N23DT 1975 Cessna 421B

FAA Form 337s

MSN: 421B-0852



Prepared by the worldwide aviation specialists at RidgeAire, Inc.

US Department
of Transportation
Federal Aviation
A

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

om Approved DMB No. 2120-0020	Electronic Tracking Number
1/30/2007	

For FAA Use Only

(Airframe, Powerplant, Propeller, or Appliance) Administration 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)) Nationality and Registration Mark Serial No. N1953G 421B0852 1. Aircraft Model Series Cessna 421B Name (As shown on registration certificate) Address (As shown on registration certificate) Address 261 Trumble Creek Trail 2. Owner Yucaipa Aviation Kalispell State Mt 59901 Country United States 3. For FAA Use Only 5. Unit Identification 4. Type Repair Alteration Unit Make Model Serial No. (As described in Item 1 above) V AIRFRAME 267475-R V POWERPLANT Continental GTSIO-520-H П PROPELLER Type APPLIANCE Manufacturer 6. Conformity Statement A. Agency's Name and Address B. Kind of Agency RAM Aircraft, Limited Partnership U. S. Certificated Mechanic Manufacturer Address 7505 Karl May Drive Foreign Certificated Mechanic C. Certificate No. State Texas City <u>Waco</u> Certificated Repair Station Airframe Class III, Powerplant Class I Country United States Zìp Certificated Maintenance Organization VA1R551K 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. Signature/Date of Authorized Individual Extended range fuel per 14 CFR Part 43 Арр. В Joseph Stone 1-25-2023 7. Approval for Return to Service Pursuant to the authority given persons specified below, the unit Mentified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ✓ Approved Rejected FAA Flt. Standards Persons Approved by Canadian Maintenance Organization Manufacturer Department of Transport Inspector BY Other (Specify) Inspection Authorization FAA Designee Repair Station Signature/Date of Authorized Individual Certificate or

FAA Form 337 (10-06)

VA1R551K

Joseph Stone 1-25-2023

Designation No.

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 nation	nality and registration mark and date	work completed.)
	N1953G	1-25-2023
	Nationality and Registration Mark	Date
Engine crankcases modified per Dwg. 1514, Rev. T dated 04/20/10 l	/A/W STC SE8338SW-D.	
Relocated Turbo Oil Supply Line I/A/W RAM Dwg. No. 1224, Rev. H,	dated 11/18/03 per STC SE83	38SW-D.
Installed range marked Manifold pressure, 3-in-1 gages I/A/W Dwg. 1 Flight Manual Supplement dated July 14, 1986 installed in aircraft.	1152, Rev. C dated 5/02/07 per	STC SA5878SW-D.
Installed new Plane-Power alternator C28-150 in place of ALV9510 a	ilternator.	
New empty weight and balance computed.		
Customer furnished with FAA approved Overhaul and Parts Manual S for all alterations.	Supplements with Instructions t	or Continued Airworthiness
Customer furnished with FAA approved Flight Manual Supplements f	or all operations.	
Pertinent details of the above installations are on file under project no	o. 10229.	
End	_	
Additional Sheet	s Are Attached	

US Department
of Transportation
Federal Aviation
Administration

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

Form Approved OMB No. 2120-0020	Electronic Tracking Number
5/31/2018	
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Federal Aviati Administration		•	·	•	·		•	·					
instructions		ition of this	form.									sequent revision thereof) for each	
	Nationality N1953G	y and Regis	stration	n Mark				Serial No. 421B-0852	2				
1. Aircraft	Make CESSN	A		,		Model 421B				- 1	Series 400 SERIES		
Name (As shown on registration certificate))			Address (As	showr	on re	gistration o	certificate)	
2. Owner YUCAIPA AVIATION INC.							Address 261 City KAL	ISPEL		CREEK	State MONTAN	Ā	
				·		_		zip 5990	1-659		Count	try U.S.A.	_
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D	1- 41- 21						al for Return		#				
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Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the appicable airworthiness requirements.

N1953G

11-11-2022

8. Description of Work Accomplished

Nationality and Registration Mark

Date

Removed existing main battery GILL P/N G-246 S/N G02934869. Complied with Concorde STC # SA01118WI by using installation instructions DWG No. 5-0151 sheet 1 of 1, to install new main battery P/N RG24-20 S/N 41230561. No specific ICA's required other than normal maintenance listed in the Concorde RG series CMM and maintenance under section 43.16 and 91.403 of the F.A.R's. There are no airworthiness limitations required by this STC Modification. Normal maintenance procedures requires as per Concorde M.M. Weight and Balance negligible.

----- END -----

US Department
of Transportation
Federal Aviation

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

	Form Approved OMB No. 2120-0020 5/31/2018	Electronic Tracking Number
1	F	or FAA Use Only

Administration													
instruction	s and dispos tion. (49 U.S.	ition of this form. C. §46301(a))	This report is re	CFF	₹§ ed I	§43.9 by la	9, Part 43 aw (49 U.:	S Appendix B, as S.C. §44701). Fa	nd AC 43 ailure to r	3.9 repo	1 (or subsort can res	sequent revision there sult in a civil penalty for	of) for each
***	Nationalit N1953G	y and Registratio	n Mark					Serial No. 421B-0852					
1. Aircraft	Make							Model	- 			Series	
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		PROPELLER											
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Page 1

·	· service man and approx	ble airworthiness requirements.
	N1953G	04-14-2022
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demoved original Cessna OEM sun visors. Installe a accordance with STC Number SA2650NM instru HE GROUND)periodically cleaning the lens with sensions and clean the rail. Weight & Balance neglence	ed Rosen monorail sun actions, Document No. 9 soft cloth and Rosen Cl	visor system Kit P/N RC400-300-1 041-0141-001. I.C.A. requires (ON

[] Additional Sheets Are Attached

U.S Department of Transportation

Federal Aviation Administration

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

Form A	ppr	ove	d		
OMB	No.	213	20-0	002	0

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 \$1,000 for each such violation (Section 901 Federal Aviation Act 1958)

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						3	B. For FAA Us	Only				
												
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NOTICE

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

8.	Description of Work Accomplished
	(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)
IN	STALLED A GNS 430W P/N 011-01060-00 IN NUMBER TWO POSITION @ STATION 110.7. VERIFIED THAT THIS AIRCRAFT AND

INSTALLED A GNS 430W P/N 011-01060-00 IN NUMBER TWO POSITION @ STATION 110.7. VERIFIED THAT THIS AIRCRAFT AND THE EQUIPMENT INTERFACED IN THIS AIRCRAFT IS COVERED UNDER THE STC AML. A GA 35 ANTENNA WAS MOUNTED @ STATION 46. THE GNS 430W IS NOT COUPLED TO THE AUTOPILOT. THE INSTALLATION WAS PERFORMED IN ACCORDANCE WITH THE AC43.13-1B: CHAPTER 7 SEC 2,3,4 AND 11; CHAPTER 10, CHAPTER 11; AND CHAPTER 12: THE AC 43.13-2A; CHAPTER 2 AND CHAPTER 3: THE GARMIN 400W SERIES INSTALLATION MANUAL 190-00356-08 REV F DATED JAN., 2012; STC SA01933LA FOR THE GNS 430W AND AC 20-138A.

A COMPLETE AND SATISFACTORY OPERATIONAL CHECK WAS PERFORMED ON ALL OF THE EQUIPMENT INSTALLED AND/OR EFFECTED BY THIS INSTALLATION. ALL OF THE ABOVE MENTIONED EQUIPMENT OPERATIONALY CHECKED NORMAL. FAA APPROVED FLIGHT MANUAL SUPPLEMENT DATED JULY 31, 2009 REV B P/N 190-00356-03 AND THIS FORM 337 ARE REQUIRED FOR THIS APPROVAL. DETAILS OF THIS INSTALLATION CAN BE FOUND ON WO 19249 OF THIS REPAIR STATION. THE EQUIPMENT LIST WAS UPDATED AND THE WEIGHT AND BALANCE WAS UPDATED.

THE NEW CHECK LIST FOR CONTINUED AIRWORTHINESS P/N 190-00356-65 IS ATTACHED TO THIS FORM 337. THE ICA FOR THE GA 35 ANTENNA P/N 190-00673-01 AND THE APPROVED FLIGHT MANUAL SUPPLEMENT P/N 190-00356-03 ARE ALSO ATTACHED TO THIS FORM 337.

FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for

GARMIN 400W SERIES GPS-WAAS NAVIGATION SYSTEM as installed in

C	ESSNA	421B		
	Make and	l Model Airplane		
Reg. No.	N1953G	S/N 421B0852		

This document serves as an Airplane Flight Manual Supplement or as a Supplemental Airplane Flight Manual when the aircraft is equipped with the Garmin 400W Series unit. This document must be carried in the airplane at all times when the Garmin 400W Series unit is installed in accordance with STC SA01933LA-D.

The information contained herein supplements or supersedes the information made available to the operator by the manufacturer in the form of clearly stated placards, markings, or manuals 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, markings, or manuals or the basic FAA approved Airplane Flight Manual.

