This document contains HAZARDOUS operations.
Table of Contents:

1.0 INFORMATION .................................................................................................... 1
  1.1 Objective ........................................................................................................ 2
  1.2 Special Instructions All Operations ................................................................. 2
  1.3 Operations List ............................................................................................... 3
2.0 SAFETY INFORMATION .................................................................................... 7
  2.2 Safety Requirements ...................................................................................... 7
  2.4 Reference Safety Documentation .................................................................... 7
3.0 STAGING REQUIREMENTS ........................................................................... 8
  3.1 Required Engineering Documentation ........................................................... 8
    3.1.1 Drawings .................................................................................................... 8
  3.2 Parts, Materials, Equipment, and Special Tools ............................................. 8
    3.2.1 Flight Parts ................................................................................................ 8
    3.2.3 Non-Flight Parts ..................................................................................... 8
    3.2.4 Non-Flight Materials .............................................................................. 8
    3.2.7 Tools and Test Equipment ...................................................................... 9
    3.2.8 Personal Protective Equipment ............................................................. 9
4.0 PLANNING REQUIREMENTS .......................................................................... 10
  4.1 Critical Skill Requirements ............................................................................ 10
  4.4 Support Services, Commodities, and Equipment ......................................... 11
    4.4.8 Support ................................................................................................... 11
  4.5 Supporting Subtasks ..................................................................................... 12
5.0 CONFIGURATION ACCOUNTING AND VERIFICATION ............................. 13
  5.1 Specific OMRS Requirements Satisfied by this TOP .................................... 13
    5.1.1 OMRS References .................................................................................. 21
  5.2 General OMRS Requirements Applicable to this TOP ................................ 21
  5.3 Configuration Verification Recording ............................................................ 22
List of Contents

OPERATION 37 - NAVAIDS Activation ................................................................................. 1
OPERATION 38 - Instrumentation .......................................................................................... 135
Sep Camera Heater Deactivation ......................................................................................... 195
OPERATION 39 - Caution & Warning and LCC EMON Activation ...................................... 201
OPERATION 40 - OMS/RCS System ..................................................................................... 207
OPERATION 41 - ET Liquid Level Point Sensor/Bus Redundancy Checks ........................... 217
OPERATION 42 - APU Systems ............................................................................................ 225
OPERATION 43 - GN&C System Operation ........................................................................... 251
OPERATION 44 - MPS Helium Tank Load GSE Set Point Verification ................................. 289
OPERATION 45 - ECLSS System .......................................................................................... 307
OPERATION 46 - Hydraulic System ...................................................................................... 377
OPERATION 47 - Fuel Cell Purge ........................................................................................ 401
OPERATION 48 - SRB PIC Resistance Test (Go) ................................................................. 407
OPERATION 49 - DPS Systems ............................................................................................ 411
OPERATION 50 - MET Initialization and Switch/Circuit Breaker Configuration .................. 535
OPERATION 51 - OMS Propellant Tank Repress ................................................................. 553
OPERATION 52 - Orbiter/GSE PIC Resistance Test ............................................................ 577
OPERATION 53 - Middeck Payload Interface Verification Test ........................................... 591
OPERATION 54 - Potable/Supply Water Tank A Drain Options ........................................... 657
OPERATION 55 - EPDC/Fuel Cell Ground Power Connection and FC Load Share Adjustment .......................................................... 673
OPERATION 56 - Post Abort Water Intrusion Inspection ....................................................... 681
OPERATION 57 - Final Inspection ........................................................................................ 689
OPERATION 58 - P/L SSP/PRLA Switch Configuration ....................................................... 699
OPERATION 59 - EPDC Post-Launch Securing .................................................................... 707
OPERATION 60 - Reserved ................................................................................................. 715
OPERATION 61 - SRB Ignition S&A Device Verification (Contingency) .............................. 717
OPERATION 62 - GLS Functional Initialization and LCC Activation ..................................... 723
OPERATION 63 - Reserved ................................................................................................. 767
OPERATION 64 - SRB HPU N2H4 Manifold Refill and Bearing Seal Soak .......................... 769
OPERATION 65 - GLS Recycle to T-20 Minutes ................................................................. 775
OPERATION 66 - ECLSS Safing Scrub/Turnaround Ops Contingency ................................ 827
OPERATION 67 - FC/PRSD System Safing (Contingency) .................................................. 835
OPERATION 68 - Reserved ................................................................................................. 839
OPERATION 69 - Fuel Cell Performance Calibration and PRSD System Integrity Check .......................... 841
OPERATION 70 - FEP RF Source Verification ..................................................................... 857
OPERATION 71 - ET LO2 Feedline Bellows Heater Functional Test ...................................... 861
OPERATION 72 - ET Bi-Pod Heater Verification ................................................................... 865
OPERATION 73 - WWMS Preparations for Switch List ......................................................... 871
OPERATION 74 - Orbiter Potable (L-3 Day) Water Samples and Tank A Quantity Adjustment .......................................................... 887
OPERATION 75 - Waste Tank Quantity Adjustment ............................................................. 911
OPERATION 76 - Shuttle Ascent Switch List ............................................................... 923
Section 1 - Flight Deck/C&W Setups ........................................................................... 924
Flight Deck Switch List ............................................................................................... 927
Section 2 - Aft Flight Deck/Middeck/Airlock/ Waste Management Station............... 1015
Aft Flight Deck Switch List ........................................................................................ 1018
Middeck Switch List ................................................................................................... 1074
Middeck Floor (FWD of Airlock)............................................................................... 1095
Middeck Experiment Switch List ................................................................................ 1095
Waste Management Station Switch List ..................................................................... 1103
OPERATION 77 - Reserved....................................................................................... 1107
OPERATION 78 - Reserved....................................................................................... 1109
OPERATION 79 - Pre-Ascent Switch Lists ................................................................. 1111
OPERATION 80 - Switchguard Installation/Verification ........................................... 1117
OPERATION 81 - ET/Orbiter Plate Gap Transducer Evaluation .............................. 1133
OPERATION 82 - ET Camera RF Open Loop Functional Test.................................. 1143
OPERATION 83 - Reserved....................................................................................... 1149
OPERATION 84 - Reserved....................................................................................... 1151
OPERATION 85 - Reserved....................................................................................... 1153
OPERATION 86 - Reserved....................................................................................... 1155
OPERATION 87 - Reserved....................................................................................... 1157
OPERATION 88 - Reserved....................................................................................... 1159
OPERATION 89 - Reserved....................................................................................... 1161
OPERATION 90 - Thermal Protection System Inspection.......................................... 1163
OPERATION 91 - Engineering Inspection/Additional Micro-Inspection............... 1179
OPERATION 92 - Pole CES Assembly Lowering from 195-ft Level......................... 1183
OPERATION 93 - Vehicle Fire Damage Inspection Post Abort ................................. 1191
OPERATION 94 - Equipment Return......................................................................... 1193
OPERATION 95 - Reserved - ET ............................................................................... 1195
OPERATION 96 - Reserved - SRB ............................................................................. 1197
OPERATION 97 - FCP Pump Motor Event Configuration......................................... 1199
OPERATION 899 - Walkdown Discrepancy List ....................................................... 1205

List of Illustrations
Figure 46-1 - Knee of Circulation Pump Pressure Curve ............................................. 388
Figure 46-2 - Knee of Circulation Pump Pressure Curve, Detail ................................. 389
Figure 76-1 - Sections P-1, P-2, P-3, P-4, and P-5 ................................................. 1013
Figure 76-2 - Section P-6: Caution and Warning Software Changes (Ascent Switches)
(For Reference Only) ................................................................................................. 1014
Figure 899-1 - Walkdown Discrepancy List ............................................................... 1206
Figure 899-2 - MLP Zero Level ................................................................................. 1211
1.0 INFORMATION

NOTE

Calibration Data Is Detected
A keyword search performed on this WAD indicates it may contain calibration data recordings. This keyword search is limited and variations other than the USA Writer's Handbook (USA008777) approved format for calibration data recording may not be detected. Calibration data recordings in deviations, attachments, or Pen & Inks will not be detected.
1.1 Objective

See S0007.100 for objective of all S0007 dot books.

1.2 Special Instructions All Operations

Refer to OMI S0007.100 for Special Instructions All Operations.

S0007 is an integrated activity. All constraints for S0007 activities will be controlled by S0007.200. S0007.100, S0007.300, S0007.400, S0007.500 and S0007.600 are part of the S0007 family series and therefore they do not require a Task Team Readiness and will be controlled by S0007.200.
# 1.3 Operations List

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Shop/Html Rm Console</th>
<th>OPR</th>
<th>Haz (Y/N)</th>
<th>Duration (Hrs)</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>NAVAIDS Activation</td>
<td>N/A/ C2</td>
<td>COM</td>
<td>Y</td>
<td>2.0</td>
<td>1</td>
</tr>
<tr>
<td>38</td>
<td>Instrumentation</td>
<td>INS/ C9</td>
<td>INS</td>
<td>N</td>
<td>3.0</td>
<td>135</td>
</tr>
<tr>
<td>39</td>
<td>Caution &amp; Warning and LCC EMON Activation</td>
<td>ECL, MPS, OMS/ C4, C5, C7, C8</td>
<td>ECL, MPS, OMS</td>
<td>N</td>
<td>1.0</td>
<td>201</td>
</tr>
<tr>
<td>40</td>
<td>OMS/RCS System</td>
<td>OMS/ C7, C8</td>
<td>OMS</td>
<td>N</td>
<td>1.0</td>
<td>207</td>
</tr>
<tr>
<td>41</td>
<td>ET Liquid Level Point Sensor/Bus Redundancy Checks</td>
<td>MPS/ C4</td>
<td>MPS</td>
<td>N</td>
<td>1.0</td>
<td>217</td>
</tr>
<tr>
<td>42</td>
<td>APU Systems</td>
<td>APU/ C8</td>
<td>APU</td>
<td>N</td>
<td>2.0</td>
<td>225</td>
</tr>
<tr>
<td>43</td>
<td>GN &amp; C System Operations</td>
<td>GNC/ C11</td>
<td>GNC</td>
<td>Y</td>
<td>4.0</td>
<td>251</td>
</tr>
<tr>
<td>44</td>
<td>MPS Helium Tank Load GSE Set Point Verification</td>
<td>MLP/ C4</td>
<td>MPS</td>
<td>N</td>
<td>4.0</td>
<td>289</td>
</tr>
<tr>
<td>45</td>
<td>ECLSS System</td>
<td>FWD/ C5</td>
<td>ECL</td>
<td>Y</td>
<td>6.0</td>
<td>307</td>
</tr>
<tr>
<td>46</td>
<td>Hydraulic System</td>
<td>HYD/ C8</td>
<td>HYD</td>
<td>N</td>
<td>2.0</td>
<td>377</td>
</tr>
<tr>
<td>47</td>
<td>Fuel Cell Purge</td>
<td>FCP/ C6</td>
<td>FCP</td>
<td>N</td>
<td>1.0</td>
<td>401</td>
</tr>
<tr>
<td>48</td>
<td>SRB PIC Resistance Test (Go)</td>
<td>SBE/ C10</td>
<td>SBE</td>
<td>Y</td>
<td>0.5</td>
<td>407</td>
</tr>
<tr>
<td>49</td>
<td>DPS Systems</td>
<td>DPS/ C12</td>
<td>DPS</td>
<td>N</td>
<td>10.0</td>
<td>411</td>
</tr>
<tr>
<td>50</td>
<td>MET Initialization and Switch/Circuit Breakers Configuration</td>
<td>FWD/ C10</td>
<td>EPD</td>
<td>N</td>
<td>1.0</td>
<td>535</td>
</tr>
<tr>
<td>51</td>
<td>OMS Propellant Tank Repress</td>
<td>OMS/ C7</td>
<td>ORP</td>
<td>Y</td>
<td>1.0</td>
<td>553</td>
</tr>
<tr>
<td>52</td>
<td>Orbiter/GSE PIC Resistance Test</td>
<td>EPD/ C10</td>
<td>EPD</td>
<td>Y</td>
<td>0.5</td>
<td>577</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Process/</td>
<td>Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------------</td>
<td>----------</td>
<td>------</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Middeck Payload Interface Verification Test</td>
<td>PTC/C1</td>
<td>PTC</td>
<td>N</td>
<td>1.0</td>
<td>591</td>
</tr>
<tr>
<td>54</td>
<td>Potable/Supply Water Tank A Drain Options</td>
<td>FWD/C6</td>
<td>FCP</td>
<td>N</td>
<td>1.0</td>
<td>657</td>
</tr>
<tr>
<td>55</td>
<td>EPDC/Fuel Cell Ground Power Connection and FC Load Share Adjustment</td>
<td>EPD/C10</td>
<td>EPD</td>
<td>N</td>
<td>0.5</td>
<td>673</td>
</tr>
<tr>
<td>56</td>
<td>Post Abort Water Intrusion Inspection</td>
<td>AFT/C6</td>
<td>PVD</td>
<td>N</td>
<td>2.0</td>
<td>681</td>
</tr>
<tr>
<td>57</td>
<td>Final Inspection</td>
<td>*FIT/NA</td>
<td>*FIT</td>
<td>Y</td>
<td>2.0</td>
<td>689</td>
</tr>
<tr>
<td>58</td>
<td>P/L SSP/PRLA Switch Configuration</td>
<td>PLE/C1</td>
<td>PLE</td>
<td>N</td>
<td>0.5</td>
<td>699</td>
</tr>
<tr>
<td>59</td>
<td>EPDC Post-Launch Securing</td>
<td>EPD/C10</td>
<td>EPD</td>
<td>N</td>
<td>0.5</td>
<td>707</td>
</tr>
<tr>
<td>60</td>
<td>Reserved</td>
<td>NA/NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>715</td>
</tr>
<tr>
<td>61</td>
<td>SRB Ignition S&amp;A Device Verification (Contingency)</td>
<td>NA/C10</td>
<td>SBE</td>
<td>Y</td>
<td>0.5</td>
<td>717</td>
</tr>
<tr>
<td>62</td>
<td>GLS Functional Initialization and LCC Activation</td>
<td>TCO/INTG</td>
<td>TCO</td>
<td>N</td>
<td>1.0</td>
<td>723</td>
</tr>
<tr>
<td>63</td>
<td>Reserved</td>
<td>NA/NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>767</td>
</tr>
<tr>
<td>64</td>
<td>SRB HPU N2H4 Manifold Refill and Bearing Seal Soak</td>
<td>HPU/C8</td>
<td>HPU</td>
<td>N</td>
<td>2.0</td>
<td>769</td>
</tr>
<tr>
<td>65</td>
<td>GLS Recycle to T-20 Minutes</td>
<td>GLS/INTG</td>
<td>GLS</td>
<td>N</td>
<td>0.5</td>
<td>775</td>
</tr>
<tr>
<td>66</td>
<td>ECLSS Safing Scrub/Turnaround Ops Contingency</td>
<td>ECL/C5</td>
<td>ECL</td>
<td>N</td>
<td>0.5</td>
<td>827</td>
</tr>
<tr>
<td>67</td>
<td>FC/PRSD System Safing (Contingency)</td>
<td>FCP/C6</td>
<td>FCP</td>
<td>N</td>
<td>0.5</td>
<td>835</td>
</tr>
<tr>
<td>68</td>
<td>Reserved</td>
<td>NA/NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>839</td>
</tr>
<tr>
<td>69</td>
<td>Fuel Cell Performance Calibration and PRSD System Integrity Check</td>
<td>FCP/C6</td>
<td>FCP</td>
<td>N</td>
<td>2.0</td>
<td>841</td>
</tr>
<tr>
<td>70</td>
<td>FEP RF Source Verification</td>
<td>LPS/MASTER</td>
<td>LPS</td>
<td>N</td>
<td>0.5</td>
<td>857</td>
</tr>
<tr>
<td>71</td>
<td>ET LO2 Feedline Bellows Heater Functional Test</td>
<td>GSE/C10</td>
<td>EEP</td>
<td>N</td>
<td>0.5</td>
<td>861</td>
</tr>
<tr>
<td>72</td>
<td>ET Bipod Heater Verification</td>
<td>GSE/C10</td>
<td>EEP</td>
<td>N</td>
<td>0.5</td>
<td>865</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Flowsheet</td>
<td>Flow</td>
<td>Quantity</td>
<td>Work Order</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------</td>
<td>-----------</td>
<td>------</td>
<td>----------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>73</td>
<td>WWMS Preparations for Switch List</td>
<td>FCP/ C6</td>
<td>FCP</td>
<td>N</td>
<td>1.0</td>
<td>871</td>
</tr>
<tr>
<td>74</td>
<td>Orbiter Potable (L-3) Water Samples and Tank A Quantity Adjustment</td>
<td>FWD/ C6</td>
<td>FCP</td>
<td>N</td>
<td>2.0</td>
<td>887</td>
</tr>
<tr>
<td>75</td>
<td>Waste Tank Quantity Adjustment</td>
<td>FWD/ C6</td>
<td>FCP</td>
<td>N</td>
<td>1.0</td>
<td>911</td>
</tr>
<tr>
<td>76</td>
<td>Shuttle Ascent Switch List</td>
<td>TCO/ NA</td>
<td>TCO</td>
<td>N</td>
<td>2.0</td>
<td>923</td>
</tr>
<tr>
<td>77</td>
<td>Reserved</td>
<td>NA/ NA</td>
<td>NA</td>
<td>N</td>
<td>NA</td>
<td>1107</td>
</tr>
<tr>
<td>78</td>
<td>Reserved</td>
<td>NA/ NA</td>
<td>NA</td>
<td>N</td>
<td>NA</td>
<td>1109</td>
</tr>
<tr>
<td>79</td>
<td>Pre-Ascent Switch Lists</td>
<td>NA/ NA</td>
<td>TCO</td>
<td>N</td>
<td>0.5</td>
<td>1111</td>
</tr>
<tr>
<td>80</td>
<td>Switchguard Installation/Verification</td>
<td>FWD/ NA</td>
<td>TCO</td>
<td>N</td>
<td>1.0</td>
<td>1117</td>
</tr>
<tr>
<td>81</td>
<td>ET/Orbiter Plate Gap Transducer Evaluation</td>
<td>MPS/ C4, C6</td>
<td>MPS</td>
<td>N</td>
<td>1.0</td>
<td>1133</td>
</tr>
<tr>
<td>82</td>
<td>ET Camera RF Open Loop Functional Test</td>
<td>EEP/ C10</td>
<td>EEP</td>
<td>N</td>
<td>0.5</td>
<td>1143</td>
</tr>
<tr>
<td>83</td>
<td>Reserved</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1149</td>
</tr>
<tr>
<td>84</td>
<td>Reserved</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1151</td>
</tr>
<tr>
<td>85</td>
<td>Reserved</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1153</td>
</tr>
<tr>
<td>86</td>
<td>Reserved</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1155</td>
</tr>
<tr>
<td>87</td>
<td>Reserved</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1157</td>
</tr>
<tr>
<td>88</td>
<td>Reserved</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1159</td>
</tr>
<tr>
<td>89</td>
<td>Reserved</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1161</td>
</tr>
<tr>
<td>90</td>
<td>Thermal Protection System Inspection</td>
<td>TPS/ NA</td>
<td>TPS</td>
<td>N</td>
<td>8.0</td>
<td>1163</td>
</tr>
<tr>
<td>91</td>
<td>Engineering Inspection/Additional Micro-Inspection</td>
<td>TPS/ NA</td>
<td>TPS</td>
<td>N</td>
<td>2.0</td>
<td>1179</td>
</tr>
<tr>
<td>92</td>
<td>Pole CES Assembly Lowering from 195-ft Level</td>
<td>STM/ NA</td>
<td>STM</td>
<td>Y</td>
<td>1.0</td>
<td>1183</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Owner</td>
<td>Owner Type</td>
<td>Status</td>
<td>Lead</td>
<td>Lead Type</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------</td>
<td>-------</td>
<td>------------</td>
<td>--------</td>
<td>------</td>
<td>-----------</td>
</tr>
<tr>
<td>93</td>
<td>Vehicle Fire Damage Inspection Post Abort</td>
<td>PAD LEADER/ NA</td>
<td>PAD LEADER</td>
<td>N</td>
<td>2.0</td>
<td>1191</td>
</tr>
<tr>
<td>94</td>
<td>Equipment Return</td>
<td>FWD/ NA</td>
<td>FWD</td>
<td>N</td>
<td>0.5</td>
<td>1193</td>
</tr>
<tr>
<td>95</td>
<td>Reserved - ET</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1195</td>
</tr>
<tr>
<td>96</td>
<td>Reserved - SRB</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1197</td>
</tr>
<tr>
<td>97</td>
<td>FCP Pump Motor Event Configuration</td>
<td>NA/ NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1199</td>
</tr>
<tr>
<td>899</td>
<td>Walkdown Discrepency List</td>
<td>NA/ NA</td>
<td>PAD LEADER</td>
<td>N</td>
<td>24.0</td>
<td>1203</td>
</tr>
</tbody>
</table>
2.0 SAFETY INFORMATION

2.2 Safety Requirements

Safety requirements pertinent to this TOP are contained in the Operations Instructions.

2.4 Reference Safety Documentation

<table>
<thead>
<tr>
<th>Number</th>
<th>Rev</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNPR 8715.3</td>
<td>LI</td>
<td>KSC Safety Practices Procedural Requirements</td>
</tr>
<tr>
<td>FSOP 6100</td>
<td>LI</td>
<td>USA Florida Safety Operating Plan</td>
</tr>
</tbody>
</table>
### 3.0 STAGING REQUIREMENTS

#### 3.1 Required Engineering Documentation

##### 3.1.1 Drawings

**OPERATION 45**

<table>
<thead>
<tr>
<th>Document No.</th>
<th>Rev</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>V070-332502</td>
<td>(B19)</td>
<td>Hatch Assy-FUS, LH Egress, Complete, X0510.62 Z0 368.00</td>
</tr>
</tbody>
</table>

#### 3.2 Parts, Materials, Equipment, and Special Tools

##### 3.2.1 Flight Parts

**OPERATION 45**

<table>
<thead>
<tr>
<th>Part No./Find No.</th>
<th>Nomenclature</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>5277-0028-002</td>
<td>inconel lockwire</td>
<td>1</td>
</tr>
<tr>
<td>5277-0028-002</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

##### 3.2.3 Non-Flight Parts

**OPERATION 45**

<table>
<thead>
<tr>
<th>Part No./Find No.</th>
<th>Nomenclature</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>KC150K4</td>
<td>cap, tube</td>
<td>1</td>
</tr>
<tr>
<td>G070-582492-002</td>
<td>gage, adapt. probe</td>
<td>1</td>
</tr>
</tbody>
</table>

##### 3.2.4 Non-Flight Materials

**OPERATION 56**

<table>
<thead>
<tr>
<th>Part No./Find No.</th>
<th>Nomenclature</th>
<th>Qty</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>6850014005976</td>
<td>cleaning compound, l.o.c.</td>
<td>1</td>
<td>CO</td>
</tr>
</tbody>
</table>
3.2.7 Tools and Test Equipment

OPERATION 45

<table>
<thead>
<tr>
<th>Part No./Find No.</th>
<th>Nomenclature</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque to</td>
<td>135-160 in-lbs.</td>
<td>1</td>
</tr>
</tbody>
</table>

3.2.8 Personal Protective Equipment

OPERATION 45

<table>
<thead>
<tr>
<th>Nomenclature</th>
</tr>
</thead>
<tbody>
<tr>
<td>ear cups</td>
</tr>
</tbody>
</table>

OPERATION 56

<table>
<thead>
<tr>
<th>Nomenclature</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitrile (Sol-Vex) gloves</td>
</tr>
<tr>
<td>industrial goggles</td>
</tr>
<tr>
<td>face shield</td>
</tr>
</tbody>
</table>

OPERATION 74

<table>
<thead>
<tr>
<th>Nomenclature</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitrile (N-Dex) gloves</td>
</tr>
<tr>
<td>industrial goggles</td>
</tr>
</tbody>
</table>

OPERATION 92

<table>
<thead>
<tr>
<th>Nomenclature</th>
</tr>
</thead>
<tbody>
<tr>
<td>hard hats</td>
</tr>
<tr>
<td>safety shoes/boots</td>
</tr>
</tbody>
</table>
4.0 PLANNING REQUIREMENTS

OIR Required  Yes [ ],  No [ X ]

The Constraints Review for S0007.400 will be conducted as part of S0007.200.

Predecessors: None

Successors: None

Configuration Required: None

4.1 Critical Skill Requirements

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>028</td>
<td>ELECTRICAL CONNECTOR MATE/DEMATE</td>
<td>37</td>
</tr>
<tr>
<td>242</td>
<td>TORQUE AND SAFETY WIRING</td>
<td>45</td>
</tr>
<tr>
<td>342</td>
<td>LIMITED SPECIAL OR HEAVY EQUIPMENT OPERATOR (8719.9)</td>
<td>92</td>
</tr>
<tr>
<td>343</td>
<td>SPECIAL OR HEAVY EQUIPMENT OPERATOR (8719.9)</td>
<td>92</td>
</tr>
</tbody>
</table>
4.4 Support Services, Commodities, and Equipment

4.4.8 Support

<table>
<thead>
<tr>
<th>GSS Organization</th>
<th>Operation/Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNSA</td>
<td>45-116</td>
</tr>
<tr>
<td>PNSA</td>
<td>45-117</td>
</tr>
<tr>
<td>PNSA</td>
<td>45-122</td>
</tr>
<tr>
<td>HESA</td>
<td>92-1</td>
</tr>
<tr>
<td>HESA</td>
<td>92-2</td>
</tr>
<tr>
<td>HESA</td>
<td>92-3</td>
</tr>
<tr>
<td>HESA</td>
<td>92-4</td>
</tr>
<tr>
<td>HESA</td>
<td>92-5</td>
</tr>
<tr>
<td>HESA</td>
<td>92-7</td>
</tr>
<tr>
<td>HESA</td>
<td>92-9</td>
</tr>
<tr>
<td>HESA</td>
<td>92-10</td>
</tr>
<tr>
<td>HESA</td>
<td>92-12</td>
</tr>
<tr>
<td>HESA</td>
<td>92-13</td>
</tr>
<tr>
<td>HESA</td>
<td>92-14</td>
</tr>
<tr>
<td>HESA</td>
<td>92-15</td>
</tr>
<tr>
<td>HESA</td>
<td>92-16</td>
</tr>
<tr>
<td>HESA</td>
<td>92-17</td>
</tr>
<tr>
<td>HESA</td>
<td>92-20</td>
</tr>
<tr>
<td>HESA</td>
<td>92-21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMM Organization</th>
<th>Operation/Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTV</td>
<td>57-3</td>
</tr>
<tr>
<td>OTV</td>
<td>57-24</td>
</tr>
<tr>
<td>OTV</td>
<td>57-30</td>
</tr>
<tr>
<td>TCD</td>
<td>65-22</td>
</tr>
<tr>
<td>TCD</td>
<td>65-23</td>
</tr>
<tr>
<td>TCD</td>
<td>65-24</td>
</tr>
<tr>
<td>TCD</td>
<td>65-25</td>
</tr>
<tr>
<td>TCD</td>
<td>65-26</td>
</tr>
</tbody>
</table>
### 4.5 Supporting Subtasks

<table>
<thead>
<tr>
<th>Subtask Number</th>
<th>Haz Ind</th>
<th>Subtask Title / Function to be Performed</th>
<th>Calling Op / Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1123.010</td>
<td></td>
<td>ORBITER RGA POWER UP/TORQUE TEST</td>
<td>43-33</td>
</tr>
<tr>
<td>V1123.090</td>
<td></td>
<td>RCS LOGIC POWER UP/NORMAL JET SCT</td>
<td>43-41</td>
</tr>
<tr>
<td>V1123.140</td>
<td></td>
<td>GNC SYSTEM POWER DOWN</td>
<td>43-52</td>
</tr>
<tr>
<td>V1123.120</td>
<td></td>
<td>GNC SYSTEM POWER UP</td>
<td>43-53</td>
</tr>
<tr>
<td>V1123.130</td>
<td></td>
<td>SYSTEM SELF TEST</td>
<td>43-72</td>
</tr>
<tr>
<td>V1123.260</td>
<td></td>
<td>IMU POWER UP</td>
<td>43-73</td>
</tr>
<tr>
<td>V1123.320</td>
<td></td>
<td>STAR TRACKER POWER UP</td>
<td>43-74</td>
</tr>
<tr>
<td>V1123.330</td>
<td></td>
<td>STAR TRACKER POWER DOWN</td>
<td>43-74</td>
</tr>
<tr>
<td>S9001.105</td>
<td></td>
<td>SHUTTLE POWER UP/DOWN - VAB/PAD - ECL</td>
<td>45-10</td>
</tr>
<tr>
<td>V1184</td>
<td></td>
<td>ORBITER S/W GPC AND MASS MEMORY READ/WRITE PROCEDURES (LPS)</td>
<td>49-140</td>
</tr>
<tr>
<td>S5009.102</td>
<td>HAZ</td>
<td>FINAL ORDNANCE INSTALLATION/CONNECTION (LPS)</td>
<td>50-24, 50-25, 50-26</td>
</tr>
<tr>
<td>V1314.001</td>
<td></td>
<td>ROUTINE VENT DOOR OPERATIONS USING LPS</td>
<td>56-2, 56-8</td>
</tr>
<tr>
<td>S6444.002</td>
<td>HAZ</td>
<td>SSV ICE AND DEBRIS ASSESSMENT</td>
<td>57-2</td>
</tr>
<tr>
<td>S9001.105</td>
<td></td>
<td>SHUTTLE POWER UP/DOWN - VAB/PAD - ECL</td>
<td>66-5</td>
</tr>
<tr>
<td>V3540</td>
<td></td>
<td>HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER</td>
<td>69-6</td>
</tr>
<tr>
<td>S3006</td>
<td></td>
<td>LOCKOUT/TAGOUT FOR GSE AND FLIGHT HARDWARE PLACARD (PLACARD)</td>
<td>72-1, 72-2</td>
</tr>
<tr>
<td>S9001.104</td>
<td></td>
<td>SHUTTLE POWER UP/POWER DOWN - VAB/PAD - EPD OPTIONS</td>
<td>72-4</td>
</tr>
<tr>
<td>V1122.004</td>
<td></td>
<td>PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS</td>
<td>81-5, 81-13</td>
</tr>
</tbody>
</table>

0-12
### 5.0 CONFIGURATION ACCOUNTING AND VERIFICATION

### 5.1 Specific OMRS Requirements Satisfied by this TOP

<table>
<thead>
<tr>
<th>OMRS NO.</th>
<th>NOMENCLATURE/ EFFECTIVITY</th>
<th>SEQ-STEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>C00CB0.010008B</td>
<td>SAFETY &amp; ARMING DEVICE ASSY, ROCKET MTR</td>
<td>61-012</td>
</tr>
<tr>
<td>L01 BAF;C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1396BA.100-C</td>
<td>SWAB SAMPLING - ORBITER WATER TANK A</td>
<td>74-017</td>
</tr>
<tr>
<td>L01 PISS-1E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1558EB.100</td>
<td>GLACIER DC POWER I/F VERIFICATION</td>
<td>53-014</td>
</tr>
<tr>
<td>L01 PISS-ULF7</td>
<td></td>
<td>53-035</td>
</tr>
<tr>
<td>P1558EB.200</td>
<td>STL DC POWER I/F VERIFICATION</td>
<td>53-133</td>
</tr>
<tr>
<td>L01 PISS-ULF7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1558EB.300</td>
<td>NLP-VACCINE/CGBA DC POWER I/F VERIF.</td>
<td>53-063</td>
</tr>
<tr>
<td>L01 PISS-ULF7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1558EB.400</td>
<td>MICRO-4/CGBA DC POWER I/F VERIFICATION</td>
<td>53-080</td>
</tr>
<tr>
<td>L01 PISS-ULF7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1558EB.500</td>
<td>CBTM/AEM 1 DC POWER I/F VERIFICATION</td>
<td>53-106</td>
</tr>
<tr>
<td>L01 PISS-ULF7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1558EB.600</td>
<td>CBTM/AEM 2 DC POWER I/F VERIFICATION</td>
<td>53-110</td>
</tr>
<tr>
<td>L01 PISS-ULF7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1558EB.700</td>
<td>CBTM/AEM 3 DC POWER I/F VERIFICATION</td>
<td>53-114</td>
</tr>
<tr>
<td>L01 PISS-ULF7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S00E00.033-A</td>
<td>VERTICAL TAIL RSI</td>
<td>90-015</td>
</tr>
<tr>
<td>(1 ) L01 VAP;C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S00E00.033-B</td>
<td>RUDDER RSI</td>
<td>90-015</td>
</tr>
<tr>
<td>(1 ) L01 VAP;C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S00E00.033-C</td>
<td>OMS PODS RSI</td>
<td>90-015</td>
</tr>
<tr>
<td>(1 ) L01 VAP;C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S00E00.033-D</td>
<td>AFT RCS MODULE RSI</td>
<td>90-015</td>
</tr>
<tr>
<td>(1 ) L01 VAP;C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part Number</td>
<td>Description</td>
<td>Location</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>S00E00.033-E</td>
<td>AFT HEAT SHIELD RSI</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.033-F</td>
<td>AFT FUSELAGE RSI</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.033-G</td>
<td>BODY FLAP RSI</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.033-H</td>
<td>OUTBOARD AND INBOARD ELEVON RSI</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.033-I</td>
<td>WING RSI</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.034-A</td>
<td>TILES - ADJACENT TO PENETRATION</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.034-B</td>
<td>OMS POD FUEL AND OXIDIZER RELIEFS</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.034-C</td>
<td>APU EXHAUSTS</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.034-D</td>
<td>FLASH EVAP HI-LOAD VENT DUCT</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.034-E</td>
<td>MPS LO2 RELIEF VENT</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.034-F</td>
<td>FLASH EVAP TOPPING VENT DUCT</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.035-A</td>
<td>RUDDER SPEED BRAKE (R-2):</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.035-B</td>
<td>THERMAL BARRIER LOCATIONS</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.035-C</td>
<td>ARCS THRUSTERS</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.583</td>
<td>ORB/ET UMB PLATE GAP PRES TRANSDUCER TST</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.660</td>
<td>SECURE OMS</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.680</td>
<td>FUEL CELLS LOAD SHARE</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.721-B</td>
<td>FUEL ISOLATION VALVE CYCLE (E)</td>
<td>L01</td>
</tr>
<tr>
<td>S00E00.811</td>
<td>ORB MADS DEACTIVATION</td>
<td></td>
</tr>
</tbody>
</table>
S00E00.976  SOLID STATE RECORDER TERMINATION  38-151
L01  VAF;C

S00E00.995-A  AFT AND PLB AREAS - POST WTR DELUGE INSPECTION  56-004
L01  VAF;C

S00E00.995-C  VENT DOOR WATER REMOVAL POST ABORT  56-005
L01  VAF;C

S00E00.995-D  AFT COMPART WATER REMOVAL POST ABORT  56-005
L01  VAF;C

S00E00.996  POST SSME ABORT - FIRE DAMAGE INSPECTION  93-003
L01  VAF;C

S00E00.A00  RECONNECT GSE PWR  55-003
L01  VAF;C

S00FA0.110  ET CAMERA PRELAUNCH CHECKOUT  82-010
L01  T117-120,122-999

S00FA0.140-A  ET LO2 ULLAGE PRESSURE VERIFICATION  38-119
L02  T67-999
(1  )

S00FA0.140-B  ET LH2 ULLAGE PRESSURE VERIFICATION  38-118
L02  T67-999
(1  )

S00FA0.150  BIPOD HEATER SYSTEM FUNCTIONAL TEST  72-011
L01  T117-999

S00FA0.155  FEEDLINE BELLOWS HEATER FUNCTIONAL TEST  71-008
L01  T117-999

S00FA0.160-A  CLOSEOUT ET POINT SENSOR, BUS RED AND C/O  41-009
L03  V03F34-90
V04F28-90
V05F20-90
(1  )

S00FA0.160-B  CRYO LOADING ET POINT SENSOR CHECKOUT  41-005
L03  V03F34-90
V04F28-90
V05F20-90
(1  )

S00FA0.301  LOAD/VFY FINAL PCM AND PDI FORMATS  49-222
L01  VAP1-90
(1R  )

S00FA0.650  VERIFY ET/ORB SEP CAMERAS-HTR/PWR ON  38-128
L01  VAF;C

S00FB0.230  VERIFY ORB/LPS LDB REDUNDANCY  49-341
L03  V02F22-90
V03F23-90
V04F19-90
(1R  )
V05F12-90

S00FC0.070  PFM HYD SYS CONFIG FOR CRYO LOAD  46-053
(1R )   L04  V02F17-90
         V03F19-90
         V04F13-90
         V05F7-90

S00FC0.071  VFY HYD SYS THERM PARAM DUR CRYO LOAD  46-023
(1R )   L02  V02F12-90
         V03F15-90
         V04F13-90
         V05F2-90

S00FC0.072  PFM LDG GR SYS FINAL FILL  46-029
(1R )   L03  V02F12-90
         V03F15-90
         V04F13-90
         V05F2-90

S00FF0.161  RSRM CHAMBER PRESS XDUCER CALIB  38-135
(1R )   L01  SAF1-999

S00FF0.180  RSRM CHAMBER PRESS BIAS AND CAL CHECK  38-135
(1R )   L01  SAF1-999

S00FG0.085  GPC - MTU CHAN 1 GMT/MET UPDATE  49-388
L01  VAF1-90

S00FM0.110  SPBK & RUDDER GRAVITY POS  43-077
(1R )   L01  VAF1-90

S00FM0.175  PERFORM HYD SYS APU-POST START  46-060
(1R )   L01  VAF1-90

V43CF0.110-A  LEFT POD TANKS  51-018
L01  V03F22-90
         V04F17-90
         V05F12-90

V43CF0.110-B  RIGHT POD TANKS  51-034
L01  V03F22-90
         V04F17-90
         V05F12-90
V45CH0.020 (1R) L03 PERFORM FUEL CELL CALIBRATION
V03F28-90
V04F22-90
V05F15-90

V45CH0.030 (1) L01 PERFORM PRSD SYSTEM INTEGRITY CHECK
V03F31-90
V04F27-90
V05F20-90

V45CH0.040 (1) L01 PERFORM PURGE OF FCP 1, 2 AND 3
V03F22-90
V04F18-90
V05F12-90

V46AL0.610 (1) L02 APU 1 AUTO BIT CHECK
V03F22-90;C
V04F17-90;C
V05F11-90;C

V46AL0.620 (1) L02 APU 2 AUTO BIT CHECK
V03F22-90;C
V04F17-90;C
V05F11-90;C

V46AL0.630 (1) L02 APU 3 AUTO BIT CHECK
V03F22-90;C
V04F17-90;C
V05F11-90;C

V46AL0.900 (1R) L01 CONFIGURE APU SYS HTRS FOR PRE-LNCH CTDN
V03F22-90
V04F17-90
V05F11-90

V46AL0.910-A (1R) L01 PERFORM APU SYSTEM PRESTART VERIF
V03F22-90
V04F17-90
V05F11-90

V46AL0.910-B (1R) L01 PERFORM HYD SYS APU-PRESTART
V03F22-90
V04F17-90
V05F11-90

V46AL0.920 (1R) L01 ACTIVATE ORBITER APU 1, 2 AND 3
V03F22-90
V04F17-90
V05F11-90
V51AF0.245   WEIGHT-ON-WHEELS PROXIMITY SWITCHES  43-057
            (1R  )  L01  V02F22-90
            L01  V03F23-90
            V04F19-90
            V05F12-90

V51AF0.250   REDUNDANT WEIGHT ON WHEELS DETECTOR  43-057
            L01  V02F22-90
            V03F23-90
            V04F19-90
            V05F12-90

V61AQ0.010   2 PSID CABIN INTEGRITY TEST  45-172
            (1R  )  L02  V03F22-90
            V04F18-90
            V05F12-90

V61AT0.094-A LEH SYS 1 O2 SUPPLY VERIF FOR LAUNCH  45-145
            (1R  )  L02  V03F37-90R37;C
            V05F24-90R24;C
            V04F31-90R31;C

V61AT0.094-B LEH SYS 2 O2 SUPPLY VERIF FOR LAUNCH  45-145
            (1R  )  L02  V03F37-90R37;C
            V05F24-90R24;C
            V04F31-90R31;C

V62AE0.010-C TANK A T-3 DAYS SAMPLE  74-016
            (1R  )  L07  V02F21-90
            V03F22-90
            V04F18-90
            V05F12-90

V62AM0.020-B WASTE WATER TANK LIFFOFF QUANTITY  75-023
            (1R  )  L03  V03F28
            V04F21-22
            WASTE WATER TANK LIFFOFF QUANTITY
            L04  V02F27-90
            V03F29-90
            V04F23-90
            V05F15-90

V63AD0.071   RAD FLOW CHECK  45-103
            (VAG59)
            L02  V02F21-90;C
            V03F22-90;C
            V04F18-90;C
            V05F12-90;C

V70CA0.010-A PWR U/L CRIT FORMAT IN IDP1  49-091
            (1   )  L01  VAF1-90;C

V70CA0.010-B PWR U/L CRIT FORMAT IN IDP2  49-093
            (1   )  L01  VAF1-90;C
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>V70CA0.010-C</td>
<td>PWR U/L CRIT FORMAT IN IDP3</td>
<td>49-120</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF1-90;C</td>
</tr>
<tr>
<td>V70CA0.010-D</td>
<td>PWR U/L CRIT FORMAT IN IDP4</td>
<td>49-100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF1-90;C</td>
</tr>
<tr>
<td>V72CA0.020</td>
<td>PRELAUNCH BFC/ENGAGE VERIFICATION</td>
<td>49-057</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1R)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 V03F23-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V04F19-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V05F12-90</td>
</tr>
<tr>
<td>V72CA0.030</td>
<td>PRELAUNCH BFC/CRT VERIFICATION</td>
<td>49-044</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1R)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 V03F23-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V04F19-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V05F12-90</td>
</tr>
<tr>
<td>V72CA0.051-A</td>
<td>REDUNDANT SET ACTIVATION</td>
<td>49-316</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF1-90</td>
</tr>
<tr>
<td>V72CA0.051-B</td>
<td>BFS ACTIVATION</td>
<td>49-131</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF1-90</td>
</tr>
<tr>
<td>V72CA0.051-C</td>
<td>BFS DUMP &amp; COMPARE</td>
<td>49-154</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF1-90</td>
</tr>
<tr>
<td>V74AB0.102</td>
<td>BLANKING AT PAD</td>
<td>37-109</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1R)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 V03F22-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V04F17-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V05F11-90</td>
</tr>
<tr>
<td>V74AB0.190</td>
<td>TACAN GROUND STATION INTERFACE</td>
<td>37-115</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1R)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF1-90</td>
</tr>
<tr>
<td>V74AC0.011</td>
<td>RADAR ALT. POWER ON VERIFICATION</td>
<td>37-063</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1R)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF1-90</td>
</tr>
<tr>
<td>V74AC0.020</td>
<td>RADAR ALTIMETER SELF TEST</td>
<td>37-089</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1R)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF1-90</td>
</tr>
<tr>
<td>V74P00.055</td>
<td>GPS ALMANAC COLLECTION</td>
<td>37-037</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L02 V03FR25;C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V04F;C</td>
</tr>
<tr>
<td>V74P00.090</td>
<td>GPS ENCRYPTION KEY LOAD</td>
<td>37-263</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L03 V03FR27;C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V04F;C</td>
</tr>
<tr>
<td>V74PP0.060-A</td>
<td>GPS1 ALMANAC COLLECTION</td>
<td>37-161</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1R)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF;C</td>
</tr>
<tr>
<td>V74PP0.060-B</td>
<td>GPS2 ALMANAC COLLECTION</td>
<td>37-161</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1R)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L01 VAF;C</td>
</tr>
</tbody>
</table>
V74PP0.060-C  GPS3 ALMANAC COLLECTION  37-161
(1R )  L01  VAF;C

V74PP0.120-A  GPS1 ENCRYPTION KEY LOAD  37-335
(1R )  L01  VAF;C

V74PP0.120-B  GPS2 ENCRYPTION KEY LOAD  37-335
(1R )  L01  VAF;C

V74PP0.120-C  GPS3 ENCRYPTION KEY LOAD  37-335
(1R )  L01  VAF;C

V75AP0.010  CONFIGURE OI PCMMU FOR LCD (GND CNTR)  38-048
(1R )  L01  V02F22-90
       V03F23-90
       V04F19-90
       V05F12-90

V75AP0.030  MTU OSC FREQ VERIFY  38-010
(1R )  L01  V02F22-90
       V03F23-90
       V04F19-90
       V05F12-90

V75AR0.120  SSR 1 AND 2 CONFIG FOR TERMINAL COUNT  38-069
L01  V03F31-90
       V05F20-90
       V04F25-90

V78GA0.010  VERIFY MTU MADS TIMING SIGNALS  38-033
L01  V03F23-90
       V04F19-90
       V05F12-90

V78GA0.020  CONFIGURE MADS FOR TERMINAL COUNT  38-096
L01  V03F23-90
       V04F19-90
       V05F12-90

V78GA0.030  MADS PCM AND WB DATA STAT CK  38-035
L01  V03F23-90
       V04F19-90
       V05F12-90

V79AZ0.080  LAUNCH COUNTDOWN OMS GIMBAL PROFILE  43-016
(VSB48)
L01  V03F22-90
       V04F18-90
       V05F12-90
5.1.1 OMRS References

<table>
<thead>
<tr>
<th>OMRS No.</th>
<th>Nomenclature</th>
<th>Ops/Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>V62AG0.018</td>
<td>SUPPLY H20 TARGETED LIFTOFF QNTY VERIF</td>
<td>54-34</td>
</tr>
</tbody>
</table>

5.2 General OMRS Requirements Applicable to this TOP

<table>
<thead>
<tr>
<th>OMRS NO.</th>
<th>NOMENCLATURE/EFFECTIVITY</th>
<th>SEQ-STEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>V58GEN.042</td>
<td>HYD CIRC PUMP PRESTART CRITERIA</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>L01 V03FR15;G</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V04FR12;G</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V05FR2;G</td>
<td></td>
</tr>
<tr>
<td>V62GEN.045</td>
<td>GALLEY ISOLATION VALVE CONFIGURATION</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>L01 VAF;G</td>
<td></td>
</tr>
<tr>
<td>V62GEN.080</td>
<td>QD AND TEST PORT CAP INSTAL. INSPECT.</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>L01 VAF;G</td>
<td></td>
</tr>
<tr>
<td>V62GEN.100</td>
<td>QD/TP COUPLING &amp; CAP LEAKAGE</td>
<td>-</td>
</tr>
<tr>
<td>(1R )</td>
<td>L01 VAF;G</td>
<td></td>
</tr>
<tr>
<td>V70GEN.030</td>
<td>IDP POWER</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>L01 VAF;G</td>
<td></td>
</tr>
<tr>
<td>V73GEN.030-C</td>
<td>CARE OF GLASS SURFACES</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>L01 VAF;G</td>
<td></td>
</tr>
<tr>
<td>V73GEN.030-D</td>
<td>BRIGHTNESS</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>L01 VAF;G</td>
<td></td>
</tr>
</tbody>
</table>
### 5.3 Configuration Verification Recording

<table>
<thead>
<tr>
<th>Doc No.</th>
<th>Rev/EO</th>
<th>Manifest</th>
<th>Type</th>
<th>Remarks</th>
<th>Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>SJD3211159-303</td>
<td>C</td>
<td>CCCD</td>
<td></td>
<td>GLACIER Cable Mate</td>
<td>53-31</td>
</tr>
<tr>
<td>SJD32107497-307</td>
<td>H</td>
<td>CCCD</td>
<td></td>
<td>NLP-VACCINE/CGBA Cable Mate</td>
<td>53-59</td>
</tr>
<tr>
<td>SJD32111175-301</td>
<td>NC</td>
<td>CCCD</td>
<td></td>
<td>Micro 4/CGBA Cable Mate</td>
<td>53-76</td>
</tr>
<tr>
<td>SJD32111173-301</td>
<td>NC</td>
<td>CCCD</td>
<td></td>
<td>AEM #1, #2 and #3 Cable Mate</td>
<td>53-98</td>
</tr>
<tr>
<td>SJD32111174-301</td>
<td>NC</td>
<td>CCCD</td>
<td></td>
<td>STL Cable Mate</td>
<td>53-129</td>
</tr>
</tbody>
</table>
OPERATION 37  NAVAIDS Activation

Shop: N/A
Cntrl Rm Console: C2
OPR: COM
Zone: 120
Hazard (Y/N): Y
Duration (Hrs): 2.0

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.
Option List and Description

NOTE
Multiple options are contained within this operation. Different options account for the different navaids vehicle configurations, therefore not every option will be performed during a launch countdown.

Option 1 - OV-103/104 Navaids Activation
Activation and Self Test for the following:
TACANs
MSBLS
Radar Altimeters
GPS Activation and Almanac Collection

Option 2 - OV-105 Navaids Activation
Activation and Self Test for the following:
MSBLS
Radar Altimeter
GPS Activation and Almanac Collection

Option 3 - OV-103/104 GPS Encryption Key Load
Power Up GPS and load GPS Encryption Key.

Option 4 - OV-105 GPS Encryption Key Load
Power Up GPS and load GPS Encryption Key.

*** End of Option List and Description ***
Option 1 - OV-103/104 Navaids Activation

NOTE
Perform Option 1 for OV-103 or OV-104.

Option 1 Not Performed:_____

NOTE
NAVAIDS Activation and Self Test and GPS Activation and Almanac Collection may be performed in parallel or out of written order per engineering.

37-1

CNSE

CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
VAA40
PERF PGM KEY - PRESS

37-2

CNSE

PFP (C2)
VAA40 - PRESS
WARM START - PRESS

PFP (VAA40)
VWN42 - PRESS
(SELECT APPL PG B)
GPS Activation and Almanac Collection

37-3

CNSE

CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
VSN59
PERF PGM KEY - PRESS
(SELECT APPL PG B)

NOTE

IDP RSYS is required for the GPS Activation.

37-4

CNSE OTC 132
OTC CDPS

Change responsible console for IDP to Console C2. Expect IO errors during GPS power up.

37-5

CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS
C CO _DEUXG LDBA C2 (X = IDP NO.)
XMIT CMD KEY - PRESS

ISSU N72IV10YD #B002 (Y = IDP NO. MINUS 1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-6

CDPS OTC 132
OTC CNSE

Responsible console for CRT No._____ now assigned to C2.
37-7

CNSE

PFP (VAA41)
VWN42 - PRESS
VWN58 - PRESS
(SELECT APPL PG-B)

37-8

CNSE

CURSOR CNTL (VSN59 PG-B)
GPS POWER UP - 2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
NOTE

In the next step, the VSN59 program will prompt the operator to perform the following:

A Site Select on SPEC 104. The Site Select need be performed only on the initial GPS Powerup. If the IMUs are powered on, bypass the Site Select.

The IMU 1 Operate command will be issued by SPEC 104, ITEM 13. After 5 minutes, the flight software will allow Site Select using SPEC 104. Once the Site Select is completed, the IMU 1 Standby command should be issued. Contact CGNC or CTPE for IMU status. If the IMUs are powered on, the Operate command should not be issued without CGNC concurrence. If the IMUs are already in Operate, the Site Select is not required prior to activating SPEC 055.

Power up the preamplifiers. Select both upper and lower and perform only the switch called out below. Once the switch settings are complete, the operator will acknowledge by selecting PFK1.
IF IMUs are powered off and CGNC has not completed the Site Select, Verify

THEN:
CRT (VSN59 PG-B)
FOLLOW PROGRAM PROMPTS:

TO PERFORM SITE SELECT

TO SET IMU OPERATE COMMAND, THEN RETURN BACK TO STANDBY WHEN SITE SELECT IS COMPLETE

ELSE CGNC has completed Site Select:
CRT (VSN59)
FOLLOW PROGRAM PROMPTS:

TO BYPASS SITE SELECT
OV-103 Switch/CB Configuration

NOTE
If testing is on OV-103, perform OV-103 Switch/CB Configuration.

OV-103 Switch/CB Configuration Not Performed:_____

37-10  CNSE    CDR

PANEL  O14
ROW  D
  MN  A
  GPS
  PRE  AMPL
  UC  CB  -  OPEN
  LC  CB  -  OPEN

37-11  CNSE    CDR  173

PANEL  O16
ROW  D
  MN  C
  GPS
  PREAMPL
  UC  CB  -  CLOSE
  LC  CB  -  CLOSE

37-12  CNSE

CONSOLE  KYBD  (VSN59  PG-B)
PFK1  -  PRESS  (CB  NOW  CLOSED  -  CONTINUE)

37-13  CNSE    CDR  173

PANEL  A13
GPS
PRE-AMPL
  UC  SW  -  MN  C
  LC  SW  -  MN  C

***End of OV-103 Switch/CB Configuration***
OV-104 Switch/CB Configuration

NOTE
If testing is on OV-104 perform OV-104 Switch/CB Configuration.

OV-104 Switch/CB Configuration Not Performed:_____

37-14  CNSE  CDR  173

PANEL O15
    ROW C
    MN B
    GPS 2 PREAMPL UPPER CB - CLOSE

    ROW D
    MN B
    GPS 2 PREAMPL LOWER CB - CLOSE

37-15  CNSE

CONSOLE KYBD (VSN59 PG-B)
    PFK1 - PRESS (CB NOW CLOSED - CONTINUE)

37-16  CNSE  CDR  173

PANEL A13
    GPS
    PRE-AMPL
    UC SW - ON
    LC SW - ON

***End of OV-104 Switch/CB Configuration***

37-17  CNSE

CONSOLE KYBD
    PFK1 - PRESS (SW SETTINGS COMPLETE - CONTINUE)
37-18

**CNSE**

CRT (VSN59 PG-B)

**FOLLOW** PROGRAM PROMPTS:

TO **PERFORM** I/O START.

TO **CALL** UP SPEC 55.

---

**NOTE**

GPS software allows 2 minutes for GPS receiver power-up to occur. A failure will be annunciated should the time be exceeded. Retest may be selected should this event occur.

---

**NOTE**

GPS receiver mode will transition from INIT to NAV upon power-up.

37-19

**CNSE**  **CDR**  **173**

PANEL A13

GPS

POWER SW - ON

37-20

**CNSE**

CRT (VWN58 PG-B)

**VERIFY**

RCVR MODE - NAV

HDR WD - FFFF

RPU FAIL - OFF

BAT LOW - OFF

37-21

**CNSE**

CURSOR CNTL (VSN59)

PFK7 KEY - PRESS (TERMINATE NAV MONITOR)
NOTE

GPS will automatically mode to INIT when the ITEM 10+2 is executed.

NOTE

During transition to “INIT” mode, the VSN59 program may issue a message “Difference between GPS weeks and almanac weeks is greater than 1.” User can follow the program prompts to issue an “Acknowledge/Continue” using the appropriate PFK key when this occurs. A new almanac begins to download upon power up and satellite acquisition, but can take up to 20 minutes or greater to complete.

37-22

CNSE

CURSOR CNTL (VSN59 PG-B)
I/O ITEM 10+2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-23

CNSE

CRT (VSN59 PG-B)
VERIFY
   RCVR MODE - INIT
   HDR WD   EEEE

37-24

CNSE

CURSOR CNTL (VSN59 PG-B)
NAV GPS 2 - ITEM 18
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
37-25

CNSE

CRT (VWN58 PG-B)
VERIFY
GPS is in NAV MODE

RECEIVER STATUS
HEADER WD   FFFF
GPS 2 PWR
   STAT - ON (NAV BIT - 4 SV TRACKING IN
STATE 5 (CAR_TK))

Spec 55 Resume and Call Up

NOTE
IF only one DEU is available for C2 and Navaids Self Test (Spec 101) will be
performed while the GPS Almanac is downloading, perform Spec 55 Resume
and Call Up.

Spec 55 Resume and Call Up Not Performed:_____

37-26

CNSE

CURSOR CNTL (VSN59 PG-B)
PFK7 - PRESS (TERMINATE NAV MONITOR

37-27

CNSE

CURSOR CNTL (VSN59 PG-B)
SPEC RESUME
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

CRT
VERIFY GPC MEMORY (9011) ON CRT IN USE.
NOTE
Perform the call up after NAVAIDS Self Test is complete and GPS testing will resume.

37-28

CNSE
CURSOR CNTL (VSN59 PG-B)
SPEC 55 CALLUP
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
IF PROMPTED PFXX KEY - PRESS (WHERE X IS CRT ASSIGNED TO C2)

CRT
VERIFY SPEC 55 (550) on CRT in use.

***End of Spec 55 Resume and Call Up***
NOTE
The almanac is considered current when the GPS WEEK and ALMANAC WEEK agree to within one week. Downloading a full almanac will take at least 12.5 minutes. During certain satellite/receiver conditions, the Almanac Bit may not toggle from Off to On. This indication may occur if the receiver’s stored almanac contains information from a satellite that has been decommissioned. In this case, mode the receiver to INIT, back to NAV, and then back to INIT to update the Almanac Week status.

NAVAIDS Activation may be performed while the GPS Almanac is being downloaded if the Safety Clears are in Place.

37-29

CNSE

Allow the receiver to remain in NAV Mode until the Almanac Bit toggles from Off to On or for at least 30 minutes.

CRT (VWN58)
RECORD
RECEIVER STATUS
   ALMANAC  _____________ (OFF/ON)
37-30  CNSE

IF Nav Monitor active,
THEN
CURSOR CNTL (VSN59 PG-B)
PFK7 - PRESS (TERMINATE NAV MONITOR)

Not Performed: ______

37-31  CNSE

CURSOR CNTL (VSN59)
INIT GPS 2 - ITEM 15
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-32  CNSE

CRT (VSN59 PG-B)
VERIFY RECEIVER IN INIT
   HEADER WD EEEE
Continue Almanac Download

NOTE
Perform Continue Almanac Download if, after the Receiver was commanded to INIT, the Almanac Week is not equal to GPS Week or GPS Week + 1 (This indicates a full Almanac was not downloaded). The steps within this option may be repeated as necessary to obtain a current almanac week.

Continue Almanac Download Not Performed:_____

37-33  CNSE

CURSOR CNTL (VSN59)
NAV GPS 2 - ITEM 18
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

CRT (VWN58)
VERIFY
RECEIVER STATUS
   RCVR MODE   NAV

GPS 2 PWR
   STAT   ON
37-34  CNSE

CURSOR CNTL (VSN59)
INIT GPS 2 - ITEM 15
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

CRT (VWN58)
VERIFY
RECEIVER STATUS
    RCVR MODE INIT

37-35  CNSE

IF Receiver was commanded to INIT and the Almanac Week is still not equal to GPS Week or GPS Week + 1,

THEN Re-perform the GPS Almanac Collection sequence beginning with step 37-29.

Not Performed:_____

***End of Continue Almanac Download***
37-36

**CNSE**

CURSOR CNTL (VSN59 PG-B)
NAV GPS 2 - ITEM 18
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-37

**CNSE**

CRT (VWN58 PG-B)
RECEIVER STATUS
   HEADER WD   FFFF
GPS 2 PWR
   STAT       ON
NAV DATA
   ALM WK = WEEKS OR WEEKS + 1

OMRSD V74P00.055

37-38

**CNSE**

CONSOLE KYBD (VSN59 PG-B)
PFK7 KEY - PRESS (TERMINATE NAV MONITOR)

37-39

**CNSE**

CURSOR CNTL (VSN59 PG-B)
GPS POWER DN - 2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-40

**CNSE**

CRT (VSN59 PG-B)
**FOLLOW** PROGRAM PROMPTS:

TO TERMINATE IO
NOTE
Due to the configuration of the Receiver Status measurement, a message indicating GPS Power Off was successful may appear on VSN59 prior to powering off the GPS receiver. This is expected and the following step can be performed as written.

37-41 CNSE CDR 173

Panel A13
GPS
POWER SW - OFF

37-42 CNSE

Console Kybd (VSN59 PG-B)
PFK1 Key - Press to turn off preamp switches

NOTE
OV-104 preamp switches are 3 position switches. Center and Down are Off. Place switches in the Off (Down) position.

37-43 CNSE MS1 173

Panel A13
GPS
PRE-AMP
UC SW - OFF
LC SW - OFF

37-44 CNSE

CRT (VSN59 PG-B)
Follow Program Prompts:
PFK1 - Press to verify preamp PWR SW is OFF
PFK2 - Press to bypass CBs
37-45  CNSE

CRT (VSN59 PG-B)
FOLLOW PROGRAM PROMPTS

TO ISSUE RESUME TO ACTIVE CRT

VERIFY RESUME COMPLETE.

***End of GPS Activation and Almanac Collection***
CRT Return to C12

NOTE
Perform “CRT Return to C12” if there is no further need for CRT. If C2 has only one CRT and NAVAIDS Activation will commence, then do not perform this option.

CRT Return to C12 Not Performed:______

37-46 CNSE
CURSOR CNTL (VSN59)
CRT RETURN TO DPS
XMIT CURSOR KEY - PRESS

PLACE CURSOR AT THE END OF:
C CO _DEUXG LDBA C12  (X = CRT NO.)
XMIT CMD KEY - PRESS

HOME CMD KEY - PRESS
ISSU N72IV10YD 0 (Y = CRT No. Minus 1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-47 CNSE OTC 132
OTC CDPS

C2 CRT returned to C12. GPS activities are complete.

*** End of CRT Return to C12 ***

37-48 CNSE
CURSOR CNTL (VSN59)
TERMINATE
XMIT CURSOR KEY - PRESS
NAVAIDS Activation

**NOTE**
Do not perform NAVAIDS Activation if NAVAIDS Self Test was already performed during the present flow unless Engineering evaluation determines that repeating the test will add significant confidence in flight readiness.

NAVAIDS Activation Not Performed:______

**NOTE**
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

37-49       CNSE

CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
VAA40
PERF PGM KEY - PRESS

PFP (VAA40)
VAA40 - PRESS
WARM START - PRESS
VWN99 (NAV OV) - PRESS
(SELECT APPL PAGE-B)
NAVAIDS Circuit Breaker Closing

37-50    CNSE    CDR    173

PANEL O14
ROW C
    MN A
         TACAN 1 CB - CLOSE (GUARDED)

ROW E
    MN A
         RDR ALTM 1 CB - CLOSE (GUARDED)
         MLS 1 CB - CLOSE (GUARDED)

37-51    CNSE    CDR

IF IN SUPPORT OF OV-103,

THEN
PANEL O15
ROW C
    MN B
         TACAN 2 CB - CLOSE (GUARDED)

Not Performed:______
37-52  CNSE   CDR

IF IN SUPPORT OF OV-104,

THEN
PANEL 015
ROW E
  MN B
   TACAN 2 CB - CLOSE (GUARDED)

Not Performed:_____

37-53  CNSE   CDR

PANEL 015
ROW E
  MN B
   RDR ALTM 2 CB - CLOSE (GUARDED)
   MLS 2 CB - CLOSE (GUARDED)

37-54  CNSE   CDR

PANEL 016
ROW C
  MN C
   TACAN 3 CB - CLOSE (GUARDED)

ROW E
  MN C
   MLS 3 CB - CLOSE (GUARDED)

***End of NAVAIDS Circuit Breaker Closing***
TACAN Activation

37-55 CNSE PLT 173

PANEL 07
TACAN 1
ANT SEL SW - AUTO
CHANNEL TW’S - 59Y
MODE SW - T/R

37-56 CNSE PLT 173

PANEL 07
TACAN 2
ANT SEL SW - AUTO
CHANNEL TW’S - 59Y
MODE SW - T/R

37-57 CNSE PLT 173

PANEL 07
TACAN 3
ANT SEL SW - AUTO
CHANNEL TW’S - 59Y
MODE SW - T/R

37-58 CNSE PLT 173

PANEL 07
TACAN 1
MODE SW - GPC
TACAN 2
MODE SW - GPC
TACAN 3
MODE SW - GPC

GMT __________________
37-59

CNSE

CRT (VWN99)
VERIFY
TACAN
1 SW/PWR STAT ON/ON
2 SW/PWR STAT ON/ON
3 SW/PWR STAT ON/ON

37-60

CNSE

IF any of the TACANS remain in receive when switched from T/R to
GPC,

THEN

CURSOR CNTL (VWN99)
CTRL WORD ISU
  XMIT CURSOR - PRESS

CONSOLE KYBD/CRT (VWN99)
FOLLOW COMMAND PROMPTS
TO COMMAND TACAN ____________ (1, 2, 3)
TO T/R, 59Y, S/T - OFF

Not Performed: ______

*** End of TACAN Activation ***
Radar Altimeter Activation

37-61  CNSE  PLT  173

PANEL O8
  RADAR ALTIMETER
    1 SW - ON
    2 SW - ON

GMT______________

37-62  CNSE

CRT (VWN99)
VERIFY
RADAR ALTIMETER
  1
    SW STAT  ON
    PWR STAT ON

  2
    SW STAT  ON
    PWR STAT ON

37-63

IF the Radar Alt Power On Requirement was not satisfied during the OPF flow,

THEN:
CRT (VWN60)
VERIFY
RADAR ALTIMETER

  1
    RALT SW STATUS  ON
    RALT READY  ON
    RALT ALT DATA FT __________

  2
    RALT SW STATUS  ON
    RALT READY  ON
    RALT ALT DATA FT __________

OMRSD V74AC0.011-1R

Not Performed:_____

*** End of Radar Altimeter Activation ***
MSBLS Activation

37-64     CNSE     CDR     173

PANEL 08
MLS
  1 CHANNEL TW - 6
  2 CHANNEL TW - 6
  3 CHANNEL TW - 6

37-65     CNSE     PLT     173

PANEL 08
MLS
  1 SW - ON
  2 SW - ON
  3 SW - ON

GMT

37-66     CNSE

CRT (VWN99)
VERIFY

MSBLS
  1
     SW STAT ON
     PWR STAT ON

  2
     SW STAT ON
     PWR STAT ON

  3
     SW STAT ON
     PWR STAT ON
37-67  CDPS   CDR   173

  KYBD
  I/O RESET
  EXEC

FAULT SUMM

37-68  CDPS   CDR

  CRT
  VERIFY NO UNEXPECTED MLS, TACAN OR ALT FAULT
  SUMMARY MESSAGES.

37-69  CDPS   CDR   173

  KYBD
  SPEC 99
  PRO
  RESUME

*** End of MSBLS Activation ***

NAVAIDS Self Test

37-70  CNSE

  HOME CMD KEY - PRESS
  CONSOLE KYBD (VAN12)
  VAN12
  PERF PGM KEY - PRESS
Transfer 2nd CRT to C2

NOTE
Do not perform Transfer 2nd CRT to C2 if the same CRT that was used for GPS Activation will be used for NAVAIDS Self Test.

Transfer 2nd CRT to C2 Not Performed:_____

37-71  CNSE   OTC    132
       CDPS

Change the responsible console for a CRT to Console C2.

37-72  CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS

C CO _ DEUXG LDBA C2 (X = CRT#)
XMIT CMD KEY - PRESS

HOME CMD KEY - PRESS
ISSU N72IV10YD #B002 (Y = CRT# -1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-73  CDPS   OTC    132
       OTC   CNSE

Responsible console for CRT ____ is now assigned to C2.

***End of Transfer 2nd CRT to C2***
37-74  CNSE

CURSOR CNTL (VAN12 PG-B)
EQUIVALENT DEU
XMIT CURSOR KEY - PRESS

CRT (VAN12)
VERIFY
   SELECT MAJOR MODE

37-75  CNSE

CURSOR CNTL (VAN12 PG-B)
GNC
XMIT CURSOR KEY - PRESS

37-76  CNSE

CURSOR CNTL (VAN12 PG-B)

DEU ______ (ASSIGNED CRT)
XMIT CURSOR KEY - PRESS

37-77  CNSE

CRT (VAN12 PG-B)
VERIFY
   SPEC 101 - CRT X (X = CRT No. ASSIGNED)
   SELECT LRU'S (BLINKING)
NOTE

Azimuth - data valid on for first 1.6 sec max, data 3 deg sign bit alternating +/- every 3.2 sec

Elevation - data valid on for first 1.6 sec max, data 6 deg

Range - data valid on for first 0.2 sec max, data 15.2 nm

Due to a known/documented flight software problem, the MLS Self Test may fail in Azimuth. If the MLS Self Test fails on board in Azimuth, then the MLS Self Test may be repeated.

37-78

CNSE

CURSOR CNTL (VAN12 PG-B)
MLS 1 - ITEM 1
XMIT CURSOR KEY - PRESS
MLS 2 - ITEM 2
XMIT CURSOR KEY - PRESS
MLS 3 - ITEM 3
XMIT CURSOR KEY - PRESS

37-79

CNSE

CURSOR CNTL (VAN12 PG-B)
13 TO START
XMIT CURSOR KEY - PRESS

37-80

CNSE

CRT (VAN12 PG-B)
VERIFY (WHEN SELF TEST IS COMPLETE)

MLS 1 2 3 PASSED (IN GREEN)
37-81  CNSE

**REVIEW** the data on the CRT, Console Printer output or SPA Printer job VAN12, upon termination of VAN12. **Verify** MLS Self Test passed.

Limits are:
- Azimuth: (+/-) 3.0 +/- 0.1 deg
- Elevation: 6.0 +/- 0.1 deg
- Range: 15.2 +/- 0.2 NM

37-82  CNSE  CDR

CRT __________ (SPEC 101)

**Verify:**
- (No Down Arrows)
- MLS 1 STAT column - blank
- MLS 2 STAT column - blank
- MLS 3 STAT column - blank

37-83  CNSE

CURSOR CNTL (VAN12)
ITEM 15 (TERMINATE)
XMIT CURSOR KEY - PRESS
ITEM 16 (INHIBIT)
XMIT CURSOR KEY - PRESS
37-84  

**CNSE**

CRT (VWN99 PG-B)

MSBLS

1

AZ S/T STAT  OFF
EL S/T STAT  OFF
RG S/T STAT  OFF

2

AZ S/T STAT  OFF
EL S/T STAT  OFF
RG S/T STAT  OFF

3

AZ S/T STAT  OFF
EL S/T STAT  OFF
RG S/T STAT  OFF

37-85  

**CNSE**

CURSOR CNTL (VAN12 PG-B)

EQUIVALENT DEU

XMIT CURSOR KEY - PRESS

37-86  

**CNSE**

CURSOR CNTL (VAN12 PG-B)

RA 1 - ITEM 7
XMIT CURSOR KEY - PRESS
RA 2 - ITEM 8
XMIT CURSOR KEY - PRESS

37-87  

**CNSE**

CURSOR CNTL (VAN12 PG-B)

13 TO START
XMIT CURSOR KEY - PRESS
CRT (VAN12 PG-B)
VERIFY
RA
1
  S/T CMD       ON
  DATA VALIDITY GO
  ALTITUDE
  DATA         (1000 +/- 100)

2
  S/T CMD       ON
  DATA VALIDITY GO
  ALTITUDE
  DATA         (1000 +/- 100)

Ra 1 2 PASSED
IF the Radar Altimeter Self Test was not performed in the OPF,

THEN:
CRT (VWN99 PG-B)
VERIFY
RADAR ALTIMETER
1  LOCK ON   GO
S/T CMD ON
DATA VALID GO
ALT DATA FT 1000 +/- 100

2  LOCK ON   GO
S/T CMD ON
DATA VALID GO
ALT DATA FD 1000 +/- 100

OMRSD V74AC0.020-1R

Not Performed:______

CURSOR CNTL (VAN12 PG-B)
ITEM 15 (TERMINATE)
XMIT CURSOR KEY - PRESS

ITEM 16 (INHIBIT)
XMIT CURSOR KEY - PRESS

CRT (VWN99)
RADAR ALTIMETER
1 S/T CMD OFF
2 S/T CMD OFF
37-92  

**CNSE**

CURSOR CNTL (VAN12 PG-B)  
EQUIVALENT DEU  
XMIT CURSOR KEY - PRESS

**NOTE**
When the Self Test is initiated, V74X0070X, V74X0080X, and V74X0090X (TEST STAT MON) will go off and come back on 10 seconds later (max). Monitor VAN12 TEST STAT MON column for TEST AND Then go.

37-93  

**CNSE**

CURSOR CNTL (VAN12 PG-B)  
ITEM 4 (ENABLES TACAN 1)  
XMIT CURSOR KEY - PRESS

ITEM 5 (ENABLES TACAN 2)  
XMIT CURSOR KEY - PRESS

ITEM 6 (ENABLES TACAN 3)  
XMIT CURSOR KEY - PRESS

ITEM 13 (INITIATES SELF TEST)  
XMIT CURSOR KEY - PRESS
37-94  CNSE

CRT (VAN12 PG-B)
TACAN

1 S/T STAT  ON
2 S/T STAT  ON
3 S/T STAT  ON

RANGE
1 DATA STATUS  BLANK
2 DATA STATUS  BLANK
3 DATA STATUS  BLANK

BEARING
1 DATA STATUS  BLANK
2 DATA STATUS  BLANK
3 DATA STATUS  BLANK

1 TEST STAT MON  TEST/GO
2 TEST STAT MON  TEST/GO
3 TEST STAT MON  TEST/GO

TAC 1 2 3 PASSED

Review the data on the CRT, Console Printer output or SPA Printer job VAN12, upon termination of VAN12. Verify TACAN Self Test passed.

Limits are:
Range     0.0 NM
Bearing   180.0 +/- 0.1 Deg

37-95  CNSE

CURSOR CNTL (VAN12 PG-B)
ITEM 15 (TERMINATE)
XMIT CURSOR KEY - PRESS

ITEM 16 (INHIBIT)
XMIT CURSOR KEY - PRESS
37-96

CNSE

CRT (VWN99)
TACAN
  1
    S/T STAT - OFF
  2
    S/T STAT - OFF
  3
    S/T STAT - OFF

37-97

CNSE

PFP
VAN12 - PRESS
TERM VAN12 - PRESS

CRT Return to DPS

NOTE

Perform this option if CRT is not required for GPS de-activation.

CRT Return to DPS Not Performed:______

37-98

CNSE

CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
C CO _DEUXG LDBA C12 (X = CRT#)
XMIT CMD KEY - PRESS

HOME CMD KEY - PRESS
ISSU N72IV10YD 0 (Y = CRT# -1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
37-99    CNSE    OTC    132
          OTC    CDPS

Responsible console for CRT _____ returned to DPS.

*** End of CRT Return to DPS ***

*** End of NAVAIDS Self Test ***

37-100    CNSE

CRT (VWN99)
RADAR ALTIMETER
  1
    ALT DATA FT _____ (BD)
  2
    ALT DATA FT _____ (BD)

37-101    CNSE    PLT    173

PANEL 08
RADAR ALTIMETER
  1 SW - OFF
  2 SW - OFF

MLS
  1 SW - OFF
  2 SW - OFF
  3 SW - OFF
37-102  CNSE

CRT (VWN99 PG-B)
RADAR ALTIMETER
  1
    SW STATUS  OFF
    PWR STATUS  OFF

  2
    SW STATUS  OFF
    PWR STATUS  OFF

MSBLS
  1
    SW STATUS  OFF
    PWR STATUS  OFF

  2
    SW STATUS  OFF
    PWR STATUS  OFF

  3
    SW STATUS  OFF
    PWR STATUS  OFF

37-103  CDPS  CDR  173

    KYBD
    MSG RESET
TACAN Blanking Test

NOTE
The steps contained within the floating header, TACAN Blanking Test, satisfy the noted requirements.

OMRS V74AB0.102-1R

37-104 CNSE

CURSOR CNTL (VWN99)
TACAN 1 ANT SEL UPPER
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

TACAN 2 ANT SEL UPPER
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

TACAN 3 ANT SEL UPPER
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

NOTE
The Blanking Test is performed with the TACANs commanded to an unused channel. 111X is normally used but any unused channel will work.
37-105  

CURSOR CNTL (VWN99)
COMMAND
TACAN 2 - _______ X, RCV, S/T OFF
TACAN 3 - _______ X, RCV, S/T OFF

CRT (VWN99)
VERIFY

TACAN 1
MODE RCV/TR      T/R V74K1513B1
TACAN 2
MODE RCV/TR      RCV V74K1613B1
TACAN 3
MODE RCV/TR      RCV V74K1713B1

ALL TACANS HAVE SUPPRESSION BIT ON

37-106  

CURSOR CNTL (VWN99)
COMMAND
TACAN 1 - _______ X, RCV, S/T OFF
TACAN 2 - _______ X, T/R, S/T OFF

CRT (VWN99)
VERIFY

TACAN 1
MODE RCV/TR      RCV V74K1513B1
TACAN 2
MODE RCV/TR      T/R V74K1613B1
TACAN 3
MODE RCV/TR      RCV V74K1713B1

ALL TACANS HAVE SUPPRESSION BIT ON
37-107

CNSE

CURSOR CNTL (VWN99)
COMMAND
TACAN 2 - _______ X, RCV, S/T OFF
TACAN 3 - _______ X, T/R, S/T OFF

CRT (VWN99)
VERIFY

TACAN 1
MODE RCV/TR   RCV V74K1513B1
TACAN 2
MODE RCV/TR   RCV V74K1613B1
TACAN 3
MODE RCV/TR   T/R V74K1713B1

ALL TACANS HAVE SUPPRESSION BIT ON

37-108

CNSE

CURSOR CNTL (VWN99)
COMMAND

TACAN 3 - _______ X, RCV, S/T OFF

CRT
VERIFY

TACAN 1
MODE RCV/TR   RCV V74K1513B1
TACAN 2
MODE RCV/TR   RCV V74K1613B1
TACAN 3
MODE RCV/TR   RCV V74K1713B1

ALL TACANS HAVE SUPPRESSION BIT OFF
Completion of the steps contained within the floating header, TACAN Blanking Test, complete the noted requirement.

OMRSD V74AB0.102-1R

***End of TACAN Blanking Test***

37-110 CNSE

CURSOR CNTL (VWN42)
TACAN 1 ANT SEL LOWER
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

TACAN 2 ANT SEL LOWER
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

TACAN 3 ANT SEL LOWER
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS
TACAN Ground Interface Test

NOTE
The steps contained within the floating header, TACAN Ground Interface Test, satisfy the noted requirement.

OMRS V74AB0.190-1R

37-111  CNSE  PLT  173

PANEL 07
  TACAN 1
    MODE SW - T/R
  TACAN 2
    MODE SW - T/R
  TACAN 3
    MODE SW - T/R

GMT__________
IF TACAN 1, 2 or 3 does not maintain a good lock on the Lower Antenna,

THEN:

Command TACAN(s) that are not maintaining lock to antenna that maintains the best lock.

CURSOR CNTL (VWN42)
TACAN 1 ANT SEL  __________(UPPER/LOWER)
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

TACAN 2 ANT SEL  __________(UPPER/LOWER)
XMIT CURSOR KEY - PRESS
EXEC CMD KEY PRESS

TACAN 3 ANT SEL  __________(UPPER/LOWER)
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

Not Performed:______
NOTE
Use the following data for the next step:

<table>
<thead>
<tr>
<th>Pad A</th>
<th>Pad B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range (nm)</td>
<td>Bearing (deg)</td>
</tr>
<tr>
<td>4.96</td>
<td>282.39</td>
</tr>
<tr>
<td>3.96</td>
<td>269.08</td>
</tr>
</tbody>
</table>

37-113

CNSE

CRT (VWN99)

VERIFY
FROM CRT TACAN 1, 2 & 3 RANGE AND BEARING ARE WITHIN SPEC FOR THE PAD UNDER TEST.

PAD A
RANGE - 4.96 NM +/-0.2
BEARING - 282.39 DEG +/-2.0

PAD B
RANGE - 3.96 NM +/-0.2
BEARING - 269.08 DEG +/-2.0

HARDCOPY KEY - PRESS
37-114

**CNSE**

CRT (VWN99 PG-B)

**TACAN**

1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNG VALID</td>
<td>GO</td>
<td></td>
</tr>
<tr>
<td>RNG DATA</td>
<td>__________</td>
<td>NM</td>
</tr>
<tr>
<td></td>
<td>+/- 0.2</td>
<td></td>
</tr>
<tr>
<td>BRG VALID</td>
<td>GO</td>
<td></td>
</tr>
<tr>
<td>BRG DATA</td>
<td>__________</td>
<td>DEG</td>
</tr>
<tr>
<td></td>
<td>+/- 2.0</td>
<td></td>
</tr>
<tr>
<td>AGC</td>
<td>__________</td>
<td>V(BD)</td>
</tr>
</tbody>
</table>

2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNG VALID</td>
<td>GO</td>
<td></td>
</tr>
<tr>
<td>RNG DATA</td>
<td>__________</td>
<td>NM</td>
</tr>
<tr>
<td></td>
<td>+/- 0.2</td>
<td></td>
</tr>
<tr>
<td>BRG VALID</td>
<td>GO</td>
<td></td>
</tr>
<tr>
<td>BRG DATA</td>
<td>__________</td>
<td>DEG</td>
</tr>
<tr>
<td></td>
<td>+/- 2.0</td>
<td></td>
</tr>
<tr>
<td>AGC</td>
<td>__________</td>
<td>V(BD)</td>
</tr>
</tbody>
</table>

3

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNG VALID</td>
<td>GO</td>
<td></td>
</tr>
<tr>
<td>RNG DATA</td>
<td>__________</td>
<td>NM</td>
</tr>
<tr>
<td></td>
<td>+/- 0.2</td>
<td></td>
</tr>
<tr>
<td>BRG VALID</td>
<td>GO</td>
<td></td>
</tr>
<tr>
<td>BRG DATA</td>
<td>__________</td>
<td>DEG</td>
</tr>
<tr>
<td></td>
<td>+/- 2.0</td>
<td></td>
</tr>
<tr>
<td>AGC</td>
<td>__________</td>
<td>V(BD)</td>
</tr>
</tbody>
</table>

37-115

**IF** the requirement has not already been satisfied during the OPF flow,

**THEN** completion of the steps contained within the floating header, TACAN Ground Interface Test, complete the noted requirement.

OMRSD **V74AB0.190-1R**

Not Performed:______

***End of TACAN Ground Interface Test***
37-116   CNSE   PLT   173

PANEL 07
    TACAN 1
        MODE SW - OFF
    TACAN 2
        MODE SW - OFF
    TACAN 3
        MODE SW - OFF

37-117   CNSE

CRT (VWN 99 PG-B)
VERIFY
    TACAN 1 SW/PWR    OFF/OFF
    2 SW/PWR    OFF/OFF
    3 SW/PWR    OFF/OFF

37-118   CNSE   FTAC   173

NAVAIDS Activation is complete and TACANs powered down at this time.
Ku-Band Position Verification

37-119  CNSE  MS1  173

IF the following Mid Logic Switches are not on,

THEN:

PANEL MA73C
ROW A
 MCA LOGIC
   MN C
   MID 2 SW - ON

ROW B
 MCA LOGIC
   MN B
   MID 4 SW - ON

Not Performed:_______

37-120  CNSE

CRT (VWN80)
VERIFY
KU-BAND
SWITCH SCAN
STW/DPLY    STOW 1&2
BOOM STOW 2 ON
37-121        CNSE     MS1      173

IF the logic switches were originally off,

THEN:

PANEL MA73C
  ROW A
    MCA LOGIC
    MN C
    MID 2 SW - OFF

  ROW B
    MCA LOGIC
    MN B
    MID 4 SW - OFF

Not Performed:_______

*** End of Ku-Band Position Verification***

37-122        CNSE

PFK15 - PRESS

PFP
VAA40 - PRESS
SET TERM - PRESS
EXEC TERM - PRESS
KEY 7 - PRESS

CRT (VSN59 PG-B)
TERMINATE - PRESS

37-123        CNSE     OTC      132

NAVAIDS Activation and Self Test is complete.

*** End of NAVAIDS Activation ***

*** End of Option 1 - OV-103/104 Navaids Activation ***
Option 2 - OV-105 Navaids Activation

NOTE
Perform Option 2 if in support of OV-105.

Option 2 Not Performed:_____

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

NOTE
NAVAIDS Activation and Self Test and GPS Activation and Almanac Collection may be performed in parallel or out of written order per engineering.

37-124   CNSE
CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
VAA40
PERF PGM KEY - PRESS

37-125   CNSE
PFP (C2)
VAA40 - PRESS
WARM START - PRESS

PFP (VAA40)
VWN43 - PRESS
(SELECT APPL PG B)
GPS Activation and Almanac Collection

37-126  CNSE

CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
VSN59
PERF PGM KEY - PRESS
(SELECT APPL PG B)

NOTE
IDP RSYS is required for the GPS Activation.

37-127  CNSE  OTC  132
OTC  CDPS

Change responsible console for IDP to Console C2. Expect IO errors during GPS power up.

37-128  CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS
C CO _DEUXG LDBA C2 (X = IDP NO.)
XMIT CMD KEY - PRESS

ISSU N72IV10YD #B002 (Y = IDP NO. MINUS 1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-129  CDPS  OTC  132
OTC  CNSE

Responsible console for CRT No._____ now assigned to C2.
<table>
<thead>
<tr>
<th>37-130</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CNSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURSOR CNTL (VSN59 PG-B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPS POWER UP - ALL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XMIT CURSOR KEY - PRESS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>START TEST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XMIT CURSOR KEY - PRESS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**

In the next step, the VSN59 program will prompt the operator to perform the following:

A Site Select on SPEC 104. The Site Select need be performed only on the initial GPS Powerup. If the IMUs are powered on, bypass the Site Select.

The IMU 1 Operate command will be issued by SPEC 104, ITEM 13. After 5 minutes, the flight software will allow Site Select using SPEC 104. Once the Site Select is completed, the IMU 1 Standby command should be issued. Contact CGNC or CTPE for IMU status. If the IMUs are powered on, the Operate command should not be issued without CGNC concurrence. If the IMUs are already in Operate, the Site Select is not required prior to activating SPEC 055.

Power up the preamplifiers. Select both upper and lower and perform only the switch called out below. Once the switch settings are complete, the operator will acknowledge by selecting PFK1.
IF IMUs are powered off and CGNC has not completed the site select,

THEN
CRT (VSN59 PG-B)
FOLLOW PROGRAM PROMPTS
TO PERFORM SITE SELECT

TO SET IMU OPERATE COMMAND, THEN RETURN BACK TO STANDBY WHEN SITE SELECT IS COMPLETE

ELSE
CRT (VSN59 PG-B)
FOLLOW PROGRAM PROMPTS
TO BYPASS SITE SELECT
NOTE
All GPS Pre-amplifiers will be powered on. GPS pre-amplifier circuit breakers are not downlisted and power switch indications are switch scan only.

37-132 CNSE CDR

PANEL O14
ROW D
MN A
GPS 1
PRE AMPL
UPPER CB - CLOSED
LOWER CB - CLOSED

37-133 CNSE CDR

PANEL O15
ROW C
MN B
GPS 2
PRE AMPL
UPPER CB - CLOSED
ROW D
MN B
GPS 2
PRE AMPL
LOWER CB - CLOSED

37-134 CNSE CDR

PANEL O16
ROW D
MN C
GPS 3
PRE AMPL
UPPER CB - CLOSED
LOWER CB - CLOSED
37-135  
CNSE

CRT/CONSOLE KYBD (VSN59 PG-B)
PFK 1B KEY - PRESS (CBS NOW CLOSED - CONTINUE)

37-136  
CNSE  
CDR

PANEL O7
GPS 1
  PRE AMPL
  UPPER SW - ON
  LOWER SW - ON
GPS 2
  PRE AMPL
  UPPER SW - ON
  LOWER SW - ON
GPS 3
  PRE AMPL
  UPPER SW - ON
  LOWER SW - ON

37-137  
CNSE

CRT/CONSOLE KYBD (VSN59 PG-B)
PFK 1B KEY - PRESS (SWITCH SETTINGS COMPLETE - CONTINUE)

37-138  
CNSE

CONSOLE KYBD (VSN59 PG-B)
PFK 1B KEY - PRESS (PERFORM I/O START - CONTINUE)
PFK XB KEY - PRESS (X = CRT ASSIGNED TO C2)
| NOTE |
| GPS software allows 2 minutes for GPS receiver power-up to occur. A failure will be annunciated should the time be exceeded. Retest may be selected should this event occur. |

| NOTE |
| GPS receiver will transition from SELF-TEST/INIT mode to NAV mode upon power-up. |

| NOTE |
| For receiver status, the transition time from a STAT indication “OFF” indicating receiver is powered on to a STAT indication “ON” indicating receiver is tracking satellites in State 5 is not exact. During power-up, it may be necessary to perform a data retrieval on the STAT indication, if STAT indication is “ON” before it can be verified on display. |

| NOTE |
| A receiver STAT indication “ON” and the receiver is not tracking GPS satellites after the power-up procedure has been performed may indicate the receiver is not powered on or a failure of the GPS receiver may have occurred. |

| NOTE |
| For the GPS Receiver Status indication (STAT), approximately one second after power is applied, the STAT indication will transition from “ON” to “OFF.” The STAT indication will then transition to “ON” indicating receiver has entered a power-up self-test mode (~ 30 seconds) and transition back to “OFF” once self-test is complete.  

Once the GPS receiver is on and self-test complete, STAT indication will identify the following:  

1) STAT Indication “OFF” - Receiver is powered on, but is not tracking four satellites in state 5.  

2) STAT Indication “ON” - Receiver is powered on and is tracking four satellites in state 5. This indication could also mean that GPS power was lost. |
### NOTE
Verification of GPS receiver status can be performed after GPS switch configuration is performed.

<table>
<thead>
<tr>
<th>37-139</th>
<th>CNSE</th>
<th>CDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL 07</td>
<td>GPS 1</td>
<td>POWER SW - ON</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>37-140</th>
<th>CNSE</th>
<th>CRT (VWN43 PG-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERIFY</td>
<td>GPS 1</td>
<td>STAT - OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RPC A - ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDE - NAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RPU - OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BAT - OFF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>37-141</th>
<th>CNSE</th>
<th>CDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL 07</td>
<td>GPS 2</td>
<td>POWER SW - ON</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>37-142</th>
<th>CNSE</th>
<th>CRT (VWN43 PG-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERIFY</td>
<td>GPS 2</td>
<td>STAT - OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RPC B - ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDE - NAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RPU - OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BAT - OFF</td>
</tr>
</tbody>
</table>
37-143  CNSE  CDR

PANEL 07
GPS 3
POWER SW - ON

37-144  CNSE

CRT (VWN43 PG-B)
VERIFY
GPS 3
STAT - OFF
RPC C - ON
MDE - NAV
RPU - OFF
BAT - OFF

37-145  CNSE

CRT (VSN59 PG-B)
PFK 7 KEY - PRESS (TERM NAV MONITOR)
NOTE
During transition to “INIT” mode, the VSN59 program may issue a message “Difference between GPS weeks and almanac weeks is greater than 1.” User can follow the program prompts to issue an “Acknowledge/Continue” using the appropriate PFK key when this occurs. A new almanac begins to download upon power up and satellite acquisition, but can take up to 20 minutes or greater to complete.

37-146   CNSE
CURSOR CNTL (VSN59 PG-B)
I/O ITEM 10+2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-147   CNSE
CRT (VSN59 PG-B)
VERIFY
GPS X  (X = 1, 2 & 3)
RCVR MODE - INIT
HDR WD - EEEE

37-148   CNSE
CURSOR CNTL (VSN59 PG-B)
NAV - ALL
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
37-149  CNSE

CRT (VWN43 PG-B)

VERIFY
GPS X  
(X = 1, 2 & 3)
STAT - ON  
(NAV BIT - 4 SV TRACKING IN STATE 5 (CAR_TK))
HDR - FFFF
MDE - NAV

Spec 55 Resume and Call Up

NOTE
IF only one DEU is available for C2 and Navaids Self Test (Spec 101) will be performed while the GPS Almanac is downloading, perform Spec 55 Resume and Call Up.

Spec 55 Resume and Call Up Not Performed:_____

37-150  CNSE

CRT (VSN59 PG-B)

PFK 7 KEY - PRESS (TERM NAV MONITORING)

37-151  CNSE

CURSOR CNTL (VSN59 PG-B)
SPEC RESUME
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

CRT

VERIFY GPC MEMORY (9011) ON CRT IN USE.
NOTE
Perform the call up after NAVAIDS Self Test is complete and GPS testing will resume.

37-152   CNSE
CURSOR CNTL (VSN59 PG-B)
SPEC 55 CALLUP
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

CRT
VERIFY SPEC 55 (550) on CRT in use.

***End of Spec 55 Resume and Call Up***
NOTE

The almanac is considered current when the GPS WEEK and ALMANAC WEEK agree to within one week. Downloading a full almanac will take at least 12.5 minutes. During certain satellite/receiver conditions, the Almanac Bit may not toggle from Off to On. This indication may occur if the receiver’s stored almanac contains information from a satellite that has been decommissioned. In this case, mode the receiver to INIT, back to NAV, and then back to INIT to update the Almanac Week status.

NAVAIDS Activation may be performed while the GPS Almanac is being downloaded if the Safety Clears are in place.

37-153

CNSE

Allow the receivers to remain in NAV Mode until the Almanac Bit toggles from Off to On or for at least 30 minutes.

CRT (VWN43 PG-B)
RECORD

RECEIVER STATUS
GPS 1
  ALMC _____________ (OFF/ON)
GPS 2
  ALMC _____________ (OFF/ON)
GPS 3
  ALMC _____________ (OFF/ON)

37-154

CNSE

CRT (VSN59 PG-B)
PFK 7 KEY - PRESS (TERM NAV MONITORING)
37-155

CNSE

CURSOR CNTL (VSN59 PG-B)
INIT - ALL
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-156

CNSE

CRT (VSN59 PG-B)
VERIFY
GPS X (X = 1, 2, & 3)
RCVR MODE - INIT
HDR WD - EEEE
Continue Almanac Download

NOTE
Perform Continue Almanac Download if, after the Receiver was commanded to INIT, the Almanac Week is not equal to GPS Week or GPS Week + 1 (This indicates a full Almanac was not downloaded). The steps within this option may be repeated as necessary to obtain a current almanac week.

Continue Almanac Download Not Performed:_____

37-157  CNSE
CURSOR CNTL (VSN59)
NAV - ALL
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

CRT (VWN58)
VERIFY
RECEIVER STATUS
GPS 1, 2, 3
MODE NAV
STAT ON

37-158  CNSE
CURSOR CNTL (VSN59)
INIT - ALL
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

CRT (VWN58)
VERIFY
RECEIVER STATUS
GPS 1, 2, 3
MODE INIT
IF Receiver was commanded to INIT and the Almanac Week is still not equal to GPS Week or GPS Week + 1,

THEN Re-perform the GPS Almanac Collection sequence beginning with step 37-153.

***End of Continue Almanac Download***

CURSOR CNTL (VSN59 PG-B)
NAV - ALL
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
37-161

**CNSE**

CRT (VWN43 PG-B)

**VERIFY**

GPS X  
(X = 1, 2, & 3)

STAT - ON  
(NAV BIT - 4 SV TRACKING IN
STATE 5 (CAR_TK))

HDR WD - FFFF

MDE - NAV

ALM WK = WEEKS OR WEEKS + 1

OMRSD V74PP0.060-A-1R

OMRSD V74PP0.060-B-1R

OMRSD V74PP0.060-C-1R

37-162

**CNSE**

CRT (VSN59 PG-B)

PFK 7 KEY - PRESS (TERM NAV MONITORING)

37-163

**CNSE**

CURSOR CNTL (VSN59 PG-B)

GPS POWER DOWN - ALL

XMIT CURSOR KEY - PRESS

START TEST

XMIT CURSOR KEY - PRESS

37-164

**CNSE**

CURSOR CNTL (VSN59 PG-B)

PFK 1B KEY - PRESS (TERMINATE I/O)
NOTE
Due to the configuration of the receiver STAT bit on the GPS receiver and GOAL software, it is possible that the “GPS X Verified Powered OFF” message will appear prior to physically powering off the GPS receiver. This will happen if the STAT indication is ON, which means the GPS receiver is tracking four satellites. This is an expected condition and steps can be performed as written.

37-165  CNSE    CDR
        PANEL 07
        GPS 1
        POWER SW - OFF

37-166  CNSE    CDR
        PANEL 07
        GPS 2
        POWER SW - OFF

37-167  CNSE    CDR
        PANEL 07
        GPS 3
        POWER SW - OFF

37-168  CNSE
        CURSOR CNTL (VSN59 PG-B)
        PFK 1B KEY - PRESS (PROCEED WITH PREAMP POWER OFF)
37-169  CNSE  CDR

PANEL 07
  GPS 1
    PRE AMPL
    UPPER SW - OFF
    LOWER SW - OFF
  GPS 2
    PRE AMPL
    UPPER SW - OFF
    LOWER SW - OFF
  GPS 3
    PRE AMPL
    UPPER SW - OFF
    LOWER SW - OFF

37-170  CNSE

CURSOR CNTL (VSN59)
PFK 1B KEY - PRESS (PREAMP POWER SWITCH IS NOW OFF
  - CONTINUE)

37-171  CNSE

CURSOR CNTL (VSN59)
PFK 2B KEY - PRESS (BYPASS- S0007/S0017)

37-172  CNSE

CURSOR CNTL (VSN59)
PFK 1B KEY - PRESS (ISSUE RESUME TO CRT)

*** End of 3-String GPS Verification ***
CRT Return to C12

NOTE
Perform “CRT Return to C12” if there is no further need for CRT. If C2 has only one CRT and NAVAIDS Activation will commence, then do not perform this option.

CRT Return to C12 Not Performed:_____

37-173

CNSE

CURSOR CNTL (VSN59)
CRT RETURN TO DPS
XMIT CURSOR KEY - PRESS

PLACE CURSOR AT THE END OF:
C CO _DEUXG LDBA C12 (X = CRT NO.)
XMIT CMD KEY - PRESS

HOME CMD KEY - PRESS
ISSU N72IV10YD0 (Y = CRT No. Minus 1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-174

CNSE OTC 132

OTC CDPS

C2 CRT returned to C12. GPS activities are complete.

*** End of CRT Return to C12 ***

37-175

CNSE

CURSOR CNTL (VSN59)
TERMINATE
XMIT CURSOR KEY - PRESS
37-176       CNSE

CURSOR CNTL (VWN43 PG-B)
TERMINATE
XMIT CURSOR KEY - PRESS

*** End of GPS Activation and Almanac Collection ***
NAVAIDS Activation

NOTE
Do not perform NAVAIDS Activation if NAVAIDS Self Test was already performed during the present flow unless Engineering evaluation determines that repeating the test will add significant confidence in flight readiness.

NAVAIDS Activation Not Performed:______

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

37-177

CNSE

CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
VAA40
PERF PGM KEY - PRESS

PFP (VAA40)
VAA40 - PRESS
WARM START - PRESS
VWN99 (NAV OV) - PRESS
(SELECT APPL PAGE-B)
NAVAIDS Circuit Breaker Closing

37-178

CNSE

PANEL 014
ROW E
MN A
RDR ALTM 1 CB - CLOSE (GUARDED)
MLS 1 CB - CLOSE (GUARDED)

37-179

CNSE

PANEL 015
ROW E
MN B
RDR ALTM 2 CB - CLOSE (GUARDED)
MLS 2 CB - CLOSE (GUARDED)

37-180

CNSE

PANEL 016
ROW E
MN C
MLS 3 CB - CLOSE (GUARDED)

***End of NAVAIDS Circuit Breaker Closing***
Radar Altimeter Activation

37-181  CNSE  PLT  173

PANEL O8
RADAR ALTIMETER
  1 SW - ON
  2 SW - ON

GMT__________

37-182  CNSE

CRT (VWN99)
VERIFY
RADAR ALTIMETER
  1
    SW STAT ON
    PWR STAT ON

  2
    SW STAT ON
    PWR STAT ON

37-183  IF the Radar Alt Power On Requirement was not satisfied during the OPF flow,

THEN:
CRT (VWN60)
VERIFY
RADAR ALTIMETER

  1
    RALT SW STATUS ON
    RALT READY ON
    RALT ALT DATA FT __________

  2
    RALT SW STATUS ON
    RALT READY ON
    RALT ALT DATA FT __________

OMRSD V74AC0.011-1R

Not Performed:______

*** End of Radar Altimeter Activation ***
MSBLS Activation

37-184  CNSE  CDR  173

PANEL O8
MLS
1  CHANNEL TW - 6
2  CHANNEL TW - 6
3  CHANNEL TW - 6

37-185  CNSE  PLT  173

PANEL O8
MLS
1  SW - ON
2  SW - ON
3  SW - ON

GMT__________

37-186  CNSE

CRT (VWN99)
VERIFY

MSBLS
1
SW STAT  ON
PWR STAT  ON

2
SW STAT  ON
PWR STAT  ON

3
SW STAT  ON
PWR STAT  ON
37-187  CDPS  CDR  173

____ KYBD
I/O RESET
EXEC

37-188  CDPS  CDR

CRT ____
VERIFY NO UNEXPECTED MLS OR ALT FAULT SUMMARY MESSAGES.

37-189  CDPS  CDR  173

____ KYBD
SPEC 99
PRO
RESUME

*** End of MSBLS Activation ***

NAVAIDS Self Test

37-190  CNSE

HOME CMD KEY - PRESS
CONSOLE KYBD (VAN12)
VAN12
PERF PGM KEY - PRESS
Transfer 2nd CRT to C2

NOTE
Do not perform Transfer 2nd CRT to C2 if a second CRT is not available and the same CRT that was used for GPS Activation will be used for NAVAIDS Self Test.

Transfer 2nd CRT to C2 Not Performed:______

37-191  CNSE   OTC  132  
CDPS

Change the responsible console for a CRT to Console C2.

37-192  CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS
C CO __ DEUXG LDBA C2 (X = CRT#)
XMIT CMD KEY - PRESS

HOME CMD KEY - PRESS
ISSU N72IV10YD #B002 (Y = CRT# -1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-193  CDPS   OTC  132  
OTC    CNSE

Responsible console for CRT ____ is now assigned to C2.

***End of Transfer 2nd CRT to C2***
37-194  
**CNSE**

CURSOR CNTL (VAN12 PG-B)
EQUIVALENT DEU
XMIT CURSOR KEY - PRESS

CRT (VAN12)
VERIFY
SELECT MAJOR MODE

37-195  
**CNSE**

CURSOR CNTL (VAN12 PG-B)
GNC
XMIT CURSOR KEY - PRESS

37-196  
**CNSE**

CURSOR CNTL (VAN12 PG-B)

DEU ______ (ASSIGNED CRT)
XMIT CURSOR KEY - PRESS

37-197  
**CNSE**

CRT (VAN12 PG-B)
VERIFY
SPEC 101 - CRT X (X = CRT No. ASSIGNED)
SELECT LRU'S (BLINKING)
NOTE

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azimuth</td>
<td>data valid on for first 1.6 sec max, data 3 deg sign bit alternating +/- every 3.2 sec</td>
</tr>
<tr>
<td>Elevation</td>
<td>data valid on for first 1.6 sec max, data 6 deg</td>
</tr>
<tr>
<td>Range</td>
<td>data valid on for first 0.2 sec max, data 15.2 nm</td>
</tr>
</tbody>
</table>

Due to a known/document flight software problem, the MLS Self Test may fail in Azimuth. If the MLS Self Test fails on board in Azimuth, then the MLS Self Test may be repeated.

---

37-198

**CNSE**

CURSOR CNTL (VAN12 PG-B)
MLS 1 - ITEM 1
XMIT CURSOR KEY - PRESS
MLS 2 - ITEM 2
XMIT CURSOR KEY - PRESS
MLS 3 - ITEM 3
XMIT CURSOR KEY - PRESS

---

37-199

**CNSE**

CURSOR CNTL (VAN12 PG-B)
13 TO START
XMIT CURSOR KEY - PRESS

---

37-200

**CNSE**

CRT (VAN12 PG-B)
**VERIFY** (WHEN SELF TEST IS COMPLETE)

MLS 1 2 3 PASSED (IN GREEN)
37-201  CNSE

**REVIEW** the data on the CRT, Console Printer output or SPA Printer job VAN12, upon termination of VAN12. **Verify** MLS Self Test passed.

Limits are:
- Azimuth: (+/-) 3.0 +/- 0.1 deg
- Elevation: 6.0 +/- 0.1 deg
- Range: 15.2 +/- 0.2 NM

37-202  CNSE  CDR

CRT __________ (SPEC 101)

**Verify:**
(No Down Arrows)
- MLS 1 STAT column - blank
- MLS 2 STAT column - blank
- MLS 3 STAT column - blank

37-203  CNSE

CURSOR CNTL (VAN12)
ITEM 15 (TERMINATE)
XMIT CURSOR KEY - PRESS
ITEM 16 (INHIBIT)
XMIT CURSOR KEY - PRESS
37-204

**CNSE**

CRT (VWN99 PG-B)
MSBLS

1

- AZ S/T STAT OFF
- EL S/T STAT OFF
- RG S/T STAT OFF

2

- AZ S/T STAT OFF
- EL S/T STAT OFF
- RG S/T STAT OFF

3

- AZ S/T STAT OFF
- EL S/T STAT OFF
- RG S/T STAT OFF

37-205

**CNSE**

CURSOR CNTL (VAN12 PG-B)
EQUIVALENT DEU
XMIT CURSOR KEY - PRESS

37-206

**CNSE**

CURSOR CNTL (VAN12 PG-B)
RA 1 - ITEM 7
XMIT CURSOR KEY - PRESS
RA 2 - ITEM 8
XMIT CURSOR KEY - PRESS

37-207

**CNSE**

CURSOR CNTL (VAN12 PG-B)
13 TO START
XMIT CURSOR KEY - PRESS
37-208  CNSE

CRT (VAN12 PG-B)
VERIFY
RA

1
S/T CMD ON
DATA VALIDITY GO
ALTITUDE
DATA __________ (1000 +/- 100)

2
S/T CMD ON
DATA VALIDITY GO
ALTITUDE
DATA __________ (1000 +/- 100)

Ra 1 2 PASSED
IF the Radar Altimeter Self Test was not performed in the OPF,

THEN:
CRT (VWN99 PG-B)
VERIFY
RADAR ALTIMETER
1
  LOCK ON  GO
  S/T CMD  ON
  DATA VALID  GO
  ALT DATA FT 1000 +/- 100

2
  LOCK ON  GO
  S/T CMD  ON
  DATA VALID  GO
  ALT DATA FD 1000 +/- 100

OMRSD V74AC0.020-1R
Not Performed:______

37-210  CNSE
CURSOR CNTL (VAN12 PG-B)
ITEM 15 (TERMINATE)
XMIT CURSOR KEY - PRESS

ITEM 16 (INHIBIT)
XMIT CURSOR KEY - PRESS

37-211  CNSE
CRT (VWN99)
RADAR ALTIMETER
1 S/T CMD  OFF
2 S/T CMD  OFF
37-212 CNSE

PFP
VAN12 - PRESS
TERM VAN12 - PRESS

CRT Return to DPS

NOTE
Perform this option if CRT is not required for GPS de-activation.

CRT Return to DPS Not Performed:______

37-213 CNSE

CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
C CO _DEUXG LDBA C12 (X = CRT#)
XMIT CMD KEY - PRESS

ISSU N72IV10YD 0 (Y = CRT# -1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-214 CNSE OTC 132
OTC CDPS

Responsible console for CRT _____ returned to DPS.

*** End of CRT Return to DPS ***

*** End of NAVAIDS Self Test ***
37-215  CNSE

CRT (VWN99)
RADAR ALTIMETER
  1
      ALT DATA FT _____ (BD)
  2
      ALT DATA FT _____ (BD)

37-216  CNSE  PLT  173

PANEL O8
RADAR ALTIMETER
  1 SW - OFF
  2 SW - OFF

MLS
  1 SW - OFF
  2 SW - OFF
  3 SW - OFF
37-217  CNSE

CRT (VWN99 PG-B)
RADAR ALTIMETER

1
    SW STAT  OFF
    PWR STAT  OFF

2
    SW STAT  OFF
    PWR STAT  OFF

MSBLS

1
    SW STAT  OFF
    PWR STAT  OFF

2
    SW STAT  OFF
    PWR STAT  OFF

3
    SW STAT  OFF
    PWR STAT  OFF
Ku-Band Position Verification

37-218  CNSE  MS1  173

IF the following Mid Logic Switches are not on,

THEN:

PANEL MA73C
    ROW A
        MCA LOGIC
        MN C
        MID 2 SW - ON

    ROW B
        MCA LOGIC
        MN B
        MID 4 SW - ON

Not Performed:_____

37-219  CNSE

CRT (VWN80)
VERIFY
KU-BAND
    SWITCH SCAN
        STW/DPLY  STOW 1&2
        BOOM STOW 2 ON
IF the logic switches were originally off,

THEN:

PANEL MA73C
ROW A
  MCA LOGIC
  MN C
  MID 2 SW - OFF

ROW B
  MCA LOGIC
  MN B
  MID 4 SW - OFF

Not Performed:______

PFK15 - PRESS
PFP
VAA40 - PRESS
SET TERM - PRESS
EXEC TERM - PRESS
KEY 7 - PRESS

***End of Ku-Band Position Verification***

NAVAIDS Activation and Self Test is complete.

*** End of NAVAIDS Activation ***

*** End of Option 2 - OV-105 Navaids Activation ***
Option 3 - OV-103/104 GPS Encryption Key Load

NOTE
Completion of steps contained in the floating header section “Option 3 - OV-103/104 GPS Encryption Key Load” satisfies the following requirement.

OMRS V74P00.090

NOTE
Perform Option 3 if encryption key load is required (not current) and vehicle is OV-103 or OV-104.

Option 3 Not Performed:_____

37-223  CNSE

CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
VAA40
PERF PGM KEY - PRESS

37-224  CNSE

PFP (C2)
VAA40 - PRESS
WARM START - PRESS

PFP (VAA40)
VWN42 - PRESS
(SELECT APPL PG B)
GPS Activation

37-225

**CNSE**

- CONSOLE KYBD (C2)
- HOME CMD KEY - PRESS
- VSN59
- PERF PGM KEY - PRESS
  (SELECT APPL PG B)

**NOTE**

IDP RSYS is required for the GPS Activation.

37-226

**CNSE**

**OTC**

**132**

**OTC**

**CDPS**

Change responsible console for IDP to Console C2. Expect IO errors during GPS power up.

37-227

**CDPS**

- CONSOLE KYBD
- HOME CMD KEY - PRESS
- C CO _DEUXG LDBA C2 (X = IDP NO.)
- XMIT CMD KEY - PRESS

**ISSU N72IV10YD #B002 (Y = IDP NO. MINUS 1)**
- XMIT CMD KEY - PRESS
- EXEC CMD KEY - PRESS

37-228

**CDPS**

**OTC**

**132**

**OTC**

**CNSE**

Responsible console for CRT No.____ now assigned to C2.
37-229  

CNSE

PPP (VAA41)
VWN42 - PRESS
VWN58 - PRESS
(SELECT APPL PG-B)

37-230  

CNSE

CURSOR CNTL (VSN59 PG-B)
GPS POWER UP - 2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
NOTE
In the next step, the VSN59 program will prompt the operator to perform the following:

A Site Select on SPEC 104. The Site Select need be performed only on the initial GPS Powerup. If the IMUs are powered on, bypass the Site Select.

The IMU 1 Operate command will be issued by SPEC 104, ITEM 13. After 5 minutes, the flight software will allow Site Select using SPEC 104. Once the Site Select is completed, the IMU 1 Standby command should be issued. Contact CGNC or CTPE for IMU status. If the IMUs are powered on, the Operate command should not be issued without CGNC concurrence. If the IMUs are already in Operate, the Site Select is not required prior to activating SPEC 055.

Power up the preamplifiers. Select both upper and lower and perform only the switch called out below. Once the switch settings are complete, the operator will acknowledge by selecting PFK1.
IF IMUs are powered off and CGNC has not completed the Site Select,

THEN:
CRT (VSN59 PG-B)
FOLLOW PROGRAM PROMPTS:
TO PERFORM SITE SELECT
TO SET IMU OPERATE COMMAND, THEN RETURN BACK TO STANDBY WHEN SITE SELECT IS COMPLETE

ELSE CGNC has completed Site Select:
CRT (VSN59)
FOLLOW PROGRAM PROMPTS:
TO BYPASS SITE SELECT
OV-103 Switch/CB Configuration

NOTE
If testing is on OV-103, perform OV-103 Switch/CB Configuration.

OV-103 Switch/CB Configuration Not Performed:______

37-232 CNSE CDR
PANEL 014
ROW D
MN A
GPS
PRE AMPL
UC CB - OPEN
LC CB - OPEN

37-233 CNSE CDR 173
PANEL 016
ROW D
MN C
GPS
PREAMPL
UC CB - CLOSE
LC CB - CLOSE

37-234 CNSE
CONSOLE KYBD (VSN59 PG-B)
PFK1 - PRESS (CB NOW CLOSED - CONTINUE)

37-235 CNSE CDR 173
PANEL A13
GPS
PRE-AMPL
UC SW - MN C
LC SW - MN C

***End of OV-103 Switch/CB Configuration***
OV-104 Switch/CB Configuration

NOTE
If testing is on OV-104 perform OV-104 Switch/CB Configuration.

OV-104 Switch/CB Configuration Not Performed:_____

37-236  CNSE    CDR    173

PANEL O15
ROW C
  MN B
  GPS 2 PREAMPL UPPER CB - CLOSE

ROW D
  MN B
  GPS 2 PREAMPL LOWER CB - CLOSE

37-237  CNSE

CONSOLE KYBD (VSN59 PG-B)
PFK1 - PRESS (CB NOW CLOSED - CONTINUE)

37-238  CNSE    CDR    173

PANEL A13
GPS
  PRE-AMPL
    UC SW - ON
    LC SW - ON

***End of OV-104 Switch/CB Configuration***

37-239  CNSE

CONSOLE KYBD
PFK1 - PRESS (SW SETTINGS COMPLETE - CONTINUE)
CRT (VSN59 PG-B)

**FOLLOW** PROGRAM PROMPTS:

TO **PERFORM** I/O START.

TO **CALL** UP SPEC 55.

**NOTE**

GPS software allows 2 minutes for GPS receiver power-up to occur. A failure will be annunciated should the time be exceeded. Retest may be selected should this event occur.

**NOTE**

GPS receiver mode will transition from INIT to NAV upon power-up.

PANEL A13
GPS
POWER SW - ON

**VERIFY**

RCVR MODE - NAV
HDR WD - FFFF
RPU FAIL - OFF
BAT LOW - OFF

CURSOR CNTL (VSN59)
PFK7 KEY - PRESS (TERMINATE NAV MONITOR)
NOTE
GPS will automatically mode to INIT when the ITEM 10+2 is executed.

NOTE
During transition to “INIT” mode, the VSN59 program may issue a message “Difference between GPS weeks and almanac weeks is greater than 1.” User can follow the program prompts to issue an “Acknowledge/Continue” using the appropriate PFK key when this occurs. A new almanac begins to download upon power up and satellite acquisition, but can take up to 20 minutes or greater to complete.

37-244

CNSE
CURSOR CNTL (VSN59 PG-B)
I/O ITEM 10+2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-245

CNSE
CRT (VSN59 PG-B)
VERIFY
RCVR MODE - INIT
HDR WD EEEE

37-246

CNSE
CURSOR CNTL (VSN59 PG-B)
NAV GPS 2 - ITEM 18
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
37-247

CNSE

CRT (VWN58 PG-B)
VERIFY
GPS is in NAV MODE

RECEIVER STATUS
   HEADER WD   FFFF
GPS 2 PWR
   STAT - ON (NAV BIT - 4 SV TRACKING IN STATE 5 (CAR_TK))

*** End of GPS Activation ***

37-248

CNSE

CURSOR CNTL (VSN59 PG-B)
PFK7 - PRESS (TERMINATE NAV MONITOR)

37-249

CNSE   CDR

PANEL A13
GPS
   ENCRYPT SW - NORMAL

37-250

CNSE

CURSOR CNTL (VSN59)
INIT - GPS 2 - ITEM 15
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-251

CSKU

CRT (VSN59 PG-B)
VERIFY
   HDR WD - EEEE
   RCVR MODE - INIT
37-252  CNSE    CDR

PANEL A13
GPS
  ENCRYPT SW - ZEROIZE (FOR 3 SECONDS)
  ENCRYPT SW - NORMAL

37-253  CNSE

CRT (VWN58 PG-B)
VERIFY
  PPS KEYS
  GUV USER - OFF

37-254  CNSE    JYVJ

Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

IF loading “Encryption Key” on OV-103,

THEN Connect KYK-13 device to “ENCRP1 MAGR” port and load “GPS Encryption Key.”

