

Disable strap 2 / 3 alarms (PAP6) and check of strap 1 alarm.  
File: H\_FCP\_DHS\_4009.xls  
Author: S. Manganelli



## Procedure Summary

### Objectives

This procedure describes the steps needed to disable the following alarms (related to PAP 6):

- separation strap 2 alarm (straps 5b and 3a) on RM A
- separation strap 3 alarm (straps 6b and 4a) on RM B.

This is to avoid triggering again the CCS 5 after a possible change of the RM Programming Set.

Additionally, separation strap 1 alarm is checked and, if 0 on both RM A and RM B, the procedure directs to invert the polarity of this alarm on both RMs. If this is not done, in case of a level 3 or of a DoD the RMs would not be able to correctly match the intended PAP.

### Summary of Constraints

Ground has to disable the 2 alarms triggering PAP6 after the separation.

In fact if the RM Programming Set is changed using either "PM B nominal, PM A redundant" or "PM A nominal, PM B redundant", the Last Chance Table Mask Register will be cleared and this will reenables the PAP 6 for its single attempt, so the separation sequence would be triggered again.

The alarms are disabled through the "TTR Management" function (by default "Stopped").

When the function is stopped, it does not accept any other telecommands than the Start Function TC(8,1,109) and Report Function Status TC(8,5,109), thus the function has to be "Running".

### Spacecraft Configuration

#### Start of Procedure

RM A and RM B enabled; all used alarms enabled.

#### End of Procedure

RM A and RM B enabled. Separation strap 2 and 3 alarms disabled. Possibly, inverted polarity of strap 1 alarm.

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

HFD4009X  
HFD4009

### Referenced Displays

ANDs	GRDs	SLDs
ZAZAI999		(None)
ZAZ7R999		
ZAZAA999		

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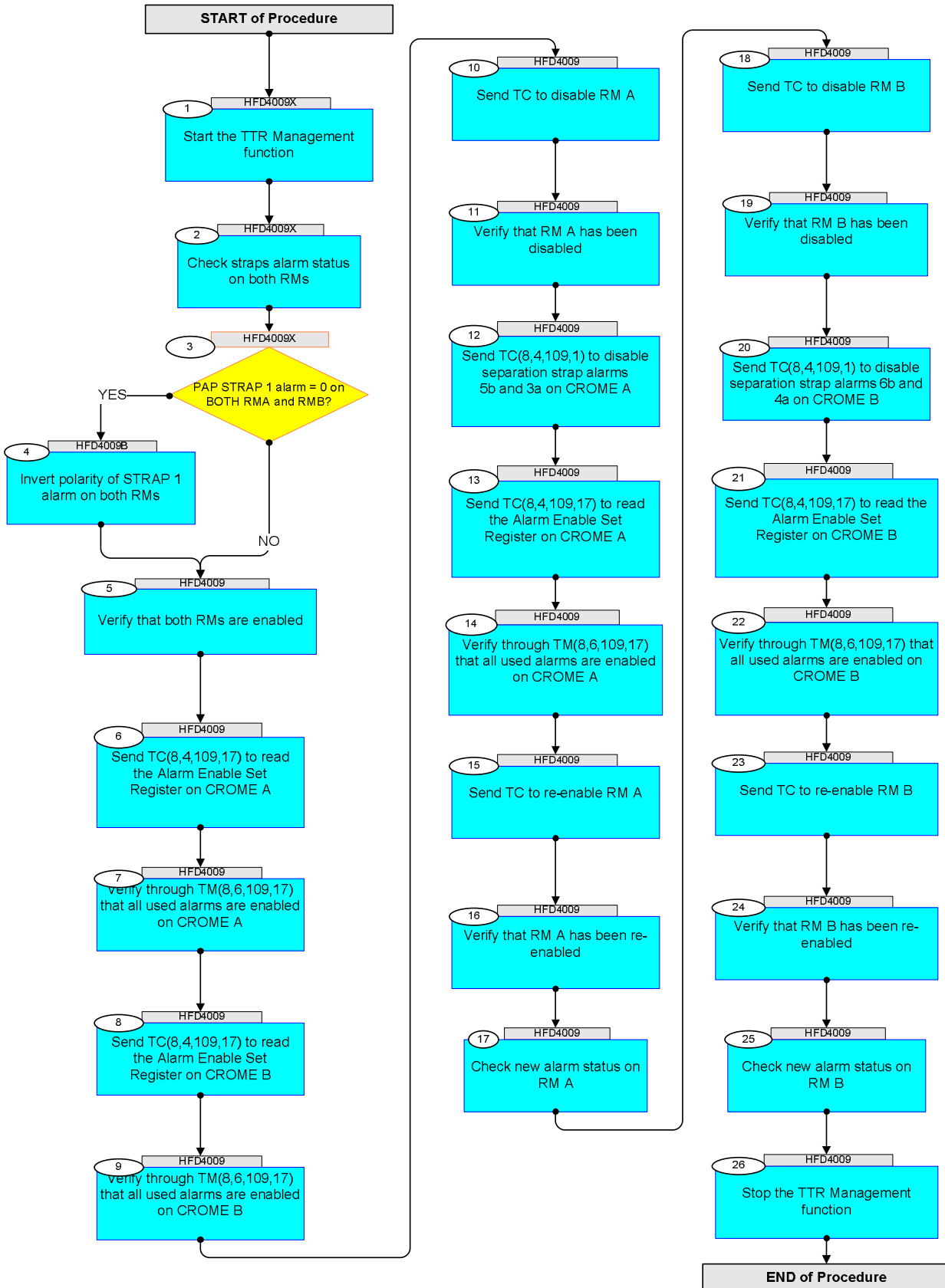
**Configuration Control Information**

