

Photo/TV Checklist

STS-120 Flight Supplement

**Mission Operations Directorate
Operations Division**

**Final, Rev A
September 19, 2007**

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



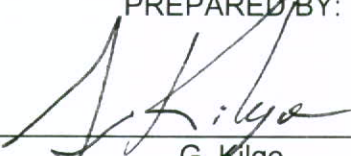
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MISSION OPERATIONS DIRECTORATE

**PHOTO/TV CHECKLIST
STS-120 FLIGHT SUPPLEMENT**

FINAL, REVISION A
September 19, 2007

PREPARED BY:

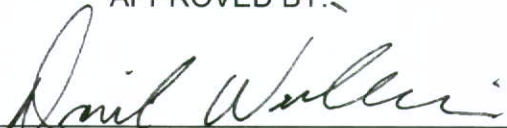


G. Kilgo
Mission Lead



T. Vaughan
Publication Manager

APPROVED BY:



D. Williams
Technical Lead, Shuttle Photo/TV Group



K. Johnson
Manager, Shuttle Procedures Management

ACCEPTED BY:



Michael T. Hurt
FDF Manager

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Technical Lead, Shuttle Photo/TV Group	DX34/D. Williams	281-244-7882

PHOTO/TV CHECKLIST
STS-120 FLIGHT SUPPLEMENT

LIST OF EFFECTIVE PAGES

FINAL 06/05/07
REV A 09/19/07

Sign Off	*	120/FIN A	FS 1-38.....	120/FIN A
FS ii	*	120/FIN A	FS 1-39.....	120/FIN A
FS iii	*	120/FIN A	FS 1-40.....	⊗ 120/FIN A
FS iv	*	120/FIN A	FS 1-41.....	120/FIN A
FS v	*	120/FIN A	FS 1-42.....	120/FIN A
FS vi	*	120/FIN A	FS 1-43.....	120/FIN A
FS vii	*	120/FIN A	FS 1-44.....	⊗ 120/FIN A
FS viii	*	120/FIN A	FS 1-45.....	120/FIN A
FS 1-1		120/FIN A	FS 1-46.....	120/FIN A
FS 1-2		120/FIN A	FS 1-47.....	120/FIN A
FS 1-3		120/FIN A	FS 1-48.....	120/FIN A
FS 1-4	⊗	120/FIN A	FS 1-49.....	120/FIN A
FS 1-5		120/FIN A	FS 1-50.....	120/FIN A
FS 1-6		120/FIN A	FS 1-51.....	120/FIN A
FS 1-7		120/FIN A	FS 1-52.....	120/FIN A
FS 1-8		120/FIN A	FS 1-53.....	120/FIN A
FS 1-9		120/FIN A	FS 1-54.....	120/FIN A
FS 1-10		120/FIN A	FS 1-55.....	120/FIN A
FS 1-11		120/FIN A	FS 1-56.....	120/FIN A
FS 1-12		120/FIN A	FS 1-57.....	⊗ 120/FIN A
FS 1-13		120/FIN A	FS 1-58.....	120/FIN A
FS 1-14	⊗	120/FIN A	FS 1-59.....	120/FIN A
FS 1-15		120/FIN A	FS 1-60.....	120/FIN A
FS 1-16		120/FIN A	FS 2-1.....	120/FIN A
FS 1-17		120/FIN A	FS 2-2.....	120/FIN A
FS 1-18		120/FIN A	FS 2-3.....	⊗ 120/FIN A
FS 1-19		120/FIN A	FS 2-4.....	120/FIN A
FS 1-20		120/FIN A	FS 2-5.....	120/FIN A
FS 1-21		120/FIN A	FS 2-6.....	⊗ 120/FIN A
FS 1-22	⊗	120/FIN A	FS 2-7.....	120/FIN A
FS 1-23		120/FIN A	FS 2-8.....	⊗ 120/FIN A
FS 1-24		120/FIN A	FS 2-9.....	120/FIN A
FS 1-25		120/FIN A	FS 2-10.....	120/FIN A
FS 1-26		120/FIN A	FS 2-11.....	120/FIN A
FS 1-27		120/FIN A	FS 2-12.....	120/FIN A
FS 1-28		120/FIN A	FS 3-1.....	120/FIN A
FS 1-29		120/FIN A	FS 3-2.....	120/FIN A
FS 1-30	⊗	120/FIN A	FS CC 3-3.....	120/FIN A
FS 1-31		120/FIN A	FS CC 3-4.....	120/FIN A
FS 1-32		120/FIN A	FS CC 3-5.....	120/FIN A
FS 1-33		120/FIN A	FS CC 3-6.....	⊗ 120/FIN A
FS 1-34	⊗	120/FIN A	FS CC 3-7.....	120/FIN A
FS 1-35	⊗	120/FIN A	FS CC 3-8.....	120/FIN A
FS 1-36		120/FIN A	FS CC 3-9.....	120/FIN A
FS 1-37		120/FIN A	FS CC 3-10.....	120/FIN A
			FS CC 3-11.....	120/FIN A

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FS CC 3-12	120/FIN A
FS CC 3-13	⊗ 120/FIN A
FS CC 3-14	120/FIN A
FS CC 3-15	⊗ 120/FIN A
FS CC 3-16	⊗ 120/FIN A
FS CC 3-17	⊗ 120/FIN A
FS CC 3-18	⊗ 120/FIN A
FS CC 3-19	⊗ 120/FIN A
FS CC 3-20	⊗ 120/FIN A
FS CC 3-21	120/FIN A
FS CC 3-22	⊗ 120/FIN A
FS CC 3-23	⊗ 120/FIN A
FS CC 3-24	120/FIN A
FS 3-25 (4 pgs)	† 120/FIN A
FS 3-26 (4 pgs)	† 120/FIN A

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

PHOTO/TV CUE CARDS

	<u>Title</u>	<u>Ref. Page</u>	<u>Card No.</u>
TV			
	(Front).....	FS CC 3-3	P/TV-1a/120/O/A
	(Back).....	FS CC 3-4	P/TV-1b/120/O/A
PLAYBACK			
	(Front).....	FS CC 3-5	P/TV-2a/120/O/B
	(Back).....	FS CC 3-6	P/TV-2b/120/O/A
ET PHOTO			
	(Front).....	FS CC 3-7	P/TV-3a/120/O/A
	(Back).....	FS CC 3-7	P/TV-3b/120/O/A
MEDIA ALLOCATIONS			
	(Front).....	FS CC 3-8	P/TV-4a/120/O/C
	(Back).....	FS CC 3-9	P/TV-4b/120/O/B
WVS			
	(Front).....	FS CC 3-10	P/TV-5a/120/O/A
	(Back).....	FS CC 3-11	P/TV-5b/120/O/A
PLBD VTR RECORDING			
	(Front).....	FS CC 3-12	P/TV-6a/120/O/A
	(Back).....	FS CC 3-13	P/TV-6b/120/O/A
LDRI/ITVC			
	(Front).....	FS CC 3-14	P/TV-7a/120/O/B
	(Back).....	FS CC 3-15	P/TV-7b/120/O/B
LCS			
	(Front).....	FS CC 3-16	P/TV-8a/120/O/C
	(Back).....	FS CC 3-17	P/TV-8b/120/O/C
IDC			
	(Front).....	FS CC 3-18	P/TV-9a/120/O/C
	(Back).....	FS CC 3-19	P/TV-9b/120/O/C
VIDEO SETUP			
	(Front).....	FS CC 3-20	P/TV-10a/120/O/C
	(Back).....	FS CC 3-21	P/TV-10b/120/O/A
DCS SETUP			
	(Front).....	FS CC 3-22	P/TV-11a/120/O/A
	(Back).....	FS CC 3-23	P/TV-11b/120/O/A
LDRI/ITVC A7 PLACARD			
	(Front).....	FS CC 3-24	P/TV-12a/120/O/A
	(Back).....	FS CC 3-24	P/TV-12b/120/O/A

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TABLE OF CONTENTS

	<u>PAGE</u>
<u>FLIGHT SPECIFIC</u>	
<u>SCENES</u>	FS 1-1
P/TV01 VIDEO SETUP	FS 1-4
P/TV02 DOCK.....	FS 1-14
P/TV03 UNDOCK.....	FS 1-22
P/TV04 INGRESS/EGRESS	FS 1-30
P/TV05 ISS INTERNAL OPS (HC)	FS 1-34
P/TV06 SSRMS	FS 1-40
P/TV07 EVA	FS 1-44
P/TV08 EXTERNAL SURVEY	FS 1-54
 <u>REFERENCED PROCEDURES</u>	 FS 2-1
 <u>CUE CARD CONFIGURATION</u>	 FS 3-1
 <u>GENERIC</u>	
 <u>DCS 760</u>	 4-1
 <u>DCS 760 EVA CAMR</u>	 5-1
 <u>EVA IR CAMR</u>	 6-1
 <u>SONY PD100</u>	 7-1
 <u>SONY V10</u>	 8-1
 <u>PORTABLE MONITORS</u>	 9-1
 <u>CCTV</u>	 10-1
 <u>CENTERLINE (C/L) CAMR</u>	 11-1
 <u>DTV</u>	 12-1
 <u>BPSMU</u>	 13-1
 <u>MINI-CAM</u>	 14-1
 <u>WIRELESS VIDEO SYSTEM (WVS)</u>	 15-1
 <u>SEQUENTIAL STILL VIDEO (SSV)</u>	 16-1
 <u>BINOCULARS</u>	 17-1
 <u>FIBERSCOPE</u>	 18-1
 <u>LASER DYNAMIC RANGE IMAGER (LDRI)</u>	 19-1
 <u>LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM</u> <u>DIGITAL CAMR (IDC)</u>	 20-1
 <u>BATTS & FUSES</u>	 21-1

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SCENES

	<u>PAGE</u>
P/TV01 VIDEO SETUP.....	FS 1-4
P/TV02 DOCK	FS 1-14
P/TV03 UNDOCK	FS 1-22
P/TV04 INGRESS/EGRESS.....	FS 1-30
P/TV05 ISS INTERNAL OPS (HC)	FS 1-34
P/TV06 SSRMS	FS 1-40
P/TV07 EVA.....	FS 1-44
P/TV08 EXTERNAL SURVEY	FS 1-54

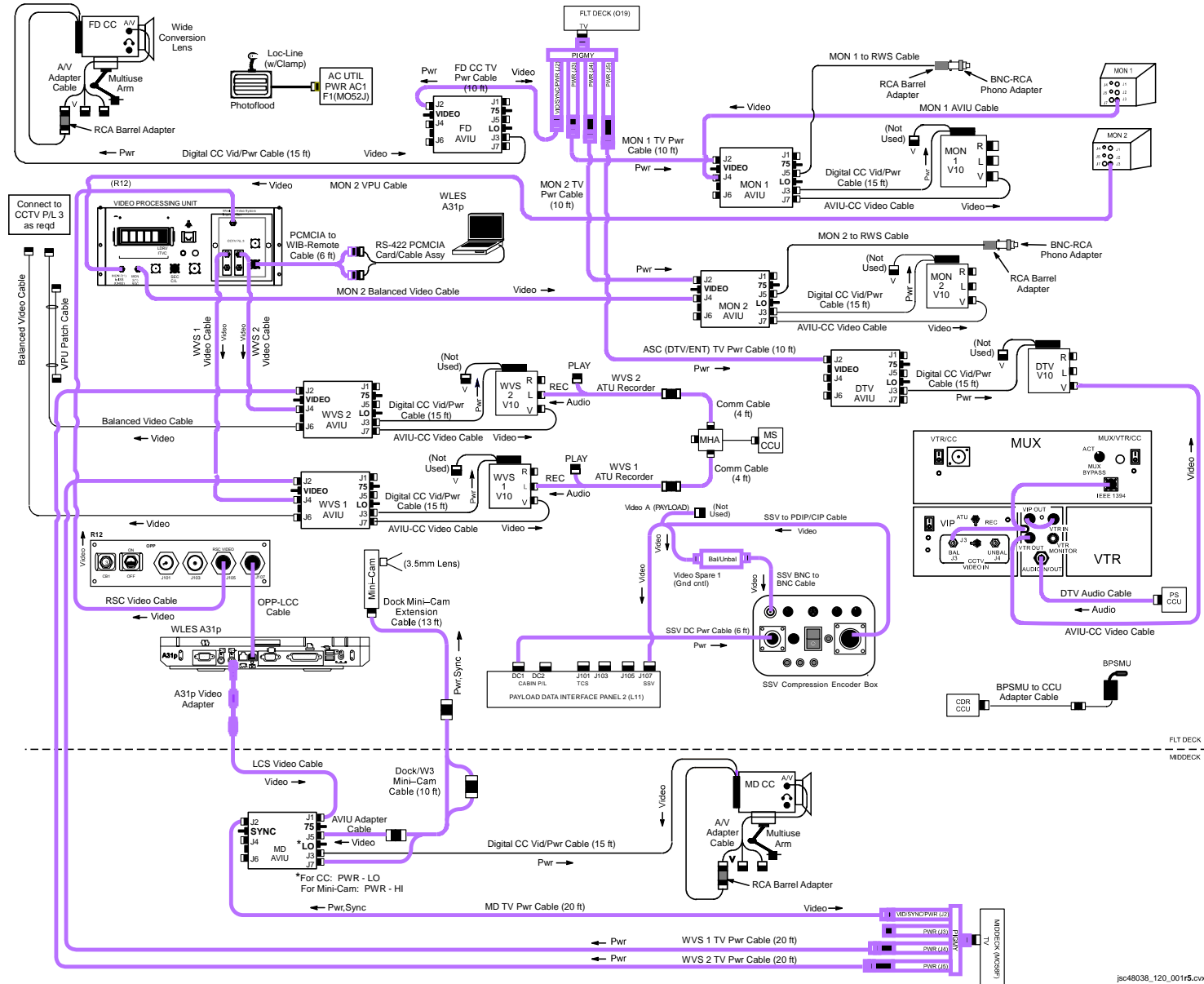
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P/TV01 VIDEO SETUP

