

Photo/TV Checklist

STS-132 Flight Supplement

**Mission Operations Directorate
Operations Division**

**Final
March 11, 2010**

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



Verify this is the correct version for the pending operation (training, simulation or flight).
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PHOTO/TV C/L, STS-132 Flt Suppl

FINAL (Mar 11, 2010)

PCN-1 (Apr 27, 2010) Sheet 1 of 1

List of Implemented Change Requests (482s):

P/TV_FS-0130

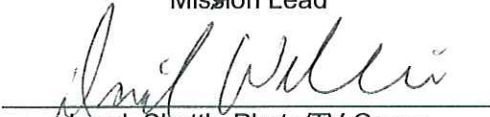
Incorporate the following:

1. Replace FS iii thru FS viii
2. Replace FS 1-3 thru FS 1-10, FS 1-13 and FS 1-14, FS 1-17 and FS 1-18, FS 1-23 and FS 1-24, FS 1-27 and FS 1-28, FS 1-39 thru FS 1-48, FS 1-51 thru FS 1-54, FS 1-57 and FS 1-58
Delete FS 1-59 and FS 1-60
Replace FS 1-65 and FS 1-66, FS 1-73 thru FS 1-76
3. Replace FS 2-1 thru FS 2-6, FS 2-21 and FS 2-22
After FS 2-28, add FS 2-29 thru FS 2-44 (16 pages)
4. Replace FS CC 3-13 thru FS CC 3-20, FS CC 3-23 and FS CC 3-24

Prepared by:


Mission Lead
Publication Manager

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Manager, Flight Procedures

Accepted by:


FDF Manager

Encl: 78 pages


File this PCN immediately behind the front cover as a permanent record

MISSION OPERATIONS DIRECTORATE

**PHOTO/TV CHECKLIST
STS-132 FLIGHT SUPPLEMENT**

FINAL
March 11, 2010

PREPARED BY:

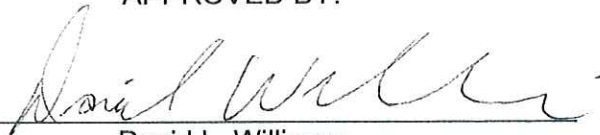


Raul Tijerna
Mission Lead

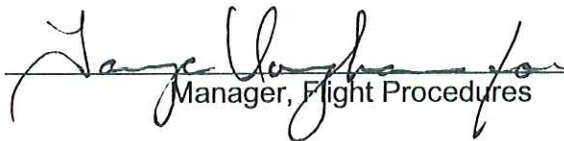


Mary E. Bruce
Publication Manager

APPROVED BY:

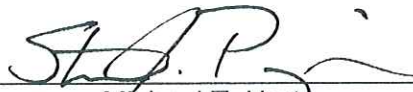


David L. Williams
Technical Lead, Shuttle Photo/TV Group



Manager, Flight Procedures

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-0112 P/TV_FS-0113 P/TV_FS-0114A P/TV_FS-0117 P/TV_FS-0123 P/TV_FS-0126

AREAS OF TECHNICAL RESPONSIBILITY

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PHOTO/TV CHECKLIST
STS-132 FLIGHT SUPPLEMENT

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FS 1-9.....	132/FIN 1	FS 1-57..... 132/FIN 1
FS 1-10.....	132/FIN 1	FS 1-58..... 132/FIN 1
FS 1-11.....	132/FIN	FS 1-59..... deleted
FS 1-12.....	132/FIN	FS 1-60..... deleted
FS 1-13.....	132/FIN	FS 1-61..... 132/FIN
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* – Omit from flight book

⊗ – Flight copies of this page contain color

FS 2-1	132/FIN 1	FS CC 3-13.....	132/FIN
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FS 2-3	132/FIN	FS CC 3-15.....	⊗ 132/FIN 1
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FS 2-7	132/FIN	FS CC 3-19.....	⊗ 132/FIN 1
FS 2-8	132/FIN	FS CC 3-20.....	⊗ 132/FIN
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FS 2-11	132/FIN	FS CC 3-23.....	132/FIN
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FS 2-17	132/FIN	4-i.....	generic
FS 2-18	132/FIN	4-ii.....	generic
FS 2-19	132/FIN	4-1	† generic
FS 2-20	132/FIN	4-2	† generic
FS 2-21	132/FIN	4-3	† generic
FS 2-22	⊗ 132/FIN 1	4-4	† generic
FS 2-23	⊗ 132/FIN	4-5	†⊗ generic
FS 2-24	132/FIN	4-6	†⊗ generic
FS 2-25	132/FIN	4-7	†⊗ generic
FS 2-26	132/FIN	4-8	† generic
FS 2-27	132/FIN	4-9	† generic
FS 2-28	⊗ 132/FIN	4-10	† generic
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FS 2-32	132/FIN 1	4-14	† generic
FS 2-33	132/FIN 1	4-15	† generic
FS 2-34	132/FIN 1	4-16	† generic
FS 2-35	⊗ 132/FIN 1	4-17	† generic
FS 2-36	132/FIN 1	4-18	† generic
FS 2-37	132/FIN 1	4-19	† generic
FS 2-38	132/FIN 1	4-20	† generic
FS 2-39	132/FIN 1	4-21	† generic
FS 2-40	⊗ 132/FIN 1	4-22	†⊗ generic
FS 2-41	⊗ 132/FIN 1	4-23	†⊗ generic
FS 2-42	⊗ 132/FIN 1	4-24	†⊗ generic
FS 2-43	132/FIN 1	4-25	†⊗ generic
FS 2-44	132/FIN 1	4-26	†⊗ generic
FS 3-1	132/FIN	4-27	†⊗ generic
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FS CC 3-3	132/FIN	4-29	† generic
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FS CC 3-6	⊗ 132/FIN	4-32	† generic
FS CC 3-7	132/FIN	4-33	† generic
FS CC 3-8	132/FIN	4-34	† generic
FS CC 3-9	132/FIN	4-35	† generic
FS CC 3-10	132/FIN	4-36	† generic
FS CC 3-11	⊗ 132/FIN	4-37	† generic
FS CC 3-12	132/FIN	4-38	† generic

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Δ – Replace with blue K-10 card stock in flight book only

† – May be replaced with CD in flight book only

5-1	† generic	7-15	†⊗ generic
5-2	† generic	7-16	† generic
5-3	† generic	7-17	† generic
5-4	† generic	7-18	† generic
5-5	† generic	7-18a	† generic
5-6	† generic	7-18b	† generic
5-7	†⊗ generic	7-19	† generic
5-8	†⊗ generic	7-20	† generic
5-9	†⊗ generic	7-21	† generic
5-10	† generic	7-22	† generic
5-11	† generic	7-23	†⊗ generic
5-12	† generic	7-24	†⊗ generic
5-13	†⊗ generic	8-1	† generic
5-14	†⊗ generic	8-2	† generic
5-15	†⊗ generic	8-3	† generic
5-16	†⊗ generic	8-4	† generic
5-17	† generic	8-5	† generic
5-18	† generic	8-6	† generic
5-19	† generic	9-1	† generic
5-20	† generic	9-2	† generic
5-21	† generic	9-3	†⊗ generic
5-22	† generic	9-4	†⊗ generic
5-23	† generic	10-1	† generic
5-24	† generic	10-2	† generic
6-1	† generic	10-3	† generic
6-2	† generic	10-4	† generic
6-3	† generic	10-5	† generic
6-4	† generic	10-6	†⊗ generic
6-5	†⊗ generic	10-7	† generic
6-6	†⊗ generic	10-8	† generic
6-7	† generic	10-9	† generic
6-8	† generic	10-10	† generic
6-9	† generic	10-11	† generic
6-10	† generic	10-12	† generic
6-11	† generic	10-13	† generic
6-12	† generic	10-14	† generic
6-13	† generic	10-15	† generic
6-14	† generic	10-16	† generic
6-15	† generic	10-17	† generic
6-16	† generic	10-18	† generic
6-17	† generic	10-19	† generic
6-18	† generic	10-20	† generic
7-1	† generic	10-21	† generic
7-2	† generic	10-22	† generic
7-3	† generic	10-23	† generic
7-4	† generic	10-24	† generic
7-5	† generic	10-25	† generic
7-6	† generic	10-26	† generic
7-7	†⊗ generic	11-1	† generic
7-8	† generic	11-2	† generic
7-9	† generic	11-3	† generic
7-10	† generic	11-4	† generic
7-11	† generic	11-5	† generic
7-12	† generic	11-6	† generic
7-13	† generic	11-7	† generic
7-14	† generic	11-8	† generic

† – May be replaced with CD in flight book only

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11-9	†	generic	15-15	†	generic
11-10	†	generic	15-16	†	generic
11-11	†⊗	generic	16-1	†	generic
11-12	†	generic	16-2	†	generic
12-1	†	generic	16-3	†	generic
12-2	†	generic	16-4	†	generic
12-3	†	generic	16-5	†	generic
12-4	†	generic	16-6	†	generic
12-5	†	generic	17-1	†	generic
12-6	†	generic	17-2	†	generic
12-7	†	generic	18-1	†	generic
12-8	†	generic	18-2	†	generic
12-9	†	generic	18-3	†	generic
12-10	†	generic	18-4	†	generic
12-11	†	generic	18-5	†	generic
12-12	†	generic	18-6	†	generic
12-12a	†	generic	19-1	†	generic
12-12b	†	generic	19-2	†	generic
12-13	†	generic	19-3	†	generic
12-14	†⊗	generic	19-4	†	generic
12-15	†	generic	19-5	†	generic
12-16	†	generic	19-6	†	generic
12-17	†	generic	19-7	†	generic
12-18	†	generic	19-8	†	generic
12-19	†	generic	19-9	†	generic
12-20	†	generic	19-10	†	generic
13-1	†	generic	19-11	†	generic
13-2	†	generic	19-12	†	generic
13-3	†	generic	20-1	†	generic
13-4	†⊗	generic	20-2	†	generic
13-5	†⊗	generic	20-3	†	generic
13-6	†⊗	generic	20-4	†	generic
13-7	†⊗	generic	20-5	†	generic
13-8	†⊗	generic	20-6	†	generic
13-9	†	generic	20-7	†	generic
13-10	†	generic	20-8	†	generic
13-11	†	generic	20-9	†	generic
13-12	†	generic	20-10	†	generic
14-1	†	generic	20-11	†	generic
14-2	†	generic	20-12	†	generic
14-3	†	generic	20-13	†	generic
14-4	†	generic	20-14	†	generic
15-1	†	generic	20-15	†⊗	generic
15-2	†	generic	20-16	†	generic
15-3	†	generic	20-17	†	generic
15-4	†	generic	20-18	†⊗	generic
15-5	†	generic	20-19	†	generic
15-6	†	generic	20-20	†	generic
15-7	†	generic	20-21	†	generic
15-8	†	generic	20-22	†	generic
15-9	†	generic	21-1	†	generic
15-10	†	generic	21-2	†	generic
15-11	†	generic			
15-12	†	generic			
15-13	†	generic			
15-14	†	generic			

† – May be replaced with CD in flight book only

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PHOTO/TV CUE CARDS

	<u>Title</u>	<u>Ref. Page</u>	<u>Card No.</u>
TV			
	(Front).....	FS CC 3-3	P/TV-1a/132/O/B
	(Back).....	FS CC 3-4	P/TV-1b/132/O/B
ANALOG PLAYBACK			
	(Front).....	FS CC 3-5	P/TV-2a/132/O/A
	(Back).....	FS CC 3-6	P/TV-2b/132/O/A
ET PHOTO			
	(Front).....	FS CC 3-7	P/TV-3a/132/O/A
	(Back).....	FS CC 3-7	P/TV-3b/132/O/A
WVS			
	(Front).....	FS CC 3-8	P/TV-5a/132/O/A
	(Back).....	FS CC 3-9	P/TV-5b/132/O/A
PLBD VTR RECORDING			
	(Front).....	FS CC 3-10	P/TV-6a/132/O/A
	(Back).....	FS CC 3-11	P/TV-6b/132/O/A
LDRI/ITVC			
	(Front).....	FS CC 3-12	P/TV-7a/132/O/A
	(Back).....	FS CC 3-13	P/TV-7b/132/O/A
LCS			
	(Front).....	FS CC 3-14	P/TV-8a/132/O/B
	(Back).....	FS CC 3-15	P/TV-8b/132/O/B
IDC			
	(Front).....	FS CC 3-16	P/TV-9a/132/O/B
	(Back).....	FS CC 3-17	P/TV-9b/132/O/B
VIDEO SETUP			
	(Front).....	FS CC 3-18	P/TV-10a/132/O/C
	(Back).....	FS CC 3-19	P/TV-10b/132/O/B
D2Xs SETUP			
	(Front).....	FS CC 3-20	P/TV-11a/132/O/A
	(Back).....	FS CC 3-21	P/TV-11b/132/O/A
LDRI/ITVC A7 PLACARD			
	(Front).....	FS CC 3-22	P/TV-12a/132/O/A
	(Back).....	FS CC 3-22	P/TV-12b/132/O/A
DIGITAL PLAYBACK			
	(Front).....	FS CC 3-23	P/TV-13a/132/O/A
	(Back).....	FS CC 3-24	P/TV-13b/132/O/B
G1 CC SETUP CUE CARD			
	(Front).....	FS CC 3-25	P/TV-17a/132/O/A
	(Back).....	FS CC 3-26	P/TV-17b/132/O/A

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SCENES

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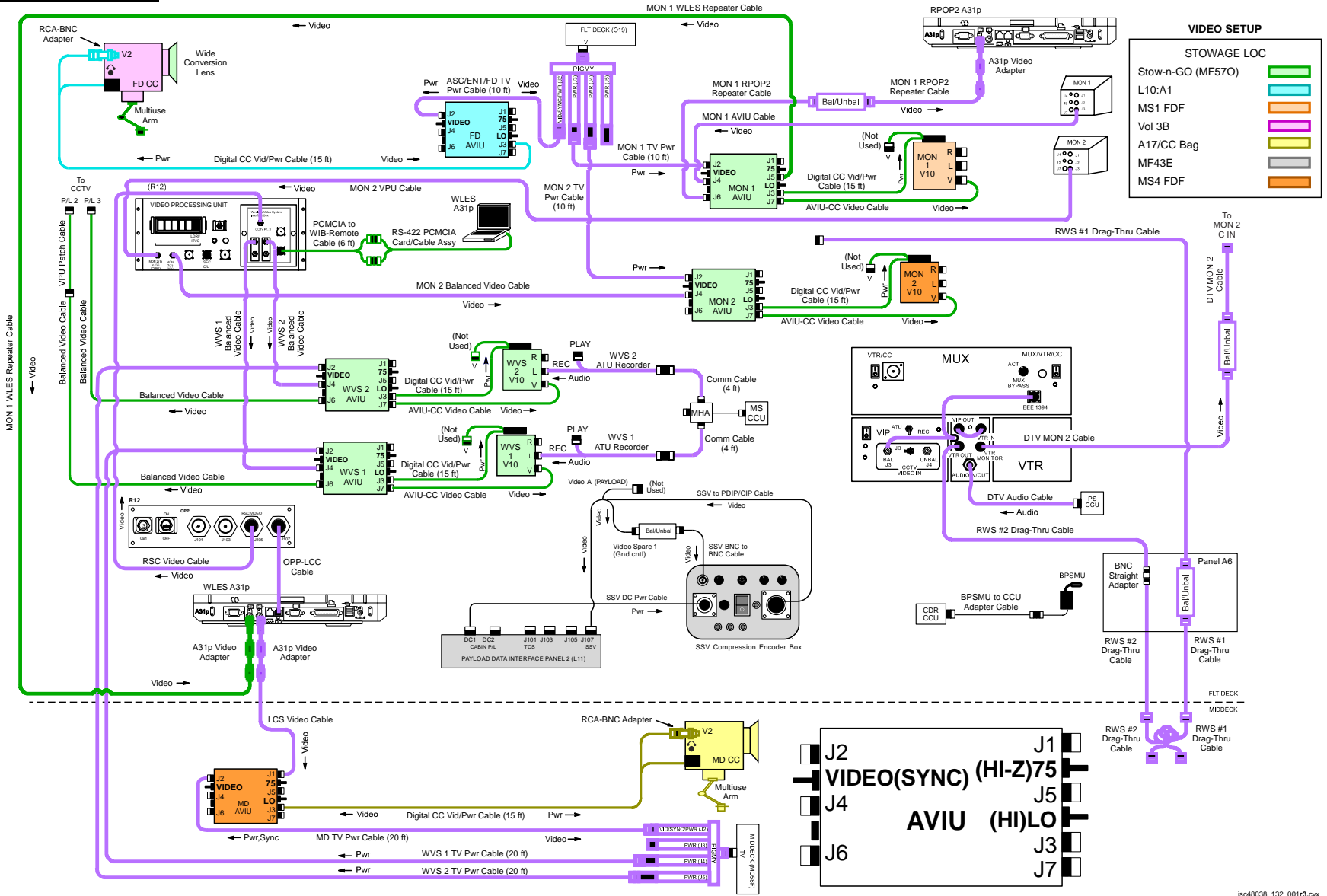
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P/TV01 VIDEO SETUP

P/TV01 VIDEO SETUP

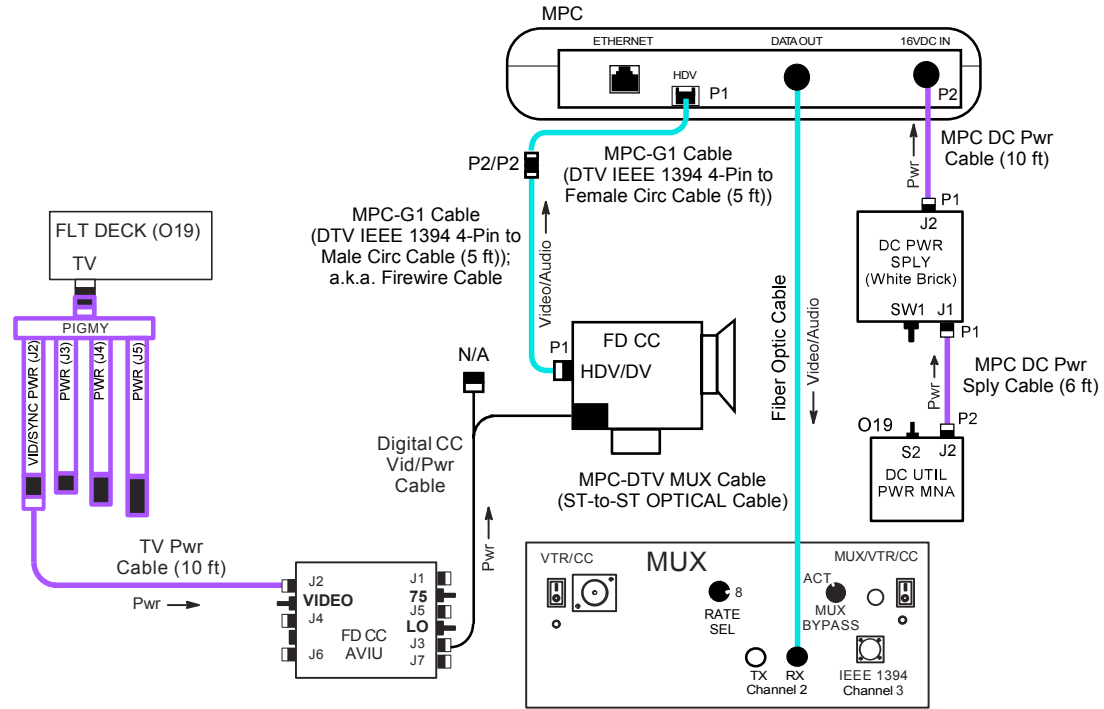
H/W SUMMARY



jsc48038_132_001r3.cvx

P/TV01 VIDEO SETUP (Continued)

H/W SUMMARY (Concluded)



jsc48038_132_012er2.cvx

P/TV01 VIDEO SETUP (Continued)

SETUP

NOTE

Steps 1-7 minimum reqmt for OBSS RCC Inspection (focused and post undocked).
Step 8 required for ET Video DNLK

1. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd
2. Perform the following for DTV Setup:

O19 TV PWR – OFF

L10:A1 Unstow AVIU and disconnect following cables:
ASC/ENT/FD TV Pwr Cable from J2; pull Cable thru cutout in locker
AVIU Adapter Cable from J5
ASC/ENT FD V10 Cable from J1
Config DTV H/W per H/W SUMMARY, FS 1-4

L10 (MUX) Config Panels
√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
√Switches set to White Dot (seven)
√COUNTER SELECT – COUNTER (TC)

MON 2 Config Video
Connect DTV Mon 2 Cable to C-IN
SOURCE – C

A15 Config Audio
L9 Connect DTV Audio Cable to P5 CCU
Config PS ATU per Comm Plan

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

3. Perform MON 1,2 V10 Setup

MF570 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

MON 2 V10 from MS4 Saddlebag (Left)

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

Pre-routed MON 1 AVIU Cable to MON 1 AVIU J4

Pre-routed MON 1 TV PWR Cable to MON 1 AVIU J2

Pre-routed MON 2 Balanced Video Cable to MON 2 AVIU J4

Pre-routed MON 2 TV PWR Cable to MON 2 AVIU J2

Pre-routed MON 1 RPOP2 Repeater Cable String to MON 1 AVIU J6

MON 1 WLES Repeater Cable string from MON 1 AVIU J5 to A31p Vid In port

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

Retrieve FD AVIU from L10A1
MD AVIU from MS4 Saddlebag
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

- Install Wide Conversion lens
- √ND FILTER – OFF
- √OUTPUT – CAM
- √A/V1/V2 – V2
- √.. –
- √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

If MD Camcorder setup not performed, unstow MD AVIU from MS4 Saddlebag (Left)

Middeck

- Connect MD TV Pwr Cable to MD AVIU J2
- Connect end of LCS Video Cable to MD AVIU J1

AVIU (MD) √HI-Z/75 – 75

Flt Deck

- Connect other end of LCS Video Cable (A31p Video Adapter) to A31p Video Out port on WLES machine
- Connect OPP-LCC Cable to A31p RJ45 Ethernet on WLES machine

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

7. Perform SSV Setup

MF43E Unstow:
 SSV Compression Encoder Box
 SSV BNC-BNC Cable
 SSV to PDIP/CIP Cable
 SSV DC Pwr Cable
 Bal/Unbal Xfmr

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

NOTE

Video Spare 1 controlled by MCC instead of pnl A7

L12 (SSP 2) √cb PDIP 2 PWR 1 – cl
L11 (PDIP 2) DC PWR 1 – ON

SSV Config SSV settings
 IN SEL – NTSC
 Mode – 3
 OUTRATE – 3
 SSV Pwr – on
 √Pwr LED illum
 √ENC DATA LED flickering
 √FRM DATA LED flickering
 √FILL FRM pulsing

Inform MCC when SSV SETUP complete

L10:A1 8. Perform HDTV Setup for ET Photo DNLK
 Unstow MPC
 White Brick
 MPC-DTV MUX Cbl (Fiber Optic Cable)
MF57O MPC-G1 (Firewire Cable)

Stow-n-Go Bag

Configure H/W per H/W SUMMARY, FS 1-5

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

9. Perform WVS Setup

a. Activate WVS System

A7 WIRELESS VID HTR – ON
PWR – ON

MO58F TV PWR – OFF

MF57O b. Remove WVS Hardware from Stow-n-Go CTB

Config WVS 1,2 V10s and Cables per H/W SUMMARY, FS 1-4

Connect:

