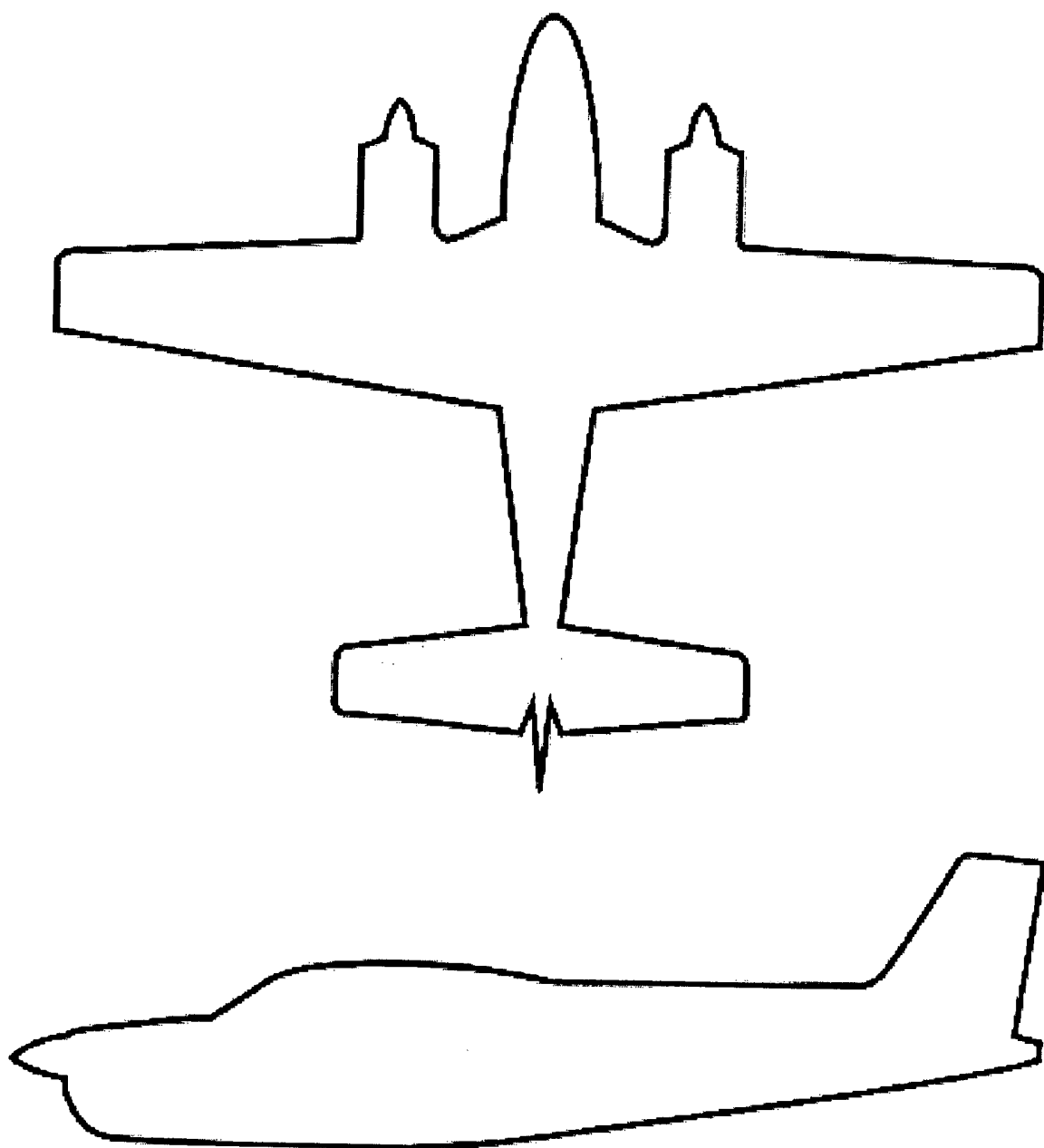


Figure A-2 – Equipment Location and Wire Routing – Twin Engine Airplane



APPENDIX A G5 AND GPS/VHF NAVIGATOR CONFIGURATION DOCUMENTATION

Appendix A contains the following:

- A G5 configuration recording sheet (A1), in the case of a dual G5 installation a configuration sheet should be completed for each G5 installed.
- A section to record the manually calculated Pitch and Roll Calibration settings (A2).

The documentation will be completed during the initial installation and maintained with the aircraft records.

A.1 G5 ELECTRONIC FLIGHT INSTRUMENT

Date:	Aircraft Make/Model: <i>Cessna 172M</i>	Aircraft Reg #/Serial #: <i>N536JR / 17262831</i>
G5 Part #:	G5 Serial #: <i>45Q034101</i>	G5 software version: <i>6.20</i>
CONFIGURATION PAGE	CONFIGURATION OPTION	CONFIGURATION SETTING
Device Information	Installation Type	Certified Instrument
	Diagnostics/Data Log	Enabled
Attitude Configuration	Indicator Type	Normal
	Pitch Display	Normal
	Roll Display	
	Standard Turn Roll Reference	Hide
	Automatic Declutter	<i>Enabled</i>
Air Data	Air Data Sensors	Enabled
	Outside Air Temp Sensor	
	Vertical Speed Indicator	
Airspeed Note: Configure Units prior to setting airspeeds	VNE	
	VNO	
	VSO	
	VS1	
	VFE	
	VA	
	VX	
	VY	
	VG	
	VR	
	VMC	
	VYSE	
Magnetometer	Magnetometer	
	Orientation	
Flight Controls	Garmin Autopilot Servos	
	Analog Autopilot Interface	
Backlight	Current Mode	Automatic
	Default Mode	Automatic
	Minimum Photocell Input	Default
	Minimum Display Brightness	Default
	Maximum Photocell Input	Default
	Maximum Display Brightness	Default
	Filter Time Constant	Default
Display	HSI Page	<i>Enabled</i>
	Power Up Page	<i>PPD</i>
Battery	Show Battery Status	When Using Battery



Date:	Aircraft Make/Model:	Aircraft Reg #/Serial #:
G5 Part #:	G5 Serial #:	G5 software version:
CONFIGURATION PAGE	CONFIGURATION OPTION	CONFIGURATION SETTING
	Automatic Power Off	On Ground Only
GPS	Internal GPS Receiver	<i>Disabled</i>
	GPS Data Fields	<i>Hide</i>
Navigation	Navigation Data	
	Selected Course	
	VNAV Deviation Scale	
Units	Altitude	
	Distance	
	Airspeed	
	Ground Speed	
	Ground Track	Magnetic
	Vertical Speed	
	Pressure	
RS-232	Input Format	<i>MAP MX</i>
	Output Format	
ARINC 429	Output 1	
	Output 2	
	Input 1	
	Input 2	
	Input 3	
	Input 4	

A.2 ADJUSTED "ROLL CALIBRATION" AND "PITCH CALIBRATION" VALUES

If the method to manually calculate the adjusted "Roll Calibration" and "Pitch Calibration" values was used, record the values here.

Axis	Value
Pitch	
Roll	



A.3 GTN 6XX/7XX CONFIGURATION (IF USED)

Config Page	Config Option	Configuration Setting
ARINC 429	ARINC 429 In (x) (x represents any available ARINC 429 Port)	Speed = Data =
	ARINC 429 In (x) (x represents any available ARINC 429 Port)	Speed = Data =
	ARINC 429 Out (x) (x represents any available ARINC 429 Port)	Speed = Data =
RS-232	RS-232 (x) (x represents any available RS-232 Port)	Input = Output =
Main Indicator (Analog) Configuration	CDI Key	
	Selected Course for GPS	
	Selected Course for VLOC	
	V-Flag State	
VOR/LOC/GS Configuration	Nav Radio	
	ARINC 429 Configuration	Tx Speed = SDI =
Main System	Heading Source Input	Not Connected This selection is made only if the GTN being interfaced to has no other Heading input.
	Altitude Source Input	Connected This selection is made only if the GTN being interfaced to has no other Altitude input.

A.4 GNS 4XX(W) / 5XX(W) CONFIGURATION (IF USED)

Config Page	Config Option	Configuration Setting
MAIN ARINC 429 CONFIG Page	IN (x) (x represents any available ARINC 429 Port)	Speed = Data =
	IN (x) (x represents any available ARINC 429 Port)	Speed = Data =
	OUT	Speed = Data =
	VNAV	
MAIN RS232 CONFIG Page	RS-232 (x) (x represents any available RS-232 Channel)	Input = Output =
MAIN CDI/OBS CONFIG Page		Press Menu and then select "IGNORE SEL CRS FOR VLOC?" Menu will display "ALLOW SEL COURSE FOR VLOC?" when set properly.
VOR/LOC/GS ARINC 429 CONFIG Page	SPEED	RX = TX =
	SDI	



A.5 GNS 480 CONFIGURATION (IF USED)

Config Page	Config Option	Configuration Setting
GND Maint Serial Setup	CH (x) (x represents any available Serial Channel)	Output =
GND Maint ARINC 429 Setup	CH In (2) (or any available 429 Port)	SEL = SPEED = SDI =
	CH Out (1) (or any available 429 Port)	SEL = SPEED = SDI =
	CH Out (2) (or any available 429 Port)	SEL = SPEED = SDI =
GND Maint Resolver Interface Setup	Resolver	
GND Maint Miscellaneous Setup	CDI Select	

A.6 GNC 255 CONFIGURATION (IF USED)

Config Page	Config Option	Configuration Setting
Sys Configuration	RS 232 Serial Port	
Attitude Configuration	CDI Indicator	

A.7 SL30 CONFIGURATION (IF USED)

Config Page	Config Option	Configuration Setting
Sys Configuration	RS 232 Serial Port	
Attitude Configuration	Indicator Type	



APPENDIX B EQUIPMENT LOCATIONS

Appendix B contains a documentation sheet for recording LRU's included in the installation and its location on the aircraft. The document will be completed during the initial installation and maintained with the aircraft records.

