N375MK

1964 Cessna 210D

FAA Form 337

Aircraft S/N: 21058252



Prepared by the worldwide aviation specialists at RidgeAire, Inc.

Form Approved OMB No. 2120-0020

Electronic Tracking Number

U.S		ALTERATION									11/30/2007			
Departmen of	Departmen											For F	AA Use Only	V
and dis	UCTIONS: Pringsposition of this such violation	form. Thi	is repor	ort is required b	by law (49	U.S.C	Appe C. 14	endix B, and A 421). Failure to	C 43.9-1 (or subse	quent revisi in a civil per	on ther	eof) for in	structions ed \$1,000	out of
	USA	nality and F		ation Mark		ř			Serial No. 21058252					
1. Aircraft Make Cessna							Model 210D			Series				
2. Owner		(As show) ow Rene		egistration cert lles	ificate)			Address (As shown on registration certificate) Address PO Box 61447 CityMidland State Texas Zip79711 Country UNITED STATES						
		Line St.	185	Edmin F.	r a set	3	3. F	For FAA Use C	nly	Chip 7	1031			
				.61				A page pp						
4.	. Type							5.	Jnit Identification					
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	APPLIANCE Type Manufacturer				ırer			-						
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	's Name and A					-0.00	_	d of Agency						
	n Issac Thor					 ☑ U.S. Certificated Mechanic ☐ Foreign Certificated Mechanic 				Manufacturer C. Certificate No.				
CityTulsa	88 Jack Bat	es Ave.		State OK		H	17.0	ertificated Repa			3370		J.	
Zip <u>74132</u>		Country	INITE	ED STATE	S	H	-		tenance Organiza	tion	0070	100		
D. I certi	tify that the repa	air and/or a	alterati	ion made to th	ne unit(s) id nents of Pa	dentifie art 43 c	ied i	in item 5 above	and described on Aviation Regulati	the reverse	or atta	chments I	nereto	
Extended ra per 14 CFR App. B	ange fuel		25/32 to 1	Signature/E 11/21/20	Date of Aut	thorize		Individual h Thomas	Will.	A	1			
				THE WOOD		7. Ap	ppro	oval for Return	to Service			Phil		
	t to the authority			and the same of th	K	_			inspected in the m	nanner pres	cribed b	by the		
51/	FAA Fit Star	ndards		Manufacture	r		М	laintenance Org	anization				roved by Car t of Transport	
BY	FAA Design	iee		Repair Statio	on	Х	In	spection Autho	rization	Ot	Other (Specify)			
Certificate of Designation 3370165	n No.		200.00	nature/Date of 21/2017	Authorized Keith TI			/// //	1					

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.

	LUSA N375MK	11/21/2017
	Nationality and Registration Mark	Date
moved attitude indicator.		
talled Garmin G5 in accordance with STC SA01818\	NI, and Garmin G5 Installation Manual P/N 190-01	112-10 Rev. 2.
approved flight manual supplement document # 190 ndbook.	0-01112-13, Rev. 1 Dated 07/22/2016, was installed	I in the aircraft Pilot Operating
wer for the G5 was supplied through a 5 amp breake	er on the aircraft main buss, and the aircraft structur	re was used for ground.
equipment affected during the install was checked a	nd found to be operating properly.	
work was performed using manufacturer's maintena	nce manual and and the above listed STC SA0181	8WI.
eight and balance was negligible.		
	END	
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U.S. Department of Transportation

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

Form Approved OMB No.2120-0020

For FAA Use Only

Federal / Administ		· ·					,			Jince Id	enuncation	
instruct	tions and (disposition of 1	this fo	ntries. See FAR orm. This report on (Section 901)	is require	ed be	v law (49 U S i	: 1421\ Fai	-1 (or subsect lure to repor	uent rev t can res	vision thereof, sult in a civil p	for enalty not to
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		Serial No. 21058252						Nationality and N375MK	I Registration N	tark	• ,	
2. Ov	wner			registration certifica EATERS INC.	ate)	Address (As shown on registration certificate) P.O. BOX 60480 MIDLAND, TEXAS 79711-0480						
	3. For FAA Use Only											
								•				
4. Unit Identification									5. T	уре		
. l	Unit Make						Model		Serial No.		Repair	Alteration
AIRFRAME (As describe					ed ii	n item 1 above)				X	
POWE	RPLANT									·		
PROPELLER												
APPLIA	<i>I</i> NCE	Type Manufacturer										·
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	SO, TEXA					X	Foreign Certifica	 		_		
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her	reto have	been made in	acco	teration made to rdance with the rue and correct t	equireme	ents	of Part 43 of t	ne U.S. Fede	described o ral Aviation f	n the rev Regulation	erse or attac	hments he
Date 01/09/2	2007				Sig	nati	ure of Authoriz	ed Individual	/	^	. CHENAUSK	V #2436607
	· · · · · · · · · · · · · · · · · · ·			7	. Approv	al f	or Return To	Service	· · · · · · · · · · · · · · · · · · ·	^	. OI ILIVAUSK	1 #Z+3003/
F	Pursuant to	the authority	give	n persons specifi	ed below	. the	e unit identified	in item 4 wa			anner prescri	bed by
the Administrator of the Federal Aviation Administration FAA Fit. Standards Inspector Manufacturer				Ï		Inspection Authorization REJECTED Other (Specify)						
	FAA Designee X Repair Station					Person Appove Canada Airwor	d by Transport					
Date of	Approval	or Rejection		Certificate or Desi	gnation No.			of Authorized	Individual			
01/09/2007 CRS# VL1R562K							/M ·		A	. CHENAUSK	Y #2436697	

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	d registration mark and date work complete	ed.)						
Installed S-TEC Corporation ST-901 GPSS Arinc 429/RS232 Converter/Interface to existing S-TEC System 50 Autopilot. Installation was in accordance with STC# SA6027SW-D. Installation hardware provided by S-TEC as part of the installation kit. Weight and balance updated. Ops checked system okay.									
**********	* NOTHING FOLLOWS *******	*****							
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П	Additional Sheets Are Attatched	•							

SYSTEM 40/50

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MAJOR REPAIR AND

Form Approved OMB No. 2120-0020

Electronic Tracking Number

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Certificate of Designation 3370165	n No.		Signature		Authorized Keith TI		/// 2/	1		_		

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.

									
USA N375MK	11/21/2017								
Nationality and Registration Mark	Date								
nd Garmin G5 Installation Manual P/N 190-01	112-10 Rev. 2.								
12-13, Rev. 1 Dated 07/22/2016, was installed									
the aircraft main buss, and the aircraft structur	re was used for ground.								
und to be operating properly.									
All work was performed using manufacturer's maintenance manual and and the above listed STC SA01818WI.									
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	Nationality and Registration Mark nd Garmin G5 Installation Manual P/N 190-01 12-13, Rev. 1 Dated 07/22/2016, was installed the aircraft main buss, and the aircraft structur and to be operating properly. manual and and the above listed STC SA0181								

U.S. Department

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

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2. (Owne	r			registration certific EATERS INC.	ate)		Address (As shown on registration certificate) P.O. BOX 60480 MIDLAND, TEXAS 79711-0480					
			1			3. F	or	FAA Use Only	· · · · · · · · · · · · · · · · · · ·				
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					4. Uni	it Identific	atic	on				5. T	уре
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Date 01/09	/2007	•				Sign	natu	ure of Authorize	ed Individua		A	. CHENAUSK	Y #2436697
					7	. Approv	al f	or Return To	Service				
	Purs the A	uant to Administ	the authority trator of the F	giver eder	n persons specif al Aviation Admi	fied below, inistration	the and	unit identified	in item 4 wa	s inspected in		anner prescri	bed by
BY		FAA Fit Inspect	t. Standards or		Manufacturer		\Box	Inspection A		Other (S	pecify)		
FAA Designee X Repair Station						_	Person Appove Canada Airwort	hiness Group					
		proval o	r Rejection		Certificate or Des	-		Signature	of Authorized	Individual			
01/09/2007 CRS# VL1R562K					\perp	///	/4		A	. CHENAUSK	Y #2436697		

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 Accomplishe (If more space is required, attach add		stifu with aircraft nati	onality and ragistratic	n mark and date wor	k completed)			
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Installed S-TEC Corporation ST-901 GPSS Arinc 429/RS232 Converter/Interface to existing S-TEC System 50 Autopilot. Installation was in accordance with STC# SA6027SW-D. Installation hardware provided by S-TEC as part of the installation kit. Weight and balance updated. Ops checked system okay.								
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	Addit	ional Sheets Are Atta	tched .					

SYSTEM 40/50

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AIRCRAFT ELIGIBILITY STATEMENT

Kit Part Number: ST-901

Description:

GPSS CONVERTER, 14V

Eligibility:

CESSNA 210D

ACCEPTANCE STAMP



For a listing of additional aircraft eligibilities other than specified herein, please contact S-TEC Corporation Sales at: 1-800-USA-STEC (872-7832).

MEGGATT

SERVICE LETTER - SL 00-003R3

PN: 7745 UAIE: 10-05-06

TO: S-TEC Dealers

FROM: Vice President of Flight Operations and Certification

SUBJECT

GPSS ARINC 429 / RS 232 Converter / Interface. This is the third revision to the document. It contains additional STCs, each of which is indicated by an asterisk.

2. EFFECTIVITY

S-TEC autopilot models 60/65, 55/55X, 40/50, 20/30 installed by S-TEC STCs shown on the attached list when installed with heading system and a GPS unit with ARINC 429 / RS 232 roll steering output.

3. REASON

To provide S-TEC autopilots with the capability of accepting GPS roll steering outputs and using them to control aircraft track through the autopilot heading mode.

4. COMPLIANCE

Optional

DATA

FAAVDAS approved S-TEC Bulletin 901

6. KIT

Model ST-901

7. PUBLICATIONS

A Pilot's Operating Handbook (POH) is provided with each kit that explains detailed normal operating procedures. There is no change to the DAS/FAA approved POH/AFMS for the autopilot.

Instructions for Continued Airworthiness are included in Bulletin 901.

APPROVAL

Bulletin 901 is FAAVDAS approved as a minor change to type design under FAR 21.95 for all the STCs on the attached list. S-TEC considers this optional installation to be a minor alteration in accordance with FARs 1.1, 43.5, 43.7, 43.9, and Appendix A to Part 43. Therefore, return of the airplane to service could be accomplished with a log book entry. Should the person returning the airplane to service prefer to execute an FAA Form 337 for a major alteration, the data is FAA approved.



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

S-TEC GPSS ARINC 429/RS232 CONVERTER/INTERFACE

1. Introduction

This installation is an optional addition to S-TEC autopilots Models 60/65, 55, 40/50, and 20/30 when installed with a heading system and a GPS unit with ARINC 429/RS232 roll steering output. It is installed in accordance with S-TEC Installation Bulletin 901 which is included in the General Installation Bulletin for each autopilot system. Bulletin 901 contains Master Drawing List 921170, dated December 6, 2001 or later FAA approved revision. There is a Pilot's Operating Handbook, P/N 8799.

2. Description

This installation provides S-TEC autopilots with the capability of accepting GPS roll steering outputs and using them to control aircraft track through the autopilot heading mode. It consists of a panel mounted combination switch/annunciator/converter unit or a panel mounted switch/annunciator with a remote mounted converter and connecting cabling to the autopilot and the aircraft heading sensor. Installation data for all components is included in Bulletin 901.

3. Controls, Operation Information

Operation of the GPSS 429/RS232 Converter/Interface Unit is described in S-TEC Pilot's Operating Handbook P/N 8799 that supplements the approved AFMS for each autopilot installation.

4. Servicing Information

All servicing of the GPSS 429/RS232 Converter/Interface must be accomplished by approved S-TEC dealers using S-TEC Dealer Maintenance Manuals and S-TEC Test Equipment. Locations and access to the components of this installation are described and depicted in the installation drawings and Installation Manual. Removal and replacement of components should be determined by functional checks indicated in the Pilot's Operating Handbook and the Post Installation and Functional Tests section of Installation Bulletin 901.

5. Maintenance Instructions

Condition and/or airworthiness inspections required under FAR Part 43, or other FAA approved programs, should include the items shown below for the GPSS 429/RS232 Converter/Interface when installed in the aircraft.

- 1. Perform functional checks indicated in the Pilot's Operating Handbook and the Post Installation and Functional Tests section of Installation Bulletin 901.
- 2. Component installations should be checked against Installation Bulletin 901 to confirm integrity and condition.

6. Trouble Shooting Information

Trouble-shooting this equipment should only be accomplished by authorized S-TEC Dealers with required test equipment and service data. System function should be determined through functional checks indicated in the Pilot's Operating Handbook and the Post Installation and Functional Tests section of Installation Bulletin 901.

7. Removal and Replacement Information

All components can be removed with common tools and practices. Installation of components required for this alteration must be in accordance with the approved data contained in Installation Bulletin 901.



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

S-TEC GPSS ARINC 429/RS232 CONVERTER/INTERFACE

8. Diagrams

See Installation Bulletin 901.

9. Special Inspection

N/A

10. Application of Protective Treatments

GPSS 429/RS232 Converter/Interface components should not be exposed to these treatments.

11. Structural Fasteners

See parts list in the Installation Bulletin 901 for TSO, PMA, and standard hardware information.

12. Special Tools

N/A

13. The following additional information is being supplied (required for Commuter category airplanes):

Electrical loads are described in the Component Weights and Current Drain section of Installation Bulletin 901.

14. Overhaul Time Limitations

N/A

15. Airworthiness Limitations

None.

16. Revisions

The S-TEC Service Letter/Bulletin program will be utilized to inform aircraft operators of significant changes to this ICA. Contact S-TEC Corporation at 1-800-USA-STEC.

Warranty Application Form

REGISTERED OWNER INFORMATION



To use, you may print this form.

NAME	South-Tex Treaters, Inc	NAME	El Paso Aero, Inc.
ADDRESS	P. O. Box 60480	LOCATION (CITY/STATE/POSTAL CODE)	El Paso, TX 79925
CITY/STATE/POSTAL CODE	Midland, TX 79711	ACCOUNT NUMBER OR DEALER CODE	7330
COUNTRY	USA	WORK ORDER/REFERENCE	WO#55912
OPERATOR IF OTHER THAN OWNER		SELLING AGENCY IF OTHER THAN INSTALLER	
CONTACT	Joe Gamertsfelder	EQUIPMENT MANUFACTURER	Garmin
OPHONE / OFAX NO		Ments ded taken	

INSTALLING AGENCY

AIRCRAFT INFORMATION

MANUFACTURER	Cessna	MODEL	210D
SERIAL NO.	58252	REGISTRATION	N375MK
WARRANTY START DATE D/M/Y	09/01/07	AIRCRAFT HOURS	5240.04
INSTALLATION DATE D/M/Y	09/01/07	AIRCRAFT HOURS	5240.04

CHECK ONE: O NEW O RETROFIT O DEMO O SPARE
O FIXED-BACKUP-RESERVE O PORTABLE-INDEPENDENT-BACKUP

AVIONICS EQUIPMENT

MODEL NO.	PART NO.	SERIAL NO.
GNS-430	010-00139-11	97135404
GI-106A	013-00049-00	J06-10470

Warranty Application Form



To use, you may print this form.

REGISTERED OWNER INFORMATION	INSTALLING AGENCY
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El Paso Aero, Inc. NAME South-Tex Treaters, Inc. NAME LOCATION P. O. Box 60480 El Paso, TX 79925 **ADDRESS** (CITY/STATE/POSTAL CODE) CITY/STATE/POSTAL ACCOUNT NUMBER OR Midland, TX 79711 C000440 CODE DEALER CODE WORK COUNTRY USA WO#55912 ORDER/REFERENCE OPERATOR IF OTHER SELLING AGENCY IF THAN OWNER OTHER THAN INSTALLER **EQUIPMENT** CONTACT S-TEC MANUFACTURER OPHONE / OFAX NO

AIRCRAFT INFORMATION

210D **MANUFACTURER** MODEL Cessna 58252 REGISTRATION N375MK SERIAL NO. WARRANTY START 09/01/07 AIRCRAFT HOURS 5240.04 DATE D/M/Y **INSTALLATION DATE** 09/01/07 AIRCRAFT HOURS 5240-04 D/M/Y

CHECK ONE: O NEW O RETROFIT O DEMO O SPARE
O FIXED-BACKUP-RESERVE O PORTABLE-INDEPENDENT-BACKUP

AVIONICS EQUIPMENT

MODEL NO.	PART NO.	SERIAL NO.
ST-901 Assy, 429 GPSS sw.	03975	0649-5074
ST-901 Assy,429 GPSS intf.	03976	0643-9339E/A

EL PASO AERO, INC.

AVIONICS ASSOCIATES 7305 BOEING DRIVE • INTERNATIONAL AIRPORT EL PASO, TEXAS 79925 • PHONE (915) 779-3481

PR

SOLD TO	South-Tex Treaters, Inc.	SHIPPED TO
AM 20 AM	PO Box 60480	
	MAF, TX 79711	

DATE	DATE SHIPPED	SHIPPED VIA	YOUR ORDER NO.	F.O.B.	TERMS	11476	94821
01/09/07 QUANTITY	01/09/07	N375MK(2101	D) WO#55912 DESCRIPTION	El Paso	Net 10	PRICE	AMOUNT
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INVOICE

EL PASO AERO, INC.

7305 BOEING DRIVE . INTERNATIONAL AIRPORT

EL PASO, TEXAS 79925 • PHONE (915) 779-3481

PR

SOLD TO SHIPPED TO South-Tex Treaters, Inc. PO Box 60480 MAF, TX 79711

DATE	DATE SHIPPED	SHIPPED VIA	YOUR ORDER NO.	F.O.B.	TERMS	INVOIC		
01/09/07	01/09/07	N375MK(210E	O) WO#55912B	El Paso	Net 10		94829	
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	**************************************			Tax		\$	4.97	
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				Item#2	Labor	\$	45.00	
				Item#3	Labor	\$	45.00	
				Item#4	Labor	\$	90.00	
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U.S. Departmen of Transportation	

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

Federal Av Administra				er malatara esta esta el Marco, de mara e				evit in Notice to the second				to be a second of
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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.)

Removed existing NAV/COM Narco MK-12D, ID-825 Indicator and Apollo 800 Loran. Installed new Garmin International GNS-430 VHF COM Tranceiver/ GPS/VOR/ILS Receiver and GI-106A Indicator. The installation was in accordance with Garmin Installation Manual p/n 190-00140-02 Rev.Q dated 10/05 adapted as required using AC 43,13-2A paragraph 21 guidelines.

The GPS was installed in the #1 position of the center panel utilizing AN hardware using the factory provided installation kit and mil spec wire. The original COM, NAV, and Glideslope antennas were utilized. The GNS-430 was displayed on the GI-106A Indicator located in the upper RHS of the pilot's instrument panel in accordance with Figure F-10 of the GNS-430 installation manual. The GNS-430 was wired to the aircraft avionics bus with 2 mil 22759 18 gauge wires through a 10 amp circuit breaker labeled COM1 and 2 mil 22759 20 gauge wires through a 5 amp circuit breaker labeled GPS1.

The GPS antenna Garmin p/n GA-56 was installed on top of the cabin in place of the removed Apollo 800 Loran antenna in

accordance with Sect Apollo 800 Loran coa		nual and in accordance with AC 43.13	⊢2A paragraph 36 and 38	guidelines. The		
Certified the Garmin International GNS-430 VHF Com/VOR & ILS Rx/GPS Rx installation for IFR Enroute, Terminal Area and Non-Precision Approach use. The system as installed complies with the provisions of AC 20-138A for follow on IFR Airworthiness Installation Approvals, original STC# SA00705WI. The GNS-430 installation meets the requirements contained in AC 20-138A paragraphs 15-19 and the installation complies with the requirements of AC 20-138 A paragraphs 21 and 22 as applicable. The GNS-430 installation has been ground checked in accordance with Section 5 of the installation manual and found to operate properly. An operational flight check of the installation is required as described on 14CFR 91.407(B) to include verification of the GPS installation to meet the requirements of AC 20-138A paragraph 23 and to verify that the GPS as installed performs its intended function and is compatable with any previous modifications. The results of the flight will be logged in the aircraft records.						
Flight Manual for this	ight Manual Supplement part aircraft and must be accessil I and the Weight and Balanc	ble to the flight crew when the GNS-43		d in the Airplane on. The Equipment		
See attached sheets t	for "Instructions for Continue	d Airworthiness".				
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GARMIN GNS 430 CESSNA 210D S/N 21058252 N375MK

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS - ATTACHMENT TO FAA FORM 337 -DATED 12/14/06

1. INTRODUCTION

Content, Scope,

Purpose and Arrangement:

This document identifies the Instructions for Continued Airworthiness

for the modification of the above aircraft by installation of a Garmin

GNS-430.

