Photo/TV Checklist

STS-134 Flight Supplement

Mission Operations Directorate
Operations Division

Final, Rev A
October 4, 2010
List of Implemented Change Requests (482s):

P/TV_FS-0140
P/TV_FS-0145

Incorporate the following:

1. Replace FS iii and FS iv, FS vii and FS viii
2. Replace FS 1-9 and FS 1-10, FS 1-19 and FS 1-20, FS 1-29 and FS 1-30, FS 1-37 and FS 1-38, FS 1-41 thru FS 1-50, FS 1-55 thru FS 1-58, FS 1-65 and FS 1-66, FS 1-73 thru FS 1-76
3. Replace FS 2-21 and FS 2-22, FS 2-27 thru FS 2-30
4. Replace FS CC 3-7 thru FS CC 3-12
PCN-2 (Feb 7, 2011) Sheet 1 of 1

List of Implemented Change Requests (482s):

P/TV_FS-0138

Incorporate the following:

1. Replace FS iii and FS iv, FS vii and FS viii
2. Replace FS 1-3 and FS 1-4, FS 1-7 and FS 1-8, FS 1-17 and FS 1-18, FS 1-27 and FS 1-28, FS 1-71 thru FS 1-78
3. Replace FS 2-23 and FS 2-24
4. Replace FS CC 3-15 and FS CC 3-16, FS CC 3-19 and FS CC 3-20

Prepared by: ____________________________  Mission Lead  ____________________________  Publication Manager

Approved by: ____________________________  Lead, Shuttle Photo/TV Group  ____________________________  Manager, Flight Procedures

Accepted by: ____________________________  FDF Manager

Encl: 26 pages

File this PCN immediately behind the front cover as a permanent record
PCN-1 (Dec 7, 2010) Sheet 1 of 1

List of Implemented Change Requests (482s):

P/TV_FS-0137

Incorporate the following:

1. Replace FS iii and FS iv

2. Replace FS 1-5 thru FS 1-8, FS 1-13 thru FS 1-32, FS 1-35 thru FS 1-38, FS 1-41 thru FS 1-50, FS 1-53 thru FS 1-58, FS 1-63 thru FS 1-68, FS 1-71 thru FS 1-74

3. Replace FS 2-1 and FS 2-2
   After FS 2-8, add FS 2-8a and FS 2-8b (2 pages)

Prepared by: [Signature]
Mission Lead

Approved by: [Signature]
Lead, Shuttle Photo/TV Group

Accepted by: [Signature]
FDF Manager

Encl: 60 pages

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MISSION OPERATIONS DIRECTORATE

PHOTO/TV CHECKLIST
STS-134 FLIGHT SUPPLEMENT

FINAL, REVISION A
October 4, 2010

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Technical Lead, Shuttle Photo/TV Group

Manager, Flight Procedures

ACCEPTED BY:

FDF Manager

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Incorporates the following:

| 482#       | P/TV_FS-0134           | P/TV_FS-0135A |

**AREAS OF TECHNICAL RESPONSIBILITY**

- **Publication Manager**: DO35/M. Bruce, 281-483-6083
- **Alternate Publication Manager**: DO35/L. Giles, 281-244-9068
- **Mission Lead**: DX46/D. Williams, 281-244-7882
- **Backup Mission Lead**: DX46/P. Richert, 281-483-1827
- **Technical Lead, Shuttle Photo/TV Group**: DX46/D. Williams, 281-244-7882
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<td>P/TV-13a/134/O/A</td>
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<td>FS CC 3-26</td>
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<td>FS CC 3-27</td>
<td>P/TV-17a/134/O/A</td>
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<td>P/TV-17b/134/O/A</td>
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</table>
SETUP

NOTE
Steps 1-7 minimum reqmt for OBSS RCC Inspection

1. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd

2. Perform DTV Setup

2a. Deconfig ASCENT AVIU

TV PWR – OFF

Unstow AVIU and disconnect following cables:
- ASC/ENT/FD TV Pwr Cable from J2
- AVIU Adapter Cable from J5
- ASC/ENT FD V10 Cable from J1
Temp stow AVIU for use on Flight Deck

2b. Config Panels

L10 (MUX)
- VTR/CC PWR – on (LED on)
- MUX/VTR/CC PWR – on (LED on)
- MUX BYPASS – ACT

(VIP)
- ATU – REC
- CCTV VIDEO IN – J3
- PWR – on (LED on)

(VTR)
- ON/STANDBY LED – green
- Switches set to White Dot (seven)
- COUNTER SELECT – COUNTER (TC)

2c. Config MON 1,2

MON 1
- SOURCE – DNLK

MON 2
- Connect DTV MON 2 Cbl to C-IN
- SOURCE – C

2d. Config Audio

A15
- Connect DTV Audio Cable to PS CCU
- PWR – AUD
- A/G1 – RCV, VOL – 5
- OTHER LOOPS – OFF
- MODE – PTT/PTT
SETUP (Continued)

3. **Perform MON 1,2 V10 Setup**

- **MA16J** Remove MON 1,2 Desk Assy Hardware from Stow-n-Go CTB

- **O19** TV PWR – OFF

- **Config MON 1,2 V10s and Cables per H/W SUMMARY, FS 1-4**
- Retrieve MON 1 V10 from MS1 Saddlebag
- Connect:
  - MON 1,2 Digital CC Vid/Pwr Cables to MON 1,2 V10s
  - MON 1,2 AVIU-CC Video Cables to MON 1,2 V10s
  - Multiuse Brkt to desk
  - RWS #1 Drag-Thru Cable to MON 1 AVIU J6
  - MON 1 AVIU Cable to MON 1 AVIU J4
  - MON 2 AVIU Cable to MON 2 AVIU J4
  - MON 1,2 TV PWR Cable to MON 1,2 AVIU J2
  - Multiuse Brkt to wall

- **AVIU (MON 1,2)**
  - [ ] SYNC/VIDEO – VIDEO
  - [ ] HI-Z/75 – 75
  - [ ] PWR SELECT – LO

- **R12 (VPU)** VPU PWR – ON (LED on)

- **O19** TV PWR – ON

- **V10 (MON 1,2)** PWR – ON
  - DISPLAY pb – toggle to display tape counter
  - Tape installed

4. **RSC Video Cable connected between R12/OPP-RSC Video (J105) and R12/WIB-CCTV PL3**
P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

5. Perform Analog Camcorder Setup for FD, MD

O19, MO58F
TV PWR – OFF
Config G1 CCs per H/W SUMMARY, FS 1-4, as reqd

AVIU (FD, MD)
SYNC/VIDEO – VIDEO
HI-Z/75 – 75
PWR SELECT – LO

O19, MO58F
TV PWR – ON

CC (FD, MD)
Install Wide Conversion lens
√ND FILTER – OFF
√OUTPUT – CAM
√( ) ( )
√STANDBY/LOCK – STANDBY
PWR dial – “green” 
√Tape installed
√Viewfinder (LCD) displays “green” 
Install Audio Muting Plug (optional)
Install Multiuse Brkt

6. Perform LCS Cable Connections per H/W SUMMARY, FS 1-4, as reqd

Middeck
Connect MD TV Pwr Cable to MD AVIU J2

AVIU (MD)
Connect end of LCS Video Cable to MD AVIU J1
√HI-Z/75 – 75

Flt Deck
Connect other end of LCS Video Cable (A31p Video Adapter) to A31p Video Out port via PGSC Usage Chart
Connect OPP-LCC Cable to A31p RJ45 Ethernet port via PGSC Usage Chart
P/TV01  VIDEO SETUP (Continued)

SETUP (Continued)

7. Perform SSV Setup

MF71O Unstow:
- SSV Compression Encoder Box
- SSV BNC-BNC Cable
- SSV to PDIP/CIP Cable
- SSV DC Pwr Cable
- Bal/Unbal Xfmr

Config SSV H/W per H/W SUMMARY, FS 1-4

**NOTE**
Video Spare 1 controlled by MCC instead of pnl A7

| L12 (SSP 2) | \(\checkmark\)cb PDIP 2 PWR 1 – cl |
| L11 (PDIP 2) | DC PWR 1 – ON |

**Config SSV settings**

SSV
- IN SEL – NTSC
- Mode – 3
- OUTRATE – 3
- SSV Pwr – on
- \(\checkmark\)Pwr LED illum
- \(\checkmark\)ENC DATA LED flickering
- \(\checkmark\)FRM DATA LED flickering
- \(\checkmark\)FILL FRM pulsing

Inform MCC when SSV SETUP complete

8. Perform HDTV Setup for handheld ET Video Downlink

L10:A1 Unstow MPC
- White Brick
- MPC-DTV MUX Cbl (Fiber Optic)
- MPC-G1 Cbl (Firewire)

Config H/W per HD DIGITAL VIA CC PLAYBACK diagram on back of DIGITAL PLAYBACK Cue Card
P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

9. Perform WVS Setup
   a. Activate WVS System
      A7 WIRELESS VID HTR – ON
      PWR – ON
      MO58F TV PWR – OFF
      MA16J
   b. Remove WVS Hardware from Stow-n-Go CTB
      Config WVS 1,2 V10s and Cables per H/W SUMMARY, FS 1-4
      Connect:
      WVS 1,2 Digital CC Vid/Pwr Cables to WVS 1,2 V10s
      WVS 1,2 AVIU-CC Vid Cables to WVS 1,2 V10s
      Multiuse Brkt to desk
      Pre-routed WVS 1,2 Balanced Video Cables from R12/VPU XCVR 1,2 BAL to WVS 1,2 AVIU J4
      Pre-routed WVS TV Pwr Cables to WVS 1,2 AVIU J2
      Balanced Video Cables stowed on WVS Stow-n-Go desk to WVS 1,2 AVIU J6
      ATU Recorder Cables to left (white) port per H/W SUMMARY, FS 1-4
      Multiuse Brkt to wall
      PCMCIA-to-WIB Remote Cable to R12/WIB J701
      RS-422 PCMCIA Card/Cable Assy and PCMCIA-to-WIB Remote Cable to bottom PCMCIA slot on A31p per
      PGSC Usage Chart

AVIU (WVS 1,2) √SYNC/VIDEO – VIDEO
   √HI-Z/75 – 75
   √PWR SELECT – LO

V10 (two)
   V10 (WVS 1,2)
   TV PWR – ON
   PWR – ON
   Tape installed
   WVS Test Pattern displayed (color bars w/"No WVS Video")
   PWR – OFF
9. Perform WVS Setup (Continued)

c. WVS PGSC Prep

PGSC Pwrup and Application Opening

PGSC

Pwr – ON
Sel Shuttle Apps icon
Sel WVS icon

Sel ‘No’ at ‘Restore To Previous Settings:’ window

If ‘Comm Port Configuration’ error displayed:
   Remove Quatech RS-422 Card
   Sel ‘Start’ > ‘Shut Down’ > ‘Shut Down’ > ‘OK’
   Reinstall Quatech RS-422 Card in bottom PCMCIA slot
   Pwr – ON
   Sel Shuttle Apps icon
   Sel WVS icon

RF Camera page will appear

Application Setup

If ‘Static XCVR’ (‘Bad ID Received’, ‘Temp Alert’, ‘Temp Caution’) alert msg:
   Perform ALERT MSG TROUBLESHOOTING (Cue Card, WVS)
If ‘Static RF Camera’ alert msg:
   Disregard
   Sel ‘File’ → ‘Assign Camera ID’
   Verify following:

<table>
<thead>
<tr>
<th>Camr Address</th>
<th>S/N</th>
<th>In Use</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>1007</td>
<td>1</td>
<td>EV1</td>
</tr>
<tr>
<td>20</td>
<td>1006</td>
<td>1</td>
<td>EV2</td>
</tr>
</tbody>
</table>

If Camr IDs not correct:
   Sel ‘Delete Entry’ until all deleted
   Perform CAMR ID ASSIGNMENT (Cue Card, WVS) as reqd
When complete, sel ‘OK’
P/TV01 VIDEO SETUP (Concluded)

SETUP (Concluded)

9. Perform WVS Setup (Concluded)

d. PWRDN

Sel ‘File’ → ‘Exit’

A7 WIRELESS VID PWR – OFF

MF71O HTR – OFF

10. Unstow, set up BPSMU w/BPSMU to CCU Adapter Cable at CDR CCU

A17/CC BAG Connect BPSMU Batt

11. Unstow, connect CC Batt Charger to W4 AVIU J5 port

MA16J/ Stow-N-Go BAG

12. Unstow, connect CC Batt Charger, AVIU to TV Power Cable
This Page Intentionally Blank
SCENE SYNOPSIS
Scene contains procedures for obtaining video, still photos of ISS rndz, docking

SETUP
1. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd
2. Perform D3s PROGRAM w/FLASH for in-cabin imagery

D3s
Lens – 14-24mm
Aperture – N/A
Body Focus Mode – S
√Batt installed
√Flash Card installed
Pwr – ON
Top LCD:
√Batt
√Frames remaining sufficient
Exp Comp ( ) – 0.0
Exp Mode – P
Meter – Matrix ( )
Diopter – Adjust
Frame Rate – S
BKT disabled – 0 F
Rear LCD:
√ISO – 200
√QUAL – RAW
√WB – 0,A
AF Area Mode – [ ]
√Focus Area – Center
√Focus Selector Lock – L
SB-800 Flash Settings:
√ON/OFF pb – ON
√Diffuser Dome installed
√MODE – TTL
√Exp Comp – 0 EV
Tilt – 45° (Direct)
3. **Perform D2Xs MANUAL for docking/external imagery**

Remove ovhd window shields

SB-800 Flash Settings:
- ON/OFF pb – OFF

Lens – 400mm(80-200mm)
- If 400mm:
  - Focus Limit – ∞ -6m
  - Lens Focus Mode – A
- If 80-200mm:
  - Focus Limit – full
  - Lens Focus Mode – A

Aperture – Min, locked
- Body Focus Mode – S
- √ Batt installed
- √ Flash Card installed
- Pwr – ON

Top LCD:
- √ Batt
- √ Frames remaining sufficient
- Exp Comp ( [ ] ) – 0.0
- Exp Mode – M:
  - SS – 500
  - f/stop – 8

Meter – Matrix ( [ ] )
- Diopter – Adjust
- Frame Rate – S
- √ BKT disabled – 0 F

Rear LCD:
- √ ISO – 100
- √ QUAL – RAW
- √ WB – 0,A
- AF Area Mode – [ ]
- √ Focus Area – Center
- √ Focus Selector Lock – L
4. **Perform Hardware Verification for V10s, FD CC, DTV**

**O19**
- TV PWR – ON
- VPU PWR – ON (LED on)
- Green Jumper – SEC C/L
- SEC C/L Cap installed

**R12 (VPU)**
- TV PWR – ON
- VPU PWR – ON (LED on)
- Green Jumper – SEC C/L
- SEC C/L Cap installed

**V10**
- PWR – ON
- Tape installed
  - DISPLAY pb – Toggle to display tape counter

For in-cabin views:
- Wide Conversion lens installed
- ND FILTER – OFF
- OUTPUT – CAM
- STANDBY/LOCK – STANDBY
  - PWR dial – “green”
- Tape installed
  - Install Audio Muting Plug (optional)
  - Open LCD:
    - “green” •|| displayed

For external sun-lit ISS views from G1 in W8:
- Remove Wide Conversion lens
- Install lens hood
- Install Batt
- ND FILTER – OFF
- AF/M – M
- AGC – OFF
- GAIN – L
- OUTPUT – CAM
- AWB – ON
- STANDBY/LOCK – STANDBY
  - PWR dial – M
- Tape installed
4. Perform Hardware Verification for V10s, FD CC, DTV (Concluded)

Open LCD:

- "green" •|| displayed
- SS – 1/500
- √GAIN – 0dB
- f/stop – F8.0
- √FOCUS – M ∞

MON 2
- √SOURCE – PNL

L10 (MUX)
- VTR/CC PWR – on (LED on)
- If dnlk, MUX/VTR/CC PWR – on (LED on)

(VIP)
- PWR – on (LED on)

(VTR)
- ON/STANDBY LED – green
- √Tape installed
P/TV02  DOCK (Continued)

<table>
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<tr>
<th>Item #</th>
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<th>Rqmts</th>
<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
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<td></td>
<td></td>
<td>PLB</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>ULF6-18</td>
<td>PAO Coverage</td>
<td>D3s (Interior) 14-24mm</td>
<td>As desired</td>
<td>G1 Tape installed (if avail) Plan for end of day crew choice video, DCS</td>
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<tr>
<td></td>
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<td>If exterior: Flash ON/OFF – OFF</td>
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<td>2.</td>
<td>ULF6-3</td>
<td>Rendezvous</td>
<td>D2Xs (Exterior) 400mm(80-200mm)Flash ON/OFF – OFF</td>
<td>A(B,C,D), ELB</td>
<td>G1 As desired Map ISS surfaces w/30% overlap</td>
</tr>
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<tr>
<td>3.</td>
<td>ULF6-3</td>
<td>Approach, Dock</td>
<td>D2Xs (Exterior) 400mm(80-200mm)Flash ON/OFF – OFF</td>
<td>C/L Per RNDZ, A(D) Per RNDZ, C(B) Docking view</td>
<td>G1 As desired Rcd C/L Camr video thru hard dock on DTV Continually focus sharpness</td>
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</tbody>
</table>
P/TV02  DOCK (Continued)

OPS (Continued)

APPROACH/Docking RQMTS

Mapping of ISS Module Surfaces

PMA2 APDS Area

PAO Views

C/L Camr

Cmr A(D)

Cmr C(B)

Docking View

Distance:

500 ft 400 ft 200 ft 170 ft 30 ft ~7 ft Dock

D2xs Camr

w/400mm Lens

D2xs Camr

w/80-200mm Lens

D3s Camr

w/14-24mm Lens

Range Ruler

MON 2, DTV (RCD)

MON 1

Range Ruler

Docking View
P/TV02  DOCK (Concluded)

**OPS** (Concluded)

If OPS temporarily suspended, perform DEACTIVATION as reqd
If OPS completed, go to DEACTIVATION

**DEACTIVATION**

1. **D2Xs,D3s**
   - Exp Mode – P
   - Pwr – OFF
   - Flash ON/OFF – ON

2. **TV System**
   - R12 (VPU)
     - Green Jumper – SEC C/L
     - SEC C/L Cap installed
     - VPU PWR – ON (LED on)
   - A7
     - VID OUT MON 1 pb – push
     - IN PL2(VPU) pb – push
     - CAMR CMD IRIS – CL
   - L12 (SSP 2)
     - C/L CAM PWR – OFF

**ODS**
- Remove, stow C/L camr, Harness Assy, Bridge
- Go to DEACTIVATION (Cue Card, TV) as reqd

3. **G1**
   - PWR dial – “green”
   - Install Wide Conversion Lens
P/TV03  UNDOCK (Continued)

SCENE SYNOPSIS
Scene contains procedures for obtaining video, still photos of ISS undocking, flyaround

SETUP

1. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd

2. Perform D3s PROGRAM w/FLASH for in-cabin imagery
   - D3s
     - Lens – 14-24mm
     - Aperture – N/A
     - Body Focus Mode – S
     - Batt installed
     - Flash Card installed
     - Pwr – ON
     - Top LCD:
       - Batt
       - Frames remaining sufficient
       - Exp Comp ( ) – 0.0
       - Exp Mode – P
       - Meter – Matrix ( )
       - Diopter – Adjust
       - Frame Rate – S
       - BKT disabled – 0 F
     - Rear LCD:
       - ISO – 200
       - QUAL – RAW
       - WB – 0, A
       - AF Area Mode – [ ]
       - Focus Area – Center
       - Focus Selector Lock – L
     - SB-800 Flash Settings:
       - ON/OFF pb – ON
       - Diffuser Dome installed
       - MODE – TTL
       - Exp Comp – 0 EV
       - Tilt – 45° (Direct)
P/TV03 UNDOCK (Continued)

