

Photo/TV Checklist

STS-122 Flight Supplement

**Mission Operations Directorate
Operations Division**

**Final, Rev A
November 7, 2007**

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



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MISSION OPERATIONS DIRECTORATE

**PHOTO/TV CHECKLIST
STS-122 FLIGHT SUPPLEMENT**

FINAL, REVISION A
November 7, 2007

PREPARED BY:



Raul Tijerina
Mission Lead



Carol H. Pierce
Publication Manager

APPROVED BY:



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



Kimberly A. Johnson
Manager, Shuttle Procedures Management

ACCEPTED BY:



Michael T. Hurt
FDF Manager

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PHOTO/TV CHECKLIST
STS-122 FLIGHT SUPPLEMENT

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REV A 11/07/07

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* – Omit from flight book

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4-ii	generic	5-26	†⊗generic
4-1	† generic	5-27	†⊗generic
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4-4	† generic	5-30	† generic
4-5	† generic	5-31	† generic
4-6	† generic	5-32	† generic
4-7	† generic	5-33	† generic
4-8	† generic	5-34	† generic
4-9	† generic	5-35	† generic
4-10	† generic	5-36	† generic
4-11	† generic	5-37	† generic
4-12	† generic	5-38	† generic
4-13	† generic	6-1	† generic
4-14	† generic	6-2	† generic
4-15	† generic	6-3	† generic
4-16	† generic	6-4	† generic
4-17	† generic	6-5	†⊗generic
4-18	† generic	6-6	†⊗generic
4-19	† generic	6-7	† generic
4-20	† generic	6-8	† generic
4-21	† generic	6-9	† generic
4-22	† generic	6-10	† generic
4-23	† generic	6-11	† generic
4-24	† generic	6-12	† generic
4-25	† generic	6-13	† generic
4-26	† generic	6-14	† generic
4-27	† generic	6-15	† generic
4-28	† generic	6-16	† generic
4-29	† generic	6-17	† generic
4-30	† generic	6-18	† generic
5-1	† generic	7-1	† generic
5-2	† generic	7-2	† generic
5-3	† generic	7-3	† generic
5-4	† generic	7-4	† generic
5-5	† generic	7-5	† generic
5-6	† generic	7-6	† generic
5-7	†⊗generic	7-7	† generic
5-8	†⊗generic	7-8	† generic
5-9	†⊗generic	7-9	†⊗generic
5-10	† generic	7-10	† generic
5-11	† generic	7-11	† generic
5-12	† generic	7-12	† generic
5-13	† generic	7-13	† generic
5-14	† generic	7-14	† generic
5-15	†⊗generic	7-15	†⊗generic
5-16	†⊗generic	7-16	† generic
5-17	†⊗generic	8-1	† 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

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

† – May be replaced with CD in flight book only

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18-3	†	generic
18-4	†	generic
18-5	†	generic
18-6	†	generic
19-1	†	generic
19-2	†	generic
19-3	†	generic
19-4	†	generic
19-5	†	generic
19-6	†	generic
19-7	†	generic
19-8	†	generic
19-9	†	generic
19-10	†	generic
19-11	†	generic
19-12	†	generic
20-1	†	generic
20-2	†	generic
20-3	†	generic
20-4	†	generic
20-5	†	generic
20-6	†	generic
20-7	†	generic
20-8	†	generic
20-9	†	generic
20-10	†	generic
20-11	†	generic
20-12	†	generic
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20-15	†⊗	generic
20-16	†	generic
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20-19	†	generic
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20-21	†	generic
20-22	†	generic
21-1	†	generic
21-2	†	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			
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	(Back).....	FS CC 3-4	P/TV-1b/122/O/A
PLAYBACK			
	(Front).....	FS CC 3-5	P/TV-2a/122/O/B
	(Back).....	FS CC 3-6	P/TV-2b/122/O/A
ET PHOTO			
	(Front).....	FS CC 3-7	P/TV-3a/122/O/A
	(Back).....	FS CC 3-7	P/TV-3b/122/O/A
MEDIA ALLOCATIONS			
	(Front).....	FS CC 3-8	P/TV-4a/122/O/B
	(Back).....	FS CC 3-9	P/TV-4b/122/O/A
WVS			
	(Front).....	FS CC 3-10	P/TV-5a/122/O/A
	(Back).....	FS CC 3-11	P/TV-5b/122/O/A
PLBD VTR RECORDING			
	(Front).....	FS CC 3-12	P/TV-6a/122/O/A
	(Back).....	FS CC 3-13	P/TV-6b/122/O/A
LDRI/ITVC			
	(Front).....	FS CC 3-14	P/TV-7a/122/O/C
	(Back).....	FS CC 3-15	P/TV-7b/122/O/B
LCS			
	(Front).....	FS CC 3-16	P/TV-8a/122/O/C
	(Back).....	FS CC 3-17	P/TV-8b/122/O/C
IDC			
	(Front).....	FS CC 3-18	P/TV-9a/122/O/B
	(Back).....	FS CC 3-19	P/TV-9b/122/O/C
VIDEO SETUP			
	(Front).....	FS CC 3-20	P/TV-10a/122/O/B
	(Back).....	FS CC 3-21	P/TV-10b/122/O/B
DCS SETUP			
	(Front).....	FS CC 3-20	P/TV-11a/122/O/A
	(Back).....	FS CC 3-21	P/TV-11b/122/O/A

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SCENES

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P/TV01 VIDEO SETUP (Continued)

SETUP

NOTE

Steps 1-7 minimum rqmt for FD2 OBSS TPS Inspection

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

O19 TV PWR – OFF

L10:A1 Unstow AVIU and disconnect following cables:
ASC (DTV/ENT) TV Pwr Cable from J2
ASC/HUD Mini-Cam Cable from J5
Mini-Cam BNC Video Cable from J1

A15 Connect DTV Audio Cable to PS CCU
Config DTV H/W per H/W SUMMARY, FS 1-4

L10 (MUX) Config Panels
√VTR/CC PWR – on (LED on)
If dnk:
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
SOURCE – C

Config PS ATU per Comm Plan

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

3. Perform MON 1,2 V10 Setup

MA16F 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

Connect:

- MON 1,2 cable assys to MON 1,2 V10s
- Multiuse Brkt to desk
- MON 1 AVIU Cable to MON 1 AVIU J4
- MON 2 Balanced Video Cable to MON 2 AVIU J4
- AVIU Video Cable to MON 1 AVIU J5
- MON 1,2 TV Pwr Cable to MON 1,2 AVIU J2
- Multiuse Brkt to wall

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

O19 TV PWR – ON
V10 (MON 1,2) PWR – ON
DISPLAY pb – Toggle to display tape counter

√Tape installed
R12 (VPU) √VPU PWR – ON (LED on)

4. √RSC Video Cable connected between R12/OPP-RSC Video (J105) and R12/VPU-CCTV PL3

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

5. Perform Analog CC Setup for FD,MD CC

Config FD,MD CC per H/W SUMMARY, FS 1-4, as reqd

O19,MO58F

TV PWR – OFF

AVIU (FD,MD)

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

O19,MO58F

TV PWR – ON

CC

Install Wide Conversion lens
PWR – CAMERA
√Tape installed
√Viewfinder (LCD) displays STBY
Camr Settings
 √AUTO LOCK – AUTO LOCK
 √FOCUS – AUTO
Install Audio Muting Plug (optional)
Multiuse Brkt, Clamp

6. Perform LCS Video Cable Connection

If MD CC setup not performed, retrieve ASC/HUD AVIU from temp stow

Middeck
AVIU (MD)
Flt Deck

Connect end of LCS Video Cable to MD AVIU J1
√HI/75 – 75
Connect other end of LCS Video Cable (A31p Video Adapter) to WLES A31p Video Out port
Connect OPP-LCC Cable to WLES A31p RJ45 Ethernet port

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

7. Perform SSV Setup

MF71C Obtain following H/W:
SSV Compression Encoder Box
SSV BNC to BNC Cable
SSV to PDIP/CIP Cable
PGSC 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) √PDIP 2 PWR 1 (CB3) – cl
L11 (PDIP 2) DC PWR 1 – ON

SSV Config SSV settings
IN SEL – NTSC
Mode – 3 (may change if desired)
OUTRATE – 4
SSV Pwr – on
√Pwr LED illum
√ENC DATA LED flickering
√FRM DATA LED flickering
√FILL FRM pulsing

Inform MCC when SSV SETUP complete

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

8. Perform WVS Setup

a. Activate WVS System

A7 WIRELESS VID HTR – ON
PWR – ON

b. Perform WVS 1,2 V10 Setup

MA16F Remove WVS Hardware from Stow-n-Go CTB

MO58F TV PWR – OFF

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

Connect WVS 1,2 cable assys to WVS 1,2 V10s

Connect Multiuse Brkt to desk

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

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

Connect WVS TV Pwr Cables to WVS 1,2 AVIU J2

Connect ATU Recorder Cables per H/W SUMMARY, FS 1-4

Connect Multiuse Brkt to wall

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

Connect RS-422 PCMCIA Card/Cable Assy to WLES A31p

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

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

A11 Config MS ATU/CCU per Comm Plan
√CCU PWR – ON

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

8. 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

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
16	1010	1	EV1
18	1007	1	EV2

When complete, sel 'OK'

If Camr IDs not correct:

Sel 'Delete Entry' until all deleted

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

P/TV01 VIDEO SETUP (Concluded)

SETUP (Concluded)

8. 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

MF71C

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

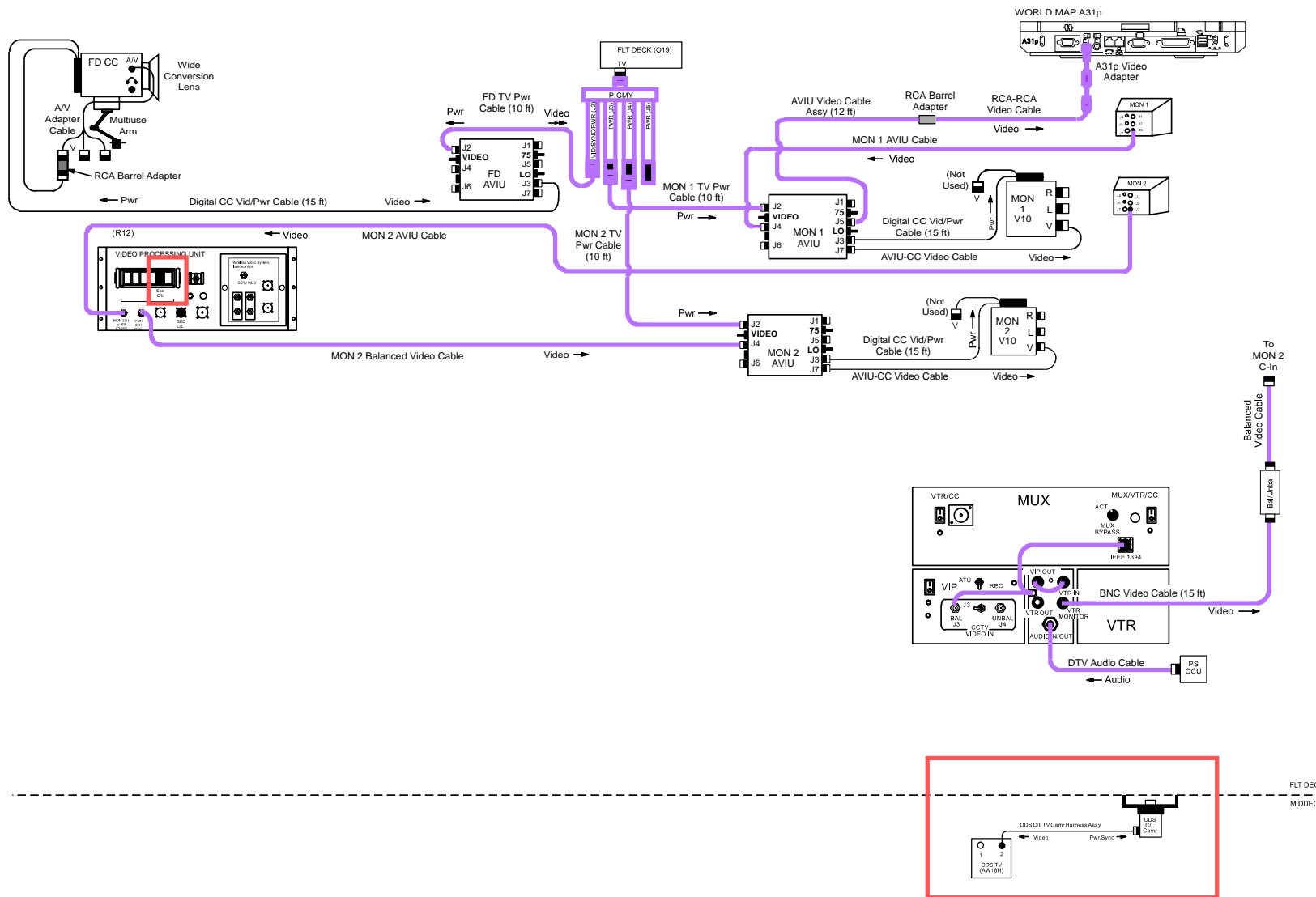
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P/TV02 DOCK

P/TV02 DOCK

H/W SUMMARY



jsc48038_122_002r1.cvx

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 CCTV CONFIG FOR DOCKING/UNDOCKING (RNDZ, RNDZ TOOLS)
3. Perform 760 PROGRAM w/FLASH for in-cabin imagery