FAA Approved By:

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

Date:

7/31/0

190-00356-03 Rev. B Page 1 of 16

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

	LOG OF REVISIONS						
Rev. No.	Page ev. No. No. Date		Description	FAA Approved			
A Original	ΑIJ	11-20-07	Complete Supplement	Seyed-Youssef Hashemi Mgr. Flt. Test Br., ANM-160L FAA, Los Angeles ACO Transport Airplane Directorate Date Nov. 20, 2007			
В	All	7/31/09	Added '-D' to STC number, added LP approach type	Jand G Ambiens ODA STOUM-Administrator/ ODA-240087-CE Garmin International, Inc.			

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

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AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

Section 1. GENERAL

1.1 Garmin 400W Series GPS/WAAS Nav Com

The Garmin 400W Series GPS/WAAS Navigator is a panel-mounted product that contains a GPS/WAAS receiver for GPS approved primary navigation, under TSO C146a (plus optional VHF Com and VHF Nav radios) in an integrated unit with a moving map and color display. The 400W Series unit features a graphical display which may also be used to depict traffic, weather, or terrain data.

The navigation functions are operated by dedicated keys and graphical menus which are controlled by the buttons and the dual concentric rotary knob along the bottom and right side of the display.

Optional VHF Com and VHF Nav radio functions are controlled via dedicated buttons and knobs on the left side of the display and adjacent to frequencies they are controlling.

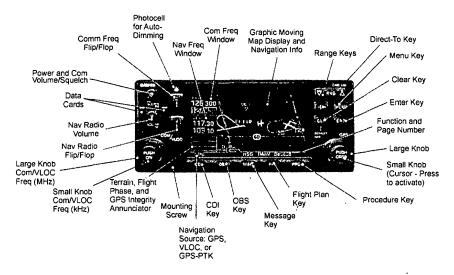


Figure 1 - 400W Series Control and Display Layout

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AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

1.2 Operation

GPS/WAAS TSO-C146a Class 3 Operation: The Garmin 400W Series unit, when installed in accordance with STC SA01933LA-D, uses GPS and WAAS (within the coverage of a Space-Based Augmentation System complying with ICAO Annex 10) for enroute, terminal area, non-precision approach operations (including "GPS", "or GPS", "RNAV", "LNAV", and "LP" approaches), and approach procedures with vertical guidance (including "LNAV/VNAV" and "LPV").

Navigation is accomplished using the WGS-84 (NAD-83) coordinate reference datum. GPS navigation data is based upon use of only the Global Positioning System (GPS) operated by the United States of America.

1.3 Class II Oceanic, Remote, and other Operations:

The Garmin 400W Series, as installed, has been found to comply with the requirements for GPS primary means of Class II navigation in oceanic and remote airspace, when used in conjunction with WAAS Garmin Prediction Program part number 006-A0154-03. Oceanic operations are supported when the 400W Series unit annunciates OCN. This provides an alarm limit of four NMI and a mask angle of five degrees. The 400W series unit also has the ability to predict RAIM availability at any waypoint in the database or if WAAS corrections are expected to be absent or disabled. This AFMS does not constitute an operational approval for Oceanic or Remote area operations. Additional equipment installations or operational approvals may be required.

- a) Oceanic navigation requires an additional approved long range oceanic and/or remote area navigation system with independent display, sensors, antenna, and power source. (It may be a second 400W/500W Series unit.)
- b) Redundant VHF Com and VHF Nav systems may be required for other than U.S. 14 CFR Part 91 operations. Check foreign regulation requirements as applicable. (It may be a second 400W/500W Series unit.)
- c) Operations approval <u>may</u> be granted for the use of the 400W Series unit RAIM prediction function in lieu of the Prediction Program for operators requiring this capability. Refer to your appropriate civil aviation authorities for these authorizations.

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

Section 2. LIMITATIONS

2.1 Pilot's Guide

The GARMIN 400W Series Pilot's Guide, part number and revision listed below (or later applicable revisions), must be immediately available for the flight crew whenever navigation is predicated on the use of the 400W Series unit.

- 400W Series Pilot's Guide & Reference P/N 190-00356-00 Rev E
- 400W/500W Series Optional Displays P/N 190-00356-30 Rev F
- 400W/500W Series Display Interfaces P/N 190-00356-31 Rev B

This AFM supplement does not grant approval for IFR operations to aircraft limited to VFR operations. Additional aircraft systems may be required for IFR operational approval. Systems limited to VFR shall be placarded in close proximity to the 400W Series unit

"GPS LIMITED TO VFR USE ONLY".

2.2 System Software:

The system must utilize the Main and GPS software versions listed below (or later FAA approved versions). The software versions are displayed on the self-test page immediately after turn-on for approximately 5 seconds or they can be accessed in the AUX pages.

Subsequent software versions may support different functions. Check the 400W Series Pilot's Guide for further information.

Table 1 - Approved Software Versions

Software Item	Approved Software Version (or later FAA approved versions for this STC)			
·	SW version	As displayed on unit		
Main SW Version	3.30	3.30		
GPS SW Version	3.2	3.2		

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

2.3 Navigation Database

The 400W Series unit database card must be installed. (IAW the TSO deviations granted to Garmin for the 400W unit, navigation database cards may not be marked with the part number. The software automatically precludes invalid databases for use by the 400W)

- a) IFR enroute and terminal navigation is prohibited unless the pilot verifies the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
- b) GPS instrument approaches using the 400W Series units are prohibited, unless the 400W Series unit's approach data is verified by the pilot or crew to be current. Instrument approaches must be accomplished in accordance with an approved instrument approach procedure that is loaded from the 400W Series unit database.
- c) Installations with dual 400W/500W Series units will only crossfill between units when they contain the same database cycle. Updating of each database must be accomplished on the ground prior to flight.

2.4 Terrain Database

The 400W Series unit supports Terrain and requires a Terrain database card to be installed in order for the feature to operate. The table below lists compatible database cards for the 400W series. Each of the data base cards contains the following data:

- a) The Terrain Database has an area of coverage from North 75° Latitude to South 60° Latitude in all longitudes.
- b) The Airport Terrain Database has an area of coverage that includes the United States, Canada, Mexico, Latin America, and South America.
- c) The Obstacle Database has an area of coverage that includes the United States, and is updated as frequently as every 56 days.

NOTE: The area of coverage may be modified as additional terrain data sources become available.

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

Table 2 - Approved Terrain Database Cards

Part Number	Description
010-10201-20	Data Card, TAWS / Terrain, 128MB
010-10201-21	Data Card, TAWS / Terrain, 256MB

2.5 Navigation

No navigation is authorized north of 89° (degrees) north latitude or south of 89° (degrees) south latitude.

2.6 Approaches

- a) During GPS approaches, the pilot must verify the 400W Series unit is operating in the approach mode. (LNAV, LNAV+V, L/VNAV, LP, or LPV)
- b) When conducting approaches referenced to true North, the heading selection on the AUX pages must be adjusted to TRUE.
- c) Accomplishment of an ILS, LOC, LOC-BC, LDA, SDF, MLS, VOR approach, or any other type of approach not approved for GPS overlay, is not authorized with GPS navigation guidance.
- d) Use of the GNS 430W VOR/LOC/GS receiver to fly approaches not approved for GPS requires VOR/LOC/GS navigation data to be present on the external indicator (i.e. proper CDI source selection).
- e) For aircraft with remote source selection annunciation or remote GPS navigation annunciations installed, conducting IFR approaches is prohibited if the remote annunciation is found to be inoperative during pre-flight. (This limitation does not prohibit the conduct of an IFR approach if the required remote annunciation fails during flight. The indications provided on the 400W Series unit display may be used as a backup).
- f) Except in emergency conditions, IFR approaches are prohibited whenever any physical or visual obstruction (such as a throw-over yoke) restricts pilot view or access to the 400W Series unit or the affected CDI.

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

2.7 Autopilot Coupling

IFR installations of a Garmin 400W Series unit allow the operator to fly all phases of flight based on the navigation information presented to the pilot; however, not all modes may be coupled to the autopilot. All autopilots may be coupled in Oceanic (OCN), Enroute (ENR), and Terminal (TERM) modes; however, the FAA requires that vertical coupling of an autopilot for approaches be demonstrated to meet their intended function and provide safe and proper operation to published minimums. This installation is limited to:

ınd	proper operation to published minimums. This installation is limited to
	No limitations for autopilot coupling.
	Lateral GPS coupling (LNAV only). For 430W units: The GS of an ILS (VLOC) may be coupled to the autopilot without any limitations.
	s limitation may be removed after an FAA Flight Test demonstration.

2.8 Terrain Display

Terrain refers to the display of terrain information. Pilots are NOT authorized to deviate from their current ATC clearance to comply with terrain/obstacle alerts. Terrain unit alerts are advisory only and are not equivalent to warnings provided by TAWS. Navigation must not be predicated upon the use of the terrain display.

The terrain display is intended to serve as a situational awareness tool only. By itself, it may not provide either the accuracy or the fidelity on which to base decisions and plan maneuvers to avoid terrain or obstacles.

2.9 VNAV

VNAV information may be utilized for advisory information only. Use of VNAV information for Instrument Approach Procedures does not guarantee Step-Down Fix altitude protection, or arrival at approach minimums in a normal position to land.

2.10 Weather Display

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AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

If an optional weather receiver is interfaced to the 400W Series unit, the weather information displayed is limited to supplemental use only and may not be used in lieu of an official weather data source.

