



**ECCN**  
**9E991**

# **AERONAUTICAL ACCESSORIES, INC.**

P.O. BOX 3689 BRISTOL, TENNESSEE 37625-3689 USA  
TELEPHONE: 423-538-5151 TOLL FREE: 800-251-7094  
TELEFAX: 423-538-8469 E-MAIL: [sales@aero-access.com](mailto:sales@aero-access.com)  
[techsupport@aero-access.com](mailto:techsupport@aero-access.com)

## **Technical Bulletin**

**TB No. AA-09020**

**Revision A**

**July 21, 2009**

**SUBJECT:**

**Bell Helicopter Vibration Monitor (BHVM) Kit**  
P/N 412-262-001 / 412-262-002  
**Bell Helicopter Vibration Monitor (BHVM) Kit**  
**with SmartCycle+**  
P/N 412-262-003 / 412-262-004

**MODELS AFFECTED:**

Bell Helicopter Textron model 412 and 412EP  
helicopters with subject BHVM Kit installed in  
accordance with STC SR09373RC-D.

**COMPLIANCE:**

At owner option. AAI recommends the incorporation of  
this technical bulletin to upgrade their BHVM kit with the  
current software configuration, V4.1 SP3A.

**DESCRIPTION:**

This Technical Bulletin is being issued to allow owner to  
upgrade the MSPU to the current software  
configuration, V4.1 SP3A.

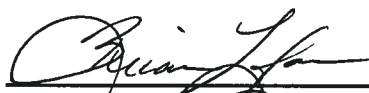

**MANPOWER:**

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
05/08/09	NR	Original Release	All
07/21/09	A	Reformatted Title Page; added Log of Revisions; corrected document formatting errors; added (new) sections 3.0 and 4.0, renumbered subsequent sections	All

**Approved:**  
\_\_\_\_\_  
Engineering7/22/09  
\_\_\_\_\_  
Date  
\_\_\_\_\_  
Airworthiness22 JULY 2009  
\_\_\_\_\_  
Date

**1.0 MATERIALS REQUIRED**

To make Label P/N 1209-3196-PF:

Material Type: Brady Label THT-17-425-3

Text Color/Font: 37030 Black per FED-STD-595/Century Gothic 9

Background Color: 37925 White per FED-STD-595

Dimensions: Figure 1

To Make Label P/N 1209-3198-PF:

Material Type: Brady Label THT-166-424-2

Text Color/Font: 37030 Black per FED-STD-595/Century Gothic 9

Background Color: 37925 White per FED-STD-595

Dimensions: Figure 2

3M 3950 Edge Seal

**NOTE**

In lieu of making labels, the following kit is available from  
Aeronautical Accessories, Inc.

**TABLE 1. PARTS LIST,  
412-262-050 UPGRADE KIT**

<u>Qty</u>	<u>Part Number</u>	<u>Description</u>	<u>Figure</u>
1	1209-3196-PF	Label	1
1	1209-3198-PF	Label	2

**2.0 WEIGHT AND BALANCE**

Not affected

**3.0 PUBLICATIONS AFFECTED**

Instructions for Continued Airworthiness, report AA-04049

**4.0 ADDITIONAL INFORMATION**

Any questions regarding this bulletin should be addressed to:

AERONAUTICAL ACCESSORIES, INC.

P.O. Box 3689

Bristol, TN 37625-3689

PRODUCT SUPPORT

1-800-251-7094

techsupport@aero-access.com

**5.0 ACCOMPLISHMENT INSTRUCTIONS****5.1 V4.1 SP3A SOFTWARE UPDATE – 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@bellhelicopter.textron.com](mailto:psemedium@bellhelicopter.textron.com)
2. Download PC-GBS release 4.1 SP3A from the website, per Installation Instructions 1209-0105-SID (Ref. Appendix A).

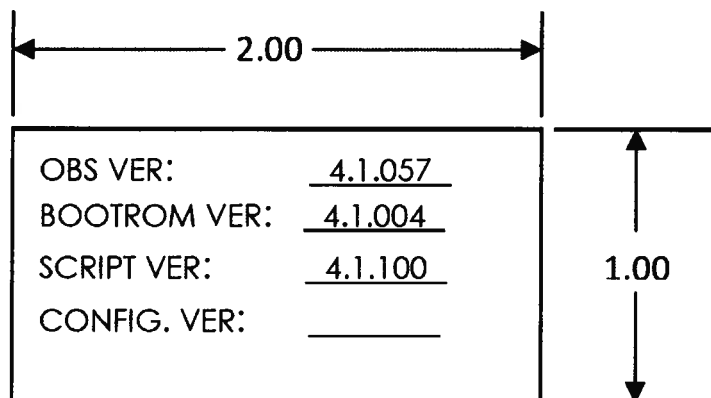
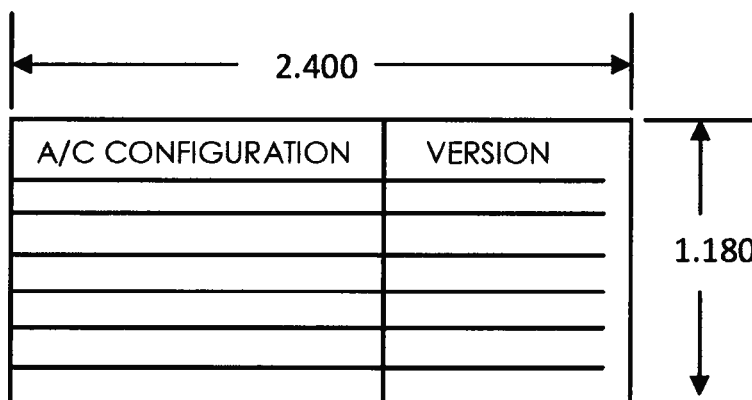
**NOTE**

The 4.1 SP3A CD image.zip option is recommended for ease of installation since this is like a CD format.

3. Follow the installation instructions to download and install the new software into the MSPU.

**5.2 MSPU LABELING**

1. Install new Labels (1209-3196-PF and 1209-3198-PF) on MSPU unit per 1209-0105-SID installation instructions. Edge Seal (3M 3950) is recommended to apply around the perimeter of each label.
2. Installation complete.

**FIGURE 1. LABEL, P/N 1209-3196-PF****FIGURE 2. LABEL, P/N 1209-3198-PF**

**APPENDIX A**

Document No. 1209-0105-SID, PC-GBS 4.1 Service Pack 3A Installation Instructions

PC-GBS 4.1 Service Pack 3A Installation Instructions

Document 1209-0105-SID Rev. B



Document 1209-0105-SID

***PC-GBS 4.1 Service Pack 3A Installation Instructions***  
Revision B

Date: June 4, 2009

Prepared by  
IAC

13029 Danielson Street, Suite 200  
Poway, CA 92064

Prepared by:

*Roger Zelnick*  
Roger Zelnick / IAC

Date: 6/9/09

Program Manager:

*Paul Grabin*  
Paul Grabin / IAC

Date: 6/9/09

**REVISION HISTORY**

<b>Revision Number</b>	<b>Date</b>	<b>Description</b>
A	17 March 2009	Release 4.1 SP3
B	4 June 2009	Based on Review. Changed Label Part number typo and added the 1209-3196-PF label for clarification. (Page 30) Added NOTE to Sections 1, 2.4, 3.4 and revised page 33 to clarify examples



Revision History.....	2
1 Introduction.....	3
2 PC Installation Instructions Using the CD Image .....	5
2.1 Unzip the CD Image.....	5
2.2 Install PC-GBS.....	6
2.3 Install OBS .....	9
2.4 Install Aircraft Configurations .....	10
3 PC Installation Instructions using the PC-GBS Installer.....	13
3.1 Unzip the PC-GBS Installer.....	14
3.2 Install PC-GBS.....	15
3.3 Install OBS .....	16
3.4 Install Aircraft Configurations .....	18
3.5 Removing the “upload.idx” files prior to communicating with the onboard system .....	21
4 OBS Installation Instructions.....	22
4.1 Download current data from MSPU prior to uploading OBS and setup files	22
4.2 Upload the System and Aircraft Setup Files to the MSPU .....	22
4.3 Changing the setup file (aircraft type) configuration on the unit. ....	27
4.4 Completing the MSPU identification tag.....	32

## 1 Introduction

### NOTE

This instruction outlines the information necessary to update both the ground based software and the onboard software. It may also be used for future minor upgrades of the aircraft configuration file 412-HG\_40.CSIF, 412-LG\_40.CSIF & 212\_41.CSIF. When installing the aircraft configuration file the user is reminded to use the latest version available and to update the software version label affixed to the side of the box as detailed in section 4.4 of this document

PC-GBS release 4.1 SP3A is provided as a CD image. The CD image contains the PC-GBS, OBS, and the 412-HG 412-LG and 212 aircraft configurations. The following is the file name and size.

- 4.1\_SP3A\_CDImage.zip 89.7 MB (94,117,888 bytes)

The CD image is the preferred method of installing PC-GBS 4.1 SP3A. However, if the file is too large to download due to your internet connection, the release can be downloaded as individual files for each component. The following are the file names and sizes for each component.

- 4.1\_SP3A\_PC-GBS\_Installer.zip 66.9 MB (70,254,270 bytes)
- OBS\_4\_1\_057.OSIF 4.16 MB (4,384,768 bytes)
- 412-HG\_40.CSIF 9.25 MB (7,712,276 bytes)

- 412-LG\_40.CSIF 9.26 MB (9,713,652 bytes)
- 212\_41.CSIF 10.7 MB (10,790,325 bytes)

Release 4.1 SP3A can be installed on top of Release 4.0 SP2A or as a new installation. Release 4.0 SP2A does not need to be uninstalled. It is imperative that all components are updated, and that both facility and portable PC-GBS are updated.

Caution

***Flight data on both the facility and portable must be imported. If not, flight data on both the facility and portable will be out of sync.***

If you are installing using the CD image, please refer to section 2 of the PC installation instructions. If you are installing individual software components, please refer to section 3 of the PC installation instructions.

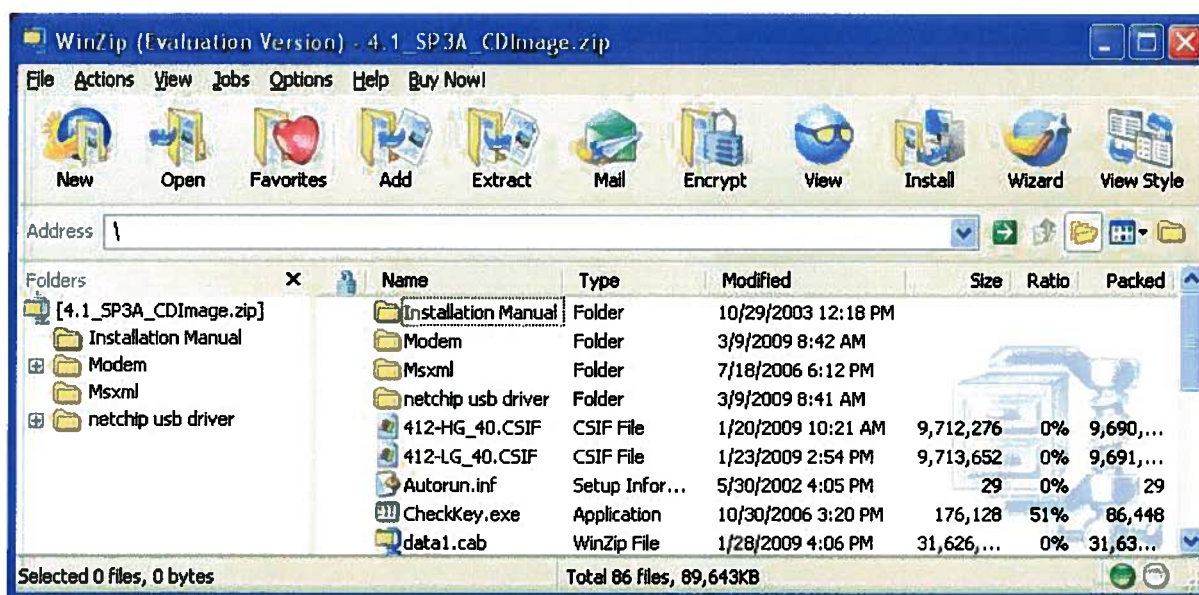
## 2 PC Installation Instructions Using the CD Image