B.1 Equipment Locations

Date:	Aircraft Make/Model:	Aircraft Reg #/Serial #:
LRU	LRU included in this installation?	Description of Location
G5 #1	Yes	Panel
G5 #2		
GMU 11	Yes	Right wing
GAD 29/29B	Yes	Behrner Panel
GAD 13		

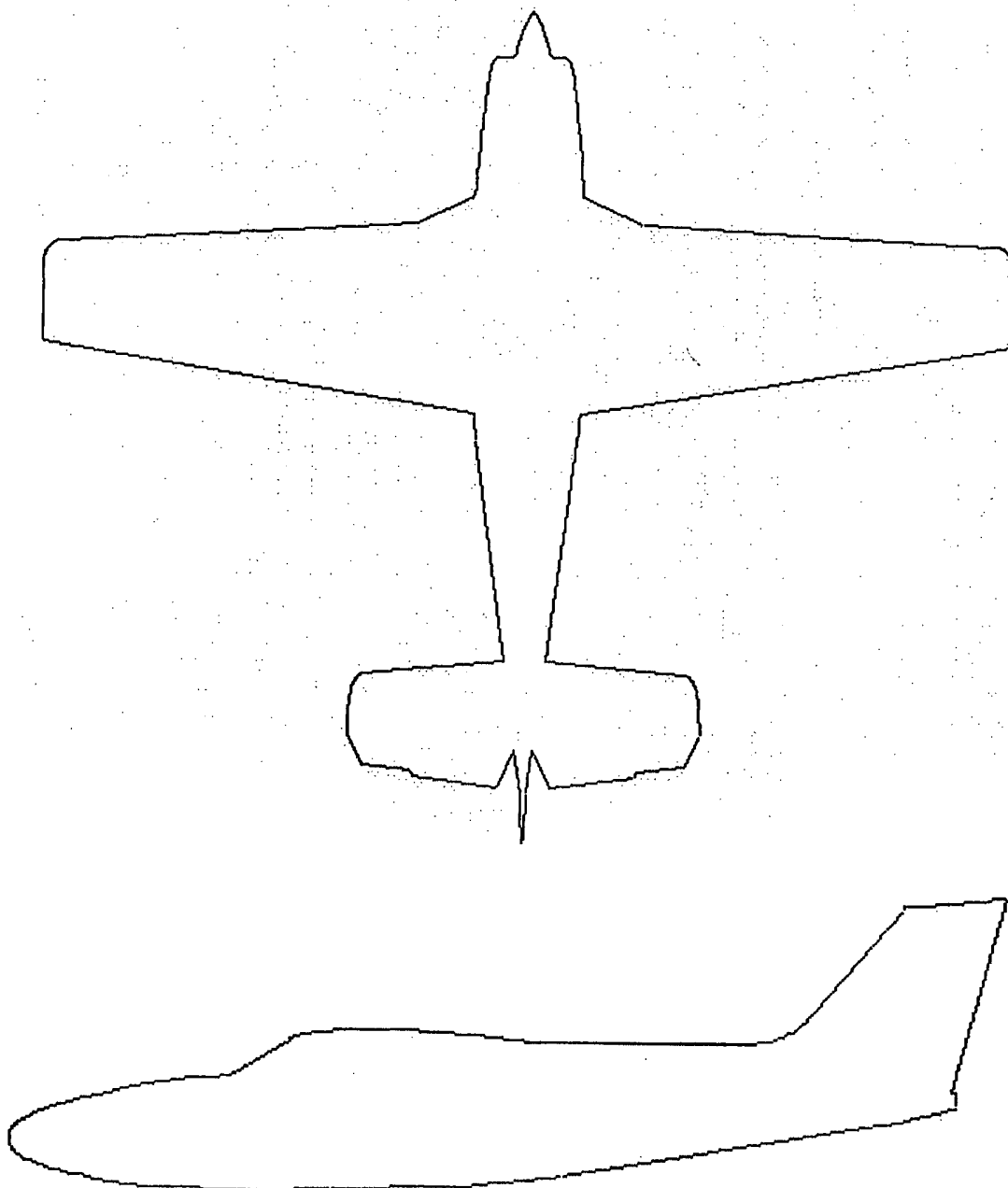
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APPENDIX C WIRE ROUTING

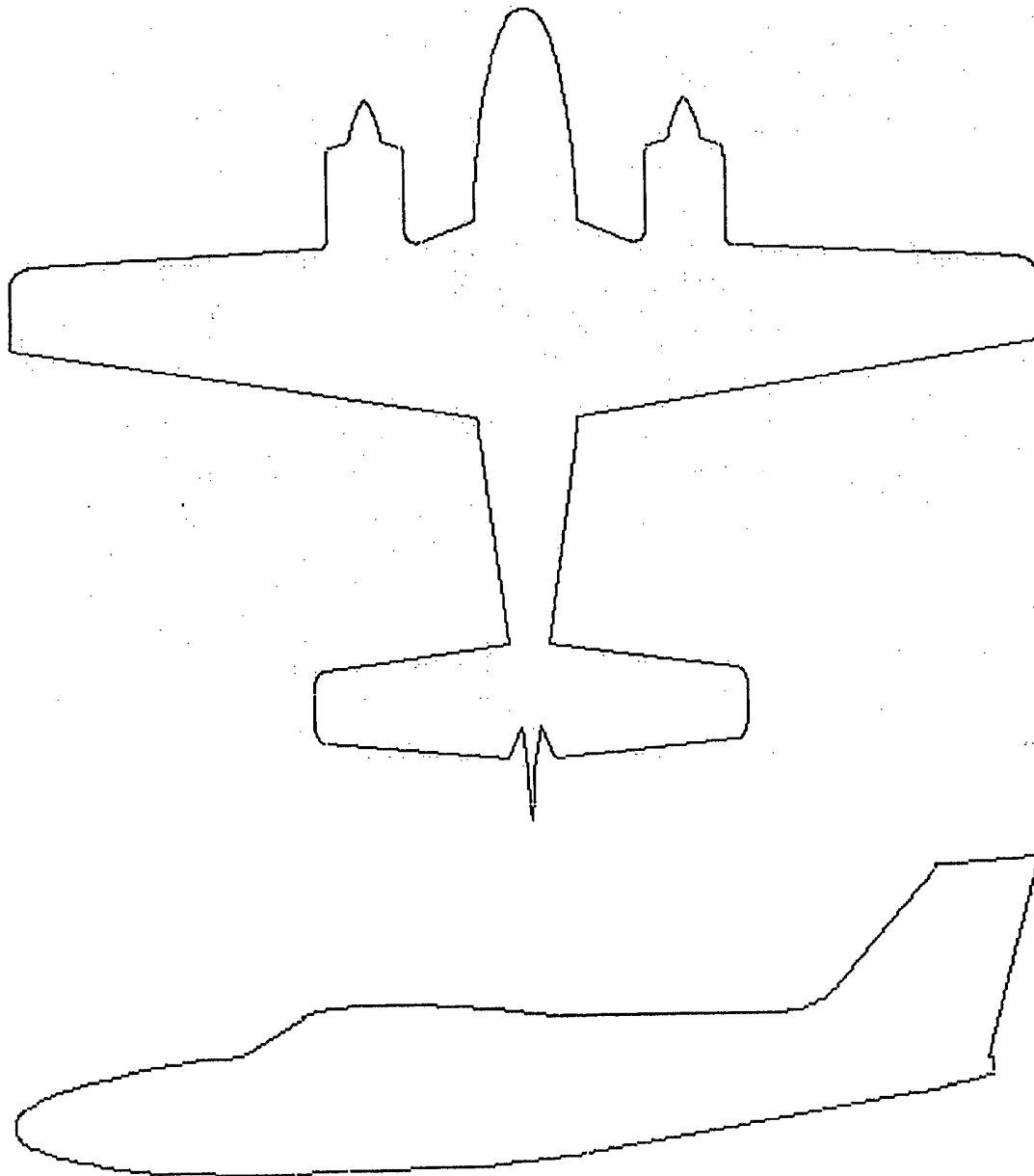
Appendix C contains a generic aircraft drawing to be used for documenting the wire routing for the installation of the G5, GMU 11 and GAD 29/29B. The drawing will be completed during the initial installation and maintained with the aircraft records.

C.1 Wire Routing Single Engine





C.2 Wire Routing Twin Engine





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 N536JR	Serial No. 17262831	
	Make CESSNA	Model 172M	Series
2. Owner	Name (As shown on registration certificate) REGIONAL CONSULTANTS, LLC	Address (As shown on registration certificate) Address 100 POST OAK TRAIL	
		City ATHENS State GA	
		Zip 30606-1300 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	ROBERT F. McDOWELL III	☒ U. S. Certificated Mechanic	Manufacturer
Address	1070 BEN EPPS DR.	☐ Foreign Certificated Mechanic	C. Certificate No.
City	ATHENS State GA	☐ Certificated Repair Station	3463522AP
Zip	30605 Country USA	☐ 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 ROBERT F. McDOWELL III 04/14/2017
--	--

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	Repair Station	☒ Inspection Authorization	

Certificate or Designation No. 3463522IA	Signature/Date of Authorized Individual ROBERT F. McDOWELL III 04/14/2017
---	--

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.

N536JR

04/14/2017

8. Description of Work Accomplished

Nationality and Registration Mark

Date

INSTALLATION OF FIBRE GLASS REINFORCED PLASTIC NACELLE FAIRING, TRADE NAME: "EXHAUST FAIRING P/N EP5001-001 S/N W1116789 IAW DOT APPROVED MAPLE LEAF INSTALLATION DRAWING NO. EP5003 (CESSNA 172) DATED FEBRUARY 14, 2001. AML NUMBER SA01386NY DATED MAY 12, 2005.

UPDATED EQUIPMENT LIST AND WEIGHT AND BALANCE.

[] Additional Sheets Are Attached

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

Supplemental Type Certificate

IMPORT

Number SA01386NY

This certificate issued to

Maple Leaf Aviation Limited
Group 520, Box 16, RR5
Brandon, MB R7A 5Y5
Canada

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 21 of the Federal Regulations.

Original Product -- Type Certificate Number: *

* See attached FAA Approved Model List (AML) No. for list of approved airplane models and applicable airworthiness regulations

Model:

Description of Type Design Change:

Installation of Fibre Glass Reinforced Plastic Nacelle Fairing, Trade Name: "Exhaust Fairing", in accordance with DOT approved Maple Leaf Installation Drawing Numbers, EP5003 (Cessna 172, 177 and 178 aircraft) and EP 5004 (Cessna 180, 182 and 185 aircraft), dated August 8, 2001.

Limitations and Conditions:

1. If the holder agrees to permit another person to use this certificate on the product, the holder shall give the other person written evidence of that permission.
2. Compatibility of this design change with previously approved modifications must be determined by the installer.

This certificate and the supporting data on which it is based 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 20, 2001

Date received: October 9, 2002

Date of issuance: September 5, 2001

Date suspended:

By the Administrator

for James E. Pulera
(Signature)
Vito A. Pulera
Manager
New York 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.



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 N536JR	Serial No. 17262831		
	Make CESSNA	Model 172M	Series	
2. Owner	Name (As shown on registration certificate) REGIONAL CONSULTANTS LLC		Address (As shown on registration certificate)	
			Address 100 POST OAK TRAIL	
			City ATHENS	State GA
			Zip 30606	Country UNITED STATES

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 AERO SERVICES, INC	Address 1070 BEN EPPS DRIVE City ATHENS State GA Zip 30605 Country UNITED STATES	☒ U. S. Certified Mechanic	Manufacturer
		☐ Foreign Certified Mechanic	C. Certificate No.
		☐ Certified Repair Station	3463522AP
		☐ 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 ☐	Signature/Date of Authorized Individual ROBERT F. McDOWELL III 04/14/2017
--	--

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	Repair Station	☒ Inspection Authorization	Other (Specify)

Certificate or Designation No. 3463522IA	Signature/Date of Authorized Individual ROBERT F. McDOWELL III 04/14/2017
--	--

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

N536JR

04/14/2017

Nationality and Registration Mark

Date

REMOVED EXISTING EXHAUST SYSTEM.

