



**ECCN
9E990**

Aeronautical

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Technical Bulletin

TB No. AA-14023

No Revision

April 23, 2014

SUBJECT: 412EPI HUMS SOFTWARE

PARTS AFFECTED: 412EPI BELL HELICOPTER VIBRATION MONITOR (BHVM) SYSTEM,
P/N 412-360-001

MODELS AFFECTED: Bell Helicopter Textron model 412EP helicopters with the BHTI 412EPI Kit (Bell BasiX-Pro Glass Cockpit and Pratt & Whitney Canada PT6T-9 Twin Power Section Turbo Shaft engines) installed and with subject BHVM Kit (412-360-001) installed in accordance with FAA STC SR09373RC.

COMPLIANCE: Compliance with this bulletin is per Customer's option.

DESCRIPTION: This Technical Bulletin is being issued to allow customers to upgrade their 412EPI HUMS processor to the current software configuration, V5.7 SP2A.

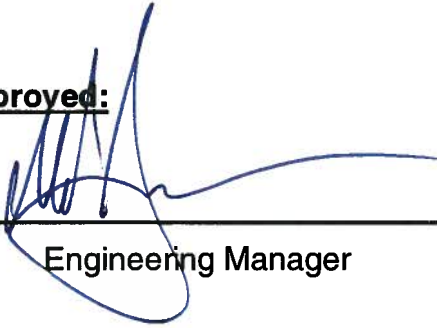
FAA/ODA APPROVAL: The engineering aspects of this Technical Bulletin are FAA/ODA approved.

MANPOWER: Approximately 2.0 man-hours.
(Manhours are based on hands-on time and may vary with personnel or facilities available).

IF OWNERSHIP OF AIRCRAFT HAS CHANGED, PLEASE FORWARD THIS BULLETIN TO NEW OWNER

LOG OF REVISIONS

Date	Revision	Description	Affected Pages
04/23/14	NR	Original Release	All

Approved:

Engineering Manager

23 APR 2014

Date

1.0 MATERIALS REQUIRED

1. 412EPI HUMS Processor Software Release 5.7 SP2A
2. Label P/N 1209-3196-PF:
 - a. Material Type: Brady Label THT-17-425-3 or equivalent
 - b. Text Color / Font Size: Black / 9 point
 - c. Background Color: White
 - d. Dimensions: Per Figure 1
3. Label P/N 1209-3198-PF (if required):
 - a. Material Type: Brady Label THT-166-424-2 or equivalent
 - b. Text Color / Font Size: Black / 9 point
 - c. Background Color: White
 - d. Dimensions: Per Figure 2

2.0 WEIGHT AND BALANCE

Not affected

3.0 PUBLICATIONS AFFECTED

N/A

4.0 ADDITIONAL INFORMATION

Any questions regarding this bulletin should be addressed to:

Aeronautical Accessories
Attn: Technical Support
450 Industrial Park Rd
Piney Flats, TN 37686-4419
Email: techsupport@aero-access.com
1-800-251-7094

5.0 **ACCOMPLISHMENT INSTRUCTIONS**

5.1 **SOFTWARE – DOWNLOAD INSTRUCTIONS**

1. Go to Bell Helicopter Vibration Monitor website:
<https://bhti-imds.iac-online.com/index.asp>.
If customer does not have a username and password, contact Bell Helicopter Product Support Engineering at psemedium@bh.com
2. Download release 5.7 SP2A for 412EPI HUMS from the website
(*Bell_EPI_57_SP2A.zip*).

5.2 **SOFTWARE – INSTALLATION INSTRUCTIONS**

1. Unzip the downloaded PC-GBS release 5.7 SP2A using Winzip.
2. Follow the Honeywell Installation Instructions 10123-0002-GP, revision B or later approved revision, Paragraph 3.1.2 thru 3.1.6 to install release 5.7 SP2A on the 412EPI HUMS Processor (see Appendix A).

Refer to data shown in Table 1 when performing the final system info checks, Paragraph 3.1.6, Steps 10-13, of 10123-0002-GP when verifying Tail Number, Aircraft Setup File, and OBS Version:

Table 1	
Tail Number	<i>(Aircraft Serial Number)</i>
Aircraft Setup File	For 412EPI High Gear: 412EPI-HG_V57.OBS For 412EPI Low Gear: 412EPI-LG_V58.OBS
OBS Version	5.7.203

5.3 **PROCESSOR LABELING**

1. Fill in the required data on Label (1209-3196-PF) as shown in Figure 1 and install 412EPI HUMS Processor Label per Paragraph 3.1.7 of 10123-0002-GP installation instructions.
2. Verify information on existing Label (1209-3198-PF) matches as shown in Figure 2. Update label if necessary as shown in Figure 2 and per Paragraph 3.1.7 of 10123-0002-GP installation instructions.
3. Software update complete.

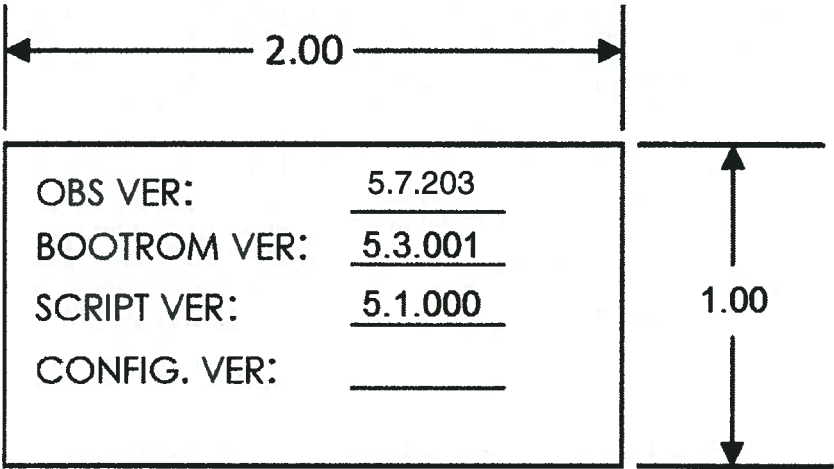


FIGURE 1. LABEL, P/N 1209-3196-PF

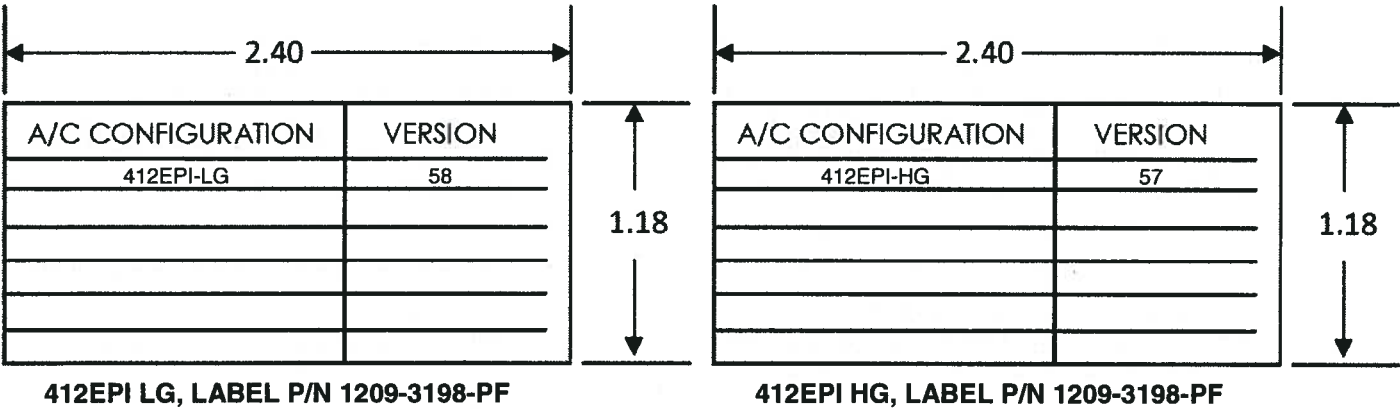


FIGURE 2. LABEL

APPENDIX A

Document No. 10123-0002-GP, Instructions for Upgrading to PC-GBS for 412EPI

Honeywell

Document No. 10123-0002-GP

Instructions for Upgrading to PC-GBS

For

Bell 412EPI

Revision B

Date: 1-Apr-2013

Prepared by

Honeywell Aerospace

13475 Danielson Street, Suite 100

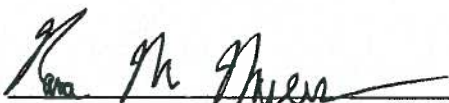
Poway, CA 92064

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Rance Myers / HON

Date: 4-2-13

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Revision History

Revision Number	Date	Prepared By	Description
-	1-Aug-2012	Chuck Kemp	Initial Release
A	23-Aug-2012	Ben Schnur	Updated to include v5.7 Screen Captures and CSIF and OSIF installations.
B	1-Apr-2013	Ben Schnur	Updated to include new CSIF and OSIF installations and new v5.7.202 Screen Captures.

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1 Scope

The intent of this document to provide guidance for updating the 1134-5150-FA as installed on the Bell 412EPI. This document gives step-by-step guidance to configure both the ground based and onboard software. It will then give step-by-step guidance to verify the configuration after installation is complete.

