

# Photo/TV Checklist

## STS-118

---

**Mission Operations Directorate  
Operations Division**

**Final  
April 25, 2007**

National Aeronautics and  
Space Administration

**Lyndon B. Johnson Space Center**  
Houston, Texas



**Verify this is the correct version for the pending operation (training, simulation or flight).**  
Electronic copies of FDF books are available. URL: <http://mod.jsc.nasa.gov/do3/FDF/index.html>



PHOTO/TV C/L, STS-118	FINAL (Apr 25, 2007)
-----------------------	----------------------

## PCN-2 (July 17, 2007) Sheet 1 of 1

List of Implemented Change Requests (482s):

P/TV\_FSP-0092

P/TV\_FSP-0093

Incorporate the following:

1. Replace iii thru viii
2. Replace 1-31 thru 1-34, 1-67 and 1-68
3. Replace 4-35 and 4-36
4. Replace 14-5 and 14-6
5. Replace 16-3 and 16-4
6. Replace CC 23-7 and CC 23-8, CC 23-15 thru CC 23-18

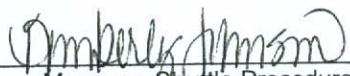
Prepared by:

  
Mission Lead

  
Publication Manager

Approved by:

  
Lead, Shuttle Photo/TV Group

  
Manager, Shuttle Procedures  
Management

Accepted by:

  
FDF Manager

Encl: 24 pages

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



PHOTO/TV C/L, STS-118

FINAL (Apr 25, 2007)

## PCN-1 (June 22, 2007) Sheet 1 of 1

List of Implemented Change Requests (482s):

P/TV\_FSP-0091

Incorporate the following:

1. Replace iii thru viii
2. Replace 1-3 thru 1-6, 1-9 thru 1-12, 1-17 thru 1-20, 1-27 thru 1-30, 1-35 and 1-36, 1-45 and 1-46, 1-57 thru 1-62, 1-65 thru 1-68
3. Replace section 4 (40 pages)
4. Replace 7-1 thru 7-18  
After 7-18, delete 7-19 and 7-20
5. Replace 8-3 thru 8-6
6. Replace 12-3 and 12-4
7. Replace 14-3 and 14-4
8. Replace 15-3 thru 15-8
9. Replace 21-15 thru 21-18
10. Replace 23-1 and 23-2, CC 23-15 and CC 23-16, CC 23-19 thru CC 23-26  
Delete 23-27 and 23-28  
After CC 23-26, add CC 23-27 thru 23-30 (4 pages)

Prepared by:

  
Mission Lead  
Publication Manager

Approved by:

  
Lead, Shuttle Photo/TV Group  
Manager, Shuttle Procedures  
Management

Accepted by:

  
FDF Manager

Encl: 128 pages

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



MISSION OPERATIONS DIRECTORATE

**STS-118 PHOTO/TV CHECKLIST**

FINAL  
April 25, 2007

PREPARED BY:



D. Williams  
Mission Lead

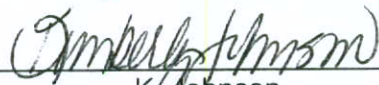


C. Pierce  
Publication Manager

APPROVED BY:



D. Williams  
Technical Lead, Shuttle Photo/TV Group



K. Johnson  
Manager, Shuttle Procedures Management

ACCEPTED BY:



Michael T. Hurt  
FDF Manager

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

Additional distribution of this book, for official use only, may be requested in writing to DO3/PMO Administrator. The request must include justification and requester's name, organization, position, and phone number. Contractor requests are made through the NASA or DOD organization supported. Deletions, reduction in quantity, or change of address may be submitted to DO3/FDF Management Office, 281-244-1184.

Incorporates the following:	
482#:	P/TV_FSP-0086 P/TV_FSP-0087 P/TV_FSP-0088 P/TV_FSP-0089

AREAS OF TECHNICAL RESPONSIBILITY

Publication Manager	DO35/C. Pierce	281-483-6087
Backup Publication Manager	DO35/L. Giles	281-244-9068
Mission Lead	DX34/D. Williams	281-244-7882
Backup Mission Lead	DX34/P. Reichert	281-483-1827
Technical Lead, Shuttle Photo/TV Group	DX34/D. Williams	281-244-7882



STS-118 PHOTO/TV CHECKLIST

**LIST OF EFFECTIVE PAGES**

FINAL 04/25/07  
 PCN-1 06/22/07  
 PCN-2 07/17/07

Sign Off .....	*	118/FIN	1-40 .....	118/FIN
ii.....	*	118/FIN	1-41 .....	118/FIN
iii.....	*	118/FIN 2	1-42 .....	118/FIN
iv.....	*	118/FIN 2	1-43 .....	118/FIN
v .....	*	118/FIN 2	1-44 .....	118/FIN
vi.....	*	118/FIN 2	1-45 .....	118/FIN
vii.....	*	118/FIN 2	1-46 .....	⊗ 118/FIN 1
viii.....	*	118/FIN	1-47 .....	118/FIN
ix.....		118/FIN	1-48 .....	118/FIN
x .....		118/FIN	1-49 .....	118/FIN
1-1 .....		118/FIN	1-50 .....	⊗ 118/FIN
1-2.....		118/FIN	1-51 .....	118/FIN
1-3.....		118/FIN	1-52 .....	118/FIN
1-4.....	⊗	118/FIN 1	1-53 .....	118/FIN
1-5.....		118/FIN 1	1-54 .....	118/FIN
1-6.....		118/FIN	1-55 .....	118/FIN
1-7.....		118/FIN	1-56 .....	⊗ 118/FIN
1-8.....	⊗	118/FIN	1-57 .....	118/FIN 1
1-9.....		118/FIN 1	1-58 .....	118/FIN
1-10.....		118/FIN	1-59 .....	118/FIN
1-11.....		118/FIN 1	1-60 .....	⊗ 118/FIN 1
1-12.....		118/FIN 1	1-61 .....	118/FIN 1
1-13.....		118/FIN	1-62 .....	118/FIN
1-14.....		118/FIN	1-63 .....	118/FIN
1-15.....		118/FIN	1-64 .....	118/FIN
1-16.....	⊗	118/FIN	1-65 .....	118/FIN
1-17.....		118/FIN 1	1-66 .....	⊗ 118/FIN 1
1-18.....		118/FIN	1-67 .....	118/FIN
1-19.....		118/FIN 1	1-68 .....	118/FIN 2
1-20.....		118/FIN	2-1 .....	* 118/FIN
1-21.....		118/FIN	2-2 .....	* 118/FIN
1-22.....		118/FIN	3-1 .....	118/FIN
1-23.....		118/FIN	3-2 .....	118/FIN
1-24.....		118/FIN	3-3 .....	118/FIN
1-25.....		118/FIN	3-4 .....	118/FIN
1-26.....		118/FIN	3-5 .....	118/FIN
1-27.....		118/FIN	3-6 .....	118/FIN
1-28.....	⊗	118/FIN 1	3-7 .....	118/FIN
1-29.....		118/FIN 1	3-8 .....	118/FIN
1-30.....		118/FIN	3-9 .....	118/FIN
1-31.....		118/FIN	3-10 .....	118/FIN
1-32.....	⊗	118/FIN 2	3-11 .....	118/FIN
1-33.....		118/FIN	3-12 .....	118/FIN
1-34.....		118/FIN 2	3-13 .....	118/FIN
1-35.....		118/FIN	3-14 .....	118/FIN
1-36.....	⊗	118/FIN 1	3-15 .....	118/FIN
1-37.....		118/FIN	3-16 .....	118/FIN
1-38.....		118/FIN	3-17 .....	118/FIN
1-39.....		118/FIN	3-18 .....	118/FIN

\* – Omit from flight book

⊗ – Flight copies of this page contain color

3-19	118/FIN	7-2	118/FIN
3-20	118/FIN	7-3	⊗ 118/FIN 1
3-21	118/FIN	7-4	⊗ 118/FIN
3-22	118/FIN	7-5	118/FIN 1
3-23	118/FIN	7-6	⊗ 118/FIN 1
3-24	118/FIN	7-7	118/FIN 1
3-25	118/FIN	7-8	118/FIN 1
3-26	118/FIN	7-9	118/FIN 1
3-27	118/FIN	7-10	118/FIN 1
3-28	118/FIN	7-11	118/FIN 1
3-29	118/FIN	7-12	118/FIN 1
3-30	118/FIN	7-13	118/FIN 1
4-1	118/FIN 1	7-14	118/FIN 1
4-2	118/FIN 1	7-15	118/FIN 1
4-3	118/FIN	7-16	118/FIN 1
4-4	⊗ 118/FIN 1	7-17	⊗ 118/FIN 1
4-5	⊗ 118/FIN 1	7-18	118/FIN 1
4-6	⊗ 118/FIN 1	8-1	118/FIN
4-7	118/FIN 1	8-2	118/FIN
4-8	118/FIN 1	8-3	⊗ 118/FIN 1
4-9	118/FIN 1	8-4	⊗ 118/FIN 1
4-10	118/FIN 1	8-5	⊗ 118/FIN
4-11	118/FIN 1	8-6	⊗ 118/FIN 1
4-12	⊗ 118/FIN 1	8-7	118/FIN
4-13	⊗ 118/FIN 1	8-8	118/FIN
4-14	⊗ 118/FIN 1	8-9	118/FIN
4-15	⊗ 118/FIN 1	8-10	118/FIN
4-16	⊗ 118/FIN 1	8-11	118/FIN
4-17	⊗ 118/FIN 1	8-12	118/FIN
4-18	118/FIN 1	9-1	118/FIN
4-19	118/FIN 1	9-2	118/FIN
4-20	⊗ 118/FIN 1	9-3	118/FIN
4-21	⊗ 118/FIN 1	9-4	118/FIN
4-22	⊗ 118/FIN 1	9-5	⊗ 118/FIN
4-23	⊗ 118/FIN 1	9-6	⊗ 118/FIN
4-24	⊗ 118/FIN 1	9-7	118/FIN
4-25	⊗ 118/FIN 1	9-8	118/FIN
4-26	118/FIN 1	10-1	118/FIN
4-27	118/FIN 1	10-2	118/FIN
4-28	118/FIN 1	10-3	118/FIN
4-29	118/FIN 1	10-4	118/FIN
4-30	118/FIN 1	10-5	118/FIN
4-31	118/FIN 1	10-6	⊗ 118/FIN
4-32	118/FIN 1	10-7	118/FIN
4-33	118/FIN 1	10-8	118/FIN
4-34	118/FIN 1	10-9	118/FIN
4-35	118/FIN 1	10-10	118/FIN
4-36	118/FIN 2	10-11	118/FIN
4-37	118/FIN 1	10-12	118/FIN
4-38	118/FIN 1	10-13	118/FIN
4-39	118/FIN 1	10-14	118/FIN
4-40	118/FIN 1	10-15	118/FIN
5-1	* 118/FIN	10-16	118/FIN
5-2	* 118/FIN	10-17	118/FIN
6-1	* 118/FIN	10-18	118/FIN
6-2	* 118/FIN	10-19	118/FIN
7-1	118/FIN 1	10-20	118/FIN

⊗ – Flight copies of this page contain color

\* – Omit from flight book

10-21	118/FIN	13-18	118/FIN
10-22	118/FIN	14-1	118/FIN
10-23	118/FIN	14-2	118/FIN
10-24	118/FIN	14-3	⊗ 118/FIN
10-25	118/FIN	14-4	⊗ 118/FIN 1
10-26	118/FIN	14-5	118/FIN
11-1	118/FIN	14-6	118/FIN 2
11-2	118/FIN	14-7	118/FIN
11-3	118/FIN	14-8	118/FIN
11-4	118/FIN	15-1	118/FIN
11-5	118/FIN	15-2	118/FIN
11-6	118/FIN	15-3	⊗ 118/FIN 1
11-7	118/FIN	15-4	118/FIN 1
11-8	118/FIN	15-5	118/FIN 1
11-9	118/FIN	15-6	⊗ 118/FIN 1
11-10	118/FIN	15-7	118/FIN 1
11-11	⊗ 118/FIN	15-8	118/FIN
11-12	118/FIN	15-9	118/FIN
12-1	118/FIN	15-10	118/FIN
12-2	118/FIN	15-11	118/FIN
12-3	⊗ 118/FIN 1	15-12	118/FIN
12-4	118/FIN	15-13	118/FIN
12-5	118/FIN	15-14	118/FIN
12-6	118/FIN	15-15	118/FIN
12-7	118/FIN	15-16	118/FIN
12-8	118/FIN	15-17	118/FIN
12-9	118/FIN	15-18	118/FIN
12-10	118/FIN	15-19	118/FIN
12-11	118/FIN	15-20	118/FIN
12-12	118/FIN	15-21	118/FIN
12-13	118/FIN	15-22	118/FIN
12-14	118/FIN	15-23	118/FIN
12-15	118/FIN	15-24	118/FIN
12-16	⊗ 118/FIN	15-25	118/FIN
12-17	118/FIN	15-26	118/FIN
12-18	118/FIN	16-1	118/FIN
12-19	118/FIN	16-2	118/FIN
12-20	118/FIN	16-3	118/FIN 2
12-21	118/FIN	16-4	118/FIN
12-22	118/FIN	16-5	118/FIN
13-1	118/FIN	16-6	118/FIN
13-2	118/FIN	16-7	118/FIN
13-3	⊗ 118/FIN	16-8	118/FIN
13-4	⊗ 118/FIN	17-1	118/FIN
13-5	⊗ 118/FIN	17-2	118/FIN
13-6	⊗ 118/FIN	18-1	118/FIN
13-7	⊗ 118/FIN	18-2	118/FIN
13-8	⊗ 118/FIN	18-3	118/FIN
13-9	⊗ 118/FIN	18-4	118/FIN
13-10	118/FIN	18-5	118/FIN
13-11	118/FIN	18-6	118/FIN
13-12	⊗ 118/FIN	19-1	* 118/FIN
13-13	⊗ 118/FIN	19-2	* 118/FIN
13-14	⊗ 118/FIN	20-1	118/FIN
13-15	118/FIN	20-2	118/FIN
13-16	118/FIN	20-3	118/FIN
13-17	118/FIN	20-4	118/FIN

⊗ – Flight copies of this page contain color

\* – Omit from flight book

20-5.....	118/FIN	CC 23-22.....	⊗ 118/FIN 1
20-6.....	118/FIN	CC 23-23.....	⊗ 118/FIN 1
20-7.....	118/FIN	CC 23-24.....	⊗ 118/FIN 1
20-8.....	118/FIN	CC 23-25.....	⊗ 118/FIN 1
20-9.....	118/FIN	CC 23-26.....	118/FIN
20-10.....	118/FIN	CC 23-27.....	118/FIN 1
20-11.....	118/FIN	CC 23-28.....	118/FIN 1
20-12.....	118/FIN	23-29 (4 pgs).....	† 118/FIN 1
21-1.....	118/FIN	23-30 (4 pgs).....	† 118/FIN 1
21-2.....	118/FIN		
21-3.....	118/FIN		
21-4.....	118/FIN		
21-5.....	118/FIN		
21-6.....	118/FIN		
21-7.....	118/FIN		
21-8.....	118/FIN		
21-9.....	118/FIN		
21-10.....	118/FIN		
21-11.....	118/FIN		
21-12.....	118/FIN		
21-13.....	118/FIN		
21-14.....	118/FIN		
21-15.....	⊗ 118/FIN		
21-16.....	⊗ 118/FIN 1		
21-17.....	118/FIN 1		
21-18.....	118/FIN		
21-19.....	118/FIN		
21-20.....	⊗ 118/FIN		
21-21.....	118/FIN		
21-22.....	118/FIN		
21-23.....	118/FIN		
21-24.....	118/FIN		
22-1.....	118/FIN		
22-2.....	118/FIN		
22-3.....	118/FIN		
22-4.....	118/FIN		
23-1.....	118/FIN 1		
23-2.....	118/FIN 1		
CC 23-3.....	118/FIN		
CC 23-4.....	118/FIN		
CC 23-5.....	118/FIN		
CC 23-6.....	⊗ 118/FIN		
CC 23-7.....	118/FIN		
CC 23-8.....	118/FIN 2		
CC 23-9.....	118/FIN		
CC 23-10.....	118/FIN		
CC 23-11.....	118/FIN		
CC 23-12.....	118/FIN		
CC 23-13.....	⊗ 118/FIN		
CC 23-14.....	118/FIN		
CC 23-15.....	118/FIN		
CC 23-16.....	⊗ 118/FIN 2		
CC 23-17.....	⊗ 118/FIN 2		
CC 23-18.....	⊗ 118/FIN		
CC 23-19.....	⊗ 118/FIN		
CC 23-20.....	⊗ 118/FIN 1		
CC 23-21.....	⊗ 118/FIN		

⊗ – Flight copies of this page contain color  
† – 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).....	CC 23-3	P/TV-1a/118/O/A
	(Back).....	CC 23-4	P/TV-1b/118/O/A
PLAYBACK			
	(Front).....	CC 23-5	P/TV-2a/118/O/A
	(Back).....	CC 23-6	P/TV-2b/118/O/B
ET PHOTO			
	(Front).....	CC 23-7	P/TV-3a/118/O/A
	(Back).....	CC 23-7	P/TV-3b/118/O/A
MEDIA ALLOCATIONS			
	(Front).....	CC 23-8	P/TV-4a/118/O/D
	(Back).....	CC 23-9	P/TV-4b/118/O/A
WVS			
	(Front).....	CC 23-10	P/TV-5a/118/O/B
	(Back).....	CC 23-11	P/TV-5b/118/O/A
PLBD VTR RECORDING			
	(Front).....	CC 23-12	P/TV-6a/118/O/B
	(Back).....	CC 23-13	P/TV-6b/118/O/B
LDRI/ITVC			
	(Front).....	CC 23-14	P/TV-7a/118/O/B
	(Back).....	CC 23-15	P/TV-7b/118/O/C
LCS			
	(Front).....	CC 23-16	P/TV-8a/118/O/D
	(Back).....	CC 23-17	P/TV-8b/118/O/C
IDC			
	(Front).....	CC 23-18	P/TV-9a/118/O/B
	(Back).....	CC 23-19	P/TV-9b/118/O/C
VIDEO SETUP (Front).....	CC 23-20	P/TV-10a/118/O/C	
DOCK/UNDOCK (Back of VIDEO SETUP).....	CC 23-21	P/TV-10b/118/O/B	
SPACEHAB BPSMU AUDIO ONLY			
	(Front).....	CC 23-22	P/TV-11a/118/O/C
	(Back).....	CC 23-23	P/TV-11b/118/O/C
DOCKED OPS (Front).....	CC 23-24	P/TV-12a/118/O/B	
EVA (Back of DOCKED OPS).....	CC 23-25	P/TV-12b/118/O/B	
LDRI/ITVC A17 PLACARD			
	(Front).....	CC 23-26	P/TV-13a/118/O/A
	(Back).....	CC 23-26	P/TV-13b/118/O/A
SPACEHAB VIDEO DNLK			
	(Front).....	CC 23-27	P/TV-14a/118/O/A
	(Back).....	CC 23-28	P/TV-14b/118/O/A

This Page Intentionally Blank

TABLE OF CONTENTS

	<u>PAGE</u>
<u>SCENES</u> .....	1-1
P/TV01 VIDEO SETUP .....	1-4
P/TV02 DOCK .....	1-8
P/TV03 UNDOCK .....	1-16
P/TV04 INGRESS/EGRESS .....	1-24
P/TV05 ISS INTERNAL OPS (HC) .....	1-28
P/TV06 S5 UNBERTH .....	1-32
P/TV07 EVA .....	1-36
P/TV08 EXTERNAL SURVEY .....	1-44
P/TV09 STRUCTURAL DYNAMICS .....	1-50
P/TV10 ESP3 UNBERTH,INSTALL .....	1-56
P/TV11 CBTM .....	1-60
P/TV12 MIDDECK PAYLOADS .....	1-66
<u>NIKON F5 (NOT BEING FLOWN)</u> .....	2-1
<u>DCS 760</u> .....	3-1
<u>DCS 760 EVA CAMR</u> .....	4-1
<u>EVA IR CAMR (NOT BEING FLOWN)</u> .....	5-1
<u>SPOTMETER 303 (NOT BEING FLOWN)</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>NIGHT VISION EQUIPMENT (NOT BEING FLOWN)</u> .....	19-1
<u>LASER DYNAMIC RANGE IMAGER (LDRI)</u> .....	20-1
<u>LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM</u> <u>DIGITAL CAMR (IDC)</u> .....	21-1
<u>BATTS &amp; FUSES</u> .....	22-1
<u>CUE CARD CONFIGURATION</u> .....	23-1

This Page Intentionally Blank



SCENES

	<u>PAGE</u>
P/TV01 VIDEO SETUP.....	1-4
P/TV02 DOCK .....	1-8
P/TV03 UNDOCK .....	1-16
P/TV04 INGRESS/EGRESS.....	1-24
P/TV05 ISS INTERNAL OPS (HC) .....	1-28
P/TV06 S5 UNBERTH .....	1-32
P/TV07 EVA.....	1-36
P/TV08 EXTERNAL SURVEY .....	1-44
P/TV09 STRUCTURAL DYNAMICS.....	1-50
P/TV10 ESP3 UNBERTH,INSTALL.....	1-56
P/TV11 CBTM.....	1-60
P/TV12 MIDDECK PAYLOADS.....	1-66

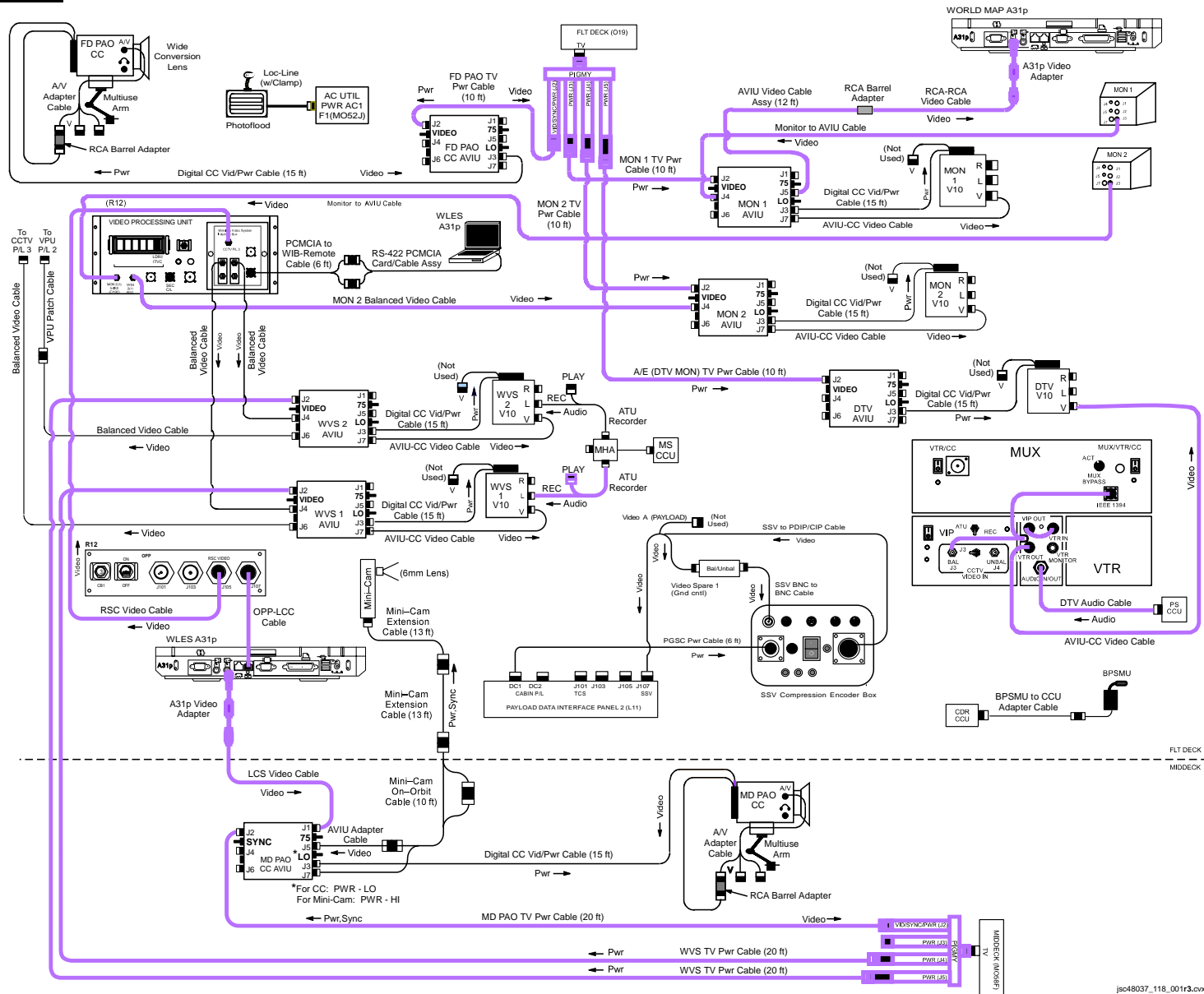
This Page Intentionally Blank

This Page Intentionally Blank

# P/TV01 VIDEO SETUP

## P/TV01 VIDEO SETUP

### H/W SUMMARY



js48037\_118\_001r3.cvx

## P/TV01 VIDEO SETUP (Concluded)

### SCENE SYNOPSIS

Scene contains procedures for documenting Video Setup

#### NOTE

Steps 1-9 minimum rqmt for FD2 OBSS TPS Inspection

### SETUP

1. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd
2. Perform SETUP (DTV)
3. Perform V10 FROM MON 1 (SONY V10)
4. Perform V10 FROM MON 2 (SONY V10)
5. ✓RSC Video Cable connected between R12/OPP-RSC Video and R12/VPU-CCTV PL3
6. Perform SSV NOMINAL SETUP (SSV)
7. Perform ANALOG PAO CC (SONY PD100) for PAO CC (O19) Flight Deck

#### NOTE

For inspection, AVIU must be pwr'd prior to WLES A31p startup

8. LCS Video cable connection  
Install MD PAO CC AVIU  
HI-Z/75 – 75  
AVIU  
Middeck  
Flt Deck  
Connect end of LCS Video Cable to MD PAO CC AVIU J1  
Connect other end of LCS Video Cable (A31p Video Adapter) to WLES A31p Video Out port
9. Connect OPP-LCC Cable to RJ45 Connector on WLES A31p
10. Perform ANALOG PAO CC (SONY PD100) for PAO CC (MO58F) Middeck
11. Perform IN-CABIN MINI-CAM (MINI-CAM) from MD PAO CC AVIU
12. Perform WVS INITIAL SETUP w/o ERCAs (WVS)
13. MF43C Unstow, set up BPSMU w/BPSMU to CCU Adapter Cable at CDR CCU

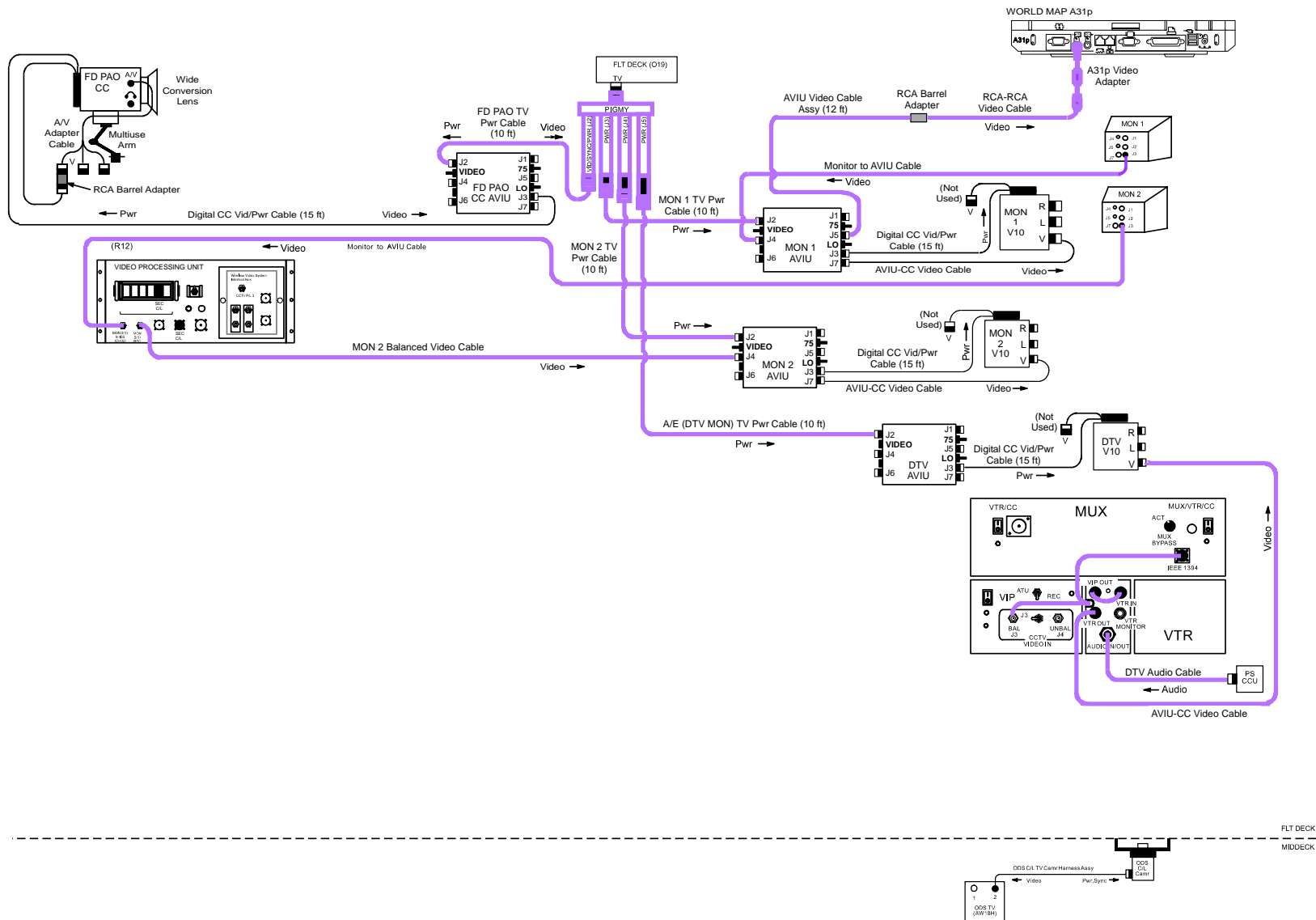
This Page Intentionally Blank

This Page Intentionally Blank

# P/TV02 DOCK

## P/TV02 DOCK

### H/W SUMMARY



jsc48037\_118\_002r1.cvx



**P/TV02 DOCK (Continued)**

SCENE SYNOPSIS

Scene contains procedures for obtaining video, still photos of ISS rndz,docking

QUICK CHECK

V10 (two)		PAO CC		C/L Camr	
O19	√TV PWR – ON	O19	√TV PWR – ON	C/L Camr	√SSF/STS sw – STS
R12 (VPU)	√VPU PWR – ON (LED on)	CC	PWR – CAMERA Tape – Install	R12 (VPU)	√Green Jumper – SEC C/L √SEC C/L Cap installed
V10	PWR – ON Tape – Install DISPLAY pb – Toggle to display tape counter		√Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO	L12 (SSP 2)	C/L CAM PWR – SEC ON
	Set Egg Timers		√Scene composition, focus		
DTV		Exterior 760		In-Cabin 760	
L10 (MUX)	√VTR/CC PWR – on (LED on) If dnk, MUX/VTR/CC PWR – on (LED on)		Lens – 400mm(80-200mm) Exp Mode – S SS – 500		Lens – 28-70mm Exp Mode – P Flash – ON, TTL, Matrix
(VIP)	PWR – on (LED on)		Meter – Spot(Matrix)		
(VTR)	√ON/STANDBY LED – green √Tape installed		Flash – Remove		
O19	√TV PWR – ON				
V10	PWR – ON				

## P/TV02 DOCK (Continued)

### SETUP

1. √V10 FROM MON 1 (SONY V10) performed
2. √V10 FROM MON 2 (SONY V10) performed
3. √SETUP (DTV) performed
4. Perform ACTIVATION,OPERATION (Cue Card, TV) as reqd
5. Perform CCTV CONFIG FOR DOCKING/UNDOCKING (RNDZ, RNDZ TOOLS)
6. √ANALOG PAO CC (SONY PD100) performed
7. √C/L CAMR INSTALL (CENTERLINE CAMR) performed
8. Perform 760 PROGRAM w/FLASH (DCS 760)
9. Perform 760 SHUTTER PRIORITY (DCS 760)

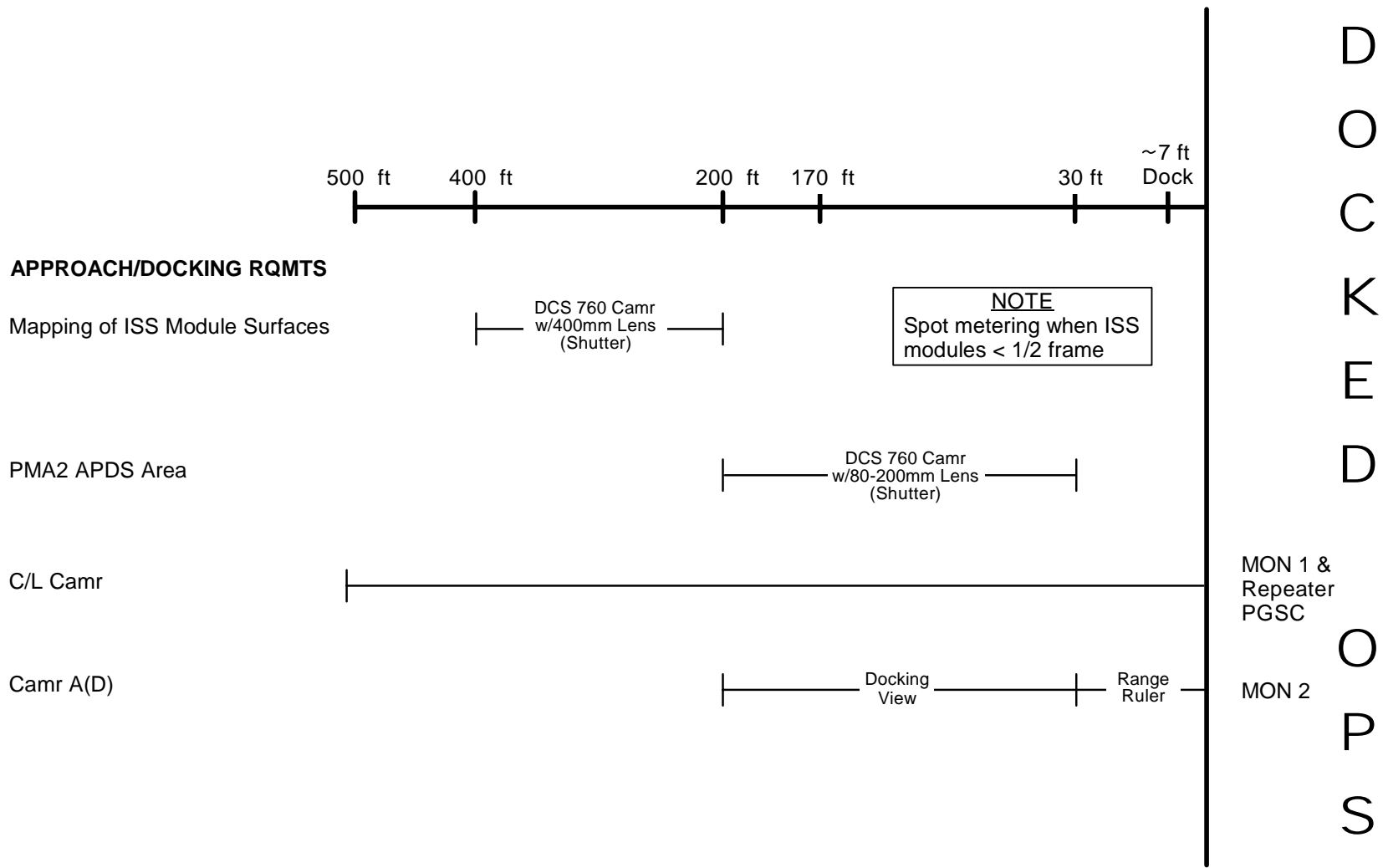
P/TV02 DOCK (Continued)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1. 13A.1-6	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. 13A.1-1	Rendezvous <ul style="list-style-type: none"> <li>• Overall</li> <li>• Closeup</li> <li>• Damage</li> <li>• Deterioration</li> </ul>	<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. 13A.1-2	Approach,Dock <ul style="list-style-type: none"> <li>• Docking Target</li> <li>• Mating Surfaces</li> <li>• TCS Planar Retro Reflectors</li> </ul>	<u>760 (Shutter)</u> 400mm(80-200mm) Flash ON/OFF – OFF	<u>C/L</u> Per RNDZ  <u>A(D)</u> Per RNDZ	<u>PD100</u> As desired		Rcd video thru hard dock Continually √focus sharpness

**P/TV02 DOCK (Continued)**

OPS (Continued)



jsc48037\_118\_003ar2.cvx

## 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

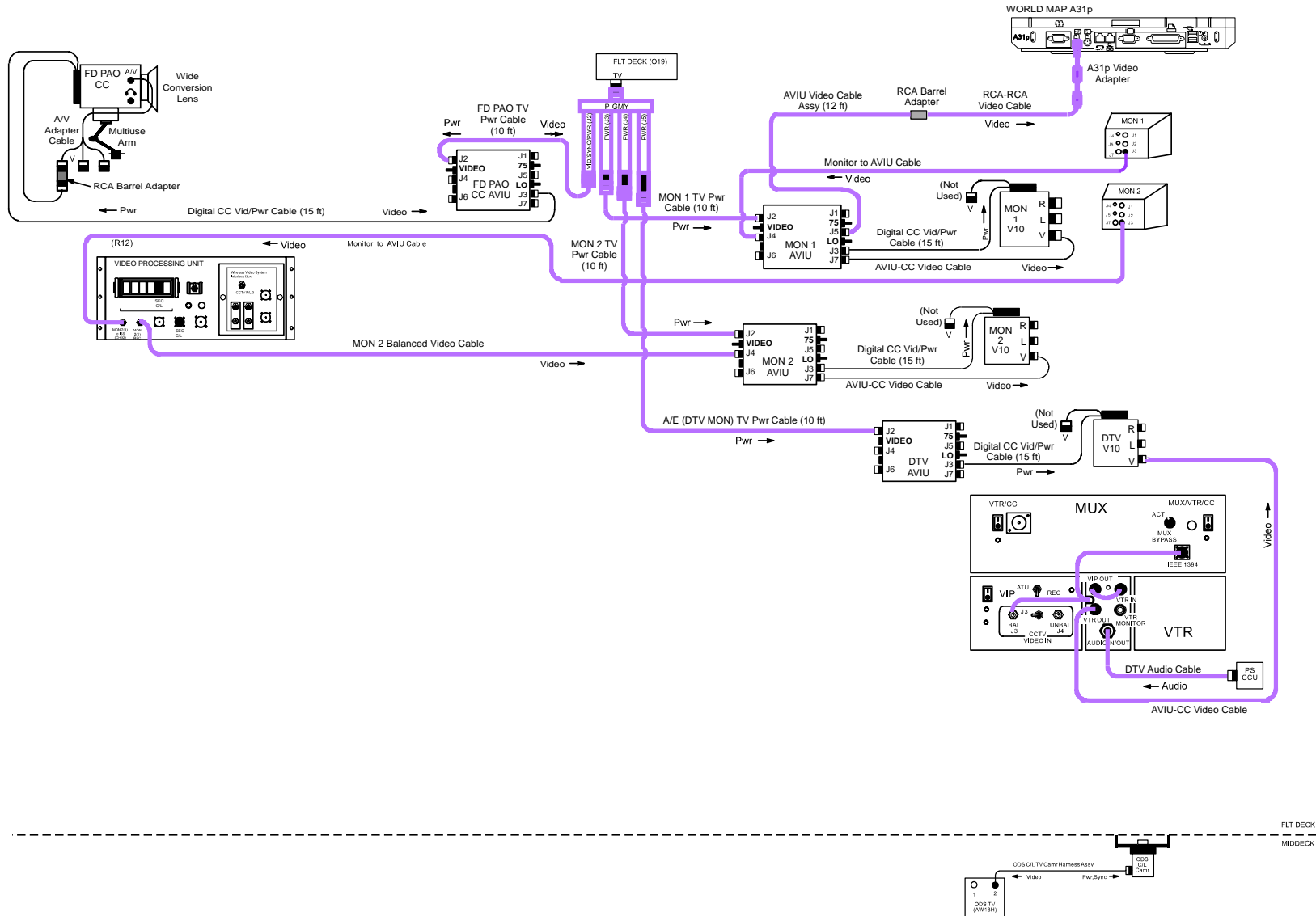
This Page Intentionally Blank

This Page Intentionally Blank

# P/TV03 UNDOCK

## P/TV03 UNDOCK

### H/W SUMMARY



jsc48037\_118\_002r1.cvx



**P/TV03 UNDOCK (Continued)**

SCENE SYNOPSIS

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

QUICK CHECK

V10 (two)		PAO CC		C/L Camr	
O19	√TV PWR – ON	O19	√TV PWR – ON	C/L Camr	√SSF/STS sw – STS
R12 (VPU)	√VPU PWR – ON (LED on)	CC	PWR – CAMERA Tape – Install	R12 (VPU)	√Green Jumper – SEC C/L √SEC C/L Cap installed
V10	PWR – ON Tape – Install DISPLAY pb – Toggle to display tape counter		√Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO	L12 (SSP 2)	C/L CAM PWR – SEC ON
	Set Egg Timers		√Scene composition, focus		
DTV		Exterior 760		In-Cabin 760	
L10 (MUX)	√VTR/CC PWR – on (LED on) If dnk, MUX/VTR/CC PWR – on (LED on)		Lens – 80-200mm(400mm) Exp Mode – S SS – 500		Lens – 28-70mm Exp Mode – P Flash – ON, TTL, Matrix
(VIP)	PWR – on (LED on)		Meter – Matrix(Spot)		
(VTR)	√ON/STANDBY LED – green √Tape installed		Flash – Remove		
O19	√TV PWR – ON				
V10	PWR – ON				

## P/TV03 UNDOCK (Continued)

### SETUP

1. √V10 FROM MON 1 (SONY V10) performed
2. √V10 FROM MON 2 (SONY V10) performed
3. √SETUP (DTV) performed
4. Perform ACTIVATION,OPERATION (Cue Card, TV) as reqd
5. Perform CCTV CONFIG FOR DOCKING/UNDOCKING (RNDZ, RNDZ TOOLS)
6. √ANALOG PAO CC (SONY PD100) performed
7. √C/L CAMR INSTALL (CENTERLINE CAMR), steps 1,2 performed
8. Perform 760 PROGRAM w/FLASH (DCS 760)
9. Perform 760 SHUTTER PRIORITY (DCS 760)

**P/TV03 UNDOCK (Continued)**

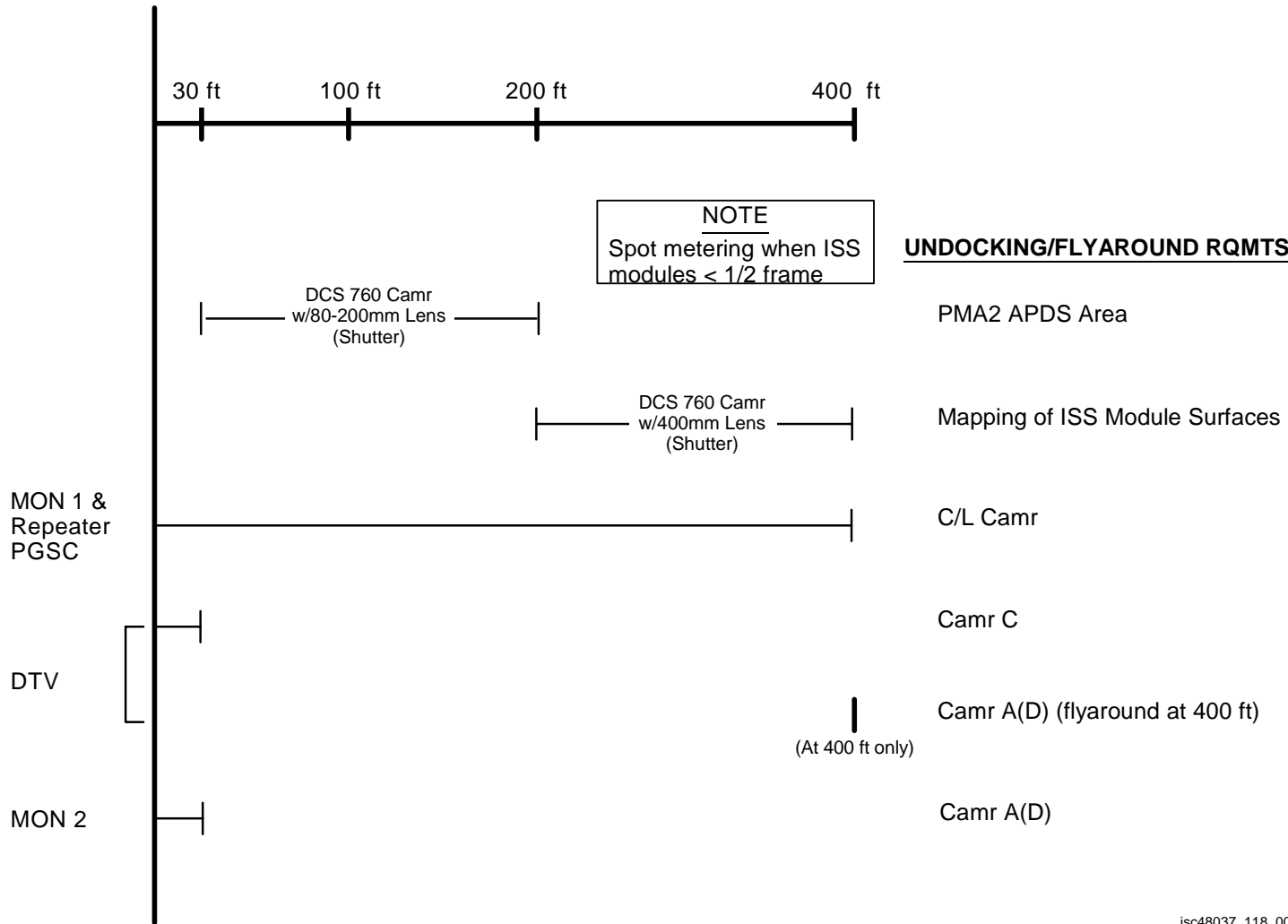
OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1. 13A.1-6	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. 13A.1-3	Undock and Flyaround <ul style="list-style-type: none"> <li>• Docking Tgt/Mating Surfaces</li> <li>• TCS Planar Retro Reflectors</li> <li>• Surfaces</li> <li>• Solar Panels</li> <li>• Handrails</li> <li>• SM Thrusters on Zenith, near aft end</li> <li>• Trusses including rads/ baseplates and SAWs (in/outboard SABB insulation degradation)</li> <li>• Plasma arcing on anodized surfaces in velocity vector</li> </ul>	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)

D  
O  
C  
K  
E  
D  
  
O  
P  
S



jsc48037\_118\_003b.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
  - Mark first MON 2 tape as “Radiators and SAWs During Undock”
  - Go to DEACTIVATION (Cue Card, TV) as reqd

This Page Intentionally Blank

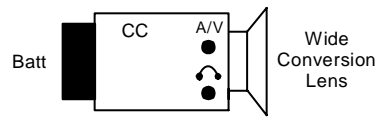
This Page Intentionally Blank

**P/TV04  
INGR/EGR**

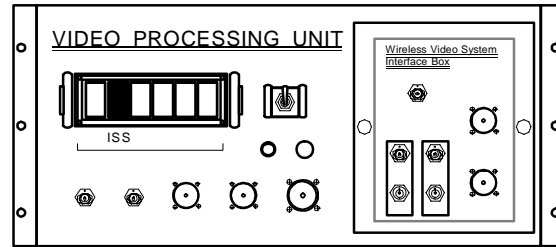
**P/TV04 INGRESS/EGRESS**

H/W SUMMARY

**INGRESS TV CONFIG**



(R12)



jsc48037\_004.cnv



**P/TV04 INGRESS/EGRESS (Continued)**

SCENE SYNOPSIS

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

QUICK CHECK

INGRESS CC		ISS CC VIEW	
CC	√Batt installed PWR – CAMERA Tape – Install √Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO  √Scene composition,focus	R12 (VPU)	√Green Jumper – ISS √VPU PWR – ON (LED on)

SETUP

1. Config ISS Video  
 Perform ACTIVATION (Cue Card, TV) for DNLK OPS of ISS signal as reqd

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

A7              VID OUT DNLK pb – push  
 IN PL2(VPU) pb – push
2. Perform Ingress CC Setup  
 Acquire two batts, one for CC and one spare

A17  
 CC              Batt Install  
 PWR – CAMERA  
 Tape – Install  
 √Viewfinder (LCD) displays STBY  
 Camr Settings  
 √AUTO LOCK – AUTO LOCK  
 √FOCUS – AUTO  
 √Audio Muting Plug removed
3. Perform 760 PROGRAM w/FLASH (DCS 760)

**P/TV04 INGRESS/EGRESS (Concluded)**

OPS

√	Item # Track #	Rqmts	Still Imagery		Video		Notes
			DCS	PLB	CC	Dnlk	
	1. 13A.1-6	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

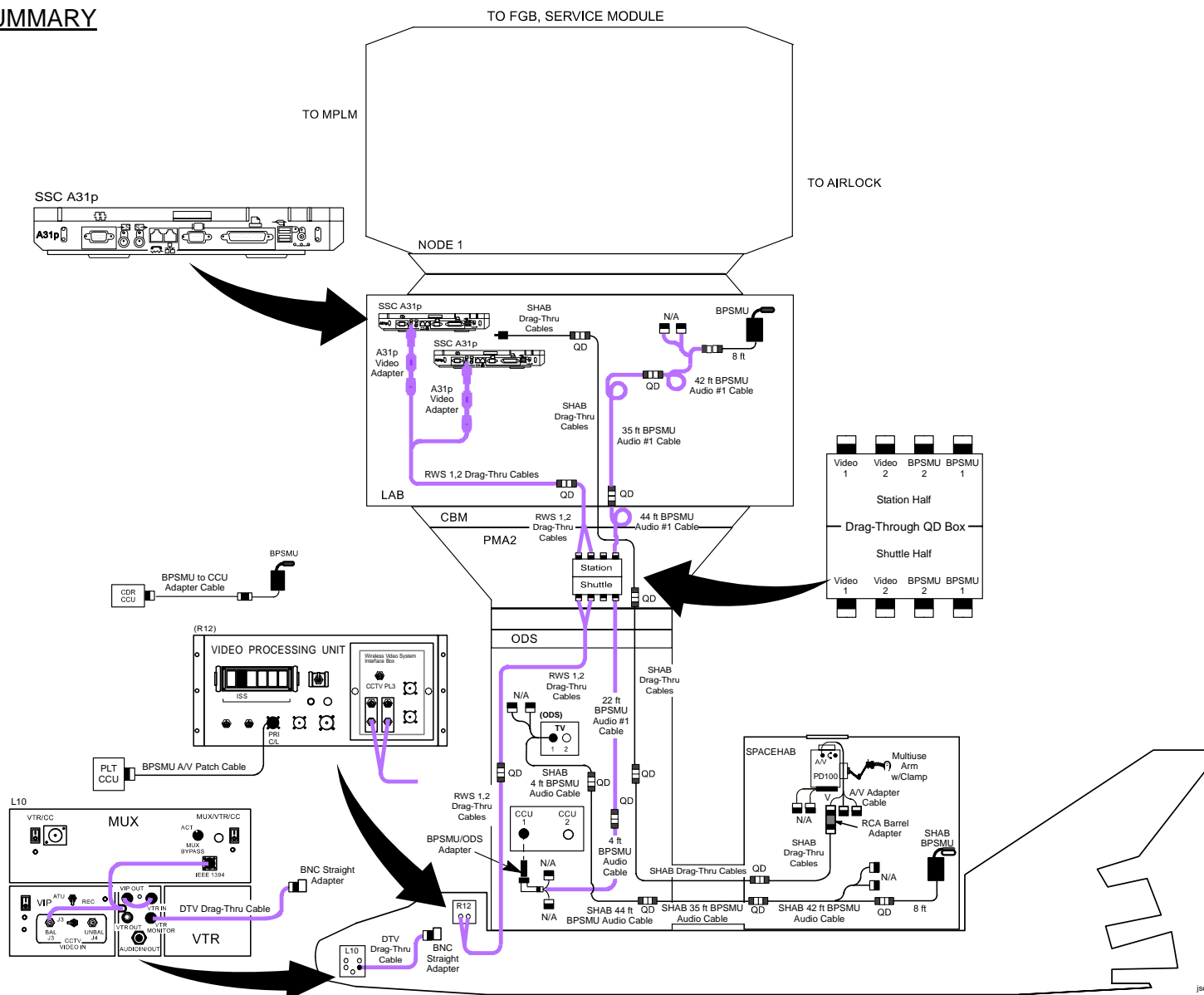
DEACTIVATION

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

This Page Intentionally Blank

P/TV05 ISS INTERNAL OPS

H/W SUMMARY



jsc48037\_118\_004r2.crx

## P/TV05 ISS INTERNAL OPS (Continued)

### SCENE SYNOPSIS

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

### QUICK CHECK

PAO Event	
CC	ISS Camcorder – Set up
R12 (VPU)	√Green Jumper – ISS √VPU PWR – ON (LED on)
A7	√VID OUT DNLK pb – push √IN PL2(VPU) pb – push

### SETUP

#### **WARNING**

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

### BPSMU

1. Perform BPSMU AUDIO ONLY (BPSMU) for Lab audio
2. Config QDs per dwg, 1-28
3. √SPACEHAB BPSMU AUDIO ONLY (BPSMU) performed
4. √BPSMU reconnected to CDR CCU

### RWS

1. Perform RWS V10(A31p) FROM WVS (SONY V10)
2. Config QDs per dwg, 1-28
3. For DTV Drag-Thru:  
Disconnect RWS 2 Cable from WVS  
Connect Drag-Thru Cable to RWS 2 BNC Vid Cable [Perform RWS VIDEO CABLE SETUP FOR ESP3  
UNBERTH,INSTALL (SONY V10)]

**P/TV05 ISS INTERNAL OPS (Concluded)**

PAO EVENT

- R12 (VPU) 1. Config VPU  
Green Jumper – ISS  
√VPU PWR – ON (LED on)
- A7 2. Config Shuttle Video  
VID OUT DNLK pb – push  
IN PL2(VPU) pb – push
- 3. Perform BPSMU AUDIO ONLY w/ISS CABLES (BPSMU)

STILL CAMR

- 1. Perform 760 PROGRAM w/FLASH (DCS 760)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1. 13A.1-6	General ISS IVA Activity <ul style="list-style-type: none"> <li>• PAO Scenes of Interest</li> <li>• Crew Photo</li> </ul>	760 28-70mm For Crew Photo: Perform 760 CREW PHOTO (SETUP, <u>DCS 760</u> )		<u>ISS PD100</u>	LIVE (if avail)	Plan for end of day crew choice video, DCS

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

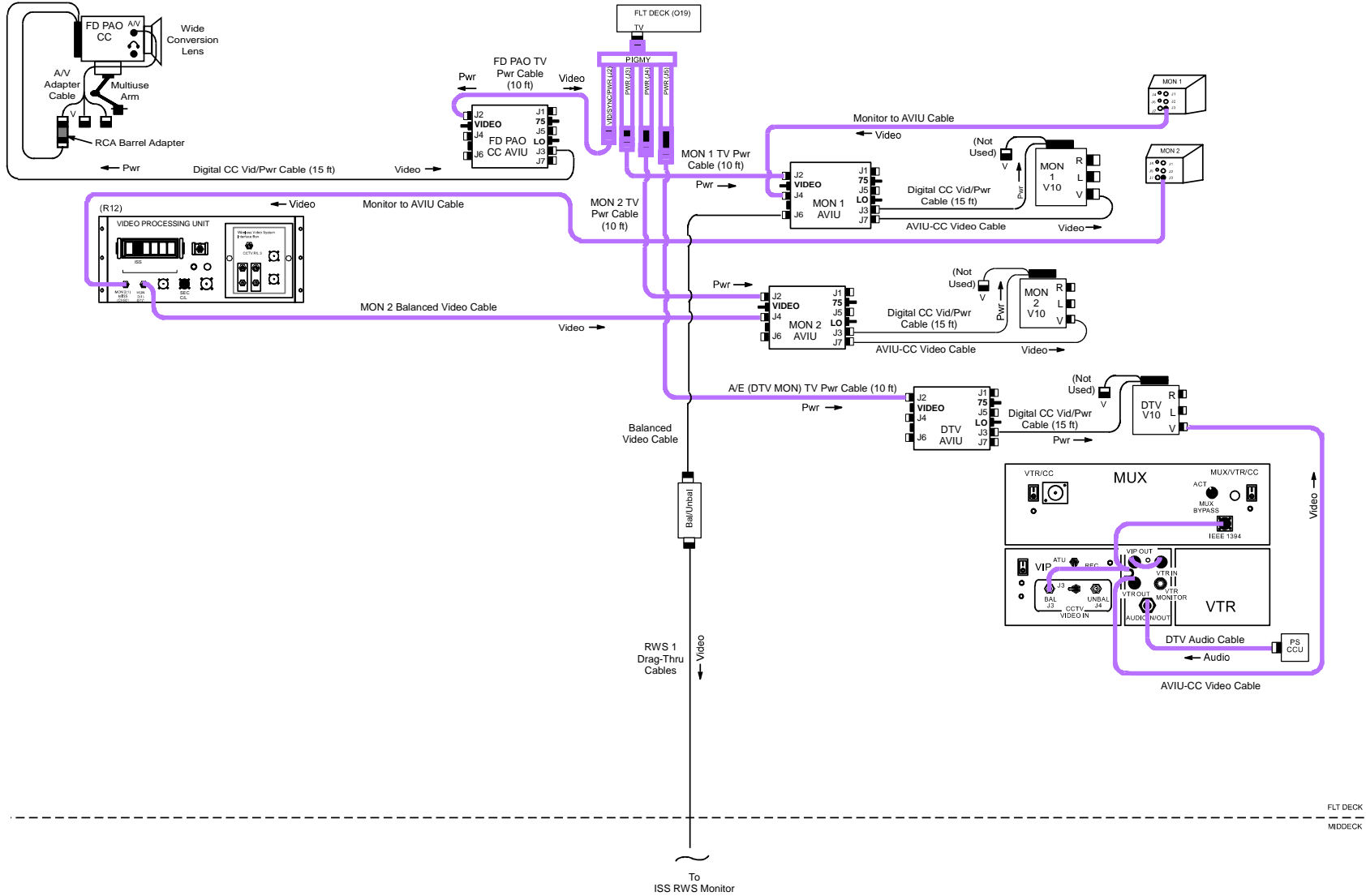
DEACTIVATION

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

This Page Intentionally Blank

P/TV06 S5 UNBERTH

H/W SUMMARY



jsc48037\_118\_00512.cvx



**P/TV06 S5 UNBERTH (Continued)**

SCENE SYNOPSIS

Scene contains procedures for documenting S5 unberth and handoff w/video

QUICK CHECK

V10 (two)		DTV		PAO CC	
O19	√TV PWR – ON	L10 (MUX)	√VTR/CC PWR – on (LED on) If dnk, MUX/VTR/CC PWR – on (LED on)	O19	√TV PWR – ON
R12 (VPU)	√Green Jumper – ISS √VPU PWR – ON (LED on)	(VIP) (VTR)	PWR – on (LED on) √ON/STANDBY LED – green √Tape installed	CC	PWR – CAMERA Tape – Install √Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO
V10	PWR – ON Tape – Install DISPLAY pb – Toggle to display tape counter	O19 V10	√TV PWR – ON PWR – ON (LED ON)		√Scene composition, focus

**P/TV06 S5 UNBERTH (Concluded)**

SETUP

1. √V10 FROM MON 1 (SONY V10) performed
2. √V10 FROM MON 2 (SONY V10) performed
3. √SETUP (DTV) performed
4. Perform ACTIVATION,OPERATION (Cue Card, TV) as reqd
5. √ANALOG PAO CC (SONY PD100) performed
6. For MON 1 Drag-Thru:  
 Disconnect RWS 1 Drag-Thru Cable from WVS and connect to BAL/UNBAL  
 Connect Balanced Video Cable (stowed in DTV Bag) to BAL/UNBAL and MON 1AVIU J6, per HARDWARE SUMMARY, pg 1-32

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	<u>S5 Unberth/Mnvr</u>		Per ROBO		LIVE (if avail)	

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

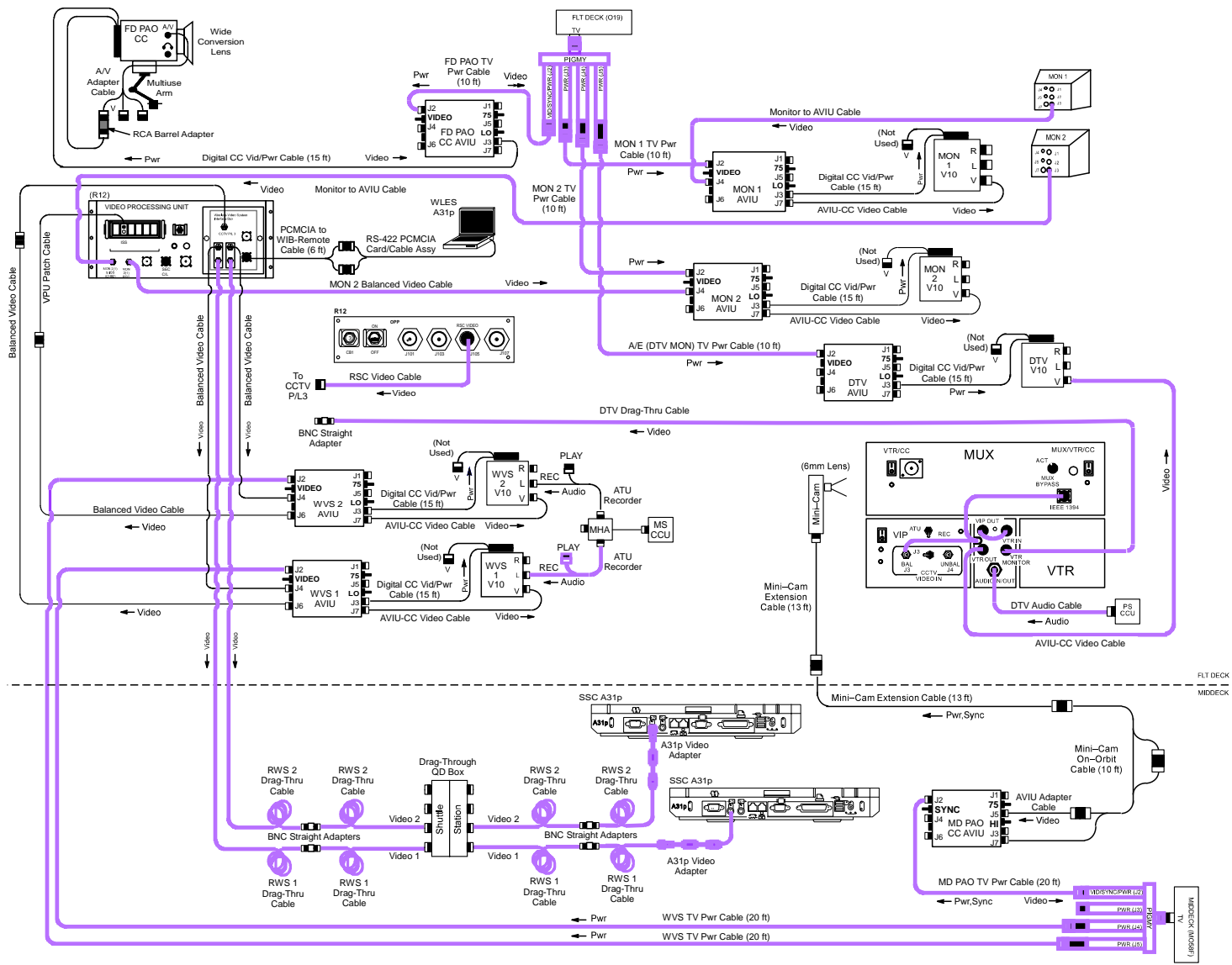
DEACTIVATION

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

This Page Intentionally Blank

P/TV07 EVA

H/W SUMMARY



jsc48037\_118\_006r2.cvx

**P/TV07 EVA (Continued)**

SCENE SYNOPSIS

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

QUICK CHECK

Shuttle V10 (four)		DTV		PAO CC	
O19,MO58F	√TV PWR – ON	L10 (MUX)	√VTR/CC PWR – on (LED on) If dnk, MUX/VTR/CC PWR – on (LED on)	O19	√TV PWR – ON
R12 (VPU)	√VPU PWR – ON (LED on)	(VIP)	PWR – on (LED on)	CC	PWR – CAMERA Tape – Install
V10	PWR – ON Tape – Install DISPLAY pb – Toggle to display tape counter	(VTR)	√ON/STANDBY LED – green √Tape installed		√Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO
		O19 V10	√TV PWR – ON PWR – ON		√Scene composition, focus
WVS		Mini-Cam			
A7	√WIRELESS VIDEO HTR – ON PWR – ON	MO58F	√TV PWR – ON		
		AVIU	√PWR SELECT – HI		

SETUP

1. √V10 FROM MON 1 (SONY V10) performed
2. √V10 FROM MON 2 (SONY V10) performed
3. Perform ACTIVATION,OPERATION (Cue Card, TV) as reqd
4. √RWS V10(A31p) FROM WIB (SONY V10) for two drag-thru V10s(A31p) performed
5. √SETUP (DTV) performed
6. √ANALOG PAO CC (SONY PD100) for PAO CC (O19) performed

**P/TV07 EVA (Continued)**

SETUP (Concluded)

- 7. Config WVS and PGSC  
 ✓WVS INITIAL SETUP w/o ERCAs (WVS), steps 1,2 performed  
 Perform WVS DAY-of-EVA CHECK (WVS)
- 8. Config ISS VIDEO  
 Green Jumper – ISS  
 ✓VPU PWR – ON (LED on)
- 9. ✓IN-CABIN MINI-CAM (MINI-CAM) from MD PAO CC AVIU performed
- 10. Perform 760 PROGRAM w/FLASH (DCS 760)

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1. 13A.1-6	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. 13A.1-8	S5 to S4 RTAS • Launch lock removal • Mate	<u>EVA 760</u> 28mm	<u>WVS</u>		LIVE (if avail)	
	3. 13A.1-10	S5 Install • S5 Installation • Closeout Imagery of S5 Attached to S3/S4	<u>EVA 760</u> 28mm	<u>WVS,B,C,D,</u> <u>ELB,EE,</u> <u>SSRMS</u>		LIVE (if avail)	
	4. 13A.1-32	S5 to S4 Umbilicals • Closeout Imagery of each in final config: - Electrical line - Mechanical line - Fluid line	<u>EVA 760</u> 28mm	<u>WVS</u>		LIVE (if avail)	
	5. 13A-9	Relocation of S5 PVRGF OSE and Final Config	<u>EVA 760</u> 28mm	<u>WVS</u>		LIVE (if avail)	

**P/TV07 EVA (Continued)**

OPS (Continued)

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	<b>6.</b> 13A.1-14	Relocate EAS to ICC	<u>EVA 760</u> 28mm	<u>WVS</u>			LIVE (if avail)
	<b>7.</b> 13A.1-15	SASA Relocation from P6 to P1	<u>EVA 760</u> 28mm	<u>WVS,SSRMS</u>			LIVE (if avail)
	<b>8.</b> 13A.1-16	Upgraded S-Band BSP and Transponder Installation on P1	<u>EVA 760</u> 28mm	<u>WVS,SSRMS</u>			LIVE (if avail)
	<b>9.</b> 13A.1-17	BDCU Relocation from ICC to ESP2	<u>EVA 760</u> 28mm	<u>WVS</u>			LIVE (if avail)
	<b>10.</b> 13A.1-18	VSSA Installation on ICC • Structural Interface • VSSA relative to surrounding structure	<u>EVA 760</u> 28mm	<u>WVS,SSRMS</u>			LIVE (REPLAY)
	<b>11.</b> 13A.1-32	PAS Deployment • Closeout of each PAS	<u>EVA 760</u> 28mm	<u>WVS,SSRMS</u>			LIVE (if avail)
	<b>12.</b> 13A.1-7	S4 Capture Pin Removal • Pins #1,3	<u>EVA 760</u> 28mm	<u>WVS</u>			LIVE (if avail)
	<b>13.</b> 13A.1-11	IBA OSE Xfer, Install on Two S1 Z Trunnions	<u>EVA 760</u> 28mm	<u>WVS,SSRMS</u>			LIVE (REPLAY)
	<b>14.</b> 13A.1-21	CETA Carts (two) Relocation to STBD for P6 Relocation	<u>EVA 760</u> 28mm				

**P/TV07 EVA (Continued)**

OPS (Concluded)

√	Item # Track #	Rqmts	Still Imagery		Video		Notes
			DCS	PLB	CC	Dnlk	
	<b>15.</b> 13A.1-22	RPCM <ul style="list-style-type: none"> <li>• SO2B-D RPCM removal, replacement for CMG-2</li> <li>• Patch panel reconfig</li> </ul>		<u>WVS</u>			LIVE (if avail)
	<b>16.</b> 13A.1-29	P6 Transponder Retrieval		<u>WVS</u>			LIVE (if avail)
	<b>17.</b> 13A.1-32	S5 to S6 RTAS Removal		<u>WVS,SSRMS</u>			LIVE (if avail)
	<b>18.</b> 13A.1-32	S5 RTAS Opening		<u>WVS,SSRMS</u>			LIVE (if avail)
	<b>19.</b> 13A.1-28	P6 Fwd PVR Retract,Cinch		<u>WVS,SSRMS</u>			LIVE (if avail)

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



## P/TV07 EVA (Concluded)

### DEACTIVATION

1. EVA DCS 760  
If between EVAs, perform 760 EVA – CAMR ONLY DISASSEMBLY, BETWEEN EVAs (DCS 760 EVA)  
If EVAs completed, perform 760 EVA – CAMR ONLY DISASSEMBLY, POST-EVA (DCS 760 EVA)
  
2. IVA DCS 760  
Pwr – OFF  
√Flash ON/OFF – ON  
Download images  
Start batt recharge as reqd
  
3. TV System  
Perform PWRDN (Cue Card, WVS)  
Go to DEACTIVATION (Cue Card, TV) as reqd

This Page Intentionally Blank

This Page Intentionally Blank

**P/TV08  
EXT SURVEY**

**P/TV08 EXTERNAL SURVEY**

SCENE SYNOPSIS

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

SETUP

1. 760 Camr Configuration

If Sunlit OMS Pod Survey, config 760 Manual

- 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 (Concluded)


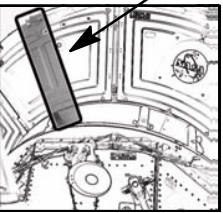
#### 1. 760 Camr Configuration (Concluded)

┌  
If Earthshine OMS Pod Survey, config 760 Program  
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

#### 2. Perform 760 SHUTTER PRIORITY (DCS 760)

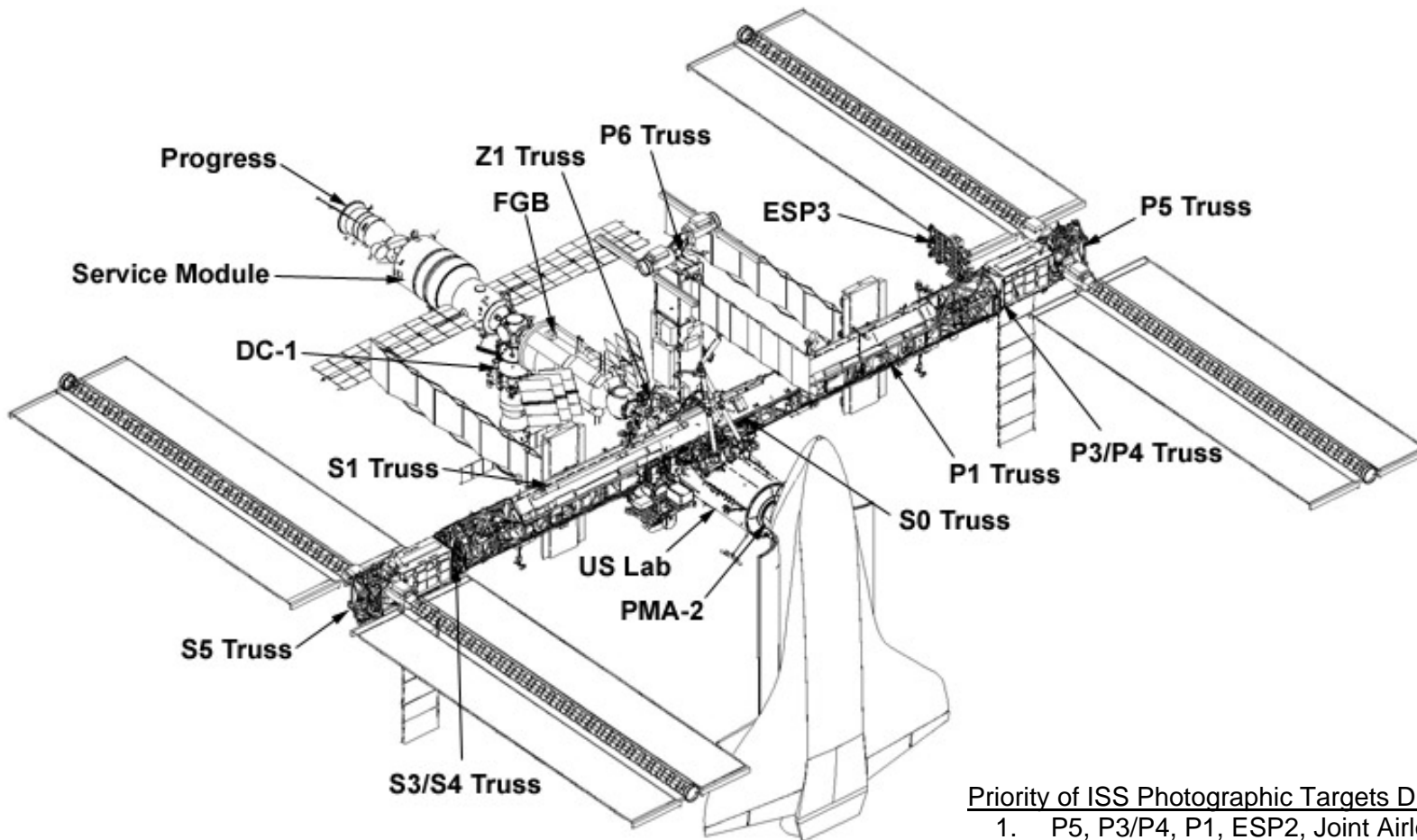
**P/TV08 EXTERNAL SURVEY (Continued)**

OPS (Continued)

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	<u>OMS Pod Survey</u> <ul style="list-style-type: none"> <li>• 50 percent mapping of both OMS pods and vertical stabilizer w/emphasis on Black Tile areas</li> </ul>	760 80-200mm(400mm)				Download images to MCC once complete
	2. 13A.1-26	<u>ISS Still Survey</u> <ul style="list-style-type: none"> <li>• Surfaces</li> <li>• Solar Panels</li> <li>• Handrails</li> <li>• MISSE</li> <li>• Truss ES Including:                             <ul style="list-style-type: none"> <li>– Rads/baseplates</li> <li>– SAWs (in/outboard SABB insulation degradation)</li> </ul> </li> <li>• Plasma Arcing Effects</li> </ul>	760 (Shutter) 50mm(80-200mm)				Map ISS surfaces w/10% overlap from all Fit Deck windows  Map specified area of Lab MMOD shield w/10% overlap from W7(W8): 

**P/TV08 EXTERNAL SURVEY (Continued)**

OPS (Continued)



Priority of ISS Photographic Targets During Docked Phase:

1. P5, P3/P4, P1, ESP2, Joint Airlock, MISSE 3&4, S1, Solar Arrays – W1, W6 (special emphasis on newly installed components)
2. P6, S0, Lab – W7,W8
3. PMA2 – W9,W10
4. P6 Fwd Radiator – Fwd windows
5. ISS Nadir Surfaces – Spacehab windows (if available)

## **P/TV08 EXTERNAL SURVEY (Concluded)**

### OPS (Concluded)

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

### DEACTIVATION

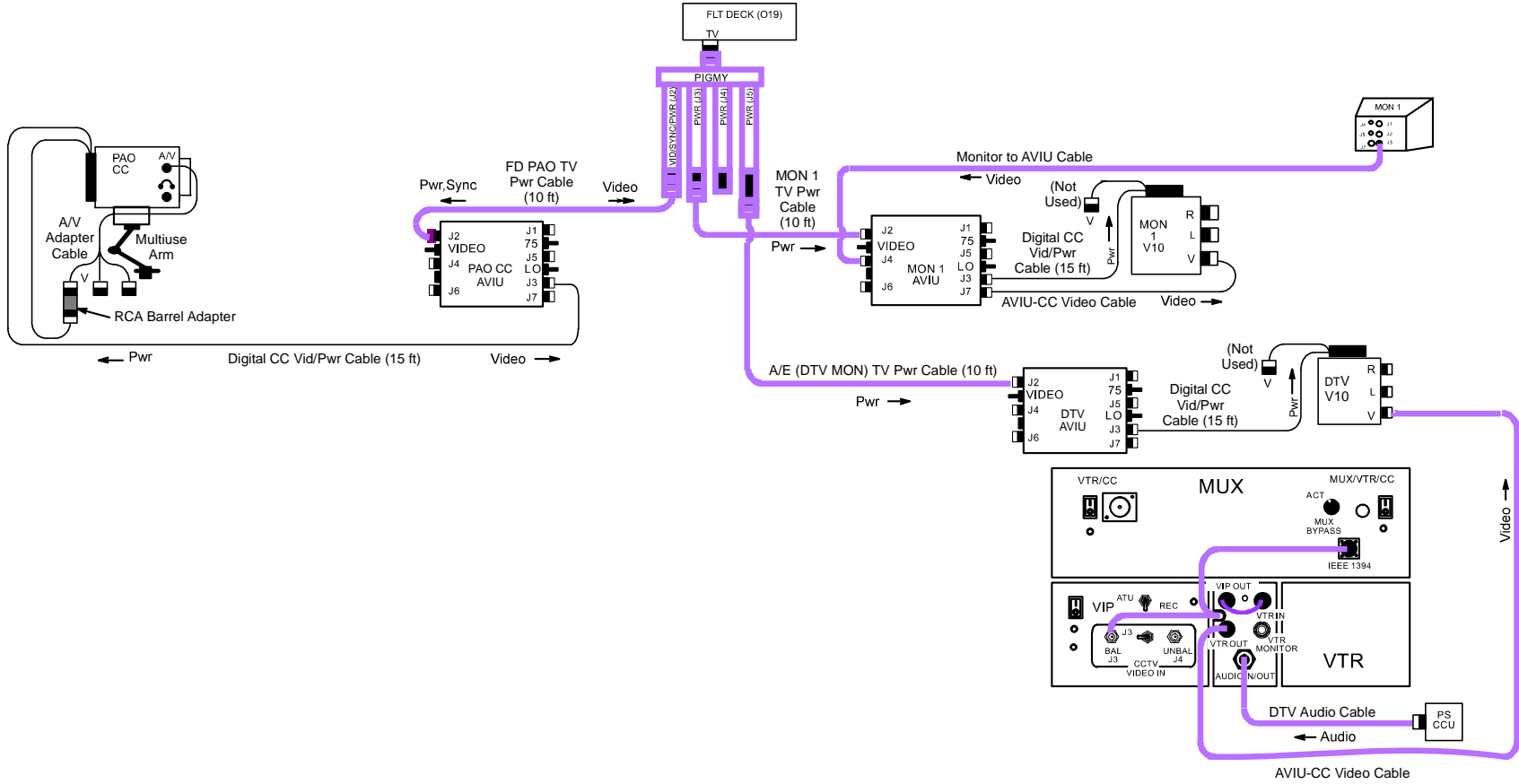
1. DCS 760  
Exp Mode – P  
PWR – OFF  
Flash ON/OFF – ON  
Start Batt recharge as reqd



This Page Intentionally Blank

P/TV09 STRUCTURAL DYNAMICS

H/W SUMMARY



FLT DECK  
MIDDECK

jsc48037\_118\_007.cvx

**P/TV09 STRUCTURAL DYNAMICS (Continued)**

SCENE SYNOPSIS

Scene contains procedures for recording P4 SAW, P4 TCS Radiator motion during reboost

QUICK CHECK

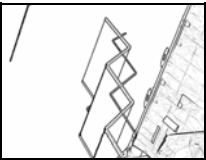
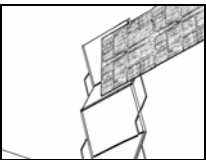
V10		DTV	
O19	√TV PWR – ON	L10 (MUX)	√VTR/CC PWR – on (LED on) If dnk, MUX/VTR/CC PWR – on (LED on)
R12 (VPU)	√VPU PWR – ON (LED on)	(VIP)	PWR – on (LED on)
V10	PWR – ON Tape – Install DISPLAY pb – Toggle to display tape counter	(VTR)	√ON/STANDBY LED – green √Tape installed
		O19	√TV PWR – ON
		V10	PWR – ON
PAO CC			
O19	√TV PWR – ON		
CC	Remove Wide Conversion Lens PWR – CAMERA Tape – Install √Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK FOCUS – INFINITY  √Scene composition, exposure, focus		

**P/TV09 STRUCTURAL DYNAMICS (Continued)**

SETUP

1. √V10 From MON 1 (SONY V10) performed
2. Perform ACTIVATION, OPERATION (Cue Card, TV) as reqd
3. √SETUP (DTV) performed
4. √ANALOG PAO CC (SONY PD100), but remove Wide Conversion Lens performed
5. Config VPU Green Jumper – ISS

OPS

√	Item #	Rqmts	Video	Notes
	1. 12A-18	REBOOST • Movement of P4 SAWs TCS Radiators		
	2.	Camr FOV Setup Prior to Test • Frame per values but use pictures for final pan,tilt • Pan/tilt settings approx and assume zeroed, PTU angles • √ <b>A,C Illuminators – On</b>	A  PAN: 107.8° TILT: 64.5° FOV: 16.0° ± 0.5°  Actual FOV: _____	Frame as shown. Focus on P1 radiator tip  
			C  PAN: -36.7° TILT: 44.9° FOV: 16.0° ± 0.5°  Actual FOV: _____	Frame as shown. Focus on P1 radiator tip  

**P/TV09 STRUCTURAL DYNAMICS (Continued)**

OPS (Concluded)

√	Item #	Rqmts	Video	Notes
<b>NOTE</b> To maintain Time sync, once video recorders started, do not stop tape until test completed				
	3.	Start Recorders (two)	V10 REC pb (two) – push to begin recording √LCD displays RED DOT L10 (VTR) REC pb – push, hold PLAY pb – push, SIMO (RED dot displayed)	
	4.	Route FD CC Video to Recorders (two) and Downlink	VID OUT MON 1 pb – push IN FLT DECK pb – push Frame GMT clock in FD CC FOV using MON 1 VID OUT DTV pb – push IN FLT DECK pb – push √GMT clock on DTV V10 VID OUT DNLK pb – push IN FLT DECK pb – push	Rcd at least 10 sec of GMT clock video onto each device  Dnlk GMT clock, if comm
	5.	Route Views to Recorders (two) and Downlink	VID OUT MON 1 pb – push IN A pb – push VID OUT DTV pb – push IN C pb – push VID OUT DNLK pb – push IN A pb – push	Rcd views for 35 min or until end of event  Dnlk view if comm
	6.	Re-route FD CC Video to Recorders (two) and Downlink Before Tape Ends	VID OUT MON 1 pb – push IN FLT DECK pb – push Frame GMT clock in FD CC FOV using MON 1 VID OUT DTV pb – push IN FLT DECK pb – push √GMT clock on DTV V10 VID OUT DNLK pb – push IN FLT DECK pb – push	Rcd at least 10 sec of GMT clock video onto each device  Dnlk GMT clock, if comm

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

## P/TV09 STRUCTURAL DYNAMICS (Concluded)

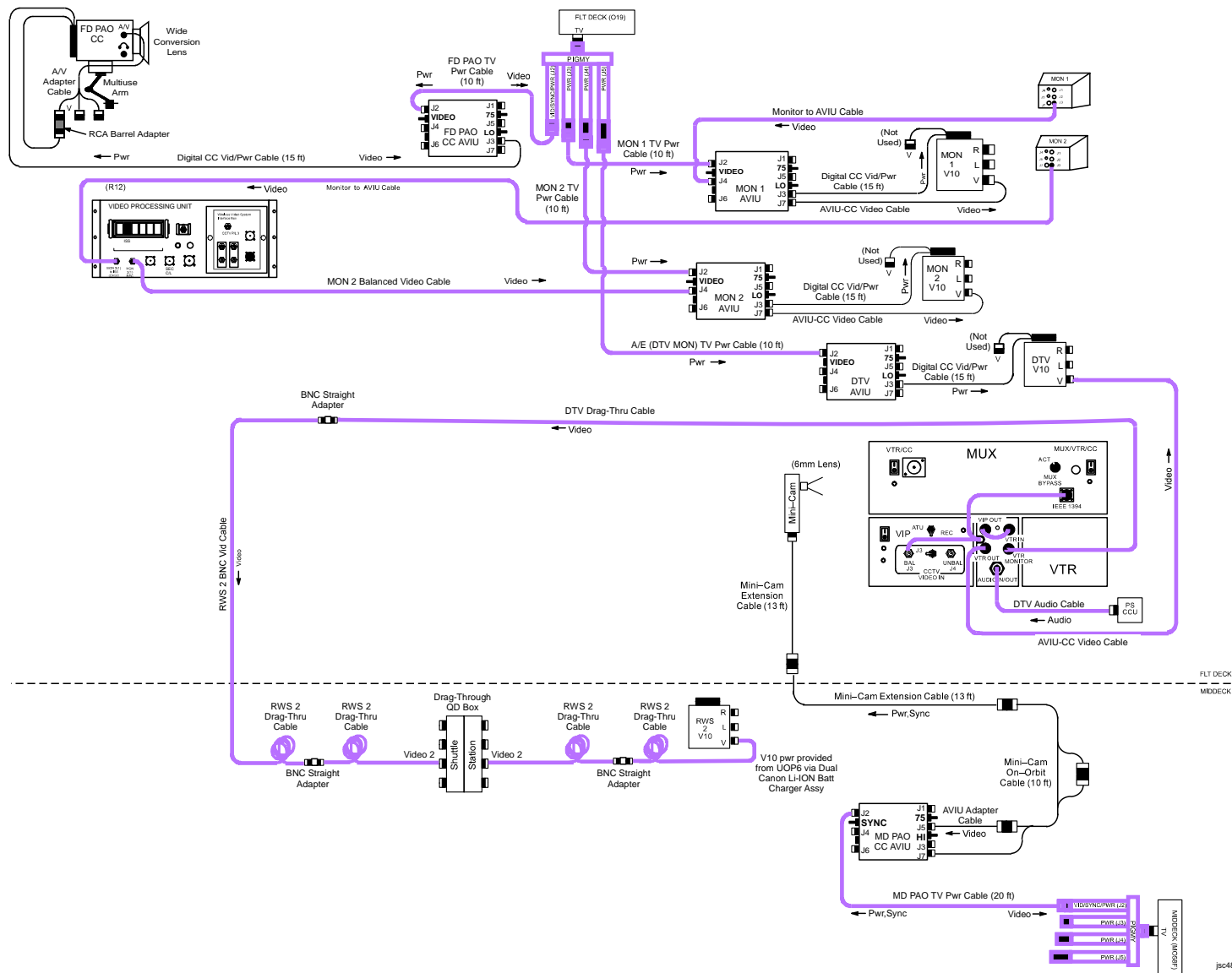
### DEACTIVATION

1. PAO CC  
Re-install Wide Conversion Lens
2. TV System  
Label tapes as "REBOOST"  
Go to DEACTIVATION (Cue Card, TV) as reqd