INSTALLED POWER FLOW STANDARD EXHAUST SYSTEM P/N PFS-13204 S/N 1263. MODIFICATION OF THE STANDARD EXHAUST SYSTEM PER POWER FLOW SYSTEMS, INC INSTALLATION INSTRUCTIONS DOCUMENT PFS-13250-00 REVISION G DATED JULY 23, 2009.

UPDATED EQUIPMENT LIST AND WEIGHT AND BALANCE.

----- END -----

[] Additional Sheets Are Attached

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

Supplemental Type Certificate

Number SA01801AT

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 3 and part 36 of the Civil Air and CFR 14 Regulations.

Original Product - Type Certificate Number: 3A12 A4EU 3A17

Make: Cessna; Cessna-Reims Aviation

Model: 172, A-H; 172 I; 172 K-N, P;
172Q, 172R, 172S; F172D thru F172H;
F172K-N, F172P; 175, 175A, 175B, 175C

Description of Type Design Change:

For the Cessna 172 airplane models incorporating Lycoming O-320 engines: Modification of the standard exhaust system as documented in Laminar Flow Systems Installation Instructions Document, "Laminar Flow System Extractor Exhaust System" Revision A, dated, November 20, 1998 and Technical Drawing List, Book No. PFS-B-800, dated, November 16, 1998 or per Power Flow Systems, Inc. Installation Instructions Document PFS-0058-00, Rev. A, dated October 5, 2001 and Master Drawing List, Report No. PFS-0032-00, Rev. IR, dated August 10, 2000, or later FAA approved revisions.

For the Cessna 172 and 175 airplane models incorporating Lycoming O-320, O-360 or IO-360 engines:
Modify the standard exhaust system as document in Power Flow Systems, Inc. Installation Instructions Document PFS-13250-00, Rev B, dated, December 9, 2002 and Master Drawing list PFS-13240-00, Rev, IR, dated October 3, 2002, or later FAA approved revisions.

Limitations and Conditions: 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.

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

Date of application: May 30, 1997

Date reissued: June 22, 2000; October 16, 2003

Date of issuance: January 07, 1999

Date amended: July 24, 2003; August 22, 2003;
September 14, 2004

Federal Aviation Administration.



By direction of the Administrator

Christina L. Marsh
(Signature)

Melvin D. Taylor
Manager
Atlanta Aircraft Certification Office

(114)



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 N536JR	Serial No. 17262831	
	Make CESSNA	Model 172M	Series
2. Owner	Name (As shown on registration certificate) REGIONAL CONSULTANTS, LLC	Address (As shown on registration certificate) Address 100 POST OAK TRAIL	
		City ATHENS	State GA
		Zip 30606-1300	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 ROBERT F. McDOWELL III		☒ U. S. Certificated Mechanic	Manufacturer
Address 1070 BEN EPPS DR.		☐ Foreign Certificated Mechanic	C. Certificate No.
City ATHENS	State GA	☐ Certificated Repair Station	
Zip 30605	Country USA	☐ Certificated Maintenance Organization	3463522AP

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 ROBERT F. McDOWELL III 04/14/2017
--	--

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	Repair Station	☒ Inspection Authorization	Other (Specify)
Certificate or Designation No. 3463522IA		Signature/Date of Authorized Individual ROBERT F. McDOWELL III 04/14/2017		

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.

N536JR

04/14/2017

8. Description of Work Accomplished

Nationality and Registration Mark

Date

REMOVED EXISTING BRACKETT AIR FILTER ASSEMBLY AND INSTALLED CHALLENGER AVIATION PRODUCTS, INC., FILTER ASSEMBLY, STC# SA01669CH. IN ACCORDANCE WITH CHALLENGER INSTALLATION INSTRUCTIONS #0402, REVISION G, DATED 11-16-05.

UPDATED EQUIPMENT LIST AND WEIGHT AND BALANCE.

-----END-----

[] Additional Sheets Are Attached

04/18/2017
ISSUED TO: Regional Consultants
A/C MODEL: Cessna 172M
S/N: 17262831
N5365R

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 herein meets the airworthiness requirements of Part 21 of the Federal Aviation 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 received: 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



Signature
Timothy Smyth
Manager, Propulsion Branch
Chicago Aircraft Certification Office

NOTIFICATION OF THIS CERTIFICATE IS UNDESIRABLE BY A FIRM OR INDIVIDUAL WHOSE PRODUCT OR SERVICE IS NOT COVERED BY THIS CERTIFICATE AND WHOSE PRODUCT OR SERVICE IS NOT COVERED BY THIS CERTIFICATE AND WHOSE PRODUCT OR SERVICE IS NOT COVERED BY THIS CERTIFICATE.

Authorized CHA Rep:

Linde Rocco

INV#: 212726/PowerFlow

For Questions Regarding this STC Please Contact:
Challenger Aviation Products, Inc.
PO Box 577
Vandalia, OH 45377
937-387-6500

Permission for Use of STC Document

This Supplemental Type of Certificate is the property of Challenger Aviation Products, Inc. Challenger Aviation Products, Inc. authorizes the use of STC data only for the aircraft specified. Unauthorized use of the STC data is a violation of proprietary laws and is subject to legal action. Please keep the STC and installation instructions in a secure location. There will be a charge for issuing replacement documents.



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	Serial No.	
	USA N536JR	17262831	
2. Owner	Make	Model	Series
	CESSNA	172	M
	Name (As shown on registration certificate)	Address (As shown on registration certificate)	
	REGIONAL CONSULTANTS LLC	Address 100 POST OAK TRAIL City ATHENS State GA Zip 30606-1300 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	GULF COAST AVIONICS CORP	☐ U. S. Certificated Mechanic	Manufacturer
Address	3650 DRAIN FIELD RD	☐ Foreign Certificated Mechanic	C. Certificate No.
City	LAKELAND State FL	☒ Certificated Repair Station	UB4R564M RADIO CLASS
Zip	33811 Country U.S.A.	☐ Certificated Maintenance Organization	1,2,3 LTD INST / AP

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 Sarah Smith 2/26/2015 <i>Sarah Smith</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 Other (Specify)
	FAA Designee ☒	Repair Station	Inspection Authorization	

Certificate or Designation No. UB4R564M	Signature/Date of Authorized Individual Sarah Smith 2/26/2015 <i>Sarah Smith</i>
--	--

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 N536JR

2/26/2015

Nationality and Registration Mark

Date

Removed the following equipment:

ARC P/N 1U262-005-20 D.G. Relocated horizon to right side of pilot panel.

Installed Aspen EFD 1000 system consisting of EFD 1000 p/n 910-00001-001 on the pilot panel at F.S.#11.5, RSM p/n 910-00003-001 on top aft fuselage at F.S.# 116.0, ACU p/n 910-00004-001 behind the copilot panel at F.S.# 10.5 and configuration module p/n 920-00004-002 at F.S.# 7.0.

Installed Aspen EFD1000 in the same place where the D.G. and Horizon were located in the PILOT PANEL. RETAINED EXISTING AIRSPEED, ALTIMETER & HORIZON AS STANDBY INSTRUMENTS. (WHICH MEETS THE VIEWING REQUIREMENTS OF 23.1311 & 23.1321). VOR/LOCALIZER, GLIDESLOPE AND GPS DEVIATION FROM THE GNS-530W(#1) AND VOR/LOC G/S FROM THE KX155 #2 ARE DISPLAYED AND ARE CONSIDERED PRIMARY MEANS OF NAVIGATION. The Aspen is interfaced to the Stec 30 Autopilot by pushing the roll mode on the autopilot and Nav or GPS is selected on the Aspen. The Aspen is powered via the 24VDC Main bus via a 7.5amp circuit breaker labeled "EFD1000" and a 2amp circuit breaker labeled "ACU."

Aspen EFD 1000 Systems installed in accordance with Aspen STC SA10822SC dated March 28, 2008 and in reference to Aspen Installation Manual document #900-00003-001 Rev. AX August 2014. Inserted Aspen FAA Approved Flight manual Supplement p/n 900-00008-001 Rev. V dated 9/1/14 into aircraft flight manual. Inserted Aspen EFD 1000 FAA Approved Instructions for Continued Airworthiness p/n 900-00012-001 Rev. T, 2012 into aircraft maintenance records.

Weight and Balance and equipment list revised.

Equipment installed in reference to AC 43.13-1B Chapter 10 and 11, AC 43.13-2B Chapters 1 and 2.

Installation meets the requirements of 14CFR 23.1301, 23.1309, 23.1321, 23.1431 and 23.1351. Installation does not exceed the electrical load limit of 80% per AC 43.13-1B Chapter 11-35 and 11-36.

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	Serial No.	
	N536JR	17262831	
2. Owner	Make	Model	Series
	CESSNA	172M	
	Name (As shown on registration certificate)	Address (As shown on registration certificate)	
	REGIONAL CONSULTANTS LLC	Address 100 POST OAK TRAIL City ATHENS State GA Zip 30606-1300 Country U.S.A.	

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	GULF COAST AVIONICS CORP	☐ U. S. Certified Mechanic	☐ Manufacturer
Address	3650 DRANE FIELD RD	☐ Foreign Certified Mechanic	C. Certificate No.
City	LAKELAND State FL	☒ Certified Repair Station	UB4R564M RADIO CLASS
Zip	33811 Country U.S.A.	☐ Certified Maintenance Organization	1,2,3 LTD INST / AF

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 Sarah Smith 2/26/15 <i>Sarah Smith</i>
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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 ☒	Repair Station	Inspection Authorization	

Certificate or Designation No. UB4R564M	Signature/Date of Authorized Individual Sarah Smith 2/26/2015 <i>Sarah Smith</i>
--	---

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.)

N536JR

2/26/2015

Nationality and Registration Mark

Date

REMOVED BENDIX KING KNS81 RNAV RECEIVER, KLN90B GPS RECEIVER, KY196A COM, IN-346A ADF INDICATOR, KI-209 VOR/LOC INDICATOR, COMANT KA91 GPS ANTENNA, ARC R-546E ADF RECEIVER. INSTALLED GARMIN GNS-530W WAAS GPS/NAV/COM, GA35 GPS ANTENNA AND THE GARMIN FLIGHTSTREAM 210.

