



ECCN 9E990

Aeronautical

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Technical Bulletin

TB No. AA-15074

No Revision

January 14, 2016

SUBJECT: 429 HUMS Upgrade

PARTS AFFECTED: **Aeronautical Accessories Health and Usage Monitoring System (HUMS) Kit**
P/N 429-260-001

MODELS AFFECTED: Bell Helicopter Textron Canada Limited model 429 helicopters with subject HUMS Kit installed in accordance with FAA STC SR09536RC-D.

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

DESCRIPTION: This Technical Bulletin is being issued to allow the owner to upgrade their HUMS Kit to:

PART 1: (for S/N's 57194 – SUB) or aircraft with
Tailboom Vertical Fin Assy 429-034-720-107, or later

- A. Relocation of Tail Rotor Gearcase accelerometer -
to improve tail rotor balancing
- B. Upgrade PC-GBS 5.5 SP4 Database to V39

PART 2: (for S/N'S 57001 - SUB) –
Addition of second ground wire for Signal Ground -
to improve tach signal

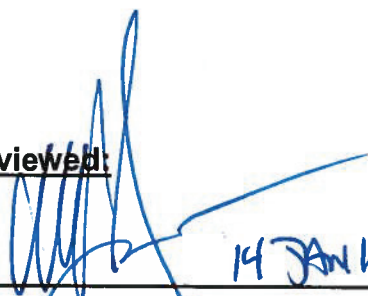
FAA/ODA APPROVAL: The engineering aspects of this Technical Bulletin are FAA/ODA approved.

MANPOWER: Approximately 3.0 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

LOG OF REVISIONS

Date	Revision	Description	Affected Pages
1/14/16	NR	Original Release	All

Reviewed:
14 JAN 16

Engineering

1.0 MATERIALS REQUIRED

1.1 PART 1A: RELOCATION OF TAIL ROTOR GEARCASE ACCELEROMETER (for S/N's 57194 – Subsequent ONLY)

TABLE 1 - PARTS LIST

<u>Qty</u>	<u>Part Number</u>	<u>Description</u>	<u>Figure</u>
1	429-263-167	Bracket – T/R Gearcase Accel	1
1	NAS6703H8	Bolt	1
1	MS21042L4	Nut	1

PART 1B: UPGRADE OF PC-GBS 5.5 SP4 DATABASE V39

(for S/N's 57194 – Subsequent ONLY)

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 1

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 1

NOTE

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

TABLE 2 - PARTS LIST

412-262-060 UPGRADE KIT

<u>Qty</u>	<u>Part Number</u>	<u>Description</u>	<u>Figure</u>
1	1209-3196-PF	Label	3
1	1209-3198-PF	Label	4

1.2 PART 2: ADDITION OF SECOND GROUND WIRE FOR SIGNAL GROUND
(for S/N's 57001 – Subsequent)**TABLE 3 - PARTS LIST**

<u>Qty</u>	<u>Part Number</u>	<u>Description</u>	<u>Figure</u>
1	429-263-325	Decal – HUM Signal Gnd	5,6
1	429-263-327	Decal – HUM Pwr Gnd	5,6
1	HUM147A22N	Wire – 1 Cond Shielded, 22 AWG	6,6
1	MS25036-103	Terminal	7
1	NAS1801-3-12	Screw	7
1	MS35338-43	Lockwasher	7
2	NAS1149D0316J	Washer	7
2	NAS1149D0332J	Washer	7
1	MS35650-302	Nut	7
1	MS21042L3	Nut	7

2.0 WEIGHT AND BALANCE

Not affected

3.0 PUBLICATIONS AFFECTED

Instructions for Continued Airworthiness, report AA-09041

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:**PART 1A – RELOCATION OF TAIL ROTOR GEARCASE ACCELEROMETER
(S/N's 57194 – SUBSEQUENT ONLY)**

(Refer to Figure's 1 & 2)

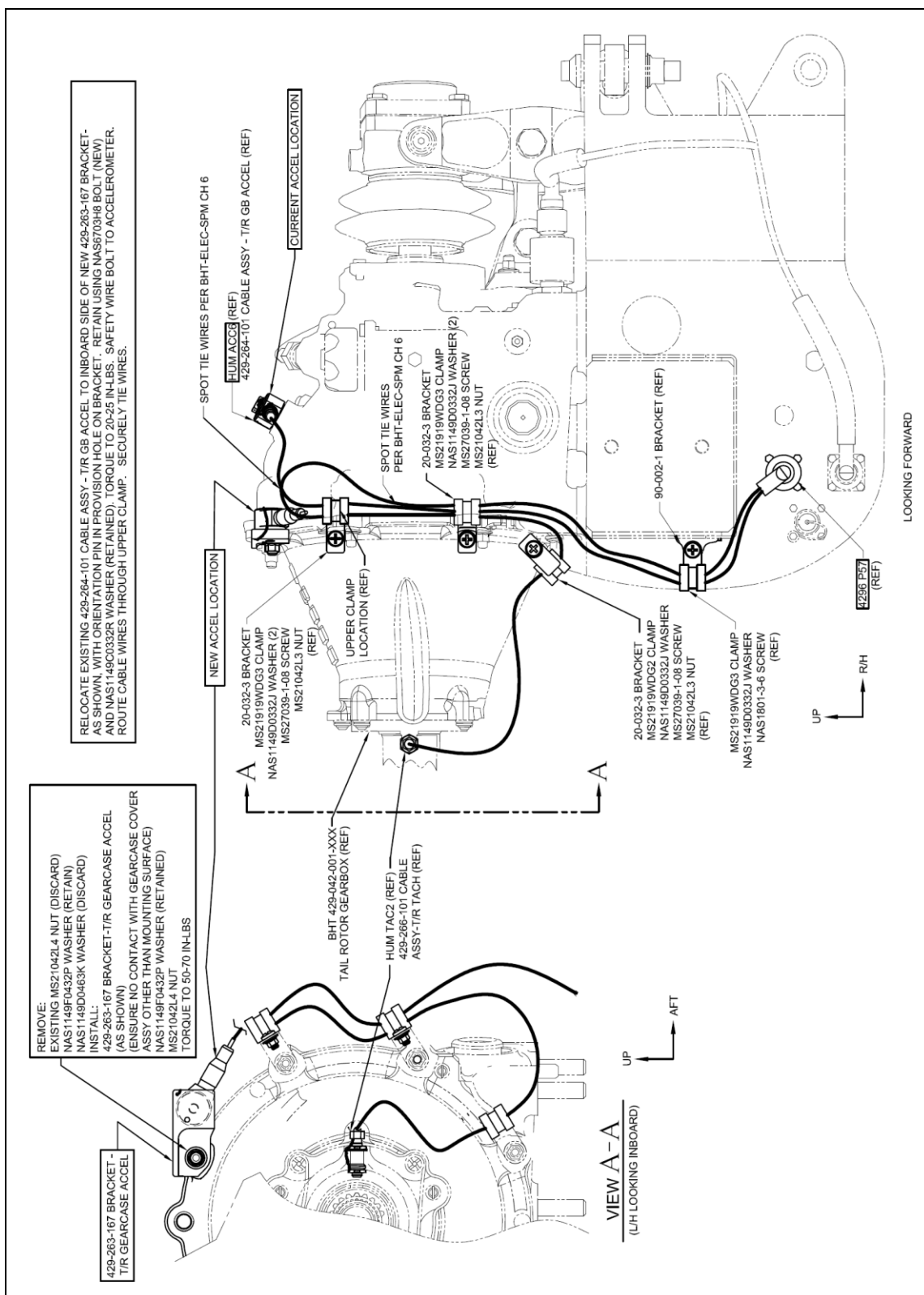
1. On existing T/R Gearcase Assembly (BHT 429-042-001-XXX), at the outboard cover side, locate the retaining fastener at the 1 o'clock location, as shown in Figure 1.
2. At this location, remove the existing Nut (MS21042L4) (discard), Washer (NAS1149F0432P) (retain), and Washer (NAS1149D0463K) (discard), shown in Figure 1.
3. Clean the exposed mounting surface on the T/R Gearcase Cover, around the remaining mounting stud, being careful not to damage the threads on the stud.
4. Apply MIL-PRF-81733 Sealant to faying surfaces of Bracket-T/R Gearcase Accel (429-263-167) and T/R Gearcase Cover and install Bracket using Washer (NAS1149F0432P) (retained) and Nut (MS21042L4), as shown in Figure 1. Torque Nut to 50-70 in-lbs.

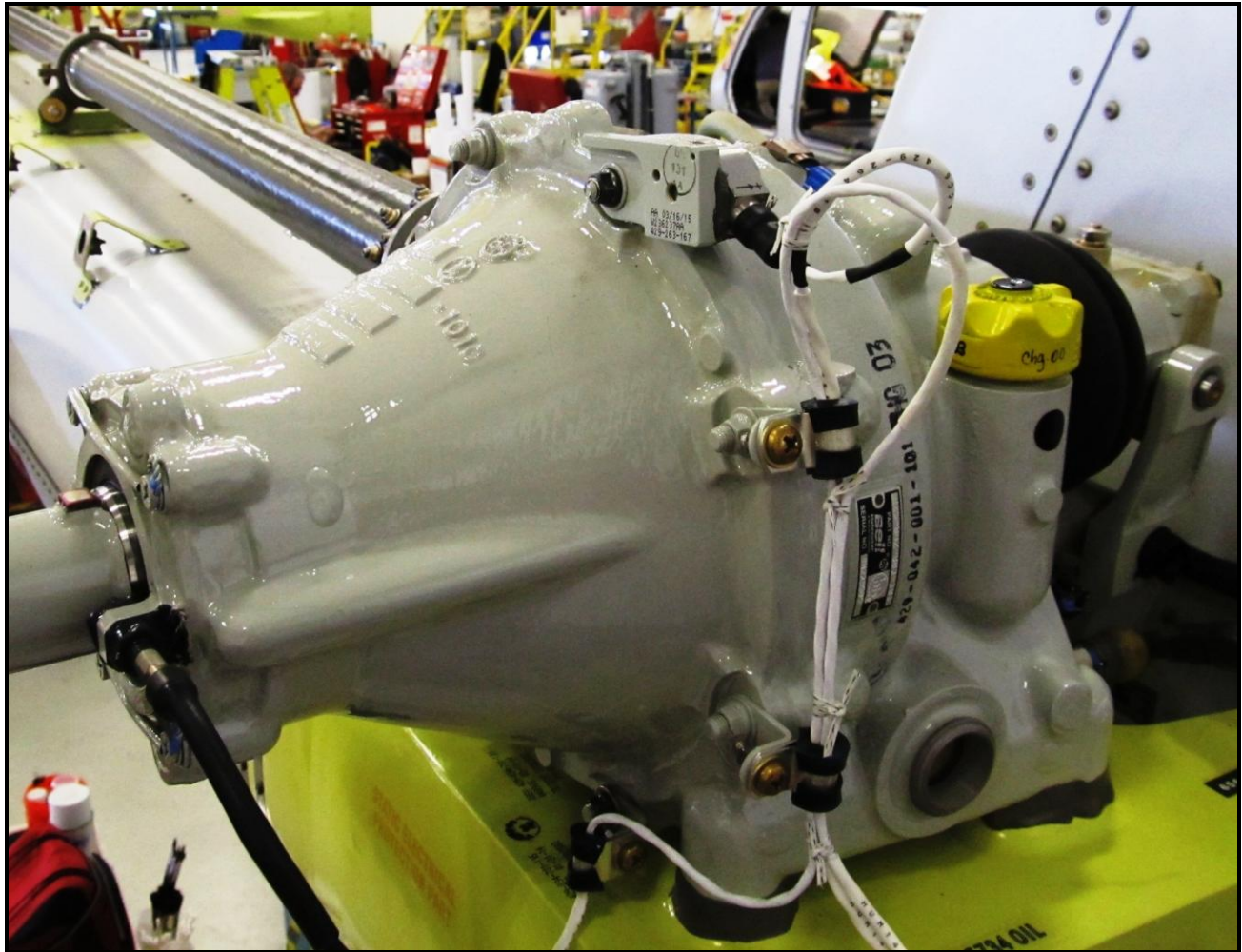
NOTE

Ensure there is no contact between the Bracket - T/R Gearcase Accel (429-263-167) and the T/R Gearbox Cover, other than the mounting surface.

