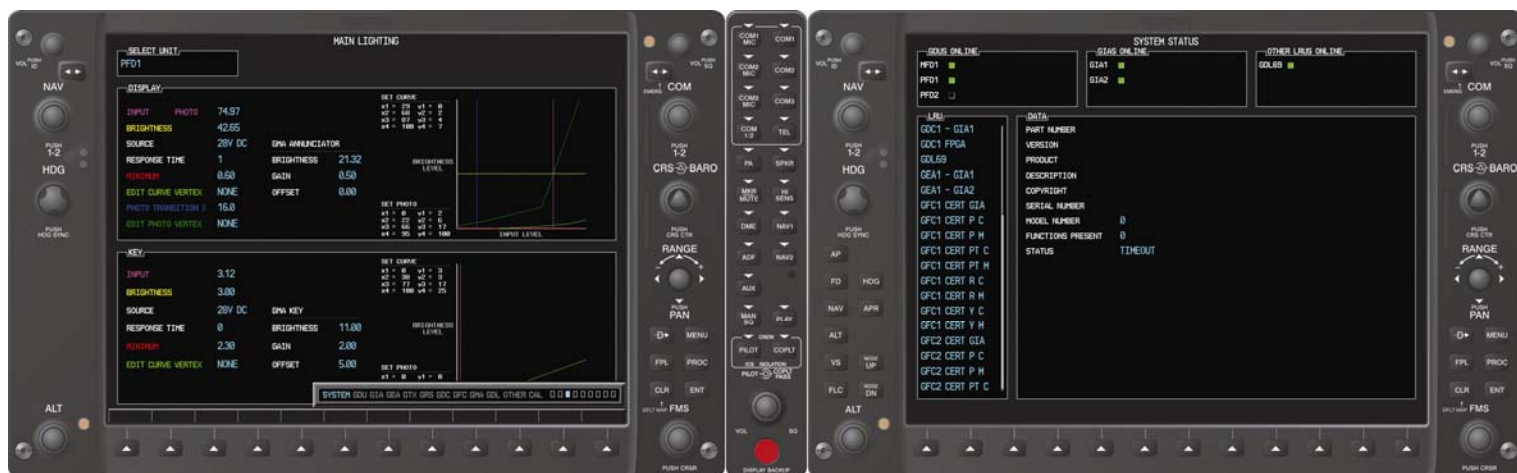


G1000 / GFC 700

Instructions for Continued Airworthiness

Diamond DA 40 & DA 40 F



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Garmin International, Inc.
1200 E. 151st Street
Olathe, KS 66062 USA
Telephone: 913-397-8200
www.garmin.com

Garmin (Europe) Ltd.
Unit 5, The Quadrangle
Abbey Park Industrial Estate
Romsey, SO51 9DL U.K.
Telephone: 44/1794.519944

RECORD OF REVISIONS

Revision	Revision Date	Description	ECO #
A	05/15/2006	Initial release for DA40/GFC700 STC	-----

DOCUMENT PAGINATION

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INFORMATION SUBJECT TO EXPORT CONTROL LAWS

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IMPORTANT

All references to Diamond DA 40 aircraft made in this document equally apply to Diamond DA 40 F aircraft, unless otherwise noted.

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1 INTRODUCTION

1.1 Content, Scope, Purpose

This document provides Instructions for Continued Airworthiness (ICA) for the Garmin G1000 Integrated Cockpit and GFC 700 Automatic Flight Control System (AFCS) as installed in the Diamond Model DA 40 and DA 40 F.

This document satisfies the requirements for continued airworthiness as defined by 14 CFR Part 23.1529 and Appendix G. Information in this document is required to maintain the continued airworthiness of the G1000 integrated cockpit system in Diamond DA 40 and DA 40 F aircraft.