2.11 Traffic Display

Traffic may be displayed on the 400W Series unit when connected to an approved optional TCAS, TAS, or TIS traffic device. These systems are capable of providing traffic monitoring and alerting to the pilot. Traffic shown on the display may or may not have traffic alerting available. The display of traffic is an aid to visual acquisition and may not be utilized for aircraft maneuvering. Display of this traffic data and related operations are described in the 400W Series unit Pilot's Guide.

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

Section 3. EMERGENCY PROCEDURES

3.1 Emergency Procedures

No change.

3.2 Abnormal Procedures

- a) If the Garmin 400W Series unit GPS navigation information is not available, or is invalid, utilize other remaining operational navigation equipment installed in the airplane as appropriate. If the 400W Series unit loses GPS position and reverts to Dead Reckoning mode (indicated by the annunciation of "DR" in the lower left of the display), the moving map will continue to be displayed. Aircraft position will be based upon the last valid GPS position and estimated by Dead Reckoning methods. Changes in airspeed or winds aloft can affect the estimated position substantially. Dead Reckoning is only available in Enroute mode; Terminal and Approach modes do not support DR.
- b) If a "Loss of Integrity" (INTEG) message is displayed during:
 - Enroute/Terminal: continue to navigate using GPS equipment and periodically cross-check the GPS guidance to other approved means of navigation.
 - GPS Approach: GPS approaches are not authorized under INTEG Execute missed approach or revert to alternate navigation.
- c) During a GPS LPV precision approach or GPS LNAV/VNAV approach, the 400W Series unit will downgrade the approach if the Vertical alarm limits are exceeded. This will cause the vertical guidance to flag as unavailable. The procedure may be continued using the LNAV only minimums.
- d) During a GPS LP approach, the 400W Series may downgrade the approach prior to the Final Approach Fix if alarm limits are exceeded. If this occurs, a message will be displayed advising the pilot to use LNAV minimums. If alarm limits are exceeded after the Final Approach Fix, the 400W Series unit will flag the lateral guidance and generate a system message "ABORT APPROACH loss of navigation". Immediately upon viewing the message the unit will revert to Terminal alarm limits. If the position integrity is within these limits lateral guidance will be restored

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

- and the GPS may be used to execute the missed approach, otherwise alternate means of navigation should be utilized.
- e) During any GPS approach in which precision and non-precision alarm limits are exceeded, the 400W Series unit will flag the lateral guidance and generate a system message "ABORT APPROACH loss of navigation". Immediately upon viewing the message the unit will revert to Terminal alarm limits. If the position integrity is within these limits lateral guidance will be restored and the GPS may be used to execute the missed approach, otherwise alternate means of navigation should be utilized.

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

Section 4. NORMAL PROCEDURES

Refer to the 400W Series unit Pilot's Guide defined in paragraph 2.1 on page 6 of this document for normal operating procedures. This includes all GPS operations, VHF COM and NAV, and Multi-Function Display information. For information on TIS traffic, or data linked weather see the Pilot's Guide addendum for optional displays. For information on active traffic sensor or Stormscope operation and displays see the Pilot's Guide addendum for display interfaces.

Although intuitive and user friendly the 400W Series unit requires a reasonable degree of familiarity to prevent operations without becoming too engrossed at the expense of basic instrument flying in IMC and basic see-and-avoid in VMC. Pilot workload will be higher for pilots with limited familiarity in using the unit in an IFR environment, particularly without the autopilot engaged. Garmin provides excellent training tools with the Pilot's Guide and PC based simulator. Pilots should take full advantage of these training tools to enhance system familiarization. Use of an autopilot is strongly encouraged when using the 400W Series unit in IMC conditions

4.1 Approaches with Vertical Guidance

The 400W Series unit supports three types of GPS approaches with vertical guidance: LPV approaches, LNAV/VNAV (annunciated as L/VNAV) approaches, and LNAV approaches with advisory vertical guidance (annunciated as LNAV+V). For LNAV approaches with advisory vertical guidance, the 400W Series will annunciate LNAV+V indicating vertical guidance is available. LNAV minimums will be controlling in this case.

NOTE:

If flying an LPV or LNAV/VNAV approach, be prepared to fly the LNAV only approach prior to reaching the final approach fix (FAF). If the GPS integrity is not within vertical approach limits, the system will flag the vertical guidance. This may be annunciated by a downgrade to LNAV message.

For additional information on approaches with vertical guidance refer to the 400W Series unit Pilot's Guide.

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AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

4.2 Approaches without Vertical Guidance

The 400W Series unit supports Localizer Performance approaches (annunciated as LP). Published LP minimums will be controlling in this case.

NOTE:

If flying an LP approach, be prepared to fly the LNAV only approach prior to reaching the final approach fix (FAF). If the GPS integrity is not within LP approach limits, the system will notify the pilot by a downgrade to LNAV message.

For additional information on LP approaches refer to the 400W Series unit Pilot's Guide.

4.3 Autopilot Operation

The Garmin 400W Series may be coupled to an optional autopilot if installed in the aircraft when operating as prescribed in the LIMITATIONS section of this manual. For lateral guidance, some installations may utilize GPSS or GPS Roll Steering in lieu of the analog deviation information. If an HSI is used with GPSS engaged, the pilot should rotate the course pointer as prompted on the 400W Series unit to prevent loss of situational awareness and to prevent the aircraft from turning inappropriately if the autopilot is switched from digital (GPSS) to analog mode. For autopilot operational instructions, refer to the FAA approved Flight Manual or Flight Manual Supplement for the autopilot.

4.4 Coupling the Autopilot during approaches

The Garmin 400W Series supports analog and digital (GPSS) control interfaces to an optionally installed autopilot. Some autopilots revert to ROLL mode (wings level) and/or flag a NAV failure if the digital data becomes unavailable or is inhibited. The CDI selection of VLOC should inhibit the digital control interface. When switching between GPS and VLOC the pilot should be aware that the autopilot may need to be reengaged into APR or NAV mode after changing the CDI source.

Autopilot coupling to GPS vertical guidance requires that the autopilot be engaged in an analog APR mode identical to coupling to an ILS. Some autopilots may revert to ROLL mode when the navigation outputs of the 400W Series unit sequence to the final approach fix. In these installations

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AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

This installation prompts the pilot and requires the pilot to enable the A/P outputs just prior to engaging the autopilot in APR mode.
This installation supports a seamless transition from digital (GPSS) to analog guidance for the autopilot. To capture the vertical guidance, the pilot may engage the autopilot in APR mode at any time when the GPS Glide Slope (VDI) becomes valid (displayed without a FLAG).
This installation interfaces to the autopilot in analog mode only. To capture the vertical guidance, the pilot may engage the autopilot in APR mode at any time when the GPS Glide Slope (VDI) becomes valid.
The autopilot does not support any vertical capture or tracking in this installation.

AIRPLANE FLIGHT MANUAL SUPPLEMENT or SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for a Garmin 400W Series Navigation System

Analog only autopilots should use APR mode for coupling to LNAV approaches. Autopilots which support digital roll steering commands (GPSS) may utilize NAV mode and take advantage of the digital tracking during LNAV only approaches.

4.5 WFDE Prediction Program

The Garmin WAAS Fault Detection and Exclusion (WFDE) Prediction Program is required for Remote/Oceanic operations.

The Prediction Program should be used in conjunction with the Garmin 400W/500W Simulator. After entering the intended route of flight in the Simulator flight plan the pilot selects the FDE Prediction Program under the Options menu of the Simulator program.

For detailed information refer to the WFDE prediction program instructions (190-00643-01). The availability of FDE is only required for Oceanic or Remote operations.

Section 5. PERFORMANCE

No change.

Section 6. WEIGHT AND BALANCE

See current weight and balance data.

Section 7. SYSTEM DESCRIPTIONS

See Garmin 400W Series unit Pilot's Guide for a complete description of the 400W Series unit.

GA Antenna Series Instructions for Continued Airworthiness

STC Number SA01695SE

Document Number 190-00673-01 Rev. F

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

Aircraft ta	il number <u>N1953G</u>
Antenna location on aircraft	ARM 151.2

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Record of Revision

Rev.	Date	Description of Change
D	08-21-06	Initial STC Issuance
E	11-29-06	Added GA 35 Antenna
F	08-27-07	Added GA 36 & GA 37 Antennas

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1. INTRODUCTION

1.1 Purpose

This document is designed for use by the installing agency of the antenna models listed in Table 1 below as Instructions for Continued Airworthiness in response to Federal Aviation regulation (FAR) Part 23.1529, and Part 23 Appendix G. They include information required by the operator to adequately maintain the antenna models listed in Table 1.

1.2 Scope

This document identifies the Instruction for Continued Airworthiness for the modification of the aircraft for installation of the antenna models listed in Table 1.