5. Remove and retain the Clamp (MS21919WDG3), Washer (NAS1149D0332J) - 2X, Screw (MS27039-1-08), and Nut (MS21042L3), from the upper Bracket (20-032-3) location at the rear of the T/R Gearcase Assembly, to free the wires of the 429-264-101 Cable Assy – T/R GB Accel and the 429-266-101 Cable Assy – T/R Tach, as shown in Figure 1.
6. At the top of the T/R Gearbox Assembly (BHT 429-042-001-XXX), locate the T/R Gearcase Accelerometer (HUM ACC6), part of Cable Assy–T/R GB Accel (429-264-101), as shown in Figure 1.
7. Remove Bolt (NAS6703H7) (discard) and Washer (NAS1149C0332R) (retain) to detach T/R Gearcase Accelerometer (HUM ACC6) from the current mounting location.
8. Using MIL-PRF-81733 Sealant, fill the exposed tapped, mounting hole and anti-rotational pin receptacle hole left open on the top of the T/R Gearbox Assembly.
9. Clean T/R Gearcase Accelerometer (HUM ACC6) for reinstallation at the new location.

10. Orient T/R Gearcase Accelerometer (HUM ACC6) to the inboard side of previously installed Bracket-T/R Gearcase Accel (429-263-167), aligning anti-rotational pin on T/R Gearcase Accelerometer (HUM ACC6) with anti-rotational pin receptacle hole provision in the Bracket, as shown in Figure 1.
11. Install accelerometer (HUM ACC6) to Bracket using retained Washer (NAS1149C0332R) and Bolt (NAS6703H8), installing fastener wet with Sealant (MIL-PRF-81733) under the bolt head and on shank. Do not apply Sealant to threads.
12. Torque bolt to 20–25 in-lbs.
13. Apply fillet seal, 1/8 inch bead max, around perimeter of accelerometer using Sealant (MIL-PRF-81733).
14. Lockwire Bolt (NAS6703H8) to the accelerometer, as shown in Figure 1, per AC43.13-1, Chapter 7, Section 7.
15. Route and loop wires from the 429-264-101 Cable Assy – T/R GB Accel and the 429-266-101 Cable Assy – T/R Tach, as shown Figure 2, re-securing to the upper Bracket (20-032-3) location at the rear of the T/R Gearcase Assembly.
16. Tie wires, where required (ref. Figure 2), to ensure no contact to adjacent parts during operation.
17. Relocation of Tail Rotor Gearcase Accelerometer complete.


FIGURE 1 – TAIL ROTOR GEARCASE ACCEL RELOCATION (S/N'S 57194-SUB ONLY)



**FIGURE 2 – FINAL CABLE ROUTING FOR RELOCATED
TAIL ROTOR GEARCASE ACCELEROMETER**

6.0 ACCOMPLISHMENT INSTRUCTIONS:

PART 1B – PC-GBS 5.5 SP4 DATABASE V39 UPGRADE (S/N's 57194 – SUBSEQUENT ONLY)

(Refer to Figures 3 & 4)

6.1 AIRCRAFT DATABASE FILE

The following instructions are provided as a guide for upgrading the PC-GBS 5.5 SP4 Database from V36 to V39, applicable for aircraft S/N's 57194 – Sub ONLY.

NOTE

Part 1A, relocation of Tail Rotor Gearcase Accelerometer, must be completed prior to upgrading the database to V39.

6.2 SOFTWARE DOWNLOAD

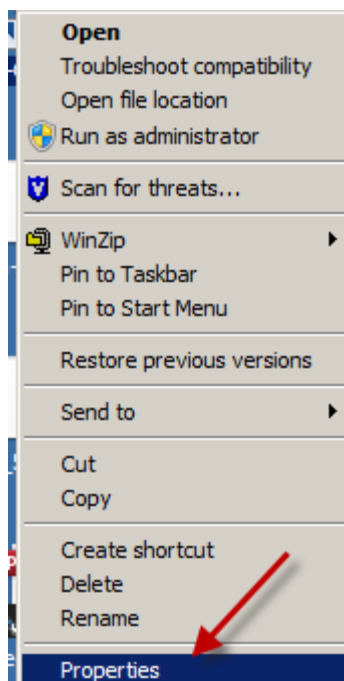
1. Access BHVM web site at <https://bhti-imds.iac-online.com>
2. Click on Download and choose "PC-GBS Programs"
3. Click on File Name, Bell 5.5 SP4 V39 Zip file and download to your desktop.

File Name	File Type	File Size	Last Modified	Description
429.HUMS.zip	ZIP	10.8 MB	2015/11/06 05:22:55	Fix IP address Connection with version 429 v35 only. Unable connection with PC-GBS and Processor
429V39.zip	ZIP	5.3 MB	2015/12/30 08:16:06	429 Aircraft Configuration Version 5.5 SP4 Version 39
5.5_SP4_Bell429_V39.zip	ZIP	96.5 MB	2015/04/21 08:47:36	429 PC-GBS 5.5 SP4_Bell429_V39
Bell_4.1_SP4A_CD_Image.zip	ZIP	101.8 MB	2014/01/22 06:00:49	412/212 PC-GBS 4.1 SP4A CD Image
Bell_4.1_SP4A_V39.zip	ZIP	30 MB	2015/09/30 05:00:43	412/212 Aircraft Configuration Version 4.1 SP4A Version 44/45
Bell_412EPI_5.7_SP4A_GBS_CD_Image.zip	ZIP	107.6 MB	2014/05/01 13:04:47	412EPI Software 5.7-SP4A
DMITS_412EPI.zip	ZIP	9.4 MB	2013/08/20 10:04:35	DMITS 412EPI SOFTWARE

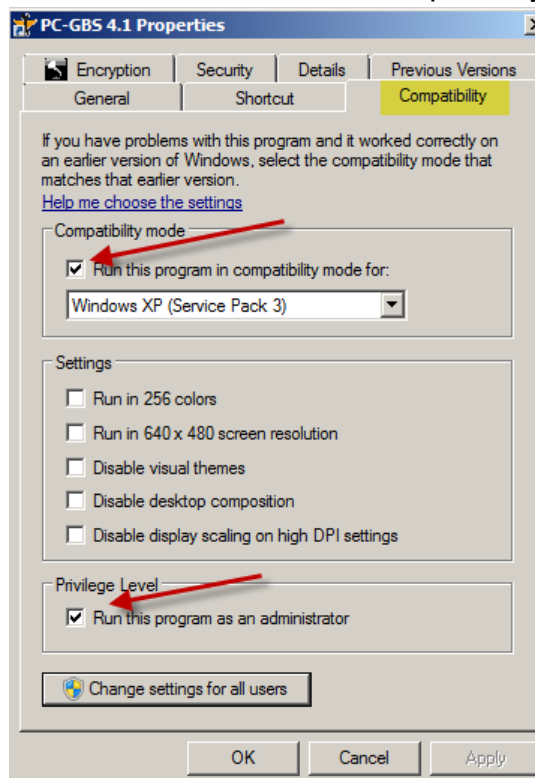
4. Create a new folder on Desktop called Bell 5.5 SP4 V39.
5. Unzip files Bell 5.5 SP4 V39.zip and extract them into the new folder you have just created.

6.3 PC-GBS SOFTWARE WITH WINDOWS 7 COMPUTERS

1. Right click on PC-GBS icon on your Desktop and choose “Properties”.



2. In the PC-GBS Properties screen click on the “Compatibility” tab.



3. Check the following boxes:
 - a. Run this program in Windows XP compatibility mode.
 - b. Run this program as an administrator.
4. Click “Apply”, then “OK”.

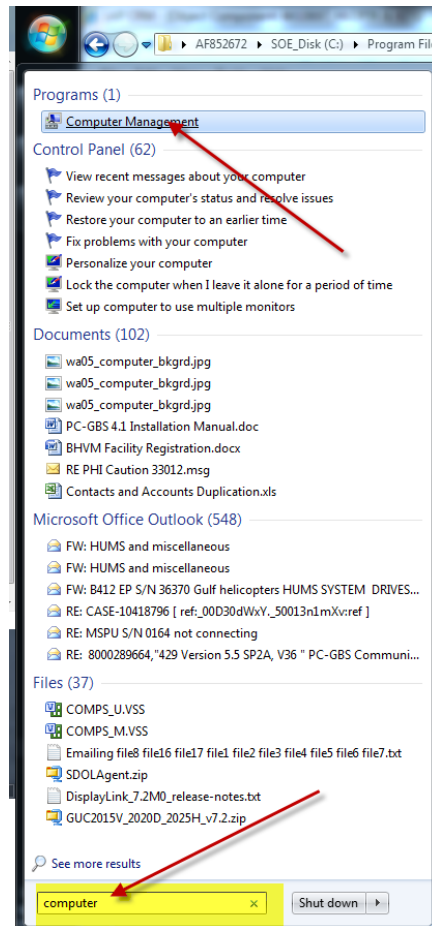
6.4 PC-GBS CONFIGURATION FILE VERSION 39 INSTALLATION (S/N'S 57194 - SUB ONLY)

Automatic File Handler Service

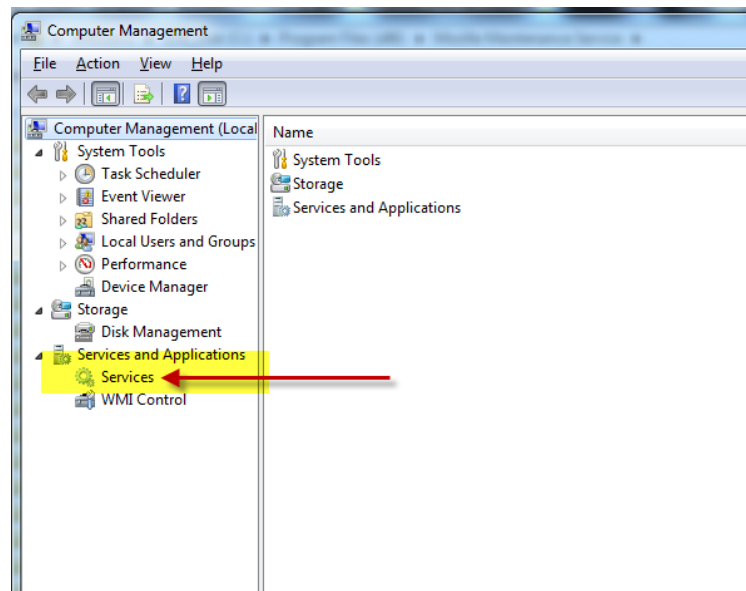
NOTE

Automatic File Handler Service needs to be turned off prior to the installation of V39. This Service is used to upload aircraft data automatically to the BHVM Web server.