2 Definitions/Description of Acronyms and Abbreviations

AN	Acquisition Node
ARINC	Aeronautical Radio, Incorporated
BNR	Binary
CAN	Controller Area Network
CBM	Condition Based Maintenance (also used to refer to the onboard portion of the HUMS in this document)
CI	Condition Indicator
DPU	Data Processing Unit
GBS	Ground Based System
HUMS	Health and Usage Monitoring System
IAC	Intelligent Automation Corporation
Nr	Rotor Speed (typically expressed in % of full speed)
OBS	On Board Software
OSST	Operations Support and Sustainment Technology
SDI	Source/Destination Identifiers
SSM	Sign Status Matrix
TD	Technology Demonstration
TPA	Third Party Algorithm
UDP	User Datagram Protocol

3 Updating Zing HUMS software

User must have administrative rights to install PC-GBS. It is also suggested that the user's PC use the US Date Format.

The following steps are covered in detail:

- Installing version 5.7 or later PC-GBS
- Loading OSIF Bell 412EPI OBS v5.7 or later
- Loading CSIF Bell 412EPI-LG v56 & 412EPI-HG v56 or later.
- Connecting to the box and uploading software and configuration setup
- Verifying the load

3.1 Converting to version 5.7 or later

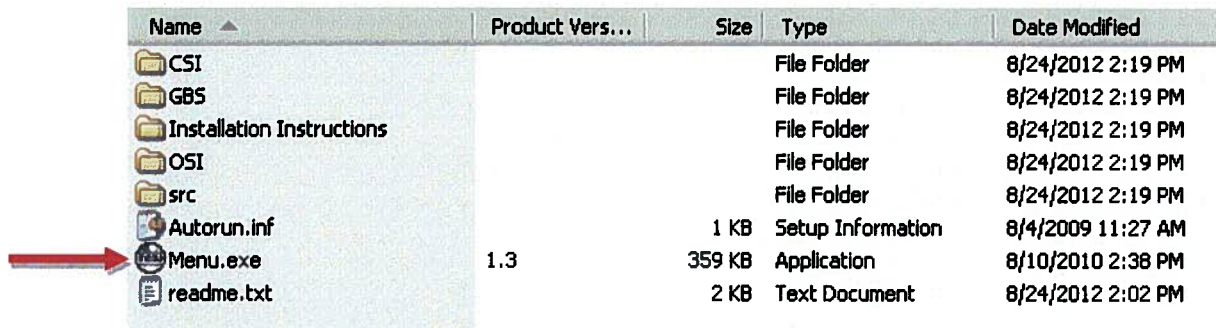
3.1.1 Unzip the CD Image

5.7_SP2_BELL_412EPI_V56_CDIMAGE.zip is an archive file and must be uncompressed.

1. Create a temporary directory in which to extract the CD image using WinZip or any other available program that will process *.zip files. WinZip is available from <http://www.winzip.com/>.
2. Extract the CD image into the temporary directory that was previously created.

3.1.2 Installing PC-GBS version 5.7.202 or later

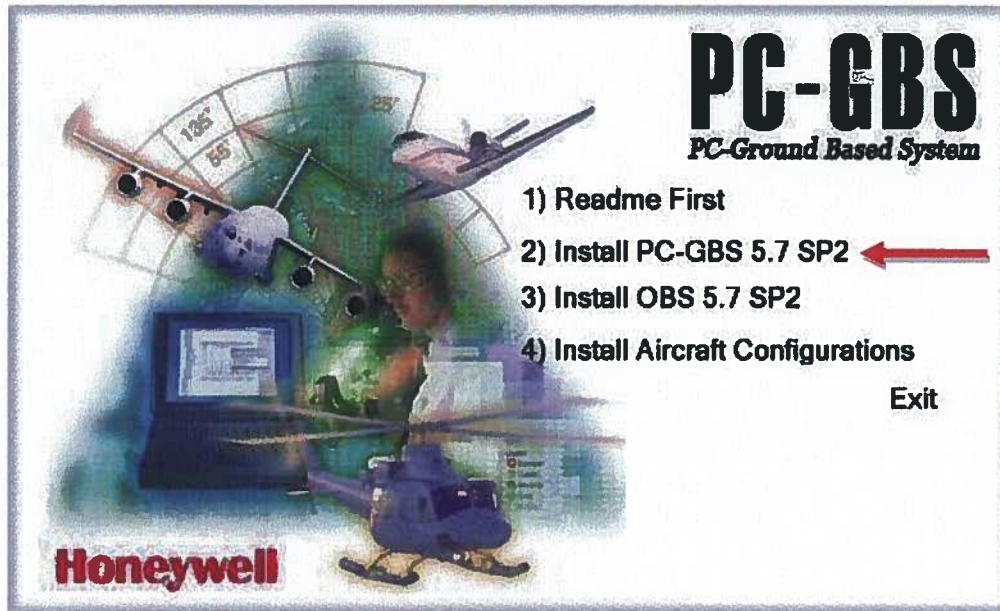
Double click into the directory that you have created and Double click **Menu.exe**.



Name	Product Vers...	Size	Type	Date Modified
CSI			File Folder	8/24/2012 2:19 PM
GBS			File Folder	8/24/2012 2:19 PM
Installation Instructions			File Folder	8/24/2012 2:19 PM
OSI			File Folder	8/24/2012 2:19 PM
src			File Folder	8/24/2012 2:19 PM
Autorun.inf		1 KB	Setup Information	8/4/2009 11:27 AM
Menu.exe	1.3	359 KB	Application	8/10/2010 2:38 PM
readme.txt		2 KB	Text Document	8/24/2012 2:02 PM

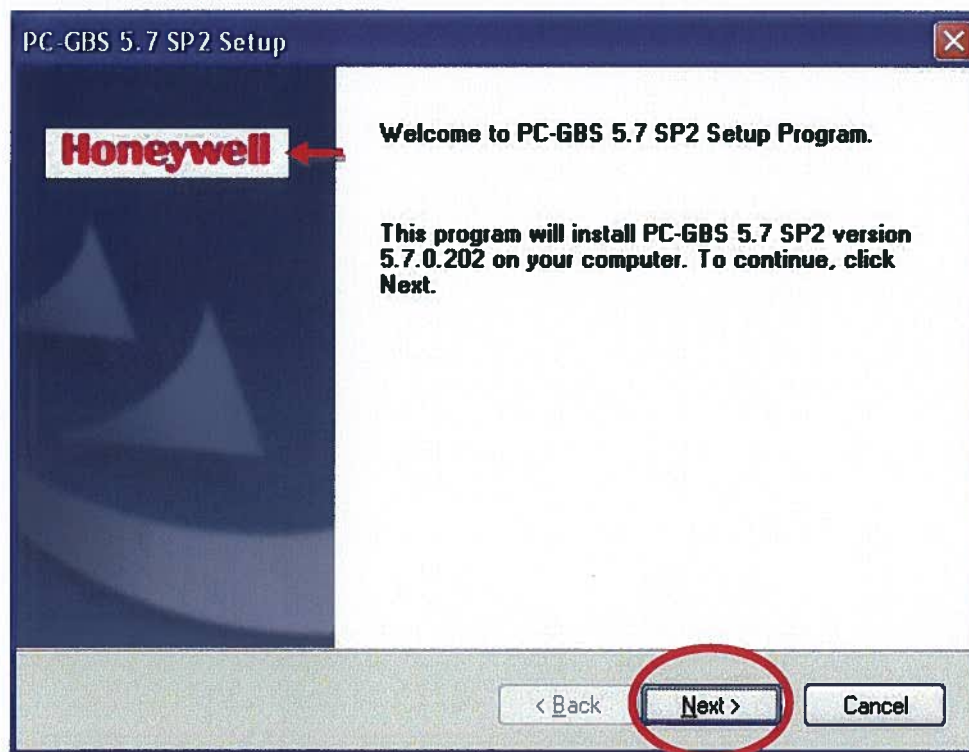
From the Honeywell CD image:

1. Use Option 2 to install PC-GBS

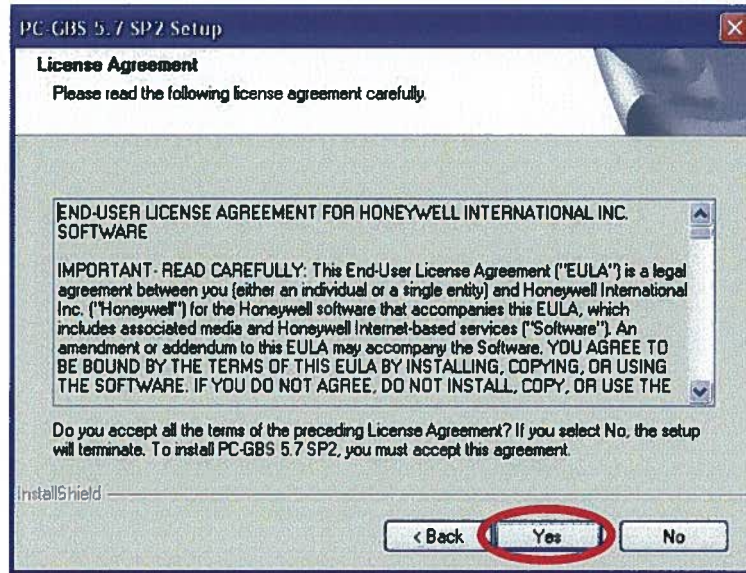


NOTE

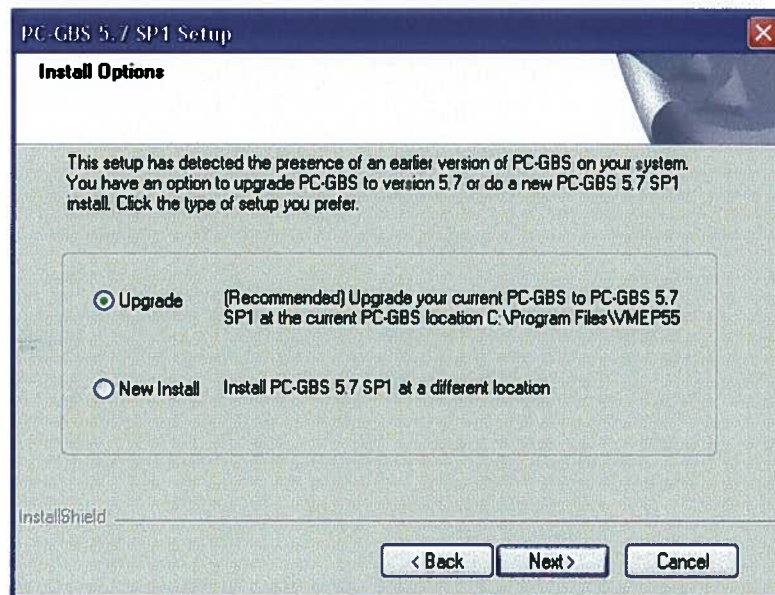
If loading more than one version of PC-GBS is desired then double left click on the Honeywell logo to allow multiple versions of PC-GBS to be installed. If only one version of PC-GBS is desired on the target computer then simply press the “Next” button.

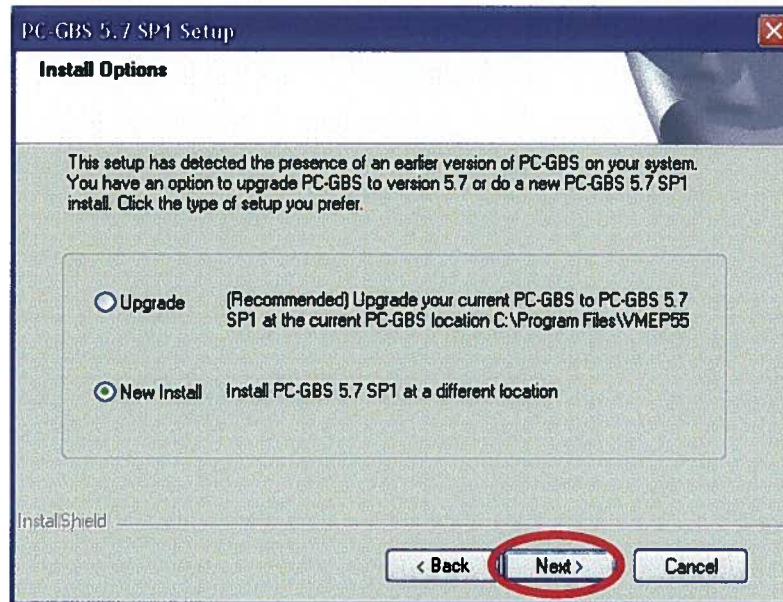


2. To proceed, press “Yes”

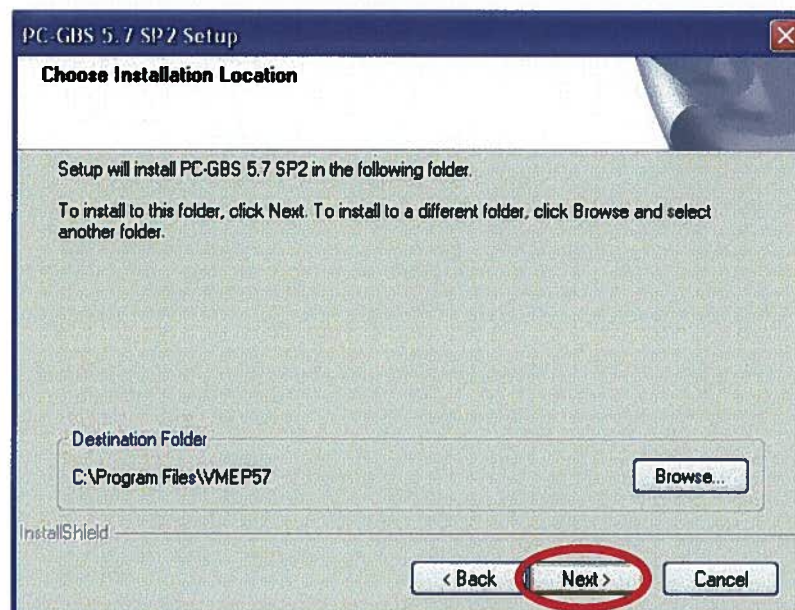


3. Select “Upgrade” if you have an existing PC-GBS on your computer and you do not wish to have two versions on your PC. Select “New Install” if you do not already have PC-GBS on your computer, or if you would like to create multiple versions on your PC. After your selection, press “Next>.”

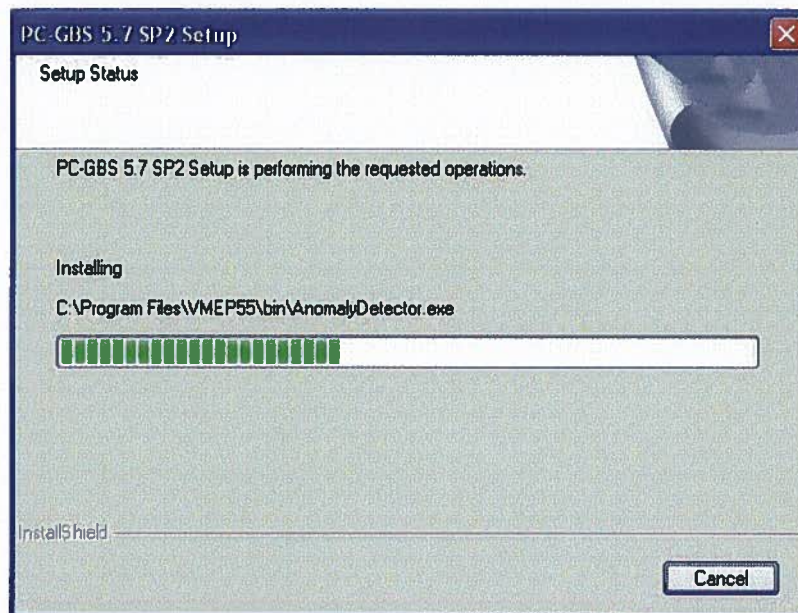




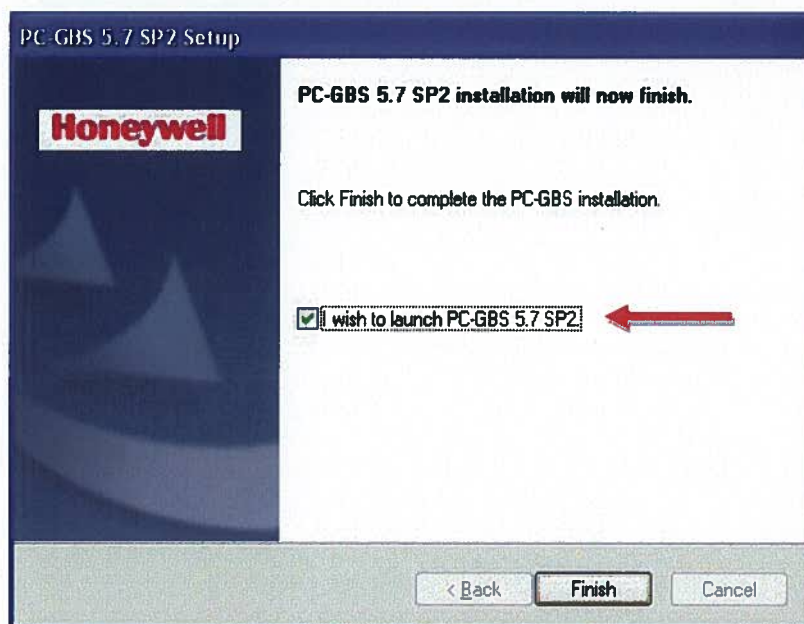
4. Click "Next>" (recommend using the default path)



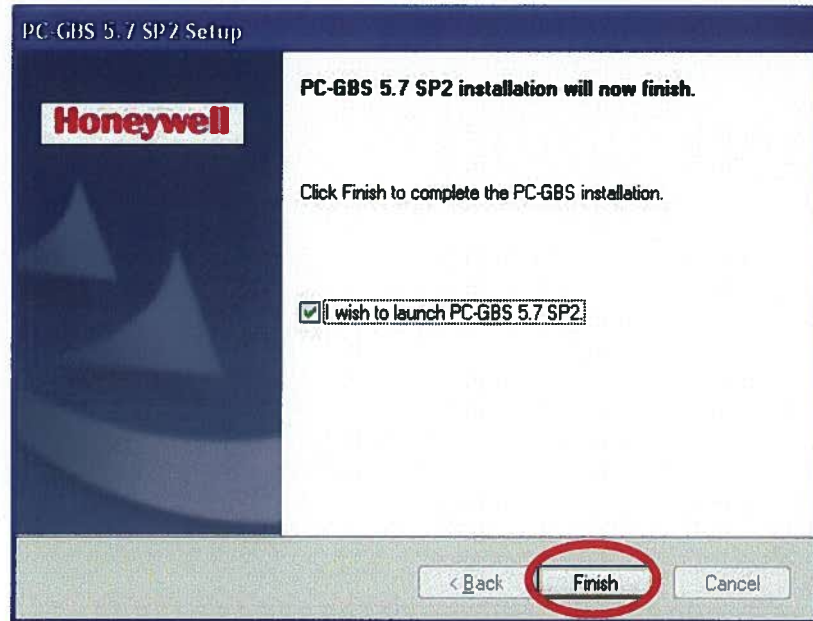
5. Wait for PC-GBS to install on your PC.