Table 1 - List of Antenna Models

Manufacturer	Antenna Model	Description
Garmin	GA 35	GPS/WAAS Antenna
Garmin	GA 36	GPS/WAAS Antenna
Garmin	GA 37	GPS/WAAS with XM Antenna
Garmin	GA 55	XM Antenna
Garmin	GA 55A	XM Antenna
Garmin	GA 56W	GPS/WAAS Antenna
Garmin	GA 56A	GPS/WAAS Antenna
Garmin	GA 57	GPS/WAAS with XM Antenna
Garmin AT	A-34	GPS/WAAS Antenna

1.3 Document Control

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

1.4 Airworthiness Limitations Section

There are no additional Airworthiness Limitations as defined in 14 CFR § 23, Appendix G. G23.4 that result from this modification. The Airworthiness Limitations section is FAA approved and specifies maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

1.5 Permission to Use Certain Documents

Permission is granted to any corporation or person applying for approval of the antenna models listed in Table 1 to use and reference appropriate STC documents to accomplish the Instructions for Continued Airworthiness and show compliance with STC engineering data. This permission does not construe suitability of the documents. It is the responsibility of the applicant to determine the suitability of the documents for the ICA.

1.6 Definitions

The following terminology is used within this document:

- 1) AC: Advisory Circular
- 2) ACO: Aircraft Certification Office
- 3) AEG: Aircraft Evaluation Group
- 4) CFR: Code of Federal Regulations
- 5) DER: Designated Engineering Representative
- 6) FAA: Federal Aviation Administration
- 7) IAW: In Accordance With
- 8) ICA: Instructions for Continued Airworthiness
- 9) MFD: Multi-Function Display unit
- 10) PMI: Primary Manufacturing Inspector
- 11) POI: Primary Operations Inspector
- 12) STC: Supplemental Type Certificate
- 13) TC: Type Certification or Type Certificate
- 14) TSO: Technical Standard Order

2. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

2.1 Introduction

Content, Scope, Purpose and Arrangement: This document identifies the Instruction for

Continued Airworthiness for the modification of the aircraft by installation of the antenna models listed

in Table 1.

Applicability: Applies to aircraft altered by installation of the

antenna models listed in Table 1.

Definition of Abbreviations: See Section 1.6

Precautions: None

Units of measurement: None

Referenced publications: 190-00569-00 Rev. F STC Antenna Installation

Manual

(or later FAA approved revisions)

005-C0373-00 Rev. F Garmin GA Antenna Series

Master Data List

Distribution: This document should be included in the

permanent aircraft records.

2.2 Description of Alteration

Physical installation of the antenna models listed in Table 1.

2.3 Control, Operating Information

There are no pilot controls or operating information. All pilot controls and operating information is through the interfaced receiver unit.

2.4 Servicing Information

The antenna models listed in Table 1 are non-repairable. The antenna must be replaced in event of failure.

2.5 Periodic Maintenance Instructions

This STC is for physical installation and mounting of the antenna models listed in Table 1 and does not include functional operation. The antenna models listed in Table 1, when interfaced to other receiving equipment, are functionally tested by the interfaced receiver.

Within 12 calendar months, conduct a visual inspection on the antenna and its mounting.

2.6 Troubleshooting Information

Troubleshooting is performed with the interfaced receiving unit.

2.7 Removal and Replacement Information

If the antenna is removed and replaced, verify proper operation by successfully completion of the self test of the interfaced receiving equipment.

Penetration of the pressure vessel of a pressurized aircraft is not approved under this STC installation.

Note: There are no special handling requirements for the antennas.

2.8 Diagrams

Refer to the STC Antenna Installation Manual (listed under reference documentation in section 2.1 of this document) for drawings applicable to this installation. There are no wiring diagrams since this STC does not provide wiring interconnections. Location of the antenna varies with aircraft and installation, but must mounted with RF transparent view of the sky. Refer to the cover page of this document for the mounting location of the antenna specific to the aircraft tail number.

2.9 Special Inspection Requirements

Verify there are no cracks on the antenna. Verify there are no cracks or deformation in the mounting structure around the antenna. Verify all sealing fillets around the antenna are good condition.

2.10 Application of Protective Treatments

None, N/A.

2.11 Data Relative to Structural Fasteners

For fastener torque information, refer to the STC Antenna Installation Manual listed in the reference documentation in section 2.1 of this document.

2.12 Special Tools

No special tools are required. Refer to the STC Antenna Installation Manual listed in reference documentation in section 2.1 of this document.

2.13 Additional Instructions for Aircraft Operating under FAR 121/135

- Aircraft Electrical Loads: There is no power connection to the antenna. The only interface to the antenna is from the receiving equipment. Power loads are addressed with the interfaced receiving equipment.
- 2. Methods of balancing flight controls: N/A.
- 3. Special Repair Methods applicable to the airplane: See certificate holder's General Maintenance Manual for instructions.

2.14 Overhaul Period

This STC is for physical installation and mounting of the antenna(s) and does not include functional operation. The antenna(s) do not require overhaul at a specific time period. Antenna health is monitored and self-test conducted by the interfaced GPS/WAAS and XM receivers.

2.15 ICA Revision and Distribution

To revise this ICA, a letter must be submitted to the ACO for approval along with the revised ICA. The ACO will obtain AEG acceptance, and approve any revision to the Airworthiness Limitations Section 1.4. After FAA acceptance/approval, Garmin will release the revised ICA for customer use, and provide any required notification of the revision.

The latest revision of this document will be available on the Garmin website (www.garmin.com). A Garmin Service Bulletin, describing ICA revision, will be sent to dealers if revision is determined to be significant.

2.16 Assistance

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

2.17 Implementation and Record Keeping

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

400W Series Instructions for Continued Airworthiness

Document Number 190-00356-65 Rev. B

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

Record of Revision

Rev.	Date	Description of Change	
1	10-19-06	Initial Release	
Α	11-03-06	Revision for STC Issuance	
В	07-30-09	Add the "-D" to STC number when reissued under ODA	
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1. INTRODUCTION

1.1 PURPOSE

This document is designed for use by the installing agency of the Garmin Model 400W Series GPS/WAAS Nav/Com as Instructions for Continued Airworthiness in response to Federal Aviation regulation (FAR) Part 23.1529, and Part 23 Appendix G. The ICA includes information required by the operator to adequately maintain the Garmin Models 400W series installed under Approved Model List (AML) STC SA01933LA-D.

1.2 Scope

This document identifies the Instruction for Continued Airworthiness for the modification of the aircraft for installation of the Garmin Models 400W series GPS/WAAS Nav/Com installed under Approved Model List (AML) STC SA01933LA-D.

1.3 Document Control

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

1.4 Airworthiness Limitations Section

There are no additional Airworthiness Limitations as defined in 14 CFR § 23, Appendix G. G23.4 that result from this modification. The Airworthiness Limitations section is FAA approved and specifies maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

1.5 Permission to Use Certain Documents

Permission is granted to any corporation or person applying for approval of a Garmin Model 400W Series to use and reference appropriate STC documents to accomplish the Instructions for Continued Airworthiness and show compliance with STC engineering data. This permission does not construe suitability of the documents. It is the responsibility of the applicant to determine the suitability of the documents for the ICA.

1.6 Definitions

The following terminology is used within this document:

- 1) AC: Advisory Circular
- 2) ACO: Aircraft Certification Office
- 3) AEG: Aircraft Evaluation Group
- 4) CFR: Code of Federal Regulations
- 5) **DER:** Designated Engineering Representative
- 6) FAA: Federal Aviation Administration



7) IAW: In Accordance With

8) ICA: Instructions for Continued Airworthiness

9) MFD: Multi-Function Display unit

10) **PMI:** Primary Manufacturing Inspector

11) **POI:** Primary Operations Inspector

12) **STC**: Supplemental Type Certificate

13) **TC:** Type Certification or Type Certificate

14) TSO: Technical Standard Order

2. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

2.1 Introduction

Content, Scope, Purpose and Arrangement: This document identifies the Instructions for

Continued Airworthiness for the modification of the aircraft by installation of the Garmin Models 400W

Series GPS/WAAS Nav/Com.

Applicability: Applies to aircraft altered by installation of the

Garmin Model 400W Series GPS/WAAS Nav/Com.

Definition of Abbreviations: See Section 1.6

Precautions: None

Units of measurement: None

Referenced publications: 190-00356-02 Rev. G 400W Series Installation

Manual

(or later FAA approved revisions)

005-C0221-00 Rev. F 400W Series STC Master

Data List

Retention: This document, or the information contained within,

will be included in the aircraft's permanent records.

2.2 Description of Alteration

The Garmin Model 400W Series GPS/WAAS Nav/Com unit is a 6 ¼ inch wide panel mounted unit with all the interface connections behind the instrument panel. Installation of the Garmin Model 400W Series GPS/WAAS Nav/Com system interfaces, specific for the aircraft installation, is documented in the GNS 400W Series Post-Installation Checkout Log that is retained as part of the aircraft's permanent records. The 400W Series units combine a large number of easily acceptable controls to use the color multifunction display, Nav and Com transceiver, GPS/WAAS navigator in a single unit.

2.3 Control, Operating Information

See the 400W Series Installation Manual, listed under the reference documentation in paragraph 2.1 of this document, for system operation and self-test information.



2.4 Servicing Information

None. In the event of system failure, return the unit to the manufacturer or an approved Garmin repair station.

2.5 Periodic Maintenance Instructions

The 400W Series units are designed to detect internal failure. A thorough self-test is executed automatically upon application of power to the units, and built-in test is continuously executed. Detected errors are indicated on the equipment via failure annunciations and maintenance is on-condition.