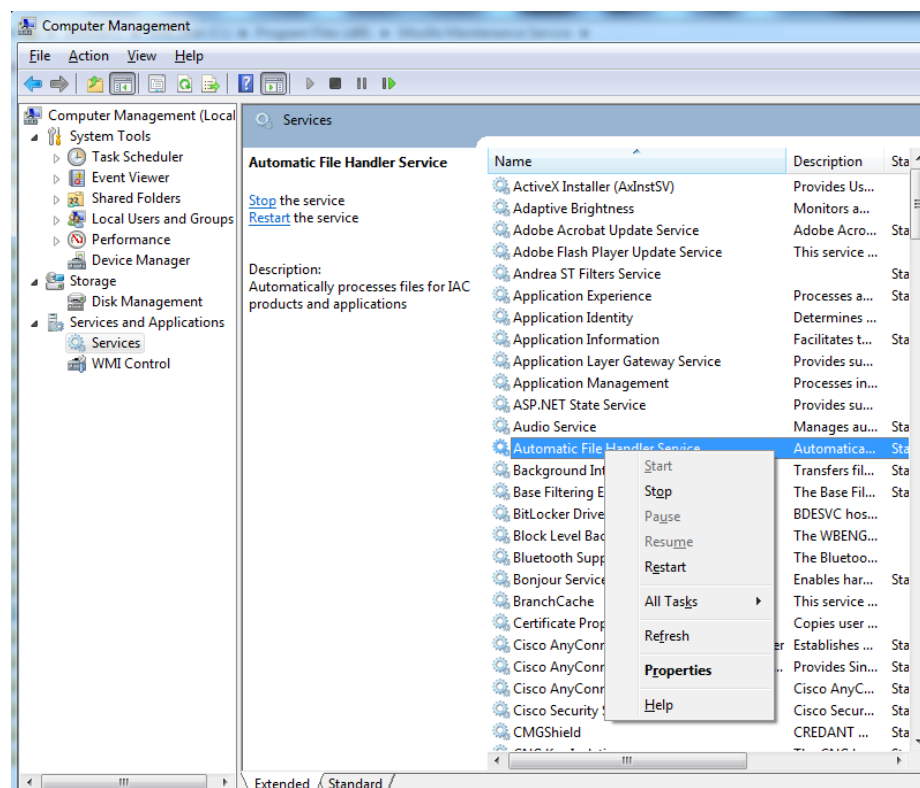
1. Click on “Start”.
2. In the search field write “computer”.
3. Click on “Computer management”.



4. Click on “Services and Applications”.
5. Click “Services”.

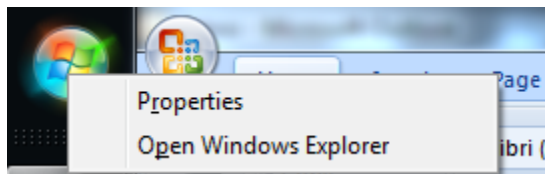


6. Right Click on “Automatic File Handler Service”.
7. Click on “STOP service”.
8. Minimize window at this time for future use.

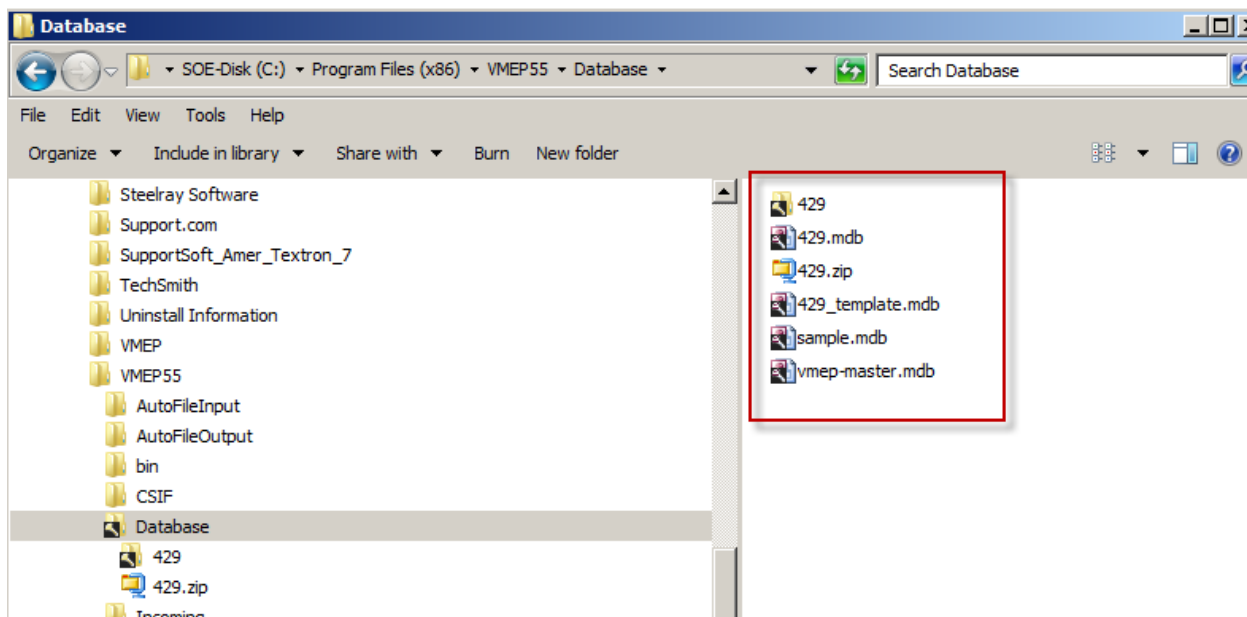


6.5 INSTALLATION OF PC-GBS SOFTWARE ON COMPUTER

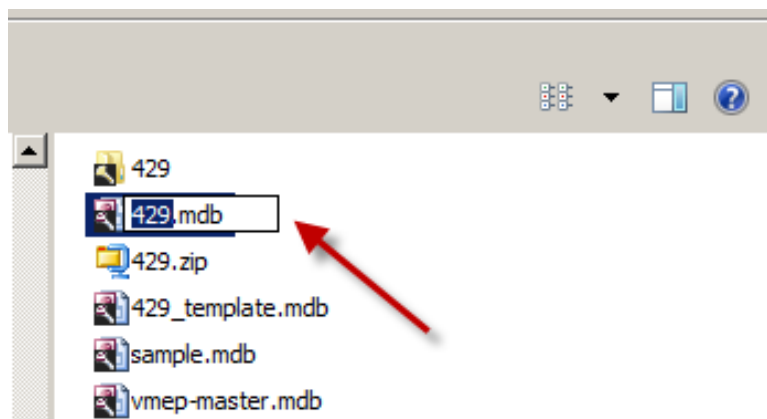
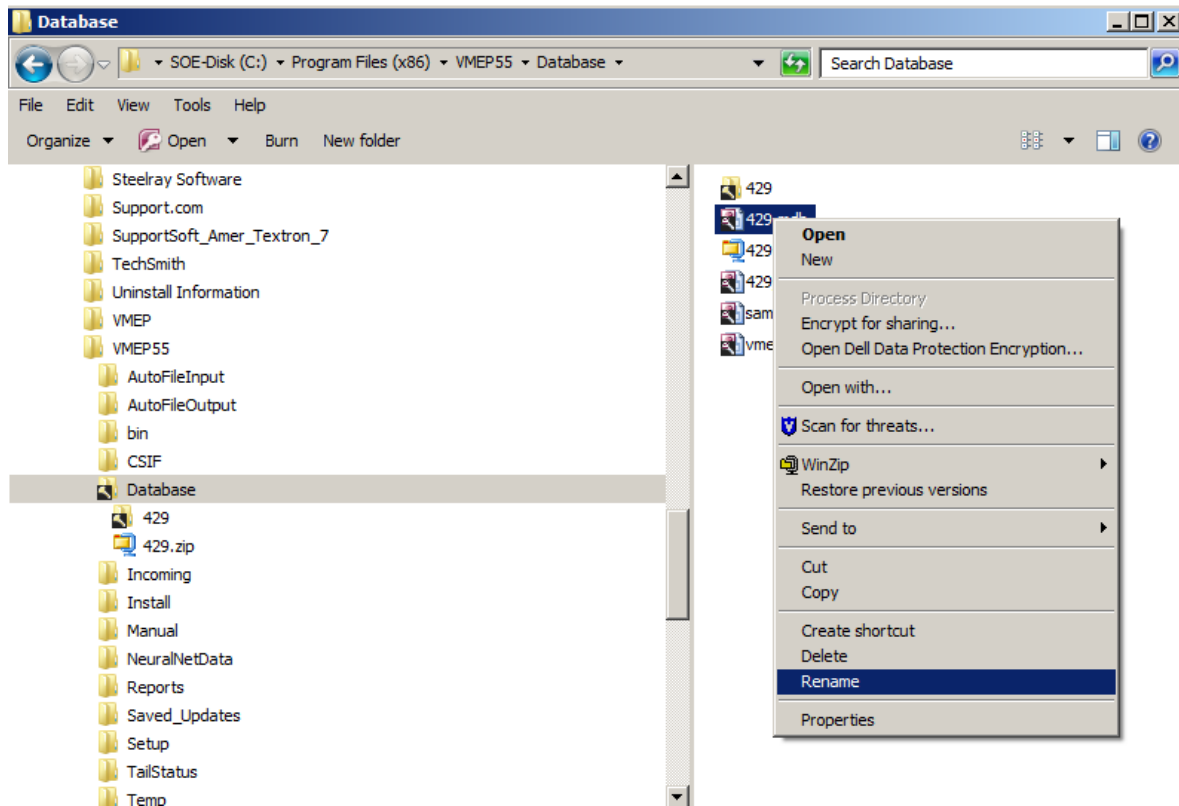
1. Right click on window start menu.



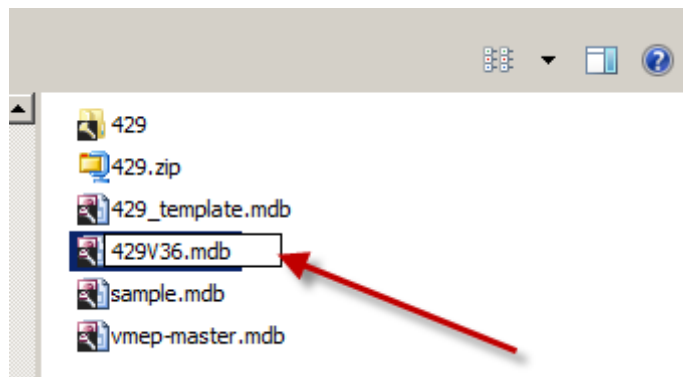
2. Click on "Open Window Explorer".
 - a. For window 7:
 - i. Click on C:\Program Files (x86)\VMEP\Database
 - b. For Window XP, 2000:
 - i. C:\Program Files\VMEP\Database
3. Open folder "Database".



