

Update Default OBDB Values
 File: H_FCP_AOC_DDEF.xls
 Author: dsalt-hp



Procedure Summary

Objectives

The objective of this procedure is to update OBDB default parameters in the event that they are lost or corrupted after a PM switch-over.

The procedure involves the following activities:

- check status of the ASW version
- update FDIR & control parameters in OBDB
- update STR quality index check threshold (V_NOM_FDIR_STR_COV_QUAL)
- update control settle parameters (H_SCM_CTRL_SAT_SETTLED_LIMIT)
(H_SCM_CTRL_ASW_SETTLE_COUNTER)
- update RCS torque bias (H_SCM_AUX_ASW_W_BIAS_RCS_TORQUE)
- update GYRSTR cross check spike filter (H_NOM_FDIR_AUX_GYRSTR_CHK_SPIKE)

NOTE 1: Except for the spike filter, all OBDB parameters and their values are taken from the Dutch Space "User Manual Flight Control Procedures for the Herschel S/C" (H-P-4-DS-MA-007, Issue 2, Rev. 4, Section 3.3.21).

Summary of Constraints

This procedure should only be used after a PM switch-over has occurred after ASW r4.1B000 has been installed in EEPROM

Spacecraft Configuration

Start of Procedure

S/C recovered from PM switch-over with default OBDB values

End of Procedure

S/C recovered from PM switch-over with updated OBDB values

Reference File(s)

Input Command Sequences

Output Command Sequences

HFADEFDA

Referenced Displays

ANDs GRDs SLDs

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
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Status : Version 3 - Updated
 Last Checkin: 15/12/2010

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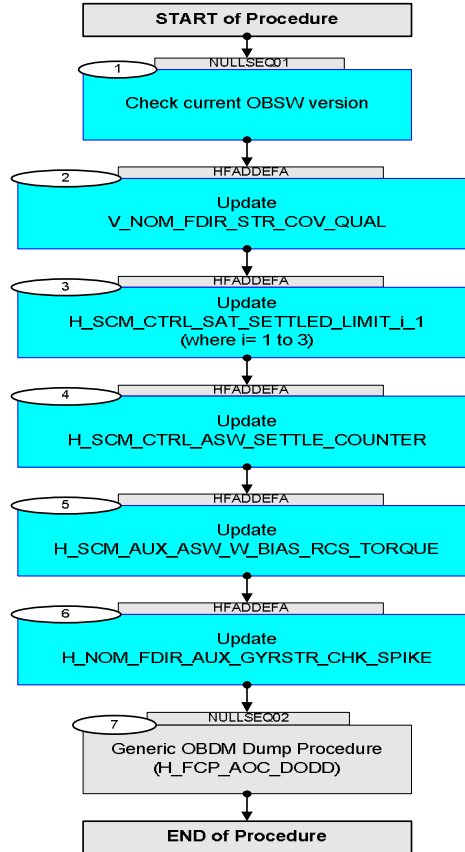