P/TV01 VIDEO SETUP

H/W SUMMARY



P/TV01 VIDEO SETUP (Continued)

SETUP

NOTE

Steps 1-7 minimum reqmt 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, pg 1-4

Config Panels

L10 (MUX) √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)

Config DTV V10

AVIU (DTV) √SYNC/VIDEO – VIDEO
HI-Z/75 – 75
PWR SELECT – LO

O19 TV PWR – ON

V10 PWR – ON
MENU pb – push
SEL COMMANDER
SEL – OFF
MENU pb – push

L9 Config PS ATU per Comm Plan

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

3. Perform MON 1,2 V10 Setup

MF57M 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, pg 1-4

Connect:

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

MON 1,2 AVIU-CC Video Cables to MON 1,2 V10s

Multiuse Brkt to desk

MON 1 AVIU Cable to MON 1 AVIU J4

MON 2 Balanced Video Cable to MON 2 AVIU J4

MON 1,2 TV PWR Cable to MON 1,2 AVIU J2

Multiuse Brkt to wall

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

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 Camcorder Setup for FD,MD per H/W SUMMARY, pg 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)
Install Multiuse Brkt
PWR – OFF |
6. Perform LCS Cable Connections per H/W SUMMARY, pg 1-4, as reqd |
- A17 If MD Camcorder setup not performed, unstow MD AVIU from Camcorder Bag |
- Middeck AVIU (MD) Connect end of LCS Video Cable to MD AVIU J1
Flt Deck √HI-Z/75 – 75
Connect other end of LCS Video Cable (A31p Video Adapter) to PGSC A31p Video Out port via PGSC Usage Chart
Connect OPP-LCC Cable to PGSC RJ45 Ethernet port via PGSC Usage Chart |

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

7. Perform SSV Setup

MA16L Unstow SSV Compression Encoder Box

 Config SSV H/W per H/W SUMMARY, pg 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
 OUTRATE – 4
 SSV Pwr – on
 √Pwr LED illum
 √ENC DATA LED flickering
 √FRM DATA LED flickering
 √FILL FRM pulsing

Inform MCC when SSV SETUP complete

P/TV01 VIDEO SETUP (Continued)

SETUP (Continued)

8. Perform WVS Setup
 - a. Activate WVS System
 - A7 WIRELESS VID HTR – ON
PWR – ON
 - MO58F TV PWR – OFF
 - b. Remove WVS Hardware from Stow-N-Go CTB
 - Config WVS 1,2 V10s and Cables per H/W SUMMARY, pg 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, pg 1-4
 - Multiuse Brkt to wall
 - PCMCIA-to-WIB Remote Cable to R12/WIB J701
 - RS-422 PCMCIA Card/Cable Assy to pre-routed PCMCIA-to-WIB Remote Cable A31p per PGSC Usage Chart
- AVIU (WVS 1,2)
 - √SYNC/VIDEO – VIDEO
 - √HI-Z/75 – 75
 - √PWR SELECT – LO
- MO58F V10 (WVS 1,2)
 - V10 (two)
 - TV PWR – ON
 - PWR – ON
 - √Tape installed
 - √WVS Test Pattern displayed (color bars w/”No WVS Video”)
 - PWR – OFF
- A11 Config MS ATU/CCU per Comm Plan

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

MA16L

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

10. Perform Mini-Cam Setup for Rndz Views H/W SUMMARY, pg 1-4

√LCS Video Cable not in use for Inspection activities

AVIU (MD)

Remove LCS Video Cable from J1

SYNC/VIDEO – SYNC

√HI-Z/75 – 75

PWR SELECT – HI

Mini-Cam

Lens – 3.5mm

Aperture – Adjust per MON view

Stow Rear Window Bracket (W9) in DTV Bag

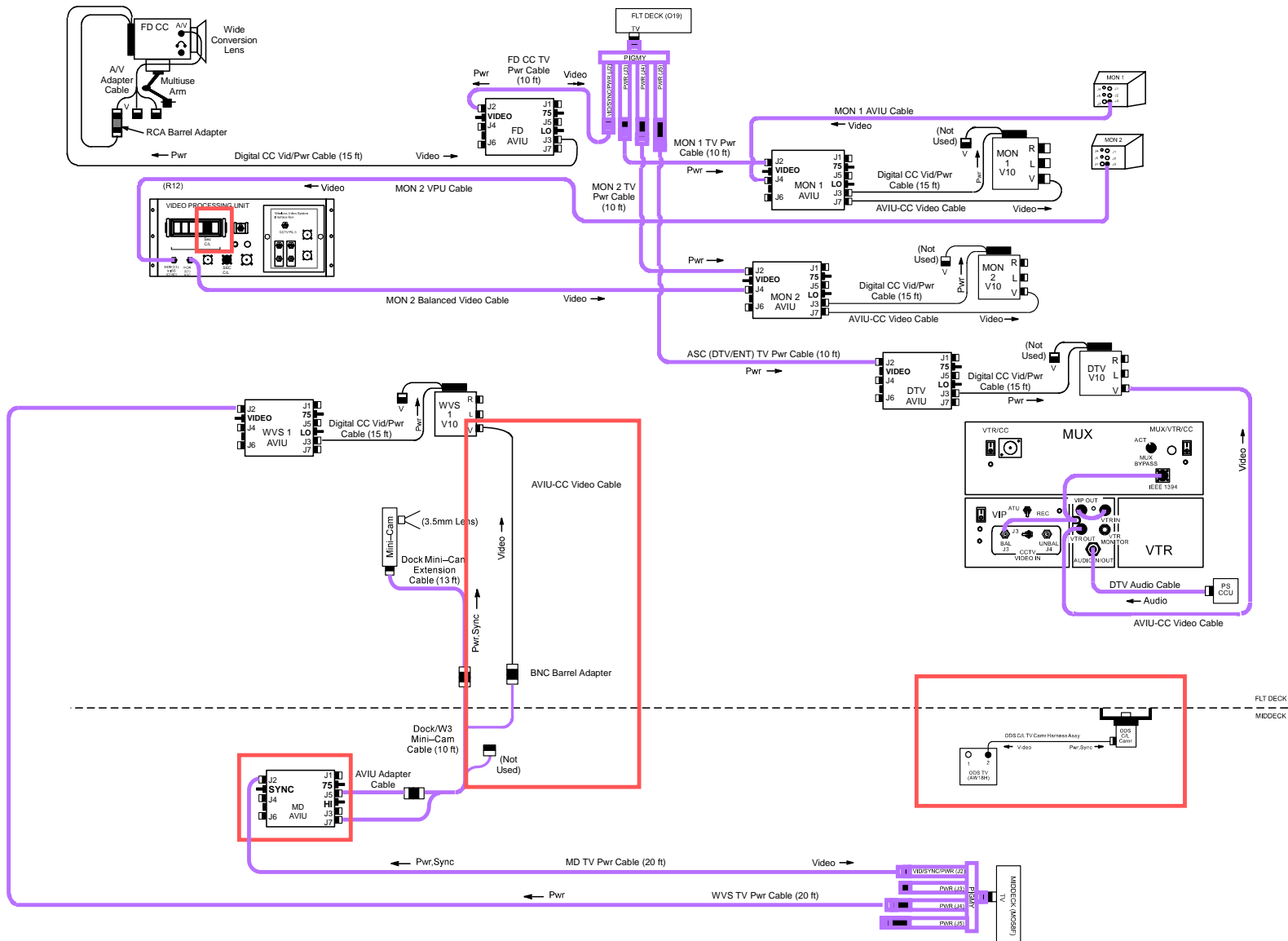
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P/TV02 DOCK

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 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)

3. 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)

4. Perform Mini-Cam Setup for Rndz per H/W SUMMARY, pg 1-14, as reqd |

- A17 CC Bag Obtain BNC Barrel Adaptor, AVIU – CC Video Cable |
AVIU (MD) Remove LCS Video Cable from J1
 √SYNC/VIDEO – SYNC
 √HI-Z/75 – 75
 PWR SELECT – HI

- Mini-Cam √Lens – 3.5mm
 Aperture – Adjust per monitor views

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, DTV)
WVS 1 PWR – ON |

- √Tape installed
 DISPLAY pb – Toggle to display tape counter

- FD CC PWR – CAMERA
 √Tape installed
 √Viewfinder (LCD) displays STBY
 Camr Settings
 √AUTO LOCK – AUTO LOCK
 √FOCUS – AUTO

- L10 (MUX) 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

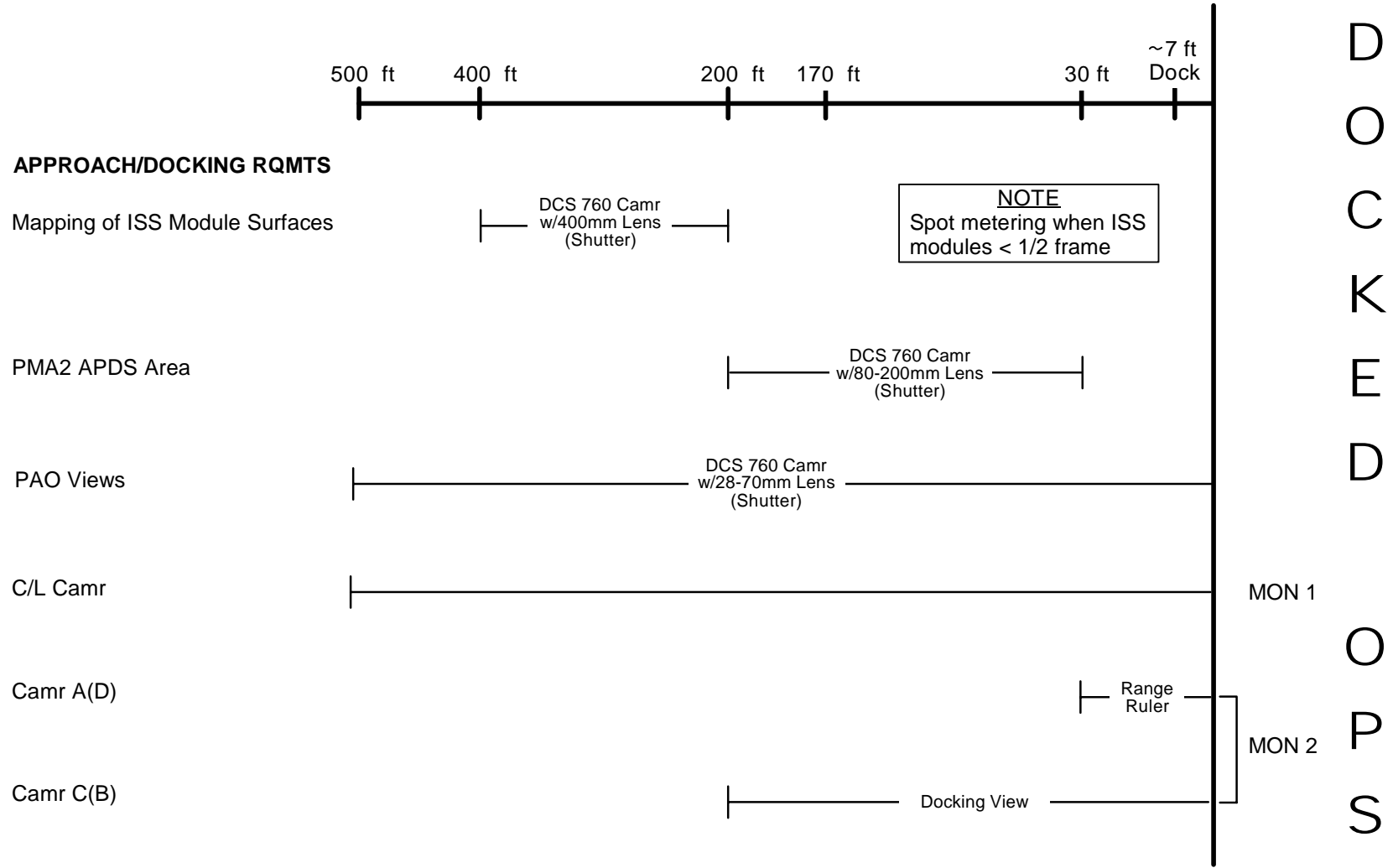
P/TV02 DOCK (Continued)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1. 10A-5	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. 10A-1	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. 10A-1	Approach,Dock <ul style="list-style-type: none"> • Docking Target • Mating Surfaces • TCS 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)



P/TV02 DOCK (Concluded)

OPS (Concluded)

If operations temporarily suspended, perform DEACTIVATION as reqd
If operations 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