WVS 1,2 Digital CC Vid/Pwr Cables to WVS 1,2 V10s

WVS 1,2 AVIU-CC Vid Cables to WVS 1,2 V10s

Multiuse Brkt to desk

Pre-routed WVS 1,2 Balanced Video Cables from R12/VPU XCVR 1,2 BAL to WVS 1,2 AVIU J4

Pre-routed WVS TV Pwr Cables to WVS 1,2 AVIU J2

Balanced Video Cables stowed on WVS Stow-n-Go desk to WVS 1,2 AVIU J6

ATU Recorder Cables to left (white) port per H/W SUMMARY, FS 1-4

Multiuse Brkt to wall

PCMCIA-to-WIB Remote Cable to R12/WIB J701

RS-422 PCMCIA Card/Cable Assy and PCMCIA-to-WIB Remote Cable to bottom PCMCIA slot on A31p per

PGSC Usage Chart

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

MO58F V10 (two)
V10 (WVS 1,2) TV PWR – ON
PWR – ON
√Tape installed
√WVS Test Pattern displayed (color bars w/“No WVS Video”)
PWR – OFF

R10 Config MS ATU/CCU per Comm Plan

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

9. Perform WVS Setup (Continued)

c. WVS PGSC Prep

PGSC

PGSC Pwrup and Application Opening

√Pwr – ON

Sel Shuttle Apps icon

Sel WVS icon

Sel 'No' at 'Restore To Previous Settings:' window

If 'Comm Port Configuration' error displayed:

Remove Quatech RS-422 Card

Sel 'Start' > 'Shut Down' > 'Shut Down' > 'OK'

Reinstall Quatech RS-422 Card in bottom PCMCIA slot

Pwr – ON

Sel Shuttle Apps icon

Sel WVS icon

RF Camera page will appear

Application Setup

If 'Static XCVR' ('Bad Camera ID', '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:

Camr Address	S/N	In Use	Label
19	1004	1	EV1
20	1006	1	EV2

If Camr IDs not correct:

Sel 'Delete Entry' until all deleted

Perform CAMR ID ASSIGNMENT (Cue Card, WVS) as reqd

When complete, sel 'OK'

P/TV01 VIDEO SETUP (Concluded)

SETUP (Concluded)

9. Perform WVS Setup (Concluded)

c. WVS PGSC Prep (Concluded)

Application Setup (Concluded)

Sel 'File' → 'Advanced Controls'

On XVCR tab:

√IF – selected

√Other options not selected

Sel RF Camera tab:

√Power Selections – selected

√Automatic Gain Control – selected

√S-Band Level – selected

√Other options not selected

When complete, sel 'OK'

d. PWRDN

Sel 'File' → 'Exit'

WIRELESS VID PWR – OFF

HTR – OFF

A7

MF43E

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

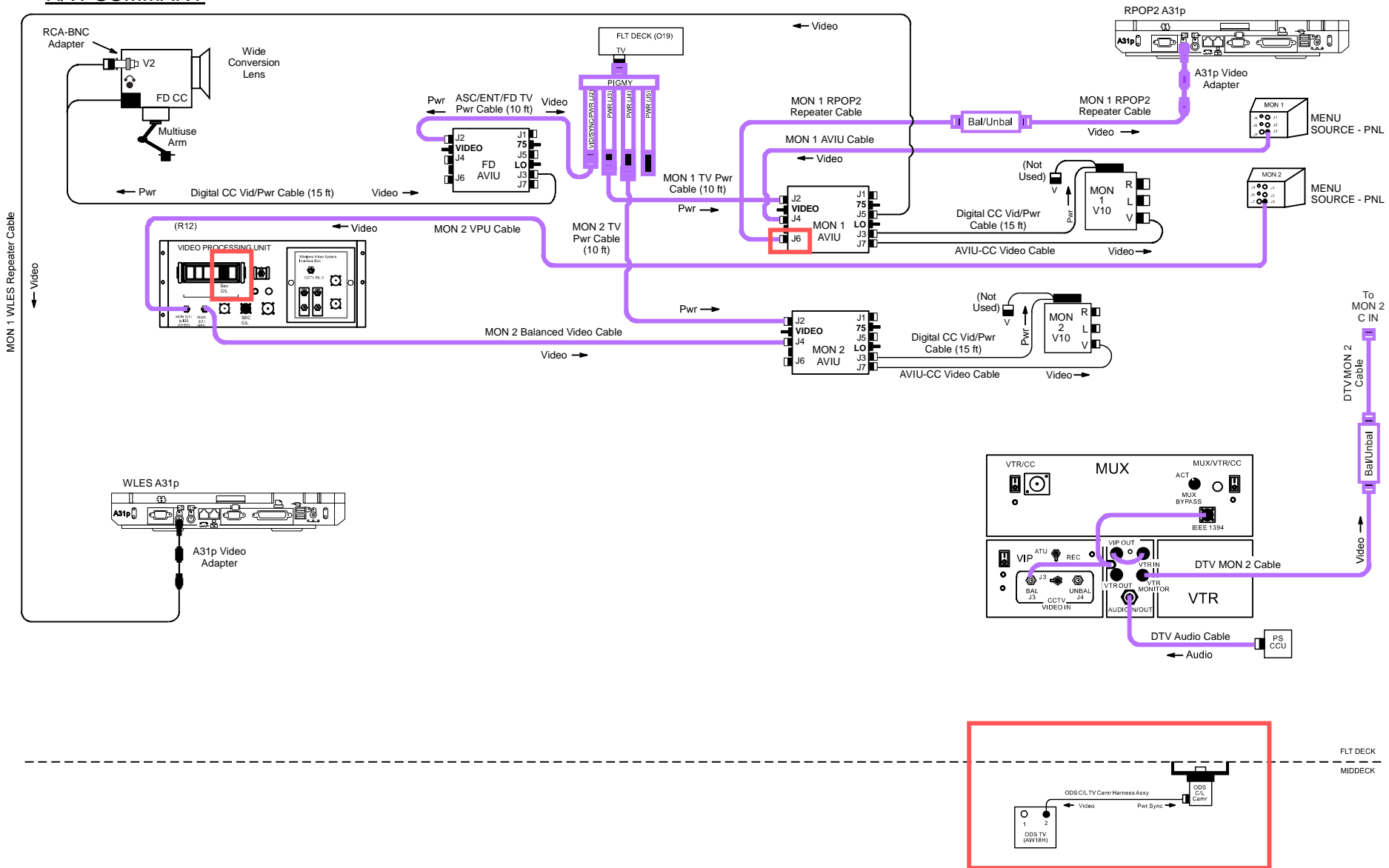
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P/TV02 DOCK

P/TV02 DOCK

H/W SUMMARY



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P/TV02 DOCK (Continued)


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 D2Xs PROGRAM w/FLASH for in-cabin imagery

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:

ON/OFF pb – ON

√Diffuser Dome installed

√MODE –  TTL BL

√Exp Comp – 0 EV

Tilt – 45° (Direct)

P/TV02 DOCK (Continued)

SETUP (Continued)

3. Perform D2Xs MANUAL Exposure for docking/external imagery

Remove ovhd Window Shields

SB-800 Flash Settings:

ON/OFF pb – OFF

Lens – 400mm(80-200mm)

If 400mm:

Focus Limit – ∞ -6m

Lens Focus Mode – A

If 80-200mm:

Focus Limit – full

Lens Focus Mode – A

Aperture – Min, locked

Body Focus Mode – S

√Batt installed


√Flash Card installed

Pwr – ON

Top LCD:

√Batt


√Frames remaining sufficient

Exp Comp () – 0.0

Exp Mode – M:

SS – 500

f/stop – 8

Meter – Matrix ()

Diopter – Adjust

Frame Rate – S

√BKT disabled – 0 F

Rear LCD:

√ISO – 100

√QUAL – RAW

√WB – 0,A

AF Area Mode – [[]]

√Focus Area – Center

√Focus Selector Lock – L

P/TV02 DOCK (Continued)

SETUP (Continued)

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

O19,MO58F √TV PWR – ON

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

V10
(MON 1,2) PWR – ON

 √Tape installed
 DISPLAY pb – Toggle to display tape counter

CC For in-cabin views:
 √Wide Conversion lens installed
 √ND FILTER – OFF
 √OUTPUT – CAM
 √A/V1/V2 – V2
 √..-
 √STANDBY/LOCK – STANDBY
 PWR dial – “green”
 √Tape installed
 Open LCD
 √“green” •|| displayed
 Install Audio Muting Plug (optional)

P/TV02 DOCK (Continued)

SETUP (Concluded)

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

CC	For sunlit ISS views: Remove Wide Conversion Lens Install fresh Batt as reqd √ND FILTER – OFF AF/M – M AGC – OFF GAIN – L √OUTPUT – CAM √A/V1/V2 – V2 √AWB – ON √ <input type="checkbox"/> .. <input type="checkbox"/> - <input type="checkbox"/> √STANDBY/LOCK – STANDBY PWR dial – M √Tape installed Open LCD √“green” • displayed SS – 1/500 √GAIN – 0dB f/stop – F8.0 √FOCUS – M ∞ (adjust as reqd) Install Audio Muting Plug (optional)
MON 1,2 L10 (MUX) (VIP) (VTR)	SOURCE – PNL VTR/CC PWR – on (LED on) If dnk, MUX/VTR/CC PWR – on (LED on) PWR – on (LED on) 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

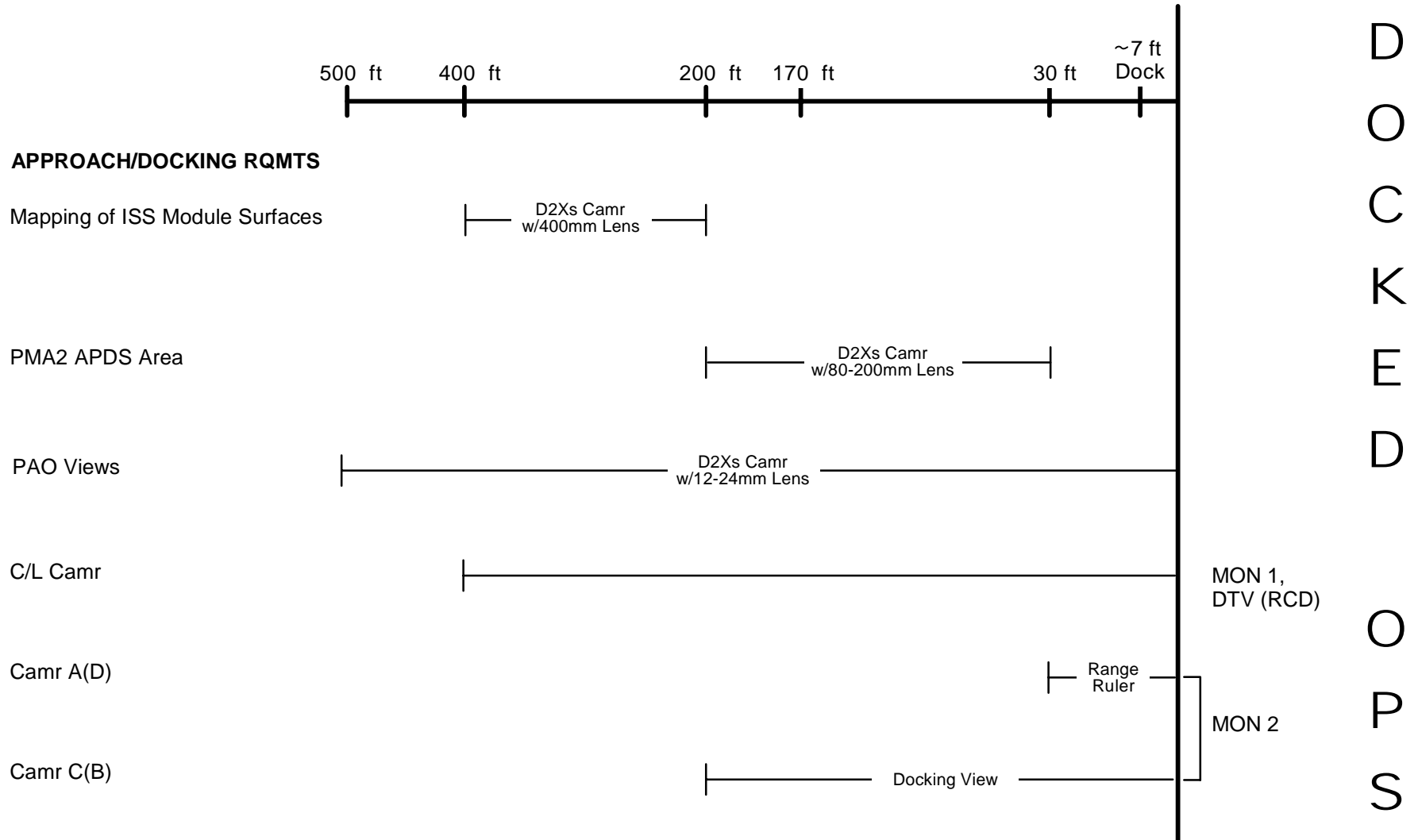
P/TV02 DOCK (Continued)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
				PLB	CC	Dnlk	
	1. ULF4-8	PAO Coverage	<u>D2Xs (Interior)</u> 12-24mm If exterior: Flash ON/OFF – OFF	As desired	<u>G1</u> Tape installed	LIVE (if avail)	Plan for end of day crew choice video,DCS
	2. ULF4-3	Rendezvous <ul style="list-style-type: none"> • Overall • Closeup • Damage • Deterioration 	<u>D2Xs (Exterior)</u> 400mm(80-200mm) Flash ON/OFF – OFF	<u>A(B,C,D), ELB</u>	<u>G1</u> As desired		Map ISS surfaces w/30% overlap
	3. ULF4-3	Approach,Dock <ul style="list-style-type: none"> • PMA2 Docking Target • PMA2 Mating Surfaces • PMA2 TCS Planar and Hemispherical Retro Reflectors • SOLAR 	<u>D2Xs (Exterior)</u> 400mm(80-200mm) Flash ON/OFF – OFF	<u>C/L</u> Per RNDZ <u>A(D)</u> Per RNDZ <u>C(B)</u> Docking view	<u>G1</u> As desired		Rcd C/L Camr video thru hard dock on DTV Continually √focus sharpness

P/TV02 DOCK (Continued)

OPS (Continued)



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P/TV02 DOCK (Concluded)

OPS (Concluded)

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

DEACTIVATION

1. D2Xs
 - √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
 - L12 (SSP 2) CAMR CMD IRIS – CL
 - 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

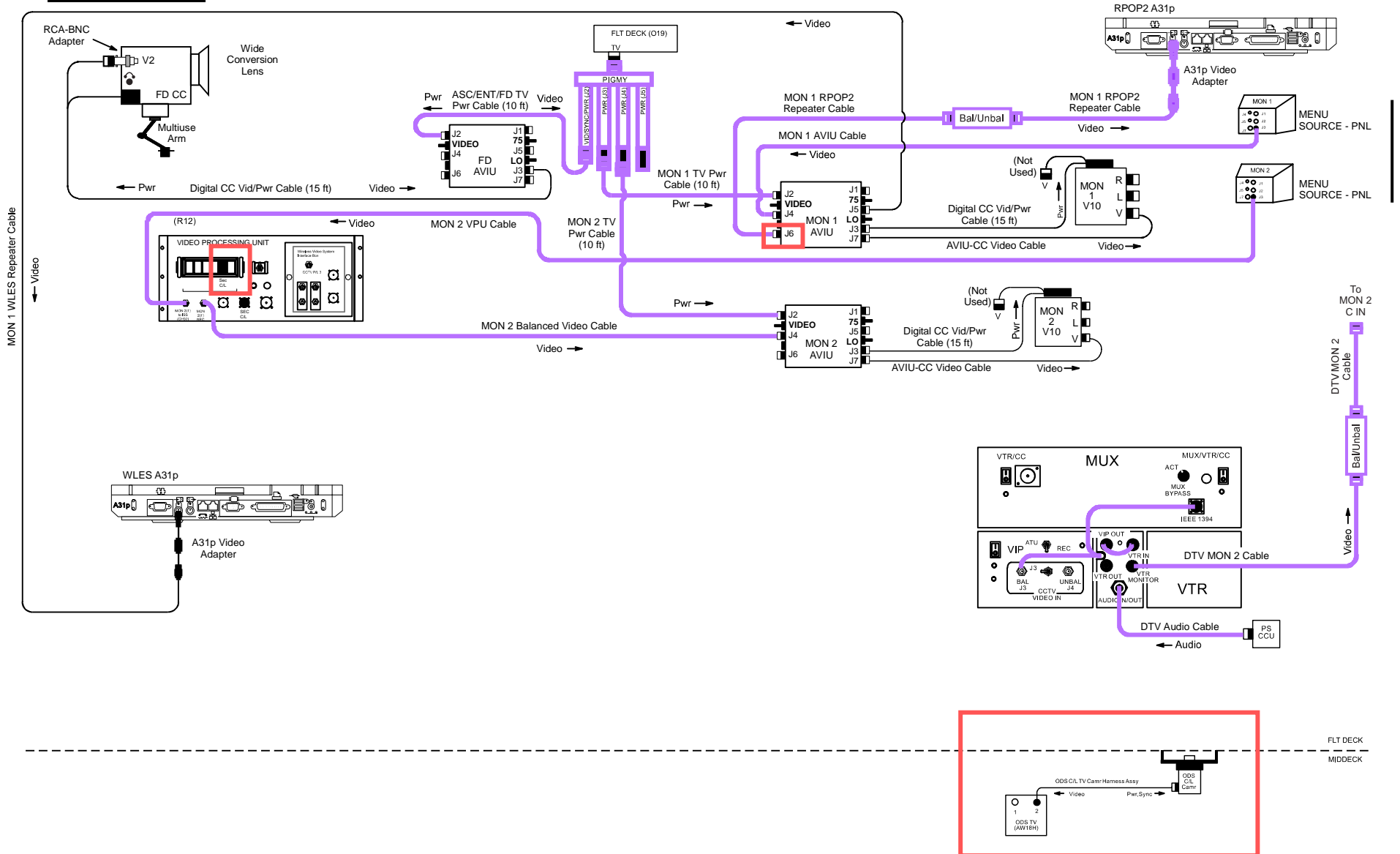
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P/TV03 UNDOCK

P/TV03 UNDOCK

H/W SUMMARY



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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 D2Xs PROGRAM w/FLASH for in-cabin imagery

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:

ON/OFF pb – ON

√Diffuser Dome installed

√MODE –  TTL BL

√Exp Comp – 0 EV

Tilt – 45° (Direct)

P/TV03 UNDOCK (Continued)

SETUP (Continued)

3. Perform D2Xs MANUAL Exposure for undocking/external imagery

Remove ovhd Window Shields

SB-800 Flash Settings:

ON/OFF pb – OFF

Lens – 400mm(80-200mm)

If 400mm:

Focus Limit – ∞ -6m

Lens Focus Mode – A

If 80-200mm:

Focus Limit – full

Lens Focus Mode – A

Aperture – Min, locked

Body Focus Mode – S

√Batt installed


√Flash Card installed

Pwr – ON

Top LCD:

√Batt

√Frames remaining sufficient

Exp Comp () – 0.0

Exp Mode – M:

SS – 500

f/stop – 8

Meter – Matrix ()

Diopter – Adjust

Frame Rate – S

√BKT disabled – 0 F

Rear LCD:

√ISO – 100

√QUAL – RAW

√WB – 0,A

AF Area Mode – [[]]

√Focus Area – Center

√Focus Selector Lock – L

P/TV03 UNDOCK (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) PWR – ON

 √Tape installed
 DISPLAY pb – Toggle to display tape counter
- CC For in-cabin views:
 √Wide Conversion lens installed
 √ND FILTER – OFF
 √OUTPUT – CAM
 √A/V1/V2 – V2
 √..-
 √STANDBY/LOCK – STANDBY
 PWR dial – “green”
 √Tape installed
 Open LCD:
 √“green” •|| displayed
 Install Audio Muting Plug (optional)

P/TV03 UNDOCK (Continued)

SETUP (Concluded)

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

CC	<p>For sunlit ISS views:</p> <ul style="list-style-type: none">Remove Wide Conversion LensInstall fresh Batt as reqd√ND FILTER – OFFAF/M – MAGC – OFFGAIN – L√OUTPUT – CAM√AWB – ON√<input type="checkbox"/>..<input type="checkbox"/>-<input type="checkbox"/>√STANDBY/LOCK – STANDBYPWR dial – M√Tape installedOpen LCD:<ul style="list-style-type: none">√“green” • displayedSS – 1/500√GAIN – 0dBf/stop – F8.0√FOCUS – M ∞ (adjust as reqd)Install Audio Muting Plug (optional)
MON 1,2 L10 (MUX) (VIP) (VTR)	<ul style="list-style-type: none">SOURCE – PNLVTR/CC PWR – on (LED on)If dnlk, MUX/VTR/CC PWR – on (LED on)PWR – on (LED on)ON/STANDBY LED – green√Tape installed
A31p	<ul style="list-style-type: none">Double click ‘Shuttle Apps’ > ‘NASA Video Overlay’√‘NASA Video Overlay’ window displayedSel ‘Full Screen’Press ‘ESC’ or ‘W’ key to minimize display as reqd

P/TV03 UNDOCK (Continued)