Applicability:

Applies to aircraft altered by installation of the Garmin GNS-430.

Definitions & Abbreviations: None, N/A Precautions:

None, N/A

Units of Measurement:

None, N/A

Referenced Publications:

Garmin 400 Series Installation manual, p/n 190-00140-02 Garmin GNS-430 Maintenance Manual, p/n 190-00140-05

Garmin STC# SA00705WI

Garmin Sample Flight Manual Supplement, p/n 190-00140-04

Garmin GNS-430 Pilot's Guide, p/n 190-00140-00

Distribution:

This document should be a permanent aircraft record.

2. DESCRIPTION OF THE ALTERATION

Installation of the Garmin GNS-430, with interface to external altitude encoder and CDI. Refer to Section 1.2, and Sections 4.x.1 of the installation manual for interconnect information. Antenna installation, removal and replacement should be in accordance with applicable provisions of AC 43.13-1B and 43.13-2A.

3. CONTROL, OPERATION INFORMATION

Refer to the GNS-430 Pilot's Guide.

4. SERVICING INFORMATION

N/A

5. MAINTENANCE INSTRUCTIONS

Maintenance of the GNS-430 is 'on condition' only. Periodic maintenance is not required. Refer to the 400 Series Maintenance Manual.

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GARMIN GNS 430 CESSNA 210D S/N 21058252 N375MK

6. TROUBLESHOOTING INFORMATION

Refer to the 400 Series Maintenance Manual.

7. REMOVAL AND REPLACEMENT INFORMATION

Refer to Section 3.8 of the installation manual. If the unit is removed and reinstalled, a functional check of the equipment should be conducted in accordance with Section 5.3 of the installation manual.

8. DIAGRAMS

Refer to Sections 3 and 4 of the installation manual.

9. SPECIAL INSPECTION REQUIREMENTS

N/A

10. APPLICATION OF PROTECTIVE TREATMENTS

N/A

11. DATA: RELATIVE TO STRUCTURAL FASTENERS

Antenna installation, removal and replacement should be in accordance with applicable provisions of AC 43.13-1A and 43.13-2A. Also, refer to Section 3.7 of the installation manual.

12. SPECIAL TOOLS

N/A

13. THIS SECTION IS FOR COMMUTER CATEGORY AIRCRAFT ONLY

- A. Electrical loads: Refer to Section 1.3.2 of the installation manual.
- B. Methods of balancing flight controls: N/A
- C. Identification of primary and secondary structures: N/A
- D. Special repair methods applicable to the airplane: Antenna installation, removal, and replacement should be in accordance with applicable provisions of AC 43.13-1B and 43.13-2A.

14. OVERHAUL PERIOD

No additional overhaul time limitations.

15. AIRWORTHINESS LIMITATION SECTION

Refer to the GNS-430 Sample Flight Manual Supplement.

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GARMIN GNS 430 CESSNA 210D S/N 21058252 N375MK

16. REVISION
To revise this ICA, a letter must be submitted to the local FSDO with a copy of the revised FAA Form 337, and revised ICA. The FAA inspector accepts the change by signing Block 3 and
including the following statement:
"The attached revised/ new Instructions for Continued Airworthiness (date)
for the above aircraft or component major alteration have been accepted by the FAA, super- seding the Instructions for Continued Airworthiness (date)."
17. ASSISTANCE
Flight Standards Inspectors have the resources to respond to questions regarding the ICA.
18. IMPLEMENTATION AND RECORD KEEPING
For major alterations performed in accordance with FAA field approval policy, the owner/operator
operating under Part 91 is responsible for ensuring that the ICA is made part of the applicable
section 91.409 inspection program for their aircraft. This is accomplished when a maintenance
entry is made in the aircraft's maintenance record in accordance with Section 43.9. This entry
records the major alteration and identifies the original ICA location (e.g., Block 8 of FAA Form 33'
dated) along with a statement that the ICA is now part of the aircraft's inspection

19. TERRAIN DATABASE

maintenance requirements.

Refer to the "400/500 Series Garmin Optional Displays Pilot's Guide Addendum" for terrain database update, regionalization, and status information.

FAA APPROVED DATED:	ABQ FSDO DATED 2 1 DEC 2006 ACCEPTED ALL	PAGE 3 OF 3



> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

FAA APPROVED FLIGHT MANUAL SUPPLEMENT GARMIN GNS 430 VHF COMMUNICATIONS TRANSCEIVER/ VOR/ ILS RECEIVER/ GPS RECEIVER

AIRCRAFT MAKE:	CESSNA	
AIRCRAFT MODEL:	210D	
AIRCRAFT SERIAL NO .:	21058252	
AIRCRAFT REGISTRY:	N375MK	

This document must be carried in the aircraft at all times. It describes the operating procedures for the GARMIN GNS 430 navigation system when it has been installed in accordance with GARMIN Installation Manual 190-00140-02 Rev. Q and FAA Form 337 dated 12/15/06.

For aircraft with an FAA Approved Airplane Flight Manual, this document serves as the FAA Approved Flight Manual Supplement for the GARMIN GNS 430. For aircraft that do not have an approved flight manual, this document serves as the FAA Approved Supplemental Flight Manual for the GARMIN GNS 430.

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

FAA Approved:

Federal Aviation Administration, SW-01

1601 Randolph Road S.E.

Suite 200 North

Albuquerque, New Mexico 87106

FAA APPROVED
DATED: 2 1 DEC 2006

P/N EPA121506 PAGE 1 OF 10



> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

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	EMERGENCY PROCEDURES		6			
	NORMAL PROCEDURES		7			
	PERFORMANCE	1	10			
	WEIGHT AND BALANCE	. 1	10			
	AIRPLANE & SYSTEM DESCRIPTIONS		10			

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DATED: 21 DEC 2006

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> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

SECTION I - GENERAL

- 1. The GNS 430 System is a fully integrated, panel mounted instrument, which contains a VHF Communications Transceiver, a VOR/ILS receiver, and a Global Positioning System (GPS) Navigation computer and a terrain awareness system (TERRAIN Option). The system consists of a GPS antenna, GPS Receiver, VHF VOR/LOC/GS antenna, VOR/ILS receiver, VHF COMM antenna and a VHF Communications Transceiver. The primary function of the VHF Communication portion of the equipment is to facilitate communication with Air Traffic Control. The primary function of the VOR/ILS Receiver portion of the equipment is to receive and demodulate VOR, Localizer, and Glide Slope signals. The primary function of the GPS portion of the system is to acquire signals from the GPS system satellites, recover orbital data, make range and Doppler measurements, and process this information in real-time to obtain the user's position, velocity, and time. The primary function of the TERRAIN portion of the system is to provide terrain situational awareness.
- 2. Provided the GARMIN GNS 430's GPS receiver is receiving adequate usable signals, it has been demonstrated capable of and has been shown to meet the accuracy specifications for:
 - * VFR/IFR enroute, terminal, and non-precision instrument approach (GPS, Loran-C, VOR, VOR-DME, TACAN, NDB, NDB-DME, RNAV) operation within the U.S. National Airspace System in accordance with AC 20-138.
 - * One of the approved sensors, for a single or dual GNS 430 installation, for North Atlantic Minimum Navigation Performance Specification (MNPS) Airspace in accordance with AC 91.49 and AC 120-33.
 - * The system meets RNP5 airspace (BRNAV) requirements of AC 90-96 and in accordance with AC 20-138, and JAA AMJ 20X2 Leaflet 2 Revision 1, provided it is receiving usable navigation information from the GPS receiver.
 - * The equipment as installed has been found to comply with the requirements for GPS primary means of navigation in oceanic and remote airspace, when used in conjunction with the 400 Series Trainer Program incorporating the FDE Prediction Program. This does not constitute an operational approval.

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DATED: 2 1 DEC 2006

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> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

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

NOTE: For reference to the Pilot's Guide Addendums, appropriate document and revision levels are as follows:

400/500 Series Garmin Optional Displays Addendum p/n 190-00140-13 Rev. B, dated September 2004, or later for Weather Datalink or Traffic Information Service (TIS) interfaces < or >

400/500 Series Garmin Optional Displays Addendum p/n 190-00140-13 Rev. D, dated April 2005, or later for TERRAIN interface < or >

400/500 Series Display Interfaces Addendum p/n 190-00140-10 Rev. D, dated March 2003, or later for lightning detection and Traffic Advisory System (TAS) interfaces.

SECTION II - LIMITATIONS

1. The GARMIN GNS 430 Pilot's Guide, P/N 190-00140-00, Rev. A, dated October 1998, or later appropriate revision, must be immediately available to the flight crew whenever navigation is predicated on the use of the system. In addition to the Pilot's Guide, the appropriate Pilot's Guide Addendum (as defined in the note on page 4 of 10) also must be immediately available to the flight crew if lightning detection, Weather Datalink, Traffic Advisory System (TAS), Traffic Information Service (TIS), or TERRAIN are interfaced to the system or if primary means oceanic/remote navigation is conducted.

2. The GNS 430 must utilize the following or later FAA approved software versions:

Function	Sub-		-		
	Main	GPS	СОМ	VOR/LOC	G/S
Initial Approval	2.00	2.00	2.00	1.25	2.00
Traffic / Weather Interface	2.08	2.00	2.00	1.25	2.00
Primary Oceanic/Remote	3.00	3.00	2.00	1.25	2.00
TIS Interface	4.00	2.00	2.00	1.25	2.00
TERRAIN Option	5.01	3.01	6.00	3.01	2.03

The Main software version is displayed on the GNS 430 self test page immediately after turn-on for 5 seconds. The remaining system software versions can be verified on the AUX group sub-page 2, "SOFTWARE / DATABASE VER".

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DATED: 2 1 DEC 2006

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> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

- 3. IFR enroute and terminal navigation predicated upon the GNS 430's GPS Receiver is prohibited unless the pilot verifies the currency of the data base or verifies each selected waypoint for accuracy by reference to current approved data.
- 4. Instrument approach navigation predicated upon the GNS 430's GPS Receiver must be accomplished in accordance with approved instrument approach procedures that are retrieved from the GPS equipment data base. The GPS equipment database must incorporate the current update cycle.
 - (a) Instrument approaches utilizing the GPS receiver must be conducted in the approach mode and Receiver Autonomous Integrity Monitoring (RAIM) must be available at the Final Approach Fix.
 - (b) Accomplishment of ILS, LOC, LOC-BC, LDA, SDF, MLS or any other type of approach not approved for GPS overlay with the GNS 430's GPS receiver is not authorized.
 - c) Use of the GNS 430 VOR/ILS receiver to fly approaches not approved for GPS require VOR/ILS navigation data to be present on the external indicator.
 - (d) When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS or Loran-C navigation, the aircraft must have the operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
 - (e) 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 normal position to land.
- 5. If not previously defined, the following default settings must be made in the "SETUP 1" menu of the GNS 430 prior to operation (refer to Pilot's Guide for procedure if necessary):
 - (a) dis, spd n k (sets navigation units to "nautical miles" and "knots")
 - (b) alt, vsft fpm (sets altitude units to "feet" and "feet per minute")
 - (c) map datum .. WGS 84 (sets map datum to WGS-84, see note below)
 - (d) posndeg-min (sets navigation grid units to decimal minutes)

NOTE: In some areas outside the United States, datums other than WGS-84 or NAD-83 may be used. If the GNS 430 is authorized for use by the appropriate Airworthiness authority, the required geodetic datum must be set in the GNS 430 prior to its use for navigation.

6. Navigation must not be predicated upon the use of TERRAIN.

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

FAA APPROVED DATED: 2.1 DEC 2006 P/N EPA121506 PAGE 5 OF 10



> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

- 7. To avoid giving unwanted alerts, TERRAIN must be inhibited when landing at an airport that is not included in the airport database.
- 8. The TERRAIN databases have an area of coverage as detailed below:
 - (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.

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

NOTE: Pilots are NOT authorized to deviate from their current ATC clearance to comply with terrain/obstacle warnings from a TERRAIN unit except as allowed by 14 CFR Part 91.3(b). TERRAIN warnings are <u>advisory only</u> and are not equivalent to warnings provided by a TAWS unit.

SECTION III - EMERGENCY PROCEDURES ABNORMAL PROCEDURES

- 1. If GARMIN GNS 430 navigation information is not available or invalid, utilize remaining operational navigation equipment as required. If the TERRAIN option is installed, TERRAIN will not be available. A white 'TER N/A' or red 'TER FAIL' annunciator will be displayed in the lower left corner of the GNS 430 display.
- 2. If "RAIM POSITION WARNING" message is displayed the system will flag and no longer provide GPS based navigational guidance. The crew should revert to the GNS 430 VOR/ILS receiver or an alternate means of navigation other than the GNS 430's GPS Receiver. If the TERRAIN option is installed, TERRAIN will not be available. A white 'TER N/A' annunciator will be displayed in the lower left corner of the GNS-430 display.
- 3. If "RAIM IS NOT AVAILABLE" message is displayed in the enroute, terminal, or initial approach phase of flight, continue to navigate using the GPS equipment or revert to an alternate means of navigation other than the GNS 430's GPS receiver appropriate to the route and phase of flight. When continuing to use GPS navigation, position must be verified every 15 minutes using the GNS 430's VOR/ILS receiver or another IFR-approved navigation system.

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> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

- 4. If "RAIM IS NOT AVAILABLE" message is displayed while on the final approach segment, GPS based navigation will continue for up to 5 minutes with approach CDI sensitivity (0.3 nautical mile). After 5 minutes the system will flag and no longer provide course guidance with approach sensitivity. Missed approach course guidance may still be available with 1 nautical mile CDI sensitivity by executing the missed approach.
- 5. In an in-flight emergency, depressing and holding the Comm transfer button for 2 seconds will select the emergency frequency of 121.500Mhz into the "Active" frequency window.
- 6. If the white "TER N/A" status annunciator is displayed by the GNS 430, the system will no longer provide TERRAIN alerting or display relative terrain elevations. The crew must maintain compliance with procedures that ensure minimum terrain separation.
- 7. If the red "TER FAIL" status annunciator is displayed by the GNS 430, the system will no longer provide TERRAIN alerting or display relative terrain elevations. The crew must maintain compliance with procedures that ensure minimum terrain separation.
- 8. If a "TERRAIN has failed" message is displayed by the GNS 430, the system will no longer provide TERRAIN alerting or display relative terrain elevations. The crew must maintain compliance with procedures that ensure minimum terrain separation.

SECTION IV - NORMAL PROCEDURES

1. DETAILED OPERATING PROCEDURES

Normal operating procedures are described in the GARMIN GNS 430 Pilot's Guide, P/N 190-00140-00, Rev. A, dated October 1998, or later appropriate revision. Normal operating procedures for the lightning detection, Traffic Advisory Service (TAS), Traffic Information Service (TIS) interface, Weather Data Link interface, and TERRAIN interface are described in the applicable 400/500 Series Pilot's Guide Addendum, p/n 190-00140-10 or 190-00140-13. (Refer to note on Page 4 of 10 for appropriate document and revision level.)

2. PILOT'S DISPLAY

The GNS 430 System data will appear on the GI-106A Indicator. The source of data is either GPS or VLOC as annunciated on the display above the CDI key.

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ALR



> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

NOTE: It is the pilot's responsibility to assure that published or assigned procedures are correctly complied with. Course guidance is not provided for all possible ARINC 424 leg types. See the GNS 430 Pilot's Guide for detailed operating procedures regarding navigation capabilities for specific ARINC 424 leg types.

3. AUTOPILOT / FLIGHT DIRECTOR OPERATION

Coupling of the GNS 430 System steering information to the autopilot can be accomplished by engaging the autopilot in the NAV or APR mode.

For detailed autopilot/flight director operational instructions, refer to the FAA Approved Flight Manual Supplement for the autopilot/flight director.

4. CROSSFILL OPERATIONS

For dual GNC 400 Product Series installations, crossfill capabilities exist between the number one and number two GNC 400 Systems. Refer to the Garmin GNS 430 Pilot's Guide for detailed crossfill operating instructions.

5. AUTOMATIC LOCALIZER COURSE CAPTURE

By default, the GNS 430 automatic localizer course capture feature is enabled. This feature provides a method for system navigation data present on the external indicators to be switched automatically from GPS guidance to localizer/glide slope guidance as the aircraft approaches the localizer course inbound to the final approach fix. If an offset from the final approach course is being flown, it is possible that the automatic switch from GPS course guidance to localizer/glide slope course guidance will not occur. It is the pilot's responsibility to ensure correct system navigation data is present on the external indicator before continuing a localizer based approach beyond the final approach fix. Refer to the GNS-430 Pilot's Guide for detailed operating instructions.

6. DISPLAY OF LIGHTNING STRIKE DATA

Pertaining to installations that interface the BF Goodrich WX-500 Stormscope and does not apply to this aircraft.

7. DISPLAY OF TRAFFIC ADVISORY DATA

Pertains to installations that interface with the TAS System and does not apply to this aircraft.

8. DISPLAY OF TRAFFIC INFORMATION SERVICE DATA

Pertains to TIS surveillance data uplinked by Air Traffic Control (ATC) radar through the GTX 330 Mode S Transponder and does not apply to this aircraft.

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DATED: 9 1 DEC 2006

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> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

9. TERRAIN AWARENESS CAUTION

When a terrain awareness CAUTION occurs, take positive corrective action until the alert ceases. Stop descending or initiate either a climb or a turn, or both, as necessary, based on analysis of all available instruments and information.

10. TERRAIN AWARENESS WARNING

If a terrain awareness WARNING occurs, immediately initiate and continue a climb that will provide maximum terrain clearance, or any similar approved vertical terrain escape maneuver, until all alerts cease. Only vertical maneuvers are recommended, unless either operating in visual meteorological conditions (VMC), or the pilot determines, based on all available information, that turning in addition to the vertical escape maneuver is the safest course of action, or both.

11. TERRAIN INHIBIT

The TERRAIN Forward Looking Terrain Avoidance (FLTA) and Premature Descent Alerts (PDA) functions may be inhibited to stop alerting for acceptable flight conditions (such as below glideslope maneuvers). For detailed operating instructions regarding the GNS 430 TERRAIN interface, refer to the 400/500 Series Garmin Optional Displays Pilot's Guide Addendum, p/n 190-00140-13, Rev. D, or later revision.

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Acr

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> GARMIN GNS-430 CESSNA 210D S/N 21058252 N375MK

SECTION V - PERFORMANCE

No change.

SECTION VI - WEIGHT AND BALANCE

See current weight and balance data.

SECTION VII - AIRPLANE & SYSTEM DESCRIPTIONS

See GNS 430 Pilot's Guide for a complete description of the GNS 430 system.

See 400/500 Series Garmin Display Interfaces Pilot's Guide Addendum, p/n 190-00140-13 information pertaining to the Traffic Information Service (TIS), Weather Data Link, and the TERRAIN Option interfaces. (Refer to the note on Page 4 of 10 for appropriate revision level.)

See 400/500 Series Display Interfaces Pilot's Guide Addendum, p/n 190-00140-10, Rev. D, dated March 2003, or later for information pertaining to the lightning strike data and Traffic Advisory System (TAS) interface.

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ALR

FLAP INDICATOR _

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

instruc	ctions and	S: Print or type : I disposition of th for each such vio	is form.	This report	is requin	ed by	law (49	U.S.C. 14	AC 43.9-1 421). Failui	or subsequ e to report o	ent rev an res	vision thereof) ult in a civil p	for enalty not to
	rcraft	Make Cessna	Make					Mo	Model 210D				
-		Serial No. 21058252							Nationality and Registration Mark N375MK				
2. 0	wner	Name (As shown South Tex Tr	_		ate)			P	Address (As shown on registration certificate) P O Box 60480 Midland TX 79711-0480				
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	1 Init		Maka	4. Uni	t Identif	cauc	on Model		1	Carial Na		5. T	Alteration
	Unit	ļ	Make 				Model			Serial No.		Repair	Alteration
AIRFI	RAME		(As described in item 1 above)									х	
POWI	ERPLANT												
PROF	PELLER												
APPLI	IANCE	Type Manufacturer											
		<u>l.</u>			6. C	onfo	rmity St	tement				J	
A. Agency's Name and Address B. Kind of Agency C. Certificate No.													
Thomas A Hubble DBA Odessa Aviation				×					4573	457377586			
414 E	E. Hillmon	#91				-	 	Foreign Certificated Mechanic Certificated Repair Station			i		
Odessa TX. 79765				Manufacturer									
D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.													
Date 5-16-2	2006				S	ignat	ure of Au	thorized	Individual	AL	2		
7. Approval for Return To Service													
	Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED												
FAA Fit. Standards Manufacturer X			х			norization	Other (S		· · · · · · · · · · · · · · · · · · ·				
BY		AA Designee	R	epair Station	 1			Appoved by Airworthin	y Transport ess Group /	1 .			
Date	of Approv	al or Rejection	C	ertificate or De	signation N	ło.			Authorized I	ndividual			
5-16-2006 457377586					and of	11/00							

NOTICE

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

8. Description of Work Accomplished
(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)
Installed Visual Instruments flap position indicator system moddel 6000 per. STC SA00819SE and manufactures instructions B-6000-CAW. Weight change negligable. Instructions for continued airworthiness- system requires no maintenance other than specified in Cessna maintenance manual for this system.

