

MANDATORY SERVICE BULLETIN**NUMBER:** SB-024**REVISION:** 03**DATE:** 12/04/2012**SUBJECT:** MANDATORY GARMIN G1000 SOFTWARE UPGRADE TO GDU VERSION 10.01

REV 03

EFFECTIVITY:**A.) AIRCRAFT:**

- All KODIAK 100 Series Aircraft currently using GARMIN 9.03 software. System Software Version 0552.04 will be displayed in the upper right corner of the MFD splash screen.

B.) SPARES

- N/A

SUBJECT:

Quest is mandating an upgrade to the current GARMIN G1000 operational system software. This upgrade will bring the GDU operational software level up to version 10.01. The new software includes many improvements to the operating system and also redefines the Autopilot Annunciation in the G1000 software which is mandated by the FAA. The update must be performed by Quest Aircraft LLC. or by a GARMIN Authorized Service Center who can access and load the new software required to comply with this Service Bulletin. The new software can be obtained through the GARMIN web site using the procedures defined in this Service Bulletin.

Additionally, in conjunction with this software upgrade, Quest Aircraft LLC. is releasing revision 4 of the Pilots Operating Handbook and Airplane Flight Manual. Incorporation of revision 4 must happen **after** the G1000 Software has been upgraded. Post the changes to the POH/AFM using the directions attached to this Service Bulletin.

NOTE: As an additional improvement to the GARMIN G1000 10.01 software, an optional Yaw Damper annunciation is now available. Activation of this optional annunciation requires the addition of a single wire to the avionics wiring harness. Customers can contact Quest Aircraft LLC. Customer Service and request Field Service Instruction 004 (FSI-004) which will provide detailed instructions to perform this modification.

AFFECTED PARTS:

- GARMIN G1000 Avionics System

AFFECTED MANUALS AND PUBLICATIONS:

- Kodiak 100 Series Aircraft Pilots Operating Handbook and Airplane Flight Manual number AM901.0, Rev 10 or later
- Garmin Pilots Guide number 190-00590-02
- Garmin Cockpit Reference Guide number 190-00645-02

FAA APPROVED:

The resultant alteration to the GARMIN G1000 system described in this Service Bulletin has shown compliance with the applicable Federal Aviation Regulations and is FAA Approved.

CONTINUED ON NEXT PAGE...

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MANDATORY SERVICE BULLETIN

NUMBER: SB-024
REVISION: 03
DATE: 12/04/20012

SUBJECT: MANDATORY GARMIN G1000 SOFTWARE UPGRADE TO VERSION 10.01

COMPLIANCE:

Compliance to this Service Bulletin is Mandatory for operators currently utilizing GARMIN GDU version 9.03 software. *System Software Version 0552.04 will be displayed in the upper right corner of the MFD splash screen.* This update must be completed on or before the next scheduled annual inspection.

INDUSTRY SUPPORT INFORMATION:

None.

WEIGHT AND BALANCE

The procedure contained in this Service Bulletin does not alter the weight and balance of the aircraft.

MANPOWER:

The instructions contained in this Service Bulletin will take approximately:

- *Download Software: 0.1 to 0.3 hours depending on internet connection speed;*
- *Prepare Data Card: 0.2 hours*
- *Install Software on GARMIN System: 2.0 hours*
- *Update POH/AFM: 0.1 hours*
- *Remove Placard: 0.2 to 0.3 hours*
- *OPTIONAL, Activation of Yaw Damper Annunciation (FSI-004): 4.0 hours (Contact Quest Customer Service)*

CREDIT and WARRANTY INFORMATION

Quest Aircraft Company LLC. will reimburse for the cost of this modification for up to \$75.00 an hour for the man-hours listed in the Manpower section (2.5 hours) of this Service Bulletin for aircraft still under Factory Warranty. For reimbursement, send Quest Aircraft Company LLC. a copy of maintenance records indicating the modification and the Registration-number of the aircraft on which the modification was accomplished. Send the information to the attention of:

**Quest Customer Service,
Service Notification Compliance Feedback
1200 Turbine Dr.
Sandpoint ID. 83864**

COMPLETION

Update the KODIAK Maintenance Log Books.

ACCOMPLISHMENT INSTRUCTIONS

Accomplishment Instructions are listed in the next section of this Service Bulletin. For work instructions regarding the optional activation of the Yaw Damper Annunciation on the GARMIN G1000, Contact Quest Aircraft LLC. Customer Service and request **FSI-004 (GARMIN G1000; Yaw Damper Annunciation Activation)**.

