

**HERSCHEL  
FLIGHT OPERATIONS PLAN**

**VOLUME 6  
FCP Related Nominal Flight Control Procedures**

**ACMS FCP's**

**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.

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## CHANGE SUMMARY

| Date       | FOP Issue | Version | Modification Description                     | Author      | SPR Ref |
|------------|-----------|---------|--|-------------|---------|
| 01/08/2008 |           | 1       | Created                                      | mvoegele-hp |         |
| 04/08/2008 |           | 2       | Updated for Issue 1.0                        | mvoegele-hp |         |
| 05/08/2008 | 1.0       | 3       | Changed title                                | mvoegele-hp |         |
| 02/02/2009 | 2.0       | 4       | Updated change control history for Issue 2.0 | mvoegele-hp |         |
| 06/03/2009 | 2.1       | 5       | Updated change control history for Issue 2.1 | mvoegele-hp |         |
| 26/03/2009 | 2.2       | 6       | Updated change control history for Issue 2.2 | mvoegele-hp |         |
| 23/04/2009 | 2.3       | 7       | Updated change control history for Issue 2.3 | mvoegele-hp |         |
| 06/05/2009 | 2.4       | 8       | Updated change history for Issue 2.4         | mvoegele-hp |         |
| 08/10/2009 | 2.5       | 9       | Updated change control history for Issue 2.5 | dbleakle-hp |         |
| 13/04/2010 | 3.0       | 10      | Updated change control history for issue 3.0 | mvoegele-hp |         |
| 05/09/2011 | 3.1       | 11      | 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_FCP_AOC_1GDR, H_FCP_AOC_1GSM, H_FCP_AOC_1STM, H_FCP_AOC_3000, H_FCP_AOC_3001, H_FCP_AOC_3011, H_FCP_AOC_3035, H_FCP_AOC_3A01, H_FCP_AOC_3M02, H_FCP_AOC_3M03, H_FCP_AOC_3O01, H_FCP_AOC_3O02, H_FCP_AOC_3O04, H_FCP_AOC_3O05, H_FCP_AOC_3S01, H_FCP_AOC_3S02, H_FCP_AOC_3S03, H_FCP_AOC_3S04, H_FCP_AOC_3S05, H_FCP_AOC_3S06, H_FCP_AOC_3S07, H_FCP_AOC_4001, H_FCP_AOC_4C01, H_FCP_AOC_4R14, H_FCP_AOC_4R20, H_FCP_AOC_4R34, H_FCP_AOC_4R44, H_FCP_AOC_4S01, H_FCP_AOC_4S11, H_FCP_AOC_4S21, H_FCP_AOC_4S41, H_FCP_AOC_4S51, H_FCP_AOC_4S52, H_FCP_AOC_4S61, H_FCP_AOC_4S62, H_FCP_AOC_4S71, H_FCP_AOC_4S81, H_FCP_AOC_4S91, H_FCP_AOC_5004, H_FCP_AOC_5007, H_FCP_AOC_5008, H_FCP_AOC_5009, H_FCP_AOC_5010, H_FCP_AOC_5011, H_FCP_AOC_5012, H_FCP_AOC_5013, H_FCP_AOC_5014, H_FCP_AOC_8ON1, H_FCP_AOC_8ON2, H_FCP_AOC_8PM1, H_FCP_AOC_8PM2, H_FCP_AOC_DODD, H_FCP_OBS_2210, H_FCP_OBS_2242, H_FCP_OBS_2449 |
|            |                |               | Deleted:                              |  |
| 2          | 2.0            | 02/02/09      | All – complete re-print for Issue 2.0 |  |
|            |                |               | Updated:                              | H_FCP_AOC_1GDR, H_FCP_AOC_3000, H_FCP_AOC_3A01, H_FCP_AOC_3O01, H_FCP_AOC_3O04, H_FCP_AOC_3S01, H_FCP_AOC_3S07, H_FCP_AOC_4C01, H_FCP_AOC_4R14, H_FCP_AOC_4R20, H_FCP_AOC_4R34, H_FCP_AOC_4S11, H_FCP_AOC_5011, H_FCP_AOC_5012, H_FCP_AOC_5014, H_FCP_OBS_2449   |
|            |                |               | Added:                                | H_FCP_AOC_5CBH, H_FCP_AOC_D3FD, H_FCP_AOC_D3LW, H_FCP_AOC_DRMR, H_FCP_OBS_2241, H_FCP_OBS_2245, H_FCP_OBS_2249, H_FCP_OBS_2251, H_FCP_OBS_2263, H_FCP_OBS_2451, H_FCP_OBS_2810, H_FCP_OBS_2812, H_FCP_OBS_2845, H_xxP_AOC_D3FD   |
|            |                |               | Deleted:                              |  |
| 3          | 2.1            | 06/03/09      | All – complete re-print for Issue 2.1 |  |
|            |                |               | Updated:                              | H_FCP_AOC_4S91, H_FCP_AOC_5012   |
|            |                |               | Added:                                | H_FCP_AOC_D5SM, H_FCP_AOC_DAFO, H_FCP_AOC_DODB   |