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
13/03/09	2.2	1	Created	cmevi-hp	
19/04/09		2	Inserted steps to check the alarm statuses and call alarm maintenance procedure.	S. Manganelli	
20/04/09	2.3	3	After validation : improved alarm descriptions, TM checks, final alarm status checks	S. Manganelli	

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### Procedure Flowchart Overview




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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
<b>Beginning of Procedure</b>					
HFD4009X TC Seq. Name :HFD4009X ( StartTTR_chkAlarm ) TimeTag Type: Sub Schedule ID: □					
1		Start the TTR Management function		Next Step: 2	
		Verify Telemetry <b>TtrSts</b> <b>DEL17170</b>	<b>= Stopped</b>	AND=ZAZAI999	
		If the TTR Management function is already running, skip this TC.			
		Execute Telecommand <b>StartTtrManag</b>  TC Control Flags : <b>GBM IL DSE</b> <b>--Y -- ---</b> Subsch. ID : 10 Det. descr. : Start Ttr Management TC(8,1,109)	<b>DCN06170</b>	<b>TC</b>	
		Verify Telemetry <b>TtrSts</b> <b>DEL17170</b>	<b>= Running</b>	AND=ZAZAI999	
2		Check straps alarm status on both RMs		Next Step: 3	
		TM can be verified on AND ZAZ7R999  The correspondence between the <b>alarm signal names</b> provided in the CDMS <b>PAP</b> documentation and the corresponding TM parameter description is shown below.			
		Execute Telecommand <b>ReadAlarmSts</b>  Command Parameter(s) : <b>RmId</b> <b>DH093170</b> <b>RM_A</b> (Def)  TC Control Flags : <b>GBM IL DSE</b> <b>--Y -- ---</b> Subsch. ID : 10 Det. descr. : TEMPLATE Read Alarm Status TC(8,4,109,8)	<b>DCT62170</b>	<b>TC</b>	
		Verify Packet Telemetry <b>ExtAlarm3Ss5a6a</b> <b>DE348170</b>		AND=ZAZ7R999	
		ExtAlarm3Ss5a6a = STRAP 1 alarm signal in PAP			
		Verify Packet Telemetry <b>ExtAlarm4Ss5b6b</b> <b>DE349170</b>		(None)	
		ExtAlarm4Ss5b6b = STRAP 2 alarm signal in PAP			
		Verify Packet Telemetry <b>ExtAlarm5Ss3a4a</b> <b>DE350170</b>		(None)	
		ExtAlarm5Ss3a4a = STRAP 3 alarm signal in PAP			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <b>ReadAlarmSts</b>  Command Parameter(s) : <b>RmId</b> <b>DH093170</b>  TC Control Flags : <b>GBM IL DSE</b> <b>--Y -- ---</b>  Subsch. ID : 10 Det. descr. : TEMPLATE Read Alarm Status TC(8,4,109,8)	<b>DCT62170</b>	TC	
		Verify Packet Telemetry <b>ExtAlarm3Ss5a6a</b> <b>DE348170</b>		AND=ZAZ7R999	
		ExtAlarm3Ss5a6a = STRAP 1 alarm signal in PAP			
		Verify Packet Telemetry <b>ExtAlarm4Ss5b6b</b> <b>DE349170</b>		(None)	
		ExtAlarm4Ss5b6b = STRAP 2 alarm signal in PAP			
		Verify Packet Telemetry <b>ExtAlarm5Ss3a4a</b> <b>DE350170</b>		(None)	
		ExtAlarm5Ss3a4a = STRAP 3 alarm signal in PAP			
3		PAP STRAP 1 alarm = 0 on BOTH RMA and RMB?  type: [If]		Next Step: YES 4 NO 5	
End of Sequence					
HFD4009B TC Seq. Name :HFD4009B ( Dummy )  TimeTag Type: Sub Schedule ID:  <input type="checkbox"/>					
4		Invert polarity of STRAP 1 alarm on both RMs		Next Step: 5	
		<b>If separation strap 1 alarm signal is 0 on both RMs, invert strap 1 alarm polarity on both RMs by H_CRP_DHS_3018 to allow proper pattern matching by RM in case of a CDMS level 3 or DoD.</b>  If separation strap 1 alarm signal is 0 on one RM only, leave as is for the moment. The protection is provided by the other RM, polarity inversion is not urgent.			
End of Sequence					
HFD4009 TC Seq. Name :HFD4009 ( Disable PAP6 )  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>					