OPS

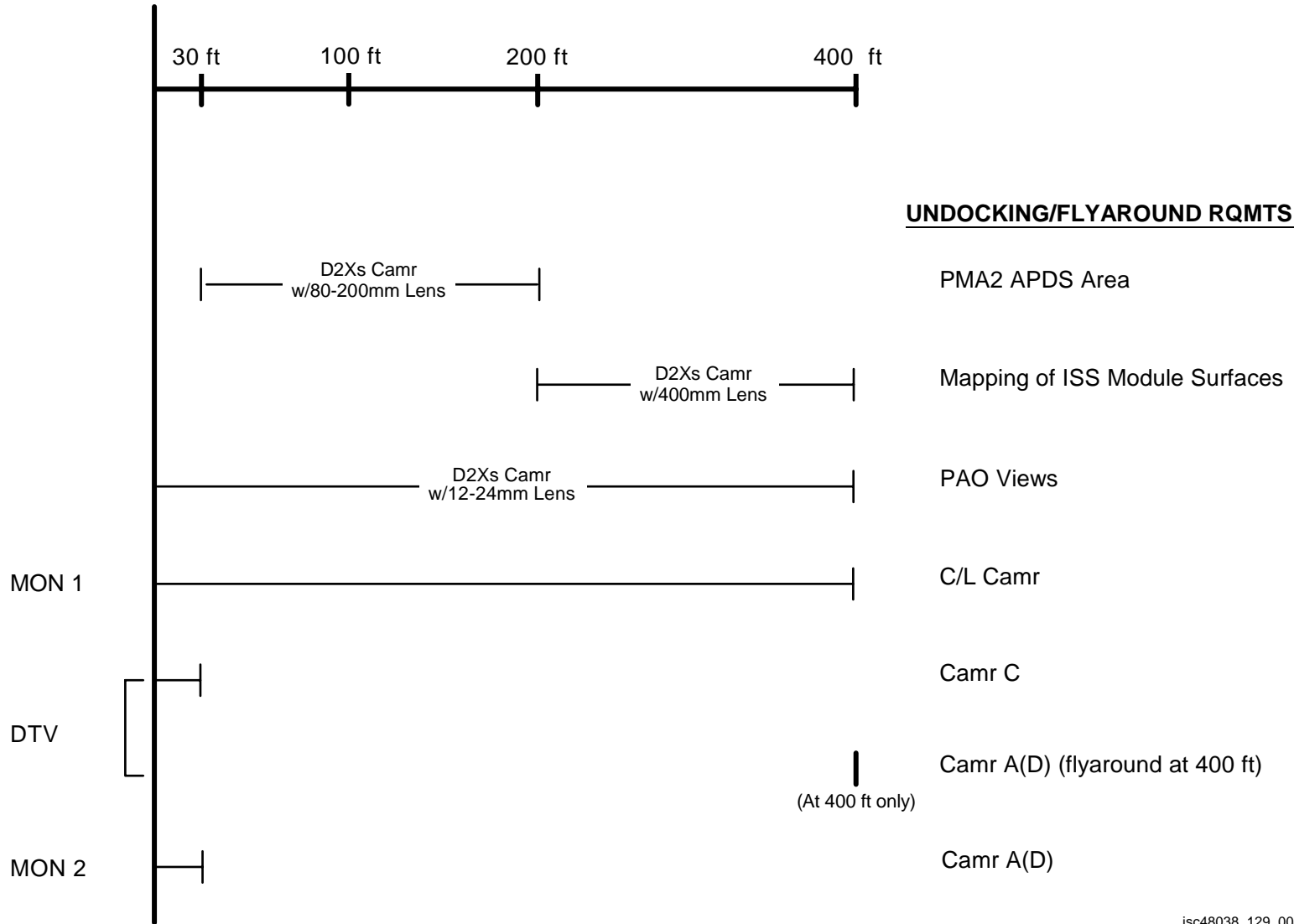
√	Item # Track #	Rqmts	Still Imagery	Video			Notes
				PLB	CC	Dnlk	
	1. ULF4-8	PAO Coverage	<u>D2Xs (Interior)</u> 12-24mm If exterior: Flash ON/OFF – OFF	As desired	<u>G1</u> Tape installed	LIVE (if avail)	Plan for end of day crew choice video,DCS
	2. ULF4-3 ULF4-2	Undock and Flyaround <ul style="list-style-type: none"> • Docking Tgt/Mating Surfaces • TCS Planar, Hemispherical Retro Reflectors • Surfaces • Solar Panels • Handrails • Newly deployed H/W • SM Thrusters on Zenith, near aft end • Trusses including rads/baseplates and SAWs (in/outboard SABB insulation degradation) • MISSE-7 on ELC2 	<u>D2Xs (Exterior)</u> 80-200mm(400mm) Flash ON/OFF – OFF	<u>A(D)</u> Per RNDZ <u>C/L</u> Docking tgt and PAO view	<u>G1</u> Tape installed	LIVE (if avail)	Map ISS surfaces w/30% overlap

P/TV03 UNDOCK (Continued)

OPS (Continued)

D
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P
S



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P/TV03 UNDOCK (Concluded)

OPS (Concluded)

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

DEACTIVATION

1. D2Xs
 - √Exp Mode – P
 - Pwr – OFF
 - √Flash ON/OFF – ON

2. TV System
 - R12 (VPU) √Green Jumper – SEC C/L
 - √SEC C/L Cap installed
 - √VPU PWR – ON (LED ON)
 - A7U VID OUT MON 1 pb – push
 - IN PL2(VPU) pb – push
 - CAMR CMD IRIS – CL
 - L12 (SSP 2) C/L CAM PWR – OFF
 - ODS Remove, stow C/L Camr, Harness Assy
 - Go to DEACTIVATION (Cue Card, TV) as reqd

3. G1
 - √PWR dial – “green”
 - Install Wide Conversion Lens

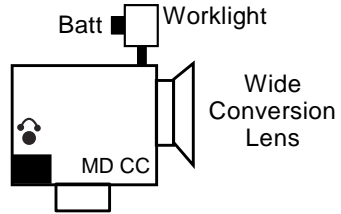
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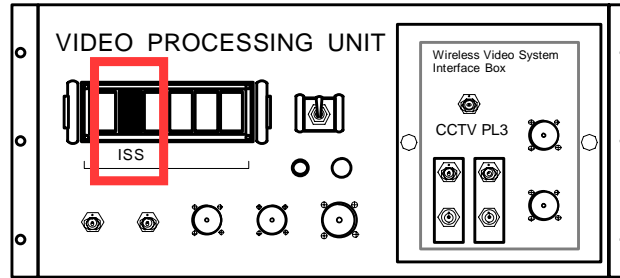
P/TV04 INGRESS/EGRESS

H/W SUMMARY

INGRESS TV CONFIG



(R12)



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P/TV04 INGRESS/EGRESS (Continued)

SCENE SYNOPSIS

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

SETUP

1. Config ISS Video

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

2. Perform Ingress Camcorder Setup

- Obtain two Batts, one for CC and one spare
Install Batt
- CC Install Wide Conversion lens
√ND FILTER – OFF
√OUTPUT – CAM
√A/V1/V2 – V2
√...-
√STANDBY/LOCK – STANDBY
PWR dial – “green”
√Tape installed
√Viewfinder (LCD) displays “green” •||
Install Audio Muting Plug (optional)

CAUTION

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



- Worklights Install fresh Batts
Mount light on CC
PWR – as reqd



P/TV04 INGRESS/EGRESS (Continued)

SETUP (Concluded)

3. Perform D2Xs PROGRAM w/FLASH

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:
ON/OFF pb – ON
√Diffuser Dome installed
√MODE –  TTL  BL
√Exp Comp – 0 EV
Tilt – 45° (Direct)

P/TV04 INGRESS/EGRESS (Concluded)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
				PLB	CC	Dnlk	
	1. ULF4-8	Hatch Opening, Ingress Hatch Close, Egress	<u>D2Xs</u> 12-24mm		<u>G1</u>	LIVE (if avail)	

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

DEACTIVATION

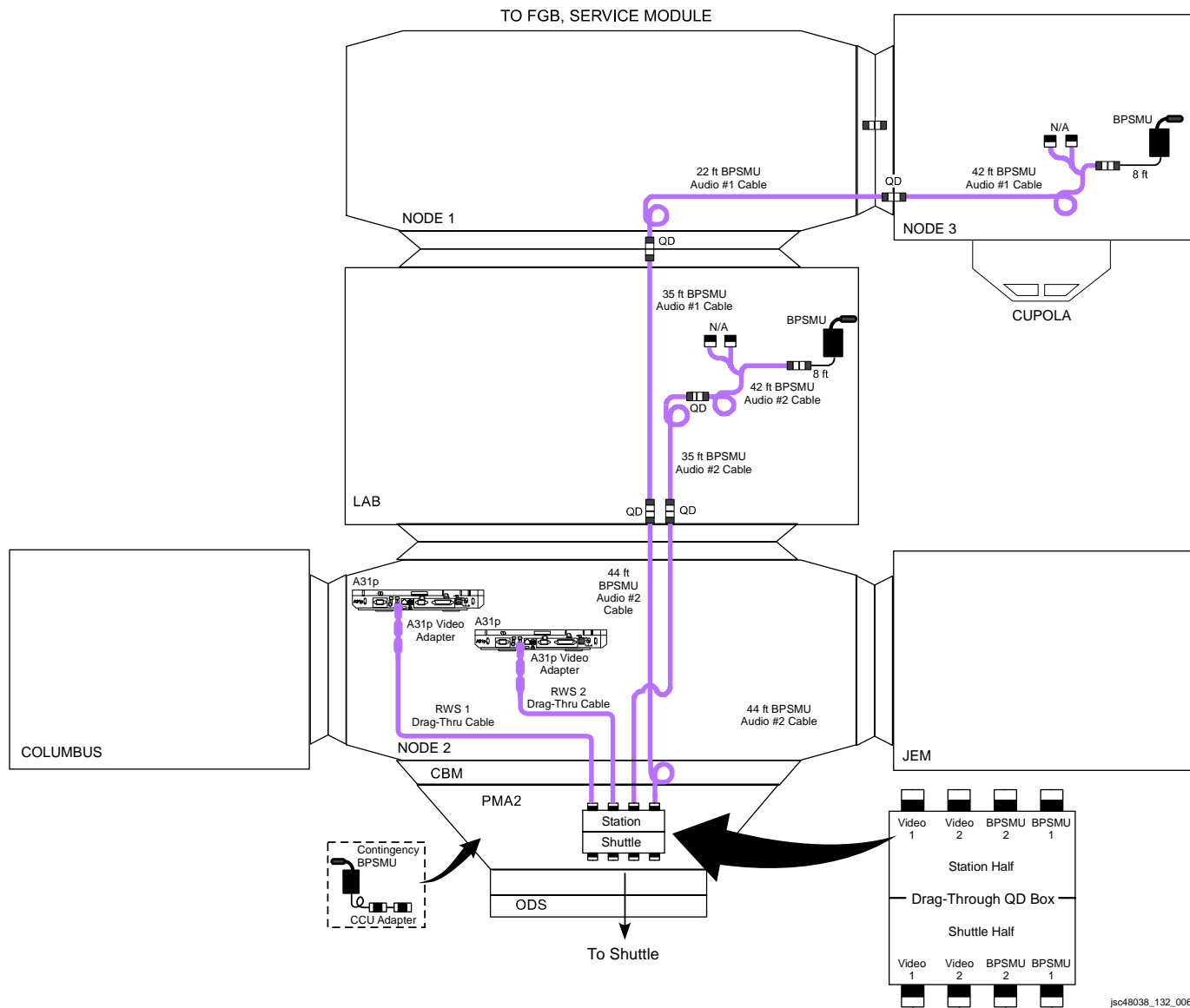
1. D2Xs
Pwr – OFF
2. TV System
Go to DEACTIVATION (Cue Card, TV) as reqd

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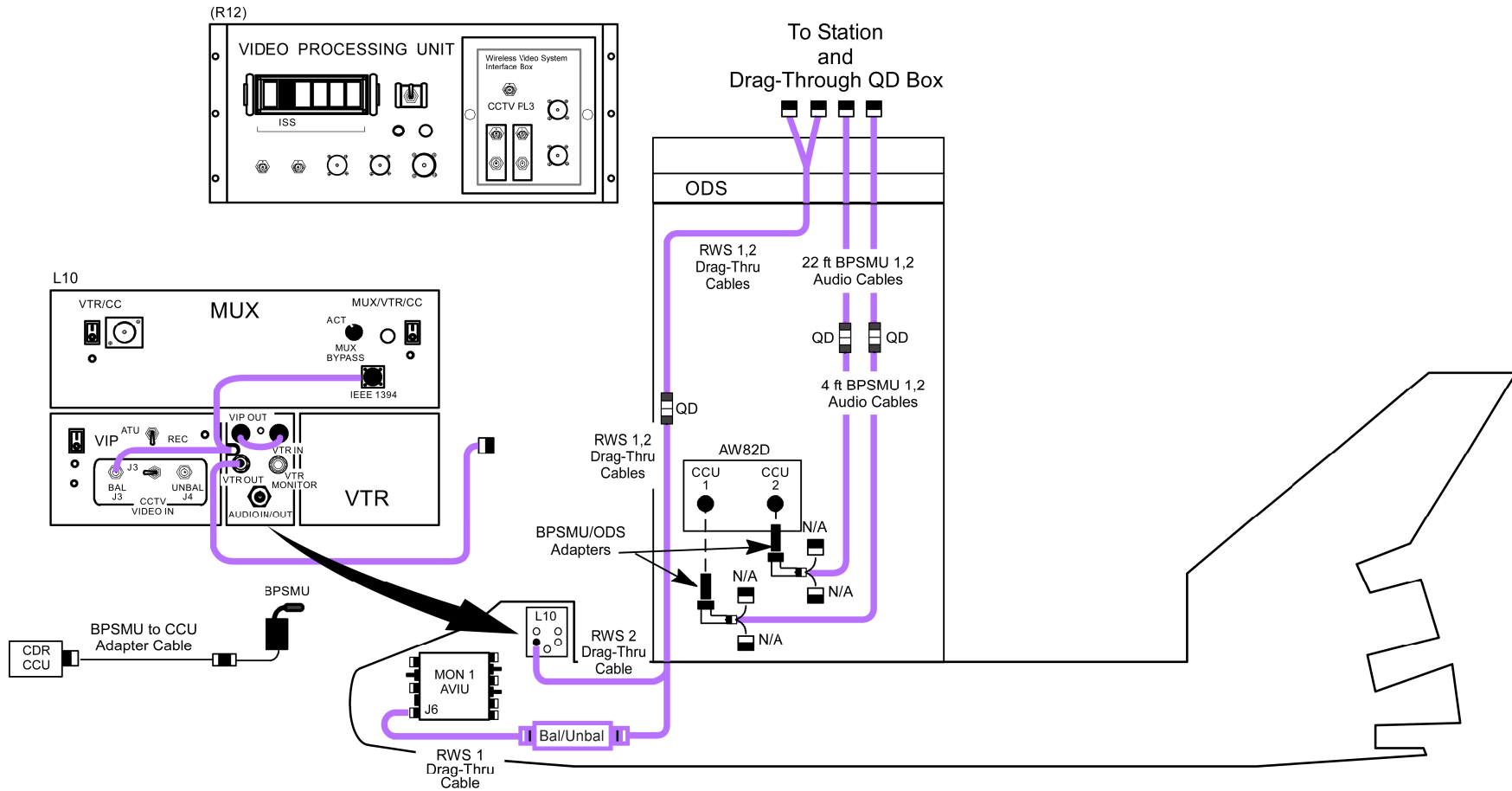
P/TV05 ISS INTERNAL OPS

H/W SUMMARY



P/TV05 ISS INTERNAL OPS (Continued)

H/W SUMMARY (Concluded)



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P/TV05 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

Config RWS Vid Cables:

MON 1,2
(Stow-n-Go)
L10:A1

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

√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

Connect BPSMU Cables to orbiter A/L CCU 1,2 and Drag-Through QD Box

Config A/L ATU per Comm Plan

If V10:

ISS
V10 (RWS 1,2)

√Pwr configured per P/TV121 DOCKED OPERATIONS, dwg USOS 120VDC –V10 VTRs (SODF: ISS PTV: SCENES)
PWR – ON

~

P/TV05 ISS INTERNAL OPS (Continued)

SETUP (Continued)

BPSMU AND RWS CABLES (Concluded)

A31p



↑
If A31p w/'NASA Video Monitor' under Station Apps:
√Drag-Thru Cable connected to A31p Video Adapter
√PWR – ON
Sel 'Station Apps: NASA Video Monitor'
√'NASA Video Monitor 1.0.0.0' window displayed
Sel 'Settings'
√'Configuration' window displayed
Video Input Standard: – NTSC
√Input – 'Composite (RCA)'
Control – press 'Set to defaults' pb
Commit Changes – 'OK'
Sel 'Full Screen'
Press 'ESC' to minimize display as reqd


P/TV05 ISS INTERNAL OPS (Continued)

SETUP (Concluded)

STILL CAMR

1. Perform D2Xs PROGRAM w/FLASH

- 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)

P/TV05 ISS INTERNAL OPS (Concluded)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
				PLB	CC	Dnlk	
	1. ULF4-8	General ISS IVA Activity <ul style="list-style-type: none"> • PAO Scenes of Interest • Crew Photo 	<u>D2Xs</u> 12-24mm For Crew Photo: Perform D2Xs CREW PHOTO (Cue Card, <u>D2Xs</u> <u>SETUP</u>)		<u>ISS G1</u>	LIVE (if avail)	Plan for end of day crew choice video
	2. ULF4-4	Closeout Imagery	<u>D2Xs</u> 12-24mm For Crew Photo: Perform D2Xs CREW PHOTO (Cue Card, <u>D2Xs</u> <u>SETUP</u>)		<u>ISS G1</u>	LIVE (if avail)	Replay or Post flight return

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

DEACTIVATION

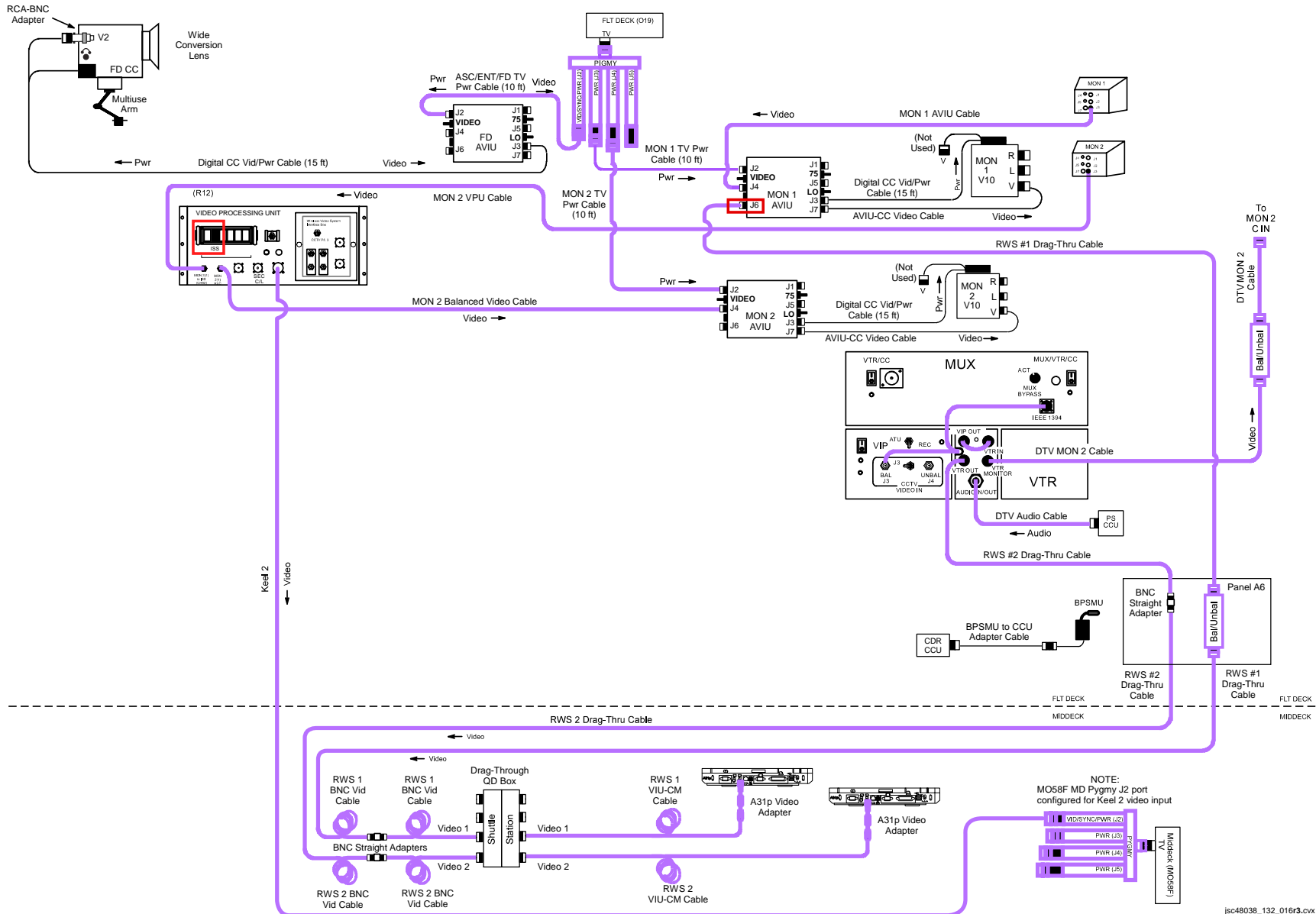
1. D2Xs
Pwr – OFF
2. Drag-Through QD Box
Disconnect:
RWS Cables (two) from orbiter side Video 1,2 ports. Stow cables on orbiter
BPSMU Cables from orbiter side BPSMU 1,2 and ODS CCU ports; stow cables on orbiter
Transfer Drag-Through QD Box and remaining attached cables to ISS
3. TV System
Go to DEACTIVATION (Cue Card, TV) as reqd

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P/TV06 ROBOTICS OPERATIONS

H/W SUMMARY



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, Keel Camr

O19	√TV PWR – ON
R12 (VPU)	√VPU PWR – ON (LED on) Green Jumper – ISS √Drag-Thru Cables configured as reqd
V10 (MON 1,2)	PWR – ON √Tape installed DISPLAY pb – Toggle to display tape counter
CC	√Wide Conversion lens installed √ND FILTER – OFF √OUTPUT – CAM √A/V1/V2 – V2 √ <input type="checkbox"/> ... <input type="checkbox"/> - <input type="checkbox"/> √STANDBY/LOCK – STANDBY PWR dial – “green” <input type="checkbox"/> √Tape installed √Viewfinder (LCD) displays “green” • Install Audio Muting Plug (optional) Install Multiuse Brkt
MON 2 L10 (MUX)	SOURCE – C VTR/CC PWR – on (LED on) If dnk, MUX/VTR/CC PWR – on (LED on)
(VIP)	PWR – on (LED on)
(VTR)	ON/STANDBY LED – green √Tape installed

P/TV06 ROBOTICS OPERATIONS (Concluded)

SETUP (Concluded)

- R12 (VPU) 3. √VPU PWR – ON
Green Jumper – ISS
- MO58F 4. If KEEL desired:
R12 (VPU) √KEEL Cable connected to J2 MD Pigmy port
√KEEL Cable connected to VPU Keel 2 port
- SSP2 √cb 1 PDIP 2 PWR 2 – cl
KEEL PWR – ON
- A7U VID OUT MON 1(2) pb – push
IN MIDDECK pb – push
- SSP2 Cycle KEEL ILL PWR for desired illum

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1. ULF4-8	PAO Coverage	D2Xs 12-24mm If exterior: Flash ON/OFF – OFF	As desired	G1 Tape installed	LIVE (if avail)	Plan for end of day crew choice video,DCS

