

# AVIONIK STRAUBING

VERTRIEBS - UND SERVICE GMBH · FLUGPLATZ WALLMÜHLE (EDMS) · D-94348 ATTING BEI STRAUBING

AVIONIK STRAUBING GMBH · FLUGPLATZ · D-94348 ATTING

## UNISON RENTALS

Dietmar Frey

17 Leeukloof Drive \* Tamboerskloof

8040 CAPE TOWN Camps Bay

South Africa

Gesch.-Führ. Dipl.-Ing. G. F. Hemmel, I. M. Hemmel  
TEL. ++49(0)9429-9424-0 FAX ++49(0)9429-9424-24  
www.avionik.de e-mail: info@avionik.de

COMMERZBANK REMSCHEID BLZ 340 400 49 KTO 6480065  
BIC COBADEFF340 IBAN DE95 3404 0049 0648 006500  
POSTBANK MÜNCHEN BLZ 700 100 80 KTO 0449316-802  
BIC PBNKDEFF IBAN DE97 7001 0080 0449 3168 02  
POSTBANK SAARBRÜCKEN BLZ 590 100 66 KTO 8660562199  
BIC PBNKDEFF IBAN DE90 5901 0066 8660 5621 99  
RAIFFEISENBANK RATTISZELL BLZ 743 691 46 KTO 125750  
BIC GENODEF1RZK IBAN DE71 7436 9146 0000 1257 50  
REG.-GERICHT STRAUBING HRB-9620 VATNr.DE131449992

Atting, May 26, 2009

Dear Mr. Frey ,

This Paperwork is for the complete installation into a Cessna P210N with the registration N6593W.

The documentation contained:

- Form 337 GNS430W and GA35
- Instructions for continued airworthiness and AML
- Release to Service
- STC's Cover Page
- W&B
- Form one's

If you have questions regarding these matters, don't hesitate to contact me.

Thank you and best regards,

  
Wolfgang Knott

# AVIONIK STRAUBING

VERTRIEBS - UND SERVICE GMBH · FLUGPLATZ WALLMÜHLE (EDMS) · D-94348 ATTING BEI STRAUBING

AVIONIK STRAUBING GMBH · FLUGPLATZ · D-94348 ATTING

Gesch.-Führ. Dipl.-Ing. G. F. Hemmel, I. M. Hemmel  
TEL. ++49(0)9429-9424-0 FAX ++49(0)9429-9424-24  
www.avionik.de e-mail: info@avionik.de

## AVIONICS INSTALLTION

### CESSNA P210N , N6593W

Form 337 2x GNS430W W & B Changes Equipment Revision List Release to Service 2x GNS430W Maintenance Release GMA347	1
STC with AML	2
ICA	3
FMS	4
FAA Form 8130-3	5

**KEEP WITH AIRCRAFT**

REQUIRED FOR AVIONICS SERVICE



<b>MAJOR REPAIR AND ALTERATION</b> <b>(Airframe, Powerplant, Propeller, or Appliance)</b>				Form Approved OMB No. 2120-0020 11/30/2007		Electronic Tracking Number	
				For FAA Use Only			
INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))							
<b>1. Aircraft</b>		Nationality and Registration Mark <b>N6593W</b>			Serial No. <b>P210-00801</b>		
		Make <b>Cessna</b>			Model <b>P210N</b>		Series
<b>2. Owner</b>		Name (As shown on registration certificate) <b>Southern Aircraft Consultancy Inc Trustee</b>			Address (As shown on registration certificate) Address <b>The Cot Cot Valley St Just</b>		
					City <u>Cornwall</u> State <u></u> Zip <u>TR19-7NT</u> Country <u>United Kingdom</u>		
<b>3. For FAA Use Only</b>							
<b>4. Type</b>		<b>5. Unit Identification</b>					
Repair	Alteration	Unit	Make	Model		Serial No.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)		_____	
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT					
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER					
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type _____ Manufacturer _____				
<b>6. Conformity Statement</b>							
A. Agency's Name and Address				B. Kind of Agency			
Name <b>Avionik Straubing GmbH</b>				<input type="checkbox"/> U. S. Certificated Mechanic		<input type="checkbox"/> Manufacturer	
Address <b>GmbH Flugplatzstr. 5</b>				<input type="checkbox"/> Foreign Certificated Mechanic		C. Certificate No.	
City <b>Atting</b> State _____				<input checked="" type="checkbox"/> Certificated Repair Station		<b>AQQY020K</b>	
Zip <b>94348</b> Country _____				<input type="checkbox"/> Certificated Maintenance Organization			
D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.							
Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>			Signature/Date of Authorized Individual <b>Gunter Hemmel</b>				
<b>7. Approval for Return to Service</b>							
Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is <input type="checkbox"/> Approved <input type="checkbox"/> Rejected							
BY	FAA Fit. Standards Inspector		Manufacturer	Maintenance Organization		Persons Approved by Canadian Department of Transport	
	FAA Designee	<b>X</b>	Repair Station	Inspection Authorization		Other (Specify)	
Certificate or Designation No. <b>AQQY020K</b>			Signature/Date of Authorized Individual <b>Gunter Hemmel</b>				

## 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.)*

N6593W

Nationality and Registration Mark

May 25, 2009

Date

#### Equipment Removed

2x COM King KY196, DME/NAV King KNS81, NAV King KN53 and GPS King KLN90B.

#### Equipment Installed

COM/NAV/GS/GPS 2x Garmin GNS430W, PN: 011-01060-00, was installed

in the same location as where the 2x King KY196, King KN53, King KNS81 and King KLN90B had been installed.

GPS Antenna 2x Garmin GA35 PN:013-00235-00, was installed at the same location as where the old KA91 had been installed.

#### DOCUMENTATION

This Garmin GNS430W installation approval is based on STC SA01933LA, for Garmin Model 400W Series GPS-WAAS Approved Model List.

The GNS430W installation was performed in accordance with STC and Garmin GNS430W Installation Manual, P/N 190-00356-02 Rev. E dated March 2008.

This Garmin GA35 installation approval is based on STC SA01695SE, for Garmin GA Series FAA Approved Model List. The GA installation was performed in accordance with STC and Garmin GA STC Antenna Installation Manual, P/N 190-00569-00 Rev. F dated August 2007.

1. The 2 x Garmin GNS430W are installed in the center Avionics Panel in direct view and reach of the pilot and copilot.
2. Wire used for the cable harness and AWG sizes mentioned in the installation manual.
3. Removal of old racks and installation of Garmin GNS430W racks.
4. The Garmin GNS430W are also wired to the existing Equipment and new installed Antennas in accordance with the installation manual. The Garmin GNS430W # 1 are also connected to the existing HSI King KI525 .
5. The 2x Garmin GA35 WAAS Antennas are installed on top of the aircraft with the manufacturer supplied backing plate and sealer.
6. The Garmin GNS430W #2 are connected to the existing CDI King KI204.
7. All required Ground and Flight Tests of the above systems were performed in accordance with the Installation Manual. all systems performed within required specifications. No interference was noted to and from other installed equipment.
8. The aircraft records are updated with the revised weight and balance and aircraft equipment list, reflecting the above alteration.
9. Aircraft center of gravity limits are not exceeded.
10. Entered the description of work performed in the Aircraft Maintenance Logbook.
11. Added GNS430W Pilot's Guide, and FAA approved Garmin GNS400W Series Flight Manual Supplement, dated December 21,2006 to the AFM. Performed aircraft electrical load analysis; power consumption does not exceed 80% of the electrical charging system.

All pertinent details regarding this installation are on file at this repair station under W/O-No.: 09031813

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS (ICA's) Garmin GNS400W Series P/N:190-00356-65

Revision :A Date : 11-03-06 Installed into the AFM.

-----END-----

☐ Additional Sheets Are Attached



**Gewichts- und Balance Änderung / Ausrüstungslisten Revision**  
**Weight and Balance Changes / Equipment Revision List**

Aircraft MFR: Cessna  
Aircraft Type: P210N

Registration: N6593W  
W/O: 09031813

ITEM	WEIGHT [lbs]		ARM [inch]	MOMENT [inchlbs]	POWER [W]
	IN	OUT			
1. King KMA24 #29389		1,7	12	-20	-26,6
2. King KY196 #15792		3,2	12	-38	-28
3. King KY196 #20913		3,2	12	-38	-28
4. King KNS81 #4785		5,0	12	-60	-18,5
5. King KN53 #6693		3,0	12	-36	-8,4
6. King KLN90B #26324		6,3	12	-76	-27,5
7. PS PM1000 #H02920-M		0,7	12	-8	-10
8. King KA60		0,2	24	-5	--
9. King KA91 #11833		0,4	79	-32	--
10. Garmin GMA347 #47006321	2,4		12	29	50
11. Garmin GNS430W #23422867	6,2		12	74	43
12. Garmin GNS430W #23421054	6,2		12	74	43
13. Garmin GA35 #46661	0,4		79	32	--
14. Garmin GA35 #46400	0,4		79	32	--
15. Comant CI105 #41932	0,2		24	5	--
16.				0	
17.				0	
18.				0	
19.				0	
20.				0	
21.				0	
22.				0	
23.				0	
24.				0	
25.				0	
TOTAL:		-7,90		-67	-11
LAST WEIGHT AND BALANCE FROM:					
*Σ:		-7,90		-67,00	-11

TOT.MOMENT: -67,00 inchlbs  
TOT.WEIGHT: -7,90 lbs.