SETUP (Continued)

3. Perform D2Xs MANUAL for undocking/external imagery

Remove ovhd window shields

SB-800 Flash Settings:
  ON/OFF pb – OFF

Lens – 400mm(80-200mm)
  If 400mm:
    Focus Limit – ∞ -6m
    Lens Focus Mode – A
  If 80-200mm:
    Focus Limit – full
    Lens Focus Mode – A

Aperture – Min, locked
Body Focus Mode – S
√Batt installed
√Flash Card installed
Pwr – ON
Top LCD:
  √Batt
  Frames remaining sufficient
Exp Comp ( ⌘ ) – 0.0
Exp Mode – M:
  SS – 500
  f/stop – 8

Meter – Matrix ( ⎐ )
Diopter – Adjust
Frame Rate – S
√BKT disabled – 0 F

Rear LCD:
  √ISO – 100
  √QUAL – RAW
  √WB – 0,A
AF Area Mode – [ [ ] ]
√Focus Area – Center
√Focus Selector Lock – L
4. Perform Hardware Verification for V10s, FD CC, DTV

O19
- TV PWR – ON

R12 (VPU)
- VPU PWR – ON (LED on)
- Green Jumper – SEC C/L
- SEC C/L Cap installed

V10 (MON 1,2)
- Tape installed
- DISPLAY pb – Toggle to display tape counter
  For in-cabin views:
  - Wide Conversion lens installed
  - ND FILTER – OFF
  - OUTPUT – CAM
  - \[ ]
  - STANDBY/LOCK – STANDBY
  - PWR dial – “green”
  - Tape installed
  - Open LCD:
    - “green” •|| displayed
    - Install Audio Muting Plug (optional)

For external sun-lit ISS views from G1 in W8:
  - Remove Wide Conversion lens
  - Install lens hood
  - Install Batt
  - ND FILTER – OFF
  - AF/M – M
  - AGC – OFF
  - GAIN – L
  - OUTPUT – CAM
  - AWB – ON
  - \[ ]
  - STANDBY/LOCK – STANDBY
  - PWR dial – M
  - Tape installed
P/TV03 UNDOCK (Continued)

SETUP (Concluded)

4. Perform Hardware Verification for V10s, FD CC, DTV (Concluded)

   Open LCD:
   - "green" •|| displayed
   - SS – 1/500
   - GAIN – 0dB
   - f/stop – F8.0
   - FOCUS – M ∞

   MON 2
   - SOURCE – PNL

   L10 (MUX)
   - VTR/CC PWR – on (LED on)
   - If dnlk, MUX/VTR/CC PWR – on (LED on)

   (VIP)
   - PWR – on (LED on)

   (VTR)
   - ON/STANDBY LED – green
   - Tape installed
<table>
<thead>
<tr>
<th>Item #</th>
<th>Track #</th>
<th>Rqmts</th>
<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>ULF6-18</td>
<td>PAO Coverage</td>
<td>D3s (Interior) 14-24mm If exterior: Flash ON/OFF – OFF</td>
<td>As desired</td>
<td>G1 Tape installed</td>
</tr>
</tbody>
</table>
| 2.    | ULF6-2  | Undock and Flyaround  
• PMA-2 Docking Tgt/Mating Surfaces  
• PMA-2 TCS Planar, Hemispherical Retro Reflectors  
• Surfaces  
• Solar Panels  
• Handrails  
• SM Thrusters on Zenith, near aft end  
• Trusses including rads/baseplates and SAWs (in/outboard SABB insulation degradation)  
• SOLAR on Columbus EPF  
• MISSE-8 on ELC2 on S3  
• AMS on S3 | D2Xs (Exterior) 80-200mm(400mm) Flash ON/OFF – OFF | A(C,D) Per RNDZ C/L Docking tgt and PAO view | G1 Tape installed | LIVE (if avail) | Map ISS surfaces w/30% overlap |
P/TV03 UNDOCK (Continued)

OPS (Continued)

**UNDOCKING/FLYAROUND RQMTS**

- **PMA2 APDS Area**
- **Mapping of ISS Module Surfaces**
- **PAO Views**
- **C/L Camr**
- **C/ Camr**
- **C/ Camr A(D) (flyaround at 400 ft)**
- **C/ Camr A(D)**

**MON 1**
- DTV

**MON 2**
- D2Xs Camr w/80-200mm Lens
- D2Xs Camr w/400mm Lens
- D3s Camr w/14-24mm Lens

**FS 1-30**
P/TV03  UNDOCK (Concluded)

OPS (Concluded)
If OPS temporarily suspended, perform DEACTIVATION as reqd
If OPS completed, go to DEACTIVATION

DEACTIVATION

1. D2Xs,D3s
   □ Exp Mode – P
   □ Pwr – OFF
   □ Flash ON/OFF – ON

2. TV System
   R12 (VPU)
   □ Green Jumper – SEC C/L
   □ SEC C/L Cap installed
   □ VPU PWR – ON (LED ON)
   A7U
   □ VID OUT MON 1 pb – push
   □ IN PL2(VPU) pb – push
   □ CAMR CMD IRIS – CL
   L12 (SSP 2)
   □ C/L CAM PWR – OFF

ODS
   Remove, stow C/L Camr, Harness Assy
   Go to DEACTIVATION (Cue Card, TV) as reqd

3. G1
   □ PWR dial – “green”
   □ Install Wide Conversion Lens
INGRESS TV CONFIG
SCENE SYNOPSIS

Scene contains procedures for documenting ISS ingress/egress w/video and still photos

SETUP

1. **Config ISS Video**
   - Perform ACTIVATION (Cue Card, TV) for DNLK OPS of ISS signal as reqd
   - R12 (VPU)
     - Green Jumper – ISS
     - VPU PWR – ON
   - A7
     - VID OUT DNLK pb – push
     - IN PL2(VPU) pb – push

2. **Perform Ingress Camcorder Setup**
   - Obtain two Batts, one for CC and one spare
   - Install Batt
   - CC
     - Install Wide Conversion lens
     - ND FILTER – OFF
     - OUTPUT – CAM
     - STANDBY/LOCK – STANDBY
     - PWR dial – “green”
     - Tape installed
     - Viewfinder (LCD) displays “green”
     - Install Audio Muting Plug (optional)
     - Install Multiuse Brkt

**CAUTION**

Due to temp constraints, worklights at full pwr for 60 min; 90% pwr for unlimited time

Worklights

- Install fresh Batts
- Mount light on CC
- PWR – as reqd
P/TV04 INGRESS/EGRESS (Continued)

SETUP (Concluded)

3. Perform D2Xs(D3s) PROGRAM w/FLASH

D2Xs
   Lens – 12-24mm
   √Aperture – Min, locked
   Body Focus Mode – S
   √Batt installed
   √Flash Card installed
   Pwr – ON
   Top LCD:
      √Batt
      √Frames remaining sufficient
   Exp Comp (평가) – 0.0
   Exp Mode – P
   Meter – Matrix ( matrix)
   Diopter – Adjust
   Frame Rate – S
   √BKT disabled – 0 F
   Rear LCD:
      √ISO – 100
      √QUAL – RAW
      √WB – 0,A
      AF Area Mode – [ ]
      √Focus Area – Center
      √Focus Selector Lock – L

SB-800 Flash Settings:
   √Diffuser Dome installed
   ON/OFF pb – ON
   √MODE – [ ]
   √Exp Comp – 0 EV
   Tilt – 45° (Direct)

D3s
   Lens – 14-24mm
   √Aperture – N/A
   Body Focus Mode – S
   √Batt installed
   √Flash Card installed
   Pwr – ON
   Top LCD:
      √Batt
      √Frames remaining sufficient
   Exp Comp (평가) – 0.0
   Exp Mode – P
   Meter – Matrix ( matrix)
   Diopter – Adjust
   Frame Rate – S
   √BKT disabled – 0 F
   Rear LCD:
      √ISO – 200
      √QUAL – RAW
      √WB – 0,A
      AF Area Mode – [ ]
      √Focus Area – Center
      √Focus Selector Lock – L

SB-800 Flash Settings:
   √Diffuser Dome installed
   ON/OFF pb – ON
   √MODE – [ ]
   √Exp Comp – 0 EV
   Tilt – 45° (Direct)
### P/TV04 INGRESS/EGRESS (Concluded)

#### OPS

<table>
<thead>
<tr>
<th>Item #</th>
<th>Track #</th>
<th>Rqmts</th>
<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>D2Xs(D3s)</td>
<td>12-24mm(14-24mm)</td>
<td>G1</td>
<td>LIVE (if avail)</td>
</tr>
</tbody>
</table>

If OPS temporarily suspended, perform DEACTIVATION as reqd
If OPS completed, go to DEACTIVATION

#### DEACTIVATION

1. **D2Xs,D3s**
   - Pwr – OFF

2. **TV System**
   - Go to DEACTIVATION (Cue Card, TV) as reqd
SCENE SYNOPSIS

Scene contains procedures for setup, documenting ISS internal ops (surveys, PAO events, logistics, transfers, closeouts) with video, still photos

SETUP

WARNING
Locate QDs at hatches for ease in locating, disconnecting during hatch closure. Route, restrain cables to prevent loose cable lengths which could entrap crew

BPSMU AND RWS CABLES

1. Config H/W per H/W SUMMARY, FS 1-40 and FS 1-41

ISS PMA
Retrieve contingency BPSMU, connect internal battery, temp stow in PMA for contingency use

Config RWS Vid Cables:
MON 1,2
(Row-n-Go)
L10:A1
\(\text{RWS 1 Drag-Thru Cable connected to MON 1 AVIU J6}\)
\(\text{RWS 2 Drag-Thru Cable connected to DTV VTR OUT connector}\)

Config BPSMU and RWS Cables:

ODS/PMA2
Connect orbiter RWS 1,2 Cables to Drag-Through QD Box

AW82D
Connect BPSMU Cables to orbiter A/L CCU 1,2 and Drag-Through QD Box
Config A/L ATU per Comm Plan
P/TV05  ISS INTERNAL OPS (Continued)

SETUP (Continued)

PAO EVENT

1. Config VPU

R12 (VPU)  √Green Jumper – ISS
        √VPU PWR – ON (LED on)

2. Config Shuttle Video

A7  VID OUT DNLK pb – push
        IN PL2(VPU) pb – push
SETUP (Concluded)

STILL CAMR

1. Perform D2Xs(D3s) PROGRAM w/FLASH

D2s
- Lens – 12-24mm
- √Aperture – Min, locked
- Body Focus Mode – S
- √Batt installed
- √Flash Card installed
- Pwr – ON
- Top LCD:
  - √Batt
  - √Frames remaining sufficient
- Exp Comp (LCD) – 0.0
- Exp Mode – P
- Meter – Matrix (LCD)
- Dioptr – Adjust
- Frame Rate – S
- √BKT disabled – 0 F
- Rear LCD:
  - √ISO – 100
  - √QUAL – RAW
  - √WB – 0,A
  - AF Area Mode – [ ]
  - √Focus Area – Center
  - √Focus Selector Lock – L

SB-800 Flash Settings:
- √Diffuser Dome installed
  - ON/OFF pb – ON
- √MODE – 
- √Exp Comp – 0 EV
- Tilt – 45° (Direct)

D3s
- Lens – 14-24mm
- √Aperture – N/A
- Body Focus Mode – S
- √Batt installed
- √Flash Card installed
- Pwr – ON
- Top LCD:
  - √Batt
  - √Frames remaining sufficient
- Exp Comp (LCD) – 0.0
- Exp Mode – P
- Meter – Matrix (LCD)
- Dioptr – Adjust
- Frame Rate – S
- √BKT disabled – 0 F
- Rear LCD:
  - √ISO – 200
  - √QUAL – RAW
  - √WB – 0,A
  - AF Area Mode – [ ]
  - √Focus Area – Center
  - √Focus Selector Lock – L

SB-800 Flash Settings:
- √Diffuser Dome installed
  - ON/OFF pb – ON
- √MODE – 
- √Exp Comp – 0 EV
- Tilt – 45° (Direct)
P/TV05  ISS INTERNAL OPS (Continued)

OPS

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<tr>
<th>√</th>
<th>Item #</th>
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<th>Still Imagery</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1.</td>
<td>ULF6-18</td>
<td>General ISS IVA Activity</td>
<td>D2Xs(D3s) 12-24mm(14-24mm) For Crew Photo: Perform D2Xs CREW PHOTO (Cue Card, D2Xs SETUP)</td>
<td>ISS G1</td>
<td>Plan for end of day crew choice video</td>
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<td>• PAO Scenes of Interest</td>
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<td></td>
<td>• Crew Photo</td>
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</tbody>
</table>

If OPS temporarily suspended, perform DEACTIVATION as reqd
If OPS completed, go to DEACTIVATION

DEACTIVATION

1. **D2Xs,D3s**
   Pwr – OFF

2. **Drag-Through QD Box**
   Disconnect:
   - RWS Cables (two) from orbiter side Video 1,2 ports. Stow cables on orbiter
   - BPSMU Cables from orbiter side BPSMU 1,2 and ODS CCU ports; stow cables on orbiter
   - Transfer Drag-Through QD Box and remaining attached cables to ISS

3. **TV System**
   Go to DEACTIVATION (Cue Card, TV) as reqd
Scene Synopsis

Scene contains procedures for obtaining video of SSRMS activities.

Setup

1. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd.
2. Perform Hardware Verification for V10s, FD CC, DTV.

O19
TV PWR – ON

R12 (VPU)
VPU PWR – ON (LED on)
Green Jumper – ISS (LDRI/ITVC for DLI)

Drag-Thru Cables configured as reqd

A17/DTV Bag
Unstow VPU Repeater Ziploc Bag, connect Cbl String between VPU “FROM ISS” to WLE “VIDEO IN” per diagram on FS 1-48. Launch Video Overlay from Shuttle Apps to see video on WLE A31p.

V10
PWR – ON
Tape installed
DISPLAY pb – Toggle to display tape counter

CC
Wide Conversion lens installed
ND FILTER – OFF
OUTPUT – CAM

STANDBY/LOCK – STANDBY
PWR dial – “green”
Tape installed
Viewfinder (LCD) displays “green”
Install Audio Muting Plug (optional)
Install Multiuse Brkt

MON 1
SOURCE – DNLK
MON 2
SOURCE – C
L10 (MUX)
VTR/CC PWR – on (LED on)
If dnlk, MUX/VTR/CC PWR – on (LED on)
(VIP)
PWR – on (LED on)
(VTR)
ON/STANDBY LED – green

Tape installed
# ROBOTICS OPERATIONS (Concluded)

## OPS

<table>
<thead>
<tr>
<th>Item #</th>
<th>Track #</th>
<th>Rqmts</th>
<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
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<tr>
<td>1.</td>
<td>ULF6-18</td>
<td>PAO Coverage</td>
<td>D2Xs(D3s) 12-24mm(14-24mm)</td>
<td>As desired</td>
<td>G1 Tape installed</td>
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<tr>
<td></td>
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<td></td>
<td>If exterior: Flash ON/OFF – OFF</td>
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<tr>
<td>2.</td>
<td>ULF6-13, ULF6-14</td>
<td>ELC-3 XFER to ISS</td>
<td>Per SODF: ROBO FS</td>
<td></td>
<td>LIVE (if avail)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SRMS Grapple, Release</td>
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<td></td>
<td></td>
<td>• ROEU Disconnect</td>
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<td></td>
<td>• PRLA, Keel Latch Release</td>
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<td>• Unberth, Hover</td>
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<td></td>
<td></td>
<td>• Positioning Mvrs for Hand-off to SSRMS</td>
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<td>• ELC-3 Install</td>
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<td>• SSRMS Release</td>
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<tr>
<td>3.</td>
<td>ULF6-15</td>
<td>AMS XFER to ISS</td>
<td>D2Xs(D3s) As reqd</td>
<td>Per SODF: ROBO FS</td>
<td>LIVE (if avail)</td>
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<td>• Unberth</td>
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<td></td>
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<td>• SRMS to SSRMS Hand-off</td>
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<td></td>
<td></td>
<td>• Installation on S3</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

If OPS temporarily suspended, perform DEACTIVATION as reqd
If OPS completed, go to DEACTIVATION

## DEACTIVATION

1. **TV System**
   - Go to DEACTIVATION (Cue Card, TV) as reqd
This Page Intentionally Blank
P/TV07  EVA (Continued)

SCENE SYNOPSIS
Scene contains procedures for documenting ISS EVA and IVA ops w/video, still photos

SETUP

FOR ALL EVAs:
1. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd
2. Perform D2Xs(D3s) PROGRAM w/FLASH

D2Xs
- Lens – 12-24mm
- Aperture – Min, locked
- Body Focus Mode – S
- Batt installed
- Flash Card installed
- Pwr – ON

Top LCD:
- Batt
- Frames remaining sufficient
- Exp Comp ( ) – 0.0
- Exp Mode – P
- Meter – Matrix ( )
- Diopter – Adjust
- Frame Rate – S
- BKT disabled – 0 F

Rear LCD:
- ISO – 100
- QUAL – RAW
- WB – 0,A
- AF Area Mode – [ ]
- Focus Area – Center
- Focus Selector Lock – L

SB-800 Flash Settings:
- Diffuser Dome installed
  ON/OFF pb – ON
- MODE – 
- Exp Comp – 0 EV
  Tilt – 45° (Direct)

D3s
- Lens – 14-24mm
- Aperture – N/A
- Body Focus Mode – S
- Batt installed
- Flash Card installed
- Pwr – ON

Top LCD:
- Batt
- Frames remaining sufficient
- Exp Comp ( ) – 0.0
- Exp Mode – P
- Meter – Matrix ( )
- Diopter – Adjust
- Frame Rate – S
- BKT disabled – 0 F

Rear LCD:
- ISO – 200
- QUAL – RAW
- WB – 0,A
- AF Area Mode – [ ]
- Focus Area – Center
- Focus Selector Lock – L

SB-800 Flash Settings:
- Diffuser Dome installed
  ON/OFF pb – ON
- MODE – 
- Exp Comp – 0 EV
  Tilt – 45° (Direct)
P/TV07  EVA (Continued)

SETUP (Continued)

3. Perform Hardware Verification for V10s, FD CC, DTV

O19,MO58F  √TV PWR – ON

R12 (VPU)  √VPU PWR – ON (LED on)
Connect WVS1 Balanced Video Cable to WIB CCTV PL3
WVS2 Balanced Video Cable to VPU to PL2

V10  PWR – ON
(MON 1,2, WVS 1,2)  √Tape installed
DISPLAY pb – Toggle to display tape counter

CC  Install Wide Conversion lens
√ND FILTER – OFF
√OUTPUT – CAM
√□□□□□□□□□□□□
√STANDBY/LOCK – STANDBY
PWR dial – “green” □□□□□□□□□□□□
√Tape installed
√Viewfinder (LCD) displays “green” ••
Install Audio Muting Plug (optional)
Install Multiuse Brkt

MON 2  SOURCE – C
L10 (MUX)  VTR/CC PWR – on (LED on)
If dnlk, MUX/VTR/CC PWR – on (LED on)
(VIP)  PWR – on (LED on)
(VTR)  ON/STANDBY LED – green
√Tape installed
P/TV07  EVA (Continued)