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Additional Sheets Are Attatched
Mattional Onesis Via Vimining

Reproduced by Avantext, Inc.

Visual Instruments Inc.

Supplemental Type Certificate Permission Statement

By purchasing this Flap Position Indicator from Visual Instruments or one of our authorized distributors, the registered owner of the aircraft is authorized to utilize STC SA00819SE to alter the aircraft listed below

Registered owner South Tex Tv	enters
Aircraft makeCessna	
Aircraft model	
Serial number <u>21058252</u>	
Flap Position Indicator serial number535	
Date of install	
Signature of authorized agent of Visual Instruments	
Steve Mahoney Name	Visual Instruments Inc. Company

The aircraft owner must maintain this Permission Statement with the aircraft records to demonstrate proof of authorization as required by section 403 of the Federal Aviation Authorization Act of 1996 (public law 104-264)

Department of Transportation—Federal Aniation Administration

Supplemental Type Certificate

Nighter SA00819SE

This certificate, issued to

Visual Instruments, Inc. 33120 N. Hwy. 99W McMinnville, OR 97128

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

Original Product - Type Certificate Number:

Make:

Model:

*See attached FAA Approved Model List (AML)
No. SA00819SE for list of approved airplane
models and applicable airworthiness regulations.

Description of the Type Design Change: Installation of Visual Instruments flap position indicating system in accordance with Visual Instruments, Inc. Drawings listed on AML SA00819SE, dated July 18, 2000, or later FAA approved revision.

Similations and Conditions. Approval of this change in type design applies to the airplane models listed on the AML only. This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined that the relationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that aircraft. A copy of this certificate, FAA Approved Model List (AML) No. SA00818SE and Airplane Flight Manual Supplement (AFMS) for Visual Instruments Flap Indicating System dated July 18, 2000, or later FAA Approved revision must be maintained as part of the permanent records for the modified aircraft.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

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

Date of application:

May 25, 1999

Date of issuance:

July 18, 2000

Date reissued:

Date amended:

TOM/MSTRATOT

(Signature)

Acting Manager, Séattle Aircraft Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

FAA APPROVED MODEL LIST (AML) NO. SA00819SE

VISUAL INSTRMENTS, INC. FOR FLAP POSITION INDICATOR

ITEM	AIRCRAFT	AIRCRAFT MODEL	ORIGINAL	CEDTIFICATION		ISSUE DATE: July	18, 2000
	MAKE	, and a probable	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA APPROV	AML AMENDMENT DATE	
1.	CESSNA	172F, 172G, 172H, 172I, 172K, 172L, 172M	3A12	FAR 23	Installation Instructions: B-6000-CAW Master Drawing List:	REVISION and DATE Rev D, dated 7/14/00	
2.	CESSNA	182E, 182F, 182G, 182H, 182J, 182K	3A13	CAR 3	B-6000-0000-1 Installation Instructions: B-6000-CAW Master Drawing List:	Rev. C, dated 6/1/00 Rev D, dated 7/14/00	1
3.	CESSNA	205, 205A, 210, 210D, 210E, 210F T210F	3A21	CAR 3	B-6000-0000-1 Installation Instructions: B-6000-CAW Master Drawing List: B-6000-0000-1	Rev. C, dated 6/1/00 Rev D, dated 7/14/00	
	CESSNA	206, P206, P206A, P206B, TP206A, TP206B, TU206A, TU206B, U206, U206A, U206B	A4CE	CAR 3	Installation Instructions: B-6000-CAW Master Drawing List: B-6000-0000-1	Rev. C, dated 6/1/00 Rev D, dated 7/14/00 Rev. C, dated 6/1/00	

FAA Approved:

Acting Manager, Seattle Aircraft

Certification Office

Date: July 18, 2000

FAA APPROVED AIRPLANE FLIGHT MANUAL SUPPLEMENT

For Cessna Model 172F through M, 182E through K ,205, 205A, 206, P206 through P206B, TP206A and B, U206 through U206B, TU206A and B, 210, 210D through F and T210F airplanes.

Registration Number	
Serial Number_	

This supplement must be attached in the FAA approved Airplane Flight Manual (AFM) when the airplane is modified with the Visual Instruments Flap Position Indicator in Accordance with STC SA00819SE. The information contained herein, supplements, or supercedes the basic manual, only in those areas listed in this supplement. For limitations, procedures and performance not contained in this supplement, consult the Basic AFM

FAA Approved: 🔏

Lester H. Berven

Manager, Flight Test Branch

Seattle Aircraft Certification Office

Renton, Washington 98055

Dated: July 18, 2000

Visual Instruments Inc. 3120 North Hwy. 99W McMinnville, Oregon 97128

General

The Visual Instrument Flap Position Indicator is an electronic indicator utilizing an LED bar graph display to show the position of the wing flaps. The indicator replaces the original flap indicator and is located in the same position on the instrument panel. The LED bar graph on the display instrument is comprised of 9 LED's arranged vertically. The top LED is illuminated when power is supplied to the instrument from the main bus. The second LED is illuminated as the flaps move to the 5 degree position and each succeeding LED illuminates with each additional 5 degrees of flap position, until all 9 LED's are illuminated at the 40 degree position.

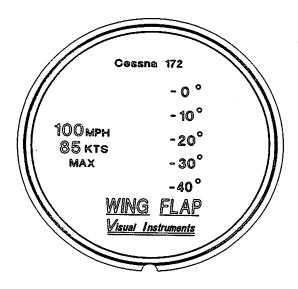
The indicator incorporates an auto dimmer circuit which reduces the brightness of the LED display when the natural light in the cockpit is reduced during night or IFR operations.

FAA Approved: Donalob, Whom

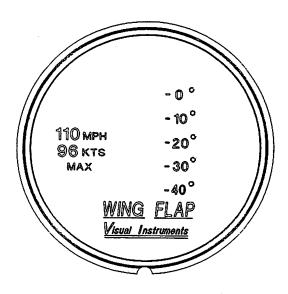
Dated: July 18, 2000

Visual Instruments Inc. 3120 North Hwy. 99W McMinnville, Oregon 97128

LIMITATIONS



Placard CESSNA 172



Placard CESSNA 182, 205, 206, 210

FAA Approved: Donal B. Wilson

Dated: July 18, 2000

Visual Instruments Flap Position Indicator Installation Instructions Instructions for Continued Airworthiness

a. DESCRIPTION

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- **b. INSTALLATION AND RIGGING**
- c. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
- d. TROUBLESHOOTING

a. Description

The Visual Instrument Flap Position Indicator is an electronic indicator utilizing an LED bar graph display to show the position of the wing flaps. The display instrument is similar in size to the OEM instrument and uses the original mounting position and hardware. The flap position transmitter is also similar to the OEM transmitter and is mounted in the right wing using the same mounting bracket and hardware. The electrical wiring for the unit uses existing wiring in the airframe. The LED bar graph on the display instrument is comprised of 9 LED's arranged vertically. The top LED is illuminated when power is supplied to the instrument from the main bus. The second LED is illuminated as the flaps move to the 5 degree position and each succeeding LED illuminates with each additional 5 degrees of flap application, until all 9 LED's are illuminated at the 40 degree position.

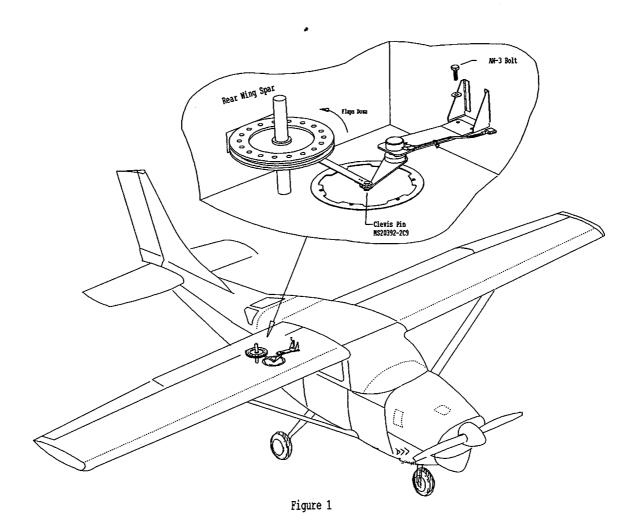
b. Installation and Rigging

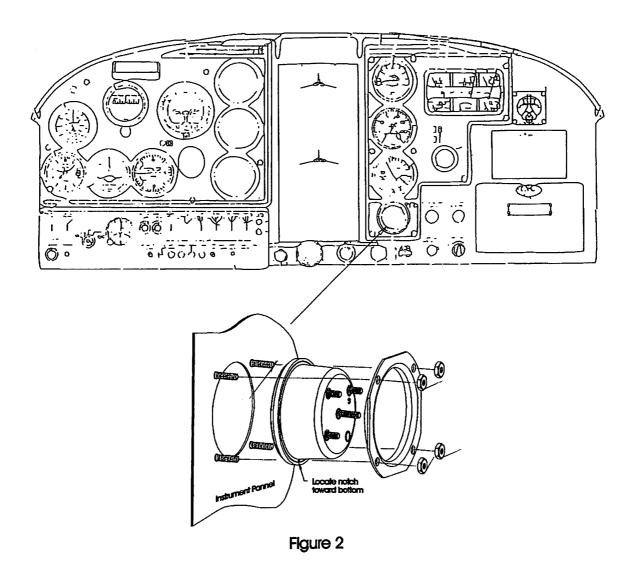
Please read before installing and wiring your new flap indicating system. Cessna used two different flap indicating systems during the manufacture of aircraft to which this STC is applicable. One system used two wires from the position transmitter to the indicator the other used only one. Even if the system you removed used only one wire there may be two wires installed in the airframe. It is preferred that two wires be used with the Visual Instrument system but if only one is available the airframe can be used as a ground between the transmitter and indicator. Check your airframe to determine if one or two wires are available then check continuity of the wires with an ohmmeter. Refer to figure 1 while performing the transmitter Installation.

Installation of Transmitter

- 1. Disconnect aircraft battery.
- 2. Remove flap transmitter access panel from right wing.
- 3. Remove courtesy light, on aircraft so equipped.
- 4. Remove cotter pin from clevis pin and remove clevis pin from transmitter arm.
- 5. Remove two 3/16 bolts holding transmitter to bracket on wing rib. Disconnect wire(s) and remove transmitter from wing.
- 6. Install the new transmitter assembly to the wing rib bracket using the 3/16 bolts just removed. If your installation is only using one wire from the transmitter to the indicator leave one bolt finger tight.
- 7. Attach the new transmitter arm to flap pulley arm using the clevis pin removed in step 3 and a new cotter pin.
- 8. Attach the large end of the transmitter arm and retaining washer to the potentiometer spindle using 6-32 socket head cap screws and lock washers (supplied). Do not tighten screws at this time.
- 9. If using two wires, remove factory terminals from airframe wires and install a male blade terminal on one wire and a female blade terminal on the other wire. Connect airframe wires to transmitter lead wires.

Visual Instruments Inc. 4201 Riverside Drive. McMinnville, OR 97128 503-472-3350 10. If using one wire, remove factory terminal from the airframe wire and install a male (Scotch Lok) terminal on the wire. Connect airframe wire to the transmitter lead wire. Remove the other Scotch Lok connector from the transmitter and install a #10 ring terminal. Install this ring terminal under the mounting bolt left finger tight in step 6. Tighten bolt.





Refer to Figure 2 while performing the indicator installation on 200 series Cessna's

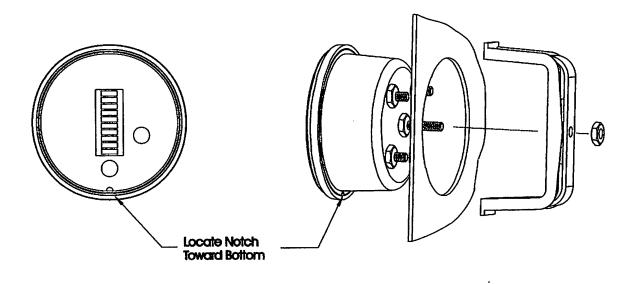


Figure 3

Refer to Figure 3 while performing the indicator installation on 100 series Cessna's

Installation of Indicator

- 11. Gain access to rear of indicator and remove wires.
- 12. Remove 4 nuts holding retaining ring and indicator (Cessna 200 series)
- 12a.Remove one or two nuts from the back of the indicator and remove the retaining bracket (Cessna 100 series)
- 13. Remove indicator.
- 14. Position the new indicator using retaining ring and nuts just removed. Do not tighten nuts. (Cessna 200 series) see figure 2
- 14a. position the new indicator using the 3000-2300 Retaining Bracket and nylon insert stop nut supplied with the unit. Do not tighten the nut. (Cessna 100 series) see figure 3

NOTE: indicator will have to be removed after rigging to apply label

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- 15. Using voltmeter, locate and verify airframe power wire. Wire may be marked DB1, DB7 or DB11. Attach this wire to + terminal on new indicator.
- 16. Using ohmmeter, locate and verify airframe ground wire. Wire may be marked DB6 or DB10. Attach this wire to terminal on new indicator.
- 17. To the S terminal of the new indicator, attach airframe signal wire DB5. On aircraft having a two wire system, connect the DB2 wire to the terminal of indicator. On these aircraft there will be two wires connected to the terminal. Refer to Drawings B-6000-0700 and B-6000-0800.

Rigging

- 18. Reconnect battery and turn master switch on. Verify that at least the top LED is lit. If no LED's are lit, turn master off and recheck wiring.
- 19. Extend flaps to flaps to the 5 degrees position. Use a protractor to confirm flap position.
- 20. At transmitter, rotate retaining washer until only the top LED is lit. Rotate the washer the opposite direction until the second LED is lit. Tighten 3 sender assembly retaining screws.
- 21. Extend flaps to the full-down position, then retract 1 degree.
- 22. Using a small screwdriver inserted in the bottom hole of the indicator face, adjust trim pot until the second from bottom LED just lights up.

 Note the bottom LED is not used.

Note. For Cessna 172 with 180hp conversion and 30 degree max travel on flaps.

Adjust trim pot until the forth from bottom LED just lights up. Note the bottom 3 LED's will not be used

- 23. Retract flaps fully. Verify only top LED is lit. Extend flaps to full-down position and verify that 9 LED's are lit. If 9 are not lit repeat steps 18 through 23.
- 24. Remove indicator from panel, and apply applicable self-adhesive label to front. Reinstall indicator, tighten nuts and secure wires. Remove thin protective film from the face of the label. On 100 series Cessna's use the nylon insert stop nut to install the retaining bracket.

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- 25. Reinstall the courtesy light on aircraft so equipped. Reinstall wing access cover.
- 26. Make appropriate entry in aircraft maintenance log. Complete enclosed FAA Form 337 and file with your local FSDO. Insert flight manual supplement in aircraft POH.

c. Instructions for Continued Airworthiness

This product requires no maintenance other than that specified in the Cessna maintenance manual for this system.

d Troubleshooting

1. No LED's lit in any flap position.

Check circuit breaker and reset if necessary.

Check for power to the back of the instrument.

Check ground wire on back of the instrument.

2. LED's do not correspond to actual flap position.

Check mechanical connection between transmitter and flap control arm or pulley.

Check security of transmitter on bracket.

Check rigging of transmitter (see installation and rigging instructions).

Check signal wire from indicator to transmitter for a short to ground.

3. One or more LED's do not illuminate.

If lower LED's do not illuminate check rigging of transmitter If one or more LED's are not lit with others lit below it, replace indicator. Check signal wire from indicator to transmitter for open circuit.

7

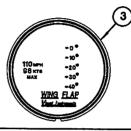
NOTES: (UNLESS OTHERWISE SPECIFIED)

 Both labels are included with all units. The user will install the appropriate label.

2. Eligibility Tag (6000-0050-15) (not show	n) 1

	B-6	000-0050-1	
SYH	REVISIONS	APPROVED	DATE
Е	Corrected Illistration on item 16 PCO 2000-9	SAM	12-19-00

Portland Screw





6000-0600

Cessna models 182 E-G Cessna models 205 - 205A Cessna model 206 Cessna models P206-P2068, TP206A, TP2068

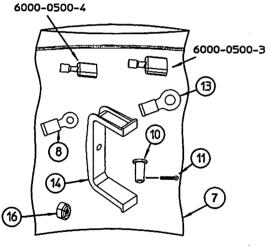
6-32 Nylon Stop Nut 18-8 stainless

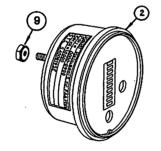
Cessna models U206-U2068, TU206A, TU2068 Cessna models 210-210D-F, T210F

6000-	0610						
Casera 172	modelo	EM					

06NS188

6000-0050-16





15	1	Eligibility Tag			6000-0050-15
14	1	Retaining Bracket	Huston Plastics	3000-2300	3000-2300
13	1	Ring terminal #10 22-18 AWG	Dgi-Key	920010-03-ND	6000-0050-13
12	1 ea	B-6000-CAW, AFHS, B-6000-0500-1, B-6000-0700-1, B	6000-0800-1, B-6000-0	0050	Noted
11	1	Cotter Pin 1/16*	Columbia Airmotive	MS 24665-132	6000-0050-11
10	1	Clivie Pin 3/16 dia MS 20392-209	Columbia Almotive	MS 20392-2C9	6000-0050-10
9	3	6-32 Keps Nut 1/4 A.F 18-8 SS	Portland Screw		6000-0050-9
8	3	Ring terminal #6 22-18 AWG	Dgi-Key	920010-01-ND	6000-0050-8
7	1	Poly Bag, re-closable 4X6	Uline	S-1294	6000-0050-7
	1	Terminal 3M Hale .187 wide 22-18 AWS	Dgl-Key	920046-01-ND	6000-0500-3
	1	Terminal 3H FeHale .187 wide 22-18 AWG	Dgi-Key	920044-01-ND	6000-0500-4
4	1	Label Ceesna 172	Precision Printing		6000-0610-1
3	1	Label Cessna 162, 205, 206, 210	Precision Printing		6000-0600-1
2	1	Display Assembly			6000-0900
1	1	Sender Assembly			6000-0500
ITEH	aty.	PART/MATERIAL-DESCRIPTION	Vendor	Vendor Part Number	Vieual Part Number
Stove	Mah	00/22/00			

SHEET

Poly Bog, re-cloeable 2X3

THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS VISUAL INSTRUMENTS (VI) PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY VI.

DMENSIONS ARE IN INCHES
 THRO ANGLE PROJECTION
 TOLERANCES
 JOGG.02
 JOGG.005
 DO NOT SCALE THIS DRAWING

UNLESS OTHERWISE SPECIFED

Steve Mahoney
DATE

Steve Mahoney
Steve Mahoney
ENGNEER/CHECKER

O9/22/99

Top Level
Assembly

MILE

O9/22/99

SCALE

Visual Instruments Inc 6000-0050

B-6000-0050-1

NOTES: (UNLESS OTHERWISE SPECIFIED) 1. Torque all 6-32 cap screws (Item 13) 8-12 inch-lbs 2. Torque 6-32 set screw (Item 12) to 6-10 inch-lbs 3. Postion spindle (Item 11) so that it is flush to .04" from the end of the Potentiometer shaft. 4. Length of wires, Item 15, are 11° before stripping.