= NEW C.G.: 8,48 inch

THE NEW USEFUL LOAD IS lbs.  
RESULTING POWER CHANGE IS -11 WATTS.

\*Diese Gewichtsänderung ist rein auf den oben genannten Umbau bezogen. Gesamtgewicht und Gesamthebelarm sind entsprechend zu ergänzen.

\*This weight and balance change refers only to the above alteration. Total aircraft weight and balance has to be changed accordingly.

JA/YES ☒ NEIN/NO ☐

Issued by: Dettenkofer Date: May 25, 2009

Authorized Release Signature

*[Handwritten Signature]*  
*[Circular Stamp: G. HEMMEL, AQY020K]*





AIRCRAFT CERTIFICATE OF RELEASE TO SERVICE AND MAINTENANCE STATEMENT

Aircraft Type: CESSNA P210N Registration Mark: N6593W  
Removal of 2x COM King KY196, DME/NAV King KNS81, NAV King KN53  
and GPS King KLN90B.-----  
Installation of 2x COM/NAV/GS/GPS Garmin GNS430W a/w STC  
SA01933LA.-----

The aircraft, airframe, avionic equipment or instrument identified  
above was repaired and inspected in accordance with current  
maintenance rules of the Federal Aviation Agency and is  
approved for return to service. Pertinent details are on file at this  
repair station under work order no.: 09031813

Date: **May 25, 2009**

Signed: \_\_\_\_\_

Print name of person signing: \_\_\_\_\_

Avionik Straubing GmbH • 94348 Atting • Germany • FAA: AQY020K  
FO-P-10 Issue Date: Nov. 16, 2005 Rev. 1



AIRCRAFT CERTIFICATE OF RELEASE TO SERVICE AND MAINTENANCE STATEMENT

Aircraft Type: CESSNA P210N Registration Mark: N6593W  
Removal of 2x COM King KY196, DME/NAV King KNS81, NAV King KN53  
and GPS King KLN90B.-----  
Installation of 2x COM/NAV/GS/GPS Garmin GNS430W a/w STC  
SA01933LA.-----

The aircraft, airframe, avionic equipment or instrument identified  
above was repaired and inspected in accordance with current  
maintenance rules of the Federal Aviation Agency and is  
approved for return to service. Pertinent details are on file at this  
repair station under work order no.: 09031813

Date: **May 25, 2009**

Signed: \_\_\_\_\_

Print name of person signing: \_\_\_\_\_

Avionik Straubing GmbH • 94348 Atting • Germany • FAA: AQY020K  
FO-P-10 Issue Date: Nov. 16, 2005 Rev. 1



# MAINTENANCE RELEASE

## MINOR CHANGE OF

Aircraft Type: Cessna P210N Registration Mark: N6593W

Change of Marker /Audio Panel King KMA24 to Marker/ Audio Panel Garmin GMA347. The complete installation was performed in accordance with the Garmin GMA347 Installation Manual P/N 190-00325-01 Rev. C Nov. 2007 used for the cable harness is specified in the installation manuals. The GMA347 is connected to existing Marker Antenna. The GMA347 is connected to existing Equipment in accordance with Garmin GMA347 Installation Manual P/N 190-00325-01 Rev. C Nov. 2007. All required Ground and Flight Tests of the above system were performed in accordance with the Garmin GMA347 Installation Manual P/N 190-00325-01 Rev. N Nov. 2007. All systems performed within required specifications. No interference was noted to and from other installed equipment. The aircraft records were updated with the revised weight and balance and aircraft equipment list, reflecting the above alteration. Aircraft center of gravity limits are not exceeded. The description of work performed was entered in the Aircraft Maintenance Logbook. Added Garmin GMA347 Pilot's Guide, P/N190-00325-00 Rev. A. Performed aircraft electrical load analysis; power consumption does not exceed 80% of the electrical charging system.-----

The aircraft, airframe, avionic equipment or instrument identified above was repaired and inspected in accordance with current maintenance rules of the Federal Aviation Agency and is approved for return to service. Pertinent details are on file at this repair station under work order No. **09031813**.

Signed: .....



Date: May 25, 2008

FAA: AQQY020K

Avionik Straubing GmbH

• 94348 Atting •

Germany

Date: Oct. 01,2001

Rev.2

FO-P-07



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

*Number* SA01695SE

*This certificate, issued to*

**Garmin AT, Inc.  
2345 Turner Road SE  
Salem, OR 97302**

*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 Approved Model List (AML)

*Make:*

No. SA01695SE for list of approved aircraft

*Model:*

models and applicable airworthiness regulations.

*Description of the Type Design Change:* Installation of antenna models identified in the Master Data List in accordance with Garmin Supplemental Type Certificate Master Data List, P/N 005-C0373-00, Revision D, dated August 21, 2006, or later Federal Aviation Administration approved revision.

*Limitations and Conditions:* Compatibility of this design change with previously approved modifications must be determined by the installer. A copy of this certificate must be maintained as part of the permanent records for the modified aircraft. This STC is for physical installation only. For operational Airworthiness approval refer to data for the interfaced receiving equipment.

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:* March 3, 2006

*Date reissued:*

*Date of issuance:* August 31, 2006

*Date amended:* February 15, 2007



*By direction of the Administrator*

*[Signature]*  
(Signature)

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.

This certificate may be transferred in accordance with FAR 21.47.

FAA Approved Model List (AML) No. SA01695SE

FOR INSTALLATION OF GARMIN GA ANTENNA SERIES

<u>Aircraft Make and Model Designation</u>	<u>Type Certificate Number</u>	<u>Certification Basis</u>	<u>Required Approved Data &amp; Added Model Specific Limitations*</u>	<u>AML Revision Date</u>
185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24	CAR 3		
190	A-790	CAR 3		
195, 195A, 195B	A-790	CAR 3		
210, 210A, 210B, 210C, 210D, 210E, 210F, T210F, 210G, T210G, 210H, T210H, 210J, T210J, 210K, T210K, 210L, T210L, 210M, T210M, 210N, P210N, T210N, 210R, P210R, T210R, 210-5, 210-5A	3A21	CAR 3		
206, P206, P206A, P206B, P206C, P206D, P206E, TP206A, TP206B, TP206C, TP206D, TP206E, U206, U206A, U206B, U206C, U206D, U206E, U206F, U206G, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G, 206H, T206H	A4CE	CAR 3 FAR 23		
207, 207A, T207, T207A	A16CE	FAR 23		
208, 208A, 208B	A37CE	FAR 23		
T-303 (Crusader)	A34CE	FAR 23		
310, 310A (USAF U-3A), 310B, 310C, 310D, 310E (USAF U-3B), 310F, 310G, 310H, E310H, 310I, 310J, 310J-1, E310J, 310K, 310L, 310N, 310P, T310P, 310Q, T310Q, 310R, T310R	3A10	CAR 3		
320, 320A, 320B, 320C, 320D, 320E, 320F, 320-1, 335, 340, 340A	3A25	CAR 3		
336	A2CE	CAR 3		
337, 337A, 337B, T337B, 337C, 337E, T337E, T337C, 337D, T337D, M337B, 337F, T337F, 337G, T337G, 337H, P337H, T337H, T337H-SP	A6CE	CAR 3 FAR 23		
401, 401A, 401B, 402, 402A, 402B, 402C, 411, 411A, 414, 414A, 421, 421A, 421B, 421C, 425	A7CE	CAR 3		
404, 406	A25CE	FAR 23		
441	A28CE	FAR 23		
501, 551	A27CE	FAR 23		



United States Of America  
Department of Transportation - Federal Aviation Administration

# Supplemental Type Certificate

*Number* SA01933LA

*This Certificate is issued to* **Garmin AT, Inc.  
2345 Turner Road S.E.  
Salem, Oregon 97302**

*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 Approved Model List (AML)

*Make:*

No. SA01933LA for list of approved aircraft

*Model:*

models and applicable airworthiness regulations.