1. INSTALLED THE GARMIN GNS-530W GPS SYSTEM AT FS #10.0 IN THE RADIO STACK IN THE PILOTS FIELD OF VIEW AS OUTLINED IN TSO C146a STC# SA01933LA-D. INSTALLED THE GA35 GPS ANTENNA AT FS#29.0 IAW STC# SA01695SE. INSTALLED THE GARMIN FLIGHTSTREAM 210 IN THE AFT AVIONICS SHELF AT F.S. #113.0 IN REFERENCE TO GARMIN TSO INSTALLATION MANUAL 190-01700-00 REV B AND GARMIN GNS530 W STC# SA01933LA-D.

2. PROVIDED POWER TO THE GPS SYSTEM FROM THE 14VDC AVIONICS BUS USING 1EA 5 AMP KLIXON 7277-2-5 BREAKER LABELED 'GPS1' and 1 EA 10 AMP KLIXON 7277-2-5 BREAKER LABELED 'COM1' MOUNTED ON THE AVIONICS BREAKER PANEL THAT IS ACCESSIBLE TO THE PILOT IN FLIGHT. PROVIDED POWER TO THE FLIGHTSTREAM 210 VIA A 1 AMP KLIXON BREAKER LABELED 'BT LINK' ON THE AVIONICS BUS.

3. THE GNS530 SYSTEM WAS INSTALLED COUPLED TO THE ASPEN PFD WHEN SELECTING #1 POSITION. THE FLIGHTSTREAM 210 IS INTERFACED TO THE GARMIN GDL84 AND THE GNS530W.

4. THE GNS530W IS COUPLED TO THE EXISTING STEC 30 AUTOPILOT.

5. INSTALLED PRE-APPROVED FMS GARMIN P/N 190-00357-03 Rev. E, DATED NOV, 2014 INTO AIRCRAFT APPROVED FLIGHT MANUAL.

6. THE INSTALLATION IS IN COMPLIANCE WITH FAR 23.1301, 23.1309, 23.1431. PERFORMED ELECTRICAL LOAD ANALYSIS REFERENCE 23.1351.

7. ALL WORK DONE IN REFERENCE TO MANUFACTURERS INSTRUCTIONS MANUALS NUMBER GNS-530W P/N 190-03057-02 REV. K, AND IN ACCORDANCE WITH STC# SA01933LA-D, AML DATED 11/6/2006. AC 43-13.1B CHAP 7 SEC 1-7, SEC 9-10, CHAP 10 SEC 2 PAR 10-16, 10-19, 10-20, CHAP 11 SEC 5-17, CHAP 12 SEC 1-4. AC 43-13.2B CHAP 1 (ALL), CHAP 2 PAR 200, 201, 202, 203, 205-210, & CHAP 3 PAR 300 - 310. LOGBOOK ENTRIES COMPLETE, REVISED EQUIPMENT LIST AND WEIGHT AND BALANCE.

"INSTRUCTIONS FOR CONTINUED AIRWORTHINESS"

1. INSTALLED THE GNS-530W INSTRUCTIONS FOR CONTINUED AIRWORTHINESS DOCUMENT GARMIN P/N 190-00357-65 REV D DATED NOV, 2014 AND GARMIN GA-35 P/N 190-00673-01 REV F DATED AUG, 2007 INSTRUCTIONS FOR CONTINUED AIRWORTHINESS INTO THE AIRCRAFT MAINTENANCE RECORDS.

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 USA N536JR	Serial No. 17262831
	Make CESSNA	Model 172M
2. Owner	Name (As shown on registration certificate) REGIONAL CONSULTANTS LLC	Address (As shown on registration certificate) Address 100 POST OAK TRI City ATHENS State GA Zip 30606-1300 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 GULF COAST AVIONICS CORP	Address 3650 DRAIN FIELD RD	☐ U. S. Certificated Mechanic	☐ Manufacturer
City LAKELAND State FL	Zip 33811 Country U.S.A.	☒ Foreign Certificated Mechanic	C. Certificate No.
		☒ Certificated Repair Station	UB4R564M RADIO CLASS
		☐ Certificated Maintenance Organization	1,2,3 LTD INST / AF

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 Sarah Smith 2/26/2015 <i>Sarah Smith</i>
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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 Transport
	FAA Designee ☒	Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. UB4R564M	Signature/Date of Authorized Individual Sarah Smith 2/26/2015 <i>Sarah Smith</i>
---	--

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 N536JR

2/26/2015

Nationality and Registration Mark

Date

Installed Garmin GDL-84 ADSB Transceiver P/N 011-0372-00 at F.S.# 113.0, Comant CI-105 L-band antenna at F.S.# 96.0 AND GARMIN GA-35 GPS ANTENNA.

Garmin GDL-84 installed in accordance with Garmin STC SA02119SE dated Dec. 28, 2012 and Garmin STC installation manual p/n 190-01310-00 Rev. 5 dated DEC 2014. The GDL-84 is powered from the Avionics bus located on the pilot panel via a 3 amp Klaxon circuit breaker P/N 7277-2-3 labeled 'ADSB'. The GDL-84 System is interfaced to existing Garmin GNS-530 WAAS NAV/COM/GPS. Interfaced to ASPEN PFD1000 for altitude. Installed GA-35 GPS antenna with fabricated doubler IAW STC# SA01695SE. System operational checks good in reference to manufacturers specs. No faults found.

Inserted Garmin FAA Approved Instructions for Continued Airworthiness p/n 190-01310-01 Rev. 2 JAN 2015 and a completed copy of the GDL-84 configuration and checkout form p/n 190-01310-00 REV 5 into aircraft records. Installed GDL-84 Pilots Guide p/n 190-01122-03 REV E dated DEC 2014 in aircraft. Installed Garmin Flight Manual Supplement P/N 190-01310-02 REV 2 JAN 2015.

THE INSTALLATION IS IN COMPLIANCE WITH FAR 23.1301 & 23.1431.

PERFORMED ELECTRICAL LOAD ANALYSIS REFERENCE 23.1351. ALL WORK DONE IN REFERENCE TO AC 43-13.1B CHAP 7 SEC 1-7, CHAP 10 SEC 2 PAR 10-16, 10-19, 10-20, CHAP 11 SEC 5-17, CHAP 12 SEC 1-3. AC 43-13.2B CHAP 1 (ALL), CHAP 2 PAR 200, 201, 202, 205-210, & CHAP 3 PAR 300 - 310.

LOGBOOK ENTRIES COMPLETE, REVISED EQUIPMENT LIST AND WEIGHT AND BALANCE.

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 USA N536JR	Serial No. 17262831	
	Make CESSNA	Model 172	Series M
2. Owner	Name (As shown on registration certificate) REGIONAL CONSULTANTS LLC	Address (As shown on registration certificate) Address 100 POST OAK TRAIL City ATHENS State GA Zip 30606-1300 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 GULF COAST AVIONICS CORP		☐ U. S. Certificated Mechanic	☐ Manufacturer
Address 3650 DRAIN FIELD RD		☐ Foreign Certificated Mechanic	C. Certificate No.
City LAKELAND State FL		☒ Certificated Repair Station	UB4R564M RADIO CLASS
Zip 33811 Country U.S.A.		☐ Certificated Maintenance Organization	1,2,3 LTD INST / AP

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 Sarah Smith 2/26/2015 <i>Sarah Smith</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 ☒	Repair Station	Inspection Authorization	

Certificate or Designation No. UB4R564M	Signature/Date of Authorized Individual Sarah Smith 2/26/2015 <i>Sarah Smith</i>
--	--

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 N536JR

2/26/2015

Nationality and Registration Mark

Date

Removed the following equipment:

ARC P/N 1U262-005-20 D.G. Relocated horizon to right side of pilot panel.

Installed Aspen EFD 1000 system consisting of EFD 1000 p/n 910-00001-001 on the pilot panel at F.S.#11.5, RSM p/n 910-00003-001 on top aft fuselage at F.S.# 116.0, ACU p/n 910-00004-001 behind the copilot panel at F.S.# 10.5 and configuration module p/n 920-00004-002 at F.S.# 7.0.

Installed Aspen EFD1000 in the same place where the D.G. and Horizon were located in the PILOT PANEL. RETAINED EXISTING AIRSPEED, ALTIMETER & HORIZON AS STANDBY INSTRUMENTS. (WHICH MEETS THE VIEWING REQUIREMENTS OF 23.1311 & 23.1321). VOR/LOCALIZER, GLIDESLOPE AND GPS DEVIATION FROM THE GNS-530W(#1) AND VOR/LOC G/S FROM THE KX155 #2 ARE DISPLAYED AND ARE CONSIDERED PRIMARY MEANS OF NAVIGATION. The Aspen is interfaced to the Stec 30 Autopilot by pushing the roll mode on the autopilot and Nav or GPS is selected on the Aspen. The Aspen is powered via the 24VDC Main bus via a 7.5amp circuit breaker labeled "EFD1000" and a 2amp circuit breaker labeled "ACU."

Aspen EFD 1000 Systems installed in accordance with Aspen STC SA10822SC dated March 28, 2008 and in reference to Aspen Installation Manual document #900-00003-001 Rev. AX August 2014. Inserted Aspen FAA Approved Flight manual Supplement p/n 900-00008-001 Rev. V dated 9/1/14 into aircraft flight manual. Inserted Aspen EFD 1000 FAA Approved Instructions for Continued Airworthiness p/n 900-00012-001 Rev. T, 2012 into aircraft maintenance records.

Weight and Balance and equipment list revised.

Equipment installed in reference to AC 43.13-1B Chapter 10 and 11, AC 43.13-2B Chapters 1 and 2.

Installation meets the requirements of 14CFR 23.1301, 23.1309, 23.1321, 23.1431 and 23.1351. Installation does not exceed the electrical load limit of 80% per AC 43.13-1B Chapter 11-35 and 11-36.

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 N536JR	Serial No. 17262831
	Make CESSNA	Model 172M
2. Owner	Name (As shown on registration certificate) REGIONAL CONSULTANTS LLC	Address (As shown on registration certificate) Address 100 POST OAK TRAIL City ATHENS State GA Zip 30606-1300 Country U.S.A.

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 GULF COAST AVIONICS CORP		☐ U. S. Certificated Mechanic	☐ Manufacturer
Address 3650 DRANE FIELD RD		☐ Foreign Certificated Mechanic	C. Certificate No.
City LAKELAND State FL		☒ Certificated Repair Station	UB4R564M RADIO CLASS
Zip 33811 Country U.S.A.		☐ Certificated Maintenance Organization	1,2,3 LTD INST / AF

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 Sarah Smith 2/26/15 <i>Sarah Smith</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 ☒	Repair Station	Inspection Authorization	Other (Specify)

Certificate or Designation No. UB4R564M	Signature/Date of Authorized Individual Sarah Smith 2/26/2015 <i>Sarah Smith</i>
--	--

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.)

