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SUBJECT: All Mooney Aircraft equipped with Garmin G1000 are eligible for the WAAS Optional Upgrade Packages.

MODELS/ SN AFFECTED: **M20M:** 27-0318, 27-0326 thru 27-0355
M20R: 29-0333 thru 29-0519
M20TN: 31-0001 thru 31-0127 and 31-0129

TIME OF COMPLIANCE: **At Owners Discretion**

INTRODUCTION: Three optional packages with available subscription services are offered for Mooney Aircraft models equipped with Garmin G1000. **Option 1** - contains new boot block software card, and upgraded software revision for WAAS equipped aircraft. **Option 2 & 3 - WAAS Upgrade** - Wide Area Augmentation System (WAAS) contains Option 1 software and additional features which provides GPS precision approach capability.

GFC700 AFCS equipped aircraft will be able to couple with the Automatic Flight Control System (AFCS) for precision guidance approaches. Available with Options 1, 2 and 3.

STEC AFCS equipped aircraft will receive information to operate manual precision guidance approaches at this time. Mooney owners with STEC AFCS equipped, will receive an upgrade path for coupled flight in a subsequent Service Bulletin. STEC aircraft with -13 or prior software, must comply with Garmin boot block File Update found in Service Bulletin M20-306B or later FAA approved revision. Only available with Options 1 and 2.

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

OPTION 1: Software only (WAAS equipped aircraft) (Available at most authorized Mooney Service Centers) Available for both GFC700 and STEC Aircraft

1. Boot Block Helper Card (006-B1112-02_0A) provides compatibility of GMU44 Hardware Software Revision Card (006-B0401-34)

ChartView** and FliteChart** Capability

Safe Taxi**

TAWS** enhancements and fast inhibit capability

An alternate transponder code entry method using FMS knob

Victor and jet airways support

Modified software upload page (further simplifies software loads)

System Setup Page in Configuration Mode



GDU boot block v2.05 (or later version) **Note: This is required but is not on the -34 loader card.** For availability, contact Mooney or visit the dealer resource section of the Garmin Website.

GRS 77 SW v3.04

GTX 33 SW v7.04

GDU SW v14.02

GIA SW v7.60

Additional minor software changes (all LRU's except GMU44)

GDL69A: Weather information will be upgraded with new software that will greatly enhance operation

(** Does not include service subscriptions nor unlock cards required for certain features)



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OPTION 2: WAAS (Available at most authorized Mooney Service Centers) - Available for Both GFC700 and STEC Aircraft

1. Includes Option 1 software enhancements (including GMU Boot Block Card)
Garmin G1000 hardware upgrades enabling:
TSO-C145a/C146a Class 3 WAAS
Enroute/terminal VNAV (descent only)
LPV + LNAV/VNAV approaches
Two year Vendor Warranty on GIA 63W

OPTION 3: WAAS with Enroute Coupled VNAV (Available at most authorized Mooney Service Centers) - Available only for GFC700 Aircraft

1. Includes Option 1 software (including GMU Boot Block Card) and Option 2 hardware upgrades.
Garmin G1000 hardware upgrades enabling.
Coupled VNAV feature for Enroute operations.

Additional Available Services

Garmin TAWS B

Unlock Card - Cost required

Garmin Safe Taxi

Unlock Card – N/A

Cost is a one time update fee or annual subscription fee.

Garmin FliteChart

Unlock Card – N/A

Cost is a one time update fee or annual subscription fee.

Garmin Obstacles and Airport Directory

Unlock Card - N/A

Cost is a one time update fee or annual subscription fee.

Jeppesen ChartView

Unlock Card - Cost required

Contact Jeppesen for details on subscription cost.

WARRANTY: N/A

REFERENCE DATA: 1. Garmin G1000 Cockpit Reference Guide 190-00450-05 Revision A or Later FAA approved revision.
2. Garmin G1000 System Maintenance Manual P/N 190-00907-00 Revision A or Later approved revision.