The general procedure is as follows:

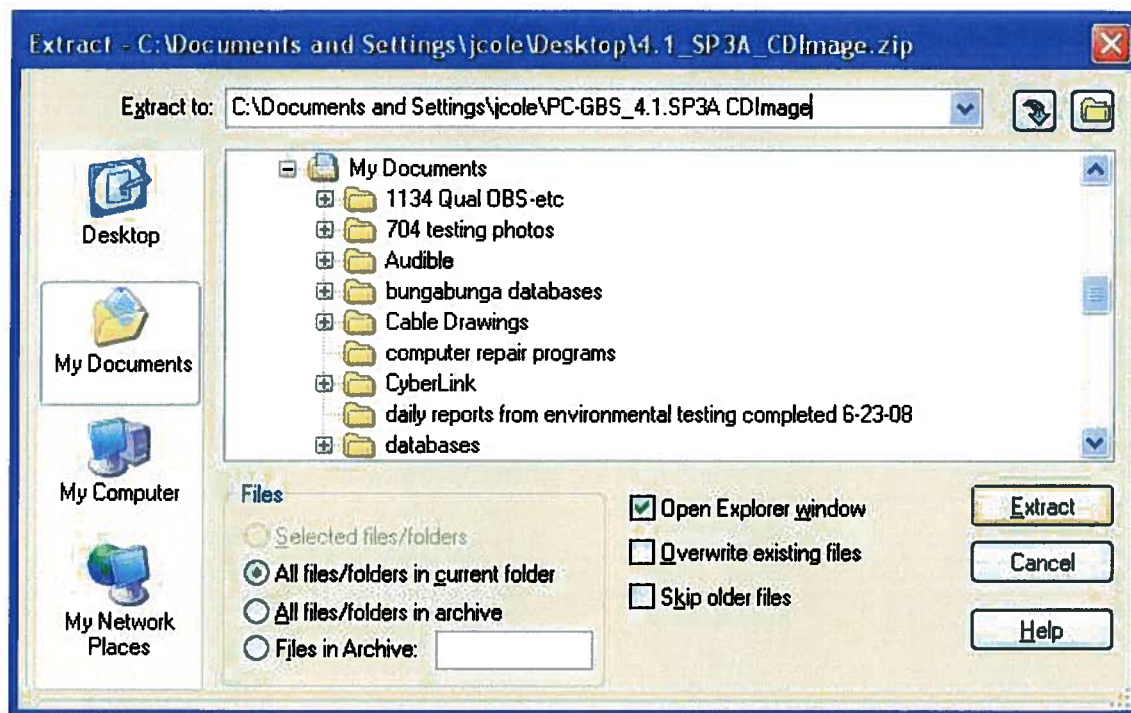
1. Download the CD image
2. Unzip the CD image
3. Install the PC-GBS from the CD image
4. Install the OSIF file from the CD image
5. Install each CSIF file from the CD image
6. Re-import existing flight data
7. Update the MSPU with both the OBS and an aircraft configuration

### 2.1 *Unzip the CD Image*

4.1\_SP3A\_CDImage.zip is an archive file and must be uncompressed. 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/>.



Extract the CD image into the temporary directory that was previously created.

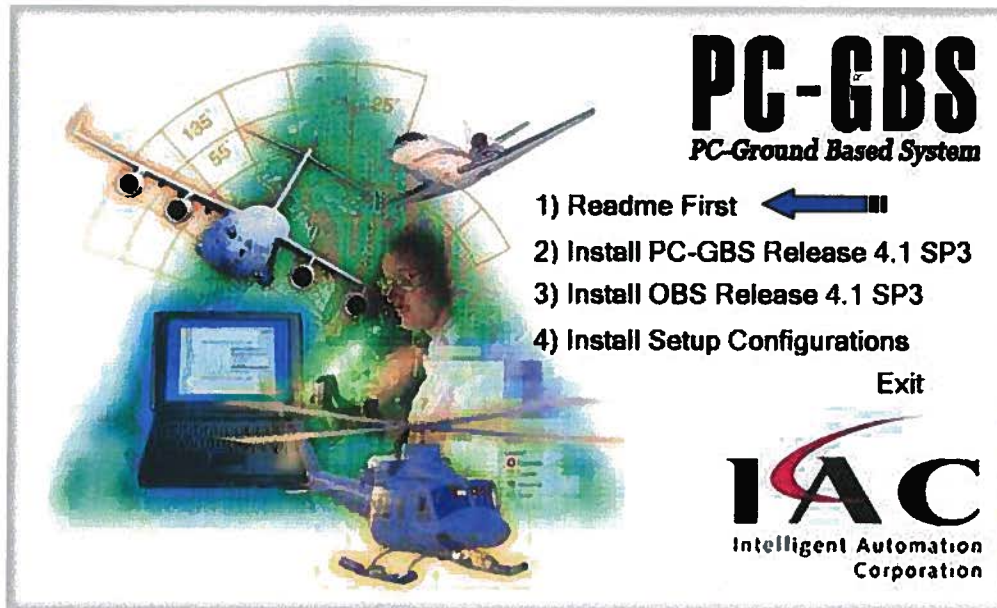


## Install PC-GBS

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

Name	Size	Type	Date Modified
OSI		File Folder	3/9/2009 9:11 AM
src		File Folder	3/9/2009 9:11 AM
CSI		File Folder	3/9/2009 9:12 AM
GBS		File Folder	3/9/2009 9:11 AM
412-HG_40.CSIF	9,485 KB	CSIF File	1/20/2009 10:21 AM
412-LG_40.CSIF	9,486 KB	CSIF File	1/23/2009 2:54 PM
Autorun.inf	1 KB	Setup Information	3/22/2005 2:52 PM
Menu.exe	359 KB	Application	10/3/2008 2:49 PM
readme.txt	1 KB	Text Document	2/9/2009 2:58 PM

If you want to see part numbers and descriptions, select **Readme First**.

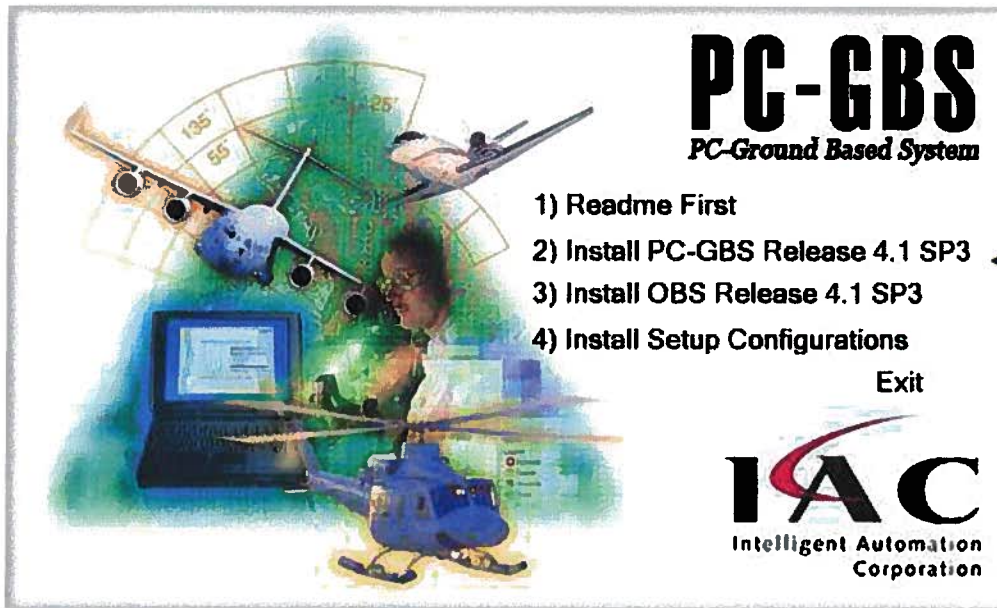


The readme file will look like this:

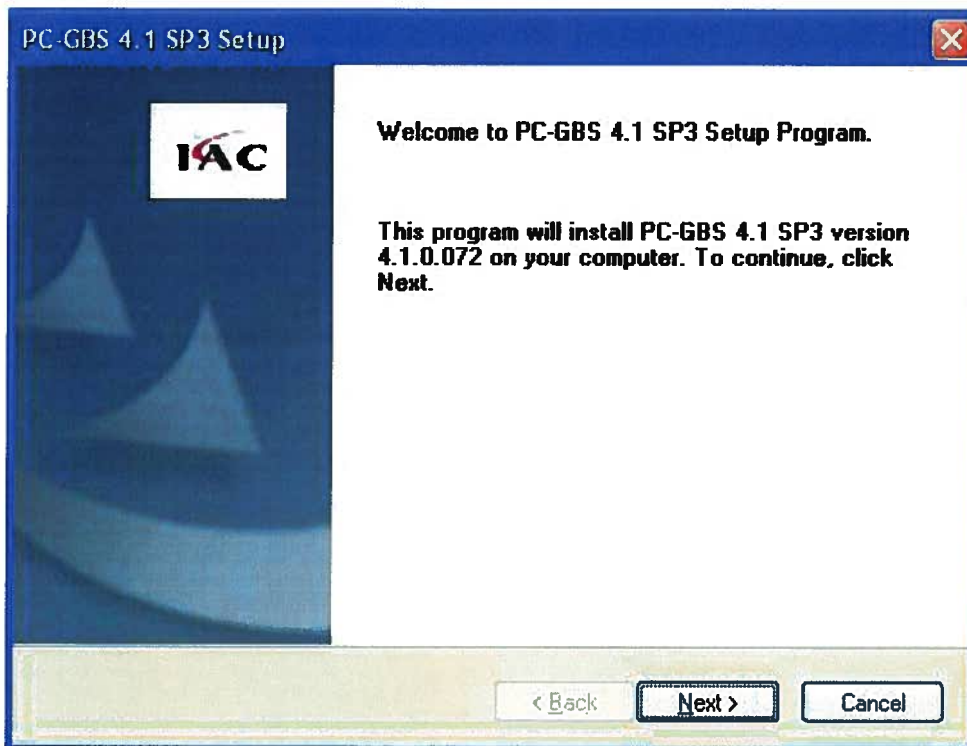
Date Dec 10 2008		
	PART NUMBER	DESCRIPTION
1.	1000-1000-SW-R413	PC-GBS 4.1 SP3 Build 72
2.	1001-1000-SW-R413	OBS 4.1 SP3 Build 57
3.	1002-1000-SW-R410	PC-GBS 4.1 Installation Manual



To install the PC-GBS, select **Install PC-GBS Release 4.1 SP3**.