SETUP (Concluded)

4. Config WVS and PGSC
   a. Activate WVS System
      \WIRELESS VID HTR – ON
      PWR – ON
   b. WVS PGSC Prep
      \PGSC Pwrup and Application Opening
      Pwr – ON
      Sel Shuttle Apps icon
      Sel WVS icon
      Sel ‘No’ at ‘Restore To Previous Settings’ window
      If ‘Comm Port Configuration’ error displayed:
         Remove Quatech RS-422 Card
         Sel ‘Start’> ‘Shut Down’> ‘Shut Down’> ‘OK’
         Reinstall Quatech RS-422 Card
         Pwr – ON
         Sel Shuttle Apps icon
         Sel WVS icon
         RF Camera page will appear
      \NOTE
      During EVA prep, EMU TV assy will be pwr-d
   c. Config Audio
      \R10 (MS ATU)
      PWR – AUD/TONE
      A/G 1 – T/R, VOL – 2
      ICOMA – T/R, VOL – 2
      OTHER LOOPS – OFF
      MODE – PTT/PTT
      A11
      CNTRL – NORM
      MSCCU PWR – ON
## P/TV07  EVA (Continued)

**OPS**

<table>
<thead>
<tr>
<th>Item #</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. ULF6-18</td>
<td>PAO Coverage</td>
<td>IVA D2Xs(D3s) 12-24mm(14-24mm) If exterior: Flash ON/OFF – OFF</td>
<td>As desired WVS</td>
<td>G1 As desired</td>
<td>LIVE (if avail)</td>
</tr>
<tr>
<td>2. ULF6-4</td>
<td>Thermal Cover Closeout Imagery</td>
<td>EVA D2Xs per EVA C/L</td>
<td>PLB Camrs As desired WVS</td>
<td>G1 As available</td>
<td>LIVE (if avail)</td>
</tr>
<tr>
<td>3. ULF6-6</td>
<td>MISSE-7 Retrieval Video Photos</td>
<td>EVA D2Xs per EVA C/L</td>
<td>PLB Camrs As desired WVS</td>
<td>G1 As available</td>
<td>LIVE (if avail)</td>
</tr>
<tr>
<td>4. ULF6-7</td>
<td>MISSE-8 PEC, ORMatE-III Install, Deploy on ELC-2</td>
<td>EVA D2Xs per EVA C/L</td>
<td>PLB Camrs As reqd WVS</td>
<td>G1 As available</td>
<td>LIVE (if avail)</td>
</tr>
<tr>
<td>√</td>
<td>Item #</td>
<td>Track #</td>
<td>Rqmts</td>
<td>Still Imagery</td>
<td>Video</td>
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<td>5.</td>
<td>ULF6-5</td>
<td>EVA Closeouts</td>
<td></td>
<td>EVA D2Xs per EVA C/L</td>
<td>PLB Camrs As desired WVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. Retrieve MISSE PECs 7A,B from ELC-2</td>
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<td>b. Install, deploy MISSE-8 on ELC-2</td>
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<td>c. Install, deploy MISSE-8 ORMatE-III on ELC-2</td>
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<td>d. Xfer EIBA, stow in OSE on S0/S1</td>
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<td>e. Perform Port SARS lube</td>
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<td>f. Connect P1-P6 lines, recharge P6, temp stow P3-P4 line</td>
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<td>g. Install ET VCG Wedge</td>
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<td>h. Retrieve P6 PDGF</td>
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<td>i. Remove EFGF, install adapter plate/PDGF on IBA</td>
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<td>j. Route FGB PDGF 1553 Data Cbl</td>
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<td>k. Lube SPDM LEE</td>
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<td>l. Install Radiator Grapple Bar beams</td>
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<td></td>
<td>m. Final stow of P3/P4</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
## P/TV07  EVA (Concluded)

### OPS (Concluded)

<table>
<thead>
<tr>
<th>Item #</th>
<th>Track #</th>
<th>Rqmts</th>
<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 6. | ULF6-8 | External Payloads | EVA D2Xs(D3s) per EVA C/L | PLB Camrs | Take imagery via any 1 of 3 methods:  
- EVA still camr  
- WVS  
- SSRMS Camrs |
|  | | • Imagery of the following external payloads as opportunities allow:  
  a. MISSE-8 on ELC-2 on S3 truss  
  b. SOLAR on Columbus EPF  
  c. AMS on S3 truss | | As desired WVS SSRMS Camrs | |
|  | | STP-H3 Post Installation Surveys | EVA D2Xs per EVA C/L | | |
| 7. | ULF6-20  
ULF6-21  
ULF6-22  
ULF6-23 | a. Photos of CANARY front face focused on central window  
  b. Photos of VADER  
    1. Entire face (12 x 12 in)  
    2. Quad VED (4 x 4 in)  
    3. Entire back (12 x 12 in)  
  c. Photos of DISC lens  
  d. Photos of MHTEX radiator (37 x 24 in) | | 14 in minimum focus distance reqd  
May req multiple pictures to capture entire area | |

If OPS temporarily suspended, perform DEACTIVATION as reqd  
If OPS completed, go to DEACTIVATION

### DEACTIVATION

1. **IVA D2Xs,D3s**  
   Pwr – OFF  
   √Flash ON/OFF – ON  
   Download images  

2. **TV System**  
   Perform PWRDN (Cue Card, WVS)  
   Go to DEACTIVATION (Cue Card, TV) as reqd
P/TV08  EXTERNAL SURVEY

SCENE SYNONYMS

Scene contains procedures for documenting STS, ISS external structures w/still photos during general survey activities

SETUP

1. D2Xs Camr Configuration for OMS Pod Survey

   Remove aft window shields
   If Sunlit OMS Pod, config D2Xs Manual Mode:

   SB-800 Flash Settings:
       ON/OFF pb – OFF
   Lens – 80-200mm at 200mm
   Focus Limit – full
   Lens Focus Mode – A
   Aperture – Min, locked
   Body Focus Mode – S
   \Batt installed
   Install Empty Card Pwr – ON
   Top LCD:
       \Batt
       \Frames remaining sufficient
   Exp Comp (    ) – 0.0
   Exp Mode – M:
       SS – 1000
       f/stop – F8
   Meter – Matrix (    )
   Diopter – Adjust
   Frame Rate – S
   \BKT disabled – 0 F
   Rear LCD:
       \ISO – 100
       \QUAL – RAW
       \WB – 0,A
       AF Area Mode – [ ]
   \Focus Area – Center
   \Focus Selector Lock – L
1. **D2Xs Camr Configuration for OMS Pod Survey** (Concluded)

   If Earthshine OMS Pod, config D2Xs Program Mode:

   **SB-800 Flash Settings:**
   - ON/OFF pb – OFF
   - Lens – 80-200mm at 200mm
   - Focus Limit – full
   - Lens Focus Mode – A
   - Aperture – Min, locked
   - Body Focus Mode – S
   - Batt installed
   - Install Empty Card
   - Pwr – ON

   **Top LCD:**
   - Batt
   - Frames remaining sufficient
   - Exp Comp \( \left( \right) \) – 0.0
   - Exp Mode – P
   - Meter – Matrix \( \bullet \)
   - Diopter – Adjust
   - Frame Rate – S
   - BKT disabled – 0 F

   **Rear LCD:**
   - ISO – 100
   - QUAL – RAW
   - WB – 0,A
   - AF Area Mode – [ [ ] ]
   - Focus Area – Center
   - Focus Selector Lock – L
2. **D2Xs Camr Config for ISS Still Survey (D2Xs Shutter Priority Mode)**

SB-800 Flash Settings:
- ON/OFF pb – OFF

Lens – 50mm(80-200mm @ 200mm)
- If 80-200mm:
  - Focus Limit – full
  - Lens Focus Mode – A
- √Aperture – Min, locked
- Body Focus Mode – S
- √Batt installed
- √Flash Card installed
- Pwr – ON
- Top LCD:
  - √Batt
  - √Frames remaining sufficient
- Exp Comp (      ) – 0.0
- Exp Mode – S:
  - SS – 500
- Meter – Matrix (    )
- Diopter – Adjust
- Frame Rate – S
- √BKT disabled – 0 F
- Rear LCD:
  - √ISO – 100
  - √QUAL – RAW
  - √WB – 0,A
- AF Area Mode – [ [ ] ]
- √Focus Area – Center
- √Focus Selector Lock – L
P/TV08  EXTERNAL SURVEY (Continued)

SETUP (Continued)

3. SEITE(SIMPLEX) OMS Burn Photography

3a. Remove window shields prior to setup

3b. Perform ACTIVATION,OPERATION (Cue Card, TV) as reqd

3c. D3s Camr Config for SEITE(SIMPLEX) (D3s Shutter Priority Mode)

SB-800 Flash Settings:
  ON/OFF pb – OFF

Lens – 28mm
√Aperture – Min, locked
Lens Focus Mode – M
√Batt installed
√Flash Card installed
Pwr – ON
Top LCD:
√Batt
√Frames remaining sufficient
Exp Comp (      ) – 0.0
Exp Mode – S:
  SS – 500
Meter – Matrix (     )
Diopter – Adjust
Frame Rate – CH
√BKT disabled – 0 F
Rear LCD:
√ISO – 200
√QUAL – RAW
√WB – 0.A
AF Area Mode – [ ]
√Focus Area – Center
√Focus Selector Lock – L
P/TV08  EXTERNAL SURVEY (Continued)

SETUP (Concluded)

3c. **D3s Camr Config for SEITE(SIMPLEX) (D3s Shutter Priority Mode)** (Concluded)

Accessory Equipment:
- Shutter Release Cable – install
- Multiuse Base – install in W9/10
- Multiuse Brkt – install on Base

Technique:
- Frame image per picture at right
- Focus on OMS pod
- Body Focus Mode – M

3d. **Perform Hardware Verification for DTV**

L10 (MUX)  VTR/CC PWR – on (LED on)
(VIP)  √ATU – REC
√CCTV VIDEO IN – J3
PWR – on (LED on, DATA FLOW flashes twice)
(VTR)  √ON/STANDBY LED – green
√Switches set to white dot (seven)
√COUNTER SELECT – COUNTER (TC)
√Tape installed (tape icon LED on)

Set GMT:
- DISPLAY SELECT – MENU
  ↓ pb – ETC, EXEC pb – push
  ↓ pb – CLOCK SET, EXEC pb – push
  Use ↓,↑,EXEC to set Y,M,D,hr,min to GMT
- DISPLAY SELECT – DATA

If Audio desired:
L9  PS AUD PWR – AUD
Desired Loops – RCV, Vol tw 5
Other Loops – OFF

A7  VID OUT DTV pb – push
VID IN pb – A(D)
L10 (VTR)  REC pb – push, hold
PLAY pb – push, simo (red dot displayed)
## P/TV08 EXTERNAL SURVEY (Continued)

### OPS

<table>
<thead>
<tr>
<th>Item #</th>
<th>Track #</th>
<th>Rqmts</th>
<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>OMS Pod Survey</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>- No shadows on OMS pod tiles</td>
<td>D3s 80-200mm @ 200mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Remove window shields</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- 50 percent overlap mapping of both OMS pods and vertical stabilizer w/emphasis on Black Tile areas</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Repeat thru other window</td>
<td></td>
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</tr>
<tr>
<td>2.</td>
<td>ULF6-10</td>
<td>ISS Still Survey</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Surfaces</td>
<td>D2Xs 28-70mm @ 50mm (80-200mm @ 200mm)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Solar Panels</td>
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<tr>
<td></td>
<td></td>
<td>- Handrails</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- MISSE-8 on ELC2 on S3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- AMS on S3</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3.</td>
<td></td>
<td>SEITE(SIMPLEX)</td>
<td></td>
<td>A(D)</td>
<td>LIVE (if avail)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Initiate photo sequence 1 sec prior to burn</td>
<td>D3s 28mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Start DTV VTR 5 min prior to burn</td>
<td></td>
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</tr>
<tr>
<td>4.</td>
<td></td>
<td>AMS in PLB</td>
<td>D2Xs(D3s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- General shots of AMS in PLB w/o ELC in PLB</td>
<td>As reqd</td>
<td></td>
<td>Suggest shooting from cupola</td>
</tr>
</tbody>
</table>

- Download images to MCC once complete
- Map ISS surfaces w/30% overlap from all Flt Deck windows
- Document during orbital day; shoot MISSE-8, AMS from W6
- Focus set on OMS pod
- Suggest shooting from cupola
Priority of ISS Photographic Targets During Docked Phase:

1. P6, P5, P3/P4, ESP 3, P1, JEM, JLP, Columbus, S0, S1, S3/S4, S5, S6, Solar Arrays – W1, W6 (special emphasis on newly installed components)
2. Node 2, Columbus, JEM, JLP – W7, W8
3. PMA2 – W9, W10
P/TV08  EXTERNAL SURVEY (Concluded)

OPS (Concluded)

If OPS temporarily suspended, perform DEACTIVATION as reqd
If OPS completed, go to DEACTIVATION

DEACTIVATION

1. D2Xs,D3s
   - Lens Focus Mode – A
   - Exp Mode – P
   - Frame Rate – S
   - Flash ON/OFF – ON

2. TV System
   - Remove, mark tape for SEITE(SIMPLEX)
   - Go to DEACTIVATION (Cue Card, TV) as reqd
P/TV09 MIDDECK PAYLOADS

H/W SUMMARY

Bracket optional

Audio Muting Plug (optional)
Wide Conversion Lens

Batt

Worklight

MD CC

Multiuse Arm

Batt

jsc48038_134_017r1.cvx
SCENE SYNOPSIS

Scene contains procedures for obtaining in-cabin photo-documentation conducted within orbiter/ISS of GLACIER

SETUP

1. Perform Camcorder Setup for MD per H/W SUMMARY, 1-70, as reqd

   √Batt installed
   CC
   √Install Wide Conversion lens
   √ND FILTER – OFF
   √OUTPUT – CAM
   √[ ] 30 – 35
   √STANDBY/LOCK – STANDBY
   PWR dial – “green”
   √Tape installed
   √Viewfinder (LCD) displays “green” ●||
   Install Audio Muting Plug (optional)
   Install Multiuse Brkt, Clamp as reqd

   CAUTION
   Due to temp constraints, worklights at full pwr for 60 min; 90% pwr for unlimited time

   Worklight
   Install fresh Batts
   Mount light on CC
   PWR – as reqd
2. Perform D2Xs(D3s) PROGRAM w/FLASH

**D2s**
- Lens – 12-24mm
- Aperture – Min, locked
- Body Focus Mode – S
- \( \sqrt{\text{Batt installed}} \)
- \( \sqrt{\text{Flash Card installed}} \)
- Pwr – ON
- Top LCD
  - \( \sqrt{\text{Batt}} \)
  - \( \sqrt{\text{Frames remaining sufficient}} \)
- Exp Comp ( \( \mathcal{Z} \) ) – 0.0
- Exp Mode – P
- Meter – Matrix ( \( \mathcal{X} \) )
- Diopter – Adjust
- Frame Rate – S
- \( \sqrt{\text{BKT disabled – 0 F}} \)
- Rear LCD
  - \( \sqrt{\text{ISO – 100}} \)
  - \( \sqrt{\text{QUAL – RAW}} \)
  - \( \sqrt{\text{WB – 0,A}} \)
- AF Area Mode – [ ]
- \( \sqrt{\text{Focus Area – Center}} \)
- \( \sqrt{\text{Focus Selector Lock – L}} \)

**SB-800 Flash Settings**
- \( \sqrt{\text{Diffuser Dome installed}} \)
- ON/OFF pb – ON
- \( \sqrt{\text{MODE – 3}} \)
- \( \sqrt{\text{Exp Comp – 0 EV}} \)
- Tilt – 45° (Direct)

**D3s**
- Lens – 14-24mm
- Aperture – N/A
- Body Focus Mode – S
- \( \sqrt{\text{Batt installed}} \)
- \( \sqrt{\text{Flash Card installed}} \)
- Pwr – ON
- Top LCD
  - \( \sqrt{\text{Batt}} \)
  - \( \sqrt{\text{Frames remaining sufficient}} \)
- Exp Comp ( \( \mathcal{Z} \) ) – 0.0
- Exp Mode – P
- Meter – Matrix ( \( \mathcal{X} \) )
- Diopter – Adjust
- Frame Rate – S
- \( \sqrt{\text{BKT disabled – 0 F}} \)
- Rear LCD
  - \( \sqrt{\text{ISO – 200}} \)
  - \( \sqrt{\text{QUAL – RAW}} \)
  - \( \sqrt{\text{WB – 0,A}} \)
- AF Area Mode – [ ]
- \( \sqrt{\text{Focus Area – Center}} \)
- \( \sqrt{\text{Focus Selector Lock – L}} \)

**SB-800 Flash Settings**
- \( \sqrt{\text{Diffuser Dome installed}} \)
- ON/OFF pb – ON
- \( \sqrt{\text{MODE – 3}} \)
- \( \sqrt{\text{Exp Comp – 0 EV}} \)
- Tilt – 45° (Direct)
## OPS

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<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 1.     |         | GLACIER Video, Still Photography  
- Wide-angle video, photos showing crew interaction  
- Medium-angle video, photos showing stowage location  
- Closeup video, photos of front panel after activation for gnd verification | D2Xs(D3s)  
12-24mm (14-24mm) | G1 | LIVE desired within 12 hrs |
| 2.     |         | IFOAM Photography  
- Photo of IFOAM deployed in the middeck | D2Xs(D3s)  
12-24mm (14-24mm) |       |       |
| 3.     |         | IENOS Photography  
- Two (2) photos of each deployed IENOS (3) | D2Xs(D3s)  
12-24mm (14-24mm) |       |       |
| 4.     |         | BIOKIS Photography  
- Photo of BIOKIS 002 deployed in the middeck | D2Xs(D3s)  
12-24mm (14-24mm) |       |       |
| 5.     |         | IAPE Video  
- Videotape all three deployed experiment sessions |       | G1 | Prefer hand-held |
| 6.     |         | VIABLE ISS Photography  
- Setup: Photograph each individual bag and all bags together  
- Post-Bag closure, photograph each bag and all bags together | D2Xs(D3s)  
12-24mm (14-24mm) |       |       |
| 7.     |         | Cube Lab Video  
- Videotape crew performing Cube Lab Module sortie ops |       | G1 |       |

If OPS temporarily suspended, perform DEACTIVATION as reqd  
If OPS completed, go to DEACTIVATION
P/TV09  MIDDECK PAYLOADS (Concluded)

DEACTIVATION

Worklight CC

1. PWR – OFF
   Remove, mark tape
   PWR dial – OFF
Scene contains procedures for obtaining in-cabin photogrammetry of DTO-703 STORRM

**SETUP**

**STORRM PGSC**
1. Unstow STORRM fiducial scales
2. Unstow Kapton tape
3. Perform Setup using D2Xs Camera body (SN 1025) and 17-35mm lens (SN 1016)

- **Lens** – 17-35mm
- **Tape zoom ring @ 35mm**
- **Aperture** – Min, locked
- **Body Focus Mode** – S
- **Batt** installed
- **Install empty card**
- **Pwr** – ON
- **Top LCD**
  - **Batt**
  - **Frames remaining sufficient**
- **Exp Comp** ( ) – 0.0
- **Exp Mode** – A
  - **f/stop** – 16
- **Meter** – Matrix ( )
- **Diopter** – Adjust
- **Frame Rate** – S
- **BKT disabled** – 0 F
- **Rear LCD**
  - **ISO** – 100
  - **QUAL** – RAW
  - **WB** – 0, A
- **AF Area Mode** – [ ]
- **Focus Area** – Center
- **Focus Selector Lock** – L

