

Decontamination Heating parameters Update  
File: H\_CRP\_SYS\_DECP.xls  
Author: E. Picallo



## Procedure Summary

### Objectives

The objective of this procedure is to update the parameters of the Herschel decontamination: temperature thresholds, thermistors to be read and heater masks.

### Summary of Constraints

Four separate commands (Temperature thresholds, M1 Thermistors, M2 Thermistors and Heater masks) have been defined to modify the different decontamination parameters.

Database warning: The expected default values according to

H\_P\_2\_ASP\_2D\_1418 issue 4 should have been:

- M1 thermal sensors = T331, T332 and T335
- M2 thermal sensor = T339, T341 and T342
- Tmin1 = Tmin2 = 43.5 °C
- Tmax1 = Tmax1 = 44.5 °C
- Continuity Check Threshold = 0.5 °C

The default decontamination values in CDMU ASW V 3.8 are:

- Tmin1 = 46.76 °C = 43073 RAW
- Tmax1 = 47.79 °C = 43218 RAW
- Tmin2 = 47.93 °C = 43285 RAW
- Tmax2 = 48.98 °C = 43431 RAW
- Continuity Check Threshold = 0.48 °C = 72 RAW

### Spacecraft Configuration

Start of Procedure

End of Procedure

Decontamination heating parameters updated

### Reference File(s)

Input Command Sequences

Output Command Sequences

HRYDECP1  
HRYDECP2  
HRYDECP3  
HRYDECP4

### Referenced Displays

ANDs      GRDs      SLDs

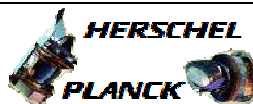
### Configuration Control Information

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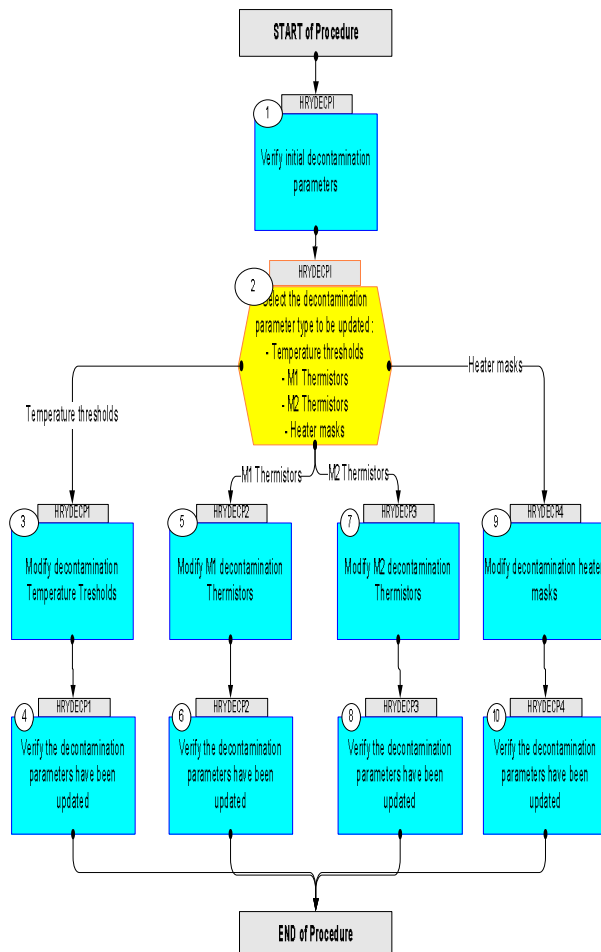


DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
01/08/08	1	1	Created	E. Picallo	
13/11/08		2	Thermistors updated splited into 2 seq. (M1 and M2)	E. Picallo	
08/01/09	2	3	Decontamination thresholds updated according to H-P-2-ASP-ID-1418 issue 4 cal. points	E. Picallo	
23/02/09	2.1	4	Decontamination tresholds updated to use calibrated values Add note about discrepancy on default dec. thresholds values	E. Picallo	