6. Check "I wish to launch PC-GBS" checkbox.

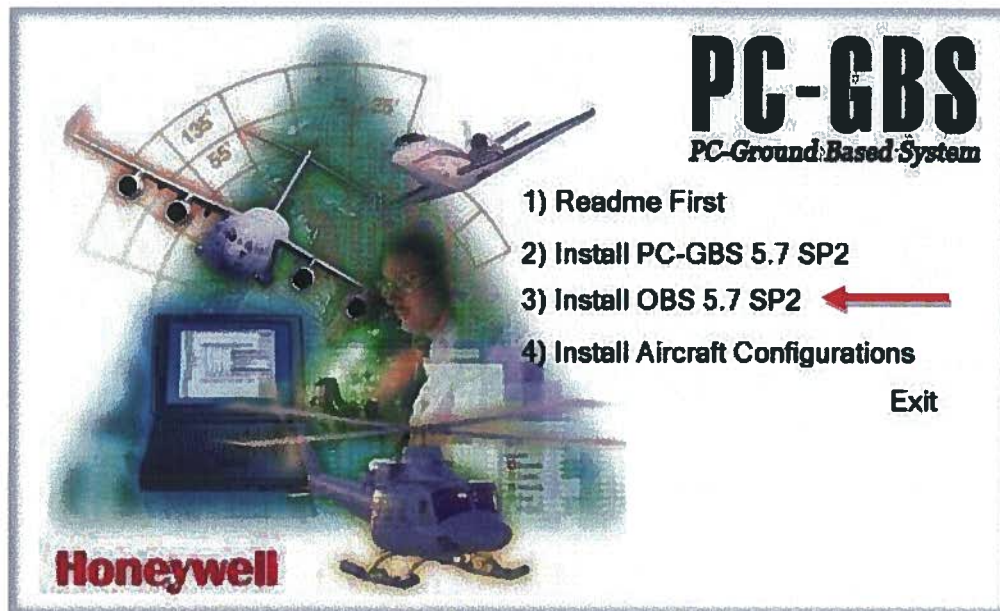


7. Press "Finish"

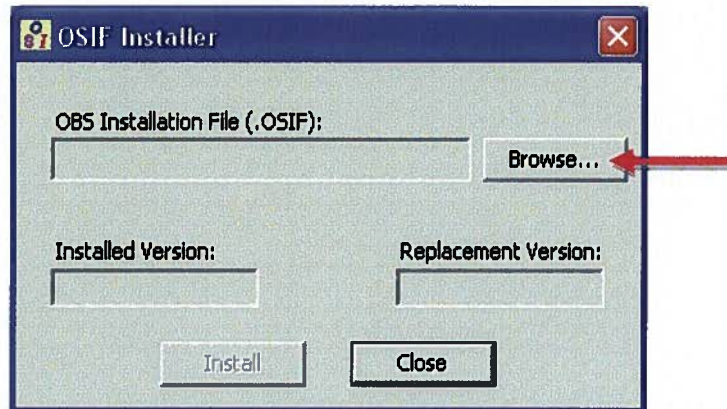


3.1.3 Installing Bell 412EPI OBS Installation File

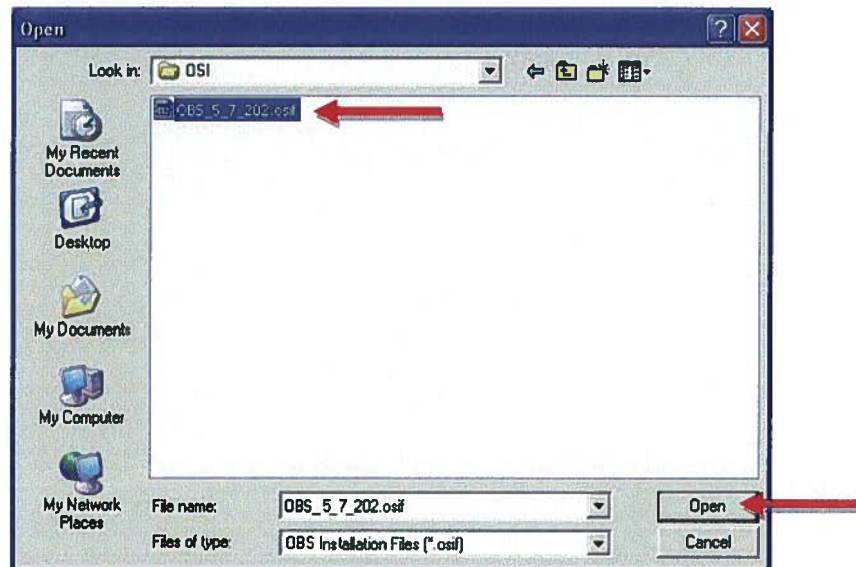
1. From the Honeywell CD image: Use Option 3 to Install the OBS Release (OBS_5_7_202.osif)



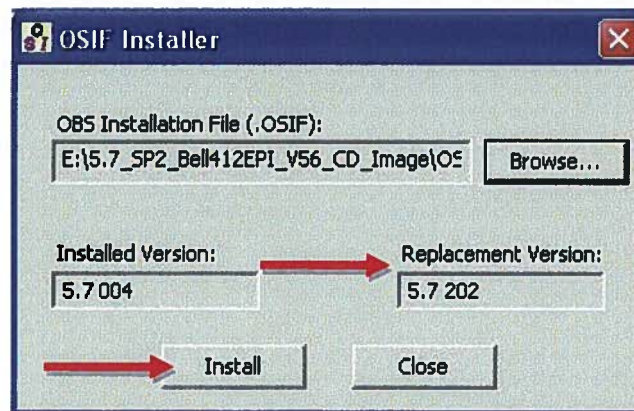
2. Select "Browse..."



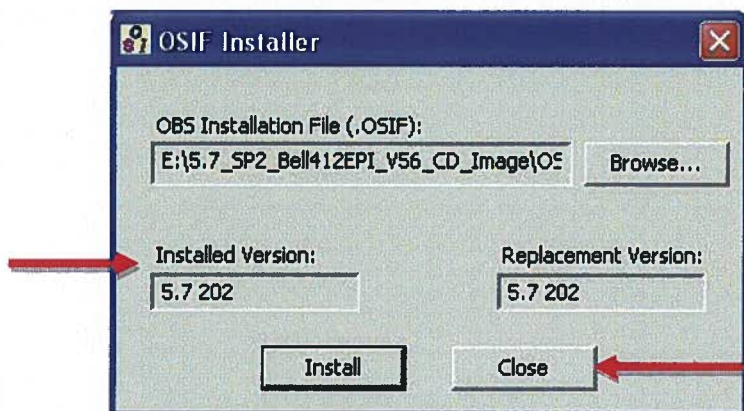
3. Browse to the OBS_5_7_202.osif file and select "Open"



