

## SERVICE INFORMATION NO. SI 42-094

**NOTE:** SI's are used only:  
1) To distribute information from DAI to our customers.  
2) To distribute applicable information/documents from our suppliers to our customers with additional information.  
Typically there is no revision service for SI's. Each new information or change of that will be sent along with a new SI.

### I. TECHNICAL DETAILS

#### 1.1 Airplanes affected:

All DA 42 and DA 42 M aircraft

#### 1.2 Subject:

GARMIN Software Service Bulletin No. 0836, Revision A  
ATA-Code: 34-00

#### 1.3 Reason:

The Software Service Bulletin No. 0836, Revision A provides instructions for the GARMIN G1000 System Software upgrade to Version v0370.19.

#### 1.4 Information:

For detailed technical information refer to the GARMIN Software Service Bulletin No. 0836, Revision A which is applicable without any further additions or restrictions.

### II. OTHERS

The GARMIN Software Service Bulletin No. 0836, Revision A is attached to this SI.

In case of doubt contact Diamond Aircraft Industries GmbH.



## SOFTWARE SERVICE BULLETIN

NO.: 0836, Revision A

**TO:** Diamond Aircraft, Inc.  
**DATE:** 15 October 2008  
**SUBJECT:** G1000 System Software Version Update for G1000-equipped Diamond DA42 Aircraft

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### **PURPOSE**

This Software Service Bulletin provides instructions for the Garmin G1000 System Software upgrade to v0370.19, for Diamond DA42 aircraft.

### **DESCRIPTION**

Upgrading G1000 System Software to v0370.19 provides software enhancements and the ability to interface with optional equipment.

### **APPROVAL**

The engineering data contained in this software service bulletin are FAA approved. This bulletin does not provide installation authorization.

For approved configurations refer to the Diamond Aircraft MSB 42-008, latest version.

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## **AFMS AND PILOT'S GUIDE CONSIDERATIONS**

Flight Manual documentation as required per Diamond Aircraft

The following documents describe operation of the Garmin G1000 with system software version 0370.19:

<b>Garmin Part Number</b>	<b>Document Title</b>
190-00406-05	G1000 Cockpit Reference Guide for the Diamond DA42
190-00649-01	G1000 Pilot's Guide for the Diamond DA42

## **PRODUCT AFFECTED**

All Diamond DA42 aircraft equipped with a Garmin G1000 system and with system software version prior to 0370.19.

## **COMPLIANCE**

**OPTIONAL**

## **REFERENCES**

<b>Garmin Part Number</b>	<b>Document Title</b>
190-00907-00 Revision B or later	Garmin G1000 System Maintenance Manual
190-00406-05 Revision B or later	Garmin G1000 Cockpit Reference Guide for the DA42

The above referenced documents are available from [www.garmin.com](http://www.garmin.com), within the Dealer section of the website.

## **MANPOWER**

This Software Service Bulletin requires a maximum of one (1.0) hour labor including testing and return-to-service.

## **WARRANTY INFORMATION**

This modification is not warranty reimbursable.

# **MODIFICATION INSTRUCTIONS**

## **1. INTRODUCTION**

### **1.1. Scope**

These instructions present field upgrade procedures for G1000-equipped Diamond Model DA42 aircraft. These instructions must be followed step-by-step in order and completely, to upgrade an existing approved configuration of the system software to a newer approved configuration.

It is assumed that the person performing the upgrade is familiar with the aircraft and has a working knowledge of typical avionics systems.

<b>NOTE</b>
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Instructions contained in this document are written specifically for upgrades to existing G1000 installations in Diamond Model DA42 aircraft.

### **1.2. System and Equipment Identification**

- Verify what optional interface equipment listed in the following table exists (if any) on the airframe, for configuration.

<b>Optional Equipment</b>
1.7 Liter Engine
Auxiliary Fuel Tanks
Avidyne TAS600 Series Traffic Device
Becker RA3502 ADF
Deicing Equipped
Garmin GDL69 (Data Link)
Garmin GFC 700 (Flight Control System)
Honeywell KN63 DME
Honeywell KTA870 TAS
L-3 Communications Stormscope

- To identify what G1000 System Software version is installed, do the steps that follow:
  1. In the aircraft, turn the aircraft MASTER switch on.
  2. Look at the MFD power-up screen (see following figure). In the upper right corner, the display shows 'Diamond DA42 System XXXX.XX' .



3. This 'System' number is the System Software Version. It correlates to the G1000 SW Loader Card used to load the software to the system. For example:

**EXAMPLE:**

System Software Version '**0370.13**' = Loader Card P/N 010-0**0370-13**

If the System Software Version is already at 0370.19, this Software Service Bulletin may have already been performed, proceed to the Testing Procedure section of this bulletin.

### 1.3. Required Materials and Equipment:

**NOTE**

Make sure that all of the required materials and equipment are on hand before you begin the upgrade procedure.

**CAUTION**

While performing this procedure ensure the aircraft is connected to and drawing power from a power cart. A loss of power during this procedure may result in a defective GIA 63.

- ❑ A ground power unit capable of supplying 28 VDC power to the aircraft systems and avionics
- ❑ Valid GPS Satellite signal sufficient to obtain a 3-dimensional GPS position (fix)
- ❑ G1000, DA42 Software Loader Card, P/N 010-00370-19
- ❑ GIA 6X SW Boot Block Loader Card, v4.01, P/N 010-00533-00

## 2. G1000 Software Upgrade Procedure

### NOTE

All G1000 screen shots used in this document are intended to provide visual reference only. All information depicted in screen shots, including software file names, versions and part numbers, is subject to change and may not be up to date. Please refer to the table in Section 5 Testing Procedure section of this document to verify the software part number and version for each LRU.

### 2.1. Boot Block Update

Before beginning the software update procedure, the GIA 63 Boot Block Software must first be updated. Boot block version 4.01 is required for GIA Main Software Version 4.00 or later.

#### 2.1.1. Loading Boot Block Version 4.01

1. Ensure the G1000 is powered off.
2. Insert the GIA 63 boot block version 4.01 loader card into the top slot of the PFD.
3. While holding the ENT key on the PFD, restore power to the PFD.
4. When the words **INITIALIZING SYSTEM** appear in the upper left corner of the PFD, release the ENT key.
5. Repeat steps 3 and 4 for the MFD.
6. Use the FMS knob to turn to the Software Upload page on the PFD.
7. Verify 'GIA 6X Boot Block 4.01' appears in the File List.
8. Verify 'GIA 1' and 'GIA 2' appears in the LRU window.
9. Press the FMS knob to highlight 'GIA 6X Boot Block 4.01'.
10. Press the LOAD softkey.
11. Press the ENT key at the "BEGIN FILE UPLOAD?" prompt.

### CAUTION

Do not turn power off or cancel the software upload while the boot block is loading.

12. Confirm update completion and press the ENT key.
13. On the MFD use the FMS knob to turn to the System Status page.
14. Highlight 'GIA 1'.
15. Verify 'G1000 GIA 6X SYS' is being reported in the description field.
16. Power down the G1000.
17. Remove the GIA 63 boot block version 4.01 loader card from the PFD.
18. Continue to Section 2.2.

## 2.2. MFD and PFD Software Load

1. Turn on the ground power unit, if used.
2. Turn on the battery switch.
3. Turn on the AVIONICS MASTER switch. At this moment, all G1000 equipment is receiving power.
4. Disengage the MFD and PFD circuit breakers.
5. Insert the correct G1000 Loader Card into the MFD top card slot (located on the MFD).
6. While holding the ENT key on the MFD, engage the MFD circuit breaker.
7. When the words **INITIALIZING SYSTEM** appear in the upper left corner of the MFD, release the ENT key.
8. Press the ENT key to acknowledge the following prompt (NOTE: A softkey labeled 'YES' appears in the lower right corner and may be used instead of the ENT key):

```
DO YOU WANT TO UPDATE SYSTEM FILES?  
PRESS CLR FOR NO AND ENT FOR YES  
YOU HAVE 30 SECONDS BEFORE NO IS RETURNED
```

9. The following screen is displayed.

```
DO YOU WANT TO UPDATE SYSTEM FILES?  
PRESS CLR FOR NO AND ENT FOR YES  
YOU HAVE 30 SECONDS BEFORE NO IS RETURNED  
UPDATING SYSTEM FILES. DO NOT TURN OFF POWER !!!  
THIS MAY TAKE UP TO 10 MINUTES
```

10. New software is loaded to the MFD. When complete, the MFD starts in configuration mode.
11. Remove the G1000 Loader Card from the MFD and insert it into the top card slot on the PFD.
12. While holding the ENT key on the PFD, engage the PFD circuit breaker.
13. When the words **INITIALIZING SYSTEM** appear in the upper left corner of the PFD, release the ENT key.
14. Press the ENT key to acknowledge the following prompt (NOTE: A softkey labeled 'YES' appears in the lower right corner and may be used in lieu of the ENT key):

```
DO YOU WANT TO UPDATE SYSTEM FILES?  
PRESS CLR FOR NO AND ENT FOR YES  
YOU HAVE 30 SECONDS BEFORE NO IS RETURNED
```

15. The following screen is displayed.

```
DO YOU WANT TO UPDATE SYSTEM FILES?  
PRESS CLR FOR NO AND ENT FOR YES  
YOU HAVE 30 SECONDS BEFORE NO IS RETURNED  
UPDATING SYSTEM FILES. DO NOT TURN OFF POWER !!!  
THIS MAY TAKE UP TO 10 MINUTES
```



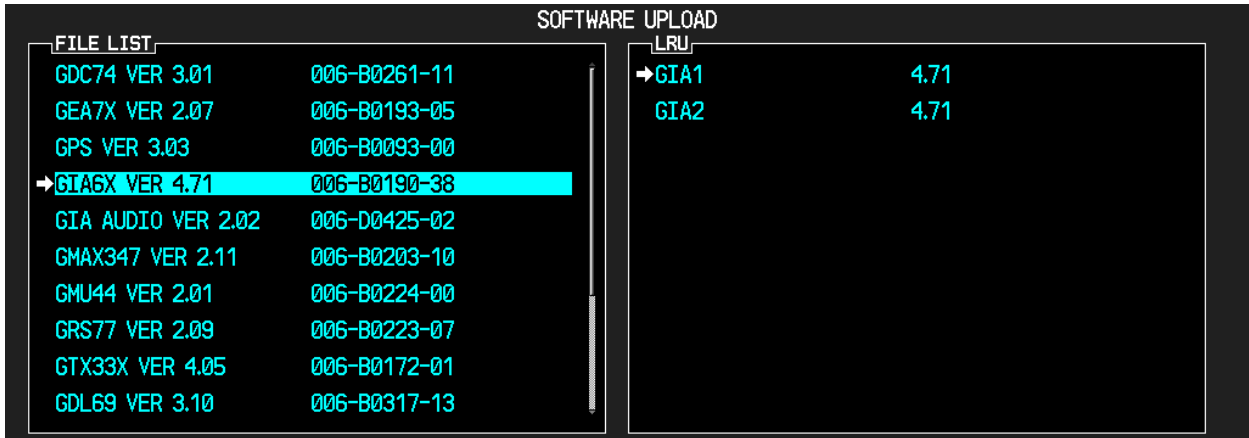
16. New software is loaded to the PFD.
17. When PFD update is complete, it starts in the configuration mode. Do not remove power, proceed to Section 2.3.

<b>NOTE</b>
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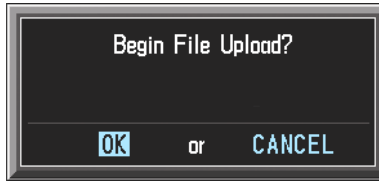
For the rest of the software/configuration procedure, do not operate the MFD while loading software or configuration files unless specifically instructed to do so. A failed or cancelled load may result.