**SB-800 Flash Settings**
- **Diffuser Dome installed**
- **ON/OFF pb** – ON
- **MODE** – [ ]
- **Exp Comp** – 0 EV
- **Tilt** – 45° (Direct)
4. Tape scale on docking target using Kapton tape in two places per diagram; Do not cover fiducials
## OPS

<table>
<thead>
<tr>
<th>Item #</th>
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<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td></td>
<td></td>
<td>DCS</td>
<td>PLB</td>
<td>CC</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td>STORRM, Still Photography</td>
<td>D2Xs 35mm</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• 8 Images around the ODS perimeter at 45° intervals</td>
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<tr>
<td></td>
<td></td>
<td>• 1 Image of center standoff target</td>
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<tr>
<td></td>
<td></td>
<td>All images at no less than 4 ft (use plane of ODS Hatch)</td>
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<tr>
<td></td>
<td></td>
<td>Focus on standoff cross base for each image</td>
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<tr>
<td></td>
<td></td>
<td>Center each image on docking target</td>
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<tr>
<td></td>
<td></td>
<td>Verify targets and entire scale visible in each photo</td>
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<tr>
<td></td>
<td></td>
<td>Maintain flash radially inward</td>
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<td></td>
<td></td>
<td>Dnlk images immediately following capture</td>
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<tr>
<td>2.</td>
<td></td>
<td>Repeat step 1</td>
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<td></td>
</tr>
</tbody>
</table>

If OPS temporarily suspended, perform DEACTIVATION as reqd
If OPS completed, go to DEACTIVATION

## DEACTIVATION

1. Remove scales from docking target – stow on STORRM PGSC
2. D2Xs
   - Exp Mode – P
   - Pwr – OFF
   - Flash ON/OFF – ON
# REFERENCED PROCEDURES

## CENTERLINE (C/L) CAMR
- **C/L CAMR INSTALL** ................................................................................................................................................................................... FS 2-4

## DTV
- **VTR CLOCK SET** ....................................................................................................................................................................................... FS 2-8
- **AVI VIDEO CAPTURE** ................................................................................................................................................................................ FS 2-8a

## D2Xs
- **DATE/TIME SET** ......................................................................................................................................................................................... FS 2-10

## CANON G1
- **ANALOG (SD DTV) CC REC,DNLK** ........................................................................................................................................................... FS 2-12
- **HD CC DNLK** .............................................................................................................................................................................................. FS 2-14

## FCS CHECKOUT CAMR SETUP
- **SETUP** ........................................................................................................................................................................................................ FS 2-18
- **DEACTIVATION** ......................................................................................................................................................................................... FS 2-20

## MINI-CAM
- **ENTRY VIDEO SETUP** ............................................................................................................................................................................... FS 2-22

## LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM DIGITAL CAMR (IDC)
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## D3s
- **SPECIFICATIONS** ...................................................................................................................................................................................... FS 2-28
- **LENS DATA** ................................................................................................................................................................................................ FS 2-29
- **NOMENCLATURE** ...................................................................................................................................................................................... FS 2-31
- **NOMINAL SETUP** ..................................................................................................................................................................................... FS 2-38
- **DATE/TIME SET** ..................................................................................................................................................................................... FS 2-42
- **DELETING SINGLE IMAGES** ..................................................................................................................................................................... FS 2-42
- **ADDING .WAV FILES TO AN IMAGE** ........................................................................................................................................................ FS 2-42
- **DELETING .WAV FILE FROM AN IMAGE** ................................................................................................................................................. FS 2-43
- **.WAV FILE PLAYBACK** ............................................................................................................................................................................ FS 2-43
CENTERLINE (C/L) CAMR

C/L CAMR INSTALL

1. ODS C/L Camr Config
   L12 (SSP 2) \n   √C/L CAM PWR – OFF

R12 (VPU) \n   √SEC C/L Cap installed
   √Green Jumper – SEC C/L
   √VPU PWR – ON (LED on)

ML60B Unstow PRI C/L Camr, PRI C/L TV Camr Harness Assy

NOTE
When connecting ODS C/L TV Camr Harness Assy, pins to socket connection

ODS \n   √ODS C/L Camr Brkt mounted securely
   Mount PRI C/L Camr to ODS C/L Camr Brkt
   √Flex Duct attached to Camr brkt
   Config cable per dwg at right

C/L Camr \n   √SSF/STS sw – STS

L12 (SSP 1) \n (SSP 2) C/L CAM PWR – SEC ON

A6L LT VEST PORT,STBD – ON as reqd
   Perform ACTIVATION (Cue Card, TV) as reqd

A7 VID OUT MON 1(2) pb – push
   IN PL2(VPU) pb – push
   ALC pb – push
   AVG pb – push
C/L CAMR INSTALL (Continued)

2. Camr Position Verification

NOTE
This view in ODS looking up from Camr bottom

PRI C/L TV Camr Harness Assy (8.5 ft)
V828–774057–004
CENTERLINE (C/L) CAMR (Concluded)

3. ODS C/L Camr Alignment Check
   MON 1(2)
   LDATA – ON
   CDATA – GRN
   XHAIR – GRN

   A7
   Zoom to 10° ± 0.5°
   Focus to see Xhair target

   NOTE
   Green xhairs on monitor may move off center in calibration target when zooming in,out. Xhair will be closest to center at full zoom in position

   MON 1(2)
   √ Vertical xhairs coincide w/vertical alignment wire and are parallel. If xhair marks overlay each other, no yaw(axial) alignment needed (see dwg above)

   √ Intersection of monitor vertical, horizontal xhair falls within target circular opening from ~10-40° zoom range of Camr

   Report results of both alignment verifications (at 10° and 40°) to MCC

4. Deactivation
   A7
   CAMR CMD IRIS – CL
   L12 (SSP 2)
   C/L CAM PWR – OFF
   Go to DEACTIVATION (Cue Card, TV) as reqd

   A6L
   LT VEST PORT,STBD – OFF as reqd
DTV

VTR CLOCK SET

1. **Activate VTR**

   R1
   √ PL AUX – ON

   L10 (MUX)
   (VTR)
   VTR/CC PWR – on (LED on)
   √ ON/STANDBY LED – green

2. **Set VTR clock to GMT**

   DISPLAY SELECT – MENU
   ↓ pb – ETC, EXEC pb – push
   ↓ pb – CLOCK SET, EXEC pb – push
   Use ↑,↓,EXEC to set Y,M,D,hr,min to GMT

   DISPLAY SELECT – DATA

3. **Deactivate VTR,VIP as reqd**

   ON/STANDBY pb – push (red LED on)
   (VIP)
   PWR – off (LED off)
DTV (Continued)

NOTE
This procedure assumes A31p laptop is configured for pwr and running

1. Unstow: A17 (DTV bag)  DTV IEEE 1394 4-PIN to CIRC FEMALE CABLE (SDZ16103651-801)

2. VTR/CC PWR – on (LED on)  ON/STANDBY LED – green

3. Configure hardware per Diagram

4. PGSC PWR – on
   If 'Digital Video Device' appears:
   Sel 'Take no action'
   Sel 'Always perform the selected action'
   Sel 'OK'

5. Close all applications
DTV (Concluded)

AVI VIDEO CAPTURE (Concluded)

6. Sel Shuttle Apps > Image Processing > AVI Capture
   If 'Error! No Firewire video capture device found. Please verify a device is connected and rerun the application' appears:
   Sel 'OK'
   \DTV IEEE 1394 4-Pin to CIRC FEMALE CABLE connected to A31P
   \ON/STANDBY LED – green
   Restart application > Double-click ‘AVI_Cap.exe’

L10 (VTR)

7. \Video displayed in 'Shuttle DV Capture’

8. Under 'Save Size':
   \Current size: 250MB

9. Recording actions are documented in PDRS OPS

DEACTIVATION

1. Close Software (click X)
2. Disconnect DTV IEEE 4-Pin to CIRC FEMALE CABLE from A31p
3. Disconnect DTV IEEE 4-Pin to CIRC FEMALE CABLE from IEEE 4-Pin to CIRC MALE CABLE
4. Connect IEEE 4-Pin to CIRC MALE CABLE to MUX IEEE 1394 port
5. Return to nominal ops
This Page Intentionally Blank
DATE/TIME SET

1. MENU pb – press
2. Navigate pad – sel Menu icon y setup menu
   – press (right)
   – sel WORLD TIME (up,down)
   – press (right)
   – sel DATE (up,down)
   – press (right)
3. Set TIME/DATE to GMT
   Navigate pad – sel desired field (left,right)
   – sel desired setting (up,down)
4. ENTER pb – press
5. MENU pb – press twice
CANON G1

ANALOG (SD DTV) CC REC, DNLK

Config H/W per dwg at right

AVIU
SYNC/VIDEO – VIDEO
HI-Z/75 – 75
PWR SELECT – LO

O19(MO58F) TV PWR – ON

CC
Wide Conversion lens installed
ND FILTER – OFF
Install Audio Muting Plug (optional)
OUTPUT – CAM
AV1/V2 – V2
STANDBY/LOCK – STANDBY
PWR dial – “green”
If rec to tape:
Tape – Install
Viewfinder (LCD) displays “green” •||
Mount w/Multiuse Brkt, Clamp as reqd

FOR PAO EVENTS

CAUTION
Due to temp constraints, worklights at full pwr for 60 min; 90% pwr for unlimited time

Worklights
Install fresh Batt(s)
Mount light(s) w/brkts (Velcro/tape)
PWR – as reqd

Cabin Lts
Flt Deck – ON
Lts in FOV – OFF as reqd
Lt Shades – install as reqd
Window Shades – install as reqd
ANALOG (SD DTV) CC REC, DNLK (Concluded)

CC
√Scene composition

Adjust Camr angle for best framing

CCU
CCU PWR – ON

ATU
PWR – AUD
A/G 1(2) – T/R
All Other Loops – OFF
XMIT/ICOM MODE SEL – PTT/PTT
MSTR SPKR VOL SEL – as reqd

When ready for dnlk:
A7
√TV DNLK – ENA
PWR CNTL – PNL
CONTR UNIT – MNA(B)
CNTL – CMD (wait 10 sec for system initialization)

If Analog, on MCC GO:
VID OUT DNLK pb – push
IN FLT DECK(MIDDECK) pb – push
If SD DTV, on MCC GO:
L10
√Cables connected
(MUX) MUX/VTR/CC PWR – on (LED on)
MUX BYPASS – ACT
(VIP) PWR – on (LED on, DATA FLOW LED flashes twice)
(VTR) ON/STANDBY LED – green
INPUT SELECT – VIDEO
A7 VID OUT DTV pb – push
L10 (MUX) CH 3 DATA LED – on

When dnlk complete:
CC PWR dial – OFF
Worklights PWR – off
L10 (MUX) MUX/VTR/CC PWR – off (LED off)

Go to DEACTIVATION (Cue Card, TV) as reqd
CANON G1 (Continued)

**HD CC DNLK**

Notify MCC, configuring for HD TV dnlk

Config H/W per dwg at right

**CC**

For cable strain relief attach MPC-to-G1 Cable
Velcro strap to CC strap

**AVIU**

SYNC/VIDEO – VIDEO

HI-Z/75 – 75

PWR SELECT – LO

**O19**

√ TV PWR – ON

√ Wide Conversion Lens installed

Install LAV MIC

√ ND FILTER – OFF

√ OUTPUT – CAM

√ Channel 5, 3 – PC

√ STANDBY/LOCK – STANDBY

PWR dial – “green”

If rec to tape:

TAPE – INSTALL

√ VIEWFINDER (LED) displays “green” •

Mount w/Multiuse Brkt, Clamp as reqd

**L10 (MUX)**

√ MUX/VTR/CC PWR – on (LED on)

√ MUX BYPASS – ACT

√ CH 0,1 RATE SEL – 1

√ 2 RATE SEL – 8

(VTR)

ON/STBY pb – push (LED red)

(VIP)

PWR – off (LED off)

**O19**

DC UTIL PWR MNA – ON

**MPC PWR**

DC PWR SPLY PWR SW1 – ON

**SPLY**

MPC – ON (HDV, TAXI, 5V, 3V green LEDs on)
HD CC DNLK (Continued)

L10 (MUX) √CH 2 F/O OK, DATA LEDs on

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to temp constraints, worklights at full pwr for 60 min; 90% pwr for unlimited time</td>
</tr>
</tbody>
</table>

Worklights
Install fresh Batts
Mount light(s) w/brkts (Velcro/tape)
PWR – as reqd

Cabin Lts
Flt Deck – ON
Lts in FOV – OFF as reqd
Lt Shades – install as reqd
Window Shades – install as reqd

CC
√Scene composition
Adjust Camr angle for best framing

LAV MIC
PWR – ON (talk), OFF (listen)

√MCC if Black video and color bars reqd
If reqd:
PWR dial – Av
Aperture – close
√Av CLOSE displayed on top left of LCD
AGC – OFF
√GAIN sw – L
±0dB displayed on LCD
OUTPUT – BARS

When MCC says done w/bars:
OUTPUT – CAM

When MCC says done w/black screen test:
PWR dial – “green” ☑

FS 2-15
P/TV/134/FIN A
CANON G1 (Concluded)

**HD CC DNLK** (Concluded)

When dnlk complete:

<table>
<thead>
<tr>
<th>Component</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>PWR dial – OFF</td>
</tr>
<tr>
<td>Worklights</td>
<td>PWR – OFF</td>
</tr>
<tr>
<td>O19</td>
<td>TV PWR – OFF as reqd</td>
</tr>
<tr>
<td>MPC</td>
<td>PWR – OFF</td>
</tr>
<tr>
<td></td>
<td>DC PWR SPLY PWR SW1 – OFF</td>
</tr>
<tr>
<td>O19</td>
<td>DC UTIL PWR MNA – OFF</td>
</tr>
<tr>
<td>L10 (MUX)</td>
<td>MUX/VTR/CC PWR – off (LED off)</td>
</tr>
<tr>
<td>(VIP)</td>
<td>PWR – on (LED on, DATA FLOW LED flashes twice)</td>
</tr>
<tr>
<td>(VTR)</td>
<td>ON/STANDBY pb – push (LED green)</td>
</tr>
</tbody>
</table>

Notify MCC, returned to SD DTV dnlk

Go to DEACTIVATION (Cue Card, **TV**) as reqd
SCENE SYNOPSIS

The following camera and camcorder settings will be used to photodocument items that may be liberated from the Orbiter during FCS C/O. Images and video should be downlinked if time and assets are available.

SETUP

1. **D2Xs**
   - Lens – 400mm

   **NOTE**
   - If auto focus unachievable:
     - Lens Focus Mode – M

   **SB-800 Flash Settings:**
   - ON/OFF pb – OFF
   - Aperture – Min, locked
   - Lens Focus Limit – ∞ -6m
   - Lens Focus Mode – A
   - Body Focus Mode – S
   - Batt installed
   - Flash Card installed
   - Pwr – ON
   - Top LCD:
     - Batt
     - Frames remaining sufficient
   - Exp Comp – 0.0
   - Exp Mode – M:
     - SS – 500
     - f/stop – f/8
   - Meter – Matrix
   - Diopter – Adjust
   - Frame Rate – S
   - BKT disabled – 0 F
FCS CHECKOUT CAMR SETUP (Continued)

**SETUP** (Concluded)

1. **D2Xs** (Concluded)

   - Rear LCD:
     - ISO – 100
     - QUAL – RAW
     - WB – 0,A
     - AF Area Mode – [ [] ]
     - Focus Area – Center
     - Focus Selector Lock – L

2. **G1 C.C**

   - Remove Wide Conversion Lens
   - Install Batt
   - ND FILTER – OFF
   - AF/M – M
   - AGC – OFF
   - GAIN – L
   - OUTPUT – CAM
   - AWB – ON
   - Tape installed
   - Open LCD:
     - ‘green’ •|| displayed
     - SS – 1/500
     - GAIN – 0dB
     - f/stop – F8.0
     - FOCUS – M ∞
FCS CHECKOUT CAMR SETUP (Concluded)

DEACTIVATION

1. **D2Xs**
   - Lens focus mode – A
   - EXP Mode – P
   - Pwr – OFF

2. **G1**
   - Install Wide Conversion Lens
   - AF/M – AF
   - AGC – ON
   - Pwr dial – OFF
   - Remove Batt
   - Connect Dig/CC Vid Pwr Cable
   - PWR dial – ‘green’
   - Place G1 on brkt
MINI-CAM (Continued)

ENTRY VIDEO SETUP (Continued)

1. Remove “Entry” Ziplock bag from DTV Bag

2. Config Mini-Cam, VTR for Audio, Video Recording
   Config H/W per dwg, FS 2-22
   a. Config HUD Mini-Cam w/12mm Lens
      Using two (2) captive screws, attach HUD Brkt to installation holes for protective cover w/HUD Brkt tab pointing up
      Attach Tie Wrap thru holes on captive screws to prevent screw from coming loose; cut off extra length on Tie Wrap
      Attach Mini-Cam Extension Cable to Mini-Cam
      12mm Lens: Focus – ∞ (Just off hard-stop)
      Aperture – f/5.6 for daylight landing, 1.4 for night landing
      Velcro Mini-Cam w/12mm Lens to HUD Brkt. (Top of white Velcro on front of Camr should be at top edge of HUD Brkt.
      Only yellow Velcro should be visible above HUD Brkt)
   b. Config in-cabin Mini-Cam w/3.5mm Lens
   c. Config additional Mini-Cam H/W

L10:A1
   AVIU
   SYNC/VIDEO – VIDEO
   HI-Z/75 – HI-Z
   PWR SELECT – HI

O19
   TV PWR – ON

PS ATU
   Config audio as reqd for entry audio

L10 (MUX) (VTR)
   VTR/CC PWR – on (LED on)
   \ON/STANDBY LED – green
MINI-CAM (Concluded)

ENTRY VIDEO SETUP (Concluded)

Acquire four (4) V10 Li-ION batts

**NOTE**
One Batt will be used on V10 for system c/o. Second Batt is spare. Batt will be removed after c/o and used for Entry

**V10 (FD,MD)**
- Install fresh Batt
- PWR – ON
- HUD 12mm Lens/Mini-Cam producing good video
- Change config to in-cabin 3.5mm Lens/Mini-Cam
- In-cabin 3.5mm Lens/Mini-Cam producing good video
- MD Camera view
- PWR – OFF

**L10 (VTR)**
- ON/STANDBY pb – push (red LED off)
- MUX VTR/CC PWR – off (LED off)
- VIP PWR – OFF

**O19**
- TV PWR – OFF

**NOTE**
TV, VTR pwr will be re-enabled per ENT AFT FLT DECK CONFIG [15] (DEORB, NOMINAL DEORBIT PREP); recording will be initiated via ENTRY C/L

Start w/3.5mm Lens/Mini-Cam video in-cabin and reconfig for 12mm Lens/Mini-Cam when exterior scene available

When exterior avail:
- Focus – Adjust per V10
- Aperture – Adjust per V10
- If needed, turn down brightness on HUD display

Turn off V10 when not needed
LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM DIGITAL CAMR (IDC)

LCS/IDC (HEATER ONLY MODE)/(OPERATIONAL PWR MODE) DATA AND PWR INTERFACES

*See PTU 2/MAIN BUS B for detailed system dwg

 impactful LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM DIGITAL CAMR (IDC) LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM DIGITAL CAMR (IDC)
D3s

