

HPS current OOLs
File: H_CRP_TCS_HPSR.xls
Author: E. Picallo



Procedure Summary

Objectives

This procedure is to be run on detection of an HPSx current Out Of Limits. No on-board monitoring is foreseen.

The only recovery action possible is to switch to the Redundant (Group HPS[18 10] in case of TCS-A is configured or HPS[1 9] in case TCS-B is configured) assuming no previous failures.

Summary of Constraints

Provided that the redundant Group was not flagged as Failed, Ground needs to reconfigure the entire Group and disable any future on-board reconfigurations.

The HPS_I current telemetry limits are defined taking into account that all the associated HCSs are switch ON; Including the ones related to the decontamination.

Notice that a current up to 150 mA can be observed in the TM reporting the HPS current even if the HPS is OFF or the HPS is ON but the 6 HCSs are OFF and thus the current is physically 0A.

Spacecraft Configuration

Start of Procedure

CDMU in default configuration;
Thermal Control Management function active;
For TCS-A OOL on HPS current on Nominal Group HPS [1 to 9]
For TCS-B OOL on HPS current on Nominal Group HPS [18 to 10]

End of Procedure

CDMU in default configuration;
Thermal Control Management function active.
For TCS-A Redundant Group HPS[18 10] switch ON (if HPS swith-over performed)
For TCS-B Redundant Group HPS[1 9] switch ON (if HPS swith-over performed)

Reference File(s)

Input Command Sequences

Output Command Sequences

Referenced Displays

ANDs GRDs SLDs

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WAHT1584
 WAHT2584
 WAHT3584
 ZAZ9J999
 ZAZ7K999
 ZAZ7L999

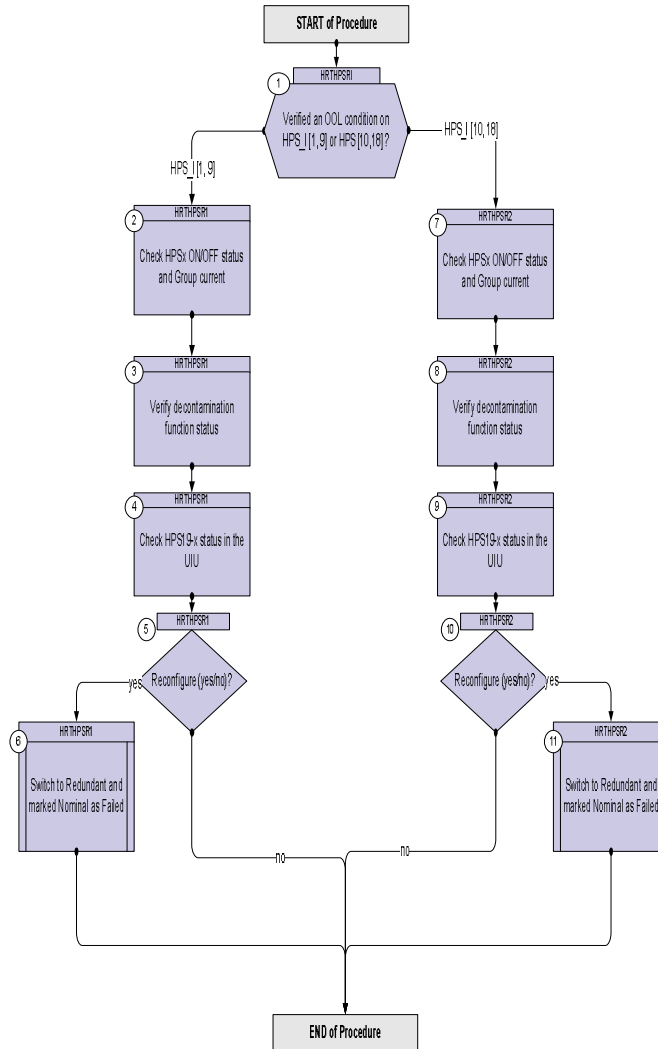
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
26/02/09	2.1	1	Created	E. Picallo	
24/03/09	2.2	2	Group 1 to 9 HPS Current OOL updated	E. Picallo	
07/04/09		3	Comment on decontamination heaters link to Nominal HPS added	E. Picallo	
17/04/09	2.3	4	Nominal HPS involved in decontamination are now HPS#1 for M2 and HPS#6 for M1	E. Picallo	
05/05/09		5	Branch to handle HPS [18 10] OOL added	E. Picallo	
05/05/09	2.4	5.01	Validation : Added a warning about the offset on all HPSs currents	E. Picallo	