## *Description of Type Design*

*Change:* Installation of Garmin Model 400W / 500W Series GPS-WAAS Navigation System in accordance with FAA Approved Garmin 400W Series Master Data List, Drawing No.: 005-C0221-00, Revision "A", dated October 31, 2006, or later FAA approved revision; or FAA Approved Garmin 500W Series Master Data List, Drawing No.: 005-C0221-01, Revision "A", dated October 31, 2006, or later FAA approved revision. For Garmin 400W installations: FAA Approved Garmin 400W Series Airplane Flight Manual Supplement, Document No.: 190-00356-63, Revision "Original", dated November 6, 2006, or later FAA approved revision. For Garmin 500W installation: FAA Approved Garmin 500W Series Airplane Flight Manual Supplement, Document No.: 190-00357-63, Revision "Original", dated November 6, 2006, or later FAA approved revision.

*Limitations and Conditions:* This approval should not be incorporated in any aircraft unless it is determined that the interrelationship between this installation and any previous approved configuration will not introduce any adverse effect upon the airworthiness of the 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*

*Date of application:* January 31, 2006

*Date received:*

*Date of issuance:* November 6, 2006

*Date amended:*



*By direction of the Administrator*

*S. Lamm. H. Asher*  
(Signature)

Manager, Systems & Equipment Branch, Los  
Angeles 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 (AML)

## Number STC: SA01933LA

Installation of Garmin Model 400W / 500W Series GPS-WASS Navigation System

Issued Date: November 6, 2006

Revision: "Original"

Aircraft Make and Model Designation	Type Certificate Number	Certification Basis	Required Approved Data & Added Model Specific Limitations	AML Revision Date
<b>Adam Aircraft</b>				
A500	A00009DE	FAR 23	005-C0221-00 005-C0221-01	
<b>Aermacchi S.p.A (Siai Marchetti)</b>				
S.205-18/F, S.205-18/R, S.205-20/F, S.205-20/R	A9EU	FAR 23	005-C0221-00 005-C0221-01	
S.205-22/R, S.208, S.208A	A10EU	CAR 3	005-C0221-00 005-C0221-01	
F.260, F.260B, F.260C, F.260D, F.260E, F.260F	A86EU	FAR 23	005-C0221-00 005-C0221-01	
S.211A				
<b>Aero Commander (Dynac Aerospace Corp)</b>				
10, 10A, 100, 100A, 100-180	1A21	CAR 3	005-C0221-00 005-C0221-01	
<b>Aeronautica Macchi S.p.A (Macchi)</b>				
AL 60, AL 60-B, AL 60-F5, AL 60-C5	7A12	CAR 3	005-C0221-00 005-C0221-01	
AM-3	A19EU	FAR 23	005-C0221-00 005-C0221-01	
<b>Aerostar Aircraft Corp. (Piper Aerostar)</b>				
PA-60-600, PA-60-601 (Aerostar 601), PA-60-601P (Aerostar 601P), PA-60-602P (Aerostar 602P), PA-60-700P (Aerostar 700P)	A17WE	FAR 23	005-C0221-00 005-C0221-01	
360, 400	A11WE	FAR 23	005-C0221-00 005-C0221-01	
<b>American Champion</b>				
402	A3CE	CAR 3	005-C0221-00 005-C0221-01	
7GCA, 7GCB, 7KC, 7GCBA, 7GCAA, 7GCBC, 7KCAB	A-759	CAR 4a	005-C0221-00 005-C0221-01	
8KCAB, 8GCBC	A21CE	FAR 23	005-C0221-00 005-C0221-01	
<b>Aviat (Sky International)</b>				
A-1, A-1A, A-1B	A22NM	FAR 23	005-C0221-00 005-C0221-01	
S-1S, S-1T, S-2, S-2A, S-2S, S-2B, S-2C	A8SO	FAR 23	005-C0221-00 005-C0221-01	



Aircraft Make and Model Designation	Type Certificate Number	Certification Basis	Required Approved Data & Added Model Specific Limitations	AML Revision Date
<b>Bellanca (Alexandria Aircraft LLC)</b>				
14-13, 14-13-2, 14-13-3, 14-13-3W	A-773	CAR 4a	005-C0221-00 005-C0221-01	
14-19, 14-19-2, 14-19-3, 14-19-3A, 17-30, 17-31, 17-31TC	1A3	CAR 3	005-C0221-00 005-C0221-01	
17-30A, 17-31A, 17-31ATC	A18CE	FAR 23	005-C0221-00 005-C0221-01	
<b>Britten-Norman (B-N Group Limited)</b>				
BN-2, BN-2A, BN-2A-2, BN-2A-3, BN-2A-6, BN-2A-8, BN-2A-20, BN-2A-21, BN-2A-26, BN-2A-27, BN-2B- 20, BN-2B-21, BN-2B-26, BN-2B-27, BN-2T, BN-2T- 4R	A17EU	FAR 23	005-C0221-00 005-C0221-01	
BN2A MK. III, BN2A MK. III-2, BN2A MK. III-3	A29EU	FAR 23	005-C0221-00 005-C0221-01	
<b>Bushmaster</b>				
Bushmaster 2000	A19WE	CAR 3	005-C0221-00 005-C0221-01	
<b>Cessna</b>				
120, 140	A-768	CAR 3	005-C0221-00 005-C0221-01	
140A	5A2	CAR 3	005-C0221-00 005-C0221-01	
150, 150A, 150B, 150C 150D, 150E, 150F, 150G, 150H, 150J, 150K, 150L, 150M, A150K, A150L, A150M, 152, A152	3A19	CAR 3 FAR 23	005-C0221-00 005-C0221-01	
170, 170A, 170B	A-799	CAR 3	005-C0221-00 005-C0221-01	
172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S	3A12	CAR 3, FAR 23	005-C0221-00 005-C0221-01	
172RG, P172D, R172E, R172F, R172G, R172H, R172J, R172K, 175, 175A, 175B, 175C	3A17	CAR 3	005-C0221-00 005-C0221-01	
177, 177A, 177B	A13CE	FAR 23	005-C0221-00 005-C0221-01	
177RG	A20CE	FAR 23	005-C0221-00 005-C0221-01	
180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	5A6	CAR 3	005-C0221-00 005-C0221-01	
182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182S, 182T, R182, T182, TR182, T182T	3A13	CAR 3, FAR 23	005-C0221-00 005-C0221-01	
185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24	CAR 3	005-C0221-00 005-C0221-01	
190, 195, 195A, 195B	A-790	CAR 3	005-C0221-00 005-C0221-01	
210, 210A, 210B, 210C, 210D, 210E, 210F, T210F, 210G, T210G, 210H, T210H, 210J, T210J, 210K, T210K, 210L, T210L, 210M, T210M, 210N, P210N, T210N, 210R, P210R, T210R, 210-5, 210-5A	3A21	CAR 3	005-C0221-00 005-C0221-01	



<b>Aircraft Make and Model Designation</b>	<b>Type Certificate Number</b>	<b>Certification Basis</b>	<b>Required Approved Data &amp; Added Model Specific Limitations</b>	<b>AML Revision Date</b>
206, P206, P206A, P206B, P206C, P206D, P206E, TP206A, TP206B, TP206C, TP206D, TP206E, U206, U206A, U206B, U206C, U206D, U206E, U206F, U206G, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G, 206H, T206H	A4CE	CAR 3, FAR 23	005-C0221-00 005-C0221-01	
207, 207A, T207, T207A	A16CE	FAR 23	005-C0221-00 005-C0221-01	
208, 208A, 208B	A37CE	FAR 23	005-C0221-00 005-C0221-01	
T-303 (Crusader)	A34CE	FAR 23	005-C0221-00 005-C0221-01	
310, 310A (USAF U-3A), 310B, 310C, 310D, 310E (USAF U-3B), 310F, 310G, 310H, E310H, 310I, 310J, 310J-1, E310J, 310K, 310L, 310N, 310P, T310P, 310Q, T310Q, 310R, T310R	3A10	CAR 3	005-C0221-00 005-C0221-01	
320, 320A, 320B, 320C, 320D, 320E, 320F, 320-1, 335, 340, 340A	3A25	CAR 3	005-C0221-00 005-C0221-01	
336	A2CE	CAR 3	005-C0221-00 005-C0221-01	
337, 337A, 337B, T337B, 337C, 337E, T337E, T337C, 337D, T337D, M337B, 337F, T337F, 337G, T337G, 337H, P337H, T337H, T337H-SP	A6CE	CAR 3, FAR 23	005-C0221-00 005-C0221-01	
401, 401A, 401B, 402, 402A, 402B, 402C, 411, 411A, 414, 414A, 421, 421A, 421B, 421C, 425	A7CE	CAR 3	005-C0221-00 005-C0221-01	
404, 406	A25CE	FAR 23	005-C0221-00 005-C0221-01	
441	A28CE	FAR 23	005-C0221-00 005-C0221-01	
501, 551	A27CE	FAR 23	005-C0221-00 005-C0221-01	
525, 525A	A1WI	FAR 23	005-C0221-00 005-C0221-01	
<b>Cirrus Design Corp</b>				
SR20, SR22	A00009CH	FAR 23	005-C0221-00 005-C0221-01	
<b>Commander Aircraft Co.</b>				
112, 112TC, 112B, 112TCA, 114, 114A, 114B, 114TC	A12SO	CAR 3	005-C0221-00 005-C0221-01	
<b>Cub Crafters</b>				
CC18-180, CC18-180A	A00009SE	FAR 23	005-C0221-00 005-C0221-01	
<b>DeHavilland/Bombardier</b>				
DHC-2 Mark I, DHC-2 Mark II, DHC-2 Mark III	A-806	CAR 3	005-C0221-00 005-C0221-01	
(Twin Otter) DHC-6-1, DHC-6-100, DHC-6-200, DHC-6-300	A9EA	CAR 3	005-C0221-00 005-C0221-01	
DHC-3	A-815	CAR 3	005-C0221-00 005-C0221-01	
DH.C1, 21, 22, 22A	A44EU	FAR 21	005-C0221-00 005-C0221-01	