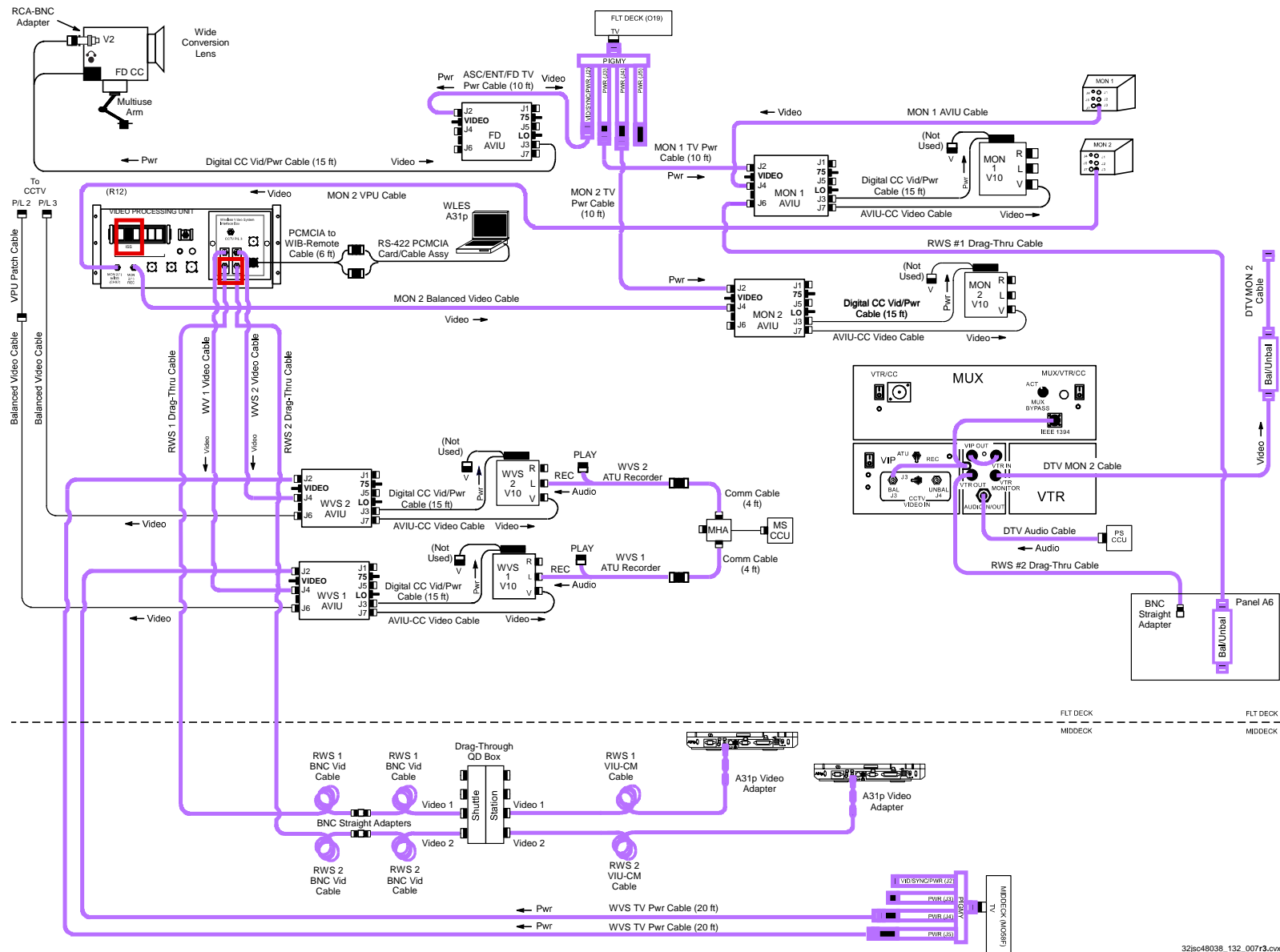
If OPS temporarily suspended, perform DEACTIVATION as reqd
If OPS completed, go to DEACTIVATION

DEACTIVATION

1. TV System
Go to DEACTIVATION (Cue Card, TV) as reqd

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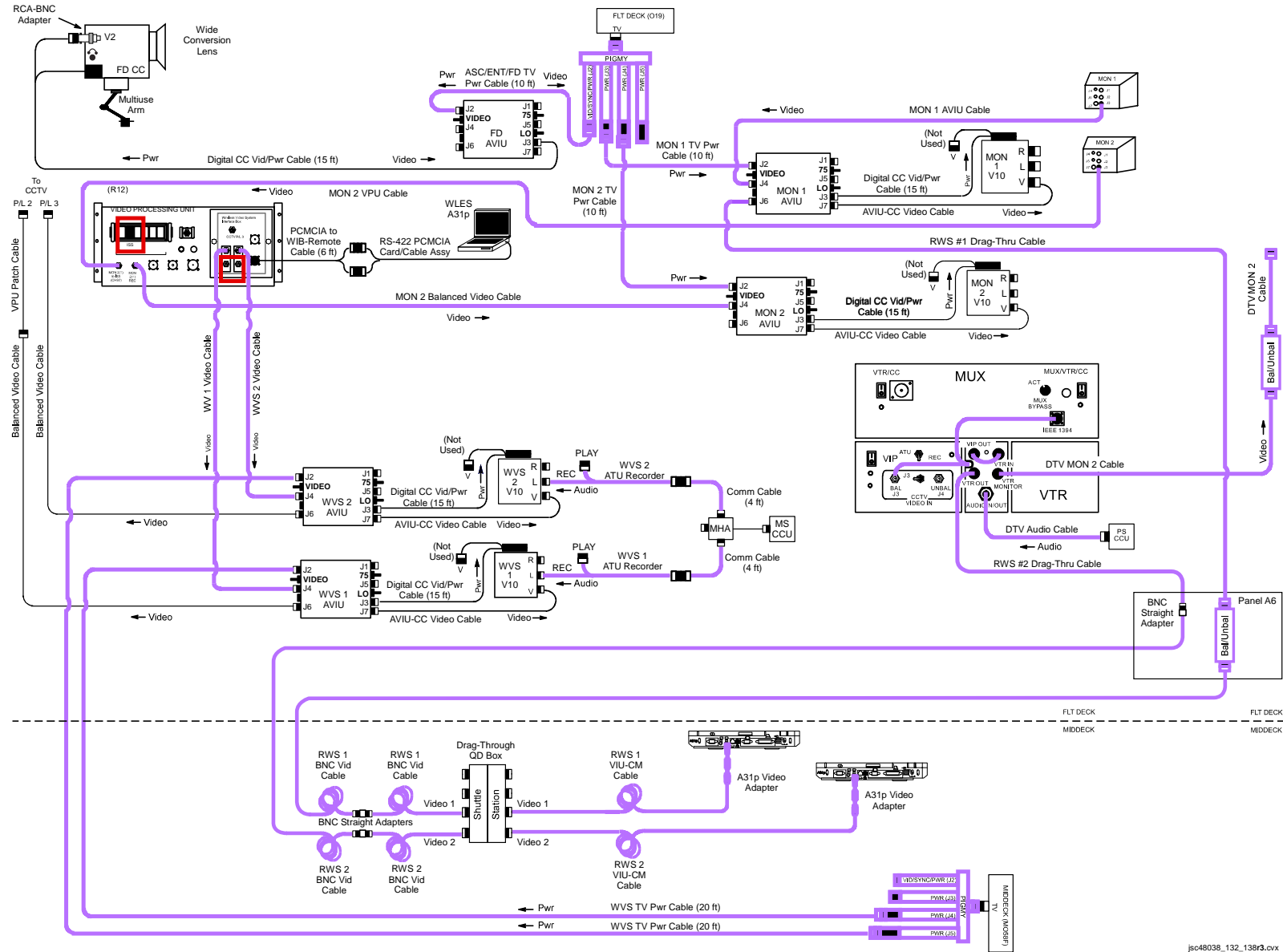
H/W SUMMARY – EVA w/WVS DRAG-THRU



32psc48038_132_007r3.cvx

P/TV07 EVA (Continued)

H/W SUMMARY – EVA w/MON 1/DTV DRAG-THRU



jsc48038_132_138r3.cvx

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, IV) as reqd
2. Perform D2Xs PROGRAM w/FLASH

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 

√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) √Green Jumper – ISS
V10 (MON 1,2, WVS 1,2)	PWR – ON √Tape installed DISPLAY pb – Toggle to display tape counter
CC	Install Wide Conversion lens √ND FILTER – OFF √OUTPUT – CAM √A/V1/V2 – V2 √ <input type="checkbox"/> .. <input type="checkbox"/> - <input type="checkbox"/> √STANDBY/LOCK – STANDBY PWR dial – “green” <input type="checkbox"/> √Tape installed √Viewfinder (LCD) displays “green” • Install Audio Muting Plug (optional) Install Multiuse Brkt
MON 2 L10 (MUX) (VIP) (VTR)	SOURCE – C VTR/CC PWR – on (LED on) If dnlk, MUX/VTR/CC PWR – on (LED on) PWR – on (LED on) ON/STANDBY LED – green √Tape installed

P/TV07 EVA (Continued)

SETUP (Concluded)

4. Config WVS and PGSC

a. Activate WVS System

A7 √WIRELESS VID HTR – ON
 PWR – ON

b. WVS PGSC Prep

PGSC PGSC Pwrup and Application Opening
 Pwr – ON
 Sel Shuttle Apps icon
 Sel WVS icon
 Sel 'No' at 'Restore To Previous Settings' window

 If 'Comm Port Configuration' error displayed:
 Remove Quatech RS-422 Card
 Sel 'Start'> 'Shut Down'> 'Shut Down'> 'OK'
 Reinstall Quatech RS-422 Card
 Pwr – ON
 Sel Shuttle Apps icon
 Sel WVS icon
 RF Camera page will appear

NOTE

During EVA prep, EMU TV assy will be pwr'd

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

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
				PLB	CC	Dnlk	
	1. ULF4-8	PAO Coverage	IVA D2Xs 12-24mm If exterior: Flash ON/OFF – OFF	As desired <u>WVS</u>	G1 As desired	LIVE (if avail)	Plan for end of day crew choice video, DCS stills
	2. ULF 4-5	Thermal Covers Closeout <ul style="list-style-type: none"> Obtain closeout images of thermal cover configs that were opened or closed or altered 	<u>EVA D2Xs</u> 28mm	<u>WVS, PLB</u> <u>as reqd</u>		LIVE (if available)	Live dnlk highly desired. Replay or post flight return reqd

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

DEACTIVATION

1. IVA D2Xs
 Pwr – OFF
 √Flash ON/OFF – ON
 Download images
2. TV System
 Perform PWRDN (Cue Card, WVS)
 Go to DEACTIVATION (Cue Card, TV) as reqd

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**P/TV08
EXT SURVEY**

P/TV08 EXTERNAL SURVEY

SCENE SYNOPSIS

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

SETUP

1. D2Xs Camr Configuration for OMS Pod Survey

Remove aft window shields

If Sunlit OMS Pod, config D2Xs Manual Mode:

SB-800 Flash Settings:

ON/OFF pb – OFF

Lens – 80-200mm at 200mm

Focus Limit – full

Lens Focus Mode – A

Aperture – Min,locked

Body Focus Mode – S

√Batt installed


Install empty card

Pwr – ON

Top LCD:

√Batt

√Frames remaining sufficient

Exp Comp () – 0.0

Exp Mode – M:

SS – 1000

f/stop – F8

Meter – Matrix ()

Diopter – Adjust

Frame Rate – S

√BKT disabled – 0 F

Rear LCD:

√ISO – 100

√QUAL – RAW

√WB – 0,A

AF Area Mode – [[]]

√Focus Area – Center

√Focus Selector Lock – L

~

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

P/TV08 EXTERNAL SURVEY (Continued)

SETUP (Concluded)

2. D2Xs Camr Config for ISS Still Survey (D2Xs Shutter Priority Mode)

Lens – 28-70mm @ 50mm(80-200mm @ 200mm)

SB-800 Flash Settings:

ON/OFF pb – OFF

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

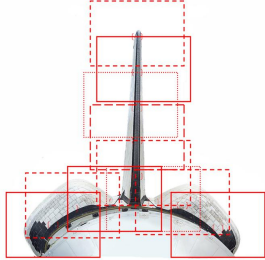
AF Area Mode – [[]]

√Focus Area – Center

√Focus Selector Lock – L

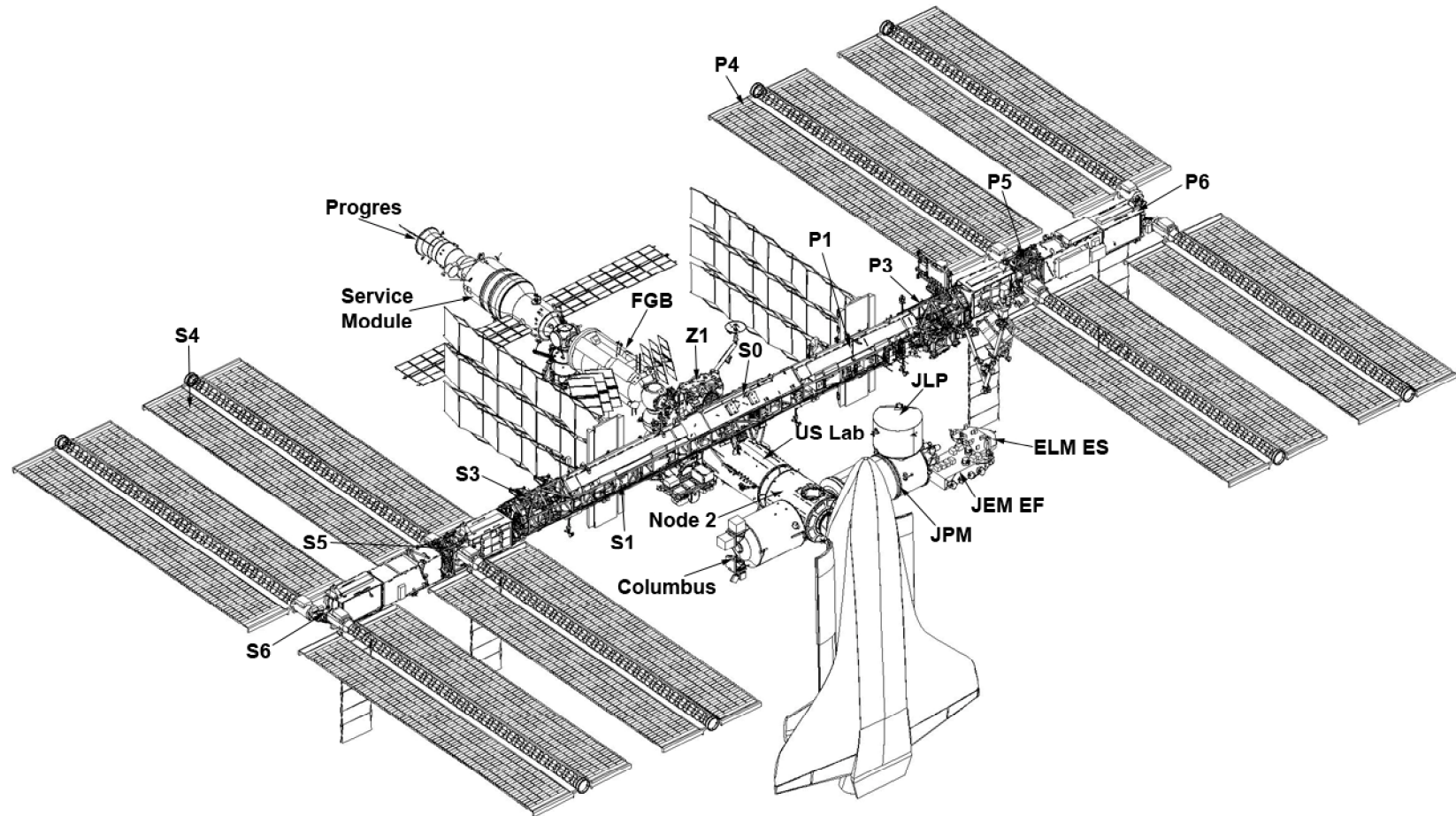
P/TV08 EXTERNAL SURVEY (Continued)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
				PLB	CC	Dnlk	
	1.	<u>OMS Pod Survey</u> <ul style="list-style-type: none"> •√No shadows on OMS pod • Remove Window Shields • 50 percent overlap mapping of both OMS pods and vertical stabilizer w/emphasis on Black Tile areas • Repeat thru other window 	<u>D2Xs</u> 80-200mm @ 200mm				Download images to MCC once complete. Identify as OMS Pod Survey 
	2. ULF4-6	<u>ISS Still Survey</u> <ul style="list-style-type: none"> • Surfaces • Solar Panels • Handrails • MISSE-7 or ELC2 on S3 • SVS Targets • Plasma Arcing • S0,S1,S3,S4,S5,P1,P3,P4, P5,P6 Truss Radiators/ Baseplates, SAWs • ELC1 (P3, Nadir) • ELC2 (S3, Zenith) 	<u>D2Xs</u> 28-70mm @ 50mm (80-200mm @ 200mm)				Map ISS surfaces w/30% overlap from all Flt Deck windows

P/TV08 EXTERNAL SURVEY (Continued)

OPS (Continued)



Priority of ISS Photographic Targets During Docked Phase:*

1. P6, P5, P3/P4, ESP 3, P1, JEM, JLP, Columbus, S1, S3/S4, S5, S6, Solar Arrays – W1, W6, Node 3
2. Node 2, Columbus, JEM, JLP – W7, W8
3. PMA2 – W9, W10

*Special emphasis on newly installed components

P/TV08 EXTERNAL SURVEY (Concluded)

OPS (Concluded)

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

DEACTIVATION

1. D2Xs
√Exp Mode – P
PWR – OFF
Flash ON/OFF – ON

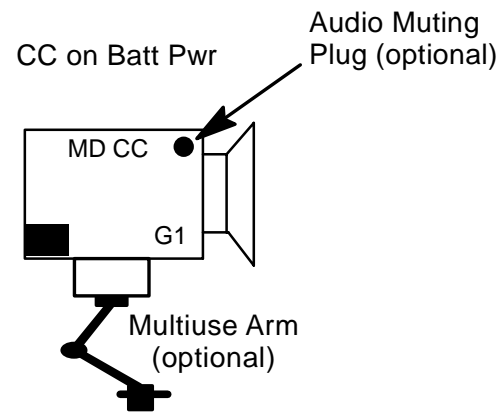
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**P/TV09
GLACIER**

P/TV09 GLACIER

H/W SUMMARY



jsc48038_129_017.cvx

P/TV09 GLACIER (Continued)

SCENE SYNOPSIS

Scene contains procedures for obtaining in-cabin video, still images of GLACIER payload

SETUP

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

√Batt installed

CC

Install Wide Conversion lens

√ND FILTER – OFF

√OUTPUT – CAM

√A/V1/V2 – V2

√..-

√STANDBY/LOCK – STANDBY

PWR dial – “green”

√Tape installed

√Viewfinder (LCD) displays “green” •||



Install Audio Muting Plug (optional)


Install Multiuse Brkt (optional)

P/TV09 GLACIER (Continued)

SETUP (Concluded)

2. Perform D2Xs PROGRAM w/FLASH

- 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)

P/TV09 GLACIER (Concluded)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1. ULF4- 11,12	GLACIER Installation Video, Still Photography <ul style="list-style-type: none"> • Still images of GLACIER installed in Middeck (2 images taken of wide view, and close-up of hardware and front panel) • Video of crew performing an activity at the GLACIER in Middeck (hardware prep, sample insertion/removal) • Video of GLACIER front panel configuration after transfer is complete • Video of crew interaction with GLACIER (hardware status check, sample insertion/removal) • Video and/or Still images of sample transfers 	D2Xs 12-24mm		G1	PLAYBACK desired	There are two sample insertion/removal activities; both are to be recorded

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P/TV10 SEITE,SIMPLEX PAYLOADS

SCENE SYNOPSIS

Scene contains procedures for documenting the SEITE and SIMPLEX OMS burns

SETUP

1. Remove window shields prior to setup
2. Perform ACTIVATION,OPERATION (Cue Card, TV) as reqd
3. D2Xs Camr Config for SEITE,SIMPLEX (D2Xs Shutter Priority Mode)

SB-800 Flash Settings
ON/OFF pb – OFF

Lens – 28mm
√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 – C_L

√BKT disabled – 0 F

Rear LCD

√ISO – 100

√QUAL – RAW

√WB – 0,A

AF Area Mode – [[]]

√Focus Area – Center

√Focus Selector Lock – L

P/TV10 SEITE,SIMPLEX PAYLOADS (Continued)

SETUP (Continued)

3. D2Xs Camr Config for SEITE,SIMPLEX (D2Xs Shutter Priority Mode) (Concluded)

Menu Settings:

MENU pb – press

Navigate Pad sel – Shooting Menu () Hi-speed Crop > On

– Custom Settings Menu > d Shooting/Display > d1 Shooting Speed > 4 fps

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



4. 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)

P/TV10 SEITE,SIMPLEX PAYLOADS (Continued)

SETUP (Concluded)

4. Perform Hardware Verification for DTV (Concluded)

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

L9 If Audio desired:
 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)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
				PLB	CC	Dnlk	
	1.	SEITE,SIMPLEX • Initiate photo sequence 1 sec prior to burn	<u>D2Xs</u> 28mm	<u>A(D)</u>		LIVE (if avail)	√Focus set to OMS pod

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

P/TV10 SEITE,SIMPLEX PAYLOADS (Concluded)

DEACTIVATION

1. D2Xs
Body Focus Mode – S
Exp Mode – P
Frame Rate – S

Menu Settings
MENU pb – press
Navigate Pad sel – Shooting Menu () Hi-speed Crop > OFF
Navigate Pad sel – Custom Settings Menu > d Shooting/Display > d1 Shooting Speed > 3 fps
2. TV System
Remove,mark tape for SEITE(SIMPLEX)
Go to DEACTIVATION (Cue Card, TV) as reqd

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P/TV11 STORRM

SCENE SYNOPSIS

Scene contains procedures for obtaining in-cabin photogrammetry of DTO-703 STORRM

SETUP

1. Perform Setup using D2Xs Camera body SN (TBD) and 17-35mm lens SN (TBD)
2. Perform D2Xs APERTURE PRIORITY
 - Lens – 17-35mm @ 35mm
 - 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 – 16
 - Meter – Matrix (☉)
 - Diopter – Adjust
 - Frame Rate – S
 - √BKT disabled – 0 F
 - Rear LCD
 - √ISO – 100
 - √QUAL – RAW
 - √WB – 0,A
 - AF Area Mode – []]
 - √Focus Area – Center
 - √Focus Selector Lock – L
 - SB-800 Flash Settings
 - √Diffuser Dome installed
 - ON/OFF pb – ON
 - √MODE – [] TTL BL
 - √Exp Comp – 0 EV
 - Tilt – 45° (Direct)
3. Tape scale on docking target using Kapton Tape in two places; Do not cover fiducials

P/TV11 STORRM (Concluded)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	STORM, Still Photography <ul style="list-style-type: none"> • 8 Images around the ODS perimeter at 45° intervals • 1 Image of center target 	D2Xs 35mm				All images at no less than 2 ft Center each image on docking target Verify targets and entire scale visible in each photo Dnlk images immediately following capture
	2.	Repeat step 1					

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

DEACTIVATION

1. Remove scale from docking target – stow in (TBD)
2. D2Xs
 - √Exp Mode – P
 - Pwr – OFF
 - √Flash ON/OFF – ON

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C/L CAMR

CENTERLINE (C/L) CAMR

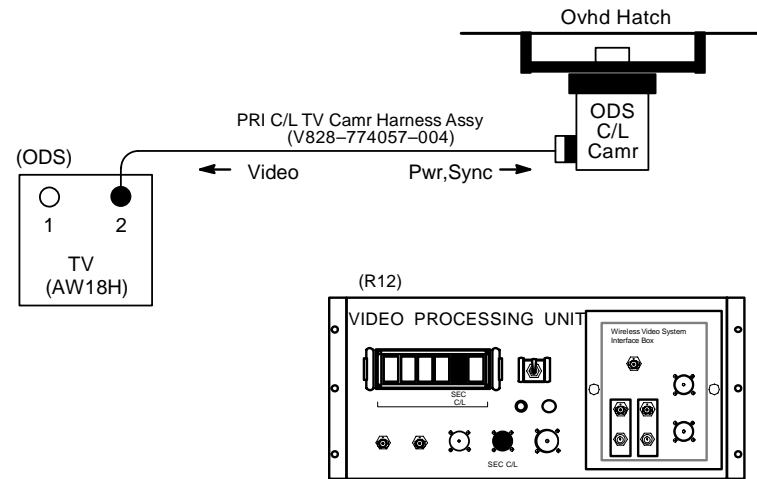
C/L CAMR INSTALL

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 (two) – 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

