RECOMMENDED SERVICE BULLETIN

NUMBER: SB11-04
REVISION: 01
DATE: 12/11/2012

SUBJECT: GARMIN G1000 SYSTEM SOFTWARE VERSION 552.12 UPGRADE

EFFECTIVITY:

KODIAK 100 Series Aircraft using Garmin G1000 System Software Versions 552.05, 552.08, 552.09, 552.10, or 552.11.

SUBJECT:

Quest Aircraft Company, in concurrence with Garmin, would like to make operators aware of a Garmin GDU Software 10.01 upgrade to the G1000 system. The following are changes and benefits to the upgraded software:

- Flight Into Known Icing (FIKI) Support
- Wipline Amphibious Floats Support
- Refined Np gauge red line operation
- Refined Wind Vector options
- Enabled display of groundspeed on PFD
- Enabled current track indicator configuration option
- "Fuel low" trigger given 20 second delay to prevent nuisance alerts
- Weight planning updated to reflect increased gross weight.

This update must be performed by a Garmin Authorized Service Center who can access and load the new software required to comply with this Service Bulletin. The software update can be obtained through the Dealer's Section of the GARMIN website, using the procedures defined in this Recommended Service Bulletin.

AFFECTED PARTS:

- GARMIN G1000 Avionics System

AFFECTED MANUALS AND PUBLICATIONS:

- *Supplement 1* (*S-Tec Autopilot and Yaw Damper*) of the POH/AFM (P/N AM901.001).
- *Garmin Pilots Guide* (P/N **190-00590-04**)
- *Garmin Cockpit Reference Guide* (P/N **190-00645-04**)

MANPOWER:

> **Estimated Manhours:** 3
>
> **Minimum Number of Persons Needed:** 1
>
> - The "Minimum Number of Persons Needed" refers only to maintenance personnel or installers, and unless specified in this instruction, doesn't include additional personnel that may be needed solely to comply with safety requirements (for example, safety observers that are not performing this instruction). It is the responsibility of maintenance personnel to comply with safety requirements, including having a safety observer available as needed.
>
> - If more than the required minimum maintenance personnel assist with these instructions, the actual manhours required may be less than the estimated manhours due to increased efficiencies. As appropriate, Quest encourages the use of additional personnel, however, manhour estimates are based on the minimum personnel required.

CREDIT and WARRANTY INFORMATION:

N/A

FAA APPROVED:

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

COMPLETION:

- Update the *KODIAK 100 Maintenance Log Books*.
- Ensure *Supplement 1* to your POH/AFM (*S-Tec Autopilot and Yaw Damper*) is up-to-date at **Revision 4** or later.

Quest Aircraft Company, LLC
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LOG OF CHANGES

Revision:	Date:	Description of Change:
00	04/18/2011	Initial Release
01	12/11/2012	Revised to update K Factor procedures: replaced text at 2.2 with 2.2.1, Calculate the K Factor, and 2.2.2, Enter the K Factor. Corrected spelling typo on page 1: changed "groundseed" to "groundspeed." Updated part number on page 1: changed P/N 100-000-904 (Supplement 1 to the POH) to P/N AM901.001.

ATTACHED DOCUMENTS

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

PARTS, TOOLS, AND EQUIPMENT

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

Parts or Tools Included in this Service Kit:

Part Number	Description	Quantity
N/A	N/A	N/A

Parts or Tools Required that are NOT Provided in this Service Kit:

Tool Name	Tool Duty
SD Card Reader	Downloading the data from the GARMIN website to the SD card.
64MB-2GB SD Card*	Transfering data from the computer to the Aircraft.

*Use only SanDisk® or Toshiba® SD Cards.

NOTE: Use the original SD card that was provided with the aircraft, or a new SD card.

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

1. SOFTWARE INSTALLATION

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 work instruction fully comprehends the procedures associated with downloading and storing files on a Windows based computer.

1.1 OPERATIONAL SOFTWARE DOWNLOAD

1. Attach an SD card reader to a USB port on an internet connected PC running Microsoft Windows operating system (Operating System must be 2000, XP, Vista, or 7). If an external card reader is used, a SanDisk SD Card Reader (P/Ns SDDR-93 or SDDR-99) or equivalent is recommended.