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<b>Diamond Aircraft Company</b>				
DA 20-A1, DA20-C1	TA4CH	FAR 23	005-C0221-00 005-C0221-01	
DA 40	A47CE	FAR 23	005-C0221-00 005-C0221-01	
<b>Embraer</b>				
EMB-110P1, EMB-110P2	A21SO	FAR 23	005-C0221-00 005-C0221-01	
<b>Extra (Extra Flugzeugbau GmbH)</b>				
EA300, EA300L, EA300S, EA300/200	A67EU	FAR 23	005-C0221-00 005-C0221-01	
EA-400	A43CE	FAR 23	005-C0221-00 005-C0221-01	
<b>Fairchild</b>				
SA26-T, SA26-AT, SA226-T, SA226-AT, SA226-T(B), SA227-AT, SA227-TT	A5SW	CAR 3	005-C0221-00 005-C0221-01	
SA226-TC, SA227-AC (C-26A), SA227-BC (C-26A), SA227-PC	A8SW	FAR 23	005-C0221-00 005-C0221-01	
SA227-CC, SA227-DC	A18SW	FAR 23	005-C0221-00 005-C0221-01	
<b>Found Aircraft Development, Inc.</b>				
FBA-2C, FBA-2C1 (Bush Hawk), FBA-2C2 (Bush Hawk XP)	A7EA	CAR 3 FAR 23	005-C0221-00 005-C0221-01	
<b>Grob-Werke</b>				
G115, G115A, G115B, G115C, G115C2, G115D, G115D2, G115EG	A57EU	FAR 23	005-C0221-00 005-C0221-01	
G120A	A49CE	FAR 23	005-C0221-00 005-C0221-01	
G520, G520T	A63EU	FAR 23	005-C0221-00 005-C0221-01	
<b>Grumman American (Tiger Aircraft LLC)</b>				
AA-1, AA-1A, AA-1B, AA-1C	A11EA	FAR 23	005-C0221-00 005-C0221-01	
AA-5, AA-5A, AA-5B, AG-5B	A16EA	FAR 23	005-C0221-00 005-C0221-01	
<b>Gulfstream American Corp (Grumman)</b>				
G-44, G-44A, SCAN Type 30	A-734	CAR 4a	005-C0221-00 005-C0221-01	
<b>Helio (Alliance Aircraft Group, LLC)</b>				
15A, 20	3A3	CAR 4a	005-C0221-00 005-C0221-01	
H-250, H-295, HT-295, H391, H391B, H-395, H-395A, H-700, H-800	1A8	CAR 3	005-C0221-00 005-C0221-01	
HST-550, HST-550A	A4EA	CAR 3	005-C0221-00 005-C0221-01	
500	A2EA	CAR 3	005-C0221-00 005-C0221-01	
<b>King's Engineering Fellowship (The)</b>				
Model 44	A2WI	FAR 23	005-C0221-00 005-C0221-01	



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4500-300, 4500-300 Series II	A17CE	FAR 23	005-C0221-00 005-C0221-01	
<b>Lake/Revo (Global Amphibians LLC)</b>				
Colonial C-1, Colonial C-2, Lake LA-4, Lake LA-4A, Lake LA-4P, Lake LA-4-200, Lake Model 250	1A13	CAR 3	005-C0221-00 005-C0221-01	
<b>Lancair Company (The) (Columbia Aircraft)</b>				
LC40-550FG, LC41-550FG, LC42-550FG	A00003SE	FAR 23	005-C0221-00 005-C0221-01	
<b>Learjet</b>				
23	A5CE	CAR 3	005-C0221-00 005-C0221-01	
<b>Liberty Aerospace Incorporated</b>				
XL-2	A00008DE	FAR23	005-C0221-00 005-C0221-01	
<b>Lockheed Aircraft Corporation</b>				
402-2	2A11	CAR 3	005-C0221-00 005-C0221-01	
18	A-723	CAR 4a	005-C0221-00 005-C0221-01	
<b>Luscombe Aircraft Corporation</b>				
11A, 11E	A-804	CAR 3	005-C0221-00 005-C0221-01	
<b>Maule</b>				
Bee Dee M-4, M-4, M-4C, M-4S, M-4T, M-4-180C, M-4-180S, M-4-180T, M-4-210, M-4-210C, M-4-210S, M-4-210T, M-4-220, M-4-220C, M-4-220S, M-4-220T, M-5-180C, M-5-200, M-5-210C, M-5-210TC, M-5-220C, M-5-235C, M-6-180, M-6-235, M-7-235, MX-7-235, MX-7-180, MX-7-420, MXT-7-180, MT-7-235, M-8-235, MX-7-160, MXT-7-160, MX-7-180A, MXT-7-180A, MX-7-180B, M-7-235B, M-7-235A, M-7-235C, MX-7-180C, M-7-260, MT-7-260, M-7-260C, M-7-420AC, MX-7-160C, MX-7-180AC, M-7-420A, MT-7-420	3A23	CAR 3	005-C0221-00 005-C0221-01	
<b>Micco, Meyers (LanShe Aerospace, LLC)</b>				
MAC-125C, MAC-145, MAC-145A, MAC-145B	3A1	CAR 4a, FAR 23	005-C0221-00 005-C0221-01	
<b>Mitsubishi</b>				
MU-2B-25, MU-2B-35, MU-2B-26, MU-2B-36, MU-2B-26A, MU-2B-36A, MU-2B-40, MU-2B-60	A10SW	CAR 3	005-C0221-00 005-C0221-01	
MU-2B, MU-2B-10, MU-2B-20, MU-2B-15, MU-2B-30, MU-2B-35, MU-2B-25, MU-2B-36, MU-2B-26	A2PC	CAR 3	005-C0221-00 005-C0221-01	
<b>Mooney Aircraft Corp</b>				
M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20J, M20K, M20L, M20M, M20R, M20S	2A3	CAR 3	005-C0221-00 005-C0221-01	
M22	A6SW	CAR 3	005-C0221-00 005-C0221-01	
<b>Moravan (Moravan a.s.)</b>				
ZLIN 562L	A30EU	FAR 23	005-C0221-00 005-C0221-01	



