

Restore default OBDB for first dV
 File: H_FCP_AOC_D5DF.xls
 Author: dsalt-hp



Procedure Summary

Objectives

The objective of this Herchel ACMS procedure is to reset the RCS control gains for the nominal modes in the OBDB back to their default values, which are assumed to have been updated on the Launch Pad.

The procedure involves the following activities:

- check the default values of the RCS thrust related control parameters in OBDB
- update of RCS thrust related control parameters in OBDB

NOTE: The default values are taken from OBDB Issue 8.1

Summary of Constraints

This procedure is only valid just prior to the first Delta-V in LEOP.

Spacecraft Configuration

Start of Procedure

S/C in any NOMINAL mode with RCS thrust related parameters in the OBDB with values updated on the Launch Pad

End of Procedure

S/C in any NOMINAL mode with RCS thrust related parameters in the OBDB reset back to default values

Reference File(s)

Input Command Sequences

Output Command Sequences

HFAD5DFA

Referenced Displays

ANDs GRDs SLDs

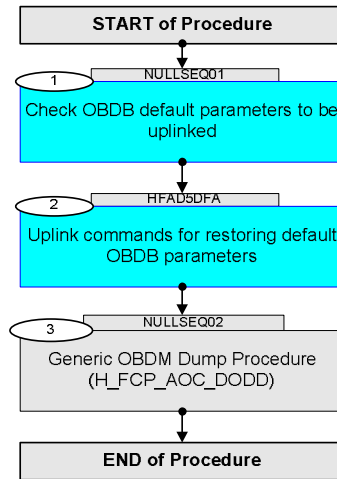
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
17/04/09	2.3	1	Created	dsalt-hp	
27/04/09		2	OBDB values corrected for OBDB Issue 8.1	dsalt-hp	
04/05/09		3	TCs all flagged for manual dispatch and release times removed	dsalt-hp	
04/05/09	2.4	4	Sequence name corrected to follow naming convention	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: □				
1		Check OBDB default parameters to be uplinked		Next Step: 2
		Check the OBDB default values of RCS thruster control parameters - thrust level related. The results should be used to derive the following: H_NOM_AUX_RCSA123_ORIENT_INV_*_* (a 3x3 maxtrix representing inverse thruster torques for RCS-A) H_NOM_AUX_RCSB123_ORIENT_INV_*_* (a 3x3 maxtrix representing inverse thruster torques for RCS-B) H_NOM_AUX_ASW_RCS_COM_RND_COARSE (a value indicating the Sun acquisition angle at which the RCS transitions from coarse to fine mode)		
		NOTE: It is assumed that OBDB Issue 8.1 is the valid source for the default values. H_NOM_AUX_ASW_RCS_COM_RND_COARSE = 0.7 H_NOM_AUX_RCSA123_ORIENT_INV_1_1 = 0.0178070968 H_NOM_AUX_RCSA123_ORIENT_INV_1_2 = -0.000118795 H_NOM_AUX_RCSA123_ORIENT_INV_1_3 = -0.025722332 H_NOM_AUX_RCSA123_ORIENT_INV_2_1 = -0.00015497055 H_NOM_AUX_RCSA123_ORIENT_INV_2_2 = -0.01706968345 H_NOM_AUX_RCSA123_ORIENT_INV_2_3 = -0.02557602415 H_NOM_AUX_RCSA123_ORIENT_INV_3_1 = 0.01797978655 H_NOM_AUX_RCSA123_ORIENT_INV_3_2 = -0.01736613965 H_NOM_AUX_RCSA123_ORIENT_INV_3_3 = 0.00001818357		
		H_NOM_AUX_RCSB123_ORIENT_INV_1_1 = 0.017990306 H_NOM_AUX_RCSB123_ORIENT_INV_1_2 = -0.0003373341 H_NOM_AUX_RCSB123_ORIENT_INV_1_3 = -0.026368416 H_NOM_AUX_RCSB123_ORIENT_INV_2_1 = 8.69876E-05 H_NOM_AUX_RCSB123_ORIENT_INV_2_2 = -0.017363858 H_NOM_AUX_RCSB123_ORIENT_INV_2_3 = -0.026431912 H_NOM_AUX_RCSB123_ORIENT_INV_3_1 = 0.017943273 H_NOM_AUX_RCSB123_ORIENT_INV_3_2 = -0.017237395 H_NOM_AUX_RCSB123_ORIENT_INV_3_3 = 2.64924E-05		
TC Seq. Name : HFAD5DFA (OBDBdef_DV1)				
TimeTag Type: Sub Schedule ID: □				