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LOG OF CHANGES

Revision:	Date:	Description of Change:
A	11/09/2009	Initial Release
B	12/10/2009	Clarification: Pg. 1 Revision changed from "A" to "B"
		Clarification: Pg. 1 Date changed from "11/09/2009" to "12/01/2009"
		Clarification: Pg. 1 Software Version changed from "9.04" to "9.03"
		Addition: Pg. 1 "System Software Version" statement to Effectivity
		Addition: Pg. 1 "Garmin Pilots Guide" to Affected Manuals and Publications
		Addition: Pg. 1 "Garmin Cockpit Reference Guide" to Affected Manuals and Publications
		Clarification: Pg. 2 Revision changed from "A" to "B"
		Clarification: Pg. 2 Date changed from "11/09/2009" to "12/01/2009"
		Clarification: Pg. 2 Software Version changed from "9.04" to "9.03"
		Addition: Pg. 2 "System Software Version" statement to Compliance
		Clarification: Pg. 2 "N number" changed to "Registration-number"
		Clarification: Pg. 3 Log of Changes Updated
		Clarification: Pg. 4 "1 GB SD" card changed to "64MB-2GB SD Card"
		Addition: Pg. 4 Notes added
		Addition: Pg. 5 "Operating System to Step 1 of Section 1.2
		Clarification: Pg. 5 "shall" changed to "is recommended"
		Clarification: Pg. 5 "1 GB" changed to "64MB-2GB
		Clarification: Pg. 5 "Kodiak 100" changed to "G1000 Equipped Quest"
		Addition: Pg. 5 Note
		Removal: Pg. 6 Section 1.3-Check the Card Data
		Addition: Pg. 7 "software loader" to Step 3
		Clarification: Pg. 7 Step 6- "Press the YES Softkey.." changed to "Allow update to complete"
		Removal: Pg. 7 Step 11
		Clarification: Pg. 7 Step 12- "Once SYSTEM FILES UPDATES.." changed to "Allow update to complete"
		Removal: Pg. 7 Step 16
		Addition: Pg. 8 Step 19 " in the AIRFRAME box"
		Addition: Pg. 8 Step 21
		Clarification: Pg. 8 Step 25 "Revision D" changed to "Revision C"
		Addition: Pg. 8 Aircraft Specific Equipment Software Section
		Addition: Pg. 8 Note
		Addition: Pg. 8 Fuel Flow Calibration Section
		Addition: Pg. 9 Re-Unlock any operational features
		Addition: Pg. 9 Splashscreen update
		Addition: Pg. 9 AOPA Airport Directory Section
		Addition: Pg. 9 GDL 69A XM Radio Refresh Section
		Addition: Pg. 9 Section 1.6 Notes
		Addition: Pg. 9 Verify Optional Equipment Section
		Addition: Pg. 9 Section 1.7A
		Clarification: Pg. 10 Location of Placard
		Addition: Pg. 10 Section 1.9
03	12/04/2012	Replacement: Pg. 8 changed "Fuel Flow Calibration" to "Calculate the K Factor" and "Enter the K Factor." Update: Pg. 1 and 10 changed references to POH manual from 100-000-904 to AM901.0. Update: Pg. 10 referred customer to Quest Customer Care for updates to the POH. Deletion: Deleted attachment (outdated POH pages).

ATTACHED DOCUMENTS

Document #:	Date:	Document Title:
N/A	N/A	N/A

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1.1 PARTS, TOOLS, and EQUIPMENT

The following parts, tools, and equipment are listed below in order to complete the instructions contained within.

Estimated Time to Complete: 2.5 hours

Parts and Tools Included in this Service Kit:

Part Number	Description	Quantity
N/A	SERVICE BULLETIN AND WORK INSTRUCTIONS	1

Tools or Items Required (Not Included in this Service Kit):

Tool Name	Tool Duty
SD Card Reader	Download the data from the GARMIN web site to the SD card.
64MB-2GB SD Card**	Transfer the data from the computer to the Aircraft.

**** Use only SanDisk® or Toshiba® SD Cards.**

NOTE: Use the original software loader card that was provided with the aircraft. If you currently do not have that original loader card you may use a new SD card.

NOTE: The following unlock cards if applicable need to be present at time of update: TAWS, SVT and/or Chartview.

