

Update GRY biases
 File: H_FCP_AOC_1GDR.xls
 Author: dsalt-hp



Procedure Summary

Objectives

The objective of this Herschel ACMS procedure is to update the GYR biases values in the OBDB.

The procedure involves the following activities:

- sending values via dedicated TC
- check OBDB for updated values via DTM for OBDB1 or dumps

The procedure specifies a series of OBDB loads necessary to update OBDB parameters related to gyro bias.

Summary of Constraints

Flight Dynamics must have analysed the S/C data, derived updates for the gyro bias and generated a specific TPF (GDR) containing these updated values.

No other ACC critical command armed.

Spacecraft Configuration

Start of Procedure

n/a

End of Procedure

n/a

Reference File(s)

Input Command Sequences

Output Command Sequences

AEGDR_00

Referenced Displays

ANDs GRDs SLDs

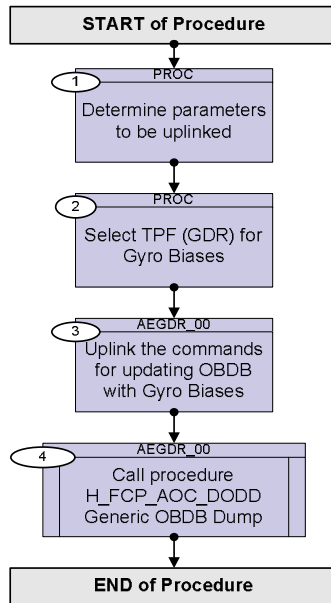
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
01/08/08	1	1	Created	dsalt-hp	
09/09/08	2	2	Planning flag for sequence AEGDR_00 set to "All Sources"	dsalt-hp	
23/03/09	2.2	3	Addition of time-tags to TCs in Step 3	dsalt-hp	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
Beginning of Procedure				
PROC Procedure Properties				
SSID :				
1		Determine parameters to be uplinked		Next Step: 2
		Determine the values of Gyro Biases. The results should be used to derive the following: H_NOM_AUX_GYR1_BIAS H_NOM_AUX_GYR2_BIAS H_NOM_AUX_GYR3_BIAS H_NOM_AUX_GYR4_BIAS		
		Uplink onboard the parameters determined in the previous step. Note that the Gyro Biases are not stored in consecutive locations in the OBDB and so cannot be loaded in a single step.		
2		Select TPF (GDR) for Gyro Biases		Next Step: 3
		Check with Flight Dynamics the exact name of the TPF instance to be uplinked		
TC Seq. Name : AEGDR_00 (Update GDR)				
TimeTag Type: B Sub Schedule ID: Formal Parameter List : DbLoad Data word GYR_DR_1= rd/s DbLoad Data word GYR_DR_2= rd/s DbLoad Data word GYR_DR_3= rd/s DbLoad Data word GYR_DR_4= rd/s				
3		Uplink the commands for updating OBDB with Gyro Biases		Next Step: 4
		Uplink onboard the parameters determined in the previous step. Note that gyro biases are not stored in consecutive locations in the OBDB and so can not be loaded in a single step.		
3.1		Activate loading		□