See note 3

.04 Max →

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NOT DISCLOSE TO OR DUPLICATE FOR

PROPRIETARY INFORMATION THAT IS

UNLESS OTHERWISE SPECIFIED

DHENSIONS ARE IN INCHES

THRO ANGLE PROJECTION

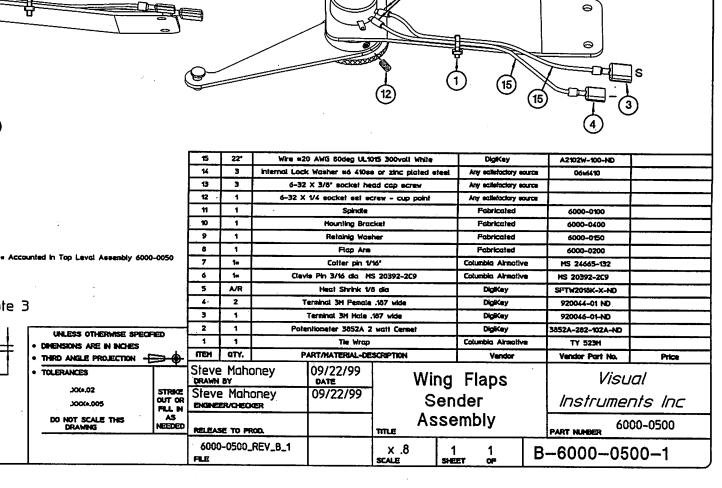
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DO NOT SCALE THIS DRAWING

TOLERANCES

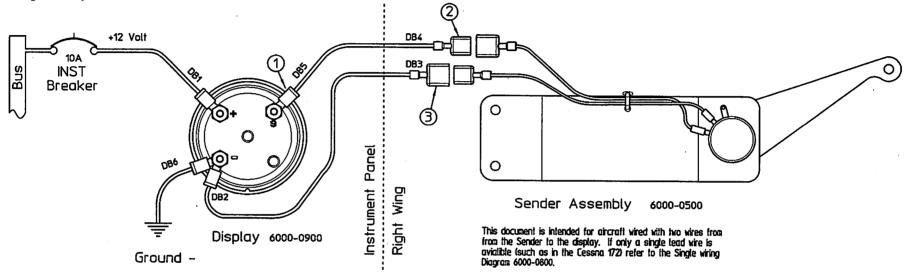
	B-	6000-0500-1	
SYH	REVISIONS	APPROVED	DATE
В	PCO #2000-1 Item 9 Retaining washer part	SAM	04/03/00
	number 6000-0150 was 6000-0300		

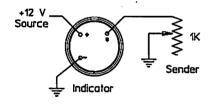


NOTES: (UNLESS OTHERWISE SPECIFIED)

- 1. At 4.9 deg flaps the 1K sender is mechanicaly set such that the 5 deg LED is barely off
- 2. At 39 deg Flaps the trin pot is adjusted so that the 40 deg led is barely on.

		B-6000-0700-1	
SYM	REVISIONS	APPROVED	DATE
В	Corrected illistration PCO 2000-8	SAM	10/10/00



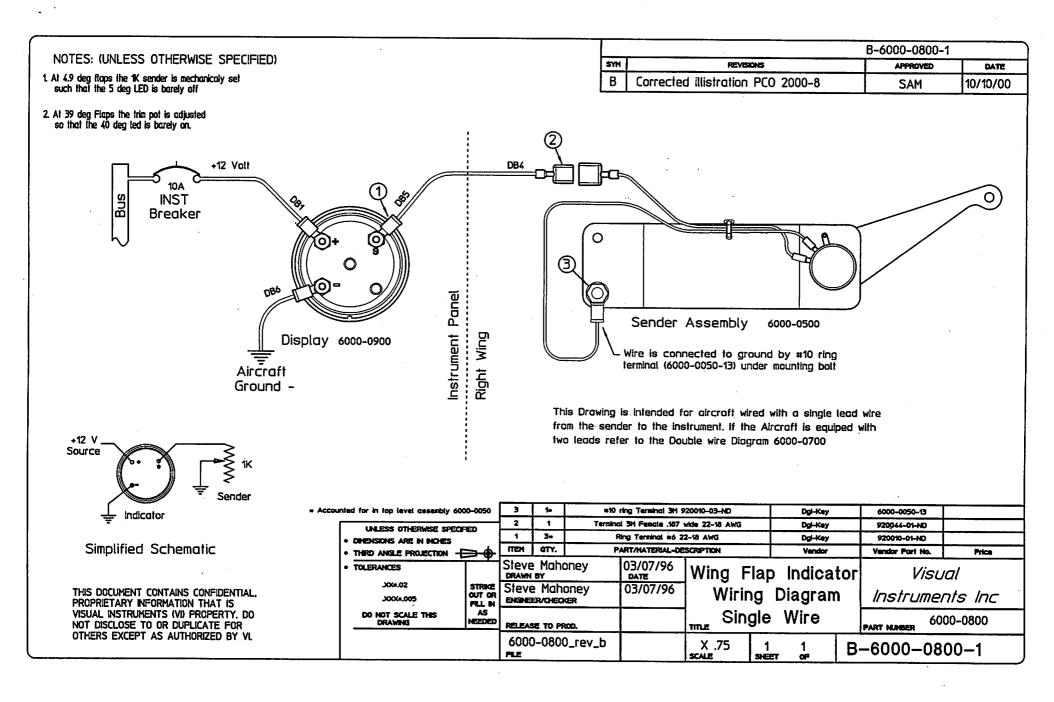


Simplified Schematic

THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS VISUAL INSTRUMENTS (VI) PROPERTY, DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY VI.

- Accounted for in top level assembly 6000-0050

CCOL	nited for in top level desembly 6000-0050		<u> </u>	Terminal SM Male .167 wide 22-18 AWG			Dgl-Key		920046-01-ND		
1	UNLESS OTHERWISE SPECIFIED	2	1	Terminal	3H Female .187	wide 22-18 AWG		Dgi-Key		920044-01-ND	
	DIMENSIONS ARE IN INCHES 1 4# Ring Terminal #6 22			2-18 AWG		Dgl-Key	1.	920010-01-ND			
	. THRO ANGLE PROJECTION -	ПЕН	QTY.	PA	RT/MATERIAL-DE	SCRIPTION		Vendor		Vendor Port No.	Price
	• TOLERANCES	Steve	Mahoney BY	9 03/07/96 Wing Flap Indicat				tor	Visual		
	JOGG.005 STRICE OUT OR FILL IN		e Mahone; er/oneoker	ey 03/07/96 Wiring Diagram		١	Instrumei	nts Inc			
	DO NOT SCALE THIS AS NEEDED	RELEA:	SE TO PROD.			_{™LE} Dou	ıble	Wire		PART NUMBER 60	00-0700
		6000 FILE	0-0700_re	ev_b		X .75	1 SHEET	1 of	В	-6000-07	00–1



N375111K 21058252

South Tex Trenders Inc Po Box 60480 M T 79711-0480

U.S. Department of Transportation

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

Form	Approved
OMB	No.2120-0020

Office Identification

For FAA Use Only

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 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) Model Make 1. Aircraft **CESSNA** 210D Serial No. Nationality and Registration Mark 21058252 N375MK Address (As shown on registration certificate) Name (As shown on registration certificate) 2. Owner P.O. BOX 60480 SOUTH TEX TREATERS INC MIDLAND TX 79711-0480 3. For FAA Use Only 5. Type 4. Unit Identification Serial No. Repair Alteration Unit Make Model X AIRFRAME ---- (As described in item 1 above)---**POWERPLANT PROPELLER** Type **APPLIANCE** Manufacturer 6. Conformity Statement C. Certificate No. A. Agency's Name and Address B. Kind of Agency U.S. Certificated Mechanic A&P 1920045 **LLOYD E MUNOZ AERO MOD SERVICE** Foreign Certificated Mechanic P.O. BOX 60314 Certificated Repair Station MIDLAND, TEXAS 79711 Manufacturer D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge. Signature of Authorized Individual 13 APR 05 LLOYD E MUNOZ 7. Approval for Return To Service Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED Other (Specify) FAA Fit. Standards Inspection Authorization Manufacturer Inspector BY

Person Appoved by Transport

Canada Airworthiness Group

Signature of Authorized Individual

LLOYD E MUNOZ

Repair Station

1920045

Certificate or Designation No.

Date of Approval or Rejection

FAA Designee

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.)
TACH 5080.39
Replaced belly skin P/N 1210701-2 and belly doubler P/N 1210701-5 between FS 26 and FS 82. Manufactured P/N1210401-8 and -9 landing gear leg cutout reinforcement doublers (Cessna Customer Service provided material information) and installed. Replaced P/N 190-356-14-1 and -2 air deflectors forward of main landing gear well. Left and right exhaust tail pipes repaired/overhauled by Knisley Exhaust Systems RS#NJ3R712L and installed with new clamps P/N120259-1 (2 ea.) and new support assemblies P/N 1250258-1 (4 ea.). Replaced DME, ADF, transponder, and marker beacon antennas.
Reference:
Cessna Maintenance Manual Section 19 (structural repair) Para 19-57 thru 19-61 (fuselage) and Para 19-61 thru 19-63 (bulkheads).
Continued Airworthiness:
Maintenance and inspection to be complied with in accordance with Cessna scheduled inspection program.

Additional Sheets Are Attatched

V

U.S. Department

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

Form	Approved
OMB	No.2120-0020

For FAA Use Only

Federal Adminis	Aviation tration	ere alle i lige delle.		See		•			er en en		noe ide	inuncadori	ere er i de we i Organisa e er
instruc	tions and	S: Print or type a I disposition of the for each such vio	is fon	m. This report is	required t	by la	aw (49 U.S.C.	nd AC 4 1421).	43.9-1 (or Failure to	subsequent report can	revisio result i	n thereof) for n a civil penal	ty not to
	rcraft	Make Cessna			•			Model 210D					•
i		Serial No. 21058252							nality and Re	gistration Ma	k		
2. O	wner	Name (As sho South-Tex T	wn on reater	registration certific S	•	1	Turkus da	P.O.	Box 60480	n on registrat 711-0480	on certif	icate)	
					3. F	or I	FAA Use Only	·					
; ; ;		•							•		1		
			. ÷	4. Un	t Identific							5. T	уре
; :	Unit		Make	•			Model		8	Serial No.		Repair	Alteration
AIRFR	AME			(<i>F</i>	ls describe		ı item 1 above)					x
POWE	RPLANT	Teledy	Teledyne Continental			Ю	520 A1B	112656-R					х
PROP	ELLER												
APPLI/	ANCE	Type Manufacturer											
:					6. Co	nfor	mity Stateme	ent					
A. Ag	ency's N	ame and Addres	s			<u> </u>	B. Kind of A				C. C	ertificate No.	
	d D. Wall 30x 15101	•••				X	U.S. Certificated Foreign Certificated				21576	52487	
Odess	sa, Tx. 79	768-5101				\vdash	Certificated Reg						
							Manufacturer						
, he	ereto have	t the repair and/o been made in a furnished herein	ccord	lance with the re	quirement the best o	s of of m	Part 43 of the y knowledge.	U.S. F	ederal Avi				nts
Date 7-11-0	11				Sig	nati	res of Authoriza	,	1 1/1/				
					7. Appro	val f	or Return To						
		to the authority nistrator of the F						item 4	4 was insp	ected in the		er prescribed	by
BY	FA	A Fit. Standards pector		Manufacturer		X	Inspection A		zation	Other (S _i			
	F	VA Designee		Repair Station			Person Appove Canada Airwoi	ed by Ti rthiness	ransport Group		a		
Date o	f Approv	al or Rejection		Certificate or Des	signation No	•]	Signature			lividual //	_		
7-11-0	1			215762487			1/1	И,	XI. h	سامرر ا	<u>ာ</u>		

NOTICE

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

8. Description of Work Accomplished. (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)
A. The following components were installed:
PRECISE FLIGHT STANDBY VACUUM SYSTEM, MODEL SVS V, P/N 04055.
Installation performed in accordance with Engine STC SE1780NM and STC SA2162NM.
B. The unit was installed on the forward side of the left hand firewall according to instructions in the PRECISE FLIGHT INSTALLATION MANUAL STANDBY VACUUM SYSTEM MODEL SVS V, P/N 08072 dated 12/22/99, and guidance in FAA Advisory Circulars 43.13.1B, chapter 11, and 43.13 2A, chapter 1 & 2.
C. Complete ground and flight operational tests were performed according to instructions in the PRECISE FLIGHT STANDBY VACUUM SYSTEM MODEL SVS V INSTALLATION MANUAL P/N 08072 dated 12/22/99. The equipment performed satisfactorily and did not adversely affect existing components or systems in the aircraft, as required by FAR 23.1301, FAR 23.1431. The operating placard was filled out and placed on the aircraft instrument panel next to the control cable.
D. The aircraft equipment list was revised to reflect these changes; weight and balance data was revised and placed in the aircraft records. A Precise Flight Inc. Standby Vacuum System Aircraft Flight Manual Supplement was placed in the aircraft.

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Additional Sheets Are Attached

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number SE1780NM

This certificate, issued to

Precise Flight, Inc. 63120 Powell Butte Rd. Bend, OR 97701

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 33 of the Federal Aviation Regulations.

Original Product—Type Certificate Number:

Make:

*See attached FAA Approved Model List (AML)
No. SE1780NM for list of approved airplane models

and applicable airworthiness regulations

Description of the Type Design Change: Installation of Precise Flight, Inc. Standby Vacuum System SVS III, in accordance with Engineering Drawing 000V0000, Revision -, dated March 10, 2000, and Installation Report No. 50050, Revision 25, dated August 26, 1999, or later approved revision. Or Installation of Precise Flight, Inc. SVS V, in accordance with Precise Flight, Inc. Engineering Drawing 000V0000, Revision -, dated March 10, 2000 and Installation Instructions 08072, Revision -, dated December 12, 1999, or later FAA approved revision. Or Installation of Precise Flight Inc. SVS VI, in accordance with Precise Flight, Inc. Installation manual 08074, dated January 7, 2000, or later FAA approved revision.

Limitations and Conditions. Approval of this change in type design applies to the above model aircraft only. This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined by the installer that the relationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that aircraft. A copy of this certificate, Continuation Sheet, and FAA approved AML No. SE1780NM, dated May 28, 1991, or later FAA approved revision, must be maintained as part of the permanent records for the modified aircraft.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

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

Date of application:

December 13, 1982

Date of issuance:

December 28, 1982

Date reissued

Date amended:

December 30, 1983; January 31, 1985;

July 22, 1988; July 25, 1990;

January 31, /1991; April 21, 2000

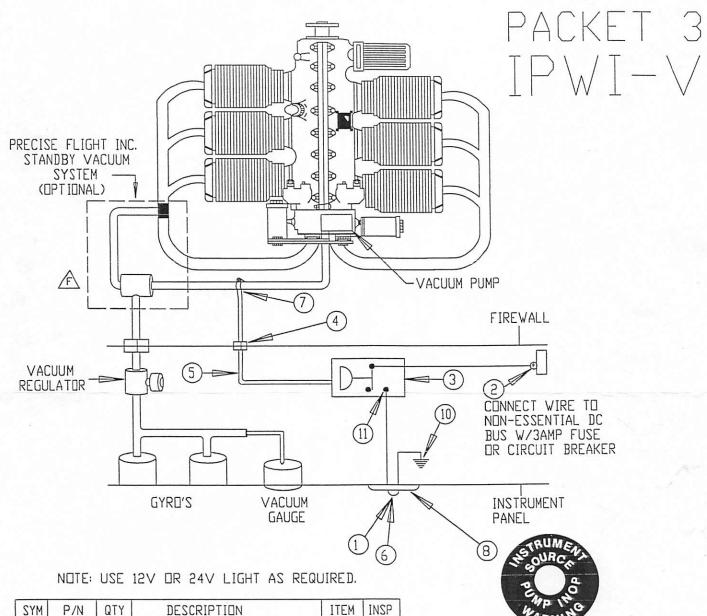
TOMMISTRATION

Acting Manager, Seattle Aircraft Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

F	DELETE ITEM 9: HEAT SHRINK TUBING	DJC 12/02/99	BDL 12/02/99	STP 12/02/99
G	CORRECT SHUTTLE VALVE DIAGRAM	DJC 01/11/00	SMG 01/11/00	STP 01/11/00



MYZ	P/N	QTY	DESCRIPTION	ITEM PACK	INSP
1	30010	1	LIGHT ASSEMBLY 24V		
5	30020	1	WIRE CONNECTOR		
3	30030	1	SWITCH		
4	00687	- 1	BULKHEAD FITTING		
5	30050	1	HOSE		
6	01887	1	LIGHT 12V		
7	30070	1	HOSE TAP		
8	30080	1	PLACARD		
9		1-			
10	02052	1	RING TERMINAL		
11	30010-5	1	SLIP ON TERMINAL(FEMALE)		
		1	INSTALLATION INSTRUCTIONS		

	PRECISE 63120 POWELL BEND, OREGON	BUTTE ROAD	T, INC.	
TITLE:	INSTRUMENT WARNING IND		NOP	
DWG.NO. DRAWN CHECKED APPRVD.	IPWI-1-V DLP CGL CGL	DATE DATE DATE	8-9-90 8-9-90 8-9-90	REV:

FAA APPROVED MODEL LIST NO. SE1780NM

PRECISE FLIGHT STANDBY VACUUM SYSTEM (SVS)

LIST OF ACTIVE PAGES

PAGE	AMMENDMENT	DATE
2	12/28/82	
3	07/21/88	
4	04/01/91	
5	04/11/83	

FAA APPROVED: Acting Manager, Special Certification Branch Seattle Aircraft Certification Office

Amendment Date:

PAGE 1 OF 5

PRECISE FLIGHT

FAA APPROVED MODEL LIST (AML) NO. SE1780NM

FOR

INSTALLATION OF STANDBY VACUUM SYSTEM (SVS)

Issue Date: December 28, 1982

·					·			
ITEM	ENGINE MAKE	ENGINE MODEL	ORIGINAL TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA APPROVED DRAWING NO.	REVISION NO. AND DATE	AFM SUPPLEMENT NUMBER/DATE	AML AMENDMENT DATE
1	TELEDYNE CONTINENTAL	A-65 Series	E-205	CAR 13	Cont. SVS			
2		A70,-2	ATC 32	CAR 13	Cont. SVS			
3		A75	E-213	CAR 13	Cont. SVS 0010		·	
4		A80	217	CAR 13	Cont. SVS 0010			
5		A-100	E-241	CAR 13	Cont. SVS 0010	,		
6		C-75	E-233	CAR 13	Cont. SVS 0010			
7	·	C-90, 0-200	E-252	CAR 13	Cont. SVS 0010			
8		C-115, C-125	E-236	CAR 13	Cont. SVS 0010			
9		C-145, 0-300	E-253	CAR 13	Cont. SVS 0010			
				DACE 9 OF 5				

PAGE 2 OF 5

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FAA APPROVED MODEL LIST (AML) NO. SE1780NM

FOR

INSTALLATION OF STANDBY VACUUM SYSTEM (SVS)

Issue Date: December 28, 1982

ITEM	ENGINE MAKE	ENGINE MODEL	ORIGINAL TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA APPROVED DRAWING NO.	REVISION NO. AND DATE	AFM SUPPLEMENT NUMBER/DATE	AMI AMENDMENT DATE
10	TELEDYNE CONTINENTAL	E-165 E-185	E-246	CAR 13	Cont. SVS			
11		E-225	E-267	CAR 13	Cont. SVS 0010		:	
12		GO-300	E-298	CAR 13	Cont. SVS 0010			
13		10-346	E-3CE	CAR 13	Cont. SVS			
14		TS10-360 LTS10-360	E9CE	CAR 13	Cont. SVS	,		04/11/83
15	i	G10-470-A	E2CE	CAR 13	Cont. SVS 0010			
16		0-470	E-269	CAR 13	Cont. SVS			
17		0-470	E-273	CAR 13	Cont. SVS			07/21/88
18		10-470	3E1	CAR 13	Cont. SVS			

PAGE 3 OF 5

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FAA APPROVED MODEL LIST (AML) NO. SE1780NM

FOR

INSTALLATION OF STANDBY VACUUM SYSTEM (SVS)

Issue Date: December 28, 1982

4 4								
ITEM	ENGINE MAKE	ENGINE MODEL	ORIGINAL TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA APPROVED DRAWING NO.	REVISION NO. AND DATE	AFM SUPPLEMENT NUMBER/DATE	AML AMENDMENT DATE
19	TELEDYNE CONTINENTAL	10-550	E3SO	FAR 33	Cont. SVS 0010			04/01/91
20		FSO-470	E-281	CAR 13	Cont.SVS 0010	·		
21		TS10-470	3E3	CAR 13	Cont. SVS 0010			
22		10-520	E5CE	CAR 13	Cont.SVS 0010			
23		FSO-526	E-292	CAR 13	Cont. SVS 0010			·
24		GSO-526-A	E-303	CAR 13	Cont. SVS 0010		·	
25		GTS10-520	E7CE	CAR 13	Cont. SVS 0010			
26		TS10-520	E8CE	CAR 13	Cont. SVS 0010			
27		6-260-A	E11CE	FAR 33	Cont. SVS 0010			
				2.02				

PAGE 4 OF 5

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THECTOR PRIME

FAA APPROVED MODEL LIST (AML) NO. SE1780NM

FOR

INSTALLATION OF STANDBY VACUUM SYSTEM (SVS)

Issue Date: December 28, 1982

ITEM	ENGINE MAKE	ENGINE MODEL	ORIGINAL TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA PROVED DRAWING NO.	REVISION NO. AND DATE	AFM SUPPLEMENT NUMBER/DATE	AML AMENDMET DATE
28	TELEDYNE CONTINENTAL	6-285	E12CE	FAR 33	Cont. SVS 0010			
29		6-320-B	E1SO	FAR 33	Cont. SVS 0010			
30		T6-320-A	E2SO	FAR 33	Cont. SVS 0010			
31		10-360	E1CE	FAR 33	Cont. svs			04/11/83
·					,			
		· · · · · · · · · · · · · · · · · · ·		DAGE E OF E				

PAGE 5 OF 5

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number SA2162NM

This certificate, issued to

Precise Flight, Inc. 63120 Powell Butte Rd. Bend, OR 97701

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

Original Product—Type Certificate Number:

*See attached FAA Approved Model List (AML)
No. SA2162NM for list of approved airplane models

Model:

and applicable airworthiness regulations

Description of the Type Design Change: Installation of Precise Flight, Inc. Stand-By Vacuum System (SVS) in accordance with the appropriate Precise Flight, Inc. Engineering Drawing listed on FAA Approved Model List No. SA2162NM, dated April 14, 2000, or later FAA approved revision.