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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5		Verify that both RMs are enabled		Next Step: 6	
		Verify Telemetry RMA_fromTTR-RMA DEEXG160 = ENABLED		AND=ZAZAA999	
		Verify Telemetry RMA_fromTTR-RMB DEEXH160 = ENABLED		AND=ZAZAA999	
		Verify Telemetry RMB_fromTTR-RMA DEEXJ160 = ENABLED		AND=ZAZAA999	
		Verify Telemetry RMB_fromTTR-RMB DEEXK160 = ENABLED		AND=ZAZAA999	
6		Send TC(8,4,109,17) to read the Alarm Enable Set Register on CROME A		Next Step: 7	
		Execute Telecommand CRMA_RMH_AlarmEnSetReg  TC Control Flags : GBM IL DSE --Y --  Subsch. ID : 10 Det. descr. : CROME A: Read RMH Alarm Enable Set Register	DCW1A159	TC	
7		Verify through TM(8,6,109,17) that all used alarms are enabled on CROME A		Next Step: 8	
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Mnemonic : CromeRegRpt APID : 16 Type : 8 Subtype : 6 PI1 : 27921 PI2 : 0			
		DE008170 Function_ID	TTR_Manag	(None) PKT=CromeRegRpt	
		DE368170 TtrManRptActId	CromeRegRpt	(None) PKT=CromeRegRpt	
		DE285170 CromeId	Crome_A	(None) PKT=CromeRegRpt	
		DE329170 CromeAddr	70058D4 <hex>	AND=ZAZ7R999 PKT=CromeRegRpt	
		DE367170 CromeData	23FE3F <hex>	AND=ZAZ7R999 PKT=CromeRegRpt	
8		Send TC(8,4,109,17) to read the Alarm Enable Set Register on CROME B		Next Step: 9	




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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
12		Send TC(8,4,109,1) to disable separation strap alarms 5b and 3a on CROME A		Next Step: 13	
		Execute Telecommand  <b>EnblDisblAlarms</b>  Command Parameter(s) : RmId                  DH093170    RM_A (Def) WatchdogTogg         DH104170    Enable ExtAlarm1DoD1         DH105170    Enable ExtAlarm2DoD2         DH106170    Enable ExtAlarm3Ss5a6a       DH107170    Enable ExtAlarm4Ss5b6b       DH108170    Disable (Def) ExtAlarm5Ss3a4a       DH109170    Disable (Def) ExtAlarm6              DH110170    Disable (Def) ExtAlarm7              DH111170    Disable (Def) ExtAlarm8              DH112170    Disable (Def) PMASysErr              DH113170    Enable  PMAAlarmAll           DH114170    Enable PMAUnderVolt           DH115170    Enable PMASWAlarm             DH116170    Enable PMBSysErr              DH117170    Enable PMBAlarmAll           DH118170    Enable PMBUnderVolt           DH119170    Enable PMBSWAlarm             DH120170    Enable SelectPM               DH121170    Enable NotUsed1               DH122170    0 <dec> (Def) NotUsed2               DH123170    0 <dec> (Def) NotUsed3               DH124170    0 <dec> (Def) WatchdogEnable         DH125170    Enable  TC Control Flags : GBM IL DSE  --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Enable / Disable Alarms TC(8,4,109,1)	DCT55170	TC	
13		Send TC(8,4,109,17) to read the Alarm Enable Set Register on CROME A		Next Step: 14	
		Execute Telecommand  <b>CRMA_RMH_AlarmEnSetReg</b>  TC Control Flags : GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : CROME A: Read RMH Alarm Enable Set Register	DCW1A159	TC	
14		Verify through TM(8,6,109,17) that all used alarms are enabled on CROME A		Next Step: 15	