|   |     |          |  |  |
|---|-----|----------|--|--|
|   |     |          | Deleted:   |  |
| 4 | 2.2 | 26/03/09 | Front Page, Change Summary, Change Record sheet and List of Procedures replaced. |  |
|   |     |          | Updated:   | H_FCP_AOC_1GDR, H_FCP_AOC_1GSM, H_FCP_AOC_1STM, H_FCP_AOC_3A01, H_FCP_AOC_3O01, H_FCP_AOC_3O05, H_FCP_AOC_3S07, H_FCP_AOC_4R14, H_FCP_AOC_4R34, H_FCP_AOC_4S01, H_FCP_AOC_4S11, H_FCP_AOC_4S21, H_FCP_AOC_8ON1, H_FCP_AOC_8ON2, H_FCP_AOC_D3FD, H_FCP_AOC_D5SM, H_FCP_OBS_2210, H_FCP_OBS_2242 |
|   |     |          | Added:   | H_FCP_AOC_0OCCM, H_FCP_AOC_0SCM, H_FCP_AOC_1STO, H_FCP_AOC_DGYR, H_FCP_AOC_DRWL  |
|   |     |          | Deleted:   | H_xxP_AOC_D3FD   |
| 5 | 2.3 | 23/04/09 | All – complete re-print for Issue 2.3  |  |
|   |     |          | Updated:   | H_FCP_AOC_3S07, H_FCP_AOC_4S91, H_FCP_AOC_5CBH, H_FCP_AOC_D3FD, H_FCP_OBS_2210, H_FCP_OBS_2241, H_FCP_OBS_2242, H_FCP_OBS_2245, H_FCP_OBS_2249, H_FCP_OBS_2251, H_FCP_OBS_2449, H_FCP_OBS_2451, H_FCP_OBS_2810, H_FCP_OBS_2845   |
|   |     |          | Added:   | H_FCP_AOC_0SFX, H_FCP_AOC_D5DF, H_FCP_OBS_2243, H_FCP_OBS_2842, H_FCP_OBS_2843, H_FCP_OBS_2844, xH_FCP_AOC_3035  |
|   |     |          | Deleted:   | H_FCP_AOC_3035   |
| 6 | 2.4 | 06/05/09 | Front Page, Change Summary, Change Record Sheet and List of Procedures replaced. |  |
|   |     |          | Updated:   | H_FCP_AOC_4R34, H_FCP_AOC_4S91, H_FCP_AOC_D5DF, H_FCP_AOC_D5SM   |
|   |     |          | Added:   |  |
|   |     |          | Deleted:   | xH_FCP_AOC_3035  |
| 7 | 2.5 | 07/10/09 | Front Page, Change Summary, Change Record Sheet and List of Procedures replaced. |  |
|   |     |          | Updated:   | H_FCP_AOC_0OCCM, H_FCP_AOC_1STM, H_FCP_AOC_1STO, H_FCP_AOC_3011, H_FCP_AOC_3O01, H_FCP_AOC_3S02, H_FCP_AOC_3S03, H_FCP_AOC_3S04, H_FCP_AOC_3S05, H_FCP_AOC_4R20, H_FCP_AOC_4R44, H_FCP_AOC_4S41, H_FCP_AOC_4S91, H_FCP_AOC_DGYR, H_FCP_AOC_DODD  |
|   |     |          | Added:   | H_FCP_AOC_4S4X, H_FCP_AOC_8CCM, H_FCP_AOC_DCIR, H_FCP_AOC_DDEF   |
|   |     |          | Deleted:   |  |
| 8 | 3.0 | 13/04/10 | Complete re-print  |  |
|   |     |          | Updated:   | H_FCP_AOC_0OCCM, H_FCP_AOC_0SFX, H_FCP_AOC_4R20, H_FCP_AOC_4S11, H_FCP_AOC_4S81, H_FCP_AOC_4S91, H_FCP_AOC_8CCM, H_FCP_AOC_8ON1, H_FCP_AOC_D3FD  |
|   |     |          | Added:   | H_FCP_AOC_DCOV   |
|   |     |          | Deleted:   |  |
| 9 | 3.1 | 05/09/11 | Front Page, Change Summary, Change Record Sheet and List of Procedures replaced. |  |





















































