

Thermal Control loops Reconfiguration from Nominal to Redundant  
File: H\_COP\_TCS\_CLNR.xls  
Author: E. Picallo



## Procedure Summary

### Objectives

This procedure describes the steps to be performed to switch from the nominal HPSx to the redundant HPS19-x used in the thermal Control Loop by ground telecommands.

### Summary of Constraints

Status of the HPSs assumes the default configuration to be applied, i.e. the HPS 1 to 9 are used as Nominal. Assuming that no TCS failures occurred, this is applicable for all the S/C Mode transitions, except the SM where the default redundant HPSs (i.e. HPS 10 to 18) are used.

This procedure does not take into account any constraints related to decontamination, therefore it is up to Ground to call dedicated decontamination System procedure if necessary.

Note that it is possible that switchover to redundant class B heaters could cause some thermal disturbance, so execution of the procedure, if desired, should take place at a time when full STR performance is not needed.

### Spacecraft Configuration

#### Start of Procedure

CDMU in default configuration;  
Thermal Control Management function active;  
HPSx ON  
HPS19-x OFF

#### End of Procedure

CDMU in default configuration;  
Thermal Control Management function active;  
HPSx OFF  
HPS19-x ON

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

HCTCLNR

### Referenced Displays

ANDs      GRDs      SLDs

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 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



ZAZ7K999  
 ZAZ7L999  
 WAHT3584  
 WAHT1584  
 WAHT2584

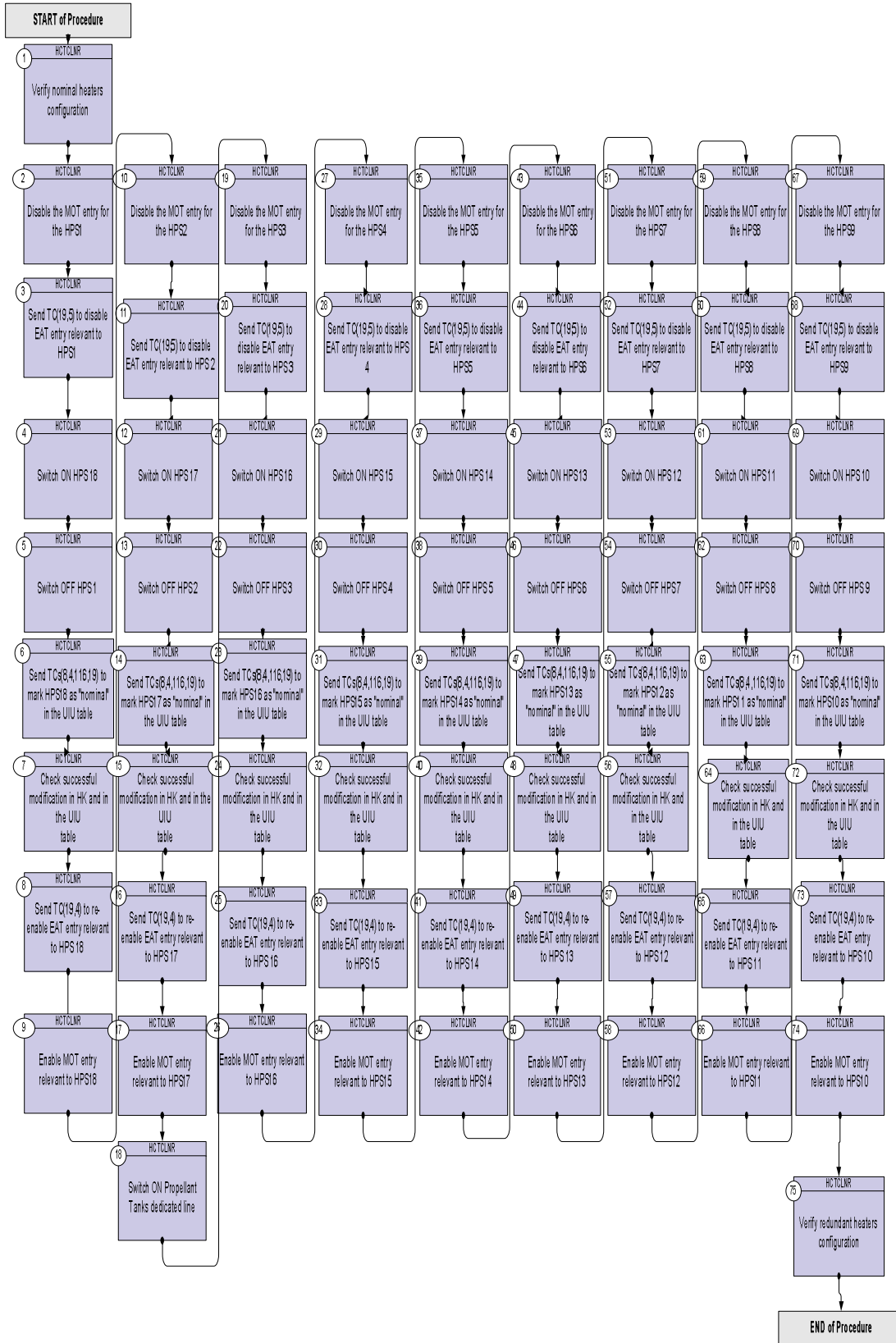
**Configuration Control Information**

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
28/07/08	1	1	Created	E. Picallo	
10/12/08		2	Disable and re-enable MOT entries added <input type="checkbox"/> Disable TCT entries after Mark unit in UIU steps order changed <input type="checkbox"/> Enable TCT entries before EAT enabling steps order changed <input type="checkbox"/> <input type="checkbox"/>	E. Picallo	
09/01/09	2	3	CDMU ASW V3.8 and BSW V2.4 alignment	E. Picallo	
16/03/09	2.2	4	Updated according to SIM-17 outcome <input type="checkbox"/> No disable/re-enable control loops during reconfig; first Switch Red HPS ON, then Switch Non HPS OFF and finally Nark Red HPS Nominal	E. Picallo	

