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SERVICE BULLETIN M20-304A

Date: November 4, 2008

SUBJECT: GARMIN G1000/GFC700 with GDL-69A XM/Weather, Resolution of Aging Weather Data Issue

MODELS/ SN AFFECTED: All GARMIN G1000/GFC-700 equipped aircraft with 0401-22 and earlier software.
All GARMIN G1000/GFC-700 equipped aircraft with 0401-21 software must have complied with Service Bulletin M20-298 before completing procedures contained in this Service Bulletin.

TIME OF COMPLIANCE: **At Owners Discretion**

INTRODUCTION: The GDL-69A XM weather display in G1000/GFC-700 installations has issues in the older GDL and GDU software (related to properly displaying data as it ages). Aircraft will require new software load to be completed by a GARMIN Authorized Service Center who can access and load the new software revision required to comply with this Service Bulletin.

When the Customer's Aircraft receives the new software version 0401-26 (from Garmin) they will get all the weather fixes. The customer need not purchase new database cards or unlock cards. The customer (or dealer) may need to contact Garmin customer support for replacement database or unlock cards if the system ID changes as a result of the software upgrade (and the database cards consequently become unusable).

Pilot's A/C Checklist (if used) will need to be renamed as a result of the new 0401-26 software upgrade. The new software upgrade will only recognize the checklist file name as to each identified Mooney model (M20M, M20R_Ovation2GX, M20TN, M20R_Ovation3). This checklist gives the pilot basic information as contained the "Normal Procedures" section of the AFM/POH.

INSTRUCTIONS: **Read entire procedures before beginning work.**

Information below has been extracted from the Garmin G1000 System Maintenance Manual P/N 190-00907-00 Revision A, Dated May 2008. Refer to the latest revision of this manual or contact Garmin International, Inc. at 913-397-8200.

Identify all optional equipment before installing the software upload. Refer to the Aircraft Flight Manual Section IX - Optional Equipment Supplements (WX500, Fuel Capacity, Transducers, etc.). If the identity is unknown of the transducers installed in the Aircraft, remove top cowl and locate the transducers mounted in the engine compartment on the LH upper engine mount (see Figure SB-304-1).

1.1 - EXTRACT GARMIN 0401-26 SOFTWARE FILE:

NOTE:

The Service Center performing the work must extract the new software version (006-B0401-26) from the Mooney Airplane Company - WebPortal) to a compatible SD Loader Card for Software Installation.

NOTE:

Garmin recommends the use of SanDisk or Toshiba SD cards to load G1000 software and configuration files. If software loading problems occur when using another brand of card, replace the card with a SanDisk or Toshiba card and try the upload procedure again.

1. Download of new GARMIN configuration software (Version 006-B0401-26) will be required. Refer to **S1.0 Software Download Instructions** attached in this procedure.

1.2 VERIFY SYSTEM ID NUMBER (Before and After software upload)

1. Before software upload, power up aircraft MFD and note the SYSTEM ID number located on the last page of the Auxiliary page group. (see Figure SB-304-2)

1.3 G1000 SOFTWARE AND CONFIGURATION UPLOAD

NOTE:

Garmin recommends the use of SanDisk or Toshiba SD cards to load G1000 software and configuration files. If software loading problems occur when using another brand of card, replace the card with a SanDisk or Toshiba card and try the upload procedure again.

NOTE:

Do not remove power from the G1000 during software loading. Do not rely solely on the aircraft batteries to prevent loss of power during the software loading process, connect a ground power unit to the aircraft, be sure that BATT 1 is selected. All GDU's should be in the same mode (configuration or normal), unless instructed differently by the procedure. Remove power only when instructed by the procedure.

- Perform these preliminary steps before up-loading software:
- Remove supplemental data cards from the lower slot of the GDU's before loading any software. Supplemental data cards left inserted can become corrupt making them unusable. Replacing corrupt cards is not covered under warranty.

NOTE:

Loading the wrong software into GIA units may cause an inoperable condition that is not covered by warranty. Identify which type of GIA (WAAS or non-WAAS) LRU is installed in the aircraft, and then choose the correct WAAS or non-WAAS software file before loading GIA software. Loading the incorrect software may necessitate returning the unit to Garmin for a non-warranty repair. No warning appears if the incorrect software is selected.