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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 :HRTHPSR1 (HPS current OOL Init)</i></p> <p><i>TimeTag Type: N</i> <i>Sub Schedule ID:</i></p> <p style="text-align: center;">□</p>				
1		<p><i>Verified an OOL condition on HPS_I [1, 9] or HPS [10,18] ?</i></p>		<p>Next Step: HPS_I [1, 9] 2 HPS_I [10, 18] 7</p>
<p><i>TC Seq. Name :HRTHPSR1 (HPS1_9 current OOL)</i></p> <p><i>TimeTag Type: N</i> <i>Sub Schedule ID:</i></p> <p style="text-align: center;">□</p>				
2		<p><i>Check HPSx ON/OFF status and Group current</i></p>		<p>Next Step: 3</p>
		<p>One needs to check the group status and current.</p> <p>GRP1_HPS_ITLM < 2.5A GRP2_HPS_ITLM < 5.3A GRP3_HPS_ITLM < 6.1A GRP4_HPS_ITLM < 5.4A GRP5_HPS_ITLM < 4.4A GRP6_HPS_ITLM < 6.1A GRP7_HPS_ITLM < 4.25A GRP8_HPS_ITLM < 3.5A GRP9_HPS_ITLM < 5.8A</p>		
		<p>The following verifications assume a nominal TCS-A configuration i.e. Nominal HPS (1 to 9) are switched ON and Redundant HPS (10 to 18) are switched OFF.</p>		
		<p>Refer to Checkform WAHT1584 at the back of this document</p>		<p>ANDCK</p>
		<p>Refer to Checkform WAHT2584 at the back of this document</p>		<p>ANDCK</p>
		<p>Refer to Checkform WAHT3584 at the back of this document</p>		<p>ANDCK</p>
3		<p><i>Verify decontamination function status</i></p>		<p>Next Step: 4</p>
		<p>Verify Telemetry</p> <p style="text-align: center;">DhSts DEG17170</p>		<p>AND=ZAZ9J999</p>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>The following heater lines related to decontamination are link to Nominal HPSs: Decontamination Heating 1 (HPS1HCS1)* Decontamination Heating 3 (HPS2HCS1) Decontamination Heating 5 (HPS4HCS1) Decontamination Heating 7 (HPS6HCS1)* Decontamination Heating 8 (HPS9HCS1)</p> <p>* The telescope decontamination during cool down strategy forseees to use only Nominal HPS 1 & 6 and redundant HPS 10 , 15 & 17.</p> <p>In case the suspected failed Heater group includes HCS dedicated to the decontamination, the switch to the Redundant HPS does not switch HCSs ON related decontamination . Thus it is up to Ground to resume decontamination as required.</p>		
4		<p>Check HPS19-x status in the UIU</p> <p>Check that the redundant unit HPS19-x is not failed.</p>		Next Step: 5
		Refer to Checkform ZAZ7K999 at the back of this document		ANDCK
		Refer to Checkform ZAZ7L999 at the back of this document		ANDCK
5		Reconfigure (yes/no)?		Next Step: yes 6 no END
6		<p>Switch to Redundant and marked Nominal as Failed</p> <p>This Heater Group HPSx is no more to be used, thus needs to be flagged as Failed and the Redundant HPS19-x switched ON.</p>		Next Step: END
		<p>Execute Procedure: H_CRP_TCS_HCNR Heater Group reconfiguration after failure of the Nominal one</p>		
<p>TC Seq. Name :HRTHPSR2 (HPS10_18 current OOL)</p> <p>TimeTag Type: N Sub Schedule ID: <input type="checkbox"/></p>				
7		Check HPSx ON/OFF status and Group current		Next Step: 8