1.1.1 Applicability

This document applies to all Diamond Aircraft Industries, Inc., Model DA 40 and DA 40 F aircraft equipped with the G1000 Integrated Cockpit system and GFC 700 AFCS. Modification of an aircraft by this Supplemental Type Certificate (STC) obligates the aircraft operator to include the maintenance information provided by this document in the operator's Aircraft Maintenance Manual and the operator's Aircraft Scheduled Maintenance Program.

1.2 Airworthiness Limitations

The G1000 Integrated Cockpit and GFC 700 AFCS are airworthy when installed, configured, and maintained in accordance with this document. This Airworthiness Limitations section is FAA-approved and specifies maintenance required under §§ 43.16 and 91.403 of Title 14 of the Code of Federal Regulations, unless an alternative program has been FAA-approved.

The G1000 and GFC 700 possess the following maintenance airworthiness limitations:

G1000 (Carryover from STC #SA01254WI):

Every 24 calendar months, replace all lightning protection 3.2 Amp slow-blow fuses. There are five total fuses in the following locations:

- Two fuses mounted behind the instrument panel, near the circuit breaker panel. Each fuse is wired inline with a voltage suppressor.
- Three fuses mounted on the field-fabricated lightning protection component block, which is attached to the forward portion of the remote avionics enclosure. Each fuse is mounted to the side of the block, and each is labeled.

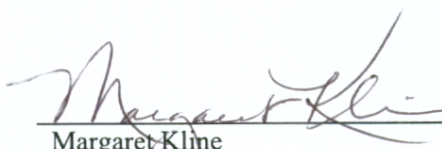
Replacement consists of twisting each fuse holder cap counter-clockwise, removing each fuse and replacing with a new fuse. Refer to the G1000/DA40 Install Drawing, 005-00304-00 for installation diagrams. Refer to Table 2-1.

GFC 700 Limitations:

- Every 100 hours, perform a check to verify that flap-in-motion discrete inputs function correctly. Refer to Table 2-1.

There are no other maintenance airworthiness limitations associated with this type design change. The G1000/DA 40 Airplane Flight Manual Supplement defines all operating limitations.

FAA APPROVED


Margaret Kline
Manager, Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas

Date

5/23/2006

1.3 Organization

The complete Instructions for Continued Airworthiness for this STC are composed of multiple documents. Table 1-1 defines the documents which compose a complete set of ICA for this STC.

Table 1-1. ICA Structure

Document	Part Number	ICA Content
G1000/GFC 700 Instructions for Continued Airworthiness	This Document (Principal Manual)	- Airworthiness Limitations - Maintenance Intervals - Inspection Requirements
G1000/GFC 700 System Maintenance Manual – DA40	190-00492-01	- System Description - Control & Operation - Special Maintenance Considerations - Servicing Information - Troubleshooting Information - Removal & Replacement - Software/Configuration Loading - Return To Service
G1000/GFC 700 General Arrangement Drawing – DA40	005-00336-14	- Supporting Installation Diagrams
G1000/GFC 700 Pitch Servo Installation Drawing – DA40	005-00336-17	
G1000/GFC 700 Pitch Trim Servo Installation Drawing – DA40	005-00336-19	
G1000/GFC 700 Roll Servo Installation Drawing – DA40	005-00336-18	
G1000/GFC 700 Wiring Diagram – DA40	005-00336-16	
G1000/DA40 Voltage Suppressor Installation Drawing	005-00336-22	
G1000/DA40 Installation Drawing (Ref STC #SA01254WI)	005-00304-00	- Supporting Aircraft Maintenance Data
Diamond DA40 Schematic, G1000 GFC 700 Autopilot, Option	Diamond P/N: DA4-9231-60-05	
Diamond DA40 Airplane Maintenance Manual	Diamond P/N 6.02.01 (Rev. 4 or later)	

1.4 Revision & Distribution

This document is required for maintaining the continued airworthiness of the aircraft. Revisions to this document will be made by Garmin and will be distributed by Garmin per standard documentation revision procedures.

For the latest revision to this document, check Garmin’s web site at: www.garmin.com/ and click on ‘Dealers Only’.