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand		
		Load databaseReal	ACZTY109	
		Command Parameter(s) :		
		DbLoad DF86 Cmd AH8D1001	Enable 86	
		DbLoad DD86 Cmd AH8D2001	Enable 86	
		DbLoad StartInd AHFDS001	156 <dec>	
		DbLoad Nr Wrds AHFDN001	18 <dec>	
		DbLoad Dwd Real AHFDZ001	0.0178070968	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	-0.000118795	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	-0.025722332	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	-0.00015497055	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	-0.01706968345	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	-0.02557602415	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	0.01797978655	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	-0.01736613965	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	0.00001818357	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	0.017990306 <dec>	
		DbLoad Dwd Real AHFDZ001	-0.0003373341	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	-0.026368416	
		DbLoad Dwd Real AHFDZ001	<dec>	
		DbLoad Dwd Real AHFDZ001	8.69876E-05 <dec>	
		DbLoad Dwd Real AHFDZ001	-0.017363858	
		DbLoad Dwd Real AHFDZ001	<dec>	
		TC Control Flags :		
		GBM IL DSE	-0.026431912	
		--Y -- ---	<dec>	
			0.017943273 <dec>	
			-0.017237395	
			<dec>	
			2.64924E-05 <dec>	
		Subsch. ID : 20		
		Det. descr. : TC(8,4) - Load database Real		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;">Load databaseReal</p> Command Parameter(s) : DbLoad DF86 Cmd AH8D1001 Enable 86 DbLoad DD86 Cmd AH8D2001 Enable 86 DbLoad StartInd AHFDS001 78 <dec> DbLoad Nr Wrds AHFDN001 1 <dec> (Def) DbLoad Dwd Real AHFDZ001 0.7 <dec>	ACZTY109	
		TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 20 Det. descr. : TC(8,4) - Load database Real		
2.3		Activate values Execute Telecommand <p style="text-align: right;">Fire critical command</p> Command Parameter(s) : FireFun DF86Cmd AH8F1001 Enable 86 FireFun DD86Cmd AH8F2001 Enable 86 FireFun CritFID AHFFH001 201 <dec>	ACFC1001	<input type="checkbox"/>
		TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 30 Det. descr. : TC_FIRE_COMMAND		
TC Seq. Name : NULLSEQ02 (Null Sequence 02)				
TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
3		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		

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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 G), this procedure loads the following parameters into specific OBDB offset locations in RAM:</p> <p>H_NOM_AUX_RCS*123_ORIENT_INV_*_* are at OBDB offsets 156-173</p> <p>H_NOM_AUX_ASW_RCS_COM_RND_COARSE are at OBDB offsets 78</p> <p>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_RCS*123_ORIENT_INV_*_* are at OBDB offsets 100-117</p> <p>H_NOM_AUX_ASW_RCS_COM_RND_COARSE are at OBDB offsets 118</p>		
3.1		<p><u>Dump via DTM</u></p>		□
		<p><u>Relevant details for use with H FCP AOC DODD</u></p> <p>The following parameters</p> <p>H_NOM_AUX_RCS*123_ORIENT_INV_*_* H_NOM_AUX_ASW_RCS_COM_RND_COARSE</p> <p>These are located in Block 1 of the OBDB</p>		
		<p><u>Use sequence HFADODDA</u></p>		
		<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 <- values are in this display 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>		
3.2		<p><u>Dump from RAM</u></p>		□

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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 G), this procedure loads the following parameters into specific OBDB offset locations in RAM:</p> <p>H_NOM_AUX_RCS*123_ORIENT_INV_*_* are at OBDB offsets 156-173 H_NOM_AUX_ASW_RCS_COM_RND_COARSE are at OBDB offsets 78</p> <p>The <u>absolute address</u> of offset 156 is therefore: 020A = Memory ID D188 = Start Address</p> <p>The <u>absolute address</u> of offset 78 is therefore: 020A = Memory ID D050 = Start Address</p>		
		<p>Use sequence HFADODDL to dump <u>all</u> the OBDB in RAM, or edit: Start Address = CF18 Length = 8553</p>		
		<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>		
3.3		Dump from SGM		<input type="checkbox"/>

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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 G), this procedure copies the following parameters into specific OBDB offset locations in SGM</p> <p>H_NOM_AUX_RCS*123_ORIENT_INV_*_* are at OBDB offsets 100-117</p> <p>H_NOM_AUX_ASW_RCS_COM_RND_COARSE are at OBDB offsets 118</p> <p>The <u>absolute address</u> of offset 100 is therefore: BA018C in SGA (=12190092 <dec>) EA018C in SGB (=15335820 <dec>)</p> <p>The <u>absolute address</u> of offset 118 is therefore: BA00FC in SGA (=12189948 <dec>) EA00FC in SGB (=15335676 <dec>)</p>		
		<p><u>Use sequences HFADODDJ & HFADODDK</u> to dump <u>all</u> the OBDB in SGMA & SGMB, or edit: Start Address = BA0000 / EA0000 Length = 1688</p>		
		<p><i>NOTE:</i> <i>The address of a parameter with a given ID can be calculated as follows:</i></p> <p><i>SGMA</i> <i>Address = 0xBA0000 + (ParamID-1) * 4</i></p> <p><i>SGMB</i> <i>Address = 0xEA0000 + (ParamID-1) * 4</i></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				