

PACS\_Switch\_Off\_Nominal  
 File: H\_FCP\_PAC\_NSOF.xls  
 Author: R. Biggins



## Procedure Summary

### Objectives

The objective of this procedure is to switch off the nominal PACS units

- Transition to SAFE mode
- Set BOL detector bias values
- Set BOLC temperature probes
- Disable EAT actions
- Switch OFF SPU, DMC and BOLC
- Disable RT interrogations
- Switch OFF DPU
- Enable EAT actions
- Update UIU table

Based on procedure:  
 PACS\_Switch\_Off\_Nominal\_28\_07\_2007\_01

### Summary of Constraints

This procedure should be executed on PACS request only

### Spacecraft Configuration

#### Start of Procedure

PACS is in any mode

#### End of Procedure

- PACS is powered OFF
- All PACS units powered off
  - UIU table shows PACS units OFF

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

HFPNSOF

### Referenced Displays

**ANDs**      **GRDs**      **SLDs**  
 ZAZ97999  
 ZAZ90000

### Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
20/09/2007		1	Created	R. Biggins	
22/11/2007		1.01	Validation : Time tags added to SVM commands	R. Biggins	
18/01/2008		2	Update due to initial testing against the simulator: - TCs updated due to new DB - Execution times removed	R. Biggins	

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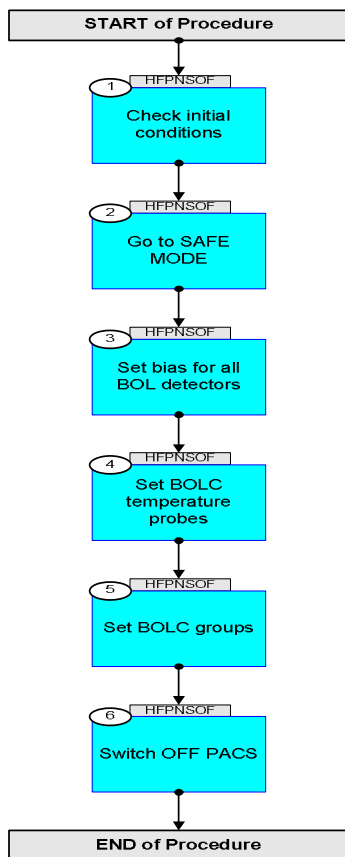


			Updates due to SVT-1 testing: <input type="checkbox"/> <input type="checkbox"/> - TC to disable/enable FDIR removed <input type="checkbox"/> <input type="checkbox"/> - TCs added to disable/enable OBCPs <input type="checkbox"/> <input type="checkbox"/> - TC to disable RT interrogations moved directly before DPU switch off <input type="checkbox"/> <input type="checkbox"/> - Comments added/updated <input type="checkbox"/> <input type="checkbox"/> - Flags updated <input type="checkbox"/> <input type="checkbox"/> - AND updated for all TM parameters		
27/05/2008	1	3		R. Biggins	
23/10/2008		4	Updates due to new procedures from industry <input type="checkbox"/> - TC DC005161 database definition updated <input type="checkbox"/> - New step added to update UIU table	R. Biggins	
10/12/2008	2	5	Updates due to testing <input type="checkbox"/> - TC DCT85170 corrected to DCT84170 in step 6.5	R. Biggins	
12/03/2009	2.2	6	Final updates before flight <input type="checkbox"/> - Summary updated <input type="checkbox"/> - TC flags updated <input type="checkbox"/> - Procedure description/title updated <input type="checkbox"/> - Enable/Disable Actions TCs updated	R. Biggins	
18/08/2009		7	- TCs to disable and enable OBCPs updated <input type="checkbox"/> - TC added to verify OBCP state	R. Biggins	
22/09/2009	2.5	8	- TCs to disable and enable OBCPs updated	R. Biggins	
11/08/2011	3.1	8.01	Validation : Comment added to step 1	R. Biggins	

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## Procedure Flowchart Overview