Operation of the 400W Series unit is not permitted unless an inspection as described in this section has been completed within the preceding 12 calendar months. Conduct a visual inspection on the 400W series unit and its wire harness to insure installation integrity:

- 1. Inspect the unit for security of attachment.
- 2. Inspect all knobs and buttons for legibility.
- 3. Inspect condition of wiring, routing and attachment/clamping.

2.5.1 Cleaning the Front Panel

The front bezel, keypad, and display can be cleaned with a soft cotton cloth dampened with clean water. DO NOT use any chemical-cleaning agents. Care should be taken to avoid scratching the surface of the display.

2.5.2 Display Backlight

The display backlight lamp is rated by the manufacturer as having a usable life of 20,000 hours. This life may be more or less than the rated time depending on the operating conditions of the 400W series unit. Over time, the backlight lamp may dim and the display may not perform as well in direct sunlight conditions. The user must determine by observation when the display brightness is not suitable for its intended use. Contact the Garmin factory repair station when the backlight lamp requires service.

2.5.3 Battery Replacement

The 400W series has an internal keep-alive battery that will last about 10 years. The battery is used for GPS system information. Regular planned replacement is not necessary. The 400W series will display a 'low battery' message when replacement is required. Once the low battery message is displayed, the battery should be replaced within 1 to 2 months.

If the battery is not replaced and becomes totally discharged, the 400W series unit will remain fully operational, but the GPS signal acquisition time may be increased. This acquisition time can be reduced by entering a new seed position each time the unit is powered on. There is no loss of function or accuracy of the 400W series unit with a dead battery.

The battery must be replaced by the Garmin factory repair station or factory authorized repair station.

2.6 Troubleshooting Information

If error indications are displayed on the 400W series unit, consult the Troubleshooting section contained in the 400W Series Installation Manual, listed under reference documentation in paragraph 2.1 of this



document. The '400W Series Post-Installation Checkout Log' in the aircraft permanent records includes the configuration information for the installation. (See Section 5 in the 400W Series Installation Manual for a sample Log).

2.7 Removal and Replacement Information

If the 400W series unit is removed and reinstalled, verify that the 400W series unit power-up self-test sequence is successfully completed and no failure messages are annunciated.

If the 400W series unit is removed for repair and reinstalled, or if the 400W unit is removed and replaced with a different 400W series unit, then follow 'Post Installation Configuration & Checkout Procedures' procedures-contained in the 400W Series Installation Manual listed in paragraph 2.1 of this document, and verify the 400W unit power-up self-test sequence is successfully completed and no failure messages are annunciated.

If any work has been done on the aircraft that could affect the system wiring, antenna cable, or any interconnected equipment, verify the 400W series unit power-up self-test sequence is successfully completed and no failure messages are annunciated.

To remove the 400W series unit from the mounting rack, insert a 3/32-inch hex drive tool into the access hole at the bottom of the unit face. Rotate the hex tool counterclockwise until the unit is forced out about 3/8 inches and can be freely pulled from the rack.

The 400W unit is installed in the rack by sliding it straight in until it stops, about 1 inch short of the final position. Insert the hex drive tool into the access hole at the bottom of the unit face. Rotate the hex tool clockwise while pressing on the left side of the bezel until the unit is firmly seated in the rack.

Note: There are no special handling requirements for the 400W series units.

2.8 Diagrams

Refer to the 400W Series Installation Manual (listed under reference documentation in section 2.1 of this document) for drawings applicable to this installation. Point to point wiring diagrams are in Appendix H of the 400W Series Installation Manual. Refer to the GNS 400W Series Post-Installation Checkout Log retained in the aircraft permanent for a list of the interfaced equipment. The antenna cables are routed between the 400W series unit and the antenna with disconnects at each unit. The antenna cable typically is routed behind interior panels in the fuselage.

2.9 Special Inspection Requirements

None, N/A.

2.10 Application of Protective Treatments

None, N/A.

2.11 Data Relative to Structural Fasteners

None, N/A.



2.12 Special Tools

No special tools are required for system checkout. See 400W Series Installation Manual listed in reference documentation in section 2.1 of this document.

2.13 Additional Instructions

None

2.14 Overhaul Period

The system does not require overhaul at a specific time period. Power on self-test and continuous BIT will monitor the health of the 400W series unit. If the unit indicates an internal failure, the unit may be removed and replaced. See troubleshooting section contained in the 400W Series Installation Manual, listed under reference documentation in paragraph 2.1 of this document.

2.15 ICA Revision and Distribution

To revise this ICA, a letter must be submitted to the ACO along with the revised ICA. The ACO will obtain AEG acceptance, and approve any revision to the Airworthiness Limitations Section 1.4. After FAA acceptance/approval, Garmin will release the revised ICA for customer use, and provide any required notification of the revision.

The latest revision of this document will be available on the Garmin website (www.garmin.com). A Garmin Service Bulletin, describing ICA revision, will be sent to dealers if revision is determined to be significant.

2.16 Assistance

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

2.17 Implementation and Record Keeping

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

US Department
of Transportation
Federal Aviation

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

Form Approved OMB No. 2120-0020 2/28/2011 Electronic Tracking Number

Administration 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)) Nationality and Registration Mark Serial No. N1953G 421B0852 1. Aircraft Make Model Series Cessna 421B 421B0852 Name (As shown on registration certificate) Address (As shown on registration certificate) Address 10635 BRIGHTON LN 2. Owner City STAFFORD State TX MAXIM SILENCERS 77477 Country FORT BEND 3. For FAA Use Only 4. Type 5. Unit Identification Repair Alteration Unit Make Model Serial No. (As described in Item 1 above) AIRFRAME $\overline{}$ POWERPLAN^{*} PROPELLER Type APPLIANCE Manufacturer 6. Conformity Statement B. Kind of Agency A. Agency's Name and Address U. S. Certificated Mechanic South Central Avionics LLC. Manufacturer Address 20221 Stuebner Airline Hangar X14 Foreign Certificated Mechanic C. Certificate No City Spring Certificated Repair Station State TX 77379 Country Harris Certificated Maintenance Organization 9S9R372B 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. Signature/Date of Authorized Individual Extended range fuel per 14 CFR Part 43 App. B 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 FAA Flt. Standards Persons Approved by Canadian Maintenance Organization Manufacturer Department of Transport Inspector BY Other (Specify) **FAA Designee** Repair Station Inspection Authorization Signature/Date of Authorized Individual Certificate or Designation No. 6/21/2010

9S9R372B

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 national sheets.	ality and registration mark and date	e work completed.)
<u> </u>	N1953G	06/21/2010
Validated that the previous installation of one GNS530 was install FAA-stamped field approval document on FAA-form 337 dated 08	3/27/2002. Verified this airc	raft and all interfaced
equipment are under the STC AML. The GNS530 was removed at the 530 is determined to meet the field-of-view requirements with shielding was inspected and determined to be IAW the STC AML RG58 were removed and replaced with one GA35 antenna and R previous installation.	out the need of annunciation installation data. The exist	on. The existing wiring and ing GA56 antenna AND
A summary of the modification done to the aircraft is as follows:		
1. Removed one Garmin GA56 antenna P/N011-00134-00 and in 013-00235-00 S/N 60917 using the provisions left behind from the Installation Manual (190-00357-06) Rev. D, Mar, 2008 and STC	e standard antenna IAW G	
2. Removed Garmin GNS530 P/N 011-0550-10 S/N 78405518 ur S/N 78405518, using the provision left behind from the standard finstallation Manual (190-00357-06) Rev. D, Mar, 2008 and SAO	530 unit. Installation done I.	
3. The GNS530W was configured to the original 530 unit. The GN installation manual (190-00357-08) Rev. A, Dec, 2009.	IS530W was checked out i	n reference to 530W
4. Removed AFMS for the GNS530 and installed a GNS530W AF	FMS with P/N190-00357-03	Rev. B date 7/31/09.
Instructions for Continued Airworthiness (ICA)		
GNS530W - Included Garmin document Instructions for Continuin aircraft	nued Airworthiness (190-00	357-65) Rev. B, Jul, 2009
Additional Sheets	Are Attached	

GARMIN Ltd. or its subsidiaries c/o Garmin International 1200 E. 151st Street, Olathe, KS 66062 USA

FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT SUPPLEMENTAL AIRPLANE FLIGHT MANUAL for

GARMIN 500W SERIES GPS-WAAS NAVIGATION SYSTEM as installed in

Make and Model Airplane

Reg. No. N1953G S/N 421B0852

This document serves as an Airplane Flight Manual Supplement or as a Supplemental Airplane Flight Manual when the aircraft is equipped with the Garmin 500W Series unit. This document must be carried in the airplane at all times when the Garmin 500W Series unit is installed in accordance with STC SA01933LA-D.

The information contained herein supplements or supersedes the information made available to the operator by the manufacturer in the form of clearly stated placards, markings, or manuals 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, markings, or manuals or the basic FAA approved Airplane Flight Manual.

FAA Approved By:

David G Armstrong **ODA STC Unit Administrator** Garmin International, Inc.