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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>				
TC Seq. Name : HRYDECPI (Decont. param update) Decontamination heating parameters update  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>				
1		Verify initial decontamination parameters		Next Step: 2
		<b>Call Procedure to Report decontamination heating function and parameters</b>		
		Execute Procedure: <b>H_LEO_SYS_DECS</b> <b>Decontamination Heating Status Report</b>		
2		Select the decontamination parameter type to be updated : - Temperature thresholds - M1 Thermistors - M2 Thermistors - Heater masks		Next Step: Temperature thresholds 3 M1 Thermistors 5 M2 Thermistors 7 Heater masks 9
TC Seq. Name : HRYDECPI (Decont. Temp update) Decontamination heating Temperature Tresholds update  TimeTag Type: N Sub Schedule ID: Formal Parameter List : Decont - M1 - TMIN M1_Tmin= degC Decont - M1 - TMAX M1_Tmax= degC Decont - M2 - TMIN M2_Tmin= degC Decont - M2 - TMAX M2_Tmax= degC Decont - Cont Check ConCheck= degC				
3		Modify decontamination Temperature Tresholds		Next Step: 4

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		<p><b>Set the following decontamination Heating Parameters in degree celcius:</b></p> <ul style="list-style-type: none"> <li>- Tmin1</li> <li>- Tmax1</li> <li>- Tmin2</li> <li>- Tmax2</li> <li>- Continuity Check Threshold</li> </ul> <p>The default decontamination values in CDMU ASW V 3.8 are:</p> <ul style="list-style-type: none"> <li>- Tmin1 = 46.76 °C = 43073 RAW</li> <li>- Tmax1 = 47.79 °C = 43218 RAW</li> <li>- Tmin2 = 47.93 °C = 43285 RAW</li> <li>- Tmax2 = 48.98 °C = 43431 RAW</li> <li>- Continuity Check Threshold = 0.48 °C= 72 RAW</li> </ul>																	
		Continuity Check Threshold is the maximum acceptable temperature difference between two continuity checks.																	
		<p><b>Database warning: The expected default values according to H_P_2_ASP_2D_1418 issue 4 should have been:</b></p> <ul style="list-style-type: none"> <li>- M1 thermal sensors = T331, T332 and T335</li> <li>- M2 thermal sensor = T339, T341 and T342</li> <li>- Tmin1 = Tmin2 = 43.5 °C</li> <li>- Tmax1 = Tmax1 = 44.5 °C</li> <li>- Continuity Check Threshold = 0.5 °C</li> </ul>																	
		<p>Execute Telecommand</p> <p style="text-align: right;"><b>Decont - Tresholds</b></p> <p>Command Parameter(s) :</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Decont - M1 - TMIN</td> <td style="width: 30%;">ZHB06999</td> <td style="width: 40%;">M1_Tmin</td> </tr> <tr> <td>Decont - M1 - TMAX</td> <td>ZHB07999</td> <td>M1_Tmax</td> </tr> <tr> <td>Decont - M2 - TMIN</td> <td>ZHB08999</td> <td>M2_Tmin</td> </tr> <tr> <td>Decont - M2 - TMAX</td> <td>ZHB09999</td> <td>M2_Tmax</td> </tr> <tr> <td>Decont - Cont Check</td> <td>ZHB10999</td> <td>ConCheck</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- --</p> <p>Subsch. ID : 10        Det. descr. : TC(8,4,113,1) to update the tresholds -        TMIN - TMAX - Cont check</p>	Decont - M1 - TMIN	ZHB06999	M1_Tmin	Decont - M1 - TMAX	ZHB07999	M1_Tmax	Decont - M2 - TMIN	ZHB08999	M2_Tmin	Decont - M2 - TMAX	ZHB09999	M2_Tmax	Decont - Cont Check	ZHB10999	ConCheck	ZCB04999	
Decont - M1 - TMIN	ZHB06999	M1_Tmin																	
Decont - M1 - TMAX	ZHB07999	M1_Tmax																	
Decont - M2 - TMIN	ZHB08999	M2_Tmin																	
Decont - M2 - TMAX	ZHB09999	M2_Tmax																	
Decont - Cont Check	ZHB10999	ConCheck																	