### 2.3. GIA6X Software Load

1. Go to the Software Upload page using the small FMS knob.
2. Activate the cursor and select the GIA software file from the file list. Verify that GIA1 and GIA2 appear in the LRU field as shown:



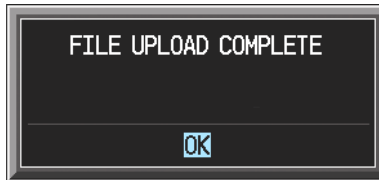
3. If both GIA1 and GIA2 display SW version 4.71 in the LRU field as shown above, skip the following steps 4 – 8 and proceed to Section 2.4 GIA Audio Software Load; otherwise proceed to the following step.
4. Press the LOAD softkey.
5. Select OK and press ENT to acknowledge the following prompt:



6. The software for GIA1 begins to load. GIA2 software loads immediately after GIA1 software finishes loading. Monitor the upload status as it progresses:



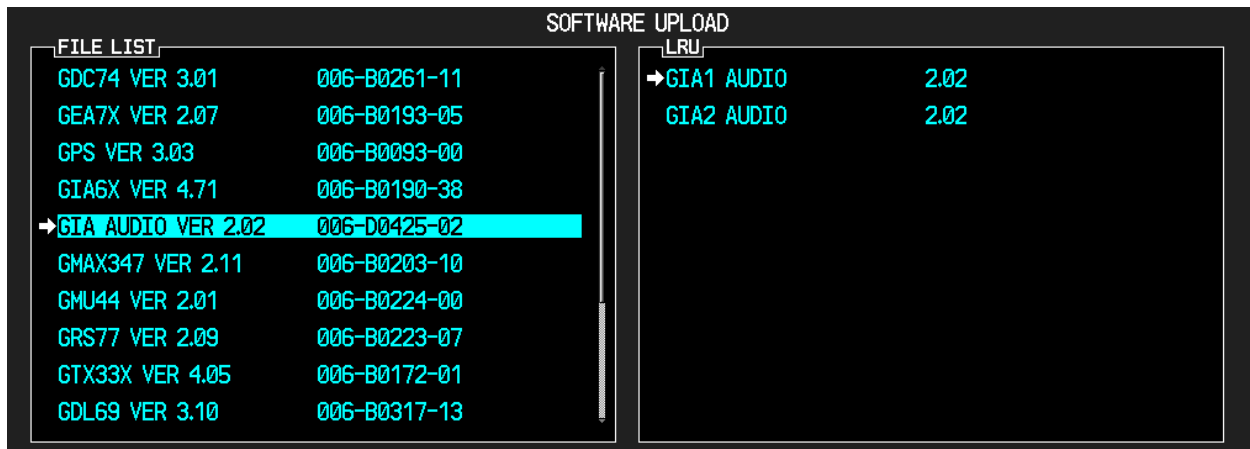
7. After the files finish loading, press ENT to acknowledge the following prompt:



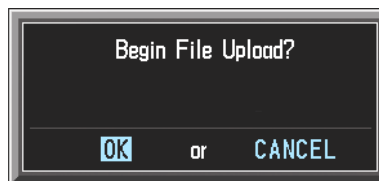
8. View the SUMMARY field and verify that both GIA1 and GIA2 software loading is 'COMPLETE'.

## 2.4. GIA Audio Software Load

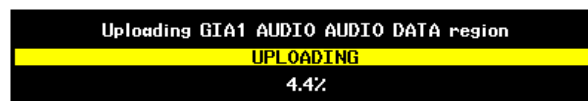
1. Activate the cursor and select the GIA Audio software file from the file list. Verify that GIA1 and GIA2 appear in the LRU field as shown:



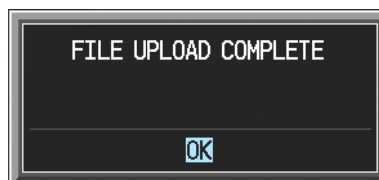
2. If both GIA1 and GIA2 display SW version 2.02 in the LRU field as shown above, skip the following steps 3 – 7 and proceed to Section 2.5 GPS Software Load; otherwise proceed to the following step.
3. Press the LOAD softkey.
4. Select OK and press ENT to acknowledge the following prompt:



5. The software for GIA1 begins to load. GIA2 software loads immediately after GIA1 software finishes loading. Monitor the upload status as it progresses:



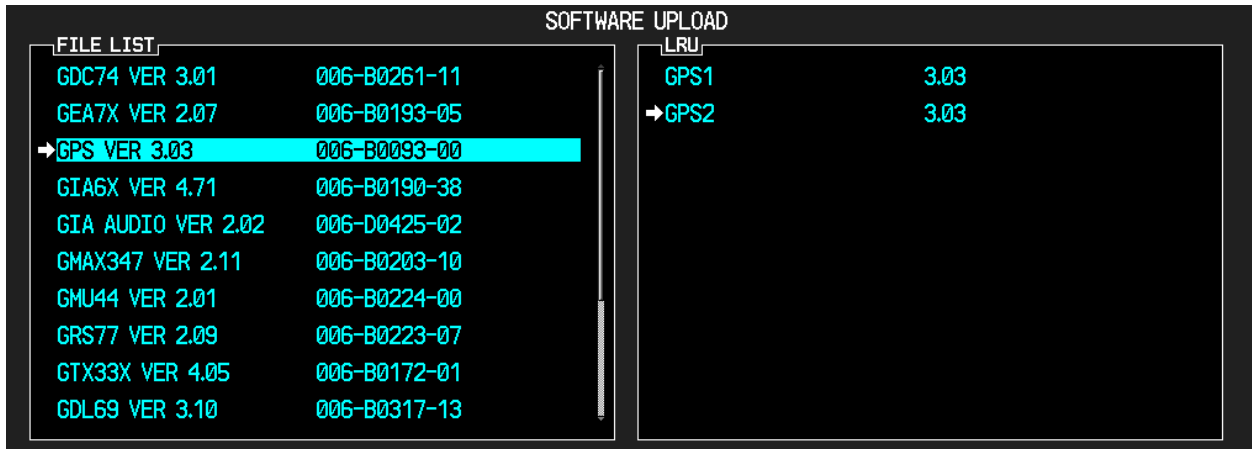
6. After the files finish loading, press ENT to acknowledge the following prompt:



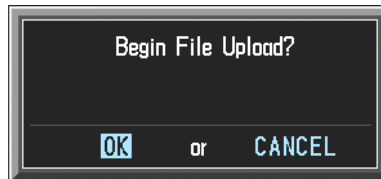
7. View the SUMMARY field and verify that both GIA1 and GIA2 software loading is 'COMPLETE'.

## 2.5. GPS Software Load

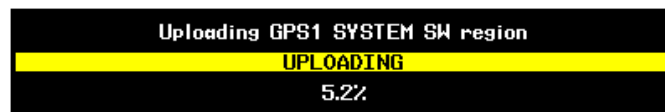
1. Activate the cursor and Select the GPS software file from the file list. Make sure that GPS1 and GPS2 appear in the LRU field as shown:



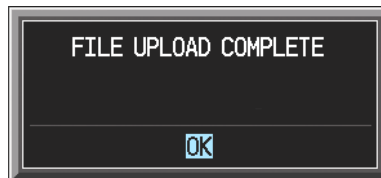
2. If both GPS1 and GPS2 display SW version 3.03 in the LRU field as shown above, skip the following steps 3 – 7 and proceed to Section 2.6 GMA 1347 Audio Panel Software; otherwise proceed to the following step.
3. Press the LOAD softkey.
4. Select OK and press ENT to acknowledge the following prompt:



5. The software for GPS1 begins to load. GPS2 software loads immediately after GPS1 software finishes loading. Monitor the upload status as it progresses:



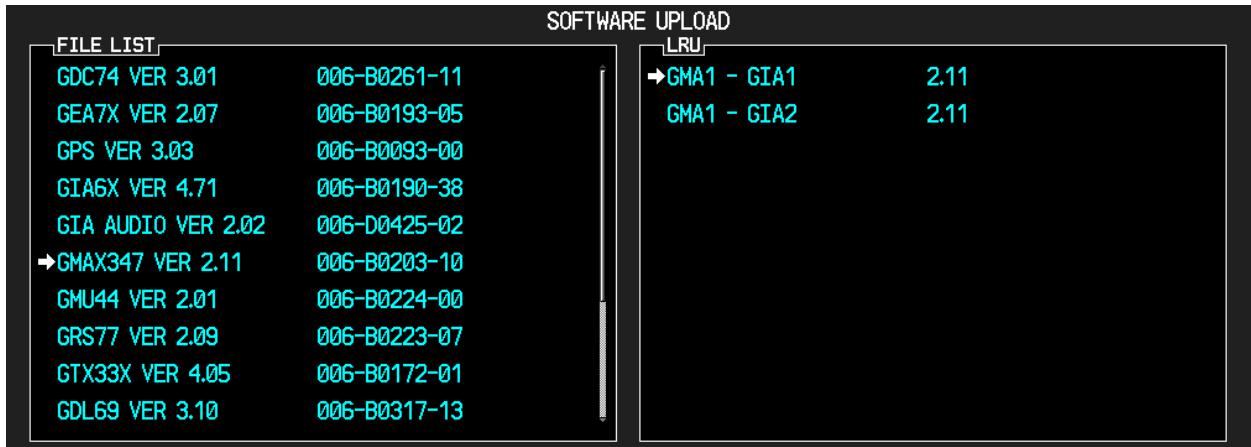
6. After the files finish loading, press ENT to acknowledge the following prompt:



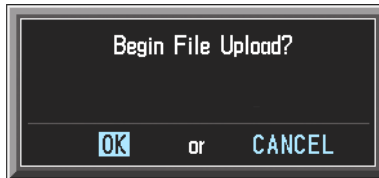
7. View the SUMMARY field and verify that both GPS1 and GPS2 software loading is 'COMPLETE'.

## 2.6. GMAX347 Audio Panel Software

1. Activate the cursor and highlight the GMA software file from the file list. Make sure that both data paths to the GMA1 through GIA1 and GIA2 appear in the LRU field as shown:



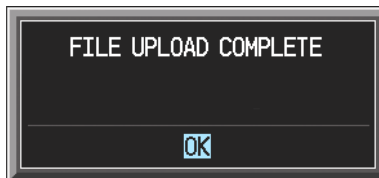
2. If both data paths to the GMA1 through GIA1 and GIA2 display SW version 2.11 in the LRU field as shown above, skip the following steps 3 – 7 and proceed to Section 2.7 GDC 74A Air Data Computer Software; otherwise proceed to the following step.
3. Press the LRU softkey. Select the GMA1 - GIA1 data path to load software. Press the LOAD ALL softkey.
4. Select OK and press the ENT key to acknowledge the following prompt:



5. The software for the GMA1 begins to load. GMA2 software loads immediately after GMA1 software finishes loading. Monitor the upload status as it progresses:



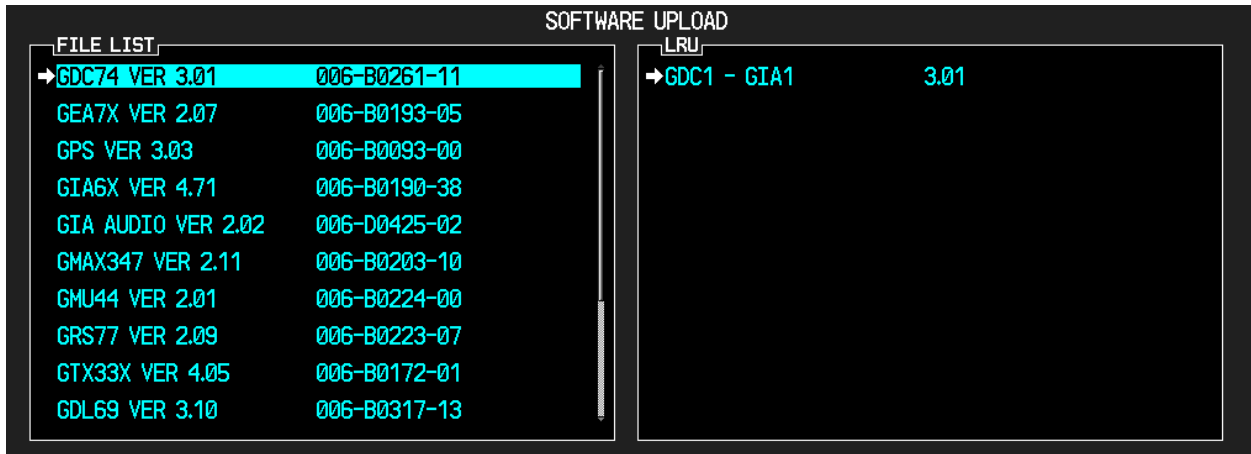
6. After the files finish loading, press ENT to acknowledge the following prompt:



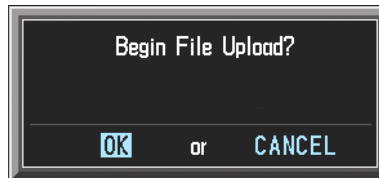
7. Check the SUMMARY field to Make sure the load is 'COMPLETE'.