ODA-240087-CE

190-00357-03 Rev. B

Page I of 17

U.S. Department of Transportation Federal Aviation

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance) For FAA Use Confidentification

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For FAA Use Only

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Date **:	h 2006			Sigr	nat	ure of Authoriz	ed Individua			\/ir	gilio Coronel
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Pu	ursuant to	o the authority giver strator of the Feder	n persons specif	ed below.	the	e unit identified	in item 4 wa	as inspected in		anner prescr	ibed by
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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 si	heets: Identify with aircraft nationality and registration mark and date work completed.)
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Drawing Number 40-050, Drawing Number 40-0	conditioning System in accordance with STC# SA8RM and Drawing Number 40-016, 71, and Drawing Number 40-081.
Aircraft weight and balanced has been revised b	by Airweight, Inc. CRS# WVYR372L; new weight sheet installed into AFM.
Equipment List Updated:	A Communication of the Communi
Form 337 entered into AFM.	
AFM Supplement entered into AFM	
Instructions for Continued Airworthiness can be	found in Keith Products System Service Manual Document No. TR-134 Pg. 9.
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*U.S.GPO:1994-568-012/00019

U.S. Department of Transportation . . . Federal Aviation Administration

FAA Form 337 (12-88)

MAJOR REPAIR AND ALTERATION

(Airframe, Powerplant, Propeller, or Appliance)

Form Approved OMB No.2120-0020

For FAA Use Only

Office Identification SW-09 BBR

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for:

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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	I sheets. Identify with aircraft nationality and	registration mark and date work completed.)
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Aircraft weight and balance has been revised.	by Airweight, Inc. CRS# WVYR372L; new we	eight sheet installed into AFM.
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U.S. Department of Transportation
Federal Aviation

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

Form Approved OMB No.2120-0020

For FAA Use Only

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Date 27 August 2	2002			Siç	gnati	ure	of Authorize	Indi	vidue()			Shan	e McKennev
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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 app	olicable airworthin	ess requirement	S.
8. Description of Work Accomplished			
(If more space is required, attach additional sheets. Identify with aircraft nationality and	d registration mark	and date work co	mpleted.)
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Removed original plastic overlays from pilot and co-pilot instrument panels and installed Aero Enhancements, Inc. overlays with Ultravision Instrument Panel Lighting System, Model # UV-250-P and installed Ultravision Glareshield Instrument Panel Lighting System, Model # UV-250-1

Above units installed per Aero Enhancement, Inc. installations P/N AE0830-01 and P/N AE0403-01 under the guidance of AC43.13-1B Chapter 11 Sec. 2.424, 426(d) & (f), 428, 429, and 430. The above units were tested for vertical flamibility by John R. Coloa, FAA DER and passed per FAR 25.853 (a) and FAR 25.1359 (d)

The above units operate independently from the existing factory installed instrument panel lighting by means of isolated three way toggle switches and dimmer rheostats for both the UV-250-P and UV-250-1. The primary source for power is provided by the aircraft BUSS and circuit protection is achieved through the means of 5 amp circuit breakers for each unit

The power consumption for the UV-250-P is: Input 101.6 mA DC- Output 17.3 mA DC The power consumption for the UV-250-1 is: Input 111.12 mA DC- Output 35.9 mA DC

Standby power is provided by an independent, internally fused, 9 volt power supply for each unit

Preventative and continuing maintenance for each supply is to be replaced semi-annually or after 4 h	n unit is to be preflig nours of use I.A.W.	ht and annual inspe Mfg recommendation	ction functio	n checks. ⁻	The standby բ	ower
Installed placard on instrument panel stating: "Ma	eximum backup bat	tery lamp operation	time is 4 hou	เเล		
Installed placards on instrument panel to indicate	system switch posi	tions: "On-Off-Back	kup"			
Updated aircraft P.O.H. to include UV-250-P and	UV-250-1 operating	g instructions and sp	oecifications			
Aircraft weight & balance and equipment list upda	ted				•	
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	S/N 4218-0852 ONLY	AIRPLANE	Fenton MO.
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APPLICANT:ADDRESS:
AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR
CESSNA 421B
WITH
ULRAVISION INSTRUMENT PANEL LIGHTING MODEL NO. UV250-P
ULTRAVISION GLARE SHIELD LIGHTING MODEL NO. UV250-1
REGISTRATION NO. <u>N1953G</u> SERIAL NO. <u>421B-0852</u>
This supplement must be attached to the Cessna 421B FAA approved Flight Manual when Ultravision Instrument Panel Lighting Model No. UV250-P and Ultravision Glare Shield Lighting Model No. UV250-1 has been installed in accordance with Installation Instructions Doc. AE0830-01 and Dcc. AE0403-01.
The information contained herein supplements or supersedes the information of the basic Airplane/ Rotorcraft Flight Manual only in those areas listed. For limitations, Procedures and Performance Data not contained in this supplement, consult the basic Airplane/Rotorcraft Flight Manual.
APPROVED:

DATE: _____

APPLICANT:	 	
ADDRESS:	 	

AIRPLANE FLIGHT MANUAL SUPPLEMENT FOR CESSNA 421B WITH ULTRAVISION INSTRUMENT PANEL LIGHTING MODEL NO. UV250-P ULTRAVISION GLARE SHIELD LIGHTING MODEL NO. UV250-1

LOG OF REVISIONS

REV. NO	DESCRIPTION	PAGES REVISED	APPROVED BY	DATE

APPLICANT: ______ADDRESS: _____

AIRPLANE FLIGHT MANUAL SUPPLEMENT FOR CESSNA 421B WITH ULTRAVISION INSTRUMENT PANEL LIGHTING MODEL NO. UV250-P ULTRAVISION GLARE SHIELD LIGHTING MODEL NO. UV250-1

OPERATION:

SWITCH:

UP – ON

CENTER - OFF

DOWN - 9-VOLT BATTERY BACKUP

DIMMING CONTROL: FULL BRIGHT - CLOCKWISE

FULL DIM - COUNTER CLOCKWISE

9 - VOLT BATTERY: TO CHANGE BATTERY SNAP INTO HOLDER ENSURE PROPER CONNECTION.

9-VOL BATTERY (LOCATION IN AIRCRAFT):

CONTINUING MAINTENANCE:

- 9 -VOLT BATTERY SHOULD BE CHECKED DURING PREFLIGHT BY SIMPLY UTILIZING THREF POSITION TOGGLE SWITCH.
- 9 VOUT BATTERY SHOULD BE REPLACED SEMI-ANUALLY OR AFTER 4 HOURS OF USE.

U.S. Department of Transportation Federal Aviation

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

Form Approved OMB No.2120-0020

For FAA Use Only

Office Identification

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Administration						_						1 1000	
instructions ar	NS: Print or type and disposition of the office of the original office office of the original office	is for	 This report is 	s required	d by la	la۷	w (49 U.S.C. 1	id AC 1421).	43.9-1 (or : Failure to	subsequent report can	revisio result i	n thereof) for n a civil penalt	ty not to
1. Aircraft	Make Cessna					-		Model 421B					
	Serial No. 421B-0852						~	Nationality and Registration Mark N1953G					
2. Owner	Name (As sho Thompson A		registration certific n, Inc.	ate)		_		Address (As shown on registration certificate) 2121 Sage, Suite 225 Houston, Texas 77056					
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F	Ministrator of the F AA Fit. Standards aspector		Manufacturer	auUII		Inspection Authorization Other (Specify)							
2. 	FAA Designee	х	Repair Station			ſ	Person Appove Canada Airwor						
Date of Appro	oval or Rejection		Certificate or Des	signation N	lo.	T			thorized Ind	tividual			
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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.)

Having complied with AC 20-138 paragraph 8.c (2) this FAA Form 337 removes the VFR limitations on the Garmin GNS 530 GPS/VOR/ILS/COM Transceiver System installed on FAA Form 337 dated 27 August 2002. This approval requires FAA Approved Flight Manual Supplement dated _ 2/4 SEP. 2002

Instructions for Continued Airworthiness Checklist

1. Introduction:

The installation of a Garmin GNS-530 GPS/VOR/ILS/COM Transceiver Interfaced with a EDO-AIRE NSD-360A and STEC 55X Autopilot

2. Description:

The Garmin GNS 530 GPS System is a fully integrated, panel mounted instrument, which contains a VHF Com Transceiver, a VOR/ILS receiver, and a GPS Navigation computer with updateable database

3. Control, Operation Information:

The pilot's guides and operation manuals were placed in the aircraft

- 4. Servicing Information: N/A
- 5. Maintenance Instructions:

Maintenance of GNS 530 is "on condition" only. Periodic maintenance is not required

- 6. Troubleshooting Information: N/A
- 7. Removal and Replacement Information: N/A
- 8. Diagrams: N/A
- Special Inspection Requirements: N/A
- 10. Application of Protective Treatments: N/A
- 11. Data: N/A
- 12. List of Special Tools:

A 3/32-inch allen wrench is required for removal of the GNS 530 unit

- 13. For Commuter Category Aircraft: N/A
- 14. Recommended Overhaul Periods: N/A
- 15. Airworthiness Limitation Section:

The aircraft instrument panel is placarded "GPS FOR VFR USE ONLY". The placards will be removed upon compliance with AC 20-138 paragraph 8.c.(2)

16. Revision:

To obtain a revision to the ICA (Instructions for Continued Airworthiness), a letter must be submitted to the Local FSDO with a copy of the revised FAA Form 337 and revised ICS

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Additional Sheets Are Attatched