N536JR

2/26/2015

Nationality and Registration Mark

Date

REMOVED BENDIX KING KNS81 RNAV RECEIVER, KLN90B GPS RECEIVER, KY196A COM, IN-346A ADF INDICATOR, KI-209 VOR/LOC INDICATOR, COMANT KA91 GPS ANTENNA, ARC R-546E ADF RECEIVER. INSTALLED GARMIN GNS-530W WAAS GPS/NAV/COM, GA35 GPS ANTENNA AND THE GARMIN FLIGHTSTREAM 210.

1. INSTALLED THE GARMIN GNS-530W GPS SYSTEM AT FS #10.0 IN THE RADIO STACK IN THE PILOTS FIELD OF VIEW AS OUTLINED IN TSO C146a STC# SA01933LA-D. INSTALLED THE GA35 GPS ANTENNA AT FS#29.0 IAW STC# SA01695SE. INSTALLED THE GARMIN FLIGHTSTREAM 210 IN THE AFT AVIONICS SHELF AT F.S. #113.0 IN REFERENCE TO GARMIN TSO INSTALLATION MANUAL 190-01700-00 REV B AND GARMIN GNS530 W STC# SA01933LA-D.

2. PROVIDED POWER TO THE GPS SYSTEM FROM THE 14VDC AVIONICS BUS USING 1EA 5 AMP KLIXON 7277-2-5 BREAKER LABELED 'GPS1' and 1 EA 10 AMP KLIXON 7277-2-5 BREAKER LABELED 'COM1' MOUNTED ON THE AVIONICS BREAKER PANEL THAT IS ACCESSIBLE TO THE PILOT IN FLIGHT. PROVIDED POWER TO THE FLIGHTSTREAM 210 VIA A 1 AMP KLIXON BREAKER LABELED 'BT LINK' ON THE AVIONICS BUS.

3. THE GNS530 SYSTEM WAS INSTALLED COUPLED TO THE ASPEN PFD WHEN SELECTING #1 POSITION. THE FLIGHTSTREAM 210 IS INTERFACED TO THE GARMIN GDL84 AND THE GNS530W.

4. THE GNS530W IS COUPLED TO THE EXISTING STEC 30 AUTOPILOT.

5. INSTALLED PRE-APPROVED FMS GARMIN P/N 190-00357-03 Rev. E, DATED NOV, 2014 INTO AIRCRAFT APPROVED FLIGHT MANUAL.

6. THE INSTALLATION IS IN COMPLIANCE WITH FAR 23.1301, 23.1309, 23.1431. PERFORMED ELECTRICAL LOAD ANALYSIS REFERENCE 23.1351.

7. ALL WORK DONE IN REFERENCE TO MANUFACTURERS INSTRUCTIONS MANUALS NUMBER GNS-530W P/N 190-03057-02 REV. K, AND IN ACCORDANCE WITH STC# SA01933LA-D, AML DATED 11/6/2006. AC 43-13.1B CHAP 7 SEC 1-7, SEC 9-10, CHAP 10 SEC 2 PAR 10-16, 10-19, 10-20, CHAP 11 SEC 5-17, CHAP 12 SEC 1-4. AC 43-13.2B CHAP 1 (ALL), CHAP 2 PAR 200, 201, 202, 203, 205-210, & CHAP 3 PAR 300 - 310. LOGBOOK ENTRIES COMPLETE, REVISED EQUIPMENT LIST AND WEIGHT AND BALANCE.

"INSTRUCTIONS FOR CONTINUED AIRWORTHINESS"

1. INSTALLED THE GNS-530W INSTRUCTIONS FOR CONTINUED AIRWORTHINESS DOCUMENT GARMIN P/N 190-00357-65 REV D DATED NOV, 2014 AND GARMIN GA-35 P/N 190-00673-01 REV F DATED AUG, 2007 INSTRUCTIONS FOR CONTINUED AIRWORTHINESS INTO THE AIRCRAFT MAINTENANCE RECORDS.

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

For FAA Use Only

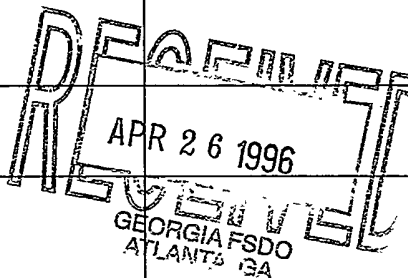
Office Identification
GEORGIA FSDO 11
7-0-11

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 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. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make Cessna	Model 172M
	Serial No. 17262831	Nationality and Registration Mark N13536
2. Owner	Name (As shown on registration certificate) RUTH JUNE G	Address (As shown on registration certificate) 185 RAVENWOOD RUN ATHENS GA 30605-3363

3. For FAA Use Only

4. Unit Identification				5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	~~~~~ (As described in Item 1 above) ~~~~~				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				



6. Conformity Statement

A. Agency's Name and Address Lowe Aviation Company PO Box 4286 Macon, GA 31208	B. Kind of Agency	C. Certificate No. ETER699D
	U.S. Certificated Mechanic	
	Foreign Certificated Mechanic	
	☒ Certificated Repair Station	
	Manufacturer	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 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.

Date April 23, 1996	Signature of Authorized Individual
-------------------------------	---

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED

BY	FAA Fit. Standards Inspector	Manufacturer	Inspection Authorization	Other (Specify)
	FAA Designee	☒ Repair Station	Person Approved by Transport Canada Airworthiness Group	
Date of Approval or Rejection April 23, 1996		Certificate or Designation No. ETER699D	Signature of Authorized Individual 	

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.)

Installed Bendix/King Model KN64 DME SN 28593 at the bottom of the radio stack at Station 12. Coupled unit to NAV 1 and NAV 2 for remote channeling. Switch located directly below unit in radio stack. Installation was performed in accordance with Manufacturer's Installation Manual #006-00144-0004 Revision 4 dated December, 1981 and in accordance with AC43.13-1A Chapter 11 Sections 2,3 and 7; and AC43.13-2A Chapters 1 & 2. Weight and balance data was recalculated and log book entry was made. An operational check was made and system indicated working properly. Unit did not adversely affect existing systems or components in the aircraft. Completed 4-23-96.

----- E N D -----

☐ Additional Sheets Are Attached

FAA

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)				For FAA Use Only		
U.S. Department of Transportation Federal Aviation Administration				Office Identification SO11		
INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$ 1,000 for each such violation (Section 901 Federal Aviation Act of 1958).						
1. Aircraft	Make CESSNA			Model 172M		
	Serial No. 17262831			Nationality and Registration Mark UNITED STATES N536JR		
2. Owner	Name (As shown on registration certificate) DR WILLIAM EARL BARRY			Address (As shown on registration certificate) 100 POST OAK TRAIL ATHENS, GA 30606 USA		
3. For FAA Use Only						
THE DATA HEREIN COMPLIES WITH APPLICABLE AIRWORTHINESS REQUIREMENTS AND IS APPROVED ONLY FOR THE ABOVE DESCRIBED AIRCRAFT SUBJECT TO CONFORMITY INSPECTION BY A PERSON AUTHORIZED IN FAR 43.7 DATE <u>JUN 07 2001</u> SIGNATURE <u>Anthony B. Browne</u> ANTHONY B. BROWNE						
4. Unit Identification					5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration	
AIRFRAME	(As described in Item 1 above)				X	
POWERPLANT						
PROPELLER						
APPLIANCE	Type					
	Manufacturer					
6. Conformity Statement						
A. Agency's Name and Address			B. Kind of Agency		C. Certificate No.	
GARDNER AVIATION SPECIALIST, INC. 215 BARRY WHATLEY WAY GRIFFIN, GA 30224 G3SR222J / JAA.5128			U. S. Certified Mechanic		G3SR222J / JAA.5128 LIMITED AIRFRAME RADIO CLASS I, II, III	
			Foreign Certified Mechanic			
			☒ Certified Repair Station			
			Manufacturer			
D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 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.						
Date <u>6/7/2001</u>			Signature of Authorized Individual <u>John Benman</u>			
7. Approval for Return to Service						
Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED						
BY	FAA FIT Standards Inspector	Manufacturer	Inspection Authorization		Other (Specify)	
	FAA Designee	☒ Repair Station	Person Approved by Transport Canada Airworthiness Group			
Date of Approval or Rejection <u>6/7/2001</u>		Certificate or Designation No. G3SR222J		Signature of Authorized Individual <u>John Benman</u>		

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.)

N536JR CESSNA 172M 17262831

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS AS REQUIRED BY BULLETIN HBAW98-18 DATED 10-07-98 ARE LISTED BELOW.

1. THE FOLLOWING WORK WAS ACCOMPLISHED ON WORK ORDER #16892.

THIS IS A FOLLOW ON INSTALLATION OF BENDIX/KING KLN90B GPS CERTIFIED ON STC SA00241WI-D DATED 02/1/95 FOR VFR OPERATION.

2. EQUIPMENT REMOVED:

MFG	MODEL	DESC	LOC
ARC	RT328T	NAV/COM	FS12
ARC	IN514R	INDICATOR	FS12

EQUIPMENT INSTALLED:

MFG	MODEL	DESC	PART NO.	INSTALL MANUAL	REV	S/W	LOC
KING	KLN90B	GPS	066-04031-1122	006-10521-0004	4	ORS20	FS12
KING	KA91	SENSOR	071-01553-0200	006-10521-0004	4		FS41
NAT	RS16	REMOTE SWITCH	RS16-12	RS16/INSTALL			FS14
KING	KNS81	RNAV RCVR	066-4010-10	006-00185-0000	3		FS12
KING	KY196A	COM	064-1054-30	006-00695-0003	3		FS12

3. CONTROL AND OPERATION PROCEDURES FOR THIS SYSTEM CAN BE FOUND IN THE KLN90B GPS USER'S GUIDE 006-08773-0000 REV 1.

4. SERVICING OF THE KLN90B GPS IS NOT APPLICABLE.

5. THERE ARE NO PERIODIC MAINTENANCE INSTRUCTIONS.

6. TROUBLESHOOTING INFORMATION CAN BE FOUND IN THE KLN90B GPS INSTALLATION MANUAL 006-10521-0004 REV 4.

7. FOR REMOVAL AND REPLACEMENT INFORMATION SEE THE MANUFACTURES INSTALLATION MANUAL PART# 006-10521-0004 REV 4 OR LATER REVISION.

8. DIAGRAMS FOR ACCESS PLATES ARE NOT REQUIRED/NONE APPLICABLE.

9. THERE ARE NO SPECIAL INSPECTIONS FOR THIS SYSTEM.

10. APPLICATION OF PROTECTIVE TREATMENTS IS NOT APPLICABLE.

11. DATA FOR STRUCTURAL FASTENERS CAN BE FOUND IN THE KLN90B GPS INSTALLATION MANUAL 006-10521-0004 REV 4.

12. THERE ARE NO SPECIAL TOOLS REQUIRED.

13. ELECTRICAL LOADS ARE LESS THAN 80 PERCENT OF MAXIMUM CAPACITY.

14. THERE ARE NO RECOMMENDED OVERHAUL PERIODS FOR THIS SYSTEM.

15. THERE ARE NO ADDITIONAL AIRWORTHINESS DIRECTIVES.

16. CHANGES MADE TO THE INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ARE TO BE SUBMITTED VIA LETTER FORM AND REVISED FAA FORM 337 TO LOCAL FSDO FOR APPROVAL.

