

Check Separation  
 File: H\_LEO\_SYS\_CSEP.xls  
 Author: F. Keck



## Procedure Summary

### Objectives

Checking if Separation was automatically detected by  
 - CDMU Software (Mode transition to SAM)  
 - CDMU Reconfiguration Module (PAP6)  
 - ACMS Software (Mode transition to SAM)  
 - ACMS Reconfiguration Module  
 Forcing Separation if necessary.

### Summary of Constraints

In case of no TM at expected first AOS, this procedure follows the standard No-TM-Recovery.

### Spacecraft Configuration

#### Start of Procedure

First AOS.  
 TM available (as expected or after No-TM-Recovery)

#### End of Procedure

Nominal Separation confirmed or Separation forced

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

HLYCSEP

### Referenced Displays

<b>ANDs</b>	<b>GRDs</b>	<b>SLDs</b>
ZAZB7999		MIMIC:LCL_H MIMIC:OVER_H

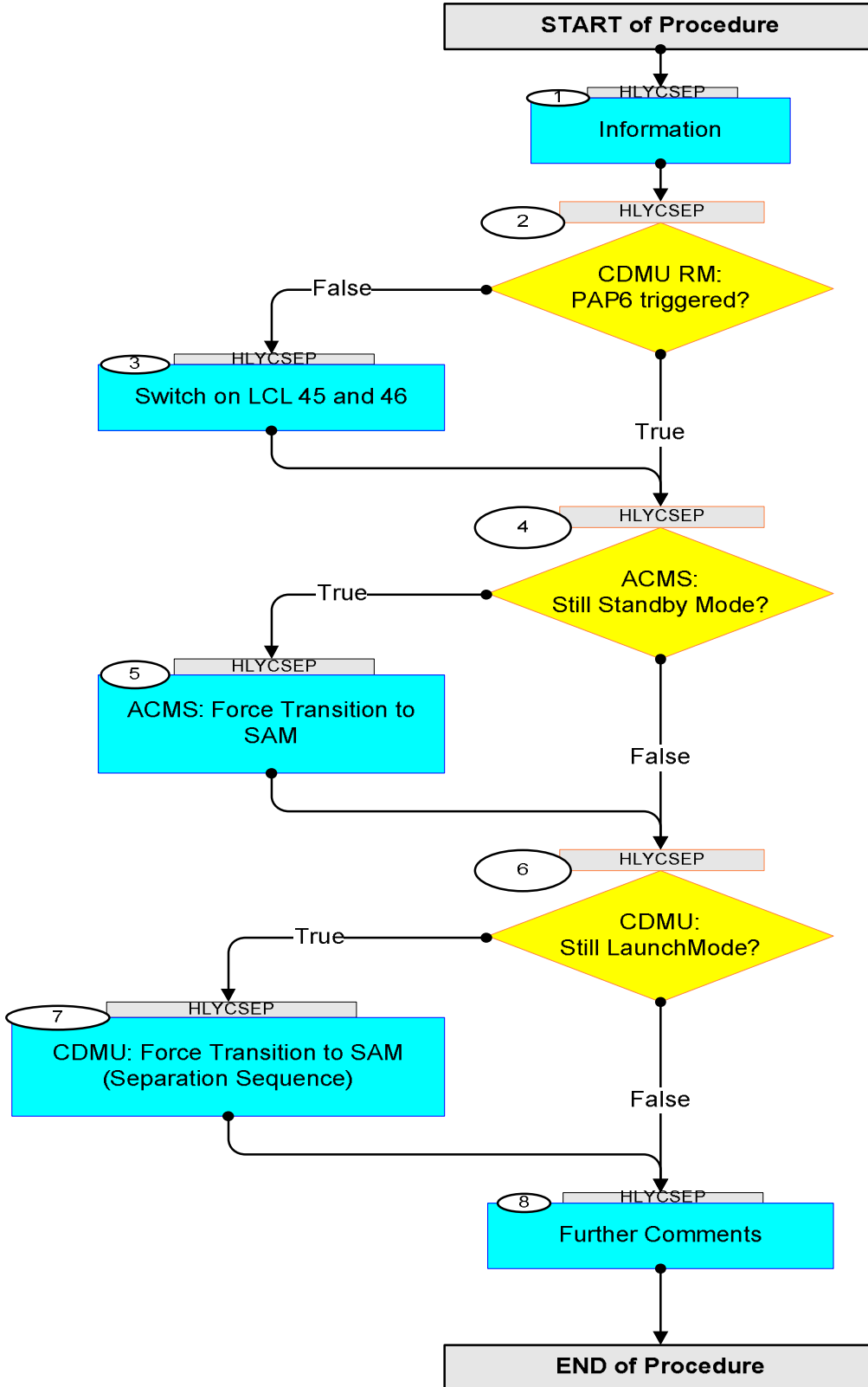
### Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
16/04/09		1	Created	F. Keck	
20/04/09		2	Changing priorities in the flow of activities	F. Keck	
21/04/09	2.3	3	Adding TM parameters for straps 1, 2, 3b and 4b	F. Keck	