PARTS LIST: Mooney International Corporation, Service Bulletin Parts Kit(s): see Introduction for

<u>Item</u>	<u>P/N</u>	<u>Description</u>	<u>Qty</u>
1.	940171-501	Option 1 - Software for WAAS Equipped A/C (GFC700/STEC)	1
2.	940171-503	Option 2 - WAAS Kit (GFC700/STEC)	1
3.	940171-505	Option 3 - WAAS W/Enroute/VNAV Kit (GFC700)	1
Software	006-B1112-02-0A	GARMIN GMU Boot Block Software	A/R
Software	006-B0401-34	GARMIN Software Revision (Rev 34)	A/R
		(Download files) http://manuals.mooney.com	
		(Download files) https://www8.garmin.com/dealerResource	

**THIS BULLETIN IS FAA APPROVED FOR ENGINEERING DESIGN****1.3 - Install Boot Block Software (006-B1112-02 0A) - for GMU44 Hardware units 011-00870-00**

This loader card's primary responsibility is to provide a method to safely load GMU44 hardware units (either 011-00870-00 or 011-00870-10) with GMU44 v2.05 system software. Depending on what GMU44 hardware is installed on the system, this loader card can load separate sequences of boot block software to ensure compatibility with the GMU44 v2.05 system software. If a 011-00870-00 GMU44 is installed on the system this loader card will first load GMU44 v2.04 boot block software, then GMU44 v2.05 boot block software, and finally the GMU44 v2.05 system software. If a 011-00870-10 GMU44 is installed on the system this loader card will first load the GMU44 v2.05 boot block software, and then the GMU 44 v2.05 system software.

-NOTE-

Ground power is required to be connected before the new Boot Block installation. If Boot Block load fails, retry load (do not cycle power). Failure to load Boot Block helper card (software) before loading Revision -34 software, will "Brick" the GMU and will require unit to be sent back to Garmin for repair (fees will apply).

-WARNING-

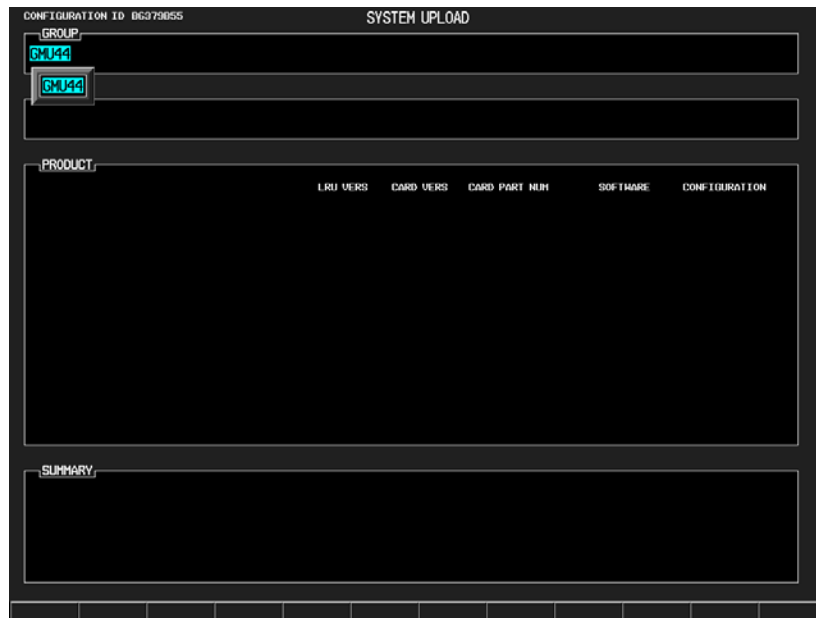
When loading the 006-B1112 loader card, power to the system must not be interrupted. If there is a power interruption during GMU boot-block loading, it could result in making the GMU unusable. The GMU then would need to be returned to Garmin to be resurrected. Do not rely solely on the aircraft batteries to prevent loss of power during the software loading process. Connect a ground power unit to the aircraft, and 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.

1. Connect a ground power unit to the external power receptacle, and turn on the ground power unit.
 - a.) System Power Up - Apply power to the G1000 by doing the following: (make sure BATT 1 selected on Aircraft. Turn on the **MASTER** switch. Turn on the **A/P POWER** switch.
 - b.) Note the System ID number as referenced in step 1.2 (see Figure SB M20-305-3)
 - c.) Pull the **MFD** and **PFD** circuit breakers.
 - d.) Pull **Terrain/Obstacle Database Cards** from lower slots in both PFD/MFD (if installed).
2. Insert "**Boot Block Loader SD Card**" and insert into top slot on the **PFD**.
3. While holding the **ENT** key on the **PFD**, restore power by closing the **PFD** circuit breaker.
4. When the words "**Initializing System**" appear in the upper left corner of the **PFD**, release the **ENT** key.