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>One needs to check the group status and current.</p> <p>GRP18_HPS_ITLM < 5.2A GRP17_HPS_ITLM < 5.3A GRP16_HPS_ITLM < 6.1A GRP15_HPS_ITLM < 5.4A GRP14_HPS_ITLM < 4.4A GRP13_HPS_ITLM < 2.5A GRP12_HPS_ITLM < 4.25A GRP11_HPS_ITLM < 3.5A GRP10_HPS_ITLM < 3.2A</p>		
		<p>The following verifications assume a TCS-B configuration i.e. Nominal HPS (10 to 18) are switched ON and Redundant HPS (1 to 9) are switched OFF.</p>		
		Refer to Checkform WAHT1584 at the back of this document		ANDCK
		Refer to Checkform WAHT2584 at the back of this document		ANDCK
		Refer to Checkform WAHT3584 at the back of this document		ANDCK
8		<p><i>Verify decontamination function status</i></p>		Next Step: 9
		<p>Verify Telemetry</p> <p style="text-align: center;">DhSts DEG17170</p>		AND=ZAZ9J999
		<p>The following heater lines related to decontamination are link to Redundant HPSs:</p> <p>M1 heater line 4 (HPS 17 HCS 1 R) * M1 heater line 6 (HPS 15 HCS 1 R) * M1 heater line 9 (HPS 18 HCS 1 R) M2 heater line 2 (HPS 10 HCS 1 R) *</p> <p>* The telescope decontamination during cool down strategy forseees to use only Redundant HPS 10, 15 and 17 .</p> <p>In case the suspected failed Heater group includes HCS dedicated to the decontamination, the switch to the Redundant HPS does not switch HCSs ON related decontamination . Thus it is up to Ground to resume decontamination as required.</p>		
9		<p><i>Check HPS19-x status in the UIU</i></p>		Next Step: 10
		<p>Check that the redundant unit HPS19-x is not failed.</p>		
		Refer to Checkform ZAZ7K999 at the back of this document		ANDCK
		Refer to Checkform ZAZ7L999 at the back of this document		ANDCK

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
10		Reconfigure (yes/no)?		Next Step: yes 11 no END
11		Switch to Redundant and marked Nominal as Failed		Next Step: END
		This Heater Group HPSx is no more to be used, thus needs to be flagged as Failed and the Redundant HPS19-x switched ON.		
		Execute Procedure: H_CRP_TCS_HCRN Heater Group reconfiguration from HPS 10-18 to HPS 1-9		
End of Procedure				

