

**HERSCHEL
FLIGHT OPERATIONS PLAN**

**VOLUME 4
COP Related Nominal Flight Control Procedures**

Payload FCP's

SPIRE

H_COP_SPI_CDIS to H_COP_SPI_MSPN

PT-HMOC-OPS-FOP-6001-OPS-OAH

Issue 3.1

05/09/11



DOCUMENT APPROVAL

The Approval Page for all Volumes of the FOP can be found in Volume 1.



DISTRIBUTION LIST

The Distribution List for all Volumes of the FOP can be found in Volume 1.

CHANGE SUMMARY

Date	FOP Issue	Version	Modification Description	Author	SPR Ref
14/04/2010	3.0	1	Created	mvoegele-hp	
05/09/2011		2	Updated change control history for issue 3.1	mvoegele-hp	
05/09/2011	3.1	3	Updated change record sheet	mvoegele-hp	

CHANGE RECORD SHEET

Change No.	Type of Change	Date of Issue	Section Affected	
1	1.0	06/08/08	All	
			Updated:	
			Added:	H_COP_PAC_A001, H_COP_PAC_A002, H_COP_PAC_G001, H_COP_PAC_G002, H_COP_PAC_G003, H_COP_PAC_X001, H_COP_PAC_X002, H_COP_PAC_X003
			Deleted:	
2	2.0	02/02/09	All – Complete re-print for Issue 2.0	
			Updated:	H_COP_PAC_A001, H_COP_PAC_A002, H_COP_PAC_G001, H_COP_PAC_G002, H_COP_PAC_G003, H_COP_PAC_X001, H_COP_PAC_X002, H_COP_PAC_X003
			Added:	H_COP_HIF_CFHR, H_COP_HIF_CFWB, H_COP_HIF_NCRT, H_COP_HIF_NFF1, H_COP_HIF_NFF2, H_COP_HIF_NFF3, H_COP_HIF_NFF4, H_COP_HIF_NFF5, H_COP_HIF_NFF6, H_COP_HIF_NFF7, H_COP_HIF_NFF8, H_COP_HIF_NFL1, H_COP_HIF_NFL2, H_COP_HIF_NFL3, H_COP_HIF_NFL4, H_COP_HIF_NFL5, H_COP_HIF_NFL6, H_COP_HIF_NFL7, H_COP_HIF_NFL8, H_COP_HIF_NFL9, H_COP_HIF_NFLA, H_COP_HIF_NFLB, H_COP_HIF_NFLC, H_COP_HIF_NFLD, H_COP_HIF_NFLE, H_COP_HIF_NIF1, H_COP_HIF_NIF2, H_COP_HIF_NIF3, H_COP_HIF_NIF4, H_COP_HIF_NIF5, H_COP_HIF_NIF6, H_COP_HIF_NIF7, H_COP_HIF_RCRT, H_COP_HIF_RFL1, H_COP_HIF_RFL2, H_COP_HIF_RFL3, H_COP_HIF_RFL4, H_COP_HIF_RFL5, H_COP_HIF_RFL6, H_COP_HIF_RFL7, H_COP_HIF_RFL8, H_COP_HIF_RFL9, H_COP_HIF_RFLA, H_COP_HIF_RFLB, H_COP_HIF_RFLC, H_COP_HIF_RFLD, H_COP_HIF_RFLE, H_COP_PAC_A003, H_COP_PAC_C101, H_COP_PAC_C102, H_COP_PAC_C103, H_COP_PAC_C201, H_COP_PAC_C202, H_COP_PAC_C203, H_COP_PAC_C204, H_COP_PAC_CX01, H_COP_PAC_CX02, H_COP_PAC_CX03, H_COP_PAC_CX04, H_COP_PAC_CX05, H_COP_PAC_D000, H_COP_PAC_D001, H_COP_PAC_D002, H_COP_PAC_D003, H_COP_PAC_D100, H_COP_PAC_D101, H_COP_PAC_D102, H_COP_PAC_D103, H_COP_PAC_D200, H_COP_PAC_D201, H_COP_PAC_D202, H_COP_PAC_D203, H_COP_PAC_D204, H_COP_PAC_D300, H_COP_PAC_D301, H_COP_PAC_D302, H_COP_PAC_D303, H_COP_PAC_D304, H_COP_PAC_D305, H_COP_PAC_D306, H_COP_PAC_D307, H_COP_PAC_F000,

