

**HERSCHEL
FLIGHT OPERATIONS PLAN**

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

**Payload FCP's
PACS**

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
06/03/2009	2.1	1	Created	mvoegele-hp	
26/03/2009	2.2	2	Updated change control history for Issue 2.2	mvoegele-hp	
23/04/2009	2.3	3	Updated change control history for Issue 2.3	mvoegele-hp	
06/05/2009	2.4	4	Updated change history for Issue 2.4	mvoegele-hp	
08/10/2009	2.5	5	Updated change control history for Issue 2.3	dbleakle-hp	
13/10/2009		6	corrected typo in title	mvoegele-hp	
13/04/2010	3.0	7	Updated change control history for issue 3.0	mvoegele-hp	
05/09/2011	3.1	8	Updated change control history for issue 3.1	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 PACS FCP's</p>
			Updated:
			Added:
			Deleted:
4	2.2	26/03/09	<p>Front Page, Change Summary, Change Record Sheet and List of Procedures replaced.</p>
			Updated: H_COP_PAC_SX01
			Added:
			Deleted:
5	2.3	23/04/09	<p>All – Complete re-print for Issue 2.3</p>
			Updated: H_COP_PAC_A001, H_COP_PAC_A002, H_COP_PAC_A003, H_COP_PAC_C101,

			<p>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_CX04, H_COP_PAC_CX05, H_COP_PAC_D001, H_COP_PAC_D002, H_COP_PAC_D003, H_COP_PAC_D101, H_COP_PAC_D102, H_COP_PAC_D103, H_COP_PAC_D201, H_COP_PAC_D202, H_COP_PAC_D203, H_COP_PAC_D204, 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_F001, H_COP_PAC_F002, H_COP_PAC_F003, H_COP_PAC_F101, H_COP_PAC_F102, H_COP_PAC_F103, H_COP_PAC_F104, H_COP_PAC_G001, H_COP_PAC_G002, H_COP_PAC_G003, H_COP_PAC_G101, H_COP_PAC_G201, H_COP_PAC_G202, 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_X001, H_COP_PAC_X002, H_COP_PAC_X003, 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</p>
			<p>Added: H_COP_PAC_G102, H_COP_PAC_G301, H_COP_PAC_G302, H_COP_PAC_G303, H_COP_PAC_CHP1, H_COP_PAC_CHP2, H_COP_PAC_CHP3, H_COP_PAC_CHP4, H_COP_PAC_FDIR, H_COP_PAC_GRA1, H_COP_PAC_GRA2, H_COP_PAC_GRA3, H_COP_PAC_GRA4, H_COP_PAC_GRA5, H_COP_PAC_SFT, H_COP_PAC_SWON</p>
			<p>Deleted: H_COP_PAC_D000, H_COP_PAC_D100, H_COP_PAC_D200, H_COP_PAC_D300, H_COP_PAC_F000, H_COP_PAC_F100, H_COP_PAC_FDIR, H_COP_PAC_G000, H_COP_PAC_G203, H_COP_PAC_G204, H_COP_PAC_SFTC</p>
6	2.4	06/05/09	<p>Front Page, Change Summary, Change Record Sheet and List of Procedures replaced.</p>
			<p>Updated: H_COP_PAC_A003, H_COP_PAC_G101, H_COP_PAC_G102, H_COP_PAC_G201, H_COP_PAC_G202, H_COP_PAC_G301, H_COP_PAC_G302, H_COP_PAC_G303, H_COP_PAC_X011, H_COP_PAC_X012</p>
			<p>Added:</p>
			<p>Deleted:</p>
7	2.5	07/10/09	<p>Front Page, Change Summary, Change Record Sheet and List of Procedures replaced.</p>
			<p>Updated: H_COP_PAC_C103, H_COP_PAC_G303,</p>


















































				H_COP_PAC_SX01
			Added:	
			Deleted:	
8	3.0	13/04/10	Complete re-print	
			Updated:	
			Added:	
			Deleted:	
8 9	3.1	05/09/11	Front Page, Change Summary, Change Record Sheet and List of Procedures replaced.	
			Updated:	
			Added:	H_COP_SPI_CHKS
			Deleted:	




























