Photo/TV Checklist

STS-135 Flight Supplement

Mission Operations Directorate
Operations Division

Final
April 19, 2011

Verify this is the correct version for the pending operation (training, simulation or flight). Electronic copies of FDF books are available. URL: http://mod.jsc.nasa.gov/do3/FDF/index.html
PCN-1 (June 17, 2011) Sheet 1 of 1

List of Implemented Change Requests (482s):

P/TV_FS-0147
P/TV_FS-0148

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 1-51 thru FS 1-54, FS 1-69 and FS 1-70,
   FS 1-73 thru FS 1-76

3. Replace FS CC 3-3 and FS CC 3-4, FS CC 3-9 and FS CC 3-10, FS CC 3-15 thru
   FS CC 3-18

Prepared by: [Signature]  
Mission Lead

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

Accepted by: [Signature]  
FDF Manager

Encl: 24 pages

*File this PCN immediately behind the front cover as a permanent record*
MISSION OPERATIONS DIRECTORATE

PHOTO/TV CHECKLIST
STS-135 FLIGHT SUPPLEMENT

FINAL
April 19, 2011

PREPARED BY:

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Mission Lead

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ACCEPTED BY:

Michael T. Hurt
FDF Manager

This document is under the configuration control of the Crew Procedures Control Board (CPCB). All proposed changes must be submitted via Change Request Workflow (CRW) to DO3/FDF Manager.

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Incorporates the following:

| 482#:   | P/TV_FS-0141  |
|        | P/TV_FS-0142B |
|        | P/TV_FS-0143  |
|        | P/TV_FS-0144  |
|        | P/TV_FS-0146  |

**AREAS OF TECHNICAL RESPONSIBILITY**

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† – May be replaced with CD in flight book only
⊗ – Flight copies of this page contain color
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P/TV01 VIDEO SETUP

H/W SUMMARY

STOWAGE LOC
MFT1/M/Slow-r-Go
L10:A1
M16 FDF
Vol 3B
MA16N
A17/CC Bag

WLES A31p
A31p Video Adapter

VIDEO SETUP

P/TV01 P/TV/135/FIN

P/TV01 VIDEO SETUP

H/W SUMMARY

STOWAGE LOC
MFT1/M/Slow-r-Go
L10:A1
M16 FDF
Vol 3B
MA16N
A17/CC Bag

WLES A31p
A31p Video Adapter

VIDEO SETUP

P/TV01 P/TV/135/FIN
P/TV01 VIDEO SETUP (Continued)

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

O19
TV PWR – OFF

L10:A1
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 FD AVIU for use on Flight Deck
- √W4 ASC MINI-CAM Video Cable disconnected from VTR-IN
- √BNC to BNC Cable (Video Jumper) connected to VTR-IN

2b. Config Panels

L10 (MUX)
√VTR/CC PWR – on (LED on)
If dnlk:
- 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
TIMER – OFF
√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
P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

3. Perform MON 1,2 V10 Setup

MF71M 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
- MON 1 Repeater to MON 1 AVIU J5
- 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 LCS Video Cable to MD AVIU J1
\HI-Z/75 – 75

Fit Deck
Connect other end of LCS Video Cable (A31p Video Adapter) to A31p Video Out port on WLES A31p
Connect OPP-LCC Cable to A31p RJ45 Ethernet port via PGSC Usage Chart
7. **Perform SSV Setup**

**MA16N**

- 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)**

- cb PDIP 2 PWR 1 – cl

**L11 (PDIP 2)**

- DC PWR 1 – ON

**Config SSV settings**

**SSV**

- IN SEL – NTSC
- Mode – 3
- OUTRATE – 4
- SSV Pwr – on
- Pwr LED illum
- ENC DATA LED flickering
- FRM DATA LED flickering
- FILL FRM pulsing

Inform MCC when SSV SETUP complete
P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

8. Perform WVS Setup

   a. Activate WVS System

      A7 WIRELESS VID HTR – ON
          PWR – ON

      MO58F TV PWR – OFF

   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/WIB 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
      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 WLES A31p

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

      MO58F TV PWR – ON
      V10 (two) PWR – ON

      V10 (WVS 1,2) WVS Test Pattern displayed (color bars w/“No WVS Video”)
                   PWR – OFF
8. **Perform WVS Setup (Continued)**

c. **WVS PGSC Prep**

<table>
<thead>
<tr>
<th>PGSC Pwrup and Application Opening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pwr – ON</td>
</tr>
<tr>
<td>Sel Shuttle Apps icon</td>
</tr>
<tr>
<td>Sel WVS icon</td>
</tr>
</tbody>
</table>

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)

8. Perform WVS Setup (Concluded)

d. PWRDN

Sel ‘File’ → ‘Exit’
A7 WIRELESS VID PWR – OFF
HTR – OFF

MF71O 9. Unstow, set up BPSMU w/BPSMU to CCU Adapter Cable at CDR CCU
Connect BPSMU Batt

A17/CC BAG 10. Unstow, connect CC Batt Charger to MD Batt Chgr AVIU J5 port
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)
P/TV02   DOCK (Continued)

SETUP (Continued)

3. Perform D2Xs,D3s MANUAL for docking/external imagery

Remove ovhd window shields

D2X
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

D3
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 – 1000
    f/stop – 8
  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
P/TV02  DOCK (Continued)

SETUP (Continued)

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:
- CC
  - 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/TV02   DOCK (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 ∞

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

A31p Double click ‘Shuttle Apps’ > ‘NASA Video Overlay’
\NASA Video Overlay’ window displayed
Sel ‘Full Screen’
Press ‘ESC’ or ‘W’ key to minimize display as reqd
### P/TV02  DOCK (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>PAO Coverage</td>
<td>D3s (Interior) 14-24mm</td>
<td>As desired</td>
<td>G1 Tape installed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>If exterior: Flash ON/OFF – OFF</td>
<td></td>
<td>L1VE (if avail)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tape installed</td>
<td></td>
<td>Plan for end of day crew choice video, DCS</td>
</tr>
<tr>
<td>2.</td>
<td>LON-44</td>
<td>Rendezvous</td>
<td>D2Xs/D3s (Exterior) 400mm(80-200mm)</td>
<td>A(B,C,D), ELB</td>
<td>G1 As desired</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Flash ON/OFF – OFF</td>
<td></td>
<td>Map ISS surfaces w/30% overlap</td>
</tr>
<tr>
<td>3.</td>
<td>LON-3</td>
<td>Approach,Dock</td>
<td>D2Xs/D3s (Exterior) 400mm(80-200mm)</td>
<td>C/L Per RNDZ</td>
<td>G1 As desired</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Flash ON/OFF – OFF</td>
<td></td>
<td>Rcd C/L Camr video thru hard dock on DTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Continually * focus sharpness</td>
</tr>
</tbody>
</table>
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

D2Xs/D3s Camr w/400mm Lens

D2Xs/D3s Camr w/80-200mm Lens

D3s Camr w/14-24mm Lens

Range Ruler

Docking View

MON 1

MON 2, DTV (RCD)
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 (;charset) – 0.0
- Exp Mode – P
- Meter – Matrix (_CHARSET)
- 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 –  
- √Exp Comp – 0 EV
- Tilt – 45° (Direct)
3. Perform D2Xs/D3s MANUAL for undocking/external imagery
   Remove ovhd window shields
   D2X
   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

   D3
   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 – 1000
     f/stop – 8
   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
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
- V10 PWR – ON (MON 1,2)
- Tape installed
  - DISPLAY pb – Toggle to display tape counter

For in-cabin views:

**CC**
- Wide Conversion lens installed
- ND FILTER – OFF
- OUTPUT – CAM
- 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
- Tape installed
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

L10 (MUX) VTR/CC PWR – on (LED on)
- If dlnk, MUX/VTR/CC PWR – on (LED on)
(VIP) PWR – on (LED on)
(VTR) ON/STANDBY LED – green
- Tape installed

A31p
- Double click ‘Shuttle Apps’ > ‘NASA Video Overlay’
- NASA Video Overlay’ window displayed
- Sel ‘Full Screen’
- Press ‘ESC’ or ‘W’ key to minimize display as reqd
**OPS**