SPECIFICATIONS

CAMR BODY

CMOS SENSOR SIZE: 36mm x 23.9mm (DX MODE 24mm x 16mm)
PIXEL COUNT: 4256 x 2832 (12.1 million pixels)
FRAME/CARD: ~300/4 GB EVA Flash Card
RAW FILE SIZE: ~14 MB compressed lossless (14-bit)
EXPOSURE CONTROL: Auto (program, shutter priority, aperture priority), Manual
METER PATTERN: 3D Color Matrix II, Center Weighted, Spot
EXPOSURE COMP: ±5 EV RANGE in full, 1/2 or 1/3 EV steps
SHUTTER:
  Program & Aperture Priority – 1/8000 thru 30 sec (virtually stepless)
  Manual & Shutter Priority – 1/8000 thru 30 sec (full, 1/3 or 1/2) stop increments, 250x, and Bulb (manual only)
ISO Setting: 200 to 12,800; H-0.3, H-0.5, H-0.7, H-1.0, H-2.0, H-3.0, L-0.3, L-0.7, and L-1.0 available (H-3.0 = 102,400 ISO)
FRAME RATE: Single continuous up to 9 frames/sec (up to 11 frames/sec in DX MODE)
  Burst Rate: 41 raw images
MOVIE MODE SIZES: 1280 x 720/24 fps, 640 x 420/24 fps, 320 x 260/24 fps
MOVIE FORMAT: AVI
MOVIE COMPRESSION: Motion JPEG
MOVIE ISO: 200-12,800
MOVIE RECORDING TIME: 5 min max in 1280 x 720, 20 min max in other movie modes
MOVIE FILE SIZE: Max 2 GB
CAMERA INTERFACES: USB, audio/video, HDMI, Microphone, 10-pin remote
CAMR BATT: Li-ION EN-EL4A
CAMR BATT VOLTAGE: 11.1VDC
CAMR WEIGHT: 3.2 lb (w/Batt & Memory Card)

FLASH

SB-800
  BATT: 4AA
  BATT LIFETIME: 200+ images
  WEIGHT: w/o Batts – .77 lb
  SYNC FLASH CONTROL: Master, Remote
### LENS DATA

<table>
<thead>
<tr>
<th>Lens</th>
<th>Aperture Range (f/stop)</th>
<th>Approximate Field of View (FOV)</th>
<th>Approx Minimum Focus Distance (ft)</th>
<th>Weight (lb)</th>
<th>Filter Size</th>
<th>M-A Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.5mm DXG</td>
<td>f/2.8-f/22</td>
<td>–</td>
<td>180°</td>
<td>0.5</td>
<td>0.7</td>
<td>Rear</td>
</tr>
<tr>
<td>12-24mm DXG</td>
<td>f/4.0-f/22</td>
<td>89°-53°</td>
<td>66°-36°</td>
<td>1.0</td>
<td>1.0</td>
<td>77mm</td>
</tr>
<tr>
<td>14mm</td>
<td>f/2.8-f/22</td>
<td>104°</td>
<td>81°</td>
<td>0.7</td>
<td>1.5</td>
<td>Rear</td>
</tr>
<tr>
<td>14-24mm G</td>
<td>f/2.8-f/22</td>
<td>104°-74°</td>
<td>81°-53°</td>
<td>0.7</td>
<td>2.2</td>
<td>None</td>
</tr>
<tr>
<td>16mm</td>
<td>f/2.8-f/22</td>
<td>97°</td>
<td>74°</td>
<td>0.9</td>
<td>0.6</td>
<td>Rear</td>
</tr>
<tr>
<td>17-35mm</td>
<td>f/2.8-f/22</td>
<td>93°-54°</td>
<td>70°-38°</td>
<td>1.0</td>
<td>1.6</td>
<td>77mm</td>
</tr>
<tr>
<td>24-70mm</td>
<td>f/2.8-f/22</td>
<td>74°-29°</td>
<td>53°-19°</td>
<td>1.2</td>
<td>2.0</td>
<td>77mm</td>
</tr>
<tr>
<td>17-55mm</td>
<td>f/2.8-f/22</td>
<td>70°-24°</td>
<td>50°-16°</td>
<td>1.3</td>
<td>1.7</td>
<td>77mm</td>
</tr>
<tr>
<td>20-35mm</td>
<td>f/2.8-f/22</td>
<td>61°-37°</td>
<td>43°-25°</td>
<td>1.7</td>
<td>1.3</td>
<td>77mm</td>
</tr>
<tr>
<td>24-85mm</td>
<td>f/2.8(4)-f/22</td>
<td>53°-16°</td>
<td>36°-11°</td>
<td>1.6</td>
<td>1.2</td>
<td>72mm</td>
</tr>
<tr>
<td>28mm</td>
<td>f/2.8-f/22</td>
<td>46°</td>
<td>31°</td>
<td>1.2</td>
<td>0.5</td>
<td>52mm</td>
</tr>
<tr>
<td>28mm</td>
<td>f/1.4-f/16</td>
<td>46°</td>
<td>31°</td>
<td>1.1</td>
<td>1.2</td>
<td>72mm</td>
</tr>
<tr>
<td>28-70mm</td>
<td>f/2.8-f/22</td>
<td>46°-19°</td>
<td>31°-13°</td>
<td>2.3 (1.5 ft macro)</td>
<td>1.9</td>
<td>77mm</td>
</tr>
<tr>
<td>35mm</td>
<td>f/2-3/22</td>
<td>54°</td>
<td>38°</td>
<td>0.9</td>
<td>0.5</td>
<td>52mm</td>
</tr>
<tr>
<td>35-70mm</td>
<td>f/2.8-f/22</td>
<td>54°-29°</td>
<td>38°-19°</td>
<td>2.0 (0.9 ft macro)</td>
<td>1.5</td>
<td>62mm</td>
</tr>
<tr>
<td>50mm</td>
<td>f/1.4-f/16</td>
<td>40°</td>
<td>27°</td>
<td>1.5</td>
<td>0.5</td>
<td>52mm</td>
</tr>
<tr>
<td>60mm Micro</td>
<td>f/2.8-f/32</td>
<td>33°</td>
<td>23°</td>
<td>0.7</td>
<td>1.0</td>
<td>62mm</td>
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<td>80-200mm</td>
<td>f/2.8-f/22</td>
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<td>6</td>
<td>2.9</td>
<td>77mm</td>
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<tr>
<td>85mm</td>
<td>f/1.8-f/16</td>
<td>24°</td>
<td>16°</td>
<td>3.0</td>
<td>1.2</td>
<td>62mm</td>
</tr>
</tbody>
</table>
### LENS DATA (Concluded)

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<thead>
<tr>
<th>Lens</th>
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<th>Weight (lb)</th>
<th>Filter Size</th>
<th>M-A Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>105mm Micro 180mm</td>
<td>f/2.8-f/32</td>
<td>20° 13° 23°</td>
<td>1.0</td>
<td>1.2</td>
<td>52mm</td>
<td>Yes</td>
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<tr>
<td>400mm</td>
<td>f/2.8-f/22</td>
<td>11° 8° 14°</td>
<td>5.0</td>
<td>1.7</td>
<td>72mm</td>
<td>Yes</td>
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<tr>
<td>400mm w/2X Teleconverter (800mm) TC-20E</td>
<td>f/5.6-f/45</td>
<td>5.2° 3.4° 6.2°</td>
<td>12.5</td>
<td>10.6</td>
<td>52mm</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.6° 1.7° 3.1°</td>
<td>12.5</td>
<td>11.3</td>
<td>52mm</td>
<td>Yes</td>
</tr>
</tbody>
</table>
D3s (Continued)

NOMENCLATURE

CAMR – FRONT

Nikon D3s Camera Front

1. sw Shutter-release Lock (vertical shooting)
2. pb Shutter-release (vertical shooting)
3. pb Fn
4. pb Depth-of-field Preview
5. Sub-command Dial
6. Mirror
7. 1/4-20 Socket
8. Sub-command Dial (vertical shooting)
Nikon D3s Camera Back

1. pb info
2. pb OK
3. pb Protect
4. pb Thumbnail/Zoom
5. pb MENU
6. pb Playback
7. pb Delete
8. Eyepiece Shutter Lever
9. Viewfinder Eyepiece
10. pb AE/AF Lock
11. pb AF-ON
12. Main Command Dial
13. Navigate Pad
14. Focus Selector Lock
15. Memory Card Busy Lamp
16. AF-Area Mode Selector
17. pb AF-ON (vertical shooting)
18. Main Command Dial (vertical shooting)
19. pb Live View
20. pb Microphone
21. Microphone
22. pb White Balance
23. pb QUAL (image quality/size)
24. pb ISO Sensitivity

D3s (Continued)

NOMENCLATURE (Continued)
D3s (Continued)

NOMENCLATURE (Continued)

CAMR – TOP

Nikon D3s Camera Top

1. Shooting mode dial
2. pb Bracketing (BKT)
3. Shooting mode dial lock release
4. Metering selector
5. pb Metering selector lock
6. pb Exposure mode (MODE)
7. sw Power
8. pb Shutter-release
9. pb Exposure compensation
10. Top LCD
11. Diopter adjustment knob
12. Accessory shoe
13. pb Lock
14. pb Flash Mode
D3s (Continued)

NOMENCLATURE (Continued)

CAMR – LEFT SIDE

1. Self-timer Lamp
2. Microphone (for movies)
3. Flash Sync Terminal
4. Ten-pin Remote Terminal
5. USB Connector
6. Microphone Port
7. Audio/Video (A/V) Connector
8. DC-IN Connector for optional AC Adapter EH-6
9. HDMI Connector
10. Lens Release Button
11. Focus-mode Selector
12. Battery Door Latch
13. Battery Door

Nikon D3s Camera Left Front

P/TV/134/FIN A
D3s (Continued)

NOMENCLATURE (Continued)

CAMR – TOP CONTROL PANEL

Nikon D3s Camera Top Control Panel - 1

1. Custom settings bank
2. Shooting menu bank
3. Flash mode
4. Exposure mode
5. Flexible program indicator
6. Shutter-speed lock icon
7. Shutter speed
8. Aperture delta
9. Aperture (f/number)
10. Battery indicator
11. Frame count
12. "K" (indicates memory remains for over 1000 exposures)
13. Number of exposures remaining
14. Memory card indicator (slot 2)
15. Memory card indicator (slot 1)

Nikon D3s Camera Top Control Panel - 2

1. GPS connection indicator
2. Clock battery indicator
3. Flash sync indicator
4. FV lock indicator
5. Interval timer indicator
6. Multiple exposure indicator
7. Aperture lock icon
8. Image comment indicator
9. "Beep" indicator
10. Exposure compensation indicator
11. Exposure and flash bracketing indicator
12. White balance bracketing indicator
13. Electronic analog exposure display
14. Focus mode indicator
D3s (Continued)

NOMENCLATURE (Continued)

CAMR – REAR CONTROL PANEL

1. ISO sensitivity indicator
2. Image size (JPEG and TIFF images)
3. Image quality (JPEG images)
4. White-balance bracketing indicator
5. Voice memo recording indicator (shooting mode)
6. Voice memo status indicator
7. Voice memo recording mode
8. White balance
9. Memory card slot indicators
10. "Remaining" indicator
11. "K" (indicates memory remains for over 1000 exposures)
12. ISO sensitivity
D3s (Continued)

NOMENCLATURE (Continued)

VIEWFINDER DISPLAY – LOWER BAR

1. 12-mm Reference circle for Center-weighted Metering
2. AF Area Brackets
3. Focus Points
4. Spot Metering Targets
5. Spot Metering Targets
6. Focus Indicator ( )
7. Metering ( )
8. Autoexposure (AE) Lock
9. Exposure Mode ( )
10. Aperture Lock Icon ( )
11. Aperture (f-number)
12. Aperture (number of stops)
13. ISO Sensitivity Indicator ( )
14. ISO Sensitivity
15. Frame Count
16. Number of exposures remaining
17. Number of shots remaining before memory buffer fills
18. Preset White Balance Recording Indicator
19. Exposure Compensation Value
20. PC Mode Indicator
21. Exposure Indicator
22. Exposure Compensation Display
23. Tilt Indicator

* Displayed when an optional flash unit is attached.
The flash-ready indicator lights when the flash is charged.
D3s (Continued)

NOMINAL SETUP

D3s PROGRAM w/FLASH

- Lens – as reqd
- Aperture – Min, locked
- Body Focus Mode – S
- √Batt installed
- √Flash Card installed
- Pwr – ON
- Top LCD
  - √Batt
  - √Frames remaining sufficient
- Exp Comp (      ) – 0.0
- Exp Mode – P
- Meter – Matrix (     )
- Diopter – Adjust
- Frame Rate – S
- √BKT disabled – 0 F
- Rear LCD
  - √ISO – 200
  - √QUAL – RAW
  - √WB – 0,A
- AF Area Mode – [   ]
- Info pb – press
- Focus Selector Lock – • (unlocked)
- Navigate Pad, Center – press
- Focus Selector Lock – L

SB-800 Flash Settings
- √Diffuser Dome installed
  - ON/OFF pb – ON
- MODE – [   ]
- √Exp Comp – 0 EV
  - Tilt – 45° (Direct)

D3s SHUTTER PRIORITY (EARTH OBS)

- Lens – as reqd
- Aperture – Min, locked
- Body Focus Mode – S
- √Batt installed
- √Flash Card installed
- Pwr – ON
- Top LCD
  - √Batt
  - √Frames remaining sufficient
- Exp Comp (      ) – 0.0
  - Exp Mode – S
  - SS – 500
- Meter – Matrix (     )
- Diopter – Adjust
- Frame Rate – S
- √BKT disabled – 0 F
- Rear LCD
  - √ISO – 200
  - √QUAL – RAW
  - √WB – 0,A
- AF Area Mode – [   ]
- Info pb – press
- Focus Selector Lock – • (unlocked)
- Navigate Pad, Center – press
- Focus Selector Lock – L

SB-800 Flash Settings
  - ON/OFF pb – OFF
D3s (Continued)

NOMINAL SETUP (Continued)

D3s MANUAL (SUNLIT OBJECT)

SB-800 Flash Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON/OFF pb</td>
<td>OFF</td>
</tr>
<tr>
<td>Lens</td>
<td>as reqd</td>
</tr>
<tr>
<td>Aperture</td>
<td>Min, locked</td>
</tr>
<tr>
<td>Body Focus Mode</td>
<td>S</td>
</tr>
<tr>
<td>Batt installed</td>
<td>√</td>
</tr>
<tr>
<td>Flash Card installed</td>
<td>√</td>
</tr>
<tr>
<td>Pwr – ON</td>
<td>Top LCD</td>
</tr>
<tr>
<td>Batt</td>
<td>√</td>
</tr>
<tr>
<td>Frames remaining sufficient</td>
<td></td>
</tr>
<tr>
<td>Exp Comp (</td>
<td>0.0</td>
</tr>
<tr>
<td>Exp Mode – M</td>
<td></td>
</tr>
<tr>
<td>SS – 1000</td>
<td></td>
</tr>
<tr>
<td>f/stop – f8</td>
<td></td>
</tr>
<tr>
<td>Meter – Matrix</td>
<td></td>
</tr>
<tr>
<td>Diopter – Adjust</td>
<td></td>
</tr>
<tr>
<td>Frame Rate – S</td>
<td></td>
</tr>
<tr>
<td>BKT disabled – 0 F</td>
<td></td>
</tr>
<tr>
<td>Rear LCD</td>
<td></td>
</tr>
<tr>
<td>ISO – 200</td>
<td></td>
</tr>
<tr>
<td>QUAL – RAW</td>
<td></td>
</tr>
<tr>
<td>WB – 0, A</td>
<td></td>
</tr>
<tr>
<td>AF Area Mode – [ ]</td>
<td></td>
</tr>
<tr>
<td>Info pb – press</td>
<td></td>
</tr>
<tr>
<td>Focus Selector Lock – • (unlocked)</td>
<td></td>
</tr>
<tr>
<td>Navigate Pad, Center – press</td>
<td></td>
</tr>
<tr>
<td>Focus Selector Lock – L</td>
<td></td>
</tr>
</tbody>
</table>

D3s AURORA/AIRGLOW

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens – as reqd</td>
<td></td>
</tr>
<tr>
<td>Lens Focus Mode</td>
<td>A</td>
</tr>
<tr>
<td>Aperture – Min, locked</td>
<td></td>
</tr>
<tr>
<td>Body Focus Mode – S</td>
<td></td>
</tr>
<tr>
<td>Batt installed</td>
<td></td>
</tr>
<tr>
<td>Flash Card installed</td>
<td></td>
</tr>
<tr>
<td>Pwr – ON</td>
<td></td>
</tr>
<tr>
<td>Top LCD</td>
<td></td>
</tr>
<tr>
<td>Batt</td>
<td></td>
</tr>
<tr>
<td>Frames remaining sufficient</td>
<td></td>
</tr>
<tr>
<td>Exp Comp (</td>
<td>0.0</td>
</tr>
<tr>
<td>Exp Mode – M</td>
<td></td>
</tr>
<tr>
<td>SS – 3&quot;</td>
<td></td>
</tr>
<tr>
<td>f/stop – maximum (smallest number)</td>
<td></td>
</tr>
<tr>
<td>Meter – Matrix</td>
<td></td>
</tr>
<tr>
<td>Diopter – Adjust</td>
<td></td>
</tr>
<tr>
<td>BKT disabled – 0 F</td>
<td></td>
</tr>
<tr>
<td>Rear LCD</td>
<td></td>
</tr>
<tr>
<td>ISO – 3,200</td>
<td></td>
</tr>
<tr>
<td>QUAL – RAW</td>
<td></td>
</tr>
<tr>
<td>WB – 0, A</td>
<td></td>
</tr>
<tr>
<td>AF Area Mode – [ ]</td>
<td></td>
</tr>
<tr>
<td>Info pb – press</td>
<td></td>
</tr>
<tr>
<td>Focus Selector Lock – • (unlocked)</td>
<td></td>
</tr>
<tr>
<td>Navigate Pad, Center – press</td>
<td></td>
</tr>
<tr>
<td>Focus Selector Lock – L</td>
<td></td>
</tr>
</tbody>
</table>

SB-800 Flash Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON/OFF pb</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Technique

1. Dim cabin lights
2. Use dark clothing to shield window
3. Focus, Frame, Fire
### D3s CITY LIGHTS

- **Lens** – as reqd
- **Lens Focus Mode** – A
- Aperture – Min, locked
- Body Focus Mode – S
- √Batt installed
- √Flash Card installed
- Pwr – ON
- Top LCD
  - √Batt
  - √Frames remaining sufficient
- Exp Comp (فعل) – 0.0
- **Exp Mode** – M
  - **f/stop** – maximum (smallest number)
- Meter – Matrix (فعل)
- Diopter – Adjust
- √BKT disabled – 0 F
- Rear LCD
  - ISO – 6,400
  - √QUAL – RAW
  - √WB – 0,A
- AF Area Mode – [ ]
- Info pb – press
- Focus Selector Lock – • (unlocked)
- Navigate Pad, Center – press
- Focus Selector Lock – L
- SB-800 Flash Settings
  - ON/OFF pb – OFF
- Accessory Equipment
  - Shutter Release Cable – Install
  - Multiuse Brkt, Clamp – Install