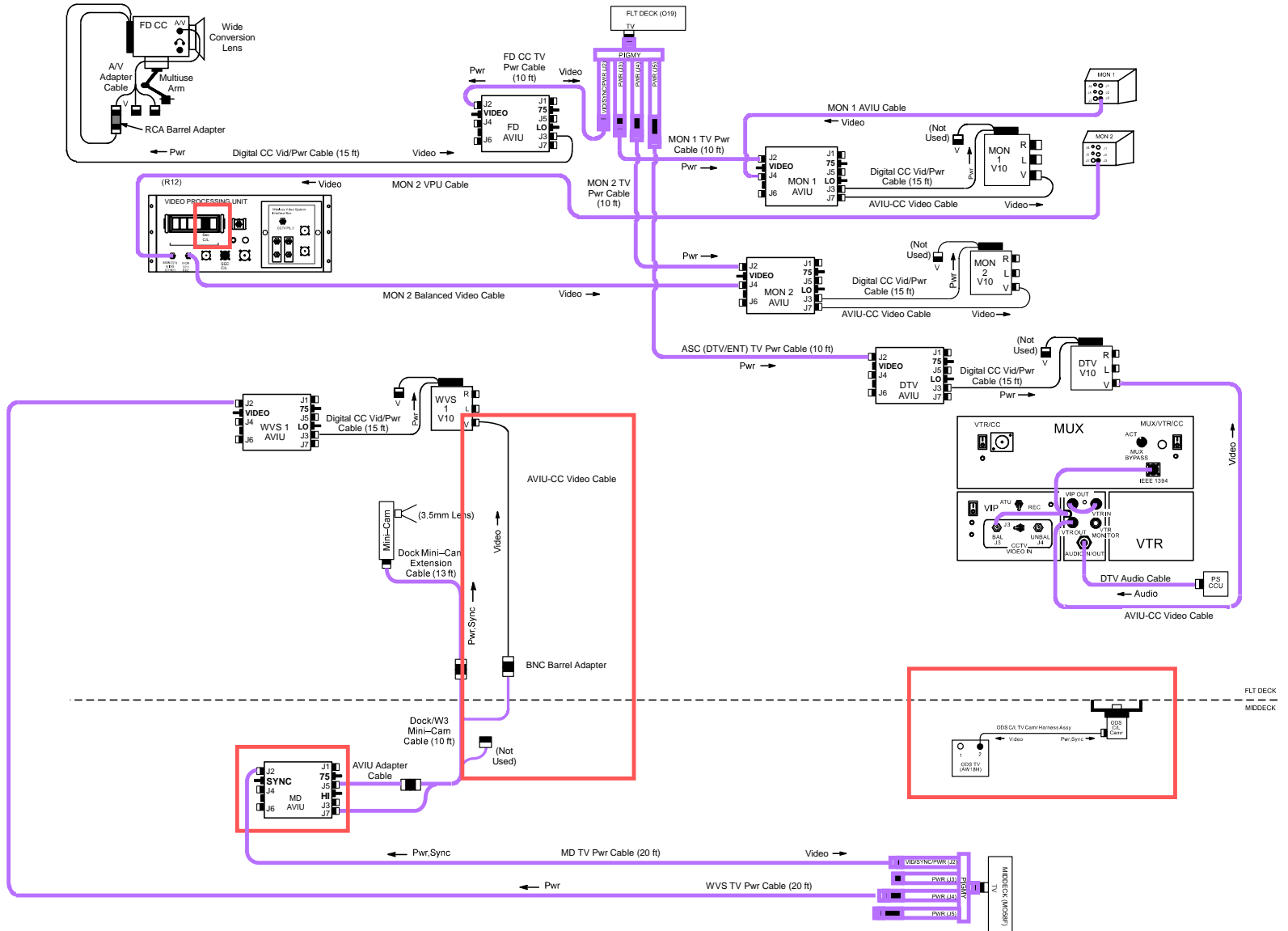
 - ODS Remove, stow C/L camr, Harness Assy, Bridge
 - Go to DEACTIVATION (Cue Card, TV) as reqd

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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 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

3. Perform 760 PROGRAM w/FLASH for in-cabin imagery (Concluded)

- 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 Mini-Cam Setup for Rndz per H/W SUMMARY, pg 1-22, as reqd |

- AVIU (MD) Remove LCS Video Cable from J1, if connected |
 - √SYNC/VIDEO – SYNC
 - √HI-Z/75 – 75
 - PWR SELECT – HI

- Mini-Cam Lens – 3.5mm
- Aperture – Adjust per monitor views

6. 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, DTV)
WVS 1 PWR – ON |

- √Tape installed
- DISPLAY pb – Toggle to display tape counter

- FD CC PWR – CAMERA
- √Tape installed
- √Viewfinder (LCD) displays STBY
- Camr Settings
 - √AUTO LOCK – AUTO LOCK
 - √FOCUS – AUTO

- L10 (MUX) 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/TV03 UNDOCK (Continued)

OPS

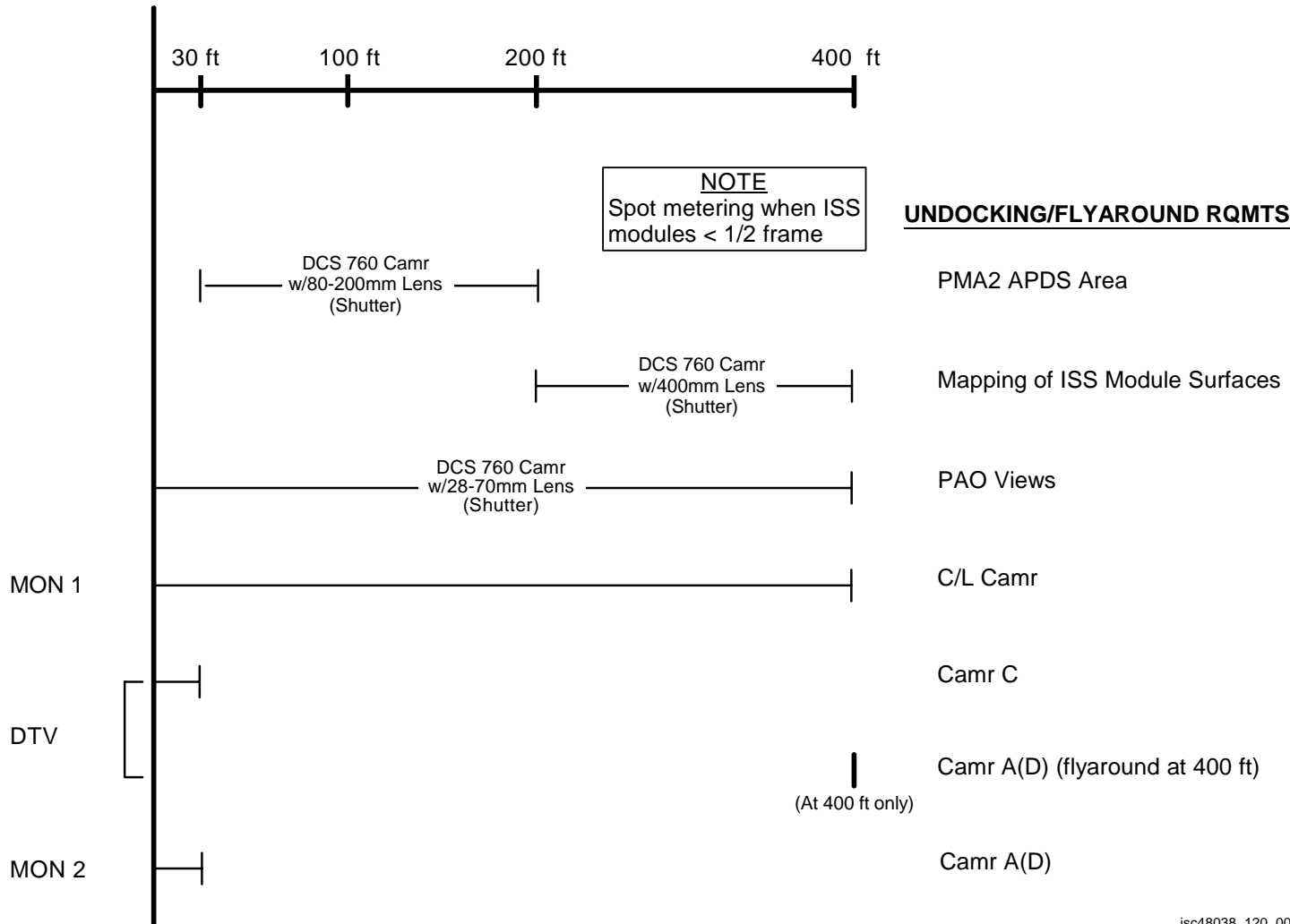
√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1. 10A-5	PAO Coverage	760 28-70mm If exterior: Flash ON/OFF – OFF	As desired	PD100 Tape installed	LIVE (If avail)	Plan for end of day crew choice video,DCS
	2. 10A-2 10A-3 10A-4	Undock and Flyaround <ul style="list-style-type: none"> • Docking Tgt/Mating Surfaces • TCS Planar Retro Reflectors • Surfaces • Solar Panels • Handrails • SVS Targets • SM Thrusters on Zenith, near aft end • Trusses including rads/ baseplates and SAWs (in/outboard SABB insulation degradation) • Node 2 	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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jsc48038_120_004.cvx

P/TV03 UNDOCK (Concluded)

OPS (Concluded)

If operations temporarily suspended, perform DEACTIVATION as reqd
If operations 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
 - Go to DEACTIVATION (Cue Card, TV) as reqd

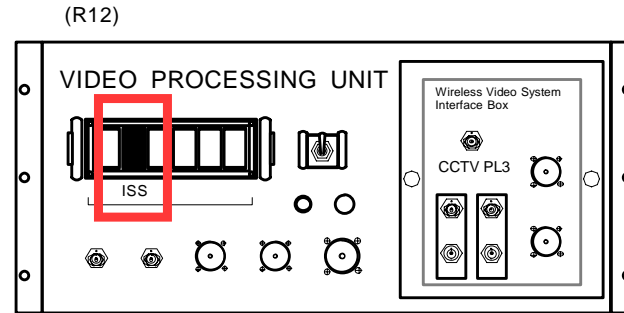
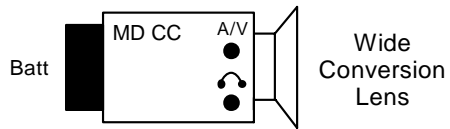
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**P/TV04
INGR/EGR**

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 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

A17 Acquire two batts, one for Camcorder and one spare
PD100 PWR – CAMERA
Install Batt
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. 10A-5	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