Not Performed:______

37-255  CNSE    JYVJ

Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

IF loading “Encryption Key” on OV-104,

THEN Connect KYK-13 device to “ENCRP 2” port and load “GPS Encryption Key.”

Not Performed:______
Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

“GPS Encryption Key” load is complete.

NOTE
The following step may be repeated to achieve a verified Key Load. (GUV USER ON, RCVR KEY ON, PARITY FAIL OFF)

IF Key Load can not be verified,

THEN:

PANEL A13
GPS
   ENCRYPT SW - ZEROIZE (FOR 3 SECONDS)
   ENCRYPT SW - NORMAL

Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

Reload “GPS Encryption Key” and report complete.

Not Performed:_____

CRT (VWN58 PG-B)
VERIFY
   PPS KEYS
      GUV USER - ON
      RCVR KEY - ON
37-259

CNSE

CURSOR CNTL (VSN59 PG-B)
NAV - GPS 2 ITEM 18
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

NOTE
GPS transition to Precise Positioning Service (PPS) can take up to ten minutes to verify. No set time is established for GPS transition from SPS to PPS.

37-260

CNSE

CRT (VWN58 PG-B)
VERIFY
RECEIVER STATUS
HEADER WD - FFFF
RCVR MDE - NAV

GPS 2 PWR
STAT - ON (NAV BIT - 4 SV TRACKING IN STATE 5 (CAR_TK))

NAV DATA
SRVC - PPS

37-261

CNSE

CONSOLE KYBD (VSN59 PG-B)
PFK 7 KEY - PRESS (TERMINATE NAV MONITOR)

37-262

CNSE  JYVJ

Encryption Key load complete and successful. Support no longer required.
Completion of steps contained in the floating header section ”Option 3 - OV-103/104 GPS Encryption Key Load” satisfies the following requirement.

OMRSD V74P00.090

***End of Option 3 - OV-103/104 GPS Encryption Key Load***

GPS Power Down

37-264        CNSE

CURSOR CNTL (VSN59 PG-B)
GPS POWER DN - 2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-265        CNSE

CRT (VSN59 PG-B)
FOLLOW PROGRAM PROMPTS:

TO TERMINATE IO
NOTE
Due to the configuration of the Receiver Status measurement, a message indicating GPS Power Off was successful may appear on VSN59 prior to powering off the GPS receiver. This is expected and the following step can be performed as written.

37-266   CNSE   CDR   173

PANEL A13
GPS
POWER SW - OFF

37-267   CNSE

CONSOLE KYBD (VSN59 PG-B)
PFK1 - PRESS TO TURN OFF PREAMP SWITCHES

NOTE
OV-104 preamp switches are 3 position switches. Center and Down are Off. Place switches in the Off (Down) position.

37-268   CNSE   MS1   173

PANEL A13
GPS
PRE-AMP
  UC SW - OFF
  LC SW - OFF

37-269   CNSE

CRT (VSN59 PG-B)
FOLLOW PROGRAM PROMPTS:
PFK1 - PRESS TO VERIFY PREAMP PWR SW IS OFF
37-270  CNSE

CRT (VSN59 PG-B)
PFK 1 - PRESS TO OPEN CBs

37-271  CNSE  CDR

IF vehicle is OV-103

THEN
PANEL O16
ROW D
MN C
GPS
PRE AMPL
UC CB - OPEN
LC CB - OPEN

Not Performed:______

37-272  CNSE  CDR

IF vehicle is OV-104

THEN
PANEL O15
ROW C
MN B
GPS 2 PREAMPL UPPER CB - OPEN

ROW D
MN B
GPS 2 PREAMPL LOWER CB - OPEN

Not Performed:______
37-273

**CNSE**

CRT (VSN59 PG-B)
PFK1 - PRESS CBs OPENED

37-274

**CNSE**

CRT (VSN59 PG-B)
**FOLLOW** PROGRAM PROMPTS

TO ISSUE RESUME TO ACTIVE CRT

**VERIFY** RESUME COMPLETE.

37-275

**CNSE**

CURSOR CNTL (VSN59)
CRT RETURN TO DPS
XMIT CURSOR KEY - PRESS

**PLACE** CURSOR AT THE END OF:
C CO _DEUXG LDBA C12  (X = CRT NO.)
XMIT CMD KEY - PRESS

HOME CMD KEY - PRESS
ISSU N721V10YD 0 (Y = CRT No. Minus 1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-276

**CNSE** **OTC** 132

**OTC** **CDPS**

C2 CRT returned to C12. GPS activities are complete.
37-277  

CNSE

CURSOR CNTL (VSN59)
TERMINATE
XMIT CURSOR KEY - PRESS

37-278  

CNSE

CRT (VWN43 PG-B)

PFK 15 KEY - PRESS

PFP
VAA40 - PRESS
SET TERM - PRESS
EXEC SET TERM - PRESS

*** End of GPS Powerdown ***

*** End of Option 3 - OV-103/104 GPS Encryption Key Load ***
**Option 4 - OV-105 GPS Encryption Key Load**

**NOTE**
Perform Option 4 section if there is no “current” encryption key loaded in one or more GPS Receivers and vehicle is OV-105. Steps contained within this section may be performed out of sequence to optimize performance.

**Option 4 Not Performed:_____**

37-279  
**CNSE**

- CONSOLE KYBD (C2)
- HOME CMD KEY - PRESS
- VAA40
- PERF PGM KEY - PRESS

37-280  
**CNSE**

- PFP (C2)
- VAA40 - PRESS
- WARM START - PRESS

- PFP (VAA40)
- VWN43 - PRESS
  (SELECT APPL PG B)
GPS Activation

37-281  CNSE

CONSOLE KYBD (C2)
HOME CMD KEY - PRESS
VSN59
PERF PGM KEY - PRESS
(SELECT APPL PG B)

NOTE
IDP RSYS is required for the GPS Activation.

37-282  CNSE  OTC  132
OTC  CDPS

Change responsible console for IDP to Console C2. Expect IO errors during GPS power up.

37-283  CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS
C CO _DEUXG LDBA C2 (X = IDP NO.)
XMIT CMD KEY - PRESS

ISSU N72IV10YD #B002 (Y = IDP NO. MINUS 1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-284  CDPS  OTC  132
OTC  CNSE

Responsible console for CRT No._____ now assigned to C2.
CURSOR CNTL (VSN59 PG-B)
GPS POWER UP - ALL
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

NOTE
In the next step, the VSN59 program will prompt the operator to perform the following:

A Site Select on SPEC 104. The Site Select need be performed only on the initial GPS Powerup. If the IMUs are powered on, bypass the Site Select.

The IMU 1 Operate command will be issued by SPEC 104, ITEM 13. After 5 minutes, the flight software will allow Site Select using SPEC 104. Once the Site Select is completed, the IMU 1 Standby command should be issued. Contact CGNC or CTPE for IMU status. If the IMUs are powered on, the Operate command should not be issued without CGNC concurrence. If the IMUs are already in Operate, the Site Select is not required prior to activating SPEC 055.

Power up the preamplifiers. Select both upper and lower and perform only the switch called out below. Once the switch settings are complete, the operator will acknowledge by selecting PFK1.
IF IMUs are powered off and CGNC has not completed the site select, Verify

THEN
CRT (VSN59 PG-B)
FOLLOW PROGRAM PROMPTS

TO PERFORM SITE SELECT

TO SET IMU OPERATE COMMAND, THEN RETURN BACK TO STANDBY WHEN SITE SELECT IS COMPLETE

ELSE

CRT (VSN59 PG-B)
FOLLOW PROGRAM PROMPTS

TO BYPASS SITE SELECT
NOTE
All GPS Pre-amplifiers will be powered on. GPS pre-amplifier circuit breakers are not downlisted and power switch indications are switch scan only.

37-287  CNSE  CDR

PANEL 014
ROW D
MN A
GPS 1
PRE AMPL
UPPER CB - CLOSED
LOWER CB - CLOSED

37-288  CNSE  CDR

PANEL 015
ROW C
MN B
GPS 2
PRE AMPL
UPPER CB - CLOSED

ROW D
MN B
GPS 2
PRE AMPL
LOWER CB - CLOSED

37-289  CNSE  CDR

PANEL 016
ROW D
MN C
GPS 3
PRE AMPL
UPPER CB - CLOSED
LOWER CB - CLOSED
37-290

CNSE

CRT/CONSOLE KYBD (VSN59 PG-B)
PFK 1B KEY - PRESS (CBS NOW CLOSED - CONTINUE)

37-291

CNSE CDR

PANEL 07
GPS 1
PRE AMPL
  UPPER SW - ON
  LOWER SW - ON
GPS 2
PRE AMPL
  UPPER SW - ON
  LOWER SW - ON
GPS 3
PRE AMPL
  UPPER SW - ON
  LOWER SW - ON

37-292

CNSE

CRT/CONSOLE KYBD (VSN59 PG-B)
PFK 1B KEY - PRESS (SWITCH SETTINGS COMPLETE - CONTINUE)

37-293

CNSE

CONSOLE KYBD (VSN59 PG-B)
PFK 1B KEY - PRESS (PERFORM I/O START - CONTINUE)
PFK XB KEY - PRESS (X = CRT ASSIGNED TO C2)
NOTE
GPS software allows 2 minutes for GPS receiver power-up to occur. A failure will be annunciated should the time be exceeded. Retest may be selected should this event occur.

NOTE
GPS receiver will transition from SELF-TEST/INIT mode to NAV mode upon power-up.

NOTE
For receiver status, the transition time from a STAT indication “OFF” indicating receiver is powered on to a STAT indication “ON” indicating receiver is tracking satellites in State 5 is not exact. During power-up, it may be necessary to perform a data retrieval on the STAT indication, if STAT indication is “ON” before it can be verified on display.

NOTE
A receiver STAT indication “ON” and the receiver is not tracking GPS satellites after the power-up procedure has been performed may indicate the receiver is not powered on or a failure of the GPS receiver may have occurred.

NOTE
For the GPS Receiver Status indication (STAT), approximately one second after power is applied, the STAT indication will transition from “ON” to “OFF.” The STAT indication will then transition to “ON” indicating receiver has entered a power-up self-test mode (~ 30 seconds) and transition back to “OFF” once self-test is complete.

Once the GPS receiver is on and self-test complete, STAT indication will identify the following:

1) STAT Indication “OFF” - Receiver is powered on, but is not tracking four satellites in state 5.

2) STAT Indication “ON” - Receiver is powered on and is tracking four satellites in state 5. This indication could also mean that GPS power was lost.
NOTE
Verification of GPS receiver status can be performed after GPS switch configuration is performed.

37-294
CNSE    CDR

PANEL 07
GPS 1
   POWER SW - ON

37-295
CNSE

CRT (VWN43 PG-B)
VERIFY
  GPS 1
     STAT - OFF
     RPC A - ON
     MDE - NAV
     RPU - OFF
     BAT - OFF

37-296
CNSE    CDR

PANEL 07
GPS 2
   POWER SW - ON

37-297
CNSE

CRT (VWN43 PG-B)
VERIFY
  GPS 2
     STAT - OFF
     RPC B - ON
     MDE - NAV
     RPU - OFF
     BAT - OFF
37-298  CNSE  CDR

PANEL O7
GPS 3
POWER SW - ON

37-299  CNSE

CRT (VWN43 PG-B)
VERIFY
GPS 3
STAT - OFF
RPC C - ON
MDE - NAV
RPU - OFF
BAT - OFF

37-300  CNSE

CRT (VSN59 PG-B)
PFK 7 KEY - PRESS (TERM NAV MONITOR)
NOTE
During transition to “INIT” mode, the VSN59 program may issue a message “Difference between GPS weeks and almanac weeks is greater than 1.” User can follow the program prompts to issue an “Acknowledge/Continue” using the appropriate PFK key when this occurs. A new almanac begins to download upon power up and satellite acquisition, but can take up to 20 minutes or greater to complete.

37-301  CNSE

CURSOR CNTL (VSN59 PG-B)
I/O ITEM 10+2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

37-302  CNSE

CRT (VSN59 PG-B)
VERIFY
GPS X (X = 1, 2 & 3)
RCVR MODE - INIT
HDR WD - EEEE

37-303  CNSE  CDR

CURSOR CNTL (VSN59 PG-B)
NAV - ALL
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
37-304

CNSE

CRT (VWN43 PG-B)

VERIFY

GPS X (X = 1, 2 & 3)
STAT - ON (NAV BIT - 4 SV TRACKING IN STATE 5 (CAR_TK))
HDR - FFFF
MDE - NAV

*** End of GPS Activation ***

3-String GPS Encryption Key Load

NOTE
The steps contained within the floating header, 3-String GPS Encryption Key Load, satisfy the noted requirements.
OMRS V74PP0.120-A-1R
OMRS V74PP0.120-B-1R
OMRS V74PP0.120-C-1R

37-305

CNSE CDR

PANEL 07
GPS 1
ENCYRYPT SW - NORMAL
GPS 2
ENCYRYPT SW - NORMAL
GPS 3
ENCYRYPT SW - NORMAL

37-306

CNSE

CRT (VSN59)
PFK 7 KEY - PRESS (TERM NAV MONITORING)

37-307

CNSE

CURSOR CNTL (VSN59)
INIT - ALL
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
GPS 1 Encryption Key Load

NOTE
Perform GPS 1 Encryption Key Load if a key load is required for GPS 1.

GPS 1 Encryption Key Load Not Performed:______

37-308       CNSE
CURSOR CNTL (VWN43 PG-B)
GPS 1 DETAIL
XMIT CURSOR KEY - PRESS

37-309       CNSE  CDR
PANEL 07
GPS 1
   ENCRYPT SW - ZEROIZE (3 SECONDS)
   ENCRYPT SW - NORMAL

37-310       CNSE
CRT (VWN56 PG-B)
VERIFY
   RECEIVER STATUS
   RCVR MODE - INIT
   HEADER WD - EEEE
   PPS KEYS
   GUV USER - OFF

37-311       CNSE  JYVJ
CSR-028
LOAD GPS 1 ENCRYPTION KEY USING THE FOLLOWING INTERFACES.

PANEL MA75J (AV BAY 3B)
   GPS ENCRYPT PANEL
      “ENCRP 1” PORT
Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

“GPS 1 Encryption Key” load is complete.

NOTE
The following step may be repeated to achieve a verified Key Load. (GUV USER ON, RCVR KEY ON, PARITY FAIL OFF)

IF Key Load can not be verified,

THEN:

PANEL A13
GPS
  ENCRYPT SW - ZEROIZE (FOR 3 SECONDS)
  ENCRYPT SW - NORMAL

Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

Reload “GPS1 Encryption Key” and report complete.

Not Performed:______
37-314  

CNSE  

CURSOR_CNTL (VWN56 PG-B)  

VERIFY  

PPS KEYS  

GUv USER - ON  

RCVR KEY - ON  

37-315  

CNSE  

CURSOR_CNTL (VWN56)  

OVERVIEW  

XMIT CURSOR KEY - PRESS  

*** End of GPS 1 Encryption Key Load ***
GPS 2 Encryption Key Load

NOTE
Perform GPS 2 Encryption Key Load if a key load is required for GPS 2.

GPS 2 Encryption Key Load Not Performed:______

37-316  CNSE
CURSOR CNTL (VWN43)
GPS 2 DETAIL
XMIT CURSOR KEY - PRESS

37-317  CNSE  CDR
PANEL 07
GPS 2
  ENCRYPT SW - ZEROIZE (3 SECONDS)
  ENCRYPT SW - NORMAL

37-318  CNSE
CRT (VWN58 PG-B)
VERIFY
  RECEIVER STATUS
    RCVR MODE - INIT
    HEADER WD - EEEE
  PPS KEYS
    GUV USER - OFF
37-319  CNSE      JYVJ

**LOAD** GPS 2 ENCRYPTION KEY USING THE FOLLOWING INTERFACES.

PANEL MA75J (AV BAY 3B)
  GPS ENCRYPT PANEL
  "ENCRP 2" PORT

37-320  JYVJ      CNSE

Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

“GPS 2 Encryption Key” load is complete.

---

**NOTE**
The following step may be repeated to achieve a verified Key Load. (GUV USER ON, RCVR KEY ON, PARITY FAIL OFF)

37-321  CNSE      CDR
          JYVJ

IF Key Load can not be verified,

THEN:

PANEL A13
  GPS
    ENCRYPT SW - ZEROIZE (FOR 3 SECONDS)
    ENCRYPT SW - NORMAL

Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

Reload “GPS2 Encryption Key” and report complete.

Not Performed: ____
37-322  CNSE
CURSOR CNTL (VWN58 PG-B)
VERIFY
  PPS KEYS
    GUV USER - ON
    RCVR KEY - ON

37-323  CNSE
CURSOR CNTL (VWN58)
OVERVIEW
XMIT CURSOR KEY - PRESS

*** End of GPS 2 Encryption Key Load ***
GPS 3 Encryption Key Load

**NOTE**
Perform GPS 3 Encryption Key Load if a key load is required for GPS 3.

GPS 3 Encryption Key Load Not Performed:_____

37-324  
**CNSE**

CURSOR CNTL (VWN43)
GPS 3 DETAIL
XMIT CURSOR KEY - PRESS

37-325  
**CNSE**  **CDR**

PANEL 07
GPS 3
   ENCRYPT SW - ZEROIZE (3 SECONDS)
   ENCRYPT SW - NORMAL

37-326  
**CNSE**

CRT (VWN61 PG-B)
**VERIFY**
   RECEIVER STATUS
   RCVR MODE - INIT
   HEADER WD - EEEE
   PPS KEYS
   GUV USER - OFF
37-327  CNSE    JYVJ

LOAD  GPS 3 ENCRYPTION KEY USING THE FOLLOWING INTERFACES.

PANEL MA75J (AV BAY 3B)
GPS ENCRYPT PANEL
“ENCRP 3” PORT

37-328  JYVJ    CNSE

Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

“GPS 3 Encryption Key” load is complete.

NOTE
The following step may be repeated to achieve a verified Key Load. (GUV USER ON, RCVR KEY ON, PARITY FAIL OFF)

37-329  CNSE    CDR
          JYVJ

IF Key Load can not be verified,

THEN:

PANEL A13
GPS
  ENCRYPT SW - ZEROIZE (FOR 3 SECONDS)
  ENCRYPT SW - NORMAL

Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)

Reload “GPS3 Encryption Key” and report complete.

Not Performed:______
37-330  

CNSE

CURSOR CNTL (VWN61 PG-B)

VERIFY

PPS KEYS

GUV USER - ON

RCVR KEY - ON

37-331  

CNSE

CURSOR CNTL (VWN61)

OVERVIEW

XMIT CURSOR KEY - PRESS

*** End of GPS 3 Encryption Key Load ***
37-332  

**CNSE**

CURSOR CNTL (VSN59 PG-B)  
NAV - ALL  
XMIT CURSOR KEY - PRESS  
START TEST  
XMIT CURSOR KEY - PRESS  

37-333  

**CNSE**

CRT (VWN43 PG-B)  
VERIFY  
GPS X  
(X = 1, 2 & 3)  
STAT - ON  
(NAV BIT - 4 SV TRACKING IN STATE 5 (CAR_TK))  
HDR - FFFF  
MDE - NAV  
MODE - PPS  
KEY V - ON  

37-334  

**CNSE**  

**JYVJ**

Avionics Bay 3B - Panel MA75J (GPS Encryption Panel)  
Encryption Key load complete and successful. Support no longer required.  

37-335  

**CNSE**

Completion of steps contained within the floating header section “3-String GPS Encryption Key Load” satisfies the following requirements.  

OMRSD V74PP0.120-A-1R  
OMRSD V74PP0.120-B-1R  
OMRSD V74PP0.120-C-1R  

*** End of 3-String GPS Encryption Key Load ***
GPS Powerdown

37-336  
CNSE

CURSOR CNTL (VSN59 PG-B)  
PFK7 - PRESS (TERMINATE NAV MONITOR)

37-337  
CNSE

CURSOR CNTL (VSN59 PG-B)  
GPS POWER DOWN - ALL  
XMIT CURSOR KEY - PRESS  
START TEST  
XMIT CURSOR KEY - PRESS

37-338  
CNSE

CURSOR CNTL (VSN59 PG-B)  
PFK 1B KEY - PRESS (TERMINATE I/O)

NOTE
Due to the configuration of the receiver STAT bit on the GPS receiver and GOAL software, it is possible that the “GPS X Verified Powered OFF” message will appear prior to physically powering off the GPS receiver. This will happen if the STAT indication is ON, which means the GPS receiver is tracking four satellites. This is an expected condition and steps can be performed as written.

37-339  
CNSE   CDR

PANEL 07
GPS 1
POWER SW - OFF
37-340 CNSE CDR

PANEL 07
  GPS 2
    POWER SW - OFF

37-341 CNSE CDR

PANEL 07
  GPS 3
    POWER SW - OFF

37-342 CNSE

CURSOR CNTL (VSN59 PG-B)
PFK 1B KEY - PRESS (PROCEED WITH PREAMP POWER OFF)

37-343 CNSE CDR

PANEL 07
  GPS 1
    PRE AMPL
      UPPER SW - OFF
      LOWER SW - OFF
  GPS 2
    PRE AMPL
      UPPER SW - OFF
      LOWER SW - OFF
  GPS 3
    PRE AMPL
      UPPER SW - OFF
      LOWER SW - OFF

37-344 CNSE

CURSOR CNTL (VSN59)
PFK 1B KEY - PRESS (PREAMP POWER SWITCH IS NOW OFF - CONTINUE)
37-345  CNSE
CURSOR CNTL (VSN59)
PK 1B KEY - PRESS (OPEN CBs)

37-346  CNSE  CDR
PANEL 014
ROW D
  MN A
  GPS 1
    PRE AMPL
    UPPER CB - OPEN
    LOWER CB - OPEN

37-347  CNSE  CDR
PANEL 015
ROW C
  MN B
  GPS 2
    PRE AMPL
    UPPER CB - OPEN

  ROW D
  MN B
  GPS 2
    PRE AMPL
    LOWER CB - OPEN

37-348  CNSE  CDR
PANEL 016
ROW D
  MN C
  GPS 3
    PRE AMPL
    UPPER CB - OPEN
    LOWER CB - OPEN
37-349  
CNSE

CRT (VSN59 PG-B)
PFK 1 KEY - PRESS (CBs OPENED)

37-350  
CNSE

CURSOR CNTL (VSN59)
PFK 1B KEY - PRESS (ISSUE RESUME TO CRT)

37-351  
CNSE

CURSOR CNTL (VSN59)
CRT RETURN TO DPS
XMIT CURSOR KEY - PRESS

PLACE CURSOR AT THE END OF:
C CO _DEUXG LDBA C12  (X = CRT NO.)
XMIT CMD KEY - PRESS

HOME CMD KEY - PRESS
ISSU N72IV10YD 0 (Y = CRT No. Minus 1)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

37-352  
CNSE  OTC  132
OTC  CDPS

C2 CRT returned to C12. GPS activities are complete.

*** End of CRT Return to C12 ***

37-353  
CNSE

CURSOR CNTL (VSN59)
TERMINATE
XMIT CURSOR KEY - PRESS
37-354

CNSE

CURSOR CNTL (VWN43 PG-B)
TERMINATE
XMIT CURSOR KEY - PRESS

37-355

CNSE

PFP
VAA40 - PRESS
SET TERM - PRESS
EXEC SET TERM - PRESS

*** End of GPS Powerdown ***

*** End of Option 4 - OV-105 GPS Encryption Key Load ***

*** End of Operation 37 ***
OPERATION 38 Instrumentation

Shop: INS
Cntrl Rm Console: C9
OPR: INS
Zone: 100
Hazard (Y/N): N
Duration (Hrs): 3.0
MTU Frequency Read (T-34 Hours 30 Minutes)

NOTE
Do not perform this option if MTU frequency reads were performed per a previous run and the Orbiter has remained powered.

MTU Frequency Read (T-34 Hours 30 Minutes) Not Performed:______

NOTE
The MTU must be powered for 12 continuous hours prior to performing MTU frequency reads.

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V75AP0.030-1R

38-1    CISL    JRPS    145

Configure the MTU test set as follows:

• OSC 1 selected
• Samples = 100
• Interval = 0
• Locked on Orbiter under test (OV-______).

Record changes in the “MTU Test Set Change Log.”

38-2    CISL    CDR    145

IF MTU OSCILLATOR 1 IS NOT SELECTED,

THEN PERFORM:
    PANEL 06
    MASTER TIMING UNIT SW - OSC 1

Not Performed:______
38-3  CISL

CRT (SAQ04/VWQ11)
VERIFY

MASTER TIMING UNIT
SEL SW SCAN - 1

NOTE
The MTU program starts at 100 samples and counts down. Allow a complete
calculation of 100 samples before reading deltas.

38-4  CISL  JISE  145

Perform MTU OSC 1 Frequency Delta Read.
Record:

OSC 1 Freq Delta ___________________________
(Less than 8 x 10 to the minus 8)

GMT __________________

38-5  CISL  CDR  145

PANEL 06

MASTER TIMING UNIT SW - OSC 2

38-6  CISL

CRT (SAQ04/VWQ11)
VERIFY

MASTER TIMING UNIT
SEL SW SCAN - 2

38-7  CISL  JRPS  145

Change the MTU Test Set to monitor OSC 2 for Orbiter under test
(OV-_______).

Record changes in the “MTU Test Set Change Log.”
38-8   CISL   JISE   145

**Perform** MTU OSC 2 Freq Delta Read.

**Record:**

\[
\text{OSC 2 Freq Delta} \quad (\text{Less than } 8 \times 10^{-8})
\]

\[
\text{GMT} \quad \underline{\text{____________________}}
\]

38-9   CISL   JISE   145

**Compute** the difference between OSC 1 and OSC 2:

\[
\frac{\text{OS}}{\text{C} \text{ (OSC 1)}} - \frac{\text{OS}}{\text{C} \text{ (OSC 2)}} = \frac{\text{OS}}{\text{C} \text{ (Delta Freq)}}
\]

**Verify** that the absolute value of the delta frequency is less than $7 \times 10^{-9}$.

38-10  Noted requirements are complete.

OMRSD **V75AP0.030-1R**

38-11  CISL   CDR   145

**IF** MTU OSCILLATOR NO. 1 IS DESIRED FOR LAUNCH PER INS ENGINEERING (NOMINAL CONFIGURATION IS OSCILLATOR NO. 2),

**THEN** **PERFORM**:

**PANEL 06**

**MASTER TIMING UNIT SW - OSC 1**

**Not Performed:** _______
IF MTU Oscillator No. 1 was selected in previous step, THEN change the MTU Test Set to monitor OSC 1 for Orbiter under test (OV-________). Record changes in the “MTU Test Set Change Log.”

38-14

CISL

CRT (SAQ04/VWQ11)
VERIFY

MASTER TIMING UNIT
SEL SW SCAN - AUTO
BITE
OSC - _____ (1 OR 2)

38-15

CISL JRPS 145

If MTU test set required to support other Orbiters, THEN change the MTU Test Set to SCAN mode.

MTU Frequency Read is complete (callback step in OMI S0007.200). *** End of MTU Frequency Read (T-34 Hours 30 Minutes) ***
MADS FDM/PCM Test (T-33 Hours 30 Minutes)

NOTE
Do not perform this option if performed per a previous run and Orbiter has remained powered.

MADS FDM/PCM Test (T-33 Hours 30 Minutes) Not Performed:_____

38-17  CISL  JRPS  145

Perform OMI S0007.100, Operation 263 - RPS Setup for MADS FDM/PCM Test.

Report completion.  

T:_____

38-18  CISL  JRPS  145

Start ground recorders to record MADS realtime data.

38-19  CISL  CDR  145

PANEL A6L

MADS RECORDER
  POWER SW - OFF
  PB FWD SW - OFF
  POWER MN B CB - CLOSE
  WIDEBAND/ACIP PCM SW - ON
  STRAIN GAGE SW - ON
  PCM
    CMD/ON SW - ON
    RCDR MODE SW - CONTINUOUS

38-20  CISL  CDR  145

PANEL C3

MADS MASTER POWER SW - ON
38-21  CISL  

CRT (SAQ04/VWQ14)  
VERIFY  

STATUS  
- PCM BITE - GOOD  
- FDM 1 MUX 1 BITE - GOOD  
- FDM 1 MUX 2 BITE - GOOD  
- FDM 1 MUX 3 BITE - GOOD  
- FDM 1 MUX 4 BITE - GOOD  
- FDM 2 MUX 1 BITE - GOOD  
- FDM 2 MUX 2 BITE - GOOD  
- FDM 2 MUX 3 BITE - GOOD  
- FDM 2 MUX 4 BITE - GOOD  
- FDM 1 MODE - DATA  
- FDM 2 MODE - DATA  

38-22  CISL  JRPS  145  

Start the MADS FDM and PCM display recorder(s).  

38-23  CISL  JRPS  145  
JISE  

Verify the following:  
- Reception of all FDM Muxes.  
- Reception and decom lock of MADS 64KB PCM.  

NOTE  
During the next four steps, monitor VWQ14 display closely to verify FDM mode changes.  

38-24  CISL  CDR  145  

PANEL A6L  

MADS  
FDM  
CONTROL SW - AUTO CALBR  
(HOLD FOR 2 SEC - RELEASE)
38-25  
CISL

CRT (SAQ04/VWQ14)
VERIFY
STATUS
FDM 1 MODE - DATA / CAL / DATA
FDM 2 MODE - DATA / CAL / DATA

(WAIT TEN SECONDS, THEN PROCEED)

38-26  
CISL  CDR  145

PANEL A6L

MADS
FDM
CONTROL SW - AUTO CALBR
(HOLD FOR 2 SEC - RELEASE)

38-27  
CISL

CRT (SAQ04/VWQ14)
VERIFY
STATUS
FDM 1 MODE - DATA / CAL / DATA
FDM 2 MODE - DATA / CAL / DATA

(WAIT TEN SECONDS, THEN PROCEED)

38-28  
CISL  JISE  145

Verify that two auto cals were received on all FDM display recorder channels.
NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V78GA0.010

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>38-29</td>
<td>CISL</td>
<td>JISE</td>
</tr>
<tr>
<td></td>
<td><strong>Verify</strong> MADS PCM 1 time display for the presence of current GMT and updating.</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>38-30</td>
<td>CISL</td>
<td>JISE</td>
</tr>
<tr>
<td></td>
<td><strong>Verify</strong> FDM 1 MUX 1 (M1A) Channel 1 time display for the presence of current GMT and updating.</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>38-31</td>
<td>CISL</td>
<td>JRPS</td>
</tr>
<tr>
<td></td>
<td><strong>Patch</strong> FDM 2 MUX 1 (M2A) Channel 1 to time display.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>38-32</td>
<td>CISL</td>
<td>JISE</td>
</tr>
<tr>
<td></td>
<td><strong>Verify</strong> FDM 2 MUX 1 (M2A) Channel 1 time display for the presence of current GMT and updating.</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>38-33</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Noted requirements are complete.</td>
<td></td>
</tr>
<tr>
<td>OMRS V78GA0.010</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>38-34</td>
<td>CISL</td>
<td>JRPS</td>
</tr>
<tr>
<td></td>
<td><strong>Display</strong> each FDM MUX (8 total) on the FFT Display Recorder and annotate for each MUX.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Report</strong> completion.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______</td>
<td></td>
</tr>
</tbody>
</table>
Perform MADS PCM 64KB and FDM snapshots. Upload snapshots to the RPS web.

Report completion.

OMRSD V78GA0.030

38-36  CISL  CDR  145

PANEL A6L

MADS
  WIDEBAND/ACIP PCM SW - OFF

38-37  CISL  JRPS  145

Verify reception and decom lock of MADS 32KB PCM.

38-38  CISL  CDR

PANEL A6L

MADS
  STRAIN GAGE SW - PCM ENA
  WIDEBAND/ACIP PCM SW - CMD
  PCM
    CMD/ON SW - CMD
    RCD MODE SW - SAMPLE
  FDM
    CONTROL SW - DATA
    MANUAL CAL SW - DC 0
    ACIP HTR SW - OFF
    RECORDER
    POWER SW - OFF
    PB FWD SW - CMD
    POWER MN B CB - CLOSE

38-39  CISL  CDR

PANEL C3

MASTER MADS POWER SW - ON
38-40  CISL

CRT (SAQ04/VWQ14)
VERIFY

STATUS
PCM BITE - FAIL
FDM 1 MUX 1 BITE - FAIL
FDM 1 MUX 2 BITE - FAIL
FDM 1 MUX 3 BITE - FAIL
FDM 1 MUX 4 BITE - FAIL
FDM 2 MUX 1 BITE - FAIL
FDM 2 MUX 2 BITE - FAIL
FDM 2 MUX 3 BITE - FAIL
FDM 2 MUX 4 BITE - FAIL

RECORDER
BITE - FAIL
MOTION - OFF

38-41  CISL  JRPS  145

Recording of MADS realtime data is no longer required.
Stop the MADS display recorder.
Record:

RPS Tape No. __________

38-42  CISL

MADS FDM/PCM Test is complete (callback step in OMI S0007.200).

*** End of MADS FDM/PCM Test (T-33 Hours 30 Minutes) ***
PCM to GSE Control

**NOTE**
Do not perform this option if PCMMU is already configured to GSE control.

**PCM to GSE Control Not Performed:**

**NOTE**
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

**NOTE**
Nominal Launch configuration for OI PCMMU is 1. The following steps will configure the OI PCMMU to GSE control assuming this nominal configuration.

**NOTE**
Noted requirements are satisfied by the following series of steps.

OMRS V75AP0.010-1R

**38-43 CISL**

**CRT (SAQ04/VWQ11)**

VERIFY

OI DATA VALID (UP ARROW)

PCMMU

PCM1 - ON (RPC’S ACTIVE)

SW SCAN - 1

COMMAND - OFF

**38-44 CISL**

CURSOR CNTL (SAQ04/VWQ11)

PCM CONTROL

PCMMU 1 - ON

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS
38-45  
**CISL**

CRT (SAQ04/VWQ11)
VERIFY

PCMMU
COMMAND - ON

38-46  
**CISL**  
**CDR 145**

PANEL C3

OI PCMMU
POWER SW - OFF
FORMAT SW - GPC

38-47  
**CISL**

CRT (SAQ04/VWQ11)
VERIFY

OI DATA VALID (UP ARROW)

PCMMU

PCM1 ON (RPC'S ACTIVE)
SW SCAN - OFF
COMMAND - ON
FORMAT
SW SCAN - GPC
BITE
1 POWER - GOOD
2 MTU - GOOD

38-48  
Noted requirements are complete.

OMRSD V75AP0.010-1R

38-49  
**CISL**

PCM to GSE Control is complete (callback step in OMI S0007.200).

*** End of PCM to GSE Control ***
SSR 1 and SSR 2 Configure for LCD

NOTE
Perform this option if required for this run.

SSR 1 and SSR 2 Configure for LCD Not Performed:_____

38-50
CISL

IF VWQ30 IS NOT ALREADY ACTIVE,

THEN PERFORM:
CONSOLE KYBD
ON CMD LINE ENTER - VWQ30
PERF PGM KEY - PRESS

VERIFY VWQ30 (SOLID STATE RECORDER COMMAND SELECT) DISPLAY IS ACTIVE

Not Performed:_____

38-51
CISL

CURSOR CNTL (VWQ30 SSR COMMAND SELECT)
SELECT SSR
   SSR 1
XMIT CURSOR KEY - PRESS

VERIFY SSR 1 INVERT GREEN

SELECT PATH
   LDB
XMIT CURSOR KEY - PRESS

VERIFY LDB INVERT GREEN
SSR 1 Erase and CST

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V75AR0.120

38-52
CISL

CRT (VWQ30 SSR COMMAND SELECT)
VERIFY

SSR 1
POWER - ON
MODE - STBY
CBF - GOOD
NCBF - GOOD
CMD REJ - GOOD

NOTE
SSR Erase mode takes less than 15 seconds to complete.

38-53
CISL

CURSOR CNTL (VWQ30 SSR COMMAND SELECT)
RECORDE (LWR RH CORNER)
ERASE
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS
38-54  

CISL

CRT (VWQ30 SSR COMMAND SELECT)
VERIFY

SSR 1
  MODE - ERASE
  CBF - GOOD
  NCBF - GOOD
  CMD REJ - GOOD

38-55  

CISL

CRT (VWQ30 SSR COMMAND SELECT)
VERIFY

SSR 1
  POWER - ON
  MODE - STBY
  CBF - GOOD
  NCBF - GOOD
  SLOT CNT - 0
  CMD REJ - GOOD
  AUTOSTOP - INHIBIT
  PAR PROT - UNPROT
  POSITION - 162

NOTE

To clearly identify the messages on Page-A during the next three steps, it is best to clear Page-A prior to the next step, and then hardcopy the “Self Test” messages.

38-56  

CISL

CURSOR CNTL (VWQ30 SSR COMMAND SELECT)
RECORDE (LWR RH CORNER)
CST
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS
NOTE
CST mode will take approximately 2 minutes 33 seconds (153 seconds) to complete.

38-57

CISL

CRT (VWQ30 SSR COMMAND SELECT)
VERIFY

SSR 1
MODE - SLF TEST

38-58

CISL

Verify the following SSR 1 messages on VWQ30 Page-A:

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEM - IMAGE EPROM CHECK-SUM</td>
<td>GOOD</td>
</tr>
<tr>
<td>MEM - EDAC LOGIC</td>
<td>GOOD</td>
</tr>
<tr>
<td>MEM - BLOCK TRANSFER D64BLT</td>
<td>GOOD</td>
</tr>
<tr>
<td>MEM - REMAP CIRCUIT</td>
<td>GOOD</td>
</tr>
<tr>
<td>MEM - REGISTERS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SPARE</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - EPROM CHECK-SUM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - ECC LOGIC-LONG (1 KBYTES)</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - SYSTEM DRAM MEMORY DATA/ADDRESS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - USER TIMERS AND COMBINED TIMERS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - TUNDRA VME INTERFACES</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - INTERRUANT</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - SRAM_D64BLT AND I/O_D64BLT</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - VME_INTERFACE REGISTERS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - ADDRESS REGISTERS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - MDM COMMAND, CMD FIFO &amp; OUTPUT</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - B CHANNEL LOOP AND AB_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - A2 CHANNEL LOOP AND AB_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - A1 CHANNEL LOOP AND AB_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - E3 CHANNEL LOOP AND E3_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - E2 CHANNEL LOOP AND E2_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - E1 CHANNEL LOOP AND E1_SRAM</td>
<td>GOOD</td>
</tr>
</tbody>
</table>
38-59

CISL

CRT (VWQ30 SSR COMMAND SELECT)

VERIFY

SSR 1
  POWER - ON
  MODE - STBY
  CBF - GOOD
  NCBF - GOOD
  SLOT CNT - 0
  CMD REJ - GOOD
  AUTOSTOP - INHIBIT
  PAR PROT - UNPROT
  POSITION - 162

*** End of SSR 1 Erase and CST ***

SSR 2 Erase and CST

38-60

CISL

CURSOR CNTL (VWQ30 SSR COMMAND SELECT)
SELECT SSR
  SSR 2
XMIT CURSOR KEY - PRESS

VERIFY SSR 2 INVERT GREEN

SELECT PATH
  LDB
XMIT CURSOR KEY - PRESS

VERIFY LDB INVERT GREEN
38-61

CISL

CRT (VWQ30 SSR COMMAND SELECT)
VERIFY

SSR 2
POWER - ON
MODE - STBY
CBF - GOOD
NCBF - GOOD
CMD REJ - GOOD

38-62

CISL

CURSOR CNTL (VWQ30 SSR COMMAND SELECT)
RECORDE (LWR RH CORNER)
ERASE
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

NOTE
SSR Erase mode takes less than 15 seconds to complete.

38-63

CISL

CRT (VWQ30 SSR COMMAND SELECT)
VERIFY

SSR 2
MODE - ERASE
CBF - GOOD
NCBF - GOOD
CMD REJ - GOOD
NOTE
To clearly identify the messages on Page-A during the next three steps, it is best to clear Page-A prior to the next step, and then hardcopy the “Self Test” messages.

CISL

38-64

CRT (VWQ30 SSR COMMAND SELECT)

VERIFY

SSR 2
POWER - ON
MODE - STBY
CBF - GOOD
NCFB - GOOD
SLOT CNT - 0
CMD REJ - GOOD
AUTOSTOP - INHIBIT
PAR PROT - UNPROT
POSITION - 162

NOTE
CST mode will take approximately 2 minutes 33 seconds (153 seconds) to complete.

38-65

CURSOR CNTL (VWQ30 SSR COMMAND SELECT)
RECODER (LWR RH CORNER)
CST
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CISL

38-66

CRT (VWQ30 SSR COMMAND SELECT)

VERIFY

SSR 2
MODE - SLF TEST
Verify the following SSR 2 messages on VWQ30 Page-A:

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEM - IMAGE EPROM CHECK-SUM</td>
<td>GOOD</td>
</tr>
<tr>
<td>MEM - EDAC LOGIC</td>
<td>GOOD</td>
</tr>
<tr>
<td>MEM - BLOCK TRANSFER D64BLT</td>
<td>GOOD</td>
</tr>
<tr>
<td>MEM - REMAP CIRCUIT</td>
<td>GOOD</td>
</tr>
<tr>
<td>MEM - REGISTERS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SPARE</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - EPROM CHECK-SUM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - ECC LOGIC-LONG (1 KBYTES)</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - SYSTEM DRAM MEMORY DATA/ADDRESS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - USER TIMERS AND COMBINED TIMERS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SBC - TUNDRA VME INTERFACES</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - INTERRUPT</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - SRAM_D64BLT AND I/O_D64BLT</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - VME_INTERFACE REGISTERS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - ADDRESS REGISTERS</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - MDM COMMAND, CMD FIFO &amp; OUTPUT</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - B CHANNEL LOOP AND AB_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - A2 CHANNEL LOOP AND AB_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - A1 CHANNEL LOOP AND AB_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - E3 CHANNEL LOOP AND E3_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - E2 CHANNEL LOOP AND E2_SRAM</td>
<td>GOOD</td>
</tr>
<tr>
<td>SSR I/O - E1 CHANNEL LOOP AND E1_SRAM</td>
<td>GOOD</td>
</tr>
</tbody>
</table>
38-68  

CISL

CRT (VWQ30 SSR COMMAND SELECT)
VERIFY

SSR 2
  POWER - ON
  MODE - STBY
  CBF - GOOD
  NCBF - GOOD
  SLOT CNT - 0
  CMD REJ - GOOD
  AUTOSTOP - INHIBIT
  PAR PROT - UNPROT
  POSITION - 162

*** End of SSR 2 Erase and CST ***

38-69  

Noted requirements are complete.

OMRSD V75AR0.120

38-70  

CISL

SSR 1 and SSR 2 Configure for LCD is complete (callback step in OMI S0007.200).

*** End of SSR 1 and SSR 2 Configure for LCD ***
MADS Configure for LCD

**NOTE**
Perform this option if required for this run.

MADS Configure for LCD Not Performed:______

**NOTE**
The next step will apply MEC 2 power on OV-103 in order to enable MADS Recorder tracks 5 (M1D), 9 (M1B), spare tracks 3, 11, and 13.

38-71 CISL CEPD 145

**IF** Orbiter is OV-103,

**THEN PERFORM:**
CURSOR CNTL (VWC14)
MEC ET CMDS
   MEC 2 ET DFI PWR - ON
XMIT CURSOR KEY - PRESS

Not Performed:______

38-72 CISL JRPS 145

**Start** ground recorder(s) for MADS realtime data.

38-73 CISL CDR 145

**PANEL A6L**

MADS
   POWER MN B CB - CLOSE
   RECORDER POWER SW - OFF
   WIDEBAND/ACIP PCM SW - CMD
   PCM
      CMD/ON SW - CMD
   RCD MODE SW - CONTINUOUS
38-74 Cisl CDR 145

PANEL C3

MADS MASTER POWER SW - ON

38-75 Cisl JRPS 145

Start MADS FDM display recorder (ref OMI S0007.100, Operation 263 - RPS Setup for MADS FDM/PCM Test).

38-76 Cisl

IF SELECT PATH - LDB is not invert green on the VWQ14 display,

THEN Perform the following:

CURSOR CNTL (SAQ04/VWQ14)
SELECT PATH
   LDB
XMIT CURSOR KEY - PRESS

Not Performed:______

38-77 Cisl

CURSOR CNTL (SAQ04/VWQ14)
MADS
   WB/ACIP - ON
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

   PCM PWR - ON
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS
CISL

CRT (SAQ04/VWQ14)

VERIFY

STATUS
- PCM BITE - GOOD
- FDM 1 MUX 1 BITE - GOOD
- FDM 1 MUX 2 BITE - GOOD
- FDM 1 MUX 3 BITE - GOOD
- FDM 1 MUX 4 BITE - GOOD
- FDM 2 MUX 1 BITE - GOOD
- FDM 2 MUX 2 BITE - GOOD
- FDM 2 MUX 3 BITE - GOOD
- FDM 2 MUX 4 BITE - GOOD
- FDM 1 MODE - DATA
- FDM 2 MODE - DATA

CISL

JRPS 145

JISE

Verify reception of FDM 1 and 2 Muxes A-D.

CISL

CURSOR CNTL (SAQ04/VWQ14)

MADS
- PCM PWR - OFF
- XMIT CURSOR KEY - PRESS
- EXEC CMD KEY - PRESS

- WB/ACIP - OFF
- XMIT CURSOR KEY - PRESS
- EXEC CMD KEY - PRESS
NOTE
The following steps are to be run without delay in order to minimize MADS recorder run time.

38-81  CISL  CDR  145  

PANEL A6L

MADS
  RECORDER
    POWER SW - ON

38-82  CISL

CURSOR CNTL (SAQ04/VWQ14)
MADS
  WB/ACIP - ON
  XMIT CURSOR KEY - PRESS
  EXEC CMD KEY - PRESS

  PCM PWR - ON
  XMIT CURSOR KEY - PRESS
  EXEC CMD KEY - PRESS
38-83

CISL

CRT (SAQ04/VWQ14)

VERIFY

STATUS

PCM BITE - GOOD
FDM 1 MUX 1 BITE - GOOD
FDM 1 MUX 2 BITE - GOOD
FDM 1 MUX 3 BITE - GOOD
FDM 1 MUX 4 BITE - GOOD
FDM 2 MUX 1 BITE - GOOD
FDM 2 MUX 2 BITE - GOOD
FDM 2 MUX 3 BITE - GOOD
FDM 2 MUX 4 BITE - GOOD
FDM 1 MODE - DATA
FDM 2 MODE - DATA

RECORER

BITE - GOOD
MOTION - ON
MODE - RECD
PASS - 1

NOTE

Noted requirements are satisfied by the following series of steps.

OMRS V78GA0.020

38-84

CISL  CDR  145

PANEL A6L

MADS
FDM

CONTROL SW - MAN CALBR
MAN CALBR SW - 0

38-85

CISL

CRT (SAQ04/VWQ14)

VERIFY

STATUS

FDM 1 MODE - CAL
FDM 2 MODE - CAL

(WAIT 10 SECONDS THEN PROCEED)
38-86  CISL    CDR    145

PANEL A6L

MADS
FDM
MAN CALBR SW - 25
(WAIT 5 SECONDS THEN PROCEED)

38-87  CISL    CDR    145

PANEL A6L

MADS
FDM
MAN CALBR SW - 50
(WAIT 5 SECONDS THEN PROCEED)

38-88  CISL    CDR    145

PANEL A6L

MADS
FDM
MAN CALBR SW - 75
(WAIT 5 SECONDS THEN PROCEED)

38-89  CISL    CDR    145

PANEL A6L

MADS
FDM
MAN CALBR SW - 100
(WAIT 10 SECONDS THEN PROCEED)

38-90  CISL    CDR    145

PANEL A6L

MADS
FDM
MAN CALBR SW - AC
(WAIT 10 SECONDS THEN PROCEED)
38-91  CISL   MS1   145

PANEL A6L

MADS
  FDM
    CONTROL SW - DATA

38-92  CISL

CURSOR CNTL (SAQ04/VWQ14)
MADS
  PCM PWR - OFF
  XMIT CURSOR KEY - PRESS
  EXEC CMD KEY - PRESS

  WB/ACIP - OFF
  XMIT CURSOR KEY - PRESS
  EXEC CMD KEY - PRESS

38-93  CISL

CRT (SAQ04/VWQ14)
VERIFY

STATUS
  PCM BITE - FAIL
  FDM 1 MUX 1 BITE - FAIL
  FDM 1 MUX 2 BITE - FAIL
  FDM 1 MUX 3 BITE - FAIL
  FDM 1 MUX 4 BITE - FAIL
  FDM 2 MUX 1 BITE - FAIL
  FDM 2 MUX 2 BITE - FAIL
  FDM 2 MUX 3 BITE - FAIL
  FDM 2 MUX 4 BITE - FAIL

RECORERD
  BITE - GOOD
  % TAPE - ______
  MOTION - OFF
38-94        CISL     JRPS     145
            Stop the MADS FDM display recorder.

38-95        CISL     JISE     145
            Verify manual cals received on MADS FDM display recorder channels.

38-96        Noted requirements are complete.

OMRSD V78GA0.020

38-97        CISL     CEPD     145
            IF Orbiter is OV-103,
            THEN PERFORM:
            CURSOR CNTL (VWC14)
            MEC ET CMDS
            MEC 2 ET DFI PWR - OFF
            XMIT CURSOR KEY - PRESS

            Not Performed:______
38-98 CISL CDR 145

PANEL A6L

MADS
  STRAIN GAGE SW - PCM ENA
  WIDEBAND/ACIP PCM SW - CMD
  PCM
    CMD/ON SW - CMD
  RCD MODE SW - SAMPLE
FDM
  CONTROL SW - DATA
  MANUAL CAL SW - DC 0
  ACIP HTR SW - OFF
RECODER
  POWER SW - OFF
  PB FWD SW - CMD
  POWER MN B CB - CLOSE

38-99 CISL CDR

PANEL C3

MASTER MADS POWER SW - ON
38-100  

CISL

CRT (SAQ04/VWQ14)

VERIFY

STATUS

PCM BITE - FAIL
FDM 1 MUX 1 BITE - FAIL
FDM 1 MUX 2 BITE - FAIL
FDM 1 MUX 3 BITE - FAIL
FDM 1 MUX 4 BITE - FAIL
FDM 2 MUX 1 BITE - FAIL
FDM 2 MUX 2 BITE - FAIL
FDM 2 MUX 3 BITE - FAIL
FDM 2 MUX 4 BITE - FAIL

RECORDER

BITE - FAIL
MOTION - OFF

38-101  

CISL  JRPS  145

Recording of MADS realtime data is no longer required.

Record:

RPS Tape No. ______________

38-102  

CISL

MADS Configure for LCD is complete (callback step in OMI S0007.200).

*** End of MADS Configure for LCD ***
ET OI Instrumentation Checks  
(T-8 Hours 30 Minutes)

38-103  CISL  CMPS  145  
CMPL

Verify ready to support ET OI Instrumentation Checks (T-8H30M).

ET Ullage Temperature Check

38-104  CISL

CRT (SAQ04/TWO52)  
VERIFY LO₂ ULLAGE TEMPERATURE WITHIN +/- 50 DEG F  
of AMBIENT AND LH₂ ULLAGE TEMPERATURE WITHIN  
+/- 40 DEG F OF AMBIENT.

RECORD VALUES:

LO₂ ULLAGE  
TEMP (T41T1755A)__________  DEG F

LH₂ ULLAGE  
TEMP (T41T1705A)__________  DEG F

*** End of ET Ullage Temperature Check ***
LH₂ ET Ullage Transducer Checkout

38-105  CISL

PFP (SAQ04/TWO52)
ULLAGE PRESS AND TEMP - PRESS

CRT (SAQ04/TWO52)
VERIFY

MPS PWR (OI)
BUS B ON
BUS C ON

38-106  CMPS

IF SAE12 IS NOT ACTIVE, THEN PERFORM:
CONSOLE KYBD
SAE12
PERF PGM KEY - PRESS

Not Performed:_____

38-107  CMPL

IF SAE02 IS NOT ACTIVE, THEN PERFORM:
CONSOLE KYBD
SAE02
PERF PGM KEY - PRESS

Not Performed:_____

| 168 |
NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00FA0.140-B-1

38-108   CISL

CRT (SAQ04/TWO52)
RECORD INDICATIONS OF ALL THREE LH₂ ULLAGE PRESSURES:

LH₂ ULLAGE PRESS NO. 1 (T41P1700C) __________ PSIA
LH₂ ULLAGE PRESS NO. 2 (T41P1701C) __________ PSIA
LH₂ ULLAGE PRESS NO. 3 (T41P1702C) __________ PSIA

VERIFY ALL LH₂ ULLAGE PRESSURE INDICATIONS ARE BETWEEN 16.4 AND 24.4 PSIA AND DO NOT EXCEED A SPREAD OF 1.2 PSI.

38-109   CMPS

CURSOR CNTL (SAE12)
ULL PRESS XDUCER 1 - ON

CRT (SAE12)
VERIFY XDUCER 1 CHANGES TO RED 4
38-110  

**CISL**

CRT (SAQ04/TWO52)

**RECORD INDICATIONS OF ALL THREE LH₂ ULLAGE PRESSURES:**

LH₂ ULLAGE PRESS NO. 1 (T41P1700C) __________ PSIA

LH₂ ULLAGE PRESS NO. 2 (T41P1701C) __________ PSIA

LH₂ ULLAGE PRESS NO. 3 (T41P1702C) __________ PSIA

**VERIFY** ALL LH₂ ULLAGE PRESSURE INDICATIONS ARE BETWEEN 16.4 AND 24.4 PSIA AND DO NOT EXCEED A SPREAD OF 1.2 PSI.

38-111  

**CMPS**

CURSOR CNTL (SAE12)

ULL PRESS XDUCER 4 - ON

CRT (SAE12)

**VERIFY** RED 4 CHANGES TO 1

38-112  

**CMPS**

CURSOR CNTL (SAE12)

ULL PRESS XDUCER 2 - ON

CRT

**VERIFY** XDUCER 2 CHANGES TO RED 4
38-113 Cisl

RECORD CRT INDICATIONS OF ALL THREE LH2 ULLAGE PRESSURES:

LH2 ULLAGE PRESS NO. 1 (T41P1700C) __________ PSIA

LH2 ULLAGE PRESS NO. 2 (T41P1701C) __________ PSIA

LH2 ULLAGE PRESS NO. 3 (T41P1702C) __________ PSIA

VERIFY ALL LH2 ULLAGE PRESSURE INDICATIONS ARE BETWEEN 16.4 AND 24.4 PSIA AND DO NOT EXCEED A SPREAD OF 1.2 PSI.

38-114 CMPS

CURSOR CNTL (SAE12)
   ULL PRESS XDUCER 4 - ON

CRT (SAE12)
VERIFY RED 4 CHANGES TO 2

38-115 CMPS

CURSOR CNTL (SAE12)
   ULL PRESS XDUCER 3 - ON

CRT
VERIFY XDUCER 3 CHANGES TO RED 4
38-116  

CISL

CRT (SAQ04/TWO52)

**RECORD INDICATIONS OF ALL THREE LH₂ ULLAGE PRESSURES:**

LH₂ ULLAGE PRESS NO. 1 (T41P1700C) __________ PSIA

LH₂ ULLAGE PRESS NO. 2 (T41P1701C) __________ PSIA

LH₂ ULLAGE PRESS NO. 3 (T41P1702C) __________ PSIA

**VERIFY ALL LH₂ ULLAGE PRESSURE INDICATIONS ARE BETWEEN 16.4 AND 24.4 PSIA AND DO NOT EXCEED A SPREAD OF 1.2 PSI.**

38-117

CMPS

CURSOR CNTL (SAE12)

ULL PRESS XDUCER 4 - ON

CRT (SAE12)

**VERIFY RED 4 CHANGES TO 3**

38-118

Noted requirements are complete.

OMRSD S00FA0.140-B-1

*** End of LH₂ ET Ullage Transducer Checkout ***
LO₂ ET Ullage Transducer Checkout

38-119 CISL

CRT (SAQ04/TWO52)
RECORD INDICATIONS OF ALL THREE LO₂ ULLAGE PRESSURES:

LO₂ ULLAGE PRESS NO. 1 (T41P1750C) __________ PSIG

LO₂ ULLAGE PRESS NO. 2 (T41P1751C) __________ PSIG

LO₂ ULLAGE PRESS NO. 3 (T41P1752C) __________ PSIG

VERIFY ALL LO₂ ULLAGE PRESSURE INDICATIONS ARE BETWEEN 1.7 AND 9.7 PSIG AND DO NOT EXCEED A SPREAD OF 0.9 PSI.

OMRSD S00FA0.140-A-1

*** End of LO₂ ET Ullage Transducer Checkout ***

38-120 CISL

ET OI Instrumentation Checks are complete (callback step in OMI S0007.200).

*** End of ET OI Instrumentation Checks ***
SRM Case Temp EMON Activation

38-121
CISL

CRT (SAQ04/SAQ01A INST OVERVIEW DISPLAY)
RECORD

SRB EMON - _________ (ACTIVE OR BYPASS)

38-122
CISL

IF SRB EMON (SAQ01A) WAS NOT RECORDED AS ACTIVE IN THE PREVIOUS STEP,

THEN PERFORM:
CURSOR CNTL (SWQ03 INST BYPASS MGMT)
EMON SRB
XMIT CURSOR KEY - PRESS

Not Performed:______

38-123
CISL

CRT (SAQ04/SAQ01A INST OVERVIEW DISPLAY)
VERIFY

SRB EMON - ACTIVE

38-124
CISL

SRM Case Temp EMON Activation is complete (callback step in OMI S0007.200).

*** End of SRM Case Temp EMON Activation ***
Sep Camera Heater Activation

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00FA0.650

38-125

CISL

CONSOLE KYBD
  CBTU BT4 V56K0010XL 1
  XMIT CMD KEY - PRESS
  EXEC CMD KEY - PRESS

RECORD HEX RETURN PATTERN

V56K0010XL = _____

RECORD HEX PATTERN CONVERTED TO BINARY
  = XXXX XXX_ XXXX XXXX (X = DON'T CARE)
  (0 = OFF / 1 = ON)

38-126

CISL

IF BINARY PATTERN IN THE PREVIOUS STEP INDICATES SEP CAMERA HEATER IS OFF,

THEN PERFORM THE FOLLOWING COMMAND TO ACTIVATE HEATER:
CONSOLE KYBD
  SET V56K0010XL ON
  XMIT CMD KEY - PRESS
  EXEC CMD KEY - PRESS

Not Performed:______
38-127  CISL

IF SEP CAMERA HEATER COMMAND WAS PERFORMED IN THE PREVIOUS STEP,

THEN PERFORM:
CONSOLE KYBD
   CBTU BT4 V56K0010XL 1
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

CRT
RECORD HEX RETURN PATTERN

V56K0010XL = _____

VERIFY HEX PATTERN CONVERTED TO BINARY
= XXXX XXX1 XXXX XXXX (X = DON'T CARE)

Not Performed: ______

38-128  Noted requirements are complete.

OMRSD S00FA0.650

38-129  CISL

Sep Camera Heater Activation is complete (callback step in OMI S0007.200).

*** End of Sep Camera Heater Activation ***
SRM Chamber Pressure Verification

NOTE
Perform this option if required for this run.

SRM Chamber Pressure Verification Not Performed:_____

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

NOTE
SRB Buses A, B, and C must be powered up at least 30 minutes prior to performing SRM Chamber Pressure Verification.

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00FF0.161-1R (VSQ11)
OMRS S00FF0.180-1R (VSQ11)

NOTE
The next two steps must be performed in a concurrency other than 1.

38-130 CISL
CURSOR CNTL (SWQ02/SDQ02 INST MENU)
SRB DATA DISPLAY (BWQ01)
XMIT CURSOR KEY - PRESS

38-131 CISL
CURSOR CNTL (BWQ01) SRB DATA DISPLAY
SRB CHAMBER CHECKOUT OPTIONS
VSQ11 (INTEGRATED CHECKOUT)
XMIT CURSOR KEY - PRESS
IF VSQ11 (INTEGRATED CHECKOUT) DISPLAYS THE FOLLOWING MESSAGE:

“TEST REQUIREMENTS FOR THIS TEST HAVE BEEN MET”

THEN PERFORM:
CURSOR CNTL (VSQ11 INTEGRATED CHECKOUT)
    CONTINUE
    XMIT CURSOR KEY - PRESSS

ELSE:

1. RECORD THE NOTED EXCEPTION(S) AND REASON FOR “OK TO CONTINUE”:

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

2. PERFORM:
CURSOR CNTL (VSQ11 INTEGRATED CHECKOUT)
    CONTINUE
    XMIT CURSOR KEY - PRESSS
Verify VSQ11 Integrated Checkout program performs the following:

1. VDQ11 SRB INTEGRATED CHECKOUT is displayed.

2. 75% CAL CHECK is activated with GMT, AMB PRESS, and AMB TEMP displayed

3. 75% CAL CHECK sequence displays the following for each measurement (B47P1300C through B47P2302C):
   - 75% Cal Pressure of 729 to 799 psi for ON indication.
   - Ambient Pressure of -7.0 psi to 33.0 psi for OFF indication.

4. SRB PRESS MDM READ completes and displays the following:
   - GMT, AMB PRESS, and AMB TEMP.
   - R1 through R10 values for each measurement (B47P1300C through B47P2302C).
   - AVG values for each measurement (B47P1300C through B47P2302C).
   - CAL BIAS ASSUMED values for each measurement (B47P1300C through B47P2302C).

5. GPC READ completes and displays the following:
   - BIAS values for each measurement (B47P1300C through B47P2302C).
   - SLOPE values for each measurement (B47P1300C through B47P2302C).
NOTE
During substep six, the message “VALUES NOT STANDARD” may appear at the bottom left corner of the VDQ11 display if VSQ11 did not require an update on this run and one of the GPC READ BIAS values are other than -10.000. This commonly occurs when a GPC UPDATE was performed during a previous run and when the bias values presently loaded in the GPC are the same that would be loaded by VSQ11. If the bias values are different and both “VALUES NOT STANDARD” and “GPC UPDATE REQUIRED” messages are displayed, another load will be necessary, see substep eight.

6. IF VSQ11 Integrated Checkout completes with no GPC BIAS UPDATE required,

    THEN verify CHECKOUT COMPLETE - NO ERRORS.

    Not Performed:______

    SS6

7. IF VSQ11 determines that a GPS BIAS UPDATE is required,

    THEN verify GPC BIAS UPDATE proceeds and the second GPC READ displays the following:

    • New GPC BIAS UPDATE values.
    • CHECKOUT COMPLETE - TEST COMPLETED.

    Record GPC BIAS UPDATE values:

    B47P1300C ____________  B47P2300C ____________

    B47P1301C ____________  B47P2301C ____________

    B47P1302C ____________  B47P2302C ____________

    Not Performed:______

    SS7
NOTE
Perform substep eight if the message “VALUES NOT STANDARD” appeared at the bottom left corner of the VDQ11 display and VDQ11 has determined that another “GPC UPDATE REQUIRED”.

8. IF VSQ11 determines that a “GPC BIAS UPDATE” is required because “VALUES NOT STANDARD”,

THEN:
CURSOR CNTL (VSQ11 SRB INTEGRATED CHECKOUT)
CONTINUE
XMIT CURSOR KEY - PRESS

Verify
• New GPC BIAS UPDATE values displayed.
• CHECKOUT COMPLETE - TEST COMPLETED

Record GPC BIAS UPDATE values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>B47P1300C</td>
<td>B47P2300C</td>
</tr>
<tr>
<td>B47P1301C</td>
<td>B47P2301C</td>
</tr>
<tr>
<td>B47P1302C</td>
<td>B47P2302C</td>
</tr>
</tbody>
</table>

Not Performed: SS8

38-134

CISL
CURSOR CNTL (VSQ11 INTEGRATED CHECKOUT)
BWQ01
XMIT CURSOR KEY - PRESS

CURSOR CNTL (BWQ01 SRB DISPLAY)
MENU
XMIT CURSOR KEY - PRESS
38-135  Noted requirements are complete.

OMRSD S00FF0.161-1R (VSQ11)
OMRSD S00FF0.180-1R (VSQ11)

38-136  CISL  TBC  136

SRM Chamber Pressure Verification is complete (callback step in OMI S0007.200).

*** End of SRM Chamber Pressure Verification ***
L-15 Minutes Recorder Activation

NOTE
Do not perform this option if Scrub is declared prior to activation.

L-15 Minutes Recorder Activation Not Performed:______

MADS Recorder Activation (L-15 Minutes)

NOTE
Do not perform this option if Scrub is declared prior to activation.

MADS Recorder Activation (L-15 Minutes) Not Performed:______

38-137 CISL JRPS 145
Start ground recorder(s) for MADS realtime data.
Start MADS PCM and FDM display recorder(s).

38-138 JRPS CISL 145
Ground recorder activation for MADS realtime data complete.
MADS PCM and FDM display recorder activation complete.

38-139 CISL *FLT 145
Proceed with MADS Activation.
**Perform** the following:

1. **Verify** MADS shelf temperature is less than 90 degrees prior to activation.
2. DSM 4618 (MADS RCDR PWR ON)
3. DSM 4601 (MADS WB/ACIP PCM ON)
4. DSM 4603 (MADS PCM ON (wait 10 seconds))
5. DSM 4607 (MADS CALB ON (wait 10 seconds))
6. DSM 4608 (MADS CALB OFF)
38-141

CISL

CRT (SAQ04/VWQ14)

VERIFY

STATUS

PCM BITE - GOOD
PDM 1 MUX 1 BITE - GOOD
PDM 1 MUX 2 BITE - GOOD
PDM 1 MUX 3 BITE - GOOD
PDM 1 MUX 4 BITE - GOOD
PDM 2 MUX 1 BITE - GOOD
PDM 2 MUX 2 BITE - GOOD
PDM 2 MUX 3 BITE - GOOD
PDM 2 MUX 4 BITE - GOOD
PDM 1 MODE - DATA / CAL / DATA
PDM 2 MODE - DATA / CAL / DATA

SHELF TEMP NMT 90 DEG F

RECORER

BITE - GOOD
MODE - RECD
PASS - 1
PCT TAPE - INCREASING
MOTION - ON

*** End of MADS Recorder Activation (L-15 Minutes) ***
Solid State Recorder Activation (L-15 Minutes)

**NOTE**
During recorder activation, *FLT will call out all DSMs as they are performed.

38-142 CISL *FLT 145

**Proceed** with Solid State Recorder (SSR) Activation.

38-143 *FLT

DSM 9202 SSR 1 RCDP

38-144 CISL

**CRT (SAQ01A/SDQ01A INST OVERVIEW DISPLAY)**

**VERIFY**

SSR 1
- MODE - RCDP
- CBF - GOOD
- NCBF - GOOD
- SLOT CNT - 0
- CMD REJ - GOOD
- AUTO STOP - INHIBIT
- PAR PROT - PROT
- POSITION - 162 (INCREASING)

38-145 *FLT

DSM 9302 SSR 2 RCDP
38-146

**CISL**

CRT (SAQ01A/SDQ01A INST OVERVIEW DISPLAY)

**VERIFY**

SSR 2
- MODE - RCDP
- CBF - GOOD
- NCBF - GOOD
- SLOT CNT - 0
- CMD REJ - GOOD
- AUTO STOP - INHIBIT
- PAR PROT - PROT
- POSITION - 162 (INCRESING)

38-147

**CISL**

Solid State Recorder Activation is complete (callback “Record Activation Complete” step in OMI S0007.200).

*** End of Solid State Recorder Activation (L-15 Minutes) ***

**NOTE**

Notify NTD of any MADS recorder anomalies prior to T-5M only.

38-148

**FLT**  **CISL**  **145**

Recorders are activated with no problems observed.

*** End of L-15 Minutes Recorder Activation ***
SSR and MADS Deactivation for Hold Option No. 1

NOTE
Do not perform this option if Scrub occurs prior to L-15M Recorder Activation or Countdown proceeds past T-5M Hold point.

SSR and MADS Deactivation for Hold Option No. 1 Not Performed:_____

SSR Deactivation

NOTE
Perform SSR Deactivation if Solid State Recorders were activated prior to hold option.

SSR Deactivation Not Performed:_____

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00E00.976

38-149 *FLT

Perform the following:

XMIT DSM 9252 (SSR 1 HALT)

XMIT DSM 9352 (SSR 2 HALT)
38-150  CISL

CRT (SAQ01A/SDQ01A INST OVERVIEW DISPLAY)

VERIFY

SSR 1
MODE - STBY
CBF - GOOD
NCBF - GOOD
CMD REJ - GOOD
POSITION - ______

SSR 2
MODE - STBY
CBF - GOOD
NCBF - GOOD
CMD REJ - GOOD
POSITION - ______

38-151  Noted requirements are complete.

OMRSD S00E00.976 SSR Termination

*** End of SSR Deactivation ***
MADS Deactivation

NOTE
Perform MADS Deactivation if MADS system was activated prior to hold option.

MADS Deactivation Not Performed:_____

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00E00.811

38-152 *FLT

Perform the following:

DSM 4618 (MADS RCDR PWR ON)
DSM 4600 (MADS SYSTEM OFF)
DSM 4619 (MADS RCDR PWR OFF)

38-153 CISL

CRT (SAQ04/VWQ14)
VERIFY
RECORDER
  BITE - FAIL

STATUS
  PCM BITE - FAIL
  FDM 1 MUX 1 BITE - FAIL
  FDM 1 MUX 2 BITE - FAIL
  FDM 1 MUX 3 BITE - FAIL
  FDM 1 MUX 4 BITE - FAIL
  FDM 2 MUX 1 BITE - FAIL
  FDM 2 MUX 2 BITE - FAIL
  FDM 2 MUX 3 BITE - FAIL
  FDM 2 MUX 4 BITE - FAIL
38-154 Noted requirements are complete.
OMRSD S00E00.811 MADS Deactivation

*** End of MADS Deactivation ***

38-155 CISL

SSR and MADS Deactivation for Hold Option No. 1 is complete (Callback step in OMI S0007.200).

*** End of SSR and MADS Deactivation for Hold Option No. 1 ***
SSR and MADS Activation for Hold Option No. 1

NOTE
Perform this option if “SSR and MADS Deactivation for Hold Option No. 1” was performed and the Countdown will proceed past T-5M Hold point.

SSR and MADS Activation for Hold Option No. 1 Not Performed:_____

38-156  *FLT

Perform the following:

1. Verify MADS shelf temperature is less than 90 degrees prior to activation.
2. DSM 4618 (MADS RCDR PWR ON)
3. DSM 4601 (MADS WB/ACIP PCM ON)
4. DSM 4603 (MADS PCM ON (wait 10 seconds))
5. DSM 4607 (MADS CALB ON (wait 10 seconds))
6. DSM 4608 (MADS CALB OFF)
38-157  
CISL

CRT (SAQ04/VWQ14)

VERIFY

STATUS
  PCM BITE - GOOD
  FDM 1 MUX 1 BITE - GOOD
  FDM 1 MUX 2 BITE - GOOD
  FDM 1 MUX 3 BITE - GOOD
  FDM 1 MUX 4 BITE - GOOD
  FDM 2 MUX 1 BITE - GOOD
  FDM 2 MUX 2 BITE - GOOD
  FDM 2 MUX 3 BITE - GOOD
  FDM 2 MUX 4 BITE - GOOD
  FDM 1 MODE - DATA / CAL / DATA
  FDM 2 MODE - DATA / CAL / DATA

SHELF TEMP NMT 90 DEG F

RECORDER
  BITE - GOOD
  MODE - RECD
  PASS - 1
  PCT TAPE - INCREASING
  MOTION - ON

38-158  
*FLT

DSM 9202 SSR 1 RCDP
38-159  
**CISL**

CRT (SAQ01A/SDQ01A INST OVERVIEW DISPLAY)

**VERIFY**

SSR 1
- MODE - RCDP
- CBF - GOOD
- NCBF - GOOD
- SLOT CNT - 0
- CMD REJ - GOOD
- AUTO STOP - INHIBIT
- PAR PROT - PROT
- POSITION - 162 (INCREASING)

38-160  
**FLT**

DSM 9302 SSR 2 RCDP

38-161  
**CISL**

CRT (SAQ01A/SDQ01A INST OVERVIEW DISPLAY)

**VERIFY**

SSR 2
- MODE - RCDP
- CBF - GOOD
- NCBF - GOOD
- SLOT CNT - 0
- CMD REJ - GOOD
- AUTO STOP - INHIBIT
- PAR PROT - PROT
- POSITION - 162 (INCREASING)

38-162  
**CISL**

OI and MADS Recorder Activation for Hold Option No. 1 is complete (callback step in OMI S0007.200).

*** End of SSR and MADS Activation for Hold Option No. 1 ***
Sep Camera Heater Deactivation

NOTE
Perform this option if required for initial safing during a launch scrub or for INS System Securing.

Sep Camera Heater Deactivation Not Performed:______

38-163  CISL

CONSOLE KEYBOARD
SET V56K0010XL OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

CBTU BT4 V56K0010XL 1
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

RECORD HEX RETURN PATTERN V56K0010XL: __________
VERIFY HEX PATTERN CONVERTED TO
BINARY = XXXX XXX0 XXXX XXXX (X = DON’T CARE)

*** End of Sep Camera Heater Deactivation ***
Scrub Turnaround SSR 1 Data Playback

**NOTE**
Perform this option if SSR 1 data playback is required by JSC INCO or CISL (ref. OMI S0007.300).

Scrub Turnaround SSR 1 Data Playback Not Performed:____

38-164 CISL

**IF** VWQ30 **IS NOT ALREADY ACTIVE,**

**THEN PERFORM:**
CONSOLE KYBD
ON CMD LINE ENTER - VWQ30
PERF PGM KEY - PRESS

**VERIFY** VWQ30 (**SOLID STATE RECORDER COMMAND SELECT**) DISPLAY IS ACTIVE.

Not Performed:____

38-165 CISL JRPS 145

Verify the following is configured for SSR 1 Data Playback (ref. OMI S0007.100, Operation 255 - RPS Instrumentation LCC Workaround Setup - JRPS):

- SSR 1 T-0 H/L to ground recorder(s)
- SSR 1 T-0 H/L to decom setup for NSP192 at 1024KB
- Decom to lock status display recorder
38-166  

CISL

IF SSR 1 IS CURRENTLY ACTIVATED,

THEN PERFORM:
CURSOR CNTL (SAQ04/VWQ30 SSR COMMAND SELECT)
RECORDE R
HALT
XMIT CURSOR KEY - PRESS
EXECUTE CMD KEY - PRESS
CRT (SAQ04/VWQ30 SSR COMMAND SELECT)
VERIFY

SSR 1
MODE - STBY

RECORD SSR 1 POSITION __________

Not Performed:_____

38-167  

CISL      JRPS      145

Start ground recorder(s) and lock status display recorder for SSR 1 data playback.

Report when complete.
NOTE
The next five steps may be re-performed as required to get an acceptable SSR 1 data playback.

38-168

CISL

CURSOR CNTL (SAQ04/VWQ30 SSR COMMAND SELECT)
PLAYBACK
   POS ///
XMIT CURSOR KEY - PRESS

ENTER ON CMD LINE: 162

XMIT RESP KEY - PRESS

   POS 162
EXEC CMD KEY - PRESS

   PB 1024
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

NOTE
NCBF may indicate fail when playing past position of valid data.

38-169

CISL

CRT (SAQ04/VWQ30 SSR COMMAND SELECT)
VERIFY

SSR 1
   MODE - PB1024
   CBF - GOOD
   NCBF - GOOD
   SLOT CNT - 0
   CMD REJ - GOOD
   AUTOSTOP - INHIBIT
   POSITION - 162 AND INCREASING
Verify data reception and good decom lock on SSR 1 1024KB data.

NOTE
Allow playback to continue to SSR 1 position requested by JSC INCO or until all recorded data has been played back. Continue at CISL discretion if data playback will be re-performed.

38-171  CISL  CURSOR CNTL (VWQ30 SSR COMMAND SELECT)
        RECORDER
        STOP PB
        XMIT CURSOR KEY - PRESS
        EXEC CMD KEY - PRESS

38-172  CISL
        CRT (SAQ04/VWQ30 SSR COMMAND SELECT)
        VERIFY
        SSR 1
        MODE - STBY

        RECORD SSR 1 POSITION FOR EACH RUN (IF APPLICABLE):

        RUN 1 - SSR 1 POSITION:__________
        RUN 2 - SSR 1 POSITION:__________
        RUN 3 - SSR 1 POSITION:__________
38-173 CISL JRPS 145

Stop the ground recorder(s) and lock status display recorder for SSR 1 data playback.

Record:

RPS Tape No. ______________

38-174 CISL JISE 145

Verify decom lock on the 192KBPS, SSR 1024KBPS playback data either by realtime verification or by ground recorder playback.

38-175 CISL

Scrub Turnaround SSR 1 Data Playback is complete (ref. OMI S0007.300).

*** End of Scrub Turnaround SSR 1 Data Playback ***

*** End of Operation 38 ***
OPERATION 39  Caution & Warning and LCC EMON Activation

Shop: ECL, MPS, OMS
Cntrl Rm Console: C4, C5, C7, C8
OPR: ECL, MPS, OMS
Zone: N/A
Hazard (Y/N): N
Duration (Hrs): 1.0

NOTE
Do not perform this operation if a 24-hr hold occurs at T-6H.

Operation Not Performed: ______
Perform EMON Activation of your system’s caution and warning parameters.

Report completion.

**ECLSS EMON for C&W**

**39-2**

CECL

CONSOLE KYBD (VAG29 PG-A)
PFK4 - PRESS

CRT (PFK MENU PG-A)
VERIFY UPDATE "INHIBIT CAUTION & WARNING EMONS"

CONSOLE KYBD (VAG29 PG-A)
PFK5 - PRESS

CRT (PFK MENU PG-A)
VERIFY UPDATE "INHIBIT EMON DISCRETES"

**39-3**

CECL OTC 132

ECLSS Caution & Warning and EMON Activation complete.

*** End of ECLSS EMON for C&W ***
MPS EMON Activation for C&W and LCCs

39-4

CMPS

CONSOLE KYBD (C-4)
A_SX_V41P1153A1_730_788
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

A_SX_V41P1154A1_730_788
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

A_SX_V41P1253A1_730_788
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

A_SX_V41P1254A1_730_788
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

A_SX_V41P1353A1_730_788
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

A_SX_V41P1354A1_730_788
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

A_SX_V41P1433C1_LOW_60
XMIT CMD KEY - PRESS

39-5

CMPL

CONSOLE KYBD (C-3)
A_SX_V41P1533C1_LOW_249
XMIT CMD KEY - PRESS

39-6

CMPS OTC 132

MPS Caution & Warning EMON Activation complete.

*** End of MPS EMON Activation for C&W and LCCs ***
OMS RCS C&W EMON Activation

39-7

COOS

CONSOLE C8

VERIFY/TERMINATE ALL OMS/RCS PGMS ON C8

39-8

CTPE

INTEGRATION CONSOLE (RSYS XFER)

SAP10 INTG MENU DISPLAY
CURSOR CNTL
RSYS TRANSFER
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAP30 PAGE B)
GRP79 OMS/RCS OXID ORB FD'S
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAP30 PAGE B)
C-7
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

AFTER APPROX 2 MINUTES,
VERIFY GROUPS 79 AND 80 HAVE TRANSFERRED TO C7

PFP (SAP10 PAGE B)
PFK10 - PRESS (RETURN)

CURSOR CNTL (SAP10 PAGE B)
TERM CONC
XMIT CURSOR KEY - PRESS

39-9

COOS

CONSOLE C7

VADL7 PERF PGM

VERIFY VADL8 UPDATING.
39-10

COOS

CONSOLE KYBD
A SX V42P2116C1 200 312
XMIT CMD KEY - PRESS
(LRCS FU TK ULLGE)

A SX V42P3116C1 200 312
XMIT CMD KEY - PRESS
(RRCS FU TK ULLGE)

A SX V42P1116C1 200 312
XMIT CMD KEY - PRESS
(FRCS FU TK ULLGE)

A SX V43P4321C1 232 288
XMIT CMD KEY - PRESS
(LOMS FU TK ULLGE)

A SX V43P5321C1 232 288
XMIT CMD KEY - PRESS
(ROMS FU TK ULLGE)

39-11

COOS

CONSOLE KYBD C7
A SX V42P2115C1 200 312
XMIT CMD KEY - PRESS
(LRCS OX TK ULLGE)

A SX V42P3115C1 200 312
XMIT CMD KEY - PRESS
(RRCS OX TK ULLGE)

A SX V43P5221C1 232 288
XMIT CMD KEY - PRESS
(ROMS OX TK ULLGE)

A SX V42P1115C1 200 312
XMIT CMD KEY - PRESS
(FRCS OX TK ULLGE)
39-12

IF LP04 is installed on this Orbiter, Verify

THEN Perform the following:

A SX V43P4221C1 232 296
XMIT CMD KEY - PRESS
(LOMS OX TK ULLGE FOR LP04)

ELSE Perform the following:

A SX V43P4221C1 232 288
XMIT CMD KEY - PRESS
(LOMS OX TK ULLGE FOR ALL OTHER PODS)

39-13

COOS OTC 132

OMS/RCS C&W EMON Activation is complete.

*** End of OMS RCS C&W EMON Activation ***

*** End of Operation 39 ***
OPERATION 40  OMS/RCS System
Shop: OMS
Cntrl Rm Console: C7, C8
OPR: OMS
Zone: 120
Hazard (Y/N): N
Duration (Hrs): 1.0
OMS/RCS Switch Configuration

NOTE
The following steps configure the cockpit switches in preparation for the Ascent Switch List.

40-1 OTC COOS 132
Perform OMS/RCS Switch Configuration.

40-2 COOS CDR 147
PANEL 07

AFT LEFT RCS
HE PRESS
  A SW - OPEN (GUARDED)
  B SW - OPEN (GUARDED)
  A TB OP
  B TB OP

AFT RIGHT RCS
HE PRESS
  A SW - OPEN (GUARDED)
  B SW - OPEN (GUARDED)
  A TB OP
  B TB OP
PANEL 08

FWD RCS
HE PRESS
A SW - OPEN (GUARDED)
B SW - OPEN (GUARDED)
A TB OP
B TB OP

LEFT OMS
HE PRESS/VAPOR ISOL
A SW - GPC (GUARDED)
B SW - GPC (GUARDED)

RIGHT OMS
HE PRESS/VAPOR ISOL
A SW - GPC (GUARDED)
B SW - GPC (GUARDED)

OMS KIT
HE PRESS/VAPOR ISOL
A SW - CLOSE
B SW - CLOSE
TANK ISOLATION
A SW - CLOSE
B SW - CLOSE
A TB BP
B TB BP

PANEL 016

ROW E
MN C
RCS/OMS PRPLT QTY
GAUGE CB - CLOSE
40-5  COOS  PLT   147

PANEL 03

RCS/OMS PRESS SW - RCS HE X 10
RCS/OMS PRPLT QTY SW - OMS FUEL

40-6  COOS  PS1   147

PANEL A14

RCS/OMS HEATERS

OMS

CRSFD LINES
A AUTO SW - A AUTO
B AUTO SW - B AUTO

FWD RCS JET
1 SW - AUTO
2 SW - AUTO
3 SW - AUTO
4 SW - AUTO
5 SW - AUTO

AFT RCS JET
1 SW - AUTO
2 SW - AUTO
3 SW - AUTO
4 SW - AUTO
5 SW - AUTO

40-7  COOS  MS1   147

PANEL R14

ROW C

MN C

MANF ISOL L5 CB - CLOSE
MANF ISOL R5 CB - CLOSE
MANF ISOL F5 CB - CLOSE
40-8 COOS ASP 147

PANEL MA73C

ROW H

AC 1
FWD RCS VLV
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 2
FWD RCS VLV
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 3
FWD RCS VLV
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

ROW I

AC 1
AFT POD VLV GP1
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE
AFT POD VLV LOGIC GP
1/3 SW - ON

AC 2
AFT POD VLV GP2
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE
AFT POD VLV LOGIC GP
1/2 SW - ON

AC 3
AFT POD VLV GP3
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE
AFT POD VLV LOGIC GP
2/3 SW - ON

40-9 COOS OTC 132

OMS/RCS Switch Configuration is complete.

*** End of OMS/RCS Switch Configuration ***
OMS/RCS System Securing

NOTE
Perform this option only if required for Scrub/Turnaround/Recycle.

OMS/RCS System Securing Not Performed:_____

40-10 OTC COOS 132

Perform OMS/RCS System Secure.

NOTE
Noted requirements are satisfied by the following steps annotated with OMRS code.

OMRS S00E00.660

40-11 COOS

IF RECYCLE OCCURS AT T-3H, OR AFTER,
AND CROSSFEED LINES ARE TO BE INTERCONNECTED TO THE LEFT OMS PROPELLANT TANKS,

THEN PERFORM:
CURSOR CNTL (VWD42)
C4 - OPEN
OMRS S00E00.660

Not Performed:_____

40-12 COOS

IF RECYCLE OCCURS AT T-3H, OR AFTER,
AND CROSSFEED LINES ARE TO BE INTERCONNECTED TO THE LEFT OMS PROPELLANT TANKS,

THEN PERFORM:
CURSOR CNTL (VWD41)
C4 - OPEN
OMRS S00E00.660

Not Performed:_____

212
OMS/RCS Securing at T-30 Minutes Recycle

NOTE
Perform this option if Recycle occurs at T-30M or after.

OMS/RCS Securing at T-30 Minutes Recycle Not Performed:______

40-13  COOS  CDR  147

PANEL C3
VERIFY

OMS ENG
LEFT SW - OFF
RIGHT SW - OFF

OMRS S00E00.660

40-14  COOS

CRT (VWD73)
VERIFY

LOMS
A/P 1 OFF
A/P 2 OFF
ARM 1 OFF
ARM 2 OFF

ROMS
A/P 1 OFF
A/P 2 OFF
ARM 1 OFF
ARM 2 OFF

OMRS S00E00.660
IF RECYCLE OCCURS AT T-1H35M OR AFTER,

THEN PERFORM:

PANEL A14

RCS/OMS HEATERS

OMS

CRSFD LINES

A AUTO SW - OFF
B AUTO SW - OFF

FWD RCS JET

1 SW - OFF
2 SW - OFF
3 SW - OFF
4 SW - OFF
5 SW - OFF

AFT RCS JET

1 SW - OFF
2 SW - OFF
3 SW - OFF
4 SW - OFF
5 SW - OFF

Not Performed:______

40-16 COOS CDR 147

IF RECYCLE OCCURS AT T-1H35M OR AFTER,

THEN PERFORM:

PANEL 014

ROW F

LEFT OMS ENG VLV SW - OFF

OMRS S00E00.660

Not Performed:______
IF RECYCLE OCCURS AT T-1H35M OR AFTER,

THEN PERFORM:
PANEL 016

ROW F
   RIGHT OMS ENG VLV SW - OFF

OMRS S00E00.660

Not Performed:_____

Noted requirements are complete.

OMRSD S00E00.660

OMS/RCS System Securing is complete.

*** End of OMS/RCS System Securing ***

*** End of Operation 40 ***
OPERATION 41 ET Liquid Level Point Sensor/Bus Redundancy Checks

Shop: MPS  
Cntrl Rm Console: C4  
OPR: MPS  
Zone: N/A  
Hazard (Y/N): N  
Duration (Hrs): 1.0

NOTE
This operation is run to support initial Orbiter Launch Preps and may be run multiple times, as necessary, to support Scrub Turnaround operations. QC verification for this operation is accomplished in Table 41-1 - Quality Verification Sheet - ET Level Sensor Cal Checks.
Perform ET Level Sensor/Bus Redundancy Checks.

**ET Liquid Level and Engine Cutoff Sensor Checkout**

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noted requirements are satisfied by the following of steps annotated with OMRS code.</td>
</tr>
</tbody>
</table>

- OMRS S00FA0.160-A-1
- OMRS S00FA0.160-B-1

Level sensor checkout will be performed at this time. Momentary fluctuation of Liquid Level and Engine Cutoff sensors between wet and dry states will be experienced.

**41-3**

- **CMPS**
  - **PFP SAE12**
  - **ET POINT SENSOR MENU - SELECT**
  - **PT SENS ELEC C/O - SELECT**
  - **EXEC - PRESS**
  - **PFK7 KEY - PRESS (TWICE)**

- OMRS S00FA0.160-A-1
- OMRS S00FA0.160-B-1
NOTE
Successful completion or error messages are displayed on SAE12, page A.

41-4

CMPS

CRT (SAE12)
VERIFY SUCCESSFUL COMPLETION OF ET LIQUID LEVEL AND ENGINE CUTOFF SENSOR CHECKOUT

OMRS S00FA0.160-A-1
OMRS S00FA0.160-B-1

41-5

IF for support of Scrub Turnaround Operations,

THEN noted requirements are complete.

OMRSD S00FA0.160-B-1

(Not Performed:)

*** End of ET Liquid Level and Engine Cutoff Sensor Checkout ***
ET Point Sensor Bus Redundancy Verification

NOTE
The ET Point Sensor Bus Verification is run in support of initial Orbiter Launch Preps and for closeout verification following contingency AFT ingress. ET Point Sensor Bus Verification is not performed for Scrub/Turnaround contingencies in order to avoid the possibility of ullage pressure drop outs during detanking/boilloff operations that could trigger unwanted LH2 vent valve cycling.

ET Point Sensor Bus Redundancy Verification (Not Performed:)

CAUTION
The next step applies MPS signal conditioner power buses individually and verifies that only proper sensors indicate dry. Performing the ET Point Sensor Bus Verification during Scrub/Turnaround contingencies may result in unwanted LH2 vent valve cycling.

41-6  CMPS  TBC  136  
       CLOX  
       CLHY  

Level sensor checkout will be performed at this time. Momentary loss of power to the ET OI level sensors, ullage pressures and vent valve indicators will occur.

OMRS S00FA0.160-A-1

41-7  CMPS

PFP (SAE12)  
ET PT SENS MENU - SELECT  
PT SENS BUS VERF - SELECT  
EXECUTE - PRESS  
PFK5 KEY - PRESS (TWICE)

OMRS S00FA0.160-A-1
NOTE
Successful completion or error messages are displayed on SAE12, page A.

41-8  
CMPS

CRT (SAE12)
**VERIFY SUCCESSFUL COMPLETION of ET POINT SENSOR BUS REDUNDANCY TEST.**

OMRS S00FA0.160-A-1

41-9  
IF for support of Initial Launch Preps/Contingency AFT Closeout Verification,

THEN noted requirements are complete.

OMRSD S00FA0.160-A-1

(Not Performed:)

*** End of ET Point Sensor Bus Redundancy Verification ***

41-10  
CMPS

CRT (SAE12 PG-B)
**VERIFY ET OI PWR ON**

41-11  
CMPS  TBC  136
TBC  CLOX
CLHY

ET Level Sensor/Bus Redundancy Checks complete.
### Table 41-1 - Quality Verification Sheet - ET Level Sensor Cal Checks

<table>
<thead>
<tr>
<th>Step</th>
<th>CMD</th>
<th>Resp</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Run 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>41-1</td>
<td>TBC</td>
<td>CMPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ET Liquid Level and Engine Cutoff Sensor Checkout**

<table>
<thead>
<tr>
<th>Step</th>
<th>CMD</th>
<th>Resp</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Run 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>41-2</td>
<td>CMPS</td>
<td>TBC</td>
<td>CLOX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CLHY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-3</td>
<td>--</td>
<td>CMPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-4</td>
<td>--</td>
<td>CMPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-5</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Not Performed:

***End of ET Liquid Level and Engine Cutoff Sensor Checkout***
Table 41-1 - ET Point Sensor Bus Redundancy Verification (cont)

<table>
<thead>
<tr>
<th>Not Performed</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>41-6</td>
<td>CMPS</td>
<td>TBC CLOX CLHY</td>
</tr>
<tr>
<td>41-7</td>
<td>--</td>
<td>CMPS</td>
</tr>
<tr>
<td>41-8</td>
<td>--</td>
<td>CMPS</td>
</tr>
<tr>
<td>41-9 Not Performed:</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

***End of ET Point Sensor Bus Redundancy Verification***

<table>
<thead>
<tr>
<th>41-10</th>
<th>--</th>
<th>CMPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>41-11</td>
<td>CMPS TBC</td>
<td>TBC CLOX CLHY</td>
</tr>
</tbody>
</table>

*** End of Operation 41 ***
OPERATION 42  APU Systems

Shop: APU
Cntrl Rm Console: C8
OPR: APU
Zone: N/A
Hazard (Y/N): N
Duration (Hrs): 2.0
NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

APU 1, 2, and 3 Auto BITE Test

NOTE
Master alarms will occur during APU Auto BITE Tests if caution and warning parameters 068, 078, 088, 098, 108, or 118 are enabled. In addition, BFS Class 3 messages will appear on CRT 3 if BFS is in Standby or Run. All alarms and messages may be cleared.

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V46AL0.610-1
OMRS V46AL0.620-1
OMRS V46AL0.630-1

42-1 CAPU  OTC  132

Master alarms and BFS messages may occur during the following operation.

42-2 OTC  CISL  CTPE  CDR  132

Master alarms and BFS messages may occur. CDR to reset.

42-3 CAPU  PLT  182

PANEL R2

APU/HYD
APU CNTLR PWR
1 SW - ON
2 SW - ON
3 SW - ON
APU 1 Auto BITE Test

42-4

CAPU

CRT (VWF49) APU 1
VERIFY

CONTROLLER POWER SW SC ON V46S0124E1
CONTROLLER PWR J1 RPC ON V76X4001E1
CONTROLLER PWR J2 RPC ON V76X4002E1

42-5

CAPU

(VWF49) APU 1

1. CURSOR CNTL
   AUTO BITE ON
   XMIT CURSOR KEY - PRESS V46K0157NL
   (INITIATES AUTO BITE TEST SEQUENCE)

2. ALLOW 20 SEC MINIMUM TO ELAPSE
   CRT
   (STATUS MESSAGE WILL APPEAR AT BOTTOM OF CRT PRIOR TO INITIATING HIGH SPEED COMMANDS)

3. RECORD TURBINE SHAFT SPEED:
   __________ PCT V46R0135A1

4. VERIFY TURBINE SHAFT SPEED 108 +/- 1 PCT.

5. ALLOW AUTO BITE SEQUENCER 40 SEC MINIMUM PRIOR TO PROCEEDING.
   (INITIATES HIGH SPEED COMMANDS) V46K0129NL V46K0149NL

6. VERIFY AUTO BITE COMPLETE ON V46X0158E1

7. RECORD TURBINE SHAFT SPEED:
   __________ PCT V46R0135A1

8. VERIFY TURBINE SHAFT SPEED 108 +/- 1 PCT.
42-6

CAPU

CURSOR CNTL (VWF49) APU 1
AUTO BITE OFF
XMIT CURSOR KEY - PRESS
(TERMINATES AUTO BITE TEST SEQUENCER)

CRT
VERIFY AUTO BITE COMPLETE OFF V46X0158E1

APU 2 Auto BITE Test

42-7

CAPU

CRT (VWF49) APU 2
VERIFY

CONTROLLER POWER SW SC ON V46S0224E1
CONTROLLER PWR J1 RPC ON V76X4004E1
CONTROLLER PWR J2 RPC ON V76X4005E1
42-8

CAPU

(VWF49) APU 2

1. CURSOR CNTL
   AUTO BITE ON
   XMIT CURSOR KEY - PRESS V46K0257NL
   (INITIATES AUTO BITE TEST SEQUENCE)

2. ALLOW 20 SEC MINIMUM TO ELAPSE
   CRT
   (STATUS MESSAGE WILL APPEAR AT BOTTOM OF CRT PRIOR TO INITIATING HIGH SPEED COMMANDS)

3. RECORD TURBINE SHAFT SPEED:
   __________ PCT V46R0235A1

4. VERIFY TURBINE SHAFT SPEED 108 +/-1 PCT.

5. ALLOW AUTO BITE SEQUENCER 40 SEC MINIMUM PRIOR TO PROCEEDING.
   (INITIATES HIGH SPEED COMMANDS) V46K0229NL
   V46K0249NL

6. VERIFY AUTO BITE COMPLETE ON V46X0258E1

7. RECORD TURBINE SHAFT SPEED:
   __________ PCT V46R0235A1

8. VERIFY TURBINE SHAFT SPEED 108 +/-1 PCT.

42-9

CAPU

CURSOR CNTL (VWF49) APU 2
AUTO BITE OFF
XMIT CURSOR KEY - PRESS
(TERMINATES AUTO BITE TEST SEQUENCER)

CRT
VERIFY AUTO BITE COMPLETE OFF V46X0258E1
APU 3 Auto BITE Test

42-10
CAPU

CRT (VWF49) APU 3
VERIFY

CONTROLLER POWER SW SC ON V46S0324E1
CONTROLLER PWR J1 RPC ON V76X4008E1
CONTROLLER PWR J2 RPC ON V76X4007E1

42-11
CAPU

(VWF49) APU 3

1. CURSOR CNTL
   AUTO BITE ON
   XMIT CURSOR KEY - PRESS V46K0357NL
   (INITIATES AUTO BITE TEST SEQUENCE)

2. ALLOW 20 SEC MINIMUM TO ELAPSE
   CRT
   (STATUS MESSAGE WILL APPEAR AT BOTTOM OF
   CRT PRIOR TO INITIATING HIGH SPEED COMMANDS)

3. RECORD TURBINE SHAFT SPEED:
   __________ PCT V46R0335A1

4. VERIFY TURBINE SHAFT SPEED 108 +/- 1 PCT.

5. ALLOW AUTO BITE SEQUENCER 40 SEC MINIMUM
   PRIOR TO PROCEEDING.
   (INITIATES HIGH SPEED COMMANDS) V46K0329NL
   V46K0349NL

6. VERIFY AUTO BITE COMPLETE ON V46X0358E1

7. RECORD TURBINE SHAFT SPEED:
   __________ PCT V46R0335A1

8. VERIFY TURBINE SHAFT SPEED 108 +/- 1 PCT.
42-12

CAPU

CURSOR CNTL (VWF49) APU 3
AUTO BITE OFF
XMIT CURSOR KEY - PRESS
(TERMINATES AUTO BITE TEST SEQUENCER)

CRT
VERIFY AUTO BITE COMPLETE OFF V46X0358E1

42-13

CAPU PLT 182

PANEL R2

APU/HYD
APU CNTLR PWR
1 SW - OFF
2 SW - OFF
3 SW - OFF

42-14

CAPU

CRT (VWF49) APU 1
VERIFY

CONTROLLER POWER SW SC OFF V46S0124E1
CONTROLLER PWR J1 RPC OFF V76X4001E1
CONTROLLER PWR J2 RPC OFF V76X4002E1

42-15

CAPU

CRT (VWF49) APU 2
VERIFY

CONTROLLER POWER SW SC OFF V46S0224E1
CONTROLLER PWR J1 RPC OFF V76X4004E1
CONTROLLER PWR J2 RPC OFF V76X4005E1

42-16

CAPU

CRT (VWF49) APU 3
VERIFY

CONTROLLER POWER SW SC OFF V46S0324E1
CONTROLLER PWR J1 RPC OFF V76X4008E1
CONTROLLER PWR J2 RPC OFF V76X4007E1
42-17 CAPU

APPL PG (VWF49) APU 1

PFK10 KEY - PRESS

(INITIATES 'COMMAND/BT4 MENU' AND PERFORMS BT4 TEST)

CRT (VWF49) APU 1

VERIFY

HIGH SPEED A OFF   V46K0129NL
HIGH SPEED B OFF   V46K0149NL
BITE INITIATE OFF   V46K0157NL

42-18 CAPU

CRT (VWF49) APU 2

VERIFY

HIGH SPEED A OFF   V46K0229NL
HIGH SPEED B OFF   V46K0249NL
BITE INITIATE OFF   V46K0257NL

42-19 CAPU

CRT (VWF49) APU 3

VERIFY

HIGH SPEED A OFF   V46K0329NL
HIGH SPEED B OFF   V46K0349NL
BITE INITIATE OFF   V46K0357NL

CONSOLE KYBD
PFK11 KEY - PRESS (RETURN TO MAIN DISPLAY)

42-20 Noted requirements are complete.

OMRSD V46AL0.610-1
OMRSD V46AL0.620-1
OMRSD V46AL0.630-1

42-21 CAPU OTC 132

APU 1, 2, and 3 Auto BITE Test complete.

*** End of APU 1, 2, and 3 Auto BITE Test ***
APU Heater Activation

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V46AL0.900-1R

42-22  OTC   CAPU 132

Activate APU heaters.

42-23  CAPU

CONSOLE KYBD (VWF57)
PFK10 KEY - PRESS
(INITIATES 'COMMAND/BT4 MENU' AND PERFORMS BT4 TEST)

APU 1

CURSOR CNTL
TANK AND LINE HTRS B AUTO ON
XMIT CURSOR KEY - PRESS

LUBE OIL HTRS A AUTO ON
XMIT CURSOR KEY - PRESS

GG/FUEL PUMP/FUEL LINE HTRS A AUTO ON
XMIT CURSOR KEY - PRESS

APU 2

CURSOR CNTL
TANK AND LINE HTRS B AUTO ON
XMIT CURSOR KEY - PRESS

LUBE OIL HTRS A AUTO ON
XMIT CURSOR KEY - PRESS

GG/FUEL PUMP/FUEL LINE HTRS A AUTO ON
XMIT CURSOR KEY - PRESS
APU 3
CURSOR CNTL
TANK AND LINE HTRS B AUTO ON
XMIT CURSOR KEY - PRESS

LUBE OIL HTRS A AUTO ON
XMIT CURSOR KEY - PRESS

GG/FUEL PUMP/FUEL LINE HTRS A AUTO ON
XMIT CURSOR KEY - PRESS

42-24
CAPU

CRT (VWF57)
VERIFY

APU 1
TANK AND LINE HTRS B AUTO ON V46K0109NL
LUBE OIL HTRS A AUTO ON V46K0116NL
GG/FUEL PUMP/FUEL LINE HTRS A AUTO ON V46K0118NL

APU 2
TANK AND LINE HTRS B AUTO ON V46K0209NL
LUBE OIL HTRS A AUTO ON V46K0216NL
GG/FUEL PUMP/FUEL LINE HTRS A AUTO ON V46K0218NL

APU 3
TANK AND LINE HTRS B AUTO ON V46K0309NL
LUBE OIL HTRS A AUTO ON V46K0316NL
GG/FUEL PUMP/FUEL LINE HTRS A AUTO ON V46K0318NL
Backup/Integration APU Heater Activation

NOTE
The following three steps are to be left open to activate APU heaters in the event of C8 console crash and scrub turn around contingency and may be not performed if a console crash does not occur.

Backup/Integration APU Heater Activation Not Performed:_____

NOTE
The following three steps may be performed as required to reactivate APU GG Bed Heaters in the event that C8 console crashes after APU heaters have been turned off.

42-25

CAPU

APU 1

TANK AND LINE HTRS B AUTO
1. CMD LINE
   TYPE “SET V46K0109NL ON”
2. PRESS XMIT CMD
3. VERIFY MESSAGE “SET SUCCESSFUL - V46K0109NL”

LUBE OIL HTRS A AUTO
4. CMD LINE
   TYPE “SET V46K0116NL ON”
5. PRESS XMIT CMD
6. VERIFY MESSAGE “SET SUCCESSFUL - V46K0116NL”

GG/FUEL PUMP/FUEL LINE HTRS A AUTO
7. CMD LINE
   TYPE “SET V46K0118NL ON”
8. PRESS XMIT CMD
9. VERIFY MESSAGE “SET SUCCESSFUL - V46K0118NL”
CAPU

APU 2

TANK AND LINE HTRS B AUTO
1. CMD LINE
   TYPE “SET V46K0209NL ON”

2. PRESS XMIT CMD

3. VERIFY MESSAGE “SET SUCCESSFUL - V46K0209NL”

LUBE OIL HTRS A AUTO
4. CMD LINE
   TYPE “SET V46K0216NL ON”

5. PRESS XMIT CMD

6. VERIFY MESSAGE “SET SUCCESSFUL - V46K0216NL”

GG/FUEL PUMP/FUEL LINE HTRS A AUTO
7. CMD LINE
   TYPE “SET V46K0218NL ON”

8. PRESS XMIT CMD

9. VERIFY MESSAGE “SET SUCCESSFUL - V46K0218NL”
42-27       CAPU

APU 3

TANK AND LINE HTRS B AUTO
1. CMD LINE
   TYPE “SET V46K0309NL ON”

2. PRESS XMIT CMD

3. VERIFY MESSAGE “SET SUCCESSFUL - V46K0309NL”

LUBE OIL HTRS A AUTO
4. CMD LINE
   TYPE “SET V46K0316NL ON”

5. PRESS XMIT CMD

6. VERIFY MESSAGE “SET SUCCESSFUL - V46K0316NL”

GG/FUEL PUMP/FUEL LINE HTRS A AUTO
7. CMD LINE
   TYPE “SET V46K0318NL ON”

8. PRESS XMIT CMD

9. VERIFY MESSAGE “SET SUCCESSFUL - V46K0318NL”

***End of Backup/Integration APU Heater Activation***
42-28  CAPU

CRT (VWF57)
VERIFY

APU 1

TANK AND LINE HTRS A AUTO OFF V46K0103NL
LUBE OIL HTRS B AUTO OFF V46K0117NL
GG/FUEL PUMP/FUEL LINE HTRS B AUTO OFF V46K0119NL

APU 2

TANK AND LINE HTRS A AUTO OFF V46K0203NL
LUBE OIL HTRS B AUTO OFF V46K0217NL
GG/FUEL PUMP/FUEL LINE HTRS B AUTO OFF V46K0219NL

APU 3

TANK AND LINE HTRS A AUTO OFF V46K0303NL
LUBE OIL HTRS B AUTO OFF V46K0317NL
GG/FUEL PUMP/FUEL LINE HTRS B AUTO OFF V46K0319NL

42-29  CAPU

CRT (VWF48)
RECORD

APU 1

GAS GEN BED TEMP ________DEG F V46T0122A1

APU 2

GAS GEN BED TEMP ________DEG F V46T0222A1

APU 3

GAS GEN BED TEMP ________DEG F V46T0322A1
42-30  CAPU

CRT (VWF48)
VERIFY APU TEMPERATURES WITHIN LCC LIMITS.

CONTINUE TO MONITOR UNTIL APU START.

42-31  Noted requirements are complete.

OMRSD V46AL0.900-1R

42-32  CAPU  OTC  132

APU Heater Activation is complete.

*** End of APU Heater Activation ***
APU System Switch Scan

42-33 OTC CAPU 132

Perform APU Switch Scan.

42-34 CAPU

CRT (VWF48)

VERIFY

GG/PMP/LN HTR A SW SC
APU 1 OFF V46S0118E1
APU 2 OFF V46S0218E1
APU 3 OFF V46S0318E1

GG/PMP/LN HTR B SW SC
APU 1 OFF V46S0119E1
APU 2 OFF V46S0219E1
APU 3 OFF V46S0319E1

LUBE OIL HTRS A SW SC
APU 1 OFF V46S0116E1
APU 2 OFF V46S0216E1
APU 3 OFF V46S0316E1

LUBE OIL HTRS B SW SC
APU 1 OFF V46S0117E1
APU 2 OFF V46S0217E1
APU 3 OFF V46S0317E1

TK/LN HTRS A SW SC
APU 1 OFF V46S0106E1
APU 2 OFF V46S0206E1
APU 3 OFF V46S0306E1

TK/LN HTRS B SW SC
APU 1 OFF V46S0109E1
APU 2 OFF V46S0209E1
APU 3 OFF V46S0309E1
42-35  CAPU

CRT (VWF57)

VERIFY

CNTLR PWR
APU 1 OFF       V46S0124E1
APU 2 OFF       V46S0224E1
APU 3 OFF       V46S0324E1

FUEL VLVS
APU 1 OFF       V46S1114E1
APU 2 OFF       V46S1214E1
APU 3 OFF       V46S1314E1

OPERATE - RUN/COOL
APU 1 OFF       V46S0126E1
APU 2 OFF       V46S0226E1
APU 3 OFF       V46S0326E1

SPEED SEL
APU 1 NORM      V46S0129E1
APU 2 NORM      V46S0229E1
APU 3 NORM      V46S0329E1

SHUTDOWN
APU 1 OFF       V46S1199E1
APU 2 OFF       V46S1299E1
APU 3 OFF       V46S1399E1

42-36  CAPU    OTC      132

APU System Switch Scan is complete.

*** End of APU System Switch Scan ***
APU Pre-Start Checks

IF A SCRUB IS NOT ISSUED PRIOR TO APU PRE-START,

THEN PERFORM:

CRT (VWF57)

VERIFY

APU READY
APU 1 ON V46X0125E1
APU 2 ON V46X0225E1
APU 3 ON V46X0325E1

CNTLR PWR
APU 1 ON V46S0124E1
APU 2 ON V46S0224E1
APU 3 ON V46S0324E1

J1 RPC
APU 1 ON V76X4001E1
APU 2 ON V76X4004E1
APU 3 ON V76X4008E1

J2 RPC
APU 1 ON V76X4002E1
APU 2 ON V76X4005E1
APU 3 ON V76X4007E1

FUEL VLVS
APU 1 ON V46S1114E1
APU 2 ON V46S1214E1
APU 3 ON V46S1314E1

ISO VLVS
1A OP CYAN V46X0115E1
1B OP CYAN V46X0134E1
2A OP CYAN V46X0215E1
2B OP CYAN V46X0234E1
3A OP CYAN V46X0315E1
3B OP CYAN V46X0334E1
SPEED SEL
APU 1 NORM V46S0129E1
APU 2 NORM V46S0229E1
APU 3 NORM V46S0329E1

SHUTDOWN
APU 1 OFF V46S1199E1
APU 2 OFF V46S1299E1
APU 3 OFF V46S1399E1

GAS GEN BED TEMP
APU 1 190 DEG F MIN V46T0122A1
APU 2 190 DEG F MIN V46T0222A1
APU 3 190 DEG F MIN V46T0322A1

TURBINE SPEED
APU 1 0 PCT V46R0135A1
APU 2 0 PCT V46R0235A1
APU 3 0 PCT V46R0335A1

GG/FUEL PUMP/FUEL LINE HTR A AUTO
(PFK10 KEY - PRESS; DISPLAYS COMMAND/BT4 MENU)
APU 1 ON V46K0118NL
APU 2 ON V46K0218NL
APU 3 ON V46K0318NL

OMRSD V46AL0.910-A-1R

Not Performed:_____

*** End of APU Pre-Start Checks ***
APU Post-Start Checks

42-38       CAPU

IF A SCRUB IS NOT ISSUED PRIOR TO APU START,

THEN PERFORM:
CRT (VWF57)
VERIFY

OPERATE-RUN
APU 1 ON       V46S0126E1
APU 2 ON       V46S0226E1
APU 3 ON       V46S0326E1

OMRSD V46AL0.920-1R

Not Performed:______

*** End of APU Post-Start Checks ***
APU Cooldown (Contingency)

NOTE
Perform this option if required for Recycle after APU start.

APU Cooldown (Contingency) Not Performed: ______

42-39   OTC  CAPU  132

Perform APU Cooldown.
Report completion.

NOTE
Normal restart of APU is allowed only if all parameters are less than their maximum allowable LCC recycle limit.

Limits do not constrain resuming count at T-20M.

42-40   CAPU

CRT (VWF48)
MONITOR FOLLOWING RECYCLE COOLDOWN TEMPERATURES TO FALL WITHIN LCC LIMITS:

APU 1

INJ TUBE TEMP-390 DEG F MAX V46T0174A1
FUEL PUMP DISCHARGE TEMP-205 DEG F MAX V46T0112A1
FUEL PUMP HEAT SINK TEMP-205 DEG F MAX V46T0192A1
GGVM HEAT SINK TEMP-180 DEG F MAX V46T1172A1

APU 2

INJ TUBE TEMP-390 DEG F MAX V46T0274A1
FUEL PUMP DISCHARGE TEMP-205 DEG F MAX V46T0212A1
FUEL PUMP HEAT SINK TEMP-205 DEG F MAX V46T0292A1
GGVM HEAT SINK TEMP-180 DEG F MAX V46T1272A1

APU 3

INJ TUBE TEMP-390 DEG F MAX V46T0374A1
FUEL PUMP DISCHARGE TEMP-205 DEG F MAX V46T0312A1
FUEL PUMP HEAT SINK TEMP-205 DEG F MAX V46T0392A1
GGVM HEAT SINK TEMP-180 DEG F MAX V46T1372A1
42-41  CAPU

Verify all temperatures trending downward to or within LCC recycle limits.

42-42  CAPU  OTC  132

APU Recycle Cooldown complete. Ready to resume count.

*** End of APU Cooldown (Contingency) ***
APU Heater Deactivation (Contingency)

NOTE
APU Heater Deactivation (Contingency) may be required if Orbiter Recycle and Cryo Offload is to be performed.

APU Heater Deactivation (Contingency) Not Performed: _____

42-43 OTC CAPU 132

Perform APU Heater Deactivation.

Report completion.

42-44 CAPU

CONSOLE KYBD (VWF57)
PFK10 KEY - PRESS (INITIATES 'COMMAND/BT4 MENU' AND PERFORMS BT4 TEST)

APU 1

TANK AND LINE HTRS B AUTO OFF
XMIT CURSOR KEY - PRESS
LUBE OIL HTRS A AUTO OFF
XMIT CURSOR KEY - PRESS
GG/FUEL PUMP/FUEL LINE HTRS A AUTO OFF
XMIT CURSOR KEY - PRESS

APU 2

TANK AND LINE HTRS B AUTO OFF
XMIT CURSOR KEY - PRESS
LUBE OIL HTRS A AUTO OFF
XMIT CURSOR KEY - PRESS
GG/FUEL PUMP/FUEL LINE HTRS A AUTO OFF
XMIT CURSOR KEY - PRESS

APU 3

TANK AND LINE HTRS B AUTO OFF
XMIT CURSOR KEY - PRESS
LUBE OIL HTRS A AUTO OFF
XMIT CURSOR KEY - PRESS
GG/FUEL PUMP/FUEL LINE HTRS A AUTO OFF
XMIT CURSOR KEY - PRESS
42-45
CAPU

CRT (VWF57)
VERIFY

APU 1
TANK AND LINE HTRS B AUTO OFF V46K0109NL
LUBE OIL HTRS A AUTO OFF V46K0116NL
GG/FUEL PUMP/FUEL LINE HTRS A AUTO OFF V46K0118NL

APU 2
TANK AND LINE HTRS B AUTO OFF V46K0209NL
LUBE OIL HTRS A AUTO OFF V46K0216NL
GG/FUEL PUMP/FUEL LINE HTRS A AUTO OFF V46K0218NL

APU 3
TANK AND LINE HTRS B AUTO OFF V46K0309NL
LUBE OIL HTRS A AUTO OFF V46K0316NL
GG/FUEL PUMP/FUEL LINE HTRS A AUTO OFF V46K0318NL
42-46  CAPU

CRT (VWF57)
VERIFY

APU 1
TANK AND LINE HTRS A AUTO OFF   V46K0103NL
LUBE OIL HTRS B AUTO OFF         V46K0117NL
GG/FUEL PUMP/FUEL LINE HTRS B AUTO OFF V46K0119NL

APU 2
TANK AND LINE HTRS A AUTO OFF   V46K0203NL
LUBE OIL HTRS B AUTO OFF         V46K0217NL
GG/FUEL PUMP/FUEL LINE HTRS B AUTO OFF V46K0219NL

APU 3
TANK AND LINE HTRS A AUTO OFF   V46K0303NL
LUBE OIL HTRS B AUTO OFF         V46K0317NL
GG/FUEL PUMP/FUEL LINE HTRS B AUTO OFF V46K0319NL

42-47  CAPU   OTC   132

APU Heater Deactivation is complete.

