Aeronautical
A C C E S S O R I E S ™

**450 INDUSTRIAL PARK RD, PINEY FLATS,
TENNESSEE 37686-4419 USA
TELEPHONE: 423-538-5151   TOLL FREE: 800-251-7094
TELEFAX: 423-538-8469   E-MAIL: sales@aero-access.com
techsupport@aero-access.com**

Technical Bulletin
TB No. AA-21032
Revision A
JULY 6, 2021

SUBJECT:	412EPI Software Upgrade
PARTS AFFECTED:	**412EPI Bell Helicopter Vibration Monitor (BHVM) System** P/N 412-360-001
MODELS AFFECTED:	Bell Textron Inc model 412EP S/N 36373 & Sub with BHTI STC (SR09600RC) installed and BTI 412EP S/N 37002-37999 model helicopters 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 the owner to upgrade their BHVM Kit to the current software configuration, V5.7 SP2B, Database Configuration V59 (for High Gear (HG)) and V60 (for Low Gear (LG)). The software update includes modifications to improve automatic regime triggering and associated data capture for models listed above.
	Revision A of this Technical Bulletin updates the 10123-0002-GP Software Installation Instructions in Appendix A, to revision E. The processor firmware version to select-at-installation is corrected to: "1134-1100-DD-02-REVOM-VA60E.xsvf".
FAA/ODA APPROVAL:	The engineering aspects of this Technical Bulletin are FAA/ODA approved.
MANPOWER:	Approximately 2.0 man-hours. (Man-hours 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

BTI 412EP (*)
(*SN 37002-37999,
or with 412EPI STC)

TECHNICAL BULLETIN
412EPI Bell Helicopter Vibration Monitor (BHVM) System

TB No. AA-21032
Revision A

LOG OF REVISIONS

Date	Revision	Description	Affected Pages
4/7/21	NR	Original Release	All
7/6/21	A	Revised Sections 5.1 and 5.2.	4
		Revised Appendix A Document No. 10123-0002-GP, Revision "E" was revision "D".	7

Reviewed:

_____
Engineering

BTI 412EP (*)   **TECHNICAL BULLETIN**   TB No. AA-21032
(*SN 37002-37999, 412EPI Bell Helicopter Vibration Monitor (BHVM) System Revision A
or with 412EPI STC)

1.0 MATERIALS REQUIRED

1.1 UPGRADE BHVM SOFTWARE TO CURRENT VERSION V5.7 SP2B, V59/V60

Label P/N 1209-3196-PF:

1. Material Type: Brady Label THT-17-425-3 or equivalent
2. Text Color / Font Size: Black / 9 point
3. Background Color: White
4. Dimensions: Per Figure 2

Label P/N 1209-3198-PF:

1. Material Type: Brady Label THT-166-424-2 or equivalent
2. Text Color / Font Size: Black / 9 point
3. Background Color: White
4. Dimensions: Per Figure 3

NOTE

In lieu of making labels, the following Upgrade Kit is available from Aeronautical Accessories.

TABLE 1 - PARTS LIST

412-262-060 UPGRADE KIT

Qty	Part Number	Description	Figure
1	1209-3196-PF	Label	2
1	1209-3198-PF	Label	3

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

BTI 412EP (*)   **TECHNICAL BULLETIN**   TB No. AA-21032
(*SN 37002-37999,   412EPI Bell Helicopter Vibration Monitor (BHVM) System   Revision A
or with 412EPI STC)

5.0   <u>ACCOMPLISHMENT INSTRUCTIONS:</u>

5.1   DOWNLOAD INSTRUCTIONS

1. Go to Bell Rotorcraft MissionLink web portal:

https://bellportal.textron.com/en/Customer/Pages/default.aspx

If customer does not have a username and password, contact Bell Product Support Engineering at productsupport@bellflight.com .

2. From the "Resources" tab at the top, select "Other Files" from that tabs drop down menu to open the "File Browser" page.

3. Under the "File Name" column, select "5.7SP2B_CD_Image_412EPI.zip" to download the PC-GBS release 5.7 SP2B – Bell 412EPI-CD image from the web portal.

FILE NAME	DESCRIPTION
5.7SP2B_CD_Image_412EPI.zip	412EPI Software 5.7-SP2B, Version 59 & 60

5.2   INSTALLATION INSTRUCTIONS

1. Open/unzip the downloaded 5.7SP2B_CD_Image_412EPI.zip file.

2. Open the 'GBS' folder.

3. Follow the Honeywell Software Installation Instructions (Document No. 10123-0002-GP, revision E, or later approved revision) to install the Bell 412EPI V59 or V60 Configuration File on the BHVM Processor (see Appendix A).

<div align="center"><u>NOTE</u></div>

Many of the pictorial views in Honeywell document No. 10123-0002-GP, revision E or later, are for 412EPX, however, the same process applies to install 412EPI aircraft types. *The software being installed here is either:*

<div align="center">

V5.7 SP2B V59 (for 412EPI HG model aircraft)
or,
V5.7 SP2B V60 (for 412EPI LG model aircraft)

</div>

4. Refer to the following information when verifying the system configuration:

<div align="center">

Tail Number: (*Aircraft Serial Number*)

Aircraft Setup File: **SETUP_412EPI-HG_V59.OBS** (for HG)

SETUP_412EPI-LG_V60.OBS (for LG)

OBS Version: **5.7.207**

Firmware Revision: **A60E**

</div>

BTI 412EP (*)   **TECHNICAL BULLETIN**   TB No. AA-21032
(*SN 37002-37999,   412EPI Bell Helicopter Vibration Monitor (BHVM) System   Revision A
or with 412EPI STC)

5. The 'System Info' page should represent the following example after successfully loading the 5.7 SP2B V59 or V60 software (see Figure 1).
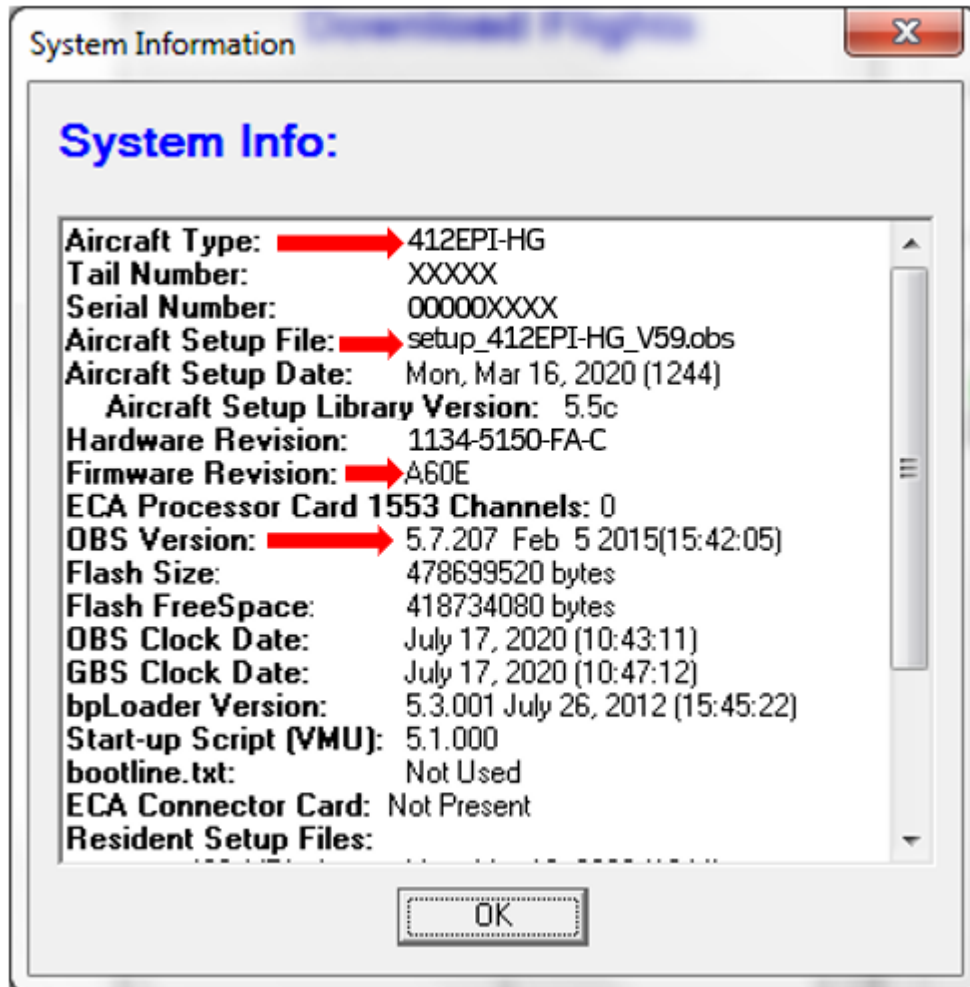
FIGURE 1 – SYSTEM INFO PAGE REPRESENTATION

(EXAMPLE FOR 412EPI HG - SHOWN)

5.3   PROCESSOR LABELING

1. Fill in the required data on the 412EPI BHVM Processor Label (1209-3196-PF) as shown in Figure 2. Install Label per Document No. 10123-0002-GP.

2. Verify the information on the existing Label (1209-3198-PF) reflects the current software version. Update the Label, if necessary, as shown in Figure 3.

3. Software update complete.

BTI 412EP (*)
(*SN 37002-37999,
or with 412EPI STC)

TECHNICAL BULLETIN
412EPI Bell Helicopter Vibration Monitor (BHVM) System

TB No. AA-21032
Revision A

2.00

OBS VER:	5.7.207
BOOTROM VER:	5.3.001
SCRIPT BER:	5.1.000
CONFIG. VER:	

1.00

FIGURE 2 - LABEL, P/N 1209-3196-PF

2.40

A/C CONFIGURATION	VERSION
412 EPI (HG)	59

1.18
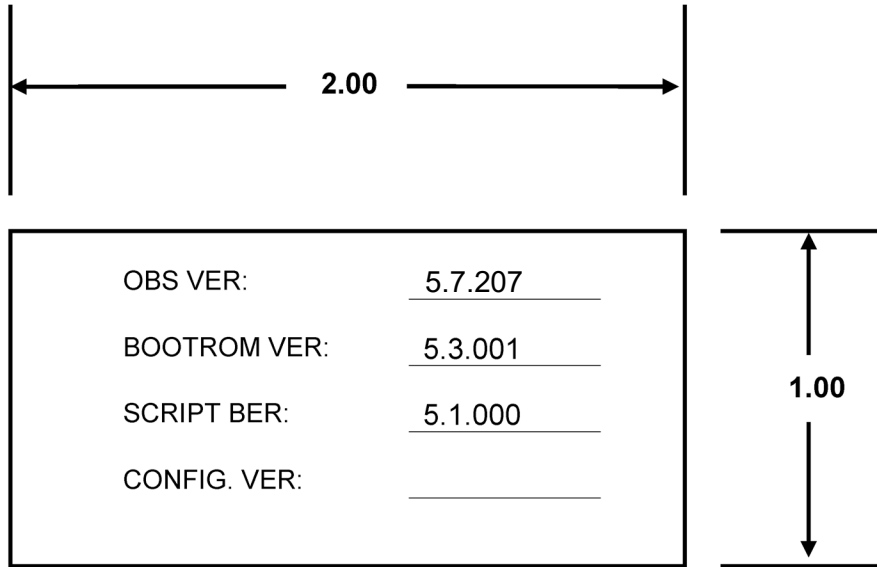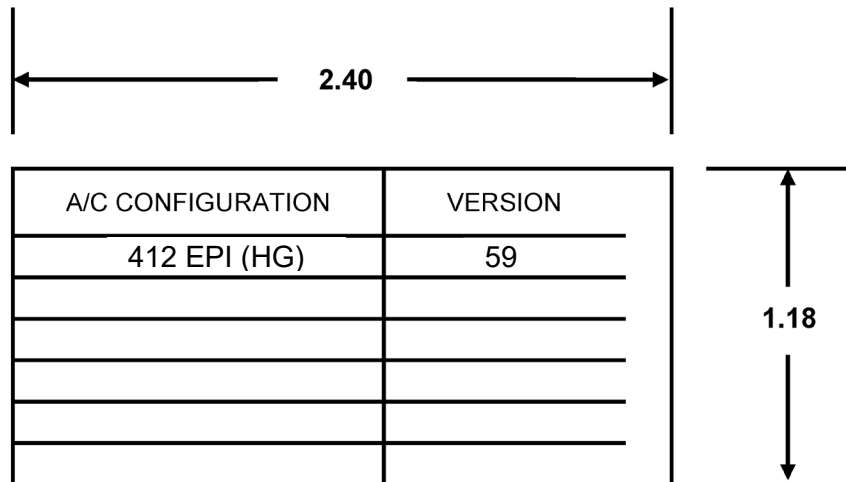
FIGURE 3 - LABEL, P/N 1209-3198-PF
(EXAMPLE FOR 412EPI HG - SHOWN)

BTI 412EP (*)
(*SN 37002-37999,
or with 412EPI STC)

TECHNICAL BULLETIN
412EPI Bell Helicopter Vibration Monitor (BHVM) System

TB No. AA-21032
Revision A

APPENDIX A
_____

Document No. 10123-0002-GP

Instructions for Upgrading to 5.7 SP2B for
Bell 412EPI/EPX

Honeywell

Document No. 10123-0002-GP

Instructions for Upgrading to 5.7 SP2B

For

Bell 412EPI/EPX

Revision E

Date: 21-June-2021

Prepared by

Honeywell Aerospace

21111 North 19th Ave

Deer Valley, AZ 85027

Lead Systems Engineer: _____*Roger Zetterberg*_____ **Date:** __7/2/2021__

Roger Zetterberg / HON

Systems Engineer: _____ **Date:** __7/2/2021__

Ben Schnur / HON

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.
C	12-Jan-2021	RZ	Updated to include the EPX and to 5.7SP2B and Manual update
D	9-Mar-2021	RZ	Modified the procedure to incorporate manual upgrade process
E	21-June-2021	RZ	Fixed the firmware version from K to M section 3.1.4, 18 and 19

Table of Contents

1. Scope

The intent of this document to provide guidance for updating the 1134-5150-FA as installed on the Bell 412EPX and the Bell 412EPI Aircraft. 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 HUMS software

User must have administrative rights to install PC-GBS. To perform this upgrade, use the US Date Format on the PC.