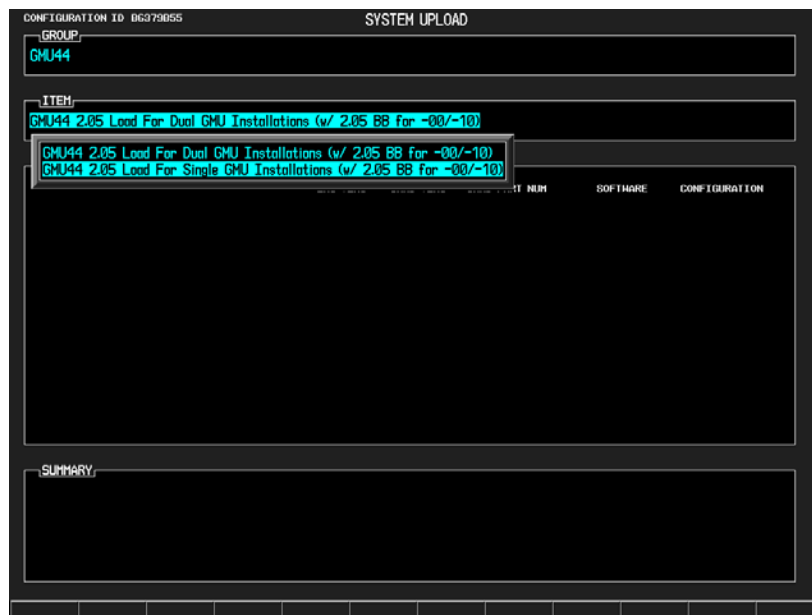


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- Use the **FMS** knob to access the Software Upload page.



- Activate the cursor to highlight the **GMU Boot Block** file.
- Select **GMU** to load new Boot Block file.



- Press the **LOAD** soft key.
- Select **OK** and press the **ENT** key to acknowledge “Begin File Upload” prompt.
- Monitor the upload status as it progresses for **GMU1**:

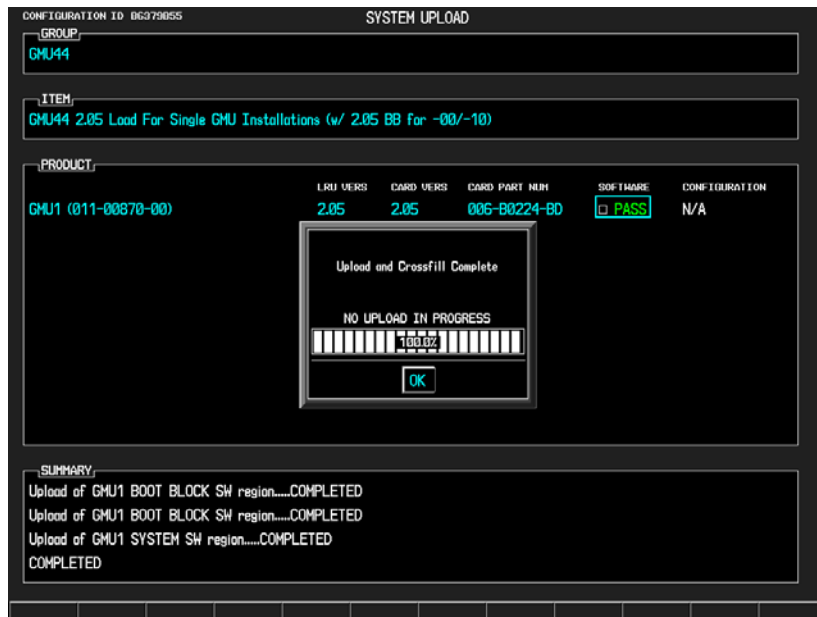


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11. After the file finishes loading, press **ENT** to acknowledge the “**File Upload Complete**” prompt:



12. Repeat steps 7 thru 12 for **GMU** Boot Block file loading.
13. Check the SUMMARY field to ensure the load is “**COMPLETE**”



14. Remove power from **PFD** by opening the **PFD** circuit breaker.
15. Remove “**Boot Block Loader Card**” from the **PFD**.
 - a.) After successful installation of new Boot Block loader application, continue installation of the 006-B0401-34 software configuration upload.



