

SPIRE table bitflip recovery
 File: H_CRP_SPI_PTAB.xls
 Author: R. Biggins



Procedure Summary

Objectives

This procedure will patch and correct bit-shifts and flips seen in the tables on-board SPIRE.

This is executed in the following manner

- Enable VC1
- Stop SPIRE monitoring
- Report, patch and re-report table
- Re-enable SPIRE monitoring
- Disable VC-1

Based on procedure: SpireEngPatchTables
 Generated by SPIRE ICC:03/08/2010

Summary of Constraints

SPIRE must be PRIME.
 Real Time Science TM will be generated (and monitored by SPIRE ICC).

Spacecraft Configuration

Start of Procedure

SPIRE mode = REDY

End of Procedure

SPIRE mode = REDY

Reference File(s)

Input Command Sequences

HFD1013A
 HFD1013B

Output Command Sequences

HRSPTAB

Referenced Displays

ANDs	GRDs	SLDs
ZAZ90999		(None)

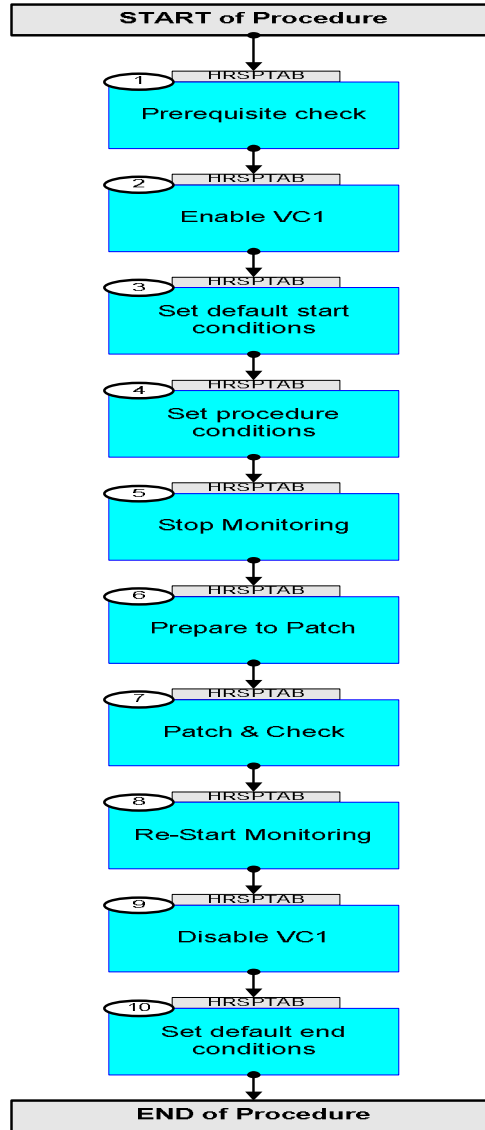
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
26/05/2011		1	Created	R. Biggins	
26/05/2011	3.1	1.01	Validation : Editorial: Cover sheet updated	R. Biggins	

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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 : HRSPTAB (SpireEngPatchTable)				
TimeTag Type: N Sub Schedule ID: □				
1		Prerequisite check		Next Step: 2
1.1		HSC/ICC input		□
		Verify that the HSC has supplied a valid OBSID value: OBS_ID = 0xnnnn nnnn		
1.2		TM Checks		□
		Check Telemetry, for comparison later THSK SM00T500		AND=ZAZ90999
		Check telemetry MODE SM00M500 = REDY		AND=ZAZ90999
2		Enable VC1		Next Step: 3
	UT=+00.00.00	Execute Sequence HFD1013A Enable VC1 RT v11 Sequence Grouping = - SSID : 0		SEQ
3		Set default start conditions		Next Step: 4
		Note that a TM(5,1) packet [New_Step_Report] is generated after each of the following SET_OBS_STEP telecommands		
	ET=+ UT=+00.00.00	SET_OBS_STEP Command Parameter(s) : OBSERVATION_STEP SP03N500 Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP SC003500 0 <hex>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	
	ET=+ UT=+00.00.01	SET_BBID Command Parameter(s) : BUILDING_BLOCK_ID Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SET_BBID SP01N500 80010001 <hex>	SC001500	
		Verify Telemetry BBFULLTYPE	SM2LN500	= ClearObs	AND=ZAZ90999
	ET=+ UT=+00.00.00	SET_OBS_STEP Command Parameter(s) : OBSERVATION_STEP Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP SP03N500 1 <hex>	SC003500	
	ET=+ UT=+00.00.01	SET_OBSID Command Parameter(s) : OBSERVATION_ID Subsch. ID : 370 Det. descr. : SET OBSERVATION IDENTIFIER	SET_OBSID SP00N500 00000000 <hex>	SC000500	
		Verify Telemetry OBSID	SM10N500	= 00000000 <hex>	AND=ZAZ90999
	ET=+ UT=+00.00.00	SET_OBS_STEP Command Parameter(s) : OBSERVATION_STEP Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP SP03N500 0 <hex>	SC003500	
	ET=+ UT=+00.00.01	SET_BBID Command Parameter(s) : BUILDING_BLOCK_ID Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SET_BBID SP01N500 80000000 <hex>	SC001500	
		Verify Telemetry BBFULLTYPE	SM2LN500	= Null	AND=ZAZ90999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	SET_OBS_STEP SET_OBS_STEP Command Parameter(s) : OBSERVATION_STEP SP03N500 Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SC003500 0 <hex>	
	ET=+ UT=+00.00.01	SET_BBID SET_BBID Command Parameter(s) : BUILDING_BLOCK_ID SP01N500 Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SC001500 80020001 <hex>	
		Verify Telemetry BBFULLTYPE SM2LN500	= SpireBbStartOb	AND=ZAZ90999
4		Set procedure conditions		Next Step: 5
	ET=+ UT=+00.00.00	RESET_DRCU_COUNTERS RESET_DRCU_COUNTERS Subsch. ID : 370 Det. descr. : RESET DRCU COUNTERS	SCD00505	
		Verify that the TRESET parameter has the same value as the THSK parameter TRESET SM01T500	same as THSK	AND=ZAZ90999
		THSK SM00T500	any	AND=ZAZ90999
		Note that a TM(5,1) packet [New_Step_Report] is generated after each of the following SET_OBS_STEP telecommands		
	ET=+ UT=+00.00.00	SET_OBS_STEP SET_OBS_STEP Command Parameter(s) : OBSERVATION_STEP SP03N500 Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SC003500 1 <hex>	
	ET=+ UT=+00.00.01	SET_OBSID SET_OBSID Command Parameter(s) : OBSERVATION_ID SP00N500 Subsch. ID : 370 Det. descr. : SET OBSERVATION IDENTIFIER	SC000500 OBS_ID	
		Verify Telemetry OBSID SM10N500	OBS_ID	AND=ZAZ90999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	SET_OBS_STEP SET_OBS_STEP Command Parameter(s) : OBSERVATION_STEP SP03N500 Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SC003500 0 <hex>	
5		Stop Monitoring		Next Step: 6
		SPIRE monitoring must be stopped before patching the tables.		
	ET=+ UT=+00.00.01	SET_BBID SET_BBID Command Parameter(s) : BUILDING_BLOCK_ID SP01N500 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SC001500 8D530001 <hex>	
		Verify Telemetry BBFULLTYPE SM2LN500	= StopMonitoring	AND=ZAZ90999
		Stop the on-board monitoring		
	ET=+ UT=+00.00.00	STOP_MONITORING_RAW STOP_MONITORING TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 370 Det. descr. : STOP ONBOARD MONITORING	SC007500	
		WAIT a few minutes and ensure monitoring has been stopped		
		Verify Telemetry using the TQD HK_MON_STATUS SM80X500	= STOPPED	(None)
		Confirm with SPIRE ICC that monitoring has stopped and it is ok to proceed.		
6		Prepare to Patch		Next Step: 7