Pwr – ON
√Disk installed
Rear LCD
√Batt
√Frames remaining sufficient
√White Balance – Auto
ISO – 100
√BKT disabled
√Focus Area – Center, LOCK displayed
Exp Comp – 0.0
Exp Mode – P
AF Area Mode – [] (no “+”)
Meter – Matrix
Diopter – Adjust
Film Adv – S
Body Focus Mode – S
Lens Focus Mode – A(M/A)
Aperture – Min, locked
Flash Settings
ON/OFF – ON
√TTL, Matrix
√Zoom – Auto (no M)
Tilt – Direct

P/TV02 DOCK (Continued)

SETUP (Continued)

4. Perform 760 SHUTTER PRIORITY for docking/external imagery

Pwr – ON

√Disk installed

Rear LCD

√Batt

√Frames remaining sufficient

√White Balance – Auto

ISO – 100

√BKT disabled

√Focus Area – Center, LOCK displayed

Exp Comp – 0.0

Exp Mode – S

SS – 500

AF Area Mode – [] (no “+”)

NOTE

For Docking: Meter – Spot/Matrix

Meter – Matrix (Spot when ISS <1/2 frame)

Diopter – Adjust

Film Adv – S

Body Focus Mode – S

Lens Focus Mode – A(M/A)

Aperture – Min, locked

Flash Settings

ON/OFF – OFF

P/TV02 DOCK (Continued)

SETUP (Concluded)

5. 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
MON 2	SOURCE – C
FD CC	PWR – CAMERA √Tape installed √Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO
L10 (MUX) (VIP) (VTR)	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

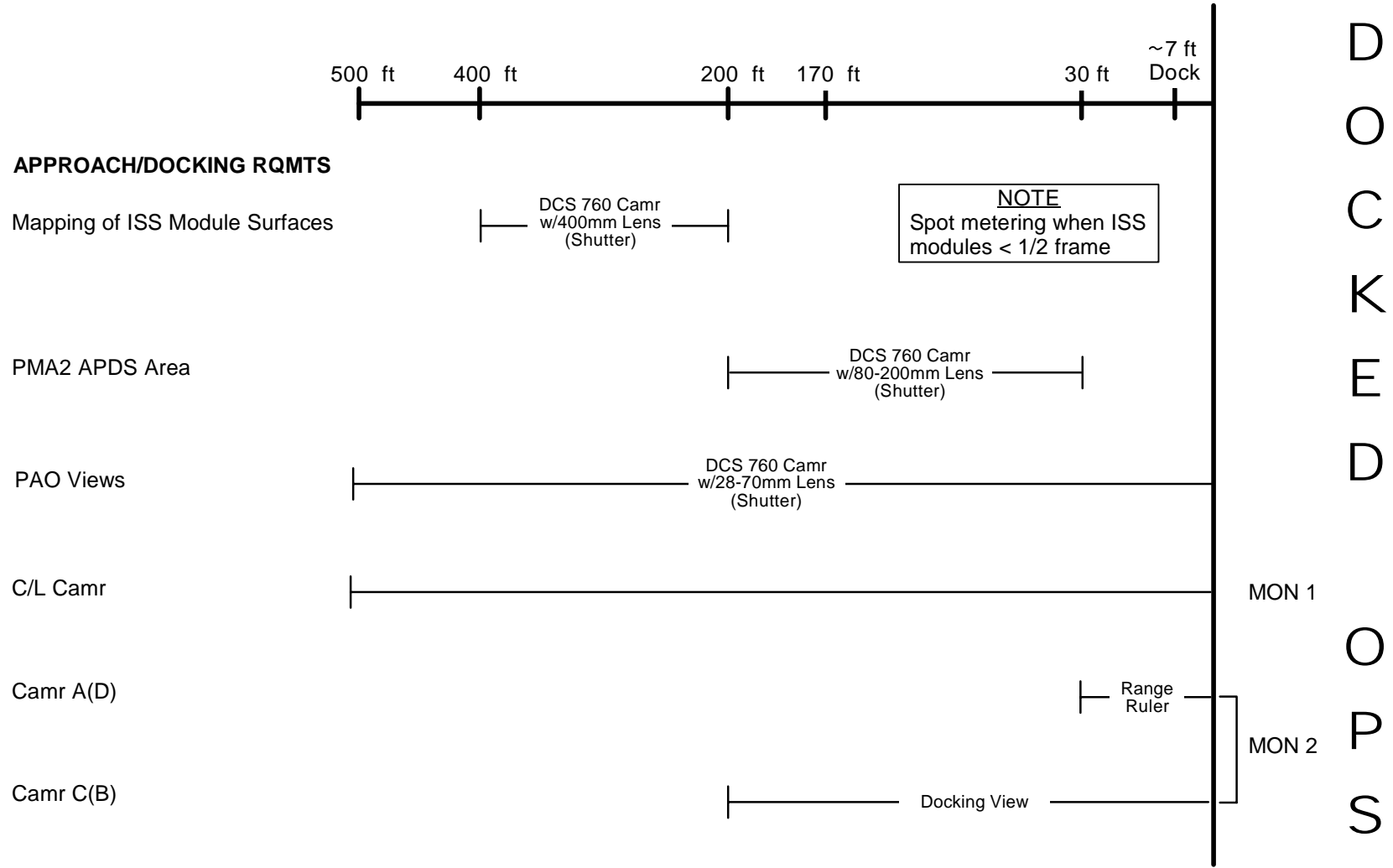
P/TV02 DOCK (Continued)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	PAO Coverage	<u>760</u> 28-70mm If exterior: Flash ON/OFF – OFF	As desired	<u>PD100</u> Tape installed	LIVE (If avail)	Plan for end of day crew choice video,DCS
	2. 1E-3	Rendezvous <ul style="list-style-type: none"> • Overall • Closeup • Damage • Deterioration 	<u>760 (Shutter)</u> 400mm(80-200mm) Flash ON/OFF – OFF	<u>A(B,C,D), ELB</u>	<u>PD100</u> As desired		Map ISS surfaces w/10% overlap
	3. 1E-3	Approach,Dock <ul style="list-style-type: none"> • Docking Target • Mating Surfaces • Hemispherical Planar Retro Reflectors 	<u>760 (Shutter)</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>PD100</u> As desired		Rcd video thru hard dock 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. DCS 760
 - √Exp Mode – P
 - Film Adv – S
 - Pwr – OFF
 - Flash ON/OFF – ON
 - Start batt recharge as reqd

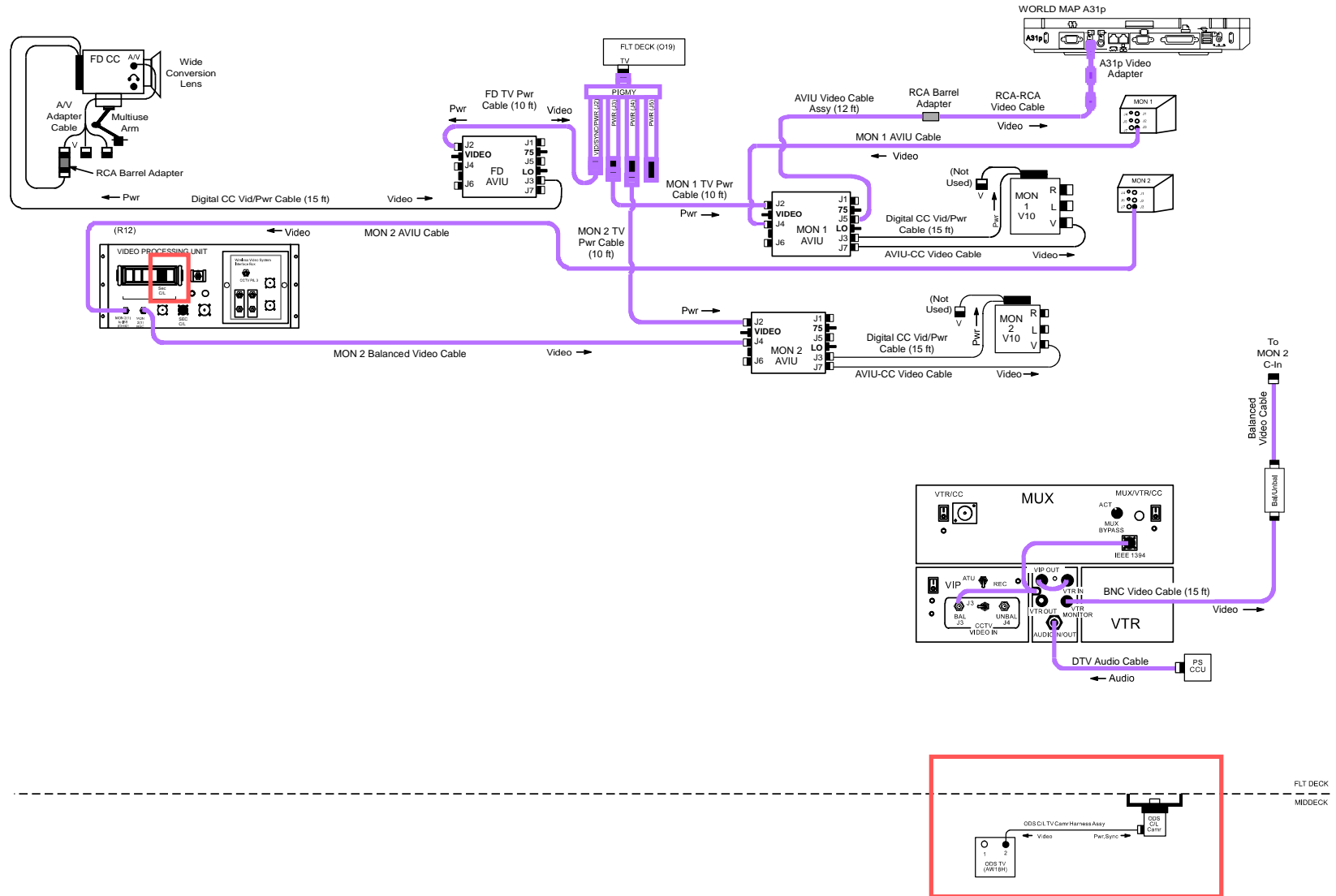
2. TV System
 - R12 (VPU) √Green Jumper – SEC C/L
 - √SEC C/L Cap installed
 - √VPU PWR – ON (LED on)
 - A7 VID OUT MON 1 pb – push
 - IN PL2(VPU) pb – push
 - L12 (SSP 2) CAMR CMD IRIS – CL
 - C/L CAM PWR – OFF
 - ODS Remove, stow C/L camr, Harness Assy, Bridge
 - Go to DEACTIVATION (Cue Card, TV) as reqd

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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 CCTV CONFIG FOR DOCKING/UNDOCKING (RNDZ, RNDZ TOOLS)
3. Perform 760 PROGRAM w/FLASH for in-cabin imagery

Pwr – ON
√Disk installed
Rear LCD
√Batt
√Frames remaining sufficient
√White Balance – Auto
ISO – 100
√BKT disabled
√Focus Area – Center, LOCK displayed
Exp Comp – 0.0
Exp Mode – P
AF Area Mode – [] (no “+”)
Meter – Matrix
Diopter – Adjust
Film Adv – S
Body Focus Mode – S
Lens Focus Mode – A(M/A)
Aperture – Min, locked
Flash Settings
ON/OFF – ON
√TTL, Matrix
√Zoom – Auto (no M)
Tilt – Direct

P/TV03 UNDOCK (Continued)

SETUP (Continued)

4. Perform 760 SHUTTER PRIORITY for undocking/external imagery

Pwr – ON

√Disk installed

Rear LCD

√Batt

√Frames remaining sufficient

√White Balance – Auto

ISO – 100

√BKT disabled

√Focus Area – Center, LOCK displayed

Exp Comp – 0.0

Exp Mode – S

SS – 500

AF Area Mode – [] (no “+”)

NOTE

For Undocking: Meter – Matrix/Spot

Meter – Matrix (Spot when ISS <1/2 frame)

Diopter – Adjust

Film Adv – S

Body Focus Mode – S

Lens Focus Mode – A(M/A)

Aperture – Min, locked

Flash Settings

ON/OFF – OFF

P/TV03 UNDOCK (Continued)

SETUP (Concluded)

5. 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
MON 2	SOURCE – C
FD CC	PWR – CAMERA √Tape installed √Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO
L10 (MUX) (VIP) (VTR)	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/TV03 UNDOCK (Continued)