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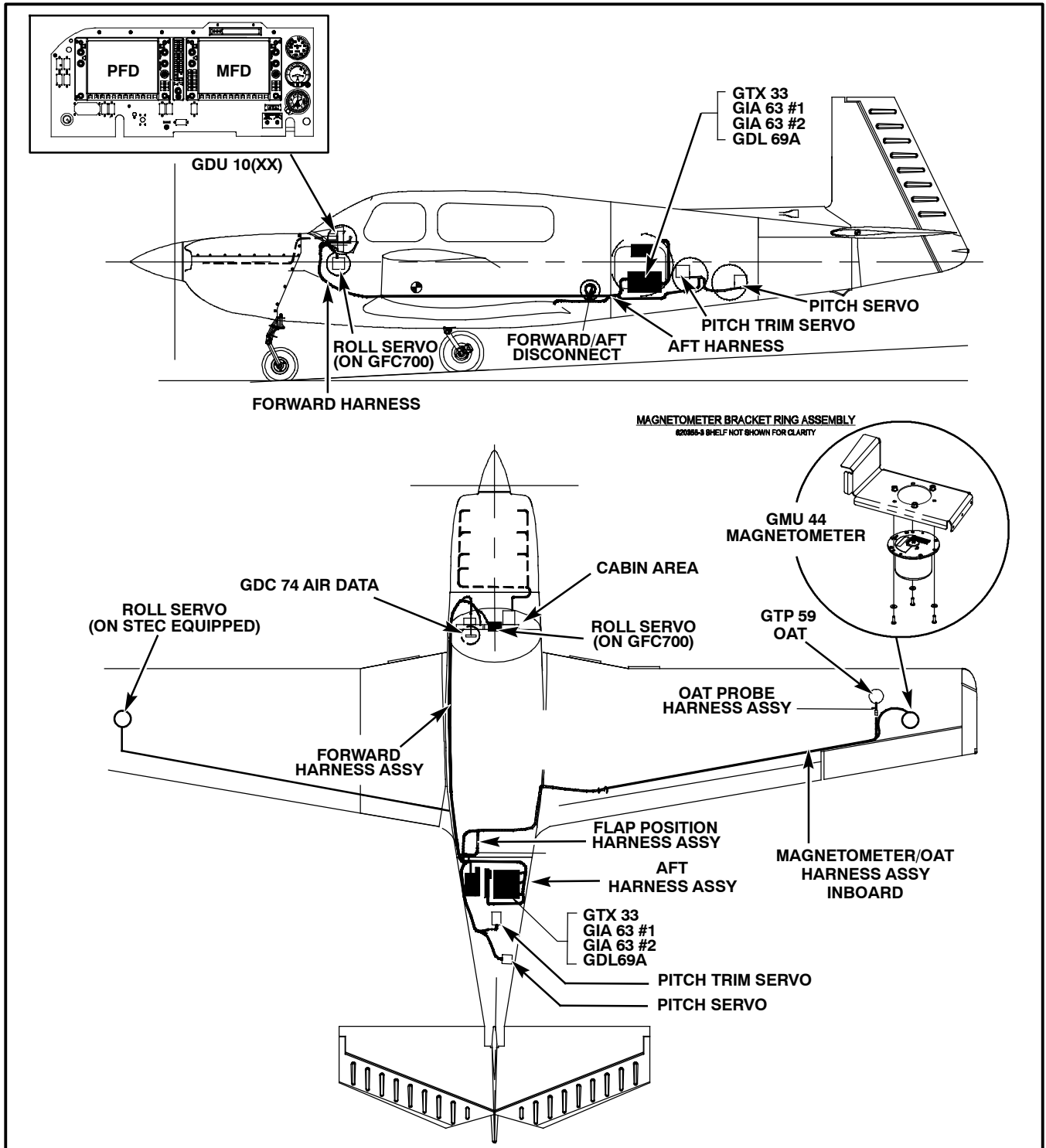