The following steps are covered in detail:

- Installing version 5.7SP2B or later PC-GBS

- Loading OBS version 5.7.207 OSIF or later

- Loading CSIF Bell 412EPX-LG v165, 412EPX-HG v164, 412EPI-HG v59, and 412EPI-LG v60 or later.

NOTE

Most pictorial views are for the 412EPX, however, the same process applies to install other Aircraft types.

- Connecting to the onboard 1134 processor and uploading software and configuration setup

- Validate Software is successful.

3.1. Converting to version 5.7 or later

3.1.1. Unzip the CD Image

5.7_SP2_BELL_412EPX_CDIMAGE.zip and 5.7_SP2_Bell_412EPI_CDIMAGE.zip are 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.

3.1.2. Installing PC-GBS version 5.7.204 or later

Double click into the directory that you have created and Select Menu.exe, Right Click and Select "Run as Administrator" .

Use or disclosure of information contained on this page is subject to the restrictions on the title page.
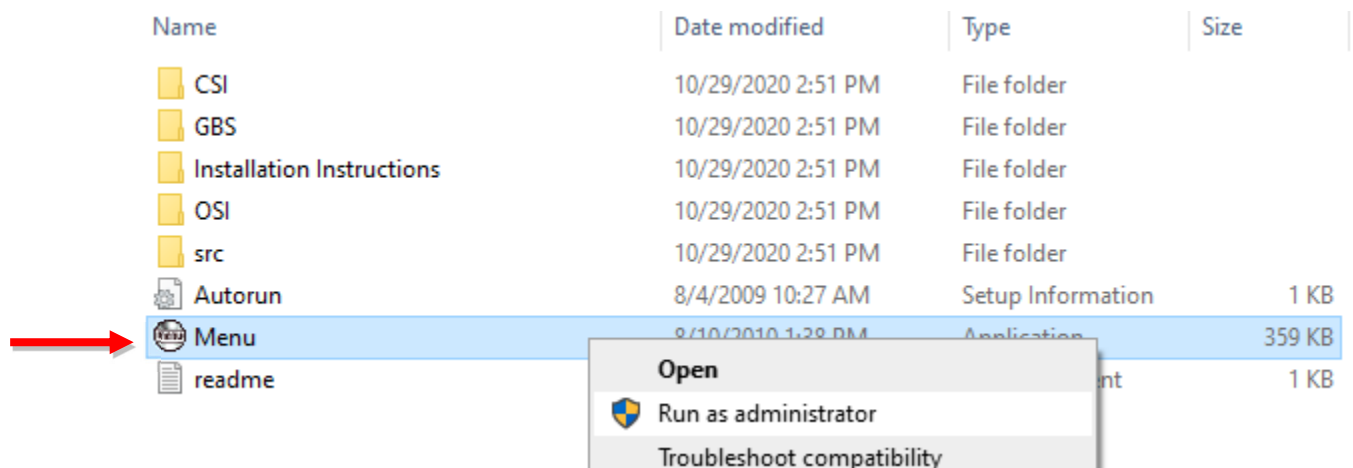
1) From the PC-GBS Menu Setup page, select <u>Option 2</u> "Install PC-GBS 5.7 SP2B"

NOTE

Although not recommended, 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.
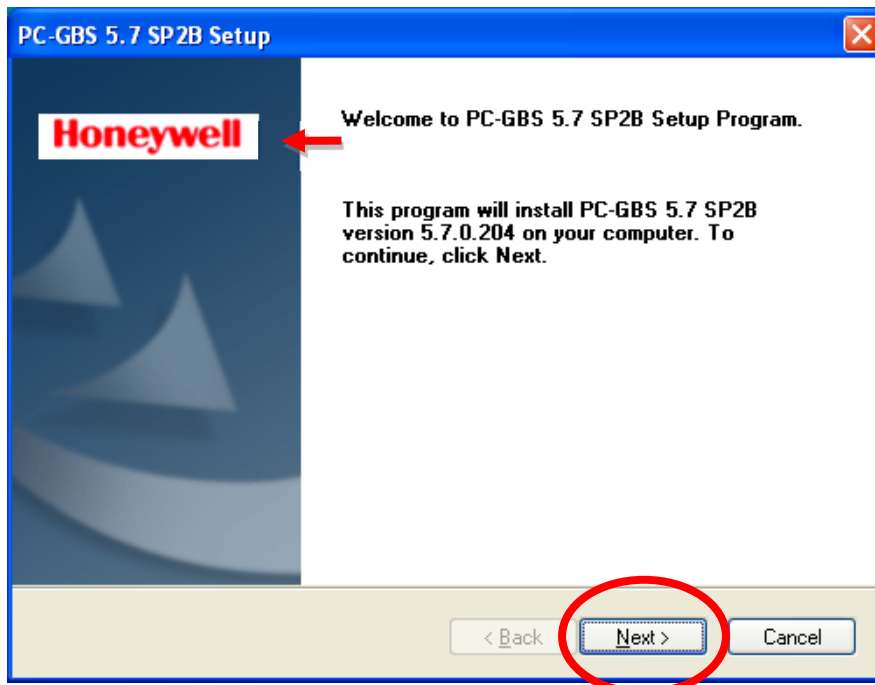
2) Review the license agreement and press "Yes" to proceed.
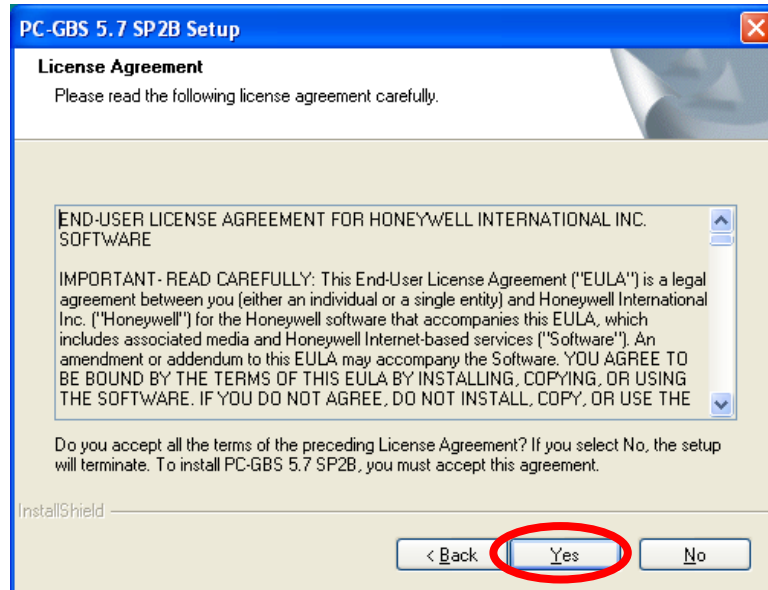
3) Click "Next>" using default path C\Programs Files\VMEP or C\Programs Files(x86)\VMEP
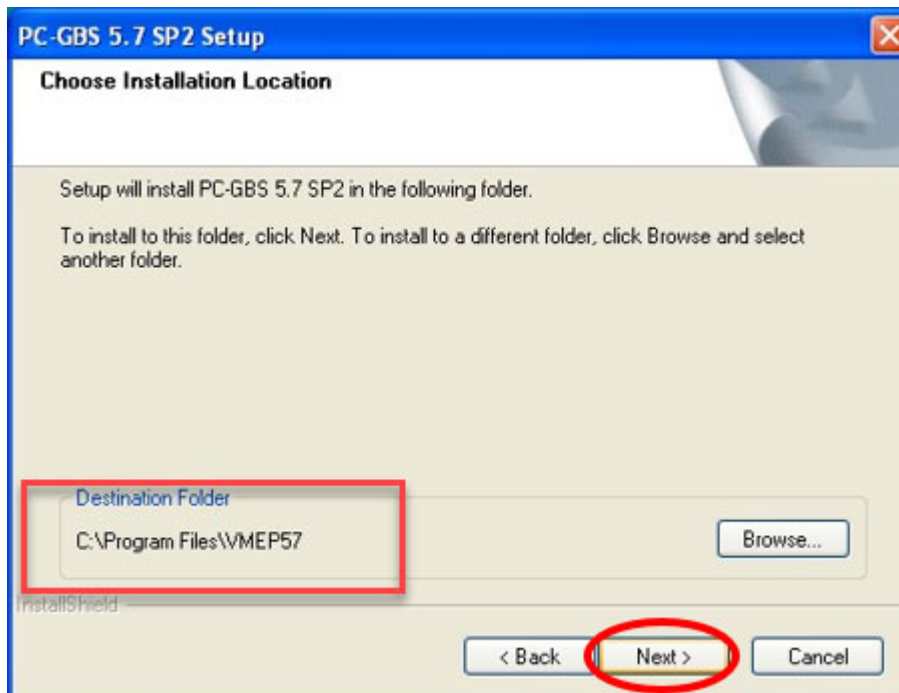
4) Wait for PC-GBS to install on your PC.
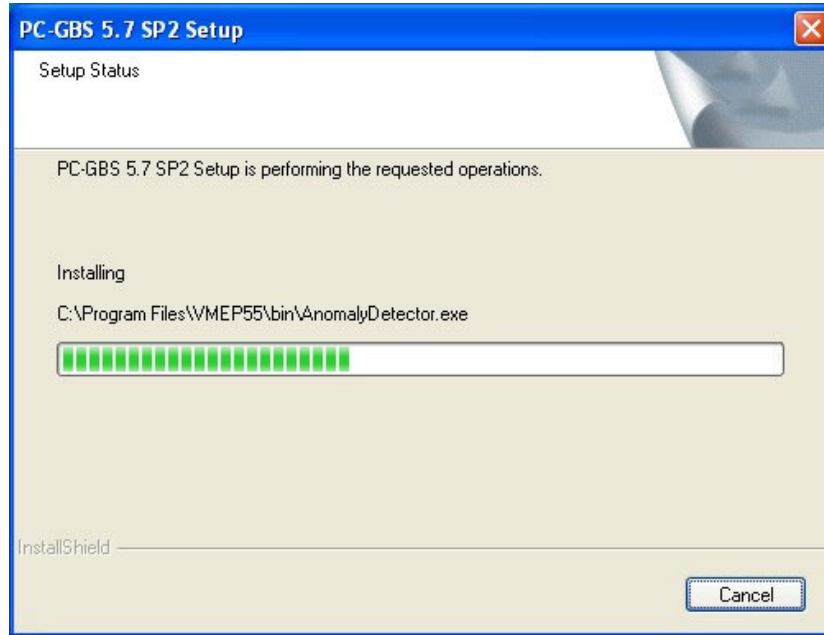
5) Check "I wish to launch PC-GBS" checkbox and Press "Finish"
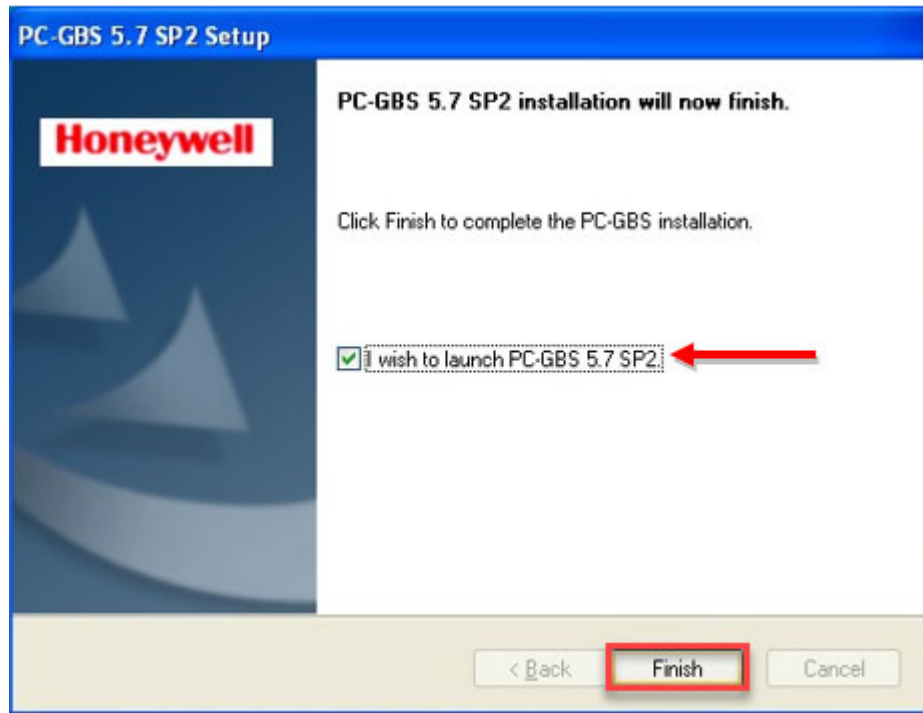
3.1.3.   Installing Bell 412 OBS Installation File