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ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
WM12G565	GRP1_HPS_STS	ON		WM32G565	GRP4_HPS_STS	ON	
WM112565	GRP1_HPS_ITLM	< 2.5		WM312565	GRP4_HPS_ITLM	<5.4	
WM104565	GRP1_Therm_TLM			WM304565	GRP4_Therm_TLM		
WM11A565	Decon1_G1H1_S			WM31A565	Decon5_G4H1_S		
WM11B565	Xpnd2_G1H2_S			WM31B565	FHWOV_G4H2_S		
WM11C565	FcvA1B_G1H3_S			WM31C565	RCSpip_G4H3_S		
WM11D565	FcvC2B_G1H4_S			WM31D565	FcvA1A_G4H4_S		
WM11E565	RCSpipG1H5_S			WM31E565	FcvC2A_G4H5_S		
WM11F565	Xpnd1_G1H6_S			WM31F565	RCSpipG4H6_S		
WM22G565	GRP2_HPS_STS	ON		WM32H565	GRP5_HPS_STS	ON	
WM212565	GRP2_HPS_ITLM	<5.3		WM313565	GRP5_HPS_ITLM	<4.4	
WM204565	GRP2_Therm_TLM			WM305565	GRP5_Therm_TLM		
WM21A565	Decon3_G2H1_S			WM31G565	CRS2_G5H1_S		
WM21B565	FcvC1B_G2H2_S			WM31H565	FHHRH_G5H2_S		
WM21C565	FcvA2B_G2H3_S			WM31J565	FhWevlcuG5H3_S		
WM21D565	FcvC4B_G2H4_S			WM31K565	FcvC3B_G5H4_S		
WM21E565	FpdFps_G2H5_S			WM31L565	RCSpipG5H5_S		
WM21F565	tanks_G2H6_S			WM31M565	PtLflv12_G5H6_S		
WM22H565	GRP3_HPS_STS	ON		WM42G565	GRP6_HPS_STS	ON	
WM213565	GRP3_HPS_ITLM	<6.1		WM412565	GRP6_HPS_ITLM	<6.1	
WM205565	GRP3_Therm_TLM			WM404565	GRP6_Therm_TLM		
WM21G565	FPBOLC_G3H1_S			WM41A565	Decon7_G6H1_S		
WM21H565	CRS1_G3H2_S			WM41B565	RWA4_G6H2_S		
WM21J565	FPMECDEC_G3H3_S			WM41C565	RWA1_G6H3_S		
WM21K565	RCSpipG3H4_S			WM41D565	RWA3_G6H4_S		
WM21L565	CcuHsdHsfG3H5_S			WM41E565	FHWIV_G6H5_S		
WM21M565	GYRO_G3H6_S			WM41F565	RWA2_G6H6_S		

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ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
WM42H565	GRP7_HPS_STS	ON		WM62G565	GRP10_HPS_STS		
WM413565	GRP7_HPS_ITLM	<4.25		WM612565	GRP10_HPS_ITLM	<0.2	
WM405565	GRP7_Therm_TLM			WM604565	GRP10_Therm_TLM		
WM41G565	STR_G7H1_S			WM61A565	Decon2_G10H1_S		
WM41H565	BATTconG7H2_S			WM61B565	tank-Y_G10H2_S		
WM41J565	FHWOH_G7H3_S			WM61C565	FcvC4A_G10H3_S		
WM41K565	FHWEH_G7H4_S			WM61D565	FHLSU_G10H4_S		
WM41L565	FcvC1A_G7H5_S			WM61E565	STR1baffG10H5_S		
WM41M565	FcvA2A_G7H6_S			WM61F565	tank+Y_G10H6_S		
WM52G565	GRP8_HPS_STS	ON		WM62H565	GRP11_HPS_STS		
WM512565	GRP8_HPS_ITLM	<3.5		WM613565	GRP11_HPS_ITLM	<0.2	
WM504565	GRP8_Therm_TLM			WM605565	GRP11_Therm_TLM		
WM51A565	FHHRV_G8H1_S			WM61G565	FHHRV_G11H1_S		
WM51B565	FcvC3A_G8H2_S			WM61H565	FcvC3A_G11H2_S		
WM51C565	RCSpipG8H3_S			WM61J565	RCSpipG11H3_S		
WM51D565	STR2baffG8H4_S			WM61K565	STR2baffG11H4_S		
WM51E565	RCSpipG8H5_S			WM61L565	RCSpipG11H5_S		
WM51F565	FHLCU_G8H6_S			WM61M565	FHLCU_G11H6_S		
WM52H565	GRP9_HPS_STS	ON		WM72G565	GRP12_HPS_STS		
WM513565	GRP9_HPS_ITLM	<5.8		WM712565	GRP12_HPS_ITLM	<0.2	
WM505565	GRP9_Therm_TLM			WM704565	GRP12_Therm_TLM		
WM51G565	Decon8_G9H1_S			WM71A565	STR_G12H1_S		
WM51H565	tank-Y_G9H2_S			WM71B565	BATTconG12H2_S		
WM51J565	FcvC4A_G9H3_S			WM71C565	FHWOH_G12H3_S		
WM51K565	FHLSU_G9H4_S			WM71D565	FHWEH_G12H4_S		
WM51L565	STR1baffG9H5_S			WM71E565	FcvC1A_G12H5_S		
WM51M565	tank+Y_G9H6_S			WM71F565	FcvA2A_G12H6_S		