4		Verify the decontamination parameters have been updated		Next Step: END															
		<p>Execute Procedure:</p> <p>H_LEO_SYS_DECS          Decontamination Heating Status Report</p>																	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																				
<p>TC Seq. Name : HRYDECP2 (M1 Decont. THM update)            Mirror 1 Decontamination heating Thermistors update</p> <p>TimeTag Type: N            Sub Schedule ID:            Formal Parameter List :            Decont - M1 - Thermis 1 M1_THM_1=            Decont - M1 - Thermis 2 M1_THM_2=            Decont - M1 - Thermis 3 M1_THM_3=</p>																								
5		Modify M1 decontamination Thermistors		Next Step: 6																				
		<p>Execute Telecommand</p> <p style="text-align: center;"><b>Decont - M1 Thermis ID</b></p> <p>Command Parameter(s) :</p> <table border="0"> <tr> <td>Decont - M1 - Thermis 1</td> <td>ZHB00999</td> <td>M1_THM_1</td> </tr> <tr> <td>Decont - M1 - Thermis 2</td> <td>ZHB01999</td> <td>M1_THM_2</td> </tr> <tr> <td>Decont - M1 - Thermis 3</td> <td>ZHB02999</td> <td>M1_THM_3</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: center;">GBM IL DSE --Y -- --</p> <p>Subsch. ID : 10            Det. descr. : TC(8,4,113,1) to update the M1 thermistors ID for decont</p>	Decont - M1 - Thermis 1	ZHB00999	M1_THM_1	Decont - M1 - Thermis 2	ZHB01999	M1_THM_2	Decont - M1 - Thermis 3	ZHB02999	M1_THM_3	ZCB01999												
Decont - M1 - Thermis 1	ZHB00999	M1_THM_1																						
Decont - M1 - Thermis 2	ZHB01999	M1_THM_2																						
Decont - M1 - Thermis 3	ZHB02999	M1_THM_3																						
		<p><b>Correspondence between M1 sensors identifiers:</b></p> <table border="0"> <tr> <td><b>Mirror Cryo-control CCU</b></td> <td><b>Parameter</b></td> </tr> <tr> <td>M1 T331 THA T21-5 A</td> <td>KM253302</td> </tr> <tr> <td>M1 T332 THA'' T16-5 B</td> <td>KM248303</td> </tr> <tr> <td>M1 T333 THA' T22-5 A</td> <td>KM254302</td> </tr> <tr> <td>M1 T334 THB T17-5 B</td> <td>KM249303</td> </tr> <tr> <td>M1 T335 THC T23-5 A</td> <td>KM255302</td> </tr> <tr> <td>M1 T336 THB' T18-5 B</td> <td>KM250303</td> </tr> <tr> <td>M1 T337 THC' T24-5 A</td> <td>KM256302</td> </tr> <tr> <td>M1 T338 THB'' T19-5 B</td> <td>KM251303</td> </tr> <tr> <td>M1 T340 THC'' T20-5 B</td> <td>KM252303</td> </tr> </table> <p>The nominal thermal sensors to be used for M1 decontamination are TH A (T331), TH A'' (T332), TH C (T335).</p>	<b>Mirror Cryo-control CCU</b>	<b>Parameter</b>	M1 T331 THA T21-5 A	KM253302	M1 T332 THA'' T16-5 B	KM248303	M1 T333 THA' T22-5 A	KM254302	M1 T334 THB T17-5 B	KM249303	M1 T335 THC T23-5 A	KM255302	M1 T336 THB' T18-5 B	KM250303	M1 T337 THC' T24-5 A	KM256302	M1 T338 THB'' T19-5 B	KM251303	M1 T340 THC'' T20-5 B	KM252303		
<b>Mirror Cryo-control CCU</b>	<b>Parameter</b>																							
M1 T331 THA T21-5 A	KM253302																							
M1 T332 THA'' T16-5 B	KM248303																							
M1 T333 THA' T22-5 A	KM254302																							
M1 T334 THB T17-5 B	KM249303																							
M1 T335 THC T23-5 A	KM255302																							
M1 T336 THB' T18-5 B	KM250303																							
M1 T337 THC' T24-5 A	KM256302																							
M1 T338 THB'' T19-5 B	KM251303																							
M1 T340 THC'' T20-5 B	KM252303																							
6		Verify the decontamination parameters have been updated		Next Step: END																				
		<p>Execute Procedure:            H_LEO_SYS_DECS            Decontamination Heating Status Report</p>																						