1) From the PC-GBS Menu Setup page, select <u>Option 3</u> "Install OBS 5.7 SP2B"

2) Select "Browse…"
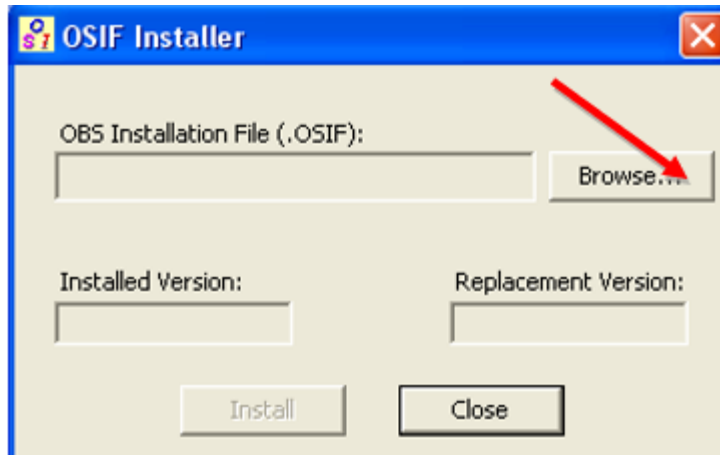
3) Browse to the OBS_5_7_207.osif file and when you highlighted the file select "Open"
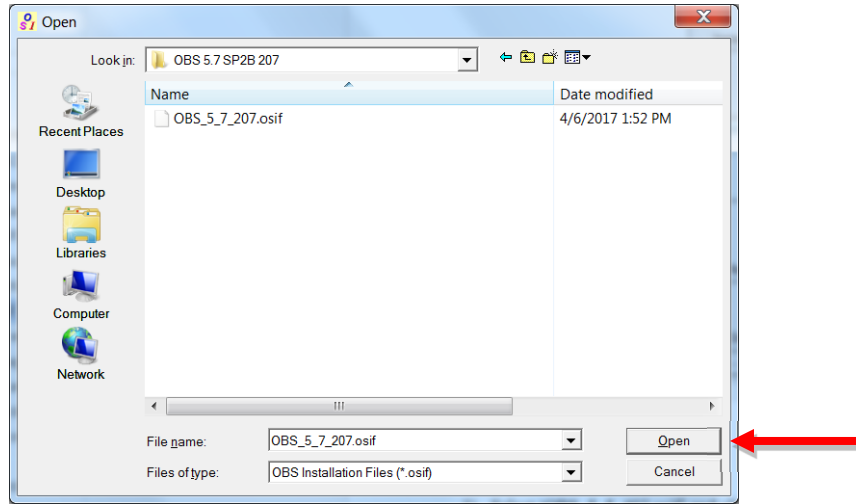
4) Select "Install" to install the selected file.
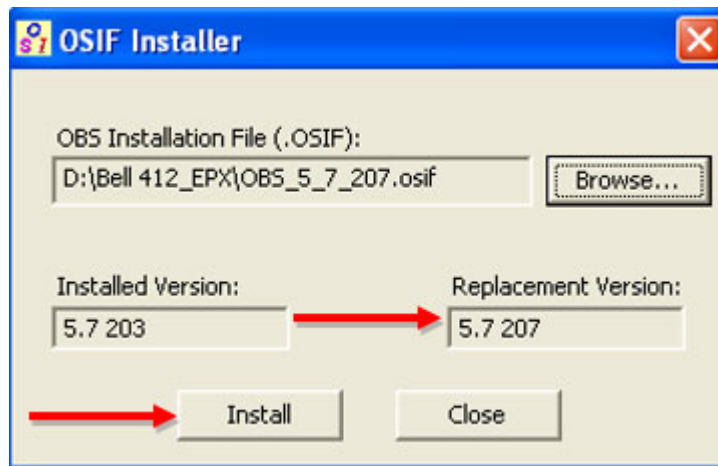
5) After the .osif file is installed, select "Close."

Use or disclosure of information contained on this page is subject to the restrictions on the title page.
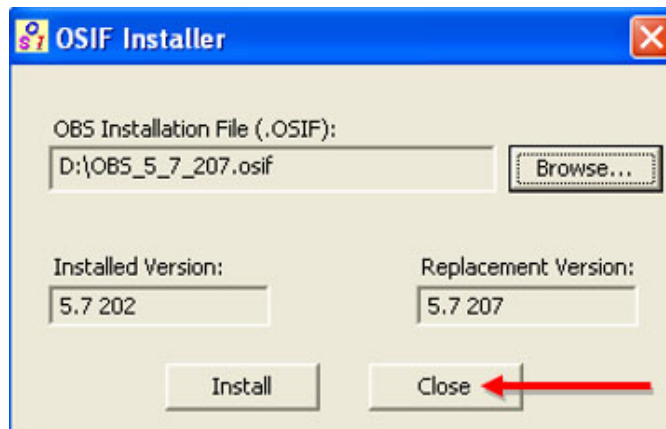
3.1.4. Installing Bell 412EPX or 412EPI configuration Setup

1) From the PC-GBS Setup page, select Option 4 "Install Aircraft Configuration"

2) Select "Browse…" and then browse to the Setup Configuration that you would like to install.

Aircraft Type/Landing Gear Configuration	Aircraft CSIF Software Configuration
412EPI with Standard Landing Gear (Low Gear)	412EPI-LG_60.CSIF
412EPI with High Landing Gear	412EPI-HG_59.CSIF
412EPX with Standard Landing Gear (Low Gear)	412EPX-LG_165.CSIF
412EPX with High Landing Gear	412EPX-HG_164.CSIF
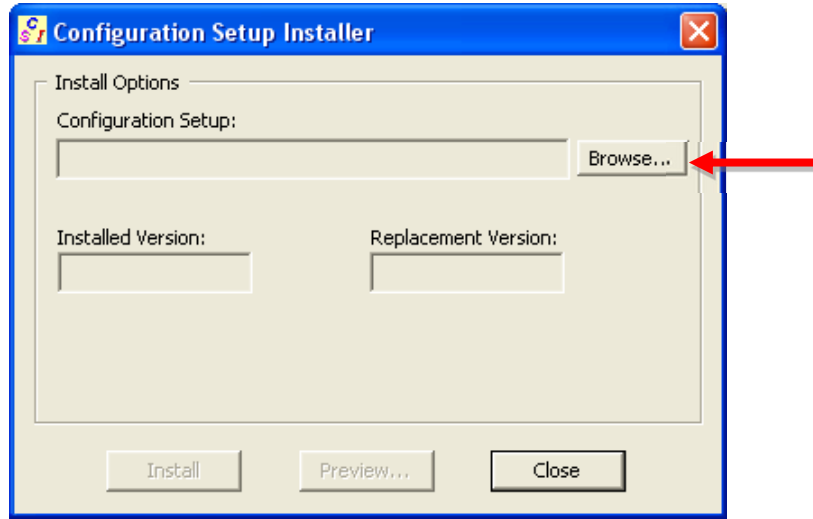
3) When you have highlighted the file, select "Open."
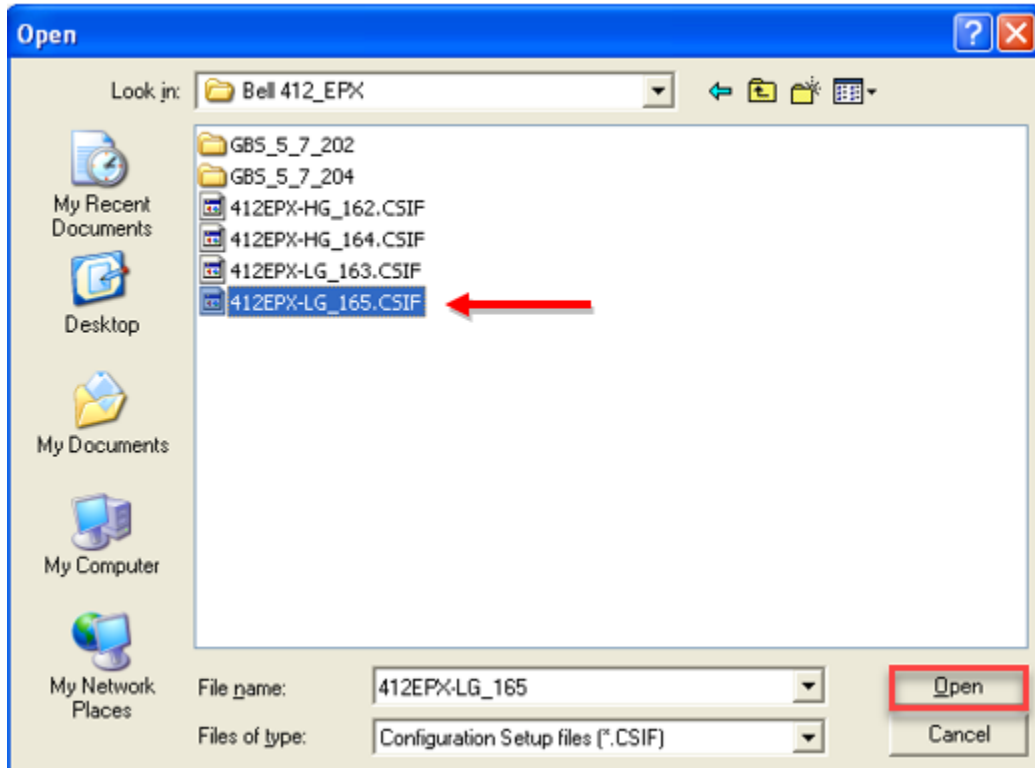
4) Install the CSIF file that you have selected, once installed click on "Close".

Use or disclosure of information contained on this page is subject to the restrictions on the title page.
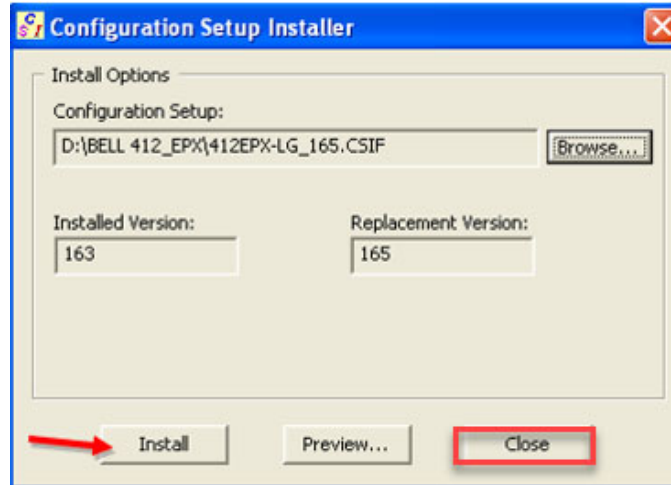
3.1.5.   Uploading Files to the Onboard 1134 Processor

Note

Power to the processor must be cycled after uploading files to complete the installation

1) Apply power to the 1134 processor and wait until the RDY light is illuminated.