Introduction













Chapter 3 Payload Flight Control Procedures

3.5 PACS Flight Control Procedures

	H COP PAC A001	PACS_Start_Autonomy_Function_14_OBS	6	02/04/2009
	H COP PAC A002	PACS_Start_Autonomy_Function_17_OBS	7	02/04/2009
	H COP PAC A003	PACS_Disable_HK_OBS	8	30/04/2009
	H COP PAC C101	PACS_Chopper_EnDis_Test_NoConf_ast1	1	20/04/2009
	H COP PAC C102	PACS_Chopper_EnDis_Test_NoConf_ast300	1	20/04/2009
	H COP PAC C103	PACS_Chopper_EnDis_PlateauTest_NoConf_ast	3	30/05/2009
	H COP PAC C201	PACS_Chopper_uk_move_3000_ast_OBS	1	20/04/2009
	H COP PAC C202	PACS_Chopper_uk_move_12000_ast_OBS	1	20/04/2009
	H COP PAC C203	PACS_Chopper_uk_move_18000_ast_OBS	1	20/04/2009
	H COP PAC C204	PACS_Chopper_uk_move_21000_ast_OBS	1	20/04/2009
	H COP PAC CX01	PACS_En_chopper_ast_OBS	1	15/04/2009
	H COP PAC CX02	PACS_Dis_chopper_ast_OBS	1	15/04/2009
	H COP PAC CX03	PACS_SwOff_chopper_ast_OBS	1	09/10/2008
	H COP PAC CX04	SPEC_Chopper_dhk_5hk_1khz_OBS	2	20/04/2009
	H COP PAC CX05	SPEC_Chopper_dhk_imt_OBS	3	15/04/2009
	H COP PAC D001	PACS_Spec_Heat_SWON_OBS	2	15/04/2009
	H COP PAC D002	PACS_Spec_Heat_SFT	2	15/04/2009
	H COP PAC D003	PACS_Spec_Heat_SWOF_OBS	2	15/04/2009
	H COP PAC D101	PACS_Spec_Flash_SWON_OBS	2	15/04/2009
	H COP PAC D102	PACS_Spec_Flash_SFT	2	15/04/2009
	H COP PAC D103	PACS_Spec_Flash_SWOF_OBS	2	15/04/2009
	H COP PAC D201	PACS_Spec_CRE_1pF0bias_Setup_Warm_OBS	2	15/04/2009
	H COP PAC D202	PACS_Spec_CRE_Setup_Cold_OBS	2	15/04/2009
	H COP PAC D203	PACS_Spec_CRE_01pF0bias_Setup_Warm_OB	2	15/04/2009
		S		
	H COP PAC D204	SpectroscopytoNonPrime_OBS	2	15/04/2009
	H COP PAC D301	PACS_Phot_DPU_DMC_Setup_OBS	2	15/04/2009
	H COP PAC D302	PACS_Phot_Switchon_OBS	2	15/04/2009
	H COP PAC D303	PACS_Phot_Sequencer_Setup_OBS	2	15/04/2009
	H COP PAC D304	PACS_Phot_SPU_Setup_OBS	2	15/04/2009
	H COP PAC D305	PACS_Phot_Cold_Startinputsignal_OBS	2	15/04/2009
	H COP PAC D306	PACS_Phot_SPU_Reset_OBS	2	15/04/2009
	H COP PAC D307	PACS_Phot_Switchoff_OBS	2	15/04/2009
	H COP PAC F001	PACS_Spec_Fil_Diaghk_Setup_OBS	2	15/04/2009
	H COP PAC F002	CONF_spec_fltw_OBS	2	15/04/2009
	H COP PAC F003	PACS_Spec_Fil_Testseq_OBS	2	15/04/2009
	H COP PAC F101	PACS_Phot_HK_Setup_OBS	2	15/04/2009
	H COP PAC F102	PACS_Phot_Fil_Diaghk_Setup_OBS	2	15/04/2009
	H COP PAC F103	CONF_phot_fltw_OBS	2	15/04/2009
	H COP PAC F104	PACS_Phot_Fil_Testseq_OBS	2	15/04/2009
	H COP PAC G001	PACS_Spec_Gra_Diaghk_Setup_OBS	4	02/04/2009
	H COP PAC G002	CONF_grating_SFTHeil_OBS	4	02/04/2009
	H COP PAC G003	PACS_Spec_Gra_Healthcheck_OBS	3	02/04/2009
	H COP PAC G101	PACS_Spec_Gra_Ampl_Loop_OBS	2	28/04/2009
	H COP PAC G102	PACS_Spec_Gra_Ampl_Loop_OBS	2	28/04/2009
	H COP PAC G201	PACS_Spec_Gra_IST_Check_1_OBS	6	28/04/2009
	H COP PAC G202	PACS_Spec_Gra_IST_Check_2_OBS	6	28/04/2009
	H COP PAC G301	PACS_Spec_Gra_IST_Filt_List_OBS	2	28/04/2009
	H COP PAC G302	PACS_Spec_Gra_IST_PID_List_OBS	2	28/04/2009
	H COP PAC G303	PACS_Spec_Gra_IST_PID_Loop_OBS	3	28/05/2009