REMOVED THE #2 NAV/COM RT328T AND IN514R INDICATOR. REWIRED THE EXISTING KX155/KI209 TO BECOME THE #2 NAV/COM. INSTALLED KING KY196A AS #1 COM. INSTALLED KLN90B GPS AND KNS81 RNAV WITH RELAY SWITCHING TO DISPLAY ON EXISTING GI106A AS #1 NAV INDICATOR. INSTALLED ANNUNCIATORS AND SWITCHES IN CENTER OF PILOT'S INSTRUMENT PANEL. EXISTING ENCODER PROVIDES ALTITUDE INFORMATION. THIS SYSTEM MEETS THE MINIMUM REQUIREMENTS FOR VFR GPS NAVIGATION PER THE MANUFACTURER'S INSTALLATION MANUAL. THE KLN90B FLIGHT MANUAL SUPPLEMENT DATED ~~JUN 07 2001~~ HAS BEEN ADDED TO THE AIRCRAFT FLIGHT MANUAL.

THIS INSTALLATION HAS BEEN EVALUATED IN ACCORDANCE WITH THE CRITERIA CONTAINED IN AC 20-138.7c.(2)(i)(ii) AND (iii) AS A FOLLOW ON VFR INSTALLATION. VHF COM FREQUENCY TEST WAS PERFORMED AND SYSTEM DID NOT REQUIRE A NOTCH FILTER. SYSTEM ACCURACY IS WITHIN SPECIFIED LIMITS. GPS SYSTEM IS COMPATIBLE WITH OTHER AIRCRAFT SYSTEMS.

THIS INSTALLATION IS APPROVED FOR VFR OPERATION ONLY. INSTALLED PLACARD ON INSTRUMENT PANEL PER AC 20-138.7c(1)(ii)(D) STATING "GPS LIMITED TO VFR USE ONLY".

WEIGHT AND BALANCE AND LOG BOOK ENTRIES MADE PER FAR 43.9 AND 91.407

-----END-----

☐ ADDITIONAL SHEETS ARE ATTACHED

FAA

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

Number SA00241WI-D

This certificate issued to AlliedSignal Avionics Inc.
400 N. Rogers Road
Olathe, KS 66062

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 3 of the Civil Air Regulations and additional requirements as specified on TCDS 2A3.

Original Product — Type Certificate Number 2A3

Make: Mooney

Model: M20J, M20K, M20L, M20M, and M20R
(See Limitations for Serial Number Restrictions)

Description of Type Design Change:

Installation of the Bendix/King KLN 90B Global Positioning System (GPS) for enroute and approach IFR operation.

REQUIRED DATA: 1. Master Drawing List 159-08133-0001, Rev. 4, dated 1-24-95; and
2. Airplane Flight Manual Supplement 006-00835-0000, Rev. 0, dated 2-1-95.

Later FAA approved revisions to the above listed data are incorporated without further revision to this Supplemental Type Certificate.

Limitations and Conditions:

1. This approval should not be extended to other specific airplanes of this model on which other previously approved modifications are incorporated, unless it is determined that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect upon the airworthiness of that airplane.

(Limitations and Conditions continued on Continuation Sheet)

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: 9-2-94

Date received:

Date of issuance: 2-1-95

Date awarded:



By direction of the Administrator

Chris Durkin
(Signature)

Chris Durkin

DAS Coordinator, DAS4CE

(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 11.17.

FAA

Gardner Aviation Specialist, Inc.
215 Barry Whatley Way
Griffin, Ga. 30224
Repair Station # G3SR222J / JAA.5128

KLN 90B GPS
Global Positioning System

FAA APPROVED FLIGHT MANUAL SUPPLEMENT

AIRCRAFT MAKE: CESSNA

AIRCRAFT MODEL: 172M

AIRCRAFT SERIAL NO: 17262831

AIRCRAFT REG. NO: N536JR

This document must be carried in the aircraft at all times. This Flight Manual Supplement describes the operating procedures for the Bendix/King KLN 90B has been installed in accordance with manufactures' install manual # 006-10521-0004 Rev. 4, and FAA Form 337 dated JUN 07 2001 ..

For aircraft that have an FAA Approved Flight Manual, this document will serve as the FAA Approved Bendix/King KLN 90B Flight Manual Supplement. For those aircraft which do not have an FAA Approved Flight Manual, this document will serve as the FAA Approved Bendix/King KLN 90B Flight Manual Supplement.

The information contained herein supplements the basic Approved Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Airplane Flight Manual.

FAA Approved: Anthony B. Browne
Principle Avionics Inspector ANTHONY B. BROWNE
Date: JUN 07 2001

Flight Standards District Office
Atlanta, Ga.

FAA

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)				For FAA Use Only	
U.S. Department of Transportation Federal Aviation Administration				Office Identification 5011	
INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$ 1,000 for each such violation (Section 901 Federal Aviation Act of 1958).					
1. Aircraft	Make CESSNA			Model 172M	
	Serial No. 17262831			Nationality and Registration Mark UNITED STATES N536JR	
2. Owner	Name (As shown on registration certificate) DR WILLIAM EARL BARRY			Address (As shown on registration certificate) 100 POST OAK TRAIL ATHENS, GA 30606 USA	
3. For FAA Use Only					
4. Unit Identification					5. Type
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	(As described in Item 1 above)				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				
6. Conformity Statement					
A. Agency's Name and Address			B. Kind of Agency		C. Certificate No.
GARDNER AVIATION SPECIALIST, INC. 215 BARRY WHATLEY WAY GRIFFIN, GA 30224 G3SR222J / JAA. 5128			U. S. Certified Mechanic		G3SR222J / JAA. 5128 LIMITED AIRFRAME RADIO CLASS I, II, III
			Foreign Certified Mechanic		
			☒ Certified Repair Station		
			Manufacturer		
D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 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.					
Date 6/7/2001			Signature of Authorized Individual <i>John Bernaman</i>		
7. Approval for Return to Service					
Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED					
BY	FAA Fit Standards Inspector	Manufacturer	Inspection Authorization		Other (Specify)
	FAA Designee	☒ Repair Station	Person Approved by Transport Canada Airworthiness Group		
Date of Approval or Rejection 6/7/2001		Certificate or Designation No. G3SR222J	Signature of Authorized Individual <i>John Bernaman</i>		

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.)

N536JR CESSNA 172M 17262831

THE FOLLOWING ALTERATION ACCOMPLISHED UNDER WO#16892.

EQUIPMENT REMOVED:

MFG	DESCRIPTION	MODEL	LOC
SIGMA TEC	DIRECTION GYRO	40760-0114	FS12
RC ALLEN	TURN COORDINATOR	1394T100	FS12

EQUIPMENT INSTALLED:

MFG	DESCRIPTION	MODEL	INST/MANUAL	REV	LOC
STEC	TURN COOR	01260-1-0-14	BULLETIN 774	2	FS12
STEC	PITCH COMPUTER	01261-2-14	BULLETIN 774	2	FS123
STEC	PITCH SERVO	0107-1-P4	BULLETIN 774	2	FS175
STEC	ROLL SERVO	0105-5-R9	BULLETIN 774	2	FS65
STEC	TRANSDUCER	0111	BULLETIN 774	2	FS141
EDOAIRE	DIRECTION GYRO	IU262-005-20	AC43.13B		FS12

INSTALLED STEC SYSTEM 30 AUTOPILOT IN ACCORDANCE WITH STEC BULLETIN NO. 774 AND STC SA09237AC-D:

THE UNITS LISTED ABOVE WERE INSTALLED IN ACCORDANCE WITH THE ABOVE REFERENCED MANUALS, AIRCRAFT MAINTENANCE MANUALS AND AC43.13B.

THE UNITS LISTED IN THE ALTERATION WERE INSPECTED, CALIBRATED AND TESTED IN ACCORDANCE WITH MFG'S INSTRUCTIONS AND FOUND TO OPERATE AS INTENDED.

ALL FUNCTIONS ARE COMPATABLE WITH OTHER AIRCRAFT SYSTEMS.

WEIGHT AND BALANCE AND LOGBOOKS REVISED IN ACCORDANCE WITH FAR 43.9 AND FAR 91.407.

-----END-----

☐ ADDITIONAL SHEETS ARE ATTACHED

U.S. Department of Transportation Federal Aviation Administration		MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)			For FAA Use Only Office Identification SO11 <i>agb</i>	
INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$ 1,000 for each such violation (Section 901 Federal Aviation Act of 1958).						
1. Aircraft	Make CESSNA	Model 172M				
	Serial No. 17262831	Nationality and Registration Mark UNITED STATES N536JR				
2. Owner	Name (As shown on registration certificate) DR WILLIAM EARL BARRY		Address (As shown on registration certificate) 100 POST OAK TRAIL ATHENS, GA 30606 USA			
3. For FAA Use Only						
THE DATA HEREIN COMPLIES WITH APPLICABLE AIRWORTHINESS REQUIREMENTS AND IS APPROVED ONLY FOR THE ABOVE DESCRIBED AIRCRAFT SUBJECT TO CONFORMITY INSPECTION BY A PERSON AUTHORIZED IN FAR 43.7 DATE <u>JUN 07 2001</u> SIGNATURE <u>Anthony B. Browne</u> ANTHONY B. BROWNE						
4. Unit Identification					5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration	
AIRFRAME	(As described in Item 1 above)				X	
POWERPLANT						
PROPELLER						
APPLIANCE	Type					
	Manufacturer					
6. Conformity Statement						
A. Agency's Name and Address			B. Kind of Agency		C. Certificate No.	
GARDNER AVIATION SPECIALIST, INC. 215 BARRY WHATLEY WAY GRIFFIN, GA 30224 G3SR222J / JAA.5128			U. S. Certified Mechanic		G3SR222J / JAA.5128 LIMITED AIRFRAME RADIO CLASS I, II, III	
			Foreign Certified Mechanic			
			☒ Certified Repair Station			
			Manufacturer			
D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 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.						
Date 6/7/2001			Signature of Authorized Individual <i>John Berman</i>			
7. Approval for Return to Service						
Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED						
BY	FAA Fit Standards Inspector	Manufacturer	Inspection Authorization		Other (Specify)	
	FAA Designee	☒ Repair Station	Person Approved by Transport Canada Airworthiness Group			
Date of Approval or Rejection 6/7/2001		Certificate or Designation No. G3SR222J	Signature of Authorized Individual <i>John Berman</i>			

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.)

