

Recovery of ICU SEU  
 File: H\_CRP\_HIF\_ISEU.xls  
 Author: R. Biggins



## Procedure Summary

### Objectives

The objective of this procedure is to recover from an SEU in the ICU memory. Note that in this case there are no side-effects visible in the HIFI telemetry

### Summary of Constraints

### Spacecraft Configuration

#### Start of Procedure

HIFI in DissipativeI mode

#### End of Procedure

HIFI in DissipativeI mode

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

### Referenced Displays

ANDs GRDs SLDs

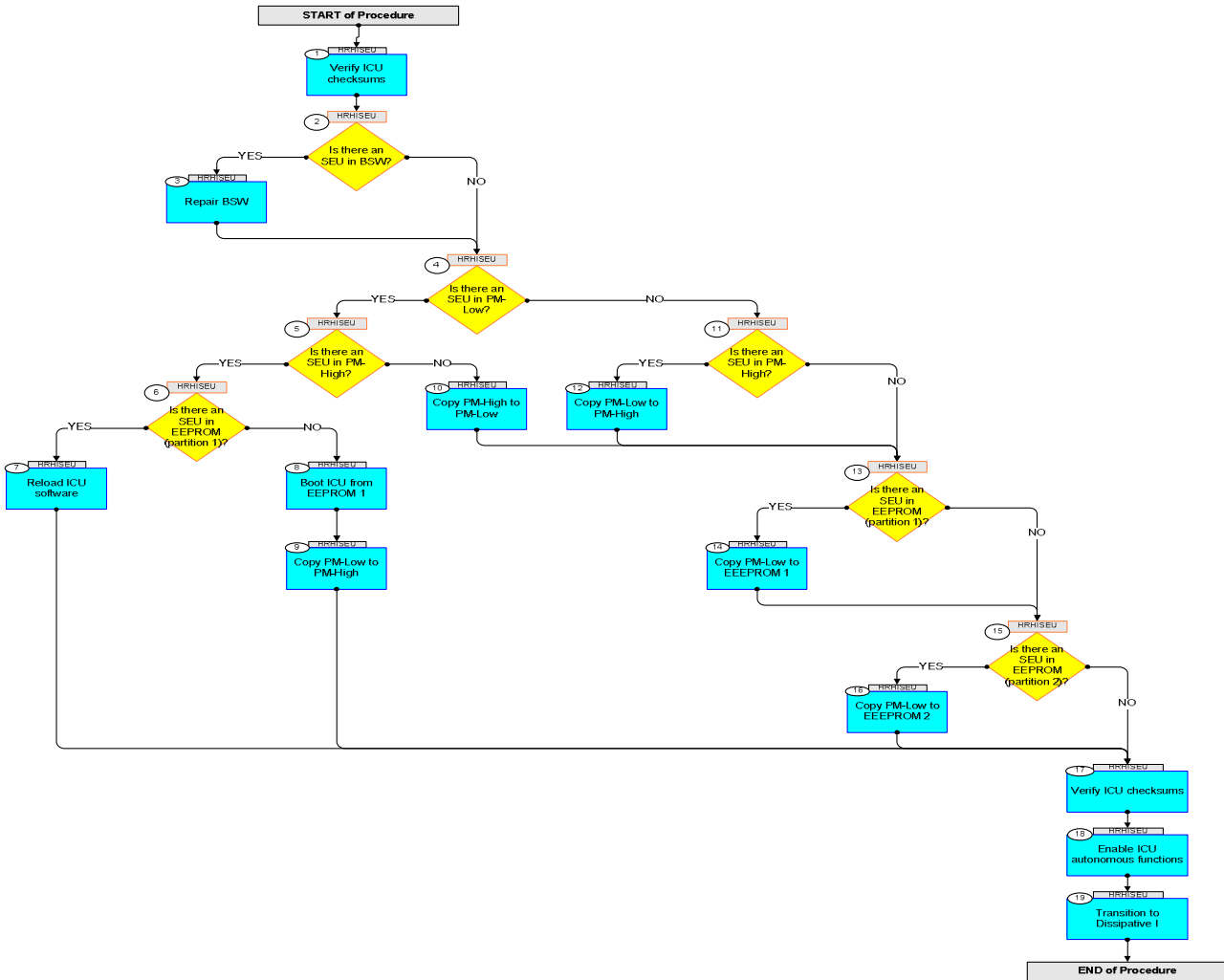
### Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
01/06/2011		1	Created	R. Biggins	
01/06/2011	3.1	2	Updated to add enabling of autonomous actions and transition to dissipativeI mode	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>				
<p><i>TC Seq. Name :HRHISEU (Recovery of ICU SEU)</i></p> <p><i>TimeTag Type:</i>  <i>Sub Schedule ID:</i></p> <p style="text-align: center;">□</p>				
1		Verify ICU checksums		Next Step: 2
		PROCEDURE: H_FCP_HIF_CSEU [HFHCSEU] FP: OBS_ID = 0x0000 0000		
		Verify: Note each of the failing checksums.		
2		Is there an SEU in BSW?		Next Step: YES 3 NO 4
		The procedure executed in Step 1, H_FCP_HIF_CSEU, checks all memory areas and indicates if the BSW area is corrupted.		
3		Repair BSW		Next Step: 4
		PROCEDURE: H_FCP_OBS_3112 [OBSM stack]		
		PROCEDURE: H_FCP_HIF_CSEU [HFHCSEU] FP: OBS_ID = 0x0000 0000		
		Verify: Ensure that the BSW has the correct checksum		
4		Is there an SEU in PM-Low?		Next Step: YES 5 NO 11
		The procedure executed in Step 1, H_FCP_HIF_CSEU, checks all memory areas and indicates if the PM-Low area is corrupted.		
5		Is there an SEU in PM-High?		Next Step: YES 6 NO 10
		The procedure executed in Step 1, H_FCP_HIF_CSEU, checks all memory areas and indicates if the PM-High area is corrupted.		
6		Is there an SEU in EEPROM (partition 1)?		Next Step: YES 7 NO 8