OPS

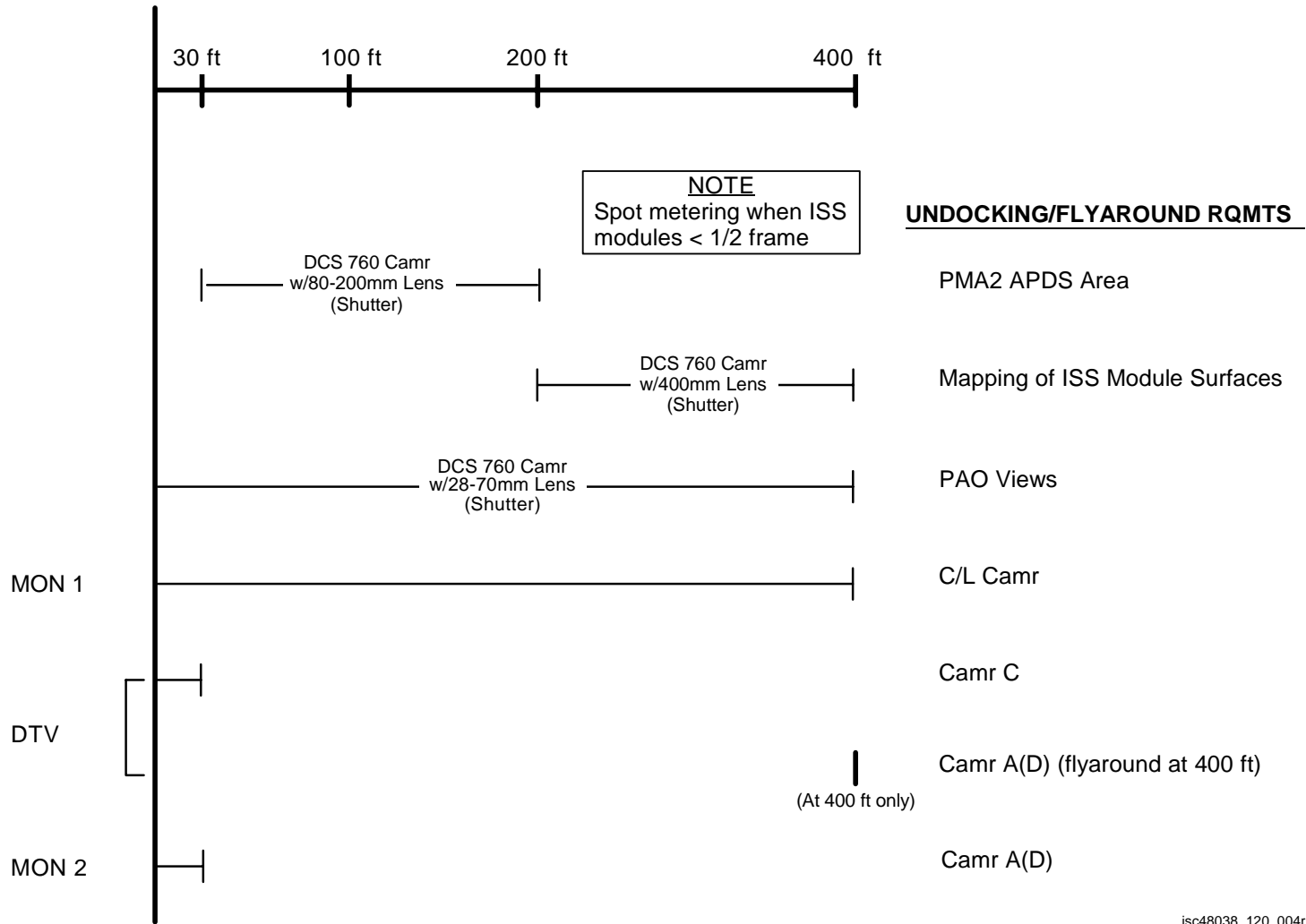
√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	PAO Coverage	760 28-70mm If exterior: Flash ON/OFF – OFF	As desired	PD100 Tape installed	LIVE (If avail)	Plan for end of day crew choice video,DCS
	2. 1E-4 1E-6	Undock and Flyaround <ul style="list-style-type: none"> • Docking Tgt/Mating Surfaces • Hemispherical Planar Retro Reflectors • Surfaces • Solar Panels • Handrails • Trusses • SM Thrusters on Zenith, near aft end • Columbus and EuTEF and SOLAR Payloads 	760 (Shutter) 80-200mm(400mm) Flash ON/OFF – OFF	A(D) Per RNDZ C/L Docking tgt and PAO view		LIVE (If avail)	Map ISS surfaces w/10% overlap

P/TV03 UNDOCK (Continued)

OPS (Continued)

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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. DCS 760
 - √Exp Mode – P
 - Film Adv – S
 - Pwr – OFF
 - Flash ON/OFF – ON
 - Start batt recharge as reqd

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
 - L12 (SSP 2) CAMR CMD IRIS – CL
 - C/L CAM PWR – OFF

 - ODS Remove, stow C/L Camr, Harness Assy
 - Mark first MON 2 tape as “Radiators and SAWs During Undock”
 - Go to DEACTIVATION (Cue Card, TV) as reqd

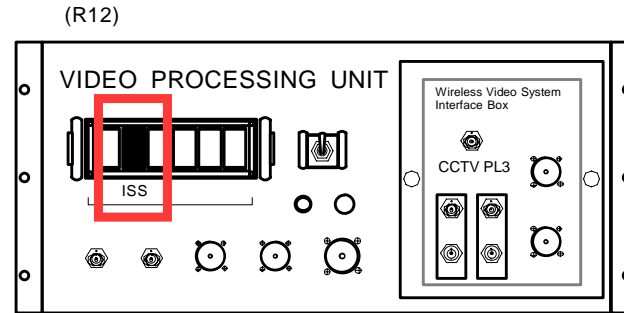
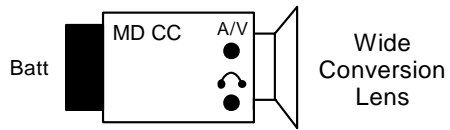
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**P/TV04
INGR/EGR**

P/TV04 INGRESS/EGRESS

H/W SUMMARY

INGRESS TV CONFIG



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P/TV04 INGRESS/EGRESS (Continued)

SCENE SYNOPSIS

Scene contains procedures for documenting ISS ingress/egress w/video, 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 CC Setup

- A17
CC Acquire two batts, one for CC and one spare
 Install Batt
 PWR – CAMERA
 Install Tape
 √Viewfinder (LCD) displays STBY
 Camr Settings
 √AUTO LOCK – AUTO LOCK
 √FOCUS – AUTO
 √Audio Muting Plug removed

3. Perform 760 PROGRAM w/FLASH

- Pwr – ON
√Disk installed
Rear LCD
√Batt
√Frames remaining sufficient
√White Balance – Auto
ISO – 100
√BKT disabled
√Focus Area – Center, LOCK displayed

P/TV04 INGRESS/EGRESS (Concluded)

SETUP (Concluded)

3. Perform 760 PROGRAM w/FLASH (Concluded)

- Exp Comp – 0.0
- Exp Mode – P
- AF Area Mode – [] (no “+”)
- Meter – Matrix
- Diopter – Adjust
- Film Adv – S
- Body Focus Mode – S
- Lens Focus Mode – A(M/A)
- Aperture – Min, locked
- Flash Settings
 - ON/OFF – ON
- √TTL, Matrix
- √Zoom – Auto (no M)
- Tilt – Direct

OPS

√	Item # Track #	Rqmts	Still Imagery	Video		Notes
			DCS	PLB	CC	
	1.	Hatch Opening, Ingress Hatch Close, Egress	<u>760</u> 28-70mm		<u>PD100</u>	LIVE (if avail)

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

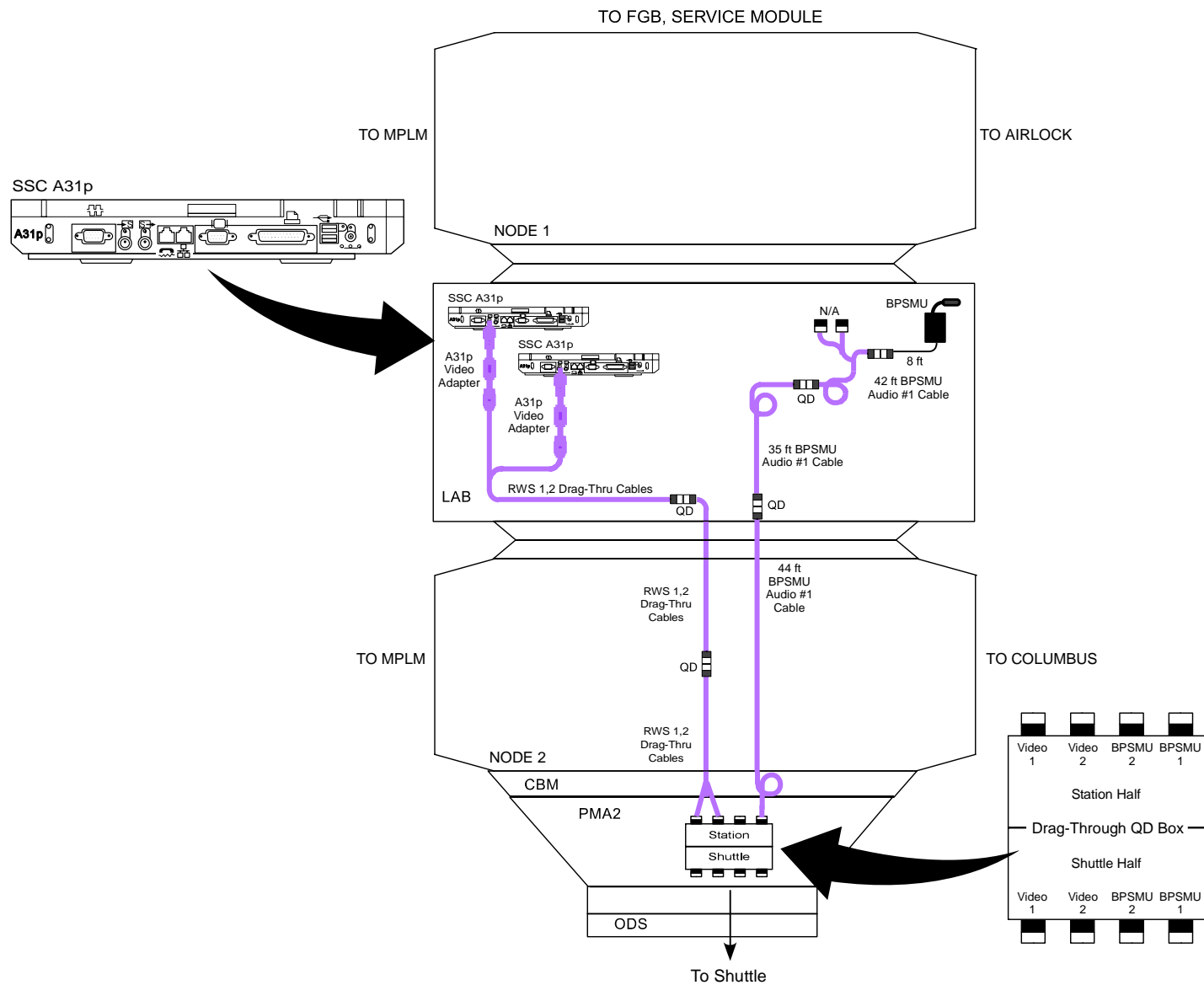
DEACTIVATION

1. DCS 760
 Pwr – OFF
 Start batt recharge as reqd
2. TV System
 Go to DEACTIVATION (Cue Card, TV) as reqd

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P/TV05 ISS INTERNAL OPS

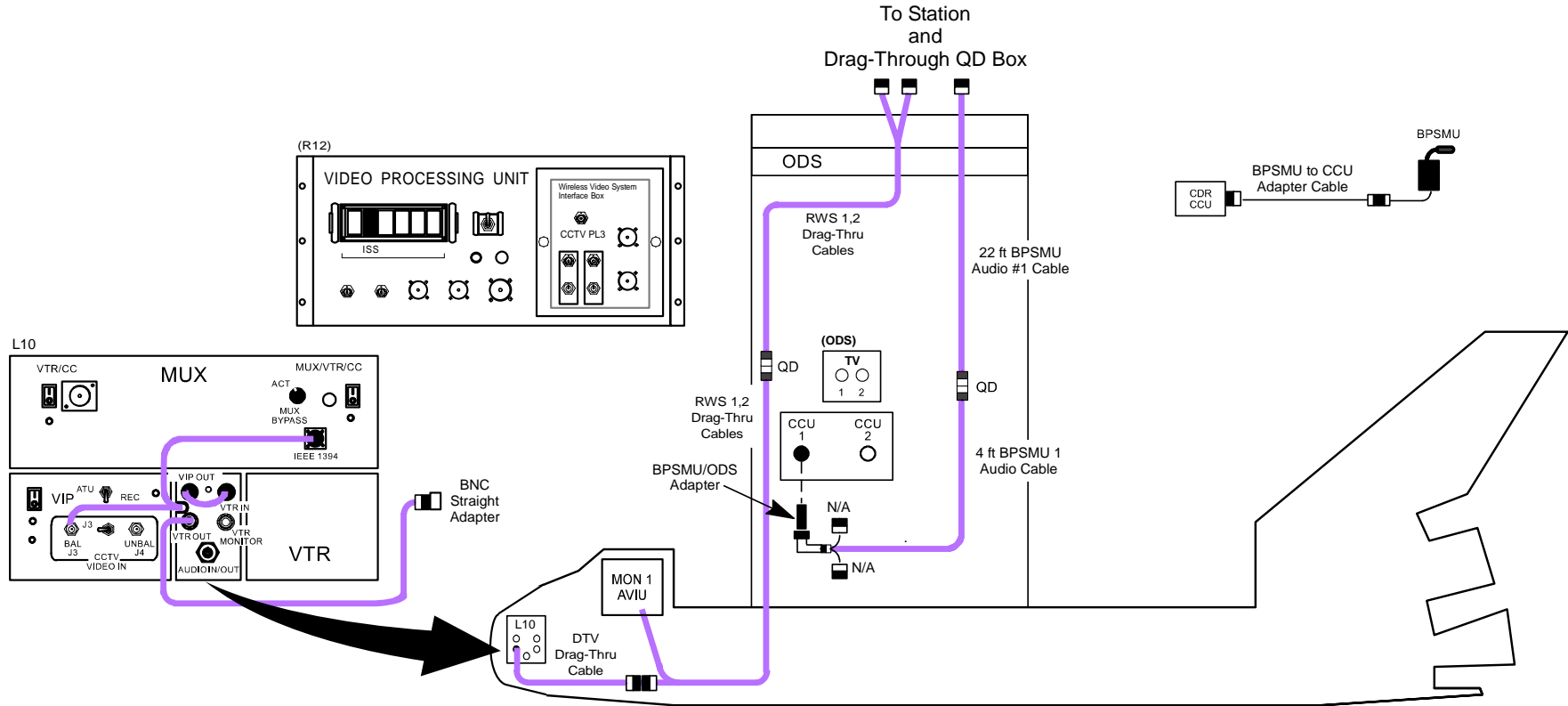
H/W SUMMARY



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P/TV05 ISS INTERNAL OPS (Continued)