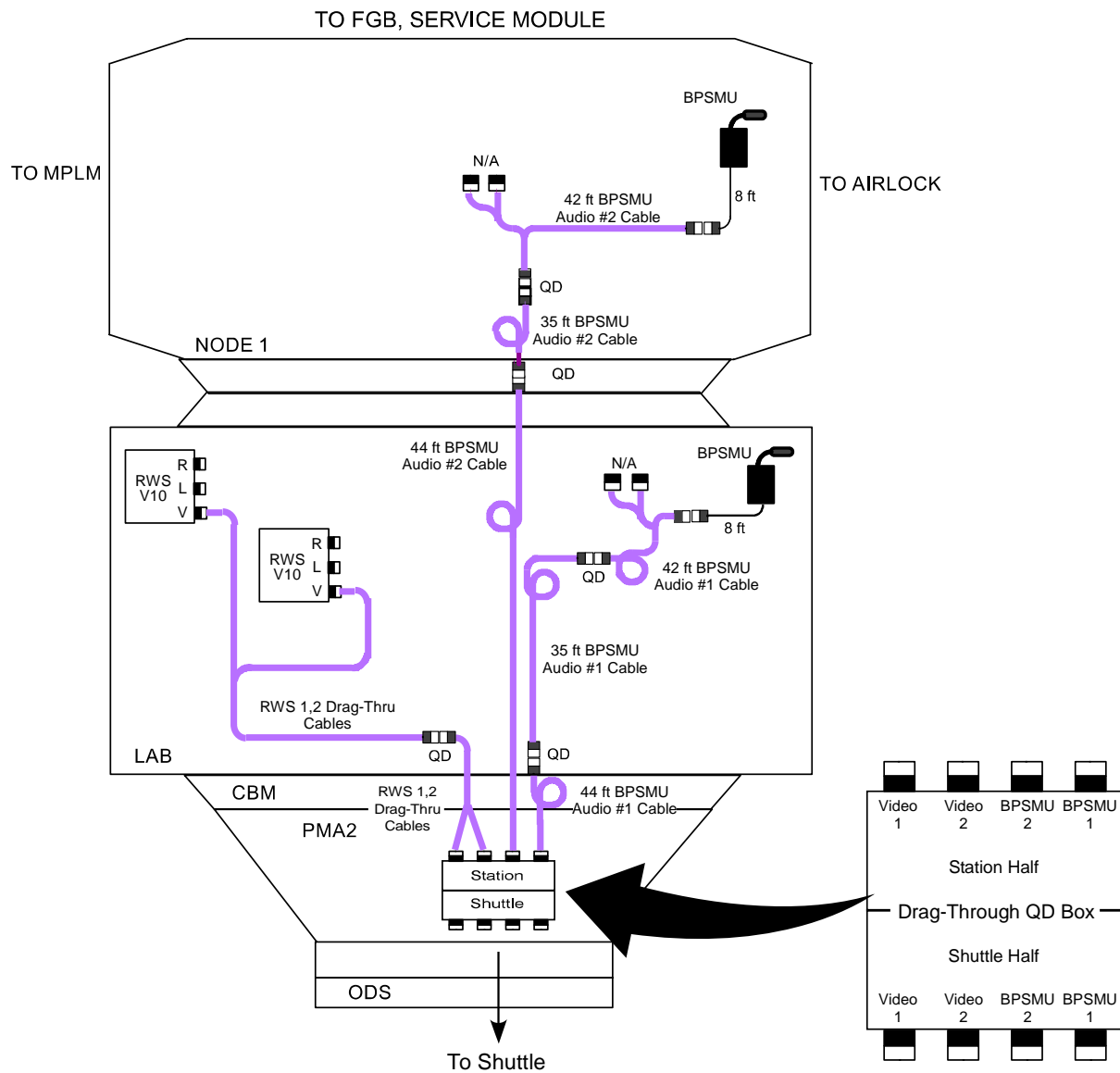
DEACTIVATION

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

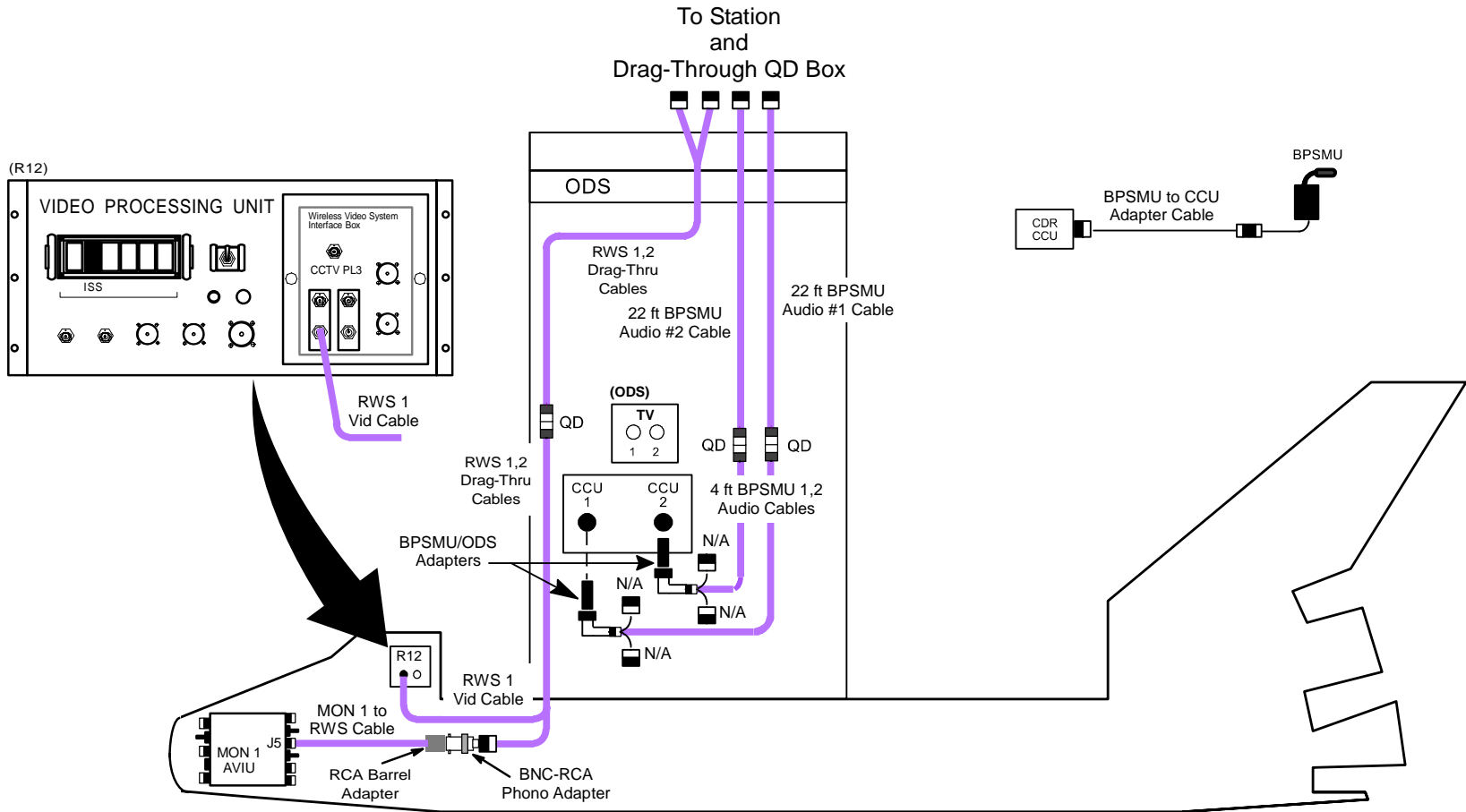
H/W SUMMARY



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P/TV05 ISS INTERNAL OPS (Continued)

H/W SUMMARY (Concluded)



jsc48038_120_006br2.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, pgs 1-34 and 1-35

Prior to Docking

Config RWS Vid Cables:

- R12 (VPU) √RWS 1 BNC Vid Cable connected to XCVR 1 Unbal on WIB
 Disconnect RWS 2 BNC Vid Cable from XCVR 2 Unbal on WIB
- MON 1,2
(Stow n Go) √MON 1 to RWS Cable connected to MON 1 AVIU J5
- Middeck Connect RWS 2 BNC Vid Cable to MON 1 to RWS Cable
 Place two RWS Drag-Thru Cables near ODS/PMA2 hatch

Post Docking

Config BPSMU and RWS Cables:

- ODS/PMA2 Connect orbiter RWS 1,2 cables to Drag-Through QD Box
 Connect BPSMU Cables (two) to orbiter A/L CCU 1,2

If V10:

- V10 (RWS 1,2) | √Pwr configured per P/TV121 DOCKED OPERATIONS, dwg USOS 120VDC -V10 VTRs (SODF: ISS PTV: SCENES)
 | PWR- ON

If A31p:

- A31p √Drag-Thru Cable connected to A31p Video Adapter
 √PWR (two) - ON
 Sel 'Station Apps : COSS Apps : Video Converter'
 √'Video Converter' window displayed
 Sel 'Set Properties'
 √'Video Settings' window displayed
 Format: - NTSC
 Close 'Video Settings' window
 Sel 'Local Full Screen'
 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 (DCS 760, REF PROC)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes	
			DCS	PLB	CC	Dnlk		
	1. 10A-4 10A-5	General ISS IVA Activity <ul style="list-style-type: none"> • PAO Scenes of Interest • Crew Photo • Crew Rotation <ul style="list-style-type: none"> – IELK Install – Sokol Suit Check 	760 28-70mm For Crew Photo: Perform 760 CREW PHOTO (DCS 760, <u>REF PROC</u>)			ISS PD100	LIVE (if avail)	Plan for end of day crew choice video, DCS Crewmember rotation IELK install and Sokol suit checkout
	2. 10A-29	Node 2 Imagery <ul style="list-style-type: none"> • Obtain imagery of Node 2 internal outfitting 	760 28-70mm			ISS PD100	LIVE (if avail)	IVA video w/live dnlk or recorded playback Dnlk DCS imagery
	3. 10A-32	ODS/PMA2 Drag through Config	760 28-70mm					Document Cables and hoses in ODS/PMA2

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

P/TV05 ISS INTERNAL OPS (Concluded)

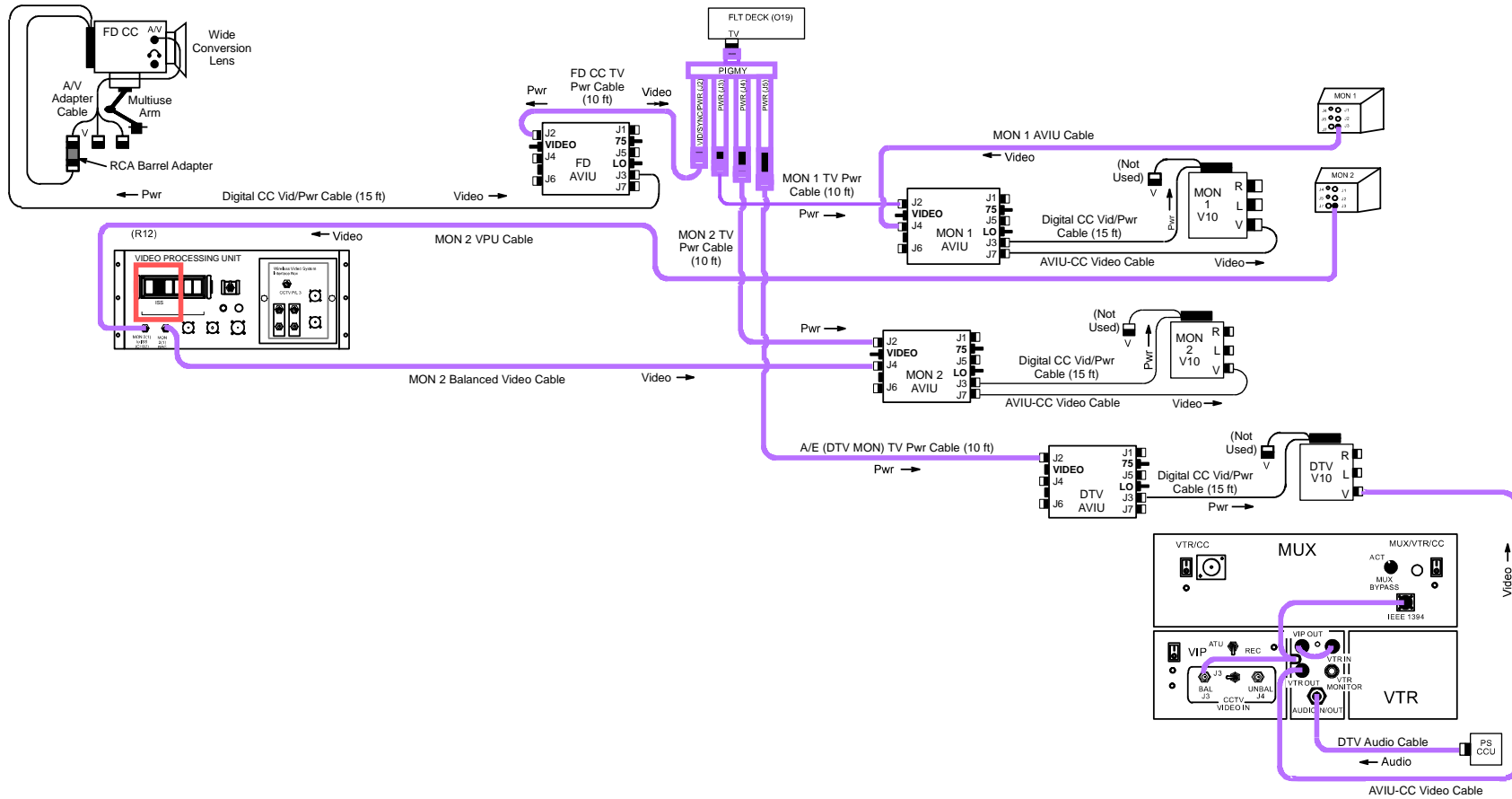
DEACTIVATION

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/TV06 SSRMS

H/W SUMMARY



FLT DECK
MIDDECK

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P/TV06 SSRMS (Continued)

SCENE SYNOPSIS

Scene contains procedures for obtaining video of SSRMS activities

SETUP

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

O19 √TV PWR – ON

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

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

FD CC PWR – CAMERA
√Tape installed
√Viewfinder (LCD) displays STBY
Camr Settings
 √AUTO LOCK – AUTO LOCK
 √FOCUS – AUTO

L10 (MUX) 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 SSRMS (Concluded)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1. 10A-5	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.	SSRMS Camr Views		A(B,C,D), ELB Per PDRS, ROBO			

I

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

DEACTIVATION

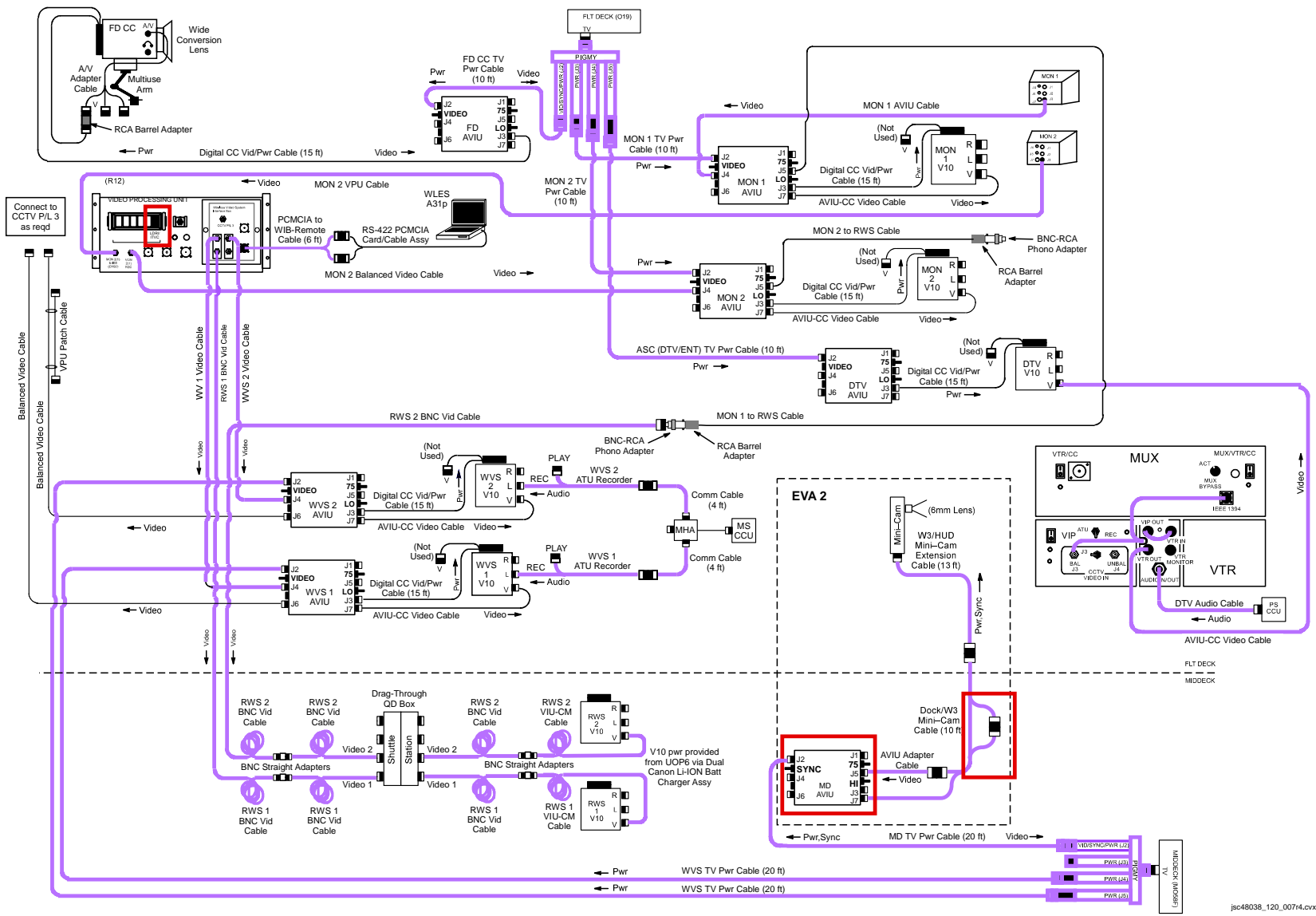
1. TV System
Go to DEACTIVATION (Cue Card, TV) as reqd