*** End of APU Heater Deactivation (Contingency) ***

*** End of Operation 42 ***
OPERATION 43  GN & C System Operations

Shop: GNC
Ctrl Rm Console: C11
OPR: GNC
Zone: 100, 200, 300, 500
Hazard (Y/N): Y
Duration (Hrs): 4.0
Option List and Description

NOTE
Multiple options are contained within this operation. Each option is independent and is used for specific contingencies. All unused options shall remain open until the successful completion of Launch Countdown.

1. **OMS Gimbal Profile:**

   Executes the OMS Gimbal Profile.

   Nominally performed at T-7H30M.

   Requires: total time = 30 minutes.

2. **Orbiter RGA Powerdown:**

   Orbiter RGAs are powered down.

   Normally performed when Launch is delayed more than 24 hours with the remaining GN&C systems remaining active with LCC monitoring (SWB02 active).

   Requires: CDR (5 minutes), total time = 10 minutes

3. **Orbiter RGA Powerup & Self Test:**

   Orbiter RGAs are powered up and self-test is performed.

   Normally performed when the RGAs have been powered down for a Launch delay where the remaining GN&C systems are active with LCC monitoring (SWB02 active). This option supports recycle from Option 2 above.

   Requires: CDR (5 minutes), total time = 15 minutes
4. **RCS Logic Powerup & Normal Jet Single Command Test:**

RCS logic power is reapplied and the Normal Jet Single Command Test is performed.

Normally performed when Launch is delayed less than 72 hours and the remaining GN&C systems have remained active with LCC monitoring (SWB02 active).

Requires: DEU3, CDR (5 minutes), total time = 15 minutes

5. **GN&C System Powerdown:**

All GN&C systems are powered down.

Normally performed when Launch is delayed 72 hours or more.

Requires: CDR (15 minutes), total time = 15 minutes

6. **GN&C System Powerup:**

All GN&C systems are powered up.

Normally performed when Launch is delayed 72 hours or more and all GN&C systems were powered down. This option supports recycle from Option 5 above.

Requires: CDR (30 minutes), total time = 30 minutes

7. **GN&C System Self Tests:**

ADTA, AA and Orbiter RGA Self Tests with the normal jet single command test are performed. IMUs are powered on and a star tracker powerup/self-test option is provided. LDG NOWOW and the brake RWOW are rechecked. The LCC monitor (SWB02) is activated.

Normally performed when Launch is delayed 72 hours or more and all GN&C systems were powered down. This option supports recycle from Option 5 above.

Requires: DEU3, CDR (15 minutes), total time = 40 minutes

*** End of Option List and Description ***
Flight Control System General Notes

LRU Powerup and Powerdown in LCD

When the powerup/powerdown software is used after the LCC monitor has been activated, the routine will not capture the switch changes and, therefore, appears to not respond as normally expected. As a workaround, all of the LRU(s) switches and RPCs will be verified to be all on or all off depending on the configuration expected. The PFK7 continue option of VSB31 will then be used to allow the operation to continue.

The powerup/powerdown software relies upon GOAL FEP interrupts to field the switch and RPC changes. Due to the design of the C11 software for LCD, GOAL FEP interrupts are not activated or used as they are prior to the LCC Monitor Activation at L-28H.

Activation of RCS Logic may cause power transients which in turn may cause PC Discretes (EMONS) to go high (on) for approx. 0.20 sec.

*** End of Flight Control System General Notes ***
Option 1 - OMS Gimbal Profile

NOTE
Perform this option if OMS gimbal profile is scheduled.

Option 1 Not Performed:_____

WARNING
OMS Nozzle movement will occur.
Contact may cause bodily injuries.

WHP033 02-16-04

NOTE
Hazardous steps follow due to OMS Nozzle movement.

43-1

OTC COFC 132

Perform OMS TVC Testing.

43-2

COFC

Verify the following:

1. DPS Mode G9/42, 44, or 60.
2. OMS engine areas clear of all personnel and equipment within 3 ft of OMS engine nozzles.
3. OMS engine covers removed.
Deactivate OMS TVC LCC Monitoring

43-3

COFC

APPL PG-A (SAB20/SWB02)
PFK13 KEY - PRESS (ACT EMON SETUP)

43-4

COFC

CURSOR CNTL (SAB20/SWB02 PG-A)
I - OMS TVC
XMIT CURSOR KEY - PRESS

43-5

COFC

APPL PG-B (SAB20/SWB02)
PFK13 KEY - PRESS (DEACT EMON SETUP)

*** End of Deactivate OMS TVC LCC Monitoring ***

Initiate OMS Profile S/W

43-6

COFC

CURSOR CNTL (SAB19/SWB01)
OMS - OPS MAN
XMIT CURSOR KEY - PRESS

43-7

COFC

CURSOR CNTL (SAB19/SWB01)
OMS - OVERVIEW
XMIT CURSOR KEY - PRESS

43-8

COFC

CURSOR CNTL (VABM5)
GIMBAL PROFILE
XMIT CURSOR KEY - PRESS
43-9

COFC

CRT (VABM5 PG-B)
VERIFY MSG:

VABM5-004
OMS SAFE MOVE LIMITS
YAW -7.0 TO 7.0 DEG
PITCH -5.9 TO 5.9 DEG

43-10

COFC

APPL PAGE (VABM5 PG-B)
PKF1 KEY - PRESS
(PERFORM TEST IN CURRENT CONFIGURATION)

43-11

COFC

CRT (VABM5/VSB48)
VERIFY DEU PROMPT

43-12

COFC

CONSOLE KYBD (VABM5/VSB48)
PKFX KEY - PRESS (X = DEU NO.)

43-13

COFC

CRT (VABM5/VSB48)
VERIFY OMS GIMBAL PROFILE TEST MENU DISPLAYED
WITH BOTH PODS ALL ACTUATORS AND ACT SYS 1
PRINTER PLOTTER OPTION HIGHLIGHTED.
CURSOR CNTL (VABM5/VSB48 PG-B)
PLOT CONTROL

IF PRINTER/PLOTTER SYS 1 IS NOT AVAILABLE,

THEN SELECT ONE OF THE FOLLOWING PRINTER/PLOTTER OPTIONS PER PREVIOUS PRINTER/PLOTTER SETUP:

1. INH P/P
   XMIT CURSOR KEY - PRESS
   
   Not Performed: ______
   SS1

2. ACT SYS 2
   XMIT CURSOR KEY - PRESS
   
   Not Performed: ______
   SS2
NOTE
The next step initiates OMS engine movement. If the OMS engines are not at Stow position (down and out), the software will ramp them to Stow prior to beginning Gimbal Profile. The test sequence is as follows (listed in degrees):

- Left yaw standby: -6.01, 6.01
- Left yaw active: -6.01, 6.01
- Left pitch standby: -5.80, 5.80
- Left pitch active: -5.80, 5.80
- Right yaw standby: 6.01, -6.01
- Right yaw active: 6.01, -6.01
- Right pitch standby: -5.80, 5.80
- Right pitch active: -5.80, 5.80

43-15
COFC
CURSOR CNTL (VABM5/VSB48)
START TEST
XMIT CURSOR KEY - PRESS

43-16
COFC
APPL PG-B (VABM5/VSB48)
VERIFY MSG VSB48-007:
RATE CALCULATION SUMMARY TEST COMPLETE
OMRSD V79AZ0.080 (VSB48)

43-17
COFC
CONSOLE KYBD (VABM5/VSB48)
PFK9 KEY - PRESS (RETURN TO TEST MENU)

43-18
COFC
CONSOLE KYBD (VABM5/VSB48)
PFK7 KEY - PRESS (RESTORE NOMINAL CONFIG AND TERM VSB48)
43-19  
COFC

CURSOR CNTL (VABM5)
TERMINATE
XMIT CURSOR KEY - PRESS

43-20  
COFC

CRT (VWB27)
VERIFY * BY OMS NO-OP

43-21  
COFC

CONSOLE KYBD (VWB27 PG-B)
PFK15 KEY - PRESS (TERM VWB27)

**NOTE**
Hazardous operations due to OMS gimballing complete.

**NOTE**
The next five steps are performed to reduce Main Engine 1 yaw drift from the 
OPS 101 transition command of +0.2 deg. The position must be maintained 
within 2.0 deg of this command at APU start.

**NOTE**
E1Y NULL Commanding is performed since the OMS TVC profile test 
sequence executes an AI Mode 1.

43-22  
COFC

CURSOR CNTL (SAB19/SWB01)
COUNTDOWN - OPS MANAGER
XMIT CURSOR KEY - PRESS
43-23

COFC

CURSOR CNTL (SAB23/VSB100)
E1Y NULL COMMANDING
XMIT CURSOR KEY - PRESS

43-24

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

43-25

CFOC

CRT (SAB23/VSB100)
VERIFY
E1Y NULL COMMANDING SUCCESSFUL

43-26

CFOC

CONSOLE KYBD (SAB23/VSB100)
PFK15 KEY - PRESS

*** End of Option 1 - OMS Gimbal Profile ***
Option 2 - ORB RGA Powerdown

NOTE
Perform this option if ORB RGA power is to be terminated.

Option 2 Not Performed:_____

NOTE
LCC monitor and EMON failures will be generated by the next step. Acknowledge and clear failures when the operation is complete.

43-27 COFC CDR 141

PANEL O14

ROW A
RGA 1 SW - OFF

PANEL O15

ROW A
RGA 2 SW - OFF
RGA 4 SW - OFF

PANEL O16

ROW A
RGA 3 SW - OFF

LCC Parameter Inhibit

43-28 COFC

APPL PAGE (SAB20/SWB02 PG-B)

PFK3 KEY - PRESS (ACT PARAM INH/ACT PG)
NOTE
Repeat the following two steps as required for the listed measurements.

<table>
<thead>
<tr>
<th>Table No.</th>
<th>FD</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>V76X4293E1 - RGA 1 RPC A</td>
</tr>
<tr>
<td>17</td>
<td>V76X4295E1 - RGA 4 RPC A</td>
</tr>
<tr>
<td>17</td>
<td>V76X4296E1 - RGA 4 RPC C</td>
</tr>
<tr>
<td>17</td>
<td>V79X1860X1 - RGA 1 ROLL SMRD</td>
</tr>
<tr>
<td>17</td>
<td>V79X1861X1 - RGA 1 PITCH SMRD</td>
</tr>
<tr>
<td>17</td>
<td>V79X1862X1 - RGA 1 YAW SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1865X1 - RGA 2 ROLL SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1866X1 - RGA 2 PITCH SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1867X1 - RGA 2 YAW SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1870X1 - RGA 3 ROLL SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1871X1 - RGA 3 PITCH SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1872X1 - RGA 3 YAW SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1875X1 - RGA 4 ROLL SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1876X1 - RGA 4 PITCH SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1877X1 - RGA 4 YAW SMRD</td>
</tr>
</tbody>
</table>

43-29

COFC
CURSOR CNTL (SAB20/SWB02 PG-B)
PAGE AHEAD
XMIT CURSOR KEY - PRESS

REPEAT UNTIL PAGE = TABLE NO.

43-30

COFC
CURSOR CNTL (SAB20/SWB02 PG-B)
(FD)
XMIT CURSOR KEY - PRESS
(INVERT MEASUREMENT)

REPEAT FOR EACH FD LISTED
43-31

COFC

APPL PAGE (SAB20/SWB02 PG-B)
PFK11 KEY - PRESS (CLEAR FAILURES)

*** End of LCC Parameter Inhibit ***

43-32

COFC

APPL PAGE (SAB20/SWB02 PG-B)
PFK5 KEY - PRESS (RETURN TO ACTIVITY PG)

*** End of Option 2 - ORB RGA Powerdown ***
Option 3 - ORB RGA Powerup & Self Test

NOTE
Perform this option if RGA power is not applied and the full GN&C system activation is not required.

Option 3 Not Performed: ______

NOTE
For the next step, reference “LRU Powerup and Powerdown in LCD” in the Flight Control System General Notes section at the beginning of this operation.

43-33 COFC

Perform ORB RGA Powerup/Self Test per RT OMI V1123.010 (5 minutes with CDR; total = 15 minutes).

RT OMI Log No. __________

LCC Parameter Re-activate

43-34 COFC

APPL PAGE (SAB20/SWB02 PG-B)

PFK3 KEY - PRESS (ACT PARAM INH/ACT PG)
**NOTE**
Repeat the following two steps as required for the listed measurements.

<table>
<thead>
<tr>
<th>Table No.</th>
<th>FD</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>V76X4293E1 - RGA 1 RPC A</td>
</tr>
<tr>
<td>17</td>
<td>V76X4295E1 - RGA 4 RPC A</td>
</tr>
<tr>
<td>17</td>
<td>V76X4296E1 - RGA 4 RPC C</td>
</tr>
<tr>
<td>17</td>
<td>V79X1860X1 - RGA 1 ROLL SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1861X1 - RGA 1 PITCH SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1862X1 - RGA 1 YAW SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1865X1 - RGA 2 ROLL SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1866X1 - RGA 2 PITCH SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1867X1 - RGA 2 YAW SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1870X1 - RGA 3 ROLL SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1871X1 - RGA 3 PITCH SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1872X1 - RGA 3 YAW SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1875X1 - RGA 4 ROLL SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1876X1 - RGA 4 PITCH SMRD</td>
</tr>
<tr>
<td>18</td>
<td>V79X1877X1 - RGA 4 YAW SMRD</td>
</tr>
</tbody>
</table>

**43-35**

**COFC**

CURSOR CNTL (SAB20/SWB02 PG-B)

PAGE AHEAD

XMIT CURSOR KEY - PRESS

REPEAT UNTIL PAGE = TABLE NO.

**43-36**

**COFC**

CURSOR CNTL (SAB20/SWB02 PG-B)

(FD)

XMIT CURSOR KEY - PRESS

(CLEAR INVERTED MEAS)

REPEAT FOR EACH FD LISTED

**43-37**

**COFC**

APPL PAGE (SAB20/SWB02 PG-B)

PFK5 KEY - PRESS (RETURN TO ACTIVITY PG)

*** End of LCC Parameter Re-activate ***

*** End of Option 3 - ORB RGA Powerup & Self Test ***
Option 4 - RCS Logic Powerup & Normal Jet Single Command Test

NOTE
Perform this option if RCS logic power is not applied unless the full GN&C System Activation is required.

Option 4 Not Performed:_____

NOTE
BFC CRT DISP switch must be off prior to performing the next three steps.

43-38

COFC  OTC  132
OTC  CDPS

Change the responsible console for CRT 3 to Console C11.

43-39

CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS
ISSU N72IV102D #B00B
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

HOME CMD KEY - PRESS
C CO _DEU3G LDBA C11
XMIT CMD KEY - PRESS

43-40

CDPS  OTC  132
OTC  COFC

Responsible console control to use CRT 3 assigned to C11.
NOTE
For the next step, reference “LRU Powerup and Powerdown in LCD” in the Flight Control System General Notes section at the beginning of this operation.

43-41  COFC

Perform RCS Logic Powerup and Normal Jet Single Command Test per RT OMI V1123.090 (5 minutes with CDR; total = 15 minutes).

RT OMI Log No.__________

43-42  COFC

CONSOLE KYBD
C CO _DEU3G LDBA C12
XMIT CMD KEY - PRESS
ISSU N72IV102D 0
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

43-43  COFC  OTC  132  
OTC CDPS

CRT 3 has been returned to C12.

*** End of Option 4 - RCS Logic Powerup & Normal Jet Single Command Test ***
Option 5 - GN&C System Powerdown

NOTE
Perform this option if all GN&C systems are to be powered down.

Option 5 Not Performed:______

GN&C LCC EMON De-activation

43-44

COFC

APPL PG-A (SAB20/SWB02)
PFK13 KEY - PRESS (ACT EMON SETUP)

43-45

COFC

CURSOR CNTL (SAB20/SWB02 PG-A)
(ON ITEMS BELOW)
XMIT CURSOR KEY - PRESS
1. I - IMU PWR UP
2. I - IMU OPERATE
3. I - OMS TVC
4. I - SRB TVC
5. I - RJD DRIVER
6. I - SRB RGA
7. I - CIRC PUMPS
8. I - NON-PREREQUISITE

43-46

COFC

APPL PG-A (SAB20/SWB02)
PFK13 KEY - PRESS (DE-ACT EMON SETUP)

43-47

COFC

CURSOR CNTL (SAB20/SWB02 PG-B)
TERMINATE
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

*** End of GN&C LCC EMON De-activation ***
System Monitor Re-activation

NOTE
Perform the next four steps to support GNC System Powerdown. PGM VSB31 will not recognize LRU Powerdown when VSB79 is not active (GOAL FEP interrupts de-activated).

NOTE
The following four steps will manually activate SAB20/VSB79.

43-48

COFC

CONSOLE KYBD
SAB20
PERF PGM KEY - PRESS

43-49

COFC

APPL PG (SAB20 PG-A)
RESU PGM KEY - PRESS (RESUME FROM STOP)

43-50

COFC

APPL PG (SAB20 PG-A)
1 (LOGICAL CONC NO. 1 INPUT)
XMIT RESP KEY - PRESS

43-51

COFC

CRT (SAB20/VSB79 PG-B)
VERIFY VSB79 ACTIVE (IN APPROX 30 SEC)

*** End of System Monitor Re-activation ***

43-52

COFC
CGNC

Perform GN&C System Powerdown per RT OMI V1123.140
(CDR 15 minutes; total time = 15 minutes).

RT OMI Log No.__________

*** End of Option 5 - GN&C System Powerdown ***
Option 6 - GN&C System Powerup

NOTE
Perform this option if the full GN&C System Activation is required.

Option 6 Not Performed:_______

NOTE
The next step performs a systematic, panel-by-panel switch configuration of the following GN&C systems:

AA, ADTA, ASA, ATVC, Brakes, Controllers, NWS, RJD Logic, RGA, Star Tracker, Flt Control switches, No WOW Checks, and Redundant Weight On Wheels (RWOW) Status.

GOAL Software VWB37 verifies RWOW and Null Fail Status in Downlist 42.

NOTE
The following step will require an I/O reset. DPS can expect I/O errors to occur for items not powered up at this time.

NOTE
Noted requirements are satisfied by the following steps.

OMRS V51AF0.245-1R
OMRS V51AF0.250

Perform GN&C System Powerup per RT OMI V1123.120 (30 minutes CDR).

RT OMI Log No.__________
Redundant Weight on Wheels (RWOW) Status

NOTE
Perform Redundant Weight On Wheels (RWOW) Status if Downlist Format is 60.

Redundant Weight On Wheels (RWOW) Status Not Performed:_____

NOTE
Next step performs an LDB Read to obtain RWOW discrete. RWOW discretes are not available in Downlist Format 60.

43-54  COFC

APPL PG (VWB37 PG-B)
PFK5 KEY - PRESS (LDB READ)

43-55  COFC

CRT (VWB37 PG-B)
BRAKES STATUS AND TEST SELECT

LANDING GEAR STATUS

VERIFY "RWOW" STATUS = ON/UP ARROW (U)

R NO WOW  1U  2U  3U  4U
NULL FAILL 1U  2U  3U  4U

***End of Redundant Weight On Wheels (RWOW) Status***
GN&C System Power Up complete.

**NOTE**
The following OMRS is satisfied by GOAL software in format 42 or 44. This step is also satisfied by previous Redundant Weight on Wheels (RWOW) Status if Downlist Format is 60.

43-57

Noted requirements complete.

OMRSD V51AF0.245-1R
OMRSD V51AF0.250

43-58

COFC

CURSOR CNTL (SAB19/SWB01)
COUNTDOWN - OPS MANAGER
XMIT CURSOR KEY - PRESS
43-59  COFC
CURSOR CNTL (SAB23/SWB100)
AEROSURFACE DRIVER CHECKS
XMIT CURSOR KEY - PRESS

43-60  COFC
CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

43-61  COFC
CRT (SAB23/VSB100)
VERIFY
AEROSURFACE DRIVER CHECKS SUCCESSFUL
Pre-launch MPS actuator position checks perform a “reasonableness check” of the SSME TVC positions. The limits specified in GOAL program VSB100 are arbitrary and are based upon nominal time line for SSME TVC null lock removal and typical actuator drift rates. If locks are removed earlier than normal, launch is delayed or scrubbed, or drift rates are higher than typical, VSB100 may indicate “PRE-LAUNCH MPS POSN CHECKS UNSUCCESSFUL”. The OMRS allows drift rates up to 0.578 deg/30 minutes.

3-62

COFC

CURSOR CNTL (SAB23/VSB100)
PRE-LAUNCH MPS ACTUATOR POSITION CHECKS
XMIT CURSOR KEY - PRESS

3-63

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

NOTE
Perform next step for nominal SSME TVC actuator drift.

3-64

COFC

CRT (SAB21/VSB100)
VERIFY
PRE-LAUNCH MPS ACTUATOR POSITION CHECKS SUCCESSFUL

Not Performed:______
NOTE
Perform next three steps if VSB100 indicates “PRE-LAUNCH MPS POSN CHECKS UNSUCCESSFUL”.

43-65

COFC

IF pre-launch MPS actuator position checks unsuccessful:

THEN perform the following:

1. VERIFY MSG:
   VSB100-035 PRE-LAUNCH MPS ACTR POSN CHECKS UNSUCCESSFUL
   SELECT PFK 3 - RETRY
   PFK 9 - TERMINATE TASK AND RETURN TO MENU
   PFK 15 - TERMINATE PROGRAM

2. CURSOR CNTL
   PFK 9 - PRESS

Not Performed:_____

43-66

COFC

CRT (SAB21/VWB03
VERIFY THE FOLLOWING:
(1) SSME 1 PITCH POSN = -10.48 DEG TO +10.94 DEG
(2) SSME 1 YAW POSN = -1.81 DEG TO +2.19 DEG
(3) SSME 2 PITCH POSN = -1.68 DEG TO +10.48 DEG
(4) SSME 2 YAW POSN = -4.31 DEG TO +8.48 DEG
(5) SSME 3 PITCH POSN = -2.32 DEG TO +10.94 DEG
(6) SSME 3 YAW POSN = -8.86 DEG TO +4.69 DEG

Not Performed:____
For those SSME TVC positions that failed the VSB100 “Reasonableness checks”, use data retrievals to verify that the current positions are the result of SSME drift and not that of a step function shift.

Not Performed:_____

CONSOLE KYBD (SAB23/VSB100)
PFK15 KEY - PRESS

*** End of Option 6 - GN&C System Powerup ***
Option 7 - GN&C System Self Tests

NOTE
Perform this option if the full GN&C system activation is performed.

Option 7 Not Performed:_____

IDP 3 to Console C11

NOTE
IDP is required for the RCS single command tests only and is not a prerequisite for any other GNC system activation.

43-69

COFC OTC 132
OTC CDPS

Change responsible console for IDP 3 to Console C11.

43-70

CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS
ISSU N72IV102D #B00B
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

HOME CMD KEY - PRESS
C CO _DEU3G LDBA C11
XMIT CMD KEY - PRESS

43-71

CDPS OTC 132
OTC COFC

Responsible console for IDP 3 now assigned to C11.
NOTE
The following are independent operations and may be performed in parallel, in any order, and in conjunction, with IMU or Star Tracker operations.

NOTE
Downlist Format 42 is not required for Countdown RJD single command test. Do not change to Format 42 (per OMI V1123) unless this test must be used to verify RJD driver out discretes.

Perform GN&C System Self Tests per RT OMI V1123.130.

1. ADTA Self Test (5 minutes)
2. Orbiter RGA Turnaround Null/Self Test (ground test) (10 minutes)
3. AA Turnaround Self Test (10 minutes)
4. RCS Trickle Current Single Command Test (normal jets only) (15 minutes)

RT OMI Log No.___________
## IMU Warm-up/Standby

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMU Warm-up/Standby shall occur no later than L-15H20M.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The next step will require ECL to activate one IMU fan to support IMU operations for remainder of this OMI.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMU and star tracker are independent operations and may be performed in parallel.</td>
</tr>
</tbody>
</table>

### CGNC

**Perform** Orbiter IMU Powerup/Standby operations per RT OMI V1123.260 (30 minutes; 5 minutes with CDR).

RT OMI Log No.__________

*** End of IMU Warm-up/Standby ***
Star Tracker Functional Checkout

NOTE
Star Tracker Functional Checkout is required one time prior to Launch, making the repeat of the test optional for a recycle Launch Countdown. Do not perform this test if it has been performed in the previous Countdown unless there is concern over activity in the general LRU area, concern over possible trend data, or concern over time elapsed since last test.

Star Tracker Functional Checkout can be performed before or after, but not in parallel with, the switch list part of GNC System Powerup. The switch positions are incompatible for both operations.

Star Tracker Functional Checkout Not Performed:______

NOTE
The next step will require an I/O reset. DPS can expect I/O errors to occur for items not powered up at this time.

43-74

CGNC

Perform Star Tracker Functional Checkout:

1. Star Tracker Powerup per RT OMI V1123.320 (20 minutes; 5 minutes with CDR)

2. Star Tracker Self Test per RT OMI V1123.320 (5 minutes)

3. Star Tracker Powerdown per RT OMI V1123.330 (5 minutes with CDR)

RT OMI Log No.__________

*** End of Star Tracker Functional Checkout ***
IDP 3 Return to C12

43-75 COFC

CONSOLE KYBD
C CO _DEU3G LDBA C12
XMIT CMD KEY - PRESS
ISSU N72IV102D 0
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

43-76 COFC OTC 132 CDPS

Responsible console for IDP 3 is now C12.

*** End of IDP 3 Return to C12 ***
GNC LCC Monitor Activation

NOTE
Perform the next step after completion of GN&C System Powerup, GN&C System Self Tests and IMU Powerup.

NOTE
Allow one to two minutes for the next step to complete.

NOTE
Activation of the GN&C LCC monitor satisfies the listed requirement by the absence of an LCC GNC-26 failure annunciation.

43-77

COFC

CURSOR CONTROL (SAB20/VSB79 PG-B)
ACTIVATE LCC MONITOR
XMIT CURSOR KEY - PRESS

OMRSD S00FM0.110-1R (SWB02)

*** End of GNC LCC Monitor Activation ***
OV105 Speedbrake EMON Limit

NOTE
The following step will change the EMON limit for the speedbrake channel 1 position feedback from the default limit of 5 +/- 1 deg, to an adjusted limit of 3.5 deg to 6.0 deg. This is to account for a known bias of approximately -0.75 deg in the OV-105 speedbrake channel 1 position.

Perform the next step only if vehicle is OV-105 and only after LCC monitor activation has been completed.

43-78

COFC

CONSOLE KYBD
C EL V57H0201C1 3.5 6.0
XMIT CMD KEY - PRESS

Not Performed:_____

***End of OV105 Speedbrake EMON Limit***
Activate IMU Powerup LCC EMON

43-79
CGNC

APPL PG-A (SAB20/SWB02)
PFK13 KEY - PRESS (ACT EMON SETUP)

43-80
CGNC

CURSOR CONTROL (SAB20/SWB02 PG-A)
A-IMU PWR UP
XMIT CURSOR KEY - PRESS

43-81
CGNC

APPL PG-A (SAB20/SWB02)
PFK13 KEY - PRESS (DEACT EMON SETUP)

*** End of Activate IMU Powerup LCC EMON ***
Clear GNC LCC Disk Files

43-82
COFC

APPL PG-B (SAB20/SWB02)
PFK3 KEY - PRESS (PARAM ACT/INH PG)

**NOTE**
“Clear All Bypasses” will turn magenta while LCC parameters are cleared (approx 1 minute) then go back to cyan.

43-83
COFC

CURSOR CNTL (SAB20/SWB02 PG-B)
CLEAR ALL BYPASSES
XMIT CURSOR KEY - PRESS

43-84
COFC

APPL PG-B (SAB20/SWB02)
PFK5 KEY - PRESS (LCC MONITOR ACTIVITY PG)

*** End of Clear GNC LCC Disk Files ***
GNC OPS 101 Profile MON Setup

43-85 COFC
CURSOR CNTL (SAB19/SWB01 PG-B)
COUNTDOWN - DETAIL
XMIT CURSOR KEY - PRESS

43-86 COFC
APPL PAGE (VWB05 PG-B)
PFK8 KEY - PRESS (CLEAR ALL BYPASSES)
PFK15 KEY - PRESS (TERMINATE)

*** End of GNC OPS 101 Profile MON Setup ***

*** End of Option 7 - GN&C System Self Tests ***

*** End of Operation 43 ***
OPERATION 44  MPS Helium Tank Load GSE Set Point Verification

Shop: MLP
Cntrl Rm Console: C4
OPR: MPS
Zone: N/A
Hazard (Y/N): N
Duration (Hrs): 4.0

NOTE
Perform this operation if MPS GSE Helium GSE Set Point Verification is required during Scrub Turnaround operations.

Operation (Not Performed:)

NOTE
This operation may be performed multiple times.

Record data and verifications for this operation in Table 44-1 - MPS Helium Tank Loading/GSE Set Point Verification.
NOTE

MPS Rationale for S72-0685-1 Panel Leg Set Points:

LCC MPS-01 specifies that the MPS/SSME helium tanks must be between 4100 and 4500 psia from T-2M55S to T-13S. If these limits are exceeded, the GLS will initiate a Cutoff which will result in Recycle to T-20M and, most likely, a minimum Scrub of 24 hours.

In order to provide maximum redundancy during terminal count, both the primary and secondary reg isolation valves must be configured OPEN to maintain supply pressure to the on-board Orbiter helium tanks. In this configuration, if the reg set points are close together, supply to the vehicle oscillates between the two legs causing unacceptable wear on the leg isolation check valves. This leads to particulate generation and premature failure of the CVs.

Primary and Secondary leg control bands and set point values are based on the following operational considerations:

1) To minimize outlet Check Valve wear, the regulators will be set with an absolute minimum differential of 50 psi between set points.
2) The SSME helium tank pressures can decrease as much as 150 psi during the transition between PSN3 and PSN4.
3) The highest helium tank pressure control point during S72-0685-1 panel setup is limited to 4450 psia to protect the upper LCC and OMRS limit of 4500 psia.
4) Helium load is marginal for worst case RTLS missions, so loading towards the upper limit of the overall control band is preferable.

Taking the above into account has resulted in the recommended control bands and optimum set points for the primary and secondary 4500 regulators. The control bands and set points are applied to the highest MPS/SSME helium tank pressure.

Control band for the primary reg is 4400 to 4450 psia with the optimum set point as close to 4450 as is reasonably obtainable while maintaining at least a 50 psi differential between that setting and the setting of the secondary reg.

Control band for the secondary reg is 4325 to 4375 psia with the optimum set point as close to 4375 as is reasonably obtainable while maintaining at least a 50 psi differential between that setting and the setting of the primary reg.
NOTE
Adjustment of GSE regulators, with associated vent and isolation valves open and/or closed, may be performed as required to obtain/maintain desired set points.

<table>
<thead>
<tr>
<th>44-1</th>
<th>OTC</th>
<th>CMPS</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*PAD</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*PAD</td>
<td>QMTG</td>
<td></td>
</tr>
</tbody>
</table>

Perform Helium GSE Set Point Verification on Channel 168.

CAUTION
If the SSMEs are in PSN3, there will be approximately 33 scfm demand for each engine. If the GSE supply must be secured, the helium tanks will decay rapidly at approximately 20 psi/min. Do not allow the pressure delta to exceed 400 psi. A tank cycle will be incurred on the 17.3 cu ft tanks in the Midbody if a pressure delta of 425 psi is attained.

NOTE
The S72-0685-1 Panel 4500 Primary and Secondary legs may be in one of the following three nominal configurations depending on regulator performance during the previous Load/Launch attempt:

1. Both primary and secondary 4500 leg reg isolation valves Open.
2. Primary 4500 leg reg isolation valve Open, Secondary 4500 leg reg isolation valve Closed.
3. Primary 4500 leg reg isolation valve Closed, Secondary 4500 leg reg isolation valve Open.
**NOTE**

In the next steps, the primary 4500 reg isolation valve will be closed to verify the set point of the secondary 4500 reg. The Orbiter interconnect in valves will remain open to allow the MPS tank to track the SSME tanks during regulator adjustment.

---

**44-2 CMPS QMTG 168**

Valves will be cycled within the S72-0685-1 panel. Valve cycling and changes in flow may be audible.

---

**44-3 CMPS**

CURSOR CNTL (VAE18 PG-B)

IF presently open,
A74935 (4500 PRIMARY REG ISOL VLV) - CLOSE

Not Performed:______

---

**44-4 CMPS**

CURSOR CNTL (VAE18 PG-B)

IF presently closed,

THEN:

A74937 (4500 SECONDARY REG ISOL VLV) - OPEN

Not Performed:______
NOTE
Allow MPS/SSME helium tank pressures to reach secondary reg control pressure stabilization point prior to making any adjustments to the secondary reg set point. If MPS/SSME helium tank pressures deviate from the 4300 to 4450 psia range, begin regulator adjustment. Optimum set point will maintain the highest Orbiter helium tank pressure at 4375 psia.

50 psid minimum between primary and secondary leg final set points is required.

44-5

CMPS

CRT (VAE18 PG-B)

RECORD INITIAL SECONDARY REG STABILIZATION POINT (N/A IF REG ADJUSTMENT REQUIRED BEFORE STABILIZATION POINT IS ATTAINED):

S72-0685-1 PANEL:
SECONDARY REG OUT PRESSURE(_______)
PANEL OUT PRESSURE(_______)

ORBITER HELIUM SUPPLY:
MPS HELIUM TANK SUPPLY PRESSURE(_______)
SSME 1 HELIUM TANK SUPPLY PRESSURE(_______)
SSME 2 HELIUM TANK SUPPLY PRESSURE(_______)
SSME 3 HELIUM TANK SUPPLY PRESSURE(_______)
Secondary Reg Set Point Verification Under Flow

NOTE
Perform this option if initial secondary reg set point is not between 4325 and 4375 psia as indicated on the highest helium tank supply pressure or if optimization for control at 4375 is desired.

Secondary Reg Set Point Verification Under Flow (Not Performed:)

NOTE
Secondary reg set point must be adjusted to control the highest helium tank supply pressure between 4325 and 4375 psia. Reg adjustment to fine tune reg to optimal set point of 4375 psia for the highest helium tank supply pressure is optional.

In the next step, the vent valve may be cycled open/closed as required to set the reg.

44-6 CMPS QMTG 168

IF SSMEs are not in PSN3
AND/OR additional flow is desired to facilitate Secondary Reg Set Point Adjustment,

THEN perform:
S72-0685-1 Panel 44A

A74941 vent valve -
Open 1/2 to 1 turn (CCW) to obtain audible flow.
Close (CW) when adjustment is complete.

(Not Performed:)
(T:)

44-7 CMPS QMTG 168

S72-0685-1 Panel 44A

Adjust the A74946 secondary reg (increase CW, decrease CCW) per CMPS direction to obtain the desired Orbiter helium control set point. Gage A74944 may be monitored for indication of reg out pressure.

(T:)
NOTE
The A74937 secondary 4400 reg isolation valve may be cycled closed/open as required to optimize reg set point.

44-8
CMPS

IF REQUIRED TO OPTIMIZE REG SET POINT,

THEN PERFORM:
CURSOR CNTL (VAE18 PG-B)
A74937 (4500 SECONDARY REG ISOL VLV) - CLOSE/OPEN

(Not Performed:)

NOTE
50 psid minimum between primary and secondary leg final set points is required.

44-9
CMPS

CRT (VAE18 PG-B)
VERIFY SECONDARY REG SET POINT IS CONTROLLING THE HIGHEST HELIUM TANK PRESSURE BETWEEN 4325 AND 4375 PSIA.

44-10
CMPS QMTG 168

S72-0685-1 Panel 44A
A74941 vent valve -
Verify fully closed (CW).

(T:)

*** End of Secondary Reg Set Point Verification Under Flow ***
44-11  CMPS

CRT (VAE18 PG-B)
RECORD SECONDARY REG FINAL SET POINT:

S72-0685-1 PANEL:
SECONDARY REG OUT PRESSURE_____
PANEL OUT PRESSURE_____

ORBITER HELIUM SUPPLY:
MPS HELIUM TANK SUPPLY PRESSURE_____ 
SSME 1 HELIUM TANK SUPPLY PRESSURE_____ 
SSME 2 HELIUM TANK SUPPLY PRESSURE_____ 
SSME 3 HELIUM TANK SUPPLY PRESSURE_____ 

NOTE
In the next steps, the secondary 4500 reg isolation valve will be closed to verify
the set point of the primary 4500 reg. The Orbiter interconnect in valves will
remain open to allow the MPS tank to track the SSME tanks during reg
adjustment.

44-12  CMPS

CURSOR CNTL (VAE18 PG-B)
A74935 (4500 PRIMARY REG ISOL VLV) OPEN
A74937 (4500 SECONDARY REG ISOL VLV) CLOSE
NOTE
Allow MPS/SSME helium tank pressures to reach primary reg control pressure prior to making any adjustments to the primary reg set point. If MPS/SSME helium tank pressures deviate from the 4300 to 4450 psia range, begin reg adjustment. Optimum set point will maintain the highest Orbiter helium tank pressure at 4450 psia.

50 psid minimum between primary and secondary leg final set points is required.

CMPS

CRT (VAE18 PG-B)

RECORD INITIAL PRIMARY REG STABILIZATION POINT (N/A IF REG ADJUSTMENT REQUIRED BEFORE STABILIZATION POINT IS ATTAINED):

S72-0685-1 PANEL:
PRIMARY REG OUT PRESSURE(_____
PANEL OUT PRESSURE(_____

ORBITER HELIUM SUPPLY:
MPS HELIUM TANK SUPPLY PRESSURE(_____
SSME 1 HELIUM TANK SUPPLY PRESSURE(_____
SSME 2 HELIUM TANK SUPPLY PRESSURE(_____
SSME 3 HELIUM TANK SUPPLY PRESSURE(_____

44-13
Primary Reg Set Point Verification Under Flow

**NOTE**
Perform this option if initial primary reg set point is not between 4400 and 4450 psia as indicated on the highest helium tank supply pressure, or if optimization for control at 4450 is desired.

Primary Reg Set Point Verification Under Flow (Not Performed:)

**NOTE**
Primary reg set point must be adjusted to control the highest helium tank supply pressure between 4400 and 4450 psia. Reg adjustment to fine tune reg to optimal set point of 4450 psia for the highest helium tank supply pressure is optional.

In the next step, the vent valve may be cycled open/closed as required to set reg.

44-14 CMPS QMTG 168

**IF** the SSMEs are not in PSN3
**AND/OR** additional flow is desired to facilitate primary reg set point adjustment,

**THEN perform:**
S72-0685-1 Panel 44A

A74931 vent valve -
**Open** 1/2 to 1 turn (CCW) to obtain audible flow.
**Close** (CW) when adjustment is complete.

(Not Performed:)
(T:)

44-15 CMPS QMTG 168

**Adjust** the A74926 primary reg (increase CW, decrease CCW) per CMPS direction to obtain the desired Orbiter helium control set point.
Gage A74928 may be monitored for indication of reg out pressure.

(T:)
NOTE
The A74935 primary 4500 reg isolation valve may be cycled closed/open as required to set reg.

44-16

CMPS

IF REQUIRED TO SET REG,

THEN PERFORM:
CURSOR CNTL (VAE18 PG-B)
A74935 PRIMARY 4500 REG ISOL - CLOSE/OPEN

(Not Performed:)

NOTE
50 psid minimum between primary and secondary leg final set points is required.

44-17

CMPS

CRT (VAE18 PG-B)
VERIFY PRIMARY REG SET POINT IS CONTROLLING
THE HIGHEST HELIUM TANK PRESSURE BETWEEN
4400 AND 4450 PSIA.

44-18

CMPS QMTG 168

S72-0685-1 Panel 44A

A74931 vent valve -
Verify fully closed (CW).

(T:)

*** End of Primary Reg Set Point Verification Under Flow ***
44-19

CMPS

CRT (VAE18 PG-B)

RECORD PRIMARY REG FINAL SET POINT:

S72-0685-1 PANEL:
PRIMARY REG OUT PRESSURE(______)
 PANEL OUT PRESSURE(______)

ORBITER HELIUM SUPPLY:
MPS HELIUM TANK SUPPLY PRESSURE(______)
SSME 1 HELIUM TANK SUPPLY PRESSURE(______)
SSME 2 HELIUM TANK SUPPLY PRESSURE(______)
SSME 3 HELIUM TANK SUPPLY PRESSURE(______)

44-20

CMPS

CURSOR CNTL (VAE18 PG-B)

A74937 (4500 SECONDARY REG ISOL VLV) - OPEN

NOTE
The following two steps verify proper configuration of the S72-0685-01 Panel Primary and Secondary legs to support Launch Countdown.

44-21

CMPS

CRT (VAE18 PG-B)

Verify
A74935 (4500 PRIMARY REG ISOL VLV) - OPEN
A74937 (4500 SECONDARY REG ISOL VLV) - OPEN
44-22 CMPS

CRT (VAE18 PG-B)

**VERIFY** PRIMARY REG IS CONTROLLING BETWEEN 4400 AND 4450 PSIA, SECONDARY SET POINT IS BETWEEN 4325 AND 4375 PSIA, AND THERE IS 50 PSID MINIMUM BETWEEN SET POINT.

**RECORD** THE FINAL PRIMARY AND SECONDARY SET POINT VALUES FOR THE HIGHEST ORBITER HELIUM TANK PRESSURE:

(PRIMARY_______)
(SECONDARY_______)

44-23 CMPS OTC 132

OTC *PAD

S72-0685-1 Panel Primary and Secondary 4500 Leg Set Point Verification is complete.
Table 44-1 Not Performed:______

<table>
<thead>
<tr>
<th>Step</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Run 4</th>
<th>Run 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>44-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

44-5 - Initial Secondary Reg Stabilization Point

- Sec R/O Press
- PNL Out Press
- MPS
- SSME 1
- SSME 2
- SSME 3

Secondary Reg Set Point Verification Under Flow

Not Performed: | | | |

44-6
Not Performed: | | | |
### Table 44-1 - MPS Helium Tank Loading/GSE Set Point Verification (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Run 4</th>
<th>Run 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of Secondary Reg Set Point Verification Under Flow ***

#### 44-11 - Secondary Reg Final Set Point

Secondary R/O
Panel Out
MPS
SSME 1
SSME 2
SSME 3

#### 44-12

#### 44-13 - Initial Primary Reg Stabilization Point

Primary R/O
Panel Out
MPS
SSME 1
SSME 2
SSME 3
<table>
<thead>
<tr>
<th>Step</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Run 4</th>
<th>Run 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Reg Set Point Verification Under Flow</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*** End of Primary Reg Set Point Verification Under Flow ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>44-19 - Primary Reg Final Set Point</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary R/O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel Out</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSME 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSME 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSME 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 44-1 - MPS Helium Tank Loading/GSE Set Point Verification (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Run 4</th>
<th>Run 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>44-21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of Operation 44 ***
OPERATION 45  ECLSS System

Shop: **FWD**
Cntrl Rm Console: **C5**
OPR: **ECL**
Zone: **121, 122, 123**
Hazard (Y/N): **Y**
Duration (Hrs): **6.0**

### NOTE
Perform the following options when directed by the controlling sequences.
Option A - ECLSS Reconfiguration to Support Ingress Switch List

NOTE
Perform this option if directed by controlling sequence.

Option A Not Performed:_____

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

45-1        OTC      CECL       132
            CDR

Perform ECLSS Reconfiguration to Support Ingress Switch List.

45-2        CECL      CDR       143
            PANEL L2

FLASH EVAP
FEEDLINE HTR
A SUPPLY SW - 2 L2A01S023
B SUPPLY SW - 2 L2A01S024

45-3        CECL

CRT (VAG28 PG-B)
FDLN HTR A SPLY
HA-2 SON ON V63S1861E1
FDLN HTR B SPLY
HB-2 SON ON V63S1866E1
45-4  CECL  CDR  143

PANEL L1

FLASH EVAP CONTROLLER
SEC SELECT SW - A SPLY  L1A02S045

HI LOAD EVAP SW - ENABLE  L1A02S034

45-5  CECL

CRT (VAG28 PG-B)
FES CONTROLLER CMDS
HI-LD ENABLE SON ON  V63S1620E1

45-6  CECL  CDR  143

PANEL L1

FIRE SUPPRESSION
AV BAY 1 SW - SAFE  L1A01S001
AV BAY 2 SW - SAFE  L1A01S002
AV BAY 3 SW - SAFE  L1A01S003

45-7  CECL

IF VAG60 IS IN AUTO MODE,

THEN PERFORM:
CURSOR CNTL (VAG60)
AUTO
XMIT CURSOR KEY - PRESS

CRT
VERIFY VAG60 IN MANUAL MODE

Not Performed:______
45-8

CECL

CRT (VAG59, PG-B)
RECORD

AVIONICS BAY 1 FAN A (SWITCH)
FAN DELTA PRESS________IN. H₂O   BD
AIR OUT TEMP________DEG F   BD

AVIONICS BAY 2 FAN B (SWITCH)
FAN DELTA PRESS________IN. H₂O   BD
AIR OUT TEMP________DEG F   BD

AVIONICS BAY 3 FAN A (SWITCH)
FAN DELTA PRESS________IN. H₂O   BD
AIR OUT TEMP________DEG F   BD

45-9

CECL

CRT (VAG10, PG-B)
RECORD

CABIN PRESS________PSIA   BD
45-10

CECL

**RECONFIGURE** COOLING TO POST CREW INGRESS
CHECKLIST CONFIGURATION USING OMI S9001.105.

**FC LOOP 1**

PUMP A OFF
PUMP B ON (VIA CABIN SW)

**FC LOOP 2**

PUMP A OFF
PUMP B ON (VIA CABIN SW)

**H_2O LOOP 2**

SEC PUMP ON (VIA CABIN SW)

BYPASS VALVE ADJUSTED TO AN INTRX FLOW OF
950-1000 LBHR

**H_2O LOOP 1**

BYPASS VALVE ADJUSTED TO AN INTRX FLOW OF
950-1000 LBHR

PUMP A OFF

**NOTE**

Pump B will be run for 2 minutes minimum to verify its ability to
support Countdown operations.

PUMP B ON
PUMP B OFF

**AVIONICS BAY 1**

FAN B ON (VIA CABIN SW)
FAN A OFF
AVIONICS BAY 2

FAN A ON (VIA CABIN SW)
FAN B OFF

AVIONICS BAY 3

FAN B ON (VIA CABIN SW)
FAN A OFF

IMU

FAN A OFF

NOTE
Allow Fan C to run independently for 2 minutes minimum prior to performing Fan B on, to verify ability to support Countdown operations.

FAN B ON (VIA CABIN SW)
FAN C OFF

CABIN

FAN A ON (VIA CABIN SW)
FAN B OFF

HUMIDITY SEP

SEP A OFF
SEP B ON

45-11

CECL

CURSOR CNTL (VAG60)
AUTO
XMIT CURSOR KEY - PRESS

CRT
VERIFY VAG60 IN AUTO MODE
45-12  CECL

CONSOLE KYBD
SET V61K2866NL OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

SET N61IV011E OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

45-13  CECL  CDR  143

PANEL L1

CABIN TEMP CNTLR SW - OFF

**CAUTION**

To avoid valve damage, do not move the motor arm in the next step. The valve arm may be moved to allow connection to the motor.

45-14  CECL  CDR  143

**IF** THE CABIN TEMPERATURE CONTROLLER LINKAGE IS NOT CONNECTED TO THE SECONDARY ACTUATOR,

THEN **PERFORM**:

PANEL MD44F

1. **REMOVE** VALVE LINK SV755665-2 CABTVL FROM TEMP CONTROL PRIMARY ACTUATOR BY RELEASING QUICK-RELEASE PIN.

2. **CONNECT** VALVE LINK SV755665-2 CABTVL TO TEMP CONTROL SECONDARY ACTUATOR UTILIZING QUICK-RELEASE PIN.

**Not Performed:**
45-15  CECL  CDR  143

PANEL L1

CABIN TEMP CNTLR SW - 2

45-16  CECL

CRT (VAG30 PG-B)
CABIN AIR, CT CTR
SS1 OFF
SS2 ON

45-17  CECL  CDR  143

PANEL L1

CABIN TEMP SW - WARM (FULL CW)

45-18  CECL

CRT (VAG30, PG-B)
CT CTR 2
CTS ______PCT 95 MIN

NOTE

It may take several minutes for valve to move from the full cold position as verified in the next step.

It may take up to nine minutes for the motor valve to move to full warm position as verified by the CDR.
45-19    CECL

CRT (VAG30 PG-B)
CT CTR 2
HXF OFF

45-20    CECL    CDR    143

PANEL MD44F
VERIFY SECONDARY ACTUATOR IN FULL WARM POSITION

45-21    CECL    CDR    143

PANEL L1

CABIN TEMP CNTLR SW - OFF

45-22    CECL

CRT (VAG30 PG-B)
CABIN AIR, CT CTR
SS1 OFF
SS2 OFF
CAUTION
To avoid valve damage, do not move the motor arm in the next step. The valve arm may be moved to allow connection to the motor.

45-23  CECL  CDR  143
PANEL  MD44F
1. REMOVE VALVE LINK SV755665-2 CABTVL FROM TEMP CONTROL SECONDARY ACTUATOR BY RELEASING QUICK-RELEASE PIN.
2. CONNECT VALVE LINK SV755665-2 CABTVL TO TEMP CONTROL PRIMARY ACTUATOR UTILIZING QUICK-RELEASE PIN.

45-24  CECL  CDR  143
PANEL  L1
CABIN TEMP CNTLR SW - 1

45-25  CECL
CRT (VAG30 PG-B)
CABIN AIR, CT CTR
SS1 ON
SS2 OFF

45-26  CECL  CDR  143
PANEL  L1
CABIN TEMP SW - COOL (FULL CCW)
45-27
CECL

CRT (VAG30, PG-B)
CABIN AIR CT CTR 1
CTS ______PCT 5 MAX

NOTE
It may take up to nine minutes for the motor to move to the full cool position.

45-28
CECL

CRT (VAG30 PG-B)
CT CTR 1
HXF ON

45-29
CECL CDR 143

PANEL MD44F

VERIFY PRIMARY ACTUATOR IN FULL COOL POSITION.

45-30
CECL CDR 143

PANEL L1A2

CABIN TEMP CNTRL SW - OFF L1A2S11
45-31  CECL  CDR  143

PANEL O1

AIR TEMP
  SELECT SW - CAB HX OUT  O1A01S002
H₂O PUMP OUT PRESS
  LOOP SW - LOOP 2  O1A01S003

FREON SW - LOOP 1  O1A01S004

O₂/N₂ FLOW
  SELECT SW - SYS 1 O₂  O1A01S005

PPO₂
  SENSOR SW - SENSOR A  O1A01S006

45-32  CECL  CDR  143

PANEL L2

FREON LOOP ISOLATION
  MODE SW - OFF (CENTER)

45-33  CECL  CDR  143

PANEL L4

ROW N
  AC 2
    RAD ISOL A
      PH C CB - CLOSE
  AC 3
    RAD ISOL B
      PH C CB - CLOSE
45-34  CECL  CDR  143

PANEL 014

ROW C
   RAD ISOL CONTR CB - CLOSE

45-35  CECL  CDR  143

PANEL 014

ROW D
   MN A
   ATM PRESS CONTROL
      N₂ SUPPLY 1 CB - CLOSE  O14A14C018
      O₂/N₂ CNTLR 1 CB - CLOSE  O14A14C019
      O₂ XOVR 1 CB - CLOSE  O14A14C020
      N₂ REG INLET 1 CB - CLOSE  O14A14C021

45-36  CECL  PLT  143

PANEL 015

ROW D
   MN B
   ATM PRESS CONTROL
      N₂ SUPPLY 2 CB - CLOSE  O15A15C017
      O₂/N₂ CNTLR 2 CB - CLOSE  O15A15C018
      O₂ XOVR 2 CB - CLOSE  O15A15C019
      N₂ REG INLET 2 CB - CLOSE  O15A15C020

45-37  CECL  PLT  143

PANEL 016

ROW D
   MN C
   ATM PRESS CONTROL
      O₂ EMER CB - CLOSE  O16A16C016
NOTE
Master alarms may occur in next three steps due to oxygen and nitrogen flow rates being above 4.9 pph momentarily. Reset the master alarm.

45-38  CECL  CDR  143

PANEL L2
ATM PRESS CONTROL
O₂ EMER SW - CLOSE UNTIL O₂ EMER TB CL, L2A01S012
THEN RELEASE L2A01DS008

45-39  CECL

CRT (VAG10 PG-B)
VLV 5 V61X2163E1
PCL V61X2165E1

45-40  CECL  CDR  143

PANEL O16
ROW D
MN C
H₂O ALT PRESS CB - CLOSE 016A16C015
ATM PRESS CONTROL
O₂ EMER CB - OPEN O16A16C016
N₂ System 2 Supply Valve Configure

NOTE
Perform this option for OV-103 only.

N₂ System 2 Supply Valve Configure Not Performed:______

45-41  CECL    CDR    143

PANEL L2

ATM PRESS CONTROL
N₂ SYS 1
SUPPLY SW - CL UNTIL TB CL
REG INLET SW - CL UNTIL TB CL
N₂ SYS 2
SUPPLY SW - CL UNTIL TB CL
REG INLET SW - OP UNTIL TB OP

45-42  CECL    CDR    143

PANEL MO10W

H₂O TK N₂ REG INLET
SYS 2 VLV - OPEN
H₂O TK N₂ ISOL
SYS 2 VLV - OPEN

45-43  CECL    CDR    143

PANEL L1

H₂O ALTERNATE PRESS SW - OPEN

45-44  CECL

CRT (VAG10 PG-B)
RECORD

P8:__________ PSIA   LESS THAN 150
45-45 CECL  CDR  143

PANEL L1

H₂O ALTERNATE PRESS SW - CLOSE

45-46 CECL  CDR  143

PANEL L2

ATM PRESS CONTROL

N₂ SYS 2

SUPPLY SW - OP UNTIL TB OP

45-47 CECL

CRT (VAG10 PG-B)

VERIFY

VLV 6 - POP

*** End of N₂ System 2 Supply Valve Configure ***
IF FOR OV-104 AND OV-105,

THEN PERFORM:
PANEL L2

ATM PRESS CONTROL

\[ \text{O}_2 \text{ XOVR} \]

SYS 1 SW - OPEN \hspace{1cm} L2A01S015
SYS 2 SW - OPEN \hspace{1cm} L2A01S018

\[ \text{N}_2 \text{ SYS 1} \]
SUPPLY SW - OPEN UNTIL SUPPLY TB - OP, \hspace{1cm} L2A01S013
THEN RELEASE \hspace{1cm} L2A01DS006
REG INLET SW - OPEN UNTIL REG INLET TB - OP, THEN RELEASE \hspace{1cm} L2A01S014

\[ \text{N}_2 \text{ SYS 2} \]
SUPPLY SW - OPEN UNTIL SUPPLY TB - OP, \hspace{1cm} L2A01S021
THEN RELEASE \hspace{1cm} L2A01DS010
REG INLET SW - OPEN UNTIL REG INLET TB - OP, THEN RELEASE \hspace{1cm} L2A01S022

\[ \text{O}_2/\text{N}_2 \text{ CNTLR VLV} \]
SYS 1 SW - OPEN \hspace{1cm} L2A01S016
SYS 2 SW - CLOSE \hspace{1cm} L2A01S019
PPO\textsubscript{2} SNSR/VLV - NORM \hspace{1cm} L2A01S017

Not Performed:______
IF FOR OV-103,

THEN PERFORM:

PANEL L2

ATM PRESS CONTROL

O₂ XOV

SYS 1 SW - OPEN  L2A01S015
SYS 2 SW - OPEN  L2A01S018

N₂ SYS 1

SUPPLY SW - OPEN UNTIL SUPPLY TB - OP,  L2A01S013
THEN RELEASE  L2A01DS006
REG INLET SW - OPEN UNTIL REG INLET  L2A01S014
TB - OP, THEN RELEASE L2A01DS007

O₂/N₂ CNTLR VLV

SYS 1 SW - OPEN  L2A01S016
SYS 2 SW - CLOSE  L2A01S019
PPO₂ SNSR/VLV - NORM  L2A01S017

Not Performed:_____
45-50

CECL

CRT (VAG10 PG-B)
VLV 7
SOPN V61S2100E1
POP V61X2103F1

VLV 9
SOPN V61S2200E1
POP V61X2203F1

VLV 2
POP V61X2323E1

VLV 4
POP V61X2321E1

VLV 6
POP V61X2319E1

VLV 8
POP V61X2328E1

SYS 1 VLV
SOP ON V61S2370E1
S AUTO OFF V61S2371E1

VLV 10
POP ON V61X2372E1

SYS 2 VLV
SOP OFF V61X2375E1
S AUTO OFF V61X2376E1

VLV 12
PCL V61X2377E1

SNSR/VLV
SNRM ON V61X2350E1

SYS 1 MODE
SNRM ON V61S2140E1

SYS 2 MODE
SNRM ON V61S2142E1
NOTE
LEH oxygen valves will remain closed until the seat oxygen hoses have been installed and oxygen samples performed.

45-52 CECL CDR 143
PANEL C6
LEH O₂ 1 VLV - CLOSE
LEH O₂ 2 VLV - CLOSE
LEH O₂ 3 VLV - CLOSE
LEH O₂ 4 VLV - CLOSE

45-53 CECL CDR 143
PANEL C7
LEH O₂ SUPPLY
SYS 1 VLV - OPEN
SYS 2 VLV - OPEN
PANEL L4

ROW N
AC 2
FREON FLOW PROP 1
PH A CB - CLOSE
L4A04C042

AC 3
FREON FLOW PROP 2
PH A CB - CLOSE
L4A04C045

ROW P
AC 1
RAD CNTLR 1B
PH A CB - CLOSE
L4A04C128
RAD CNTLR 2B
PH B CB - CLOSE
L4A04C044

AC 2
RAD CNTLR 1A
PH B CB - CLOSE
L4A04C129

AC 3
RAD CNTLR 2A
PH B CB - CLOSE
L4A04C047
NOTE
In the next step, master alarm and klaxon may occur due to cabin DP/DT. Reset the master alarm.
45-57  CECL  PLT  143

PANEL 016

ROW C
  MN C
  SMOKE DETN
    CABIN CB - CLOSE  O16A16C006
    BAY 1A/2B CB - CLOSE  O16A16C007
    FIRE SUPPR BAY 2 CB - CLOSE  O16A16C008

ROW D
  MN C
  ATM PRESS CONTROL
    CABIN RELIEF B CB - CLOSE  O16A16C017

45-58  CECL  PLT  143

PANEL 017

ROW C
  SIGNAL CONDITIONER
  FREON
    A SW - AC 2
    B SW - AC 3
NOTE
For questions about switch position, contact CPLE.

45-59  CECL  CDR  143

IF FOR OV-103 AND OV-104 ONLY (NON-SPACEHAB),

THEN PERFORM:
PANEL C3

PAYLOAD SAFING
RTG PUMP SW - PRI

Not Performed:_____

45-60  CECL  CDR  143

PANEL L4

ROW J
AC 3
SIG CONDR
HUM SEP
PH A CB - OPEN
IMU FAN
PH B CB - OPEN

NOTE
Verification of the next step may take up to 45 seconds.

45-61  CECL

CRT (VAG59 PG-B)
VERIFY

IMU FAN B INVERT RED XXX
HUM SEP B INVERT RED XXX

45-62  CECL  CDR  143

PANEL L1

H₂O ALTERNATE PRESS SW - CLOSE   L1A2S028
45-63  CECL

CRT (VAG10 PG-B)
VLV 14
SOPF V61S2308E1

45-64  CECL  CDR  143

IF CABIN VENT AND RELIEF VALVES POSITION INDICATORS ARE NOT AS SHOWN,

THEN PERFORM:

PANEL L2

CABIN RELIEF
A SW - ENABLE UNTIL A TB ENA, L2A01S001
THEN RELEASE L2A01DS001

Not Performed:_____

45-65  CECL

CRT (VAG10 PG-B)
CAB + RV
A PEN ON V61X2131E1
A PCL OFF V61X2130E1
45-66 CECL CDR 143

**IF** CABIN VENT AND RELIEF VALVES POSITION INDICATORS ARE NOT AS SHOWN,

**THEN** **PERFORM:**
**PANEL** L2

- CABIN RELIEF
  - **B SW** - ENABLE UNTIL **B TB ENA,**
  - THEN **RELEASE**

*Not Performed:*****

45-67 CECL

CRT (VAG10 PG-B)
CAB + RV
B PEN ON
B PCL OFF

V61X2136E1
V61X2135E1

45-68 CECL CDR 143

**IF** CABIN VENT AND RELIEF VALVES POSITION INDICATORS ARE NOT AS SHOWN,

**THEN** **PERFORM:**
**PANEL** L2

- CABIN VENT
  - VENT ISOL SW - CLOSE UNTIL VENT ISOL
  - THEN **RELEASE**

*Not Performed:*****

45-69 CECL

CRT (VAG10 PG-B)
CAB ISOL
POP OFF
PCL ON

V61X2025E1
V61X2005E1
IF CABIN VENT AND RELIEF VALVES POSITION INDICATORS ARE NOT AS SHOWN,

THEN PERFORM:

PANEL L2

CABIN VENT
VENT SW - CLOSE UNTIL VENT TB CL, L2A01S004
THEN RELEASE L2A01DS004

Not Performed:______

CRT (VAG10 PG-B)
CAB VENT
POP OFF V61X2065E1
PCL ON V61X2045E1

NOTE
Perform the CARGO COOLANT LOOP HEATERS switch verification for OV-103 and OV-105.

PANEL A14

CARGO COOLANT LOOP HEATERS
ORBITER ACCUM A AUTO - OFF
B AUTO - OFF
C AUTO - OFF
CARGO LINE A AUTO - OFF
B AUTO - OFF

Not Performed:______
Docking System Configuration

NOTE
Perform this option if Docking System Panel (DSP) is installed.

Docking System Configuration Not Performed:_____

45-73  CECL  CDR  143

PANEL 013

ROW A
ESS 1BC MN A CNTL CB - CLOSE

ROW C
ESS 2CA MN B CNTL CB - CLOSE

45-74  CECL  CDR  143

PANEL A6A3

ESS 1BC
SYS PWR CNTL
SYS 1 CB - CLOSE

ESS 2CA
SYS PWR CNTL
SYS 2 CB - CLOSE

SYSTEM POWER
MN A SW - ON, VERIFY SYS 1 TB ON
MN B SW - ON, VERIFY SYS 2 TB ON
45-75  CECL  CDR  143

PANEL A6A3

ESS 1BC
  DEPRESS
  SYS 1 VENT ISOL CB - CLOSE

MAIN A
  DEPRESS
  SYS 1 VENT CB - CLOSE

ESS 2CA
  DEPRESS
  SYS 2 VENT ISOL CB - CLOSE

MAIN B
  DEPRESS
  SYS 2 VENT CB - CLOSE

45-76  CECL  CDR  143

PANEL A6A3

VESTIBULE DEPRESS VALVE
  SYS 1
    VENT ISOL SW - CLOSE UNTIL TB CL
    VENT SW - CLOSE UNTIL TB CL
  SYS 2
    VENT ISOL SW - CLOSE UNTIL TB CL
    VENT SW - CLOSE UNTIL TB CL
45-77

**CECL**

CRT (VAG32 PG-B)

**VERIFY**

VESTIBULE ISO VLV A OPEN OFF V64X0141E1
VESTIBULE ISO VLV A CLOSE ON V64X0142E1
VESTIBULE VLV A OPEN OFF V64X0143E1
VESTIBULE VLV A CLOSE ON V64X0144E1
VESTIBULE ISO VLV B OPEN OFF V64X0145E1
VESTIBULE ISO VLV B CLOSE ON V64X0146E1
VESTIBULE VLV B OPEN OFF V64X0147E1
VESTIBULE VLV B CLOSE ON V64X0148E1

45-78

**CECL**

**CDR**

143

**PANEL A6A3**

ESS 1BC

DEPRESS

SYS 1 VENT ISOL CB - OPEN

MAIN A

DEPRESS

SYS 1 VENT CB - OPEN

ESS 2CA

DEPRESS

SYS 2 VENT ISOL CB - OPEN

MAIN B

DEPRESS

SYS 2 VENT CB - OPEN
45-79  CECL  CDR  143

PANEL A6A3

SYSTEM POWER
  MN A SW - OFF, VERIFY SYS 1 TB OFF
  MN B SW - OFF, VERIFY SYS 2 TB OFF

ESS 1BC
  SYS PWR CNTL
    SYS 1 CB - OPEN

ESS 2CA
  SYS PWR CNTL
    SYS 2 CB - OPEN

45-80  CECL  CDR  143

PANEL O13

ROW A
  ESS 1BC MN A CNTL CB - OPEN

ROW C
  ESS 2CA MN B CNTL CB - OPEN

*** End of Docking System Configuration ***
IF FOR OV-104 AND OV-105 ONLY,

THEN PERFORM:
PANEL MO51F, CO₂ REMOVAL SYSTEM

CONTROLLER 1
  MN A SW - OFF
  AC 1 SW - (CENTER)
  MODE SW - (CENTER)
  COMMON INSTR SW - OFF

  AC 1
    PH A CB - OPEN
    PH B CB - OPEN
    PH C CB - OPEN

CONTROLLER 2
  MN C SW - OFF
  AC 3 SW - (CENTER)
  MODE SW - (CENTER)

  AC 3
    PH A CB - OPEN
    PH B CB - OPEN
    PH C CB - OPEN

Not Performed:______

PANEL ML86B

ROW B
  MN A
    VACUUM VENT ISOL VLV CB - CLOSE  ML86BC067

  MN B
    VACUUM VENT NOZ HTR CB - CLOSE  ML86BC066
    VACUUM VENT ISOL VLV CB - CLOSE  ML86BC068
45-83 CECL MS1 143

**IF** THE VALVE POSITION INDICATOR IS NOT AS SHOWN, **THEN PERFORM:**

**PANEL ML31C**

**VACUUM VENT**

**ISOL VLV**

**BUS SEL SW - MN A** ML31CS010
**CONTROL SW - CLOSE (15 SEC MAX)** ML31CS011
**UNTIL ISOL VLV TB - CL** ML31CDS007
**THEN RELEASE**

Not Performed:_____ 

45-84 CECL

**CRT (VAG32 PG-B)**

**VAC VT ISO VLV MODE MN A ON** V62S0205E1
**VAC VT ISO VLV MODE MN B OFF** V62S0206E1
**VAC VENT ISOL VLV OPEN OFF** V62S0207E1
**VAC VENT ISOL VLV CLOSE ON** V62S0208E1

45-85 CECL MS1 143

**PANEL ML31C**

**VACUUM VENT**

**NOZZLE HTR SW - OFF** ML31CS009

45-86 CECL MS1 143

**PANEL ML86B**

**ROW B**

**MN A**

**VACUUM VENT ISOL VLV CB - OPEN** ML86BC067

**MN B**

**VACUUM VENT NOZ HTR CB - OPEN** ML86BC066
**VAC VENT ISOL VLV CB - OPEN** ML86BC068
45-87  CECL  MS1  143

PANEL ML86B

ROW C
  MN A
  EXTERNAL AIRLOCK HTR LINE
  STRUC Z 1/2/3 CB - OPEN
  VEST Z 1/2/3 CB - OPEN
  MN B
  EXTERNAL AIRLOCK HTR LINE
  STRUC Z 1/2/3 CB - OPEN
  VEST Z 1/2/3 CB - OPEN

45-88  CECL  MS1  143

PANEL MO13Q

  AIRLOCK FAN A SW - OFF
  AIRLOCK FAN B SW - OFF

45-89  CECL  CDR  143

PANEL MA73C

ROW G AC 1
  ARLK TNL FAN A
  PH A CB - OPEN
  PH B CB - OPEN
  PH C CB - OPEN

ROW G AC 2
  ARLK TNL FAN B
  PH A CB - OPEN
  PH B CB - OPEN
  PH C CB - OPEN
45-90  CECL  MS1  143

**IF** ACCESS IS AVAILABLE,

**THEN PERFORM:**
MIDDECK FLOOR FWD OF AIRLOCK
EMU O₂ ISOL VLV - CLOSE  80V64MV20
CABIN PURGE VLV - CLOSE  80V64MV22
CABIN PURGE ISOL VLV - CLOSE  80V64MV21

Not Performed:_____

45-91  CECL  MS1  143

PANEL ML86B

ROW D
MN A
MANNED MANUV UNIT
GN₂ SUPPLY
   ISOL VLV A CB - CLOSE
PORT HTR A CB - OPEN
STBD HTR A CB - OPEN

MN B
MANNED MANUV UNIT
GN₂ SUPPLY
   ISOL VLV B CB - CLOSE
PORT HTR B CB - OPEN
STBD HTR B CB - OPEN

45-92  CECL  MS1  143

PANEL R13L

MANNED MANUV UNIT
GN₂ SUPPLY
   ISOL VLV A - CLOSE UNTIL TB CLOSE
   ISOL VLV B - CLOSE UNTIL TB CLOSE
45-93  CECL    MS1    143

IF FOR OV-104 AND OV-105 ONLY,

THEN PERFORM:
PANEL ML86B

ROW E
   MN A
   CO₂ SYS1 CNTLR CB - OPEN

   MN B
   CO₂ COMMON INSTR CB - OPEN

   MN C
   CO₂ SYS2 CNTLR CB - OPEN

Not Performed:_____

45-94  CECL    MS1    143

PANEL ML86B

ROW D
   MN A
   MANNED MANUV UNIT
      GN₂ SUPPLY
         ISOL VLV A CB - OPEN

   MN B
   MANNED MANUV UNIT
      GN₂ SUPPLY
         ISOL VLV B CB - OPEN
FCL1 & 2 Flow Control Valves to Full Cold Position

NOTE
Payload Bay doors must be closed for flight prior to performing this option.

45-95  CECL  CDR  143

PANEL L1

RAD CONTROLLER
BYPASS VALVE
MODE
  1 SW - AUTO  L1A2S35
  2 SW - AUTO  L1A2S36

45-96  CECL

CRT (VAG04 PG-B)
FREON LOOP 1
  BYP MODE
  S AUTO ON  V63S1220E1
  S MAN OFF  V63S1221E1
FREON LOOP 2
  BYP MODE
  S AUTO ON  V63S1420E1
  S MAN OFF  V63S1421E1

45-97  CECL  CDR  143

IF THE VALVE POSITION INDICATORS ARE NOT AS SHOWN,

THEN PERFORM:
PANEL L1

FLOW PROP VLV
LOOP 1 SW - INTCHGR UNTIL LOOP 1 TB ICH,  L1A2DS021
  THEN RELEASE (15 SEC MAX)  L1A2DS001

FLOW PROP VLV
LOOP 2 SW - INTCHGR UNTIL LOOP 2 TB ICH,  L1A2DS022
  THEN RELEASE (15 SEC MAX)  L1A2DS002

Not Performed:______
45-98  CECL  CDR  143

PANEL L1

RAD CONTROLLER
 LOOP 1 SW - AUTO A  L1A2S26
 LOOP 2 SW - AUTO A  L1A2S27

45-99  CECL

CRT (VAG04 PG-B)
FREON LOOP 1
 RAD CNTLR AUTO
 SA ON  V63S1211E1
 SB OFF  V63S1212E1

FREON LOOP 2
 RAD CNTLR AUTO
 SA ON  V63S1411E1
 SB OFF  V63S1412E1

NOTE
Allow 90 seconds minimum prior to proceeding.

45-100  CECL  CDR  143

PANEL L1

VERIFY
 RAD CONTROLLER
 BYPASS VLV
 1 TB - RAD  L1A2DS003
 2 TB - RAD  L1A2DS004

45-101  CECL

CRT (VAG04 PG-B)
FREON LOOP 1
 BYP VL
 PRAD ON  V63X1222E1
 PBYP OFF  V63X1223E1

FREON LOOP 2
 BYP VL
 PRAD ON  V63X1422E1
 PBYP OFF  V63X1423E1
NOTE
Allow flow through radiators for 5 minutes minimum.

45-102

CECL

CRT (VAG04 PG-B)
FREON LOOP 1
RAD OUT TEMP (T7) _____ DEG F V63T1208A1
40 MINIMUM

FREON LOOP 2
RAD OUT TEMP (T6) _____ DEG F V63T1408A1
40 MINIMUM

NOTE
Payload Bay doors must be closed for Flight prior to working the next two steps.

45-103

CECL

CRT (VAG04 PG-B)
FREON LOOP 1
INTERCHANGER FLOW _____ LB/HR V63R1100A1
1950 MIN

FREON LOOP 2
INTERCHANGER FLOW _____ LB/HR V63R1300A1
1950 MIN

OMRSD V63AD0.071 (VAG59)

45-104

CECL CDR 143

PANEL L1

RAD CONTROLLER
BYPASS VALVE
MODE
1 SW - MAN L1A2S35
2 SW - MAN L1A2S36
45-105

CECL

CRT (VAG04 PG-B)
FREON LOOP 1
BYP MODE
  SAUTO OFF V63S1220E1
  SMAN ON V63S1221E1

FREON LOOP 2
BYP MODE
  SAUTO OFF V63S1420E1
  SMAN ON V63S1421E1

45-106

CECL  CDR  143

PANEL L1

RAD CONTROLLER
BYPASS VALVE MAN SEL
  1 SW - BYPASS UNTIL 1 TB BYP, THEN RELEASE (3 SECS MAX) L1A2S29 L1A2DS003
  2 SW - BYPASS UNTIL 2 TB BYP, THEN RELEASE (3 SECS MAX) L1A2S30 L1A2DS004

45-107

CECL

CRT (VAG04 PG-B)
FREON LOOP 1
BYP VL
  PRAD OFF V63X1222E1
  PBYP ON V63X1223E1

FREON LOOP 2
BYP VL
  PRAD OFF V63X1422E1
  PBYP ON V63X1423E1

45-108

CECL  CDR  143

PANEL L1

RAD CONTROLLER
  LOOP 1 SW - OFF L1A2S26
  LOOP 2 SW - OFF L1A2S27
  OUT TEMP SW - NORM L1A2S25
45-109  
CECL

CRT (VAG04 PG-B)
FREON LOOP 1
   RAD CNTLR AUTO
   SA OFF
   SB OFF
   V63S1211E1
   V63S1212E1

FREON LOOP 2
   RAD CNTLR AUTO
   SA OFF
   SB OFF
   V63S1411E1
   V63S1412E1

NOTE
Perform one, both, or neither of the next two steps if required to supply cooling to payload for mission during Liftoff.

45-110  
CECL   CDR   143

IF REQUIRED TO SUPPLY COOLING TO PAYLOAD FOR MISSION DURING LIFTOFF,

THEN PERFORM:

PANEL L1

FLOW PROP VLV
LOOP 1 SW - PAYLOAD UNTIL LOOP 1 TB PLBD,
   THEN RELEASE (15 SEC MAX)

Not Performed:______
IF REQUIRED TO SUPPLY COOLING TO PAYLOAD FOR MISSION DURING LIFTOFF,

THEN PERFORM:

PANEL L1

FLOW PROP VLV
LOOP 2 SW - PAYLOAD UNTIL LOOP 2 TB PLBD,
THEN RELEASE (15 SEC MAX)

Not Performed:_____

*** End of FCL1 & 2 Flow Control Valves to Full Cold Position ***

ECLSS Reconfiguration to Support Ingress Switch List is complete.

*** End of Option A - ECLSS Reconfiguration to Support Ingress Switch List ***
Option B - C70-1226-3 Pressurization and Oxygen Sample

NOTE
Perform this option if directed by controlling sequence.

Option B Not Performed:______

45-113

OTC  CECL  132
*PAD
*PAD  OMTO

Perform C70-1226-3 Pressurization and Oxygen Sample (0-100 percent meter required).

45-114

CECL  OMTO  143
C70-1226-3
1. A501543 supply shutoff valve - OPEN (CCW)
2. Verify no audible leaks.

T:______

45-115

CECL  OTC  132
OTC  STM
STM  JBPN  111

Request JBPN to support ECL on Channel 143 for Breathing Air Purge.

45-116

CFCL  JBPN  143

Record initial breathing air storage vessel pressure and cabin air supply regulated pressure (Pad A display B1A, Pad B display B1B):

A154332 __________ psi  BD

A139957 __________ psi  BD

Support: PNSA
Verify breathing air tube bank disconnected.

Support: PNSA

**WARNING**

There is a potential for loud noise during venting or release of high-pressure gas.

Exposure may cause hearing damage.

Wear **ear cups** during venting operations.

WLN027a 09-12-2008

**NOTE**

Acoustics level in Whiteroom will increase above 85 decibels.

**45-118**

CECL OTC 132

Notify Whiteroom personnel that hearing protection is required.

**45-119**

OTC CECL 132

Personnel have been notified to use hearing protection.

**Proceed** with breathing air panel venting.

**45-120**

CECL JBPN 143

Monitor storage vessel pressure during venting for a nominal drop of 6 psi/min. Valve A501552 is opened 4-5 turns to minimize venting time and maintain noise at a reasonable level.
45-121 CECL OMTO 143

C70-1226-3

1. A501552 vent shutoff valve - OPEN (CCW) (4 to 5 full turns)

2. Wait 7-8 minutes.

3. Verify no significant reduction in noise level during purging operations.

4. A501552 vent shutoff valve - CLOSE (CW) T: _____

45-122 CECL JBN 143

Record final breathing air storage vessel pressure and cabin air supply regulated pressure (Pad A display B1A, Pad B display B1B)

A154332 __________ psi 1000 minimum

A139957 __________ psi BD

Support: PNSA

45-123 CECL

Verify final high pressure gas storage area breathing air supply pressure decreased from initial reading 4.5-8.5 psi/min.

45-124 CECL OMTO 143

C70-1226-3

Remove KC150-C4 cap assembly (tethered to A501551) from sample port A501551.

T: _____
A501567 sample shutoff valve - adjust to take oxygen sample from port A501551

2. Record:
   _________ pct  20-25
   Cal No.__________

3. A501567 sample shutoff valve - CLOSE (CW)

4. A501543 supply shutoff valve - CLOSE (CW)

T:_____

Install (1) KC150K4 cap, tube on sample port A501551.
(1) Torque to 135-160 in-lbs.

Cal No. __________

T:_____

T:_____

Cal No. __________
NOTES

Noted requirements are satisfied by the following steps annotated with OMRS code.

OMRS V61AQ0.010-1R

45-127 OTC CECL 132

Verify breathing air sample provided by JBPN (OMI S0007.200) meets SE-S-0073 Table 6.3-29 standards.

OMRS V61AQ0.010-1R

45-128 CECL OTC 132

OTC *PAD

C70-1226-3 Pressurization and Oxygen Sample Complete.

*** End of Option B - C70-1226-3 Pressurization and Oxygen Sample ***
Option C - ECLSS Oxygen Sample for Suited Crew Ingress

NOTE
Perform this option if directed by controlling sequence.

Option C Not Performed:_____

45-129 OTC CECL 132
CFCP
*PAD
OMTO

*PAD PQCG
PQCG ONQC

Perform ECLSS Oxygen Sample for Suited Crew Ingress
(0-100 percent meter required).
45-130  CFCP

CURSOR CNTL (VWR70)

V15 - CLOSED
A99 - CLOSED
A08 - OPEN

RECORD P40 ____________ PSIG  870-980

V15 - OPEN

RECORD FOLLOWING AFTER STABILIZATION.

O2 MANIFOLD 1 __________ PSIA  NLT 100
O2 MANIFOLD 2 __________ PSIA  NLT 100

45-131  CECL   CFCP

Verify PRSD oxygen manifolds will remain pressurized by ground reactants for next 30 minutes.

45-132  CFCP   CDR  132

PANEL L2
ATM PRESS CONTROL

O₂ SYS 1 SUPPLY SW - OPEN   L2A01S01
UNTIL O₂ SYS 1 SUPPLY TB OP   L2A01DS05

O₂ SYS 2 SUPPLY SW - OPEN   L2A01S02
UNTIL O₂ SYS 2 SUPPLY TB OP   L2A01DS09
NOTE
Prior to performing ECLSS Oxygen Sample for Suited Crew Ingress, ensure that the PRSD oxygen supply valves (VAG10 VLV1 and VLV3 are open).

LEH oxygen 1-8 valves will be reconfigured for Flight by ASP during Pre-Ingress Checklist.

The switches on panels C6 and C7 have similar nomenclature. Ensure CDR is aware of the situation and make sure he is on the correct panel.

NOTE
Noted requirements are satisfied by the following steps annotated with OMRS code.

OMRS V61AT0.094-A-1R
OMRS V61AT0.094-B-1R

45-133  CECL   CDR   143
PANEL C7
LEH O₂ SUPPLY 1 VLV - OPEN
LEH O₂ SUPPLY 2 VLV - CLOSE
OMRS V61AT0.094-A-1R

45-134  CECL   CDR   143
PANEL C6
LEH O₂ 1 VLV - OPEN
LEH O₂ 2 VLV - CLOSE

45-135  CECL   CDR   143
PANEL L2
ATM PRESS CONTROL
O₂ XOVR SYS 2 SW - CLOSE
OMRS V61AT0.094-A-1R
Damage to Servomex O₂ Analyzer may result if probe is inserted into LES lead/adapter. Hold O₂ Analyzer probe in close proximity to O₂ outlet to obtain sample.

CDR SEAT

1. CLOSE MV1 ON L070-000153-001 ADAPTER.

2. IF LES LEAD IS INSTALLED,
   THEN CONNECT ADAPTER TO CDR LES LEAD.
   Not Performed: SS2

3. IF LES LEAD NOT INSTALLED,
   THEN CONNECT ADAPTER DIRECTLY TO PORT.
   Not Performed: SS3
4. CRT (VAG10 PG-B)

   RECORD: P1 _____ V45P1140A1
   P3 _____ V61P2102A1
   P17_____ V64P0202A1

5. OPEN MV1 ONE AND A HALF (1 1/2) TURNS ON ADAPTER, PURGE FOR 2 MIN MINIMUM.

   START TIME: ________________
   STOP TIME: ________________

6. CRT (VAG10 PG-B)

   RECORD: P1 _____ V45P1140A1
   P3 _____ V61P2102A1
   P17_____ V64P0202A1

7. OBTAIN O₂ CONCENTRATION USING MV1 TO CONTROL FLOW.

   O₂ ANALYZER

   CAL NO. ________________

   O₂ ________________ PCT 95 MIN

8. CLOSE MV1

   OMRS V61AT0.094-A-1R

   T: _____

358
PANEL L2

ATM PRESS CONTROL
- O₂ XOVER SYS 2 SW - OPEN L2A01S018
- O₂ XOVER SYS 1 SW - CLOSE L2A01S015

OMRS V61AT0.094-B-1R

PANEL C7

LEH O₂ SUPPLY 1 VLV - CLOSE
LEH O₂ SUPPLY 2 VLV - OPEN

OMRS V61AT0.094-B-1R

CRT (VAG10 PG-B)

VLV 9
- SOPN V61S2200E1
- POP V61X2203E1

VLV 7
- SOPF V61S2100E1
- PCL V61X2103E1
1. CRT (VAG10 PG-B)
   RECORD: P7 _____ V45P1145A1
           P9 _____ V61P2202A1
           P17_____ V64P0202A1

2. OPEN MV1 ONE AND A HALF (1 1/2) TURNS ON ADAPTER, PURGE FOR 2 MIN MINIMUM.
   START TIME _____________
   STOP TIME: _____________

3. CRT (VAG10 PG-B)
   RECORD: P7 _____ V45P1145A1
           P9 _____ V61P2202A1
           P17_____ V64P0202A1

4. OBTAIN O₂ CONCENTRATION USING MV1 TO CONTROL FLOW.
   O₂ ANALYZER
   CAL NO. ________________
   O₂ ________________ PCT 95 MIN
5. **DISCONNECT** ADAPTER FROM CDR LES LEAD (OR PORT).

6. **CLOSE MV1**

OMRS V61AT0.094-B-1R

T:_____

---

**45-142**

CECL  CDR  143

PANEL L2

ATM PRESS CONTROL

- O₂ XOVER SYS 2 SW - OPEN  L2A01S018
- O₂ XOVER SYS 1 SW - OPEN  L2A01S015

OMRS V61AT0.094-A-1R
OMRS V61AT0.094-B-1R

---

**45-143**

CECL  CDR  143

PANEL C7

- LEH O₂ SUPPLY 1 VLV - OPEN
- LEH O₂ SUPPLY 2 VLV - OPEN

OMRS V61AT0.094-A-1R
OMRS V61AT0.094-B-1R

---

**45-144**

CECL  CDR

PANEL C6

- LEH O₂ 1 VLV - CLOSE
- LEH O₂ 2 VLV - CLOSE
45-145

Noted requirements complete.

OMRSD V61AT0.094-A-1R
OMRSD V61AT0.094-B-1R

45-146

CECL

CRT (VAG10 PG-B)
VLV 9
SOPN V61S2200E1
POP V61X2203F1
VLV 7
SOPN V61S2100E1
POP V61X2103F1

RECORD: P1 _____ V45P1140A1
P3 _____ V61P2102A1
P7 _____ V45P1145A1
P9 _____ V61P2202A1
P17_____ V64P0202A1

NOTE

GN₂ venting from middeck ceiling will occur. Personnel should be notified of audible venting.

45-147

CECL  CDR  143

PANEL C5

DIRECT O₂ VLV - OPEN (1 MINUTE MIN)
45-148

CECL

CRT (VAG10 PG-B)

VERIFY

O₂ SYS 1 900 PSI PRESSURE (P3) DECREASES

O₂ SYS 2 900 PSI PRESSURE (P9) DECREASES

RECORD: P1 _____ V45P1140A1

P3 _____ V61P2102A1

P7 _____ V45P1145A1

P9 _____ V61P2202A1

P17_____ V64P0202A1

45-149

CECL CDR 143

PANEL C5

DIRECT O₂ VLV - CLOSE
NOTE
Next step places O2 tanks on T-0 BPR.

45-150  CFCP
CURSOR CNTL (VWR70, PG-B)
V15 - CLOSED
A99 - OPEN
AFTER 10 SEC MINIMUM,
A08 - CLOSED
V15 - OPEN
RECORD TIME ____________ GMT

NOTE
Ensure Closeout Crew retains the L070-000153-001 sample adapter for possible use during contingency operations/Scrubs.

45-151  CECL  OTC  132
OTC  *PAD

ECLSS Oxygen Sampling is complete. Ready for Crew Ingress.

*** End of Option C - ECLSS Oxygen Sample for Suited Crew Ingress ***
Option D - Crew Module Pressurization and Cabin 2 psid Leak Check

NOTE
Perform this option if directed by controlling sequence.

Option D Not Performed:_____

NOTE
SPOC Quality will not be present if Option D is being performed by the Closeout Crew. In this case, record the NASA QC stamp number in place of SPOC QC.

45-152 OTC CECL 132
*PAD
*PAD OMTO PQCG

Perform Crew Module Pressurization and Cabin 2 psid Leak Check.

45-153 CECL OMTO 143

Whiteroom Ceiling

IF not connected
AND not the first run of OMI,

THEN connect probe assembly QDs:

1. A501563 QD to A501562 QD
2. A501559 QD to A501558 QD

T:_____

Not Performed:_____

| 365 |
IF V070-332629-001 cap has not been removed from TP 80V61TP38,

THEN perform:
Crew Module Ingress/Egress Hatch

1. **Disconnect** V070-332629-001 cap from 80V61TP38 on the Crew Module Ingress/Egress Hatch.

2. **Double-bag** and seal

3. **Record:**
   
   V070-332629-001 OCN__________
   
   T:_____ N:_____  

Not Performed:_____  

OK To Install  N:_____  

Crew Module Ingress/Egress Hatch

1. **Install** (1) G070-582492-002 gage, adapt. probe on 80V61TP38.

2. **Tighten** hand-tight.

   T:_____ N:_____
45-156  CECL  OMTO  143

C70-1226-3

VERIFY/CONFIGURE

A501565  GAGE SHUTOFF VALVE - OPEN (CCW)
A501543  SUPPLY SHUTOFF VALVE - CLOSE (CW)
A501545  CABIN SHUTOFF VALVE - CLOSE (CW)
A501552  VENT SHUTOFF VALVE - CLOSE (CW)
A501549  CABIN VENT VALVE - CLOSE (CW)
A501567  SAMPLING VALVE - CLOSE (CW)
A501547  CABIN PRESSURE GAGE -
    READING 0 +/- 0.5 PSIG

T:_____

45-157  CECL

CRT (VAG29 PG-B)
RECORD

CABIN PRESS _________PSIA   V61P2405A1
AMB

45-158  CECL  CDR  143

PANEL O1A1

RECORD

CABIN PRESS _____ PSIA BD     O1A1M4

45-159  CECL

CRT (VAG29 PG-B)
RECORD

CABIN DP/DT _________ PSIA/MIN   BD V61R2401A1
OMRS V61AQ0.010-1R
The following two steps will occur during cabin pressurization.

**45-160**

**CECL**

CRT (VAG29 PG-B)

**MONITOR** V73X1567E1 FOR MASTER ALARM AND ON OCCURRENCE.

**RECORD**

CABIN PRESS __________ PSIA BD V61P2405A1

**45-161**

**CECL**

CRT (VAG29 PG-B)

**RECORD** DURING CABIN PRESSURIZATION OR DEPRESSURIZATION TO VERIFY CHANGE FROM BASELINE READING.

CABIN DP/DT __________ PSIA/MIN V61R2401A

OMRS V61AQ0.010-1R
NOTE
To maintain cabin pressure, valve A501545, cabin shutoff valve, may be cycled.

1. A501565 gage shutoff valve - OPEN (CCW)

2. Record:
   A501547 cabin pressure gage __________ psig amb

3. A501543 supply shutoff valve - OPEN (CCW)

4. A501545 cabin shutoff valve - OPEN (CCW) until cabin pressure on VAG29 indicates ambient plus 2.0 + 0.25/- 0.0 psia

5. A501545 cabin shutoff valve - CLOSE (CW)

T: _____  N: _____

---

C70-1226-3

---

C70-1226-3

---

C70-1226-3
45-165  CECL   OMTO   143
        C70-1226-3
A501543 supply shutoff valve - CLOSE (CW)

T:_____

45-166  CECL   OMTO   143
        C70-1226-3
A501552 vent valve - OPEN (CCW)

T:_____

45-167  CECL   OMTO   143
        C70-1226-3
When venting ceases, A501552 vent valve - CLOSE (CW)

T:_____
Perform the next two substeps as rapidly as possible to prevent venting Crew Module any more than necessary.

Klaxon and M/A may occur due to high cabin leak rate in this step.

If the seal is dislodged during probe removal, do not replace the seal. Install the flight cap.

45-168  CECL  OMTO  143

OK To Install  N:_____

Crew Module Ingress/Egress Hatch

1. **Remove** G070-582492-002 probe assembly from 80V61TP38.

2. **Install** cap assembly V070-332629-001 on 80V61TP38.

**Tighten** hand-tight after cap bottoms on fitting.

3. **Record:**

   V070-332629-001 OCN __________

   T:_____ N:_____


Perform the following:

1. **Double-bag** and seal probe assembly.

2. **Demat** QDs A501563 and A501559 from environmental chamber.

3. **Secure** probe assembly and flexlines for Launch by stowing in Whiteroom storage box.

T:_____ N:_____

Install safety wire (1) 5277-0028-002 inconel lockwire per MAO101-301 [ref Dwg: V070-332502 EO (B19) Hatch Assy-FUS, LH Egress, Complete, X0510.62 Z0 368.00 ].

T:_____ N:_____
NOTE
Allow for stabilization prior to performing the next step.

45-171

CECL

CRT (VAG29 PG-B)
RECORD

CABIN PRESS ________PSIA
AMB PLUS 2 +/- 0.25

DP/DT ________PSIA/MIN
BASELINE +/- 0.01

OMRS V61AQ0.010-1R

45-172

Noted requirements are complete.

OMRSD V61AQ0.010-1R

45-173

CECL OTC 132
OTC *PAD

Crew Module Pressurization and Cabin 2 psid Leak Check complete.

*** End of Option D - Crew Module Pressurization and Cabin 2 psid Leak Check ***
Option E - LCC Monitor Activation

NOTE
Perform this option if directed by the controlling sequence.

Option E Not Performed:_____

45-174
CECL

INITIALIZE (VAG29)

CONSOLE KEYBOARD
HOME CMD KEY - PRESS
VAG29
PERF PGM KEY - PRESS
SELECT APP PG-B

45-175
CECL

PFP (VAG59)
WHILE VIEWING PG-A

PFPK2 EMON SELECTION - PRESS ONCE
PFK13 - PRESS ONCE
PFK12 - PRESS ONCE

CRT
VERIFY SMOKE DETECTION/FIRE BOTTLE INFO DISPLAYED ON PG-A
45-176

**CECL**

CRT (VAG59, PG-B)

**RECORD**

AVIONICS BAY 1 FAN B (SWITCH)

FAN DELTA PRESS___________IN. H₂O  BD

AIR OUT TEMP____________DEG F  BD

AVIONICS BAY 2 FAN A (SWITCH)

FAN DELTA PRESS___________IN. H₂O  BD

AIR OUT TEMP____________DEG F  BD

AVIONICS BAY 3 FAN B (SWITCH)

FAN DELTA PRESS___________IN. H₂O  BD

AIR OUT TEMP____________DEG F  BD

45-177

**CECL**

CRT (VAG29, PG-B)

**RECORD**

CABIN PRESS__________PSIA  BD

***End of Option E - LCC Monitor Activation***

*** End of Operation 45 ***
OPERATION 46  Hydraulic System

Shop: **HYD**
Ctrl Rm Console: **C8**
OPR: **HYD**
Zone: **310**
Hazard (Y/N): **N**
Duration (Hrs): **2.0**
WSB Steam Vent Heater Activation

NOTE
Noted requirements are satisfied by the following steps annotated with OMRS code.

OMRS S00FC0.070-1R

46-1

CHYD

CRT (VWF43)
VERIFY BLR A AC/DC 1-2-3: ON

OMRS S00FC0.070-1R

46-2

CHYD

CURSOR CNTL (VWF19)
WSB AC AND DC PWR
WSB 1 AC - ON
WSB 1 DC - ON
WSB 2 AC - ON
WSB 2 DC - ON
WSB 3 AC - ON
WSB 3 DC - ON

CRT
VERIFY
BT4 HYD COMMAND STATUS
WSB PWR CMDS (SIX) ON

OMRS S00FC0.070-1R

46-3

CHYD CDR 171

PANEL R2

APU/HYD

BOILER PWR
1 SW - ON
2 SW - ON
3 SW - ON

OMRS S00FC0.070-1R
46-4

CHYD

CRT (VWF43)
VERIFY

1 BLR A CONTRL ON
2 BLR A CONTRL ON
3 BLR A CONTRL ON

OMRS S00FC0.070-1R

46-5

CHYD

Monitor WSB steam vent temps for heater cycling.

46-6

CHYD

CRT (VWF19)
VERIFY WSB BYPASS VLV 1-2-3: BY

OMRS S00FC0.070-1R

*** End of WSB Steam Vent Heater Activation ***

Hydraulic System Configuration for Cryo Load

46-7

OTC CHYD 132

Configure hydraulic system for Shuttle Cryo Loading.

46-8

CHYD

CRT (VWF19)
VERIFY LDG EXTEND ISO VLV CLOSE

OMRS S00FC0.070-1R
ECP AI Mode 1: Match CMDS to POSN

46-9

COFC

CURSOR CNTL (SAB19/SWB01)
COUNTDOWN - OPS MANAGER
XMIT CURSOR KEY - PRESS

46-10

COFC

CURSOR CNTL (SAB23/VSB100)
ORBITER AI MODE 1
XMIT CURSOR KEY - PRESS

46-11

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

46-12

COFC

CRT (SAB23/VSB100)
VERIFY
AI MODE 1 REQUEST COMPLETE

*** End of ECP AI Mode 1: Match CMDS to POSN ***
46-13 COFC CHYD

Flight controls ready for hydraulic pressurization.

46-14 CHYD CEPD 151

Verify ready to support hydraulic circulation pump activation on OIS Channel 171.

46-15 CHYD

IF THE FUEL CELLS ARE NOT ACTIVATED,

THEN PERFORM:
DMON VERIFY

MN A AFT VOLT IS 30.5 VDC MAX V76V3091A1
MN B AFT VOLT IS 30.5 VDC MAX V76V3092A1
MN C AFT VOLT IS 30.5 VDC MAX V76V3093A1

OMRS (general) V58GEN.042

OMRS S00FC0.070-1R

Not Performed:______
46-16  CHYD

CRT (VWF43)
VERIFY

1 CIRC AUTO A ON
2 CIRC AUTO B ON
3 CIRC AUTO C ON

OMRS S00FC0.070-1R

CAUTION
Delay 30 seconds minimum between circ pump starts to allow for Bus stabilization. Not allowing for Orbiter Main Bus stabilization could result in an Orbiter Main Bus overvoltage or undervolt condition that may damage Orbiter electrical hardware.

46-17  CHYD

CURSOR CNTL (VWF19)
CIRC PUMP
PUMP 1 - ON
PUMP 2 - ON
PUMP 3 - ON

OMRS S00FC0.070-1R

46-18  CHYD  PLT  171

IF MPS TVC ISOLATION VALVES ARE NOT OPEN,

THEN PERFORM:

PANEL R4

HYDRAULIC
MPS/TVC ISO VLV

SYS 1 SW - HOLD OPEN UNTIL OPEN TB (5 SEC MIN)
SYS 2 SW - HOLD OPEN UNTIL OPEN TB (5 SEC MIN)
SYS 3 SW - HOLD OPEN UNTIL OPEN TB (5 SEC MIN)

Not Performed:______
46-19

CHYD

CRT
VERIFY

MPS TVC ISOL VLVS 1,2,3 OP IND - ON  V58X1136E1
                        V58X1236E1
                        V58X1336E1

OMRS S00FC0.070-1R

46-20

CHYD

CRT (VWF19)
VERIFY

CIRC PRESS 1: 330 PSIA MIN
CIRC PRESS 2: 330 PSIA MIN
CIRC PRESS 3: 330 PSIA MIN

OMRS S00FC0.070-1R

46-21

CHYD

PFP (VWF19)
RSVR/GN₂ ACTIVATE - PUSH
CIRC/WSB ACTIVATE - PUSH
RECORD LCC LIMITS - PUSH

46-22

CHYD

CRT (VWF43)
VERIFY

1 CIRC PUMP A INHIB B ON
2 CIRC PUMP B INHIB C ON
3 CIRC PUMP C INHIB A ON
1 CIRC PUMP B INHIB A OFF
2 CIRC PUMP C INHIB B OFF
3 CIRC PUMP A INHIB C OFF

OMRS S00FC0.070-1R
CHYD

Monitor OMRS parameters for duration of Cryo Loading.

<table>
<thead>
<tr>
<th>OMRS Parameters</th>
<th>Degrees F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 RSVR HYD temp</td>
<td>35-100</td>
</tr>
<tr>
<td>1 HEAT EXCH IN temp</td>
<td>139 max</td>
</tr>
<tr>
<td>1 HEAT EXCH OUT temp</td>
<td>139 max</td>
</tr>
<tr>
<td>1 ETACT RL LO2 temp</td>
<td>35 min</td>
</tr>
<tr>
<td>1 ETACT RL LH2 temp</td>
<td>35 min</td>
</tr>
<tr>
<td>2 RSVR HYD temp</td>
<td>35-100</td>
</tr>
<tr>
<td>2 HEAT EXCH IN temp</td>
<td>139 max</td>
</tr>
<tr>
<td>2 HEAT EXCH OUT temp</td>
<td>139 max</td>
</tr>
<tr>
<td>2 ETACT RL LO2 temp</td>
<td>35 min</td>
</tr>
<tr>
<td>2 ETACT RL LH2 temp</td>
<td>35 min</td>
</tr>
<tr>
<td>3 RSVR HYD temp</td>
<td>35-100</td>
</tr>
<tr>
<td>3 HEAT EXCH IN temp</td>
<td>139 max</td>
</tr>
<tr>
<td>3 HEAT EXCH OUT temp</td>
<td>139 max</td>
</tr>
<tr>
<td>3 ETACT RL LO2 temp</td>
<td>35 min</td>
</tr>
<tr>
<td>3 ETACT RL LH2 temp</td>
<td>35 min</td>
</tr>
</tbody>
</table>

OMRSD S00FC0.071-1R
LDG System Final Fill

NOTE
Perform the next four steps to replenish LDG voids.

46-24

CHYD

CRT (VWF19)

RECORD RESERVOIR VOLUMES:

SYS 1 _____ PCT
SYS 2 _____ PCT
SYS 3 _____ PCT

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00FC0.072-1R

46-25

CHYD  PLT  171

PANEL R4

HYDRAULICS

BRAKE ISOL VLV
1 SW - HOLD OPEN UNTIL OPEN TB (5 SEC MIN)
2 SW - HOLD OPEN UNTIL OPEN TB (5 SEC MIN)
3 SW - HOLD OPEN UNTIL OPEN TB (5 SEC MIN)

46-26

CHYD

Wait 15 minutes minimum prior to performing the next step.
46-27

**CHYD**

CRT (VWF19)
RECORD RESERVOIR VOLUMES:

SYS 1 _____ PCT
SYS 2 _____ PCT
SYS 3 _____ PCT

46-28

**CHYD** **PLT** 171

**PANEL R4**

HYDRAULICS

BRAKE ISOL VLV

1 SW - HOLD CLOSE UNTIL CLOSE TB (5 SEC MIN)
2 SW - HOLD CLOSE UNTIL CLOSE TB (5 SEC MIN)
3 SW - HOLD CLOSE UNTIL CLOSE TB (5 SEC MIN)

OMRS S00FC0.070-1R

46-29

Noted requirements are complete.

OMRSD S00FC0.072-1R

*** End of LDG System Final Fill ***
NOTE
If pressure for hydraulic systems 1, 2 or 3 bootstrap accumulators is greater than 1500 psi, then do not perform precharge pressure plotting.

46-30

CHYD

Determine bootstrap accumulators 1, 2 and 3 GN₂ precharge pressure by plotting the circulation pump pressure increase curve.

1. Plot the following FDs:
   V58P0(N)67A1, V58X0(N)35A1 and V58T0(N)11A1 (where N = 1, 2 and 3).
   Ref. Figure 46-1 - Knee of Circulation Pump Pressure Curve.

2. Record bootstrap accumulator GN₂ precharge flight pressure:
   _____ psi (SYS 1) BD
   _____ psi (SYS 2) BD
   _____ psi (SYS 3) BD

3. Use Figure 46-2 - Knee of Circulation Pump Pressure Curve, Detail.
   or

   Calculate min/max pressure adjusted for temperature:

   Min P = 3.85T + 1380
   Max P = 4.15T + 1460
   (1650-1750 at 70 deg F)

   Not Performed: _____
Figure 46-1 - Knee of Circulation Pump Pressure Curve
(For Reference Only)
Figure 46-2 - Knee of Circulation Pump Pressure Curve, Detail
(For Reference Only)
Elevon Positioning to Null

NOTE
Perform the next two steps to initialize the C11 Safe Move Limits prior to initiating elevon positioning. The C11 software default is 0.0 high and 0.0 low which, if maintained, will prevent any C11 software-initiated actuator movement.

46-31

COFC
CURSOR_CNTL (SAB19/SWB01 PG-B)
ACTR_STATUS
XMIT_CURSOR_KEY - PRESS

46-32

COFC
APPL_PG (SAB19/SWB05 PG-B)
PFK15_KEY - PRESS (TERM SWB05)

46-33

COFC
CURSOR_CNTL (SAB19/SWB01)
AEROSURFACE - OPS MAN
XMIT_CURSOR_KEY - PRESS

46-34

COFC
CURSOR_CNTL (VABM7/VWB33)
MANUAL_POSN/CLEARANCE
XMIT_CURSOR_KEY - PRESS

46-35

COFC
CURSOR_CNTL (VABM7/SSB09 PG-B)
NULL_ELEVONS
XMIT_CURSOR_KEY - PRESS

46-36

COFC
APPL_PG (VABM7/SSB09 PG-B)
PFK1 KEY - PRESS (EXECUTE)
46-37

COFC

APPL PG (VABM7/SSB09 PG-B)
PFK15 KEY - PRESS (TERM SSB09)

46-38

COFC

APPL PG (VABM7/VWB33 PG-B)
PFK15 KEY - PRESS (TERM VABM7)

*** End of Elevon Positioning to Null ***

Activate Elevon Posn/CMD EMONs

46-39

COFC

APPL PG-A (SAB20/SWB02)
PFK13 KEY - PRESS (ACT EMON SETUP)

46-40

COFC

CURSOR CNTL (SAB20/SWB02)
A-CIRC PUMPS
XMIT CURSOR KEY - PRESS

46-41

COFC

APPL PG-A (SAB20/SWB02)
PFK13 KEY - PRESS (DE-ACT EMON SETUP)

*** End of Activate Elevon Posn/CMD EMONs ***
E1Y OPS 101 CMD

NOTE
The next step is performed to reduce E1Y actuator drift from the OPS 101 transition command of +0.2 deg. The position must be maintained within 2.0 deg of this command at APU start.

E1Y NULL COMMANDING

46-42

COFC

CURSOR CNTL (SAB23/VSB100)
E1Y NULL COMMANDING
XMIT CURSOR KEY - PRESS

46-43

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

46-44

COFC

CRT (SAB23/VSB100)
VERIFY
E1Y NULL COMMANDING SUCCESSFUL

46-45

COFC

CONSOLE KYBD (SAB23/VSB100)
PFK15 KEY - PRESS
46-46  CHYD

CRT (VWF19)
VERIFY WSB STEAM VENT TEMPS 1-2-3:

130 DEG F MINIMUM

46-47  CHYD  CDR  171

PANEL R2

APU/HYD
BOILER N2 SPLT
1 SW - ON
2 SW - ON
3 SW - ON

OMRS S00FC0.070-1R
46-48

CHYD

CRT (VWF43)
VERIFY

1 N₂ SUPPLY OFF - OFF
2 N₂ SUPPLY OFF - OFF
3 N₂ SUPPLY OFF - OFF

OMRS S00FC0.070-1R

46-49

CHYD

CRT (VWF19)
VERIFY WSB GN₂ REG OUT PRESS 1-2-3: 39-44 PSIA

OMRS S00FC0.070-1R

46-50

CHYD

CRT (VWF19)
VERIFY WSB 1-2-3 OK INDICATION: OK (ON)

OMRS S00FC0.070-1R

46-51

CHYD  CDR  171

PANEL R2

APU/HYD

BOILER N₂ SPLY
1 SW - OFF
2 SW - OFF
3 SW - OFF
46-52  

CHYD

CRT VWF19/VWF43
WSB 1, 2 & 3
VERIFY

1. \(N_2\) SPLY VLVS CLOSED
   V58S0153E - ON
   V58S0253E - ON
   V58S0353E - ON

2. WSB OK - OFF
   V58X0182E
   V58X0282E
   V58X0382E

OMRS S00FC0.070-1R

46-53  

Noted requirements are complete.

OMRSD S00FC0.070-1R

46-54  

CHYD OTC 132

Hydraulic System Configure for Cryo Load complete.

*** End of Hydraulic System Configuration for Cryo Load ***
Hydraulic APU Start Checks

NOTE
Do not perform this option if a 24-hour Hold occurs at T-6H.

Hydraulic APU Start Checks Not Performed:______

Hydraulic Pre-APU Start Checks

46-55

CHYD

CRT (VWF43)
VERIFY
1. DPRSS ENA A ON
2. DPRSS ENA B ON
3. DPRSS ENA C ON
1. DPRSS ENA B ON
2. DPRSS ENA C ON
3. DPRSS ENA A ON
1. PCA PUMP RPC A ON
2. PCA PUMP RPC B ON
3. PCA PUMP RPC C ON
1. PCA PUMP RPC B ON
2. PCA PUMP RPC C ON
3. PCA PUMP RPC A ON

OMRSD  V46AL0.910-B-1R

46-56

CHYD

PFP (VWF19)
1. APU RUN ACTIVATE - PUSH
2. RECORD LCC LIMITS - PUSH

*** End of Hydraulic Pre-APU Start Checks ***
Hydraulic Post-APU Start Checks

NOTE
Perform this option if APUs were started during terminal Countdown.

Hydraulic Post-APU Start Checks Not Performed:_____

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00FM0.175-1R

46-57 CHYD

CRT (VWF19)

VERIFY

1 SUPPLY PRESS B: 500-1000 PSIA
2 SUPPLY PRESS B: 500-1000 PSIA
3 SUPPLY PRESS B: 500-1000 PSIA
CHYD

CRT (VWF43)

VERIFY

<table>
<thead>
<tr>
<th></th>
<th>DPRSS ENA A OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>DPRSS ENA B OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>DPRSS ENA C OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PCA PUMP RPC A OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PCA PUMP RPC B OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PCA PUMP RPC C OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>CIRC AUTO A OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>CIRC PUMP A INHIB B ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>CIRC PUMP B INHIB C ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>CIRC PUMP C INHIB A ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>CIRC PUMP B INHIB A ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>CIRC PUMP C INHIB B ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>CIRC PUMP A INHIB C ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
46-59 CHYD

CRT (VWF19)
VERIFY

1-2-3 SUPPLY PRESS B: 2850-3400 PSIA
1-2-3 SUPPLY PRESS C: 2800-3400 PSIA

46-60 Noted requirements are complete.

OMRSD S00FM0.175-1R

*** End of Hydraulic Post-APU Start Checks ***

*** End of Hydraulic APU Start Checks ***

*** End of Operation 46 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 47 Fuel Cell Purge

Shop: FCP
Cntrl Rm Console: C6
OPR: FCP
Zone: N/A
Hazard (Y/N): N
Duration (Hrs): 1.0
Perform Fuel Cell Purge.

**CAUTION**
Fuel cells must run one (1) hour minimum after purging prior to shutdown except in an emergency.

Fuel cell purging is a sequential operation. Fuel cells must not be purged in parallel. Simultaneous purge of multiple fuel cells may result in exceeding vent line flow capability. This may lead to a hydrogen overpressure condition which may damage the fuel cell power section.

**NOTE**
This operation may be performed anytime after T-2H. Each cell will be purged for 2 minutes minimum.

Additional fuel cell purges may be performed as determined by System Engineering dependent upon fuel cell performance.

**NOTE**
Data and verifications for multiple runs of this operation will be recorded in Table 47-1 - Fuel Cell Purge Runs.

**NOTE**
Noted requirements are satisfied by the following series of steps.

OMRS V45CH0.040

47-2

**CFCP**

CURSOR CNTL (VWR05 PG-B)

FC1 PURGE - OPEN (P INV CYAN)
47-3

CFCP

CRT (VWR05 PG-B)
RECORD

FC1 PURGE START TIME (__________) GMT

FC1 COOL PSI (__________) PSIA V45P0147A1
65 +/- 10

47-4

CFCP

CURSOR CNTL (VWR05 PG-B)
AFTER 2 MINUTES MIN
FC1 PURGE - CLOSED

47-5

CFCP

CRT (VWR05 PG-B)
FC1 COOL PSI (__________) PSIA V45P0147A1
65 +/- 10

47-6

CFCP

CURSOR CNTL (VWR05 PG-B)
FC2 PURGE - OPEN (P INV CYAN)

47-7

CFCP

CRT (VWR05 PG-B)
RECORD

FC2 PURGE START TIME (__________) GMT

FC2 COOL PSI (__________) PSIA V45P0247A1
65 +/- 10

47-8

CFCP

CURSOR CNTL (VWR05 PG-B)
AFTER 2 MINUTES MIN
FC2 PURGE - CLOSED
47-9  
**CFCP**

CRT (VWR05 PG-B)  
FC2 COOL PSI (__________) PSIA  
65 +/- 10  

47-10  
**CFCP**

CURSOR CNTL (VWR05 PG-B)  
FC3 PURGE - OPEN (P INV CYAN)

47-11  
**CFCP**

CRT (VWR05 PG-B)  
RECORD  
FC3 PURGE START TIME (__________) GMT  

FC3 COOL PSI (__________) PSIA  
65 +/- 10  

47-12  
**CFCP**

CURSOR CNTL (VWR05 PG-B)  
AFTER 2 MINUTES MIN  
FC3 PURGE - CLOSED

47-13  
**CFCP**

CRT (VWR05 PG-B)  
FC3 COOL PSI (__________) PSIA  
65 +/- 10

47-14  
**CFCP**  
**OTC**  
132  

Fuel Cell Purge is complete.

47-15  
Noted requirements are complete.

OMRSD V45CH0.040
Table 47-1 - Fuel Cell Purge Runs

<table>
<thead>
<tr>
<th>Step</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Run 4</th>
<th>Run 5</th>
<th>Run 6</th>
<th>Run 7</th>
<th>Run 8</th>
<th>Run 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>47-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GMT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PSIA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PSIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-7</td>
<td></td>
<td>GMT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PSIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PSIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-11</td>
<td></td>
<td>GMT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PSIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-13</td>
<td></td>
<td>PSIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of Operation 47 ***
OPERATION 48  SRB PIC Resistance Test (Go)

Shop: SBE
Cntrl Rm Console: C10
OPR: SBE
Zone: N/A
Hazard (Y/N): Y
Duration (Hrs): 0.5

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

NOTE
Record data and verifications for multiple runs of this operation in Table 48-1 - SRB PIC Resistance Test (Go).
WARNING
Pyrotechnic devices could explode while being tested.
Personnel may suffer bodily injury or death.

NOTE
All personnel must be clear of BDA before proceeding with the SRB PIC resistance test.

48-1
TBC CPWR 136

Perform SRB Go PIC Resistance Test on OIS Channel 176.

Report completion.

48-2
CPWR TBC 136

Verify all personnel clear of BDA.

48-3
CPWR

CURSOR CNTL (SDC01)
SRB OPTIONS PIC RESISTANCE
XMIT CURSOR KEY - PRESS

CRT
VERIFY SWC01 TERMINATES AND DISPLAY SKELETON
BDE06 DISPLAYED
48-4  CPWR

CURSOR CNTL (BDE06)
GO
XMIT CURSOR KEY - PRESS

CRT
VERIFY GO (INVERT CYAN)

CURSOR CNTL
TEST ALL
XMIT CURSOR KEY - PRESS

48-5  CPWR

CRT (BSE04 PG-A)
VERIFY BSE04 CALLS BKE08

VERIFY MESSAGE:
SRB - PIC RESISTANCE TEST COMPLETED SUCCESSFULLY.

48-6  CPWR

CONSOLE KYBD (BDE06)
PFK15 KEY - PRESS

CRT
VERIFY

BWE06 TERMINATES
SYSTEM MENU RE-DISPLAYED.