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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 : HLYCSEP (Check Separation) Check Separation  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>				
1		Information		Next Step: 2
		<b>Overview about the Separation Straps</b>  <u>Status available in normal TM:</u> CDMU SW: Separation Straps 1 or 2 ACMS SW: Separation Straps 3b or 4b  <u>Status available by dumping RM alarm inputs:</u> CDMU RM-A: Alarm Input Straps 1/2/3 = Separation Straps 5a/5b/3a CDMU RM-B: Alarm Input Straps 1/2/3 = Separation Straps 6a/6b/4a ACMS RM-A: Alarm Input Straps 1/2 = Separation Straps 7a/7b ACMS RM-B: Alarm Input Straps 1/2 = Separation Straps 8a/8b		
2		CDMU RM: PAP6 triggered?		Next Step: False 3 True 4
		No TM at expected first AOS is a good hint for a failed PAP6 if TM was regained by simply switching on TX and TWTA (part of No-TM-Recovery H_CRP_SYS_NOTM).  Verify the status of LCL 45 and 46:		
		Verify Telemetry <b>RcsThrsA_L45_1S</b> <b>WM22D565</b> = ON		MIMIC:LCL_H
		Verify Telemetry <b>RcsThrsA_L45_2S</b> <b>WM22J565</b> = ON		MIMIC:LCL_H
		Verify Telemetry <b>RcsThrsB_L46_1S</b> <b>WM92D565</b> = ON		MIMIC:LCL_H
		Verify Telemetry <b>RcsThrsB_L46_2S</b> <b>WM92J565</b> = ON		MIMIC:LCL_H
3		Switch on LCL 45 and 46		Next Step: 4
		Without LCL 45 and 46 switched on, the ACMS cannot use the thrusters in SAM to acquire the sun.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  <b>SwOn_AccRCSthrA_L45</b>  TC Control Flags :  Subsch. ID : 10 Det. descr. : PCDU: TC(8,4,112,5) ACC RCS Thrusters A switch LCL_45 on  GBM IL DSE --Y -- ---	DC45D170	
		Verify Telemetry  <b>RcsThrsA_L45_1S</b> <b>WM22D565</b>	= ON	MIMIC:LCL_H
		Verify Telemetry  <b>RcsThrsA_L45_2S</b> <b>WM22J565</b>	= ON	MIMIC:LCL_H
		Execute Telecommand  <b>SwOn_AccRCSthrB_L46</b>  TC Control Flags :  Subsch. ID : 10 Det. descr. : PCDU: TC(8,4,112,5) ACC RCS Thrusters B switch LCL_46 on  GBM IL DSE --Y -- ---	DC46D170	
		Verify Telemetry  <b>RcsThrsB_L46_1S</b> <b>WM92D565</b>	= ON	MIMIC:LCL_H
		Verify Telemetry  <b>RcsThrsB_L46_2S</b> <b>WM92J565</b>	= ON	MIMIC:LCL_H
4		ACMS: Still Standby Mode?		Next Step: True 5 False 6
		Verify Telemetry  <b>ACMS mode</b> <b>XD009990</b>	<b>SBM</b>	MIMIC:OVER_H
		If the ACMS mode still shows SBM, it's quite likely that separation straps 3b and 4b failed to detect separation:		
		Verify Telemetry  <b>Sep strap 3B</b> <b>AMC3B021</b>	= Not Separated	AND=ZAZB7999
		Verify Telemetry  <b>Sep strap 4B</b> <b>AMC4B021</b>	= Not Separated	AND=ZAZB7999
5		ACMS: Force Transition to SAM		Next Step: 6
		Execute Procedure: <b>H_CRP_AOC_0S34</b> <b>Recovery from Separation Straps 3 and 4 (Double)</b> <b>Failure</b>		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
6		CDMU: Still LaunchMode?		Next Step: True 7 False 8
		Verify Telemetry  CurrentMode DEL34170	= LaunchMode	MIMIC:OVER_H
		If the CDMU mode still shows LaunchMode, it's quite likely that separation straps 1 and 2 failed to detect separation:		
		Verify Telemetry  Separ Strap1 ZMP13999	= Not Separated	AND=ZAZB7999
		Verify Telemetry  Separ Strap2 ZMP14999	= Not Separated	AND=ZAZB7999
7		CDMU: Force Transition to SAM (Separation Sequence)		Next Step: 8
		Execute Telecommand  ModeManArmTrans_SunAcq  TC Control Flags :  Subsch. ID : 10 Det. descr. : Mode Manag. Arm Trans. to Sun Acquisition Mode TC(8,4,110,1)  GBM IL DSE --Y -- ---	DC02G170	
		Execute Telecommand  ModeManFireTrans_SunAcq  TC Control Flags :  Subsch. ID : 10 Det. descr. : Mode Manag. Fire Trans. to Sun Acquisition Mode TC(8,4,110,2)  GBM IL DSE --Y -- ---	DC07G170	
		Wait for mode transition to complete.		
		Verify Telemetry  CurrentMode DEL34170	= SunAcquisition	MIMIC:OVER_H
8		Further Comments		Next Step: END
		Following non-urgent activities are part of the nominal LEOP Timeline and are listed here for information only.		
		<b>Continue LEOP Timeline.</b>		
8.1		Disabling PAP6 Alarms		□

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		To avoid unplanned (re)triggering of PAP6.  This solves problems with the CDMU RM alarm inputs strap 2 and 3 as well.		
		Execute Procedure: <b>H_FCP_DHS_4009</b> <b>Disable PAP6 alarms</b>		
8.2		<i>Update Survival Register (Separation Flag)</i>		<input type="checkbox"/>
		Required if the CDMU Software failed to detect Separation.		
		Execute Procedure: <b>H_FCP_DHS_1012</b> <b>Write survival register after separation</b>		
8.3		<i>Non-Urgent Separation Checks</i>		<input type="checkbox"/>
		<b>CDMU RM Alarm Inputs</b>  Check RM-A alarm input strap 1 (separation strap 5a)  Check RM-B alarm input strap 1 (separation strap 6a)  If 0, swap polarity of alarm input (H_CRP_DHS_3018)		
		<b>ACMS RM Alarm Inputs</b>  Check RM-A alarm input straps 1/2 (separation straps 7a/7b)  Check RM-B alarm input straps 1/2 (separation straps 8a/8b)  If 0, swap polarity of alarm input (H_CRP_AOC_0S78)		
<b>End of Procedure</b>				