2. Place a 64MB-2GB SD card into the corresponding slot in the card reader.

NOTE: Loading new information will delete old information on card.

3. Go to www.garmin.com.

4. In the lower left corner of the web page click on "Aviation Dealers."

5. Enter your 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 **006-B0552-12**. You will see the message, "Do you want to run or save this file?" Click "Run."

NOTE: Your 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."

14. 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.

15. On the next window, "The update was successfully transferred to your card," click "Finish."

2. SOFTWARE LOADING ON THE G1000 SYSTEM

This procedure provides instructions to the technician on how to upload the software to the GARMIN G1000 after is has been obtained from the GARMIN website.

WARNINGS and **CAUTIONS** for this Procedure:

1. Remove Terrain Database SD card, and all other 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 must be OFF during insertion of the SD card.
6. Display power can be left on during removal of the SD card.

2.1 OPERATIONAL SOFTWARE LOADING PROCEDURE

Perform the following checks on the aircraft before beginning the procedure:

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 circut 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. Allow update to complete, remove SD card from PFD #2, and leave power on.
12. Insert the SD card in the upper slot of PFD #1 (left side display).
13. 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.
14. Press the YES softkey at "DO YOU WANT TO UPDATE SYSTEM FILES?" prompt.
15. Allow update to complete. Leave the SD card in PFD #1.
16. On PFD #1, go to the SYSTEM UPLOAD page by turning the inner FMS knob CLOCKWISE.
17. Push in and turn the inner FMS knob to select KODIAK 100 in the AIRFRAME box. Press the ENT key.

18. Turn the inner FMS knob to highlight QUEST KODIAK 100 in the FILE window. Press the ENT key to select it.

19. Press the LOAD softkey.

20. Allow the system to load the software and the system configuration files. This process may take a few moments.

21. Once loading of a system passes, a green PASS will replace each check mark. When complete, press ENT key for OK.

NOTE: If a red FAIL appears, refer to the *GARMIN G1000 System Maintenance Manual* (P/N **190-00907-00**), revision D or later, for further instructions.

2.1.1. Aircraft Specific Equipment Software and Configuration Files

Configuration Options:

AIRPLANE	CONFIGURATION OPTION	ACTION
Quest Kodiak	250A Generator Installation Option	Do not load this option.
Quest Kodiak	300A Generator Installation Option	Load this option.
Quest Kodiak	Artex C406N ELT	Load this option only if aircraft is equipped with Artex/Cobham C406N ELT.
Quest Kodiak	F/W Installation Option	Load this option only if Fish and Wildlife aircraft.
Quest Kodiak	Wipline 7000 Amphibian	Load this option only if Wipline 7000 Amphibian Float STC has been installed.
Quest Kodiak	TKS Ice Protection Installation Option	Load this option only if FIKI system is installed on aircraft.
Quest Kodiak	Dual Eng Inlet Actuator Installation Option	Load this option only if Dual Engine Inlet Actuators are installed on aircraft.
Quest Kodiak	TRC497 Skywatch Installation Option	Load this option only if Skywatch Traffic Advisory System is installed on aircraft.
Quest Kodiak	S-Tec 55X Installation Option	Load this option only if S-Tec 55X Autopilot System is installed on aircraft.
Quest Kodiak	WX-500 Installation Option	Load this option only if WX-500 Stormscope system is installed on aircraft.
Quest Kodiak	GDL 69A Installation Option	Load this option only if GDL 69A XM Radio/ Weather Datalink system is installed on aircraft.

Perform the following steps for each menu option that pertains to actual aircraft equipment.

1. Turn the outer FMS knob to return the cursor to FILE.

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

2. Turn the inner FMS knob to highlight the option to be loaded.

3. Press the ENT key.

4. Press the LOAD softkey.

5. When complete, press ENT key for OK.

Once all the software and system configuration files are loaded, press the UPDT CFG softkey.

1. Press ENT key for YES.

2. Once complete, press ENT key for OK.

3. Turn all aircraft power off.

4. Remove SD card.

2.2 FUEL FLOW CALIBRATION

2.2.1 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).

2.2.2 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 calculated in Section 2.2.1 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.