<table>
<thead>
<tr>
<th>√</th>
<th>Item # Track #</th>
<th>Rqmts</th>
<th>Still Imagery</th>
<th>Video</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PLB</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>PAO Coverage</td>
<td>D3s (Interior) 14-24mm</td>
<td>As desired</td>
<td>G1 Tape installed</td>
<td>LIVE (if avail)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If exterior: Flash ON/OFF – OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>As desired</td>
<td>G1 Tape installed</td>
<td>LIVE (if avail)</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Undock and Flyaround</td>
<td>D2Xs/D3s (Exterior) 80-200 mm(400mm) Flash ON/OFF – OFF</td>
<td>A(C,D) Per RNDZ C/L Docking tgt and PAO view</td>
<td>G1 Tape installed</td>
<td>LIVE (if avail)</td>
</tr>
<tr>
<td></td>
<td>LON-2 LON-3</td>
<td>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</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
P/TV03 UNDOCK (Continued)

OPS (Continued)

**UNDOCKING/FLYAROUND RQMTS**

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

---

**MON 2**

**D2Xs/D3s Camr**
- w/80-200mm Lens

**D2Xs/D3s Camr**
- w/400mm Lens

**D3s Camr**
- w/14-24mm Lens

**DTV**

**MON 1**
P/TV03  UNDOCK (Concluded)

OPS (Concluded)

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

DEACTIVATION

1. D2xs,D3s
   \(\sqrt{\text{Exp Mode} – P}\)
   \(\sqrt{\text{Pwr} – OFF}\)
   \(\sqrt{\text{Flash ON/OFF} – ON}\)

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

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

3. G1
   \(\sqrt{\text{PWR dial} – “green”}\)
   Install Wide Conversion Lens
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
   - Green Jumper – ISS
   - VPU PWR – ON

R12 (VPU)
   - VID OUT DNLK pb – push
   - IN PL2(VPU) pb – push

A7
   - 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

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”

Worklights
   - Install fresh Batts
   - Mount light on CC
   - PWR – as reqd
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 ( ) – 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 – TTL BL
- √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 – TTL BL
- √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>Hatch Opening, Ingress</td>
<td>D2Xs(D3s)</td>
<td>G1</td>
<td>LIVE (if avail)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hatch Close, Egress</td>
<td>12-24mm(14-24mm)</td>
<td></td>
<td></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
This Page Intentionally Blank
H/W SUMMARY

- 35 ft BPSMU Audio #1 Cable
- Shuttle Half
- Station Half
- BPSMU 1
- BPSMU 2
- Video 1
- Video 2
- Drag-Through QD Box
- 22 ft BPSMU Audio #1 Cable
- 44 ft BPSMU Audio #1 Cable
- 44 ft BPSMU Audio #2 Cable
- 44 ft BPSMU Audio #2 Cable
- 35 ft BPSMU Audio #1 Cable
- 42 ft BPSMU Audio #1 Cable
- 42 ft BPSMU Audio #2 Cable
- 50 ft Video Cable
- 50 ft Video Cable
- Contingency BPSMU
- CCU Adapter

Airlock

Node 1

Node 2

Node 3

Lab

Cupola

MPLM

PMA2

CBM

OSD

To Shuttle

To FGS, Service Module
ISS INTERNAL OPS (Continued)

SCENE SYNOPSIS

Scene contains procedures for setup, documenting ISS internal ops (surveys, PAO events, logistics, transfers, closeouts) w/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
(Stow-n-Go)

\RWS 1 Drag-Thru Cable connected to MON 1 AVIU J6

L10:A1
\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

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
P/TV05  ISS INTERNAL OPS (Continued)

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
  - √Batt
  - Frames remaining sufficient
- Exp Comp (posure Compensation) – 0.0
- Exp Mode – P
- Meter – Matrix (Matrix Metering)
- 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
  - √Batt
  - Frames remaining sufficient
- Exp Comp (posure Compensation) – 0.0
- Exp Mode – P
- Meter – Matrix (Matrix Metering)
- 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/TV05  ISS INTERNAL OPS (Continued)

### OPS

<table>
<thead>
<tr>
<th>√</th>
<th>Item # Track #</th>
<th>Rqmts</th>
<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>D2Xs(D3s)</td>
<td>ISS G1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12-24mm(14-24mm)</td>
<td>LIVE (if avail)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>For Crew Photo: Perform D2Xs CREW PHOTO (Cue Card, D2Xs SETUP)</td>
<td></td>
<td>Plan for end of day crew choice video</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. **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
P/TV06  ROBOTICS OPERATIONS (Continued)

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 if necessary)
  √Drag-Thru Cables configured as reqd
V10
  (MON 1,2)
    √Tape installed
    DISPLAY pb – Toggle to display tape counter
CC
  √Wide Conversion lens installed
  √ND FILTER – OFF
  √OUTPUT – CAM
  √MON 1 – VTR – ON
  √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
3. If MPLM Reberth:
R12 (VPU)
  √VPU PWR – ON
    Green Jumper – KEEL 1
SSP2
  √cb SW PWR 3 – cl
    MPLM KEEL CAM PWR – ON
## P/TV06 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>
</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>PAO Coverage</td>
<td>D2Xs(D3s) 12-24mm(14-24mm) If exterior: Flash ON/OFF – OFF</td>
<td>As desired</td>
<td>G1 Tape installed</td>
</tr>
<tr>
<td>2.</td>
<td>LON-39</td>
<td>MPLM Install</td>
<td>As desired</td>
<td>As desired</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. TV System
   Go to DEACTIVATION (Cue Card, TV) as reqd
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
√TV PWR – ON

R12 (VPU)
√VPU PWR – ON (LED on)

V10
√PWR – ON
(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
SETUP (Concluded)

4. **Config WVS and PGSC**
   
a. **Activate WVS System**
   
<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO58F</td>
<td>TV PWR – ON</td>
</tr>
<tr>
<td>R12 (WIB)</td>
<td>Connect WVS1 Balanced Video Cable to WIB CCTV PL3</td>
</tr>
<tr>
<td>A7</td>
<td>WIRELESS VID HTR – ON</td>
</tr>
<tr>
<td></td>
<td>PWR – ON</td>
</tr>
<tr>
<td>V10 (WVS 1,2)</td>
<td>PWR – ON</td>
</tr>
</tbody>
</table>

b. **WVS PGSC Prep**

   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
   - Pwr – ON
   - Sel Shuttle Apps icon
   - Sel WVS icon

   RF Camera page will appear

   **NOTE**
   During EVA prep, EMU TV assy will be pwrd

   **Application Setup**
   Select Page – XCVR
   Transceiver 1(2) CMD Power – ON (green CMD PWR:LVL- “ON:Min”)
   RF Camera 1 – One EVA crewmember (green “ON”)
   RF Camera 2 – Other EVA crewmember (green “ON”)

   If alert msg, perform ALERT MSG TROUBLESHOOTING (Cue Card, WVS)
   Select Page – RF CAMERA
   Near middle of RF Camera page, sel ‘Advanced Controls’

   When Post-A/L Depress:
   - For center lens on each RF Camr Assy:
     Lens Iris Cntl – op(cl) until good video on V10(MON)
## P/TV07  EVA (Concluded)

### OPS

<table>
<thead>
<tr>
<th>√</th>
<th>Item #</th>
<th>Track #</th>
<th>Rqmts</th>
<th>Still Imagery</th>
<th>Video</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>PAO Coverage</td>
<td></td>
<td>IVA D2Xs(D3s) 12-24mm(14-24mm)</td>
<td>As desired WVS</td>
<td>G1 As desired</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. **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 SYNOPSIS

Scene contains procedures for documenting STS, ISS external structures with 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:

<table>
<thead>
<tr>
<th>SB-800 Flash Settings:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON/OFF pb – OFF</td>
</tr>
</tbody>
</table>

   | 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

~
P/TV08  EXTERNAL SURVEY (Continued)

SETUP (Continued)