This Page Intentionally Blank

P/TV10 ESP3 UNBERTH,INSTALL

H/W SUMMARY



jsc48037\_118\_008r1.cvx



**P/TV10 ESP3 UNBERTH,INSTALL (Continued)**

SCENE SYNOPSIS

Scene contains procedures for documenting ESP3 unberth, handoff to SSRMS, and installation w/video

QUICK CHECK

V10 (two)		DTV	
O19	√TV PWR – ON	L10 (MUX)	√VTR/CC PWR – on (LED on) If dnk, MUX/VTR/CC PWR – on (LED on)
R12 (VPU)	√VPU PWR – ON (LED on) √Green Jumper – ISS	(VIP)	PWR – on (LED on)
V10	PWR – ON Tape – Install DISPLAY pb – Toggle to display tape counter	(VTR)	√ON/STANDBY LED – green √Tape installed
		O19	√TV PWR – ON
		V10	PWR – ON (LED ON)
PAO CC		Mini-Camr	
O19	√TV PWR – ON	MO58F	√TV PWR – ON
CC	PWR – CAMERA Tape – Install √Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO	AVIU	√PWR SELECT – HI
	√Scene composition, focus		

**P/TV10 ESP3 UNBERTH,INSTALL (Concluded)**

SETUP

1. √V10 FROM MON 1 (SONY V10) performed
2. √V10 FROM MON 2 (SONY V10) performed
3. Perform RWS VIDEO CABLE SETUP FOR ESP3 UNBERTH,INSTALL (SONY V10)
4. √SETUP (DTV) performed
5. Perform ACTIVATION,OPERATION (Cue Card, TV) as reqd
6. √ANALOG PAO CC (SONY PD100) performed
7. √IN-CABIN MINI-CAM (MINI-CAM) from MD PAO CC AVIU performed
8. For DTV Drag-Thru:  
 Disconnect RWS 2 Cable from WVS  
 Connect Drag-Thru Cable to RWS 2 BNC Vid Cable [Perform RWS VIDEO CABLE SETUP FOR ESP3 UNBERTH,INSTALL (SONY V10)]

OPS

√	Item # Track #	Rqmts	Still Imagery		Video		Notes
			DCS	PLB	CC	Dnlk	
	1. 13A.1-20	<u>ESP3 Unberth/Mnvr/Install</u>		Per ROBO		LIVE (if avail)	

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

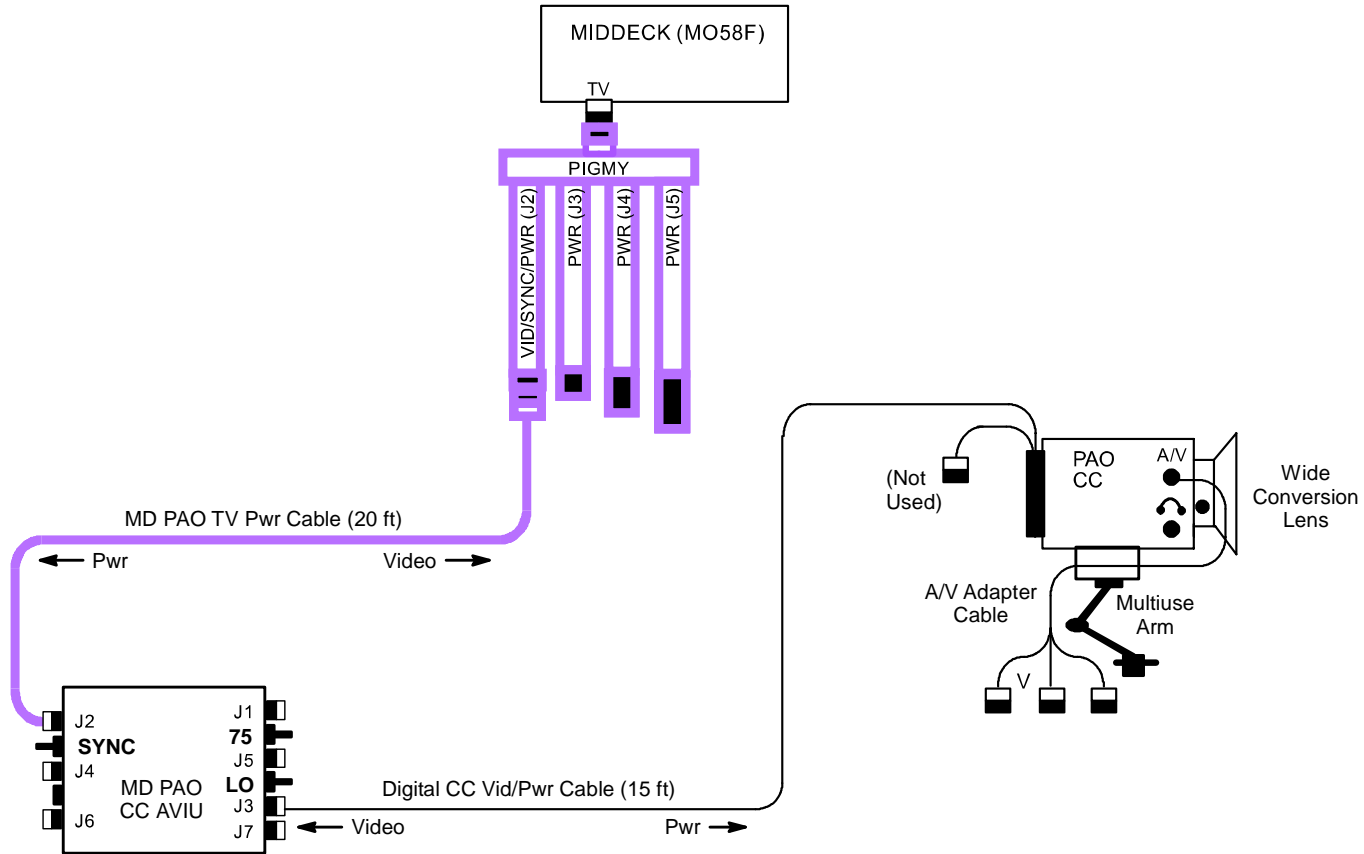
DEACTIVATION

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

This Page Intentionally Blank

P/TV11 CBTM

H/W SUMMARY



jsc48037\_118\_009r1.cvx

## P/TV11   CBTM (Continued)

### SCENE SYNOPSIS

Scene contains procedures for documenting CBTM

### QUICK CHECK

PD100	
MO58F	√TV PWR – ON
CC	PWR – CAMERA Tape – Install √Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO  Turn off orbiter lts causing reflection in FOV

### SETUP

#### 1. PD100 CBTM Setup

Turn on CBTM enclosure lts

Attach Multiuse Arm to Base Plate near CBTM Lockers

Attach PD100 to Multiuse Arm

MO58F      Config PD100 per dwg, pg 1-60  
                 TV PWR – ON  
                 √Wide Conversion Lens installed  
                 PWR – CAMERA  
                 Tape – Install  
                 √Viewfinder (LCD) displays STBY  
                 Camr Settings  
                 √AUTO LOCK – AUTOLOCK  
                 √FOCUS – AUTO  
                 √FOV includes entire animal compartment  
  
Turn off lts causing reflection in FOV

## P/TV11 CBTM (Continued)

### SETUP (Concluded)

#### 2. DCS CBTM Setup

Config DCS 760

Lens – 28mm

Pwr – ON

Install new Flash Card

Rear Batt

√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

Aperture – Min, locked

Flash Settings

ON/OFF – ON

√TTL, Matrix

√Zoom

Tilt – Direct

If enclosure shots reqd by NASA Vet:

Turn on CBTM enclosure lts

Install SC-17 Flash Cord between Camr,Flash

√FOV includes entire animal complement

Body Focus Mode – M

Posn Flash at 45° angle to surface of AEM

Turn off orbiter lts causing reflection in FOV

Take multiple exposures as needed to comply w/Vet rqmts

**P/TV11   CBTM (Concluded)**

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	<u>CBTM</u> Document rodents w/PD100, DCS 760 (on MCC call) <ul style="list-style-type: none"> <li>• Document each animal enclosure w/40 min of video</li> <li>• Document CBTM unit general locations w/crewmember interaction</li> <li>• If photo documentation of animal enclosure reqd:               <ul style="list-style-type: none"> <li>– Verify new Flash Card in DCS760</li> <li>– When documentation complete, place Flash Card in KFX machine</li> <li>– Create folder titled 'CBTM' in 'OCA-DOWN' directory and place images into 'CBTM' folder</li> </ul> </li> </ul>	DCS 760 28mm Lens  DCS 760 28mm Lens			PD100 Tape installed	No video dnlk of CBTM  Enclosure shots per NASA Vet request only

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

DEACTIVATION

1. DCS 760  
 PWR – OFF  
 Start Batt recharge as reqd  
 √Flash Cord removed, Flash on body not shoe
2. TV System  
 Go to DEACTIVATION (Cue Card, TV) as reqd

This Page Intentionally Blank

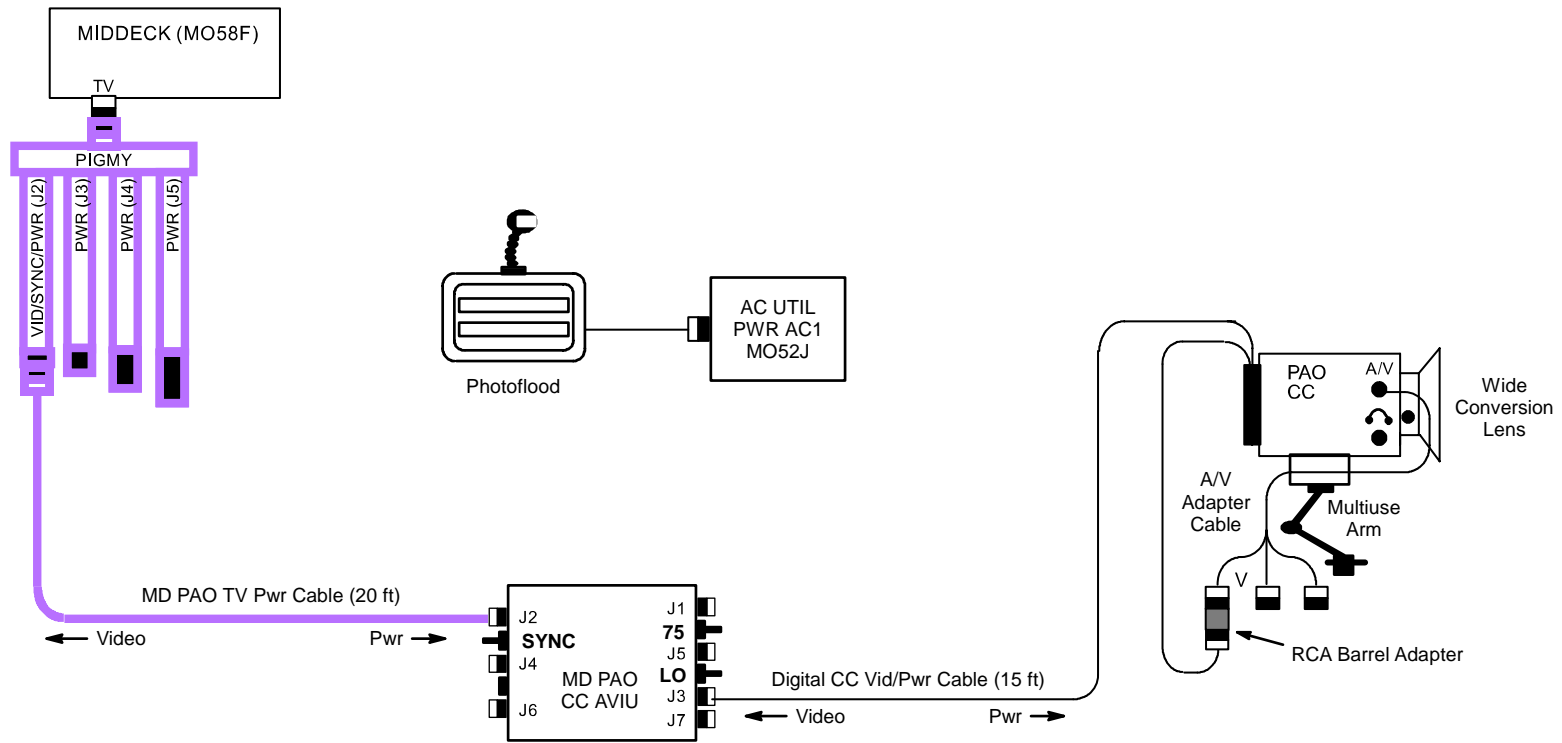


This Page Intentionally Blank

# P/TV12 MD PAYLOADS

## P/TV12 MIDDECK PAYLOADS

### H/W SUMMARY



jsc48037\_118\_010r1.cvx

## P/TV12 MIDDECK PAYLOADS (Continued)

### SCENE SYNOPSIS

Scene contains procedures to capture video, still photos of MERLIN, CCM-A, CGBA-CSI

### QUICK CHECK

PAO CC	
MO58F	√TV PWR – ON
CC	PWR – CAMERA Tape – Install √Viewfinder (LCD) displays STBY Camr Settings √AUTO LOCK – AUTO LOCK √FOCUS – AUTO
MO52J	√AC UTIL AC1 – ON
Photoflood	ON/OFF – ON
CC	√Scene composition, focus

### SETUP

1. Perform ANALOG PAO CC (SONY PD100) for middeck
2. Perform 760 PROGRAM w/FLASH (DCS 760)

**P/TV12 MIDDECK PAYLOADS (Concluded)**

OPS

√	Item # Track #	Rqmts	Still Imagery	Video			Notes
			DCS	PLB	CC	Dnlk	
	1.	<u>MERLIN Video, Still Photography</u> <ul style="list-style-type: none"> <li>• Wide angle video, photos showing crew interaction</li> <li>• Medium angle video, photos showing stowage location</li> <li>• Closeup video, photos of front pnl after activation for gnd verification</li> </ul>	<u>760</u> 28-70mm		<u>PD100</u>	Playback desired	
	2.	<u>CCM-A Still Photography</u> <ul style="list-style-type: none"> <li>• Photograph CCM-A front pnl after activation</li> <li>• Photograph CCM-A front pnl during Entry prep after the Time and Rail temps have been recorded</li> </ul>	<u>760</u> 28-70mm				
	3.	<u>CGBA-CSI</u> <ul style="list-style-type: none"> <li>• Photos of crew interaction</li> </ul>	<u>760</u> 28-70mm				

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

DEACTIVATION

1. DCS 760  
 PWR – OFF  
 Start Batt recharge as reqd
2. TV System  
 Remove, mark tapes for MERLIN  
 Go to DEACTIVATION (Cue Card, TV) as reqd

NIKON F5

NOTE

Not being flown

This Page Intentionally Blank

DCS 760

	<u>PAGE</u>
SETUP.....	3-2
SPECIFICATIONS.....	3-9
LENS DATA.....	3-10
NOMENCLATURE.....	3-11
CUSTOM SETTINGS.....	3-15
DATE/TIME SET.....	3-18
DELETING SINGLE IMAGES.....	3-18
ADDING .WAV FILES TO AN IMAGE.....	3-18
IMAGE VIEWING ON PGSC.....	3-19
DCS FILE TRANSFER.....	3-20
SUSPECT HARD DRIVE SCAN (760XD ONLY).....	3-21
SUSPECT HARD DRIVE SCAN (A31p ONLY).....	3-21
IMAGE FILE COMPRESSION.....	3-22
RECOVER LOST IMAGES.....	3-23
MALS.....	3-25
3.1 CAMR FAILS TO FIRE.....	3-25
3.2 CANNOT SEE THRU VIEWFINDER.....	3-26
3.3 CAMR FAILS TO AUTOFOCUS.....	3-27
3.4 "ERR" BLINKS ON TOP LCD AND ALERT LED ALSO BLINKS.....	3-28
3.5 EXCESSIVE SAVE IMAGE TO HARD DISK TIME.....	3-29

DCS 760

SETUP

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

760 SHUTTER PRIORITY

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  
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



## DCS 760 (Continued)

### SETUP (Continued)

#### 760 SHUTTER PRIORITY w/AUTO-BRACKETING

Pwr – ON  
√Disk installed  
Rear LCD  
√Batt  
√Frames remaining sufficient  
√White Balance – Auto  
ISO – 100  
BKT – BKT, 3F 1.0 displayed  
√Focus Area – Center, LOCK displayed  
Exp Comp – 0.0  
Exp Mode – S  
SS – 500  
AF Area Mode – [ ] (no “+”)  
Meter – Matrix  
Diopter – Adjust  
Film Adv – C<sub>H</sub>  
Body Focus Mode – S  
Lens Focus Mode – A (M/A)  
Aperture – Min, locked  
Flash Settings  
ON/OFF – OFF

#### 760 CREW PHOTO

Lens – 28mm  
Pwr – ON  
√Disk installed  
Rear LCD  
√Batt  
√Frames remaining sufficient  
√White Balance – Auto  
√ISO – 100  
√BKT – OFF  
√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

## DCS 760 (Continued)

### SETUP (Continued)

#### 760 EXPOSURE MATCH

Lens – 28mm  
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

#### TECHNIQUE

1. Fill FOV w/Sunlit subject
2. Activate Camr
3. Exposure Lock pb – Depress and hold  
Expect values such as 250, F16
4. Focus, Frame, Fire

#### 760 AURORA/AIRGLOW

Lens – 50mm  
Pwr – ON  
√Disk installed  
Rear LCD  
√Batt  
√Frames remaining sufficient  
√White Balance – Auto  
ISO – 400  
√BKT – BKT, 3F 1.0 displayed  
√Focus Area – Center, LOCK displayed  
Exp Comp – 0.0  
Exp Mode – M  
SS – 2“  
AF Area Mode – [ ] (no “+”)  
Meter – Matrix  
Diopter – Adjust  
Film Adv – C<sub>H</sub>  
Body Focus Mode – M  
Aperture – Min, locked  
f/stop – F1.4  
Flash Settings  
ON/OFF – OFF  
Remote Release – Install  
Multiuse Brkt (Clamp)  
Focus, Frame, Fire, hold for 3 frames

#### TECHNIQUE

1. Dim Cabin lights
2. Use witch’s hat or dark clothing to shield window

## DCS 760 (Continued)

### SETUP (Continued)

#### 760 CITY LIGHTS/STARS

Lens – 50mm  
Pwr – ON  
√Disk installed  
Rear LCD  
√Batt  
√Frames remaining sufficient  
√White Balance – Auto  
ISO – 400  
√BKT – BKT, 3F 1.0 displayed  
√Focus Area – Center, LOCK displayed  
Exp Comp – 0.0  
Exp Mode – M  
SS – 2  
AF Area Mode – [ ] (no “+”)  
Meter – Matrix  
Diopter – Adjust  
Film Adv – C<sub>H</sub>  
Body Focus Mode – M  
Aperture – Min, locked  
f/stop – F1.4  
Flash Settings  
ON/OFF – OFF  
Remote Release – Install  
Multiuse Brkt (Clamp)  
Focus, Frame, Fire, hold for 3 frames

#### TECHNIQUE

1. Dim Cabin lights
2. Use dark clothing to shield window

#### 760 LIGHTNING

Lens – 50mm  
Pwr – ON  
√Disk installed  
Rear LCD  
√Batt  
√Frames remaining sufficient  
√White Balance – Auto  
ISO – 400  
√BKT – Disabled  
√Focus Area – Center, LOCK displayed  
Exp Comp – 0.0  
Exp Mode – M  
SS – 2”  
AF Area Mode – [ ] (no “+”)  
Meter – Matrix  
Diopter – Adjust  
Film Adv – S  
Body Focus Mode – M  
Aperture – Min, locked  
f/stop – F1.4  
Flash Settings  
ON/OFF – OFF  
Remote Release – Install  
Multiuse Brkt (Clamp)  
Focus, Frame, Fire

#### TECHNIQUE

Fire Camr repeatedly. Luck reqd

## DCS 760 (Continued)

### SETUP (Continued)

#### 760 MOON

Lens – 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 – M  
SS – 500  
AF Area Mode – [ ] (no “+”)  
Meter – Matrix  
Diopter – Adjust  
Film Adv – S  
Body Focus Mode – S  
Aperture – Min, locked  
f/stop – F8  
Flash Settings  
ON/OFF – OFF  
Multiuse Brkt (Clamp)

#### 760 SILHOUETTE

Lens – 50mm  
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  
Aperture – Min, locked  
Flash Settings  
ON/OFF – OFF

#### TECHNIQUE

1. Fill FOV w/bright subject
2. Activate Camr
3. Exposure Lock pb – Depress and hold  
Expect values such as 250, F8-11
4. Focus, Frame, Fire

## DCS 760 (Continued)

### SETUP (Continued)

#### 760 SUNRISE/SUNSET

Lens – As reqd  
Pwr – ON  
√Disk installed  
Rear LCD  
√Batt  
√Frames remaining sufficient  
√White Balance – Auto  
ISO – 400  
√BKT – BKT, 3F 1.0 displayed  
√Focus Area – Center, LOCK displayed  
Exp Comp – 0.0  
Exp Mode – P  
AF Area Mode – [ ] (no “+”)  
Meter – Matrix  
Diopter – Adjust  
Film Adv – C<sub>H</sub>  
Body Focus Mode – S  
Aperture – Min, locked  
Flash Settings  
ON/OFF – OFF  
Focus, Frame, Fire, hold for 3 frames

**WARNING**  
Do not look at Sun

#### 760 SUN STAR EFFECT

Lens – 16mm  
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 – S  
Body Focus Mode – M  
Aperture – Min, locked  
f/stop – F22  
Flash Settings  
ON/OFF – OFF  
Focus, Frame, Fire

#### TECHNIQUE

Place Sun w/Earth, orbiter, crewmember, etc, in FOV

## DCS 760 (Continued)

### SETUP (Concluded)

#### 760 TV MONITOR

Lens – 50mm  
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 – 30  
AF Area Mode – [ ] (no “+”)  
Meter – Matrix  
Diopter – Adjust  
Film Adv – S  
Body Focus Mode – S  
Aperture – Min, locked  
Flash Settings  
  ON/OFF – OFF  
Focus, Frame, Fire

## DCS 760 (Continued)

### SPECIFICATIONS

#### CAMR BODY

CCD SIZE: 18.48mm x 27.65mm

PIXEL COUNT: 2008 x 3032

DISK/FRAME: 1 GB Micro Drive: 117 Frames; 1 GB EVA Flash Card: 112 Frames

FILE SIZE: 6 MB

EXPOSURE CONTROL: Auto (program, shutter priority, aperture priority), Manual

METER PATTERN: 3D Color Matrix, Center Weighted, Spot

EXPOSURE COMP:  $\pm 5$  in 1/3 stops

SHUTTER:

Program & Aperture Priority – 1/8000 thru 30 sec (virtually stepless)

Manual & Shutter Priority – 1/8000 thru 30 sec (1/3 stop increments), and B (manual only)

ISO Setting:

Manual: 80-400

MOTOR DRIVE: Single, C<sub>H</sub> (1.5 fps), C<sub>L</sub> (1.0 fps), C<sub>S</sub> (1.0 fps)

Interval: 10-25 shot burst

CAMR BATT: Rechargeable

CAMR BATT VOLTAGE: 7.2V

CAMR BATT LIFETIME: ~100 frames

CAMR WEIGHT: 4.09 lb (w/batt & PCMCIA)

#### FLASH

BATT: 4AA

BATT LIFETIME: ~144-216 shot

WEIGHT: w/o Batts – 0.85 lb

## DCS 760 (Continued)

### LENS DATA

**NOTE**

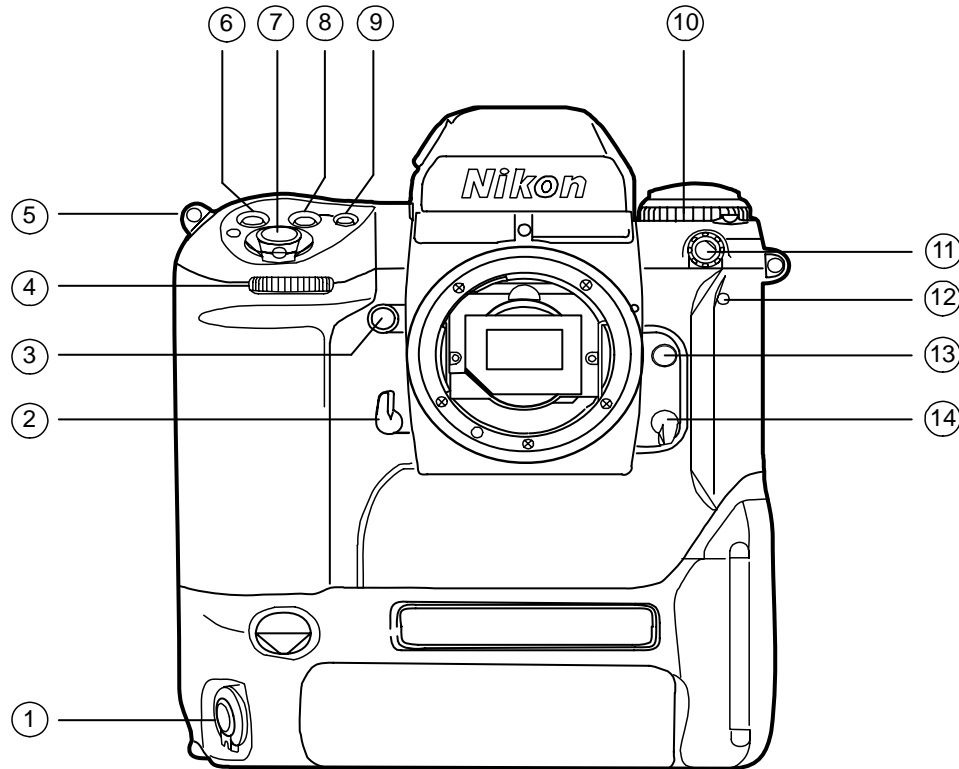
Do not use non-AF lens w/DCS 760

Lens	Aperture Range (f/stop)	Approximate Field of View (FOV)			Approx Minimum Focus Distance (ft)	Weight (lb)	Filter Size	M-A Switch
		Horizontal	Vertical	Diagonal				
16mm AF	f/2.8-f/22	123°	82°	148°	1.0	0.69	Rear	
17-35mm AFD	f/2.8-f/22	78°-43°	57°-30°	89°-51°	1.0	1.64	77mm	Yes
20mm AF	f/2.8-f/22	69°	50°	80°	0.85	0.62	62mm	
20-35mm AFD	f/2.8-f/22	69°-43°	50°-30°	51°	1.7	1.36	77mm	Yes
28mm AF	f/2.8-f/22	53°	37°	61°	1.25	0.46	52mm	
28mm AFD	f/1.4-f/16	53°	37°	61°	1.14	1.15	72mm	Yes
28-70mm AFD	f/2.8-f/22	53°-22°	37°-15°	61°-27°	2.3 (1.5 ft macro)	1.95	77mm	Yes
35mm AF	f/2.0-f/22	43°	30°	51°	0.9	0.51	52mm	
24-50mm AF	f/3.3(4.5)-f/22	60°-31°	42°-21°	69°-37°	2.0 (1.6 ft macro)	0.86	62mm	
35-70mm AF	f/2.8-f/22	43°-22°	30°-15°	51°-27°	2.0 (0.9 ft macro)	1.5	62mm	
50mm AFD	f/1.4-f/16	31°	21°	37°	1.5	0.59	52mm	
60mm AF	f/2.8-f/32	26°	18°	31°	0.73	0.93	62mm	Yes
85mm AF	f/1.8-f/16	19°	12°	22°	3.0	0.93	62mm	
105mm AF	f/2.8-f/32	15°	10°	18°	1.0	1.22	52mm	Yes
180mm AFD	f/2.8-f/22	9°	6°	11°	5.0	1.72	72mm	
80-200mm AFD	f/2.8-f/22	20°-8°	13°-5°	24°-10°	6.0	2.98	77mm	Yes
300mm AF	f/2.8-f/22	5°	4°	6°	10.0	6.36	39mm	Yes
400mm AFD	f/2.8-f/22	4°	3°	5°	9.75	10.58	52mm	Yes



## DCS 760 (Continued)

### NOMENCLATURE

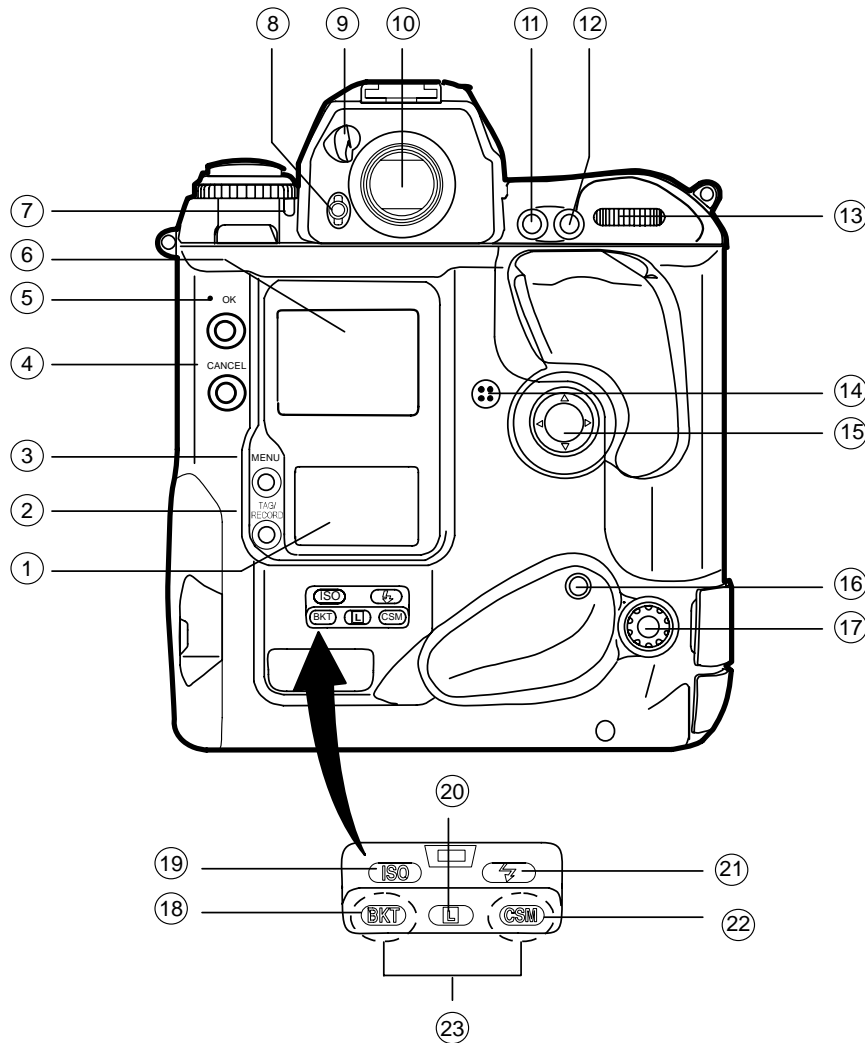



- ① Vertical-Shooting Shutter Release pb
- ② Mirror Lockup Lever
- ③ Depth of Field Preview pb
- ④ Sub-Command Dial
- ⑤ Camr Strap Eyelet
- ⑥ Exposure Compensation pb
- ⑦ Shutter Release pb
- ⑧ Exposure Mode pb
- ⑨ AF Area Mode pb
- ⑩ Film Advance Mode/Selftimer Selector
- ⑪ Sync Terminal
- ⑫ Selftimer LED
- ⑬ Lens Release pb
- ⑭ Body Focus Mode Selector

jsc48037\_012.cnv

# DCS 760 (Continued)

## NOMENCLATURE (Continued)

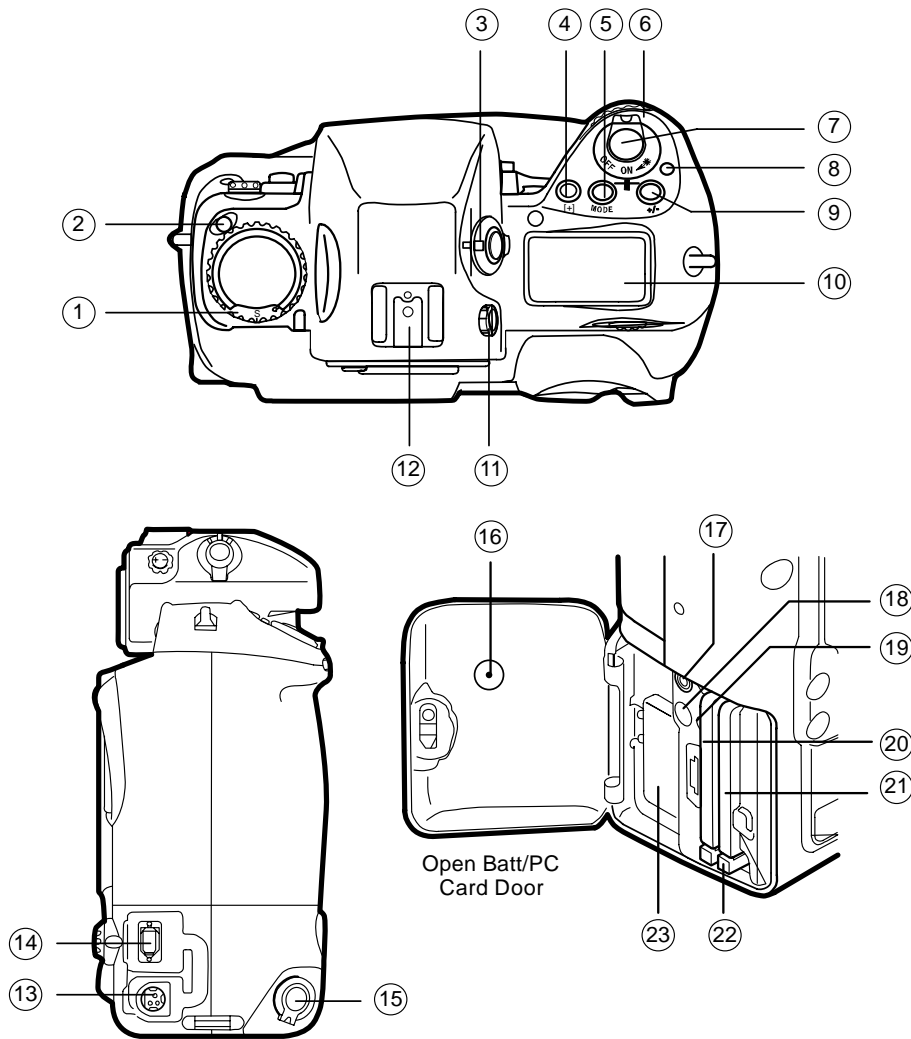


- ① Rear LCD Panel
- ② TAG/RECORD pb
- ③ MENU pb
- ④ CANCEL pb
- ⑤ OK pb
- ⑥ Image LCD Panel
- ⑦ Alert LED
- ⑧ Finder Release pb
- ⑨ Eyepiece Shutter Lever
- ⑩ Viewfinder Eyepiece
- ⑪ Auto Exposure (AE-L)/Autofocus Lock (AF-L) pb
- ⑫ AF Start (AF-ON) pb
- ⑬ Main-Command Dial
- ⑭ Microphone
- ⑮ Navigate Pad
- ⑯ Vertical AF Start (AF-ON) pb
- ⑰ Remote Release Port
- ⑱ Body Bracketing pb **BKT**
- ⑲ ISO pb **ISO**
- ⑳ Shutter Speed/Aperture/Focus Area Lock pb **L**
- ㉑ Flash Sync Mode pb 
- ㉒ Custom Setting Menu pb **CSM**
- ㉓ Green Panic pb

jsc48037\_013r3.cnv

# DCS 760 (Continued)

## NOMENCLATURE (Continued)

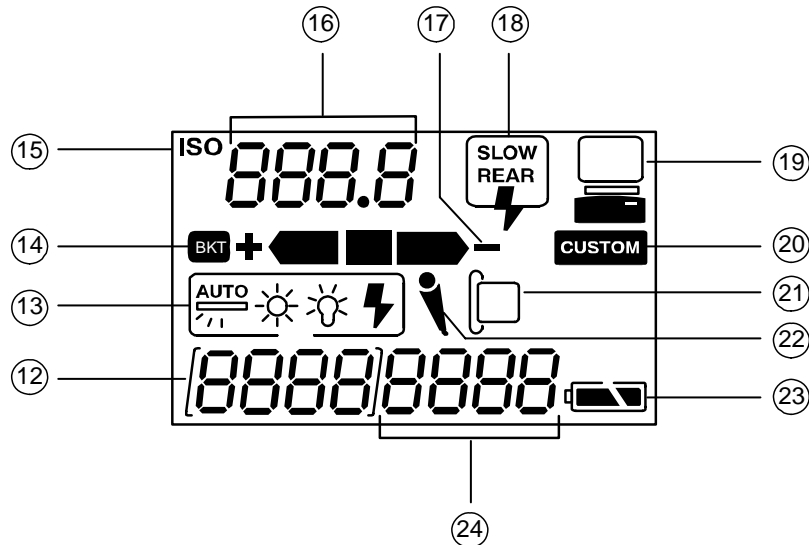
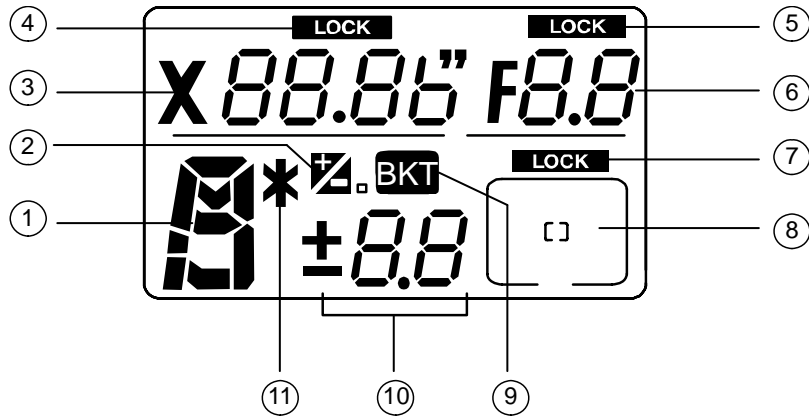


- ① Film Advance Mode/Selftimer Selector
- ② Film Advance Mode Selector Lock Release
- ③ Metering System Selector
- ④ AF Area Mode pb
- ⑤ Exposure Mode pb
- ⑥ Pwr/LCD Panel Illumination sw
- ⑦ Shutter Release pb
- ⑧ Pwr sw Lock Release
- ⑨ Exposure Compensation pb
- ⑩ Top LCD Panel
- ⑪ Diopter Adjustment Knob
- ⑫ Accessory Shoe
- ⑬ Pwr Adapter Connection (cover not shown)
- ⑭ IEEE 1394 Cable Port (cover not shown)
- ⑮ Vertical-Shooting Shutter Release pb
- ⑯ Card Busy LED Opening
- ⑰ Serial Port
- ⑱ Video Port
- ⑲ Card Busy LED
- ⑳ Hard Drive Slot 1
- ㉑ Hard Drive Slot 2
- ㉒ Eject pb
- ㉓ Batt

jsc48037\_014r2.cvx

## DCS 760 (Continued)

### NOMENCLATURE (Concluded)



- ① Exposure Mode
- ② Exposure Compensation
- ③ Shutter Speed
- ④ Shutter Speed Lock
- ⑤ Aperture Lock
- ⑥ Aperture
- ⑦ Focus Area Lock
- ⑧ Focus Area
- ⑨ Bracketing
- ⑩ Exposure Compensation Value
- ⑪ Flexible Program
- ⑫ Frame Number
- ⑬ White Balance
- ⑭ Bracketing
- ⑮ ISO Setting Mode
- ⑯ ISO/Bracketing Information/Custom Setting
- ⑰ Bracketing Bar Graphs
- ⑱ Flash Sync Mode
- ⑲ Personal Computer Connection
- ⑳ Custom Setting
- ㉑ Hard Drive Present
- ㉒ Microphone
- ㉓ Batt Level
- ㉔ Frames Remaining on Hard Drive

jsc48037\_015.cnv

## DCS 760 (Continued)

### CUSTOM SETTINGS

#### NOTE

There are two menus for custom settings. Options on each menu are identical. Although either menu can be used, menu A is recommended for consistency

#### ACTIVATION

CSM pb – press,hold  
 Main Command Dial – Rotate to desired setting number (lower rear LCD)  
 Sub-command Dial – Rotate to desired setting (lower rear LCD)  
 CSM pb – release, then press,hold again  
 ✓Number after dash is “1” and “CUSTOM” displayed on lower rear LCD

#### DEACTIVATION

BKT pb, CSM pb – press simo, hold for 2 sec (display blinks)  
 ✓“CUSTOM” no longer displayed on lower rear LCD  
 Focus Area – Center, LOCK displayed  
 Between Frame Data – PRINT

#	Menu	Settings	Notes
0	Selecting Custom Menus	0 - A: Custom settings A	Can specify setting combinations wanted for A,B; makes it easy to switch from one setting combination to another
		0 - B: Custom settings B	
1	Continuous Servo AF	1 - 0: Release-priority	Change from release-priority to focus-priority
		1 - 1: Focus-priority	
2	Single Servo AF	2 - 0: Focus-priority	Change from focus-priority to release-priority
		2 - 1: Release-priority	
3	Bracketing Order	3 - 0: Metered value, below metered value, above metered value	Change order to under the metered value, the metered value, and over the metered value
		3 - 1: Below metered value, metered value, above metered value	
4	Autofocus Activated When Shutter Release pb Lightly Pressed	4 - 0: Activated	Delete shutter release pb's AF activation function
		4 - 1: Disabled	
5	AE Lock	5 - 0: Exposure value	Lock shutter speed and aperture for AE lock function
		5 - 1: Shutter speed and aperture value	
6	Direction of Command Dial Rotation	6 - 0: Default	Change from left-to-right to right-to-left when increasing values
		6 - 1: Opposite	

## DCS 760 (Continued)

### CUSTOM SETTINGS (Continued)

#	Menu	Settings	Notes
7	AE Lock When Shutter Release pb Lightly Pressed	7 - 0: Disabled	Lock exposure when shutter release pb lightly pressed
		7 - 1: Activated	
8	Reserved	8 - 0:	
9	Reserved	9 - 0:	
10	Reserved	10 - 0:	
11	Alert LED in Long Time Exposure	11 - 0: Does not blink	Make Alert LED blink during long time exposure
		11 - 1: Blinks	
12	Reserved	12 - 0:	
13	Reserved	13 - 0: Canceled after release	
14	Center-Weighted Metering	14 - 0: Default (75% concentration in 12mm dia. area)	Change 12mm-dia area to 8mm(15mm,20mm) average metering
		14 - 1: Change setting C 8: 8mm-dia C 12: 12mm-dia C 15: 15mm-dia C 20: 20mm-dia A: Average	
15	Time Delay for Auto Meter-Switch-Off	15 - 0: Default (16 sec)	Change from 16 sec to 4(8,12) sec
		15 - 1: Change setting L 4: 4 sec L 8: 8 sec L 16: 16 sec L 32: 32 sec	
16	Self-Timer Duration	16 - 0: Default (10 sec)	Choose from 2 to 60 sec Go to L10 to clear setting
		16 - 1: Change setting L 2 to L60: 2 to 60 sec	
17	Bracketing in Manual Exposure Mode	17 - 0: Default (shifts shutter speed)	Change shifting factor in Manual Exposure mode from shutter speed to choice of shutter speed/aperture combination, aperture, or flash output level
		17 - 1: Change setting 11A: Shutter speed/aperture combination 10A: Shutter speed 01A: Aperture 00A: Flash output level	


## DCS 760 (Continued)

### CUSTOM SETTINGS (Concluded)

#	Menu	Settings	Notes
18	Focusing Screen Compensation	18 - 0: No compensation	Change EV level of focusing screen from -2.0 to +2.0 in 0.5 EV steps. See special focusing screen instruction manual for reqd compensation value
		18 - 1: Change setting -2.0 to 2.0: -2 to +2 in 0.5 EV steps	
19	Prolong Shutter Speed	19 - 0: Disabled	Choose from 40 sec to 30 min duration Long exposures may add noise and produce a less desirable image. Images should not be > 0.5 sec
		19 - 1: Enabled	
20	Top TTL, Flash Sync Speed	20 - 0: Default (1/250 sec)	To set top TTL flash sync speed. 1/300 sec* can be selected only in Shutter-Priority Auto or Manual Exposure modes  *Shutter speed controlled by 1/250 in Programmed Auto or Aperture-Priority Auto exposure modes
		20 - 1: Change setting  300: 1/300 sec 250: 1/250 sec 200: 1/200 sec 160: 1/160 sec 125: 1/125 sec 100: 1/100 sec 80: 1/80 sec 60: 1/60 sec	
21	AE-L/AF-L pb	21 - 0: Default (simultaneous lock)	Change to AE(AF) lock only
		21 - 1: Change setting  AEL: AE lock AFL: AF lock L-L: Simultaneous lock	
22	Aperture Setting via Sub-Command Dial	22 - 0: Enabled	Only way to set aperture is to rotate lens aperture ring
		22 - 1: Disabled	
23	▶ or ◀ Focus Indicator	23 - 0: Displayed	Don't show display of ▶ and ◀ (focused at rear or in front of subject) in viewfinder during Autofocus mode
		23 - 1: Not displayed	
24	Auto Exposure/Flash Exposure Bracketing	24 - 0: Default (auto exposure/flash exposure bracketing)	When Auto(Flash) Exposure Bracketing only wanted
		24 - 1: Change setting  01E: Auto exposure (ambient) bracketing 10E: Flash exposure bracketing 11E: Auto exposure/flash exposure bracketing	

## DCS 760 (Continued)

### DATE/TIME SET


1. MENU pb – press
2. Navigate pad – sel Menu icon , then MAIN MENU
3. OK pb – press
4. Navigate pad – sel TIME/DATE
5. OK pb – press

#### NOTE



Set TIME/DATE to GMT

6. Navigate pad – sel desired field (left,right)
7. Navigate pad – sel desired setting (up,down)
8. OK pb – press

### DELETING SINGLE IMAGES

1. OK pb – press
2. Sel image
3. Navigate pad – down to sel Delete option 
4. OK pb – press (twice) to delete
5. CANCEL pb – press to exit Delete option

### ADDING .WAV FILES TO AN IMAGE

1. OK pb – press
2. Sel image
3. TAG/RECORD pb – press, hold ( appears on rear LCD)
4. Talk to MIC (-9-12 in from MIC)
5.  appears under image



## DCS 760 (Continued)

### IMAGE VIEWING ON PGSC

1. Insert DCS MICRO DRIVE into PGSC, brand name up
2. If A31p, open SHUTTLE APPS | Kodak DCS Camera | KODAK DCS Photo Desk  
If 760XD, open SHUTTLE APPS | Photo Desk
3. Sel FILE | OPEN
4. Sel appropriate drive/folder
5. Sel "Open '-----' as contact sheet"
6. To view image info:  
Sel VIEW  
√Image Info selected (check mark next to Image Info)  
Single-click on desired image
7. To view enlarged individual image:  
Double-click on desired image

## DCS 760 (Continued)

### DCS FILE TRANSFER

#### NOTE

Do not delete images from cards. All images should be saved and cards stowed

#### DNLK FROM MICRO DRIVE

1. Insert DCS MICRO DRIVE(1 GB EVA Flash Card) into **KFX PGSC**, brand name up
2. Inform MCC “files ready”

#### DCS FILE TO HARD DRIVE

1. Insert DCS MICRO DRIVE(1 GB EVA Flash Card) into any **networked PGSC**, brand name up
2. Double click:
  - “My Computer” icon on desktop
  - “Removable Disk D” or appropriate drive
  - “Folder 1” or appropriate folder
3. Select all files
4. Copy all files
5. Double click:
  - “DCS Folder on KFX PGSC” shortcut on desktop
  - Appropriate subfolder (e.g., FD1, OMS Pod, etc.)
6. Paste files
7. Close all windows
8. Inform MCC “files ready” on PGSC
9. Stow card

## DCS 760 (Continued)

### SUSPECT HARD DRIVE SCAN (760XD ONLY)

1. Insert suspect DCS Micro Drive (1 GB EVA Flash Card) into PGSC, brand name up
2. Sel 'Start' | 'Run...'
3. In 'Run' window, type: SCANDISK, then sel OK
4. In 'ScanDisk' window:

Sel MICRO DRIVE drive (usually D: drive)  
√'Type of Test' – Standard  
Sel 'Automatically fix errors'  
Sel 'Start'

5. In 'ScanDisk Results' Window:

If error fixed(nonexistent), continue to use hard drive  
|  
If error not fixed, mark and stow hard drive  
Notify MCC of results

6. Close all windows used to scan hard drive

### SUSPECT HARD DRIVE SCAN (A31p ONLY)

1. Insert suspect DCS Micro Drive (1 GB EVA Flash Card) into A31p, brand name up
2. Sel 'My Computer'
3. Right click on drive (D:)
4. Sel 'Properties'
5. Sel 'Tools' tab
6. In 'Error-checking' box, sel 'Check Now...'
7. In 'Check Disk' window:  
Sel 'Automatically fix file system errors'  
Sel 'Start'
8. Notify MCC of results
9. Sel 'OK' to close dialog boxes
10. Close 'My Computer' window

## DCS 760 (Continued)

### IMAGE FILE COMPRESSION

#### NOTE

Do not compress images for OCA dnlk. Image compression to be used only for image insertion into a document or e-mail

1. Perform IMAGE VIEWING ON PGSC, steps 1-5 on 3-19, then:
2. Single-click image for compression
3. Sel FILE | SAVE SELECTED AS (**Not “SAVE AS”**)
4. Sel appropriate drive and folder in “Save In” window
5. Sel “Standard JPEG” (\*.jpg)” in format window
6. Sel RENAME IMAGE FILE(S)

If A31p:

7. Enter new file name in “Base Name” window
8. Sel “Save files in ‘-----’ ”

If 760XD:

9. Enter new file name in NEW NAME window
10. Sel “Save files in ‘-----’ ”
11. Sel IMAGE SIZE = 50%
12. Sel IMAGE QUALITY = GOOD
13. √RESOLUTION = 300
14. √DOTS PER INCH selected
15. Sel OK

## DCS 760 (Continued)

### RECOVER LOST IMAGES

1. Insert suspect DCS Micro Drive (1 GB EVA Flash Card) into A31p, brand name up
2. Open SHUTTLE APPS | Kodak DCS Camera | mediaRECOVER
3. In 'mediaRECOVER' window
  - Sel 'Settings' in left-hand column
  - Under 'My image file size', move slider until '10.00 MB' displayed
  - Sel 'Recovery' in left-hand column
  - In 'Drive to recover' column, sel 'Removable Disk' in pulldown menu
  - Sel 'Next >'
4. In 'Where do you want to save recovered files?' column
  - Sel '...' button
  - In 'Choose directory...' window
    - Sel 'Local Disk (C)'
    - Sel 'OCA-down'
    - Sel 'DCS'
    - Sel 'New Folder' option button
    - Type 'Recover' as new folder name
    - Press Enter
    - Click on 'Recover' folder
    - Sel 'OK'
  - Sel 'Next >'
5. In 'Progress' column
  - √'Preview' box
  - Sel 'Start'
6. In 'Analyze Drive' window

#### NOTE

Scan will take several min

Sel 'Use folder based recover'  
Verify '√' in box next to 'Look for additional lost files'  
Sel 'Continue'

7. When 'Preview' window appears, move 'Preview' window below 'mediaRECOVER' window to view progress bar

## DCS 760 (Continued)

### RECOVER LOST IMAGES (Concluded)

NOTE

When scan completed, 'Save Images' window will appear

8. In 'Save Images' window

NOTE

May take several minutes to save to 'Recover' folder

√All images have '√' in their select box  
Sel 'Save Images'

9. When finished saving ('Save Images' window will automatically close), close 'mediaRECOVER' window
10. Close 'Kodak DCS Camera' window
11. Notify MCC regarding location of images

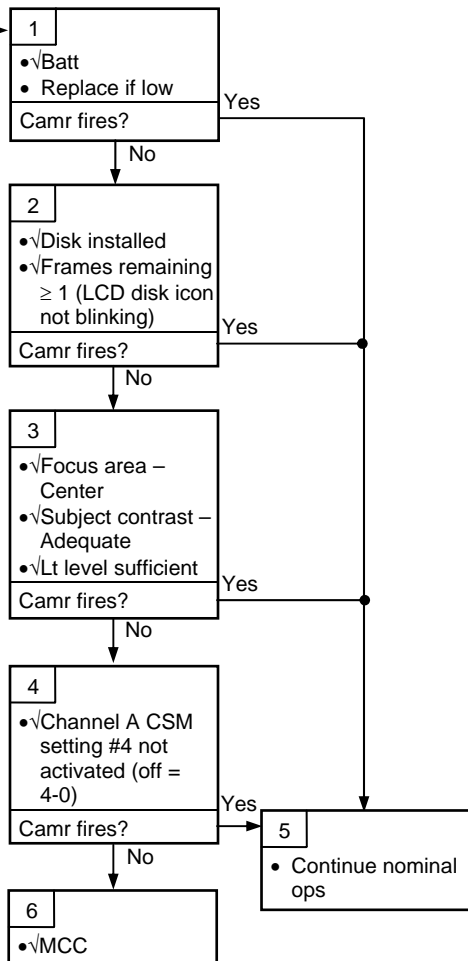
# DCS 760

## 3.1 CAMR FAILS TO FIRE

Camr Fails to Fire

### Nominal Config:

- (Camr)
- 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 – [ ]
- Meter – Matrix
- Dioptr – Adjust
- Film Adv – S
- Body Focus Mode – S
- Lens Focus Mode – A
- Aperture – Min, locked
- (Flash)
- ON/OFF – ON
- √TTL, Matrix
- √Zoom
- Tilt – Direct



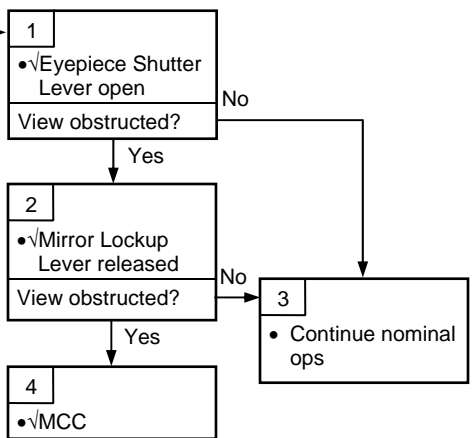
# DCS 760

## 3.2 CANNOT SEE THRU VIEWFINDER

Cannot See Thru Viewfinder

### Nominal Config:

- (Camr)
- 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 – [ ]
- Meter – Matrix
- Diopter – Adjust
- Film Adv – S
- Body Focus Mode – S
- Lens Focus Mode – A
- Aperture – Min, locked
  
- (Flash)
- ON/OFF – ON
- √TTL, Matrix
- √Zoom
- Tilt – Direct



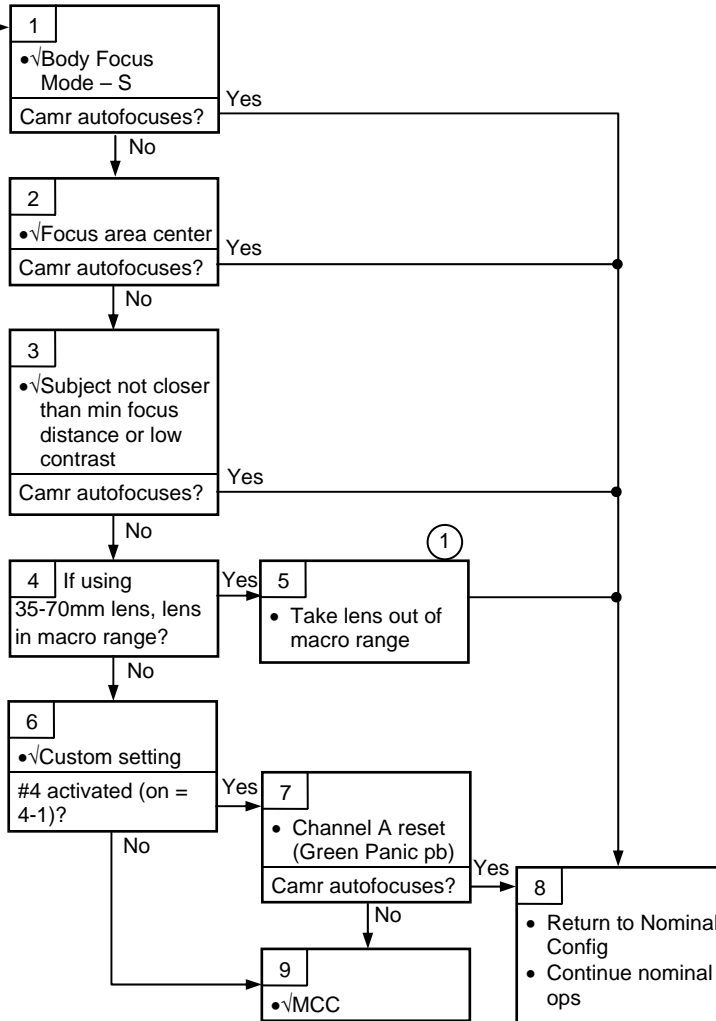


①  
35-70mm lens will not auto-focus in Macro

Camr Fails to Auto Focus

**Nominal Config:**

- (Camr)
- 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 – [ ]
- Meter – Matrix
- Diopter – Adjust
- Film Adv – S
- Body Focus Mode – S
- Lens Focus Mode – A
- Aperture – Min, locked
- (Flash)
- ON/OFF – ON
- √TTL, Matrix
- √Zoom
- Tilt – Direct

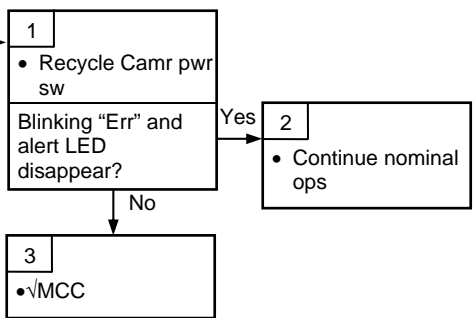


# DCS 760

## 3.4 "ERR" BLINKS ON TOP LCD AND ALERT LED ALSO BLINKS

"Err" Blinks On Top LCD And Alert LED Also Blinks

- Nominal Config:**
- (Camr)
  - 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 – [ ]
  - Meter – Matrix
  - Diopter – Adjust
  - Film Adv – S
  - Body Focus Mode – S
  - Lens Focus Mode – A
  - Aperture – Min, locked
  
  - (Flash)
  - ON/OFF – ON
  - √TTL, Matrix
  - √Zoom
  - Tilt – Direct



# DCS 760

## 3.5 EXCESSIVE SAVE IMAGE TO HARD DISK TIME

Excessive Save Image to Hard Disk Time

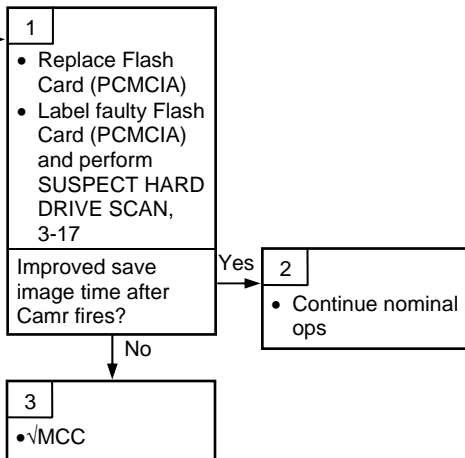
### Nominal Config:

(Camr)

- 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 – [ ]
- Meter – Matrix
- Diopter – Adjust
- Film Adv – S
- Body Focus Mode – S
- Lens Focus Mode – A
- Aperture – Min, locked

(Flash)

- ON/OFF – ON
- √TTL, Matrix
- √Zoom
- Tilt – Direct



This Page Intentionally Blank

DCS 760 EVA CAMR

	<u>PAGE</u>
760 EVA – CAMR ONLY .....	4-2
760 EVA – CAMR ONLY DISASSEMBLY .....	4-7
BETWEEN EVAs .....	4-7
POST-EVA .....	4-7
760 EVA – CAMR w/BRACKET ONLY .....	4-9
760 EVA – CAMR w/FLASH .....	4-18
760 EVA – CAMR w/FLASH DISASSEMBLY .....	4-27
BETWEEN EVAs .....	4-27
POST-EVA .....	4-28
SPECIFICATIONS .....	4-30
LENS DATA .....	4-31
NOMENCLATURE .....	4-32
DATE/TIME SET .....	4-33
760 QUICK FORMAT .....	4-34
760 FULL FORMAT .....	4-35
760 FIRMWARE UPDATE .....	4-36
DATA LOG FILE PROCEDURE .....	4-37
BLANK IMAGE .....	4-38
STEREO PHOTOGRAMMETRY PROCEDURE .....	4-39

# DCS 760 EVA

## DCS 760 EVA CAMR

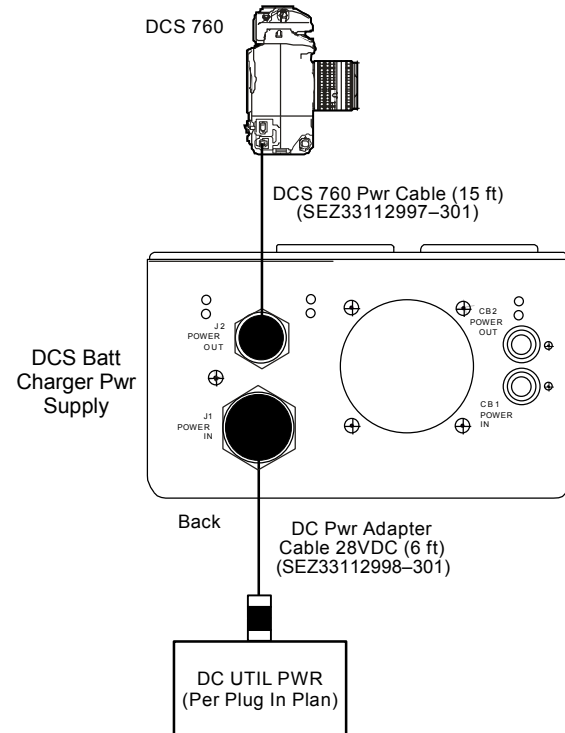
### 760 EVA – CAMR ONLY

#### NOTE

When Camr not in use during EVA, Thermal Lens Cap must be installed

1. Unstow and assemble from EVA Camr Accessories Bag  
DCS 760 Camr  
Lens – As Reqd  
If 28(35,50,105)mm EVA Lens:  
√Circular Polar 52mm Filter w/o glass fully installed on lens  
Action Viewfinder (EVA)
2. Unstow but do not install  
1 GB EVA Flash Cards (two)  
EVA Camr Blanket  
Camr Mounting Assy w/Thermal Blanket  
Tie Wraps (4/Camr)
3. Config DCS Batt Charger Pwr Supply (one per Camr) per dwg at right  
√cb PWR IN – cl  
√OUT – cl  
MAIN PWR – ON (LED on)  
CAMR PWR – ON (LED on)
4. Camr Settings  
Pwr – ON  
Install 1 GB EVA Flash Card in slot 1  
Rear LCD  
√Frames Remaining  $\geq 112$   
If  $< 112$ , perform 760 QUICK FORMAT, 4-34  
Remove 1 GB EVA Flash Card  
Install second 1 GB EVA Flash Card in slot 1  
Rear LCD  
√Frames Remaining  $\geq 112$   
If  $< 112$ , perform 760 QUICK FORMAT, 4-34  
Install first 1 GB EVA Flash Card in slot 2  
√White Balance – Auto

DCS 760



jsc48037\_092A.cvx

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR ONLY (Continued)

- DCS 760 4. Camr Settings (Concluded)
- √ISO – 100
  - √Camr Bracket Disabled
  - Top LCD
    - √Focus Area – Center, Locked
    - Exposure Comp – 0.0
    - Exposure Mode – P
    - Auto Focus Area Mode – [ ] (no “+” displayed)
  - Meter – Matrix
  - Film Advance – S
  - Body Focus Mode – S
  - Lens Focus Mode – A (if applicable)
  - Aperture – Min, locked
  - √Vertical Shooting Shutter Release – Locked (L to line)
  - Main Menu
    - Menu pb – press
    - Main Menu – press OK
    - √Processing – Off
    - √Time/Date – GMT
    - Menu pb – press twice
  - Properties
    - Properties – press OK
    - Auto OK Errors – Yes
    - √Enable Sharpening – No
    - High Temp Limit – Yes
    - √Long Exposure Processing – Exposures >¼ sec
    - CANCEL pb – press twice
5. Remove Lens
- NOTE  
Do not pwr off Camr
- DCS Batt Chgr 6. CAMR PWR – OFF (LED off)
7. Disconnect DCS 760 Pwr Cable from Pwr Adapter Connection on DCS 760 Camr
- DCS 760 8. Install EVA Camr Blanket starting at right side of Camr and stopping short of covering Batt/PC Door

## DCS 760 EVA CAMR (Continued)

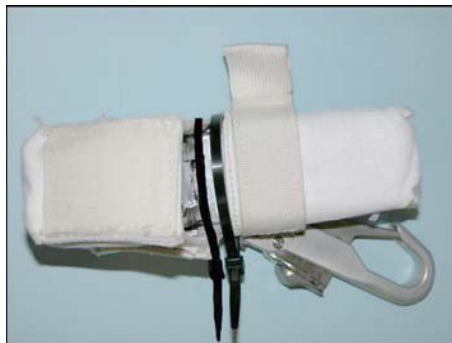
### 760 EVA – CAMR ONLY (Continued)

9. ✓Aperture – Min, locked on lens
10. Install lens (EVA Camr Blanket may need to be adjusted)
11. ✓Lens Cap removed
12. Secure EVA Camr Blanket around lens
13. Reconnect DCS 760 Pwr Cable to Pwr Adapter Connection on DCS 760 Camr
- DCS Batt Chgr DCS 760 14. CAMR PWR – ON (LED on)
15. Install DCS 760 Batt
16. Activate Shutter Release:
  - ✓No "FEE" in Viewfinder
  - If "FEE" displayed, go to step 9
  - ✓Lens moves freely under EVA Camr Blanket
17. Insert Light-Pipe thru Batt/PC Door into Card Busy LED opening
18. Test fire to confirm Light-Pipe operational – Blinking Red LED on EVA Camr Blanket
19. Install 28mm, 35mm, 50mm Lens Cap (Thermal Cap)
20. Complete EVA Camr Blanket installation (close Flaps 1,4)

#### NOTE

Tie Wrap joints should be on opposite side from pull tab on Thermal Cover

21. Wrap Tie Wraps (two) around Camr Mounting Assy threading them under Thermal Blanket in back





## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR ONLY (Continued)

#### NOTE

Enough slack should be left in loops to allow threading of two additional Tie Wraps

22. Insert remaining Tie Wraps (two) thru Camr Mount Loop



23. Install Camr Mounting Assy w/Thermal Blanket from rear
24. ✓Camr Mounting Assy seated, will not slip off Camr. Release pb – out
25. Loop Tie Wraps (two) from step 22 thru D-Ring on Camr Thermal Blanket. Secure w/o pulling D-Ring taut
26. Tighten Tie Wrap loops to snug fit
27. Trim ends as reqd



#### FINAL CONFIGURATION

28. Temp stow Flap 3 (will not be used for EVA)
29. Stow Camr until day of EVA

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR ONLY (Concluded)

If Remote Cord Assy used:

30. Connect Remote Cord Assy to Remote Release port on DCS 760 Camr (Connector will thread into place)



31. ✓ Remote Cord Assy not locked
32. Using Velcro, secure Flap 3 to EVA Camr Blanket (DO NOT snap Flap 3) (Optional)
33. Remove 28mm, 35mm, 50mm Lens Cap (Thermal Cap)
34. Test fire DCS 760 Camr w/Remote Release
35. Install 28mm, 35mm, 50mm Lens Cap (Thermal Cap)

#### NOTE

Do not remove Camr from orbiter pwr

36. Stow until day of EVA

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR ONLY DISASSEMBLY

#### BETWEEN EVAs

##### NOTE

Removal of Batts, Cards main objective

- DCS 760
1. Use scissors to remove Tie Wraps (four) from Camr Mounting Assy and D-Ring
  2. Detach Camr Mounting Assy from DCS 760
  3. In order to access Batt/PC Door, open Flap 1 of EVA Camr Blanket
  4. Remove Light-Pipe from Batt/PC Door
  5. Open Batt/PC door:
    - Remove DCS 760 Batt
    - Remove 1 GB EVA Flash Cards (two)

#### POST-EVA

##### NOTE

Stowing of EVA H/W and IVA use of DCS 760 main objective

- DCS 760
1. Remove Lens
  2. If Remote Cord Assy used, disconnect from Remote Release Port on DCS 760 Camr. Disconnect Flap 3
  3. Remove EVA Camr Blanket:
    - Open Flap 1 on EVA Camr Blanket
    - Uninstall Light-Pipe from DCS 760 Batt/PC Door
    - Remove EVA Camr Blanket from left to right
  4. Temp stow EVA Camr Blanket
  5. Replace lens
  6. Camr Pwr – OFF
  7. Open Batt/PC Door:
    - Remove DCS 760 Batt
    - Remove 1 GB EVA Flash Card (two)

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR ONLY DISASSEMBLY (Concluded)

#### POST-EVA (Concluded)

If reqd:

8. Return Camr to Nominal Ops
  - Replace DCS 760 Batt and 1 GB EVA Flash Card
  - Camr Settings:
    - Camr Pwr – ON
    - Nom Ops settings:
      - Auto OK Errors – No
      - High Temp Limit – No
      - √Long Exposures Processing – Exposures > 1/4 sec
  - Camr Pwr – OFF
  - Replace Action Viewfinder w/Nominal Viewfinder

## DCS 760 EVA CAMR (Continued)

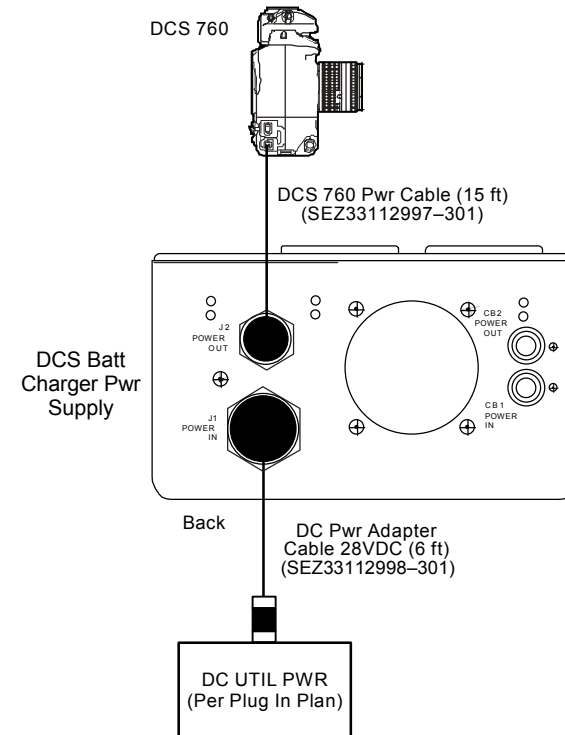
### 760 EVA – CAMR w/BRACKET ONLY

#### NOTE

When Camr not in use during EVA, Thermal Lens Cap must be installed

1. Unstow and assemble from EVA Camr Accessories Bag  
DCS 760 Camr  
Lens – As Reqd  
If 28(35,50,105)mm EVA Lens:  
√Circular Polar 52mm Filter w/o glass fully installed on lens  
Action Viewfinder (EVA)
2. Unstow but do not install  
1 GB EVA Flash Cards (two)  
EVA Camr Blanket  
Camr Mounting Assy w/Thermal Blanket  
Flash Bracket w/Thermal Blanket  
Remote Cord Assy (SED33112525-302) as reqd  
Tie Wraps (4/Camr)
3. Config DCS Batt Charger Pwr Supply (one per Camr) per dwg at right  
√cb PWR IN – cl  
√OUT – cl  
MAIN PWR – ON (LED on)  
CAMR PWR – ON (LED on)
4. Camr Settings  
Pwr – ON  
Install 1 GB EVA Flash Card in slot 1  
Rear LCD  
√Frames Remaining  $\geq 112$   
If  $< 112$ , perform 760 QUICK FORMAT, 4-34  
Remove 1 GB EVA Flash Card  
Install second 1 GB EVA Flash Card in slot 1  
Rear LCD  
√Frames Remaining  $\geq 112$   
If  $< 112$ , perform 760 QUICK FORMAT, 4-34  
Install first 1 GB EVA Flash Card in slot 2  
√White Balance – Auto

DCS 760



jsc48037\_092A.cvx

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/BRACKET ONLY (Continued)

#### INITIAL CAMR SETUP (Concluded)

- DCS 760 4. Camr Settings (Concluded)
- √ISO – 100
  - √Camr Bracket Disabled
  - Top LCD
    - √Focus Area – Center, Locked
    - Exposure Comp – 0.0
    - Exposure Mode – P
    - Auto Focus Area Mode – [ ] (no “+” displayed)
  - Meter – Matrix
  - Film Advance – S
  - Body Focus Mode – S
  - Lens Focus Mode – A (if applicable)
  - Aperture – Min, locked
  - √Vertical Shooting Shutter Release – Locked (L to line)
  - Main Menu
    - Menu pb – press
    - Main Menu – press OK
  - √Processing – Off
  - √Time/Date – GMT
    - Menu pb – press twice
  - Properties
    - Properties – press OK
    - Auto OK Errors – Yes
    - √Enable Sharpening – No
    - High Temp Limit – Yes
    - √Long Exposure Processing – Exposures >¼ sec
    - CANCEL pb – press twice

- DCS 760 5. Remove Lens

#### NOTE

Do not pwr off Camr

- DCS Batt Chgr 6. CAMR PWR – OFF (LED off)

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/BRACKET ONLY (Continued)

- DCS 760
  - 7. Disconnect DCS 760 Pwr Cable from Pwr Adapter Connection on DCS 760 Camr
  - 8. Install EVA Camr Blanket starting at right side of Camr and stopping short of covering Batt/PC Door
  - 9. ✓Aperture – Min, locked on lens
  - 10. Install lens (Thermal Blanket may need to be adjusted)
  - 11. ✓Lens Cap removed
  - 12. Secure EVA Camr Blanket around lens
  - 13. Reconnect DCS 760 Pwr Cable to Pwr Adapter Connection on DCS 760 Camr
- DCS Batt Chgr
  - 14. CAMR PWR – ON (LED on)
  - 15. Install DCS 760 Batt
  - 16. Activate Shutter Release:
    - ✓No “\_EE” in viewfinder
    - If “\_EE” displayed, go to step 9
    - ✓Lens moves freely under EVA Camr Blanket
  - 17. Insert Light-Pipe thru Batt/PC Door into Card Busy LED opening
  - 18. Test fire to confirm Light-Pipe operational – Blinking Red LED on EVA Camr Blanket
  - 19. Install 28mm, 35mm, 50mm Lens Cap (Thermal Cap)
  - 20. Complete EVA Camr Blanket installation (close Flaps 1,4)
  - 21. Obtain Bracket Assy w/Thermal Blanket
- Brkt Assy
  - If Thermal Blanket not installed, install on Bracket Assy:
    - Config Thermal Blanket for use w/o Flash

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/BRACKET ONLY (Continued)

- EVA
- If Remote Cord Assy not configured for use w/Bracket Assy:
22. Temp stow Flap 3 (will not be used for EVA)
  23. Install DCS 760 Camr onto Bracket Assy (from front)



Mount for EVA Camr

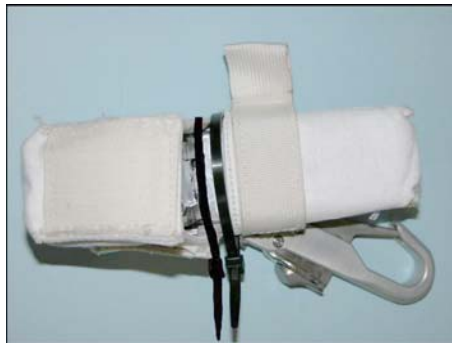
Mount for Camr Mounting Assy (underneath)

24. Install Camr Mounting Assy w/Thermal Blanket to Bracket Assy (from rear)

#### NOTE

Tie Wrap joints should be on opposite side from pull tab on Thermal Cover

25. Wrap Tie Wraps (two) around Camr Mounting Assy threading them under Thermal Blanket in back





## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/BRACKET ONLY (Continued)

#### NOTE

Enough slack should be left in loops to allow threading of two additional Tie Wraps

26. Insert remaining Tie Wraps (two) thru Camr Mount Loop



27. ✓DCS 760 Camr and Camr Mount seated, will not slip off Bracket Assy. Release pb – out
28. Loop Tie Wraps (two) from step 26 thru D-Ring on Camr Thermal Blanket. Secure w/o pulling D-Ring taut
29. Tighten Tie Wrap loops to snug fit
30. Trim ends as reqd



FINAL CONFIGURATION

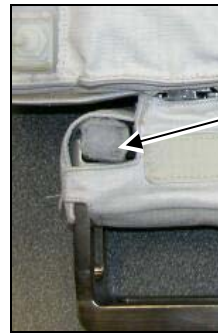
## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/BRACKET ONLY (Continued)

~  
NOTE

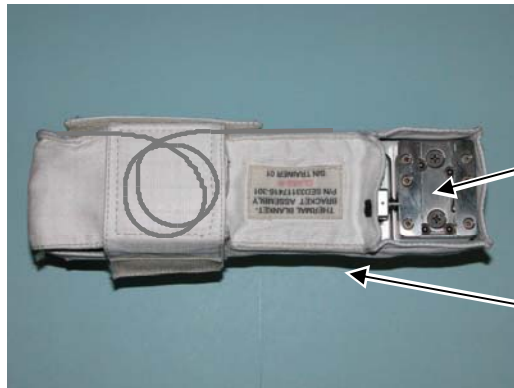
Do not remove Camr from orbiter pwr

31. Stow until day of EVA
- If Remote Cord Assy configured for use w/Bracket Assy:
32. Insert Remote Cord Assy thru hole in Thermal Blanket (verify Remote Cord Assy not locked) and place lip of remote under Thermal Blanket



Remote Cord Lip

33. Coil excess cord and stow between mount for EVA Flash and Thermal Cover Flap



Mount for EVA Camr

Mount for Camr Mounting Assy (underneath)

34. Install DCS 760 Camr onto Bracket Assy (from front)
35. Install Camr Mounting Assy w/Thermal Blanket to Bracket Assy (from rear)

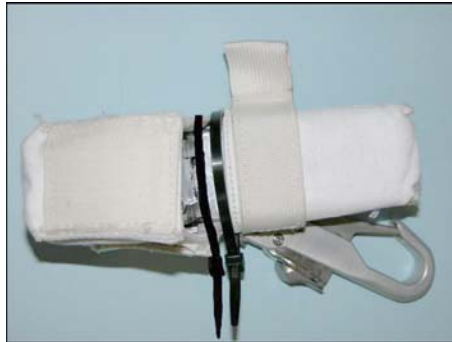
## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/BRACKET ONLY (Continued)

#### NOTE

Tie Wrap joints should be on opposite side from pull tab on Thermal Cover

36. Wrap Tie Wraps (two) around Camr Mounting Assy threading them under Thermal Blanket in back



#### NOTE

Enough slack should be left in loops to allow threading of two additional Tie Wraps

37. Insert remaining Tie Wraps (two) thru Camr Mount Loop



38. ✓DCS 760 Camr and Camr Mounting Assy seated, will not slip off Bracket Assy. Release pb – out
39. Loop Tie Wraps (two) from step 36 thru D-Ring on Camr Thermal Blanket. Secure w/o pulling D-Ring taut

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/BRACKET ONLY (Continued)

40. Tighten Tie Wrap loops to snug fit
41. Trim ends as reqd



FINAL CONFIGURATION

- DCS 760 42. Remove Flap 3 from EVA Camr Blanket  
Place Remote Cord Assy into Flap 3 per photo; close flaps



43. Using Velcro, secure Flap 3 to EVA Camr Blanket (DO NOT snap Flap 3)

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/BRACKET ONLY (Concluded)

44. Connect Remote Cord Assy to Remote Release port on DCS 760 Camr (Connector will thread into place)



45. Remove 28mm, 35mm, 50mm Lens Cap (Thermal Cap)
46. Test fire w/Remote Release (two shots)  
√Shutter Release on Remote Cord Assy not locked
47. Install 28mm, 35mm, 50mm Lens Cap (Thermal Cap)

#### NOTE

Do not remove Camr from orbiter pwr

48. Stow until day of EVA

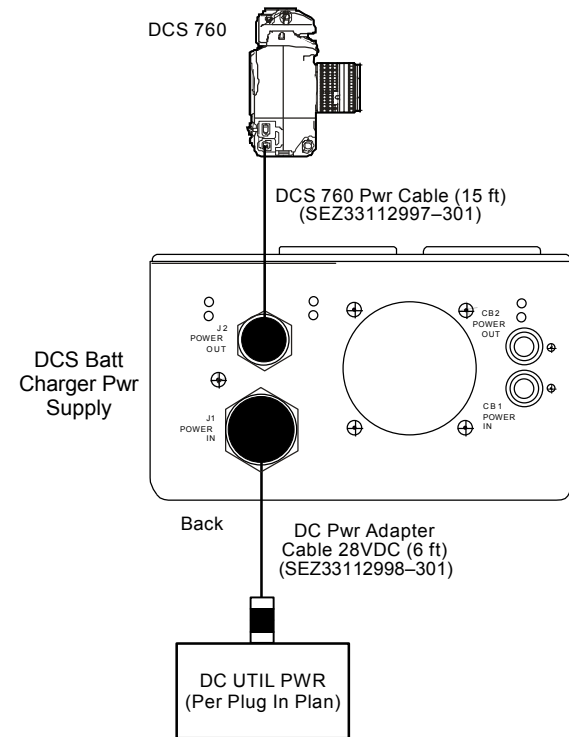
## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH

#### NOTE

When Camr not in use during EVA, Thermal Lens Cap must be installed

- Unstow and assemble from EVA Camr Accessories Bag  
DCS 760 Camr  
Lens – As Reqd  
If 28(35,50,105)mm EVA Lens:  
√Circular Polar 52mm Filter w/o glass fully installed on lens  
Action Viewfinder
- Unstow but do not install  
1 GB EVA Flash Cards (two)  
EVA Camr Blanket  
Camr Mounting Assy w/Thermal Blanket  
Bracket Assy w/Thermal Blanket  
EVA Flash w/Thermal Blanket  
Flash Sync Cable Assy w/Thermal Blanket  
Remote Cord Assy (SED33112525-302)  
DCS EVA 7 VDC Pwr Cable  
Tie Wraps (4/Camr)
- Config DCS Batt Charger Pwr Supply (one per Camr) per dwg at right  
√cb PWR IN – cl  
√OUT – cl  
MAIN PWR – ON (LED on)  
CAMR PWR – ON (LED on)
- Camr Settings  
Pwr – ON  
Install 1 GB EVA Flash Card in slot 1  
Rear LCD  
√Frames Remaining  $\geq 112$   
If  $< 112$ , perform 760 QUICK FORMAT, 4-34  
Remove 1 GB EVA Flash Card  
Install second 1 GB EVA Flash Card in slot 1  
Rear LCD  
√Frames Remaining  $\geq 112$   
If  $< 112$ , perform 760 QUICK FORMAT, 4-34  
Install first 1 GB EVA Flash Card in slot 2



jsc48037\_092A.cvx

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH (Continued)

- DCS 760 4. Camr Settings (Concluded)
- √White Balance – Auto
  - √ISO – 100
  - √Camr Bracket Disabled
  - Top LCD
    - √Focus Area – Center, LOCK
    - Exposure Comp – 0.0
    - Mode – P
    - Auto Focus Area Mode – [ ] (no “+” displayed)
  - Meter – Matrix
  - Film Advance – S
  - Body Focus Mode – S
  - Lens Focus Mode – A (if applicable)
  - Aperture – Min, locked
  - √Vertical Shooting Shutter Release – Locked (L to line)
  - Main Menu
    - Menu pb – press
    - Main Menu – press OK
  - √Processing – Off
  - √Time/Date – GMT
    - Menu pb – press twice
  - Properties
    - Properties – press OK
    - Auto OK Errors – Yes
    - √Enable Sharpening – No
    - High Temp Limit – Yes
    - √Long Exposure Processing – Exposures >¼ sec
    - CANCEL pb – press twice
5. Remove Lens

#### NOTE

Do not pwr off Camr

- DCS Batt Chgr 6. CAMR PWR – OFF (LED off)

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH (Continued)