Figure SB M20-305-1 - G1000 COMPONENTS



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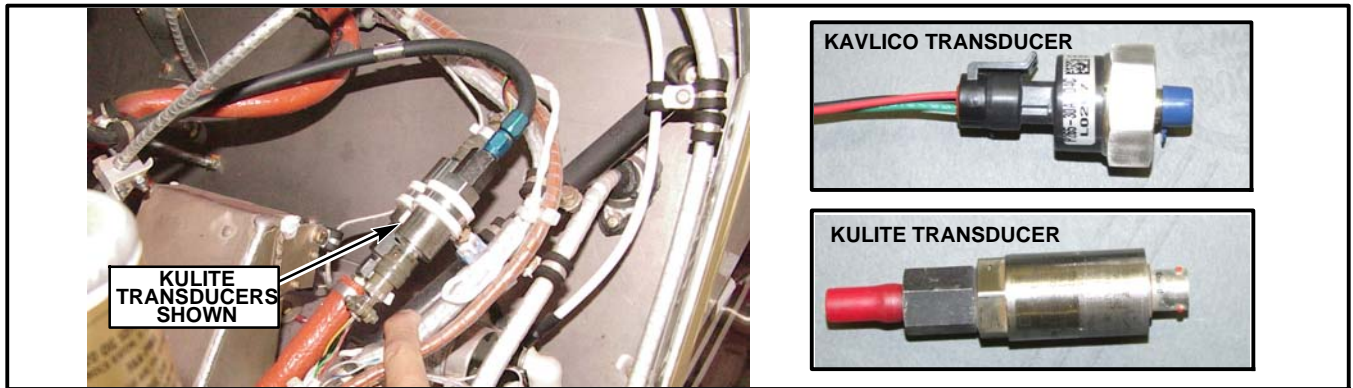