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 File: H\_COP\_TCS\_CLNR.xls  
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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 : HCTCLNR (Control Loop N to R)</i>            Thermal Control loops Reconfiguration from Nominal to Redundant</p> <p><i>TimeTag Type: N</i>  <i>Sub Schedule ID:</i></p> <p style="text-align: center;">□</p>				
1		Verify nominal heaters configuration		Next Step: 2
		Refer to Checkform ZAZ7K999 at the back of this document		ANDCK
		Refer to Checkform ZAZ7L999 at the back of this document		ANDCK
		<p><b>Status of the HPSs assumes the default configuration to be applied, i.e. the HPS 1 to 9 are used as Nominal.</b></p> <p><b>Assuming that no TCS failures occurred, this is applicable for all the S/C Mode transitions, except the SM where the default redundant HPSs (i.e. HPS 10 to 18) are used.</b></p>		
1.1		Send TC(12,8) to acquire the current monitoring list		□
		<p><b>When the CDMU ASW receives this request, it issues one or several reports with the current static contents of the Monitoring List (TM packet type (12,9)).</b></p> <p><b>When the dump of TM(12,9) has ended, an Event Report TM(5,1,106,1) indicating the number of reported TM(12,9) shall be issued.</b></p>		
		Execute Telecommand <div style="text-align: right;"><b>ReportMonitList</b></div> <i>TC Control Flags :</i> <div style="text-align: right;">GBM IL DSE --Y -- ---</div> <i>Subsch. ID : 10</i> <i>Det. descr. : Report current monitoring list, TC(12,8), no appl. data</i>	DC20L170	
1.2		Verify that one or more TM(12,9) have been received		□
		Verify Packet Reception <div style="text-align: center;"><b>TM 12-9 Current Monitoring List Report</b></div> <i>Packet Details:</i> <div style="text-align: right;"> <b>APID: 16</b>  <b>Type: 12</b>  <b>Subtype: 9</b>  <b>PI1:</b>  <b>PI2:</b> </div>	CurMonLstRpt	

Thermal Control loops Reconfiguration from Nominal to Redundant  
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Verify that the following monitoring are enabled in line with the actual HPS configuration:</p> <p>HPS1_Thermal_Control_Failure Event Id 21            HPS2_Thermal_Control_Failure Event Id 27            HPS3_Thermal_Control_Failure Event Id 33            HPS4_Thermal_Control_Failure Event Id 39            HPS5_Thermal_Control_Failure Event Id 45            HPS6_Thermal_Control_Failure Event Id 51            HPS7_Thermal_Control_Failure Event Id 57            HPS8_Thermal_Control_Failure Event Id 63            HPS9_Thermal_Control_Failure Event Id 69</p>		
1.3		<p>Send TC(19,6) to acquire the detection list</p>		<input type="checkbox"/>
		<p>Report Event Detection List telecommand is a request for a complete detection list; when this request is received, one or more TM(19,7) are generated.</p>		
		<p>Execute Telecommand</p> <p style="text-align: right;">ReptEvtActTable</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE            --Y -- ---</p> <p>Subsch. ID : 10            Det. descr. : TEMPLATE Report The contents of the event/action table TC(19,6)</p>	DCT86170	
1.4		<p>Verify that one or more TM(19,7) have been received</p>		<input type="checkbox"/>
		<p>Verify Packet Reception</p> <p style="text-align: center;">TM 19-7 Event-Action Table Content Report</p> <p>Packet Details:</p> <p style="text-align: right;">APID: 16            Type: 19            Subtype: 7            PI1:            PI2:</p>	EvtActTblRpt	
		<p>Verify that the following action are enabled:</p> <p>HPS1_Th_Cntrl_Failure 0x8013            HPS2_Th_Cntrl_Failure 0x8023            HPS3_Th_Cntrl_Failure 0x8033            HPS4_Th_Cntrl_Failure 0x8043            HPS5_Th_Cntrl_Failure 0x8053            HPS6_Th_Cntrl_Failure 0x8063            HPS7_Th_Cntrl_Failure 0x8073            HPS8_Th_Cntrl_Failure 0x8083            HPS9_Th_Cntrl_Failure 0x8093</p>		
1.5		<p>Request the current TCT status report</p>		<input type="checkbox"/>
		<p><b>All TCT entries enabled except:</b>  <b>- loop index 1, 7,12,19, 31 and 49 (decontamination and Propellant tanks)</b></p>		

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Procedure: H_FCP_TCS_REPO Thermal Control Status Report		
2		Disable the MOT entry for the HPS1		Next Step: 3
2.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand  <div style="text-align: right;"><b>ArmDisableMon</b></div> TC Control Flags :  <div style="text-align: right;">GBM IL DSE --Y -- --</div> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
2.2		send TC to disable HPS1 monitoring		<input type="checkbox"/>
		Execute Telecommand  <div style="text-align: right;"><b>DisMonitOfParam_Templ</b></div> Command Parameter(s) : <div style="text-align: right;">N_Repetition           DH041170 ParameterId            DH042170 MonitorId              DH043170</div> TC Control Flags :  <div style="text-align: right;">GBM IL DSE --Y -- --</div> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
3		Send TC(19,5) to disable EAT entry relevant to HPS1		Next Step: 4
		Execute Telecommand  <div style="text-align: right;"><b>DisableActions</b></div> Command Parameter(s) : <div style="text-align: right;">N_Repetition           DH041170 APID_for_EAT_TC       DH236170 EventId                DH146170</div> TC Control Flags :  <div style="text-align: right;">GBM IL DSE --Y -- --</div> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
4		Switch ON HPS 18		Next Step: 5
		Execute Telecommand  PcdSwOnHps18  TC Control Flags :  GBM IL DSE -SY -- ---  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 18	DCC18170	
5		Switch OFF HPS 1		Next Step: 6
		Execute Telecommand  PcdSwOffHps1  TC Control Flags :  GBM IL DSE -M- -- ---  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 1	DCD27170	
6		Send TCs(8,4,116,19) to mark HPS18 as "nominal" in the UIU table		Next Step: 7
		Execute Telecommand  SelNomUnitB_Hps18  TC Control Flags :  GBM IL DSE -E- -- ---  Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit B HPS18, TC(8,4,116,19)	DC41G170	
7		Check successful modification in HK and in the UIU table		Next Step: 8
		Verify Telemetry  GRP18_HPS_STS                      WMA2G565                      = ON		AND=WAHT3584
		Verify Telemetry  GRP1_HPS_STS                        WM12G565                      = OFF		AND=WAHT1584
		Verify Telemetry  Hps18LogSts                         DEG74170                      = Nominal		AND=ZAZ7K999
8		Send TC(19,4) to re-enable EAT entry relevant to HPS 18		Next Step: 9