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+00.00.00 UT=+	Execute Telecommand Start database loading Command Parameter(s) : ASW Function ID AHFUN001 DbLoad DF86 Cmd AH8D1001 DbLoad DD86 Cmd AH8D2001 DbLoad Nr Cmds AHFDL001 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC_START_DATABASE_LOAD	ACDS1001 DB loading (Def) Enable 86 Enable 86 4 <dec>	
		Following the Start_database_loading command the following commands must each be sent within C_ALL_OPS_ASW_CRIT_CMD_TIMEOUT (=180 seconds default) of the previous command to avoid the started status of the function timing-out.		
3.2		Load values		□
	ET=+00.00.05 UT=+	Execute Telecommand OBDB_GYR1_BIAS Command Parameter(s) : DbLoad DF86 Cmd XH191990 DbLoad DD86 Cmd XH192990 DbLoad Data word XH000990 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 0 Det. descr. :	XC007990 Enable 86 (Def) Enable 86 (Def) GYR_DR_1	
	ET=+00.00.05 UT=+	Execute Telecommand OBDB_GYR2_BIAS Command Parameter(s) : DbLoad DF86 Cmd XH191990 DbLoad DD86 Cmd XH192990 DbLoad Data word XH000990 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 0 Det. descr. :	XC010990 Enable 86 (Def) Enable 86 (Def) GYR_DR_2	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+00.00.05 UT=+	Execute Telecommand OBDB_GYR3_BIAS Command Parameter(s) : DbLoad DF86 Cmd XH191990 DbLoad DD86 Cmd XH192990 DbLoad Data word XH000990 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 0 Det. descr. :	XC013990 Enable 86 (Def) Enable 86 (Def) GYR_DR_3	
	ET=+00.00.05 UT=+	Execute Telecommand OBDB_GYR4_BIAS Command Parameter(s) : DbLoad DF86 Cmd XH191990 DbLoad DD86 Cmd XH192990 DbLoad Data word XH000990 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 0 Det. descr. :	XC015990 Enable 86 (Def) Enable 86 (Def) GYR_DR_4	
3.3		Activate values		<input type="checkbox"/>
	ET=+00.00.05 UT=+	Execute Telecommand Fire critical command Command Parameter(s) : FireFun DF86Cmd AH8F1001 FireFun DD86Cmd AH8F2001 FireFun CritFID AHFFH001 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC_FIRE_COMMAND	ACFC1001 Enable 86 Enable 86 201 <dec>	
		Load database commands complete CEV correctly		
4		Call procedure H_FCP_AOC_DODD Generic OBDB Dump		Next Step: END
		NOTE: This procedure enables a direct dump of the OBDB from RAM or Safe-Guard Memory (SGM), as well as reading the OBDB via diagnostic telemetry (DTM) packets		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p><u>Relevant details for use with H FCP AOC DODD</u></p> <p>Based upon the latest ASW ICD (H-P-4-TASW-IF-0002, Issue 3 F), this procedure loads the following parameters into specific OBDB offset locations in RAM:</p> <p>H_NOM_AUX_GYR*_BIAS at offsets 81, 110, 121, 123 These are located in Block 1 of the OBDB</p> <p>It also copies the following parameters into specific OBDB offset locations in SGM</p> <p>H_NOM_AUX_GYR*_BIAS to offsets 92-95</p>		
4.1		Dump via DTM		<input type="checkbox"/>
		<p><u>Relevant details for use with H FCP AOC DODD</u></p> <p>The following parameters H_NOM_AUX_GYR*_BIAS are located in Block 1 of the OBDB</p>		
		Use sequence HFADODDA		
		<p>NOTE: The contents of diagnostic packet A3DH0BDB1109 {DTM with Herschel OBDB data} are spread over a group of 4 monitoring displays:</p> <p>ZAZ60999 DTMOBDB1_1 ZAZ61999 DTMOBDB1_2 <- values are in this display ZAZ62999 DTMOBDB1_3 ZAZ63999 DTMOBDB1_4</p>		
		<p>NOTE: This step enables diagnostic packets that contain data from specific blocks of the OBDB, where each block contains 250 onboard database parameters.</p> <p>The Herschel onboard database currently contains 2134 parameters and there are 8 diagnostic packets defined to cover the first 2000 entries. In HP-4-TASW-IF-0002 (ACC ASW_ICD) section 6.1 you can find a list of Herschel OBDB parameters ordered by offset.</p>		
4.2		Dump from RAM		<input type="checkbox"/>

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		<p>Relevant details for use with H_FCP_AOC_DODD</p> <p>Based upon the latest ASW ICD (H-P-4-TASW-IF-0002, Issue 3 F), this procedure loads the following parameters into specific OBDB offset locations in RAM:</p> <p>H_NOM_AUX_GYR1_BIAS at offset 81</p> <p>H_NOM_AUX_GYR2_BIAS at offset 110</p> <p>H_NOM_AUX_GYR3_BIAS at offset 121</p> <p>H_NOM_AUX_GYR4_BIAS at offset 123</p> <p>The <u>absolute address</u> of offset 81 is therefore: 020A = Memory ID D05C = Start Address</p>		
		<p>The <u>absolute address</u> of offset 110 is therefore: 020A = Memory ID D0D0 = Start Address</p> <p>The <u>absolute address</u> of offset 121 is therefore: 020A = Memory ID D0FC = Start Address</p> <p>The <u>absolute address</u> of offset 123 is therefore: 020A = Memory ID D104 = Start Address</p>		
		<p>Use sequence HFADODDL to dump <u>all</u> the OBDB in RAM, or edit: Start Address = D05C Length = 172</p>		
		<p>NOTE: The RAM memory address for a parameter with a given OBDB ID can be calculated as follows: RAM address = OBDB start address + parameter offset; OBDB start address = address of Asw_DatabaseManager_Obj + 12; parameter offset = OBDB ID * 4.</p> <p>Parameter ID's are listed in the ASW ICD (H-P-4-TASW-IF-002).</p> <p>Asw_Databasemanager_Obj is an ASW container structure used in the management of the OBDB and its address has to be obtained from the linker memory map valid for the software build currently used onboard.</p>		
4.3		Dump from SGM		□

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Relevant details for use with H FCP AOC DODD</p> <p>Based upon the latest ASW ICD (H-P-4-TASW-IF-0002, Issue 3 F), this procedure copies the following parameters into specific OBDB offset locations in SGM H_NOM_AUX_GYR*_BIAS to offsets 92-95</p> <p>The <u>absolute address</u> of offset 92 is therefore: BA016C in SGA (=12190060 <dec>) EA016C in SGB (=15335788 <dec>)</p>		
		<p>Use sequences HFADODDJ & HFADODDK to dump <u>all</u> the OBDB in SGMA & SGMB, or edit: Start Address = BA016C / EA016C Length = 16</p>		
		<p><i>NOTE:</i> The address of a parameter with a given ID can be calculated as follows:</p> <p><i>SGMA</i> Address = $0xBA0000 + (ParamID-1) * 4$</p> <p><i>SGMB</i> Address = $0xEA0000 + (ParamID-1) * 4$</p> <p><i>Parameter ID's refer to the listing of SGM OBDB parameters in the ASW ICD (H-P-4-TASW-IF-0002) and are not the same as the ID's in the RAM OBDB.</i></p>		
End of Procedure				