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 ( ) – 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
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 (②)
   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)
## Item # Track #

### Item 1

- **OMS Pod Survey**
  - No shadows on OMS pod tiles
  - Remove window shields
  - 50 percent overlap mapping of both OMS pods and vertical stabilizer w/emphasis on Black Tile areas
  - Repeat thru other window

- **Still Imagery**
  - D3s 80-200mm @ 200mm

- **Video**
  - PLB
  - CC
  - Dnlk

**Notes**
- Download images to MCC once complete

### Item 2

- **ISS Still Survey**
  - Surfaces
  - Solar Panels
  - Handrails
  - MISSE-8 on ELC2 on S3
  - AMS on S3

- **Still Imagery**
  - D2Xs 28-70mm @ 50mm (80-200mm @ 200mm)

**Notes**
- Map ISS surfaces w/30% overlap from all Flt Deck windows
- Document during orbital day; shoot MISSE-8, AMS from W6

### Item 3

- **SEITE (SIMPLEX)**
  - Initiate photo sequence 1 sec prior to burn
  - Start DTV VTR 5 min prior to burn

- **Still Imagery**
  - D3s 28mm

- **Video**
  - A(D)

**Notes**
- Live (if avail)
- Focus set on OMS pod
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
This Page Intentionally Blank
P/TV09 MIDDECK PAYLOADS

H/W SUMMARY

- Audio Muting Plug (optional)
- Wide Conversion Lens
- Multiuse Arm
- Bracket optional
P/TV09  MIDDECK PAYLOADS (Continued)

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, 1-66, as reqd

   √ Batt installed
   CC
   √ Install Wide Conversion lens
   √ ND FILTER – OFF
   √ OUTPUT – CAM
   √ ( ISO 320 – 3200
   √ 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
P/TV09  MIDDECK PAYLOADS (Continued)

SETUP (Concluded)

2. Perform D2Xs(D3s) PROGRAM w/FLASH

**D2s**
- Lens – 12-24mm
- Aperture – Min, locked
- Body Focus Mode – S
- \( \sqrt{ } \) Batt installed
- \( \sqrt{ } \) Flash Card installed
- Pwr – ON
- Top LCD
  - \( \sqrt{ } \) Batt
  - \( \sqrt{ } \) Frames remaining sufficient

- Exp Comp ( \( \mathbb{Z} \) ) – 0.0
- Exp Mode – P
- Meter – Matrix ( \( \mathbb{X} \) )
- Diopter – Adjust
- Frame Rate – S
- \( \sqrt{ } \) BKT disabled – 0 F
- Rear LCD
  - \( \sqrt{ } \) ISO – 100
  - \( \sqrt{ } \) QUAL – RAW
  - \( \sqrt{ } \) WB – 0,A
- AF Area Mode – [ ]
- \( \sqrt{ } \) Focus Area – Center
- \( \sqrt{ } \) Focus Selector Lock – L

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

**D3s**
- Lens – 14-24mm
- Aperture – N/A
- Body Focus Mode – S
- \( \sqrt{ } \) Batt installed
- \( \sqrt{ } \) Flash Card installed
- Pwr – ON
- Top LCD
  - \( \sqrt{ } \) Batt
  - \( \sqrt{ } \) Frames remaining sufficient

- Exp Comp ( \( \mathbb{Z} \) ) – 0.0
- Exp Mode – P
- Meter – Matrix ( \( \mathbb{X} \) )
- Diopter – Adjust
- Frame Rate – S
- \( \sqrt{ } \) BKT disabled – 0 F
- Rear LCD
  - \( \sqrt{ } \) ISO – 200
  - \( \sqrt{ } \) QUAL – RAW
  - \( \sqrt{ } \) WB – 0,A
- AF Area Mode – [ ]
- \( \sqrt{ } \) Focus Area – Center
- \( \sqrt{ } \) Focus Selector Lock – L

- SB-800 Flash Settings
  - \( \sqrt{ } \) Diffuser Dome installed
  - ON/OFF pb – ON
  - \( \sqrt{ } \) MODE – \( \mathbb{B} \) (TTL) \( \mathbb{B} \)
  - \( \sqrt{ } \) Exp Comp – 0 EV
  - Tilt – 45° (Direct)
## 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>GLACIER Video, Still Photography</td>
<td>D2Xs(D3s) 12-24mm</td>
<td>G1</td>
<td>LIVE desired within 12 hrs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Wide-angle video, photos showing crew interaction</td>
<td>(14-24mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medium-angle video, photos showing stowage location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Closeup video, photos of front panel after activation for gnd verification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>BRIC-SyNRGE</td>
<td>D2Xs(D3s) 12-24mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• BR1C activation</td>
<td>(14-24mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>Forward Osmosis Bag/FOB</td>
<td>D2Xs(D3s) 12-24mm</td>
<td>G1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hardware setup/initiation and sampling</td>
<td>(14-24mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>MOUSE Immunology (AEM)</td>
<td>D2Xs(D3s) 12-24mm</td>
<td>G1</td>
<td>Video is restricted. Do not DNLK (PLAYBACK)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Turn AEM enclosure lts on</td>
<td>(14-24mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Record 10 min video of 1st, 2nd, and 3rd AEM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Take general photos of experiment, ops</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Turn AEM enclosure lts off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>Cube Lab Video</td>
<td></td>
<td>G1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Videotape crew performing Cube Lab Module sortie ops</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
P/TV09  MIDDECK PAYLOADS (Concluded)

OPS (Concluded)

<table>
<thead>
<tr>
<th>√</th>
<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>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.</td>
<td></td>
<td>STL Still Photography D2Xs</td>
<td>D2Xs(D3s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Photograph STL including LCD display</td>
<td>12-24mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(14-24mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

DEACTIVATION

Worklight

1. PWR – OFF

CC

Remove, mark tape
PWR dial – OFF
Digital CC Vid/Pwr Cable (15 ft)

AVIU-CC Video Cable (Not Used)

Video MON 1 V10 J1 J5 LO J3 J7 VIDEO J4 J6

R L V

MON 1 AVIU Cable

Digital CC Vid/Pwr Cable (10 ft)

MON 1 TV Pwr Cable (10 ft)

DTV MON 2 Cable

DTV Audio Cable

FS 1-72

P/TV10 PSSC DEPLOY

H/W SUMMARY

MON 1 AVIU Cable

DTV MON 2 Cable

DTV Audio Cable
Scene contains procedures for documenting PSSC DEPLOY w/video, still photos

SETUP

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

2. Perform Hardware Verification for V10s, DTV

<table>
<thead>
<tr>
<th>O19, MO58F</th>
<th>TV PWR – ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10 (MON 1,2)</td>
<td>PWR – ON</td>
</tr>
<tr>
<td>Tape installed</td>
<td></td>
</tr>
<tr>
<td>DISPLAY pb – Toggle to display tape counter</td>
<td></td>
</tr>
</tbody>
</table>

| MON 2 | SOURCE – C |
| L10 (MUX) | VTR/CC PWR – on (LED on) |
| (VIP) | If dnlk, MUX/VTR/CC PWR – on (LED on) |
| (VTR) | PWR – on (LED on) |
| Tape installed |
| ON/STANDBY LED – green |
3. **D3s Setup in W9**

   - Lens – 28-70mm @28mm
   - Aperture – Min, locked
   - Body 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 – C
     - √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 – OFF
   - Remote Release – install
   - Multiuse Base Plate – install in W9 sill
   - Multiuse Brkt
   - Frame on PSSC
   - √Focus on PSSC launcher
## P/TV10  PSSC DEPLOY (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>PSSC DEPLOY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Install Fresh Tape in V10 Recorder, DTV VTR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>PLB CAMR SETUP &amp; ROUTING</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• D3s in W9 Setup</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Still Imagery**

- C
  - View on DTV VTR
  - CAMR CMD PAN/TILT – HI RATE
  - Focus on PSSC launcher

- A7
  - MAN GAIN pb – push
  - O (+12,+24) dB pb – push
  - CAMR CMD IRIS – OP,CL (as reqd)