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;"><b>EnableActions</b></p> Command Parameter(s) : <b>N_Repetition</b> DH041170 <b>APID_for_EAT_TC</b> DH236170 <b>EventId</b> DH146170  TC Control Flags : <p style="text-align: right;"><b>GBM IL DSE</b> --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170  1 <dec> (Def) CDMS (Def) 8013 <hex>	
9		Enable MOT entry relevant to HPS18		Next Step: 10
		Execute Telecommand <p style="text-align: right;"><b>EnabMonitOfParam_Templ</b></p> Command Parameter(s) : <b>N_Repetition</b> DH041170 <b>ParameterId</b> DH042170 <b>MonitorId</b> DH043170  TC Control Flags : <p style="text-align: right;"><b>GBM IL DSE</b> --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170  1 <dec> (Def) 2071 <dec> 21 <dec>	
10		Disable the MOT entry for the HPS2		Next Step: 11
10.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;"><b>ArmDisableMon</b></p> TC Control Flags : <p style="text-align: right;"><b>GBM IL DSE</b> --Y -- ---</p> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
10.2		send TC to disable HPS2 monitoring		<input type="checkbox"/>



Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  <b>DisMonitOfParam_Templ</b>  Command Parameter(s) : <b>N_Repetition</b> DH041170 <b>ParameterId</b> DH042170 <b>MonitorId</b> DH043170  TC Control Flags : <b>GBM IL DSE</b> --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170  1 <dec> (Def) 2071 <dec> 27 <dec>	
11		Send TC(19,5) to disable EAT entry relevant to HPS 2		Next Step: 12
		Execute Telecommand  <b>DisableActions</b>  Command Parameter(s) : <b>N_Repetition</b> DH041170 <b>APID_for_EAT_TC</b> DH236170 <b>EventId</b> DH146170  TC Control Flags : <b>GBM IL DSE</b> --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170  1 <dec> (Def) CDMS (Def) 8023 <hex>	
12		Switch ON HPS 17		Next Step: 13
		Execute Telecommand  <b>PcduSwOnHps17</b>  TC Control Flags : <b>GBM IL DSE</b> -SY -- ---  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 17	DCC17170	
13		Switch OFF HPS 2		Next Step: 14
		Execute Telecommand  <b>PcduSwOffHps2</b>  TC Control Flags : <b>GBM IL DSE</b> -M- -- ---  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 2	DCD28170	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
14		Send TCs(8,4,116,19) to mark HPS17 as "nominal" in the UIU table		Next Step: 15
		Execute Telecommand  SelNomUnitB_Hps17  TC Control Flags :  GBM IL DSE -E- -- ---  Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit B HPS17, TC(8,4,116,19)	DC42G170	
15		Check successful modification in HK and in the UIU table		Next Step: 16
		Verify Telemetry  GRP17_HPS_STS                      WM92H565	= ON	AND=WAHT3584
		Verify Telemetry  GRP2_HPS_STS                      WM22G565	= OFF	AND=WAHT1584
		Verify Telemetry  Hps17LogSts                      DEG70170	= Nominal	AND=ZAZ7K999
16		Send TC(19,4) to re-enable EAT entry relevant to HPS 17		Next Step: 17
		Execute Telecommand  EnableActions  Command Parameter(s) : N_Repetition                      DH041170 APID_for_EAT_TC                      DH236170 EventId                              DH146170  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170  1 <dec> (Def) CDMS (Def) 8023 <hex>	
17		Enable MOT entry relevant to HPS17		Next Step: 18

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



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		Execute Telecommand <p style="text-align: right;"><b>EnabMonitOfParam_Templ</b></p> Command Parameter(s) : <b>N_Repetition</b> DH041170 <b>ParameterId</b> DH042170 <b>MonitorId</b> DH043170  TC Control Flags : <p style="text-align: right;"><b>GBM IL DSE</b>            --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170  1 <dec> (Def) 2071 <dec> 27 <dec>	
18		Switch ON Propellant Tanks dedicated line		Next Step: 19
		<b>HPS17-HCS6 need to be switched ON</b>		
		Execute Telecommand <p style="text-align: right;"><b>SwOn_tanks_G17H6</b></p> TC Control Flags : <p style="text-align: right;"><b>GBM IL DSE</b>            --Y -- ---</p> Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On Tanks Group 17 HCS 6	DCD20170	
		Verify Telemetry <p style="text-align: right;"><b>tanks_G17H6_S                  WM91M565</b></p>	= ON	AND=WAHT3584
19		Disable the MOT entry for the HPS3		Next Step: 20
19.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;"><b>ArmDisableMon</b></p> TC Control Flags : <p style="text-align: right;"><b>GBM IL DSE</b>            --Y -- ---</p> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
19.2		send TC to disable HPS3 monitoring		<input type="checkbox"/>