N536JR CESSNA 172M 17262831

NOTE: THIS 337 IS AN UPDATE TO 337 DATED JUN 07 2001

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS AS REQUIRED BY BULLETIN HBAW98-18 DATED 10-07-98 CAN BE FOUND ON THE ORIGINAL 337 REFERENCED ABOVE.

THE FOLLOWING WORK ACCOMPLISHED ON WORK ORDER #16892.

EQUIPMENT INSTALLED:

MFG	MODEL	DESC	PART NO.	INSTALL MANUAL	REV	S/W	LOC
KING	KLN90B	GPS	066-04031-1122	006-10521-0004	4	ORS20	FS12
KING	KA91	SENSOR	071-01553-0200	006-10521-0004	4		FS41
NAT	RS16	REMOTE SWITCH	RS16-12	RS16/INSTALL			FS14
KING	KNS81	RNAV RCVR	066-4010-10	006-00185-0000	3		FS12
KING	KY196A	COM	064-1054-30	006-00695-0003	3		FS12

THIS ALTERATION IS A FOLLOW ON INSTALLATION OF BENDIX/KING KLN90B GPS CERTIFIED ON STC SA00241WI-D DATED 02/1/95 FOR IFR ENROUTE AND NON-PRECISION APPROACH OPERATION.
INSTALLED THIS EQUIPMENT IN ACCORDANCE WITH THE ABOVE REFERENCED MANUALS AND AC 43.13B.

THIS INSTALLATION IS AN UPGRADE FROM VFR TO IFR APPROACH OPERATION.

INSTALLED KLN90B GPS AND KNS81 RNAV WITH RELAY SWITCHING TO DISPLAY ON EXISTING GI106A AS #1 NAV INDICATOR. INSTALLED ANNUNCIATORS AND SWITCHES IN CENTER OF PILOT'S INSTRUMENT PANEL. EXISTING ENCODER PROVIDES ALTITUDE INFORMATION. THIS MEETS THE MINIMUM REQUIREMENTS FOR IFR GPS NAVIGATION PER THE BENDIX/KING INSTALLATION MANUAL. BENDIX/KING KLN90B FAA APPROVED FLIGHT MANUAL SUPPLEMENT DATED JUN 07 2001 HAS BEEN ADDED TO THE AIRCRAFT FLIGHT MANUAL. THE PLACARD "GPS LIMITED TO VFR" HAS BEEN REMOVED.

THIS INSTALLATION HAS BEEN EVALUATED IN ACCORDANCE WITH THE CRITERIA CONTAINED IN AC 20-138.8.c(2).(i),(ii),(iii).AND (iv) AS A FOLLOW ON IFR INSTALLATION. VHF COM FREQUENCY TEST WAS PERFORMED AND A NOTCH FILTER WAS NOT REQUIRED. SYSTEM ACCURACY IS WITHIN SPECIFIED LIMITS.
GPS SYSTEM IS COMPATABLE WITH OTHER AIRCRAFT SYSTEMS.

THIS SYSTEM WAS FLIGHT TESTED FOR IFR CERTIFICATION PER AC 20-138.8.c.(2).(iv) BY MAKING THREE GPS 14 INSTRUMENT APPROACHES AT GRIFFIN/ SPALDING AIRPORT (6A2). ALL APPROACHES FUNCTIONED PROPERLY.

KNOWN THRESHOLD COORDINATES FOR RUNWAY 14 AT GRIFFIN (6A2)

	ARE:	33 13.80	84 16.72
1ST APPROACH GPS INDICATED AT RUNWAY THRESHOLD		<u>33 13 81</u>	<u>84 16 72</u>
2ND APPROACH GPS INDICATED AT RUNWAY THRESHOLD		<u>33 13 81</u>	<u>84 16 71</u>
3RD APPROACH GPS INDICATED AT RUNWAY THRESHOLD		<u>33 13 81</u>	<u>84 16 71</u>

THE MAXIMUM RECORDED ERROR OF .03 NMI IS WITHIN THE .25NMI FTE REQUIREMENT FOR IFR APPROACH.

I CERTIFY THE ABOVE RECORDED FLIGHT DATA INFORMATION IS CORRECT AND THAT THE GPS EQUIPMENT, AS INSTALLED MEETS THE IFR REQUIREMENTS OF AC 20-138.

NAME John Benmarian DATE 6/7/2001

WEIGHT AND BALANCE AND LOGBOOK ENTRIES MADE PER FAR43.9 AND FAR91.407.

-----THE END-----

☐ ADDITIONAL SHEETS ARE ATTACHED



U.S. Department
of Transportation
Federal Aviation
Administration

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

Form Approved
OMB No. 2120-0020

For FAA Use Only

Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 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. 1421). Failure to report can result in a civil penalty not to exceed \$1000 for each such violation (Section 901 Federal Aviation Act of 1958)

1. Aircraft	Make Cessna	Model 172M
	Serial No. 17262831	Nationality and Registration Mark N536JR
2. Owner	Name (As shown on registration certificate) William E. Barry	Address (As shown on registration certificate) 100 Post Oak Trail Athens, GA 30606

3. For FAA Use Only

4. Unit Identification				5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration
Airframe	(As described in Item 1 above)				X
Powerplant					
Propeller					
Appliance	Type				
	Mnfr				

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency	C. Certificate No.
Air Plains Services Corp. 439 N. West Road Wellington Airport Wellington, Ks. 67152	☐ U.S. Certificated Mechanic	MNYR085K
	☐ Foreign Certificated Mechanic	
	☒ Certificated Repair Station	
	☐ Manufacturer	

D. I certify that the repair and/or alteration to the unit(s) identified in item 4 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.

Date 03/30/01

Signature of Authorized Individual M. L. KELLEY

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ Approved ☐ Rejected

BY	FAA Flt. Standards Inspector	Manufacturer	Inspection Authorization	Other (specify)
	FAA Designee	☒ Repair Station	Person Appr. by Transport Canada Airworthiness Group	

Date of Approval or Rejection
03/30/01

Certificate or Designation No.
MNYR085K

Signature of Authorized Individual M. L. KELLEY

RECEIVED

01 APR - 2 PM 2:19
WICHITA FSDO

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.)

-----N536JR-----

Installed 180 Horsepower Lycoming O-360-A4M engine and Sensenich 76EMS14-0-60 Propeller in accordance with "FAA Approved" Drawing List 1727600, Revision 18, dated 6-30-00 and "FAA Approved" Installation Instructions Doc. No. 172031, Revision 7, dated 12-8-97 and Air Plains Services, Corporation STC SA4428SW.

Increased Gross Weight to 2550 pounds in accordance with Air Plains Services, Corp. installation instructions and Air Plains Services, Corporation STC SA2196CE.

Installed landing/recognition lights inside the modified wing tip leading edge in accordance with R. M. D. Aircraft Lighting, Inc. Drawing List No. RMD-001100-C, revision 1, dated 8-4-88 and Installation Instructions Number RMD-001100-C, revision 1, dated 8-4-88, or later FAA Approved revision and R. M. D. Aircraft Lighting, Inc. STC SA4337NM.

Installed Precise Flight, Inc. Pulselite Control Unit in the Landing/Taxi Recognition Visual Control Light system, in accordance with Drawing Number 015P0000, revision H, dated 6-22-00 and Installation Instructions Number PPRI-3000, revision 9, dated 11-22-99, or later FAA Approved revision and Precise Flight, Inc. STC SA4005NM.

Removed ELT, Make: Leigh Systems, Model: Sharc 7, Serial Number: 24173.

Installed ACK ELT E-01 and remote switch in accordance with Manufacturer's Installation Instructions and TSO-C91a. ELT Make: ACK, Model: E-01, Serial Number: 038344.

Required "FAA Approved" Airplane Flight Manual Supplement placed with aircraft records.

Aircraft Weighed. Weight, Balance and Equipment list information amended in aircraft records.

-----THE END-----

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

Form Approved
OMB No. 2120-0020

For FAA Use Only

Office Identification
ACE-FSDO-07
Wichita, KS

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 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. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make Cessna	Model 172M
	Serial No. 17262831	Nationality and Registration Mark N536JR
2. Owner	Name (As shown on registration certificate) Bill Barry	Address (As shown on registration certificate) 100 Post Oak Trail Athens GA 30606

3. For FAA Use Only

4. Unit Identification

5. Type

Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	~~~~~ (As described in Item 1 above) ~~~~~				
POWERPLANT					
PROPELLER					
APPLIANCE	Type Airspeed	FA5174	5988		
	Manufacturer Edo Aire				

6. Conformity Statement

A. Agency's Name and Address Century Instrument Corp 4440 Southeast Boulevard Wichita KS 67210 USA	B. Kind of Agency	C. Certificate No. TJ2R189L
	☐ U.S. Certificated Mechanic	
	☐ Foreign Certificated Mechanic	
	☒ Certificated Repair Station	
	Manufacturer	

D I certify that the repair and/or alteration made to the unit(s) identified in item 4 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.

Date 9-28-00	Signature of Authorized Individual Connie Riddle
------------------------	--

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED

BY	FAA Fit. Standards Inspector	Manufacturer	Inspection Authorization	Other (Specify)
	FAA Designee	☒ Repair Station	Person Approved by Transport Canada Airworthiness Group	
Date of Approval or Rejection 9-28-00		Certificate or Designation No. TJ2R189L	Signature of Authorized Individual Connie Riddle	

RECEIVED

01 APR -2 PM 2:19
WICHITA FSDO

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.)

ALTERED AIRSPEED DIAL TO SUPPLEMENTAL TYPE CERTIFICATE
NUMBER SA2196CE. MAKE CESSNA AND MODELS 172L AND 172M.
PART NUMBER 1728803-1. AIRSPEED PART NUMBER EA5174 AND
SERIAL NUMBER 5988.

AIRSPEED RANGE MARKINGS

WHITE ARC: 56-100 MPH FULL FLAP OPERATING RANGE

GREEN ARC: 64-145 MPH NORMAL OPERATING RANGE

YELLOW ARC: 145-182 MPH CAUTION RANGE

RED LINE: 182 MPH MAXIMUM

END

☐ Additional Sheets Are Attached

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)				Form Approved OMB No. 2120-0020	
				For FAA Use Only	
				Office Identification SD-FSD-11	
INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 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. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).					
1. Aircraft	Make CESSNA		Model 172 M		
	Serial No. 17262831		Nationality and Registration Mark N13536		
2. Owner	Name (As shown on registration certificate) WILSON, HAROLD D.		Address (As shown on registration certificate) Rt 2 Box 261 Greensboro, GA 30642		
	3. For FAA Use Only				
4. Unit Identification					
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	(As described in Item 1 above)				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				
6. Conformity Statement					
A. Agency's Name and Address			B. Kind of Agency		C. Certificate No.
Harold D. Wilson 2360 Penfield Road Greensboro, GA 30642			☒ U.S. Certificated Mechanic		[REDACTED]
			☐ Foreign Certificated Mechanic		
			☐ Certificated Repair Station		
			☐ Manufacturer		
D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 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.					
Date 6 May 89			Signature of Authorized Individual <i>Harold D. Wilson</i>		
7. Approval for Return To Service					
Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED					
BY	FAA Fit. Standards Inspector	Manufacturer	☒	Other (Specify)	
	FAA Designee	Repair Station	☐	Person Approved by Transport Canada Airworthiness Group	
Date of Approval or Rejection 6 May 89		Certificate or Designation No. [REDACTED]		Signature of Authorized Individual <i>Harold D. Wilson</i>	

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.)

