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Doc No.   :   n/a
Fop Issue :   n/a
Issue Date: n/a

MMO Switch to Cruise Standby Mode by OBCP
File: JX-FCP-001.xls
Author: a.dietz-bc

Procedure Summary

Objectives

The objective of this OBCP is to switch MMO to the MMO cruise
standby mode (of the MMO cruise active mode) from the MMO cruise
dormant mode.

Note the MMO will be first brought to the MMO to cruise initial
mode and call OBCP "MMO Operational Heater Control Start" which
will then command the MMO in cruise standby mode.

The OBCP has an invocation parameter which defines which MMO side
shall be switched-on, CNV-A or CNV-B.

Summary of Constraints

n/a

Spacecraft Configuration

Start of Procedure

MMO in Cruise Dormant Mode

End of Procedure

MMO in Cruise Standby Mode

Reference File(s)

Input Command Sequences

Output Command Sequences

AJXF001A
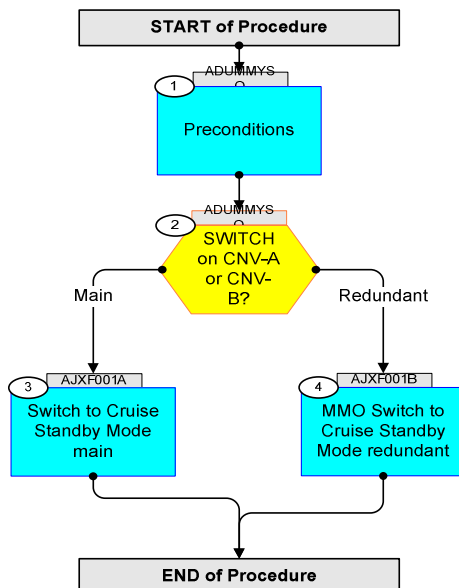AJXF001B

Referenced Displays

ANDs	GRDs	SLDs
DJXA0001		(None)

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
20/02/2017		1	Created	a.dietz-bc	
03/04/2017		2	Declaration of preconditions as dummy sequence.	a.dietz-bc	
13/12/2017		3	Update after SVT-1b: added commands to enable MMO HK SID 2.	a.dietz-bc	

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Procedure Flowchart Overview

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Step	Label/Time	Activity/Remarks/Branch	CK	Display
		Beginning of Procedure		
		Beginning of Sequence		
	ADUMMYSQ	**Preconditions** TimeTag type : B		
1		**Preconditions** **Next step(s):** -> **2**		
1.1		**Check MMO in dormant mode**		
		Check that the MMO is in Cruise dormant mode.		
		Verify Telemetry **NPWD1601** MMO-CNV-A-ON-ST **= On**		AND=DJXA0001 PKT=YCD0Z066
		Verify Telemetry **NPWD1602** MMO-CNV-B-ON-ST **= On**		AND=DJXA0001 PKT=YCD0Z066
		Verify Telemetry **NRUD4002** MMO_CNV_A_RLY_ST-A **= Heater**		AND=DJXA0001 PKT=YCD0Z068
		Verify Telemetry **NRUD3002** MMO_CNV_B_RLY_ST-A **= Heater**		AND=DJXA0001 PKT=YCD0Z068
2		**SWITCH on CNV-A or CNV-B?** **Next step(s):** -> **3** Main -> **4** Redundant		
	ADUMMYSQ	End of Sequence		

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Step	Label/Time	Activity/Remarks/Branch	CK	Display
		Beginning of Sequence		
	AJXF001A	**MMO STB NOM OBCP** TimeTag type : B **MPS Info below** State Initial = MMO_CRUISE_DORMANT State During = MMO_CRUISE_ACTIVE State Final = MMO_CRUISE_ACTIVE Duration = 00.05.00		
3		**Switch to Cruise Standby Mode main** *Next step(s):* -> **END**		