04/07/2009	2.5	1	Created	dsalt-hp	
15/07/2010		2	Step 6 added to include TCs for changing GYRSTRxCheck spike filter (from 3 to 1200), based upon action from H_SC_34 & 36 & 37	dsalt-hp	
15/12/2010	3.1	3	TCs now with release times for each OBDB update group	dsalt-hp	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
Beginning of Procedure				
TC Seq. Name : NULLSEQ01 (Null Sequence 01) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
1		Check current OBSW version		Next Step: 2
		Check if current version of ACC ASW is <u>r4.1B001</u>		
TC Seq. Name : HFADDEFA (Default_OBDB_updates) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
2		Update V_NOM_FDIR_STR_COV_QUAL		Next Step: 3
		NOTE: It is assumed that OBDB Issue 8.1 is the valid source for the default values. V_NOM_FDIR_STR_COV_QUAL = 0.37 (to be updated to 0.0)		
		Execute Telecommand <div style="text-align: right;">Start database loading</div> Command Parameter(s) : DbLoad Nr Cmds AHFDL001 TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- --</div> Subsch. ID : 20 Det. descr. : TC_START_DATABASE_LOAD	ACDS1001 1 <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.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.02	Execute Telecommand Load databaseReal Command Parameter(s) : DbLoad DF86 Cmd AH8D1001 Enable 86 DbLoad DD86 Cmd AH8D2001 Enable 86 DbLoad StartInd AHFDS001 962 <dec> DbLoad Nr Wrds AHFDN001 1 <dec> (Def) DbLoad Dwd Real AHFDZ001 0.0 <dec> Subsch. ID : 20 Det. descr. : TC(8,4) - Load database Real	ACZTY109	
	ET=+ UT=+00.00.02	Execute Telecommand Fire Start DB loading Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Start DB loading	ACZ5L109	
3		Update H_SCM_CTRL_SAT_SETTLED_LIMIT_i_1 (where i= 1 to 3)		Next Step: 4
		NOTE: It is assumed that OBDB Issue 8.1 is the valid source for the default values. H_SCM_CTRL_SAT_SETTLED_LIMIT_1_1 = 0.0000194 (to be updated to 0.000025) H_SCM_CTRL_SAT_SETTLED_LIMIT_2_1 = 0.00000194 (to be updated to 0.00001) H_SCM_CTRL_SAT_SETTLED_LIMIT_3_1 = 0.00000194 (to be updated to 0.00001)		
		Execute Telecommand Start database loading Command Parameter(s) : DbLoad Nr Cmds AHFDL001 1 <dec> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC_START_DATABASE_LOAD	ACDS1001	
		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.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.02	Execute Telecommand Load databaseReal Command Parameter(s) : DbLoad DF86 Cmd AH8D1001 Enable 86 DbLoad DD86 Cmd AH8D2001 Enable 86 DbLoad StartInd AHFDS001 571 <dec> DbLoad Nr Wrds AHFDN001 3 <dec> DbLoad Dwd Real AHFDZ001 0.000025 <dec> DbLoad Dwd Real AHFDZ001 0.00001 <dec> DbLoad Dwd Real AHFDZ001 0.00001 <dec> Subsch. ID : 20 Det. descr. : TC(8,4) - Load database Real	ACZTY109	
	ET=+ UT=+00.00.02	Execute Telecommand Fire Start DB loading Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Start DB loading	ACZ5L109	
4		Update H_SCM_CTRL_ASW_SETTLE_COUNTER		Next Step: 5
		NOTE: It is assumed that OBDB Issue 8.1 is the valid source for the default values. H_SCM_CTRL_ASW_SETTLED_COUNTER = 20 (to be updated to 3)		
		Execute Telecommand Start database loading Command Parameter(s) : DbLoad Nr Cmds AHFDL001 1 <dec> TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 20 Det. descr. : TC_START_DATABASE_LOAD	ACDS1001	
		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.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.02	Execute Telecommand Load databaseUnsInt <i>Command Parameter(s) :</i> DbLoad DF86 Cmd AH8D1001 Enable 86 DbLoad DD86 Cmd AH8D2001 Enable 86 DbLoad StartInd AHFDS001 1900 <dec> DbLoad Nr Wrds AHFDN001 1 <dec> (Def) DbLoad Dwd UInt AHFDX001 3 <dec> <i>Subsch. ID : 20</i> Det. descr. : TC(8,4) - Load database Unsigned Integer	ACZTW109	
	ET=+ UT=+00.00.02	Execute Telecommand Fire Start DB loading <i>Subsch. ID : 20</i> Det. descr. : TC(8,4) Fire Command - Fire Start DB loading	ACZ5L109	
5		Update H_SCM_AUX_ASW_W_BIAS_RCS_TORQUE		Next Step: 6
		NOTE: <i>It is assumed that OBDB Issue 8.1 is the valid source for the default values.</i> H_SCM_AUX_ASW_W_BIAS_RCS_TORQUE = 2.5 (to be updated to 3.4)		