2.3 UNLOCK TAWS AND ANY OPERATIONAL FEATURES

Refer to the *GARMIN G1000 System Maintenance Manual* (P/N **190-00907-00**), **Section 10.2.4** for unlock instructions. Potential unlock features supplied with the aircraft include: TAWS, Synthetic Vision, Chartview, and Auxiliary Video.

2.4 SPLASHSCREEN UPDATE

NOTE: If the splashscreen is already present in a display, you may not be asked to load the splashscreen. If this occurs, skip to section **2.5**.

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 the SD card.

7. Repeat steps 2-6 for the MFD and PFD #1.

2.5 AOPA AIRPORT DIRECTORY

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

   A. 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 the "apt_dir.gca" file.

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 SD card.

2. 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 website for more information and to download.

NOTE: A patch option is available to restore the existing AOPA database, if present in the lower SD cards. The patch file is titled "Garmin Integrated Flight Deck AOPA Database Patch," and can be found in the *Dealer's Only* section of the Garmin website, in the Technical Resource box. If desired, download the program and follow the on-screen instructions. Note that the AOPA database is US only; international operators should delete the "apt_dir.gca" file, as directed above.

2.6 SD CARD REINSERTION

Reinsert the Terrain Database SD cards into the lower slot on each display.

2.7 GDL 69A XM RADIO/WEATHER REFRESH

If, after the new software upgrade, the XM audio radio and/or weather is not active, a refresh may be required. To refresh, go to Sirius XM's website (https://care.siriusxm.com/retailrefresh_view.action) and enter XM radio and Data ID numbers, found on the MFD AUX -- XM INFORMATION page on the website.

NOTE: XM Account activation questions should be directed to XM Customer Support at (877) 253-3829, unless a receiver failure is suspected. To troubleshoot an XM receiver failure, call Garmin Product Support at (888) 606-5482.

3. POST-INSTALLATION CHECK

Perform post-installation ground checks per Section 8 of the *GARMIN G1000 System Maintenance Manual* (P/N **190-00907-00**), revision D or later.
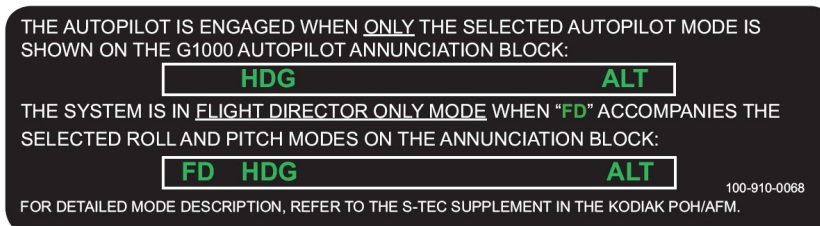
1. Verify that optional equipment, such as Skywatch, Stormscope, Autopilot, XM radio, etc, is operational.

NOTE: Manual configuration changes may need to be made to aircraft that have had additional equipment installed via field approval or third party STC. For manual configuration information, contact the installing agency found in the logbook entry.

2. Ensure *Supplement 1* to your POH/AFM (*S-Tec Autopilot and Yaw Damper*) is up-to-date at **Revision 4** or later.

3. Remove *Garmin Pilots Guide* (P/N **190-00590-00**, P/N **190-00590-01**, or P/N **190-00590-02**) from the aircraft and replace with *Garmin Pilots Guide* (P/N **190-00590-04**). Also remove *Garmin Cockpit Reference Guide* (P/N **190-00645-00**, P/N **190-00645-01**, or P/N **190-00645-02**) from the aircraft and replace with *Garmin Cockpit Reference Guide* (P/N **190-00645-04**).

NOTE: These manuals can be downloaded, free of charge, from the Garmin website (http://www8.garmin.com/support/userManualAviation.jsp?market=1&subcategory=59&product=010-G1000-QK). Garmin allows an operator to print one copy for their own use. If a copyright release statement is needed for your printing service, contact Garmin Product Support and they will email you one.

4. After the update is finished, remove autopilot placard (P/N **100-910-0068**) (if not previously accomplished), located on the right side of the S-TEC autopilot. See image below:

5. Retain operation software and all unlock SD cards for potential future use. Store in a safe, dry location on the aircraft (recommended storage with the POH/AFM).

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