2) Connect the Ethernet cable between the Laptop with PC-GBS and 1134 processor. Open the PCGBS program.

3) While connected to the HUMS 1134 with an Ethernet cable, right click on the menu bar, select GBS Management and enter the password as shown in the textbox and click 'OK'.

Use or disclosure of information contained on this page is subject to the restrictions on the title page.
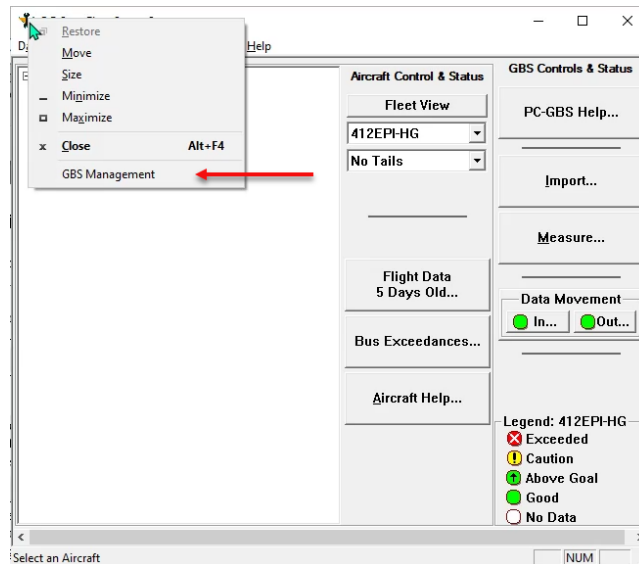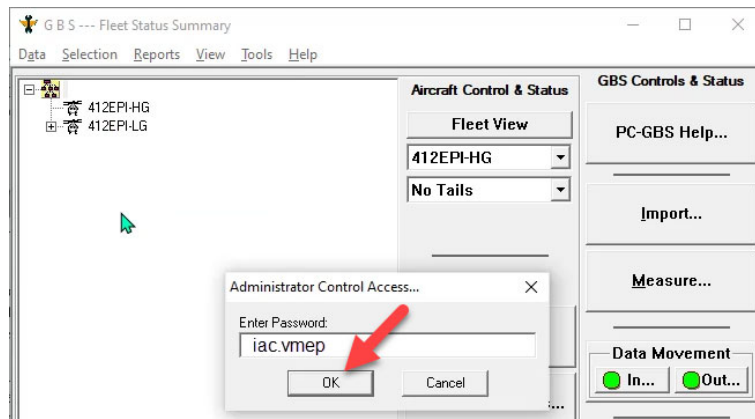
4) Click on 'Configure OBS…' and connect as shown.
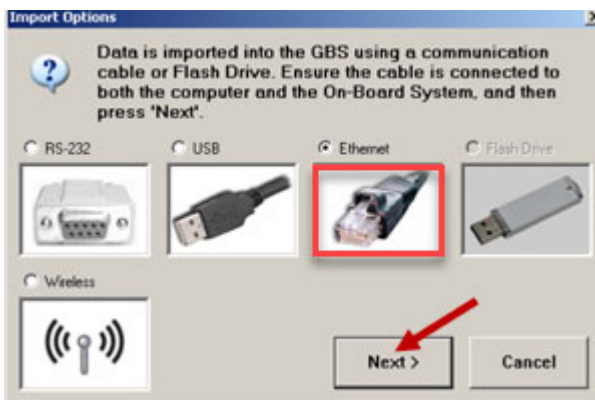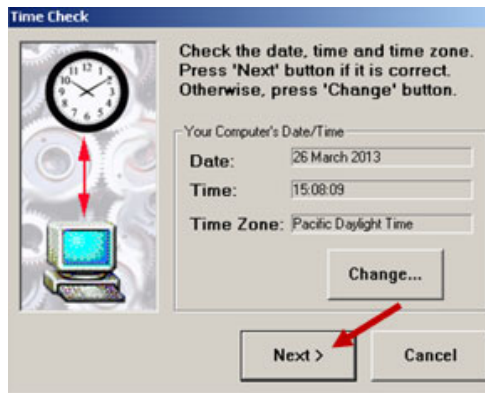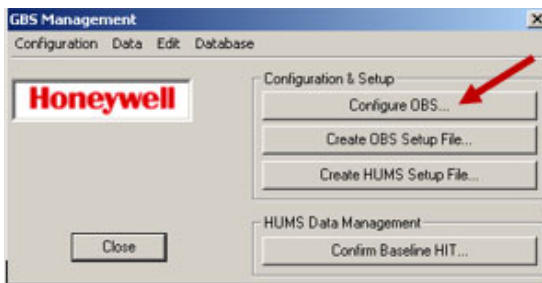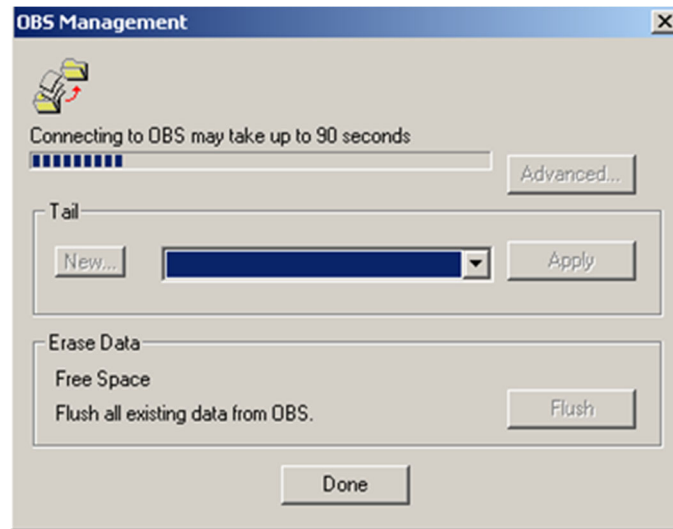
5) If GBS requests to upload new files click on the No button
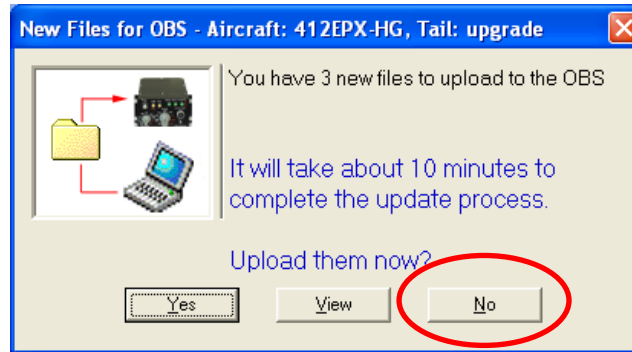
6) Once on the OBS Management page Click "**Advanced**".

Use or disclosure of information contained on this page is subject to the restrictions on the title page.
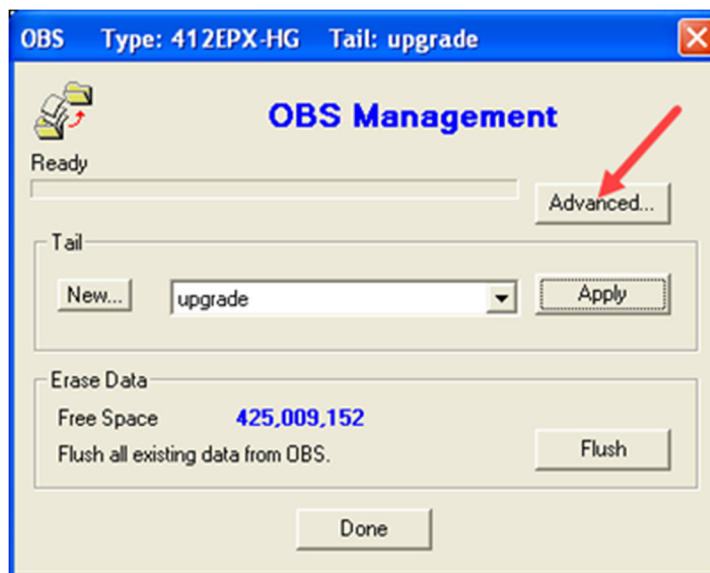
7) Select the '...' button to browse to the 'VMEP' folder.
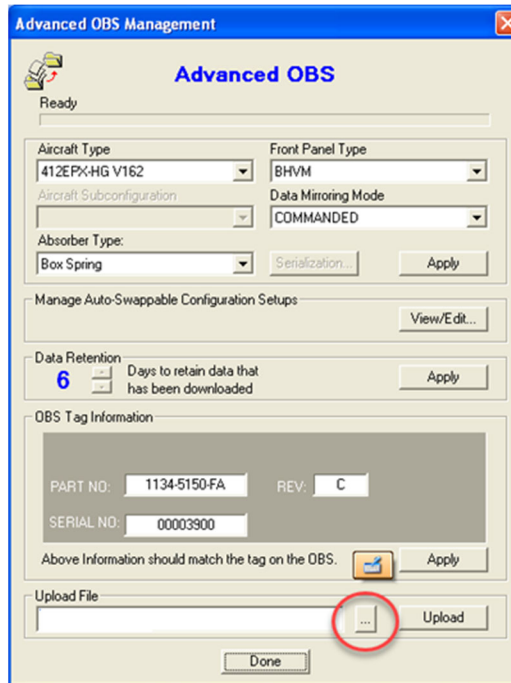
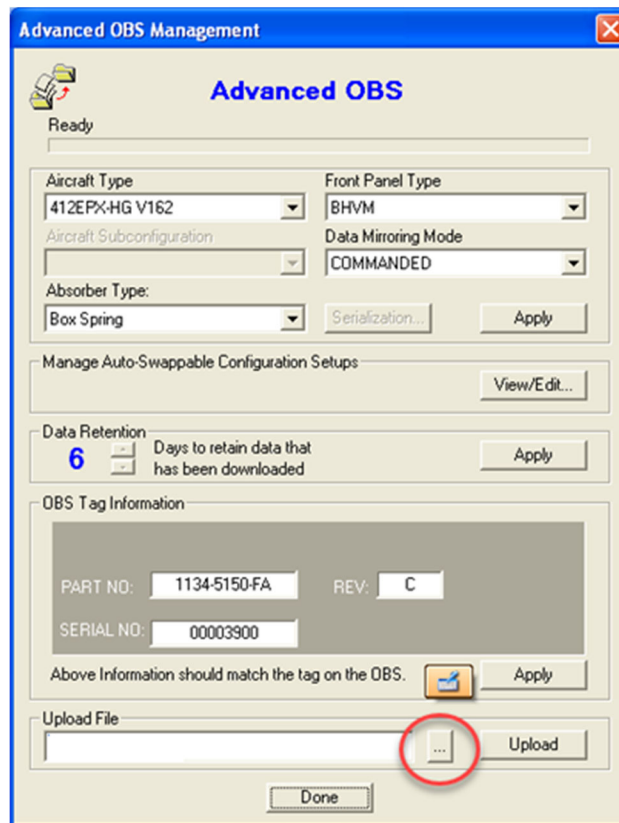8) Select "OBS.gz" file from 'C:\Program Files (86)\VMEP\Upload\System' and click "Open"
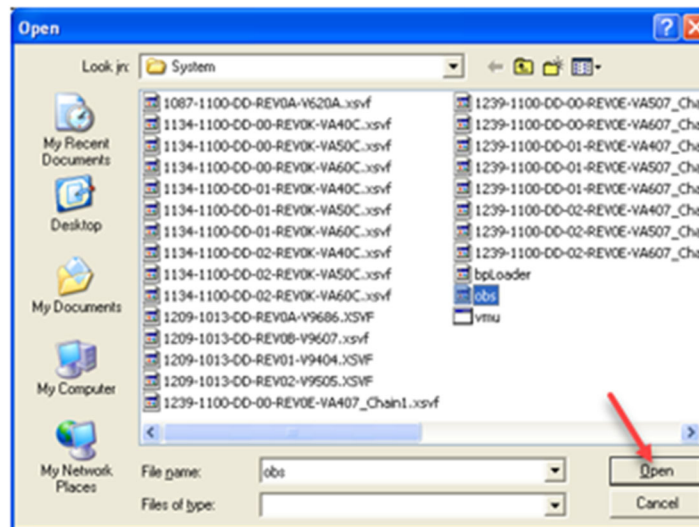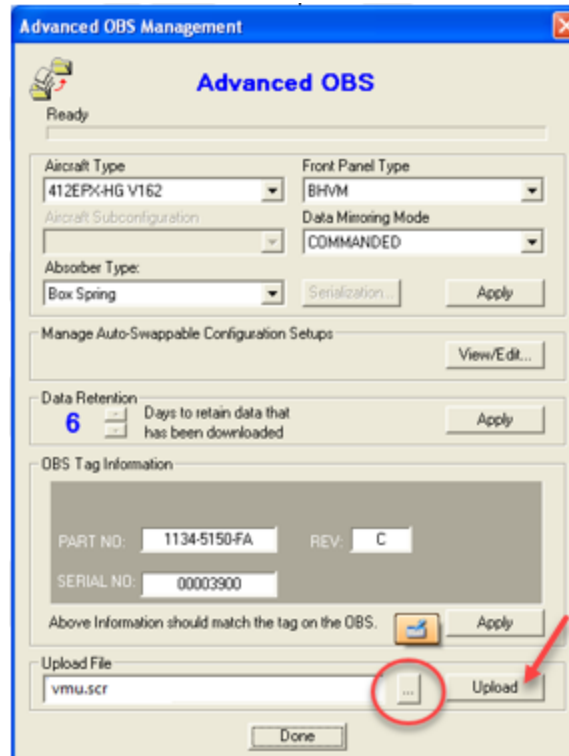
9) Then click 'Upload'.
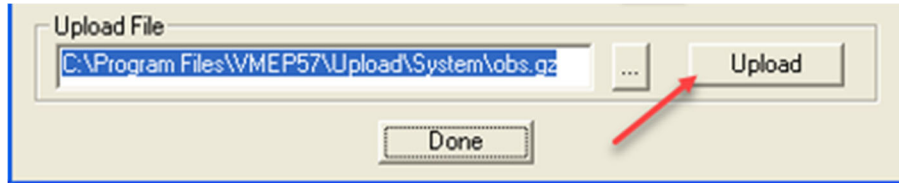
10) The file is uploaded as seen from the status 'Uploading File.'
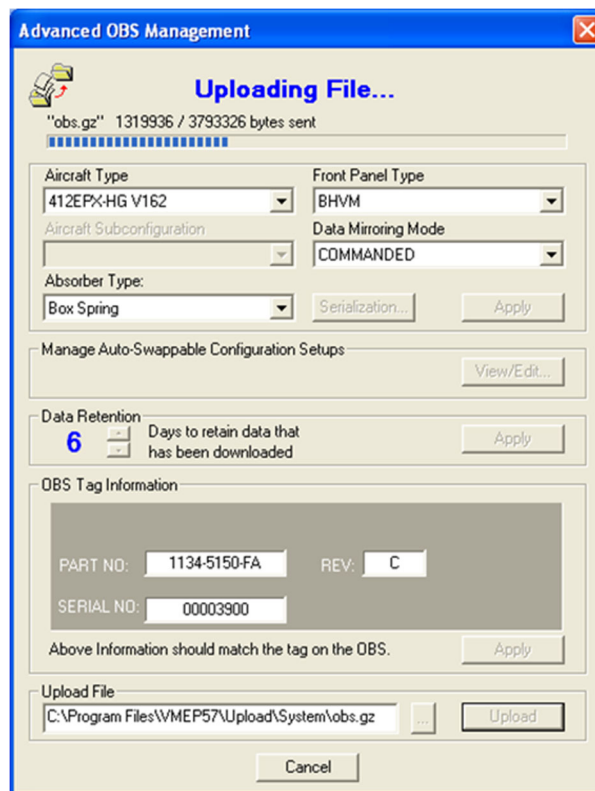
11) Wait for the upload. Once done, it returns to the Advanced OBS.