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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.12	DMC_SEND_COMMAND_BOLC <p style="text-align: right;">DMC_SEND_COMMAND_BOLC</p> Command Parameter(s) : BOLOMETER_COMMAND                  PP071420 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  20000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC <p style="text-align: right;">DMC_SEND_COMMAND_BOLC</p> Command Parameter(s) : BOLOMETER_COMMAND                  PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  50000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC <p style="text-align: right;">DMC_SEND_COMMAND_BOLC</p> Command Parameter(s) : BOLOMETER_COMMAND                  PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  10000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC <p style="text-align: right;">DMC_SEND_COMMAND_BOLC</p> Command Parameter(s) : BOLOMETER_COMMAND                  PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  30000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC <p style="text-align: right;">DMC_SEND_COMMAND_BOLC</p> Command Parameter(s) : BOLOMETER_COMMAND                  PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  40000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC <p style="text-align: right;">DMC_SEND_COMMAND_BOLC</p> Command Parameter(s) : BOLOMETER_COMMAND                  PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  60000 <hex>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC DMC_SEND_COMMAND_BOLC Command Parameter(s) : BOLOMETER_COMMAND PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420 80000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC DMC_SEND_COMMAND_BOLC Command Parameter(s) : BOLOMETER_COMMAND PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420 70000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC DMC_SEND_COMMAND_BOLC Command Parameter(s) : BOLOMETER_COMMAND PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420 100000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC DMC_SEND_COMMAND_BOLC Command Parameter(s) : BOLOMETER_COMMAND PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420 f0000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC DMC_SEND_COMMAND_BOLC Command Parameter(s) : BOLOMETER_COMMAND PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420 90000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC DMC_SEND_COMMAND_BOLC Command Parameter(s) : BOLOMETER_COMMAND PP071420 Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420 a0000 <hex>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  b0000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  c0000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  d0000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  e0000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  120000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  140000 <hex>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420   130000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420   110000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420   150000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420   160000 <hex>	
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420   170000 <hex>	
4		Set BOLC temperature probes		Next Step: 5
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420   7000000 <hex>	
5		Set BOLC groups		Next Step: 6



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_SEND_COMMAND_BOLC  DMC_SEND_COMMAND_BOLC  Command Parameter(s) : BOLOMETER_COMMAND                  PP071420  Subsch. ID : 90 Det. descr. : SEND COMMAND TO BOL CONTROLLER	PC103420  a000000 <hex>	
6		Switch OFF PACS		Next Step: END
6.1		Disable OBCPs		<input type="checkbox"/>
	ET=+ UT=+00.00.00	Execute Telecommand  DisableActions  Command Parameter(s) : N_Repetition                  DH041170          7 <dec> APID_for_EAT_TC              DH236170          PACS_Prime EventId                      DH146170          4 <hex> APID_for_EAT_TC              DH236170          PACS_Prime EventId                      DH146170          6 <hex> APID_for_EAT_TC              DH236170          PACS_Prime EventId                      DH146170          D <hex> APID_for_EAT_TC              DH236170          PACS_Prime EventId                      DH146170          19 <hex> APID_for_EAT_TC              DH236170          CDMS (Def) EventId                      DH146170          99 <hex>	DCT85170	
		APID_for_EAT_TC              DH236170          CDMS (Def) EventId                      DH146170          AC <hex> APID_for_EAT_TC              DH236170          CDMS (Def) EventId                      DH146170          BA <hex>  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)		
	ET=+ UT=+00.00.05	Execute Telecommand  ReptEvtActTable  Subsch. ID : 10 Det. descr. : TEMPLATE Report The contents of the event/action table TC(19,6)	DCT86170	
		View the OEAD to ensure that the correct OBCPs have been disabled		
6.2		Switch off LCLs		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Sending this TC will generate the following <b>TM(5,1)</b> packets:            EVENT_REPORT_2_18 - HK DPU SOFT            EVENT_REPORT_8_15 - COUNTER Error            EVENT_REPORT_3_31 - 1355 Timeout</p> <p>The following <b>TM(5,2)</b> packets are also expected:            EXCEPTION_REPORT_0_25 - PACS NOMINAL OFF</p>		
	ET=+ UT=+00.00.00	<p>Switch off SPU LCL  <b>SwOff_PacsS_N_L35</b></p> <p><i>TC Control Flags :</i>            GBM IL DSE            --Y -- ---</p> <p><i>Subsch. ID : 10</i>            Det. descr. : PCDU: TC(8,4,112,3) PACS SPU Nom -            switch LCL_35 off</p>	DC35B170	
		<p>Verify: SPU LCL status  <b>PacsS_N_L35_S</b>                      <b>WM52A565</b></p>	= OFF	AND=ZAZ97999
		<p>Sending this TC will generate the following <b>TM(5,1)</b> packets:            EVENT_REPORT_2_18 - HK DPU SOFT            EVENT_REPORT_8_15 - COUNTER Error            EVENT_REPORT_3_7 - SS Stopped</p> <p>The following <b>TM(5,2)</b> packets are also expected:            EXCEPTION_REPORT_0_25 - PACS NOMINAL OFF</p>		
	ET=+ UT=+00.00.00	<p>Switctch off BOLC LCL  <b>SwOff_PacsB_N_L27</b></p> <p><i>TC Control Flags :</i>            GBM IL DSE            --Y -- ---</p> <p><i>Subsch. ID : 10</i>            Det. descr. : PCDU: TC(8,4,112,3) PACS BOLC Nom-switch            LCL_27 off</p>	DC27B170	
		<p>Verify: BOLC LCL status  <b>PacsB_N_L27_1S</b>                      <b>WM82D565</b></p>	= OFF	AND=ZAZ97999
	ET=+ UT=+00.00.00	<p>Switch off DECMEC LCL  <b>SwOff_PacsDecMec1_L65</b></p> <p><i>TC Control Flags :</i>            GBM IL DSE            --Y -- ---</p> <p><i>Subsch. ID : 10</i>            Det. descr. : PCDU: TC(8,4,112,3) PACS DEC/MEC1 -            switch LCL_65 off</p>	DC65B170	
		<p>Verify: Dec/Mec1 LCL status  <b>PacsMec1_L65_1S</b>                      <b>WM52E565</b></p>	= OFF	AND=ZAZ97999
6.3		Stop the instrument RT interrogation		□