4. Locate and right click on the “429.mdb” file and select “Rename”.



5. Rename file to “429V36.mdb”.



6. Click out of the re-name text to save the changes.
7. Go to your desktop folder (Bell 5.5 SP4 V39) and copy database.
8. Paste database V39 in Database folder.

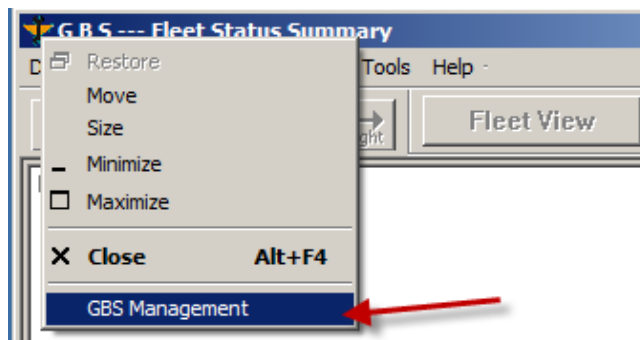
Name ^	Date modified	Type	Size
429	12/30/2015 1:15 PM	File folder	
429.zip	7/7/2015 8:29 AM	WinZip File	1,298 KB
429_template.mdb	7/2/2015 7:21 AM	Microsoft Office Acc...	8,576 KB
429V36.mdb	12/22/2015 12:40 PM	Microsoft Office Acc...	13,668 KB
429v39.mdb	12/14/2015 3:55 PM	Microsoft Office Acc...	15,332 KB
sample.mdb	5/11/2015 9:02 AM	Microsoft Office Acc...	7,476 KB
vmep-master.mdb	7/7/2015 8:28 AM	Microsoft Office Acc...	444 KB

9. Rename file “429v39.mdb” to “429.mdb” and click out of the re-name text to save the changes.

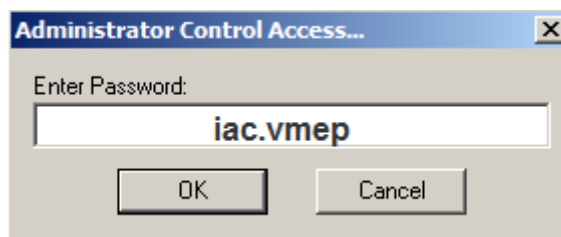
Name ^	Date modified	Type	Size
429	12/30/2015 1:15 PM	File folder	
429.mdb	12/14/2015 3:55 PM	Microsoft Office Acc...	15,332 KB
429.zip	7/7/2015 8:29 AM	WinZip File	1,298 KB
429_template.mdb	7/2/2015 7:21 AM	Microsoft Office Acc...	8,576 KB
429V36.mdb	12/22/2015 12:40 PM	Microsoft Office Acc...	13,668 KB
sample.mdb	5/11/2015 9:02 AM	Microsoft Office Acc...	7,476 KB
vmep-master.mdb	7/7/2015 8:28 AM	Microsoft Office Acc...	444 KB

New V39

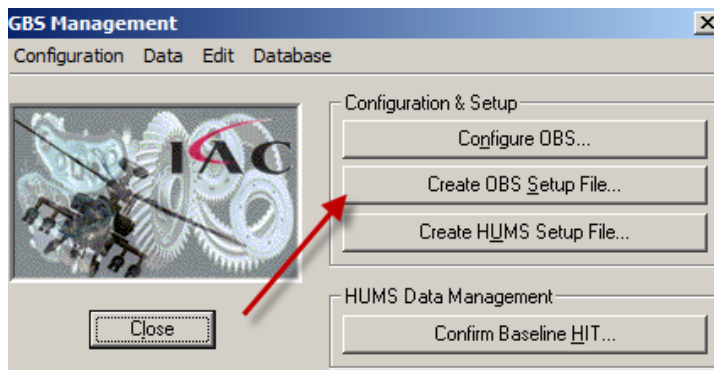
10. Close Windows Explorer.
11. Open PC-GBS software.
12. Right click on the “GBS” icon at the top left portion of the GBS title bar.



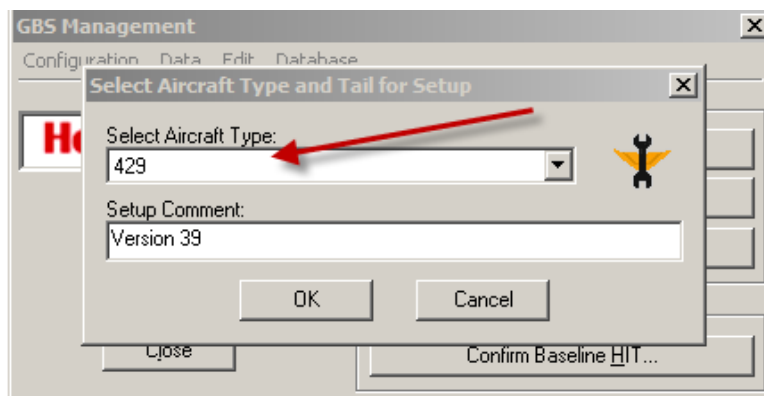
13. Enter password “iac.vmep” and click “OK”.



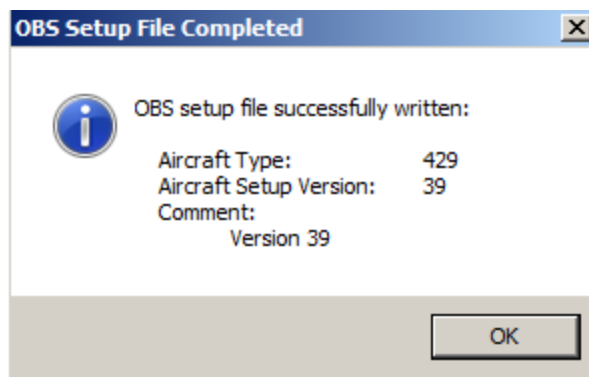
14. Click on “Create OBS Setup File”.



15. When prompted, Select aircraft type and add the following “Version 39” and Click “OK”.

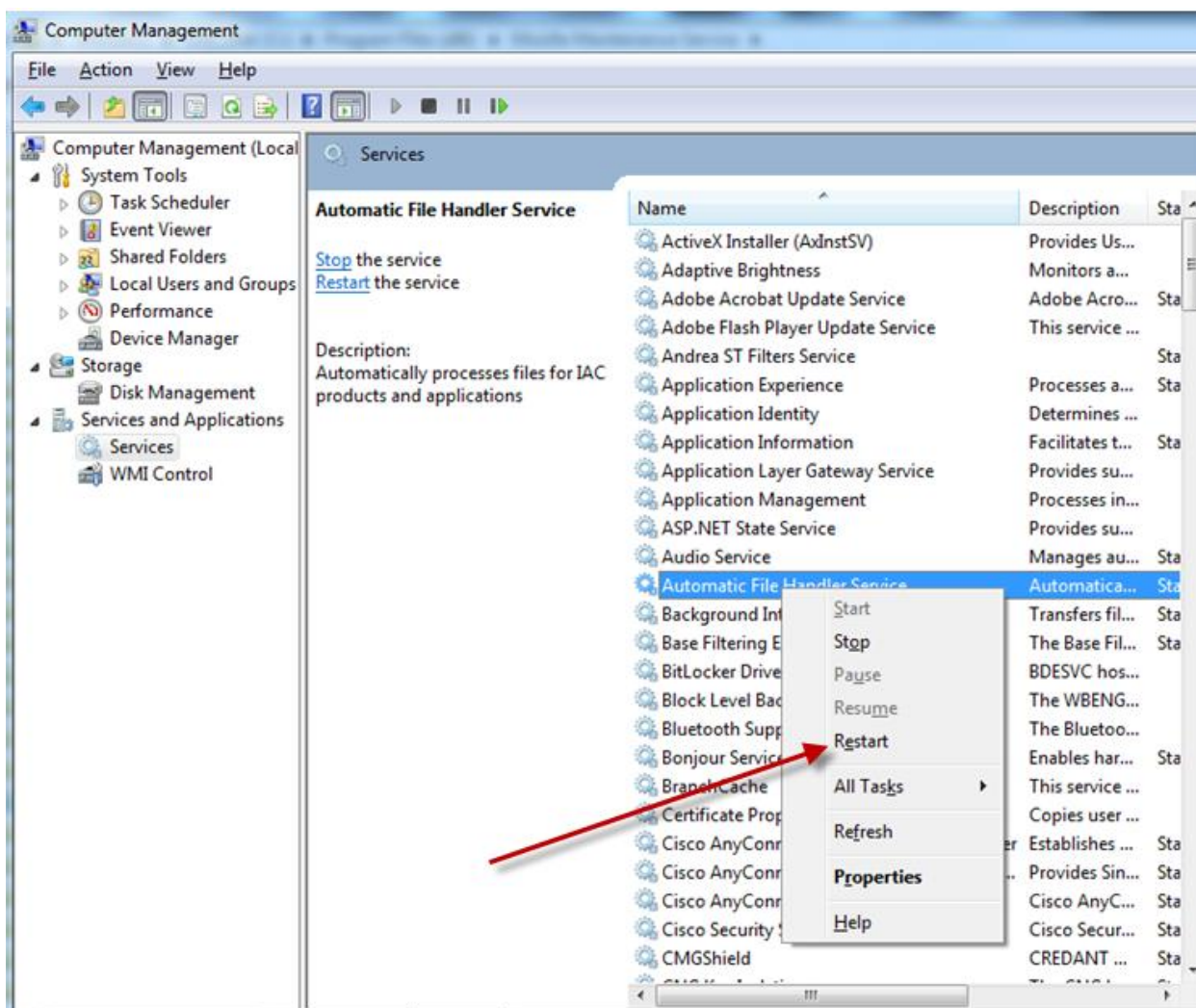


16. Once completed you will get a message the OBS is complete.



17. Close PC-GBS Software.
18. Open the Automatic File Handler Service window that you had minimized prior.

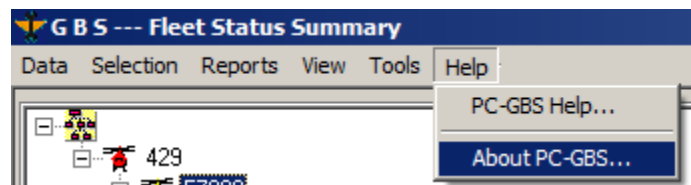
19. Right Click on “Automatic Handler Service” and click on “**Restart**”.