H/W SUMMARY (Concluded)



jsc48038_125_006br1.cvx

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

1. Config H/W per H/W SUMMARY, FS 1-34 and FS 1-35

Prior to Docking

Config RWS Video Cables:

- √RWS 1 Video Cable connected to MON 1 AVIU
 - √RWS 2 Video Cable connected to DTV VTR OUT
- Place RWS 1,2 Drag-Thru Cable ends near ODS/PMA2 hatch

Post Docking

Config BPSMU and RWS Cables:

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

If V10:

V10
(RWS 1,2)

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

If A31p:

A31p

4. √Drag-Thru Cable connected to A31p Video Adapter
5. √PWR (two) – ON
6. Sel 'Station Apps : COSS Apps : Video Converter'
7. √'Video Converter' window displayed
8. Sel 'Set Properties'
9. √'Video Settings' window displayed
10. Format: – NTSC
11. Close 'Video Settings' window
12. Sel 'Local Full Screen'
13. Press 'ESC' or 'W' to minimize display as reqd

P/TV05 ISS INTERNAL OPS (Continued)

SETUP (Concluded)

PAO EVENT

1. Config VPU
R12 (VPU) √Green Jumper – ISS
 √VPU PWR – ON (LED on)
2. Config Shuttle Video
A7 VID OUT DNLK pb – push
 IN PL2(VPU) pb – push

STILL CAMR

1. Perform 760 PROGRAM w/FLASH
Pwr – ON
√Disk installed
Rear LCD
 √Batt
 √Frames remaining sufficient
 √White Balance – Auto
 ISO – 100
 √BKT disabled
√Focus Area – Center, LOCK displayed
Exp Comp – 0.0
Exp Mode – P
AF Area Mode – [] (no “+”)
Meter – Matrix
Diopter – Adjust
Film Adv – S
Body Focus Mode – S
Lens Focus Mode – A(M/A)
Aperture – Min, locked
Flash Settings
 ON/OFF – ON
√TTL, Matrix
√Zoom – Auto (no M)
 Tilt – Direct

P/TV05 ISS INTERNAL OPS (Continued)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	General ISS IVA Activity <ul style="list-style-type: none"> • PAO Scenes of Interest • Crew Photo • Crew Rotation 	760 28-70mm For Crew Photo: Perform 760 CREW PHOTO (SETUP, DCS 760)		ISS PD100	LIVE (if avail)	Plan for end-of-day crew choice video, DCS Crewmember rotation IELK install and Sokol suit checkout
	2. 1E-13	Columbus Ingress Survey <ul style="list-style-type: none"> • Overall/Detailed • Rack Relocation • Lock Removal 	760 28-70mm				
	3. 1E-14	Columbus Equip Install <ul style="list-style-type: none"> • Overall/Detailed • Handrails • Banisters • Foot Restraints • PCS/PWS • Video Camrs • PBAs • PFEXs • IMV/NPRV 	760 28-70mm			DNLK	Contingency only if damage present
	4. 1E-15	Systems Activation <ul style="list-style-type: none"> • Columbus Camr • Laptops • D2/D3 Racks • Payload Facility 	760 28-70mm		PD100	REPLAY DNLK	As crew time permits; otherwise, during increment
	5. 1E-16	Special PAO Event <ul style="list-style-type: none"> • Overall/Detailed • Columbus Hatch Opening • Columbus Ingress 	760 28-70mm		PD100 Tape Inst	LIVE DNLK (if avail)	

P/TV05 ISS INTERNAL OPS (Concluded)

OPS (Concluded)

√	Item # Track #	Rqmts	Still Imagery		Video			Notes
			DCS	PLB	CC	Dnlk		
	6. 1E-21	End-to-End C/O <ul style="list-style-type: none"> • FSL Geo Flow • BLB • FSL Umbilicals • FSL Optical Drawer 	760 28-70mm					As crew time permits; otherwise, during increment
	7. 1E-17	ISPR Activation <ul style="list-style-type: none"> • FSL • EDR • BIOLAB • EPM 			ESA Camr	LIVE DNLK		Perform only if ESA photo equip avail
	8. 1E-22	EDR Relocation <ul style="list-style-type: none"> • General • Front & Rear • PCDF C/O 	760 28-70mm		PD100 Replay dnlk or rtn post-flt			As crew time permits; otherwise, during increment

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

DEACTIVATION

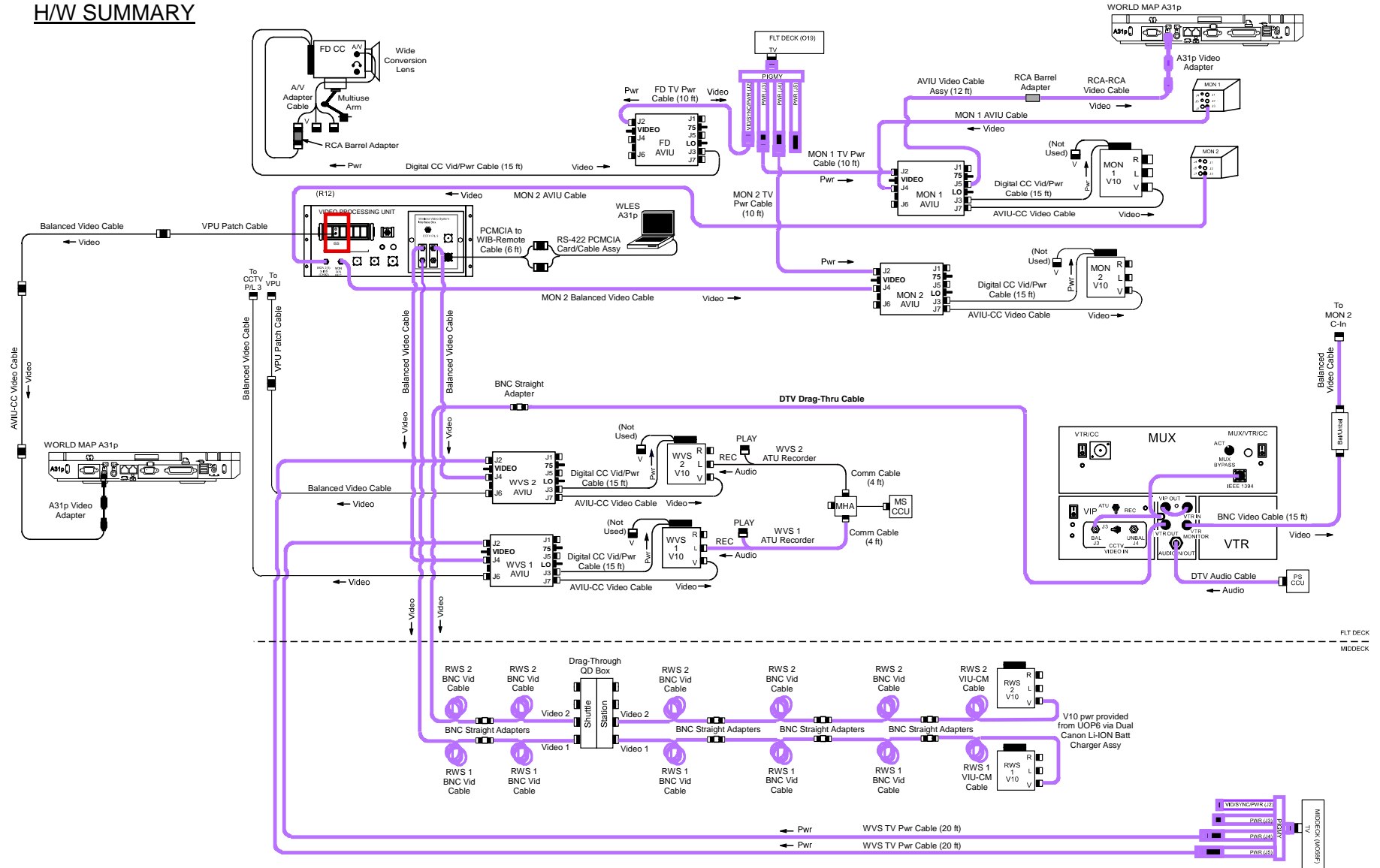
1. DCS 760
 Pwr – OFF
 Start batt recharge as reqd
2. Drag-Through QD Box
 Disconnect RWS Cables (two) from orbiter side Video 1,2 ports. Stow cables on orbiter
 Disconnect BPSMU Cables from ODS CCU ports; coil as reqd
 Transfer Drag-Through QD Box and remaining attached cables to ISS
3. TV System
 Go to DEACTIVATION (Cue Card, TV) as reqd

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P/TV07 EVA

H/W SUMMARY



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P/TV07 EVA (Continued)

SCENE SYNOPSIS

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

SETUP

FOR ALL EVAs:

1. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd
2. Perform 760 PROGRAM w/FLASH

- Pwr – ON
- √Disk installed
- Rear LCD
- √Batt
- √Frames remaining sufficient
- √White Balance – Auto
 - ISO – 100
- √BKT disabled
- √Focus Area – Center, LOCK displayed
 - Exp Comp – 0.0
 - Exp Mode – P
 - AF Area Mode – [] (no “+”)
 - Meter – Matrix
 - Diopter – Adjust
 - Film Adv – S
 - Body Focus Mode – S
 - Lens Focus Mode – A(M/A)
 - Aperture – Min, locked
 - Flash Settings
 - ON/OFF – ON
 - √TTL, Matrix
 - √Zoom – Auto (no M)
 - Tilt – Direct

P/TV07 EVA (Continued)

SETUP (Continued)

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

O19,MO58F	√TV PWR – ON
R12 (VPU)	√VPU PWR – ON (LED on)
V10 (MON 1,2, WVS 1,2)	PWR – ON √Tape installed DISPLAY pb – toggle to display tape counter
MON 2	SOURCE – C
FD CC	PWR – CAMERA √Tape installed √Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO
L10 (MUX) (VIP) (VTR)	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

P/TV07 EVA (Continued)

SETUP (Concluded)

4. Config WVS and PGSC

- A7
- a. Activate WVS System
 - √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'
- For center lens on each RF Camr Assy:
 - Lens Iris Cntl – op(cl) until good video on V10(MON)

P/TV07 EVA (Continued)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnk	
	1. 1E	PAO Coverage	<u>IVA 760</u> 28-70mm If exterior: Flash ON/OFF – OFF	As desired <u>WVS</u>	<u>PD100</u> As desired	LIVE (if avail)	Plan for end-of-day crew choice video, DCS stills
	2. 1E-9	CMG • Imagery of CMG installed on ICC-L • Shims • Post-MLI Closing		<u>WVS,A(B,C,D)</u>		LIVE	
	3. 1E-11	Thermal Covers • Closeout of all that have been manipulated		<u>WVS</u>		LIVE (Replay)	
	4. 1E-9	Trunnions and Keel Covers • Installation • Thermal Covers		<u>WVS,A(B,C,D)</u>		LIVE (Replay)	
	5. 1E-9	Nitrogen Tank Assy • Removal • Replacement • Return		<u>WVS,A(B,C,D)</u>		LIVE DNLK	
	6. 1E-9	PDGF Install • Removal • Installation		<u>WVS,A(B,C,D)</u>		LIVE DNLK	
	7. 1E-9	PDGF Grappling • Heater Cable Disconnect/Tie-Down • PCBM Cover Removal • PCBM Seal Inspection		<u>WVS,A(B,C,D)</u>		LIVE (if avail)	

P/TV07 EVA (Continued)

OPS (Continued)

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnk	
	8. 1E-9	EVA Mobility Aids <ul style="list-style-type: none"> • Handrail Install • WIF Install 		<u>WVS,A,(B,C,D)</u>			LIVE DNLK
	9. 1E-9	SOLAR <ul style="list-style-type: none"> • Removal • Transfer • Final Install • Activation 		<u>A,(B,C,D)</u>			LIVE (If avail)
	10. 1E-10	Columbus Berthing <ul style="list-style-type: none"> • ROEU Disconnect • Node 2 CBM Capture • CBM Secure • CBM Latch Closure 		<u>A,(B,C,D)</u>			
	11. 1E-10	Node 2 STBD ACBM <ul style="list-style-type: none"> • Capture Latches • Mating Surfaces 		<u>A,(B,C,D)</u>			LIVE (Replay)
	12. 1E-10	Columbus PCBM		<u>A,(B,C,D)</u>			LIVE (Replay)
	13. 1E-10	Columbus Install <ul style="list-style-type: none"> • SSRMS Maneuvering • Pre-Mate Positioning • Berthing • Post Latching 		<u>A,(B,C,D)</u>			LIVE (Replay)
	14. 1E-9	EuTEF <ul style="list-style-type: none"> • Transfer • Installation 	<u>EVA 760</u>				

P/TV07 EVA (Concluded)

OPS (Concluded)