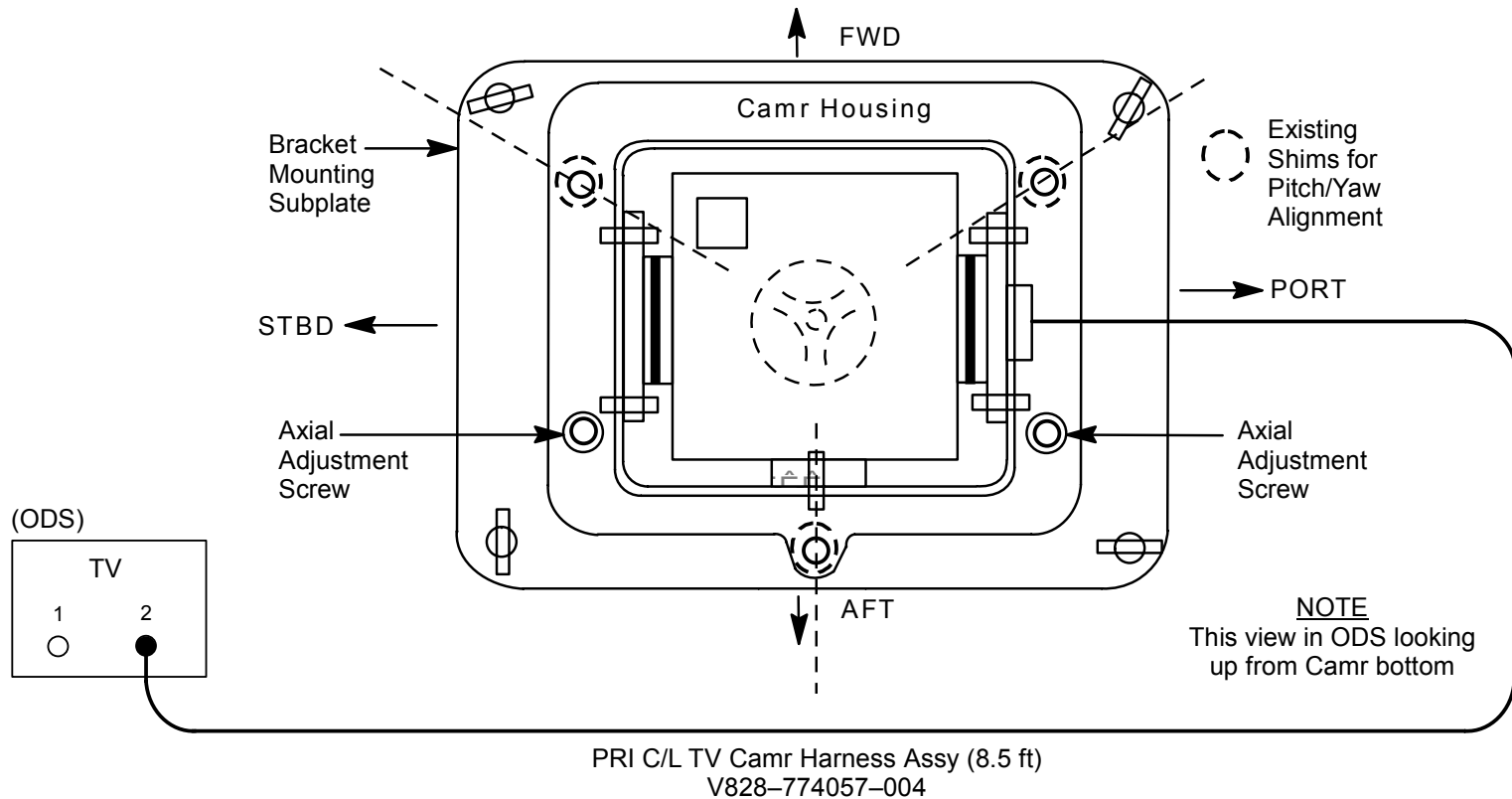


jsc48037_048r2.cvx

CENTERLINE (C/L) CAMR (Continued)

C/L CAMR INSTALL (Continued)

2. Camr Position Verification



jsc48037_049r2.cvx

CENTERLINE (C/L) CAMR (Concluded)

C/L CAMR INSTALL (Concluded)

3. ODS C/L Camr Alignment Check
Perform ACTIVATION (Cue Card, TV) as reqd

MON 1(2) LDATA – ON
 CDATA – GRN
 XHAIR – GRN

A7 Zoom to $10^\circ \pm 0.5^\circ$
 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

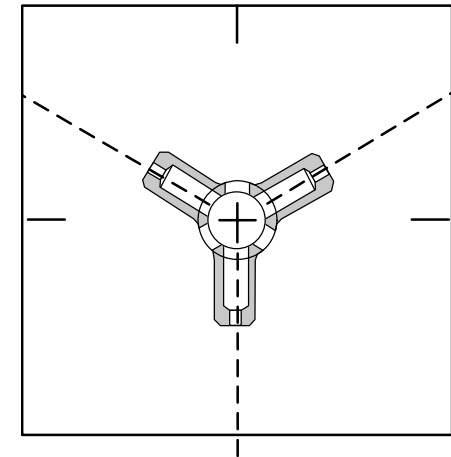
MON 1(2) ✓ Vertical xhairs coincide w/vertical alignment wire and are parallel.
 If xhair marks overlay each other, no yaw(axial) alignment needed (see dwg above)

✓ 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

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

A6L LT VEST PORT,STBD (two) – OFF as reqd



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DTV

DTV

VTR CLOCK SET

1. Activate VTR

R1 √PL AUX – ON

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

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

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D2Xs

D2Xs

DATE/TIME SET

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

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CANON G1

ANALOG (SD DTV) CC REC.DNLK

Config H/W per dwg at right

AVIU

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

O19(MO58F)

√TV PWR – ON

CC

√Wide Conversion lens installed
 √ND FILTER – OFF
 Install Audio Muting Plug (optional)
 √OUTPUT – CAM
 √AV1/V2 – V2
 √ [Icon] .. [Icon] - [Icon]
 √STANDBY/LOCK – STANDBY
 PWR dial – “green” [Icon]
 If rec to tape:
 Tape – Install
 √Viewfinder (LCD) displays “green” •||
 Multiuse Brkt, Clamp

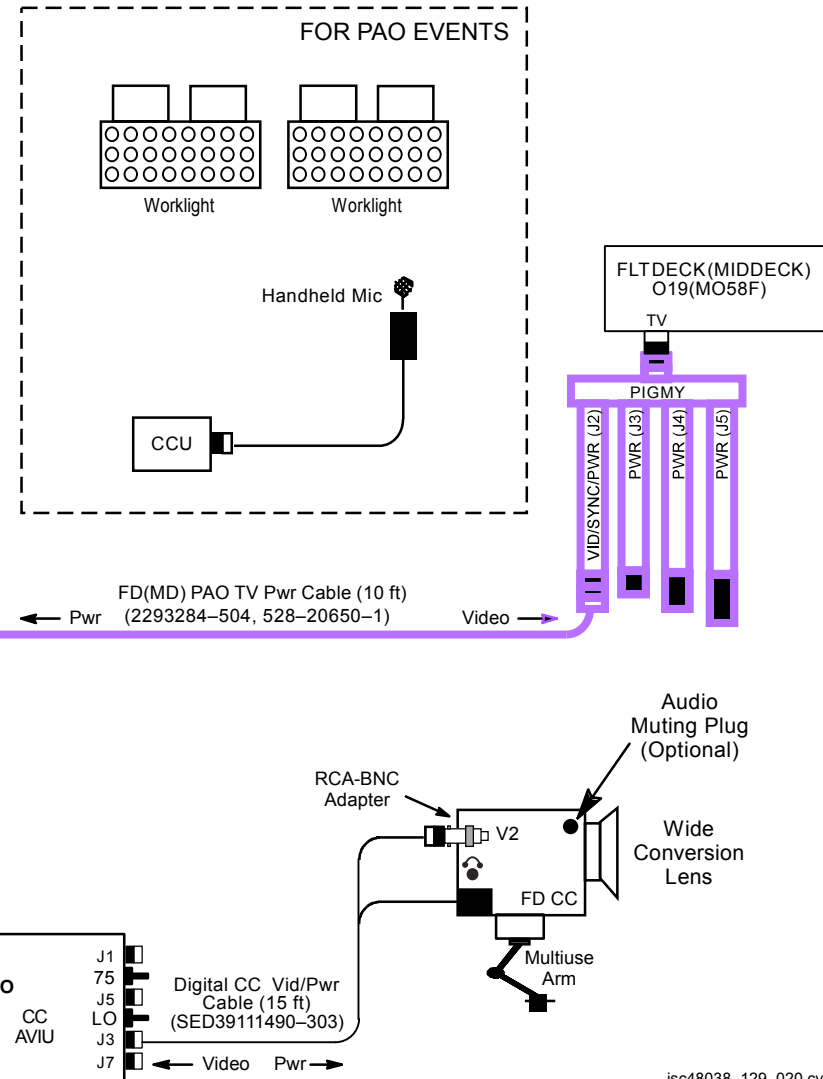
CAUTION
 Due to temp constraints, worklights at full pwr for 60 min; 90% pwr for unlimited time

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



jsc48038_129_020.cvx

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

A7 When ready for dnlk:
 √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 Digital, 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

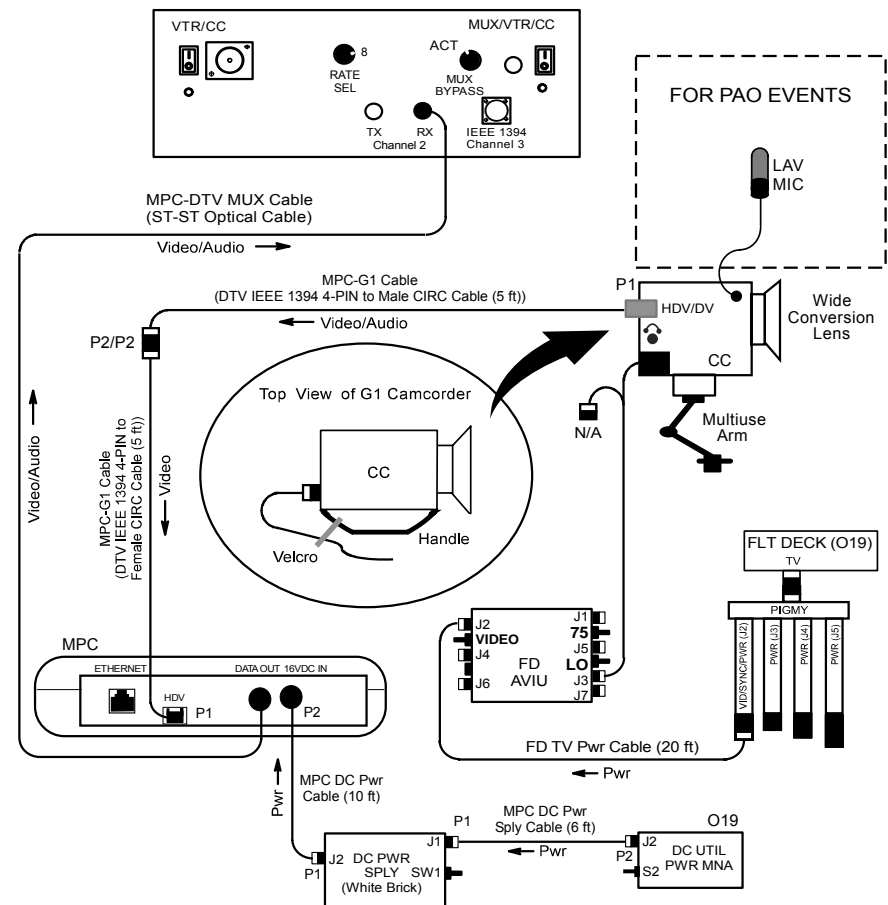
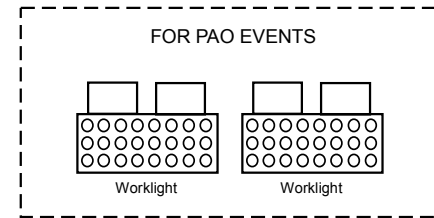
CANON G1 (Continued)

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
√ – 
√STANDBY/LOCK – STANDBY
PWR dial – “green” 
Mount Camcorder
- 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 SPLY DC PWR SPLY PWR SW1 – ON
- MPC PWR – ON (HDV, TAXI, 5V, 3V green LEDs on)



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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)

CC	When dnlk complete: PWR dial – OFF
Worklights	PWR – OFF
O19	TV PWR – OFF as reqd
MPC	PWR – OFF
PWR	DC PWR SPLY PWR SW1 – OFF
SPLY	
O19	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 TV dnlk

Go to DEACTIVATION (Cue Card, TV) as reqd

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FCS CHECKOUT CAMR SETUP

SYNOPSIS

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

Rear LCD:

√ISO – 100

√QUAL – RAW

√WB – 0,A

AF Area Mode – [[]]

√Focus Area – Center

√Focus Selector Lock – L

FCS CHECKOUT CAMR SETUP (Concluded)

SETUP (Concluded)

2. G1 CC
 - Remove Wide Conversion Lens
 - Install Batt
 - √ND FILTER – OFF
 - AF/M – M
 - AGC – OFF
 - GAIN – L
 - √OUTPUT – CAM
 - √AWB – ON
 - √..-
 - √STANDBY/LOCK – STANDBY
 - PWR dial – M
 - √Tape installed
 - Open LCD:
 - √'green' ●|| displayed
 - SS – 1/500
 - √GAIN – 0dB
 - f/stop – F8.0
 - √FOCUS – M ∞

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

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FS 2-21

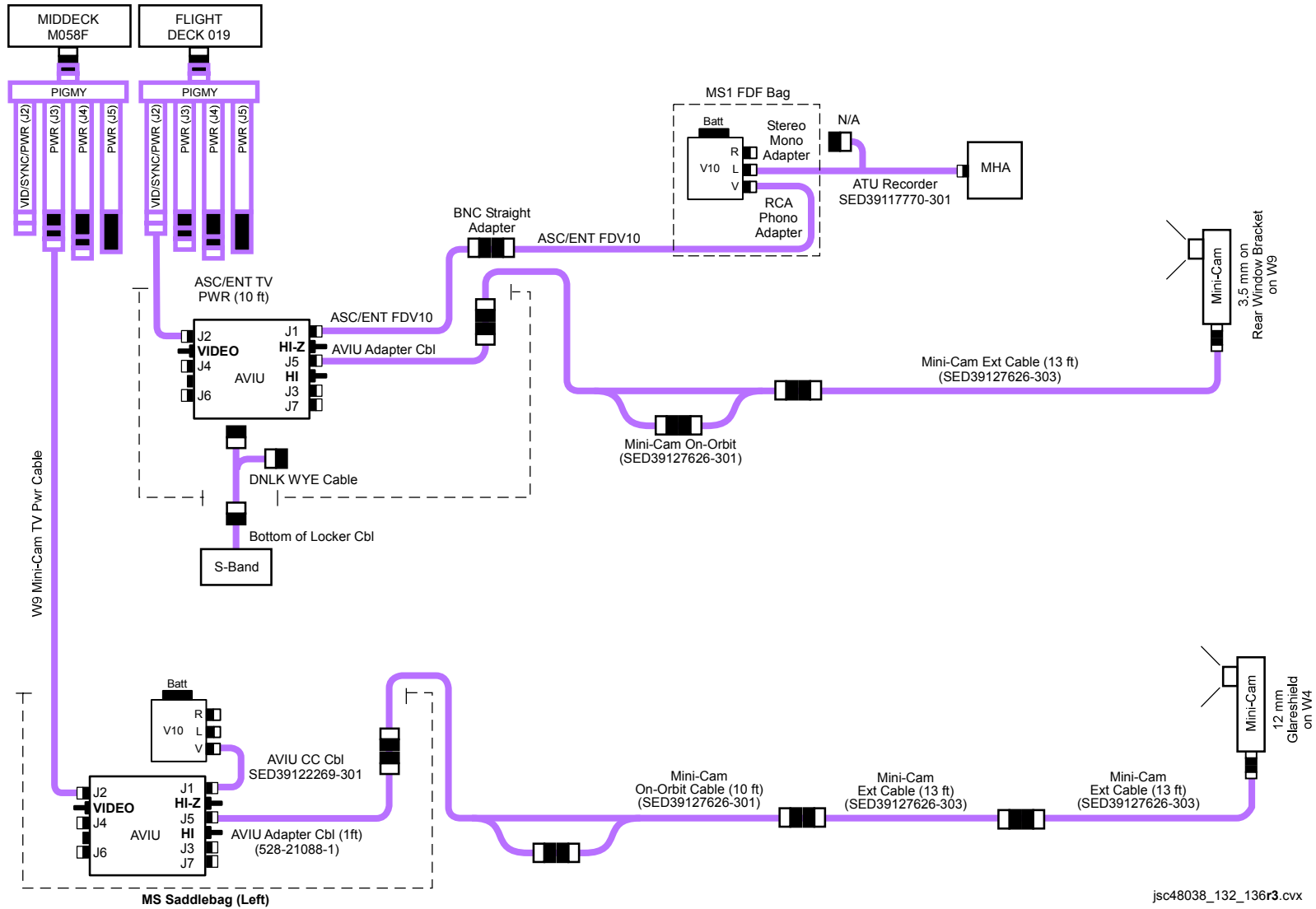
P/TV/132/FIN

MINI-CAM

MINI-CAM

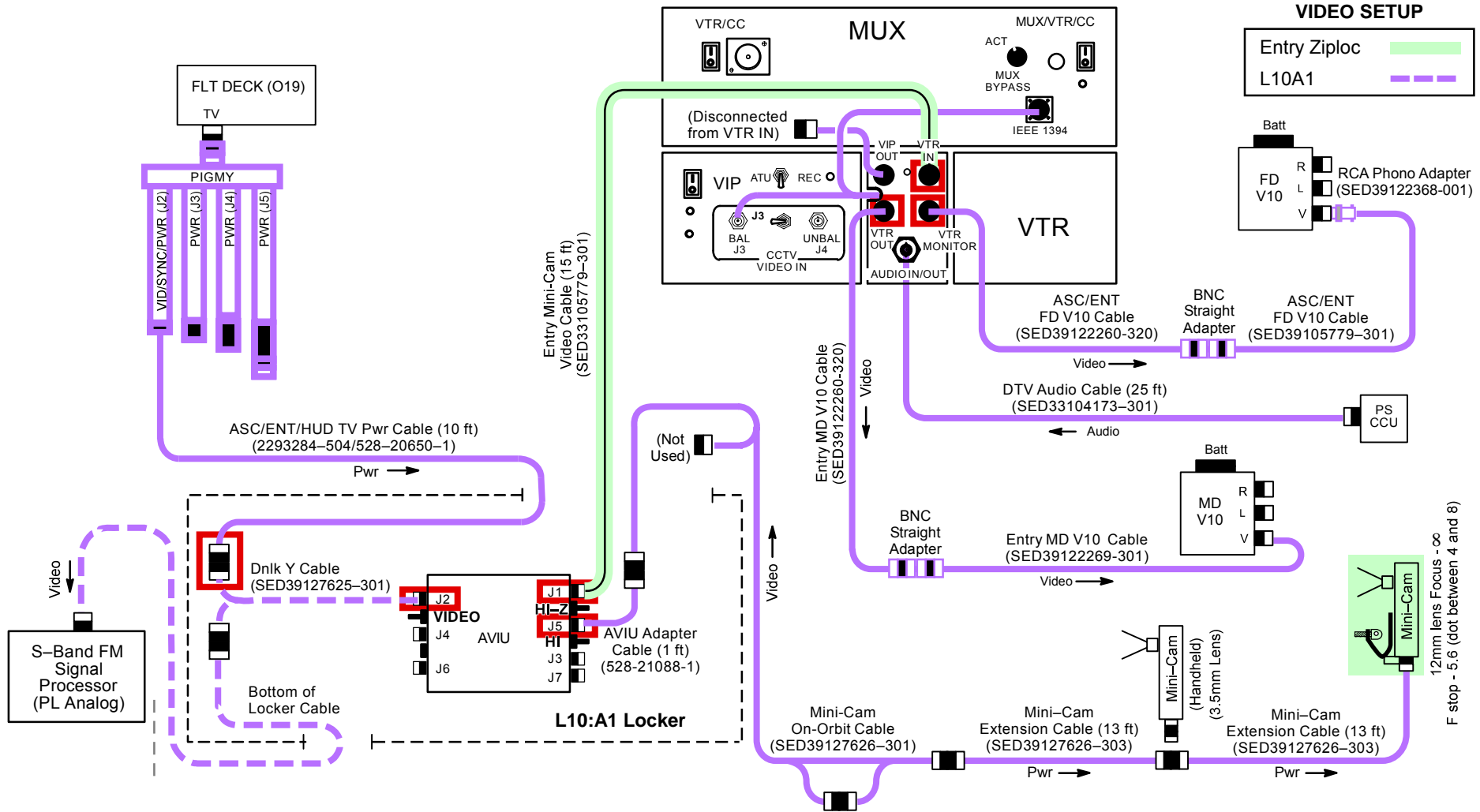
MINI-CAM

MINI-CAM ASCENT CONFIG



MINI-CAM

ENTRY VIDEO SETUP – FLT DECK



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MINI-CAM (Continued)

ENTRY VIDEO SETUP

- CC/
Mini-Cam Bag
1. Remove the following:
 "Entry" Ziploc Bag
 W9 Mini-Cam and Bracket
 2. Acquire two (2) V10 Li-ION batts

NOTE

One Batt will be used for each V10 Rcdr for system c/o; Batts will be removed after c/o and used for Entry. Remaining Batts are spare

3. Acquire two (2) 40 min video tapes
 4. Config ENTRY VIDEO SETUP – FLIGHT DECK
 Config H/W per dwg, FS 2-23
 - 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
- HUD
Brkt/Cam
- 12mm Lens
- Focus – ∞
Aperture:
 If night landing: f/1.4
 If daylight landing: f/5.6 (dot between 8 and 4)
Aperture – f/5.6 (Dot between 4 and 8)
- Velcro Mini-Cam w/12mm Lens to HUD Brkt. (Top of black Velcro on front of Camr should be at top edge of HUD Brkt.
Only yellow Velcro should be visible above HUD Brkt)
- b. Config Flight Deck Handheld Mini-Cam w/3.5mm Lens
- 3.5mm Lens
- Aperture – f/1.8

MINI-CAM (Concluded)

ENTRY VIDEO SETUP (Concluded)

b. Config Flight Deck Handheld Mini-Cam w/3.5mm Lens (Concluded)

L10:A1	<u>AVIU</u> 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
V10 (FD,MD Repeater)	Install fresh Batt PWR – ON √HUD 12mm Lens/Mini-Cam producing good video Change config to Flight Deck Handheld 3.5mm Lens/Mini-Cam √In-cabin 3.5mm Lens/Mini-Cam producing good video PWR – OFF
L10 (VTR) (MUX)	ON/STANDBY pb – push (red LED off) VTR/CC PWR – off (LED off)
O19	TV PWR – OFF