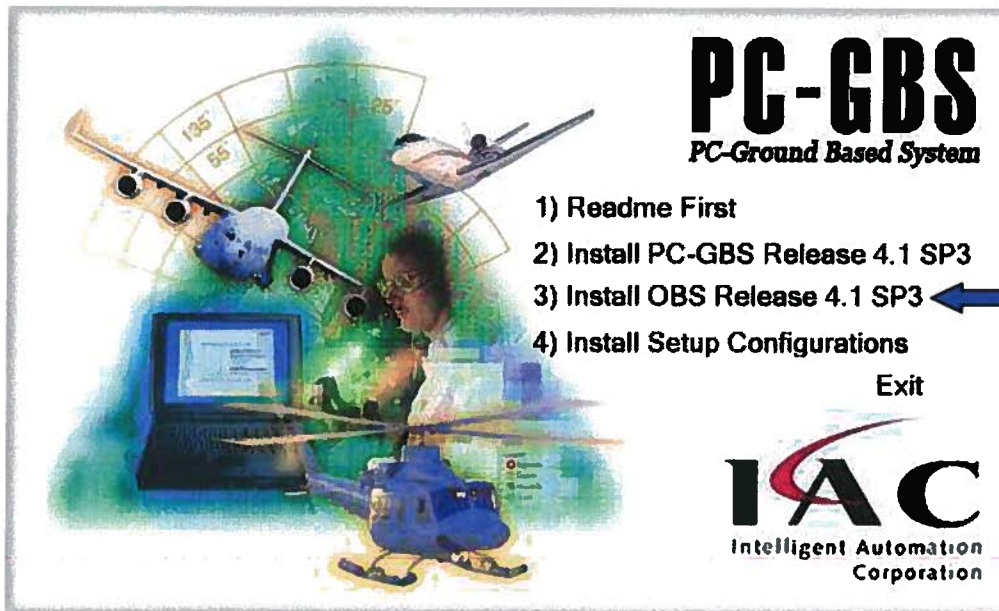


Follow the PC-GBS Setup Program.

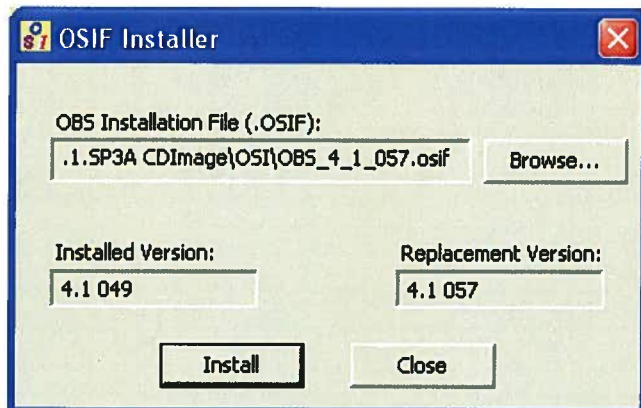


**2.3*****Install OBS***

Select **Install OBS Release 4.1 SP3**.



When prompted, browse into your previously created folder to **OBS\_4\_1\_057.osif** in the OSI directory of the CD image and click **Install**.

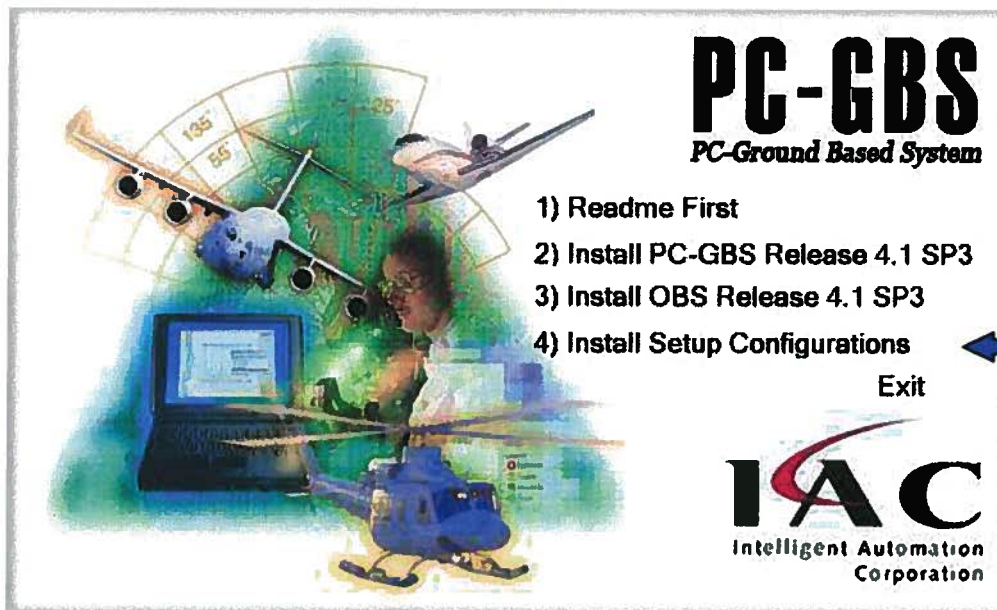


## 2.4 Install Aircraft Configurations

### NOTE

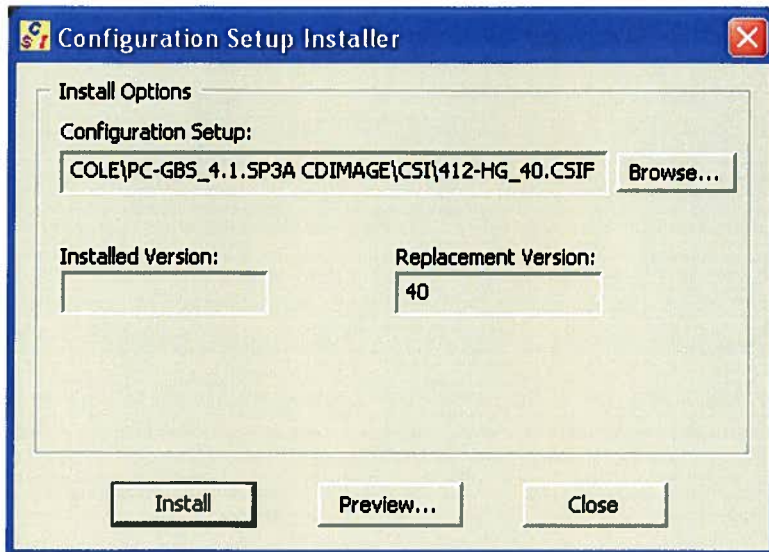
This instruction outlines the information necessary to update both the ground based software and the onboard software. It may also be used for future minor upgrades of the aircraft configuration file 412-HG\_40.CSIF, 412-LG\_40.CSIF & 212\_41.CSIF. When installing the aircraft configuration file the user is reminded to use the latest version available and to update the software version label affixed to the side of the box as detailed in section 4.4 of this document

Select Install Setup Configurations.



When prompted, browse your created folder to either **412-HG\_40.CSIF**, **412-LG\_40.CSIF** or **212\_41.CSIF** in the CSI directory on the CD image and click **Install**. *Note: 412-HG is for high gear aircraft and 412-LG is for low gear aircraft.*

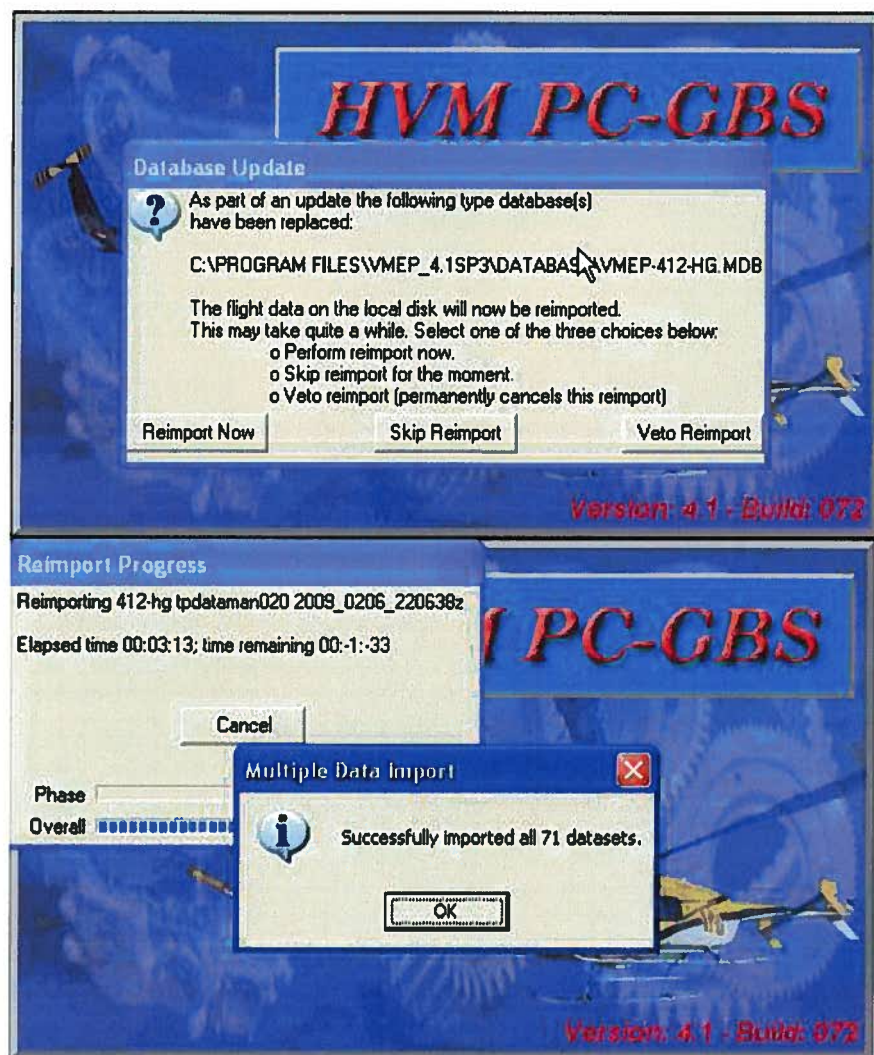




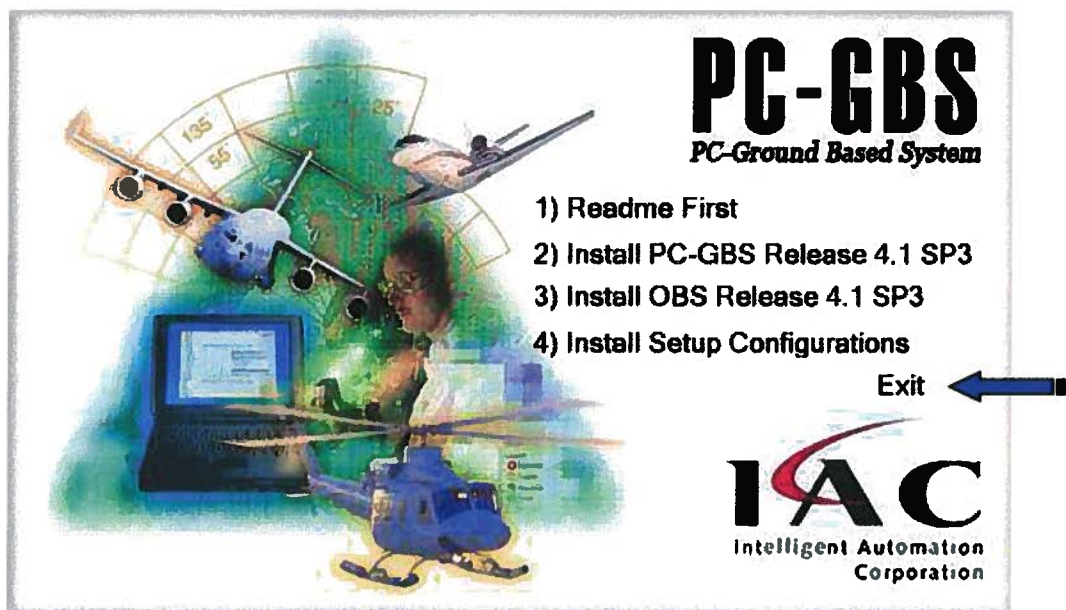
To re-import existing flight data, select **Yes**.



The next time the PC-GBS is executed, it will prompt the user to re-import existing flight data. Exit PC-GBS installation page



Click **Exit** on the PC-Ground Based System installation page this complete the installation of PC-GBS 4.1 Service Pack 3A.