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ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
WM72H565	GRP13_HPS_STS			WM92G565	GRP16_HPS_STS		
WM713565	GRP13_HPS_ITLM	<0.2		WM912565	GRP16_HPS_ITLM	<0.2	
WM705565	GRP13_Therm_TLM			WM904565	GRP16_Therm_TLM		
WM71G565	Grp13Heat1_S			WM91A565	FPBOLC_G16H1_S		
WM71H565	RWA4_G13H2_S			WM91B565	CRS1_G16H2_S		
WM71J565	RWA1_G13H3_S			WM91C565	FPMECDEC_G16H3s		
WM71K565	RWA3_G13H4_S			WM91D565	RCSpipG16H4_S		
WM71L565	FHWIV_G13H5_S			WM91E565	CcuHdHf_G16H5_S		
WM71M565	RWA2_G13H6_S			WM91F565	GYRO_G16H6_S		
WM82G565	GRP14_HPS_STS			WM92H565	GRP17_HPS_STS		
WM812565	GRP14_HPS_ITLM	<0.2		WM913565	GRP17_HPS_ITLM	<0.2	
WM804565	GRP14_Therm_TLM			WM905565	GRP17_Therm_TLM		
WM81A565	CRS2_G14H1_S			WM91G565	Decon4_G17H1_S		
WM81B565	FHHRH_G14H2_S			WM91H565	FcvC1B_G17H2_S		
WM81C565	FhWevlcuG14H3_S			WM91J565	FcvA2B_G17H3_S		
WM81D565	FcvC3B_G14H4_S			WM91K565	FcvC4B_G17H4_S		
WM81E565	RCSpipG14H5_S			WM91L565	FpdFps_G17H5_S		
WM81F565	PLFLv12G14H6_S			WM91M565	tanks_G17H6_S		
WM82H565	GRP15_HPS_STS			WMA2G565	GRP18_HPS_STS		
WM813565	GRP15_HPS_ITLM	<0.2		WMA12565	GRP18_HPS_ITLM	<0.2	
WM805565	GRP15_Therm_TLM			WMA04565	GRP18_Therm_TLM		
WM81G565	Decon6_G15H1_S			WMA1A565	Decon9_G18H1_S		
WM81H565	FHWOV_G15H2_S			WMA1B565	XPND2_G18H2_S		
WM81J565	RCSpipG15H3_S			WMA1C565	FcvA1B_G18H3_S		
WM81K565	FcvA1A_G15H4_S			WMA1D565	FcvC2B_G18H4_S		
WM81L565	FcvC2A_G15H5_S			WMA1E565	RCSpipG18H5_S		
WM81M565	RCSpipG15H6_S			WMA1F565	XPND1_G18H6_S		

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ZAZ7K999 / EPS_UIU1

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

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ZAZ7L999 / EPS_UIU2

ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DEH09170	Hps9FuncSts			DEG41170	Hps10FuncSts	Off	
DEH11170	Hps9Use			DEG43170	Hps10Use	Not_In_Use	
DEH10170	Hps9LogSts			DEG42170	Hps10LogSts	Redundant	
DEH08170	Hps9FailSts			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		