- DCS 760 7. Disconnect DCS 760 Pwr Cable from Pwr Adapter Connection on DCS 760 Camr
- DCS 760 8. Install EVA Camr Blanket starting at right side of Camr and stopping short of covering Batt/PC Door
- 9. ✓Aperture – Min, locked on lens
- 10. Install lens (EVA Camr Blanket may need to be adjusted)
- 11. ✓Lens Cap removed
- 12. Secure EVA Camr Blanket around lens
- 13. Reconnect DCS 760 Pwr Cable to Pwr Adapter Connection on DCS 760 Camr
- DCS Batt Chgr 14. CAMR PWR – ON (LED on)
- DCS 760 15. Install DCS 760 Batt
- 16. Activate Shutter Release:
  - ✓No "FEE" in Viewfinder
  - If "FEE" displayed, go to step 9
  - ✓Lens moves freely under EVA Camr Blanket
- 17. Insert Light-Pipe thru Batt/PC Door into Card Busy LED opening
- 18. Test fire to confirm Light-Pipe operational – Blinking Red LED on EVA Camr Blanket
- 19. Install 28mm, 35mm, 50mm Lens Cap (Thermal Cap)
- 20. Complete EVA Camr Blanket installation (close Flap 1)
- 21. Obtain Bracket Assy w/Thermal Blanket
- Brkt Assy If Thermal Blanket not installed, install on Bracket Assy
- 22. Insert Remote Cord Assy thru hole in Thermal Blanket (verify Remote Cord Assy not locked) and place lip of remote under Thermal Blanket



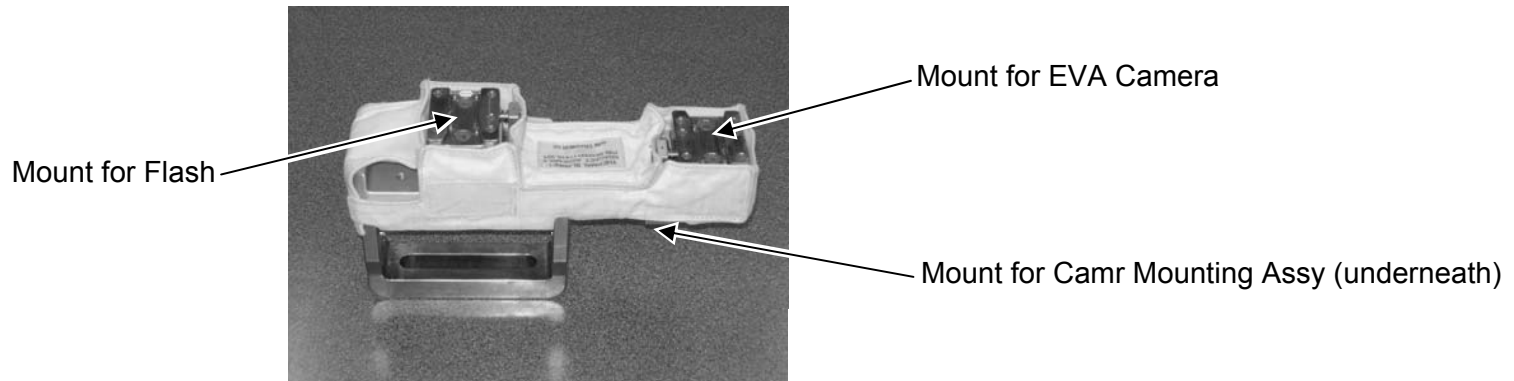
Remote Cord Lip



## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH (Continued)

- DCS 760
23. Remove Flash Sync Cover from Flash Sync Cable
  24. Install Flash Sync Cable to Camr Hot Shoe:  
Lock Flash Sync Cable – turn lever cw  
Secure Flap 4 to EVA Camr Blanket
  25. Reinstall Flash Sync Cover onto Flash Sync Cable Assy
  26. Secure Flash Sync Cable under Flap 2 on left side of Camr
  27. Install DCS 760 Camr onto Bracket Assy (from front)
  28. Install EVA Flash onto Bracket Assy (from rear)

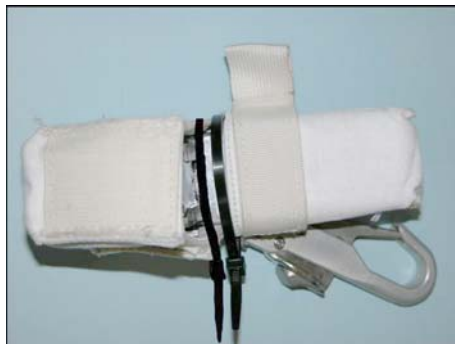


29. Install Camr Mounting Assy w/Thermal Blanket to Bracket Assy (from rear)

#### NOTE

Tie Wrap joints should be on opposite side from pull tab on Thermal Cover

30. Wrap Tie Wraps (two) around Camr Mounting Assy threading them under Thermal Blanket in back



## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH (Continued)

#### NOTE

Enough slack should be left in loops to allow threading of two additional Tie Wraps

31. Insert remaining Tie Wraps (two) thru Camr Mount Loop



32. ✓DCS 760 Camr, EVA Flash, and Camr Mounting Assy seated, will not slip off Bracket Assy. Release pb – out
33. Loop Tie Wraps (two) from step 31 thru D-Ring on Camr Thermal Blanket. Secure w/o pulling D-Ring taut
34. Tighten Tie Wrap loops to snug fit
35. Trim ends as reqd



FINAL CONFIGURATION

## DCS 760 EVA CAMR (Continued)

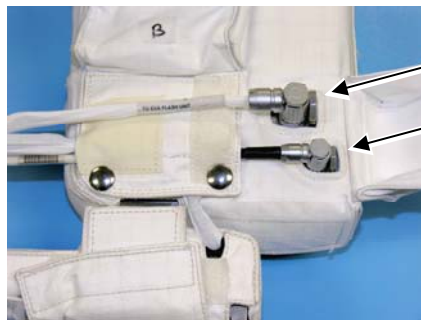
### 760 EVA – CAMR w/FLASH (Continued)

- EVA Flash
36. Open Flaps A,B
  37. Under Flap B, tuck excess Remote Cord Assy (two coils) into pocket on EVA Flash unit



(Remote Cord Coil)

38. Connect DCS EVA 7 VDC Pwr Cable to Ext Camr Pwr port (small) on EVA Flash under Flap A
39. Run Remote Cord Assy and DCS EVA 7 VDC Pwr Cable under Flap B
40. Close Flap B using two snaps



Sync Port

Ext Camr Pwr Port

- DCS 760
41. Connect Flash Sync Cable Assy to Flash Sync port on EVA Flash

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH (Continued)

42. Close Flap A over Flash Sync Cable Assy



#### NOTE

Adjustments to cables may be reqd during installation

43. Remove EVA Camr Blanket Flap 3 from EVA Camr Blanket  
Place Remote Cord Assy and DCS EVA 7 VDC Pwr Cable into Flap 3 per photo; close flaps





44. Using Velcro, secure Flap 3 to EVA Camr Blanket (DO NOT snap Flap 3)

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH (Continued)

45. Connect Remote Cord Assy to Remote Release port on DCS 760 Camr (Connector will thread into place)



- |           |  |
|-----------|--|
| EVA Flash | 46. Access Flash Batt Compartment (remove Flap(s) C as reqd)   |
|           | 47. Remove Batt Cap  |
|           | 48. Install one DCS 760 Batt into FLASH slot (align arrows)  |
|           | 49. Reinstall Batt Cap   |
|           | 50. Flash – ON   |
|           | 51. Activate Camr  |
|           | 52. Open Flap D; verify following:<br>√Mode – <br>If  not displayed, press viewfinder Forward<br>√Zoom – “M” not displayed<br>If “M” displayed, contact MCC |
| DCS 760   | 53. Remove 28mm, 35mm, 50mm Lens Cap (Thermal Cap)   |
|           | 54. Test fire Camr w/Flash using Remote Release (two shots)  |
|           | 55. √Flash fired   |
| EVA Flash | 56. Flash – OFF  |
|           | 57. Close Flap D   |
|           | 58. Remove DCS 760 Batt from FLASH slot  |
| DCS 760   | 59. Install 28mm, 35mm, 50mm Lens Cap (Thermal Cap)  |

#### NOTE

Do not remove Camr from orbiter pwr



60. Stow until day of EVA



## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH (Concluded)

#### PRIOR TO ENTERING AIRLOCK:

- |                  |  |
|------------------|--|
| EVA Flash        | 1. Remove Batt Cap   |
|                  | 2. Install two DCS 760 Batts into CAMERA,FLASH slots (align arrows)  |
|                  | 3. Reinstall Batt Cap  |
|                  | 4. Flash – ON  |
|                  | 5. Activate Camr   |
|                  | 6. Open Flap D; verify following:  |
|                  | √Mode –                                     |
|                  | If  not displayed, press viewfinder Forward |
|                  | √Zoom – “M” not displayed  |
|                  | If “M” displayed, contact MCC  |
| DCS 760          | 7. Remove 28mm, 35mm, 50mm Lens Cap (Thermal Cap)  |
|                  | 8. Test fire Camr w/Flash  |
|                  | 9. Install 28mm, 35mm, 50mm Lens Cap (Thermal Cap)   |
| EVA Flash        | 10. Flash – OFF  |
|                  | 11. Close Flap D   |
|                  | 12. Close Flap C   |
|                  | 13. CAMR BATT PWR – EXT  |
| DCS Batt<br>Chgr | 14. Camr Pwr – off   |
| DCS 760          | 15. Disconnect DCS 760 Pwr Cable   |
|                  | 16. Connect DCS EVA 7 VDC Pwr Cable to Camr (flat side fwd)  |
|                  | 17. Secure snap on Flap 3 to EVA Camr Blanket  |



## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH DISASSEMBLY

#### BETWEEN EVAs

#### NOTE

Removal of Batts, Cards main objective

#### FLASH

1. Flash – OFF
2. Open Flap C to access Flash Batt compartment
3. Remove Batt Cap
4. Remove DCS 760 Batts (two)
5. Install Batt Cap
6. Close Flap C

#### CAMR

1. Use scissors to remove Tie Wraps (four) from Camr Mounting Assy and D-Ring
2. Remove Flap 3 snap from EVA Camr Blanket
3. Disconnect Remote Cord Assy and DCS EVA 7 VDC Pwr Cable from DCS 760 Camr
4. Detach Flap 3 from EVA Camr Blanket
5. Disconnect Flash Sync Cable Assy from Camr Hot Shoe:  
Unlock Flash Sync Cable Assy – turn ccw
6. Remove Flash Sync Cable Assy from under Flap 2 on left side of Camr
7. Detach Camr Mounting Assy from Bracket Assy
8. Detach DCS 760 Camr from Bracket Assy
9. In order to access Batt/PC Door, open Flap 1 of EVA Camr Blanket
10. Remove Light-Pipe from Batt/PC Door
11. Open Batt/PC door:  
Remove DCS 760 Batt  
Remove 1GB EVA Flash Cards (two)

## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH DISASSEMBLY (Continued)

#### POST-EVA

#### NOTE

Stowing of EVA H/W and IVA use of DCS 760 main objective

#### CAMR w/FLASH

1. Use scissors to remove Tie Wraps (four) from Camr Mounting Assy and D-Ring
2. Remove snap on Flap 3 from EVA Camr Blanket
3. Disconnect Remote Cord Assy and DCS EVA 7 VDC Pwr Cable from DCS 760 Camr
4. Detach Flap 3 from EVA Camr Blanket
5. Remove Remote Cord Assy and DCS EVA 7 VDC Pwr Cable from Flap 3
6. Secure Flap 3 to DCS EVA Camr Blanket
7. Disconnect Flash Sync Cable Assy from Camr Hot Shoe:  
    Unlock Flash Sync Cable Assy – turn ccw
8. Remove Flash Sync Cable Assy from under Flap 2 on left side of Camr
9. Detach Camr Mount from Bracket Assy
10. Detach DCS 760 Camr from Bracket Assy

#### CAMR

1. Remove Lens
2. Remove EVA Camr Blanket:  
    Open Flap 1 on EVA Camr Blanket  
    Uninstall Light-Pipe from DCS 760 Batt/PC Door  
    Remove EVA Camr Blanket from left to right
3. Temp stow EVA Camr Blanket
4. Replace lens
5. Camr Pwr – OFF
6. Open Batt/PC Door:  
    Remove DCS 760 Batt  
    Remove 1 GB EVA Flash Cards (two)



## DCS 760 EVA CAMR (Continued)

### 760 EVA – CAMR w/FLASH DISASSEMBLY (Concluded)

#### POST-EVA (Concluded)

#### EVA FLASH AND FLASH BRACKET

1. Flash – OFF
2. Open Flap C to access Flash Batt compartment
3. Open Batt Cap and remove DCS 760 Batts (two)
4. Secure Batt Cap
5. Close Flap C
6. Open Flaps A,B
7. Remove Remote Cord Assy, Flash Sync Cable and DCS EVA 7 VDC Pwr Cable from Flap B
8. Disconnect Flash Sync Cable Assy from Flash
9. Disconnect EVA 7 VDC Pwr Cable from Flash
10. Close Flaps A,B
11. Remove EVA Flash from Bracket Assy
12. Remove Remote Cord Assy from Thermal Blanket
13. Temp Stow EVA Flash and Bracket Assy w/Thermal Blanket

#### RETURN CAMR TO NOM OPS (as reqd)

1. Replace DCS 760 Batt and 1 GB EVA Flash Card
2. Camr Settings:
  - Camr Pwr sw – ON
  - Nom Ops settings:
    - Auto OK Errors – No
    - High Temp Limit – Yes
    - √Long Exposures Processing – Exposures > 1/4 sec
3. Camr Pwr – OFF
4. Replace Action Viewfinder w/Nominal Viewfinder

## DCS 760 EVA CAMR (Continued)

### SPECIFICATIONS

#### CAMR BODY

CCD SIZE: 18.48mm x 27.65mm

PIXEL COUNT: 2008 x 3032

DISK/FRAME: 1 GB: 112 Frames

FILE SIZE: 6 MB

EXPOSURE CONTROL: Auto (program, shutter priority, aperture priority), Manual

METER PATTERN: 3D Color Matrix, Center Weighted, Spot

EXPOSURE COMP:  $\pm 5$  in 1/3 stops

SHUTTER:

Program & Aperture Priority – 1/8000 thru 30 sec (virtually stepless)

Manual & Shutter Priority – 1/8000 thru 30 sec (1/3 stop increments), and B (manual only)

ISO Setting:

Manual: 80-400

MOTOR DRIVE: Single, C<sub>H</sub> (1.5 fps), C<sub>L</sub> (1.0 fps), C<sub>S</sub> (1.0 fps)

Interval: 10-25 shot burst

CAMR BATT: Rechargeable

CAMR BATT VOLTAGE: 7.2V

CAMR BATT LIFETIME: ~100 frames

CAMR WEIGHT: 4.09 lb (w/batt & PCMCIA)

## DCS 760 EVA CAMR (Continued)

### LENS DATA

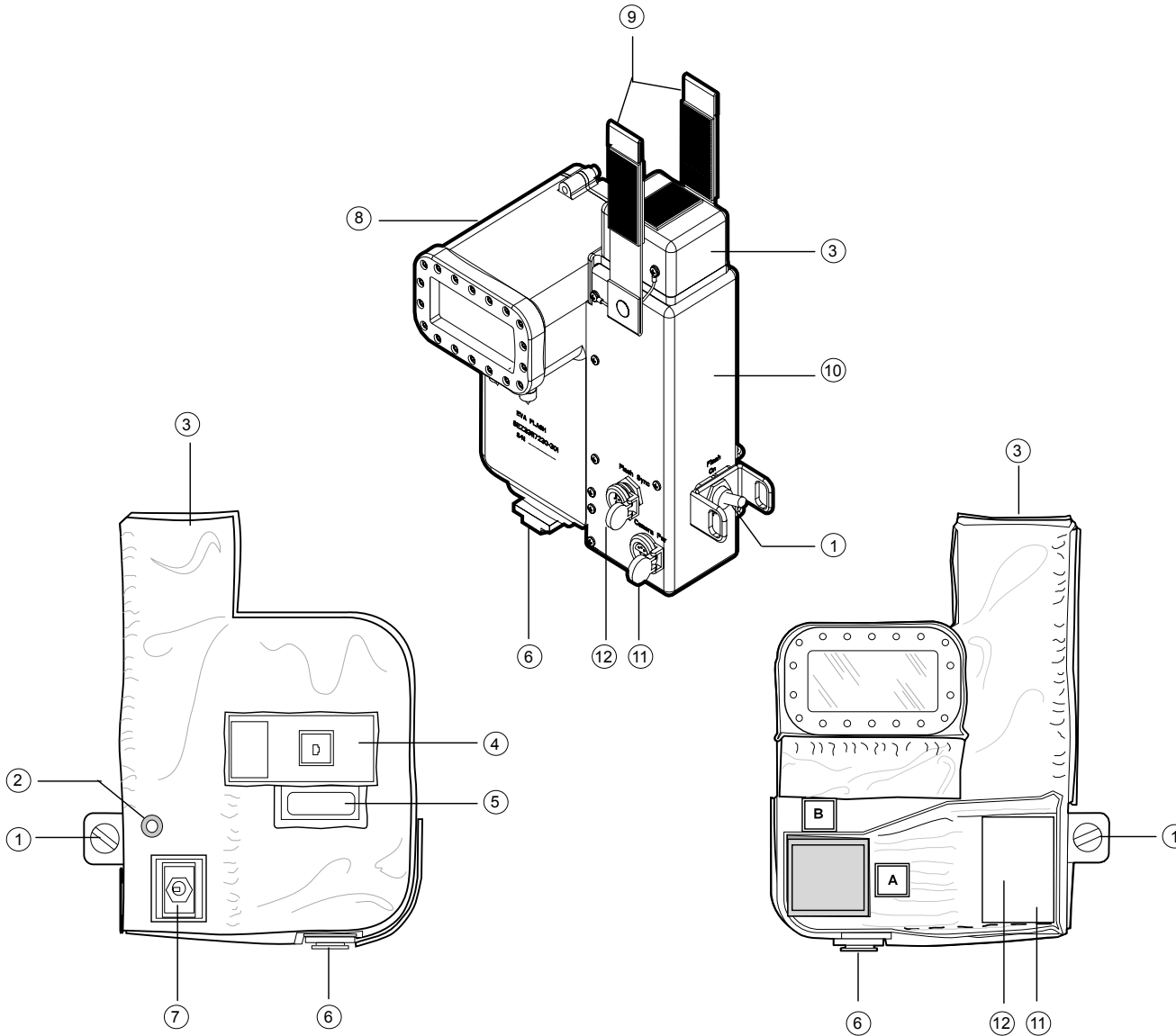
NOTE

Do not use non-EVA lens w/DCS 760 EVA

Lens	Aperture Range (f/stop)	Approximate Field of View (FOV)			Approx Minimum Focus Distance (ft)	Weight (lb)	Filter Size	M-A Sw	Focus Limit Sw
		Horizontal	Vertical	Diagonal					
28mm AF	f/2.8-f/22	53°	37°	61°	1.25	0.46	52mm		
35mm AF	f/2.0-f/22	43°	30°	51°	0.9	0.51	52mm		
50mm AFD	f/1.4-f/16	31°	21°	37°	1.5	0.59	52mm		
85mm AF	f/1.8-f/16	19°	12°	22°	3.0	0.93	62mm	Yes	
105mm AF	f/2.8-f/32	15°	10°	18°	1.0	1.22	52mm	Yes	Yes
180mm AFD	f/2.8-f/22	9°	6°	11°	5.0	1.72	72mm	Yes	
70-200mm AFD	f/2.8-f/22	20°-8°	13°-5°	24°-10°	6.0	2.98	77mm	Yes	

# DCS 760 EVA CAMR (Continued)

## NOMENCLATURE



- ① Flash Pwr sw
- ② External Camr Batt Low Light/LED
- ③ Batt Cap
- ④ Rear Flash Display Window
- ⑤ Flash Ready Lt Window
- ⑥ Flash Mount Rail
- ⑦ Camr Batt Pwr sw
- ⑧ Flash Housing
- ⑨ Batt Cap Straps
- ⑩ Batt Housing
- ⑪ External Camr Pwr Port
- ⑫ Flash Sync Port

jsc48037\_121\_079r2.cvx

## DCS 760 EVA CAMR (Continued)

### DATE/TIME SET

1. MENU pb – press
2. Navigate pad – sel Menu icon ☰, then MAIN MENU
3. OK pb – press
4. Navigate pad – sel TIME/DATE
5. OK pb – press

#### NOTE

Set TIME/DATE to GMT

6. Navigate pad – sel desired field (left,right)
7. Navigate pad – sel desired setting (up,down)
8. OK pb – press

## DCS 760 EVA CAMR (Continued)

### 760 QUICK FORMAT

#### NOTE

Only one card may be in Camr while formatting

1. Pwr – ON
2. MENU pb – press
3. Navigate pad – sel Menu icon ≡, then MAIN MENU
4. OK pb – press
5. Navigate pad – sel 'Card'
6. OK pb – press
7. Navigate pad – sel 'Quick Format'
8. OK pb – press
9. 'Format card? (All data will be erased)'
10. OK pb – press
11. 'Are you sure you want to erase the card?'
12. OK pb – press
13. 'Formatting Card'
14. 'Card format complete'
15. OK pb – press
16. CANCEL pb – press

## DCS 760 EVA CAMR (Continued)

### 760 FULL FORMAT

1. Perform DCS BATT CHARGING (BATTS & FUSES)

#### NOTE

Pwr Camr from vehicle and batt to ensure completion of formatting.  
Only one card may be in Camr while formatting

2. Pwr – ON
3. MENU pb – press
4. Navigate pad – sel Menu icon ☰, then MAIN MENU
5. OK pb – press
6. Navigate pad – sel ‘Card’
7. OK pb – press
8. Navigate pad – sel ‘Full Format’
9. OK pb – press
10. ‘Format card? (All data will be erased)’
11. OK pb – press
12. ‘Are you sure you want to erase the card?’
13. OK pb – press

#### NOTE

Formatting will take approx 20 min

14. ‘Formatting Card’ will be displayed w/progress bar
15. ‘Card format complete. No bad clusters found’
16. OK pb – press
17. CANCEL pb – press

## DCS 760 EVA CAMR (Continued)

### 760 FIRMWARE UPDATE

#### PGSC

1. Insert PCMCIA 1 GB MICRO DRIVE into PGSC
2. Copy 'DCS7XX.bin' to root directory of PCMCIA 1 GB MICRO DRIVE
3. Remove PCMCIA 1 GB MICRO DRIVE from PGSC

#### CAMR

1. Install fresh Batt
2. Install PCMCIA 1 GB MICRO DRIVE w/loaded Firmware
3. Power – ON
4. MENU pb – press
5. Navigate pad – sel Menu icon ☰, then MAIN MENU
6. OK pb – press
7. Navigate pad – sel 'Firmware'
8. OK pb – press
9. Navigate pad – sel 'Update from Card'
10. OK pb – press
11. 'Loading firmware file from card'
12. 'Firmware update will take about 15 seconds'
13. OK pb – press
14. 'Updating firmware'
15. 'Firmware update complete. Turn camera off and on to restart'
16. OK pb – press
17. PWR – OFF
18. PWR – ON
19. 'New firmware version loaded 3.3.14'
20. ✓Version number 3.3.14

#### NOTE

Process must be completed two times to update both Firmware slots

21. OK pb – OK
22. Repeat steps 4-21, then go to step 23
23. PWR – OFF



## DCS 760 EVA CAMR (Continued)

### DATA LOG FILE PROCEDURE

#### CREATING LOG FILE

1. MENU pb – press
2. Navigate pad – sel Menu icon ☰, then MAIN MENU
3. OK pb – press
4. Navigate pad – sel 'Firmware'
5. OK pb – press
6. Navigate pad – sel 'Version'
7. OK pb – press
8. MENU pb – press, hold
9. OK pb – press
10. 'Saving log file' – displayed
11. 'Log file saved' – displayed (log file saved in root directory)
12. OK pb – press
13. Cancel pb – press twice to turn off display
14. Dnlk imagery and log file

## DCS 760 EVA CAMR (Continued)

### BLANK IMAGE

#### CAMR SETTINGS – ACTIVATION

##### NOTE

Camr must be pwr'd off for 30 min prior to performing Blank Image procedure

Install Body(Lens) Cap  
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 – 30  
AF Area Mode – [ ] (no “+”)  
Meter – Matrix  
Diopter – Adjust  
Film Adv – S  
Body Focus Mode – M  
Aperture – Min, locked (‘--’ displayed on top LCD when no Lens installed)  
Flash Settings  
ON/OFF – OFF

#### TECHNIQUE

1. Fire Camr
2. Note image number (number in brackets on rear LCD)
3. Rcd audio file to denote “blank image taken”
4. Transfer image to PGSC for dnk to MCC-H

#### CAMR SETTINGS – DEACTIVATION

Exp Mode – P  
Body Focus Mode – S  
Flash Settings  
ON/OFF – ON

## DCS 760 EVA CAMR (Concluded)

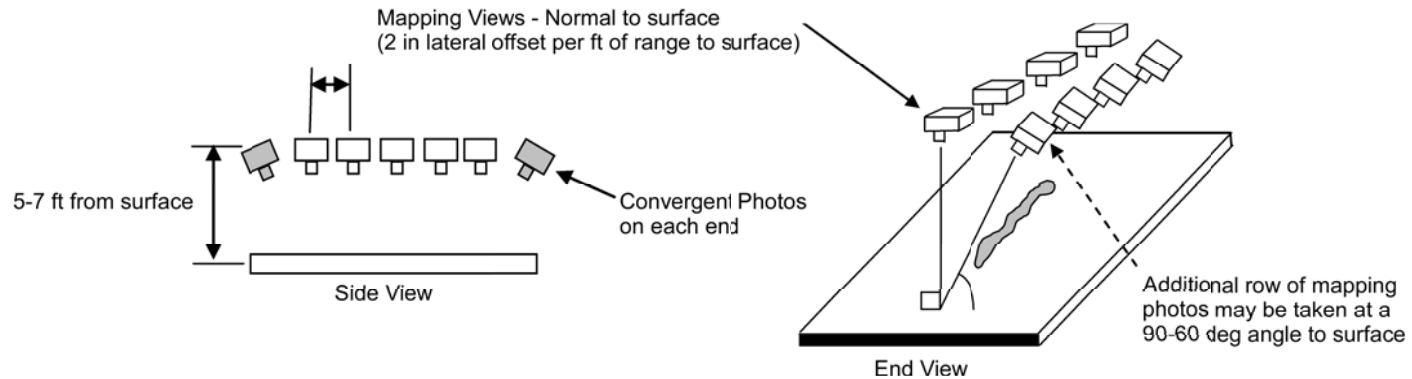
### STEREO PHOTOGRAMMETRY PROCEDURE

#### CAMR SETTINGS – ACTIVATION

1. Rcd CAMR and LENS S/Ns
2. Perform EVA – CAMR ONLY (CAMR w/BRACKET ONLY, CAMR w/FLASH)
3. Install Lens – 50mm EVA (preferred)  
Exp Mode – P  
Flash Settings:  
ON/OFF – OFF

#### TECHNIQUE

1. Distance to subject: 5-7 ft
2. Take mapping images normal to surface, followed by one additional convergent view on each side
3. Shoot photos in pairs. Offset each image laterally 2 in/ft of subject distance, ~10-14 in
4. An additional row of photos may be taken at a 90-60 deg angle to surface to capture critical details not covered in previous images
5. Repeat as time permits



#### CAMR SETTINGS – DEACTIVATION

1. Exp Mode – P  
Body Focus Mode – S  
Flash Settings:  
ON/OFF – ON

This Page Intentionally Blank

I

EVA IR CAMR

NOTE

Not being flown

This Page Intentionally Blank

SPOTMETER 303

NOTE

Not being flown

This Page Intentionally Blank



SONY PD100

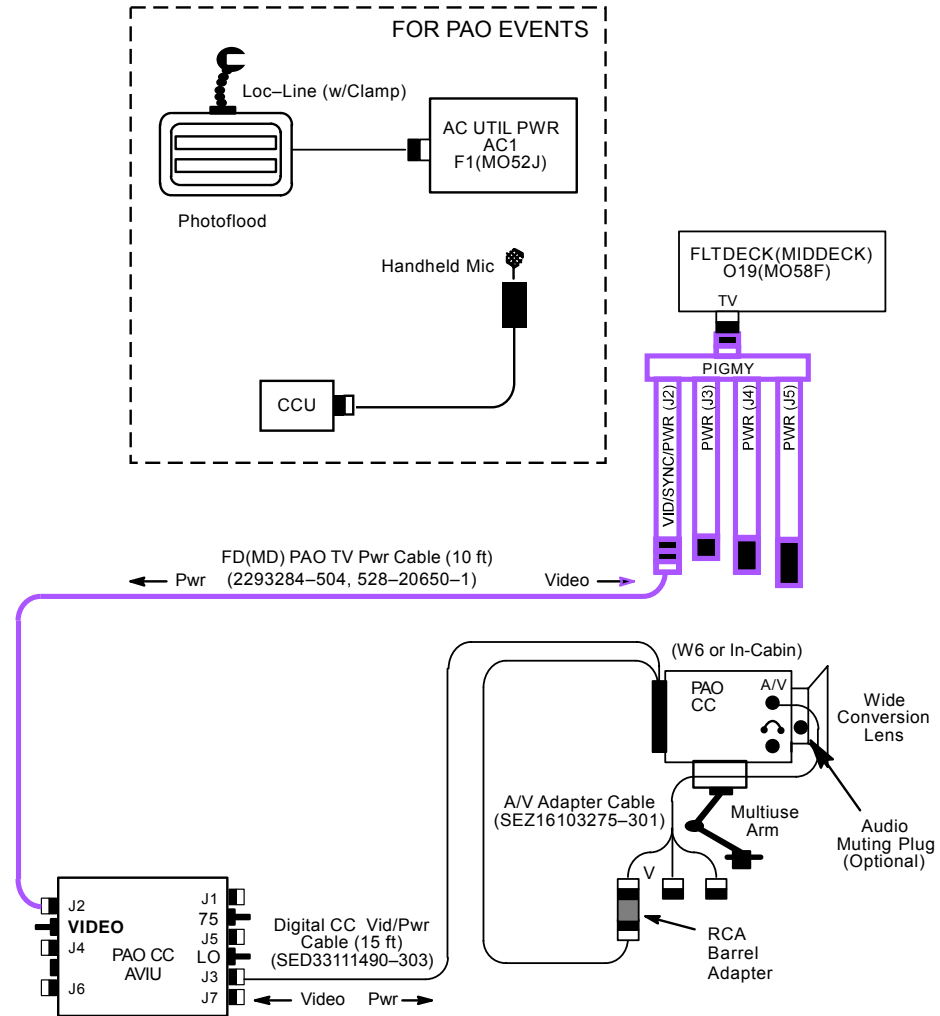
	<u>PAGE</u>
ANALOG PAO CC .....	7-3
DIGITAL PAO CC .....	7-4
SPACEHAB CC SETUP .....	7-5
MINIDV DIGITAL TAPE DNLK .....	7-6
SPECIFICATIONS .....	7-7
WIDE ANGLE CONVERTER .....	7-7
LENS DATA .....	7-7
NOMENCLATURE .....	7-8
NOMINAL MENU SETTINGS .....	7-12
CAMR MODE .....	7-12
VTR MODE .....	7-12
MANUAL SETTINGS .....	7-13
FOCUS .....	7-13
SHUTTER .....	7-13
WHITE BALANCE .....	7-13
APERTURE .....	7-13
PD100 TO PD100 VIA FIREWIRE .....	7-14
PD100 TO V10 VIA FIREWIRE .....	7-15
PD100 TO V10 VIA ORBITER TV SYSTEM .....	7-16
PD100 TO DSR-25 VTR .....	7-17
SINGLE CAMCORDER w/CAMCORDER MICROPHONE .....	7-18

This Page Intentionally Blank

# SONY PD100

## ANALOG PAO CC

- Config H/W per dwg at right
- AVIU SYNC/VIDEO – VIDEO (SYNC for Middeck)  
HI-Z/75 – 75  
PWR SELECT – LO
  - O19(MO58F) ✓TV PWR – ON
  - CC ✓Wide Conversion lens installed (not W6 CC)  
PWR – CAMERA  
If rec to tape:  
| Tape – Install  
| ✓Viewfinder (LCD) displays STBY  
If live event:  
| Tape – Remove  
| ✓Viewfinder (LCD) displays blinking yellow tape  
Camr Settings  
| ✓AUTO LOCK – AUTO LOCK  
| ✓FOCUS – AUTO  
Install Audio Muting Plug (optional)  
Multiuse Brkt, Clamp
  - F1(MO52J) AC UTIL PWR AC1 – ON
  - Photoflood ON/OFF – ON  
HI/LO – HI
  - Cabin Lts Flt Deck – ON  
Lts in FOV – OFF as reqd  
Lt Shades – install as reqd  
Window Shades – install as reqd
  - CC ✓Scene composition  
Adjust Camr angle for best framing
  - CCU CCU PWR – ON
  - ATU PWR – AUD  
A/G 1(2) – T/R  
All Other Loops – OFF  
XMIT/ICOM MODE SEL – PTT/PTT  
MSTR SPKR VOL SEL – As reqd
  - A7 When ready for dnk:  
| ✓TV DNLK – ENA  
| PWR CNTL – PNL  
| CONTR UNIT – MNA(B)  
| CNTL – CMD (wait 10 sec for system initialization)  
| VID OUT DNLK pb – push  
| IN FLT DECK(MIDDECK) pb – push

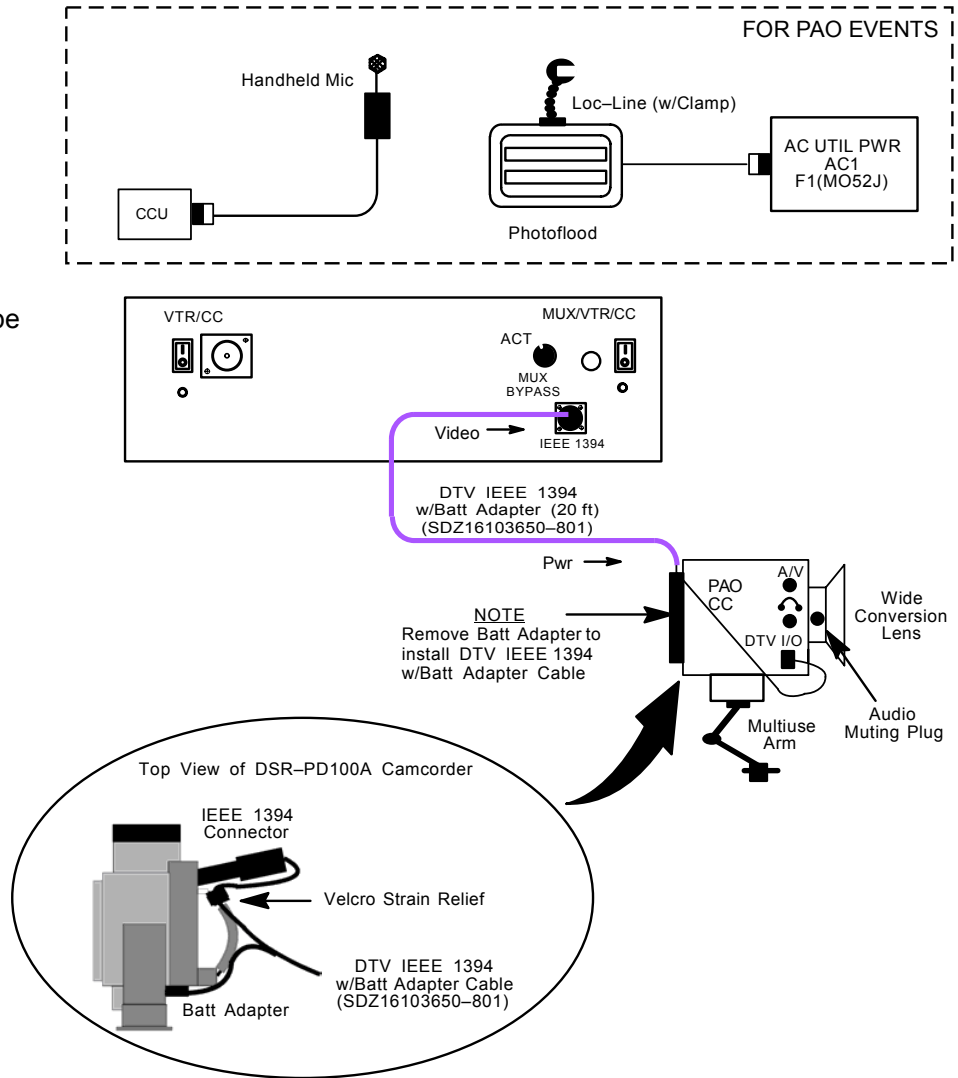


jsc48037\_118\_011r1.cvx

# SONY PD100 (Continued)

## DIGITAL PAO CC

- Config H/W per dwg at right
- To compose scene but not dnk:  
 VTR/CC PWR – on (LED on)
- L10 (MUX)  
 CC
- √Wide Conversion lens installed
  - PWR – CAMERA
  - If rec to tape:
    - Tape – Install
    - √Viewfinder (LCD) displays STBY
  - If live event:
    - Tape – Remove
    - √Viewfinder (LCD) displays blinking yellow tape
- Camr Settings
- √AUTO LOCK – AUTO LOCK
  - √FOCUS – AUTO
- Install Audio Muting Plug  
 Multiuse Brkt, Clamp
- F1(MO52J)  
 Photoflood
- Cabin Lts
- CC
- CCU
- ATU
- L10 (MUX)
- AC UTIL PWR AC1 – ON
- ON/OFF – ON  
 HI/LO – HI
- Flt Deck – ON  
 Lts in FOV – OFF as reqd  
 Lt Shades – install as reqd  
 Window Shades – install as reqd
- √Scene composition
- Adjust Camr angle for best framing
- CCU PWR – ON
- PWR – AUD  
 A/G 1(2) – T/R  
 All Other Loops – OFF  
 XMIT/ICOM MODE SEL – PTT/PTT  
 MSTR SPKR VOL SEL – As reqd
- When ready to dnk signal:  
 MUX/VTR/CC PWR – on (LED on)  
 √MUX BYPASS – ACT  
 √CHANNEL 3 DATA LED – on



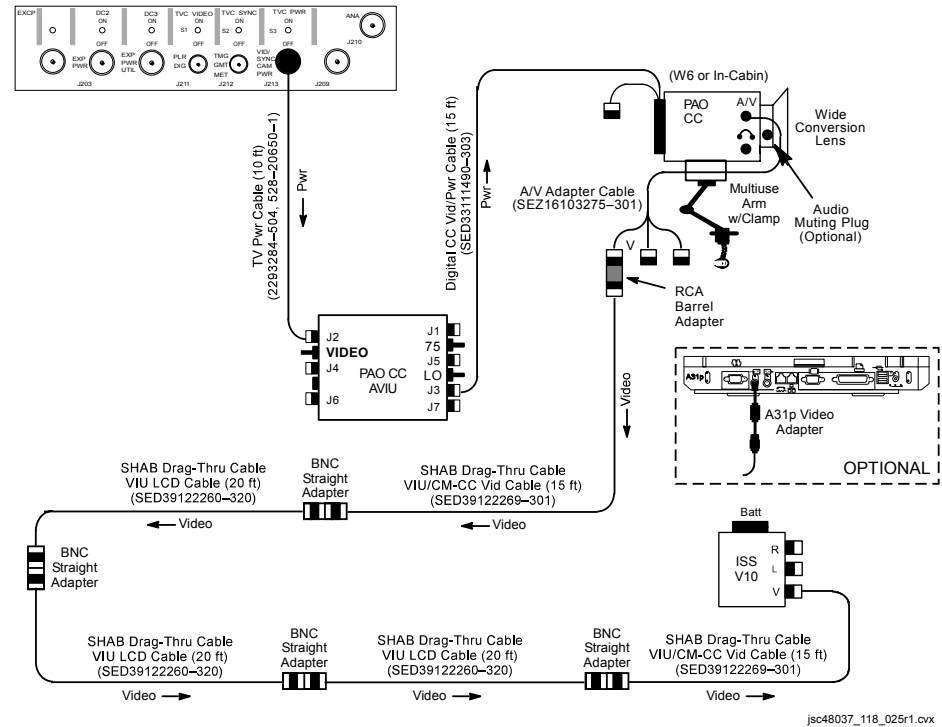
jsc48037\_118\_010.cvx

# SONY PD100 (Continued)

## SPACEHAB CC SETUP

### CAMCORDER SETUP

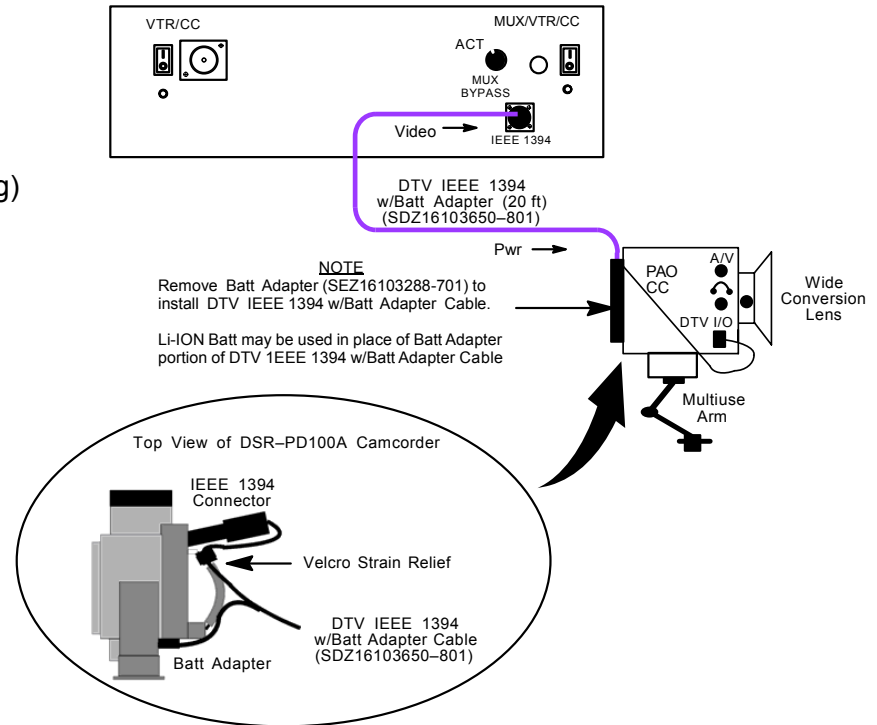
- EXCP2 1. Safe/Config Pwr Ports  
 ✓cb TVC PWR – OFF
2. CC Setup  
 Obtain:
- A16 (DTV Bag) TV Pwr Cable (10 ft)  
 AVIU  
 Digital CC Vid/Pwr Cable  
 SHAB Drag-Thru Cable String  
 Multiuse Arm
- FLT DECK PD100 CC w/Wide Conversion Lens  
 A/V Adapter Cable  
 Multiuse Clamp
- MA9G (Stow-N-Go) Config CC H/W per dwg at right
- AVIU SYNC/VIDEO – VIDEO  
 HI-Z/75 – 75  
 PWR SELECT – LO
- EXCP2 cb TVC PWR – ON
- CC ✓Wide Conversion lens installed  
 PWR – CAMERA
- If rec to tape:  
 Tape – install  
 ✓Viewfinder (LCD) displays STBY  
 Install Lav mic
- If live:  
 Tape – Remove  
 ✓Viewfinder (LCD) displays blinking yellow tape
- Camr Settings  
 ✓AUTO LOCK – AUTO LOCK  
 ✓FOCUS – AUTO  
 Multiuse Brkt, Clamp



# SONY PD100 (Continued)

## MINIDV DIGITAL TAPE DNLK

- Config H/W per dwg at right  
 Notify MCC of digital dnlk
- L10 (MUX)    √VTR/CC PWR – on (LED on)
- CC            PWR – VTR  
 Open REC/SAVE tab on MiniDV Tape (Red showing)  
 Tape – install  
 VTR pb – REW(FF) to cue tape
- For Dnlk:
- L10 (MUX)    MUX/VTR/CC PWR – on (LED on)  
 √MUX BYPASS – ACT
- CC            PLAY pb – push (green ► displayed)
- L10 (MUX)    √CHANNEL 3 DATA LED – on
- If PLBK(DNLK) complete:  
 | STOP pb – push
- If CC ops complete:
- L10 (MUX)    MUX/VTR/CC PWR – off (LED off)  
 VTR/CC PWR – off (LED off) as reqd
- CC            Remove,mark,stow tape as reqd  
 PWR – OFF  
 Config CC for nominal FD ops



jsc48037\_117\_010.cvx

## SONY PD100 (Continued)

### SPECIFICATIONS

TAPE: Mini DVCAM Cassette  
TAPE LENGTH: 40 min  
SENSING AREA: 1/4-in Color CCD (three) (5.08mm Horizontal, 3.81mm Vertical, 6.35mm Diagonal)  
VIEWFINDER: Color  
LCD: Color, 3.5 in  
ZOOM: 12X, 48X Digital Zoom  
FOCAL LENGTH: 4.3mm to 51.6mm  
APERTURE: f/1.6-2.6 - f/11  
MICROPHONE: Built-in Stereo Electret Condenser  
AUDIO: 16-Bit at 48KHz  
MINIMUM ILLUMINATION: 4 Lux at f/1.6  
POWER: 7.2V Batt  
8.4V DC IN  
BATT LIFETIME: ~60 min  
BODY WEIGHT: 2.5 lb  
BATT WEIGHT: 0.41 lb

### WIDE ANGLE CONVERTER

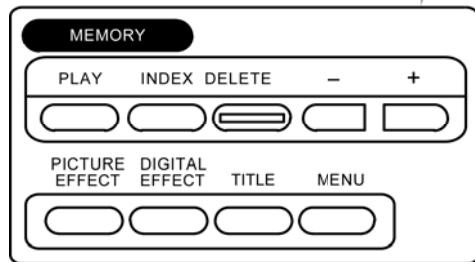
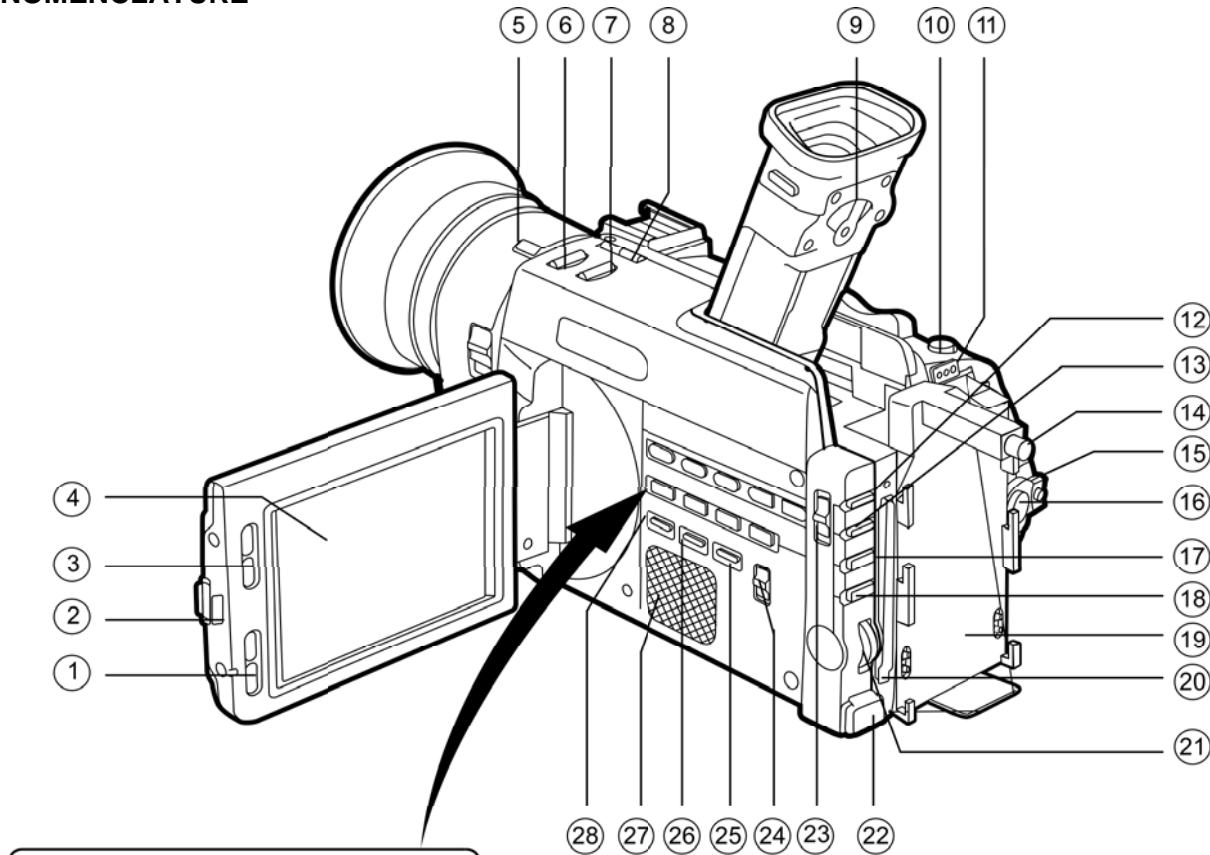
CONVERSION: 0.7X  
CONVERTED FOCAL LENGTH: 3.01mm to 36.2mm  
WEIGHT: 0.53 lb

### LENS DATA




Lens	Zoom Ratio	Approximate Field of View			Filter Size
		Horizontal	Vertical	Diagonal	
4.3-51.6mm	12:1	61.1°-5.6°	47.8°-4.2°	72.9°-7.0°	52mm
w/Wide Conversion Lens 3.0-36mm	12:1	80.3°-8.0°	64.7°-6.0°	93.1°-10.0°	N/A

# SONY PD100 (Continued)

## NOMENCLATURE



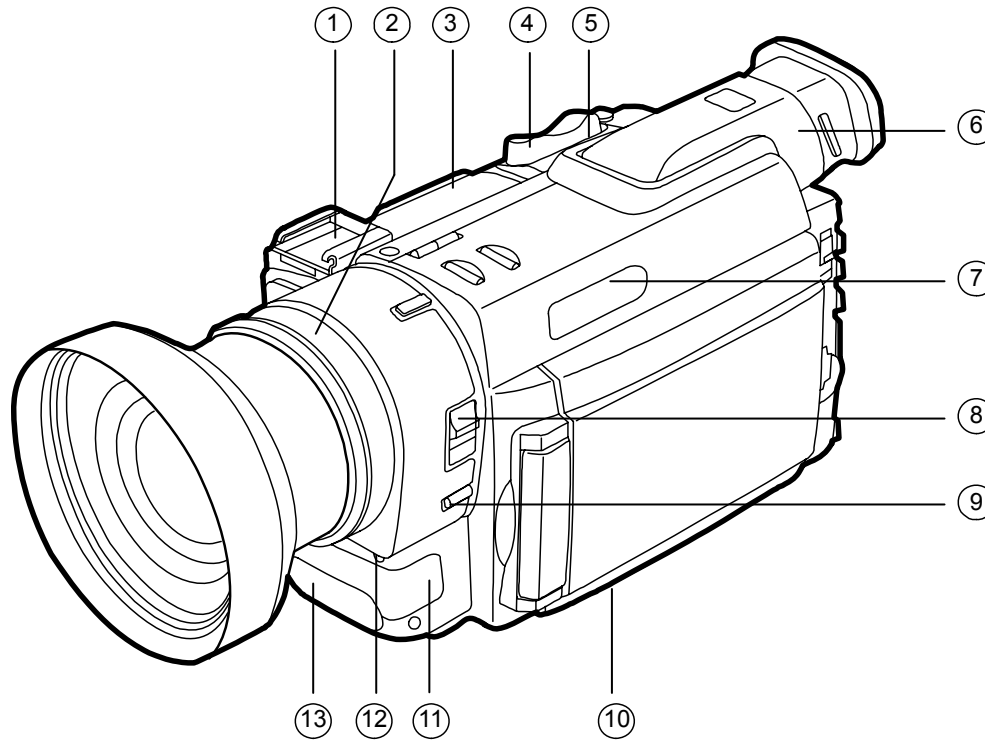
- ⑤ ND FILTER pb
- ⑥ FADER pb
- ⑦ BACK LT pb
- ⑧ EDIT/SEARCH pb
- ⑨ Viewfinder Lens Adjustment Lever
- ⑩ PHOTO pb
- ⑪ BATT RELEASE pb
- ⑫ SHUTTER SPEED pb
- ⑬ WHT BAL (White Balance) pb
- ⑭ POWER SUPPLY RELEASE pb
- ⑮ POWER sw
- ⑯ START/STOP pb
- ⑰ PROGRAM AE pb
- ⑱ EXPOSURE pb
- ⑲ Batt Adapter
- ⑳ Memory Card Slot
- ㉑ Control tw
- ㉒ DC IN
- ㉓ AUTO LOCK Selector
- ㉔ ZEBRA Selector
- ㉕ END SEARCH pb
- ㉖ DISPLAY pb
- ㉗ Speaker
- ㉘ DATA CODE pb

- ① VOLUME pb
- ② LCD OPEN sw
- ③ LCD BRIGHT pb
- ④ LCD Screen
-  Tape Remaining
-  Manual Focus
-  White Balance Icon



## SONY PD100 (Continued)

### NOMENCLATURE (Continued)

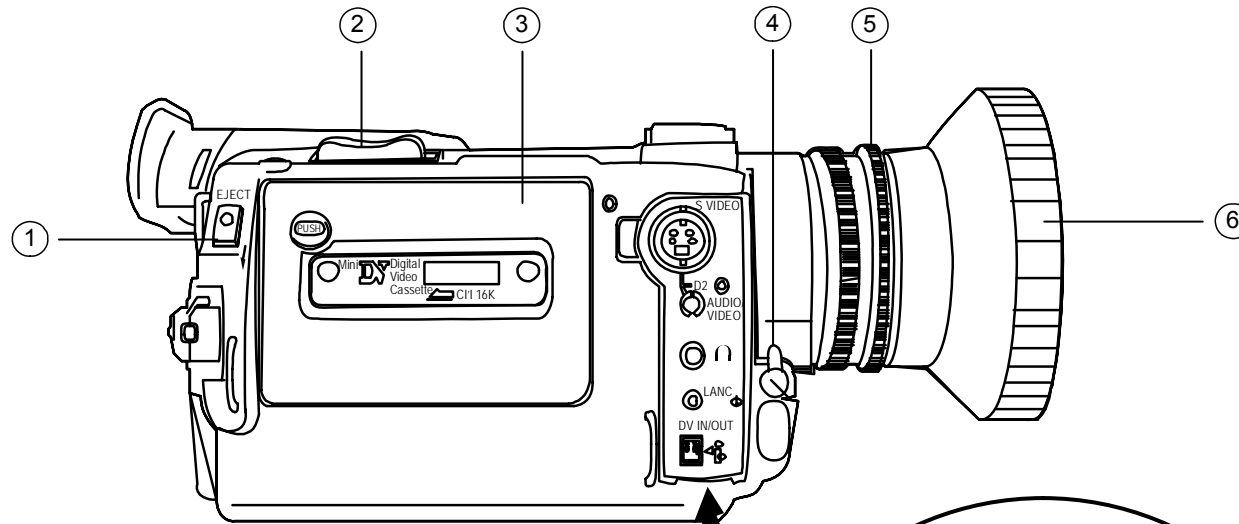


- ① Accessory Shoe
- ② Focus Ring
- ③ Tape Transport pbs
  - STOP (stop)
  - ◀◀ REW (rewind)
  - ▷ PLAY (playback)
  - ▶▶ FF (fast forward)
  - || PAUSE (pause)
  - REC (record)
- ④ Zoom Control
- ⑤ TC RESET pb
- ⑥ Viewfinder
- ⑦ Display Window
- ⑧ FOCUS sw
- ⑨ PUSH AUTO pb
- ⑩ Memory Release pb (not visible)
- ⑪ Built-in Microphone
- ⑫ REC Lamp
- ⑬ Remote Sensor

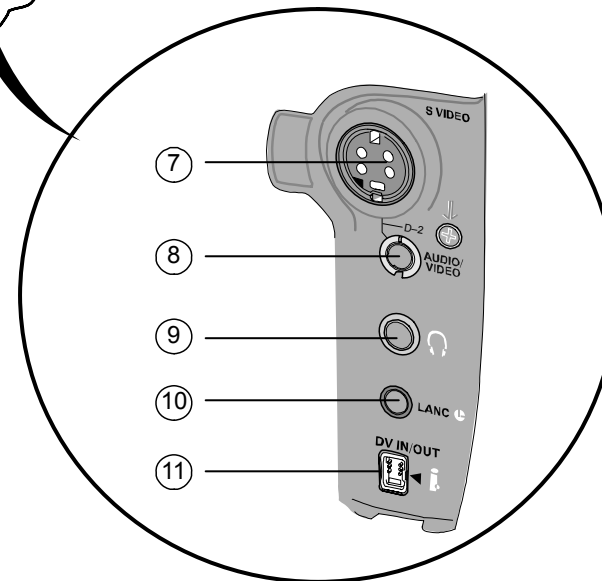
jsc48037\_026.cnv

## SONY PD100 (Continued)

### NOMENCLATURE (Continued)



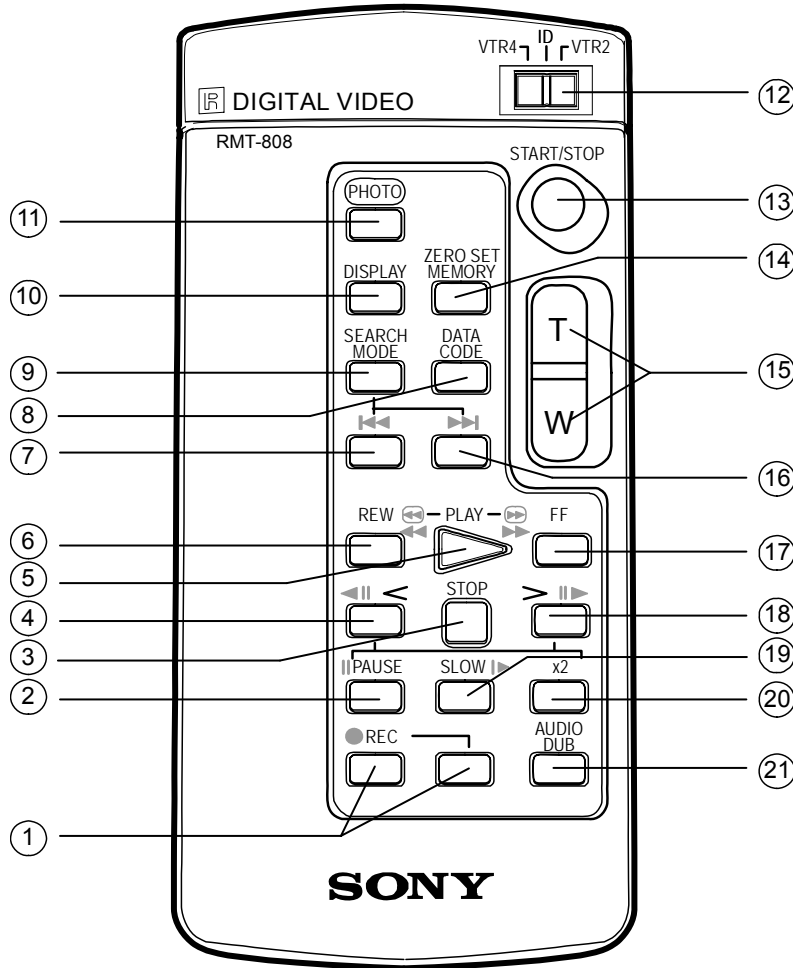
- ① Cassette Eject
- ② Zoom Control
- ③ Cassette Compartment
- ④ MIC PLUG-IN Pwr
- ⑤ Wide Conversion Locking Collar
- ⑥ Wide Conversion Lens



jsc48037\_027.cnv

# SONY PD100 (Continued)

## NOMENCLATURE (Concluded)



- ① REC pb
- ② PAUSE pb
- ③ STOP pb
- ④ Frame by Frame Reverse pb
- ⑤ PLAY pb
- ⑥ REW pb
- ⑦ REW Search pb
- ⑧ DATA CODE pb
- ⑨ SEARCH Mode pb
- ⑩ DISPLAY pb
- ⑪ PHOTO pb
- ⑫ VTR SELECT
- ⑬ START/STOP pb
- ⑭ ZERO SET MEMORY pb (not used)
- ⑮ Zoom Controls
- ⑯ FF Search pb
- ⑰ FF pb
- ⑱ Frame by Frame FF pb
- ⑲ SLOW pb
- ⑳ X2 pb
- ㉑ AUDIO DUB pb

jsc48037\_028.cnv

## SONY PD100 (Continued)

### NOMINAL MENU SETTINGS

#### CAMR MODE

##### MANUAL SET

AUTO SHUTTER – ON  
PROG SCAN – OFF

##### CAMR SET

D.ZOOM – OFF (non-default)  
16:9 WIDE – OFF  
STEADYSHOT – ON  
AE SHIFT – “center”  
GAIN SHIFT – 0dB  
FRAME REC – OFF  
INT REC – OFF

##### LCD/VF SET

LCD B.L. – BRT Normal  
LCD COLOR – “center”  
VF BRIGHT – “center”

##### CM SET

N/A

##### TAPE SET

AUDIO MODE – FS48K (non-default)  
MIC LEVEL – AUTO  
ⓈⓈ REMAIN – ON (non-default)  
TIME CODE – DF

##### SETUP MENU

CLOCK SETUP – set to GMT  
LTR SIZE – NORMAL

##### OTHER

WORLD TIME – 0 HR  
BEEP – NORMAL (non-default)  
COMMANDER – ON  
DISPLAY – LCD  
REC LAMP – OFF (non-default)  
COLOR BAR – OFF

#### VTR MODE

##### VTR SET

HiFi SOUND – STEREO  
AUDIO MIX – “left” (ST1)

##### LCD/VF SET

LCD B.L. – BRT NORMAL  
LCD COLOR – “center”  
VF BRIGHT – “center”

##### MEMORY SET

N/A

##### CM SET

N/A

##### TAPE SET

AUDIO MODE – FS48K (non-default)  
MIC LEVEL – AUTO  
ⓈⓈ REMAIN – ON  
DATA CODE – DATE/CAM  
TIME CODE – DF

##### SETUP MENU

LTR SIZE – NORMAL

##### OTHER

BEEP – NORMAL (non-default)  
COMMANDER – ON  
DISPLAY – LCD  
DV EDITING – N/A

## SONY PD100 (Continued)

### MANUAL SETTINGS

#### FOCUS

##### MANUAL FOCUS

PWR – CAMERA

FOCUS sw – MANUAL (√ display in viewfinder (LCD))

Zoom – IN to subject

Focus manually

Zoom to desired setting

Begin recording as reqd

##### TEMP AUTO FOCUS

PUSH AUTO pb – press,hold for temp Auto Focus

#### SHUTTER

PWR – CAMERA

AUTO LOCK – “center”

SHUTTER SPD pb – press

CONTROL tw – Rotate to select SS from 1/4 to 1/10,000 sec

To exit Shutter Speed:

SHUTTER SPEED pb – press

√No SS displayed

#### WHITE BALANCE

PWR – CAMERA


Camr Settings

AUTO LOCK – “center”

WHT BAL pb – press

To set WHT BAL, place white sheet of paper in CC FOV  
(under same lighting conditions)

CONTROL tw – press

White Balance icon  will blink for 2 sec and become steady

To exit WHT BAL:

WHT BAL – press

#### APERTURE

PWR – CAMERA

AUTO LOCK – “center”

PROGRAM AE pb – press

√ displayed

CONTROL tw – press

Adjust aperture as reqd

To exit Aperture:

PROGRAM AE pb – press

√No  displayed

# SONY PD100 (Continued)

## PD100 TO PD100 VIA FIREWIRE

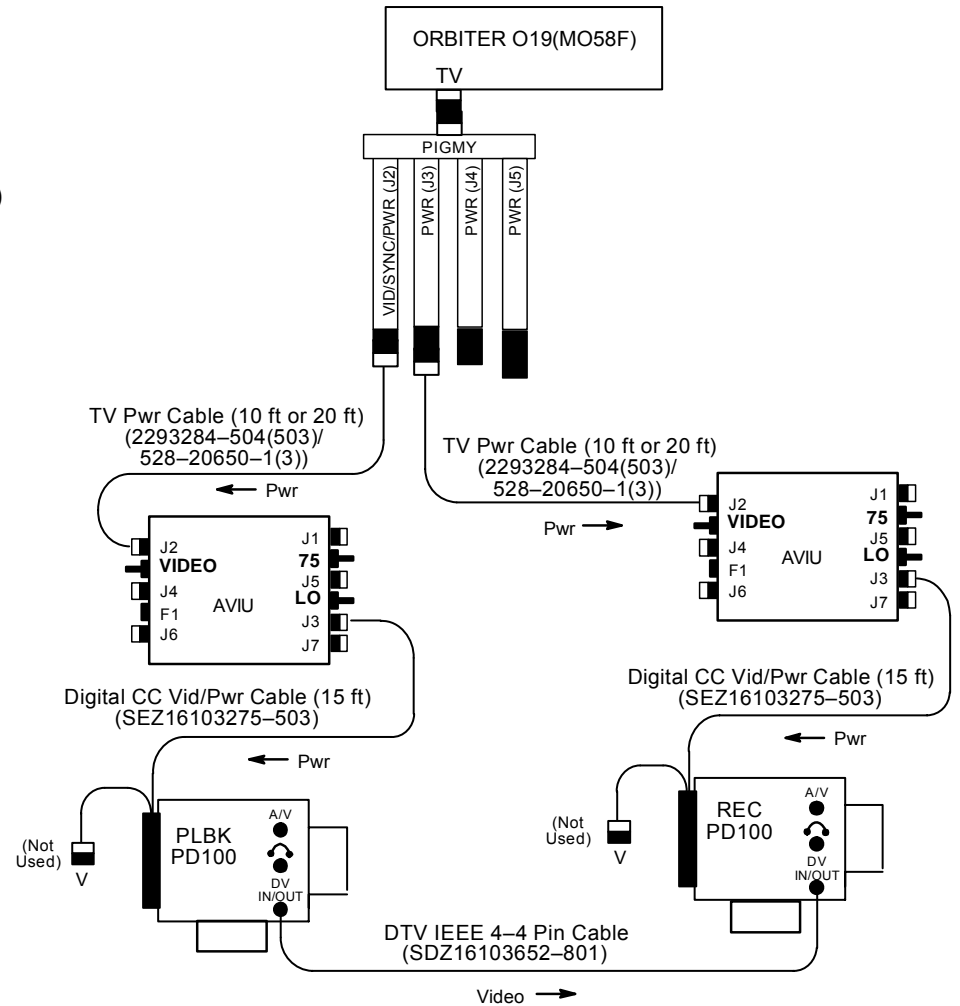
Config H/W per dwg at right

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

PLBK CC PWR – VTR  
 DISPLAY pb – push  
 Install source tape. Protect Tab – Slide (red visible)  
 PLAY pb – push  
 Cue tape to desired take  
 PAUSE pb – push

RCD CC PWR – VTR  
 DISPLAY pb – push  
 Install new tape

PLBK CC MENU pb – push  
 Sel ETC(OTHERS)/DV EDITING  
 Perform following for each video segment:  
 Sel IN to mark beginning of video clip  
 FF pb – push to move to end of video clip  
 Sel OUT to mark end of video clip

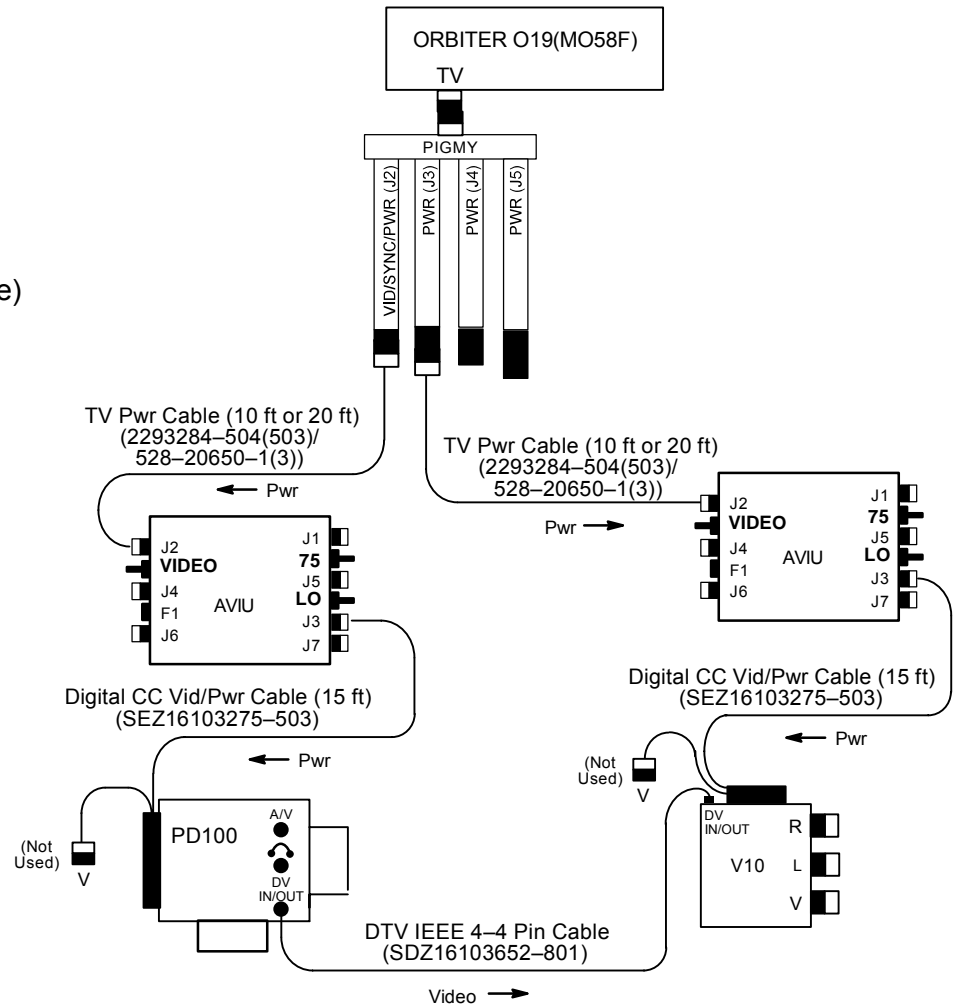


jsc48037\_029.cnv

# SONY PD100 (Continued)

## PD100 TO V10 VIA FIREWIRE

- Config H/W per dwg at right
- AVIU SYNC/VIDEO – VIDEO  
HI-Z/75 – 75  
PWR SELECT – LO
- CC PWR – VTR  
DISPLAY pb – push  
Install source tape. Protect Tab – Slide (red visible)  
PLAY pb – push  
Cue tape to desired take  
PAUSE pb – push
- V10 PWR – ON  
DISPLAY pb – push  
Install new tape
- CC MENU pb – push  
Sel ETC(OTHERS)/DV EDITING  
Perform following for each video segment:  
Sel IN to mark beginning of video clip  
FF pb – push to move to end of video clip  
Sel OUT to mark end of video clip



jsc48037\_030r1.cvx

# SONY PD100 (Continued)

## PD100 TO V10 VIA ORBITER TV SYSTEM

Config H/W per dwg at right  
 ✓Orbiter in async mode

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

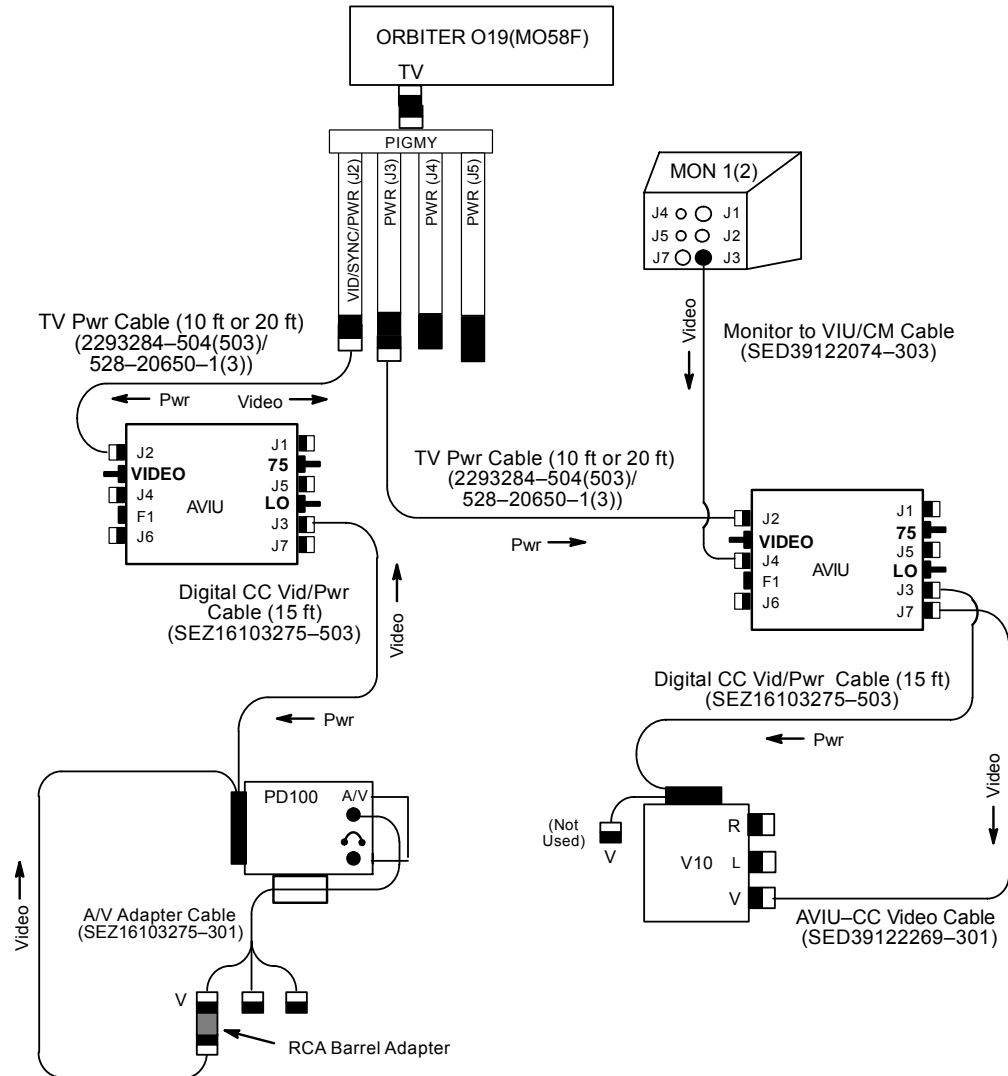
O19(MO58F) ✓TV PWR – ON

CC PWR – VTR  
 DISPLAY pb – push  
 Install source tape  
 Protect Tab – Slide (red visible)  
 PLAY pb – push  
 Cue tape to desired take  
 PAUSE pb – push

V10 PWR – ON  
 DISPLAY pb – push  
 Install new tape  
 REC pb – push  
 PAUSE pb – push

A7 VID OUT MON 1(2) pb – push  
 IN FLT DECK(MIDDECK) pb – push

CC Perform following for each video segment:  
 PAUSE pb – push (To PLAY)  
 V10 PAUSE pb – push (To REC)  
 When EDIT segment complete:  
 CC PAUSE pb – push (PAUSE)  
 V10 PAUSE pb – push (PAUSE)



jsc48037\_031.cnv



# SONY PD100 (Continued)

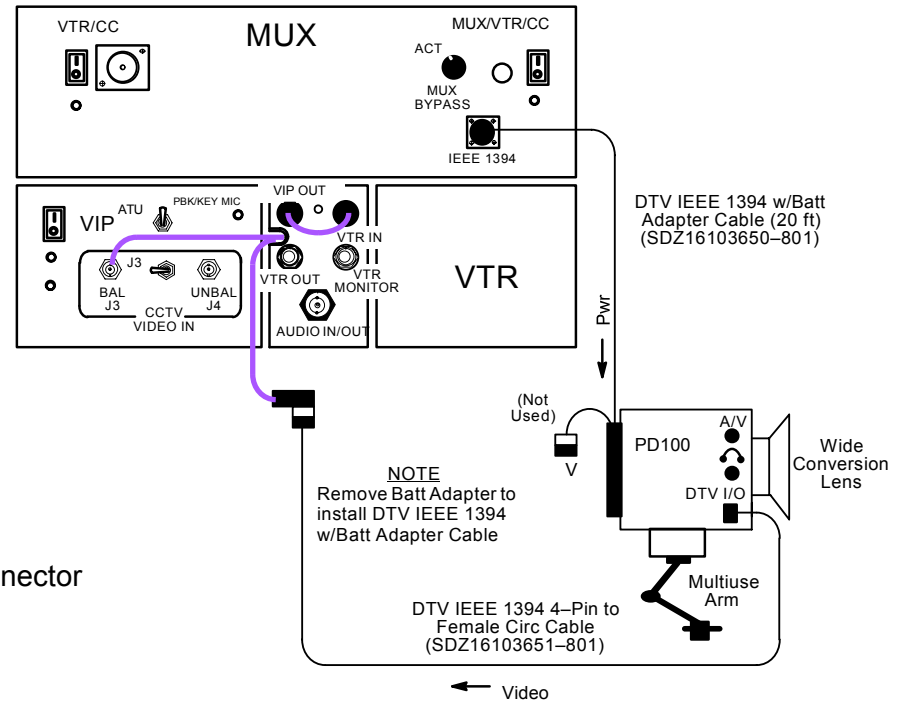
## PD100 TO DSR-25 VTR

Config H/W per dwg at right

L10 (MUX)  
(VTR)     √VTR/CC PWR – on (LED on)  
ON/STANDBY pb – push (green LED on)  
INPUT SELECT – DV  
Install new tape

CC     PWR – VTR  
DISPLAY pb – push  
Install source tape  
Cue tape to desired take  
PAUSE pb – push  
MENU pb – push  
Sel ETC(OTHERS)/DV EDITING  
Perform following for each video segment:  
Sel IN to mark beginning of video clip  
FF pb – push to move to end of video clip  
Sel OUT to mark end of video clip

L10 (VTR)  
(MUX)     When complete:  
INPUT SELECT – VIDEO  
Remove, mark tape  
ON/STANDBY pb – push (red LED on)  
Remove, stow IEEE 1394 female cable  
VTR/CC PWR – off (LED off) as reqd  
Reconnect IEEE 1394 male cable to IEEE 1394 connector



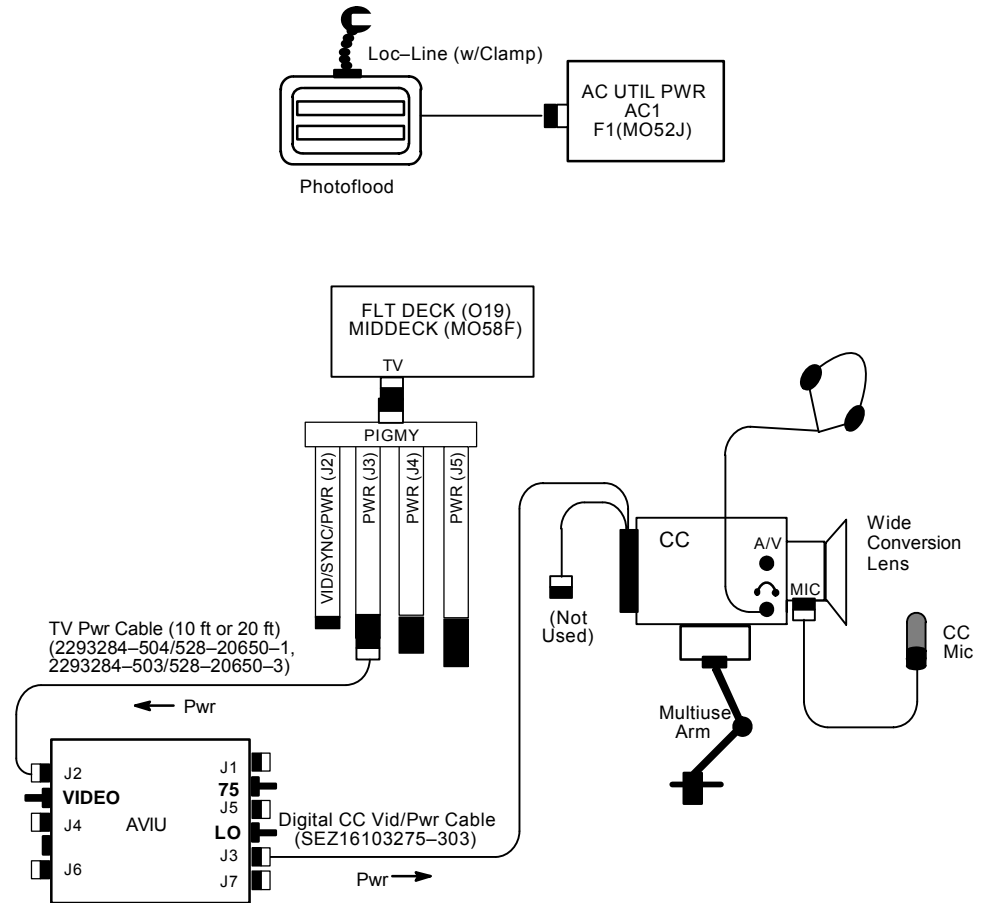
jsc48037\_032r2.cvx

# SONY PD100 (Concluded)

## SINGLE CAMCORDER w/CAMCORDER MICROPHONE

Config H/W per dwg at right

- AVIU SYNC/VIDEO – VIDEO  
HI-Z/75 – 75  
PWR SELECT – LO
- O19(MO58F) ✓TV PWR – ON
- CC ✓Wide Conversion Lens installed  
PWR – CAMERA  
Tape – Install  
✓Viewfinder(LCD) displays STBY  
Camr Settings  
✓AUTO LOCK – AUTO LOCK  
✓FOCUS – AUTO  
Multiuse Brkt, Clamp
- Lav Mic ON/OFF – ON
- F1(MO52J) AC UTIL PWR AC1 – ON
- Photoflood ON/OFF – ON  
HI/LO – HI
- Cabin Lts Flt Deck(Middeck) – ON  
Lts in FOV – Off as reqd  
Lt Shades – install as reqd
- CC ✓Scene Composition  
Adjust Camr for best framing  
✓Audio Quality



jsc48037\_033.cnv

SONY V10

	<u>PAGE</u>	
V10 FROM MON 1 .....	8-3	
V10 FROM MON 2 .....	8-4	
RWS VIDEO CABLE SETUP FOR ESP3 UNBERTH,INSTALL.....	8-5	
RWS V10(A31p) FROM WVS .....	8-6	
SPECIFICATIONS.....	8-7	
NOMENCLATURE.....	8-8	
NOMINAL MENU SETTINGS.....	8-10	
V10 TO V10 VIA FIREWIRE.....	8-11	

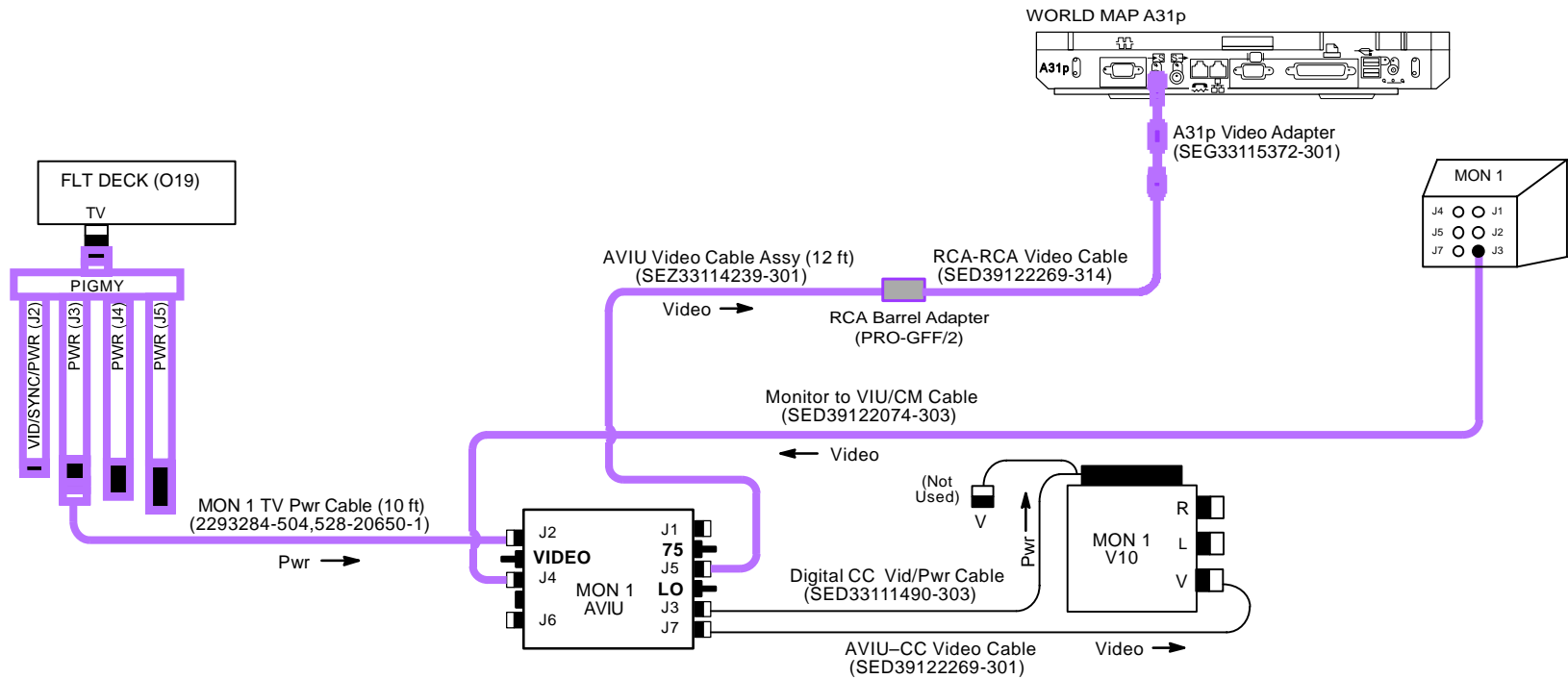
This Page Intentionally Blank

# SONY V10

## V10 FROM MON 1

Config H/W per dwg below

- |      |   |
|------|---|
| AVIU | SYNC/VIDEO – VIDEO<br>HI-Z/75 – 75<br>PWR SELECT – LO                     |
| O19  | √TV PWR – ON  |
| V10  | PWR – ON<br>DISPLAY pb – Toggle to display tape counter<br>Tape – Install |