**DCS**

- VID OUT pb – DTV
- IN pb – C
- View on DTV VTR
- CAMR CMD PAN/TILT – HI RATE
- Focus on PSSC launcher

**PLB**

- VID OUT pb – MON 1
- IN pb – MUX 1
- OUT pb – MUX 1L
- IN pb – D
- OUT pb – MUX 1R
- IN pb – RMS ELB
- View on MON 1 V10
- Focus set on PSSC launcher

**Plb**

- VID OUT pb – MON 1 L
- IN pb – MUX 1
- OUT pb – MUX 1L
- IN pb – D
- OUT pb – MUX 1R
- IN pb – RMS ELB
- View on MON 1 V10
- Focus set on PSSC launcher

- Plb
  - VID OUT pb – MON 1
  - IN pb – MUX 1
  - OUT pb – MUX 1L
  - IN pb – D
  - OUT pb – MUX 1R
  - IN pb – RMS ELB
  - View on MON 1 V10
  - Focus set on PSSC launcher

**Rqmts**

- DCS
- PLB
- Dnlk

- DNLK (if comm avail)
- Start wide, then zoom in to track PSSC
- Track for 4 min or until out of view

**Notes**

- D3s
  - 28-70mm @ 28mm
  - Mounted in W9 sill
### P/TV10  PSSC DEPLOY (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>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>DCS</td>
<td>PLB</td>
<td>Dnlk</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>5 MIN PRIOR TO DEPLOY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Start V10 Recorder, DTV VTR</td>
<td></td>
<td></td>
<td>V10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>REC pb – press to begin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>recording</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√ LCD displays RED DOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>VTR</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>REC pb – press,hold</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PLAY pb – press simo</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(red dot displayed)</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>~1 SEC PRIOR TO DEPLOY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Start Camr, using remote cable</td>
<td>D3s 28-70mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>POST DEPLOY</td>
<td></td>
<td></td>
<td>Track PSSC</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Track PSSC with camera C</td>
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<td></td>
<td>for 4 min, or until it is out</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>of view</td>
</tr>
</tbody>
</table>

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

#### DEACTIVATION

1. D3s
   - Exp Mode – P
   - Frame Rate – S

2. TV System
   - Remove, mark tapes for PSSC
   - Go to DEACTIVATION (Cue Card, TV) as reqd
# REFERENCED PROCEDURES

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<td>FS 2-8</td>
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</tr>
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<td>FS 2-12</td>
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<td>FS 2-14</td>
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<td>FS 2-16</td>
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<tr>
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<td></td>
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<td></td>
</tr>
<tr>
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<td>FS 2-24</td>
</tr>
<tr>
<td>LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM DIGITAL CAMR (IDC)</td>
<td></td>
</tr>
<tr>
<td>LCS/IDC (HEATER ONLY MODE)/(OPERATIONAL PWR MODE) DATA AND PWR INTERFACES</td>
<td>FS 2-28</td>
</tr>
<tr>
<td>D3s</td>
<td></td>
</tr>
<tr>
<td>SPECIFICATIONS</td>
<td>FS 2-30</td>
</tr>
<tr>
<td>LENS DATA</td>
<td>FS 2-31</td>
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<td>NOMENCLATURE</td>
<td>FS 2-33</td>
</tr>
<tr>
<td>NOMINAL SETUP</td>
<td>FS 2-40</td>
</tr>
<tr>
<td>DATE/TIME SET</td>
<td>FS 2-44</td>
</tr>
<tr>
<td>DELETING SINGLE IMAGES</td>
<td>FS 2-44</td>
</tr>
<tr>
<td>ADDING .WAV FILES TO AN IMAGE</td>
<td>FS 2-44</td>
</tr>
<tr>
<td>DELETING .WAV FILE FROM AN IMAGE</td>
<td>FS 2-45</td>
</tr>
<tr>
<td>.WAV FILE PLAYBACK</td>
<td>FS 2-45</td>
</tr>
</tbody>
</table>
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CENTERLINE (C/L) CAMR

C/L CAMR INSTALL

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

R12 (VPU)  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  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  SSF/STS sw – STS

L12 (SSP 1)  cb SW PWR 1 – cl
   (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
2. Camr Position Verification

NOTE
This view in ODS looking up from Camr bottom

Camr Housing
Bracket Mounting Subplate
Existing Shims for Pitch/Yaw Alignment

FWD
PORT
AFT

Pri C/L TV Camr Harness Assy (8.5 ft)
V828–774057–004

Axial Adjustment Screw

Axial Adjustment Screw

STBD

 pedigomatica

TV
1 2

(ODS)
CENTRICLE (C/L) CAMR (Concluded)

C/L CAMR INSTALL (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)
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)

L10 (MUX) 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
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’

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
DATE/TIME SET

1. MENU pb – press
2. Navigate pad – sel Menu icon 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
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

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

FOR PAO EVENTS

FLTDECK(MIDDECK)
O19(MO58F)

Handheld Mic

CCU

FD TV Pwr Cable (10 ft)
(2293284–504, 528–20650–1)

Audio Muting Plug (Optional)

RCA-BNC Adapter

Video

FD CC

Multiuse Arm

Digital CC Vid/Pwr Cable (15 ft)
(SED39111490–303)

WIDE/SYNCH-PWR (J1)
PWR (J2)
PWR (J3)
PWR (J4)

Worklight

PWR – as reqd
CANON G1 (Continued)

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
    IN FLT DECK(MIDDECK) 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

CC
√Wide Conversion Lens installed
Install LAV MIC
√ND FILTER – OFF
√OUTPUT – CAM
√[□□□□□□□□□□□□] CAM
√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
PWR – ON (HDV, TAXI, 5V, 3V green LEDs on)
CANON G1 (Continued)

HD CC DNLK (Continued)
L10 (MUX) √CH 2 F/O OK, DATA LEDs on

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

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”
CANON G1 (Concluded)

**HD CC DNLK** (Concluded)

When dnlk complete:

- **CC**: PWR dial – OFF
- **Worklights**: PWR – OFF
- **O19**: TV PWR – OFF as reqd
- **MPC**: PWR – OFF
  - PWR: DC PWR SPLY PWR SW1 – OFF
  - SPLY: DC UTIL PWR MNA – OFF
- **L10 (MUX)**: 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 DTV dnlk

Go to DEACTIVATION (Cue Card, **TV**) as reqd
FCS CHECKOUT CAMR SETUP

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:
   - \( \checkmark \) ISO – 100
   - \( \checkmark \) QUAL – RAW
   - \( \checkmark \) WB – 0.A
   - AF Area Mode – [ ]
   - \( \checkmark \) Focus Area – Center
   - \( \checkmark \) Focus Selector Lock – L

2. **G1 CC**
   
   Remove Wide Conversion Lens
   - Install Batt
   - \( \checkmark \) ND FILTER – OFF
   - AF/M – M
   - AGC – OFF
   - GAIN – L
   - \( \checkmark \) OUTPUT – CAM
   - \( \checkmark \) AWB – ON
   - \( \checkmark \) Tape installed
   - Open LCD:
     - \( \checkmark \) 'green' •|| displayed
     - SS – 1/500
     - \( \checkmark \) GAIN – 0dB
     - \( \checkmark \) f/stop – F8.0
     - \( \checkmark \) 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 2-24
   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
      3.5mm Lens  Aperture – f/1.8
   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 two (2) 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)  Install fresh Batt
PWR – ON
\sqrt{HUD 12mm Lens/Mini-Cam producing good video}

Change config to in-cabin 3.5mm Lens/Mini-Cam
\sqrt{In-cabin 3.5mm Lens/Mini-Cam producing good video}

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 [T5] (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
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LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM DIGITAL CAMR (IDC)

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

- MCC
  - LCC Ground Analysis Station
  - Ku-Band, TDRS, & Ground Stations
  - PGSC Lan
  - OCA & KFX PGSCs

- PRI PL1
  - MNB, MNC, or FC3

- CAB PL1
  - MNA or MNB

- SSP 1
  - 28V DC (Source to be converted)
  - Conv
  - Output relay

- APCU 1
  - Converter A or B
  - 124V
  - Interconnect bus

- APCU 2
  - Converter A or B
  - 124V
  - Interconnect bus

- LCC (A31p)
  - OPP to LCC Cable (20 ft)