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ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
WM12G565	GRP1_HPS_STS	OFF		WM32G565	GRP4_HPS_STS	OFF	
WM112565	GRP1_HPS_ITLM	<0.2		WM312565	GRP4_HPS_ITLM	<0.2	
WM104565	GRP1_Therm_TLM			WM304565	GRP4_Therm_TLM		
WM11A565	Decon1_G1H1_S			WM31A565	Decon5_G4H1_S		
WM11B565	Xpnd2_G1H2_S			WM31B565	FHWOV_G4H2_S		
WM11C565	FcvA1B_G1H3_S			WM31C565	RCSpip_G4H3_S		
WM11D565	FcvC2B_G1H4_S			WM31D565	FcvA1A_G4H4_S		
WM11E565	RCSpipG1H5_S			WM31E565	FcvC2A_G4H5_S		
WM11F565	Xpnd1_G1H6_S			WM31F565	RCSpipG4H6_S		
WM22G565	GRP2_HPS_STS	OFF		WM32H565	GRP5_HPS_STS	OFF	
WM212565	GRP2_HPS_ITLM	<0.2		WM313565	GRP5_HPS_ITLM	<0.2	
WM204565	GRP2_Therm_TLM			WM305565	GRP5_Therm_TLM		
WM21A565	Decon3_G2H1_S			WM31G565	CRS2_G5H1_S		
WM21B565	FcvC1B_G2H2_S			WM31H565	FHHRH_G5H2_S		
WM21C565	FcvA2B_G2H3_S			WM31J565	FhWevlcuG5H3_S		
WM21D565	FcvC4B_G2H4_S			WM31K565	FcvC3B_G5H4_S		
WM21E565	FpdFps_G2H5_S			WM31L565	RCSpipG5H5_S		
WM21F565	tanks_G2H6_S			WM31M565	PtLflv12_G5H6_S		
WM22H565	GRP3_HPS_STS	OFF		WM42G565	GRP6_HPS_STS	OFF	
WM213565	GRP3_HPS_ITLM	<0.2		WM412565	GRP6_HPS_ITLM	<0.2	
WM205565	GRP3_Therm_TLM			WM404565	GRP6_Therm_TLM		
WM21G565	FPBOLC_G3H1_S			WM41A565	Decon7_G6H1_S		
WM21H565	CRS1_G3H2_S			WM41B565	RWA4_G6H2_S		
WM21J565	FPMECDEC_G3H3_S			WM41C565	RWA1_G6H3_S		
WM21K565	RCSpipG3H4_S			WM41D565	RWA3_G6H4_S		
WM21L565	CcuHsdHsfG3H5_S			WM41E565	FHWIV_G6H5_S		
WM21M565	GYRO_G3H6_S			WM41F565	RWA2_G6H6_S		