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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Reception  TM 8-6-109-17 TTR Management - Crome Register Report Packet Mnemonic : CromeRegRpt APID : 16 Type : 8 Subtype : 6 PI1 : 27921 PI2 : 0			
		DE008170 Function_ID	TTR_Manag	(None) PKT=CromeRegRpt	
		DE368170 TtrManRptActId	CromeRegRpt	(None) PKT=CromeRegRpt	
		DE285170 CromeId	Crome_A	(None) PKT=CromeRegRpt	
		DE329170 CromeAddr	70058D4 <hex>	AND=ZAZ7R999 PKT=CromeRegRpt	
		DE367170 CromeData	23FE0F <hex>	AND=ZAZ7R999 PKT=CromeRegRpt	
15		Send TC to re-enable RM A		Next Step: 16	
		Execute Telecommand  TC Control Flags :  Subsch. ID : 10 Det. descr. : RM A enable - High Priority Standard	RM_A_enable  GBM IL DSE --Y -- ---	DCA14170	TC
16		Verify that RM A has been re-enabled		Next Step: 17	
		Verify Telemetry RMA_fromTTR-RMA	DEEXG160 = ENABLED	AND=ZAZAA999	
		Verify Telemetry RMA_fromTTR-RMB	DEEXH160 = ENABLED	AND=ZAZAA999	
17		Check new alarm status on RM A		Next Step: 18	
		The correspondence between the <a href="#">alarm signal names</a> provided in the CDMS PAP documentation and the corresponding TM parameter description is shown below.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: right;"><b>ReadAlarmSts</b></p> <i>Command Parameter(s) :</i> <p style="text-align: right;"><b>RmId                    DH093170</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>  <b>--Y -- ---</b></p> <i>Subsch. ID : 10</i> <i>Det. descr. : TEMPLATE Read Alarm Status TC(8,4,109,8)</i>	<b>DCT62170</b>	TC	
		Verify Packet Telemetry <p style="text-align: right;"><b>ExtAlarm3Ss5a6a                    DE348170</b></p>		AND=ZAZ7R999	
		ExtAlarm3Ss5a6a = STRAP 1 alarm signal in PAP			
		Verify Packet Telemetry <p style="text-align: right;"><b>ExtAlarm4Ss5b6b                    DE349170</b></p>		(None)	
		ExtAlarm4Ss5b6b = STRAP 2 alarm signal in PAP			
		Verify Packet Telemetry <p style="text-align: right;"><b>ExtAlarm5Ss3a4a                    DE350170</b></p>		(None)	
		ExtAlarm5Ss3a4a = STRAP 3 alarm signal in PAP			
18		Send TC to disable RM B		Next Step: 19	
		Execute Telecommand <p style="text-align: right;"><b>RM_B_Disable</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>  <b>--Y -- ---</b></p> <i>Subsch. ID : 10</i> <i>Det. descr. : RM B Disable - High Priority Standard</i>	<b>DCA12170</b>	TC	
19		Verify that RM B has been disabled		Next Step: 20	
		Verify Telemetry <p style="text-align: right;"><b>RMB_fromTTR-RMA                    DEEXJ160</b></p>	<b>= DISABLED</b>	(None)	
		Verify Telemetry <p style="text-align: right;"><b>RMB_fromTTR-RMB                    DEEXK160</b></p>	<b>= DISABLED</b>	AND=ZAZAA999	
20		Send TC(8,4,109,1) to disable separation strap alarms 6b and 4a on CROME B		Next Step: 21	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <b>EnblDisblAlarms</b> Command Parameter(s) : RmId                  DH093170    RM_B WatchdogTogg          DH104170    Enable ExtAlarm1DoD1          DH105170    Enable ExtAlarm2DoD2          DH106170    Enable ExtAlarm3Ss5a6a        DH107170    Enable ExtAlarm4Ss5b6b        DH108170    Disable (Def) ExtAlarm5Ss3a4a        DH109170    Disable (Def) ExtAlarm6              DH110170    Disable (Def) ExtAlarm7              DH111170    Disable (Def) ExtAlarm8              DH112170    Disable (Def) PMASysErr              DH113170    Enable  PMAAlarmAll            DH114170    Enable PMAUnderVolt            DH115170    Enable PMASWAlarm              DH116170    Enable PMBSysErr              DH117170    Enable PMBAlarmAll            DH118170    Enable PMBUnderVolt            DH119170    Enable PMBSWAlarm              DH120170    Enable SelectPM                DH121170    Enable NotUsed1                DH122170    0 <dec> (Def) NotUsed2                DH123170    0 <dec> (Def) NotUsed3                DH124170    0 <dec> (Def) WatchdogEnable          DH125170    Enable  TC Control Flags : GBM IL DSE  --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Enable / Disable Alarms TC(8,4,109,1)	DCT55170	TC	
21		Send TC(8,4,109,17) to read the Alarm Enable Set Register on CROME B		Next Step: 22	
		Execute Telecommand <b>CRMB_RMH_AlarmEnSetReg</b> TC Control Flags : GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : CROME B: Read RMH Alarm Enable Set Register	DCW38159	TC	
22		Verify through TM(8,6,109,17) that all used alarms are enabled on CROME B		Next Step: 23	
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Mnemonic : CromeRegRpt APID : 16 Type : 8 Subtype : 6 PI1 : 27921 PI2 : 0			
		DE008170                  Function_ID	TTR_Manag	(None) PKT=CromeRegRpt	
		DE368170                  TtrManRptActId	CromeRegRpt	(None) PKT=CromeRegRpt	