48-7  CPWR TBC 136

SRB PIC Resistance Test (Go) complete.
## Table 48-1 - SRB PIC Resistance Test (Go)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run ______</th>
<th>Run ______</th>
<th>Run ______</th>
<th>Run ______</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Date_______</td>
<td>Date_______</td>
<td>Date_______</td>
<td>Date_______</td>
</tr>
<tr>
<td>48-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of Operation 48 ***
OPERATION 49  DPS Systems
Shop: DPS
Cntrl Rm Console: C12
OPR: DPS
Zone: 121
Hazard (Y/N): N
Duration (Hrs): 10.0
### Index to Operation 49

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Backup Flight Controller Test</td>
</tr>
<tr>
<td>2</td>
<td>IDP 1/2/4 Load (OPS 0)</td>
</tr>
<tr>
<td>3</td>
<td>Transition GPC1 to G9 Simplex</td>
</tr>
<tr>
<td>4</td>
<td>BFS Load - GPC5</td>
</tr>
<tr>
<td>5</td>
<td>BFS Dump, Retrieval and Compare</td>
</tr>
<tr>
<td>6</td>
<td>BFS DAP140 Retrieval Option</td>
</tr>
<tr>
<td>7</td>
<td>BFS Retrieval/Compare - LPS Option</td>
</tr>
<tr>
<td>8</td>
<td>Final TFL/PDI Loads for Flight</td>
</tr>
<tr>
<td>9</td>
<td>HUD Powerup &amp; Self Test</td>
</tr>
<tr>
<td>10</td>
<td>MEDS System Activation</td>
</tr>
<tr>
<td>11</td>
<td>Transition to G9 RS</td>
</tr>
<tr>
<td>12</td>
<td>LCC Monitor Activation/LDB Redundancy Check</td>
</tr>
<tr>
<td>13</td>
<td>Configure for IMU MM1 Checkpoint</td>
</tr>
<tr>
<td>14</td>
<td>Configure for IMU MM2 Checkpoint</td>
</tr>
<tr>
<td>15</td>
<td>Restore Original Configuration after IMU Checkpoint</td>
</tr>
<tr>
<td>16</td>
<td>GMT and MET Adjust</td>
</tr>
<tr>
<td>17</td>
<td>MEDS System Securing</td>
</tr>
<tr>
<td>18</td>
<td>DPS Securing</td>
</tr>
</tbody>
</table>

**NOTE**

The blank lines provided in the verification column on this page are for Engineering use only. No data or quality verification is required for these items.
Option 1. Backup Flight Controller Test

**NOTE**
Perform this option for initial Launch attempt.

Option 1 Not Performed:_____

49-1 OTC CDPS 132

**Perform** Backup Flight Controller Test.

49-2 CDPS CTPE

**Request** transfer of DDU RSYS (Group 25) to C12.

**Report** completion

49-3 CDPS

CURSOR CNTL (SAS25 PG-B)
DED DISPLAYS SYS MONITOR (VWS48)
XMIT CURSOR KEY - PRESS

49-4 CDPS PLT 152

PANEL 016

ROW E
MN C
DDU
RIGHT CB - CLOSE

49-5 CDPS

CRT (VWS48 PG-B)
VERIFY

<table>
<thead>
<tr>
<th>DDU</th>
<th>GOOD</th>
<th>P/SA</th>
<th>P/SB</th>
<th>P/SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>
49-6  CDPS  PLT  152

PANEL O15

ROW E
  MN B
  DDU
    LEFT CB - CLOSE
    RIGHT CB - CLOSE

49-7  CDPS

CRT (VWS48 PG-B)
VERIFY

<table>
<thead>
<tr>
<th>DDU</th>
<th>GOOD</th>
<th>P/SA</th>
<th>P/SB</th>
<th>P/SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

49-8  CDPS  CDR  152

PANEL O14

ROW E
  MN A
  DDU
    LEFT CB - CLOSE

49-9  CDPS  CDR  152

PANEL F6

FLT CNTLR POWER SW - ON

49-10 CDPS  PLT  152

PANEL F8

FLT CNTLR POWER SW - ON
49-11

CDPS

CRT (VWS48 PG-B)
VERIFY

DDU BITE MONITOR

<table>
<thead>
<tr>
<th>DDU</th>
<th>GOOD</th>
<th>P/SA</th>
<th>P/SB</th>
<th>P/SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>2</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

APPL PAGE (VWS48 PG-B)
PFK15 KEY - PRESS

NOTE
If an MDU fails to come up at power application, turn bezel knob off for 3 seconds, then back to on (ref H/W-0002).

49-12

CDPS CDR 152

PANEL F7

CRT 1 MDU
POWER KNOB - ON

CRT 2 MDU
POWER KNOB - ON

CRT 3 MDU
POWER KNOB - ON
CAUTION
When turned on, IDP power must remain on a minimum of 30 seconds or hardware damage may result.

OMRS (general) V70GEN.030

49-13 CDPS CDR 152
PANEL C2
  LEFT CRT SEL SW - 1
  IDP/CRT 1
    POWER SW - ON
    MAJ FUNC SW - GNC
  IDP/CRT 2
    POWER SW - ON
    MAJ FUNC SW - GNC
  IDP/CRT 3
    POWER SW - ON
    MAJ FUNC SW - GNC

49-14 CDPS CDR
IF CRT 1, 2 or 3 not configured to DPS display,
THEN Configure CRT 1,2, 3 to DPS display via MDU Edgekey menu.

Not Performed:______

49-15 CDPS CDR 152
PANEL O14
  ROW F
    MMU 1 SW - ON

49-16 CDPS CDR 152
PANEL O15
  ROW F
    MMU 2 SW - ON
49-17  

**CDPS**

CURSOR CNTL (SAS01 PG-B)
FC & PL MDM BSR READ
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT (VAS93 PG-A)
**VERIFY** NO UNEXPLAINED BSR'S

49-18  

**CDPS**  
**CDR**  
152

**PANEL C3**

BFC CRT
DISPLAY SW - OFF

49-19  

**CDPS**

CRT (VAS59 PG-B)
**VERIFY** NO ACTIVE TCS SEQUENCES OR ECP'S

**VERIFY** DISP ID FOR COMMANDED CRT'S = 9011

49-20  

**CDPS**  
**CDR**  
152

**IF** IN G9 REDUNDANT SET,

THEN **PERFORM**:
L KYBD
OPS 000
PRO

CRT 1
0001/GPC MEMORY

**Not Performed:** _____
PANEL 06

IPL SOURCE SW - MMU 1
GENERAL PURPOSE COMPUTER
MODE
____ SW - STBY (ACTIVE GPC)
1 SW - HALT
2 SW - HALT
3 SW - HALT
4 SW - HALT
5 SW - HALT
OUTPUT
1 SW - NORMAL
2 SW - NORMAL
3 SW - NORMAL
4 SW - NORMAL
5 SW - NORMAL
POWER
1 SW - ON
2 SW - ON
3 SW - ON
4 SW - ON
5 SW - ON

PANEL 06

GENERAL PURPOSE COMPUTER
INITIAL PROGRAM LOAD
1 PB - PRESS, REL
MODE
1 TB IPL THEN BP
1 SW - STBY
1 TB RUN (WITHIN 2 MIN)
1 SW - RUN

L KYBD
SPEC 1
PRO
CRT1
DPS UTILITY
49-24  CDPS    CDR    152

L KYBD
ITEM 50
EXEC
RESUME

49-25  CDPS

CONSOLE KYBD
ISSU N72IV063D #1001
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

49-26  CDPS    CDR    152

PANEL 06

GENERAL PURPOSE COMPUTER
INITIAL PROGRAM LOAD
  2 PB - PRESS, REL
MODE
  2 TB IPL THEN BP
  2 SW - STBY
  2 TB RUN (WITHIN 2 MIN)
  2 SW - RUN

49-27  CDPS

CRT (VAS59 PG-B)
VERIFY GPC 2 JOINS CS

49-28  CDPS    CDR    152

PANEL 06

GENERAL PURPOSE COMPUTER
INITIAL PROGRAM LOAD
  3 PB - PRESS, REL
MODE
  3 TB IPL THEN BP
  3 SW - STBY
  3 TB RUN (WITHIN 2 MIN)
  3 SW - RUN
49-29

CDPS

CRT (VAS59 PG-B)
VERIFY GPC 3 JOINS CS

49-30

CDPS CDR 152

PANEL 06

GENERAL PURPOSE COMPUTER
INITIAL PROGRAM LOAD
   4 PB - PRESS, REL
   MODE
   4 TB IPL THEN BP
   4 SW - STBY
   4 TB RUN (WITHIN 2 MIN)
   4 SW - RUN

49-31

CDPS

CRT (VAS59 PG-B)
VERIFY GPC 4 JOINS CS

49-32

CDPS CDR 152

PANEL 06

GENERAL PURPOSE COMPUTER
INITIAL PROGRAM LOAD
   5 PB - PRESS, REL
   MODE
   5 TB IPL THEN BP
   5 SW - STBY
   5 TB RUN (WITHIN 2 MIN)
   5 SW - RUN

49-33

CDPS

CRT (VAS59 PG-B)
VERIFY GPC 5 JOINS CS

49-34

CDPS CDR 152

PANEL 06

IPL SOURCE SW - OFF

| 420 |
49-35

CDPS

CURSOR CNTL (SAS25 PG-B)
GPC DISCRETES (VWS98)
XMIT CURSOR KEY - PRESS

NOTE
Noted requirements are satisfied by the following series of steps.
OMRS V72CA0.030-1R

49-36

CDPS  CDR  152

PANEL C3

BFC CRT
SELECT SW - 1+2
DISPLAY SW - ON

49-37

CDPS

CRT (VWS98 PG-B)
VERIFY
GPC

-------------
1 2 3 4 5
38 0 0 0 0 0 CRT SELECT A
39 1 1 1 1 1 CRT SELECT B

49-38

CDPS  CDR  152

PANEL C3

BFC CRT
SELECT SW - 2+3
49-39

CDPS

CRT (VWS98 PG-B)
VERIFY

GPC

-------------
1 2 3 4 5
38 1 1 1 1 1 CRT SELECT A
39 0 0 0 0 0 CRT SELECT B

49-40

CDPS CDR 152

PANEL C3

BFC CRT
SELECT SW - 3+1

49-41

CDPS

CRT (VWS98 PG-B)
VERIFY

GPC

-------------
1 2 3 4 5
38 1 1 1 1 1 CRT SELECT A
39 1 1 1 1 1 CRT SELECT B

49-42

CDPS CDR 152

PANEL C3

BFC CRT
DISPLAY SW - OFF

49-43

CDPS

CRT (VWS98 PG-B)
VERIFY

GPC

-------------
1 2 3 4 5
38 0 0 0 0 0 CRT SELECT A
39 0 0 0 0 0 CRT SELECT B

49-44

Noted requirements are complete.

OMRSD V72CA0.030-1R
NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V72CA0.020-1R

49-45  CDPS  CDR  152

PANEL O6

MDM

FLT CRIT FWD
FF1 SW - OFF
FF2 SW - OFF
FF3 SW - OFF

49-46  CDPS  CDR  152

PANEL O6

GENERAL PURPOSE COMPUTER
OUTPUT
5 SW - BACKUP

49-47  CDPS

CRT (VWS98 PG-B)
VERIFY

GPC

-------------
1 2 3 4 5
13 0 0 0 0 1 I/O TERM B
35 0 0 0 0 0 BFC ENGAGE 1
36 0 0 0 0 0 BFC ENGAGE 2
37 0 0 0 0 0 BFC ENGAGE 3

49-48  CDPS  PLT  152

RH RHC
BFC ENGAGE PB - PRESS, REL
49-49

CDPS

CRT (VWS98 PG-B)

VERIFY

GPC

------------
1 2 3 4 5
13 1 1 1 1 0 I/O TERM B
35 1 1 1 1 1 BFC ENGAGE 1
36 1 1 1 1 1 BFC ENGAGE 2
37 1 1 1 1 1 BFC ENGAGE 3

49-50

CDPS CDR 152

PANEL F6

BFC SW - DISENGAGE, REL

49-51

CDPS

CRT (VWS98 PG-B)

VERIFY

GPC

------------
1 2 3 4 5
13 0 0 0 0 1 I/O TERM B
35 0 0 0 0 0 BFC ENGAGE 1
36 0 0 0 0 0 BFC ENGAGE 2
37 0 0 0 0 0 BFC ENGAGE 3

49-52

CDPS CDR 152

LH RHC

BFC ENGAGE PB - PRESS, REL
49-53

CDPS

CRT (VWS98 PG-B)
VERIFY

GPC

-------------
 1  2  3  4  5
13  1  1  1  1  I/O TERM B
35  1  1  1  1  BFC ENGAGE 1
36  1  1  1  1  BFC ENGAGE 2
37  1  1  1  1  BFC ENGAGE 3

49-54

CDPS  CDR  152

PANEL 06

GENERAL PURPOSE COMPUTER
OUTPUT
 5 SW - NORMAL

49-55

CDPS

CRT (VWS98 PG-B)
VERIFY

GPC

-------------
 1  2  3  4  5
13  0  0  0  0  I/O TERM B
35  0  0  0  0  BFC ENGAGE 1
36  0  0  0  0  BFC ENGAGE 2
37  0  0  0  0  BFC ENGAGE 3

49-56

CDPS

APPL PAGE (VWS98 PG-B)
PFK15 KEY - PRESS (TERMINATE)

49-57

Noted requirements are complete.

OMRSD V72CA0.020-1R
Perform Power Supply BITE on MDMs FF1, FF2 and FF3:

1. CONSOLE KYBD
   CBTU RBSR FF1
   XMIT CMD KEY - PRESS
   EXEC CMD KEY - PRESS

   CRT
   RESULT = X8000

2. CONSOLE KYBD
   CBTU BT3 FF1
   XMIT CMD KEY - PRESS
   EXEC CMD KEY - PRESS

   CBTU RBSR FF1
   XMIT CMD KEY - PRESS
   EXEC CMD KEY - PRESS

   CRT
   RESULT = X0023

3. Repeat previous two substeps for MDM FF2 and FF3.
49-61 CDPS PLT 152
PANEL F8
FLT CNTLR POWER SW - OFF

49-62 CDPS CDR 152
PANEL F6
FLT CNTLR POWER SW - OFF

49-63 CDPS PLT 152
PANEL O16
ROW E
MN C
DDU
RIGHT CB - OPEN

49-64 CDPS CDR 152
PANEL O15
ROW E
MN B
DDU
LEFT CB - OPEN
RIGHT CB - OPEN
Master alarms will occur during GPC deactivation.
49-71 CDPS CDR 152

PANEL 06

GENERAL PURPOSE COMPUTER
MODE
  3 SW - STBY
  3 TB BP

49-72 CDPS CDR 152

PANEL F2

MASTER ALARM PB - PRESS, REL

49-73 CDPS CDR 152

PANEL 06

GENERAL PURPOSE COMPUTER
MODE
  2 SW - STBY
  2 TB BP

49-74 CDPS CDR 152

PANEL F2

MASTER ALARM PB - PRESS, REL

49-75 CDPS CDR 152

CRT 1
GPC MEMORY

49-76 CDPS CDR 152

L KYBD
ITEM 48
EXEC
49-77  CDPS  CDR  152

PANEL 06

GENERAL PURPOSE COMPUTER MODE
  2 SW - HALT
  3 SW - HALT
  4 SW - HALT
  5 SW - HALT

49-78  CDPS  CDR  152

PANEL 01
VERIFY ALL CAM LIGHTS OUT

49-79  CDPS  LPS  152

OIS FEP will go “No-Go” momentarily during Time Update operations.

49-80  CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
TIME UPDATE PROGRAM (VAS58)
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS
49-81

CDPS

CURSOR CNTL (VAS58 PG-B)
PERFORM TIME SYNC
XMIT CURSOR KEY - PRESS

CRT (VAS58)
VAS58 WAITING FOR OPTION SELECT

DELTA RESULTS 1 = __________MS (RECORD)

49-82

CDPS

CURSOR CNTL (VAS58 PG-B)
SELECT ANOTHER OPTION
XMIT CURSOR KEY - PRESS

49-83

CDPS

IF GMT delta is greater than +/- 14 ms, Verify

THEN Perform:

CURSOR CNTL (VAS58 PG-B)
INITIAL GMT UPDATE
XMIT CURSOR KEY - PRESS

ELSE Perform:

CURSOR CNTL (VAS58 PG-B)
ADJUST GMT
XMIT CURSOR KEY - PRESS
49-84

CDPS

CRT (VAS58)
VERIFY

VAS58 WAITING FOR OPTION SELECT
FINAL DELTA RESULTS = 0 +/- 1 MS

49-85

CDPS

CURSOR CNTL (VAS58 PG-B)
SELECT ANOTHER OPTION
XMIT CURSOR KEY - PRESS

CURSOR CNTL (VAS58 PG-B)
DETERMINE MET/GMT DELTA (NO UPDATE)
XMIT CURSOR KEY - PRESS

CRT (VAS58)
RECORD DELTA RESULTS = __________MS (RECORD)
49-86

**CDPS**

**IF** MET DELTA IS GREATER THAN 40 MS,

**THEN** **PERFORM:**
CURSOR CNTL (VAS58 PG-B)
**SELECT ANOTHER OPTION**
XMIT CURSOR KEY - PRESS

CURSOR CNTL (VAS58 PG-B)
SET MET = GMT
XMIT CURSOR KEY - PRESS

CRT (VAS58)
**VERIFY**

VAS58 WAITING FOR OPTION SELECT
FINAL DELTA = 0 +/- 500 MS

**Not Performed:**

49-87

**CDPS**

CURSOR CNTL (VAS58 PG-B)
**TERMINATE VAS58**
XMIT CURSOR KEY - PRESS

49-88

**CDPS** **CTPE**

**Request** transfer of DDU Group 25 RSYS to C11.

49-89

**CDPS** **OTC** **132**

Backup Flight Controller Test complete. LDB silence no longer required.

*** End of Option 1. Backup Flight Controller Test ***
Option 2. IDP 1/2/4 Load (OPS 0)

NOTE
Perform this option for initial Launch attempt.

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

Option 2 Not Performed:______

NOTE
When IDP load switch is engaged, CRT MDUs driven by this IDP will be blanked except for a “VM LOAD IN PROGRESS” message at the center of the display. This message will remain until the load is complete, at which time the DPS display will return.

An “INVALID BRANCH ADDRESS” IDP error may be annunciated at conclusion of VM load (DR 109752).

49-90 CDPS CDR 152
CRT 1
0001/GPC MEMORY

49-91 CDPS CDR 152
PANEL 06
INTEGRATED DISPLAY PROCESSOR
1 SW - LOAD, RELEASE

CRT 1
VERIFY "VM LOAD IN PROGRESS" MESSAGE, THEN GPC MEMORY DISPLAY

OMRSD V70CA0.010-A-1
49-92  CDPS  CDR  152

CRT 2
0001/GPC MEMORY

49-93  CDPS  CDR  152

PANEL 06

INTEGRATED DISPLAY PROCESSOR
2 SW - LOAD, RELEASE

CRT 2
VERIFY "VM LOAD IN PROGRESS" MESSAGE, THEN GPC MEMORY DISPLAY

OMRSD  V70CA0.010-B-1

NOTE
If an MDU fails to come up at power application, turn bezel knob off for 3 seconds, then back to on (ref H/W-0002).

49-94  CDPS  CDR  152

PANEL R11U

CRT 4 MDU
POWER KNOB - ON

CAUTION
When turned on, IDP power must remain on a minimum of 30 seconds or hardware damage may result.

OMRS (general) V70GEN.030

49-95  CDPS  CDR  152

PANEL R11L

IDP/CRT 4
MAJ FUNC SW - GNC
POWER SW - ON
49-96  CDPS    CDR    152

PANEL C2

LEFT CRT SEL SW - 1

49-97  CDPS    CDR    152

LEFT KYBD
GPC/CRT 03
EXEC
GPC/CRT 14
EXEC

49-98  CDPS    CDR    152

IF DPS DISPLAY IS NOT ACTIVE ON CRT 4,

THEN PERFORM:
PANEL R11U

CRT 4 MDU
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS DPS EDGE KEY

Not Performed:______

49-99  CDPS    CDR    152

CRT 4
0001/GPC MEMORY

49-100  CDPS    CDR    152

PANEL 06

INTEGRATED DISPLAY PROCESSOR
4 SW - LOAD, RELEASE

CRT 4
VERIFY "VM LOAD IN PROGRESS" MESSAGE, THEN GPC MEMORY DISPLAY

OMRSD V70CA0.010-D-1
49-101  CDPS   CDR   152

LEFT KYBD
GPC/CRT 04
EXEC
GPC/CRT 13
EXEC

49-102  CDPS   OTC   132

IDP 1/2/4 Load complete.

*** End of Option 2. IDP 1/2/4 Load (OPS 0) ***
Option 3. Transition GPC 1 to G9 Simplex

NOTE
Perform this option for initial Launch attempt.

Option 3 Not Performed:_____

49-103
CDPS
CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
DPS RECONFIGURATION (VAS90)
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

49-104
CDPS
CURSOR CNTL (VAS90 PG-B)
QUICK NBAT MODIFY - GPC1 SMPLX
XMIT CURSOR KEY - PRESS

CURSOR CNTL (VAS90 PG-B)
MOD NBAT - G9
XMIT CURSOR KEY - PRESS

CURSOR CNTL (VAS90 PG-B)
PRIMARY OPS TRANS - GNC 9
XMIT CURSOR KEY - PRESS
CDPS

**IF** DOWNLIST FORMAT 60 IS REQUIRED FOR PAYLOAD SUPPORT (REF. OMI S0007.100, OPERATION 272 - DPS LAUNCH SUPPORT CONFIGURATION),

**THEN PERFORM:**
APPL PAGE (VAS90 PG-B)
PFK7 KEY - PRESS

CURSOR CNTL (VAS90 PG-B)
DOWNLIST FORMAT LOAD - FMT 60
XMIT CURSOR KEY - PRESS

Not Performed:_____

CDPS

PFP (VAS90)
EXECUTE KEY - PRESS

CRT (VAS90 PG-B)
"SUCCESSFUL COMPLETION OF JOB"

CRT (VAS90 PG-A)
NO ERROR MESSAGES DISPLAYED
Select SRB Poll Bus 2

NOTE
Perform this option if SRB power is up.

Select SRB Poll Bus 2 Not Performed: _____

49-107

CDPS

IF DPS RECONFIGURATION MENU PAGE 2 IS NOT ALREADY ACTIVE,

THEN PERFORM:
APPL PAGE (VAS90 PG-B)
PFP7 KEY - PRESS

Not Performed: _____

49-108

CDPS

CURSOR CNTL (VAS90 PG-B)
SRB POLL BUS - LDB2
XMIT CURSOR KEY - PRESS

49-109

CDPS

PFP (VAS90)
EXECUTE KEY - PRESS

CRT (VAS90 PG-B)
"SUCCESSFUL COMPLETION OF JOB"

CRT (VAS90 PG-A)
NO ERROR MESSAGES DISPLAYED

*** End of Select SRB Poll Bus 2 ***

49-110

CDPS

PFP (VAS90)
TERMINATE KEY - PRESS
49-111  
CDPS

CURSOR CNTL (SAS01 PG-B)
FC & PL MDM BSR READ
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

49-112  
CDPS

CRT (VAS93 PG-B)
VERIFY NO UNEXPECTED ERRORS

49-113  
CDPS

CURSOR CNTL (SAS01 PG-B)
ACT CYCLIC BSR READ
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT (SA PG)
CYC BSR - ACT

49-114  
CDPS    OTC   132

GPC1 is in G9 Simplex Format ______ (44 or 60) with LDB polling and HDA enabled.

*** End of Option 3. Transition GPC 1 to G9 Simplex ***
Option 4. BFS Load - GPC5

NOTE
Perform this option for initial Launch attempt.

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

Option 4 Not Performed:_____

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V72CA0.051-B

49-115 CDPS CDR 152

PANEL 06

IPL SOURCE SW - MMU 1

GENERAL PURPOSE COMPUTER
MODE
5 SW - HALT
OUTPUT
5 SW - NORMAL
POWER
5 SW - OFF, THEN ON

GENERAL PURPOSE COMPUTER
INITIAL PROGRAM LOAD
5 PB - PRESS, REL
MODE
5 TB IPL THEN BP
49-116  CDPS    CDR    152

PANEL C2

LEFT CRT SEL SW - 3

CRT 3
  MAJ FUNC SW - GNC

49-117  CDPS    CDR    152

PANEL C3

BFC CRT
  SELECT SW - 3+1
  DISPLAY SW - ON
NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V70CA0.010-C-1

49-118  CDPS  CDR  152

PANEL 06

INTEGRATED DISPLAY PROCESSOR
3 SW - LOAD, REL

GENERAL PURPOSE COMPUTER
MODE
5 SW - STBY

49-119  CDPS  CDR  152

CRT 3
IPL MENU (1) (WITHIN TWO MIN)
VERIFY MESSAGES STILL IN LIST = 2

49-120  Noted requirements are complete.

OMRSD V70CA0.010-C-1

49-121  CDPS  CDR  152

L KYBD (BFS)
MSG RESET (PRESS TWICE)

49-122  CDPS  CDR  152

L KYBD (BFS)
ITEM 2 (BFS1)
EXEC

49-123  CDPS  CDR  152

CRT 3
BSL LOADED MSG ON MSG LINE
(WITHIN 2 MIN)
**NOTE**
Due to BSL mechanization, computed checksum errors may occur during BFS load (BFS checksum error, IMU checkpoint checksum error, TFL format computed checksum error - ref User Note B06546A).

**49-124**

CDPS CDR 152

L KYBD (BFS)
MSG RESET (PRESS ONCE)

**49-125**

CDPS CDR 152

*IF BFS CHECKSUM ERROR, IMU CHECKPOINT CHECKSUM ERROR, OR TFL FORMAT COMPUTED CHECKSUM ERROR MESSAGE APPEARS ON CRT MESSAGE LINE,*

THEN PERFORM THE FOLLOWING FOR EACH OCCURRENCE:
L KYBD (BFS)
MSG RESET (PRESS ONCE)

Not Performed:______

**49-126**

CDPS CDR 152

CRT 3
VERIFY

MSG: (WITHIN 3 MINUTES)

KSC RR.VV.P.II.MM LOADED_SET MMU SEL SW TO OFF

WHERE:

RR = RELEASE NUMBER
VV = VERSION NUMBER
P = PATCH SET NUMBER
II = I LOAD SET NUMBER
MM = MASS MEMORY AREA NUMBER

**49-127**

CDPS CDR 152

CRT 3
VERIFY MESSAGES STILL IN LIST = 1
NOTE
BFS GPC error “ILLEGAL ENGAGE/TERM B” will occur in the following step.

49-128  CDPS  CDR  152

PANEL 06

IPL SOURCE SW - OFF

49-129  CDPS  CDR  152

L KYBD
MSG RESET (PRESS ONCE)

CRT 3
BFS MEMORY

49-130  CDPS

APPLICATIONS PAGE (VAS59 PG-B)
DL FMT 12 ACTIVE

49-131  Noted requirements are complete.

OMRSD V72CA0.051-B

49-132  CDPS

CONSOLE KYBD
ISSU N72IV067D #1001
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

49-133  CVFS

CURSOR CNTL (SAS10 PG-B)
BFS MONITOR (VASB9)
XMIT CURSOR KEY - PRESS
49-134  CVFS  CDR  152

L KYBD (BFS)
FAULT SUMM

CRT 3
READ AND REPORT ANY FSP MESSAGES

49-135  CVFS

APPLICATION PAGE (VASB9 PG-B)
VERIFY NO UNEXPLAINED GPC, I/O, OR FAULT SUMMARY MESSAGES.

49-136  CVFS  CDR  152

L KYBD (BFS)
SPEC 99
PRO
RESUME

CRT 3
BFS MEMORY

49-137  CDPS  CDR  152

LEFT KYBD (BFS KYBD)
ITEM 39
EXEC

CRT 3
GMT 39 *

49-138  CDPS  CDR  152

LEFT KYBD (BFS KYBD)
GPC/CRT 54
EXEC

CRT 4
BFS MEMORY
NOTE
Error message will occur in the next step if EMON notification for MSIDs is already active.

49-139

CDPS

CONSOLE KYBD
A SX V98J2258C1,ANY
XMIT CMD KEY - PRESS
(BFS I/O ERROR COUNT)

A SX V98J2299C1,ANY
XMIT CMD KEY - PRESS
(BFS GPC ERROR COUNT)

NOTE
The following step patches BFS GPC memory to prevent nuisance alarms during ascent. The alarms are due to a Left OMS Ox Tank ullage pressure transducer that is biased. The ullage pressure upper limit is 288 psia and will be changed to 296 psia.

49-140

CDPS

Patch BFS GPC memory per OMI V1184 Tracking Sheet.

Record:

RTOMI Log #: _____________
RASS # 135.05

*** End of Option 4. BFS Load - GPC5 ***
Option 5. BFS Dump, Retrieval and Compare

**NOTE**
Perform this option for initial Launch attempt.

Option 5 Not Performed: _____

**NOTE**
LPS is required to report frame count or tape errors to CVFS during dump. Any error encountered may require restart of dump.

**NOTE**
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

**NOTE**
Noted requirements are satisfied by the following series of steps.

OMRS V72CA0.051-C

49-141  CVFS  LPS  152

Perform Tape Switch at PDR

Monitor system message page for “GPCA OR GPCS FORMAT 90 FRAME COUNT ERROR” during BFS Dump and report any occurrence.

49-142  CVFS  CDR  152

L KYBD (BFS)
ITEM 24
EXEC (START DUMP)
49-143  CVFS   CMQC   152   LPS

Record dump start time:

_________:___________/__________

ddd       hhmm       ss

49-144  CVFS

CRT (VAS59 PG-B)
DL FMT 90 IN AREA 2.

49-145  CVFS

AFTER APPROX 7 MINUTES,
CRT (VAS59 PG-B)
DL FMT 12 ACTIVE IN AREA 2.

49-146  CVFS   CMQC   152   LPS

Record dump stop time:

_________:___________/__________

ddd       hhmm       ss

49-147  CVFS   LPS   152

Verify no GPCA or GPCS Format 90 frame count errors were received.

49-148  CVFS   LPS   152

IF an error was detected in GPCA or GPCS frame counts,

THEN repeat the previous seven steps.  

Not Performed:_____
49-149  CVFS

Perform BFS Dump, Retrieval and Compare (using DAP 140 SDC program, OMI S0007.400, Operation 49, Option 6) on Channel 152 (15 minutes).

49-150  CVFS

Verify DAP 140 runs to completion with expected miscompares.

49-151  CDPS  CDR  152

PANEL C3

BFC CRT
DISPLAY SW - OFF
49-152  CDPS     CDR     152
        CRT 3
        GPC MEMORY DISP

49-153  CDPS     CDR     152
        PANEL C2
        LEFT CRT SEL SW - 1

**NOTE**
BFS will remain active through Launch. Periodic Area 2 Format 12 downlist frame count errors and FDA messages are expected. (DR B08062)

49-154  Noted requirements are complete.

OMRSD V72CA0.051-C

49-155  CVFS     OTC     132
        BFS Dump and Compare complete. Miscompares are as expected.

*** End of Option 5. BFS Dump, Retrieval and Compare ***
Option 6. BFS DAP-140 Retrieval Option

NOTE
Perform this option for initial Launch attempt if SDC will be used to perform BFS Dump and Compare.

Option 6 Not Performed:_____

49-156 CVFS

CONSOLE KYBD
CDS ENABLE KEY - PRESS (FR3)
SDC ENABLE KEY - PRESS (FR4)

CRT
VERIFY ASSIGNED TO CDS LINE 1 OR 2

49-157 CVFS

CONSOLE KYBD
SDC
SIGN-ON KEY - PRESS

49-158 CVFS

CRT
VERIFY RSHELL>

49-159 CVFS

CONSOLE KYBD
DAP
CDS XMIT KEY - PRESS (FR3)
SDC XMIT KEY - PRESS (FR4)
In the following step, the sequence is:

BFSDC TCID FEP;
start time (hhmmss) stop time (hhmmss)
date (mmddyy); STS No./filename

49-160  CVFS
CONSOLE KYBD
BFSDC _______ GPCA;

_____________ ______________
_____________ ______________
_____________; -FL STS______/_______._____.____
CDS XMIT KEY - PRESS (FR3)
SDC XMIT KEY - PRESS (FR4)

49-161  CVFS
CRT
VERIFY BFS VERIFICATION COMPLETED MESSAGE

49-162  CVFS
IF MISCOMPARES ARE ENCOUNTERED,
THEN PERFORM:
CRT
VERIFY DO YOU WANT TO DISPLAY MISCOMPARES?
Y OR N

Not Performed:______
IF MISCOMPARES ARE ENCOUNTERED,

THEN PERFORM:
CONSOLE KYBD
CDS XMIT KEY - PRESS (FR3)
SDC XMIT KEY - PRESS (FR4)

CRT
VERIFY VALUE RECEIVED AND VALUE EXPECTED ARE DISPLAYED WITH THE GPC ABSOLUTE ADDRESS.

Not Performed:_______
Select Print Miscompares Option

NOTE
Perform this option to print miscompares if desired.

Select Print Miscompares Option Not Performed:_____

49-164

CVFS

CRT
VERIFY

DO YOU WANT TO PRINT MISCOMPARSES?  Y  OR  N

49-165

CVFS

CONSOLE KYBD
Y
CDS XMIT KEY - PRESS (FR3)
SDC XMIT KEY - PRESS (FR4)

49-166

CVFS

CRT
VERIFY

ENTER PRINTER NAME

NOTE
In the following step, enter desired LAN printer name for miscompare printout.

49-167

CVFS

CONSOLE KYBD
(PRINTER NAME)
CDS XMIT KEY - PRESS (FR3)
SDC XMIT KEY - PRESS (FR4)

CRT
VERIFY PRINTING FOR THE BFS DUMP AND COMPARE IS COMPLETE

*** End of Select Print Miscompares Option ***
49-168 CVFS

CRT
VERIFY

TPAP SDC TERMINATED
RSHELL>

49-169 CVFS

CONSOLE KYBD
EXIT
CDS XMIT KEY - PRESS (FR3)
SDC XMIT KEY - PRESS (FR4)

49-170 CVFS

CPU ENABLE KEY - PRESS (FR3)
FRONT KEY - PRESS (FR4)

*** End of Option 6. BFS DAP-140 Retrieval Option ***
Option 7. BFS Dump Retrieval and Compare via LPS

<table>
<thead>
<tr>
<th>49-171</th>
<th>CVFS</th>
<th>LPS</th>
<th>152</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Perform</strong> BFS Downlist Dump Retrieval and Compare per: Maximo Work Order __________________________</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>49-172</th>
<th>C4SE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Verify</strong> BFS compare completes with successful output of number of miscompares. <strong>Deliver</strong> printout to CVFS Engineer at Console C-12.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>49-173</th>
<th>CPDR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Remove</strong> BFS compare tape from tape unit. <strong>Remove</strong> BFS processed tape from tape T1. <strong>Deliver</strong> BFS compare tape and processed tape to LPS tape locker. BFS dump and compare now complete.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>49-174</th>
<th>CVFS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Verify</strong> dump and compare listing.</td>
</tr>
</tbody>
</table>

*** End of Option 7. BFS Dump Retrieval and Compare via LPS ***
Option 8. Final TFL/PDI Loads for Flight

**NOTE**
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

**NOTE**
Perform this option for initial Launch attempt. Obtain formats and inputs from OMI S0007.100, Operation 272 - DPS Launch Support Configuration.

Option 8 Not Performed:_____

**NOTE**
Noted requirements are satisfied by the following series of steps.

OMRS S00FA0.301-1R

---

Final PCMMU Telemetry Loads for Flight

**NOTE**
PMU/DL I/O cycle WRAP or cyclic overrun GPC error may occur during PCMMU format load.

49-175  
CISL  JRPS  152  
Perform OMI S0007.100, Operation 262 - RPS TFL Setup.  
Report completion.

49-176  
CISL  JRPS  152  
Verify recording OI 64KB data on ground recorder(s).  
Start decom lock status and MDM WRAP display recorder.

49-177  
CISL  CDR  152  
PANEL C3  
OI PCMMU  
FORMAT SW - FIXED
NOTE
During PCMMU Switchover and LDR Format Load, multiple console alarms may occur due to temporary PCMMU BITE Bit failures.

NOTE
Erroneous BFS FDA messages may be annunciated at PCMMU switchover.

49-178 CISL CDR 152

IF OI PCMMU 1 IS ACTIVE,

THEN PERFORM:
PANEL C3
OI PCMMU
PWR SW - 2

Not Performed:_____

49-179 CISL

CRT (SAQ06/VWQ11)
VERIFY

PCMMU
PCM 2 ON
FORMAT 129 FIXED
BITE
1-14 GOOD
MDM
WRAP (ALL) GOOD
MTU
GMT ADVANCING

49-180 CISL CDPS 152

Perform TFL to PCM2 FMT _____ HDR, FMT _____ LDR using PASS software.
49-181  CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY PRESS

CURSOR CNTL (SAS01 PG-B)
DPS RECONFIGURATION (VAS90)
XMIT CURSOR KEY - PRESS

PFK 2 KEY - PRESS

49-182  CDPS

APPL PAGE (VAS90 PG-B)
PFK-8 KEY - PRESS

49-183  CDPS

CURSOR CNTL (VAS90 PG-B)
TFL LOAD
XMIT CURSOR KEY - PRESS

FMT ______ (HDR FMT)
XMIT CURSOR KEY - PRESS

49-184  CDPS

PFP (VAS90 PG-B)
EXECUTE KEY - PRESS

CRT (VAS90 PG-B)
“SUCCESSFUL COMPLETION OF JOB”

CRT (VAS90 PG-A)
NO ERROR MESSAGES DISPLAYED
49-185

CDPS

CURSOR CNTL (VAS90 PG-B)
TFL LOAD
XMIT CURSOR KEY - PRESS

FMT ______ (LDR FMT)
XMIT CURSOR KEY - PRESS

49-186

CDPS

PFP (VAS90 PG-B)
EXECUTE KEY - PRESS

CRT (VAS90 PG-B)
“SUCCESSFUL COMPLETION OF JOB”

CRT (VAS90 PG-A)
NO ERROR MESSAGES DISPLAYED

NOTE
If an on-orbit format was loaded, downlist data will be invalid and frame count errors will occur for the duration of the time that the OI format is active.

49-187

CDPS  CDR  152

PANEL C3
OI PCMMU
FORMAT SW - PROGRAM

49-188

CDPS

CRT (VAS59 PG-B)
VERIFY OI DATA CYAN

49-189

CDPS  CISL  152

Telemetry format loads for PCMMU 2 complete.
NOTE
The next step will show PCMMU BITE bits 11, 12 and 15 fail or toggling if PDI is powered down.

49-190  CISL

CRT (SAQ04/SWQ01)
VERIFY

PCMMU
  PCM 2 ON
  FORMAT ______ PROG
  BITE
    1-14 GOOD
MDM
  WRAP (ALL) GOOD
MTU
  GMT ADVANCING

49-191  CISL  JISE  152

Verify decom lock on OI PCM 2

Fmt LDR _____
MDM WRAPs dynamic
GMT advancing

NOTE
Erroneous BFS FDA messages may be annunciacted at PCMMU switchover.

49-192  CISL  CDR  152

PANEL C3

OI PCMMU
  FORMAT SW - FIXED
  PWR SW - 1
CISL

CRT (SAQ06/VWQ11)

VERIFY

PCMMU

PCM 1 ON
FORMAT 129 FIXED
BITE
1-14 GOOD

MDM
WRAP (ALL) GOOD

MTU
GMT ADVANCING

NOTE
Monitor MTU CMD channels for a minimum of 5 minutes to verify no toggling.

CISL CDR 152

IF MTU CMD CHANNEL A, B, OR C IS TOGGING,

THEN REPEAT THE FOLLOWING UNTIL STABILIZED:

PANEL C3

OI PCMMU
PWR SW - OFF, THEN - 1

Not Performed: ______

CISL CDPS 152

Perform TFL to PCM1 FMT______ HDR, FMT______ LDR using PASS software.
49-196  CDPS

CURSOR CNTL (VAS90 PG-B)
TFL LOAD
XMIT CURSOR KEY - PRESS

FMT ______ (HDR FMT)
XMIT CURSOR KEY - PRESS

49-197  CDPS

PFP (VAS90 PG-B)
EXECUTE KEY - PRESS

CRT (VAS90 PG-B)
"SUCCESSFUL COMPLETION OF JOB"

CRT (VAS90 PG-A)
NO ERROR MESSAGES DISPLAYED

49-198  CDPS

CURSOR CNTL (VAS90 PG-B)
TFL LOAD
XMIT CURSOR KEY - PRESS

FMT ______ (LDR FMT)
XMIT CURSOR KEY - PRESS

49-199  CDPS

PFP (VAS90 PG-B)
EXECUTE KEY - PRESS

CRT (VAS90 PG-B)
"SUCCESSFUL COMPLETION OF JOB"

CRT (VAS90 PG-A)
NO ERROR MESSAGES DISPLAYED
IF PDI loads will not be performed,

THEN:

PFP (VAS90 PG-B)
TERMINATE KEY - PRESS

Not Performed:_____

NOTE
If an on-orbit format was loaded, downlist data will be invalid and frame count errors will occur for duration of time OI format is active.

PANEL C3

OI PCMMU
FORMAT SW - PROGRAM

CRT (VAS59 PG-B)
VERIFY OI DATA CYAN

Telemetry format loads for PCMMU1 complete.
NOTE
The next step will show PCMMU BITE bits 11, 12 and 15 fail or toggling if PDI is powered down.

49-204  CISL

CRT (SAQ06/VWQ11)
VERIFY

PCMMU
   PCM 1 ON
   FORMAT ______ PROG
   BITE
      1-14 GOOD
MDM
   WRAP (ALL) GOOD
MTU
   GMT ADVANCING

49-205  CISL  JISE  152

Verify decom lock on OI PCM 1

FMT LDR _____
MDM WRAPs dynamic
GMT advancing

49-206  CISL  JRPS  152

Stop decom lock status and MDM WRAP display recorder.
Continue recording of OI 64KB data.

Upload to the RPS Web

49-207  CDPS  CDR  152

PANEL C3
   OI PCMMU
      FORMAT SW - FIXED
49-208  CDPS

CRT (VAS59 PG-B)
VERIFY 129 CYAN

49-209  CDPS  CDR  152

PANEL C3

OI PCMMU
FORMAT SW - GPC

49-210  CISL

CRT (SAQ06/VWQ11)
VERIFY

PCMMU
  PCM 1 ON
  FORMAT 129 FIXED
  SW SCAN GPC
  BITE
    1-14 GOOD
MDM
  WRAP (ALL) GOOD
MTU
  GMT ADVANCING

49-211  CDPS  CISL  152

CISL, JRPS support no longer required.

*** End of Final PCMMU Telemetry Loads for Flight ***
Final PDI Decom Loads for Flight

NOTE
Perform this option if PDI formats are required.

Final PDI Decom Loads for Flight Not Performed:______

49-212
CDPS

IF VAS90 is not currently active,

THEN:

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
DPS RECONFIGURATION (VAS90)
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

Not Performed:______

49-213
CDPS

APPL PAGE (VAS90 PG-B)
PFK9 KEY - PRESS

49-214
CDPS

CURSOR CNTL (VAS90 PG-B)
SELECT ELEMENT - DECOM X (1-4)
XMIT CURSOR KEY - PRESS

NOTE
Repeat the next three steps for each Decom (1-4) required to be loaded
(ref OMI S0007.100, Operation 272 - DPS Launch Support Configuration).
49-215  

CDPS  

**IF** FORMAT LOAD IS REQUIRED,  

**THEN PERFORM:**  
CURSOR CNTL (VAS90 PG-B)  
SELECT FORMAT - XX (01-31)  
XMIT CURSOR KEY - PRESS  

**Not Performed:**______

49-216  

CDPS  

CURSOR CNTL (VAS90 PG-B)  
SELECT INPUT - PL SRC X (0-6)  
XMIT CURSOR KEY - PRESS

49-217  

CDPS  

**Record** selections below.  

**Record** ‘N/A’ in blanks for not performed options.  

Decom 1 fmt ______  input ______  
Decom 2 fmt ______  input ______  
Decom 3 fmt ______  input ______  
Decom 4 fmt ______  input ______
IF FPM LOAD IS REQUIRED,

THEN PERFORM:
CURSOR CNTL (VAS90 PG-B)
SELECT ELEMENT - FPM
XMIT CURSOR KEY - PRESS

CURSOR CNTL (VAS90 PG-B)
SELECT FORMAT - ___
XMIT CURSOR KEY - PRESS

Not Performed:_____

PFP (VAS90)
EXECUTE KEY - PRESS

CRT (VAS90 PG-B)
"SUCCESSFUL COMPLETION OF JOB" (GREEN)

CRT (VAS90 PG-A)
NO ERROR MESSAGES DISPLAYED

PFP (VAS90)
TERMINATE KEY - PRESS

*** End of Final PDI Decom Loads for Flight ***

Final TFL/PDI Loads for Flight complete.

Noted requirements are complete.

OMRSD S00FA0.301-1R

*** End of Option 8. Final TFL/PDI Loads for Flight ***
Option 9. HUD Powerup and Self Test

NOTE
Perform this option for initial Launch attempt.

Option 9 Not Performed:_____

49-223 CDPS CDR 152

PANEL F6
AIR DATA SW - NAV
ADI
ATTITUDE SW - REF
ERROR SW - MED
RATE SW - MED
HSI SELECT
MODE SW - ENTRY
SOURCE
TACAN/NAV/MLS SW - NAV (103, 104)
GPS/NAV/MLS SW - NAV (105)
1/2/3 SW - 1
RADAR ALTM SW - 1
HUD DATA BUS SW - 1

49-224 CDPS PLT 152

PANEL F8
AIR DATA SW - NAV
ADI
ATTITUDE SW - REF
ERROR SW - MED
RATE SW - MED
HSI SELECT
MODE SW - ENTRY
SOURCE
TACAN/NAV/MLS SW - NAV (103, 104)
GPS/NAV/MLS SW - NAV (105)
1/2/3 SW - 2
RADAR ALTM SW - 2
HUD DATA BUS SW - 4
49-225  CDPS  MS1  152

PANEL A6U
ADI
ATTITUDE SW - INRTL
ERROR SW - MED
RATE SW - MED
UNUSED ROTARY SW - FULL CCW

HUD No. 1 (Left) Powerup & Self Test

CAUTION
PDU shall be operated at minimum allowable brightness setting. All glass surfaces are optically coated and must not be touched. Failure to follow the above criteria may result in premature failure of the PDU, or interfere with the visual display presented on the PDU.

OMRS (general) V73GEN.030-C
OMRS (general) V73GEN.030-D

49-226  CDPS  CDR  152

PANEL F3
HUD (LEFT)
POWER SW - OFF

49-227  CDPS  CDR  152

PANEL F6
HUD (LEFT)
DIM/BRT SW - DIM (CCW)
MODE SW - NORM
BRT SW - MAN DAY

49-228  CDPS  CDR  152

PANEL F3
HUD (LEFT)
POWER SW - ON
49-229  CDPS  CDR  152

**PANEL F6**
- HUD (LEFT)
  - DIM/BRT SW - ADJUST TO MIN BRIGHTNESS FOR ADEQUATE VISIBILITY
- PDU (LEFT)
  - **VERIFY** BIG X (WITHIN TWO MIN)

49-230  CDPS

- CRT (SA-PAGE)
- HUD PWR/BITE STAT
- CDR ON
The test pattern displayed on PDU is dynamic and runs for approximately 5 seconds upon initiation of Test mode. Test mode is entered by placing the mode switch on Panel F6A9 in TEST position. In order to perform the entire test, the mode select switch must remain in the Test position until termination indicator “COMPLETE” appears on PDU. The test may be repeated as necessary by placing the mode switch on Panel F6A9 to NORM then TEST positions.

The completed test will display test pattern symbols (i.e., circles inside of diamonds) in all four quadrants, and the word “COMPLETE” will be present. The circles may not close completely, and the diamond line segments may not meet or cross at corners. Portions of the small symbol (U/R quadrant) may be missing. This is acceptable as long as some portion of the small symbol is visible.

**49-231 CDPS CDR 152**

**PANEL F6**

HUD (LEFT)

MODE SW - TEST

PDU (LEFT)

**VERIFY** TEST PATTERN DYNAMIC WITH DISPLAY SYMBOLOGY MOVING IN CONTINUOUS FASHION UNTIL "COMPLETE" APPEARS, AT WHICH TIME DISPLAY BECOMES STATIC.

**49-232 CDPS CDR 152**

**PANEL F6**

HUD (LEFT)

MODE SW - NORM

PDU (LEFT)

**VERIFY** BIG X

**49-233 CDPS CDR 152**

**PANEL F6**

HUD (LEFT)

DIM/BRT SW - ROTATE FROM DIM (CCW) TO BRT (CW) AND VERIFY PDU DISPLAY INTENSITY VARIES ACCORDINGLY.
HUD No. 1 Powerdown

49-234  CDPS    CDR    152

PANEL F6

HUD (LEFT)
  DIM/BRT SW - MID RANGE
  MODE SW - NORM
  BRT SW - MAN/DAY

49-235  CDPS    CDR    152

PANEL F3

HUD (LEFT)
  POWER SW - OFF

*** End of HUD No. 1 Powerdown ***
HUD No. 2 (Right) Powerup & Self Test

CAUTION

PDU shall be operated at minimum allowable brightness setting. All glass surfaces are optically coated and must not be touched. Failure to follow the above criteria may result in premature failure of the PDU, or interfere with the visual display presented on the PDU.

OMRS (general) V73GEN.030-C
OMRS (general) V73GEN.030-D

49-236  CDPS  PLT  152

PANEL F3
HUD (RIGHT)
POWER SW - OFF

49-237  CDPS  PLT  152

PANEL F8
HUD (RIGHT)
DIM/BRT SW - DIM (CCW)
MODE SW - NORM
BRT SW - MAN DAY

49-238  CDPS  PLT  152

PANEL F3
HUD (RIGHT)
POWER SW - ON

49-239  CDPS  PLT  152

PANEL F8
HUD (RIGHT)
DIM/BRT SW - (ADJUST TO MIN BRIGHTNESS FOR ADEQUATE VISIBILITY)
PDU (RIGHT)
VERIFY BIG X (WITHIN TWO MIN)
NOTE
The test pattern displayed on the PDU is dynamic and runs for approximately 5 seconds upon initiation of Test mode. Test mode is entered by placing the mode switch on Panel F8A9 in TEST position. In order to perform the entire test, the mode select switch must remain in the TEST position until termination indicator “COMPLETE” appears on PDU. The test may be repeated as necessary by placing the mode switch on Panel F8A9 to NORM then TEST positions.

The completed test will display test pattern symbols (i.e., circles inside of diamonds) in all four quadrants, and the word “COMPLETE” will be present. The circles may not close completely, and the diamond line segments may not meet or cross at corners. Portions of the small symbol (U/R quadrant) may be missing. This is acceptable as long as some portion of the small symbol is visible.
49-243  CDPS  PLT  152

PANEL F8
HUD (RIGHT)
DIM/BRT SW - ROTATE FROM DIM (CCW) TO BRT (CW) AND VERIFY PDU DISPLAY INTENSITY VARIES ACCORDINGLY

HUD No. 2 Powerdown

49-244  CDPS  PLT  152

PANEL F8
HUD (RIGHT)
DIM/BRT SW - MID RANGE
MODE SW - NORM
BRT SW - MAN/DAY

49-245  CDPS  PLT  152

PANEL F3
HUD (RIGHT)
POWER SW - OFF

*** End of HUD No. 2 Powerdown ***
HUD Powerup and Self Test complete.

*** End of Option 9. HUD Powerup and Self Test ***
Option 10. MEDS System Activation

NOTE
Perform this option for initial Launch attempt.

Option 10: MEDS System Activation Not Performed:_____

49-247  CDPS  CDR  152
PANEL C2
  LEFT CRT SEL SW - 1
  RIGHT CRT SEL SW - 2

49-248  CDPS  CDR  152
PANEL R14
  ROW A
    MN A
      ADC
      1A/2A CB - CLOSE
      MDU
      MFD2 CB - CLOSE
      PLT1 CB - CLOSE
    MN B
      ADC
      1B/2B CB - CLOSE
      MDU
      MFD1 CB - CLOSE
      CDR2 CB - CLOSE
    MN C
      MDU
      CDR1 CB - CLOSE
      PLT2 CB - CLOSE
      AFD1 CB - CLOSE
NOTE

If an MDU fails to come up at power application, turn the bezel knob off for 3 seconds, then back to on (ref H/W-0002).

49-249  CDPS  CDR  152

PANEL F6

CDR1 MDU
  POWER KNOB - ON
CDR2 MDU
  POWER KNOB - ON

49-250  CDPS  CDR  152

PANEL F7

MFD1 MDU
  POWER KNOB - ON
MFD2 MDU
  POWER KNOB - ON

49-251  CDPS  CDR  152

PANEL F8

PLT1 MDU
  POWER KNOB - ON
PLT2 MDU
  POWER KNOB - ON
49-252  CDPS  CDR  152

Remove AFD1 MDU cover (Shop Aid SK-2K7-021) and retain for later installation.

49-253  CDPS  CDR  152

ORBIT STATION
AFD1 MDU
POWER KNOB - ON

49-254  CDPS  CDR

Adjust brightness knob on all 11 MDUs to obtain minimum readable brightness level.
49-255  CDPS  CDR  152

PANEL F7
CRT 1 MDU
   PRESS UP ARROW EDGE KEY TO MAIN MENU
   PRESS MEDS MAINT EDGE KEY

CRT 1
VERIFY MEDS SYSTEM STATUS DISPLAY
VERIFY ADC1A AND ADC2A BOXES HAVE BLUE BACKGROUND
VERIFY RECONFIGURATION MODE FIELD IN THE FOLLOWING
MDU BOXES IS NOT BLANK (SHOULD BE "AUT" OR "MAN"): 

   CRT1, CDR1, CDR2, MFD2, PLT1

49-256  CDPS  CDR  152

PANEL F7
CRT 1 MDU
   PRESS UP ARROW EDGE KEY TO MAIN MENU
   PRESS DPS EDGE KEY

CRT 1
VERIFY GPC MEMORY DISPLAY

49-257  CDPS  CDR  152

PANEL F7
CRT 2 MDU
   PRESS UP ARROW EDGE KEY TO MAIN MENU
   PRESS MEDS MAINT EDGE KEY

CRT 2
VERIFY MEDS SYSTEM STATUS DISPLAY
VERIFY ADC1A AND ADC2A BOXES HAVE BLUE BACKGROUND
VERIFY RECONFIGURATION MODE FIELD IN THE FOLLOWING
MDU BOXES IS NOT BLANK (SHOULD BE "AUT" OR "MAN"): 

   CRT2, CDR2, MFD1, PLT1, PLT2, AFD1
49-258  CDPS    CDR    152

PANEL F7
CRT 2 MDU
   PRESS UP ARROW EDGE KEY TO MAIN MENU
   PRESS DPS EDGE KEY

CRT 2
VERIFY GPC MEMORY DISPLAY

49-259  CDPS    CDR    152

PANEL F7
CRT 3 MDU
   PRESS UP ARROW EDGE KEY TO MAIN MENU
   PRESS MEDS MAINT EDGE KEY

CRT 3
VERIFY MEDS SYSTEM STATUS DISPLAY
VERIFY ADC1B AND ADC2B BOXES HAVE BLUE BACKGROUND
VERIFY RECONFIGURATION MODE FIELD IN THE FOLLOWING
MDU BOXES IS NOT BLANK (SHOULD BE "AUT" OR "MAN"):

   CRT3, CDR1, MFD1, MFD2, PLT2

49-260  CDPS    CDR    152

PANEL F7
CRT 3 MDU
   PRESS UP ARROW EDGE KEY TO MAIN MENU
   PRESS DPS EDGE KEY

CRT 3
VERIFY GPC MEMORY DISPLAY
49-261  CDPS   CDR   152

PANEL R11
CRT 4 MDU
   PRESS UP ARROW EDGE KEY TO MAIN MENU
   PRESS MEDS MAINT EDGE KEY

CRT 4
VERIFY MEDS SYSTEM STATUS DISPLAY
VERIFY ADC1B AND ADC2B BOXES HAVE BLUE BACKGROUND
VERIFY RECONFIGURATION MODE FIELD IN THE FOLLOWING
MDU BOXES IS NOT BLANK (SHOULD BE "AUT" OR "MAN"): CRT4, AFD1

49-262  CDPS   CDR   152

PANEL R11
CRT 4 MDU
   PRESS UP ARROW EDGE KEY TO MAIN MENU
   PRESS DPS EDGE KEY

CRT 4
VERIFY BFS MEMORY DISPLAY

NOTE
The next step will configure each MDU for Flight Crew Ingress. Configurations
will be established via MDU edge key menus (reference Figure 49-1 for MDU
display field legend and Figure 49-2 for edge key menu hierarchy.)
NOTE
In next step, establishing proper MDU configuration requires table entries to be worked in left to right column order.

Establish the following MDU configuration:

<table>
<thead>
<tr>
<th>MDU</th>
<th>VIEW</th>
<th>MODE</th>
<th>PORT</th>
<th>FC</th>
<th>DISPLAY</th>
<th>EDGE KEY MENU</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT1</td>
<td>STD</td>
<td>MAN</td>
<td>PRI</td>
<td>__</td>
<td>DPS</td>
<td>DPS</td>
</tr>
<tr>
<td>CRT2</td>
<td>STD</td>
<td>MAN</td>
<td>PRI</td>
<td>__</td>
<td>DPS</td>
<td>DPS</td>
</tr>
<tr>
<td>CRT3</td>
<td>STD</td>
<td>MAN</td>
<td>PRI</td>
<td>__</td>
<td>DPS</td>
<td>DPS</td>
</tr>
<tr>
<td>CRT4</td>
<td>NEG</td>
<td>MAN</td>
<td>PRI</td>
<td>__</td>
<td>DPS</td>
<td>DPS</td>
</tr>
<tr>
<td>CDR1</td>
<td>STD</td>
<td>AUTO</td>
<td>PRI</td>
<td>__</td>
<td>_______</td>
<td>_____________</td>
</tr>
<tr>
<td>CDR2</td>
<td>STD</td>
<td>AUTO</td>
<td>PRI</td>
<td>__</td>
<td>_______</td>
<td>_____________</td>
</tr>
<tr>
<td>MFD1</td>
<td>STD</td>
<td>AUTO</td>
<td>PRI</td>
<td>__</td>
<td>_______</td>
<td>_____________</td>
</tr>
<tr>
<td>MFD2</td>
<td>STD</td>
<td>AUTO</td>
<td>PRI</td>
<td>__</td>
<td>_______</td>
<td>_____________</td>
</tr>
<tr>
<td>PLT1</td>
<td>STD</td>
<td>AUTO</td>
<td>PRI</td>
<td>__</td>
<td>_______</td>
<td>_____________</td>
</tr>
<tr>
<td>PLT2</td>
<td>STD</td>
<td>AUTO</td>
<td>PRI</td>
<td>__</td>
<td>_______</td>
<td>_____________</td>
</tr>
<tr>
<td>AFD1</td>
<td>NEG</td>
<td>AUTO</td>
<td>PRI</td>
<td>1</td>
<td>ORBIT PFD FLT INST</td>
<td></td>
</tr>
</tbody>
</table>
ITEMS TO BE DISPLAYED AT ALL TIMES:

Pn * - INDICATES PRIMARY PORT,
    n IS THE IDP NUMBER COMMUNICATING WITH THIS PORT
    * INDICATES IF THAT IS THE CURRENTLY COMMANDED PORT

Sn * - SAME FOR SECONDARY PORT (NOT PRESENT ON CRT MDU’S)

FCi - INDICATES CURRENTLY SELECTED FC BUS

XXX - INDICATES CURRENT PORT MODE, "AUT" FOR AUTOMATIC, "MAN" FOR MANUAL

XXXXXXXXX - INDICATES NEGATIVE VIEWING MODE "NEG VIEW"

<table>
<thead>
<tr>
<th>MEDS MESSAGE LINE</th>
<th>MEDS MENU TITLE</th>
<th>XXXXXXXXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pn *</td>
<td>Sn *</td>
<td>FCi</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XXX</td>
</tr>
</tbody>
</table>
Figure 49-2: MEDS Edge Key Menu Tree (IDP 07.01)  
(For Reference Only)
49-264  CDPS  CDR  152

ORBIT STATION
AFD1 MDU
   POWER KNOB - OFF

49-265  CDPS  CDR  152

Install AFD1 MDU cover (Shop Aid SK-2K7-021).

49-266  CDPS  LPS  152
          LPS  CPDR  127

Restrict software activities at PDR/SPA during dump and $OCF activity (i.e., no INTP/INRC or $SPSAR).

49-267  CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
   XMIT CURSOR KEY - PRESS

49-268  CDPS

CURSOR CNTL (SAS01 PG-B)
DEU DUMP AND COMPARE (VAS44)
   XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS
CDPS

CURSOR CNTL (VAS44 PG-B)
NO-COMPARE DUMP - IDP 1
XMIT CURSOR KEY - PRESS

CRT (VAS44 PG-B)
FOLLOW PROGRAM PROMPTS

CDPS

CRT (VAS44 PG-B)
VERIFY MSG: "IDP 1 SUCCESSFUL"

RECORD

DUMP START TIME __________
DUMP END TIME __________

CDPS

CONSOLE KYBD (VAS44 PG-B)
PFK3 KEY - PRESS

CDPS

CURSOR CNTL (VAS44 PG-B)
NO-COMPARE DUMP - IDP 2
XMIT CURSOR KEY - PRESS

CRT (VAS44 PG-B)
FOLLOW PROGRAM PROMPTS
49-273
CDPS

CRT (VAS44 PG-B)
VERIFY MSG: "IDP 2 SUCCESSFUL"

RECORD

DUMP START TIME __________
DUMP STOP TIME __________

49-274
CDPS

CONSOLE KYBD (VAS44 PG-B)
PFK3 KEY - PRESS

49-275
CDPS

CURSOR CNTL (VAS44 PG-B)
NO-COMPARE DUMP - IDP 3
XMIT CURSOR KEY - PRESS

CRT (VAS44 PG-B)
FOLLOW PROGRAM PROMPTS

49-276
CDPS

CRT (VAS44 PG-B)
VERIFY MSG: "IDP 3 SUCCESSFUL"

RECORD

DUMP START TIME __________
DUMP STOP TIME __________
49-277   CDPS

CONSOLE KYBD (VAS44 PG-B)
PFK3 KEY - PRESS

49-278   CDPS  CDR  152

LEFT KYBD (G9 KYBD)
GPC/CRT 03  EXEC
GPC/CRT 04  EXEC
GPC/CRT 14  EXEC

49-279   CDPS

CRT (VWS25 PG-B)
IDP 4 SW 1-3 = 8000 0000 0000

49-280   CDPS

CURSOR CNTL (VAS44 PG-B)
NO-COMPARE DUMP - IDP 4
XMIT CURSOR KEY - PRESS

CRT (VAS44 PG-B)
FOLLOW PROGRAM PROMPTS
49-281  CDPS

CRT (VAS44 PG-B)
VERIFY MSG: "IDP 4 SUCCESSFUL"

RECORD

DUMP START TIME __________
DUMP STOP TIME __________

49-282  CDPS

CONSOLE KYBD (VAS44 PG-B)
PFK15 KEY - PRESS (TERMINATE)

49-283  CDPS   CDR  152

LEFT KYBD (G9 KYBD)
GPC/CRT 04
EXEC
GPC/CRT 54
EXEC
GPC/CRT 13
EXEC

49-284  CDPS   CDR  152

IF CRT 4 MAJ FUNC SWITCH IS REQUIRED TO BE IN SM
FOR ASCENT (REF. OMI S0007.100, OPERATION 272 -
DPS LAUNCH SUPPORT CONFIGURATION),

THEN PERFORM:
PANEL R11

IDP/CRT 4
MAJ FUNC SW - SM

Not Performed:______
49-285  CDPS  CDR  152

PANEL F7

CRT 1 MDU
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS MEDS MAINT EDGE KEY

CRT 1
VERIFY NO RED DATA APPEARS ON MEDS SYSTEM STATUS DISPLAY

49-286  CDPS  CDR  152

PANEL F7

CRT 1 MDU
PRESS FAULT SUMM EDGE KEY

CRT 1
REPORT MEDS FAULT SUMMARY MESSAGES

49-287  CDPS  CDR  152

PANEL F7

CRT 1 MDU
PRESS CLEAR MSGS EDGE KEY
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS DPS EDGE KEY

49-288  CDPS  CDR  152

PANEL F7

CRT 2 MDU
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS MEDS MAINT EDGE KEY

CRT 2
VERIFY NO RED DATA APPEARS ON MEDS SYSTEM STATUS DISPLAY
49-289  CDPS       CDR       152

PANEL  F7

CRT  2  MDU
PRESS  FAULT  SUMM  EDGE  KEY

CRT  2
REPORT  MEDS  FAULT  SUMMARY  MESSAGES

49-290  CDPS       CDR       152

PANEL  F7

CRT  2  MDU
PRESS  CLEAR  MSGS  EDGE  KEY
PRESS  UP  ARROW  EDGE  KEY  TO  MAIN  MENU
PRESS  DPS  EDGE  KEY

49-291  CDPS       CDR       152

PANEL  F7

CRT  3  MDU
PRESS  UP  ARROW  EDGE  KEY  TO  MAIN  MENU
PRESS  MEDS  MAINT  EDGE  KEY

CRT  3
VERIFY  NO  RED  DATA  APPEARS  ON  MEDS  SYSTEM  STATUS
DISPLAY

49-292  CDPS       CDR       152

PANEL  F7

CRT  3  MDU
PRESS  FAULT  SUMM  EDGE  KEY

CRT  3
REPORT  MEDS  FAULT  SUMMARY  MESSAGES
49-293 CDPS CDR 152

PANEL F7

CRT 3 MDU
PRESS CLEAR MSGS EDGE KEY
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS DPS EDGE KEY

49-294 CDPS CDR 152

PANEL R11U

CRT 4 MDU
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS MEDS MAINT EDGE KEY

CRT 4 VERIFY NO RED DATA APPEARS ON MEDS SYSTEM STATUS DISPLAY

49-295 CDPS CDR 152

PANEL R11U

CRT 4 MDU
PRESS FAULT SUMM EDGE KEY

CRT 4 REPORT MEDS FAULT SUMMARY MESSAGES
49-296  
CDPS     CDR     152

PANEL R11U

CRT 4 MDU
PRESS CLEAR MSGS EDGE KEY
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS DPS EDGE KEY

49-297  
CDPS

APPL PAGE (VWS25 PG-B)
REVIEW/CLEAR IDP 1-4 BITE QUEUE VIA CURSOR AND
VERIFY NO UNEXPECTED ERRORS

CRT (VWS25 PG-B)
IDP 1 SW 1-3 = 0070 0000 0000
IDP 2 SW 1-3 = 0070 0000 0000
IDP 3 SW 1-3 = 8044 0000 0000
IDP 4 SW 1-3 = 8800 0000 0000

NOTE
Next step will activate Exception Monitoring on BFS IDP SW1 for MDU command bit changes. Error message will occur if EMON is already active.

49-298  
CDPS

CONSOLE KYBD
A SX V98M4864P1
XMIT CMD KEY - PRESS

49-299  
CDPS     OTC     132

MEDS System Activation complete.

*** End of Option 10. MEDS System Activation ***
Option 11. Transition to G9 RS

NOTE
Perform this option for initial Launch attempt.

Option 11 Not Performed:_____

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V72CA0.051-A

49-300 CDPS

CRT (VAS59 PG-B)
VERIFY NO ACTIVE TCS SEQUENCES OR ECP'S

VERIFY CRT 1,2,3 DISP ID = 9011

49-301 CDPS CDR 152

PANEL 06

IPL SOURCE SW - MMU1
49-302  CDPS   CDR   152

PANEL 06

GENERAL PURPOSE COMPUTER
MODE
1 SW - STBY
1 TB BP
1 SW - HALT

2 SW - HALT
3 SW - HALT
4 SW - HALT

OUTPUT
1 SW - NORMAL
2 SW - NORMAL
3 SW - NORMAL
4 SW - NORMAL

POWER
1 SW - ON (VERIFY)
2 SW - OFF, THEN ON
3 SW - OFF, THEN ON
4 SW - OFF, THEN ON

49-303  CDPS   CDR   152

PANEL C3

BFC CRT
DISPLAY SW - OFF

49-304  CDPS   CDR   152

PANEL 06

GENERAL PURPOSE COMPUTER
INITIAL PROGRAM LOAD
1 PB - PRESS, REL

MODE
1 TB IPL THEN BP
1 SW - STBY
1 TB RUN (WITHIN 2 MIN)
1 SW - RUN

OUTPUT
1 TB GRAY
49-305  CDPS

CRT (VAS59 PG-B)
DL FMT 20 ACTIVE
GPC 1 TIME SOURCE A1

49-306  CDPS

CRT (VAS97 PG-B)
VERIFY GPC ERROR (PMU TIME INVALID) DID NOT OCCUR
WHEN GPC 1 WAS BROUGHT TO RUN.

49-307  CDPS  CDR  152

PANEL C2A2
  LEFT CRT SEL SW - 1

49-308  CDPS  CDR  152

LEFT KYBD
SPEC 1
PRO

CRT1
DPS UTILITY

49-309  CDPS  CDR  152

LEFT KYBD
ITEM 50
EXEC
RESUME

49-310  CDPS

CRT (VAS59 PG-B)
VERIFY LDB POLL ACTIVE ON BUS 1
49-311        CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY PRESS

CURSOR CNTL (SAS01 PG-B)
DPS RECONFIGURATION (VAS90)
XMIT CURSOR KEY - PRESS

PFK 2 KEY - PRESS

49-312        CDPS

CURSOR CNTL (VAS90 PG-B)
PRIMARY OPS TRANS - GNC 9
XMIT CURSOR KEY - PRESS

49-313        CDPS

IF DL format 60 is required for payload support (ref S0007.100 Orbiter Operation 272)

THEN:

APPL PAGE (VAS90 PG-B)
PFK-7 KEY - PRESS

CURSOR CNTL (VAS90 PG-B)
FMT 60
XMIT CURSOR KEY - PRESS

Not Performed:______
49-314  CDPS

PFP (VAS90 PG-B)
EXECUTE KEY - PRESS

CRT (VAS90 PG-B)
“SUCCESSFUL COMPLETION OF JOB”

CRT (VAS90 PG-A)
NO ERROR MESSAGES DISPLAYED

49-315  CDPS

CRT (VAS59 PG-B)
VERIFY GPC’S 1, 2, 3, 4 IN RS AND FORMAT 44 OR 60 ACTIVE.

49-316  Noted requirements are complete.

OMRSD V72CA0.051-A

49-317  CDPS

PFP (VAS90 PG-B)
TERMINATE KEY - PRESS

49-318  CDPS     CDR     152

LEFT KYBD
SPEC 2
PRO

CRT 1
TIME DISPLAY
49-319  CDPS  CDR  152
LEFT KYBD
ITEM 2
EXEC
CRT 1
MET 2*

49-320  CDPS  CDR  152
LEFT KYBD
RESUME
CRT 1
9011 GPC MEMORY

49-321  CDPS
CURSOR CNTL (SAS01 PG-B)
ACT CYCLIC BSR READ
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

49-322  CDPS
CRT (SA PG)
CYC BSR - ACT
Re-start SRB Poll

NOTE
Perform this option if SRBs are powered up (restarts SRB polling).

Re-start SRB Poll Not Performed:_____

49-323

CDPS
CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS
CURSOR CNTL (SAS01 PG-B)
SRB READ PORT 1 & 2
XMIT CURSOR KEY - PRESS
PFK2 KEY - PRESS

49-324

CDPS
CRT (BSM06 PG-A)
NO UNEXPLAINED BSR'S RECORDED
"BSM06 TERMINATED"

49-325

CDPS
CURSOR CNTL (SAS01 PG-B)
SRB DPS OVERVIEW (BKM01)
XMIT CURSOR KEY - PRESS
CRT (SAS01 PG-B)
SRB POLLING UP
SRB PROM BYP OK
PFK2 KEY - PRESS

*** End of Re-start SRB Poll ***
49-326       CDPS       OTC       132

Transition to G9 RS, Downlist Format ________ (44 or 60) complete.

*** End of Option 11. Transition to G9 RS ***
Option 12. LCC Monitor Activation/LDB Redundancy Check

NOTE
Perform this option if countdown was terminated after LCC Monitor Activation.

Option 12 Not Performed:______

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

49-327  CDPS

IF CYCLIC BSR READ IS ACTIVE,

THEN PERFORM:
CURSOR CNTL (SAS01 PG-B)
INH CYCLIC BSR READ
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS
CRT (SA PAGE)
CYC BSR - INH

Not Performed:______

49-328  CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS
CURSOR CNTL (SAS01 PG-B)
ACTIVATE DPS EMONS
XMIT CURSOR KEY - PRESS
CRT (SA PAGE)
DPS EMONS ACTIVATED (WITHIN 5 MIN)
49-329  
CDPS
CURSOR CNTL (SAS01 PG-B)
MDM BSR READ PROGRAM (VAS93)
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

49-330  
CDPS
APPL PAGE (VAS93 PG-B)
PFK4 KEY - PRESS

CRT (VAS93 PG-B)
NO UNEXPLAINED BSR'S
NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00FB0.230-1R

49-331  CDPS

CRT (SAS05 SA-PG)
VERIFY LH & RH SRB POWER IS UP

49-332  CDPS

CURSOR CNTL (VAS93 PG-B)
PORT ______ (ACTIVE LDB NO.)
XMIT CURSOR KEY - PRESS

APPL PAGE (VAS93 PG-B)
PFK5 KEY - PRESS

CRT (VAS93 PG-B)
NO UNEXPLAINED BSR'S

49-333  CDPS

CONSOLE KYBD
GPCC LDBC
XMIT CMD KEY - PRESS
NOTE

In the following step, switch to inactive LDB.

49-334  

CDPS

CURSOR CNTL ($GM)
POLL GSE ON LDB NO. _____
XMIT CURSOR KEY - PRESS

PFK1 KEY - PRESS

49-335  

CDPS

CRT (VAS59 PG-B)
LDB __ POLLING ACTIVE

49-336  

CDPS

CURSOR CNTL (VAS93 PG-B)
PORT _____ (ACTIVE LDB NO.)
XMIT CURSOR KEY - PRESS

APPL PAGE (VAS93 PG-B)
PFK5 KEY - PRESS

CRT (VAS93 PG-B)
NO UNEXPLAINED BSR'S

49-337  

CDPS

APPL PAGE (VAS93 PG-B)
PFK15 KEY - PRESS
Select LDB1

NOTE
Perform this option if currently polling on LDB2.

Select LDB1 Not Performed:_____

49-338      CDPS
CONSOLE KYBD
GPCC LDBC
XMIT CMD KEY - PRESS

49-339      CDPS
CURSOR CNTL ($GM)
POLL GSE ON LDB NO. 1
XMIT CURSOR KEY - PRESS

PFK1 KEY - PRESS

49-340      CDPS
CRT (VAS59 PG-B)
LDB 1 POLLING ACTIVE

*** End of Select LDB1 ***

49-341      Noted requirements are complete.

OMRSD S00FB0.230-1R
NOTE
IMU Bypass will be annunciated during LCC monitor activation if IMUs are not in Operate.

BFS I/O Term B will be annunciated if BFS is active and output switch is in Normal.

49-342
CDPS
CURSOR CNTL (SAS01 PG-B)
DPS INIT DISPLAY (SAS01)
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
TERMINATE OPS MGR 1 (SAS07)
XMIT CURSOR KEY - PRESS

CONSOLE KYBD (SAS01 PG-B)
PFK2 KEY - PRESS

49-343
CDPS
CONSOLE KYBD
VASP9
PERF PGM KEY - PRESS

CRT (VASP9 PG-B)
LCC MONITOR HOST PROGRAM

NOTE
In the following step, replace “X” with the concurrency number (1-6) in which the CCME S/W is running.

49-344
CDPS
CURSOR CNTL (VASP9 PG-B)
ERROR NOTIF TO: XA, XB
XMIT CURSOR KEY - PRESS

CRT (VASP9 PG-B)
PAGE XA, XB INHIBITED

512
CDPS

CURSOR CNTL (VASP9 PG-B)
ACTIVATE LCC MONITORING
XMIT CURSOR KEY - PRESS

CONSOLE KYBD (VASP9 PG-B)
PFK1 KEY - PRESS

MEDS Display Verification

CDPS    CDR    152

49-346

PANEL F7
CRT 1 MDU
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS MEDS MAINT EDGE KEY
PRESS FAULT SUMM EDGE KEY

CRT 1
REPORT MEDS FAULT SUMMARY MESSAGES

49-347

CDPS    CDR    152

PANEL F7
CRT 1 MDU
PRESS CLEAR MSGS EDGE KEY (AS REQUIRED)
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS DPS EDGE KEY

49-348

CDPS    CDR    152

PANEL F7
CRT 2 MDU
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS MEDS MAINT EDGE KEY
PRESS FAULT SUMM EDGE KEY

CRT 2
REPORT MEDS FAULT SUMMARY MESSAGES
49-349  CDPS  CDR  152

PANEL  F7
CRT 2  MDU
PRESS  CLEAR MSGS EDGE KEY (AS REQUIRED)
PRESS  UP ARROW EDGE KEY TO MAIN MENU
PRESS  DPS EDGE KEY

49-350  CDPS  CDR  152

PANEL  F7
CRT 3  MDU
PRESS  UP ARROW EDGE KEY TO MAIN MENU
PRESS  MEDS MAINT EDGE KEY
PRESS  FAULT SUMM EDGE KEY

CRT 3
REPORT  MEDS FAULT SUMMARY MESSAGES

49-351  CDPS  CDR  152

PANEL  F7
CRT 3  MDU
PRESS  CLEAR MSGS EDGE KEY (AS REQUIRED)
PRESS  UP ARROW EDGE KEY TO MAIN MENU
PRESS  DPS EDGE KEY

49-352  CDPS  CDR  152

PANEL  R11U
CRT 4  MDU
PRESS  UP ARROW EDGE KEY TO MAIN MENU
PRESS  MEDS MAINT EDGE KEY
PRESS  FAULT SUMM EDGE KEY

CRT 4
REPORT  MEDS FAULT SUMMARY MESSAGES

49-353  CDPS  CDR  152

PANEL  R11U
CRT 4  MDU
PRESS  CLEAR MSGS EDGE KEY (AS REQUIRED)
PRESS  UP ARROW EDGE KEY TO MAIN MENU
PRESS  DPS EDGE KEY
NOTE

The next step will confirm MDU displays and edge key menus configured for Flight Crew Ingress. If necessary, establish specified displays and menus via MDU edge keys (reference Figure 49-2 for edge key menu hierarchy).

Mission-specific display and edge key menu information is contained in OMI S0007.100, Operation 272 - DPS Launch Support Configuration.

<table>
<thead>
<tr>
<th>MDU</th>
<th>Display</th>
<th>Edge Key Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT1</td>
<td>DPS</td>
<td>DPS</td>
</tr>
<tr>
<td>CRT2</td>
<td>DPS</td>
<td>DPS</td>
</tr>
<tr>
<td>CRT3</td>
<td>DPS</td>
<td>DPS</td>
</tr>
<tr>
<td>CRT4</td>
<td>DPS</td>
<td>DPS</td>
</tr>
<tr>
<td>CDR1</td>
<td>_______</td>
<td>______________</td>
</tr>
<tr>
<td>CDR2</td>
<td>_______</td>
<td>______________</td>
</tr>
<tr>
<td>MFD1</td>
<td>_______</td>
<td>______________</td>
</tr>
<tr>
<td>MFD2</td>
<td>_______</td>
<td>______________</td>
</tr>
<tr>
<td>PLT1</td>
<td>_______</td>
<td>______________</td>
</tr>
<tr>
<td>PLT2</td>
<td>_______</td>
<td>______________</td>
</tr>
</tbody>
</table>
MEDS displays and edge key menus are configured for Flight Crew Ingress.

Request no further autonomous edge key operations.

INVOKE MEDS MONITOR DISPLAY (VWS25)
CRT (VWS25 PG-B)
IDP 1 SW 1-3 = 0070 0000 0000
IDP 2 SW 1-3 = 0070 0000 0000
IDP 3 SW 1-3 = 8044 0000 0000
NOTE
MEDS Monitor no longer required. Console displays may be reconfigured as required.

NOTE
An error message will occur in the next step if exception monitoring is already active.

49-357

CDPS

CONSOLE KYBD
A SX V72M5670PX
XMIT CMD KEY - PRESS

REPEAT FOR THE FOLLOWING:

V72M5740PX
V72M5830PX
V98M4862P1

*** End of MEDS Display Verification Option ***

49-358

CDPS OTC 132

DPS LCC Monitor Activation and LDB Redundancy Check complete.

*** End of Option 12. LCC Monitor Activation/LDB Redundancy Check ***
Option 13. Configure for IMU MM1 Checkpoint

NOTE
Perform this option if MM must be configured to support OMI V1123, GN&C Countdown and Mission Support Testing (LPS).

Option 13 Not Performed:_____

49-359

CDPS

CRT (VAS59 PG-B)
MMU 1 ON

49-360

CDPS

CONSOLE KYBD
DEUE KEY - PRESS
DEST GN 1 LDBA
XMIT CMD KEY - PRESS
DEUE KEY - PRESS
SPEC 1 PRO
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

49-361

CDPS

CRT (VAS59 PG-B)
CRT 1 DISP 0010

49-362

CDPS

CONSOLE KYBD
DEUE KEY - PRESS
ITEM 1 EXEC
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
DEUE KEY - PRESS
RESUME
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

49-363

CDPS  CGNC  152

Configured for MM1 checkpoint.

*** End of Option 13. Configure for IMU MM1 Checkpoint ***
Option 14. Configure for IMU MM2 Checkpoint

NOTE
Perform this option if MM must be configured to support OMI V1123, GN&C Countdown and Mission Support Testing (LPS).

Option 14 Not Performed:______

49-364
CDPS

CRT (VAS59 PG-B)
MMU 2 ON

49-365
CDPS

CONSOLE KYBD
DEUE KEY - PRESS
DEST GN 1 LDBA
XMIT CMD KEY - PRESS
DEUE KEY - PRESS
SPEC 1 PRO
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

49-366
CDPS

CRT (VAS59 PG-B)
CRT 1 DISP 0010

49-367
CDPS

CONSOLE KYBD
DEUE KEY - PRESS
ITEM 2 EXEC
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
DEUE KEY - PRESS
RESUME
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

49-368
CDPS CGNC 152

Configured for MM2 Checkpoint.

*** End of Option 14. Configure for IMU MM2 Checkpoint ***
Option 15. Restore Original Configuration After IMU Checkpoint

**NOTE**
Perform this option if MM configuration was changed to support OMI V1123, GN&C Countdown and Mission Support Testing (LPS).

Option 15 Not Performed:_____

49-369

CDPS

CONSOLE KYBD
DEUE KEY - PRESS
DEST GN 1 LDBA
XMIT CMD KEY - PRESS

DEUE KEY - PRESS
SPEC 1 PRO
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

49-370

CDPS

CRT (VAS59 PG-B)
CRT 1 DISP 0010

49-371

CDPS

CONSOLE KYBD
DEUE KEY - PRESS
ITEM 1 EXEC
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

DEUE KEY - PRESS
RESUME
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

49-372

CDPS CGNC 152

Original MM configuration restored.

*** End of Option 15. Restore Original Configuration After IMU Checkpoint ***
Option 16. GMT and MET Adjustment

| NOTE | Do not perform this option if Count is scrubbed prior to T-1H20M. |

Option 16 Not Performed:_______

| NOTE | Steps involving Crit 1, 1R and/or 1S items are contained in the following operation. |

| NOTE | Noted requirements are satisfied by the following series of steps. |

OMRS S00FG0.085

49-373 CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS
$SYS
PERF PGM KEY - PRESS

VERIFY TCG 1 OR 2 ACTIVE
CDPS

CURSOR CNTL ($SYS)
TCGX (X=ACTIVE TCG)
XMIT CURSOR KEY - PRESS

CRT ($SYS)
VERIFY TCG COMMUNICATING
AND IN ‘GO’ MODE

TCG STATUS:
ON INTERNAL CLOCK?

YES ☐

NO ☐

NOTE
If LPS time source changes from internal TCG clock to external clock, GMT delta check must be re-performed.

CDPS

CURSOR CNTL ($SYS)
TERMINATE
XMIT CURSOR KEY - PRESS
49-376  

CDPS

CRT (VAS59 PG-B)
VERIFY RS TIME SOURCE = A1
VERIFY OIS FEP ACTIVE

49-377  

CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

49-378  

CDPS

CURSOR CNTL (SAS01 PG-B)
TIME UPDATE PROGRAM
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

49-379  

CDPS

CURSOR CNTL (VAS58 PG-B)
DETERMINE LPS/GMT DELTA (NO UPDATE)
XMIT CURSOR KEY - PRESS

CRT (VAS58 PG-B)
LPS/GMT DELTA IS ___ MILLISECONDS.
GMT Adjustment

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform GMT Adjustment if +/- delta is greater than 0 MS (i.e. greater than 4 ticks).</td>
</tr>
</tbody>
</table>

GMT Adjustment Not Performed:

49-380
CDPS

CURSOR CNTL (VAS58 PG-B)
SELECT ANOTHER OPTION
XMIT CURSOR KEY - PRESS

CURSOR CNTL (VAS58 PG-B)
ADJUST GMT
XMIT CURSOR KEY - PRESS

49-381
CDPS

CRT (VAS58 PG-B)
VERIFY GMT ADJUST COMPLETE
DELTA = 0 MS +/-1 MS
VERIFY TIME SOURCE = A1

*** End of GMT Adjustment ***

49-382
CDPS

CURSOR CNTL (VAS58 PG-B)
SELECT ANOTHER OPTION
XMIT CURSOR KEY - PRESS

49-383
CDPS

CURSOR CNTL (VAS58 PG-B)
DETERMINE MET/GMT DELTA (NO UPDATE)
XMIT CURSOR KEY - PRESS

CRT (VAS58 PG-B)
MET/GMT DELTA IS _______ MILLISECONDS.
MET Adjustment

NOTE
Perform this option if MET/GMT delta is greater than 500 MS.

MET Adjustment Not Performed:_____

49-384

CDPS
CURSOR CNTL (VAS58 PG-B)
SELECT ANOTHER OPTION
XMIT CURSOR KEY - PRESS
CURSOR CNTL (VAS58 PG-B)
SET MET = GMT
XMIT CURSOR KEY - PRESS

49-385

CDPS
CRT (VAS58 PG-B)
MET UPDATE COMPLETE. ABSOLUTE VALUE OF DELTA IS LESS THAN 500 MS.

*** End of MET Adjustment ***

49-386

CDPS
CURSOR CNTL (VAS58 PG-B)
TERMINATE VAS58
XMIT CURSOR KEY - PRESS

49-387

CDPS OTC 212
MTU/GMT Adjustment and MET/GMT Adjustment are complete.

49-388
Noted requirements are complete.

OMRSD S00FG0.085

*** End of Option 16. GMT and MET Adjustment ***
Option 17. MEDS System Securing

**NOTE**
Perform this option if Extended Scrub/Turnaround is declared.

Option 17 Not Performed:_____

<table>
<thead>
<tr>
<th>49-389</th>
<th>CDPS</th>
<th>CDR</th>
<th>152</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL F6</td>
<td>CD1</td>
<td>MDU</td>
<td>POWER KNOB - OFF</td>
</tr>
<tr>
<td>PANEL F6</td>
<td>CD2</td>
<td>MDU</td>
<td>POWER KNOB - OFF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>49-390</th>
<th>CDPS</th>
<th>CDR</th>
<th>152</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL F7</td>
<td>MD1</td>
<td>MDU</td>
<td>POWER KNOB - OFF</td>
</tr>
<tr>
<td>PANEL F7</td>
<td>MD2</td>
<td>MDU</td>
<td>POWER KNOB - OFF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>49-391</th>
<th>CDPS</th>
<th>CDR</th>
<th>152</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL F8</td>
<td>PLT1</td>
<td>MDU</td>
<td>POWER KNOB - OFF</td>
</tr>
<tr>
<td>PANEL F8</td>
<td>PLT2</td>
<td>MDU</td>
<td>POWER KNOB - OFF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>49-392</th>
<th>CDPS</th>
<th>CDR</th>
<th>152</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL R11L</td>
<td>IDP/CRT 4</td>
<td>POWER SW - OFF</td>
<td></td>
</tr>
<tr>
<td>PANEL R11U</td>
<td>CRT4</td>
<td>MDU</td>
<td>POWER KNOB - OFF</td>
</tr>
</tbody>
</table>
49-393  CDPS  CDR  152

ORBIT STATION
AFD1 MDU
   POWER KNOB - OFF

49-394  CDPS  CDR  152

PANEL R14
ROW A
   MN A
      ADC
         1A/2A CB - OPEN
      MDU
         MFD2 CB - OPEN
         PLT1 CB - OPEN
   MN B
      ADC
         1B/2B CB - OPEN
      MDU
         MFD1 CB - OPEN
         CDR2 CB - OPEN
   MN C
      MDU
         CDR1 CB - OPEN
         PLT2 CB - OPEN
         AFD1 CB - OPEN

49-395  CDPS  CDR  152

PANEL F7
CRT 1 MDU
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS MEDS MAINT EDGE KEY
PRESS FAULT SUMM EDGE KEY

CRT 1
REPORT MEDS FAULT SUMMARY MESSAGES

49-396  CDPS  CDR  152

PANEL F7
CRT 1 MDU
PRESS CLEAR MSGS EDGE KEY
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS DPS EDGE KEY
49-397  CDPS  CDR  152

PANEL  F7
CRT 2 MDU
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS MEDS MAINT EDGE KEY
PRESS FAULT SUMM EDGE KEY

CRT 2
REPORT MEDS FAULT SUMMARY MESSAGES

49-398  CDPS  CDR  152

PANEL  F7
CRT 2 MDU
PRESS CLEAR MSGS EDGE KEY
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS DPS EDGE KEY

49-399  CDPS  CDR  152

PANEL  F7
CRT 3 MDU
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS MEDS MAINT EDGE KEY
PRESS FAULT SUMM EDGE KEY

CRT 3
REPORT MEDS FAULT SUMMARY MESSAGES

49-400  CDPS  CDR  152

PANEL  F7
CRT 3 MDU
PRESS CLEAR MSGS EDGE KEY
PRESS UP ARROW EDGE KEY TO MAIN MENU
PRESS DPS EDGE KEY
49-401  CDR

IF the Panel C2 IDP power switch 30 second advisory tag is not installed,

THEN:

PANEL C2
IDP/CRT 1, 2 AND 3 POWER SWITCHES

Install tag annotated with “IDP/CRT PWR SW MUST REMAIN ON FOR 30 SECONDS” over the three switches.

Not Performed:_____

T:_____

49-402  CDR

IF the Panel R11 IDP power switch 30 second advisory tag is not installed,

THEN:

PANEL R11L
IDP/CRT 4 POWER SWITCH

Install tag annotated with “IDP/CRT PWR SW MUST REMAIN ON FOR 30 SECONDS” over the switch.

Not Performed:_____

T:_____

49-403  CDPS   OTC  212

MEDS System Securing complete.

*** End of Option 17. MEDS System Securing ***
Option 18. DPS Securing (Scrub)

NOTE
Perform this option for Extended Scrub/Turnaround.

Option 18 Not Performed:_____

49-404

CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
DPS RECONFIGURATION (VAS90)
XMIT CURSOR KEY - PRESS

PFK2 - PRESS

49-405

CDPS

CURSOR CNTL (VAS90 PG-B)
QUICK NBAT MOD - GPC___ SMPLX (GPC1-4)
XMIT CURSOR KEY - PRESS

CURSOR CNTL (VAS90 PG-B)
MOD NBAT - G9
XMIT CURSOR KEY - PRESS

CRT (VAS90 PG-B)
VERIFY G9 NBAT ASSIGNED FOR SIMPLEX GPC (GREEN)

49-406

CDPS

CURSOR CNTL (VAS90 PG-B)
PRIMARY OPS TRANS - GNC9
XMIT CURSOR KEY - PRESS
The format to select in the next step will be provided by OTC.

49-407

CDPS

**IF** DOWNLIST FORMAT CHANGE IS REQUIRED TO SUPPORT VEHICLE OPERATIONS,

**THEN PERFORM:**
APPL PAGE (VAS90 PG-B)
PFK7 - PRESS

CURSOR CNTL (VAS90 PG-B)
DOWNLIST FORMAT LOAD - FMT___
XMIT CURSOR KEY - PRESS

Not Performed:______

49-408

CDPS

**IF** OI FORMAT 129 IS REQUIRED AND IS NOT CURRENTLY ACTIVE,

**THEN PERFORM:**
APPL PAGE (VAS90 PG-B)
PFK8 - PRESS

CURSOR CNTL (VAS90 PG-B)
**ACTIVATE** FIXED 129
XMIT CURSOR KEY - PRESS

Not Performed:______

49-409

CDPS

PFP (VAS90)
EXECUTE KEY - PRESS

49-410

CDPS

CRT (VAS90 PG-B)
**FOLLOW** PROGRAM PROMPTS UNTIL 'SUCCESSFUL COMPLETION OF JOB' MESSAGE RECEIVED.
49-411  CDPS

PFP (VAS90 PG-B)
TERMINATE KEY - PRESS

49-412  CDPS

**IF CYCLIC BSR READS ARE TO BE ACTIVATED,**

**THEN PERFORM:**
CURSOR CNTL (SAS01 PG-B)
ACT CYCLIC BSR READ (VSSD4)
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT (SA PAGE)
CYC BSR - ACT

Not Performed:_____

49-413  CDPS  OTC  132

DPS configured to G9 Simplex, Format ______/______.
BFS Deactivation

NOTE
Perform this option if BFS is active and is not required for Extended Scrub.

BFS Deactivation Not Performed:______

49-414 CDPS CDR 152

PANEL 06

GENERAL PURPOSE COMPUTER
MODE
  5 SW - HALT
OUTPUT
  5 SW - NORMAL
POWER
  5 SW - OFF

49-415 CDPS CDR 152

PANEL C3

BFC CRT
DISPLAY SW - OFF

*** End of BFS Deactivation ***

*** End of Option 18. DPS Securing (Scrub) ***

*** End of Operation 49 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 50 MET Initialization and Switch/Circuit Breakers Configuration

Shop: FWD
Cntrl Rm Console: C10
OPR: EPD
Zone: 121, 122
Hazard (Y/N): N
Duration (Hrs): 1.0

NOTE
Do not perform this operation for 24-, 48-, or 72-hour Turnaround.

Operation Not Performed:______
Perform Orbiter MET Initialization and Switch/Circuit Breaker Configuration.

Report completion.

**MET Initialization**

50-2  CEPD  CDR  151

**Panel O14**

**Row B**

MN A
MISSION TIMER FWD CB - CLOSE
EVENT TIMER AFT CB - CLOSE

50-3  CEPD  PLT  151

**Panel O15**

**Row B**

MN B
MISSION TIMER AFT CB - CLOSE
EVENT TIMER FWD CB - CLOSE

50-4  CEPD  CDR  151

**Panel L4**

**Row Q**

AC 2
LIGHTING
NUMERIC OS
PH C CB - CLOSE

**Row R**

AC 1
NUMERIC FWD
PH B CB - CLOSE
50-5

CEPD  PLT  151

PANEL 08

LIGHTING PANEL
NUMERIC SW - (MIDWAY BETWEEN OFF AND BRIGHT)

50-6

CEPD  MS1  151

PANEL A6U

ORBIT STATION LIGHTING
NUMERIC SW - (MIDWAY BETWEEN OFF AND BRIGHT)

AFT Mission Timer

50-7

CEPD  MS1  151

PANEL A4

MISSION TIMER SW - GMT
VERIFY MISSION TIMER NUMERICS ILLUMINATED AND TIME ADVANCING.
VERIFY FAULT INDICATOR LT OFF

50-8

CEPD  MS1  151

PANEL A4

MISSION TIMER SW - TEST (HOLD)
VERIFY ALL EIGHTS ARE DISPLAYED
VERIFY FAULT INDICATOR LT ON

50-9

CEPD  MS1  151

PANEL A4

MISSION TIMER SW - RELEASE
VERIFY MISSION TIMER NUMERICS ILLUMINATED AND TIME ADVANCING (MET).
VERIFY FAULT INDICATOR LT OFF

*** End of AFT Mission Timer ***
AFT Event Timer

50-10  CEPD  MS1  151

PANEL A4

VERIFY EVENT TIMER NUMERICS ILLUMINATED
VERIFY FAULT INDICATOR LT OFF

50-11  CEPD  MS1  151

PANEL A6U

EVENT TIMER
MODE SW - TEST (HOLD)

50-12  CEPD  MS1  151

PANEL A4

VERIFY EVENT TIMER DISPLAYS ALL 8'S
VERIFY FAULT INDICATOR LT ON

50-13  CEPD  MS1  151

PANEL A6U

EVENT TIMER
MODE SW - UP

50-14  CEPD  MS1  151

PANEL A4

VERIFY EVENT TIMER NUMERICS ILLUMINATED
VERIFY FAULT INDICATOR LT OFF

*** End of AFT Event Timer ***
Forward Mission Timer

50-15  CEPD   PLT   151

PANEL 03

MISSION TIMER SW - GMT
VERIFY MISSION TIMER NUMERICS ILLUMINATED AND
TIME ADVANCING.
VERIFY FAULT INDICATOR LT OFF

50-16  CEPD   PLT   151

PANEL 03

MISSION TIMER SW - TEST (HOLD)
VERIFY ALL EIGHTS ARE DISPLAYED
VERIFY FAULT INDICATOR LT ON

50-17  CEPD   PLT   151

PANEL 03

MISSION TIMER SW - RELEASE
VERIFY MISSION TIMER NUMERICS ILLUMINATED AND
TIME ADVANCING.
VERIFY FAULT INDICATOR LT OFF

*** End of Forward Mission Timer ***
Forward Event Timer

50-18  CEPD  PLT  151

PANEL F7

VERIFY EVENT TIMER NUMERICS ILLUMINATED.
VERIFY FAULT INDICATOR LT OFF

50-19  CEPD  PLT  151

PANEL C2

TIMER SET TW'S - 0900
TIMER SW - SET (MOM)
EVENT TIMER
  MODE SW - TEST (HOLD)

50-20  CEPD  PLT  151

PANEL F7

VERIFY EVENT TIMER DISPLAYS ALL 8'S
VERIFY FAULT INDICATOR LT ON

50-21  CEPD  PLT  151

PANEL C2

EVENT TIMER
  MODE SW - RELEASE

50-22  CEPD  PLT  151

PANEL F7

VERIFY EVENT TIMER INDICATES 0900
VERIFY FAULT INDICATOR LT OFF

*** End of Forward Event Timer ***
Switch/Circuit Breaker Configuration

50-23  CEPD  CDR  151

PANEL L4

ROW Q
AC 1
LIGHTING
PANEL
  L/CTR
    PH A CB - CLOSE
  L OVHD
    PH B CB - CLOSE
  INST OS
    PH C CB - OPEN

AC 2
LIGHTING
PANEL
  R OVHD
    PH A CB - CLOSE
  R
    PH B CB - CLOSE
  NUMERIC OS
    PH C CB - OPEN

AC 3 LIGHTING
COAS
  PH A CB - OPEN
PANEL
  MS
    PH B CB - OPEN
  OS
    PH C CB - OPEN

ROW R
AC 1
  INST R
    PH A CB - CLOSE
AC 2
  INST OVHD
    PH B CB - CLOSE
AC 3
  INST L/CTR
    PH B CB - CLOSE
50-24 CEPD CDR 151

PANEL 014

ROW C
MN A
FLOOD LEFT CNSL CB - CLOSE

FIRE SUPPR BAY 3 CB - CLOSE
VERIFY/REMOVE “DO NOT USE OR OPERATE” TAG
INSTALLED PER OMI S5009.102.
RECORD LOTO TAG NO._____________

50-25 CEPD PLT 151

PANEL 015

ROW C
MN B
FLOOD
RIGHT CNSL CB - CLOSE
LEFT CTR CB - CLOSE

FIRE SUPPR BAY 1 CB - CLOSE
VERIFY/REMOVE “DO NOT USE OR OPERATE” TAG
INSTALLED PER OMI S5009.102.
RECORD LOTO TAG NO._____________

ROW E
MN B
DRAG CHUTE SYS 2 CB - CLOSE
06-24-2011   OMI  S0007.400      A23
APPROVED    APPROVED

50-26 CEPD PLT 151

PANEL 016

ROW C
MN C
FLOOD RIGHT CTR CB - CLOSE

FIRE SUPPR BAY 2 CB - CLOSE
VERIFY/REMOVE "DO NOT USE OR OPERATE" TAG
INSTALLED PER OMI S5009.102 .
RECORD LOTO TAG NO.____________

ROW E
MN C
DRAG CHUTE SYS 1 CB - CLOSE

50-27 CEPD PLT 151

PANEL 08

LIGHTING PANEL
NUMERIC SW - BRT

50-28 CEPD PLT 151

PANEL C3

SRB SEPARATION
MAN/AUTO SW - AUTO
ET SEPARATION
MAN/AUTO SW - AUTO

50-29 CEPD PLT 151

PANEL F9

DC VOLT/AMP SW - MAIN VOLTS B
50-30  CEPD    MS1    151

PANEL A6U

ORBIT STATION LIGHTING
  NUMERIC SW - OFF
  ANNUNCIATOR
  BUS SELECT SW - OFF

50-31  CEPD    MS1    151

PANEL R14

ROW B
  MN A
    CONTROL BUS BC1/2/3 CB - CLOSE
  MN B
    CONTROL BUS CA1/2/3 CB - CLOSE
  MN C
    CONTROL BUS AB1/2/3 CB - CLOSE

ROW E
  MN A
    PS FLOOD CB - CLOSE
  MN C
    MS FLOOD CB - CLOSE

ROW F
  ESS 1BC
    FLOOD LEFT GLRSHLD CB - CLOSE
    LDG GEAR ARM/DN RESET CB - OPEN
  ESS 2CA
    FLOOD RIGHT GLRSHLD CB - CLOSE
50-32  CEPD  MS1  151

PANEL ML86B

ROW E
MN A
FLOOD TUNNEL ADAPTER 2 CB - OPEN
MN B
FLOOD TUNNEL ADAPTER 3 CB - OPEN
MN C
FLOOD TUNNEL ADAPTER 4 CB - OPEN

ROW F
MN A
FLOODS
MIDDECK 1/8 CB - CLOSE
WMC/MO13Q CB - OPEN
AIRLOCK 1 CB - OPEN
MIDDECK 9 CB - OPEN
MN B
FLOODS
MIDDECK 2/6 CB - CLOSE
BUNK 2/4 CB - OPEN
MIDDECK 10 CB - OPEN
AIRLOCK 3 CB - OPEN
MN C
FLOODS
MIDDECK
5/7 CB - CLOSE
3/4/MO13Q CB - CLOSE
BUNK 1/3 CB - OPEN
AIRLOCK 4 CB - OPEN

ROW G
ESS 1BC
FLOOD
AIRLOCK 2 CB - OPEN
TUNNEL ADAPTER 1 CB - OPEN

*** End of Switch/Circuit Breaker Configuration ***
Utility Outlet Configuration

NOTE
Obtain the switch and circuit breaker positions for the following steps from VITT office (861-9224).

50-33 CE PD CDR 151
PANEL MO13Q
DC UTILITY POWER
MN B SW - ______
AC UTILITY POWER
AC 3 SW - ______

50-34 CE PD CDR 151
PANEL MO30F
DC UTILITY POWER
MN C SW - ______

50-35 CE PD CDR 151
PANEL MO52J
DC UTILITY POWER
MN A SW - ______
AC UTILITY POWER
AC 1 SW - ______
PANEL MO63P
MAIN C-DC UTILITY POWER

CB4/J4 CB-____
CB3/J3 CB-____
CB2/J2 CB-____
J2 SW-____
POWER SELECT 15A/10A SW-____ (J2/J3, J4)
J3 SW-____
J4 SW-____
J5 SW-____
POWER SELECT 15A/10A SW-____ (J5/J6)
J6 SW-____
CB5/J5 CB-____
CB6/J6 CB-____
RLY PWR CB-____
50-37  CEPD  CDR  151

PANEL ML85E (MUP)

AC

S1 SW - OFF
CB1 - OPEN

DC 10 AMP MN B

S2 SW - ____
CB2 - ____
S3 SW - ____
CB3 - ____
S4 SW - ____
CB4 - ____
S5 SW - ____
CB5 - ____

PUMPS

S6 SW - OFF
2 CB7 - OPEN
1 CB6 - OPEN

50-38  CEPD  CDR  151

PANEL ML86B

ROW E

MN B
MAR 1 CB-____

MAR 2 CB-____
50-39  CEPO  CDR  151

PANEL F1
DC UTILITY POWER
MN B SW - _____
AC UTILITY POWER
AC 1 SW - _____

50-40  CEPO  CDR  151

PANEL O19
DC UTILITY POWER
MN A SW - OFF

50-41  CEPO  CDR  151

PANEL A11
DC UTILITY POWER
MN C SW - OFF

50-42  CEPO  CDR  151

PANEL A15
DC UTILITY POWER
MN C SW - OFF
AC UTILITY POWER
AC 3 SW - _____
50-43  CEPD  CDR  151

PANEL L4
ROW B
UTILITY POWER
F1/MO52J AC 1 CB - _____
A15/MO13Q AC 3 CB - _____

50-44  CEPD  CDR  151

PANEL O14
ROW C
MN A
UTILITY POWER 019/MO52J CB - CLOSE

50-45  CEPD  CDR  151

PANEL O15
ROW C
MN B
UTILITY POWER F1/MO13Q CB - _____

50-46  CEPD  CDR  151

PANEL O16
ROW C
MN C
UTILITY POWER A11/A15/MO30F CB - CLOSE

*** End of Utility Outlet Configuration ***
Seat Power Configuration

50-47 CEPD PLT 151

PLT SEAT (LOWER-LEFT SIDE)
SEAT BUS SEL SW - AC 3 (DN)

50-48 CEPD CDR 151

CDR SEAT (LOWER-LEFT SIDE)
SEAT BUS SEL SW - AC 2 (UP)

*** End of Seat Power Configuration ***

50-49 CEPD OTC 132 CTPE

If LOTO tags were removed per this operation,

THEN Remove the following tag number(s) from the LOTO Database:

<table>
<thead>
<tr>
<th>Panel</th>
<th>Circuit Breaker</th>
<th>Tag Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>O14</td>
<td>Fire Suppr Bay 3</td>
<td></td>
</tr>
<tr>
<td>O15</td>
<td>Fire Suppr Bay 1</td>
<td></td>
</tr>
<tr>
<td>O16</td>
<td>Fire Suppr Bay 2</td>
<td></td>
</tr>
</tbody>
</table>

Not Performed:_____

50-50 CEPD OTC 132

MET Initialization and Switch Configuration complete.

*** End of MET Initialization ***

*** End of Operation 50 ***
OPERATION 51  OMS Propellant Tank Repress

Shop: OMS  
Cntrl Rm Console: C7  
OPR: ORP  
Zone: 540, 550  
Hazard (Y/N): Y  
Duration (Hrs): 1.0

NOTE
This operation is performed only after Pad is cleared for Cryo Loading. No essential personnel are allowed within the pad perimeter until OMS Repress complete. Nonessential LDB traffic will degrade TCS performance. This sequence is not compatible with IMU calibrations.

NOTE
Propellant and helium tank pressures may vary due to temperature changes and may decrease due to helium absorption with large pressure drops observed with high percentage propellant loads. OMS Tank Repress ensures oxidizer and fuel tank pressures meet LCC requirements.

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.
Verify Format 129 or 166/44 or 42 or 60 active.

**WARNING**

Hypergolic propellant liquid and/or vapors may be released at high pressures in the event of a component leakage or failure during propellant tank pressurization. Hypergolic vapors are toxic and are severe irritants. Exposure may cause severe eye, skin and respiratory system irritation and permanent damage. Sudden release of pressure may cause bodily injury.

WT013 12-07-2005

**NOTE**

Hazardous steps follow due to OMS/RCS helium regulator lockups and propellant tank pressurizations.

**NOTE**

VWD19 TCS burst disc protection closes the helium valves at 288 psia (actual). A large pressure delta between the oxidizer and the fuel propellant tanks with one tank near lockup can cause an overshoot on the tank near lockup with the possibility of activating TCS. For this condition, verify the overshoot is within the engineering experience base and does not approach burst disk pressure. VWD41 should be loaded on PC GOAL for this monitoring.

**NOTE**

OMS burst disk protection uses OMDP or NASA OMS website offset data. Initiating VWD19 will display the last value entered into the GPC shared registers. Values are updated when the new offsets are entered for OMS using XMIT response key and returned to the console to the next rounded down bit value. When the LOAD TCS target is keyed for LOMS or ROMS the value passes from the console through the shared register then to the private write area of the GPC/TCS register. To verify the value was not corrupted in transit through the shared register the ‘Download Current Ullage Pressure Offsets’ target must be keyed to read the shared registers to verify offset values did not change.
LOMS Oxid/Fuel Propellant Tank Repress

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noted requirements are satisfied by the following steps annotated with OMRS code.</td>
</tr>
</tbody>
</table>

OMRS V43CF0.110-A

51-2

COOS  OTC  132

OTC  CGNC

Verify IMUs are in Term Idle.

51-3

COOS

CRT (VWD42)

1. RECORD LOMS GHE TANK ULLAGE PRESSURE:

   INDICATED ______ PSIA ( - ) OFFSET ______ =
   P1 OR P2 (CIRCLE ONE)

   ACTUAL ______ PSIA

2. VERIFY LOMS GHE TANK PRESSURE NLT 2000 PSIA

OMRS V43CF0.110-A
51-4

COOS

CRT (VWD41/42)

RECORD LOMS FUEL AND OXID ULLAGE TANK ULLAGE PRESSURE/TEMP (VALUES ARE BD):

OXID ULLAGE _______ PSIA (-) OFFSET _______ =

   ACTUAL _______ PSIA

TEMPERATURE _______ DEG F

FUEL ULLAGE _______ PSIA (-) OFFSET _______ =

   ACTUAL _______ PSIA

TEMPERATURE _______ DEG F
COOS

CURSOR CNTL (VWD19)
LOMS VFD06

SELECT ‘SET ULLAGE OFFSET FU’ - XMIT CURSOR
ENTER OFFSET - XMIT RESPONSE

SELECT ‘SET ULLAGE OFFSET OX’ - XMIT CURSOR
ENTER OFFSET - XMIT RESPONSE

DOWNLOAD CURRENT ULLAGE PRESSURE OFFSETS - XMIT CURSOR

VERIFY CORRECT UPDATE OFFSETS.
(ALLOW FOR ROUNADING DOWN TO NEAREST BIT VALUE)
(VALUES ARE BD)

RECORD:

VFD06 LOMS FUEL ________ PSI
    OXID ________ PSI
51-6

COOS

CURSOR CNTL (VWD19)

1. LOAD TCS SEQUENCE - XMIT CURSOR
   VERIFY TCS STATUS - LOADED
   VERIFY ‘TCS LOADED’ (YELLOW UP ARROW)
   DOWNLOAD CURRENT ULLAGE PRESSURE OFFSETS - XMIT CURSOR
   VERIFY OFFSETS MATCH VALUES RECORDED IN PREVIOUS STEP.

2. **IF** OFFSETS DO NOT MATCH,

   **THEN:**

   CANCEL TCS SEQUENCE - XMIT CURSOR
   REPEAT PREVIOUS STEP AND SS1 OF THIS STEP UNTIL OFFSETS MATCH.

   **Not Performed:**_______

   SS2

51-7

COOS

CURSOR CNTL (VWD42)

1. **V1** - OPEN
   VERIFY PRESSURES STABLE

2. **H-3** - OPEN

OMRS V43CF0.110-A
LOMS TCS Executed

NOTE
Perform this option if TCS ran.

LOMS TCS Executed Not Performed:______

51-8

COOS

CURSOR CNTL (VWD42)

IF EITHER PROPELLANT TANK WAS ALREADY NEAR LOCKUP
AND PRESSURE EXCEEDED 281,

(EXCEPTION: TEMPERATURE INCREASES CAN CAUSE
PROPELLANT TANKS TO BE ABOVE 281 PSIA PRIOR
TO START OF REPRESS)

THEN VERIFY LOCKUP PRESSURE OF REG DID NOT EXCEED
281 PSIA ACTUAL USING ULLAGE TRANSDUCER FROM LOWER
PRESSURE TANK.

RECORD IPR NUMBER _______________________
(N/A IF IPR IS NOT REQUIRED)

Not Performed:______
COOS

CURSOR CNTL (VWD42)

**IF** REGULATOR PREFORMANCE IS NOT PER ENGINEERING EXPERIENCE BASE OF A PRESSURE SPIKE,

**THEN EVALUATE** AND INITIATE VEHICLE IPR.

**RECORD** IPR NUMBER _______________________

(N/A IF IPR IS NOT REQUIRED)

Not Performed:______
NOTE
OMS TCS programs run at 288 psia actual. TCS will close the helium isolation valves.

51-10 COOS

CURSOR CNTL (VWD19)
LOMS VFD06

1. **VERIFY ULLAGE OFFSET ENTRY**

   **VERIFY** TCS STATUS - CANCELLED

   LOAD TCS SEQUENCE - XMIT CURSOR

   **VERIFY** ‘TCS LOADED’ (YELLOW UP ARROW)

   **VERIFY** VFD06 TCS STATUS - LOADED

   DOWNLOAD CURRENT ULLAGE PRESSURE OFFSETS - XMIT CURSOR

   **VERIFY** OFFSETS MATCH VALUES RECORDED IN STEP 51-04

2. **IF OFFSETS DO NOT MATCH,**

   **THEN:**

   **CANCEL** TCS SEQUENCE - XMIT CURSOR

   REPEAT STEP 51-4 AND SS1 OF THIS STEP UNTIL OFFSETS MATCH

   Not Performed:______

     SS2
51-11  COOS

CURSOR CNTL (VWD42)

PERFORM THE FOLLOWING TO RE-OPEN THE HELIUM ISOLATION VALVE:

1. VALVE SYNC - XMIT CURSOR KEY - PRESS

2. H3 - OPEN

51-12  COOS

IF TCS executes without completing regulator lockup in spec,

THEN repeat the previous two steps until OX and Fuel tanks are NLT 265 and NMT 281 psia actual (Primary Lockup) as read on ullage transducer of lower pressure tank.

Record:

Number of times performed: ______

Not Performed:_____

*** End of LOMS TCS Executed ***
51-13       COOS

CRT (VWD41/42)

VERIFY LOMS OXID AND FUEL ULLAGE PRESSURES ARE
STABLE.

51-14       COOS

CURSOR CNTL (VWD42)

H3 - CLOSED

V1 - CLOSED

51-15       COOS

CURSOR CNTL (VWD19)
LOMS VFD06

CANCEL TCS SEQUENCE - XMIT CURSOR

VERIFY TCS STATUS - CANCELLED

VERIFY ‘TCS LOADED’ (RED DOWN ARROW)
COOS

CRT (VWD41/42)

**RECORD** LOMS FUEL AND OXID ULLAGE TANK ULLAGE PRESSURE/TEMP (VALUES ARE BD):

OXID ULLAGE ________ PSIA (-) OFFSET ________ =

ACTUAL ________ PSIA

TEMPERATURE ________ DEG F

FUEL ULLAGE ________ PSIA (-) OFFSET ________ =

ACTUAL ________ PSIA

TEMPERATURE ________ DEG F

**VERIFY** LOMS OXIDIZER AND FUEL PROPELLANT TANK PRESSURE DIFFERENTIALS NOT MORE THAN 15 PSID.

**RECORD** DIFFERENTIAL (ACTUAL) ________ PSID

OMRS V43CF0.110-A
51-17

COOS

CRT (VWD42)

RECORD LOMS GHE TK PRESSURE AND TEMP (VALUES ARE BD):

PRESSURE P1 ________ PSIA
PRESSURE P2 ________ PSIA
TEMPERATURE ________ DEG F

VERIFY V1 AND V2 CLOSED.
VERIFY H3 AND H4 CLOSED.

OMRS V43CF0.110-A

51-18

Noted requirements are complete.