NOTE: As a prerequisite to this change, the lengine must be modified in accordance with Precise Flight, Inc. STC No. SE1779NM or SE1780NM, dated December 28, 1982, or later FAA approved revision. Also, modified aircraft must be equipped with a vacuum indicator.

Limitations and Conditions. Approval of this change in type design applies to the above model aircraft only. This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined by the installer that the relationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that aircraft. A copy of this certificate, AML No. SA2162NM and the appropriate FAA Approved Flight Manual Supplement (AFMS) listed on AML No. SA2162NM must be maintained as part of the permanent records for the modified aircraft.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

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

Date of application: Date of issuance: October 31, 1983

November 7, 1983

Date reissued:

Date amended:

December 16, 1983; December 7, 1984;

July 25, 1990; April 14, 2000



Acting Manager, Seattle Aircraft Certification Office

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

FAA APPROVED MODEL LIST NO. SA2162NM PRECISE FLIGHT STANDBY VACUUM SYSTEM LIST OF ACTIVE PAGES

PAGE	AMENDMENT DATE
2	April 14, 2000
3	April 14, 2000
4	April 14, 2000
5	April 14, 2000
6	April 14, 2000
7	April 14, 2000
8	April 14, 2000
9	April 14, 2000
10	April 14, 2000
11	April 14, 2000

AMENDED DATE: April 14, 2000

FAA Approved:

Acting Marager, Seattle Aircraft Certification Office

For INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

		Original			FAA Approved Airplane FAA Approved Drawing*			T
			Туре	Certification	Flight Manual	1		
	Aircraft	Aircraft	Certificate	Basis for	Supplement*			AML Amdt.
Item	Make	Model	Number	Alteration		Number	. REV	Date
1	Cessna	120, 140	A768	CAR 4a	Supplemental Flight	SVS III Engineering Drawing		4/14/2000
				Ì	Manual for SA2162NM	000\0000	Rev, dated 3/10/2000	
					dated 8/11/99. (SVS III)	And	1	
	L					Installation Report No. 50050	Rev. 25, dated 8/26/99	
2	Cessna	120, 140	A768	CAR 4a	Supplemental Flight	SVS V Engineering Drawing		4/14/2000
			İ		Manual for Push	000∨0000	Rev, dated 3/10/2000	
					Operated Cable Valve	And		
	·		1		dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999	
					OR			
			İ		Supplemental Flight			1
					Manual for Pull			
					Operated Cable Valve			
					dated 2/4/2000. (SVS V)			
3	Cessna	140A	5A2	CAR 3,	Supplemental Flight	SVS III Engineering Drawing		4/14/2000
				(CAR 4a)	Manual for SA2162NM	0000000	Rev, dated 3/10/2000	
					dated 8/11/99. (SVS III)	And]
						Installation Report No. 50050	Rev. 25, dated 8/26/99	
4	Cessna	140A	5A2	CAR 3,	Supplemental Flight	SVS V Engineering Drawing		4/14/2000
			1	(CAR 4a)	Manual for Push	000V0000	Rev, dated 3/10/2000	j
			1		Operated Cable Valve	And		
			1		dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999	
					OR			[
					Supplemental Flight			
					Manual for Pull			
					Operated Cable Valve			
<u> </u>					dated 2/4/2000. (SVS V)			

^{*} or later FAA Approved Revision

For INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

					Y		133de Date. May 25, 13e	
			Original		FAA Approved Airplane	FAA Approved	d Drawing*	
			Type	Certification	Flight Manual			AML
	Aircraft	Aircraft	Certificate	Basis for	Supplement*			Amdt.
Item	Make	Model	Number	Alteration	Cappionion	Number	REV	Date
							KEV	
5	Cessna	150, 150A,	3A19	CAR Part 3	Supplemental Flight	SVS III Engineering Drawing		4/14/2000
		150B, 150C,	ì		Manual for SA2162NM	0000000	Rev, dated 3/10/2000	
		150D, 150E,	ł		dated 8/11/99. (SVS III)	And		
		150F, 150G,			, , ,	Installation Report No. 50050	Rev. 25, dated 8/26/99	
1		150H, 150J,				·		
1		150K, 150L,						
		A150L, 150M,						
		152, A152,						
		A150K, 150M		·				
6	Cessna	150, 150A,	3A19	CAR Part 3	Supplemental Flight	SVS V Engineering Drawing		4/14/2000
1		150B, 150C,			Manual for Push	000\0000	Rev, dated 3/10/2000	
1		150D, 150E,			Operated Cable Valve	And		
1		150F, 150G,			dated 2/4/2000. (SVS V)	Installation Report No. 08074	Rev, dated 12/22/1999	
Ì		150H, 150J,	İ		OR .	·	1	
		150K, 150L,	İ		Supplemental Flight			
İ		A150L, 150M,			Manual for Pull			
		152, A152,			Operated Cable Valve			
l		A150K, 150M			dated 2/4/2000. (SVS V)			

^{*} or later FAA Approved Revision

For

INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

		r					Issue Date: May 23, 198	00
			Original		FAA Approved Airplane	FAA Approved	Drawing*	
			Туре	Certification	Flight Manual		•	AML
	Aircraft	Aircraft	Certificate	Basis for	Supplement*			Amdt.
Item	Make	Model	Number	Alteration		Number	REV	Date
7	Cessna	170, 170A, 170B	A799	CAR Part 3	Supplemental Flight	SVS III Engineering Drawing		4/14/2000
					Manual for SA2162NM	000\0000	Rev, dated 3/10/2000	1 11/2000
					dated 8/11/99. (SVS III)	And	1101: , dated 6/10/2000	
1						Installation Report No. 50050	Rev. 25, dated 8/26/99	
8	Cessna	170,170A, 170B	A799	CAR Part 3	Supplemental Flight	SVS V Engineering Drawing	1(ev. 25, dated 6/20/99	4/14/2000
"	0000114	170,11071, 1705	/ 1100	or in the direction	Manual for Push	000V0000	Pay dated 3/10/2000	4/14/2000
					Operated Cable Valve	And	Rev, dated 3/10/2000	
1					dated 2/4/2000. (SVS V)	Installation Report No. 08072	Boy detect 12/22/1000	
					OR	Installation Report No. 00072	Rev, dated 12/22/1999	
1					Supplemental Flight			
1	•				Manual for Pull			
					Operated Cable Valve			
					dated 2/4/2000. (SVS V)			
9	Cessna	172, 172A, 172B,	3A12	Part 23	Supplemental Flight	SVS III Engineering Drawing		4/14/2000
1		172C, 172D, 172E,			Manual for SA2162NM	000\0000	Rev, dated 3/10/2000	471472000
		172F, (USAF T-			dated 8/11/99. (SVS III)	And	1101. ; dated 5. 10.2000	i
		41A) 172I, K, L, M,			,	Installation Report No. 50050	Rev. 25, dated 8/26/99	
		N, P, 172Q				motanian report no. 3000	7134. 20, dated 5/25/55	
10	Cessna	172, 172A, 172B,	3A12	Part 23	Supplemental Flight	SVS V Engineering Drawing		4/14/2000
		172C, 172D, 172E,			Manual for Push	000\0000	Rev, dated 3/10/2000	
		172F, (USAF T-			Operated Cable Valve	And	,	
		41A) 172I, K, L, M,			dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999	
		N, P, 172Q			OR		11211, 44104 12,22,1000	
		, ,			Supplemental Flight			
					Manual for Pull			
					Operated Cable Valve			
					dated 2/4/2000. (SVS V)			
	•	L	L				L	

^{*} or later FAA Approved Revision

For INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

			Original	T	T = A A A 1 A: 1	T	issue Date: May 23, 198	56
			Type	Certification	FAA Approved Airplane	FAA Approved	FAA Approved Drawing*	
	Aircraft	Aircraft	Certificate	Basis for	Flight Manual Supplement*	1		AML
Item	Make	Model	Number	Alteration	Supplement	Niverboo	DEV	Amdt.
11	Cessna	175, 175A, 175B,	3A17	CAR Part 3	Cumplemental Flight	Number	REV	Date
''	Ocaana	175C, P172D,	3417	CARPAILS	Supplemental Flight	SVS III Engineering Drawing	5	4/14/2000
		R172E, (USAFT-41B,			Manual for SA2162NM	000V0000	Rev, dated 3/10/2000	
		USAFT41-3,-41D)			dated 8/11/99. (SVS III)	And		
		R172F, (USAFT-41D,			İ	Installation Report No. 50050	Rev. 25, dated 8/26/99	
		-41C) R172G,						
		(USAFT-41D), R172H,						
		(USAFT-41D), R172J,						
		R172K, 172RG						
12	Cessna	175, 175A, 175B,	3A17	CAR Part 3	Supplemental Flight	SVS V Engineering Drawing		4/14/2000
		175C, P172D,			Manual for Push	000\0000	Rev, dated 3/10/2000	
	l	R172E, (USAFT-41B,			Operated Cable Valve	And	,	
		USAFT41-3,-41D)			dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999	ŀ
		R172F, (USAFT-41D,			OR	·	•	1
		-41C) R172G,			Supplemental Flight			1
į		(USAFT-41D), R172H,			Manual for Pull			1
		(USAFT-41D), R172J,			Operated Cable Valve			
10		R172K, 172RG			dated 2/4/2000. (SVS V)			
13	Cessna	177,177A,177B	A13CE	FAR 23	Supplemental Flight	SVS III Engineering Drawing		4/14/2000
					Manual for SA2162NM	000\0000	Rev, dated 3/10/2000	
•		177RG	A20CE		dated 8/11/99. (SVS III)	And		j
144	0	477 4774 4770	44005			Installation Report No. 50050	Rev. 25, dated 8/26/99	
14	Cessna	177, 177A, 177B	A13CE	FAR 23	Supplemental Flight	SVS V Engineering Drawing		4/14/2000
1	1	47700	1000		Manual for Push	000\0000	Rev, dated 3/10/2000	
		177RG	A20CE		Operated Cable Valve	And		
					dated 2/4/2000. (SVS V) OR	Installation Report No. 08072	Rev, dated 12/22/1999	
					Supplemental Flight			
			j		Manual for Pull			
					Operated Cable Valve			
					dated 2/4/2000. (SVS V)			
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^{*} or later FAA Approved Revision

For

INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

			Original	l	<u> </u>	EAA Approved	70	
			Type	Certification	FAA Approved Airplane	FAA Approved Drawing*		AML
1	Aircraft	Aircraft	Certificate	Basis for	Flight Manual			Amdt.
Item	Make	Model	Number	Alteration	Supplement*	Number	REV	Date
15	Cessna	180, 180A, 180B, 180C, 180D, 180E,	5A6	CAR Part 3	Supplemental Flight Manual for SA2162NM	SVS III Engineering Drawing	Rev, dated 3/10/2000	4/14/2000
		180F, 180G, 180H, 180J, 180K			dated 8/11/99. (SVS III)	And Installation Report No. 50050	Rev. 25, dated 8/26/99	
16	Cessna	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	5A6	CAR Part 3	Supplemental Flight Manual for Push Operated Cable Valve dated 2/4/2000. (SVS V)	SVS V Engineering Drawing 000V0000 And Installation Report No. 08072	Rev, dated 3/10/2000 Rev, dated 12/22/1999	4/14/2000
		·			OR Supplemental Flight Manual for Pull Operated Cable Valve dated 2/4/2000. (SVS V)		, dated 12/22/1000	
17	Cessna	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182RG, T182, T182RG, T182R	3A13	CAR Part 3	Supplemental Flight Manual for SA2162NM dated 8/11/99. (SVS III)	SVS III Engineering Drawing 000V0000 And Installation Report No. 50050	Rev, dated 3/10/2000 Rev. 25, dated 8/26/99	4/14/2000
18	Cessna	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182RG, T182, T182RG, T182R	3A13	CAR Part 3	Supplemental Flight Manual for Push Operated Cable Valve dated 2/4/2000. (SVS V) OR Supplemental Flight Manual for Pull Operated Cable Valve dated 2/4/2000. (SVS V)	SVS V Engineering Drawing 000V0000 And Installation Report No. 08072	Rev, dated 3/10/2000 Rev, dated 12/22/1999	4/14/2000

^{*} or later FAA Approved Revision

For INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

			Original	<u> </u>	FAA Approved Airplane	FAA Approved	ř	
			Туре	Certification	Flight Manual		3	AML
1.	Aircraft	Aircraft	Certificate	Basis for	Supplement*			Amdt.
Item	Make	Model	Number	Alteration		Number	REV	Date
19	Cessna	185, 185A, 185B,	3A24	CAR Part 3	Supplemental Flight	SVS III Engineering Drawing		4/14/2000
		185C, 185D, 185E,			Manual for SA2162NM	000\0000	Rev, dated 3/10/2000	
		A185E, A185F			dated 8/11/99. (SVS III)	And		l
						Installation Report No. 50050	Rev. 25, dated 8/26/99]
20	Cessna	185, 185A, 185B,	3A24	CAR Part 3	Supplemental Flight	SVS V Engineering Drawing		4/14/2000
1		185C, 185D, 185E,			Manual for Push	000\/0000	Rev, dated 3/10/2000	
		A185E, A185F			Operated Cable Valve	And		
					dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999	
					OR			
					Supplemental Flight			
					Manual for Pull			
					Operated Cable Valve			
					dated 2/4/2000. (SVS V)			
21	Cessna	188, 188A, 188B,	A9CE	FAR Part	Supplemental Flight	SVS III Engineering Drawing		4/14/2000
1 .		A188A, A188B,		21	Manual for SA2162NM	000V0000	Rev. , dated 3/10/2000	
		T188C			dated 8/11/99. (SVS III)	And		
						Installation Report No. 50050	Rev. 25, dated 8/26/99	
22	Cessna	188, 188A, 188B,	A9CE	FAR Part	Supplemental Flight	SVS V Engineering Drawing		4/14/2000
		A188A, A188B,		21	Manual for Push	000V0000	Rev, dated 3/10/2000	
		T188C			Operated Cable Valve	And		
					dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999	
					OR Supplemental Elight			
					Supplemental Flight Manual for Pull			
					Operated Cable Valve			
					dated 2/4/2000. (SVS V)		<u> </u>	

^{*} or later FAA Approved Revision

For INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

Itam	Aircraft	Aircraft	Original Type Certificate	Certification Basis for	FAA Approved Airplane Flight Manual Supplement*			AML Amdt.
Item	Make	Model	Number	Alteration		Number	REV	Date
23	Cessna	206, P206, -A, -B, - C, -D, -E, TP206A, -B, -C, -D, -E, U206-A, -B, -C, -D, -E, -F, -G, TU206A, -B, -C, -D, -E, -F	A4CE	CAR Part 3	Supplemental Flight Manual for SA2162NM dated 8/11/99. (SVS III)	SVS III Engineering Drawing 000V0000 And Installation Report No. 50050	Rev, dated 3/10/2000 Rev. 25, dated 8/26/99	4/14/2000
24	Cessna	206, P206, -A, -B, - C, -D, -E, TP206A, -B, -C, -D, -E, U206-A, -B, -C, -D, -E, -F, -G, TU206A, -B, -C, -D, -E, -F	A4CE	CAR Part 3	Supplemental Flight Manual for Push Operated Cable Valve dated 2/4/2000. (SVS V) OR Supplemental Flight Manual for Pull Operated Cable Valve dated 2/4/2000. (SVS V)	SVS V Engineering Drawing 000V0000 And Installation Report No. 08072	Rev, dated 3/10/2000 Rev, dated 12/22/1999	4/14/2000
25	Cessna	207, 207A, T207, T207A	A16CE	Part 23	Supplemental Flight Manual for SA2162NM dated 8/11/99. (SVS III)	SVS III Engineering Drawing 000V0000 And Installation Report No. 50050	Rev, dated 3/10/2000 Rev. 25, dated 8/26/99	4/14/2000
26	Cessna	207, 207A, T207, T207A	A16CE	Part 23	Supplemental Flight Manual for Push Operated Cable Valve dated 2/4/2000. (SVS V) OR Supplemental Flight Manual for Pull Operated Cable Valve dated 2/4/2000. (SVS V)	SVS V Engineering Drawing 000V0000 And Installation Report No. 08072	Rev, dated 3/10/2000 Rev, dated 12/22/1999	4/14/2000

^{*} or later FAA Approved Revision

For

INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

	issue Date. May 23, 19										
1			Original		FAA Approved Airplane	FAA Approved	I Drawing*				
			Туре	Certification	Flight Manual			AML			
1	Aircraft	Aircraft	Certificate	Basis for	Supplement*	!		Amdt.			
Item	Make	Model	Number	Alteration		Number	REV	Date			
27	Cessna	210, 210A, 210B, 210C, 210D) 210E, 210F, 210-5 (205), -5A, (205A), T210F, 210G, T-210G, 210H, T-210H, 210J, 205P, T-210J, 210K, T210L, 210L, 210M, T210M, 210N, P210N, T210N, 205T, 210R	3A21	CAR Part 3	Supplemental Flight Manual for SA2162NM dated 8/11/99. (SVS III)	SVS III Engineering Drawing 000V0000 And . Installation Report No. 50050	Rev, dated 3/10/2000 Rev. 25, dated 8/26/99	4/14/2000			
. 28	Cessna	210, 210A, 210B, 210C, 210D) 210E, 210F, 210-5 (205), -5A, (205A), T210F, 210G, T-210G, 210H, T-210H, 210J, 205P, T-210J, 210K, T210L, 210L, 210M, T210M, 210N, P210N, T210N, 205T, 210R	3A21	CAR Part 3	Supplemental Flight Manual for Push Operated Cable Valve dated 2/4/2000. (SVS V) OR Supplemental Flight Manual for Pull Operated Cable Valve dated 2/4/2000. (SVS V)	SVS V Engineering Drawing 000V0000 And Installation Report No. 08072	Rev, dated 3/10/2000 Rev, dated 12/22/1999	4/14/2000			