1. System Power Up - Apply power to the G1000 by doing the following: (make sure BATT 1 selected on Aircraft.
   - **a.)** Connect a ground power unit to the external power receptacle, and turn on the ground power unit.
   - **b.)** Pull **Terrain/Obstacle Database Cards** from lower slots in both PFD/MFD (if installed).
   - **c.)** Turn on the **MASTER** switch. Turn on the **A/P POWER** switch. At this moment, all G1000 equipment is receiving power.
2. MFD & PFD Software Load:
   - **a.)** Pull the MFD and PFD circuit breakers.
   - **b.)** Insert the correct **SD Loader Card** into the MFD top card slot.
   - **c.)** While holding the **ENT** key on the MFD, restore power by closing the MFD circuit breaker.
   - **d.)** When the words "**INITIALIZING SYSTEM**" appear in the upper left corner of the MFD, release the **ENT** key.
   - **e.)** Press the **ENT** key to acknowledge the "**UPDATE SYSTEM FILES**" prompt.

NOTE:

A softkey labeled 'YES' appears in the lower right corner and may be used in lieu of the ENT key

   - **f.)** The "**UPDATING SYSTEM FILES. PLEASE WAIT**" screen will be displayed.
   - **g.)** New software is loaded to the **MFD**. When complete, the MFD starts in configuration mode.
   - **h.)** When complete, power down the **MFD**.
   - **i.)** Remove the **SD Loader Card** from the **MFD**, and re-start in configuration mode.
   - **j.)** Insert **SD Loader Card** into the top card slot on the **PFD**. Repeat Steps 3 through 6 for the PFD.
   - **k.)** When **PFD** update is complete, it starts in the configuration mode. Do not remove power.

- IMPORTANT -

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.

1.4 BASE AIRFRAME CONFIGURATION OPTION:

1. Select the **System Upload Page** on the PFD.
2. Highlight the appropriate airframe in the **AIRFRAME** field.
3. Press the **ENT** key.
4. Highlight the appropriate full configuration (WAAS or Non-WAAS) in the **FILE** field.
5. Press the **ENT** key.
6. Press the **CHK ALL** softkey to select all loadable software and configuration files.
7. Press the **LOAD** softkey.
8. When the upload is complete, press the **ENT** key to confirm.

1.5 OPTIONAL SYSTEM CONFIGURATION:

NOTE:

Ensure that the base airframe configuration option is selected and loaded first after a software upload, LRU replacement, or optional system installation. The optional system configuration (detailed below) will be overwritten by the base airframe configuration if the optional system configuration is completed first.

1. Insert the proper **G1000 loader card** into the top card slot of the **PFD**.
2. Press and hold the **ENT** key on **PFD** while applying power.
3. When the words "**INITIALIZING SYSTEM**" appear in the upper left corner of the PFD, release the **ENT** key.
4. Turn the **MFD** on in the same manner.
5. Select the **SYSTEM UPLOAD** page on the PFD.
6. Highlight the appropriate option.
7. Press the **ENT** key.
8. Highlight the appropriate installation option in the **FILE** field.
9. Press the **ENT** key.
10. Press the **LOAD** softkey.
11. Repeat steps **6** through **10** to load each (applicable) optional items.
12. When the upload is complete, press the **ENT** key to confirm.

13. After software upload, note the SYSTEM ID number located on the last page of the Auxiliary page group. (see Figure SB-304-2)

1.6 POST INSTALLATION GROUND CHECK:

1. Perform post-installation ground checks per Section 8 (only Steps 8.1 thru 8.5) of G1000 System Maintenance Manual P/N 190-00907-00 Revision A or Later Revision.

1.7 POST MAINTENANCE CHECK FLIGHT:

1. Return aircraft to service.

2. Perform a Post Maintenance Check Flight per GFC700 Flight Manual Supplement to check proper operation of the Manual Electric Trim system (refer to the M20M, M20R, M20TN aircraft POH/AFM Supplement "GARMIN GFC 700 AUTOMATIC FLIGHT CONTROL SYSTEM AND TAWS OPTION").

3. Complete log book entry for procedure.

1.8 PILOT'S CHECKLIST: (SD CARD- if used)

1. Plug your **SD card reader** into a laptop or PC.

2. Insert the A/C Pilot's Checklist **"SD Card"** (Mooney supplied) into the **SD card reader**.

3. The current checklist file on the SD card should have the filename as "**chklist.ace**"

NOTE:

Some Operating Systems will allow the user to view file names only and not file extensions. Make sure you rename the file based on the these settings.