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch									
<p>TC Seq. Name : HRYDECP3 (M2 Decont. THM update)            Mirror 2 Decontamination heating Thermistors update</p> <p>TimeTag Type: N            Sub Schedule ID:            Formal Parameter List :            Decont - M2 - Thermis 1 M2_THM_1=            Decont - M2 - Thermis 2 M2_THM_2=            Decont - M2 - Thermis 3 M2_THM_3=</p>													
7		Modify M2 decontamination Thermistors		Next Step: 8									
		<p>Execute Telecommand</p> <p style="text-align: center;"><b>Decont - M2 Thermis ID</b></p> <p>Command Parameter(s) :</p> <table border="0"> <tr> <td>Decont - M2 - Thermis 1</td> <td>ZHB03999</td> <td>M2_THM_1</td> </tr> <tr> <td>Decont - M2 - Thermis 2</td> <td>ZHB04999</td> <td>M2_THM_2</td> </tr> <tr> <td>Decont - M2 - Thermis 3</td> <td>ZHB05999</td> <td>M2_THM_3</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: center;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10            Det. descr. : TC(8,4,113,1) to update the M2 thermistors ID for decont</p>	Decont - M2 - Thermis 1	ZHB03999	M2_THM_1	Decont - M2 - Thermis 2	ZHB04999	M2_THM_2	Decont - M2 - Thermis 3	ZHB05999	M2_THM_3	ZCB02999	
Decont - M2 - Thermis 1	ZHB03999	M2_THM_1											
Decont - M2 - Thermis 2	ZHB04999	M2_THM_2											
Decont - M2 - Thermis 3	ZHB05999	M2_THM_3											
		<p><b>Correspondence between M2 sensors identifiers:</b></p> <p><b>Mirror Cryo-control CCU Parameter</b></p> <table border="0"> <tr> <td>M2 T339 THX</td> <td>T25-5 A</td> <td>KM257302</td> </tr> <tr> <td>M2 T341 THY</td> <td>T26-5 A</td> <td>KM258302</td> </tr> <tr> <td>M2 T342 THZ</td> <td>T30-5 B</td> <td>KM262303</td> </tr> </table> <p>The nominal thermal sensors to be used for M2 decontamination are TH X (T339), TH Y (T341), TH Z (T342).</p>	M2 T339 THX	T25-5 A	KM257302	M2 T341 THY	T26-5 A	KM258302	M2 T342 THZ	T30-5 B	KM262303		
M2 T339 THX	T25-5 A	KM257302											
M2 T341 THY	T26-5 A	KM258302											
M2 T342 THZ	T30-5 B	KM262303											
8		Verify the decontamination parameters have been updated		Next Step: END									
		<p>Execute Procedure:</p> <p>H_LEO_SYS_DECS            Decontamination Heating Status Report</p>											