	+00.00.00	**Execute Telecommand**
		ZJXK4240 Start OBCP: MMO Switch to Standby Mode
		 TC Control Flags:
		    GBM IL DSE
		    --Y -- ---
		 Command Parameters :
		PKK00021 Nominal Redundant **= Nominal**		

		Verify Packet Reception **YCDV36B4 DMS OBCP Load and Start Success** TM(**5**,**1**), APID **167** (**10**/**7**) PI1=**14004** PI2=**0**		
		NCDBFA4H OBCP Identifier **= 4240** <dec>		(None)
		The OBCP checks that all MMO temperatures are in their expected range and the MMO is not yet in Cruise Initial nor Dormant mode. It will then switch the MMO to Cruise Initial mode and check the MMO DMC status. Finally, the OBCP will start the OBCP 4243 "MMO Operational Heater Control Start".		
		The end of the OBCP will be signalled by the following event:		
		Verify Packet Reception **YCDV36B0 DMS OBCP has been stopped** TM(**5**,**1**), APID **167** (**10**/**7**) PI1=**14000** PI2=**0**		
		NCDBFA0H OBCP Identifier **= 4240** <dec>		(None)
		The start of the MMO Operational Heater Control Start OBCP will be signalled by the following event:		
		Verify Packet Reception **YCDV36B4 DMS OBCP Load and Start Success** TM(**5**,**1**), APID **167** (**10**/**7**) PI1=**14004** PI2=**0**		
		NCDBFA4H OBCP Identifier **= 4242** <dec>		(None)

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Step	Label/Time	Activity/Remarks/Branch	CK	Display
		The OBCP checks that the MMO is already in Cruise Initial mode, check the operational heater control status and the DRU temperature, before it starts the operational heater control.		
		The end of the OBCP will be signalled by the following event:		
		Verify Packet Reception **YCDV36B0 DMS OBCP has been stopped** TM(**5**,**1**), APID **167** (**10/7**) PI1=**14000** PI2=**0**		
		NCDBFA0H OBCP Identifier **= 4242** <dec>		(None)
		The switch to MMO Cruise Standby mode should be finished within 5 minutes.		
		Verify Packet Reception **YCL0Z001 MMO HK** TM(**3**,**25**), APID **210** (**13/2**) PI1=**1** PI2=**0**		
		In addition, enable the generation of packet YCL0Z002 (MMO function status), SID 2. The default generation rate will be once every 64 seconds. Both MMO HK packets will be received on VC2.		
	+00.05.00	**Execute Telecommand** **ZCL00305 CPL Enable HK Telemetry Generation** TC Control Flags: GBM IL DSE **--Y -- ---** Command Parameters : **PCG03011** HK Packet Structure ID **= 2** <dec>		
		Verify Packet Reception **YCL0Z002 MMO function status** TM(**3**,**25**), APID **210** (**13/2**) PI1=**2** PI2=**0**		
		Verify that the MMO is in Cruise standby mode, whereas only CNV-A shall be switched-on.		
		Verify Telemetry **NPWD1601** MMO-CNV-A-ON-ST **= On**		AND=DJXA0001 PKT=YCD0Z066
		Verify Telemetry **NPWD1602** MMO-CNV-B-ON-ST **= Off**		AND=DJXA0001 PKT=YCD0Z066
		Verify Telemetry **NRUD4002** MMO_CNV_A_RLY_ST-A **= Main**		AND=DJXA0001 PKT=YCD0Z068
		Verify Telemetry **NRUD3002** MMO_CNV_B_RLY_ST-A **= Main**		AND=DJXA0001 PKT=YCD0Z068