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		DE285170 CromeId	Crome_B	(None) PKT=CromeRegRpt	
		DE329170 CromeAddr	70058D4 <hex>	AND=ZAZ7R999 PKT=CromeRegRpt	
		DE367170 CromeData	23FE0F <hex>	AND=ZAZ7R999 PKT=CromeRegRpt	
23		Send TC to re-enable RM B		Next Step: 24	
		Execute Telecommand RM_B_enable TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : RM B enable - High Priority Standard	DCA15170	TC	
24		Verify that RM B has been re-enabled		Next Step: 25	
		Verify Telemetry RMB_fromTTR-RMA DEEXJ160 = ENABLED		AND=ZAZAA999	
		Verify Telemetry RMB_fromTTR-RMB DEEXK160 = ENABLED		AND=ZAZAA999	
25		Check new alarm status on RM B		Next Step: 26	
		The correspondence between the <a href="#">alarm signal names</a> provided in the CDMS PAP documentation and the corresponding TM parameter description is shown below.			
		Execute Telecommand ReadAlarmSts Command Parameter(s) : RmId DH093170 RM_B TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Read Alarm Status TC(8,4,109,8)	DCT62170	TC	
		Verify Packet Telemetry ExtAlarm3Ss5a6a DE348170		AND=ZAZ7R999	
		ExtAlarm3Ss5a6a = STRAP 1 alarm signal in PAP			
		Verify Packet Telemetry ExtAlarm4Ss5b6b DE349170		(None)	
		ExtAlarm4Ss5b6b = STRAP 2 alarm signal in PAP			
		Verify Packet Telemetry ExtAlarm5Ss3a4a DE350170		(None)	

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		ExtAlarm5Ss3a4a = STRAP 3 alarm signal in PAP			
26		Stop the TTR Management function		Next Step: END	
		Verify Telemetry  TtrSts DEL17170	= Running	AND=ZAZAI999	
		Execute Telecommand  TC Control Flags : Subsch. ID : 10 Det. descr. : Stop Ttr Management TC(8,2,109)  StopTtrManag  GBM IL DSE --Y -- ---	DCN07170	TC	
		Verify Telemetry  TtrSts DEL17170	= Stopped	AND=ZAZAI999	
End of Sequence					
<b>End of Procedure</b>					