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



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		Execute Telecommand  <b>DisMonitOfParam_Templ</b>  Command Parameter(s) : <b>N_Repetition</b> DH041170 <b>ParameterId</b> DH042170 <b>MonitorId</b> DH043170  TC Control Flags : <b>GBM IL DSE</b> --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170  1 <dec> (Def) 2072 <dec> 33 <dec>	
20		Send TC(19,5) to disable EAT entry relevant to HPS 3		Next Step: 21
		Execute Telecommand  <b>DisableActions</b>  Command Parameter(s) : <b>N_Repetition</b> DH041170 <b>APID_for_EAT_TC</b> DH236170 <b>EventId</b> DH146170  TC Control Flags : <b>GBM IL DSE</b> --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170  1 <dec> (Def) CDMS (Def) 8033 <hex>	
21		Switch ON HPS 16		Next Step: 22
		Execute Telecommand  <b>PcduSwOnHps16</b>  TC Control Flags : <b>GBM IL DSE</b> -SY -- ---  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 16	DCC16170	
22		Switch OFF HPS 3		Next Step: 23
		Execute Telecommand  <b>PcduSwOffHps3</b>  TC Control Flags : <b>GBM IL DSE</b> -M- -- ---  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 3	DCD29170	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
23		Send TCs(8,4,116,19) to mark HPS16 as "nominal" in the UIU table		Next Step: 24
		Execute Telecommand  SelNomUnitB_Hps16  TC Control Flags :  GBM IL DSE -E- -- ---  Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit B HPS16, TC(8,4,116,19)	DC43G170	
24		Check successful modification in HK and in the UIU table		Next Step: 25
		Verify Telemetry  GRP16_HPS_STS                      WM92G565	= ON	AND=WAHT3584
		Verify Telemetry  GRP3_HPS_STS                      WM22H565	= OFF	AND=WAHT1584
		Verify Telemetry  Hps16LogSts                      DEG66170	= Nominal	AND=ZAZ7K999
25		Send TC(19,4) to re-enable EAT entry relevant to HPS 16		Next Step: 26
		Execute Telecommand  EnableActions  Command Parameter(s) : N_Repetition                      DH041170                      1 <dec> (Def) APID_for_EAT_TC                      DH236170                      CDMS (Def) EventId                      DH146170                      8033 <hex>  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170	
26		Enable MOT entry relevant to HPS16		Next Step: 27

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;"><b>EnabMonitOfParam_Templ</b></p> Command Parameter(s) : <b>N_Repetition</b> DH041170 <b>ParameterId</b> DH042170 <b>MonitorId</b> DH043170  TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170	
27		Disable the MOT entry for the HPS4		Next Step: 28
27.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;"><b>ArmDisableMon</b></p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
27.2		send TC to disable HPS4 monitoring		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;"><b>DisMonitOfParam_Templ</b></p> Command Parameter(s) : <b>N_Repetition</b> DH041170 <b>ParameterId</b> DH042170 <b>MonitorId</b> DH043170  TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
28		Send TC(19,5) to disable EAT entry relevant to HPS 4		Next Step: 29

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;"><b>DisableActions</b></p> <i>Command Parameter(s) :</i> <b>N_Repetition</b> DH041170 <b>APID_for_EAT_TC</b> DH236170 <b>EventId</b> DH146170  <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              --Y -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170  1 <dec> (Def) CDMS (Def) 8043 <hex>	
29		Switch ON HPS 15		Next Step: 30
		Execute Telecommand <p style="text-align: right;"><b>PcduswOnHps15</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              -SY -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 15	DCC15170	
30		Switch OFF HPS 4		Next Step: 31
		Execute Telecommand <p style="text-align: right;"><b>PcduswOffHps4</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              -M- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 4	DCD30170	
31		Send TCs(8,4,116,19) to mark HPS15 as "nominal" in the UIU table		Next Step: 32
		Execute Telecommand <p style="text-align: right;"><b>SelNomUnitB_Hps15</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              -E- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : Fdir Select Nominal Unit B HPS15, TC(8,4,116,19)	DC44G170	
32		Check successful modification in HK and in the UIU table		Next Step: 33

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
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		Verify Telemetry GRP15_HPS_STS WM82H565	= ON	AND=WAHT3584
		Verify Telemetry GRP4_HPS_STS WM32G565	= OFF	AND=WAHT1584
		Verify Telemetry Hps15LogSts DEG62170	= Nominal	AND=ZAZ7K999
33		Send TC(19,4) to re-enable EAT entry relevant to HPS 15		Next Step: 34
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition                  DH041170 APID_for_EAT_TC              DH236170 EventId                       DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170  1 <dec> (Def) CDMS (Def) 8043 <hex>	
34		Enable MOT entry relevant to HPS15		Next Step: 35
		Execute Telecommand EnabMonitOfParam_Templ Command Parameter(s) : N_Repetition                  DH041170 ParameterId                  DH042170 MonitorId                    DH043170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170  1 <dec> (Def) 2072 <dec> 39 <dec>	
35		Disable the MOT entry for the HPS5		Next Step: 36
35.1		Arm Disable MOT		□



Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  <div style="text-align: right;"><b>ArmDisableMon</b></div> TC Control Flags :  Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
35.2		send TC to disable HPS5 monitoring		☐
		Execute Telecommand  <div style="text-align: right;"><b>DisMonitOfParam_Templ</b></div> Command Parameter(s) : <div style="text-align: right;"> <b>N_Repetition</b>           DH041170  <b>ParameterId</b>           DH042170  <b>MonitorId</b>             DH043170         </div> TC Control Flags :  Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170  1 <dec> (Def) 2073 <dec> 45 <dec>	
36		Send TC(19,5) to disable EAT entry relevant to HPS5		Next Step: 37
		Execute Telecommand  <div style="text-align: right;"><b>DisableActions</b></div> Command Parameter(s) : <div style="text-align: right;"> <b>N_Repetition</b>           DH041170  <b>APID_for_EAT_TC</b>       DH236170  <b>EventId</b>                DH146170         </div> TC Control Flags :  Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170  1 <dec> (Def) CDMS (Def) 8053 <hex>	
37		Switch ON HPS 14		Next Step: 38
		Execute Telecommand  <div style="text-align: right;"><b>PcduSwOnHps14</b></div> TC Control Flags :  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 14	DCC14170	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
38		Switch OFF HPS 5		Next Step: 39
		Execute Telecommand  PcduswOffHps5  TC Control Flags :  GBM IL DSE -M- -- ---  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 5	DCD31170	
39		Send TCs(8,4,116,19) to mark HPS14 as "nominal" in the UIU table		Next Step: 40
		Execute Telecommand  SelNomUnitB_Hps14  TC Control Flags :  GBM IL DSE -E- -- ---  Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit B HPS14, TC(8,4,116,19)	DC45G170	
40		Check successful modification in HK and in the UIU table		Next Step: 41
		Verify Telemetry  GRP14_HPS_STS                      WM82G565	= ON	AND=WAHT3584
		Verify Telemetry  GRP5_HPS_STS                        WM32H565	= OFF	AND=WAHT1584
		Verify Telemetry  Hps14LogSts                         DEG58170	= Nominal	AND=ZAZ7K999
41		Send TC(19,4) to re-enable EAT entry relevant to HPS 14		Next Step: 42
		Execute Telecommand  EnableActions  Command Parameter(s) : N_Repetition                      DH041170 APID_for_EAT_TC                  DH236170 EventId                            DH146170  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170  1 <dec> (Def) CDMS (Def) 8053 <hex>	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
42		Enable MOT entry relevant to HPS14		Next Step: 43
		Execute Telecommand <p style="text-align: right;"><b>EnabMonitOfParam_Templ</b></p> Command Parameter(s) : <b>N_Repetition</b> DH041170    1 <dec> (Def) <b>ParameterId</b> DH042170    2073 <dec> <b>MonitorId</b> DH043170    45 <dec>  TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170	
43		Disable the MOT entry for the HPS6		Next Step: 44
43.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;"><b>ArmDisableMon</b></p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
43.2		send TC to disable HPS6 monitoring		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;"><b>DisMonitOfParam_Templ</b></p> Command Parameter(s) : <b>N_Repetition</b> DH041170    1 <dec> (Def) <b>ParameterId</b> DH042170    2073 <dec> <b>MonitorId</b> DH043170    51 <dec>  TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
44		Send TC(19,5) to disable EAT entry relevant to HPS6		Next Step: 45