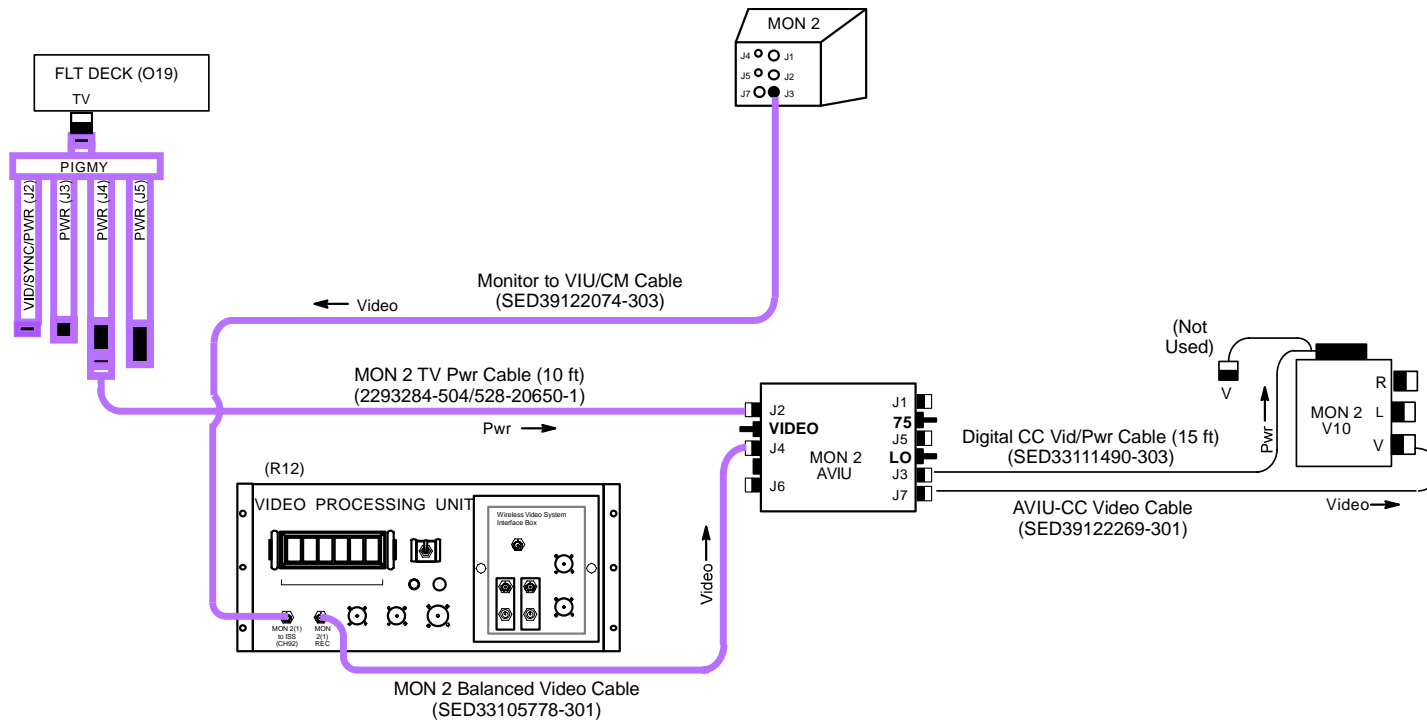


jsc48037\_118\_029r1.cvx

# SONY V10 (Continued)

## V10 FROM MON 2

- Config H/W per dwg below
- AVIU SYNC/VIDEO – VIDEO  
 HI-Z/75 – 75  
 PWR SELECT – LO
- O19  $\sqrt$ TV PWR – ON
- V10 PWR – ON  
 DISPLAY pb – Toggle to display tape counter  
 Tape – Install
- R12 VPU PWR – ON (LED on)



jsc48037\_118\_013r2.cvx

## SONY V10 (Continued)

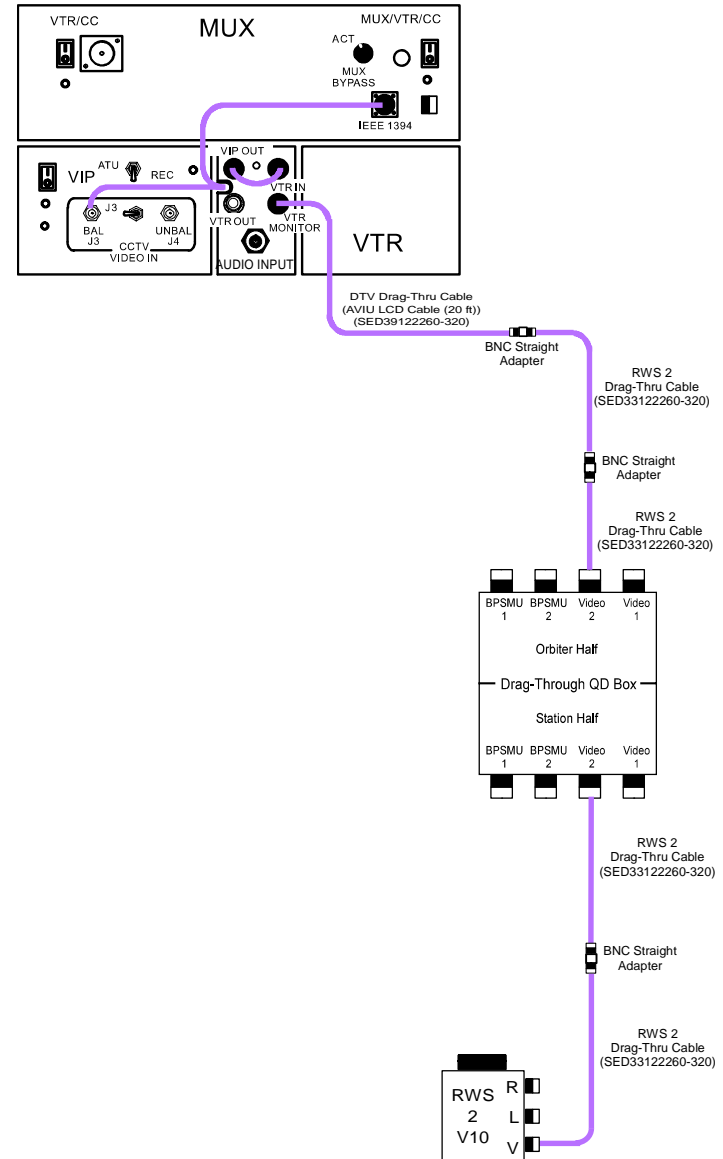
### RWS VIDEO CABLE SETUP FOR ESP3 UNBERTH,INSTALL

1. Config H/W per dwg at right

**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

- |         |  |
|---------|--|
| Middeck | 2. Drag-thru RWS 2 Cable Assy to RWS located in ISS Lab  |
|         | 3. $\sqrt{\text{Pwr}}$ configured per P/TV118 DOCKED OPERATIONS, dwg USOS 120VDC – V10 VTRs (SODF: PHOTO/TV: SCENES) |
| V10     | 4. PWR – ON  |



jsc48037\_118\_024r1.cvx

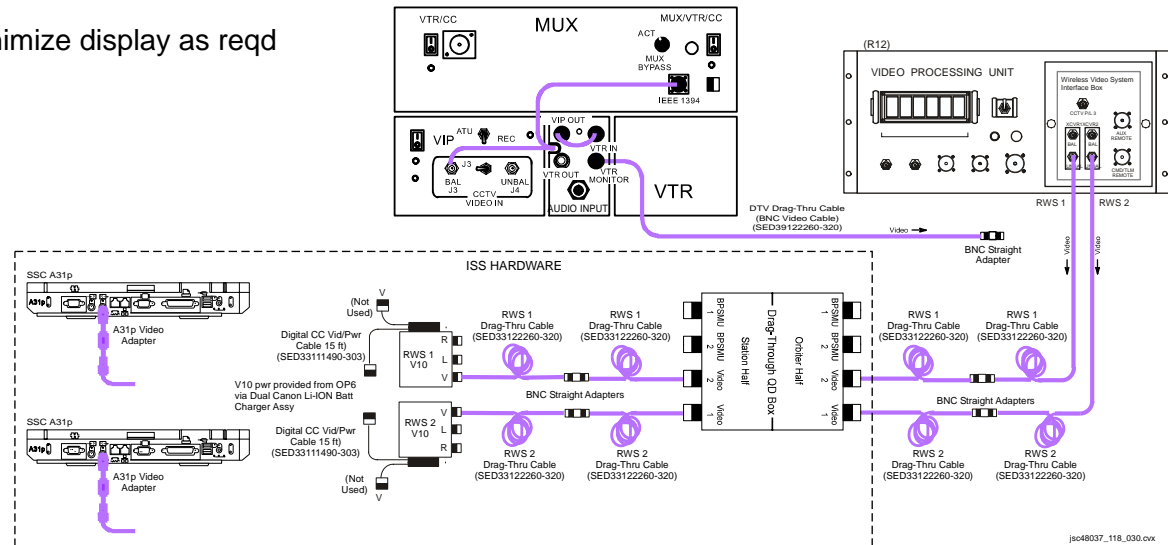
# SONY V10 (Continued)

## RWS V10(A31p) FROM WVS

1. Config H/W per dwg below

**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

- |          |  |
|----------|--|
| If V10:  | <ol style="list-style-type: none"> <li>2. ✓Pwr configured per P/TV121 DOCKED OPERATIONS, dwg USOS 120VDC –V10 VTRs (SODF: ISS PTV: SCENES)</li> <li>3. PWR (RWS 1,RWS 2) – ON</li> </ol>   |
| V10      |  |
| If A31p: | <ol style="list-style-type: none"> <li>4. ✓Drag-Thru Cable connected to A31p Video Adapter</li> <li>5. ✓PWR (two) – ON</li> <li>6. Sel 'Station Apps : COSS Apps : Video Converter'</li> <li>7. ✓'Video Converter' window displayed</li> <li>8. Sel 'Set Properties'</li> <li>9. ✓'Video Settings' window displayed</li> <li>10. Format: – NTSC</li> <li>11. Close 'Video Settings' window</li> <li>12. Sel 'Local Full Screen'</li> <li>13. Press 'ESC' or 'W' to minimize display as reqd</li> </ol> |
| A31p     |  |





## SONY V10 (Continued)

### SPECIFICATIONS

TAPE: Mini DVCAM Cassette

TAPE LENGTH: 40 min

CD: Color, 5.5 in

AUDIO: 16 bit at 48 KHz

PWR: 7.2V Batt

8.4V DC IN

BATT LIFETIME: ~60 min w/LCD closed

~30 min w/LCD open

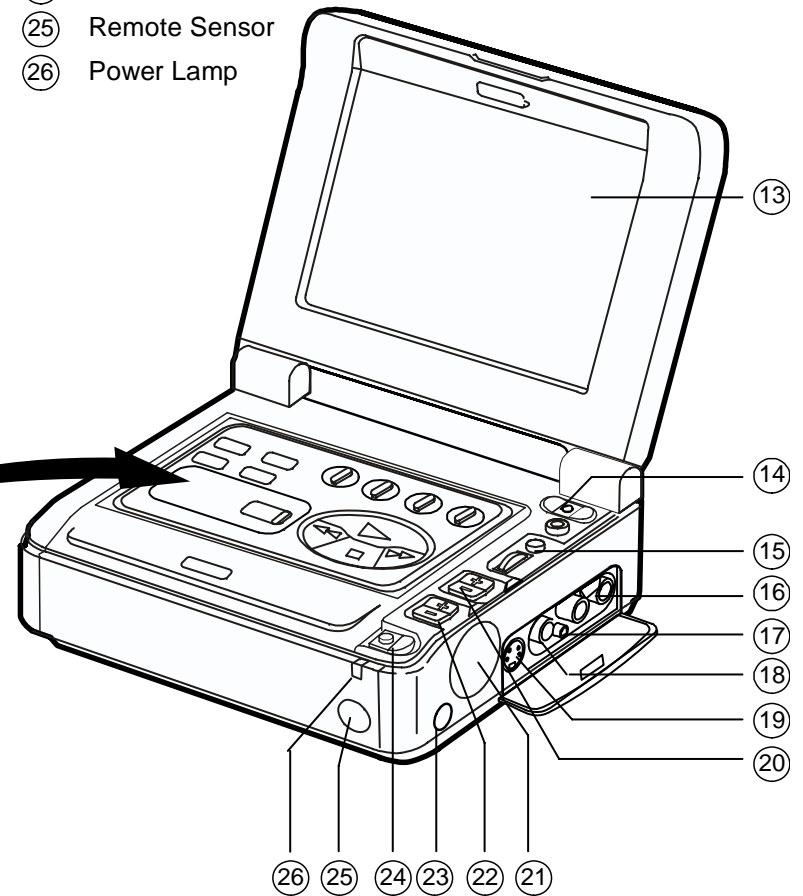
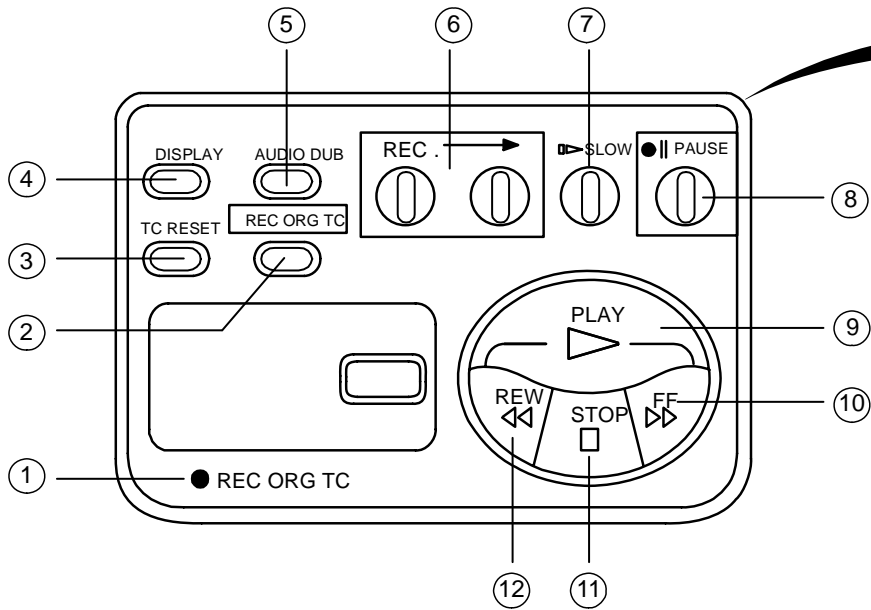
BODY WEIGHT: 2.00 lb

BATT WEIGHT: 0.41 lb

# SONY V10 (Continued)

## NOMENCLATURE

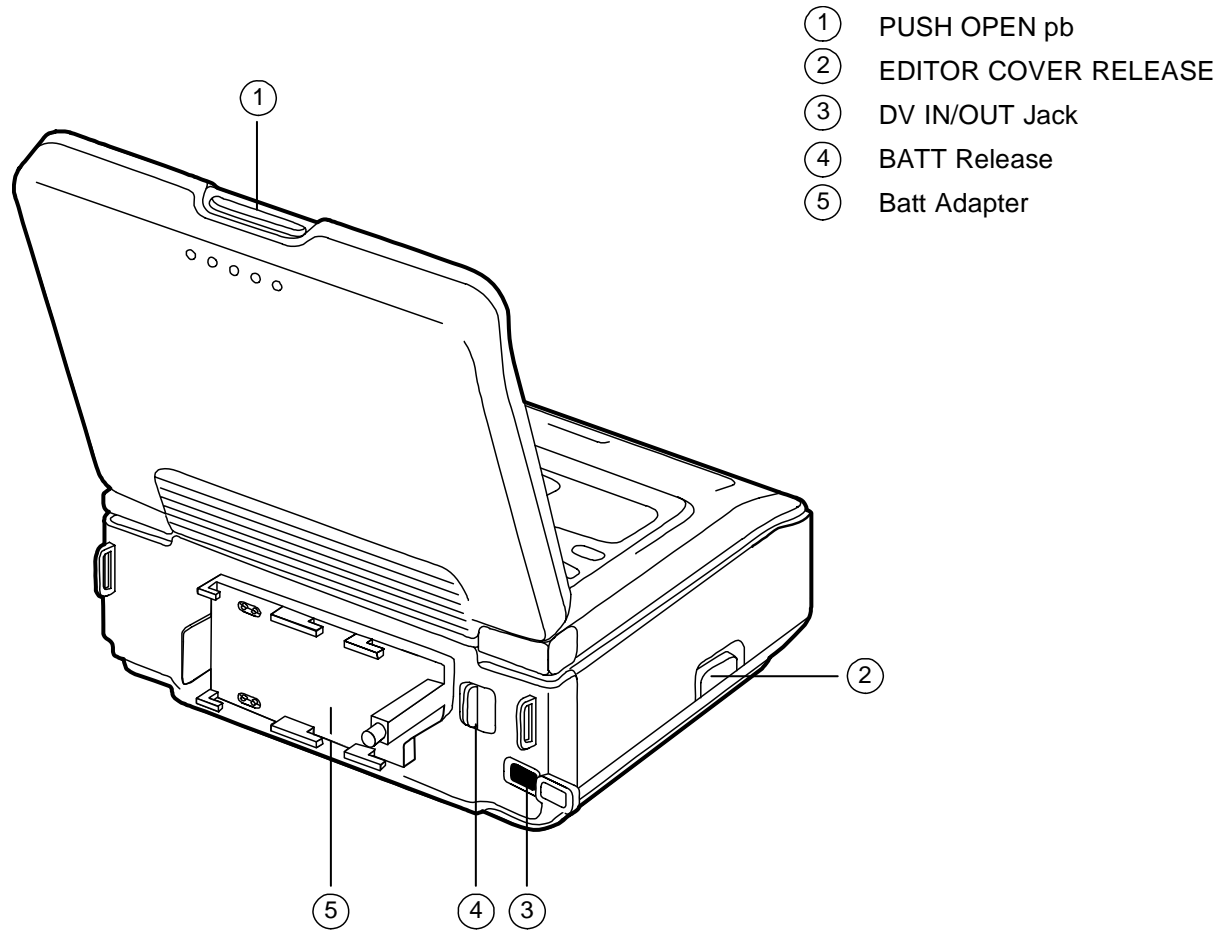
- |                               |                                  |                  |
|-------------------------------|----------------------------------|------------------|
| ① REC ORG TC Lamp             | ⑫ REW (rewind) pb                | ⑳ Headphone Jack |
| ② REC ORG TC pb               | ⑬ LCD Screen                     | ㉑ EJECT sw       |
| ③ TC Reset pb                 | ⑭ POWER sw                       | ㉒ Remote Sensor  |
| ④ DISPLAY pb                  | ⑮ MENU pb, Control dial          | ㉓ Power Lamp     |
| ⑤ AUDIO DUB pb                | ⑯ AUDIO Input/Output Jacks (R,L) |                  |
| ⑥ REC (recording) pb and Lamp | ⑰ RFU DC OUT Jack                |                  |
| ⑦ SLOW pb                     | ⑱ VIDEO Input/Output Jack        |                  |
| ⑧ PAUSE pb                    | ㉀ S VIDEO Input/Output Jack      |                  |
| ⑨ PLAY (playback) pb          | ㉁ LCD BRIGHT pb                  |                  |
| ⑩ FF (fast Forward) pb        | ㉂ Speaker                        |                  |
| ⑪ STOP pb                     | ㉃ Volume pb                      |                  |



jsc48037\_037.cnv

## SONY V10 (Continued)

### NOMENCLATURE (Concluded)



jsc48037\_038.cnv

## SONY V10 (Continued)

### NOMINAL MENU SETTINGS

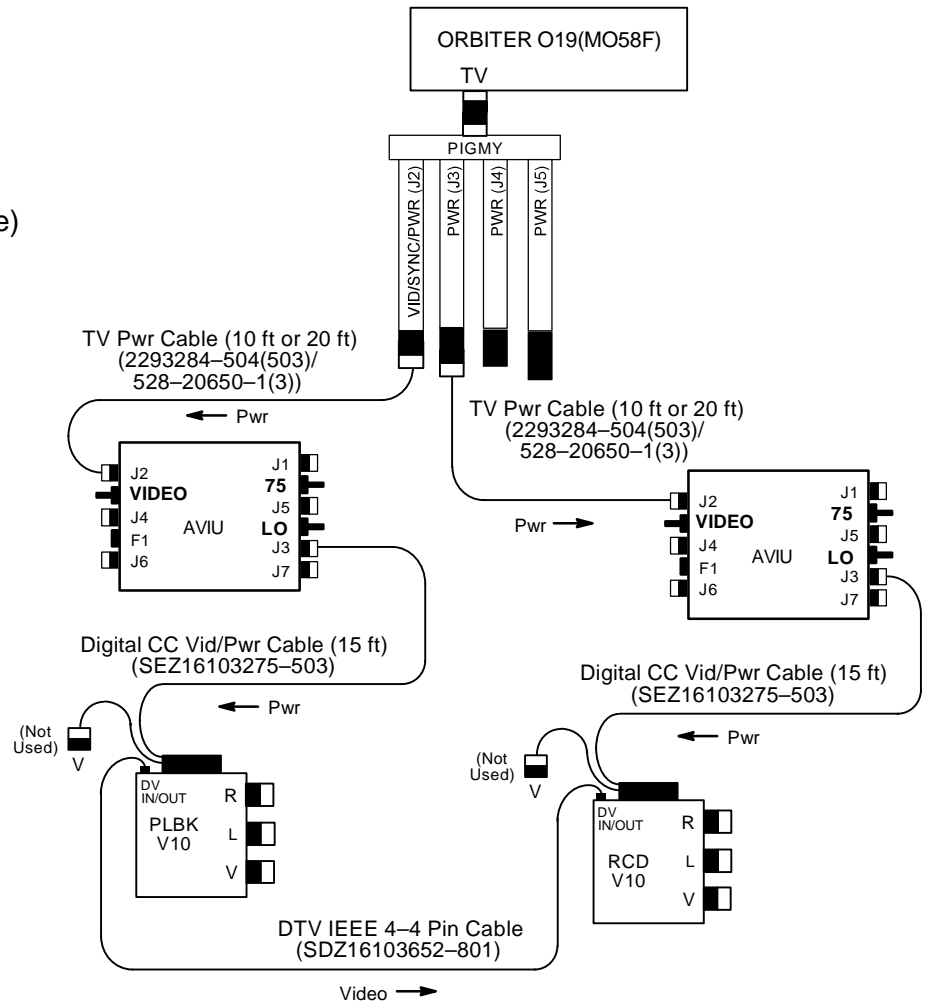
CMD – VTR4  
HiFi SOUND – STEREO  
AUDIO MODE – FS48K (non-default)  
TIME CODE – DF  
BEEP – ON  
AUDIO MIX – “left” (ST1)  
CM SEARCH – ON  
DATA CODE – DATE/CAM  
LCD COLOR – “center”  
LCD HUE – “center”  
DISPLAY – LCD  
JOG AUDIO – OFF  
CLOCK SET – set to GMT

# SONY V10 (Concluded)

## V10 TO V10 VIA FIREWIRE

Config H/W per dwg at right

- |          |  |
|----------|--|
| AVIU     | SYNC/VIDEO – VIDEO<br>HI-Z/75 – 75<br>PWR SELECT – LO  |
| PLBK V10 | PWR – ON<br>DISPLAY pb – push<br>Install source tape. Protect Tab – Slide (red visible)<br>PLAY pb – push<br>Cue tape to desired take<br>PAUSE pb – push |
| RCD V10  | PWR – ON<br>DISPLAY pb – push<br>Install new tape<br>REC pb – push<br>PAUSE pb – push  |
| PLBK V10 | Perform following for each video segment:<br>PAUSE pb – push (To PLAY)   |
| RCD V10  | PAUSE pb – push (To REC)   |
| PLBK V10 | When EDIT segment complete:<br>PAUSE pb – push (PAUSE)   |
| RCD V10  | PAUSE pb – push (PAUSE)  |



jsc48037\_039r1.cvx

This Page Intentionally Blank

PORTABLE MONITORS

	<u>PAGE</u>
PGSC VIDEO OVERLAY .....	9-2
A31p VIDEO CONVERTER.....	9-4
VPU REPEATER .....	9-6
SONY LCD SPECIFICATIONS .....	9-7
SONY LCD NOMENCLATURE .....	9-7

# PORTABLE MONITORS

## PORTABLE MONITORS

### PGSC VIDEO OVERLAY

- PGSC
1. √PGSC Pwr – ON
  2. Connect VID IN/OUT Cable to PGSC VID IN port  
(i.e., port w/Camr symbol next to Pwr port)
  3. Connect appropriate hardware from video source to VID IN/OUT Cable depending on desired video source per table below

Video Source	Hardware (part #)	From	To	Cable Connections
PAYLOAD/DTV	•AVIU-CC Video Cable (15ft) (SED39122269-301)	•L10A1 VTR OUT	•Vid In/Out cbl	•BNC - RCA
Monitor 1(2) (option 1)	•Monitor to AVIU/CM Cable (20ft) (SED39122074-303) •AVIU (SED33111493-302/303) •AVIU Video Cable Assy (SEZ33114239-301)	•Mon/J3  -----  •AVIU/J5	•AVIU/J4  -----  •Vid In/Out cbl	•Circ - Twinax  -----  •Unique - RCA
Monitor 1(2) (option 2)	•Monitor to AVIU/CM Cable (20ft) (SED39122074-303) •AVIU (SED33111493-302/303) •Balanced Video Cable (SED33105778-301) •Bal/Unbal Xfmr (SED39124190-301) •AVIU-CC Video Cable (15ft) (SED39122269-301)	•Mon/J3  -----  •AVIU/J6  •Balanced Video cbl •Bal/Unbal Xfmr	•AVIU/J4  -----  •Bal/Unbal xfmr •AVIU-CC Video cbl •Vid In/Out cbl	•Circ - Twinax  -----  •Twinax - Twinax  -----  •BNC - RCA
Monitor 1(2) (option 3)	•Monitor to AVIU/CM Cable (20ft) (SED39122074-303) •AVIU (SED33111493-302/303) •AVIU-CC Video Cable (15ft) (SED39122269-301)	•Mon/J3  -----  •AVIU/J7	•AVIU/J4  -----  •Vid In/Out cbl	•Circ - Twinax  -----  •BNC - RCA
Monitor 1(2) (option 4)	•Monitor to AVIU/CM Cable (20ft) (SED39122074-303) •Bal/Unbal Xfmr (SED39124190-301) •AVIU-CC Video Cable (15ft) (SED39122269-301)	•Mon/J3  -----  •Bal/Unbal Xfmr	•Bal/Unbal Xfmr  -----  •Vid In/Out cbl	•Circ - Twinax  -----  •BNC - RCA



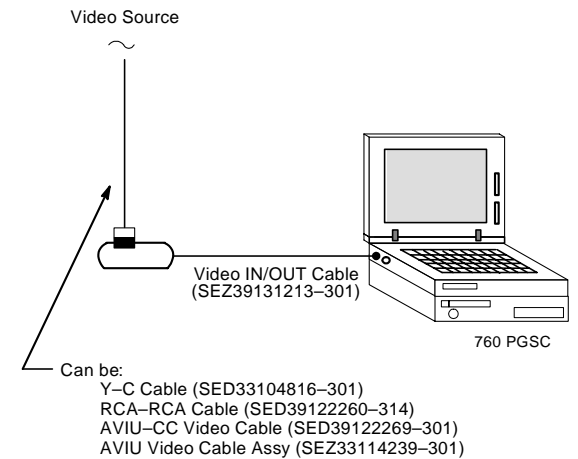
## PORTABLE MONITORS (Continued)

### PGSC VIDEO OVERLAY (Concluded)

Video Source	Hardware (part #)	From	To	Cable Connections
ISS	<ul style="list-style-type: none"> <li>•VPU Patch Cable (SED39136025-301)</li> <li>•Bal/Unbal Xfmr (SED39124190-301)</li> <li>•AVIU-CC Video Cable (15ft) (SED39122269-301)</li> </ul>	<ul style="list-style-type: none"> <li>•VPU FROM ISS</li> <li>-----</li> <li>•Bal/Unbal Xfmr</li> </ul>	<ul style="list-style-type: none"> <li>•Bal/Unbal Xfmr</li> <li>-----</li> <li>•Vid In/Out cbl</li> </ul>	<ul style="list-style-type: none"> <li>•Plug - Twinax</li> <li>-----</li> <li>•BNC - RCA</li> </ul>
Spare 1 (SSV)	<ul style="list-style-type: none"> <li>•SSV to PDIP/CIP Cable (SED16103246-301)</li> <li>•Bal/Unbal Xfmr (SED39124190-301)</li> <li>•AVIU-CC Video Cable (15ft) (SED39122269-301)</li> </ul>	<ul style="list-style-type: none"> <li>•L11A2 PDIP/J107</li> <li>-----</li> <li>•Bal/Unbal Xfmr</li> </ul>	<ul style="list-style-type: none"> <li>•Bal/Unbal Xfmr</li> <li>-----</li> <li>•Vid In/Out cbl</li> </ul>	<ul style="list-style-type: none"> <li>•Circ - Twinax</li> <li>-----</li> <li>•BNC - RCA</li> </ul>
WVS	<ul style="list-style-type: none"> <li>•AVIU-CC Video Cable (15ft) (SED39122269-301)</li> </ul>	<ul style="list-style-type: none"> <li>•R12A2 WIB XCVR1(2) UNBAL</li> </ul>	<ul style="list-style-type: none"> <li>•Vid In/Out cbl</li> </ul>	<ul style="list-style-type: none"> <li>•BNC - RCA</li> </ul>
PD100 Camc (option 1)	<ul style="list-style-type: none"> <li>•PD100 A/V Adapter Cable (SEZ16103275-301)</li> <li>•RCA - RCA Cable (SED39122260-314)</li> </ul>	<ul style="list-style-type: none"> <li>•PD100 A/V port</li> <li>•A/V adapter</li> </ul>	<ul style="list-style-type: none"> <li>•RCA-RCA cbl (via female adapter)</li> <li>•Vid In/Out cbl</li> </ul>	<ul style="list-style-type: none"> <li>•Stereo - RCA</li> <li>•RCA - RCA</li> </ul>
PD100 Camc (option 2)	<ul style="list-style-type: none"> <li>•Y-C Cable (SED33104816-301)</li> </ul>	<ul style="list-style-type: none"> <li>•PD100 S-Video port</li> </ul>	<ul style="list-style-type: none"> <li>•Vid In/Out cbl</li> </ul>	<ul style="list-style-type: none"> <li>•S-Video - S-Video</li> </ul>

4. Configure video source
5. Double-click Shuttle Apps > Video Overlay
6. ✓Video overlay displayed


- \* If image not displayed on PGSC: \*
- \* Press 'S' \*
- \* ✓'VIDEO' selected \*
- \* Sel OK \*



jsc48037\_040.crv

## PORTABLE MONITORS (Continued)

### A31p VIDEO CONVERTER

- A31p
1. √A31p Pwr – ON
  2. Connect A31p Video Adapter to A31p VID IN “

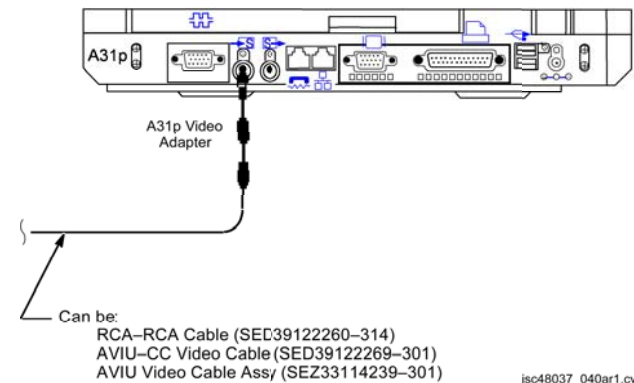
Video Source	Hardware (part #)	From	To	Cable Connections
PAYLOAD/DTV	•AVIU-CC Video Cable (15ft) (SED39122269-301)	•L10A1 VTR OUT	•A31p Video Adapter	•BNC - RCA
Monitor 1(2) (option 1)	•Monitor to AVIU/CM Cable (20ft) (SED39122074-303) •AVIU (SED33111493-302/303) •AVIU Video Cable Assy (SEZ33114239-301)	•Mon/J3  -----  •AVIU/J5	•AVIU/J4  -----  • A31p Video Adapter	•Circ - Twinax  -----  •Unique - RCA
Monitor 1(2) (option 2)	•Monitor to AVIU/CM Cable (20ft) (SED39122074-303) •AVIU (SED33111493-302/303) •Balanced Video Cable (SED33105778-301) •Bal/Unbal Xfmr (SED39124190-301) •AVIU-CC Video Cable (15ft) (SED39122269-301)	•Mon/J3  -----  •AVIU/J6  •Balanced Video cbl •Bal/Unbal Xfmr	•AVIU/J4  -----  •Bal/Unbal xfmr •AVIU-CC Video cbl • A31p Video Adapter	•Circ - Twinax  -----  •Twinax - Twinax  -----  •BNC - RCA
Monitor 1(2) (option 3)	•Monitor to AVIU/CM Cable (20ft) (SED39122074-303) •AVIU (SED33111493-302/303) •AVIU-CC Video Cable (15ft) (SED39122269-301)	•Mon/J3  -----  •AVIU/J7	•AVIU/J4  -----  • A31p Video Adapter	•Circ - Twinax  -----  •BNC - RCA
Monitor 1(2) (option 4)	•Monitor to AVIU/CM Cable (20ft) (SED39122074-303) •Bal/Unbal Xfmr (SED39124190-301) •AVIU-CC Video Cable (15ft) (SED39122269-301)	•Mon/J3  -----  •Bal/Unbal Xfmr	•Bal/Unbal Xfmr  -----  • A31p Video Adapter	•Circ - Twinax  -----  •BNC - RCA

## PORTABLE MONITORS (Continued)

### A31p VIDEO CONVERTER (Concluded)

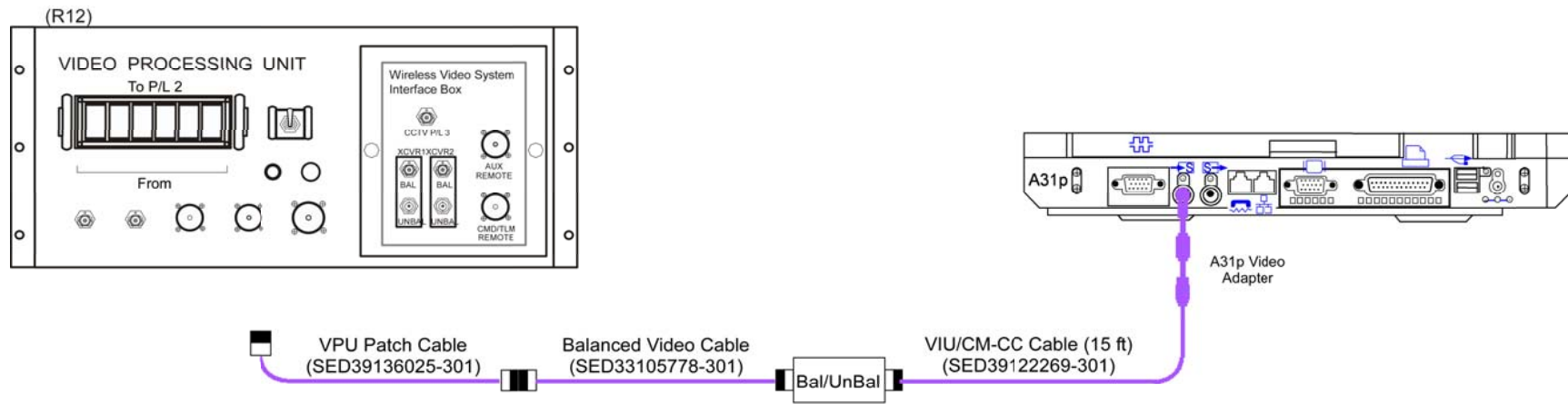
Video Source	Hardware (part #)	From	To	Cable Connections
ISS	<ul style="list-style-type: none"> <li>•VPU Patch Cable (SED39136025-301)</li> <li>•Bal/Unbal Xfmr (SED39124190-301)</li> <li>•AVIU-CC Video Cable (15ft) (SED39122269-301)</li> </ul>	<ul style="list-style-type: none"> <li>•VPU FROM ISS</li> <li>-----</li> <li>•Bal/Unbal Xfmr</li> </ul>	<ul style="list-style-type: none"> <li>•Bal/Unbal Xfmr</li> <li>-----</li> <li>• A31p Video Adapter</li> </ul>	<ul style="list-style-type: none"> <li>•Plug - Twinax</li> <li>-----</li> <li>•BNC - RCA</li> </ul>
Spare 1 (SSV)	<ul style="list-style-type: none"> <li>•SSV to PDIP/CIP Cable (SED16103246-301)</li> <li>•Bal/Unbal Xfmr (SED39124190-301)</li> <li>•AVIU-CC Video Cable (15ft) (SED39122269-301)</li> </ul>	<ul style="list-style-type: none"> <li>•L11A2 PDIP/J107</li> <li>-----</li> <li>•Bal/Unbal Xfmr</li> </ul>	<ul style="list-style-type: none"> <li>•Bal/Unbal Xfmr</li> <li>-----</li> <li>• A31p Video Adapter</li> </ul>	<ul style="list-style-type: none"> <li>•Circ - Twinax</li> <li>-----</li> <li>•BNC - RCA</li> </ul>
WVS	<ul style="list-style-type: none"> <li>•AVIU-CC Video Cable (15ft) (SED39122269-301)</li> </ul>	<ul style="list-style-type: none"> <li>•R12A2 WIB XCVR1(2) UNBAL</li> </ul>	<ul style="list-style-type: none"> <li>• A31p Video Adapter</li> </ul>	<ul style="list-style-type: none"> <li>•BNC - RCA</li> </ul>
PD100 Camc (option 1)	<ul style="list-style-type: none"> <li>•PD100 A/V Adapter Cable (SEZ16103275-301)</li> <li>•RCA - RCA Cable (SED39122260-314)</li> </ul>	<ul style="list-style-type: none"> <li>•PD100 A/V port</li> <li>•A/V adapter</li> </ul>	<ul style="list-style-type: none"> <li>•RCA-RCA cbl (via female adapter)</li> <li>• A31p Video Adapter</li> </ul>	<ul style="list-style-type: none"> <li>•Stereo - RCA</li> <li>•RCA - RCA</li> </ul>
PD100 Camc (option 2)	<ul style="list-style-type: none"> <li>•Y-C Cable (SED33104816-301)</li> </ul>	<ul style="list-style-type: none"> <li>•PD100 S-Video port</li> </ul>	<ul style="list-style-type: none"> <li>• A31p Video In port (No A31p Video Adapter)</li> </ul>	<ul style="list-style-type: none"> <li>•S-Video - S-Video</li> </ul>

4. Configure H/W per dwg at right
5. Double-click Shuttle Apps > Video Overlay
6. ✓ 'Video Converter' window displayed
7. Sel 'Local Full Screen'  
Press 'ESC' or 'W' key to minimize display as reqd



# PORTABLE MONITORS (Concluded)

## VPU REPEATER



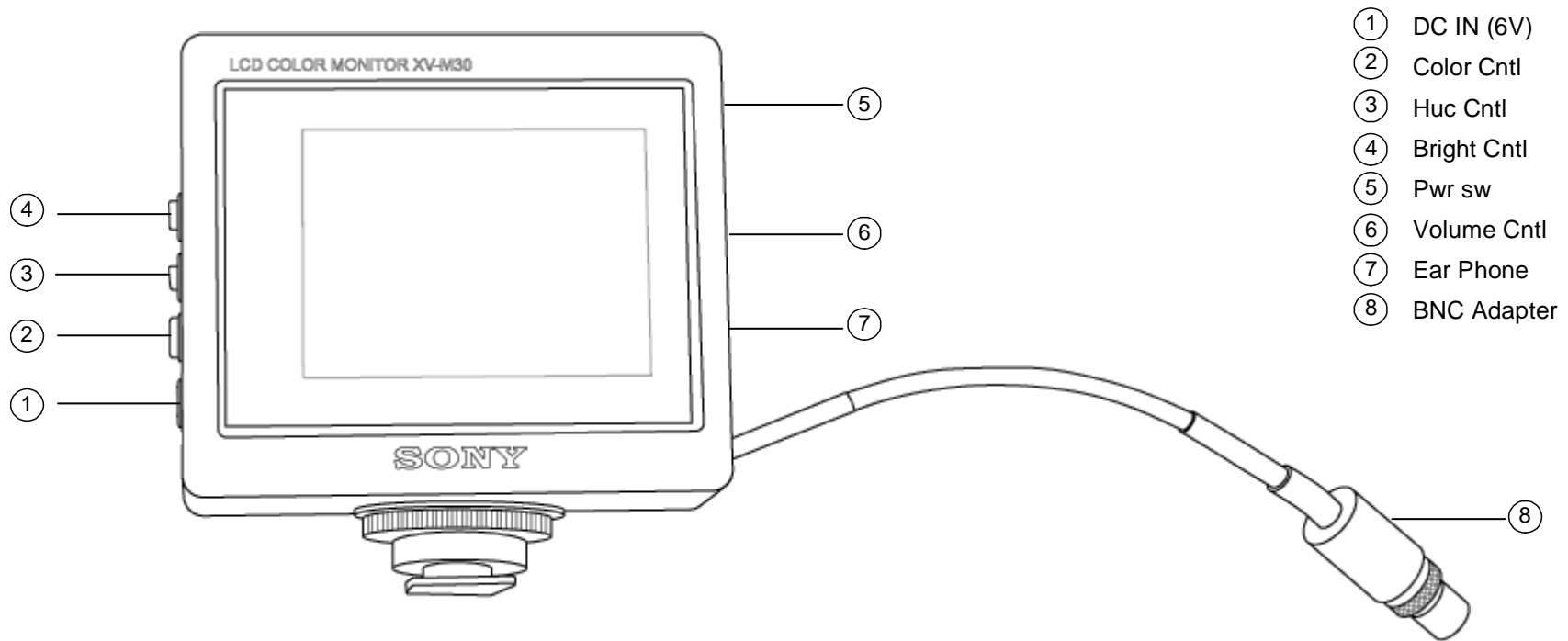
jsc48037\_116\_075r1.cvx

## PORTABLE MONITORS (Continued)

### SONY LCD SPECIFICATIONS

IMAGE AREA: 3 in  
BATT: 6 AA  
BATT VOLTAGE: 9V  
DIMENSIONS: 1.5 in (L) X 4 in (W) X 3.25 in (H)

### SONY LCD NOMENCLATURE



- ① DC IN (6V)
- ② Color Cntl
- ③ Huc Cntl
- ④ Bright Cntl
- ⑤ Pwr sw
- ⑥ Volume Cntl
- ⑦ Ear Phone
- ⑧ BNC Adapter

Sony XV-M30

jsc48037\_041.cnv

This Page Intentionally Blank

CCTV

	<u>PAGE</u>
SPECIFICATIONS.....	10-2
LENS DATA.....	10-3
ILLUMINATOR DATA.....	10-3
CCTV SYSTEM OVERVIEW.....	10-4
VPU/WIB VIDEO ROUTING OVERVIEW .....	10-5
AVIU OVERVIEW.....	10-6
TVCU.....	10-7
PHOTO FLOODLIGHT .....	10-8
MALS.....	10-9
10.1 NO MONITOR PICTURE/MENU .....	10-9
10.2 NO CAMR VIDEO.....	10-16
10.3 NO VTR PLAYBACK VIDEO .....	10-18
10.4 NO CAMCORDER VIDEO ON COLOR TV MONITOR .....	10-20
10.5 RMS TV cb OPENS .....	10-24

# CCTV

## CCTV

### SPECIFICATIONS

#### CTVC (SOLID STATE)

EFFECTIVE IMAGE SIZE: 6.54mm X 8.62mm

PWR: 43.3W at 32V (all motors on)

ZOOM SPEED: End-to-End 8 sec

FOCUS SPEED: End-to-End 22 sec

IRIS: Auto(Manual) Close ~7 sec

WEIGHT: 18.9 lb

DIMENSION: 17" (L) x 6.4" (W) x 6.3" (H)

#### ITVC

EFFECTIVE IMAGE SIZE: 6.54mm X 8.62mm

PWR: 33.6W at 32V

ZOOM SPEED: End-to-End 8 sec

FOCUS SPEED: End-to-End 22 sec

IRIS: Auto close ~6 sec

WEIGHT: 17 lb

DIMENSION: 19.6" (L) (Includes 3.2" Lens) x 6.4" (W) x 6.3" (H)



## CCTV (Continued)

### LENS DATA

Lens/Focal Length		Aperture Range	Zoom Ratio	Minimum Focus Distance (ft)	Approximate Field of View (FOV)	
					Horizontal	Vertical
CTVC (COLOR)*	5.5mm-47mm	f/1.7 to f/16 (T2-T360)	8:1	1.0	75°-10°	61°-8°
ITVC (B/W)*	8.5mm-127mm	f/1.7 to f/16 (T2-T360)	15:1	3.0	53°-4°	41°-3°

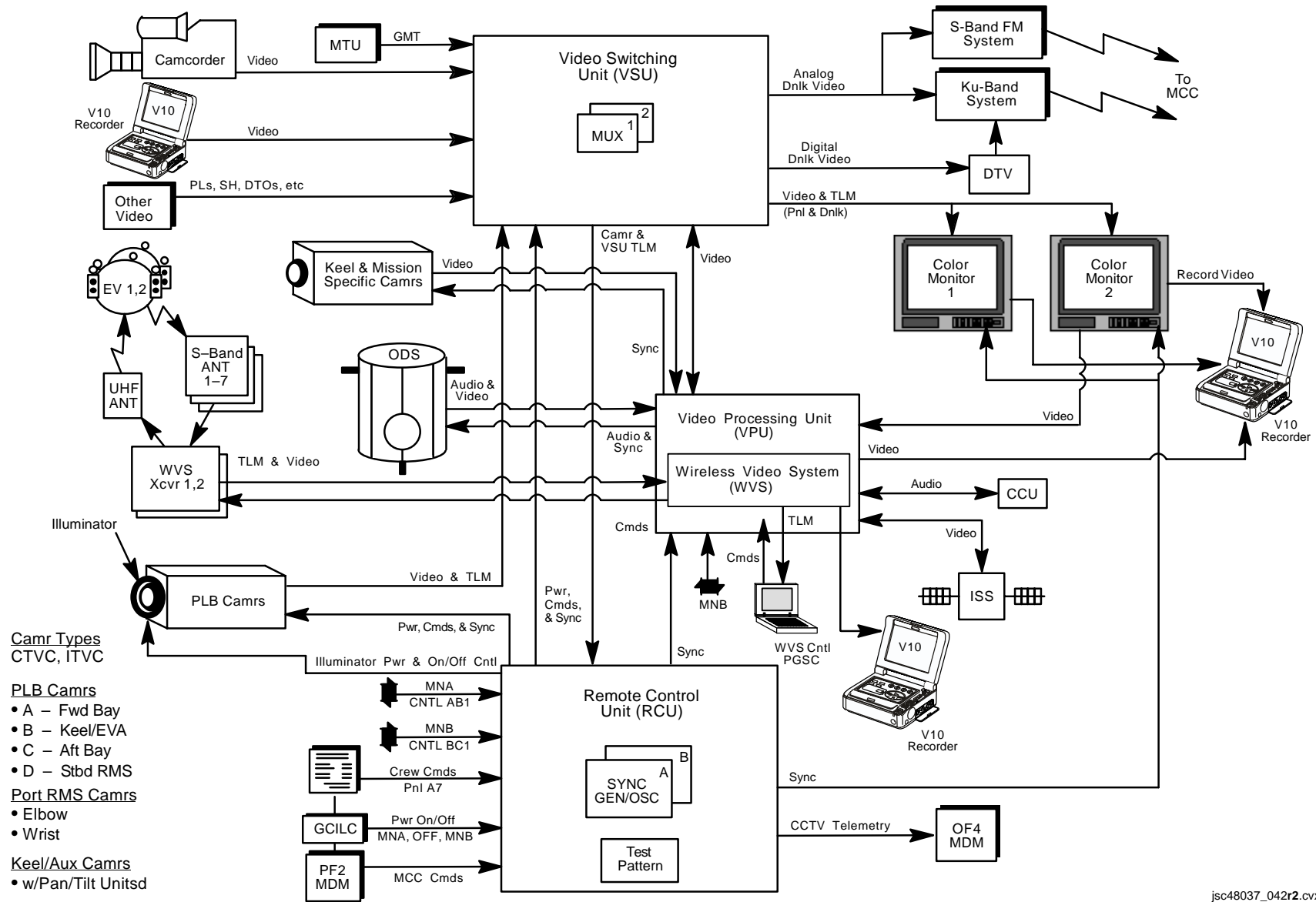
### ILLUMINATOR DATA

Color	LEDs	LED Deg Angles	Camr Type	Locations	Modes	Control
Red	120	8°/22°/8° *	ITVC	Bulkhead, Elbow, Keel	ON/OFF	cb CAMR HTR
	120	22°	ITVC	Bulkhead, Elbow, Keel	ON/OFF	cb CAMR HTR
White	40	44°	CTVC	Wrist	ON/OFF	cb CAMR HTR
	180	20°	CTVC/ITVC	Bulkhead, Elbow, Keel	ON/OFF	cb PAN/TILT HTR
	156	29°	Videospection	Keel	156 LED/84 LED/30 LED/OFF	SSP/CAMR HTR sw

\*Three rings of LEDs:  
 Inner,outer rings – 8° LEDs  
 Middle ring – 22° LEDs

# CCTV (Continued)

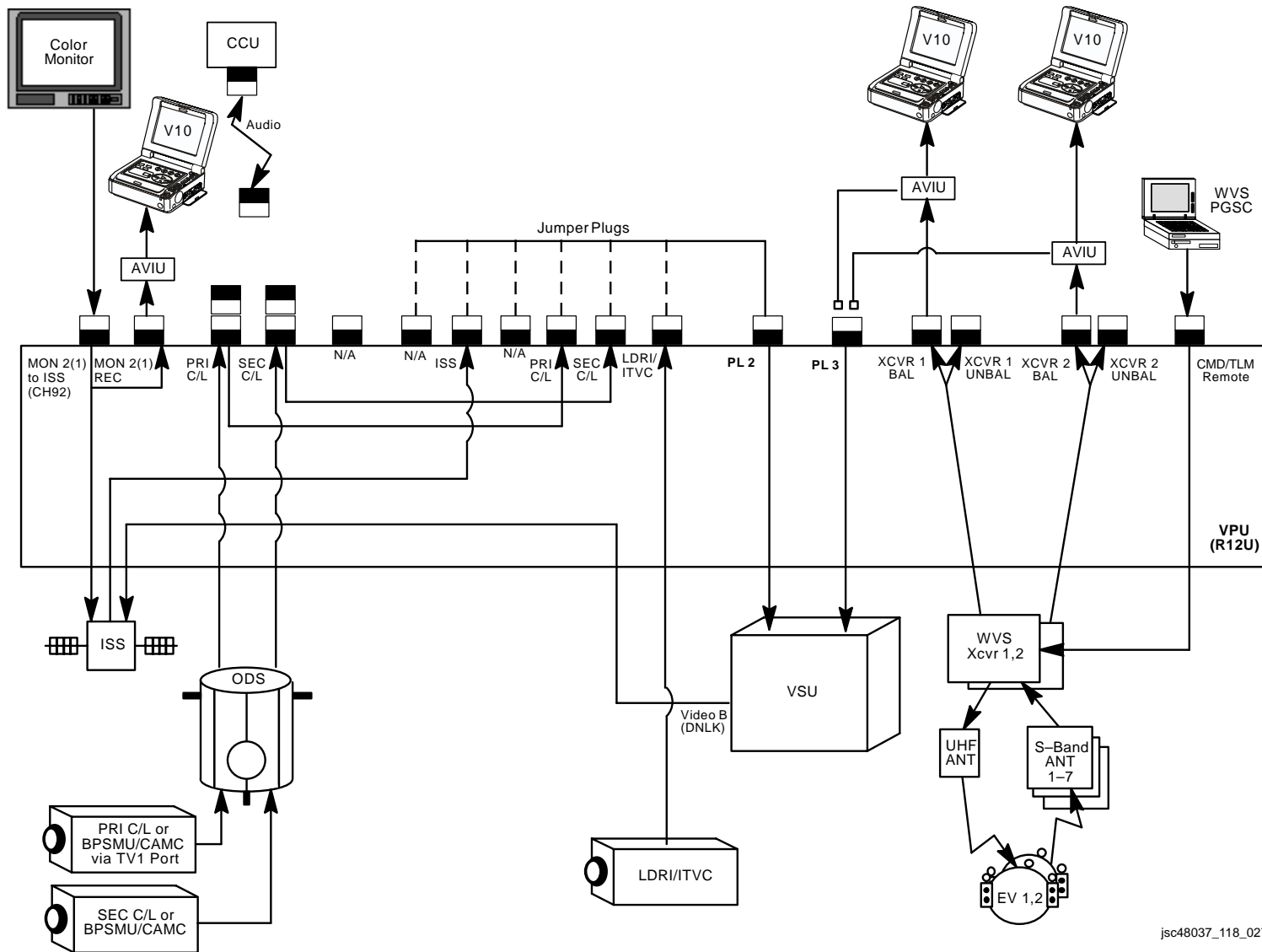
## CCTV SYSTEM OVERVIEW



jsc48037\_042r2.cvx

# CCTV (Continued)

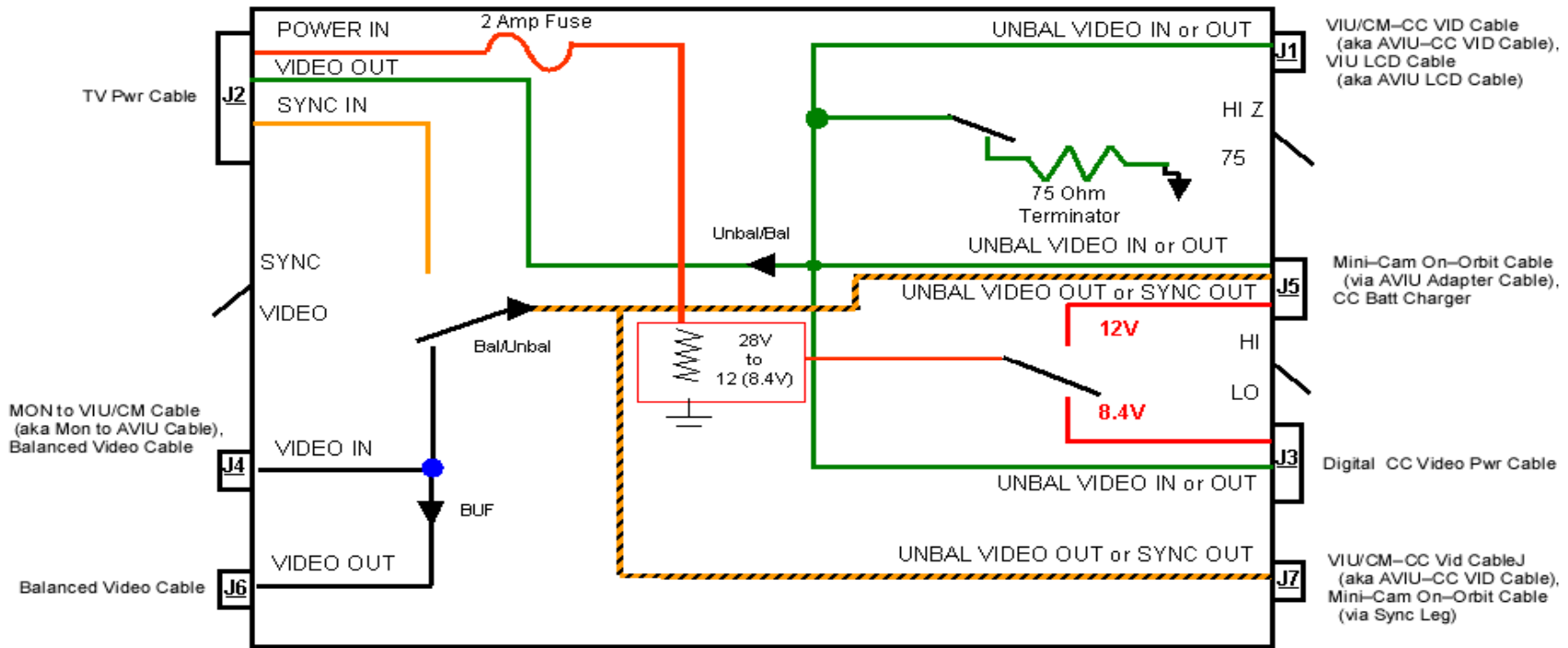
## VPU/WIB VIDEO ROUTING OVERVIEW



jsc48037\_118\_027r1.cvx

# CCTV (Continued)

## AVIU OVERVIEW



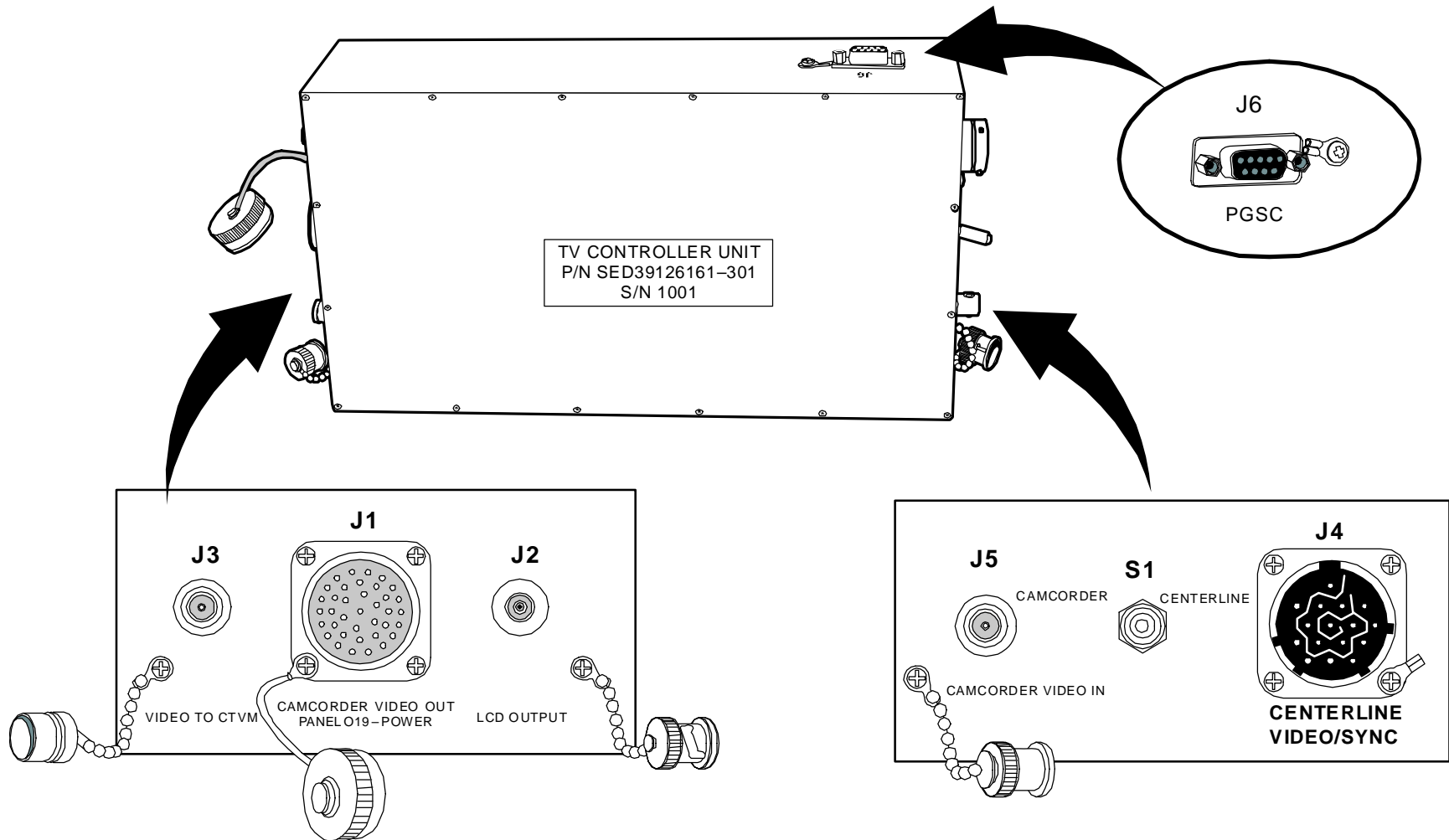
isc48037\_044r1.cvx

- J1**
  - Unbalanced Video Input(Output)
- J2**
  - 28V Input
  - Sync Input
  - Balanced Video Output
- J3**
  - 8.4V Power Output if HI/LO sw – LO
  - Unbalanced Video Input(Output)
- J4**
  - Balanced Video Input

- J5**
  - 12V Power Output if HI/LO sw – HI
  - Unbalanced Video Input(Output)
  - Unbalanced Video Output (of J4 Balanced Input) if SYNC/VIDEO sw – VIDEO
  - Sync Output if SYNC/VIDEO sw – SYNC
- J6**
  - Balanced Video Signal Output (turnaround from J4)
- J7**
  - Unbalanced Video Output (of J4 Balanced Input) if SYNC/VIDEO sw – VIDEO
  - Sync Output if SYNC/VIDEO sw – SYNC

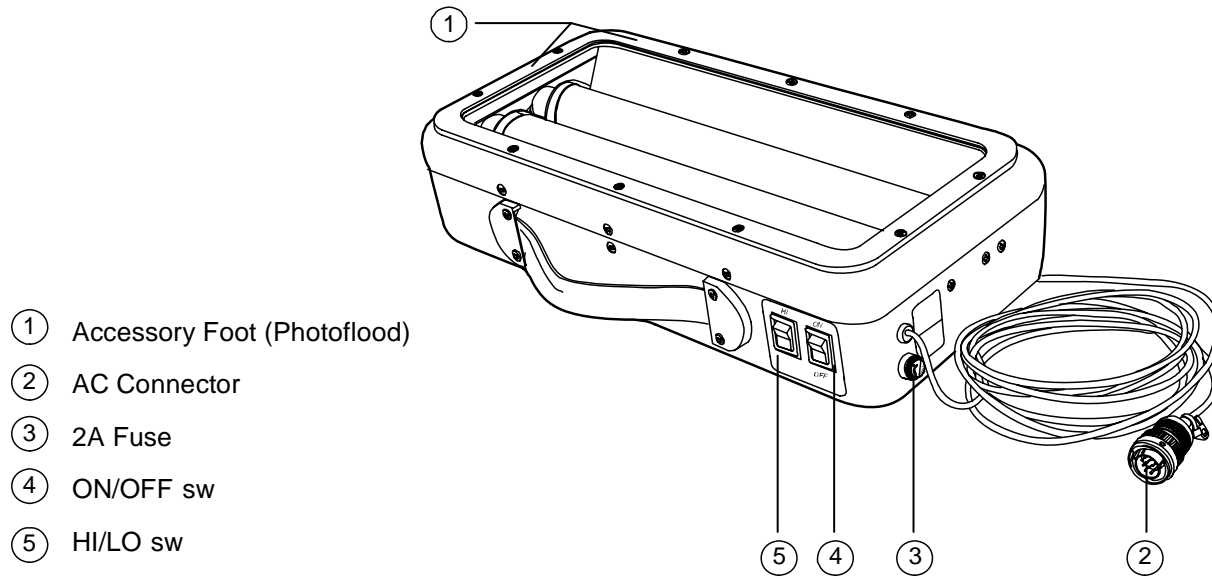
- SYNC/VIDEO sw**
  - VIDEO – Unbalanced Video Output to J5,J7 from J4 Input
  - SYNC – Sync Output to J5(J7) from J2 input
- HI-Z/75 sw**
  - 75 – For nominal video output at J1
  - HI-Z – For video output at J1 to a terminal source (i.e., PGSC, PD100, or V10)
- HI/LO sw**
  - HI – 12V output at J5
  - LO – 8.4V output at J3

CCTV (Continued)  
TVCU



jsc48037\_045.cnv

**CCTV (Continued)**  
**PHOTO FLOODLIGHT**



jsc48037\_047.cnv

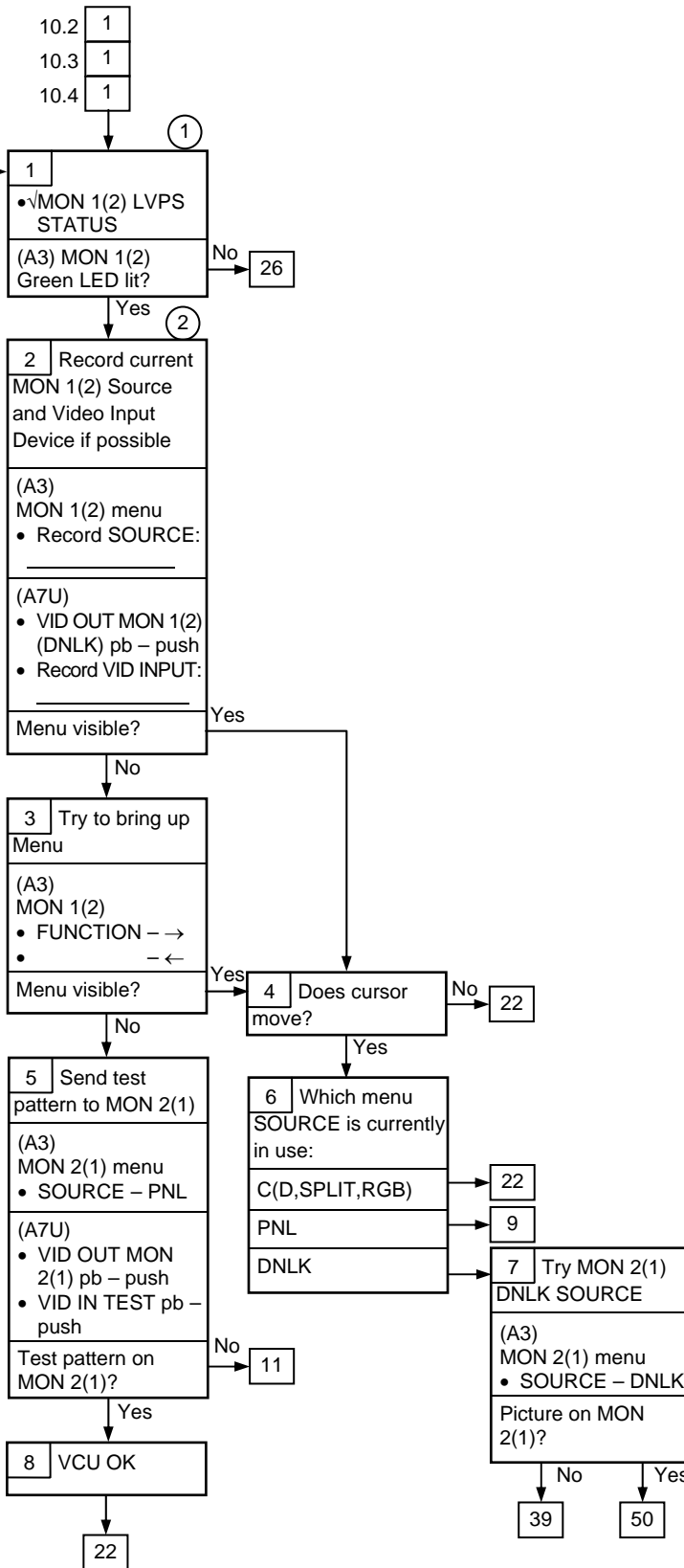
# CCTV

## 10.1 NO MONITOR PICTURE/MENU

No Picture on Monitor 1(2)

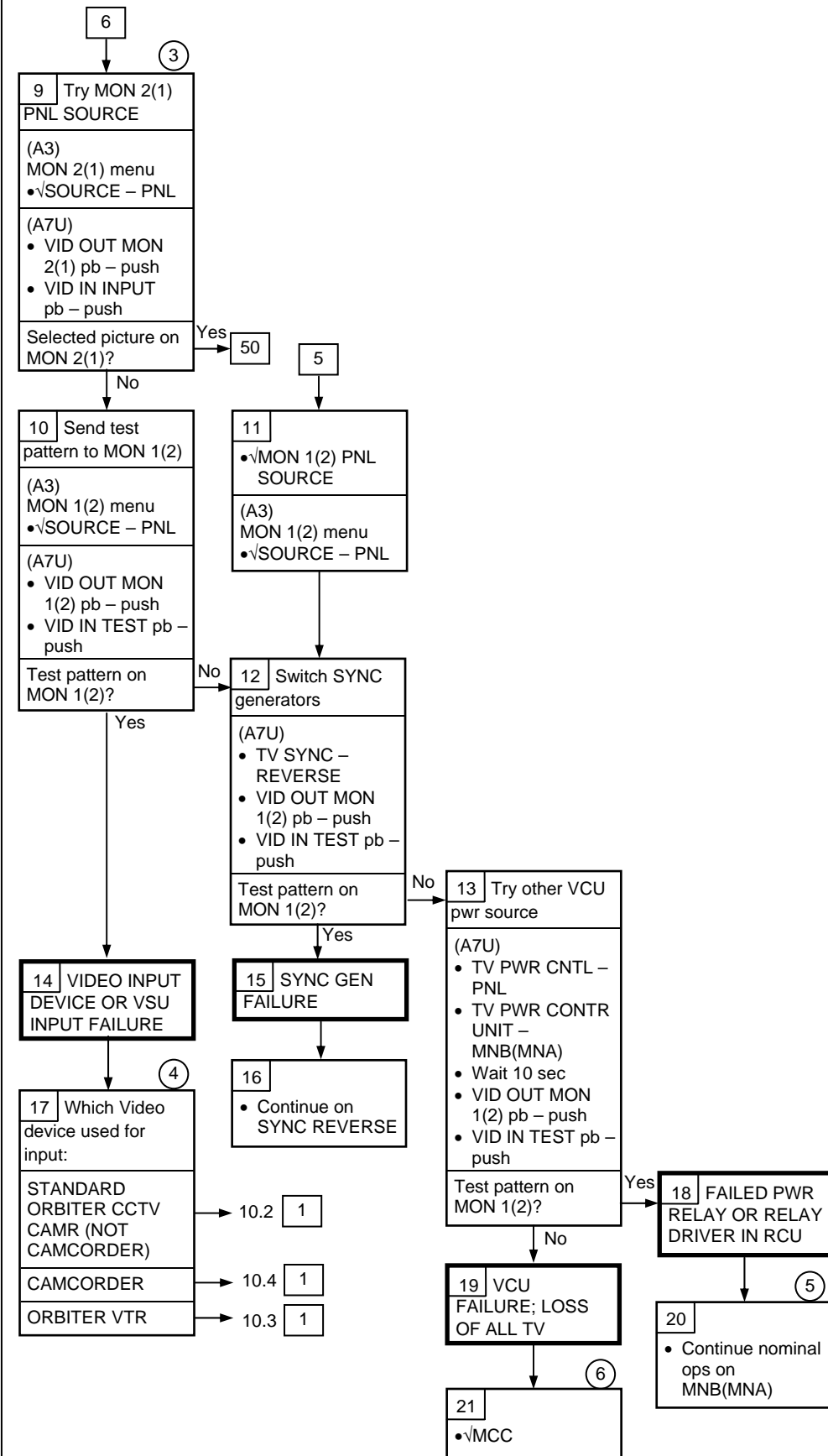
### Nominal Config:

- (R14:D)  
 cb MNA TV C AFT  
 BAY CAMR/PAN-TILT - cl  
 CAMR HTR - cl  
 PAN-TILT HTR - cl  
 cb MNA TV CONTR UNIT - cl  
 cb MNA TV MON 1 - cl  
 cb MNB TV A FWD BAY CAMR/PAN-TILT - cl  
 CAMR HTR - cl  
 PAN-TILT HTR - cl  
 cb MNB TV CONTR UNIT - cl  
 cb MNB TV MON 2 - cl  
 cb MNC TV B KEEL/EVA CAMR/PAN-TILT - cl  
 CAMR HTR - cl  
 PAN-TILT HTR - cl  
 cb MNC TV CAB - cl  
 (R14:E)  
 cb MNA D STBD RMS TV CAMR/PAN-TILT - cl  
 CMR HTR - cl  
 PAN-TILT HTR - cl  
 cb MNB RMS PORT RMS TV CAMR/PAN-TILT - cl  
 CAMR HTR - cl  
 PAN-TILT HTR - cl  
 (A7U)  
 TV PWR CNTL - CMD  
 TV PWR CONTR UNIT - MNA(MNB)  
 TV SYNC - NORM  
 TV DNLK - ENA  
 (A3)  
 MON 1(2)  
 SOURCE - as reqd  
 SYNC - INT  
 PWR - ON  
 MODE - AUTO  
 GUNS - R,G,B - ON



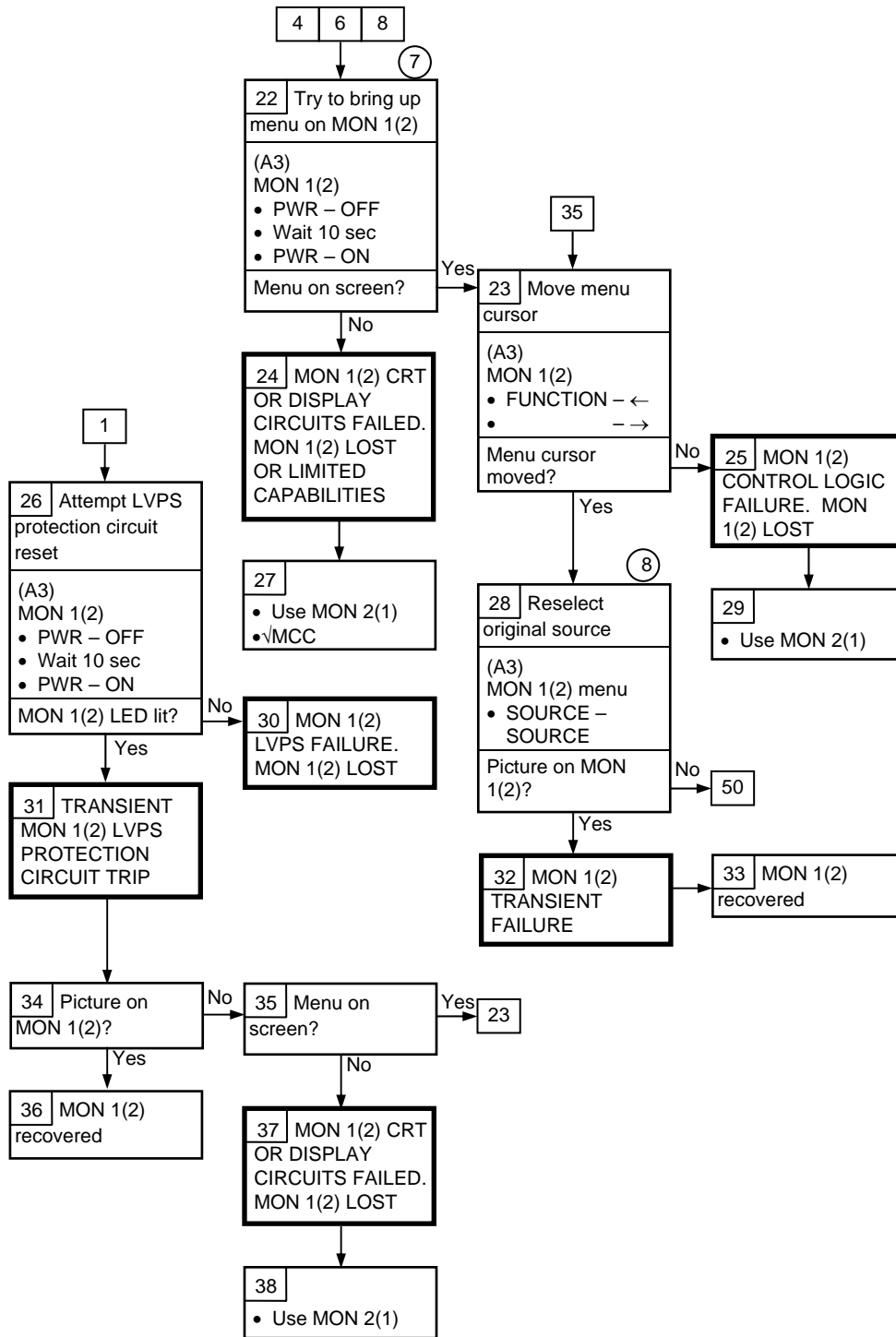
- ① LVPS = low voltage pwr supply
- ② Current SOURCE and INPUT recorded here will be used in subsequent mal blocks

**CCTV 10.1 (Cont)**



- ③ INPUT used here was recorded in block [2]
- ④ Video Input Device is the device connected to INPUT which was recorded in block [2]
- ⑤ All TV config in VCU will be lost. All camrs must be pwr'd up and reselected
- ⑥ Standalone MON 1(2) ops may be possible on inputs C,D, or RGB if connected and also if input SOURCE generates its own sync

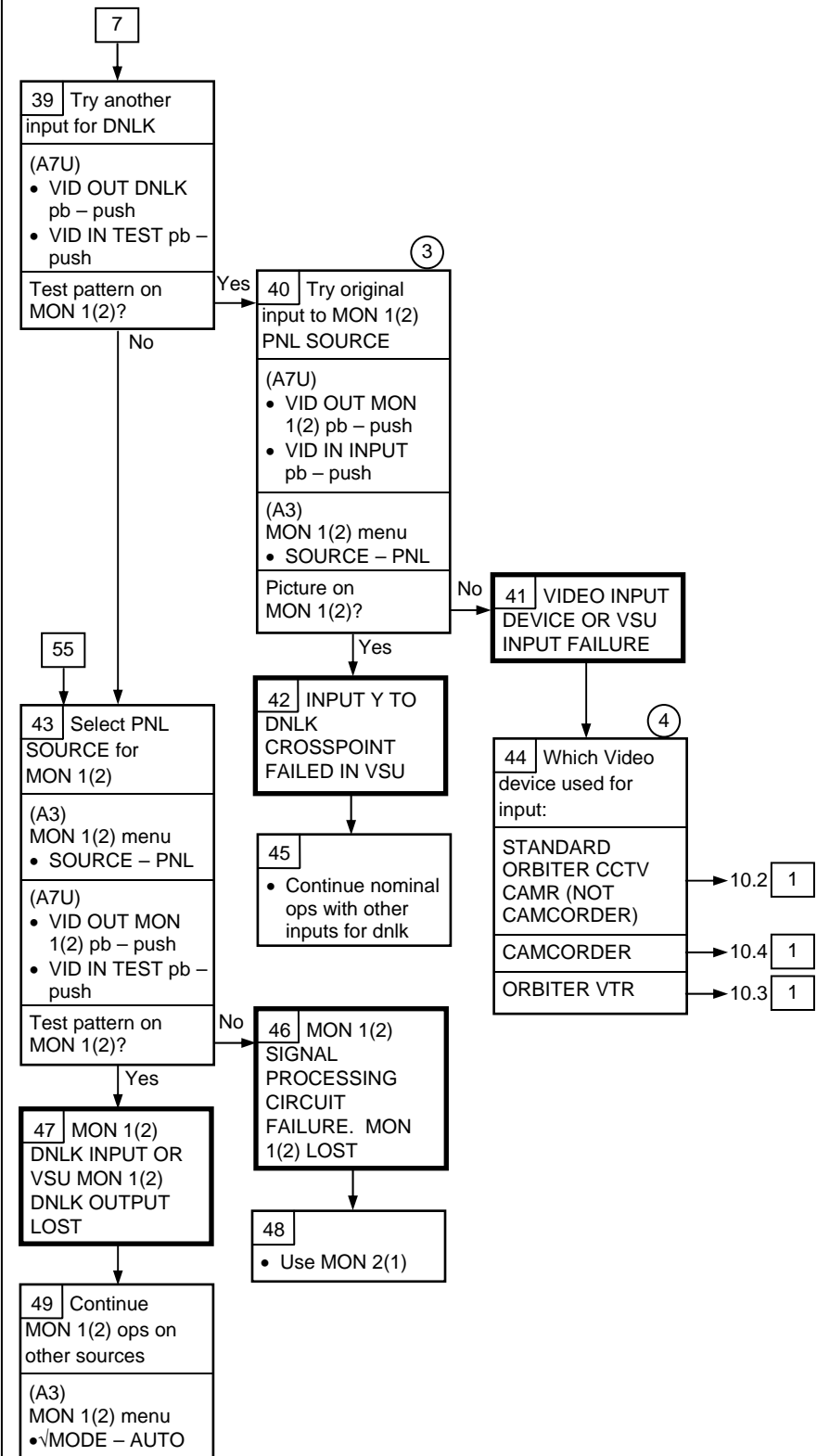




7  
Brightness and contrast controls may need to be adjusted to see menu

8  
SOURCE is the source recorded in block 2

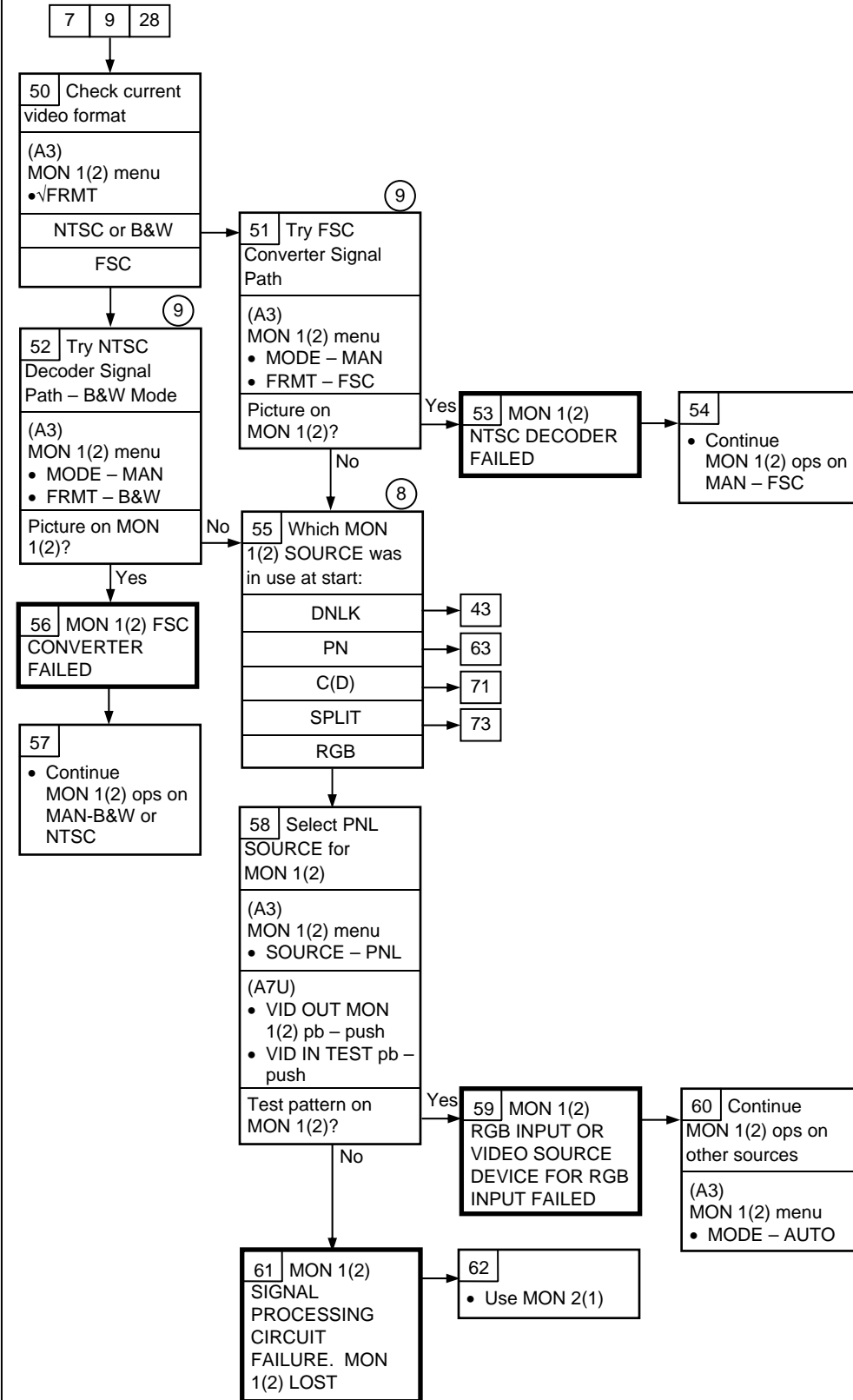
**CCTV 10.1 (Cont)**



③ INPUT used here was recorded in block 2

④ Video Input Device is the device connected to INPUT which was recorded in block 2