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnk	
	15. 1E-11	Ext Payload Support <ul style="list-style-type: none"> • EVA Aids • EuTEF • EuTEF/SOLAR • Keel Trunnion Covers • Ext Payload Mapping 		<u>WVS</u>			LIVE DNLK
	16. 1E-13	S1 NTA Removal Replacement		<u>WVS</u>			LIVE DNLK

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

DEACTIVATION

1. IVA DCS 760
 Pwr – OFF
 √Flash ON/OFF – ON
 Download images
 Start batt recharge as reqd

2. TV System
 Perform PWRDN (Cue Card, WVS)
 Go to DEACTIVATION (Cue Card, TV) as reqd

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P/TV08 EXTERNAL SURVEY

SCENE SYNOPSIS

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

SETUP

1. 760 Camr Configuration for OMS Pod Survey

If Sunlit OMS Pod, config 760 Manual Mode

Lens – 80-200mm @ 200mm
Pwr – ON
√Disk installed
Rear LCD
√Batt
√Frames remaining sufficient
√White Balance – Auto
√ISO – 100
√BKT – Disabled
√Focus Area – Center, LOCK displayed
Exp Comp – 0.0
Exp Mode – M
SS – 1000
AF Area Mode – [] (no “+”)
Meter – Matrix
Diopter – Adjust
Film Adv – S
Body Focus Mode – S
Lens Focus Mode – A(M/A)
Aperture – Min,locked
f/stop – F8
Flash Settings
ON/OFF – OFF

~

P/TV08 EXTERNAL SURVEY (Continued)

SETUP (Continued)

1. 760 Camr Configuration for OMS Pod Survey (Concluded)

┌
If Earthshine OMS Pod, config 760 Program Mode
Lens – 80-200mm @ 200mm
Pwr – ON
√Disk installed
Rear LCD
 √Batt
 √Frames remaining sufficient
 √White Balance – Auto
 √ISO – 100
 √BKT – Disabled
√Focus Area – Center, LOCK displayed
Exp Comp – 0.0
Exp Mode – P
AF Area Mode – [] (no “+”)
Meter – Spot
Diopter – Adjust
Film Adv – S
Body Focus Mode – S
Lens Focus Mode – A(M/A)
Aperture – Min,locked
Flash Settings
 ON/OFF – OFF

P/TV08 EXTERNAL SURVEY (Continued)

SETUP (Concluded)

2. 760 Camr Config for ISS Still Survey (760 Shutter Priority Mode)

Pwr – ON

√Disk installed

Rear LCD

√Batt

√Frames remaining sufficient

√White Balance – Auto

ISO – 100

√BKT disabled

√Focus Area – Center, LOCK displayed

Exp Comp – 0.0

Exp Mode – S

SS – 500

AF Area Mode – [] (no “+”)

Meter – Matrix

Diopter – Adjust

Film Adv – S

Body Focus Mode – S

Lens Focus Mode – A(M/A)


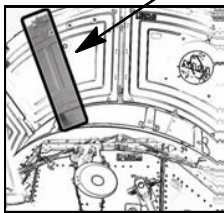
Aperture – Min, locked

Flash Settings

ON/OFF – OFF

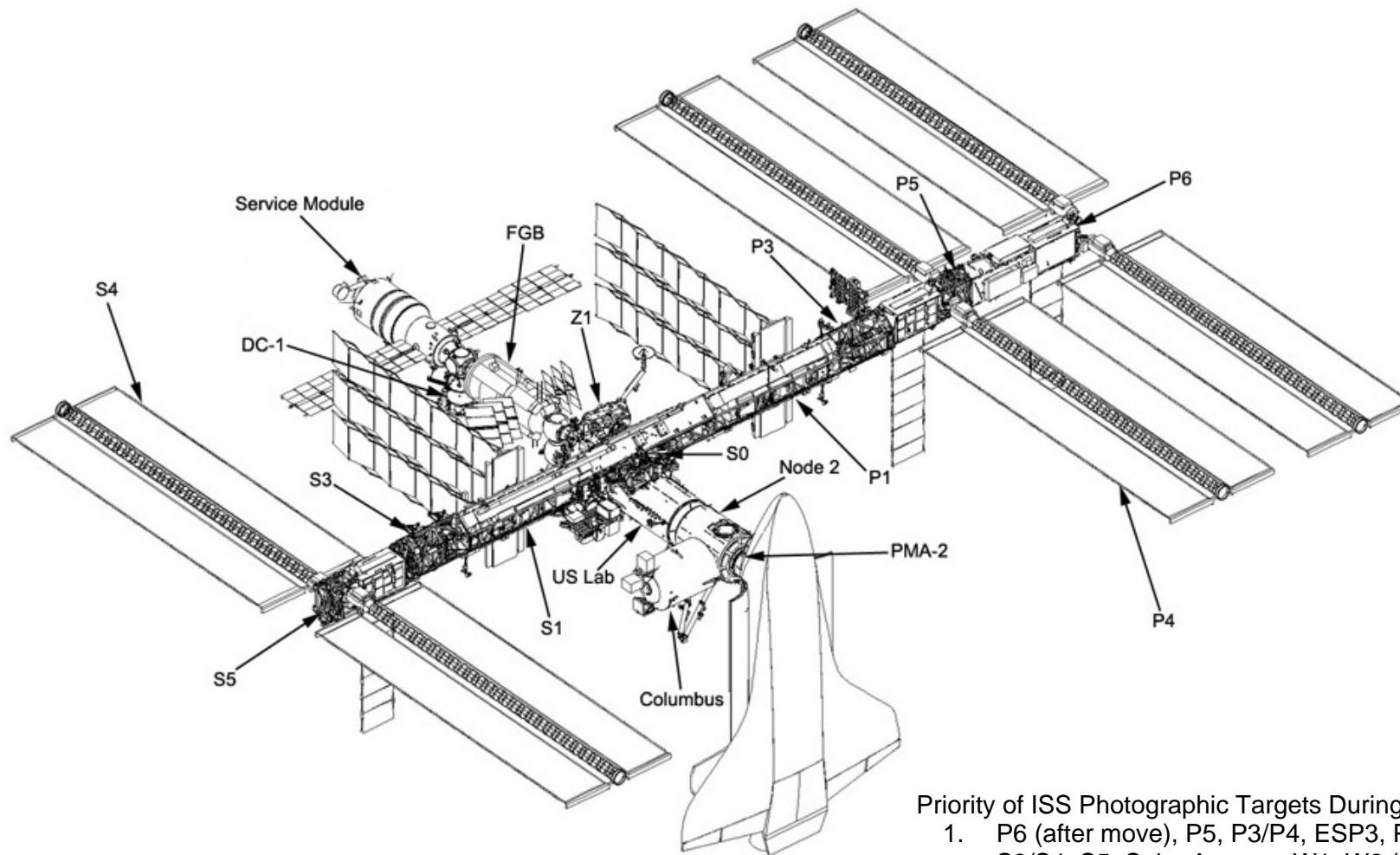
P/TV08 EXTERNAL SURVEY (Continued)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	<p><u>OMS Pod Survey</u></p> <ul style="list-style-type: none"> • 50 percent mapping of both OMS pods and vertical stabilizer w/emphasis on Black Tile areas. Perform from both W9,W10 <p>If damage noticed, obtain imagery of area using 400mm lens from both W9,W10</p>	<p>760 80-200mm @ 200mm (400mm)</p>				Download images to MCC once complete
	2. 1E-7	<p><u>ISS Still Survey</u></p> <ul style="list-style-type: none"> • Surfaces • Solar Panels • Handrails • SVS Targets • S0,S1,P1 & P6 Trusses Including: <ul style="list-style-type: none"> – Rads/baseplates – SAWs (in/outboard SABB insulation degradation) • Plasma Arcing Effects <ul style="list-style-type: none"> • EuTEF and SOLAR Payload • ESP-2 	<p>760 50mm(80-200mm @ 200mm)</p>				<p>Map ISS surfaces w/10% overlap from all Flt Deck windows</p> <p>Map specified area of Lab MMOD shield w/10% overlap from W7(W8):</p> 

P/TV08 EXTERNAL SURVEY (Continued)

OPS (Continued)



- Priority of ISS Photographic Targets During Docked Phase:
1. P6 (after move), P5, P3/P4, ESP3, P1, Columbus, S1, S3/S4, S5, Solar Arrays – W1, W6 (special emphasis on newly installed components)
 2. P6 (before move), S0, Node 2 – W7,W8
 3. PMA2 – W9,W10

P/TV08 EXTERNAL SURVEY (Concluded)

OPS (Concluded)

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

DEACTIVATION

1. DCS 760
Exp Mode – P
PWR – OFF
Flash ON/OFF – ON
Start Batt recharge as reqd

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REFERENCED PROCEDURES

	<u>PAGE</u>
<u>MINI-CAM</u>	
ENTRY VIDEO SETUP	FS 2-3
<u>LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM DIGITAL CAMR (IDC)</u>	
LCS/IDC (HEATER ONLY MODE)/(OPERATIONAL PWR MODE) DATA AND PWR INTERFACES	FS 2-6
MANUAL A31p DESKTOP DNLK SETUP	FS 2-7

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MINI-CAM (Continued)

ENTRY VIDEO SETUP (Continued)

- A17 1. Remove 'Entry' Ziplock Bag from DTV Bag
Config Mini-Cam, VTR for Audio, Video Recording
Config H/W per dwg, FS 2-3
- HUD
Brkt/Cam Using two (2) captive screws, attach HUD Brkt to installation holes for protective cover w/ HUD Brkt tab pointing up

Attach Tie Wrap thru holes on captive screws to prevent screw from coming loose; cut off extra length on Tie Wrap

Attach Mini-Cam Extension Cable to Mini-Cam
- 12mm Lens Focus – ∞
Aperture – f/5.6

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)
- 3.5mm Lens Aperture – f/1.8
- L10:A1 AVIU
 SYNC/VIDEO – VIDEO
 HI-Z/75 – HI-Z
 PWR SELECT – HI
- O19 TV PWR – ON
- PS ATU Config audio as reqd for entry audio
- L10 (MUX)
(VTR) VTR/CC PWR – on (LED on)
 ON/STANDBY LED – green
- NOTE
- One Batt will be used on each V10 for system c/o. Second Batt
 is spare. Batts will be removed after c/o and used for entry
- Acquire four V10 Li-ION Batts
- V10 (FD,MD) Install fresh batts
 PWR – ON

MINI-CAM (Concluded)

ENTRY VIDEO SETUP (Concluded)

√12mm Lens/Mini-Cam producing good video

Change config to 3.5mm Lens/Mini-Cam
√3.5mm Lens/Mini-Cam producing good video

V10 (FD,MD) PWR – OFF

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

O19 TV PWR – OFF

NOTE

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

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

When exterior avail:

Focus – adjust per V10

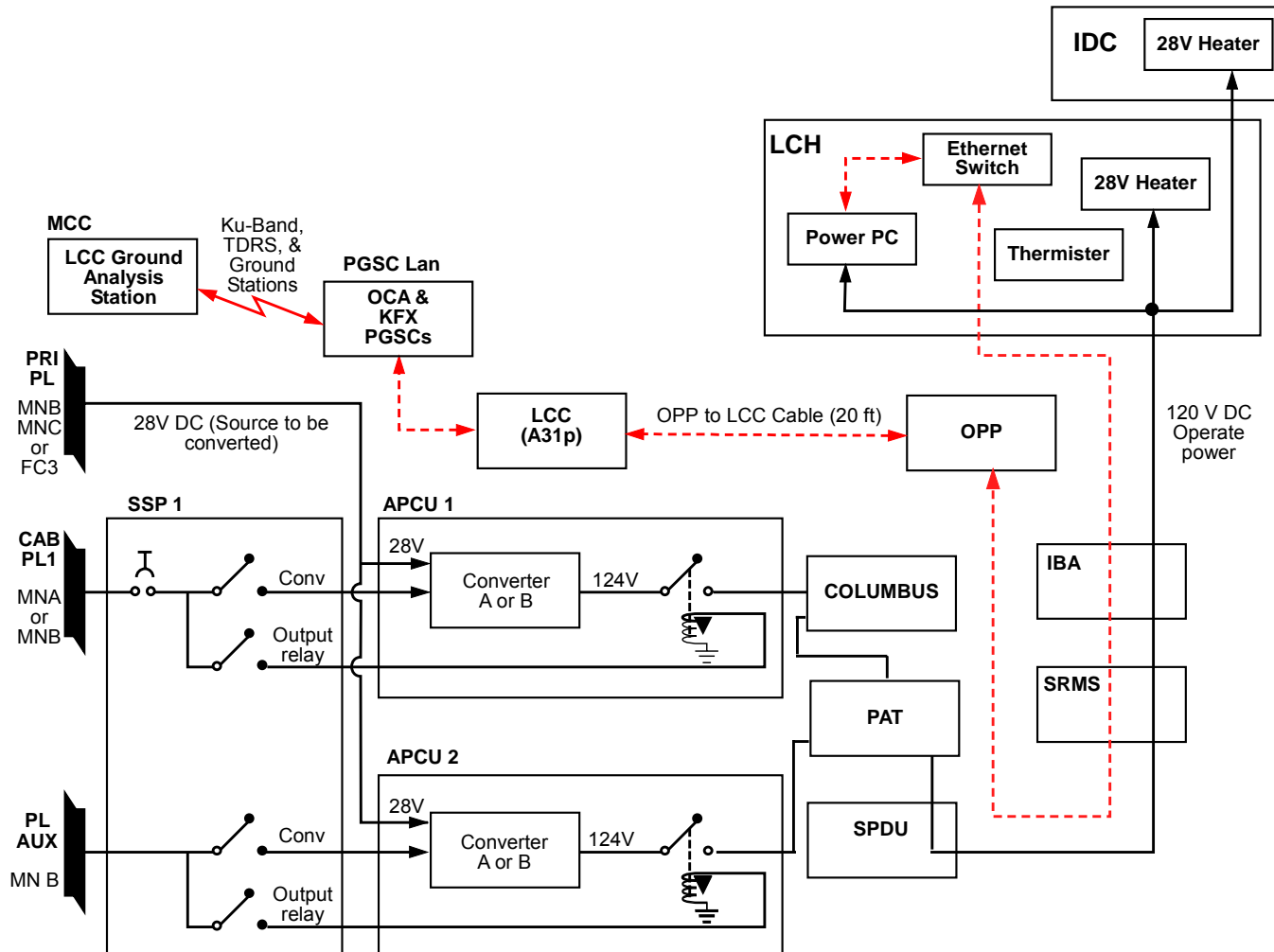
Aperture – adjust per V10

If needed, turn down brightness on HUD display

Turn off V10 when not needed

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

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



jsc48037_apcu2nobus_134e.cvx

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

MANUAL A31p DESKTOP DNLK SETUP

NOTE

For desktop dnlk config to work correctly, ensure there is a load on A31p Video Out port (video coming out of laptop into pwr'd input, such as AVIU(V10))

