

Configuration check after MM board failure
File: H_CRP_DHS_3070.xls
Author: S. Manganelli



Procedure Summary

Objectives

This procedure describes the steps needed to check the recovery performed on-board by the BSW/ASW following BSW events 80/81/128/129.

Summary of Constraints

The status of the MTL and OBCP buffers are updated in Unit In Use (UIU) table by the ASW after calling relevant BSW SVC (e.g. BswSvc_Mb_Write, BswSvc_Mb_Read, etc); in particular:

- if the failed MM is the "currently in use" MM, the ASW changes the FDIR status to "Failed" for the "currently in use" MM and changes the "currently in use" MM.

- if the failed MM is not the "currently in use" MM, the ASW changes only the FDIR status to "Failed" for the "not currently in use" MM.

According to the received event, the BSW marks as "Unhealthy" or "Disabled", in the Health Table, the following components:

- MM Board is marked as "Unhealthy";
- PMS Spacewire links to MM are marked as "Disabled";
- MM ICB RT is marked as "Disabled";
- MM Interrupt is marked as "Disabled" (only if event 128 or 129 are received).

Spacecraft Configuration

Start of Procedure

MM A/B MTL and OBCP buffers marked as "Failed" in UIU table and related components marked as "Unhealthy" or "Disabled" in Health table.

End of Procedure

MM A/B MTL and OBCP buffers marked as "Failed" in UIU table and related components marked as "Unhealthy" or "Disabled" in Health table.

Reference File(s)

Input Command Sequences

Output Command Sequences

Referenced Displays

ANDs GRDs SLDs

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ZAZAM999
 ZAZAC999 (None)
 ZAZAD999
 ZAZAN999