1. Installed 850 Narco Blind Encoder. Encoder was installed I.A.W. manufacturer's instruction. All maintenance practices were I.A.W. 43.13-1A Chapter 11, Section 3, 4, and 7. Chapter 15, Section 2, AC43.13-2A Chapter 1, 2 and 3 and static system and altimeter/transponder correspondence check made by McCollum Avionics FAA Repair Station No. 701-86, Rt. 3, Box 590, Toccoa, Georgia 30577, all systems checked within limits of FAR 43 Appendix (E) paragraph (c)

-----LAST ITEM-----

☐ Additional Sheets Are Attached

FAA AIRCRAFT REGISTRY
CAMERA NO. 4-N DATE: 6-11-81

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION STANDARD AIRWORTHINESS CERTIFICATE			
1. NATIONALITY AND REGISTRATION MARKS N13536	2. MANUFACTURER AND MODEL Cessna 172M	3. AIRCRAFT SERIAL NUMBER 17262831	4. CATEGORY Normal & Utility
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: None			
6. TERMS AND CONDITIONS Unless sooner surrendered, suspended, or a termination date is otherwise established by the Administrator, this airworthiness certificate is valid as long as the aircraft is maintained, preventive maintenance, and alterations are performed in accordance with Parts 23, 43, and 91 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States Aircraft Registry, Federal Aviation Administration. DATE OF ISSUANCE 1-7-74			
FAA REPRESENTATIVE By [Signature]		DESIGNATION NUMBER PC4	
Any alteration, reproduction, or misuse of this certificate will 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 (7-67) FORMERLY FAA FORM 1362

GPO: 1967-O-270 931

FAA AIRCRAFT REGISTRY
CAMERA NO. 47

DATE: 6-11-81

8.25

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION APPLICATION FOR 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 an attachment. For special flight permits complete Sections II and VI or VII as applicable.																					
I. AIRCRAFT DESCRIPTION	1. REGISTRATION MARK	2. AIRCRAFT BUILDER'S NAME (make)	3. AIRCRAFT MODEL DESIGNATION	4. YR. MFG.	FAA CODING																				
	N13536	Cessna	172M	1973	20724/8																				
	5. AIRCRAFT SERIAL NO.	6. ENGINE BUILDER'S NAME (make)	7. ENGINE MODEL DESIGNATION	41508																					
	17262831	Lycoming	0-320-E2D																						
II. CERTIFICATION REQUESTED	8. NUMBER OF ENGINES	9. PROPELLER BUILDER'S NAME (make)	10. PROPELLER MODEL DESIGNATION	11. AIRCRAFT IS:																					
	One	McCauley	1C160/DTM7553	IMPORT																					
APPLICATION IS HEREBY MADE FOR: (Check applicable items)																									
<table border="0"> <tr> <td>A</td> <td>1</td> <td>☒ STANDARD AIRWORTHINESS CERT. (Indicate category)</td> <td>☒ NORMAL</td> <td>☒ UTILITY</td> <td>☐ ACROBATIC</td> <td>☐ TRANSPORT</td> <td>☐ GLIDER</td> <td>☐ BALLOON</td> </tr> <tr> <td>B</td> <td colspan="8">SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)</td> </tr> </table>								A	1	☒ STANDARD AIRWORTHINESS CERT. (Indicate category)	☒ NORMAL	☒ UTILITY	☐ ACROBATIC	☐ TRANSPORT	☐ GLIDER	☐ BALLOON	B	SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)							
A	1	☒ STANDARD AIRWORTHINESS CERT. (Indicate category)	☒ NORMAL	☒ UTILITY	☐ ACROBATIC	☐ TRANSPORT	☐ GLIDER	☐ BALLOON																	
B	SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)																								
II. CERTIFICATION REQUESTED	2	LIMITED	1	CLASS I																					
	5	PROVISIONAL (Indicate class)	2	CLASS II																					
	3	RESTRICTED (Indicate operation(s) to be conducted)	1	AGRICULTURE & PEST CONTROL		2	AERIAL SURVEYING		3	AERIAL ADVERTISING															
			4	FOREST (Wild life 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	RACING		5	CREW TRAINING		6	MKT. SURVEY															
			0	TO SHOW COMPLIANCE WITH FAR																					
	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 MAX. CERTIFICATED TAKE-OFF WEIGHT																						
4			DELIVERING OR EXPORT																						
C	6	MULTIPLE AIRWORTHINESS CERTIFICATE (Check appropriate Restricted Operation and Standard or Limited as applicable above)																							
III. OWNER'S CERTIFICATION	A. REGISTERED OWNER (As shown on Certificate of Aircraft Registration)			IF DEALER, CHECK HERE ☒																					
	NAME Cessna Aircraft Company			ADDRESS 5800 East Pawnee Road Wichita, Kansas 67201																					
	B. AIRCRAFT CERTIFICATION BASIS (Check applicable blocks and complete items as indicated)																								
	☒	AIRCRAFT SPECIFICATION OR TYPE CERTIFICATION (Give No. and Revision No.) 3A12 Rev. 35			☒	AIRWORTHINESS DIRECTIVES (Check if all applicable AD's complied with and give latest AD No.) 73-25																			
		AIRCRAFT LISTING (Give page No.)			SUPPLEMENTAL TYPE CERTIFICATE (List number of each STC incorporated)																				
	C. AIRCRAFT OPERATION AND MAINTENANCE RECORDS																								
	☒	CHECK IF RECORDS IN COMPLIANCE WITH FAR 91.173	TOTAL AIRFRAME HOURS— 2,257		3	EXPERIMENTAL ONLY—Enter hours flown since last certificate issued or renewed																			
	D. CERTIFICATION—I hereby certify that I am the owner (or his agent) of the aircraft described above; that the aircraft is registered with the Federal Aviation Administration in accordance with Section 301 of the Federal Aviation Act of 1958, 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 12-14-73		NAME AND TITLE (Print or type) Malcolm Harned, Vice President			SIGNATURE <i>Malcolm Harned</i>																			
	A. THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSPECTED AND FOUND AIRWORTHY BY: (Complete this section only if FAR 21.183 (d) applies)																								
IV. INSPECTION AGENCY VERIFICATION	2	FAR PART 121 OR 127 CERTIFICATE HOLDER (Give Certificate No.)		3	CERTIFICATED MECHANIC (Give Certificate No.)		6	CERTIFICATED REPAIR STATION (Give Certificate No.)																	
	5	AIRCRAFT MANUFACTURER (Give Name of Firm)																							
	DATE		TITLE			SIGNATURE																			
V. FAA REPRESENTATIVE CERTIFICATION	(Check ALL applicable blocks) I find that the aircraft described in Section I or VII meets the requirements for: ☒ The certification requested, or ☐ Amendment or modification of current airworthiness certificate. Inspection for a special flight permit under Section VII was conducted by: ☐ FAA Inspector ☐ FAA Inspector ☐ FAR 65, ☐ FAR 121 or 127, or ☐ FAR 145.																								
	DATE 1-7-74	DISTRICT OFFICE ICT EMDO 3-0-43	DESIGNEE'S SIGNATURE AND MOD. DIV. By <i>R. D. Humphries</i> R. D. Humphries			FAA INSPECTOR'S SIGNATURE																			

TYPE BY #23

VI. PRODUCTION FLIGHT TESTING	A. MANUFACTURER	
	NAME	ADDRESS
	B. PRODUCTION BASIS (Check applicable item)	
	☐ PRODUCTION CERTIFICATE (Give production certificate number) ☐ TYPE CERTIFICATE ONLY ☐ APPROVED PRODUCTION INSPECTION SYSTEM	
VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST	C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS:	
	DATE OF APPLICATION	SIGNATURE
	NAME AND TITLE (Print or type)	
	A. DESCRIPTION OF AIRCRAFT	
	REGISTERED OWNER	ADDRESS
	BUILDER (Make)	MODEL
	SERIAL NUMBER	REGISTRATION MARK
	B. DESCRIPTION OF FLIGHT	
	FROM	TO
	VIA	DEPARTURE DATE
	DURATION	
VIII. AIRWORTHINESS DOCUMENTATION (FAA use only)	C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT	
	PILOT	CO-PILOT
	NAVIGATOR	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 Section 501 of the Federal Aviation Act of 1958, and applicable Federal Aviation Regulations; and that the aircraft has been inspected and is airworthy for the flight described.	
	DATE	SIGNATURE
	NAME AND TITLE (Print or type)	
	G. Statement of Conformity, FAA Form 317 (Attach when required).	
	H. Foreign Airworthiness Certification for Import Aircraft (Attach when required)	
I. Previous Airworthiness Certificate Issued in Accordance with FAR _____ CAR _____ (Original attached)		
J. Current Airworthiness Certificate Issued in Accordance with FAR _____ (Copy attached)		
X A. Operating Limitations and Markings in Compliance with FAR 91.31 as Applicable		
X B. Current Operating Limitations Attached		
X C. Data, Drawings, Photographs, etc. (Attach when required)		
X D. Current Weight and Balance Information Available in Aircraft		
X E. Major Repair and Alteration, FAA 337 (Attach when required)		
X F. This Inspection Recorded in Aircraft Records		

RECEIVED
JUN 11 1981
FAA AIRCRAFT REGISTRY
MANUFACTURING BRANCH

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

1 NATIONALITY AND REGISTRATION MARKS N536JR	2 MANUFACTURER AND MODEL Cessna 172M	3 AIRCRAFT SERIAL NUMBER 17262831	4 CATEGORY Normal & Utility
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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:

None

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 R 1-7-74	FAA REPRESENTATIVE Hurley A. Perry <i>Hurley A. Perry</i>	DESIGNATION NUMBER ATL-FSDO-11
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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.

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

1. NATIONALITY AND REGISTRATION MARKS N13536	2. MANUFACTURER AND MODEL Cessna 172M	3. AIRCRAFT SERIAL NUMBER 17262831	4. CATEGORY Normal & Utility
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None

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DATE OF ISSUANCE 1-7-74	FAA REPRESENTATIVE By <i>[Signature]</i> R. D. Humphries	DESIGNATION NUMBER PC4
--------------------------------	--	-------------------------------

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.