12) Select the '...' button to browse to the 'VMEP' folder.

Use or disclosure of information contained on this page is subject to the restrictions on the title page.
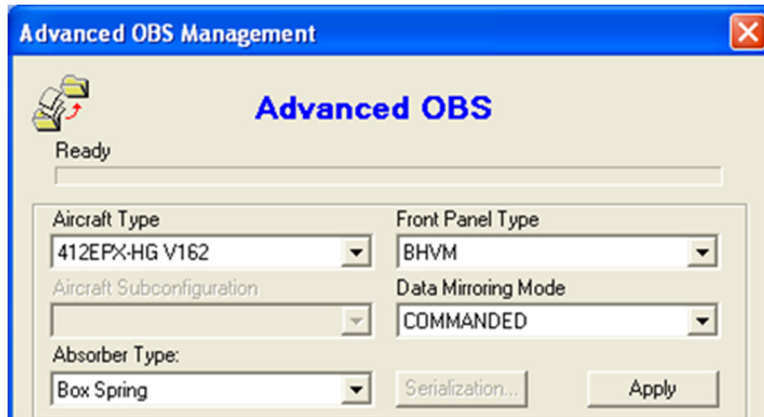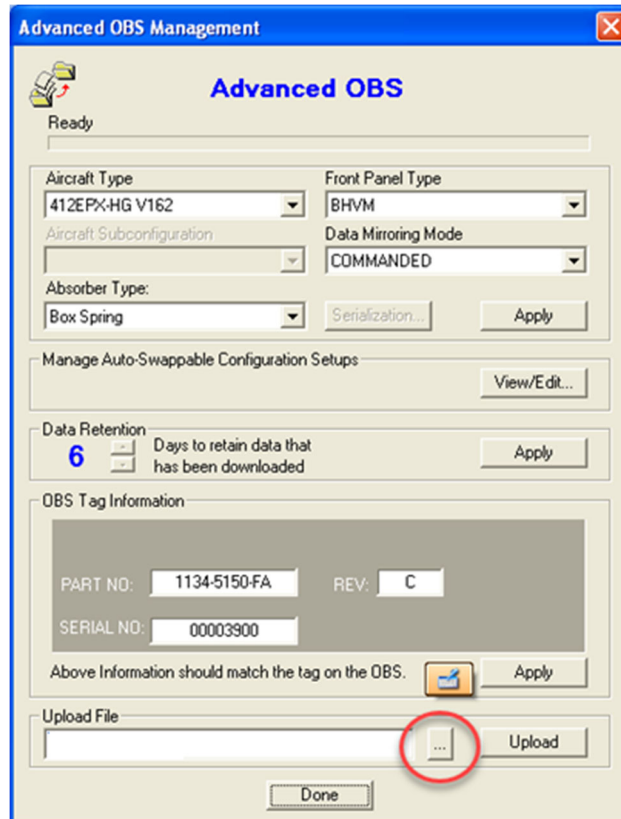
13) Select the appropriate 'bpLOADER.bin' file from "C:\Program Files (86)\VMEP\Upload\System" and click "Open"


14) Click "Upload" and wait for the upload.

Use or disclosure of information contained on this page is subject to the restrictions on the title page.
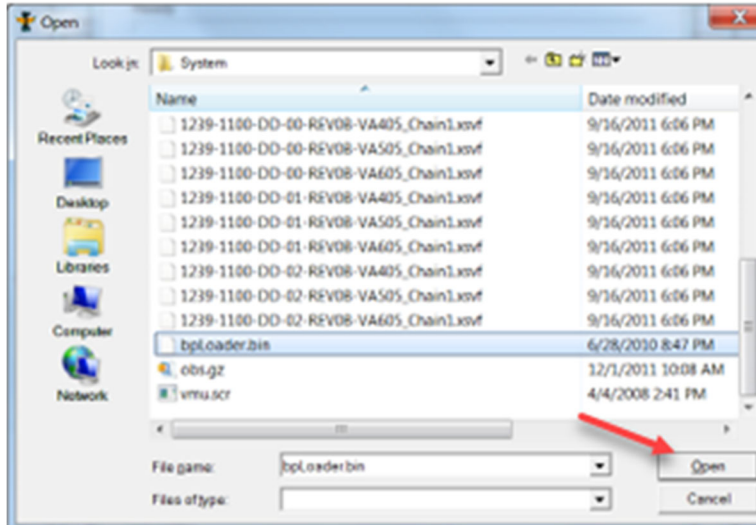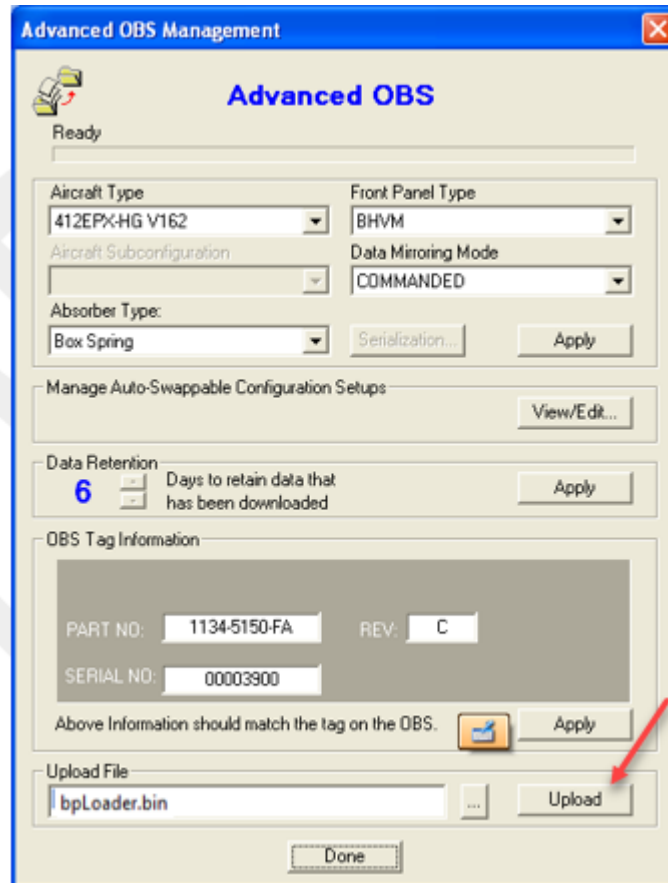
15) Once done, it returns to the Advanced OBS

16) Select the '…' button to browse to the 'VMEP' folder.

Use or disclosure of information contained on this page is subject to the restrictions on the title page.
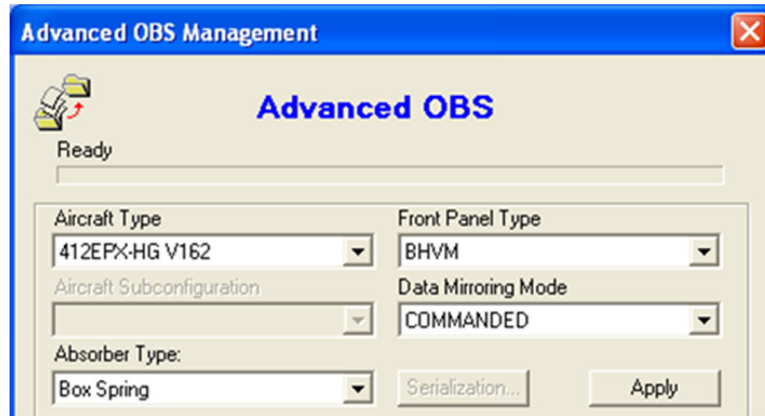
17) Select the appropriate 'vmu.scr' file from 'C:\Program Files (86)\VMEP\Upload\System' and click "Open"
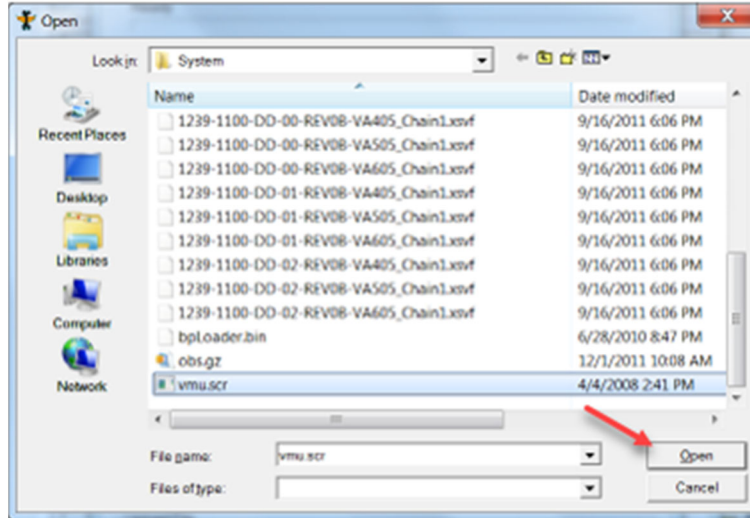
18) Click "Upload" and wait for the upload.