### **3 PC Installation Instructions using the PC-GBS Installer**

The general procedure is as follows:

1. Download the individual file for each component

- 4.1\_SP3A\_PC-GBS\_Installer.zip
- OBS\_4\_1\_057.OSIF
- \*412-HG\_40.CSIF
- \*412-LG\_40.CSIF
- \*212\_41.CSIF

\* Only the target aircraft type needs to be downloaded. Note: 412-HG is for high skid equipped aircraft and 412-LG is for low skid gear equipped aircraft.

2. Unzip the PC-GBS Installer

3. Install the PC-GBS from the PC-GBS Installer

4. Install the OSIF file using the PC-GBS

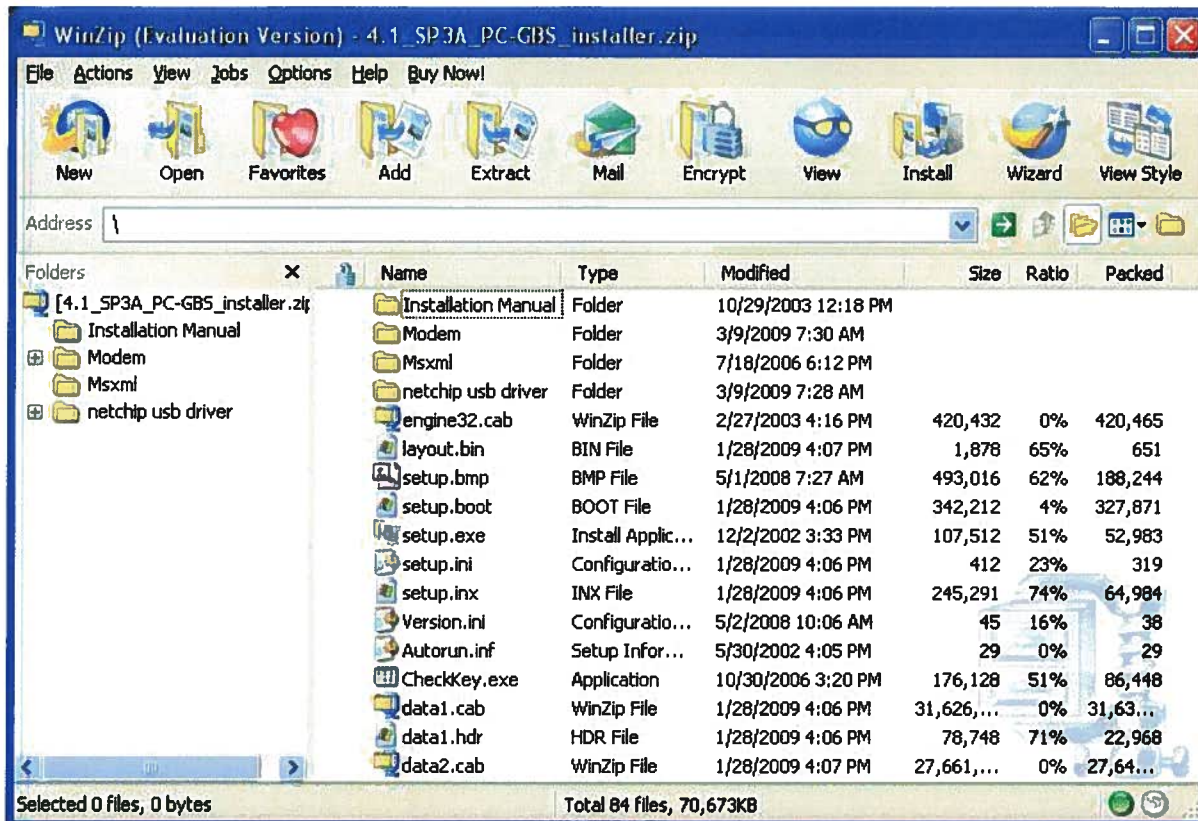
5. Install each CSIF file using the PC-GBS

6. Re-import existing flight data

7. Update the MSPU with both the OBS and an aircraft configuration

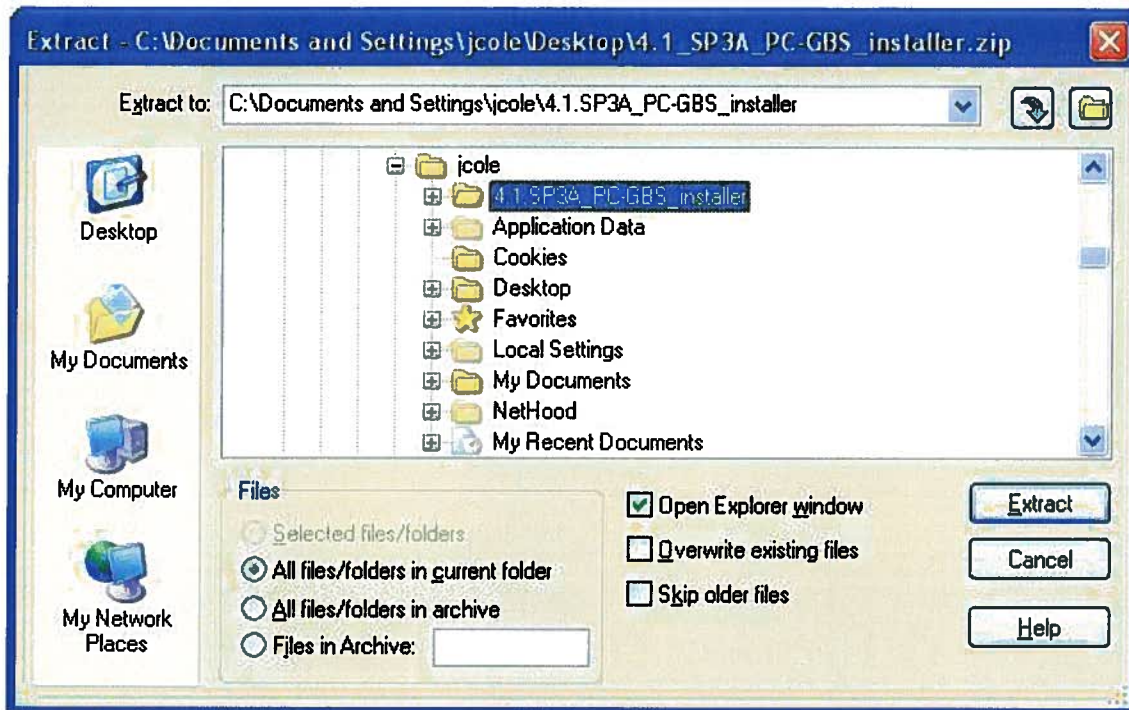
### 3.1 Unzip the PC-GBS Installer

4.1\_SP3A\_PC-GBS\_Installer.zip is an archive file and must be uncompressed. 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/>.





Extract the PC-GBS Installer into the temporary directory that was previously created.

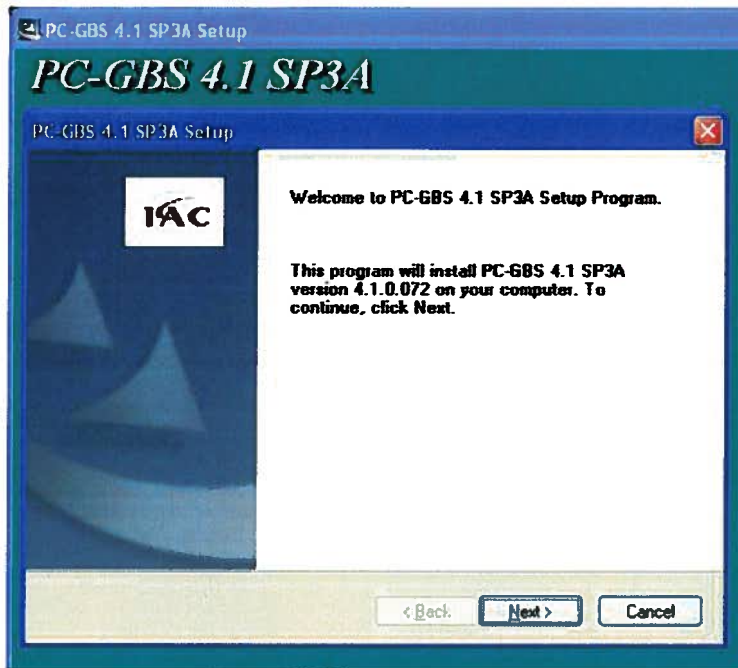


### 3.2 Install PC-GBS

Double click on **setup.exe**.

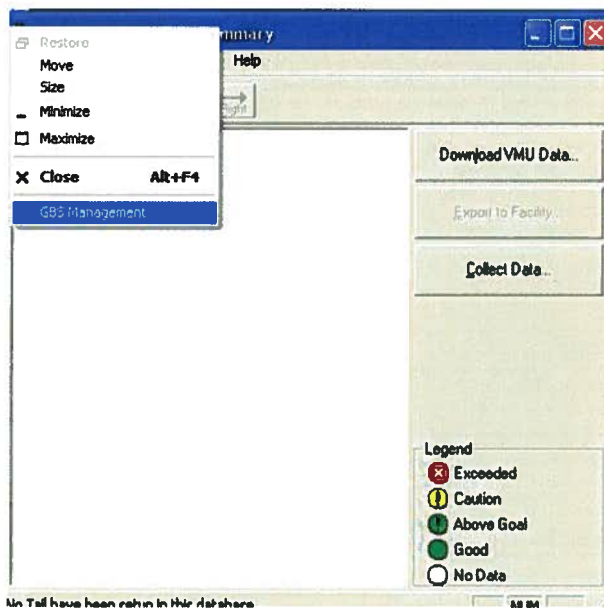
Name	Size	Type	Date Modified
Installation Manual		File Folder	3/9/2009 10:41 AM
Modem		File Folder	3/9/2009 10:41 AM
Mxml		File Folder	3/9/2009 10:41 AM
netchip usb driver		File Folder	3/9/2009 10:41 AM
Autorun.inf	1 KB	Setup Information	5/30/2002 4:05 PM
CheckKey.exe	172 KB	Application	10/30/2006 3:20 PM
data1.cab	30,886 KB	WinZip File	1/28/2009 4:06 PM
data1.hdr	77 KB	HDR File	1/28/2009 4:06 PM
data2.cab	27,014 KB	WinZip File	1/28/2009 4:07 PM
engine32.cab	411 KB	WinZip File	2/27/2003 4:16 PM
layout.bin	2 KB	BIN File	1/28/2009 4:07 PM
setup.bmp	482 KB	BMP File	5/1/2008 7:27 AM
setup.boot	335 KB	BOOT File	1/28/2009 4:06 PM
setup.exe	105 KB	Application	12/2/2002 3:33 PM
setup.ini	1 KB	Configuration Settings	1/28/2009 4:06 PM
setup.inx	240 KB	INX File	1/28/2009 4:06 PM
Version.ini	1 KB	Configuration Settings	5/2/2008 10:06 AM

Follow the PC-GBS Setup Program.



### 3.3 Install OBS

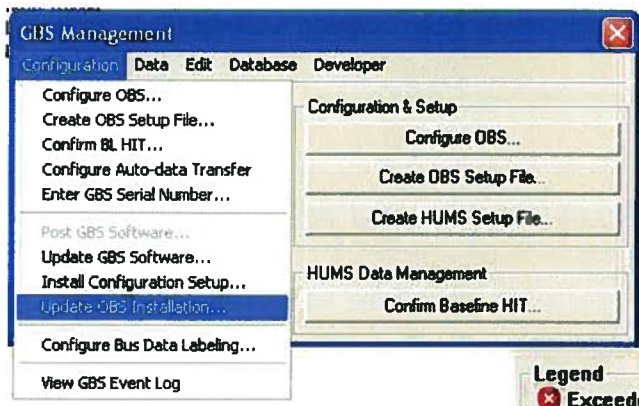
Right Click on PC-GBS title bar and select GBS Management.



