

Load or delete an OBCP
File: H_FCP_DHS_3041.xls
Author: S. Manganelli



Procedure Summary

Objectives

The ASW function "OBCP Management" is responsible of executing the loaded Procedures.

This procedure describes the steps needed to load a new OBCP (add an OBCP to the OBCP list and upload its code) or to delete an existing OBCP (remove an OBCP from the OBCP list and clear its code).

Summary of Constraints

Default status of the function: "Stopped".

When the function is stopped, it does not accept any other telecommands than the:

- Start Function TC(8,1,107);
- Report Function Status TC(8,5,107).

Thus, if the function is stopped this procedure cannot be executed.

Spacecraft Configuration

Start of Procedure

CDMU in default configuration, that is:

- PM A or B ON (nominally A)
- TM Encoder/OBT A or B active (nominally A)
- RM A and B enabled
- MM A and B ON

End of Procedure

CDMU in default configuration, that is:

- PM A or B ON (nominally A)
- TM Encoder/OBT A or B active (nominally A)
- RM A and B enabled
- MM A and B ON

Reference File(s)

Input Command Sequences

Output Command Sequences

HFD3041A
HFD3041B
HFD3041D

Referenced Displays

ANDs	GRDs	SLDs
ZAZA1999		(None)
ZAZ2A999		
ZAZ3Y999		
ZAZ4U999		

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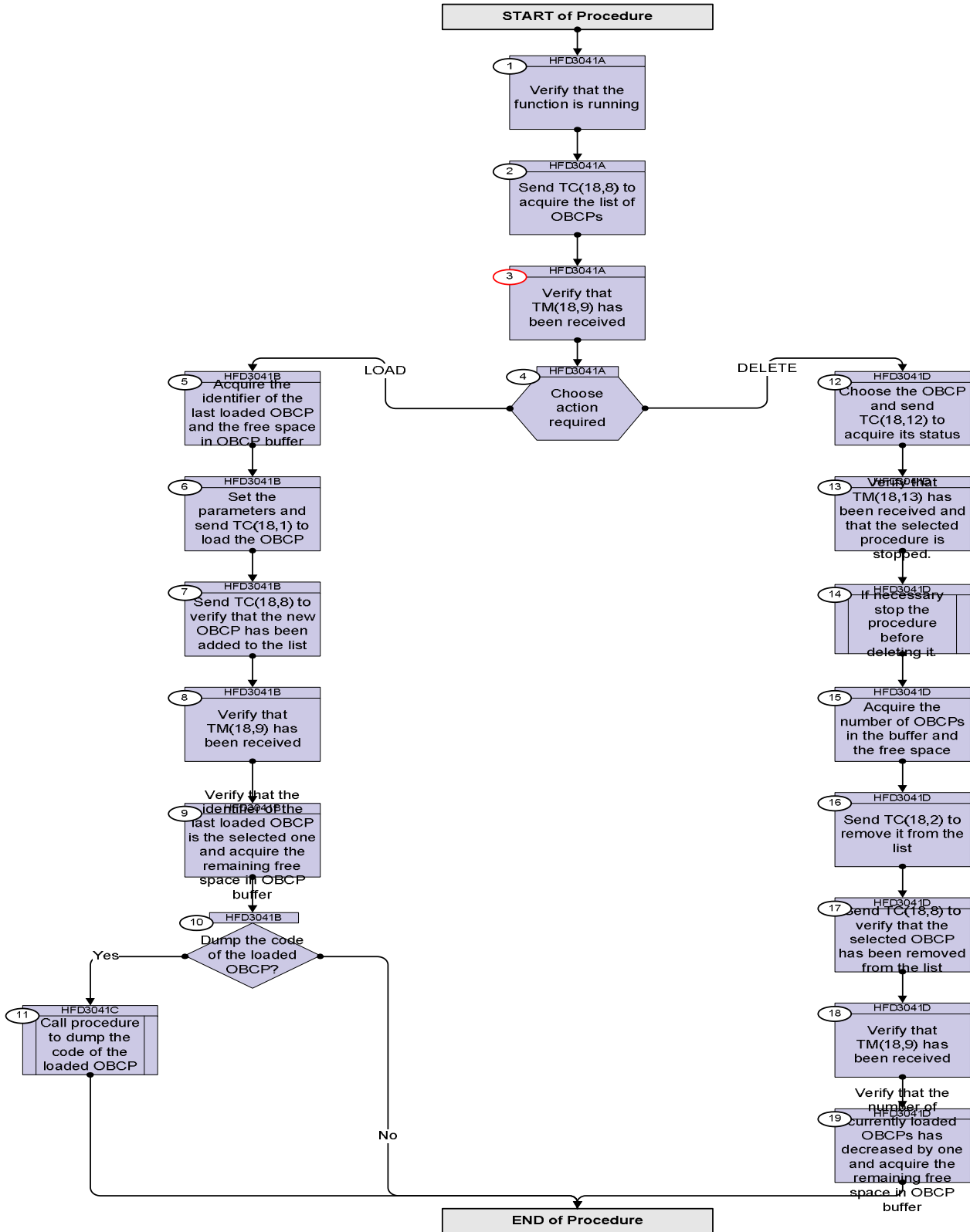
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
04/02/08	1	1	Created	cmevi-hp	
01/12/08		2	Procedure updated according to latest version received from industry on 24/10/2008	cmevi-hp	
13/01/09	2	3	Updated following OBSW 3_8	S. Manganelli	
15/03/09	2.2	4	Fixed MOIS FP bug	S. Manganelli	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<p><i>TC Seq. Name :HFD3041B (Load OBCP)</i></p> <p><i>TimeTag Type: N</i> <i>Sub Schedule ID:</i></p> <p>□</p>				
5		Acquire the identifier of the last loaded OBCP and the free space in OBCP buffer		Next Step: 6
		Verify Telemetry ObcpLoadId DE83E170		AND=ZAZ2A999
		Verify Telemetry ObcpBufFree DEA75170		AND=ZAZ3Y999
6		Set the parameters and send TC(18,1) to load the OBCP		Next Step: 7
		<p><u>WARNING: the following TC is a variable length TC which does not allow the definition of a generic procedure. The following is therefore only an example.</u></p>		
		<p>In the TC(18,1) it is necessary to set the following parameters:</p> <p><u>Procedure ID:</u> the unique identification of the On-Board Control Procedure that is being loaded.</p> <p><u>Segment-Identifier:</u> as a new OBCP may contain more code than can be loaded with a single TC-packet, it has to be loaded by a sequence of TC-packets, each of them identified by a unique Segment-Identifier and carrying a segment of the overall OBCP code.</p> <p>If a new OBCP is loaded with a single TC-packet only, the Segment-ID shall be set to zero.</p>		