|  |  |  |          |   |
|--|--|--|----------|---|
|  |  |  | Updated: | H_FCP_AOC_1STM, H_FCP_AOC_1STO,<br>H_FCP_AOC_4S11, H_FCP_AOC_4S51,<br>H_FCP_AOC_4S52, H_FCP_AOC_4S71,<br>H_FCP_AOC_5007, H_FCP_AOC_8CCM,<br>H_FCP_AOC_8ON1, H_FCP_AOC_8ON2,<br>H_FCP_AOC_D3FD, H_FCP_AOC_DDEF |
|  |  |  | Added:   | H_FCP_AOC_8CCZ, H_FCP_AOC_8DPT,<br>H_FCP_AOC_8PMM, H_FCP_AOC_DSTF   |
|  |  |  | Deleted: |   |








































## Introduction



## 2.3 ACMS Flight Control Procedures

|   |                                |  |    |            |
|---|--------------------------------|--|----|------------|
|    | <a href="#">H_FCP_AOC_00CM</a> | Procedure for pointing in OCM                          | 6  | 04/03/2010 |
|    | <a href="#">H_FCP_AOC_0SCM</a> | Procedure for SCM Fine Pointing                        | 2  | 24/03/2009 |
|    | <a href="#">H_FCP_AOC_0SFX</a> | Procedure for planning transition to SCM               | 3  | 04/03/2010 |
|    | <a href="#">H_FCP_AOC_1GDR</a> | Update GRY biases                                      | 3  | 23/03/2009 |
|    | <a href="#">H_FCP_AOC_1GSM</a> | Update GYR scale factors and misalignments             | 2  | 23/03/2009 |
|    | <a href="#">H_FCP_AOC_1STM</a> | Update STR misalignments                               | 4  | 24/02/2011 |
|    | <a href="#">H_FCP_AOC_1STO</a> | Update STR Alignment Quaternion                        | 4  | 24/02/2011 |
|    | <a href="#">H_FCP_AOC_3000</a> | ACMS health check                                      | 2  | 02/02/2009 |
|    | <a href="#">H_FCP_AOC_3001</a> | Verify SCM Configuration                               | 1  | 04/08/2008 |
|    | <a href="#">H_FCP_AOC_3011</a> | ERD buffer dump  | 2  | 05/10/2009 |
|    | <a href="#">H_FCP_AOC_3A01</a> | Transition from OCM or SCM to SAM                      | 4  | 20/03/2009 |
|    | <a href="#">H_FCP_AOC_3M02</a> | Update Control Parameters - inertia related            | 1  | 02/08/2008 |
|    | <a href="#">H_FCP_AOC_3M03</a> | Update Sun Earth Ephemerides                           | 1  | 03/08/2008 |
|    | <a href="#">H_FCP_AOC_3O01</a> | Perform Delta-V  | 12 | 23/07/2009 |
|    | <a href="#">H_FCP_AOC_3O02</a> | Entry in OCM for first Delta-V                         | 1  | 03/08/2008 |
|    | <a href="#">H_FCP_AOC_3O04</a> | Change ACMS mode from SCM to OCM                       | 3  | 02/12/2008 |
|    | <a href="#">H_FCP_AOC_3O05</a> | Change ACMS mode from SAM to OCM                       | 3  | 24/03/2009 |
|    | <a href="#">H_FCP_AOC_3S01</a> | Perform SCM Fine Pointing                              | 2  | 05/12/2008 |
|    | <a href="#">H_FCP_AOC_3S02</a> | Perform SCM Raster Pointing                            | 3  | 13/05/2009 |
|   | <a href="#">H_FCP_AOC_3S03</a> | Perform SCM scan                                       | 2  | 13/05/2009 |
|  | <a href="#">H_FCP_AOC_3S04</a> | Command Peak-up  | 2  | 21/05/2009 |
|  | <a href="#">H_FCP_AOC_3S05</a> | Command SSO Tracking                                   | 2  | 21/05/2009 |
|  | <a href="#">H_FCP_AOC_3S06</a> | Science Observations                                   | 1  | 03/08/2008 |
|  | <a href="#">H_FCP_AOC_3S07</a> | Entry into SCM for the first time after PM start/reset | 7  | 21/04/2009 |