## 2.7. GDC 74A Air Data Computer Software

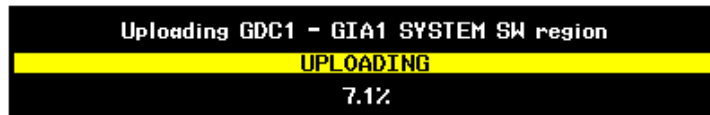
1. Highlight the GDC software file from the file list. Make sure that GDC1 to GIA1 data path appears in the LRU field as shown:



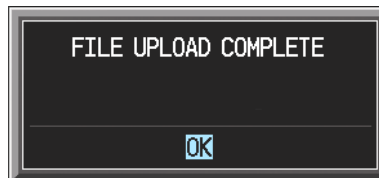
2. If the GDC1 to GIA1 data path displays SW version 3.01 in the LRU field as shown above, skip the following steps 3 – 7 and proceed to Section 2.8 GRS 77 AHRS Software; otherwise proceed to the following step.
3. Press the LOAD softkey.
4. Select OK and press the ENT key to acknowledge the following prompt:



5. The software for the GDC 74A Air Data Computer begins to load. There are two files that load to the GDC 74A: "System SW" and "FPGA". These load one after the other automatically. Monitor the upload status as it progresses:



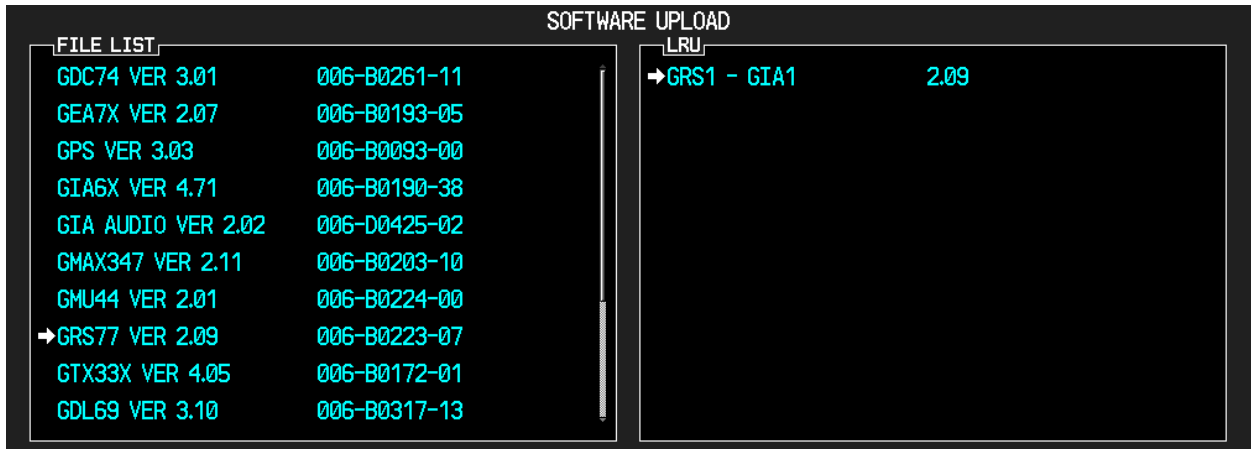
6. After the files finish loading, press ENT to acknowledge the following prompt:



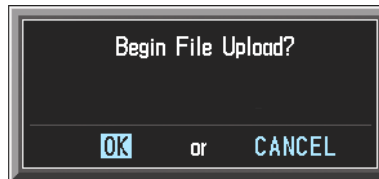
7. Check the SUMMARY field to make sure that both the System SW region and the FPGA region loads are 'COMPLETE'.

## 2.8. GRS 77 AHRS Software

1. Highlight the GRS software file from the file list. Make sure that the GRS1 to GIA1 data path appears in the LRU field as shown:



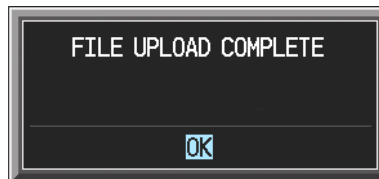
2. If the GRS1 to GIA1 data path displays SW version 2.09 in the LRU field as shown above, skip the following steps 3 – 7 and proceed to Section 2.9 GMU 44 Magnetometer Software; otherwise proceed to the following step.
3. Press the LOAD softkey.
4. Select OK and press the ENT key to acknowledge the following prompt:



5. The software for the GRS 77AHRS begins to load. There are two files that load to the GRS 77: "System SW" and "FPGA". These load one after the other, automatically. Monitor the upload status as it progresses:



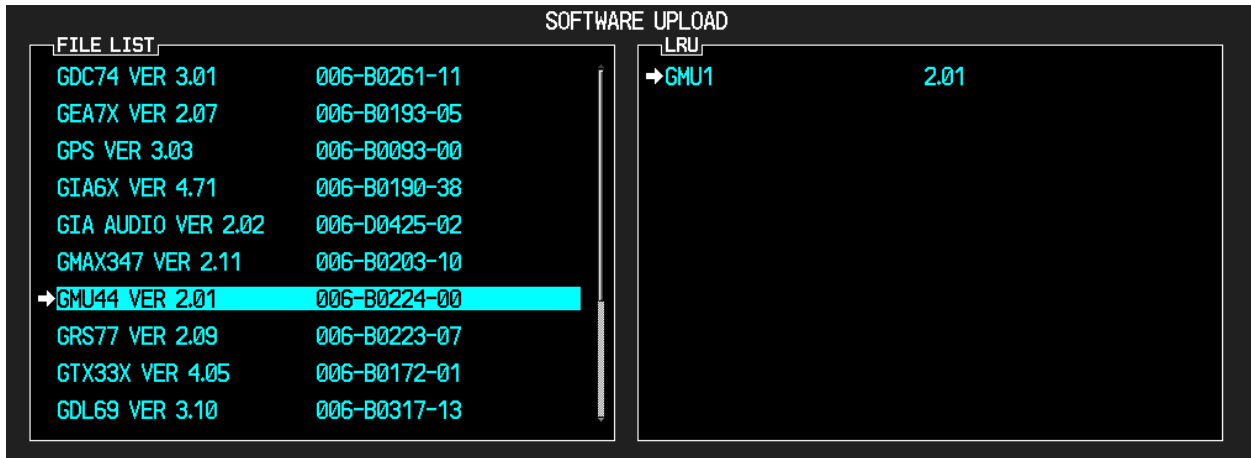
6. After the files finish loading, press the ENT key to acknowledge the following prompt:



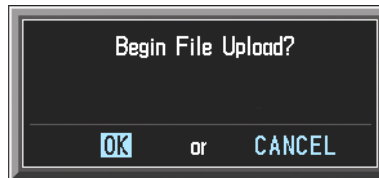
7. Check the SUMMARY field to make sure that both the System SW region and the FPGA region loads are 'COMPLETE'.

## 2.9. GMU 44 Magnetometer Software

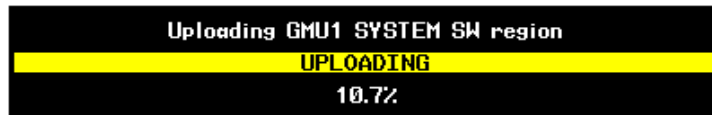
1. Highlight the GMU software file from the file list. Make sure that GMU1 appears in the LRU field as shown:



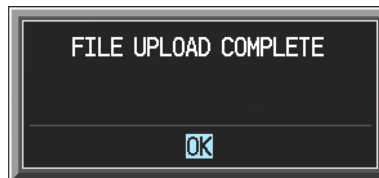
2. If GMU1 displays SW version 2.01 in the LRU field as shown above, skip the following steps 3 – 7 and proceed to Section 2.10 GTX 33 Transponder Software; otherwise proceed to the following step.
3. Press the LOAD softkey.
4. Select OK and press the ENT key to acknowledge the following prompt:



5. The software for the GMU 44 begins to load. There are two files that load to the GMU 44: "System SW" and "FPGA". These load one after the other, automatically. Monitor the upload status as it progresses:



6. After the files finish loading, press the ENT key to acknowledge the following prompt:

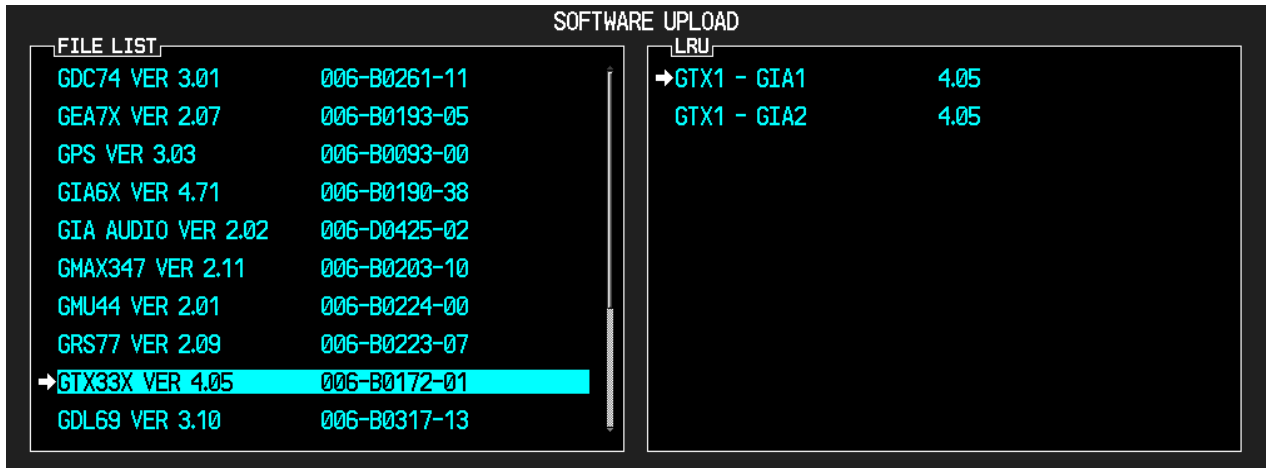


7. Check the SUMMARY field to make sure that both the System SW region and the FPGA region loads are 'COMPLETE'.

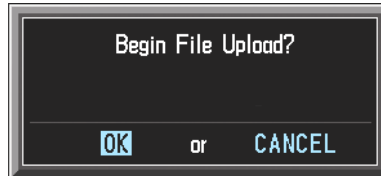


## 2.10. GTX 33 Transponder Software

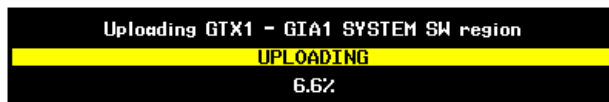
1. Highlight the GTX software file from the file list. Make sure that both data paths to GTX1 through GIA1 and GIA 2 appear in the LRU field as shown:



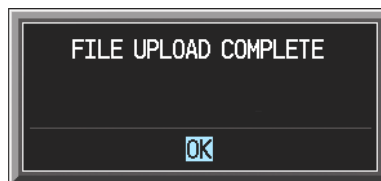
2. If both data paths to GTX1 through GIA1 and GIA 2 display SW version 4.05 in the LRU field as shown above, skip the following steps 3 – 7 and proceed to Section 2.11 GEA 71 Engine/Airframe Unit Software; otherwise proceed to the following step.
3. Press the LRU softkey. Select the GTX1 - GIA1 data path to load software. Press the LOAD softkey.
4. Select OK and press the ENT key to acknowledge the following prompt:



5. The software for the GTX 33 transponder begins to load. Monitor the upload status as it progresses:



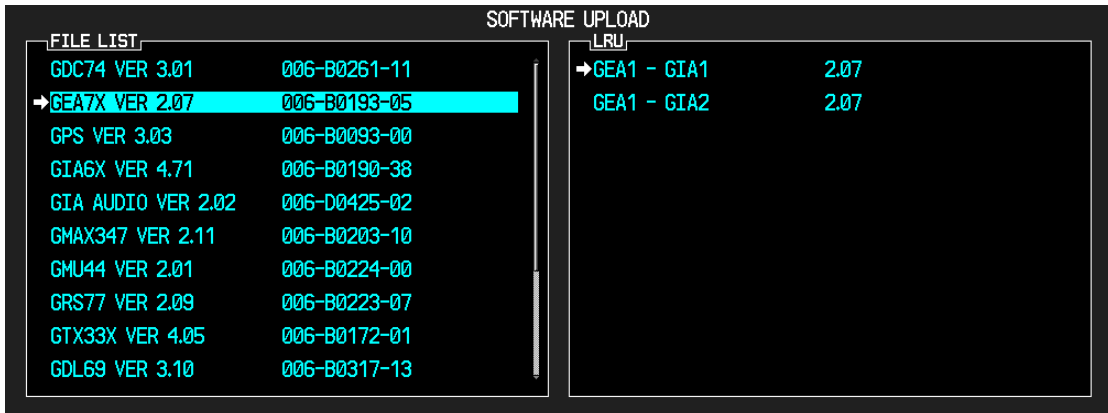
6. After the GTX1 – GIA1 System SW region finishes loading, press the ENT key to acknowledge the following prompt:



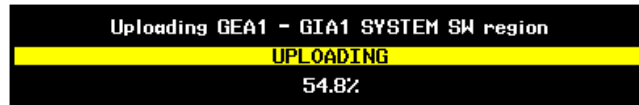
7. Check the SUMMARY field to make sure the load is 'COMPLETE'.