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ZLIN Z-242L, Z-143L	A76EU	FAR 23	005-C0221-00 005-C0221-01	
<b>Navion Aircraft Company, Ltd. (Navion)</b>				
Navion, Navion A, Navion B, Navion D, Navion E, Navion F, Navion G, Navion H	A-782	CAR 3	005-C0221-00 005-C0221-01	
<b>North American (Rockwell International)</b>				
BC-1A, AT-6, AT-6A, AT-6B, AT-6C, AT-6D, AT-6F, SNU-7, T-6G	A-2-575	CAR 4a	005-C0221-00 005-C0221-01	
NA-260	1A18	CAR 3	005-C0221-00 005-C0221-01	
<b>OMF (Ostmeck. Flugzeugbau GmbH)</b>				
OMF-100-160	A46CE	FAR 23	005-C0221-00 005-C0221-01	
<b>Partenavia (Vulcanair S.p.A.)</b>				
P68, P68B, P68C, P68C-TC, P68 "Observer," P68 "Observer 2," P68 TC "Observer", AP68TP 300 "Spartacus", AP68TP 600 "Viator", VA300	A31EU	FAR 23	005-C0221-00 005-C0221-01	
<b>Piaggio (Piaggio Aero Industries S.p.A)</b>				
P-180	A59EU	FAR 23	005-C0221-00 005-C0221-01	
<b>Pilatus Aircraft Limited</b>				
PC-12, PC-12/45 PC-12/47	A78EU	FAR 23	005-C0221-00 005-C0221-01	
PC-6, PC-6-H1, PC-6-H2, PC-6/350, PC-6/350-H1, PC-6/350-H2, PC-6/A, PC-6/A-H1, PC-6/A-H2, PC-6/B-H2, PC-6/B1-H2, PC-6/B2-H2, PC-6/B2-H4, PC-6/C-H2, PC-6/C1-H2	7A15	CAR 3	005-C0221-00 005-C0221-01	
PC-7	A50EU	FAR 23	005-C0221-00 005-C0221-01	
<b>Piper (New Piper)</b>				
PA-12, PA-12S	A-780	CAR 3	005-C0221-00 005-C0221-01	
PA-18, PA-18S, PA-18-105, PA-18S-105, PA-18A, PA-18-125, PA-18S-125, PA-18AS-125, PA-18-135, PA-18A-135, PA-18S-135, PA-18AS-135, PA-18-150, PA-18A-150, PA-18S-150, PA-18AS-150, PA-19, PA19S	1A2	CAR 3	005-C0221-00 005-C0221-01	
PA-20, PA-20S, PA-20-115, PA-20S-115, PA-20-135, PA-20S-135	1A4	CAR 3	005-C0221-00 005-C0221-01	
PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160	1A6	CAR 3	005-C0221-00 005-C0221-01	
PA-23, PA-23-160, PA-23-235, PA-23-250, PA-E23-250	1A10	CAR 3	005-C0221-00 005-C0221-01	
PA-24, PA-24-250, PA-24-260, PA-24-400	1A15	CAR 3	005-C0221-00 005-C0221-01	
PA-28-140, PA-28-150, PA-28-151, PA-28-160, PA-28-161, PA-28-180, PA-28-235, PA-28S-160, PA-28R-180, PA-28S-180, PA-28-181, PA-28R-200, PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28RT-201T, PA-28-201T, PA-28-236	2A13	CAR 3	005-C0221-00 005-C0221-01	



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PA-30, PA-39, PA-40	A1EA	CAR 3	005-C0221-00 005-C0221-01	
PA-31, PA-31-300, PA-31-325, PA-31-350	A20SO	CAR 3	005-C0221-00 005-C0221-01	
PA-31P, PA-31T, PA-31T1, PA-31T2, PA-31T3, PA-31P-350	A8EA	CAR 3	005-C0221-00 005-C0221-01	
PA-32-260, PA-32-300, PA-32S-300, PA-32R-300, PA-32RT-300, PA-32RT-300T, PA-32R-301(SP), PA-32R-301(HP), PA-32R-301T, PA-32-301, PA-32-301T, PA-32-301FT, PA32-301XTC	A3SO	CAR 3	005-C0221-00 005-C0221-01	
PA-34-200, PA-34-200T, PA-34-220T	A7SO	CAR 3	005-C0221-00 005-C0221-01	
PA-42, PA-42-720, PA-42-1000	A23SO	FAR 23	005-C0221-00 005-C0221-01	
PA-42-720R	A32SO	FAR 23	005-C0221-00 005-C0221-01	
PA-44-180, PA-44-180T	A19SO	FAR 23	005-C0221-00 005-C0221-01	
PA-46-310P, PA-46-350P, PA-46-500TP	A25SO	FAR 23	005-C0221-00 005-C0221-01	
<b>Prop-Jets, Inc.</b>				
200, 200A, 200B, 200C, 200D, 400	3A18	CAR 3	005-C0221-00 005-C0221-01	
<b>PZL (Panstwowe Zaklady Lotnicze)</b>				
PZL-104 WILGA 80, PZL-104M WILGA 2000, PZL-WARSZAWA	A55EU	FAR 23	005-C0221-00 005-C0221-01	
PZL-KOLIBER 150A, PZL-KOLIBER 160A,	A69EU	FAR 23	005-C0221-00 005-C0221-01	
<b>PZL (PZL Mielec)</b>				
PZL M20 03	A68EU	FAR 23	005-C0221-00 005-C0221-01	
PZL M26 01	A44CE	FAR 23	005-C0221-00 005-C0221-01	
<b>Raytheon (Beech)</b>				
35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33, F33A, F33C, G33, H35, J35, K35, M35, N35, P35, S35, V35, V35A, V35B, 36, A36, A36TC, B36TC	3A15	CAR 3	005-C0221-00 005-C0221-01	
35, A35, B35, C35, D35, E35, F35, G35, 35R	A-777	CAR 3	005-C0221-00 005-C0221-01	
F90	A31CE	FAR 23	005-C0221-00 005-C0221-01	
76	A29CE	FAR 23	005-C0221-00 005-C0221-01	



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200, 200C, 200CT, 200T, A200, B200, B200C, B200CT, B200T, 300, 300LW, B300, B300C, 1900, 1900C, 1900D, A100-1 (U-21J), A200 (C-12A) A200 (C-12C), A200C (UC-12B), A200CT (C-12D) or (FWC-12D) or (RC-12D) or (C-12F) or (RC-12G) or (RC-12H) or (RC-12K), or (RC-12P) or (RC-12Q), B200C (C-12F) or (UC-12F) or (UC-12M), or (C-12R), 1900C (C-12J)	A24CE	FAR 23	005-C0221-00 005-C0221-01	
65, A65, A65-8200, 65-80, 65-A80, 65-A80-8800, 65-B80, 65-88, 65-A90, 70, B90, C90, C90A, E90, H90, 65-A90-1, 65-A90-2, 65-A90-3, 65-A90-4	3A20	CAR 3, FAR 23	005-C0221-00 005-C0221-01	
95, B95, B95A, D95A, E95, 95-55, 95-A55, 95-B55, 95-B55A, 95-B55B (T-42A), 95-C55, 95-C55A, D55, D55A, E55, E55A, 56TC, A56TC, 58, 58A	3A16	CAR 3 FAR 23	005-C0221-00 005-C0221-01	
58P, 58PA, 58TC, 58TCA	A23CE	FAR 23	005-C0221-00 005-C0221-01	
99, 99A, 99A(FACH), A99, A99A, B99, C99, 100, A100 (U-21F), A100A, A100C, B100	A14CE	FAR 23	005-C0221-00 005-C0221-01	
2000	A38CE	FAR 23	005-C0221-00 005-C0221-01	
3000	A00009WI	FAR 23	005-C0221-00 005-C0221-01	
390	A00010WI	FAR 23	005-C0221-00 005-C0221-01	
19A, B19, M19A, 23, A23, A23A, A23-19, A23-24, B23, C23, A24, A24R, B24R, C24R	A1CE	CAR 3	005-C0221-00 005-C0221-01	
60, A60, B60	A12CE	FAR 23	005-C0221-00 005-C0221-01	
18D, A18A, A18D, S18D, SA18A, SA18D	A-684	Aero 7A	005-C0221-00 005-C0221-01	
3N, 3NM, 3TM, JRB-6, D18C, D18S, E18S, RC-45J, E18S-9700, G18S, H18, C-45G, C-45H, TC-45G (SNB-5P), TC-45H, TC-45J, UC-45J (SNB-5)	A-765	CAR 3	005-C0221-00 005-C0221-01	
50, B50, C50, D50, D50A, D50B, D50C, D50E, D50E-5990, E50, F50, G50, H50, J50	5A4	CAR 3	005-C0221-00 005-C0221-01	
45 (YT-34), A45 (T-34A) or (B-45), D45 (T-34B)	5A3	CAR 3	005-C0221-00 005-C0221-01	
<b>Short Brothers</b>				
SC-7 Series 2, SC-7 Series 3	A15EU	FAR 23	005-C0221-00 005-C0221-01	
<b>Slingsby Aviation Ltd.</b>				
T67M260, T67M260-T3A	A73EU	FAR 23	005-C0221-00 005-C0221-01	
<b>SOCATA (SOCATA Groupe Aerospatiale)</b>				
TB9, TB10, TB20, TB21, TB200	A51EU	FAR 23	005-C0221-00 005-C0221-01	
TBM 700 (TBM850)	A60EU	FAR 23	005-C0221-00 005-C0221-01	
M.S.760, M.S.760A, M.S.760B	7A3	CAR 3	005-C0221-00 005-C0221-01	