Figure SB M20-305-2 - TRANSDUCER IDENTIFICATION

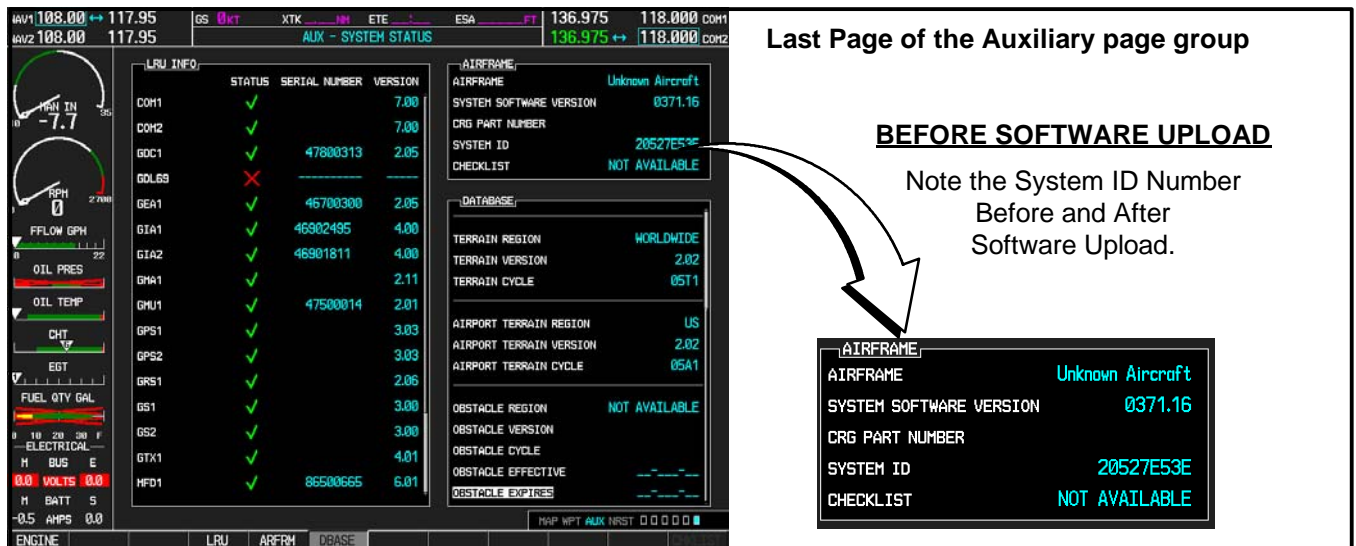


FIGURE SB-305-3 - LOCATING THE SYSTEM ID NUMBER

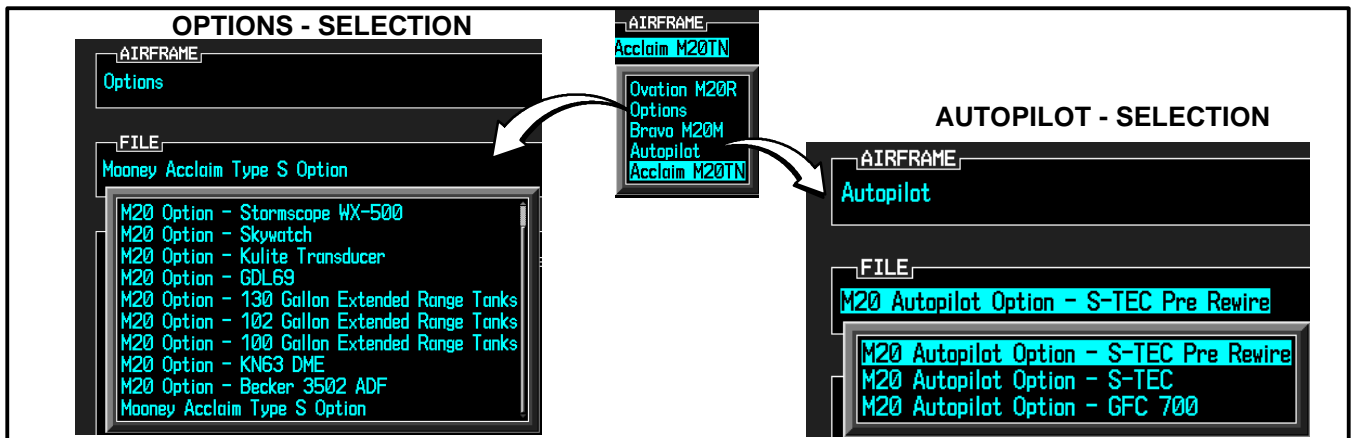


FIGURE SB-305-4 - VERIFY OPTIONS OR AUTOPILOT LIST



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Old Style
Splash Screen



New Style
Splash Screen

FIGURE SB-305-5 - VERIFY THE SOFTWARE VERSION ON SPLASH SCREEN

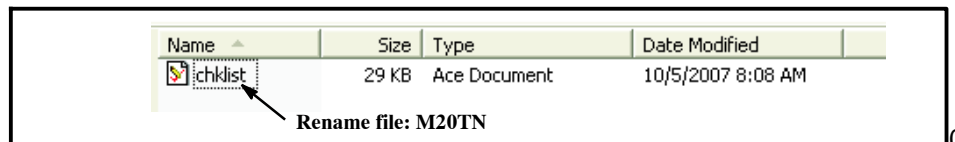


Figure SB M20-305-6 - WINDOWS VIEW WITH FILENAME ONLY

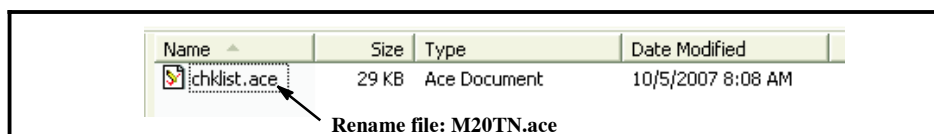


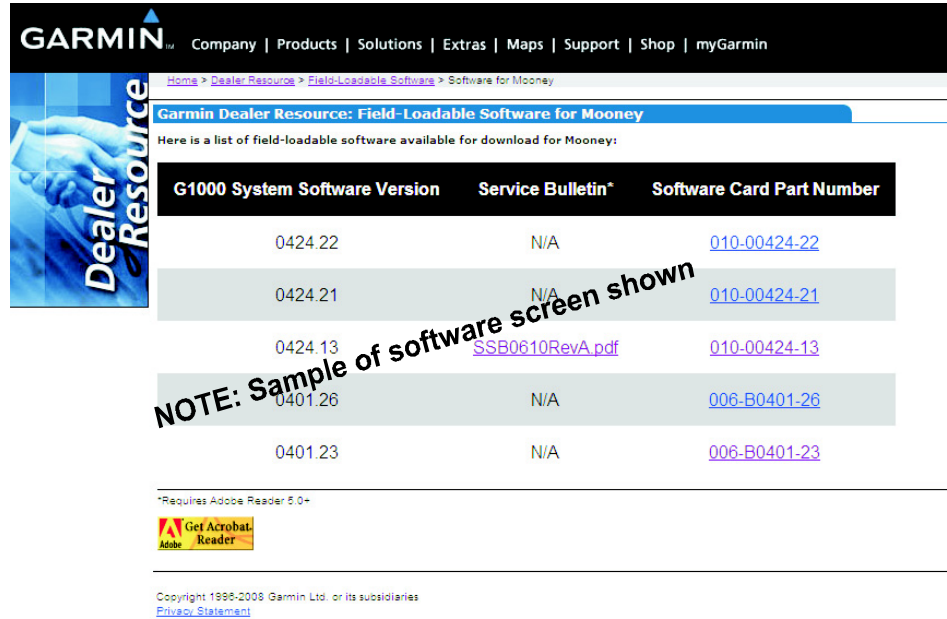
Figure SB M20-305-7 - WINDOWS VIEW WITH FILENAME AND EXTENSION