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;"><b>DisableActions</b></p> <i>Command Parameter(s) :</i> <b>N_Repetition</b> DH041170 <b>APID_for_EAT_TC</b> DH236170 <b>EventId</b> DH146170  <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              --Y -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170  1 <dec> (Def) CDMS (Def) 8063 <hex>	
45		Switch ON HPS 13		Next Step: 46
		Execute Telecommand <p style="text-align: right;"><b>PcduswOnHps13</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              -SY -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 13	DCC13170	
46		Switch OFF HPS 6		Next Step: 47
		Execute Telecommand <p style="text-align: right;"><b>PcduswOffHps6</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              -M- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 6	DCD32170	
47		Send TCs(8,4,116,19) to mark HPS13 as "nominal" in the UIU table		Next Step: 48
		Execute Telecommand <p style="text-align: right;"><b>SelNomUnitB_Hps13</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              -E- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : Fdir Select Nominal Unit B HPS13, TC(8,4,116,19)	DC46G170	
48		Check successful modification in HK and in the UIU table		Next Step: 49

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry GRP13_HPS_STS WM72H565	= ON	AND=WAHT3584
		Verify Telemetry GRP6_HPS_STS WM42G565	= OFF	AND=WAHT1584
		Verify Telemetry Hps13LogSts DEG54170	= Nominal	AND=ZAZ7K999
49		Send TC(19,4) to re-enable EAT entry relevant to HPS 13		Next Step: 50
		Execute Telecommand  EnableActions Command Parameter(s) : N_Repetition                  DH041170 APID_for_EAT_TC              DH236170 EventId                       DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170  1 <dec> (Def) CDMS (Def) 8063 <hex>	
50		Enable MOT entry relevant to HPS13		Next Step: 51
		Execute Telecommand  EnabMonitOfParam_Templ Command Parameter(s) : N_Repetition                  DH041170 ParameterId                  DH042170 MonitorId                    DH043170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170  1 <dec> (Def) 2073 <dec> 51 <dec>	
51		Disable the MOT entry for the HPS7		Next Step: 52
51.1		Arm Disable MOT		□

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  <div style="text-align: right;"><b>ArmDisableMon</b></div> TC Control Flags :  Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
51.2		send TC to disable HPS7 monitoring		☐
		Execute Telecommand  <div style="text-align: right;"><b>DisMonitOfParam_Templ</b></div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> <b>N_Repetition</b>  <b>ParameterId</b>  <b>MonitorId</b> </div> <div style="text-align: left;">           DH041170            DH042170            DH043170         </div> <div style="text-align: left;">           1 &lt;dec&gt; (Def)            2160 &lt;dec&gt;            57 &lt;dec&gt;         </div> </div> TC Control Flags :  Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
52		Send TC(19,5) to disable EAT entry relevant to HPS7		Next Step: 53
		Execute Telecommand  <div style="text-align: right;"><b>DisableActions</b></div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> <b>N_Repetition</b>  <b>APID_for_EAT_TC</b>  <b>EventId</b> </div> <div style="text-align: left;">           DH041170            DH236170            DH146170         </div> <div style="text-align: left;">           1 &lt;dec&gt; (Def)            CDMS (Def)            8073 &lt;hex&gt;         </div> </div> TC Control Flags :  Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170	
53		Switch ON HPS 12		Next Step: 54
		Execute Telecommand  <div style="text-align: right;"><b>PcduSwOnHps12</b></div> TC Control Flags :  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 12	DCC12170	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
54		Switch OFF HPS 7		Next Step: 55
		Execute Telecommand  PcduswOffHps7  TC Control Flags :  GBM IL DSE -M- -- ---  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 7	DCD33170	
55		Send TCs(8,4,116,19) to mark HPS12 as "nominal" in the UIU table		Next Step: 56
		Execute Telecommand  SelNomUnitB_Hps12  TC Control Flags :  GBM IL DSE -E- -- ---  Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit B HPS12, TC(8,4,116,19)	DC47G170	
56		Check successful modification in HK and in the UIU table		Next Step: 57
		Verify Telemetry  GRP12_HPS_STS                      WM72G565	= ON	AND=WAHT2584
		Verify Telemetry  GRP7_HPS_STS                        WM42H565	= OFF	AND=WAHT2584
		Verify Telemetry  Hps12LogSts                         DEG50170	= Nominal	AND=ZAZ7K999
57		Send TC(19,4) to re-enable EAT entry relevant to HPS 12		Next Step: 58
		Execute Telecommand  EnableActions  Command Parameter(s) : N_Repetition                      DH041170 APID_for_EAT_TC                  DH236170 EventId                            DH146170  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170  1 <dec> (Def) CDMS (Def) 8073 <hex>	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
58		Enable MOT entry relevant to HPS12		Next Step: 59
		Execute Telecommand <b>EnabMonitOfParam_Templ</b> Command Parameter(s) : <b>N_Repetition</b> DH041170    1 <dec> (Def) <b>ParameterId</b> DH042170    2160 <dec> <b>MonitorId</b> DH043170    57 <dec> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170	
59		Disable the MOT entry for the HPS8		Next Step: 60
59.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand <b>ArmDisableMon</b> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
59.2		send TC to disable HPS8 monitoring		<input type="checkbox"/>
		Execute Telecommand <b>DisMonitOfParam_Templ</b> Command Parameter(s) : <b>N_Repetition</b> DH041170    1 <dec> (Def) <b>ParameterId</b> DH042170    2160 <dec> <b>MonitorId</b> DH043170    63 <dec> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
60		Send TC(19,5) to disable EAT entry relevant to HPS8		Next Step: 61



Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;"><b>DisableActions</b></p> <i>Command Parameter(s) :</i> <b>N_Repetition</b> DH041170 <b>APID_for_EAT_TC</b> DH236170 <b>EventId</b> DH146170  <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              --Y -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170  1 <dec> (Def) CDMS (Def) 8083 <hex>	
61		Switch ON HPS 11		Next Step: 62
		Execute Telecommand <p style="text-align: right;"><b>PcduswOnHps11</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              -SY -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 11	DCC11170	
62		Switch OFF HPS 8		Next Step: 63
		Execute Telecommand <p style="text-align: right;"><b>PcduswOffHps8</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              -M- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 8	DCD34170	
63		Send TCs(8,4,116,19) to mark HPS11 as "nominal" in the UIU table		Next Step: 64
		Execute Telecommand <p style="text-align: right;"><b>SelNomUnitB_Hps11</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              -E- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : Fdir Select Nominal Unit B HPS11, TC(8,4,116,19)	DC48G170	
64		Check successful modification in HK and in the UIU table		Next Step: 65

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry GRP11_HPS_STS WM62H565	= ON	AND=WAHT2584
		Verify Telemetry GRP8_HPS_STS WM52G565	= OFF	AND=WAHT2584
		Verify Telemetry Hps11LogSts DEG46170	= Nominal	AND=ZAZ7K999
65		Send TC(19,4) to re-enable EAT entry relevant to HPS11		Next Step: 66
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170  1 <dec> (Def) CDMS (Def) 8083 <hex>	
66		Enable MOT entry relevant to HPS11		Next Step: 67
		Execute Telecommand EnabMonitOfParam_Templ Command Parameter(s) : N_Repetition DH041170 ParameterId DH042170 MonitorId DH043170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170  1 <dec> (Def) 2160 <dec> 63 <dec>	
67		Disable the MOT entry for the HPS9		Next Step: 68
67.1		Arm Disable MOT		□

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  <div style="text-align: right;"><b>ArmDisableMon</b></div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
67.2		send TC to disable HPS9 monitoring		☐
		Execute Telecommand  <div style="text-align: right;"><b>DisMonitOfParam_Templ</b></div> Command Parameter(s) : <div style="text-align: right;">N_Repetition           DH041170 ParameterId            DH042170 MonitorId               DH043170</div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170  1 <dec> (Def) 2074 <dec> 69 <dec>	
68		Send TC(19,5) to disable EAT entry relevant to HPS9		Next Step: 69
		Execute Telecommand  <div style="text-align: right;"><b>DisableActions</b></div> Command Parameter(s) : <div style="text-align: right;">N_Repetition           DH041170 APID_for_EAT_TC        DH236170 EventId                 DH146170</div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170  1 <dec> (Def) CDMS (Def) 8093 <hex>	
69		Switch ON HPS 10		Next Step: 70
		Execute Telecommand  <div style="text-align: right;"><b>PcduSwOnHps10</b></div> TC Control Flags : <div style="text-align: right;">GBM IL DSE -SY -- ---</div> Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 10	DCC10170	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
70		Switch OFF HPS 9		Next Step: 71
		Execute Telecommand  PcduswOffHps9  TC Control Flags :  GBM IL DSE -M- -- ---  Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 9	DCD35170	
71		Send TCs(8,4,116,19) to mark HPS10 as "nominal" in the UIU table		Next Step: 72
		Execute Telecommand  SelNomUnitB_Hps10  TC Control Flags :  GBM IL DSE -E- -- ---  Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit B HPS10, TC(8,4,116,19)	DC49G170	
72		Check successful modification in HK and in the UIU table		Next Step: 73
		Verify Telemetry  GRP10_HPS_STS                      WM62G565	= ON	AND=WAHT2584
		Verify Telemetry  GRP9_HPS_STS                        WM52H565	= OFF	AND=WAHT2584
		Verify Telemetry  Hps10LogSts                         DEG42170	= Nominal	AND=ZAZ7L999
73		Send TC(19,4) to re-enable EAT entry relevant to HPS 10		Next Step: 74
		Execute Telecommand  EnableActions  Command Parameter(s) : N_Repetition                      DH041170 APID_for_EAT_TC                  DH236170 EventId                            DH146170  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170  1 <dec> (Def) CDMS (Def) 8093 <hex>	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
74		Enable MOT entry relevant to HPS10		Next Step: 75
		Execute Telecommand <p style="text-align: right;"><b>EnabMonitOfParam_Templ</b></p> Command Parameter(s) : <p style="text-align: right;">N_Repetition                   DH041170                              ParameterId           DH042170                              MonitorId            DH043170</p> TC Control Flags : <p style="text-align: right;">  GBM IL DSE              --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170  1 <dec> (Def) 2074 <dec> 69 <dec>	
75		Verify redundant heaters configuration		Next Step: END
		Refer to Checkform ZAZ7K999 at the back of this document		ANDCK
		Refer to Checkform ZAZ7L999 at the back of this document		ANDCK
75.1		Send TC(12,8) to acquire the current monitoring list		<input type="checkbox"/>
		<b>When the CDMU ASW receives this request, it issues one or several reports with the current static contents of the Monitoring List (TM packet type (12,9)).            When the dump of TM(12,9) has ended, an Event Report TM(5,1,106,1) indicating the number of reported TM(12,9) shall be issued.</b>		
		Execute Telecommand <p style="text-align: right;"><b>ReportMonitList</b></p> TC Control Flags : <p style="text-align: right;">  GBM IL DSE              --Y -- ---</p> Subsch. ID : 10 Det. descr. : Report current monitoring list, TC(12,8), no appl. data	DC20L170	
75.2		Verify that one or more TM(12,9) have been received		<input type="checkbox"/>
		Verify Packet Reception <p style="text-align: center;"><b>TM 12-9 Current Monitoring List Report</b></p> Packet Details: <p style="text-align: right;">  APID:       16              Type:       12              Subtype:   9              PI1:              PI2:</p>	CurMonLstRpt	