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100S, 150ST, 150T, 235E, 235C MS880B, MS885, MS894A, MS893A, MS892A-150, MS892E-150, MS893E, MS894E	7A14	CAR 3	005-C0221-00 005-C0221-01	
GA-7 (Cougar)	A17SO	FAR 23	005-C0221-00 005-C0221-01	
<b>Stinson (Univair Aircraft Corporation)</b>				
108, 108-1, 108-2, 108-3, 108-5	A-767	CAR 3	005-C0221-00 005-C0221-01	
<b>Twin Commander Aircraft Corporation</b>				
500, 500-A, 500-B, 500-U, 500-S, 520, 560, 560-A, 560-E	6A1	CAR 3	005-C0221-00 005-C0221-01	
560F, 680, 680-E, 680F, 680F(P), 680FL, 680FL(P), 680T, 680V, 680W, 681, 685, 690, 690A, 690B, 690C, 690D, 695, 695A, 695B, 720	2A4	CAR 3	005-C0221-00 005-C0221-01	
700	A12SW	FAR 23	005-C0221-00 005-C0221-01	
<b>WACO Aircraft Company</b>				
WACO YMF	ATC 542	Aero 7A	005-C0221-00 005-C0221-01	
<b>Zenair Ltd.</b>				
CH2000	TA5CH	FAR 23	005-C0221-00 005-C0221-01	

**GA Antenna Series**  
**Instructions for Continued Airworthiness**

**STC Number SA01695SE**

**Document Number 190-00673-01 Rev. F**

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

Aircraft tail number   NG5J3W  

Antenna location on aircraft   FS. 79  

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**Record of Revision**

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



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## 2.17 Implementation and Record Keeping

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

2.10 Application of Protective Treatments

None, N/A.

2.11 Data Relative to Structural Fasteners

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

2.12 Special Tools

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

2.13 Additional Instructions for Aircraft Operating under FAR 121/135

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

2.14 Overhaul Period

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

2.15 ICA Revision and Distribution

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

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

2.16 Assistance

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

1. INTRODUCTION

1.1 Purpose

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

1.2 Scope

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

Table 1 - List of Antenna Models

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

1.3 Document Control

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

1.4 Airworthiness Limitations Section

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

1.5 Permission to Use Certain Documents

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



1.6 Definitions

The following terminology is used within this document:

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

2. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

2.1 Introduction

Content, Scope, Purpose and Arrangement:	This document identifies the Instruction for Continued Airworthiness for the modification of the aircraft by installation of the antenna models listed in Table 1.
Applicability:	Applies to aircraft altered by installation of the antenna models listed in Table 1.
Definition of Abbreviations:	See Section 1.6
Precautions:	None
Units of measurement:	None
Referenced publications:	190-00569-00 Rev. F <i>STC Antenna Installation Manual</i>
(or later FAA approved revisions)	005-C0373-00 Rev. F <i>Garmin GA Antenna Series Master Data List</i>
Distribution:	This document should be included in the permanent aircraft records.

2.2 Description of Alteration

Physical installation of the antenna models listed in Table 1.

2.3 Control, Operating Information

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

2.4 Servicing Information

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

2.5 Periodic Maintenance Instructions

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

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

2.6 Troubleshooting Information

Troubleshooting is performed with the interfaced receiving unit.

2.7 Removal and Replacement Information

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

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

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

2.8 Diagrams

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

2.9 Special Inspection Requirements

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

## 400W Series

Document Number 190-00356-65 Rev. A

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1200 E. 151st Street  
Olathe, Kansas 66062 USA**

## Record of Revision

[illegible]



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## **1. INTRODUCTION**

### **1.1 PURPOSE**

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

### **1.2 Scope**

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

### **1.3 Document Control**

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

### **1.4 Airworthiness Limitations Section**

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

### **1.5 Permission to Use Certain Documents**

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

### **1.6 Definitions**

The following terminology is used within this document:

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



- 7) **IAW:** In Accordance With
- 8) **ICA:** Instructions for Continued Airworthiness
- 9) **MFD:** Multi-Function Display unit
- 10) **PMI:** Primary Manufacturing Inspector
- 11) **POI:** Primary Operations Inspector
- 12) **STC:** Supplemental Type Certificate
- 13) **TC:** Type Certification or Type Certificate
- 14) **TSO:** Technical Standard Order

## 2. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

### 2.1 Introduction

Content, Scope, Purpose and Arrangement:	This document identifies the Instructions for Continued Airworthiness for the modification of the aircraft by installation of the Garmin Models 400W Series GPS/WAAS Nav/Com.
Applicability:	Applies to aircraft altered by installation of the Garmin Model 400W Series GPS/WAAS Nav/Com.
Definition of Abbreviations:	See Section 1.6
Precautions:	None
Units of measurement:	None
Referenced publications:  (or later FAA approved revisions)	190-00356-02 Rev. A <i>400W Series Installation Manual</i>  005-C0221-00 Rev. A <i>400W Series STC Master Data List</i>
Retention:	This document, or the information contained within, will be included in the aircraft's permanent records.

### 2.2 Description of Alteration

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

### 2.3 Control, Operating Information

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

## 2.4 Servicing Information

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

## 2.5 Periodic Maintenance Instructions

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

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

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

### 2.5.1 Cleaning the Front Panel

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

### 2.5.2 Display Backlight

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

### 2.5.3 Battery Replacement

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

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

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

## 2.6 Troubleshooting Information

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



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

## **2.7 Removal and Replacement Information**

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

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

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

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

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

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

## **2.8 Diagrams**

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

## **2.9 Special Inspection Requirements**

None, N/A.

## **2.10 Application of Protective Treatments**

None, N/A.

## **2.11 Data Relative to Structural Fasteners**

None, N/A.

## **2.12 Special Tools**

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

## **2.13 Additional Instructions**

None

## **2.14 Overhaul Period**

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

## **2.15 ICA Revision and Distribution**

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

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

## **2.16 Assistance**

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

## **2.17 Implementation and Record Keeping**

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



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FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT  
or  
SUPPLEMENTAL AIRPLANE FLIGHT MANUAL  
for  
GARMIN 400W SERIES GPS-WAAS NAVIGATION SYSTEM  
as installed in

Cessna P210N

Make and Model Airplane

Reg. No. N6593W S/N P21000801

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

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

FAA APPROVED

Polina Power

Manager, Flight Test Branch, ANM-160L  
Federal Aviation Administration  
Los Angeles Aircraft Certification Office  
Transport Airplane Directorate

DATE: December 21, 2006

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

LOG OF REVISIONS				
Rev. No.	No.	Page Date	Description	FAA Approved
A  Original	All	11/06/06	Complete Supplement	<i>Patrick Power</i>  Mgr. Flt. Test Br., ANM-160L FAA, Los Angeles ACO Transport Airplane Directorate  Date <u>November 6, 2006</u>
B	All	12-21-06	Added GA 35 antenna selection to Limitations section.	<i>Patrick Power</i>  Mgr. Flt. Test Br., ANM-160L FAA, Los Angeles ACO Transport Airplane Directorate  Date <u>December 21, 2006</u>



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

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

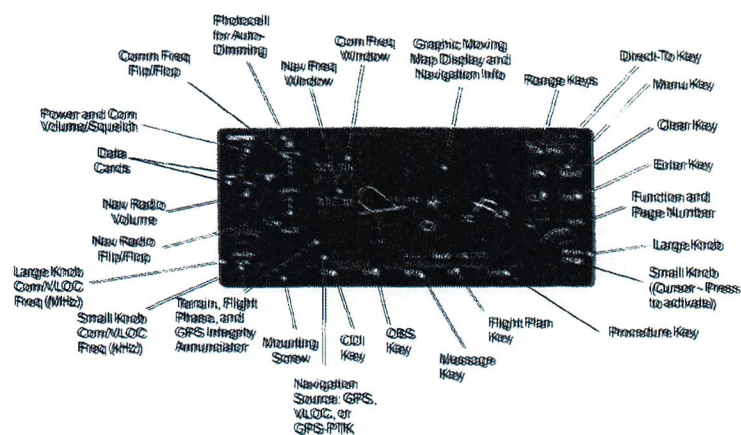
**Section 1. GENERAL**

**1.1 Garmin 400W Series GPS/WAAS Nav Com**

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

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

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



**Figure 1 - 400W Series Control and Display Layout**

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for a Garmin 400W Series Navigation System

## 1.2 Operation

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

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

## 1.3 Class II Oceanic, Remote, and other Operations:

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

a) Oceanic navigation requires an additional approved long range oceanic and/or remote area navigation system with independent display, sensors, antenna, and power source. (It may be a second 400W/500W Series unit.)

b) Redundant VHF Com and VHF Nav systems may be required for other than U.S. 14 CFR Part 91 operations. Check foreign regulation requirements as applicable. (It may be a second 400W/500W Series unit.)

c) Operations approval may be granted for the use of the 400W Series unit RAIM prediction function in lieu of the Prediction Program for operators requiring this capability. Refer to your appropriate civil aviation authorities for these authorizations.