			<p>H_COP_PAC_F001, H_COP_PAC_F002, H_COP_PAC_F003, H_COP_PAC_F100, H_COP_PAC_F101, H_COP_PAC_F102, H_COP_PAC_F103, H_COP_PAC_F104, H_COP_PAC_FDIR, H_COP_PAC_G000, H_COP_PAC_G101, H_COP_PAC_G201, H_COP_PAC_G202, H_COP_PAC_G203, H_COP_PAC_G204, H_COP_PAC_GX01, H_COP_PAC_GX02, H_COP_PAC_GX03, H_COP_PAC_GX04, H_COP_PAC_GX07, H_COP_PAC_GX08, H_COP_PAC_GX09, H_COP_PAC_GX10, H_COP_PAC_GX11, H_COP_PAC_L001, H_COP_PAC_LLOP, H_COP_PAC_SFTC, H_COP_PAC_SX01, H_COP_PAC_X004, H_COP_PAC_X005, H_COP_PAC_X006, H_COP_PAC_X007, H_COP_PAC_X008, H_COP_PAC_X009, H_COP_PAC_X010, H_COP_PAC_X011, H_COP_PAC_X012, H_COP_SPI_BS03, H_COP_SPI_BS06, H_COP_SPI_BS5A, H_COP_SPI_BS5B, H_COP_SPI_BSMF, H_COP_SPI_BSMI, H_COP_SPI_BSSC, H_COP_SPI_DCPN, H_COP_SPI_DCSC, H_COP_SPI_DCSN, H_COP_SPI_DPIC, H_COP_SPI_DPNC, H_COP_SPI_DPPS, H_COP_SPI_DRCN, H_COP_SPI_DSIC, H_COP_SPI_DSPS, H_COP_SPI_MCSC, H_COP_SPI_MCUF, H_COP_SPI_MCUN, H_COP_SPI_PCAC, H_COP_SPI_PHOF, H_COP_SPI_PHVT, H_COP_SPI_REDY, H_COP_SPI_SC2P, H_COP_SPI_SC4P, H_COP_SPI_SCAC, H_COP_SPI_SCAT, H_COP_SPI_SCDT, H_COP_SPI_SCSC, H_COP_SPI_SMCP, H_COP_SPI_SMCS, H_COP_SPI_SMEP, H_COP_SPI_SMER, H_COP_SPI_SMFP, H_COP_SPI_SMFR, H_COP_SPI_SMIP, H_COP_SPI_SMIR, H_COP_SPI_SMLP, H_COP_SPI_SMLR, H_COP_SPI_SMOF, H_COP_SPI_SMOL, H_COP_SPI_SMOS, H_COP_SPI_SMPP, H_COP_SPI_SMPR, H_COP_SPI_SOHC, H_COP_SPI_SPNO, H_COP_SPI_SPOF, H_COP_SPI_SPVT</p>
			Deleted:
3	2.1	06/03/09	<p>All – Complete re-print for Issue 2.1. Payload FCP's divided into 4 books. New book added SPIRE FCP's</p>
			<p>Updated: H_COP_SPI_REDY, H_COP_SPI_SC2P, H_COP_SPI_SC4P</p>
			<p>Added: H_COP_SPI_CFT1, H_COP_SPI_CFT2, H_COP_SPI_CFT3, H_COP_SPI_CFT4, H_COP_SPI_CFT5, H_COP_SPI_CFT6, H_COP_SPI_CFT7, H_COP_SPI_MREC, H_COP_SPI_NSON, H_COP_SPI_RSON, H_COP_SPI_SC2R, H_COP_SPI_SC4R, H_COP_SPI_SMLV, H_COP_SPI_SPPD, H_COP_SPI_SWON</p>
			Deleted:

4	2.2	26/03/09	Front Page, Change Summary, Change Record Sheet and List of Procedures replaced.	
			Updated:	H_COP_SPI_BS03, H_COP_SPI_BS06, H_COP_SPI_BS5A, H_COP_SPI_BS5B, H_COP_SPI_BSSC, H_COP_SPI_DCPN, H_COP_SPI_DCSC, H_COP_SPI_DCSN, H_COP_SPI_DPIC, H_COP_SPI_DPNC, H_COP_SPI_DRCN, H_COP_SPI_DSIC, H_COP_SPI_MCSC, H_COP_SPI_PCAC, H_COP_SPI_PHVT, H_COP_SPI_SC2P, H_COP_SPI_SC2R, H_COP_SPI_SC4P, H_COP_SPI_SC4R, H_COP_SPI_SCAC, H_COP_SPI_SCAT, H_COP_SPI_SCDT, H_COP_SPI_SCSC, H_COP_SPI_SMCP, H_COP_SPI_SMCS, H_COP_SPI_SMEP, H_COP_SPI_SMER, H_COP_SPI_SMFP, H_COP_SPI_SMFR, H_COP_SPI_SMLP, H_COP_SPI_SMLR, H_COP_SPI_SMOF, H_COP_SPI_SMOL, H_COP_SPI_SMOS, H_COP_SPI_SMPP, H_COP_SPI_SMPR, H_COP_SPI_SOHC, H_COP_SPI_SPNO, H_COP_SPI_SPOF, H_COP_SPI_SPVT
			Added:	H_COP_SPI_DRCR
		Deleted:		
5	2.3	23/04/09	All – Complete re-print for Issue 2.3 Vol4 Payload SPIRE FCPs divided into 4 books as follows: H_COP_SPI_APDS to H_COP_SPI_MSPN H_COP_SPI_NSON to H_COP_SPI_SC4R H_COP_SPI_SCAC to H_COP_SPI_SPSH H_COP_SPI_SPU1 to H_COP_SPI_SWON	
			Updated:	H_COP_SPI_BSMF, H_COP_SPI_CFT1, H_COP_SPI_CFT2, H_COP_SPI_CFT3, H_COP_SPI_CFT4, H_COP_SPI_CFT5, H_COP_SPI_CFT6, H_COP_SPI_CFT7, H_COP_SPI_DCPN, H_COP_SPI_DCSN, H_COP_SPI_DRCN
			Added:	H_COP_SPI_APDS, H_COP_SPI_ASDS, H_COP_SPI_CF10, H_COP_SPI_CF11, H_COP_SPI_CFT8, H_COP_SPI_CFT9, H_COP_SPI_CRSC, H_COP_SPI_CT10, H_COP_SPI_CT11, H_COP_SPI_LBMP, H_COP_SPI_LBMR, H_COP_SPI_LCLS, H_COP_SPI_LINP, H_COP_SPI_LINR, H_COP_SPI_LSCP, H_COP_SPI_LSCR, H_COP_SPI_MACR, H_COP_SPI_MBSF, H_COP_SPI_MBSI, H_COP_SPI_MBSN, H_COP_SPI_MDRF, H_COP_SPI_MDRN, H_COP_SPI_MMCB, H_COP_SPI_MMCF, H_COP_SPI_MPHF, H_COP_SPI_MPHN, H_COP_SPI_MSCF, H_COP_SPI_MSCN, H_COP_SPI_MSIP, H_COP_SPI_MSIR, H_COP_SPI_MSMF, H_COP_SPI_MSNP, H_COP_SPI_MSNR, H_COP_SPI_MSPF, H_COP_SPI_MSPN
		Deleted:	H_COP_SPI_DPPS, H_COP_SPI_DSPS	
6	2.4	06/05/09	Front Page, Change Summary, Change Record Sheet and List of Procedures replaced.	









