### D3s STARS

- **Lens** – as reqd
- **Lens Focus Mode** – A
- Aperture – Min, locked
- Body Focus Mode – S
- √Batt installed
- √Flash Card installed
- Pwr – ON
- Top LCD
  - √Batt
  - √Frames remaining sufficient
- Exp Comp (فعل) – 0.0
- **Exp Mode** – M
  - SS – 4”
  - **f/stop** – maximum (smallest number)
- Meter – Matrix (فعل)
- Diopter – Adjust
- √BKT disabled – 0 F
- Rear LCD
  - ISO – 9,000
  - √QUAL – RAW
  - √WB – 0,A
- AF Area Mode – [ ]
- Info pb – press
- Focus Selector Lock – • (unlocked)
- Navigate Pad, Center – press
- Focus Selector Lock – L
- SB-800 Flash Settings
  - ON/OFF pb – OFF
- Accessory Equipment
  - Shutter Release Cable – Install
  - Multiuse Brkt, Clamp – Install

### Technique
1. Dim cabin lights
2. Use dark clothing to shield window
3. Focus, Frame, Fire
D3s (Continued)

NOMINAL SETUP (Concluded)

D3s LIGHTNING

- Lens – as reqd
  - Lens Focus Mode – A
  - Aperture – Min, locked
  - Body Focus Mode – S
  - \checkmark Batt installed
  - \checkmark Flash Card installed
  - Pwr – ON
  - Top LCD
    - \checkmark Batt
    - \checkmark Frames remaining sufficient
  - Exp Comp (\[\]) – 0.0
  - Exp Mode – M
    - SS – 2"
    - \f/stop – maximum (smallest number)
  - Meter – Matrix (\[\[\])
  - Diopter – Adjust
  - Frame Rate – S
  - \checkmark BKT disabled – 0 F
  - Rear LCD
    - ISO – 400
    - \checkmark QUAL – RAW
    - \checkmark WB – 0,A
    - AF Area Mode – [ |= ]
    - Info pb – press
    - Focus Selector Lock – • (unlocked)
    - Navigate Pad, Center – press
    - Focus Selector Lock – L
  - SB-800 Flash Settings
    - ON/OFF pb – OFF
  - Accessory Equipment
    - Shutter Release Cable – Install
    - Multiuse Brkt, Clamp – Install as reqd

IN-CABIN EXISTING LIGHT

- Lens – as reqd
  - Lens Focus Mode – A
  - Aperture – Min, locked
  - Body Focus Mode – S
  - \checkmark Batt installed
  - \checkmark Flash Card installed
  - Pwr – ON
  - Top LCD
    - \checkmark Batt
    - \checkmark Frames remaining sufficient
  - Exp Comp (\[\]) – 0.0
  - Exp Mode – A
    - \f/stop – f4
  - Meter – Matrix (\[\[\))
  - Diopter – Adjust
  - Frame Rate – S
  - \checkmark BKT disabled – 0 F
  - Rear LCD
    - ISO – 3,200
    - \checkmark QUAL – RAW
    - \checkmark WB – 0,A
    - AF Area Mode – [ |= ]
    - Info pb – press
    - Focus Selector Lock – • (unlocked)
    - Navigate Pad, Center – press
    - Focus Selector Lock – L
  - SB-800 Flash Settings
    - ON/OFF pb – OFF

Technique
1. Light falling on front of subject
2. \SS fast enough for lens focal length, subject movement

Technique
1. Fire Camr repeatedly. Luck reqd
D3s (Continued)

DATE/TIME SET

1. MENU pb – press
   Set TIME ZONE
2. Navigate pad – sel menu icon Y SETUP MENU
   – press (right)
   – sel TIME ZONE and DATE (up,down)
   – press (right)
   – sel TIME ZONE (up,down)
   – press (right)
   – sel LONDON, CASABLANCA (left,right)
   – OK pb – press
3. Set DATE/TIME to GMT
   Navigate pad – sel DATE and TIME (up,down)
   – sel desired field (left,right)
   – sel desired setting (up,down)
4. OK pb – press
5. MENU pb – press twice

DELETING SINGLE IMAGES

1. PLAYBACK □ pb – press
2. Navigate pad – sel image (left,right)
3. DELETE  pb – press twice to delete

ADDING .WAV FILES TO AN IMAGE

1. PLAYBACK □ pb – press
2. Navigate pad – sel image (left,right)
3. MICROPHONE ● pb – press, hold (√microphone icon ● appears on upper left of rear LCD)
4. Talk to MIC
5. ♫ Music Note icon ♫ appears in upper left image
D3s (Concluded)

DELETING .WAV FILE FROM AN IMAGE

1. PLAYBACK ▶ pb – press
2. Navigate pad – sel image (left,right)
3. DELETE 🗑 pb – press
4. Sel – Sound only
5. DELETE 🗑 pb – press

.WAV FILE PLAYBACK

1. PLAYBACK ▶ pb – press
2. Navigate pad – sel image w/music note ♫ (left,right)
3. MICROPHONE 🎤 pb – press
CUE CARD CONFIGURATION

TV ............................................................................................................................................................................................................ FS CC 3-3
ANALOG PLAYBACK .............................................................................................................................................................................................................................................. FS CC 3-5
ET PHOTO .................................................................................................................................................................................................................................................. FS CC 3-7
MEDIA ALLOCATIONS .......................................................................................................................................................................................................................... FS CC 3-8
WVS .......................................................................................................................................................................................................................................................... FS CC 3-10
PLBD VTR RECORDING .......................................................................................................................................................................................................................... FS CC 3-12
LDRI/ITVC ........................................................................................................................................................................................................................................ FS CC 3-14
LCS ......................................................................................................................................................................................................................................................... FS CC 3-16
IDC ......................................................................................................................................................................................................................................................... FS CC 3-18
VIDEO SETUP ........................................................................................................................................................................................................................................ FS CC 3-20
D2Xs SETUP ........................................................................................................................................................................................................................................ FS CC 3-22
LDRI/ITVC A7 PLACARD .......................................................................................................................................................................................................................... FS CC 3-24
DIGITAL PLAYBACK .......................................................................................................................................................................................................................... FS CC 3-25
G1 CC SETUP ........................................................................................................................................................................................................................................ FS CC 3-27
**TOP**

**HOOK VELCRO**

**TV**

**ACTIVATION**
- A3 MON 1(2) PWR – ON (LED ON)
- A7 TV DNLK – ENA
  - PWR CONTR UNIT – MAN
  - CTRL – PNL, wait 10 sec for system initialization, CMD

**OPERATION**

**Auto Ops (Auto Exposure)**
- MCC has commanded sync config
  - A7 TV CAMR PWR A(B,C,D,RMS) – ON (tb-ON)
    - IN pb – as reqd
    - ALC pb – push
    - AVG pb – push
    - IF TVC:
      - ALC pb – push
      - AVG pb – push
    - IF ITVC:
      - TV CAMR PWR A(B,C,D,RMS) – OFF, wait 10 sec, ON
      - Repeat until MAN GAIN pb illuminated
    - LT LEVEL pb – push
      - DAY(NIGHT) pb – push
      - ALC pb – push
      - AVG pb – push

**Dnlk Ops**
- Coordinate dnlk and sync config w/MCC
- Config audio as reqd
  - If analog, on MCC GO:
    - A7 VID OUT DNLK pb – push
      - IN pb – as reqd
  - If DTV, on MCC GO:
    - A7 VID OUT DTV pb – push
      - IN pb – as reqd

**DEACTIVATION**
- If Illuminator ON:
  - Refer to Illuminator Ops and perform Illuminator OFF
  - A7 PORT RMS CAMR – WRIST
    - TV CAMR PWR A(B,C,D,RMS) – OFF (tb-OFF), wait 10 sec
    - PORT RMS CAMR – ELBOW
      - TV CAMR PWR RMS – ON (tb-on), wait 10 sec, OFF (tb-OFF)
      - PWR CTRL – PNL
      - CTRL – CMD
      - A3 MON 1.2 PWR – OFF
  - If DTV:
    - A7 (VTR)
      - CTRL TO STANDBY pb – push (red LED on)
      - (VTR)
        - PB – off (LED off)
      - (MUX)
        - TV CAMR PWR – off (LED off)

**Manual Ops – CTVC/ITVC (Manual Exposure)**

**MANUAL OPERATIONS**
- CAUTION
- DO NOT LEAVE CAMRS UNATTENDED IN MANUAL MODE. DIRECT SUNLIGHT WILL DAMAGE CAMRS

**Manual Exposure ON**
- A7 MAN GAIN pb – push
  - 0(+12,+24) db pb – push
  - TV CAMR PWR A(B,C,D,RMS) – ON (tb-ON)
- If CTVC:
  - ALC pb – push
  - AVG pb – push
- If ITVC:
  - If MAN GAIN pb not illuminated:
    - TV CAMR PWR A(B,C,D,RMS) – OFF, wait 10 sec, ON
    - Repeat until MAN GAIN pb illuminated
  - LT LEVEL pb – push
    - DAY(NIGHT) pb – push
    - ALC pb – push
    - AVG pb – push

**MUX Ops**

**NOTE**
- Although dnlk/rcd is in color, MON will display MUX in B&W

**Manual Exposure OFF**
- A7 VID OUT MON pb – as reqd
  - IN pb – as reqd
  - VID OUT DNLK pb – push
  - VID IN pb – as reqd
  - (VTR)
    - PB – off (LED off)
  - (MUX)
    - TV CAMR PWR RMS – ON (tb-on), wait 10 sec, OFF (tb-OFF)
    - CTRL – CMD
    - A3 MON 1.2 PWR – OFF
  - If DTV:
    - A7 (VTR)
      - CTRL TO STANDBY pb – push (red LED on)
      - (VTR)
        - PB – off (LED off)
    - For RSC use:
      - Go to LDRI/ITVC Cue Card

**MUX Ops**

**NOTE**
- Although dnlk/rcd is in color, MON will display MUX in B&W

**Manual Exposure OFF**
- A7 VID OUT MON pb – as reqd
  - IN pb – as reqd
  - VID OUT DNLK pb – push
  - VID IN pb – as reqd
  - (VTR)
    - PB – off (LED off)
  - (MUX)
    - TV CAMR PWR RMS – ON (tb-on), wait 10 sec, OFF (tb-OFF)
    - CTRL – CMD
    - A3 MON 1.2 PWR – OFF
  - If DTV:
    - A7 (VTR)
      - CTRL TO STANDBY pb – push (red LED on)
      - (VTR)
        - PB – off (LED off)
    - (MUX)
      - TV CAMR PWR RMS – ON (tb-on), wait 10 sec, OFF (tb-OFF)
      - CTRL – CMD
      - A3 MON 1.2 PWR – OFF

For RSC use:
- Go to LDRI/ITVC Cue Card
**Illuminator Ops**

**Illuminator ON**

- Wrist Illuminator:
  - cb TV RMS CAMR/PTU – cl
  - WRIST ILLUM/CAMR HTR – cl – op, cl
- Elbow Illuminator:
  - cb TV RMS CAMR/PTU – cl
  - ELB ILLUM/PTU HTR – cl – op, cl
- A(B,C,D,ELB) Illuminator:
  - cb TV A(B,C,D,RMS,ELB) CAMR/PTU – cl
  - ILLUM/PTU HTR – cl – op, cl

**Illuminator OFF**

- Wrist Illuminator:
  - cb TV RMS WRIST ILLUM/CAMR HTR – op, cl
- Elbow Illuminator:
  - cb TV RMS ELB ILLUM/PTU HTR – op, cl
- A(B,C,D) Illuminator:
  - cb TV A(B,C,D) ILLUM/PTU HTR – op, cl
- RSC Illuminator:
  - Go to LDRI/ITVC (Cue Card)

---

**Diagram:**

- LEDS
  - CENTERLINE (CTVC)
  - Forward OBSS LDRI/ITVC LCS/IDC
- LCS/IDC
- LCS/IDC (CTVC w/180 White Illuminator)
- LCS/IDC (CTVC w/180 White Illuminator)
- LCS/IDC (CTVC w/180 White Illuminator)
- LCS/IDC (CTVC w/180 White Illuminator)

---

**Legend:**

- LCS/IDC
- LDRI/ITVC
- CTVC
- RSC (VIDEOSPEC w/ M ED, LOW White Illuminator)
- OBSS (CTVC w/180 White Illuminator)
- RSC (CTVC w/180 White Illuminator)
- RSC (CTVC w/180 White Illuminator)
- RSC (CTVC w/180 White Illuminator)

---

**Notes:**

- (reduced copy)
- FS CC 3-4
- P/TV-1b/134/O/A
- P/TV/134/FIN A
ANALOG PLAYBACK

ANALOG VIA CC

NOTE
Analog Playback from CC only possible for CC Video recordings

ACTIVATION
CC
Setup per diagram (back of cue card)
A7
Perform ACTIVATION (Cue Card, TV), as reqd
O19
TV PWR – ON
AVIU
SYNC/VIDEO – VIDEO
HI-Z/75 – 75
PWR SELECT – LO
CC
PWR – VTR/PLAY
AV1/V2 – V2

OPERATIONS
PLBK or DNLK VIDEO
CC
Install tape, if reqd
If audio reqd:
CCU
If MHA, COMM PWR – ON
ATU
PWR – AUD
Desired Loops – T/R
Other Loops – RCV(OFF)
XM/TICOM Mode – VOX/VOX
VOX SENS – MAX
CC
Speaker Vol Max
A7
VID OUT MON pb – as reqd
IN FLT DECK(MIDDECK) pb – push
CC
VTR pb – REW(FF) to cue tape
If Dnlk
•
MCC has commanded async config
A7
TV DNLK – ENA
VID OUT DNLK pb – push
IN FLT DECK(MIDDECK) pb – push
CC
PLAY pb – push (green • displayed)
If PLBK(DNLK) complete:
STOP pb – push
If CC ops complete, go to DEACTIVATION

DEACTIVATION
CC
Remove, mark, stow tape as reqd
PWR – OFF
ATU
Reconfig as desired
O19
TV PWR – OFF, as reqd
Go to DEACTIVATION (Cue Card, TV), as reqd

ANALOG VIA VTR

ACTIVATION
Setup per diagram (back of cue card)
Disconnect CC Video input from AVIU J3
O19
TV PWR – ON
AVIU
SYNC/VIDEO – VIDEO
HI-Z/75 – 75
PWR SELECT – LO
L10
VTR/CC PWR – on (LED on)
(VTR)
ON/STANDBY LED – green

OPERATIONS
PLBK or DNLK VIDEO
L10 (VTR)
Install tape if reqd
DISPLAY SELECT – DATA
If audio reqd:
(VIP)
PWR – ON (LED on, DATA FLOW LED flashes twice)
ATU – PBK/KEY MIC (Amber LED on)
CCU
If MHA, COMM PWR – ON
ATU
PWR – AUD
Desired Loops – T/R
Other Loops – OFF
XM/TICOM Mode – VOX/VOX
VOX SENS – MAX
A7
VID OUT Desired MON pb – push
IN FLT DECK pb – push
L10 (VTR) REW(FF),PLAY,PAUSE pb – push as reqd to cue tape
If Dnlk
•
MCC has commanded async config
A7
TV DNLK – ENA
VID OUT DNLK pb – push
IN FLT DECK pb – push
L10 (VTR) PLAY pb – push (green • displayed)
If PLBK(DNLK) complete:
STOP pb – push
If VTR ops complete, go to DEACTIVATION

DEACTIVATION
Connect CC video input to AVIU J3
L10 (VTR)
Remove, mark, stow tape as reqd
ATU
Reconfig as desired
O19
TV PWR – OFF, as reqd
Go to DEACTIVATION (Cue Card, TV) as reqd

(reduced copy)
**LENS SETTINGS:**
- √ **APERTURE** – MIN, LOCKED
- √ **LENS FOCUS MODE** – A

**CAMR SETTINGS**
- PWR – ON
- TOP LCD:
  - √ BATT
  - √ EXP MODE – M
  - √ SS – 1000
  - √ F/STOP – 8
- DIOPTER – ADJUST
- √ FRAME RATE – S
- √ BODY FOCUS MODE – S

**REAR LCD:**
- √ ISO – 100
- √ QUAL – RAW

**CRITICAL FOCUS REQD EACH FRAME**

**LENS CAP – REMOVE**
- INSTALL MUTING PLUG
- √ ND FILTER – OFF
- √ AF/M – M
- √ AGC – OFF
- √ GAIN – L
- √ OUTPUT – CAM
- √ AWB – ON
- √ POWER dial – M
- LOCK (handle) – off (aft)
- STANDBY/LOCK – STANDBY

**OPEN LCD**
- √ BATT SUFFICIENT
- √ EXP MODE – M
- √ SS – 1/1000
- √ GAIN – ±0dB
- √ F/STOP – F8.0
- √ FOCUS MODE – MF

**ZOOM** – WIDE TO FIND TANK, THEN TIGHT

**START RECORDING**
- √ LCD DISPLAYS RED DOT
### MEDIA ALLOCATIONS

#### DVCAM

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#### MINI DVCAM

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#### MEMORY CARD

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(reduced copy)
### CAMR Adjustments

**Adjust Brightness**

**Course Adjustment**
- PGSC Select Page – RF Camera
- Lens Iris Control – cl(op)

**Fine Adjustment**
- PGSC Select Page – RF Camera
- Electronic Shutter – Manual
- Brightness – Dec(Inc)
  - (# to right: 100 = brightest; 0 = darkest)

**Dark Subject**
- PGSC Select Page – RF Camera
- ▼Advanced Controls displayed
- Automatic Gain Control – Enabled
  - (Disabled preferred)

**PWRDN**
- For all lens (three) on each RF Camera Assy:
  - PGSC Lens Iris Control – Close until view black
  - V10 ▼Test Pattern displayed (color bars w/"No WVS Video")
  - PGSC Select Page – XCVR
  - Transceiver 1(2) CMD Pwr – Off
    - (black CMD PWR:LVL="OFF:Min")
  - Sel File → Exit

  - V10 STOP pb – push
  - Mark, stow tapes
  - PWR – OFF

  - A7 WIRELESS VID PWR – OFF
  - HTR – OFF

**Video Signal Problems**

- For problem EMU TV:
  - EMU EMU TV Pwr pb – push (no LED), wait 10 sec, push (green LED)

  - If no joy:
    - PGSC ▼Select Page – XCVR
    - ▼Advanced Controls displayed
      - For XCVR w/Video problem: IF – Narrow

  - If still no joy:
    - A7 WIRELESS VID PWR – OFF, wait 10 sec, ON

  - If still no joy:
    - PGSC For XCVR w/video problem: IF – Wide
      - For XCVR w/good video: Sel RF Camr – None (black "OFF")
      - If video acceptable, other EMU TV interfering w/signal
        - Alternately sel EMU TVs to acquire video

  - If still no joy:
    - For XCVR with good video:
      - Sel RF Camr – reselect original EVA crewmember
      - Sel desired antenna

  - If still no joy:
    - For XCVR w/video problem: Antenna – Auto ▼MCC

**Commanding Problem (UHF)**

- If commanding of WVS not visually seen:
  - PGSC Select Page – XCVR
  - Sel Transceiver 2(1) CMD Pwr – On
    - (green CMD PWR:LVL="ON:Min")

### ANTENNA LOCATIONS

**AFT BULKHEAD**

- 4 Slightly above sill (Bay 10)
- 3

**XCVRS Bay 5**

- B Slightly above sill (Bay 4)

**UHF CMD Antenna (Bay 3)**

- Inboard of sill (Bay 1)

**FWD BULKHEAD**

- 1

(reduced copy)
ALERT MSG TROUBLESHOOTING

**STATIC XCVR**

**Condition:** No comm between PGSC & PLB XCVR

**PGSC**
1. \>Cable connections between WIB and PGSC
2. WIRELESS VID PWR – OFF, wait 10 sec, ON
   - If no joy:
3. Sel ‘Start’ > ‘Shut Down’ > ‘Restart’ > ‘OK’
   - When reboot complete:
     - Sel Shuttle Apps icon > WVS icon
     - Sel ‘Yes’ at ‘Restore To Previous Settings’ window
     - RF Camera page will appear
   - If still no joy:
4. \>MCC