4. Select "Install" to install the selected file.

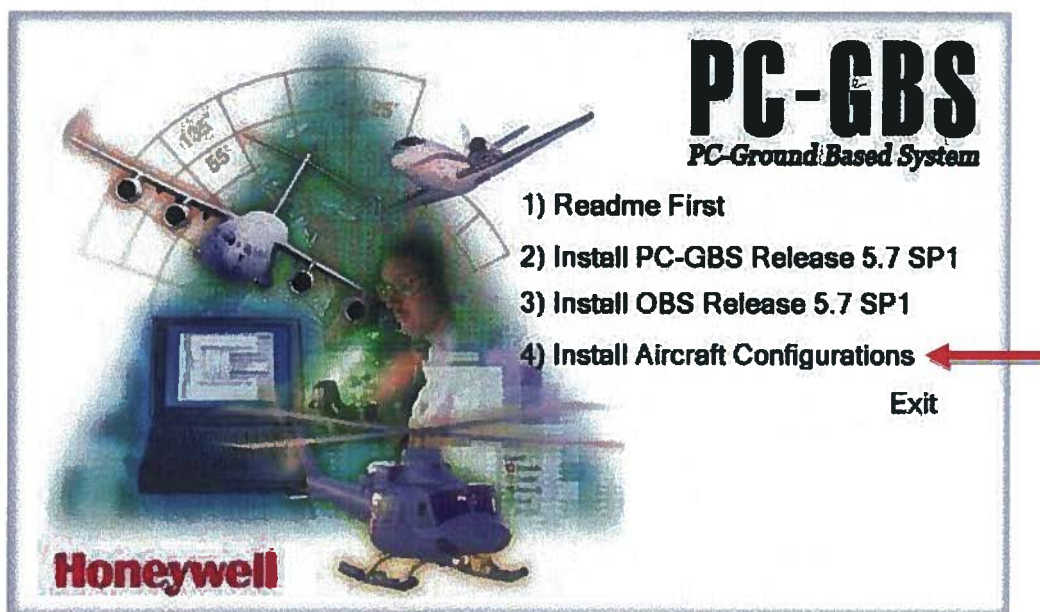


5. After the .osif file is installed, select "Close."

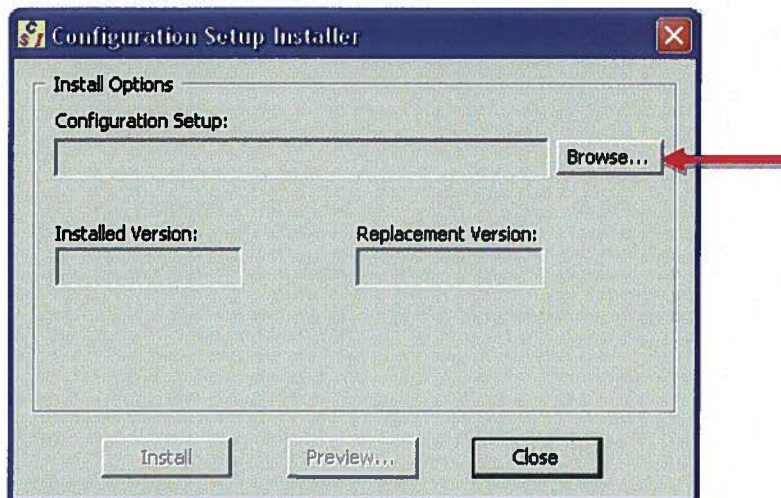


3.1.4 Installing Bell 412EPI configuration Setup

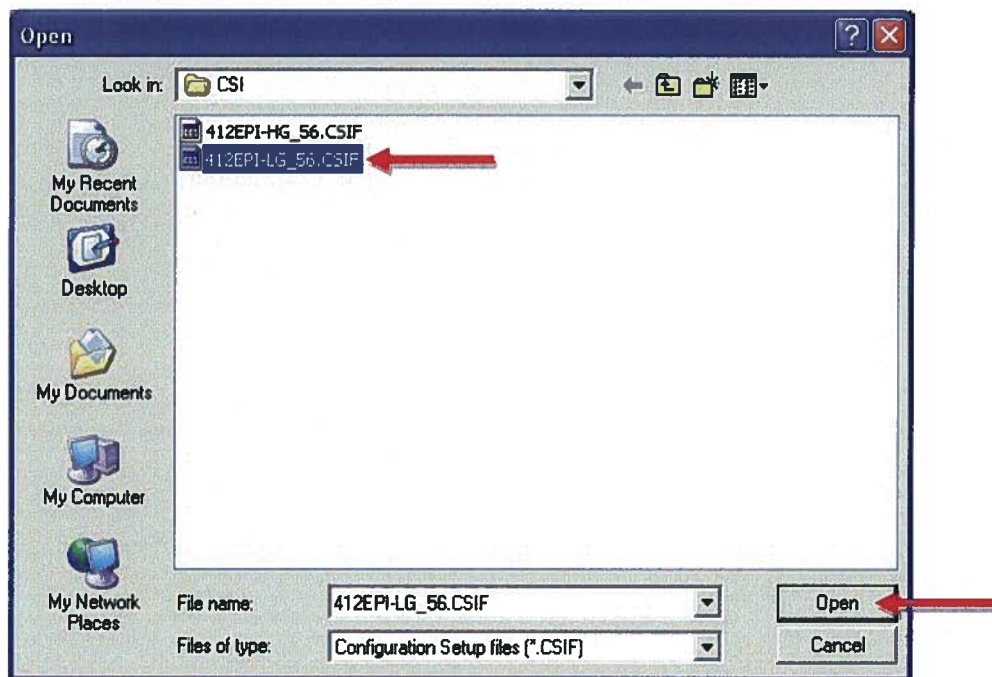
1. From the Honeywell CD image:
Use Option 4 to Install Setup Configuration Files (CSIF)



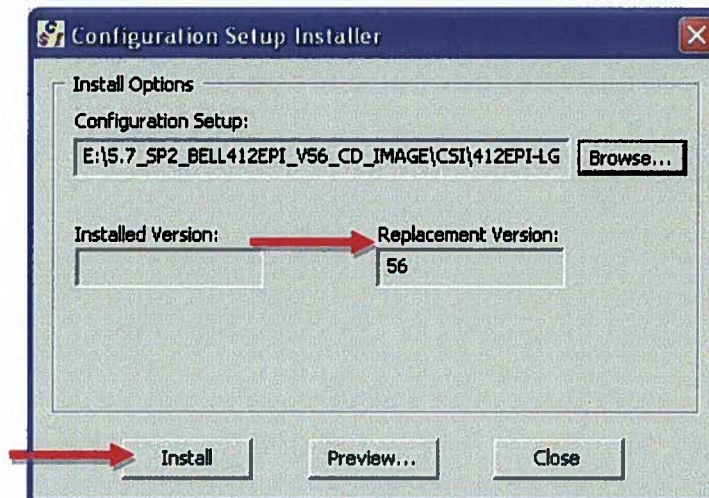
2. Select "Browse..." and then browse to the Setup Configuration that you would like to install, the 412EPI-LG_56.CSIF.



3. When you have highlighted the file, select "Open."

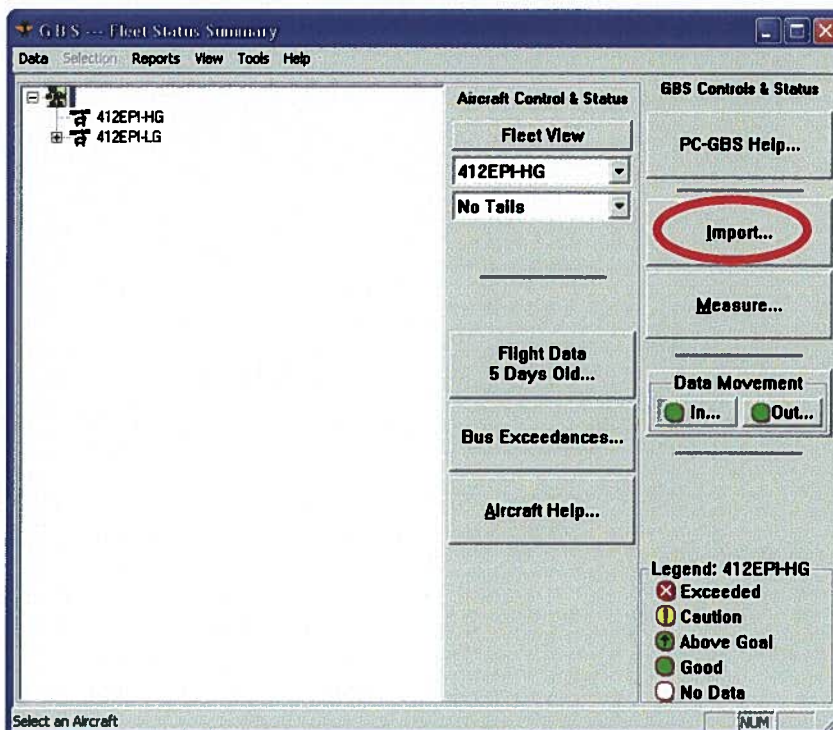


4. Install the CSIF file that you have selected. When you are finished, repeat steps 1-3 for the 412EPI-HG_56.CSIF.

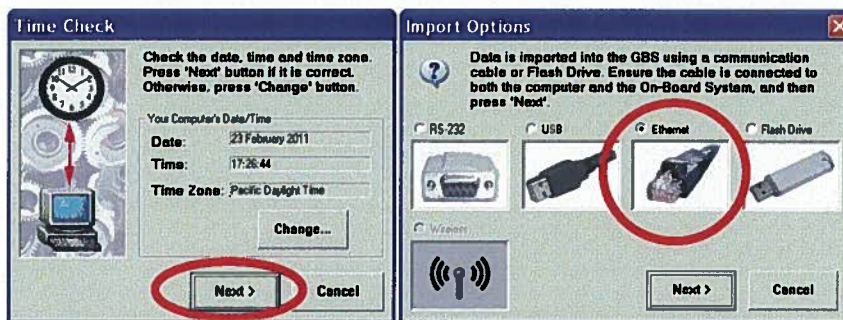


3.1.5 Uploading files to the onboard 1134 processor

1. Connect the Ethernet cable between the Laptop with PC-GBS and to the 1134 processor.
2. Power the processor. Boot time takes about 2 minutes. Then connect as follows:
3. Press "Import..." button on the PC-GBS main page.