	H COP PAC GX01	PACS_Spec_Gra_IST_SWON_OBS	3	15/04/2009
	H COP PAC GX02	PACS_Spec_Gra_IST_SWOF_OBS	3	15/04/2009
	H COP PAC GX03	PACS_Spec_Gra_IST_Enable_OBS	2	15/04/2009
	H COP PAC GX04	PACS_Spec_Gra_IST_Disable_OBS	2	15/04/2009
	H COP PAC GX07	PACS_Spec_Gra_IST_Move_Abs_OBS	2	15/04/2009
	H COP PAC GX08	PACS_Spec_Gra_IST_Move_Rel_OBS	2	15/04/2009
	H COP PAC GX09	PACS_Spec_Gra_IST_Set_Ctrl_Par	2	15/04/2009
	H COP PAC GX10	CONF_grating_IST_OBS	2	15/04/2009
	H COP PAC GX11	PACS_Spec_Gra_IST_Home_OBS	2	15/04/2009
	H COP PAC L001	PACS_CS_SFT_Cold_OBS	3	15/04/2009
	H COP PAC LLOP	PACS_Open_Launch_Lock_OBS	3	02/04/2009
	H COP PAC SX01	PACS_Phot_SFT_Cooler_OBS	4	26/05/2009
	H COP PAC X001	PACS_GeGa_SFT_Init_Cold_He2_OBS	3	02/04/2009
	H COP PAC X002	PACS_Chopper_SFT_Cold_OpenLoop_OBS	3	02/04/2009
	H COP PAC X003	PACS_Spec_HK_Setup_OBS	3	02/04/2009
	H COP PAC X004	PACS_Diaghk_Reset_OBS	3	15/04/2009
	H COP PAC X005	PACS_Spec_FlashHeat_Diaghk_Setup_OBS	2	15/04/2009
	H COP PAC X006	PACS_Spec_SPU_Buffer_Setup_OBS	2	15/04/2009
	H COP PAC X007	PACS_Spec_SPU_Reset_OBS	3	15/04/2009
	H COP PAC X008	Pacs_DMC_SET_OBSID	1	20/04/2009
	H COP PAC X009	CONF_chopper_ast_OBS	3	20/04/2009
	H COP PAC X010	PACS_SwOn_chopper_ast_OBS	1	20/04/2009
	H COP PAC X011	PACS_Spec_Gra_IST_Check_4_OBS	7	28/04/2009
	H COP PAC X012	PACS_Spec_Gra_IST_Full_Charac_OBS	2	28/04/2009
	H COP SPI CHKS	SpireEngCheckPM Daily	1	16/07/2010

High-Level Procedures

	H COP PAC CHP1	PACS Chopper Stability Verification	1	09/04/2009
	H COP PAC CHP2	PACS Chopper Dynamic Behaviour Verification	1	09/04/2009
	H COP PAC CHP3	PACS Chopper Dynamic Behaviour Verification	1	09/04/2009
	H COP PAC CHP4	PACS Chopper Dynamic Behaviour Verification	1	09/04/2009
	H COP PAC FDIR	Test of PACS FDIR functions	2	09/04/2009
	H COP PAC GRA1	PACS Grating Controller Parameter Tuning	1	09/04/2009
	H COP PAC GRA2	PACS Grating Controller Parameter Tuning	1	09/04/2009
	H COP PAC GRA3	PACS Grating Controller Parameter Tuning	1	09/04/2009
	H COP PAC GRA4	PACS Grating Controller Parameter Tuning	1	09/04/2009
	H COP PAC GRA5	PACS Grating Controller Parameter Tuning	1	09/04/2009
	H COP PAC SFT	PACS Short Functional Test - Hell	1	09/04/2009
	H COP PAC SWON	PACS Initial Switch ON	1	09/04/2009