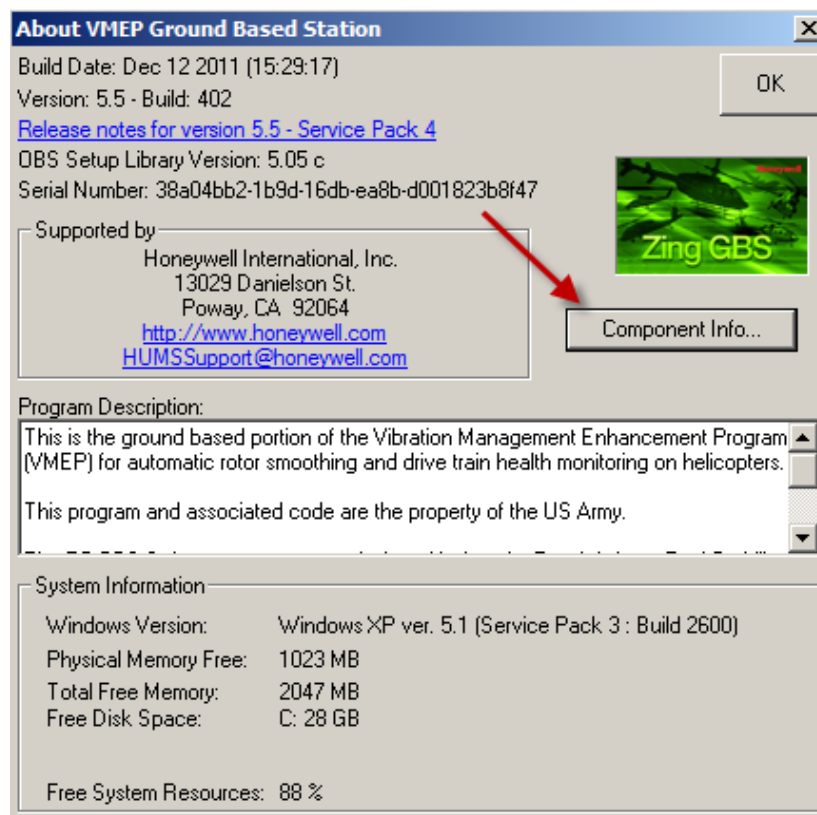
20. Close window.

6.6 VERIFICATION OF V39 INSTALLATION IN PC-GBS GROUND STATION

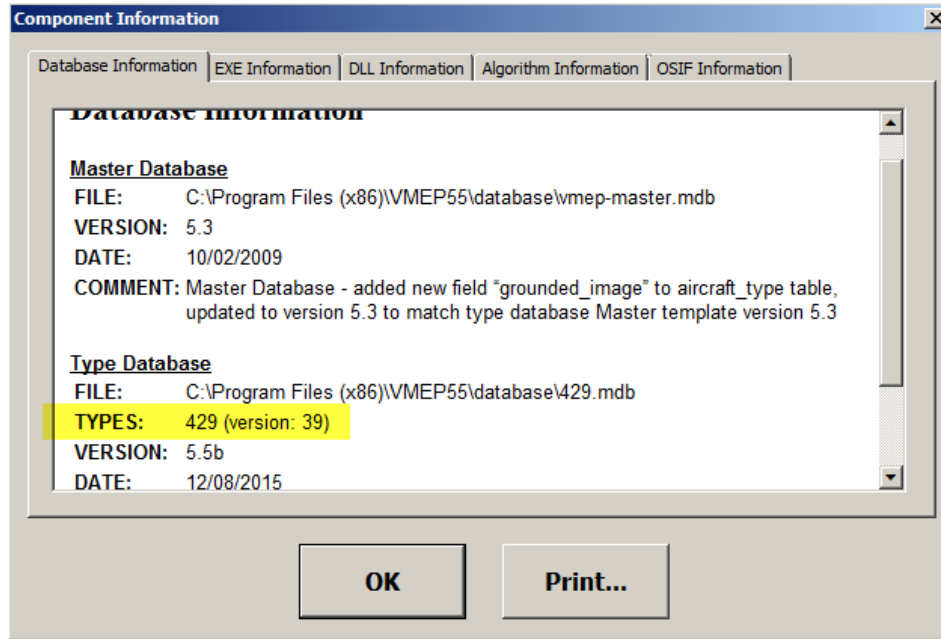
1. Re -open PC-GBS.
2. Click on “About PC-GBS...”.



3. In “About VMEP Ground Based Station”, click on “Component Information”.



4. Confirm that version 39 was properly installed.



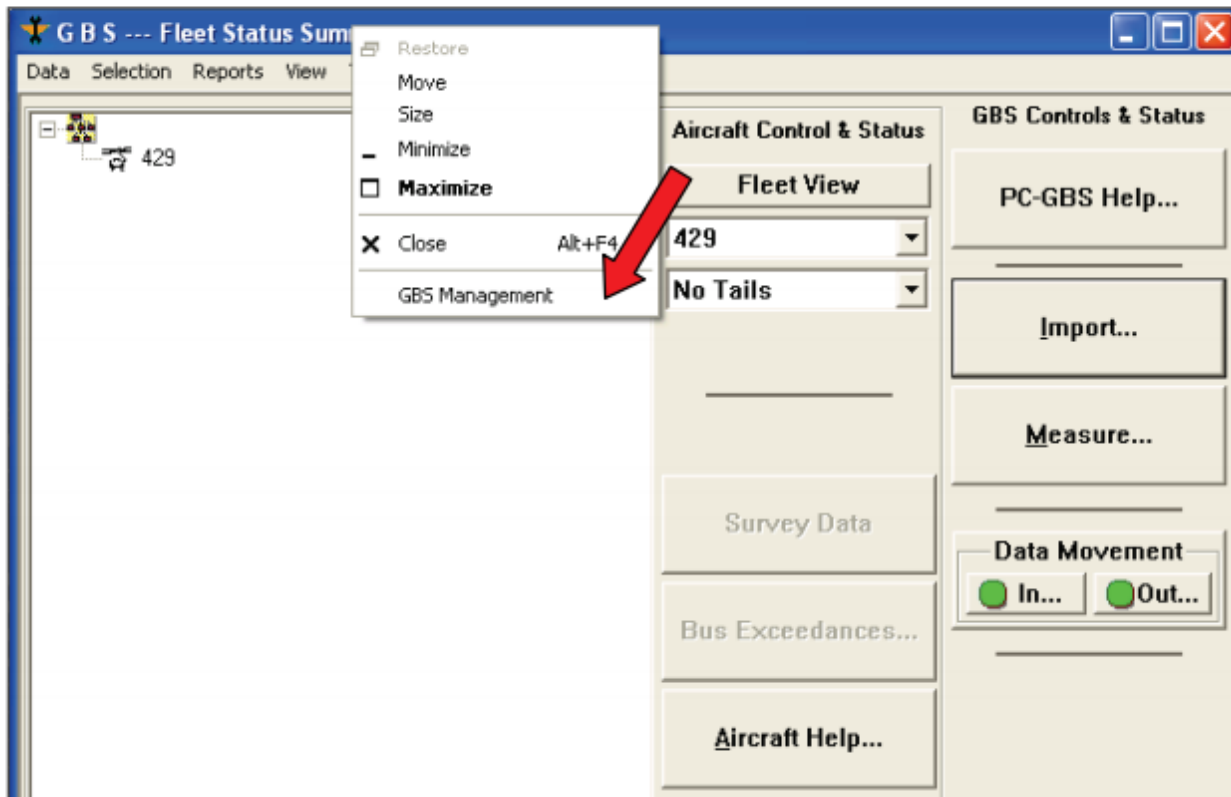
6.7 UPLOAD AIRCRAFT SETUP FILES TO HUMS 1134 PROCESSOR (V39)

NOTE

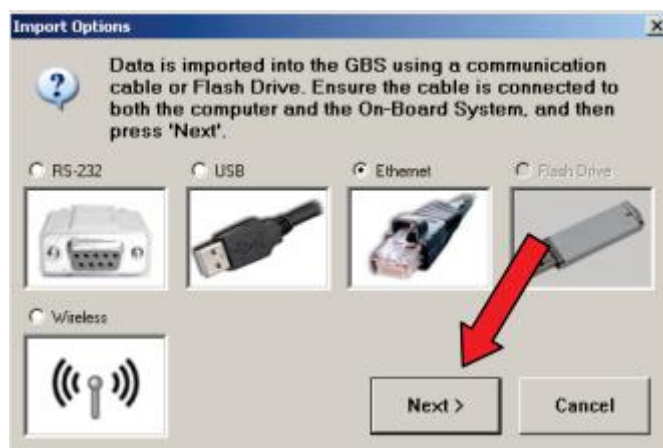
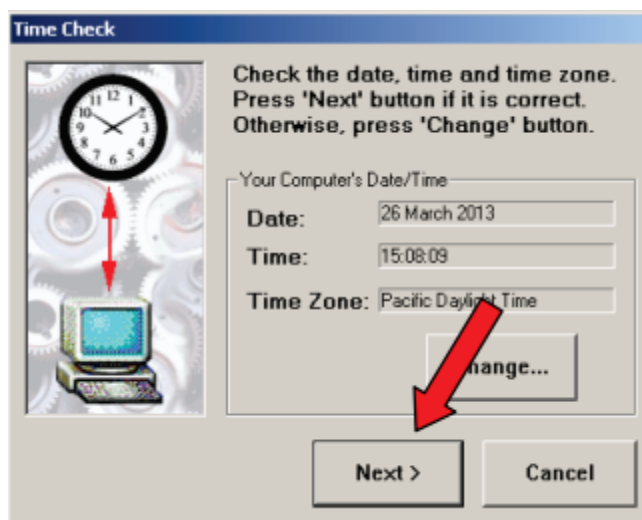
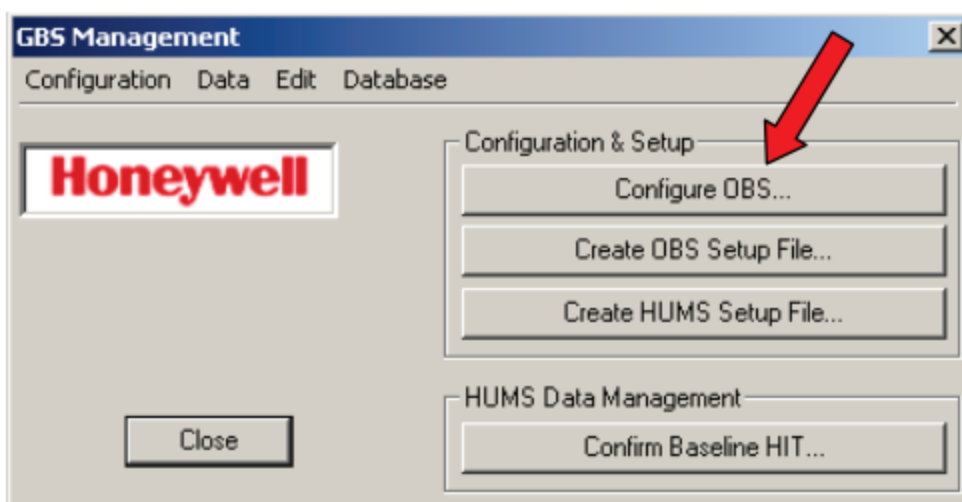
This procedure is used for installing Version 39 in the aircraft HUMS 1134. The version will be installed automatically.