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for a Garmin 400W Series Navigation System

Section 2. LIMITATIONS

2.1 Pilot's Guide

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

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

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

2.2 System Software:

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

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

Table 1 - Approved Software Versions

Software Item	Approved Software Version (or later FAA approved versions)	
	SW version	As displayed on unit
Main SW Version	2.00	2.00
GPS SW Version	2.4	2.4

2.3 Navigation Database

The 400W Series unit database cards listed in the following table (or later FAA approved versions) must be installed.

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

- a) IFR enroute and terminal navigation is prohibited unless the pilot verifies the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
- b) GPS instrument approaches using the 400W Series units are prohibited, unless the 400W Series unit's approach data is verified by the pilot or crew to be current. Instrument approaches must be accomplished in accordance with an approved instrument approach procedure that is loaded from the 400W Series unit database.

**Table 2 – Approved Navigation Database Cards**

Part Number	Revision	Description
010-10546-00	B or later	Data Card, WAAS, IFR, World Wide
010-10546-01	B or later	Data Card, WAAS, IFR, Americas
010-10546-02	B or later	Data Card, WAAS, IFR, International

**2.4 Terrain Database**

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

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

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

**Table 3 – Approved Terrain Database Cards**

Part Number	Revision	Description
010-10201-20	C or later	Data Card, TAWS // Terrain, 128MB
010-10201-21	A or later	Data Card, TAWS // Terrain, 256MB

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## 2.5 Navigation

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

## 2.6 IFR Operational Limitation

This system does not currently comply with US 14 CFR part 91, SFAR 97 requirements for TSO-C146a equipment. Until complete compliance is demonstrated and approved by the FAA, authorization to conduct any GPS or WAAS operation under Instrument Flight Rules (IFR) requires that:

- Aircraft using the GPS or WAAS capability of the 400W series navigation equipment under IFR must be equipped with an approved and operational alternate means of navigation appropriate to the flight with the exception of oceanic and remote operations.
- For flight planning purposes, if an alternate airport is required it must have an approved instrument approach procedure other than GPS or RNAV that is anticipated to be operational and available at the estimated time of arrival. All equipment required for this procedure must be installed and operational.

- For flight planning purposes, Garmin Prediction Program part number 006-A0154-03 (with the installed antenna part number selected) should be used to confirm the availability of RAIM for the intended flight in accordance with the local aviation authority guidelines for TSO-C129a equipment. WAAS NOTAMs (or their absence) and generic prediction tools do not provide an acceptable indication of availability.
- When flight planning an LNAV/VNAV or LPV approach, operators should use the Garmin Prediction Program part number 006-A0154-03 (with the installed antenna part number selected) in addition to any NOTAMs issued for the approach.

The installed antenna must be specified for the Garmin Prediction Program compute the overall system performance. The antenna installed in this installation is (one antenna to be checked by installer):

- ☐ A-33 (575-9 / 590-1104) ☐ A-34 (575-93 / 590-1112)  
☐ GA 56A (011-01154-00) ☐ GA 56W (011-01111-00)  
☐ GA 57 (011-01032-00) ☐ GA 35 (013-00235-00)

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## 2.7 Approaches

- During GPS approaches, the pilot must verify the 400W Series unit is operating in the approach mode (LNAV, LNAV+V, L/VNAV, or LPV).
- When conducting approaches referenced to true North, the heading selection on the ALUX pages must be adjusted to TRUE.
- Accomplishment of an ILS, LOC, LOC-BC, LDA, SDF, MLS, VOR approach, or any other type of approach not approved for GPS overlay, is not authorized with GPS navigation guidance.

- Use of the GNS 430W VOR/LOC/GS receiver to fly approaches not approved for GPS requires VOR/LOC/GS navigation data to be present on the external indicator (i.e. proper CDI source selection).
- For aircraft with remote source selection ammunition or remote GPS navigation ammunition installed, conducting IFR approaches is prohibited if the remote ammunition is found to be inoperative during pre-flight. (This limitation does not prohibit the conduct of an IFR approach if the required remote ammunition fails during flight. The indications provided on the 400W Series unit display may be used as a backup).

- Except in emergency conditions, IFR approaches are prohibited whenever any physical or visual obstruction (such as a throw-over yoke) restricts pilot view or access to the 400W Series unit or the affected CDI.

## 2.8 Autopilot Coupling

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

- ☐ No limitations for autopilot coupling.

- ☐ Lateral GPS coupling (LNAV only). For 430W units. The GS of an ILS (VLOC) may be coupled to the autopilot without any limitations.

This limitation may be removed after an FAA Flight Test demonstration. Contact Garmin International, Tech Support for additional information.

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

## 2.11 Traffic Display

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

## 2.10 Weather Display

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

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

Terrain refers to the display of terrain information. Pilots are NOT

## 2.9 Terrain Display

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### Section 3. EMERGENCY PROCEDURES

#### 3.1 Emergency Procedures

No change.

#### 3.2 Abnormal Procedures

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

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#### Section 4. NORMAL PROCEDURES

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

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

#### 4.1 Approaches with Vertical Guidance

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

#### NOTE:

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

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

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#### 4.2 Autopilot Operation

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

#### 4.3 Coupling the Autopilot during approaches

The Garmin 400W Series supports analog and digital (GPSS) control interfaces to an optionally installed autopilot. Some autopilots revert to ROLL mode (wings level) and/or flag a NAV failure if the digital data becomes unavailable or is inhibited. The CDI selection of VLOC should inhibit the digital control interface. When switching between GPS and VLOC the pilot should be aware that the autopilot may need to be re-engaged into APR or NAV mode after changing the CDI source. Autopilot coupling to GPS vertical guidance requires that the autopilot be engaged in an analog APR mode identical to coupling to an ILS. Some autopilots may revert to ROLL mode when the navigation outputs of the 400W Series unit sequence to the final approach fix. In these installations the unit will be configured to PROMPT the pilot to "Enable the autopilot approach outputs" in order to prevent the autopilot from entering ROLL mode without the pilot being aware of the transition.

- ☐ This installation prompts the pilot and requires the pilot to enable the A/P outputs just prior to engaging the autopilot in APR mode.
- ☐ This installation supports a seamless transition from digital (GPSS) to analog guidance for the autopilot. To capture the vertical guidance, the pilot may engage the autopilot in APR mode at any time when the GPS Glide Slope (VDI) becomes valid (displayed without a FLAG).
- ☐ This installation interfaces to the autopilot in analog mode only. To capture the vertical guidance, the pilot may engage the autopilot in APR mode at any time when the GPS Glide Slope (VDI) becomes valid (displayed without a FLAG).

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- ☐ The autopilot does not support any vertical capture or tracking in this installation.

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

#### 4.4 WFD Prediction Program

The Garmin WAAS Fault Detection and Exclusion (WFD) Prediction Program is required for Remote/Oceanic operations and may be required for IFR Enroute/Terminal and Approach operations; reference the Limitations section of this manual.

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

For detailed information refer to the WFD prediction program instructions (190-00643-01). The availability of FDE is only required for Oceanic or Remote operations; RAIM is required for IFR Enroute/Terminal operations; and Approach availability should be validated whenever conducting RNAV(GPS) approaches.

#### Section 5. PERFORMANCE

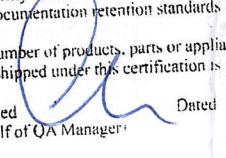
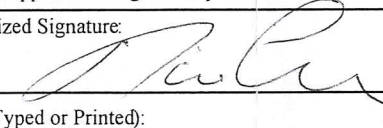
No change.

#### Section 6. WEIGHT AND BALANCE

See current weight and balance data.