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 \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

exceed	\$1,000	for each such violation	(Section 901 Fe	ederal Avi	ation	Act of 1958).		. and o	o roport our	. Jour II	. a oira portai	.,	
1. Air		Make Cessna			Model 421B								
•		Serial No. 421B-0852		,	,		Nationality and Registration Mark N1953G						
2: Ow	vner	Name.(As shown on Thompson Aviation	•	eate)		Address (As shown on registration certificate) 2121 Sage, Suite 225 Houston, Texas 77056							
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Sugar	Land, re	xas 77478				Certificated Re	pair Sta	tion]			
						Manufacturer			<u> </u>				
her	reto hav	t the repair and/or alter e been made in accord furnished herein is tru	ance with the re	quiremen	ts of	Part 43 of the	above U.S. F	and descr ederal Av	ribed on the jation Regul	reverse ations a	or attachme nd that the	nts	
Date 30 Aug	ust 2002			Si	gnat	ure of Authorize	ed Indi	vidual	/ 		Shar	e McKenney	
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BY		A Fit. Standards pector	Manufacturer		X	Inspection A	<u> </u>						
<u>. </u>	i	VA Designee	Repair Station		-	Person Appove	nthiness	Group	/				
	•	al or Rejection	Certificate or De	signation N	о.	Signature	of Auti	horized Inc	dividual				
30 Augu	ust 2002		451597610			CM 51		$\overline{}$			•	Jarrell Allen	

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. Identifi	ify with aircraft nationality	and registration mark and de	ate work completed)
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5-15-1998 and Master Drawing List No. 92298, Revision F			· · · · · · · · · · · · · · · · · · ·
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Aircraft Flight Manuals have been updated			
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U.S. Department

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

Form Approved OMB No.2120-0020

For FAA Use Only

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instruct	tions and	d disposition of th for each such vio	nis for	m. This report is	s required	l by la	aw (49 U.S.C.	. 1421). Fail	lure to re	port can	result i	n a civil penal	ty not to				
1. Air	rcraft	Make Cessna	_		-	_		Model 421B			 •						
		Serial No. 421 B-0852						Nationality a	and Regis	tration Mar	rk						
2. Ov	wner	,		n registration certific	;ate)			Address (A		-	ion certif	ficate)					
I		Thompson A	.Viduo	n, inc.				2121 Sage Houston,									
3. For FAA Use Only																	
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Date						•	ure of Authoriz	gd Individus	al								
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30 August 2002 451597610												Jarrell Allen					

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.)								
Removed ARC 400-A auto-pilot system								
Installed S-TEC System 55X Two Axis Automatic Flight Guidance System, Model ST-599 in accordance with STC# SA8890SW-D, Bulletin No. 659, Revision 5, dated 3-15-01 and Master Drawing List No. 92728, Revision E.								
Weight and balance have been revised								
Aircraft Flight Manuals have been updated in accordance with STC# SA8890SW-D								
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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	1 \$1,0°	00 for e	ach such vio	lation	(Section 901 Fe	ederal Av	ation	Act of 1958).					•		
1. Ai	ircraft	t	Make Cessna						Mode 4211						
_			Serial No. 421 B-0852						Nationality and Registration Mark N1953G						
2. O	wner		Name (As short Thompson A		n registration certific nn, Inc.	ate)		Address (As shown on registration certificate) 2121 Sage, Suite 225 Houston, Texas 77056							
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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.)

Removed the following avionics equipment:

DME P/N KN65A S/N 19202

DME Indicator P/N KI265 S/N 8860

Transponder P/N AT150 S/N 25707

Transponder P/N RT459A S/N 967

Audio Amp P/N AA108 S/N B1559

Marker Reciever P/N R402A S/N 417

Serial to Parallel Converter P/N KA120 S/N 1863

VOR Converter P/N B445A S/N 1443

Intercomm P/N PCA400

NAT Switcher P/N RS08-001 S/N 2460

- A. Installed a Garmin GNS-530 unit below audio panel in the center avionics
- B. Interfaced the Garmin GNS-530 GPS with the existing EDO-AIRE NSD-360A HSI. Coupled the GNS-530 GPS unit to the STEC55X Autopilot
- C. This installation was performed in acordance with or the following manuals were referenced: Garmin GNS-530 GPS installation manual P/N 190-00181-02, Revision D dated April 2001; installation manual system 55/55X P/N 8750; Century NSD-360 FAA Approved Bulletin No. 734, revision 3 dated February 1978; AC43.13-1B chapter 11; AC43.13-2A chapters 1,2, and 3; AC20-138
- D. The pilot's instrument panel was placarded as follows: "GPS APPROVED FOR VFR USE ONLY"
- E. All installed equipment function tested to MPS this date for proper operation. Aircraft Flight Manual Supplement created this date

Instructions for Continued Airworthiness Checklist

1. Introduction:

The installation of a Garmin GNS-530 GPS/VOR/ILS/COM Transceiver Interfaced with a EDO-AIRE NSD-360A and STEC 55X Autopilot

2. Description:

The Garmin GNS-530 GPS System is a fully integrated, panel mounted instrument, which contains a VHF Com Transceiver, a VOR/ILS receiver, and a GPS Navigation computer with updateable database

3. Control Operation Information:

The pilot's guides and operation manuals were placed in the aircraft

- 4. Servicing Information: N/A
- 5. Maintenance Instructions:

Maintenance of GNS-530 is "on condition" only. Periodic maintenance is not required

- 6. Troubleshooting Information: N/A
- 7. Removal and Replacement Information: N/A
- 8. Diagrams: N/A
- 9. Special Inspection Requirements: N/A
- 10. Application of Protective Treatments: N/A
- 11. Data: N/A
- 12. List of Special Tools:

A 3/32-inch allen wrench is required for removal of the GNS-530 unit

- 13. For Commuter Category Aircraft: N/A
- 14. Recommended Overhaul Periods: N/A
- 15. Airworthiness Limitation Section:

The aircraft instrument panel is placarded "GPS FOR VFR USE ONLY"

The placards will be removed upon compliance with AC20-138 paragraph 8.c.(2)

16. Revision:

To obtain a revision to the ICA (Instructions for Continued Airworthiness), a letter must be submitted to the local FSDO with a copy of the revised FAA Form 337 and revised ICS

*******	NOTHING	FOLLOWS	*******

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of Transportation Federal Aviation Administration	M (Airframe, Powe	rplant, Pro	peller, or A _l	ppliance	Maria de la Carta maria deservada de la Carta constituir de la Carta de Carta de la Carta	Office Ide	or FAA Use (ntification SDO-09	Only
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	Make	CVIII V		Model			<u> </u>	
1. Aircraft	Cessna Serial No.	<u> </u>	1	421B		<u></u>		·
	42180852		4, 4	National	ity and Registrati	on Mark		2.12
	Name (As shown on registration	on certificate)	Lagrander Lagran		s (As shown on re	nietration (cortificate)	<u>- Jan jan</u>
2. Owner	Western Airways Inc			18000	Groeschke on, TX 7708	2 Rest	er unou.o,	
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	Avionics Inc.	. -	U.S. Certificated Foreign Certific					
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	e, TX 77571		Manufacturer					
furnished	nat the repair and/or alteration man n made in accordance with the red herein is true and correct to the t	de to the unit(s) quirements of P best of my knov	identified in iter art 43 of the U.S wledge.	n 4 above a S. Federál /	nd described on t Aviation Regulation	he reverse ons and th	or attachmen at the inform	its hereto ation
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1 1 .	Fit. Standards	Insp	ection Authoriza	ition	Other (Specify)	- - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		
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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.

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

Installed the following mamed equipment in said aircraft PCA 400 intercoa in said installed the following named equipment in said aircraft. Equipment was installed in instrument panel left side using one in-line fuse. All equipment was installed in accordance w/AC 43.13 1A & 2A, and manufacture installation manual. AC 43.13 1A & 2A, Chapter 11, Section 1, Inspection and operation check; Section 2, determination of electrical load & circuit protection devices, Section 3, Aircraft electric wire; Section 7, routing wires and ties and lacing; Chapter 5, section 8, Para 842 coaxial cable and fittings. System doesn't interfere w/any other equipment if system should fail. Revised equipment list. No effect on Weight and Balance Report System (unit less than .5 lbs). Made the No effect on Weight and Balance Report System, (unit less than .5 lbsl. Made the appropriate log-book entry.