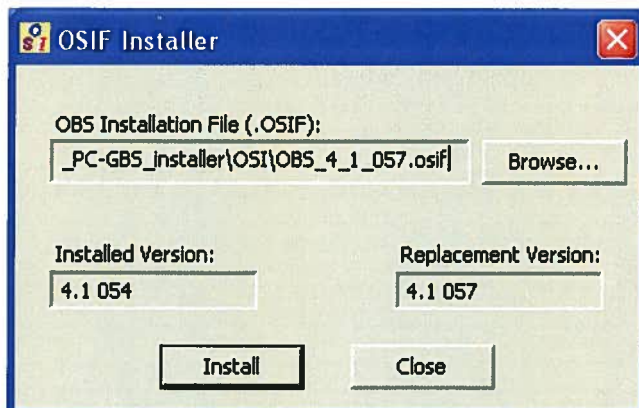
Enter Password: **iac.vmep**



Select **Update OBS Installation** from the Configuration pull down menu.



When prompted, browse to **OBS\_4\_1\_057.osif** that was downloaded and click **Install**.

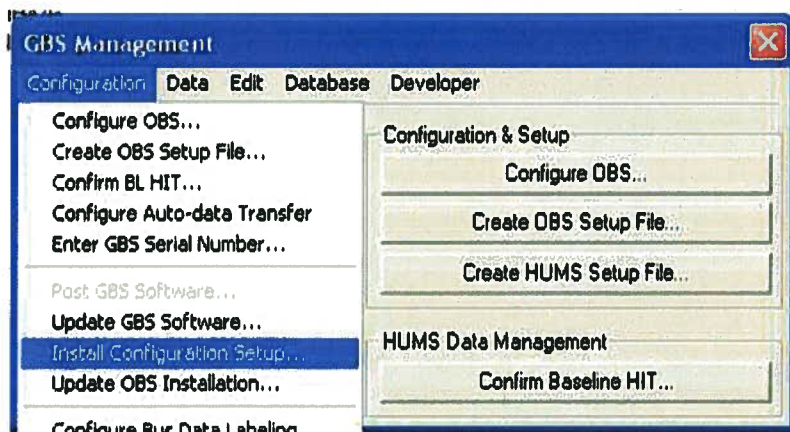


### 3.4 Install Aircraft Configurations

#### NOTE

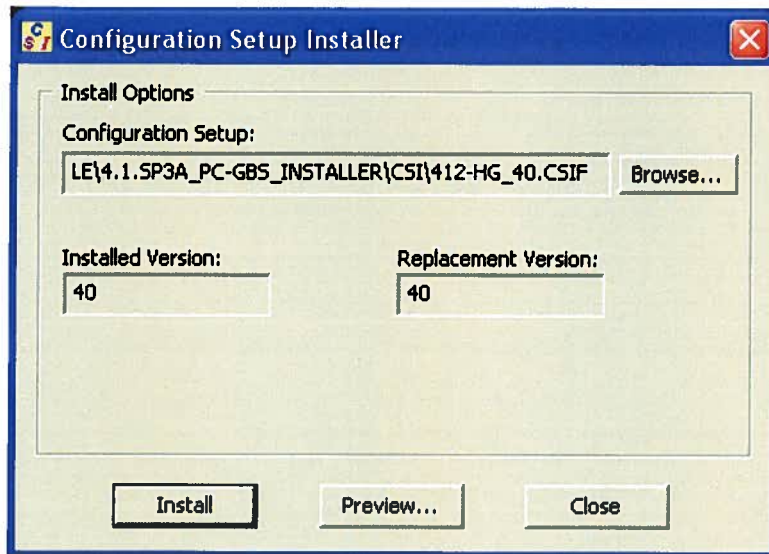
This instruction outlines the information necessary to update both the ground based software and the onboard software. It may also be used for future minor upgrades of the aircraft configuration file 412-HG\_40.CSIF, 412-LG\_40.CSIF & 212\_41.CSIF. When installing the aircraft configuration file the user is reminded to use the latest version available and to update the software version label affixed to the side of the box as detailed in section 4.4 of this document

Select **Install Configuration Setup** from the Configuration pull down menu.



When prompted, browse to either 412-HG\_40.CSIF, 412-LG\_40.CSIF or 212\_41.CSIF that was previously downloaded and click **Install**. *Note: 412-HG is for high gear aircraft and 412-LG is for low gear aircraft.*

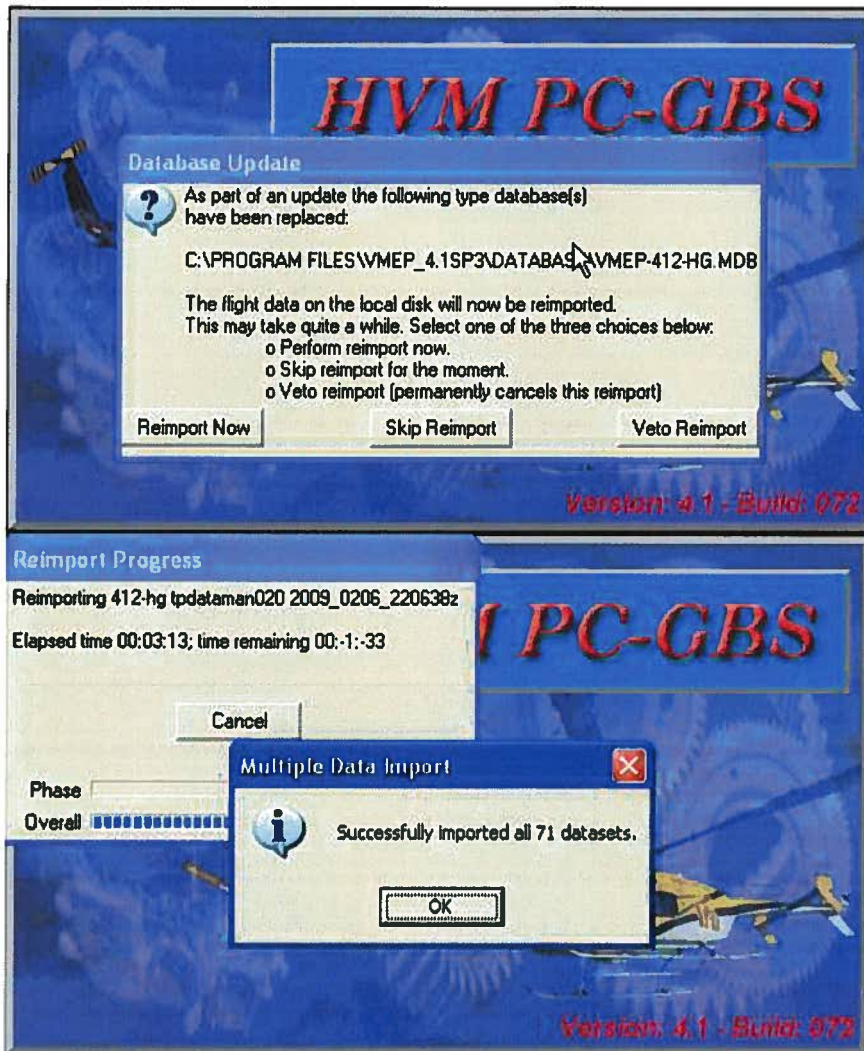




To re-import existing flight data, select **Yes**.



The next time the PC-GBS is executed, it will prompt the user to re-import existing flight data.



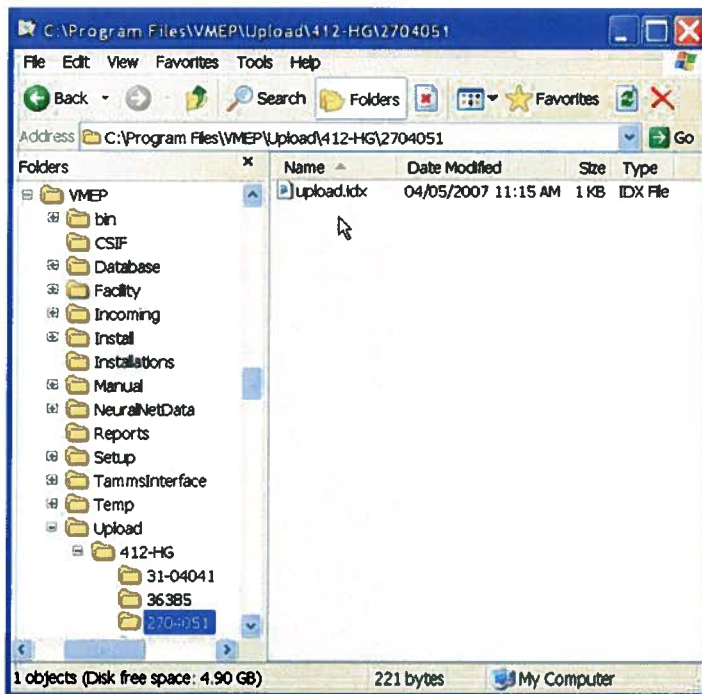
### 3.5 Removing the “upload.idx” files prior to communicating with the onboard system

PC-GBS will ensure only the appropriate files will be available for loading onto the onboard system. In the “c:\Program Files\VMEP\Upload\412-HG\<tail no.>” directory resides a file called “upload.idx”. That file will be required to be removed for each aircraft tail number so that all of the files needed for the upgrade will be available for upload.

#### NOTE

Note that the tail number folder and “upload.idx” file won’t be available if the PC has not communicated with the onboard system before.

To remove these files, open Windows Explorer and navigate to directory shown in the figure below:



Remove the “upload.idx” file in each tail number folder residing under the “Upload\412-HG”, 412-LG or 212 folders. Only one will be appropriate.

## **4 OBS Installation Instructions**

After the Portable PC-GBS, OBS, and aircraft configuration have been updated to 4.1 SP3A and the existing flight data on the PC has been re-imported, the next step is to download current data and upload the new OBS and aircraft setup files to the MSPU.

### ***4.1 Download current data from MSPU prior to uploading OBS and setup files***

**NOTE:**

Downloading aircraft data prior to installing files onto the MSPU must be accomplished as any new data will be lost when the system is flushed

For aircraft with USB download port in cockpit:

- Energize DC power bus on the aircraft and ensure that the MSPU has completely booted.
- Insert USB memory stick into USB port in pedestal.
- On cockpit control head (CCH) select mode = "XFR" and then press the "DO" button. This will ensure that you download all of the current data not previously downloaded and currently stored in the system's onboard memory.
- When the "FIN" light on the CCH illuminates remove the USB memory stick from USB port.
- Import data from memory stick into PC-GBS.

For aircraft with the USB memory drive installed next to the MSPU and unit is active:

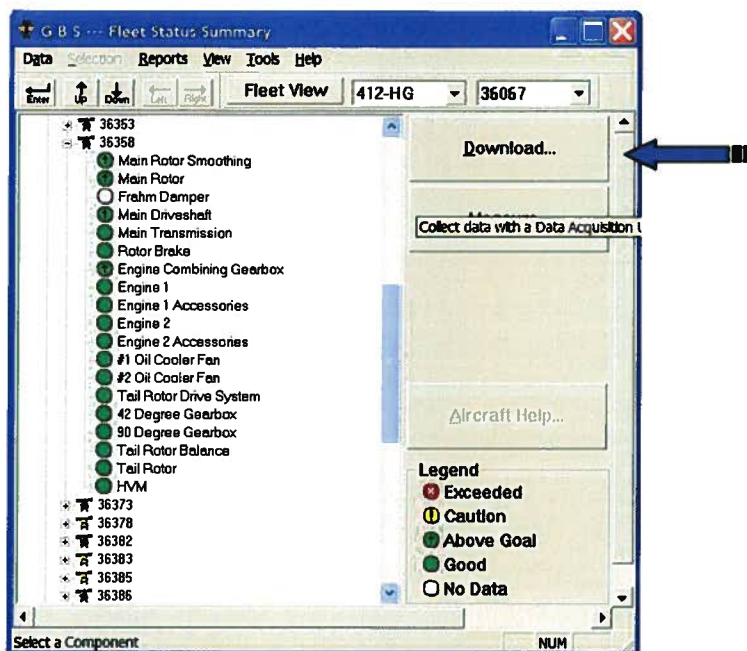
- With no power on the aircraft DC bus, remove the USB memory device from the drive case and insert into a PC that has PC-GBS installed and active.
- Follow the prompts and import the data into PC-GBS
- At completion of the import of data and after prompted that you are safe to remove the memory device from the PC, reinstall it back into the aircraft.