19) Once done, it returns to the Advanced OBS.
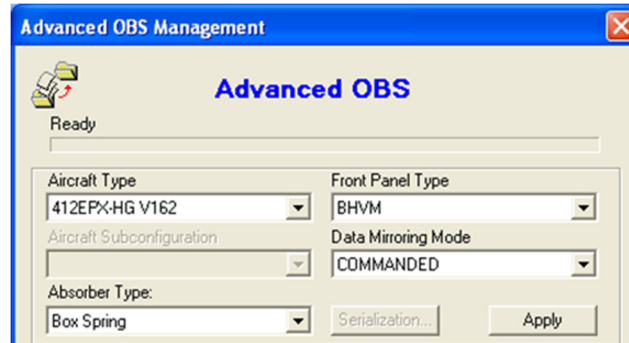
20) Select the '...' button to browse to the 'VMEP' folder
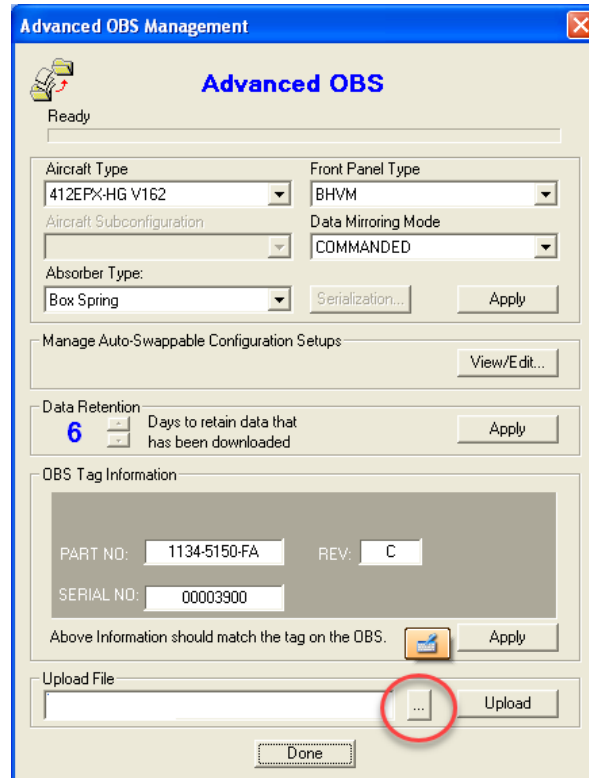
21) Select the 1134-1100-DD-02-REV0M-VA60E.xsvf from 'C:\Program Files (86)\VMEP\Upload\System' and click "Open"
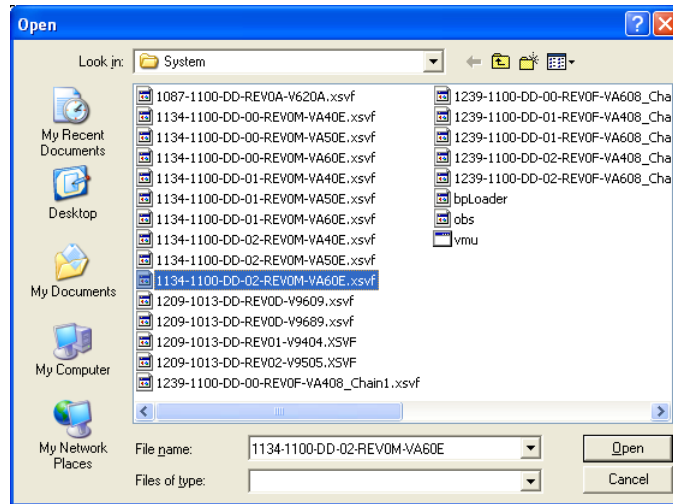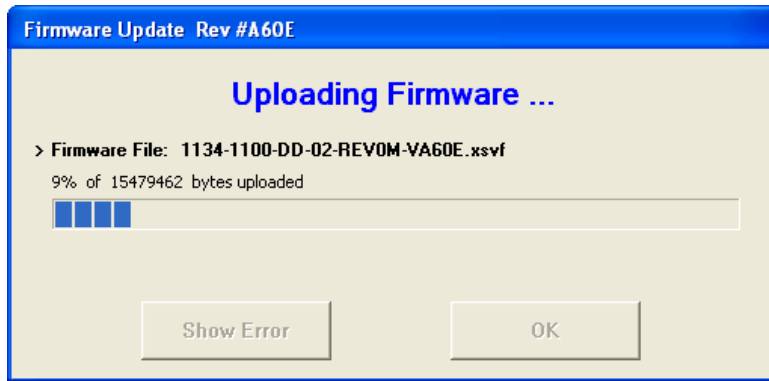
22) Click Upload
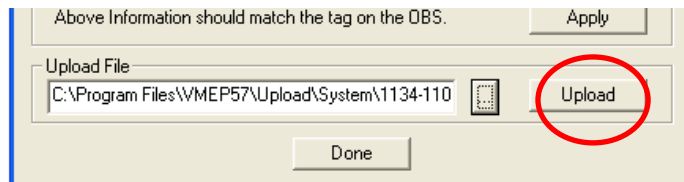
Note:

The firmware is based on the hardware configuration. In most cases the firmware revision shall be 1134-1100-DD-02-REV0M-VA60E.xsvf. Occasionally it may display the error below, if this happens go back to step 19 and select the Version of firmware where the "02" number matches the "The Current one has "x" number in the statement below.
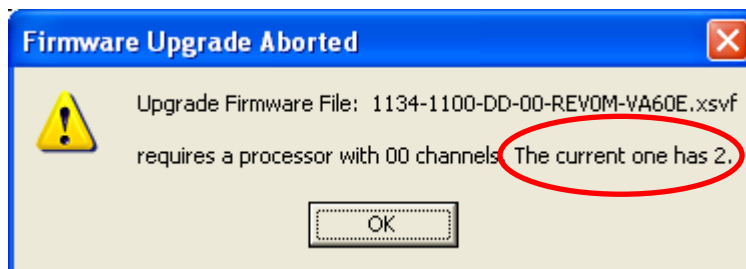
23) Once the firmware update is complete, click OK**. The OBS will reboot automatically, *but be sure to cycle power to the HUMS unit to ensure the firmare is installed.***

Note: If the cycle timer exceeds 00:20:00 minutes, then cycle power on aircraft
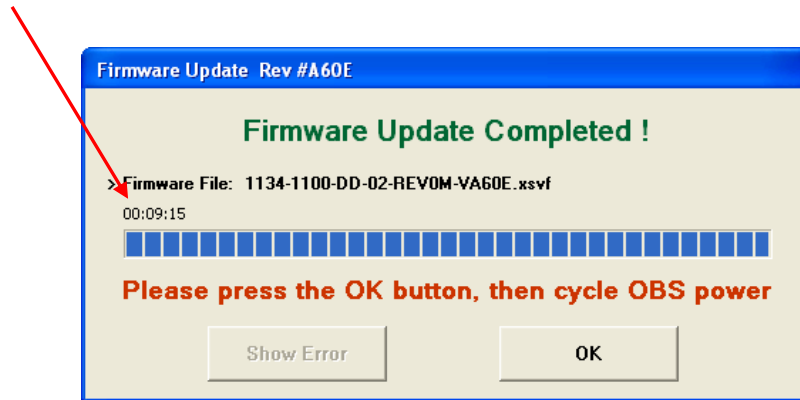
3.1.6. Changing the setup file (aircraft type) configuration on the unit.

1) Perform step 3.1.4 items 1 through 4 to add additional CSIF files on PC-GBS.
2) Connect the Ethernet cable between the Laptop with PC-GBS and to the 1134 processor with power to the processor and RDY light illuminated and connect as follows:
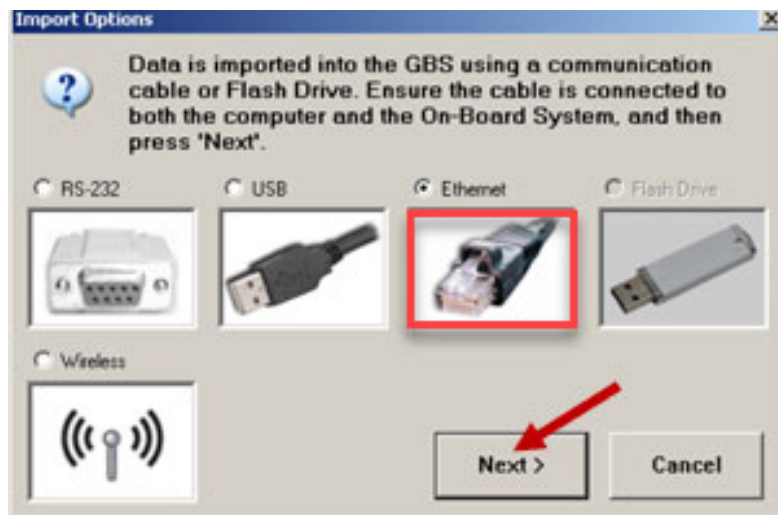3) Start the GBS management menu by right clicking on the GBS icon at the top left portion of the GBS title bar.

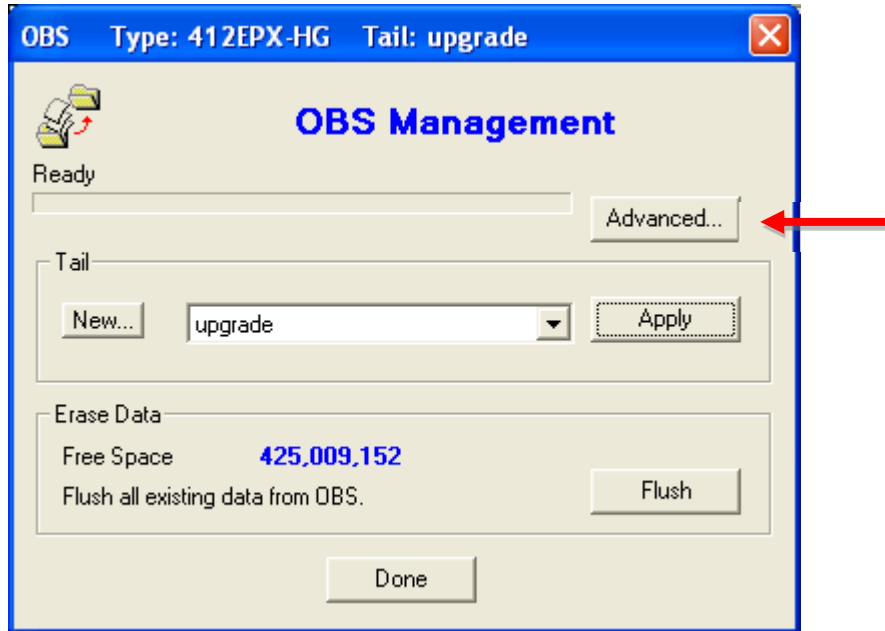   The password to enter the manager is "iac.vmep"
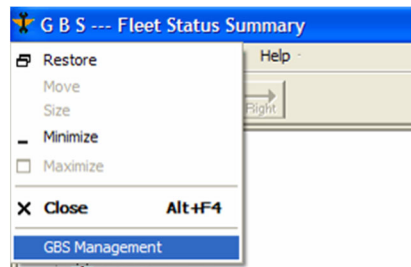
4) The GBS Management Menu will now launch.
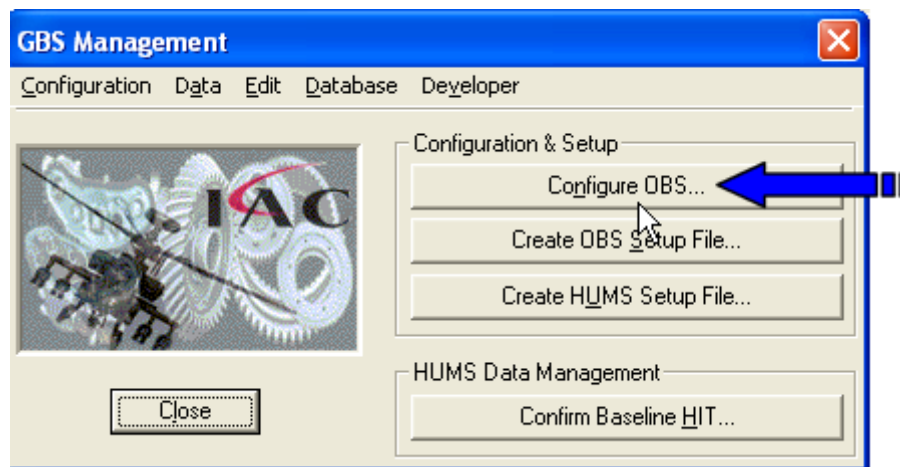
5) Select the "Configure OBS" button and you will be prompted to connect to the unit using Serial port, USB Port, or Ethernet Port. Select "Ethernet" and press "Next>" and then press "Next>" for the date and time dialog.

Use or disclosure of information contained on this page is subject to the restrictions on the title page.

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

7) Select the "Advanced…" button to enter the Advanced OBS Management window.