^{*} or later FAA Approved Revision

For INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

	Issue Date: May 23, 1988										
.			Original		FAA Approved Airplane	FAA Approved	l Drawing*				
1 .			Type	Certification	Flight Manual	ŀ		AML			
Item	Aircraft	Aircraft	Certificate	Basis for	Supplement*			Amdt.			
	Make	Model	Number	Alteration		Number	REV	Date			
29	Cessna	P210R, 205U,	3A21	CAR Part 3	Supplemental Flight	SVS III Engineering Drawing		4/14/2000			
		T210R, 210-5,			Manual for SA2162NM	000\0000	Rev, dated 3/10/2000				
		210-5A			dated 8/11/99. (SVS III)	And					
					, , ,	Installation Report No. 50050	Rev. 25, dated 8/26/99				
30	Cessna	P210R, 205U,	3A21	CAR Part 3	Supplemental Flight	SVS V Engineering Drawing		4/14/2000			
		T210R, 210-5,			Manual for Push	000\0000	Rev, dated 3/10/2000				
		210-5A			Operated Cable Valve	And	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
					dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999				
					OR ` ´		11011, datod 12,22,1000				
					Supplemental Flight			ĺ			
					Manual for Pull						
					Operated Cable Valve		}				
					dated 2/4/2000. (SVS V)						
31	Cessna	305A (USAF 0-1A)	5A5	Part 23	Supplemental Flight	SVS III Engineering Drawing		4/14/2000			
		305C(USAF 0-1E)			Manual for SA2162NM	0000000	Rev, dated 3/10/2000				
1		305D(USAF 0-1F)			dated 8/11/99. (SVS III)	And					
		305F				Installation Report No. 50050	Rev. 25, dated 8/26/99				
32	Cessna	305A (USAF 0-1A)	5A5	Part 23	Supplemental Flight	SVS V Engineering Drawing		4/14/2000			
		305C(USAF 0-1E)			Manual for Push	000\0000	Rev, dated 3/10/2000				
		305D(USAF 0-1F)			Operated Cable Valve	And	,				
1 1		305F			dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999				
1 1					OR ` ´		,				
					Supplemental Flight						
		÷			Manual for Pull						
					Operated Cable Valve						
					dated 2/4/2000. (SVS V)						

^{*} or later FAA Approved Revision

For INSTALLATION OF PRECISE FLIGHT STANDBY VACUUM SYSTEM

		I	Original FAA Approved Airplane FAA Approved Drawing*								
[FAA Approved Airplane	FAA Approved	Drawing*				
			Type Certificate	Certification	Flight Manual			AML			
Item	Aircraft	Aircraft	(Basis for	Supplement*			Amdt.			
	Make	Model	Number	Alteration		Number	REV	Date			
33	Cessna	305B (USAF T0-1D)	3A14	CAR Part 3	Supplemental Flight	SVS III Engineering Drawing		4/14/2000			
		305E (0-1D OR 01F)			Manual for SA2162NM	000\0000	Rev, dated 3/10/2000				
1					dated 8/11/99. (SVS III)	And		i i			
					•	Installation Report No. 50050	Rev. 25, dated 8/26/99				
34	Cessna	305B (USAF T0-1D)	3A14	CAR Part 3	Supplemental Flight	SVS V Engineering Drawing		4/14/2000			
		305E (0-1D OR 01F)			Manual for Push	000\0000	Rev, dated 3/10/2000	ŀ			
		•			Operated Cable Valve	And					
		•			dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999				
		'			OR	·					
					Supplemental Flight						
					Manual for Pull						
					Operated Cable Valve		·				
					dated 2/4/2000. (SVS V)						
35	Cessna	321 (NAVY OE-2)	3A11	Part 23	Supplemental Flight	SVS III Engineering Drawing		4/14/2000			
		•	•		Manual for SA2162NM	000\0000	Rev, dated 3/10/2000				
					dated 8/11/99. (SVS III)	And	ţ				
						Installation Report No. 50050	Rev. 25, dated 8/26/99				
36	Cessna	321 (NAVY OE-2)	3A11	Part 23	Supplemental Flight	SVS V Engineering Drawing		4/14/2000			
					Manual for Push	000\0000	Rev, dated 3/10/2000				
					Operated Cable Valve	And					
					dated 2/4/2000. (SVS V)	Installation Report No. 08072	Rev, dated 12/22/1999				
					OR	·					
					Supplemental Flight						
					Manual for Pull						
					Operated Cable Valve						
				:	dated 2/4/2000. (SVS V)						

^{*} or later FAA Approved Revision

(3)
U.S. Department
of Transportation Federal Aviation

LBB FS Gran Approved OMB

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U.S. Departms	ent	•	MAJOR REP						Į.	F	or FAA Use C	hily
of Transportati Federal Aviati Administratio	lon.	(Au	rframe, Powerp	Mant, r	,tob	eller, or wphi	lance) JUL			entification	•
Administration						· <u> </u>				W-FSD	34305	2000
instructions	NONS: Print or type s and disposition of t 000 for each such v	his fo	rm. This report is	required	i by la	aw (49 U.S.C. 14	AC 43.	9-1 (or sub ailure to re	port can	revision t result in a	hereof) for civil penalty r	not to
1. Aircra	Meke CE	SSNA	4				Model	C210D	**	•	ئن	
	Serial No.	8252			Netiona N375	elity and Reg MK	istretion M	ark				
2 Owne	Name (As sho	wn en	registration certificate)					s (As shown	on registra	ition certifica	ate)	
	South Tex	Trea	ters, Inc.				Box6 Midia	0480 Ind, TX 797	701			
				3	. Fo	r FAA Use Only	,					
			4. Un	it ldenti	ficati	ion					5. T	уре
Unit		Ma	ske			Model		s	erial No.		Repair	Alteration
	 -			L								
AIRFRAME	•••		(A	ls descr	ibed	in item1 above	,)	~~~~			×	X
POWERPLA	NT											
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	Manufacturer										}	
		—		6	Confi	ormity Staterne				 -	<u> </u>	
A Agency	's Name and Addres	<u></u>		<u> </u>		B. Kind of Ag				to o	ertificate No.	
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812 Newc	astle Ct.					Foreign Certificat				- 4007	25300	
Odessa, T	x.79764					Certificated Repa	ir Station			7		
	<u> </u>					Manufacturer				<u> </u>		
have b	that the repair and/ een made in accorda ed herein is true and	ance '	with the requireme	ints of Pa	art 43	of the U.S. Fed	ove and erai Avi	d describer iztion Regr	d on the	reverse or and that th	r attachments ne information	hereto
Date 06/24/00				s	ignat	ure of Authorize	dy Individ	dual ,	0			
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Admi	uant to the authority inistrator of the Fede	asi V.	viation Administrat	ion and	is is	X APPRO		as inspec	REJE	CTED	ргесспоеа ву	the
ву 🗀	FAA Fit. Standards Inspector	\perp	Manufacturer		Х	inspection A			Other ((Specify)		
	FAA Designee		Repair Station			Person Appoved Canada Airworth	i by Tran riness Gr	sport roup				
Date of App 06/24/00	roval or Rejection		Certificate or Des	_	_ ' 1	Signature of Au	thorize	d Individua	1			
2012-7100			~ (UMVOU	, ,,,,	/	UCHZUN		·	m			

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.)
Modify aircraft in accordance with STC SA 3612 SW to remove main landing g nose gear door operation to mechanical and removing associated hydraulic syste	pear doors and associated operating parts and change em.
Replace Rt. and Lt. side doublers on buikhead aft of landing gear pivot mountinoles. Installed using 6 AN970-3 washers on each side under outboard bolts and	ing at Sta. 68.3 due to cracks along outboard bolt I correct length bolts.
3. Instali new-guide brackets at main gear uplock latches , part #s 1211467-1 & 2 Cessna 200 service manual.	due to damage from improper alignment. Adjust per
4. Perform retract check for proper clearance and operation.	
5. New parts painted to match aircraft.	
6. Weight and Balance change per STC as follows:	
Old empty weight 1992.97 minus change 7.2= New empty wt. 1985.77 Old Moment 74173.55 minus change 712.1 = New moment 73461.45 Old arm 37.22 New arm 36.99 Old usefull load 1107.3 New usefull load 1114.5	
7 All work performed using the methods, procedures and materials as prescribe	d in FAR 43-13 1B.
Instructions for continued airworthiness shall be the same as required by Cess of parts added by STC.	sna service manual plus visual inspection for security
	·

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	•
	Section 2
Additional Sheets Are Attach	ied
F&& Form 337 (12-88)	TIS CPO-1080.0.662.171

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

Aumi	130 40011									İ					
instru	ctions :	and disposition	of this for	ntries. See FAR 43 rm. This report is on (Section 901 Fe	required !	by la	w (49 U.S.C. 14	AC 43. 21). F	.9-1 (or sub allure to re	osequent re	wision the	nereof) for civil penalty n	ot to		
1. A	Vircraft	Make	CESSNA					Model	C210D						
		Serial No	o. 21058	1252			Nationality and Registration Mark N375MK								
2 (Owner	Name (As	s shown on r	registration certificate)				Addres	ss (As shown	on registratio	n certifica	te)			
<u> </u>	<i></i>	South [*]	Tex Treat	ers, Inc.				Box6	80480 and, TX 79						
	_						FAA Use Only								
The All	eratoryi	Jala identified here	ein complie:	s will the applicable air	invorthiness	<u>s</u>									
acti	ou pà 9 i	i ioi usvorijas nosiso Deznonius nosiso	ine above of by FAR Par	escribed aircraft, subject 43,7°	ct to confo	mily									
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District (Office	Date		Signature of PAA Inso	ector		=								
				Signature of PAA inspe 4. Uni	it ldentifi	icatio	on					5. T	5. Type		
	Unit		Mal	ke			Model		S	Serial No.		Repair	Alteration		
AIRFR	RAME	~	~~~~	······ (A	ls descri	bed :	in item 1 above,) ~~~				x			
POWE	ERPLAN	π													
PROP	ELLER														
APPLI	ANCE	Type Manufactu	urer	·											
					6. C	onfo	ormity Statemer	nt					<u></u>		
A. Ag	gency's	Name and Ad	dress			T	B. Kind of Age	ency			C. Ce	ertificate No.			
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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.)
1. m	Replace cracked upper nose bowl panels, parts number 1252410-3 & -4 by fabricating a fiberglass skin replacement as the original statement is continually breaking and is no longer repairable or available from Cessna parts supply.
2. m	Replacement parts are made by using the original parts from this aircraft to make a mold and then a fiberglass copy is made in the old.
3.	All the doublers, fittings and attachment parts are removed from the original parts and installed on the new fiberglass skin parts.
4. oti	Final fit of the parts is accomplished on the aircraft for proper alignment with other cowl parts and to assure proper clearance from ner parts.
5.	Attachment to aircraft is the same as on original parts except for large A3235-SS-020 washers under screws.
6.	Parts are painted to match aircraft.
7.	All work is accomplished IAW the customary methods and procedures of FAR 43-13 1B
8. flig	Instructions for continued airworth ness shall consist of visual inspection for cracking or looseness of attachments prior to each
9.	Replacement parts weigh same as original so no change in weight and balance is required.

	Additional Sheets Are Attached



Federal Aviation Administration

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

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For FAA Use Only

Office Identification

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8. Description of Work Accomplished (If more space is required, attach ad	ditional sheets. Identify with aircraft nationality and registration mark and date work completed.)
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☐ Additional Sheets Are Attached

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Bepartment of Transportation — federal Abiation Administration

Supplemental Type Certificate

Number SATIGE

This codificate issued to Brackett Aircraft Company, Inc.

7045 Flightline Drive

Kingman, Arizona 86401

evolifies that the change in the type design for the fillering product with the limitations and conditions

therefor as specified hereon much the sinerathiness requirements of Part . I the

Regulations

- Chiginal Product Type herdificate. Number . * See attached FAA Approved Model List (AML)
 - . Make * No. SA71GL for list of approved aircraft
 - . Model. * models and applicable airworthiness regulations.

Description of Type Tesign Change . Installation of air filters in accordance with AML No. SATIGI. dated April 17, 1995, or later FAA approved revision.

Similations and fundations. Approval of this change in type design applies to the above aircraft model(s) only. This approval should not be extended to circuit of this model on which other previously approved modifications are incorporated unless it is determined that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect upon the airworthiness of that aircraft. A copy of this Certificate and FAA Approved Model List (AML) No. SA71GL dated April 17, 1995, or later FAA approved revision must

be maintained as part of the permanent records for the modified aircraft. This certificate and the supporting data which at the lasts for approval shall remain sweffert until suc-

undered suspended, rewheel or a termination date is otherwise established by the Admenistrate of the

Jederal Anaton Administration

State of application

January 9, 1975

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February 21, 1975

Late amended April 17, 1995

By direction of the Administrates

Manager, Propulsion Branch Los Angeles Aircraft Certification Office

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Page 1 of 2

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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).

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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.)

Installed: S-Tec System 50 Auto Pilot system consisting of:

6405-14L Turn Coor.

0131-11-1 Controller

0105-R9 Roll Servo

0107-P4 Pitch Servo

olll Transducer

HK-310-50 Install kit.

Installation in accordance with STC SA6027AV-D issued to S-Tec Corp used as reference on this installation. Used factory supplied installation kit HK-310-50. Installation manual ST-310. Drawings 1013,76304,76326,9919,1014,7624,7602,76295,76266, 76360,508,7601,76137, and 503. All work conforms to acceptable methods, techniques, and practices contained in AC 43.131A Chapert 11 Electrical systems and equipment installations and wire and aircraft, alterations per sections: AC 43.13 2A-22,-23, and -27. This alteration complies with FAR 23.1301 and 23.1431 and doesnt interfere with any other operations in the aircraft. Ground and flight tested aircraft per sections IV pages 3-3 to 3-5 in RSEC Manual. FAA approved airplane manual p/n 89618 dated 7/18/85 provided and made part of pilots operating manual on aircraft. Weight and Balance recalulated and all log book entries made as required part of W/O A6704. ----END-----



56# 20 5453

WARRANTY CERTIFICATE APPLICATION

13 1995 CERTIFICATE No. WARRANTY START DATE (Leave Blank) CESSNA (AIRCRAFT MAKE) AIRFRAME HOURS WHEN SOLD . (AIRPORT BASE CITY) (STATE/COUNTRY) (Leave Blank) R RETROFIT O

OEM INSTALLATION S SPARE POB 60480 MIDLAND millano (STATE/COUNTRY) IF AIRCRAFT SOLD BY OTHER THAN THE INSTALLER: (NAME) (ADDRESS) (CITY) (STATE/COUNTRY) (ZIP) (DATE SOLD) SYSTEM TYPE EQUIPMENT P/N EQUIPMENT TYPE SERIAL NO EQUIPMENT P/N **EQUIPMENT TYPE** SERIAL NO ST-310-50 SYSTOM 50 644 405-146 TURN COOR. 9471E YS 50 2798C 760 A ROLL SORVO 7950 A VICH SORVO ANSOUCUR

Hinted States of America

Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number SA6027SW-D

Limitations and Conditions (con't)

- 2. FAA Approved Supplemental Flight Manual, P/N 89618, dated 7-18-85 is required for S-TEC System 50 in Cessna Models 2100, 210E, 210F and T210F and/or later FAA Approved revisions of the above supplement.
- 3. Compatability of this modification with other previously approved modifications must be determined by the installer.



COMP - 0131-11-1 RULL SERVO - 0105-R9

S-TEC CORPORATION RT. 4, BLDG. 946 WOLTERS INDUSTRIAL COMPLEX MINERAL WELLS, TEXAS 76067

FAA APPROVED SUPPLEMENTAL FLIGHT MANUAL FOR -11 = 1812 OHUS
(10-30 K)
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CESSNA MODELS 210D, 210E, 210F AND T210F

WITH
S-TEC SYSTEM 50 TWO AXIS
AUTOMATIC FLIGHT GUIDANCE SYSTEM
(14 VOLT SYSTEM)

REG. NO. N375MK SER. NO. 21058252

The information in this manual is FAA Approved material which along with other approved documents is applicable to the operation of the airplane when modified by the installation of the S-TEC System 50 Autopilot Model ST- 310-50 installed in accordance with STC SA6027SW-D.

SECTION I

GENERAL

This manual is to acquaint the pilot with the features and functions of the System 50 Two Axis Autopilot and to provide operating instructions for the system when installed in the above aircraft model(s). The aircraft must be operated within the limitations herein provided when the autopilot is in use.

SECTION II

OPERATING LIMITATIONS

1. Autopilot use prohibited above 200 MPH CAS (Vmo).

2. Use of flaps, including extension and retraction, not authorized during operations in altitude hold mode.

3. Autopilot operation prohibited during take-off and landing.

4. Autopilot operation prohibited above 25,000 ft. MSL for Cessna Model T210F,

FAA/DAS APPROVED

P/N: 89618 DATE: 7-18-85



SECTION III

EMERGENCY OPERATING PROCEDURES

In the event of an autopilot malfunction, or any time the autopilot is not performing as expected or commanded, do not attempt to identify the system problem. Immediately regain control of the aircraft by overpowering the autopilot as necessary and then disconnect the autopilot. Do not reengage the autopilot until the problem has been identified and corrected.

- 1. Autopilot may be disconnected by:
 - a. Depressing the "AP Disconnect" Switch on the left horn of the pilot's control wheel (if installed).
 - b. Depressing the "ON-OFF" Switch on the autopilot programmer unit.
 - c. Moving autopilot master switch to "OFF" position.
 - d. Pulling the autopilot circuit breaker.
- Altitude loss during a malfunction and recovery.
 - a. The following altitude losses and bank angles were recorded after a malfunction with a 3 second recovery delay:

Configuration	Bank Angle/Altitude Loss
Climb	60 ⁰ /-100'
Cruise	60 ⁰ /-300'
Descent	55 ⁰ /-400'

b. The following altitude losses and bank angles were recorded after a malfunction with a 1 second recovery delay:

Configuration	Bank Angle/Altitude Loss
Maneuvering Approach (coupled or uncoupled)	15 ⁰ /-60' 30 ⁰ /-80'

The above values are the worst case for all the models covered by this document.

SECTION IV

NORMAL OPERATING PROCEDURES

4-1 SYSTEM DESCRIPTION

The System 50 is a pure rate autopilot which uses an inclined rate gyro in the Turn Coordinator instrument as the primary roll and turn rate sensor and an accelerometer and an absolute pressure transducer as pitch rate sensors. The turn coordinator includes an autopilot pick-off, a gyro RPM detector and an instrument power monitor. Low electrical power will cause the instrument "flag" to appear while low RPM will cause the autopilot to disconnect. The autopilot includes an automatic pre-flight test feature that allows a visual check of all the annunciator lamps and checks_critical elements of the accelerometer system. The test feature will not enable autopilot function unless the automatic test sequence is satisfactorly completed.

FAA/DAS APPROVED

P/N 89618 DATE: 7-18-85

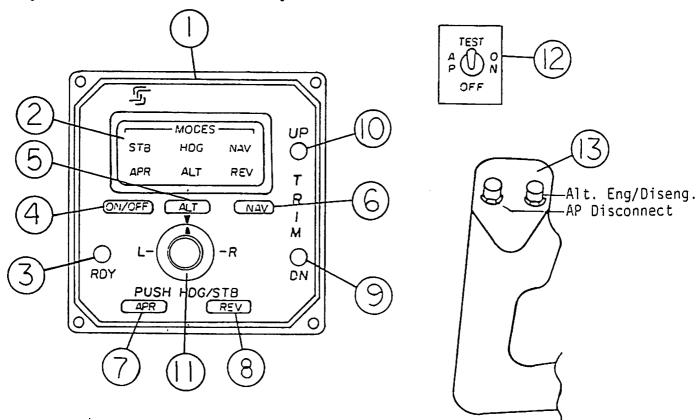
Page 2 of 7



When the pre-flight test is satisfactorily completed and when the rate gyro RPM is correct, the green "RDY" light will illuminate indicating the autopilot is ready for the functional check and operation. The autopilot cannot be engaged unless the "RDY" light is illuminated. When the system is equipped with the optional 3" Air Driven Directional Gyro (D.G.) or a compass system, directional information is provided to the autopilot by a heading bug in the instrument.

Pitch axis control is provided for the altitude hold function by use of the accelerometer and the pressure transducer. When the altitude hold mode is engaged an elevator trim sensor in the pitch servo will detect the elevator trim condition. When elevator trim is necessary to re-establish a trimmed condition, trim indicator lights on the programmer unit will illuminate to indicate the direction to trim to restore a trimmed condition.

The indicator and annunciator lamp brilliance is controlled through the aircraft instrument light rheostat, except for the "trim" indicators which always illuminate at full intensity.



- 1. Mode Programmer and Annunciator Unit Provides mode switches and annunciation for the system.
- 2. Mode Annunciation Window Displays mode in use.