NOTE

Only Garmin-authorized dealers and service centers are given access to the Dealer portion of the Web Site. If you do not have a Dealer Password, contact Garmin directly for the latest revision of this document.

2 Servicing Information

2.1 On Condition Servicing

G1000 LRU maintenance is 'on condition' only. No component-level overhaul is required for this type design change.

'On Condition' replacement and/or servicing should occur when an item exhibits conditions, symptoms, and/or abnormalities defined by the troubleshooting section in the G1000/GFC 700 System Maintenance Manual. Replacement and/or servicing should be made only after the technician troubleshoots the system to the extent determined necessary by using the guidance in this manual along with common avionics maintenance practices.

2.2 Recommended Tools

The following tools are needed to perform maintenance tasks on G1000/GFC 700 equipment:

- Mili-ohm Meter, OR
 - ✓ Agilent 34410A Ammeter or equivalent
 - ✓ Fluke 187 Voltmeter or equivalent
 - ✓ Power Supply capable of providing 1 amp current
- #2 Phillips Screwdriver
- 3/32" Hex Tool
- Digital Level (Required for AHRS 'Procedure A' Calibration)
- A VHF NAV/COM/ILS ramp tester or equivalent
- A transponder ramp tester or equivalent
- A pitot/static ramp tester
- Outdoor line-of-site to GPS satellite signals or GPS indoor repeater
- Headset/Microphone
- Ground Power Unit (Capable of supplying 28 Vdc)
- Servo Mount Slip Clutch Adjustment Tool – P/N 011-01085-00 or -01
- Calibrated Torque Wrench capable of measuring 0 – 70 in/lbs
- Flight Control Cable Tension Meter
- Standard Sockets & Wrenches (3/8", 9/16", and 13/16")

2.3 Maintenance Intervals

The following table shows systems and items that must undergo tests or checks at specific intervals, either in flight time or calendar months. If the interval is shown to be in flight time as well as calendar months, the first interval reached should be used as the limit.

Table 2-1. Maintenance Intervals

Item	Description/Procedure	System Maint. Manual Section No.	Interval	
G1000 Equipment				
G1000 System	Complete Visual Inspection	4.2	Aircraft Annual	
GDU 1040 PFD	Removal & Replacement.	6.1	On Condition	
GDU 1042 MFD				
GMA 1347		6.2		
GIA 63 IAU (Qty. 2)		6.3		
GEA 71 EAU		6.4		
GTX 33 Mode S Transponder	Removal & Replacement.	6.5	24 Months	
	Test according to Title 14 CFR §§ 91.411 and 91.413 as well as Part 43 Appendix F.	7.5.3		
GDC 74A	Removal & Replacement.	6.6	On Condition	
	Test according to Title 14 CFR § 91.411 and Part 43 Appendix E.	7.6.3	24 Months	
	Airspeed Function Test.		2000 Hours or 48 Months	
	Vertical Speed Function Test.		2000 Hours or 48 Months	
GRS 77 AHRS	Removal & Replacement.	6.7	On Condition	
	Magnetic variation database update.	4.5		
GMU 44 Magnetometer	Removal & Replacement.	6.8		
GDL 69/69A (Optional)		6.9		
G1000 Accessories				
Configuration Module Replacement (Qty 4)	Removal & Replacement.	6.12	On Condition	
GEA 71 Backshell Thermocouple	Removal & Replacement.	6.13		
OAT Probe	Removal & Replacement.	6.6.1		
PFD, MFD, & GIA Cooling Fans (Qty 3)	Removal & Replacement; Refer to G1000/DA40 Installation Drawing, 005-00304-00.	N/A		

Table 2-2. Maintenance Intervals, Cont.