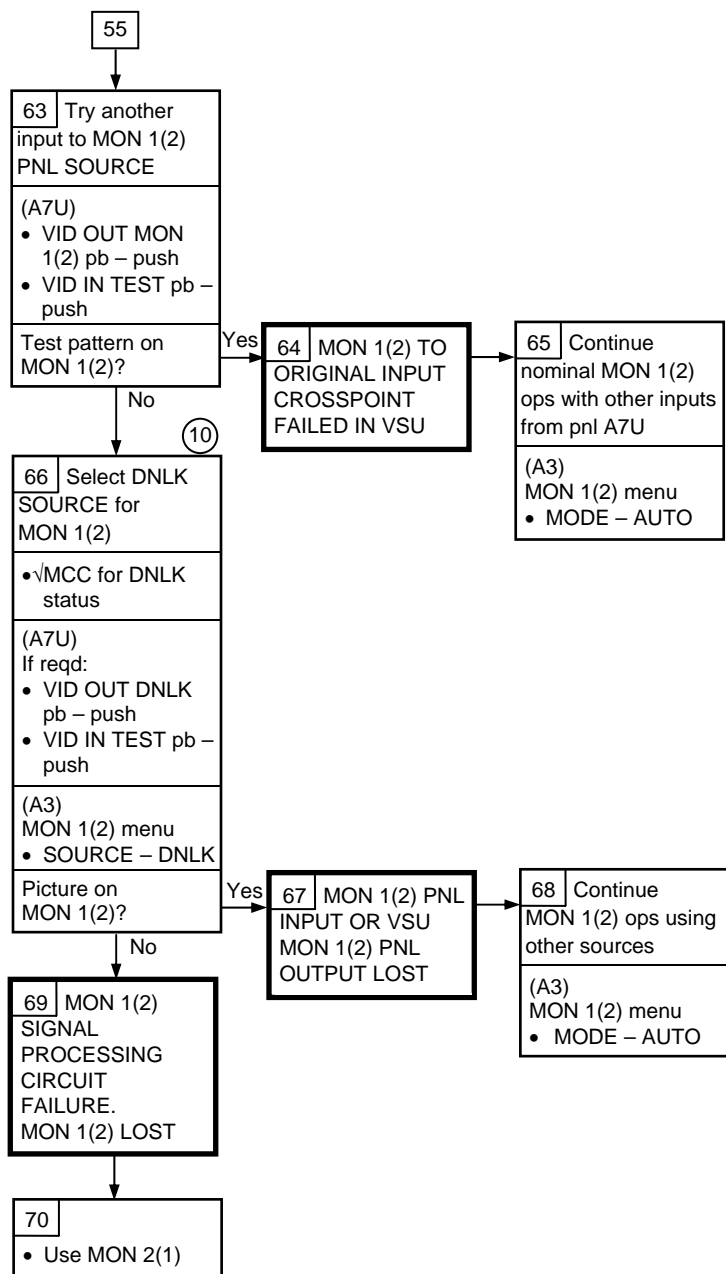
**CCTV 10.1 (Cont)**



8 SOURCE is the source recorded in block 2

9 Picture will be B&W with possible flicker

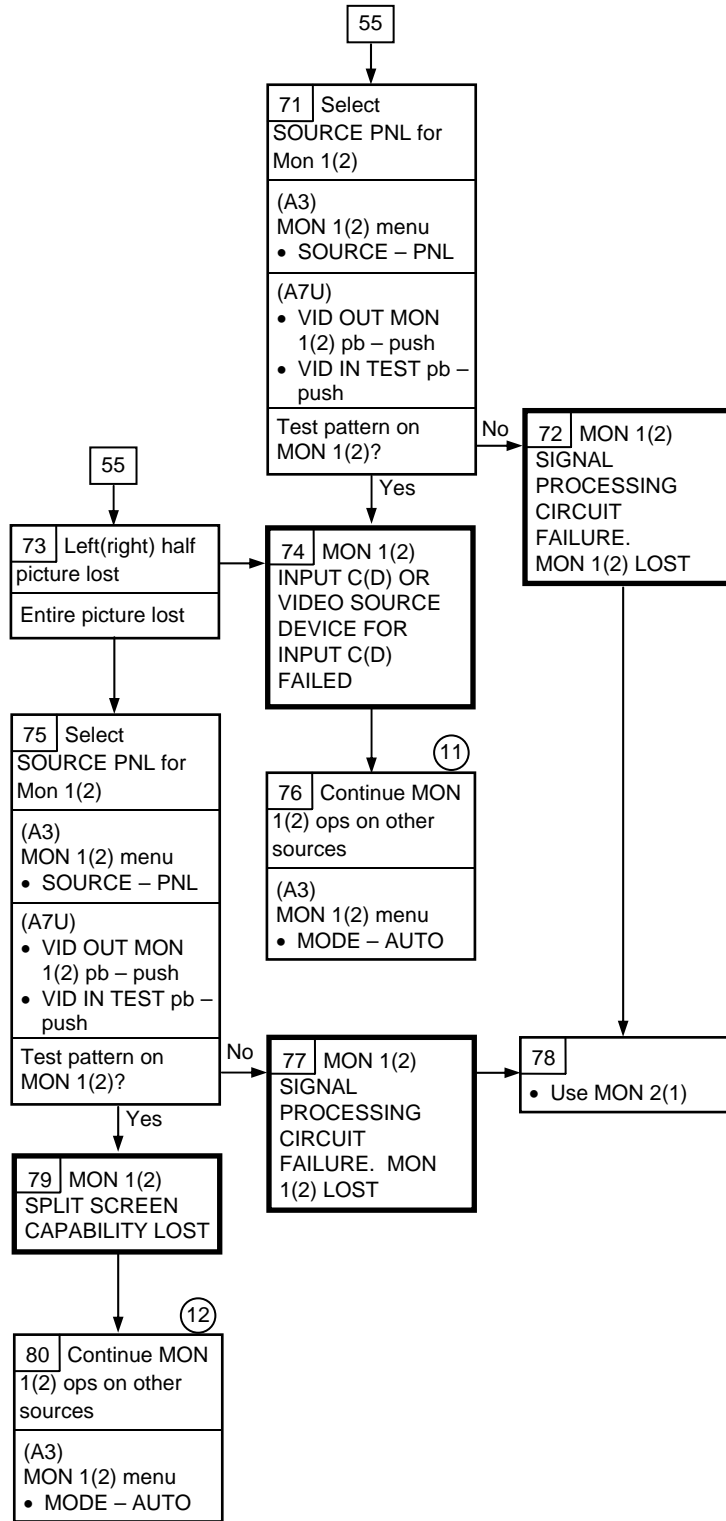
**CCTV 10.1 (Cont)**



⑩  
If DNLK in progress, selecting test pattern to DNLK not reqd. MCC will advise on DNLK status

**CCTV**

**10.1 (Cont)**



① Recovery of video source device may be possible

② Inputs C,D may be useable without SPLIT

**CCTV**

**10.2 NO CAMR VIDEO**

No Camr Video

**Nominal Config:**

(R14:D)  
 cb MNA TV C AFT  
 BAY CAMR/PAN-TILT - cl  
 CAMR HTR - cl  
 PAN-TILT HTR - cl

cb MNA TV CONTR UNIT - cl

cb MNA TV MON 1 - cl

cb MNB TV A FWD  
 BAY CAMR/PAN-TILT - cl  
 CAMR HTR - cl  
 PAN-TILT HTR - cl

cb MNB TV CONTR UNIT - cl

cb MNB TV MON 2 - cl

cb MNC TV B KEEL/  
 EVA CAMR/PAN-TILT - cl  
 CAMR HTR - cl  
 PAN-TILT HTR - cl

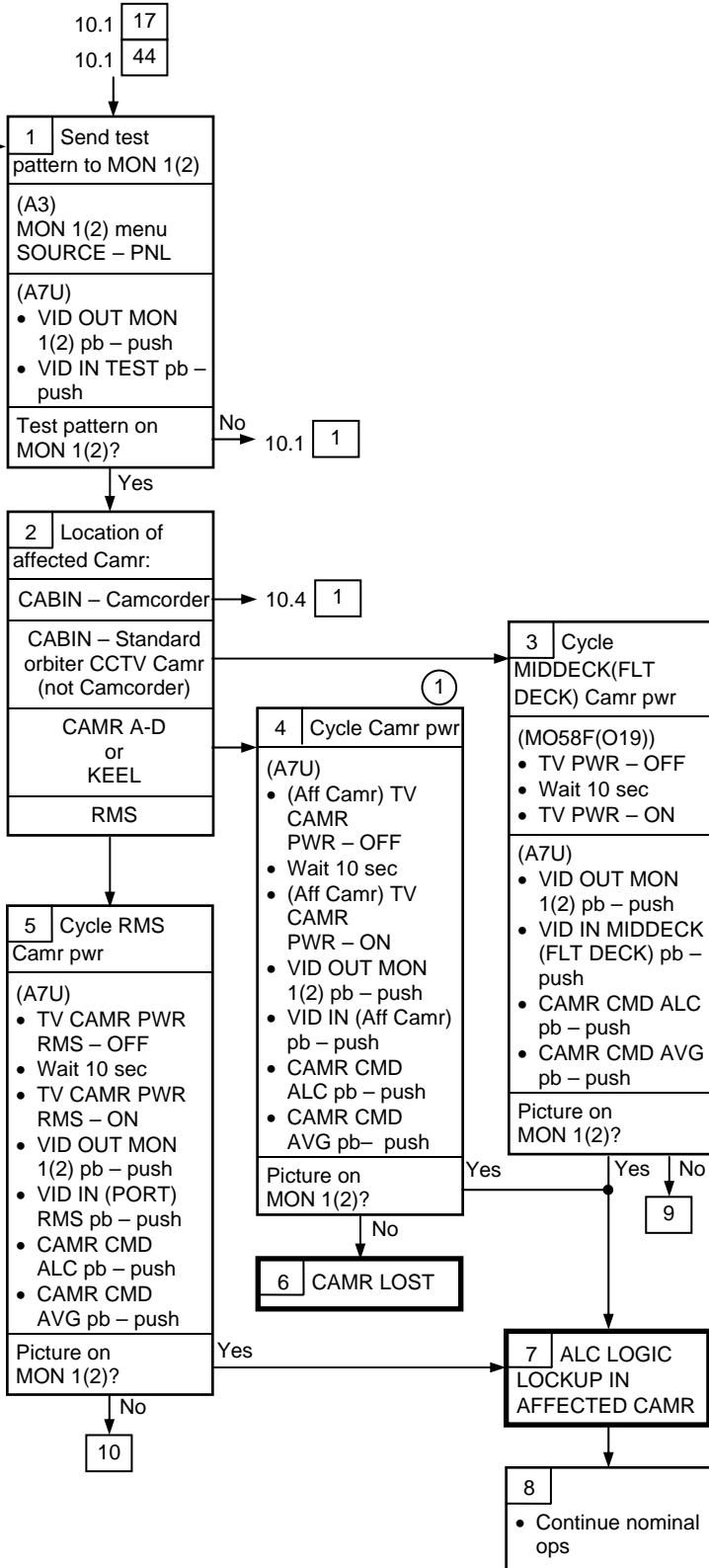
cb MNC TV CAB - cl

(R14:E)  
 cb MNA D STBD  
 RMS TV CAMR/PAN-TILT - cl  
 CMR HTR - cl  
 PAN-TILT HTR - cl

cb MNB RMS PORT  
 RMS TV CAMR/PAN-TILT - cl  
 CAMR HTR - cl  
 PAN-TILT HTR - cl

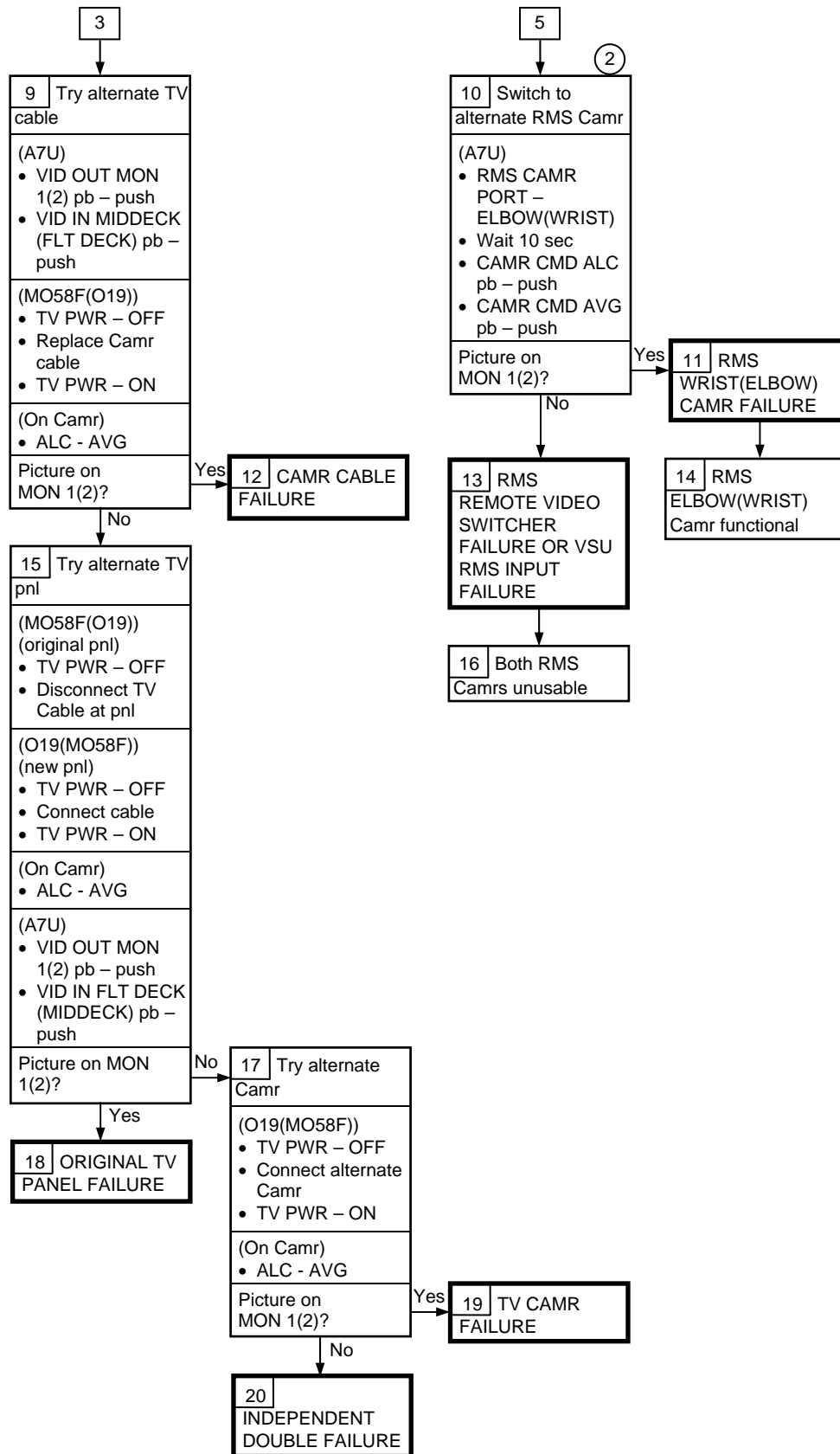
(A7U)  
 TV PWR CNTL - CMD  
 TV PWR CONTR UNIT - MNA(MNB)  
 TV SYNC - NORM  
 TV DNK - ENA

(A3)  
 MON 1(2)  
 SOURCE - as reqd  
 SYNC - INT  
 PWR - ON  
 MODE - AUTO  
 GUNS - R,G,B - ON



①  
 KEEL Camr pwr control and KEEL Camr Video inputs are mission specific

**CCTV 10.2 (Cont)**



②  
If currently selected to WRIST(ELBOW) then select ELBOW(WRIST)

**CCTV**

**10.3 NO VTR PLAYBACK VIDEO**

No VTR Playback Video

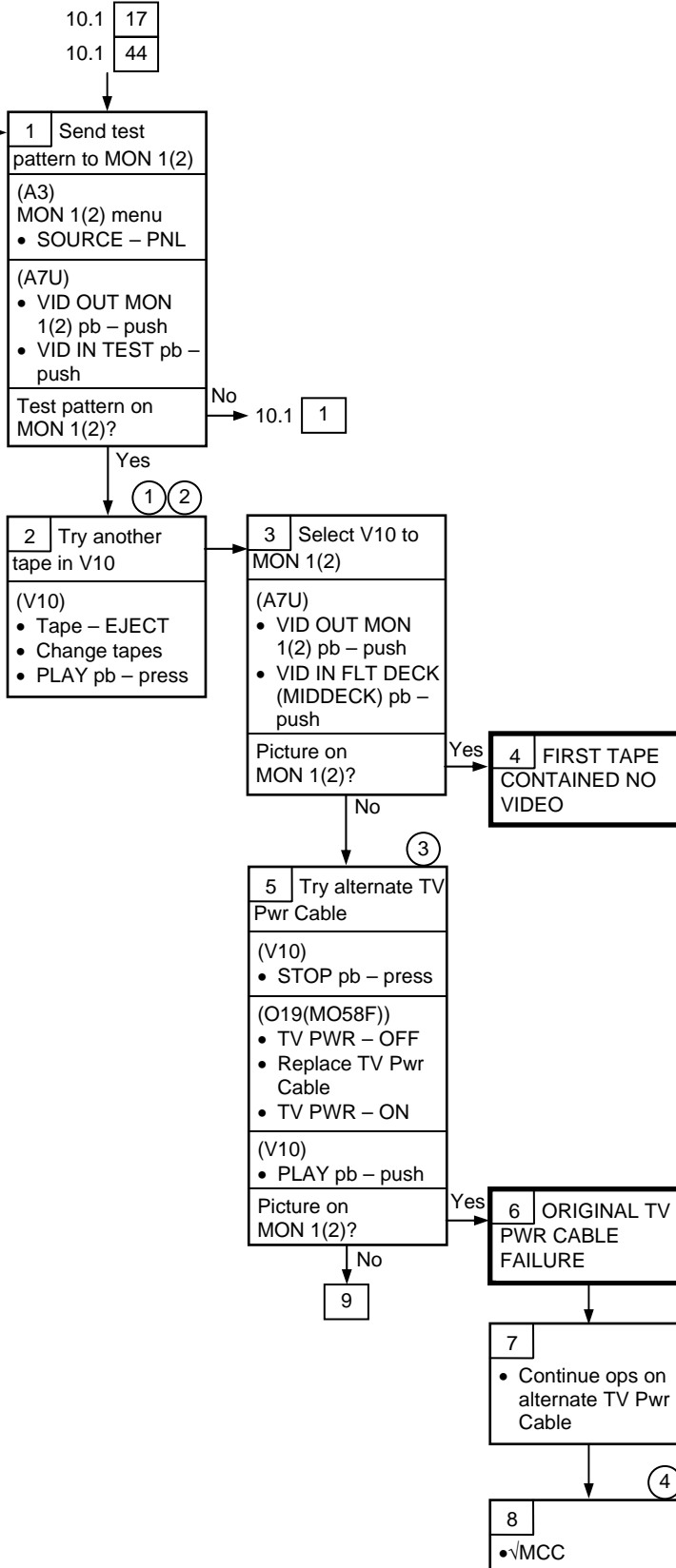
**Nominal Config:**

(R14:D)  
 cb MNA TV CONTR UNIT – cl  
 cb MNA TV MON 1 – cl  
 cb MNB TV CONTR UNIT – cl  
 cb MNB TV MON 2 – cl  
 cb MNC TV CAB – cl

(A7U)  
 TV PWR CNTL – CMD  
 TV PWR CONTR UNIT – MNA(MNB)  
 TV SYNC – NORM  
 TV DNLK – ENA

(A3)  
 MON 1(2)  
 SOURCE – as reqd  
 SYNC – INT  
 PWR – ON  
 MODE – AUTO  
 GUNS – R,G,B – ON

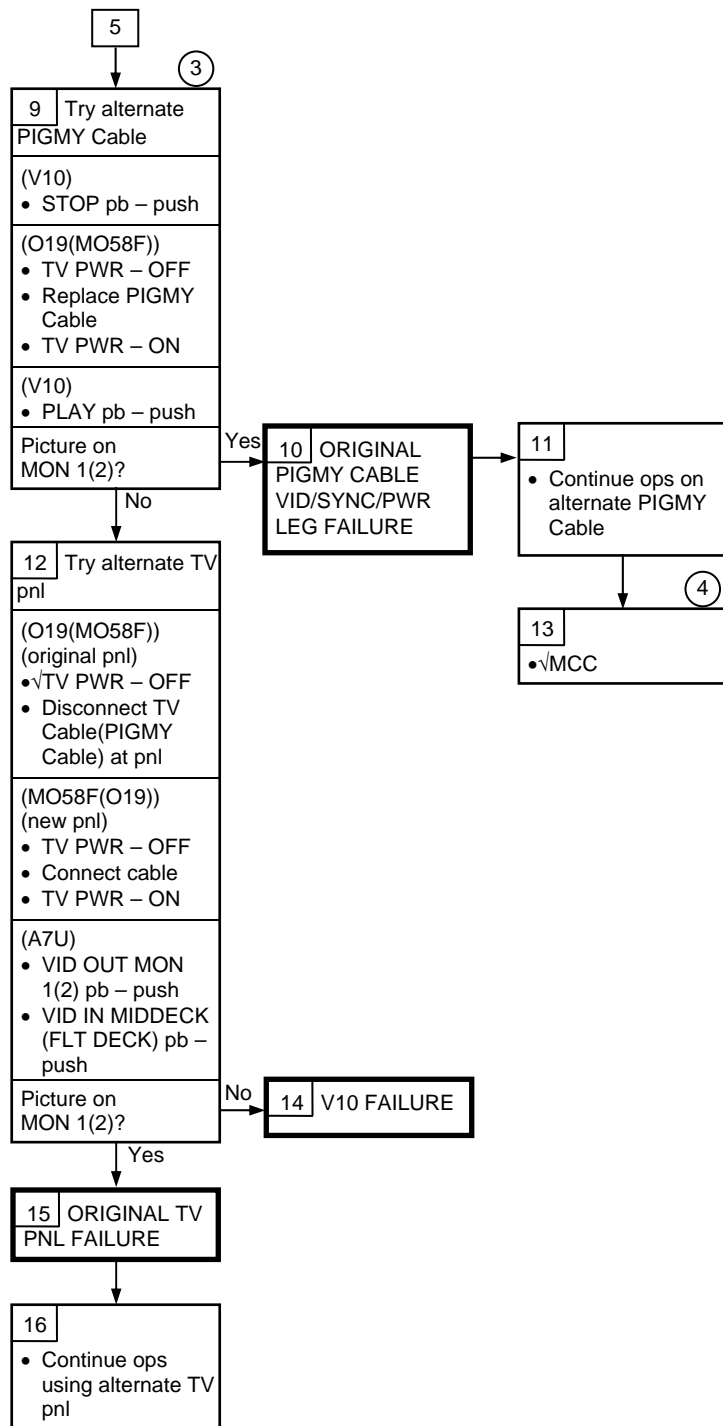
(V10)  
 PWR – ON



- ① Replacement tape should have good video recorded on it
- ② V10 requires dump thru pnl O19(MO58F)
- ③ √MCC if alternate equip avail
- ④ IFM for AVIU(cables) may be possible



**CCTV 10.3 (Cont)**

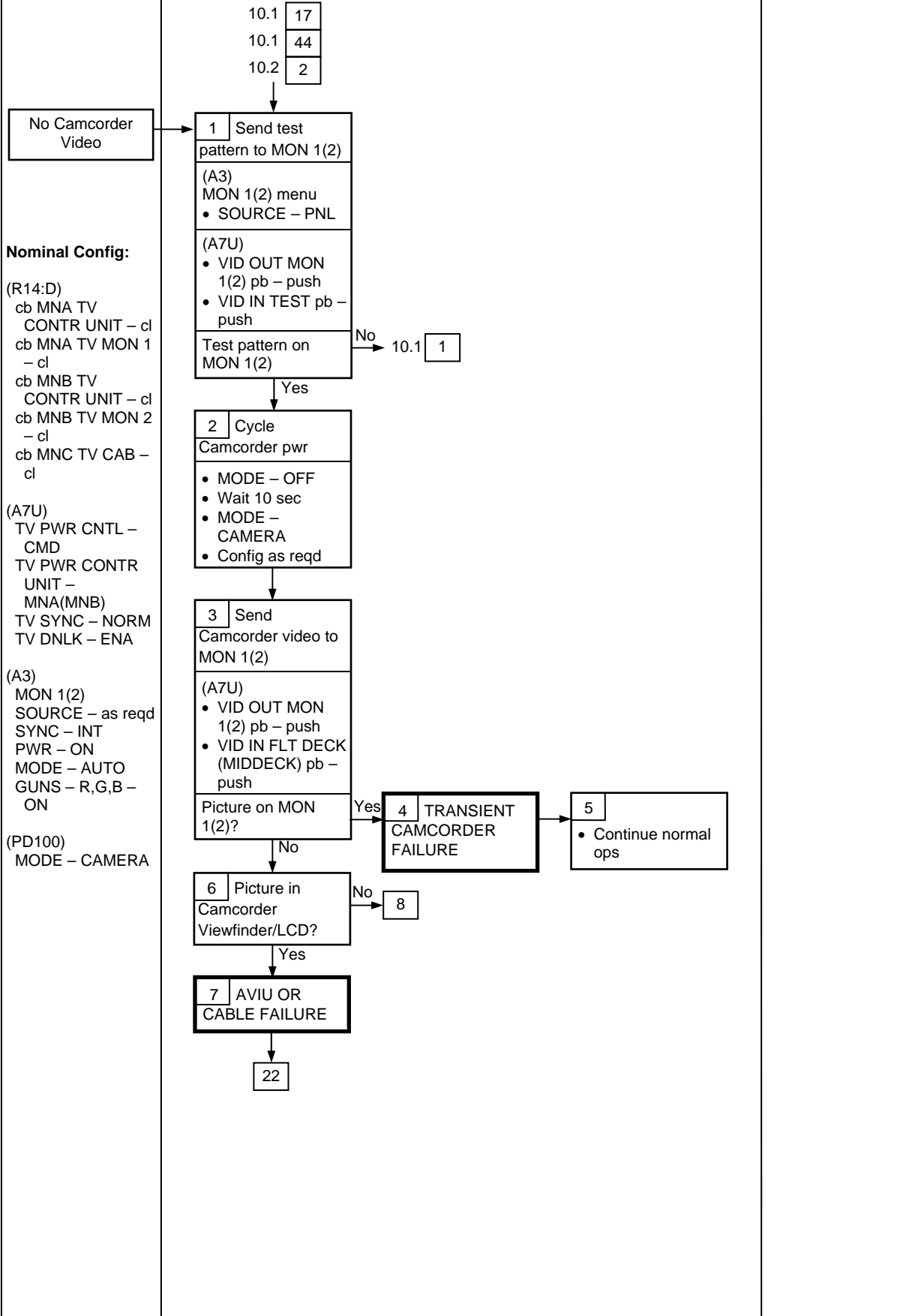


③  
√MCC if alternate equip avail

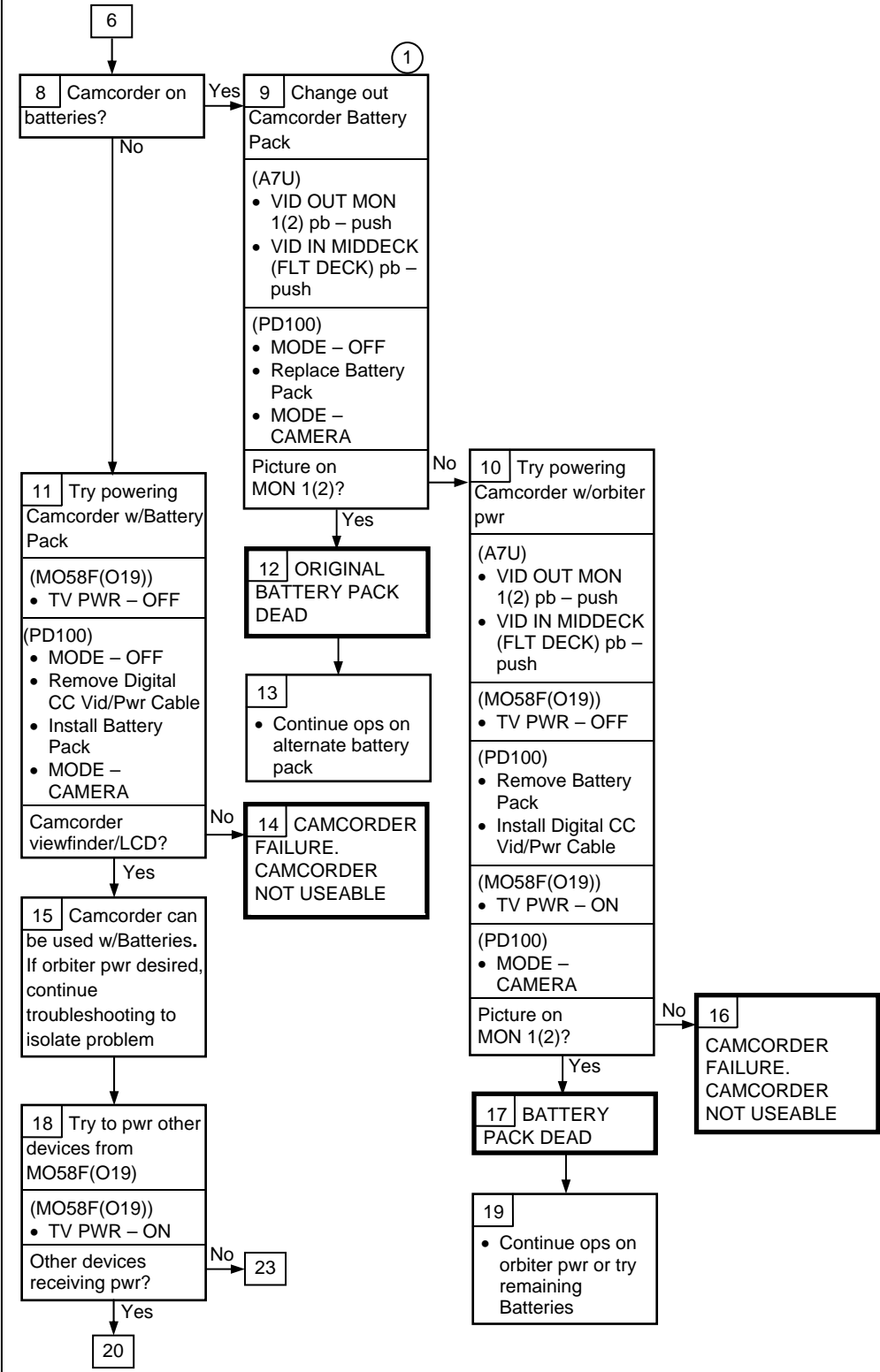
④  
IFM for AVIU(cables) may be possible

**CCTV**

**10.4 NO CAMCORDER VIDEO ON COLOR TV MONITOR**

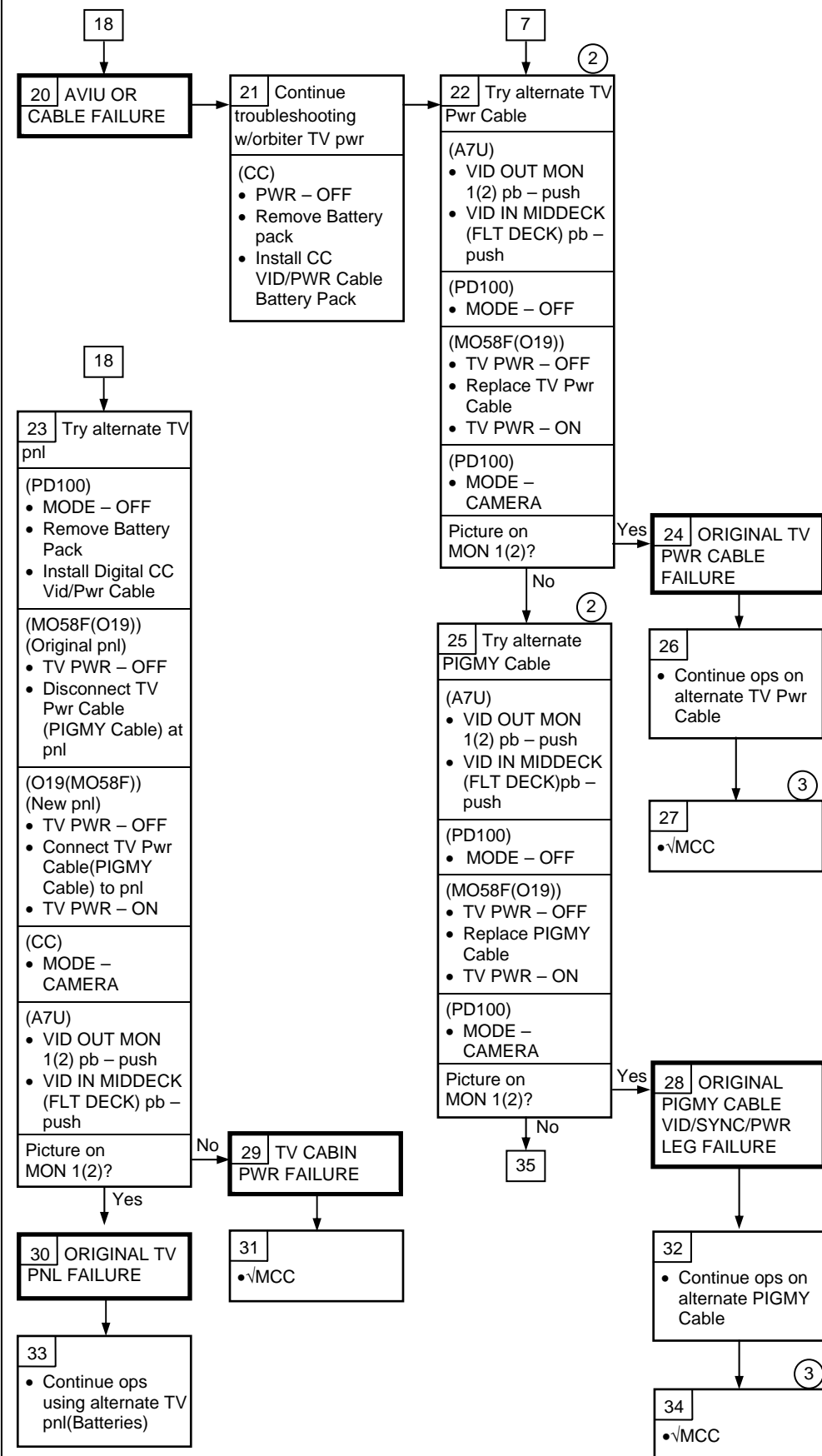


**CCTV 10.4 (Cont)**



①  
Video link from Camcorder to orbiter TV pnt should already be connected via Digital CC Vid/Pwr cable, AVIU, and TV Pwr cable when viewing Camcorder video on orbiter color TV monitor

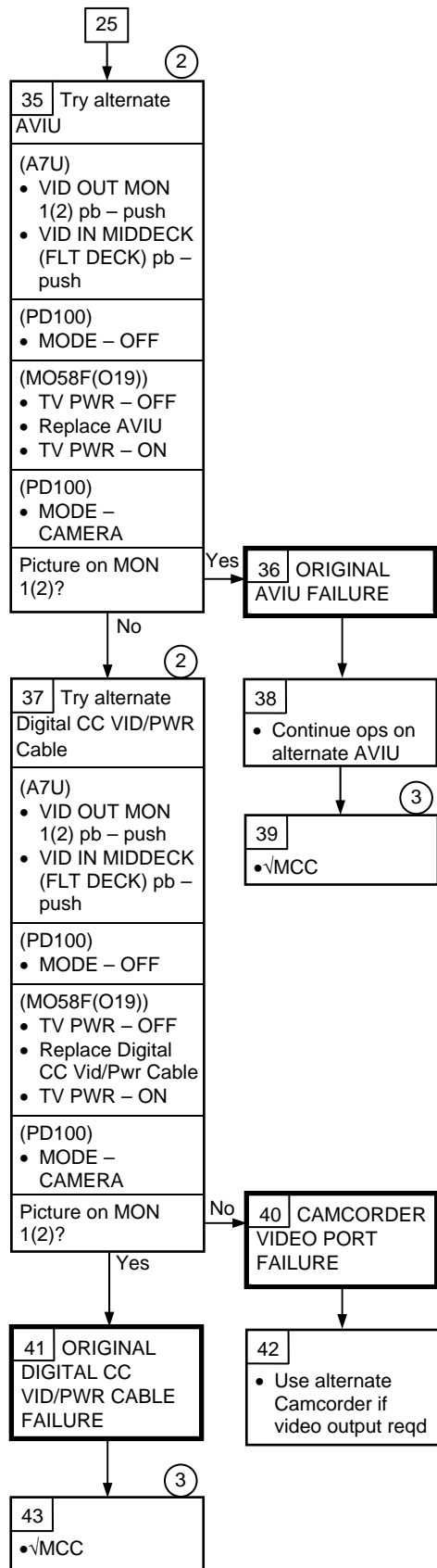
**CCTV 10.4 (Cont)**



②  
√MCC if alternate equip not avail

③  
IFM for AVIU or cables may be possible

**CCTV 10.4 (Cont)**



②  
√MCC if alternate  
equip not avail

③  
IFM for AVIU or  
cables may be  
possible

# CCTV

## 10.5 RMS TV cb OPENS

Port RMS TV Camr/Pan-Tilt cb Opens

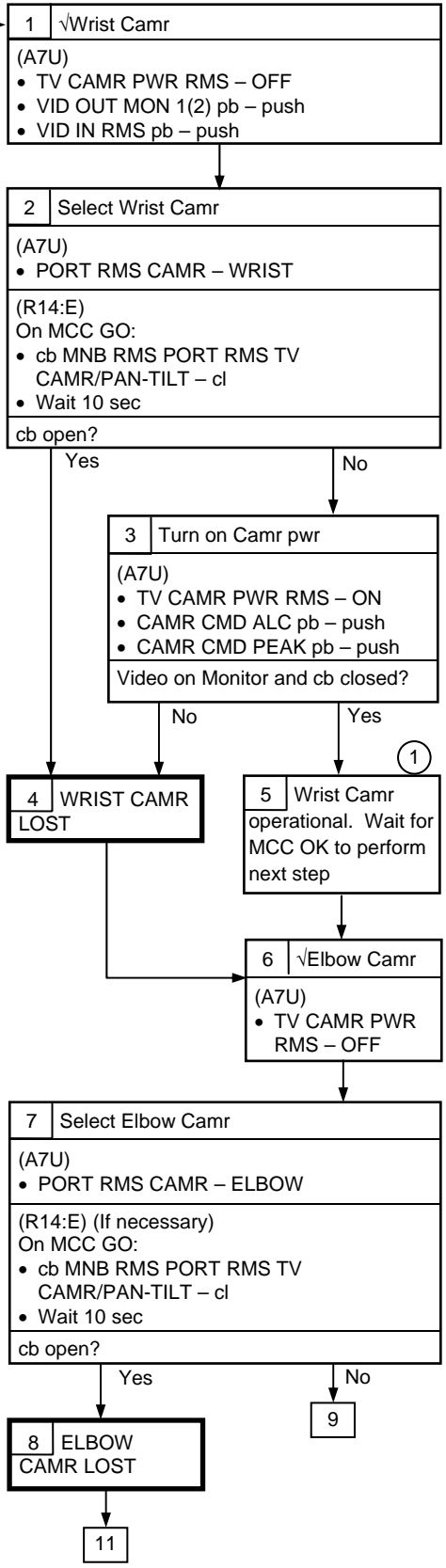
**Nominal Config:**

(R14:D)  
 cb MNA TV CONTR UNIT – cl  
 cb MNA TV MON 1 – cl  
 cb MNB TV CONTR UNIT – cl  
 cb MNB TV MON 2 – cl  
 cb MNC TV CAB – cl

(R14:E)  
 cb MNB RMS PORT RMS TV CAMR/PAN-TILT – cl  
 CAMR HTR – cl  
 PAN-TILT HTR – cl

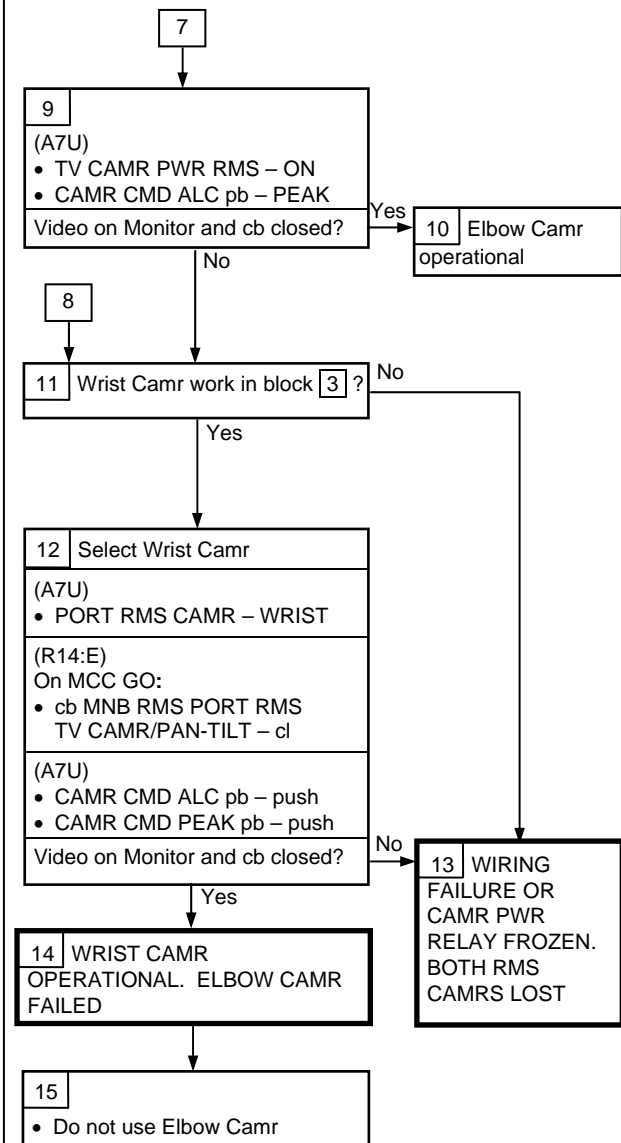
(A7U)  
 TV PWR CNTL – CMD  
 TV PWR CONTR UNIT – MNA(MNB)  
 TV SYNC – NORM  
 TV DNLK – ENA

(A3)  
 MON 1(2) SOURCE – as reqd  
 SYNC – INT  
 PWR – ON



① Pwr routed to both Camrs at all times and switched inside Camrs. Short occurring in one Camr may cause loss of pwr to both Camrs on RMS. Decision to proceed based on current spikes, if any, and importance of RMS Camrs to remainder of mission

# CCTV 10.5 (Cont)



This Page Intentionally Blank



CENTERLINE (C/L) CAMR

	<u>PAGE</u>
C/L CAMR INSTALL.....	11-2
C/L CAMR VIDEO TROUBLESHOOT.....	11-5
C/L CAMR MISALIGNMENT .....	11-8
C/L CAMR OPS FOR VSU FAIL .....	11-10

**CENTERLINE (C/L) CAMR**

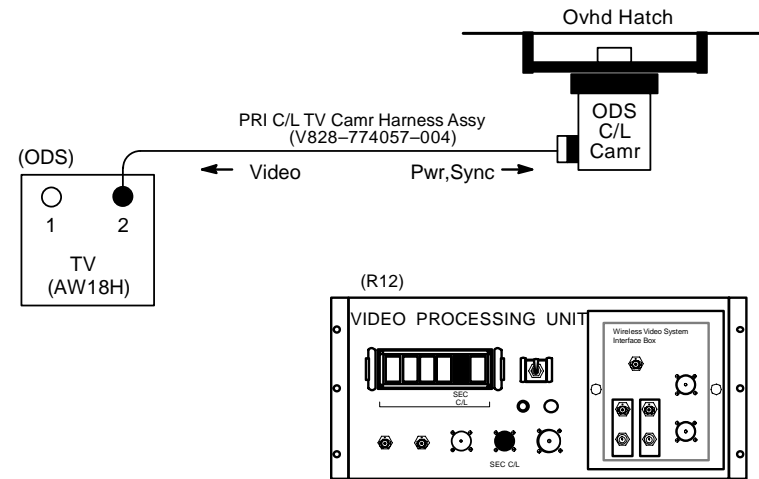
**C/L CAMR INSTALL**

- 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

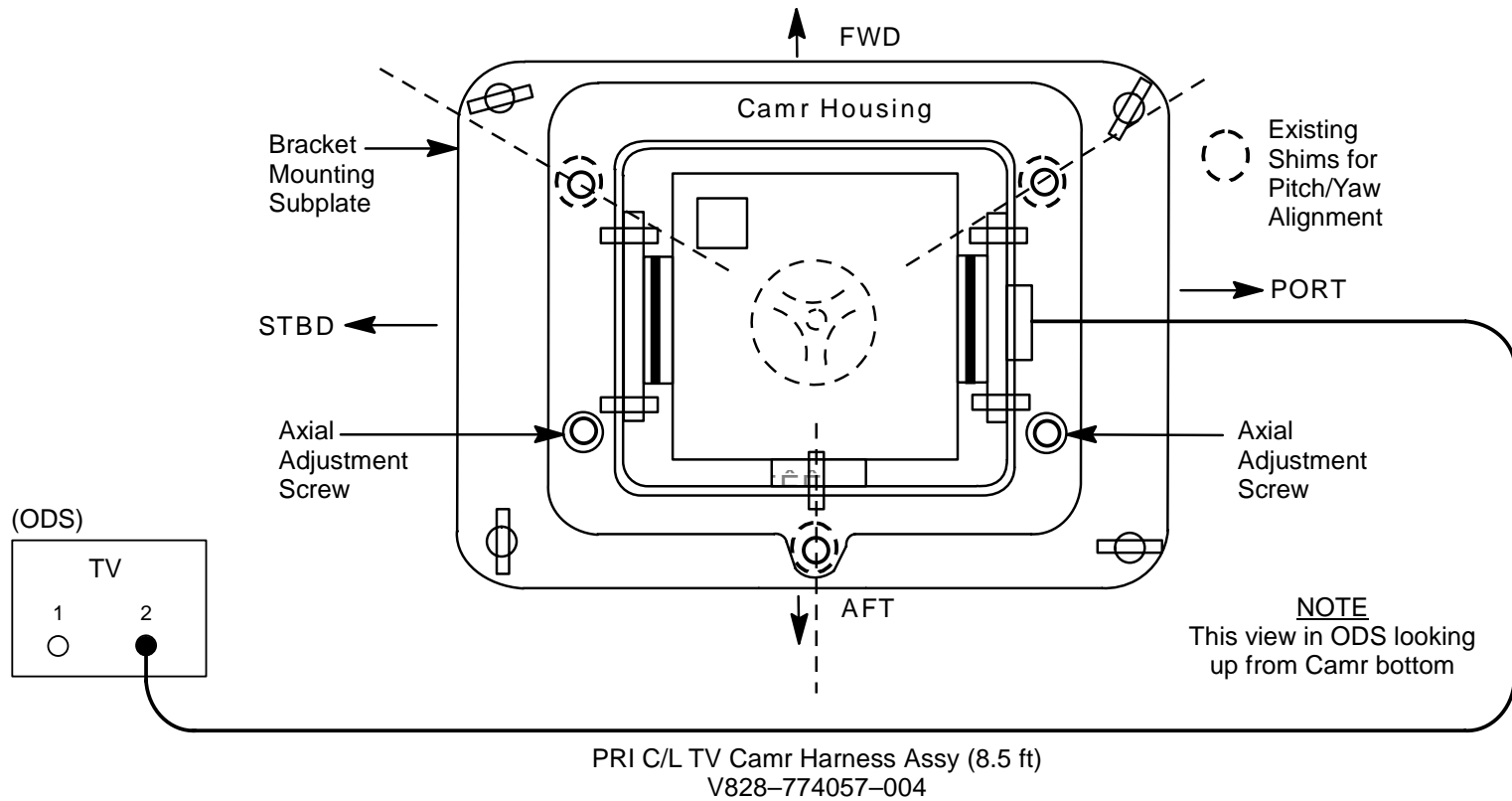


jsc48037\_048r2.cvx

# CENTERLINE (C/L) CAMR (Continued)

## C/L CAMR INSTALL (Continued)

### 2. Camr Position Verification



jsc48037\_049r2.cvx

## CENTERLINE (C/L) CAMR (Continued)

### 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

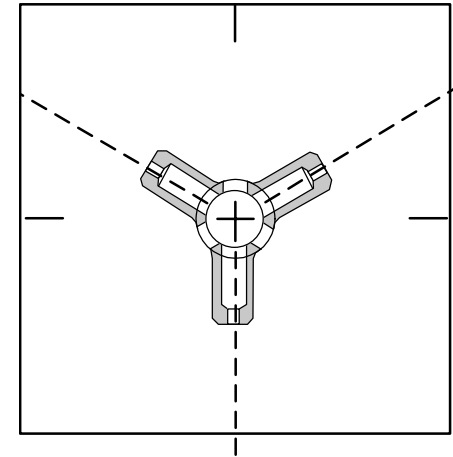
Green xhairs on monitor may move off center in calibration target when zooming in,out. Xhair will be closest to center at full zoom in position

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

## CENTERLINE (C/L) CAMR (Continued)

### C/L CAMR VIDEO TROUBLESHOOT

1. ✓C/L Camr nominal config:
- ODS Camr SSF/STS sw – STS
  - PRI C/L Camr connected via PRI C/L TV Camr Harness Assy to TV2 port
  - R12 (VPU) ✓VPU SEC C/L Cap installed on SEC C/L
  - ✓Green Jumper – SEC C/L
  - ✓VPU PWR – ON (It ON)
  - L12 (SSP 1) ✓cb SW PWR 1 (CB2) – cl
  - (SSP 2) ✓C/L CAM PWR – SEC ON
  - A7 VID OUT MON 1(2) pb – push
  - IN PL2(VPU) pb – push
  - A3 (MON) ✓C/L Camr Video

If no C/L Camr video on monitor:

2. Pwr-Cycle C/L Camr:
- A7 CAMR CMD IRIS – CL (hold 8 sec)
  - L12 (SSP 2) C/L CAM PWR – OFF, wait 10 sec, SEC ON
  - A7 ALC pb – push
  - AVG pb – push
  - A3 (MON) ✓C/L Camr Video

## CENTERLINE (C/L) CAMR (Continued)

### C/L CAMR VIDEO TROUBLESHOOT (Continued)

If still no C/L Camr video on monitor:

3. Change ODS TV port:
  - A7 CAMR CMD IRIS – CL (hold 8 sec)
  - L12 (SSP 2) C/L CAM PWR – OFF
  
  - ODS Disconnect PRI C/L TV Camr Harness Assy from TV2 port  
Connect PRI C/L TV Camr Harness Assy to TV1 port
  - R12 (VPU) √VPU PRI C/L Cap installed on PRI C/L  
Green Jumper – PRI C/L
  - L12 (SSP 2) C/L CAM PWR – PRI ON
  
  - A7 ALC pb – push  
AVG pb – push
  - A3 (MON) √C/L Camr Video

If still no C/L Camr video on monitor:

4. Change C/L TV Camr Harness Assy:
  - A7 CAMR CMD IRIS – CL (hold 8 sec)
  - L12 (SSP 2) C/L CAM PWR – OFF
  
  - MD CEIL Unstow SEC C/L TV Camr Harness Assy  
(STBD 2) Disconnect PRI C/L TV Camr Harness Assy from ODS TV1 port and PRI C/L Camr  
Connect SEC C/L TV Camr Harness Assy to ODS TV1 and PRI C/L Camr
  - L12 (SSP 2) C/L CAM PWR – PRI ON
  
  - A7 ALC pb – push  
AVG pb – push
  - A3 (MON) √C/L Camr Video

## CENTERLINE (C/L) CAMR (Continued)

### C/L CAMR VIDEO TROUBLESHOOT (Concluded)

If still no C/L Camr video on monitor:

5. Install SEC C/L Camr:

A7 CAMR CMD IRIS – CL (hold 8 sec)  
L12 (SSP 2) C/L CAM PWR – OFF

MD CEIL Unstow SEC C/L TV Camr  
(STBD 2) Disconnect SEC C/L TV Camr Harness Assy from PRI C/L Camr  
Remove PRI C/L Camr from ODS C/L Camr Brkt  
Mount SEC C/L Camr to ODS C/L Camr Brkt  
Connect SEC C/L TV Camr Harness Assy to SEC C/L Camr  
L12 (SSP 2) C/L CAM PWR – PRI ON

A7 ALC pb – push  
AVG pb – push  
A3 (MON) ✓C/L Camr Video

If video, perform C/L CAMR INSTALL, step 3

If still no C/L Camr video on monitor:

6. ✓MCC

## CENTERLINE (C/L) CAMR (Continued)

### C/L CAMR MISALIGNMENT

If green xhair outside inner diameter of circular portion of calibration target during PRI C/L Camr alignment, perform following:

1. Describe to MCC location of xhair in relation to target circle. Reference dwgs, 11-9
2. Remove, re-install Camr to bridge. Recheck alignment per C/L CAMR INSTALL, step 3

Perform each of the remaining steps if misalignment persists:

3. Remove, re-install mounting bridge to ODS. Recheck alignment per C/L CAMR INSTALL, step 3
4. Shim Camr/bridge interface:
  - a. Obtain feeler gauges from ML60B Primary C/L Foam
  - b. Loosen fasteners on Camr/bridge interface
  - c. Insert feeler gauge between Camr brkt and bridge as appropriate to center x-hair and tighten fasteners
  - d. Recheck alignment per C/L CAMR INSTALL, step 3
  - e. Repeat as reqd w/different sized feeler gauges or shim locations until x-hair within target circle

MD CEIL (STBD 2) 5. Install SEC C/L Camr using PRI C/L Camr Harness Assy and ODS TV Port 2 (no change to VPU selections):

A7	CAMR CMD IRIS – CL (hold 8 sec)
L12 (SSP 2)	C/L CAM PWR – OFF
ODS	Disconnect Camr Harness Assy from PRI C/L Camr
	Replace PRI C/L Camr w/SEC C/L Camr
	Connect Camr Harness Assy to SEC C/L Camr
L12 (SSP 2)	C/L CAMR PWR – SEC ON
A7	ALC pb – push
	AVG pb – push

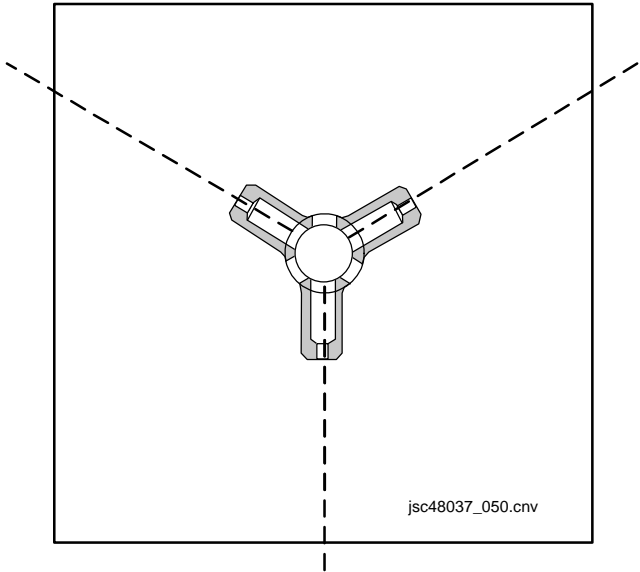
Check alignment per C/L CAMR INSTALL, step 3. Describe misalignment to MCC per step 1

6. Repeat step 4 for SEC C/L Camr
7. If shimming both PRI and SEC C/L Camrs fails to bring xhair within target circle, re-install Camr w/best alignment. Report which Camr installed
8. √MCC to determine if ODS CENTERLINE CAMR ANGULAR ALIGNMENT (IFM, PROCEDURES M THRU R) reqd

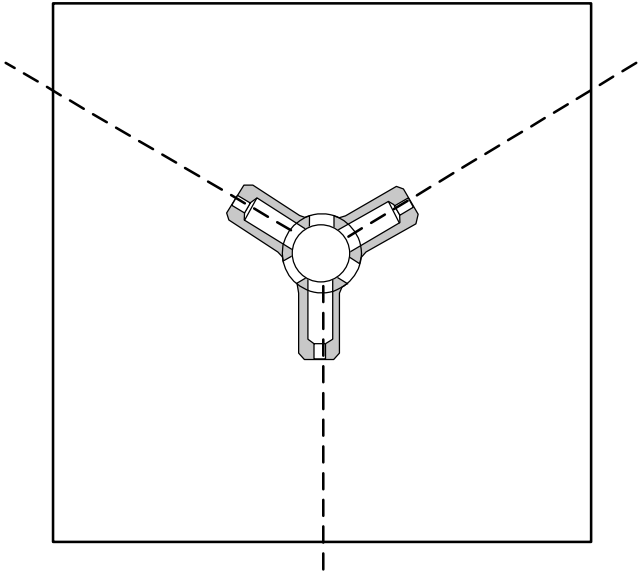


**CENTERLINE (C/L) CAMR (Continued)**

**C/L CAMR MISALIGNMENT (Concluded)**



PRI C/L CAMR



SEC C/L CAMR

jsc48037\_051.cnv

## CENTERLINE (C/L) CAMR (Continued)

### C/L CAMR OPS FOR VSU FAIL

#### 1. Setup

Obtain:

TVCU/CIP I/F Cable  
 TVCU  
 Camr Cont/CTVM Cable  
 TV Pwr Cable (20 ft) (2)  
 AVIU LCD Cable  
 LCD  
 RS-232 Cable  
 PGSC  
 PGSC Pwr Cable(s)  
 PIGMY  
 AVIU  
 V10  
 MON to VIU/CM Cable  
 Digital CC VID/PWR Cable  
 AVIU-CC VID Cable

A3  
 R14:D  
 A3

√MON 2 PWR – OFF  
 cb MNB TV MON 2 – op  
 Disconnect Pwr MNB from MON 2 J1

Config per dwg, 11-11

TVCU  
 O19  
 L12  
 (SSP 2)

PGSC

R14:D  
 A3

V10

LCD

PGSC  
 760XD

#### 2. Activation

CENTERLINE/CAMCORDER sw – CENTERLINE  
 TV Pwr – ON  
 C/L CAM PWR – SEC ON

PGSC PWR SOURCE – ON  
 PGSC – ON

cb MNB TV MON 2 – cl  
 MON 1 PWR – ON

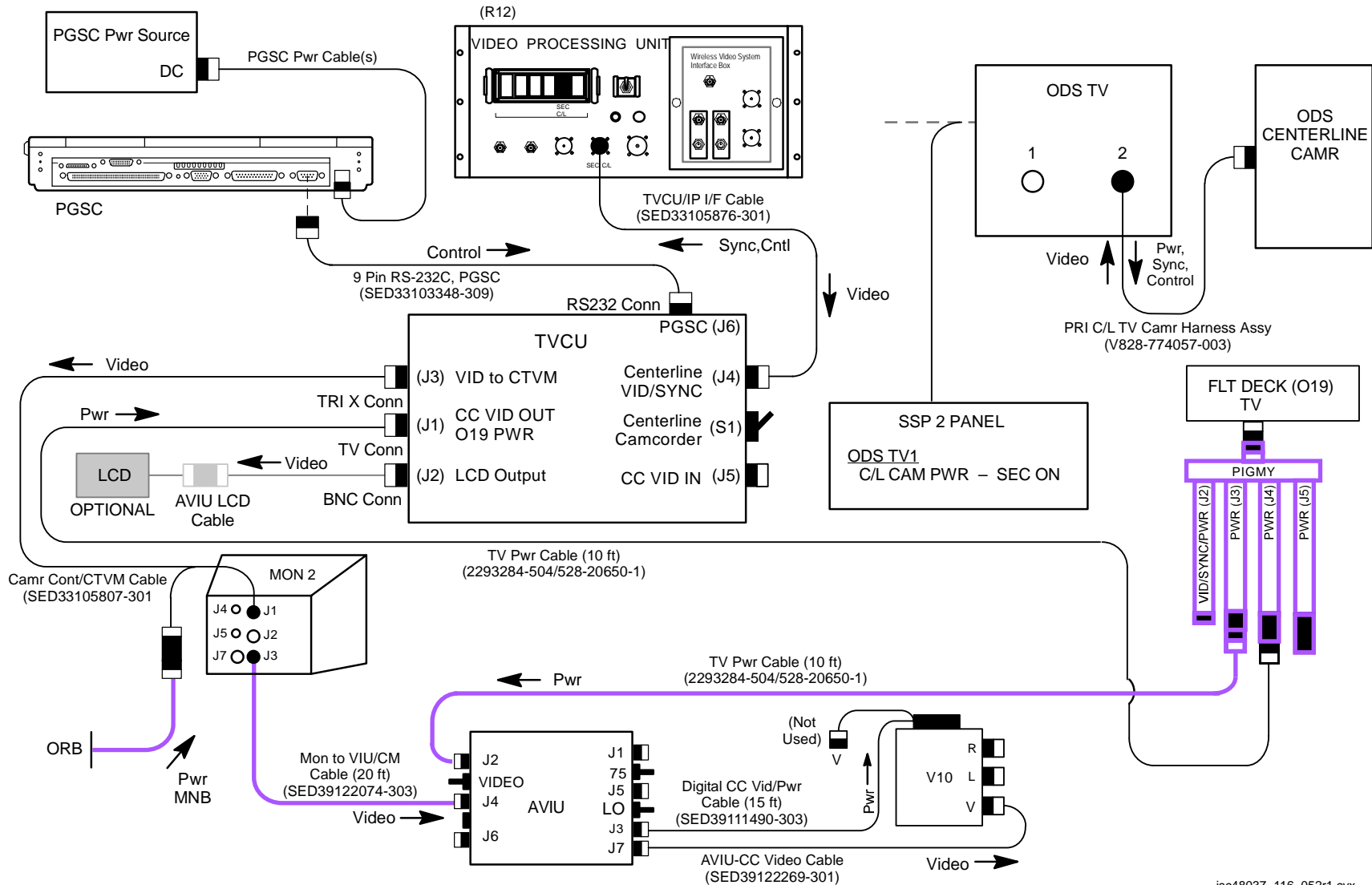
PWR – ON (LED on)  
 √Tape – Installed

PWR – ON

RUN TV CONTROLLER program  
 SHUTTLE Aps (double-click)  
 TV Controller (double-click)  
 Sel 'YES' in dialog box  
 CTVC CONTROLLER menu  
 CAMERA (click)  
 P2 (click)  
 ALC – AVG (click)  
 Return to P/TV scene as reqd  
 CTVC CONTROLLER menu  
 √Zoom,Iris,Focus as reqd

# CENTERLINE (C/L) CAMR (Continued)

## C/L CAMR OPS FOR VSU FAIL (Continued)



jsc48037\_116\_052r1.cvx

## CENTERLINE (C/L) CAMR (Concluded)

### C/L CAMR OPS FOR VSU FAIL (Concluded)

PGSC            3. Deactivation  
                  CTVC CONTROLLER menu  
                  IRIS – CLOSE  
                  QUIT

                  PGSC – OFF  
                  PGSC Pwr Source – OFF

L12 (SSP 2)    C/L CAM PWR – OFF

O19             TV PWR – OFF

LCD             PWR – OFF

MON 2          Pwr – OFF  
                  Stow hardware as reqd

DTV

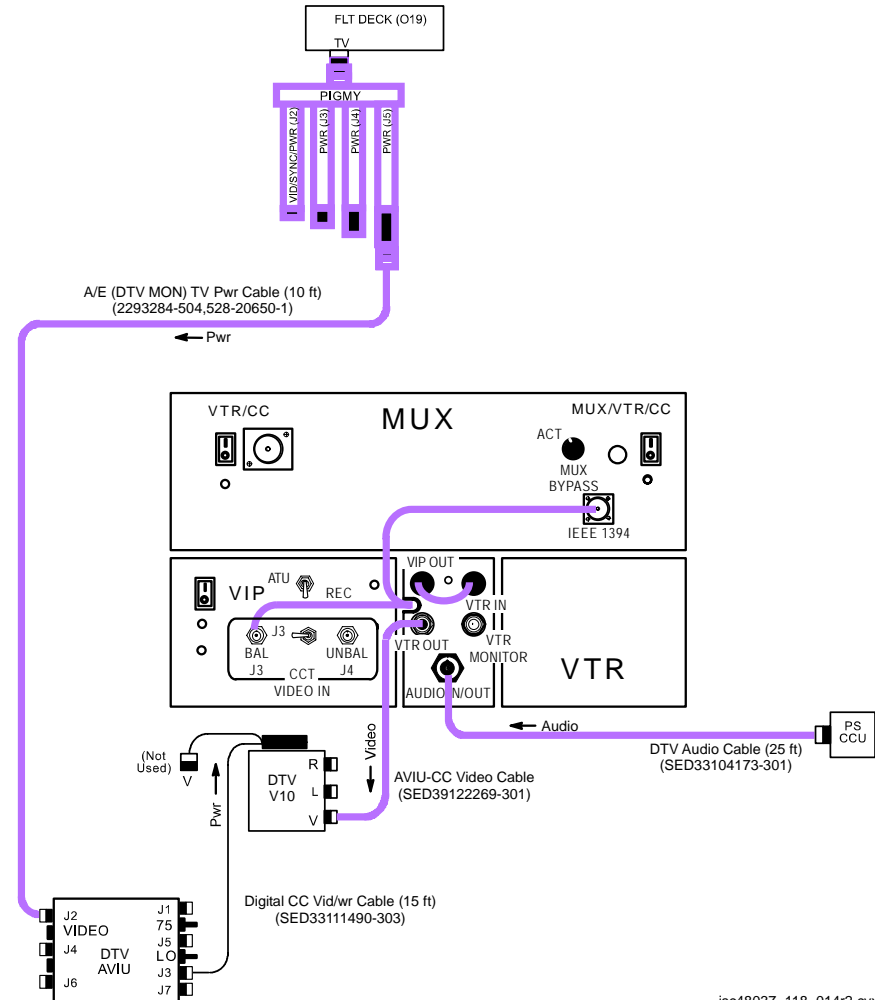
	<u>PAGE</u>
SETUP.....	12-3
SPECIFICATIONS.....	12-4
NOMENCLATURE.....	12-5
VTR (SONY DSR-25) NOMINAL MENU SETTINGS .....	12-15
DTV FUNCTIONAL SCHEMATIC .....	12-16
VTR CLOCK SET .....	12-17
MALS.....	12-18
12.1 NO VIDEO AT VTR OUT .....	12-18
12.2 NO DIGITAL DNLK VIDEO AT MCC .....	12-18
12.3 MUX PWR LED(s) OFF .....	12-19
12.4 MUX CHANNEL 3 DATA LED OFF .....	12-19
12.5 VIP PWR LED OFF.....	12-20
12.6 VIP DATA FLOW LED OFF .....	12-20
12.7 VTR ON/STANDBY RED LED OFF .....	12-21
12.8 VTR STARTS RECORDING OR REWINDS AND STARTS PLAYING AFTER MUX PWR APPLIED .....	12-21
12.9 VTR TAPE CONTROLS NOT FUNCTIONING (VTR DISPLAY INDICATES "ERR") .....	12-21
12.10 VTR DISPLAYS ERROR MSG 32 .....	12-21
12.11 VTR DISPLAYS ERROR MSG 21 .....	12-22
12.12 VTR AUTOMATICALLY PWRS OFF .....	12-22

This Page Intentionally Blank

# DTV

## SETUP

- L10 1. Config Panels  
 Unstow AVIU, reconnect outside of container  
 Config H/W per dwg at right
- 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, DATA FLOW LED flashes twice)
- (VTR) ✓ON/STANDBY LED – green  
 ✓Switches set to White Dot (seven)  
 ✓COUNTER SELECT – COUNTER (TC)
- AVIU 2. Config DTV V10  
 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 3. Config Audio  
 PS AUD PWR – AUD  
 Desired Loops – RCV, Vol tw-5  
 Other Loops – OFF



jsc48037\_118\_014r2.cvx

## DTV (Continued)

### SPECIFICATIONS

#### VIP

PWR SOURCE: 400 Hz A/C via AC2 PAYLOAD 3 $\Phi$  (MA73C:E)  
PWR DRAW: 6.84 Watts  
FUSES: F1 = 5 amp  
          F2 = 2 amp  
WEIGHT: 4.19 lb  
DIMENSION: 10.5" (L) X 5.25" (W) X 2.69" (H)

#### VTR (SONY DSR-25)

PWR SOURCE: 13.2 VDC via MUX  
PWR DRAW: 12.88 to 33.6 Watts (depending on mode)  
TAPE: Standard DVCAM or Mini DVCAM  
TAPE LENGTH: 3 hr or 40 min  
AUDIO: 2 Channel, 16 bit at 48 KHz  
CLOCK PWR: 300 hr internal rechargeable capacitor (after 8 hr charge)  
OPERATING TEMP: 41 degF to 104 degF  
WEIGHT: 9 lb  
DIMENSION: 15.5" (L) X 8.37" (W) X 3.87" (H)

#### MUX

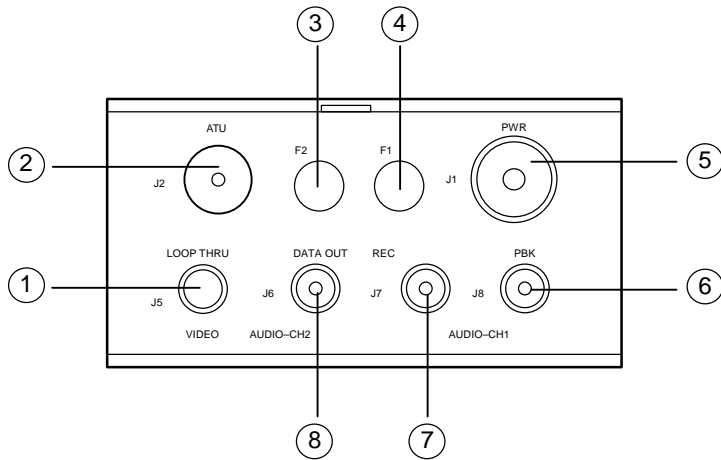
PWR: 28 VDC via PAYLOAD AUX bus (R1)  
PWR DRAW: 39.76 to 72.8 Watts (depending on VTR,CC config)  
FUSE: 5 amp  
WEIGHT: 15.2 lb  
DIMENSION: 19" (L) X 17.88" (W) X 3.45" (H)



# DTV (Continued)

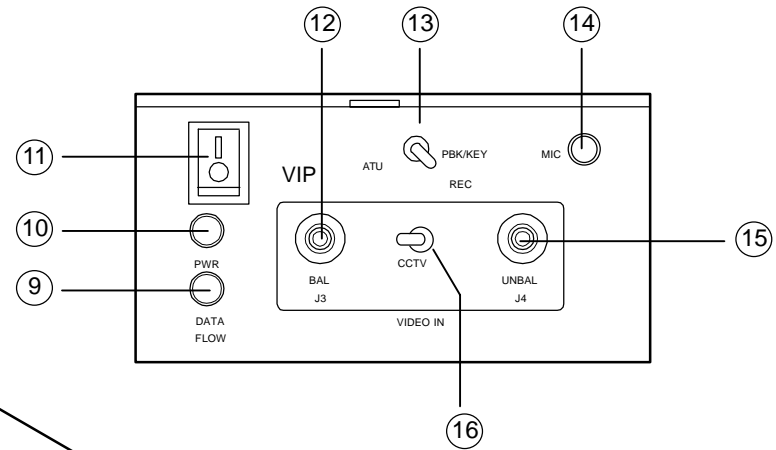
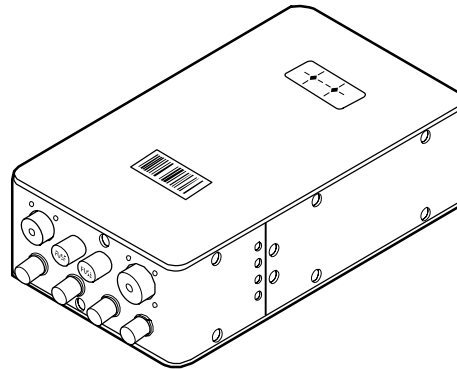
## NOMENCLATURE

### VIP



**BACK**

- ① Video Loop Thru Connector (J5)
- ② ATU Audio Connector (J2)
- ③ F2: 2–Amp Fuse
- ④ F1: 5–Amp Fuse
- ⑤ AC Pwr Connector (J1)
- ⑥ Playback Audio Connector (J8)
- ⑦ Record Audio Connector (J7)
- ⑧ Interval DATA OUT Connector (J6)



**FRONT**

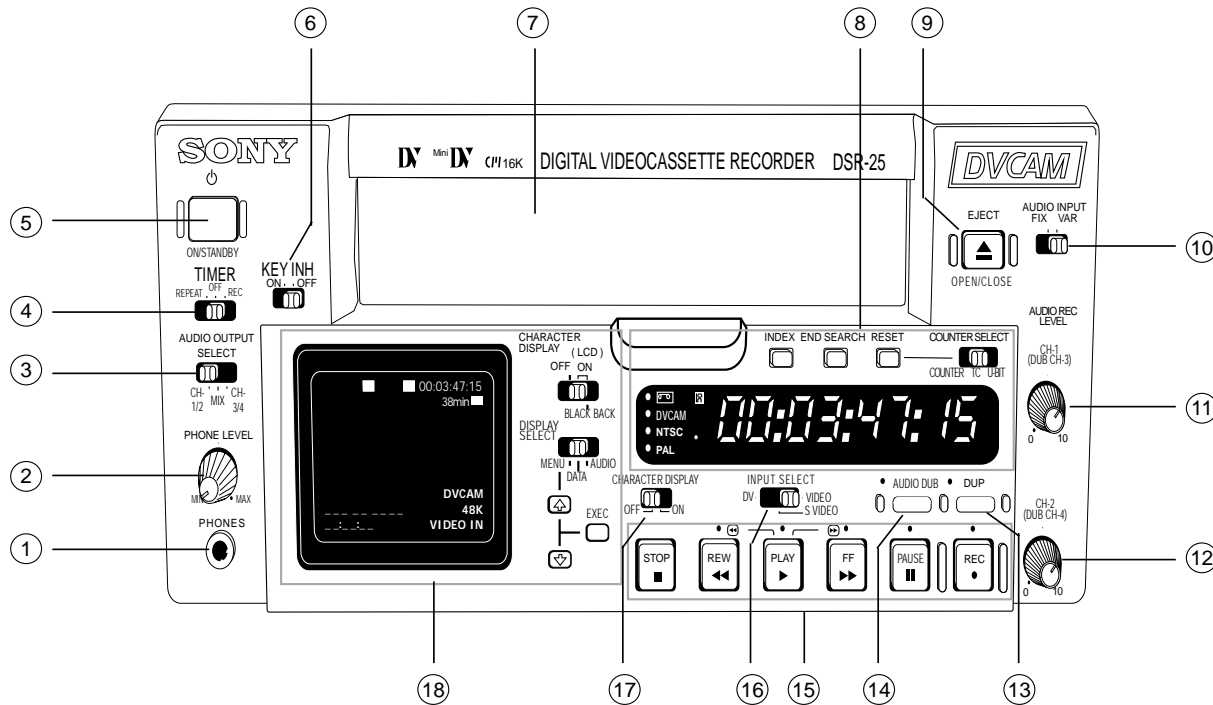
- ⑨ Data Flow LED (green)
- ⑩ PWR LED (green)
- ⑪ PWR sw
- ⑫ Balanced Video Connector (J3)
- ⑬ ATU sw
- ⑭ PLAYBACK/KEY MIC LED
- ⑮ Unbalanced Video Connector (J4)
- ⑯ CCTV VIDEO IN sw

jsc48037\_054\_r1.cvx

## DTV (Continued)

### NOMENCLATURE (Continued)

#### VTR (SONY DSR-25) – FRONT PANEL



- ① Phone Jacks
- ② PHONE LEVEL Control kb
- ③ AUDIO OUTPUT SELECT sw (CH 1/2)
- ④ TIMER sw (OFF)
- ⑤ ON/STANDBY pb, LED (red/green)
- ⑥ KEY INH sw (OFF)
- ⑦ Cassette Compartment
- ⑧ Display Window and Controls
- ⑨ EJECT pb
- ⑩ AUDIO INPUT sw (FIX)
- ⑪ CH-1 AUDIO REC LEVEL Control kb (N/A)
- ⑫ CH-2 AUDIO REC LEVEL Control kb (N/A)
- ⑬ DUP pb (not used)
- ⑭ AUDIO DUB pb (N/A)
- ⑮ Tape Transport Controls
- ⑯ INPUT SELECT sw (VIDEO)
- ⑰ CHARACTER DISPLAY sw (OFF)
- ⑱ Monitor Display and Controls

jsc48037\_139r4.cvx

## DTV (Continued)

### NOMENCLATURE (Continued)

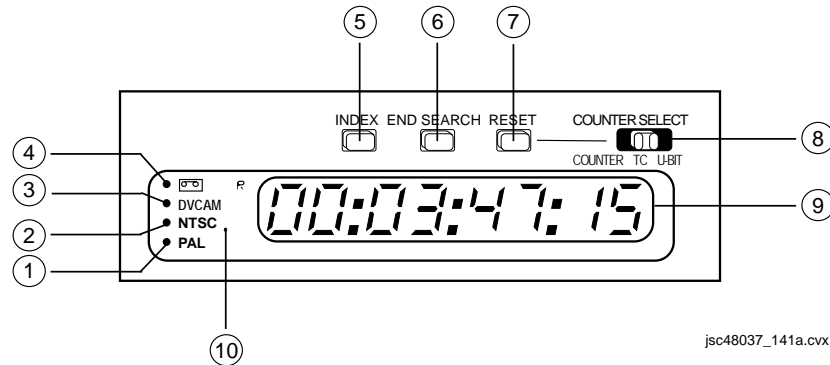
#### VTR (SONY DSR-25) – FRONT PANEL (Concluded)

①	PHONES jack	Stereo headphone connection point to monitor live(playback) audio
②	PHONE LEVEL kb	Controls headphone jack volume level
③	AUDIO OUTPUT SELECT sw (Default = CH 1/2)	Determines which audio channels are output in 32 kHz mode only
④	TIMER sw (Default = OFF)	Used to auto repeat a tape or automatically start recording once pwr is applied to VTR
⑤	ON/STANDBY pb, LED (red/green)	Changes pwr mode of VTR between STANDBY (red LED) and ON (green LED). Will automatically go to ON when MUX pwr applied
⑥	KEY INH sw (Default = OFF)	Disables all pbs when ON
⑦	Cassette Compartment	Tape insertion location, door opened/closed via EJECT pb
⑧	Display windows and controls	See 12-8 for details
⑨	EJECT pb	Opens/closes cassette compartment door and ejects tape, if installed
⑩	AUDIO INPUT sw (Default = FIX)	Enables/disables AUDIO REC LEVEL control knobs. FIX sets fixed gain based on AUDIO INPUT LEVEL sw on rear of VTR
⑪	CH-1 AUDIO REC LEVEL kb (N/A)	Controls audio level of orbiter audio
⑫	CH-2 AUDIO REC LEVEL kb (N/A)	Controls audio level for VI data
⑬	DUP pb (not used)	Used for tape-to-tape recording to duplicate the time code
⑭	AUDIO DUB pb (N/A)	Used for tape-to-tape recording to duplicate the 32 kHz mode audio channels
⑮	Tape Transport Controls	See 12-9 for details
⑯	INPUT SELECT sw (Default = VIDEO)	Determines which video input jack the VTR will process
⑰	CHARACTER DISPLAY sw (Default = OFF)	Determines if VTR monitor text is displayed in VTR OUT video
⑱	Monitor Display and Controls	See 12-10 for details

## DTV (Continued)

### NOMENCLATURE (Continued)

#### VTR (SONY DSR-25) – DISPLAY WINDOW AND CONTROLS

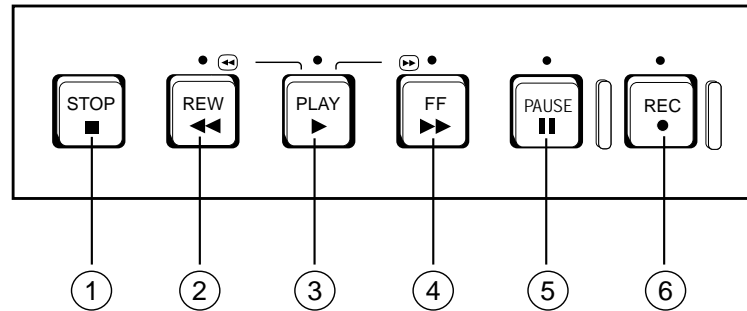


①	PAL Indicator/Amber (not used)	Lit when NTSC/PAL sw is in PAL posn or PAL formatted video being processed by the VTR
②	NTSC Indicator/Amber (on)	Lit when NTSC/PAL sw is in NTSC posn or NTSC formatted video being processed by the VTR
③	DVCAM Indicator/Amber (on)	Lit when the VTR is playing a DVCAM-formatted tape or when the VTR is set to DVCAM
④	Cassette Indicator/Amber	Lit solid when a tape is loaded into the VTR. Flashes during tape ejection
⑤	INDEX pb	Initiates index mark on the tape that can be used to cue the tape to that posn on the tape via INDEX SEARCH
⑥	END SEARCH pb	VTR will search for the last 5 sec of recorded video, play it, and return to stop mode
⑦	RESET pb	Resets COUNTER displayed numbers to all zeroes
⑧	COUNTER SELECT sw	Determines which time data will be displayed in the counter display
	COUNTER	Count value of the counter (DD:HH:MM:SS)
	TC	Time code
	U-BIT	User bits (not used)
⑨	Time Counter Display	Displays time data (counter/time code/user bits). Self-diagnosis code numbers or error msgs
⑩	Remote Control Detector	Self explanatory

## DTV (Continued)

### NOMENCLATURE (Continued)

#### VTR (SONY DSR-25) – TAPE TRANSPORT CONTROLS



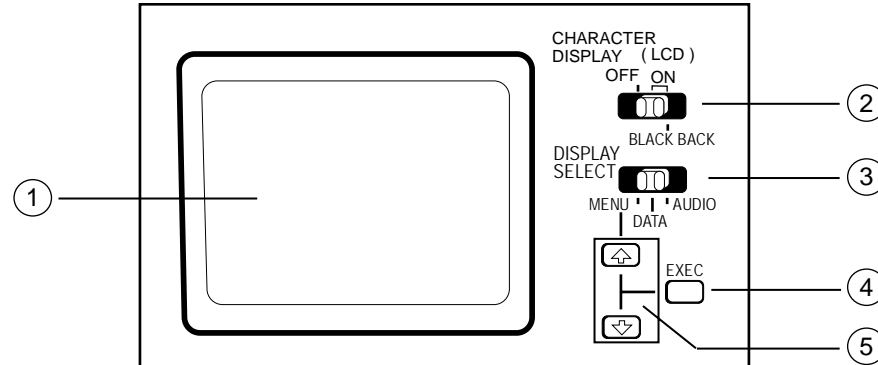
jsc48037\_141b.cvx

①	STOP pb	Stops current tape transport operation
②	REW pb/Indicator/Amber	Rewinds tape and illuminates the REW indicator. Video not visible unless held during play or play/pause mode
③	PLAY pb/Indicator/Green	Starts playback ops and illuminates the PLAY indicator
④	FF pb/Indicator/Amber	Fast forwards tape and illuminates the FF indicator. Video not visible unless held during play or play/pause mode
⑤	PAUSE pb/Indicator/Amber	Pauses playback or recording ops
⑥	REC pb/Indicator/Red	Pressing PLAY pb while holding in REC pb will start recording and both PLAY and REC indicators will illuminate. Just pressing REC pb will illuminate the REC indicator and allow for audio,video monitoring

## DTV (Continued)

### NOMENCLATURE (Continued)

#### VTR (SONY DSR-25) – MONITOR DISPLAY AND CONTROLS



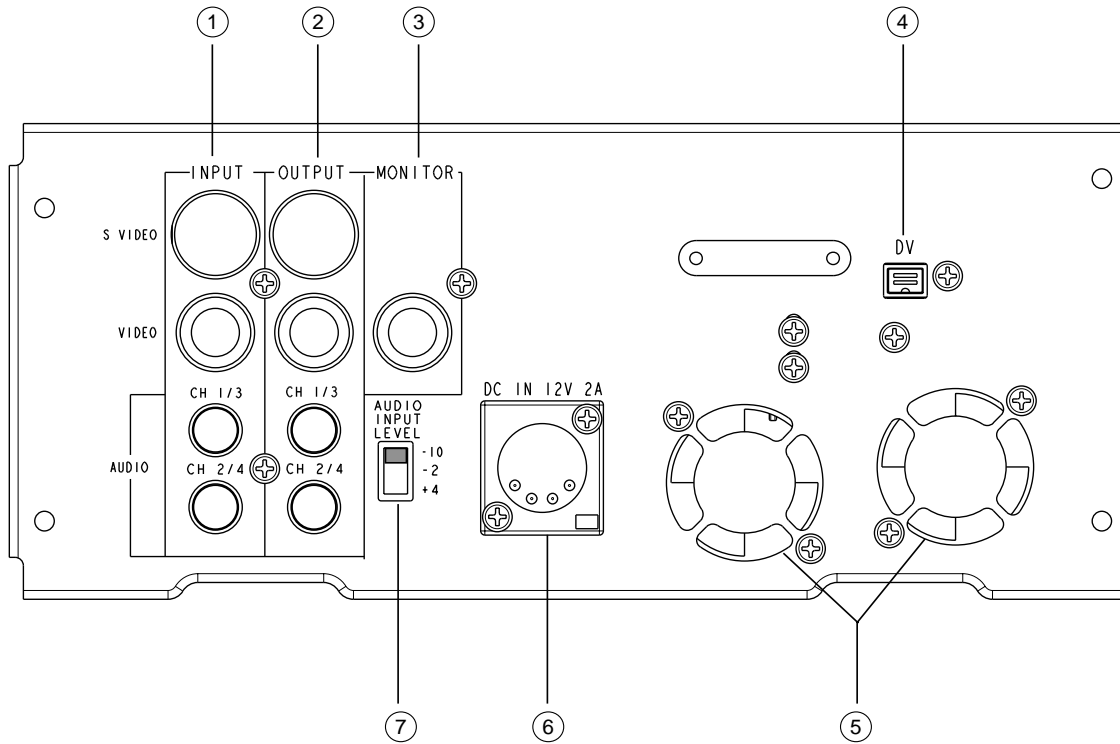
jsc48037\_141c.cvx

①	LCD Monitor	Displays playback(live) video and superimposed text, audio levels, and menu data
②	CHARACTER DISPLAY (LCD) sw (Default = ON)	Controls the display of superimposed text on the monitor. BLACK BACK will block video flow to the monitor to provide a black background to improve superimposed data viewing
③	DISPLAY SELECT sw	Determine what superimposed data is displayed on the monitor
	MENU	Menu data
	DATA	VTR information
	AUDIO	Audio levels
④	EXEC pb	Executes and selects menu items
⑤	↑↓ pbs	Allows navigation through and setting of menu items when in MENU mode, and adjusts monitor brightness when in DATA mode