- LCH
  - Ethernet Switch
  - 28V Heater

- IDC
  - 28V Heater

- LCH
  - Power PC
  - Thermister

- OPP
  - 120 V DC Operate power

- IBA
  - SRMS

- SPDU

- 28V Heater

- 124V Converter A or B

- 28V DC (Source to be converted)

- Conv Output relay

- 28V Converter A or B

- 124V Interconnect bus

- OPP to LCC Cable (20 ft)

- Ethernet Switch

- 28V Heater

- 120 V DC Operate power

- IBA

- SRMS

- SPDU
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)
- **EXPOURE 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>100°-61°</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>14mm</td>
<td>f/2.8-f/22</td>
<td>104°</td>
<td>81°</td>
<td>114°</td>
<td>0.7</td>
<td>1.5</td>
</tr>
<tr>
<td>14-24mm G</td>
<td>f/2.8-f/22</td>
<td>104°-74°</td>
<td>81°-53°</td>
<td>114°-84°</td>
<td>0.7</td>
<td>2.2</td>
</tr>
<tr>
<td>16mm</td>
<td>f/2.8-f/22</td>
<td>97°</td>
<td>74°</td>
<td>107°</td>
<td>0.9</td>
<td>0.6</td>
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<tr>
<td>17-35mm</td>
<td>f/2.8-f/22</td>
<td>93°-54°</td>
<td>70°-38°</td>
<td>104°-63°</td>
<td>1.0</td>
<td>1.6</td>
</tr>
<tr>
<td>24-70mm</td>
<td>f/2.8-f/22</td>
<td>74°-29°</td>
<td>53°-19°</td>
<td>84°-34°</td>
<td>1.2</td>
<td>2.0</td>
</tr>
<tr>
<td>17-55mm</td>
<td>f/2.8-f/22</td>
<td>70°-24°</td>
<td>50°-16°</td>
<td>80°-29°</td>
<td>1.3</td>
<td>1.7</td>
</tr>
<tr>
<td>20-35mm</td>
<td>f/2.8-f/22</td>
<td>61°-37°</td>
<td>43°-25°</td>
<td>71°-44°</td>
<td>1.7</td>
<td>1.3</td>
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<tr>
<td>24-85mm</td>
<td>f/2.8(4)-f/22</td>
<td>53°-16°</td>
<td>36°-11°</td>
<td>61°-19°</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>28mm</td>
<td>f/2.8-f/22</td>
<td>46°</td>
<td>31°</td>
<td>54°</td>
<td>1.2</td>
<td>0.5</td>
</tr>
<tr>
<td>28mm</td>
<td>f/1.4-f/16</td>
<td>46°</td>
<td>31°</td>
<td>54°</td>
<td>1.1</td>
<td>1.2</td>
</tr>
<tr>
<td>28-70mm</td>
<td>f/2.8-f/22</td>
<td>46°-19°</td>
<td>31°-13°</td>
<td>54°-23°</td>
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<td>1.5</td>
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<tr>
<td>35mm</td>
<td>f/2-f/22</td>
<td>54°</td>
<td>38°</td>
<td>63°</td>
<td>0.9</td>
<td>0.5</td>
</tr>
<tr>
<td>35-70mm</td>
<td>f/2.8-f/22</td>
<td>54°-29°</td>
<td>38°-19°</td>
<td>63°-34°</td>
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<td>1.5</td>
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<td>50mm</td>
<td>f/1.4-f/16</td>
<td>40°</td>
<td>27°</td>
<td>47°</td>
<td>1.5</td>
<td>0.5</td>
</tr>
<tr>
<td>60mm Micro</td>
<td>f/2.8-f/32</td>
<td>33°</td>
<td>23°</td>
<td>40°</td>
<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td>80-200mm</td>
<td>f/2.8-f/22</td>
<td>25°-10°</td>
<td>17°-7°</td>
<td>30°-12°</td>
<td>6</td>
<td>2.9</td>
</tr>
<tr>
<td>85mm</td>
<td>f/1.8-f/16</td>
<td>24°</td>
<td>16°</td>
<td>29°</td>
<td>3.0</td>
<td>1.2</td>
</tr>
</tbody>
</table>
## D3s (Continued)

### LENS DATA (Concluded)

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

NOMENCLATURE

CAMR – 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)
D3s (Continued)

NOMENCLATURE (Continued)

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)

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
NOMENCLATURE (Continued)

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
NOMENCLATURE (Continued)

D3s (Continued)

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 (Concluded)

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. Metering ( )
6. Autoexposure (AE) Lock
7. Exposure Mode ( )
8. Shutter Speed Lock Icon (L)
9. Shutter Speed
10. Aperture Lock Icon (L)
11. Aperture (f-number)
12. ISO Sensitivity Indicator ( )
13. ISO Sensitivity
14. Frame Count
   Number of exposures remaining
   Number of shots remaining before memory buffer fills
   Preset White Balance Recording Indicator
   Exposure Compensation Value
   PC Mode Indicator
15. "K" (Appears when memory remains for over 1000 exposures)
16. Flash-ready Indicator* (L)
17. FV Lock Indicator (L)
18. Flash Sync Indicator (X)
19. Aperture Stop Indicator (L)
20. Battery Indicator ( )
21. Exposure Indicator
22. Exposure Compensation Display
23. Tilt Indicator
24. Exposure Compensation Indicator ( )
25. Exposure and Flash Bracketing Indicator (BKT)

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

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 – M
SS – 1000
f/stop – f8
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

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** () – 0.0
- **Exp Mode** – M
  - **f/stop** – maximum (smallest number)
- **Meter** – Matrix ()
- **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

**Technique**
1. Dim cabin lights
2. Use dark clothing to shield window
3. Focus, Frame, Fire

### 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** () – 0.0
- **Exp Mode** – M
  - **f/stop** – maximum (smallest number)
- **Meter** – Matrix ()
- **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
  - Batt installed
  - Flash Card installed
  - Pwr – ON
  - Top LCD
    - Batt
    - Frames remaining sufficient
  - Exp Comp ( ) – 0.0
  - Exp Mode – M
    - SS – 2”
    - f/stop – maximum (smallest number)
  - Meter – Matrix ( )
  - Diopter – Adjust
  - Frame Rate – S
  - BKT disabled – 0 F
  - Rear LCD
    - ISO – 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 as reqd
- **Technique**
  1. Fire Camr repeatedly. Luck reqd

**IN-CABIN EXISTING LIGHT**

- **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 ( ) – 0.0
  - Exp Mode – A
    - SS – 2”
    - f/stop – f4
  - Meter – Matrix ( )
  - Diopter – Adjust
  - Frame Rate – S
  - BKT disabled – 0 F
  - Rear LCD
    - ISO – 3,200
    - 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
- **Technique**
  1. Light falling on front of subject
  2. SS fast enough for lens focal length, subject movement
D3s (Continued)

DATE/TIME SET

1. MENU pb – press
   Set TIME ZONE
2. Navigate pad – sel menu icon \ 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

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<td>G1 CC SETUP CUE CARD</td>
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</tbody>
</table>
**TOP**

**HOOK VELCRO**

**TV**

**ACTIVATION**

A3  MON 1(2) PWR – ON (LED ON)  
A7  TV/3NLX – ENL  

**OPERATION**

**Auto Ops (Auto Exposure)**

- MCC has commanded sync config  
  A7  TV CAMR PWR A/B/C/D/RMS – ON (LED ON)  
  VID OUT MON 1(2) pb – push  
  IN pb – as reqd  
  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  

**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:  
    (MUX)  MUX/TVRCC PWR – on (LED on)  
    MUX BYPASS – ACT  
    (VIP)  PWR – on (LED on, DATA FLOW LED flashes twice)  
    (VTR)  ON/STANDBY LED – green  
    L10  TV/3NLX – TV/VIDEO  
  - 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  