FAA /DAS APPROVED

P/N 89618 DATE: 7-18-85

Page 3 of 7



- 3. Ready Light (RDY) Green RDY lamp illuminates when autopilot is ready for engagement.
- 4. ON-OFF Stabilizer Mode Switch Momentary actuation engages roll system in stabilizer (STB) Mode and allows use of the turn knob (Item 11) to command turn rate desired. When the system is operating a momentary actuation will disengage the system and cancel all annunciations.
- 5. Altitude Mode Switch (ALT) Momentary actuation will engage altitude hold mode or disengage altitude mode if previously engaged. This function is also available by use of an optional control wheel mounted altitude engage/disengage switch, for added convenience.
- 6. Navigation Mode Switch (NAV) Momentary activation will engage the VOR Tracking Mode. This mode provides low system gain for comfortable cross country tracking.
- 7. Approach Mode Switch (APR) Momentary actuation will engage the VOR or Localizer Tracking Mode. This mode provides a higher level of system gain for more active tracking of VOR or Localizer front course signals.
- 8. Reverse Approach Mode Switch (REV) Momentary activation will engage the reverse tracking mode for use when tracking a localizer backcourse. This mode provides the same system gain as the APR Mode with reverse needle sensing.
- 9. Down TRIM Light (DN) This light illuminates to indicate the need for nose <u>down</u> trim. When both the <u>UP</u> and <u>DN</u> lights are not lighted, the aircraft is in trim longitudinally.
- UP Trim Light (UP) This light illuminates to indicate the need for nose <u>UP</u> trim.
- 11. Turn Knob and Heading Switch The turn knob allows the selection of turn rates up to standard rate(30/sec.) either right or left. Turning the knob to the right or left will cause a turn that is proportional to the displacement of the knob from center. For level flight the electronics provide a small dead zone of approximately 100 at the center indice. To actuate heading mode, momentarily depress the turn knob. To return to STB Mode from HDG, depress the turn knob. When the system is operating in any radio mode and the system is equipped with a D.G., depressing the turn knob will return the system to HDG Mode directly.
- 12. Autopilot Master ON-OFF Test Switch Refer to Pre-Flight Procedures for operating details.

FAA/DAS APPROVED P/N 89618 DATE: 7-18-85



- 13. Optional remote AP disconnect switch and/or remote altitude hold engage-disengage switch.
- 4-2 PRE-FLIGHT PROCEDURES

NOTE: During system functional checks the system must be provided adequate DC voltage (12 or 24 VDC minimum as appropriate)

MANDATORY PRE-FLIGHT TEST

- 1. AP Master Switch Move to TEST position.
 - a. Observe all lights and annunciators illuminate.
 - Observe the following light sequence of the trim indicators: (Sequence requires 9 seconds)
 - 1. Initially both trim UP & DN lights are illuminated.
 - 2. Up light extinguishes momentarily and relights.
 - 3. DN light then extinguishes and will remain off.
- 2. AP Master Switch Move to ON position, observe ready (RDY) light illuminates. Autopilot can be engaged and disengaged repeatedly without repeating the test sequence until electrical power is removed. Once power is interrupted the test must be reconducted to get a ready indication. If the ready light does not illuminate after the test a failure to pass the test is indicated and the system will require service. NOTE: ALTITUDE MODE CANNOT BE ENGAGED UNLESS POWER IS ON FOR MORE THAN 15 SECONDS.

SYSTEM FUNCTIONAL TEST .

- 3. Depress ON-OFF Switch STB Annunciator illuminates. Rotate turn knob left and right, observe control wheel moves in corresponding direction. Center turn knob.
- 4. Set D.G. and place bug under lubber line (if installed) push turn knob to engage HDG mode. Observe HDG annunciator. Move HDG bug left and right observe proper control wheel motion.
- 5. Overpower Test Grasp control wheel and overpower roll servo left and right. Overpower action should be smooth with no noise or jerky feel. If unusual sounds or excessive play is detected, have the servo installation inspected prior to flight.
- 6. Radio Check A. Turn on NAV Radio, with valid NAV signal, engage NAV Mode and move VOR OBS so that VOR needle moves left and right control wheel should follow the direction of needle movement.

P/N 89618
DATE: 7-18-85

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- B. Select REV Mode the control wheel should rotate in opposite direction of the NAV needle.
- C. Select APR Mode the control wheel should again follow radio needle movement and with more authority than produced by NAV Mode.
- 7. Move control wheel to level flight position Engage ALT Mode. Move control wheel fore and aft to overpower pitch servo clutch. Overpower action should be smooth with no noise or jerky feel. If unusual sounds or excessive play is detected, have the servo installation inspected prior to flight.
- 8. Trim Check Manually apply back pressure to control wheel for 2-3 seconds observe the <u>DN</u> trim light illuminates. Apply forward pressure to the control wheel for 2-3 seconds, observe the <u>UP</u> trim light illuminates. Move the control wheel to center observe both UP/DN lights extinguish.
- 9. Hold control wheel and depress ON-OFF Switch note that roll and pitch servo release. Move control wheel to confirm roll and pitch motions are free, with no control restriction or binding. If the optional disconnect switch is installed it may be used to effect the disconnect for this check.

4-3 IN-FLIGHT PROCEDURES

NOTE: The required pre-flight test can be conducted in the air if necessary. It should be noted, however, that when the UP/DN lights are flashing the pitch servo will momentarily engage and disengage. This alternate engage-disengage sequence is part of the test function. Because of the engage-disengage sequence the test should not be conducted while maneuvering.

- 1. Check RDY light on.
- 2. Trim aircraft for existing flight condition. Maintain Yaw Trim during all Autopilot operations.
- 3. Center turn-knob depress ON-OFF Switch.
- 4. Set turn knob to level or turning flight, as desired.
- 5. Set HDG bug to desired heading (if installed) and depress turn knob to engage heading mode, select headings as desired.
- 6. At desired altitude, depress ALT Mode Switch. Trim aircraft as necessary to establish cruise condition disengage ALT Mode to climb or descend.

FAA/DAS APPROVED P/N 89618 DATE: 7-18-85



VOR TRACKING AND VOR-LOC APPROACH

- 1. Tune NAV receiver and select radial.
- 2. Maneuver aircraft to selected radial (or localizer) within $^\pm$ 1 needle width and within 10^0 of the course heading.
- 3. Engage NAV Mode for VOR tracking.
- 4. Engage APR Mode for VOR or LOC approach.

To track the localizer front course outbound to the procedure turn area, maneuver to the localizer center and, when on the outbound heading, select REV Mode. To track the localizer back course inbound, maneuver to the localizer back course center and, when on the inbound heading, select REV Mode.

Approach Mode may be used to track VOR radials cross country, if desired. Use of APR Mode for cross country tracking may result in some course scalloping if the VOR signal is weak or otherwise "noisey". In areas of poor signal quality NAV Mode may provide more accurate tracking even with reduced gain.

SECTION V

OPERATIONAL DATA

Text of this Section not affected by installation of this equipment.

SECTION VI

REQUIRED OPERATING EQUIPMENT

Text of this Section not affected by installation of this equipment.

SECTION VII

WEIGHT AND BALANCE

Text of this Section not affected by installation of this equipment.

Walter F. Davis

S-TEC CORPORATION

DAS 5 SW P/N 89618 -DATE: 7-18-85

FAA APPROVED

United States of America

Department of Transportation—Jederal Aviation Administration

Supplemental Type Certificate

. Number SA6027SW-D

· This certificate, usued to S-TEC Corporation

Rt. 4, Bldg. 946

Wolters Industrial Complex Mineral Wells, TX 76067

cortifies that the change in the type design for the following product with the limitations and conditions

therefor as specified herein meets the airworthiness requirements of Part 3 of the Civil Air

. Regulaturns

Congral Greduct - Type tiertificate Number

3A21

Make. CESSNA

Model 210D, 210E, 210F AND T210F

Lescription of Type Lesign Change:

Installation of S-TEC System 40/50, Single and Two Axis Automatic Flight Guidance System, Model ST-310-40/50, according to Bulletin No. 410, dated 7-5-85 and Master Drawing List No. 92336, dated 7-5-85 and/or later FAA Approved revisions of the above data (14 Volt System).

Limitations and Conditions.

FAA Approved Supplemental Flight Manual, P/N 89617, dated 7-18-85 is required for S-TEC System 40 in Cessna Models 210D, 210E, 210F and T210F and/or later FAA Approved revisions of the above supplement.

(See Continuation Sheet, Page 2, a part of this STC.)

This certificate and the supporting data which is the basis for approval shall romain in effect until surrendored, suspended, rowched, or a termination date is othorwise established by the Administrator of the Federal Ariation Administration.

Late of application: 7-12-85

Date reissued

Tale of issuance: 7-18-85

Dalo somended:

By direction of the Administrator Theold It I bldman

Harold W. Holdeman DAS Staff Coordinator, DAS 5 SW

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

GROUND CHECKS AND FLIGHT ADJUSTMENT PROCEDURES

SYSTEM 50

GROUND CHECKS:

- 1. Turn aircraft master and radio master "ON", as required, to provide system voltage to the autopilot circuit breaker.
- 2. Check autopilot circuit breaker "ENGAGED". Select test position on AP master switch: Observe all lights and annunciators illuminate. Observe the following light sequence of the trim indicators. (Sequence requires 6 seconds.)
 - a. Initially both "UP" and "DN" lights are illuminated.
 - b. "UP" light extinguishes momentarily and relights.
 - c. "DN" light then extinguishes and will remain off.
- 3. Toggle AP master to "ON". When turn coordinator gyro has reached operational RPM the "RDY" light will illuminate. If ready light does not illuminate after the test, the system has failed the test. After "RDY" light illuminates, select "ON", "STB" will illuminate. Rotate the turn knob left then right. Note that wheel follows commanded input.

NOTE: When optional D.G. is installed, center the heading bug under the indice on the D.G. Center the "HDG/STB" knob and push once; "HDG" will illuminate. Rotate the heading bug on the D.G. to the right, then to the left of the center indice and note that the control wheel follows direction of commanded input. Center heading bug on indice.

- 4. Tune the NAV receiver to the local OMNI Station or simulated signal and center the needle on the OBS/CDI instrument. Select "NAV" mode on the programmer and rotate the OMNI bearing selector right and then left. Control wheel should move right with right needle deflection and left with left needle deflection.
- 5. At this time, with NAV needle centered and still in "NAV" mode, remove the upper left faceplate attaching screw on the programmer/computer. Adjust the roll centering (3 turn pot accessible through the upper left faceplate attaching screw of the programmer). Adjust for zero roll servo activity with centered CDI needle.
- 6. Select "REV" mode on the programmer and conduct the same tests as indicated above (Step 4) for "NAV" mode. Note that "REV" annunciator is illuminated and that control wheel action is opposite direction of needle movement.
- 7. Move elevator control to neutral and select "ALT" mode to engage pitch. "ALT" annunciation will illuminate.

- 8. Overpower Grasp control wheel and overpower autopilot in both roll and pitch. Be alert that no excessive play exists in the control system and/or between the control system and the roll and pitch servos.
- 9. If optional altitude hold engage/disengage switch is installed in pilot's control wheel, depress once. "ALT" annunciation will extinguish. Move wheel FWD and AFT and ensure that pitch servo has disconnected. Depress switch again and note that "ALT" annunciation illuminates and pitch servo re-engages.
- 10. If optional AP disconnect switch is installed in pilot's control wheel, depress once. Note that roll and pitch servos disengage and all mode annunciations extinguish.
- 11. Trim Test move elevator control to neutral position and reengage "STB" and "ALT" modes. Apply forward pressure (nose DN) to elevator control and hold for 3 seconds (minimum) the "UP" annunciator will illuminate steady for 5 seconds and then cycle on-off approximately every 1/2 second. Apply aft pressure on the control wheel (nose UP) and hold for 3 seconds (minimum) observe same light indication on the "DN" annunciator. Hold control wheel disengage autopilot.
- 12. Toggle autopilot master switch to "OFF".

FLIGHT ADJUSTMENTS:

The in-flight adjustments for this system consists of one (3 turn) adjustable pot (roll centering) located under the upper left hand faceplate attaching screw on the programmer/computer.

- Fly the aircraft to smooth air, and trim for level flight. Remove the upper left programmer faceplate attach screw.
- Check autopilot circuit breaker "IN" and toggle AP master to "ON" position.
- 3. Maneuver aircraft to desired radial on OBS, and engage NAV mode on programmer. Allow aircraft time to establish on course.
- 4. Check roll center adjustment in NAV mode and fine adjust (if necessary) to fly a centered needle.
- 5. If directional gyro or heading system is installed, center heading bug and engage HDG mode on the programmer. Check heading bug centered ± 3°.

NOTE: Roll centering pot is a 3 turn pot and should be adjusted in very small increments. Allow sufficient time between adjustments for system to stabilize. Clockwise rotation of pot produces right turn and counterclockwise rotation produces left turn.

- 6. Replace upper left faceplate screw in programmer/computer.
- 7. Conduct a functional (operational) test of the system. Refer to the POH Supplement for operational information.

NOTE: If rudder is incorrectly trimmed, the autopilot will cause the aircraft to fly with a wing low in an effort to maintain the selected heading.

PITCH SECTION:

The pitch section does not require flight adjustments. Operate the pitch section in accordance with the instructions provided in the pitch section of the POH Supplement information provided in this installation kit.

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

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

Form Approved Budget Bureau No. 04-R060.1

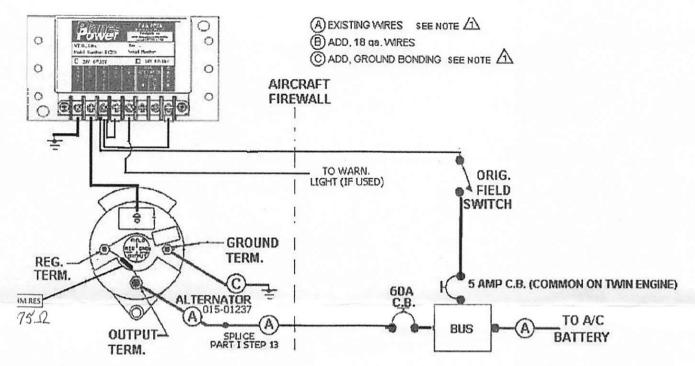
FOR FAA USE ONLY
OFFICE IDENTIFICATION

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.

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⚠ AC-43.13-1A CHAPTER 11 SECTIONS 2 AND 3 SHOULD BE CONSULTED FOR MINIMUM WIRE SIZES FOR 50 AMP OUTPUT

TYPICAL WIRING DIAGRAM

R1224 INSTALLATION IN INTERAV SYSTEM FOR REFERENCE ONLY

Plane Power, Ltd. Aircraft Model Eligibility for R1224 and R1224B Regulators

Aircraft Parts & Development Corp.	Original Part Number	PP Part #
A	InterAv 625-61623	R1224
Alexandria Aircraft, LLC.	Original Part Number	PP Part #
American Champion Aircraft Corporation	Original Part Number	PP Part #
7ECA, 7GCAA, 7GCBC, 7KCAB, 8GCBC, 8KCAB	FVR-4224, Lamar B-00371-14	R1224
Augustair, Inc	Original Part Number	PP Part #
2150A	InterAv 625-61623	R1224
Camair Aircraft Corporation - Fred Garcia	Original Part Number	PP Part #
480	InterAv 625-61623	R1224
Cessna Aircraft Company	Original Part Number	PP Part #
310R, T310R	Cessna 9910126-2, 9910126-3 *Note: both regulators must be replaced	R1224B
172L, 172M, 172N, 172P, 172Q, R172K, 177, 177A, 177B, 177RG, 180H, 180J, 180K, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 185D, 185E, 188, 188A, 188B, A188, A188A, A188B, T188C, P206A, P206B, P206C, P206D, P206E, TP206A, TP206B, TP206C, TP206D, TP206E, U206, U206A, U206B, U206C, U206B, U206F, U206G, P206A, P206B, P206C, P206D, P206E, TU206A, TU206B, TU206C, TU206B, TU206E, TU206F, 207, T207, 210E, 210F, 210G, 210H, 210J, 210K, 210L, 210M, T210E, T210F, T210G, T210H, T210J, T210K, T210L, T210M	Cessna 0750216-1, C611001-0101, C611001-0102, C611001-0201	R1224
152, A152, 182Q, 182R, T182, R182, TR182, 188, 188A, 188B, A188, A188A, A188B, U206G, TU206G, 210M, T210M	Cessna C611002-0105	R1224
182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 210, 210A, 210B, 210-5 (205), 185, 185A, 185B, 185C, 180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 206	InterAv 625-61623	R1224
Helio Aircraft, LLC.	Original Part Number	PP Part #
H-250, 500	InterAv 625-61623	R1224
KWAD Company	Original Part Number	PP Part #
Super-V	InterAv 625-61623	R1224
Latino American De Aviacion (Lavia) S.A.	Original Part Number	PP Part #
PA-25, PA-25-235, PA-25-260 (Restricted Cat.), PA-25, PA-25-235, PA-25-260 (Normal Cat.)	InterAv 625-61623	R1224
Lockheed Aircraft Corporation	Original Part Number	PP Part #
402-2	InterAv 625-61623	R1224
Mooney Aircraft Corporation	Original Part Number	PP Part #
M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G The New Piper Aircraft, Inc.	InterAv 625-61623 Original Part Number	PP Part #
PA-16, PA-23, PA-23-160, PA-23-235, PA-23-250, PA-E23-250, PA-24, PA-24-250, PA-18, PA-18, PA-18 "105" (Special), PA-18S "105" (Special), PA-18A, PA-18 "125" (Army L-21A), PA-18S "125", PA-18AS "125", PA-18 "135" (Army L-21B), PA-18A "135", PA-18S "135", PA-18AS "135", PA-18 "150", PA-18A "150", PA-18S "150", PA-20, PA-20, PA-20, PA-20, PA-20, PA-20, PA-20, PA-20, PA-20, PA-2150, PA-22, PA-22-160, PA-22-135, PA-22-135, PA-22-150, PA-22-150, PA-22-160, PA-22-160, PA-28-140 (Cherokee Cruiser), PA-28-150, PA-28-160, PA-28-180 (Cherokee), PA-28-25 (Cherokee Pathfinder), PA-28S-160, PA-28S-180, PA-28R-200 (Arrow), PA-12, PA-12S, PA-30, PA-18A(Restricted), PA-18A"135" (Restricted), PA-18A"150" (Restricted)	InterAv 625-61623	R1224
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"105" (Special), PA-18S "105" (Special), PA-18A, PA-18 "125" (Army L-21A), PA-18S "125", PA-18AS "125", PA-18 "135" (Army L-21B), PA-18A "135", PA-18S "135", PA-18AS "135", PA-18 "150", PA-18A "150", PA-18S "150", PA-18AS "150", PA-20S, PA-20, PA-20S, PA-20 "115", PA-20S "135", PA-20S "135", PA-22, PA-22-108, PA-22-135, PA-22-135, PA-22-130, PA-22-135, PA-22-130, PA-22-135, PA-22-130, PA-22-130, PA-22-130, PA-28-160, PA-28-160, PA-28-160, PA-28-160, PA-28-160, PA-28-160, PA-28-160, PA-28-180 (Cherokee), PA-28-235 (Cherokee Pathfinder), PA-28S-180, PA-28R-180, PA-28R-200 (Arrow), PA-12, PA-12S, PA-30, PA-18A(Restricted), PA-18A"135" (Restricted), PA-18A"150" (Restricted) PA-28-140 (Cherokee Cruiser), PA-28-150, PA-28-160, PA-28-180 (Cherokee), PA-28-235 (Cherokee Pathfinder) PA-28-140 (Cherokee Cruiser), PA-28-150, PA-28-160, PA-28-180 (Cherokee), PA-28R-180, PA-28R-200 (Arrow), PA-28-151, PA-28-161, PA-28-181, PA-28R-201T, PA-28-236, PA-32-300, PA-32R-301T Prop-Jets, Inc 200, 200A, 200B, 200C, 200D Raytheon Aircraft Company V35B, V35B-TC	Piper 756-055 Piper 68804-03, 68804-04, 68804-05 Original Part Number InterAv 625-61623 Original Part Number Beechcraft 35-380093-3	R1224 R1224 PP Part # R1224 PP Part # R1224
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"105" (Special), PA-18S "105" (Special), PA-18A, PA-18 "125" (Army L-21A), PA-18S "125", PA-18AS "125", PA-18 "135" (Army L-21B), PA-18A "135", PA-18A "135", PA-18AS "135", PA-18 "150", PA-18AS "150", PA-18AS "150", PA-18AS "150", PA-18AS "150", PA-20S, PA-20S, PA-20 "115", PA-20S "115", PA-20 "135", PA-20S "135", PA-218, PA-22-135, PA-22S-135, PA-22S-130, PA-22S-150, PA-22-160, PA-22S-160, PA-28-140 (Cherokee Cruiser), PA-28-150, PA-28-180 (Cherokee), PA-28-25 (Cherokee Pathfinder), PA-28S-160, PA-28R-180, PA-28R-200 (Arrow), PA-12S, PA-30, PA-18A(Restricted), PA-18A"135" (Restricted), PA-18A"150" (Restricted) PA-28-140 (Cherokee Cruiser), PA-28-150, PA-28-160, PA-28-180 (Cherokee), PA-28-235 (Cherokee Pathfinder) PA-28-140 (Cherokee Cruiser), PA-28-150, PA-28-160, PA-28-180 (Cherokee), PA-28R-180, PA-28R-200 (Arrow), PA-28-151, PA-28-161, PA-28-151, PA-28-161, PA-28-161, PA-28-181, PA-28R-201T, PA-28-236, PA-32-300, PA-32RT-300, PA-32R-301T Prop-Jets, Inc 200, 200A, 200B, 200C, 200D Raytheon Aircraft Company V35B, V35B-TC 36, A36, A36TC, B36TC 23, H35, J35, K35, M35, N35, P35, 35-33, 35-A33, 35-B33, 35-C33, 35, A35, B35, C35, D35, E35, F35, G35, 35R Revo, Incorporated Colonial C1, Colonial C2, Lake LA-4 Sierra Hotel Aero, Inc. Navion D, Navion E, Navion F, Navion G Tiger Aircraft, LLC AA-5, AA-5A, AA-5B	Piper 756-055 Piper 68804-03, 68804-04, 68804-05 Original Part Number InterAv 625-61623 Original Part Number Beechcraft 35-380093-3 Beechcraft 36-380056-5 InterAv 625-61623 Original Part Number InterAv 625-61623 Original Part Number InterAv 625-61623 Original Part Number InterAv 625-61623 Original Part Number InterAv 625-61623 Original Part Number InterAv 625-61623 Original Part Number Ford C6FF-10316B, D4FF-10316-BA Prestolite FVR-4004, Lycoming LW-12747, LW-11357, Wico X17990, X16300B	R1224 R1224 PP Part # R1224 PP Part # R1224 R1224 PP Part # R1224 PP Part # R1224 PP Part # R1224 R1224 R1224 R1224
"105" (Special), PA-18S "105" (Special), PA-18A, PA-18 "125" (Army L-21A), PA-18S "125", PA-18AS "125", PA-18 "135" (Army L-21B), PA-18A "135", PA-18S "135", PA-18S "135", PA-18AS "150", PA-18A "150", PA-18A "150", PA-18A "150", PA-20, PA-20, PA-20, PA-20 "115", PA-20 "135", PA-20 "135", PA-22, PA-22-108, PA-22-135, PA-22-135, PA-22-150, PA-22S-150, PA-22S-160, PA-22S-160, PA-28-140 (Cherokee Cruiser), PA-28-150, PA-28-150 (PA-28-135 (Cherokee Pathfinder), PA-28S-160, PA-28S-180, PA-28R-180, PA-28R-200 (Arrow), PA-12, PA-12S, PA-30, PA-18A(Restricted), PA-18A"135" (Restricted), PA-18A"150" (Restricted) PA-28-140 (Cherokee Cruiser), PA-28-150, PA-28-160, PA-28-180 (Cherokee), PA-28-235 (Cherokee Pathfinder) PA-28-140 (Cherokee Cruiser), PA-28-150, PA-28-160, PA-28-180 (Cherokee), PA-28R-180, PA-28R-200 (Arrow), PA-28-151, PA-28-161, PA-28-160, PA-28-180 (Cherokee), PA-28R-300, PA-32R-300, PA-32R-301T Prop-Jets, Inc 200, 200A, 200B, 200C, 200D Raytheon Aircraft Company V35B, V35B-TC 36, A36, A36TC, B36TC 23, H35, J35, K35, M35, N35, P35, 35-33, 35-A33, 35-B33, 35-C33, 35, A35, B35, C35, D35, E35, F35, G35, 35R Revo, Incorporated Colonial C1, Colonial C2, Lake LA-4 Sierra Hotel Aero, Inc. Navion D, Navion E, Navion F, Navion G Tiger Aircraft, LLC AA-5, AA-5A, AA-5B	Piper 756-055 Piper 68804-03, 68804-04, 68804-05 Original Part Number InterAv 625-61623 Original Part Number Beechcraft 35-380093-3 Beechcraft 36-380056-5 InterAv 625-61623 Original Part Number	R1224 R1224 PP Part # R1224 PP Part # R1224 R1224 PP Part # R1224 PP Part # R1224 PP Part # R1224 R1224 R1224 R1224 R1224
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U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