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<p><i>TC Seq. Name : HRYDECP4 (Decont. heaterupdate)</i>            Decontamination heating mask update</p> <p><i>TimeTag Type: N</i>  <i>Sub Schedule ID:</i>  <i>Formal Parameter List :</i>            Decont - M1 heater 7 M1_htr_7=            Decont - M1 heater 6 M1_htr_6=            Decont - M1 heater 5 M1_htr_5=            Decont - M1 heater 4 M1_htr_4=            Decont - M1 heater 3 M1_htr_3=            Decont - M1 heater 2 M1_htr_2=            Decont - M1 heater 1 M1_htr_1=            Decont - M2 heater 2 M2_htr_2=            Decont - M2 heater 1 M2_htr_1=</p>																															
9		<p><i>Modify decontamination heater masks</i></p>		Next Step: 10																											
		<p>Execute Telecommand</p> <p style="text-align: center;"><b>Decont - Heater mask</b></p> <p><i>Command Parameter(s) :</i></p> <table border="0"> <tr><td>Decont - M1 heater 7</td><td>ZHB17999</td><td>M1_htr_7</td></tr> <tr><td>Decont - M1 heater 6</td><td>ZHB16999</td><td>M1_htr_6</td></tr> <tr><td>Decont - M1 heater 5</td><td>ZHB15999</td><td>M1_htr_5</td></tr> <tr><td>Decont - M1 heater 4</td><td>ZHB14999</td><td>M1_htr_4</td></tr> <tr><td>Decont - M1 heater 3</td><td>ZHB13999</td><td>M1_htr_3</td></tr> <tr><td>Decont - M1 heater 2</td><td>ZHB12999</td><td>M1_htr_2</td></tr> <tr><td>Decont - M1 heater 1</td><td>ZHB11999</td><td>M1_htr_1</td></tr> <tr><td>Decont - M2 heater 2</td><td>ZHB22999</td><td>M2_htr_2</td></tr> <tr><td>Decont - M2 heater 1</td><td>ZHB21999</td><td>M2_htr_1</td></tr> </table> <p><i>TC Control Flags :</i></p> <p style="text-align: center;">GBM IL DSE --Y -- ---</p> <p><i>Subsch. ID : 10</i>  <i>Det. descr. : TC(8,4,113,1) to update the M1 and M2 active heaters</i></p>	Decont - M1 heater 7	ZHB17999	M1_htr_7	Decont - M1 heater 6	ZHB16999	M1_htr_6	Decont - M1 heater 5	ZHB15999	M1_htr_5	Decont - M1 heater 4	ZHB14999	M1_htr_4	Decont - M1 heater 3	ZHB13999	M1_htr_3	Decont - M1 heater 2	ZHB12999	M1_htr_2	Decont - M1 heater 1	ZHB11999	M1_htr_1	Decont - M2 heater 2	ZHB22999	M2_htr_2	Decont - M2 heater 1	ZHB21999	M2_htr_1	ZCB03999	
Decont - M1 heater 7	ZHB17999	M1_htr_7																													
Decont - M1 heater 6	ZHB16999	M1_htr_6																													
Decont - M1 heater 5	ZHB15999	M1_htr_5																													
Decont - M1 heater 4	ZHB14999	M1_htr_4																													
Decont - M1 heater 3	ZHB13999	M1_htr_3																													
Decont - M1 heater 2	ZHB12999	M1_htr_2																													
Decont - M1 heater 1	ZHB11999	M1_htr_1																													
Decont - M2 heater 2	ZHB22999	M2_htr_2																													
Decont - M2 heater 1	ZHB21999	M2_htr_1																													
		<p><b>Telescope heating lines , HPsXHCSx and heater correspondence is the following:</b></p> <p><b>M2 heater line 1 HPS01HCS1 (M2 heater 1)</b>  <b>M2 heater line 2 HPS10HCS1 (M2 heater 2)</b>  <b>M1 heater line 3 HPS02HCS1 (M1 heater 1)</b>  <b>M1 heater line 4 HPS17HCS1 (M1 heater 2)</b>  <b>M1 heater line 5 HPS04HCS1 (M1 heater 3)</b>  <b>M1 heater line 6 HPS15HCS1 (M1 heater 4)</b>  <b>M1 heater line 7 HPS06HCS1 (M1 heater 5)</b>  <b>M1 heater line 8 HPS09HCS1 (M1 heater 6)</b>  <b>M1 heater line 9 HPS18HCS1 (M1 heater 7)</b></p>																													
10		<p><i>Verify the decontamination parameters have been updated</i></p>		Next Step: END																											



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Procedure: H_LEO_SYS_DECS Decontamination Heating Status Report		
<b>End of Procedure</b>				