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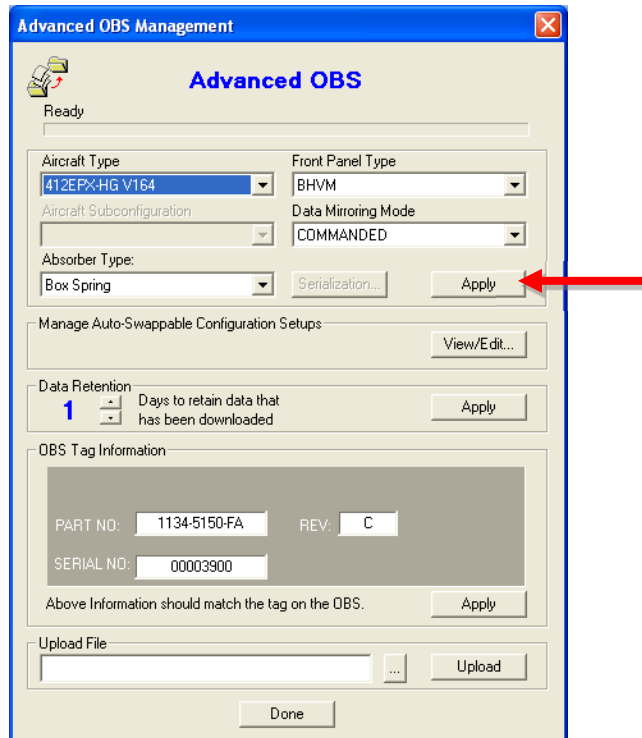
Aircraft Type: Use the drop down list to select the type of aircraft you wish to install, **412EPX_HG (High Gear), 412EPX_LG (Low Gear), 412EPI_HG(High Gear), or 412EPI_LG(Low Gear).**

Front Panel Type: Select **BHVM**.

Absorber Type: **412EPX_HG, 412EPX_LG, 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**."

Use or disclosure of information contained on this page is subject to the restrictions on the title page.

8) When the dialog reads "File Upload Completed," select the "Done" button at the bottom of the window, as shown below.
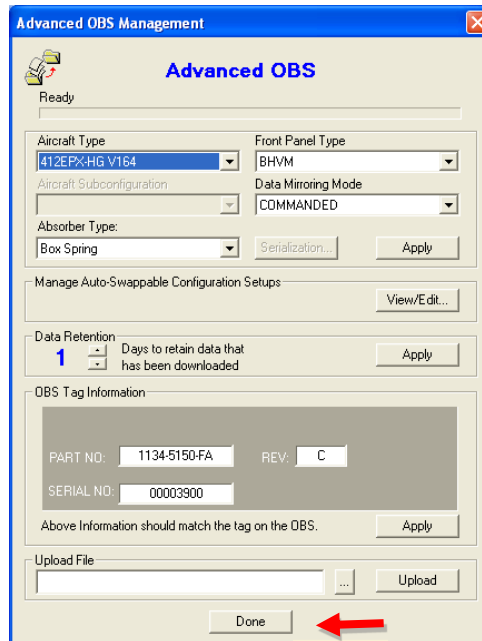
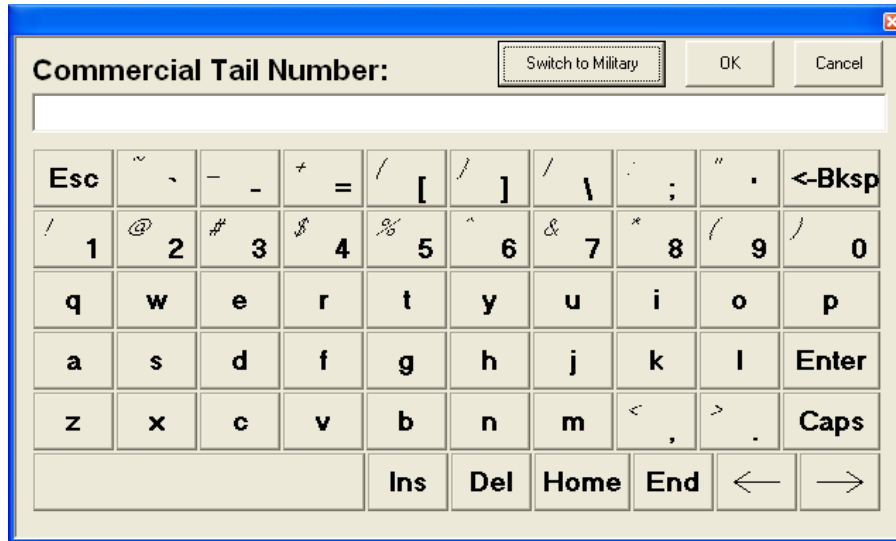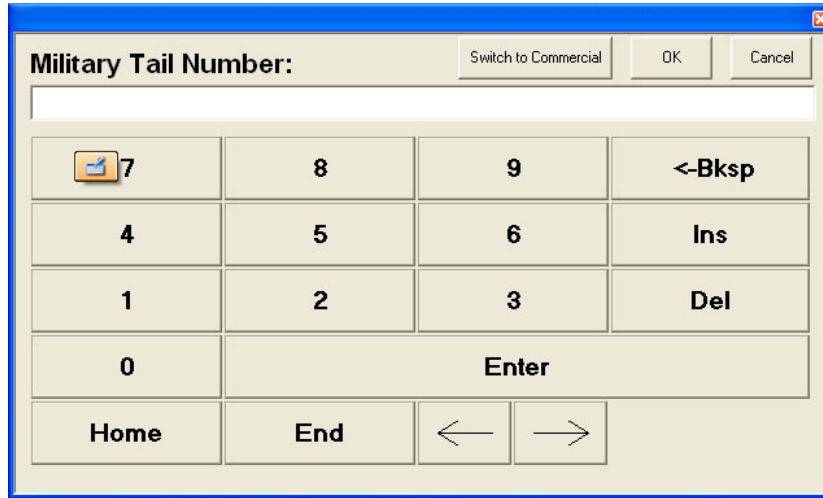**Note: If processor is already configured with the correct Tail number Skip steps 9, 10, and 11**

9) Selecting **Done** will take you back to the OBS Management window, then select the "New" button in the "Tail" section.
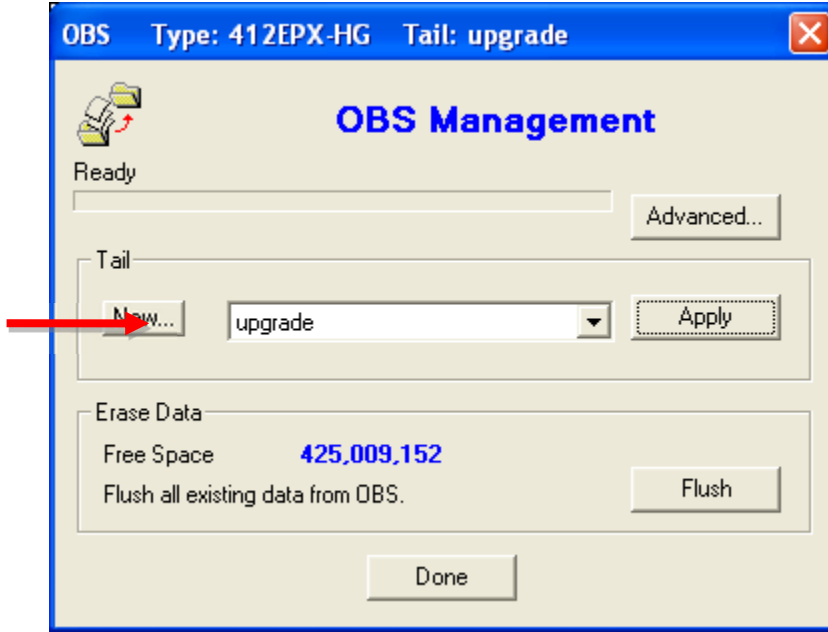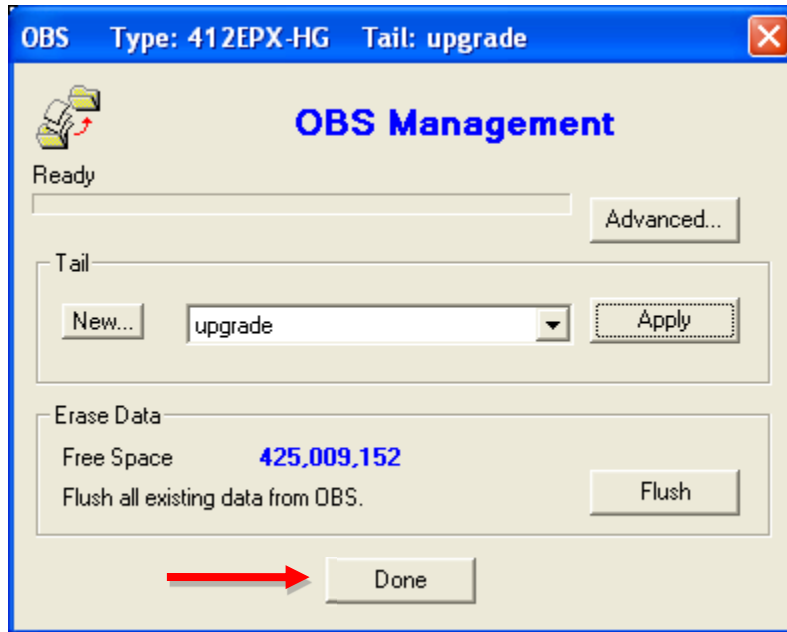

NOTE:

Bell requires 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 Bell MissionLink web site and tracked with the airframe over long term. Using the aircraft Serial number as the Tail number will keep the data tagged and current through the aircraft life.
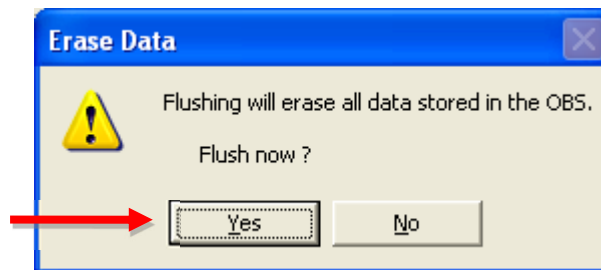
10) Select the "Commercial" button. Now type in the Serial number for the new aircraft and select "Apply."

Use or disclosure of information contained on this page is subject to the restrictions on the title page.

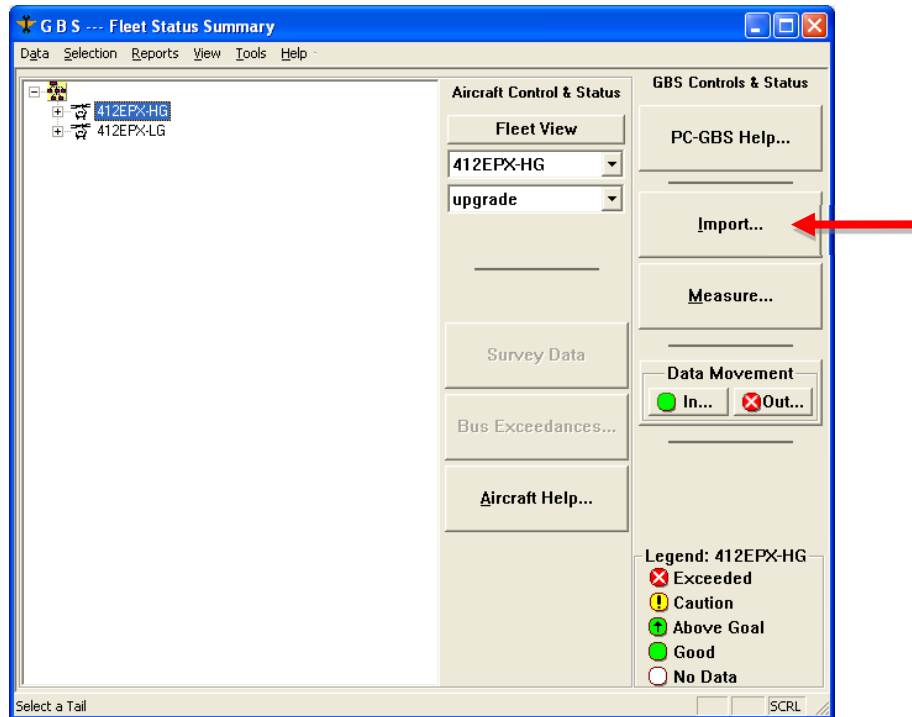11) Finally, select the "Done" button on the OBS Management window.