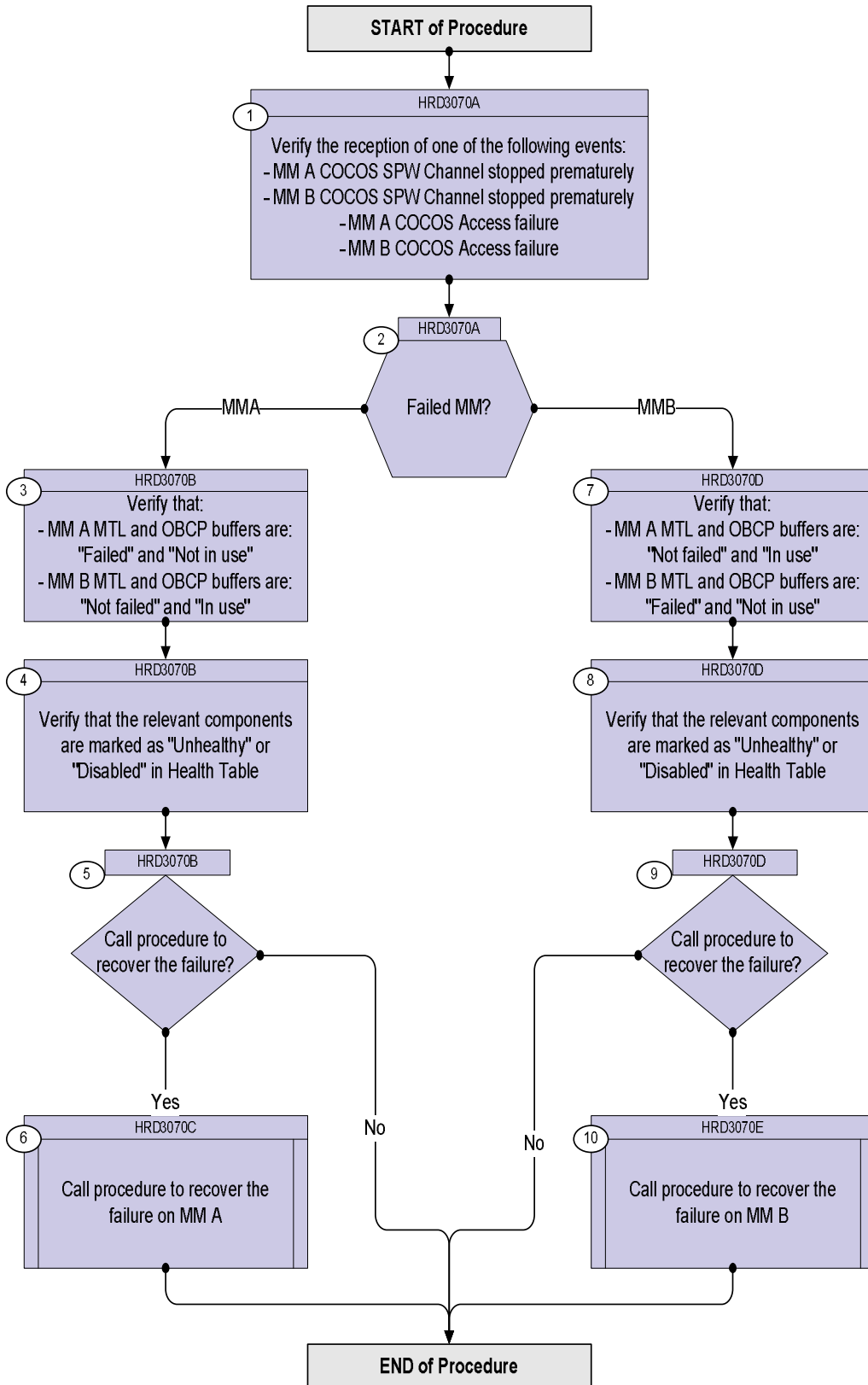
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
17/11/08		1	Created	cmevi-hp	
02/01/09		2	Added comment concerning OBCP buffers not necessarily affected in TM. Added OBCP buffer TM parameters now available.	S. Manganelli	
12/01/09	2	3	Updated following OBSW 3_8	S. Manganelli	
21/03/09	2.2	4	Modified sub-type for BSW events 128 and 129 in steps 1.3 and 1.4 DB check OBSW 3_8_2	S. Manganelli	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
Beginning of Procedure				
<p><i>TC Seq. Name :HRD3070A (Dummy)</i></p> <p><i>TimeTag Type:</i> <i>Sub Schedule ID:</i></p> <p style="text-align: center;">□</p>				
1		<p>Verify the reception of one of the following events:</p> <ul style="list-style-type: none"> - MM A COCOS SPW Channel stopped prematurely - MM B COCOS SPW Channel stopped prematurely - MM A COCOS Access failure - MM B COCOS Access failure 		Next Step: 2
		<p>Note that after the reception of the event the following components in the Health Table are marked as "Unhealthy" or "Disabled":</p> <ul style="list-style-type: none"> - MM A COCOS SPW Channel stopped prematurely MmBoardA --> Unhealthy PmSpwMmAA --> Disabled PmSpwMmBA --> Disabled MmIcbRtA --> Disabled - MM B COCOS SPW Channel stopped prematurely MmBoardB --> Unhealthy PmSpwMmAB --> Disabled PmSpwMmBB --> Disabled MmIcbRtB --> Disabled 		
		<ul style="list-style-type: none"> - MM A COCOS Access failure MmBoardA --> Unhealthy PmSpwMmAA --> Disabled PmSpwMmBA --> Disabled MmIcbRtA --> Disabled MmIntrptA --> Disabled - MM B COCOS Access failure MmBoardB --> Unhealthy PmSpwMmAB --> Disabled PmSpwMmBB --> Disabled MmIcbRtB --> Disabled MmIntrptB --> Disabled 		
1.1		<p><i>MM A COCOS SPW Channel stopped prematurely TM(5,4,80)</i></p>		□
		<p>Verify Packet Reception CdmuBsw Event 5-4 MM A COCOS SPW Channel Stopped Prematurely Packet Details:</p>	D_EvRp_480	
		APID: 16 Type: 5 Subtype: 4 PI1: 80 PI2: 80		