**STATIC RF CAMERA**

**Condition:** No telemetry and video received by PLB XCVR from EMU TV

**EMU**
1. \>EMU TV Pwr pb pushed (green LED)
   - If no joy:
2. \>Correct RF Camera selected via pulldown menu
   - \>RF Camera (two) – ON (green “ON”)
   - If not ON:
     - RF Camera (of static EMU TV) – sel “None” via pulldown menu, then sel original EMU TV
   - If still no joy:
3. RF Camera 1(2) – sel ‘None’
   - Perform CAMR ID ASSIGNMENT
   - Reattempt RF Carr selections
   - If still no joy:
4. \>CMD PWR:LVL – green “ON:Min” for XCVR 1(2)
   - If not ON:
     - Select Page – XCVR
     - Transceiver 1(2) CMD Power – On (green CMD PWR:LVL - “ON:Min”)
   - If still no joy:
5. EMU TV Pwr pb (of static EMU TV) – push (no LED), wait 10 sec, push (green LED)
   - If still no joy:
6. \>MCC

**BAD ID RECEIVED**

**Condition:** Mismatch between EMU TV Camera ID and software camera ID

**PGSC**
1. Select Page – XCVR:
   - Transceiver 1(2) CMD Power – On (green CMD PWR:LVL - “ON:Min”)
   - Sel RF Camera 1,2 – None
   - Sel File > Assign Camera ID
   - Camera IDs match data under CAMR ID ASSIGNMENT
   - If not a match:
     - Highlight entry, then sel ‘Delete Entry’ option
     - Perform CAMR ID ASSIGNMENT
     - Sel RF Camera 1,2 – EVA crewmembers
   - If still no joy:
2. \>MCC

**TEMP ALERT** (blue text)

**Condition:** EMU TV -35 °C to -30 °C OR 80 °C to 85 °C range

**PLB XCVR**
-40 °C to -35 °C OR 80 °C to 85 °C range

**Select Page – Telemetry**
- Identify component w/temperature alert (blue text)
- \>MCC

**TEMP CAUTION** (yellow text)

**Condition:** EMU TV < -35 °C OR > 85 °C

**PLB XCVR**
-40 °C to -35 °C OR 80 °C to 85 °C range

**Select Page – Telemetry**
- Identify component w/temperature alert (yellow text)
- \>MCC

**CAMR ID ASSIGNMENT**

Sel File → Assign Camr ID

\>All EV crewmembers listed as options on pulldown ‘Label’ menu under CAMERA ID SETUP

If label entry reqd:
- Type label into space next to “Add Label” icon
- Sel “Add Label” icon to add to listing

Under CAMERA ID SETUP:
- Camera Address – As reqd via left/right arrows
- Serial Number – As reqd via left/right arrows
- Label – As reqd via pulldown menu
- "In Use" Box – Check via single click
- Sel “Save Entry” icon to right of Camr ID table (top)
- Data entry visible in Camr ID table

Sel OK

P/TV-5b/134/O/C

(reduced copy)
PLBD VTR RECORDING

L10  √VIP, VTR covers removed
R1   √PL AUX – ON
MA73C:E  cb AC2 PL3Φ – cl
       √Cables config’d per dwg (back of cue card)
L10  (MUX)  VTR/CC PWR – on (LED on)
(VIP)  √ATU – REC
       √CCTV VIDEO IN – J3
       PWR – on (LED on, DATA FLOW flashes twice)
(VTR)  √ON/STANDBY LED – green
       √Switches set to white dot (seven)
       √COUNTER SELECT – COUNTER (TC)
       √Tape installed (tape icon LED on)
       Set GMT:
       DISPLAY SELECT – MENU
       ↓ pb – ETC, EXEC pb – push
       ↓ pb – CLOCK SET, EXEC pb - push
       Use ↓, ↑, EXEC to set Y, M, D, hr, min to GMT
       DISPLAY SELECT – DATA

If Audio desired:
L9   PS AUD PWR – AUD
       Desired Loops – RCV, Vol tw 5
       Other Loops – OFF
A7   VID OUT DTV pb – push
       IN pb – as reqd
L10  (VTR)  REC pb – push, hold
       PLAY pb – push, simo (red dot displayed)
TOP
BACK OF 'PLBD VTR RECORDING'

HOOK
VELCRO

VTR/CC
MUX

VIP REC
CCTV
VIDEO IN

BAL
J3
J3

AUDI0 IN/OUT
VTR

Audio

DTV Audio Cable (25 ft)

FS CC 3-13

(reduced copy)

P/TV-6b/134/O/A

P/TV/134/FIN A
TOP

**LDRI/ITVC**

### ACTIVATION

1. Config CCTV Sys
   - Config CCTV Sys
   - Activate ( Cue Card, TV) performed
   - MUX/VC/CC PWR – on (LED on)
   - Cabling from VTR MON port to MON 2 C-IN
   - VTR PWR – ON (LED on)
   - Green Jumper – LDRI/ITVC
   - LDRI vid cable connected to
     - MON 1,2
   - L-DATA – ON
   - C-DATA – GRN
   - X-HAIR – GRN
   - MON 2
   - SOURCE – C

2. Apply SPEE Pwr
   - Config RSC illum to Hi
   - A7 VID OUT MON 1 pb – push
     - IN C pb – push
     - PAN/TILT – Adjust to see RSC Cam
   - R12 (OBSS)
   - SPEE PWR – OFF, wait 10 sec, ON
   - RSC illum on Hi (three rings)

3. Enable ITVC
   - MCC has commanded sync config
   - ITVC ENA – ON
   - A7 VID OUT DTV pb – push
     - IN PL2(VPU) pb – push
     - MAN GAIN pb not illuminated:
     - If MAN GAIN pb is illuminated
       - A7 VID OUT MUX 1 L pb – push
         - IN MIDDECK pb – push
         - LDRI MODE 2 pb – push
         - LDRI MODE 3 pb – push
         - ITVC video displayed
         - To adjust brightness:
           - A7 CAMR CMD IRIS – OP, CL, as reqd

4. Turn LDRI Laser On
   - Activate
   - A7 VID OUT MUX 1 L pb – push
     - IN MIDDECK pb – push
     - LDRI MODE 2 pb – push
     - LDRI MODE 3 pb – push
     - ITVC video displayed

### GENERAL LDRI CONTROL

- A7 VID OUT MUX 1 L pb – push
- IN MIDDECK pb – push

**Mode 1 (default at pwup)**
- A7 LDRI MODE 1 pb – push
- MON 2
  - ITVC video displayed

**Mode 2**
- A7 LDRI MODE 2 pb – push
- MON 2
  - ITVC video displayed

**Modes 3 (4,5,6)**
- A7 LDRI MODE 3(4,5,6) pb – push
- MON 2
  - ITVC w/illum displayed

- A7
  - CAMR CMD IRIS – OP, CL, as reqd

**PAN/TILT OPS WITLDRI ACTIVE**

**NOTE**
- When adjusting pan/tilt in Modes
  - 3(4,5,6), ITVC FOCUS (ZOOM, IRIS) cntls functional

**LDRI MODE SUMMARY**

- Mode 1 – Standby
  - ITVC video
  - LDRI in standby

- Mode 2 – Illuminator
  - ITVC video w/illum
  - LDRI laser active, LDRI camera inactive

- Mode 3 – 2D
  - LDRI 2D video
  - Similar to ITVC video

- Mode 4 – 2D Gamma
  - LDRI 2D video w/Gamma Black Stretch
  - Similar to ITVC video

- Mode 5 – 3D
  - LDRI 3D video
  - Flicker on MON

- Mode 6 – 3D Gamma
  - LDRI 3D video w/Gamma Black Stretch
  - Flicker on MON

### DEACTIVATION

- A7 VID OUT MUX 1 L pb – push
  - IN MIDDECK pb – push
  - LDRI MODE 1 pb – push
  - SPEE PWR – OFF
  - EVENT TIMER MODE – UP
  - EVENT TIMER CNTL – START
- R12 (OBSS)
  - ITVC ENA – OFF, pause 10 sec
  - SPEE PWR – OFF
  - A6U
  - EVENT TIMER MODE – UP
  - EVENT TIMER CNTL – START

P/TV-7a/134/O/A
**RSC CAMR OPS**

**NOTE**
Camr nominally pwrd in Block 3 of POST INSERT

R12 (OPP).cb OBSS SW PWR CB1 – cl
OBSS SW PWR – ON
(OBSS) RSC PWR – ON

**RSC ILLUMINATOR OPS**

**NOTE**
RSC illuminator OFF when SPEE PWR sw initially taken to ON. A cycle of the SPEE PWR sw takes RSC illuminator to HIGH. Subsequent pwrs cycles take illuminator to MED, LOW, OFF and then back to HIGH. Config may req alt Camr view of RSC

R12 (OBSS) √ SPEE PWR – ON
√ RSC PWR – ON
√ ITVC ENA – OFF

A7 VID OUT MON 1 pb – push
IN A(B,C,D) pb – push
PAN,TILT – Adjust to see RSC Camr

**NOTE**
SPEE pwrs cycle will set LDR‖ITVC to Mode 3(4) and reset the PTU angles

R12 (OBSS) √ SPEE PWR – OFF, wait 10 sec, ON
√ RSC illum on
MON 1 √ SPEE PWR – OFF, wait 10 sec, ON

To cycle thru illuminator modes:
R12 (OBSS) √ SPEE PWR – OFF, wait 10 sec, ON

Perform LDR‖ITVC ACTIVATION, step 4
Return to original LDR‖ITVC Mode, continue OPS

**CONTINGENCY LDR‖CLEARANCE VIEW**

**NOTE**
Do not apply RMS brakes

A8U AUTO SEQ – STOP (READY it on)
L10(VTR) STOP pb – push (no red •)

A7 VID OUT MUX 1 L pb – push (MIDDECK it on)
LDR‖ MODE 6 pb – push (flickering LDR‖ video)
VID OUT MON 1 pb – push
IN PL2(VPU) pb – push

Record PTU Pan and Tilt
CAMR CMD PAN/TILT – HI RATE
PAN: 0 (left, to hard stop)
TILT: 0 (up, to hard stop)

**LDRI PAN/TILT RESET**

Reset PTU
A7 VID OUT MON 1 pb – push
IN PL2(VPU) pb – push
CAMR CMD PAN/TILT – HI RATE
PAN – L (to hard stop)
TILT – UP (to hard stop)
PAN/TILT – RESET

**SPEE PWR DEACT CLEANUP ACTIONS**

Config RSC illum to HI
R12 (OBSS) √ SPEE PWR – OFF
RSC PWR – OFF, wait 10 sec, ON
SPEE PWR – ON, OFF, wait 10 sec, ON

**NOTE**
If MAN GAIN pb not illuminated:
R12 (OBSS) ITVC ENA – OFF, wait 10 sec, ON
Repeat until MAN GAIN pb illuminated
A7 LT LEVEL pb – push
DAY (NIGHT) pb – push
ALC pb – push
AVG pb – push

Reset PTU
A7 CAMR CMD PAN/TILT – HI RATE
PAN – L (to hard stop)
TILT – UP (to hard stop)
PAN/TILT – RESET

Return LDR‖ to Mode 6
A7 VID OUT MUX 1 L pb – push
IN MIDDECK pb – push
LDR‖ MODE 6 pb – push
VID OUT DTV pb – push, to return to ITVC control

**SPEE PWR DEACT CLEANUP ACTIONS**

Configure ITVC
A7 VID OUT DTV pb – push
IN PL2(VPU) pb – push
If MAN GAIN pb not illuminated:
R12 (OBSS) ITVC ENA – OFF, wait 10 sec, ON
Repeat until MAN GAIN pb illuminated
A7 LT LEVEL pb – push
DAY (NIGHT) pb – push
ALC pb – push
AVG pb – push

Reset PTU
A7 CAMR CMD PAN/TILT – HI RATE
PAN – L (to hard stop)
TILT – UP (to hard stop)
PAN/TILT – RESET

**ORBITER IN THIS SPACE**

Note clearance thru LDR‖ FOV
Return PTU to Pan and Tilt values recorded above
VID OUT MUX 1 L pb – push (MIDDECK it on)
LDR‖ MODE 6 pb – push (flickering LDR‖ video)
VID OUT MON 1 pb – push
IN pb – as desired (not PL2)
L10(VTR) REC pb – push, hold
PLAY pb – push, simo (red dot)
A8U AUTO SEQ – PROCEED (IN PROG it on)

**FS CC 3-15**

P/TV-7b/134/O/A

P/TV/134/FIN A
LCH ACTIVATION

LCC ACTIVATION

1. LCC Setup
   - Hardware and cables configured per diagram below:

2. LCC Startup
   - PGSC Pwr – ON
   - Yellow ‘RJ-45 Port Configured for LCS Ops’ displayed on desktop crew patch
   - Laser off – blue
   - Comm – green
   - CC – OFF

3. Verify LCC Desktop Video
   - MO/8F Pwr – ON
   - AVIU HI-Z/75 – 75
   - CC – OFF

OPERATION

NOTE

PDRS OPS will call for appropriate scan steps on LCC. MCC may have limited insight if desktop downlink is available.

1. Load Database (if reqd)
   - MCC for desired LCS database
   - ‘DB Name’: Field on upper left-hand side of LCS GUI
   - If ‘DB Name’ incorrect:
     - Sel ‘Load Database…’ from File menu
     - Sel MCC desired database file
     - Sel ‘OK’

2. LCS System Status

<table>
<thead>
<tr>
<th>LCS SYSTEM STATUS</th>
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<tbody>
<tr>
<td>Laser Off</td>
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<tr>
<td>Laser On</td>
</tr>
<tr>
<td>Laser Off</td>
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<tr>
<td>Laser Off</td>
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</tbody>
</table>

While Scan in progress (‘Scan Status’ counter incrementing):
- Laser On – green
- Laser Off – green
- Comm – green
- Scan Display – updating
- Temp – green
- Elec – green

Scan complete when ‘Scan Status: Complete’ displayed
If LCS system status out of config, perform appropriate TROUBLESHOOTING section of this cue card

(For SSPTS APCU 2 flights only)
LCC DEACTIVATION

NOTE
Shutting down LCC software also puts LCH in keep-alive heater mode. No LCH scans/insight or IDC ops available. APCU Converter pwr cycle reqd to reinitialize LCH for scanning and IDC ops

1. LCC Software Shutdown

A31p
Set 'File' > 'Exit'
When 'Shutdown' dialog box opens:
√ 'Shutdown LCH and Exit LCC Software' selected
Set 'OK'
When 'Shutdown?' dialog box opens:
Set 'OK'

2. A31p Screen Resolution Reset

A31p
Right click on ATI icon on system tray
Sel 'Schemes'
Sel 'DISABLE DESKTOP DOWNLINK, ATI Property Settings'
Sel 'Yes'
Arrange program windows as desired

TROUBLESHOOTING

Temp or Elec Status Yellow
A31p
Set 'System' page
Report 'Elec' or 'Temp' values backlit in yellow to MCC

Comm Status Yellow and LAN2 Network cable unplugged (red X on A31p system tray)

NOTE
LCC GUI Comm status will be yellow and A31p Local Area Network status (w/red X on A31p system tray) cable unplugged tool tip will appear if LCH is in keep-alive heater mode

A31p
If unexpected red X w/Local Area Network Connection tool tip shown on A31p system tray:

R12
√ OPP to LCC Cable connected to LCS CMD/TLM(J107) port
A31p
√ OPP to LCC Cable connected to LCC RJ45 port
Exit LCC software and shut down Windows

A15
APCU 1, 2 CONV (two) – OFF
2 OUTPUT – OFF, wait 10 sec, ON
1, 2 CONV (two simo) – ON

SM 179 POWER TRANSFER
√ PTU 2 APCU OUT VOLS: ∼12V to 126V

A31p
LCC PGSC Pwr – ON
√ A31p internal RJ45 Network Interface Card LED green
Perform LCC ACTIVATION, step 2
√ Local Area Network Connection status icon (with red X) in Windows system tray not displayed
√ MCC if LCG GUI Comm status still yellow

Message Area Entry
Report LCC GUI message area log entry(ies) to MCC

Yellow ‘RJ-45 Port Configured for LCS Ops’ Not Displayed on Desktop Crew Patch
A31p
Set 'Shuttle Apps' > 'Network Configuration' > 'LCS RJ45 Network Setup'
Enter '1' in network window
Set 'OK'
Set 'OK' in LCS window
Allow 20 sec for program to execute
√ Yellow text displayed on desktop
Resume LCS Ops

(For SSPTS APCU 2 flights only)
IDC ACTIVATION

1. LCC Setup
   - Hardware configured per LCC ACTIVATION steps 1,2 (Cue Card, LCS)
   - PGSC Pwr – ON

2. IDC connectivity Check
   - A31p: If RJ45 Network Interface Card LED not green, on MCC GO:
     - APCU 1,2 CONV (two) – OFF
     - 2 OUTPUT – OFF, wait 10 sec, ON
     - 1,2 CONV (two simo) – ON

   - SM 179 POWER TRANSFER
   - PTU 2 APCU OUT VOLTS: 123V to 126V

IDC SOFTWARE ACTIVATION

1. IDC Software Startup
   - A31p: Sel ‘Shuttle Apps’ > ‘IDC’

2. Verify GMT
   - A31p: GMT within 3 sec of SM-GPC GMT
     * If GMT not within 3 sec:
       * Double click on GMT box on GUI
       * Adjust GMT as reqd
       * Sel ‘OK’ on MTU Time dialogue box

3. IDC Pwr on and self test
   - A31p: Sel ‘Power On’
     - Black and White self-test image displayed
     - Waiting for User Command’ displayed
     * If red backlit error msg displayed:
       * Perform appropriate TROUBLESHOOTING
       * steps on this cue card

OPERATION

1. Configure LDRI Illumination
   - R12 (VPU): Green Jumper – LDRI/ITVC
   - A7: VID OUT MUX 1L pb – push
   - VID IN MIDDLE pb – push
   - VID OUT MON 1(2) pb – push
   - IN PL2 (VPU) pb – push
   - CAMR CMD PAN/TILT – HI RATE
     - PAN – L (to hard stop)
     - TILT – UP (to hard stop)
     - PAN/TILT – RESET
     - LO RATE within 10°
   - CAMR CMD PAN: +85 (right)
   - TILT: -57 (down)

2. Auto Exposure (AE) Ops
   - A31p: ‘Use AE’ checked
     - Sel ‘Scan Lo-Res’  Resize and posn AE box as reqd (pause 2 sec)
     - MCC for AOI FOV
       - Sel ‘Scan Hi-Res’
       - If Scanning w/no RMS Motion:
         - Sel ‘Stop Scan’ after 30 sec
       - If scanning w/RMS motion:
         - Move box to maintain RCC in AE box (using keyboard arrows)
         - Sel ‘Stop Scan’ at pause point
     - Waiting for User Command’ displayed

3. Scenario File Ops
   - A31p: From Scenario File drop-list, sel appropriate lighting condition
     - Sel ‘Acquire Set’
     - ‘Acquiring Set’ displayed
     - Waiting for User Command’ displayed after set
     - MCC content w/data take

NOTE

- If IDC GUI GMT does not update during Ops, an attempt to shut down/restart A31p should be made