  - if DTV:  
    L10  MUX/TVRCC PWR – on (LED on)  
    MUX BYPASS – ACT  
    (VIP)  PWR – on (LED on, DATA FLOW LED flashes twice)  
    (VTR)  ON/STANDBY LED – green  
    L10  TV/3NLX – TV/VIDEO  

- if CTVC:  
  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-OFF), wait 10 sec, OFF (tb-OFF)  
  PWR CTNL – PNL  
  CONTR UNIT – OFF  
  CTNL – CMD  
  A3  MON 1,2 PWR – OFF  

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

- 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  
    TVIRIS OP,CL  
    Return to Auto Exposure  
    ALC pb – push  
    AVG pb – push  

**MUX Ops**

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

  - if analog, on MCC GO:  
    A7  VID OUT MON pb – as reqd  
    IN pb – as reqd  
    OUT MUX 1(2) pb – push  
    IN pb – As reqd  
    OUT MUX 1(2) R pb – push  
    IN pb – As reqd  

- For RSC ops:  
  Go to LDRI/ITVC Cue Card

**Keel Camr**

L13  sb=SW PWR 3 – cl  
(SSP2)  L10  ON/STANDBY pb – push  
(STR2)  MUX/TVRCC PWR – ON  

**P/TV-135/O/B**

(reduced copy)
Illuminator Ops

Illuminator ON

R14:D(E)

- 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/CAMR HTR – cl
  - op, cl

- A(B,C,D,ELB) Illuminator:
  - cb TV A(B,C,D,ELB) CAMR/PTU – cl
  - illum/CAMR HTR – cl
  - op, cl

- MPLM Keel Illuminator:
  - L12
  - cb SW PWR 3 – cl
  - MPLM Keel Cam Pwr – ON
  - HTR/ILLUM – OFF, ON for Hi
  - (repeat for MED, LOW, OFF)

Illuminator OFF

R14:D(E)

- Wrist Illuminator:
  - cb TV RMS WRIST ILLUM/CAMR HTR – op, cl

- Elbow Illuminator:
  - cb TV RMS ELB ILLUM/CAMR HTR – op, cl

- A(B,C,D) Illuminator:
  - cb TV A(B,C,D) ILLUM/CAMR HTR – op, cl

- RSC Illuminator:
  - Go to LDRI/ITVC (Cue Card)
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
  - AV1/2 ➔ AV1/2

**OPERATIONS**
- PLBK or DNLK VIDEO
  - **CC**
    - Install tape, if reqd
    - If audio reqd:
      - **CCU**
        - If MHA, COMM PWR – ON
        - PWR – AUD
        - Desired Loops – T/R
        - Other Loops – RV/CC
        - XMT/COM Mode – VOX/VOLX
        - VOX SENS – MAX
        - Speaker Vol Max
        - **CC**
          - VTR pb ➔ REW(FF) to cue tape
  - **A7**
    - VID OUT MON pb ➔ push
    - IN FLT DECK(MIDDECK) pb ➔ push
  - **CC**
    - VTR pb ➔ PLAY 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)

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

ANALOG VIA VTR

**ACTIVATION**
- **CC**
  - 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)
  - ON/STANDBY LED – green

**OPERATIONS**
- PLBK or DNLK VIDEO
  - **L10 (VTR)**
    - Install tape if reqd
    - DISPLAY SELECT ➔ DATA
    - If audio reqd:
      - **L10 (VIP)**
        - PWR – on (LED on, DATA FLOW LED flashes twice)
        - ATU – PBK/KEY MIC (Amber LED on)
      - **CCU**
        - If MHA, COMM PWR – ON
        - PWR – AUD
        - Desired Loops – T/R
        - Other Loops – OFF
        - XMT/COM Mode – VOX/VOLX
        - 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
  - **L10 (VTR)**
    - PLAY pb ➔ push (green displayed)

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

(reduced copy)
**ET PHOTO**

**D2Xs**

**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**

---

**ET PHOTO**

**G1 CC**

**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** 3 hr/tape

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**MINI DVCAM** 40 min/tape

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**MEMORY CARD** 4GB/card

<table>
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<th>40</th>
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</tbody>
</table>
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 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/video
Alternately sel EMU TVs to acquire video
If still no joy:
For XCVR with good video:
Sel RF Camr – reselect original EVA crewmember
For XCVR w/video problem: Antenna – Manual
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

Slightly above sill (Bay 3)

Slightly above sill (Bay 4)

UHF CMD Antenna (Bay 3)

Inboard of sill (Bay 1)

FWD BULKHEAD

XCVRS Bay 5
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:
   PGSC 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:
   PGSC 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 Camr 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:
      EMU 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 ºC to -30 ºC OR 80 ºC to 85 ºC range
   PLB XCVR -40 ºC to -35 ºC OR 80 ºC to 85 ºC range
   Select Page – Telemetry
   Identify component w/temperature alert (blue text)
   \MCC

TEMP CAUTION (yellow text)

Condition: EMU TV < -35 ºC OR > 85 ºC
   PLB XCVR < -40 ºC OR > 85 ºC
   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

Camr ID Data

<table>
<thead>
<tr>
<th>Camr Address</th>
<th>18</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Number</td>
<td>1007</td>
<td>1006</td>
</tr>
<tr>
<td>Label</td>
<td>EV1</td>
<td>EV2</td>
</tr>
</tbody>
</table>

Sel OK

P/TV-5b/135/O/B

(reduced copy)
PLBD VTR RECORDING

L10  \nVIP,VTR covers removed

R1  \nPL AUX – ON

MA73C:E  \ncb AC2 PL3\\phi – cl

Cables config’d per dwg (back of cue card)

L10  (MUX)  \nVTR/CC PWR – on (LED on)

(VIP)  \n\nATU – REC
\nCCTV VIDEO IN – J3
PWR – on (LED on, DATA FLOW flashes twice)

(VTR)  \nON/STANDBY LED – green

\nSwitches set to white dot (seven)

\nCOUNTER SELECT – COUNTER (TC)

\nTape installed (tape icon LED on)

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

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

A7  \nVID OUT DTV pb – push
IN pb – as reqd

L10  (VTR)  \nREC pb – push, hold
PLAY pb – push, simo (red dot displayed)
**ACTIVATION**

1. **Config CCTV Sys**
   - **A7** 
     - **L10 (MUX)**
       - ACTIVATION (Cue Card, TV) performed
       - MUX/VTR/CC PWR – on (LED on)
       - Cabling from VTR MON port to MON 2 C-IN
     - **R12 (VPU)**
       - VPU PWR – ON (LED on)
       - Green Junp – LDR/ITVC
     - **RSC** vid cable connected to WIB CCTV PL/3
   - **MON 1,2**
     - L-DATA – ON
     - C-DATA – GRN
     - X-HAIR – GRN
   - **MON 2**
     - SOURCE – C

2. **Apply SPEE Pwr**
   - **R12 (OPP)**
     - cb OBSS SW PWR – cl
   - **(OBSS)**
     - OBSS SW PWR – ON
     - SPEE PWR – ON
     - EVENT TIMER CNTL – STOP
     - EVENT TIMER CNTL – START
     - (15 min LDRI calibration warmup)

3. **Config RSC Illum to HI**
   - **A7**
     - VID OUT MON 1 pb – push
     - IN C pb – push
     - CAMR CMD IRIS – OP, CL, as reqd
     - PAN/TILT – Adjust to see RSC Camr
   - **R12 (OBSS)**
     - SPEE PWR – OFF, wait 10 sec, ON
     - RSC illum on HI (three rings)

4. **Enable ITVC**
   - **A7**
     - ITVC ENA – ON
     - VID OUT DTV pb – push
     - IN PL2(VPU) pb – push
     - IF MAN GAIN pb not illuminated:
     - Repeated until MAN GAIN pb illuminated
   - **R12 (OBSS)**
     - ITVC ENA – OFF, wait 10 sec, ON
     - Repeat until MAN GAIN pb illuminated
   - **A7**
     - LT LEVEL pb – push
     - CAMR CMD PAN,TILT – as reqd
   - **MON 2**
     - AVG pb – push
     - iTVC video displayed