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Verify that the following monitoring are enabled in line with the actual HPS configuration:</p> <p>HPS1_Thermal_Control_Failure Event Id 21            HPS2_Thermal_Control_Failure Event Id 27            HPS3_Thermal_Control_Failure Event Id 33            HPS4_Thermal_Control_Failure Event Id 39            HPS5_Thermal_Control_Failure Event Id 45            HPS6_Thermal_Control_Failure Event Id 51            HPS7_Thermal_Control_Failure Event Id 57            HPS8_Thermal_Control_Failure Event Id 63            HPS9_Thermal_Control_Failure Event Id 69</p>		
75.3		Send TC(19,6) to acquire the detection list		<input type="checkbox"/>
		Report Event Detection List telecommand is a request for a complete detection list; when this request is received, one or more TM(19,7) are generated.		
		<p>Execute Telecommand</p> <p style="text-align: right;">ReptEvtActTable</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10            Det. descr. : TEMPLATE Report The contents of the event/action table TC(19,6)</p>	DCT86170	
75.4		Verify that one or more TM(19,7) have been received		<input type="checkbox"/>
		<p>Verify Packet Reception</p> <p style="text-align: center;">TM 19-7 Event-Action Table Content Report</p> <p>Packet Details:</p> <p style="text-align: right;">APID: 16            Type: 19            Subtype: 7            PI1:            PI2:</p>	EvtActTblRpt	
		<p>Verify that the following action are enabled:</p> <p>HPS1_Th_Cntrl_Failure 0x8013            HPS2_Th_Cntrl_Failure 0x8023            HPS3_Th_Cntrl_Failure 0x8033            HPS4_Th_Cntrl_Failure 0x8043            HPS5_Th_Cntrl_Failure 0x8053            HPS6_Th_Cntrl_Failure 0x8063            HPS7_Th_Cntrl_Failure 0x8073            HPS8_Th_Cntrl_Failure 0x8083            HPS9_Th_Cntrl_Failure 0x8093</p>		
75.5		Request the current TCT status report		<input type="checkbox"/>
		All TCT entries enabled except loop index 1, 7,12,19, 31 and 49		

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Procedure: H_FCP_TCS_REPO Thermal Control Status Report		
<b>End of Procedure</b>				

Thermal Control loops Reconfiguration from Nominal to Redundant  
 File: H\_COP\_TCS\_CLNR.xls  
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## ZAZ7K999 / EPS\_UIU1

ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DEG77170	Hps1FuncSts	On		DEG73170	Hps18FuncSts	Off	
DEG79170	Hps1Use	In_Use		DEG75170	Hps18Use	Not_In_Use	
DEG78170	Hps1LogSts	Nominal		DEG74170	Hps18LogSts	Redundant	
DEG76170	Hps1FailSts	Not_Failed		DEG72170	Hps18FailSts	Not_Failed	
DEG81170	Hps2FuncSts	On		DEG69170	Hps17FuncSts	Off	
DEG83170	Hps2Use	In_Use		DEG71170	Hps17Use	Not_In_Use	
DEG82170	Hps2LogSts	Nominal		DEG70170	Hps17LogSts	Redundant	
DEG80170	Hps2FailSts	Not_Failed		DEG68170	Hps17FailSts	Not_Failed	
DEG85170	Hps3FuncSts	On		DEG65170	Hps16FuncSts	Off	
DEG87170	Hps3Use	In_Use		DEG67170	Hps16Use	Not_In_Use	
DEG86170	Hps3LogSts	Nominal		DEG66170	Hps16LogSts	Redundant	
DEG84170	Hps3FailSts	Not_Failed		DEG64170	Hps16FailSts	Not_Failed	
DEG89170	Hps4FuncSts	On		DEG61170	Hps15FuncSts	Off	
DEG91170	Hps4Use	In_Use		DEG63170	Hps15Use	Not_In_Use	
DEG90170	Hps4LogSts	Nominal		DEG62170	Hps15LogSts	Redundant	
DEG88170	Hps4FailSts	Not_Failed		DEG60170	Hps15FailSts	Not_Failed	
DEG93170	Hps5FuncSts	On		DEG57170	Hps14FuncSts	Off	
DEG95170	Hps5Use	In_Use		DEG59170	Hps14Use	Not_In_Use	
DEG94170	Hps5LogSts	Nominal		DEG58170	Hps14LogSts	Redundant	
DEG92170	Hps5FailSts	Not_Failed		DEG56170	Hps14FailSts	Not_Failed	
DEG97170	Hps6FuncSts	On		DEG53170	Hps13FuncSts	Off	
DEG99170	Hps6Use	In_Use		DEG55170	Hps13Use	Not_In_Use	
DEG98170	Hps6LogSts	Nominal		DEG54170	Hps13LogSts	Redundant	
DEG96170	Hps6FailSts	Not_Failed		DEG52170	Hps13FailSts	Not_Failed	
DEH01170	Hps7FuncSts	On		DEG49170	Hps12FuncSts	Off	
DEH03170	Hps7Use	In_Use		DEG51170	Hps12Use	Not_In_Use	
DEH02170	Hps7LogSts	Nominal		DEG50170	Hps12LogSts	Redundant	
DEH00170	Hps7FailSts	Not_Failed		DEG48170	Hps12FailSts	Not_Failed	
DEH05170	Hps8FuncSts	On		DEG45170	Hps11FuncSts	Off	
DEH07170	Hps8Use	In_Use		DEG47170	Hps11Use	Not_In_Use	
DEH06170	Hps8LogSts	Nominal		DEG46170	Hps11LogSts	Redundant	
DEH04170	Hps8FailSts	Not_Failed		DEG44170	Hps11FailSts	Not_Failed	



