

Patch the OBSW  
File: H\_FCP\_HIF\_CPOM.xls  
Author: R. Biggins



## Procedure Summary

### Objectives

The objective of this procedure is to patch the OBSW in the ICU

- copy memory to PM-high
- patch and check memory
- copy patched memory to DM-low

Based on procedure:  
HIFI\_patch\_OBSW (v3)

### Summary of Constraints

Real-time science packets should be enabled for downlink for HIFI analysis

This procedure is not version dependent

### Spacecraft Configuration

#### Start of Procedure

HIFI in STANDBY I mode

#### End of Procedure

HIFI in STANDBY I mode

### Reference File(s)

Input Command Sequences

Output Command Sequences

### Referenced Displays

ANDs GRDs SLDs

### Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
15/01/08		1	Created	R. Biggins	
29/02/08		2	Update due to testing against MOC Simulator and comments by D. Teyssier: - Telecommand flags updated - Editorial updates - OBSM procedure reference updated	R. Biggins	
06/03/08		3	Update due to comments from D. Teyssier: - Memory check parameters corrected for v5.4.0	R. Biggins	
06/06/08	1	4	Updates due to SVT-1 testing: - Check memory TC parameters changed to formal parameters - Comments added to become less version-specific - Flags updated	R. Biggins	

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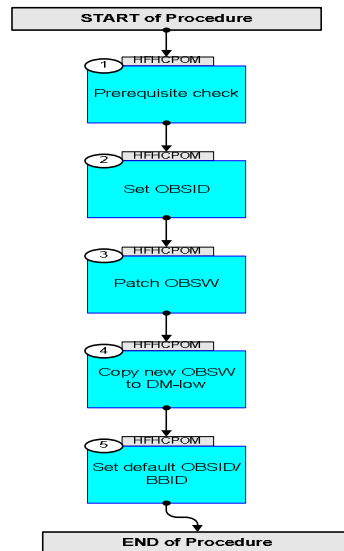


			Validation : Updates due to SVT-2/SOVT-2 testing <input type="checkbox"/>		
			- Procedure updated to be compatible with software version 6.1.1 <input type="checkbox"/>		
04/03/09	2.1	4.01	- Summary updated	R. Biggins	
			- Additional memory checks added <input type="checkbox"/>		
16/06/09	2.5	5	- TM collection from sub-units disabled during memory transfer	R. Biggins	

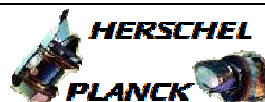
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## Procedure Flowchart Overview

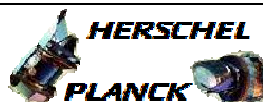


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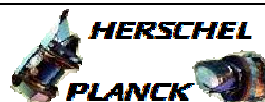
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<b>Beginning of Procedure</b>				
TC Seq. Name :HFHCPOM (Patch OBSW)  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>				
1		Prerequisite check		Next Step: 2
1.1		HSC/ICC input		<input type="checkbox"/>
		Verify that the HSC has supplied a valid OBSID value  OBS_ID = 0xnnnn nnnn		
		Verify that the correct information has been supplied by the ICC:  Software Image (verify with OBSM engineer) Software Version/Revision/Patch number (step 4)		
		Verify that HIFI have supplied the following formal parameters:  START_1 END_1 CRC_1  START_2 END_2 CRC_2  START_3 END_3 CRC_3		
2		Set OBSID		Next Step: 3
	ET=+ UT=+00.00.01	HIFI_Set_OBS_ID  HIFI_Set_OBS_ID  Command Parameter(s) : HIFI_BB_ID HP001197 HIFI_OBS_ID HP000197  TC Control Flags : GBM IL DSE --Y -- ---  Subsch. ID : 70 Det. descr. : Set Observation-ID and Building-Block-ID	HC014289  1EF80001 <hex> OBS_ID	
		Verify Telemetry  BB_ID_per_hk HM004190	= 1EF80001 <hex>	AND=ZAZ9C999