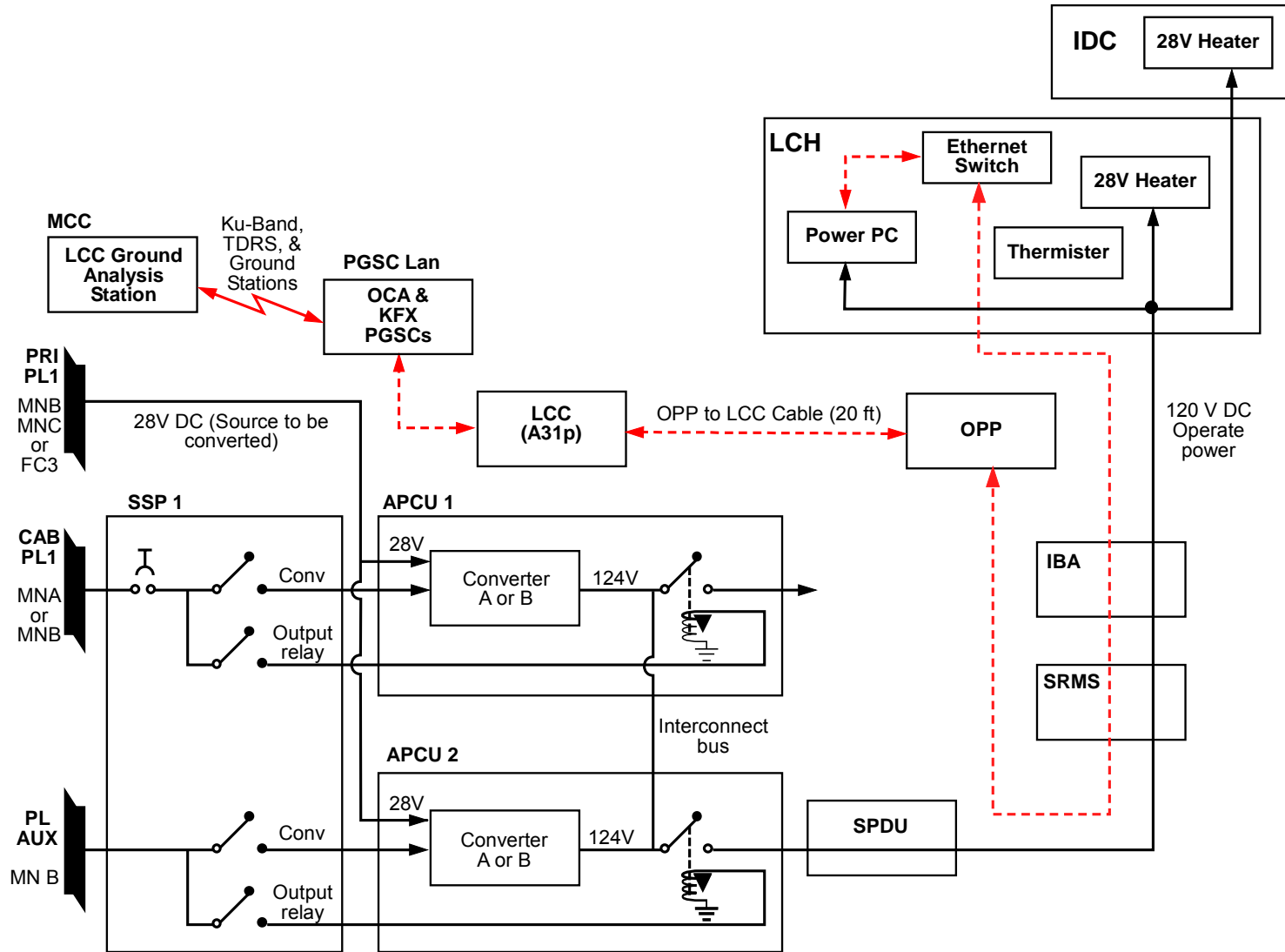
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LCS/IDC

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

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



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SPECIFICATIONS

CAMR BODY

CMOS SENSOR SIZE: 36mm x 23.9mm (DX MODE 24mm x 16mm)
PIXEL COUNT: 4256 x 2832 (12.1 million pixels)
FRAME/CARD: ~300/4 GB EVA Flash Card
RAW FILE SIZE: ~14 MB compressed lossless (14-bit)
EXPOSURE CONTROL: Auto (program, shutter priority, aperture priority), Manual
METER PATTERN: 3D Color Matrix II, Center Weighted, Spot
EXPOSURE COMP: ±5 EV RANGE in 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 (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 DX
BATT: 4AA
BATT LIFETIME: 200+ images
WEIGHT: w/o Batts – .77 lb
SYNC FLASH CONTROL: Master, Remote

D3s (Continued)

LENS DATA

Lens	Aperture Range (f/stop)	Approximate Field of View (FOV)			Approx Minimum Focus Distance (ft)	Weight (lb)	Filter Size	M-A Switch
		Horizontal	Vertical	Diagonal				
10.5mm AF DXG	f/2.8-f/22	–	–	180°	0.5	.6	Rear	
12-24mm AF DX	f/4.0-f/22	89°-53°	66°-36°	100°-61°	1.0	1.02	77mm	Yes
14mm	f/2.8-f/22	104°	81°	114°	0.66	1.48	Rear	Yes
16mm	f/2.8-f/22	97°	74°	107°	0.9	0.6	Rear	
17-35mm	f/2.8-f/22	93°-54°	70°-38°	104°-63°	1.0	1.6	77mm	Yes
24-70mm	f/2.8-f/22	74°-29°	53°-19°	84°-34°	1.2	2.0	77mm	Yes
17-55mm	f/2.8-f/22	70°-24°	50°-16°	80°-29°	1.3	1.7	77mm	Yes
20-35mm	f/2.8-f/22	61°-37°	43°-25°	71°-44°	1.7	1.3	77mm	Yes
24-85mm	f/2.8(4)-f/22	53°-16°	36°-11°	61°-19°	1.6	1.2	72mm	Yes
28mm	f/2.8-f/22	46°	31°	54°	1.25	0.5	52mm	
28mm	f/1.4-f/16	46°	31°	54°	1.14	1.1	72mm	Yes
28-70mm	f/2.8-f/22	46°-19°	31°-13°	54°-23°	2.3 (1.5 ft macro)	2.0	77mm	Yes
35mm	f/2-f/22	54°	38°	63°	0.9	0.5	52mm	
35-70mm	f/2.8-f/22	54°-29°	38°-19°	63°-34°	2.0 (0.9 ft macro)	1.5	62mm	
50mm	f/1.4-f/16	40°	27°	47°	1.5	0.5	52mm	
60mm Micro	f/2.8-f/32	33°	23°	40°	0.66	1.0	62mm	Yes
80-200mm	f/2.8-f/22	25°-10°	17°-7°	30°-12°	6	2.87	77mm	Yes
85mm	f/1.8-f/16	24°	16°	29°	3.0	1.2	62mm	

D3s (Continued)

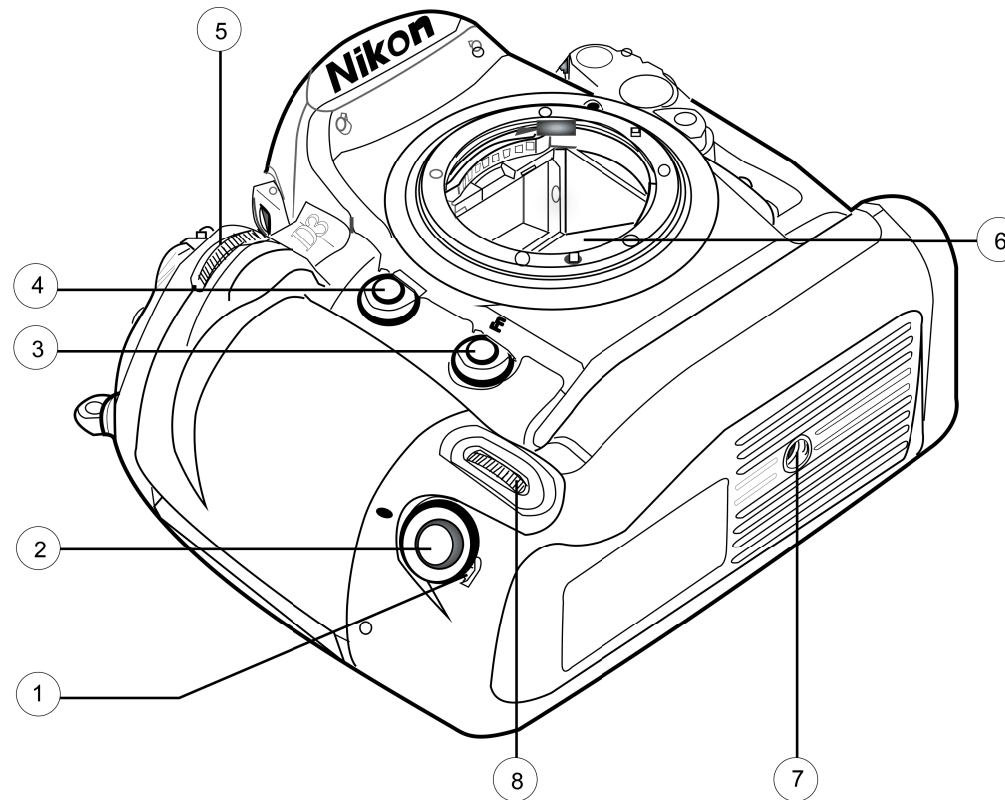
LENS DATA (Concluded)

Lens	Aperture Range (f/stop)	Approximate Field of View (FOV)			Approx Minimum Focus Distance (ft)	Weight (lb)	Filter Size	M-A Switch
		Horizontal	Vertical	Diagonal				
105mm Micro	f/2.8-f/32	20°	13°	23°	1.0	1.2	52mm	Yes
180mm	f/2.8-f/22	11°	8°	14°	5.0	1.7	72mm	Yes
400mm	f/2.8-f/22	5.2°	3.4°	6.2°	12.5	10.6	52mm	Yes
400mm w/2X Teleconverter (800mm) TC-20E	f/5.6-f/45	2.6°	1.7°	3.1°	12.5	11.3	52mm	Yes

D3s (Continued)

NOMENCLATURE

CAMR – FRONT



Nikon D3s Camera Front

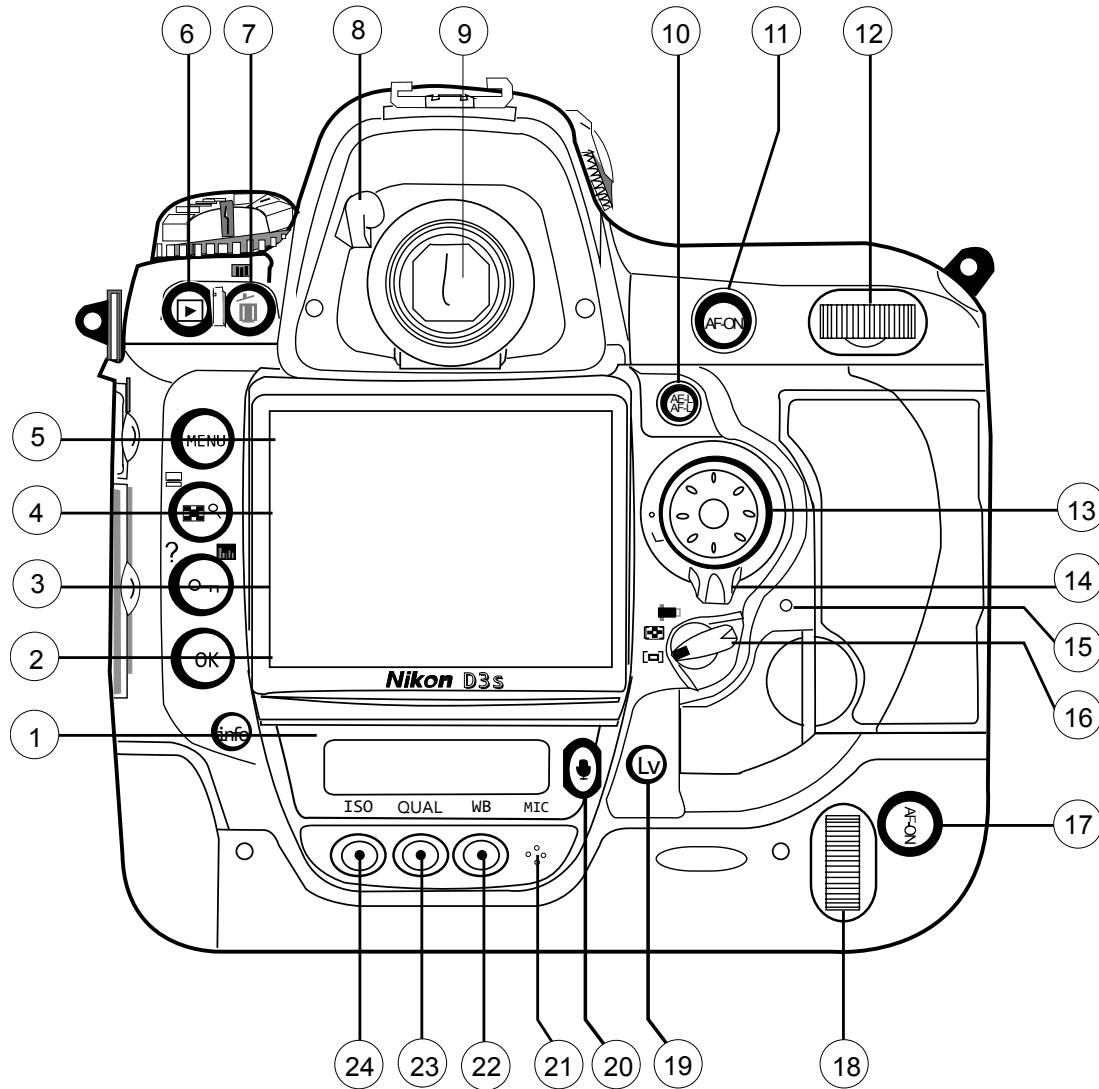
- | | | | |
|---|---|---|--------------------------------------|
| 1 | sw Shutter-release Lock (vertical shooting) | 5 | Sub-command Dial |
| 2 | pb Shutter-release (vertical shooting) | 6 | Mirror |
| 3 | pb Fn | 7 | 1/4-20 Socket |
| 4 | pb Depth-of-field Preview | 8 | Sub-command Dial (vertical shooting)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

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D3s (Continued)

NOMENCLATURE (Continued)

CAMR – BACK

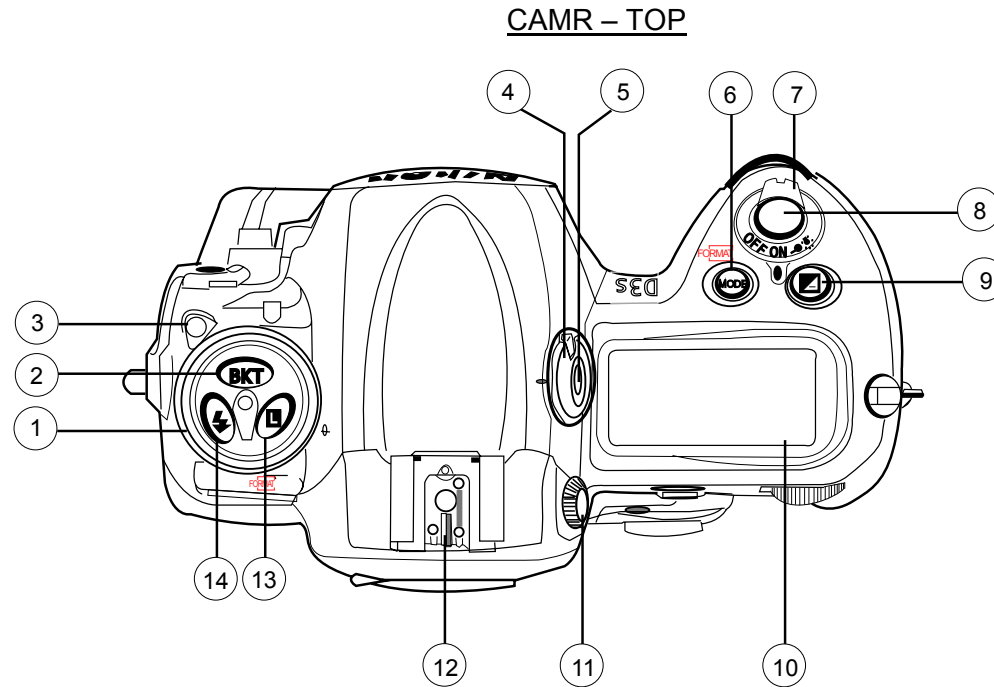


Nikon D3s Camera Back



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

D3s (Continued)

NOMENCLATURE (Continued)



Nikon D3s Camera Top

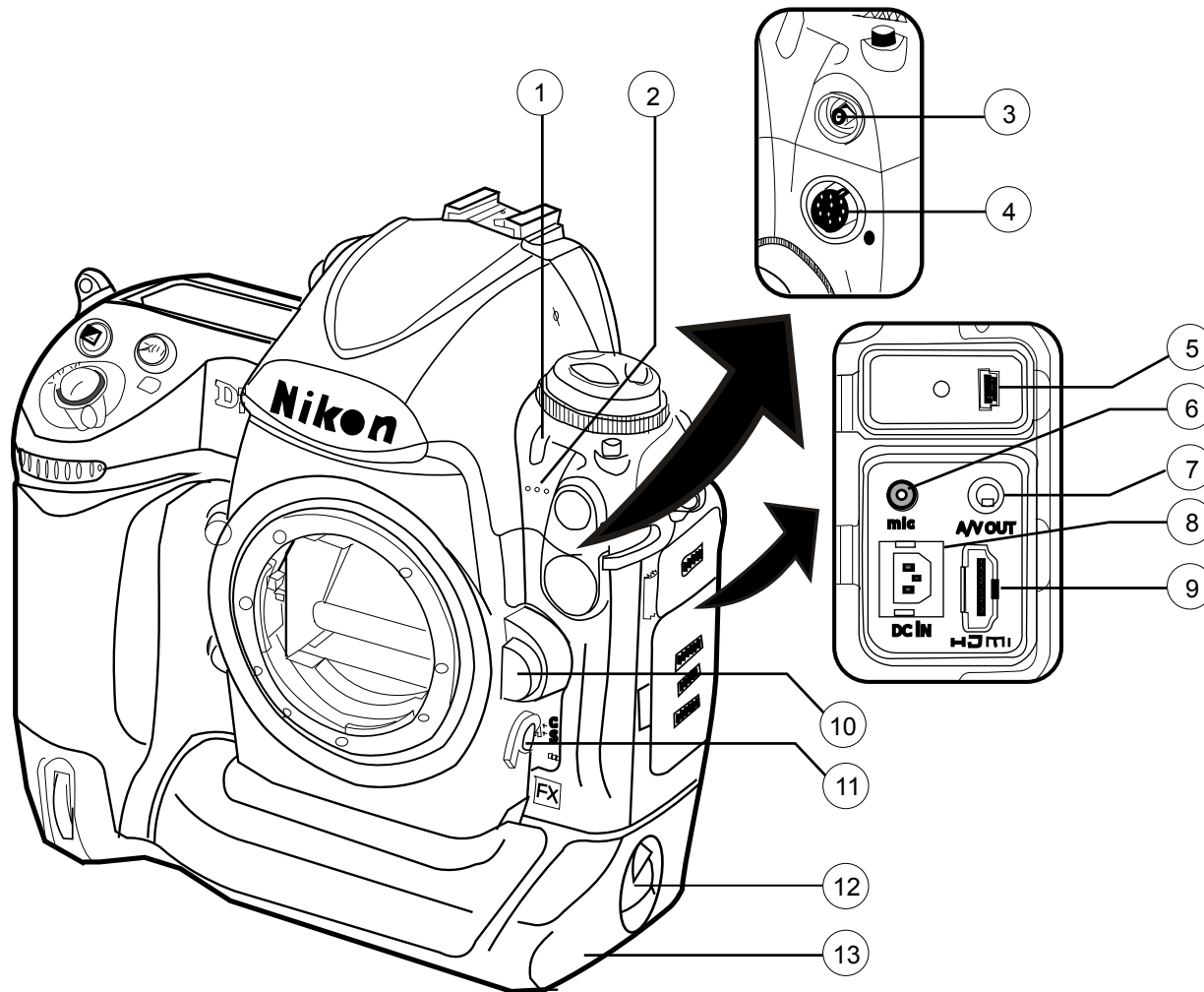
- | | | | |
|---|---------------------------------|---|--|
| ① | Shooting mode dial | ⑧ | pb Shutter-release |
| ② | pb Bracketing (BKT) | ⑨ | pb Exposure compensation  |
| ③ | Shooting mode dial lock release | ⑩ | Top LCD |
| ④ | Metering selector | ⑪ | Diopter adjustment knob |
| ⑤ | pb Metering selector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

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D3s (Continued)

NOMENCLATURE (Continued)

CAMR – LEFT SIDE



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

Nikon D3s Camera Left Front

FS 2-36

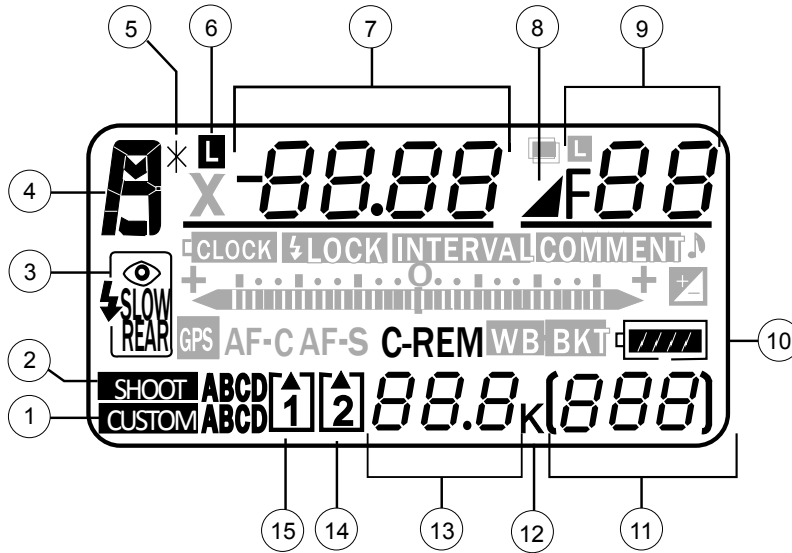
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P/TV/132/FIN 1

D3s (Continued)

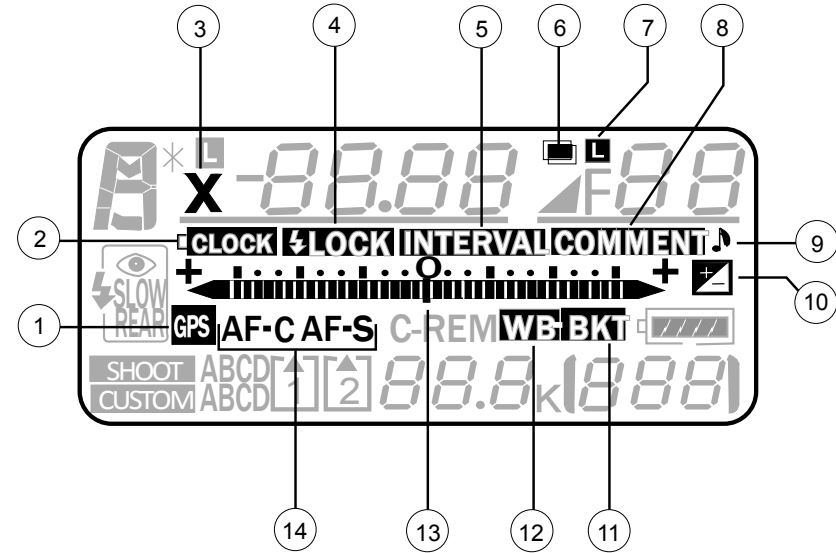
NOMENCLATURE (Continued)