OMRSD V43CF0.110-A

*** End of LOMS Oxid/Fuel Propellant Tank Repress ***
ROMS Oxid/Fuel Propellant Tank Repress

**NOTE**
Noted requirements are satisfied by the following steps annotated with OMRS code.

OMRS V43CF0.110-B

51-19  
**COOS**

**CRT (VWD42)**

1. RECORD ROMS GHE TANK PRESSURE:

   INDICATED ________ PSIA (-) OFFSET ________ =
   
P1 OR P2 (CIRCLE ONE)

   ACTUAL ________ PSIA

2. VERIFY ROMS GHE TANK PRESSURE NLT 2000 PSIA

OMRS V43CF0.110-B

51-20  
**COOS**

**CRT (VWD41/42)**

RECORD ROMS FUEL AND OXID PROP TANK ULLAGE PRESSURE/TEMP (VALUES ARE BD):

OXID ULLAGE ________ PSIA (-) OFFSET ________ =

ACTUAL ________ PSIA

TEMPERATURE ________ DEG F

FUEL ULLAGE ________ PSIA (-) OFFSET ________ =

ACTUAL ________ PSIA

TEMPERATURE ________ DEG F
51-21  COOS

CURSOR CNTL (VWD19)
ROMS VFD07

SELECT ‘SET ULLAGE OFFSET FU’ - XMIT CURSOR
ENTER OFFSET - XMIT RESPONSE

SELECT ‘SET ULLAGE OFFSET OX’ - XMIT CURSOR
ENTER OFFSET - XMIT RESPONSE

DOWNLOAD CURRENT ULLAGE PRESSURE OFFSETS - XMIT CURSOR

VERIFY CORRECT UPDATE OF OFFSETS
(ALLOW FOR ROUNDING DOWN TO NEAREST BIT VALUE)
(VALUES ARE BD)

RECORD:

VFD07 ROMS FUEL __________ PSI

OXID __________ PSI
51-22 COOS

CURSOR CNTL (VWD19)
ROMS VFD07

1. LOAD TCS SEQUENCE - XMIT CURSOR
   VERIFY TCS STATUS - LOADED
   VERIFY ‘TCS LOADED’ (YELLOW UP ARROW)
   DOWNLOAD CURRENT ULLAGE PRESSURE OFFSETS - XMIT CURSOR
   VERIFY OFFSETS MATCH VALUES RECORDED IN PREVIOUS STEP

2. **IF OFFSETS DO NOT MATCH**
   **THEN:**
   CANCEL TCS SEQUENCE - XMIT CURSOR
   REPEAT PREVIOUS STEP AND SS1 OF THIS STEP UNTIL OFFSETS MATCH.

Not Performed:_______

SS2

51-23 COOS

CURSOR CNTL (VWD42)

1. V5 - OPEN
   VERIFY PRESSURES STABLE

2. H7 - OPEN
   OMRS V43CF0.110-B
ROMS TCS Executed

NOTE
Perform this option if TCS ran.

ROMS TCS Executed Not Performed:_____

51-24

COOS

CURSOR CNTL (VWD42)

IF EITHER PROPELLANT TANK WAS ALREADY NEAR LOCKUP AND PRESSURE EXCEEDED 281 PSIA,

(EXCEPTION: TEMPERATURE INCREASES CAN CAUSE PROPELLANT TANKS TO BE ABOVE 281 PSIA PRIOR TO START OF REPRESS)

THEN VERIFY LOCKUP PRESSURE OF REG DID NOT EXCEED 281 PSIA ACTUAL USING ULLAGE TRANSDUCER FROM LOWER PRESSURE TANK.

RECORD IPR NUMBER _______________________

(N/A IF IPR IS NOT REQUIRED)

Not Performed:_____
51-25 COOS

CURSOR CNTL (VWD42)

**IF** REGULATOR PERFORMANCE IS NOT PER ENGINEERING EXPERIENCE BASE OF A PRESSURE SPIKE,

**THEN EVALUATE** ON SECURE AND INITIATE VEHICLE IPR.

**RECORD** IPR NUMBER _______________________

(N/A IF IPR IS NOT REQUIRED)

Not Performed:______
NOTE
OMS TCS programs run at 288 psia actual. TCS will close the helium isolation valves.

51-26
COOS

CURSOR CNTL (VWD19)
ROMS VFD07

1. **VERIFY ULLAGE OFFSET ENTRY**

**VERIFY** TCS STATUS - CANCELLED

LOAD TCS SEQUENCE - XMIT CURSOR

**VERIFY** ‘TCS LOADED’ (YELLOW UP ARROW)

**VERIFY** VFD07 TCS STATUS - LOADED

DOWNLOAD CURRENT ULLAGE PRESSURE OFFSETS - XMIT CURSOR

**VERIFY** OFFSETS MATCH VALUES RECORDED IN STEP 51-20

2. **IF OFFSETS DO NOT MATCH,**

**THEN:**

**CANCEL** TCS SEQUENCE - XMIT CURSOR

REPEAT STEP 51-20 AND SS1 OF THIS STEP UNTIL OFFSETS MATCH

Not Performed:_____

SS2
51-27 COOS

CURSOR CNTL (VWD42)

PERFORM THE FOLLOWING TO RE-OPEN THE HELIUM ISOLATION VALVE:

1. VALVE SYNC - XMIT CURSOR KEY - PRESS

2. H7 - OPEN

51-28 COOS

IF TCS executes without completing regulator lockup in spec,

THEN repeat the previous two steps until Ox and Fuel tanks are NLT 265 and NMT 281 psia actual (primary lockup) as read on ullage transducer of lower pressure tank.

Record:

Number of times performed: _____

Not Performed: _____

*** End of ROMS TCS Executed ***
51-29

COOS

CRT (VWD41/42)

VERIFY ROMS OXID AND FUEL ULLAGE PRESSURES ARE STABLE.

51-30

COOS

CURSOR CNTL (VWD42)

H7 - CLOSED

V5 - CLOSED

51-31

COOS

CURSOR CNTL (VWD19)

ROMS VFD07

CANCEL TCS SEQUENCE - XMIT CURSOR

VERIFY TCS STATUS - CANCELLED

VERIFY ‘TCS LOADED’ (RED DOWN ARROW)
COOS

CRT (VWD41/42)
RECORD ROMS FUEL AND OXID ULLAGE TANK ULLAGE PRESSURE/TEMP (VALUES ARE BD):

OXID ULLAGE ________ PSIA (-) OFFSET ________ =

ACTUAL ________ PSIA

TEMPERATURE ________ DEG F

FUEL ULLAGE ________ PSIA (-) OFFSET ________ =

ACTUAL ________ PSIA

TEMPERATURE ________ DEG F

VERIFY ROMS OXIDIZER AND FUEL PROPELLANT TANK PRESSURE DIFFERENTIALS NOT MORE THAN 15 PSID.

RECORD DIFFERENTIAL (ACTUAL): ________ PSID

OMRS V43CF0.110-B
51-33

COOS

CRT (VWD42)

RECORD ROMS GHE TK PRESSURE AND TEMP

(VALUES ARE BD):

PRESSURE P1 ________ PSIA
PRESSURE P2 ________ PSIA
TEMPERATURE ________ DEG F

VERIFY V5 AND V6 CLOSED.
VERIFY H7 AND H8 CLOSED.
OMRS V43CF0.110-B

51-34

Noted requirements are complete.

OMRSD V43CF0.110-B

*** End of ROMS Oxid/Fuel Propellant Tank Repress ***
OMS Propellant Tank Repress complete.

NOTE
S007.200 OP16 will control toxic vapor checks and reopening of the pad to essential personnel during the CRYO load.

NOTE
Hazardous steps are complete.

*** End of Operation 51 ***
OPERATION 52  Orbiter/GSE PIC Resistance Test

Shop: EPD
Cntrl Rm Console: C10
OPR: EPD
Zone: N/A
Hazard (Y/N): Y
Duration (Hrs): 0.5

NOTE
Record data and verifications for multiple runs of this operation in Table 52-1 - Orbiter/GSE PIC Resistance Test.
Orbiter MEC and LCA Resistance Tests

**WARNING**

Pyrotechnic devices could explode while being tested. Personnel may suffer bodily injury or death.

WPYR018 04-07-04

**NOTE**

All personnel must be clear of BDA before proceeding with the Orbiter/GSE PIC resistance test.

52-1  OTC  CEPD  132

Perform PIC Resistance Test.

Report completion.

52-2  CEPD  OTC  132

Verify all personnel clear of BDA.

52-3  CEPD

CURSOR CNTL (VWC10)
MEC CYCL ENBL - ON
XMIT CURSOR KEY - PRESS

52-4  CEPD

DELAY 10 SECONDS MINIMUM:

CURSOR CNTL (VWC10)
MEC R/T - ON
XMIT CURSOR KEY - PRESS

52-5  CEPD

CURSOR CNTL (VWC10)
LCA R/T - ON
XMIT CURSOR KEY - PRESS
52-6

**CEPD**

**CRT (VWC10)**

**VERIFY** RESISTANCE TEST INDICATIONS (G=ON, N=OFF)

<table>
<thead>
<tr>
<th>LEFT-HAND</th>
<th>RIGHT-HAND</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEC</strong></td>
<td><strong>SYS A</strong></td>
</tr>
<tr>
<td>UMB D-1</td>
<td>R</td>
</tr>
<tr>
<td>UMB D-2</td>
<td>G</td>
</tr>
<tr>
<td>UMB D-3</td>
<td>G</td>
</tr>
<tr>
<td>AFT SEP</td>
<td>G</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>LCA</strong></th>
<th><strong>LCA-1</strong></th>
<th><strong>LCA-2</strong></th>
<th><strong>LCA-3</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>NLG EXT B/A</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>LMG EXT B/A</td>
<td>-</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>RMG EXT B/A</td>
<td>-</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>NLG THR 2/1</td>
<td>-</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>FEX 3/1/2</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>FWD SEP A/B</td>
<td>G</td>
<td>G</td>
<td>-</td>
</tr>
<tr>
<td>KU NUT A/B</td>
<td>G</td>
<td>-</td>
<td>G</td>
</tr>
<tr>
<td>KU GLT A/B</td>
<td>G</td>
<td>-</td>
<td>G</td>
</tr>
</tbody>
</table>

52-7

**CEPD**

CURSOR CNTL (VWC10)

LCA R/T - OFF

XMIT CURSOR KEY - PRESS

52-8

**CEPD**

CURSOR CNTL (VWC10)

MEC R/T - OFF

XMIT CURSOR KEY - PRESS

52-9

**CEPD**

**DELAY** 10 SECONDS MINIMUM:

CURSOR CNTL (VWC10)

MEC CYCL ENBL - OFF

XMIT CURSOR KEY - PRESS
RMS Resistance Test - All Ordnance

NOTE
Perform this option if all RMS ordnance is installed.

RMS Resistance Test - All Ordnance (Not Performed:)

52-10

CEPD

CURSOR CNTL (VWC10)
RMS R/T - ON
XMIT CURSOR KEY - PRESS
CRT (VWC10)
RMS R/T IND ON

52-11

CEPD

CRT (VWC10)

<table>
<thead>
<tr>
<th>SYS A</th>
<th>SYS B</th>
<th>SYS A</th>
<th>SYS B</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>BLT</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>GLT</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>FWD</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>MID</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>AFT</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>SHLD</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
</tbody>
</table>

(G EQUALS ON, N EQUALS OFF)

52-12

CEPD

CURSOR CNTL (VWC10)
RMS R/T - OFF
XMIT CURSOR KEY - PRESS
CRT (VWC10)
RMS R/T IND OFF

*** End of RMS Resistance Test - All Ordnance ***
RMS Resistance Test - Shoulder Ordnance Only

NOTE
Perform this option if only RMS Shoulder ordnance is installed.

RMS Resistance Test - Shoulder Ordnance Only (Not Performed:)

52-13

CEPD

CURSOR CNTL (VWC10)

RMS R/T - ON
XMIT CURSOR KEY - PRESS
CRT (VWC10)
RMS R/T IND ON

52-14

CEPD

CRT (VWC10)

<table>
<thead>
<tr>
<th>SYS A</th>
<th>SYS B</th>
<th>SYS A</th>
<th>SYS B</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>BLT</td>
<td>GLT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FWD</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>MID</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>AFT</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>SHLD</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
</tbody>
</table>

52-15

CEPD

CURSOR CNTL (VWC10)

RMS R/T - OFF
XMIT CURSOR KEY - PRESS
CRT (VWC10)
RMS R/T IND OFF

*** End of RMS Resistance Test - Shoulder Ordnance Only ***
BOOM Resistance Test - All Ordnance

NOTE
Perform this option if all BOOM ordnance is installed.

BOOM Resistance Test - All Ordnance (Not Performed:)

52-16
CEPD

CURSOR CNTL (VWC10)

RMS
XMIT CURSOR KEY - PRESS (SWITCH TO BOOM MSMTS)

BOOM R/T - ON
XMIT CURSOR KEY - PRESS

CRT (VWC10)
BOOM R/T IND ON

52-17
CEPD

CRT (VWC10)

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOOM</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>BLT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FWD</td>
<td>G</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>AFT</td>
<td>G</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>SHLD</td>
<td>G</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
</tbody>
</table>

(G EQUALS ON, N EQUALS OFF)

52-18
CEPD

CURSOR CNTL (VWC10)

BOOM R/T - OFF
XMIT CURSOR KEY - PRESS

CRT (VWC10)
BOOM R/T IND OFF

*** End of BOOM Resistance Test - All Ordnance ***
BOOM Resistance Test - No Ordnance

NOTE
Perform this option if no BOOM ordnance is installed.

BOOM Resistance Test - No Ordnance (Not Performed:)

52-19
CEPD

CURSOR CNTL (VWC10)

RMS
XMIT CURSOR KEY - PRESS (SWITCH TO BOOM MSMTS)

BOOM R/T - ON
XMIT CURSOR KEY - PRESS

CRT (VWC10)
BOOM R/T IND ON

52-20
CEPD

CRT (VWC10)

<table>
<thead>
<tr>
<th></th>
<th>SYS A</th>
<th>SYS B</th>
<th>SYS A</th>
<th>SYS B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOOM R/T</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>BLT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FWD</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>AFT</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>SHLD</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

52-21
CEPD

CURSOR CNTL (VWC10)

BOOM R/T - OFF
XMIT CURSOR KEY - PRESS

CRT (VWC10)
BOOM R/T IND OFF

*** End of BOOM Resistance Test - No Ordnance ***
GSE Go PIC Resistance Test

52-22    CEPD

CURSOR CNTL (VWC10)
GRD SYS - ON
XMIT CURSOR KEY - PRESS

CRT (VWC10)
VERIFY THE FOLLOWING VOLTAGES FOR SYS A & B:

- H₂ BURN AND LR GND PWR GREATER THAN 26 VDC
- H₂ BURN AND LR CPA PRI & RED GREATER THAN 26 VDC
- ALL PIC CAP PRI & RED LESS THAN 1.5 VDC

52-23    CEPD

CRT (VWC10)
GRD T-0 RESET IND RESET
GRD STATUS SW IND OFF

52-24    CEPD

CURSOR CNTL (VWC10)
GND R/T - ON
XMIT CURSOR KEY - PRESS
52-25

**CEPD**

CRT (VWC10)

**VERIFY** RESISTANCE TEST INDICATIONS (G=ON, N=OFF)

<table>
<thead>
<tr>
<th>LEFT-HAND</th>
<th>RIGHT-HAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS A</td>
<td>SYS B</td>
</tr>
<tr>
<td>H2 BURN</td>
<td>R</td>
</tr>
<tr>
<td>ENG 1</td>
<td>G</td>
</tr>
<tr>
<td>ENG 2/3</td>
<td>G</td>
</tr>
</tbody>
</table>

**LAUNCH REL**

| HDP 5/1   | G          | G      | G      | G      |
| HDP 6/2   | G          | G      | G      | G      |
| HDP 7/3   | G          | G      | G      | G      |
| HDP 8/4   | G          | G      | G      | G      |
| ETVAS     | -          | -      | G      | G      |
| H/O TSM   | G          | G      | G      | G      |
| LANYARD   | -          | -      | G      | G      |

52-26

**CEPD**

CURSOR CNTL (VWC10)

GND R/T - OFF

XMIT CURSOR KEY - PRESS

*** End of GSE Go PIC Resistance Test ***
Drag Chute Resistance Test

52-27

CEPD

CONSOLE KYBD (VWC10)
DRAG CHUTE
   R/T CMD - ON
XMIT CMD KEY - PRESS

CRT (VWC10)
DRAG CHUTE
   R/T IND ON

<table>
<thead>
<tr>
<th>DRAG CHUTE</th>
<th>SYS-1</th>
<th>SYS-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPLY</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>JETT</td>
<td>G</td>
<td>G</td>
</tr>
</tbody>
</table>

52-28

CEPD

CONSOLE KYBD (VWC10)
DRAG CHUTE
   R/T CMD - OFF
XMIT CMD KEY - PRESS

CRT (VWC10)
DRAG CHUTE
   R/T IND OFF

<table>
<thead>
<tr>
<th>DRAG CHUTE</th>
<th>SYS-1</th>
<th>SYS-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPLY</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>JETT</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

*** End of Drag Chute Resistance Test ***

52-29

CEPD    OTC      132

Orbiter/GSE Go PIC Resistance Test complete.
Table 52-1 - Orbiter/GSE PIC Resistance Test

<table>
<thead>
<tr>
<th>Step</th>
<th>Run _____</th>
<th>Run _____</th>
<th>Run _____</th>
<th>Run _____</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Date ______</td>
<td>Date ______</td>
<td>Date ______</td>
<td>Date ______</td>
</tr>
<tr>
<td>52-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RMS Resistance Test - All Ordnance

Not Performed:

| 52-10 |           |           |
| 52-11 |           |           |
| 52-12 |           |           |

*** End of RMS Resistance Test - All Ordnance ***
Table 52-1 - Orbiter/GSE PIC Resistance Test (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run</th>
<th>Date</th>
<th>Run</th>
<th>Date</th>
<th>Run</th>
<th>Date</th>
<th>Run</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS Resistance Test - Shoulder Ordnance Only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*** End of RMS Resistance Test - Shoulder Ordnance Only ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOOM Resistance Test - All Ordnance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*** End of BOOM Resistance Test - All Ordnance ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOOM Resistance Test - No Ordnance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*** End of BOOM Resistance Test - No Ordnance ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 52-1 - Orbiter/GSE PIC Resistance Test (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run _____</th>
<th>Run _____</th>
<th>Run _____</th>
<th>Run _____</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Date ______</td>
<td>Date ______</td>
<td>Date ______</td>
<td>Date ______</td>
</tr>
</tbody>
</table>

GSE Go PIC Resistance Test

<table>
<thead>
<tr>
<th>Step</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>52-22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of GSE Go PIC Resistance Test ***

Drag Chute Resistance Test

<table>
<thead>
<tr>
<th>Step</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>52-27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of Drag Chute Resistance Test ***

<table>
<thead>
<tr>
<th>Step</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>52-29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of Operation 52 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 53  Middeck Payload Interface Verification Test
Shop: PTC
Cntrl Rm Console: C1
OPR: PTC
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 1.0
GLACIER (Powered) Interface Verification Test

**NOTE**
Perform this option if a GLACIER is currently installed, not powered from a previous launch attempt and will launch powered.

GLACIER (Powered) Interface Verification Test Not Performed:_____

53-1  PTC  OTC  132

*Request* CDR and CMQC support on OIS CH 174 for MF28E/G GLACIER IVT.

53-2  PTC  XMLE  134

*Perform* GLACIER Switchover to Orbiter power and IVT on OIS Channel 174.
In the following steps, XME1 and XME2 are NASA engineers.

53-3  XMLE  XME1  174

MUP PANEL (ML85E)

Verify Orbiter power cable P/N V213-773918-001 labeled “A/E Payload DC Pwr MUP J11 (GLACIER Pwr J1/MF28E/G)” is connected to DC power connector J11 and the other end is routed correctly to support IVT.

53-4  PTC  CDR  174

PANEL ML86B
ROW E
MN B
MAR 1 CB - OPEN (OUT)
CAUTION
Power interruptions greater than 20 minutes may result in damage to temperature sensitive samples.

NOTE
GLACIER battery SW will be in the “ON” position during all operations. When GLACIER is not powered, the battery SW light will blink.

Voltage error might occur if the voltage applied to GLACIER dropped below 24 volts during transport. No action is required. Error will be reset after GLACIER is on Orbiter power.

NOTE
Perform the following step if “HOME” is not shown on the GLACIER display.

53-5  XMLE  XME1  174
GLACIER

Press right button (EXIT) until “HOME” appears.

Not Performed:_____

53-6  XMLE  XME1  174
GLACIER

Verify/Set GLACIER “BATTERY” SW - ON
GLACIER

Perform the following:

1. Record the following information (BD)

   Curr Temp: __________ deg C
   GPS: _____ : _____ : _____

2. Press left button (MENU) once and verify the following appears:

   “MAIN MENU”
   “QUICK STATUS 1/5”

3. Press left button (NEXT) four times and verify the following appears:

   “MAIN MENU”
   “SHUTDOWN 5/5”

4. Press center button (SELECT) once and verify the following appears:

   “SHUTDOWN”
   “SHUTDOWN 1/2”

5. Press center button (SELECT) once and verify the following appears:

   “CONFIRM SHUTDOWN”
   “SHUTDOWN”
6. **Press** left button (APPLY) once and verify the following appears:

   “GLACIER”
   “SYSTEM”
   “SHUTTING DOWN”
   “PLEASE WAIT…”

7. **Verify** the following appears:

   “GLACIER”
   “SHUTDOWN COMPLETE”
   “TURN POWER OFF”

**CAUTION**

Wait five seconds before proceeding with substep 8 below.

**NOTE**

Power CB light can take up to two minutes to fully extinguish after the power CB is pulled out.

8. **Pull** “POWER CB” - OPEN (OUT)

9. **Record** time:

   Time: _____________ (Local)
53-8  XMLE  XME2  174

1. Breakout Box

Set
Power Supply/Battery SW - None (Center)

2. Record:

Time: _______________ (Local)

53-9  XMLE  XME1  174

GLACIER

Disconnect cable (P/N 82K07179-9D1) from the GLACIER “POWER J1” connector.

OK to Disconnect XME1:____

N:____

Disconnect OK  XME1:____

N:____

53-10 XMLE  XME1  174

GLACIER

Connect Orbiter power cable (P/N V213-773918-001) to GLACIER “POWER J1” connector.

OK to Connect XME1:____

N:____

Connect OK XME1:____

N:____
53-11  PTC  CDR  174

PANEL ML86B
ROW E
MN B
MAR 1 CB - CLOSED (IN)

53-12  XMLE  XME1  174

GLACIER

1. "POWER CB" - CLOSED (IN)

2. Record

   Time:_____________ (Local)
   Time without power:_____________ (Min)

NOTE
Noted requirement satisfied by the following steps annotated with OMRS code.

OMRS P1558EB.100

53-13  XMLE  XME1  174

GLACIER

1. Verify power LED ("POWER CB" light) illuminated

2. Verify display active.

OMRS P1558EB.100
53-14 XMLE

Noted requirement complete.

OMRSD P1558EB.100

NOTE
GLACIER system initialization may take up to three minutes. Initialization complete once line one of display reads “HOME” or “ERROR PENDING”. May take four minutes longer for line three to read “SET POINT”.

NOTE
Perform the following four steps if the display toggles “ERROR PENDING”.

53-15 XMLE XME1 174

GLACIER

Press right button (EXIT) until “HOME” appears.

Not Performed:______
NOTE
In the event of an error, Line 2 of the GLACIER display will include the error message (such as “current range”, “voltage range” or “hardware error” and the error event (“X/Y where X and Y are numbers).

Perform the following:

1. Press left button (MENU) once to access main menu quick status 1/5 display.
2. Press left button (NEXT) twice to access error handling 3/5 display.
3. Press center button (SELECT) once.
4. Press left button (PEND) once.
5. Record the following information:

   Time: _______________ (Local)

   Line 2: ________________ (Error Message and Error Event)

   Line 3: ________________ (Error Status)
Perform substeps 6 thru 9 if error status is “INACTIVE/PENDING”.

6. **Press** center button (SELECT) once.

7. **Press** left button (RESET) once.

8. **Verify** line 3 reads: “INACTIVE/ACK”

9. **Press** left button (NEXT) once.

   **Substeps 6-9 Not Performed:**

Perform substeps 10 thru 12 if error status is “ACTIVE/PENDING”.

10. **Press** center button (SELECT) once.

11. **Press** center button (ACK) once.

12. **Press** left button (NEXT) once.

   **Substeps 10 - 12 Not Performed:**

   **Entire Step Not Performed:**
NOTE
If more than one error event is present (anything but 1/1 indicates multiple events present), repeat substeps 5-12 and record number of additional iterations below in Table 53-1.

53-17 XMLE XME1 174

GLACIER

Record additional iterations of substeps 5-12 of previous step and data below in Table 53-1.

Not Performed:______

<table>
<thead>
<tr>
<th>Table 53-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iteration</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>53-18</td>
</tr>
</tbody>
</table>

Press right button (EXIT) until “HOME” display appears.

Not Performed:______
GLACIER

1. Verify display line 1: “HOME”
2. Verify display line 3: “SET POINT”
3. Verify cryo-cooler(s) - turned on (audible)

Record from GLACIER display (BD):

Curr Temp: _____________ deg C
Set Point: _____________deg C
GPS: _____ : _____ : _____
NOTE
Wait at least 10 minutes and then proceed with the following step.

53-21  XMLE  XME1  174

GLACIER

Perform the following:

1. **Press** left (MENU) button once to access main menu quick status 1/5 display.

2. **Press** left (NEXT) button once to access main menu status 2/5 display.

3. **Press** center (SELECT) button once to access status Cryogenic 1/3.

4. **Press** center (SELECT) button once to access Cryogenic Cooler 1 stroke 1/23 and record cooler 1 Stroke value in Table 53-2.

5. **Press** center (NEXT) button once to access Cryogenic Cooler 2 stroke 2/23 and record cooler 2 Stroke value in Table 53-2.

6. **Press** center (NEXT) button once to access Cryogenic HX 1 3/23 and record HX 1 value in Table 53-2.

7. **Press** center (NEXT) button once to access Cryogenic HX 2 4/23 and record HX 2 value in Table 53-2.

8. **Press** center (NEXT) button once to access Cold Head 1A 5/23 and record Cold Head 1A value in Table 53-2.

9. **Press** center (NEXT) button once to access Cold Head 1B 6/23 and record Cold Head 1B value in Table 53-2.

10. **Press** center (NEXT) button once to access Cold Head 2A 7/23 and record Cold Head 2A value in Table 53-2.

11. **Press** center (NEXT) button once to access Cold Head 2B 8/23 and record Cold Head 2B value in Table 53-2.
12. **Press** center (NEXT) button 11 times to access Cryogenic Heater 1 power 19/23 and record heater 1 Power value in Table 53-2.

13. **Press** center (NEXT) button once to access Cryogenic Heater 2 power 20/23 and record heater 2 Power value in Table 53-2.

14. **Press** right (EXIT) button once to access status Cryogenic 1/3 display.

15. **Press** left (NEXT) button once to access status Resources 2/3.

16. **Press** center (SELECT) once to access Resources AAA Outlet 1/10.

17. **Press** center (NEXT) button 6 times to access Resources Main Current 7/10 and record Main Current value in table 53-2.

18. **Press** center (NEXT) button once to access Resources Main Voltage 8/10 and record Main Voltage value in table 53-2.

19. **Press** right (exit) button until “HOME” is displayed.

<table>
<thead>
<tr>
<th>Table 53-2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parameter</strong></td>
</tr>
<tr>
<td>Cooler 1 Stroke</td>
</tr>
<tr>
<td>Cooler 2 Stroke</td>
</tr>
<tr>
<td>HX 1</td>
</tr>
<tr>
<td>HX 2</td>
</tr>
<tr>
<td>Cold Head 1A</td>
</tr>
<tr>
<td>Cold Head 1B</td>
</tr>
<tr>
<td>Cold Head 2A</td>
</tr>
<tr>
<td>Cold Head 2B</td>
</tr>
<tr>
<td>Heater 1 Power</td>
</tr>
<tr>
<td>Heater 2 Power</td>
</tr>
<tr>
<td>Main Current</td>
</tr>
<tr>
<td>Main Voltage</td>
</tr>
</tbody>
</table>
GLACIER

Record from GLACIER display (BD):

Curr Temp: _____________ deg C
Set Point: _____________ deg C
GPS: ______: ______: ______

GLACIER

Verify with FCE that the Orbiter cable will not be routed over the GLACIER door.

GLACIER IVT is complete.

*** End of GLACIER Interface Verification Test ***

NOTE
Perform the following step if all payload IVTs are complete.

Middeck payload IVTs are complete. CDR and CMQC support are released.

Not Performed:______
GLACIER (Unpowered) Interface Verification Test

NOTE
Perform this option if a GLACIER is currently installed and will launch unpowered.

GLACIER (Unpowered) Interface Verification Test Not Performed: ______

53-26 PTC OTC 132

Request CDR and CMQC support on OIS CH 174 for GLACIER MF28E/G IVT.

53-27 PTC XMLE 134

Perform GLACIER Switchover to Orbiter power and IVT on OIS Channel 174.
NOTE
In the following steps, XME1 and XME2 are NASA engineers.

53-28  XMLE  XME1  174

MUP PANEL (ML85E)

Verify Orbiter power cable P/N V213-773918-001 labeled “A/E Payload DC Pwr MUP J11 (GLACIER Pwr J1/MF28E/G)” is connected to DC power connector J11 and the other end is routed correctly to support IVT.

53-29  PTC  CDR  174

PANEL ML86B
ROW E
   MN B
   MAR 1 CB - OPEN (OUT)

53-30  XMLE  XME1  174

GLACIER

Verify GLACIER “POWER CB” - OPEN (OUT)

Verify/Set GLACIER “BATTERY” SW - OFF
NOTE
GLACIER battery SW will be in the “OFF” position during all operations. The battery SW light will not be illuminated.

53-31  XMLE  XME1  174

GLACIER

Connect Orbiter power cable (P/N V213-773918-001) to GLACIER “POWER J1” connector.

OK to Connect XME1: _____

N: _____

Connect OK XME1: _____

N: _____

53-32  PTC  CDR  174

PANEL ML86B
ROW E
MN B
MAR 1 CB - CLOSED (IN)
GLACIER

1. **Verify/Set** GLACIER “BATTERY” SW - OFF
2. “POWER CB” - CLOSED (IN)
3. **Record**

    Time:_____________ (Local)

---

**NOTE**
Noted requirement satisfied by the following steps annotated with OMRS code.

OMRS P1558EB.100

---

GLACIER

1. **Verify** power LED (“POWER CB” light) illuminated
2. **Verify** display active.

OMRS P1558EB.100

---

Noted requirement complete.

OMRSD P1558EB.100
NOTE
GLACIER system initialization may take up to 3 minutes. Initialization complete once line one of display reads “HOME” or “ERROR PENDING”. May take four minutes longer for line three to read “SET POINT”.

NOTE
Perform the following four steps if the display reads “ERROR PENDING”.

53-36 XMLE XME1 174

GLACIER

Press right button (EXIT) until “HOME” appears.

Not Performed:______
NOTE
In the event of an error, Line 2 of the GLACIER display will include the error message (such as “current range”, “voltage range”, or “hardware error”) and the error event (“X/Y” where X and Y are numbers).

| 53-37 | XMLE | XME1 | 174 |

GLACIER

Perform the following:

1. **Press** left button (MENU) once to access MAIN MENU QUICK STATUS 1/5 display.

2. **Press** left button (NEXT) twice to access ERROR HANDLING 3/5 display.

3. **Press** center button (SELECT) once.

4. **Press** left button (PEND) once.

5. **Record** the following information:

   Time: _____________ (Local)

   Line 2: _________________ (Error Message and Error Event)

   Line 3: _________________ (Error Status)
NOTE
Perform substeps 6 thru 9 if error status is “INACTIVE/PENDING”.

6. Press center button (SELECT) once.
7. Press left button (RESET) once.
8. Verify line 3 reads: “INACTIVE/ACK”
9. Press left button (NEXT) once.

Substeps 6-9 Not Performed:______

NOTE
Perform substeps 10 thru 12 if error status is “ACTIVE/PENDING”.

10. Press center button (SELECT) once.
11. Press center button (ACK) one
12. Press left button (NEXT) once.

Substeps 10-12 Not Performed:______

Entire Step Not Performed:____
If more than one error event is present (anything but 1/1 indicates multiple events present), repeat substeps 5-12 and record number of additional iterations below in Table 53-3.

**NOTE**

<table>
<thead>
<tr>
<th>53-38</th>
<th>XMLE</th>
<th>XME1</th>
<th>174</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GLACIER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Record** additional iterations of substeps 5-12 of previous step and data below in Table 53-3.

**Not Performed:**

<table>
<thead>
<tr>
<th>Table 53-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iteration</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>53-39</th>
<th>XMLE</th>
<th>XME1</th>
<th>174</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GLACIER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Press** right button (EXIT) until “HOME” display appears.

**Not Performed:**
GLACIER

1. Verify display line 1: “HOME”
2. Verify display line 3: “SET POINT”
3. Verify cryo-cooler(s) - turned on (audible)

Record from GLACIER display (BD):

Curr Temp: ______________ deg C

GPS: _____: _____: _____
NOTE
Wait at least 10 minutes and then proceed with the following step.

<table>
<thead>
<tr>
<th>53-42</th>
<th>XMLE</th>
<th>XME1</th>
<th>174</th>
</tr>
</thead>
</table>

GLACIER

Perform the following:

1. **Press** left (MENU) button once to access main menu quick status 1/5 display.
2. **Press** left (NEXT) button once to access main menu status 2/5 display.
3. **Press** center (SELECT) button once to access status Cryogenic 1/3.
4. **Press** center (SELECT) button once to access Cryogenic Cooler 1 stroke 1/23 and record cooler 1 Stroke value in Table 53-4.
5. **Press** center (NEXT) button once to access Cryogenic Cooler 2 stroke 2/23 and record cooler 2 Stroke value in Table 53-4.
6. **Press** center (NEXT) button once to access Cryogenic HX 1 3/23 and record HX 1 value in Table 53-4.
7. **Press** center (NEXT) button once to access Cryogenic HX 2 4/23 and record HX 2 value in Table 53-4.
8. **Press** center (NEXT) button once to access Cold Head 1A 5/23 and record Cold Head 1A value in Table 53-4.
9. **Press** center (NEXT) button once to access Cold Head 1B 6/23 and record Cold Head 1B value in table 53-4.
10. **Press** center (NEXT) button once to access Cold Head 2A 7/23 and record Cold Head 2A value in Table 53-4.
11. **Press** center (NEXT) button once to access Cold Head 2B 8/23 and record Cold Head 2B value in Table 53-4.
12. **Press** center (NEXT) button 11 times to access Cryogenic Heater 1 power 19/23 and record heater 1 Power value in Table 53-4.

13. **Press** center (NEXT) button once to access Cryogenic Heater 2 power 20/23 and record heater 2 Power value in Table 53-4.

14. **Press** right (EXIT) button once to access status Cryogenic 1/3 display.

15. **Press** left (NEXT) button once to access status Resources 2/3.

16. **Press** center (SELECT) once to access Resources AAA Outlet 1/10.

17. **Press** center (NEXT) button 6 times to access Resources Main Current 7/10 and record Main Current value in table 53-4.

18. **Press** center (NEXT) button once to access Resources Main Voltage 8/10 and record Main Voltage value in table 53-4.

19. **Press** right (exit) button until “HOME” is displayed.

---

**Table 53-4**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooler 1 Stroke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooler 2 Stroke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HX 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HX 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold Head 1A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold Head 1B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold Head 2A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold Head 2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater 1 Power</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater 2 Power</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Voltage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GLACIER

Record from GLACIER display (BD)

Curr Temp: ______________ deg C

GPS: _____: _____: _____

Perform the following:

1. Press left button (MENU) once and verify the following appears:
   “MAIN MENU”
   “QUICK STATUS 1/5”

2. Press left button (NEXT) three times and verify the following appears:
   “MAIN MENU”
   “SETUP 4/5”

3. Press center button (SELECT) once and verify the following appears:
   “SETUP”
   “TEMP CONTROL 1/3”
4. **Press** center button (SELECT) once and verify the following appears:

   “TEMP CONTROL”

   “SET POINT TEMP 1/18”

5. **Press** left button (NEXT) once and verify the following appears:

   “TEMP CONTROL”

   “CONTROL MODE 2/18”

6. **Press** center button (SELECT) once and verify the following appears:

   “CONTROL MODE”

   “SET POINT”

7. **Press** left button (NEXT) twice and verify the following appears:

   “CONTROL MODE”

   “IDLE”

8. **Press** center (APPLY) once.

9. **Press** left (APPLY) once.

10. **Confirm** New Control Mode = IDLE.

11. **Press** right (EXIT) button until “HOME” is displayed.

12. GLACIER

   **Verify** display line 1: “HOME”

13. GLACIER

   **Verify** display line 3: “IDLE MODE”
53-45    XMLE    XME1    174

GLACIER

Verify/Set GLACIER “BATTERY” SW - OFF
Perform the following:

1. **Press** left button (MENU) once and verify the following appears:
   
   “MAIN MENU”
   “QUICK STATUS 1/5”

2. **Press** left button (NEXT) four times and verify the following appears:
   
   “MAIN MENU”
   “SHUTDOWN 5/5”

3. **Press** center button (SELECT) once and verify the following appears:
   
   “SHUTDOWN”
   “SHUTDOWN 1/2”

4. **Press** center button (SELECT) once and verify the following appears:
   
   “CONFIRM SHUTDOWN”
   “SHUTDOWN”

5. **Press** left button (APPLY) once and verify the following appears:
   
   “GLACIER”
   “SYSTEM”
   “SHUTTING DOWN”
   “PLEASE WAIT…”

| 53-46 | XMLE | XME1 | 174 |

GLACIER
6. Verify the following appears:

“GLACIER”
“SHUTDOWN COMPLETE”
“TURN POWER OFF”

CAUTION
Wait 5 seconds before proceeding with substep 7 below.

NOTE
Power CB light can take up to 2 minutes to fully extinguish after the power CB is pulled out.

7. Pull “POWER CB” - OPEN (OUT)

53-47 PTC CDR 174

PANEL ML86B

ROW E
MN B
MAR1 CB - OPEN (OUT)

53-48 XMLE XME1 174

GLACIER

Verify with FCE that the Orbiter power cable will not be routed over the GLACIER door.

53-49 XMLE PTC 174

GLACIER IVT is complete.

*** End of GLACIER Interface Verification Test ***
NOTE
Perform the following step if all payload IVTs are complete.

<table>
<thead>
<tr>
<th>53-50</th>
<th>PTC OTC 132</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middeck payload IVTs are complete. CDR and CMQC support are released.</td>
</tr>
</tbody>
</table>
|       | Not Performed:_____

NLP-VACCINE/CGBA Interface Verification Test

NOTE
Perform this option if NLP-VACCINE/CGBA is currently installed and not powered from a previous launch attempt.

<table>
<thead>
<tr>
<th>53-51</th>
<th>PTC OTC 132</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Request CDR and CMQC support on OIS CH 174 for MF71E NLP-VACCINE/CGBA IVT.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>53-52</th>
<th>PTC XMLE 134</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perform NLP-VACCINE/CGBA Switchover to Orbiter power and IVT on OIS Channel 174.</td>
</tr>
</tbody>
</table>
NOTE
In the following steps, XME1 and XME2 are NASA engineers.

53-53  XMLE  XME1  174

PANEL (MO63P)

Verify Orbiter power cable P/N 10108-10082-05 labeled “A/E Payload DC Pwr MO63P J4 (NLP-VACCINE/CGBA DC JUMPER/MF71E)” is connected to DC power connector J4 and other end is routed correctly to support IVT.

53-54  PTC  CDR  174

PANEL MO63P

POWER SELECT SW (J2/J3/J4) – 10A
J4 SW - OFF
CB4/J4 - OPEN (OUT)
**CAUTION**

Power interruptions of greater than 15 minutes may result in damage to temperature sensitive samples.

---

**53-55 XMLE XME1 174**

NLP-VACCINE/CGBA (MF71E)

On Keypad:

- Press “MENU”
- Press “7”
- Press “ENTER”
- Press “1”
- Press “ENTER”

---

**NOTE**

Wait approximately 60 seconds until message “Ok to power down” appears before proceeding.

---

**53-56 XMLE XME1 174**

NLP-VACCINE/CGBA (MF71E)

1. Set “MAIN POWER” CB – OPEN (OUT)

2. Record:

   GMT: _____/_____/_____

---

**53-57 XMLE XME2 174**

Power control box for NLP-VACCINE/CGBA

1. Set Run/Test SW - OFF (CENTER)

2. Record:

   Battery Run Time: _______________
Disconnect power control box cable, P/N 82K07338-6, connector from DC jumper P/N 528-21123-1.

**OK to Disconnect:** XME1:_____

N:_____

**Disconnect OK** XME1:_____

N:_____

Connect Orbiter power cable, P/N 10108-10082-05, to DC Jumper P/N 528-21123-1.

**OK to Connect:** XME1:_____

N:_____

**Connect OK** XME1:_____

N:_____

Panel MO63P

CB4/J4 - CLOSED (IN)
J4 SW – ON
53-61 XMLE XME1 174

NLP-VACCINE/CGBA (MF71E)

1. Set “MAIN POWER” CB – CLOSED (IN)

2. Record:

   GMT: ______/_____/______

   Time without power: __________ (Min)

   NOTE
   Noted requirement satisfied by the following step annotated with OMRS code.

   OMRS P1558EB.300

53-62 XMLE XME1 174

NLP-VACCINE/CGBA (MF71E)

1. Verify “MAIN POWER” CB-CLOSED (IN)

2. Verify display on

   OMRS P1558EB.300

53-63 XMLE

   Noted requirement complete.

   OMRSD P1558EB.300
NOTE

Wait approximately 60 seconds before proceeding to allow the boot-up sequence to complete.

In the next step, “X” on the LCD represents the temperature, and date/time is on the bottom line.

53-64  XMLE  XME1  174

NLP-VACCINE/CGBA (MF71E)

Verify LCD reads as follows:
“EET DDD/HH:MM” or “WAITING FOR LAUNCH”
“TEMP XX.X C”
“SET TEMP XX.X C”
“DAY MONTH YEAR HH:MM:SS”
53-65 XMLE XME1 174

NLP-VACCINE/CGBA (MF71E)

**Record** Temp from LCD:

Temp:_____________ deg C

53-66 XMLE XME1 174

NLP-VACCINE/CGBA Power Switchover and IVT are complete.

*** End of NLP-VACCINE/CGBA Interface Verification Test ***

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform next step if all payload IVTs are complete.</td>
</tr>
</tbody>
</table>

53-67 PTC OTC 132

Middeck Payload IVTs are complete. CDR and CMQC support are released.

Not Performed:_____
MICRO 4/CGBA Interface Verification Test

NOTE
Perform this option if MICRO 4/CGBA is currently installed and not powered from a previous launch attempt.

MICRO 4/CGBA Interface Verification Test Not Performed:______

53-68 PTC OTC 132

Request CDR and CMQC support on OIS CH 174 for MA16D MICRO 4/CGBA IVT.

53-69 PTC XMLE 134

Perform MICRO 4/CGBA Switchover to Orbiter power and IVT on OIS Channel 174.

NOTE
In the following steps, XME1 and XME2 are NASA engineers.

53-70 XMLE XME1 174

Panel ML85E (MUP)

Verify Orbiter power cable P/N 10108-10082-07 labeled “A/E Payload DC Pwr MUP-J22 (MICRO4/CGBA DC JUMPER/MA 16D)” is connected to MUP DC power connector J22 and other end is routed correctly to support IVT.

53-71 PTC CDR 174

PANEL ML85E (MUP)

SW 4 - OFF
CB 4 - OPEN (OUT)
CAUTION
Power interruptions greater than 15 minutes may result in damage to temperature sensitive samples.

53-72  XMLE  XME1  174

MICRO 4/CGBA (MA16D)
On Keypad:

Press “MENU”
Press “7”
Press “ENTER”
Press “1”
Press “ENTER”

NOTE
Wait approximately 60 seconds until message “OK to power down” appears before proceeding.

53-73  XMLE  XME1  174

MICRO 4/CGBA (MA16D)

1. Set “MAIN POWER” CB - OPEN (OUT)

2. Record:

   GMT: ______/______/______

53-74  XMLE  XME2  174

Power Control Box for MICRO 4/CGBA

1. Set Run/Test SW - OFF (CENTER)

2. Record:

   Battery Run Time: ______________
53-75  XMLE   XME1   174

Disconnect power control box cable, P/N 82K07338-6, connector from DC jumper P/N 528-21123-1.

OK to Disconnect: XME1:_____

N:_____

Disconnect OK: XME1:_____

N:_____

53-76  XMLE   XME1   174

Connect Orbiter power cable, P/N 10108-10082-07, to DC Jumper P/N 528-21123-1.

OK to Connect: XME1:_____

N:_____

Connect OK: XME1:_____

N:_____

53-77  PTC   CDR   174

Panel ML85E (MUP)

CB4 - CLOSED (IN)
SW 4 - ON
1. Set “MAIN POWER” CB - CLOSED (IN)

2. Record:

   GMT: _____/_____/_____

   Time without power: _______________ (Min)

---

NOTE
Noted requirement satisfied by the following step annotated with OMRS code.
OMRS P1558EB.400

---

1. Verify “MAIN POWER” CB-CLOSED (IN)

2. Verify display on
OMRS P1558EB.400

---

Noted requirement complete.
OMRSD P1558EB.400
NOTE
Wait approximately 60 seconds before proceeding to allow the boot-up sequence to complete.

NOTE
In the next step, “X” on the LCD represents the temperature, and the date/time is on the bottom line.

53-81  XMLE  XME1  174

MICRO 4/CGBA (MA16D)

Verify LCD reads as follows:
“EET     DDD/HH:MM” or “WAITING FOR LAUNCH”
“TEMP     XX.X C”
“SET TEMP XX.X C”
“DAY MONTH YEAR  HH:MM:SS”

53-82  XMLE  XME1  174

MICRO 4/CGBA (MA16D)

Record Temp from LCD

Temp:_____________deg C
MICRO 4/CGBA Power Switchover and IVT are complete.

*** End of MICRO 4/CGBA Interface Verification Test***

**NOTE**
Perform next step if all payload IVTs are complete.

Middeck Payload IVTs are complete. CDR and CMQC support are released.

Not Performed:______
CBTM/AEM Interface Verification Test

NOTE
Do not perform the following option if CBTM/AEM is currently installed and powered from a previous launch attempt.

CBTM/AEM Interface Verification Test Not Performed:_____

53-85 PTC OTC 132

Request CDR and CMQC support on OIS CH 174 for CBTM/AEM IVT.

53-86 PTC XMLE 134

Perform CBTM/AEM Switchover to Orbiter power and IVT on OIS Channel 174.

NOTE
In the following steps, XME1 and XME2 are NASA Engineers.

53-87 XMLE XME1 174

Panel MO63P

Verify Orbiter “W” power cable P/N SED39122456-302 labeled “A/E Payload DC W PWR MO63P J3 (AEM-1 PWR/MF43K)(AEM-2 PWR/MF57M)(AEM-3 PWR/MF57H)” is connected to DC power connector J3 and the other end is routed correctly to support IVT.

53-88 PTC CDR 174

PANEL MO63P
POWER SELECT SW (FOR J2/J3/J4) - 10A
J3 SW - OFF
CB3/J3 - OPEN (OUT)
CAUTION
Power interruptions greater than 15 minutes may result in damage to internal science.

53-89  XMLE  XME1  174
AEM-1 (MF43K)
Fans SW - OFF (DOWN) Lights
SW - OFF (CENTER) Main
Breaker CB - OPEN (OUT)
Record:

53-90  XMLE  XME1  174
AEM-2 (MF57M)
Fans SW - OFF (DOWN) Lights
SW - OFF (CENTER) Main
Breaker CB - OPEN (OUT)
Record:

53-91  XMLE  XME1  174
AEM-3 (MF57H)
Fans SW - OFF (DOWN) Lights
SW - OFF (CENTER) Main
Breaker CB - OPEN (OUT)
Record:

GMT:_____/_____/_____

GMT:_____/_____/_____

GMT:_____/_____/_____
53-92XMLEXME2174

Power Control Box for AEM-1 (MF43K)
Run/Test SW - OFF (CENTER)
Record:

Battery Run Time:_____________

53-93XMLEXME2174

Power Control Box for AEM-2 (MF57M)
Run/Test SW - OFF (CENTER)
Record:

Battery Run Time:_____________

53-94XMLEXME1174

Power Control Box for AEM-3 (MF57H)
Run/Test SW - OFF (CENTER)
Record:

Battery Run Time:_____________

53-95XMLEXME1174

AEM-1 (MF43K)

Disconnect Power Control Box cable, P/N 82K07338-6, connector P2 from AEM main power connector J1.

OK to Disconnect: XME1:_____

N:_____

Disconnect OK: XME1:_____

N:_____
AEM-2 (MF57M)

Disconnect Power Control Box cable, P/N 82K07338-6, connector P2 from AEM main power connector J1.

OK to Disconnect: XME1:______

N:______

Disconnect OK: XME1:______

N:______

AEM-3 (MF57H)

Disconnect Power Control Box cable, P/N 82K07338-6, connector P2 from AEM main power connector J1.

OK to Disconnect: XME1:______

N:______

Disconnect OK: XME1:______

N:______
53-98 XMILE XME1 174

AEM-1 (MF43K)

Connect J1 connector of DC “W” power cable, P/N SED39122456-302, to AEM main power connector J1.

OK to connect: XME1:_____

N:_____

Connect OK: XME1:_____

N:_____

53-99 XMILE XME1 174

AEM-2 (MF57M)

Connect J2 connector of DC “W” power cable, P/N SED39122456-302, to AEM main power connector J1.

OK to connect: XME1:_____

N:_____

Connect OK: XME1:_____

N:_____
53-100  XMLE  XME1  174

AEM-3 (MF57H)

Connect J3 connector of DC “W” power cable, P/N SED39122456-302, to AEM main power connector J1.

OK to connect: XME1:_____

N:_____

Connect OK: XME1:_____

N:_____

53-101  PTC  CDR  174

Panel MO63P
CB3/J3 - CLOSED (IN)
J3 SW - ON

53-102  XMLE  XME1  174

AEM-1 (MF43K)

Main Breaker CB - CLOSED (IN)
Fans SW - ON (UP)
Lights SW - AUTO (DOWN)

Record:

GMT:_____/_____/_____

Payload Timer GMT: __________________ (BD)

Time without power: _____________ (Min)
53-103  XMLE  XME1  174

AEM-2 (MF57M)

Main Breaker CB - CLOSED (IN)
Fans SW - ON (UP)
Lights SW - AUTO (DOWN)

Record:

GMT:_____/_____/_____

Payload Timer GMT: ________________ (BD)

Time without power: _____________ (Min)

53-104  XMLE  XME1  174

AEM-3 (MF57H)

Main Breaker CB - CLOSED (IN)
Fans SW - ON (UP)
Lights SW - AUTO (DOWN)

Record:

GMT:_____/_____/_____

Payload Timer GMT: ________________ (BD)

Time without power: _____________ (Min)
### NOTE
Noted requirement satisfied by the following step annotated with OMRS code.

OMRS P1558EB.500

#### 53-105
**XMLE** | **XME1** | **174**
---|---|---
AEM-1 (MF43K)

**Verify:**
- Main Power CB - CLOSED (IN)
- Fans A & D CB - CLOSED (IN)
- Fans B & C CB - CLOSED (IN)
- Fans SW - ON (UP)
- Fans - Running (Audible or air flow detected at inlet/outlet)

OMRS P1558EB.500

#### 53-106
**XMLE**

Noted requirement complete.

OMRSD P1558EB.500

#### 53-107
**XMLE** | **XME1** | **174**
---|---|---
AEM-1 (MF43K)

**Verify:**
- Pump CB - OPEN (OUT)
- Two Fans Lights - ILLUMINATED
- Lights Breaker A & D - OPEN (OUT)
- Lights Breaker B & C - CLOSED (IN)
- Lights SW - AUTO (DOWN)
- Lights A & D indicator - NOT ILLUMINATED
- Lights B & C indicator - Record Status _____________ (BD) (ILLUM/NOT ILLUM)
NOTE
Display should have format of “OXYHH:MM” where X is N or F, and Y is N, D, or blank, and HH:MM is a time.

53-108 XMLE XME1 174

AEM-1 (MF43K)

Record Digital Display Reading ____________ (BD)
Depress Menu Button
Record Digital Display Reading ____________ (BD)
Depress Menu Button
Record Digital Display Reading ____________ (BD)
Depress Menu Button

NOTE
Noted requirement satisifed by the following step annotated with OMRS code.
OMRS P1558EB.600

53-109 XMLE XME1 174

AEM-2 (MF57M)

Verify:
Main Power CB - CLOSED (IN)
Fans A & D CB - CLOSED (IN)
Fans B & C CB - CLOSED (IN)
Fans SW - ON (UP)
Fans - Running (Audible or air flow detected at inlet/outlet)

OMRS P1558EB.600

53-110 XMLE

Noted requirement complete.
OMRSD P1558EB.600
<table>
<thead>
<tr>
<th>53-111</th>
<th>XMLE</th>
<th>XME1</th>
<th>174</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>AEM-2 (MF57M)</td>
</tr>
</tbody>
</table>

**Verify:**
- Pump CB - OPEN (OUT)
- Two Fans Lights - ILLUMINATED
- Lights Breaker A & D - OPEN (OUT)
- Lights Breaker B & C - CLOSED (IN)
- Lights SW - AUTO (DOWN)
- Lights A & D indicator - NOT ILLUMINATED
- Lights B & C indicator - Record Status _____________ (BD)
  (ILLUM/NOT ILLUM)

<table>
<thead>
<tr>
<th>53-112</th>
<th>XMLE</th>
<th>XME1</th>
<th>174</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>AEM-2 (MF57M)</td>
</tr>
</tbody>
</table>

- Record Digital Display Reading _____________ (BD)
- Depress Menu Button
- Record Digital Display Reading _____________ (BD)
- Depress Menu Button
- Record Digital Display Reading _____________ (BD)
- Depress Menu Button
NOTE

Noted requirement satisfied by the following step annotated with OMRS code.

OMRS P1558EB.700

53-113 XMLE XME1 174

AEM-3 (MF57H)

Verify:
Main Power CB - CLOSED (IN)
Fans A & D CB - CLOSED (IN)
Fans B & C CB - CLOSED (IN)
Fans SW - ON (UP)
Fans - Running (Audible or air flow detected at inlet/outlet)

OMRS P1558EB.700

53-114 XMLE

Noted requirement complete.

OMRSD P1558EB.700
Verify:
Pump CB - OPEN (OUT)
Two Fans Lights - ILLUMINATED
Lights Breaker A & D - OPEN (OUT)
Lights Breaker B & C - CLOSED (IN)
Lights SW - AUTO (DOWN)
Lights A & D indicator - NOT ILLUMINATED
Lights B & C indicator - Record Status _____________ (BD)
          (ILLUM/NOT ILLUM)

Record Digital Display Reading _____________ (BD)
Depress Menu Button
Record Digital Display Reading _____________ (BD)
Depress Menu Button
Record Digital Display Reading _____________ (BD)
Depress Menu Button
NOTE

Perform the following three steps if the PD directs the reset of the AEM timer. Depressing the minute button will advance the display in 15 minute increments.

1. **Record** new timer “D” setting provided by PD.
   ______D______:______(BD)

2. **Depress** menu button until 3\textsuperscript{rd} digit in timer display reads “D”.

3. **Depress** hours button until timer displays correct hours.

4. **Depress** minutes button until timer displays correct minutes.

5. **Record** new timer “N” settings provided by PD.
   ______N______:______(BD)

6. **Depress** menu button until 3\textsuperscript{rd} digit in timer display reads “N”.

7. **Depress** hours button until timer displays correct hours.

8. **Depress** minutes button until timer displays correct minutes.

9. **Depress** menu button until timer display reads “OX HH:MM” (3\textsuperscript{rd} digit is blank)

   Not Performed:______
1. **Record** new timer “D” setting provided by PD.
   _______D______:______(BD)

2. **Depress** menu button until 3<sup>rd</sup> digit in timer display reads “D”.

3. **Depress** hours button until timer displays correct hours.

4. **Depress** minutes button until timer displays correct minutes.

5. **Record** new timer “N” settings provided by PD.
   _______N______:______(BD)

6. **Depress** menu button until 3<sup>rd</sup> digit in timer display reads “N”.

7. **Depress** hours button until timer displays correct hours.

8. **Depress** minutes button until timer displays correct minutes.

9. **Depress** menu button until timer display reads “OX HH:MM” (3<sup>rd</sup> digit is blank)

   **Not Performed:**______
AEM-3 (MF57H)

1. **Record** new timer “D” setting provided by PD
   
   ____D______:______(BD)

2. **Depress** menu button until 3rd digit in timer display reads “D”.

3. **Depress** hours button until timer displays correct hours.

4. **Depress** minutes button until timer displays correct minutes.

5. **Record** new timer “N” settings provided by PD.
   
   ____N______:______(BD)

6. **Depress** menu button until 3rd digit in timer display reads “N”.

7. **Depress** hours button until timer displays correct hours.

8. **Depress** minutes button until timer displays correct minutes.

9. **Depress** menu button until timer display reads “OX HH:MM” (3rd digit is blank)

   **Not Performed:**______
STL Interface Verification Test

**NOTE**
Do not perform the following option if STL is currently installed and powered from a previous launch attempt.

**STL Interface Verification Test Not Performed:**

53-122 PTC OTC 132

Request CDR and CMQC support on OIS Ch 174 for STL IVT.

53-123 PTC XMLE 134

Perform STL switchover to Orbiter power and IVT on OIS Channel 174.

**NOTE**
In the following steps, XME1 and XME2 are NASA engineers.

53-124 XMLE XME1 174

Panel MO63P

Verify Orbiter power cable P/N 10108-10082-05 labeled “A/E Payload DC PWR MO63P J6 (STL PWR J1/MA9G)” is connected to DC power connector J6 and the other end is routed correctly to support IVT.

53-125 PTC CDR 174

PANEL MO63P
POWER SELECT SW (FOR J5/J6) - 10A
J6 SW - OFF
CB6/J6 - OPEN (OUT)
CAUTION
Power interruptions greater than 15 minutes may result in damage to temperature sensitive samples.

53-126  XMLE  XME1  174
STL
Power SW - OFF
Record:

53-127  XMLE  XME2  174
Power Control Box for STL
Run/Test SW - OFF (CENTER)
Record:

53-128  XMLE  XME1  174
STL
Disconnect Power Control Box cable, P/N 82K07338-6, connector P2 from STL connector J1.

OK to Disconnect: XME1:____
N:____

Disconnect OK: XME1:____
N:____
53-129  XMLE  XME1  174
STL

**Connect** Orbiter power cable, P/N 10108-10082-05, to STL connector J1.

**OK to Connect:** XME1:_____
N:_____

**Connect OK:** XME1:_____
N:_____  

53-130  PTC  CDR  174
PANEL MO63P
CB6/J6 - CLOSED (IN)
J6 SW - ON  

53-131  XMLE  XME1  174
STL

Power SW - ON
**Record:**
GMT:_____/_____/_____

Time without power:_______________(Min)
**NOTE**
STL LCD will display a series of status messages when powered on.

**NOTE**
Noted requirement satisfied by the following step annotated with OMRS code.

OMRS P1558EB.200

<table>
<thead>
<tr>
<th>53-132</th>
<th>XMLE</th>
<th>XME1</th>
<th>174</th>
</tr>
</thead>
<tbody>
<tr>
<td>STL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verify power SW - ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verify LCD display active</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verify power LED indicator - GREEN</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OMRS P1558EB.200

<table>
<thead>
<tr>
<th>53-133</th>
<th>XMLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noted requirement complete.</td>
<td></td>
</tr>
</tbody>
</table>

OMRSD P1558EB.200
STL Power Switchover and IVT are complete.

***End of STL Interface Verification Test***

NOTE
Perform the following step if all payload IVTs are complete.

Middeck payload IVTs are complete. CDR and CMQC support are released.

Not Performed:_____

*** End of Operation 53 ***
OPERATION 54 Potable/Supply Water Tank A Drain Options

Shop: FWD
Cntrl Rm Console: C6
OPR: FCP
Zone: 122
Hazard (Y/N): N
Duration (Hrs): 1.0

NOTE
This operation is a contingency only and is to be performed to ensure proper ullage to meet targeted liftoff quantity for this mission.

Operation (Not Performed:)

NOTE
This operation contains the following options:

Option A - Initiate Water Drain
Option B - Tank A Quantity Adjustment During Continuous Drain
Option C - Terminate Water Drain

NOTE
Drain options should be repeated as necessary to support OMIs S0007.200 and S0007.300 contingencies. Record the data and verification of the performance of these steps in Table 54-1 - Potable/Supply Water Tank A Drain. Not perform the options that are not used.

NOTE
SPOC Quality will not be present if this operation is being performed by the Closeout Crew. In this case, record NASA QC stamp number in place of SPOC QC.
54-1 OTC CFCP 132
*PAD
*PAD OMTO
PQCG

Perform Potable/Supply Water Tank A Drain on OIS Channel 153.

Option A - Initiate Water Drain

NOTE
Perform this option as directed by the controlling sequence.

(Option A Not Performed:)

54-2 CFCP ASP 153

PANEL ML26C
SUPPLY H₂O GN₂
TK VENT VLV - PRESS (UP)
TK A SUPPLY VLV - OPEN (UP)

54-3 CFCP ASP 153

PANEL ML86B
ROW A
MN C
SUPPLY H₂O
GALLEY SUPPLY CB - CLOSE

54-4 CFCP

CRT (VAG12 PG-B)
VERIFY POSITIVE PRESSURE ON POTABLE WATER SYSTEM.

RECORD P0430 (______)PSIA NLT 20
OMRS (general) V62GEN.045

54-5 CFCP ASP 153

PANEL R11
SUPPLY H₂O
GALLEY SPLY VLV SW - OPEN (15 SEC MAX)
UNTIL GALLEY SPLY TB OPEN, THEN RELEASE.
54-6 CFCP

CRT (VAG12 PG-B)
SUPPLY H₂O
TK A INLET
LV1
POP ON

GALLEY SUPPLY VLV
LV 9
POP ON

54-7 CFCP

CRT (VAG12 PG-B)
RECORD

TK A QTY (________) PCT BD

54-8 CFCP OMTO 153

TP4 Drain Hose Assembly
(consists of L070-000101-001 and -002 Assemblies):

Route flexhose to create a highpoint (above hot water tank) to preclude air ingestion back into galley during drain operations.

(T:)

54-9 CFCP OMTO 153

IF for Scrub Turnaround only
AND configuring for continuous drain (Tank A isolated and all fuel cell water continuously drained through TP4),

THEN perform:
TP4 Drain Hose Assembly

Connect tygon potable drain hose assembly to end.

Tighten wrench-tight.

(Not Performed:)

(T:)

659
IF for Scrub Turnaround only
AND configuring for continuous drain (Tank A isolated and all fuel cell water continuously drained through TP4),

THEN perform:
Tygon Drain Hose

Route tygon drain from Whiteroom across OAA to drain point on FSS.

Secure drain hose (to preclude tripping hazard) using tie-wraps.

(Not Performed:)
(T:)

NOTE
The following two steps initiate drain.

If not configured for continuous drain, MV1 may be closed/opened if required to empty drain bucket.

TP4 Drain Hose Assembly

1. MV1 - OPEN

2. Verify drain hose assembly configured to drain bucket or continuous drain.

3. Verify ready to initiate water flow.

(T:)

Galley

Remove cap from TP4, clean the mating QDs with 70-percent aqueous ethyl alcohol sterile cotton pads, allow the alcohol to evaporate prior to connecting, and connect TP4 drain hose assembly.

(T:)

(OKT:)

T:
TP4 Drain Hose Assembly

Verify water flow.

54-14  CFCP  ASP  153

**IF** CONFIGURING FOR CONTINUOUS DRAIN (ISOLATES TANK A),

**THEN** PERFORM:

**PANEL R11**

SUPPLY H₂O

TK A INLET SW - CLOSE (15 SEC MAX)

UNTIL TK A INLET TB CL,

THEN RELEASE

(Not Performed:)

54-15  CFCP

**IF** CONFIGURING FOR CONTINUOUS DRAIN (ISOLATES TANK A),

**THEN** PERFORM:

CRT (VAG12 PG-B)

LV1

POP OFF

(Not Performed:)

*** End of Option A - Initiate Water Drain ***
Option B - Tank A Quantity Adjustment During Continuous Drain

**NOTE**
Perform this option to drain Tank A to the T-3H target quantity. The target quantity is mission dependent.

*(Option B Not Performed:)*

**NOTE**
For Scrub Turnaround operations, the system will remain in continuous drain until the T-3H Hold point.

**NOTE**
Tank A quantity adjustment may be performed anytime during continuous drain, but must be completed prior to Pad clear for ET Cryo Load.

**54-16 CFCP**

*Record* desired T-3H Tank A quantity:

Tank A target qty (___) pct

**54-17 CFCP ASP 153**

**PANEL R11**

**SUPPLY** \( \text{H}_2\text{O} \)

TK A INLET SW - OPEN (15 SEC MAX) UNTIL

TK A INLET TB OP, THEN RELEASE

**RECORD** TK A QTY (___) PCT

**TIME** (______) GMT

**54-18 CFCP**

CRT (VAG12)

LV1 POP ON
NOTE
When Tank A quantity is within +/-3 percent of target value, perform the next step to isolate Tank A and return to Continuous Drain mode.

54-19  CFCP   ASP   153

PANEL R11

SUPPLY H₂O
TK A INLET SW - CLOSE (15 SEC MAX) UNTIL
TK A INLET TB CL, THEN RELEASE

54-20  CFCP

CRT (VAG12 PG-B)
LV1 POP OFF

RECORD TK A QTY (________)PCT  BD
TIME (______) GMT

54-21  CFCP

CRT (VAG12 PG-B)


2. REVIEW DRAIN PLOT OF TANK A. LOOK FOR FLOW RATE DECREASE WITHOUT A CORRESPONDING CHANGE IN DELTA PRESSURE ACROSS THE BELLows (INCLUDING BELLows SPRING FORCE), WHICH COULD INDICATE A STICKY BELLows AND SHOULD BE EVALUATED.

*** End of Option B - Tank A Quantity Adjustment During Continuous Drain ***
Option C - Terminate Water Drain

NOTE
Perform this option as directed by the controlling sequence.

(Option C Not Performed:)

Terminate Continuous Drain

NOTE
Perform this option to terminate continuous drain when no longer required.

Terminate Continuous Drain (Not Performed:)

54-22  CFCP  ASP  153

PANEL  R11

SUPPLY  \text{H}_2\text{O}
TK A INLET SW - OPEN (15 SEC MAX) UNTIL
TK A INLET TB OP, THEN RELEASE

54-23  CFCP

CRT (VAG12 PG-B)
LV1
POP ON

54-24  CFCP  OMTO  153

TP4 Drain Hose Assembly
1. MV1 - CLOSE
2. Disconnect tygon drain hose assembly (at KC126C4 union) from flexhose assembly.
3. Bag and seal open fittings.

(T:)

664
Tygon Drain Hose

Remove tygon drain hose from OAA and stow.

*** End of Terminate Continuous Drain ***

NOTE
Final Tank A quantity shall be determined by FC/PRSD Engineering.

NOTE
MV-1 on the TP4 drain hose assembly may be opened and closed as needed during drain.

IF the continuous drain option was not utilized,

THEN perform the following to terminate Tank A drain:

TP4 Drain Hose Assembly

1. When Tank A quantity reaches desired quantity (per CFCP direction) -
   MV-1 - CLOSE (CW)

2. Record:
   Stop time (_______) GMT (BD)

(Not Performed:)

CRT (VAG12 PG-B)
RECORD TK A QTY (____) PCT BD
P0430 (____) PSIA 22.7-36.7

OMRS (general) V62GEN.100-1R
Galley

1. **Disconnect** TP4 drain hose assembly potable water sampling apparatus from TP4.

2. **Inspect** TP4 QD sealing surface and cap O-ring for damage and no visible leakage in 15 minutes.

   OMRS (general) V62GEN.080
   
   OMRS (general) V62GEN.100-1R

3. **Install** cap on TP4.

   (TQw:)

---

**IF CONTINUOUS DRAIN OPTION IS NOT UTILIZED,**

THEN **PERFORM:**

CRT (VAG12 PG-B)


2. **REVIEW** DRAIN PLOT OF TANK A. LOOK FOR FLOW RATE DECREASE WITHOUT A CORRESPONDING CHANGE IN DELTA PRESSURE ACROSS THE BELLOWs INCLUDING BELLOWs SPRING FORCE), WHICH COULD INDICATE A STICKY BELLOWs AND SHOULD BE EVALUATED.

   (Not Performed:)

---

**Route** drain equipment from Crew Module.

   (T:)

---
54-31  CFCP  ASP 153

PANEL R11

SUPPLY H₂O
GALLEY SPLY VLV SW - CLOSE (15 SEC MAX HOLD)
UNTIL GALLEY SPLY VLV TB CLOSE, THEN RELEASE

54-32  CFCP  ASP 153

PANEL ML86B

ROW A
MN C
SUPPLY H₂O
GALLEY SUPPLY CB - OPEN

54-33  CFCP  ASP 153

IF THIS IS THE LAST DRAIN PRIOR TO LAUNCH,

THEN PERFORM:
PANEL ML26C

SUPPLY H₂O GN₂
TK A SUPPLY VLV - CLOSE
TK VENT VLV - VENT

(Not Performed:)

*** End of Option C - Terminate Water Drain ***

54-34  CFCP  OTC 132
OTC  *PAD

Potable/Supply Water Tank A Drain Options complete.

OMRSR V62AG0.018
<table>
<thead>
<tr>
<th>Step</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option A - Initiate Water Drain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P0430 psia:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank A Qty:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 54-1 - Potable/Supply Water Tank A Drain (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run Date -</th>
<th>Run Date -</th>
<th>Run Date -</th>
<th>Run Date -</th>
<th>Run Date -</th>
<th>Run Date -</th>
</tr>
</thead>
<tbody>
<tr>
<td>54-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OK To Install</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of Option A - Initiate Water Drain ***
<table>
<thead>
<tr>
<th>Step</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Option B - Tank A Quantity Adjustment During Continuous Drain**

Not Performed:

54-16
Tank A
Target Qty:

54-17
Tank A Qty:

Time GMT:

54-18

54-19

54-20
Tank A Qty:

Time GMT:

54-21

*** End of Option B - Tank A Quantity Adjustment During Continuous Drain ***
Table 54-1 - Potable/Supply Water Tank A Drain (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
</tr>
</thead>
</table>

Option C - Terminate Water Drain

| Not Performed: |

Terminate Continuous Drain

| Not Performed: |

54-22

54-23

54-24

T: 

54-25

T: 

*** End of Terminate Continuous Drain ***

54-26

Time GMT:

T: 

Not Performed:

54-27

Tank A Qty:

P0430: 

54-28

OK To Install Qw:

TQw:
Table 54-1 - Potable/Supply Water Tank A Drain (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
</tr>
</thead>
<tbody>
<tr>
<td>54-29 Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-30 T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54-33 Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of Option C - Terminate Water Drain ***

| 54-34 | | | | | | |

*** End of Operation 54 ***
OPERATION 55  EPDC/Fuel Cell Ground Power Connection and FC Load Share Adjustment

Shop: EPD
Cntrl Rm Console: C10
OPR: EPD
Zone: N/A
Hazard (Y/N): N
Duration (Hrs): 0.5

NOTE
This is a contingency operation. Perform only if called out by the Recycle operation.

Operation Not Performed:______
Re-establish GSE Power

**NOTE**
If ground power is connected, proceed directly to the Fuel Cell Load Sharing Adjustment steps.

**NOTE**
Noted requirements are satisfied by the following series of steps.

OMRS S00E00.A00
Power Supply Restart

55-1

CEPD

**IF** POWER SUPPLIES ARE OFF,

**THEN START** 1D100, 1D200 AND 1D300 POWER SUPPLIES AND ADJUST VOLTAGE TO 29-30 VDC AS FOLLOWS:

1. **RECORD** POWER SUPPLIES TO BE STARTED:

   1D100 (MN A) __________
   
   1D200 (MN B) __________
   
   1D300 (MN C) __________

2. CRT (VWC17)
   MN X GND PWR M/SW IND OFF

3. CRT (VWC15)
   1DX00 ITCU-PRI AND SEC CMD INDS OFF

4. CURSOR CNTL (VWC15)
   1DX00 ITCU RES BYPASS - OFF

   1DX00 PS - START
   **VERIFY** START IND ON

   1DX00 VOLT ADJUST - UP/DN (AS REQ)

   1DX00 PS OUTPUT - ON
   **VERIFY** OUTPUT ON

   1DX00 ITCU RES BYPASS - ON
   **VERIFY** ITCU RES BYPASS IND ON

   **Not Performed:**______
Ground Power Connection

CEPD

55-2

**IF 1D100, 1D200 AND 1D300 SUPPLIES ARE ON,**

**THEN CONTINUE** WITH GSE MN BUS POWER APPLICATION AND F/C LOAD SHARING ADJUSTMENT.

1. **CURSOR CNTL (VWC17)**
   **VERIFY/ADJUST** MN A ITCU VOLTAGE TO EQUAL AFT PCA VOLTAGE (+0.5/-0.0).

   MN A ITCU CONTACT - ON
   XMIT CURSOR KEY - PRESS
   **VERIFY** MN A ITCU CONTACT IND ON.

   MN A GND POWER M/SW - ON
   XMIT CURSOR KEY - PRESS
   **VERIFY** MN A GND PWR M/SW IND ON.

2. **CURSOR CNTL (VWC17)**
   **VERIFY/ADJUST** MN B ITCU VOLTAGE TO EQUAL AFT PCA VOLTAGE (+0.5/-0.0).

   MN B ITCU CONTACT - ON
   XMIT CURSOR KEY - PRESS
   **VERIFY** MN B ITCU CONTACT IND ON.

   MN B GND PWR M/SW - ON
   XMIT CURSOR KEY - PRESS
   **VERIFY** MN B GND POWER M/SW IND ON.
3. CURSOR CNTL (VWC17)

VERIFY/ADJUST MN C ITCU VOLTAGE TO EQUAL AFT PCA VOLTAGE (+0.5/-0.0).

MN C ITCU CONTACT - ON
XMIT CURSOR KEY - ON

VERIFY MN C ITCU CONTACT IND ON.

MN C GND PWR M/SW - ON
XMIT CURSOR KEY - PRESS

VERIFY MN C GND POWER M/SW IND ON.

Not Performed:______

55-3 Noted requirements are complete.

OMRSD S00E00.A00

*** End of Ground Power Connection ***
Fuel Cell Load Sharing Adjustment

**NOTE**
CECL monitor head load impact of the following step.

Maintain fuel cell loads at 125 amps nominal to minimize water production during Scrub Turnaround operations.

55-4  CEPD  CFCP  153

Ready to perform Load Sharing Adjustment.

55-5  CEPD  CFCP

**Adjust** fuel cell loads to between 100 and 175 amps (125 amps nominal).

55-6  CFCP

**Monitor** fuel cell performance using V-1 curve reference OMRSD File III, V45CH0.010-1A current 100-175 amps.

OMRSD S00E00.680-1R

55-7  CEPD  CFCP  153

Load Share Adjustment complete.

*** End of Fuel Cell Load Sharing Adjustment ***
55-8  CFCP

CURSOR CNTL (VWR04 PG-B)
ACTIVATE CONTROL LOGIC FOR FUEL CELLS 1, 2 AND 3.

VERIFY
VCH01 - INVERT GREEN
VCH02 - INVERT GREEN
VCH03 - INVERT GREEN

55-9  CEPE  OTC  132
CFCP

Ground Power Connection and FC Load Share Adjustment complete.

*** End of Operation 55 ***
OPERATION 56 Post Abort Water Intrusion Inspection

Shop: AFT
Cntrl Rm Console: C6
OPR: PVD
Zone: 300, 330
Hazard (Y/N): N
Duration (Hrs): 2.0

NOTE
This is a contingency operation. Perform only if an on-Pad engine abort occurs.

Operation Not Performed:
56-1	OTC	CPVD	132

Record position of Vent Doors 8 & 9 both sides.

Left-hand Vent Doors 8 & 9

Right-hand Vent Doors 8 & 9

56-2	OTC	CPVD	132

IF Vent Doors 8 & 9 are not open on both sides,

THEN open Vent Doors 8 & 9 both sides per RT OMI V1314.001
Operation - Routine Vent Door Operations, Control and Monitoring (Pad).

RT OMI Operation

Not Performed:

56-3	CPVD	OTC	132
OTC	NTD	232

Vent doors configured for water intrusion inspection.
NOTE
Water intrusion inspection shall be performed area by area with discrepancies noted in the following table. Damage caused by water spray or areas contaminated by water spray intrusion shall also be documented on a PR/DR.

<table>
<thead>
<tr>
<th>56-4</th>
<th>NTD</th>
<th>OTC</th>
<th>232</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTC</td>
<td>*PAD</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td>*PAD</td>
<td>OMTO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PQCG</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Inspect** external and internal AFT fuselage, ET umbilical area, and Vent Doors 8 & 9 plenums for water contamination.

**Inspect** external Payload Bay doors and AFT fuselage for damage caused by water spray.

**Record and map** areas damaged or contaminated with water in Table 56-1 - Water Intrusion Inspection (additional sheets may be copied and attached if required).

**Report** results to NTD.

OMRSD S00E00.995-A

(TQwN:)
## Table 56-1 Water Intrusion Inspection (Ref S00E00.995-A)

### Step 56-4

<table>
<thead>
<tr>
<th>Area</th>
<th>Results</th>
<th>Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:______ Qw:_____ N:_____</td>
<td></td>
</tr>
</tbody>
</table>

684
NOTE

If water is detected, the next step will remove the water from the affected areas. Record the quantity of water that has accumulated in each area.

56-5

OMTO

**Remove** water from contaminated areas, as noted in previous step, using shop vacuum and tygon tubing and/or Rymple cloth.

**Record** the quantity of water removed in Table 56-2 - Water Removal and update the Vehicle Spill Log (as applicable). Additional sheets may be copied and attached if required.

OMRSD S00E00.995-C
OMRSD S00E00.995-D

(TQwN:)
Table 56-2  Water Removal (Ref S00E00.995-C, Ref S00E00.995-D)

Step 56-5

<table>
<thead>
<tr>
<th>Area</th>
<th>Quantity Removed</th>
<th>Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T:_____ Qw:_____ N:_____</td>
</tr>
</tbody>
</table>
WARNING
LOC Multi-Purpose Cleaner is a mild irritant.
Exposure may cause eye and respiratory system irritation.

Wear nitrile (Sol-Vex) gloves and industrial goggles.
Wear face shield over goggles when work is at eye level or above.

---

56-6

OMTO

IF traces of residue/staining left by water are present,

THEN remove with Rymple cloth and/or lint-free wipes wetted with a solution of 1.0 percent (1) CO 6850014005976 cleaning compound, l.o.c. in deionized water.

T:_____ Qw:_____ N:_____

Not Performed:_____

56-7

OMTO  *PAD

Post Abort Water Intrusion Inspection complete.

56-8  *PAD  OTC  132

OFC  CPVD

IF Vent Doors 8 & 9 were opened earlier in this operation,

THEN reposition Vent Doors 8 & 9 to the position recorded earlier in this operation per RT OMI V1314.001, Operation - Routine Vent Door Operations, Control and Monitoring (Pad).

RT OMI Operation __________

Not Performed:_____
<table>
<thead>
<tr>
<th>56-9</th>
<th>*PAD</th>
<th>OTC</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OTC</td>
<td>NTD</td>
<td>232</td>
</tr>
</tbody>
</table>

Post Abort Water Intrusion Inspection complete.

*** End of Operation 56 ***
OPERATION 57 Final Inspection

Shop: *FIT
Cntrl Rm Console: NA
OPR: *FIT
Zone: NA
Hazard (Y/N): Y
Duration (Hrs): 2.0

NOTE
Do not perform this operation if Launch is scrubbed prior to tanking.

Operation Not Performed:______
WARNING
Large volumes of water might be inadvertently released by the sound suppression system if the hydraulic valves open or fail. Personnel may suffer serious bodily harm or death.

NOTE
Sound suppression water is present on MLP zero level and guard rails are removed. Final Inspection Team must exercise extreme caution while on MLP zero level. Under no circumstances will sound suppression water system be activated while personnel are on MLP zero level. Controlled switching will be in effect while Final Inspection Team is on structure. Access above 155-ft FSS limited to 14 personnel maximum.

NOTE
Stay times and inspection points are per OMI S6444.002, SSV Ice and Debris Assessment.

57-1
*FIT NTD DIR 7

Final Inspection Team is at OSB II and ready for Pad entry.

57-2
NTD *FIT DIR
*SCC 232
*PAC
*SCC *PSE DIR 7

Perform Final Inspection per Operation 57 (OMI S0007.400) and OMI S6444.002.

Proceed to Launch Pad and report in on OIS Channel 232.
NOTE
JYVO/JYVR, *SCC, *PAC shall follow progress of Final Inspection Team via OTV cameras noted in each step.

57-3

<table>
<thead>
<tr>
<th>NTD</th>
<th>STM</th>
<th>232</th>
</tr>
</thead>
<tbody>
<tr>
<td>STM</td>
<td>JYVO</td>
<td>138</td>
</tr>
</tbody>
</table>

**NOTED**

*SCC, *PAC shall follow progress of Final Inspection Team via OTV cameras noted in each step.

**Track and video record** the Final Inspection Team at the Pad using following OTV cameras in sequence:

Pad A - 056, 055, 054, 062, 004, 006, 003, 001

**Support:** OTV

NOTE
Perform the following two steps if an initial stop on MLP zero level is required.

57-4

*FIT  NTD  DIR 7

Final Inspection Team proceeding to Zero Level MLP.

Not Performed:_____

57-5

*FIT  NTD  DIR 7

Final Inspection Team on Zero Level MLP (Cameras 054, 055 and 056).

Not Performed:_____
57-6  *FIT    NTD    DIR 7
Final Inspection Team proceeding to 255-ft level.

57-7  *FIT    NTD    DIR 7
Final Inspection Team on 255-ft level (Camera 001).

57-8  *FIT    NTD    DIR 7
Final Inspection Team proceeding to 215-ft level (ET access platform, FSS and RSS).

57-9  *FIT    NTD    DIR 7
Final Inspection Team on 215-ft level (ET access platform, FSS and RSS) (Cameras 004, 003, and 062).
57-10  *FIT    NTD    DIR 7
Final Inspection Team proceeding to 195-ft level (OAA).

57-11  *FIT    NTD    DIR 7
Final Inspection Team on 195-ft level (OAA) (Camera 004).
Report on environmental conditions that would affect Flight Crew Ingress.

57-12  *FIT    NTD    DIR 7
Final Inspection Team proceeding to 135-ft level.

57-13  *FIT    NTD    DIR 7
Final Inspection Team on 135-ft level (Camera 056).

57-14  *FIT    NTD    DIR 7
Final Inspection Team proceeding to zero-level MLP.

57-15  NTD    TBC    232
       TBC    CHPU    136
Verify SRB Aft Skirt GN₂ purge is secured prior to 17-in. disc sample line removal.

57-16  *FIT    NTD    DIR 7
Final Inspection Team on zero-level MLP (Cameras 054, 055, and 056).
Hydrogen Sample Line Removal

NOTE
The following steps provide coordination between the Final Inspection Team, NTD, and CHGD in securing 17-in. disc hydrogen sample lines. Perform this option if sample lines are installed.

Hydrogen Sample Line Removal Not Performed:______

57-17  *FIT  NTD  DIR 7

Request ET/Orbiter monitoring instrumentation pump secured prior to hydrogen sample line removal from 17-in. disc area or disconnect at LH₂ TSM.

57-18  NTD  OTC  232
OTC  CHGD  132

Secure ET/Orbiter monitoring instrumentation pump and report completion.

57-19  CHGD  CLHY  166
LD54/LD55 pump securing will begin momentarily.

57-20  CHGD
CURSOR CNTL (SAW01/HWW13)
LD54/55 PUMP - OFF
XMIT CURSOR KEY - PRESS

57-21  NTD  *FIT  DIR 7
Proceed with 17-in. disc sample line removal.

*** End of Hydrogen Sample Line Removal ***
57-22  *FIT        NTD        232

Condition of SRB sound suppression water troughs is _______________.

(LCC violations)

57-23  *FIT        NTD        DIR 7

Final inspection team complete on MLP Zero Level. Ready to depart MLP Zero Level.

57-24  *FIT        NTD        232
STM      STM
CICE      JYVO    138

ET/Orbiter final inspection complete. Final Inspection Team departing Pad.

Support: OTV

57-25  NTD        *SCC        232

Verify concurrence to reactivate SRB Aft Skirt GN₂ Purge.
57-26

NTD      TBC      232
TBC      CHPU     136

Reactivate SRB Aft Skirt GN₂ Purge.

57-27

*PSE   *SCC   DIR 7
*SCC   NTD    232

Final Inspection Team clear of Pad gate.

57-28

NTD   *SCC    232
*SCC   *PSE   DIR 7

Verify Final Inspection Team at Roadblock A/B-11.

57-29

*PSE   *SCC   DIR 7
*SCC   NTD    232

Final Inspection Team at Roadblock A/B-11.

57-30

NTD   STM     232
STM    JYVO    138
      JYVR

Terminate video tracking and recording of Final Inspection Team.

Support: OTV
NOTE
All debris identified by the sweep should be bagged and forwarded to the NTD and then the Launch Operations Quality Manager immediately with a location list (OMI S0007.400 Data Sheet - FOD Identified in Final OPS/Safety Walkdown and Final Inspection at T-3 Hours). The Launch Operations Quality Manager will enter the debris data found into the IQSD (FOD Database) and the debris routed to the Pad Support Building Quality Impound Area.

57-31  *FIT  NTD  232
       NTD  *SCC

Final Inspection is complete.

*** End of Operation 57 ***
OPERATION 58  P/L SSP/PRLA Switch Configuration

Shop: PLE
Cntrl Rm Console: C1
OPR: PLE
Zone: 120
Hazard (Y/N): N
Duration (Hrs): 0.5
PANEL A6U

PAYLOAD RETENTION
LOGIC POWER
SYS 1 SW - OFF
SYS 2 SW - OFF

PAYLOAD SELECT SW - MONITOR (BETWEEN POSITIONS 1 AND 2)

PAYLOAD RETENTION LATCHES
1 SW - OFF
1 TB BP
2 SW - OFF
2 TB BP
3 SW - OFF
3 TB BP
4 SW - OFF
4 TB BP
5 SW - OFF
5 TB BP

READY TO LATCH
1 TB BP
2 TB BP
3 TB BP
4 TB BP
5 TB BP

NOTE
The following switch is located on the RMS rotational hand controller, to the right of Panel A8U.

IF THE RMS RHC IS INSTALLED,

THEN PERFORM:
RMS RHC
RATE SW - VERNIER

Not Performed:______
IF PANEL A8L IS INSTALLED,

THEN PERFORM:

PANEL A8L

STARBOARD RMS
   DEPLOY/STOW SW - OFF
   TB STO (BP IF NO MPM INSTALLED)

HEATER
   A SW - OFF
   B SW - OFF

RETENTION LATCHES
   REL/LAT SW - OFF
   TB LAT (BP IF MPM’S NOT INSTALLED)

READY FOR LATCH
   AFT TB GRAY (BP IF STARBOARD RMS/OBSS NOT INSTALLED)
   MID TB GRAY (BP IF STARBOARD RMS/OBSS NOT INSTALLED)
   FWD TB GRAY (BP IF STARBOARD RMS/OBSS NOT INSTALLED)

RMS SELECT SW - OFF
RMS POWER SW - OFF
PORT RMS
   DEPLOY/STOW SW - OFF
   TB STO (BP IF NO MPM INSTALLED)

HEATER
   A SW - OFF
   B SW - OFF

RETENTION LATCHES
   REL/LAT SW - OFF
   TB LAT (BP IF MPM’S NOT INSTALLED)

READY FOR LATCH
   AFT TB GRAY (BP IF PORT RMS NOT INSTALLED)
   MID TB GRAY (BP IF PORT RMS NOT INSTALLED)
   FWD TB GRAY (BP IF PORT RMS NOT INSTALLED)

Not Performed:_______
IF PANEL A8U IS INSTALLED, THEN PERFORM:
PANEL A8U

MODES MATRIX (ALL 12 LIGHTS OFF)
BRAKES SW - ON
TB OFF

SAFING SW - AUTO (CENTER)
TB BP

MODE
SELECT SW - TEST
ENTER PBI - AS IS
AUTO SEQ SW - (CENTER)
LIGHTS (2) - OFF

SOFTWARE STOP TB GRAY

CAUTION/WARNING TONE VOLUME SW - AS IS
CAUTION/WARNING (ALL LIGHTS OFF)

MASTER ALARM LIGHT - OFF

RATE
MIN TB OFF
HOLD TB OFF
SCALE TB GRAY

END EFFECTOR
MODE SW - OFF
MAN CONTR SW - (CENTER)
(ALL 6 TB'S BP)

BACKUP CONTROL
JOINT SW - SHOULDER YAW
PAYLOAD RELEASE SW - OFF
DIRECT DRIVE SW - (CENTER)
PARAMETER SW - PORT TEMP LED/ABE/ID

JOINT
SELECT SW - CRIT TEMP
SINGLE/DIRECT DRIVE SW - (CENTER)
LIGHTING
   ANNUN/NUM
   BRIGHT/VAR SW - VAR (DOWN)
   SEL SW - LOW
   PANEL/INST SW - OFF

SHOULDER BRACE RELEASE SW - (CENTER)
TB BP

Not Performed:_____

58-5  CPLE    ASP    134

IF VPU FLOWN ON R12,

THEN PERFORM:
   PANEL R12

   VPU POWER SW - OFF

Not Performed:_____

58-6  CPLE    ASP    134

IF THE OBSS IS FLOWN ON PANEL R12,

THEN PERFORM:
   PANEL R12U

   OPP SW POWER CB 1 - OPEN
   OBSS SW POWER SW - OFF

   OBSS
   S1 SW - (DOWN)
   RSC PWR SW - OFF
   ITVC ENA SW - OFF
   SPEE PWR SW - OFF
   S5 SW - (DOWN)
   S6 SW - (DOWN)

Not Performed:_____

| 703 |
58-7 CPLE ASP 134

**IF** THE NON-FUNCTIONAL COMPUTER INTERFACE PANEL IS INSTALLED,

**THEN PERFORM:**
PANEL R12

COMPUTER INTERFACE PANEL
- NON FUNCTIONAL SW - OFF (DOWN)
- NON FUNCTIONAL SW - OFF (DOWN)

Not Performed:_____

58-8 CPLE ASP 134

**IF** THE FUNCTIONAL COMPUTER INTERFACE PANEL IS INSTALLED,

**THEN PERFORM:**
PANEL R12

COMPUTER INTERFACE PANEL
- DC POWER 1 SW - OFF
- DC POWER 2 SW - OFF

Not Performed:_____


IF THE OSVS PANEL IS INSTALLED,

THEN PERFORM:
PANEL R12

OSVS POWER CB - OPEN
OSVS POWER SW - OFF

Not Performed:_____

SSP/PRLA Switch Configuration complete.

*** End of Operation 58 ***
OPERATION 59  EPDC Post-Launch Securing
Shop: EPD
Cntrl Rm Console: C10
OPR: EPD
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 0.5

NOTE
Do not perform EPDC Post-Launch Securing if Launch Abort occurs.

Operation Not Performed:______
IF POST-LAUNCHED SAFING FOR HYDROGEN BURN SYSTEM A
OR SYSTEM B ARM, F1, OR F2 WAS NOT INITIATED BY
GLS,

THEN PERFORM:
CURSOR CNTL (VWC13)
H₂ BURN
SYS A
ARM - OFF
XMIT CURSOR KEY - PRESS

Not Performed:______

F1 - OFF
XMIT CURSOR KEY - PRESS

Not Performed:______

F2 - OFF
XMIT CURSOR KEY - PRESS

Not Performed:______

SYS B
ARM - OFF
XMIT CURSOR KEY - PRESS

Not Performed:______

F1 - OFF
XMIT CURSOR KEY - PRESS

Not Performed:______

F2 - OFF
XMIT CURSOR KEY - PRESS

Not Performed:______

Entire Step Not Performed:______
Post-Launch Ground PIC Resistance Test

59-2  
CEPD

CURSOR CNTL (VWC10)  
GND R/T - ON  
XMIT CURSOR KEY - PRESS

59-3  
CEPD

CRT (VWC10)  
VERIFY RESISTANCE TEST INDICATIONS.

RECORD ANY "G" INDICATIONS IN  
"GROUND PIC TEST COMPLETE" (OMI S0007.200).

<table>
<thead>
<tr>
<th>LEFT-HAND</th>
<th>RIGHT-HAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS A</td>
<td>SYS B</td>
</tr>
<tr>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>H$_2$ BURN</td>
<td></td>
</tr>
<tr>
<td>ENG 1</td>
<td>N</td>
</tr>
<tr>
<td>ENG 2/3</td>
<td>N</td>
</tr>
<tr>
<td>LAUNCH REL</td>
<td></td>
</tr>
<tr>
<td>ETVAS</td>
<td>-</td>
</tr>
<tr>
<td>H/O TSM</td>
<td>N</td>
</tr>
<tr>
<td>LANYARD</td>
<td>-</td>
</tr>
</tbody>
</table>

59-4  
CEPD

CURSOR CNTL (VWC10)  
GND R/T - OFF  
XMIT CURSOR KEY - PRESS
59-5  CE PD

CURSOR CNTL (VWC10)
GRD T-0 RESET
XMIT CURSOR KEY - PRESS

CRT (VWC10)
GRD T-0 RESET IND RESET
GRD SW STATUS IND OFF

59-6  CE PD

CURSOR CNTL (VWC10)
GND SYS - OFF
XMIT CURSOR KEY - PRESS

CRT (VWC10)
ALL H2 AND LR BURN CPA AND GRD PWR INDICATIONS OFF
AND ALL CPA VOLTAGES LL

*** End of Post-Launch Ground PIC Resistance Test ***

Orbiter Ground Power System
Powerdown

59-7  CE PD

CURSOR CNTL (VWC16)
BUS CONTROL SINGLE PF 1 - OFF
XMIT CURSOR KEY - PRESS

CRT (VWC16)
REQUESTED OPERATION COMPLETE

59-8  CE PD

CURSOR CNTL (VWC16)
BUS CONTROL SINGLE PF 2 - OFF
XMIT CURSOR KEY - PRESS

CRT (VWC16)
REQUESTED OPERATION COMPLETE
1D100 Powerdown

59-9

CEPD

CURSOR CNTL (VWC01)
MLP 1D100 PS D
XMIT CURSOR KEY - PRESS

CRT (VWC01)
REQUESTED OPERATION COMPLETE

1D200 Powerdown

59-10

CEPD

CURSOR CNTL (VWC01)
MLP 1D200 PS D
XMIT CURSOR KEY - PRESS

CRT (VWC01)
REQUESTED OPERATION COMPLETE

1D300 Powerdown

59-11

CEPD

CURSOR CNTL (VWC01)
MLP 1D300 PS D
XMIT CURSOR KEY - PRESS

CRT (VWC01)
REQUESTED OPERATION COMPLETE
1D500 Powerdown

59-12

CEPD

CURSOR CNTL (VWC01)
MLP 1D500 PS D
XMIT CURSOR KEY - PRESS

CRT (VWC01)
1D500 PS VOLT/ITCU VOLT/CURRENT FAILED

NOTE

Due to backup battery, ITCU voltage will not go to lower limit.

59-13

CEPD

CURSOR CNTL (VWC01)
CONTINUE TO THE PROGRAM TERMINATION STEP
XMIT CURSOR KEY - PRESS

CRT (VWC01)
REQUESTED OPERATION COMPLETE

*** End of 1D500 Powerdown ***
1D600 Powerdown

59-14 CEPD

CURSOR CNTL (VWC01)
MLP 1D600 PS D
XMIT CURSOR KEY - PRESS

CRT (VWC01)
1D600 PS VOLT/ITCU VOLT/CURRENT FAILED

NOTE
Due to backup battery, ITCU voltage will not go to lower limit.

59-15 CEPD

CURSOR CNTL (VWC01)
CONTINUE TO THE PROGRAM TERMINATION STEP
XMIT CURSOR KEY - PRESS

CRT (VWC01)
REQUESTED OPERATION COMPLETE

*** End of 1D600 Powerdown ***

SSME Heaters Powerdown

59-16 CEPD

CURSOR CNTL (VWC01)
1D700 PS DN
XMIT CURSOR KEY - PRESS

CRT (VWC01)
REQUESTED OPERATION COMPLETE

59-17 CEPD

CURSOR CNTL (VWC01)
1D800 PS DN
XMIT CURSOR KEY - PRESS

CRT (VWC01)
REQUESTED OPERATION COMPLETE

*** End of SSME Heaters Powerdown ***
1T100 Powerdown

59-18

CEPD

CURSOR CNTL (VWC01)
1T100 ON/OFF
XMIT CURSOR KEY - PRESS

CRT (VWC01)
1T100 ON/OFF IND OFF

1T200 Powerdown

59-19

CEPD

CURSOR CNTL (VWC01)
1T200 ON/OFF
XMIT CURSOR KEY - PRESS

CRT (VWC01)
1T200 ON/OFF IND OFF

*** End of Orbiter Ground Power System Powerdown ***

59-20

CEPD

CURSOR CNTL (SWC02)
LAUNCH COMMIT EMON - INH
XMIT CURSOR KEY - PRESS

CRT (SWC02)
SYSTEM EXCEPTION MONITORING IS INHIBITED

59-21

CEPD OTC 132

Post-Launch Securing complete.

*** End of Operation 59 ***
OPERATION 60  Reserved

Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 60 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 61  SRB Ignition S&A Device Verification (Contingency)

Shop: NA
Cntrl Rm Console: C10
OPR: SBE
Zone: NA
Hazard (Y/N): Y
Duration (Hrs): 0.5

NOTE
Perform this operation only if contingency S&A verification is required.

Operation Not Performed:______
WARNING

Controlled switching: No flight vehicle/element or GSE commands issued, no switches, or circuit breakers operated on the Flight Element or GSE electrically connected to the Flight Elements.
The only exceptions are those commands and switch/circuit breaker operations directed by the WAD (and subtasks) requiring controlled switching.

WARNING

Pyrotechnic devices could explode while being tested.
Personnel may suffer bodily injury or death.

WARNING

Lightning radiates energy that may cause ordnance items to explode.
Personnel may suffer bodily injury or death.

NOTE

Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

NOTE

Do not perform this operation during a Phase 1 Lightning Advisory or a Phase 2 Lightning Warning.

NOTE

Hazardous steps follow. BDA clear remains in effect.

61-1 TBC CPWR 136

Perform SRB Ignition S&A Device Verification.
61-2 CPWR OTC 132

Verify all personnel clear of BDA.

61-3 CPWR

IF IGN HEATER POWER IS ON,
THEN PERFORM:
CURSOR CNTL (BDE11)
AUTO SEQ - IGN
XMIT CURSOR KEY - PRESS
CRT
VERIFY LH/RH IGN HTR CURRENT <0.5 AMP AC

Not Performed:_____

61-4 CPWR

CRT (BDE11)
VERIFY LH/RH IGN HEATER POWER OFF

61-5 CPWR

CURSOR CNTL (SDC01)
SRB OPTIONS IGN SAFE/ARM
XMIT CURSOR KEY - PRESS
CRT
VERIFY SWC01 TERMINATES AND DISPLAY SKELETON
BDE07 DISPLAYED

61-6 CPWR

CURSOR CNTL (BDE07)
TEST 1 CYCLE
XMIT CURSOR KEY - PRESS
CRT
VERIFY TEST LEFT & RIGHT (GREEN)
61-7

CPWR

CRT (BSE06 PG-A)
VERIFY BSE06 CALLS BKE07

VERIFY MESSAGES:
LH S&A DEVICE ROTATED 1 CYCLE
RH S&A DEVICE ROTATED 1 CYCLE
BKE07 - TERMINATED SUCCESSFULLY
SRB - IGNITION S&A TEST COMPLETED SUCCESSFULLY

61-8

CPWR

RECORD COMPLETION:

GMT__________

61-9

CPWR

APPL PAGE (BDE07)
PFK15 KEY - PRESS

CRT
VERIFY

BWE07 TERMINATES
SYSTEM MENU IS REDISPLAYED
CPWR

**IF** SRB IGN HEATER POWER WAS REMOVED FOR S&A ROTATION,

**THEN REAPPLY** POWER PER THE FOLLOWING:

CURSOR CNTL (BDE11)
AUTO SEQ - IGN
XMIT CURSOR KEY - PRESS

CRT
VERIFY

LH/RH IGN HTR POWER ON
LH/RH IGN HTR AUTO SEQ ACT

**NOT Performed:**

CPWR  TBC  136

SRB Left-hand/Right-hand Ignition S&A Rotation complete and ignition S&A devices are in Safe position.

**NOTE**
For purposes of time/life cycle, one cycle is defined as from Safe to Arm and back to Safe.

CPWR  CMQC

**Initiate** USA Form 110-099, Time/Cycle/Action Update SRB, to record cycles used for S&A device, P/N 1U77387, for each SRB.

**Forward** to Thiokol LSS for update of time/life cycles.

OMRSD **C00CB0.010008B**

Qv:____

*** End of Operation 61 ***
OPERATION 62  GLS Functional Initialization and LCC Activation

Shop: TCO
Cntrl Rm Console: INTG
OPR: TCO
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 1.0

NOTE
Perform this operation, GLS Functional Initialization and LCC Activation, at the direction of the Test Team.

Operation Not Performed:_____

NOTE
A list of GLS masks and bypasses to support test objectives, together with a signature page, will be provided by CGLS. This list will contain each kick-off step in this operation, referencing this list along with corresponding inputs for that step.
Perform GLS Functional Initialization on Channel _____.

Report completion.

Provide two concurrencies at BKUP and five concurrencies at INTG.

PFP
VERIFY APPL TASKS 1 THROUGH 5 INACTIVE
KEY 7 - PRESS
VERIFY ALL OC TASKS - INACTIVE

CONSOLE KYBD
SELECT APP PG-1B
HOME CMD KEY - PRESS
SLP03
PERF PGM KEY - PRESS

CRT (SLP03)
SELECT SITE

CONSOLE KYBD

_______ (KSCA OR KSCB)
XMIT RESP KEY - PRESS

CONSOLE KYBD
PFP
PFPK7 - PRESS
62-7  CGLS

CONSOLE KYBD
PFP PNL (SLP03)
PFPK1 - PRESS
**VERIFY** INTEGRATED PFP DISPLAY

62-8  CGLS

KEY 7 - PRESS

PFP PNL
**VERIFY** TASK
SLP03-1
SLP02-2
SLP01-3
Pseudo Initialization

62-9
CGLS

CONSOLE KYBD
SELECT APP PG-1B
CRT
VERIFY INTG MENU

62-10
CGLS

CONSOLE KYBD
SELECT - PSEUDO INIT
XMIT CURSOR KEY - PRESS

NOTE
Perform one of the following three steps if required based on whether disk files were already loaded at integration.

62-11
CGLS

POSITION CURSOR TO ALL PSEUDOS AND DISK FILES.
XMIT CURSOR KEY - PRESS

Not Performed:_____

62-12
CGLS

POSITION CURSOR TO ALL DISK FILES.
XMIT CURSOR KEY - PRESS

Not Performed:_____

62-13
CGLS

POSITION CURSOR TO ALL PSEUDOS.
XMIT CURSOR KEY - PRESS

Not Performed:_____

| 726 |
Cryo Safing Pseudo

NOTE
Perform this option if page B message indicates “SEE PAGE A FOR OPERATION INPUT.”

Cryo Safing Pseudo Not Performed:______

62-14 CGLS

CRT
VERIFY PAGE A MSG: (N03IS511E) CRYO SAFING ENABLED IS ON. THIS INDICATES SCRUB/CRYO DRAIN IN PROGRESS.

62-15 CGLS

CONSOLE KYBD (SLP02 PG-A)
ENTER “1” IF CRYO SAFING SUPPORT COMPLETED AND SLP50 NOT ACTIVE TO INITIALIZE (N03IS511E) TO OFF.

ENTER “2” TO LEAVE (N03IS511E) UNCHANGED.

_____ (1 OR 2)
XMIT RESPONSE KEY - PRESS

CRT
VERIFY MSG INDICATING PSEUDO STATE

*** End of Cryo Safing Pseudo ***

62-16 CGLS

VERIFY - PSEUDO HOUSEKEEPING COMPLETE. (PG-A)
VERIFY - NO EXCEPTIONS PG-A
TERMINATE
XMIT CURSOR KEY - PRESS

*** End of Pseudo Initialization ***
### GLS Site Pseudo Mods

62-17 CGLS

Verify each of the following pseudos is in the indicated state:

<table>
<thead>
<tr>
<th>Pseudo</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N03IS080E</td>
<td>ON</td>
<td>Test location Pad</td>
</tr>
</tbody>
</table>

1. IF vehicle at Pad A,  
   THEN:  
   - Ntbiskpada OFF  
   - Ntbiskpadb ON  

   **Not Performed:** ________  
   **SS1**

2. IF vehicle at Pad B,  
   THEN:  
   - Ntbiskpada OFF  
   - Ntbiskpadb ON  

   **Not Performed:** ________  
   **SS2**

3. IF vehicle is OV-105  
   THEN:  
   - Ngps3strng ON  

   **Not Performed:** ________  
   **SS3**

4. IF vehicle is not OV-105  
   THEN:  
   - Ngps3strng OFF  

   **Not Performed:** ________  
   **SS4**
62-18

CGLS

**IF** A PSEUDO IN THE PREVIOUS STEP IS NOT IN THE INDICATED STATE,

**THEN PERFORM:**
CONSOLE KYBD
HOME CMD KEY - PRESS

SET _________________ (PSEUDO AND STATE)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
VERIFY SUCCESSFUL

Not Performed:_____

62-19

CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

PVO NORBTAILNO
XMIT CMD KEY - PRESS

VERIFY PSEUDO FD IS SET TO CORRECT VEHICLE FOR CURRENT TEST

62-20

CGLS

**IF** THE PSEUDO IN THE PREVIOUS STEP WAS SET TO AN INCORRECT VALUE,

**THEN PERFORM:**
CONSOLE KYBD
HOME CMD KEY - PRESS

ISSU _____________ (PSEUDO AND VALUE)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

VERIFY SUCCESSFUL

Not Performed:_____

*** End of GLS Site Pseudo Mods ***
System Bypass

62-21  
CGLS

CONSOLE KYBD
SELECT APP PG-1B

CRT
VERIFY INTG MENU

62-22  
CGLS

CONSOLE KYBD
SELECT - SYSTEM BYPASS
XMIT CURSOR KEY - PRESS

CRT
VERIFY SYSTEM BYPASS DISPLAY

NOTE
For the next step, reference the GLS System Bypass list for requirements.

62-23  
CGLS

IF SYSTEM BYPASSES ARE REQUIRED FOR THIS FLOW,
THEN PERFORM:

CRT
CURSOR CNTL _____ (SYS)
XMIT CURSOR KEY - PRESS

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>BYPASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>APU</td>
<td>______</td>
</tr>
<tr>
<td>ARMS</td>
<td>______</td>
</tr>
<tr>
<td>BELE</td>
<td>______</td>
</tr>
<tr>
<td>BHYD</td>
<td>______</td>
</tr>
<tr>
<td>BINST</td>
<td>______</td>
</tr>
<tr>
<td>BRS</td>
<td>______</td>
</tr>
<tr>
<td>BPYRO</td>
<td>______</td>
</tr>
<tr>
<td>Category</td>
<td>Status</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>PLINTG</td>
<td>______</td>
</tr>
<tr>
<td>COMM</td>
<td>______</td>
</tr>
<tr>
<td>DPS</td>
<td>______</td>
</tr>
<tr>
<td>ECLS</td>
<td>______</td>
</tr>
<tr>
<td>ECS</td>
<td>______</td>
</tr>
<tr>
<td>EPDC</td>
<td>______</td>
</tr>
<tr>
<td>FCP</td>
<td>______</td>
</tr>
<tr>
<td>GNS</td>
<td>______</td>
</tr>
<tr>
<td>GOX</td>
<td>______</td>
</tr>
<tr>
<td>HYD</td>
<td>______</td>
</tr>
<tr>
<td>HYFUEL</td>
<td>______</td>
</tr>
<tr>
<td>HYOXID</td>
<td>______</td>
</tr>
<tr>
<td>INSTR</td>
<td>______</td>
</tr>
<tr>
<td>INTG</td>
<td>______</td>
</tr>
<tr>
<td>LH2</td>
<td>______</td>
</tr>
<tr>
<td>LOX</td>
<td>______</td>
</tr>
<tr>
<td>MECH</td>
<td>______</td>
</tr>
<tr>
<td>MPS</td>
<td>______</td>
</tr>
<tr>
<td>NAVAID</td>
<td>______</td>
</tr>
<tr>
<td>FCL</td>
<td>______</td>
</tr>
<tr>
<td>PVD</td>
<td>______</td>
</tr>
<tr>
<td>SSME</td>
<td>______</td>
</tr>
<tr>
<td>TINST</td>
<td>______</td>
</tr>
<tr>
<td>WATER</td>
<td>______</td>
</tr>
</tbody>
</table>

Not Performed: ______
62-24  CGLS

CONSOLE KYBD
HARDCOPY KEY - PRESS

62-25  CGLS

CONSOLE KYBD
SELECT - TERMINATE
XMIT CURSOR - PRESS

CRT
VERIFY

BYPASS SELECTION
PROCESS TERMINATION

*** End of System Bypass ***
GLS Functional Changes

NOTE
Console reboot or disk re-initialization will probably destroy this data. In the event this happens, verify that data is lost; if so, re-enter data.

62-26
CGLS

SELECT APP PG-2B
PFPK2 (SLP02) - PRESS
VERIFY INTG MENU

62-27
CGLS

CURSOR CNTL
ML FUNC CHNGS
XMIT CURSOR KEY - PRESS

62-28
CGLS

PFP
PFPK1 (ML BYPASS FILE) - PRESS
VERIFY MAINLINE BYPASS DISPLAY
GLS Mainline Bypass

NOTE
Perform this option if bypass file update is required.

GLS Mainline Bypass Not Performed:______

62-29 CGLS

PFP
PFPK5 (ADD) - PRESS

NOTE
To bypass GLS mainline function line item, use GLSDD to determine seq number. Reference the GLS Mainline Bypass list for required inputs.

62-30 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
_________(SEQ NUMBER)
XMIT RESP KEY - PRESS

NOTE
Perform the next step only after all required entries have been completed.

62-31 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
-9999
XMIT RESP KEY - PRESS

62-32 CGLS

CONSOLE KYBD
HARDCOPY KEY - PRESS

*** End of GLS Mainline Bypass ***
NOTE
A functional line item entered into bypass file may not be entered into any other file.

62-33    CGLS

PFP
PPPK2 (ML ANALOG FILE) - PRESS
VERIFY MAINLINE ANALOG FILE DISPLAY
GLS Analog Changes

NOTE
Perform this option if mainline analog file update is required.

GLS Analog Changes Not Performed:______

62-34
CGLS

PFP
PFPK5 (ADD) - PRESS

NOTE
To verify an analog using limits that are different from limits in GLSDD, perform the following four steps. Reference the GLS ML Analog Disk File list for required inputs.

NOTE
Repeat the following three steps for each analog limit change record.

62-35
CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________ (SEQ NUMBER)
XMIT RESP KEY - PRESS

62-36
CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________ (NEW HIGH LIMIT)
XMIT RESP KEY - PRESS

62-37
CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________ (NEW LOW LIMIT)
XMIT RESP KEY - PRESS
NOTE
Perform the next step only after all required entries have been completed.

62-38  CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
-9999
XMIT RESP KEY - PRESS

62-39  CGLS

CONSOLE KYBD
HARDCOPY KEY - PRESS

*** End of GLS Analog Changes ***

62-40  CGLS

PFPK3 (PRESEQ ANALOG FILE) - PRESS
VERIFY PRESEQUENCER ANALOG FILE DISPLAY
GLS Presequence Analog Changes

NOTE
Perform this option to verify a presequence analog measurement with limits different from those in the GLSDD. Reference the GLS Presequence Analog File list for required inputs.

GLS Presequence Analog Changes Not Performed:_____

62-41 CGLS

PFP
PFPK5 (ADD) - PRESS

NOTE
Repeat the next three steps for each presequence analog change record.

62-42 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________(SEQ NUMBER)
XMIT RESP KEY - PRESS

62-43 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________(NEW HIGH LIMIT)
XMIT RESP KEY - PRESS

62-44 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________(NEW LOW LIMIT)
XMIT RESP KEY - PRESS
NOTE
Perform the next step only after all required entries have been completed.

62-45 CGLS
CONSOLE KYBD
HOME CMD KEY - PRESS
-9999
XMIT RESP KEY - PRESS

62-46 CGLS
CONSOLE KYBD
HARDCOPY KEY - PRESS

*** End of GLS Presequence Analog Changes ***
Delete GLS Disk File Entries

NOTE
Perform this option to delete an item that has been updated into any disk file. Reference the attached disk file lists for changes.

Delete GLS Disk File Entries Not Performed:______

62-47  CGLS

PFP
PFPK6 (DELETE) - PRESS

62-48  CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________ (SEQ NUMBER)
XMIT RESP KEY - PRESS

62-49  CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
-9999
XMIT RESP KEY - PRESS

62-50  CGLS

CONSOLE KYBD
HARDCOPY KEY - PRESS

*** End of Delete GLS Disk File Entries ***

62-51  CGLS

CURSOR CNTL
TERMINATE
XMIT CURSOR KEY - PRESS

CRT
INTG MENU

*** End of GLS Functional Changes ***
Limit Change

62-52

CGLS

SELECT APP PG-2B
VERIFY INTEGRATED MENU

62-53

CGLS

PFP
PFPK2 (SLP02) - PRESS

62-54

CGLS

PFP
PFPK4 (LCC CONTROL) - PRESS
CRT
VERIFY LCC C AND D (SDP08)

62-55

CGLS

CURSOR CNTL
GLS LIMIT CHG
XMIT CURSOR KEY - PRESS
CRT
VERIFY GLS DUAL INTERRUPT NOTIFICATION

62-56

CGLS

CURSOR CNTL
CONSOLE BACKUP
XMIT CURSOR - PRESS
CRT
VERIFY BACKUP BLOCK SOLID

62-57

CGLS

CURSOR CNTL
ACTIVATE DUAL NOTIFICATION
XMIT CURSOR - PRESS
CRT
VERIFY ACTIVE SOLID BLOCK
LCC Interrupt Processors

62-58
CGLS
Verify two concurrences are available in backup console.

62-59
CGLS
PFPK2 - PRESS (TERM LIMIT CHANGE)
VERIFY LCC C AND D

62-60
CGLS
CURSOR CNTL
ACT LIP 1
XMIT CURSOR - PRESS

62-61
CGLS
CURSOR CNTL
ACT LIP 2
XMIT CURSOR - PRESS

62-62
CGLS
Verify SLPBO and SLPCO active in backup console.

***End of LCC Interrupt Processors***

62-63
CGLS
PFPK2 (LIMIT CHANGE) - PRESS
VERIFY GLS LIMIT CHNG

62-64
CGLS
CRT
SELECT XFER TO GLS FOR ALL
CURSOR CNTL
XMIT CURSOR - PRESS
62-65  CGLS

CRT
VERIFY MESSAGE: ALL LIMIT CHANGES COMPLETE EXCEPT
FOR BRS

*** End of Limit Change ***

62-66  CGLS

PFPK1 (INTG MENU) - PRESS
CRT
VERIFY INTEGRATED MENU

62-67  CGLS

IF RDM OR SPACEHAB LCC’S WILL NOT BE MONITORED
THIS TEST,

THEN PERFORM:
HOME CMD KEY - PRESS
PVO NPAYLOADID
XMIT CMD KEY - PRESS

VERIFY PAYLOADID IS 0 (NO PLD MONITORED)

Not Performed:______
GLS Standalone CVFY Activation

NOTE
Perform this option if RDM or SpaceHab LCCs are applicable.