## DTV (Continued)

### NOMENCLATURE (Continued)

#### VTR (SONY DSR-25) – REAR PANEL



- ① INPUT Jacks
- ② OUTPUT Jacks
- ③ MONITOR Jack
- ④ DV Jack
- ⑤ Cooling Fan (two)
- ⑥ DC IN Connector
- ⑦ AUDIO INPUT LEVEL sw (-10)

jsc48037\_140r4.cvx

## DTV (Continued)

### NOMENCLATURE (Continued)

#### VTR (SONY DSR-25) – REAR PANEL (Concluded)

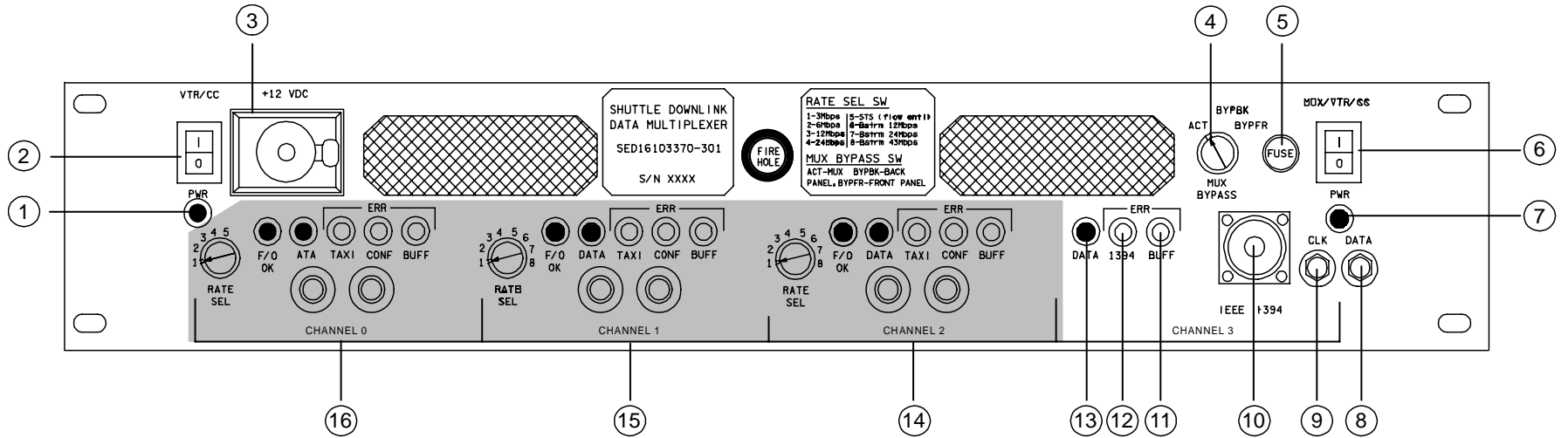
①	INPUT Jacks	Video and audio inputs
	S_VIDEO	Not used
	VIDEO	Video input of DTV signal from orbiter VSU
	AUDIO CH-1/3	Orbiter audio input
	AUDIO CH-2/4	Orbiter "VI" input
②	OUTPUT Jacks	Video and audio outputs
	S_VIDEO	Not used
	VIDEO	VTR OUT video (No VI data)
	AUDIO CH-1/3	Orbiter audio playback output
	AUDIO CH-2/4	Not used
③	MONITOR Jack	VTR MON Video (NOTE: Will not display VTR Playback Video)
④	DV Jack	IEEE 1394 4-pin video/audio connection
⑤	Cooling Fans	Reversed to bring air into unit
⑥	DC IN Connector	DC pwr source connection
⑦	AUDIO INPUT LEVEL sw	Sets the audio fixed gain level when the AUDIO INPUT is set to FIX. Default is -10. Is ignored in the VAR setting



# DTV (Continued)

## NOMENCLATURE (Continued)

### MUX – FRONT



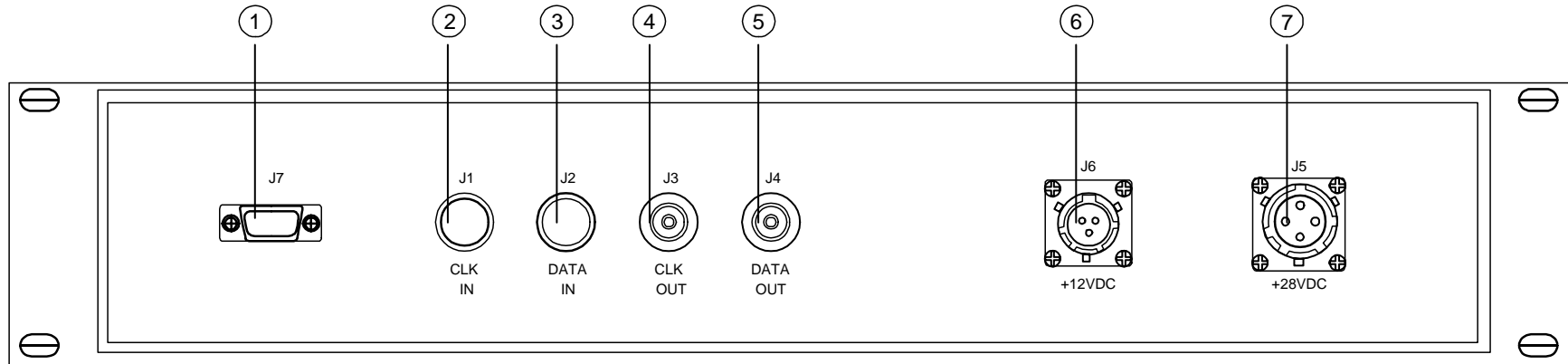
- |                           |                                       |
|---------------------------|---------------------------------------|
| ① VTR/CC PWR LED (green)  | ⑨ BYPFRR CLOCK Connector              |
| ② VTR/CC PWR sw           | ⑩ IEEE 1394 Connector                 |
| ③ +12 VDC Connector (N/A) | ⑪ CHANNEL 3 BUFFER ERROR LED (yellow) |
| ④ MUX BYPASS sw           | ⑫ CHANNEL 3 1394 ERROR LED (yellow)   |
| ⑤ MUX 5-Amp Fuse          | ⑬ CHANNEL 3 DATA LED (green)          |
| ⑥ MUX/VTR/CC sw           | ⑭ CHANNEL 2 DATA Ports,LEDs (N/A)     |
| ⑦ MUX PWR LED (green)     | ⑮ CHANNEL 1 DATA Ports,LEDs (N/A)     |
| ⑧ BYPFRR DATA Connector   | ⑯ CHANNEL 0 DATA Ports,LEDs (N/A)     |

jsc48037\_058.cnv

## DTV (Continued)

### NOMENCLATURE (Concluded)

#### MUX – BACK



- ① DATA Port (N/A)
- ② CLOCK IN Connector (J1)
- ③ DATA IN Connector (J2)
- ④ CLOCK OUT Connector (J3)
- ⑤ DATA OUT Connector (J4)
- ⑥ +12 VDC OUTPUT Connector (J6)
- ⑦ +28 VDC INPUT Connector (J5)

jsc48037\_059.cnv

## DTV (Continued)

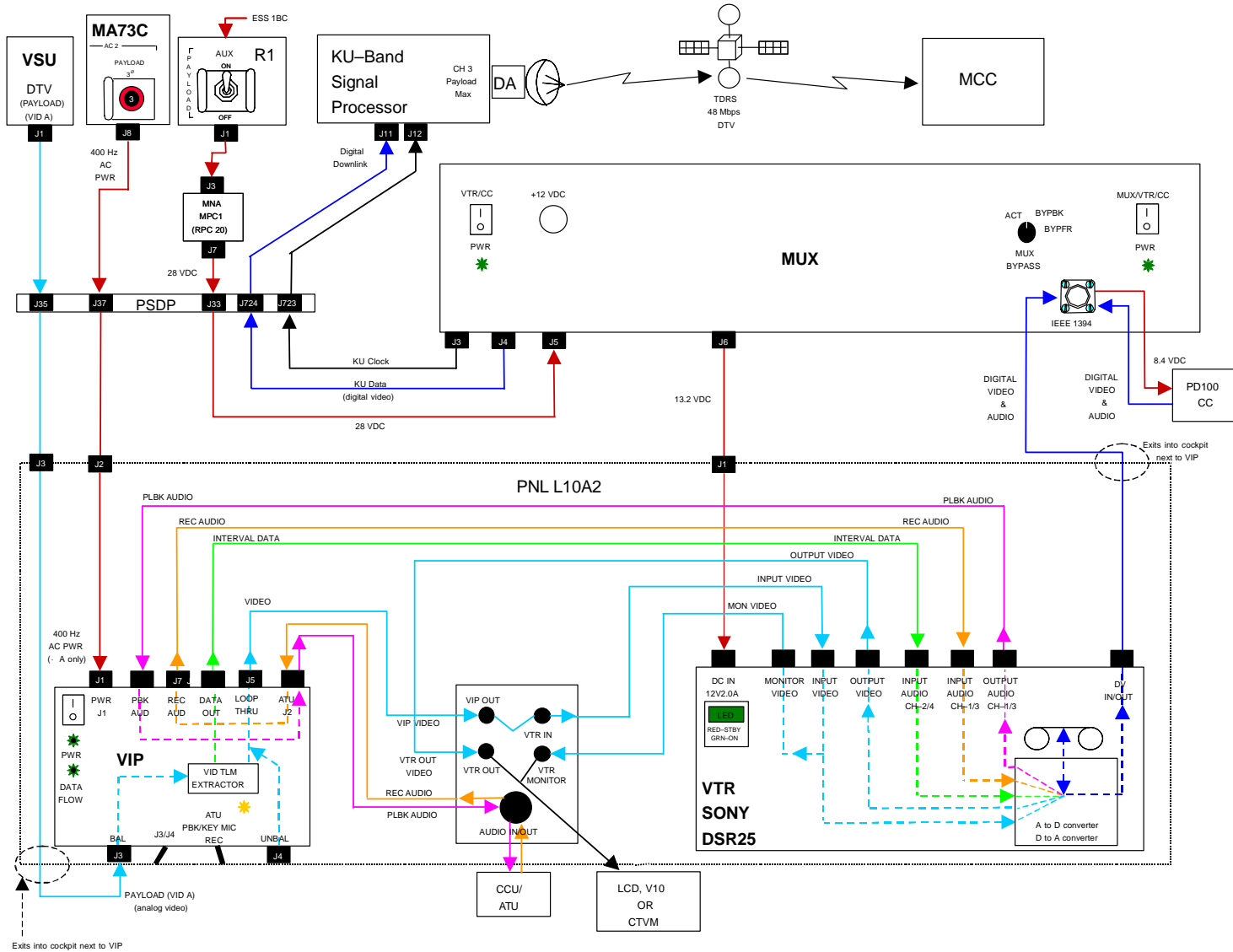
### VTR (SONY DSR-25) NOMINAL MENU SETTINGS

MENU	SUB MENU
TC (TC/UB SET)	TC PRESET – N/A
	UB PRESET – N/A
	DV IN TC – INTERNAL
	TC MAKE – REGEN
	TC RUN – REC RUN
	TC FORMAT – AUTO
CM (CM SET)	CM SEARCH – ON
	TITLE DISP – ON
	LABEL DISP – ON
	TAPE LABEL – N/A
	ITEM ERASE – N/A
	ERASE ALL – N/A
DISP (DISPLAY SET)	DATA CODE – DATE (non-default)
	EE/PB SEL – EE
	LTR SIZE – NORMAL
	COLOR BAR – OFF
	DATE DISP – M/D/Y
	TIME DISP – 24H
V (VIDEO SET)	PB YNR – OFF
	PB CNR – OFF

MENU	SUB MENU
A (AUDIO SET)	AUDIO MODE – FS48k (non-default)
	JOG AUDIO – OFF
VTR (VTR SET)	REC MODE – DVCAM
	AUTO INDEX – ON
	STILL PICT – AUTO
	FF/REW SPD – FF/REW
	DUPLICATE – N/A
	DV EE OUT – ON (non-default)
STILL TIME – 1 MIN (non-default)	
FROM STILL – STOP	
ETC (OTHERS)	COMMANDER – WIRELESS
	AC ON MODE – POWER ON (non-default)
	AUTO STBY – DISABLE
	BEEP – ON
	LCD BRIGHT – mid
	LCD COLOR – mid
CLOCK SET – GMT	
HRS METER – N/A	

# DTV (Continued)

## DTV FUNCTIONAL SCHEMATIC



jsc48037\_118\_015.cvx

## DTV (Continued)

### VTR CLOCK SET

1. Activate VTR

R1            √PL AUX – ON

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

2. Set VTR clock to GMT

DISPLAY SELECT – MENU

↓ pb – ETC, EXEC pb – push

↓ pb – CLOCK SET, EXEC pb – push

Use ↑,↓,EXEC to set Y,M,D,hr,min to GMT

DISPLAY SELECT – DATA

3. Deactivate VTR as reqd

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

## DTV (Continued)

### MALS

#### 12.1 NO VIDEO AT VTR OUT

- A7                   √Video Signal routed to VID OUT DTV pb
- MON 2                If using CTVM:
  - √SOURCE – C
- R1                   √PL AUX – ON
- MA73C               √cb AC2 PL 3Φ – cl
- L10 (MUX)           √VTR/CC(MUX/VTR/CC) PWR – on (LEDs on); if not, go to MAL **12.3**
  - (VIP)               √CCTV VIDEO IN – J3
  - √PWR – on (LED on); if not, go to MAL **12.5**
  - √DATA FLOW LED – on; if not, go to MAL **12.6**
  - (VTR)               √ON/STANDBY LED – green
  - √INPUT SELECT – VIDEO
  - If no joy, √MCC

#### 12.2 NO DIGITAL DNLK VIDEO AT MCC

- √Video from VTR MONITOR, if none, perform MAL **12.1**
- √MCC has configured Ku Signal Band Processor CH3 for PL MAX
- L10 (MUX)           √MUX BYPASS – ACT
- If performing PD100 dnlk
  - √IEEE 1394 Batt Adapter Cable – IEEE 1394 port I/F
  - √IEEE 1394 Batt Adapter Cable – Camcorder I/F
- If not performing PD100 dnlk
- L10 (MUX)           √IEEE 1394 male cable connected to IEEE 1394 port
  - (VTR)               DISPLAY SELECT – MENU
    - ↓ pb – VTR, EXEC pb – push
    - ↓ pb – DVEE OUT, √ON
  - DISPLAY SELECT – DATA
  - (MUX)               √CHANNEL 3 DATA LED – on; if not, go to MAL **12.4**
  - If no joy, √MCC for possible IEEE 1394 male cable replacement

## DTV (Continued)

### MALS (Continued)

#### 12.3 MUX PWR LED(s) OFF

- R1                   √PL AUX – ON
- L10 (MUX)           √VTR/CC(MUX/VTR/CC) PWR – on (LEDs on)  
Notify MCC before proceeding  
√5 Amp Fuse (spare in DTV Fuse Kit)
- If no joy, √MCC

#### 12.4 MUX CHANNEL 3 DATA LED OFF

√DTV MAL 12.2 complete

- L10 (MUX)           If CHANNEL 3 1394,BUFF LEDs – on, signal not reaching MUX for processing  
  (VTR)            |   ON/STANDBY pb – push (red LED on)
- PD100               |   If PD100:  
                      |   PWR – OFF
- L10 (MUX)           MUX/VTR/CC PWR – off, wait 5 sec, on  
  (VTR)            |   √ON/STANDBY LED – green
- PD100               |   If PD100:  
                      |   PWR – CAMERA
- |   If no joy:  
                      |   Repeat pwrndn per previous steps  
                      |   Disconnect,reconnect IEEE 1394 cable  
                      |   Repeat pwrup per previous steps
- |   If no joy, √MCC
- |   If only CHANNEL 3 1394 LED – on, MUX 1394 format error
- |   √MCC
- |   If only CHANNEL 3 BUFF LED – on, MUX FIFO memory buffer error
- |   √MCC

## DTV (Continued)

### MALS (Continued)

#### 12.5 VIP PWR LED OFF

MA73C           √cb AC2 PL 3Φ – cl

L10 (VIP)       √PWR – on  
                  Notify MCC before proceeding  
                  Pull VIP from container to check fuses  
                  √F1 5 Amp Fuse (spare in DTV Fuse Kit)  
                  √F2 2 Amp Fuse (spare in DTV Fuse Kit)

                  If no joy, √MCC

#### 12.6 VIP DATA FLOW LED OFF

MA73C           √cb AC2 PL 3Φ – cl

L10 (VIP)       √PWR – on  
A7               √Video signal routed to VID OUT DTV pb  
                  √Video signal has Vertical Interval data (PLB Camrs)

L10 (VTR)       DISPLAY SELECT – AUDIO  
                  √CHANNEL 2 AUDIO LEVEL METER indicates signal  
                  If signal indicated, LED failed  
                  Notify MCC, continue Nom Ops  
                  DISPLAY SELECT – DATA  
(VIP)           PWR – off, then on (√DATA FLOW LED flashes twice)  
                  If LED does not flash twice, √MCC



## DTV (Continued)

### MALS (Continued)

#### 12.7 VTR ON/STANDBY RED LED OFF

R1                   √PL AUX – ON

L10 (MUX)           √VTR/CC(MUX/VTR/CC) PWR – on (LEDs on)  
Reset internal fuse by:  
VTR/CC(MUX/VTR/CC) PWR – off, wait 30 sec, on  
  
If no joy, √MCC

#### 12.8 VTR STARTS RECORDING OR REWINDS AND STARTS PLAYING AFTER MUX PWR APPLIED

Timer sw out of config

L10 (VTR)           √TIMER – OFF  
  
If no joy, √MCC

#### 12.9 VTR TAPE CONTROLS NOT FUNCTIONING (VTR DISPLAY INDICATES “ERR”)

Key Inhibit sw appears to be on

L10 (VTR)           √KEY INH – OFF  
  
If no joy, √MCC

#### 12.10 VTR DISPLAYS ERROR MSG 32

VTR has entered SAFE MODE

L10 (VTR)           ON/STANDBY pb – push (red LED on)  
(MUX)               VTR/CC,MUX/VTR/CC PWR – off (LEDs off), wait 10 sec, on (LED on)  
(VTR)               √ON/STANDBY LED – green  
√Error msg no longer displayed  
  
If no joy, √MCC

## **DTV (Concluded)**

### **MALS (Concluded)**

#### **12.11 VTR DISPLAYS ERROR MSG 21**

VTR has detected moisture inside

L10 (VTR)      Remove tape  
ON/STANDBY pb – push (red LED on)  
Leave for 1 hr before re-attempting pwr on  
Notify MCC

#### **12.12 VTR AUTOMATICALLY PWRS OFF**

VTR Auto Off feature on

L10 (VTR)      DISPLAY SELECT – MENU  
↓ pb – ETC, EXEC pb – push  
↓ pb – AUTO STBY, √Disable  
DISPLAY SELECT – DATA  
  
If no joy, √MCC

BPSMU

	<u>PAGE</u>
BPSMU AUDIO ONLY .....	13-3
SPACEHAB BPSMU AUDIO ONLY .....	13-4
BPSMU AUDIO/VIDEO .....	13-6
SPACEHAB BPSMU AUDIO/VIDEO .....	13-8
BPSMU SPECIFICATIONS .....	13-10
BPSMU NOMENCLATURE .....	13-11
DRAG THROUGH QD MATING .....	13-12
DRAG THROUGH QD DEACTIVATION .....	13-14
DRAG THROUGH QD NOMENCLATURE .....	13-15

This Page Intentionally Blank

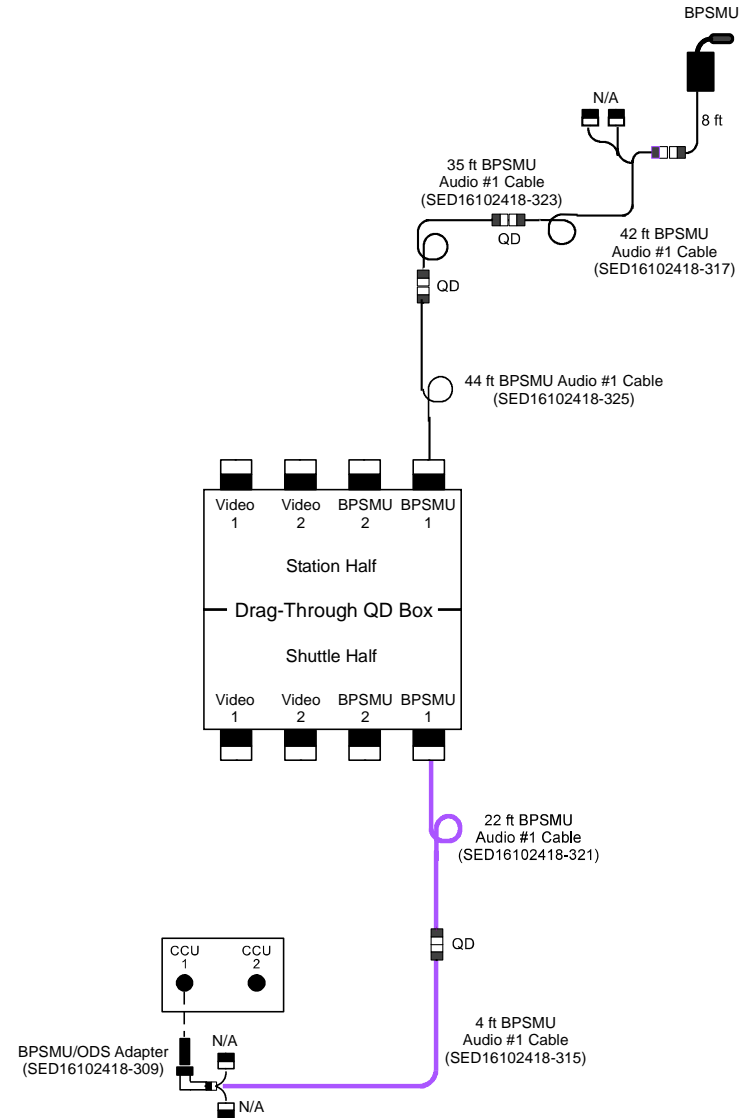
# BPSMU

## BPSMU AUDIO ONLY

- BPSMU
1. Set up BPSMU Cables  
 Replace BPSMU Batt Pack (SED16102434-701)  
 in BPSMU unit as reqd  
 Discard old BPSMU Batt Packs

Config H/W per dwg at right

- AW18D
2. Config Comm System  
 AIRLK AUD PWR – AUD/TONE  
 ✓MSTR VOL 1(2) – MAX  
 A/G 2,ICOM B – T/R (or loop as desired)  
 XMIT/ICOM MODE sel – PTT/PTT  
 VOL A/G 2,ICOM B tw – 8  
 Other Loops – OFF



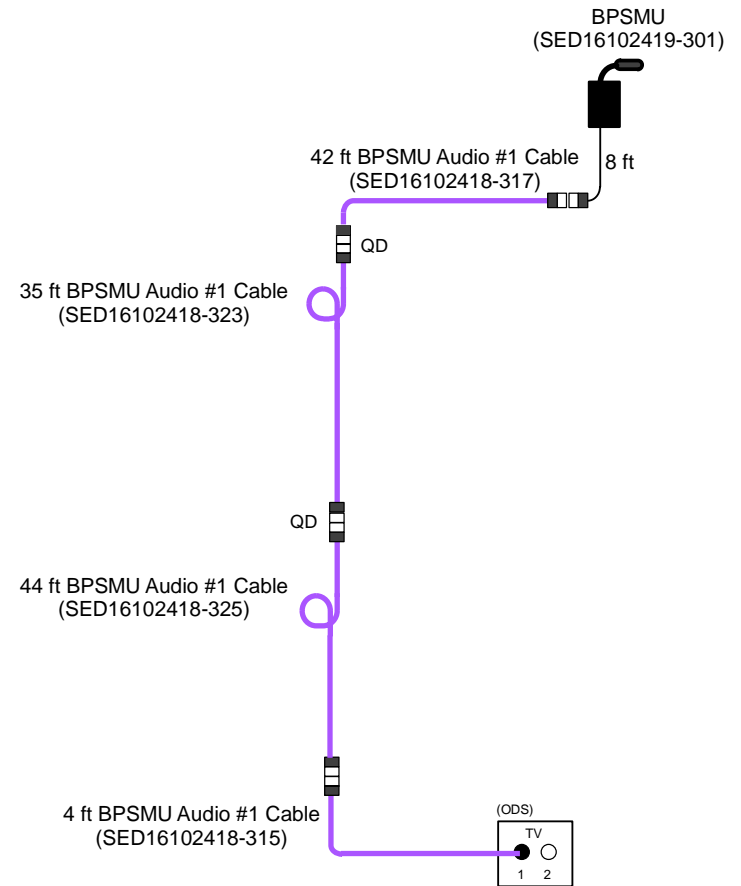
jsc48037\_116\_006a.cvx

## BPSMU (Continued)

### SPACEHAB BPSMU AUDIO ONLY

1. Set up BPSMU, Safe ODS TV Port  
BPSMU            Connect Batt  
L12 (SSP 2)     C/L CAM PWR – OFF

Config H/W per dwg at right



jsc48037\_116\_006b.cvx

## BPSMU (Continued)

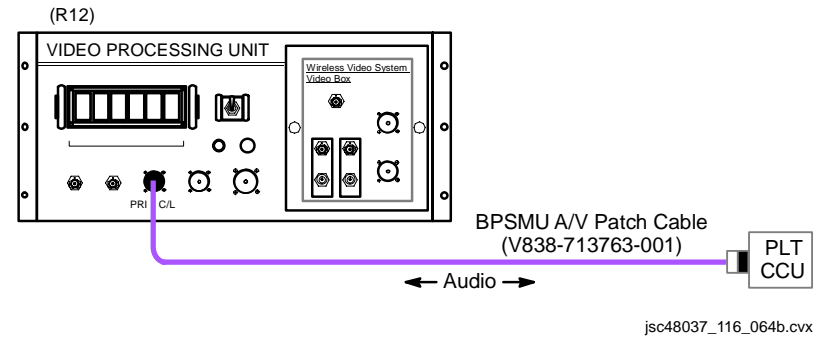
### SPACEHAB BPSMU AUDIO ONLY (Concluded)

2. Config TV System  
Config H/W per dwg at right

R12 (VPU)    √VPU PWR – ON (LED on)

3. Config Comm System  
R AUD PWR – AUD/TONE  
  √MSTR VOL 1(2) – MAX  
  A/G 2,ICOM B – T/R (or loop as desired)  
  XMIT/ICOM MODE sel – PTT/PTT  
  VOL A/G 2,ICOM B tw – 8  
  Other Loops – OFF

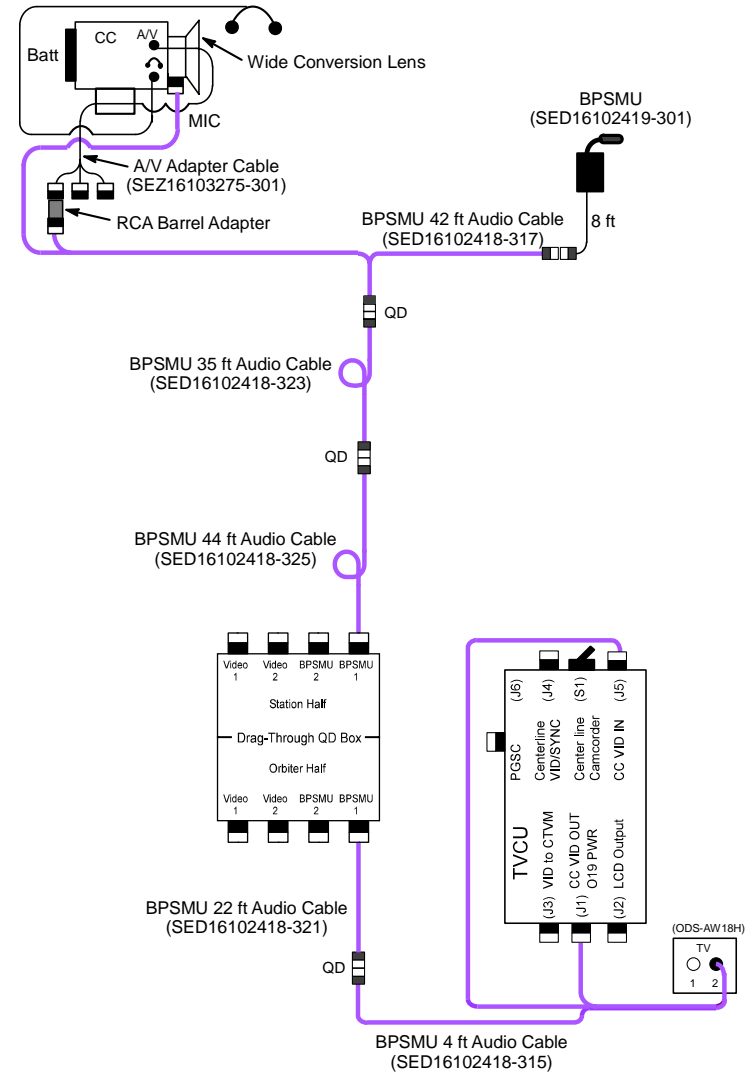
Perform audio check w/BPSMU



# BPSMU (Continued)

## BPSMU AUDIO/VIDEO

- |                      |   |
|----------------------|---|
| BPSMU<br>L12 (SSP 2) | <ol style="list-style-type: none"> <li>1. <u>Set up BPSMU, Safe ODS TV Port</u><br/>Connect Batt<br/>C/L CAM PWR – OFF</li> </ol> <p>Config H/W per dwg at right</p>  |
| CC                   | <ol style="list-style-type: none"> <li>2. <u>Set up PD100</u><br/>Install Sony Headset<br/>Install Batt<br/>√Wide Conversion Lens installed<br/>PWR – CAMERA<br/>Tape – Install<br/>√Viewfinder (LCD) displays STBY<br/>Camr Settings<br/>√AUTO LOCK – AUTO LOCK<br/>√FOCUS – AUTO</li> </ol> |
| TVCU                 | <ol style="list-style-type: none"> <li>3. <u>Config TVCU</u><br/>CENTERLINE/CAMCORDER sw – CAMCORDER</li> </ol>   |



jsc48037\_116\_063a.cvx



## BPSMU (Continued)

### BPSMU AUDIO/VIDEO (Concluded)

#### 4. Config TV System

Config H/W per dwg at right

R12 (VPU)

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

L12 (SSP2)

C/L CAM PWR – SEC ON

MON 1  
 A7

PWR – ON (LED on)  
 TV PWR CNTL – PNL  
     CONTR UNIT – MNA(B)  
     CNTL – CMD (wait 10 sec for system initialization)  
 VID OUT MON 1 pb – push  
 IN PL2(VPU) pb – push

MON 1

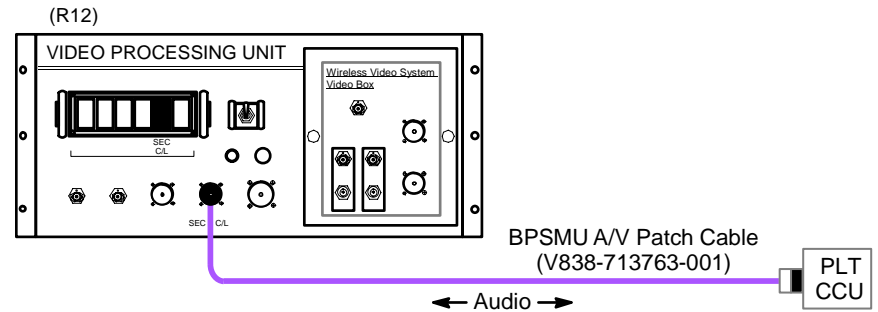
√CC video

O9

#### 5. Config Comm System

R AUD PWR – AUD/TONE  
 √MSTR VOL 1(2) – MAX  
 A/G 2,ICOM B – T/R (or loop as desired)  
 XMIT/ICOM MODE sel – PTT/PTT  
 VOL A/G 2,ICOM B tw – 8  
 Other Loops – OFF

Perform audio check w/BPSMU

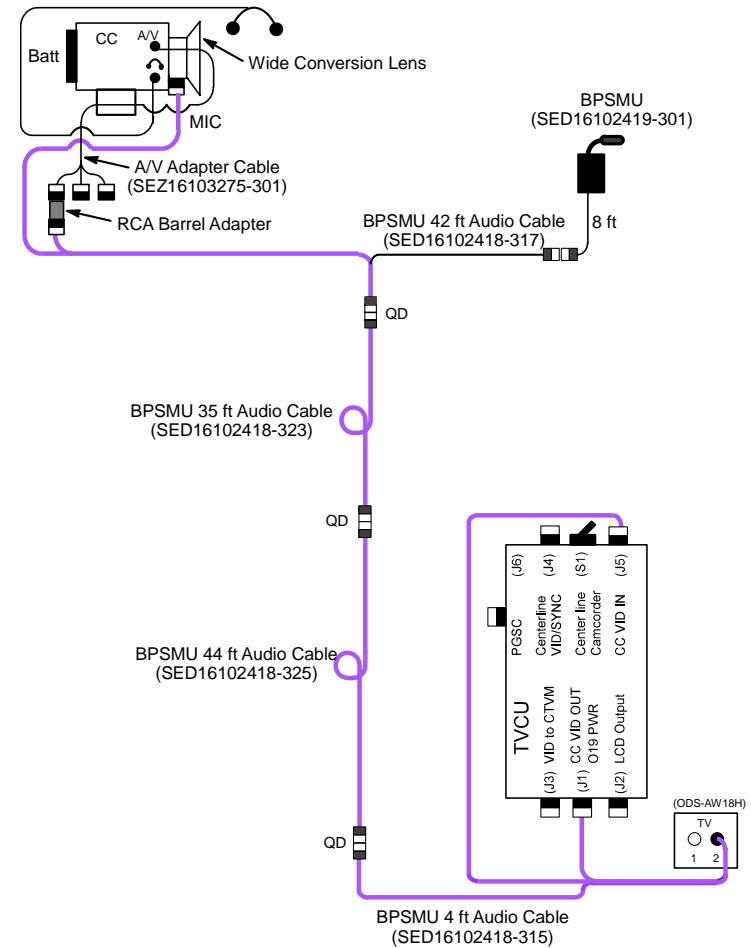


jsc48037\_116\_064ar1.cvx

# BPSMU (Continued)

## SPACEHAB BPSMU AUDIO/VIDEO

- |             |  |
|-------------|--|
| BPSMU       | 1. <u>Set up BPSMU, Safe ODS TV Port</u><br>Connect Batt   |
| L12 (SSP 2) | C/L CAM PWR – OFF<br><br>Config H/W per dwg at right   |
| CC          | 2. <u>Set up PD100</u><br>Install Sony Headset<br>Install Batt<br>√Wide Conversion Lens installed<br>PWR – CAMERA<br>Tape – Install<br>√Viewfinder (LCD) displays STBY<br>Camr Settings<br>√AUTO LOCK – AUTO LOCK<br>√FOCUS – AUTO |
| TVCU        | 3. <u>Config TVCU</u><br>CENTERLINE/CAMCORDER sw – CAMCORDER   |



jsc48037\_116\_063b.cvx

## BPSMU (Continued)

### SPACEHAB BPSMU AUDIO/VIDEO (Concluded)

#### 4. Config TV System

Config H/W per dwg at right

R12 (VPU)

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

L12 (SSP2)

C/L CAM PWR – SEC ON

MON 1  
A7

PWR – ON (LED on)  
TV PWR CNTL – PNL  
CONTR UNIT – MNA(B)  
CNTL – CMD (wait 10 sec for system initialization)  
VID OUT MON 1 pb – push  
IN PL2(VPU) pb – push

MON 1

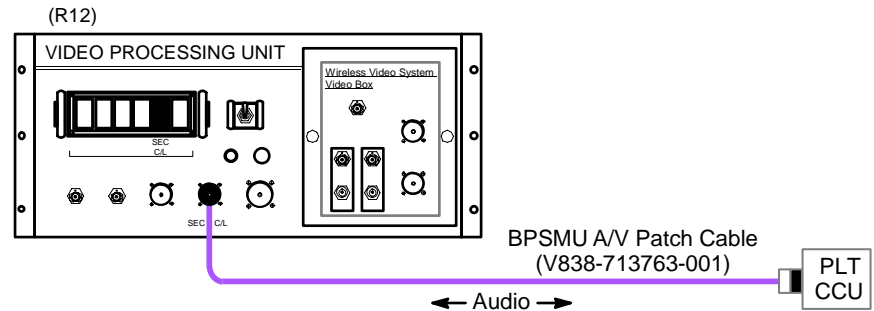
√CC video

O9

#### 5. Config Comm System

R AUD PWR – AUD/TONE  
√MSTR VOL 1(2) – MAX  
A/G 2,ICOM B – T/R (or loop as desired)  
XMIT/ICOM MODE sel – PTT/PTT  
VOL A/G 2,ICOM B tw – 8  
Other Loops – OFF

Perform audio check w/BPSMU



jsc48037\_116\_064ar1.cvx

## **BPSMU (Continued)**

### **BPSMU SPECIFICATIONS**

#### BPSMU

INTEGRAL CABLE LENGTH: 8 ft

RECOMMENDED MIC POSITION: Directly in front of mouth; 6 in. from mouth

BATT: Two 9V (pwrs mic, not speaker; launched disconnected)

BATT: 18V

BATT LIFETIME: ~7-10 days

BPSMU WEIGHT: 1.12 lb (w/batt)

#### BPSMU CABLES – DIRECT CCU CONNECTIONS

BPSMU TO CCU ADAPTER (1 ft): Adapts BPSMU integral cable to CCU

BPSMU/ODS ADAPTER (4 in): Adapts 4 ft A/V Cable to CCU

A/V CABLES (4 ft, 42 ft): Minimum A/V Cable config for audio ops

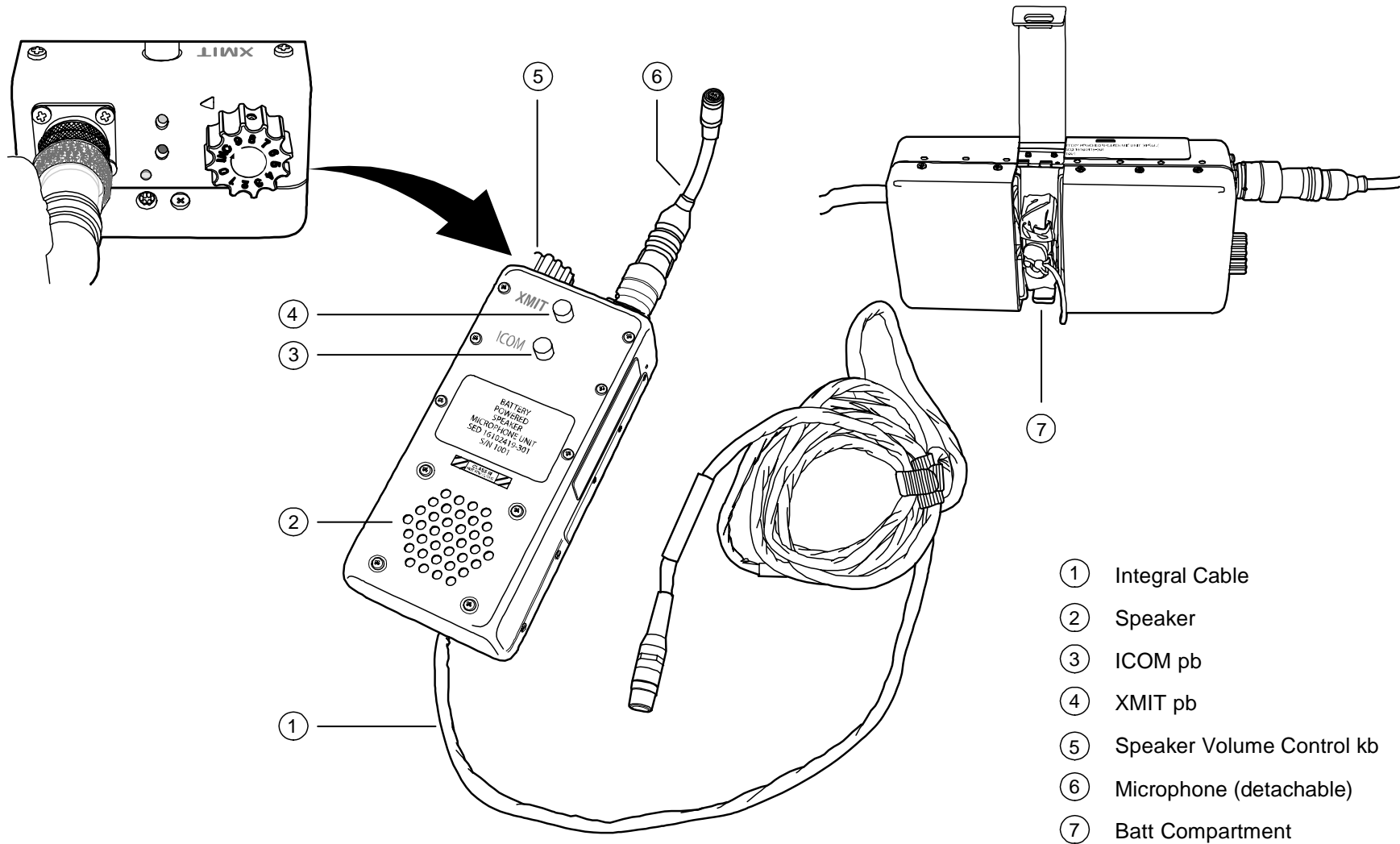
#### BPSMU CABLES – TV CONNECTIONS

A/V CABLES (4 ft, 22 ft, 44 ft, 35 ft, 42 ft) w/TVCU: Config for Camcorder thru ODS TV 1(2) port (TVCU assumes 125 ft of cable)

BPSMU A/V PATCH CABLE (10 ft): Patches ODS TV Port audio into CCU using PRI(SEC) C/L port on VPU

# BPSMU (Continued)

## BPSMU NOMENCLATURE



jsc48037\_068.cnv

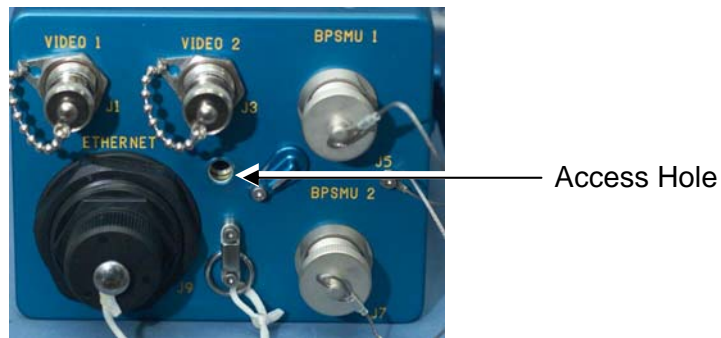
## BPSMU (Continued)

### DRAG THROUGH QD MATING

#### NOTE

If activation of quick disconnect feature of the Drag Through QD reqd, both halves (station and orbiter) are to be mated using Alignment Tool

1. Disconnect cables from orbiter half of Drag Through QD. Disconnect cables from Station half as reqd
2. Inspect connectors, mating surfaces for debris or bent pins
3. Open access hole (rotate cw)



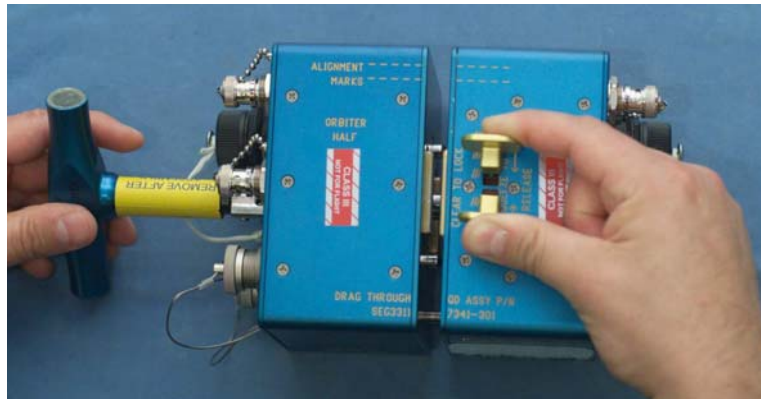
4. Remove Alignment Tool from Drag Through QD Handle Stowage (unthread ccw)
5. Place two Drag Through QD halves together, but not mated, and insert Alignment Tool into access hole



## BPSMU (Continued)

### DRAG THROUGH QD MATING (Continued)

6. Squeeze quick release levers together, rotate Alignment Tool cw (pressure may be needed to engage Alignment Tool threads on station half) until Alignment Tool reaches a soft stop



7. Release quick release levers, verify quick release levers in normal spread position

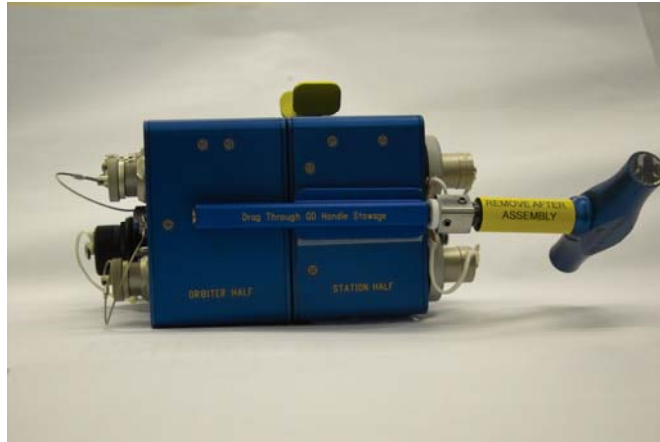


8. Remove Alignment Tool (turn ccw)
9. Stow Alignment Tool in Drag Through QD Handle Stowage (turn cw)

## BPSMU (Continued)

### DRAG THROUGH QD MATING (Concluded)

10. Replace Alignment Tool on station half of Drag Through QD



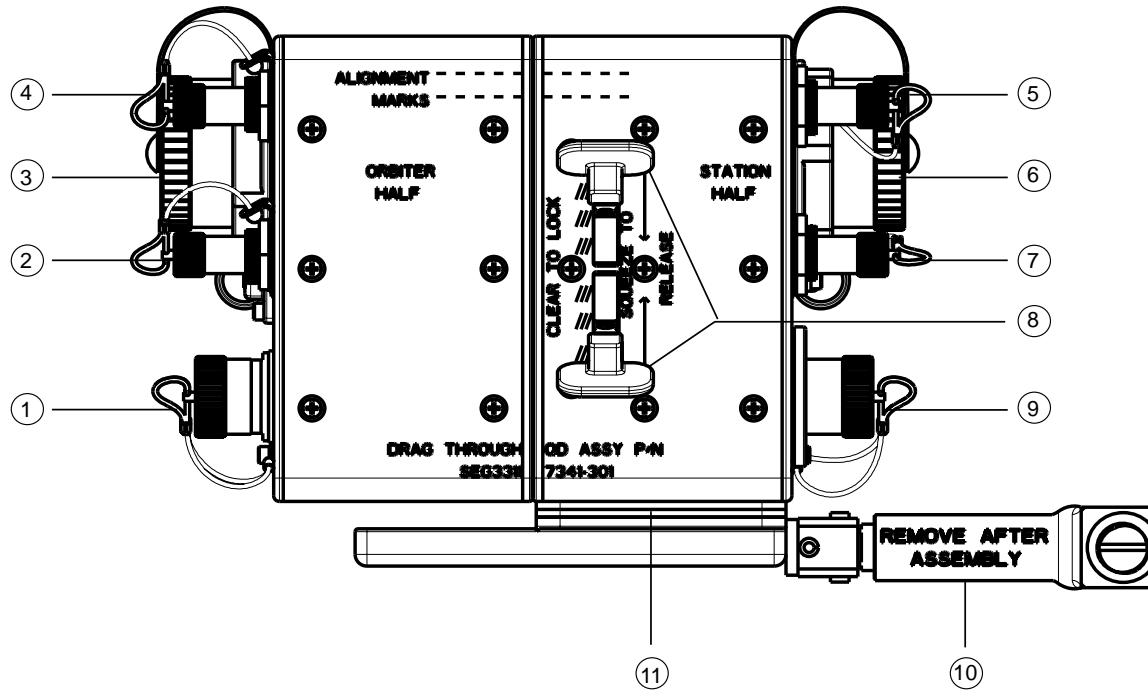
### DRAG THROUGH QD DEACTIVATION

1. Disconnect RWS cables (two) from orbiter side Video 1,2 ports. Stow on orbiter stbd ditch wall
2. Disconnect BPSMU cable from ODS CCU port 1 (coil as reqd)
3. Transfer Drag Through QD and remaining attached cables to ISS



## BPSMU (Continued)

### DRAG THROUGH QD NOMENCLATURE



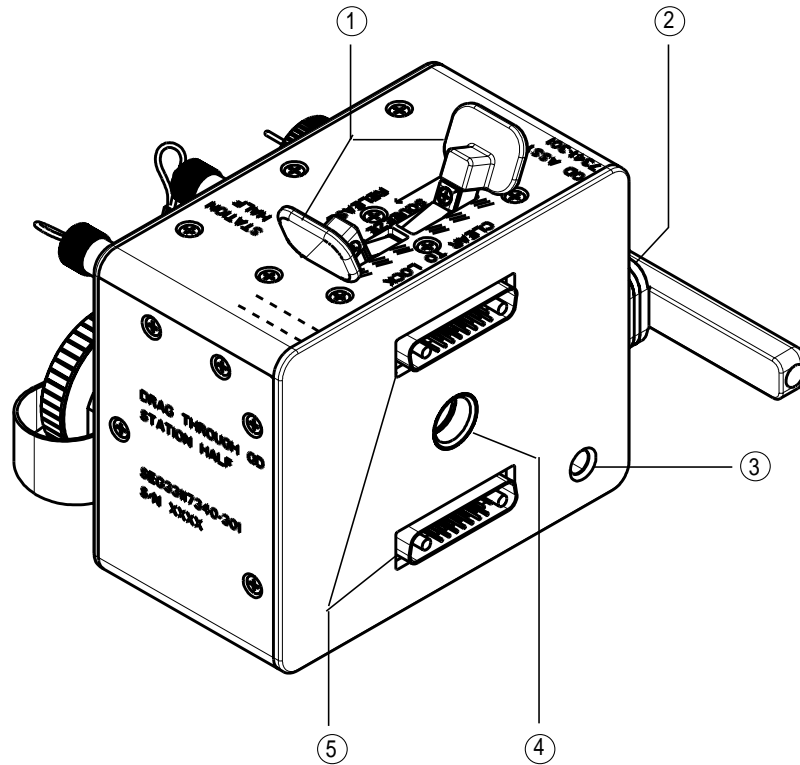
- |   |   |
|---|---|
| ① BPSMU #1 (J5), BPSMU #2 (J7) directly below | ⑦ Video #2 (J4)                               |
| ② Video #2 (J3)                               | ⑧ Quick Release Lever                         |
| ③ Ethernet (J9)                               | ⑨ BPSMU #1 (J6), BPSMU #2 (J8) directly below |
| ④ Video #1 (J1)                               | ⑩ Alignment Tool                              |
| ⑤ Video #1 (J2)                               | ⑪ Alignment Tool Holder                       |
| ⑥ Ethernet (J10)                              |   |

jsc48037\_121\_114.cvx

## BPSMU (Continued)

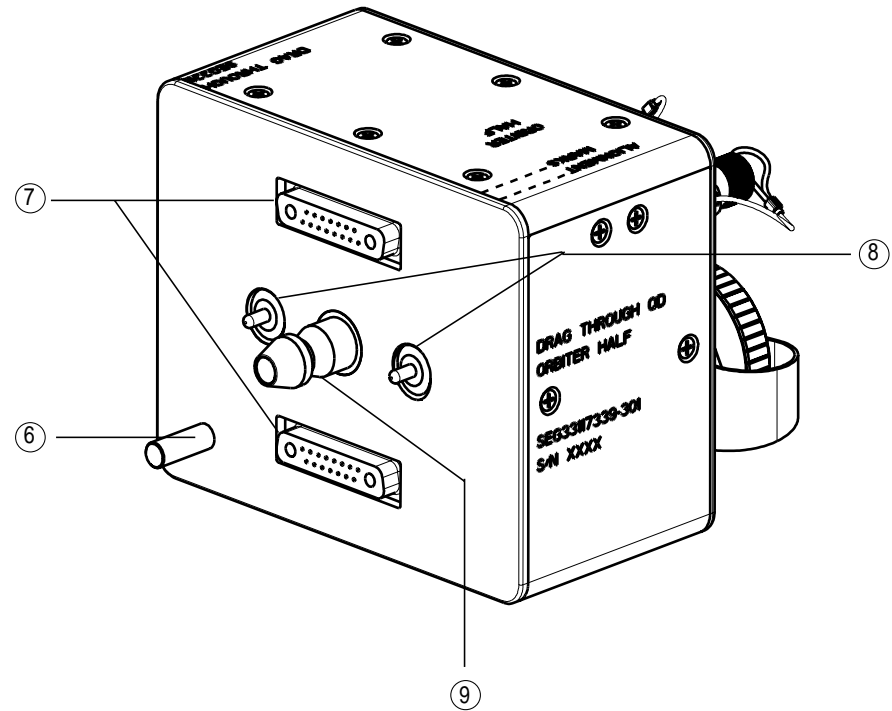
### DRAG THROUGH QD NOMENCLATURE (Continued)

STATION HALF



- ① Quick Release Lever
- ② Alignment Tool Holder
- ③ Alignment Pin Receptacle
- ④ Center Locking Pin Receptacle
- ⑤ DB25 Male Connector

ORBITER HALF

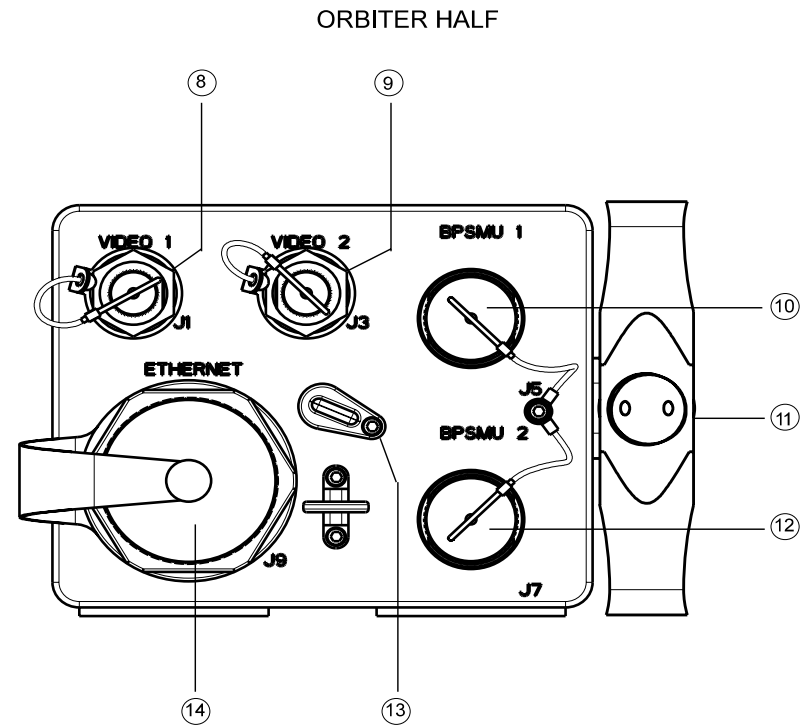
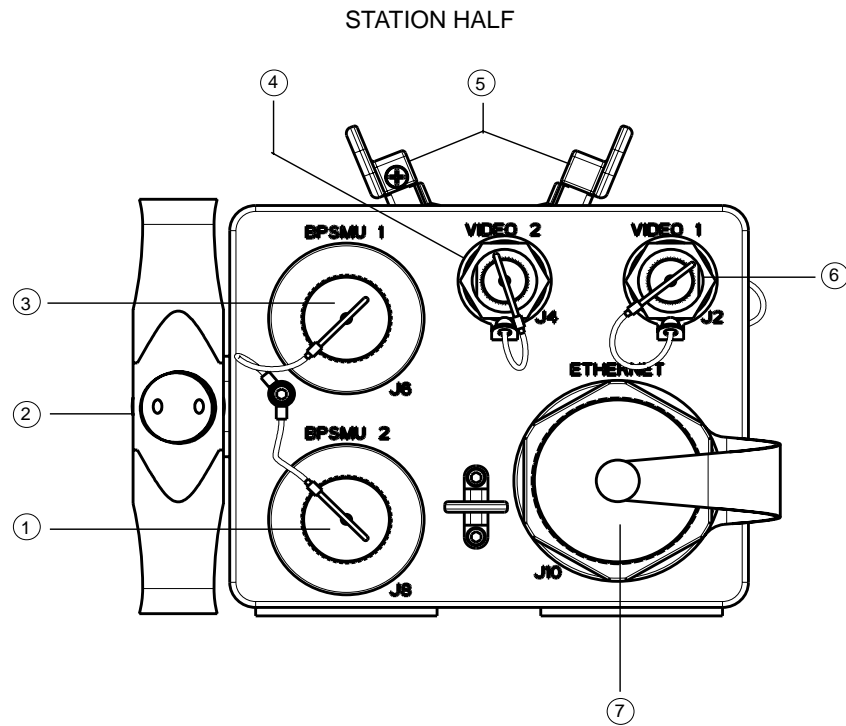


- ⑥ Alignment Pin
- ⑦ DB25 Female Connector
- ⑧ Ball Plunger
- ⑨ Center Locking Pin

jsc48037\_121\_115.cvx

# BPSMU (Concluded)

## DRAG THROUGH QD NOMENCLATURE (Concluded)



- ① BPSMU #2 (J8)
- ② Alignment Tool
- ③ BPSMU #1 (J6)
- ④ Video #2 (J4)
- ⑤ Quick Release Lever
- ⑥ Video #1 (J2)
- ⑦ Ethernet (J10)

- ⑧ Video #1 (J1)
- ⑨ Video #2 (J3)
- ⑩ BPSMU #1 (J5)
- ⑪ Alignment Tool
- ⑫ BPSMU #2 (J7)
- ⑬ Alignment Tool Access Hole Cover
- ⑭ Ethernet (J9)

jsc48037\_121\_116.cvx

This Page Intentionally Blank

MINI-CAM

	<u>PAGE</u>
IN-CABIN MINI-CAM .....	14-3
ENTRY VIDEO SETUP .....	14-4
SPECIFICATIONS.....	14-7
LENS DATA.....	14-7
BRACKET DATA .....	14-7
NOMENCLATURE.....	14-8

This Page Intentionally Blank

# MINI-CAM

## IN-CABIN MINI-CAM

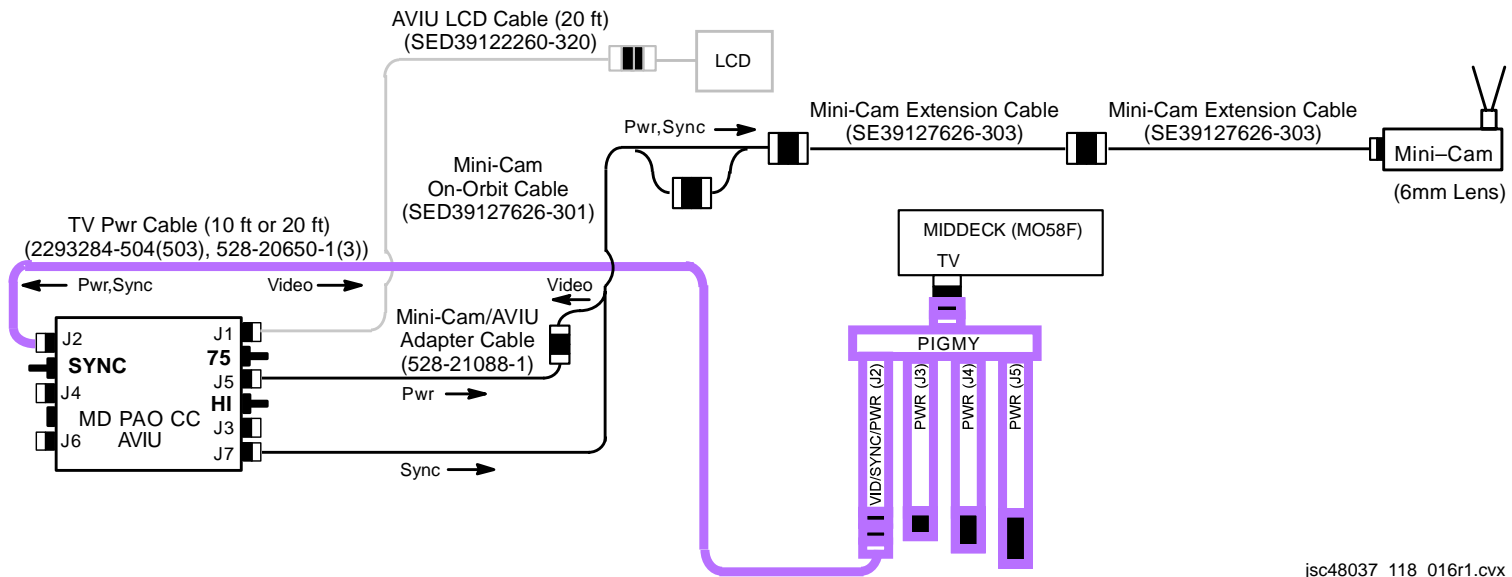
Config H/W per dwg below

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

O19(MO58F) √TV PWR – ON

LCD Pwr – ON (as reqd)

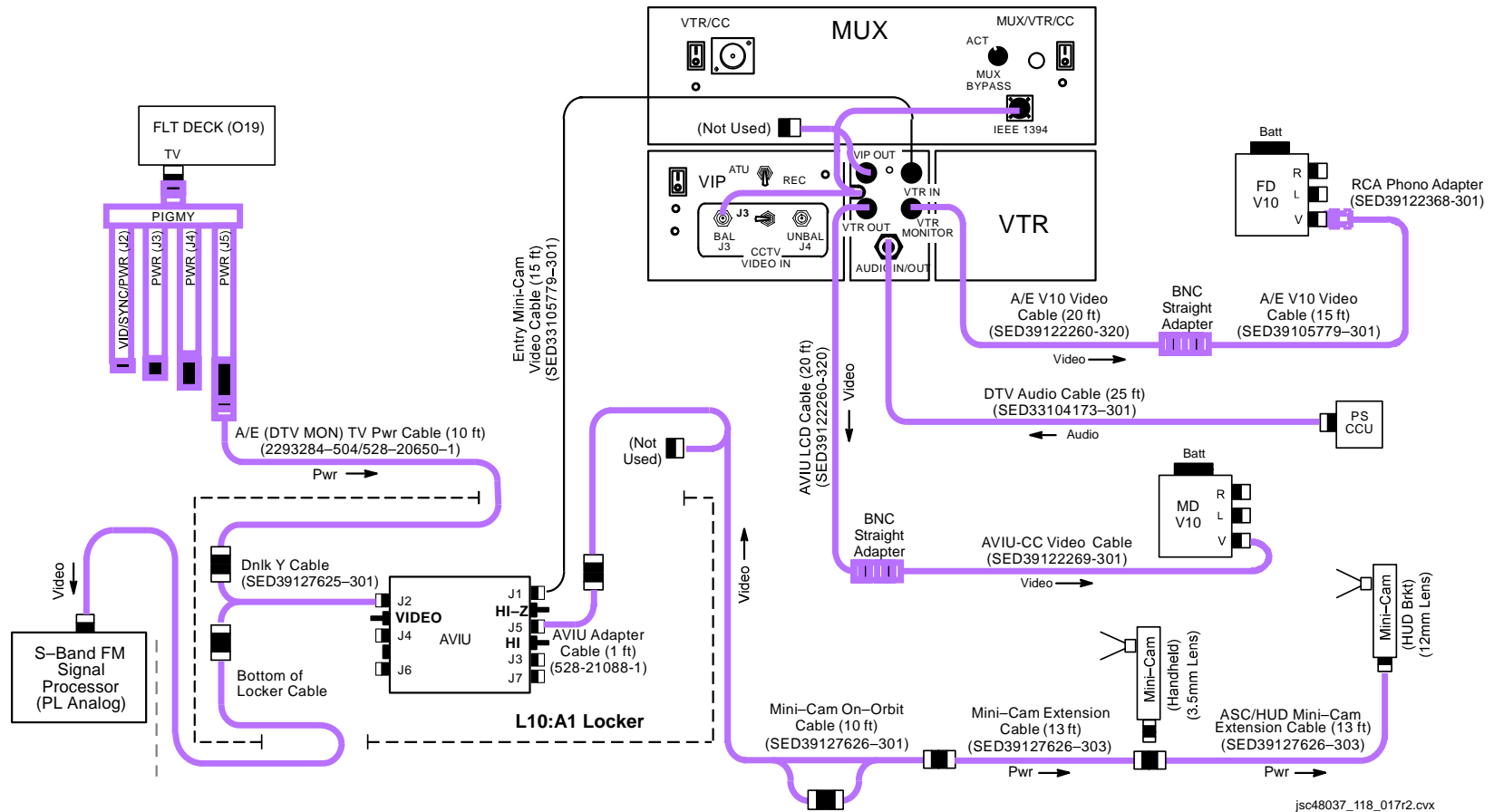
Mini-Cam Lens – 3.5mm  
 Aperture – Adjust per LCD



jsc48037\_118\_016r1.cvx

# MINI-CAM (Continued)

## ENTRY VIDEO SETUP





## MINI-CAM (Continued)

### ENTRY VIDEO SETUP (Continued)

1. Config Mini-Cam, VTR for Audio, Video Recording  
Config H/W per dwg, 14-4
- 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 –  $\infty$   
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/CC PWR – on (LED on)  
(VTR)          √ON/STANDBY LED – green
- V10 (two)        Install fresh batts  
                  PWR – ON

## MINI-CAM (Continued)

### 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 (two) PWR – OFF

L10  
(VTR) ON/STANDBY pb – push (red LED on)  
(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

## MINI-CAM (Continued)

### SPECIFICATIONS

CAMR DIMENSIONS: 5 1/4 in (L) X 1 in (W) X 1 3/16in (D)

WEIGHT: 0.40 lb

IMAGER MODEL: XC-999

HORIZONTAL RESOLUTION: 470 lines

PIXEL COUNT: 768 Horizontal, 494 Vertical

SENSING AREA: 6.4mm Horizontal, 4.8mm Vertical, 8.0mm Diagonal

AVIUVOLTAGE: 12V

WEIGHT: 1.6 lb

### LENS DATA

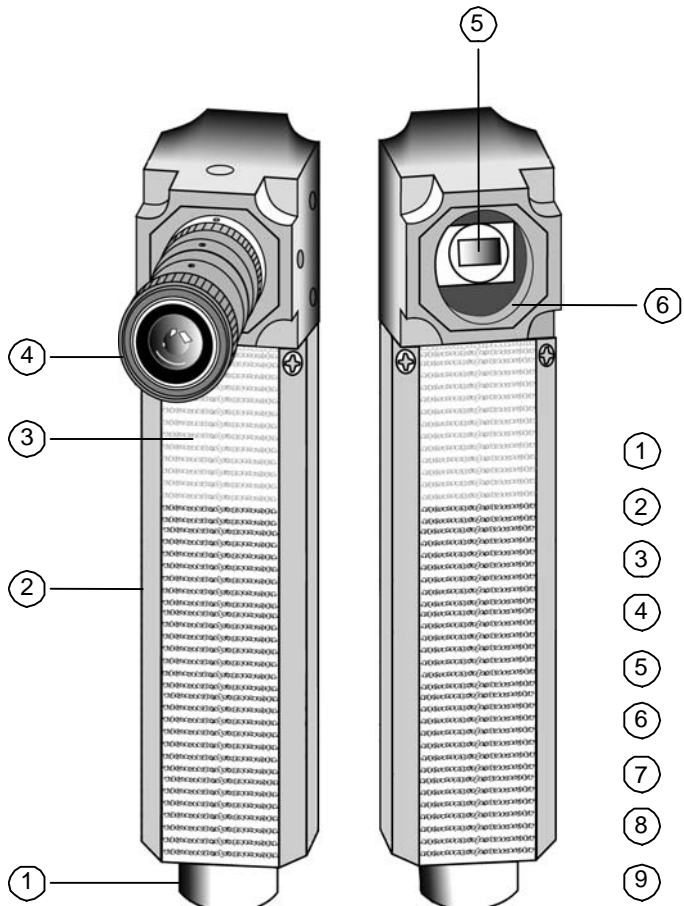
Lens	Aperture Range (f/stop)	Approximate Horizontal Field of View (FOV)	Minimum Focus Distance	Weight (lb)	Configuration Used
3.5mm	f/1.8-f/16	84.87°	Fixed	0.10	Glareshield, Aft Window
6.0mm	f/1.4-f/16	56.15°	0.3m	0.10	Aft Window
12.0mm	f/1.4-f/16	29.86°	0.5m	0.10	HUD
23.0mm	f/1.4-f/22	15.8°	0.2m	0.31	

### BRACKET DATA

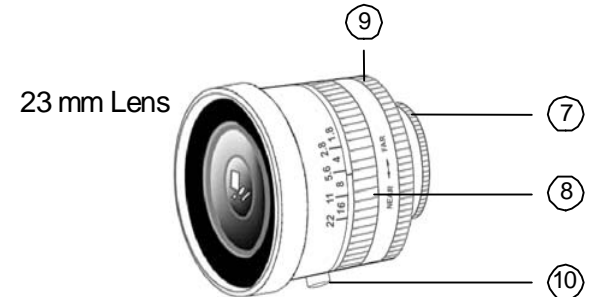
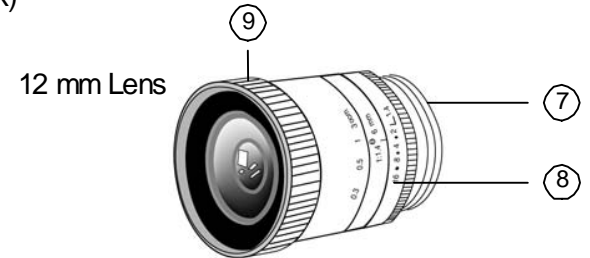
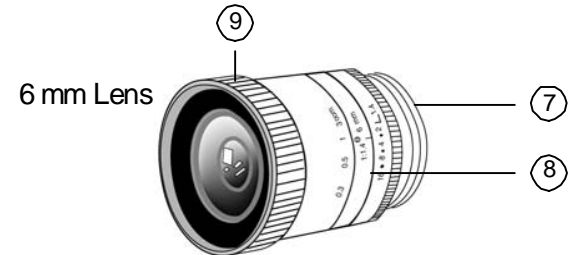
Bracket	Dimensions		Mount Type
	Length	Width	
Glareshield	9.5 in - 10.5 in	2 in	Velcro w/FDF Tether
Rear Window	12 in - 20 in	2 in	Velcro w/FDF Tether
HUD	4.5-in base 1.5-in extension 2-in rise	N/A	Thumbscrew w/Tie Wrap

# MINI-CAM (Concluded)

## NOMENCLATURE



- ① Pwr/Video Connector
- ② Body (covered in Black Velcro hook)
- ③ Yellow Velcro (HUD Brkt)
- ④ Lens
- ⑤ CCD
- ⑥ Lens Mount
- ⑦ Threaded Mount
- ⑧ Aperture Ring
- ⑨ Focus Ring
- ⑩ Aperture Lock Nut



jsc48037\_071r2.cvx

WIRELESS VIDEO SYSTEM (WVS)

	<u>PAGE</u>
WVS INITIAL SETUP w/o ERCAs .....	15-3
WVS INITIAL SETUP w/ERCAs .....	15-6
WVS DAY-OF-EVA CHECK .....	15-10
SPECIFICATIONS .....	15-12
NOMENCLATURE .....	15-14
RF CAMR ELECTRONICS .....	15-17
WVS PLB MOUNTED H/W .....	15-18
SOFTWARE – TOP STATUS AREA .....	15-19
SOFTWARE – RF CAMR PAGE .....	15-20
SOFTWARE – XCVR PAGE .....	15-22
SOFTWARE – TELEMETRY PAGE .....	15-24

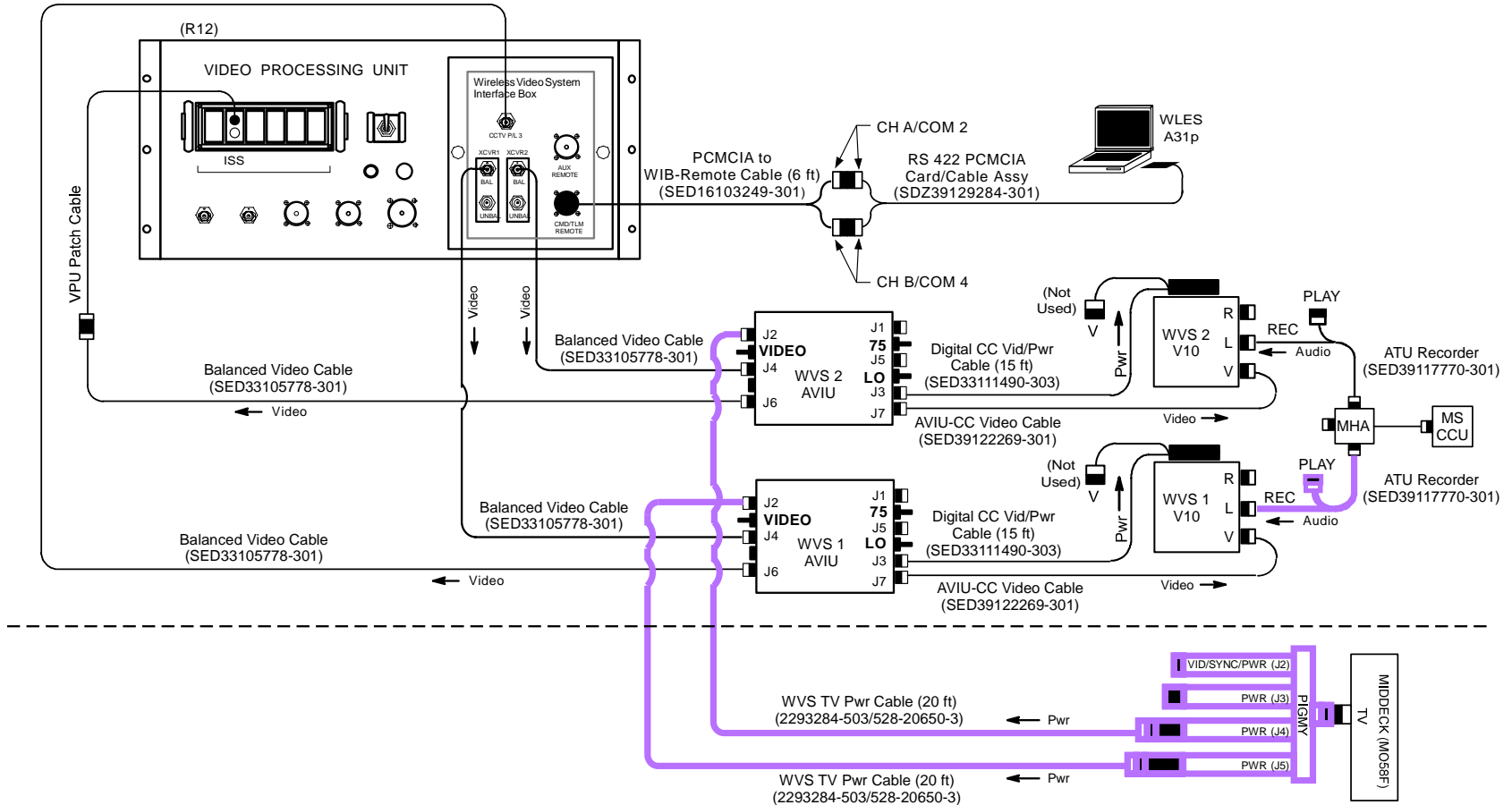
This Page Intentionally Blank

# WIRELESS VIDEO SYSTEM (WVS)

## WVS INITIAL SETUP w/o ERCAs

1. Unstow and set up IV H/W per diagram

**NOTE**  
Connection not reqd  
until EVA day



jsc48037\_118\_018r2.cvx

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### WVS INITIAL SETUP w/o ERCAs (Continued)

2. WVS System
  - A7 WIRELESS VID HTR – ON  
PWR – ON
3. Photo/TV H/W Preparations
  - AVIUs Powering V10s (two)
    - SYNC/VIDEO – VIDEO
    - HI-Z/75 – 75
    - PWR SELECT – LO
  - V10 (two)
    - √TV PWR – ON
    - PWR – ON
    - √Tape installed
    - √WVS Test Pattern displayed (color bars w/”No WVS Video”)
    - PWR – OFF
  - Audio
    - √CCU PWR – ON
    - √MS AUD PWR – AUD/TONE
    - √A/G 1 – T/R
    - √ICOM A – T/R
4. WVS PGSC Prep
  - PGSC Pwrup and Application Opening
    - √DC UTIL PWR MNA – ON
    - 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



## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### WVS INITIAL SETUP w/o ERCAs (Concluded)

#### 4. WVS PGSC Prep (Concluded)

##### 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

Sel File → Advanced Controls

On XCVR tab:

√Chroma Stabilizer – selected

√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'

#### 5. PWRDN

Sel File → Exit

WIRELESS VID PWR – OFF

HTR – OFF

Go to DEACTIVATION (Cue Card, TV) as reqd

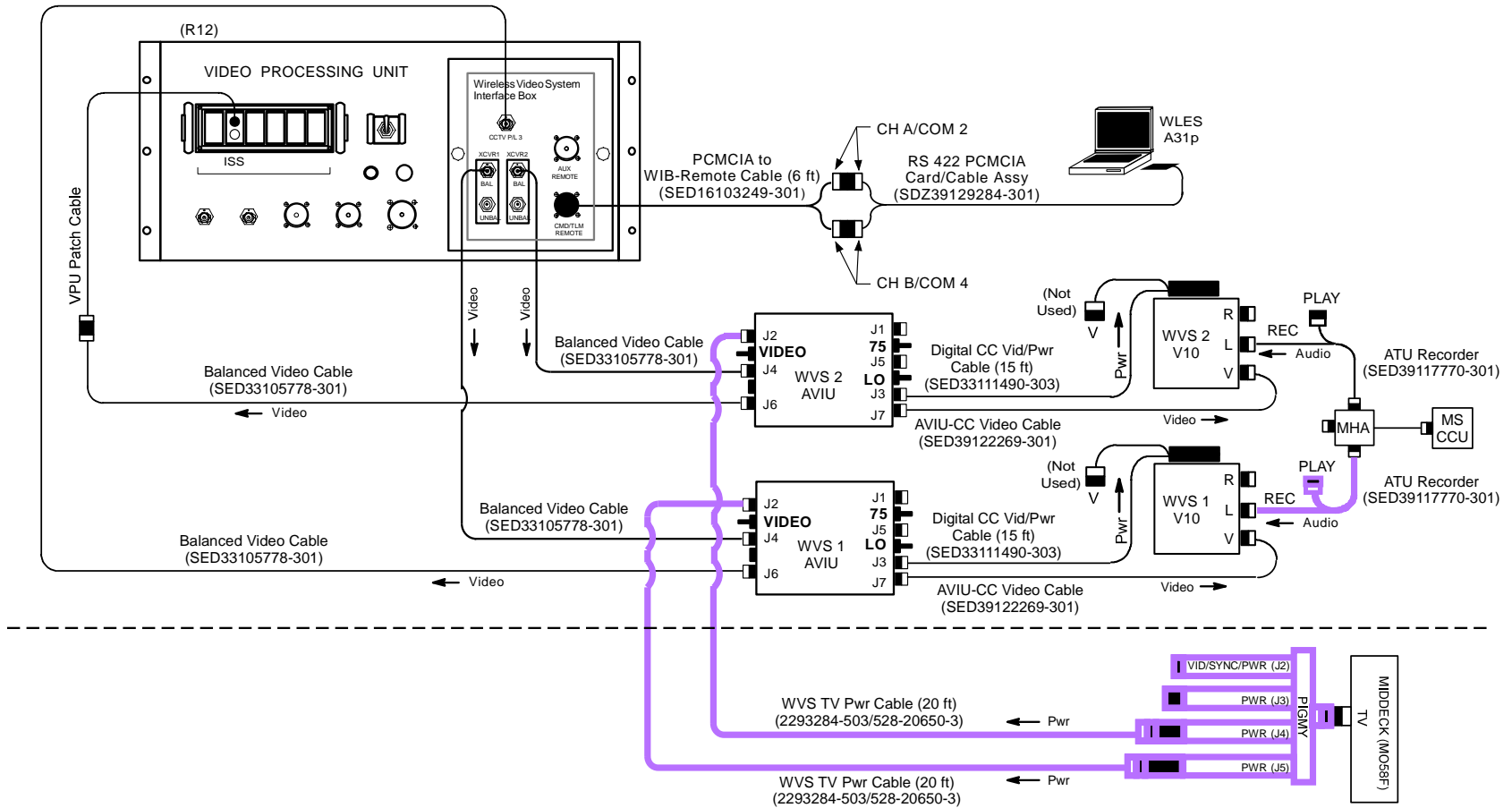
A7

# WIRELESS VIDEO SYSTEM (WVS) (Continued)

## WVS INITIAL SETUP w/ERCAs

1. Unstow and set up IV H/W per diagram

**NOTE**  
Connection not reqd  
until EVA day



jsc48037\_118\_018r2.cvx

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### WVS INITIAL SETUP w/ERCAs (Continued)

2. WVS System
  - A7 WIRELESS VID HTR – ON  
PWR – ON
3. Photo/TV H/W Preparations
  - AVIUs Powering V10s (two)
    - SYNC/VIDEO – VIDEO
    - HI-Z/75 – 75
    - PWR SELECT – LO
  - V10 (two)
    - √TV PWR – ON
    - PWR – ON
    - DISPLAY pb – press to display tape counter
    - √Tape installed
    - √WVS Test Pattern displayed (color bars w/"No WVS Video")
  - Audio
    - √CCU PWR – ON
    - √MS AUD PWR – AUD/TONE
    - √A/G 1 – T/R
    - √ICOM A – T/R
4. WVS PGSC Prep
  - PGSC Pwrup and Application Opening
    - √DC UTIL PWR MNA – ON
    - 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

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### WVS INITIAL SETUP w/ERCAs (Continued)

#### 4. WVS PGSC Prep (Concluded)

##### Application Setup

Select Page – XCVR

Transceiver 1(2) CMD Power – ON (green CMD PWR:LVL- “ON:Min”)

Sel RF Camera 1 – One EVA crewmember (green “ON”)

Sel RF Camera 2 – Other EVA crewmember (green “ON”)

If crewmember designations not in pulldown menu:

√RF Camera 1,2 – None

Perform CAMERA ID ASSIGNMENT (Cue Card, WVS), then:

Reattempt RF Camr selections

If alert msg, perform ALERT MSG TROUBLESHOOTING (Cue Card, WVS)

Sel File → Advanced Controls

On XVCR tab:

√Chroma Stabilizer – selected

√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'

#### 5. WVS Checkout

##### TV System

Perform ACTIVATION (Cue Card, TV)

##### EMU, Airlock Prep

Airlock

Lights – ON

EMU

√EMU TV installed on Helmet

PLSS

REBA sw – ON

EMU

EMU TV Pwr pb – press (green LED)

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### WVS INITIAL SETUP w/ERCAs (Concluded)

#### 5. WVS Checkout (Concluded)

##### Video Quality Check

V10 REC pb (two) – press (red LED)  
PGSC Select Page – RF Camera  
For C,L,R lens on each RF Camr Assy:  
Lens Iris Cntl – op(cl)  
√Video quality and perform CAMR ADJUSTMENTS (Cue Card, WVS) as desired

##### Video Routing Check

R12 (WIB) CCTV PL 3 port – One of two XCVR/AVIU inputs  
A7 VID OUT MON 1(2) pb – push  
IN PL 3(WVS) pb – push  
MON √Video quality  
R12 (WIB) CCTV PL3 port – Other XCVR/AVIU input  
MON √Video quality

#### 6. PWRDN

Perform PWRDN (WVS, Cue Card)

EMU EMU TV Pwr pb – push (no green LED)  
PLSS REBA sw – OFF  
Airlock Lights – As reqd

Go to DEACTIVATION (Cue Card, TV) as reqd

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### WVS DAY-OF-EVA CHECK

#### 1. Photo/TV H/W Activation

MO58F  
V10

V10 (two)  
√TV PWR – ON  
PWR – ON  
DISPLAY pb – press to display tape counter  
√Tape installed

#### 2. WVS Sys Check

A7

√WIRELESS VID HTR – ON  
√PWR – ON

#### 3. PGSC Pwrup and Application Opening

O19  
PGSC

√DC UTIL PWR MNC – ON  
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

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### WVS DAY-OF-EVA CHECK (Concluded)

#### 4. 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 crewmember designations not in pulldown menu:

√RF Camera 1,2 – None

Perform CAMERA ID ASSIGNMENT (Cue Card, WVS), then:

Reattempt RF Camr selections

If alert msg, perform ALERT MSG TROUBLESHOOTING (Cue Card, WVS)

Select Page – RF CAMERA

Near middle of RF Camera page, sel ‘Advanced Controls’

S-Band Level (two) – Maximum

For center lens on each RF Camr Assy:

Lens Iris Cntl – op(cl) until good video on V10(MON)

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### SPECIFICATIONS

#### RF CAMR (aka EVA mobility unit Radio frequency Camr Assembly (ERCA))

MOUNTING INTERFACE: EVA helmet light structure

CAMRS: 3 per helmet

LENS FOCAL LENGTH:

LEFT: 6mm (56° HFOV) (mounted on left helmet light)

CENTER: 3.5mm (85° HFOV)

RIGHT: 12mm (30° HFOV) (mounted on right helmet light)

FOCUS CONTROL: FIXED at HYPERFOCAL

IRIS: MANUAL via PGSC

SHUTTER SPEED: AUTO(MANUAL)

GAIN CONTROL: AUTO(MANUAL) (0 to +6 dB)

WHITE BALANCE: AUTO(PRESET)

IMAGER:

MODEL: Sony XC-999

HORIZONTAL RESOLUTION: 470 lines

PIXEL COUNT: 768 Horizontal, 494 Vertical

SENSING AREA: 6.4mm Horizontal, 4.8mm Vertical, 8.0mm Diagonal

UHF RCVR ANTENNA: 1 (on top of helmet)

S-BAND XMTR ANTENNAS: 2 (on side of helmet light batts)

POWER: 12V from REBA batt enabled by pwr pb on right side of ERCA

OPERATING TEMP: -31 degC to +185 degC

#### PAYLOAD BAY TRANSCEIVERS (XCVR): 2 units

LOCATION: BAY 5 (under PLB liner)

OPS POWER: 28 VDC from A7/WIRELESS VIDEO POWER sw, Control Bus BC1

HTR POWER: 28 VDC from A7/WIRELESS VIDEO HEATER sw, Control Bus BC1

OPERATING TEMP: -190 degC to +210 degC

#### UHF PLB COMMAND ANTENNA: 1 unit

LOCATION: ODS TRUSS – AFT



## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### SPECIFICATIONS (Concluded)