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P/TV07 EVA

P/TV07 EVA

H/W SUMMARY



P/TV07 EVA (Continued)

SCENE SYNOPSIS

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

SETUP

FOR ALL EVAs:

1. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd
2. Perform 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) √Green Jumper – LDRI/ITVC
V10 (DTV, MON 1,2, WVS 1,2)	PWR – ON √Tape installed DISPLAY pb – Toggle to display tape counter
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 (Continued)

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'

For center lens on each RF Camr Assy:
 Lens Iris Cntl – op(cl) until good video on V10(MON)

P/TV07 EVA (Continued)

SETUP (Concluded)

If EVA 2:

5. Perform Mini-Cam setup for EVA fwd window view

AVIU (MD)

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

CAUTION
To avoid window damage, do not allow hardware to come in contact with window

Mini-Cam

Connect Mini-Cam to W3/HUD Mini-cam extension cable away from window
Lens – 6mm
Aperture – Adjust per MON

OPS

√	Item # Track #	Rqmts	Still Imagery		Video		Notes
			DCS	PLB	CC	Dnlk	
	1. 10A-5	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. 10A-19	Trunnions and Keel Covers • Imagery of trunnions and keel thermal covers install	<u>EVA 760</u> 28mm				
	3. 10A-14	MISSE PEC 3,4 • Deployed • During retrieval, take two 760 images of both RAM and Wake side of PEC w/different angles in sunlight	<u>EVA 760</u> 28mm	<u>WVS,B,C,D,</u> <u>ELB,EE,</u> <u>SSRMS</u>			Use WVS if crew in vicinity; use SSRMS if SSRMS in vicinity
	4. 10A-13 10A-24	PMA2 Relocation Tasks • Jettison Node 2 ACBM Cover • Demate PMA2/Lab Umbilicals • ACBM Sealing Surface Inspection		<u>WVS,B,C,D,</u> <u>ELB,EE,</u> <u>SSRMS</u>			Document Crew EVA activities Obtain imagery to determine jettisoned ACBM Thermal Cover trajectory Obtain imagery of demated/stowed OMA2/Lab umbilicals

P/TV07 EVA (Continued)

OPS (Continued)

√	Item # Track #	Rqmts	Still Imagery		Video		Notes
			DCS	PLB	CC	Dnlk	
	5. 10A-15	P6 Activation <ul style="list-style-type: none"> • Release of P6 fwd cinches • Deployment,activation of P6 PVR • Configured P6 elements and deployment of P6 (CHs 2B,4B) SAWs 		<u>B,C,D,ELB,EE</u>		LIVE LIVE (Replay)	Imagery needed to determine if damage would prevent retraction
	6. 10A-17	Node 2 External H/W <ul style="list-style-type: none"> • Handrails (up to 11) • WIFs (up to 3) gap spanner 		<u>WVS</u>		LIVE	
	7. 10A-16	Node 2 to Node 1 <ul style="list-style-type: none"> • Port CBM 		<u>WVS</u>		LIVE	
	8. 10A-18	P6 from Z1 to P5 Relocation <ul style="list-style-type: none"> • P6 to P5 install video of ready-to-latch indicator and final config of mating surface after bolts driven 		<u>WVS</u>		LIVE	
	9. 10A-19	Node 2 Trunnion and Keel Pin Covers <ul style="list-style-type: none"> • Closeout video of final cover install 		<u>WVS</u>		LIVE	
	10. 10A-20	Node 2 Pwr and Data Grapple Fixture (PDGF) <ul style="list-style-type: none"> • Final PDGF install 		<u>WVS</u>		LIVE	
	11. 10A-21	S1 Radiator Outer Pnl Deploy <ul style="list-style-type: none"> • S1 radiator outer pnl deploy • Final SFU harness electrical connectors 	<u>EVA 760</u> (if reqd) 28mm	<u>WVS</u>		REPLAY LIVE	If WVS unavailable, 760 reqd

P/TV07 EVA (Concluded)

OPS (Concluded)

√	Item # Track #	Rqmts	Still Imagery		Video		Notes	
			DCS	PLB	CC	Dnlk		
	12. 10A-22	MBSU on ESP-2	<u>EVA 760</u> 28mm	<u>WVS</u>			LIVE	Wireless/Still photography callouts in EVA procedures
	13. 10A-23	ATV Docking Pwr Reconfig • S0/N1 SM power cable • PMA1/FGB M-jumpers		<u>WVS</u>				Obtain closeout of SM Pwr Cable PMA/FGB H Jumper config
	14. 10A-25	Centerline Berthing Camr System (CBCS)	<u>IVA 760</u>	<u>WVS,ELB,EE</u>				Document final config of S0 4BC RPCM
	15. 10A-26	Lab External Outfitting of Pre-positioned Gap Spanners • CETA Light temp stow • Node 2 WIFs • Node 2 Zenith ACBM • 4 Node 2 Radial hatch latch; Pins • Node 2 NADID CBM Cover flap 'open'		<u>WVS</u>			LIVE WVS	Obtain imagery of temp install config of Lab outfitting H/W
	16. 10A-31	Closeout Imagery of all Thermal Cover Configs Manipulated to Accomplish Tasks		<u>WVS,A,B,C,D,ELB,EE</u>			LIVE WVS	Closeout imagery critical to thermal rqmts and integrated performance of vehicle
	17. 10A-27	Temp Stow PMA2/LAB SSPTS Cables		<u>WVS,A,B,C,D,ELB,EE</u>			LIVE WVS	Obtain imagery of temp stow config of PMA2/LAB SSPTS cables
	18. 10A-28	P1 Radiator Prep for deployment	<u>DCS</u>	<u>PLB Camr as reqd</u>				
	19. 10A-30	C/O of Lab Receptacles NLGL		<u>WVS</u>				

P/TV07 EVA (Concluded)

If operations temporarily suspended, perform DEACTIVATION as reqd
If operations 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
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. 760 Camr Configuration for OMS Pod Survey

If Sunlit OMS Pod, config 760 Manual Mode

- Lens – 80-200mm at 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
- Dioptr – 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 at 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)


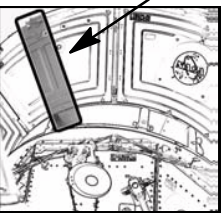
Aperture – Min, locked

Flash Settings

ON/OFF – OFF

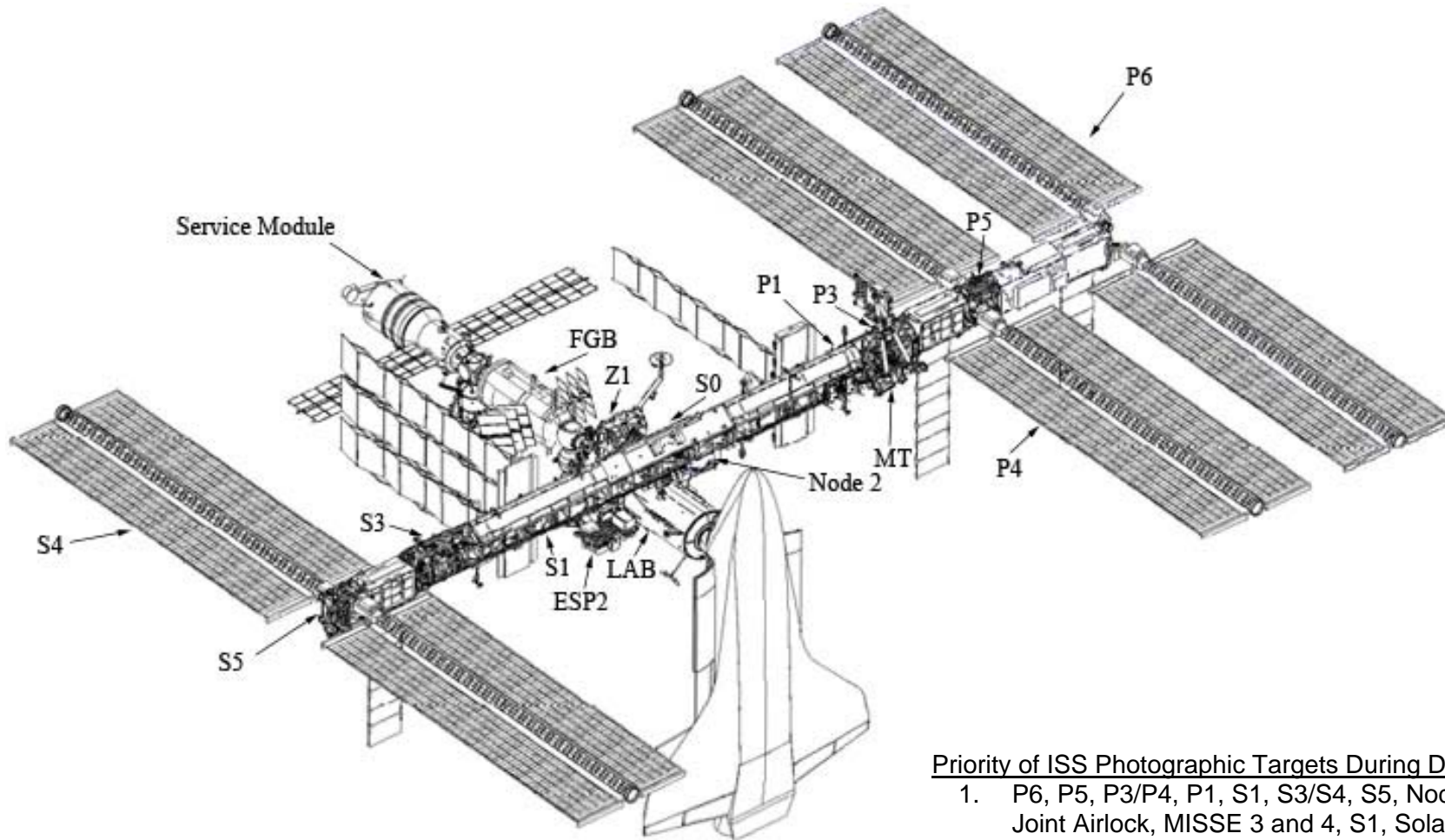
P/TV08 EXTERNAL SURVEY (Continued)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	<u>OMS Pod Survey</u> <ul style="list-style-type: none"> 50 percent mapping of both OMS pods and vertical stabilizer w/emphasis on Black Tile areas 	760 80-200mm @ 200 (400mm)				Download images to MCC once complete
	2. 10A-8	<u>ISS Still Survey</u> <ul style="list-style-type: none"> Surfaces Solar Panels Handrails MISSE SVS Targets P6,P4,S4 Trusses Including: <ul style="list-style-type: none"> Rads/baseplates SAWs (in/outboard SABB insulation degradation) Plasma Arcing Effects 	760 50mm (80-200mm @ 200)				<p>Map ISS surfaces w/10% overlap from all Fit 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, P5, P3/P4, P1, S1, S3/S4, S5, Node 2, ESP2, Joint Airlock, MISSE 3 and 4, S1, Solar Arrays – W1, W6 (special emphasis on newly installed components)
2. Node 2, S0, Lab – 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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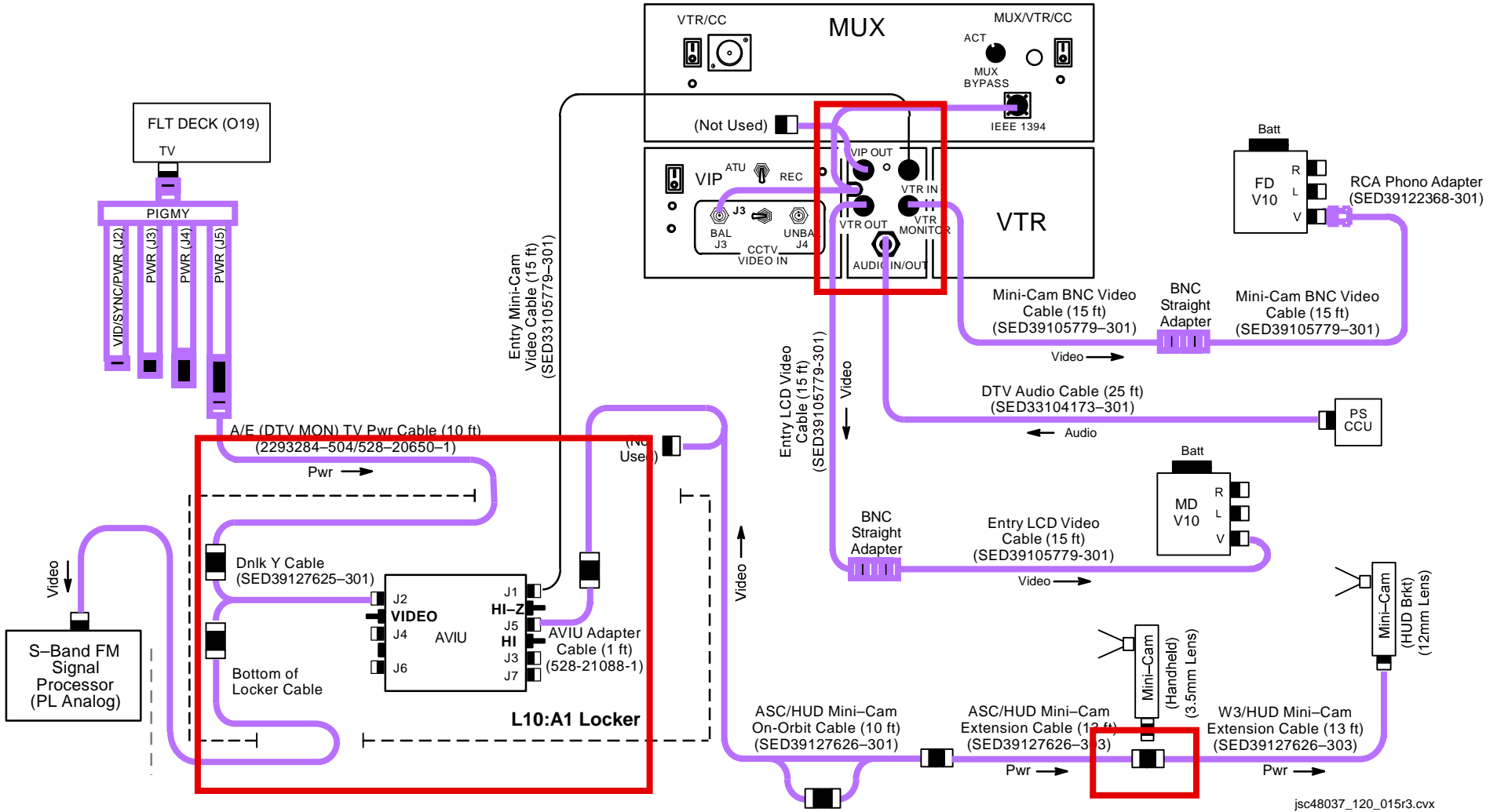
REFERENCED PROCEDURES