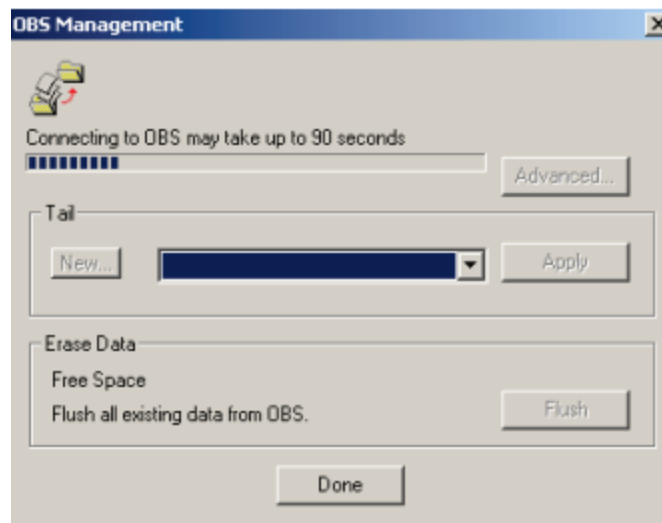
1. Apply power to the aircraft and wait until the RDY Light is illuminated.
2. Connect the laptop the HUMS by Ethernet cable.
3. Run PC-GBS.
4. While connected to the HUMS 1134 with the Ethernet cable, right click on the menu bar and select GBS Management and enter password as shown in the textbox and click "OK"

PASSWORD: iac.vmep

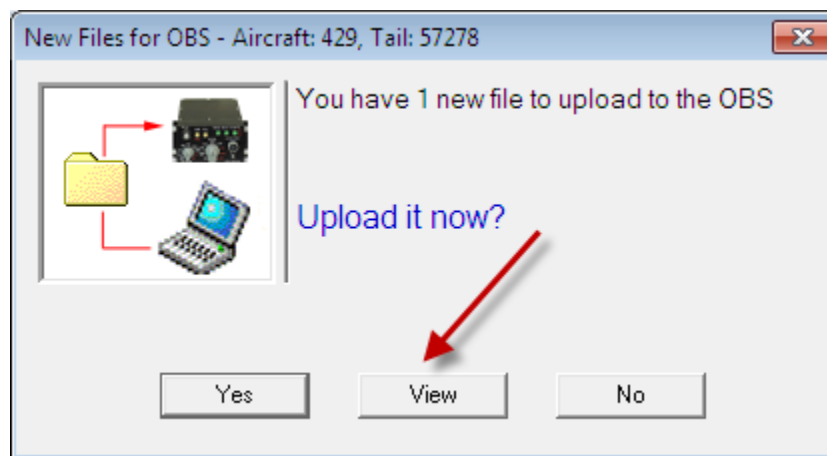


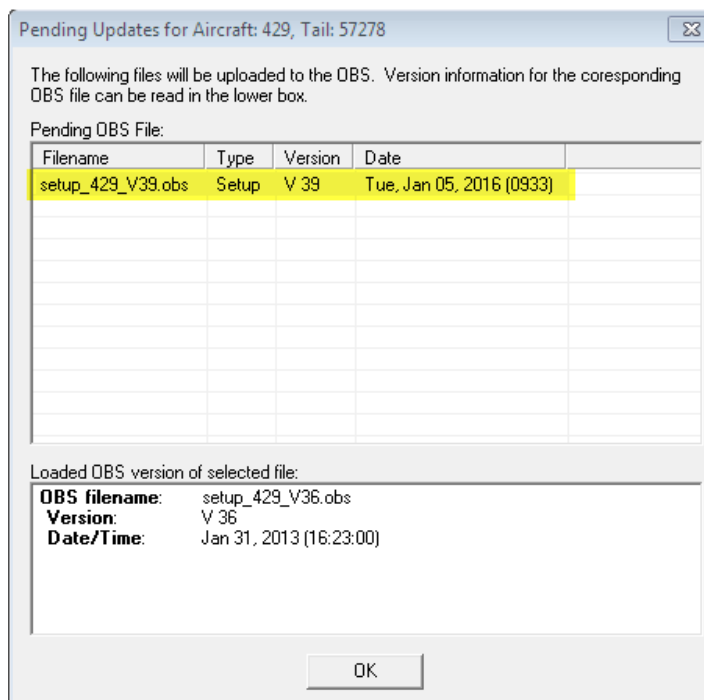
5. Click on “Configure OBS” and connect as shown.



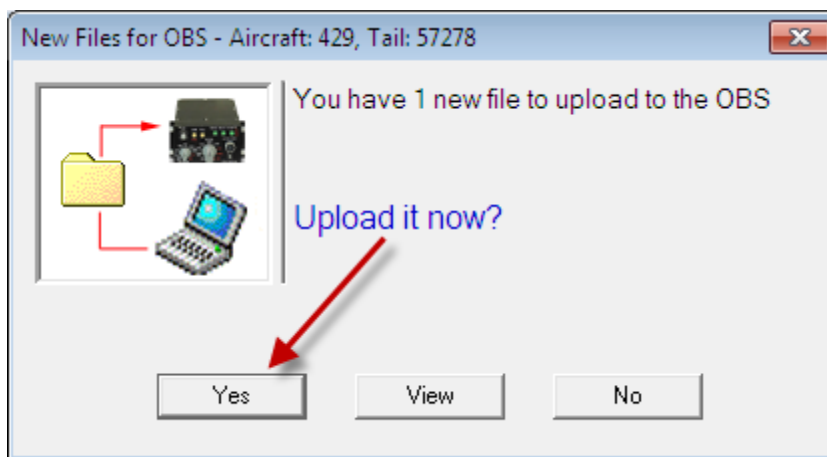


6. The following dialog offering upload of a number of files to the HUMS 1134 will pop up. Click **“View”**.

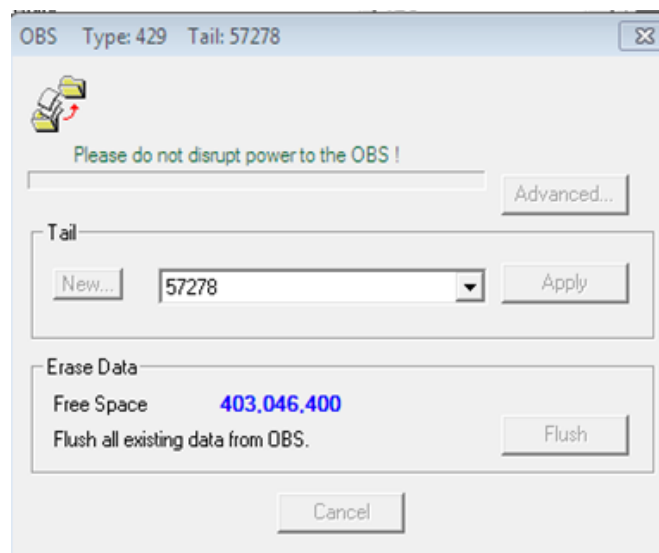
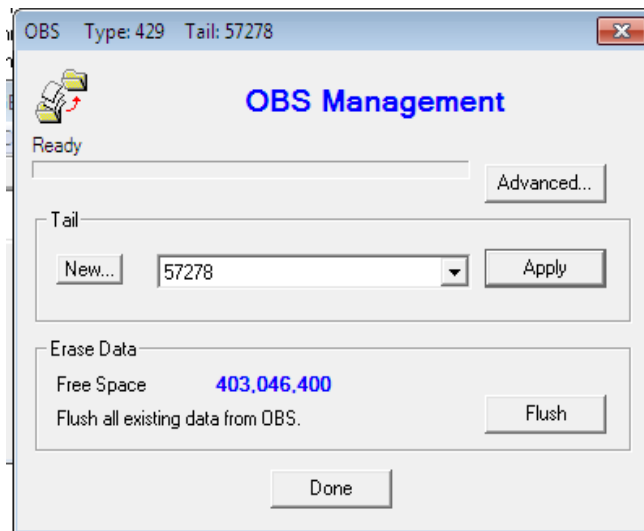




7. Confirm the file to be uploaded is Setup 429 V39 OBS.
8. Upon verifying the files click **“OK”** and **“Yes”** to upload the software to the HUMS 1134.

**NOTE**

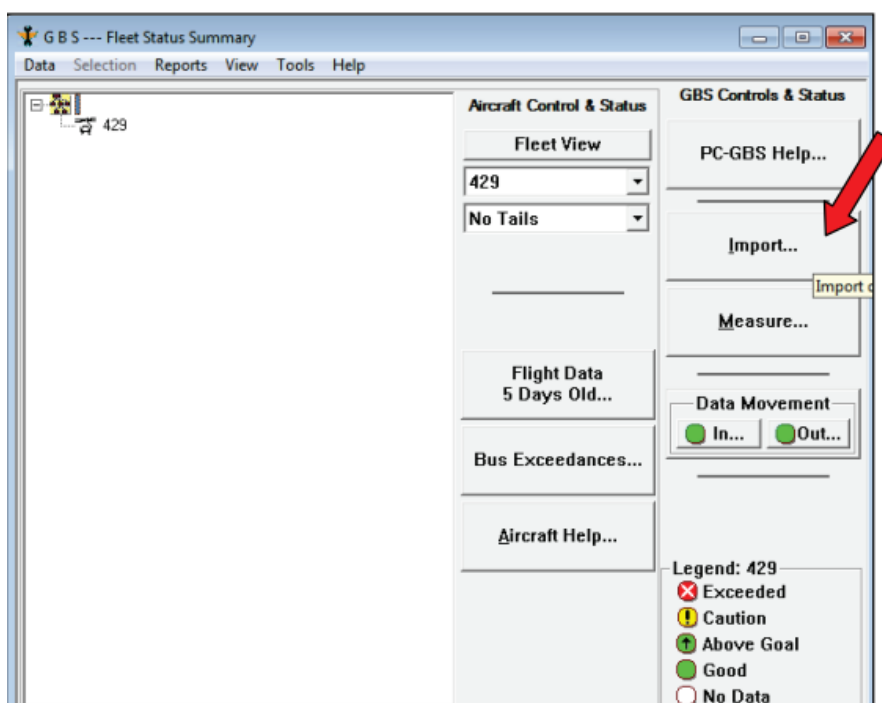
The loading will take around 12 minutes. **DO NOT** interrupt the power at this stage.



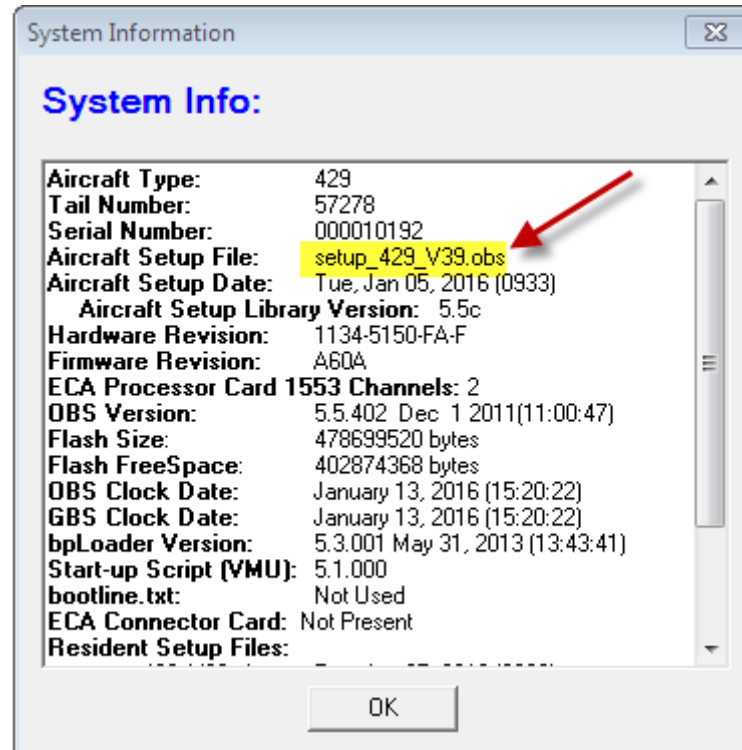
9. After the files are successfully uploaded, **Cycle Power** of the HUMS 1134.