#### S-BAND RECEIVE ANTENNAS: Up to 7

LOCATIONS: 2 at BAY 1 PORT, STBD SILL  
2 at BAY 4 PORT, STBD SILL  
2 at BAY 11 PORT, STBD SILL  
1 at AFT BULKHEAD

POWER: 28 VDC from A7/WIRELESS VIDEO HEATER sw, Control Bus BC1

#### COMMAND LINK: UHF

FREQUENCY: 400 MHz  
EFFECTIVE BANDWIDTH: 12kHz  
BIT RATE: 9600 bps

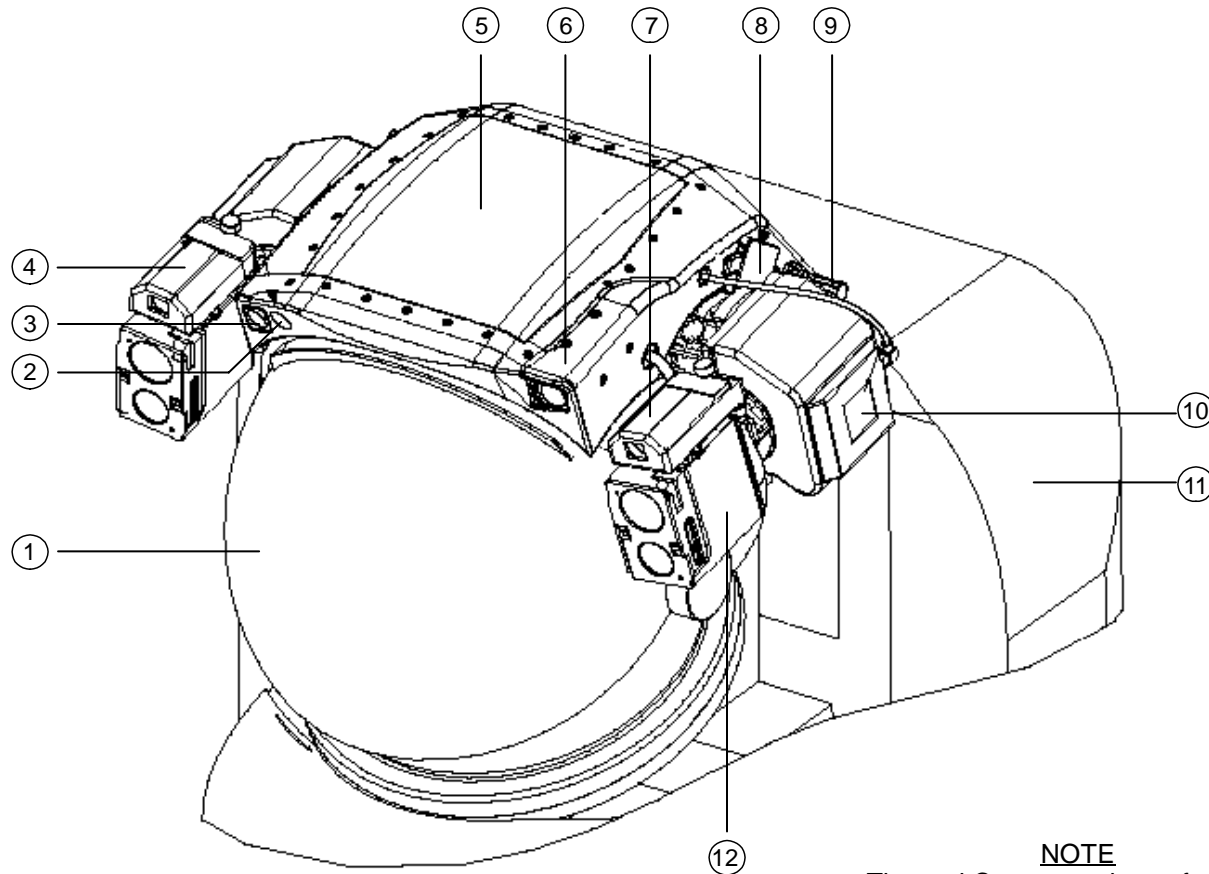
#### TELEMETRY/VIDEO LINK: S-BAND

FREQUENCY: 2410 & 2470 MHz  
VIDEO BANDWIDTH: 16 MHz  
TELEMETRY BANDWIDTH: 5.8 & 6.8 MHz  
TELEMETRY BIT RATE: 9600 bps per channel  
RANGE: 300 ft reqd, 1100 ft expected (direct line-of-sight)

# WIRELESS VIDEO SYSTEM (WVS) (Continued)

## NOMENCLATURE

### RF CAMR MOUNTED TO EMU HELMET



- ① EMU Helmet
- ② Pwr Indicator
- ③ Pwr sw
- ④ 12mm Lens
- ⑤ UHF Antenna
- ⑥ 3.5mm Lens
- ⑦ 6mm Lens
- ⑧ Latch (2X)
- ⑨ Pwr Receptacle
- ⑩ S-Band Antenna (2X)
- ⑪ PLSS
- ⑫ Helmet Light Module (2X)

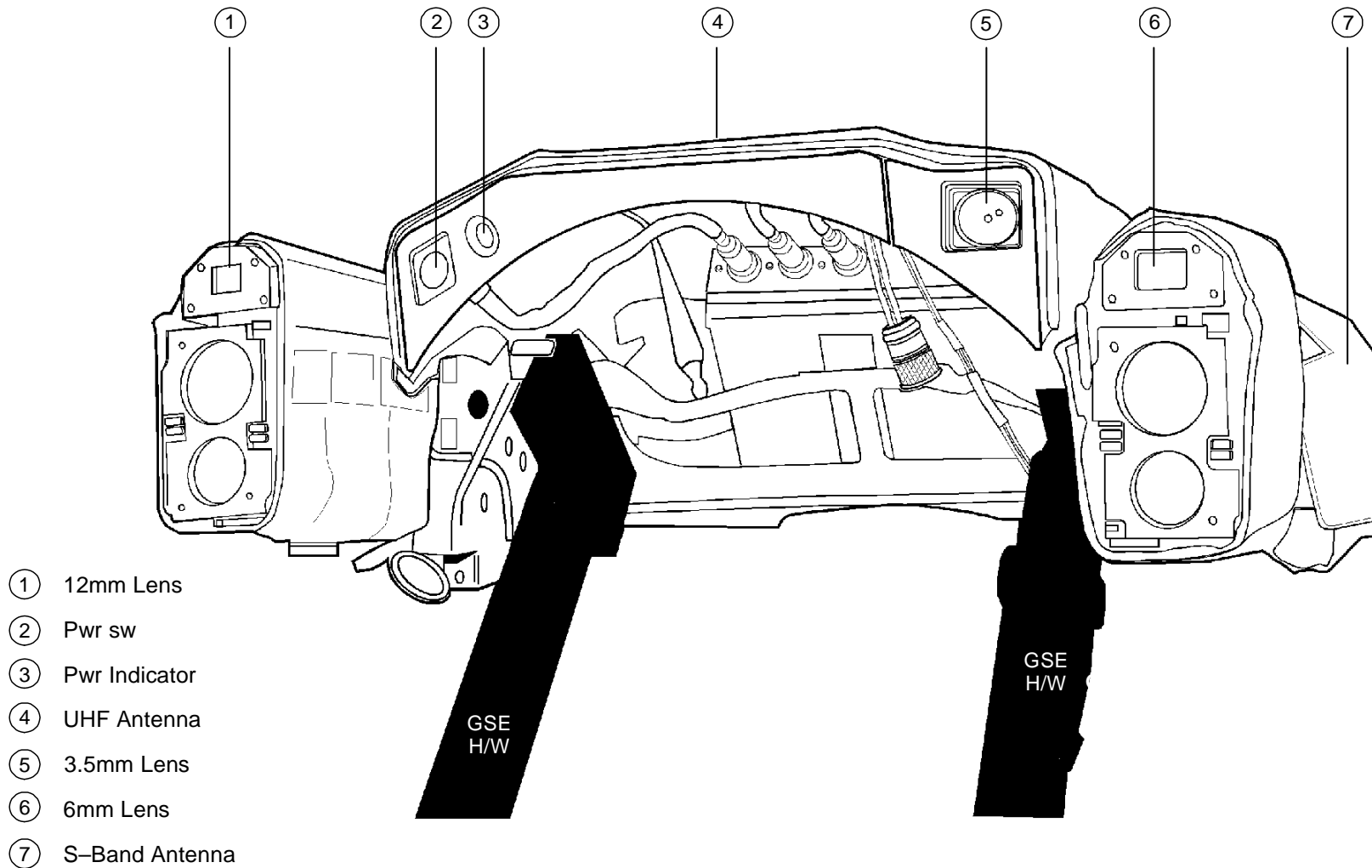
**NOTE**  
Thermal Cover not shown for clarity

jsc48037\_075.cnv

# WIRELESS VIDEO SYSTEM (WVS) (Continued)

## NOMENCLATURE (Continued)

### RF CAMR MOUNTED TO EMU HELMET LIGHT

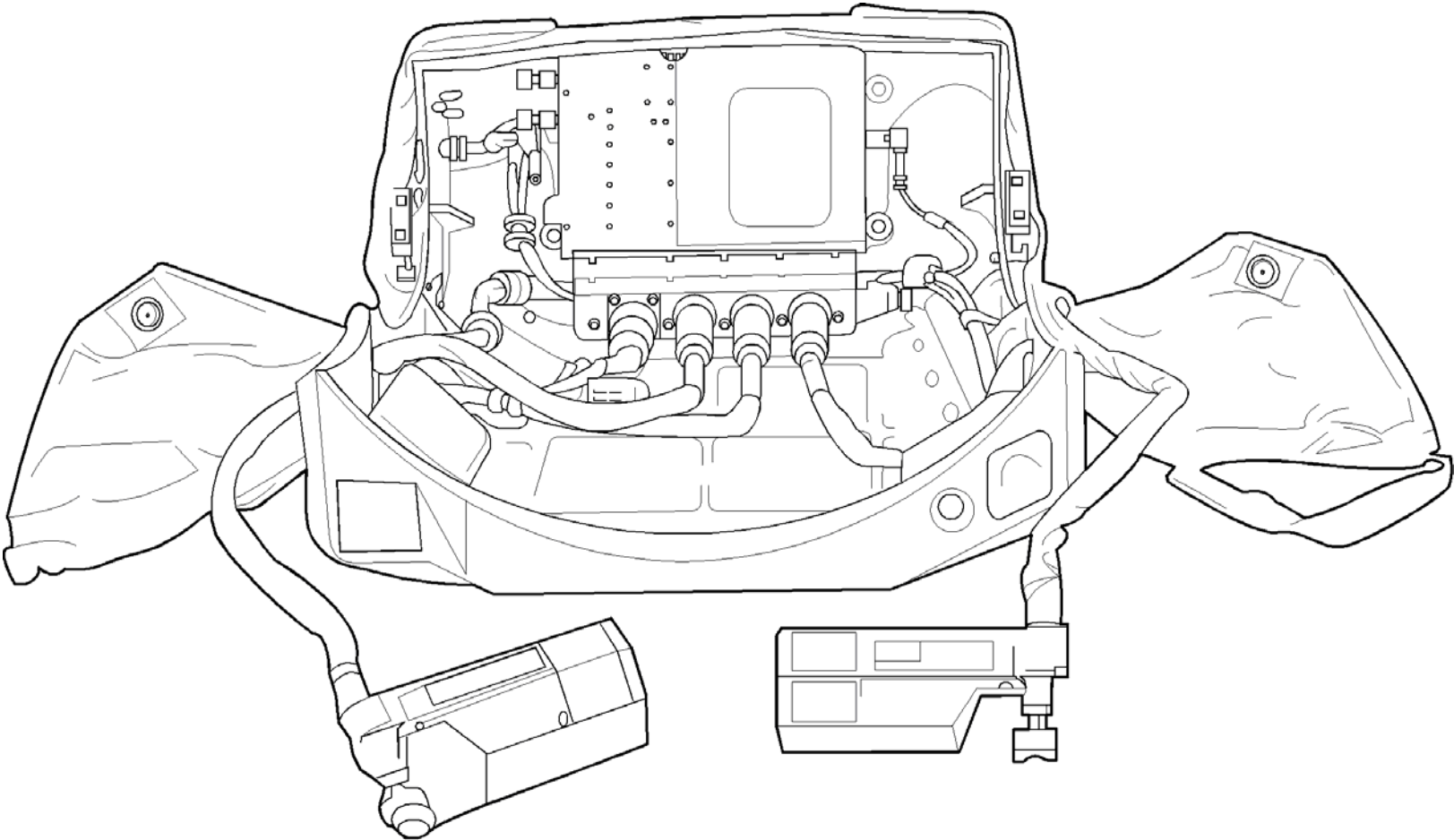


jsc48037\_076.cnv

**WIRELESS VIDEO SYSTEM (WVS) (Continued)**

**NOMENCLATURE (Concluded)**

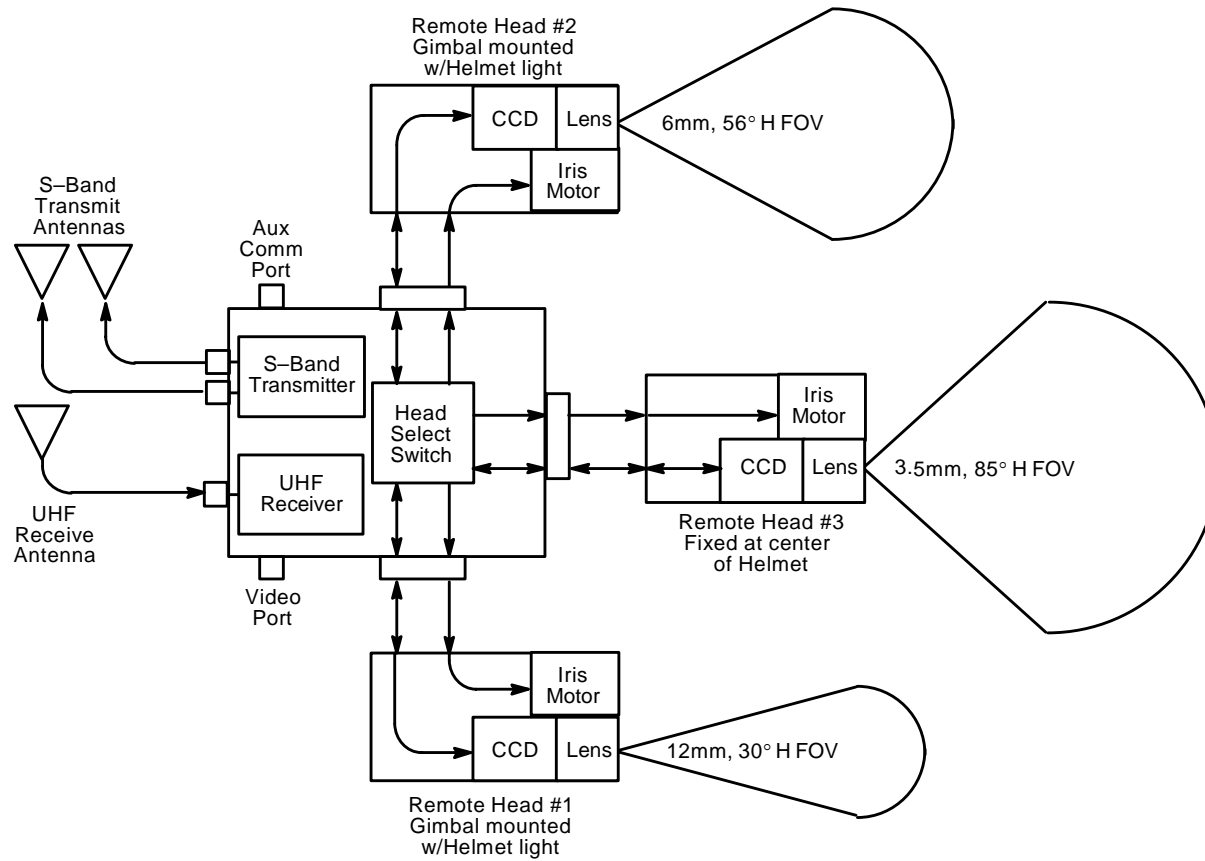
**RF CAMR SHELL**



jsc48037\_077.cnv

# WIRELESS VIDEO SYSTEM (WVS) (Continued)

## RF CAMR ELECTRONICS

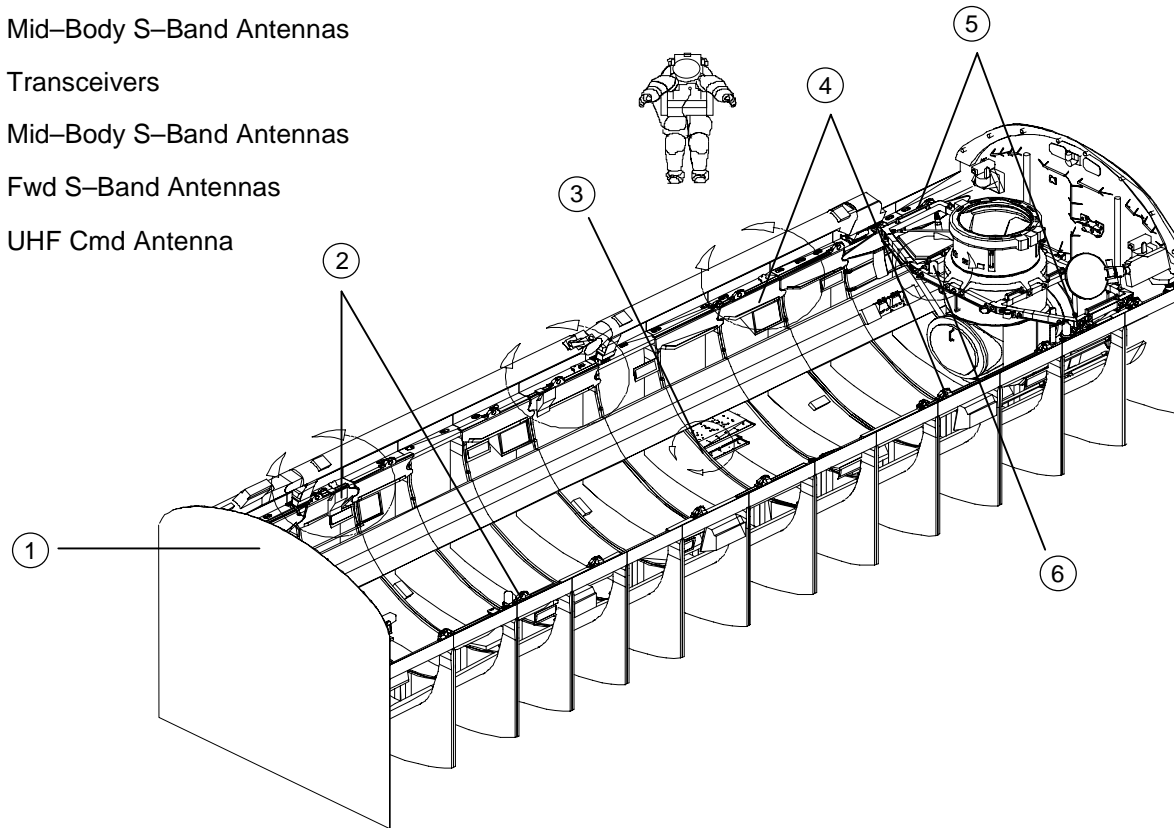


jsc48037\_078r2.cnv

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### WVS PLB MOUNTED H/W

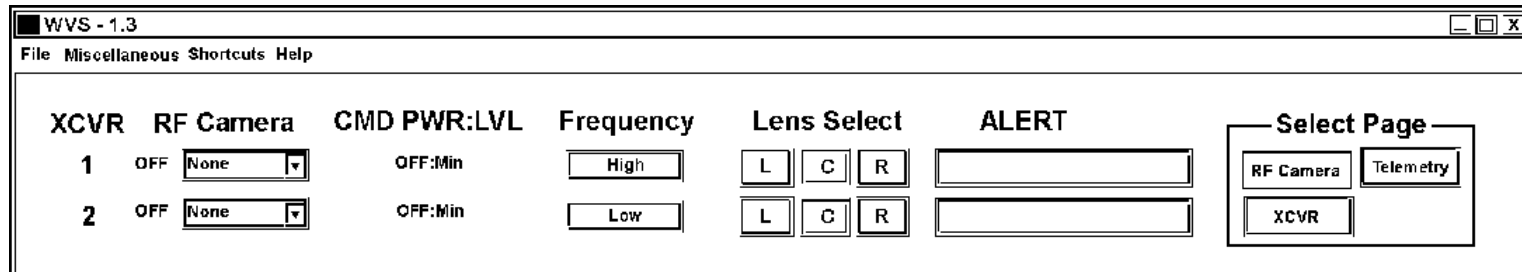
- ① Aft Bulkhead Antenna
- ② Mid-Body S-Band Antennas
- ③ Transceivers
- ④ Mid-Body S-Band Antennas
- ⑤ Fwd S-Band Antennas
- ⑥ UHF Cmd Antenna



jsc48037\_079r1.cvx

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### SOFTWARE – TOP STATUS AREA



jsc48037\_080.cnv

RF CAMERA Status  
[ON/green / OFF/black]

RF Camr xmtr pwr status changes to ON when Camr selected (in pulldown menu)

RF CAMERA Pulldown

Selects/deselects Camr assignments to each PLB XCVR. RF Camrs will swap assignments if alternate assigned Camr selected

CMD PWR:LVL Status  
[OFF:Min(Max) / ON:Min(Max)]

Denotes which PLB XCVR is processing/sending cmds (ON/OFF). Displays cmd level (Min/Max)

Frequency Status/Cmd  
[High / Low]

Frequency that PLB XCVR is receiving S-Band signal from RF Camr. Will swap Camr assignments. Easiest way to swap Camr video coming from WIB connectors, recorders

Lens Select Cmd  
[L,C,R]

Selects operational lens. Default is Center

ALERT Msg Display

Displays error msgs generated by system. Msgs start off flashing/blue and change to static/black when acknowledged (clicked). "Temp Caution" msg will start off flashing/yellow until acknowledged. Msgs disappear when problem fixed. Highest priority error displayed first. Five available msgs:

Static XCVR

Loss of comm between PGSC, PLB XCVR

Static RF Camera

Loss of comm between XCVR, RF Camr

Bad Camera ID

Mismatch between RF Camr selected and RF Camr transmitting ID

Temp Alert

Displays when RF Camr(PLB XCVR) temp is 5° from going into caution range (ERCA = -35° to -30° C or +80° to +85° C, XCVR = -40° to -35° C or +80° to +85° C)

Temp Caution

Displays RF Camr(PLB XCVR) temp has gone out of limits (ERCA <-35° C or >+85° C, XCVR <-40° C or >+85° C)

Select Page Icons  
[RF Camera, XCVR, Telemetry]

Provides selection between the three displays

# WIRELESS VIDEO SYSTEM (WVS) (Continued)

## SOFTWARE – RF CAMR PAGE

The screenshot displays the 'WVS - 1.3' software interface with a menu bar (File, Miscellaneous, Shortcuts, Help) and a main control area. At the top, there are sections for 'XCVR', 'RF Camera', 'CMD PWR:LVL', 'Frequency', 'Lens Select', 'ALERT', and 'Select Page'. The 'RF Camera' section shows two channels, both set to 'OFF' and 'None'. The 'Frequency' section has 'High' for channel 1 and 'Low' for channel 2. The 'Lens Select' section has 'L', 'C', and 'R' buttons for each channel. The 'ALERT' section has two empty input fields. The 'Select Page' section has buttons for 'RF Camera', 'Telemetry', and 'XCVR'. Below these are two identical control panels for 'None' and 'C' camera modes. Each panel includes 'Lens Iris Control' (Close, Open buttons), 'Electronic Shutter' (Auto button), and 'White Balance Control' (Auto dropdown). At the bottom, there is an 'Advanced Control' section with two identical panels for 'Automatic Gain Control' (Disabled), 'Power' (ON, OFF, MUTE buttons), and 'S-Band Level' (Dynamic dropdown).

jsc48037\_081.cnv



## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### SOFTWARE – RF CAMR PAGE (Concluded)

Lens Iris Control  
[Close,Open]

Opens(closes) Iris for selected lens. No telemetry other than video. Number displayed shows motor speed. Can click,hold

Electronic Shutter Control  
[Auto,Manual]

Brightens(darkens) image scene by controlling electronic shutter. Manual status runs from dark (0 = tbd sec) to bright (100 = 1/60 sec). Initial value = 50. Afterwards, setting stays where it was left

White Balance Control  
[Auto,2800K,6100K,Variable]

Determines how white balance set for Camr  
2800K – PLB lights  
6100K – Sunlight  
Variable – Allows red,blue gain control

Automatic Gain Control  
[Disabled,Enabled]

Controls status of AGC. Enabled needed for dark subjects; otherwise, it is disabled to reduce noise on video

Power Status  
[On,Off,Mute]

Status of RF Camr transmitter. Related to top status or RF Camr (black off, green on). Mute stops video signal from being sent to antenna

S-Band Level  
[Dynamic,Maximum]

Dynamic (default) – Pwr adjusted per signal strength seen at receiver (adjusted to be received at -40dB)  
Maximum – Sends signal at full pwr for signal strength problems

Black Pedestal  
[Increase,Decrease]

NOT USED. Brightness control varies from 0 to 100

Zoom,Focus,LED Control

NOT AVAILABLE. Future capabilities

# WIRELESS VIDEO SYSTEM (WVS) (Continued)

## SOFTWARE – XCVR PAGE

WS - 1.3  
File Miscellaneous Shortcuts Help

XCVR	RF Camera	CMD PWR LVL	Frequency	Lens Select	ALERT	Select Page
1	OFF <input type="text" value="None"/>	OFF:Min	<input type="text" value="High"/>	<input type="text" value="L"/> <input type="text" value="C"/> <input type="text" value="R"/>	<input type="text"/>	<input type="text" value="RF Camera"/> <input type="text" value="Telemetry"/>
2	OFF <input type="text" value="None"/>	OFF:Min	<input type="text" value="Low"/>	<input type="text" value="L"/> <input type="text" value="C"/> <input type="text" value="R"/>	<input type="text"/>	<input type="text" value="XCVR"/>

**Transceiver 1**

CMD Power

Antenna

**Transceiver 2**

CMD Power

Antenna

**Advance Controls**

**Chroma Stablizer**

IF

CMD Level

**Chroma Stablizer**

IF

CMD Level

jsc48037\_082.cnv

## WIRELESS VIDEO SYSTEM (WVS) (Continued)

### SOFTWARE – XCVR PAGE (Concluded)

CMD Power  
[OFF,ON]

Activates XCVR cmd processor. Only one XCVR can perform this duty. XCVR 1,2 selections are mutually exclusive and an ON cmd will automatically turn the other OFF. Status also shown under CMD PWR:LVL in top status area

Antenna  
[Auto,Manual]

Controls antenna selection method. Auto (default) picks antenna based on strongest signal strength. Manual provides antenna number selection. Antenna numbering sequence shown on WVS cue card

Chroma Stabilizer  
[On,Off]

NOT USED

Intermediate Frequency (IF)  
[Wide,Narrow]

Controls bandwidth sampled for RF Camr return signal. Changed to Narrow during signal strength troubleshooting

CMD Level  
[Min,Max]

NOT USED w/new spread spectrum XCVRs. Status shown under CMD PWR:LVL in top status area

# WIRELESS VIDEO SYSTEM (WVS) (Continued)

## SOFTWARE – TELEMETRY PAGE

WS - 1.3
File Miscellaneous Shortcuts Help

**XCVR**

1 OFF

2 OFF

**RF Camera**

1 OFF:Min

2 OFF:Min

**CMD PWR LVL**

High

Low

**Frequency**

L C R

L C R

**ALERT**

**Select Page**

RF Camera Telemetry

XCVR

RF Camera System Telemetry

RF Camera Lens	UHF		Power		Temperature (C)			
	Signal Strength	RX Good	Voltage	Amperes	Electronics	L	C	R
??? -1 M RM	-1.00 M	-1 M	0.00 M	0.00 M	32 M	32 M	32 M	32 M
??? -1 M RM	-1.00 M	-1 M	0.00 M	0.00 M	32 M	32 M	32 M	32 M

Transceiver Telemetry

	Temperature (C)	S Band			Power	
		Signal Strength	Antenna Select	Antenna Mode	Voltage	Amperes
XCVR 1	32 M	0.00 M	1 M	Manual M	10.00 M	10.00 M
XCVR 2	32 M	0.00 M	1 M	Manual M	10.00 M	10.00 M
Quads 1	1 0.0 M 2 0.0 M 3 0.0 M 4 0.0 M 5 0.0 M 6 0.0 M 7 0.0 M 8 0.0 M					
Quads 2	1 0.0 M 2 0.0 M 3 0.0 M 4 0.0 M 5 0.0 M 6 0.0 M 7 0.0 M 8 0.0 M					

jsc48037\_083.cnv

## WIRELESS VIDEO SYSTEM (WVS) (Concluded)

### SOFTWARE – TELEMETRY PAGE (Concluded)

#### RF Camr System Telemetry

##### RF CAMERA

Displays RF Camr title

##### Lens

Displays currently selected lens

[L,C,R]

##### UHF Signal Strength

Displays cmd link signal strength in dB seen at RF Camr

[nom = -120 to -59]

##### UHF RX Good

NOT USED

##### Pwr Voltage

Displays RF Camr system voltage

[nom = 12.8]

##### Pwr Amperes

Displays RF Camr system current

[nom = 0.40]

##### Temperature Electronics

Displays RF Camr electronics temp in degC. Alert range = -30° to -35° C and +80° to +85° degC. Caution range = <-35° and >+85° degC

[nom = 13 to 30]

##### Temperature L,C,R

Displays RF Camr left Camr temp in degC. Alert range = -30° to -35° C and +80° to +85° C. Caution range = <-35° C and >+85° C

[nom = 0 to 33]

#### Transceiver Telemetry

##### XCVR 1,2 Temperature

Displays XCVR temp in degC. Alert range = -40° to -35° C and +80° to +85° C. Caution range = <-40° and >85° C

[nom = 18 to 37]

##### S-Band Signal Strength

Displays return signal strength seen at XVCR in dB

[nom = 97.5 to -10.5]

##### S-Band Antenna Select

Displays which S-Band antenna the XCVR is using to get video signal

##### S-Band Antenna Mode

Displays XCVR antenna selection mode

[Auto,Manual]

##### Power Voltage

Displays XCVR system voltage

[nom = 12.42]

##### Power Amperes

Displays XCVR system current

[nom = 1.10]

##### Quads 1,2

Displays current signal strength for each XCVR's selected S-Band antenna in dB showing strongest of antenna quads

This Page Intentionally Blank

SEQUENTIAL STILL VIDEO (SSV)

	<u>PAGE</u>
SSV NOMINAL SETUP .....	16-2
SSV DEACTIVATION .....	16-3
SPECIFICATIONS .....	16-4
NOMENCLATURE .....	16-4
CAMCORDER VIA SSV .....	16-5
TEST PATTERN VIA SSV .....	16-6
SSV TLM DNLK .....	16-6
MALS .....	16-7
16.1 PWR LED NOT LIT .....	16-7
16.2 FRONT PANEL LEDs NOT INDICATING CORRECTLY .....	16-7

## SEQUENTIAL STILL VIDEO (SSV)

### SSV NOMINAL SETUP

MF43C

1. Obtain following H/W:  
SSV Compression Encoder Box  
SSV BNC to BNC Cable  
SSV to PDIP/CIP Cable  
PGSC Pwr Cable  
Bal/UnBal Xfer

2. Config SSV H/W to PDIP 2  
Config H/W per dwg at right

#### NOTE

Video Spare 1 controlled  
by MCC instead of pnl A7

L12  
(SSP 2)  
L11  
(PDIP 2)

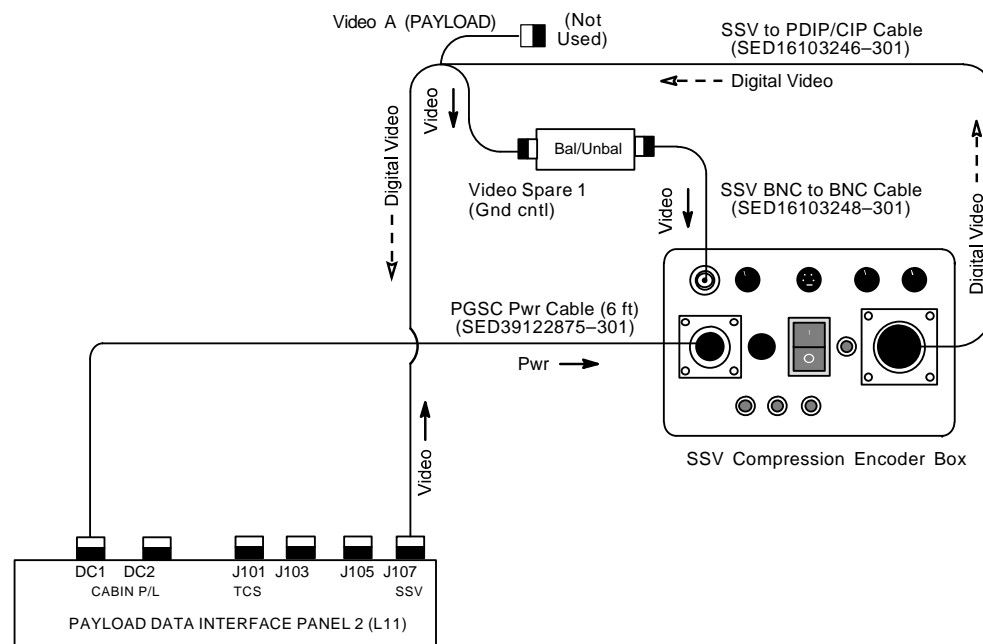
√PDIP 2 PWR 1 (CB3) – cl

DC PWR 1 – ON

SSV

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

4. Inform MCC when SSV SETUP complete



jsc48037\_118\_019.cvx



## SEQUENTIAL STILL VIDEO (SSV) (Continued)

### SSV DEACTIVATION

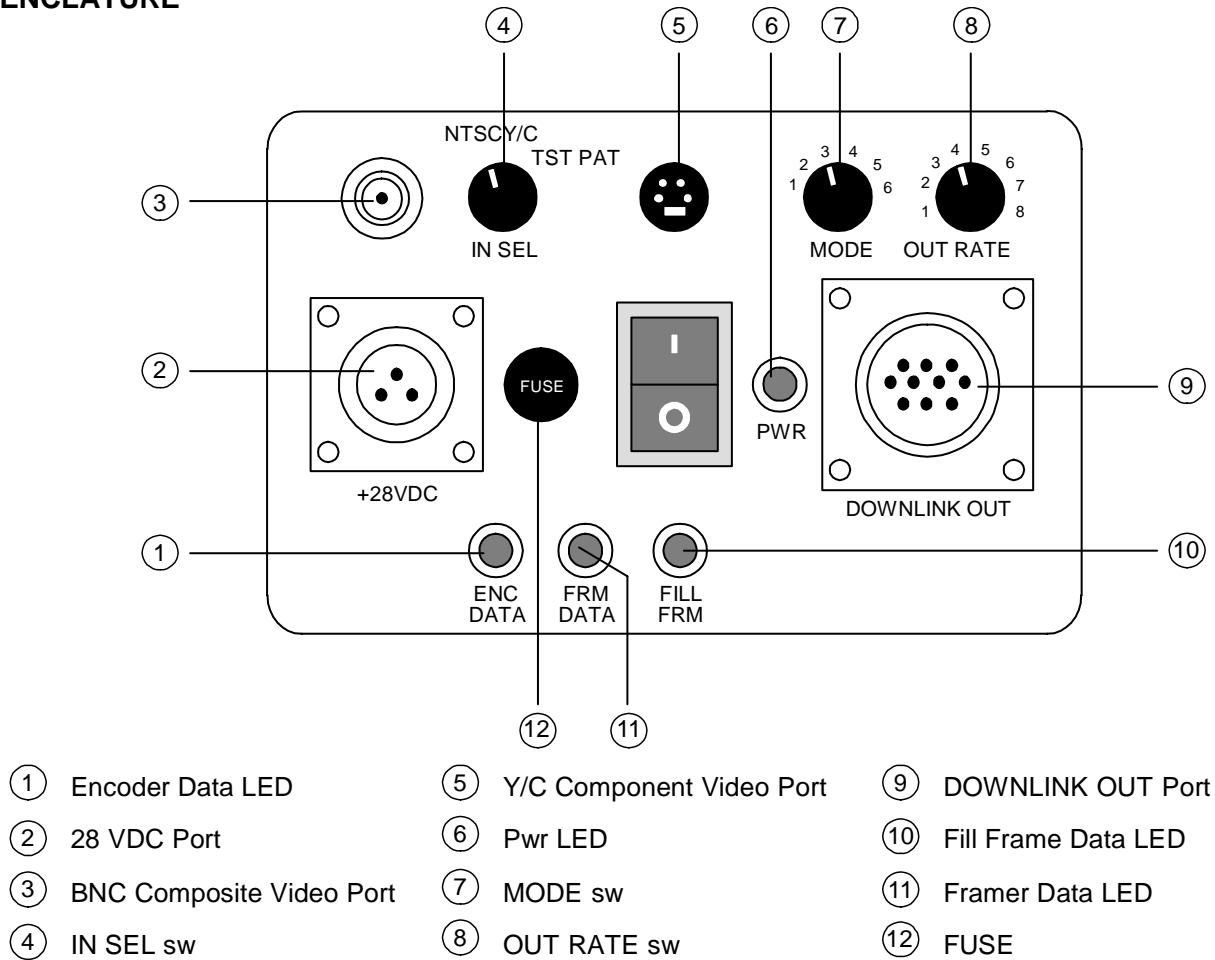
- L11  
(PDIP 2)
1. SSV  
SSV Pwr – off  
√Pwr LED not illuminated  
√ENC DATA LED not illuminated  
√FRM DATA LED not illuminated  
√FILL FRM LED not illuminated  
DC PWR 1 – OFF
  2. TV System  
Go to DEACTIVATION (Cue Card, TV) as reqd

## SEQUENTIAL STILL VIDEO (SSV) (Continued)

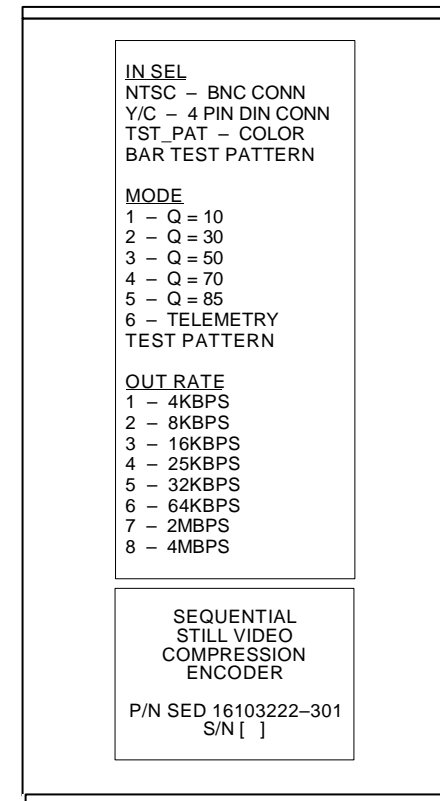
### SPECIFICATIONS

DIMENSIONS: 8.5 in (L) x 4.245 in (W) x 2.72 in (H)  
 PWR: 28V  
 FUSE: 2A  
 WEIGHT: 3.02 lb

### NOMENCLATURE



### TOP DECAL



jsc48037\_085.cnv

# SEQUENTIAL STILL VIDEO (SSV) (Continued)

## CAMCORDER VIA SSV

1. Config per dwg at right
2. Camcorder Settings

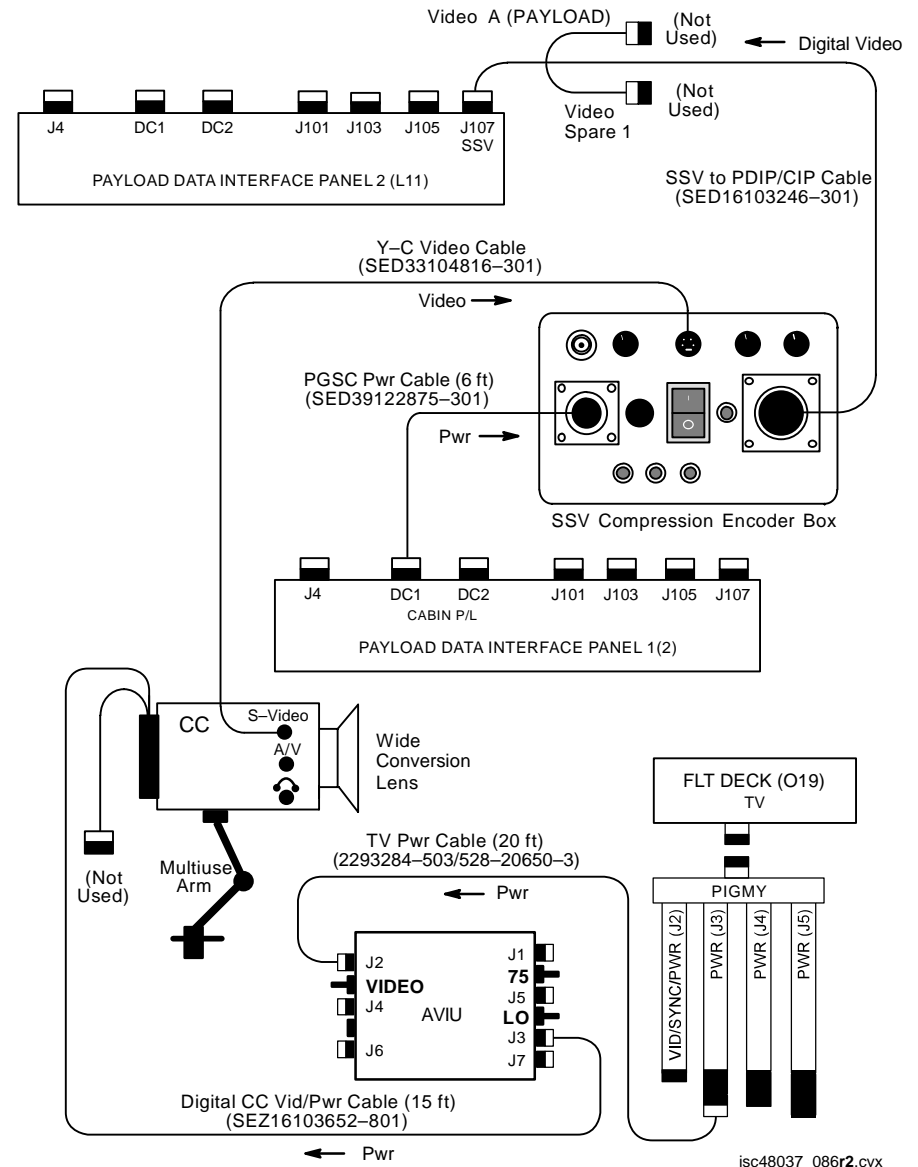
AVIU

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

O19  
 CC

- √TV Pwr – ON
- √Wide Conversion Lens installed
- PWR – CAMERA
- Tape – Remove
- √Viewfinder displays blinking yellow tape
- Camr Settings
  - √AUTO LOCK – AUTO LOCK
  - FOCUS – AUTO
- Multiuse Brkt, Clamp
- Zoom in to check focus; zoom out to frame

3. SSV Settings
  - IN SEL – Y/C
  - Mode – 5 (may change if desired)
  - OUT RATE per FLIGHT PLAN
  - SSV Pwr – ON
  - √Pwr LED illum
  - √ENC DATA LED flickering
  - √FRM DATA LED flickering
  - √FILL FRM pulsing



## SEQUENTIAL STILL VIDEO (SSV) (Continued)

### TEST PATTERN VIA SSV

1. Perform SSV NOMINAL SETUP, step 1
2. SSV Settings
  - IN SEL – TEST PAT
  - Mode – 3 (may change if desired)
  - OUT RATE per FLIGHT PLAN
  - SSV Pwr – ON
  - √Pwr LED illum
  - √ENC DATA LED flickering
  - √FRM DATA LED flickering
  - √FILL FRM pulsing

### SSV TLM DNLK

1. Perform SSV NOMINAL SETUP, step 1
2. SSV Settings
  - IN SEL – NTSC
  - Mode – 6
  - OUT RATE per FLIGHT PLAN
  - SSV Pwr – ON
  - √Pwr LED illum
  - √ENC DATA LED flickering
  - √FRM DATA LED flickering
  - √FILL FRM pulsing

## SEQUENTIAL STILL VIDEO (SSV) (Concluded)

### MALS

#### 16.1 PWR LED NOT LIT

√Fuse

Replace fuse if blown w/fuse from SSV Fuse Kit  
(SED 15500338-301)

√DC Pwr from orbiter util

#### 16.2 FRONT PANEL LEDs NOT INDICATING CORRECTLY

Cycle pwr on SSV Compression Encoder

SSV Pwr – 0 (off)

Wait 5 sec

SSV Pwr – 1 (on)

√Cables

√Video source

This Page Intentionally Blank

BINOCULARS

	<u>PAGE</u>
SPECIFICATIONS.....	17-2
MALS.....	17-2
17.1 CANNOT STABILIZE IMAGE .....	17-2

**BINOCULARS**

**BINOCULARS**

**SPECIFICATIONS**

Model	Stabilization	Pwr	Magnification	Objective Lens (mm)	Exit Pupil	Approx FOV	Approx Linear FOV @ 1000 yd	Approx Minimum Focus (ft)	Weight (lb)
Zeiss 8 X 20	No	N/A	8X	20	2.5mm	6.6°	346.5 ft	9.0	0.39
Fuji 10 X 40 Day/Night	Yes (Gyro)	6AA	10X	40	4.5mm	5.0°	210.0 ft	65.0	5.5
Fuji 14 X 40	Yes (Gyro)	6AA	14X	40	2.8mm	4.0°	210.0 ft	75.0	4.6
Fuji 16 X 70	No	N/A	16X	70	4.4mm	4.0°	210.0 ft	100.0	4.76
Zeiss 20 X 60	Yes (Mechanical)	N/A	20X	60	3.0mm	2.9°	150.0 ft	50.0	3.66

**MALS**

**17.1 CANNOT STABILIZE IMAGE**

√Batts, replace as needed  
 If stabilization obtainable, continue nominal ops  
 |  
 If stabilization not obtainable, √MCC



FIBERSCOPE

	<u>PAGE</u>
SPECIFICATIONS.....	18-2
NOMENCLATURE.....	18-2
ACTIVATION/OPERATION .....	18-3
DEACTIVATION .....	18-3
FIBERSCOPE LIGHT PWRUP (30 min) .....	18-4
FIBERSCOPE LENS REPLACEMENT .....	18-6

# FIBERSCOPE

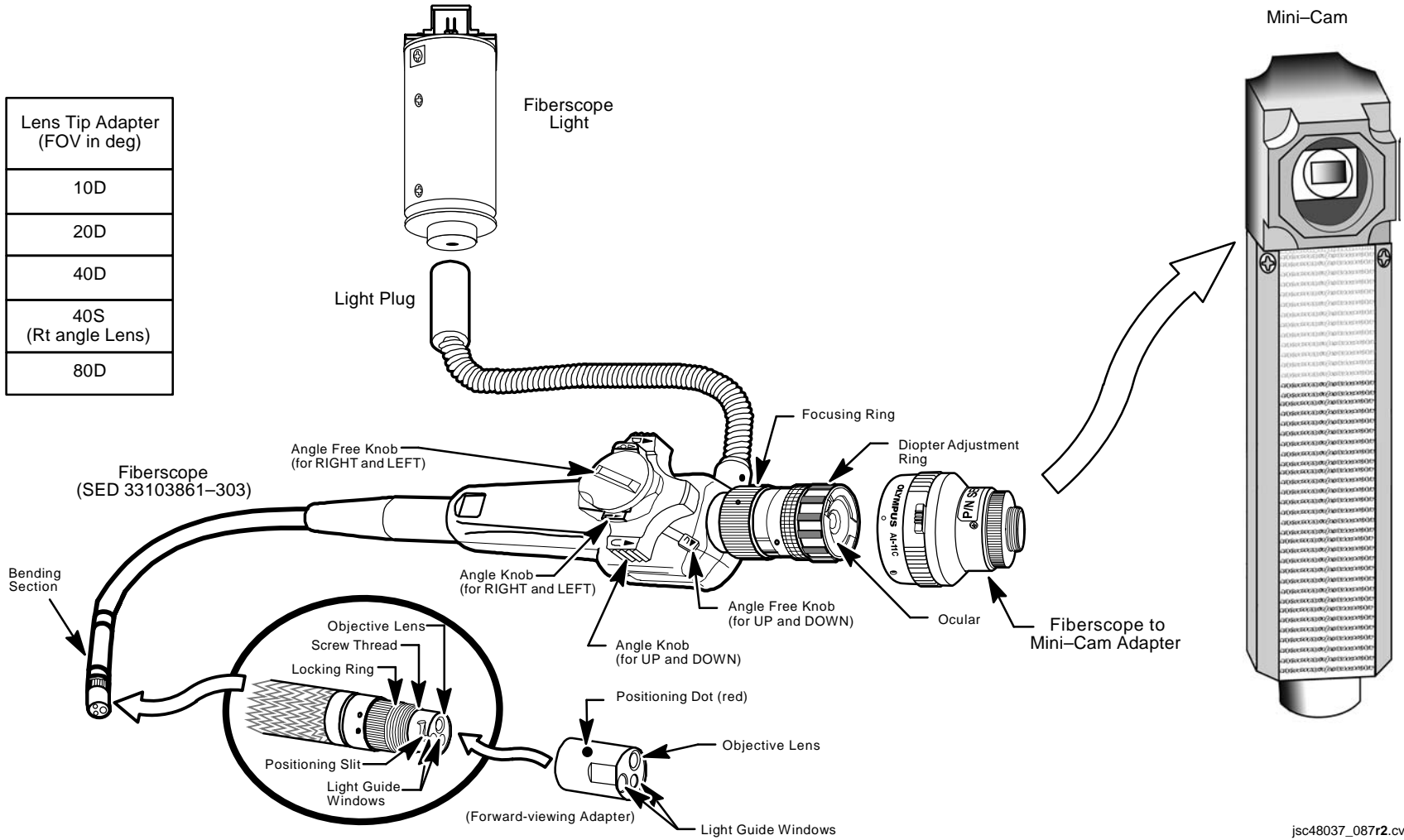
## FIBERSCOPE

### SPECIFICATIONS

LIGHT PWR: Orbiter – 6V via IFM Breakout Box

### NOMENCLATURE

Lens Tip Adapter (FOV in deg)
10D
20D
40D
40S (Rt angle Lens)
80D



jsc48037\_087r2.cvx

## FIBERSCOPE (Continued)

### ACTIVATION/OPERATION

- MA9N
1. Unstow Fiberscope Kit, Fiberscope Light, if reqd
  2. If Fiberscope Light reqd:  
Install Fiberscope Light Plug into Fiberscope Light  
Perform FIBERSCOPE LIGHT PWRUP, 18-4, steps 1 thru 12
  3. If installed lens not desired:  
Unstow spare lens  
Perform FIBERSCOPE LENS REPLACEMENT, 18-6
  4. If video dnlk(viewing) reqd:  
Unstow Fiberscope-to-Mini-Cam Adapter  
Screw Adapter into Mini-Cam body lens mount  
Mount Adapter to Fiberscope by aligning setter pin w/orange dot, rotate Adapter cw to lock  
Perform IN-CABIN MINI-CAM (MINI-CAM)  
Route Mini-Cam video to monitor or dnlk:  
A7 VID OUT MON 1(2) (DNLK) pb – push  
IN FLT DECK(MIDDECK) pb – push  
Push button on Adapter and rotate Fiberscope until slit mark on image edge at top of image  
OR  
Unstow,install Fiberscope Eyepiece
  5. Adjust diopter until slit mark clearly visible  
Adjust Camr viewing by rotating up/down,left/right angle knobs while free knobs are in F posn  
Adjust focus by rotating focus ring

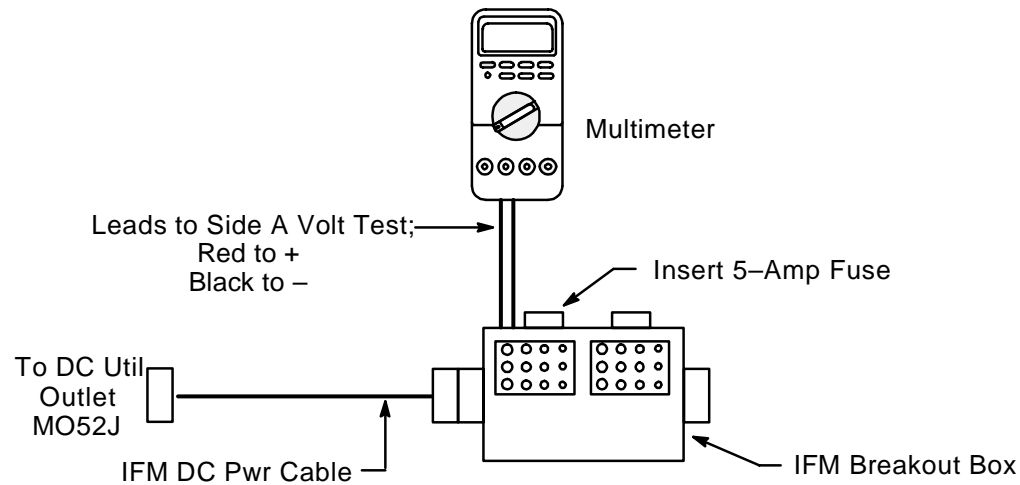
### DEACTIVATION

1. If Fiberscope Light used:  
Perform FIBERSCOPE LIGHT PWRUP, 18-4, steps 13 thru 15  
Remove Fiberscope Light from Fiberscope Light Plug  
Stow Fiberscope Light
2. If Mini-Cam used:  
O19(MO58F) TV PWR – OFF  
Remove Mini-Cam Adapter from Fiberscope  
Remove,stow Mini-Cam Adapter from Mini-Cam body
3. Remove,stow Fiberscope Eyepiece
4. Stow Fiberscope, Fiberscope Kit

## FIBERSCOPE (Continued)

### FIBERSCOPE LIGHT PWRUP (30 min)

1. Unstow:
    - Multimeter
    - Pin Kit (two 5-in 20 ga Pin/Pin Test Jumper Leads, two 24-in Minigrabbers, 5-Amp Fuse)
    - Gray Tape
    - IFM Breakout Box
    - DC Pwr Cable
  - MA9N 2. Remove Battery Holder Assembly from Fiberscope Light
  - MO52J 3. √DC UTIL PWR MNA – OFF
  4. a. Config Breakout Box:
    - AUX – OFF
    - 28V/VAR VOLT – VAR VOLTS
    - PWR A,B – OFFb. Remove fuse cap from side A
  - c. Rotate GA SEL A – 20
  - d. Install 5-Amp Fuse, replace cap
5. Assemble Breakout Box and Multimeter as shown below



jsc48037\_088.cnv

## FIBERSCOPE (Continued)

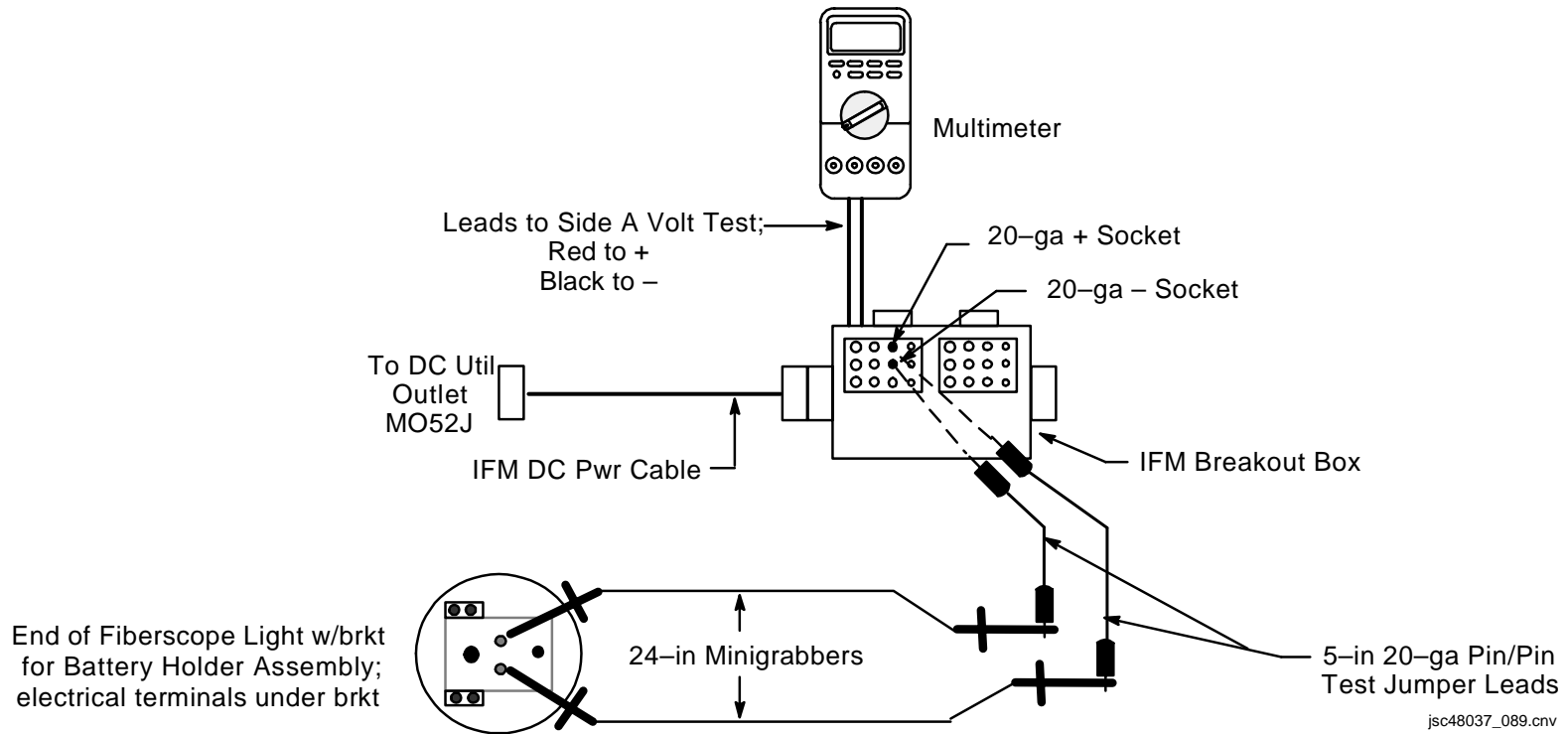
### FIBERSCOPE LIGHT PWRUP (30 min) (Continued)

6. Configure Multimeter for DC V (auto range)
- MO52J 7. DC UTIL PWR MNA – ON
8. Breakout Box:  
√VAR VOLTS – ON (It on)
9. Set VAR VOLTS output by rotating VAR rotary sw until Multimeter reads 6 VDC

#### NOTE

Positive, negative leads from Breakout Box can be attached to either terminal on Fiberscope Light

10. Install Breakout Box and cables to Fiberscope Light as shown below



## **FIBERSCOPE (Concluded)**

### **FIBERSCOPE LIGHT PWRUP (30 min) (Concluded)**

11. Secure IFM Breakout Box, Multimeter, and PWR Cable in convenient location
12. When ready to operate Fiberscope:  
Breakout Box: PWR A – ON (It on)
13. When finished operating Fiberscope:  
Breakout Box: PWR A – OFF
- MO52J 14. DC UTIL PWR MNA – OFF
15. √Disconnect Minigrabbers, Test Jumper Leads, Multimeter, and IFM DC Pwr Cable

### **FIBERSCOPE LENS REPLACEMENT**

1. Unscrew lock ring from lens until second threads disengage
2. Rotate lens to align green dots
3. Pull lens to engage first threads, unscrew lock ring until lens free
4. Select desired lens and stow removed lens in foam
5. Align green dots on lens and Fiberscope; slowly push lens on until lens stops against first threads; screw on lens until first threads disengage
6. Rotate lens until green dot aligns w/Fiberscope red dot
7. Push lens into Fiberscope until it stops against second threads, screw on lens until second threads fully engaged

NIGHT VISION EQUIPMENT

NOTE

Not being flown

## NIGHT VISION

This Page Intentionally Blank



LASER DYNAMIC RANGE IMAGER (LDRI)

	<u>PAGE</u>
SPECIFICATIONS.....	20-2
NOMENCLATURE.....	20-3
OBSS PTU PAN AND TILT RANGES .....	20-5
FUNCTIONAL FLOW .....	20-6
ITVC, LDRI, AND PTU INTERACTIONS .....	20-7
OPP PANEL .....	20-8
OBSS PANEL .....	20-9
A7 PANEL.....	20-10
MONITOR INDICATIONS FOR LDRI VIDEO.....	20-11

# LDRI

## LASER DYNAMIC RANGE IMAGER (LDRI)

### SPECIFICATIONS

CAMERA MODEL: Sony XC-ST70  
PIXEL COUNT: 720 x 480  
CAMERA SENSOR FOV: 15 x 19.7 deg  
FOCAL LENGTH: 50.6mm  
IRIS: Fixed at F11  
FOCUS: Fixed at 6 ft

LASER MODEL & TYPE: LaserTeILT-1110-20W-CS, Class IV rated @ 20W and limited to 11W  
LASER WAVELENGTH: 805 nm +/- TBD based upon laser temperature  
LASER COVERAGE: 23.7 (vertical) x 19.9 deg (horizontal)  
CAMERA/LASER PARALLAX: Approx 1.5 in horizontal  
HAZARD ZONE: 9 ft

MOUNTING INTERFACE: Bottom of ITVC (ITVC specifications in CCTV section)  
POINTING CAPABILITY: Standard Pan Tilt Unit (PTU)  
PAN RANGE: 179.8 deg  
TILT RANGE: 300 deg  
ITVC ILLUMINATOR: LDRI

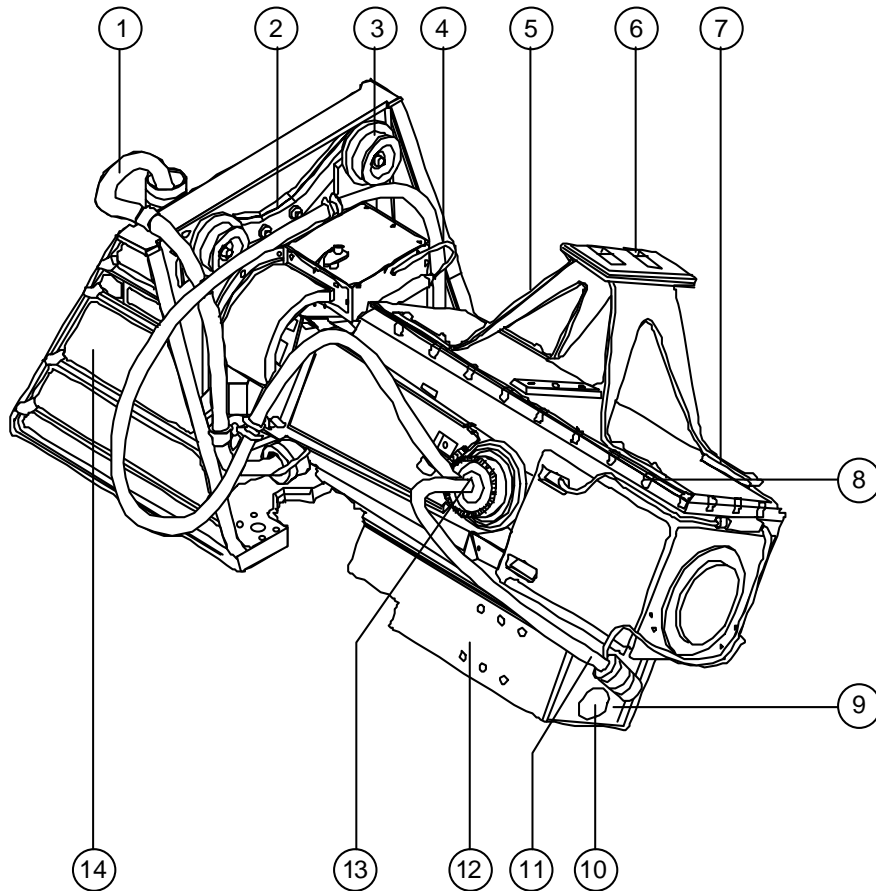
WEIGHT: 6.5 lb + 3 lb counter-weight  
DIMENSION: 11 in (L) x 5.88 in (W) x 4.0 in (H)  
PWR: 28V +/- 4V

# LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

## NOMENCLATURE

### NOTE

Thermal covers are not depicted



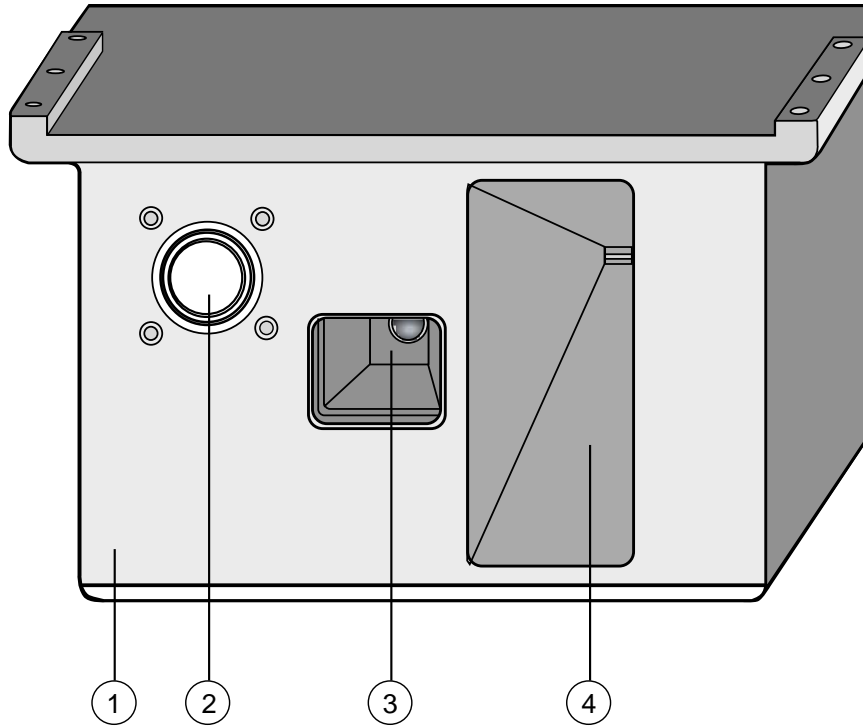
- ① W601 Interface Cable Assembly (EVA releasable at boom I/F)
- ② Isolator Plate
- ③ Isolator (x4)
- ④ PTU External Thermistor Interface Cable\*
- ⑤ Counterweight Support
- ⑥ Counterweight
- ⑦ ITVC
- ⑧ ITCV External Thermistor Interface Cable\*
- ⑨ LDRI Laser Diffuser
- ⑩ LDRI Camera Orifice
- ⑪ LDRI Power/Sync Input and Video Output
- ⑫ LDRI
- ⑬ ITVC Power/Sync Input and Video Output
- ⑭ Boom Interface Bracket (EVA Releasable)

\* Items 4 and 8 are subsets of item 1, the W601 Interface Cable Assembly

jsc48037\_117r2.cvx

# LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

## NOMENCLATURE (Concluded)

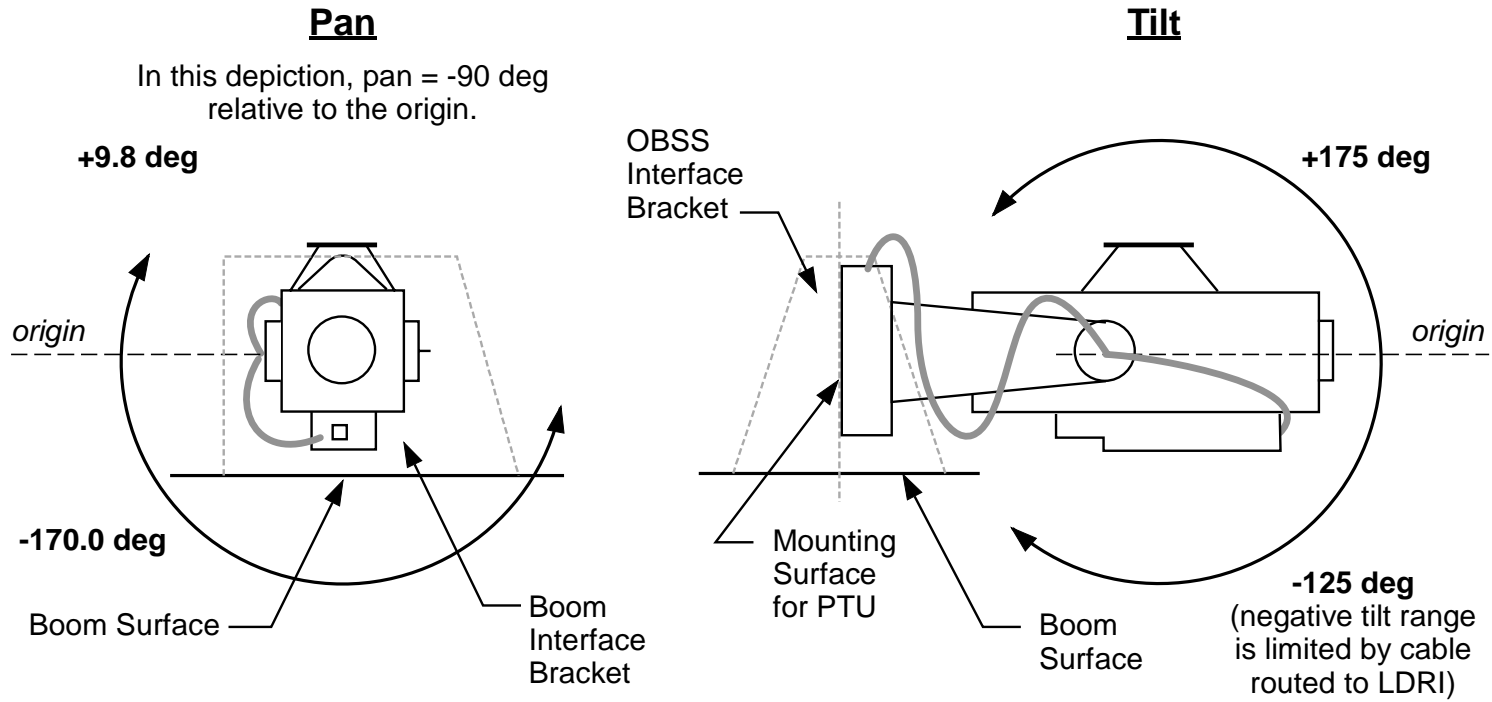


- ① LDRI Front Face
- ② Power/Sync Input and Video Output
- ③ Camera Orifice
- ④ Laser Orifice (covered by diffuser)

jsc48037\_118r3.cvx

# LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

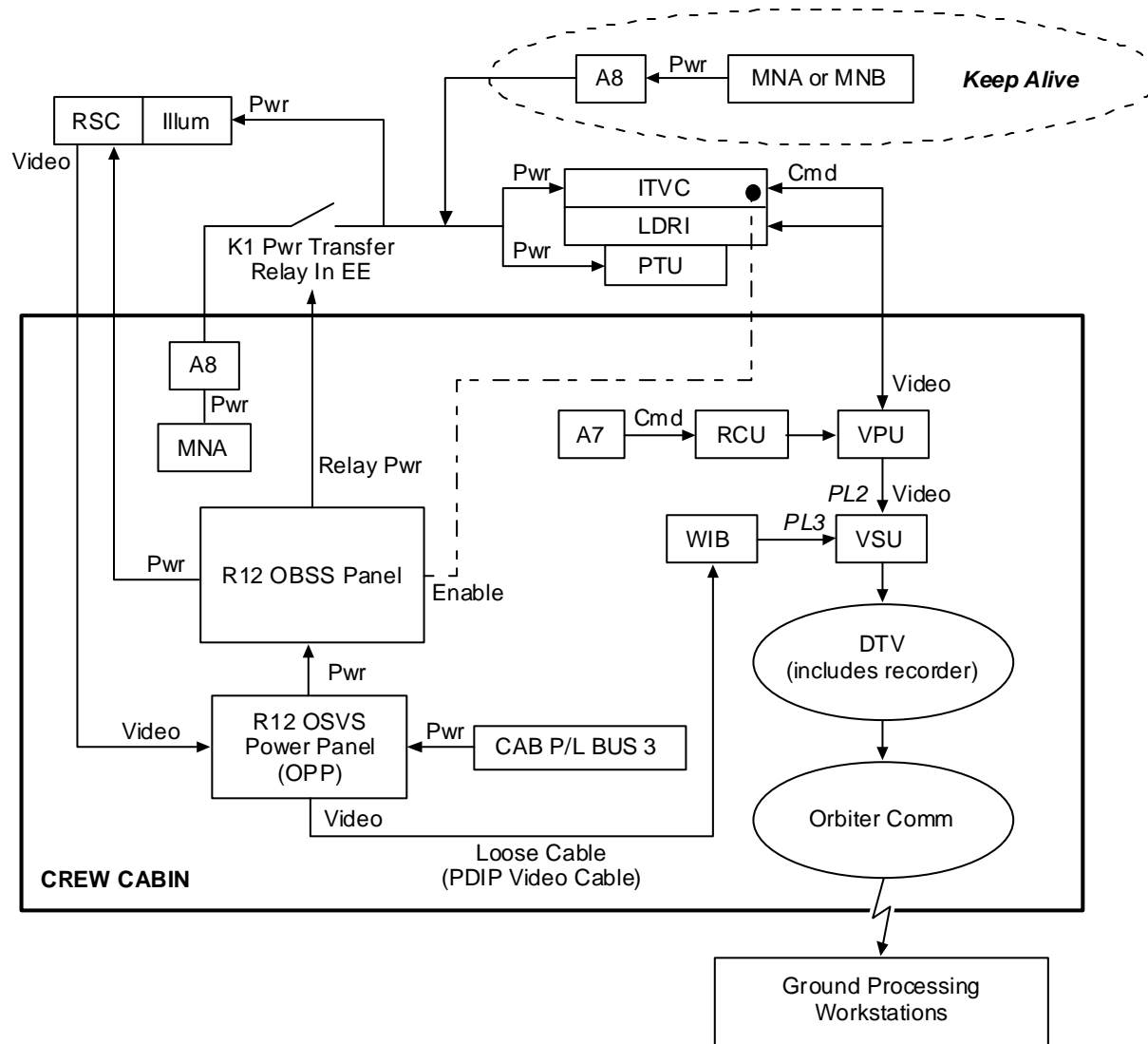
## OBSS PTU PAN AND TILT RANGES



jsc48037\_119r2.cvx

# LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

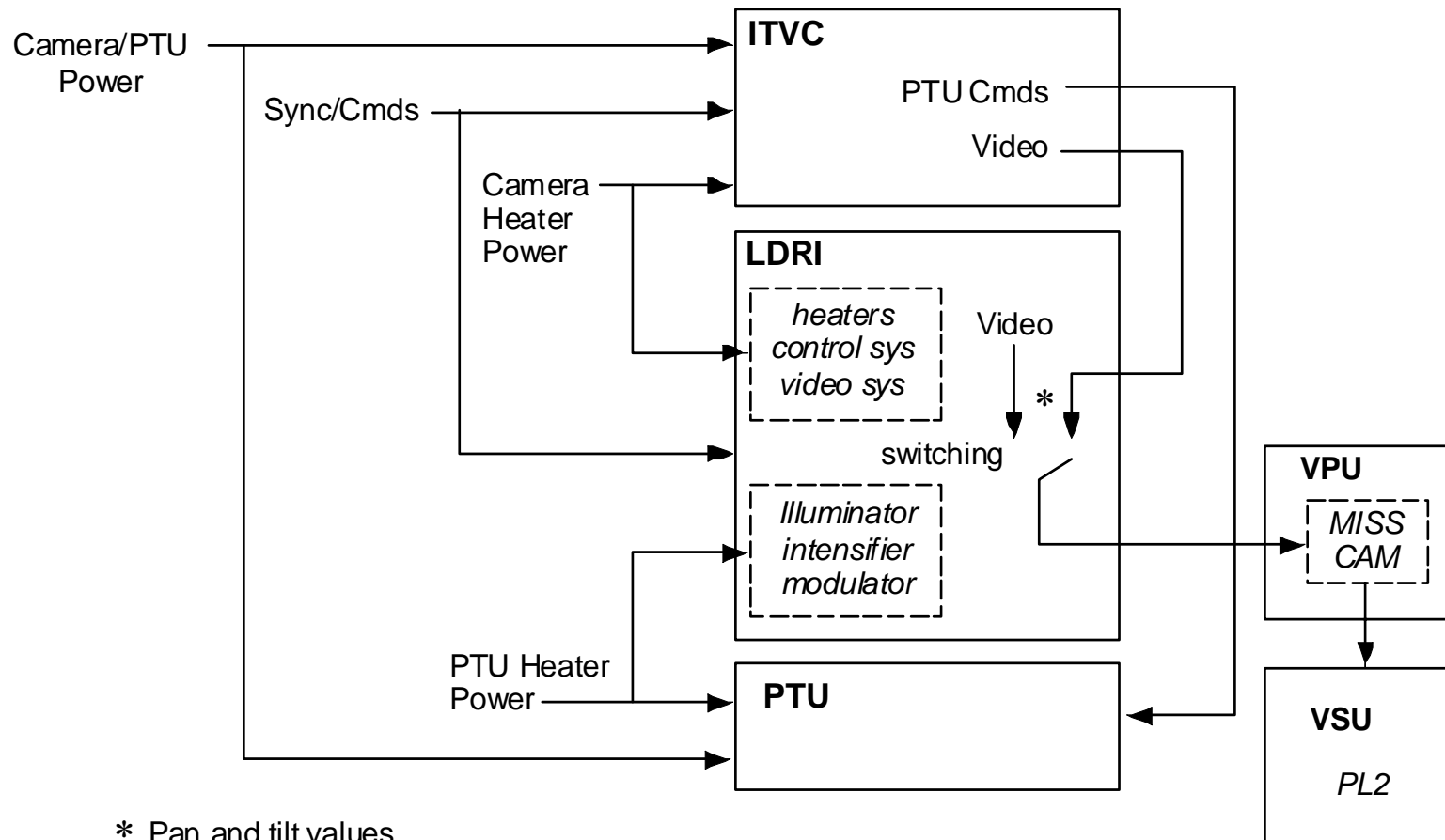
## FUNCTIONAL FLOW



jsc48037\_120r2.cvx

# LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

## ITVC, LDRI, AND PTU INTERACTIONS



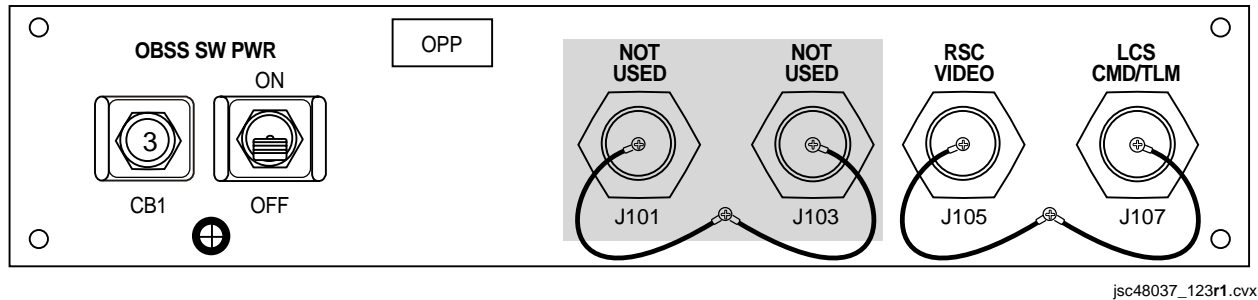
\* Pan and tilt values  
for display on MON

jsc48037\_121r2.cvx

## LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

### OPP PANEL

#### R12



#### **OBSS SW PWR (CB1 AND S1)**

- Closure of 3-amp OBSS SW PWR cb followed by sw will provide CAB PL3 POWER to R12 OBSS panel

#### **RSC VIDEO (J105)**

- Provides balanced, asynchronous video from RMS Sideview Camr (RSC)
- Video will be routed to VSU PL3 input on R12/VPU/WIB using PDIP Video Cable to support viewing/recording/dnlnk ops

#### **LCS CMD/TLM (J107)**

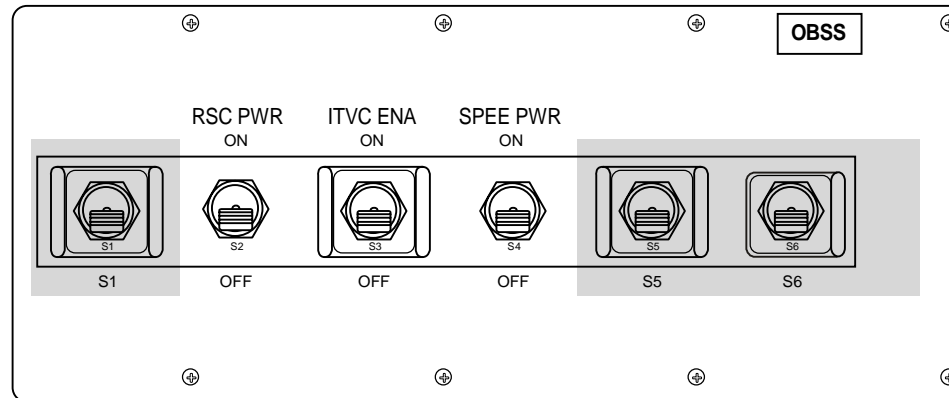
- Provides PGSC interface for crew control, data, and telemetry for Laser Camr System (LCS) and ISIS Digital Camr (IDC)



## LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

### OBSS PANEL

#### R12



jsc48037\_124r2.cvx

#### **RSC PWR (S2)**

- Provides CABIN PL3 POWER to RMS Sideview Camr (RSC) and its heater
- Heater must remain active for duration of mission

#### **ITVC ENA (S3)**

- ON sends an enable command to the OBSS ITVC
- SPEE PWR must be ON prior to ITVC enable
- OFF disables Camr. A 10-sec wait reqd before re-enabling

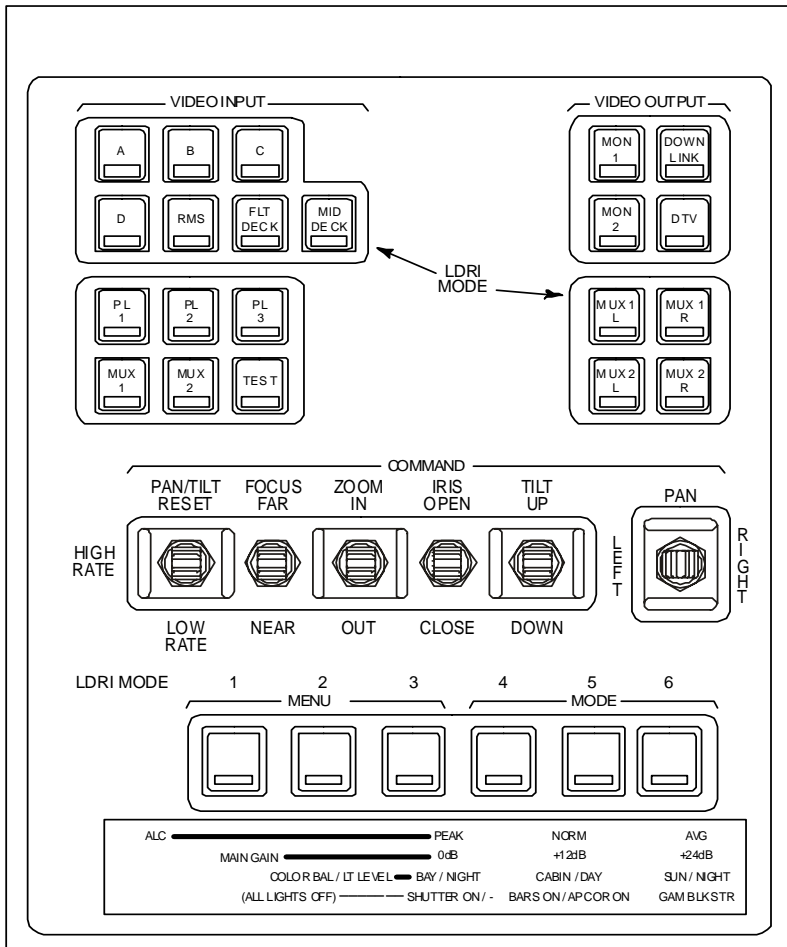
#### **SPEE PWR (S4)**

- ON closes K1 pwr relay in RMS End Effector. Pwr flows to OBSS ITVC/LDRI/PTU and to RSC illuminator. Upon initial relay closure, illuminator has pwr but not active
- After initial closure of K1 relay, cycling SPEE PWR sw to OFF, then ON will command RSC illuminator to full pwr (156 LEDs). Subsequent K1 relay cycling will take illuminator to med pwr (84 LEDs), then low pwr (30 LEDs), then OFF, and then back to full pwr
- Cycling K1 relay OFF, then ON will rest OBSS PTU pan and tilt values to zero; take LDRI to stby (Mode 1) and ITVC to manual state

# LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

## A7 PANEL

A7



jsc 48037\_125r3.cvx

### NOTE

Command interfaces listed below pertain only to OBSS LDRI and not to OBSS ITVC/PTU. Commands to ITVC/PTU handled by selecting PL2 as video input and treating that address in same manner as PLB ITVC

### MUX1(2)R(L),MIDDECK pb

- Selection of any of four VIDEO OUTPUT MUX pb followed by VID IN MIDDECK pb enables commanding of OBSS LDRI

### IRIS sw

- IRIS sw provides gain cntl for LDRI Modes 3,4,5,6. Feedback is available in MON Lens Data in place of T-stop
- Gain range – 10 (brightest) to 280 (darkest). Default value – 280
- Gain applied on one of Modes 3(4,5,6) will apply to other three. Gain returns to default value by selecting Mode 1