			Updated:	H_COP_SPI_APDS, H_COP_SPI_ASDS, H_COP_SPI_CF10, H_COP_SPI_CFT9, H_COP_SPI_CRSC, H_COP_SPI_CT10, H_COP_SPI_DCPN, H_COP_SPI_DCSN, H_COP_SPI_DRCN, H_COP_SPI_LBMP, H_COP_SPI_LBMR, H_COP_SPI_LCLS, H_COP_SPI_LINP, H_COP_SPI_LINR, H_COP_SPI_LSCP, H_COP_SPI_LSCR, H_COP_SPI_MACR, H_COP_SPI_MBSF, H_COP_SPI_MBSI, H_COP_SPI_MBSN, H_COP_SPI_MDRN, H_COP_SPI_MSIP, H_COP_SPI_MSIR, H_COP_SPI_MSMF, H_COP_SPI_MSNP, H_COP_SPI_MSNR, H_COP_SPI_MSPF, H_COP_SPI_MSPN
			Added:	
			Deleted:	
7	2.5	07/10/09	Front Page, Change Summary, Change Record Sheet and List of Procedures replaced.	
			Updated:	H_COP_SPI_ASDS, H_COP_SPI_BS5B, H_COP_SPI_CRSC, H_COP_SPI_DCSN, H_COP_SPI_LINP, H_COP_SPI_MPHN
			Added:	H_COP_SPI_CDIS
			Deleted:	
8	3.0	13/04/10	Complete re-print New book added. H_COP_SPI_CDIS to H_COP_SPI_MSPN	
			Updated:	H_COP_SPI_MMCB, H_COP_SPI_MMCF
			Added:	
			Deleted:	
9	3.1	05/09/11	Front Page, Change Summary, Change Record Sheet and List of Procedures replaced.	
			Updated:	H_COP_SPI_MDRN, H_COP_SPI_MMCB, H_COP_SPI_MSCN
			Added:	H_COP_SPI_DCKS
			Deleted:	

