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

Form Approved
Budget Bureau No. 04-R060.1

FOR FAA USE ONLY
OFFICE IDENTIFICATION

(Airframe, Powerplant, Propeller, or Appliance) 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. MAKE MODEL Cessna 210D 1. AIRCRAFT SERIAL NO. NATIONALITY AND REGISTRATION MARK 21058252 NAME (As shown on registration certificate) ADDRESS (As shown on registration certificate) 2. OWNER Western Coatings Co, Inc. 2525 Country Club Dr. Odessa Tx. 3. FOR FAA USE ONLY 4. UNIT IDENTIFICATION 5. TYPE ALTER-UNIT MODEL SERIAL NO. MAKE REPAIR ATION X AIRFRAME POWERPLANT PROPELLER TYPE APPLIANCE MANUFACTURER 6. CONFORMITY STATEMENT A. AGENCY'S NAME AND ADDRESS B. KIND OF AGENCY C. CERTIFICATE NO U.S. CERTIFICATED MECHANIC Basin Aviation FOREIGN CERTIFICATED MECHANIC 207-506 Midland Airpark CERTIFICATED REPAIR STATION Midland, Texas 79710 MANUFACTURER D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge. DATE SIGNATURE OF AUTHORIZED INDIVIDUAL Samur 2356328 8/25/88 7. APPROVAL FOR RETURN TO SERVICE Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED OTHER (Specify) PAA FLY. STANDARDS MANUFACTURER INSPECTION AUTHORIZATION INSPECTOR BY CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR FAA DESIGNEE REPAIR STATION OF AIRCRAFT DATE OF APPROVAL OR CERTIFICATE OR SIGNATURE OF AUTHORIZED INDIVIDUAL REJECTION DESIGNATION NO. 2356328 8/25/88 207-506

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: Mbt-12 marker beacon, Mark 12A Nay Com, p/s and indicator, Audio panel, audio amp, UDI-4 DME, and UGR-3 g/s receiver. Installed: New Narco Mark 12D with g/s and Indicator, new Narco CP136M Audio panel, and avionics master. Using existing avionics mounting apparatus. All work done in compliance with AC 43.13 paragraphs 1 and 2 and current avionics manuals. A functional test of all the equipment listed on this 337 has been performed in accordance with 23.1301 and checked in accordance with 23.1431 for

in the aircraft. END

operating satisfactorily and did not adversely affect any other components

ADDITIONAL SHEETS ARE ATTACHED

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

MAJOR REPAIR AND ALTERATION

Form Approved Budget Bureau No. 04-R060.1

FOR FAA USE ONLY

OFFICE IDENTIFICATION

	(Airtrame,	Powerplant, Pro	pel	ler,	or Appliar	ice)					
INSTRUCT	ΓΙΟΝS: Print or ty ions and disposition	pe all entries. See	FAR	43.9	, FAR 43 Appe	endix B, and	d AC 43.9-	1 (or	subsequent	revision t	hereof)
1 ALDCDAFT	MAKE	SRA				MODEL	210-D				
1. AIRCRAFT	SERIAL NO.	08252				NATIONAL	ITY AND I		TRATION MA	ARK	
		on registration certific	ate)			ADDRESS (stration certif	icate)	
2. OWNER	Ways An	ethur A Ji					Myerwo			1	
			3	3. F	OR FAA USE ON	LY	Las Tr	exa.	s 7523	4	
		4. UN	T ID	ENTI	FICATION					5.	ГҮРЕ
UNIT	M	NAKE			MODEL		5	SERIAL	но.	REPAIR	ALTER- ATION
AIRFRAME	******	***************************************	As de	scrib	ed in item 1 ab	ove)	********	****	•	XX	
POWERPLANT											
PROPELLER											
APPLIANCE	MANUFACTURER										
			,	CONT	CODMITY CTATES	FNT					
Α.	AGENCY'S NAME	AND ADDRESS	0.	CONI	FORMITY STATEM B. KIN	D OF AGE	NCY		C. CER	TIFICATE	NO.
	ert H. Card			X	U.S. CERTIFICAT	ED MECHANI	С				
Car	d Aircraft,	Inc.			FOREIGN CERTIF		WATER TO THE PARTY OF THE PARTY		A&P 101	446 IA	
Col	1 Box 32 cate, Texas	75423	16	CERTIFICATED REPAIR STATION MANUFACTURER							
attachme	nts hereto have be	nd/or alteration made een made in accorda urnished herein is to	nce v	vith	the requirement	its of Part	43 of the I	U.S. F	described or ederal Aviat	the reve ion Regu	erse or lations
DATE	10/16/76	nie aser, nese Min leading e	3 3	SIC	Robert	AUTHORIZED	Card	JAL 2	600-2 601-15		
		7. A	PPRO	VAL	FOR RETURN TO	SERVICE					
Pursuant to the Adminis	the authority give	n persons specified l al Aviation Administ	ration	th n an	e unit identifie d is APPF	d in item 4	REJECTED)	the manne	r prescrib	ed by
	FLT. STANDARDS PECTOR	MANUFACTURER	X		PECTION AUTHORIZ		OTHER (Spec	cify)			
	DESIGNEE	REPAIR STATION	311	OF OF	TRANSPORT INSPI AIRCRAFT	CTOR	native ce	n die U	ing control	MIN M	in line
REJECTION	0/16/76	DESIGNATION NO		SIG	Robert	AUTHORIZE	End	UAL)			

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.

2 T	Replaced rib assy. no Replaced skin leading his repair conforms to Cossna Service Manual his repair is listed in	edge outbd- F.A.R. 43-13 200 series.	-l, section g book.	0720	608-2 601-15	
Car	d Airstaff, Inc.				AMP lelind I	
	ert E. Cará	XX				
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DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

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

Form Approved Budget Bureau No. 04-R060.1

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.

	MAKE Ce	essna			MODEL	210D			
1. AIRCRAFT	SERIAL NO.	21058252			NATIONALI	TY AND REGIS	TRATION MA	ARK	
	NAME (As shown	on registration certifica	rte)		ADDRESS (A	As shown on regi	stration certifi	icate)	
2. OWNER	James A.	Rall							
	00000 110	20044	0 5	OD SAA HOE ON		as, Texas	75218		
			3. F	OR FAA USE ONL	Y				
		4. UNIT	IDENTI	IFICATION		1		5.	ГҮРЕ
UNIT	N	MAKE		MODEL		SERIAL	но.	REPAIR	ALTER- ATION
AIRFRAME	******	A	s describ	ped in item 1 abo	ve) ******		•		XX
POWERPLANT			/		- ()				
PROPELLER				0	X	90			
APPLIANCE	MANUFACTURER		- ,		Duy				
	05110110 11111		6. CON	FORMITY STATEME					
	GENCY'S NAME		(v	U.S. CERTIFICATE	OF AGE	-	A&P 4	TIFICATE	NO.
John	Box 123	on //	122	FOREIGN CERTIFIC			202 7	7 7 0 1	
	ison Texas	11		CERTIFICATED REP					
	Na Sanaji			MANUFACTURER					
attachmer	its hereto have be	nd/or alteration made een made in accordan urnished herein is tru	ce with	the requirement	ts of Part 4	3 of the U.S. F	described on ederal Aviat	the reve ion Regu	erse or lations
DATE	TO GETT		SI	GNATURE OF A	UTHORIZED	INDIVIDUAL	C 330	SW.	-
5-5	72		1181	John	FM	enter	CO ME'		
		7		FOR RETURN TO		19,26	THE S	200	
Pursuant to t	the authority give	n persons specified be al Aviation Administra	elow, th	ne unit identified	in item 4	was inspected in	n the manne	r prescrib	ed by
FAA	FLT. STANDARDS	MANUFACTURER	V	SPECTION AUTHORIZA	FALLY ME	OTHER (Specify)	F 1-197-05	P TOLEY	
BY	DESIGNEE	REPAIR STATION	OF	NADIAN DEPARTMEN TRANSPORT INSPEC AIRCRAFT		an witnessn	ava Lawisti	312 - AS	W ING
DATE OF APPI REJECTION 5-5	-72	CERTIFICATE OR DESIGNATION, NO.		GNATURE OF A			Marca Bres	Will La	3320)

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

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

1. Installation of Radair Mixture Sensor checked and found to conform to installion instruction as per STC SA 868 WE.

2. Installation of Mitchel Auto Pilot AK126E checked and found to conform to installion instructions as per STC 330 SW. Mitchel Service letter ML-32(AD72-2-6).

B. Empty Weight 1992.6 E.W.C.G. 37.05 Usefull Load 1102.9 Moment 73995.0

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

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

Form Approved Budget Bureau No. 04-R060.1

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.

MAKE										
	MAKE			MODEL						
1. AIRCRAFT	Cessna				210 D					
	SERIAL NO.				NATIONALITY AND REGISTRATION MARK					
	21058252				N3752Y ADDRESS (As shown on registration certificate)					
2 OWNED	NAME (As shown	on registration certificate	e)		ADDRESS (A					
2. OWNER	Jam	es A. Ball			10801 Garland Road					
	0 0 0 1 1 1	ob II, Ball	2	Dallas, Texas					75218	
3. FOR FAA USE ONLY										
		A. T.								
4. UNIT IDENTIFICATION 5. TYPE										
UNIT	T MAKE			MODEL SERIAL N			NO.		ALTER-	
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		JENIAL	REPAIR	ATION		
AIRFRAME	AIRFRAME (As described in item 1 above)								X	
				END:						
POWERPLANT	1									
POWERPLAIN										
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PROPELLER	CE. W. A	ca	1	1997, 1	33	. 05	73, 99	2.0		
7 0000 2	TYPE			0.1	13	•	- Indiana	* 3		
9551-5	1AD			4.4	10	• 5				
APPLIANCE	MANUFACTURER	T. Alex		AAR D	21	• —	123.30			
				003 7	3.2		20 03			
9.	TARRES SAN		6. CO	NFORMITY STATEM	MENT		Taxanilla.			
A. /	AGENCY'S NAME	AND ADDRESS		B. KIND OF AGENCY			C. CERTIFICATE NO.			
	ronautics,			U.S. CERTIFICATED MECHANIC						
11711 E. Northwest Hwy.			-	FOREIGN CERTIF	ICATED MECHA	MIC	CRS 202-13			
Dallas, Texas			2				Limited Radio			
3 50 At	a 20 Augustones of the OS E			MANUFACTURER						
D. I certify	that the repair an	id/or alteration made	to th	he unit(s) identi	ified in item	4 above and	described on	the reve	rse or	
and that	the information fu	en made in accordance urnished herein is true	e wit	correct to the b	est of my k	nowledge.	ederal Aviati	ion Regu	lations	
DATE	de la la la la la la la la la la la la la	Thirties in he	-	SIGNATURE OF			ender.	-VII		
Strict Strict	OR OFFIE OF	A/T at Sta, F		A TORE OF	- CKIZED	- O	0000000/	of a	2	
May 6, 1970				Con le taperedo.						
7. APPROVAL FOR RETURN TO SERVICE										
Pursuant to	the authority giver	n persons specified bel-	OW I	the unit identified	d in item 4	was inspected in	the manner	r prescrib	ed by	
the Administ	rator of the Federa	al Aviation Administrat	tion a	and is APPR	ROVED 1	REJECTED	T the manner	preserio	cu by	
FAA	FLT. STANDARDS	LT. STANDARDS MANUFACTURER		INSPECTION AUTHORIZATION OTHER (Specify)		1-80/64	WHITE G			
BY INSP	ECTOR									
ALC: NO STATE OF THE STATE OF T	DESIGNEE	REPAIR STATION		CANADIAN DEPARTME OF TRANSPORT INSPE						
	Λ		C	OF AIRCRAFT	Transmission and	in the same of	No. of the last	Maria L	as II	
			S	IGNATURE OF	AUTHORIZED	INDIVIDUAL		A LONG THE REAL PROPERTY.	1	
May 6, 1970 DESIGNATION NO. CRS 202-13				Soul!	6	toda	101	Siens	2	
for the outer					2					
FAA Form 3	55/ (7-67)		(/				(8	3320)	

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

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

Installed Genave Beta/4096 ATC Transponder at Sta. #15.5. Installed Transponder antenna on belly of A/C at Sta. #13.0. Circuit of Beta/4096 is protected by a 5 Amp "In-line" fuse mounted in panel under ADF and labelled "Xponder". All work was performed in accordance with AC 43.13-2, Chapters 1, 2, 3, and Section 1. Electrical load computed to be 39.5 Amps and A/C is equipped with a 50 Amp. Generator.

Weight and Balance Data:

<u>Item</u>	Weight	Arm	Moment
A/C Empty Beta/4096	1992.6	37.1 15.5	73, 925.5
Xpndr Antenna	4.4	13.0	68.2
New A/C E. W. & CG New Useful Load - 1102.9 lbs.	1997.1	37.05 Gross wt	73,995.0 3100 lbs.

----END------

FEDERAL AVIATION AGENCY

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

Form Approved Budget Bureau No. 04-R060.1

FOR FAA USE ONLY

OFFICE IDENTIFICATION

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INSTRUCT for instructi	TIONS: Print or ty ons and disposition	pe all entries. See	FAR	43.9, FAR 43 A _I	pendix B, and	AC 43.9-1 (or	subsequent	revision th	hereof)		
1 ALDCDAFT	MAKE	essna			MODEL	MODEL 210 D					
1. AIRCRAFT	SERIAL NO.	1058252		NATIONALITY AND REGISTRATION MARK							
2. OWNER			cate)								
	James	A. Ball			Dallas, Texas 75218						
			- 3	B. FOR FAA USE	ONLY						
							W 60				
4. UNIT IDENTIFICA				ENTIFICATION	FICATION				5. TYPE		
UNIT MAKE			MODEL	SERIAL NO.		REPAIR	ALTER- ATION				
AIRFRAME	(As described in item 1 above)							X			
POWERPLANT					1,	Affin and a second					
PROPELLER									760		
APPLIANCE	MANUFACTURER	3.048): [[2] [] [] [] []		ve	p3*73-51	G _{jun} er523					
*	H SPEPT A	TAU TAUS	6.	CONFORMITY STA	TEMENT						
	AGENCY'S NAME			471				RTIFICATE NO.			
John J. Hinton Bates Aviation, Inc.			X U.S. CERTIFICATED MECHANIC FOREIGN CERTIFICATED MECHANIC A&P 4				94387				
11715 E. N. W. Hwy.			CERTIFICATED REPAIR STATION				011202	-13			
Dallas, Texas 75218				MANUFACTURER TO THE PARTY OF TH							
attachme	nts hereto have be	nd/or alteration ma een made in accord furnished herein is t	ance v	with the requirer	nents of Part	43 of the U.S. I					
DATE				SIGNATURE OF AUTHORIZED INDIVIDUAL							
. 1-4-69				John A Henton							
Durayant to	the authority sive			VAL FØR RETURN					had hu		
the Adminis	trator of the Fede	en persons specified ral Aviation Agency	and	is KAPPROV	/ED R	EJECTED	in the mann	er prescri	bed by		
61.151.000	FLT. STANDARDS PECTOR	MANUFACTURER	X	INSPECTION AUTHO		OTHER (Specify)					
	DESIGNEE	REPAIR STATION		OF TRANSPORT IN OF AIRCRAFT	ISPECTOR						
DATE OF APPREJECTION	PROVAL OR	CERTIFICATE OR DESIGNATION NO A&P 494383		SIGNATURE O	AUTHORIZE	INDIVIOUAL					

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 cessna nav-com 300 2. Installed Narco VOI-4, Narco MK12A with VOA9, and King KX-160. Receivers mounted in instrument panel radio mounting area using Cessna STD. mounting proceedure. KX-160 and MK12A power supply located on Cessna radio shelf aft of wheel Zwell reference Cessna Electronics Manual Fig. 3-2 and 5-8) aft of receivers supported by Cessna mounting brkt. to aircraftos Vr Narco interconnect cable used. interconnect cable fabricated from MIL-W-5086, wire dide a specified. protection provided by trip Ares cincula Electrical load competed ambs. raft equipped with 50 amp generator. New empty weigh New E. W. Q. New useful load hce: AC43.13-2, chapters 1 & 2.