	<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
PTU 2/MAIN BUS B SYSTEM DETAILS	FS 2-7
<u>DCS 760</u>	
760 PROGRAM w/FLASH	FS 2-8
760 CREW PHOTO	FS 2-8
760 EXPOSURE MATCH	FS 2-8
<u>CENTERLINE (C/L) CAMR</u>	
C/L CAMR INSTALL	FS 2-9

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MINI-CAM

ENTRY VIDEO SETUP



MINI-CAM (Continued)

ENTRY VIDEO SETUP (Continued)

1. Remove the "Entry" Ziploc bag from the DTV Bag
2. Config Mini-Cam, VTR for Audio, Video Recording
Config H/W per dwg, 2-3
 - a. Config HUD Mini-Cam w/12mm Lens
Using two (2) captive screws, attach HUD Brkt to installation holes for protective cover w/ HUD Brkt tab pointing up

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

Attach Mini-Cam Extension Cable to Mini-Cam

12mm Lens Focus – ∞
 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)
 - b. Config in-cabin Mini-Cam w/3.5mm Lens

3.5mm Lens Aperture – f/1.8
 - c. Config additional Mini-Cam H/W

L10:A1 AVIU
 SYNC/VIDEO – VIDEO
 HI-Z/75 – HI-Z
 PWR SELECT – HI
 - O19 \sqrt TV PWR – ON
 - PS ATU Config audio as reqd for entry audio
 - L10 (MUX)
 (VTR) VTR/CC PWR – on (LED on)
 \sqrt ON/STANDBY LED – green

MINI-CAM (Concluded)

ENTRY VIDEO SETUP (Concluded)

Acquire four (4) V10 Li-ION Batts

NOTE

One Batt will be used on V10 for system C/O, second is spare. Batts will be removed after C/O and used for Entry

- V10 Install fresh Batts (two)
 PWR – ON
 ✓HUD 12mm Lens/Mini-Cam producing good video
- Change config to in-cabin 3.5mm Lens/Mini-Cam
 ✓In-cabin 3.5mm Lens/Mini-Cam producing good video
- V10 PWR (two) – OFF
- L10 (VTR) ON/STANDBY pb – push (red LED off)
 (MUX) 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

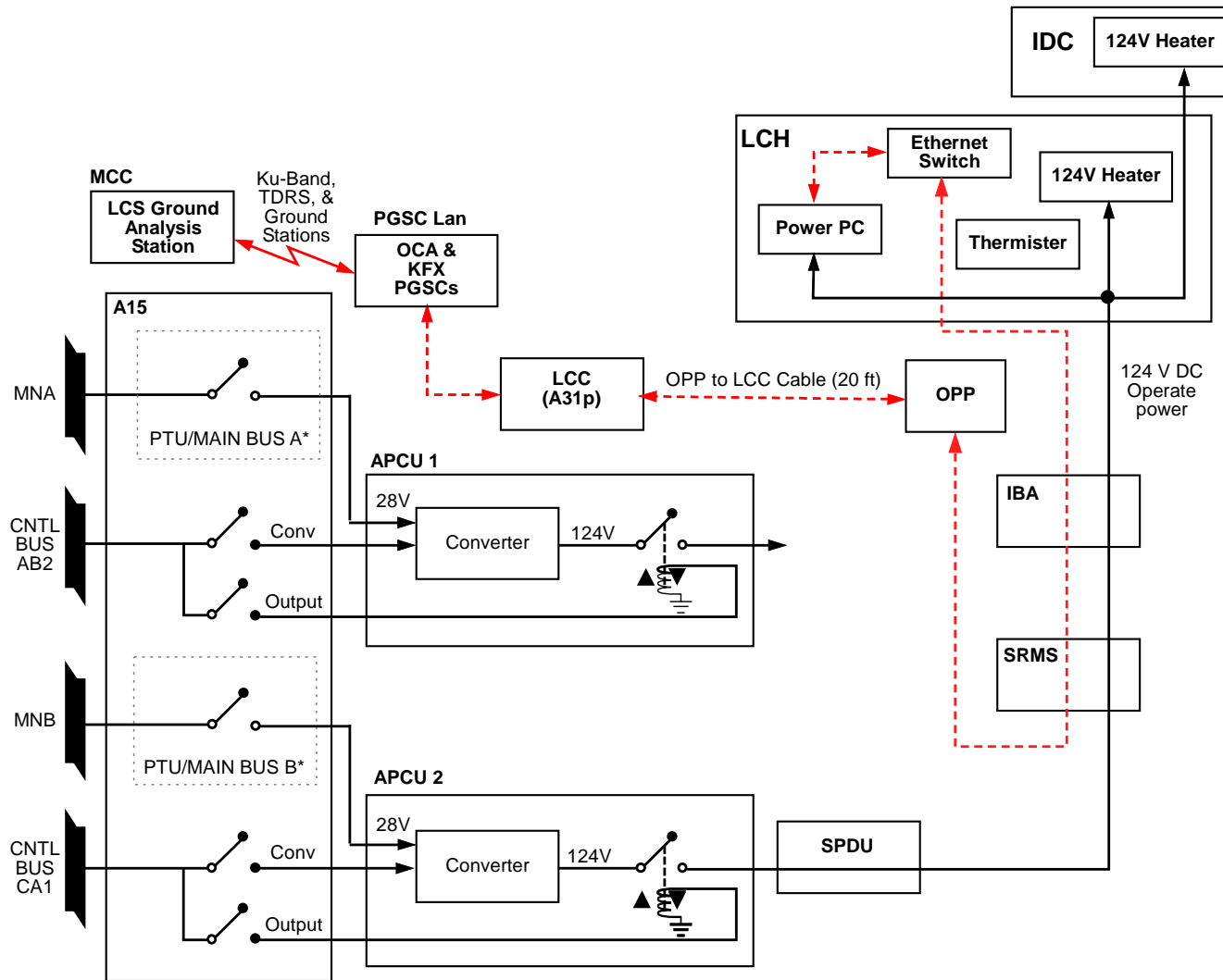
Aperture – Adjust per V10

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

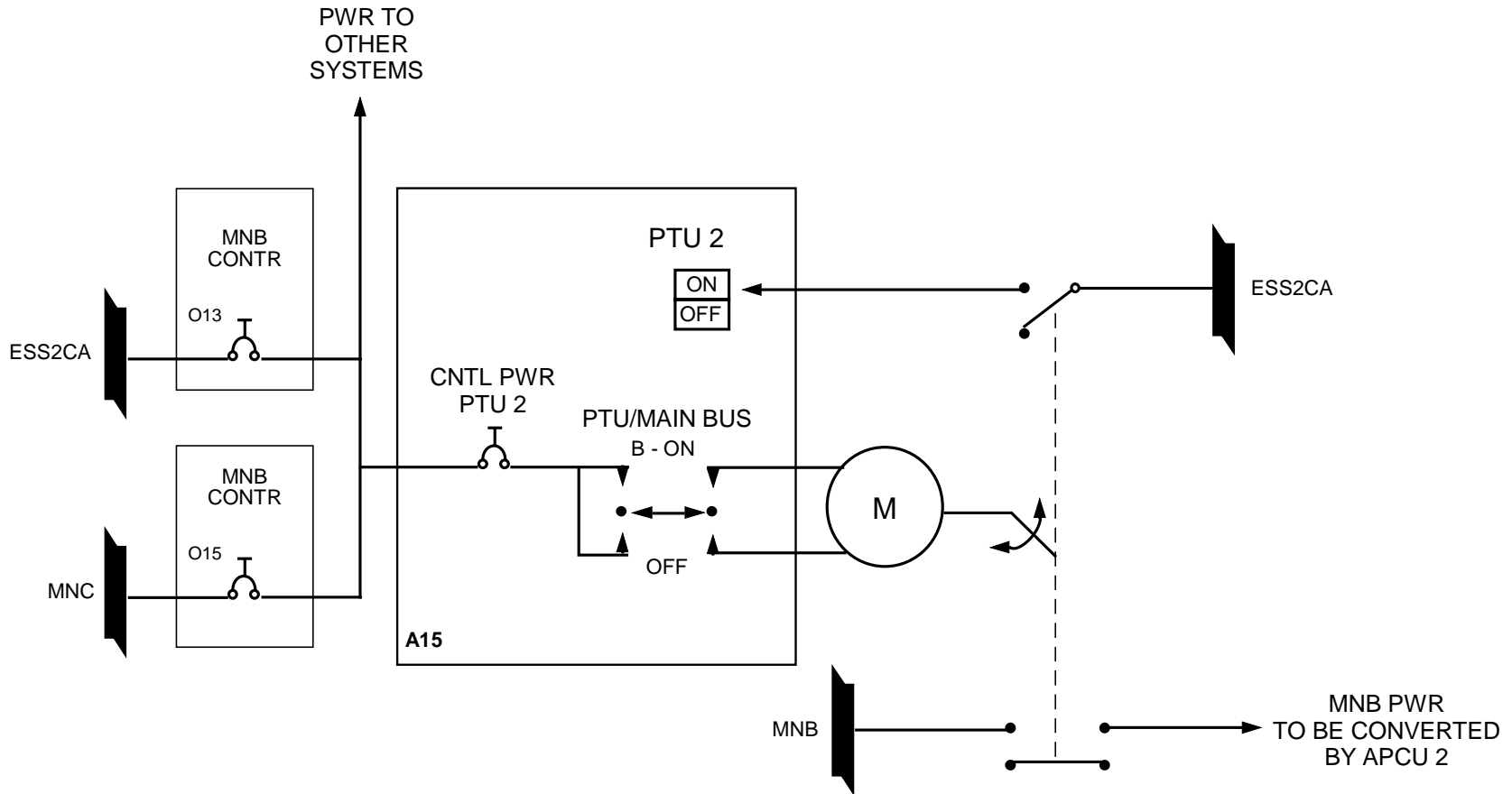


*See PTU 2/MAIN BUS B for detailed system dwg

isc48037 SSPTS 134cr3.cvx

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

PTU 2/MAIN BUS B SYSTEM DETAILS



jsc48037_PTU2_134e.cvx

SETUP

760 PROGRAM w/FLASH	760 CREW PHOTO	760 EXPOSURE MATCH
<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> <div data-bbox="220 1141 430 1276" style="border: 1px solid black; padding: 2px;"> <p>ISO 100 AUTO [] 112</p> </div> <div data-bbox="535 1157 724 1287" style="border: 1px solid black; padding: 2px; display: inline-block;"> <p>XX FX P LO []</p> </div>	<p>Lens – 28-70mm 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 Remote Release – Install Multiuse Brkt (clamp) Focus Body Focus Mode – M Frame, Fire</p> <div data-bbox="1102 901 1312 1031" style="border: 1px solid black; padding: 2px;"> <p>ISO 100 AUTO [] 112</p> </div> <div data-bbox="1123 1047 1312 1177" style="border: 1px solid black; padding: 2px; display: inline-block;"> <p>XX F 8 A LO []</p> </div>	<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> <div data-bbox="1669 836 1879 966" style="border: 1px solid black; padding: 2px;"> <p>ISO 100 AUTO [] 112</p> </div> <div data-bbox="1690 1047 1879 1177" style="border: 1px solid black; padding: 2px; display: inline-block;"> <p>XX FX P LO []</p> </div> <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>

CENTERLINE (C/L) CAMR

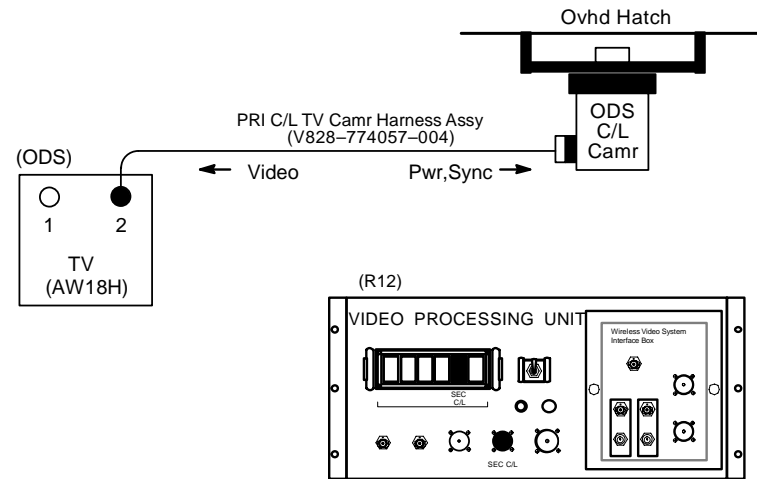
C/L CAMR INSTALL

- 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)
- MF43C 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 (CB2) – cl
 (SSP 2) C/L CAM PWR – SEC ON