## 2.11. GEA 71 Engine/Airframe Unit Software

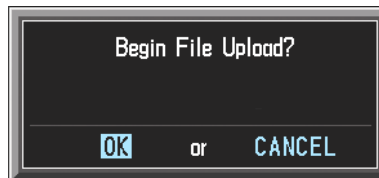
1. Highlight the GEA software file from the file list. Make sure that both data paths to GEA1 through GIA1 and GIA 2 appear in the LRU field as shown:



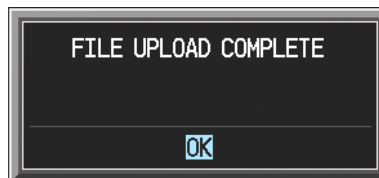
2. If both data paths to GEA1 through GIA1 and GIA 2 display SW version 2.07 in the LRU field as shown above, skip the following steps 3 – 7 and proceed to Section 3 Configuration File Upgrade; otherwise proceed to the following step.
3. Press the LRU softkey. Select the GEA - GIA1 data path to load software. Press the LOAD softkey.
4. The software for the GEA 71 Engine/Airframe unit begins to load. Monitor the upload status as it progresses:



5. Select OK and press the ENT key to acknowledge the following prompt:



6. After the GEA1 – GIA1 System SW region finishes loading, press the ENT key to acknowledge the following prompt:

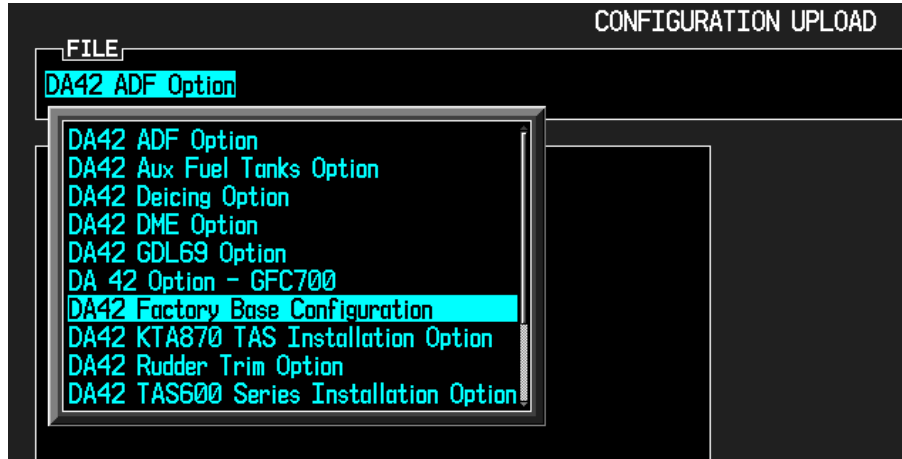


7. Check the SUMMARY field to make sure the load is 'COMPLETE'.

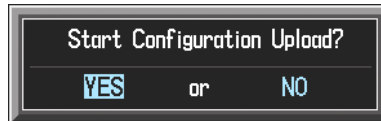
### 3. Configuration File Upgrade

#### 3.1. Initial G1000 Configuration

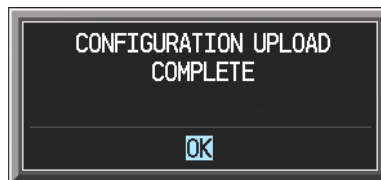
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the FMS knob once to activate the FILE menu.



3. Select 'DA42 Factory Base Configuration' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press the ENT key to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:



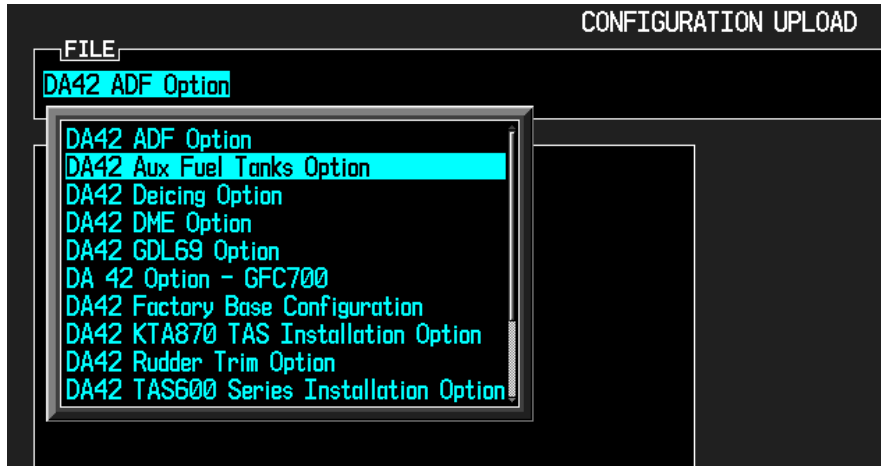
7. View the SUMMARY field and make sure that all items are 'COMPLETE', then deactivate the cursor.

## 3.2. Optional Equipment Configuration

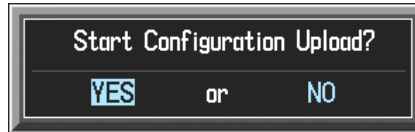
### 3.2.1. DA42 Option – Aux Fuel Tanks Option

If the DA42 aircraft being updated is equipped with auxiliary fuel tanks, follow this procedure to configure the G1000. If the DA42 is not equipped with this option, this procedure must be skipped, and you must proceed to Section 3.2.2.

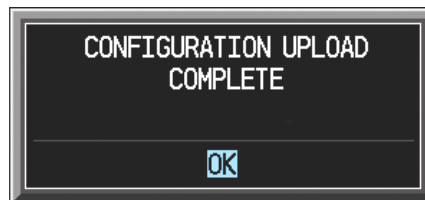
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the FMS knob once to activate the FILE menu.



3. Select 'DA42 Aux Fuel Tanks Option' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:

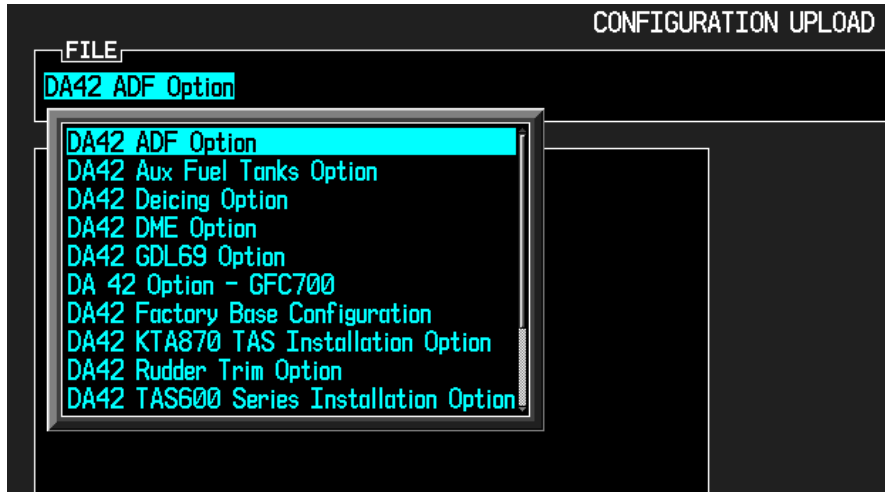


7. View the SUMMARY field and make sure that all items are 'COMPLETE'.

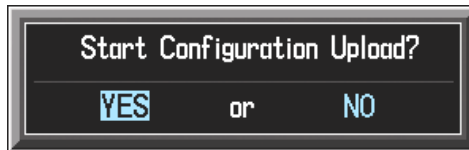
### 3.2.2. DA42 Option – ADF Option

If the DA42 aircraft being updated is equipped with the Becker model RA3502 ADF, follow this procedure to configure the G1000. If the aircraft is not equipped with this option, this procedure **MUST** be skipped, and you must proceed to Section 3.2.3.

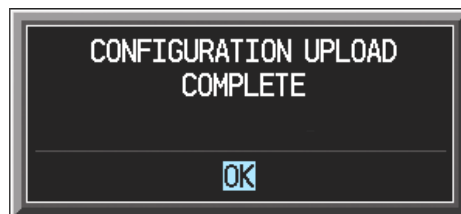
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the small FMS knob once to activate the FILE menu.



3. Select '**DA42 ADF Option**' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:

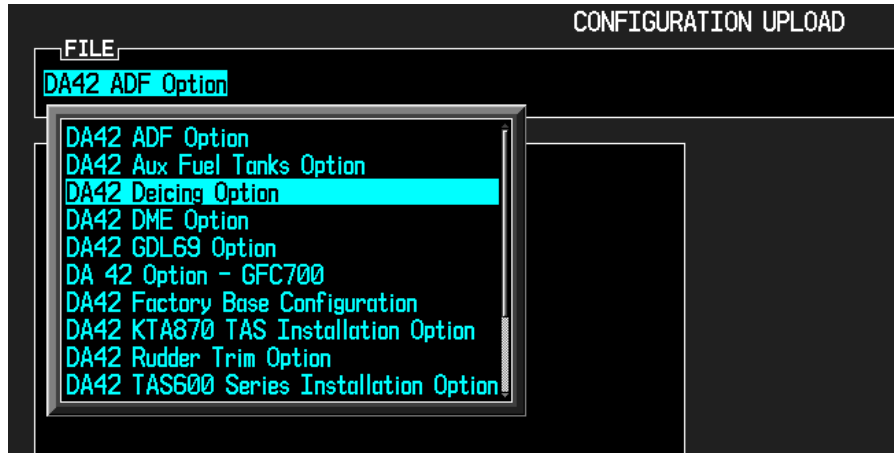


7. View the SUMMARY field and make sure that all items are 'COMPLETE'.

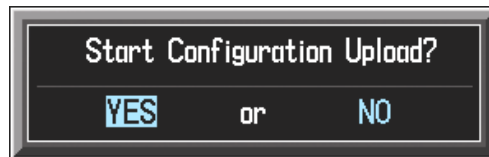
### 3.2.3. DA42 Option –Deicing Option

If the DA42 aircraft being updated is equipped with Deicing, follow this procedure to configure the G1000. If the DA42 is not equipped with this option, this procedure must be skipped, and you must proceed to Section 3.2.4.

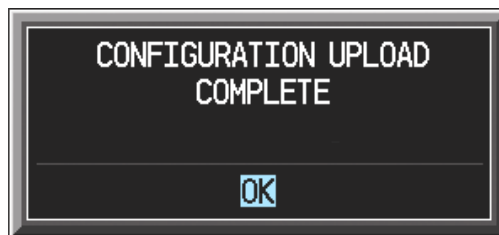
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the small FMS knob once to activate the FILE menu.



3. Select '**DA42 Deicing Option**' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:

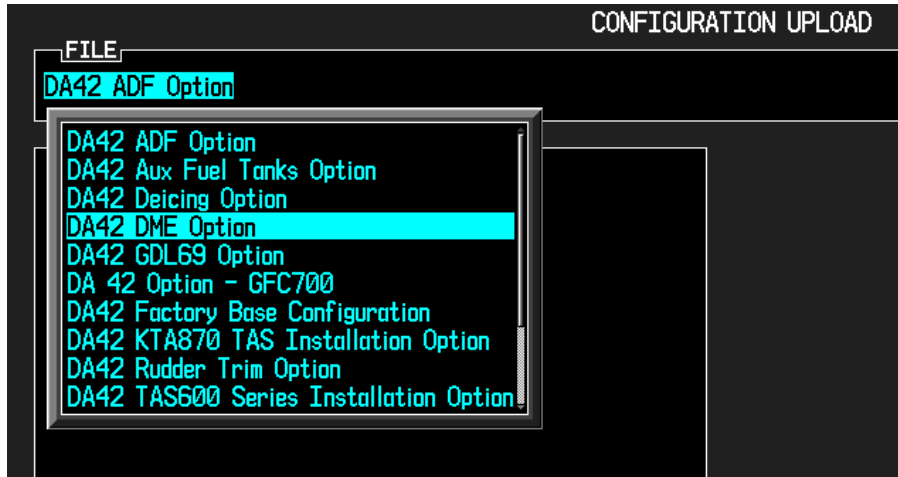


7. View the SUMMARY field and make sure that all items are 'COMPLETE'.

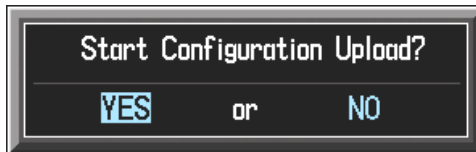
### 3.2.4. DA 42 Option – DME Option

If the DA42 aircraft being updated is equipped with the Honeywell model KN63 DME, follow this procedure to configure the G1000. If the aircraft is not equipped with this option, this procedure must be skipped, and you must proceed to Section 3.2.5.