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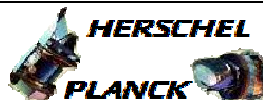
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Telemetry EVENT_ID DEZA0160		
		Verify Packet Telemetry SID DEZA1160		
		Verify Packet Telemetry BSW_EvIDCnt80 DEH0F160		
		Verify Packet Telemetry PM_SPW_RCISR DEAC0160		
		Verify Packet Telemetry HEALTH_UPDATED DEZ56160		
		Verify Packet Telemetry EVENT_SEQ_CNT DEZA2160		
		Verify Packet Telemetry PM_SPW_TCISR DEB60160		
		Verify Packet Telemetry PM_SPW_xDBAR DEAG0160		
		Verify Packet Telemetry PM_SPW_xDOR DEAH0160		
		Verify Packet Telemetry CHN_ID DEZ55160		
1.2		MM B COCOS SPW Channel stopped prematurely TM(5,4,81)		□
		Verify Packet Reception CdmuBsw Event 5-4 MM B COCOS SPW Channel Stopped Prematurely Packet Details: APID: 16 Type: 5 Subtype: 4 PI1: 81 PI2: 81	D_EvRp_481	
		Verify Packet Telemetry EVENT_ID DEZA0160		
		Verify Packet Telemetry SID DEZA1160		
		Verify Packet Telemetry BSW_EvIDCnt81 DEH10160		
		Verify Packet Telemetry PM_SPW_RCISR DEAC0160		
		Verify Packet Telemetry HEALTH_UPDATED DEZ56160		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Telemetry EVENT_SEQ_CNT DEZA2160		
		Verify Packet Telemetry PM_SPW_TCISR DEB60160		
		Verify Packet Telemetry PM_SPW_xDBAR DEAG0160		
		Verify Packet Telemetry PM_SPW_xDOR DEAH0160		
		Verify Packet Telemetry CHN_ID DEZ55160		
1.3		MM A COCOS Access failure TM(5,2,128)		<input type="checkbox"/>
		Verify Packet Reception CdmuBsw Event 5-2 MM A COCOS Access Failure Packet Details: APID: 16 Type: 5 Subtype: 2 PI1: 128 PI2: 128	D_EvRp_528	
		Verify Packet Telemetry (Pkt = D_EvRp_528) EVENT_ID DEZA0160		
		Verify Packet Telemetry (Pkt = D_EvRp_528) SID DEZA1160		
		Verify Packet Telemetry (Pkt = D_EvRp_528) BSW_EvIDCnt128 DEHRF160		
		Verify Packet Telemetry (Pkt = D_EvRp_528) MM_PIM_TRAP DEB70160		
		Verify Packet Telemetry (Pkt = D_EvRp_528) HEALTH_UPDATED DEZ56160		
		Verify Packet Telemetry (Pkt = D_EvRp_528) EVENT_SEQ_CNT DEZA2160		
		Verify Packet Telemetry (Pkt = D_EvRp_528) MM_PIM_EI DEB00160		
		Verify Packet Telemetry (Pkt = D_EvRp_528) MM_PIM_FFAR DEB10160		
		Verify Packet Telemetry (Pkt = D_EvRp_528) MM_PIM_FFDR DEB20160		
1.4		MM B COCOS Access failure TM(5,2,129)		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Reception CdmuBsw Event 5-2 MM B COCOS Access Failure Packet Details: APID: 16 Type: 5 Subtype: 2 PI1: 129 PI2: 129	D_EvRp_529	
		Verify Packet Telemetry (Pkt = D_EvRp_529) EVENT_ID DEZA0160		
		Verify Packet Telemetry (Pkt = D_EvRp_529) SID DEZA1160		
		Verify Packet Telemetry (Pkt = D_EvRp_529) BSW_EvIDCnt129 DEHS0160		
		Verify Packet Telemetry (Pkt = D_EvRp_529) MM_PIM_TRAP DEB70160		
		Verify Packet Telemetry (Pkt = D_EvRp_529) HEALTH_UPDATED DEZ56160		
		Verify Packet Telemetry (Pkt = D_EvRp_529) EVENT_SEQ_CNT DEZA2160		
		Verify Packet Telemetry (Pkt = D_EvRp_529) MM_PIM_EI DEB00160		
		Verify Packet Telemetry (Pkt = D_EvRp_529) MM_PIM_FFAR DEB10160		
		Verify Packet Telemetry (Pkt = D_EvRp_529) MM_PIM_FFDR DEB20160		
2		Failed MM?		Next Step: MMA 3 MMB 7
TC Seq. Name :HRD3070B (Dummy) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
3		Verify that: - MM A MTL and OBCP buffers are: "Failed" and "Not in use" - MM B MTL and OBCP buffers are: "Not failed" and "In use"		Next Step: 4
		Verify Telemetry Mtl1FailSts DEH88170	= Failed	AND=ZAZAM999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry Mtl1Use DEH91170	= Not_In_Use	AND=ZAZAM999
		Verify Telemetry Mtl2FailSts DEH92170	= Not_Failed	AND=ZAZAM999
		Verify Telemetry Mtl2Use DEH95170	= In_Use	AND=ZAZAM999
		Next check shows the ideal case , but the OBCP UIU flags can have been modified or not , depending if the ASW tried to use the OBCP buffer on SSMM after the failure. Contrary to the MTL, there is no cyclical OBCP activity that accesses the SSMM. So, unless an OBCP is run/uploaded/modified/... while there is an SSMM failure, the OBCP buffers will still (wrongly) be seen as valid by the ASW.		
		Verify Telemetry Obcp1FailSts DEH64170	= Failed	AND=ZAZAN999
		Verify Telemetry Obcp1Use DEH67170	= Not_In_Use	AND=ZAZAN999
		Verify Telemetry Obcp2FailSts DEH68170	= Not_Failed	AND=ZAZAN999
		Verify Telemetry Obcp2Use DEH71170	= In_Use	AND=ZAZAN999
4		Verify that the relevant components are marked as "Unhealthy" or "Disabled" in Health Table		Next Step: 5
		It is highlighted that the MmlnrptA parameter is set to "Disabled" only in case of TM(5,2,128) reception.		
		Verify Telemetry MmBrda_Healthy DEJM3160	= Unhealthy	AND=ZAZAC999
		Verify Telemetry PmSpwMmAA_Enab DEJS2160	= DISABLED	AND=ZAZAD999
		Verify Telemetry PmSpwMmBA_Enab DEJSH160	= DISABLED	AND=ZAZAD999
		Verify Telemetry MmIcba_Enabled DEJN2160	= DISABLED	AND=ZAZAC999
		Verify Telemetry MmIntA_Enabled DEJMH160	= DISABLED	AND=ZAZAC999
5		Call procedure to recover the failure?		Next Step: No END Yes 6