4. Highlight file and rename according to the Models listed below: (see FIGURES SB-304-3 & 4)

   a.) M20M (or M20M.ace)

   b.) M20R_Ovation2GX (or M20R_Ovation2GX.ace)

   c.) M20R_Ovation3 (or M20R_Ovation3.ace)

   d.) M20TN (or M20TN.ace)

5. Insert your Pilot's Checklist **SD Card** into top slot of **MFD** and power-up to verify the G1000 reads the renamed checklist.

6. Procedure complete.

WARRANTY:	N/A
REFERENCE DATA:	1. Garmin G1000 Cockpit Reference Guide 190-00450-03 Revision A or Later FAA approved revision 2. Garmin G1000 System Maintenance Manual P/N 190-00907-00 Revision A or Later approved revision. 3. MAC AFM/POH Manual (applicable A/C)

PARTS LIST: Mooney Airplane Company, Inc., Parts Kit:

Item	P/N	Description	Qty
Software	006-B0401-26	GARMIN Software Revision (Rev 26) (Download file) http://factoryparts.mooney.com	1
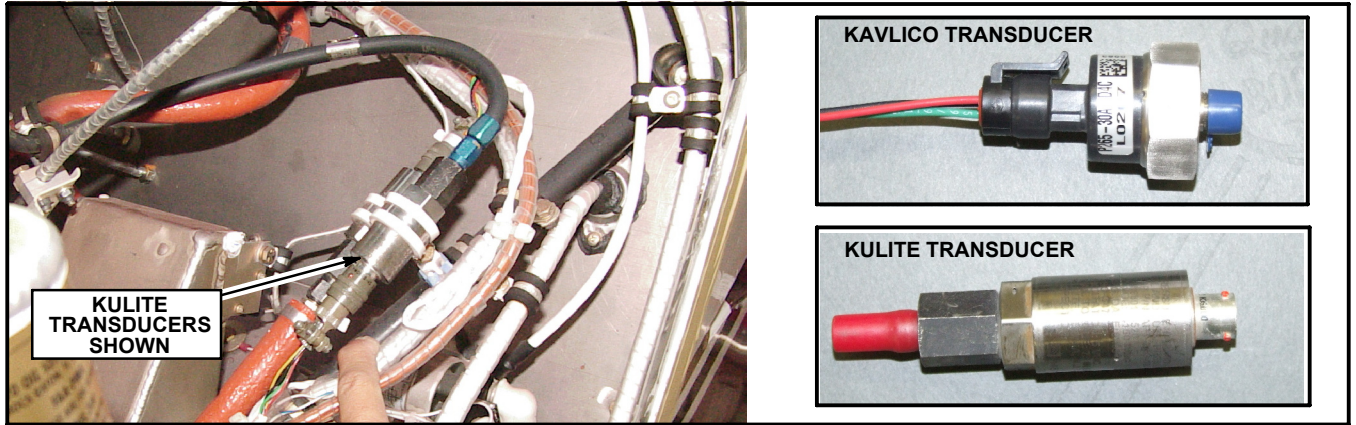
Figure SB M20-304-1 - TRANSDUCER IDENTIFICATION
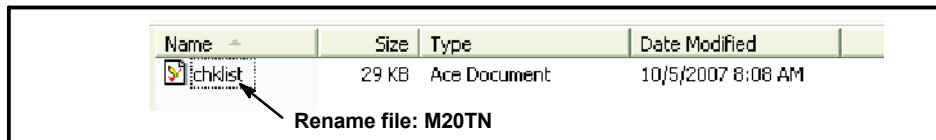