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		The procedure executed in Step 1, <b>H_FCP_HIF_CSEU</b> , checks all memory areas and indicates if the EEPROM partition 1 area is corrupted.		
7		Reload ICU software		Next Step: 17
		PROCEDURE: <b>H_FCP_HIF_IMEM</b>  Top-level procedure covering a full ICU memory load		
8		Boot ICU from EEPROM 1		Next Step: 9
		PROCEDURE: <b>H_FCP_HIF_BOOT</b> [HFHBOOT]  FP: <b>OBS_ID = 0x0000 0000</b> <b>EPR_PART = 1</b>		
9		Copy PM-Low to PM-High		Next Step: 17
		PROCEDURE: <b>H_CRP_HIF_PHIG</b> [HRHPHIG]  FP: <b>OBS_ID = 0x0000 0000</b>		
10		Copy PM-High to PM-Low		Next Step: 13
		PROCEDURE: <b>H_CRP_HIF_PLOW</b> [HRHPLOW]  FP: <b>OBS_ID = 0x0000 0000</b>		
11		Is there an SEU in PM-High?		Next Step: YES 12 NO 13
		The procedure executed in Step 1, <b>H_FCP_HIF_CSEU</b> , checks all memory areas and indicates if the PM-High area is corrupted.		
12		Copy PM-Low to PM-High		Next Step: 13
		PROCEDURE: <b>H_CRP_HIF_PHIG</b> [HRHPHIG]  FP: <b>OBS_ID = 0x0000 0000</b>		
13		Is there an SEU in EEPROM (partition 1)?		Next Step: YES 14 NO 15

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		The procedure executed in Step 1, <b>H_FCP_HIF_CSEU</b> , checks all memory areas and indicates if the EEPROM partition 1 area is corrupted.		
14		<i>Copy PM-Low to EEPROM 1</i>		Next Step: 15
		PROCEDURE: <b>H_FCP_HIF_CLEM</b> [HFHCLEM]  FP: <b>OBS_ID = 0x0000 0000</b> <b>PARTITN = 1</b>		
15		<i>Is there an SEU in EEPROM (partition 2)?</i>		Next Step: YES 16 NO 17
		The procedure executed in Step 1, <b>H_FCP_HIF_CSEU</b> , checks all memory areas and indicates if the EEPROM partition 2 area is corrupted.		
16		<i>Copy PM-Low to EEPROM 2</i>		Next Step: 17
		PROCEDURE: <b>H_FCP_HIF_CLEM</b> [HFHCLEM]  FP: <b>OBS_ID = 0x0000 0000</b> <b>PARTITN = 2</b>		
17		<i>Verify ICU checksums</i>		Next Step: 18
		PROCEDURE: <b>H_FCP_HIF_CSEU</b> [HFHCSEU]  FP: <b>OBS_ID = 0x0000 0000</b>		
		Verify: Check that there are no remaining SEUs		
18		<i>Enable ICU autonomous functions</i>		Next Step: 19
		PROCEDURE: <b>H_FCP_HIF_CCEN</b> [HFHCEN]  FP: <b>OBS_ID = 0x0000 0000</b> <b>STEPMSEC = 3000 ms</b> <b>LCU_CRC = see procedure for details</b> <b>STEP_SEC = 3600 s</b>		
19		<i>Transition to Dissipative I</i>		Next Step: END
		PROCEDURE: <b>H_FCP_HIF_R2D1</b> [HFHR2D1]  FP: <b>OBS_ID = 0x0000 0000</b> <b>HL_HEAT = 6 V</b>		

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End of Procedure				