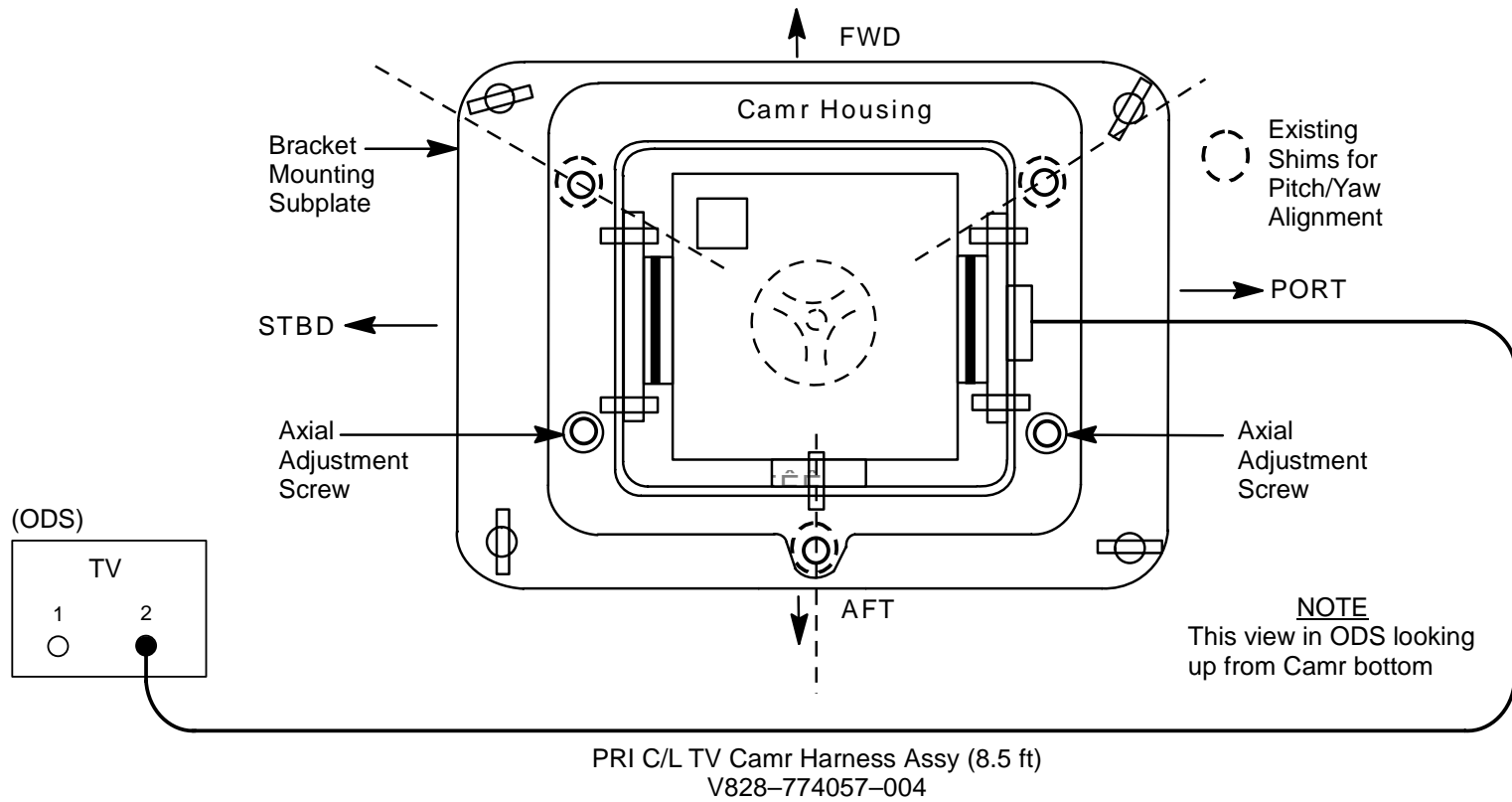


jsc48037_048r2.cvx

CENTERLINE (C/L) CAMR (Continued)

C/L CAMR INSTALL (Continued)

2. Camr Position Verification



jsc48037_049r3.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

A7 VID OUT MON 1(2) pb – push
IN PL2(VPU) pb – push
ALC pb – push
AVG pb – push

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

A7 Zoom to $10^\circ \pm 0.5^\circ$
Focus to see Xhair target

NOTE

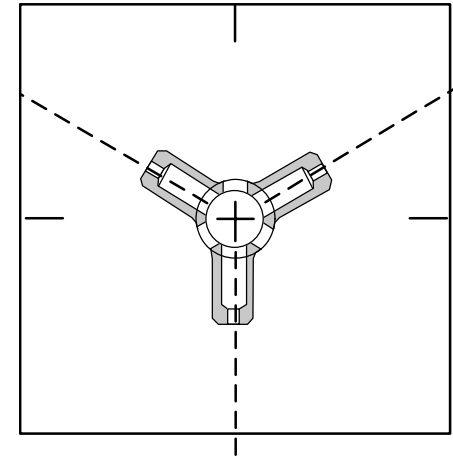
Green xhairs on monitor may move off center in calibration target when zooming in,out. Xhair will be closest to center at full zoom in position

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

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



jsc48037_050.cnv

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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
LDRI/ITVC A17 PLACARD.....	FS CC 3-24

CUE CARDS

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HOOK
VELCRO

TV

ACTIVATION

A3 MON 1(2) PWR – ON (LED ON)
 A7 √TV DNLK – 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 DNLK pb – push
 IN pb – As reqd
 If DTV, on MCC GO:
 √Cables connected
 L10 (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/120/O/A

(reduced copy)

FS CC 3-3

P/TV/120/FIN A

TOP
BACK OF 'TV'

HOOK
VELCRO

Illuminator Ops

Illuminator ON

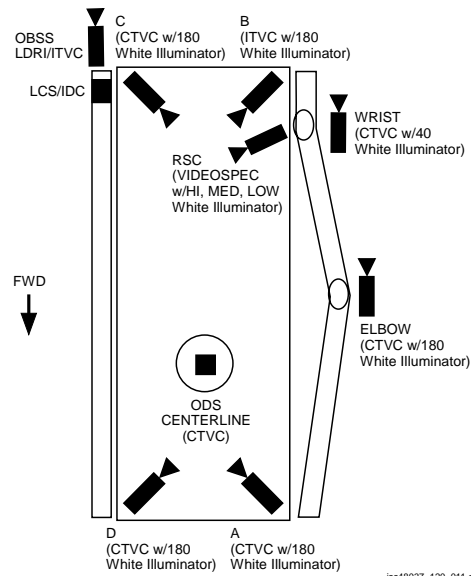
```

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 LDR/ITVC (Cue Card)
  
```



jsc48037_120_011.cvx

P/TV-1b/120/O/A

(reduced copy)

FS CC 3-4

P/TV/120/FIN A

TOP

HOOK
VELCRO

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:
 If MHA, COMM PWR – ON
 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
 TV PWR – OFF, as reqd
 O19(MO58F) Go to DEACTIVATION (Cue Card, TV), as reqd

VTR VIA ANALOG

ACTIVATION

O19 Setup per diagram (back of cue card)
 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)
 If MHA, COMM PWR – ON
 PWR – AUD
 Desired Loops – T/R
 Other Loops – OFF
 XMIT/COM Mode – VOX/VOX
 VOX SENS – MAX

CCU VID OUT Desired MON pb – push
 ATU 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)
 (VIP) PWR – off (LED off)
 Reconfig as desired
 O19(MO58F) TV PWR – OFF
 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
 If playback time not displayed on DSR-25 LCD cycle "DATA CODE" repeatedly until time displayed
 REW(FF),PLAY,PAUSE pb – push as reqd to cue tape

L10 (VTR)

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

P/TV-2a/120/O/B

(reduced copy)

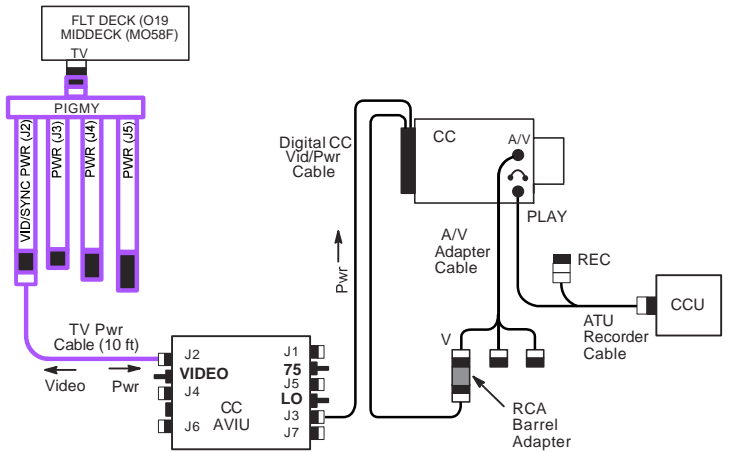
FS CC 3-5

P/TV/120/FIN A

TOP
BACK OF 'PLAYBACK'

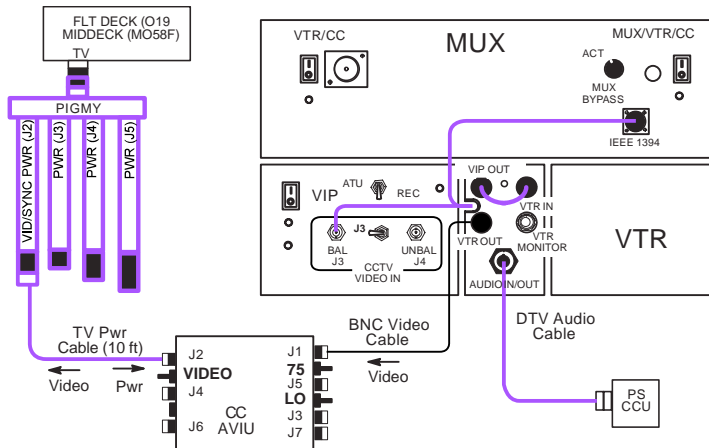
HOOK
VELCRO

ANALOG PLAYBACK



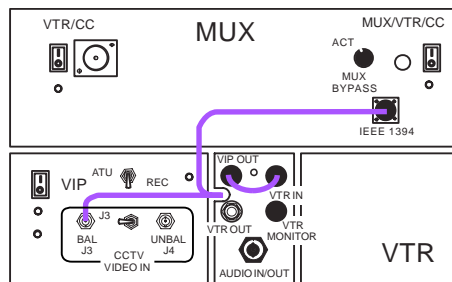
jsc48037_120_012a.cvx

VTR VIA ANALOG PLAYBACK



jsc48037_120_012b.cvx

DIGITAL PLAYBACK



jsc48037_120_012c.cvx

(reduced copy)
FS CC 3-6

P/TV-2b/120/O/A

P/TV/120/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

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

P/TV-3a/120/O/A

P/TV-3b/120/O/A

FS CC 3-7

P/TV/120/FIN A

TOP

MEDIA ALLOCATIONS										
35mm					Rolls					
100 CPos										
						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	
DCS					1 GB/112 shots					
1 GB EVA Flash Card										
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					
		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/120/O/C

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FS CC 3-8

P/TV/120/FIN A

TOP
BACK OF 'MEDIA ALLOCATIONS'



HOOK
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P/TV-4b/120/O/B



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FS CC 3-9

P/TV/120/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

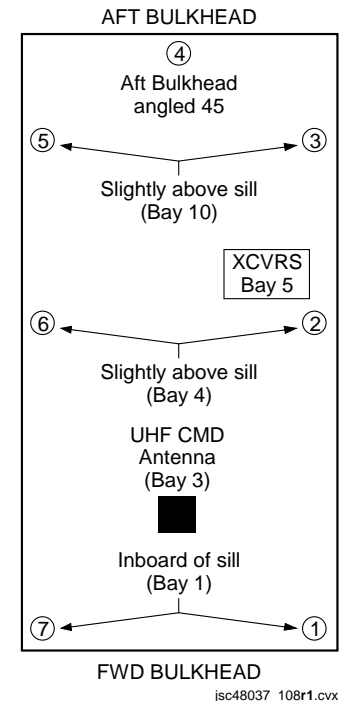
If still no joy:
For XCVR with good video:
Sel RF Camr – reselect original EVA crewmember
For XCVR w/video problem: Antenna – Manual
Sel desired antenna

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



(reduced copy)

FS CC 3-10

P/TV-5a/120/O/A

P/TV/120/FIN A

HOOK
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HOOK
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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/120/O/A

(reduced copy)

TOP

HOOK
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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/120/O/A

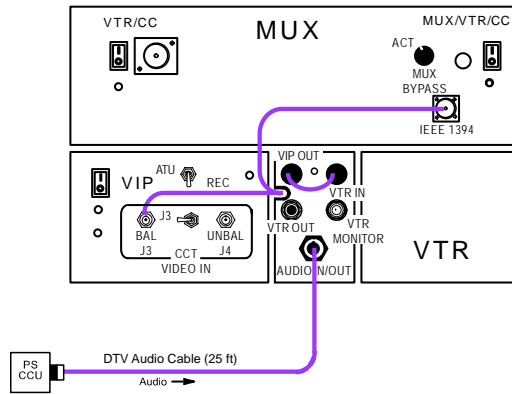
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FS CC 3-12

P/TV/120/FIN A

TOP
BACK OF 'PLBD VTR RECORDING'