Item	Description/Procedure	System Maint. Manual Section No.	Interval
GFC 700 AFCS			
GFC 700 AFCS System	Complete Visual Inspection	4.2	Aircraft Annual
Flap Discrete Function Check*	Test the flap-in-motion discrete inputs to the G1000 to verify proper operation.	4.8	100 Hours or Aircraft Annual
GSA 81 Servos (all)	Removal & Replacement.	6.10	On Condition
	Clean and Apply Grease to Output Gears.	4.6	1000 Hours or 36 Months
GSM 85 Servo Mounts (all)	Removal & Replacement.	6.11	On Condition
	Check Slip Clutch Torque (adjust if necessary)	4.7	500 Hours or 12 Months
Pitch Trim Control Chain	Removal & Replacement; Refer to GFC 700 Pitch Trim Installation Drawing, 005-00336-19.	N/A	On Condition
Pitch & Roll Control Cable/Phenolic Isolator Assemblies and Clamps	Removal & Replacement; Refer to the following GFC 700/DA40 Installation Drawings: 005-00336-17 (Pitch) 005-00336-18 (Roll)	N/A	On Condition

***Denotes Airworthiness Limitation Maintenance Requirement (See Section 1.2)**

Table 2-3. Maintenance Intervals, Cont.

Item	Description/Procedure	System Maint. Manual Section No.	Interval
G1000 Lightning Protection			
GIA / AHRS Resistors	Replace all three resistors located at the remote avionics enclosure. Refer to G1000/DA40 Installation Drawing, 005-00304-00 (Ref STC #SA01254WI)	N/A	Replace After Suspected / Actual Lighting Event
TVS Unit Replacement (Qty 7)	Replace all five voltage suppressor units. Refer to G1000/DA40 Installation Drawing, 005-00304-00 (Ref STC #SA01254WI) and 005-00336-22 TVS Installation Drawing: ✓ Battery, Alternator, GMA 1347, and Standby Attitude Indicator Voltage Suppressors are located behind instrument panel near the circuit breakers ✓ GIA1, GIA2, and AHRS Voltage Suppressors are located at the remote avionics enclosure.	N/A	Replace After Suspected / Actual Lighting Event
3.2 Amp Slow-blow Fuse Replacement (Qty 5)*	Replace all five 3.2 Amp slow-blow fuses. Refer to G1000/DA40 Installation Drawing, 005-00304-00 (Ref STC #SA01254WI):: ✓ Battery & Alternator side fuses are located behind the instrument panel near the circuit breakers. ✓ GIA1, GIA2, and AHRS fuses are locate at the remote avionics enclosure.	N/A	Every 24 Calendar Months and After Suspected / Actual Lighting Event
Visual Inspection	Complete Visual Inspection	4.2	Aircraft Annual
Electrical Bonding Test	Perform an electrical bonding resistance check of all G1000 equipment.	4.3	1000 Hours and After Suspected / Actual Lighting Event

***Denotes Airworthiness Limitation Maintenance Requirement (See Section 1.2)**

Table 2-4. Maintenance Intervals, Cont.

Item	Description/Procedure	System Maint. Manual Section No.	Interval
Engine/Airframe Sensors			
MAP Sensor (DA40 ONLY)	Removal & Replacement: <i>For DA 40 Aircraft:</i> Refer to the G1000/DA40 Installation Drawing, 005-00304-00 for drawings (Ref STC #SA01254WI). <i>For DA 40 F Aircraft:</i> Refer to the Diamond Airplane Maintenance Manual and OAM 40-222.	N/A	On Condition
Oil Pressure Sensor			
Oil Temperature Sensor			
Fuel Pressure Sensor (DA40 ONLY)			
Tach Sensor			
Fuel Flow Sensor			
CHT Probes (Qty 4)			
EGT Probes (Qty 4)			
Alternator Current Sensor			
Fuel Tank Quantity Sending Units – G1000 Fuel Tank Recalibration	Should one or both fuel quantity transducers fail, replace according to instructions in Diamond DA 40 Aircraft Maintenance Manual. The new replacement fuel quantity probe(s) must be re-calibrated.	4.4	

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