		<p><u>N:</u> the length (in octets) of the loaded part of procedure code that follows.</p> <p>With each TC(18,1) a maximum of 232 octets can be loaded for the definition of a new OBCP. Maximal value of N is therefore 232.</p> <p><u>Procedure Code:</u> the part of code of the procedure (in increasing order of octet) to be loaded.</p>		
		<p>When this request is received, the CDMU ASW shall store the procedure code, and updates its list of loaded on-board procedures accordingly. If the Procedure ID is the same as a procedure currently in the list, the TC shall be rejected.</p> <p>The status of the loaded procedure is set to «stopped».</p>		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		WARNING: the following TCs are intended to be just examples.		
6.1		Load an OBCP with a single TC, thus less than 232 octets long		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;">LoadObcp_Even</p> Command Parameter(s) : ObcpId DH135170 ObcpSegmId DH136170 ObcpSegmLen DH144170 ObcpCode DH137170 TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Load OBCP TC(18,1): Even number of ObcpCode (8-bit) This Telecommand will not be included in the export	DCT69170	
6.2		Load an OBCP with a several TCs, thus longer than 232 octets		<input type="checkbox"/>
		Sent as many TCs as requested to load the procedure code, each segment can contain up to 232 octets. The Segment-ID shall always start with 1, and be incremented by one for each new Segment (allowed range : 1 to 254).		
		Execute Telecommand <p style="text-align: right;">LoadObcp_Even</p> Command Parameter(s) : ObcpId DH135170 ObcpSegmId DH136170 ObcpSegmLen DH144170 ObcpCode DH137170 ObcpCode DH137170 ObcpCode DH137170 ObcpCode DH137170 ObcpCode DH137170 ObcpCode DH137170 ObcpCode DH137170 ObcpCode DH137170 ObcpCode DH137170 ObcpCode DH137170	DCT69170	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;">LoadObcp_Even</p> Command Parameter(s) : ObcpId DH135170 ObcpSegmId DH136170 ObcpSegmLen DH144170 TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Load OBCP TC(18,1): Even number of ObcpCode (8-bit) This Telecommand will not be included in the export	DCT69170	
7		Send TC(18,8) to verify that the new OBCP has been added to the list		Next Step: 8
		When this request is received, a report Type (18,9) is generated.		
		Execute Telecommand <p style="text-align: right;">ReptOnBoardObcps</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Report list of on-board OBCPs TC(18,8)	DCT76170	
8		Verify that TM(18,9) has been received		Next Step: 9
		Verify Packet Reception <p style="text-align: center;">TM 18-9 List of on-board Procedures</p> Packet Details: <p style="text-align: right;">APID: 16 Type: 18 Subtype: 9 PI1: PI2:</p>	OnBrdObcpLst	
		Verify Telemetry <p style="text-align: right;">N_Repetition DE014170</p>		(None)
		The following parameter is repeated N times		
		Verify Telemetry <p style="text-align: right;">ProcedureID DE293170</p>		(None)
9		Verify that the identifier of the last loaded OBCP is the selected one and acquire the remaining free space in OBCP buffer		Next Step: 10