FIGURE SB-304-2 - LOCATING THE SYSTEM ID NUMBER

Figure SB M20-304-3 - WINDOWS VIEW WITH FILENAME ONLY
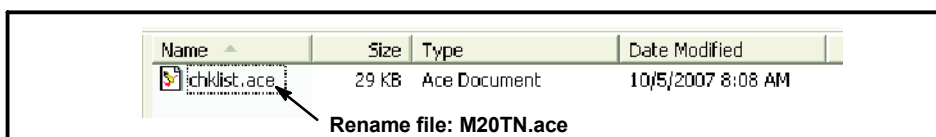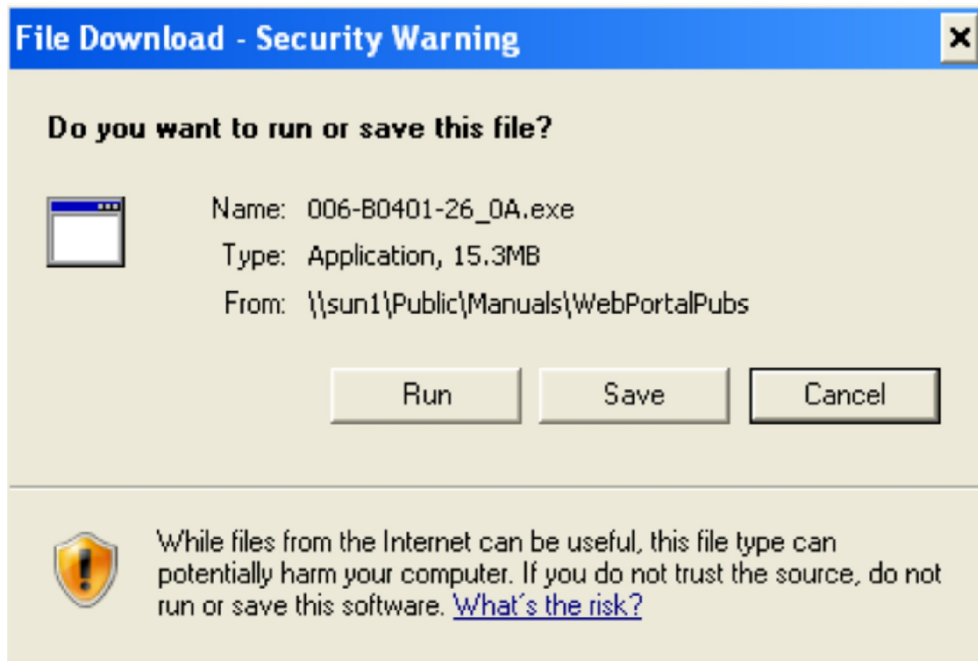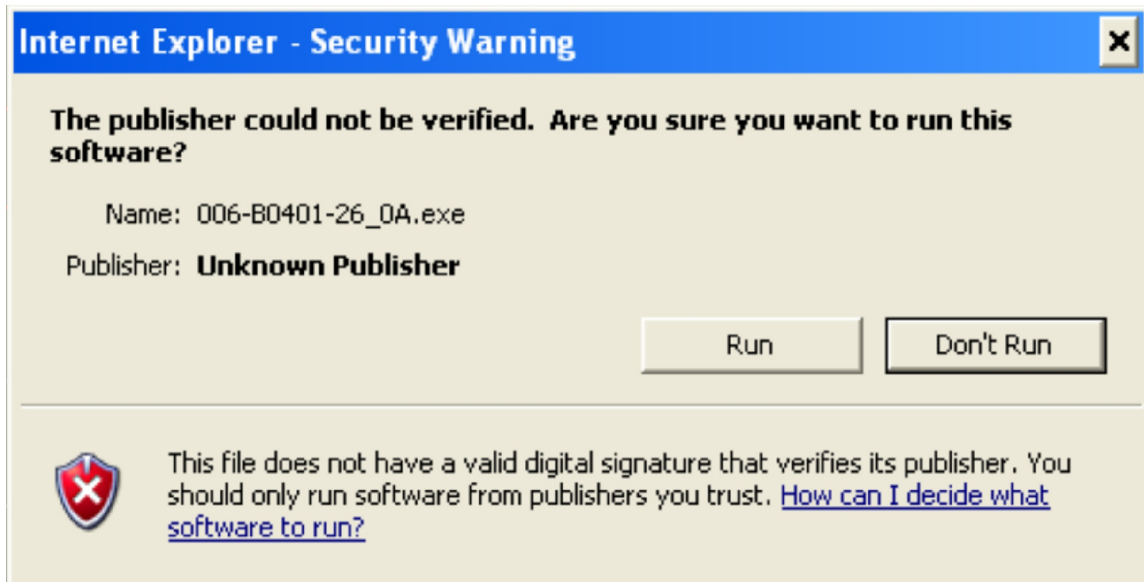

Figure SB M20-304-4 - WINDOWS VIEW WITH FILENAME AND EXTENSION

S1.0 Extracting the revised GARMIN Software (from MAC - WebPortal):