		Execute Telecommand Start database loading <i>Command Parameter(s) :</i> DbLoad Nr Cmds AHFDL001 1 <dec> <i>TC Control Flags :</i> GBM IL DSE --Y -- -- <i>Subsch. ID : 20</i> Det. descr. : TC_START_DATABASE_LOAD	ACDS1001	
		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.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.02	Execute Telecommand Load databaseReal <i>Command Parameter(s) :</i> DbLoad DF86 Cmd AH8D1001 Enable 86 DbLoad DD86 Cmd AH8D2001 Enable 86 DbLoad StartInd AHFDS001 558 <dec> DbLoad Nr Wrds AHFDN001 1 <dec> (Def) DbLoad Dwd Real AHFDZ001 3.4 <dec> <i>Subsch. ID : 20</i> Det. descr. : TC(8,4) - Load database Real	ACZTY109	
	ET=+ UT=+00.00.02	Execute Telecommand Fire Start DB loading <i>Subsch. ID : 20</i> Det. descr. : TC(8,4) Fire Command - Fire Start DB loading	ACZ5L109	
6		Update H_NOM_FDIR_AUX_GYRSTR_CHK_SPIKE		Next Step: 7
		NOTE: <i>It is assumed that OBDB Issue 8.1 is the valid source for the default values.</i> H_NOM_FDIR_AUX_GYRSTR_CHK_SPIKE = 3 (to be updated to 1200)		
		Execute Telecommand Start database loading <i>Command Parameter(s) :</i> DbLoad Nr Cmds AHFDL001 1 <dec> <i>TC Control Flags :</i> GBM IL DSE --Y -- --- <i>Subsch. ID : 20</i> Det. descr. : TC_START_DATABASE_LOAD	ACDS1001	
		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.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.02	Execute Telecommand Load databaseUnsInt Command Parameter(s) : DbLoad DF86 Cmd AH8D1001 Enable 86 DbLoad DD86 Cmd AH8D2001 Enable 86 DbLoad StartInd AHFDS001 1883 <dec> DbLoad Nr Wrds AHFDN001 1 <dec> (Def) DbLoad Dwd UInt AHFDX001 1200 <dec> Subsch. ID : 20 Det. descr. : TC(8,4) - Load database Unsigned Integer	ACZTW109	
	ET=+ UT=+00.00.02	Execute Telecommand Fire Start DB loading Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Start DB loading	ACZ5L109	
TC Seq. Name : NULLSEQ02 (Null Sequence 02) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
7		Generic OBDM Dump Procedure (H_FCP_AOC_DODD)		Next Step: END
		Execute Procedure: H_FCP_AOC_DODD Herschel ACMS : Generic OBDB Dump Procedure		
		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		
		Relevant details for use with H FCP AOC DODD Based upon the latest ASW ICD (H-P-4-TASW-IF-0002, Issue 4 A), this procedure loads the following parameters into specific OBDB offset locations in RAM: V_NOM_FDIR_STR_COV_QUAL is at OBDB offsets 962 H_SCM_CTRL_SAT_SETTLED_LIMIT_*_1 are at OBDB offsets 571-573 H_SCM_CTRL_ASW_SETTLE_COUNTER is at OBDB offset 1900 H_SCM_AUX_ASW_W_BIAS_RCS_TORQUE is at OBDB offset 558 H_NOM_FDIR_AUX_GYRSTR_CHK_SPIKE is at OBDB offset 1883 These are located in Block 3, 4 & 8 of the OBDB		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		None of these parameters are copied to SGM		
7.1		Dump via DTM		<input type="checkbox"/>
		<p>Relevant details for use with H FCP AOC DODD</p> <p>The following parameters H_SCM_CTRL_SAT_SETTLED_LIMIT_*_1 H_SCM_AUX_ASW_W_BIAS_RCS_TORQUE are located in Block 3 of the OBDB</p> <p>The following parameter V_NOM_FDIR_STR_COV_QUAL is are located in Block 4 of the OBDB</p> <p>The following parameters H_NOM_FDIR_AUX_GYRSTR_CHK_SPIKE H_SCM_CTRL_ASW_SETTLE_COUNTER are located in Block 8 of the OBDB</p>		
		Use sequences HFADODDC HFADODDD & HFADODH		
		<p>NOTE: The contents of diagnostic packet A3DH0BDB3109 {DTM with Herschel OBDB data3} are spread over a group of 4 monitoring displays:</p> <p>ZAZ68999 DTMOBDB3_1 <- values are in this display ZAZ69999 DTMOBDB3_2 <- values are in this display ZAZ6A999 DTMOBDB3_3 ZAZ6B999 DTMOBDB3_4</p>		
		<p>NOTE: The contents of diagnostic packet A3DH0BDB4109 {DTM with Herschel OBDB data4} are spread over a group of 4 monitoring displays:</p> <p>ZAZ6C999 DTMOBDB4_1 ZAZ6D999 DTMOBDB4_3 ZAZ6E999 DTMOBDB4_3 ZAZ6F999 DTMOBDB4_4 <- values are in this display</p>		
		<p>NOTE: The contents of diagnostic packet A3DH0BDB8109 {DTM with Herschel OBDB data8} are spread over a group of 4 monitoring displays:</p> <p>ZAZ6S999 DTMOBDB8_1 ZAZ6T999 DTMOBDB8_2 <- values are in this display ZAZ6U999 DTMOBDB8_3 ZAZ6V999 DTMOBDB8_4</p>		