### ***4.2 Upload the System and Aircraft Setup Files to the MSPU***

Connect the laptop to the MSPU by Ethernet cable.

Run PC-GBS.

Click the **Download** button.

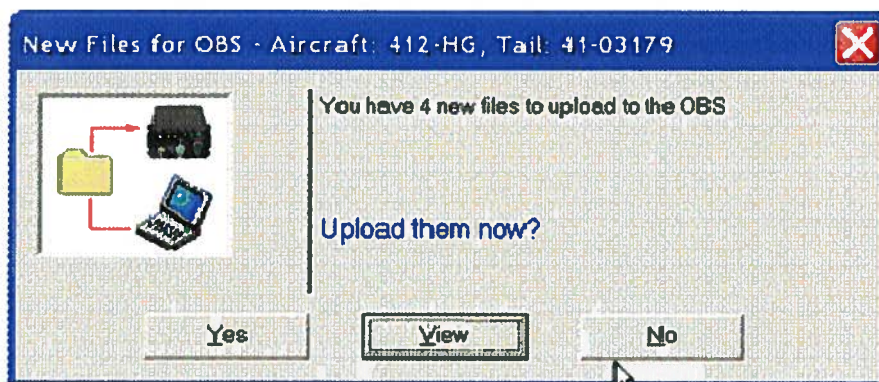


After downloading any flights, PC-GBS will check for updates and offer to upload the system and setup files.

### WARNING!

Ensure that you confirm that all four files are available to be loaded prior to selecting “**Yes**”. Failure to load all files will cause the MSPU to fail boot and become unserviceable. If all files are not available select “**No**” and then cancel the data download. Conduct steps in paragraph 3.5 above and then repeat this paragraph again.

A

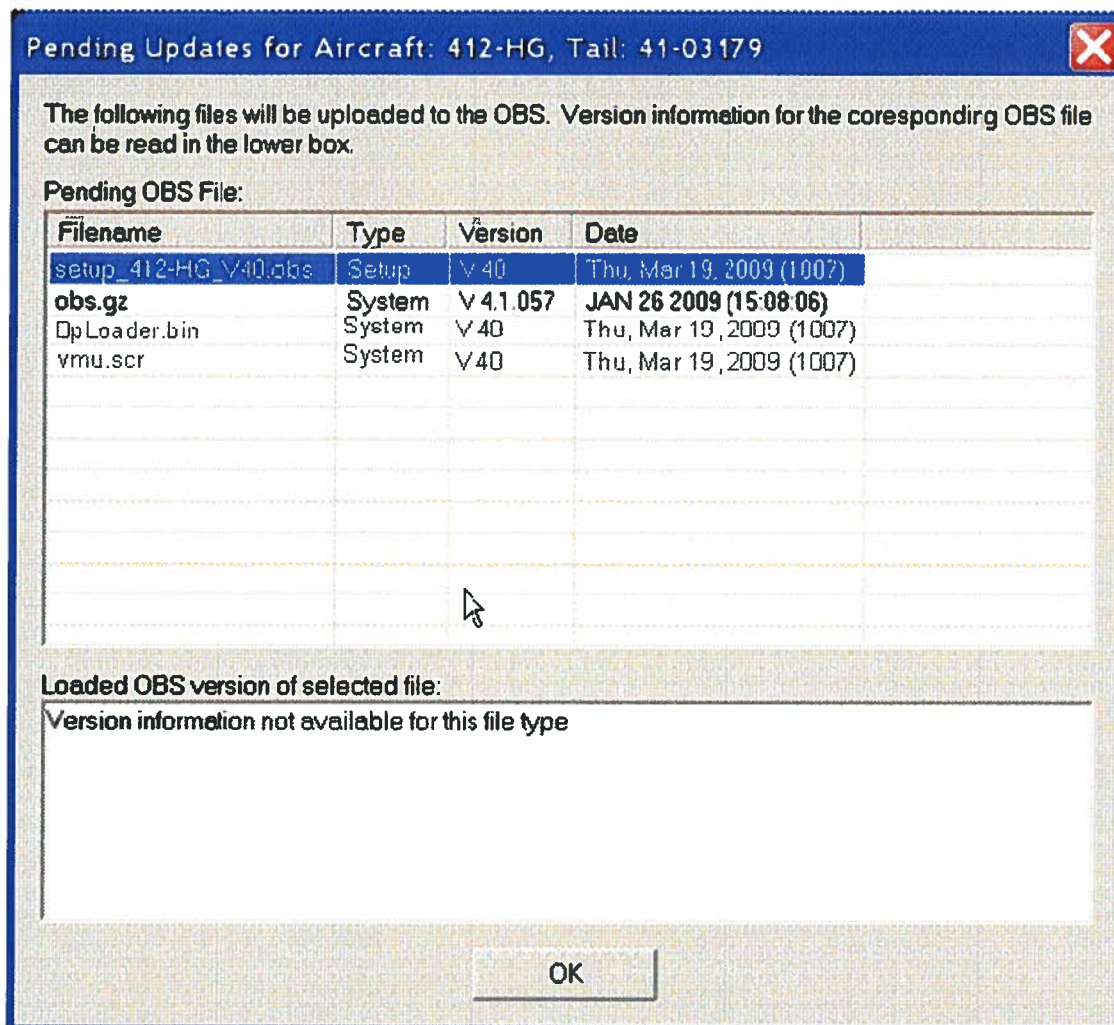


Click the **View** button to see a list of the files to be uploaded. There should be four files; one setup 212 Version 41, 412-LG or 412-HG version 40, one system version 4.1.057, one Bootrom version 4.1.001 and one Script Version 4.1.100.

### NOTE

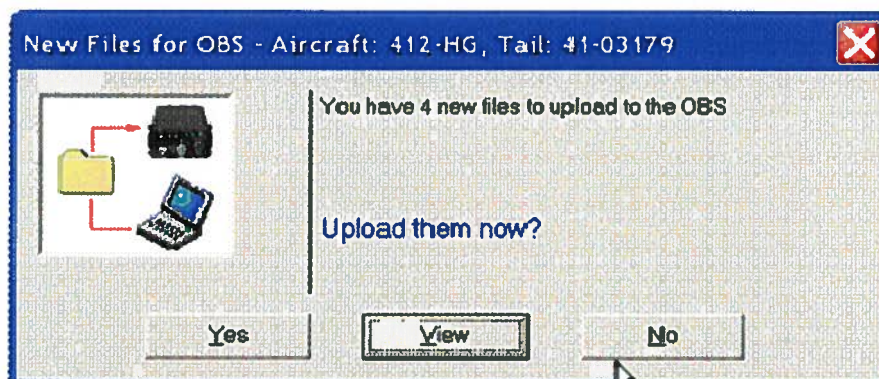
The MSPU comes from the factory with the 412-HG setup file loaded. If your installation requires the 212 or 412-LG setup, you will need to change the aircraft type and tail number, refer to Para 4.3 for more details.



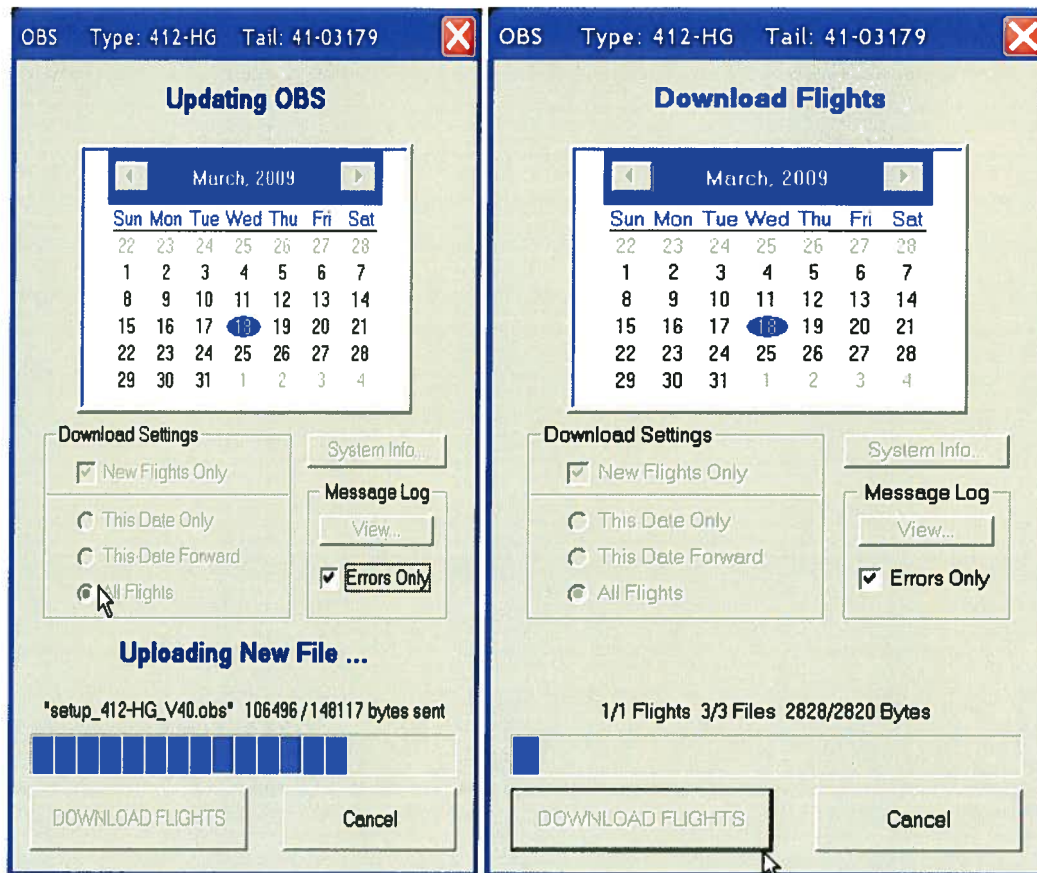


Click **OK** to close the view window.

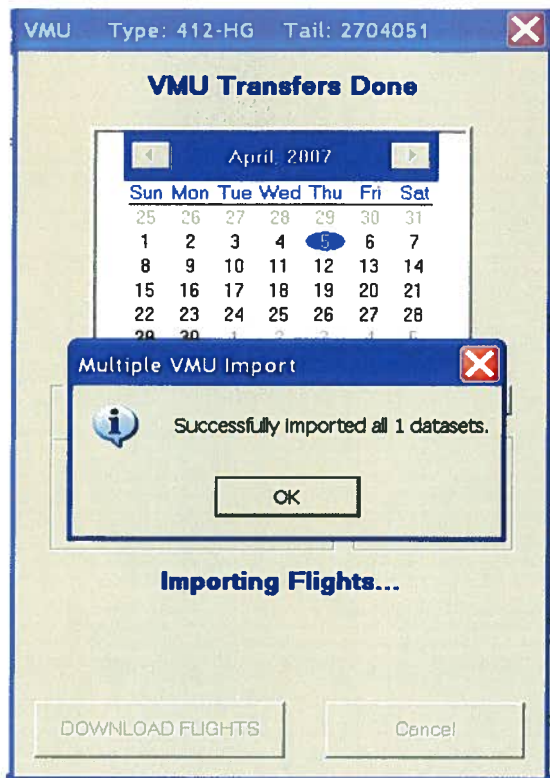
Click **Yes** to upload the files only after you have confirmed that all files shown above are available for uploading.