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
TC Seq. Name :HRD3070C (Dummy) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
6		Call procedure to recover the failure on MM A		Next Step: END
		Execute procedure H_CRP_DHS_3071.		
TC Seq. Name :HRD3070D (Dummy) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
7		Verify that: - MM A MTL and OBCP buffers are: "Not failed" and "In use" - MM B MTL and OBCP buffers are: "Failed" and "Not in use"		Next Step: 8
		Verify Telemetry <div style="text-align: right;"> Mt11FailSts DEH88170 </div>	= Not_Failed	AND=ZAZAM999
		Verify Telemetry <div style="text-align: right;"> Mt11Use DEH91170 </div>	= In_Use	AND=ZAZAM999
		Verify Telemetry <div style="text-align: right;"> Mt12FailSts DEH92170 </div>	= Failed	AND=ZAZAM999
		Verify Telemetry <div style="text-align: right;"> Mt12Use DEH95170 </div>	= Not_In_Use	AND=ZAZAM999
		Next check shows the ideal case , but the OBCP UIU flags can have been modified or not , depending if the ASW tried to use the OBCP buffer on SSMMB after the failure. Contrary to the MTL, there is no cyclical OBCP activity that accesses the SSMM. So, unless an OBCP is run/upload/modify/... while there is an SSMM failure, it is expected that the OBCP buffer are still (wrongly) seen as valid by the ASW.		
		Verify Telemetry <div style="text-align: right;"> Obcp1FailSts DEH64170 </div>	= Not_Failed	AND=ZAZAN999
		Verify Telemetry <div style="text-align: right;"> Obcp1Use DEH67170 </div>	= In_Use	AND=ZAZAN999
		Verify Telemetry <div style="text-align: right;"> Obcp2FailSts DEH68170 </div>	= Failed	AND=ZAZAN999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry Obcp2Use DEH71170	= Not_In_Use	AND=ZAZAN999
8		Verify that the relevant components are marked as "Unhealthy" or "Disabled" in Health Table It is highlighted that the MmIntrptB parameter is set to "Disabled" only in case of TM(5,1,129) reception.		Next Step: 9
		Verify Telemetry MmBrdB_Healthy DEJM6160	= Unhealthy	AND=ZAZAC999
		Verify Telemetry PmSpwMmAB_Enab DEJS5160	= DISABLED	AND=ZAZAD999
		Verify Telemetry PmSpwMmBB_Enab DEJSK160	= DISABLED	AND=ZAZAD999
		Verify Telemetry MmIcbB_Enabled DEJN5160	= DISABLED	AND=ZAZAC999
		Verify Telemetry MmIntB_Enabled DEJMK160	= DISABLED	AND=ZAZAC999
9		Call procedure to recover the failure?		Next Step: No END Yes 10
<p>TC Seq. Name :HRD3070E (Dummy)</p> <p>TimeTag Type: Sub Schedule ID: <input type="checkbox"/></p>				
10		Call procedure to recover the failure on MM B		Next Step: END
		Execute procedure H_CRP_DHS_3072.		
End of Procedure				