|  | <a href="#">H_FCP_AOC_4001</a> | ACC RM Enable/Disable                                  | 1  | 01/08/2008 |
|  | <a href="#">H_FCP_AOC_4C01</a> | Update CRS ARAD thresholds                             | 2  | 06/08/2008 |
|  | <a href="#">H_FCP_AOC_4R14</a> | Declare RWL assembly operational                       | 4  | 23/03/2009 |
|  | <a href="#">H_FCP_AOC_4R20</a> | Perform RWL biasing in SCM                             | 15 | 04/03/2010 |
|  | <a href="#">H_FCP_AOC_4R34</a> | Perform RWL bias in OCM                                | 12 | 04/05/2009 |
|  | <a href="#">H_FCP_AOC_4R44</a> | Update RWL misalignment                                | 2  | 21/05/2009 |
|  | <a href="#">H_FCP_AOC_4S01</a> | Declare STR Operational                                | 2  | 24/03/2009 |
|  | <a href="#">H_FCP_AOC_4S11</a> | Make STR1 operational as main                          | 5  | 26/07/2010 |
|  | <a href="#">H_FCP_AOC_4S21</a> | Make STR2 operational as main                          | 2  | 22/03/2009 |
|  | <a href="#">H_FCP_AOC_4S41</a> | Update S/C orbital velocity in STR                     | 3  | 08/09/2009 |
|  | <a href="#">H_FCP_AOC_4S4X</a> | Update S/C orbital velocity in STR                     | 1  | 08/09/2009 |
|  | <a href="#">H_FCP_AOC_4S51</a> | Memory dump for STR main                               | 2  | 22/07/2010 |
|  | <a href="#">H_FCP_AOC_4S52</a> | Memory dump for STR redundant                          | 2  | 22/07/2010 |
|  | <a href="#">H_FCP_AOC_4S61</a> | Patch memory of the main STR                           | 1  | 03/08/2008 |
|  | <a href="#">H_FCP_AOC_4S62</a> | Patch memory of the redundant STR                      | 1  | 03/08/2008 |
|  | <a href="#">H_FCP_AOC_4S71</a> | Dump defective pixel table for STR main                | 2  | 28/05/2010 |
|  | <a href="#">H_FCP_AOC_4S81</a> | Update parameters for STR main                         | 4  | 01/04/2010 |
|  | <a href="#">H_FCP_AOC_4S91</a> | Dump STR CCD Image                                     | 8  | 23/10/2009 |
|  | <a href="#">H_FCP_AOC_5004</a> | Maintenance phase of 1 day period                      | 1  | 03/08/2008 |
|  | <a href="#">H_FCP_AOC_5007</a> | STR health check                                       | 2  | 03/09/2010 |
|  | <a href="#">H_FCP_AOC_5008</a> | CRS health check                                       | 1  | 03/08/2008 |
|  | <a href="#">H_FCP_AOC_5009</a> | SAS health check                                       | 1  | 03/08/2008 |
|  | <a href="#">H_FCP_AOC_5010</a> | AAD health check                                       | 1  | 03/08/2008 |
|  | <a href="#">H_FCP_AOC_5011</a> | RCS Health Check                                       | 2  | 02/02/2009 |
|  | <a href="#">H_FCP_AOC_5012</a> | ACC Health Check                                       | 5  | 05/03/2009 |
|  | <a href="#">H_FCP_AOC_5013</a> | GYR health check                                       | 1  | 03/08/2008 |
|  | <a href="#">H_FCP_AOC_5014</a> | RWL health check                                       | 2  | 02/02/2009 |
|  | <a href="#">H_FCP_AOC_5CBH</a> | Switch ON thruster catbed heaters                      | 2  | 21/04/2009 |