CAMR – TOP CONTROL PANEL



Nikon D3s Camera Top Control Panel - 1

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



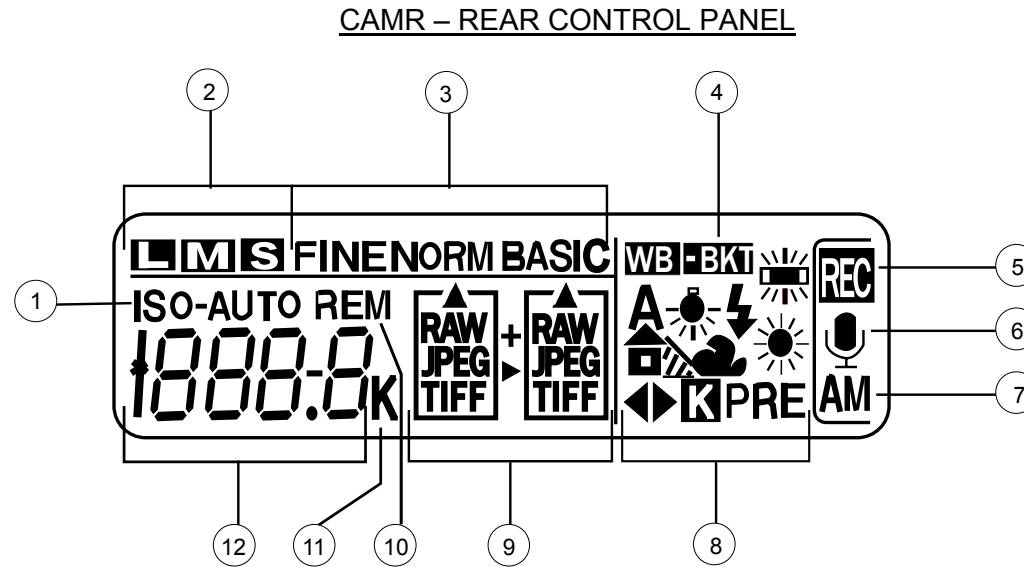
Nikon D3s Camera Top Control Panel - 2

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

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D3s (Continued)

NOMENCLATURE (Continued)



Nikon D3 Camera Back Panel

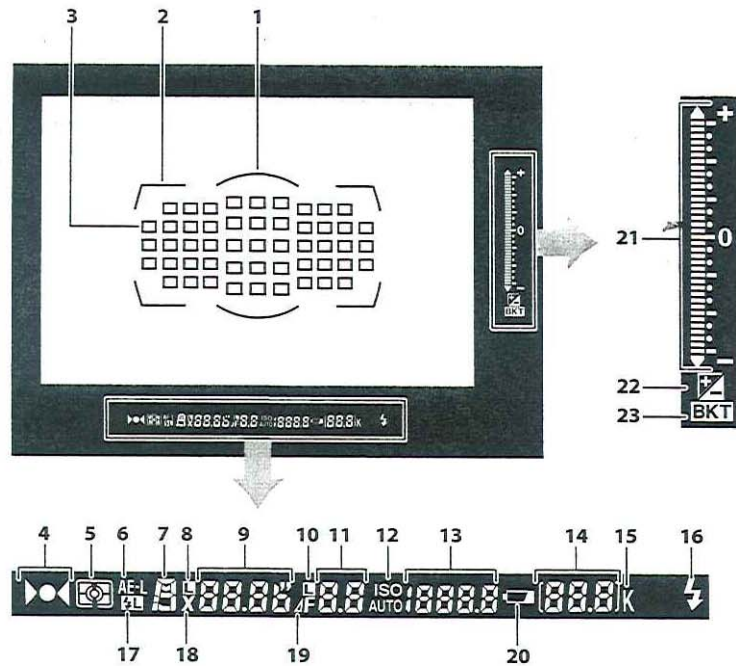
- | | | | |
|---|--|---|--|
| ① | ISO sensitivity indicator | ⑦ | Voice memo recording mode |
| ② | Image size (JPEG and TIFF images) | ⑧ | White balance |
| ③ | Image quality (JPEG images) | ⑨ | Memory card slot indicators |
| ④ | White-balance bracketing indicator | ⑩ | "Remaining" indicator |
| ⑤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

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D3s (Continued)

NOMENCLATURE (Continued)

The Viewfinder Display



1 12-mm reference circle for center-weighted metering..... 116	6 Autoexposure (AE) lock 132
2 AF area brackets 41, 59	7 Exposure mode..... 118
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* Displayed when an optional flash unit is attached (□ 187). The flash-ready indicator lights when the flash is charged.

No Battery

When the battery is totally exhausted or no battery is inserted, the display in the viewfinder will dim. This is normal and does not indicate a malfunction. The viewfinder display will return to normal when a fully-charged battery is inserted.



The Control Panel and Viewfinder Displays



The brightness of the control panel and viewfinder displays varies with temperature, and the response times of the displays may drop at low temperatures. This is normal and does not indicate a malfunction.

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 –  TTL 
 √Exp Comp – 0 EV
 Tilt – 45° (Direct)

D3s SHUTTER PRIORITY (EARTH OBS)

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



SB-800 Flash Settings
 ON/OFF pb – OFF

D3s (Continued)

NOMINAL SETUP (Continued)



D3s MANUAL (SUNLIT OBJECT)

SB-800 Flash Settings
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

D3s AURORA/AIRGLOW

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 – 1"
f/stop – maximum (smallest number)
Meter – Matrix ()
Diopter – Adjust
√BKT disabled – 0 F
Rear LCD
√ISO – 12,800
√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. Dim cabin lights
2. Use dark clothing to shield window
3. Focus, Frame, Fire

D3s (Continued)

NOMINAL SETUP (Concluded)

D3s CITY LIGHTS/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

SS – 15

f/stop – maximum (smallest number)

Meter – Matrix ()
Diopter – Adjust
√BKT disabled – 0 F
Rear LCD

ISO – 12,800

√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 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

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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CUE CARDS

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HOOK
VELCRO

TV

ACTIVATION

A3 MON 1(2) PWR – ON (LED ON)
 A7 √TV DNLK – ENA
 PWR CONTR UNIT – MNA(B)
 CNTL – PNL, wait 10 sec for system initialization, CMD

OPERATION**Auto Ops (Auto Exposure)**

A7 √MCC has commanded sync config
 TV CAMR PWR A(B,C,D,RMS) – ON (tb-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

Dark Ops

Coordinate dnk and sync config w/MCC
 Config audio as reqd

A7 If analog, on MCC GO:
 | VID OUT DNLK pb – push
 | IN pb – as reqd
 If DTV, on MCC GO:
 | √Cables connected
 | MUX/VTR/CC PWR – on (LED on)
 | √MUX BYPASS – ACT
 | PWR – on (LED on, DATA FLOW LED flashes twice)
 | √ON/STANDBY LED – green
 | √INPUT SELECT – VIDEO
 A7 | VID OUT DTV pb – push
 | IN pb – as reqd

L10 (VIP) √DATA FLOW LED – on
 (MUX) √CH DATA LED – on

DEACTIVATION

If Illuminator ON:
 Refer to Illuminator Ops and perform Illuminator OFF

A7 PORT RMS CAMR – WRIST
 TV CAMR PWR A(B,C,D,RMS) – OFF (tb-OFF), wait 10 sec
 PORT RMS CAMR – ELBOW
 TV CAMR PWR RMS – ON (tb-ON), wait 10 sec, OFF (tb-OFF)

If KEEL:
 M058F √KEEL cbl disconnected from J2 MD Pigmy port
 L12 √cb 1 PDIP 2 PWR 2 – cl
 (SSP2) KEEL PWR – OFF
 √ILL PWR – ON

TV PWR CNTL – PNL
 CONTR UNIT – OFF
 CNTL – CMD

A3 MON 1,2 PWR – OFF

If DTV:
 L10 (VTR) ON/STANDBY pb – push (red LED on)
 (VIP) PWR – off (LED off)
 (MUX) MUX/VTR/CC PWR – off (LED off)
 VTR/CC PWR – off (LED 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
 CAMR CMD IRIS – OP.CL

Return to Auto Exposure

ALC pb – push
 AVG pb – push

MUX Ops**NOTE**

Although dnk/rcd is in color, MON
 will display MUX in B&W

A7 VID OUT MON pb – as reqd
 IN MUX 1(2) pb – push
 OUT MUX 1(2) L pb – push
 IN pb – As reqd
 OUT MUX 1(2) R pb – push
 IN pb – as reqd

For RSC ops:

Go to LDR/ITVC Cue Card

KEEL CAMR

If KEEL:
 L12 √cb 1 PDIP 2 PWR 2 – cl
 (SSP2) KEEL PWR – ON
 M058F √KEEL cbl connected to J2 MD Pigmy port

P/TV-1a/132/O/B

(reduced copy)

FS CC 3-3

P/TV/132/FIN

TOP
BACK OF 'TV'

HOOK
VELCRO

Illuminator Ops

Illuminator ON

If KEEL:
L12 √cb 1 PDIP 2 PWR 2 – cl
(SSP2) √KEEL PWR – ON
 ILL PWR – OFF,ON for Hi (repeat for MED, LOW, OFF)

If Wrist Illuminator:
R14:D(E) | √cb TV RMS CAMR/PTU – cl
 | √WRIST ILLUM/CAMR HTR – cl
 | - op,cl

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

If A(B,C,D,ELB) Illuminator:
 | √cb TV A(B,C,D,RMS,ELB) CAMR/PTU – cl
 | √ILLUM/PTU HTR – cl
 | - op,cl

Illuminator OFF

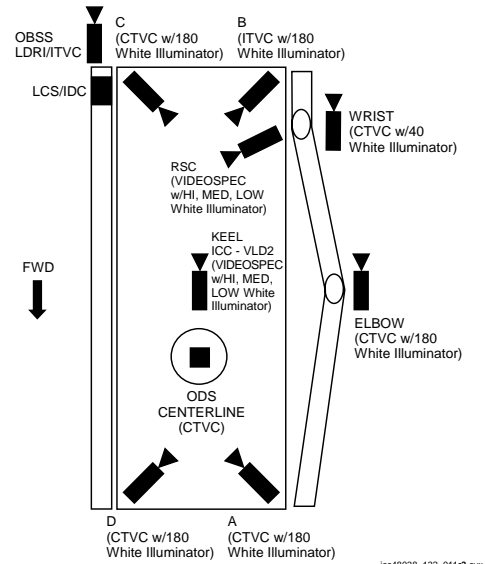
If KEEL:
L12 KEEL ILL PWR – toggle sw OFF,ON until ILL OFF
(SSP2)

If Wrist Illuminator:
R14:D(E) | cb TV RMS WRIST ILLUM/CAMR HTR – op,cl

If Elbow Illuminator:
 | cb TV RMS ELB ILLUM/PTU HTR – op,cl

If A(B,C,D,ELB) Illuminator:
 | cb TV A(B,C,D,RMS,ELB) ILLUM/PTU HTR – op,cl

If RSC Illuminator:
 Go to LDRI/ITVC (Cue Card)



P/TV-1b/132/O/B

(reduced copy)

FS CC 3-4

P/TV/132/FIN

HOOK
VELCRO

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
 √A/V1/V2 – V2

OPERATIONS

PLBK or DNLK VIDEO

CC Install tape, if reqd

If audio reqd:
 CCU If MHA, COMM PWR – ON
 ATU PWR – AUD
 Desired Loops – T/R
 Other Loops – RCV(OFF)
 XMIT/ICOM Mode – VOX/VOX
 VOX SENS – MAX

CC Speaker Vol Max

A7 VID OUT MON pb – as reqd
 IN FLT DECK(MIDDECK) pb – push

CC VTR pb – REW(FF) to cue tape

If Dnlk

A7 √MCC has commanded async config
 √TV DNLK – ENA
 VID OUT DNLK pb – push
 IN FLT DECK(MIDDECK) pb – push

CC PLAY pb – push (green ► displayed)

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

DEACTIVATION

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

ATU Reconfig as desired
 O19 TV PWR – OFF, as reqd
 Go to DEACTIVATION (Cue Card, TV), as reqd

ANALOG VIA VTR

ACTIVATION

Setup per diagram (back of cue card)
 Disconnect CC Video input from AVIU J3
 Perform ACTIVATION (Cue Card, TV) as reqd
 O19 √TV PWR – ON

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

L10 (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

(VIP) If audio reqd:
 PWR – on (LED on, DATA FLOW LED
 flashes twice)
 ATU – PBK/KEY MIC (Amber LED on)

CCU If MHA, COMM PWR – ON
 ATU PWR – AUD
 Desired Loops – T/R
 Other Loops – OFF
 XMIT/ICOM Mode – VOX/VOX
 VOX SENS – MAX

A7 VID OUT Desired MON pb – push
 IN FLT DECK pb – push

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

If Dnlk

A7 √MCC has commanded async config
 √TV DNLK – ENA
 VID OUT DNLK pb – push
 IN FLT DECK pb – push

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

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

DEACTIVATION

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

P/TV-2a/132/O/A

(reduced copy)

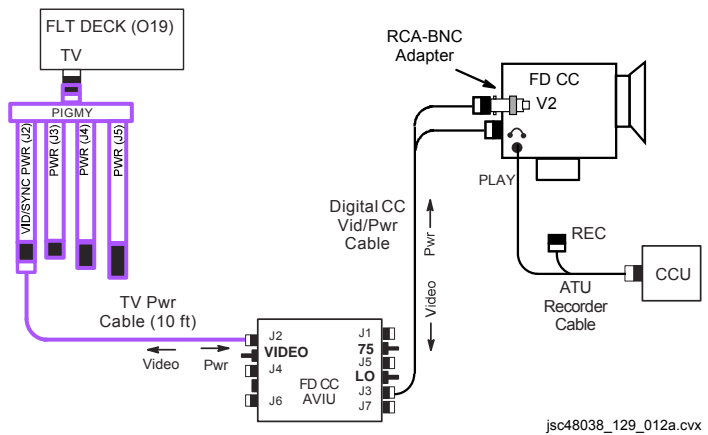
FS CC 3-5

P/TV/132/FIN

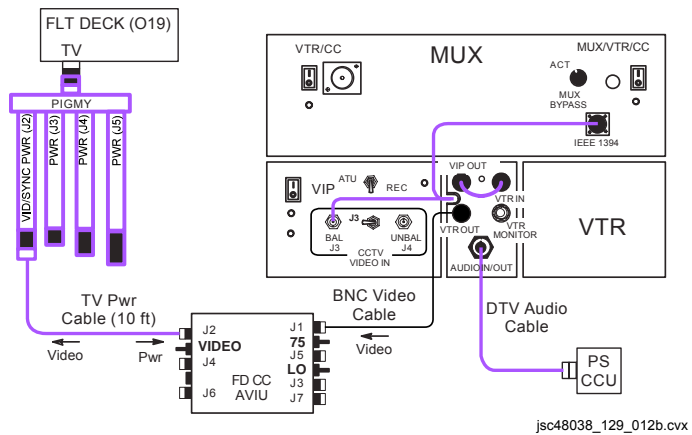
TOP
BACK OF 'ANALOG PLAYBACK'

HOOK
VELCRO

ANALOG VIA CC PLAYBACK



ANALOG VIA VTR PLAYBACK



P/TV-2b/132/O/A

(reduced copy)
FS CC 3-6

P/TV/132/FIN

TOP

HOOK
VELCRO

ET PHOTO

D2Xs D2Xs

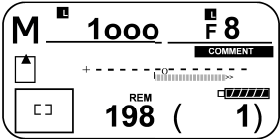
LENS SETTINGS:

- √APERTURE – MIN, LOCKED
- √LENS FOCUS MODE – A


CAMR SETTINGS

PWR – ON
TOP LCD:

- √BATT
- √EXP MODE – M
- √SS – 1000
- √F/STOP – 8



DIOPTR – ADJUST
√FRAME RATE – S
√BODY FOCUS MODE – S



REAR LCD:

- √ISO – 100
- √QUAL – RAW

CRITICAL FOCUS REQD EACH FRAME

P/TV-3a/132/O/A

TOP
BACK OF 'ET PHOTO'

HOOK
VELCRO

ET PHOTO

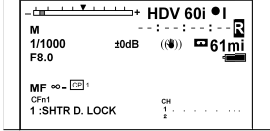
G1 CC G1 CC

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

P/TV-3b/132/O/A

TOP

HOOK
VELCRO

HOOK
VELCRO

WVS

CAMR ADJUSTMENTS

ADJUST BRIGHTNESS

Course Adjustment

PGSC Select Page – RF Camera
Lens Iris Control – cl(op)

Fine Adjustment

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

DARK SUBJECT

PGSC Select Page – RF Camera
√Advanced Controls displayed
Automatic Gain Control – Enabled
(Disabled preferred)

PWRDN

For all lens (three) on each RF Camera Assy:
PGSC Lens Iris Control – Close until view black

Sel RF Camr 1,2 – None (black “OFF”)
V10 √Test Pattern displayed (color bars w/“No WVS
Video”)

PGSC Select Page – XCVR
Transceiver 1(2) CMD Pwr – Off
(black CMD PWR:LVL-“OFF:Min”)
Sel File → Exit

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

A7 WIRELESS VID PWR – OFF
HTR – OFF

VIDEO SIGNAL PROBLEMS

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

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

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

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

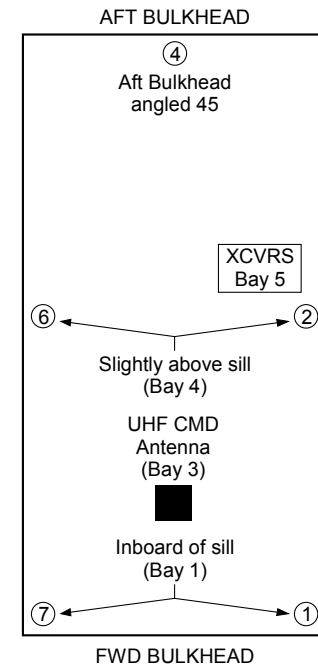
If still no joy:
For XCVR with good video:
Sel RF Camr – reselect original EVA crewmember
For XCVR w/video problem: Antenna – Manual
Sel desired antenna

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



jsc48038_129_022r1.cvx

P/TV-5a/132/O/A

(reduced copy)

FS CC 3-8

P/TV/132/FIN

HOOK
VELCRO

HOOK
VELCRO

ALERT MSG TROUBLESHOOTING

STATIC XCVR

Condition: No comm between PGSC & PLB XCVR

- PGSC 1. √Cable connections between WIB and PGSC
A7 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")
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 CAMERA ID

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

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

TEMP ALERT (blue text)

**Condition: EMU TV -35 °C to -30 °C OR 80 °C to 85 °C range
PLB XCVR -40 °C to -35 °C OR 80 °C to 85 °C range**

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

TEMP CAUTION (yellow text)

**Condition: EMU TV < -35 °C OR > 85 °C
PLB XCVR < -40 °C OR > 85 °C**

- 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

Camr ID Data		
Camr Address	19	20
Serial Number	1004	1006
Label	EV1	EV2

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

Sel OK

P/TV-5b/132/O/A

(reduced copy)

TOP

HOOK
VELCRO

PLBD VTR RECORDING

- L10 √VIP,VTR covers removed
- R1 √PL AUX – ON
- MA73C:E cb AC2 PL3Φ – cl

- L10 √Cables config'd per dwg (back of cue card)
(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
- L9 If Audio desired:
 PS AUD PWR – AUD
 Desired Loops – RCV, Vol tw 5
 Other Loops – OFF
- A7 VID OUT DTV pb – push
 IN pb – as reqd

- L10 REC pb – push, hold
(VTR) PLAY pb – push, simo (red dot displayed)

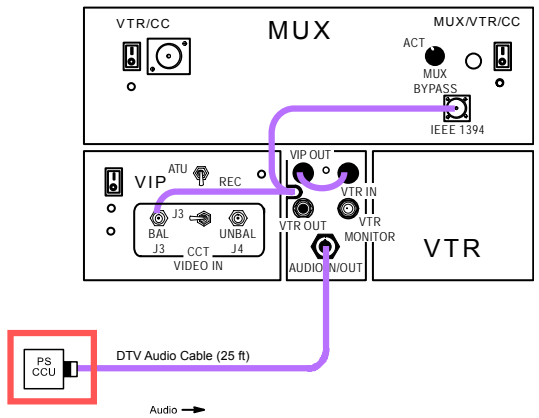
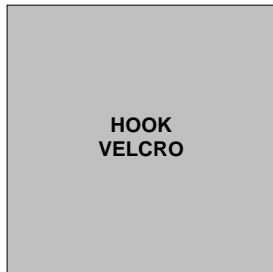
P/TV-6a/132/O/A

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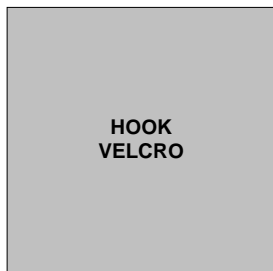
FS CC 3-10

P/TV/132/FIN

TOP
BACK OF 'PLBD VTR RECORDING'



jsc48038_129_019r1.cvx



P/TV-6b/132/O/A

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FS CC 3-11

P/TV/132/FIN

HOOK
VELCRO

LDRI/ITVC

HOOK
VELCRO

ACTIVATION

- Config CCTV Sys
 - A7 √ACTIVATION (Cue Card, TV) performed
 - L10 (MUX) √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 Jumper – LDRI/ITVC
 - √RSC VIDEO Cable to WIB CCTV PL/3
 - MON 1,2 L-DATA – ON
 - C-DATA – GRN
 - X-HAIR – GRN
 - MON 2 SOURCE – C
- Apply SPEE Pwr
 - R12 (OPP) √cb OBSS SW PWR – cl
 - √OBSS SW PWR – ON
 - (OBSS) SPEE PWR – ON
 - A6U EVENT TIMER CNTL – STOP
 - RESET
 - CNTL – START
 - (15 min LDRI calibration warmup)
- Config RSC Illum to HI
 - A7 VID OUT MON 1 pb – push
 - IN C pb – push
 - PAN/TILT – Adjust to see RSC Camr
 - R12 (OBSS) SPEE PWR – OFF, wait 10 sec, ON
 - MON 1 √RSC illum on HI (three rings)
- Enable ITVC
 - √MCC has commanded sync config
 - R12 (OBSS) ITVC ENA – ON
 - A7 VID OUT DTV pb – push
 - IN PL 2(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
 - MON 2 √ITVC video displayed
- 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

GENERAL LDRI CONTROL

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

Mode 1 (default at pwrap)

A7 LDRI MODE 1 pb – push
MON 2 √ITVC video displayed

Mode 2

A7 LDRI MODE 2 pb – push
MON 2 √ITVC video w/illum 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:
A7 CAMR CMD IRIS – OP,CL, as reqd

PANTILT OPS WITH LDRI ACTIVE

NOTE

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

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 cntl

DEACTIVATION

A7 VID OUT MUX 1 L pb – push
√IN MIDDECK pb – lt on
LDRI MODE 1 pb – push

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

A6U EVENT TIMER MODE – UP
CNTL – START

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

P/TV-7a/132/O/A

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FS CC 3-12

P/TV/132/FIN

TOP
BACK OF 'LDRI/ITVC'

HOOK
VELCRO

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RSC CAMR OPS

NOTE

Camr nominally pwr'd 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

NOTE

SPEE pwr cycle will reset LDRI/ITVC to
Mode 1 and reset the PTU angles

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

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

Perform LDRI/ITVC ACTIVATION, step 4

Return to original LDRI/ITVC Mode, continue
OPS

CONTINGENCY LDRI CLEARANCE VIEW

NOTE

Do not apply RMS brakes

A8U AUTO SEQ – STOP (READY It on)