HPS current OOLs
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ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
WM42H565	GRP7_HPS_STS	OFF		WM62G565	GRP10_HPS_STS	ON	
WM413565	GRP7_HPS_ITLM	<0.2		WM612565	GRP10_HPS_ITLM	<3.2	
WM405565	GRP7_Therm_TLM			WM604565	GRP10_Therm_TLM		
WM41G565	STR_G7H1_S			WM61A565	Decon2_G10H1_S		
WM41H565	BATTconG7H2_S			WM61B565	tank-Y_G10H2_S		
WM41J565	FHWOH_G7H3_S			WM61C565	FcvC4A_G10H3_S		
WM41K565	FHWEH_G7H4_S			WM61D565	FHLSU_G10H4_S		
WM41L565	FcvC1A_G7H5_S			WM61E565	STR1baffG10H5_S		
WM41M565	FcvA2A_G7H6_S			WM61F565	tank+Y_G10H6_S		
WM52G565	GRP8_HPS_STS	OFF		WM62H565	GRP11_HPS_STS	ON	
WM512565	GRP8_HPS_ITLM	<0.2		WM613565	GRP11_HPS_ITLM	<3.5	
WM504565	GRP8_Therm_TLM			WM605565	GRP11_Therm_TLM		
WM51A565	FHHRV_G8H1_S			WM61G565	FHHRV_G11H1_S		
WM51B565	FcvC3A_G8H2_S			WM61H565	FcvC3A_G11H2_S		
WM51C565	RCSpipG8H3_S			WM61J565	RCSpipG11H3_S		
WM51D565	STR2baffG8H4_S			WM61K565	STR2baffG11H4_S		
WM51E565	RCSpipG8H5_S			WM61L565	RCSpipG11H5_S		
WM51F565	FHLCU_G8H6_S			WM61M565	FHLCU_G11H6_S		
WM52H565	GRP9_HPS_STS	OFF		WM72G565	GRP12_HPS_STS	ON	
WM513565	GRP9_HPS_ITLM	<0.2		WM712565	GRP12_HPS_ITLM	<4.25	
WM505565	GRP9_Therm_TLM			WM704565	GRP12_Therm_TLM		
WM51G565	Decon8_G9H1_S			WM71A565	STR_G12H1_S		
WM51H565	tank-Y_G9H2_S			WM71B565	BATTconG12H2_S		
WM51J565	FcvC4A_G9H3_S			WM71C565	FHWOH_G12H3_S		
WM51K565	FHLSU_G9H4_S			WM71D565	FHWEH_G12H4_S		
WM51L565	STR1baffG9H5_S			WM71E565	FcvC1A_G12H5_S		
WM51M565	tank+Y_G9H6_S			WM71F565	FcvA2A_G12H6_S		

HPS current OOLs
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WAHT3584 / PCDU Heather STS and I 3 of 3							
ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
WM72H565	GRP13_HPS_STS	ON		WM92G565	GRP16_HPS_STS	ON	
WM713565	GRP13_HPS_ITLM	<2.5		WM912565	GRP16_HPS_ITLM	<6.1	
WM705565	GRP13_Therm_TLM			WM904565	GRP16_Therm_TLM		
WM71G565	Grp13Heat1_S			WM91A565	FPBOLC_G16H1_S		
WM71H565	RWA4_G13H2_S			WM91B565	CRS1_G16H2_S		
WM71J565	RWA1_G13H3_S			WM91C565	FPMECDEC_G16H3s		
WM71K565	RWA3_G13H4_S			WM91D565	RCSpipG16H4_S		
WM71L565	FHWIV_G13H5_S			WM91E565	CcuHdHf_G16H5_S		
WM71M565	RWA2_G13H6_S			WM91F565	GYRO_G16H6_S		
WM82G565	GRP14_HPS_STS	ON		WM92H565	GRP17_HPS_STS	ON	
WM812565	GRP14_HPS_ITLM	<4.4		WM913565	GRP17_HPS_ITLM	<5.3	
WM804565	GRP14_Therm_TLM			WM905565	GRP17_Therm_TLM		
WM81A565	CRS2_G14H1_S			WM91G565	Decon4_G17H1_S		
WM81B565	FHHRH_G14H2_S			WM91H565	FcvC1B_G17H2_S		
WM81C565	FhWevlcuG14H3_S			WM91J565	FcvA2B_G17H3_S		
WM81D565	FcvC3B_G14H4_S			WM91K565	FcvC4B_G17H4_S		
WM81E565	RCSpipG14H5_S			WM91L565	FpdFps_G17H5_S		
WM81F565	PLFLv12G14H6_S			WM91M565	tanks_G17H6_S		
WM82H565	GRP15_HPS_STS	ON		WMA2G565	GRP18_HPS_STS	ON	
WM813565	GRP15_HPS_ITLM	<5.4		WMA12565	GRP18_HPS_ITLM	<5.2	
WM805565	GRP15_Therm_TLM			WMA04565	GRP18_Therm_TLM		
WM81G565	Decon6_G15H1_S			WMA1A565	Decon9_G18H1_S		
WM81H565	FHWOV_G15H2_S			WMA1B565	XPND2_G18H2_S		
WM81J565	RCSpipG15H3_S			WMA1C565	FcvA1B_G18H3_S		
WM81K565	FcvA1A_G15H4_S			WMA1D565	FcvC2B_G18H4_S		
WM81L565	FcvC2A_G15H5_S			WMA1E565	RCSpipG18H5_S		
WM81M565	RCSpipG15H6_S			WMA1F565	XPND1_G18H6_S		