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Step	Label/Time	Activity/Remarks/Branch	CK	Display
AJXF001A		End of Sequence		
		Beginning of Sequence		
AJXF001B		**MMO TO STB RED OBCP** TimeTag type : B **MPS Info below** State Initial = MMO_CRUISE_DORMANT State During = MMO_CRUISE_ACTIVE State Final = MMO_CRUISE_ACTIVE Duration = 00.05.00		
4		**MMO Switch to Cruise Standby Mode redundant** ***Next step(s):*** -> **END**		
	+00.00.00	**Execute Telecommand** **ZJXK4240 Start OBCP: MMO Switch to Standby Mode** TC Control Flags: GBM IL DSE **--Y -- ---** Command Parameters : **PKK00021** Nominal Redundant **= Redundant**		
		Verify Packet Reception **YCDV36B4 DMS OBCP Load and Start Success** TM(**5**,**1**), APID **167** (**10**/**7**) PI1=**14004** PI2=**0**		
		NCDBFA4H OBCP Identifier **= 4240** <dec>		(None)
		The OBCP checks that all MMO temperatures are in their expected range and the MMO is not yet in Cruise Initial nor Dormant mode. It will then switch the MMO to Cruise Initial mode and check the MMO DMC status. Finally, the OBCP will start the OBCP 4243 "MMO Operational Heater Control Start".		
		The end of the OBCP will be signalled by the following event:		
		Verify Packet Reception **YCDV36B0 DMS OBCP has been stopped** TM(**5**,**1**), APID **167** (**10**/**7**) PI1=**14000** PI2=**0**		
		NCDBFA0H OBCP Identifier **= 4240** <dec>		(None)
		The start of the MMO Operational Heater Control Start OBCP will be signalled by the following event:		
		Verify Packet Reception **YCDV36B4 DMS OBCP Load and Start Success** TM(**5**,**1**), APID **167** (**10**/**7**) PI1=**14004** PI2=**0**		
		NCDBFA4H OBCP Identifier **= 4242** <dec>		(None)

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Step	Label/Time	Activity/Remarks/Branch	CK	Display
		The OBCP checks that the MMO is already in Cruise Initial mode, check the operational heater control status and the DRU temperature, before it starts the operational heater control.		
		The end of the OBCP will be signalled by the following event:		
		Verify Packet Reception **YCDV36B0 DMS OBCP has been stopped** TM(**5**,**1**), APID **167** (**10/7**) PI1=**14000** PI2=**0**		
		NCDBFA0H OBCP Identifier **= 4242** <dec>		(None)
		The switch to MMO Cruise Standby mode should be finished within 5 minutes.		
		Verify Packet Reception **YCL0Z001 MMO HK** TM(**3**,**25**), APID **210** (**13/2**) PI1=**1** PI2=**0**		
		In addition, enable the generation of packet YCL0Z002 (MMO function status), SID 2. The default generation rate will be once every 64 seconds. Both MMO HK packets will be received on VC2.		

	+00.05.00	**Execute Telecommand**
		ZCL00305 CPL Enable HK Telemetry Generation
		 TC Control Flags:
		   GBM IL DSE
		   --Y -- ---
		 Command Parameters :
		PCG03011 HK Packet Structure ID **= 2** <dec>		

		Verify Packet Reception **YCL0Z002 MMO function status** TM(**3**,**25**), APID **210** (**13/2**) PI1=**2** PI2=**0**		
		Verify that the MMO is in Cruise standby mode, whereas only CNV-B shall be switched-on.		
		Verify Telemetry **NPWD1601** MMO-CNV-A-ON-ST **= Off**		AND=DJXA0001 PKT=YCD0Z066
		Verify Telemetry **NPWD1602** MMO-CNV-B-ON-ST **= On**		AND=DJXA0001 PKT=YCD0Z066
		Verify Telemetry **NRUD4002** MMO_CNV_A_RLY_ST-A **= Main**		AND=DJXA0001 PKT=YCD0Z068
		Verify Telemetry **NRUD3002** MMO_CNV_B_RLY_ST-A **= Main**		AND=DJXA0001 PKT=YCD0Z068

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Step	Label/Time	Activity/Remarks/Branch	CK	Display
	AJXF001B	End of Sequence		
	End of Procedure			