

Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302

10 November 2008
Part #: 560-0986-01 Rev F

**GNS 480 (CNX80)
Instructions for Continued Airworthiness**

Part Number: 560-0986-01
Document Revision: F
10 November 2008

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302 USA

Phone (503) 581-8101
FAX (503) 364-2138

Garmin AT™ is a trademark of Garmin Ltd. or its subsidiaries.

Printed in the USA

Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302

10 November 2008
Part #: 560-0986-01 Rev F

Revision Log

Rev	Date	Description	EN	By
-00-	23-Apr-03	Initial Release	7625	dfs
-00A	30-May-03	In reference publications in paragraph 2.1, changed revision of 560-0982-00 to Rev. A, 560-0984-00 to Rev. B, and 560-0987-00 to Rev. A.	7654	dfs
-00B	19-Jun-03	Updated document after FAA Small Aircraft Directorate review	7662	CES
-00C	26-Jun-03	Update MDL to Rev D & Install Manual to Rev C (2.1). Add "for AEG approval" to the first sentence (2.15) as requested by FAA Small Aircraft Directorate.	7662	mak
-00D	29-Oct-03	Update revision level for referenced documents to include company name change from UPSAT to Garmin AT (2.1). Update company name in this document. Add definitions section (1.4).	7729	mak
-00E	24-Nov-03	Update per ACO & AEG requests. Describe how ICA revisions are distributed (1.1). Clarify no special handling (2.7). Correct approval process (2.15).	7729	mak
-01-	15-July-04	Change Model name to GNS 480. Update document revision letters (2.1)	7971	pad
-01A	27-Aug-04	Update document revisions (2.1). Clarify GNS 480 is Garmin Model.	7837	mak
-01B	15-Sep-04	Update document revisions (2.1). Clarify -01 Rev- change description (revision log). No changes to actual continued airworthiness procedures have been made in Revisions -01-, -01A, or -01B, only model number and document revision letter changes have been made.	8013	mak
-01C	17-Feb-06	Added GA 56A, GA 56W, and GA 57 antennas	8322	dfs
-01D	9-Mar 06	Updated document for GNS 480 Software Revision 2.1	8326	msf
-01E	17-Jan-07	Revise section to describe control instead of distribution, move distribution to section 2.15 (1.1). Update documents (2.1). Change annual to preceding 12 calendar months; detail inspection requirements (2.5). Add panel cleaning (2.5.3) and encoder calibration (2.5.4). Point to configuration log (2.6). Add GA 35 antenna (2.8). Include distribution (2.15). Add contact information (2.16). Use AC 21-40 wording (2.17).	8389	mak
-01F	10-Nov-08	Add STC number (1.) Add A33W, GA36, GA 37 antennas (2.1, 2.8). Update manuals (2.1)	8597	mak

Garmin AT, Inc.	Cage Code 0XCJ6	2345 Turner Road SE, Salem, Oregon USA
Title:	Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness	Number: 560-0986-01
Prepared By:	Daniel Schmidt	Date: 4/24/03
Approved By:	<i>Chris Schulte</i> <small>Chris Schulte, CNX80 Project Manager (approval signature on file)</small>	Date: 4/24/03
Approved By:	<i>Paul Damschen</i> <small>Paul Damschen, Sr. Systems Engineer (approval signature on file)</small>	Date: 4/24/03

Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302

10 November 2008
Part #: 560-0986-01 Rev F

Table of Contents

1	INTRODUCTION	4
1.1	DOCUMENT CONTROL	4
1.2	AIRWORTHINESS LIMITATIONS SECTION	4
1.3	PERMISSION TO USE CERTAIN DOCUMENTS	4
1.4	DEFINITIONS.....	4
2	INSTRUCTIONS FOR CONTINUED AIRWORTHINESS	5
2.1	INTRODUCTION	5
2.2	<i>DESCRIPTION OF ALTERATION.....</i>	<i>5</i>
2.3	<i>CONTROL, OPERATING INFORMATION</i>	<i>5</i>
2.4	<i>SERVICING INFORMATION</i>	<i>6</i>
2.5	<i>PERIODIC MAINTENANCE INSTRUCTIONS</i>	<i>6</i>
2.6	<i>TROUBLESHOOTING INFORMATION.....</i>	<i>7</i>
2.7	<i>REMOVAL AND REPLACEMENT INFORMATION.....</i>	<i>7</i>
2.8	<i>DIAGRAMS.....</i>	<i>7</i>
2.9	<i>SPECIAL INSPECTION REQUIREMENTS.....</i>	<i>7</i>
2.10	<i>APPLICATION OF PROTECTIVE TREATMENTS</i>	<i>8</i>
2.11	<i>DATA RELATIVE TO STRUCTURAL FASTENERS.....</i>	<i>8</i>
2.12	<i>SPECIAL TOOLS</i>	<i>8</i>
2.13	<i>ADDITIONAL INSTRUCTIONS FOR AIRCRAFT OPERATING UNDER FAR 121/135.....</i>	<i>8</i>
2.14	<i>OVERHAUL PERIOD</i>	<i>8</i>
2.15	<i>ICA REVISION AND DISTRIBUTION.....</i>	<i>8</i>
2.16	<i>ASSISTANCE.....</i>	<i>8</i>
2.17	<i>IMPLEMENTATION AND RECORD KEEPING</i>	<i>9</i>

Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302

10 November 2008
Part #: 560-0986-01 Rev F

1 Introduction

This document contains Instructions for Continued Airworthiness (ICA) compliant with 14 CFR 23.1529 and Part 23 Appendix G requirements. The ICA includes information required by the operator to adequately maintain the GNS 480 (CNX80) GPS/WAAS Nav/Com under STC SA01229SE. This product has built-in-test features and fault annunciation that notify the pilot in the event of system component failure. This document refers to other documents for specific information that is either part of the installation package or an existing part of the aircraft's permanent record.

1.1 Document Control

This document shall be released, archived, and controlled in accordance with the Garmin AT 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.

1.2 Airworthiness Limitations Section

The airworthiness limitations section is FAA approved and specifies inspections and other maintenance required and under §43.16 and §91.403 of the Federal Aviation Regulations (FAR) unless an alternative program has been FAA approved.

There are no mandatory replacement times for the GNS 480 in this STC installation. There are no mandatory structural inspections associated with this STC.

See Aircraft Flight Manual Supplement (as detailed in the Master Drawing List listed in Section 2.1) for system limitations.

1.3 Permission to Use Certain Documents

Permission is granted to any corporation or person applying for approval of a Garmin GNS 480 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.

1.4 Definitions

AEG – Aircraft Evaluation Group
BIT – Built-In Test
FSDO – Flight Standards District Office
GPS – Global Positioning System
ICA – Instructions for Continued Airworthiness
PMI – Primary Manufacturing Inspector
POI – Primary Operations Inspector
STC – Supplemental Type Certificate

Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302

10 November 2008
Part #: 560-0986-01 Rev F

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 for installation of the Garmin GNS 480 GPS Nav Com.
Applicability:	Applies to aircraft altered by installation of the Garmin AT GNS 480 system.
Definition of Abbreviations:	N/A, None
Precautions:	N/A, None
Units of measurement:	N/A, None
Referenced publications: (or later FAA approved revisions)	560-0982-01 Rev. L GNS 480 Installation Instructions 560-0984-01 Rev. D GNS 480 Pilot's Guide 560-0987-01 Rev. K Master Data List 560-7027-001 Rev - GNS 480 Maintenance Manual 560-0949-01 Rev. E A-33 & A33W GPS Antenna Install Guide 560-5047-00 Rev. F GA 35 & A-34 GPS Antenna Install Guide 190-00483-01 Rev. D GA 56W Antenna Installation Manual 190-00522-01 Rev. B GA 55A, GA 56A, and GA 57 Antenna Installation Manual 190-00848-00 Rev. B GA 35, GA 36, GA 37 Antenna Installation Instructions
Retention:	This document, or the information contained within, should be retained in the aircraft's permanent record.

2.2 Description of Alteration

Installation of the Garmin GNS 480 (CNX80) GPS/WAAS Nav Com with GPS/WAAS antenna and other system interfaces. The GNS 480 combines a large number of easily acceptable controls to use the high-resolution color multi-function display, Nav and Com transceivers, GPS/WAAS navigator and transponder controller all in a single unit.