Introduction

Chapter 3 Payload Flight Control Procedures

3.6 SPIRE Flight Control Procedures

	H_COP_SPI_CDIS	SPIRE-CP-DISCHARGE-COOLER	1	29/06/2009
	H_COP_SPI_CF10	SMEC Functional Tests, part 2A.	1	04/05/2009
	H_COP_SPI_CF11	SMEC Functional Tests, part A.	1	20/04/2009
	H_COP_SPI_CFT1	SPIRE CFT Checks Characterisation	1	21/04/2009
	H_COP_SPI_CFT2	Beam Steering Mechanism Cold Functional Tests	2	20/04/2009
	H_COP_SPI_CFT3	Photometer Functional Tests	2	20/04/2009
	H_COP_SPI_CFT4	Spectrometer Cold Functional Tests	1	21/04/2009
	H_COP_SPI_CFT5	SMEC Functional Tests, part A.	1	21/04/2009
	H_COP_SPI_CFT6	SMEC Functional Tests, Part B.	2	21/04/2009
	H_COP_SPI_CFT7	Mode Transistion SPIRE to REDY Mode	2	21/04/2009
	H_COP_SPI_CFT8	Set Nominal HK Rate	1	21/04/2009
	H_COP_SPI_CFT9	Spectrometer Cold Functional Tests	1	04/05/2009
	H_COP_SPI_CRSC	SPIRE-CP-SMEC-CRYOCOVERT-SCANS SMEC Cryo Scan	3	06/06/2009
	H_COP_SPI_CT10	SMEC Functional Tests, part 2 A.	1	04/05/2009
	H_COP_SPI_CT11	SMEC Functional Tests, part A.	1	21/04/2009
	H_COP_SPI_DCKS	SpireEngCheckPM Daily	1	16/07/2010
	H_COP_SPI_DCPN	Mode_DcuFunc11_Phot BDA Switch On Check	5	04/05/2009
	H_COP_SPI_DCSC	Mode_DcuFunc02 Nom Sci Contents Integrity Check	2	23/03/2009
	H_COP_SPI_DCSN	SPIRE-CP-FUNC-DCU-11-SPEC BDA Switch On Check	8	29/06/2009
	H_COP_SPI_DPIC	Mode_DcuFunc13_Phot BDA Integrity Check	2	23/03/2009
	H_COP_SPI_DPNC	Mode_ILT_PERF_DNA_P Phot BDA Noise Check	2	23/03/2009
	H_COP_SPI_DRCN	DRCU_START DRCU Start	6	04/05/2009
	H_COP_SPI_DRGR	DRCU_START (RED) DPU & DRCU Start	1	25/03/2009
	H_COP_SPI_DSIC	Mode_DcuFunc13_Spec BDAs Integrity Check	1	23/03/2009
	H_COP_SPI_LBMP	SPIRE-FUNC-SMEC-LVDT-P LVDT Backup Mode (PRIME)	2	04/05/2009
	H_COP_SPI_LBMR	SPIRE-FUNC-SMEC-LVDT-R LVDT Backup Mode (RED)	2	04/05/2009
	H_COP_SPI_LCLS	SPIRE-CP-FUNC-SMEC-LVDT-SCAN Close Loop Scan Test	2	04/05/2009
	H_COP_SPI_LINP	SPIRE-FUNC-SMEC-LVDT-INIT-P Initialise LVDT mode (PRIME)	3	06/06/2009
	H_COP_SPI_LINR	SPIRE-FUNC-SMEC-LVDT-INIT-R Initialise LVDT mode RED	2	04/05/2009
	H_COP_SPI_LSCP	SPIRE-CP-FUNC-SMEC-01-LVDT-P SMEC Encoder/LVDT Sensor Check.	2	04/05/2009
	H_COP_SPI_LSCR	SPIRE-CP-FUNC-SMEC-01-LVDT-R SMEC Encoder/LVDT Sensor Check.	2	04/05/2009
	H_COP_SPI_MACR	CREC_MANUAL Manually recycle the SPIRE Sorption Cooler	2	04/05/2009
	H_COP_SPI_MBSF	SPIRE_BSM_OFF	2	04/05/2009
	H_COP_SPI_MBSI	SPIRE_BSM_INIT	2	04/05/2009
	H_COP_SPI_MBSN	BSM_ON Mode Transistion	2	04/05/2009
	H_COP_SPI_MCSC	Mode_McuFunc03 MCU Nom Sci Contents Check	2	24/03/2009
	H_COP_SPI_MCUF	MCU_OFF	2	27/01/2009
	H_COP_SPI_MGUN	MCU_BOOT	3	27/01/2009
	H_COP_SPI_MDRF	DRCU_OFF Mode Trans DRCU OFF	1	21/04/2009
	H_COP_SPI_MDRN	SPIRE_DRCU_ON	3	14/12/2010

	H_COP_SPI_MMCB	MCU_BOOT Mode Transisiton	3	14/12/2010
	H_COP_SPI_MMCF	MCU_OFF Mode Trans	2	13/10/2009
	H_COP_SPI_MPHF	PDET_OFF Mode Trans Phot OFF	1	19/04/2009
	H_COP_SPI_MPHN	SPIRE_PDET_ON Mode Trans	2	29/06/2009
	H_COP_SPI_MREC	Manual Cooler Recycle	1	27/02/2009
	H_COP_SPI_MSCF	SCU_OFF Mode Trans SCU thermometry & cooler heat switches OFF	2	21/04/2009
	H_COP_SPI_MSCN	SPIRE_SCU_ON Mode Trans SPIRE SCU Thermometry ON	2	14/12/2010
	H_COP_SPI_MSIP	SPIRE_SMEC_INIT PRIME Mode Transition	3	04/05/2009
	H_COP_SPI_MSIR	SPIRE_SMEC_INIT RED Mode Transition	3	04/05/2009
	H_COP_SPI_MSMF	SMEC_OFF Mode Trans	2	04/05/2009
	H_COP_SPI_MSNP	SPIRE_SMEC_ON PRIME Mode Trans	3	04/05/2009
	H_COP_SPI_MSNR	SPIRE_SMEC_ON RED Mode Trans	2	04/05/2009
	H_COP_SPI_MSPF	SPIRE_SDET_OFF Mode Trans, switch off Spectrometer	2	04/05/2009
	H_COP_SPI_MSPN	SPIRE_SDET_ON Mode Trans switch Spectrometer ON	2	04/05/2009