|   |                                |   |    |            |
|---|--------------------------------|---|----|------------|
|    | <a href="#">H_FCP_AOC_8CCM</a> | Dump STRM CCD Image   | 10 | 23/03/2011 |
|    | <a href="#">H_FCP_AOC_8CCZ</a> | Dump STRM CCD Image   | 2  | 02/03/2011 |
|    | <a href="#">H_FCP_AOC_8DPT</a> | Patch STR Defective Pixel Table                               | 9  | 13/04/2011 |
|    | <a href="#">H_FCP_AOC_8ON1</a> | Make STR1 operational and configure mode                      | 8  | 02/03/2011 |
|    | <a href="#">H_FCP_AOC_8ON2</a> | Make STR2 operational and configure mode                      | 4  | 02/03/2011 |
|    | <a href="#">H_FCP_AOC_8PM1</a> | Patch STR1 Memory   | 1  | 03/08/2008 |
|    | <a href="#">H_FCP_AOC_8PM2</a> | Patch STR2 memory   | 1  | 03/08/2008 |
|    | <a href="#">H_FCP_AOC_8PMM</a> | Patch STRmain Memory  | 1  | 17/05/2011 |
|    | <a href="#">H_FCP_AOC_D3FD</a> | Configure DTM for FD  | 9  | 11/10/2010 |
|    | <a href="#">H_FCP_AOC_D3LW</a> | Enable/Disable Low-Rate Mode Telemetry                        | 1  | 13/01/2009 |
|    | <a href="#">H_FCP_AOC_D5DF</a> | Restore default OBDB for first dV                             | 4  | 04/05/2009 |
|    | <a href="#">H_FCP_AOC_D5SM</a> | Update RCS Control Parameters - thrust level related          | 4  | 04/05/2009 |
|    | <a href="#">H_FCP_AOC_DAFO</a> | Herschel ACMS : Set ACMS FDIR Mode                            | 1  | 03/03/2009 |
|    | <a href="#">H_FCP_AOC_DCIR</a> | Modify CIR flag in OBDB                                       | 4  | 30/09/2009 |
|    | <a href="#">H_FCP_AOC_DCOV</a> | Update STR Covariance Check related parameters                | 1  | 08/03/2010 |
|    | <a href="#">H_FCP_AOC_DDEF</a> | Update Default OBDB Values                                    | 3  | 15/12/2010 |
|    | <a href="#">H_FCP_AOC_DGYR</a> | Disable GYR checks prior to CRYO cover release                | 2  | 14/06/2009 |
|    | <a href="#">H_FCP_AOC_DODB</a> | Herschel ACMS : Generic OBDB Modification Procedure           | 1  | 03/03/2009 |
|   | <a href="#">H_FCP_AOC_DODD</a> | Generic OBDB Dump Procedure                                   | 3  | 25/08/2009 |
|  | <a href="#">H_FCP_AOC_DRMR</a> | Read RM Register Content                                      | 2  | 09/01/2009 |
|  | <a href="#">H_FCP_AOC_DRWL</a> | Enable/Disable RWS Low Speed Zone avoidance                   | 1  | 23/03/2009 |
|  | <a href="#">H_FCP_AOC_DSTF</a> | STR FDIR Disable/Enable                                       | 3  | 11/02/2011 |
|  | <a href="#">H_FCP_OBS_2210</a> | Load ACC OBS in EEPROM  | 4  | 13/04/2009 |
|  | <a href="#">H_FCP_OBS_2241</a> | Update ACC PM PROM ground image from memory dump              | 2  | 13/04/2009 |
|  | <a href="#">H_FCP_OBS_2242</a> | Monitor dump of ACC PM EEPROM memory area                     | 5  | 21/04/2009 |
|  | <a href="#">H_FCP_OBS_2243</a> | Update ACC PM EEPROM ground image from memory dump            | 2  | 10/04/2009 |
|  | <a href="#">H_FCP_OBS_2245</a> | Update ACC CPU RAM ground image from memory dump              | 4  | 21/04/2009 |
|  | <a href="#">H_FCP_OBS_2249</a> | Update ACC CPU System Registers ground image from memory dump | 2  | 10/04/2009 |
|  | <a href="#">H_FCP_OBS_2251</a> | Update ACC PM COCOS Registers ground image from memory dump   | 2  | 10/04/2009 |
|  | <a href="#">H_FCP_OBS_2263</a> | Check ACC OBS image in EEPROM (checksum calculation)          | 2  | 29/01/2009 |
|  | <a href="#">H_FCP_OBS_2449</a> | Update ACC SGM ground image from memory dump                  | 3  | 13/04/2009 |
|  | <a href="#">H_FCP_OBS_2451</a> | Update ACC CROME Registers ground image from memory dump      | 4  | 10/04/2009 |
|  | <a href="#">H_FCP_OBS_2810</a> | Load STR OBS in EEPROM  | 2  | 13/04/2009 |
|  | <a href="#">H_FCP_OBS_2812</a> | Load STR Star Catalogue in EEPROM                             | 1  | 13/01/2009 |
|  | <a href="#">H_FCP_OBS_2842</a> | Update STR EEPROM ground image from memory dump               | 1  | 03/04/2009 |
|  | <a href="#">H_FCP_OBS_2843</a> | Update STR EEPROM ground image from memory dump               | 2  | 03/04/2009 |
|  | <a href="#">H_FCP_OBS_2844</a> | Update STR RAM ground image from memory dump                  | 2  | 03/04/2009 |
|  | <a href="#">H_FCP_OBS_2845</a> | Update STR RAM ground image from memory dump                  | 3  | 03/04/2009 |