2.3 Control, Operating Information

See GNS 480 Pilot's Guide and the GNS 480 Installation Instructions, listed under reference documentation in paragraph 2.1 of this document, for system operation and self-test information.

Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302

10 November 2008
Part #: 560-0986-01 Rev F

2.4 Servicing Information

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

2.5 Periodic Maintenance Instructions

The GNS 480 is designed to detect internal failures. 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 GNS 480 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 GNS 480 (CNX80) radio and radio wire harness to insure continued 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 Display Backlight

The display backlight lamp is rated by the manufacturer as having a usable life of 18,000 hours. This life may be more or less than the rated time depending on the operating conditions of the GNS 480. 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 AT factory repair station when the backlight lamp requires service.

2.5.2 Battery Replacement

The GNS 480 has an internal keep-alive battery that will last about 10 years. The battery is used for internal ram memory and GPS system information. Regular planned replacement is not necessary. The GNS 480 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 GNS 480 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 GNS 480 with a dead battery.

The battery must be replaced by the Garmin AT factory repair station or factory authorized repair station. Refer to GNS 480 Maintenance Manual, listed under reference documentation in paragraph 2.1 of this document, for battery replacement instructions.

Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302

10 November 2008
Part #: 560-0986-01 Rev F

2.5.3 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.

2.5.4 Altitude Encoder

In this system, it is recommended that any interfaced pressure altitude source be calibrated every 24 months. Refer to the manufacturer's installation and calibration manual.

2.6 Troubleshooting Information

If error indications are displayed on the GNS 480, consult the Troubleshooting section contained in the GNS 480 Installation Manual listed under reference documentation in paragraph 2.1 of this document. The 'GNS 480 Post-Installation Checkout log' in the aircraft permanent records includes the configuration information for the installation. (See the table at the end of Section 3 in the GNS 480 Installation Manual for a sample log.)

2.7 Removal and Replacement Information

If the GNS 480 unit is removed and reinstalled, verify the GNS 480 unit power-up self-test sequence is successfully completed and no failure messages are annunciated.

If the GNS 480 unit is removed for repair and reinstalled, or if the GNS 480 unit is removed and replaced with a different GNS 480 unit, then follow 'Equipment Setup and Configuration' procedures contained in the GNS 480 (CNX80) Installation Manual listed in paragraph 2.1 of this document, and verify the GNS 480 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 GNS 480 unit power-up self-test sequence is successfully completed and no failure messages are annunciated.

Note: There are no special handling requirements for the GNS 480.

2.8 Diagrams

Refer to the GNS 480 Installation Manual (listed under reference documentation in paragraph 2.1 of this document) for drawings applicable to this installation. The GPS antenna is located on top of the fuselage. See GA 56A, GA 56W, GA 57, A-33, A33W, A-34, GA 35, GA 36, or GA 37 Antenna Installation Guide (listed under reference document paragraph 2.1 of this document) for antenna description.

2.9 Special Inspection Requirements

None, N/A.

Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302

10 November 2008
Part #: 560-0986-01 Rev F

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 GNS 480 Installation Manual listed under reference documentation in paragraph 2.1 of this document.

2.13 Additional Instructions for Aircraft Operating under FAR 121/135

1. Aircraft Electrical Loads: Perform aircraft electrical system load analysis. See GNS 480 Installation Manual listed in Section 2.1 of this document.
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

The system does not require overhaul at a specific time period. Power on self-test and continuous BIT will monitor the health of the GNS 480. If the unit indicates an internal failure, the unit may be removed and replaced.

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 issue an approval letter for the revised ICA. After ACO approval, Garmin AT will release the revised ICA for customer use, and provide any required notification of the revision.

The latest revision of this document will be distributed on the GNS 480 User CD (Garmin AT P/N 140-0056-xxx), shipped with each GNS 480 unit. The latest revision will also be available on the Garmin website (Garmin.com). A Garmin Service Letter, describing the ICA revision, will be sent to dealers and GNS 480 owners of record 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 AT. Garmin AT customer assistance may be contacted during normal business hours via telephone 800-525-6726 or email from the Garmin web site at support.salem@garmin.com.

Garmin GNS 480 (CNX80) STC Instructions for Continued Airworthiness

Garmin AT, Inc.
2345 Turner Rd SE
Salem, OR 97302

10 November 2008
Part #: 560-0986-01 Rev F

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.