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.05	SET_BBID Command Parameter(s) : BUILDING_BLOCK_ID TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SET_BBID SC001500 SP01N500 8D620001 <hex>	
		Verify Telemetry BBFULLTYPE SM2LN500	8D62 (hex)	AND=ZAZ90999
7		Patch & Check		Next Step: 8
		NOTE: The following 3 TCs can be repeated if more than one memory location is required to be patched		
	ET=+ UT=+00.00.00	Execute Telecommand Command Parameter(s) : TABLEID_REPTAB INDEX_REPTAB COUNT_REPTAB TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 370 Det. descr. : REQUEST TM PACKETS REPORTING CONTENTS OF A TABLE	REPORT_TABLE SCB01500 SPB2N500 SPB3N500 SPB4N500 TABLE INDEX 1 <hex>	
	ET=+ UT=+00.00.00	Execute Telecommand Command Parameter(s) : TABLEID_UPDTAB INDEX_UPDTAB N_UPDTAB DATA_UPDTAB TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 370 Det. descr. : UPDATE CONTENTS OF A TABLE	UPDATE_TABLE SCB02500 SPB5N500 SPB6N500 SPB7N500 SPB8N500 TABLE INDEX 1.0 <dec> (Def) DATA	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	Execute Telecommand REPORT_TABLE Command Parameter(s) : TABLEID_REPTAB SPB2N500 INDEX_REPTAB SPB3N500 COUNT_REPTAB SPB4N500 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 370 Det. descr. : REQUEST TM PACKETS REPORTING CONTENTS OF A TABLE	SCB01500 TABLE INDEX 1 <hex>	
		Confirm with SPIRE ICC that the table report indicates successful patch, proceed only with SPIRE go-ahead.		
8		Re-Start Monitoring		Next Step: 9
	ET=+ UT=+00.00.02	SET_BBID SET_BBID Command Parameter(s) : BUILDING_BLOCK_ID SP01N500 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SC001500 8D520001 <hex>	
	ET=+ UT=+00.00.03	Execute Telecommand START_MONITORING Command Parameter(s) : TABLEID_STARTMONITORING SPB9N500 Subsch. ID : 370 Det. descr. : START ONBOARD MONITORING	SC006500 5 <hex>	
		Verify Telemetry BBFULLTYPE SM2LN500	= StartMonitorin	AND=ZAZ90999
		Wait a few minutes to ensure monitoring has re-started		
		Verify Telemetry using the TQD HK_MON_STATUS SM80X500	= RUNNING	(None)
		Confirm with SPIRE ICC that monitoring has re-started and it is ok to proceed.		
9		Disable VC1		Next Step: 10

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	SET_OBS_STEP Command Parameter(s) : OBSERVATION_STEP SP03N500 Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP SC003500 0 <hex>	
	ET=+ UT=+00.00.01	SET_BBID Command Parameter(s) : BUILDING_BLOCK_ID SP01N500 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SET_BBID SC001500 80000000 <hex>	
		Verify Telemetry BBFULLTYPE SM2LN500	= Null	AND=ZAZ90999
	ET=+ UT=+00.00.01	SET_OBSID_RAW Command Parameter(s) : OBSERVATION_ID SP00N500 Subsch. ID : 370 Det. descr. : SET OBSERVATION IDENTIFIER	SET_OBSID SC000500 50000000 <hex>	
End of Procedure				