- | | |
|---------------|---|
| MO58F
AVIU | 1. √Video destination properly configured per LCC ACTIVATION, step 1 (Cue Card, <u>LCS</u>) and pwr'd
√TV PWR – ON
√HI-Z/75 – 75 |
| CC | √PWR SELECT – LO
PWR – OFF |
| A31p | 2. <u>Desktop</u>
Right click
Sel 'Properties' |
| | 3. <u>'Display Properties' Dialog Box</u>
Sel 'Settings'
√Screen Area – 1024 x 768
If not 1024 x 768:
Move Screen Area sidebar to 1024 x 768
Sel 'Apply'
When second 'Display Properties' dialog box opens:
Sel 'OK'
When 'Monitor Settings' dialog box opens:
Sel 'Yes' |
| | 4. <u>'Display Properties' Dialog Box</u>
Sel 'Advanced' |
| | 5. <u>'(Multiple Monitors) and ATI MOBILITY FIRE GL 7800 Properties' Dialog Box</u>
Sel 'Displays' tab |

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

MANUAL A31p DESKTOP DNLK SETUP (Continued)

6. ✓ 'Displays' tab against fig 2-1 cases' circled areas and perform matching case steps below:

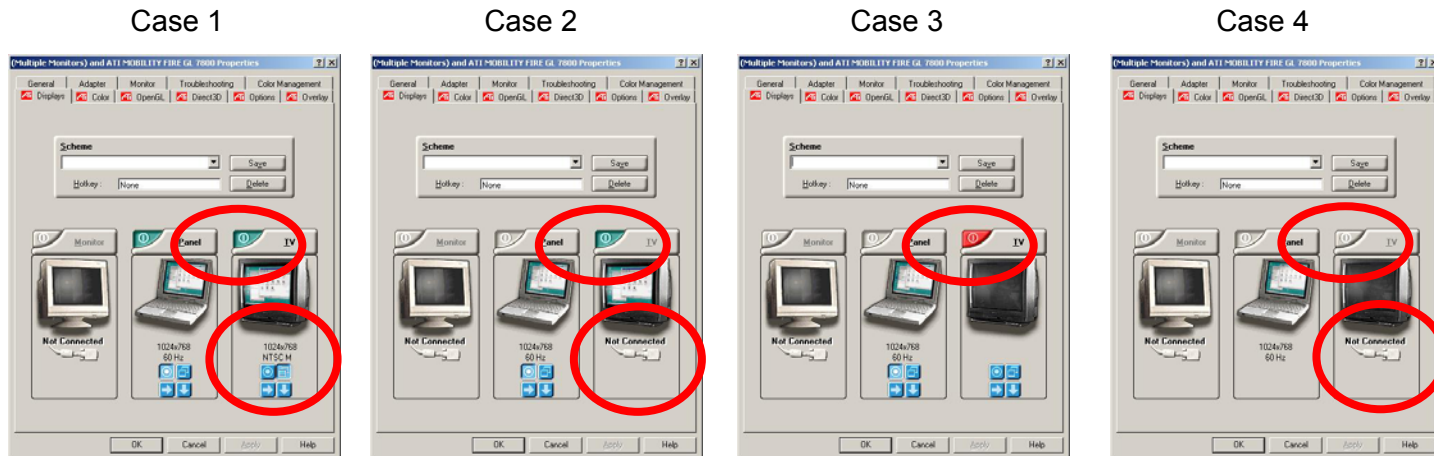


Figure 2-1.- Multiple monitors and ATI mobility fire GL 7800 display tab.

If Case 1 (Video out port enabled and good A31p video to powered AVIU):

Sel 'OK'

If Case 2 (Video signal lost due to bad LCS video cable, adapter, or AVIU setting):

Sel 'OK'

✓TV PWR – ON

✓LCS Video Cable connected to J1

✓LCS Video Adapter connected to A31p Video Out port

Repeat steps 4-6

If Case 3 (Video out port disabled and good LCS video cable connection to powered AVIU):

Click on red button in Case 3 circle

✓Display looks like Case 1

Sel 'OK'

When ATI Property Page appears:

Sel 'Yes'

MO58F
AVIU
A31p

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

MANUAL A31p DESKTOP DNLK SETUP (Concluded)

6. (Concluded)

~
|

If Case 4 (Bad LCS video cable, adapter, or connection, AVIU not powered or configured or A31p port problem):

AVIU
A31p

Sel 'OK'

√LCS Video Cable connected to J1

√LCS Video Adapter connected to A31p Video Out port

Repeat steps 4-6

If no longer Case 4:

| Repeat step 6

If still Case 4:

Sel 'OK'

Replace entire LCS Video Cable (including A31p Video Adapter)

Repeat steps 4-6

If no longer Case 4:

| Repeat step 6

If still Case 4:

Sel 'OK'

Replace AVIU

Repeat steps 4-6

If no longer Case 4:

| Repeat step 6

If still Case 4:

Sel 'OK'

Replace A31p

Repeat steps 1-6

If no longer Case 4:

| Repeat step 6

If still Case 4:

√MCC

7. 'Display Properties' Dialog Box

Sel 'OK'

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CUE CARD CONFIGURATION

	<u>PAGE</u>
TV	FS CC 3-3
PLAYBACK.....	FS CC 3-5
ET PHOTO	FS CC 3-7
MEDIA ALLOCATIONS	FS CC 3-8
WVS.....	FS CC 3-10
PLBD VTR RECORDING	FS CC 3-12
LDRI/ITVC	FS CC 3-14
LCS.....	FS CC 3-16
IDC.....	FS CC 3-18
VIDEO SETUP.....	FS CC 3-20
DCS SETUP	FS CC 3-22

CUE CARDS

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TOP

HOOK
VELCRO

TV

ACTIVATION

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

OPERATION

Auto Ops (Auto Exposure)

NOTE

√MCC has commanded sync config

- A7 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, then ON
 - Repeat until MAN GAIN pb illuminated
 - LT LEVEL pb – push
 - DAY(NIGHT) pb – push
 - ALC pb – push
 - AVG pb – push
- Repeat for other Camrs as reqd

Dnlk Ops

- Coordinate dnlk and sync config w/MCC
- Config audio as reqd
- A7 If analog, on MCC GO:
 - VID OUT DNK pb – push
 - IN pb – As reqd
- If DTV, on MCC GO:
 - √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 pb – As reqd
 - L10
 - (VIP) √DATA FLOW LED – on
 - (MUX) √CHANNEL 3 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)
- 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 dnlk/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

P/TV-1a/122/O/A

(reduced copy)

FS CC 3-3

P/TV/122/FIN A

TOP
BACK OF 'TV'

HOOK
VELCRO

Illuminator Ops

Illuminator ON

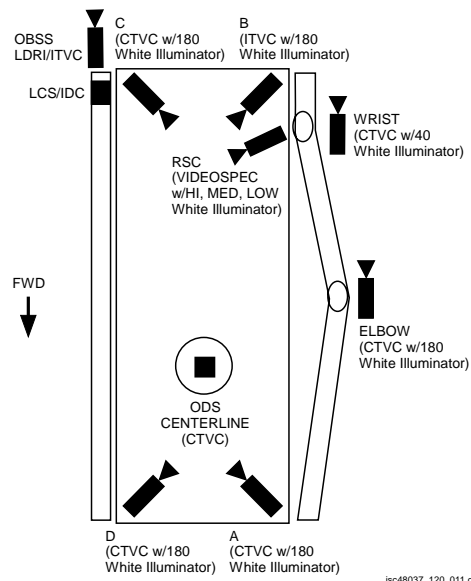
```

R14:D(E) | If Wrist Illuminator:
          | \cb TV RMS CAMR/PTU - cl
          | \WRIST ILLUM/CAMR HTR - cl
          | - op, then cl
          |
          | If Elbow Illuminator
          | \cb TV RMS CAMR/PTU - cl
          | \ELB ILLUM/PTU HTR - cl
          | - op, then cl
          |
          | If A(B,C,D,ELB) Illuminator:
          | \cb TV A(B,C,D,RMS,ELB) CAMR/PTU - cl
          | \ILLUM/PTU HTR - cl
          | - op, then cl
  
```

Illuminator OFF

```

R14:D(E) | If Wrist Illuminator:
          | cb TV RMS WRIST ILLUM/CAMR HTR - op, then cl
          |
          | If Elbow Illuminator:
          | cb TV RMS ELB ILLUM/PTU HTR - op, then cl
          |
          | If A(B,C,D,ELB) Illuminator:
          | cb TV A(B,C,D,RMS,ELB) ILLUM/PTU HTR - op, then cl
          |
          | If RSC Illuminator:
          | Go to LDRI/ITVC (Cue Card)
  
```



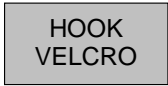
jsc48037_120_011.cvx

P/TV-1b/122/O/A

(reduced copy)

FS CC 3-4

P/TV/122/FIN A



PLAYBACK

ANALOG

ACTIVATION

CC Setup per diagram (back of cue card)
 A7 Perform ACTIVATION (Cue Card, TV), as reqd
 O19(MO58F) √TV PWR – ON

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

CC PWR – VTR

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/COM 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(MO58F) TV PWR – OFF, as reqd
 Go to DEACTIVATION (Cue Card, TV), as reqd

VTR VIA ANALOG

ACTIVATION

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

ANALOG 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/COM 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) Remove, mark, stow tape as reqd
 ON/STANDBY pb – push (red LED on)
 PWR – off (LED off)

(VIP) Reconfig as desired
 ATU TV PWR – OFF
 O19(MO58F) Go to DEACTIVATION (Cue Card, TV) as reqd

DIGITAL

ACTIVATION

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

OPERATIONS

PLBK or DNLK VIDEO

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

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
 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
 √CHANNEL 3 DATA LED – on

L10 (VTR) PLAY pb – push (green ● displayed)
 If PLBK(DNLK) complete:
 | STOP pb – push
 If VTR ops complete, go to DEACTIVATION

DEACTIVATION

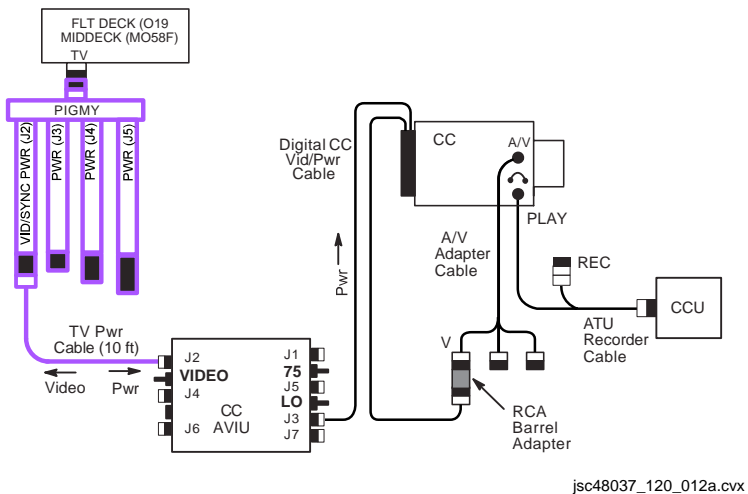
L10 (VTR) Remove, mark, stow tape as reqd
 ON/STANDBY pb – push (red LED on)
 PWR – off (LED off)

(VIP) MUX/VTR/CC PWR – off (LED off)
 (MUX) VTR/CC PWR – OFF (LED off)
 Go to DEACTIVATION (Cue Card, TV) as reqd

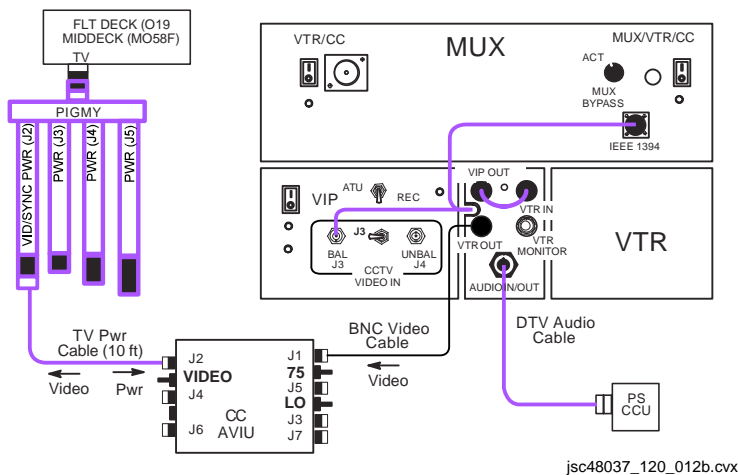
TOP
BACK OF 'PLAYBACK'