GLS Standalone CVFY Activation Not Performed:_____

62-68

CGLS

SELECT - APP PG-1B
VERIFY INTG MENU (SLP03)
SELECT - TERMINATE
XMIT CURSOR KEY - PRESS

62-69

CGLS

IF FOR SPACEHAB ONLY,

THEN PERFORM:
HOME CMD KEY - PRESS
PVO NPAYLOADID - XMIT CMD

VERIFY PAYLOADID IS 5 (SPACEHAB)

Not Performed:_____

62-70

CGLS

IF FOR RDM/SPACEHAB ONLY,

THEN PERFORM:
HOME CMD KEY - PRESS
S FD V98X2621X1 - XMIT CMD

VERIFY PROC HALT STAT 1 - BCE 10 ENABLED IS OFF

Not Performed:_____

| 744 |
62-71

CGLS

HOME CMD KEY - PRESS
SLP81
PERF PGM KEY - PRESS

62-72

CGLS

CONSOLE KYBD
PFP PNL
PFPK7 - PRESS

62-73

CGLS

CONSOLE KYBD
PFP
PFPK1 (SLP81) - PRESS
VERIFY TOP LEVEL PFP DISPLAY

62-74

CGLS

IF SPACEHAB IS INSTALLED,

THEN PERFORM:
PFP (SHAB INHIBITED)
PFPK2 - PRESS
VERIFY PFPK2 LED, SPACEHAB ACTIVE

Not Performed:______
62-75  

CGLS

IF RDM IS INSTALLED,

THEN PERFORM:
PFP
PFPK4 (RDM INHIBITED) - PRESS
VERIFY PFPK4 LED, RDM ACTIVE

Not Performed:_____

62-76  

CGLS

PFP
PFPK5 (SELECTION CMPLT) - PRESS

62-77  

CGLS

PFP
PFPK1 (CONFIGURATION) - PRESS
PFP
PFPK1 (PSEUDO INIT) - PRESS
VERIFY PSEUDO INIT LED DISPLAY

62-78  

CGLS

PFP
PFPK2 (ALL PSEUDOS) - PRESS
VERIFY ALL PSEUDOS ARE INITIALIZED (PG-1A)

NOTE
For the following step, printer/plotter must be online and functional.

62-79  

CGLS

IF CGLS DESIRES A COPY OF PSEUDO FD’S CURRENT VALUE,

THEN PERFORM:
PFP
PFPK4 (PSEUDOS TO PP) - PRESS
VERIFY PSEUDOS WRITING TO CONSOLE P/P

Not Performed:_____

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
62-80 CGLS

PFP
PFPK6 (CONFIG LEDS) - PRESS
VERIFY CONFIG LEDS DISPLAY

62-81 CGLS

PFP
PFPK2 (RSYS TRANSFER) - PRESS

62-82 CGLS

CRT (SLP81) PG-1A
SELECT RSYS CONSOLE
_____ (1=INTG, 2=BKUP,
3=MSTR, 4=IGNORE)
XMIT RESPONSE KEY - PRESS
VERIFY RSYS XFER CMPLT TO CONSOLE SPECIFIED FOR
SELECTED SYSTEMS, PG-1A.

62-83 CGLS

PFP
PFPK3 (LIMIT CHG SELECT) - PRESS

62-84 CGLS

Verify limit change complete, PG-1A.

NOTE
Reference the attached list provided by CGLS at runtime for required inputs.

62-85 CGLS

IF SHAB/RDM MISSION,
THEN PERFORM THE FOLLOWING TO MODIFY VOTING LOGIC:
CONSOLE KYBD
HOME CMD KEY - PRESS
SET ________ ON
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

Not Performed: ________
NOTE
Perform the next step per GLS Mask and Bypass list.

62-86

CGLS
CONSOLE KEYBOARD
HOME CMD KEY - PRESS
C GL _______ _______ _______
FD LO HI
XMIT CMD KEY - PRESS

Not Performed:_____

62-87

CGLS
PFP
PFPK4 (ACTIVATE CVFY) - PRESS
VERIFY ACTIVATION COMPLETE, PG-1A.

62-88

CGLS
PFP
PFPK5 (OPS LEDS) - PRESS
VERIFY OPS LEDS DISPLAY

62-89

CGLS
IF VL FAILURES WERE NOT REPORTED,

THEN PERFORM:
PFP
PFPK1 (LOOKUP SELECT) - PRESS
VERIFY 25 LOOKUP DISPLAY (SDP81)

Not Performed:_____
Mask/Reset FDs

**NOTE**
For this option, if standalone CVFY FDs are required to be masked/reset, reference the attached list provided by CGLS at run time.

**NOTE**
Repeat this option to mask or reset all required FDs.

Mask/Reset FDs Not Performed:_____

62-90  CGLS

**IF** FD **IS TO BE MASKED,**

**THEN PERFORM:**
CURSOR CNTL
M - PAGE/ROW
XMIT CURSOR KEY - PRESS
**VERIFY** "M" ADJACENT TO FD SELECTED

Not Performed:_____

62-91  CGLS

**IF** FD **IS TO BE RESET,**

**THEN PERFORM:**
CURSOR CNTL
R - PAGE/ROW
XMIT CURSOR KEY - PRESS
**VERIFY** BLANK ADJACENT TO FD SELECTED

Not Performed:_____

62-92  CGLS

PFP
PFPK1 (ADVANCE PG) - PRESS

*** End of Mask/Reset FDs ***
62-93  

**CGLS**

*IF* HISTORICAL HARDCOPIES ARE REQUIRED,

*THEN PERFORM:*

HARDCOPY KEY - PRESS

Not Performed:_____

62-94  

**CGLS**

PFP

PFPK6 (OPS LEDS) - PRESS

**VERIFY** 25 LOOKUP DISPLAY CLEARS

***End of GLS Standalone CVFY Activation***

**Single Shot Verification**

62-95  

**CGLS**

CRT

INTG MENU

CURSOR CNTL
SINGLE SHOT VFY
XMIT CURSOR - PRESS

CRT
SINGLE SHOT VFY
SELECTION

62-96  

**CGLS**

CURSOR CNTL
XMIT CURSOR KEY - PRESS
EACH ITEM
ML INT -

CRT

**VERIFY** INVERTED CURSOR BLOCK
62-97  

**CGLS**

*IF REQUIRED TO CHANGE VERIFY SELECTION,*

**THEN PERFORM:**

CURSOR CNTL

XMIT CURSOR - PRESS

CRT

VERIFY CURSOR BLOCK OPEN

Not Performed:_____

62-98  

**CGLS**

CURSOR CNTL

SELECTION END

XMIT CURSOR - PRESS

CRT

PRE-SEQ VFY

SELECTION

**NOTE**

Nomenclature displayed inverted denotes system bypassed or verify option not selected.

**NOTE**

Reference the GLS Single Shot Masks list for required inputs.

62-99  

**CGLS**

*IF REQUIRED TO MASK AN FD,*

**THEN PERFORM:**

CURSOR CNTL

MASK FD__________

XMIT CURSOR - PRESS

CRT

CURSOR BLOCK INVERT

YELLOW (M)

Not Performed:______
NOTE
Reference the GLS Single Shots Resets list for required inputs. FDs which have been bypassed by system may not be reset individually.

62-100  CGLS

IF REQUIRED TO RESET AN FD,  

THEN PERFORM:  
CURSOR CNTL  

RESET FD _________  
XMIT CURSOR - PRESS  

CRT  
CURSOR BLOCK OPEN CYAN  

Not Performed:_____

62-101  CGLS

WHEN MASK/RESET SELECTIONS ARE COMPLETE,  
BEGIN VFY'S  
PFPK4 - PRESS  
VERIFY TITLE  
SINGLE SHOT VERIFY FAILURES  

62-102  CGLS

IF PAGE FULL,  

THEN PERFORM:  
PFK15 - PRESS  
VERIFY NEXT PAGE FAILURES  

Not Performed:_____

62-103  CGLS

WHEN VERIFIES COMPLETE,  
VERIFY MESSAGE: VERIFY CYCLE COMPLETE
NOTE
Perform one of the next two steps if a verify failure occurs.

62-104 CGLS

PFPK1 (TERM VFY'S) - PRESS

Not Performed:______

62-105 CGLS

PFPK2 (RESTART VFY'S) - PRESS

Not Performed:______

62-106 CGLS

PFPK1 (SYSTEM MENU) - PRESS
VERIFY INTEGRATED PFP PANEL

*** End of Single Shot Verification ***
GLS Mainline Masks/Resets

NOTE
For mainline interrupt FDs to be masked or reset, reference the GLS Mainline Masks list or GLS ML Mask-resets list for required inputs.

NOTE
Perform this option if masks or resets are required.

GLS Mainline Masks/Resets Not Performed:______

NOTE
Repeat the next step for each mainline table containing an FD to be masked.

62-107
CGLS

PPPK5 (VIEW INTERRUPT) - PRESS
VERIFY VIEW INTERRUPT SKELETON (SDPC2)
CURSOR CONTROL
TABLE __________(TABLE NUMBER)
XMIT CURSOR KEY - PRESS
VERIFY DISPLAY PG-2B

NOTE
Repeat the next step for each mainline CVFY FD to be masked.

62-108
CGLS

CURSOR CNTL

MASK __________(FD)
XMIT CURSOR KEY - PRESS
VERIFY FD SHOWS "M" ADJACENT TO FD SELECTED

Not Performed:______
NOTE
Repeat the next step for each FD to be reset.

62-109

CGLS

CURSOR CNTL

RESET __________(FD)
XMIT CURSOR KEY - PRESS
VERIFY BLANK NEXT TO EACH FD RESET

Not Performed:_____

NOTE
Repeat the next step for each new mainline table.

62-110

CGLS

PFPK2 (ADVANCE) - PRESS
VERIFY NEXT TABLE PG-2B
REPEAT UNTIL NEXT DESIRED TABLE DISPLAYED

Not Performed:_____

*** End of GLS Mainline Masks/Resets ***
Modify Mainline Discrete Measurements

NOTE
Perform this option if required to change GOAL limits for discrete MIP measurements.

NOTE
Repeat this option for each discrete FD requiring a limit change. A list of discrete FDs requiring limit change and corresponding states will be provided with the GLS Mask and Bypass list.

Modify Mainline Discrete Measurements Not Performed:_____

62-111 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
I GX _____ (FD)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
VERIFY SUCCESSFUL

62-112 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
C GL _____(FD) _____ (STATE)
XMIT CMD KEY - PRESS
VERIFY SUCCESSFUL

*** End of Modify Mainline Discrete Measurements ***
Modify Mainline Analog Measurements

NOTE
Repeat the next step for each analog FD requiring a limit change. A list of analog FDs requiring limit change and corresponding values will be provided with the GLS Mask and Bypass list.

62-113 CGLS

IF REQUIRED TO CHANGE GOAL LIMITS FOR ANALOG MIP MEASUREMENTS,

THEN PERFORM:
CONSOLE KYBD
HOME CMD KEY - PRESS

C GL _____(FD) _____(LO) _____(HI)
XMIT CMD KEY - PRESS
VERIFY SUCCESSFUL

Not Performed:______

*** End of Modify Mainline Analog Measurements ***
Modify Mainline Digital Pattern Measurements

NOTE
Repeat the next step for each digital pattern FD requiring a limit change. A list of digital pattern FDs requiring limit change and corresponding values will be provided with the GLS Mask Bypass list.

62-114 CGLS

IF REQUIRED TO CHANGE GOAL LIMITS FOR DIGITAL PATTERN MIP MEASUREMENT,

THEN PERFORM:
CONSOLE KYBD
HOME CMD KEY - PRESS
C GL____(FD)____(EQ/NE/ANY)____(VALUE)
XMIT CMD KEY - PRESS
VERIFY SUCCESSFUL

Not Performed:_____

*** End of Modify Mainline Digital Pattern Measurements ***
GLS LCC Masks/Resets

NOTE
For LCC interrupt FDs to be masked or reset, reference the GLS LCC Masks list or GLS LCC Mask-resets list for required inputs.

NOTE
Perform this option if masks or resets are required.

GLS LCC Masks/Resets Not Performed:_____

62-115 CGLS

PPK5 (LCC SELECTIONS) - PRESS
VERIFY LCC SELECTIONS (SDPB2)
PG-2B

62-116 CGLS

CURSOR CNTL

TABLE ______ (TABLE NO. UPPER/LOWER)
XMIT CURSOR KEY - PRESS
VERIFY SELECTED TABLE PG-2B
Mask/Reset FDs on Table

NOTE
Repeat this option for each table to be modified.

Mask/Reset FDs on Table Not Performed:_____

NOTE
Repeat the next step for all required LCC FDs to be masked in this table.

62-117  

CGLS

CURSOR CNTL

MASK (FD) 
XMIT CURSOR KEY - PRESS
VERIFY "M" ADJACENT TO FD'S SELECTED

Not Performed:_____

NOTE
Repeat the next step for all required LCC FDs to be reset in this table.

62-118  

CGLS

CURSOR CNTL

RESET (FD) 
XMIT CURSOR KEY - PRESS
VERIFY BLANK ADJACENT TO FD'S SELECTED

Not Performed:_____

| 760 |
NOTE
Repeat the next step for each new LCC table as required.

62-119  CGLS
PPPK2 (ADVANCE) - PRESS
VERIFY NEXT TABLE DISPLAYED TO PG-2B
REPEAT UNTIL NEXT DESIRED TABLE IS DISPLAYED

Not Performed:_____

*** End of Mask/Reset FDs on Table ***

62-120  CGLS
PPPK1 (INTG MENU) - PRESS
VERIFY INTEGRATED MENU

*** End of GLS LCC Masks/Resets ***
Modify LCC Discrete Measurements

**NOTE**
Perform this option if required to change GOAL limits for discrete LIP measurements.

**NOTE**
Repeat this option for each discrete FD requiring a limit change. A list of discrete FDs requiring limit changed and corresponding states will be provided with the GLS Mask and Bypass list.

Modify LCC Discrete Measurements Not Performed:______

62-121  CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
I GX _____ (FD)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
VERIFY SUCCESSFUL

62-122  CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
A GX _____(FD) _____ (STATE)
XMIT CMD KEY - PRESS
VERIFY SUCCESSFUL

*** End of Modify LCC Discrete Measurements ***
Modify LCC Analog Measurements

NOTE
Perform this option if required to change GOAL limits for analog LIP measurements. The section will be repeated for each analog FD requiring a limit change. A list of analog FDs requiring limit change and corresponding values will be provided with the GLS Mask and Bypass list.

Modify LCC Analog Measurements Not Performed:______

62-123   CGLS
CONSOLE KYBD
HOME CMD KEY - PRESS
C GL _____ (FD) _____ (LO) _____ (HI)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
VERIFY SUCCESSFUL

62-124   CGLS
CONSOLE KYBD
HOME CMD KEY - PRESS
A GX _____ (FD)
XMIT CMD KEY - PRESS
VERIFY SUCCESSFUL

*** End of Modify LCC Analog Measurements ***
Modify LCC Digital Pattern Measurements

NOTE
Repeat the next step for each digital pattern FD requiring a limit change. A list of digital pattern FDs requiring limits changed and corresponding values will be provided with the GLS Mask and Bypass list.

62-125  CGLS

IF REQUIRED TO CHANGE GOAL LIMITS FOR DIGITAL PATTERN LIP MEASUREMENTS,

THEN PERFORM:
HOME CMD KEY - PRESS
CONSOLE KYBD
A GX _____(FD)_____ (EQ/NE/ANY)_____ (VALUE)
XMIT CMD KEY - PRESS
VERIFY SUCCESSFUL

Not Performed:_____

*** End of Modify LCC Digital Pattern Measurements ***

NOTE
When LIP command processor limit changes are complete, make a check of LCC failures for command processor limit changed measurements.

62-126  CGLS

TO TERMINATE
PPPK1 - PRESS
VERIFY INTG MENU
Clock Control

62-127 CGLS

SELECT APP PG-3B
PFPK7 PRESS
PFPK3 (SLP01) PRESS
PFPK6 (GLS CONTROL) - PRESS

62-128 CGLS

CURSOR CNTL SELECT
CDC CONTROL
XMIT CURSOR KEY - PRESS

62-129 CGLS

CURSOR CONTROL SELECT
SET HOLD AVAILABLE
XMIT CURSOR KEY - PRESS

/ HHMM/SS
XMIT RESP KEY - PRESS

62-130 CGLS

CRT
VERIFY HOLD AVAILABLE SET
62-131  CGLS

CURSOR CONTROL SELECT
RETURN TO MS/ML DISPLAY
XMIT CURSOR KEY - PRESS

*** End of Clock Control ***

62-132  CGLS

HOME CMD - PRESS
ISSU N03IS162D 540
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
VERIFY SUCCESSFUL

*** End of Operation 62 ***
OPERATION 63  Reserved
Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 63 ***
OPERATION 64 SRB HPU N2H4 Manifold Refill and Bearing Seal Soak

Shop: HPU
Cntrl Rm Console: C8
OPR: HPU
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 2.0

NOTE
Perform this operation only if any SRB HPUs started in OMI S0007.

Operation Not Performed:______
NOTE
Do not remove SRB OI power until SRB HPU N₂H₄ manifold refill is complete.

NOTE
During fuel isolation valve cycling, gas generator bed temperatures shall be monitored for any rise in temperature (shall not increase more than 20 degrees).

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00E00.721-B-1

64-1

TBC CHPU 136

Perform N₂H₄ Manifold Refill and Bearing Soak and report completion (30 minutes).

NOTE
Wait until SRB HPU cooldown satisfies the next step prior to proceeding.

64-2

CHPU

CRT (BAT04)
VEHICLE
GAS GENRTR
P TEMP

VERIFY
LEFT A (LESS THAN 220 DEG F)
LEFT B (LESS THAN 220 DEG F)
RGHT A (LESS THAN 220 DEG F)
RGHT B (LESS THAN 220 DEG F)

64-3

CHPU

CURSOR CNTL (BAT04)
VEHICLE
UPDT (BLOCK)
XMIT CURSOR KEY - PRESS

CRT
NOTE CRT SCREEN UPDATE
64-4

CHPU

CRT (BAT04)  
VEHICLE  
GAS GENRTR  
P TEMP

1. **RECORD**: P TEMP (STARTING)

   LEFT A  
   (ROCK) __________  BD

   LEFT B  
   (TILT) __________  BD

   RGHT A  
   (ROCK) __________  BD

   RGHT B  
   (TILT) __________  BD

2. **VERIFY** ALL OF ABOVE TEMPERATURES LESS THAN 220 DEG F.

**NOTE**

The next step is CRT data verification only.

64-5

CHPU

CRT (BAT04)  
VEHICLE  
FUEL SUPPLY MODULE  
SEC VLV

**VERIFY**

LEFT A (CL) GREEN  
LEFT B (CL) GREEN  
RGHT A (CL) GREEN  
RGHT B (CL) GREEN
64-6

CHPU

Record fuel isolation valve cycling start time:

<table>
<thead>
<tr>
<th>Time</th>
<th>GMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td></td>
</tr>
</tbody>
</table>

64-7

CHPU

CURSOR CNTL (BAT04)

VEHICLE

FUEL SUPPLY MODULE

ISO VLV

LEFT A - OP

**WAIT** 10 SEC MINIMUM THEN

LEFT A - CL

64-8

CHPU

CURSOR CNTL (BAT04)

VEHICLE

FUEL SUPPLY MODULE

ISO VLV

LEFT B - OP

**WAIT** 10 SEC MINIMUM THEN

LEFT B - CL

64-9

CHPU

CURSOR CNTL (BAT04)

VEHICLE

FUEL SUPPLY MODULE

ISO VLV

RGHT A - OP

**WAIT** 10 SEC MINIMUM THEN

RGHT A - CL
64-10

CHPU

CURSOR CNTL (BAT04)  
VEHICLE  
FUEL SUPPLY MODULE  
ISO VLV  
RGHT B - OP  
WAIT 10 SEC MINIMUM THEN  
RGHT B - CL

64-11

CHPU

CRT (BAT04)  
VEHICLE  
GAS GENRTR  
P TEMP

1. **RECORD**: P TEMP (ENDING)

   LEFT A  
   (ROCK) __________  BD

   LEFT B  
   (TILT) __________  BD

   RGHT A  
   (ROCK) __________  BD

   RGHT B  
   (TILT) __________  BD

2. **VERIFY** ENDING TEMPERATURES DID NOT INCREASE MORE THAN 20 DEGREES FROM STARTING TEMPERATURES FOR LEFT ROCK, LEFT TILT, RIGHT ROCK, RIGHT TILT.

64-12

CHPU

**Record** fuel isolation valve cycling end time.

Time __________ GMT  

Date _______________
Perform the following:

1. **Use** PC GOAL to verify that the isolation valve states changed from “OFF” to “ON” to “OFF” for the following FDs:
   - B46X1851X1 - LEFT A ISO VLV OPEN IND
   - B46X1852X1 - LEFT B ISO VLV OPEN IND
   - B46X2851X1 - RIGHT A ISO VLV OPEN IND
   - B46X2852X1 - RIGHT B ISO VLV OPEN IND

2. **Attach** hardcopy of PC Goal plot data.

SRB HPU N₂H₄ Manifold Refill and Bearing Seal Soak complete.

Noted requirements are complete.

*** End of SRB HPU N₂H₄ Manifold Refill and Bearing Seal Soak ***

*** End of Operation 64 ***
OPERATION 65  GLS Recycle to T-20 Minutes

Shop: GLS
Cntrl Rm Console: INTG
OPR: GLS
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 0.5

NOTE
Perform this operation if supporting recycle option to T-20M.

Operation Not Performed:_____

NOTE
A list of GLS masks and bypasses to support test objectives, together with a signature page, will be provided by CGLS. This list will contain each kick-off step in this operation referencing this list, along with the corresponding inputs for that step.
Perform GLS Cutoff

**NOTE**
Do not perform this option if cutoff and safing have already been issued.

Perform GLS Cutoff Not Performed:_____

65-1  
CGLS

PFPK7 - PRESS
PFPK3 (SLP01) - PRESS
PFPK5 (CUTOFF) - PRESS
PFPK6 (CUTOFF EXECUTE) - PRESS

65-2  
CGLS

APP 3B
GLS SAFING SEQUENCES

HARDCOPY WHEN COMPLETE.

65-3  
CGLS

APP 3A
SYSTEMS STATUS CHECKS

HARDCOPY KEY - PRESS

*** End of Perform GLS Cutoff ***
Mainline Termination

NOTE
If a cutoff has been issued, perform this option as required to terminate safing.

Mainline Termination Not Performed:_____

65-4

CGLS

APP 3B
PFPK7 - PRESS
PFPK3 (SLP01) - PRESS
PFPK4 (TERMINATE SAFING) - PRESS
PFPK6 (EXECUTE TERM) - PRESS

65-5

CGLS

CONSOLE KYBD
SGPR2
TERM PGM KEY - PRESS

65-6

CGLS

Verify SGPO2, SGPR2 are inactive.

*** End of Mainline Termination ***
MIP and LIP Deactivation

65-7

CGLS

APP 2B
PPPK7 - PRESS
PPPK2 (SLP02) - PRESS

65-8

CGLS

PPP
PPPK4 (LCC CONTROL) - PRESS
VERIFY LCC C&D

NOTE
Do not perform the next step if MIPs have termed due to breakout or an RSLS abort has occurred.

65-9

CGLS

1. **IF** SLPAO IS STILL ACTIVE,

    **THEN PERFORM:**
    CURSOR CNTL
    TERM MIP1
    XMIT CURSOR KEY - PRESS

    Not Performed:_____
    SS1

2. **IF** SLPA1 IS STILL ACTIVE,

    **THEN PERFORM:**
    CURSOR CNTL
    TERM MIP2
    XMIT CURSOR KEY - PRESS

    Not Performed:_____
    SS2

3. **VERIFY** SLPAO AND SLPA1 INACTIVE IN BACKUP CONSOLE
NOTE
Do not perform the next step if LIPs have termed due to breakout.

65-10 CGLS

1. IF SLPBO IS STILL ACTIVE,

THEN PERFORM:
CURSOR CNTRL
TERM LIP 1
XMIT CURSOR KEY - PRESS

Not Performed: SS1

2. IF SLPCO IS STILL ACTIVE,

THEN PERFORM:
CURSOR CNTRL
TERM LIP 2
XMIT CURSOR KEY - PRESS

Not Performed: SS2

3. VERIFY SLPBO AND SLPCO INACTIVE IN BACKUP CONSOLE

*** End of MIP and LIP Deactivation ***
Pseudo Reinit

NOTE
Prior to Pseudo Reinit, make all necessary hardcopies.

65-11

CGLS

APP 2B
PFPK1 (INTG MENU) - PRESS

65-12

CGLS

CURSOR CNTL
PSEUDO INIT
XMIT CURSOR KEY - PRESS

NOTE
Do not alter disk files unless new requirements are identified by USA-TPE and NASA-SPE.

ALL PSEUDOS
XMIT CURSOR KEY - PRESS
Cryo Safing Pseudo

NOTE
Perform this option if page B message indicates “SEE PAGE A FOR OPERATOR INPUT.”

Cryo Safing Pseudo Not Performed:_____

65-13

CGLS

CRT

VERIFY PAGE A MSG:

(N03IS511E) CRYO SAFING ENABLED IS ON. THIS INDICATES SCRUB/Cryo DRAIN IN PROGRESS.

65-14

CGLS OTC 132

OTC CLHY

Verify with LH2 Engineer that Scrub/Boiloff is complete and ready to reactivate SLP50 RCL RSYS transfer.

65-15

CGLS

CONSOLE KYBD (SLP02 PG-A)

ENTER "1" IF CRYO SAFING SUPPORT COMPLETED AND SLP50 NOT ACTIVE TO INITIALIZE (N03IS511E) TO OFF

ENTER "2" TO LEAVE (N03IS511E) UNCHANGED

_____ (1 OR 2)

XMIT RESPONSE KEY - PRESS

CRT

VERIFY MSG INDICATING PSEUDO STATE

*** End of Cryo Safing Pseudo ***

65-16

CGLS

Verify all pseudo boxes invert.

65-17

CGLS

PFPK6 (TERM PGM) - PRESS

*** End of Pseudo Reinit ***
Cancel Recycle

NOTE
Perform this option in the event that a new T-0 is not known.

Cancel Recycle Not Performed:_____

65-18 CGLS

Verify CCM flags are inhibited.

Not Performed:_____

65-19 OTC CGLS 132

Do not perform remaining steps of GLS Recycle to T-20 Minutes.

Not Performed:_____

*** End of Cancel Recycle ***
Reset SLP50

NOTE
Perform this option if SLP50 is active due to Scrub/LH₂ Boiloff operations.

Reset SLP50 Not Performed: ______

NOTE
From T-6 hours thru initial scrub operations, any SLP50/SA001 messages should be relayed to CGLS on channel 162.

65-20  CGLS  LPS  127

PFP  (SLP50)
PFPK2 (RECYCLE COMPLT) - PRESS

CRT (SLP50 PG-A)
VERIFY MESSAGE:
RECYCLE FUNCTION COMPLETE
AUTO RESPONSE TO ALL CONSOLE FAILURES RESUMED
MANUAL RSYS XFER/SAFING CAPABILITY ACTIVE
IF PGM SA001 IS NOT AUTOMATICALLY INITIALIZED,

THEN PERFORM:
CRT (SLP50 PG-A)
VERIFY MESSAGE:
PSEUDO NLHK0706X IS ON, INDICATING SA001 ALREADY
ACTIVE, SPECIFY WHETHER TO PROCEED....
  1 - ACTIVATE SA001
  2 - DO NOT ACT SA001 NOW

CONSOLE KYBD
1
XMIT RESPONSE KEY - PRESS

VERIFY PGM SA001 ACTIVE

CRT
VERIFY MESSAGE:
CRYOGENIC RECOVERY FUNCTION WILL BE HANDLED BY
SA001.
CRYO SAFING RESPONSE DISABLED.

Not Performed:_____

*** End of Reset SLP50 ***
Timer Configuration

NOTE
Perform this option if attempting a new T-0 for current day.

Timer Configuration Not Performed:_____

Timer No. 1 Window Remaining

65-22 CGLS JTCR 178

Set up window remaining Timer No. 1 to following time:

Timer No. 1 _____:_____:_____ (window remaining)

Support: TCD

65-23 JTCR

For Timer No. 1, at the T-9M holding point:

Active OVRD switch - On
Counthold switch - Off

When Timer No. 5 decrements to zero:

Activate counthold switch - Auto

Support: TCD

NOTE
Timer No. 1 should decrement when holds occur from this point to completion of window.

*** End of Timer No. 1 Window Remaining ***
Timer No. 2 LO₂ Drain Back Elapsed Hold Time

65-24 CGLS JTCR 178

Set LO₂ drain back hold Timer No. 2 to +0:00.

NOTE
Timer No. 2 counts at any hold after T-5M and counting.

65-25 CGLS JTCR 178

Verify Timer No. 2 in Remote and in Counting Up mode.

*** End of Timer No. 2 LO₂ Drain Back Elapsed Hold Time ***

Timer No. 5 Hold Time Remaining

65-26 CGLS JTCR 178

Verify hold time remaining (Timer No. 5).

Set to the following times:

NOTE
The times are to reflect the planned hold duration. After the T-9M planned hold expires, Timer No. 5 will accumulate time at any additional hold.

T-20M Hold _____:_____:____ (hold time remaining)

T-9M Hold _____:_____:____ (hold time remaining)

*** End of Timer No. 5 Hold Time Remaining ***

*** End of Timer Configuration ***
Reinit GLS MS/ML Display

65-27

CGLS

PFPK7 - PRESS
PFPK3 (SLP01) - PRESS
PFPK6 (GLS CONTROL) - PRESS
VERIFY MS/ML DISPLAY

65-28

CGLS

CURSOR CNTL
CDC CONTROL
XMIT CURSOR KEY - PRESS
VERIFY CDC CONTROL DISPLAY

65-29

CGLS

CURSOR CNTL
SET CDT
XMIT CURSOR KEY - PRESS
CONSOLE KYBD
-00:0020/00
XMIT RESP KEY - PRESS
VERIFY CDC SET TO -00:0020/00 AND HOLDING

65-30

CGLS

CURSOR CNTL
HOLD AVAILABLE
XMIT CURSOR KEY - PRESS
CONSOLE KYBD
__:____/
DD HHMM SS
XMIT RESP KEY - PRESS
VERIFY HOLD AVAILABLE SET
65-31  

CGLS  

CURSOR CNTL  
RETURN TO MS/ML DISPLAY  
XMIT CURSOR KEY - PRESS  
VERIFY MS/ML DISPLAY  

65-32  

CGLS  

HOME CMD - PRESS  
ISSU N03IS162D 540  
XMIT CMD KEY - PRESS  
EXEC CMD KEY - PRESS  
VERIFY SUCCESSFUL  

*** End of Reinit GLS MS/ML Display ***
System Bypass Reset

65-33

CGLS

APP 2B
CURSOR CNTL
SYSTEM BYPASS
XMIT CURSOR KEY - PRESS

NOTE
For the following step, reference the GLS System Bypass list for requirements.

65-34

CGLS

IF SYSTEM BYPASSES ARE REQUIRED FOR THIS FLOW,

THEN PERFORM:

CRT

CURSOR CNTL _____ (SYS)
XMIT CURSOR KEY - PRESS

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>BYPASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>APU</td>
<td>_____</td>
</tr>
<tr>
<td>ARMS</td>
<td>_____</td>
</tr>
<tr>
<td>BELE</td>
<td>_____</td>
</tr>
<tr>
<td>BHYD</td>
<td>_____</td>
</tr>
<tr>
<td>BINST</td>
<td>_____</td>
</tr>
<tr>
<td>BRS</td>
<td>_____</td>
</tr>
<tr>
<td>BPYRO</td>
<td>_____</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>BYPASS</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>PLINTG</td>
<td>______</td>
</tr>
<tr>
<td>COMM</td>
<td>______</td>
</tr>
<tr>
<td>DPS</td>
<td>______</td>
</tr>
<tr>
<td>ECLS</td>
<td>______</td>
</tr>
<tr>
<td>ECS</td>
<td>______</td>
</tr>
<tr>
<td>EPDC</td>
<td>______</td>
</tr>
<tr>
<td>FCP</td>
<td>______</td>
</tr>
<tr>
<td>GNS</td>
<td>______</td>
</tr>
<tr>
<td>GOX</td>
<td>______</td>
</tr>
<tr>
<td>HYD</td>
<td>______</td>
</tr>
<tr>
<td>HYFUEL</td>
<td>______</td>
</tr>
<tr>
<td>HYOXID</td>
<td>______</td>
</tr>
<tr>
<td>INST</td>
<td>______</td>
</tr>
<tr>
<td>INTG</td>
<td>______</td>
</tr>
<tr>
<td>LH2</td>
<td>______</td>
</tr>
<tr>
<td>LOX</td>
<td>______</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>BYPASS</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>MECH</td>
<td>______</td>
</tr>
<tr>
<td>MPS</td>
<td>______</td>
</tr>
<tr>
<td>NAVAID</td>
<td>______</td>
</tr>
<tr>
<td>FCL</td>
<td>______</td>
</tr>
<tr>
<td>PVD</td>
<td>______</td>
</tr>
<tr>
<td>SSME</td>
<td>______</td>
</tr>
<tr>
<td>TINST</td>
<td>______</td>
</tr>
<tr>
<td>WATER</td>
<td>______</td>
</tr>
</tbody>
</table>

Not Performed:_____

65-35 CGLS
CONSOLE KYBD
HARDCOPY KEY - PRESS

65-36 CGLS
APP 2B
CURSOR CNTL
**TERMINATE**
XMIT CURSOR KEY - PRESS

**VERIFY** BYPASS SELECTION PROCESS TERMINATING

*** End of System Bypass Reset ***
GLS Functional Changes

**NOTE**
Console reboot or disk re-initialization will probably destroy this data. In the event this happens, verify that data is lost; if so, re-enter data.

65-37

**CGLS**

CURSOR CNTL  
ML FUNC CHNGS  
XMIT CURSOR KEY - PRESS

---

65-38

**CGLS**

PFP  
PFPK1 (ML BYPASS FILE) - PRESS  
**VERIFY** MAINLINE BYPASS DISPLAY
GLS Mainline Bypass

NOTE
Perform this option if bypass file update is required.

GLS Mainline Bypass Not Performed:______

65-39

CGLS

PFP
PFPK5 (ADD) - PRESS

NOTE
To bypass GLS mainline function line item, use GLSDD to determine seq number. Reference the GLS Mainline Bypass list for required inputs.

65-40

CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

__________ (SEQ NUMBER)

XMIT RESP KEY - PRESS

65-41

CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
-9999
XMIT RESP KEY - PRESS

65-42

CGLS

CONSOLE KYBD
HARDCOPY KEY - PRESS

*** End of GLS Mainline Bypass ***

NOTE
A functional line item entered into bypass file may not be entered into any other file.

65-43

CGLS

PFP
PFPK2 (ML ALALOG FILE) - PRESS
VERIFY ANALOG FILE DISPLAY
GLS Analog Changes

NOTE
Perform this option if mainline analog file update is required.

GLS Analog Changes Not Performed:_____

65-44
CGLS

PFP
PPPK5 (ADD) - PRESS

NOTE
Perform the following four steps to monitor an analog using limits that are different from limits in GLSDD. Reference the GLS ML Analog Disk File list for required inputs.

65-45
CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________(SEQ NUMBER)
XMIT RESP KEY - PRESS

65-46
CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________(NEW HIGH LIMIT)
XMIT RESP KEY - PRESS

65-47
CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
__________(NEW LOW LIMIT)
XMIT RESP KEY - PRESS
65-48  
CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
-9999
XMIT RESP KEY - PRESS

65-49  
CGLS

CONSOLE KYBD
HARDCOPY KEY - PRESS

*** End of GLS Analog Changes ***

65-50  
CGLS

PFPP
PFPK3 (PRSEQ ANALOG FILE) - PRESS
VERIFY PRESEQUENCER ANALOG FILE DISPLAY
GLS Presequence Analog Changes

NOTE
To monitor a presequence analog measurement with limits different from those in the GLSDD, perform this option. Reference the GLS Presequence Analog File list for required inputs.

GLS Presequence Analog Changes Not Performed:______

65-51 CGLS

PPPK5 (ADD) - PRESS

65-52 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

__________(SEQ NUMBER)
XMIT RESP KEY - PRESS

65-53 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

__________(NEW HIGH LIMIT)
XMIT RESP KEY - PRESS

65-54 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

__________(NEW LOW LIMIT)
XMIT RESP KEY - PRESS

65-55 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
-9999
XMIT RESP KEY - PRESS

65-56 CGLS

CONSOLE KYBD
HARDCOPY KEY - PRESS

*** End of GLS Presequence Analog Changes ***
Delete GLS Disk File Entries

NOTE
Perform this option to delete an item that has been updated into any disk file. Reference the attached disk file list for changes.

Delete GLS Disk File Entries Not Performed:______

65-57 CGLS

PFP
PFPK6 (DELETE) - PRESS

65-58 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
____________ (SEQ NUMBER)
XMIT RESP KEY - PRESS

65-59 CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
-9999
XMIT RESP KEY - PRESS

65-60 CGLS

CONSOLE KYBD
HARDCOPY KEY - PRESS

*** End of Delete GLS Disk File Entries ***


65-61  CGLS

CURSOR CNTL
TERMINATE
XMIT CURSOR KEY - PRESS

CRT
INTG MENU

65-62  CGLS

Verify the following pseudos are in the desired recycle configuration.

N03IS080E = ON (LOC test-Pad)
N03IS003E = OFF (LCC hold)

65-63  CGLS

IF PSEUDOS NOT IN CONFIG AS INDICATED IN PREVIOUS STEP,

THEN SET OR ISSUE ABOVE PSEUDOS AS REQUIRED FOR CORRECT INDICATION.
CONSOLE KYBD
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

Not Performed:_______

*** End of GLS Functional Changes ***
Dual Interrupt Notification

65-64

CGLS

APP2B
PFPK7 - PRESS
PFPK2 - PRESS

65-65

CGLS

PFP
PFPK4 (LCC CONTROL) - PRESS

CRT
VERIFY LCC C AND D

65-66

CGLS

CURSOR CNTL
GLS LIMIT CHANGE
XMIT CURSOR KEY - PRESS

CRT
VERIFY GLS DUAL INTERRUPT NOTIFICATION

65-67

CGLS

CURSOR CNTL
BACKUP
XMIT CURSOR KEY - PRESS

VERIFY BACKUP BLOCK SOLID

65-68

CGLS OTC 212

FEP Dual Interrupt Notification will be activated momentarily and may cause re-annunciation of error messages at systems consoles for interrupt monitored parameters currently out of GLS limits.

*** End of Dual Interrupt Notification ***
Limit Change

65-69  CGLS

APP 2B
CNTL
ACTIVATE
XMIT CURSOR KEY - PRESS

VERIFY ACTIVE SOLID BLOCK

65-70  CGLS

Verify two concurrencies are available in backup console.

65-71  CGLS

PFPK2 (TERM LIMIT CHG) - PRESS
VERIFY LCC C AND D

65-72  CGLS

CURSOR CNTL
ACT LIP 1
XMIT CURSOR KEY - PRESS

65-73  CGLS

CURSOR CNTL
ACT LIP 2
XMIT CURSOR KEY - PRESS

65-74  CGLS

Verify SLPBO and SLPCO active in backup console.

65-75  CGLS

PFPK2 (LIMIT CHANGE) - PRESS
VERIFY GLS LIMIT CHNG
65-76

CGLS

CRT
SELECT XFER TO GLS FOR ALL
XMIT CURSOR KEY - PRESS

65-77

CGLS

VERIFY LIMIT CHANGES COMPLETE EXCEPT FOR BRS

CRT SELECT

BRS - XMIT CURSOR

VERIFY LIMIT CHANGE TO GLS FOR BRS COMPLETE

65-78

CGLS

CRT
VERIFY DISPLAY SHOWS ALL SELECTED SYSTEMS LIMITS
XFERED TO GLS

65-79

CGLS

PFPK1 (INTG MENU) - PRESS

CRT
VERIFY INTEGRATED MENU

*** End of Limit Change ***
GLS Standalone CVFY Activation

NOTE
Perform this option if RDM or SpaceHab LCCs are applicable.

GLS Standalone CVFY Activation Not Performed:______

65-80

CGLS

HOME CMD KEY - PRESS
S FD V98X2621X1 - XMIT CMD

VERIFY PROC HALT STAT 1-BCE ENABLED OFF

65-81

CGLS

HOME CMD KEY - PRESS
SLP81
PERF PGM KEY - PRESS

65-82

CGLS

PFP PNL
PFPK7 - PRESS

65-83

CGLS

PFP
PFPK1 (SLP81) - PRESS
VERIFY TOP LEVEL PFP DISPLAY
65-84  

**CGLS**

*IF SPACEHAB IS INSTALLED,*

**THEN PERFORM:**

PFP  
PFPK2 (SHAB INHIBITED) - PRESS  
**VERIFY** PFPK2 LED, SPACEHAB ACTIVE

Not Performed:______

65-85  

**CGLS**

*IF RDM IS INSTALLED,*

**THEN PERFORM:**

PFP  
PFPK4 (RDM INHIBITED) - PRESS  
**VERIFY** PFPK4 LED, RDM ACTIVE

Not Performed:______

65-86  

**CGLS**

PFP  
PFPK5 (SELECTION CMPLT) - PRESS

65-87  

**CGLS**

PFP  
PFPK1 (CONFIGURATION) - PRESS  
PFP  
PFPK1 (PSEUDO INITS) - PRESS  
**VERIFY** PSEUDO INIT LED DISPLAY
65-88

NOTE
Perform one of following three steps.

CGLS

PFP
PFPK1 (FAIL/VL) - PRESS
VERIFY FAIL PSEUDO INIT COMPLETE (PG-1A)

Not Performed:______

65-89

CGLS

PFP
PFPK2 (ALL PSEUDOS) - PRESS
VERIFY VL PSEUDO INIT COMPLETE (PG-1A)

Not Performed:______

65-90

CGLS

PFP
PFPK3 (MASK) - PRESS
VERIFY MASK PSEUDO INIT COMPLETE (PG-1A)

Not Performed:______

NOTE
For the following step, the printer/plotter must be online and functional.

65-91

CGLS

IF CGLS DESIRES A COPY OF PSEUDO FD’S CURRENT VALUE,

THEN PERFORM:
PFP
PFPK4 (PSEUDOS TO PP) - PRESS
VERIFY PSEUDOS WRITING TO CONSOLE P/P

Not Performed:______
65-92  
CGLS

PFP
PFPK6 (CONFIG LEDS) - PRESS
VERIFY CONFIG LEDS DISPLAY

65-93  
CGLS

PFP
PFPK2 (RSYS TRANSFER) - PRESS

65-94  
CGLS

CRT (SLP81) PG-1A
SELECT RSYS CONSOLE
_____ (1=INTG, 2=BKUP, 3=MSTR, 4=IGNORE)
XMIT RESPONSE KEY - PRESS
VERIFY RSYS XFER CMPLT TO CONSOLE SPECIFIED, PG-1A.

65-95  
CGLS

PFP
PFPK3 (LIMIT CHG SELECT) - PRESS
VERIFY LIMIT CHANGE COMPLETE, PG-1A.

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference the attached list provided by CGLS at runtime for required inputs.</td>
</tr>
</tbody>
</table>

65-96  
CGLS

IF MODIFYING VOTING LOGIC FOR SHAB/RDM LCCS IS REQUIRED,

THEN PERFORM:
CONSOLE KYBD
HOME CMD KEY - PRESS
SET __________ ON
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

Not Performed: ______
Repeat the next step for each standalone CVFY listed in the GLS Mask and Bypass List.

65-97

CGLS

CONSOLE KEYBOARD
HOME CMD KEY - PRESS

C GL ___________ _______ ______

FD LO HI

XMIT CMD KEY - PRESS

Not Performed:______

65-98

CGLS

PFP
PFPK4 (ACTIVATE CVFY) - PRESS
VERIFY ACTIVATION COMPLETE, PG-1A

65-99

CGLS

PFP
PFPK5 (OPS LEDS) - PRESS
VERIFY OPS LEDS DISPLAY

65-100

CGLS

PFP
PFPK1 (LOOKUP SELECT) - PRESS
VERIFY 25 LOOKUP DISPLAY (SDP81)
Standalone CVFY Mask or Reset

NOTE
For the next two steps, if standalone CVFY FDs are required to be masked/reset, reference the attached list provided by CGLS at run time.

NOTE
Repeat this option if FDs are required to be reset or masked.

Standalone CVFY Mask or Reset Not Performed:______

65-101  CGLS

IF FD IS TO BE MASKED,

THEN PERFORM:
CURSOR CNTL
M - PAGE/ROW
XMIT CURSOR KEY - PRESS
VERIFY "M" ADJACENT TO FD SELECTED

Not Performed:______

65-102  CGLS

IF FD IS TO BE RESET,

THEN PERFORM:
CURSOR CNTL
R - PAGE/ROW
XMIT CURSOR KEY - PRESS
VERIFY BLANK ADJACENT TO FD SELECTED

Not Performed:______

65-103  CGLS

PFP
PFPK1 (ADVANCE PAGE) - PRESS

*** End of Standalone CVFY Mask or Reset ***
65-104 CGLS

CONSOLE KYBD
HARDCOPY KEY - PRESS

65-105 CGLS

PFP
PFPK6 (OPS LEDS) - PRESS
VERIFY 25 LOOKUP DISPLAY CLEAR

*** End of GLS Standalone CVFY Activation ***

Single Shot Verification

65-106 CGLS

CRT
INTG MENU

CURSOR CNTL
SINGLE SHOT VFY
XMIT CURSOR KEY - PRESS

CRT
VERIFY

SINGLE SHOT VFY SELECTION

65-107 CGLS

CURSOR CNTL
(SELECT AS REQD)
XMIT CURSOR KEY - PRESS
EACH ITEM
ML INT -

CRT
VERIFY INVERTED CURSOR BLOCK
65-108  CGLS

**IF** REQUIRED TO CHANGE VERIFY SELECTION,

**THEN PERFORM:**
CURSOR CNTL
XMIT CURSOR KEY - PRESS

CRT
**VERIFY** CURSOR BLOCK OPEN

Not Performed:______

65-109  CGLS

CURSOR CNTL
SELECTION END
XMIT CURSOR KEY - PRESS

CRT
**VERIFY**
PRE-SEQ VFY
SELECTION

**NOTE**
Nomenclature displayed as invert yellow denotes systems bypassed or verify option not selected.

**NOTE**
Reference the GLS Single Shot Masks list for required inputs.

65-110  CGLS

**IF** REQUIRED TO MASK AN FD,

**THEN PERFORM:**
CURSOR CNTL

MASK FD
XMIT CURSOR KEY - PRESS

CRT
**VERIFY**
CURSOR BLOCK INVERT
YELLOW (M)

Not Performed:______
NOTE
Reference the GLS Single Shot Resets list for required inputs. FDs which have been bypassed by system may not be reset individually.

65-111  
CGLS

IF REQUIRED TO RESET AN FD,

THEN PERFORM:
CURSOR CNTL

RESET FD__________
XMIT CURSOR KEY - PRESS

CRT
VERIFY
CURSOR BLOCK OPEN
CYAN

Not Performed:______

65-112  
CGLS

WHEN MASK/RESET SELECTIONS ARE COMPLETE, BEGIN VERIFIES
PFPK4 - PRESS
VERIFY TITLE
SINGLE SHOT VERIFY FAILURES

65-113  
CGLS

IF PAGE FULL,

THEN PERFORM:
PFK15 - PRESS
VERIFY NEXT PAGE FAILURES

Not Performed:______

65-114  
CGLS

WHEN VERIFIES COMPLETE
VERIFY MESSAGE: VERIFY CYCLE COMPLETE
NOTE
Perform one of the next two steps if a verify failure occurs.

65-115  CGLS

PFPK1 (TERM VFY'S) - PRESS

Not Performed:______

65-116  CGLS

PFPK2 (RESTART VFY'S) - PRESS

Not Performed:______

65-117  CGLS

TO TERMINATE
PFPK1 - PRESS
VERIFY INTG MENU

*** End of Single Shot Verification ***
GLS Mainline Masks/Resets

NOTE
For mainline interrupt FDs to be masked or reset, reference the GLS Mainline Masks list or GLS ML Mask-Resets list for required inputs.

NOTE
Perform this option if masks or resets are required.

GLS Mainline Masks/Resets Not Performed:______

65-118
CGLS
PFPK5 (VIEW INTERRUPT) - PRESS
VERIFY VIEW INTERRUPT SKELETON (SDPC3)
CURSOR CONTROL

TABLE __________(TABLE NUMBER)
XMIT CURSOR KEY - PRESS
VERIFY DISPLAY PG-2B

NOTE
Repeat the next step for each mainline CVFY FD to be masked.

65-119
CGLS
CURSOR CONTROL

MASK _________(FD)
XMIT CURSOR KEY - PRESS

CRT
VERIFY FD SHOW "M" ADJACENT TO FD SELECTED
NOTE
Repeat the next step for each FD to be reset.

65-120  CGLS

CURSOR CNTL

RESET _______ (FD)
XMIT CURSOR KEY - PRESS

65-121  CGLS

PFPK2 (ADVANCE) - PRESS
VERIFY NEXT TABLE PG-2B
REPEAT UNTIL NEXT DESIRED TABLE DISPLAYED

*** End of GLS Mainline Masks/Resets ***
Modify Mainline Discrete Measurements

**NOTE**
Perform this option to change GOAL limits for discrete MIP measurements.

**NOTE**
Repeat this option for each discrete FD requiring a limit change. A list of discrete FDs requiring limit change and corresponding states will be provided with the GLS Mask and Bypass list.

Modify Mainline Discrete Measurements Not Performed: ______

65-122  CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
I GX ____ (FD)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
**VERIFY SUCCESSFUL**

65-123  CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS
C GL _____ (FD) _____ (STATE)
XMIT CMD KEY - PRESS
**VERIFY SUCCESSFUL**

*** End of Modify Mainline Discrete Measurements ***
Modify Mainline Analog Measurements

NOTE
Repeat the next step for each analog FD requiring a limit change. A list of analog FDs requiring limit change and corresponding values will be provided with the GLS Mask and Bypass list.

65-124

CGLS

IF REQUIRED TO CHANGE GOAL LIMITS FOR ANALOG MIP MEASUREMENTS,

THEN PERFORM:
CONSOLE KYBD
HOME CMD KEY - PRESS
C GL ____ (FD) ____ (LO) ____ (HI)
XMIT CMD KEY - PRESS

VERIFY SUCCESSFUL

Not Performed:_____

*** End of Modify Mainline Analog Measurements ***
Modify Mainline Digital Pattern Measurements

NOTE
Repeat the next step for each digital pattern FD requiring a limit change. A list of digital pattern FDs requiring limit change and corresponding values will be provided with the GLS Mask Bypass list.

Modify Mainline Digital Pattern Measurements Not Performed:_____

65-125 CGLS

IF REQUIRED TO CHANGE GOAL LIMITS FOR DIGITAL PATTERN MIP MEASUREMENT,

THEN PERFORM:
CONSOLE KYBD
HOME CMD KEY - PRESS

C GL ____ (FD) ____ (EQ/NE/ANY) ____ (VALUE)
XMIT CMD KEY - PRESS
VERIFY SUCCESSFUL

Not Performed:_____

*** End of Modify Mainline Digital Pattern Measurements ***
GLS LCC Masks/Resets

**NOTE**
For LCC interrupt FDs to be masked or reset, reference the GLS LCC Masks list or GLS LCC Mask-resets list for required inputs.

**NOTE**
Perform this option if masks or resets are required.

GLS LCC Masks/Resets Not Performed:_____

65-126

CGLS

PPFK5 (LCC SELECTIONS) - PRESS
VERIFY LCC SELECTIONS (SDPB2)
CURSOR CNTL

TABLE _____ (TABLE NO. UPPER/LOWER)
XMIT CURSOR KEY - PRESS
VERIFY SELECTED TABLE PG-2B

**NOTE**
Repeat the next step for all required LCC FDs to be masked in this table.

65-127

CGLS

CURSOR CNTL

MASK ____________ (FD)
XMIT CURSOR KEY - PRESS
CRT
VERIFY FD
SHOW "M" ADJACENT TO FD

Not Performed:_____

817
NOTE
Repeat the next step for all required LCC FDs to be reset in this table.

65-128
CGLS
CURSOR CNTL
RESET _____________ (FD)
XMIT CURSOR KEY - PRESS

Not Performed:_____

65-129
CGLS
PFPK2 (ADVANCE) - PRESS
VERIFY NEXT TABLE DISPLAYED TO PG-2B
REPEAT UNTIL NEXT DESIRED TABLE IS DISPLAYED

Not Performed:_____

65-130
CGLS
PFPK1 (INTG MENU) - PRESS
VERIFY INTEGRATED MENU

*** End of GLS LCC Masks/Resets ***
Modify LCC Discrete Measurements

**NOTE**
Perform this option to change GOAL limits for discrete LCC measurements.

**NOTE**
Repeat this option for each discrete FD requiring a limit change. A list of discrete FDs requiring limit change and corresponding states will be provided with the GLS Mask and Bypass list.

Modify LCC Discrete Measurements Not Performed:______

65-131        CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

I GX ____ (FD)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
VERIFY SUCCESSFUL

65-132        CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

A GX ____ (FD) ____ (STATE)
XMIT CMD KEY - PRESS
VERIFY SUCCESSFUL

*** End of Modify LCC Discrete Measurements ***
Modify LCC Analog Measurements

NOTE
Perform this option if required to change GOAL limits for analog LCC measurements. Repeat next two steps for each analog FD requiring a limit change. A list of analog FDs requiring limit change and corresponding values will be provided with the GLS Mask and Bypass list.

Modify LCC Analog Measurements Not Performed:______

65-133  CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

C GL _____(FD) _____(LO) _____(HI)
XMIT CMD KEY - PRESS

VERIFY SUCCESSFUL

65-134  CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

A GX _____(FD)
XMIT CMD KEY - PRESS

VERIFY SUCCESSFUL

*** End of Modify LCC Analog Measurements ***
Modify LCC Digital Pattern Measurements

NOTE
Repeat the next step for each digital pattern FD requiring a limit change. A list of digital pattern FDs requiring limits change and corresponding values will be provided with the GLS Mask and Bypass list.

65-135
CGLS

IF REQUIRED TO CHANGE GOAL LIMITS FOR DIGITAL PATTERN LCC MEASUREMENTS,

THEN PERFORM:
CONSOLE KYBD
HOME CMD KEY - PRESS
A GX ____ (FD) ____ (EQ/NE/ANY) ____ (VALUE)
XMIT CMD KEY - PRESS
VERIFY SUCCESSFUL

Not Performed: ______

*** End of Modify LCC Digital Pattern Measurements ***

NOTE
When LCC command processor limit changes are complete, make a check of LCC failures for command processor limit changed measurements.
GLS Mainline Activation

65-136  CGLS

CONSOLE KYBD
SELECT APP PG-3B - PRESS

CRT
VERIFY MS/ML DISPLAY

65-137  CGLS

CURSOR CNTL
INITIATE MAINLINE
XMIT CURSOR KEY - PRESS
NOTE
Select GLS presequencer bypasses as applicable from the following list and perform the following step.

65-138

**CGLS**

**SELECT** APP PG-4B

CRT

**SELECT** GLS FUNCTIONS TO BYPASS

CONSOLE KYBD (SGPO2)

XMIT CURSOR KEY - PRESS

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>BYPASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRS LIMIT CHANGE</td>
<td>_____</td>
</tr>
<tr>
<td>ONE-SHOT DATA TRANSFER</td>
<td>_____</td>
</tr>
<tr>
<td>T-20 MINUTES AUTO HOLD</td>
<td>_____</td>
</tr>
<tr>
<td>OPS TRANSITION</td>
<td>_____</td>
</tr>
<tr>
<td>SEND GMTLO</td>
<td>_____</td>
</tr>
<tr>
<td>GPC DUMP AND COMPARE</td>
<td>_____</td>
</tr>
<tr>
<td>SLPAO, SLPA1 PERFORMS</td>
<td>_____</td>
</tr>
<tr>
<td>RF SWITCH SELECT</td>
<td>Ê</td>
</tr>
<tr>
<td>SINGLE SHOT VERIFY</td>
<td>_____</td>
</tr>
<tr>
<td>T-9 MINUTES AUTO HOLD</td>
<td>_____</td>
</tr>
<tr>
<td>BYPASS ALL</td>
<td>_____</td>
</tr>
</tbody>
</table>
65-139  CGLS

CONSOLE KYBD (SGPO2)
PFPK7 - PRESS
PFPK4 (SGPO2) - PRESS
PFPK2 (PROCEED) - PRESS

CRT (SGPO2)
VERIFY GLS MAINLINE ACTIVE MESSAGE

65-140  CGLS

APP 4A

CRT
VERIFY

GLS MAINLINE ACTIVE
VERIFY RSLS DOES NOT START COUNTING

65-141  CGLS

PFPK7 - PRESS
VERIFY SGPO2, SGPR2 ACTIVE.
VERIFY STATUS IS T-20 MIN AND HOLDING

65-142  CGLS

IF AUTOMATIC RESUME IN 10 MINUTES IS NOT DESIRED,

THEN PERFORM:
APP 3B
CURSOR CNTL
CANCEL PENDING CDC REQUESTS
XMIT CURSOR KEY - PRESS
VERIFY SUCCESSFUL

Not Performed:_____

65-143  CGLS

Verify following pseudo is in desired recycle configuration.

N03IS331D = X0001 (RSS hold)
65-144 CGLS

CONSOLE KYBD
IF PSEUDO NOT IN CONFIGURATION AS INDICATED IN PREVIOUS STEP,

THEN ISSUE THE PSEUDO TO CORRECT INDICATION.

ISSU N03IS331D X0001
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

Not Performed:______

65-145 CGLS OTC 212

GLS Recycle to T-20 Minutes is complete.

*** End of Operation 65 ***
OPERATION 66  ECLSS Safing Scrub/Turnaround Ops Contingency

Shop: ECL
Cntrl Rm Console: C5
OPR: ECL
Zone: 121, 122
Hazard (Y/N): N
Duration (Hrs): 0.5

NOTE
This is a contingency operation. Perform this operation to support Extended Scrub/Turnaround.

Operation Not Performed:______
Perform ECLSS ARPCS Safing on Channel 143.

Perform the switch positions listed below and install the switchguards.

<table>
<thead>
<tr>
<th>PANEL L1</th>
<th>GUARD P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLASH EVAP CONTROLLER</td>
<td>G070-700930-001</td>
</tr>
<tr>
<td>PRI A SW - OFF</td>
<td></td>
</tr>
<tr>
<td>PRI B SW - OFF</td>
<td>(ONE GUARD/TWO SWITCHES)</td>
</tr>
<tr>
<td>FLASH EVAP CONTROLLER</td>
<td>G070-700919-001</td>
</tr>
<tr>
<td>SEC MODE SW - OFF</td>
<td></td>
</tr>
<tr>
<td>NH3 CONTROLLER</td>
<td></td>
</tr>
<tr>
<td>A SW - OFF</td>
<td>G070-700921-001</td>
</tr>
<tr>
<td>B SW - OFF</td>
<td>G070-700921-001</td>
</tr>
</tbody>
</table>

HI LOAD EVAP SW - OFF

FLASH EVAP FEEDLINE HTR
A SUPPLY SW - OFF
B SUPPLY SW - OFF
ECLSS GSE Cooling Reconfigure

66-5

OTC    CECL    132

IF directed by CECL,

THEN perform GSE Cooling Reconfigure from REFR to Chilled Water mode (remote with backup unit down) per OMI S9001.105 on Channel 143.

Report completion.

Not Performed:______

ARPCS Oxygen Supply Valve 1 and 2 Closure

66-6

CECL    CFCP

Perform ARPCS oxygen supply valve 1 and 2 closure.

66-7

CFCP    CDR    153

IF THE VALVE POSITION INDICATORS ARE NOT AS SHOWN,

THEN PERFORM:

PANEL L2

ATM PRESS CONTROL

O₂ SYS 1 SUPPLY SW - CLOSE L2A1S11
UNTIL
O₂ SYS 1 SUPPLY TB CL L2A1DS5

O₂ SYS 2 SUPPLY SW - CLOSE L2A1S20
UNTIL
O₂ SYS 2 SUPPLY TB CL L2A1DS9

Not Performed:______
IF THE VALVE POSITION INDICATORS ARE NOT AS SHOWN,

THEN PERFORM:
CRT (VAG10 PG-B)
VERIFY

PRSD O₂ ECS PRIM SUP VLV
(VLV 1) PCL V45X1080E

PRSD O₂ ECS SEC VLV
(VLV 3) PCL V45X1083E

Not Performed:_____

IF VAG10 (P17) GREATER THAN 100 PSIA,

THEN PERFORM:

DIRECT O₂ VALVE - OPEN UNTIL VAG10 (P17)
AIRLOCK O₂ PRESS IS 50 TO 100 PSIA, THEN CLOSE

Not Performed:_____

PANEL L2
ATM PRESS CONTROL
O₂ XOVR
SYS 1 - CLOSE
SYS 2 - CLOSE
ARPCS Oxygen Supply Valve 1 and 2 Closure is complete.

*** End of ARPCS Oxygen Supply Valve 1 and 2 Closure ***

PANEL L2A1

ATM PRESS CONTROL
N₂ SYS 1
  SUPPLY SW - CLOSE UNTIL L2A1S13
  SUPPLY TB CL L2A1DS6
  REG INLET SW - CLOSE UNTIL L2A1S14
  REG INLET TB CL L2A1DS7
N₂ SYS 2
  SUPPLY SW - CLOSE UNTIL L2A1S21
  SUPPLY TB CL L2A1DS10
  REG INLET SW - CLOSE UNTIL L2A1S22
  REG INLET TB CL L2A1DS11

PANEL O16

ROW D
MN C
ATM PRESS CONTR
O₂ EMER CB - CLOSE

CRT (VAG10 PG-B)
VERIFY O₂ EMER (VLV 5) PCL

PANEL O16

ROW D
MN C
ATM PRESS CONTR
O₂ EMER CB - OPEN
66-17  CECL  CDR  143

PANEL C7

LEH O₂ SUPPLY
SYS 1 VLV - CLOSE
SYS 2 VLV - CLOSE

66-18  CECL  CDR  143

PANEL L4

ROW F
AC 1
H₂O LOOP PUMP 1A/2
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

ROW J
AC 3
SIG CONDR
HUM SEP
PH A CB - CLOSE
IMU FAN
PH B CB - CLOSE

66-19  CECL  PLT  143

PANEL C6

LEH O₂ 1 VLV - CLOSE
LEH O₂ 2 VLV - CLOSE
LEH O₂ 3 VLV - CLOSE
LEH O₂ 4 VLV - CLOSE

66-20  CECL  CDR  143

PANEL O14

ROW C
SMOKE DETN
L/R FLT DK CB - OPEN  O14A14C007
BAY 2A/3B CB - OPEN  O14A14C008
66-21  CECL  PLT  143

PANEL 015

ROW C
MN B
SMOKE DETN
BAY 1B/3A CB - OPEN  O15A15C007

66-22  CECL  PLT  143

PANEL 016

ROW C
MN C
SMOKE DETN
CABIN CB - OPEN  O16A16C006
BAY 1A/2B CB - OPEN  O16A16C007
CAUTION
To avoid valve damage, do not move the motor arm in the next step. Valve arm may be moved to allow connection to motor.

NOTE
Valve link will have been stowed for Flight in Panel R3, pilot’s FWD flight data file container.

66-23 CECL OMTO 143

OK To Install T:_____

IF ACCESS TO PANEL MD44F IS NOT RESTRICTED BY TREADMILL OR OTHER EQUIPMENT,

THEN PERFORM:

PANEL MD44F

SV755665-2 VALVE LINK CAB TVL

CONNECT SV755665-2 VALVE LINK CAB TVL TO TEMP CONTROL PRI ACTUATOR AND TO TEMP CONTROL VALVE ARM UTILIZING QUICK-RELEASE PINS (2) PROVIDED. (FOLLOW ORIENTATION INSTRUCTIONS PRINTED ON THE VALVE LINK.)

Not Performed:_____

T:_____

66-24 CECL OTC 132

OTC *PAD

ECLSS Safing complete.

*** End of ECLSS GSE Cooling Reconfigure ***

*** End of Operation 66 ***
OPERATION 67  FC/PRSD System Safing (Contingency)
Shop: FCP  
Cntrl Rm Console: C6  
OPR: FCP  
Zone: 121, 122  
Hazard (Y/N): N  
Duration (Hrs): 0.5  

NOTE
This is a contingency operation. Perform only for Extended Scrub/Turnaround.

Operation Not Performed:_______
NOTE
Cryo controller and quantity CBs will remain closed until completion of PRSD de-tank.

67-1 CFCP PLT 153

PANEL R11

FUEL CELL
  PURGE HEATER SW - OFF
  H₂O RELIEF HTR SW - OFF
  H₂O LINE HTR SW - OFF

PURGE VALVES
  1 SW - CLOSE
  2 SW - CLOSE
  3 SW - CLOSE

67-2 CFCP

Verify fuel cells powered down prior to continuing.

67-3 CFCP CDR 153

PANEL L4

ROW C
 AC 1
  FUEL CELL 1
  PUMPS
    PH A CB - OPEN
    PH B CB - OPEN
    PH C CB - OPEN
 AC 2
  FUEL CELL 2
  PUMPS
    PH A CB - OPEN
    PH B CB - OPEN
    PH C CB - OPEN
 AC 3
  FUEL CELL 3
  PUMPS
    PH A CB - OPEN
    PH B CB - OPEN
    PH C CB - OPEN
67-4  CFCP      CDR      153

   PANEL 014

   ROW A
   FC 1 CNTLR SW - OFF

67-5  CFCP      CDR      153

   PANEL 015

   ROW A
   FC 2 CNTLR SW - OFF

67-6  CFCP      CDR      153

   PANEL 016

   ROW A
   FC 3 CNTLR SW - OFF

67-7  CFCP

   CRT (VWR05 PG-B)

   VERIFY
   
   FC1 ECU PWR - OFF
   FC2 ECU PWR - OFF
   FC3 ECU PWR - OFF
NOTE
The next step reconfigures the tank heater switches to “Off.” Tank heaters will remain in Auto via LPS until prior to de-tank operations.

67-8  CFCP  CDR  153

PANEL R1

CRYO
H₂ TK 1 HEATERS
A SW - OFF
H₂ TK 2 HEATERS
A SW - OFF
O₂ TK 1 HEATERS
A SW - OFF
O₂ TK 2 HEATERS
A SW - OFF

NOTE
Fuel cell and PRSD switchguards are installed in Operation 80 - Switchguard Installation/Verification (OMI S0007.400).

67-9  CFCP  OTC  132

FC/PRSD System Safing (Contingency) complete.

*** End of Operation 67 ***
OPERATION 68  Reserved

Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 68 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 69  Fuel Cell Performance Calibration and PRSD System Integrity Check

Shop: FCP
Cntrl Rm Console: C6
OPR: FCP
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 2.0

NOTE
Do not perform this operation if a recycle occurred and fuel cells remained active.

Operation Not Performed: ______

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

NOTE
The following operation will coordinate and record real-time data by HGDS during PRSD integrity check. HGDS Engineering will perform trend and/or statistical analysis of the data gathered by the following operation and report results to PRSD Engineering.
Perform Fuel Cell Performance Calibration and PRSD Integrity Check.

**69-2**

**Perform** the following:

1. **Verify** “ET Load Air to GN₂ Oxygen Decay Profile” compares to “PRSD Load Air to GN₂ Oxygen Decay Profile.”

2. **Start** archive files:

   HGDS 2000 operation = “PRSD Perform CI”

**69-3**

**Verify** Payload Bay absolute humidity (FD GECQ7P88A) is less than or equal to 5 grains.

**Record:**

   Absolute humidity ________ GR/LB

**NOTE**

A PLB circuit flowrate above nominal is used to expedite the PLB/Midbody compartment inerting and reduction in PLB purge R.H.

**69-4**

**IF** the PLB circuit flowrate is above the nominal value listed in OMI V1122.004, Table II,

**THEN restore** ECS PLB circuit GN₂ purge flowrate to nominal flowrate listed in OMI V1122.004, Table II. (Maintain PLB I/F temperature within payload OMRS limits listed in Table II.)

**Not Performed:**_____
ECS PLB circuit N₂ purge flowrate is configured to nominal flowrate listed in OMI V1122.004, Table II.

**CHGD**

**Perform** the following:

1. **Perform** RTOMI V3540 ET Load Preps for HGDS 2000 Autocal Configurations for PRSD Integrity Check.

   Operation No.:______ Run No.:______

   RTOMI Log No.:__________________

2. **Record** the following:

   System:______________ (HGDSA or HGDSB)

   Last autocal time: _____________ GMT

3. **Record** Limits of Resolution and Detection calculated in V3540:

   Hydrogen LOD = _____________ PPM
   Hydrogen Resolution = _____________ PPM
   Oxygen LOD = _____________ PPM
   Oxygen Resolution = _____________ PPM

4. **Verify** system ready to support.
Perform the following:

1. **Change** points for statistics to 30.

   Points for Statistics = _____________(≥5)

2. **Select** Midbody sample line.  
   Start Time:_____________GMT  
   **Wait** 5 minutes.

3. **Record** Midbody baseline.

   Hydrogen average = _____________PPM (BD)  
   Oxygen average = _____________PPM (BD)
NOTE
Fuel cells will be adjusted to a load of 230-290 amps and maintained for a minimum of 10 minutes to monitor fuel cell performance. During this time, the PRSD System Integrity Check will be performed in parallel after the fuel cells have been brought to the high loads and thermally stabilized.

During Fuel Cell Performance Calibration and PRSD System Integrity Checks, individual fuel cell currents are allowed to be less than 230 amps each if the total fuel cell power is not less than 21 kw and total vehicle power has been applied to the fuel cells. Individual fuel cell currents may exceed 290 amps for this condition, provided EPD Main Bus voltage LCC minimum requirement of 28.325 VDC is protected.

NOTE
CFCP to monitor fuel cell substack delta voltages during performance of test. Maximum allowable change shall not exceed 28 MV absolute.

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V45CH0.020-1R
OMRS V45CH0.030-1

69-8

CFCP

CRT (VWR05)
RECORD FUEL CELL 1,2,3 STK 1,2,3 DV (150 MV MAX).

<table>
<thead>
<tr>
<th></th>
<th>FC1</th>
<th>FC2</th>
<th>FC3</th>
</tr>
</thead>
<tbody>
<tr>
<td>STK 1 DV</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>STK 2 DV</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>STK 3 DV</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

OBTAIN PC GOAL FCMS HARDCOPY OF EACH FUEL CELL DISPLAY (IF AVAILABLE).
Perform fuel cell load adjustment to 230-290 amps.

**NOTE**
Steady-state operation outside specified temperature limits is acceptable provided FCP inlet and outlet electrolyte concentrations remain within 24-48 percent (ref OMI V1040.220, PRSD Cryo Load and Fuel Cell Activation, Figure 160-2, FCP Electrolyte Concentration Nomograph). Any violation of specified temperature limits requires Design Engineering assessment.

---

**69-9**

**CFCP**

**CEPD**

**153**

**NOTE**
Steady-state operation outside specified temperature limits is acceptable provided FCP inlet and outlet electrolyte concentrations remain within 24-48 percent (ref OMI V1040.220, PRSD Cryo Load and Fuel Cell Activation, Figure 160-2, FCP Electrolyte Concentration Nomograph). Any violation of specified temperature limits requires Design Engineering assessment.

---

**69-10**

**CFCP**

**CRT (VWR05 PG-B)**

**MONITOR** FUEL CELL PERFORMANCE USING FOLLOWING CRITERIA:

- **VOLTAGE** - REF OMI V1040.220, FIG 160-3, FUEL CELL POWERPLANT PERFORMANCE, MINIMAL PERFORMANCE FOR LAUNCH
- **CURRENT** - 230-290 AMPS OR NLT 21 KW TOTAL FC PWR
- **STACK COOL OUT TEMP** - REF OMI V1040.220, FIG 160-4, FUEL CELL POWERPLANT STACK EXIT TEMPERATURE LIMITS
- **STACK COOL IN TEMP** - 176-191 DEG F
- **COND EXIT TEMP** - 140-160 DEG F
- **COOLANT RET TEMP** - 40-140 DEG F
- **COOLANT PRESSURE** - 55-75 PSIA
- **SUBSTACK DELTA V** - NMT 28 MV CHANGE ABSOLUTE
- **PERF CAL START TIME** __________ GMT

---

**69-11**

**CFCP**

**CURSOR CNTL (VWR05 PG-B)**

**V15** - CLOSED

**V45** - CLOSED
69-12 CFCP CHGD 153

PRSD Integrity Check has been initiated.

Integrity Check Start Time__________ GMT

NOTE
PRSD will remain on internal reactants for 5 minutes minimum.

69-13 CFCP
CURSOR CNTL (VWR05 PG-B)
V15 - OPEN
V45 - OPEN
PRSD Integrity Check has been terminated.

Integrity Check Stop Time __________ GMT

Zero Gas Select

Record zero gas start time __________ GMT

Remain on zero gas a minimum of 3 minutes before proceeding.

PRSD Test Gas Check

1. Select Midbody gas

   Start time __________ GMT

   Wait 3 minutes minimum.

2. Select PRSD gas

   Start time __________ GMT

   Wait 3 minutes minimum.

3. Change points for statistics to 5.
CRT (VWR05 PG-B)
AFTER 10 MINUTES MINIMUM FROM PERFORMANCE CAL START,

**VERIFY** FUEL CELL PERFORMANCE MEETS FOLLOWING CRITERIA:

VOLTAGE - REF OMI V1040.220, FIGURE 160-3, FUEL CELL POWERPLANT PERFORMANCE, MINIMAL PERFORMANCE FOR LAUNCH

CURRENT - 230-290 AMPS OR NLT 21 KW TOTAL FC PWR

STACK COOL OUT TEMP - REF OMI V1040.220, FIGURE 160-4, FUEL CELL POWERPLANT STACK EXIT TEMPERATURE LIMITS

STACK COOL IN TEMP - 176-191 DEG F

COND EXIT TEMP - 140-160 DEG F

COOLANT RET TEMP - 40-140 DEG F

COOLANT PRESSURE - 55-75 PSIA

**RECORD** FUEL CELL 1,2,3 STK 1,2,3 DV (150 MV MAX)

<table>
<thead>
<tr>
<th></th>
<th>FC1</th>
<th>FC2</th>
<th>FC3</th>
</tr>
</thead>
<tbody>
<tr>
<td>STK 1 DV</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>STK 2 DV</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>STK 3 DV</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

**OBTAIN** PC GOAL FCMS HARDCOPY OF EACH FUEL CELL DISPLAY (IF AVAILABLE).

**RECORD** PERFORMANCE CAL STOP TIME __________ GMT
Perform fuel cell load adjustment to 100-175 amps.

CFCP

CRT (VWR05 PG-B)

**MONITOR** FUEL CELL PERFORMANCE USING STEADY-STATE PARAMETERS:

VOLTAGE - REF OMI V1040.220, FIGURE 160-3, FUEL CELL POWERPLANT PERFORMANCE, MINIMAL PERFORMANCE FOR LAUNCH

CURRENT - 100-175 AMPS

STACK COOL OUT TEMP - REF OMI V1040.220, FIGURE 160-4, FUEL CELL POWERPLANT STACK EXIT TEMPERATURE LIMITS

STACK COOL IN TEMP - 176-191 DEG F

COND EXIT TEMP - 140-160 DEG F

COOL RTN TEMP - 40-140 DEG F

COOLANT RETURN TEMPERATURE SHALL NOT EXCEED 110 DEG F FOR ELECTRICAL LOADS OF 4KW OR LESS PER FCP.
Substack Delta Voltage Stability Check

69-20

CFCP

CRT (VWR05 PG-B)

**MONITOR** FUEL CELL SUBSTACK DELTA VOLTAGES FOR 1 HOUR BEGINNING 10 MINUTES AFTER COMPLETION OF LOAD ADJUSTMENT TO 100-175 AMPS.

**RECORD** START TIME GMT__________

**RECORD** FUEL CELL 1,2,3 STK 1,2,3 DV (150 MV MAX)

<table>
<thead>
<tr>
<th></th>
<th>FC1</th>
<th>FC2</th>
<th>FC3</th>
</tr>
</thead>
<tbody>
<tr>
<td>STK 1 DV</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>STK 2 DV</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>STK 3 DV</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

**OBTAIN** PC GOAL FCMS HARDCOPY OF EACH FUEL CELL DISPLAY (IF AVAILABLE).

**RECORD** STOP TIME GMT__________

**RECORD** FUEL CELL 1,2,3 STK 1,2,3 DV (150 MV MAX)

<table>
<thead>
<tr>
<th></th>
<th>FC1</th>
<th>FC2</th>
<th>FC3</th>
</tr>
</thead>
<tbody>
<tr>
<td>STK 1 DV</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>STK 2 DV</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>STK 3 DV</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

**VERIFY** NO CHANGE GREATER THAN 10 MV ABSOLUTE.

**OBTAIN** PC GOAL FCMS HARDCOPY OF EACH FUEL CELL DISPLAY (IF AVAILABLE).
FCP Substack DV Baseline in PCG2

NOTE
The following steps will establish FCP Stack delta voltage baselines within the PCG2 RTSE set. Baseline values are set using a two step process. First, the data value is inserted into the CDBR (FD N45IV990A) followed by a location command (N45IV980D) which transfers this value to the appropriate PCG2 FD location (K45VXXXXA).

69-21 CFCP

PCG2

Load PCG2 display “FCP_STDV_CMD”

Verify Command FD N45IV980D and Data FD N45IV990A displayed on the left side.

69-22 CFCP

CPRO

Configure FCP Stack Delta Voltage monitoring FDs in PCGoal per the following

1) **Apply** FCP Stack DV Baseline Value from step 69-20 for appropriate FCP and Substack location to buffer

   APPL N45IV990A XX.X [69-20 Table]
   Xmit Command
   Exec Command

2) Verify value XX.X in FD N45IV990A

3) **Issue** Baseline command to buffer

   ISSU N45IV980D XXX [see table below]
   Xmit Command
   Exec Command
4) **Verify** Baseline value now located in PCG2 FD K45VXXXXA **[see table below]**

5) **Issue** command removal to buffer

   ISSU N45IV980D 0
   Xmit Command
   Exec Command

6) Repeat Substeps 1-5 to insert FCP 1, 2, 3 Stack DV baseline values

7) **Apply** 0 to Baseline value buffer

   APPL N45IV990A 0.0
   Xmit Command
   Exec Command

<table>
<thead>
<tr>
<th></th>
<th>Command Value (SS3)</th>
<th>PCG2 Baseline FD (SS4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCP 1 STK1 DV</td>
<td>110</td>
<td>K45V0112A</td>
</tr>
<tr>
<td>FCP 1 STK2 DV</td>
<td>120</td>
<td>K45V0113A</td>
</tr>
<tr>
<td>FCP 1 STK3 DV</td>
<td>130</td>
<td>K45V0114A</td>
</tr>
<tr>
<td>FCP 2 STK1 DV</td>
<td>210</td>
<td>K45V0212A</td>
</tr>
<tr>
<td>FCP 2 STK2 DV</td>
<td>220</td>
<td>K45V0213A</td>
</tr>
<tr>
<td>FCP 2 STK3 DV</td>
<td>230</td>
<td>K45V0214A</td>
</tr>
<tr>
<td>FCP 3 STK1 DV</td>
<td>310</td>
<td>K45V0312A</td>
</tr>
<tr>
<td>FCP 3 STK2 DV</td>
<td>320</td>
<td>K45V0313A</td>
</tr>
<tr>
<td>FCP 3 STK3 DV</td>
<td>330</td>
<td>K45V0314A</td>
</tr>
</tbody>
</table>
69-23

**FCFP**

PCG2 *(FCP_STDV_CMD)*

Record values for Baseline Storage FDs from table below.

Verify Command FD N45IV980D and Data FD N45IV990A displayed on left side are 0.

<table>
<thead>
<tr>
<th>FCP 1 STK1 DV</th>
<th>Command Value (SS3)</th>
<th>PCG2 Baseline FD (SS4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>K45V0112A</td>
<td></td>
</tr>
<tr>
<td>FCP 1 STK2 DV</td>
<td>K45V0113A</td>
<td></td>
</tr>
<tr>
<td>FCP 1 STK3 DV</td>
<td>K45V0114A</td>
<td></td>
</tr>
<tr>
<td>FCP 2 STK1 DV</td>
<td>K45V0212A</td>
<td></td>
</tr>
<tr>
<td>FCP 2 STK2 DV</td>
<td>K45V0213A</td>
<td></td>
</tr>
<tr>
<td>FCP 2 STK3 DV</td>
<td>K45V0214A</td>
<td></td>
</tr>
<tr>
<td>FCP 3 STK1 DV</td>
<td>K45V0312A</td>
<td></td>
</tr>
<tr>
<td>FCP 3 STK2 DV</td>
<td>K45V0313A</td>
<td></td>
</tr>
<tr>
<td>FCP 3 STK3 DV</td>
<td>K45V0314A</td>
<td></td>
</tr>
</tbody>
</table>

69-24

**FCFP**

Verify that PCG2 Baseline values in steps 69-23 correspond to values in Step 69-20.

***End of FCP Substack DV Baseline in PCG2***
NOTE
If Midbody gas concentrations remain below the calculated LOD for Hydrogen and/or Oxygen during the PRSD Integrity Check, then “No Leakage” may be reported.

Report all Hydrogen and Oxygen transient indications in PPM and times in GMT. Transient indications are defined as an increase greater than the calculated “Resolution” above the stable “Midbody baseline average.”

For decreasing Oxygen trends due to Orbiter inerting, transients will be reported as the difference between the lowest PPM data point and the highest data point during the transient.

69-25

CHGD

Perform HGDS data review of PRSD Integrity Check and record results.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Transients: _____________ (yes or no)

<table>
<thead>
<tr>
<th>Time (GMT)</th>
<th>Gas (GH₂ or GO₂)</th>
<th>Maximum (PPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
69-26 CFCP

Verify HGDS data review of PRSD Integrity Check is acceptable.

USA PRSD Engineering:_______________________________________

NASA PRSD Engineering:_______________________________________

Boeing PRSD Engineering:_______________________________________

69-27 Noted requirements are complete.

OMRSD V45CH0.020-1R
OMRSD V45CH0.030-1

69-28 CFCP OTC 132

Fuel Cell Performance Calibration and PRSD System Integrity Checks are complete.

*** End of Operation 69 ***
OPERATION 70  FEP RF Source Verification

Shop: **LPS**  
Cntrl Rm Console: **MASTER**  
OPR: **LPS**  
Zone: **NA**  
Hazard (Y/N): **N**  
Duration (Hrs): **0.5**

**NOTE**
If the FMSP RF system has been configured to provide the Firing Room with main engine 60KB data, do not perform this operation.

Operation Not Performed: _____
70-1  LPS    CCME    128
JRPS
*MIL

Verify ready to support RF FEP source verification.

70-2  LPS    C4SE

Verify ME1/2/3 BIT syncs are in remote.

70-3  LPS    C4MC    128

Verify AWP01 active and T-55 M window not inverted.

NOTE
The following program requires 2 OC and 1 application TCB for execution.

70-4  LPS    C4MC    128
CURSOR CNTL (AWP01 PG-B)
SOURCE 2 TARGET
XMIT CURSOR KEY - PRESS

70-5  LPS    C4SE    128

Verify ME 1/2/3 bit syncs indicate source 2 data processing.

70-6  LPS    C4MC    128

Verify Source 2, Go mode, no error conditions exist for ME 1/2/3.
70-7  LPS  CCME  128

Verify data valid on ME 1/2/3 RF data.

70-8  LPS  C4MC  128

CURSOR CNTL (AWP01 PG-B)
SOURCE 1 TARGET
XMIT CURSOR KEY - PRESS

70-9  LPS  C4SE  128

Verify ME 1/2/3 bit syncs indicate source 1 data processing

70-10 LPS  C4MC  128

Verify Source 1, Go mode, no error conditions exist for ME 1/2/3.

70-11 LPS  CCME  128

Verify data valid on ME 1/2/3 hardline data

70-12 LPS  C4MC  128

CURSOR CNTL (AWP01 PG-B)
LOCKOUT TARGET
XMIT CURSOR KEY - PRESS

70-13 LPS  CCME  128

*MIL
JRPS

Released to command channel.
70-14  LPS  C4SE  128

Switch VSB to source 2, high rate.

Verify FR LED is on.

70-15  LPS  CBSE  163

Biomed data now on RF source.

Verify data valid.

70-16  LPS  NTD  232

FEP RF Source Verification complete.

*** End of Operation 70 ***
OPERATION 71  ET LO2 Feedline Bellows Heater Functional Test

Shop: GSE
Cntrl Rm Console: C10
OPR: EEP
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 0.5

NOTE
Do not perform this operation for 24-, 48- or 72-hour Turnaround.

Operation Not Performed:______
71-1  CPWR  PPW4  176

PTCR Room 210
Rack 5174

ET Bellows Heater GFI/Current Sensor Panel 5174B3

1. **Remove** Do Not Use or Operate tags (FORM-KSC4-622) from the switches listed below. **Reference** Placard OMI S3006.

2. **Position** the listed switches to On/Close:
   
   PRIMARY POWER SUPPLY Switch S1
   SECONDARY POWER SUPPLY Switch S2

   T:_____

**NOTE**
Noted requirement is satisfied by the following series of steps.

OMRS S00FA0.155

71-2  CPWR

CURSOR CNTL (SWC01)

ET OPTIONS
BELLOWS HTRS
XMIT CURSOR KEY - **PRESS**

**VERIFY** SWC01 IS REPLACED BY TW400
71-3

CPWR

SAFING PANEL

ET BIPOD/BELLOWS HEATERS
VERIFY/SET
PRI PWR - ON

VERIFY
PRI PWR OFF LAMP OFF

71-4

CPWR

SAFING PANEL

ET BIPOD/BELLOWS HEATERS
VERIFY/SET
SEC PWR - ON

VERIFY
SEC PWR OFF LAMP OFF

71-5

CPWR

CURSOR CNTL (TW400)

FUNC TEST
XMIT CURSOR KEY - PRESS

VERIFY TS408 ACTIVE

71-6

CPWR

PFP PANEL (TS408)

PFP KEY 2 (CONTINUE) - PRESS
71-7

CPWR

CRT (TS408)

VERIFY EACH OF THE FOLLOWING MILESTONES

BEGINNING PS INITIALIZATION
POWERING ON 1106 PRI HEATER
POWERING OFF 1106 PRI HEATER
POWERING ON 1106 SEC HEATER
POWERING OFF 1106 SEC HEATER
BEGINNING PS RECONFIGURATION
FUNCTIONAL TEST COMPLETE - PRESS PFK15 TO TERMINATE

71-8

Noted requirement complete.

OMRSD S00FA0.155

71-9

CPWR

CURSOR CNTL (TS408)

PFK15 KEY - PRESS

VERIFY TS408 TERMINATES

*** End of Operation 71 ***
OPERATION 72  ET Bipod Heater Verification

Shop: GSE
Cntrl Rm Console: C10
OPR: EEP
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 0.5

NOTE
Do not perform this operation for 24-, 48- or 72-hour Turnaround.

Operation Not Performed:______

NOTE
Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.
Primary ET Bipod Heater Rack 5133

1. **Perform** Placard OMI S3006 Lockout/Tagout for GSE and Hardware procedure for the removal of the yellow “Do Not Use or Operate” tags (KSC Form 4-622) from the switches in the following substep.

2. **PRIMARY BI-POD HEATER CONTROL UNIT**
   **Configure** switches as follows:

   - LH INBOARD PS 1 S1 - On/Closed
   - LH OUTBOARD PS 3 S3 - On/Closed
   - RH INBOARD PS 1 S5 - On/Closed
   - RH OUTBOARD PS 3 S7 - On/Closed

   T: ______

Secondary ET Bipod Heater Rack 5134

1. **Perform** Placard OMI S3006 Lockout/Tagout for GSE and Hardware procedure for the removal of the yellow “Do Not Use or Operate” tags (KSC Form 4-622) from the switches in the following substep.

2. **SECONDARY BI-POD HEATER CONTROL UNIT**
   **Configure** switches as follows:

   - LH INBOARD PS 2 S2 - On/Closed
   - LH OUTBOARD PS 4 S4 - On/Closed
   - RH INBOARD PS 2 S6 - On/Closed
   - RH OUTBOARD PS 4 S8 - On/Closed

   T: ______
NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00FA0.150

72-3

CPWR

CURSOR CNTL (SWC01)

ET OPTIONS
ET HTR OVIEW
XMIT CURSOR KEY - PRESS

VERIFY SWC01 IS REPLACED BY TW495

72-4

CPWR

IF CRT (TW495) BUS VOLTS LESS THAN 22 VDC,

THEN PERFORM:
CRT (TW495)
POWER UP 23D100 PS PER OMI S9001.104.

Not Performed:_____

72-5

CPWR

SAFING PANEL

ET BI-POD HEATERS
VERIFY
PRI PWR SWITCH - ON

VERIFY
PRI PWR OFF LAMP - OFF
72-6

CPWR

SAFING PANEL

ET BI-POD HEATERS

VERIFY

SEC PWR SWITCH - ON

VERIFY

SEC PWR OFF LAMP - OFF

72-7

CPWR

CURSOR CNTL (TW495)

TS495

XMIT CURSOR KEY - PRESS

VERIFY TD495 DISPLAYED

72-8

CPWR

CRT (TS495)

VERIFY

<JTOY>BEGINNING FUNCTIONAL TEST

SELECT CONTINUE OR TERMINATE

72-9

CPWR

CURSOR CNTL (TS495)

CONTINUE

XMIT CURSOR KEY - PRESS

72-10

CPWR

CRT (TS495)

VERIFY

<JTOY>ET BI-POD FUNCTIONAL TEST COMPLETE
72-11
Noted requirements are complete.
OMRSD S00FA0.150

72-12

CPWR

CURSOR CNTL (TS495)

TERM -
XMIT CURSOR KEY - PRESS

VERIFY TD495 TERMINATES

*** End of Operation 72 ***
OPERATION 73  WWMS Preparations for Switch List

Shop: FCP
Cntrl Rm Console: C6
OPR: FCP
Zone: 122
Hazard (Y/N): N
Duration (Hrs): 1.0

NOTE
Perform this operation as directed by the controlling operation.

Operation Not Performed:_____
73-1   CFCP   MS1   153

PANEL ML86B

ROW A
MN A
SUPPLY H₂O
   TK A INLET CB - CLOSE
   TK B OUTLET CB - CLOSE
WASTE H₂O DUMP VLV/NOZ
HTR/CB - CLOSE
H₂O LINE HTR A CB - OPEN

MN B
SUPPLY H₂O
   TK B INLET CB - CLOSE
   TK C OUTLET CB - CLOSE
   DUMP ISOL CB - CLOSE
   B SUPPLY ISOL VLV CB - CLOSE
   H₂O LINE HTR B CB - OPEN

MN C
SUPPLY H₂O
   TK A OUTLET CB - CLOSE
   TK C INLET CB - CLOSE
   DUMP VLV/NOZ HTR CB - CLOSE
   XOVR VLV CB - CLOSE
   GALLEY SUPPLY CB - CLOSE

ROW B
MN A
WASTE H₂O TK 1 VLV CB - CLOSE
SPLY H₂O TK D OUTLET CB - CLOSE
WASTE H₂O DUMP ISOL CB - CLOSE

MN B
WASTE H₂O TK 1 DRAIN CB - CLOSE
SPLY H₂O TK D INLET CB - CLOSE
73-2  CFCP  MS1  153  

PANEL R11

SUPPLY H₂O

1. TK A INLET TB _____(OP/CL)
2. IF TK A INLET TB CL,

THEN PERFORM:
TK A INLET SW - OPEN (15 SEC MAX) UNTIL
TK A INLET TB OP,
THEN RELEASE

Not Performed:______

73-3  CFCP

CRT (VAG12 PG-B)
LV1
POP ON

73-4  CFCP  MS1  153  

PANEL R11

SUPPLY H₂O
VERIFY TK A OUTLET TB CL

73-5  CFCP

CRT (VAG12 PG-B)
LV2
POP OFF
73-6 CFCP MS1 153

PANEL R11

SUPPLY H₂O

1. DUMP ISOL VLV TB _____(OP/CL)

2. IF DUMP ISOL VLV TB OP,

THEN PERFORM:
DUMP ISOL VLV SW - CLOSE (15 SEC MAX) UNTIL
DUMP ISOL VLV TB CL, THEN RELEASE

Not Performed:______

SS2

73-7 CFCP

CRT (VAG12 PG-B)
LV11
POP OFF

73-8 CFCP MS1 153

PANEL R11

SUPPLY H₂O
DUMP VLV ENABLE/NOZ HTR SW - ON

73-9 CFCP MS1 153

PANEL R11

SUPPLY H₂O

1. DUMP VLV TB _____(OP/CL)

2. IF DUMP VLV TB OP,

THEN PERFORM:
DUMP VLV SW - CLOSE (15 SEC MAX) UNTIL
DUMP VLV TB CL, THEN RELEASE

Not Performed:______

SS2
73-10  CFCP

CRT (VAG12 PG-B)
LV10
POP OFF

73-11  CFCP  MS1  153

PANEL R11

SUPPLY H₂O
DUMP VLV ENAB/NOZ HTR SW - OFF
DUMP VLV TB BP

73-12  CFCP  MS1  153

PANEL R11

SUPPLY H₂O

1.  TK B INLET TB _____(OP/CL)

2.  IF TK B INLET TB CL,

THEN PERFORM:
TK B INLET SW - OPEN (15 SEC MAX) UNTIL
TK B INLET TB OP,
THEN RELEASE

Not Performed:______

SS2

73-13  CFCP

CRT (VAG12 PG-B)
LV3
POP ON
73-14  CFCP  MS1  153

PANEL R11

SUPPLY H₂O

1. TK B OUTLET TB _____(OP/CL)
2. IF TK B OUTLET TB CL,

THEN PERFORM:
TK B OUTLET SW - OPEN (15 SEC MAX) UNTIL
TK B OUTLET TB OP,
THEN RELEASE

Not Performed:______  SS2

73-15  CFCP

CRT (VAG12 PG-B)
LV4
POP ON

73-16  CFCP  MS1  153

PANEL R11

SUPPLY H₂O

1. CROSSOVER VLV TB _____(OP/CL)
2. IF CROSSOVER VLV TB OP,

THEN PERFORM:
CROSSOVER VLV SW - CLOSE (15 SEC MAX) UNTIL
CROSSOVER VLV TB CL,
THEN RELEASE

Not Performed:______  SS2
73-17 CFCP

CRT (VAG12 PG-B)
LV13
POP OFF

73-18 CFCP MS1 153

PANEL R11

SUPPLY H₂O

1. GALLEY SPLY VLV TB _____ (OP/CL)
2. IF GALLEY SPLY TB OP,

THEN PERFORM:
GALLEY SPLY VLV SW - CLOSE (15 SEC MAX) UNTIL
GALLEY SPLY VLV TB CL,
THEN RELEASE

Not Performed:______

SS2

73-19 CFCP

CRT (VAG12 PG-B)
LV9
POP OFF

73-20 CFCP MS1 153

PANEL R11

SUPPLY H₂O

1. TK C INLET TB _____ (OP/CL)
2. IF TK C INLET TB CL,

THEN PERFORM:
TK C INLET SW - OPEN (15 SEC MAX) UNTIL
TK C INLET TB OP,
THEN RELEASE

Not Performed:______

SS2
73-21

CFCP

CRT (VAG12 PG-B)
LV5
POP ON

73-22

CFCP MS1 153

PANEL R11

SUPPLY H₂O

1. TK C OUTLET TB _____(OP/CL)

2. IF TK C OUTLET TB CL,

THEN PERFORM:
TK C OUTLET SW - OPEN (15 SEC MAX) UNTIL
TK C OUTLET TB OP,
THEN RELEASE

Not Performed: ____

SS2

73-23

CFCP

CRT (VAG12 PG-B)
LV6
POP ON

73-24

CFCP MS1 153

PANEL R11

SUPPLY H₂O

1. B SPLY ISOL VLV TB _____(OP/CL)

2. IF B SPLY ISOL VLV TB CL,

THEN PERFORM:
B SPLY ISOL VLV SW - OPEN (15 SEC MAX) UNTIL
B SPLY ISOL VLV TB OP,
THEN RELEASE

Not Performed: ____

SS2
73-25

CFCP

CRT (VAG12 PG-B)
LV12
POP ON

73-26

CFCP MS1 153

PANEL ML31C

WASTE H₂O

1. TK 1 DRAIN VLV TB _____ (OP/CL)

2. IF TK 1 DRAIN VLV TB CL,

THEN PERFORM:
TK 1 DRAIN VLV SW - OPEN (15 SEC MAX) UNTIL
TK 1 DRAIN VLV TB OP,
THEN RELEASE

Not Performed:_____

SS2

73-27

CFCP

CRT (VAG31 PG-B)
TK 1 DRAIN
POP ON
73-28  CFCP   MS1   153

PANEL ML31C

WASTE H₂O

1. TK 1 VLV SW TB _____(OP/CL)

2. IF TK 1 VLV SW TB CL,

THEN PERFORM:
TK 1 VLV SW - OPEN (15 SEC MAX) UNTIL
TK 1 VLV SW TB OP,
THEN RELEASE

Not Performed:______

SS2

73-29  CFCP

CRT (VAG31 PG-B)
TK 1 VLV
POP ON

73-30  CFCP   MS1   153

PANEL ML31C

WASTE H₂O

1. DUMP ISOL VLV TB _____(OP/CL)

2. IF DUMP ISOL VLV TB OP,

THEN PERFORM:
DUMP ISOL VLV SW - CLOSE (15 SEC MAX) UNTIL
DUMP ISOL VLV TB CL,
THEN RELEASE

Not Performed:______

SS2
73-31  
CFCP

CRT (VAG31 PG-B)
DUMP ISOL
POP OFF

73-32  
CFCP   MS1   153

PANEL ML31C

WASTE H₂O
DUMP VLV ENABLE/NOZ HTR SW - ON

73-33  
CFCP   MS1   153

PANEL ML31C

WASTE H₂O

1. DUMP VLV TB _____ (OP/CL)

2. IF DUMP VLV TB OP,

   THEN PERFORM:
   DUMP VLV SW - CLOSE (15 SEC MAX) UNTIL
   DUMP VLV TB CL, THEN RELEASE

   Not Performed:______
   SS2

73-34  
CFCP

CRT (VAG31 PG-B)
DUMP VLV
POP OFF

73-35  
CFCP   MS1   153

PANEL ML31C

WASTE H₂O
DUMP VLV ENAB/NOZ HTR SW - OFF
DUMP VLV TB BP
73-36  CFCP      MS1        153

PANEL ML31C

SUPPLY H₂O

1. TK D INLET TB _____(OP/CL)

2. IF TK D INLET TB CL,

THEN PERFORM:
TK D INLET SW - OPEN (15 SEC MAX) UNTIL
    TK D INLET TB OP,
    THEN RELEASE

Not Performed:______

SS2

73-37  CFCP

CRT (VAG12 PG-B)
LV7
POP ON

73-38  CFCP      MS1        153

PANEL ML31C

SUPPLY H₂O

1. TK D OUTLET TB _____(OP/CL)

2. IF TK D OUTLET TB CL,

THEN PERFORM:
TK D OUTLET SW - OPEN (15 SEC MAX) UNTIL
    TK D OUTLET TB OP,
    THEN RELEASE

Not Performed:______

SS2
73-39

CFCP

CRT (VAG12 PG-B)
LV8
POP ON

73-40

CFCP  MS1  153

PANEL ML86B

ROW A

MN A
WASTE H₂O DUMP VLV/NOZ
HTR CB - OPEN

MN B
SUPPLY H₂O
DUMP ISOL CB - OPEN

MN C
SUPPLY H₂O
DUMP VLV/NOZ HTR CB - OPEN
GALLEY SUPPLY CB - OPEN

ROW B

MN A
WASTE H₂O DUMP ISOL CB - OPEN
WCS CNTLR CB - OPEN
GALLEY OVEN CB - OPEN

MN B
WCS CNTLR CB - OPEN
GALLEY H₂O HTR CB - OPEN
PANEL ML86B

ROW C

MN A
EXTERNAL AIRLOCK HTR LINE
ZONE 1 CB - OPEN
ZONE 2 CB - OPEN

MN B
EXTERNAL AIRLOCK HTR LINE
ZONE 1 CB - OPEN
ZONE 2 CB - OPEN
H₂O S/O VALVE CB - CLOSE

MN C
EXTERNAL AIRLOCK HTR LINE
ZONE 1 CB - OPEN
ZONE 2 CB - OPEN

PANEL MO13Q

1. AIRLOCK H₂O S/O VLV TB _____ (OP/CL)

2. IF AIRLOCK H₂O S/O VLV TB CL,

THEN PERFORM:
AIRLOCK H₂O S/O VLV SW - OPEN (15 SEC MAX) UNTIL AIRLOCK H₂O S/O VLV TB OP, THEN RELEASE

Not Performed:______

SS2
73-43 CFCP MS1 153

PANEL MA73C

ROW E
AC 1
WCS FAN SEP 1
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN

AC 2
WCS FAN SEP 2
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN

ROW G
AC 3
GALLEY FAN
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN

73-44 CFCP MS1 153

PANEL ML86B

ROW E
MN A
EMU 2 H2O
SUPPLY CB - OPEN
WASTE CB - OPEN

MN C
EMU 1 H2O
SUPPLY CB - OPEN
WASTE CB - OPEN
PANEL WCS (COMMODE AREA)

AUTO INHIBIT/AUTO SW - AUTO
COMMODE CONTROL HANDLE - DOWN/OFF (AFT POSITION)
                       (UP IF VAC VENT INERT I/W)
MODE SW - AUTO (COMMODE/MANUAL/EMU IF VAC VENT
                INERT I/W)
VACUUM VALVE SW - CLOSE (OPEN IF VAC VENT INERT I/W)
SEP 1 BYPASS SW - OFF
SEP 2 BYPASS SW - OFF
FAN SEP SW - OFF
HOSE BLOCK - SEP 1
COMPACTOR ANGLE = <33 DEGREES

STOW URINAL HOSE IN LAUNCH POSITION (STOWED ALONG
LEFT SIDE OF WCS AND SECURED USING VELCRO).

WWMS Preparations for Switch List complete.

*** End of Operation 73 ***
OPERATION 74  Orbiter Potable (L-3) Water Samples and Tank A Quantity Adjustment

Shop: FWD
Cntrl Rm Console: C6
OPR: FCP
Zone: 122
Hazard (Y/N): N
Duration (Hrs): 2.0

NOTE
This operation is performed for initial Launch attempt and for Scrub Turnaround of 72 hours or longer (if sufficient water exists in Tank A for sample -- 10 percent minimum).

Operation (Not Performed:)

NOTE
Repeat this operation as required to support OMIs S0007.200 and S0007.300 contingencies. Record data and verification of performance of these steps in Table 74-1.
Perform Orbiter Potable (L-3 Day) Water Samples and Tank A Quantity Adjustment on OIS Channel 153.

The next step may activate master alarm due to GN₂ flow rate exceeding 4.9 pph momentarily. Reset master alarm.
74-4  

CECL

CRT (VAG10 PG-B)
VLV 2
POP

VLV 4
POP

74-5  

CFCP

CRT (VAG12 PG-B)
SUPPLY H₂O
TK A QTY
RECORD (______) PCT
     BD

74-6  

CFCP  CDR  153

PANEL ML26C
SUPPLY H₂O
    TK VENT VLVL - PRESS (UP)
    TK A SUPPLY VLVL - OPEN (UP)

74-7  

CECL  CDR  153

PANEL MO10W
H₂O TK N₂ REG INLET
    SYS 1 VLVL - OPEN
H₂O TK N₂ ISOL
    SYS 1 VLVL - OPEN

74-8  

CFCP  CDR  153

PANEL ML86B
ROW A
MN A
    SUPPLY H₂O
        TK A INLET CB - CLOSE
ROW A
MN C
    SUPPLY H₂O
        GALLEY SUPPLY CB - CLOSE
74-9  
CFCP

CRT (VAG12 PG-B)  
VERIFY POSITIVE PRESSURE ON POTABLE WATER SYSTEM  
RECORD P0430 (______)PSIA  NLT 20

OMRS (general) V62GEN.045

74-10  
CFCP  CDR  153

PANEL R11  
SUPPLY H₂O  
GALLEY SPLVLV SW - OPEN (15 SEC MAX) UNTIL  
GALLEY SPLTB OPEN,  
THEN RELEASE

74-11  
CFCP

CRT (VAG12 PG-B)  
SUPPLY H₂O  
TK A INLET  
LV1  
POP - ON  

GALLEY SUPPLY VLV  
LV9  
POP - ON  

SYS 1 N₂/H₂O TNK PRESS (P2307)  
RECORD (__________) PSIG  
BD

POTABLE H₂O  
TK A QTY  
RECORD (______) PCT  
BD

74-12  
CFCP  CDR  153

PANEL ML86B  
ROW B  
MN A  
GALLEY OVEN CB - CLOSE

| 890 |
Orbiter Galley

1. Oven/RHS SW - On

2. Pull back slide assembly at rehydration station as far away from needle as possible.

3. Remove clean bag from galley needle if installed.

4. Connect Shuttle Sample Line (SSL) (Sampling Contractor supplied) at galley needle using sterile technique.

5. Turn volume selector knob to 8.0 ounces.

(T:)

891
The following step performs a cold flush prior to taking a sample. The sensor lever can be released to stop flow for any reason. Bionetics should retain flush water for swab sample if tank A quantity is not sufficient.

## NOTE

Dispense button will remain lit during water flow and will flash on and off when cycle is complete.

1. Sensor lever - Depress and Hold

2. Cold Button - Depress to initiate water flow

3. Wait until cold light flashes on/off.

4. Sensor lever - Release

5. Repeat to flow approximately 1000 ml into waste container. (5 dispenses total).

Orbiter Galley

1. Disconnect sample line from galley needle.

2. Connect new sample line to water dispenser needle using sterile technique.
74-16  CFCP  OMTO

Orbiter Galley

1. Sensor Lever - Depress and Hold
2. Cold Button - Depress
3. Wait until cold light flashes on/off
4. Sensor Lever - Release
5. Repeat substeps 1 to 4 as directed by sampling contractor to obtain samples.
6. Sampling Contractor

Obtain water samples for microbial, chemical, pH, conductivity, dissolved gas and iodine analysis in that order.

OMRSD V62AE0.010-C-1R

(TQw:)

Orbiter Galley

**IF** a SWAB Sample is required this flow **AND** Tank A quantity is greater than 8.5 percent,

**THEN perform** the following:

1. Sensor Lever - Depress and Hold
2. Cold Button - Depress to initiate water flow
3. **Wait** until cold light flashes on/off
4. Sensor Lever - Release
5. **Repeat** to flow 800 ml minimum into Sampling Contractor supplied sample container. (4 dispenses total)

OMRSD P1396BA.100-C

**Not Performed:**

(TQw:)
WARNING

Isopropyl Alcohol (IPA) is flammable and is an irritant. Usage near heat, sparks or open flame may result in fire. Exposure may cause eye and skin irritation.

Wear nitrile (N-Dex) gloves.
Wear industrial goggles when work is at eye level or above.

74-18 CFCP OMTO

Orbiter Galley

1. Disconnect SSL from galley needle.

2. Wipe galley needle with alcohol wiper and allow to dry.

3. Bag and seal galley needle.

4. Oven/RHS - Off

(T:)

74-19 CFCP CDR 153

PANEL ML86B

ROW B

MN A

GALLEY OVEN CB - OPEN
NOTE
The next step will remain open until Bionetics delivers sample report(s). Sample results are not required for Launch.

74-20

CFCP

Analyze samples per requirements of SE-S-0073, Specification Fluid Procurement and Use Control, Table 6.4.6, for reference only (L-3 day sample).

Quality shall attach a copy of Sample Report No. (_____ ) to this OMI.

*** End of L-3 Day Water Sample ***
Tank A Quantity Adjustment

NOTE
Perform this option if potable/supply water system quantity adjustment is to be performed.

Final Tank A quantity shall be determined by FC/PRSD Engineering.

Nominal L-3 Tank A target quantity is 7.5 - 12.5 percent.

Tank A Quantity Adjustment (Not Performed:)

74-21 CFCP OMTO 153

TP4 Drain Hose Assembly
(consists of L070-000101-001 and -002 Assemblies)

Route TP4 drain hose assembly to create a high point (above hot water tank) to preclude air ingestion back into galley during drain operations.

NOTE
Sample valve may be opened/closed as required in the next step to accomplish drain operation.

74-22 CFCP OMTO 153

TP4 Drain Hose Assembly

1. Route open end into drain bucket.
2. MV1 - OPEN (CCW)
3. Verify ready to initiate water flow.
Galley

Remove cap from TP4, clean the mating QDs with 70-percent aqueous ethyl alcohol sterile cotton pads, allow the alcohol to evaporate prior to connecting, and connect TP4 drain hose assembly.

TP4 Drain Hose Assembly

1. Record:
   Start time (________) GMT BD

2. Verify water flow at drain line end.

3. Sample valve - CLOSE (CW) when Tank A quantity indicator indicates desired quantity (7.5-12.5 percent nominal).

4. Record:
   Stop time (________) GMT BD

CRT (VAG12 PG-B)

RECORD P0430 (________)PSIA  22.7 - 36.7
Perform the following:

1. **Disconnect** TP4 Drain Hose Assembly from TP4.

2. **Inspect** TP4 QD sealing surface and cap O-ring for damage and no visible leakage in 15 minutes.

3. **Install** cap on TP4.

---

**OMRS (general) V62GEN.080**

**OMRS (general) V62GEN.100-1R**

---

**CRT (VAG12 PG-B)**

1. **RECORD** TK A QTY (_______) PCT


3. **REVIEW** DRAIN PLOT OF TANK A. LOOK FOR FLOW RATE DECREASE WITHOUT A CORRESPONDING CHANGE IN DELTA PRESSURE ACROSS THE BELLOWS (INCLUDING BELLOWS SPRING FORCE) WHICH COULD INDICATE A STICKY BELLOWS AND SHOULD BE EVALUATED.

---

**Route** drain apparatus from Orbiter.

---

*** End of Tank A Quantity Adjustment ***
74-29  CFCP  CDR  153

PANEL R11

SUPPLY H₂O
GALLEY SPLY VLV SW - CLOSE (15 SEC MAX) UNTIL
GALLEY SPLY VLV TB CL,
THEN RELEASE

74-30  CFCP

CRT (VAG12 PG-B)
GALLEY SUPPLY VLV
LV9
POP - OFF

74-31  CFCP  CDR  153

PANEL ML86B

ROW A
MN C
SUPPLY H₂O
GALLEY SUPPLY CB - OPEN
Supply Water Dump Line Drain

NOTE
This option performs drain of potable water dump line. Perform for initial L-3 day sample only.

Supply Water Dump Line Drain (Not Performed:)

<table>
<thead>
<tr>
<th>74-32</th>
<th>CFCP</th>
<th>CDR</th>
<th>153</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL ML86B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MN B, SUP H₂O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DUMP ISOL CB - CLOSE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MN C, SUP H₂O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DUMP VLV NOZ HTR CB - CLOSE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>74-33</th>
<th>CFCP</th>
<th>CDR</th>
<th>153</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL R11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DUMP ISOL VLV SW - CLOSE (15 SEC MAX) UNTIL DUMP ISOL VLV TB CL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE
The next step opens supply dump isolation valve CB to preclude inadvertent cycle during dump line gravity drain.

<table>
<thead>
<tr>
<th>74-34</th>
<th>CFCP</th>
<th>MS1</th>
<th>153</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL ML86B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROW A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MN B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUPPLY H₂O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DUMP ISOL CB - OPEN</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>74-35</th>
<th>CFCP</th>
<th>CDR</th>
<th>153</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANEL R11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DUMP VLV ENABLE/NOZZLE HTR SW - ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DUMP VLV SW - OPEN (15 SEC MAX) UNTIL DUMP VLV TB - OP</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
74-36 CFCP

CRT (VAG12)
VERIFY ALL POTABLE H₂O TANK QUANTITIES ARE STABLE

74-37 CFCP OMTO 153

(OKT:)

WCS Compartment - Contingency X-tie

1. **Remove** cap from potable X-tie port. Retain cap for reinstallation.

   **NOTE**
   A very small amount of water may leak out during QD mate operation in the following substep. Be prepared to catch/wipe up any water that may spill.

2. **Verify** “Potable Water X-tie Assembly” filter end open to atmosphere.

3. **Connect** “Potable Water X-tie Assembly” to potable X-tie QD.

4. **Wait** 5 minutes minimum before continuing.

   (T:)
PANEL R11

DUMP VLV SW - CLOSE (15 SEC MAX) UNTIL
DUMP VLV TB CL
DUMP VLV ENABLE/NOZ HTR SW - OFF

WCS Compartment - Contingency X-tie Panel

1. Disconnect potable water X-tie assembly from potable X-tie QD.

2. Inspect QD sealing surface and cap O-ring for damage.

OMRS (general) V62GEN.080

(TQw:)  SS2

3. Connect cap assembly to potable X-tie QD.

(TQw:)  SS3

4. Bag and seal GSE QD. Route to stock.

(T:)

903
Potable Water X-tie Assembly

1. **Remove** ME286-0069-0009 filter from MC276-0020-2192 (or -2152) QD.

2. **Bag and seal** components. Label “Used on Orbiter Supply Water System.”

3. **Route** parts back to Logistics.

*** End of Supply Water Dump Line Drain ***

Orbiter Potable (L-3 Day) Water Samples and Tank A Quantity Adjustment complete.
<table>
<thead>
<tr>
<th>Step</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
<th>Run ____ Date -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation Not Performed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pct:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>psia:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Run Date</td>
<td>Run Date</td>
<td>Run Date</td>
<td>Run Date</td>
<td>Run Date</td>
<td>Run Date</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>74-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>psig:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pct:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TQw:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TQw:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 74-1- Orbiter Potable (L-3 Day) Water Samples and Tank A Quantity Adjustment (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report No.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tank A Quantity Adjustment**

**Not Performed:**

| 74-21 |          |          |          |          |          |          |
| T:    |          |          |          |          |          |          |
| 74-22 |          |          |          |          |          |          |
| T:    |          |          |          |          |          |          |
| 74-23 OK To Install | T: |
| T:    |          |          |          |          |          |          |
Table 74-1 - Orbiter Potable (L-3 Day) Water Samples and Tank A Quantity Adjustment (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
<th>Run Date</th>
</tr>
</thead>
</table>

Tank A Quantity Adjustment

74-24
SS1 Time:

SS4 Time:

T:

74-25
P0430:

74-26
OK To Install Qw:

TQw:

74-27
pct

74-28

T:

*** End of Tank A Quantity Adjustment ***

74-29
Table 74-1 - Orbiter Potable (L-3 Day) Water Samples and Tank A Quantity Adjustment (cont’d)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
<th>Run ___ Date -</th>
</tr>
</thead>
<tbody>
<tr>
<td>74-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Supply Water Dump Line Drain

- Not Performed:
  - 74-32
  - 74-33
  - 74-34
  - 74-35
  - 74-36
  - 74-37
  - OK To Install T:
    - T:
  - 74-38
Table 74-1 - Orbiter Potable (L-3 Day) Water Samples and Tank A Quantity Adjustment (cont'd)

<table>
<thead>
<tr>
<th>Step</th>
<th>Run Date -</th>
<th>Run Date -</th>
<th>Run Date -</th>
<th>Run Date -</th>
<th>Run Date -</th>
<th>Run Date -</th>
</tr>
</thead>
<tbody>
<tr>
<td>74-39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OK To Install Qw:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQw:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQw:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74-40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of Supply Water Dump Line Drain ***

74-41

*** End of Operation 74 ***
OPERATION 75  Waste Tank Quantity Adjustment

Shop: FWD
Cntrl Rm Console: C5
OPR: FCP
Zone: 122
Hazard (Y/N): N
Duration (Hrs): 1.0

NOTE
Perform this operation if waste tank quantity adjustment is required to meet OMRS targeted liftoff quantity as defined by Flight Operations (nominally 5-10 percent). (See V62AM0.020-B-1R.)

Operation Not Performed:______
Perform Waste Tank Quantity Adjustment on OIS Channel 153.

75-2 CFCP CDR 143

PANEL ML86B

ROW A
  MN A
  WASTE H₂O DUMP VLV/NOZ HTR CB - CLOSE

ROW B
  MN A
  WASTE H₂O DUMP ISOL CB - CLOSE
  WASTE H₂O TK 1 VLV CB - CLOSE

75-3 CFCP CDR 143

PANEL ML31C

WASTE H₂O
  DUMP ISO VLV - CLOSE (15 SEC MAX) UNTIL TB CL
  TK 1 VLV SW - OPEN (15 SEC MAX) UNTIL
  TK 1 VLV TB OP, THEN RELEASE

NOTE
Noted requirements are satisfied by the following series of steps.