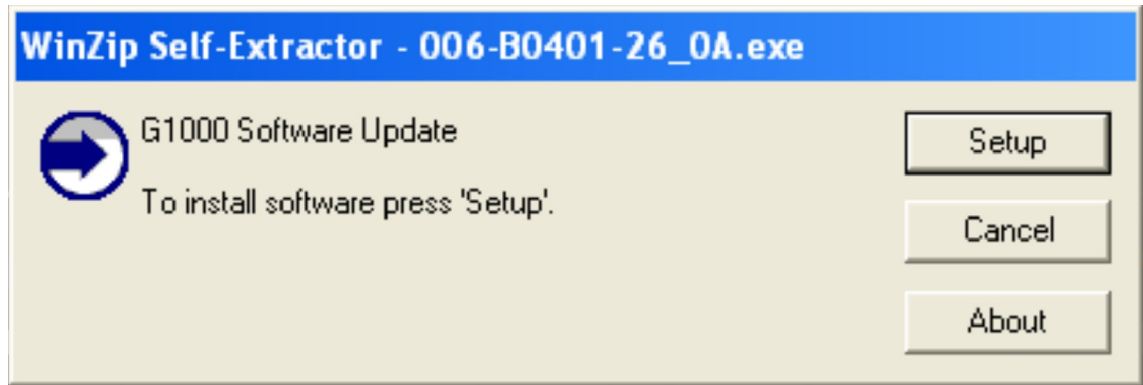**1.** Log in to the Mooney Airplane Company WebPortal (must have username and password)

2. Select on the link http://manuals.mooney.com. This link will open the technical publication front page.

3. Insert your SD Loader Card into the Card Reader.

4. Select on the link **GFC700 Software Revision (006-B0401-26_0A)**. A pop-up screen will prompt you to **"Run"** or **"Save"** the file. Select **"Run"** to acknowledge the following prompt:
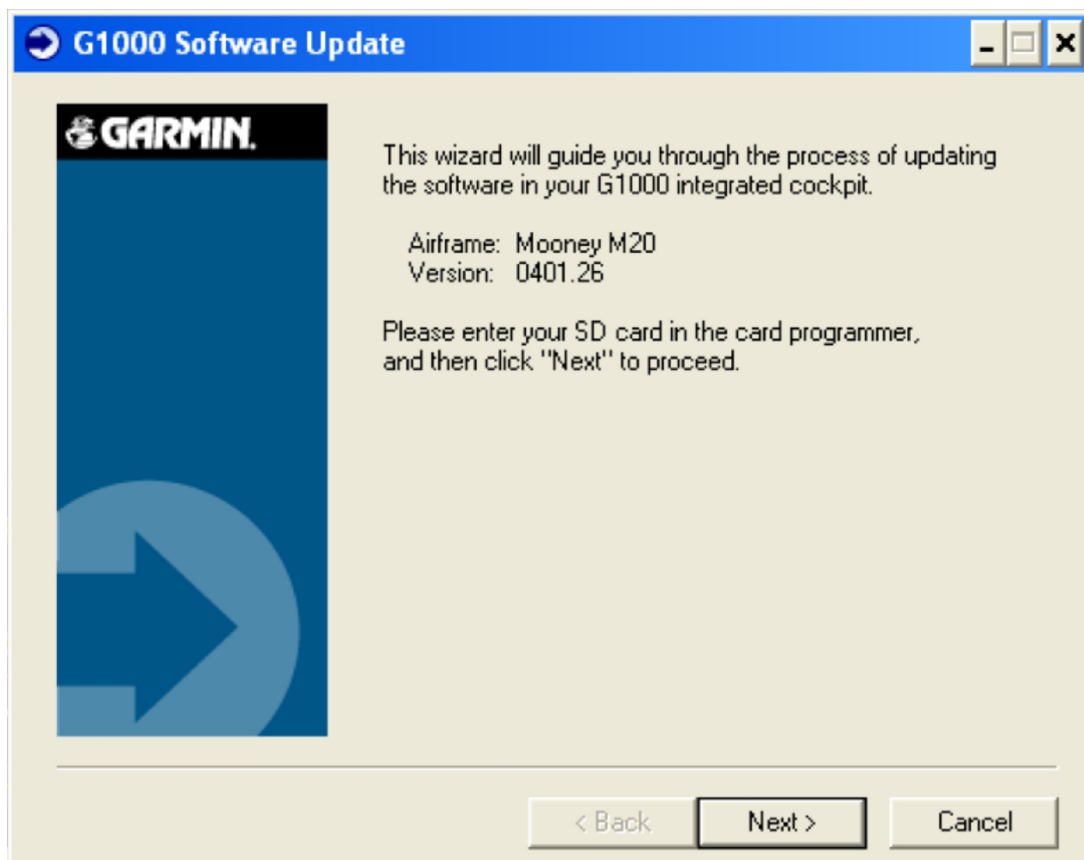
File Download - Security Warning

Do you want to run or save this file?