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	Switch off DPU LCL  SwOff_PacsD_N_L41  TC Control Flags :  Subsch. ID : 10 Det. descr. : PCDU: TC(8,4,112,3) PACS DPU Nom - switch LCL_41 off  GBM IL DSE --Y -- ---	DC41B170	
		Verify: DPU LCL status  PacsD_N_L41_S                      WM72B565	= OFF	AND=ZAZ97999
6.5		Enable OBCPs		<input type="checkbox"/>
	ET=+ UT=+00.00.00	Execute Telecommand  EnableActions  Command Parameter(s) : N_Repetition                      DH041170 APID_for_EAT_TC                  DH236170 EventId                            DH146170 APID_for_EAT_TC                  DH236170 EventId                            DH146170 APID_for_EAT_TC                  DH236170 EventId                            DH146170 APID_for_EAT_TC                  DH236170 EventId                            DH146170 APID_for_EAT_TC                  DH236170 EventId                            DH146170	DCT84170	
		APID_for_EAT_TC                  DH236170 EventId                            DH146170 APID_for_EAT_TC                  DH236170 EventId                            DH146170  TC Control Flags :  Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)  GBM IL DSE --Y -- ---	CDMS (Def) AC <hex> CDMS (Def) BA <hex>	
	ET=+ UT=+00.00.05	Execute Telecommand  ReptEvtActTable  Subsch. ID : 10 Det. descr. : TEMPLATE Report The contents of the event/action table TC(19,6)	DCT86170	
		View the OEAD to ensure that the correct OBCPs have been enabled		
6.6		Update UIU table		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	Execute Telecommand <b>H_FdirMarkUnitOff_Templ</b>  Command Parameter(s) : <b>H_ConfStsUnitId</b> <b>DHZ00170</b>  Subsch. ID : 10 Det. descr. : TEMPLATE FDIR: Mark Unit OFF, TC(8,4,116,25), Herschel Version	<b>DC91H159</b>  <b>PacsBolc</b>	
	ET=+ UT=+00.00.01	Execute Telecommand <b>H_FdirMarkUnitOff_Templ</b>  Command Parameter(s) : <b>H_ConfStsUnitId</b> <b>DHZ00170</b>  Subsch. ID : 10 Det. descr. : TEMPLATE FDIR: Mark Unit OFF, TC(8,4,116,25), Herschel Version	<b>DC91H159</b>  <b>PacsDec</b>	
	ET=+ UT=+00.00.01	Execute Telecommand <b>H_FdirMarkUnitOff_Templ</b>  Command Parameter(s) : <b>H_ConfStsUnitId</b> <b>DHZ00170</b>  Subsch. ID : 10 Det. descr. : TEMPLATE FDIR: Mark Unit OFF, TC(8,4,116,25), Herschel Version	<b>DC91H159</b>  <b>PacsDpu</b>	
		Verify Telemetry <b>PacsBolc1FuncSt</b> <b>DEL54171</b>	<b>= Off</b>	AND=ZAZA0999
		Verify Telemetry <b>PacsDec1FuncSts</b> <b>DEL44171</b>	<b>= Off</b>	AND=ZAZA0999
		Verify Telemetry <b>PacsDpuFuncSts</b> <b>DEL50171</b>	<b>= Off</b>	AND=ZAZA0999
<b>End of Procedure</b>				