HPS current OOLs
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ZAZ7K999 / EPS_UIU1

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

HPS current OOLs
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ZAZ7L999 / EPS_UIU2

ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DEH09170	Hps9FuncSts	Off		DEG41170	Hps10FuncSts		
DEH11170	Hps9Use	Not_In_Use		DEG43170	Hps10Use		
DEH10170	Hps9LogSts	Redundant		DEG42170	Hps10LogSts		
DEH08170	Hps9FailSts	Not_Failed		DEG40170	Hps10FailSts		
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		

HPS current OOLs
 File: H_CRP_TCS_HPSR.xls
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OINST @27V									
	HPS1	HPS2	HPS3	HPS4	HPS5	HPS6	HPS7	HPS8	HPS9
HCS1	20.6	104.1	9.41	104.7	24.3	106	21.98	38.98	107.8
HCS2	11.39	1.43	24.3	23.84	38.98	11.39	14.9	1.43	5.4
HCS3	1.43	1.43	27.48	5.7	35.7	11.39	33.15	5.21	1.43
HCS4	1.43	1.43	5.46	1.43	1.43	11.39	32.4	7.05	29
HCS5	5.84	31.02	44.5	1.43	4.54	11.4	1.43	9.68	7.05
HCS6	11.39	1.54	45.22	4.68	4.9	11.39	1.43	20.9	5.4
Total W	52.08	140.95	156.37	141.78	109.85	162.96	105.29	83.25	156.08
Total I	1.9	5.2	5.8	5.3	4.1	6.0	3.9	3.1	5.8
Limit	2.5	5.3	6.1	5.4	4.4	6.1	4.25	3.5	5.8
OINST @27V									
	HPS18	HPS17	HPS16	HPS15	HPS14	HPS13	HPS12	HPS11	HPS10
HCS1	20.6	104.1	9.41	104.7	24.3	0	21.98	38.98	20.6
HCS2	11.39	1.43	24.3	23.84	38.98	11.39	14.9	1.43	5.4
HCS3	1.43	1.43	27.48	5.7	35.7	11.39	33.15	5.21	1.43
HCS4	1.43	1.43	5.46	1.43	1.43	11.39	32.4	7.05	29
HCS5	5.84	31.02	44.5	1.43	4.54	11.4	1.43	9.68	7.05
HCS6	11.39	1.54	45.22	4.68	4.9	11.39	1.43	20.9	5.4
Total W	52.08	140.95	156.37	141.78	109.85	56.96	105.29	83.25	68.88
Total I	1.9	5.2	5.8	5.3	4.1	2.1	3.9	3.1	2.6
Limit	5.2	5.3	6.1	5.4	4.4	2.5	4.25	3.5	3.2
There are 7 heaters lines for M1 (4N+3R):									
M1 heater line 3 (HPS 02 HCS 1 N)									
M1 heater line 4 (HPS 17 HCS 1 R) *									
M1 heater line 5 (HPS 04 HCS 1 N)									
M1 heater line 6 (HPS 15 HCS 1 R) *									
M1 heater line 7 (HPS 06 HCS 1 R) *									
M1 heater line 8 (HPS 09 HCS 1 N)									
M1 heater line 9 (HPS 18 HCS 1 R)									
There are 2 heaters lines for M2 (1N+1R):									
M2 heater line 1 (HPS 01 HCS 1 N) *									
M2 heater line 2 (HPS 10 HCS 1 R) *									
* It is proposed to use only 3 lines on M1 (lines 4, 6 and 7) both heater lines on M2									