6.8 VERIFY AIRCRAFT HUMS 1134 PROCESSOR FOR CORRECT CONFIGURATION

1. If not previously done during the update, **Cycle Power** to the HUMS 1134
2. Connect to HUMS 1134 through “Import” button as shown and Click” **System Info”**.



3. Select “**System Info**” verify that the correct Setup version, tail number, aircraft type and OBS version. The following screenshot is an example. Aircraft Setup File should read 429 V39.



4. Click “**OK**” and then click “**Cancel**” on the download screen.tup file, on the PC-GBS click the “**Download**” button and connect the MSPU again.
5. Click **OK** to close **System Info** box and continue download process.
6. Once data has been downloaded, return to PC-GBS main page and this completes the installation.
7. Power down aircraft and remove HUMS 1134 communications cable.
8. Download Installation complete.

6.9 MSPU LABELING

1. Ensure information on Label (1209-3196-PF) and Label (1209-3198-PF), on the MSPU unit, matches with the examples shown in Figure's 3 & 4.
2. Update labels by filling in the required data or by installing new labels, if required, to correspond with your specific aircraft application.
3. PC-GBS 5.5 SP4 Database v39 upgrade complete.

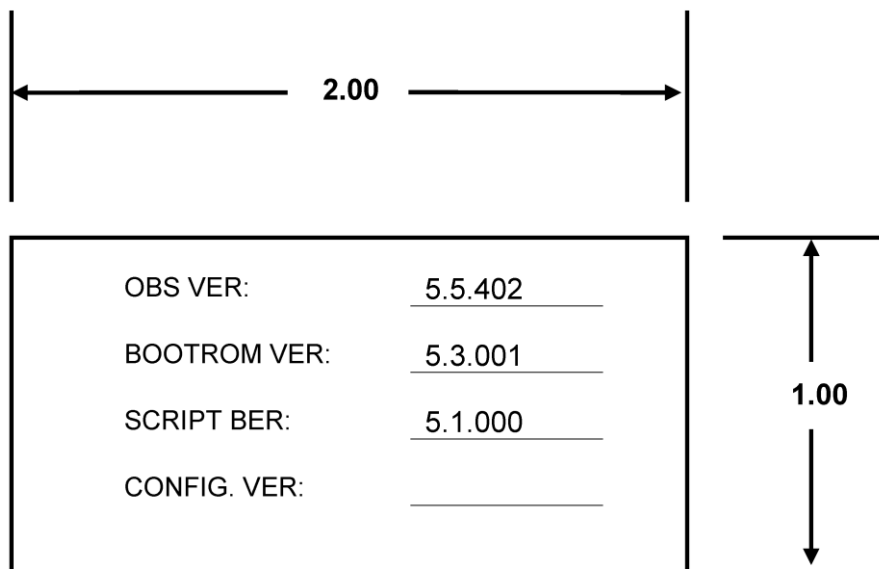


FIGURE 3. LABEL, P/N 1209-3196-PF

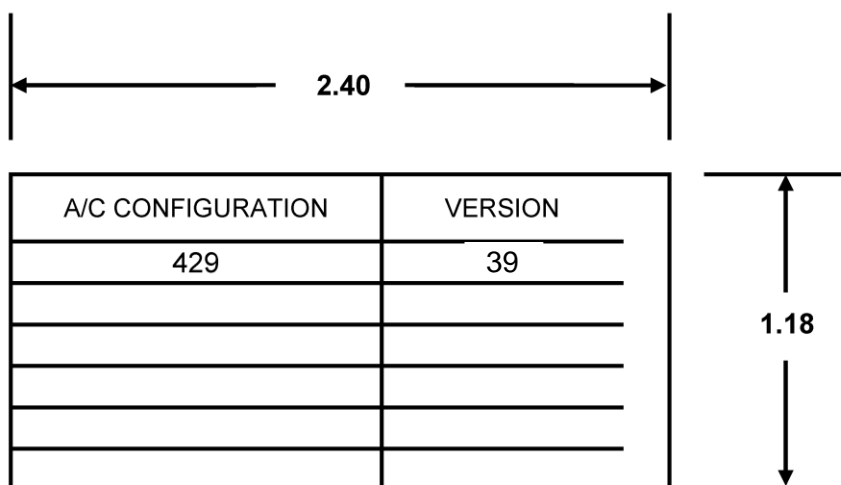


FIGURE 4 - LABEL, P/N 1209-3198-PF

7.0 ACCOMPLISHMENT INSTRUCTIONS:**PART 2 – ADDITION OF SECOND GROUND WIRE FOR SIGNAL GROUND
(S/N's 57001 – SUBSEQUENT)**

(Refer to Figure's 5, 6, 7 & 8)

1. Looking aft at STA 326.0, locate Panel Assy (BHT 429-030-621-XXX), as indicated in:
 - a. Figure 5 (for S/N's 57001-57080).
 - b. Figure 6 (for S/N's 57081 – Sub ONLY)
2. Mark location to add the provision for a HUM Signal Ground stud, 1.0"- 3.0" above the existing HUM Power Ground stud, as shown respectively in Figure's 5 & 6.
3. Drill a .193/.199 inch diameter hole through Panel Assy (BHT 429-030-621-XXX) at the marked location.
4. Prepare both sides of the Panel around the drilled hole in accordance with Chapter 8 of the BHT-ELEC-SPM.
5. Install defined hardware as shown in View A-A, in Figure 7 and seal electrical bond in accordance with Chapter 8 of the BHT-ELEC-SPM using Sealant MIL-PRF-81733.
6. Ensure proper electrical bond of 2.5 milliohms or less per AC43.13-1, Chapter 11, Section 15.
7. Install HUM147A22N Signal ground wire as shown respectively in Figure's 5 & 6 and per View B-B, in Figure 7 and Figure 8.
8. After installation, label HUM Power Ground stud using 429-263-327 Decal – HUM PWR GND and HUM Signal Ground Stud using 429-263-325 Decal – HUM SIGNAL GND, as shown respectively in Figure's 5 & 6.

NOTE

Prior to application of Decals, clean surface with isopropyl alcohol and allow to air dry completely.

NOTE

Locate Decals as shown, after Decal installation, apply two coats of 3M 3950 Edge Seal around perimeter of Decals.