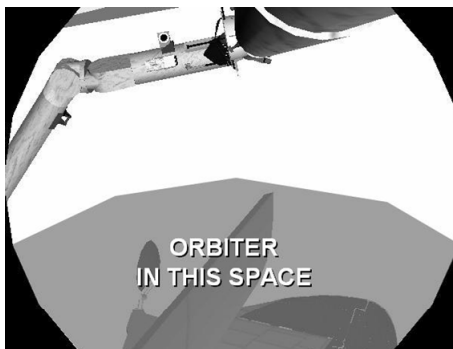
L10(VTR) STOP pb – push (no red •)

A7 VID OUT MUX 1 L pb – push (MIDDECK It on)
LDRI MODE 3(4) pb – push (steady 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 clearance thru LDRI FOV

Return PTU to Pan and Tilt values recorded above

VID OUT MUX 1 L pb – push (MIDDECK It on)
LDRI 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)

LDRI PAN/TILT RESET

Reset PTU

A7 VID OUT MON 1 pb – push
IN PL2(VPU) pb – push

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

SPEE PWR DEACT CLEANUP ACTIONS

Config RSC Illum to HI

R12 (OBSS) √SPEE PWR – OFF
ITVC ENA – OFF
RSC PWR – OFF, wait 10 sec, ON
SPEE PWR – ON, OFF, wait 10 sec, ON

Config ITVC

A7 ITVC ENA – ON
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
LDRI MODE 6 pb – push
VID OUT DTV pb – push, to return to ITVC
control

P/TV-7b/132/O/A

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FS CC 3-13

P/TV/132/FIN

HOOK
VELCRO

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 tb – gray

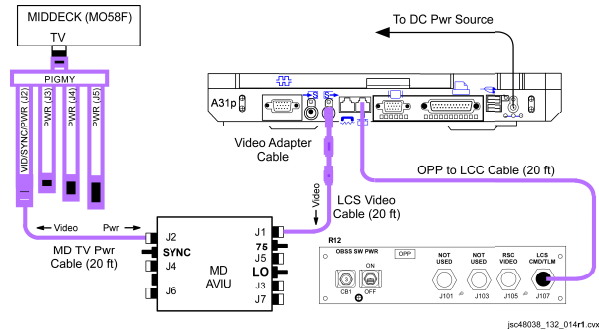
SM 200 APCU STATUS

√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
 Sel '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

- MO58F √TV PWR – ON
 AVIU √HI-Z/75 – 75
 CC PWR SELECT – LO
 PWR – OFF

(non SSPTS)

TOP

LCS

HOOK
VELCRO

3. Verify LCC Desktop Video (Concluded)

- A31p Minimize all programs
 Right click on ATI icon on system tray
 Sel 'Schemes'
 Sel 'ENABLE DESKTOP DOWNLINK', 'ATI Property Page' displayed
 Sel 'Yes'
 Maximize program windows as desired
 A7 VID OUT MON1(2) pb – push
 IN MIDDECK pb – push
 A3 √LCC desktop displayed on MON1(2)
 * If LCC Desktop not displayed: *
 * √MCC *

4. Verify GMT

- A31p √GMT on GUI lower right-hand side within 3 sec of SM-GPC GMT
 * If GMT not within 3 sec of SM GPC: *
 * Sel 'Tools' > 'Set GMT' *
 * Adjust GMT as reqd *
 * Sel 'Apply' > 'OK' *

OPERATION

NOTE

PDRS OPS will call for appropriate scan steps on LCC.
 MCC may have limited insight if desktop dnk 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: *
 * Sel 'Load Database...' from File menu *
 * Sel MCC desired database file *
 * Sel 'OK' *

2. LCS System Status

LCS SYSTEM STATUS

Laser On/Off	Comm	LCS State
Laser ? (gray)	No Comm (yellow)	Unknown or Keep Alive Heater Only Mode (No LCC to LCH Network Connection)
Laser Off (blue)	Comm (green)	Configuration (Waiting for user command)
Laser On (green)	Comm (green)	Operational (Scan in progress)

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

P/TV-8a/132/O/B

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FS CC 3-14

P/TV/132/FIN 1

HOOK
VELCRO

HOOK
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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 Sel 'File' > 'Exit'
- When 'Shutdown' dialog box opens:
 - √Shutdown LCH and Exit LCC Software' selected
 - Sel 'OK'
- When 'Shutdown?' dialog box opens:
 - Sel 'OK'

2. A31p Screen Resolution Reset

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

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)

2. Open APCU Output Relay

- L12 (SSP 1) APCU 2 OUTPUT RLY – OP (tb-bp)

TROUBLESHOOTING

Temp or Elec Status Yellow

- A31p Sel 'System' page
- Report 'Elec' or 'Temp' values backlit in yellow to MCC

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

NOTE

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

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



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

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 VOLTS RES HIGH: 122V to 126.5V

- A31p LCC PGSC Pwr – ON
- √A31p internal RJ45 Network Interface Card LED green
- Perform LCC ACTIVATION, step 2
- √Local Area Network Connection status icon (with red X) in Windows system tray not displayed
- √MCC if 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 Sel 'Shuttle Apps' > 'Network Configuration' > 'LCS RJ-45 Network Setup'
- Enter '1' in network window
- Sel 'OK'
- Sel 'OK' in LCS window
- Allow 20 sec for program to execute
- √Yellow text displayed on desktop
- Resume LCS Ops

(non SSPTS)

(reduced copy)

P/TV-8b/132/O/B

HOOK
VELCROHOOK
VELCRO**IDC ACTIVATION**

- LCC Setup
A31p √Hardware configured per LCC ACTIVATION steps 1,2 (Cue Card, LCS)
A31p √PGSC Pwr – ON
- IDC connectivity Check
A31p √A31p internal RJ45 Network Interface Card LED green

If RJ45 Network Interface Card LED not green:

NOTE
Expect 'S200 APCU 1(2) VOLT LMT' msgs

L12 (SSP 1) APCU 2 CONV – OFF, wait 10 sec, ON
 √CONV tb – gray
 √OUTPUT RLY tb – gray

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

IDC SOFTWARE ACTIVATION

- IDC Software Startup
A31p Sel 'Shuttle Apps' > 'IDC'
- 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 *
- IDC Pwr on and self test

CAUTION

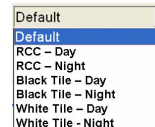
Pwr off IDC when not imaging. Pointing IDC at Sun when pwr on will damage Camr

- 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

- Configure LDRI Illumination
R12 (VPU) √Green Jumper – LDRI/ITVC
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
- Auto Exposure (AE) Ops
A31p √'Use AE' checked
 Sel 'Scan Lo-Res'
 Resize and posn AE box as reqd (pause 2 sec)
 √MCC for AOI FOV
 Sel 'Scan Hi-Res'
 If Scanning w/no RMS Motion:
 | Sel 'Stop Scan' after 30 sec
 If scanning w/RMS motion:
 Move box to maintain RCC in AE box (using keyboard arrows)
 Sel 'Stop Scan' at pause point
 √'Waiting for User Command' displayed
- Scenario File Ops
A31p From Scenario File drop-list, sel appropriate lighting condition



- Sel 'Acquire Set'
- √'Acquiring Set' displayed
- √'Waiting for User Command' displayed after set
- √MCC content w/data take

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(non SSPTS)

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FS CC 3-16

P/TV/132/FIN 1

HOOK
VELCRO

HOOK
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IDC DEACTIVATION

- IDC and Software Shutdown
A31p Sel 'Power off' on IDC GUI
IDC software > 'YES'
Close (X) IDC software > 'YES'
- 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

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

lport not responding: Perform TROUBLESHOOTING, step 2
Condition: lport 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

- 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

- 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

NOTE

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

- A31p LCC PGSC Pwr – ON
√A31p internal RJ45 Network Interface Card LED green

Perform IDC SOFTWARE ACTIVATION
Continue nominal ops

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

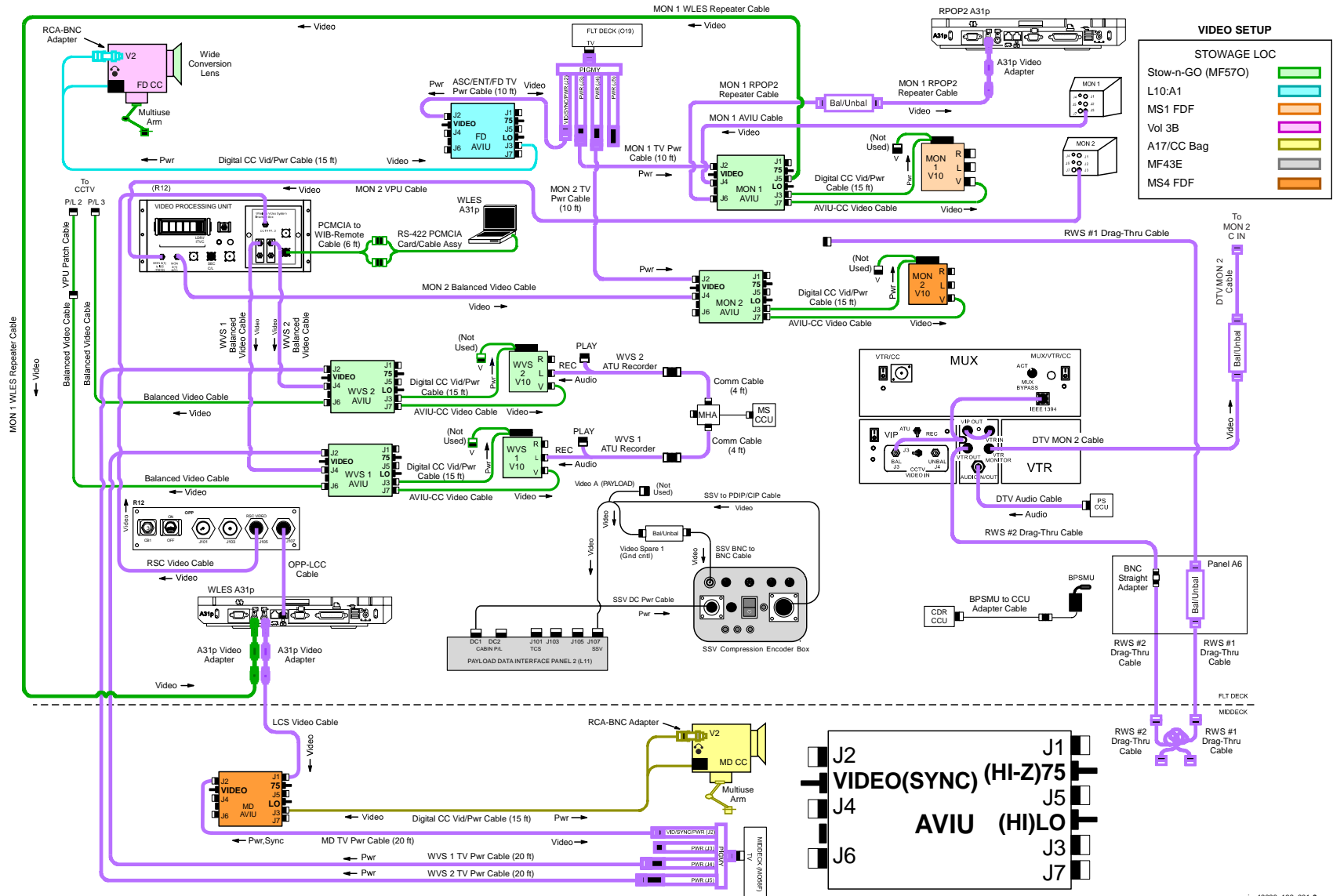
(non SSPTS)

P/TV-9b/132/O/B

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FS CC 3-17

P/TV/132/FIN 1

TOP

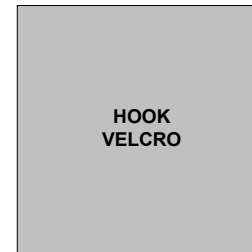
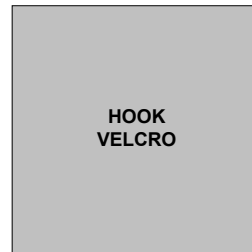


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FS CC 3-18

js048038_132_001r3.cvx
P/TV-10a/132/O/C

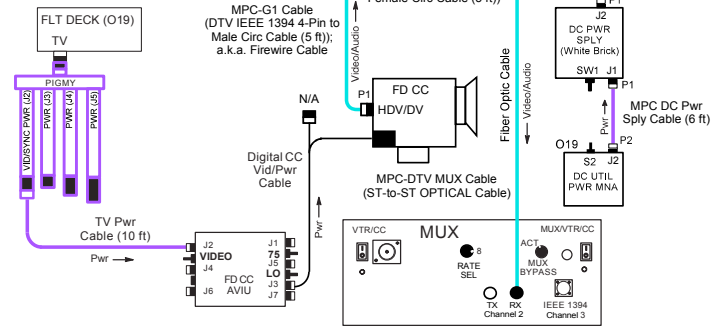
P/TV/132/FIN 1

TOP
BACK OF 'VIDEO SETUP'



HOOK
VELCRO

HOOK
VELCRO



jsc48038_132_012er2.cvx

P/TV-10b/132/O/B













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FS CC 3-19

P/TV/132/FIN 1

TOP

D2Xs SETUP

HOOK
VELCRO

D2Xs PROGRAM In Cabin	D2Xs Aperture Priority	D2Xs Shutter Priority "Earth Obs"
<p>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 – 100 √QUAL – RAW √WB – 0,A AF Area Mode – [[]] √Focus Area – Center √Focus Selector Lock – L</p> <p>SB-800 Flash Settings: √Diffuser Dome installed ON/OFF pb – ON √MODE –    √Exp Comp – 0 EV Tilt – 45° (Direct)</p>	<p>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 – A: f/stop – as reqd 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> <p>SB-800 Flash Settings: √Diffuser Dome installed ON/OFF pb – ON √MODE –    √Exp Comp – 0 EV Tilt – 45° (Direct)</p>	<p>SB-800 Flash Settings: ON/OFF pb – OFF</p> <p>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 – 100 √QUAL – RAW √WB – 0,A AF Area Mode – [[]] √Focus Area – Center √Focus Selector Lock – L</p>

P/TV-11a/132/O/A













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FS CC 3-20

P/TV/132/FIN

TOP
BACK OF 'D2Xs'

HOOK
VELCRO

D2Xs MANUAL "SUNLIT OBJECTS"	D2Xs EXPOSURE MATCH "HERO SHOT"	D2Xs CREW PHOTO
<p>SB-800 Flash Settings: ON/OFF pb – OFF</p> <p>Lens – as reqd</p> <p>NOTE If auto focus unachievable: Lens Focus Mode – M</p> <p>Lens Focus Mode – A Aperture – Min, locked Body Focus Mode – S √Batt installed √Flash Card installed Pwr – ON Top LCD: √Batt √Frames remaining sufficient</p> <p>Exp Comp () – 0.0 Exp Mode – M: SS – 500 f/stop – f/8</p> <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</p>	<p>Lens – 12-24mm @ 18mm Aperture – Min, locked Body Focus Mode – S √Batt installed √Flash Card installed Pwr – ON Top LCD: √Batt √Frames remaining sufficient</p> <p>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</p> <p>SB-800 Flash Settings: √Diffuser Dome installed ON/OFF pb – ON √MODE –    √Exp Comp – 0 EV Tilt – 45° (Direct)</p> <p><u>Technique</u> 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</p>	<p>Lens – 17-35mm @ 17mm Aperture – Min, locked Body Focus Mode – S √Batt installed √Flash Card installed Pwr – ON Top LCD: √Batt √Frames remaining sufficient</p> <p>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</p> <p>SB-800 Flash Settings: √Diffuser Dome installed ON/OFF pb – ON √MODE –    √Exp Comp – 0 EV Tilt – 45° (Direct)</p> <p>Accessory Equipment: Shutter Release Cable – Install Multiuse Brkt – Install Multiuse Brkt Clamp – Install as reqd</p> <p><u>Technique</u> 1. Focus on crewmember 2. Body Focus Mode – M 3. Frame, Fire</p>

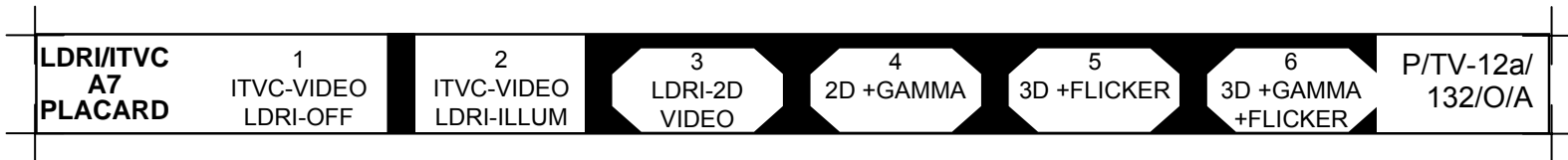
P/TV-11b/132/O/A

(reduced copy)

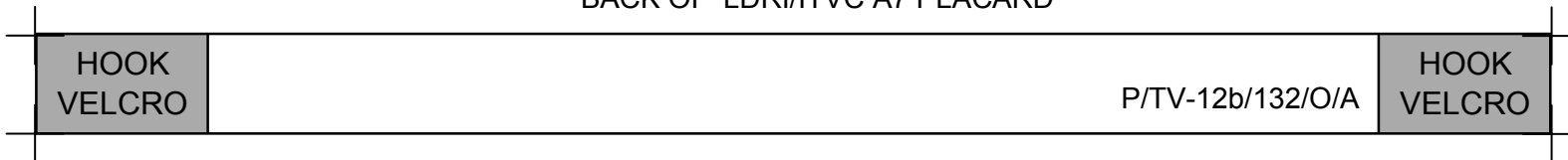
FS CC 3-21

P/TV/132/FIN

TOP



TOP
BACK OF 'LDRI/ITVC A7 PLACARD'



DIGITAL PLAYBACK**HD DIGITAL VIA CC**NOTE

Digital Playback from CC only possible for CC Video recordings

ACTIVATION

	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-Z/75 – 75 PWR SELECT – LO
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)	√CH 2 F/O OK LED on

OPERATIONSPLBK or DNLK VIDEO

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

MPC	√HDV, TAXI LEDs – on
L10 (MUX)	√CH 2 DATA LED – on

CC	PLAY pb – push (green ► displayed) If PLBK(DNLK) complete: STOP pb – push If CC ops complete, go to DEACTIVATION
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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, <u>TV</u>), as reqd

HOOK
VELCRO**DIGITAL VIA VTR****ACTIVATION**

L10 (MUX)	Setup per diagram (back of cue card) √VTR/CC PWR – on (LED on)
(VTR)	√ON/STANDBY LED – green

OPERATIONSPLBK or DNLK VIDEO

L10 (VTR)	Install tape if reqd √DISPLAY SELECT – DATA
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Remote

If Index Search reqd:
√ID – VTR4
SEARCH MODE pb – push (INDEX SEARCH mode displayed)
| ◀▶ (▶▶) | pb – push to move highlight bar to desired GMT start
When VTR auto-cue complete, green • displayed:
PAUSE pb – push
If playback time not displayed on DSR-25 LCD cycle "DATA CODE" repeatedly until time displayed
L10 (VTR) REW(FF),PLAY,PAUSE pb – push as reqd to cue tape

If Dnlk

L10 (MUX)	MUX/VTR/CC PWR – on (LED on) √MUX BYPASS – ACT √CH 3 DATA LED – on
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L10 (VTR)	PLAY pb – push (green • displayed)
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If PLBK(DNLK) complete:
| STOP pb – push
If VTR ops complete, go to DEACTIVATION

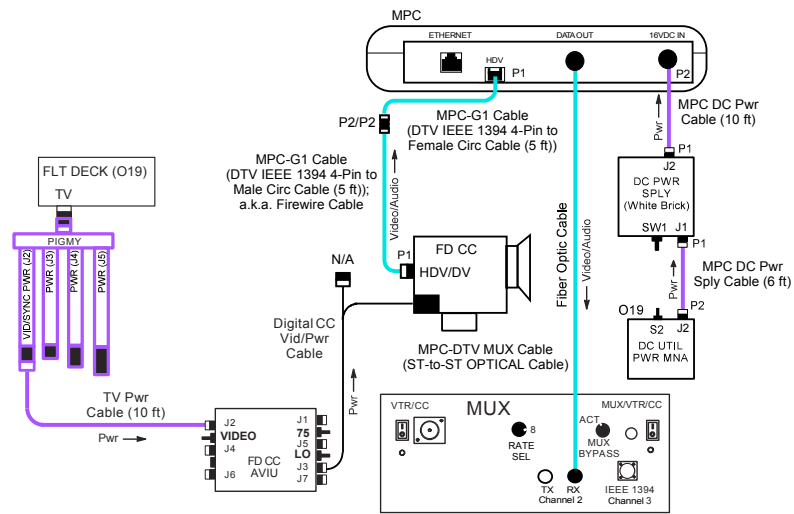
DEACTIVATION

L10 (VTR)	Remove, mark, stow tape as reqd Go to DEACTIVATION (Cue Card, <u>TV</u>) as reqd
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TOP
BACK OF 'DIGITAL PLAYBACK'

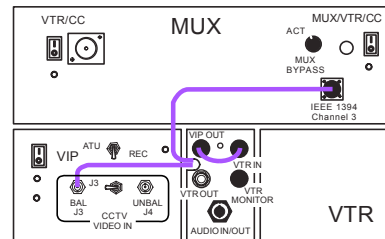
HOOK
VELCRO

HD DIGITAL VIA CC PLAYBACK



jsc48038_132_012er2.cvx

DIGITAL VIA VTR PLAYBACK



jsc48038_129_012d.cvx

P/TV-13b/132/O/B

(reduced copy)
FS CC 3-24

P/TV/132/FIN 1

TOP

G1 CC SETUP CUE CARD

HOOK
VELCRO

ASSUMPTION: G1 is powered by either direct or battery power

WELL LIT SCENE ("green" <input type="checkbox"/>)	SUN-LIT SCENE (M)	DIM-LIT SCENE (A)
<p>Install Wide Conversion Lens as reqd ND FILTER – OFF (per CC prompt) √OUTPUT – CAM √AV1/V2 – V2 √<input type="checkbox"/>..<input type="checkbox"/>-<input type="checkbox"/> √STANDBY/LOCK – STANDBY PWR dial – "green" <input type="checkbox"/> Open LCD √Tape installed</p>	<p>Install Wide Conversion Lens as reqd √ND FILTER – OFF AF/M – AF(M) AGC – OFF GAIN – L √OUTPUT – CAM √AWB – ON √AUDIO LEVEL – A √AV1/V2 – V2 √<input type="checkbox"/>..<input type="checkbox"/>-<input type="checkbox"/> √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)</p>	<p>Install Wide Conversion Lens as reqd √ND FILTER – OFF AF/M – AF AGC – OFF √OUTPUT – CAM √AWB – ON √AUDIO LEVEL – A √AV1/V2 – V2 √<input type="checkbox"/>..<input type="checkbox"/>-<input type="checkbox"/> √STANDBY/LOCK – STANDBY PWR dial – A Open LCD √Tape installed √GAIN – L (M,H) per Scene</p>

P/TV-17a/132/O/A

(reduced copy)

FS CC 3-25

P/TV/132/FIN

TOP
BACK OF 'G1 CC SETUP CUE CARD'

HOOK
VELCRO



(reduced copy)
FS CC 3-26

P/TV-17b/132/O/A



P/TV/132/FIN

NOTE

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K-10 stock in crew copies only

NOTE

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K-10 stock in crew copies only



**PHOTO/TV
CHECKLIST**

**STS
132**