1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the small FMS knob once to activate the FILE menu.



3. Select '**DA42 DME Option**' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:

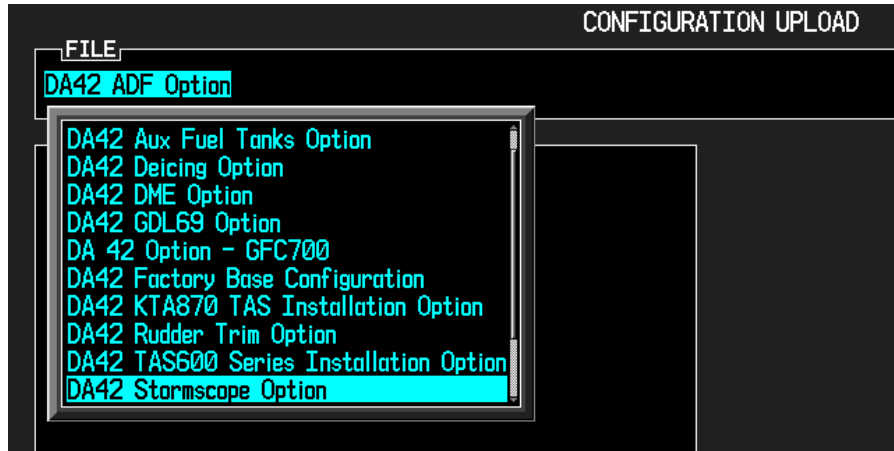


7. View the SUMMARY field and make sure that all items are 'COMPLETE'.

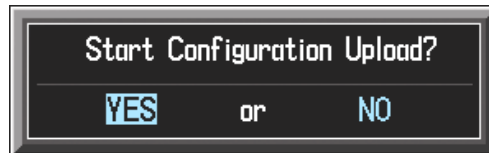
### 3.2.5. DA42 Option – Stormscope Option

If the DA42 aircraft being updated is equipped with an L-3 Communications model Stormscope, follow this procedure to configure the G1000. If the aircraft is not equipped with this option, this procedure must be skipped, and you must proceed to Section 3.2.6.

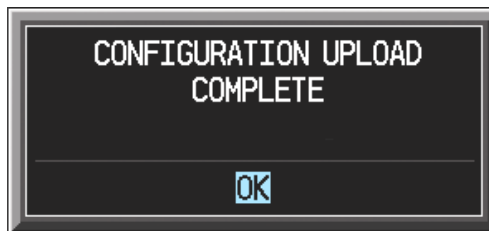
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the small FMS knob once to activate the FILE menu.



3. Select '**DA42 Stormscope Option**' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:



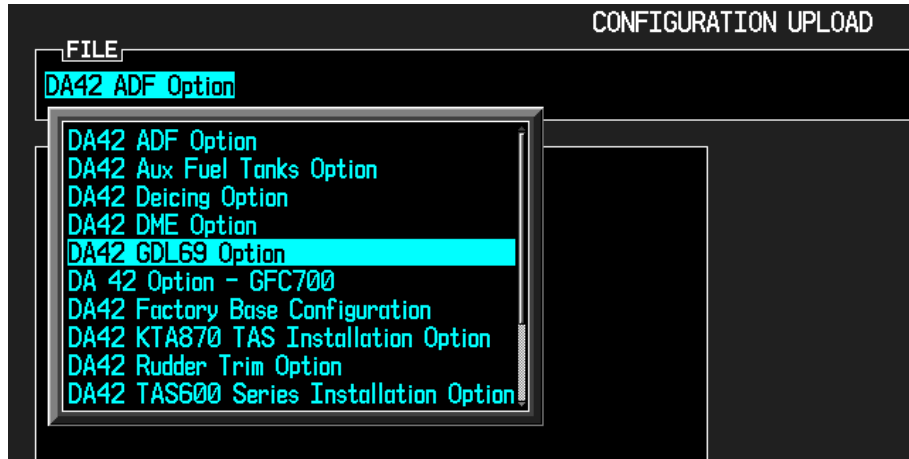
7. View the SUMMARY field and make sure that all items are 'COMPLETE'.



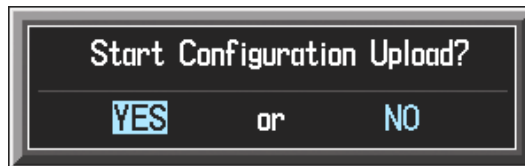
### 3.2.6. DA42 Option – GDL69 Option

If the DA42 aircraft being updated is equipped with a Garmin GDL69, follow this procedure to configure the G1000. If the aircraft is not equipped with this option, this procedure must be skipped, and you must proceed to Section 3.2.7.

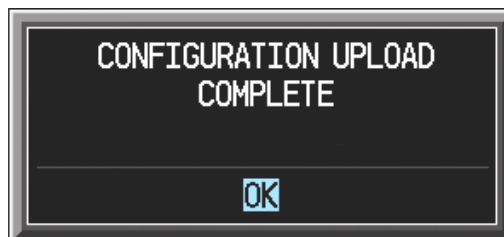
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the small FMS knob once to activate the FILE menu.



3. Select '**DA42 GDL69 Option**' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:

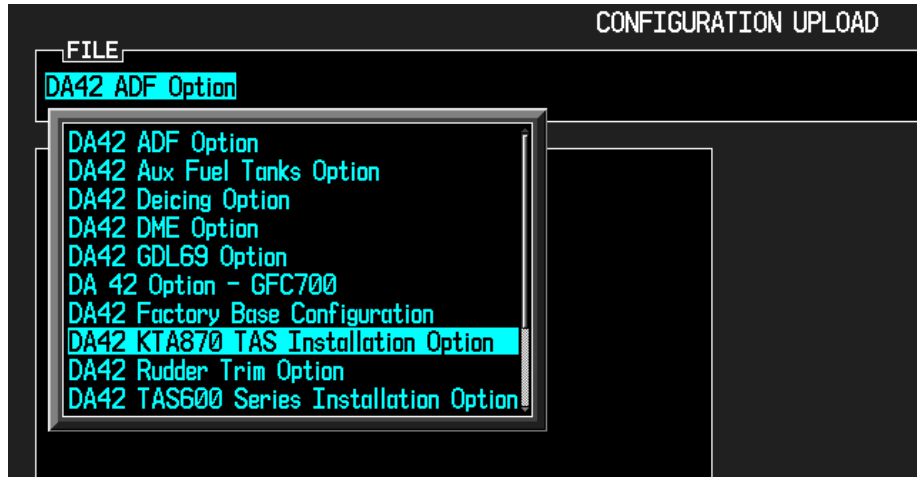


7. View the SUMMARY field and make sure that all items are 'COMPLETE'.

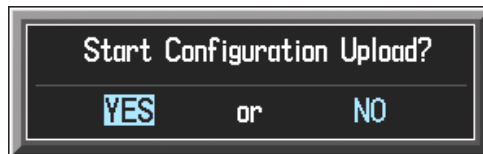
### 3.2.7. DA42 Option – KTA870 TAS Installation Option

If the DA42 aircraft being updated is equipped with a Honeywell model KTA870 TAS, follow this procedure to configure the G1000. If the aircraft is not equipped with this option, this procedure must be skipped, and you must proceed to Section 3.2.8.

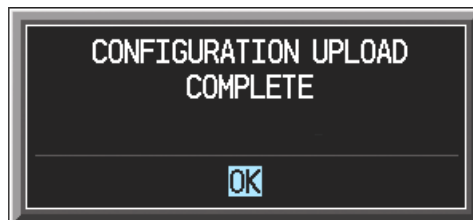
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the small FMS knob once to activate the FILE menu.



3. Select '**DA42 KTA870 TAS Installation Option**' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:

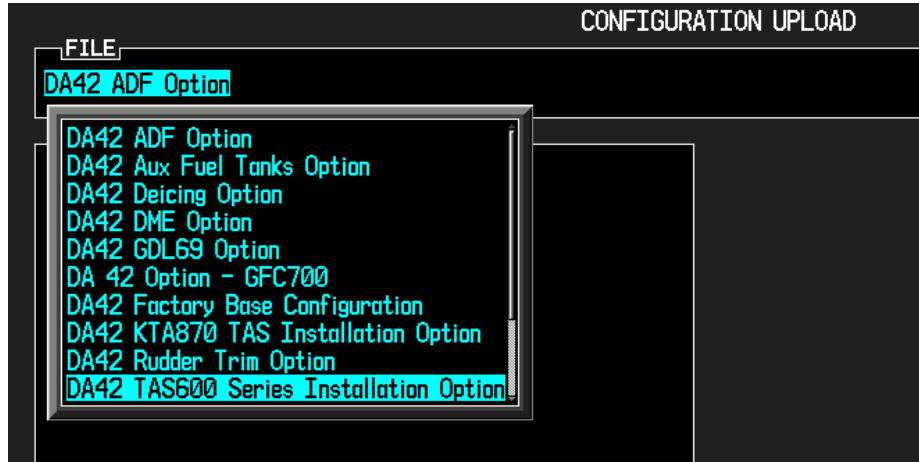


7. View the SUMMARY field and make sure that all items are 'COMPLETE'.

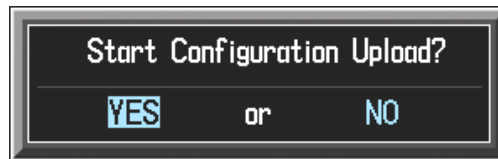
### 3.2.8. DA42 Option – TAS600 Series Installation Option

If the DA42 aircraft being updated is equipped with an Avidyne model TAS600 Series traffic device, follow this procedure to configure the G1000. If the aircraft is not equipped with this option, this procedure must be skipped, and you must proceed to Section 3.2.9.

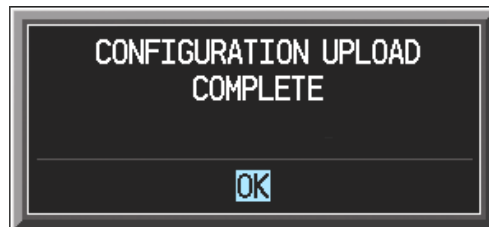
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the small FMS knob once to activate the FILE menu.



3. Select '**DA42 TAS600 Installation Option**' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:

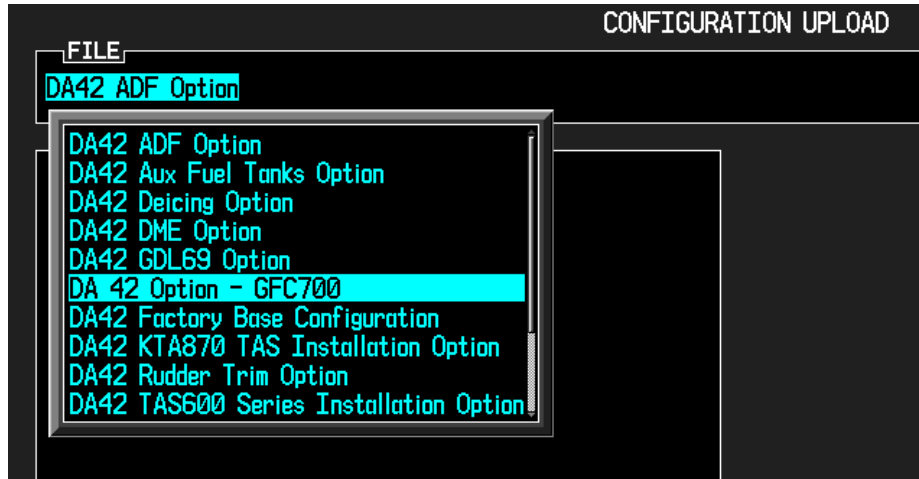


7. View the SUMMARY field and make sure that all items are 'COMPLETE'.

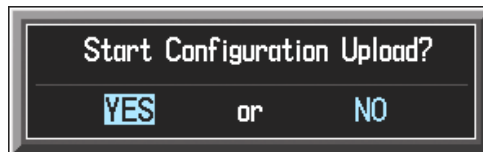
### 3.2.9. DA42 Option – GFC700 Option

If the DA42 aircraft being updated is equipped with a Garmin GFC700 Flight Control system, follow this procedure to configure the G1000. If the aircraft is not equipped with this option, this procedure must be skipped, and you must proceed to Section 3.2.10.

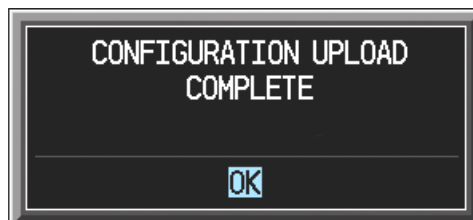
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the small FMS knob once to activate the FILE menu.