PC-GBS will upload the setup file.

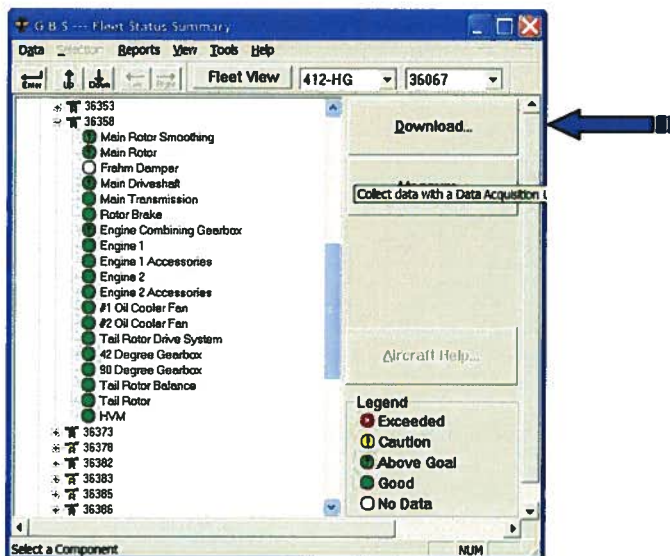


The PC-GBS will upload the files to the MSPU, and import the flight files it downloaded.



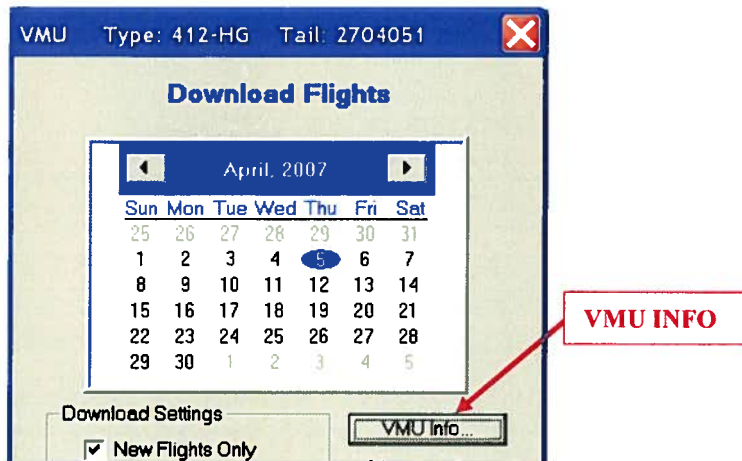
The MSPU will save the files and reboot. Wait for the flashing lights on the CCH or the MSPU to stop flashing.

To verify the MSPU is configured with the newer OBS and setup files, on the GBS click the **Download...** button and connect to the MSPU again.

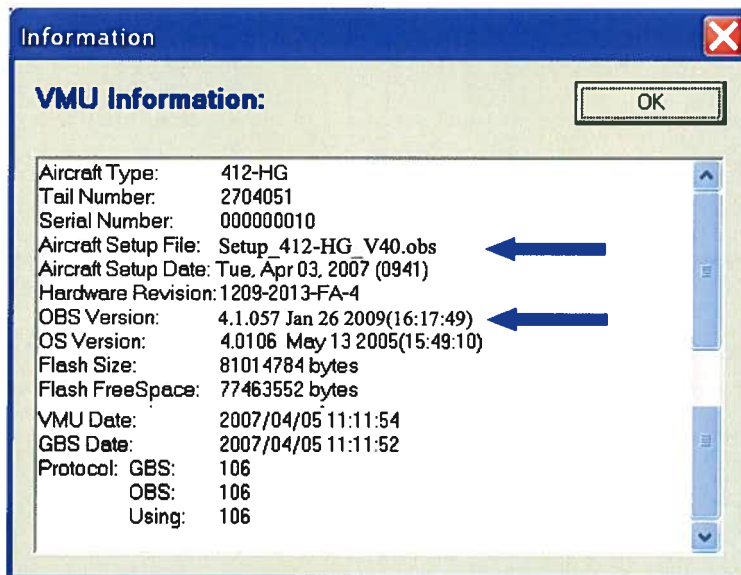


Click the **OBS Info** button and verify the MSPU is running the new files. The View Info window should look like this:





Verify that the correct Setup version, tail number, aircraft type and the OBS version is 4.1.057 as seen in the highlighted text below.



Click OK to close VMU information box and continue download process.

Once data has been downloaded, return to PC-GBS main page and this completes the installation process of PC-GBS 4.1 Service Pack 3A.

Power down aircraft and remove MSPU communications cable.

### **4.3 Changing the setup file (aircraft type) configuration on the unit.**

Connect the laptop to the MSPU by Ethernet cable.

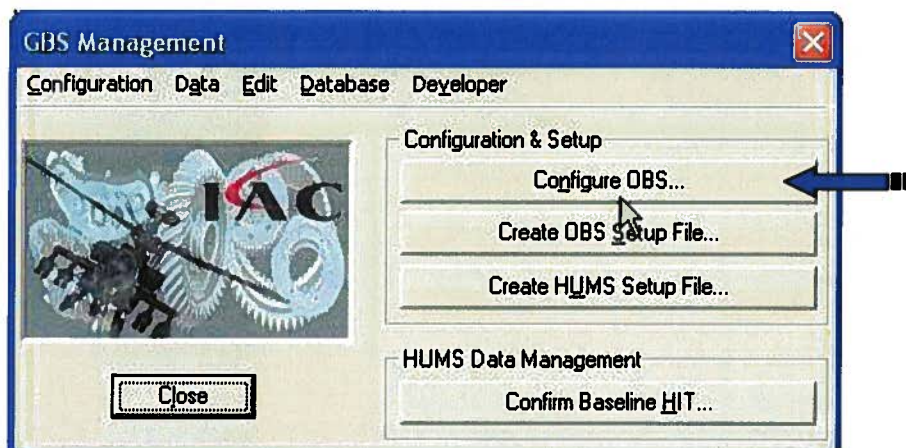
Run PC-GBS.

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

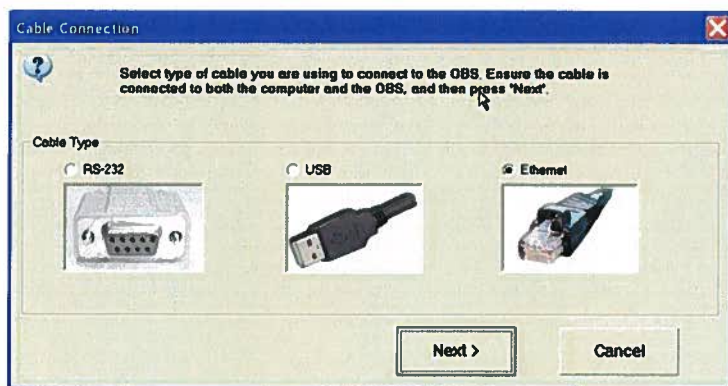
The password to enter the manager is "iac.vmep"



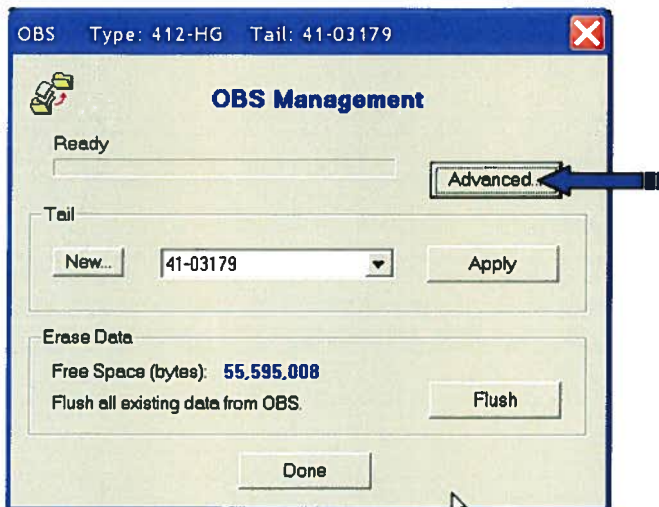
1. The GBS Management Menu will now launch.



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



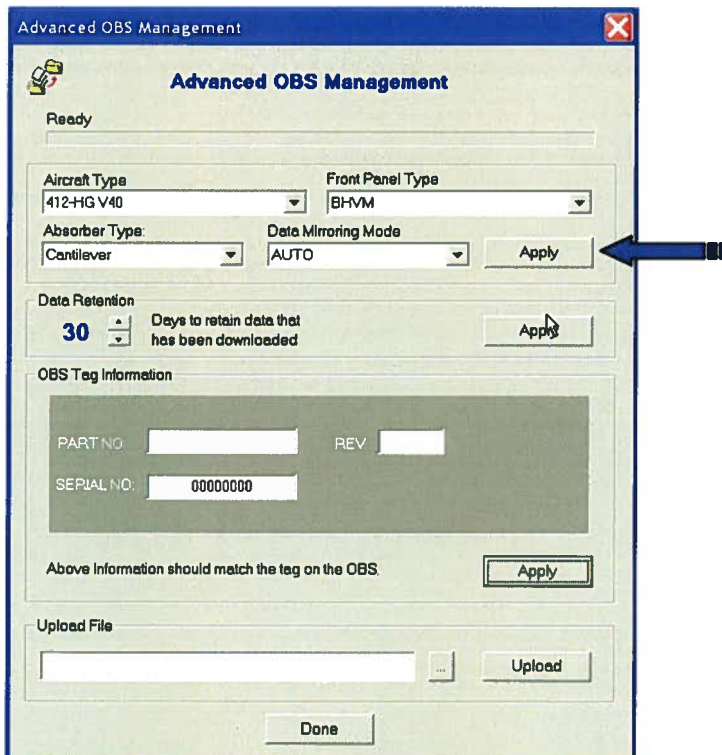
Once PC-GBS has connected to the unit, the OBS Management window will open as shown:



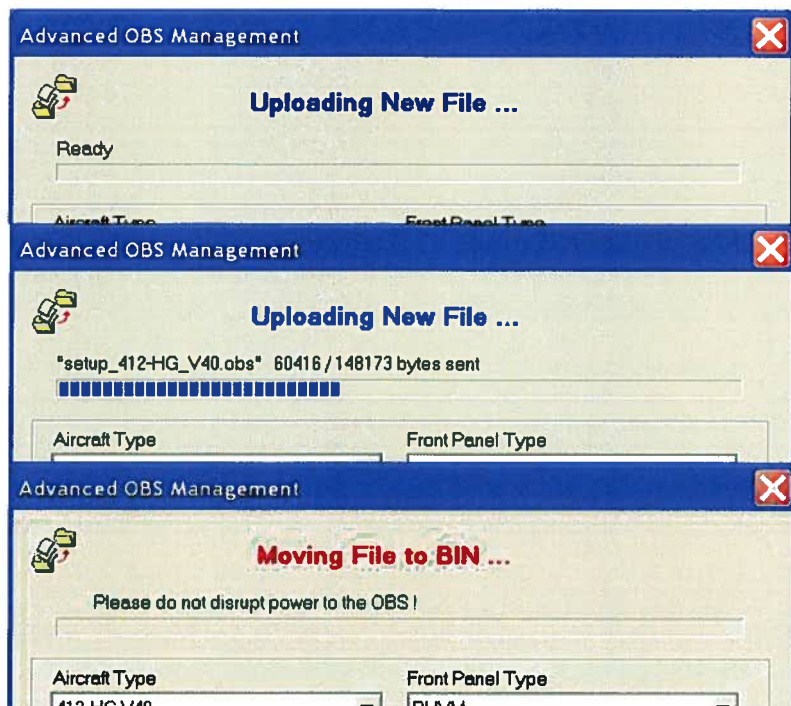
Select the “Advanced...” button to enter the advanced OBS Management window. (Shown Below)