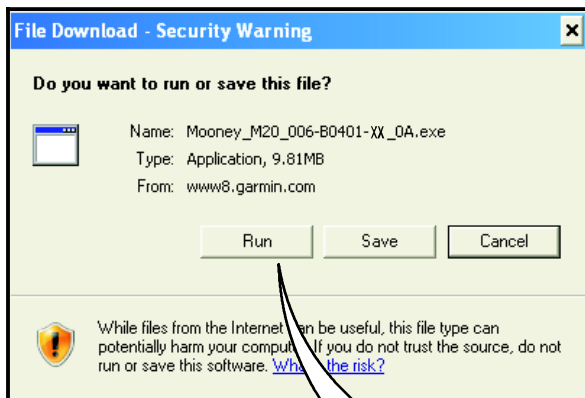
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S1.0 Extracting the revised GARMIN Software (from Website):

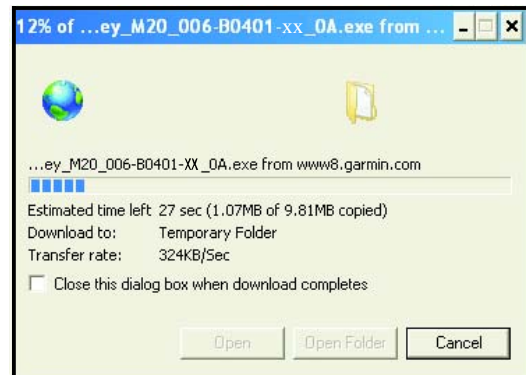
1. Log in to the Garmin Dealer Website or Mooney WebPortal (both must have user name and password) web address is: <https://www8.garmin.com/dealerResource> or <http://manuals.mooney.com/>
2. Read the Confidentiality Agreement page and select on the "I AGREE" button.
3. The screen will contain the Technical Resources options. Select on the Field Loadable Software link. This link will open the manufacturer front page, select on Mooney Aircraft Link.



4. Insert your SD Loader Card into the Card Reader.
5. Select on the link **Software Revision (006-B0401-34)**. A pop-up screen will prompt you to "Run" or "Save" the file. Select "Run" to acknowledge the following (example) prompt:



Example Screen Shot



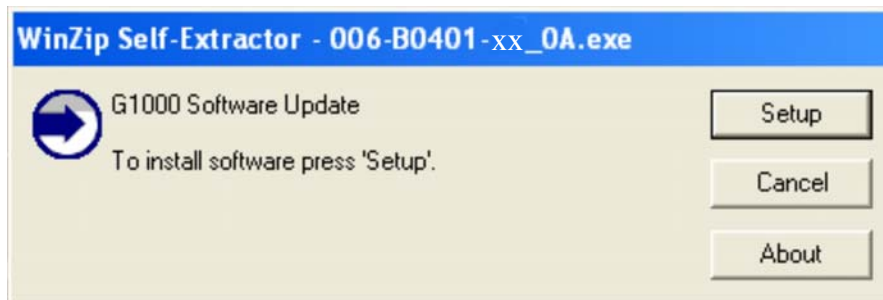


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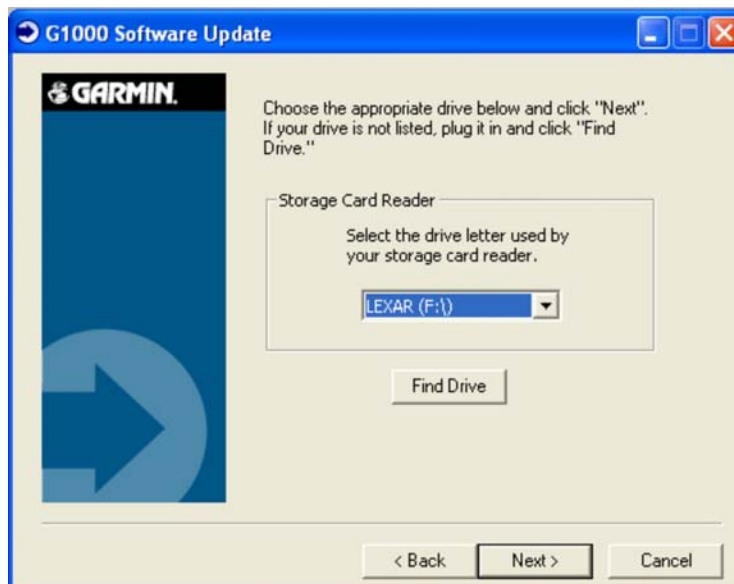
6. Some servers have Security Warnings (contact your System Administrator if an error occurs), Select “Run” to acknowledge the following (example) prompt:



7. To extract the required files, select “SetUp” to acknowledge the following (example) prompt:



8. Verify the Drive letter where the SD Card reader is plugged in, select “Next” to acknowledge the following (example) prompt:



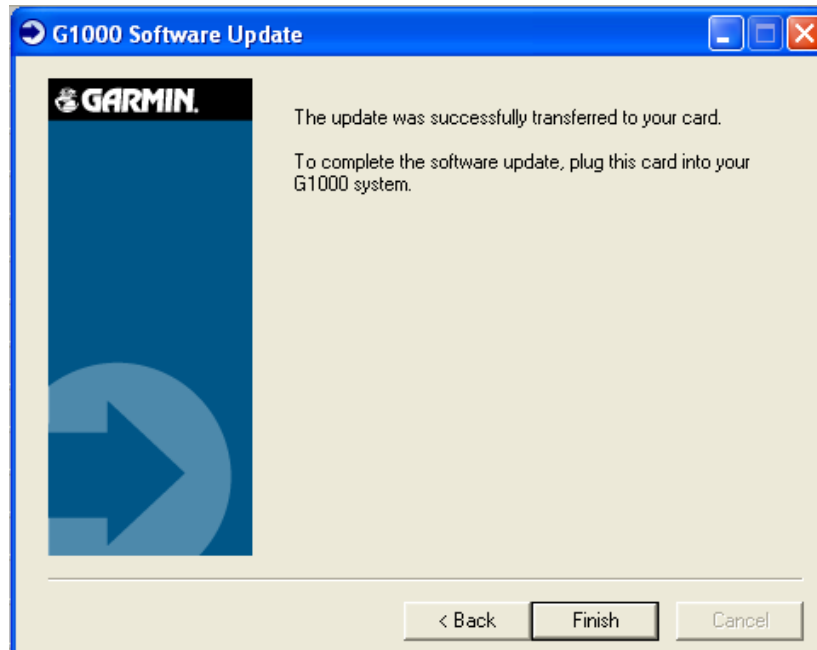


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9. Files will now extract to SD Card, monitor the download process:



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.



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MOONEY INTERNATIONAL CORPORATION

KERRVILLE, TEXAS 78028 - FAX 830-257-4635

SERVICE (BULLETIN) (INSTRUCTION) NO. _____ HAS BEEN COMPLIED
WITH ON AIRCRAFT MODEL _____ SERIAL NUMBER _____

Tach. Time: _____ N-Number _____ (Reg. No.)

Owner: _____ Date of Compliance: _____

Complied By: _____

Inspection Report: _____

Form 07-0001

PLACE
STAMP
HERE

MOONEY INTERNATIONAL CORPORATION

ATT'N: TECHNICAL SUPPORT

**165 Al Mooney Road, North
Kerrville, Texas 78028**

**SEND TO: Mooney International Corporation
165 Al Mooney Road North
Kerrville, TX 78028
FAX: (830) 257-4635 or EMAIL support@mooney.com**