3. Select '**DA42 GFC700**' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:

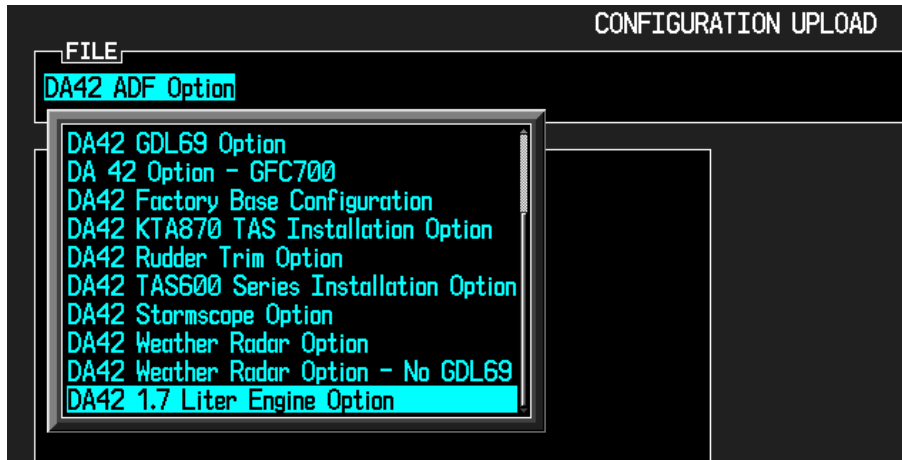


7. View the SUMMARY field and make sure that all items are 'COMPLETE'.

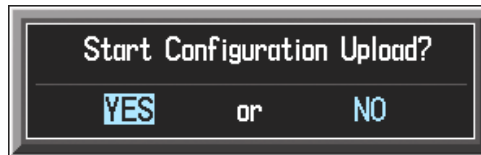
### 3.2.10. DA42 Option – 1.7 Liter Engine Option

If the DA42 aircraft being updated is equipped with a 1.7 Liter Engine, follow this procedure to configure the G1000. If the aircraft is not equipped with this option, this procedure and you must be skipped, and you must proceed to Section 4 Software Loading for Newly Configured LRU's.

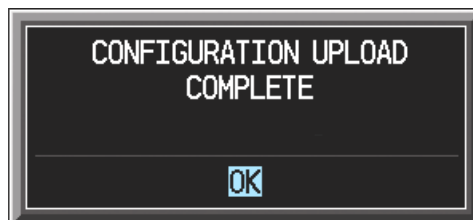
1. Go to the Configuration Upload page using the FMS knob.
2. Activate cursor and rotate the small FMS knob once to activate the FILE menu.



3. Select 'DA42 1.7 Liter Engine Option' and press ENT.
4. Press the LOAD ALL softkey.
5. Select YES and press ENT to acknowledge the following prompt:



6. Monitor the status of the upload. When the upload is finished, press the ENT key to acknowledge the following confirmation:

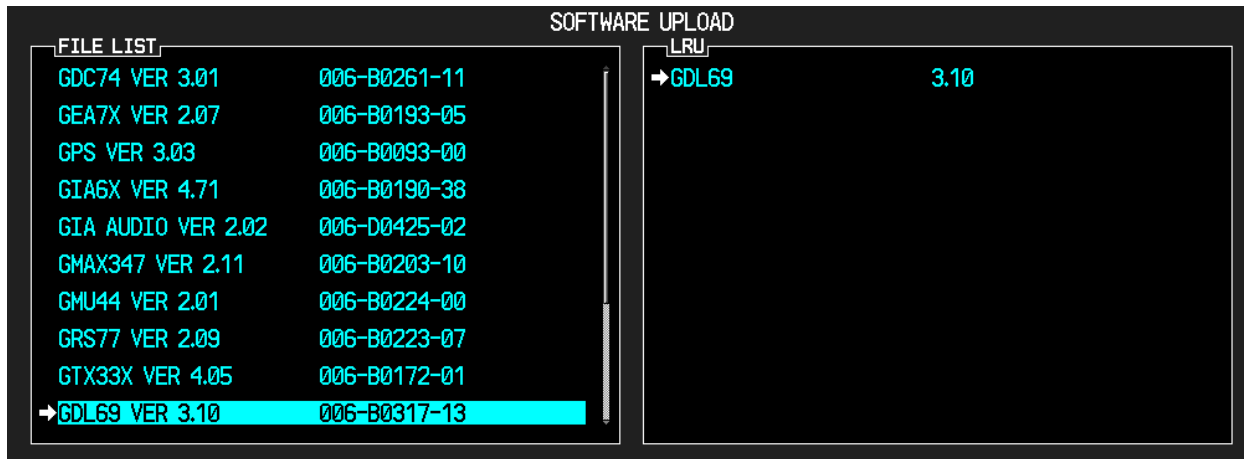


7. View the SUMMARY field and make sure that all items are 'COMPLETE'.

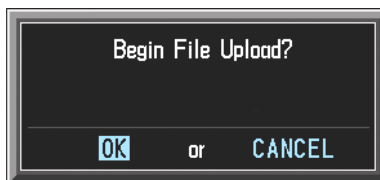
## 4. SOFTWARE LOADING FOR NEWLY CONFIGURED LRU'S

### 4.1. GDL69 Data Link Unit Software

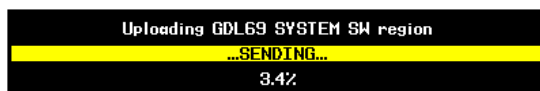
1. Go to the Software Upload page using the small FMS knob.
2. If the DA42 aircraft being updated is equipped with a GDL69, highlight the GDL69 software file from the file list. Make sure that GDL69 appears in the LRU field as shown:



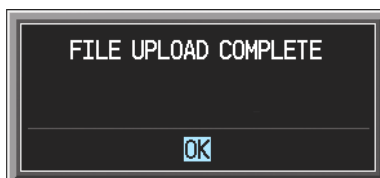
3. If GDL69 displays SW version 3.10 in the LRU field as shown above, skip steps 4 – 9 and proceed to Section 4.2 GSA8X Unit Software; otherwise proceed to the following step.
4. Press the LOAD softkey.
5. Select OK and press the ENT key to acknowledge the following prompt:



6. The software for the GDL 69 Data Link Unit begins to load. There are three files that load to the GDL 69: "System SW", "Kernel SW", and "Loader SW". These load one after the other, automatically. Monitor the upload status as it progresses:



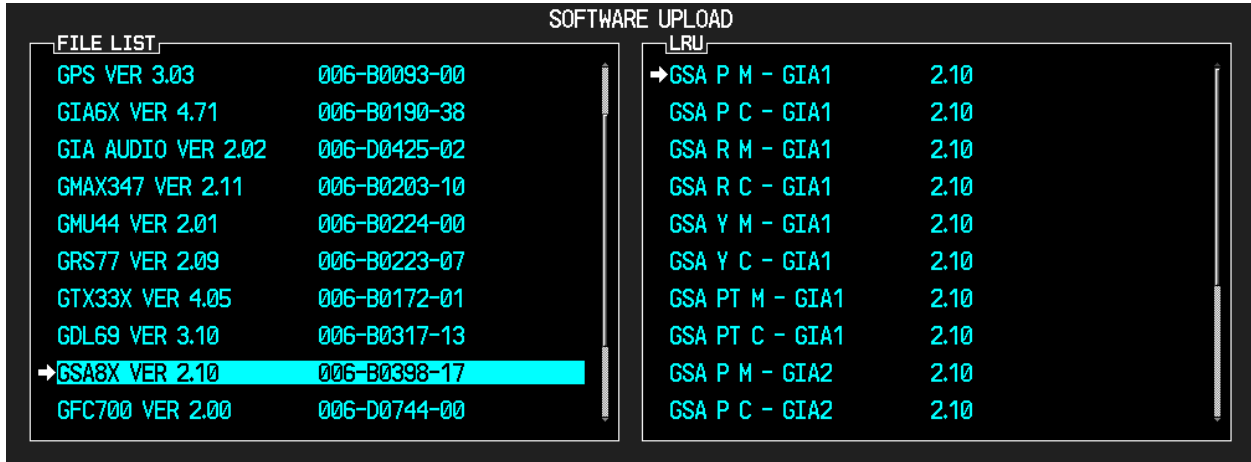
7. After the files finish loading, press ENT to acknowledge the following prompt:



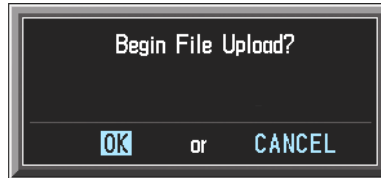
8. Check the SUMMARY field to make sure the all software loads are 'COMPLETE'.
9. De-activate the cursor.

## 4.2. GSA8X Unit Software

1. If the DA42 aircraft being updated is equipped with a GSA8X, highlight the GSA8X software file from the file list. Make sure that 16 LRU entries are displayed in the LRU field as shown:



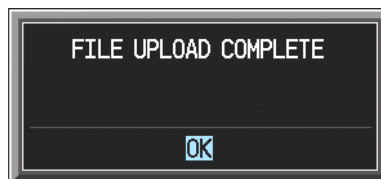
2. If GSA8X displays SW version 2.10 in the LRU field as shown above, skip steps 3 – 8 and proceed to Section 4.3 GFC700 Unit Software (006-D0271-00); otherwise proceed to the following step.
3. Press the LOAD softkey.
4. Select OK and press the ENT key to acknowledge the following prompt:



5. The software for the GSA8X Unit begins to load. There are 16 files that load to the GSA8X, these load one after the other, automatically. Monitor the upload status as it progresses:



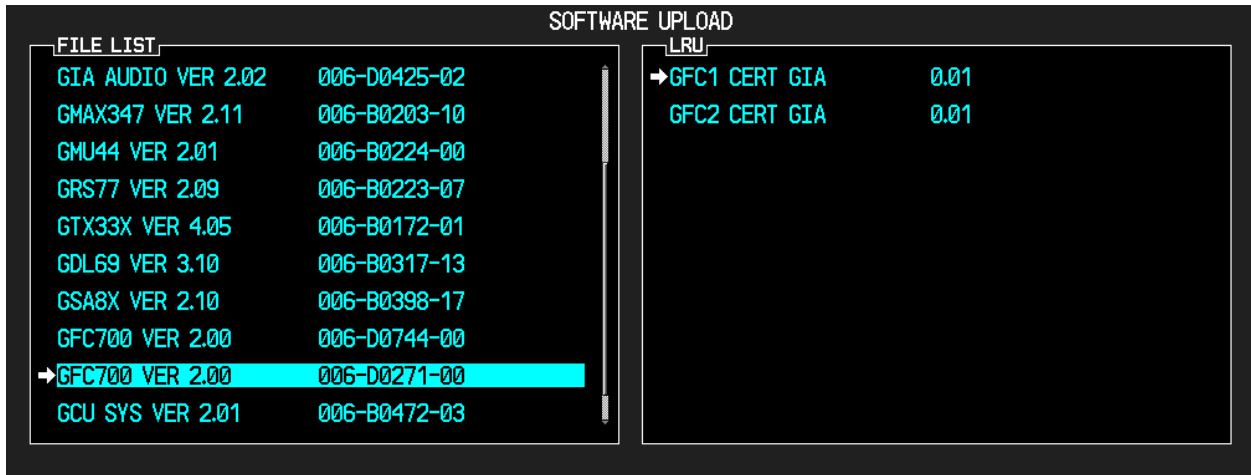
6. After the files finish loading, press ENT to acknowledge the following prompt:



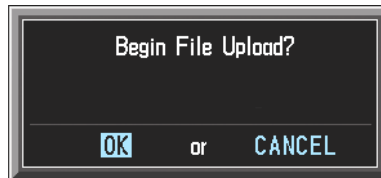
7. Check the SUMMARY field to make sure the all software loads are 'COMPLETE'.
8. De-activate the cursor.