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry ObcpLoadId DE83E170	Obcp_ID	(None)
		Verify Telemetry ObcpBufFree DEA75170	has decreased by the amount uploaded	(None)
10		Dump the code of the loaded OBCP?		Next Step: Yes 11 No END
<p>TC Seq. Name :HFD3041C (Dump OBCP)</p> <p>TimeTag Type: Sub Schedule ID: <input type="checkbox"/></p>				
11		Call procedure to dump the code of the loaded OBCP		Next Step: END
		Execute procedure H_FCP_DHS_3045.		
<p>TC Seq. Name :HFD3041D (Delete OBCP)</p> <p>TimeTag Type: N Sub Schedule ID: <input type="checkbox"/></p>				
12		Choose the OBCP and send TC(18,12) to acquire its status		Next Step: 13
		<p>When this request is received, CDMU ASW reports the actual status of the specified OBCP.</p> <p>The delete request being ignored if the procedure status is "active" or «suspended», the procedure status needs to be stopped.</p>		
		<p>Execute Telecommand</p> <p style="text-align: right;">ReptObcpStatus</p> <p>Command Parameter(s) :</p> <p style="text-align: right;">ObcpId DH135170</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : TEMPLATE Report OBCP Status and Parameters TC(18,12)</p>	DCT78170 OBCP	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
13		Verify that TM(18,13) has been received and that the selected procedure is stopped.		Next Step: 14
		Verify Packet Reception TM 18-13 OBCP Status Report Packet Details: APID: 16 Type: 18 Subtype: 13 PI1: PI2:	ObcpStsRpt	
		Verify Telemetry ProcedureID DE293170	OBCPID	(None)
		Verify Telemetry OBCPStatus DEZA8170	= Stopped	(None)
14		If necessary stop the procedure before deleting it.		Next Step: 15
14.1		If the procedure is not yet stopped		<input type="checkbox"/>
		Verify Telemetry OBCPStatus DEZA8170	<> 0 <dec>	(None)
14.2		Stop the procedure		<input type="checkbox"/>
		Execute procedure H_FCP_DHS_3042.		
15		Acquire the number of OBCPs in the buffer and the free space		Next Step: 16
		Verify Telemetry NObcpInBuf DE291170		AND=ZAZ4U999
		Verify Telemetry ObcpBufFree DEA75170		AND=ZAZ3Y999
16		Send TC(18,2) to remove it from the list		Next Step: 17
		When this request is received, the specified on-board procedure is deleted from the list of loaded on-board procedures and the area occupied by the procedure code is cleared.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand DeleteObcp Command Parameter(s) : ObcpId DH135170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Delete OBCP TC(18,2)	DCT70170 OBCP	
17		Send TC(18,8) to verify that the selected OBCP has been removed from the list		Next Step: 18
		When this request is received, a report Type (18,9) is generated.		
		Execute Telecommand ReptOnBoardObcps TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Report list of on-board OBCPs TC(18,8)	DCT76170	
18		Verify that TM(18,9) has been received		Next Step: 19
		Verify Packet Reception TM 18-9 List of on-board Procedures Packet Details: APID: 16 Type: 18 Subtype: 9 PI1: PI2:	OnBrdObcpLst	
		Verify Telemetry N_Repetition DE014170		(None)
		The following parameter is repeated N times		
		Verify Telemetry ProcedureID DE293170		(None)
19		Verify that the number of currently loaded OBCPs has decreased by one and acquire the remaining free space in OBCP buffer		Next Step: END
		Verify Telemetry NObcpInBuf DE291170		AND=ZAZ4U999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry ObcBufFree DEA75170	has increased by the amount deleted	(None)
End of Procedure				