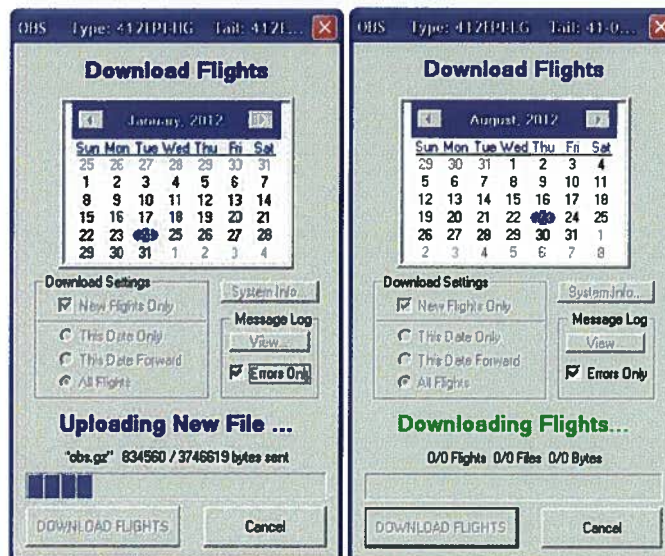
4. Next on time check if time is correct, then next ensuring (Ethernet is selected)



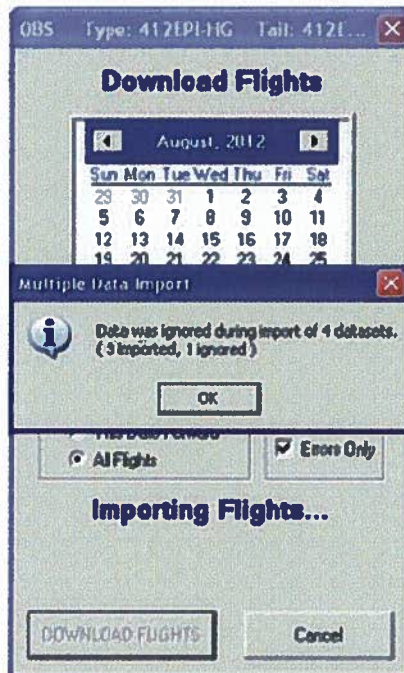
5. Press download flights



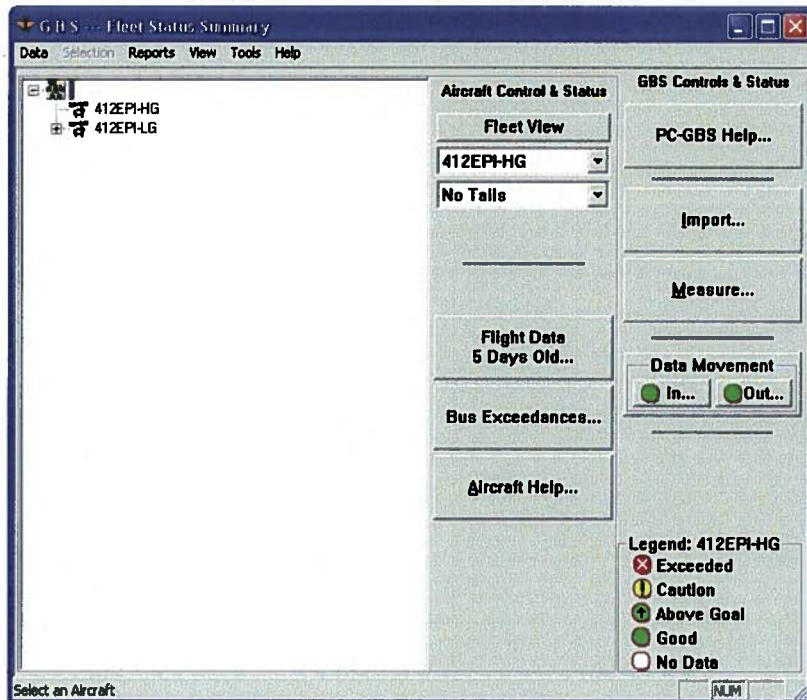
6. PC-GBS will automatically detect the new files and install



7. At the completion of the data transfer and download a successful download will be indicated.



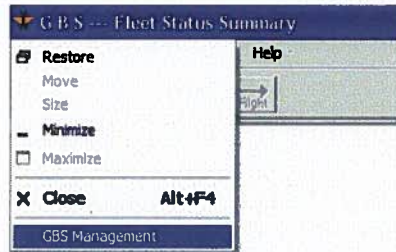
8. Click "OK" and return back to the main page of PC-GBS



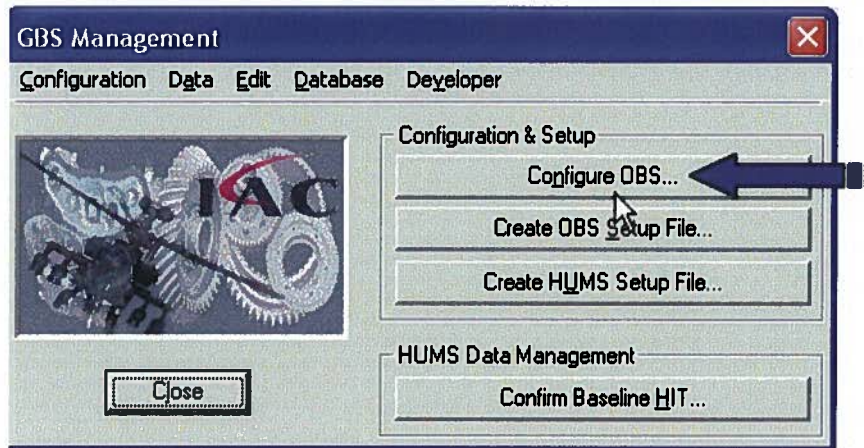
3.1.6 Changing the setup file (aircraft type) configuration on the unit.

1. Start the GBS management menu by right clicking on the GBS icon at the top left portion of the GBS title bar.

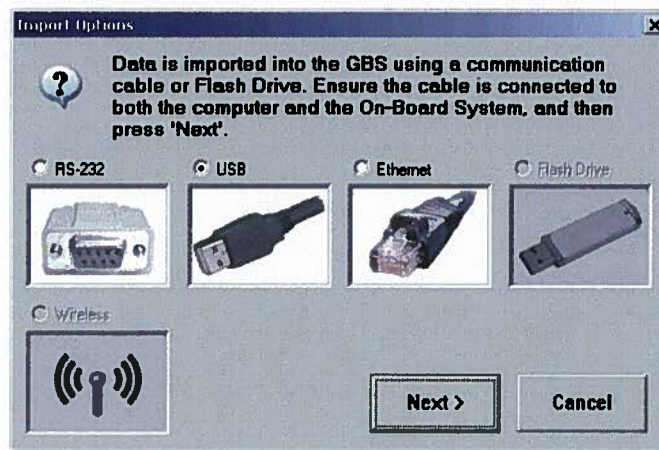
The password to enter the manager is “iac.vmep”



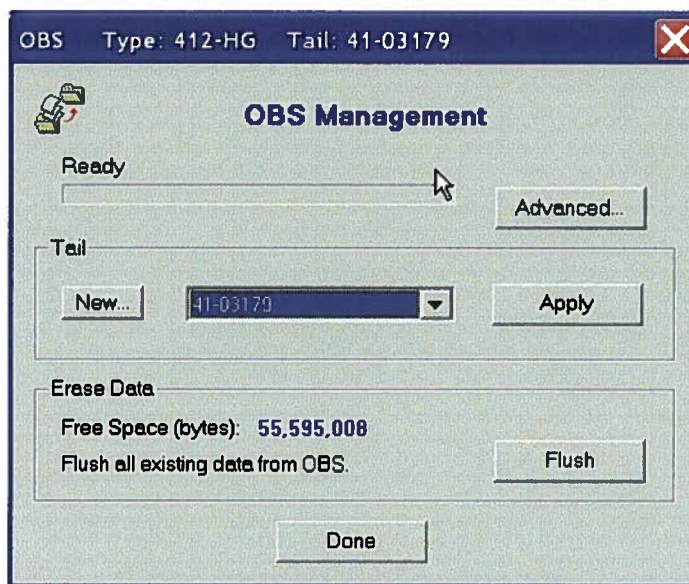
The GBS Management Menu will now launch.



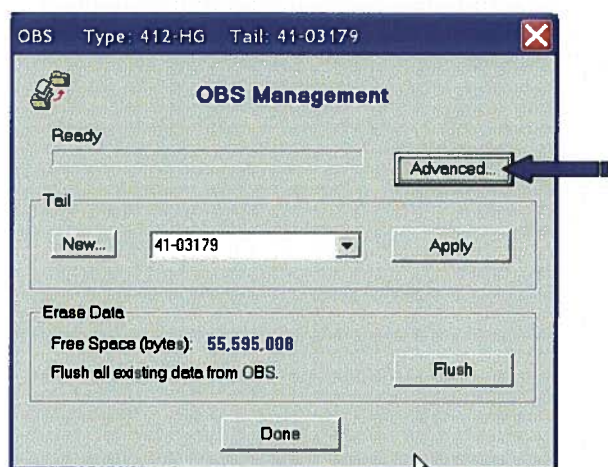
2. Select the “Configure OBS” button and you will be prompted to connect to the unit using Serial port, USB Port, or Ethernet Port. Select “Ethernet” and press “Next>” and then press “Next>” for the date and time dialog.