CAUTION

- Pwr off IDC when not imaging. Pointing IDC at Sun when pwr on will damage Camr

(For SSPTS APCU 2 flights only)
IDC DEACTIVATION

1. IDC and Software Shutdown
   A31p  Set ‘Power off’ on IDC GUI
   IDC software > ‘YES’  Close (X) IDC software > ‘YES’

2. A31p Screen Resolution Reset
   A31p  Right click on ATI icon on system tray
   Sel ‘Schemes’
   Sel ‘DISABLE DESKTOP DOWNLINK, ATI Property Settings’
   Sel ‘Yes’
   Arrange program windows as desired

IDC HOT KEY COMMANDS

F5 – Toggle Summary View  F6 – Toggle Image Mode
F7 – Zoom In  F8 – Zoom Out
F9 – Reset Brightness and Contrast  F10 – Reset AE Box to Default
F11 – Toggle AE Box Visibility  F12 – Find AE Box

IDC SOFTWARE ERROR MESSAGES

Can’t connect to LCH:  Perform TROUBLESHOOTING, steps 1,2
   Condition:  Possible heater only mode or Network failure

Iport probe failed:  Perform TROUBLESHOOTING, step 2
   Condition:  Iport startup check failed

Iport not responding:  Perform TROUBLESHOOTING, step 2
   Condition:  Iport connection lost

Camera not responding:  Perform TROUBLESHOOTING, step 2
   Condition:  Camera connectivity lost

Image acquisition failed:  Perform TROUBLESHOOTING, steps 1,2
   Condition:  Camera connectivity lost during imaging

Network recovery failed:  Perform TROUBLESHOOTING, steps 1,2
   Condition:  LCH network switch connection lost

Bad initialization file:  Perform TROUBLESHOOTING, step 3
   Condition:  Software will not launch due to severe ini file corruption

TROUBLESHOOTING

1. LCC to LCH Connectivity Check
   A31p  If Local Area Network Connection (with red X) tool tip on system tray:
   Reseat OPP to LCC Cable (20 ft) to LCC RJ45 port
   Local Area Network Connection Speed 10 mps
   Perform LCH, LCC, and IDC Reset, step 2
   Continue nominal ops

2. LCH, LCC, and IDC Reset
   A31p  Exit IDC software and shut down Windows
   OPP to LCC Cable (20 ft) connected to LCC RJ45 port and LCS CMD/TLM port
   APCU 1,2 CONV (two) – OFF
   2 OUTPUT – OFF, wait 10 sec, ON
   1,2 CONV (two simo) – ON
   SM 179 POWER TRANSFER
   PTU 2 APCU OUT VOLTS: 123V to 126V
   A31p  LCC PGSC Pwr – ON
   A31p internal RJ45 Network Interface Card LED green
   Perform IDC SOFTWARE ACTIVATION
   Continue nominal ops

3. LCC Swap
   A31p  Exit IDC software and shut down Windows
   Swap LCC with other A31p
   Perform IDC Activation
   Perform IDC Software Activation
   Continue nominal ops

(For SSPTS APCU 2 flights only)  (reduced copy)

FS CC 3-19  P/TV-9b/134/O/C

P/TV/134/FIN A
# D2Xs SETUP

<table>
<thead>
<tr>
<th>D2Xs PROGRAM</th>
<th>D2Xs Aperture Priority</th>
<th>D2Xs Shutter Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Cabin</strong></td>
<td><strong>“Earth Obs”</strong></td>
<td><strong>“Earth Obs”</strong></td>
</tr>
<tr>
<td><strong>Lens</strong> – as reqd</td>
<td><strong>Lens</strong> – as reqd</td>
<td><strong>Lens</strong> – as reqd</td>
</tr>
<tr>
<td><strong>Aperture</strong> – Min, locked</td>
<td><strong>Aperture</strong> – Min, locked</td>
<td><strong>Aperture</strong> – Min, locked</td>
</tr>
<tr>
<td><strong>Body Focus Mode</strong> – S</td>
<td><strong>Body Focus Mode</strong> – S</td>
<td><strong>Body Focus Mode</strong> – S</td>
</tr>
<tr>
<td><strong>√Batt installed</strong></td>
<td><strong>√Batt installed</strong></td>
<td><strong>√Batt installed</strong></td>
</tr>
<tr>
<td><strong>√Flash Card installed</strong></td>
<td><strong>√Flash Card installed</strong></td>
<td><strong>√Flash Card installed</strong></td>
</tr>
<tr>
<td><strong>Pwr – ON</strong></td>
<td><strong>Pwr – ON</strong></td>
<td><strong>Pwr – ON</strong></td>
</tr>
<tr>
<td><strong>Top LCD:</strong></td>
<td><strong>Top LCD:</strong></td>
<td><strong>Top LCD:</strong></td>
</tr>
<tr>
<td><strong>√Batt</strong></td>
<td><strong>√Batt</strong></td>
<td><strong>√Batt</strong></td>
</tr>
<tr>
<td><strong>√Frames remaining sufficient</strong></td>
<td><strong>√Frames remaining sufficient</strong></td>
<td><strong>√Frames remaining sufficient</strong></td>
</tr>
<tr>
<td><strong>Exp Comp (          ) – 0.0</strong></td>
<td><strong>Exp Comp (          ) – 0.0</strong></td>
<td><strong>Exp Comp (          ) – 0.0</strong></td>
</tr>
<tr>
<td><strong>Exp Mode – P</strong></td>
<td><strong>Exp Mode – P</strong></td>
<td><strong>Exp Mode – P</strong></td>
</tr>
<tr>
<td><strong>Meter – Matrix (     )</strong></td>
<td><strong>Meter – Matrix (     )</strong></td>
<td><strong>Meter – Matrix (     )</strong></td>
</tr>
<tr>
<td><strong>Diopter – Adjust</strong></td>
<td><strong>Diopter – Adjust</strong></td>
<td><strong>Diopter – Adjust</strong></td>
</tr>
<tr>
<td><strong>Frame Rate – S</strong></td>
<td><strong>Frame Rate – S</strong></td>
<td><strong>Frame Rate – S</strong></td>
</tr>
<tr>
<td><strong>√BKT disabled – 0 F</strong></td>
<td><strong>√BKT disabled – 0 F</strong></td>
<td><strong>√BKT disabled – 0 F</strong></td>
</tr>
<tr>
<td><strong>Rear LCD:</strong></td>
<td><strong>Rear LCD:</strong></td>
<td><strong>Rear LCD:</strong></td>
</tr>
<tr>
<td><strong>√ISO – 100</strong></td>
<td><strong>√ISO – 100</strong></td>
<td><strong>√ISO – 100</strong></td>
</tr>
<tr>
<td><strong>√QUAL – RAW</strong></td>
<td><strong>√QUAL – RAW</strong></td>
<td><strong>√QUAL – RAW</strong></td>
</tr>
<tr>
<td><strong>√WB – 0,A</strong></td>
<td><strong>√WB – 0,A</strong></td>
<td><strong>√WB – 0,A</strong></td>
</tr>
<tr>
<td><strong>AF Area Mode – [[]]</strong></td>
<td><strong>AF Area Mode – [[]]</strong></td>
<td><strong>AF Area Mode – [[]]</strong></td>
</tr>
<tr>
<td><strong>√Focus Area – Center</strong></td>
<td><strong>√Focus Area – Center</strong></td>
<td><strong>√Focus Area – Center</strong></td>
</tr>
<tr>
<td><strong>√Focus Selector Lock – L</strong></td>
<td><strong>√Focus Selector Lock – L</strong></td>
<td><strong>√Focus Selector Lock – L</strong></td>
</tr>
<tr>
<td><strong>SB-800 Flash Settings:</strong></td>
<td><strong>SB-800 Flash Settings:</strong></td>
<td><strong>SB-800 Flash Settings:</strong></td>
</tr>
<tr>
<td><strong>√Diffuser Dome installed</strong></td>
<td><strong>√Diffuser Dome installed</strong></td>
<td><strong>√Diffuser Dome installed</strong></td>
</tr>
<tr>
<td><strong>ON/OFF pb – ON</strong></td>
<td><strong>ON/OFF pb – ON</strong></td>
<td><strong>ON/OFF pb – OFF</strong></td>
</tr>
<tr>
<td><strong>√MODE – [ ] [ ] [ ]</strong></td>
<td><strong>√MODE – [ ] [ ] [ ]</strong></td>
<td><strong>√MODE – [ ] [ ] [ ]</strong></td>
</tr>
<tr>
<td><strong>√Exp Comp – 0 EV</strong></td>
<td><strong>√Exp Comp – 0 EV</strong></td>
<td><strong>√Exp Comp – 0 EV</strong></td>
</tr>
<tr>
<td><strong>Tilt – 45° (Direct)</strong></td>
<td><strong>Tilt – 45° (Direct)</strong></td>
<td><strong>Tilt – 45° (Direct)</strong></td>
</tr>
</tbody>
</table>

(reduced copy)
### D2Xs Manual

#### "Sunlit Objects"

- **SB-800 Flash Settings:**
  - ON/OFF pb – OFF
  - Lens – as reqd
  - **NOTE**
    - If auto focus unachievable:
      - Lens Focus Mode – M
- **Lens Focus Mode** – A
- **Aperture** – Min, locked
- **Body Focus Mode** – S
- **Batt installed**
- **Flash Card installed**
- **Pwr – ON**
- **Top LCD:**
  - \( \sqrt{\text{Batt}} \)
  - \( \sqrt{\text{Frames remaining sufficient}} \)
- **Exp Comp (\( \pm \))** – 0.0
- **Exp Mode** – M:
  - SS – 500
  - \( f/ \text{stop} – f/8 \)
  - **Meter** – Matrix (\( \mathcal{M} \))
  - **Dioptr** – Adjust
  - **Frame Rate** – S
  - **BKT disabled – 0 F**
- **Rear LCD:**
  - \( \sqrt{\text{ISO – 100}} \)
  - \( \sqrt{\text{QUAL – RAW}} \)
  - \( \sqrt{\text{WB – 0,A}} \)
  - **AF Area Mode** – [ ]
  - **Focus Area** – Center
  - **Focus Selector Lock** – L

- **SB-800 Flash Settings:**
  - **Diffuser Dome installed**
  - ON/OFF pb – ON
  - **MODE – \( \text{X} \)**
  - **Exp Comp – 0 EV**
  - **Tilt – 45° (Direct)**

#### Technique

1. Fill FOV w/sunlit subject
2. Activate D2Xs Camrr
3. Auto Exp Lock – Depress, hold
   - Expect values such as 250, f/11
4. Focus, Frame, Fire

### D2Xs Exposure Match

#### "Hero Shot"

- **Lens** – 12-24mm @ 18mm
- **Aperture** – Min, locked
- **Body Focus Mode** – S
  - **Batt installed**
  - **Flash Card installed**
  - **Pwr – ON**
  - **Top LCD:**
    - \( \sqrt{\text{Batt}} \)
    - \( \sqrt{\text{Frames remaining sufficient}} \)
  - **Exp Comp (\( \pm \))** – 0.0
  - **Exp Mode** – A:
    - **f/stop** – f/8
  - **Meter** – Matrix (\( \mathcal{M} \))
  - **Dioptr** – Adjust
  - **Frame Rate** – Selftimer
  - **BKT disabled – 0 F**
  - **Rear LCD:**
    - \( \sqrt{\text{ISO – 100}} \)
    - \( \sqrt{\text{QUAL – RAW}} \)
    - \( \sqrt{\text{WB – 0,A}} \)
    - **AF Area Mode** – [ ]
    - **Focus Area** – Center
    - **Focus Selector Lock** – L

- **SB-800 Flash Settings:**
  - **Diffuser Dome installed**
  - ON/OFF pb – ON
  - **MODE – \( \text{X} \)**
  - **Exp Comp – 0 EV**
  - **Tilt – 45° (Direct)**

#### Accessory Equipment:

- **Shutter Release Cable** – Install
- **Multiuse Brkt** – Install
- **Multiuse Brkt Clamp** – Install as reqd

#### Technique

1. Focus on crewmember
2. **Body Focus Mode** – M
3. Frame, Fire

### D2Xs Crew Photo

- **Lens** – 17-35mm @ 17mm
- **Aperture** – Min, locked
- **Body Focus Mode** – S
  - **Batt installed**
  - **Flash Card installed**
  - **Pwr – ON**
  - **Top LCD:**
    - \( \sqrt{\text{Batt}} \)
    - \( \sqrt{\text{Frames remaining sufficient}} \)
  - **Exp Comp (\( \pm \))** – 0.0
  - **Exp Mode** – A:
    - **f/stop** – f/8
  - **Meter** – Matrix (\( \mathcal{M} \))
  - **Dioptr** – Adjust
  - **Frame Rate** – Selftimer
  - **BKT disabled – 0 F**
  - **Rear LCD:**
    - \( \sqrt{\text{ISO – 100}} \)
    - \( \sqrt{\text{QUAL – RAW}} \)
    - \( \sqrt{\text{WB – 0,A}} \)
    - **AF Area Mode** – [ ]
    - **Focus Area** – Center
    - **Focus Selector Lock** – L

- **SB-800 Flash Settings:**
  - **Diffuser Dome installed**
  - ON/OFF pb – ON
  - **MODE – \( \text{X} \)**
  - **Exp Comp – 0 EV**
  - **Tilt – 45° (Direct)**

#### Technique

1. Focus on crewmember
2. **Body Focus Mode** – M
3. Frame, Fire

(reduced copy)
DIGITAL PLAYBACK

HD DIGITAL VIA CC

NOTE
Digital Playback from CC only possible for CC Video recordings

ACTIVATION

CC
Setup per diagram (back of cue card)
For cable strain relief, attach MPC-to-G1 Cable Velcro strap to CC strap

AVIU
SYNC/VIDEO – VIDEO
HI:75 – 75
PWR SELECT – LO

019
TV PWR – ON

CC
PWR dial – VCR/PLAY

If Dnlk
Notify MCC, configuring for HD TV dnlk

L10 (MUX)
MUX/VTR/CC PWR – on (LED on)
MUX BYPASS – ACT
CH 0,1 RATE SEL – 1
2 RATE SEL – 8
(VTR) ON/STANDBY pb – push (LED red)
(VIP) PWR – off (LED off)

O19
DC UTIL PWR MNA – ON

MPC
PWR SPly
DC PWR SPly PWR SW1 – ON

L10 (MUX)
VTR 2 F/O OK LED on

OPERATIONS

PLBK or DNLK VIDEO

CC
Install tape, if reqd
VTR pb – REW(FF),PLAY,PAUSE to cue tape

If Dnlk
MPC
HDV, TAXI LEDs – on
L10 (MUX)
VTR 2 DATA LED – on

CC
PLBK pb – push (green • displayed)
If PLBK(DNLK) complete:
STOP pb – push
if CC ops complete, go to DEACTIVATION

DEACTIVATION

CC
Remove, mark, stow tape as reqd
PWR dial – OFF

O19
TV PWR – OFF, as reqd

If Dnlk
MPC
PWR – OFF
MPC PWR SPly
DC PWR SPly PWR SW1 – OFF
O19
DC UTIL PWR MNA – OFF
L10 (MUX)
VTR/CC PWR – on (LED on)
MUX/VTR/CC PWR – off (LED off)
(VIP) PWR – on (LED on, DATA FLOW LED flashes twice)
(VTR) ON/STANDBY pb – push (LED green)

Notify MCC, returned to SD TV dnlk
Go to DEACTIVATION (Cue Card, TV) as reqd

DIGITAL VIA VTR

ACTIVATION

L10 (MUX)
Setup per diagram (back of cue card)

VTR/CC PWR – on (LED on)

ON/STANDBY LED – green

OPERATIONS

PLBK or DNLK VIDEO

L10 (VTR)
Install tape if reqd

DISPLAY SELECT – DATA

If Index Search reqd:

Remote

ID – VTR
SEARCH MODE pb – push (INDEX SEARCH mode displayed)
| pb – push to move highlight bar to desired GMT start
When VTR auto-cue complete, green • displayed:
PAUSE pb – push
If playback time not displayed on DSR-25 LCD
cycle “DATA CODE” repeatedly until time displayed

L10 (VTR)
REW(FF),PLAY,PAUSE pb – push as reqd to cue tape

If Dnlk

L10 (MUX)
MUX/VTR/CC PWR – on (LED on)

MUX BYPASS – ACT

CH 3 DATA LED – on

L10 (VTR)
PLAY pb – push (green • displayed)

If PLBK(DNLK) complete:
STOP pb – push
If VTR ops complete, go to DEACTIVATION

DEACTIVATION

L10 (VTR)
Remove, mark, stow tape as reqd
Go to DEACTIVATION (Cue Card, TV) as reqd

P/TV-13a/134/O/A
(reduced copy)
## G1 CC SETUP CUE CARD

**ASSUMPTION:** G1 is powered by either direct or battery power

<table>
<thead>
<tr>
<th>WELL LIT SCENE (“green”)</th>
<th>SUN-LIT SCENE (M)</th>
<th>DIM-LIT SCENE (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install Wide Conversion Lens as reqd</td>
<td>Install Wide Conversion Lens as reqd</td>
<td>Install Wide Conversion Lens as reqd</td>
</tr>
<tr>
<td>ND FILTER – OFF (per CC prompt)</td>
<td>ND FILTER – OFF</td>
<td>ND FILTER – OFF</td>
</tr>
<tr>
<td>✓ OUTPUT – CAM</td>
<td>✓ OUTPUT – CAM</td>
<td>✓ OUTPUT – CAM</td>
</tr>
<tr>
<td>✓ A/V1/V2 – V2</td>
<td>✓ A/V1/V2 – V2</td>
<td>✓ A/V1/V2 – V2</td>
</tr>
<tr>
<td>✓ Arctic scene</td>
<td>✓ Arctic scene</td>
<td>✓ Arctic scene</td>
</tr>
<tr>
<td>✓ STANDBY/LOCK – STANDBY</td>
<td>✓ STANDBY/LOCK – STANDBY</td>
<td>✓ STANDBY/LOCK – STANDBY</td>
</tr>
<tr>
<td>PWR dial – “green”</td>
<td>PWR dial – “green”</td>
<td>PWR dial – “green”</td>
</tr>
<tr>
<td>✓ Tape installed</td>
<td>✓ Tape installed</td>
<td>✓ Tape installed</td>
</tr>
<tr>
<td>Open LCD</td>
<td>Open LCD</td>
<td>Open LCD</td>
</tr>
<tr>
<td>✓ Tape installed</td>
<td>✓ Tape installed</td>
<td>✓ Tape installed</td>
</tr>
<tr>
<td>✓ GAIN – 0dB</td>
<td>✓ GAIN – 0dB</td>
<td>✓ GAIN – L (M,H) per Scene</td>
</tr>
<tr>
<td>SS – 1/500 (Small Wheel)</td>
<td>SS – 1/500 (Small Wheel)</td>
<td>SS – 1/500 (Small Wheel)</td>
</tr>
<tr>
<td>f/stop – F8.0 (Aft Ring)</td>
<td>f/stop – F8.0 (Aft Ring)</td>
<td>f/stop – F8.0 (Aft Ring)</td>
</tr>
<tr>
<td>Adjust focus if AF/M – M (Fwd Ring)</td>
<td>Adjust focus if AF/M – M (Fwd Ring)</td>
<td>Adjust focus if AF/M – M (Fwd Ring)</td>
</tr>
</tbody>
</table>
NOTE
Replace this page with four (4) sheets of blue
K-10 stock in crew copies only
NOTE
Replace this page with four (4) sheets of blue
K-10 stock in crew copies only
PHOTO/TV CHECKLIST

STS 134