5. **Turn LDRI Laser On**
   - **A7**
     - VID OUT MUX 1 L pb – push
     - IN MIDDECK pb – push
     - LDRI MODE 2 pb – push
     - VID OUT DTV pb – push, to return to ITVC control

**DEACTIVATION**

- **A7**
  - VID OUT MUX 1 L pb – push
  - IN MIDDECK pb – lit on
  - LDRI MODE 1 pb – push

- **R12 (OBSS)**
  - ITVC ENA – OFF, pause 10 sec
  - SPEE PWR – OFF

- **A6U**
  - EVENT TIMER MODE – UP
  - CNTL – START

**GENERAL LDRI CONTROL**

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

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

- **Mode 2**
  - **A7**
    - LDRI MODE 2 pb – push
    - MON 2
      - iTVC video will be displayed

- **Modes 3 (4,5,6)**
  - **A7**
    - LDRI MODE 3(4,5,6) pb – push
    - MON 2
      - LDRI w/rounded corners displayed
      - To adjust brightness:
      - CAMR CMD IRIS – OP, CL, as reqd

**PAN/TILT OPS WITH LDRI ACTIVE**

- **A7**
  - VID OUT MON 1 pb – push
  - IN PL2(VPU) pb – push
  - CAMR CMD PAN,TILT – as reqd
  - VID OUT MUX 1 L pb – push, to return to LDRI control

**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

**NOTE**

When adjusting pan/tilt in Modes 3(4,5,6), ITVC FOCUS (ZOOM, IRIS) controls functional

- **A7**
  - VID OUT MUX 1 L pb – push
  - IN MIDDECK pb – push
  - LDRI MODE 2 pb – push
  - VID OUT DTV pb – push, to return to ITVC control
**CONTINGENCY LDRI 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 LDRI 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)

**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 pwr cycles take illuminator to MED, LOW, OFF and then back to HIGH. Config may req alt Camr view of RSC

**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 pwr 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

**SPEE PWR DEACT CLEANUP ACTIONS**

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

Config ITVC

ITVC ENA – ON
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 PAN and TILT ITVC to values needed for Survey

Return LDRI 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

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 LDRI 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)
LCH ACTIVATION
APCU/ LCH Pwrup
R1  1. 'PL PRI MNC – ctr (tb-ON)
     'AUX – ON
L12 (SSP 1) 2. APCU 2 OUTPUT RLY – CL
     CONV – ON (tb-gray)
     'OUTPUT RLY CLOSE tb – gray

SM 200 APCU STATUS
'APCU 2 OUT VOLT RES HIGH: 122V to 126.5V

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

2. LCC Startup
   A31p
   'PGSC Pwr – ON
   Yellow ‘RJ-45 Port Configured for LCS Ops’ displayed on desktop crew
   patch
   If yellow text not displayed, perform TROUBLESHOOTING. Yellow
   ‘RJ-45 Port Configured for LCS Ops’ Not Displayed on Desktop Crew
   Patch
   Set ‘Shuttle Apps’ > ‘LCC’ (wait 2-3 min from APCU CONV – ON for GUI
   Status)
   'Laser off – blue
   'Comm – green
   If Laser off and Comm status not correct: 'MCC

3. Verify LCC Desktop Video
   MODEF
   'TV PWR – ON
   'HI-Z/75 – 75
   'PWR SELECT – LO
   CC 'PWR – OFF
   If LCC Desktop not displayed:
   'MCC

OPERATION
NOTE
PDRS OPS will call for appropriate scan steps on LCC.
MCC may have limited insight if desktop dnlk avail

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:
   Select ‘Load Database…’ from File menu
   Select MCC desired database file
   Select ‘OK’

2. LCS System Status
   LCS SYSTEM STATUS

<table>
<thead>
<tr>
<th>Laser Off/On</th>
<th>Comm</th>
<th>LCS State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser ? (gray)</td>
<td>No Comm</td>
<td>Unknown or Keep Alive Heater Only Mode</td>
</tr>
<tr>
<td>(yellow)</td>
<td>(yellow)</td>
<td>(No LCC to LCH Network Connection)</td>
</tr>
<tr>
<td>Laser Off (blue)</td>
<td>Comm (green)</td>
<td>Operational</td>
</tr>
<tr>
<td>Laser On (green)</td>
<td>Comm (green)</td>
<td>(Waiting for user command)</td>
</tr>
</tbody>
</table>

While Scan in progress (‘Scan Status’ counter incrementing):
   'Laser On – 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
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
     - When 'Shutdown?' dialog box opens:
       - 'OK'

2. **A31p Screen Resolution Reset**
   - **A31p**
     - Right click on ATI icon on system tray
     - Set 'Schemes'
     - Set 'DISABLE DESKTOP DOWNLINK, ATI Property Settings'
     - Set 'Yes'
     - Arrange program windows as desired

LCH DEACTIVATION

**CAUTION**
Deactivating APCU 2 will remove critical keep-alive pwr to LCH and IDC. Pwr must be reapplied within 105 min.

1. **APCU Converters Off/LCH Pwrdn**
   - **NOTE**
     - Expect 'S200 APCU 1(2) VOLT LMT' msgs
   - **L12 (SSP 1)**
     - APCU 2 CONV – OFF (tb-bp)
     - OUTPUT RLY – OP, wait 10 sec, CL
     - CONV – ON (tb-gray)

   **SM 200 APCU STATUS**
   - APCU 2 OUT VOLT RES HIGH: 122V to 126.5V
   - LCC PGSC Pwr – ON
   - 'APCU 2 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 LCC 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'
     - In 'RJ-45 – Configuration' window:
       - Set 'LCS'
       - Set 'Apply'
     - Wait for the pop up window (black background with green text) to disappear
     - Set 'Exit'
     - Yellow 'RJ-45 Port Configured for LCS Ops' text displayed on desktop

   Resume LCS Ops

   (non SSPTS)

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 (wired 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

   **NOTE**
   - Expect 'S200 APCU 1(2) VOLT LMT' msrs
   - **L12 (SSP 1)**
     - APCU 2 CONV – OFF (tb-bp)
     - OUTPUT RLY – OP, wait 10 sec, CL
     - CONV – ON (tb-gray)

   **SM 200 APCU STATUS**
   - APCU 2 OUT VOLT RES HIGH: 122V to 126.5V
   - LCC PGSC Pwr – ON
   - 'APCU 2 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 LCC 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'
     - In 'RJ-45 – Configuration' window:
       - Set 'LCS'
       - Set 'Apply'
     - Wait for the pop up window (black background with green text) to disappear
     - Set 'Exit'
     - Yellow 'RJ-45 Port Configured for LCS Ops' text displayed on desktop

   Resume LCS Ops
IDC ACTIVATION

1. LCC Setup
   - Hardware configured per LCC ACTIVATION steps 1, 2 (Cue Card, LCS)
   - A31p
     - PGSC Pwr – ON

2. IDC connectivity Check
   - A31p internal RJ45 Network Interface Card LED green
     - If RJ45 Network Interface Card LED not green:
       - Expect 'S200 APCU 1(2) VOL LMT' msgs
       - L12 (SSP 1)
         - APCU 2 CONV – OFF, wait 10 sec, ON
         - CONV tb – gray
         - OUTPUT RLY CLOSE tb – gray

   SM 200 APCU STATUS
   - APCU 2 OUT VOLT RES HIGH:  122V to 126.5V

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

NOTE

PDRS OPS will call for IDC image steps on LCC A31p. Limited MCC real-time insight avail if configured for desktop dnk

1. Configure LDRI Illumination
   - R12 (VPU)
     - Green Jumper – LDRI/TV
   - A7
     - VID OUT MUX 1L pb – push
       - IN MIDDECK pb – push
         - LDRI MODE 2 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°
           - PAN: +85 (right)
           - TILT: -57 (down)