3. Once PC-GBS has connected to the unit, the OBS Management window will open as shown:



4. Select the “Advanced...” button to enter the Advanced OBS Management window. (Shown Below)



NOTE:

Whenever you make a change to the “**Aircraft Type**”, “**Absorber Type**” or “**Data Mirroring Mode**” you must push the appropriate “**Apply**” button before the change will take place. Failure to perform this step will result in no changes being made.

Aircraft Type: Use the drop down list to select the type of aircraft you wish to install, **412EPI_HG (High Gear) or 412EPI_LG (Low Gear)**.

Front Panel Type: Select **BHVM**.

Absorber Type: **412EPI_HG** and **412EPI_LG** select “**Box Spring**.”

Data Mirroring Mode: For pedestal USB download port, select “**Aircraft Default**”

Once all the fields are correctly selected click “**Apply**.”

Advanced OBS Management

Advanced OBS

Ready

Aircraft Type: 412EPI-LG V56

Front Panel Type: AIRCRAFT DEFAULT

Aircraft Subconfiguration:

Data Mirroring Mode: AUTO

Absorber Type: Box Spring

Serialization...

Apply

Manage Auto-Swappable Configuration Setups

View/Edit...

Data Retention: 30 Days to retain data that has been downloaded

Apply

OBS Tag Information

PART NO: 1209-2013-FA REV: 6

SERIAL NO: 00000840

Above Information should match the tag on the OBS.

Apply

Upload File

C:\Program Files\WMEP5\Upload\412EPI-LG\setup

Upload

Done

The top information screen will display updates as the Aircraft Setup file changes.

The screenshot shows the 'Advanced OBS Management' window. At the top, it displays 'Advanced OBS' and a status bar indicating 'setup_412EPI-LG_V56.obs' with 156672 / 200945 bytes sent. Below this, there are several configuration sections: 'Aircraft Type' (412EPI-LG V56), 'Front Panel Type' (AIRCRAFT DEFAULT), 'Aircraft Subconfiguration' (checked), 'Data Mirroring Mode' (AUTO), 'Absorber Type' (Box Spring), and 'Serialization'. There are 'Apply' and 'View/Edit...' buttons. The 'Data Retention' section shows 30 days. The 'OBS Tag Information' section contains fields for PART NO. (1209-2013-FA), REV. (6), and SERIAL NO. (00000840), with an 'Apply' button. At the bottom, there is an 'Upload File' section with a file selection button and an 'Upload' button, and a 'Done' button at the very bottom.

5. When the dialog reads “File Upload Completed,” select the “Done” button at the bottom of the window, as shown below.

Advanced OBS Management

Advanced OBS

Ready

Aircraft Type: 412EPI-LG V56 Front Panel Type: AIRCRAFT DEFAULT

Aircraft Subconfiguration: Data Mirroring Mode: AUTO

Absorber Type: Box Spring

Serialization... Apply

Manage Auto-Swappable Configuration Setups View/Edit...

Data Retention: 30 Days to retain data that has been downloaded Apply

OBS Tag Information

PART NO: 1209-2013-FA REV: 6

SERIAL NO: 00000840

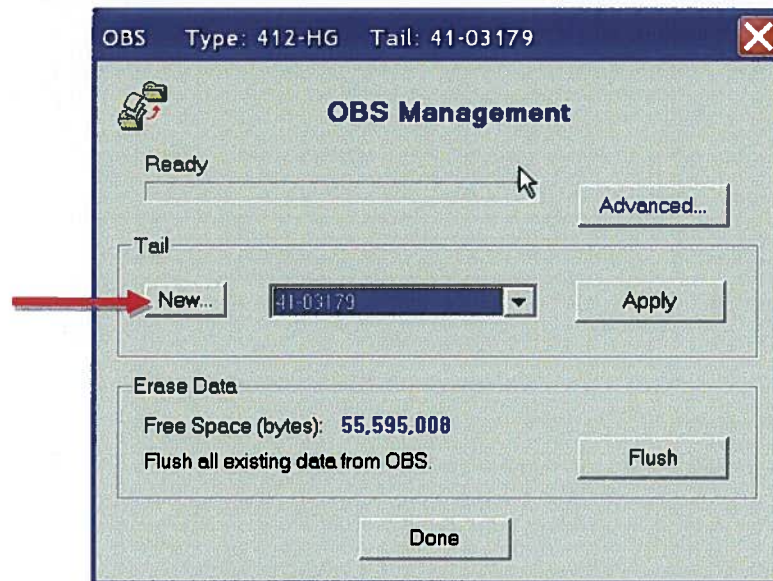
Above Information should match the tag on the OBS. Apply

Upload File

C:\Program Files\WMEP57\Upload\412EPI-LG\setup Upload

Done

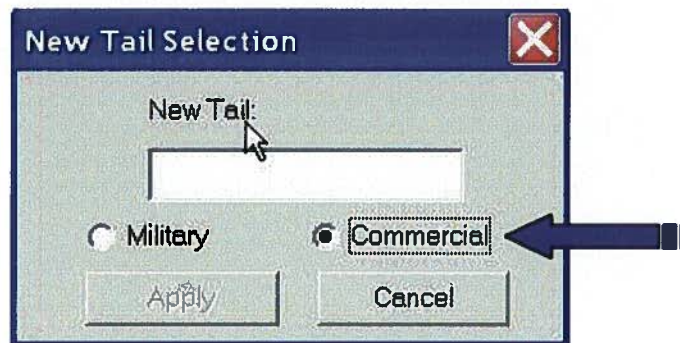
6. Selecting **Done** will take you back to the OBS Management window, then select the “New” button in the “Tail” section.



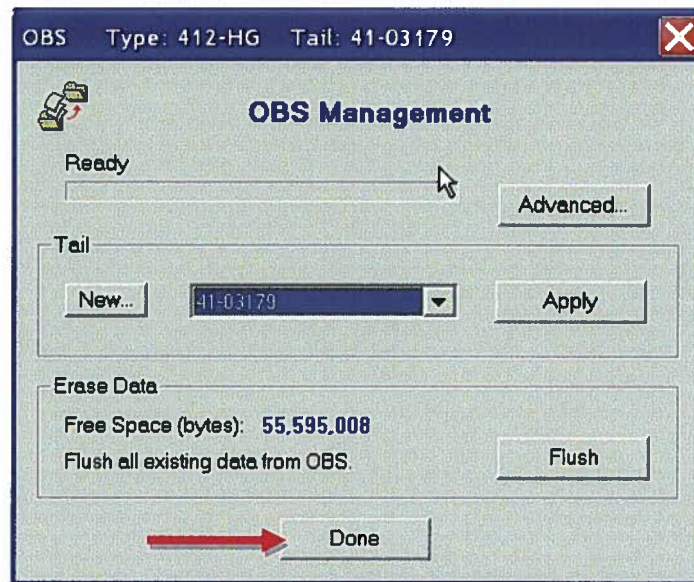
NOTE:

Bell Helicopter recommends that you use the aircraft serial number as the tail number in lieu of the registration number. This will allow the data to be stored on the BHVM iMDS server to be tracked with the airframe over long term. Each time the tail number is changed will result in the previous data to no longer be updated. Using the aircraft serial number will keep the data tagged and current through the aircraft life.

7. Select the “Commercial” button. Now type in the tail number for the new aircraft, and select “Apply.”

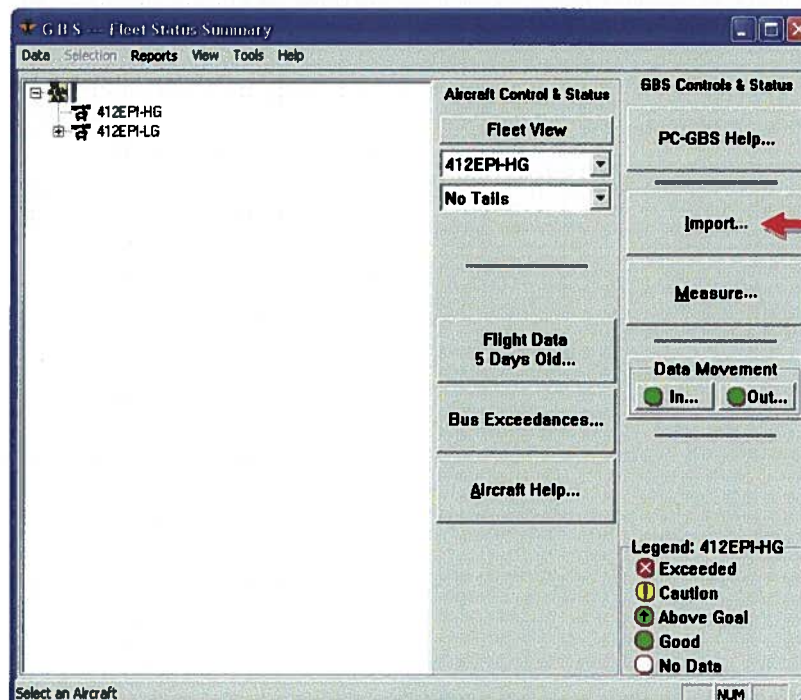


8. Finally, select the “Done” button on the OBS Management window.



The system will ask to perform a system flush and then the unit will reboot. This boot cycle will activate the new setup file and tail number that was just uploaded to the unit.