HOOK
VELCRO

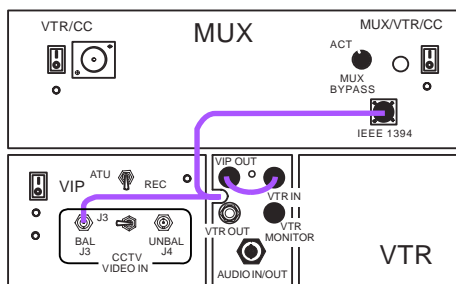
ANALOG PLAYBACK



VTR VIA ANALOG PLAYBACK



DIGITAL PLAYBACK



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FS CC 3-6

P/TV-2b/122/O/A

P/TV/122/FIN A

TOP

HOOK
VELCRO

ET PHOTO

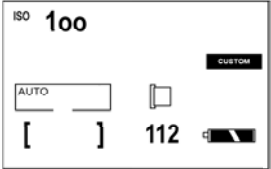
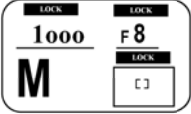
DCS 760 DCS 760

LENS SETTINGS

- √LENS APERTURE RING – MIN, LOCKED
- √LENS FOCUS MODE – M

CAMR SETTINGS

- PWR – ON
- REAR LCD
 - √BATT ICON FULL
 - √ISO – 100
- TOP LCD
 - √EXP MODE – M
 - √SS – 1000
 - √F/STOP – 8
- DIOPTR – ADJUST
- √FRAME ADVANCE – S
- √BODY FOCUS MODE – S

CRITICAL FOCUS REQD EACH FRAME

P/TV-3a/122/O/A

FS CC 3-7

TOP
BACK OF 'ET PHOTO'

HOOK
VELCRO

ET PHOTO

PD100 PD100

LENS CAP – REMOVE, SECURE

MODE – CAMERA

OPEN LCD

- √STBY
- √1000
- √F8
- √▲ (FOCUS – INFINITY)

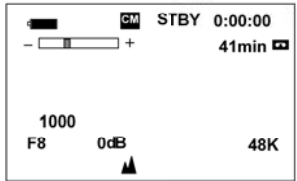
√AUTO LOCK – HOLD

ZOOM – WIDE TO FIND TANK, THEN TIGHT

START RECORDING

√LCD DISPLAYS REC

Final Display



P/TV-3b/122/O/A

P/TV/122/FIN A

TOP

MEDIA ALLOCATIONS										
DCS					1gb/112 shots					
1 GB EVA Flash Card										
11	10	9	8	7	6	5	4	3	2	1
DVCAM					3 hr/tape					
					15	14	13	12	11	
10	9	8	7	6	5	4	3	2	1	
MINI DVCAM					40 min/tape					
210	209	208	207	206	205	204	203	202	201	
200	199	198	197	196	195	194	193	192	191	
190	189	188	187	186	185	184	183	182	181	
180	179	178	177	176	175	174	173	172	171	
170	169	168	167	166	165	164	163	162	161	
160	159	158	157	156	155	154	153	152	151	
150	149	148	147	146	145	144	143	142	141	
140	139	138	137	136	135	134	133	132	131	
130	129	128	127	126	125	124	123	122	121	
120	119	118	117	116	115	114	113	112	111	
110	109	108	107	106	105	104	103	102	101	
100	99	98	97	96	95	94	93	92	91	
90	89	88	87	86	85	84	83	82	81	
80	79	78	77	76	75	74	73	72	71	
70	69	68	67	66	65	64	63	62	61	
60	59	58	57	56	55	54	53	52	51	
50	49	48	47	46	45	44	43	42	41	
40	39	38	37	36	35	34	33	32	31	
30	29	28	27	26	25	24	23	22	21	
20	19	18	17	16	15	14	13	12	11	
10	9	8	7	6	5	4	3	2	1	

P/TV-4a/122/O/B

(reduced copy)

FS CC 3-8

P/TV/122/FIN A

TOP
BACK OF 'MEDIA ALLOCATIONS'



HOOK
VELCRO



P/TV-4b/122/O/A



(reduced copy)

FS CC 3-9

P/TV/122/FIN A

TOP

HOOK
VELCRO

WVS

HOOK
VELCRO

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

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

V10 Sel RF Camr 1,2 – None (black "OFF")
√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

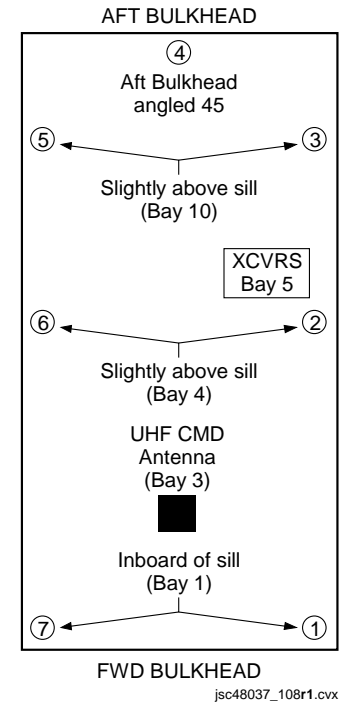
If still no joy:
For XCVR with good video:
Sel RF Camr – reselect original EVA crewmember
For XCVR w/video problem: Antenna – Manual
Sel desired antenna

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



P/TV-5a/122/O/A

(reduced copy)

FS CC 3-10

P/TV/122/FIN A

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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")
If still no joy:
EMU 5. EMU TV Pwr pb (of static EMU TV) – push (no LED),
wait 10 sec, push (green LED)
If still no joy:
6. √MCC

BAD 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	16	18
Serial Number	1010	1007
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/122/O/A

(reduced copy)

TOP

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PLBD VTR RECORDING

L10 √VIP,VTR covers removed
R1 √PL AUX – ON
MA73C:E cb AC2 PL3Φ – cl
 √Cables config'd per dwg (back of cue card)

L10
(MUX) VTR/CC PWR – on (LED on)
(VIP) √ATU – REC
 √CCTV VIDEO IN – J3
 PWR – on (LED on, DATA FLOW flashes twice)

(VTR) √ON/STANDBY LED – green
 √Switches set to white dot (seven)
 √COUNTER SELECT – COUNTER (TC)
 √Tape installed (tape icon LED on)

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

A15 If Audio desired:
 Connect DTV Audio Cable

L9 PS AUD PWR – AUD
 Desired Loops – RCV, Vol tw 5
 Other Loops – OFF

A7 VID OUT DTV pb – push
 IN pb – as reqd

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

P/TV-6a/122/O/A

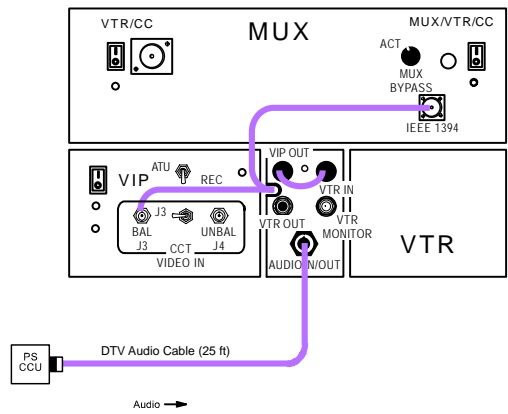
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FS CC 3-12

P/TV/122/FIN A

TOP
BACK OF 'PLBD VTR RECORDING'

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jsc48038_122_016.cvx

P/TV-6b/122/O/A

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FS CC 3-13

P/TV/122/FIN A

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LDRI/ITVC

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ACTIVATION

1. Config CCTV Sys
 - A7 √ACTIVATION (Cue Card, TV) performed
 - L10 (MUX) √MUX/VTR/CC PWR – on (LED on)
 - √Cabling from VTR OUT port to DTV V10
 - R12 (VPU) √VPU PWR – ON (LED on)
 - √Green Jumper – LDRI/ITVC
 - MON 1,2 L-DATA – ON
 - C-DATA – GRN
 - X-HAIR – GRN
 - MON 2 SOURCE – C

2. Apply SPEE Pwr
 - A8L √STBD RMS HTR (two) – OFF
 - 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)

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

4. Enable ITVC
 - R12 (OBSS) ITVC ENA – ON
 - A7 VID OUT DTV pb – push
 - IN PL 2(VPU) pb – push
 - R12 (OBSS) If MAN GAIN pb not illuminated:
 - 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

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

GENERAL LDRI CONTROL

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

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

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

PAN/TILT 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, wait 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

TOP
BACK OF 'LDRI/ITVC'

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RSC CAMR OPS

NOTE

Camr nominally pwr'd in Block 4 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, then ON
MON 1 ✓RSC illum on

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

Perform LDRI/ITVC ACTIVATION, step 4

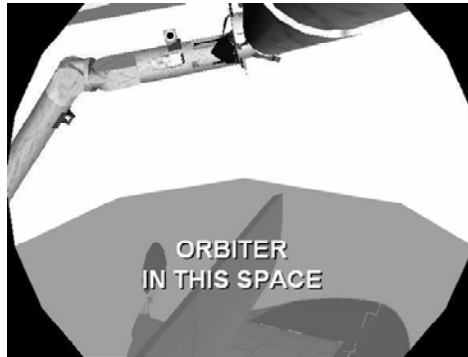
Return to original LDRI/ITVC Mode, continue OPS

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 (LO within 10°)
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 •)

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

P/TV-7b/122/O/B

(reduced copy)

FS CC 3-15

P/TV/122/FIN A

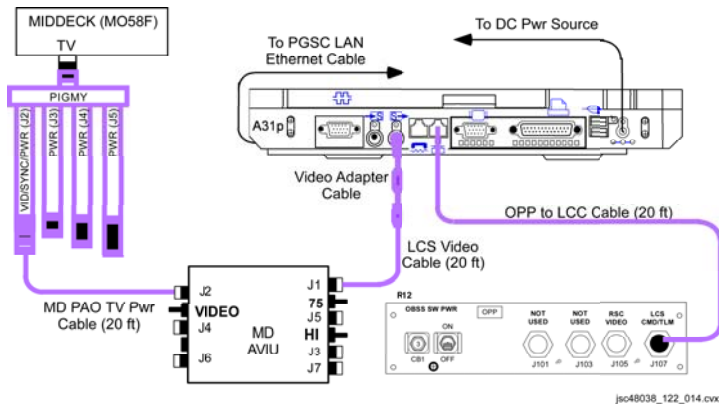
HOOK
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LCH ACTIVATION

- APCU/ LCH Pwrup
 R1 1. √PL PRI MNC – ON (tb-ON)
 √AUX – ON
 SSP 1 2. √cb SW PWR 1 – cl
 APCU2 OUTPUT RLY – CL
 CONV – ON (tb-gray)
 √CLOSE tb – gray
 SM 200 APCU STATUS
 √APCU2 OUT VOLT RES HIGH: 122V to 126.5V

LCC ACTIVATION

1. LCC Setup
 A31p √Hardware and cables configured per diagram below:



2. LCC Startup
 A31p PGSC Pwr – ON
 Sel 'Shuttle Apps' > 'LCC' from APCU 2 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

(For APCU2 flights only w/no interconnect bus)

TOP

LCS

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3. Verify LCC Desktop Video (Concluded)
 A31p Minimize all programs
 Right click on ATI icon on system tray
 Sel 'Schemes'
 Sel 'ENABLE DESKTOP DOWNLINK'
 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/122/O/C

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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

Removing APCU Converter Pwr or opening output relay will remove critical keep-alive pwr to LCH and IDC

1. APCU Converters Off/LCH Pwrdrn

NOTE

Expect 'S200 APCU2 VOLT LMT' msg

- SSP 1 APCU2 CONV – OFF (tb-bp)

2. Open APCU Output Relay

- SSP1 APCU2 OUTPUT RLY – OP (tb-bp)

TROUBLESHOOTING

Temp or Elec Status Yellow and Message

- 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 APCU2 VOLT LMT' msg

- SSP 1 APCU2 CONV – OFF, ON
- √CONV tb – gray
- √CLOSE tb – gray

SM 200 APCU STATUS

√APCU2 OUT VOLT 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 2 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

(For APCU2 flights only w/no interconnect bus)

(reduced copy)

P/TV-8b/122/O/C

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IDC

IDC ACTIVATION

1. LCC Setup
 A31p PGSC Pwr – ON
 √Hardware configured per LCC ACTIVATION steps 1,2 (Cue Card, LCS)
2. IDC connectivity Check
 LCC √A31p internal RJ45 Network Interface Card LED green
 If RJ45 Network Interface Card LED not green:
 SSP 1 APCU2 CONV – OFF, then ON
 √CONV tb – gray
 √CLOSE tb – gray

SM 200 APCU STATUS
 √APCU2 OUT VOLT RES HIGH: 122V to 126.5V

IDC SOFTWARE ACTIVATION

1. IDC Software Startup
 A31p Sel 'Shuttle Apps' > 'IDC'
2. Verify GMT
 A31p √GMT within 3 sec of SM-GPC GMT

 * If GMT not within 3 sec: *
 * Double click on GMT box on GUI *
 * Adjust GMT as reqd *
 * Sel 'OK' on MTU Time dialogue box *