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

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 F DV
           - Sel 'Scan Hi-Res'
             - If scanning w/o 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, set appropriate lighting condition
     - Sel 'Acquire Set'
       - 'Acquiring Set' displayed
       - 'Waiting for User Command' displayed after set
       - MCC content w/data take
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
   - If no connection:
     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
   - Expect ‘S200 APCU 1(2) VOLT LMT’ msgs
   - L12 (SSP 1) APCU 2 CONV – OFF
     OUTPUT RLY – OP, wait 10 sec, CL CONV – ON
   - SM 200 APCU STATUS
     APCU 2 OUT VOLTS RES HIGH: 122V to 126.5V
     APCU 2 Internal RJ45 Network Interface Card LED green
   - APCU 2 Pwr – ON
     APCU 2 CO NV – ON
   - APCU 2 OUT VOLTS RES HIGH: 122V to 126.5V
   A31p LCC PGSC Pwr – ON
   - APCU 2 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 Software Activation
   Continue nominal ops
# D2Xs SETUP

<table>
<thead>
<tr>
<th>D2Xs PROGRAM In Cabin</th>
<th>D2Xs Aperture Priority</th>
<th>D2Xs Shutter Priority “Earth Obs”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lens</strong> – as reqd</td>
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<td>SB-800 Flash Settings:</td>
</tr>
<tr>
<td><strong>Aperture</strong> – Min, locked</td>
<td><strong>Aperture</strong> – Min, locked</td>
<td><strong>ON/OFF pb – OFF</strong></td>
</tr>
<tr>
<td><strong>Body Focus Mode</strong> – S</td>
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<td><strong>Lens</strong> – as reqd</td>
</tr>
<tr>
<td><strong>Flash Card installed</strong></td>
<td><strong>Flash Card installed</strong></td>
<td><strong>Aperture</strong> – Min, locked</td>
</tr>
<tr>
<td><strong>Pwr</strong> – ON</td>
<td><strong>Pwr</strong> – ON</td>
<td><strong>Body Focus Mode</strong> – S</td>
</tr>
<tr>
<td><strong>Top LCD:</strong></td>
<td><strong>Top LCD:</strong></td>
<td><strong>Batt installed</strong></td>
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<td><strong>Flash Card installed</strong></td>
</tr>
<tr>
<td><strong>Frames remaining sufficient</strong></td>
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<td><strong>Pwr</strong> – ON</td>
</tr>
<tr>
<td><strong>Exp Comp</strong> (__) – 0.0</td>
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<td><strong>Top LCD:</strong></td>
</tr>
<tr>
<td><strong>Exp Mode</strong> – P</td>
<td><strong>Exp Mode</strong> – A:</td>
<td><strong>Batt</strong></td>
</tr>
<tr>
<td><strong>Meter</strong> – Matrix (X)</td>
<td><strong>Meter</strong> – Matrix (X)</td>
<td><strong>Frames remaining sufficient</strong></td>
</tr>
<tr>
<td><strong>Diopter</strong> – Adjust</td>
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<td><strong>Exp Comp</strong> (__) – 0.0</td>
</tr>
<tr>
<td><strong>Frame Rate</strong> – S</td>
<td><strong>Frame Rate</strong> – S</td>
<td><strong>Exp Mode</strong> – S:</td>
</tr>
<tr>
<td><strong>BKT disabled</strong> – 0 F</td>
<td><strong>BKT disabled</strong> – 0 F</td>
<td><strong>SS – 500</strong></td>
</tr>
<tr>
<td><strong>Rear LCD:</strong></td>
<td><strong>Rear LCD:</strong></td>
<td><strong>Meter</strong> – Matrix (X)</td>
</tr>
<tr>
<td><strong>ISO</strong> – 100</td>
<td><strong>ISO</strong> – 100</td>
<td><strong>Diopter</strong> – Adjust</td>
</tr>
<tr>
<td><strong>QUAL</strong> – RAW</td>
<td><strong>QUAL</strong> – RAW</td>
<td><strong>Frame Rate</strong> – S</td>
</tr>
<tr>
<td><strong>WB</strong> – 0,A</td>
<td><strong>WB</strong> – 0,A</td>
<td><strong>BKT disabled</strong> – 0 F</td>
</tr>
<tr>
<td><strong>AF Area Mode</strong> – [[]]</td>
<td><strong>AF Area Mode</strong> – [[]]</td>
<td><strong>Rear LCD:</strong></td>
</tr>
<tr>
<td><strong>Focus Area</strong> – Center</td>
<td><strong>Focus Area</strong> – Center</td>
<td><strong>ISO</strong> – 100</td>
</tr>
<tr>
<td><strong>Focus Selector Lock</strong> – L</td>
<td><strong>Focus Selector Lock</strong> – L</td>
<td><strong>QUAL</strong> – RAW</td>
</tr>
<tr>
<td><strong>SB-800 Flash Settings:</strong></td>
<td><strong>SB-800 Flash Settings:</strong></td>
<td><strong>WB</strong> – 0,A</td>
</tr>
<tr>
<td><strong>Diffuser Dome installed</strong></td>
<td><strong>Diffuser Dome installed</strong></td>
<td><strong>AF Area Mode</strong> – [[]]</td>
</tr>
<tr>
<td><strong>MODE</strong> – TTL SB</td>
<td><strong>MODE</strong> – TTL SB</td>
<td><strong>Focus Area</strong> – Center</td>
</tr>
<tr>
<td><strong>Exp Comp</strong> – 0 EV</td>
<td><strong>Exp Comp</strong> – 0 EV</td>
<td><strong>Focus Selector Lock</strong> – L</td>
</tr>
<tr>
<td><strong>Tilt</strong> – 45° (Direct)</td>
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<td></td>
</tr>
</tbody>
</table>

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FS CC 3-22
**D2Xs MANUAL**

**“SUNLIT OBJECTS”**

**SB-800 Flash Settings:**
- ON/OFF pb – OFF
- 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 (💧) – 0.0

**Exp Mode – M:**
- SS – 500
- f/stop – f/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

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

**Technique**
1. Fill FOV w/sunlit subject
2. Activate D2Xs Camr
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:
  - Batt
  - Frames remaining sufficient
- Exp Comp (💧) – 0.0

**Exp Mode – A:**
- f/stop – f/8
- Meter – Matrix (☀️)
- Diopter – Adjust
- Frame Rate – Selftimer
- 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)

**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:
  - Batt
  - Frames remaining sufficient
- Exp Comp (💧) – 0.0

**Exp Mode – A:**
- f/stop – f/8
- Meter – Matrix (☀️)
- Diopter – Adjust
- Frame Rate – Selftimer
- 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)

**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

(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-2/75 – 75
PWR SELECT – L0
O19
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
MPC
PWR – ON, (5V, 3V green LEDs on)
L10 (MUX)
VCH 2 F/0 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)
VCH 2 DATA LED – on
CC
PLAY pb – push (green LED 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)
MUX/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 Index Search reqd:
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 LED 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 LED 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
**G1 CC SETUP CUE CARD**

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

**WELL LIT SCENE ("green")**
- Install Wide Conversion Lens as reqd
- ND FILTER – OFF (per CC prompt)
- OUTPUT – CAM
- A/V1/V2 – V2
- PWR dial – “green”
- Open LCD
- Tape installed

**SUN-LIT SCENE (M)**
- Install Wide Conversion Lens as reqd
- ND FILTER – OFF
- AF/M – AF(M)
- AGC – OFF
- GAIN – L
- OUTPUT – CAM
- AWB – ON
- AUDIO LEVEL – A
- A/V1/V2 – V2
- STANDBY/LOCK – STANDBY
- PWR dial – M
- Open LCD
- Tape installed
- GAIN – 0dB
- SS – 1/500 (Small Wheel)
- f/stop – F8.0 (Aft Ring)
- Adjust focus if AF/M – M (Fwd Ring)

**DIM-LIT SCENE (A)**
- Install Wide Conversion Lens as reqd
- ND FILTER – OFF
- AF/M – AF
- AGC – OFF
- OUTPUT – CAM
- AWB – ON
- AUDIO LEVEL – A
- A/V1/V2 – V2
- STANDBY/LOCK – STANDBY
- PWR dial – A
- Open LCD
- Tape installed
- GAIN – L (M,H) per Scene

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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
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