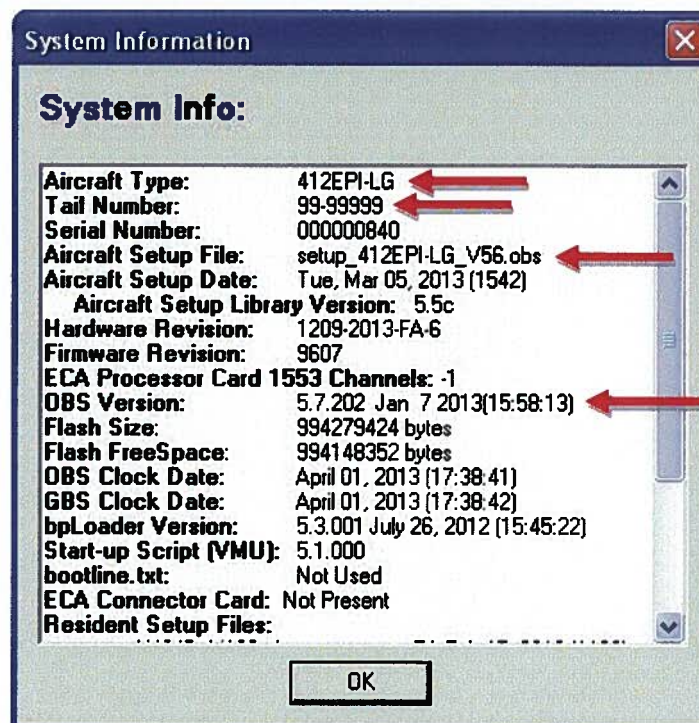
9. Once the system reboots, verify the system configuration by connecting with the Ethernet cable and performing an import.



10. Select System Info from the download dialog.



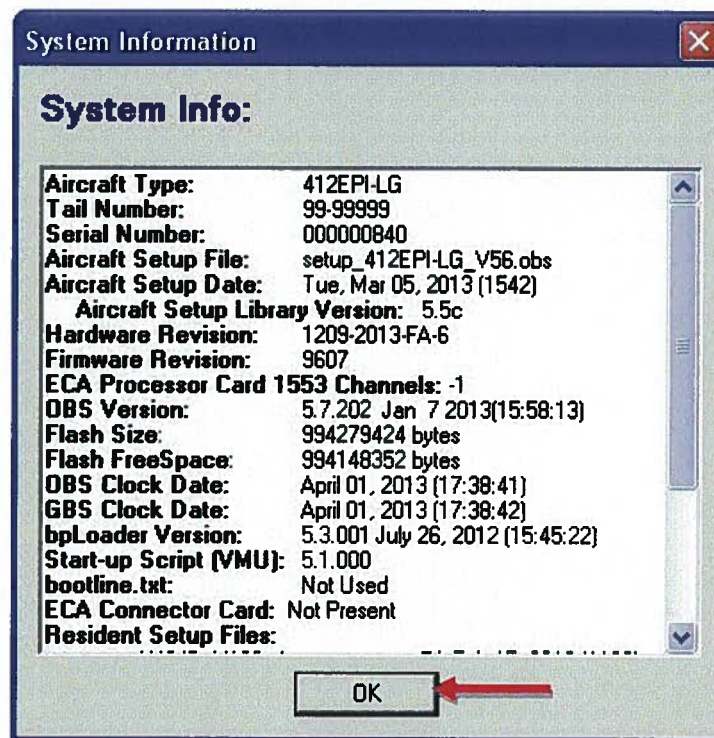
11. Ensure the proper aircraft type and tail number is installed.



12. Verify the correct “Tail Number,” is set correctly, and that the “Aircraft Setup File,” and “OBS Version” are correctly set according to the table below:

Aircraft Type	Aircraft Setup File	OBS Version
412 EPI High Gear	412EPI-HG_V56.obs	5.7.202
412 EPI Low Gear	412EPI-LG_V56.obs	5.7.202

13. After you have verified the correct software is on the system, select OK.



14. Press “Download Flights” button so that the latest BIT check can be downloaded

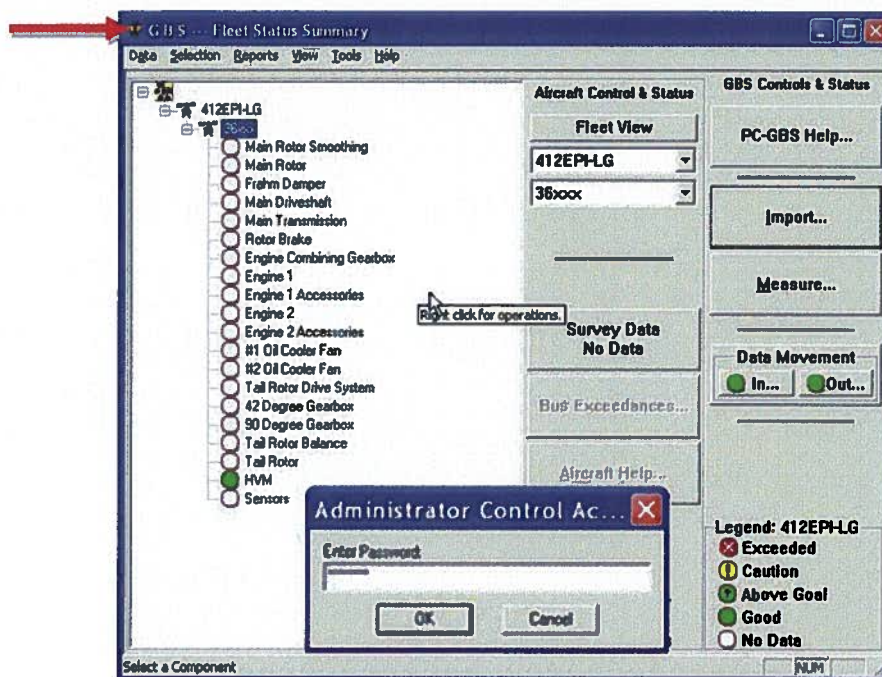


NOTE

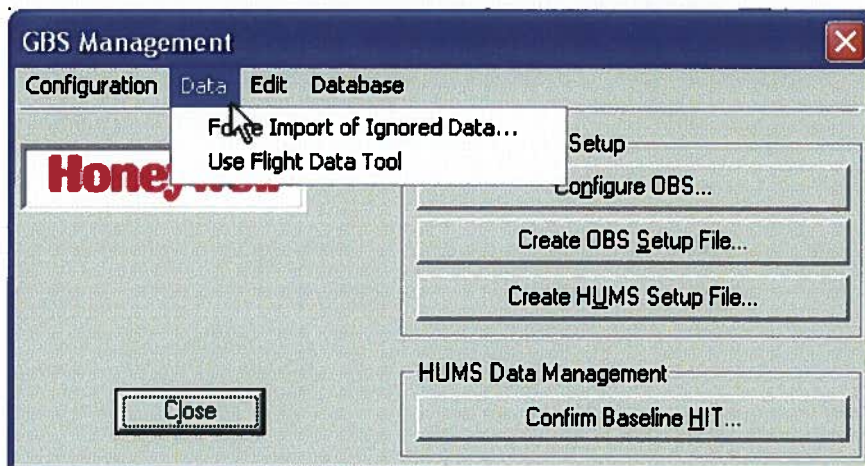
PC-GBS will not import any data that does not have an associated engine start detected or vibration acquisition was performed.

15. At the completion of the download you will be returned back to the PC-GBS main screen. In order to view the recent BIT status one more step must be accomplished in order to import a BIT when an engine has not been started or a vibration acquisition taken.

16. Right click on the widow title bar, select GBS Management, and enter password (iac.vmep).



17. At the "Data" drop down, select "Force Import of Ignored Data..."



18. Now the “Force import of All Data” dialog will open. Ensure the proper aircraft type, tail number, Data Import State, and Time Interval are selected as indicated below.

The screenshot shows the 'Force Import of All Data' dialog box. Red arrows point to the following fields:

- Aircraft Type: 412EPI-LG
- Tail Number: 36xxx
- Data Import State: ☒ All Data
- Time Interval: ☒ Last Day

The Status section shows:

Aircraft Type: 412EPI-LG
Tail Number: 36xxx
Import Status:
Total flights 1
Succeeded 1
Failed 0

Buttons at the bottom: Print Status, Import, Close.

19. Press the “Import” button and any new BIT checks will be imported into PC-GBS.

The screenshot shows the 'Force Import of All Data' dialog box with the same settings as the previous image. A red arrow points to the 'Import' button.

Buttons at the bottom: Print Status, Import, Close.

20. Press the “Close” button and return back to PC-GBS main screen ensuring the “HVM” icon is showing a green status.

21. Updating both PC-GBS and the onboard system is now complete.

3.1.7 Completing 1134 processor Identification Tag

“This is an upgrade to an existing aircraft, replace the software configuration label with the new label p/n 1209-3196-PF or annotate as outlined in the applicable Bell Service Instruction. (Reference the figure below).”

1. Change or install 1209-3198-PF lable to reflect the software versions of the software just previously installed and verified. Leave the “Config Ver:” line blank or strike through.
2. Write CSIF aircraft type and version onto 1209-3198-PF label.