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

3. IDC Pwr on and self test
 A31p Sel 'Power On'

 √Black and White self-test image displayed
 √'Waiting for User Command' displayed

 * If red backlit error msg displayed: *
 * Perform appropriate TROUBLESHOOTING *
 * steps on this cue card *

OPERATION

NOTE

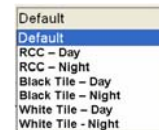
PDRS OPS will call for IDC image steps on LCC A31p. Limited MCC real-time insight avail if configured for desktop drnk

1. 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 GMT does not update during Ops, an attempt to shut down/restart A31p should be made

2. Auto Exposure (AE) Ops
 A31p √'Use AE' checked
 Sel 'Scan Lo-Res'
 Resize and posn AE box as reqd (pause 2 sec)
 Sel 'Scan Hi-Res'
 If Scanning with no RMS Motion:
 | Sel 'Stop Scan' after 30 sec
 If scanning with RMS motion:
 Move box to maintain RCC in AE box (using keyboard arrows)
 Sel 'Stop Scan' at pause point
 √'Waiting for User Command' displayed
3. Scenario File Ops
 A31p From Scenario File drop-list, sel appropriate lighting condition



- Sel 'Acquire Set'
 √'Acquiring Set' displayed
 √'Waiting for User Command' displayed after set

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HOOK
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IDC DEACTIVATION

- IDC and Software Shutdown
A31p Sel 'Power off' on IDC GUI
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

APPENDING COMMENT TEXT TO TIFF

- If Comment Added Before Scan
A31p Enter text in comment area

NOTE
All scans will contain this comment. Text can be cleared with [F2] hot key. Comments cannot be edited post scan
- If Comment Added After Scan
A31p Sel 'View File' on IDC GUI
Double click on desired TIFF file
Enter text in comment area
Hit [F4] to append comment

IDC HOT KEY COMMANDS

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

IDC SOFTWARE ERROR MESSAGES

- Can't connect to LCH:** Perform TROUBLESHOOTING, steps 1,2
Condition: Possible heater only mode or Network failure
- Iport probe failed:** Perform TROUBLESHOOTING, step 2
Condition: Iport startup check failed. Expected during first pwr on attempt-resend pwr on
- Iport not responding:** Perform TROUBLESHOOTING, step 2
Condition: Iport connection lost
- Camera not responding:** Perform TROUBLESHOOTING, step 2
Condition: Camera connectivity lost
- Image acquisition failed:** Perform TROUBLESHOOTING, steps 1,2
Condition: Camera connectivity lost during imaging
- Network recovery failed:** Perform TROUBLESHOOTING, steps 1,2
Condition: LCH network switch connection lost
- Bad initialization file:** Perform TROUBLESHOOTING, step 3
Condition: Software will not launch due to severe ini file corruption

TROUBLESHOOTING

- LCC to LCH Connectivity Check
A31p If Local Area Network Connection 2 (with red X) tool tip on system tray:



Reseat OPP to LCC Cable (20 ft) to LCC RJ45 port
√Local Area Network Connection 2 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

NOTE
Expect 'S200 APCU2 VOLT LMT' msg

- SSP 1 APCU2 CONV – OFF, ON
√CONV tb – gray
√CLOSE tb – gray

SM 200 APCU STATUS
√APCU2 OUT VOLT 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

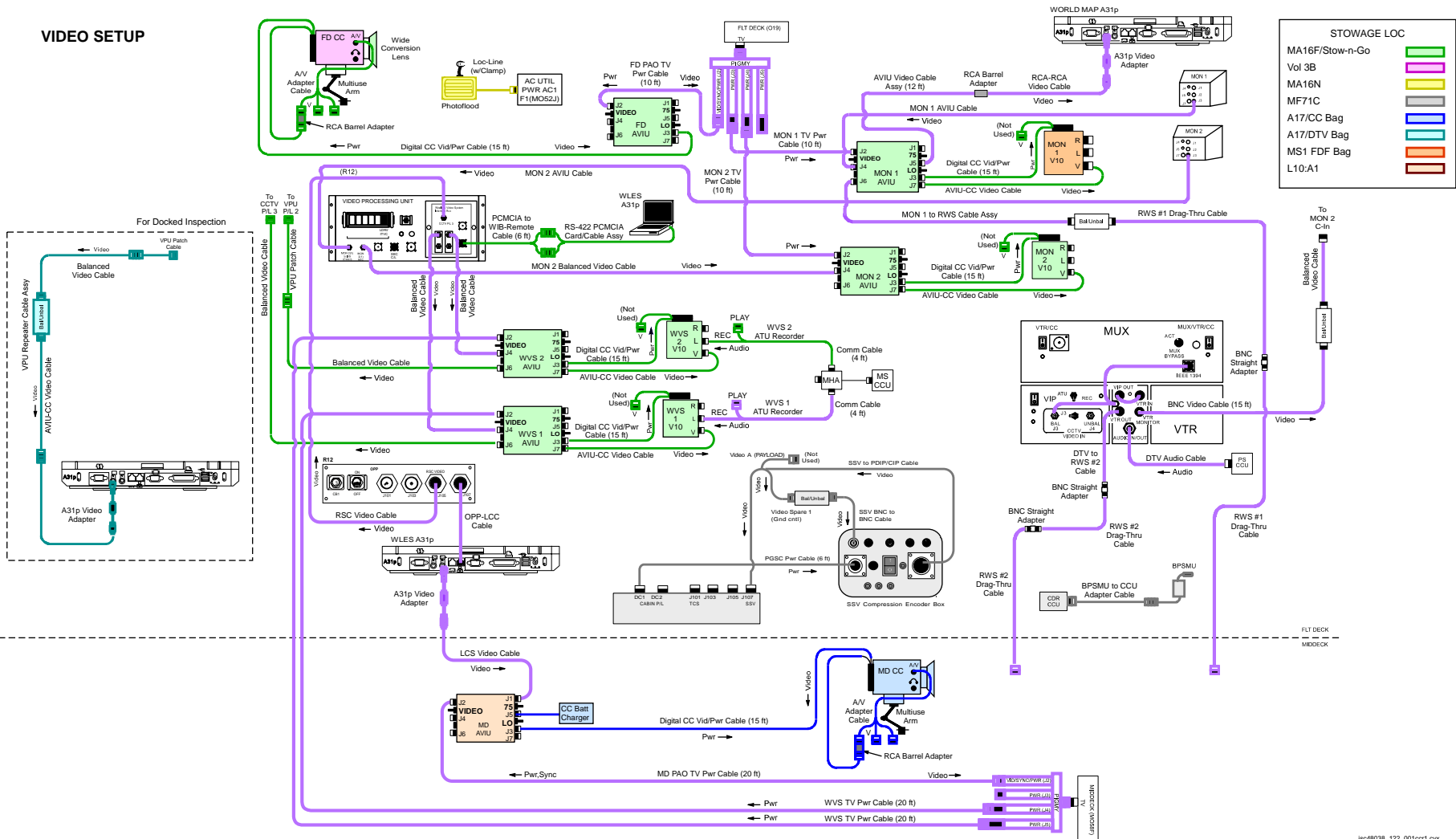
P/TV-9b/122/O/C

(For APCU2 flights only w/no interconnect bus)

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TOP

VIDEO SETUP



jsc48038_122_001c01.rvx

P/TV-10a/122/O/B

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FS CC 3-20

P/TV/122/FIN A

TOP
BACK OF 'VIDEO SETUP'



HOOK
VELCRO



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FS CC 3-21

P/TV-10b/122/O/B

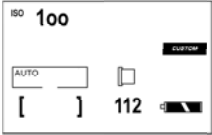
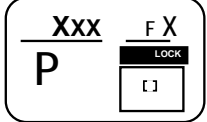

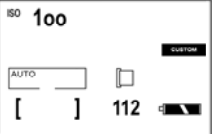
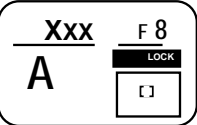
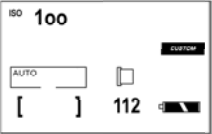
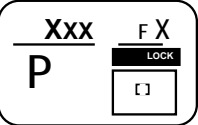


P/TV/122/FIN A

TOP

DCS SETUP

HOOK
VELCRO

760 PROGRAM In Cabin – EVA	760 CREW PHOTO	760 EXPOSURE MATCH “HERO SHOT”
<p>Pwr – ON ✓Disk installed Rear LCD ✓Batt ✓Frames remaining sufficient ✓White Balance – Auto ISO – 100 ✓BKT disabled ✓Focus Area – Center, LOCK displayed Exp Comp – 0.0 Exp Mode – P AF Area Mode – [] (no “+”) Meter – Matrix Diopter – Adjust Film Adv – S Body Focus Mode – S Lens Focus Mode – A(M/A) Aperture – Min, locked Flash Settings ON/OFF – ON ✓TTL, Matrix ✓Zoom – Auto (no M) Tilt – Direct</p>  	<p>Lens – 17-35mm @ 20mm Pwr – ON ✓Disk installed Rear LCD ✓Batt ✓Frames remaining sufficient ✓White Balance – Auto ✓ISO – 100 ✓BKT – Disabled ✓Focus Area – Center, LOCK displayed Exp Comp – 0.0 Exp Mode – A AF Area Mode – [] (no “+”) Meter – Matrix Diopter – Adjust Film Adv – Selftimer  Body Focus Mode – S Lens Focus Mode – A Aperture – Min, locked f/stop – 8 Flash Settings ON/OFF – ON ✓TTL, Matrix ✓Zoom – Auto (no M) Tilt – Direct</p>   <p>Remote Release – Install Multiuse Brkt (clamp) Focus Body Focus Mode – M Frame, Fire</p>	<p>Lens – 17-35mm @ 20mm Pwr – ON ✓Disk installed Rear LCD ✓Batt ✓Frames remaining sufficient ✓White Balance – Auto ✓ISO – 100 ✓BKT disabled ✓Focus Area – Center, LOCK displayed ✓CSM – 21-1, AEL Exp Comp – 0.0 Exp Mode – P AF Area Mode – [] (no “+”) Meter – Matrix Diopter – Adjust Film Adv – S Body Focus Mode – S Lens Focus Mode – A Aperture – Min, locked Flash Settings ON/OFF – ON ✓TTL, Matrix ✓Zoom – Auto (no M) Tilt – Direct</p>   <p>TECHNIQUE 1. Fill FOV w/Sunlit subject 2. Activate Camr 3. Exposure Lock ‘AEL’ pb – Depress,hold Expect values such as 250, F16 4. Focus, Frame, Fire</p>

(reduced copy)

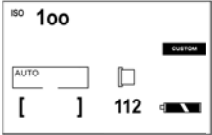
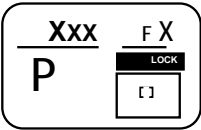
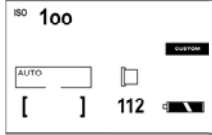
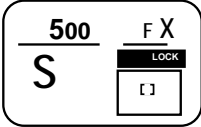
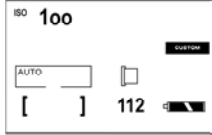
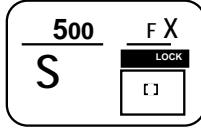
FS CC 3-22

P/TV-11a/122/O/A

P/TV/122/FIN A

TOP
BACK OF 'DCS SETUP'

HOOK
VELCRO

ELB CAMR	760 SHUTTER PRIORITY "RNDZ and FLYAROUND"	EARTH OBS
<p>Lens – 28-70mm at 70 Pwr – ON √Disk installed Rear LCD √Batt √Frames remaining sufficient √White Balance – Auto ISO – 100 √BKT disabled √Focus Area – Center, LOCK displayed Exp Comp – 0.0 Exp Mode – P AF Area Mode – [] (no "+") Meter – Matrix Diopter – Adjust Film Adv – S Body Focus Mode – S Lens Focus Mode – A (M/A) Aperture – Min, locked</p> <p>NOTE If Shutter Speed < 1/60, use P* to achieve 1/60</p>  	<p>Pwr – ON √Disk installed Rear LCD √Batt √Frames remaining sufficient √White Balance – Auto ISO – 100 √BKT disabled √Focus Area – Center, LOCK displayed Exp Comp – 0.0 Exp Mode – S SS – 500 AF Area Mode – [] (no "+")</p> <p>NOTE r Docking: Meter – Spot/Matrix For Undocking: MeterMatrix/Spot</p> <p>Meter – Matrix (Spot when ISS < 1/2 frame) Diopter – Adjust Film Adv – S Body Focus Mode – S Lens Focus Mode – A (M/A) Aperture – Min, locked Flash Settings ON/OFF – OFF</p>  	<p>Lens – 400mm (as reqd) Pwr – ON √Disk installed Rear LCD √Batt √Frames remaining sufficient √White Balance – Auto ISO – 100 √BKT disabled √Focus Area – Center, LOCK displayed Exp Comp – 0.0 Exp Mode – S SS – 500 AF Area Mode – [] (no "+") Meter – Matrix Diopter – Adjust Film Adv – S Body Focus Mode – S Lens Focus Mode – A (M/A) Aperture – Min, locked Flash Settings ON/OFF – OFF</p>  

(reduced copy)

FS CC 3-23

P/TV-11b/122/O/A

P/TV/122/FIN A

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NOTE

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PHOTO/TV CHECKLIST

STS
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