OMRS V62AM0.020-B-1R

75-4 CFCP OMTO 143

Perform the following:

1. Route G070-683291-003 waste drain hose assembly into crew module.

2. Place loose end of tygon drain hose in waste container.

T:_____
Contingency X-tie Panel

Disconnect cap from waste QD.

T:_____

OK To Install  T:_____

Waste Contingency X-Tie (QD Connection)

1. Inspect sealing surfaces of Contingency X-Tie Waste QD and Sample Assy. provided by IHA.

Verify no discrepancies that would affect QD function or fit.

OMRS (general) V62GEN.080

2. Connect Sample Assy. provided by IHA to WASTE Contingency X-Tie.

3. Monitor Sample Assy. for leakage during the following steps.

T:______
NOTE
Opening the Dump Isol Vlv in the following step will initiate water flow for the sample. The valve may be opened and closed as required to support sampling.

75-7 CFCP CDR

PANEL ML31C
WASTE H₂O
DUMP ISOL VLV SW - OPEN (15 SEC MAX) UNTIL DUMP ISOL VLV TB OP THEN RELEASE

75-8 CFCP OMTO

Waste Contingency Cross-Tie

1. Obtain samples in two one-liter sample bottles.

2. Label Sample Number 1 with the following:

   Waste Tank Sample No. 1:________________________

   Time/Date of Sample 1:________________________

   OV-_____ STS-_____  

3. Label Sample Number 2 with the following:

   Waste Tank Sample No. 2:________________________

   Time/Date of Sample 2:________________________

   OV-_____ STS-_____
4. **Route** sample containers to IHA for refrigerated transport to JSC:

NASA/LYNDON B. JOHNSON SPACE CENTER
TRANSPORTATION OFFICER, BLDG. 421
2101 NASA PARKWAY
HOUSTON, TX 77058

MARK FOR/ATTN:
RUBEN ZAVALA, BLDG. 7A, ROOM 230C, PHONE: 281-483-3765

T:_____

---

**75-9**

CFCP OMTO

**Waste Contingency Cross-Tie**

1. **Obtain** a sample for analysis by IHA for the following:
   - pH
   - NH₃
   - Microbial

2. **Record** IHA sample no.

   Sample ID ____________________________

   T:_____

---

**75-10**

CFCP CDR

PANEL ML31C
WASTE H₂O
DUMP ISOL VLV SW - CLOSE (15 SEC MAX) UNTIL
DUMP ISOL VLV TB CL THEN
RELEASE
75-11 CFCP OMTO

Waste Contingency X-Tie (QD Disconnection)

Disconnect Sample Assy. from WASTE Contingency X-Tie.

T:_____

75-12 CFCP OMTO 143

OK To Install T:_____

G070-683291-003 Hose Assembly

Connect G070-683291-003 drain hose assembly (S0989MD9) to contingency X-tie waste QD.

T:_____

75-13 CFCP

CRT (VAG31 PG-B)

RECORD:

WASTE TANK QTY___________

___________PCT   BD

START TIME __________ GMT   BD

75-14 CFCP OMTO 143

Verify ready for water flow into waste container.

T:_____

916
NOTE

The next step will initiate flow.

Waste H₂O dump isolation valve may be open/closed as required in the next step to accomplish drain operation.

Final waste tank quantity shall be 6.5-8.5 percent.

75-15  CFCP  CDR  143

PANEL ML31C

WASTE H₂O
DUMP ISO VLV - OPEN (15 SEC MAX) UNTIL TB - OP

T:_____  

75-16  CFCP  OMTO  143

Drain Hose Assembly G070-683291-003

Verify water flow at drain line end.

T:_____  

NOTE

Perform the next step when waste tank quantity indicates the desired quantity (6.5-8.5 percent nominal).

75-17  CFCP  CDR  143

PANEL ML31C

WASTE H₂O
DUMP ISOL VLV - CLOSE (15 SEC MAX) UNTIL DUMP ISOL TB - CL

RECORD STOP TIME ___________GMT

T:_____
NOTE
The next step opens waste dump isolation valve CB to preclude inadvertent cycle during dump line gravity drain.

75-18   CFCP    CDR    143

PANEL ML86B
ROW B
MN A
WASTE H₂O DUMP ISOL CB - OPEN

NOTE
The following steps gravity drain the Orbiter dump line.

75-19   CFCP    OMTO   143

Hold free end of tygon tube above water surface to prevent water backflow during following step.

T:_____

75-20   CFCP    CDR    143

PANEL ML31C
WASTE H₂O
DUMP VLV ENABLE/NOZ HR SW - ON
DUMP VLV - OPEN (15 SEC MAX) UNTIL
DUMP VLV TB - OP

T:_____
NOTE
Wait at least 5 minutes.

75-21 CFCP CDR 143

AFTER 5 MINUTES MINIMUM:

PANEL ML31C
WASTE H₂O
   DUMP VALVE - CLOSE (15 SEC MAX) UNTIL
   DUMP VALVE TB - CL
   DUMP VALVE ENABLE/NOZ HTR SWITCH - OFF

T:_____

75-22 CFCP

CRT (VAG29 PG-B)

1. RECORD:
   WASTE TANK
      QTY __________PCT  6.5-8.5 NOMINAL
      WASTE LIQUID
      PRESSURE_____ 8-22 PSIG

2. RETRIEVE DRAIN PLOT OF WASTE TANK USING
   START AND STOP TIMES. PLOT SHOULD CONSIST OF
   WASTE TANK QUANTITY (V62Q0540A1), WASTE
   LIQUID PRESSURE (V62P0500A1), AND SYS 1
   N₂/H₂O TANK PRESS (V61P2307A1).

3. REVIEW DRAIN PLOT OF WASTE TANK. LOOK FOR
   FLOW RATE DECREASE WITHOUT A CORRESPONDING
   CHANGE IN DELTA PRESSURE ACROSS THE BELLows
   (INCLUDING BELLows SPRING FORCE), WHICH
   COULD INDICATE A STICKY BELLows AND SHOULD
   BE EVALUATED.
75-23 Noted requirements are complete.

OMRSD V62AM0.020-B-1R

75-24 CFCP OMTO 143

OK To Install Qw:_____

Perform the following:

1. Disconnect G070-683291-003 drain hose assembly (S0989MD9) from contingency X-tie waste QD.

2. Inspect QD sealing surface and cap O-ring for damage.

   OMRS (general) V62GEN.080

   T:_____ Qw:_____ SS2

3. Connect QD cap on MC276-0020-1101 to waste QD

   T:_____ Qw:_____ SS3

75-25 CFCP OMTO 143

Remove G070-683291-003 drain hose assembly from Orbiter.

T:_____
1. **Remove** tygon tube from the G070-683291-003 QD assembly. Discard tygon tube.

2. **Disconnect** the 1/2-in. half back-to-back from the G070-683291-003 QD assembly.

3. **Install** cap onto G070-683291-003 QD assembly. Double bag and seal. Annotate with the following: “G070-683291-003 QD assembly used to drain sanitation fluid from Orbiter waste tank.”

4. **Route** G070-683291-003 assembly, half back-to-back, and clamp back to Logistics.

T:_____

75-27

CFCP  OTC  132

OTC  *PAD

Waste Tank Quantity Adjustment complete.

*** End of Operation 75 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 76  Shuttle Ascent Switch List

Shop: TCO
Cntrl Rm Console: NA
OPR: TCO
Zone: 121, 122
Hazard (Y/N): N
Duration (Hrs): 2.0
Section 1 - Flight Deck/C&W Setups

76-1 OTC ALL

The purpose of this operation is to verify that Flight Deck and Middeck switches are configured for Launch.

Switches left in other than ascent position (ref JSC Ascent Checklist) by this operation must have predefined steps in OMI S0007 to position them to ascent position prior to T-0.

All switches (other than pushbutton/analog switches or those associated with cockpit lighting, Biomed or Panel MA73C left- and right-seat 3PH CBs, Panel F9 meter switches, or unspecified/unlabeled switches/circuit breakers) should already be in switch list-specified position at the time they are performed. All unspecified/unlabeled switches will be in the down (for a 2-position switch) or center (for a 3-position switch), unlabeled talkbacks - barberpole, unlabeled circuit breakers - open, unlabeled rotary switches - full counterclockwise. System Engineering personnel must be prepared to explain any differences found and will be required to give a “Go” prior to a switch being repositioned. Any switches repositioned, other than those exempted above, must be documented in Table 76-1 - Switches Repositioned During Ascent Checklist.

Any cockpit troubleshooting activity subsequent to this switch list must return switches to their positions prior to troubleshooting.

The switch list is divided into two sections and may be performed in parallel with each section performed by an OTC and ASP:

- Section 1 consists of Flight Deck Panels and caution and warning setups.

- Section 2 consists of Middeck and AFT Flight Deck Panels, Airlock and Waste Management Station.

The Middeck Switch List may be performed prior to the AFT Flight Deck Switch List.

All vehicles have different thumbwheel/pushbutton configurations. The generic term pushbutton (PB) will be used regardless of configuration.
NOTE
Crew Compartment lighting switches may be found in a position different from that published to facilitate the crew’s visibility of the panels.

List of Exceptions for Switchguard Removals

1. PANEL O14 (1 MULTI-SW GUARD)
   RCS DRIVER SW'S
   L OMS ENG VLV SW
   (WILL BE REMOVED AT FLT CREW INGRESS)

2. PANEL O15 (1 MULTI-SW GUARD)
   RCS DRIVER SW'S
   (WILL BE REMOVED AT FLT CREW INGRESS)

3. PANEL O16 (1 MULTI-SW GUARD)
   RCS DRIVER SW'S
   R OMS ENG VLV SW
   (WILL BE REMOVED AT FLT CREW INGRESS)
### Crew Preference Switchguards - Mission Unique

<table>
<thead>
<tr>
<th>Panel</th>
<th>SW/CB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** End of List of Exceptions for Switchguard Removals ***
Flight Deck Switch List

CAUTION
To prevent damage to equipment, do not reposition any switch without obtaining Firing Room concurrence.

Panel L5 (CDR)

76-2 OTC ASP

PANEL L5

LEFT COMM POWER SW - OFF

*** End of Panel L5 (CDR) ***

Left-side Overhead Flood

NOTE
The following is a standalone florescent light under Panel O5 adjacent to Panel L5.

76-3 OTC ASP

NEAR PANEL 05

LEFT-SIDE OVERHEAD FLOOD - BRT

*** End of Left-side Overhead Flood ***
Panel L4 (CDR)

76-4 OTC ASP

PANEL L4

ROW B
UTILITY POWER
F1/MO52J
AC 1 CB - OPEN

A15/MO13Q
AC 3 CB - OPEN

ROW C (ALL CLOSED)
AC 1
FUEL CELL 1
PUMPS
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 2
FUEL CELL 2
PUMPS
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 3
FUEL CELL 3
PUMPS
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE
PANEL L4 (CONTINUED)

ROW D (ALL CLOSED)

AC 1
CTR ENGINE
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 2
CTR ENGINE
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 3
RIGHT ENGINE
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

ROW E (ALL CLOSED)

AC 1
RIGHT ENGINE
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 2
LEFT ENGINE
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 3
LEFT ENGINE
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE
PANEL L4 (CONTINUED)

ROW F (ALL CLOSED)

AC 1
H₂O LOOP PUMP
 1A/2
  PH A CB - CLOSE
  PH B CB - CLOSE
  PH C CB - CLOSE

AC 2
H₂O LOOP PUMP
  1B
  PH A CB - CLOSE
  PH B CB - CLOSE
  PH C CB - CLOSE

AC 3
H₂O LOOP PUMP
  2
  PH A CB - CLOSE
  PH B CB - CLOSE
  PH C CB - CLOSE

ROW G (ALL CLOSED)

AC 1
AV BAY 1
  FAN A
  PH A CB - CLOSE
  PH B CB - CLOSE
  PH C CB - CLOSE

AC 2
AV BAY 1
  FAN B
  PH A CB - CLOSE
  PH B CB - CLOSE
  PH C CB - CLOSE

AC 3
AV BAY 3
  FAN A
  PH A CB - CLOSE
  PH B CB - CLOSE
  PH C CB - CLOSE
PANEL L4 (CONTINUED)

ROW H (ALL CLOSED)

AC 1
AV BAY 3
FAN B
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 2
AV BAY 2
FAN A
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 3
AV BAY 2
FAN B
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

ROW I (ALL CLOSED)

AC 1
IMU FAN A
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 2
IMU FAN B
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 3
IMU FAN C
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE
PANEL L4 (CONTINUED)

ROW J
AC 1
HUMIDITY SEPARATOR
A
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 2
HUMIDITY SEPARATOR
B
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 3
SIG CONDR
HUM SEP
PH A CB - OPEN
IMU FAN
PH B CB - OPEN

ROW K (ALL CLOSED)
AC 1
H₂O CNTLR 2
PH A CB - CLOSE
CABIN AIR S/C
PH B CB - CLOSE

AC 2
CABIN FAN
B
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 3
CABIN FAN
A
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE
PANEL L4 (CONTINUED)

ROW L (ALL CLOSED)
AC 1
  CABIN T CNTLR 2
  PH A CB - CLOSE
  AV BAY 2 S/C
  PH B CB - CLOSE

AC 2
  CABIN T CNTLR 1
  PH A CB - CLOSE
  AV BAY 3 S/C
  PH B CB - CLOSE

AC 3
  H2O CNTLR 1
  PH A CB - CLOSE
  AV BAY 1 S/C
  PH B CB - CLOSE

ROW M (ALL CLOSED)
AC 1
  FREON LOOP 1
    PUMP A
      PH A CB - CLOSE
      PH B CB - CLOSE
      PH C CB - CLOSE

AC 2
  FREON LOOP 1
    PUMP B
      PH A CB - CLOSE
      PH B CB - CLOSE
      PH C CB - CLOSE

AC 3
  FREON LOOP 2
    PUMP A
      PH A CB - CLOSE
      PH B CB - CLOSE
      PH C CB - CLOSE
PANEL L4 (CONTINUED)

ROW N (ALL CLOSED)
AC 1
FREON LOOP 2
PUMP B
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 2
FREON FLOW PROP 1
PH A CB - CLOSE

FREON SIG CONDR
PH B CB - CLOSE

RAD ISOL A
PH C CB - CLOSE

AC 3
FREON FLOW PROP 2
PH A CB - CLOSE

FREON SIG CONDR
PH B CB - CLOSE

RAD ISOL B
PH C CB - CLOSE

ROW O (ALL CLOSED)
AC 1
BLR HYD BYPASS 1B
PH A CB - CLOSE

HYD QTY 1
PH B CB - CLOSE

BLR HYD BYPASS 3A
PH C CB - CLOSE

AC 2
BLR HYD BYPASS 1A
PH A CB - CLOSE

HYD QTY 2
PH B CB - CLOSE

BLR HYD BYPASS 2B
PH C CB - CLOSE
PANEL L4 (CONTINUED)

ROW O (CONTINUED)
AC 3
   BLR HYD BYPASS 2A
      PH A CB - CLOSE

   HYD QTY 3
      PH B CB - CLOSE

   BLR HYD BYPASS 3B
      PH C CB - CLOSE

ROW P
AC 1
   RAD CNTLR 1B
      PH A CB - CLOSE

   RAD CNTLR 2B
      PH B CB - CLOSE
      UNLABELED CB - OPEN

AC 2
   LG SNSR 2
      PH A CB - CLOSE

   RAD CNTLR 1A
      PH B CB - CLOSE
      UNLABELED CB - OPEN

AC 3
   LG SNSR 1
      PH A CB - CLOSE

   RAD CNTLR 2A
      PH B CB - CLOSE
      UNLABELED CB - OPEN
PANEL L4 (CONTINUED)

ROW Q
AC 1
LIGHTING
PANEL
L/CTR
PH A CB - CLOSE

L OVHD
PH B CB - CLOSE

INST OS
PH C CB - OPEN

AC 2
LIGHTING
PANEL
R OVHD
PH A CB - CLOSE

RIGHT
PH B CB - CLOSE

NUMERIC OS
PH C CB - OPEN

AC 3
LIGHTING
COAS
PH A CB - OPEN

PANEL
MS
PH B CB - OPEN
OS
PH C CB - OPEN

ROW R (ALL CLOSED)
AC 1
INST R
PH A CB - CLOSE

NUMERIC FWD
PH B CB - CLOSE

AC 2
INST OVHD
PH B CB - CLOSE

AC 3
INST L/CTR
PH B CB - CLOSE

*** End of Panel L4 (CDR) ***
Panel L1 (CDR)

76-5 OTC ASP

PANEL L1

HUMIDITY SEP
A SW - OFF
B SW - ON

CABIN TEMP SW - FULL COOL
CABIN TEMP CNTRL SW - OFF

CABIN FAN
A SW - ON
B SW - OFF

IMU FAN
A SW - OFF
B SW - ON
C SW - OFF

H₂O PUMP
LOOP 1
GPC/OFF/ON SW - OFF
A/B SW - B

LOOP 2
GPC/OFF/ON SW - ON

H₂O LOOP 1 BYPASS
MAN SW - (CENTER)
MODE SW - MAN

H₂O LOOP 2 BYPASS
MAN SW - (CENTER)
MODE SW - MAN

AV BAY 1 FAN
A SW - OFF
B SW - ON

AV BAY 2 FAN
A SW - ON
B SW - OFF

AV BAY 3 FAN
A SW - OFF
B SW - ON
NOTE
If payload is powered up and requires cooling, Freon loop TB will be in payload position. Either loop may be used, or both.

FLOW PROP VLV
LOOP 1 SW - (CENTER)
LOOP 1 TB - _____

FLOW PROP VLV
LOOP 2 SW - (CENTER)
LOOP 2 TB - _____

FREON PUMP
LOOP 1 SW - B
LOOP 2 SW - B

RAD CONTROLLER
OUT TEMP SW - NORM
LOOP 1 SW - OFF
LOOP 2 SW - OFF

H₂O ALTERNATE PRESS SW - CLOSE

RAD BYPASS VALVE
MAN SEL
1 SW - (CENTER)
2 SW - (CENTER)
1 TB _____ (RAD OR BYP)
2 TB _____ (RAD OR BYP)
MODE
1 SW - MAN
2 SW - MAN

NH₃ CONTROLLER
A SW - OFF
B SW - PRI/GPC
PANEL L1 (CONTINUED)

FLASH EVAP CONTROLLER
PRI A SW - GPC
PRI B SW - OFF

SEC
A SPLY/B SPLY SW - A SPLY
GPC/OFF/ON SW - OFF

HI LOAD EVAP SW - ENABLE

IF THE SWITCH LIST IS BEING PERFORMED PRIOR TO
FES PLUG REMOVAL (REF OMI S0007.100,
OPERATION 252 - ECLSS FES, NH3, O2/N2 PLUG SETS
REMOVAL/INSTALLATION),

THEN VERIFY THE FOLLOWING FOUR SWITCH POSITIONS:
TOPPING EVAPORATOR HEATER
NOZZLE
L SW - OFF
R SW - OFF

DUCT SW - OFF

HI LOAD DUCT HTR SW - OFF

Not Performed:_____

IF THE SWITCH LIST IS BEING PERFORMED AFTER
FES PLUG REMOVAL (REF OMI S0007.100,
OPERATION 252 - ECLSS FES, NH3, O2/N2 PLUG SETS
REMOVAL/INSTALLATION),

THEN VERIFY THE FOLLOWING FOUR SWITCH POSITIONS:
TOPPING EVAPORATOR HEATER
NOZZLE
L SW - A AUTO
R SW - A AUTO

DUCT SW - A

HI LOAD DUCT HTR SW - A

Not Performed:_____

PANEL L1 (CONTINUED)

FIRE SUPPRESSION
AV BAY 1 SW - SAFE
AV BAY 2 SW - SAFE
AV BAY 3 SW - SAFE

AV BAY 1 AGENT DISCH PB - AS IS
AV BAY 2 AGENT DISCH PB - AS IS
AV BAY 3 AGENT DISCH PB - AS IS

AV BAY 1 AGENT DISCH LIGHT OFF
AV BAY 2 AGENT DISCH LIGHT OFF
AV BAY 3 AGENT DISCH LIGHT OFF

SMOKE DETECTION (ALL LIGHTS OFF)
A
CABIN LIGHT OFF
L FLT DECK LIGHT OFF
AV BAY 1 LIGHT OFF
AV BAY 2 LIGHT OFF
AV BAY 3 LIGHT OFF

B
PAYLOAD LIGHT OFF
R FLT DECK LIGHT OFF
AV BAY 1 LIGHT OFF
AV BAY 2 LIGHT OFF
AV BAY 3 LIGHT OFF

SENSOR RESET SW - (DOWN)

CIRCUIT TEST SW - OFF

*** End of Panel L1 (CDR) ***
Panel L2 (CDR)

Panel L2

CABIN RELIEF
  A SW - (CENTER)
  B SW - (CENTER)
  A TB ENA
  B TB ENA

CABIN VENT
  VENT ISOL SW - (CENTER)
  VENT SW - (CENTER)
  VENT ISOL TB CL
  VENT TB CL

FLASH EVAP
  FEEDLINE HTR
    A SUPPLY SW - 2
    B SUPPLY SW - 2

ANTISKID SW - ON

NOSE WHEEL STEERING SW - 1

BODY FLAP SW - AUTO/OFF
SBTC HANDLE - FULL FWD
ENTRY MODE SW - AUTO

TRIM
  ROLL SW - (CENTER)
  PITCH SW - (CENTER)

FREON ISOL
  MODE SW - OFF
  LOOP 1 SW - (CENTER)
  LOOP 2 SW - (CENTER)

ATM PRESS CONTROL
  O₂ SYS 1 SUPPLY SW - (CENTER)
  O₂ SYS 2 SUPPLY SW - (CENTER)
PANEL L2 (CONTINUED)

IF FUEL CELL FLOW THRU PURGES OR O2 SEAT SAMPLES ARE COMPLETE,

THEN PERFORM:
ATM PRESS CONTROL
O₂ SYS 1 SUPPLY TB OP
O₂ SYS 2 SUPPLY TB OP

ELSE PERFORM:
ATM PRESS CONTROL
O₂ SYS 1 SUPPLY TB CL
O₂ SYS 2 SUPPLY TB CL

ATM PRESS CONTROL
O₂ EMER SW - (CENTER)
O₂ EMER TB BP

O₂ XOVR
SYS 1 SW - OPEN
SYS 2 SW - OPEN

N₂ SYS 1
SUPPLY SW - (CENTER)
REG INLET SW - (CENTER)
SUPPLY TB OP
REG INLET TB OP

N₂ SYS 2
SUPPLY SW - (CENTER)
REG INLET SW - (CENTER)
SUPPLY TB OP
REG INLET TB OP

YAW TRIM SW - (CENTER)
O₂/N₂ CNTLR VLV
SYS 1 SW - OPEN
SYS 2 SW - CLOSE

PPO₂ SNSR/VLV SW - NORM

*** End of Panel L2 (CDR) ***
CDR Seat

76-7 OTC ASP

**CDR SEAT** (LOWER-LEFT SIDE)

- SEAT BUSS SELECT SW - AC 2 (UP)
- HORIZ CONTR - (CENTER)
- VERT CONTR - (CENTER)

*** End of CDR Seat ***

Panel F1 (CDR)

76-8 OTC ASP

**PANEL F1**

- DC UTILITY POWER SW - OFF
- AC UTILITY POWER SW - OFF

*** End of Panel F1 (CDR) ***
Panel F2 (CDR)

76-9 OTC ASP

**PANEL F2 (ALL LIGHTS OFF)**

BFC PB LIGHT OFF

BODY FLAP PB
   AUTO LIGHT OFF
   MAN LIGHT OFF

SPD BK/THROT PB
   AUTO LIGHT OFF
   MAN LIGHT OFF

PITCH
   CSS PB LIGHT OFF
   AUTO PB LIGHT OFF

ROLL/YAW
   CSS PB LIGHT OFF
   AUTO PB LIGHT OFF

MASTER ALARM PB LIGHT OFF

DRAG CHUTE ARM PB
   1 LITE OFF
   2 LITE OFF

DRAG CHUTE DPY PB
   1 LITE OFF
   2 LITE OFF

*** End of Panel F2 (CDR) ***

HUD Left (CDR)

76-10 OTC ASP

MODE SW - NORM
DIM/BRT SW - MID-RANGE
BRT SW - AS REQUIRED

*** End of HUD Left (CDR) ***
Panel F3 (CDR)

76-11 OTC ASP

PANEL F3

DRAG CHUTE JETT PB
  1 LITE OFF
  2 LITE OFF

HUD (LEFT)
  POWER SW - OFF

TRIM (LEFT)
  RHC/PANEL SW - INHIBIT
  PANEL SW - ON

NWS FAIL LIGHT OFF

ANTISKID FAIL LIGHT OFF

DRAG CHUTE ARM PB
  1 LITE OFF
  2 LITE OFF

DRAG CHUTE DPY PB
  1 LITE OFF
  2 LITE OFF

TRIM (RIGHT)
  RHC/PANEL SW - INHIBIT
  PANEL SW - ON

HUD (RIGHT)
  POWER SW - OFF

*** End of Panel F3 (CDR) ***
HUD Right (PLT)

76-12 OTC ASP

MODE SW - NORM
DIM/BRT SW - MID-RANGE
BRT SW - AS REQUIRED

*** End of HUD Right (PLT) ***

Panel F4 (PLT)

76-13 OTC ASP

PANEL F4 (ALL LIGHTS OFF)

DRAG CHUTE JETT PB
  1 LITE OFF
  2 LITE OFF
MASTER ALARM PB LIGHT OFF

PITCH
  AUTO PB LIGHT OFF
  CSS PB LIGHT OFF

ROLL/YAW
  AUTO PB LIGHT OFF
  CSS PB LIGHT OFF

SPD BK/THROT PB
  AUTO LIGHT OFF
  MAN LIGHT OFF

BODY FLAP PB
  AUTO LIGHT OFF
  MAN LIGHT OFF

BFC PB LIGHT OFF

*** End of Panel F4 (PLT) ***
Panel F6 (CDR)

76-14  OTC  ASP

PANEL F6

BFC DISENGAGE SW - (RIGHT)
HUD DATA BUS SW - 1
RANGE SAFE ARM LIGHT OFF
MDU (CDR 1) POWER SW - ON
       BRT SW - AS REQUIRED
MDU (CDR 2) POWER SW - ON
       BRT SW - AS REQUIRED

LANDING GEAR
  LEFT TB UP
  NOSE TB UP
  RIGHT TB UP
  ARM PB - AS IS
       LIGHT OFF
  DN PB - AS IS
       LIGHT OFF

HSI SELECT
  MODE SW - ENTRY
  SOURCE
     TACAN/NAV/MLS SW - NAV(OV-103/104)
     GPS/NAV/MLS SW - NAV (OV-105)
  1/2/3 SW - 1
  RDR ALTM SW - 1
  FLT CNTLR POWER SW - ON

ADI
  ATTITUDE SW - REF
  ERROR SW - MED
  RATE SW - MED
ABORT MODE SW - OFF
ABORT PB LIGHT OFF
ATT REF PB - AS IS
RCS COMMAND (ALL LIGHTS OFF)
  ROLL L LIGHT OFF
  ROLL R LIGHT OFF
  PITCH U LIGHT OFF
  PITCH D LIGHT OFF
  YAW L LIGHT OFF
  YAW R LIGHT OFF
AIR DATA SW - NAV

*** End of Panel F6 (CDR) ***
Panel F7 (CDR)

76-15 OTC ASP

PANEL F7

CAUTION/WARNING MATRIX INDICATOR LIGHTS OFF EXCEPT:

1. HYD PRESS LIGHT ON
2. FUEL CELL STACK TEMP LIGHT ON
   (IF FUEL CELLS NOT ACTIVATED)
3. FUEL CELL PUMP LIGHT ON
   (IF FUEL CELLS NOT ACTIVATED)
4. MPS LIGHT ON
   (IF HELIUM REGULATOR OUT PRESS IS OUT OF C&W LIMITS)

MDU (CRT 1) POWER SW - ON
   BRT SW - AS REQUIRED
MDU (CRT 2) POWER SW - ON
   BRT SW - AS REQUIRED
MDU (CRT 3) POWER SW - ON
   BRT SW - AS REQUIRED
MDU (MFD 1) POWER SW - ON
   BRT SW - AS REQUIRED
MDU (MFD 2) POWER SW - ON
   BRT SW - AS REQUIRED

MAIN ENGINE STATUS
   LEFT LIGHT (TWO) OFF
   CTR LIGHT (TWO) OFF
   RIGHT LIGHT (TWO) OFF
   SM ALERT LIGHT OFF

*** End of Panel F7 (CDR) ***
Panel F8 (PLT)

76-16 OTC ASP

PANEL F8

HUD DATA BUS SW - 4

MDU (PLT 1)
  POWER SW - ON
  BRT SW - AS REQUIRED

MDU (PLT 2)
  POWER SW - ON
  BRT SW - AS REQUIRED

LANDING GEAR
  ARM PB - AS IS
  DN PB - AS IS
  ARM LIGHT OFF
  DN LIGHT OFF
  LEFT TB UP
  NOSE TB UP
  RIGHT TB UP

HSI SELECT
  MODE SW - ENTRY
  SOURCE
    TACAN/NAV/MLS SW - NAV (OV-103/104)
    GPS/NAV/MLS SW - NAV (OV-105)
  1/2/3 SW - 2
  RDR ALTM SW - 2

FLT CNTLR PWR SW - ON

ADI
  ATTITUDE SW - REF
  ERROR SW - MED
  RATE SW - MED

ATT REF PB - AS IS
AIR DATA SW - NAV

*** End of Panel F8 (PLT) ***
Panel F9 (PLT)

76-17 OTC ASP

PANEL F9

AC VOLTS SW - AS REQD
SIGNAL STRENGTH
DC VOLTS/AMP SW - MAIN VOLTS B

*** End of Panel F9 (PLT) ***

Panel R1 (PLT)

76-18 OTC ASP

PANEL R1

POWER DISTRIBUTION
CONTROL BUS PWR
MN A SW - (DOWN)
MN B SW - (DOWN)
MN C SW - (DOWN)

ESS BUS SOURCE
MN B/C SW - ON
MN C/A SW - ON
MN A/B SW - ON

FC1 SW - OFF
FC2 SW - OFF
FC3 SW - OFF

FC/MAIN BUS
A SW - (CENTER)
B SW - (CENTER)
C SW - (CENTER)

NOTE
If the fuel cells are activated, the following three TBs will be on.

A TB OFF
B TB OFF
C TB OFF
PANEL R1 (CONTINUED)

MN BUS TIE
A SW - (CENTER)
B SW - (CENTER)
C SW - (CENTER)
A TB OFF
B TB OFF
C TB OFF

NOTE
VITT/CPLE will provide the switch positions and talkback indications.

POWER DISTRIBUTION

PAYLOAD
CABIN SW - ______

PRI MN B SW - (CENTER)
PRI MN B TB _____

PRI FC3 SW - (CENTER)
PRI FC3 TB _____

PRI MN C SW - (CENTER)
PRI MN C TB _____

AUX SW - ______

AFT MN B SW - ______
AFT MN C SW - ______

POWER DISTRIBUTION

INV POWER
1 SW - (CENTER)
2 SW - (CENTER)
3 SW - (CENTER)

1 TB ON
2 TB ON
3 TB ON
PANEL R1 (CONTINUED)

INV/AC BUS

1 SW - (CENTER)
2 SW - (CENTER)
3 SW - (CENTER)

1 TB ON
2 TB ON
3 TB ON

AC CONTR

AC 1
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN

AC 2
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN

AC 3
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN

IF THE NEXT THREE SWITCHES ARE NOT ALREADY IN THE MONITOR POSITION:

THEN PERFORM:
AC BUS SNSR

1 SW - OFF (1 SEC)
   THEN MONITOR
2 SW - OFF (1 SEC)
   THEN MONITOR
3 SW - OFF (1 SEC)
   THEN MONITOR

Not Performed:______
PANEL R1 (CONTINUED)

CRYO
  \textit{O}_2 \text{ MANIFOLD VLV}
    TANK 1 SW - (CENTER)
    TANK 2 SW - (CENTER)

    TANK 1 TB OP
    TANK 2 TB OP

  \textit{O}_2 \text{ TK 1 HEATERS}
    A SW - AUTO
    B SW - OFF
    RESET/TEST SW - (CENTER)

  \textit{O}_2 \text{ TK 2 HEATERS}
    A SW - AUTO
    B SW - OFF
    RESET/TEST SW - (CENTER)

  \textit{O}_2 \text{ TK 3 HEATERS}
    A SW - OFF
    B SW - OFF
    RESET/TEST SW - (CENTER)

CRYO
  FUEL CELL 1 REAC SW - (CENTER)
  FUEL CELL 3 REAC SW - (CENTER)
  FUEL CELL 2 REAC SW - (CENTER)
  FUEL CELL 1 REAC \textit{O}_2 \text{ TB OP}
  FUEL CELL 1 REAC \textit{H}_2 \text{ TB OP}
  FUEL CELL 3 REAC \textit{O}_2 \text{ TB OP}
  FUEL CELL 3 REAC \textit{H}_2 \text{ TB OP}
  FUEL CELL 2 REAC \textit{O}_2 \text{ TB OP}
  FUEL CELL 2 REAC \textit{H}_2 \text{ TB OP}

FUEL CELL
  1 SW - (CENTER)
  2 SW - (CENTER)
  3 SW - (CENTER)
NOTE
If the fuel cells have been activated, the following six TBs will be gray.

FUEL CELL
  READY FOR LOAD
    1 TB BP
    2 TB BP
    3 TB BP

COOLANT PUMP DELTA P
  1 TB BP
  2 TB BP
  3 TB BP

CRYO
  H₂ MANIFOLD VLV
    TANK 1 SW - (CENTER)
    TANK 2 SW - (CENTER)
    TANK 1 TB OP
    TANK 2 TB OP

  H₂ TK 1 HEATERS
    A SW - AUTO
    B SW - OFF

  H₂ TK 2 HEATERS
    A SW - AUTO
    B SW - OFF

  H₂ TK 3 HEATERS
    A SW - OFF
    B SW - OFF

*** End of Panel R1 (PLT) ***
Panel R2 (PLT)

76-19 OTC ASP

PANEL R2

MPS
PRPLT DUMP
SEQUENCE SW - GPC
BACKUP LH₂ VLV SW - GPC

ENGINE POWER (ALL ON)
LEFT AC 2 SW - ON
CTR AC 1 SW - ON
RIGHT AC 3 SW - ON
LEFT AC 3 SW - ON
CTR AC 2 SW - ON
RIGHT AC 1 SW - ON

HE ISOLATION A (ALL GPC)
LEFT SW - GPC
CTR SW - GPC
RIGHT SW - GPC

HE ISOLATION B (ALL GPC)
LEFT SW - GPC
CTR SW - GPC
RIGHT SW - GPC

PNEUMATICS
L ENG HE XOVR SW - GPC
HE ISOL SW - GPC

LH₂ ULLAGE PRESS SW - AUTO

HE INTERCONNECT (ALL GPC)
LEFT SW - GPC
CTR SW - GPC
RIGHT SW - GPC

APU/HYD
READY TO START
1 TB BP
2 TB BP
3 TB BP
PANEL R2 (CONTINUED)

APU OPERATE
1 SW - OFF
2 SW - OFF
3 SW - OFF

APU SPEED SELECT
1 SW - NORM
2 SW - NORM
3 SW - NORM

HYD MAIN PUMP PRESS
1 SW - NORM
2 SW - NORM
3 SW - NORM

APU FU TK VLV ENA (ALL OPEN)
1A CB - OPEN
1B CB - OPEN
2A CB - OPEN
2B CB - OPEN
3A CB - OPEN
3B CB - OPEN

HYD CIRC PUMP
1 SW - GPC
2 SW - GPC
3 SW - GPC

APU CNTLR PWR
1 SW - OFF
2 SW - OFF
3 SW - OFF

APU FUEL TK VLV
1 SW - CLOSE
2 SW - CLOSE
3 SW - CLOSE

APU AUTO SHUT DOWN
1 SW - ENABLE
2 SW - ENABLE
3 SW - ENABLE
PANEL R2 (CONTINUED)

BOILER CNTLR/HTR
1 SW - A
2 SW - A
3 SW - A

BOILER PWR
1 SW - OFF
2 SW - OFF
3 SW - OFF

BOILER N₂ SUPPLY
1 SW - OFF
2 SW - OFF
3 SW - OFF

ET UMBILICAL DOOR
MODE SW - GPC

CENTERLINE LATCH SW - GND
CENTERLINE LATCH TB BP

LEFT
DOOR SW - OFF
DOOR TB OP
LATCH SW - OFF
LATCH TB REL

RIGHT
DOOR SW - OFF
DOOR TB OP
LATCH SW - OFF
LATCH TB REL

*** End of Panel R2 (PLT) ***
Panel R4 (PLT)

76-20 OTC ASP

PANEL R4

HYDRAULICS
  BRAKE HEATER
    A SW - OFF
    B SW - OFF
    C SW - OFF

BRAKE ISOL VLV
  1 SW - GPC (CENTER)
  2 SW - GPC (CENTER)
  3 SW - GPC (CENTER)
  1 TB  CL
  2 TB  CL
  3 TB  CL

MPS/TVC ISOL VLV
  SYS 1 SW - GPC (CENTER)
  SYS 2 SW - GPC (CENTER)
  SYS 3 SW - GPC (CENTER)
  SYS 1 TB AS IS
  SYS 2 TB AS IS
  SYS 3 TB AS IS

MAIN PROPULSION SYSTEM
  ENGINE CNTLR HTR
    LEFT SW - OFF
    CTR SW - OFF
    RIGHT SW - OFF

MANF PRESS
  LO₂ SW - GPC
  LH₂ SW - GPC
PANEL R4 (CONTINUED)

PROPELLANT FILL/DRAIN

LO₂
OUTBD SW - GND
INBD SW - GND

LH₂
OUTBD SW - GND
INBD SW - GND

H₂ PRESS LINE VENT SW - GND

LO₂ PREVALVE
LEFT SW - GPC
CTR SW - GPC
RIGHT SW - GPC

LH₂ PREVALVE
LEFT SW - GPC
CTR SW - GPC
RIGHT SW - GPC

LG EXTEND ISO VALVE SW - GPC
LG EXTEND ISO VALVE TB CL
FEEDLINE RLF ISOL
LO₂ SW - GPC
LH₂ SW - GPC
LG/NWS HYD SYS SW - AUTO 1/2

*** End of Panel R4 (PLT) ***

Panel R6 (PLT)

76-21 OTC ASP

PANEL R6
RIGHT COMM POWER SW - OFF

*** End of Panel R6 (PLT) ***
Right-side Overhead Flood (PLT)

NOTE
The following is a standalone florescent light under Panel 09.

76-22 OTC ASP

NEAR PANEL 09

RIGHT-SIDE OVERHEAD FLOOD - BRT

*** End of Right-side Overhead Flood (PLT) ***

Panel C2 (CDR)

76-23 OTC ASP

PANEL C2

IDP/CRT 1
POWER SW - ON
MAJ FUNC SW - GNC

IDP/CRT 3
POWER SW - ON
MAJ FUNC SW - GNC

IDP/CRT 2
POWER SW - ON
MAJ FUNC SW - GNC

IDP/LEFT CRT SEL SW - AS IS

IDP/RIGHT CRT SEL SW - AS IS

EVENT TIMER
MODE SW - DOWN
CONTROL SW - (CENTER)

TIMER SET PB'S - 0900

TIMER SW - (CENTER)

*** End of Panel C2 (CDR) ***
Panel C3 (CDR)

76-24   OTC      ASP

PANEL C3

OMS ENG
   LEFT SW - OFF
   RIGHT SW - OFF

BFC CRT
   DISPLAY SW - OFF
   SELECT SW - 3 + 1

FCS CHANNEL
   1 SW - AUTO
   2 SW - AUTO
   3 SW - AUTO
   4 SW - AUTO

BODY FLAP SW - AUTO/OFF

AIR DATA
   PROBE STOW
      LEFT SW - INHIBIT
      RIGHT SW - INHIBIT

MAIN ENGINE
   LIMIT SHUT DN SW - AUTO

MAIN ENGINE SHUTDOWN
   LEFT LIGHT - OFF
   CTR LIGHT - OFF
   RIGHT LIGHT - OFF

ROLL TRIM SW - (CENTER)

PITCH TRIM SW - (CENTER)

SBTC HANDLE - FULL FWD
PANEL C3 (CONTINUED)

ORBITAL DAP (ALL LIGHTS OFF)
SELECT
A LIGHT OFF
B LIGHT OFF
CONTROL
AUTO LIGHT OFF
INTRL LIGHT OFF
LVLH LIGHT OFF
FREE LIGHT OFF

MANUAL MODE (ALL LIGHTS OFF)
TRANSLATION
X
SPARE (BLANK PBI)
LIGHT OFF
NORM LIGHT OFF
PULSE LIGHT OFF
Y
LOW Z LIGHT OFF
NORM LIGHT OFF
PULSE LIGHT OFF
Z
HIGH Z LIGHT OFF
NORM LIGHT OFF
PULSE LIGHT OFF

ROTATION
ROLL
PRI LIGHT OFF
DISC RATE LIGHT OFF
PULSE LIGHT OFF
PITCH
ALT LIGHT OFF
DISC RATE LIGHT OFF
PULSE LIGHT OFF
YAW
VERN LIGHT OFF
DISC RATE LIGHT OFF
PULSE LIGHT OFF

SRB SEPARATION
MAN/AUTO SW - AUTO
SEP LIGHT - OFF
PANEL C3 (CONTINUED)

ET SEPARATION
   MAN/AUTO SW - AUTO
   SEP LIGHT - OFF

YAW TRIM SW - (CENTER)

AUDIO CENTER SW - 1

OI PCMMU
   PWR SW - OFF
   FORMAT SW - GPC

S-BAND PM
   CONTROL SW - CMD

NOTE

When switching S-band PM antenna selector switch, pause a minimum of 2 seconds in each position.

ANTENNA SW - GPC

AIR DATA PROBE
   LEFT SW - STOW
   RIGHT SW - STOW

FUEL CELL REACT VLV
   1 SW - (DOWN)
   2 SW - (DOWN)
   3 SW - (DOWN)
   1 CB - OPEN
   2 CB - OPEN
   3 CB - OPEN

UPLINK SW - ENABLE

MASTER MADS POWER SW - ON

CAUTION/WARNING
   MEMORY SW - (CENTER)
   MODE SW - NORM
PANEL C3 (CONTINUED)

NOTE
For questions about switch position, contact CPLE.

IF FOR OV-103 AND OV-105 ONLY (NON-SPACEHAB),

THEN PERFORM THE FOLLOWING SIX SWITCH SETTINGS:
PAYLOAD SAFING
  1 SW - SAFE (OV-105)
  RTG PUMP - PRI (OV-103 ONLY)
  2 SW - SAFE
  3 SW - SAFE
  4 SW - SAFE
  5 SW - SAFE

Not Performed:_____

IF FOR OV-104 ONLY,

THEN PERFORM THE FOLLOWING FIVE SWITCH SETTINGS:
RTG PUMP SW - PRI
RTG SHORT
PRI
  ENA/DSBL SW - DSBL
  SHORT/OFF SW - OFF
SEC
  ENA/DSBL SW - DSBL
  SHORT/OFF SW - OFF

Not Performed:_____

EMERGENCY LIGHTING SW - OFF/ON

*** End of Panel C3 (CDR) ***
Panel C5 (PLT)

76-25 OTC ASP

PANEL C5
DIRECT O₂ VALVE - CLOSED

*** End of Panel C5 (PLT) ***

PLT Seat

76-26 OTC ASP

PLT SEAT (LOWER LEFT)
SEAT BUSS SELECT SW - AC 3
HORIZ CONTR - (CENTER)
VERT CONTR - (CENTER)

*** End of PLT Seat ***

Panel C6 (PLT)

NOTE
LEH oxygen 1-4 valves will be configured for Flight by ASP during Pre-Ingress Checklist.

76-27 OTC ASP

PANEL C6
LEH O₂ 1 VLV - CLOSE
LEH O₂ 2 VLV - CLOSE
LEH O₂ 3 VLV - CLOSE
LEH O₂ 4 VLV - CLOSE

*** End of Panel C6 (PLT) ***

Panel C7 (PLT)

76-28 OTC ASP

PANEL C7
LEH O₂ SUPPLY
SYS 1 VLV - OPEN
SYS 2 VLV - OPEN

*** End of Panel C7 (PLT) ***
Panel O1 (CDR)

76-29 OTC ASP

PANEL O1

COAS SW - OFF
GPC STATUS (MATRIX) LIGHTS OFF
AIR TEMP SW - CAB HX OUT
H₂O PUMP OUT PRESS SW - LOOP 2
PREON SW - LOOP 1
O₂/N₂ FLOW SW - SYS1 O₂
PPO₂ SW - SNSR A

*** End of Panel O1 (CDR) ***

Panel O2 (CDR)

76-30 OTC ASP

PANEL O2

CRYO
O₂ HTR ASSY TEMP SW - TK 1 1
O₂/H₂ SW - TK 1
FUEL CELL STACK TEMP SW - 1

*** End of Panel O2 (CDR) ***

Panel O3 (PLT)

76-31 OTC ASP

PANEL O3

RCS/OMS PRESS SW - RCS HE X10
RCS/OMS PRPLT QTY SW - OMS FUEL
MISSION TIME SW - MET

*** End of Panel O3 (PLT) ***
Panel O5 (CDR)

76-32 OTC ASP

PANEL O5

LEFT AUDIO
  TACAN ID (OV-103/104)
    ON/OFF SW - OFF
    1/2/3 SW - 1
  UNLABELED SWITCHES (OV-105)
    LEFT SW - AS REQUIRED
    RIGHT SW - AS REQUIRED

VOX SENS SW - AS IS

A/G
  1 SW - T/R
  2 SW - T/R

A/A SW - T/R

ICOM
  A SW - T/R
  B SW - T/R

POWER SW - AUD/TONE
  CONTROL - NORM

XMIT/ICOM MODE SW - PTT/VOX

VOLUME
  A/G
    1 PB - AS IS
    2 PB - AS IS

  A/A PB - AS IS

ICOM
  A PB - AS IS
  B PB - AS IS
  TACAN PB - 5 (OV-103/104)
  TACAN PB - AS IS (OV-105)

PAGE SW - (DOWN)

*** End of Panel O5 (CDR) ***
Panel O6 (CDR)

NOTE
Panel and instrument switches (*) will be “1/4 bright” for a night Launch.

76-33 OTC ASP

PANEL O6

LIGHTING

PANEL
  LEFT/CENTER SW - OFF*
  LEFT OVERHEAD SW - OFF*

INSTRUMENT
  LEFT/CENTER SW - OFF*
  OVERHEAD SW - AS REQ'D*

LEFT GLARESHIELD FLOOD
  BRIGHT/VAR/OFF SW - VAR
  DIM/BRT SW - AS REQ'D

LEFT SEAT/CTR CNSL FLOOD
  SEAT/OFF/CTR CNSL SW - OFF
  DIM/BRT SW - BRIGHT

STAR TRACKER

DOOR CONTROL
  SYS 1 SW - OFF
  SYS 2 SW - OFF

NOTE
Star Tracker door TB may be BP if MCA logic is not on.

DOOR POSITION
  -Y TB CL
  -Z TB CL

POWER
  -Y SW - OFF
  -Z SW - OFF
PANEL 06 (CONTINUED)

UHF
- SPLX/EVA XMIT FREQ SW - 259.7/414.2
- SPLX/EVA PWR AMPL SW - ON
- SPLX SQUELCH SW - ON
- EVA STRING SW - 1
- ENCRYPT SW - ON
- UHF MODE SW - SPLX

ANNUNCIATOR
- LAMP TEST SW - (CENTER)

BUS SELECT
- ACA 1 SW - MN A
- ACA 2/3 SW - MN B

INTENSITY
- BRIGHT/VAR SW - BRIGHT
- LOW/MED SW - MED

MASTER TIMING UNIT SW - AUTO

MDM
- PL 1 SW - ON
- PL 2 SW - ON
- PL 3 SW - OFF

INTEGRATED DISPLAY PROCESSOR
- 1 SW - (DOWN)
- 2 SW - (DOWN)
- 3 SW - (DOWN)
- 4 SW - (DOWN)

MDM
- PLT CRIT AFT
- FA1 SW - ON
- FA2 SW - ON
- FA3 SW - ON
- FA4 SW - ON
PANEL O6 (CONTINUED)

FLT CRIT FWD
FF1 SW - ON
FF2 SW - ON
FF3 SW - ON
FF4 SW - ON

GENERAL PURPOSE COMPUTER
POWER
1 SW - ON
2 SW - ON
3 SW - ON
4 SW - ON
5 SW - ON

OUTPUT
1 SW - NORMAL
2 SW - NORMAL
3 SW - NORMAL
4 SW - NORMAL
5 SW - NORMAL
1 TB GRAY
2 TB GRAY
3 TB GRAY
4 TB GRAY
5 TB BP

INITIAL PROGRAM LOAD
1 PB - AS IS
2 PB - AS IS
3 PB - AS IS
4 PB - AS IS
5 PB - AS IS

IPL SOURCE SW - OFF

MODE
1 SW - RUN
2 SW - RUN
3 SW - RUN
4 SW - RUN
5 SW - STBY
1 TB RUN
2 TB RUN
3 TB RUN
4 TB RUN
5 TB RUN

*** End of Panel O6 (CDR) ***
Panel O7 (PLT)

76-34 OTC ASP

PANEL O7

IF VEHICLE IS OV-103/104

THEN PERFORM:

TACAN 1
   MODE SW - OFF
   ANT SEL SW - AS IS
   CHANNEL PB'S - AS IS
TACAN 2
   MODE SW - OFF
   ANT SEL SW - AS IS
   CHANNEL PB'S - AS IS
TACAN 3
   MODE SW - OFF
   ANT SEL SW - AS IS
   CHANNEL PB'S - AS IS

IF VEHICLE IS OV-105

THEN PERFORM:

GPS 1
   PRE AMPL UPPER SW - OFF
   LOWER SW - OFF
   ENCRYPT SW - NORMAL
   POWER SW - OFF

GPS 2
   PRE AMPL UPPER SW - OFF
   LOWER SW - OFF
   ENCRYPT SW - NORMAL
   POWER SW - OFF

GPS 3
   PRE AMPL UPPER SW - OFF
   LOWER SW - OFF
   ENCRYPT SW - NORMAL
   POWER SW - OFF

Not Performed:______

Not Performed:______
PANEL 07 (CONTINUED)

AFT LEFT RCS
HE PRESS
A SW - OPEN
B SW - OPEN
A TB OP
B TB OP

TANK ISOLATION
1/2 SW - GPC
1/2 TB OP
3/4/5
A SW - GPC
B SW - GPC
A TB OP
B TB OP

MANIFOLD ISOLATION
1 SW - GPC
2 SW - GPC
3 SW - GPC
4 SW - GPC
5 SW - GPC
1 TB OP
2 TB OP
3 TB OP
4 TB OP
5 TB OP

LEFT RCS CROSSFEED
1/2 SW - GPC
3/4/5 SW - GPC
1/2 TB CL
3/4/5 TB CL

MASTER RCS CROSSFEED SW - OFF

AFT RIGHT RCS
HE PRESS
A SW - OPEN
B SW - OPEN
A TB OP
B TB OP
PANEL 07 (CONTINUED)

TANK ISOLATION
1/2 SW - GPC
1/2 TB OP

3/4/5
A SW - GPC
B SW - GPC
A TB OP
B TB OP

MANIFOLD ISOLATION
1 SW - GPC
2 SW - GPC
3 SW - GPC
4 SW - GPC
5 SW - GPC
1 TB OP
2 TB OP
3 TB OP
4 TB OP
5 TB OP

RIGHT RCS CROSSFEED
1/2 SW - GPC
3/4/5 SW - GPC
1/2 TB CL
3/4/5 TB CL

*** End of Panel O7 (PLT) ***
Panel O8 (PLT)

Panel and instrument switches (*) will be “1/4 bright” for night Launch.

NOTE
PANEL 08 (CONTINUED)

TANK ISOLATION
A SW - CLOSE
B SW - CLOSE

A TB BP
B TB BP

LEFT OMS
HE PRESS/VAPOR ISOL
A SW - GPC
B SW - GPC

TANK ISOLATION
A SW - GPC
B SW - GPC
A TB OP
B TB OP

LEFT OMS CROSSFEED
A SW - GPC
B SW - GPC
A TB CL
B TB OP

RIGHT OMS
HE PRESS/VAPOR ISOL
A SW - GPC
B SW - GPC

TANK ISOLATION
A SW - GPC
B SW - GPC
A TB OP
B TB OP

RIGHT OMS CROSSFEED
A SW - GPC
B SW - GPC
A TB CL
B TB CL
PANEL O8 (CONTINUED)

FWD RCS
  HE PRESS
    A SW - OPEN
    B SW - OPEN

    A TB OP
    B TB OP

TANK ISOLATION
  1/2 SW - GPC
  3/4/5 SW - GPC

    1/2 TB OP
    3/4/5 TB OP

MANIFOLD ISOLATION
  1 SW - GPC
  2 SW - GPC
  3 SW - GPC
  4 SW - GPC
  5 SW - GPC
    1 TB OP
    2 TB OP
    3 TB OP
    4 TB OP
    5 TB OP

ANNUNCIATOR LAMP TEST SW - (CENTER)

  *** End of Panel O8 (PLT) ***
Panel O9 (PLT)

76-36 OTC ASP

PANEL 09

RIGHT AUDIO
   POWER SW - AUD/TONE
   A/G
      1 SW - T/R
      2 SW - T/R
   A/A SW - T/R

ICOM
   A SW - T/R
   B SW - T/R
   VOX SENS SW - AS REQD

TACAN ID (OV-103/104)
   ON/OFF SW - OFF
   1/2/3 SW - AS REQD

UNLABELED SWITCHES (OV-105)
   LEFT SW - AS REQUIRED
   RIGHT SW - AS REQUIRED

PAGE SW - (DOWN)

VOLUME
   A/G
      1 PB - AS IS
      2 PB - AS IS
   A/A PB - AS IS

ICOM
   A PB - AS IS
   B PB - AS IS
   TACAN PB - 5 (OV-103/104)
   TACAN PB - AS IS (OV-105)

XMIT/ICOM MODE SW - PTT/VOX

CONTROL SW - NORM

*** End of Panel O9 (PLT) ***
Panel O13 (CDR)

76-37 OTC ASP

PANEL O13

ROW A
ESS 1BC
C/W A CB - CLOSE
MN A CONTR CB - OPEN
AC 1 SNSR CB - CLOSE
MTU A CB - CLOSE

ROW B (ALL CLOSED)
ESS 1BC
CRYO CNTLR
O₂ TK 2 CB - CLOSE
H₂ TK 2 CB - CLOSE
CRYO QTY
O₂ TK 2 CB - CLOSE
H₂ TK 2 CB - CLOSE

ROW C
ESS 2CA
C/W B CB - CLOSE
MN B CONTR CB - OPEN
AC 2 SNSR CB - CLOSE
MTU B CB - CLOSE

ROW D (ALL CLOSED)
ESS 2CA
CRYO CNTLR
O₂ TK 1 CB - CLOSE
H₂ TK 1 CB - CLOSE
CRYO QTY
O₂ TK 1 CB - CLOSE
H₂ TK 1 CB - CLOSE

ROW E
ESS 3AB
MN C CONTR CB - OPEN
AC 3 SNSR CB - CLOSE
GPC STATUS CB - CLOSE

*** End of Panel O13 (CDR) ***
Panel O14 (CDR)

76-38  OTC  ASP

PANEL O14

ROW A (ALL ON)
  BRAKES MN A SW - ON
  RGA 1 SW - ON
  IMU 1 SW - ON
  FC 1 CNTLR SW - ON

ROW B
  MN A
  OPERATIONAL INST
  SIG CONDR
    OF 1/4 A CB - CLOSE
    OM 1/2 A CB - CLOSE

  MDM
    OF 1/2 A CB - CLOSE
    OF 3/4 A CB - CLOSE

  H₂O BYP LOOP 1 SNSR CB - CLOSE
  TIRE PRESS CB - CLOSE

  MN C CONTR CB - OPEN

  MISSION TIMER FWD CB - CLOSE

  EVENT TIMER AFT CB - CLOSE

ROW C (ALL CLOSED)
  MN A

  TACAN 1 CB - CLOSE (OV-103/104)

  CRYO O₂ HTR TK 1 SNSR 1 CB - CLOSE

  SMOKE DETN
    L/R FLT DK CB - CLOSE
    BAY 2A/3B CB - CLOSE
PANEL O14 (CONTINUED)

ROW C (CONTINUED)
FIRE SUPPR BAY 3 CB - CLOSE
UTILITY POWER O19/MO52J CB - CLOSE
FLOOD LEFT CNSL CB - CLOSE
ANNUN FWD ACA 1 CB - CLOSE
RAD ISOL CONTR CB - CLOSE

ROW D
MN A
FREON
RAD_CNTL
1 CB - CLOSE
2 CB - CLOSE

IF VEHICLE IS OV-103
THEN PERFORM:
GPS
PRE AMPL
UC CB - OPEN
LC CB - OPEN
Not Performed:______

IF VEHICLE IS OV-104,
THEN PERFORM:
GPS1
PRE AMPL
UPPER CB - OPEN
LOWER CB - OPEN
Not Performed:______

IF VEHICLE IS OV-105
THEN PERFORM:
GPS1
PRE AMPL UPPER CB - CLOSE
LOWER CB - CLOSE
Not Performed:______
PANEL O14 (CONTINUED)

ATM PRESS CONTROL
- N₂ SUPPLY 1 CB - CLOSE
- O₂/N₂ CNTLR 1 CB - CLOSE
- O₂ XOVR 1 CB - CLOSE
- N₂ REG INLET 1 CB - CLOSE
- CABIN VENT CB - CLOSE
- CABIN VENT ISOL CB - CLOSE

ROW E

MN A
- RADAR ALTM 1 CB - CLOSE
- MLS 1 CB - CLOSE
- ADTA 1 CB - CLOSE
- STAR TRKR -Z CB - CLOSE
- ACCEL 1 CB - CLOSE

DDU
- LEFT CB - CLOSE
- AFT CB - OPEN

NOSE WHEEL STEERING CB - CLOSE

ROW F

MMU 1 SW - ON

RJDA 1A
- L2/R2 MANF
  - LOGIC SW - ON
  - DRIVER SW - OFF
    (GUARDED - LOCKED)
    (SW GUARD REMOVED AT FLT CREW INGRESS)

RJDA 2A
- L4/R4 MANF
  - LOGIC SW - ON
  - DRIVER SW - OFF
    (GUARDED - LOCKED)
    (SW GUARD REMOVED AT FLT CREW INGRESS)

RJDF 1B
- F1 MANF
  - LOGIC SW - ON
  - DRIVER SW - OFF
    (GUARDED - LOCKED)
    (SW GUARD REMOVED AT FLT CREW INGRESS)

L OMS ENG VLV SW - OFF
(GUARDDED)
(SW GUARD REMOVED AT FLT CREW INGRESS)
ASA 1 SW - ON

*** End of Panel O14 (CDR) ***
Panel O15 (PLT)

OTC ASP

PANEL O15

ROW A (ALL ON)
- BRAKES MN B SW - ON
- RGA
  - 2 SW - ON
  - 4 SW - ON
- IMU 2 SW - ON
- FC 2 CNTLR SW - ON

ROW B
- MN B
  - OPERATIONAL INST
    - SIG CONDR
      - OM 3 A CB - CLOSE
      - OF 1/4 B CB - CLOSE
      - OF 2/3 A CB - CLOSE
      - OM 1/2 B CB - CLOSE
    - MDM OF 1/2 B CB - CLOSE
    - H₂O BYP LOOP 2 SNSR CB - CLOSE
    - TIRE PRESS CB - CLOSE
  - MN A CONTR CB - OPEN
  - MISSION TIMER AFT CB - CLOSE
  - EVENT TIMER FWD CB - CLOSE
PANEL O15 (CONTINUED)

ROW C

MN B

TACAN 2 CB - CLOSE (OV-103)

GPS 2 PREAMPL UPPER CB - CLOSE (OV-104/105)

CRYO O₂ HTR TK 2 SNSR 2 CB - CLOSE

SMOKE DETN BAY 1B/3A CB - CLOSE

FIRE SUPPR BAY 1 CB - CLOSE

UTILITY PWR F1/MO13Q CB - OPEN

FLOOD

RIGHT CNSL CB - CLOSE

LEFT CTR CB - CLOSE

ANNUNCIATOR

FWD

ACA 1 CB - CLOSE

ACA 2/3 CB - CLOSE

AFT

ACA 4/5 CB - CLOSE

ROW D (ALL CLOSED)

MN B

FREON

RAD CNTLR

1 CB - CLOSE

2 CB - CLOSE

NOSE WHEEL STEERING CB - CLOSE

ATM PRESS CONTROL

PPO₂ C CABIN DP/DT CB - CLOSE

N₂ SUPPLY 2 CB - CLOSE

O₂/N₂ CNTLR 2 CB - CLOSE

O₂ XOVR 2 CB - CLOSE

N₂ REG INLET 2 CB - CLOSE

CABIN RELIEF A CB - CLOSE

GPS 2 PREAMPL LOWER CB - CLOSE (OV-104/105)
PANEL O15 (CONTINUED)

ROW E (ALL CLOSED)

MN B
- Radar Altm 2 CB - Close
- MLS 2 CB - Close
- Adta 2 CB - Close
- Star Trkr -Y CB - Close
- Accel 2 CB - Close

DDU
- Left CB - Close
- Right CB - Close

TACAN 2 CB - Close (OV-104)

DRAG Chute SYS 2 CB - Close

ROW F

MMU 2 SW - ON

RJDA 1B
- L1/L5/R1 - MANF - L1/R1
  - Logic SW - ON

  - Driver SW - OFF
  (GUARDED - LOCKED)
  (SW GUARD REMOVED AT FLT CREW INGRESS)

RJDF 1A
- F2 MANF
  - Logic SW - ON
  - Driver SW - OFF
  (GUARDED - LOCKED)
  (SW GUARD REMOVED AT FLT CREW INGRESS)

ASA 2 SW - ON

ACCEL 4 SW - ON

*** End of Panel O15 (PLT) ***
Panel O16 (PLT)

76-40 OTC ASP

PANEL O16

ROW A (ALL ON)
- BRAKES MN C SW - ON
- RGA 3 SW - ON
- IMU 3 SW - ON
- FC 3 CNTLR SW - ON

ROW B
- MN C
  - OPERATIONAL INST
  - SIG CONDR
    - OM 3 B CB - CLOSE
    - OF 2/3 B CB - CLOSE
  - MDM
    - OF 3/4 B CB - CLOSE
  - MN B CONTR CB - OPEN
  - AUX TIMING BUFFER CB - CLOSE

ROW C (ALL CLOSED)
- MN C
  - TACAN 3 CB - CLOSE (OV-103/104)
  - CRYO O₂ HTR
    - TK 1 SNSR 2 CB - CLOSE
    - TK 2 SNSR 1 CB - CLOSE
  - SMOKE DETN
    - CABIN CB - CLOSE
    - BAY 1A/2B CB - CLOSE
  - FIRE SUPPR BAY 2 CB - CLOSE
  - UTILITY POWER A11/A15/MO30F CB - CLOSE
  - FLOOD RIGHT CTR CB - CLOSE
  - ANNUNCIATOR
    - FWD ACA 2/3 CB - CLOSE
    - AFT ACA 4/5 CB - CLOSE
PANEL O16 (CONTINUED)

ROW D
  MN C

IF VEHICLE IS OV-103,

THEN PERFORM:
  GPS
  PRE AMPL
    UC CB - CLOSE
    LC CB - CLOSE

Not Performed:_____

IF VEHICLE IS OV-104,

THEN PERFORM:
  GPS 3
  PRE AMPL
    UPPER CB - OPEN
    LOWER CB - OPEN

Not Performed:_____

IF VEHICLE IS OV-105,

THEN PERFORM:
  GPS 3
  PRE AMPL UPPER CB - CLOSE
    LOWER CB - CLOSE

Not Performed:_____

H₂O ALT PRESS CB - CLOSE

ATM PRESS CONTR
  O₂ EMER CB - OPEN
  CABIN RELIEF B CB - CLOSE
PANEL 016 (CONTINUED)

ROW E
MN C
MLS 3 CB - CLOSE
ADTA
  3 CB - CLOSE
  4 CB - CLOSE
DDU
  RIGHT CB - CLOSE
  AFT CB - OPEN

RCS/OMS PRPLT QTY GAUGE CB - CLOSE
DRAG CHUTE SYS 1 CB - CLOSE

ROW F
RJDA 2B
  LOGIC SW - ON
  DRIVER SW - OFF
  (GUARDED - LOCKED)
  (SW GUARD REMOVED AT FLT CREW INGRESS)

RJDF 2A
F3 MANF
  LOGIC SW - ON
  DRIVER SW - OFF
  (GUARDED - LOCKED)
  (SW GUARD REMOVED AT FLT CREW INGRESS)

RJDF 2B
F4/F5 - MANF - F4
  LOGIC SW - ON
  DRIVER SW - OFF
  (GUARDED - LOCKED)
  (SW GUARD REMOVED AT FLT CREW INGRESS)

R OMS ENG VLV SW - OFF (GUARDED)
  (SW GUARD REMOVED AT FLT CREW INGRESS)
ASA
  3 SW - ON
  4 SW - ON

ACCEL 3 SW - ON

RJD MANF
  L5/F5/R5
  DRIVER SW - OFF
  (GUARDED - LOCKED)
  (SW GUARD REMOVED AT FLT CREW INGRESS)

*** End of Panel O16 (PLT) ***
Panel O17 (PLT)

76-41 OTC ASP

PANEL O17

ROW A (ALL ON)
ATVC
1 SW - ON
2 SW - ON
3 SW - ON
4 SW - ON

ROW B (ALL ON)
EIU
L-C SW - ON
C-R SW - ON
R-L SW - ON

ROW C
SIGNAL CONDITIONER
FREON
A SW - AC 2
B SW - AC 3

OL 1/2 SW - ON
OR 1/2 SW - ON

ROW D
SIG CONDR OA 1/2/3 SW - ON

MDM OA 1/2/3 SW - ON

MEC
1 SW - ON
2 SW - ON

*** End of Panel O17 (PLT) ***
Panel O19 (CDR)

NOTE
If Scrub Turnaround, DC utility may be On for seat cooling unit.

76-42 OTC ASP

PANEL O19 (ALL OFF)

TV PWR SW - OFF
DC UTILITY POWER MN A SW - OFF
COAS PWR SW - OFF

*** End of Panel O19 (CDR) ***

*** End of Flight Deck Switch List ***
Caution and Warning Setups

Panel O13 (CDR)

NOTE
The following steps cycle power to the caution and warning CBs in order to reset the memory to the PROM values, then set parameter Launch limits.

Caution and warning master alarm will occur in next two steps. Advise CISL.

76-43 OTC ASP

PANEL O13

ROW A
ESS 1BC
C/W A CB - OPEN

ROW C
ESS 2CA
C/W B CB - OPEN

76-44 OTC ASP

PANEL O13

ROW C
ESS 2CA
C/W B CB - CLOSE

ROW A
ESS 1BC
C/W A CB - CLOSE

76-45 OTC ASP

Verify master alarm lights ON on Panels F2 and F4.

Verify audible alarm tone.

Master alarm PB - press/release

Verify master alarm light OFF on Panels F2 and F4 and audible alarm tone OFF.

*** End of Panel O13 (CDR) ***
Panel R13U (MS1)

NOTE
The next three steps will set the upper caution and warning limits.

76-46 OTC ASP

IF for OV-103,

THEN Perform the following:

PANEL R13

CAUTION/WARNING
LIMIT SET
LIMIT SW - UPPER

PARAM SEL PB'S - 079 (LH2 MANF PRESS)
LIMIT SET
VALUE PB'S - 3.25
FUNC SW - SET/THEN READ
VERIFY 079 = 3.25

PARAM SEL PB'S - 074 (CABIN FAN DELTA P)
LIMIT SET
VALUE PB'S - 4.25
FUNC SW - SET/THEN READ
VERIFY 074 = 4.25

PARAM SEL PB'S - 004 (CABIN PRESS)
LIMIT SET
VALUE PB'S - 3.85
FUNC SW - SET/THEN READ
VERIFY 004 = 3.85

PARAM SEL PB'S - 007 (OMS TK P OX-L)
LIMIT SET
VALUE PB'S - 3.60
FUNC SW - SET/THEN READ
VERIFY 007 = 3.60
PARAM SEL PB'S - 017 (OMS TK P FU-L)
LIMIT SET
  VALUE PB'S = 3.60
  FUNC SW - SET/THEN READ
  VERIFY 017 = 3.60

PARAM SEL PB'S - 037 (OMS TK P OX-R)
LIMIT SET
  VALUE PB'S = 3.60
  FUNC SW - SET/THEN READ
  VERIFY 037 = 3.60

PARAM SEL PB'S - 047 (OMS TK P FU-R)
LIMIT SET
  VALUE PB'S = 3.60
  FUNC SW - SET/THEN READ
  VERIFY 047 = 3.60

PARAM SEL PB'S - 107 (FREON LOOP 1 EVAP OUT T)
LIMIT SET
  VALUE PB'S = 4.30
  FUNC SW - SET/THEN READ
  VERIFY 107 = 4.30

PARAM SEL PB'S - 117 (FREON LOOP 2 EVAP OUT T)
LIMIT SET
  VALUE PB'S = 4.30
  FUNC SW - SET/THEN READ
  VERIFY 117 = 4.30

PARAM SEL PB’S - 039 (MPS E1A REG OUT PRESS)
LIMIT SET
  VALUE PB’S = 4.00
  FUNC SW - SET/THEN READ
  VERIFY 039 = 4.00

PARAM SEL PB'S - 049 (MPS E2A REG OUT PRESS)
LIMIT SET
  VALUE PB'S = 4.00
  FUNC SW - SET THEN/READ
  VERIFY 049 = 4.00

Not Performed:______
IF for OV-104,

THEN Perform the following:

PANEL R13

CAUTION/WARNING
LIMIT SET
LIMIT SW - UPPER

PARAM SEL PB'S - 079 (LH2 MANF PRESS)
LIMIT SET
VALUE PB'S - 3.25
Func SW - SET/THEN READ
VERIFY 079 = 3.25

PARAM SEL PB'S - 074 (CABIN FAN DELTA P)
LIMIT SET
VALUE PB'S - 4.25
Func SW - SET/THEN READ
VERIFY 074 = 4.25

PARAM SEL PB'S - 004 (CABIN PRESS)
LIMIT SET
VALUE PB’S - 3.85
Func SW - SET/THEN READ
VERIFY 004 = 3.85

PARAM SEL PB'S - 105 (H2O LOOP 1 PUMP OUT P)
LIMIT SET
VALUE PB’S - 2.75
Func SW - SET/THEN READ
VERIFY 105 = 2.75

PARAM SEL PB'S - 007 (OMS TK P OX-L)
LIMIT SET
VALUE PB'S - 3.70
Func SW - SET/THEN READ
VERIFY 007 = 3.70
PARAM SEL PB'S - 017 (OMS TK P FU-L)
LIMIT SET
  VALUE PB'S - 3.60
  FUNC SW - SET/THEN READ
  VERIFY 017 = 3.60

PARAM SEL PB'S - 037 (OMS TK P OX-R)
LIMIT SET
  VALUE PB'S - 3.60
  FUNC SW - SET/THEN READ
  VERIFY 037 = 3.60

PARAM SEL PB'S - 047 (OMS TK P FU-R)
LIMIT SET
  VALUE PB'S - 3.60
  FUNC SW - SET/THEN READ
  VERIFY 047 = 3.60

PARAM SEL PB'S - 107 (FREON LOOP 1 EVAP OUT T)
LIMIT SET
  VALUE PB'S - 4.30
  FUNC SW - SET/THEN READ
  VERIFY 107 = 4.30

PARAM SEL PB'S - 117 (FREON LOOP 2 EVAP OUT T)
LIMIT SET
  VALUE PB'S - 4.30
  FUNC SW - SET/THEN READ
  VERIFY 117 = 4.30

PARAM SEL PB’S - 039 (MPS E1A REG OUT PRESS)
LIMIT SET
  VALUE PB’S - 4.10
  FUNC SW - SET/THEN READ
  VERIFY 039 = 4.10

PARAM SEL PB’S - 024 (CAB O2 FLOW 2)
LIMIT SET
  VALUE PB’S - 4.00
  FUNC SW - SET/THEN READ
  VERIFY 024 = 4.00
PARAM SEL PB'S - 014 (CAB O2 FLOW 1)
LIMIT SET
    VALUE PB'S - 4.00
    FUNC SW - SET THEN/READ
    VERIFY 014 = 4.00

Not Performed:______
IF for OV-105,

THEN Perform the following:

PANEL R13

CAUTION/WARNING
LIMIT SET
  LIMIT SW - UPPER

PARAM SEL PB'S - 079 (LH2 MANF PRESS)
LIMIT SET
  VALUE PB'S - 3.25
  FUNC SW - SET/THEN READ
  VERIFY 079 = 3.25

PARAM SEL PB'S - 074 (CABIN FAN DELTA P)
LIMIT SET
  VALUE PB'S - 4.25
  FUNC SW - SET/THEN READ
  VERIFY 074 = 4.25

PARAM SEL PB'S - 007 (OMS TK P OX-L)
LIMIT SET
  VALUE PB’S - 3.60
  FUNC SW - SET/THEN READ
  VERIFY 007 = 3.60

PARAM SEL PB'S - 017 (OMS TK P FU-L)
LIMIT SET
  VALUE PB'S - 3.60
  FUNC SW - SET/THEN READ
  VERIFY 017 = 3.60

PARAM SEL PB'S - 037 (OMS TK P OX-R)
LIMIT SET
  VALUE PB'S - 3.60
  FUNC SW - SET/THEN READ
  VERIFY 037 = 3.60
PARAM SEL PB'S - 047 (OMS TK P FU-R)
LIMIT SET
  VALUE PB'S - 3.60
  FUNC SW - SET/THEN READ
  VERIFY 047 = 3.60

PARAM SEL PB'S - 004 (CABIN PRESS)
LIMIT SET
  VALUE PB'S - 3.90
  FUNC SW - SET/THEN READ
  VERIFY 004 = 3.90

PARAM SEL PB'S - 059 (MPS E3A REG OUT PRESS)
LIMIT SET
  VALUE PB'S - 3.90
  FUNC SW - SET/THEN READ
  VERIFY 059 = 3.90

PARAM SEL PB'S - 039 (MPS E1A REG OUT PRESS)
LIMIT SET
  VALUE PB'S - 4.10
  FUNC SW - SET/THEN READ
  VERIFY 039 = 4.10

PARAM SEL PB'S - 107 (FREON LOOP 1 EVAP OUT T)
LIMIT SET
  VALUE PB'S - 4.30
  FUNC SW - SET/THEN READ
  VERIFY 107 = 4.30

PARAM SEL PB'S - 117 (FREON LOOP 2 EVAP OUT T)
LIMIT SET
  VALUE PB'S - 4.30
  FUNC SW - SET/THEN READ
  VERIFY 117 = 4.30
PARAM SEL PB’S - 014 (CAB O2 FLOW 1)
LIMIT SET
  VALUE PB’S - 4.00
  FUNC SW - SET THEN/READ
  VERIFY 014 = 4.00

PARAM SEL PB’S - 024 (CAB O2 FLOW 2)
LIMIT SET
  VALUE PB’S - 4.00
  FUNC SW - SET THEN/READ
  VERIFY 024 = 4.00

PARAM SEL PB’S - 054 (CAB N2 FLOW 1)
LIMIT SET
  VALUE PB’S - 4.00
  FUNC SW - SET THEN/READ
  VERIFY 054 = 4.00

PARAM SEL PB’S - 064 (CAB N2 FLOW 2)
LIMIT SET
  VALUE PB’S - 4.00
  FUNC SW - SET THEN/READ
  VERIFY 064 = 4.00

Not Performed:______
NOTE
The next three steps will set the lower caution and warning limits.

76-49 OTC ASP

IF for OV-103

THEN Perform the following:

PANEL R13

CAUTION/WARNING
LIMIT SET
LIMIT SW - LOWER

PARAM SEL PB'S - 106 (FREON FLOW 1)
LIMIT SET
VALUE PB'S - 0.80
FUNC SW - SET/THEN READ
VERIFY 106 = 0.80

PARAM SEL PB'S - 116 (FREON FLOW 2)
LIMIT SET
VALUE PB'S - 0.80
FUNC SW - SET/THEN READ
VERIFY 116 = 0.80

PARAM SEL PB'S - 074 (CABIN FAN DELTA P)
LIMIT SET
VALUE PB'S - 2.60
FUNC SW - SET/THEN READ
VERIFY 074 = 2.60

PARAM SEL PB'S - 039 (MPS E1A REG OUT PRESS)
LIMIT SET
VALUE PB'S - 3.30
FUNC SW - SET/THEN READ
VERIFY 039 = 3.30
PARAM SEL PB’S - 049 (MPS E2A REG OUT PRESS)
LIMIT SET
    VALUE PB’S - 3.35
    FUNC SW - SET/THEN READ
    VERIFY 049 = 3.35

PARAM SEL PB’S - 004 (CABIN PRESS)
LIMIT SET
    VALUE PB’S - 3.45
    FUNC SW - SET/THEN READ
    VERIFY 004 = 3.45

Not Performed:______
IF for OV-104

THEN Perform the following:

PANEL R13

CAUTION/WARNING
LIMIT SET
LIMIT SW - LOWER

PARAM SEL PB'S - 074 (CABIN FAN DELTA P)
LIMIT SET
VALUE PB'S - 2.60
FUNC SW - SET/THEN READ
VERIFY 074 = 2.60

PARAM SEL PB'S - 116 (FREON FLOW 2)
LIMIT SET
VALUE PB'S - 0.80
FUNC SW - SET/THEN READ
VERIFY 116 = 0.80

PARAM SEL PB'S - 106 (FREON FLOW 1)
LIMIT SET
VALUE PB'S - 0.80
FUNC SW - SET/THEN READ
VERIFY 106 = 0.80

PARAM SEL PB'S - 105 (H2O LOOP 1 PUMP OUT P)
LIMIT SET
VALUE PB'S - 0.75
FUNC SW - SET/THEN READ
VERIFY 105 = 0.75

PARAM SEL PB'S - 004 (CABIN PRESS)
LIMIT SET
VALUE PB'S - 3.45
FUNC SW - SET/THEN READ
VERIFY 004 = 3.45

Not Performed:_____
IF for OV-105

THEN Perform the following:

PANEL R13

CAUTION/WARNING
LIMT SET
LIMIT SW - LOWER

PARAM SEL PB'S - 059 (MPS E3A REG OUT PRESS)
LIMIT SET
VALUE PB'S - 3.30
FUNC SW - SET/THEN READ
VERIFY 059 = 3.30

PARAM SEL PB'S - 039 (MPS E1A REG OUT PRESS)
LIMIT SET
VALUE PB'S - 3.45
FUNC SW - SET/THEN READ
VERIFY 039 = 3.45

PARAM SEL PB'S - 004 (CABIN PRESS)
LIMIT SET
VALUE PB'S - 3.45
FUNC SW - SET/THEN READ
VERIFY 004 = 3.45

PARAM SEL PB'S - 074 (CABIN FAN DELTA P)
LIMIT SET
VALUE PB'S - 2.60
FUNC SW - SET/THEN READ
VERIFY 074 = 2.60

PARAM SEL PB'S - 106 (FREON FLOW 1)
LIMIT SET
VALUE PB'S - 0.80
FUNC SW - SET/THEN READ
VERIFY 106 = 0.80
PANEL R13 (CONTINUED)

PARAM SEL PB'S - 116 (FREON FLOW 2)
LIMIT SET
  VALUE PB'S - 0.80
  FUNC SW - SET/THEN READ
VERIFY 116 = 0.80

NotPerformed:______
NOTE
The following step will set the Lower Caution and Warning Limits for the LOMS/ROMS OX/FU Propellant Tank Ullage Pressure Transducers to support Helium Absorption Pressure Decrease concerns.

76-52 OTC ASP

PANEL R13

CAUTION/WARNING
PARAM SEL PB’S - 007 (OMS TK P OX-L)
LIMIT SET
VALUE PB’S - 2.50
FUNC SW - SET/THEN READ
VERIFY 007 = 2.50

PARAM SEL PB’S - 017 (OMS TK P FU-L)
LIMIT SET
FUNC SW - SET/THEN READ
VERIFY 017 = 2.50

PARAM SEL PB’S - 037 (OMS TK P OX-R)
LIMIT SET
FUNC SW - SET/THEN READ
VERIFY 037 = 2.50

PARAM SEL PB’S - 047 (OMS TK P FU-R)
LIMIT SET
FUNC SW - SET/THEN READ
VERIFY 047 = 2.50
NOTE
Parameters 055, 065, 075, 085, 095 and 097 support powered payload C&W parameters and will be inhibited for flight until a powered payload requires their use.

NOTE
The next four steps will inhibit caution and warning parameters. Use the caution and warning parameter switch on the lower right. Verification of inhibited status will be performed using the caution and warning parameter status switch on the upper left.

76-53 OTC ASP

PANEL R13U

CAUTION/WARNING
PARAM SELECT PB'S - 055 (PAYLOAD WARNING A)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 065 (PAYLOAD WARNING B)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 075 (PAYLOAD WARNING C)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 085 (PAYLOAD WARNING D)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 095 (PAYLOAD WARNING E)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 097 (PAYLOAD CAUTION)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 087 (OMS KIT FU TK ULLAGE)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 077 (OMS KIT OX TK ULLAGE)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 008 (APU 1 EGT 1)
PARAM SW - INHIBIT, REL
PANEL R13 (CONTINUED)

PARAM SELECT PB’S - 018 (APU 2 EGT 1)
PARAM SW - INHIBIT, REL

PARAM SELECT PB’S - 028 (APU 3 EGT 1)
PARAM SW - INHIBIT, REL

PARAM STATUS SW - INHIBITED, HOLD
VERIFY STATUS LTS ON: 008, 018, 028, 055, 065, 075, 077, 085, 087, 095, 097
PARAM STATUS SW - RELEASE

76-54 OTC ASP

IF FOR OV-104,

THEN PERFORM THE FOLLOWING:

PANEL R13U

CAUTION/WARNING
PARAM SELECT PB’S - 054 (CAB N2 FLOW 1)
PARAM SW - INHIBIT, REL

PARAM SELECT PB’S - 064 (CAB N2 FLOW 2)
PARAM SW - INHIBIT, REL

PARAM STATUS SW - INHIBITED, HOLD
VERIFY STATUS LTS ON: 054, 064
PARAM STATUS SW - RELEASE

Not Performed:______
IF TANK SET FIVE IS NOT INSTALLED,

THEN PERFORM:

PANEL R13U

CAUTION/WARNING

PARAM SELECT PB'S - 040 (CRYO O₂ TK 5 HTR CNTL PR)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 081 (CRYO O₂ HTR TK 5 HTR 1 T)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 090 (CRYO H₂ TK 5 HTR CNTL PR)
PARAM SW - INHIBIT, REL

PARAM STATUS SW - INHIBITED, HOLD

VERIFY STATUS LTS ON: 040, 081, 090
PARAM STATUS SW - RELEASE

Not Performed:______
IF TANK SET FOUR IS NOT INSTALLED,

THEN PERFORM:

PANEL R13U

CAUTION/WARNING

PARAM SELECT PB'S - 080 (CRYO H₂ P TK 4/5)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 071 (CRYO O₂ HTR2 TK 4)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 061 (CRYO O₂ HTR1 TK 4)
PARAM SW - INHIBIT, REL

PARAM SELECT PB'S - 030 (CRYO O₂ P TK 4/5)
PARAM SW - INHIBIT, REL

PARAM STATUS SW - INHIBITED, HOLD

VERIFY STATUS LTS ON: 030, 061, 071, 080
PARAM STATUS SW - RELEASE

Not Performed:______
76-57  OTC  ASP

PANEL R13U
CAUTION/WARNING
   PARAM STATUS SW - TRIPPED,HOLD

REPORT  ALL MATRIX LIGHTS ON
RECORD  IN OMI S0007.400, FIGURE 76-1, SECTION P-4
VERIFY  LIGHTS:

   099 ON
   109 ON
   119 ON

   PARAM STATUS SW - RELEASE

76-58  OTC  ASP

PANEL R13U
CAUTION/WARNING
   MEMORY SW - READ,HOLD

REPORT  ALL MATRIX LIGHTS ON
RECORD  IN OMI S0007.400, FIGURE 76-1, SECTION P-5
VERIFY  LIGHTS:

   099 - ON
   109 - ON
   119 - ON

   MEMORY SW - CLEAR, RELEASE
76-59  OTC    ASP

PANEL R13U

CAUTION/WARNING
  PARAM STATUS SW - INHIBITED, HOLD

REPORT  ALL MATRIX LIGHTS ON
RECORD  IN OMI S0007.400, FIGURE 76-1, SECTION P-3

PARAM STATUS SW - RELEASE

76-60  OTC    ASP

PANEL R13U

CAUTION/WARNING
  PARAM STATUS SW - (CENTER)
  MEMORY SW - (CENTER)
  LAMP TEST SW - (CENTER)
  PARAM SELECT PB’S - 120

LIMIT SET
  VALUE PB’S - 0.00
  LIMIT SW - LOWER
  FUNC SW - (CENTER)

PARAM SW - (CENTER)

*** End of Panel R13U (MS1) ***

Panel F7

76-61  OTC    ASP

PANEL F7

REPORT  ALL ANNUNCIATOR LIGHTS ON
RECORD  IN OMI S0007.400, FIGURE 76-1, SECTION P-1

*** End of Panel F7 ***
**Figure 76-1 - Sections P-1, P-2, P-3, P-4, and P-5**

(For Reference Only)
P-6: CAUTION AND WARNING SOFTWARE CHANGES (ASCENT SWITCHES)

**DATE:**__________  **TIME:**__________

<table>
<thead>
<tr>
<th>PARAMETER #</th>
<th>LO LIMIT</th>
<th>HI LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 76-2 - *Section P-6: Caution and Warning Software Changes (Ascent Switches) (For Reference Only)*

*** End of Caution and Warning Setups ***
Section 2 - Aft Flight Deck/Middeck/Airlock/Waste Management Station

76-62 OTC ALL

The purpose of this operation is to verify that the Flight Deck and Middeck switches are configured for Launch.

Switches left in other than ascent position (ref JSC Ascent Checklist) by this operation must have predefined steps in OMI S0007 to position them to ascent position prior to T-0.

All switches (other than pushbutton/analog switches or those associated with cockpit lighting, Biomed or Panel MA73C left- and right-seat 3PH CBs, Panel F9 meter switches, or unspecified/unlabeled switches/circuit breakers) should already be in switch list-specified position at the time they are performed. All unspecified/unlabeled switches will be in the down (for a 2-position switch) or center (for a 3-position switch), unlabeled talkbacks - barberpole, unlabeled circuit breakers - open, unlabeled rotary switches - full counterclockwise. System Engineering personnel must be prepared to explain any differences found and will be required to give a “Go” prior to a switch being repositioned. Any switches repositioned, other than those exempted above, must be documented in Table 76-1 - Switches Repositioned During Ascent Checklist.

Any cockpit troubleshooting activity subsequent to this switch list must return switches to their position prior to troubleshooting.

The switch list is divided into two sections and may be performed in parallel with each section performed by an OTC and ASP:

- Section 1 consists of Flight Deck Panels and caution and warning setups.

- Section 2 consists of Middeck and AFT Flight Deck Panels, Airlock and Waste Management Station.

The Middeck Switch List may be performed prior to the AFT Flight Deck Switch List.

All vehicles have different thumbwheel/pushbutton configurations. The generic term pushbutton (PB) will be used regardless of configuration.
NOTE
Crew Compartment lighting switches may be found in positions different from those published to facilitate the crew’s visibility of the panels.

List of Exceptions for Switchguard Removals

1. Crew preference switchguards
2. Payload switchguards

NOTE
The following crew preference and payload switchguard matrices will be completed by a member of VITT (861-9224).

Crew Preference Switchguards - Mission Unique

<table>
<thead>
<tr>
<th>Panel</th>
<th>SW/CB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Payload Switchguards - Mission Unique

<table>
<thead>
<tr>
<th>Panel</th>
<th>SW/CB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Aft Flight Deck Switch List

Panel R10 (MS1)

76-63 OTC ASP

PANEL R10

MISSION STATION AUDIO
  POWER SW - AUD/TONE
  A/G
    1 SW - T/R
    2 SW - T/R
  A/A SW - T/R
  ICOM
    A SW - T/R
    B SW - T/R
  VOX SENS SW - AS IS

PAGE SW - (DOWN)

VOLUME
  A/G
    1 PB - AS IS
    2 PB - AS IS
  A/A PB - AS IS
  ICOM
    A PB - AS IS
    B PB - AS IS

XMIT/ICOM MODE SW - PTT/VOX

MS LIGHTING
  PANEL SW - OFF
  FLOOD
    ON/OFF SW - OFF (FOR NIGHT LAUNCH)
      - ON (FOR DAY LAUNCH)
    DIM/BRT SW - BRT

BIOMED
  CHANNEL 1 SW - MIDDECK CTR
  CHANNEL 2 SW - MIDDECK R

*** End of Panel R10 (MS1) ***
Panel R11U (MS1)

76-64 OTC ASP

PANEL R11U

MDU (CRT 4)
  POWER SW - ON
  BRT SW - AS REQUIRED

FUEL CELL
  GPC PURGE SEQ SW - (DOWN)

GPC PURGE SEQ ON TB BP

PURGE HEATER SW - GPC

PURGE VALVES
  1 SW - GPC
  2 SW - GPC
  3 SW - GPC

STARTUP HEATER
  1 SW - ENABLE
  2 SW - ENABLE
  3 SW - ENABLE

H₂O LINE HTR SW - A AUTO

H₂O RELIEF HTR SW - A AUTO

*** End of Panel R11U (MS1) ***
Panel R11L (MS1)

76-65 OTC ASP

PANEL R11L

ENCRIPTOR SW - NORM
MS AUDIO CONTROL SW - NORM

IDP/CRT 4
  POWER SW - ON
  MAJ FUNC SW - ___ (GNC OR SM)

NOTE
TB may indicate closed “CL” for Scrub scenarios.

SUPPLY H₂O

TK A INLET SW - (CENTER)
TB OP
TB CL (IF CONTINUOUS H₂O DRAIN IN PROGRESS)
TK A OUTLET SW - (CENTER)
TB CL
DUMP ISOL VLV SW - (CENTER)
TB BP
DUMP VLV SW - (CENTER)
TB BP
DUMP VLV ENABLE/NOZ
  HTR SW - OFF

TK B INLET SW - (CENTER)
TB OP
TK B OUTLET SW - (CENTER)
TB OP
CROSSOVER VLV SW - (CENTER)
TB CL
PANEL R11L (CONTINUED)

GALLEY SPLY VLV SW - (CENTER)
TB BP
   OR

(IF H₂O DRAIN IN PROGRESS)
GALLEY SPLY VLV SW - (CENTER)
TB OPEN

TK C INLET SW - (CENTER)
TB OP
TK C OUTLET SW - (CENTER)
TB OP

B SPLY ISOL VLV SW - (CENTER)
TB OP

*** End of Panel R11L (MS1) **
Panel R12 (MS1)

76-66 OTC ASP

IF VPU FLOWN ON PANEL R12,

THEN PERFORM:
PANEL R12

VPU POWER SW - OFF

Not Performed:______

76-67 OTC ASP

IF THE OBSS IS FLOWN ON PANEL R12,

THEN PERFORM:
PANEL R12U

OPP
   OBSS SW POWER CB1 - OPEN
   SW - OFF

OBSS
   S1 SW - (DOWN)
   RSC PWR SW - OFF
   ITVC ENA SW - OFF
   SPEE PWR SW - OFF
   S5 SW - (DOWN)
   S6 SW - (DOWN)

Not Performed:______

*** End of Panel R12 (MS1) ***
Panel R13U (MS1)

76-68 OTC ASP

PANEL R13U

CAUTION/WARNING
TONE VOLUME
A ADJUST SCREW - AS IS
B ADJUST SCREW - AS IS

PARAM STATUS SW - (CENTER)

MEMORY SW - (CENTER)

LAMP TEST SW - (CENTER)

PARAM SEL PB’S - 120

LIMIT SET
VALUE PB’S - 0.00
LIMIT SW - LOWER
FUNC SW - (CENTER)

PARAM SW - (CENTER)

*** End of Panel R13U (MS1) ***
Panel R13L (MS1)

76-69 OTC ASP

PANEL R13L

PL BAY DOOR
  SYS 1 SW - DISABLE
  SYS 2 SW - DISABLE

PL BAY MECH PWR
  SYS 1 SW - OFF
  SYS 2 SW - OFF

PL BAY DOOR SW - STOP
  TB AS IS

NOTE
Stbd and Port Radiator TB’s will indicate BP if AFT MCA logic is not on.

RADIATOR
  LATCH CONTROL
    SYS A SW - OFF
    SYS B SW - OFF
    STBD TB LAT
    PORT TB LAT

  RADIATOR CONTROL
    SYS A SW - OFF
    SYS B SW - OFF
    STBD TB STO
    PORT TB STO

KU ANTELLNA
  DIRECT STOW SW - OFF

  DEPLOY/GND/STOW SW - GND
  TB - STO

MANNED MANEUVR UNIT
  GN₂ SPLY ISOL VLV
    A SW - (CENTER)
    A TB BP
    B SW - (CENTER)
    B TB BP

*** End of Panel R13L (MS1) ***
Panel A1U (MS1)

76-70 OTC ASP

PANEL A1U

SIGNAL STRENGTH SW - S-BAND PM

SLEW
  AZIMUTH SW - (CENTER)
  ELEV SW - (CENTER)
  RATE SW - SLOW

KU BAND
  SCAN WARN TB BP
  TRACK TB BP
  SEARCH TB BP

CONTROL SW - CMD

KU BAND SW - MAN SLEW
KU BAND SEARCH SW - (DOWN)

  POWER SW - OFF
  MODE SW - RDR PASSIVE
  RADAR OUTPUT SW - HI

KU SIG PROC
  HI DATA RATE SW - TV
  LOW DATA RATE SW - MMU 1

TAGS SW - CLEAR

*** End of Panel A1U (MS1) ***
Panel A1L (MS1)

76-71 OTC ASP

PANEL A1L

S-BAND PAYLOAD
  CONTROL SW - COMMAND
  ANT POLAR SW - L CIRC
  XMTR PWR SW - LOW

CHANNEL SELECT
  INTRG 1 TW'S - 910
  INTRG 2 TW'S - 910

FREQ SWEEP SW - OFF
MOD SW - OFF

POWER
  SYSTEM SW - OFF
  SELECT SW - PSP

PSP CMD OUTPUT SW - PL UMB

PL DATA INTLVR POWER SW - ON

S-BAND PM
  ANT SW ELEC SW - 1
  PRE AMPL SW - 1
  PWR AMPL
    STANDBY SW - 1
    OPERATE SW - 1
  MODE SW - STDN HI
  XPNDR SW - 1

NETWORK SIG PROC
  DATA RATE
    XMIT SW - HIGH
    RCV SW - HIGH
PANEL A1L (CONTINUED)

UPLINK DATA SW - S-BD
CODING
   XMIT SW - OFF
   RCV SW - ON

POWER SW - 1

ENCRIPTION
   PWR SW - ON
   MODE SW - SELECT
   SELECT SW - RCV

*** End of Panel A1L (MS1) ***
Panel A1R (MS1)

NOTE
All unlabeled switches on Panel A1R “AS-REQUIRED.”

76-72 OTC ASP

PANEL A1R
AUDIO CENTER
VOICE RECORD SELECT
CHANNEL 1 SW - ICOM A
CHANNEL 2 SW - ICOM B

DOCKING RING (7 SW'S OFF)
TONE SW - OFF
PAGE SW - OFF
A/G
1 SW - OFF
2 SW - OFF
A/A SW - OFF
ICOM
A SW - OFF
B SW - OFF

SPACELAB (7 SW'S OFF)
TONE SW - OFF
PAGE SW - OFF
A/G
1 SW - OFF
2 SW - OFF
A/A SW - OFF
ICOM
A SW - OFF
B SW - OFF

UHF
A/G
1 SW - OFF
2 SW - OFF
A/A SW - OFF

PL BAY OUTLETS
ICOM
A SW - OFF
B SW - OFF

S-BAND FM
CONTROL SW - COMMAND
ANT SW - GPC
POWER SW - 1
DATA SOURCE SW - ME

*** End of Panel A1R (MS1) ***
AFT MDU (Orbit Station)

76-73 OTC ASP

PANEL AFT MDU

MDU (AFD 1)
   POWER SW - OFF
   BRT SW - AS REQUIRED

*** End of AFT MDU (Orbit Station) ***

Panel A6U (MS1)

76-74 OTC ASP

PANEL A6U

SENSE SW - (-)Z
FLT CNTLR POWER SW - OFF
ATT REF PB - AS IS
UNLABELED ROTARY SW - FULL COUNTERCLOCKWISE

ADI
   ATTITUDE SW - INRTL
   ERROR SW - MED
   RATE SW - MED

ORBITAL DAP (ALL LIGHTS OFF)
   SELECT
      A LIGHT OFF
      B LIGHT OFF
   CONTROL
      AUTO LIGHT OFF
      INRTL LIGHT OFF
      LVLH LIGHT OFF
      FREE LIGHT OFF
PANEL A6U (CONTINUED)

MANUAL MODE (ALL LIGHTS OFF)
TRANSLATION
X
  SPARE (BLANK PBI) LIGHT OFF
  NORM LIGHT OFF
  PULSE LIGHT OFF
Y
  LOW Z LIGHT OFF
  NORM LIGHT OFF
  PULSE LIGHT OFF
Z
  HIGH Z LIGHT OFF
  NORM LIGHT OFF
  PULSE LIGHT OFF

ROTATION
ROLL
  PRI LIGHT OFF
  DISC RATE LIGHT OFF
  PULSE LIGHT OFF
PITCH
  ALT LIGHT OFF
  DISC RATE LIGHT OFF
  PULSE LIGHT OFF
YAW
  VERN LIGHT OFF
  DISC RATE LIGHT OFF
  PULSE LIGHT OFF

ORBIT STATION LIGHTING
FLOOD
  ON/OFF SW - ON
  DIM/BRT SW - BRT
PANEL SW - OFF
INSTRUMENT SW - OFF
NUMERIC SW - OFF

ANNUNCIATOR
  BUS SELECT SW - OFF
  LAMP TEST SW - (CENTER)
INTENSITY
  BRIGHT/VAR SW - VAR
  LOW/MED SW - MED
PANEL A6U (CONTINUED)

PAYLOAD RETENTION

LOGIC POWER
SYS 1 SW - OFF
SYS 2 SW - OFF

PAYLOAD SELECT SW - MON (BETWEEN POSITIONS 1 AND 2)

PAYLOAD RETENTION LATCHES

READY TO LATCH
1 TB BP
2 TB BP
3 TB BP
4 TB BP
5 TB BP

LATCH SWITCHES
1 SW - OFF
TB BP
2 SW - OFF
TB BP
3 SW - OFF
TB BP
4 SW - OFF
TB BP
5 SW - OFF
TB BP

EVENT TIMER
SET PB'S - AS REQD
MODE SW - UP
CONTROL SW - (CENTER)
TIMER SW - (CENTER)

*** End of Panel A6U (MS1) ***
Panel A6L (Docking System Power Panel - DSP)

76-75 OTC ASP

IF DOCKING SYSTEM PANEL A6L (DSP) IS INSTALLED,

THEN PERFORM:

PANEL A6L

DOCKING SYSTEM POWER (ALL 24 CB’S OPEN)

ESS 1BC
  SYS PWR CNTL SYS 1 CB - OPEN
  DEPRESS SYS 1 VENT ISOL CB - OPEN

MAIN A
  DEPRESS SYS 1 VENT CB - OPEN
  DOCK LIGHT
    TRUSS FWD CB - OPEN
    VEST PORT CB - OPEN

ESS 2CA
  SYS PWR CNTL SYS 2 CB - OPEN
  DEPRESS SYS 2 VENT ISOL CB - OPEN

MAIN B
  DEPRESS SYS 2 VENT CB - OPEN
  DOCK LIGHT
    AFT CB - OPEN
    VEST STBD CB - OPEN

MAIN A
  LOGIC 3 CB - OPEN
  LOGIC 1 CB - OPEN

MAIN B
  LOGIC 1 CB - OPEN
  LOGIC 2 CB - OPEN

MAIN C
  LOGIC 2 CB - OPEN
  LOGIC 3 CB - OPEN

PMA 2/3 GRP 1 HOOKS
  SYS A OPEN CB - OPEN
  SYS A CLOSE CB - OPEN
  SYS B OPEN CB - OPEN
  SYS B CLOSE CB - OPEN
PANEL A6L (CONTINUED)

PMA 2/3 GRP 2 HOOKS
SYS A OPEN CB - OPEN
SYS A CLOSE CB - OPEN
SYS B OPEN CB - OPEN
SYS B CLOSE CB - OPEN

SYSTEM POWER SYS 1 SW - (CENTER)
    TB OFF
SYSTEM POWER SYS 2 SW - (CENTER)
    TB OFF

PYRO POWER
MN A SW - OFF
MN C SW - OFF

PMA 2/3 HOOKS GROUP
SYS A SW - (CENTER)
    TB BP
SYS B SW - (CENTER)
    TB BP

VESTIBULE DEPRESS VALVE
SYS 1 VENT ISOL SW - (CENTER)
    TB BP
VENT SW - (CENTER)
    TB BP
SYS 2 VENT ISOL SW - (CENTER)
    TB BP
VENT SW - (CENTER)
    TB BP

PSU POWER
MN A SW - OFF
MN B SW - OFF

LIGHTS
TRUSS FWD SW - OFF
TRUSS AFT SW - OFF

VESTIBULE PORT SW - OFF
VESTIBULE STBD SW - OFF

Not Performed: ______

*** End of Panel A6L (Docking System Power Panel - DSP) ***
Panel A6L (MS1)

76-76 OTC ASP

PANEL A6L

MADS
  POWER MN B CB - CLOSE

RECORDER
  POWER SW - OFF
  PB FWD SW - CMD

STRAIN GAGE SW - PCM ENA
WIDEBAND/ACIP PCM SW - CMD

PCM
  CMD/ON SW - CMD
  RCD MODE SW - SAMPLE

FDM
  CONTROL SW - DATA
  MAN CALBR SW - DC 0

ACIP HTR SW - OFF

*** End of Panel A6L (MS1) ***
Panel A7U (MS1)

76-77 OTC ASP

PANEL A7U

MASTER ALARM LIGHT OFF
PAYLOAD BAY FLOOD
AFT
STBD SW - OFF
PORT SW - OFF

MID
STBD SW - OFF
PORT SW - OFF

FWD
STBD SW - OFF
PORT SW - OFF

DOCKING SW - OFF

FWD BHD SW - OFF

PORT RMS
LIGHT SW - OFF
CAMERA SW - ELBOW

WIRELESS VIDEO
HEATER SW - OFF
POWER SW - OFF
PANEL A7U (CONTINUED)

AFT RHC - AS REQD

TV
TV POWER
   CONTROL SW - CMD
   CONTR UNIT SW - OFF

CAMERA POWER
   A SW - (CENTER)
      TB OFF
   B SW - (CENTER)
      TB OFF
   C SW - (CENTER)
      TB OFF
   D SW - (CENTER)
      TB OFF
   RMS SW - (CENTER)
      TB OFF

TV
   DOWNLINK SW - ENABLE
   SYNC SW - NORMAL

VIDEO INPUT (ALL LIGHTS OFF)
   A LIGHT OFF
   B LIGHT OFF
   C LIGHT OFF
   D LIGHT OFF
   RMS LIGHT OFF
   FLT DECK LIGHT OFF
   MIDDECK LIGHT OFF
   PL 1 LIGHT OFF
   PL 2 LIGHT OFF
   PL 3 LIGHT OFF
   MUX 1 LIGHT OFF
   MUX 2 LIGHT OFF
   TEST LIGHT OFF
PANEL A7U (CONTINUED)

VIDEO OUTPUT (ALL LIGHTS OFF)
MON 1 LIGHT OFF
DOWNLINK LIGHT OFF
MON 2 LIGHT OFF
DTV LIGHT OFF
MUX 1 L LIGHT OFF
MUX 1 R LIGHT OFF
MUX 2 L LIGHT OFF
MUX 2 R LIGHT OFF

CAMERA COMMAND
PAN/TILT SW - LOW RATE
FOCUS SW - (CENTER)
ZOOM SW - (CENTER)
IRIS SW - (CENTER)
TILT SW - (CENTER)
PAN SW - (CENTER)

MENU (ALL LIGHTS OFF)
MODE (ALL LIGHTS OFF)

*** End of Panel A7U (MS1) ***
Panel A7L (APDS Control Panel MS1)

76-78 OTC ASP

\textbf{IF} APDS CONTROL PANEL IS INSTALLED,

\textbf{THEN PERFORM:}

\textbf{PANEL A7L}

APDS CONTROL PANEL
CNTL PNL PWR A SW - OFF
CNTL PNL PWR B SW - OFF
CNTL PNL PWR C SW - OFF

HTRS/DCU PWR H1 SW - OFF
HTRS/DCU PWR H2/DCU SW - OFF
HTRS/DCU PWR H3/DCU SW - OFF

APDS PWR ADS SW - OFF
ADS LIGHT - OFF
APDS PWR BDS SW - OFF
BDS LIGHT - OFF
APDS PWR CDS SW - OFF
CDS LIGHT - OFF

LAMP TEST LIGHT - OFF
STATUS LITES (ALL 36 LITES OFF)

PYROS AP SW - OFF
AP LIGHT - OFF
PYROS BP SW - OFF
BP LIGHT - OFF
PYROS CP SW - OFF
CP LIGHT - OFF

PYRO PROTECT/CIRC OFF LITES (2) - OFF

APDS CONTROL COMMANDS (ALL 8 LITES OFF)

\textbf{Not Performed: \underline{______}}

*** End of Panel A7L (APDS Control Panel MS1) ***
Panel A8U (MS1)

IF PANEL A8U (RMS) IS INSTALLED,

THEN PERFORM:

PANEL A8U

RMS

BRAKES SW - ON
TB OFF

MODE MATRIX LIGHTS OFF (12)

SAFING SW - AUTO
TB BP

MODE

SELECT SW - TEST
ENTER PBI - AS IS
AUTO SEQ SW - (CENTER)
LIGHTS (2) - OFF

SOFTWARE STOP TB GRAY

CAUTION WARNING

TONE VOL - AS IS
RMS C/W LIGHTS (11) - OFF

MASTER ALARM LIGHT - OFF

RATE

MIN TB OFF
HOLD TB OFF
SCALE TB GRAY

END EFFECTOR

MODE SW - OFF
MAN CONTR SW - (CENTER)

TB BP (SIX)
PANEL A8U (CONTINUED)

BACKUP CONTROL
  JOINT SW - SHOULDER YAW
  PAYLOAD RELEASE SW - OFF
  DIRECT DRIVE SW - (CENTER)

PARAMETER
  SELECT SW - PORT TEMP LED/ABE/ID

LIGHTING
  ANNUN/NUM
    BRT/VAR SW - VAR
    SEL SW - LOW

PANEL/INST
  SW - OFF

JOINT
  SELECT SW - CRIT TEMP
  SINGLE/DIRECT
    DRIVE SW - (CENTER)

SHOULDER BRACE RELEASE SW - (CENTER)
  TB BP

Not Performed:_____

*** End of Panel A8U (MS1) ***
Panel A8L (MS1)

**Panel A8L (MS1)**

76-80 OTC ASP

**IF** PANEL A8L (RMS) IS INSTALLED,

**THEN PERFORM:**

**PANEL A8L**

STARBOARD RMS
  DEPLOY/STOW SW - OFF
  TB STO (BP IF MPM’S NOT INSTALLED)

HEATER
  A SW - OFF
  B SW - OFF

RETENTION LATCHES
  RELEASE/OFF/LATCH SW - OFF
  TB LAT (BP IF MPM’S NOT INSTALLED)

READY FOR LATCH
  AFT TB GRAY (BP IF STARBOARD RMS/OBSS NOT INSTALLED)
  MID TB GRAY (BP IF STARBOARD RMS/OBSS NOT INSTALLED)
  FWD TB GRAY (BP IF STARBOARD RMS/OBSS NOT INSTALLED)

RMS SELECT SW - OFF
RMS POWER SW - OFF

PORT RMS
  DEPLOY/STOW SW - OFF
  TB STO (BP IF MPM’S NOT INSTALLED)

HEATER
  A SW - OFF
  B SW - OFF

RETENTION LATCHES
  RELEASE/OFF/LATCH SW - OFF
  TB LAT (BP IF MPM’S NOT INSTALLED)

READY FOR LATCH
  AFT TB GRAY (BP IF PORT RMS NOT INSTALLED)
  MID TB GRAY (BP IF PORT RMS NOT INSTALLED)
  FWD TB GRAY (BP IF PORT RMS NOT INSTALLED)

**Not Performed:**

*** End of Panel A8L (MS1) ***
RMS RHC (MS1)

NOTE
The following switches are located on RMS RHC to right of Panel A8U.