### 4.3. GFC700 Unit Software (006-D0271-00)

1. If the DA42 aircraft being updated is equipped with a GFC700, highlight the GFC700 software file from the file list. There are two GFC700 files listed, make sure to select the file displaying the part number 006-D0271-00. Make sure that GFC1 and GFC2 entries are displayed in the LRU field as shown:



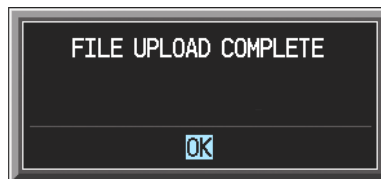
2. If GFC700 displays SW version 2.00 in the LRU field, skip steps 3 – 8 and proceed to Section 4.4 GFC700 Unit Software (006-D0744-00); otherwise proceed to the following step.
3. Press the LOAD softkey.
4. Select OK and press the ENT key to acknowledge the following prompt:



5. The software for the GFC700 Unit begins to load. There are two files that load to the GFC700. These load one after the other, automatically. Monitor the upload status as it progresses:



6. After the files finish loading, press ENT to acknowledge the following prompt:

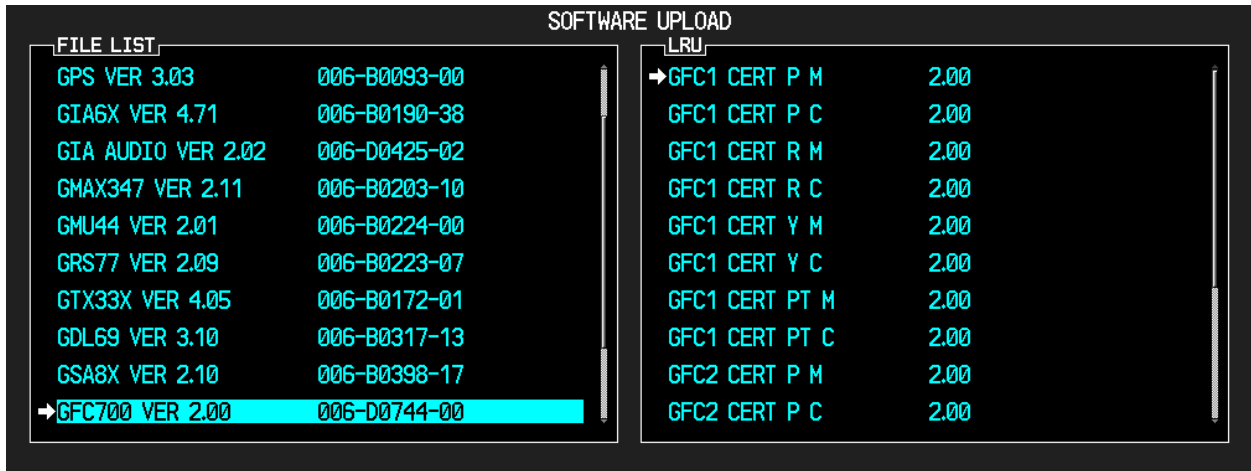


7. Check the SUMMARY field to make sure the all software loads are 'COMPLETE'.
8. De-activate the cursor.

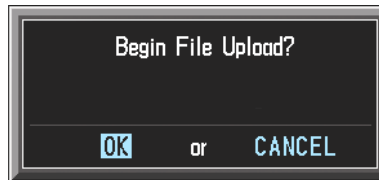


#### 4.4. GFC700 Unit Software (006-D0744-00)

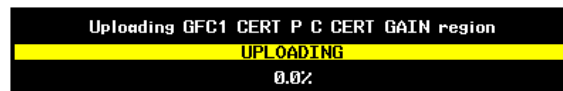
1. If the DA42 aircraft being updated is equipped with a GFC700, highlight the GFC700 software file from the file list. There are two GFC700 files listed, make sure to select the file displaying the part number 006-D0744-00. Make sure that 16 LRU entries are displayed in the LRU field as shown:



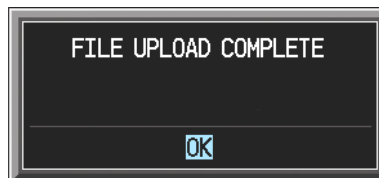
2. If GFC700 displays SW version 2.00 in the LRU field as shown above, skip steps 3 – 8 and proceed to Section 5 Testing Procedure; otherwise proceed to the following step.
3. Press the LOAD softkey.
4. Select OK and press the ENT key to acknowledge the following prompt:



5. The software for the GFC700 Unit begins to load. There are 16 files that load to the GFC700. These load one after the other, automatically. Monitor the upload status as it progresses:



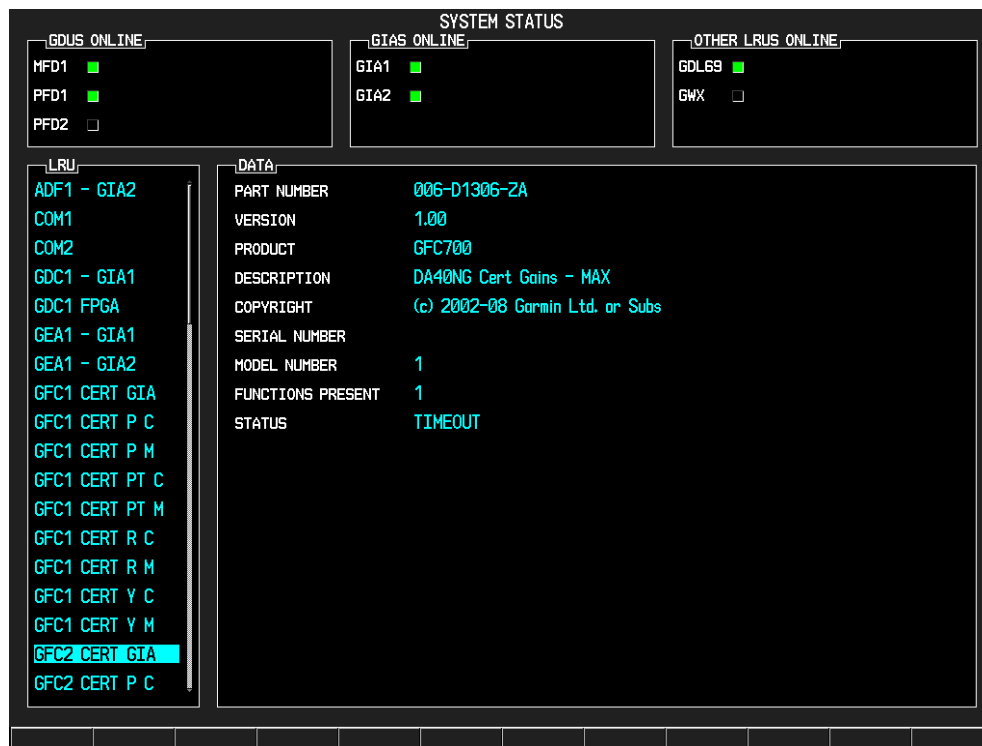
6. After the files finish loading, press ENT to acknowledge the following prompt:



7. Check the SUMMARY field to make sure the all software loads are 'COMPLETE'.
8. De-activate the cursor.

## 5. TESTING PROCEDURE

### 5.1. Software Load Confirmation



1. Go to the System Status page using the small FMS knob. Activate the cursor and toggle to the LRU window.
2. In the LRU window, highlight each of the items listed in the following table and verify that the software part number and version displayed on the System Status page matches those listed in the table.

SYSTEM STATUS PAGE NAME	SOFTWARE PART NUMBER	SOFTWARE VERSION
GDC1-GIA1	006-B0261-11	3.01
GDC1 FPGA	006-C0055-00	1.05
GDL69	006-B0317-13	3.10
GEA1-GIA1	006-B0193-05	2.07
GEA1-GIA2	006-B0193-05	2.07
GFC1 CERT GIA	006-D0744-00	2.00
GFC1 CERT (P C, P M, PT, PT C, PT M, R C, R M, Y C, Y M)	006-D0744-00	2.00
GFC2 CERT GIA	006-D0744-00	2.00
GFC2 CERT (P C, P M, PT, PT C, PT M, R C, R M, Y C, Y M)	006-D0744-00	2.00
GIA1	006-B0190-38	4.71
GIA1 AUDIO	006-D0425-02	2.02
GIA2	006-B0190-38	4.71
GIA2 AUDIO	006-D0425-02	2.02
GMA1-GIA1	006-B0203-10	2.11
GMA1-GIA2	006-B0203-10	2.11

<b>SYSTEM STATUS PAGE NAME</b>	<b>SOFTWARE PART NUMBER</b>	<b>SOFTWARE VERSION</b>
GMU1	006-B0224-00	2.01
GMU1 FPGA	006-C0048-00	2.00
GPS1	006-B0093-XX	3.03
GPS2	006-B0093-XX	3.03
GRS1-GIA1	006-B0223-07	2.09
GRS1 FPGA	006-C0049-00	2.00
GSA P C – GIA1, GSA P C – GIA2, (P M, PT C, PT M, R C, R M, Y C, Y M)	006-B0398-17	2.10
GTX – GIA1	006-B0172-XX	4.05
GTX – GIA2	006-B0172-XX	4.05
MFD1	006-B0319-45	6.13
PFD1	006-B0319-45	6.13

**NOTE**

All G1000 system software versions correspond to their respective G1000 Loader Card part numbers (e.g. G1000 Software Loader Card part number 010-00370-19 contains G1000 system software version 0370.19). This number is shown on the G1000 on the start-up page of the MFD, in the upper right corner of the display.

3. De-activate the cursor.

**NOTE**

If any software version and/or part number does not match those specified by the table in the Additional Information section of this document, or if the software is not successfully loaded, DO NOT continue with post-installation procedures. Troubleshoot and resolve the issue (refer to the G1000 System Maintenance Manual P/N 190-00907-00) before continuing.

## 5.2. Software Operational Test

Remove the G1000 Loader Card from the PFD and set it aside.

The G1000 system is tested while operating in the normal mode. Restart the PFD by cycling the PFD circuit breaker to start the display in the normal mode. Cycle power to the MFD in the same manner.

1. Look at the MFD power-up screen. In the upper right corner, the display shows 'Diamond DA42 System XXXX.XX':



2. This 'System' number is the System Software Version. It correlates to the G1000 SW Loader Card used to load the software to the system:

### EXAMPLE:

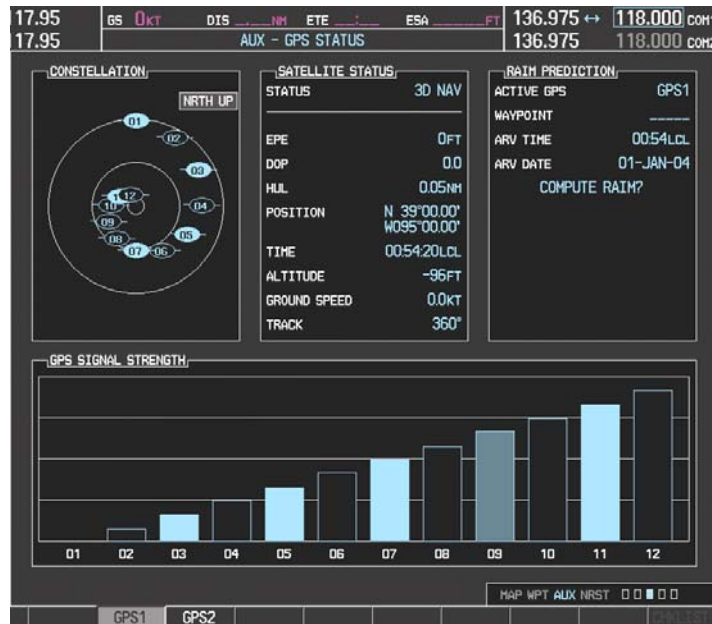
System Software Version '0370.19' = Loader Card P/N 010-00370-19

3. Verify that the System Software Version is correct.
4. Press the ENT key to acknowledge the agreement on the MFD (the rightmost softkey may also be used to acknowledge the agreement).

## NOTE

In the normal operating mode, data fields that are invalid have large red X's through them. A valid field does not display a red X.

5. Allow the displays to initialize for approximately one minute. The GDC 74A and GRS 77/GMU 44 require a longer initialization period than do other LRUs. During normal operation, this causes the attitude, heading, airspeed, altitude, vertical speed, and OAT fields to be invalid during the first 40-60 seconds of PFD power-up.
6. Verify that no 'Manifest' errors appear when the ALERTS softkey is pressed.
7. Check that all COM/NAV fields are valid in the top corners of the PFD and MFD.
8. Check that attitude, heading, altitude, airspeed, vertical speed, TAS, and OAT fields are valid on the PFD.
9. Verify that there are no BACKUP PATH alerts on the PFD. If an LRU is not communicating over its primary path, the BACKUP PATH alert will identify which LRU is having the problem. Correct the problem before proceeding; refer to the G1000 System Maintenance Manual (190-00907-00) as needed.
10. Verify that engine and airframe instruments are valid on the MFD.
11. Push the red DISPLAY BACKUP button on the GMA 1347. Verify both displays enter reversion mode: both should have valid attitude, altitude, airspeed, vertical speed, and engine instruments.
12. De-activate reversion mode by pushing the DISPLAY BACKUP button again.