9. Addition of second ground wire for Signal Ground complete.

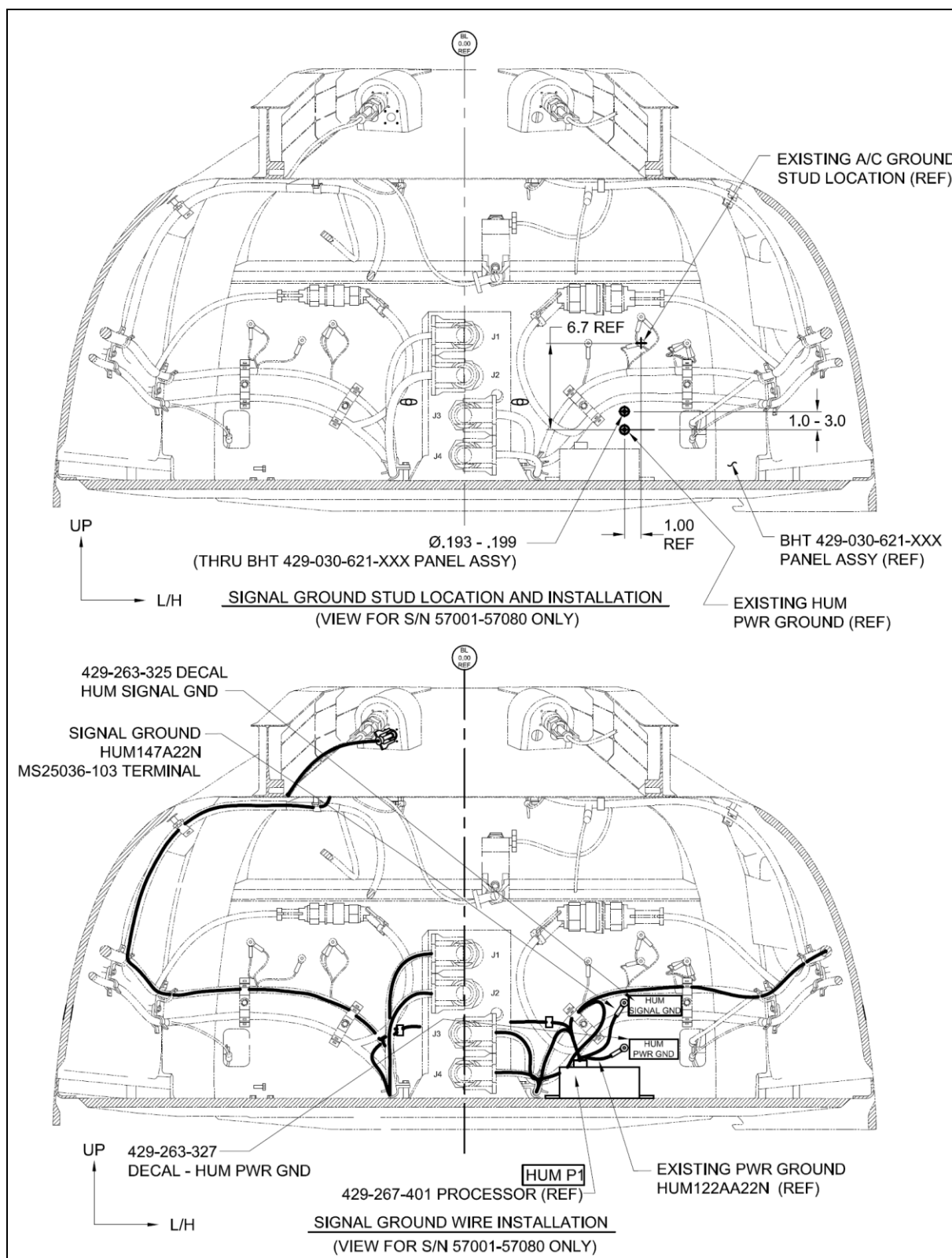
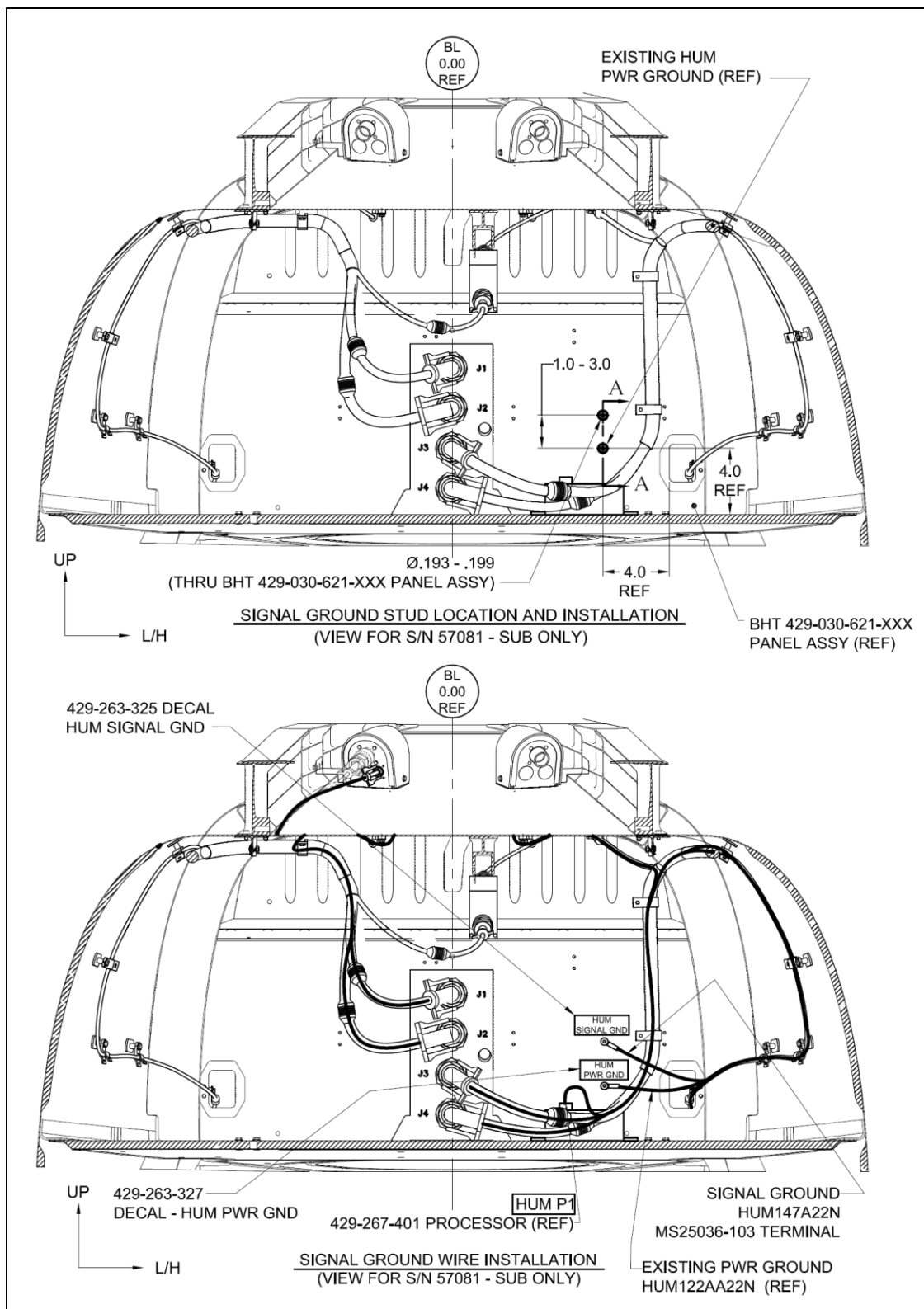
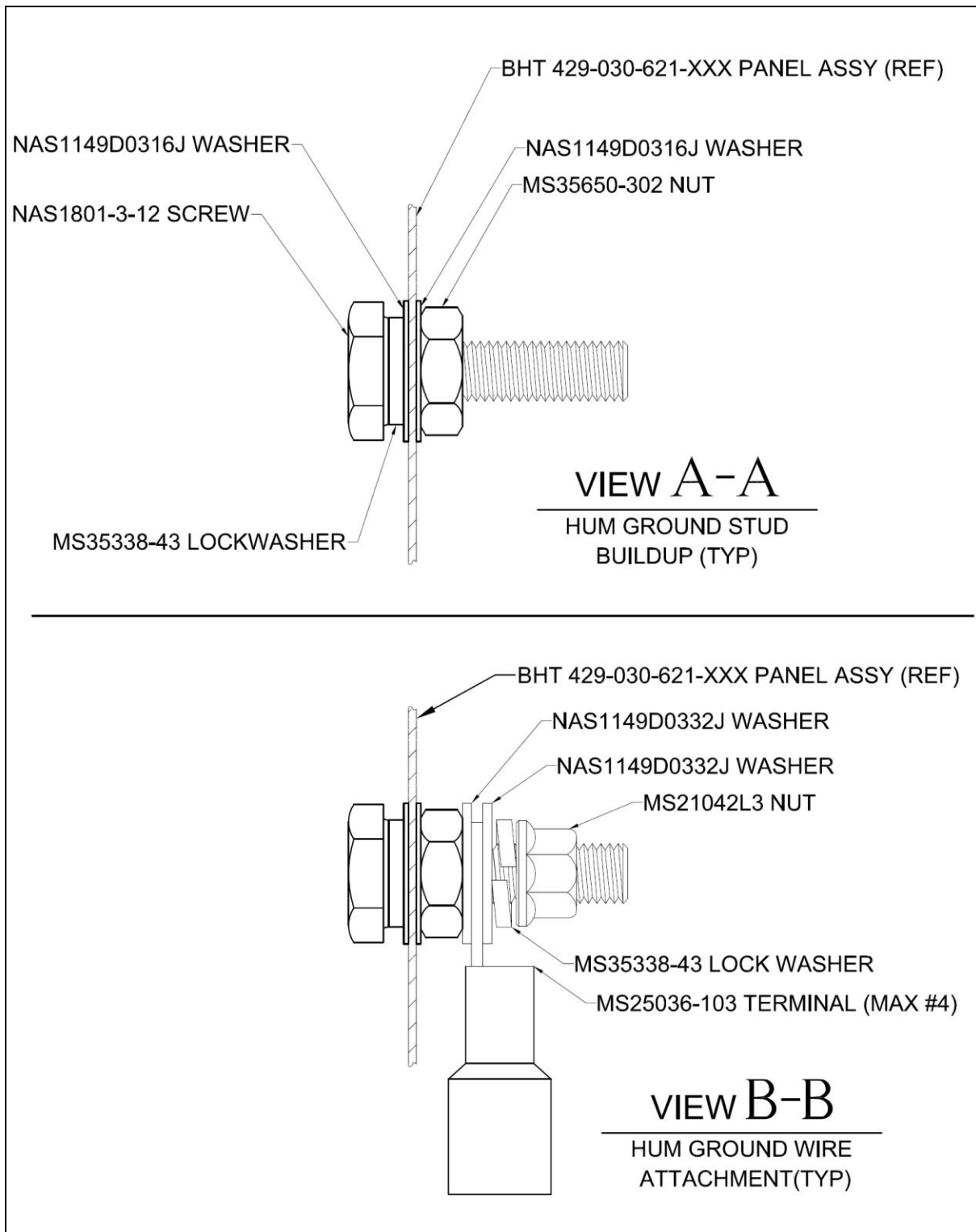


FIGURE 5 – SIGNAL GROUND STUD/WIRE INSTALLATION
(S/N 57001-57080 ONLY – SHOWN) – VIEW LOOKING AFT AT STA 326.0



**FIGURE 7 – SIGNAL GROUND STUD/WIRE INSTALLATION**

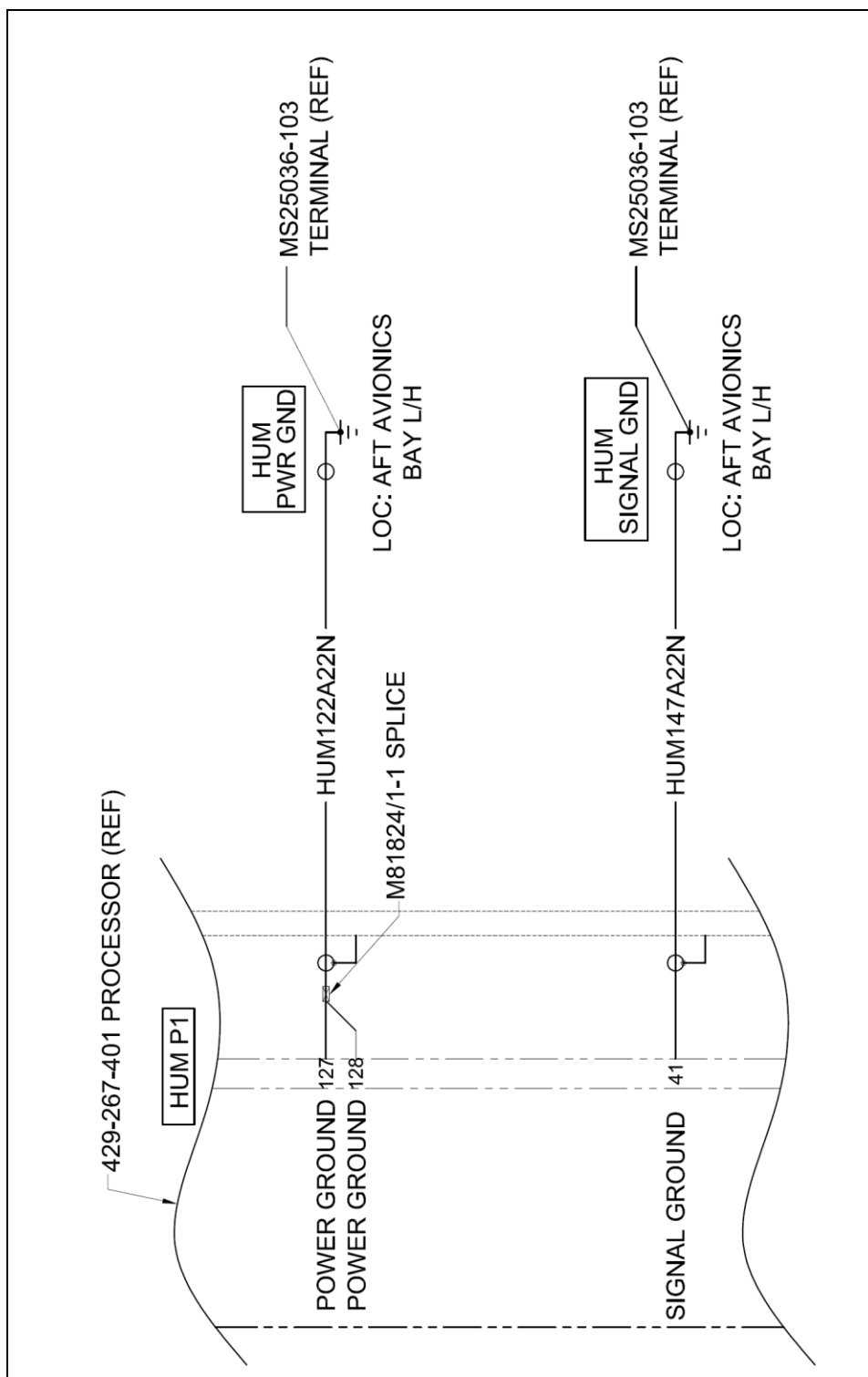


FIGURE 8 – HUM PWR AND SIGNAL GROUND SCHEMATIC