#### Section 7. SYSTEM DESCRIPTIONS

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

1. Approving National Aviation Authority Country: <b>FAA/UNITED STATES</b>		<div style="display: flex; justify-content: space-between;"> <span>2</span> <span><b>AUTHORIZED RELEASE CERTIFICATE</b></span> </div> <b>FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG</b>			3. Form Tracking Number: <b>5140331821</b>	
4. Organization: <b>GARMIN International 1200 E 151st Street Olathe, KS 66062</b> TSOA production approval number PT3742CE					5. Work Order/Contract/Invoice Number: <b>51403318</b>	
6. Item:	7. Description:	8. Part Number:	9. Eligibility: *	10. Quantity:	11. Serial/Batch Number:	12. Status/Work:
1.	WAAS Antenna,GA35,White	013-00235-00 (Includes AT575-93GW-TNCF-000- RG-27-NM)	N/A	103	N/A  Garmin (Europe) Ltd certifies that this document is a true copy of the authorized release certificate. The original authorized release certificate received by our facility is maintained on file pursuant to our documentation retention standards.  The number of products, parts or appliances shipped under this certification is <b>1</b>  Signed  Dated <b>27.2.09</b> (On behalf of QA Manager)	NEW
13. Remarks <b>EXPORT, this part meets the special requirements of UNITED KINGDOM</b>  <div style="font-size: 1.5em; margin-left: 40px;">TSO C144</div>						
s/n: 46339, 46340, 46341, 46342, 46343, 46344, 46345, 46346, 46347, 46348, 46349, 46350, 46351, 46352, 46353, 46354, 46355, 46356, 46357, 46358, 46359, 46360, 46361, 46362, 46363, 46364, 46365, 46369, 46370, 46371, 46372, 46373, 46374, 46375, 46376, 46377, 46378, 46379, 46380, 46381, 46382, 46383, 46384, 46385, 46386, 46387, 46388, 46389, 46390, 46391, 46392, 46393, 46394, 46395, 46396, 46397, 46398, 46399, 46400, 46401, 46402, 46403, 46404, 46405, 46406, 46407, 46408, 46409, 46410, 46411, 46412, 46413, 46414, 46415, 46416, 46546, 46548, 46567, 46636, 46637, 46638, 46639, 46643, 46644, 46645, 46646, 46649, 46651, 46652, 46653, 46654, 46655, 46656, 46657, 46658, 46659, 46660, 46661, 46662, 46663, 46664, 46665, 46667						
14. Certifies the items identified above were manufactured in conformity to: <input checked="" type="checkbox"/> Approved design data and are in a condition for safe operation <input type="checkbox"/> Non-approved design data specified in Block 13.				19. <input checked="" type="checkbox"/> 14 CFR 43.9 Return to Service. <input type="checkbox"/> Other regulation specified in Block 13. Certifies that unless otherwise specified in Block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.		
15. Authorized Signature: 		16. Approval/Authorization No: <b>DART-501492-CE</b>		20. Authorized Signature: N/A		21. Approval/ Certificate No.: N/A
17. Name (Typed or Printed): <b>Timothy A. Chanay</b>		18. Date (m/d/y): <b>Feb/16/2009</b>		22. Name (Typed or Printed): N/A		23. Date (m/d/y): N/A
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4. Organization: GARMIN International 1200 E 151st Street Olathe, KS 66062 TSOA production approval number PT3742CE						5. Work Order/Contract/Invoice Number: 51657540	

6. Item:	7. Description:	8. Part Number:	9. Eligibility: *	10. Quantity:	11. Serial/Batch Number:	12. Status/Work:
1.	Data Card,TAWS/TERRAIN,256MB	010-10201-21	N/A	35	<i>N/A</i>	NEW

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15. Authorized Signature: <i>[Signature]</i>	16. Approval/Authorization No: ODA-240087-CE	20. Authorized Signature: N/A	21. Approval/ Certificate No.: N/A
17. Name (Typed or Printed): <b>ALICE F. INCH</b>	18. Date (m/d/y): Mar/12/2009	22. Name (Typed or Printed): N/A	23. Date (m/d/y): N/A

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4. Organization: GARMIN International 1200 E 151st Street Olathe, KS 66062 TSOA production approval number PT3742CE					5. Work Order/Contract/Invoice Number: 51674643	

6. Item:	7. Description:	8. Part Number:	9. Eligibility: *	10. Quantity:	11. Serial/Batch Number:	12. Status/Work:
1.	GNS430W, Blk, Std	010-00412-01 (Includes 011-01060-00)	N/A	6	23422833, 23422856, 23422865, 23422867, 23422875, 23422882	NEW

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15. Authorized Signature: <i>[Signature]</i>	16. Approval/Authorization No: ODA-240087-CE	20. Authorized Signature: N/A	21. Approval/ Certificate No.: N/A
17. Name (Typed or Printed): <b>STEVEN CUMMINS</b>	18. Date (m/d/y): Mar/17/2009	22. Name (Typed or Printed): N/A	23. Date (m/d/y): N/A

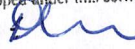
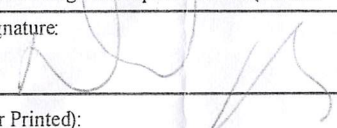
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4. Organization: GARMIN International 1200 E 151st Street Olathe, KS 66062 TSOA production approval number PT3742CE						5. Work Order/Contract/Invoice Number: 49606310	
6. Item:	7. Description:	8. Part Number:	9. Eligibility: *	10. Quantity:	11. Serial/Batch Number:	12. Status/Work:	
1.	Data Card,TAWS/TERRAIN,256MB	010-10201-21	N/A	18	N/A	NEW  <div style="text-align: center;"> <p>Garmin (Europe) Ltd certifies that this document is a true copy of the authorized release certificate. The original authorized release certificate received by our facility is maintained on file pursuant to our documentation retention standards.</p> <p>The number of products, parts or appliances shipped under this certification is <b>18</b></p> <p>Signed  Dated <b>10.9.08</b></p> <p>(On behalf of QA Manager)</p> <p style="color: blue; font-weight: bold;">garmin AV001</p> </div>	
13. Remarks <b>EXPORT, this part meets the special requirements of UNITED KINGDOM</b>  <div style="border: 1px solid black; height: 100px; width: 100%;"></div>							
14. Certifies the items identified above were manufactured in conformity to: <input checked="" type="checkbox"/> Approved design data and are in a condition for safe operation <input type="checkbox"/> Non-approved design data specified in Block 13.							
15. Authorized Signature: 				16. Approval/Authorization No: ODARF240087CE		19. <input type="checkbox"/> 14 CFR 43.9 Return to Service <input type="checkbox"/> Other regulation specified in Block 13 Certifies that unless otherwise specified in Block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.	
17. Name (Typed or Printed): <b>David Lopez</b>				18. Date (m/d/y): Sep/03/2008		20. Authorized Signature: N/A	
				21. Approval/ Certificate No.: N/A		22. Name (Typed or Printed): N/A	
				23. Date (m/d/y): N/A			
<b>User/Installer Responsibilities</b>							
It is important to understand that the existence of this document alone does not automatically constitute authority to install the part/component/ assembly.  Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts parts/components/assemblies from the Airworthiness Authority of the country specified in Block 1.  Statements in Block 14 and 19 do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.							





1. Approving National Aviation Authority/Country:  FAA/UNITED STATES		<b>AUTHORIZED RELEASE CERTIFICATE</b> FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG				3. Form Tracking Number:  0908-830152-13488	
4. Organization Name and Address:  <b>COMANT INDUSTRIES INC.</b> <b>577 BURNING TREE ROAD FULLERTON CA 92833</b> <b>PT2316NM</b>						5. Work order/Contract/Invoice Number:  032593	
6. Item:	7. Description:	8. Part Number:	9. Eligibility:*	10. Quantity:	11. Serial/Batch Number:	12. Status/Work:	
1	ANTENNA DME, XPDR	CI 105	TSO ARTICLE N/A	86	N/A	NEW	
13. Remarks: <p style="margin: 5px 0;"><b>Serial Numbers: 41862-41863, 41888-41947, 41864-41887</b></p> <p style="margin: 5px 0;"><b>AIRWORTHINESS APPROVAL - FOR EXPORT TO U.K.</b></p> <p style="margin: 5px 0;"><b>TSO C66b, C74c</b></p> <p style="margin: 5px 0;"><b>DWG. CI 105 REV. L DATED DEC/04/2006</b></p>							
14. Certifies the items identified above were manufactured in conformity to:  <input checked="checked" type="checkbox"/> Approved design data and are in a condition for safe operation.  <input type="checkbox"/> Non-approved design data specified in Block 13.				19. <input type="checkbox"/> 14 CFR 43.9 Return to Service <input type="checkbox"/> Other regulation specified in Block 13  Certifies that unless otherwise specified in block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.			
15. Authorized Signature:  <i>Cornelia Daraban</i>		16. Approval/Authorization No.:  DMIR-830152-NM		20. Authorized Signature:  N/A		21. Approval/Certificate No.:  N/A	
17. Name (Typed or Printed):  Cornelia Daraban		18. Date (m/d/y):  Sept/29/2008		22. Name (Typed or Printed):  N/A		23. Date (m/d/y):  N/A	
<p>It is important to understand that the existence of this document alone does not automatically constitute authority to install the part/component/assembly.</p> <p>Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts parts/components/assemblies from the airworthiness authority of the country specified in Block 1.</p> <p>Statements in Block 14 and 19 do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.</p>							



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