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		<p><i>NOTE:</i> 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>		
7.2		Dump from RAM		<input type="checkbox"/>
		<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 4 A), this procedure loads the following parameters into specific OBDB offset locations in RAM:</p> <p>V_NOM_FDIR_STR_COV_QUAL is at OBDB offsets 962</p> <p>H_SCM_CTRL_SAT_SETTLED_LIMIT_*_1 are at OBDB offsets 571-573</p> <p>H_SCM_CTRL_ASW_SETTLE_COUNTER is at OBDB offset 1900</p> <p>H_SCM_AUX_ASW_W_BIAS_RCS_TORQUE is at OBDB offset 558</p> <p>H_NOM_FDIR_AUX_GYRSTR_CHK_SPIKE is at OBDB offset 1883</p> <p>These are located in Block 3, 4 & 8 of the OBDB</p>		
		<p>The <u>absolute address</u> of offset 558 is therefore: 020A = Memory ID ???? = Start Address</p> <p>The <u>absolute address</u> of offset 571 is therefore: 020A = Memory ID ???? = Start Address</p> <p>The <u>absolute address</u> of offset 962 is therefore: 020A = Memory ID ???? = Start Address</p> <p>The <u>absolute address</u> of offset 1883 is therefore: 020A = Memory ID ???? = Start Address</p>		
		<p>The <u>absolute address</u> of offset 1900 is therefore: 020A = Memory ID ???? = Start Address</p>		
		<p><u>Use sequence HFADODDL</u> to dump <u>all</u> the OBDB in RAM, or edit: Start Address = CF18 Length = 8553</p>		

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		<p><i>NOTE:</i> 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>		
7.3		Dump from SGM		<input type="checkbox"/>
		<p><u>Relevant details for use with H_FCP_AOC_DODD</u></p> <p>This step can be ignored - parameters not copied to SGM</p>		
		<p><i>NOTE:</i> The address of a parameter with a given ID can be calculated as follows:</p> <p>SGMA Address = 0xBA0000 + (ParamID-1) * 4</p> <p>SGMB Address = 0xEA0000 + (ParamID-1) * 4</p> <p>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.</p>		
End of Procedure				