HOOK
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jsc48037_118_020.cvx

P/TV-6b/120/O/A

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FS CC 3-13

P/TV/120/FIN A

HOOK
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LDRI/ITVC

HOOK
VELCRO

ACTIVATION

- Config CCTV Sys
 - A7 √ACTIVATION (Cue Card, TV) performed
 - L10 (MUX) √MUX/VTR/CC PWR – on (LED on)
 - R12 (VPU) √Cabling from VTR OUT port to DTV V10
 - MON 1,2 √VPU PWR – ON (LED on)
 - √Green Jumper – LDRI/ITVC
 - L-DATA – ON
 - C-DATA – GRN
 - X-HAIR – GRN
- Apply SPEE Pwr
 - A8L √STBD RMS HTR (two) – OFF
 - R12 (OPP) √cb OBSS SW PWR – cl
 - (OBSS) √OBSS SW PWR – ON
 - A6U SPEE PWR – ON
 - EVENT TIMER CNTL – STOP
 - RESET
 - CNTL – START
 - (15 min LDRI calibration warmup)
- Config RSC Illum to HI
 - A7 VID OUT MON 1(2) pb – push
 - IN C pb – push
 - R12 (OBSS) PAN/TILT – Adjust to see RSC Camr
 - SPEE PWR – OFF, wait 10 sec, then
 - ON
 - MON 1(2) √RSC illum on HI (three rings)
- Enable ITVC
 - 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, then
 - ON
 - Repeat until MAN GAIN pb
 - illuminated
 - A7 LT LEVEL pb – push
 - DAY (NIGHT) pb – push
 - ALC pb – push
 - AVG pb – push
 - V10 √ITVC video displayed
- Verify LDRI Powered
 - A7 VID OUT MUX 1 L pb – push
 - IN MIDDECK pb – push
 - LDRI MODE 6 pb – push
 - V10 √Flickering LDRI w/rounded corners
 - A7 LDRI MODE 2 pb – push
 - V10 √ITVC video displayed
 - A7 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 2 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
LDRI MODE 1 pb – push

R12 (OBSS) ITVC ENA – OFF
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/120/O/B

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FS CC 3-14

P/TV/120/FIN A

TOP
BACK OF 'LDRI/ITVC'

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RSC CAMR OPS

NOTE

Camr nominally pwr'd in Block 4 of PI C/L

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(2) 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(2) √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)

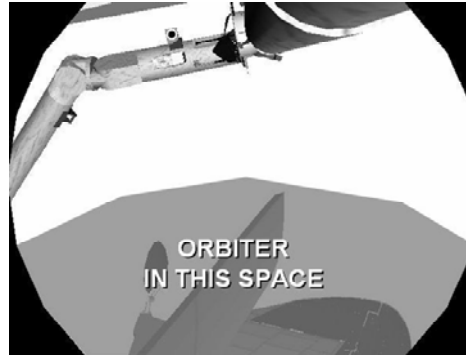
L10(VTR) STOP pb – push (no red ●)

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

VID OUT MON2 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
LDRI

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 MON2 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 MON2 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

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FS CC 3-15

P/TV-7b/120/O/B

P/TV/120/FIN A

TOP

LCS

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LCH ACTIVATION

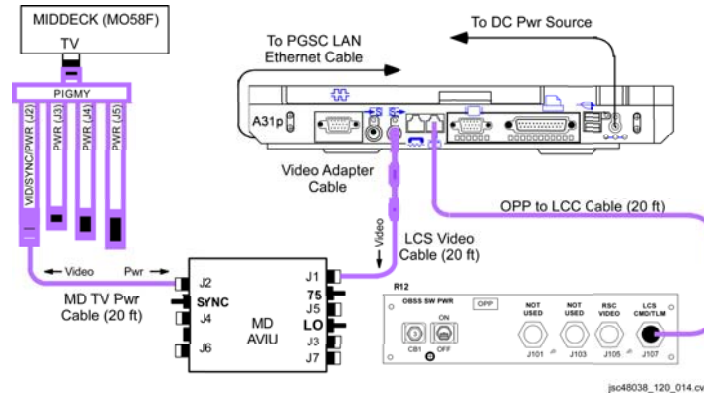
- A15 Activate SSPTS APCU 2
 √PTU 2 tb – on
 APCU 2 OUTPUT – ON
 CONV – ON

SM 179 POWER TRANSFER
 √PTU 2 APCU OUT VOLTS: 123V to 126V
 √OUTPUT – ON

LCC ACTIVATION

1. LCC Setup

√Hardware and cables configured per diagram below:



2. LCC Startup

- A31p PGSC Pwr – ON
 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

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

- 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

(For SSPTS APCU 2 flights only)

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FS CC 3-16

P/TV-8a/120/O/C

P/TV/120/FIN A

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

1. Deactivate SSPTS APCU 2/LCH

- A15 APCU 2 CONV – OFF
- SM 179 POWER TRANSFER**
- √PTU 2 APCU OUT VOLTS: <10V
- APCU 2 OUTPUT – OFF

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
- A15 APCU 2 CONV – OFF, pause 10 sec, ON
- SM 179 POWER TRANSFER**
- √PTU 2 APCU OUT VOLTS: 123V to 126V
- A31p LCC PGSC Pwr – ON
- √A31p internal RJ45 Network Interface Card LED green
- Perform 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 SSPTS APCU 2 flights only)

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P/TV-8b/120/O/C

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IDC ACTIVATION

- LCC Setup
 A31p √Hardware configured per LCC ACTIVATION steps 1,2 (Cue Card, LCS)
 PGSC Pwr – ON
- IDC connectivity Check
 A31p √A31p internal RJ45 Network Interface Card LED green
 If RJ45 Network Interface Card LED not green:
 A15 APCU 2 CONV – OFF, pause 10 sec, ON

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

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 *

 3. IDC Pwr on and self test

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

- A31p Sel 'Power On'
- √Black and White self-test image displayed
 √'Waiting for User Command' displayed
- * If red backlit error msg displayed: *
 * Perform appropriate TROUBLESHOOTING *
 * steps on this cue card *

OPERATION

NOTE

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

- 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)
 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
- 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

HOOK
VELCRO

HOOK
VELCRO

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

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 (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
Local Area Network Connection Speed 10 mps
Local Area Network Connection Speed 10 mps
CMD/TLM port
- A15 APCU 2 CONV – OFF, pause 10 sec, ON
SM 179 POWER TRANSFER
PTU 2 APCU OUT VOLTS: 123V to 126V
- A31p LCC PGSC Pwr – ON
A31p internal RJ45 Network Interface Card LED green
Perform IDC SOFTWARE ACTIVATION
Continue nominal ops
- LCC Swap
A31p Exit IDC software and shut down Windows
Swap LCC with other A31p
Perform IDC Activation
Perform IDC Software Activation
Continue nominal ops

(For SSPTS APCU 2 flights only)

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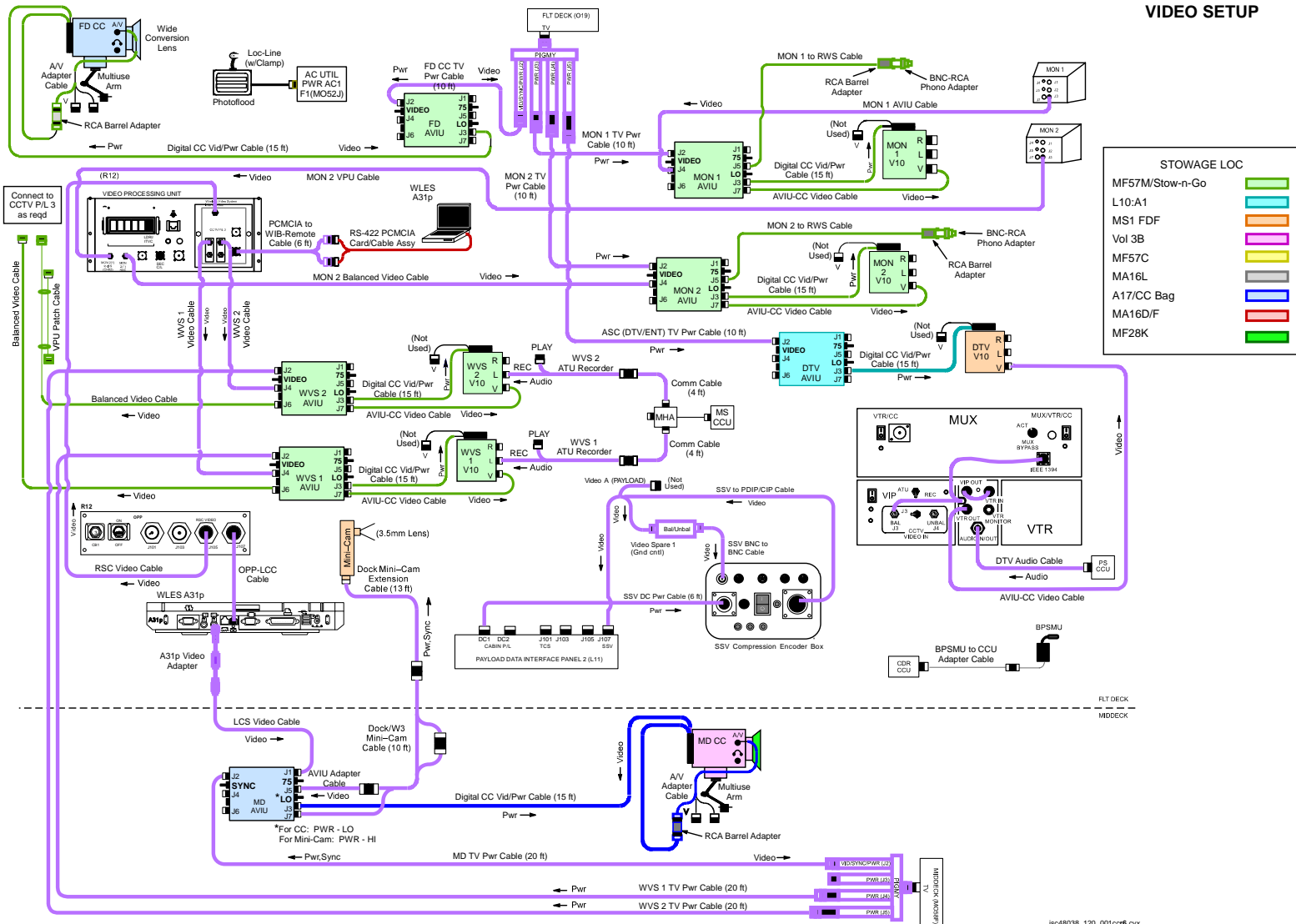
FS CC 3-19

P/TV-9b/120/O/C

P/TV/120/FIN A

TOP

VIDEO SETUP



js448038_120_001.ccr6.cvx

P/TV-10a/120/O/C

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FS CC 3-20

P/TV/120/FIN A

HOOK
VELCRO

TOP
BACK OF 'VIDEO SETUP'

HOOK
VELCRO

+

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FS CC 3-21

P/TV-10b/120/O/A

+

P/TV/120/FIN A

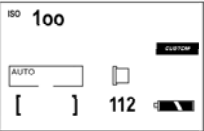
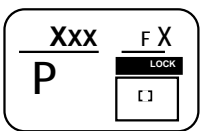
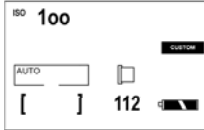
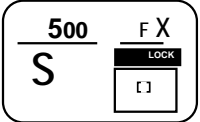
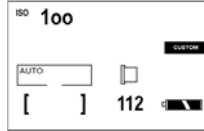
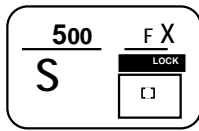
DCS SETUP

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> <div data-bbox="289 1117 499 1252" style="border: 1px solid black; padding: 2px;"> <p>ISO 100 AUTO [] 112</p> </div> <div data-bbox="548 1130 743 1252" style="border: 1px solid black; padding: 2px; display: inline-block;"> <p style="text-align: center;">XXX F X P LOCK []</p> </div>	<p>Lens – 28-70mm 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> <div data-bbox="1087 865 1297 1000" style="border: 1px solid black; padding: 2px;"> <p>ISO 100 AUTO [] 112</p> </div> <div data-bbox="1087 1016 1283 1138" style="border: 1px solid black; padding: 2px; display: inline-block;"> <p style="text-align: center;">XXX F 8 A LOCK []</p> </div> <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> <div data-bbox="1619 841 1829 976" style="border: 1px solid black; padding: 2px;"> <p>ISO 100 AUTO [] 112</p> </div> <div data-bbox="1619 1016 1814 1138" style="border: 1px solid black; padding: 2px; display: inline-block;"> <p style="text-align: center;">XXX F X P LOCK []</p> </div> <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>

TOP
BACK OF 'DCS SETUP'

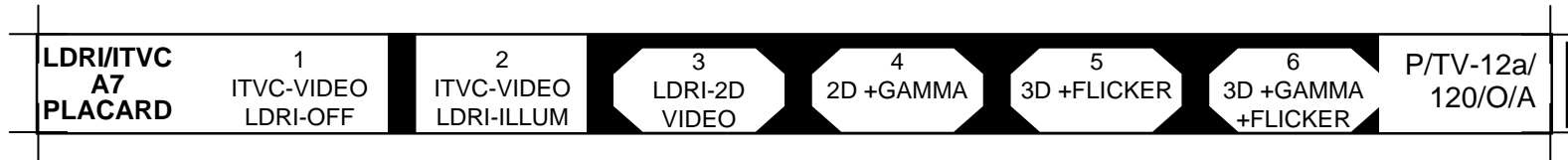
HOOK
VELCRO

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 achive 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 · 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>  

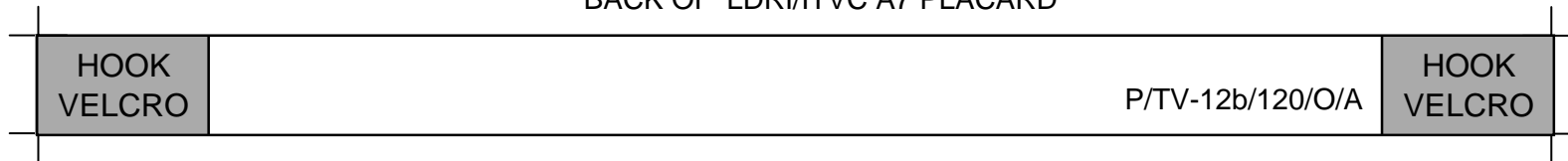
P/TV-11b/120/O/A

(reduced copy)

TOP



TOP
BACK OF 'LDRI/ITVC A7 PLACARD'



NOTE

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K-10 stock in crew copies only

NOTE

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PHOTO/TV CHECKLIST

STS 120