Thermal Control loops Reconfiguration from Nominal to Redundant  
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ZAZ7L999 / EPS_UIU2							
ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DEH09170	Hps9FuncSts	On		DEG41170	Hps10FuncSts	Off	
DEH11170	Hps9Use	In_Use		DEG43170	Hps10Use	Not_In_Use	
DEH10170	Hps9LogSts	Nominal		DEG42170	Hps10LogSts	Redundant	
DEH08170	Hps9FailSts	Not_Failed		DEG40170	Hps10FailSts	Not_Failed	
DEG03170	Pcdu1FuncSts			DEG02170	Pcdu2FuncSts		
DEN00170	Pcdu1Use			DEN03170	Pcdu2Use		
DEN01170	Pcdu1LogSts			DEN04170	Pcdu2LogSts		
DEN02170	Pcdu1FailSts			DEN05170	Pcdu2FailSts		
				DEN74170	Hgps1FuncSts		
				DEN75170	Hgps2FuncSts		
				DEN76170	Hgps3FuncSts		
				DEN77170	Hgps4FuncSts		
				DEN78170	Hgps5FuncSts		
				DEN79170	Hgps6FuncSts		
				DEN80170	Hgps7FuncSts		
				DEN81170	Hgps8FuncSts		
				DEN82170	Hgps9FuncSts		
				DEN83170	Hgps10FuncSts		
				DEN84170	Hgps11FuncSts		
				DEN85170	Hgps12FuncSts		
				DEN86170	Hgps13FuncSts		
				DEN87170	Hgps14FuncSts		
				DEN88170	Hgps15FuncSts		
				DEN89170	Hgps16FuncSts		
				DEN90170	Hgps17FuncSts		
				DEN91170	Hgps18FuncSts		

Thermal Control loops Reconfiguration from Nominal to Redundant  
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## ZAZ7K999 / EPS\_UIU1

ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DEG77170	Hps1FuncSts	Off		DEG73170	Hps18FuncSts	On	
DEG79170	Hps1Use	Not_In_Use		DEG75170	Hps18Use	In_Use	
DEG78170	Hps1LogSts	Redundant		DEG74170	Hps18LogSts	Nominal	
DEG76170	Hps1FailSts	Not_Failed		DEG72170	Hps18FailSts	Not_Failed	
DEG81170	Hps2FuncSts	Off		DEG69170	Hps17FuncSts	On	
DEG83170	Hps2Use	Not_In_Use		DEG71170	Hps17Use	In_Use	
DEG82170	Hps2LogSts	Redundant		DEG70170	Hps17LogSts	Nominal	
DEG80170	Hps2FailSts	Not_Failed		DEG68170	Hps17FailSts	Failed	
DEG85170	Hps3FuncSts	Off		DEG65170	Hps16FuncSts	On	
DEG87170	Hps3Use	Not_In_Use		DEG67170	Hps16Use	In_Use	
DEG86170	Hps3LogSts	Redundant		DEG66170	Hps16LogSts	Nominal	
DEG84170	Hps3FailSts	Not_Failed		DEG64170	Hps16FailSts	Not_Failed	
DEG89170	Hps4FuncSts	Off		DEG61170	Hps15FuncSts	On	
DEG91170	Hps4Use	Not_In_Use		DEG63170	Hps15Use	In_Use	
DEG90170	Hps4LogSts	Redundant		DEG62170	Hps15LogSts	Nominal	
DEG88170	Hps4FailSts	Not_Failed		DEG60170	Hps15FailSts	Not_Failed	
DEG93170	Hps5FuncSts	Off		DEG57170	Hps14FuncSts	On	
DEG95170	Hps5Use	Not_In_Use		DEG59170	Hps14Use	In_Use	
DEG94170	Hps5LogSts	Redundant		DEG58170	Hps14LogSts	Nominal	
DEG92170	Hps5FailSts	Not_Failed		DEG56170	Hps14FailSts	Not_Failed	
DEG97170	Hps6FuncSts	Off		DEG53170	Hps13FuncSts	On	
DEG99170	Hps6Use	Not_In_Use		DEG55170	Hps13Use	In_Use	
DEG98170	Hps6LogSts	Redundant		DEG54170	Hps13LogSts	Nominal	
DEG96170	Hps6FailSts	Not_Failed		DEG52170	Hps13FailSts	Not_Failed	
DEH01170	Hps7FuncSts	Off		DEG49170	Hps12FuncSts	On	
DEH03170	Hps7Use	Not_In_Use		DEG51170	Hps12Use	In_Use	
DEH02170	Hps7LogSts	Redundant		DEG50170	Hps12LogSts	Nominal	
DEH00170	Hps7FailSts	Not_Failed		DEG48170	Hps12FailSts	Not_Failed	
DEH05170	Hps8FuncSts	Off		DEG45170	Hps11FuncSts	On	
DEH07170	Hps8Use	Not_In_Use		DEG47170	Hps11Use	In_Use	
DEH06170	Hps8LogSts	Redundant		DEG46170	Hps11LogSts	Nominal	
DEH04170	Hps8FailSts	Not_Failed		DEG44170	Hps11FailSts	Not_Failed	

Thermal Control loops Reconfiguration from Nominal to Redundant  
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ZAZ7L999 / EPS\_UIU2

ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DEH09170	Hps9FuncSts	Off		DEG41170	Hps10FuncSts	On	
DEH11170	Hps9Use	Not_In_Use		DEG43170	Hps10Use	In_Use	
DEH10170	Hps9LogSts	Redundant		DEG42170	Hps10LogSts	Nominal	
DEH08170	Hps9FailSts	Not_Failed		DEG40170	Hps10FailSts	Not_Failed	
DEG03170	Pcdu1FuncSts			DEG02170	Pcdu2FuncSts		
DEN00170	Pcdu1Use			DEN03170	Pcdu2Use		
DEN01170	Pcdu1LogSts			DEN04170	Pcdu2LogSts		
DEN02170	Pcdu1FailSts			DEN05170	Pcdu2FailSts		