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Additional Sheets Are Attached

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1. Aircraft	Serial No.	sna.	· · · · ·	100 / 10 S	1 - 10 1	42/B ity and Registrati	on Mark	der E	0	
2. Owner	Name (As shown on registration certificate) Address (As shown on registration certificate) 1800 Groeach (A Hown ton, Tuf. a									
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	I	······································		4. Unit Identificati	on			5. Type		
Unit	Ma	ake .		Model		Serial N	o.	Repair	Alteration	
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POWERPLANT					:		•			
PROPELLER	j.				ŗ	•				
APPLIANCE	Manufacturer				**				3	
			6	. Conformity States				·	'	
A. Agency's N	ame and Address	· · · · · · · · · · · · · · · · · · ·		B. Kind of Agency			C. Certi	ficate No.		
18000 Howst	Grosch	77084		U.S. Certificate Foreign Certific Certificated Rep Manufacturer	ated Mecha		AFP	44982	6015	
· ilave beel	i made maccorda	or alteration made to nce with the require correct to the best	ments	Of Part 43 of the U.	m 4 above : S. Federal	and described on Aviation Regulat	the reverse ions and th	or attachme at the inform	nts hereto nation	
Date	26-93			Signature of Author	orized Indi	vidual				
	<u> </u>			proval for Return To					-	
Pursuant to Administrato	the authority give r of the Federal Av	n persons specified riation Administratio	belov	v, the unit identified	d in item 4	was inspected	in the man	ner prescrib	ed by the	
FAA	Fit. Standards	Manufacturer	X	Inspection Authoriza	ation	Other (Specify)			
FAA	Designee	Repair Station		Person Approved by Canada Airworthine	Transport				7	
5-26		Certificate or Designation No. 457130731	é	Signature of Autho						
FAA Form 337	12-88),			55		A				

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.

Description of Work Accomplished
(If more space is required, attach additional sheets, identity with aircraft nationality and registration mark and date work completed.) Clevland Brake Convasion STC-SA197-GL -Installed Cleyland wheel and brake Conversion Kit Per \$te \$A 1976L instructions. Overaff weight & balonce records revised. never the compact Altergues toughtlate expected to the comment of the comment o the second constitution and the same that the same the same that the sam Egonto e de Autorizadante de Santoniano, se su porta de la seguina de la Lucine see massime. Crack Telegraph Crack and a framework that Crack and a framework that The crack to the crack that

☐ Additional Sheets Are Attached

\$U.S.G.P.O. 1990-761-753

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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
Hou FSDO

Administration

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 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 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 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 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 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 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 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 INSTRUCTIONS: Print or type all entries.

and disposition for each such	on of this form. This r violation (Section 9	01 Federal Aviati	on Act o	f 1958).					·				
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	Name (As shown or	registration cert	ificate)		Address	Address (As shown on registration certificate)							
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18000	Graschke	212 5			rtificated Repair Statio				1				
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D. I certify t	that the repair and/or	alteration made				e and described on t al Aviation Regulati	he revers ons and t	e or attachme hat the inforr	ents hereto mation				
furnishe	d herein is true and o	correct to the bes	t of my k	(III)	ge. ure of Authorized In				-				
Date	0 6- 0 0 6	Popular		Signal /	2/2								
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			7. Ap	proval f	or Return To Service	e		<u> </u>					
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BY FA	A Designee	Repair Station		Canada	Approved by Transp Airworthiness Grou	p.	· · · · · · · · · · · · · · · · · · ·						
	oval or Rejection	Certificate or Designation No.		Signat	are of Authorized In	idividual 							
4-28-	-93	45713073		02	Randall F	oe .							

FAA Form 337 (12-88)

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.

Description of Work Accomplished
(If more space is required, attach additional sheets, Identify with aircraft nationality and registration mark and date work completed.) Removed old Style Cressian Que Filters, replaced with Brackett type air Filters Pln BA-108 Both Engines per ste-SAMBL. No Change in weight

Additional Sheets Are Attached

☆U.S.G.P.O. 1990-761-753

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2. OWNER	NAME (As shown on registration certificate) ADDRESS (As shown on registration certificate) STAR LANE WESTERN AIRWAYS, INC. HOUSTON, TEXAS 77057									ificate)			
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FAA Form 337 (7-67)

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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. craft nationality and registration mark and date work completed.)
 - 1. The following items were re-upholstered by TRIM SPECIALTIES of HOUSTON, INC. using patterns of the original cabin carpet panels, kick panels, cabin and cockpit side panels, and seat covers. The manner of upholstering is the same as that used by the aircraft manufacturer.

Full Set of cabin and cockpit floor carpet panels,

Full set of kick panels for both sides of the cockpit and cabin,

2 ea Pilot Șeats,

5 ea Passenger Seats, and

The Potty Seat.

- The following materials were used:
 - Carpet #13 Tan Thatch from Lancer Carpet,
 - Vinyl Brown Baypoint from Mellohide, and
 - Cloth Fabric Kendall Beige from Marion Fabrics.
- Three specimens of each of the materials were submitted to HOUSTON FLAME TESTING LAB (FAA Approved Repair Station #GWZR861K) for burn testing on W.O. # 1309 and 1311 on 8 January and 16 January 1992, respectively.
- TESTING RESULTS:
 - CARPET Passed Record #662 FAR 23.787 (d); FAR 23.853 (a); FAR 27.953 (b); FAR 3.388 (a); and CAR 4b.381 (b).
 - VINYL -- Passed Record # 657 FAR 23.787 (d); FAR 23.853 (a); FAR 27.853 (b); FAR 27.855 (a); CAR 3.388 (a); CAR 4b.381 (b).
 - CLOTH FABRIC -- Passed Record #660 FAR 25.853 (b); FAR 29.853 (a) (2).
- The re-upholstered items were reinstalled in accordance with the methods used by the aircraft manufacturer.
- No significant weight difference was made.

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Tookey For Ebbyodee) JAMES STRANGER

ADDITIONAL SHEETS ARE ATTACHED

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\$U.S. GOVERNMENT PRINTING OFFICE; 1977-771-021/344

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION



Form Approved Budget Bureau No. 04-R060.1

FOR FAA USE ONLY OFFICE IDENTIFICATION

MAJOR REPAIR AND ALTERATION

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AIRCRAFT	SERIAL NO.	:			ATION MAK	Α.	-		
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	NAME (As shown on registration certific	ate)	ADDRESS (As	shown on registrerchange, Bo	oulevard				
. OWNER	*		Houston,	Texas 7	7054	•	- <u>-</u>		
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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.

	73	red Goodyear wheels and brakes. Installed Cleveland Wheels & Brake Number 199-76, Rev. E. Work was accomplished per drawings and ins supplied with Kit and outlined in STC SA197GL.	s Kit truc-
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ADDITIONAL SHEETS ARE ATTACHED ☆U.S. Government Printing Office 1976-771-980/65 Neo:

TINU.

AIRFRAME

POWERPLANT

FAA Form 337 (7-67)

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FEDERAL AVIATION ADMINISTRATION

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

Form Approved Budget Bureau No. 04-R060.1

Houston, TX 77054

SERIAL NO.

FOR FAA USE ONLY OFFICE IDENTIFICATION
SWFS08-64

5. TYPE

(B320)

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REPAIR

INSTRUCT	TONE	3W-300-64 89
for instructi	TIONS: Print or type all entries. See FAR 43.9, FAR 43 App ons and disposition of this form.	endix B, and AC 43.9-1 (or subsequent revision thereof)
1. ÄlRCRAFT	MAKE	MODEL
	Cessna SERIAL NO.	421B
	421B0852	NATIONALITY AND REGISTRATION MARK
	Name	N1953C
2. OWNER	l	ADDRESS (As shown on registration certificate) 8919 Interchange Elvd.
	Arthur Smith Corp.	Houston, TX 77054

4. UNIT IDENTIFICATION

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PROPELLER							, , ,		
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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.

DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.) Installed Northstar Avionics M 1 Loran C receiver and a Northstar A-100 antenna with an AN-1010 antenna coupler. The Loran C receiver is located in the center avionics rack and is connected to a Cessna 10 830 MSI and a Cessna 800 IFCS through a Northern Airborne Technology RS 08-001 remote switch controlled by Northern Airborne Technology PB-08 annunicator switch placarded Nav. 1/Loran C. The Loran system is placarded "Loran-C not approved for IFR." Manual and Advisory Circulars AC-43:13-1A chapter 11; chapter 13, AC 45:13-2A chapter 2, chapter 3, chapter 13 and AC 20-121.
A ground function test was performed. The M 1 reference manual P/N 122186 Rev. H dated 1985 placed in the aircraft. Nochange in aircraft flight manual.
Aircraft weight and balance and equipment list revised. Magnetic compass operation checked and not effected. U ADDITIONAL SHEETS ARE ATTACHED

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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.) Cessna 4218

S/N 42180852 N19530

Removed the Cessna P/N 9711019-1 Radome and installed Norton 4009X Radome Kit per STC SASOTEA.

Removed the following equipment: RCA AVQ-47 Radar (MI-585035 Receiver/Transmitter, MI585036-3 Indicator, MI-585086-1 Antenna and 1719434-501 Phased Array).

Installed RCA Weather Scout II Radar including:

RTA-1002 Receiver-Transmitter mounted as per Norton drawing AD4009X.
 DI-1002 Digital Indicator mounted in the radio panel in the location of the removed RCA MI-585036-3 Indicator, utilizing AN hardware.

The following data was used as guidelines for the installation:

A.C. 43.13-1A Chapter 11, Sections 2, 3, 4 and 7.
A.C. 43.13-2A Chapter 1 "Structural Data".
A.C. 43.13-2A Chapter 2 "Radio Installations", paragraphs 21 a(1)(2)(3)(4)(5)(6); 22; 23 a, b, c, e, f; 27 a(1)(2), b(1)(2), c(1)(2)(3)(4), d, c(1)(2).

The Equipment List was revised.

The Weight and Balance was corrected.

ADDITIONAL SHEETS ARE ATTACHED

±U.S. Government Printing Office 1976-771-980/65