1.2 OPERATIONAL SOFTWARE DOWNLOAD

This document covers the procedure for downloading and securing the operational software for use on the GARMIN G1000 avionics system. Since personal computers have wide variations of configurations and software installed, this procedure is written generically. It is expected that the technician performing this Service Bulletin fully comprehends the procedures associated with downloading and storing files on a Windows based computer.

1. Attach an SD card reader to a USB port on a internet connected PC running Microsoft Windows operating system (Operating System must be 2000, XP or Vista). If an external card reader is used it is recommended to be a SanDisk SD Card Reader (P/Ns SDDR-93 or SDDR-99) or equivalent.
2. Place a 64MB-2GB SD card into the corresponding slot in the card reader. **Use only SD cards Listed in Section 1.1.** NOTE: Loading new information will delete old information on card.
3. Go to www.garmin.com using a suitable web browser.
4. In the lower left corner of the web page click on "Dealers Only".
5. Enter your unique user name and password. Click OK. If you get the message "This page contains both secure and non-secure items. Do you want to display the non-secure items?" click "YES".
6. At the Confidentiality Agreement page, click "I Agree".
7. Under Technical Resource click on "Field-Loadable Software Updates". If you get the message "This page contains both secure and nonsecure items. Do you want to display the nonsecure items?" click "YES".
8. Click on "G1000 Equipped Quest". If you get the message "This page contains both secure and nonsecure items. Do you want to display the nonsecure items?" click "YES".
9. Click on Part Number (*P/N 006-B0552-05*). You will see the message, "Do you want to run or save this file?" Click "Run".

Note: Internet browser may ask to save the file to your computer instead of run it. If this occurs, save the file as directed by your internet browser and then run it from your PC after the download is complete.

10. If you see the message, "The publisher could not be verified. Are you sure you want to run this software?" Click "Run".
11. Click "Setup".
12. On the "G1000 Software Update" window, click "Next".
13. On the next window, click "Find Drive" (select the SD card). Click "Next".

1.3 OPERATIONAL SOFTWARE DOWNLOAD (continued)

- On the next window, “WARNING: In order to complete this transfer, the drive you selected will be completely erased.” click “Next”. The transfer will now begin and take a few seconds to complete.
- On the next window, “The update was successfully transferred to your card.”, click “Finish”.

CHECK THE CARD DATA:

- *Section Removed*

1.4 SOFTWARE LOADING on the G1000 SYSTEM

This procedure provides instructions to the technician on how to upload the software to the GARMIN G1000 after it has been obtained using the procedure in Section 1.2.

WARNINGS and **CAUTIONS** for this Procedure:

1. Remove all SD cards from all Displays before beginning.
2. Do not press the CANCEL Softkey at any time.
3. Do not turn off aircraft power when loading/configuring the software.
4. When loading software, the SD card must go in the upper slot on the display.
5. Display power can be left on during removal of the SD card.
6. Display power must be off during insertion of the SD card.

OPERATIONAL SOFTWARE LOADING PROCEDURE:

ON THE AIRCRAFT:

1. Verify the following circuit breakers are in: ENG AFM INST, NO.1 AHRS, NO.1 ADC, NO.1 GPS/NAV, NO.1 COMM, NO.1 AUDIO, XPDR, ENG GAUGES, MFD, NO.2 AHRS, NO.2 ADC, NO.2 GPS/NAV, NO.2 COMM, NO.2 AUDIO.
2. Pull the following circuit breakers: PFD1, PFD2.
3. Insert the software loader SD card (label on the left) in the upper slot of the center MFD display. Push the card in until the spring latch engages. The end of the card should remain flush with the face of the display bezel.
4. Turn the MFD on in Configuration mode by pushing and holding the ENT key on the MFD display while applying power by turning on the main avionics buses. Release the ENT key after INITIALIZING SYSTEM appears in the upper left corner of the display.
5. Press the YES softkey at "DO YOU WANT TO UPDATE SYSTEM FILES?" prompt.
6. Allow update to complete.
7. Leaving power on, gently press in on the SD card to release the spring latch and eject the card.
8. Insert the SD card in the upper slot of PFD #2 (right side display).
9. Power on PFD #2 in configuration mode by pushing and holding the ENT key on the display while applying power by pushing in the PFD #2 circuit breaker. Release the ENT key after INITIALIZING SYSTEM appears in the upper left corner of the display.
10. Press the YES softkey at "DO YOU WANT TO UPDATE SYSTEM FILES?" prompt.
11. ***This Step Removed***
12. Allow update to complete, remove SD card from PFD #2 also leaving power on.
13. Insert the SD card in the upper slot of PFD #1.
14. Power on PFD #1 in configuration mode by pushing and holding the ENT key on the display while applying power by pushing in the PFD #1 circuit breaker. Release the ENT key after INITIALIZING SYSTEM appears in the upper left corner of the display.
15. Press the YES softkey at "DO YOU WANT TO UPDATE SYSTEM FILES?" prompt.
16. ***This Step Removed***
17. Allow update to complete. Leave the SD card in PFD#1.
18. On PFD #1, go to the SYSTEM UPLOAD page using the inner FMS knob and turning it Clockwise.