**NOTE:**

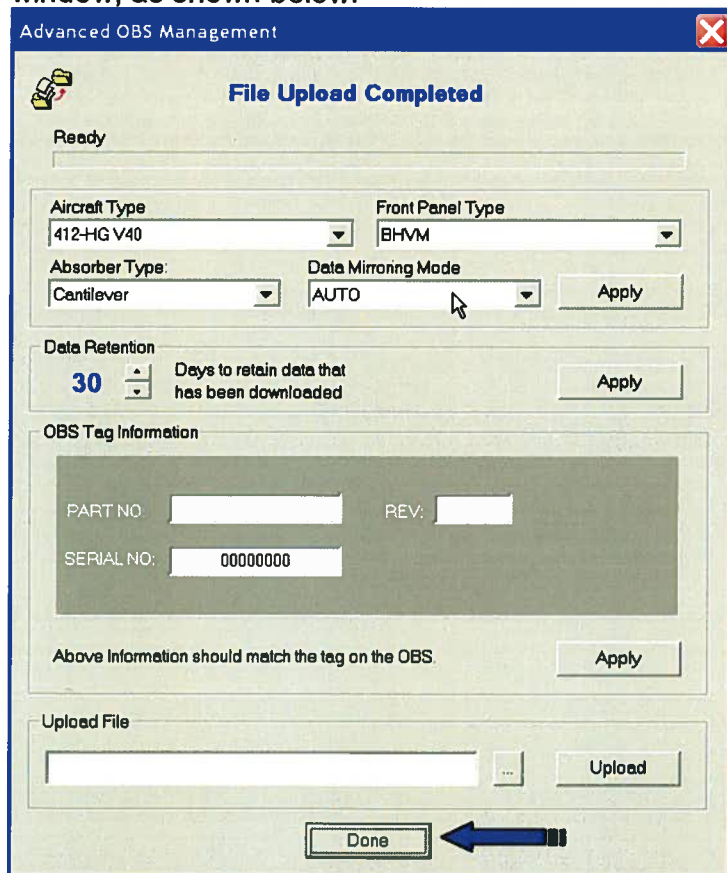
Whenever you make a change to the “Aircraft Type”, “Absorber Type” you must push the appropriate “Apply” button before the change will take place. Failure to perform this step will result in no changes being made.



In the Aircraft Type field, use the drop down list to select the type of aircraft you wish to install “212, 412-HG or 412-LG, select either absorber type if your aircraft has a Frahm absorber installed, if no absorber is installed skip this field (again using the dropdown list) and **select apply**. The top information screen will display updates as the Aircraft Setup file changes.

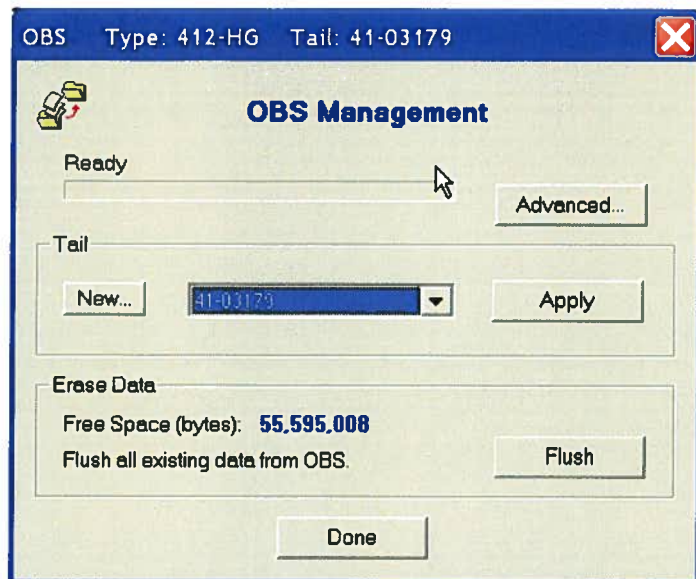


When the dialog reads "File Upload Completed", select the "Done" button at the bottom of the window, as shown below.





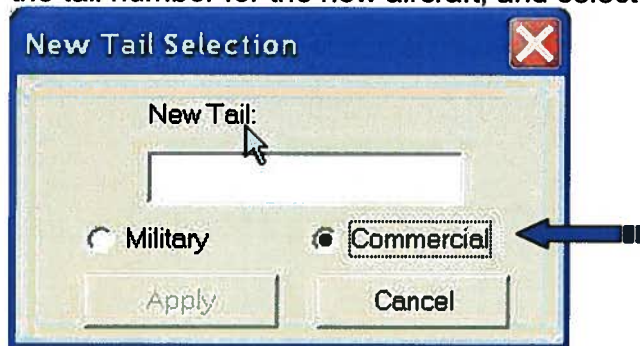
Selecting Done will take you back to the OBS Management window.



**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.

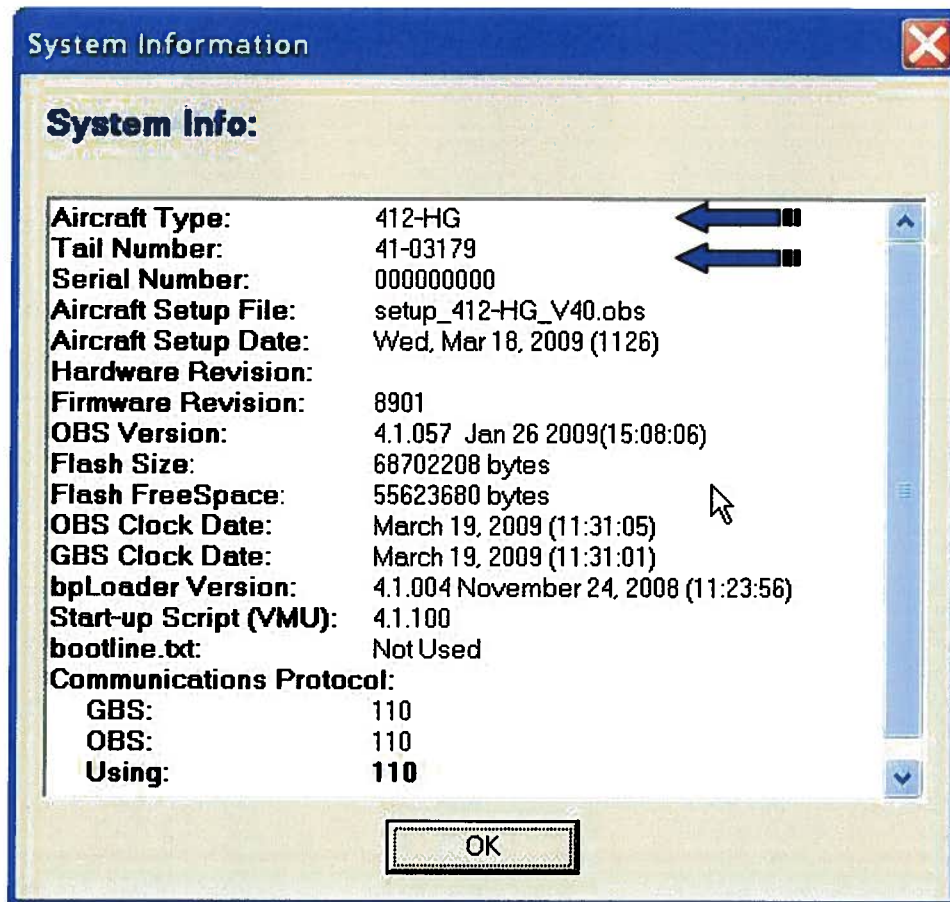
Select the "New" button in the "Tail" section and then select the "Commercial" button. Now type in the tail number for the new aircraft, and select "Apply"



Finally Select the "Done" button on the OBS Management window.

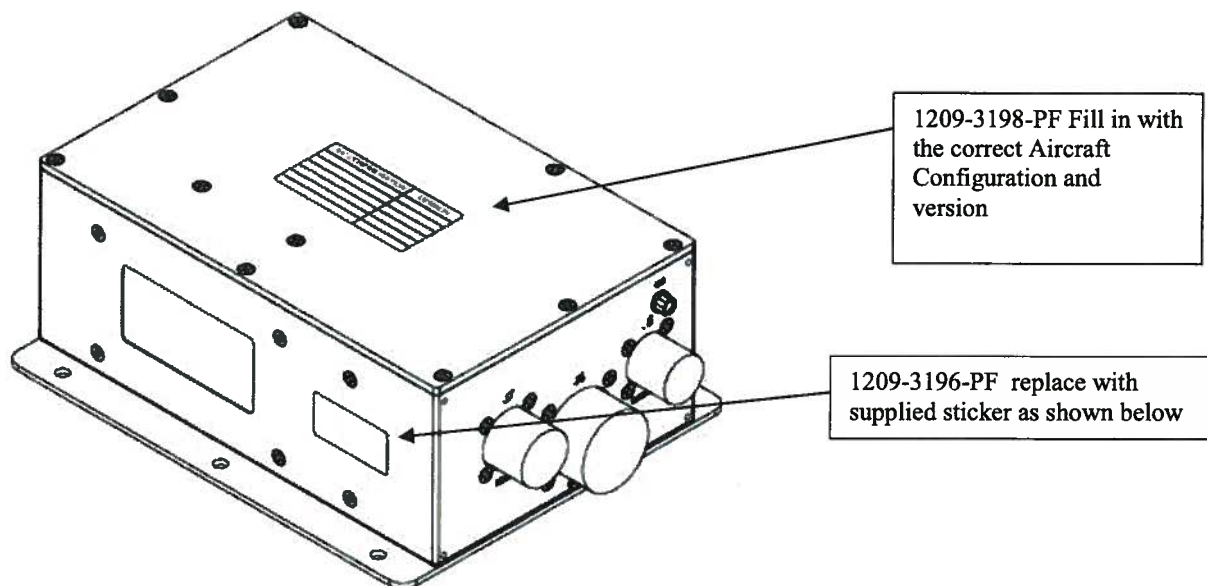
The system will automatically perform a system flush and then the unit will reboot. This boot cycle will activate the new setup file and tail number that was just uploaded to the unit.

Once the system reboots, verify the system configuration as outline in Para 4.2 by connecting with the Ethernet cable and performing a download and then selecting VMU Info from the download dialog. Ensure the proper aircraft type and tail number is installed.



#### 4.4 Completing the MSPU identification tag

"If this is an upgrade to an existing 412 MSPU or if it is an initial install for the BHT Model 212, replace the software configuration label with the new label 1209-3196-PF supplied in the package (Ref the figure below)."



Install label 1209-3198-PF in center of top cover of MSPU as shown in the figure above. At the completion of the upgrade please fill in the Aircraft Configuration tag previously installed on top of the MSPU with the Aircraft Type and Version that you have just uploaded.

#### CSIF Examples:

- 412-HG\_40.CSIF 9.25 MB (7,712,276 bytes)
- 412-LG\_40.CSIF 9.26 MB (9,713,652 bytes)
- 212\_41.CSIF 10.7 MB (10,790,325 bytes)

Label Example for 212 Aircraft:

OBS VER:	4.1.057
BOOTROM VER:	4.1.004
SCRIPT VER:	4.1.100
CONFIG. VER:	

Leave Blank for unit upgrades (1209-3196-PF)

Aircraft Configuration	Version #
212	41

1209-3198-PF