13. The GIA 63 units should normally acquire a 3D GPS navigation solution within 5 to 10 minutes of startup, provided the aircraft is outside (or indoors with a GPS repeater). Select the AUX – GPS STATUS Page on the MFD. Two softkeys on the bottom of the display allow the user to toggle between GPS 1 and GPS 2. Verify that both receivers show 3D Navigation on the MFD.

### 5.3. ADF Checkout (if applicable)

This check verifies that the ADF-to-G1000 interface operates correctly. This check is required for DA42 aircraft with the remote-mount Becker RA3502 ADF installed.

1. On the PFD, check to see if the ADF window(s) is displayed. If not, press the PFD softkey. Using either the BRG1 or BRG2 softkeys, toggle the softkey until the ADF bearing is shown. Press the BACK softkey.
2. Verify that the ADF window is not invalid (no red 'X').
3. Press the ADF/DME softkey and check to ensure the ADF tuning window displays correctly.

### 5.4. DME Checkout (if applicable)

This check verifies that the DME-to-G1000 interface operates correctly. This check is required for DA42 aircraft with the Honeywell remote mounted KN63 DME installed.

1. On the PFD, check to see if the DME window is displayed. If not, press the PFD softkey, then press the DME softkey to display the DME window next to the HSI.
2. Verify that the DME window is not invalid (no red 'X').
3. On the PFD, press the ADF/DME softkey. Verify that the ADF/DME TUNING screen is displayed correctly.

### 5.5. GDL Configuration Verification (if applicable)

This check verifies that the GDL69-to-G1000 interface operates correctly. This check is required for DA42 aircraft with the GDL 69 installed.

1. Using the small FMS knob, verify the Map – Weather Data Link page can be displayed on the MFD.



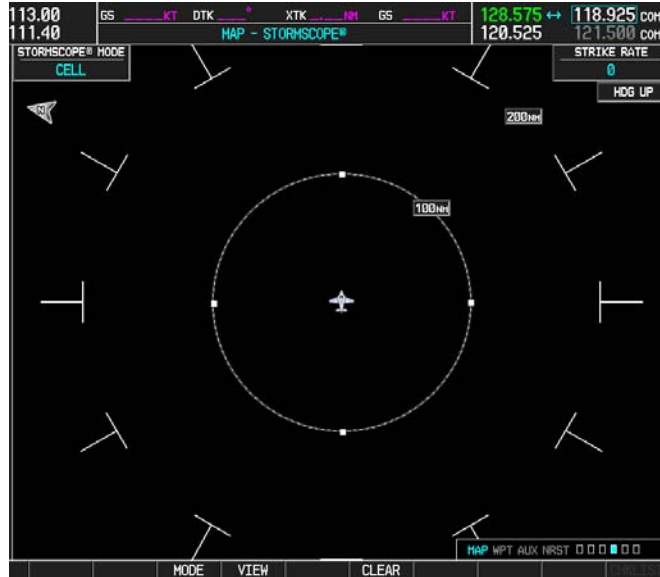
#### NOTE

If needed, refer to the document GDL 69/69A XM Satellite Radio Activation Instructions (190-00355-04).

## 5.6. Stormscope Configuration Verification (if applicable)

This check verifies that the L-3 Communications Stormscope interface operates correctly. This check is required for DA42 aircraft with the Stormscope installed.

1. Using the small FMS knob, verify the Map – Stormscope page can be displayed on the MFD.



## 5.7. TAS System Verification (KTA870 TAS or TAS600) if applicable

This check verifies that the KTA870 TAS-to-G1000 or TAS600-to-G1000 interface operates correctly. This check is required for DA42 aircraft with the KTA870 TAS or TAS600 installed.

1. Using the small FMS knob, verify that the upper left corner of the Map – Traffic Map page on the MFD displays "TAS OPERATING".



## 5.8. GFC Autopilot Ground Checks (if applicable)

The following procedure will verify the proper operation of the GFC 700 AFCS. The technician performing these checks must be thoroughly familiar with the GFC 700 by studying the G1000 Cockpit Reference Guide for the DA42.

### 5.8.1. Autopilot Pre-Flight Test

#### NOTE

The autopilot pre-flight test will run on every full airplane power-on.

1. Open the AUTOPILOT circuit breaker and reset. The AFCS will re-initiate the pre-flight test.

#### NOTE

A red 'AFCS' ( AFCS ) annunciation will be displayed until both GIAs, the AHRS, and the autopilot servos are online. The red 'AFCS' annunciation will then be replaced by a white 'PFT' annunciation.

2. Verify that a white 'PFT' annunciation is displayed on the PFD, as shown in the following figure.





3. Upon successful completion of the pre-flight test, an aural alert will sound and the 'PFT' annunciation will clear. Continue to Step 5.9.2.

**NOTE**

If the 'PFT' annunciation turns red, the test has failed and additional troubleshooting will have to be performed prior to continuing with the test.

4. If the aural alert is not heard, but pre-flight testing passed, engage the Autopilot by pressing the AP key on the MFD and disengage the Autopilot by pressing the AP key again. Visual and aural disconnect alerting should occur. If no alert is heard, the audio interface between GIA No. 1 and the audio panel should be checked. If an alert is heard, the audio interface between GIA No. 2 and the audio panel should be checked.

### **5.8.2. AFCS Switch Checks**

To verify that the AFCS system buttons and switches are operating correctly, perform the following checks:

1. Actuate the manual electric trim (MET) hat switch forward/aft on the pilot's control stick. The pitch trim should engage and the run in the selected direction. Check operation in both directions.
2. While actuating the MET switch in the pitch axis, press the A/P DISC button on the pilot's control stick and hold. The pitch trim should stop running and the pitch trim indication should stop moving. The pitch trim will not run for as long as the A/P DISC button is pressed.
3. Release the pilot's A/P DISC button. The trim should resume running. Release the MET switch.
4. While actuating the MET switch in the pitch axis, press the A/P DISC button on the copilot's control stick and hold. The pitch trim should stop running and the pitch trim indication should stop moving. The pitch trim will not run for as long as the A/P DISC button is pressed.
5. Release the copilot's A/P DISC button. The trim should resume running. Release the MET switch.
6. Engage the Autopilot by pressing the AP key on the MFD. The pitch and roll clutches should engage, resisting movement of the control stick.
7. Press and hold the CWS switch on the pilot's control stick. CWS should be annunciated on the PFD and the control stick should now move freely when moved manually.
8. Release the CWS switch. CWS should be removed from the PFD and the autopilot should hold the control stick in its present attitude.
9. Press the A/P DISC switch. The Autopilot should command a normal disengagement. A single disconnect tone will be heard and a flashing amber "AP" will be visible on the PFD for approximately five seconds.

10. Verify that the control stick is free in pitch and roll axes.
11. Engage the Autopilot.
12. Pull the AUTOPILOT circuit breaker. The Autopilot should command an abnormal disconnect, consisting of a continuous disconnect tone and flashing red 'AP'. No AFCS annunciations (e.g. AFCS, PFT, Mistrim) should remain on the PFD.
13. Press the AP key on the MFD to silence the autopilot abnormal disconnect tone and then reset the AUTOPILOT breaker.
14. Wait for the pre-flight test sequence to successfully complete again.
15. Press the Go Around button on the LH power lever. 'GA' should be annunciated on the PFD for both pitch and roll modes and the command bars should indicate a wings-level climb to 4 degrees.
16. Press the FD key on the MFD twice to deactivate the Go Around mode and reset the Flight Director. Green 'PIT' and 'ROL' annunciations will be visible on the PFD.
17. Center the pitch trim.
18. Engage the Autopilot.
19. Press the CWS button and verify there is no residual force on the control stick for the pitch axis.
20. Disengage the Autopilot by pressing the A/P DISC switch.

### **5.8.3. Autopilot Operation Checks**

1. Push the HDG knob in to synchronize the heading bug to the present aircraft heading on the HSI.
2. Engage the Autopilot.
3. Select Heading mode by pressing the HDG key on the MFD. The command bars should be level and the control stick should be stationary (very slow movement acceptable, due to the aircraft not being perfectly level).
4. Turn the HDG knob to the left and verify that the command bars move to the left and the control stick moves to the left.
5. Turn the HDG knob to the right and verify that the command bars move to the right and the control stick moves to the right.
6. Push the HDG knob in to synchronize the heading bug to the present aircraft heading on the HSI
7. Push the CWS button and pull the control stick to the middle of the pitch control range.
8. Release the CWS button. Verify that the Autopilot clutches re-engage and hold the wheel stationary.

9. Holding the control stick lightly, press the NOSE UP key on the MFD twice, to increase the pitch reference. Verify that the command bars move up approximately one degree and the control stick begins moving aft.
10. Hold the control stick and press the CWS button, re-synchronizing the pitch reference and re-centering the control stick.
11. Release the CWS button and verify that servo clutches re-engage before releasing the control stick.
12. Press the NOSE DN key on the MFD twice. Verify that the command bars command down and the control stick begins moving forward.
13. Hold the controls and press CWS to re-center the command bars and stop control stick movement.
14. With the Autopilot still engaged and the CWS button pressed, move the control stick to its aft limit.
15. Release the CWS button and apply continuous forward pressure, slowly moving the control stick. After 1 or 2 seconds, the trim should begin moving in a trim up direction.
16. Grip the control stick and press the CWS button. Trim motion should stop.
17. Move the control stick to the forward limit and release the CWS button.
18. Slowly pull back on the control stick. After a similar delay, the trim should begin to trim down.
19. Relieve pressure on the control stick and the trim motion should stop.
20. Hold the control stick and press the A/P DISC switch to disconnect the Autopilot.
21. Engage VS mode by pressing the VS key on the MFD. Verify the PFD displays 'VS' in green and indicates a pitch reference of '0 FPM'.
22. Press the FLC key on the MFD and verify that 'FLC' is annunciated on the PFD in green with a reference of 90 KTS (NOTE: This is the minimum speed reference for this airplane).
23. Press the ALT key on the MFD and verify that the 'ALT' annunciation is displayed in green on the PFD with an altitude reference equal to the aircraft altitude.
24. Press the FD key and verify that the mode annunciations and command bars are removed from the display.

## 5.9. Deicing System Verification (if applicable)

This check verifies that the Deicing system interfaces operate correctly. This check is required for DA42 aircraft with the Deicing option installed.

1. For aircraft with the Deicing system installed, verify that the lower left corner of the System Display on the PFD displays "DEICE FLUID".



## 5.10. Final Checks

Before returning the aircraft to service:

- Make appropriate entry in the aircraft's maintenance records, noting that the instructions in this Software Service Bulletin have been performed
- Record the G1000, DA42 Loader Card part number in the maintenance records
- Make sure that any required documentation is delivered to the aircraft owner/operator

## End of Testing Procedure

Successful completion of the preceding Testing Procedure section of this bulletin is adequate to ensure proper load and configuration of the new software covered by this bulletin. This test procedure is intended to verify the serviceability of the appliance only and does not verify or otherwise validate the airworthiness of the installation.

## **MATERIAL INFORMATION**

### GIA 6X Boot Block Software v4.01

To accomplish this update, the technician must have a GIA 6X Boot Block SW v4.01 Loader Card, Garmin P/N 010-00533-00 or the Boot Block SW v4.01 Loader Image, Garmin P/N 006-538-00. The loader image is available for download from the Dealer portion of the Garmin website ([www.garmin.com](http://www.garmin.com)). A Diamond supplied SD card containing GIA Boot Block SW v4.01 may be used as an equivalent means of obtaining the required Software Loader Image.

### G1000, DA42 Software

To accomplish this update, the technician must have a G1000, DA42 Loader Card, Garmin P/N 010-00370-19 or the G1000, DA42 Software Loader Image, Garmin P/N 006-B0322-19. The loader image is available for download from the Dealer portion of the Garmin website ([www.garmin.com](http://www.garmin.com)). A Diamond supplied SD card containing G1000 System Software version 0370.19 may be used as an equivalent means of obtaining the required Software Loader Image.

<b>QTY</b>	<b>Part Number</b>	<b>Description</b>
1	010-00533-00	GIA 6X SW Boot Block Loader Card, v4.01
1	010-00370-19	G1000 Software Loader Card (Diamond DA42) <i>*NOTE* This datacard carries a charge of \$50.00, which will be refunded upon return of the datacard to Garmin.</i>

### Software Loader Image Download Instructions

1. From the Dealer Resource portion of the Garmin website ([www.garmin.com](http://www.garmin.com)), follow the instructions to save the file to the computer. It is recommended to create a folder 'C:/Garmin' as a target directory for the file.
2. Insert a blank SD card into your PC SD card reader. If the card needs to be formatted, format it in the FAT32 format.
3. Open the saved file (from Step 1) on your PC and follow the on-screen instructions to make the desired loader card.
4. When the program is complete, remove the SD card from your PC SD card reader.

## **ADDITIONAL INFORMATION**

NA