OPERATIONAL SOFTWARE LOADING PROCEDURE CONTINUED ON NEXT PAGE...

1.5 OPERATIONAL SOFTWARE LOADING on the G1000 SYSTEM
(continued)

OPERATIONAL SOFTWARE LOADING PROCEDURE CONTINUED...

19. Push the FMS knob, and turn inner knob to select KODIAK 100 in the AIRFRAME box.
20. Press ENT.
21. In the FILE window, turn the inner knob to highlight QUEST KODIAK 100. Press the ENT key to select it.
22. Press the CHK ALL softkey.
23. Press the LOAD softkey.
24. Allow the system to load the software and the system configuration files. This process may take a while.
25. Once loading of a system passes, a green PASS will replace each check mark. When complete, press ENT for OK. Note: If a red FAIL appears, refer to the GARMIN G1000 System Maintenance Manual (P/N 190-00907-00) Revision C or later revision for further instructions.

AIRCRAFT SPECIFIC EQUIPMENT SOFTWARE AND CONFIGURATION FILES

1. Perform steps 2-9 for each additional menu option that pertains to actual aircraft equipment.
2. Turn the outer FMS knob to return the cursor to FILE.

NOTE: Before loading, verify that the option corresponds to equipment on the aircraft.

3. Turn the inner FMS knob to highlight the option to be loaded.
4. Press ENT.
5. Press the LOAD softkey.
6. When complete, press ENT for OK.
7. Once all the software and system configuration files are loaded, press the UPDT CFG softkey
8. Press ENT for YES.
9. Once complete press ENT for OK.
10. Turn all power off.
11. Remove Software Loader card.

CALCULATE THE K FACTOR

Calculate the K Factor according to whether the aircraft is equipped with a Shadin Transducer or an Electronics International Transducer.

SHADIN TRANSDUCER

1. Locate the number stamped on the transducer data tag (the number will be between 34 and 46).
2. Multiply the number by 1000 (XX multiplied by 1000 = XX000).
3. Add a zero at the front of the number (0XX000 = the K Factor).

ELECTRONICS INTERNATIONAL TRANSDUCER

If the aircraft is equipped with an Electronics International Transducer, it will have a number engraved on the side of the transducer near the serial number.

1. Locate the number engraved on the transducer.
2. Multiply the number by 1000 (XX.XXX multiplied by 1000 = XXXXX).
3. Add a zero at the front of the number (0XXXXX = the K Factor).

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ENTER THE K FACTOR

1. Turn on all three displays in Configuration mode by pushing and holding the **ENT** key on each display while applying power.
2. After **INITIALIZING SYSTEM** displays in the upper left corner of the display, release the **ENT** key.
3. On Primary Flight Display 1, rotate the outer Flight Management System (FMS) knob clockwise to select the CAL page group.
4. Rotate the inner FMS knob to select the **FUEL TANK CALIBRATION** page.
5. Using the softkeys along the bottom of the screen, enter the following pass code: 12, 11, 10, 9. (The cursor should now appear on the screen.)

NOTE: : Softkeys are numbered 1 to 12, left to right.

6. Rotate the outer FMS knob counterclockwise to move the cursor and highlight **ENG 1 K FACTOR** in the **FUEL FLOW** window.
7. Enter the six digit K Factor from above (“CALCULATE THE K FACTOR”) as follows:
 - A. Rotate the inner FMS knob to select the first digit and enter a number.
 - B. Rotate the outer FMS knob to move the cursor to the right one digit.
 - C. Rotate the inner FMS knob to enter the desired number.
 - D. Repeat Steps B and C until all six K Factor digits have been entered.
 - E. Press **ENT**.
8. Press in on the inner FMS knob to remove the cursor from the screen.
9. Rotate the outer FMS knob to select the **SYSTEM** page group.
10. Rotate the inner FMS knob to select the **SYSTEM UPLOAD** page.
11. Press the **UPDT CFG** softkey.
12. When **UPDATE CONFIG MODULE** displays, select **YES** and press **ENT**.
13. When **UPDATE CONFIG COMPLETE** displays, press **ENT** to select **OK**.
14. Turn off the aircraft power. The K Factor entry is complete.