76-81  OTC    ASP

IF RMS RHC IS INSTALLED,

THEN PERFORM:
RMS RHC
  RATE SW - VERNIER

Not Performed:_____

*** End of RMS RHC (MS1) ***

Panel A2 (PS1)

76-82  OTC    ASP

PANEL A2

  DIGI-DIS SELECT SW - EL/AZ
  X-PNTR SCALE SW - X10

*** End of Panel A2 (PS1) ***

Panel A4 (PS1)

76-83  OTC    ASP

PANEL A4

  MISSION TIMER SW - MET

*** End of Panel A4 (PS1) ***
Panel A3U (PS1)

76-84 OTC ASP

PANEL A3U (TV MON 1)

POWER LIGHT OFF
POWER SW - OFF
SELECT PB - AS IS
FUNCTION SW - (CENTER)
CONTRAST SW - (CENTER)
BRIGHTNESS SW - (CENTER)
COLOR - AS IS
TINT - AS IS

*** End of Panel A3U (PS1) ***

Panel A3L (PS1)

76-85 OTC ASP

PANEL A3L (TV MON 2)

POWER LIGHT OFF
POWER SW - OFF
SELECT PB - AS IS
FUNCTION SW - (CENTER)
CONTRAST SW - (CENTER)
BRIGHTNESS SW - (CENTER)
COLOR - AS IS
TINT - AS IS

*** End of Panel A3L (PS1) ***
Panel L9 (PS1)

76-86 OTC ASP

PANEL L9

PS FLOOD
ON/OFF SW - ON (FOR DAY LAUNCH)
- OFF (FOR NIGHT LAUNCH)
DIM/BRT SW - BRT

PAYLOAD STATION AUDIO
POWER SW - AUD/TONE
A/G
  1 SW - T/R
  2 SW - T/R
A/A SW - T/R
ICOM
  A SW - T/R
  B SW - T/R
VOX SENS SW - AS REQD
PAGE SW - DOWN
VOLUME
A/G
  1 PB - AS IS
  2 PB - AS IS
A/A PB - AS IS
ICOM
  A PB - AS IS
  B PB - AS IS
XMIT/ICOM MODE SW - PTT/PTT

*** End of Panel L9 (PS1) ***
Panel L10

76-87 OTC ASP

IF ADVANCED VIDEO INTERFACE UNIT (AVIU) IS INSTALLED IN PANEL L10 STOWAGE CONTAINER, THEN PERFORM:

PANEL L10
OPEN STOWAGE CONTAINER
AVIU, QTY-2
SYNC/VIDEO SW - VIDEO
PWR SELECT SW - HIGH
HI-Z/75 SW - HI-Z
CLOSE STOWAGE CONTAINER

Not Performed:_______
76-88 OTC ASP

PANEL L10L (MUX)
- VTR/CC PWR - 1 (UP)
- MUX BYPASS - ACT
- MUX/VTR/CC - 0 (DOWN)
- CHANNEL 0
  - RATE SEL - ______
- CHANNEL 1
  - RATE SEL - ______
- CHANNEL 2
  - RATE SEL - ______

PANEL L10L (VIP)
- REMOVE COVER
- PWR - 0
- ATU - REC
- CCTV VIDEO IN - J3
- INSTALL COVER

PANEL L10L (VTR)
- REMOVE COVER
- VERIFY ALL LTS OFF
- ON/STANDBY LT - OFF
- TIMER - REC
- AUDIO OUTPUT SELECT - CH-1/2
- PHONE LEVEL - MIDRANGE
- KEY INH - OFF
- CHARACTER DISPLAY (LCD) - ON (NO BLACK BACK)
- DISPLAY SELECT - DATA
- CHARACTER DISPLAY - OFF
- INPUT SELECT - VIDEO
- COUNTER SELECT - TC
- AUDIO INPUT - FIX
- AUDIO REC LEVEL CH-1 - AS IS
- AUDIO REC LEVEL CH-2 - AS IS
- INSTALL COVER

*** End of Panel L10 ***
Panel L11

76-89  OTC   ASP

**IF** PAYLOAD DATA INTERFACE PANEL IS INSTALLED ON PANEL L11U **WITH** MPLM DATA OVERLAY,

**THEN PERFORM:**
**PANEL L11U (PDIP #2)**
PAYLOAD DATA INTERFACE PANEL
   MPLM DATA SW - OIU (CENTER)
   DC POWER 1 SW - OFF
   DC POWER 2 SW - OFF

Not Performed:______

76-90  OTC   ASP

**IF** PAYLOAD DATA INTERFACE PANEL IS INSTALLED ON L11U AND T-0/OIU/OIU OVERLAY INSTALLED,

**THEN PERFORM:**
**PANEL L11U (PDIP #2)**
PAYLOAD DATA INTERFACE PANEL
   T-0/OIU/OIU SW - OIU (CENTER)
   DC POWER 1 SW - OFF
   DC POWER 2 SW - OFF

Not Performed:______
IF PAYLOAD DATA INTERFACE PANEL IS INSTALLED ON L11U AND AMS 1553 DATA OVERLAY INSTALLED,

THEN PERFORM:

PAYLOAD DATA INTERFACE PANEL
   AMS 1553 DATA SW - T-0 (CENTER)
   DC POWER 1 SW - OFF
   DC POWER 2 SW - OFF

Not Performed:______

*** End of Panel L11 ***
NOTE
Perform the following two steps for STS-135 mission only.

Panel L12

76-92 OTC ASP

PANEL L12U (SSP-1)
VERIFY ALL TB’S BP

S1 SW - (CENTER)
S2 SW - (CENTER)
APCU 1 CONV SW - OFF
APCU 1 OUTPUT RLY SW - OPEN
S5 SW - (CENTER)
APCU 2 CONV SW - OFF
APCU 2 OUTPUT RLY SW - OPEN
SW PWR 1 CB2 - OPEN
PDIP 1 PWR 2/KUBAND RLY CB1 - OPEN
MPLM CHAN 1 HTR PWR SW - OFF
S9 SW - (CENTER)
S10 SW - (DOWN)
MPLM CHAN 2 HTR PWR SW - OFF
S12 SW - (CENTER)
S13 SW - (CENTER)
S14 SW - (CENTER)
TCS PWR SW - OFF
S16 SW - (DOWN)
PSSC DEPLOY SW - (CENTER)
PSSC PRE-ARM SW - SAFE
S19 SW - (DOWN)
SW PWR2 CB4 - OPEN
X1/X2 SW PDIP 1 PWR 1 CB3 - OPEN
ODS CONN MATE X1 TLM PWR SW - OFF
S21 SW - (CENTER)
ODS CONN MATE X2 TLM PWR SW - OFF
PSSC ARM SW - SAFE
OIU PWR SW - OFF

Not Performed:______
76-93 OTC ASP

PANEL L12L (SSP-2)
VERIFY ALL TB’S BP

S1 SW - (CENTER)
S2 SW - (CENTER)
MPLM KEEL CAM PWR SW - OFF
MPLM KEEL CAM HTR/ILLUM PWR SW - OFF
S5 SW - (CENTER)
S6 SW - (DOWN)
S7 SW - (DOWN)
SW PWR 3 CB - OPEN
PDIP 2 PWR 2 MPLM RLY CB1 - OPEN
S8 SW - (DOWN)
S9 SW - (CENTER)
TRIDAR PWR SW - OFF
S11 SW - (DOWN)
C/L CAM PWR SW - OFF
S13 SW - (CENTER)
S14 SW - (CENTER)
S15 SW - OFF
S16 SW - (DOWN)
S17 SW - (CENTER)
S18 SW - (DOWN)
S19 SW - OFF
CB4 - OPEN
PDIP 2 PWR 1 CB3 - OPEN
S20 SW - OFF
S21 SW - (CENTER)
S22 SW - (DOWN)
S23 SW - (DOWN)
S24 SW - (CENTER)

Not Performed:______
76-94 OTC ASP

IF PAYLOAD DATA INTERFACE PANEL (PDIP) IS INSTALLED AT PANEL L12,

THEN PERFORM:

PANEL L12L (PDIP #1)
PAYLOAD DATA INTERFACE PANEL
   KU BAND RATE SW - OFF
   DC POWER 1 SW - OFF
   DC POWER 2 SW - OFF

Not Performed:______

Panel L15

76-95 OTC ASP

IF IMAX PANEL IS INSTALLED,

THEN PERFORM:

PANEL L15

IMAX CAMERA POWER
   POWER SW - OFF
   CIRCUIT BREAKER SW - OFF

Not Performed:______

*** End of Panel L15 ***
Panel A15

76-96 OTC ASP

PANEL A15

PS COMM CCU POWER SW - OFF
DC UTILITY POWER MN C SW - OFF
AC UTILITY POWER AC 3 SW - OFF

ROW A
CRYO TANK 5 HEATERS
  O₂
    A SW - OFF
    B SW - OFF
  RESET/TEST SW - (CENTER)
H₂
  A SW - OFF
  B SW - OFF
76-97 OTC ASP

IF VEHICLE IS OV-104,

THEN PERFORM:
PANEL A15

ROW B
PPCA CONT PWR
1/3 ESS 1BC CB - OPEN
2/4 ESS 2CA CB - OPEN

ROW C
PALLETS POWER
MN A PPCA - 1/3 SW - (CENTER)
 TB OFF
MN B PPCA - 2/4 SW - (CENTER)
 TB OFF

PALLETS HEATERS
A SW - OFF
B SW - OFF

ROW D
PALLETS CRYO TANK HEATERS
TANK 6/10
O₂
A SW - OFF
B SW - OFF
TANK 6 RESET/TEST SW - (CENTER)
H₂
A SW - OFF
B SW - OFF

ROW E
PALLETS CRYO TANK HEATERS
TANK 7/11
O₂
A SW - OFF
B SW - OFF
TANK 7 RESET/TEST SW - (CENTER)
H₂
A SW - OFF
B SW - OFF
PANEL A15 (CONTINUED)

ROW F
PALLET CRYO TANK HEATERS
TANK 8/12
O₂
A SW - OFF
B SW - OFF
TANK 8 RESET/TEST SW - (CENTER)
H₂
A SW - OFF
B SW - OFF

ROW G
PALLET CRYO TANK HEATERS
TANK 9/13
O₂
A SW - OFF
B SW - OFF
TANK 9 RESET/TEST SW - (CENTER)
H₂
A SW - OFF
B SW - OFF

ROW H
PALLET CRYO
ESS 1BC
TANK 6/10
CNTLR
O₂ CB - OPEN
H₂ CB - OPEN
TANK 6 QTY
O₂ CB - OPEN
H₂ CB - OPEN
MN A
TANK 6/10
O₂ HTR
SNSR 1 CB - OPEN

MN B
TANK 6/10
O₂ HTR
SNSR 2 CB - OPEN
PANEL A15 (CONTINUED)

ROW I
PALLET CRYO
ESS 1 BC
TANK 7/11
CNTLR
  O₂ CB - OPEN
  H₂ CB - OPEN
TANK 7 QTY
  O₂ CB - OPEN
  H₂ CB - OPEN
MN A
  TANK 7/11
  O₂ HTR
  SNSR 1 CB - OPEN
MN B
  TANK 7/11
  O₂ HTR
  SNSR 2 CB - OPEN

ROW J
PALLET CRYO
ESS 2 CA
TANK 8/12
CNTLR
  O₂ CB - OPEN
  H₂ CB - OPEN
TANK 8 QTY
  O₂ CB - OPEN
  H₂ CB - OPEN
MN A
  TANK 8/12
  O₂ HTR
  SNSR 1 CB - OPEN
MN B
  TANK 8/12
  O₂ HTR
  SNSR 2 CB - OPEN
PANEL A15 (CONTINUED)

ROW K
PALLET CRYO
   ESS 2 CA
      TANK 9/13
         CNTLR
            O₂ CB - OPEN
            H₂ CB - OPEN
            TANK 9 QTY
            O₂ CB - OPEN
            H₂ CB - OPEN

MN A
   TANK 9/13
      O₂ HTR
         SNSR 1 CB - OPEN

MN B
   TANK 9/13
      O₂ HTR
         SNSR 2 CB - OPEN

Not Performed:_______
IF VEHICLE IS OV-103/105,

THEN PERFORM:

PANEL A15 (CONTINUED)

ROW B
PTU
PTU 1 TB - OFF
    2 TB - OFF
CNTL PWR
    PTU 1 CB - OPEN
    PTU 2 CB - OPEN

ROW C (TB’S ON ROW B)
PTU
PTU/MAIN BUS
    A SW - (CENTER)
    B SW - (CENTER)
ODS MATE
    X1 SW - OFF
    X2 SW - OFF

ROW D
PTU
OPCU 1
    CONV SW - OFF
V-ADJ
    CMD/PNL SW - OFF
    UP/DOWN SW - (CENTER)
APCU 1
    CONV SW - OFF
    OUTPUT SW - OFF

ROW E
PTU
OPCU 2
    CONV SW - OFF
V-ADJ
    CMD/PNL SW - OFF
    UP/DOWN SW - (CENTER)
APCU 2
    CONV SW - OFF
    OUTPUT SW - OFF
ROW F
UNLABELED SW’S (FIVE) - OFF
(MOMENTARY - CENTER, OTHERS - DOWN)

ROW G
UNLABELED SW’S (FIVE) - OFF
(MOMENTARY - CENTER, OTHERS - DOWN)

ROW H
UNLABELED CB’S (SIX) - OPEN

ROW I
UNLABELED CB’S (SIX) - OPEN

ROW J
UNLABELED CB’S (SIX) - OPEN

ROW K
UNLABELED CB’S (SIX) - OPEN

Not Performed:____

*** End of Panel A15 ***
Panel A14 (PS1)

76-99  OTC  ASP

PANEL A14

RCS/OMS HEATERS
FWD RCS SW - OFF

LEFT POD
A AUTO SW - OFF
B AUTO SW - OFF

RIGHT POD
A AUTO SW - OFF
B AUTO SW - OFF

OMS
KIT SW - OFF

CRSF D LINES
A AUTO SW - A AUTO
B AUTO SW - B AUTO

FWD RCS JET
1 SW - AUTO
2 SW - AUTO
3 SW - AUTO
4 SW - AUTO
5 SW - AUTO

AFT RCS JET
1 SW - AUTO
2 SW - AUTO
3 SW - AUTO
4 SW - AUTO
5 SW - AUTO
NOTE
Perform the CARGO COOLANT LOOP HEATERS switch verification for OV-103 and OV-105

CARGO COOLANT LOOP HEATERS
ORBITER/OFF/ACCUM (SELECT)
  A AUTO - OFF
  B AUTO - OFF
  C AUTO - OFF
CARGO LINE/OFF (SELECT)
  A AUTO - OFF
  B AUTO - OFF

Not Performed:_____

PANEL A14 (CONTINUED)

PYRO (ALL 13 SW'S SAFE)
  KU ANT
     ARM SW - SAFE
     JETT SW - SAFE

STARBOARD RMS
  ARM SW - SAFE
  SHLDR SW - SAFE
  LATCHES
     FWD SW - SAFE
     MID SW - SAFE
     AFT SW - SAFE

PORT RMS
  ARM SW - SAFE
  SHLDR SW - SAFE
  LATCHES
     FWD SW - SAFE
     MID SW - SAFE
     AFT SW - SAFE

RMS LATCHES SW - SAFE

*** End of Panel A14 (PS1) ***
Panel A13 (MS1)

76-100 OTC ASP

IF VEHICLE IS OV-103,

THEN PERFORM:
PANEL A13

GPS
  PRE-AMPL
    UC SW - OFF
    LC SW - OFF
  POWER SW - OFF
  GPS/SIGI POWER SW - OFF
  ENCRYPT SW - NORMAL
  GPS/SIGI ENCRYPT SW - NORMAL

Not Performed:______
76-101  OTC  ASP

IF VEHICLE IS OV-104,

THEN PERFORM:
PANEL A13

GPS
  PRE-AMPL
  UC SW - OFF (CENTER)

LC SW - OFF (CENTER)

POWER SW - OFF
UNLABELED SW - (DOWN)
ENCRYPT SW - NORMAL
UNLABELED SW - (DOWN)

Not Performed:_______

76-102  OTC  ASP

PANEL A13

OS AUDIO
  MASTER SPEAKER VOL SW - AS IS

  SPKR PWR SW - OFF

*** End of Panel A13 (MS1) ***
Panel A12 (MS1)

76-103 OTC ASP

PANEL A12

APU HEATER
  GAS GEN/FUEL PUMP
    1 SW - OFF
    2 SW - OFF
    3 SW - OFF
  LUBE OIL LINE
    1 SW - OFF
    2 SW - OFF
    3 SW - OFF
  TANK/FUEL LINE/H₂O SYS
    1A SW - OFF
    1B SW - OFF
    2A SW - OFF
    2B SW - OFF
    3A SW - OFF
    3B SW - OFF

LG ARM/DN RESET SW - (DOWN)

FC3 STRUCT RTN SW - (CENTER)
TB ON

HYDRAULIC HEATER
  RUDDER SPD BK
    A SW - OFF
    B SW - AUTO
  BODY FLAP
    A SW - AUTO
    B SW - OFF
  ELEVON
    A SW - AUTO
    B SW - OFF
  AFT FUSELAGE
    A SW - AUTO
    B SW - OFF

HYD CIRC PUMP POWER
  1 SW - MN A
  2 SW - MN B
  3 SW - MN C

*** End of Panel A12 (MS1) ***
Panel A11 (MS1)

76-104 OTC ASP

IF FOR OV-103,

THEN PERFORM:
PANEL A11

CRYO TANK 4 HEATERS

O₂
  A SW - OFF
  B SW - OFF
  RESET/TEST SW - (CENTER)

H₂
  A SW - OFF
  B SW - OFF

MS COMM CCU PWR SW - OFF
DC UTILITY POWER MN C SW - OFF

Not Performed:______
76-105 OTC MS1

IF FOR OV-105,

THEN PERFORM:
PANEL A11

ROW A
CRYO TANK 4 HEATERS
  O₂
  A SW - OFF
  B SW - OFF
  RESET/TEST SW - (CENTER)
  H₂
  A SW - OFF
  B SW - OFF

ROW B
PALLET CRYO TANK HEATERS
TANK 10
  O₂
  A SW - OFF
  B SW - OFF
  RESET/TEST SW - (CENTER)
  H₂
  A SW - OFF
  B SW - OFF

ROW C
PALLET CRYO TANK HEATERS
TANK 11
  O₂
  A SW - OFF
  B SW - OFF
  RESET/TEST SW - (CENTER)
  H₂
  A SW - OFF
  B SW - OFF
PANEL A11 (CONTINUED)

ROW D
PALLET CRYO TANK HEATERS
TANK 12
O₂
  A SW - OFF
  B SW - OFF
  RESET/TEST SW - (CENTER)
H₂
  A SW - OFF
  B SW - OFF

ROW E
PALLET CRYO TANK HEATERS
TANK 13
O₂
  A SW - OFF
  B SW - OFF
  RESET/TEST SW - (CENTER)
H₂
  A SW - OFF
  B SW - OFF

ROW F
PALLET CRYO
ESS 1 BC

TANK 10 CNTLR
O₂ CB - OPEN
H₂ CB - OPEN

QTY
O₂ CB - OPEN
H₂ CB - OPEN

MN A
O₂ HTR SNSR 1 CB - OPEN

MN B
O₂ HTR SNSR 2 CB - OPEN
PANEL A11 (CONTINUED)

ROW G
PALLET CRYO
ESS 1BC
   TANK 11 CNTLR
   O₂ CB - OPEN
   H₂ CB - OPEN

QTY
   O₂ CB - OPEN
   H₂ CB - OPEN

MN A
   O₂ HTR SNSR 1 CB - OPEN

MN B
   O₂ HTR SNSR 2 CB - OPEN

ROW H
PALLET CRYO
ESS 3AB
   TANK 12 CNTLR
   O₂ CB - OPEN
   H₂ CB - OPEN

QTY
   O₂ CB - OPEN
   H₂ CB - OPEN

MN A
   O₂ HTR SNSR 1 CB - OPEN

MN B
   O₂ HTR SNSR 2 CB - OPEN
## PANEL A11 (CONTINUED)

### ROW I

**PALLETT CRYO ESS 3AB**

<table>
<thead>
<tr>
<th>Item</th>
<th>Status</th>
</tr>
</thead>
</table>
| Tank 13 CNTLR | O₂ CB - OPEN  
H₂ CB - OPEN |
| QTY | O₂ CB - OPEN  
H₂ CB - OPEN |
| MN A | O₂ HTR SNSR 1 CB - OPEN |
| MN B | O₂ HTR SNSR 2 CB - OPEN |
| MS COMM CCU PWR SW | OFF |
| DC UTILITY PWR MN C SW | OFF |
| PALLET HEATERS | C SW - OFF  
D SW - OFF |

Not Performed: _______
IF FOR OV-104, THEN PERFORM:

PANEL A11

CRYO TANK 4 HEATERS

\[
\begin{align*}
O_2 & \\
A & SW - OFF \\
B & SW - OFF \\
RESET/TEST SW & - (CENTER) \\
\end{align*}
\]

\[
\begin{align*}
H_2 & \\
A & SW - OFF \\
B & SW - OFF \\
\end{align*}
\]

CRYO TANK SELECT 6/10 O\_2 SW - (CENTER)
CRYO TANK SELECT 6/10 H\_2 SW - (CENTER)
CRYO TANK SELECT 7/11 O\_2 SW - (CENTER)
CRYO TANK SELECT 7/11 H\_2 SW - (CENTER)
CRYO TANK SELECT 8/12 O\_2 SW - (CENTER)
CRYO TANK SELECT 8/12 H\_2 SW - (CENTER)
CRYO TANK SELECT 9/13 O\_2 SW - (CENTER)
CRYO TANK SELECT 9/13 H\_2 SW - (CENTER)

PALLE\_T CRYO

ESS BUS 1BC

\[
\begin{align*}
TANK 10 & QTY \\
O_2 & CB - OPEN \\
H_2 & CB - OPEN \\
\end{align*}
\]

\[
\begin{align*}
TANK 11 & QTY \\
O_2 & CB - OPEN \\
H_2 & CB - OPEN \\
\end{align*}
\]

ESS BUS 3AB

\[
\begin{align*}
TANK 12 & QTY \\
O_2 & CB - OPEN \\
H_2 & CB - OPEN \\
\end{align*}
\]

\[
\begin{align*}
TANK 13 & QTY \\
O_2 & CB - OPEN \\
H_2 & CB - OPEN \\
\end{align*}
\]

MS COMM CCU PWR SW - OFF
DC UTILITY POWER MN C SW - OFF

Not Performed: ____

*** End of Panel A11 (MS1) ***
Panel R14 (MS1)

76-107 OTC ASP

PANEL R14

ROW A
MN A
  AUDIO MS CB - CLOSE
  ADC 1A/2A CB - CLOSE
  MDU
    MFD 2 CB - CLOSE
    PLT 1 CB - CLOSE

MN B
  AUDIO MIDDECK SPKR CB - CLOSE
  ADC 1B/2B CB - CLOSE
  MDU
    MFD 1 CB - CLOSE
    CDR 2 CB - CLOSE

MN C
  AUDIO
    AUD CTR 2 CB - CLOSE
    PS/AIRLOCK CB - CLOSE
  MDU
    CDR 1 CB - CLOSE
    PLT 2 CB - CLOSE
    AFD 1 CB - CLOSE

ROW B
MN A
  UHF CB - CLOSE
  GCILC CB - CLOSE
  CONTROL BUS BC1/2/3 CB - CLOSE

  PALLET DSC 1A/2B CB - OPEN (OV-104/105)
  PALLET DSC 3A CB - OPEN (OV-104/105)

MN B
  CONTROL BUS CA1/2/3 CB - CLOSE
PANEL R14 (CONTINUED)

ROW B (CONTINUED)

Pallet DSC 1B CB - OPEN (OV-104/105)
Pallet DSC 4B CB - OPEN (OV-104/105)

MN C
UHF CB - CLOSE
GCILC CB - CLOSE
CONTROL BUS AB1/2/3
CB - CLOSE

Pallet DSC 2A CB - OPEN (OV-104/105)
Pallet DSC 3B/4A CB - OPEN (OV-104/105)

ROW C

MN A
UHF EVA CB - OPEN

MN B
KU
ELEC CB - OPEN
ANT HTR CB - OPEN
CABLE HTR CB - OPEN

MN C
KU SIG PROC CB - OPEN
UHF EVA CB - OPEN
MANF ISOL L5 CB - CLOSE
MANF ISOL R5 CB - CLOSE
MANF ISOL F5 CB - CLOSE
PANEL R14 (CONTINUED)

ROW D
MN A
TV
C CAMR
   CAMR/PTU CB-OPEN
   CAMR HTR CB - OPEN
   ILLUM/PTU HTR CB - OPEN
CONTR UNIT CB - OPEN
MON 1 CB - OPEN
MN B
TV
A CAMR
   CAMR/PTU CB - OPEN
   CAMR HTR CB - OPEN
   ILLUM/PTU HTR CB - OPEN
CONTR UNIT CB - OPEN
MON 2 CB - OPEN
VPU CB - OPEN
MN C
TV
B CAMR
   CAMR/PTU CB - OPEN
   CAMR HTR CB - OPEN
   ILLUM/PTU HTR CB - OPEN
CABIN CB - CLOSE

ROW E
MN A
PS FLOOD CB - CLOSE
D CAMR
   CAMR/PTU CB-OPEN
   CAMR HTR CB - OPEN
   ILLUM/PTU HTR CB - OPEN
MN B
OS FLOOD CB - CLOSE
RMS CAMR
   CAMR/PTU CB - OPEN
   WRIST ILLUM/CAMR HTR CB - OPEN
   ELB ILLUM/PTU HTR CB - OPEN
MN C
MS FLOOD CB - CLOSE
PANEL R14 (CONTINUED)

ROW F

ESS 1BC
FLOOD LEFT GLRSHLD CB-CLOSE
AUDIO LEFT CB - CLOSE
LDG GEAR ARM/DN RESET
CB - OPEN

ESS 2CA
FLOOD RIGHT GLRSHLD CB-CLOSE
AUDIO
RIGHT CB - CLOSE
AUD CTR 1 CB - CLOSE

*** End of Panel R14 (MS1) ***

*** End of AFT Flight Deck Switch List ***
Middeck Switch List

Panel ML86B (MS1)

76-108 OTC ASP

PANEL ML86B

ROW A

MN A

SUPPLY H₂O
  TK A INLET CB - CLOSE
  TK B OUTLET CB - CLOSE

WASTE H₂O DUMP VLV/NOZ HTR CB - OPEN
H₂O LINE HTR A CB - OPEN

MN B

SUPPLY H₂O
  TK B INLET CB - CLOSE
  TK C OUTLET CB - CLOSE
  DUMP ISOL CB - OPEN
  B SPLY ISOL VLV CB - CLOSE

H₂O LINE HTR B CB - OPEN

MN C

SUPPLY H₂O
  TK A OUTLET CB - CLOSE
  TK C INLET CB - CLOSE
  DUMP VLV/NOZ HTR CB - OPEN
  XOVR VLV CB - CLOSE

GALLEY SUPPLY CB - OPEN
  OR CLOSED (H₂O DRAIN IN PROGRESS)
PANEL ML86B (CONTINUED)

ROW B

MN A
WASTE H₂O TK 1 VALVE CB - CLOSE
SUPPLY H₂O TK D OUTLET CB - CLOSE
WASTE H₂O DUMP ISOL CB - OPEN
VAC VENT ISOL VLV CB - OPEN
WCS CNTLR CB - OPEN
GALLEY OVEN CB - OPEN

MN B
WASTE H₂O TK 1 DRAIN CB - CLOSE
SUPPLY H₂O TK D INLET CB - CLOSE
VACUUM VENT
NOZ HTR CB - OPEN
ISOL VLV CB - OPEN
WCS CNTLR CB - OPEN
GALLEY H₂O HTR CB - OPEN

ROW C

MN A
EXTERNAL AIRLOCK HTR
LINE
ZONE 1 CB - OPEN
ZONE 2 CB - OPEN
STRUC Z1/2/3 CB - OPEN
VEST Z1/2/3 CB - OPEN

MN B
EXTERNAL AIRLOCK HTR
LINE
ZONE 1 CB - OPEN
ZONE 2 CB - OPEN
H₂O S/O VALVE CB - CLOSE
STRUC Z1/2/3 CB - OPEN
VEST Z1/2/3 CB - OPEN

MN C
EXTERNAL AIRLOCK HTR
LINE
ZONE 1 CB - OPEN
ZONE 2 CB - OPEN
PANEL ML86B (CONTINUED)

ROW D

MN A
PYRO JETT SYS A
  KU ANT CB - OPEN
  STBD RMS CB - OPEN
MAN MANUV UNIT
  GN₂ SPLY ISOL VLV A CB - OPEN
  PORT HTR A CB - OPEN
  STBD HTR A CB - OPEN

MN B
PYRO JETT SYS A
  PORT RMS CB - OPEN
MAN MANUV UNIT
  GN₂ SPLY ISOL VLV B CB - OPEN
  PORT HTR B CB - OPEN
  STBD HTR B CB - OPEN

MN C
PYRO JETT SYS B
  KU ANT CB - OPEN
  PORT RMS CB - OPEN
  STBD RMS CB - OPEN

ROW E

MN A
EMU 2 H₂O
  SUPPLY CB - OPEN
  WASTE CB - OPEN
FC PCM - CLOSED
CO₂ SYS 1 CNTLR CB - OPEN (OV-104/105)
FLOOD TUNNEL ADAPTER 2 CB - OPEN

NOTE
VITT/Payloads will provide MAR 1 CB and MAR 2 CB positions.

MN B
MAR 1 CB - ______
MAR 2 CB - ______
SEAT
  LEFT CB - CLOSE
  RIGHT CB - CLOSE
CO₂ COMMON INSTR CB - OPEN (OV-104/105)
FLOOD TUNNEL ADAPTER 3 CB - OPEN
PANEL ML86B (CONTINUED)

ROW E (CONTINUED)

MN C
EMU 1 H₂O
SUPPLY CB - OPEN
WASTE CB - OPEN
SEAT
LEFT CB - CLOSE
RIGHT CB - CLOSE
CO₂ SYS 2 CNTLR CB - OPEN (OV-104/105)
FLOOD TUNNEL ADAPTER 4 CB - OPEN

ROW F
MN A
FLOODS
MIDDECK 1/8 CB - CLOSE
WMC/MO13Q CB - OPEN
AIRLOCK 1 CB - OPEN
MIDDECK 9 CB - OPEN

CRYO O₂ HTR
TK 3 SNSR 1 CB - CLOSE

NOTE
If Tank Set 5 is installed, CB - CLOSE.
If Tank Set 5 is not installed, next CB - OPEN.

CRYO O₂ HTR
TK 5 SNSR 1 CB - _________

MN B
FLOODS
MIDDECK 2/6 CB - CLOSE
BUNK 2/4 CB - OPEN
MIDDECK 10 CB - OPEN
AIRLOCK 3 CB - OPEN

CRYO O₂ HTR
TK 3 SNSR 2 CB - CLOSE
PANEL ML86B (CONTINUED)

ROW F (CONTINUED)

NOTE
If Tank Set 4 is installed, CB - CLOSE.
If Tank Set 4 is not installed, CB - OPEN.

CRYO O₂ HTR
TK 4 SNSR 1 CB - ______

MN C
FLOODS
MIDDECK
5/7 CB - CLOSE
3/4/M013Q CB - CLOSE

BUNK 1/3 CB - OPEN
AIRLOCK 4 CB - OPEN

NOTE
If Tank Set 5 is installed, CB - CLOSE.
If Tank Set 5 is not installed, next CB - OPEN.

CRYO O₂ HTR
TK 5 SNSR 2 CB - __________

NOTE
If Tank Set 4 is installed, CB - CLOSE.
If Tank Set 4 is not installed, CB - OPEN.

CRYO O₂ HTR
TK 4 SNSR 2 CB - _____
PANEL ML86B (CONTINUED)

ROW G
ESS 1BC
FLOOD
AIRLOCK 2 CB - OPEN
TUNNEL ADAPTER 1 CB - OPEN

NOTE
If Tank Set 4 is installed, next four CBs - CLOSE.
If Tank Set 4 is not installed, next four CBs - OPEN.

CRYO CNTLR
O₂ TK 4 CB - ______
H₂ TK 4 CB - ______

CRYO QTY
O₂ TK 4 CB - ______
H₂ TK 4 CB - ______

NOTE
If Tank Set 5 is installed, next four CBs - CLOSE.
If Tank Set 5 is not installed, next four CBs - OPEN.

ESS 2CA
CRYO CNTLR
O₂ TK 5 CB - __________
H₂ TK 5 CB - __________

CRYO QTY
O₂ TK 5 CB - __________
H₂ TK 5 CB - __________

ESS 3AB
CRYO CNTLR
O₂ TK 3 CB - CLOSE
H₂ TK 3 CB - CLOSE

CRYO QTY
O₂ TK 3 CB - CLOSE
H₂ TK 3 CB - CLOSE

*** End of Panel ML86B (MS1) ***
Panel ML85E (MS1)

NOTE
VITT/Payloads will provide the following switch and CB positions.

76-109 OTC ASP

PANEL ML85E

AC
S1 SW - ______

CB1 - ______

DC 10 AMP MN B

S2 SW - ______

CB2 - ______

S3 SW - ______

CB3 - ______

S4 SW - ______

CB4 - ______

S5 SW - ______

CB5 - ______

PUMPS

S6 SW - ______

PUMP 2 CB7 - ______

PUMP 1 CB6 - ______

*** End of Panel ML85E (MS1) ***
Galley (MS1)

76-110 OTC ASP

GALLEY

WATER VOL - AS IS
WATER PB LIGHTS (2) - OFF
OVEN FAN - OFF
REHYD STA LEVER - CLOSED AND LATCHED

TEST PORT 4 QD OUTLET CAP INSTALLED
OR
TEST PORT 4 QD CONNECTED TO DRAIN HOSE (IF H2O DRAIN IN PROGRESS)

A5J105 QD OUTLET - CAP INSTALLED
AUX PORT QD OUTLET - CAP INSTALLED
WATER HEATER SWITCHES (2) - OFF
OVEN/RHS SW - OFF
MV2 VALVE - (AS IS)
OVEN DOOR - CLOSED

*** End of Galley (MS1) ***
Panel MO13Q (MS1)

76-111 OTC ASP

PANEL MO13Q

MIDDECK FLOODS
3 SW - OFF
6 SW - ON
1 SW - OFF
4 SW - ON
7 SW - OFF
2 SW - OFF
5 SW - OFF
8 SW - ON
9 SW - OFF
10 SW - OFF

AIRLOCK H₂O S/O VALVE SW - (CENTER) TB OPEN

AIRLOCK FAN A SW - OFF
AIRLOCK FAN B SW - OFF

MO13Q LTG SW - OFF

AIRLOCK 2 SW - OFF/ON

TUNNEL ADAPTER 1 SW - OFF/ON

DC UTILITY POWER MN B SW - OFF
AC UTILITY POWER AC 3 SW - OFF

*** End of Panel MO13Q (MS1) ***
Panel ML31C (MS1)

76-112  OTC  ASP

PANEL ML31C

WASTE $H_2O$
   TK 1 DRAIN VLV SW - (CENTER)
   TB OP
   TK 1 VLV SW - (CENTER)
   TB OP

DUMP ISOL VLV SW - (CENTER)
   TB BP
DUMP VLV SW - (CENTER)
   TB BP
DUMP VLV ENABLE/NOZ HTR SW - OFF

SUPPLY $H_2O$
   TK D INLET SW - (CENTER)
   TB OP
   TK D OUTLET SW - (CENTER)
   TB OP

VACUUM VENT
   ISOL VLV
      BUS SELECT SW - MN A
      CONTROL SW - (CENTER)
      TB BP
   NOZ HTR SW - OFF

*** End of Panel ML31C (MS1) ***
Panel ML26C (MS1)

76-113 OTC ASP

PANEL ML26C

SUPPLY H₂O GN₂
TK A SUPPLY VLV - OPEN
TK VENT VLV - PRESS

*** End of Panel ML26C (MS1) ***

Panel ML18F (MS1)

76-114 OTC ASP

PANEL ML18F

EMERGENCY LIGHTING SW - ON/OFF
WASTE MANAGEMENT COMPARTMENT FLOOD SW - OFF

*** End of Panel ML18F (MS1) ***

Panel ML30N (MS1)

76-115 OTC ASP

PANEL ML30N (NOT LABELED)

CABIN NEG PRESS RELIEF VLV CAPS (2) - INSTALLED/SEATED

*** End of Panel ML30N (MS1) ***
Panel MA73C (MS1)

76-116 OTC ASP

PANEL MA73C

ROW A (ALL ON)
MCA LOGIC
MN A
  FWD 1 SW - ON
  MID 1 SW - ON

MN B
  FWD 2 SW - ON
  MID 1 SW - ON
  MID 2 SW - ON

MN C
  FWD 3 SW - ON
  MID 2 SW - ON

ROW B (ALL ON)
MCA LOGIC
MN A
  AFT 1 SW - ON
  MID 3 SW - ON

MN B
  AFT 2 SW - ON
  MID 3 SW - ON
  MID 4 SW - ON

MN C
  AFT 3 SW - ON
  MID 4 SW - ON

ROW C (ALL CLOSED)
MCA POWER AC 1 3 PH
  FWD 1 CB - CLOSE
  MID 1 CB - CLOSE

MCA POWER AC 2 3 PH
  FWD 2 CB - CLOSE
  MID 1 CB - CLOSE
  MID 2 CB - CLOSE

MCA POWER AC 3 3 PH
  FWD 3 CB - CLOSE
  MID 2 CB - CLOSE
PANEL MA73C (CONTINUED)

ROW D (ALL CLOSED)
MCA POWER AC 1 3 PH
  AFT 1 CB - CLOSE
  MID 3 CB - CLOSE

MCA POWER AC 2 3 PH
  AFT 2 CB - CLOSE
  MID 3 CB - CLOSE
  MID 4 CB - CLOSE

MCA POWER AC 3 3 PH
  AFT 3 CB - CLOSE
  MID 4 CB - CLOSE

ROW E (ALL OPEN)
AC 1
  WCS FAN SEP 1
    PH A CB - OPEN
    PH B CB - OPEN
    PH C CB - OPEN

AC 2
  WCS FAN SEP 2
    PH A CB - OPEN
    PH B CB - OPEN
    PH C CB - OPEN
    PAYLOAD 3 PH CB - OPEN

AC 3
  PAYLOAD 3 PH CB - OPEN

ROW F
AC 1
  RMS PRIMARY PH A CB - OPEN
  MAR 3 PH CB - OPEN
  OPS INST HYD ACTR
    PH C CB - CLOSE

AC 2
  RMS BACKUP PH A CB - OPEN
  L SEAT 3 PH CB - CLOSE
  OPS INST HYD ACTR PH C CB - CLOSE

AC 3
  L SEAT 3 PH CB - CLOSE
PANEL MA73C (CONTINUED)

ROW G
AC 1
ARLK TNL FAN A
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN
UNLABELED SW - DOWN

AC 2
ARLK TNL FAN B
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN
RIGHT SEAT 3 PH CB - CLOSE

AC 3
GALLEY FAN
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN
RIGHT SEAT 3 PH CB - CLOSE

ROW H (ALL CLOSED)
AC 1
FWD RCS VLV
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 2
FWD RCS VLV
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AC 3
FWD RCS VLV
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE
PANEL MA73C (CONTINUED)

ROW I (ALL CB CLOSED, SW ON)

AC 1
AFT POD VLV GP1
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AFT POD VLV LOGIC GP 1/3 SW - ON

AC 2
AFT POD VLV GP2
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AFT POD VLV LOGIC GP 1/2 SW - ON

AC 3
AFT POD VLV GP3
PH A CB - CLOSE
PH B CB - CLOSE
PH C CB - CLOSE

AFT POD VLV LOGIC GP 2/3 SW - ON

*** End of Panel MA73C (MS1) ***
Panel MO30F (MS1)

76-117 OTC ASP

PANEL MO30F

DC UTILITY POWER MN C SW - OFF

*** End of Panel MO30F (MS1) ***

Panel MO32M (MS1)

76-118 OTC ASP

PANEL MO32M

LEH O₂ 5 VLV - CLOSE
LEH O₂ 6 VLV - CLOSE

*** End of Panel MO32M (MS1) ***

Panel MO39M (MS1)

76-119 OTC ASP

PANEL MO39M

MIDDECK COMM CCU PWR SW - OFF

*** End of Panel MO39M (MS1) ***
Panel MO42F (MS1)

76-120 OTC ASP

PANEL MO42F

MIDDECK SPEAKER AUDIO
POWER SW - AUD/TONE

A/G
1 SW - T/R
2 SW - RCV
A/A SW - RCV

ICOM
A SW - T/R
B SW - RCV
VOX SENS SW - AS IS
MASTER SPEAKER VOLUME SW - 8
PAGE SW - (DOWN)

VOLUME
A/G
1 PB - 7
2 PB - 7
A/A PB - 7

ICOM
A PB - 7
B PB - 7

XMIT/ICOM MODE SW - PTT/PTT
TONES SW - ACCU/BYPASS
SPKR PWR SW - SPKR

GPC MEMORY DUMP SW - OFF

BYPASS TONE VOL ADJUST SCREW - AS IS

*** End of Panel MO42F (MS1) ***
Panel MO51F

76-121 OTC ASP

IF FOR OV-104 AND OV-105 ONLY,

THEN PERFORM:
PANEL MO51F

CNTLR 1 OPER LTS (2) - OFF  
CNTLR 2 OPER LTS (2) - OFF  
MN A SW - OFF  
AC 1 SW - (CENTER)  
MODE SW - (CENTER)  

COMMON INSTR SW - OFF  

MN C SW - OFF  
AC 3 SW - (CENTER)  
MODE SW - (CENTER)  

AC 1 PH A CB - OPEN  
AC 1 PH B CB - OPEN  
AC 1 PH C CB - OPEN  

AC 3 PH A CB - OPEN  
AC 3 PH B CB - OPEN  
AC 3 PH C CB - OPEN  

Not Performed:______

*** End of Panel MO51F ***

Panel MO58F (MS1)

76-122 OTC ASP

PANEL MO58F

SLEEP STA TONES OUTLET - CAP INSTALLED  
TV POWER SW - OFF  
TV OUTLET - CAP INSTALLED OR CABLE MATED

*** End of Panel MO58F (MS1) ***
Panel MO52J (MS1)

76-123 OTC ASP

Panel MO52J

- DC UTILITY POWER SW - OFF
- AC UTILITY POWER SW - OFF
- MASTER ALARM LIGHT OFF

*** End of Panel MO52J (MS1) ***

Panel MO62M (MS1)

76-124 OTC ASP

Panel MO62M

- MIDDECK BIOMED - ALL THREE CAPS INSTALLED

*** End of Panel MO62M (MS1) ***
Panel MO63P (MS1)

NOTE
VITT will provide switch and CB positions.

76-125 OTC ASP

PANEL MO63P

MAIN DC UTILITY POWER
CB4/J4 CB - _____________
CB3/J3 CB - _____________
CB2/J2 CB - _____________
J2 SW - _____________
15A/10A SW - _____________
J3 SW - _____________
J4 SW - _____________
J5 SW - _____________
15A/10A SW - _____________
J6 SW - _____________
CB6/J6 CB - _____________
CB5/J5 CB - _____________
RLY PWR CB - _____________

*** End of Panel MO63P (MS1) ***
Panel MO69M (MS1)

NOTE
LEH oxygen 7-8 valves will be configured by ASP during Pre-Ingress Checklist.

76-126      OTC      ASP

PANEL  MO69M

LEH O₂ 7 VLV - CLOSE
LEH O₂ 8 VLV - CLOSE

*** End of Panel MO69M (MS1) ***

Panel MD44F (MS1)

76-127      OTC      ASP

PANEL  MD44F  (UNDER FLOOR)

CABIN TEMP CONTROL VALVE - FULL COOL
PRIMARY ACTUATOR - PINNED TO TEMP CONTROLLER
SECONDARY ACTUATOR - FULL HEAT POSITION

*** End of Panel MD44F (MS1) ***
Middeck Floor  
(FWD of Airlock)

**NOTE**
Velcro attached debris/closeout netting may be repositioned to facilitate the following step.

### 76-128 OTC  ASP

**MIDDECK FLOOR (FWD OF AIRLOCK)**

- EMU O₂ ISOL VALVE - CLOSE
- CABIN PURGE VALVE - CLOSE
- CABIN PURGE ISOL VALVE - CLOSE

*** End of Middeck Floor (FWD of Airlock) ***

### Middeck Experiment Switch List

**76-129 OTC  ASP**

**IF** TEPC (TISSUE EQUIVALENT PROPORTIONAL COUNTER) **IS INSTALLED,**

**THEN PERFORM:**
- TEPC SWITCHBOX NEAR MA9D
- TEPC SWITCHBOX
- SW 1 - OFF
- PWR LIGHT - OFF

Not Performed:______
If display is in sleep mode, press “Menu” key to reactivate.

76-130  OTC    ASP

IF CGBA IS INSTALLED AND IF POWERED,

THEN PERFORM:

PANEL _____________

CGBA
MAIN POWER CB - CLOSE
MAIN POWER LIGHT - ON

DISPLAY TEMP

_________ DEG C  BD
(DISPLAY TEMP SHOULD BE WITHIN 2 DEG OF SET TEMP)

Not Performed:______

76-131  OTC    ASP

IF CGBA is installed and
IF unpowered,

THEN Perfor

PANEL _____________

CGBA
MAIN POWER CB - OPEN
MAIN POWER LIGHT - OFF

DISPLAY BLANK

Not Performed:_____
76-132  OTC   ASP

IF STL is installed and powered for ascent,

THEN Perform:

PANEL ______

  ON/OFF SWITCH - ON
  POWER LIGHT - ON
  F1 LIGHT - OFF

Not Performed:______

76-133  OTC   ASP

IF MERLIN is installed AND powered for Ascent,

THEN Perform:

PANEL MF71E

MERLIN

  STATUS LIGHT - OFF

  POWER MAIN CB - CLOSED
  POWER LIGHT - ON

  POWER PAYLOAD CB - OPEN (WHITE BAND VISIBLE)
  POWER PAYLOAD LIGHT - OFF

Not Performed:______
76-134 OTC ASP

IF MERLIN is installed AND NOT powered for Ascent,

THEN Perform:

PANEL MF71E

MERLIN
   STATUS LIGHT - OFF
   POWER MAIN CB - OPEN (WHITE BAND VISIBLE)
   POWER LIGHT - OFF
   POWER PAYLOAD CB - OPEN (WHITE BAND VISIBLE)
   POWER PAYLOAD LIGHT - OFF

Not Performed:______
IF AEM-1 is installed and powered for ascent,

THEN Perform:

PANEL ______

PUMP BREAKER CB - OPEN
MAIN BREAKER CB - CLOSED

FANS A&D CB - CLOSED
FANS A&D LIGHT - ON

FANS B&C CB CLOSED
FANS B&C LIGHT - ON

FANS SW - ON
  (AUDIBLE FAN OPERATION)

LIGHTS SW - AUTO

LIGHTS B&C CB - CLOSED
LIGHTS B&C LIGHT - RECORD STATUS _____________

LIGHTS A&D CB - OPEN
LIGHTS A&D LIGHT - OFF

LED DISPLAY ______________ (PAYLOAD TIMER GMT)

Not Performed: _____
IF AEM-2 is installed and powered for ascent,

THEN Perform:

PANEL _______

PUMP BREAKER CB - OPEN
MAIN BREAKER CB - CLOSED

FANS A&D CB - CLOSED
FANS A&D LIGHT - ON

FANS B&C CB CLOSED
FANS B&C LIGHT - ON

FANS SW - ON
   (AUDIBLE FAN OPERATION)

LIGHTS SW - AUTO

LIGHTS B&C CB - CLOSED
LIGHTS B&C LIGHT - RECORD STATUS ______________

LIGHTS A&D CB - OPEN
LIGHTS A&D LIGHT - OFF

LED DISPLAY _______________ (PAYLOAD TIMER GMT)

Not Performed:______
76-137   OTC   ASP

IF CBTM #3 is installed,

THEN Perform:

PANEL MF43K

CBTM #3
PUMP BREAKER CB - OPEN
MAIN BREAKER CB - CLOSED

FANS A&D CB - CLOSED
FANS A&D LIGHT - ON

FANS B&C CB CLOSED
FANS B&C LIGHT - ON

FANS SW - ON
   (AUDIBLE FAN OPERATION)

LIGHTS SW - AUTO

LIGHTS B&C CB - CLOSED
LIGHTS B&C LIGHT - RECORD STATUS _____________ (BD)

LIGHTS A&D CB - OPEN
LIGHTS A&D LIGHT - OFF

LED DISPLAY _____________ (PAYLOAD TIMER GMT)

Not Performed:______
76-138  OTC  ASP

IF GLACIER is installed

and

IF powered,

THEN perform:

PANEL ______________

GLACIER
   POWER CB - CLOSE (LIGHT ON)
   BATTERY SW - ON (LIGHT ON)

Not Performed:_____

76-139  OTC  ASP

IF GLACIER is installed,

and

IF unpowered,

THEN perform the following:

PANEL: ______________

GLACIER
   POWER CB - OPEN (LIGHT OFF)
   BATTERY SW - OFF (LIGHT OFF)

Not Performed:_____

*** End of Middeck Experiment Switch List ***
Waste Management Station Switch List

Panel WCS

76-140 OTC ASP

PANEL WCS (Commode Area)

Auto Inhibit/Auto SW - Auto

76-141 OTC ASP

IF VAC Vent Inerting is in progress,

THEN Perform:

Commode Control Handle-Telescoped up (AFT Position)

MODE SW - Commode/Manual/EMU

Vacuum Valve SW - Open

Not Performed:______

76-142 OTC ASP

IF Vac Vent Inerting not in progress,

THEN Perform:

Commode Control Handle - Seated Down/Off (AFT Position)

MODE SW - Auto

Vacuum Valve SW - Close

Not Performed:______
76-143 OTC ASP

SEP 1 Bypass SW - OFF
SEP 2 Bypass SW - OFF
Fan SEP SW - OFF
Hose Block - SEP 1
Compactor Angle = <33 Degrees (0-10 PCT)

Stow Urinal Hose in launch position (stowed along left side of WCS and secured using velcro).

*** End of Panel WCS ***

*** End of Waste Management Station Switch List ***
Panel MO10W

76-144 OTC ASP

PANEL MO10W

14.7 PSI CABIN REG INLET
   SYS 1 VLV - CLOSE
   SYS 2 VLV - CLOSE

SYS 1 PPO₂ CONTR SW - NORM
SYS 2 PPO₂ CONTR SW - NORM

O₂ REG INLET
   SYS 1 VLV - CLOSE
   SYS 2 VLV - CLOSE

H₂O TK N₂ REG INLET
   SYS 1 VLV - OPEN
   SYS 2 VLV - OPEN

PAYLOAD N₂ SUPPLY
   SYS 1 VLV - CLOSE
   SYS 2 VLV - CLOSE

O₂ EMER VLV - CLOSE
N₂ XOVER VLV - CLOSE

H₂O TK N₂ ISOL
   SYS 1 VLV - OPEN
   SYS 2 VLV - OPEN

PAYLOAD O₂
   SYS 1 VLV - CLOSE
   SYS 2 VLV - CLOSE

*** End of Panel MO10W ***

*** End of Middeck Switch List ***
# Table 76-1 - Switches Repositioned During Ascent Checklist

<table>
<thead>
<tr>
<th>Panel</th>
<th>Switch Nomenclature</th>
<th>System</th>
<th>Position Found In</th>
</tr>
</thead>
</table>

*** End of Operation 76 ***
OPERATION 77  Reserved

Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): N
Duration (Hrs): NA

*** End of Operation 77 ***
OPERATION 78  Reserved
Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): N
Duration (Hrs): NA

*** End of Operation 78 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 79  Pre-Ascent Switch Lists

Shop: NA
Cntrl Rm Console: NA
OPR: TCO
Zone: 121, 122
Hazard (Y/N): N
Duration (Hrs): 0.5
Perform Pre-Ascent Switch Lists.

NOTE
ASP, SCO, or CDR may be used to perform the Pre-Ascent Switch List.

Request ______ support on OIS Channel 134 and perform Pre-Ascent Switch List.
NOTE

Perform the following three steps for the STS-135 mission only.

79-3 PTC CDR

PANEL L12U (SSP-1)

VERIFY ALL TB’S ARE BP

<table>
<thead>
<tr>
<th>Switch</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 SW - (CENTER)</td>
<td>L12US01</td>
</tr>
<tr>
<td>S2 SW - (CENTER)</td>
<td>L12US02</td>
</tr>
<tr>
<td>APCU 1 CONV SW - OFF</td>
<td>L12US03</td>
</tr>
<tr>
<td>APCU 1 OUTPUT RLY SW - OPEN</td>
<td>L12US04</td>
</tr>
<tr>
<td>S5 SW - (CENTER)</td>
<td>L12US05</td>
</tr>
<tr>
<td>APCU 2 CONV SW - OFF</td>
<td>L12US06</td>
</tr>
<tr>
<td>APCU 2 OUTPUT RLY SW - OPEN</td>
<td>L12US07</td>
</tr>
<tr>
<td>SW PWR 1 CB2 - OPEN</td>
<td>L12UCB2</td>
</tr>
<tr>
<td>PDIP 1 PWR 2/KUBAND RLY CB 1 - OPEN</td>
<td>L12UCB1</td>
</tr>
<tr>
<td>MPLM CHAN 1 HTR PWR SW - OFF</td>
<td>L12US08</td>
</tr>
<tr>
<td>S9 SW - (CENTER)</td>
<td>L12US09</td>
</tr>
<tr>
<td>S10 SW - (DOWN)</td>
<td>L12US10</td>
</tr>
<tr>
<td>MPLM CHAN 2 HTR PWR SW - OFF</td>
<td>L12US11</td>
</tr>
<tr>
<td>S12 SW - (CENTER)</td>
<td>L12US12</td>
</tr>
<tr>
<td>S13 SW - (CENTER)</td>
<td>L12US13</td>
</tr>
<tr>
<td>S14 SW - (CENTER)</td>
<td>L12US14</td>
</tr>
<tr>
<td>TCS PWR SW - OFF</td>
<td>L12US15</td>
</tr>
<tr>
<td>S16 SW - (DOWN)</td>
<td>L12US16</td>
</tr>
<tr>
<td>PSSC DEPLOY SW - (CENTER)</td>
<td>L12US17</td>
</tr>
<tr>
<td>PSSC PRE-ARM SW - SAFE</td>
<td>L12US18</td>
</tr>
<tr>
<td>S19 SW - (DOWN)</td>
<td>L12US19</td>
</tr>
<tr>
<td>SW PWR 2 CB4 - OPEN</td>
<td>L12UCB4</td>
</tr>
<tr>
<td>X1/X2 SW PDIP 1 PWR 1 CB3 - OPEN</td>
<td>L12UCB3</td>
</tr>
<tr>
<td>ODS CONN MATE X1 TLM PWR SW - OFF</td>
<td>L12US20</td>
</tr>
<tr>
<td>S21 SW - (CENTER)</td>
<td>L12US21</td>
</tr>
<tr>
<td>ODS CONN MATE X2 TLM PWR SW - OFF</td>
<td>L12US22</td>
</tr>
<tr>
<td>PSSC ARM SW - SAFE</td>
<td>L12US23</td>
</tr>
<tr>
<td>OIU PWR SW - OFF</td>
<td>L12US24</td>
</tr>
</tbody>
</table>

Not Performed:_____
79-4  PTC  CDR

PANEL L12L (SSP-2)
VERIFY ALL TB’S BP

S1 SW - (CENTER) L12LS01
S2 SW - (CENTER) L12LS02
MPLM KEEL CAM PWR SW - OFF L12LS03
MPLM KEEL CAM HTR/ILLUM PWR SW - OFF L12LS04
S5 SW - (CENTER) L12LS05
S6 SW - (DOWN) L12LS06
S7 SW - (DOWN) L12LS07
SW PWR 3 CB - OPEN L12LCB2
PDIP 2 PWR 2 MPLM RLY CB1 - OPEN L12LCB1
S8 SW - (DOWN) L12LS08
S9 SW - (CENTER) L12LS09
TRIDAR PWR SW - OFF L12LS10
S11 SW - (DOWN) L12LS11
C/L CAM PWR SW - OFF L12LS12
S13 SW - (CENTER) L12LS13
S14 SW - (CENTER) L12LS14
S15 SW - (DOWN) L12LS15
S16 SW - (DOWN) L12LS16
S17 SW - (CENTER) L12LS17
S18 SW - (DOWN) L12LS18
S19 SW - (DOWN) L12LS19
CB4 - OPEN L12LCB4
PDIP 2 PWR 1 CB3 - OPEN L12LCB3
S20 SW - (DOWN) L12LS20
S21 SW - (CENTER) L12LS21
S22 SW - (DOWN) L12LS22
S23 SW - (DOWN) L12LS23
S24 SW - (CENTER) L12LS24

Not Performed:______
79-5  CPLE  ASP

IF PAYLOAD DATA INTERFACE PANEL IS INSTALLED ON L12L,

THEN PERFORM:

PANEL L12L (PDIP #1)

PAYLOAD DATA INTERFACE PANEL
  Ku BAND RATE SW - OFF
  DC POWER 1 SW - OFF
  DC POWER 2 SW - OFF

Not Performed:_____

79-6  PTC  CDR

PANEL L11U (PDIP #2)

IF PAYLOAD DATA INTERFACE PANEL IS INSTALLED ON L11U AND MPLM DATA OVERLAY INSTALLED,

THEN PERFORM:

PAYLOAD DATA INTERFACE PANEL
  MPLM 1553 DATA SW - OIU (CENTER)
  DC POWER 1 SW - OFF
  DC POWER 2 SW - OFF

Not Performed:_____

1115
79-7  PTC CDR

PANEL L11U (PDIP #2)

IF PAYLOAD DATA INTERFACE PANEL IS INSTALLED ON L11U AND T-0/OIU/OIU OVERLAY INSTALLED,

THEN PERFORM:

PAYLOAD DATA INTERFACE PANEL
   T-0/OIU/OIU SW - OIU (CENTER)
   DC POWER 1 SW - OFF
   DC POWER 2 SW - OFF

Not Performed:______

79-8  PTC

(ASP, SCO or CDR) - Support released from payload Pre-Ascent Switch List support.

Return to command channel.

79-9  PTC NTD 232

Pre-Ascent Switch List for payloads complete.

*** End of Operation 79 ***
OPERATION 80  Switchguard Installation/Verification

Shop: FWD
Cntrl Rm Console: NA
OPR: TCO
Zone: 121, 122
Hazard (Y/N): N
Duration (Hrs): 1.0

NOTE

The intent of this operation is to install, or verify installed, the guards on the Orbiter switches and circuit breakers. Some guards may be on from previous testing or Scrub operations. This operation to be performed at OTC option to support contingency operations (i.e., Scrub post-test secure).

Operation Not Performed:______
NOTE
If crew preference snap ring is installed, use either G070-700406-001 or G070-700919-001. Both are acceptable substitutes.

80-1 OTC CDR 132
PLT
MS1

Install, or verify installed, switch and circuit breaker guards as follows.

80-2 PANEL L1

1. SWITCHGUARD G070-700930-001
ON FLASH EVAP CONTROLLER PRI A, PRI B SWITCH.

2. SWITCHGUARD G070-700919-001
ON FLASH EVAP CONTROLLER SEC SWITCH.

3. SWITCHGUARD G070-700921-001
ON NH3 CONTROLLER A SWITCH.

4. SWITCHGUARD G070-700921-001
ON NH3 CONTROLLER B SWITCH.

T:_____

80-3 PANEL C3

1. SWITCHGUARD G070-700418-001
ON OMS ENG ARM/PRESS LEFT, RIGHT SWITCHES.

2. SWITCHGUARD G070-700927-001
ON AIR DATA PROBE LEFT, RIGHT SWITCHES.

T:_____
80-4  PANEL O7

1. SWITCHGUARD G070-700919-001
   ON AFT LEFT RCS - HE PRESS A SWITCH.

2. SWITCHGUARD G070-700919-001
   ON AFT LEFT RCS - HE PRESS B SWITCH.

3. SWITCHGUARD G070-700919-001
   ON AFT RIGHT RCS - HE PRESS A SWITCH.

4. SWITCHGUARD G070-700919-001
   ON AFT RIGHT RCS - HE PRESS B SWITCH.

5. SWITCHGUARD G070-700919-001
   ON AFT LEFT RCS - TANK ISOL 1/2 SWITCH.

6. SWITCHGUARD G070-700930-001
   ON AFT LEFT RCS - TANK ISOL
   3/4/5 A AND B SWITCHES.

7. SWITCHGUARD G070-700919-001
   ON AFT RIGHT RCS - TANK ISOL 1/2 SWITCH.

8. SWITCHGUARD G070-700930-001
   ON AFT RIGHT RCS - TANK ISOL
   3/4/5 A AND B SWITCHES.

9. MULTIPLE SWITCHGUARD G070-700935-001
   ON AFT LEFT RCS - MANIFOLD ISOL 1, 2, 3, 4, 5 SWITCHES.

10. MULTIPLE SWITCHGUARD G070-700935-001
    ON AFT RIGHT RCS - MANIFOLD ISOL 1, 2, 3, 4, 5 SWITCHES.

11. SWITCHGUARD G070-700919-001
    ON AFT LEFT RCS - CROSSFEED 1/2 SWITCH.

12. SWITCHGUARD G070-700919-001
    ON AFT LEFT RCS - CROSSFEED 3/4/5 SWITCH.

13. SWITCHGUARD G070-700919-001
    ON AFT RIGHT RCS - CROSSFEED 1/2 SWITCH.

14. SWITCHGUARD G070-700919-001
    ON AFT RIGHT RCS - CROSSFEED 3/4/5 SWITCH.
80-5 PANEL O8

1. SWITCHGUARD G070-700930-001
   ON OMS KIT - HE PRESS/VAPOR
   ISOL A AND B SWITCHES.

2. SWITCHGUARD G070-700930-001
   ON LEFT OMS - HE PRESS/VAPOR
   ISOL A AND B SWITCHES.

3. SWITCHGUARD G070-700930-001
   ON RIGHT OMS - HE PRESS/VAPOR
   ISOL A AND B SWITCHES.

4. SWITCHGUARD G070-700930-001
   ON OMS KIT - TANK ISOL A AND B SWITCHES.

5. SWITCHGUARD G070-700930-001
   ON LEFT OMS - TANK ISOL A AND B SWITCHES.

6. SWITCHGUARD G070-700930-001
   ON RIGHT OMS - TANK ISOL A AND B SWITCHES.

7. SWITCHGUARD G070-700930-001
   ON LEFT OMS - CROSSFEED A AND B SWITCHES.

8. SWITCHGUARD G070-700930-001
   ON RIGHT OMS - CROSSFEED A AND B SWITCHES.

9. SWITCHGUARD G070-700919-001
   ON FWD RCS - HE PRESS A SWITCH.

10. SWITCHGUARD G070-700919-001
    ON FWD RCS - HE PRESS B SWITCH.

11. SWITCHGUARD G070-700919-001
    ON FWD RCS - TANK ISOL 1/2 SWITCH.

12. SWITCHGUARD G070-700919-001
    ON FWD RCS - TANK ISOL 3/4/5 SWITCH.

13. MULTIPLE SWITCHGUARD G070-700935-001
    ON FWD RCS - MANIFOLD ISOL 1, 2, 3, 4, 5
    SWITCHES.

   T:_____
NOTE
In the following three steps, TACAN switchguards will be installed for OV103 and OV104.

80-6

PERFORM THE FOLLOWING CB GUARD INSTALLATION:
PANEL O14

MN A
ROW C

CB GUARD G070-700406-001 ON TACAN 1 CB (OV-103/104)

Not Performed: ______

MN A
ROW C
INSTALL G070-700406-001 SWITCHGUARD ON CRYO O₂ HTR TK 1 SNSR 1 CB

MN A
ROW E

1. CB GUARD G070-700406-001 ON RADAR ALTM 1 CB.
2. CB GUARD G070-700406-001 ON MLS 1 CB.

ROW F

MULTIPLE SWITCHGUARD G070-700923-001 ON RJDA 1A, 2A, RJDF 1B DRIVERS AND L OMS ENG VLV SWITCHES (LOCK AND KEY).

T:______
PERFORM THE FOLLOWING CB GUARD INSTALLATION:

PANEL O15

MN B
ROW C

CB GUARD G070-700406-001 ON TACAN 2 CB (OV-103/104)  

No Performed: ______

MN B
ROW C
INSTALL G070-700406-001 SWITCHGUARD ON CRYO O2 HTR TK 2 SNSR 2 CB.

MN B
ROW E

1. CB GUARD G070-700406-001 ON RADAR ALTM 2 CB.

2. CB GUARD G070-700406-001 ON MLS 2.

ROW F

MULTIPLE SWITCHGUARD G070-924-001 ON RJDA 1B DRIVER AND RJDF 1A DRIVER SWITCHES (LOCK AND KEY).

T:______
PERFORM THE FOLLOWING CB GUARD INSTALLATION:

PANEL O16

CB GUARD G070-700406-001 ON TACAN 3 CB
(0V-103/104)

Not Performed: ______

CRYO O2 HTR

1. INSTALL G070-700406-001 SWITCHGUARD
   ON CRYO O2 HTR TK 1 SNSR 2 CB.

2. INSTALL G070-700406-001 SWITCHGUARD
   ON CRYO O2 HTR TK 2 SNSR 1 CB.

CB GUARD G070-700406-001 ON MLS 3 CB.

MULTIPLE SWITCHGUARD G070-700925-001
ON RJDA 2B DRIVER, RJDF 2A DRIVER AND
RJDF 2B DRIVER SWITCHES (LOCK AND KEY).

SWITCHGUARD G070-700919-001
ON R OMS ENG VLV SWITCH.

SWITCHGUARD G070-700934-002
ON RJD MANF L5/F5/R5 DRIVER SWITCH
(LOCK AND KEY).

T:______
80-9  PANEL R1

ESS BUS SOURCE
1. G070-700919-001 SWITCHGUARD ON FC1 SW
2. G070-700919-001 SWITCHGUARD ON FC2 SW
3. G070-700919-001 SWITCHGUARD ON FC3 SW

T:_____
NOTE
Use switchguard G070-700919-001 for the following 12 substeps.

VERIFY FOLLOWING SWITCHES OFF, THEN:

1. **INSTALL** SWITCHGUARD ON O₂ TK 1 HEATERS A SW.
2. **INSTALL** SWITCHGUARD ON O₂ TK 1 HEATERS B SW.
3. **INSTALL** SWITCHGUARD ON O₂ TK 2 HEATERS A SW.
4. **INSTALL** SWITCHGUARD ON O₂ TK 2 HEATERS B SW.
5. **INSTALL** SWITCHGUARD ON O₂ TK 3 HEATERS A SW.
6. **INSTALL** SWITCHGUARD ON O₂ TK 3 HEATERS B SW.
7. **INSTALL** SWITCHGUARD ON H₂ TK 1 HEATERS A SW.
8. **INSTALL** SWITCHGUARD ON H₂ TK 1 HEATERS B SW.
9. **INSTALL** SWITCHGUARD ON H₂ TK 2 HEATERS A SW.
10. **INSTALL** SWITCHGUARD ON H₂ TK 2 HEATERS B SW.
11. **INSTALL** SWITCHGUARD ON H₂ TK 3 HEATERS A SW.
12. **INSTALL** SWITCHGUARD ON H₂ TK 3 HEATERS B SW.

T:_____
80-11  PANEL R2

1. SWITCHGUARD G070-700903-001  
   ON APU OPERATE SWITCHES.

2. SWITCHGUARD G070-700919-001  
   ON HYD CIRC PUMP 1 SWITCH.

3. SWITCHGUARD G070-700904-001  
   ON HYD CIRC PUMP 2, 3 SWITCHES.

4. SWITCHGUARD G070-700920-001  
   ON APU 1 FUEL TK VLV SWITCH.

5. SWITCHGUARD G070-700905-001  
   ON APU 2, 3 FUEL TK VLV SWITCHES.

6. SWITCHGUARD G070-700920-001  
   ON ET UMBILICAL DOOR MODE SWITCH.

T:_____ 

80-12  PANEL R4

SWITCHGUARD G070-700922-001  
ON LG HYD ISOL VLV 1, 2, 3 SWITCHES.

T:_____ 

80-13  PANEL A1R

SWITCHGUARD G070-700919-001  
ON S-BAND FM POWER SWITCH.

T:_____
80-14

PANEL A1L

1. SWITCHGUARD G070-700919-001 ON S-BAND PM XPNDR SWITCH.

2. SWITCHGUARD G070-700919-001 ON S-BAND PAYLOAD POWER SYSTEM SWITCH.

T:______

80-15

PANEL A7

1. SWITCHGUARD G070-700919-001 ON PAYLOAD BAY FLOOD AFT STBD SWITCH.

2. SWITCHGUARD G070-700919-001 ON PAYLOAD BAY FLOOD AFT PORT SWITCH.

3. SWITCHGUARD G070-700919-001 ON PAYLOAD BAY FLOOD MID STBD SWITCH.

4. SWITCHGUARD G070-700919-001 ON PAYLOAD BAY FLOOD MID PORT SWITCH.

5. SWITCHGUARD G070-700919-001 ON PAYLOAD BAY FLOOD FWD STBD SWITCH.

6. SWITCHGUARD G070-700919-001 ON PAYLOAD BAY FLOOD FWD PORT SWITCH.

7. SWITCHGUARD G070-700919-001 ON PAYLOAD BAY FLOOD DOCKING SWITCH.

8. SWITCHGUARD G070-700919-001 ON PAYLOAD BAY FLOOD FWD BHD SWITCH.

T:______
80-16  CFCP  PS1  153

PANEL A11

1. SWITCHGUARD G070-700926-001
   ON O₂ CRYO TANK 4 HEATERS A, B SWITCHES.

2. SWITCHGUARD G070-700926-001
   ON H₂ CRYO TANK 4 HEATERS A, B SWITCHES.

T:______

80-17  CFCP  PS1  153

PANEL A15

IF G070-300091-001 Panel guard is available,

THEN Install G070-300091-001 Panel guard over Panel A15

ELSE Install switchguards.

1. SWITCHGUARD G070-700926-001
   ON O₂ CRYO TK 5 HTRS A, B SWITCHES.

2. SWITCHGUARD G070-700926-001
   ON H₂ CRYO TK 5 HTRS A, B SWITCHES.

T:______
80-18 PANEL ML86B

ROW D

G070-700919-001 CB GUARD
ON MN A PYRO JETT SYS A KU ANT CB

G070-700919-001 CB GUARD
ON MN B PYRO JETT SYS A PORT RMS CB

G070-700919-001 CB GUARD
ON MN C PYRO JETT SYS B KU ANT CB

G070-700919-001 CB GUARD
ON MN C PYRO JETT SYS B PORT RMS CB

ROW F

MN A

INSTALL G070-700406-001 SWITCHGUARD
ON CRYO O₂ HTR TK 3 SNSR 1 CB.

IF TK 5 IS INSTALLED,

THEN INSTALL G070-700406-001 SWITCHGUARD
ON CRYO O₂ HTR TK 5 SNSR 1 CB.

Not Performed:_____

MN B

CRYO O₂ HTR

INSTALL G070-700406-001 SWITCHGUARD
ON CRYO O₂ HTR TK 3 SNSR 2 CB.

INSTALL G070-700406-001 SWITCHGUARD
ON CRYO O₂ HTR TK 4 SNSR 1 CB.
MN C
CRYO O₂ HTR

**INSTALL** G070-700406-001 SWITCHGUARD
ON CRYO O₂ HTR TK 4 SNSR 2 CB.

**IF** TK 5 IS INSTALLED,

**THEN INSTALL** G070-700406-001 SWITCHGUARD
ON CRYO O₂ HTR TK 5 SNSR 2 CB.

Not Performed:______

T:______

80-19 OTC CDR 132

PANEL C2

**INSTALL** TAGOUT "IDP/CRT PWR SW MUST REMAIN ON FOR 30 SECONDS" ON IDP/CRT1, 2 AND 3 SWITCHES.

T:______
80-20  OTC  CDR  132

PANEL R11

INSTALL TAGOUT "IDP/CRT PWR SW MUST REMAIN ON FOR 30 SECONDS" ON IDP/CRT4.

  T:_____

80-21  CDR  OTC  132

  PLT
  MS1

Switchguard Installation/Verification complete.

  T:_____

*** End of Operation 80 ***
OPERATION 81 ET/Orbiter Plate Gap Transducer Evaluation

Shop: MPS
Cntrl Rm Console: C4, C6
OPR: MPS
Zone: 300
Hazard (Y/N): N
Duration (Hrs): 1.0

NOTE
This is a contingency operation to be performed at CMPS Engineering direction for pre- and post cryo loading evaluation of the plate gap pressure transducers. This operation will evaluate the plate gap pressure transducers by cycling the aft fuselage vent doors and varying the internal pressure of the aft fuselage.

Operation Not Performed:______

NOTE
Completion of this operation satisfies noted requirement.

OMRS S00E00.583
Perform the following:

1. Request permission to perform Orbiter/ET Delta P measurement test. Length of test - 15 minutes.
2. Request CPVD on 166 to support Vent Door Cycling Operations for Orbiter/ET Delta P Transducer Evaluation.

Verify the following:

1. Verify no rain at Pad ______
2. RSS is retracted.
3. S0007 Ascent Switch List is complete.

Verify that the LH2 Orbiter/ET plate gap purge is active.

Verify conditions from the previous three steps are complete prior to continuing with the Cryo ET/Orbiter Plate Gap Delta P Transducer Evaluation.
Perform the following:

1. IF PLB circuit flow rate is not 170 to 180 lbs/min,
   THEN set PLB circuit flow rate set point at 170 to 180 lbs/min (175 lbs/min nominal) per OMI V1122.004, PAD ECS FR Console Monitoring and Routine Adjustments. (Refer to payload OMRS for specific mission requirements and limitations.)

   Not Performed: SS1

2. IF AFT circuit flow rate is not at 100 to 110 lbs/min,
   THEN set AFT circuit flow rate set point to 100 to 110 lbs/min (105 lbs/min nominal) per OMI V1122.004, Pad ECS FR Console Monitoring and Routine Adjustments.

   Not Performed: SS2

3. Notify CMPS that ECS PLB and AFT purge circuits are configured for test.
PERFORM THE FOLLOWING PRIOR TO CYCLING VENT DOORS:

1. **VERIFY** NO RSYS MESSAGES DISPLAYED AT BOTTOM OF CRT OR REQUEST TPE TRANSFER RSYS TO C6.

2. **VERIFY** DOWNLINK NUMBER IS DISPLAYED IN GREEN.

3. **VERIFY** DOWNLIST NUMBER IS DISPLAYED IN GREEN.

4. **VERIFY** LDB ARROW UP GREEN.

5. **STATUS** VENT DOOR COMMAND FDS AS FOLLOWS: PFPK4 - PRESS ONCE

6. **VERIFY** MESSAGE “CMD STATUS COMPLETE, NO CMD FD’S ARE ON” IS DISPLAYED AT BOTTOM-CENTER OF VAM65A, PG-B, AFTER GREEN LIGHT ON PFPK4 GOES OFF.

7. **VERIFY** PFP3 READS “DISABL 1&2, 8&9 RCL.”
81-7  CMPS  CPVD  168

CONSOLE KYBD VAM65A (PG-B)
CONFIGURE VENT DOORS 8 & 9 FOR START OF TEST:

1. **IF** RH VENT DOORS 8 & 9 ARE NOT IN PURGE POSITION,

   **THEN POSITION** RH VENT DOORS 8 & 9 TO PURGE POSITION USING CURSOR/KEYBOARD CONTROL.

   Not Performed:_______
   SS1

2. CRT
   **VERIFY** LH AND RH VENT DOORS 8 & 9 IN PURGE CONFIGURATION.

3. **RECORD** LEEWARD VENT DOORS 8 & 9
   (LEFT OR RIGHT):___________

4. **NOTIFY** CMPS THAT VENT DOORS ARE CONFIGURED FOR START OF TEST.
CRT (C4)  
DMON - PRESS  
DMON <FD> FOR APPLICABLE FD'S LISTED IN THE PLATE GAP TRANSDUCER FD TABLE  
<XMIT CMD> - PRESS  

READ AND RECORD THE VALUES OF LO₂ ET/ORB PLATE GAP TRANSDUCER (X.XX)  

LO₂ #1 LOW (V41P1987H) : __________ PSID (BD)  
LO₂ #1 HIGH (V41P1988H) : __________ PSID (BD)  
LO₂ #2 LOW (V41P1989H) : __________ PSID (BD)  
LO₂ #2 HIGH (V41P1990H) : __________ PSID (BD)  

READ AND RECORD THE VALUES OF LH₂ ET/ORB PLATE GAP TRANSDUCER (X.XX)  

LH₂ #1 LOW: (V41P1977H) __________ PSID (BD)  
LH₂ #1 HIGH: (V41P1978H) __________ PSID (BD)  
LH₂ #2 LOW: (V41P1979H) __________ PSID (BD)  
LH₂ #2 HIGH: (V41P1980H) __________ PSID (BD)  

81-9  
CMPS CPVD 168  

CONSOLE KYBD VAM65A (PG-B)  

CYCLE LEEWARD VENT DOORS 8 & 9 FROM PURGE TO OPEN USING CURSOR/KEYBOARD CONTROL.  

REPORT COMPLETION.
CRT (DMON PAGE)

**READ AND RECORD** THE VALUES OF LO₂ ET/ORB PLATE GAP TRANSUDER (X.XX)

LO₂ #1 LOW (V41P1987) : __________ PSID (BD)

LO₂ #1 HIGH (V41P1988H) : __________ PSID (BD)

LO₂ #2 LOW (V41P1989H) : __________ PSID (BD)

LO₂ #2 HIGH (V41P1990H) : __________ PSID (BD)

**READ AND RECORD** THE VALUES OF LH₂ ET/ORB PLATE GAP TRANSUDER (X.XX)

LH₂ #1 LOW (V41P1977H) : __________ PSID (BD)

LH₂ #1 HIGH (V41P1978H) : __________ PSID (BD)

LH₂ #2 LOW (V41P1979H) : __________ PSID (BD)

LH₂ #2 HIGH (V41P1980H) : __________ PSID (BD)

**81-11 CMPS CPVD 168**

VAM65A (PG-B)

**CYCLE** LEEWARD VENT DOORS 8 & 9 FROM OPEN TO PURGE USING CURSOR/KEYBOARD CONTROL.

**REPORT** COMPLETION.
81-12

CMPS

CRT (DMON PAGE)

READ AND RECORD THE VALUES OF LO₂ ET/ORB PLATE GAP TRANSDUCER (X.XX)

LO₂ #1 LOW (V41P1987H) : __________ PSID (BD)

LO₂ #1 HIGH (V41P1988H) : __________ PSID (BD)

LO₂ #2 LOW (V41P1989H) : __________ PSID (BD)

LO₂ #2 HIGH (V41P1990H) : __________ PSID (BD)

READ AND RECORD THE VALUES OF LH₂ ET/ORB PLATE GAP TRANSDUCER (X.XX)

LH₂ #1 LOW (V41P1977H) : __________ PSID (BD)

LH₂ #1 HIGH (V41P1978H) : __________ PSID (BD)

LH₂ #2 LOW (V41P1979H) : __________ PSID (BD)

LH₂ #2 HIGH (V41P1980H) : __________ PSID (BD)
Return Pad ECS to pre-test configuration as follows:

1. IF PLB purge circuit flow rate was adjusted for this test,

THEN set PLB purge circuit flow rate to pre-test set point and tolerance per OMI V1122.004, Pad ECS FR Console Monitoring and Routine Adjustments. (Refer to payload OMRS for specific mission requirements and limitations.)

Not Performed:______
SS1

2. IF AFT purge circuit flow rate was adjusted for this test,

THEN set AFT purge circuit flow rate to pre-test set point and tolerance per OMI V1122.004, Pad ECS FR Console Monitoring and Routine Adjustments.

Not Performed:______
SS2

3. Notify CMPS that Pad ECS Purge Circuits No. 2 and 3 are returned to pre-test configurations.

PLB and AFT ECS purge circuits are in pre-test configuration.
<table>
<thead>
<tr>
<th>81-15</th>
<th>CMPS</th>
<th>CPVD</th>
<th>168</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSOLE KYBD VAM65A (PG-B)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IF</strong> VENT DOORS 8 &amp; 9 ARE REQUIRED TO BE RECONFIGURED TO WEATHER PROTECTION POSITION.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THEN CYCLE</strong> RIGHT-HAND VENT DOORS 8 &amp; 9 FROM PURGE TO CLOSED USING CURSOR/KEYBOARD CONTROL.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>REPORT</strong> COMPLETION.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Not Performed:</strong>______</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>81-16</th>
<th>CMPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of this operation satisfies noted requirement.</td>
<td></td>
</tr>
<tr>
<td>OMRSD <strong>S00E00.583</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>81-17</th>
<th>CMPS</th>
<th>OTC</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET/Orbiter Plate Gap Pressure Transducers Evaluation is complete.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*** End of Operation 81 ***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OPERATION 82 ET Camera RF Open Loop Functional Test

Shop: **EEP**  
Cntrl Rm Console: **C10**  
OPR: **EEP**  
Zone: **NA**  
Hazard (Y/N): **N**  
Duration (Hrs): **0.5**

**NOTE**

Do not perform this operation for a Scrub Turnaround less than 72 hours.

Operation Not Performed: _____
82-1

**CPWR**

**IF** CRT (TW495) 23D120
**AND/OR** 23D120X BUSSES ARE OFF,

**THEN PERFORM:**
CURSOR CNTL (TW495)
23D120 BUS -
23D120X BUS -
XMIT CURSOR KEY - PRESS

**VERIFY**
23D120 BUS ON
23D120X BUS ON

*Not Performed:_____*

82-2

**CPWR**

CURSOR CNTL (SDC01)

**ET OPTIONS**
**ET/SRB CAMERA**
XMIT CURSOR KEY - PRESS

**VERIFY** TD496 DISPLAYED

**NOTE**
The following step inhibits the 5-second delay logic required for SRB Camera functions.

82-3

**CPWR**

CURSOR CNTL (TD496)

**SRB CAMERAS**
**SRB UPDATE**
XMIT CURSOR KEY - PRESS

**CRT** (TD496)

**VERIFY** SRB UPDATE DISABLED
82-4 CPWR

CURSOR CNTL (TD496)

ET CAMERA COMMANDS
PRI
PS ON
XMIT CURSOR KEY - PRESS

SEC
PS ON
XMIT CURSOR KEY - PRESS

CRT (TD496)
VERIFY
PRI
PS IND - ON

SEC
PS IND - ON

82-5 CPWR

CURSOR CNTL (TD496)

ET CAMERA COMMANDS
PRI
PS OFF
XMIT CURSOR KEY - PRESS

SEC
PS OFF
XMIT CURSOR KEY - PRESS

CRT (TD496)
VERIFY
PRI
PS IND - OFF

SEC
PS IND - OFF
NOTE
Noted requirements are satisfied by the following series of steps.

OMRS S00FA0.110

82-6  CPWR

CURSOR CNTL (TD496)
ET CAMERA SEQUENCERS
FUNC TEST
XMIT CURSOR KEY - PRESS

VERIFY TD497 DISPLAYED

82-7  CPWR

CRT (TD497)
MESSAGES & PROMPTS
VERIFY THE FOLLOWING MESSAGE/PROMPT (YELLOW)
<JTOY> BEGINNING FUNCTIONAL TEST
SELECT CONTINUE OR TERMINATE
CURSOR CNTL (TD497)
CONTINUE (INVERT CYAN)
XMIT CURSOR KEY - PRESS

82-8  CPWR

CRT (TD497)
FOLLOW PROMPTS
82-9  

CPWR

CRT (TD497)

SEQUENCER

VERIFY

COMPLETE INITIALIZATION

COMPLETE PRIMARY CAMERA TEST

COMPLETE SECONDARY CAMERA TEST

COMPLETE TERMINATION

MESSAGES & PROMPTS

VERIFY THE FOLLOWING MESSAGE (YELLOW)

<JTOY> ET CAMERA TERMINATION COMPLETE

RECORD ET CAMERA TOTAL POWER-ON TIME: ______

82-10  

Noted requirements are complete.

OMRSD S00FA0.110

82-11  

CPWR

CONSOLE KYBD (TD497)

TERM

XMIT CURSOR KEY - PRESS

CRT (TD497)

VERIFY TD497 TERMINATES AND SDC01 IS DISPLAYED

82-12  

CPWR  TBC  136

ET Camera RF Open Loop Functional Test complete.

*** End of Operation 82 ***
OPERATION 83  Reserved
Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 83 ***
OPERATION 84  Reserved

Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 84 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 85  Reserved
Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 85 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 86 Reserved

Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 86 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 87  Reserved

Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 87 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 88  Reserved
Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 88 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 89  Reserved
Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 89 ***
THIS PAGE INTENTIONALLY BLANK.
OPERATION 90  Thermal Protection System Inspection
Shop: TPS
Cntrl Rm Console: NA
OPR: TPS
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 8.0

NOTE
Perform this operation if an on-Pad engine abort occurs and/or Firex system is activated.

Operation Not Performed: _______
NOTE

Noted requirements are satisfied by completion of this operation.

OMRS S00E00.033-A-1
OMRS S00E00.033-B-1
OMRS S00E00.033-C-1
OMRS S00E00.033-D-1
OMRS S00E00.033-E-1
OMRS S00E00.033-F-1
OMRS S00E00.033-G-1
OMRS S00E00.033-H-1
OMRS S00E00.033-I-1
OMRS S00E00.034-A-1
OMRS S00E00.034-B-1
OMRS S00E00.034-C-1
OMRS S00E00.034-D-1
OMRS S00E00.034-E-1
OMRS S00E00.034-F-1
OMRS S00E00.035-A-1
OMRS S00E00.035-B-1
OMRS S00E00.035-C-1

90-1       OTC       *PAD       132
*PAD       OTPS

Verify the following personnel on station or have been notified of upcoming inspection:

SPOC/NASA TPS Quality Inspection Team
SPOC/NASA TPS Engineering Team
NOTE

RSI that is AFT of the 1307 bulkhead is to be inspected per this OMI.

Inspect each area to the following criteria and type (macro/contamination) of inspection noted.

All steps may be worked out of sequence in support of this inspection.

A macro inspection is a walkaround inspection from three-to-five feet. Inspection distances may be increased to accommodate Orbiter configuration at Pad. Binoculars may be used where access is limited.

Utilize ML0601-0002 in conjunction with following criteria in support of inspection.
90-2 Criteria

Macro

1. **Tile (HRSI/LRSI):**

   Document unacceptable chips, gouges, cracked, crushed or missing tile, or having missing coating with silica showing on HRSI/LRSI tile. No loose tiles as identified by highlighting (visual check at low incidence view angle) for evidence of excessive step. No damage to repairs.

2. **FIB:**

   Document unacceptable OML surface and visible edges for cuts, tears, frayed areas and broken quilting, stitches in excess of spec allowances. Inspect for evidence of blanket joint gaps opening and evidence of out-of-tolerance steps developing. No missing or flaking coating, contamination and/or discoloration.

3. **FRSI:**

   Document unacceptable cracked coating, butt joint separation, abnormal discoloration, embrittlement, tears, cuts or rips.

4. **Silica plug:**

   Document unacceptable recession/protrusion from OML. No cracks and/or chips.

5. **FRSI plug:**

   Document unacceptable protrusion above OML, plug shrinkage, missing plug (cavity), char at OML, or discoloration.

6. **Pillow gap fillers and thermal barriers:**

   Document unacceptable open holes, tears or breaks of pillow gap fillers or thermal barriers. Minor surface abrasion or broken threads is acceptable. No missing gap fillers or thermal barriers or butt joint separation. Document loose or debonded gap fillers or thermal barriers as evident by abnormal protrusion. No excessive recession, protrusion or missing and/or overtemp coating. No evidence of thermal barrier crushing.
7. **Thermal barrier RTV coating:**

   Document color change from black to dull gray.

8. **RCC:**

   Document evidence of RCC burn through/coating chips.

9. Areas noted “Contamination” will be inspected for possible hydraulic oil spill or other contamination.

10. **RSI surfaces:**

    Document evidence of contamination (i.e., hydraulic oil spill, etc.)

11. **Rudder speed brake perimeter barrier seal:**

    Document evidence of cracks, breaks or unacceptable bends in the Inconel spring seal.

12. **Conical seal:**

    Document evidence of chips, cracks, or gouges in conical seal.

13. **RTV:**

    Document unacceptable RTV bubbling or charring.
90-3 Wing, Left-hand Lower

1. Lower wing, AFT of xo = 1307 (macro)
   \[\text{Qw: } \underline{\ldots} \text{ N: } \underline{\ldots}\]
   SS1

2. Lower inboard elevon (macro)
   \[\text{Qw: } \underline{\ldots} \text{ N: } \underline{\ldots}\]
   SS2

3. Lower outboard elevon (macro)
   \[\text{Qw: } \underline{\ldots} \text{ N: } \underline{\ldots}\]
   SS3

4. Elevon split sidewalls (macro)
   \[\text{Qw: } \underline{\ldots} \text{ N: } \underline{\ldots}\]
   SS4

5. Inboard/Elevon trailing edge and ends (macro)
   \[\text{Qw: } \underline{\ldots} \text{ N: } \underline{\ldots}\]
   SS5

6. Outboard elevon trailing edge and ends (macro)
   \[\text{Qw: } \underline{\ldots} \text{ N: } \underline{\ldots}\]
   SS6

7. RCC panel numbers 20, 21, 22 and associated T-seals. (macro) (ref VC70-000004; 69-13, 69-14, 69-15)
   \[\text{Qw: } \underline{\ldots} \text{ N: } \underline{\ldots}\]
   SS7
90-4 Wing, Right-hand Lower

1. Lower wing AFT of xo = 1307 (macro)
   
   Qw:______ N:______
   SS1

2. Lower inboard elevon (macro)
   
   Qw:______ N:______
   SS2

3. Lower outboard elevon (macro)
   
   Qw:______ N:______
   SS3

4. Inboard/Elevon trailing edge and ends (macro)
   
   Qw:______ N:______
   SS4

5. Outboard/Elevon trailing edge and ends (macro)
   
   Qw:______ N:______
   SS5

6. Elevon split sidewalls (macro)
   
   Qw:______ N:______
   SS6

7. RCC panel numbers 20, 21, 22 and associated T-seals (macro)
   (ref VC70-000004; 69-28, 69-29, 69-30)
   
   Qw:______ N:______
   SS7
90-5  Wing, Right-hand Upper

1. Upper wing AFT of xo = 1307 (macro)

   \[ Q_w: \quad N:\quad \]

   \[ SS1 \]

2. Upper inboard elevon (macro)

   \[ Q_w: \quad N:\quad \]

   \[ SS2 \]

3. Upper outboard elevon (macro)

   \[ Q_w: \quad N:\quad \]

   \[ SS3 \]

90-6  Wing, Left-hand Upper

1. Upper wing AFT of xo = 1307 (macro)

   \[ Q_w: \quad N:\quad \]

   \[ SS1 \]

2. Upper inboard elevon (macro)

   \[ Q_w: \quad N:\quad \]

   \[ SS2 \]

3. Upper outboard elevon (macro)

   \[ Q_w: \quad N:\quad \]

   \[ SS3 \]
90-7  AFT Fuselage, Lower

1. Lower surface (macro)
   \[ Qw:______ N:______ \]
   SS1

2. Lower body flap (macro)
   \[ Qw:______ N:______ \]
   SS2

3. Left-hand body flap end plate (macro)
   \[ Qw:______ N:______ \]
   SS3

4. Body flap trailing edge and ends (macro)
   \[ Qw:______ N:______ \]
   SS4

5. Right-hand body flap end plate (macro)
   \[ Qw:______ N:______ \]
   SS5

6. RSI adjacent to penetration body flap trailing edge drain holes (contamination)
   \[ Qw:______ N:______ \]
   SS6

7. RSI adjacent to flash evaporator hi-load vent duct (lower AFT fuselage left-hand side only) (contamination)
   \[ Qw:______ N:______ \]
   SS7

8. RSI adjacent to flash evaporator topping vent duct (lower AFT fuselage left-hand side) (contamination)
   \[ Qw:______ N:______ \]
   SS8
9. RSI adjacent to flash evaporator topping vent duct (lower AFT Fuselage right-hand side) (contamination)
   Qw:_____ N:_____  
   SS9

10. RSI adjacent to MPS LO₂ relief vent (lower AFT fuselage right-hand side) (contamination)
    Qw:_____ N:_____  
    SS10

90-8 AFT Fuselage, Upper

1. Body flap (macro)
   Qw:_____ N:_____  
   SS1

2. Base heat shield (macro)
   Qw:_____ N:_____  
   SS2

90-9 AFT Fuselage, Right-hand Upper

Sidewall (macro)
   Qw:_____ N:_____  

90-10 AFT Fuselage, Left-hand Upper

Sidewall (macro)
   Qw:_____ N:_____  

| 1172 |
90-11 Right-hand Vertical Tail

1. Vertical stabilizer (macro)
   \[Qw: \_\_\_\_\_ N: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   \]
   \[SS1\]

2. Rudder RSI (macro)
   \[Qw: \_\_\_\_\_ N: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   \]
   \[SS2\]

3. Leading edge (macro)
   \[Qw: \_\_\_\_\_ N: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   \]
   \[SS3\]

4. Rudder trailing edge and ends (macro)
   \[Qw: \_\_\_\_\_ N: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   \]
   \[SS4\]

5. Fin trailing edge and ends (macro)
   \[Qw: \_\_\_\_\_ N: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   \]
   \[SS5\]

6. Vertical stabilizer/AFT fuselage interface thermal barrier (macro)
   \[Qw: \_\_\_\_\_ N: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   \]
   \[SS6\]

7. Speed brake (macro)
   \[Qw: \_\_\_\_\_ N: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   \]
   \[SS7\]

8. Rudder speed brake split line thermal barrier (macro)
   \[Qw: \_\_\_\_\_ N: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   \]
   \[SS8\]
9. IF speed brake is open, THEN perform:

Rudder speed brake conical seal (macro)

Qw:______ N:______

SS9

Not Performed:______

SS9

90-12 Left-hand Vertical Tail

1. Vertical stabilizer (macro)

Qw:______ N:______

SS1

2. Rudder RSI (macro)

Qw:______ N:______

SS2

3. Leading edge (macro)

Qw:______ N:______

SS3

4. Rudder trailing edge and ends (macro)

Qw:______ N:______

SS4

5. Fin trailing edge and ends (macro)

Qw:______ N:______

SS5

6. Vertical stabilizer/AFT fuselage interface thermal barrier (macro)

Qw:______ N:______

SS6
7. Speed brake (macro)

Qw:______ N:______

SS7

8. Rudder speed brake split line thermal barrier (macro)

Qw:______ N:______

SS8

9. IF speed brake is open,

THEN perform:
Rudder speed brake perimeter barrier seal (macro)

Qw:______ N:______

SS9

Not Performed:______

SS9

10. IF speed brake is open,

THEN perform:
Rudder speed brake conical seal (macro)

Qw:______ N:______

SS10

Not Performed:______

SS10
90-13  OMS, Right-hand

1. Pod (macro)

\[ \text{Qw:} \text{____ N:} \text{_____} \]

SS1

2. RSI adjacent to APU exhaust (contamination)

\[ \text{Qw:} \text{____ N:} \text{_____} \]

SS2

3. RSI adjacent to OMS pod fuel and oxidizer relief ports (contamination)

\[ \text{Qw:} \text{____ N:} \text{_____} \]

SS3

4. Right-hand OMS RCS RSI (macro)

\[ \text{Qw:} \text{____ N:} \text{_____} \]

SS4

5. Right-hand OMS RCS thruster interfacing tiles and thermal barrier (macro)

\[ \text{Qw:} \text{____ N:} \text{_____} \]

SS5

6. Right-hand OMS pod, AFT fuselage interface (macro)

\[ \text{Qw:} \text{____ N:} \text{_____} \]

SS6

7. Right-hand OMS pod to base heat shield thermal barrier (macro)

\[ \text{Qw:} \text{____ N:} \text{_____} \]

SS7
90-14 OMS, Left-hand

1. Pod (macro)

   Qw:_____ N:_____  
   SS1

2. RSI adjacent to APU exhausts (contamination)

   Qw:_____ N:_____  
   SS2

3. RSI adjacent to OMS pod fuel and oxidizer relief ports (contamination)

   Qw:_____ N:_____  
   SS3

4. Left-hand OMS RCS RSI (macro)

   Qw:_____ N:_____  
   SS4

5. Left-hand OMS RCS thruster interfacing tiles and thermal barriers (macro)

   Qw:_____ N:_____  
   SS5

6. Left-hand OMS pod, AFT fuselage interface (macro)

   Qw:_____ N:_____  
   SS6

7. Left-hand OMS pod to base heat shield thermal barrier (macro)

   Qw:_____ N:_____  
   SS7
Completion of this operation satisfies the noted requirements.

OMRSD S00E00.033-A-1
OMRSD S00E00.033-B-1
OMRSD S00E00.033-C-1
OMRSD S00E00.033-D-1
OMRSD S00E00.033-E-1
OMRSD S00E00.033-F-1
OMRSD S00E00.033-G-1
OMRSD S00E00.033-H-1
OMRSD S00E00.033-I-1
OMRSD S00E00.034-A-1
OMRSD S00E00.034-B-1
OMRSD S00E00.034-C-1
OMRSD S00E00.034-D-1
OMRSD S00E00.034-E-1
OMRSD S00E00.034-F-1
OMRSD S00E00.035-A-1
OMRSD S00E00.035-B-1
OMRSD S00E00.035-C-1

Thermal Protection System Inspection complete.

*PAD:______

*** End of Operation 90 ***
OPERATION 91  Engineering Inspection/Additional Micro-Inspection

Shop: TPS
Cntrl Rm Console: NA
OPR: TPS
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 2.0

NOTE
Perform this operation if an on-Pad engine abort occurs and/or Firex system is activated.

Operation Not Performed:______
Verify that the following personnel are on station or notified of upcoming inspection and are available at regular work station:

SPOC/NASA TPS Engineering Team

**NOTE**

**Criteria:** TPS Engineering shall perform Walkdown Inspection of Orbiter to determine if areas in addition to those called for in Operation 90 - Thermal Protection System Inspection require additional inspection by Quality Inspection Team. Inspection shall be performed area by area. Requests for additional inspection shall be returned to Quality Inspection Team for processing.

91-2 Verification

1. Engineering Inspection complete.
   
   Engineering Supervisor _______________________________
   
   Or
   
   Lead Vehicle Engineer _______________________________

2. **IF** additional Micro-Inspections required,

   **THEN perform** inspections.
   
   Engineering Supervisor _______________________________
   
   Or
   
   Lead Vehicle Engineer _______________________________

   **Not Performed:** _____
91-3 IF additional Micro-Inspections are required,

THEN verify all additional Micro-Inspections requested by Engineering complete.

Engineering Supervisor _______________________________

Or

Lead Vehicle Engineer _______________________________

Not Performed:______

91-4 CTPS *PAD
*PAD OTC 132
PQCG CMQC

Engineering Inspection/Additional Micro-Inspection complete.

*PAD:______

*** End of Operation 91 ***
OPERATION 92  Pole CES Assembly Lowering from 195-ft Level
Shop: STM
Cntrl Rm Console: NA
OPR: STM
Zone: NA
Hazard (Y/N): Y
Duration (Hrs): 1.0

NOTE
Perform this operation if required by FCE Engineering for an Extended Scrub.

Operation Not Performed:______
Perform Pole CES Assembly Lowering from 195-ft Level.

Support: HESA

Ready to proceed with pole CES lifting operation. Controlling 50-ft radius of lift area on Pad surface (southwest side) and 10-ft area on 195-ft level of FSS.

Support: HESA

Verify mobile crane or aerial work platform rated load test is current.

Support: HESA

Perform safety inspection of the local control area and Egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe Egress from control area.

Date: _______________

Support: HESA

TTL:______
92-5  STM   GBHE   NET 104

Clear all nonessential personnel within 50-ft radius of lift area on Pad surface (southwest side) and 10-ft area on 195-ft level of FSS.

Support: HESA

T:_____  

<table>
<thead>
<tr>
<th>Essential Personnel</th>
<th>SPOC</th>
<th>NASA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Engineer</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Operator</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Lead Crane Ops</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Rigger</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

92-6  STM   NTD   232

Attention on Pad ___: All nonessential personnel clear within 50-ft radius of lift on Pad surface and 10-ft area on 195-ft level of FSS for escape pole handling cart lift.

92-7  GBHE   STM   NET 104

Nonessential personnel have been cleared. 50-ft radius of lift area established on Pad surface (southwest side) and 10-ft area on 195-ft level of FSS for escape pole handling cart lift.

Request Safety concurrence to proceed.

Support: HESA

T:_____
You have Safety concurrence to proceed with escape pole lifting operation.

**WARNING**

The suspended load may fall during hoisting, rotation, raising or lowering. Personnel impacted by falling or moving hardware may suffer serious injury and/or loss of life.

Wear hard hats and safety shoes/boots.

Locate mobile crane or aerial work platform to cleared area.

Support: HESA

T:______

Verify mobile crane or aerial work platform rated load test is current.

Support: HESA

T:______
92-11  GBHE  OOCS

**Remove** tiedowns securing PCES/cart on right side of ET vent arm, or at any other temp storage location, and move PCES/cart to west side of FSS on 195-ft level from where it will be lowered to Pad surface.

T:_____

92-12  Move Director, Crane Supervisor, or Engineer in charge:

**Brief** personnel on operational hazards that will be present and emergency steps.  **Verify** personnel certified, equipped and ready to proceed.

Support:  HESA
92-13 Attach (4 ea) shackles (500 lbs SWL min) to support legs on SED38110336-301 pole handling cart.

Support: HESA

T:______ Qv:______

92-14 Rig pole handling cart for lifting by mobile crane or aerial work platform.

Support: HESA

T:______ Qv:______

92-15 CSR-342
CSR-343

Lower pole and handling cart from 195-ft level down to Pad surface using mobile crane or aerial work platform and manual guidance.

Support: HESA

T:______

92-16 Remove lifting sling from cart.

Support: HESA

T:______

NOTE
Hazardous steps complete.
92-17 | GBHE | STM | NET 104
STM | NTD | 232
NTD | *SCC

Escape pole lifting operation complete.

Request Safety concurrence to open control area for controlled work.

Support: HESA

T:_____

92-18 | *SCC | NTD | 232
NTD | STM
STM | GBHE | NET 104

You have Safety concurrence to open control area for controlled work.

92-19 | GBHE | OOCS

Transport PCES/Cart to flight kits area in VAB.

T:_____

92-20 | GBHE | STM | NET 104

PCES/Cart Lowering complete. All support personnel are released.

Support: HESA

92-21 | STM | PSTM | NET 104
NTD | 232
PSOQ | CMQC

Pole CES Assembly Lowering from 195-ft Level complete.

Support: HESA

(FAC) Qv:_____

*** End of Operation 92 ***
OPERATION 93  Vehicle Fire Damage Inspection Post Abort

Shop: PAD LEADER
Cntrl Rm Console: NA
OPR: PAD LEADER
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 2.0

NOTE
Perform this operation if an on-Pad engine abort occurs.

Operation Not Performed: ______
Verify the following personnel on station or notified of upcoming inspection and are available at regular work station:

*Pad Leader
AFT Shop
GSE Shop
MLP Shop

Perform walkdown of vehicle external areas paying particular attention to vehicle AFT and T-0 umbilicals.
Look for any possible fire damage caused by the abort.
Record results:

__________________________________________________________
__________________________________________________________
__________________________________________________________
__________________________________________________________

Verify Post Abort Vehicle Fire Damage Inspection complete.
OMRSD S00E00.996

Vehicle Fire Damage Inspection Post Abort complete.

*** End of Operation 93 ***
OPERATION 94  Equipment Return

Shop: FWD
Cntrl Rm Console: NA
OPR: FWD
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 0.5

NOTE
Do not perform this operation if a Scrub has been declared.

Operation Not Performed: ______
Perform Equipment Return.

Turn in switchguards and circuit breaker guards to Logistics to be staged for landing.

Return all MERL items to MERL kitting area.

Equipment Return complete.

*** End of Operation 94 ***
OPERATION 95  Reserved - ET

Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 95 ***
OPERATION 96  Reserved - SRB
Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

*** End of Operation 96 ***
OPERATION 97  FCP Pump Motor Event Configuration

Shop: NA
Cntrl Rm Console: NA
OPR: NA
Zone: NA
Hazard (Y/N): NA
Duration (Hrs): NA

NOTE
The following operation will configure BMU system to record data in support of FCP pump motor event tracking. Recording will be terminated by direction of EPD for S0007 operations, S0018 lighting or other higher priority operations as per the Test Team direction.
Perform “FCP Pump Motor Event” configuration.

S0007.200 Step _____________

Perform/configure of EPD & C and supplemental measurements listed in Table 97-1 for recording of Fuel Cell pump motor events.

| Table 97-1 EPDC, FM and OI Channelization (Event Monitor) |
|----------------------------------|------------------|----------|
| Measurement | Description | BMU |
| **Group 1 FCP 1** | | |
| V76C1540H | AC BUS 1 PH A Current | BM2-2 |
| V76C1541H | AC BUS 1 PH B Current | BM2-3 |
| V76C1542H | AC BUS 1 PH C Current | BM2-4 |
| V76V1500H | AC BUS 1 PH A Volts | BM4-1 |
| V76V1501H | AC BUS 1 PH B Volts | BM4-2 |
| V76V1502H | AC BUS 1 PH C Volts | BM4-3 |
| **Group 2 FCP 2** | | |
| V76C1640H | AC BUS 2 PH A Current | BM1-1 |
| V76C1641H | AC BUS 2 PH B Current | BM1-2 |
| V76C1642H | AC BUS 2 PH C Current | BM1-3 |
| V76V1600H | AC BUS 2 PH A Volts | BM4-4 |
| V76V1601H | AC BUS 2 PH B Volts | BM3-1 |
| V76V1602H | AC BUS 2 PH C Volts | BM3-2 |
| **Group 3 FCP 3** | | |
| V76C1740H | AC BUS 3 PH A Current | BM1-4 |
| V76C1741H | AC BUS 3 PH B Current | BM1-5 |
| V76C1742H | AC BUS 3 PH C Current | BM2-1 |
| V76V1700H | AC BUS 3 PH A Volts | BM3-3 |
| V76V1701H | AC BUS 3 PH B Volts | BM3-4 |
| V76V1702H | AC BUS 3 PH C Volts | BM3-5 |
Perform/configure of EPD&C and supplemental measurements listed in Table 97-2 for Neutrometer recording and distribution to consoles C6/C10. Group 1-3 FDs are duplicates of Table 97-1.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
<th>BMU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1 FCP 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V76C1540H</td>
<td>AC BUS 1 PH A Current</td>
<td>BM2-2</td>
</tr>
<tr>
<td>V76C1541H</td>
<td>AC BUS 1 PH B Current</td>
<td>BM2-3</td>
</tr>
<tr>
<td>V76C1542H</td>
<td>AC BUS 1 PH C Current</td>
<td>BM2-4</td>
</tr>
<tr>
<td>V76V1500H</td>
<td>AC BUS 1 PH A Volts</td>
<td>BM4-1</td>
</tr>
<tr>
<td>V76V1501H</td>
<td>AC BUS 1 PH B Volts</td>
<td>BM4-2</td>
</tr>
<tr>
<td>V76V1502H</td>
<td>AC BUS 1 PH C Volts</td>
<td>BM4-3</td>
</tr>
<tr>
<td><strong>Group 2 FCP 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V76C1640H</td>
<td>AC BUS 2 PH A Current</td>
<td>BM1-1</td>
</tr>
<tr>
<td>V76C1641H</td>
<td>AC BUS 2 PH B Current</td>
<td>BM1-2</td>
</tr>
<tr>
<td>V76C1642H</td>
<td>AC BUS 2 PH C Current</td>
<td>BM1-3</td>
</tr>
<tr>
<td>V76V1600H</td>
<td>AC BUS 2 PH A Volts</td>
<td>BM4-4</td>
</tr>
<tr>
<td>V76V1601H</td>
<td>AC BUS 2 PH B Volts</td>
<td>BM3-1</td>
</tr>
<tr>
<td>V76V1602H</td>
<td>AC BUS 2 PH C Volts</td>
<td>BM3-2</td>
</tr>
<tr>
<td><strong>Group 3 FCP 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V76C1740H</td>
<td>AC BUS 3 PH A Current</td>
<td>BM1-4</td>
</tr>
<tr>
<td>V76C1741H</td>
<td>AC BUS 3 PH B Current</td>
<td>BM1-5</td>
</tr>
<tr>
<td>V76C1742H</td>
<td>AC BUS 3 PH C Current</td>
<td>BM2-1</td>
</tr>
<tr>
<td>V76V1700H</td>
<td>AC BUS 3 PH A Volts</td>
<td>BM3-3</td>
</tr>
<tr>
<td>V76V1701H</td>
<td>AC BUS 3 PH B Volts</td>
<td>BM3-4</td>
</tr>
<tr>
<td>V76V1702H</td>
<td>AC BUS 3 PH C Volts</td>
<td>BM3-5</td>
</tr>
</tbody>
</table>
### Table 97-2 EPDC, FM and OI Channelization (Neutrometer)

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
<th>BMU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Additional Data Channels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V76V0100H</td>
<td>MAIN BUS A VOLTAGE</td>
<td></td>
</tr>
<tr>
<td>V76V0200H</td>
<td>MAIN BUS B VOLTAGE</td>
<td></td>
</tr>
<tr>
<td>V76V0300H</td>
<td>MAIN BUS C VOLTAGE</td>
<td></td>
</tr>
<tr>
<td>V45V0114A1</td>
<td>FCP NO 1 H2 PUMP MTR CONDITION</td>
<td></td>
</tr>
<tr>
<td>V45V0214A1</td>
<td>FCP NO 2 H2 PUMP MTR CONDITION</td>
<td></td>
</tr>
<tr>
<td>V45V0314A1</td>
<td>FCP NO 3 H2 PUMP MTR CONDITION</td>
<td></td>
</tr>
<tr>
<td><strong>Support Channels (Derived Data)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC1 Channels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V76V1500H_AVE</td>
<td>Running Avg V76V1500H</td>
<td></td>
</tr>
<tr>
<td>V76V1501H_AVE</td>
<td>Running Avg V76V1501H</td>
<td></td>
</tr>
<tr>
<td>V76V1502H_AVE</td>
<td>Running Avg V76V1502H</td>
<td></td>
</tr>
<tr>
<td>AC1_Vazero</td>
<td>AC1 Φ A zero corrected</td>
<td></td>
</tr>
<tr>
<td>AC1_Vbzero</td>
<td>AC1 Φ B zero corrected</td>
<td></td>
</tr>
<tr>
<td>AC1_Vczero</td>
<td>AC1 Φ C zero corrected</td>
<td></td>
</tr>
<tr>
<td>AC1_Vsum</td>
<td>AC1 phase sum</td>
<td></td>
</tr>
<tr>
<td>AC1_Neutrometer</td>
<td>RMS value AC1 sum</td>
<td></td>
</tr>
<tr>
<td>AC2 Channels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V76V1600H_AVE</td>
<td>Running Avg V76V1600H</td>
<td></td>
</tr>
<tr>
<td>V76V1601H_AVE</td>
<td>Running Avg V76V1601H</td>
<td></td>
</tr>
<tr>
<td>V76V1602H_AVE</td>
<td>Running Avg V76V1602H</td>
<td></td>
</tr>
<tr>
<td>AC2_Vazero</td>
<td>AC2 Φ A zero corrected</td>
<td></td>
</tr>
<tr>
<td>AC2_Vbzero</td>
<td>AC2 Φ B zero corrected</td>
<td></td>
</tr>
<tr>
<td>AC2_Vczero</td>
<td>AC2 Φ C zero corrected</td>
<td></td>
</tr>
<tr>
<td>AC2_Vsum</td>
<td>AC2 phase sum</td>
<td></td>
</tr>
<tr>
<td>AC2_Neutrometer</td>
<td>RMS value AC2 sum</td>
<td></td>
</tr>
</tbody>
</table>
Table 97-2 EPDC, FM and OI Channelization (Neutrometer)

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
<th>BMU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AC3 Channels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V76V0100H_AVE</td>
<td>Running Avg V76V1700H</td>
<td></td>
</tr>
<tr>
<td>V76V0101H_AVE</td>
<td>Running Avg V76V1701H</td>
<td></td>
</tr>
<tr>
<td>V76V0102H_AVE</td>
<td>Running Avg V76V1702H</td>
<td></td>
</tr>
<tr>
<td>AC3_Vazerpo</td>
<td>AC3 Φ A zero corrected</td>
<td></td>
</tr>
<tr>
<td>AC3_Vbzero</td>
<td>AC3 Φ B zero corrected</td>
<td></td>
</tr>
<tr>
<td>AC3_Vczerpo</td>
<td>AC3 Φ C zero corrected</td>
<td></td>
</tr>
<tr>
<td>AC3_Vsum</td>
<td>AC3 phase sum</td>
<td></td>
</tr>
<tr>
<td>AC3_Neutrometer</td>
<td>RMS value AC3 sum</td>
<td></td>
</tr>
<tr>
<td><strong>RMS Voltages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC1_PhA Volts_RMS</td>
<td>RMS AC1 Φ A volts</td>
<td></td>
</tr>
<tr>
<td>AC1_PhB Volts_RMS</td>
<td>RMS AC1 Φ B Volts</td>
<td></td>
</tr>
<tr>
<td>AC1_PhC Volts_RMS</td>
<td>RMS AC1 Φ C Volts</td>
<td></td>
</tr>
<tr>
<td>AC2_PhA Volts_RMS</td>
<td>RMS AC2 Φ A Volts</td>
<td></td>
</tr>
<tr>
<td>AC2_PhB Volts_RMS</td>
<td>RMS AC2 Φ B Volts</td>
<td></td>
</tr>
<tr>
<td>AC2_PhC Volts_RMS</td>
<td>RMS AC2 Φ C Volts</td>
<td></td>
</tr>
<tr>
<td>AC3_PhA Volts_RMS</td>
<td>RMS AC3 Φ A Volts</td>
<td></td>
</tr>
<tr>
<td>AC3_PhB Volts_RMS</td>
<td>RMS AC3 Φ B Volts</td>
<td></td>
</tr>
<tr>
<td>AC3_PhC Volts_RMS</td>
<td>RMS AC3 Φ C Volts</td>
<td></td>
</tr>
</tbody>
</table>
THIS PAGE INTENTIONALLY BLANK.

*** End of Operation 97 ***
OPERATION 899  Walkdown Discrepency List

Shop:  NA
Cntrl Rm Console:  NA
OPR:  PAD LEADER
Zone:  NA
Hazard (Y/N):  N
Duration (Hrs):  24.0

NOTE
Do not perform this operation if vehicle is in a Scrub Turnaround and Walkdowns have not been scheduled.

Operation Not Performed:______

NOTE
The Walkdown Discrepancy List is created by OMI S0007.100, Operation 500 - Integrated Prerequisite Operation - Safety/Facility/Fire Walkdown, and other operational walkdowns.

Additional pages may be added to the list by making copies of the next page and adding them to this book.

The following are recorded on Walkdown Discrepancy List:

(1) Location
(2) Originator
(3) Responsible organization that will clear discrepancy
(4) Valid constraints:  PRSD Load
                       RSS Rotation
                       ET Load
(5) Cleared by: name (signature or stamp); date; time;
               and identified as permanent or temporary

All items checked temporary (with the exception of items located on the MLP) will be recorded in the applicable PDTL (Potential Discrepancy Tracking Log) for evaluation on future integrated walkdowns. These types of discrepancies are a temporary resolution and/or are acceptable for one Launch.
### Figure 899-1 - Walkdown Discrepancy List

(For Reference Only)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PR, DR, TROUBLE TICKET OR MAXIMO #</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) ORIGINATOR</td>
</tr>
<tr>
<td>(4) CONSTRAINT</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PR, DR, TROUBLE TICKET OR MAXIMO #</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) ORIGINATOR</td>
</tr>
<tr>
<td>(4) CONSTRAINT</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PR, DR, TROUBLE TICKET OR MAXIMO #</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) ORIGINATOR</td>
</tr>
<tr>
<td>(4) CONSTRAINT</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PR, DR, TROUBLE TICKET OR MAXIMO #</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) ORIGINATOR</td>
</tr>
<tr>
<td>(4) CONSTRAINT</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Figure 899-1 - Walkdown Discrepancy List (continued)
(For Reference Only)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PR, DR, TROUBLE TICKET OR MAXIMO #

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PR, DR, TROUBLE TICKET OR MAXIMO #

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PR, DR, TROUBLE TICKET OR MAXIMO #

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>DISCREPANCY &amp; RESOLUTION</td>
<td>(1) LOCATION</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PR, DR, TROUBLE TICKET OR MAXIMO #</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) ORIGINATOR</td>
<td>(3) RESP. ORG.</td>
</tr>
<tr>
<td></td>
<td>(4) CONSTRAINT</td>
<td>PERMANENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TEMPORARY</td>
</tr>
<tr>
<td></td>
<td>(5) CLEARED BY</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>(1) LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PR, DR, TROUBLE TICKET OR MAXIMO #</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) ORIGINATOR</td>
<td>(3) RESP. ORG.</td>
</tr>
<tr>
<td></td>
<td>(4) CONSTRAINT</td>
<td>PERMANENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TEMPORARY</td>
</tr>
<tr>
<td></td>
<td>(5) CLEARED BY</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>(1) LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PR, DR, TROUBLE TICKET OR MAXIMO #</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) ORIGINATOR</td>
<td>(3) RESP. ORG.</td>
</tr>
<tr>
<td></td>
<td>(4) CONSTRAINT</td>
<td>PERMANENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TEMPORARY</td>
</tr>
<tr>
<td></td>
<td>(5) CLEARED BY</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 899-1 - Walkdown Discrepancy List (continued)**
(For Reference Only)
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>LOCATION</th>
<th>(1) LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PR, DR, TROUBLE TICKET OR MAXIMO #

<table>
<thead>
<tr>
<th>(2) ORIGINATOR</th>
<th>(3) RESP. ORG.</th>
<th>PERMANENT</th>
<th>TEMPORARY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DISCREPANCY &amp; RESOLUTION</th>
<th>(1) LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PR, DR, TROUBLE TICKET OR MAXIMO #

<table>
<thead>
<tr>
<th>(2) ORIGINATOR</th>
<th>(3) RESP. ORG.</th>
<th>PERMANENT</th>
<th>TEMPORARY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 899-1 - Walkdown Discrepancy List (continued)
(For Reference Only)
**FOD Identified in the BDA Final Clear OPS/Safety Sweep Walkdown and Final Inspection at T-3 Hours**

NOTE
Perform the following FOD data sheet only if FOD is identified during OMI S0007.100, Operation 555 - BDA Final Clear OPS/Safety Sweep and OMI S0007.400 Operation 57 - Final Inspection.

**FOD Identified in the BDA Final Clear OPS/Safety Walkdown and Final Inspection at T-3 Hours Not Performed:**

NOTE
By definition, discrepancies identified are not a constraint to Launch.
Multiple copies of the FOD data sheet may be used. Identify each discrepancy on a separate page.
Location of FOD may be identified using Figure 899-2 - MLP Zero Level.

<table>
<thead>
<tr>
<th>Section 1 - To be completed by Walkdown/Inspection Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discrepancy</td>
</tr>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Additional Areas Searched</td>
</tr>
<tr>
<td>Possible Systems/Sources</td>
</tr>
<tr>
<td>Additional Remarks</td>
</tr>
<tr>
<td>Identified by:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section 2 - To be completed by responsible System Engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance</td>
</tr>
<tr>
<td>Rationale</td>
</tr>
<tr>
<td>Dispositioned by</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section 3 - To be completed by Quality Inspector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality to enter FOD data sheet item into the Integrated Quality Support Database. (FOD database)</td>
</tr>
<tr>
<td>Qv:_____</td>
</tr>
</tbody>
</table>
Figure 899-2 - MLP Zero Level
(For Reference Only)
*** End of FOD Identified in the BDA Final Clear OPS/Safety Walkdown and Final Inspection at T-3 Hours ***

*** End of Operation 899 ***
## Approval Record

**SHUTTLE COUNTDOWN - (LPS)**

<table>
<thead>
<tr>
<th>Role:</th>
<th>Signed by:</th>
<th>Date (GMT):</th>
<th>Reason for signing:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCO-TC</td>
<td>Gross George W</td>
<td>06/24/2011 11:44:</td>
<td>Concur with approval</td>
</tr>
<tr>
<td></td>
<td>United Space Alliance LLC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mail:USK-023</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone:321/861-7438</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentum User Name: grossgw</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSM-GSS</td>
<td>Dorn Deborah L</td>
<td>06/24/2011 11:47:45</td>
<td>Concur with approval</td>
</tr>
<tr>
<td></td>
<td>United Space Alliance LLC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mail:USK-043</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone:321/861-4484</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentum User Name: dorndl</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nasa Ksc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mail:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentum User Name: Spaulding Jeffrey G</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OMD</td>
<td>Poppino James D</td>
<td>06/24/2011 11:52:21</td>
<td>Concur with approval</td>
</tr>
<tr>
<td></td>
<td>United Space Alliance LLC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mail:USK-187</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone:321/861-4911</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentum User Name: poppijd1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPE-NASA</td>
<td>Greenwell Shawn M</td>
<td>06/24/2011 12:01:39</td>
<td>Concur with approval</td>
</tr>
<tr>
<td></td>
<td>Nasa Ksc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mail:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentum User Name: Greenwell Shawn M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCO-CTC</td>
<td>Wyrick Roberta</td>
<td>06/24/2011 13:26:07</td>
<td>Concur with approval</td>
</tr>
<tr>
<td></td>
<td>United Space Alliance LLC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mail:USK-229</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone:321/861-5121</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentum User Name: Wyrick Roberta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFP-SF</td>
<td>Ross Jerome</td>
<td>06/24/2011 14:22:32</td>
<td>Concur with approval</td>
</tr>
<tr>
<td></td>
<td>United Space Alliance LLC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mail:USK-291</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone:321/861-6285</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentum User Name: rossj</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPE</td>
<td>Zeps Anita K</td>
<td>06/24/2011 15:50:07</td>
<td>Concur with approval</td>
</tr>
<tr>
<td></td>
<td>United Space Alliance LLC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mail:USK-246</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone:321/867-9563</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentum User Name: zepsa</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>