    Name: 006-B0401-26_0A.exe
    Type: Application, 15.3MB
    From: \\sun1\Public\Manuals\WebPortalPubs

[Run]   [Save]   [Cancel]

While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not run or save this software. What's the risk?

5. Some servers have Security Warnings, Select **"Run"** to acknowledge the following prompt:

Internet Explorer - Security Warning

The publisher could not be verified. Are you sure you want to run this software?

    Name: 006-B0401-26_0A.exe
Publisher: **Unknown Publisher**

[Run]   [Don't Run]

This file does not have a valid digital signature that verifies its publisher. You should only run software from publishers you trust. How can I decide what software to run?

6. To extract the required files, select **"SetUp"** to acknowledge the following prompt**:**

WinZip Self-Extractor - 006-B0401-26_0A.exe

G1000 Software Update

To install software press 'Setup'.

Setup

Cancel

About

**7.** The Software screen will show the Aircraft M20 and latest software revision, select **"Next"** to acknowledge the following prompt**:**

G1000 Software Update

GARMIN.

This wizard will guide you through the process of updating the software in your G1000 integrated cockpit.

    Airframe: Mooney M20
    Version: 0401.26

Please enter your SD card in the card programmer, and then click "Next" to proceed.

< Back   Next >   Cancel

8. Verify the Drive letter where the SD Card reader is plugged in, select **"Next"** to acknowledge the following prompt**:**
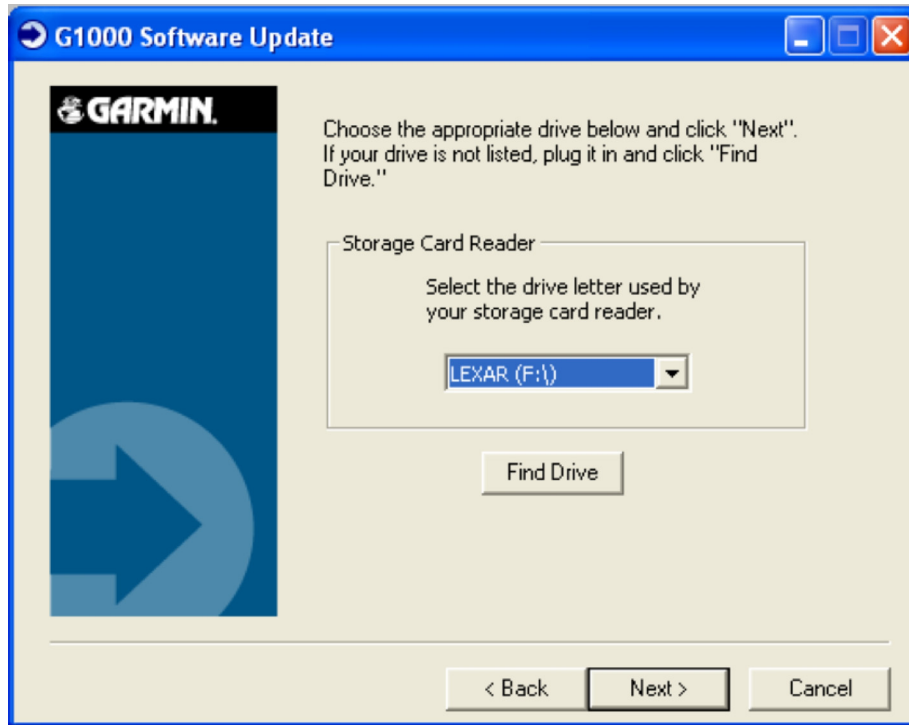
9. Files will now extract to SD Card, monitor the download process**:**
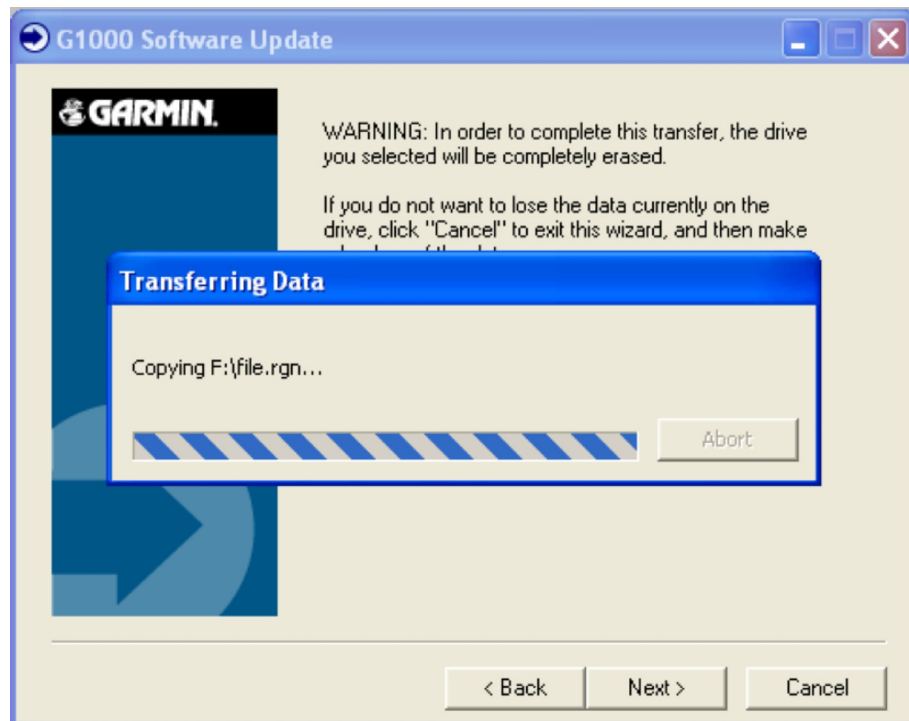
10. When the download is complete, select **"Finish"** to acknowledge the following prompt**:**
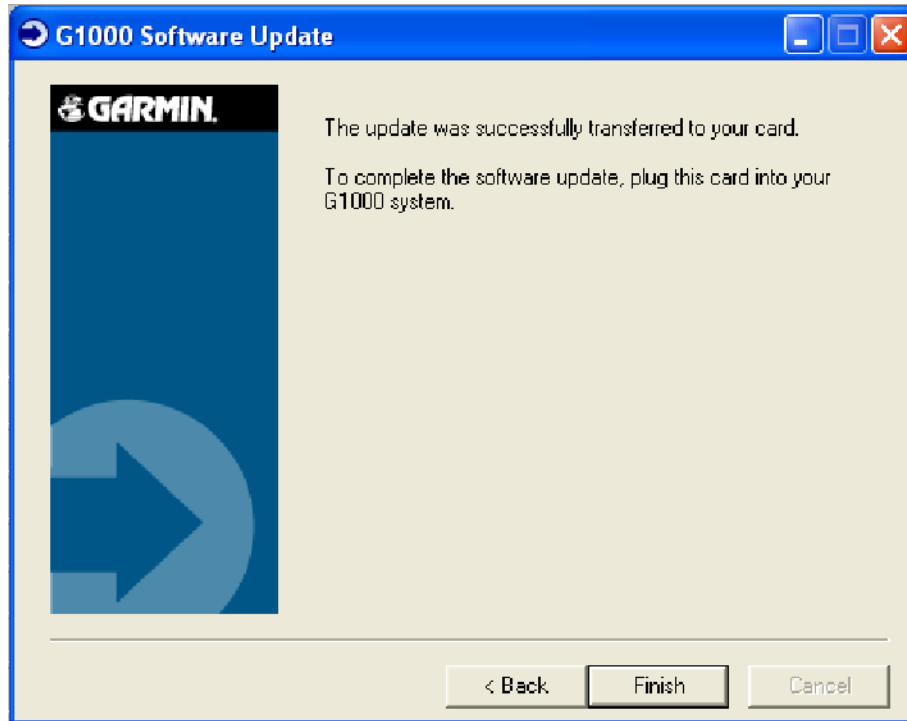
11. When complete the SD Loader Card can now be ready for Software Installation to the Aircraft G1000 PFD/MFD.