RE-UNLOCK ANY OPERATIONAL FEATURES:

Refer to Garmin 190-00907-00 Section 10.2.4 for re-unlock instructions.

SPLASHSCREEN UPDATE:

1. Remove power to all display units (MFD, PFD #1, PFD #2)
2. Place SD card in the top slot of PFD #2
3. Turn on the display in normal mode
4. When “DO YOU WANT TO UPDATE SYSTEM FILES?” prompt appears, press the NO softkey.
5. When “UPDATE SPLASH SCREEN?” prompt appears, press the YES softkey.
6. Once the load is complete and the display has started in normal mode, turn the display off and remove SD card.
7. Repeat steps 2-6 for the MFD and PFD #1.

AOPA AIRPORT DIRECTORY:

After completion of the software updates with system power-up in normal mode, alert messages may appear pertaining to an invalid Airport Directory database. If this is the case perform the following:

1. Using a computer workstation or PC with an SD card reader, open each of the 3 lower display SD cards (Supplemental SD cards) and delete “apt_dir.gca”

NOTE: It may be necessary to enable the viewing of hidden files and/or operating system files in order to find “apt_dir.gca” on the card.

NOTE: The optional AOPA Airport Directory subscription service is available for customers using the Garmin G1000 software version 10.0 or higher. Refer to the Garmin web site for more information and download.

SD CARD RE-INSERTION:

Reinsert the lower display SD cards.

GDL 69A XM RADIO/WEATHER REFRESH:

If upon new software upgrade the XM audio radio and/or weather is not active, a refresh may be required. See http://www8.garmin.com/manuals/777_XMSateliteRadioActivationinstructions.pdf section 3. Or contact Garmin technical support.

1.6 POST INSTALLATION CHECK

Perform post-installation ground checks per Section 8 of GARMIN G1000 System Maintenance Manual (P/N 190-00907-00) Revision C or later revision.

NOTE: The requirement to compare software version to a Required Equipment List stated in 190-00907-00 Section 8 page 8-1 is not required as the G1000 system performs this procedure at each power-up

VERIFY OPTIONAL EQUIPMENT:

Verify optional equipment such as ADF, DME, HF radio etc. are operational.

NOTE: Manual configurations changes may need to be made to aircraft that have had Sat phones and/ or HF radios installed.

1.7 UPDATE KODIAK POH/AFM AM901.0

After completing the software load, contact Quest Customer Care for updates to the POH.

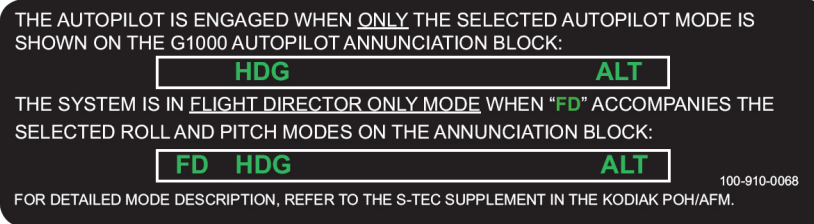
1.7A UPDATE GARMIN COCKPIT REFERENCE GUIDE AND PILOTS GUIDE

Remove Garmin Pilots Guide (P/N 190-00590-00 or P/N 190-00590-01) from the aircraft and replace with Garmin Pilots Guide (P/N 190-00590-02). Also remove Garmin Cockpit Reference Guide (P/N 190-00645-00 or P/N 190-00645-01) from the aircraft and replace with Garmin Cockpit Reference Guide (P/N 190-00645-02).

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1.8 REMOVE AUTOPILOT PLACARD

After the update is finished, the autopilot placard (P/N 100-910-0068) located on the right side of the S-TEC autopilot must be removed. See image below:



1.9 RETAIN SD CARD

For potential future use, store SD Card in a safe dry location.

1.10 ANNOTATE WORK PERFORMED IN KODIAK LOG BOOKS

Upon completion, annotate all work performed in the appropriate KODIAK Log Books.

-----END OF INSTRUCTIONS-----