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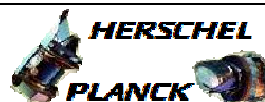
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry OBS_ID_per_hk HM003190	OBS_ID	AND=ZAZ9C999
3		Patch OBSW		Next Step: 4
	ET=+ UT=+00.00.00	HIFI_copy_mem_to_high HIFI_copy_mem_to_high Command Parameter(s) : OBS_destination HP447197 OBS_copy_length HP448197 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 70 Det. descr. : Copy OBS-image to high-part of the memory in order to patch it	HC170289 3FFFF <hex> (Def) 20000 <hex> (Def)	
		OBSM engineer to run the procedure H_FCP_OBS_3111 to generate the saved stack files for upload.		
		The OBSM procedure will generate a saved stack file and uplink the load commands to HIFI. It will also verify that the load is successful by checksum verification of the on-board image.		
	ET=+ UT=+00.00.00	HIFI_check_PM_memory HIFI_check_PM_memory Command Parameter(s) : HIF_check_start HP231197 HIF_check_end HP232197 HIF_check_crc HP233197 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 70 Det. descr. : Compares checksum of specified PM memory with specified value	HC169289 START_1 END_1 CRC_1	
		A TM(5,4) packet will be produced only if the check fails, otherwise there is no response expected from HIFI.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	HIFI_check_PM_memory HIFI_check_PM_memory Command Parameter(s) : HIF_check_start HP231197 HIF_check_end HP232197 HIF_check_crc HP233197 TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 70 Det. descr. : Compares checksum of specified PM memory with specified value	HC169289  START_2 END_2 CRC_2	
		A <b>TM(5,4)</b> packet will be produced only if the check fails, otherwise there is no response expected from HIFI.		
	ET=+ UT=+00.00.00	HIFI_check_PM_memory HIFI_check_PM_memory Command Parameter(s) : HIF_check_start HP231197 HIF_check_end HP232197 HIF_check_crc HP233197 TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 70 Det. descr. : Compares checksum of specified PM memory with specified value	HC169289  START_3 END_3 CRC_3	
		A <b>TM(5,4)</b> packet will be produced only if the check fails, otherwise there is no response expected from HIFI.		
4		Copy new OBSW to DM-low		Next Step: 5
	ET=+ UT=+00.00.00	Execute Telecommand HIFI_notify_PDU_status Command Parameter(s) : HIF_FCU_S HP006197 HIF_LCU_S HP007197 HIF_WBSV_S HP009197 HIF_WBSH_S HP008197 HIF_HRSV_S HP011197 HIF_HRSH_S HP010197 TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 70	HC015289  OFF (Def) OFF (Def) OFF (Def) OFF (Def) OFF (Def) OFF (Def)	
		Det. descr. : Notifies the power status of the subsystems to the OBS		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.03	HIFI_copy_mem_to_low HIFI_copy_mem_to_low Command Parameter(s) : OBS_destination HP447197 OBS_copy_length HP448197 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 70 Det. descr. : Copy OBS-image to low-part of the memory and start it	HC171289 3FFFF <hex> (Def) 20000 <hex> (Def)	
		Verify Telemetry HI_SW_Version HM010190	Version	AND=ZAZ9C999
		Verify Telemetry HI_SW_Revision HM011190	Revision	AND=ZAZ9C999
		Verify Telemetry HI_SW_Patch HM012190	Patch	AND=ZAZ9C999
	ET=+ UT=+00.00.00	Execute Telecommand HIFI_notify_PDU_status Command Parameter(s) : HIF_FCU_S HP006197 HIF_LCU_S HP007197 HIF_WBSV_S HP009197 HIF_WBSH_S HP008197 HIF_HRSV_S HP011197 HIF_HRSH_S HP010197 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 70 Det. descr. : Notifies the power status of the subsystems to the OBS	HC015289 ON ON ON ON ON ON	
5		Set default OBSID/BBID		Next Step: END
	ET=+ UT=+00.00.01	HIFI_Set_OBS_ID HIFI_Set_OBS_ID Command Parameter(s) : HIFI_BB_ID HP001197 HIFI_OBS_ID HP000197 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 70 Det. descr. : Set Observation-ID and Building-Block-ID	HC014289 0 <hex> (Def) 0 <hex> (Def)	
		Verify Telemetry BB_ID_per_hk HM004190	= 0 <hex>	AND=ZAZ9C999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry OBS_ID_per_hk HM003190	= 0 <hex>	AND=ZAZ9C999
End of Procedure				