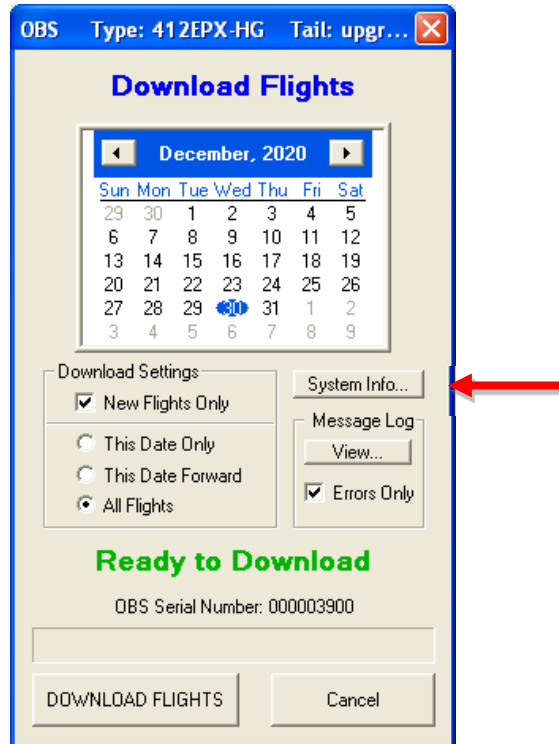12) The system will ask to perform a system flush. Select Yes.

13) When the flushing has completed the 1134 will reboot.
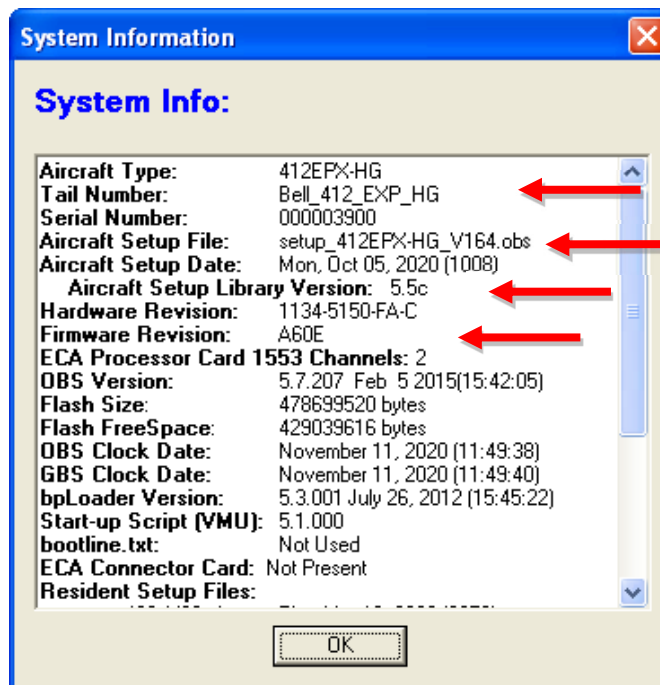
14) Once the system reboots, verify the system configuration by connecting with the Ethernet cable and performing an import.

Use or disclosure of information contained on this page is subject to the restrictions on the title page.

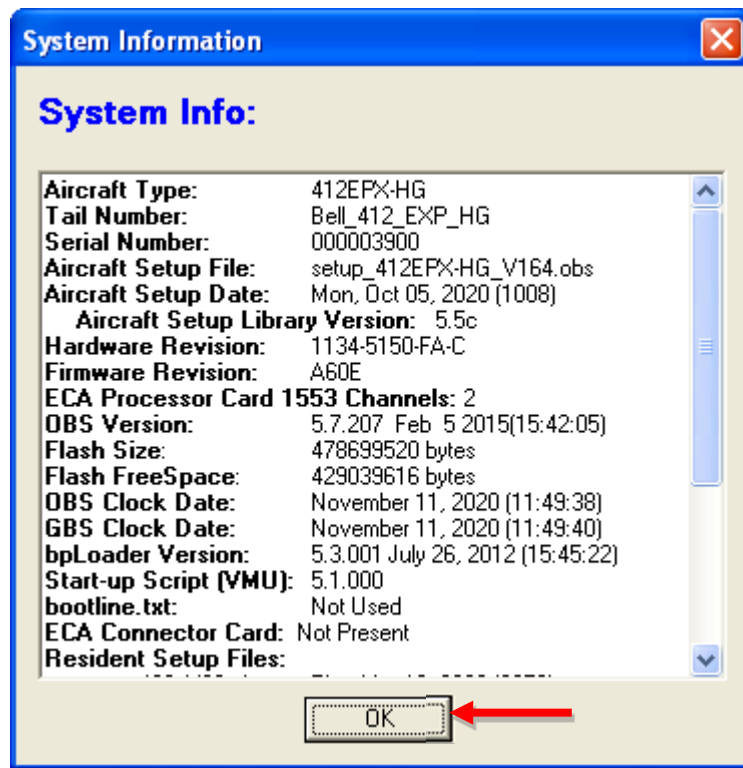15) Select System Info from the download dialog.

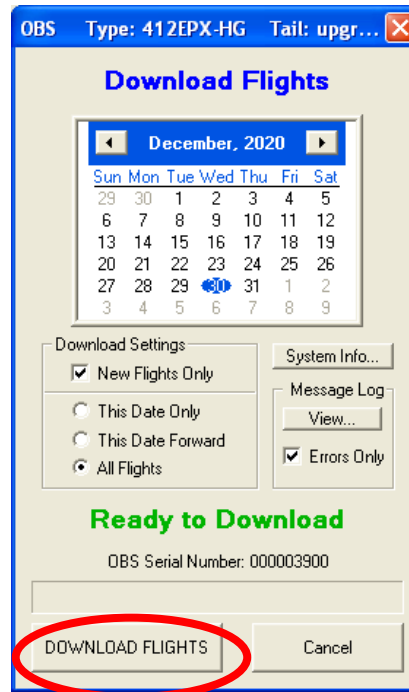16) Ensure the proper aircraft type and tail number is installed.

17) 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:

Use or disclosure of information contained on this page is subject to the restrictions on the title page.

Aircraft Type	Aircraft Setup File	OBS Version
412 EPX High Gear	412EPX-HG_V164.obs	5.7.207
412 EPX Low Gear	412EPX-LG_V165.obs	5.7.207
412 EPI High Gear	412EPI-HG_V59.obs	5.7.207
412 EPI Low Gear	412-EPI-LG_V60.obs	5.7.207

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

19) Press "Download Flights" button so that the latest BIT check can be downloaded

Use or disclosure of information contained on this page is subject to the restrictions on the title page.

NOTE

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

20) 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.
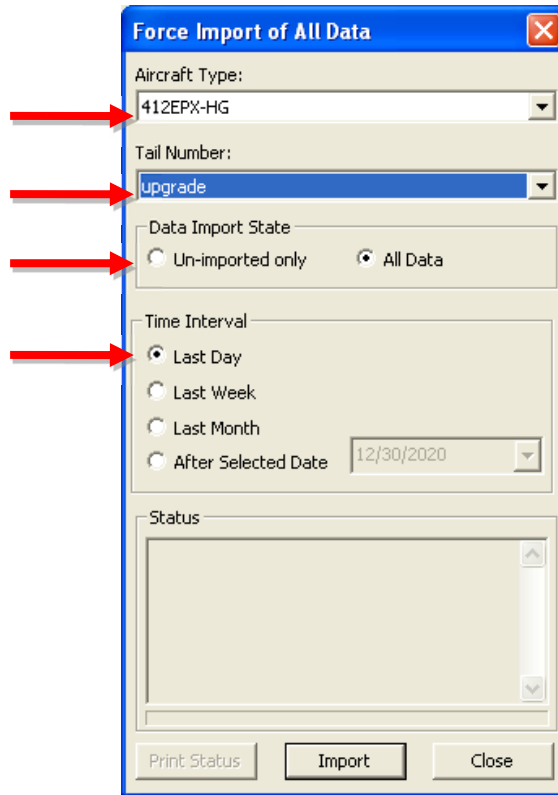
21) Right click on the widow title bar, select GBS Management, and enter password (iac.vmep).
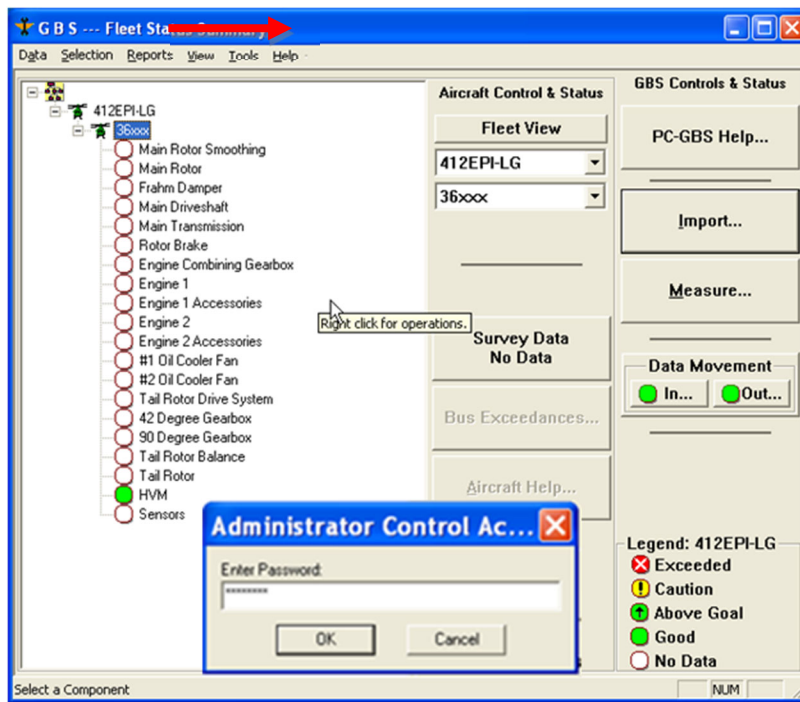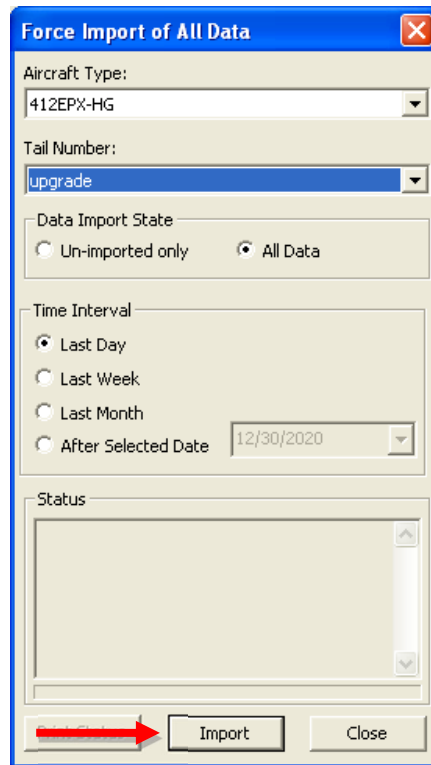
22) At the "Data" drop down, select "Force Import of Ignored Data…"
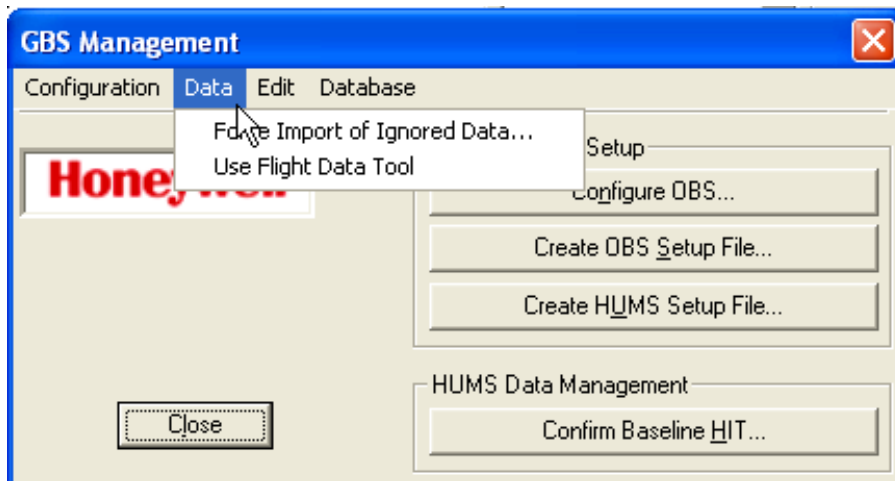
23) Now the "Force import of All Data" dialog will open. Ensure the proper aircraft type, tail number, Data Import State, and Time Interval are selected as indicated below.

24) Press the "Import" button and any new BIT checks will be imported into PC-GBS.

Use or disclosure of information contained on this page is subject to the restrictions on the title page.

25) Press the "Close" button and return back to PC-GBS main screen ensuring the "HVM" icon is showing a green status.

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

4 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 label 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.

Use or disclosure of information contained on this page is subject to the restrictions on the title page.