### MODE, MENU pb

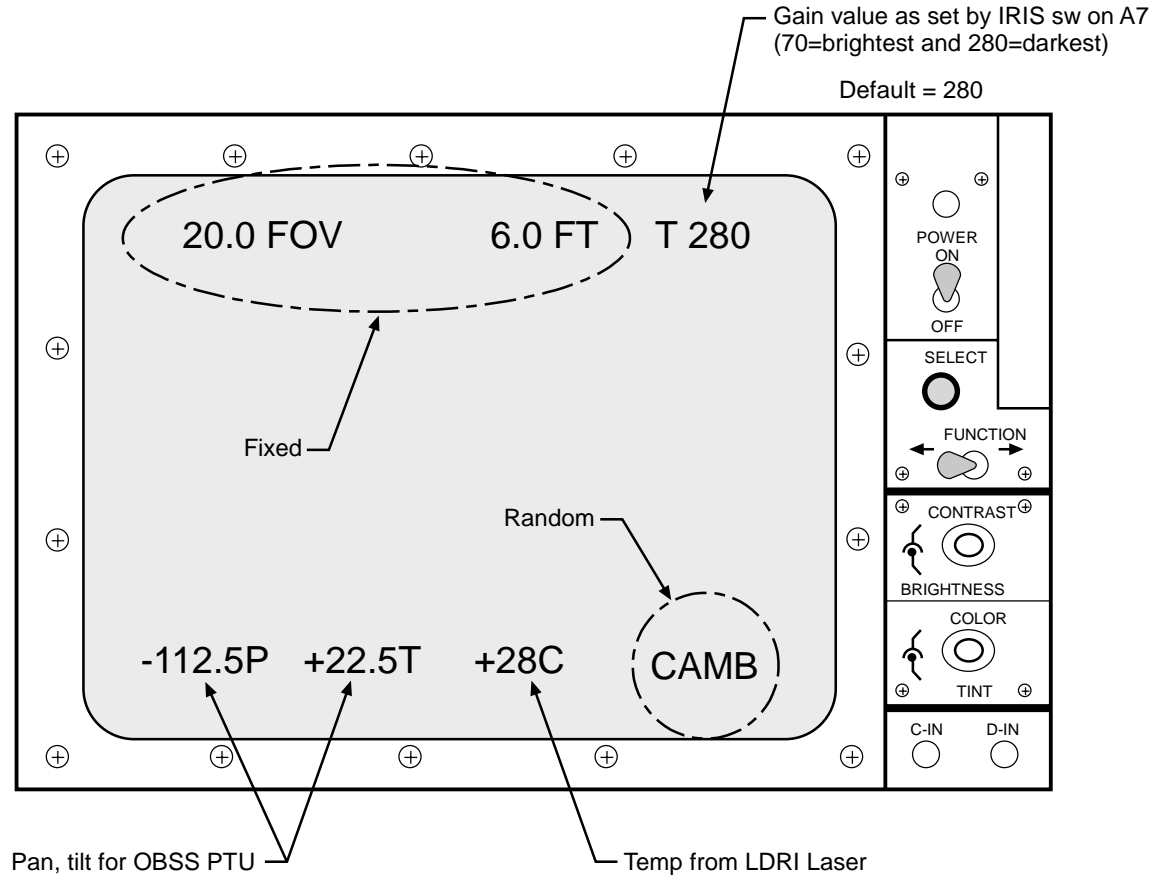
- Six MODE/MENU pb, left to right, allow selection of LDRI modes 1 thru 6:
  - MODE 1 – STANDBY
  - MODE 2 – ILLUMINATOR
  - MODE 3 – 2D
  - MODE 4 – 2D GAMMA
  - MODE 5 – 3D
  - MODE 6 – 3D GAMMA
- If OBSS/ITVC cntl selected (by depressing VID OUT pb selected for PL2) while in LDRI modes 3(4,5,6), LDRI video will continue to flow to VID OUT. For this scenario, all ITVC cmds active in blind
- Mode fdbk for Modes 3,4,5,6 avail when PL2 illuminated. In Modes 1 and 2, MODE/MENU pb indicate ITVC exposure setting, not mode

# LASER DYNAMIC RANGE IMAGER (LDRI) (Concluded)

## MONITOR INDICATIONS FOR LDRI VIDEO

### NOTE

LDRI video assigned to PL2 using R12/VPU MISS CAM jumper posn. LDRI video (Modes 3-6) will have black rounded corners. Lens data and green Camr data ON for this illustration



This Page Intentionally Blank

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

LCS SPECIFICATIONS.....	21-2
LCS NOMENCLATURE.....	21-3
LCC SOFTWARE GUI.....	21-4
IDC SPECIFICATIONS.....	21-8
IDC NOMENCLATURE .....	21-9
IDC SOFTWARE GUI.....	21-10
LCS/IDC COMBINED NOMENCLATURE .....	21-14
LCS/IDC KEEP ALIVE PWR AND DATA INTERFACES (Berthed on MPMs) .....	21-15
LCS/IDC (HEATER ONLY MODE)/(OPERATIONAL PWR MODE) DATA AND PWR INTERFACES.....	21-16
PTU 2/MAIN BUS B(PTU 1/MAIN BUS A) SYSTEM DETAILS.....	21-17
LCC SOFTWARE EXIT DIALOGUE BOXES .....	21-18
MANUAL A31p DESKTOP DNLK SETUP.....	21-19
RECONFIGURATION OF A31p SCREEN RESOLUTION.....	21-22

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

LASER WAVELENGTH: ≈1500 nm, near-IR

LASER CLASSIFICATION: Class 3b

OPERATIONAL RANGE: 4-10 ft

LASER SPOT SIZE: 0.04 in @ 4.5 ft

HAZARD ZONE:

Nominal Hazard Keep Out Zone (KOZ) – 5 ft

Worst Case Hazard KOZ – 64 ft

LASER COVERAGE:

Detailed Area and Quick View Scan Modes – 30 x 30 deg

Continuous Line Scan Mode – Variable 2 to 42 deg

LINEAR DETECTION ARRAY (LDA): 256-pixel linear array CCD w/13-bit intensity dynamic range

LCH WEIGHT: 24.5 lb

LCH DIMENSIONS: 11 in (L), 10 in (W), 5.6 in (H)

LCH PWR MODES/SOURCES:

OBSS State	Pwr	Source
Operational/RMS Grappled	124V	APCU2
MPM Berthed	28V	MNA and MNB (only LCH, IDC heaters in this mode)

HEATER PWR MODES/SOURCES:

Heater	Pwr	Source
124V Heater (RMS Grappled)	124V	APCU2 (A15 APCU2 CONV and OUTPUT sws)
28V Heater (MPM Berthed)	28V	MNA and MNB (Pnl A8 STBD HTRS A,B sws) (only LCH, IDC heaters in this mode)

LASER SCAN MODES:

Detailed Area – Two-directional scanning in rectangular pattern (used for "stop and stare" ops). Both X,Y mirrors used

Quick View – Low-resolution detailed area-scan mode

Continuous Line – One-directional scanning passes thru optical center of FOV (used for scanning ops). RMS provides scanning motion

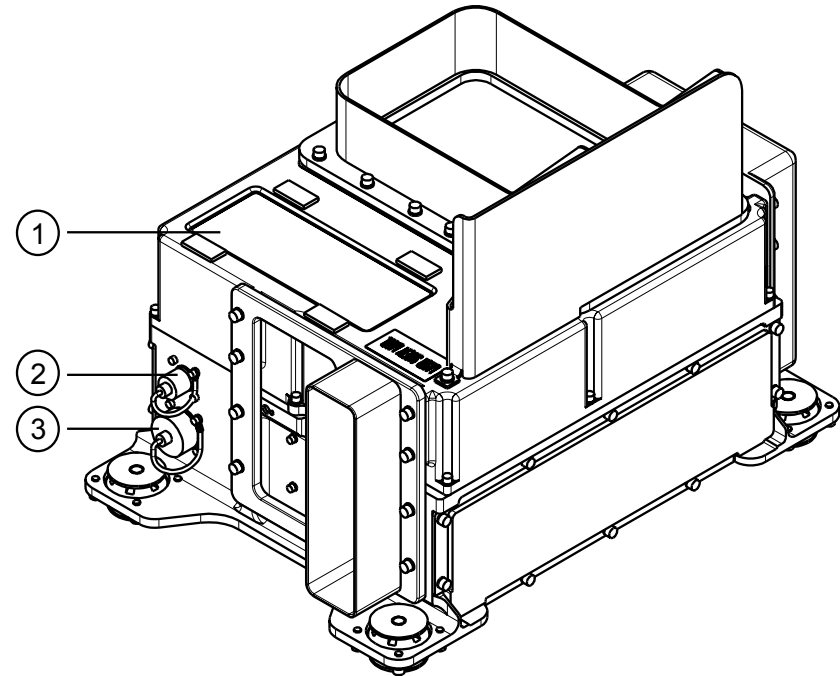
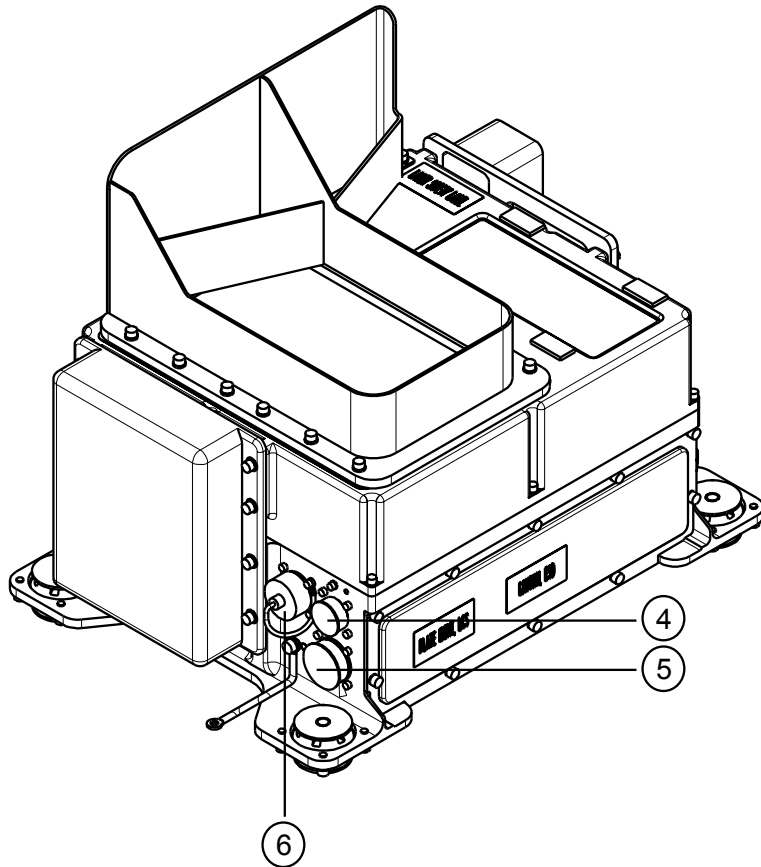
CREW CONTROL:

Hardware – LCC (Laser Camr Controller – A31p)

Software – LCC software shortcut (Shuttle Apps\IDC)

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

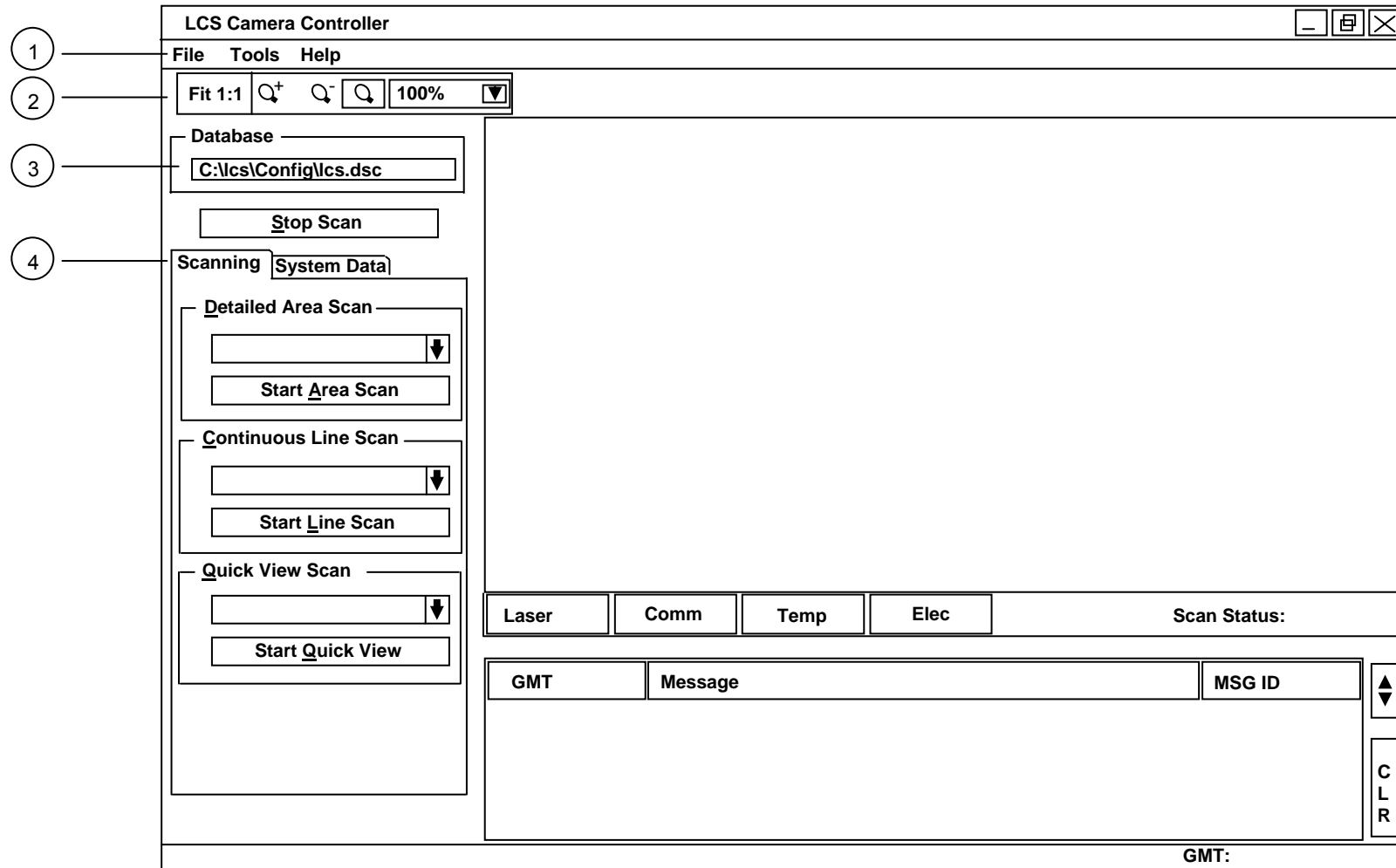
## LCS NOMENCLATURE



- ① Laser Orifice
- ② RS422 Connector (J4)
- ③ Test Connector (J3)
- ④ COMMS/DATA Connector (J2)
- ⑤ POWER Connector (J1)
- ⑥ Ethernet Peripheral Device Connector (J5)

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

## LCC SOFTWARE GUI





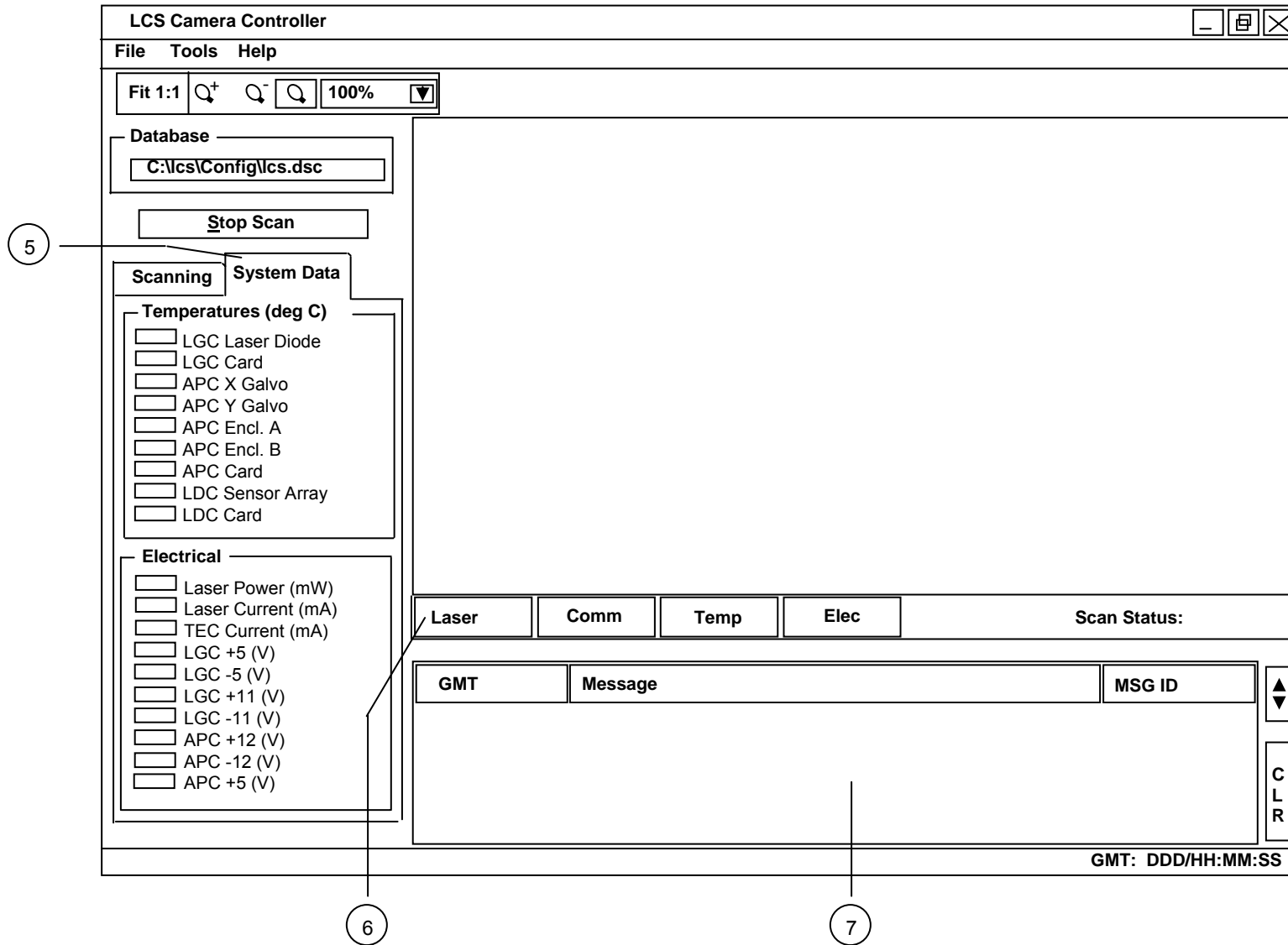
# LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM DIGITAL CAMR (IDC) (Continued)

## LCC SOFTWARE GUI (Continued)

①	Menu Bar [File, Tools, Help]			
	[File]	Open	Allows user to open and view previous scan bin files. If several open, they are shown in order under File menu	
		Close	Closes displayed scan bin file. Appears only when viewing previous scans. If several open, only currently selected file will be closed with this function	
		Close All	Closes all scan bin files. Appears only when viewing previous scans. If several open, all files will be closed. Multiple scans collected in series will reside in RAM until cleared with this feature. Good housekeeping feature to use between scan AOIs	
		Load Database	Allows user to change current database. When load database option selected, a window will appear and allow user to select another database. Only files w/.dsc extension selectable	
		Exit	See LCC SOFTWARE EXIT DIALOGUE BOXES, 21-18	
	[Tools]	Set GMT	Sets GMT clock on both LCC,LCH. When selected, window will appear allowing A31p time to be set. LCC time must be within 3 sec of onboard SM GPC. Once clock set, LCC A31p will update it's system clock every 5 min using LCH system clock if LCC GUI running	
		IDC Control	Not used. Allows user to pwr on(off) IDC. This task preferably done via IDC software	
		Zoom Toolbar	Allows Zoom Toolbar to be displayed under Menu Bar	
		Intensity Adjustments	Not currently selected(used). Invokes Intensity Adjustment window on GUI so user can adjust Gamma, Brightness, and Contrast of displayed scan image	
		Peak Status Highlight	Not currently selected(used). Invokes Peak Status window so user to select voxel status: Below Min Intensity, Above Max Intensity, Overflow, Underflow, Invalid Peak, No Peak, and Multiple Highlights	
	[Window] (Menu appears only when scan bin files being viewed)	Status Toobar	Allows Status Toolbar to be displayed below GUI. Contains only GMT	
		Cascade	Cascades all currently opened scan bin files	
		Tile Vertically	Will 'vertically tile' all opened scan bin files. User can scroll up,down with vertical,horizontal slide bars	
		Tile Horizontally	Will 'horizontally tile' all opened scan bin files. User can scroll up with vertical slide bar	
[Help]	Arrange Icons	If multiple windows open and minimized in display area, will align minimized files		
	About	Displays window w/software-specific information; i.e., version of release.		
Zoom Toolbar				
②	Fit 1:1	If displayed scan bin file has been zoomed in(out), button allows user to fit image to display area		
	Magnifier w/+ Sign	Zoom in button		
	Magnifier w/- Sign	Zoom out button		
	Magnifier in box	Allows user to select a box on display to zoom in on. Mouse arrow will change to magnifier. User will outline area w/two mouse clicks and view is fitted in display area		
	Zoom Percentage Menu	Allows user to zoom in(out) according percentage displayed. Selectable percentages: 25%, 50%, 75%, 100%, 150%, 200%, 300%, 400%, Fit to Window		
Database			Displays current database and its path. Default is "c:\lcs\config\lcs.doc"	
③	File			Displays name of current file being saved on LCC hard drive during scan. Will display last scan file name when no scan in progress
Scanning Page [Detailed Area Scan, Continuous Line Scan, Quick View Scan] (One of two pages which allows user to select scan from one of three drop-down menus and execute each type of scan)				
④	[Detailed Area Scan]	Detailed Area Scan	Drop-down menu allows user to select one out of a possible 30 detailed area scans	
		Start Area Scan	Executes detailed area scan selected from drop-down menu	
	[Continuous Line Scan]	Detailed Area Scan	Drop-down menu allows user to select one out of a possible 30 continuous line scans	
		Start Line Scan	Executes continuous line scan selected from drop-down menu	
	[Quick View Scan]	Detailed Area Scan	Drop-down menu allows user to select one out of a possible 10 quick-view scans	
		Start Quick View	Executes quick-view scan selected from drop-down menu	

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

## LCC SOFTWARE GUI (Continued)



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

## LCC SOFTWARE GUI (Concluded)

5	System Data Page [Temperature (degC), Electrical] (One of two pages. Gives user insight into various temp,elec values of components inside LCH. Values are software FDA'd according to limits set in current database. An out of allowable limit value is backlit in yellow and cause a msg to be displayed)	
	[Temperature]	Displays LCH component temp values in deg Celsius
	[Electrical]	Displays LCH component elec values. Values are milliWatts, milliamps, and Volts
6	Laser On/Off [Laser On, Laser Off, Laser ?] (Displays on,off status of Laser diode)	
	Laser On (Green)	Scan in progress. Backlit in green while laser diode on
	Laser Off (Blue)	Scan not in progress. Backlit in blue while laser diode off
	Laser ? (Gray)	No insight into LCH. Backlit in gray when no LCH to LCC Ethernet connectivity
	Comm	Light displays Ethernet communication state between LCC,LCH Green Light – Indicates good Ethernet connection Yellow Light – Indicates bad Ethernet connection
	Temp	
	Temp (Green/Yellow)	Light displays temp status of LCH components Green Light – Backlit in green when all LCH component temp values within ranges specified by current database Yellow Light – Backlit in yellow when one or more values out of limits
	Elec	
	Elec (Green/Yellow)	Light displays elec status of LCH components Green Light – Backlit in green when all elec values within ranges specified by current database Yellow Light – Backlit in yellow when one or more values out of limits
	Scan Status (Blank, Complete, Vertical Resolution)	
Blank	When LCS software launched and no scans have been executed	
Complete	Displays last scan line collected or Stop Scan button selected	
Vertical Resolution	While scan in progress, field displays vertical resolution of scan and current line being scanned; i.e., 211/512 means current line being scanned and recorded on LCC is 211 and vertical resolution is 512	
7	Message Area	
	GMT	Displays GMT of time tagged off-nominal message
	Message	Displays text description of error messages. Any messages displayed here are logged into system log
	MSG ID	Display unique six-digit number that cooresponds to error message that appears in message area
	CLR	Clears current error messages displayed in message area. Button will invoke a dialogue box asking user if he wants to clear message area
	GMT DDD/HH:MM:SS	Displays GMT based on A31p system clock. Once GMT set via Tools menu, LCC will sync up to time kept on LCH, which is accurate

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

## IDC SPECIFICATIONS

IDC DIMENSIONS: 6 in (L), 5 in (W), 2 in (D)

IDC ELECTRONIC COMPONENTS: Adimec-2000m/S and Pleora i-port PT1000-CL

IDC ELECTRONIC PWR: 12V conditioned pwr from LCH

HEATER PWR MODES/SOURCES:

OBSS State	Pwr	Source
RMS Grappled	124V	APCU2 (A15 APCU2 CONV and OUTPUT sws)
MPM Berthed	28V	MNA and MNB (Pnl A8 STBD HTRS A,B sws) (only heater pwr in this mode)

IMAGER MODEL: Adimec-2000m/S gray-scale imager

CCD: 1920 x 1080

CCD PIXEL SIZE: 7.4 microns (square pixels)

SPECTRAL RESPONSE:

350 nanometers (25%)

500 nanometers (42% Peak)

700 nanometers (20%)

FOCAL LENGTH: 50mm

DYNAMIC RANGE: 60dB

GAIN: 1X-8X

APERTURE: f/8

FOCUS DISTANCE: 6 ft 3 in

WORKING DISTANCE: 5 ft

Target Resolution at 5 ft: 113 pixels/in

Horizontal Coverage at 5 ft: 17 in

Vertical Coverage at 5 ft: 10 in

INTERFACE: 10Base2 half duplex

CREW CONTROL:

Hardware – LCC (Laser Camr Controller – A31p)

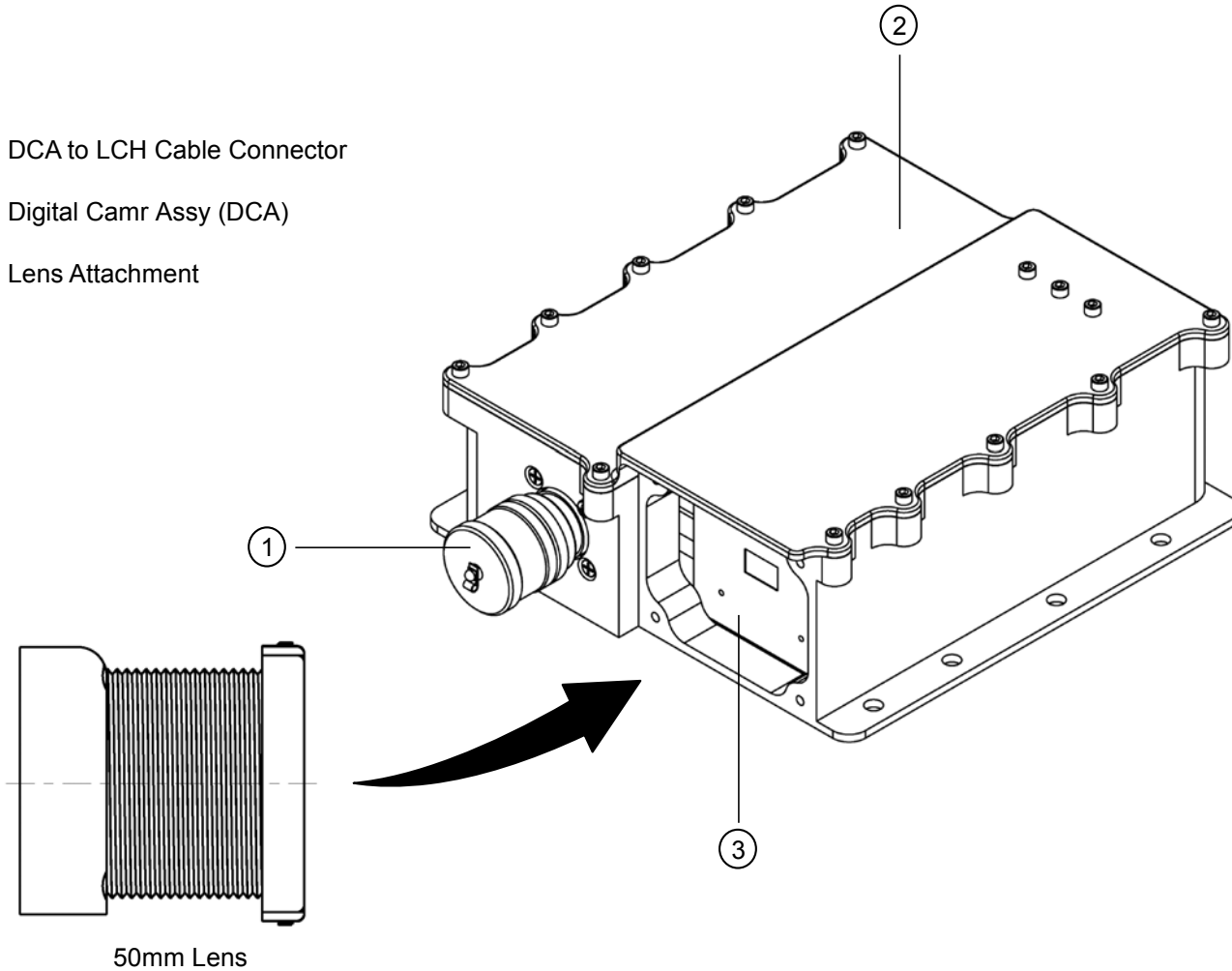
Software – LCC software shortcut (Shuttle Apps\IDC)

IMAGE FORMAT: 16-bit tif

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

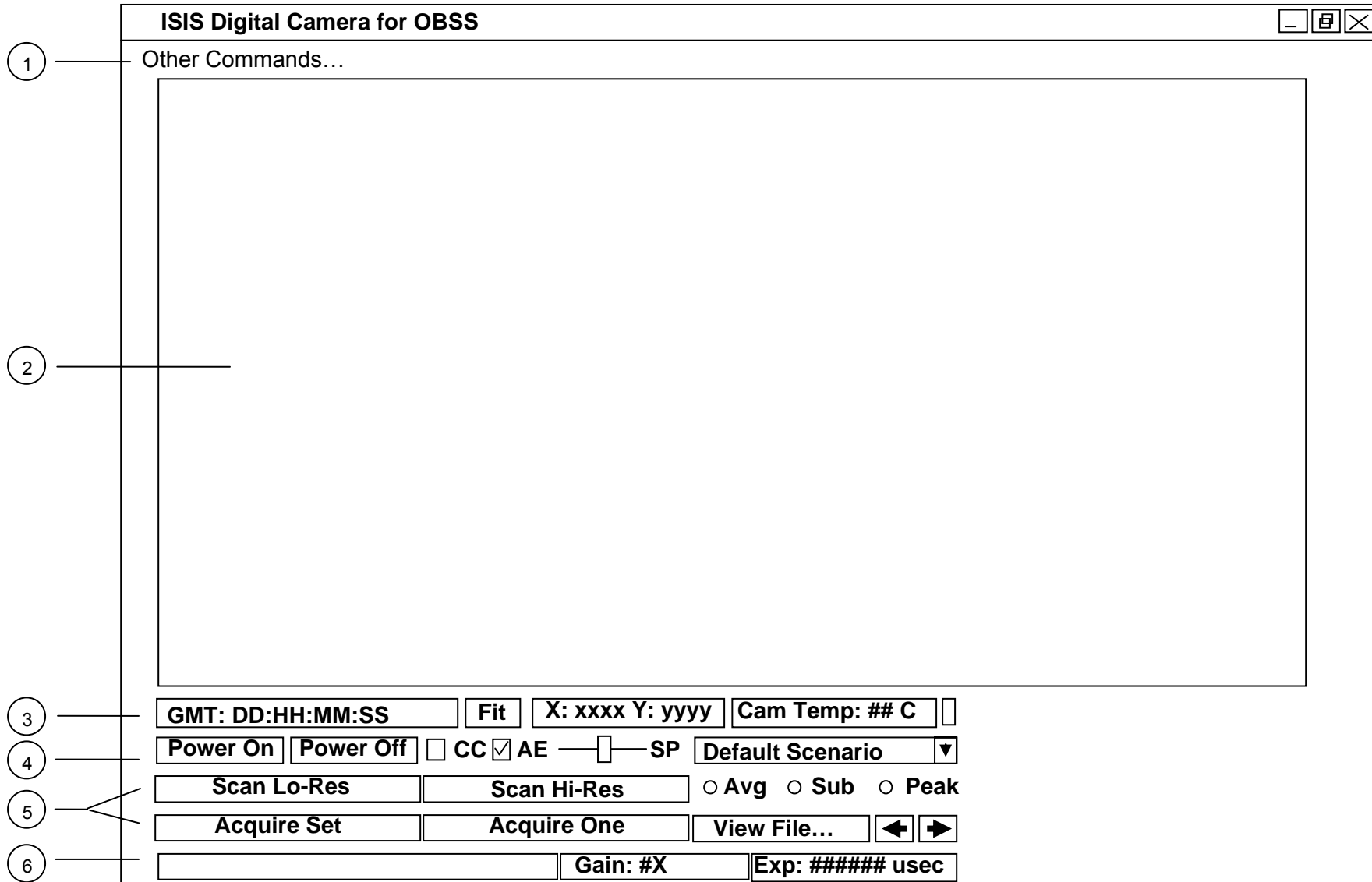
## IDC NOMENCLATURE

- ① DCA to LCH Cable Connector
- ② Digital Camr Assy (DCA)
- ③ Lens Attachment



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

## IDC SOFTWARE GUI



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

## IDC SOFTWARE GUI (Continued)

1	Other Commands (Pulldown menu provides other commands w/hot keys)	
	Advanced Command	Brings up an Advanced Settings dialog box in which user may apply or see specific setting for individual image acquisition options. See pg 21-12
	[F2]	Brings up "Add Notation" box for adding text to tiff. This text will be added to all tiffs; so, clear it if added to text box
	[F5]	Toggle Summary View
	[F6]	Toggle Image Mode
	[F7]	Zoom In
	[F8]	Zoom Out
	[F9]	Reset Brightness and Contrast
	[F10]	Reset Auto Exposure Aperture to Default
	[F11]	Toggle Auto Exposure Aperture Visibility
	[F12]	Find Auto Exposure Aperture
	2	Display Area
3	Status Bar 1	
	GMT	Displays current time
	Zoom Level	Fit, 1X, 2X, 4X, 8X
	Mouse Position	Shows "X,Y" positions of mouse
	Camr Temperature	Temperature of Camr in Celsius
	Comm Status Light	Blinking green light when in nominal case; static while imaging
4	Power On/Off, Auto Exposure (AE), Color Coded (CC), Scenario File Drop List/Brightness and Contrast Controls]	
	[Power On]/[Power Off]	Buttons control the pwr to the IDC
	[CC]	Allows user to color code the over and under exposed areas of image
	[AE]	Allows selection of auto-exposure capability
	AE Setpoint Slide Bar	Allows user to set starting exposure for AE algorithm. Bar can be used when Avg, Sub, and Peak algorithms selected
	Scenario File Drop List	Drop down list allows user to select Gain and Exposure settings for all image acquisition buttons that depend upon light scenario
	Brightness and Contrast	When user switches into "Image Mode", scenario drop down list turns into "Brightness and Contrast" controls, allowing user to manipulate viewable image Note: Brightness and Contrast has no control over Camr brightness or contrast
5	Image Command Area	
	Image Acquisition Buttons	(Each button may be accessed during another operation to switch acquisition types quickly. Allows user to set scene with "Scan Lo-Res" and then immediately select "Scan Hi-Res", "Acquire Set" or "Acquire One" as needed without extra action
	Scan Lo-Res	Image(s) not saved to disk. Displays decimated Camr view. Used to set software exposure and situational awareness
	Scan Hi-Res	Continuously saves full images to disk
	Acquire Set	Image(s) saved to disk. Acquires bracket set of images
	Acquire One	Image saved to disk. Acquires one image with no exposure control from AE
	Avg	Selects averaging AE algorithm. Exposes based on pixels inside box
	Sub	Selects sub image AE algorithm. Takes two images
Peak	Selects peak AE algorithm. Exposes based on brightest pixels in box	
View and Save Files	Allows user to select a file from a directory to view or (when holding "CTRL" key while clicking on "Save File To..." button) select a directory indicating where subsequent images will be saved. Green arrows allow user to quickly browse thru images alphabetically	
6	Status Bar 2	Contains status of current operation, gain and exposure settings for image being displayed, Status Bar Error Advisory, Status Error Strings, and Normal Operation Strings

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

## IDC SOFTWARE GUI (Continued)

**Advanced Settings**

**Acquire One**

Exposure ##### usec

Gain #X

**Acquire Set**

Select Image: #

Exposure ##### usec

Gain #X

or Fraction X

**Scan**

Select Type:

Lo-Res

Hi-Res

Exposure ##### usec

Gain #X

Decimation ##

Period X msec

Do Self Test

Black Level ##

Cancel Reset to Defaults Accept



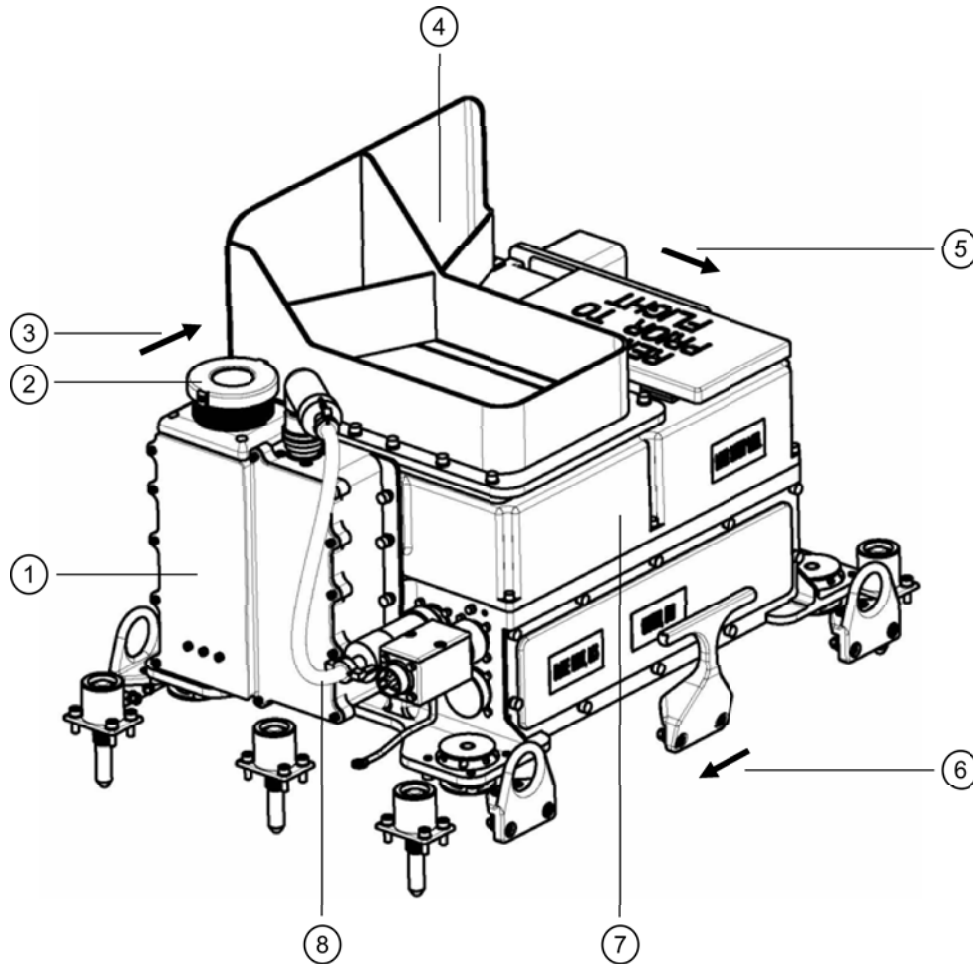
## LASER CAMR SYSTEM (LCS)/INTEGRATED SENSOR INSPECTION SYSTEM DIGITAL CAMR (IDC) (Continued)

### IDC SOFTWARE GUI (Concluded)

8	"Acquire One" Settings (Allows user to set exposure and gain settings for "Acquire One" cmd which acquires a single image from Camr)	
	[Exposure]	User may set exposure from 25 usec to 80025 usec
	[Gain]	User may set Gain from 1X to 8X
9	"Acquire Set" Settings (user to set exposure and gain settings for "Acquire Set" cmd. Each image acquired in set can have a different setting for exposure and gain. [Display] checkbox will determine if image is to be displayed when acquired)	
	[Select Image]	As a default, user may select up to 7 images
	[Exposure]	User may set exposure from 25 usec to 80025 usec
	[Gain]	User may set Gain from 1X to 8X
	[or Fraction]	Shows denominator value for exposure value. A "1" is assumed for the numerator
10	"Scan" Settings (Allows user to exposure, gain, and decimation settings for low/high resolution continuous scans)	
	[Lo-Res]/[Hi-Res] Buttons	User selects which scan to set attributes to: Lo-Res – Scans are displayed only and not saved to disk Hi-Res – Scans are displayed and saved to disk
	[Exposure]	User may set exposure from 25 usec to 80025 usec
	[Gain]	User may set Gain from 1X to 8X
	[Decimation]	User may select a decimation level between 1-16. When decimation is a high number, time for image to be displayed on screen is faster due to smaller size and lower quality of image
	[Period]	Sets scan period. Allows user to throttle rate of image/file creation for some scan scenarios
11	"Do Self Test" Command	Queries IDC for an image test pattern which is then displayed on main display window. Test image is also stored to disk
	"Black Level" Input Box	Sets Camr's "Black Level" threshold for all acquired images. Can be set from 0 to 4095
	"Reset to Defaults" Command	Restores application defaults applied at startup to all settings. Holding CTRL and pressing "Reset to Defaults" will restore project defaults established in DCCS.ini file

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

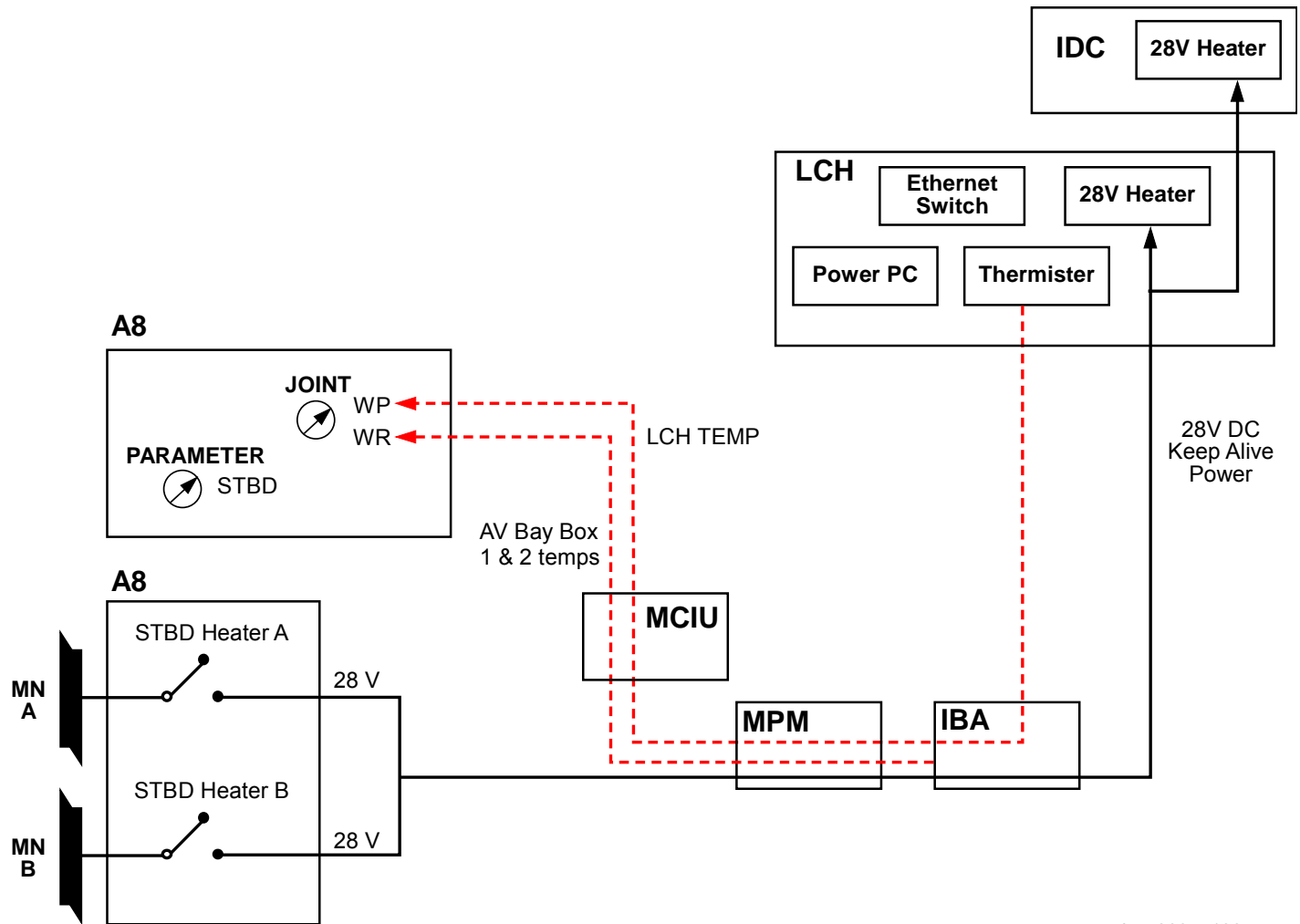
## LCS/IDC COMBINED NOMENCLATURE



- ① ISIS Digital Camr (IDC)
- ② 50mm Lens
- ③ Top View (from IDC perspective)
- ④ LCH Radiator
- ⑤ Top View (from LCH scan perspective)
- ⑥ Towards OBSS Grapple Fixtures
- ⑦ Laser Camr Head (LCH)
- ⑧ Laser Camr Head (LCH) to Digital Camr Assy (ECA) Cable

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

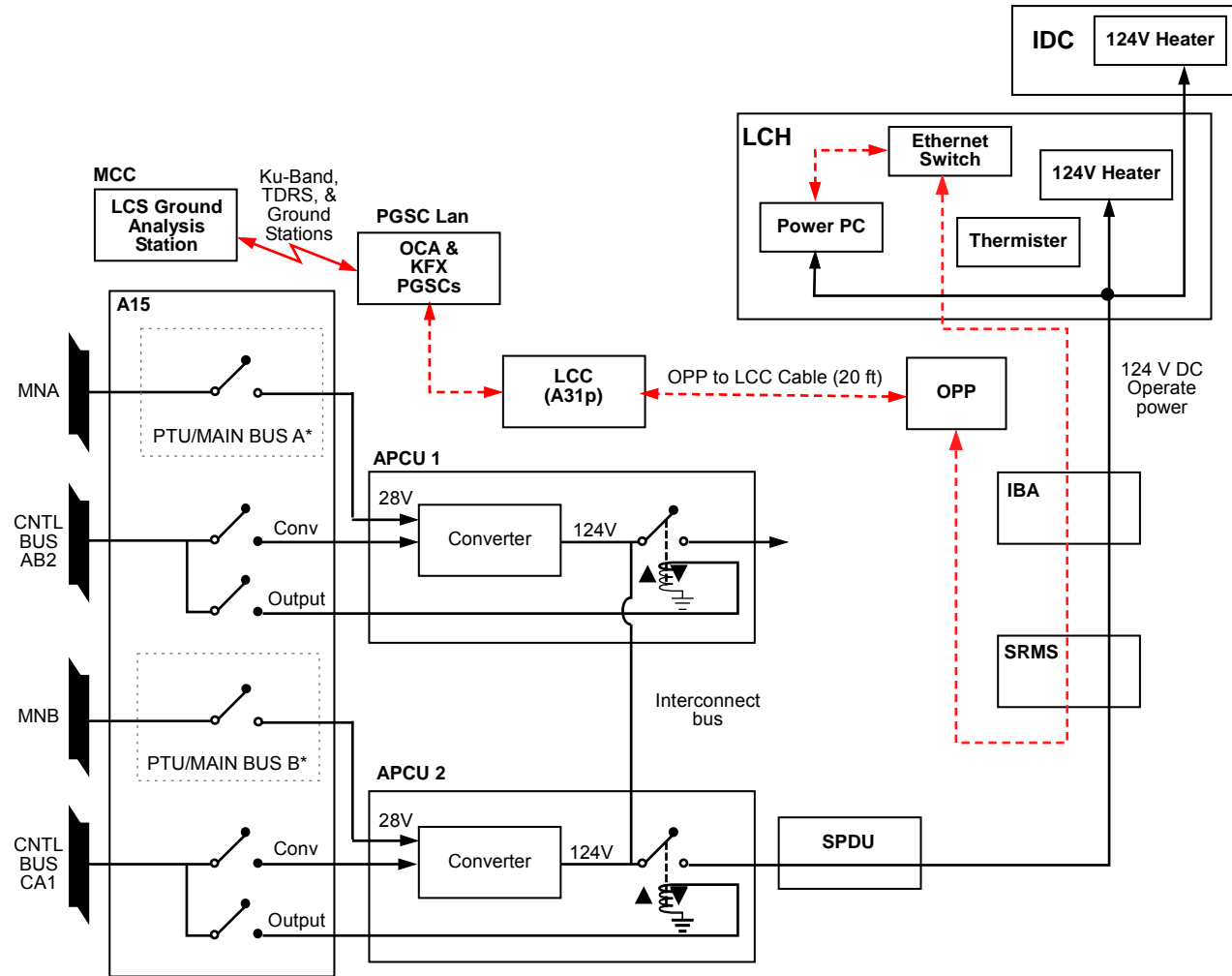
## LCS/IDC KEEP ALIVE PWR AND DATA INTERFACES (Berthed on MPMs)



jsc48037\_138r3.cvx

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

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

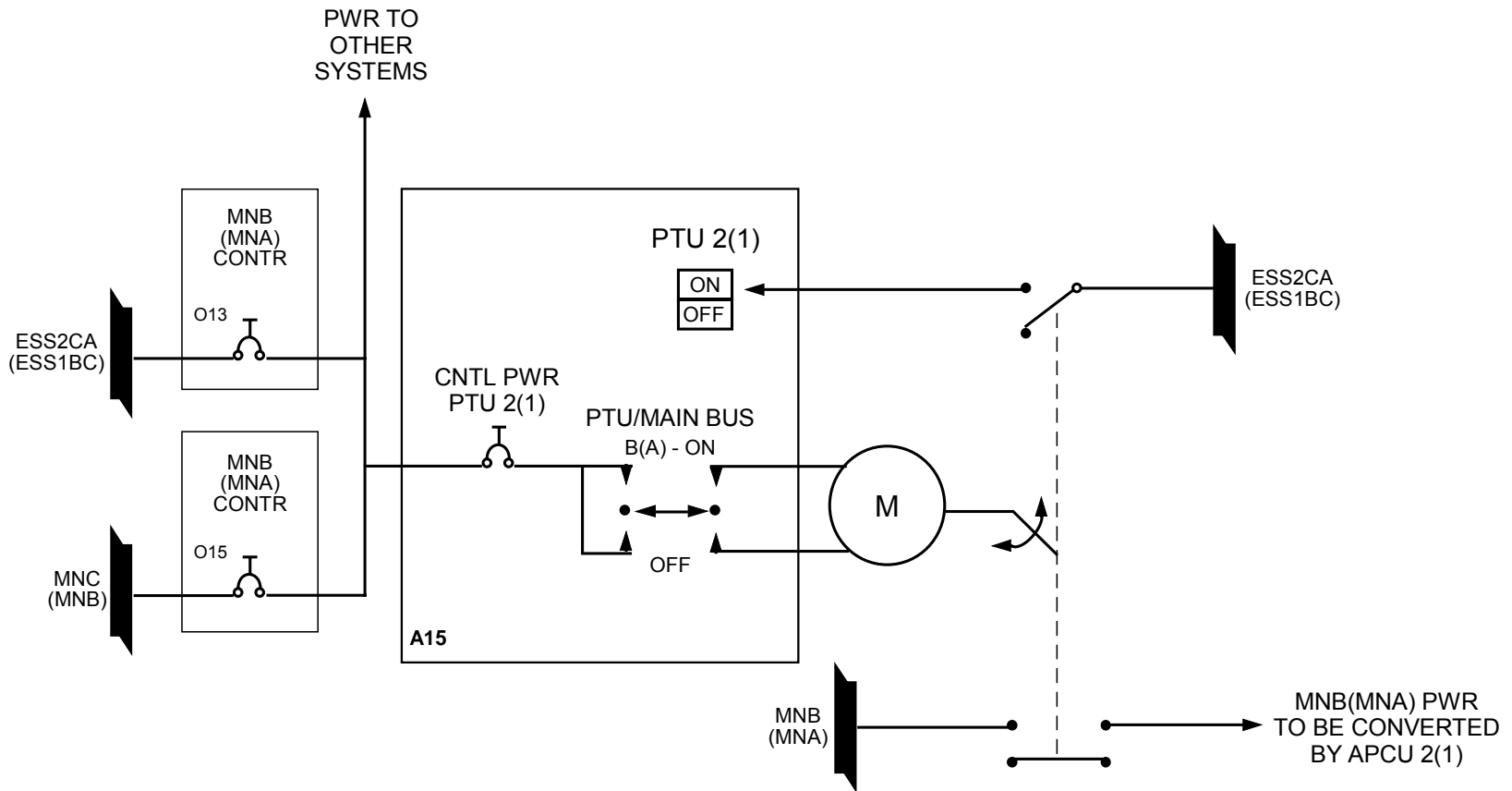


\*See PTU 2/MAIN BUS B(PTU 1/MAIN BUS A) for detailed system dwg

jsc48037\_SSPTS\_134cr2.cvx

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

## PTU 2/MAIN BUS B(PTU 1/MAIN BUS A) SYSTEM DETAILS



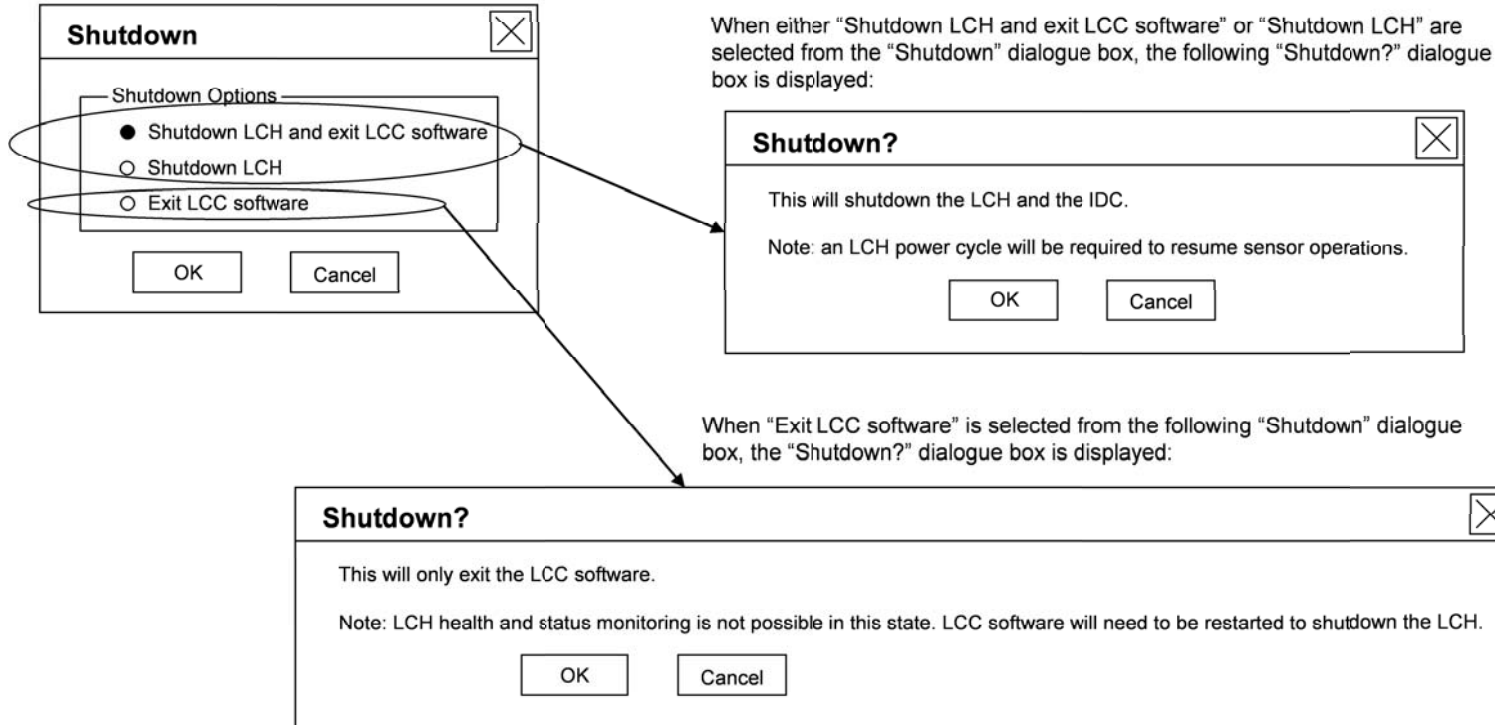
isc48037 PTU 134dr1.cvx

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

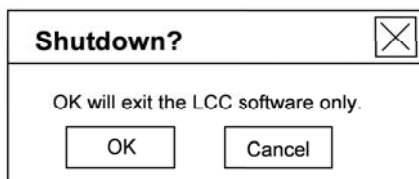
## LCC SOFTWARE EXIT DIALOGUE BOXES

### LCC Software Exit Dialogue Boxes

**Case 1** : Selecting "File" and choosing "Exit" with a green Comm light.



**Case 2** : Selecting "File" and choosing "Exit" with a yellow Comm light



jsc48037\_115\_001.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<br>AVIU | 1. ✓Video destination properly configured per LCC ACTIVATION, step 1 (Cue Card, <u>LCS</u> ) and pwr'd<br>✓TV PWR – ON<br>✓HI-Z/75 – 75   |
| CC            | ✓PWR SELECT – LO<br>PWR – OFF   |
| A31p          | 2. <u>Desktop</u><br>Right click<br>Sel 'Properties'  |
|               | 3. <u>'Display Properties' Dialog Box</u><br>Sel 'Settings'<br>✓Screen Area – 1024 x 768<br>If not 1024 x 768:<br>Move Screen Area sidebar to 1024 x 768<br>Sel 'Apply'<br>When second 'Display Properties' dialog box opens:<br>Sel 'OK'<br>When 'Monitor Settings' dialog box opens:<br>Sel 'Yes' |
|               | 4. <u>'Display Properties' Dialog Box</u><br>Sel 'Advanced'   |
|               | 5. <u>'(Multiple Monitors) and ATI MOBILITY FIRE GL 7800 Properties' Dialog Box</u><br>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 21-1 cases' circled areas and perform matching case steps below:

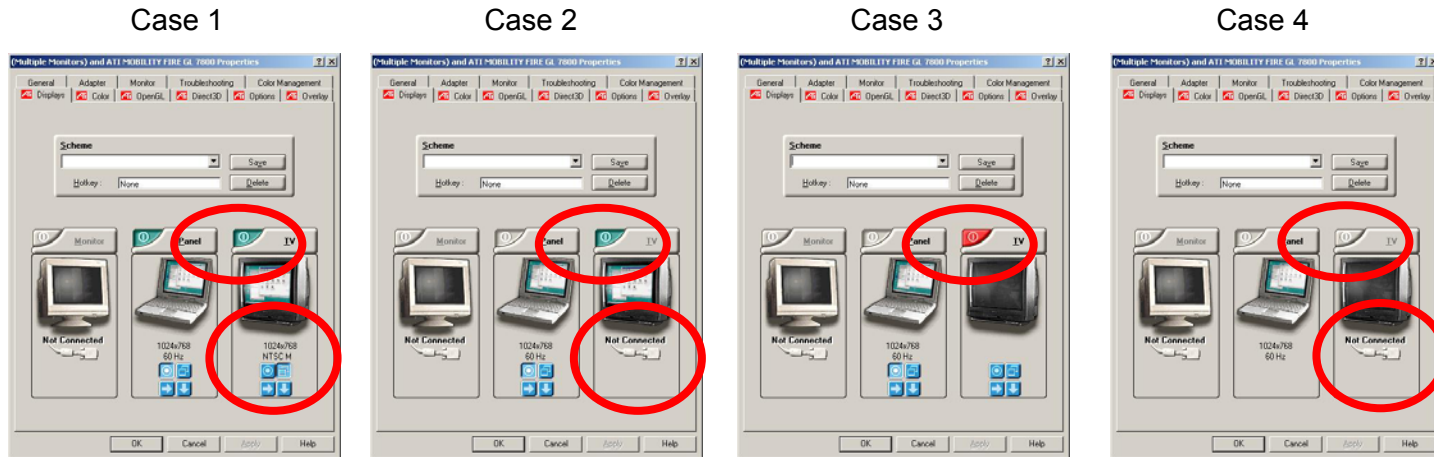


Figure 21-1.- Multiple monitors and ATI mobility fire GL 7800 display tab.

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) (Continued)

## 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'

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

### RECONFIGURATION OF A31p SCREEN RESOLUTION

#### NOTE

Following steps will disable auto reconfiguration that automatically ships video. Capture Card will need to be manually configured using MANUAL A31p USING DESKTOP DNLK SETUP procedure, 21-19 for desktop dnlk ops

- A31p
1. Desktop  
Right click  
Sel 'Properties'
  2. 'Display Properties' Dialog Box  
Sel 'Settings'  
Sel 'Advanced'
  3. '(Multiple Monitors) and ATI MOBILITY FIRE GL 7800 Properties' Dialog Box  
Sel 'Displays'
  4.  $\sqrt$ TV display tab  
If Red(Gray) tab:  
| Go to step 5  
If Green tab:  
Click Green tab. Tab automatically turns red after selection (see fig 21-1)  
Sel 'Apply'
  5. 'ATI Property Page' Dialog Box  
Sel 'Yes'
  6. '(Multiple Monitors) and ATI MOBILITY FIRE GL 7800 Properties' Dialog Box  
Sel 'OK'
  7. 'Display Properties' Dialog Box  
Sel 'OK'
  8. Desktop  
Right Click  
Sel 'Properties'

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

### RECONFIGURATION OF A31p SCREEN RESOLUTION (Concluded)

9. 'Display Properties' Dialog Box
  - Sel 'Settings'
  - Move Screen Area slidebar to 1600 x 1200
  - √Colors – True Color (32 bit)
  - If not, sel True Color (32 bit) from drop down menu
  - Sel 'Apply'
  - When 'Display Properties' dialog box opens:
    - Sel 'OK'
  - When 'Monitor Settings' dialog box opens:
    - Sel 'Yes' (within 15 sec)
    - If 15 sec window missed:
      - Repeat step 9
  - When 'Display Properties' dialog box opens:
    - Sel 'OK'

This Page Intentionally Blank

BATTS & FUSES

	<u>PAGE</u>
DCS BATT CHARGING.....	22-2
CC BATT CHARGING .....	22-3
BATT/FUSE REFERENCE.....	22-4

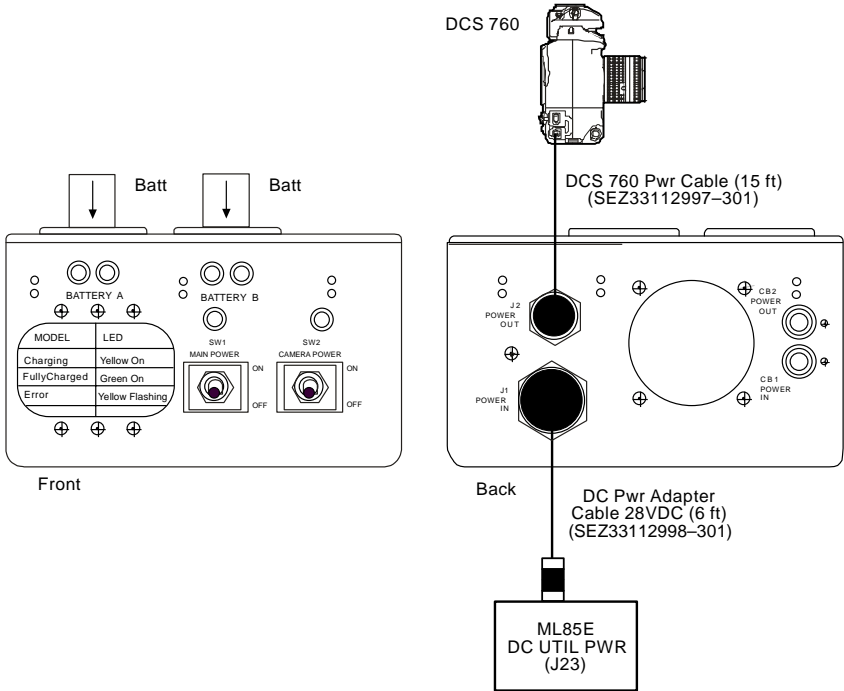
BATTS & FUSES

DCS BATT CHARGING

- 1. Config H/W per dwg below (DCS 760 Pwr Cable reqd for direct Camr pwr)
- ML85E 2. ✓cb DC 10 AMP MNB CB5 – cl  
✓DC 10 AMP MNB S5 – ON
- Batt Chgr 3. ✓cb PWR IN (CB1) – cl
- 4. MAIN PWR – ON (LED on)
- 5. If Direct Camr Pwr:  
✓cb PWR OUT (CB2) – cl  
CAMERA PWR – ON (LED on)
- 6. Insert Batt(s),check charger LEDs for charge status (~2hr)

**NOTE**

Green lt (≈45 min) = 80% charge. For full charge, leave batts for additional 2 hr. OK to leave batts in charger longer



isc48037\_092r3.cvx

## BATTS & FUSES (Continued)

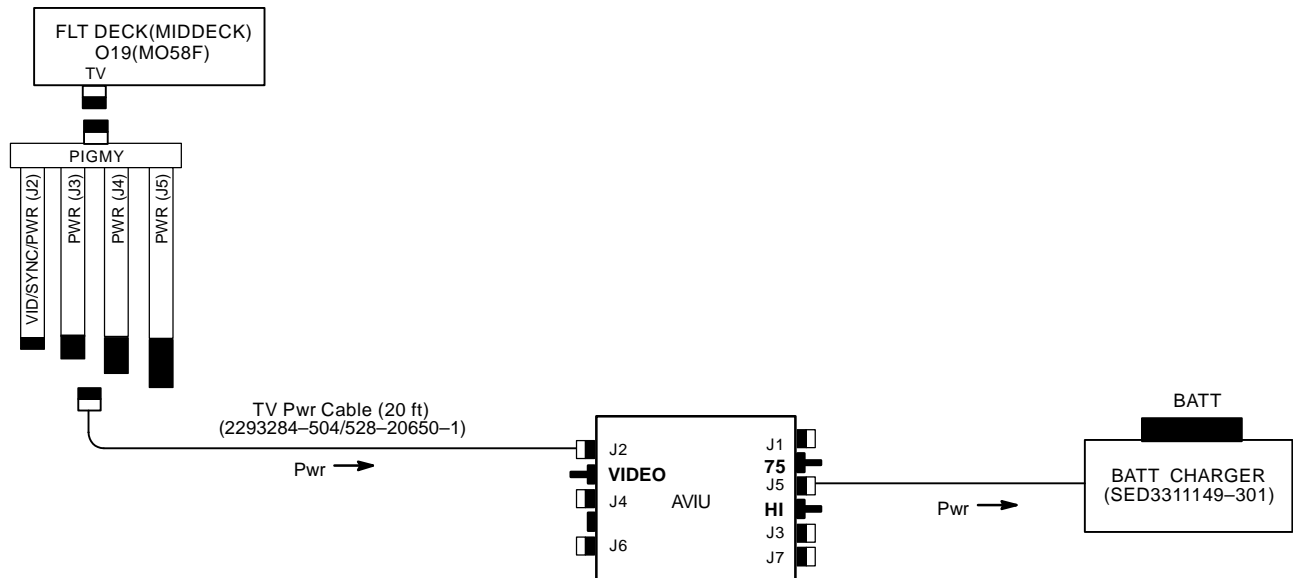
### CC BATT CHARGING

1. Config H/W per dwg below
- AVIU
2. SYNC/VIDEO – VIDEO  
HI-Z/75 – 75  
PWR SELECT – HI

#### NOTE

When batt charger not in use, remove pwr

- O19  
(MO58F)
3. √TV PWR – ON
  4. Insert Batt in charger. Check charger LED for charge status (~2 hr)



jsc48037\_093.cnv

## BATTS & FUSES (Concluded)

### BATT/FUSE REFERENCE

ITEM	BATTERY	SAME AS:	FUSE	SAME AS:
AVIU	NONE	N/A	2A	NONE
BINOCULARS – 14 X40 GYRO – 10 X40 GYRO	AA (6)	CC Remote LCD MONITOR NIKON FLASH	NONE	N/A
BPSMU	18V (two 9V)	NONE	NONE	N/A
CAMCORDER – PD100	Li-ION	RECORDER – V10	NONE	N/A
CC Batt Charger	N/A	N/A	3A	
CC Remote	AA(2)	GYRO BINOCULARS LCD MONITOR NIKON FLASH	NONE	N/A
DCS 760	NiMH (RECHARGEABLE)	NONE	N/A	N/A
DCS Batt Charger	N/A	N/A	CB	N/A
LAVALIER MIC	76 (1)	NONE	NONE	NONE
LCD MONITOR	AA (6)	CC Remote GYRO BINOCULARS NIKON FLASH	NONE	N/A
NIKON FLASH	AA (4)	CC Remote GYRO BINOCULARS LCD MONITOR	NONE	N/A
PHOTOFLOOD	NONE	N/A	1.7A	NONE
RECORDER – V10	Li-ION	CAMCORDER – PD100	NONE	N/A
SEQUENTIAL STILL VIDEO ENCODER	N/A	N/A	2A	NONE
IFM FUSE KIT				
INSTRUMENT FUSES		BUS FUSES (1/4 X 1-1/4)		
1/2 A(2)	5A (5)	1/4A (2)	3A (2)	
1A (5)	7.5A (2)	1/2A (2)	5A (5)	
2A (2)	10A (2)	1A (2)	7.5A (2)	
3A (5)		2A (2)	10A (2)	



CUE CARD CONFIGURATION

	<u>PAGE</u>
TV .....	CC 23-3
PLAYBACK.....	CC 23-5
ET PHOTO .....	CC 23-7
MEDIA ALLOCATIONS .....	CC 23-8
WVS.....	CC 23-10
PLBD VTR RECORDING .....	CC 23-12
LDRI/ITVC .....	CC 23-14
LCS.....	CC 23-16
IDC.....	CC 23-18
VIDEO SETUP.....	CC 23-20
DOCK/UNDOCK (Back of VIDEO SETUP).....	CC 23-21
SPACEHAB BPSMU AUDIO ONLY .....	CC 23-22
DOCKED OPS .....	CC 23-24
EVA (Back of DOCKED OPS) .....	CC 23-25
LDRI/ITVC A17 PLACARD .....	CC 23-26
SPACEHAB VIDEO DNLK .....	CC 23-27

## CUE CARDS

This Page Intentionally Blank

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/VTR/CC PWR – on (LED on)  
 (MUX) 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 ON/STANDBY pb – push (red LED on)  
 (VTR) PWR – off (LED off)  
 (VIP) MUX/VTR/CC PWR – off (LED off)  
 (MUX) 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/118/O/A

(reduced copy)

CC 23-3

P/TV/118/FIN

TOP  
BACK OF 'TV'

HOOK  
VELCRO

**Illuminator Ops**

**Illuminator ON**

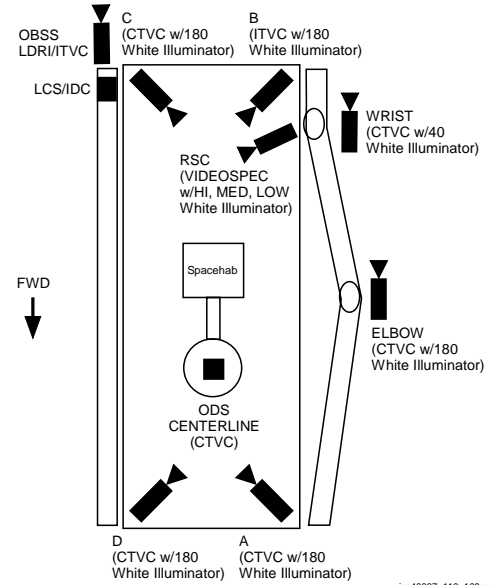
```

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\_116\_109.cvx

P/TV-1b/118/O/A

(reduced copy)

CC 23-4

P/TV/118/FIN

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:  
 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

If audio reqd:  
 (VIP) PWR – on (LED on, DATA FLOW LED flashes twice)  
 ATU – PBK/KEY MIC (Amber LED on)  
 CCU If MHA, COMM PWR – ON  
 ATU PWR – AUD  
 Desired Loops – T/R  
 Other Loops – OFF  
 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  
 REW(FF),PLAY,PAUSE pb – push as reqd to cue tape

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

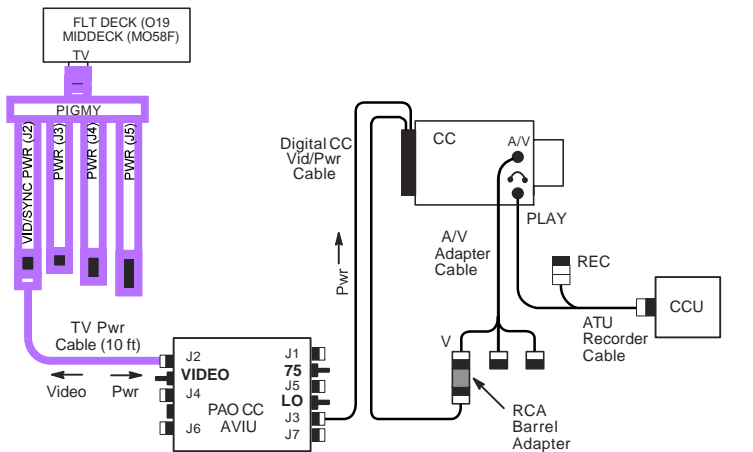
**DEACTIVATION**

L10 (VTR) Remove, mark, stow tape as reqd  
 ON/STANDBY pb – push (red LED on)  
 (MUX) MUX/VTR/CC PWR – off (LED off)  
 VTR/CC PWR – OFF (LED off)  
 Go to DEACTIVATION (Cue Card, TV) as reqd

TOP  
BACK OF 'PLAYBACK'

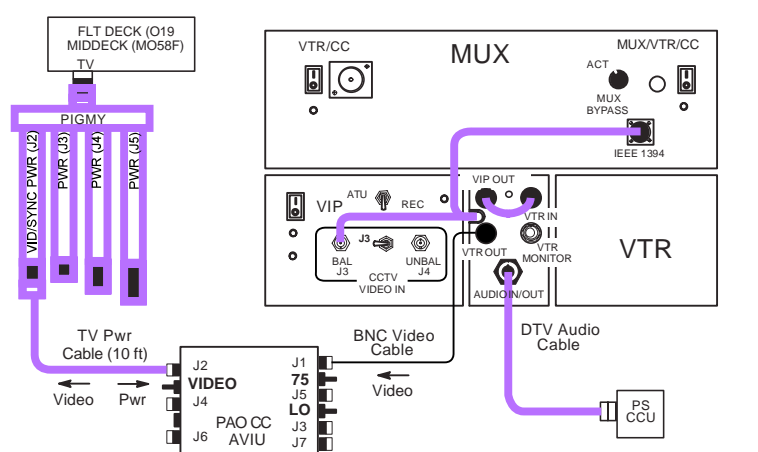
HOOK  
VELCRO

**ANALOG PLAYBACK**



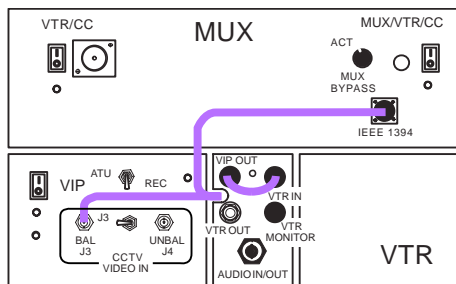
jsc48037\_118\_110ar1.cvx

**VTR VIA ANALOG PLAYBACK**



jsc48037\_118\_110br1.cvx

**DIGITAL PLAYBACK**



jsc48037\_118\_110cr1.cvx

P/TV-2b/118/O/B

(reduced copy)

CC 23-6

P/TV/118/FIN

TOP

HOOK  
VELCRO

**ET PHOTO**

DCS 760 DCS 760

LENS SETTINGS

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

CAMR SETTINGS

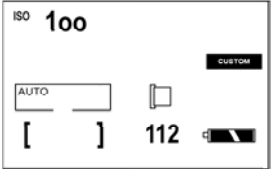
PWR – ON  
REAR LCD

- √BATT ICON FULL
- √ISO – 100

TOP LCD

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

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



LOCK LOCK

1000 F8

M [ ]

CRITICAL FOCUS REQD EACH FRAME

TOP  
BACK OF 'ET PHOTO'

HOOK  
VELCRO

**ET PHOTO**

PD100 PD100

LENS CAP – REMOVE, SECURE

MODE – CAMERA

OPEN LCD

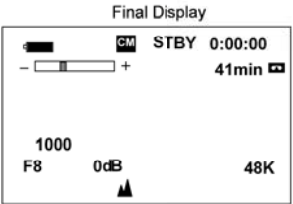
- √STBY
- √1000
- √F8
- √▲ (FOCUS – INFINITY)

√AUTO LOCK – HOLD

ZOOM – WIDE TO FIND TANK, THEN TIGHT

START RECORDING

√LCD DISPLAYS REC



P/TV-3a/118/O/A

P/TV-3b/118/O/A





TOP  
BACK OF 'MEDIA ALLOCATIONS'

HOOK  
VELCRO



(reduced copy)

CC 23-9

P/TV-4b/118/O/A



P/TV/118/FIN

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

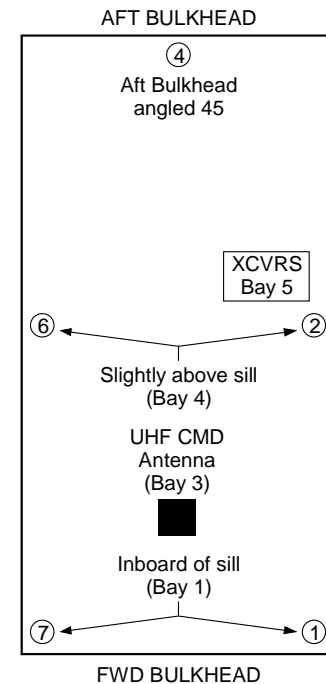
If still no joy:  
For XCVR with good video:  
Sel RF Camr – reselect original EVA crewmember  
For XCVR w/video problem: Antenna – Manual  
Sel desired antenna

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**



jsc48037\_118\_031.cvx

P/TV-5a/118/O/B

(reduced copy)

CC 23-10

P/TV/118/FIN

HOOK  
VELCRO

HOOK  
VELCRO

### ALERT MSG TROUBLESHOOTING

#### STATIC XCVR

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

- PGSC 1. √Cable connections between WIB and PGSC
- A7 2. WIRELESS VID PWR – OFF, wait 10 sec, ON
- If no joy:
- PGSC 3. Sel 'Start' > 'Shut Down' > 'Restart' > 'OK'  
When reboot complete:  
Sel Shuttle Apps icon > WVS icon  
Sel 'Yes' at 'Restore To Previous Settings' window  
RF Camera page will appear
- If still no joy:
- 4. √MCC

#### STATIC RF CAMERA

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

- EMU 1. √EMU TV Pwr pb pushed (green LED)
- If no joy:
- PGSC 2. √Correct RF Camera selected via pulldown menu  
√RF Camera (two) – ON (green "ON")  
If not ON:  
RF Camera (of static EMU TV) – sel "None" via pulldown menu, then sel original EMU TV
- If still no joy:
- 3. RF Camera 1(2) – sel 'None'  
Perform CAMR ID ASSIGNMENT  
Reattempt RF Camr selections
- If still no joy:
- 4. √CMD PWR:LVL - green "ON:Min" for XCVR 1(2)  
If not ON,  
Select Page – XCVR  
Transceiver 1(2) CMD Power – On  
(green CMD PWR:LVL - "ON:Min")
- 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/118/O/A

(reduced copy)

TOP

HOOK  
VELCRO

**PLBD VTR RECORDING**

- L10      √VIP,VTR covers removed
- R1        √PL AUX – ON
- MA73C:E    cb AC2 PL3Φ – cl
- √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/118/O/B

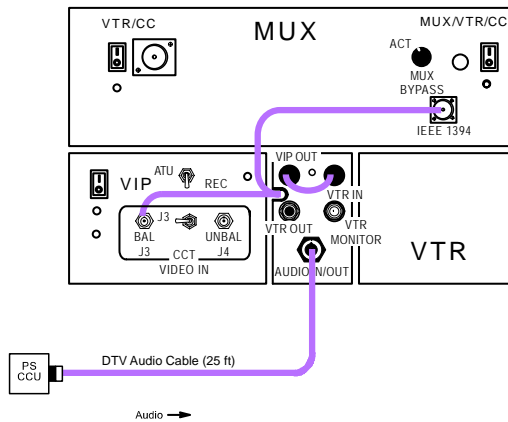
(reduced copy)

CC 23-12

P/TV/118/FIN

TOP  
BACK OF 'PLBD VTR RECORDING'

HOOK  
VELCRO



jsc48037\_118\_020r1.cvx

P/TV-6b/118/O/B

(reduced copy)

CC 23-13

P/TV/118/FIN

HOOK  
VELCRO

## LDRI/ITVC

HOOK  
VELCRO

## ACTIVATION

- Config CCTV Sys
  - A7           √ACTIVATION (Cue Card, TV) performed
  - L10 (MUX)   √MUX/VTR/CC PWR – on (LED on)
  - √Cabling from VTR 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
- 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)
- 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
  - R12 (OBSS)   If MAN GAIN pb not illuminated:
  - 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
- A7           To adjust brightness:  
                  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/118/O/B

(reduced copy)

CC 23-14

P/TV/118/FIN

TOP  
BACK OF 'LDRI/ITVC'

HOOK  
VELCRO

HOOK  
VELCRO

**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
- A7 VID OUT MON 1(2) pb – push
- IN PL 3(WVS) pb – push
- MON 1(2) √RSC video displayed

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 video w/illum displayed

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

**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

P/TV-7b/118/O/C

(reduced copy)

CC 23-15

P/TV/118/FIN

HOOK  
VELCRO

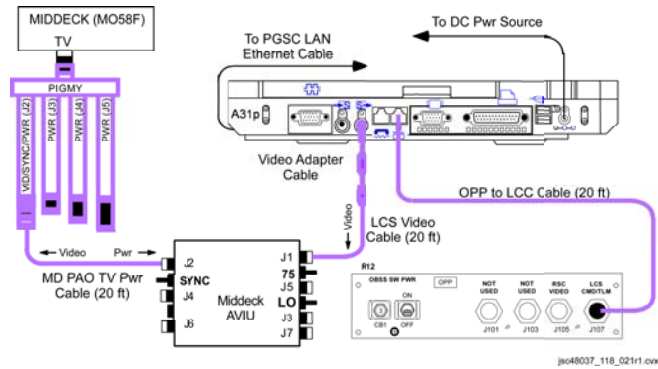
**LCH ACTIVATION**

- √MCC for possible LCS keep-out zone violation prior to performing steps below
- Activate SSPTS APCU 2**
- A15 √PTU 2 tb – on
- APCU 2 OUTPUT – ON
- CONV – ON

- SM 179 POWER TRANSFER**
- √PTU 2 APCU OUT VOLT: 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
- A31p √Screen Area – 1024x768
- (Right click on desktop > Properties > Settings > 1024x768 > Apply > OK > Yes)

(For SSPTS APCU 2 flights only)

TOP

LCS

HOOK  
VELCRO

- 3. Verify LCC Desktop Video (Concluded)
- A31p √TV VID OUT PORT ENA – green
- (Right click on desktop > Properties > Settings > Advanced > Displays > TV Tab Green > OK > Yes)
- 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/118/O/D

(reduced copy)



HOOK  
VELCRO

HOOK  
VELCRO

### 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

Go to RECONFIGURATION OF A31p SCREEN RESOLUTION (LCS/IDC)

### LCH DEACTIVATION

**CAUTION**

Deactivating SSPTS APCU 2 will remove critical keep-alive pwr to LCH and IDC

1. Deactivate SSPTS APCU 2/LCH

- A15 APCU 2 CONV – OFF

SM 179 POWER TRANSFER  
√PTU 2 APCU OUT VOLT: <10V

APCU 2 OUTPUT – OFF

(For SSPTS APCU 2 flights only)

### 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 2 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 2 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  
PGSC Pwr – OFF

- A15 APCU 2 CONV – OFF, then ON

SM 179 POWER TRANSFER

√PTU 2 APCU OUT VOLTS: 123V to 126V

- A31p PGSC Pwr – ON  
√A31p internal RJ45 Network Interface Card LED green  
Perform LCC ACTIVATION, step 2

Message Area Entry

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

P/TV-8b/118/O/C

(reduced copy)

CC 23-17

P/TV/118/FIN 2

HOOK  
VELCRO

HOOK  
VELCRO

**IDC ACTIVATION**

1. LCC Setup  
 A31p PGSC Pwr – ON  
 √Hardware configured per LCC ACTIVATION steps 1,2 (Cue Card, LCS)
2. 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, then ON  
SM 179 POWER TRANSFER  
 √PTU 2 APCU OUT VOLTS: 123V to 126V

**IDC SOFTWARE ACTIVATION**

1. IDC Software Startup  
 A31p Sel 'Shuttle Apps' > 'IDC'
2. Verify GMT  
 A31p √GMT within 3 sec of SM-GPC GMT  
 \* If GMT not within 3 sec: \*  
 \* Double click on GMT box on GUI \*  
 \* Adjust GMT as reqd \*  
 \* Sel 'OK' on MTU Time dialogue box \*
3. IDC Pwr on and self test

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

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

**OPERATION**

NOTE

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

1. Configure LDRI Illumination  
 R12 (VPU) √Green Jumper – LDRI/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

(For SSPTS APCU 2 flights only)

P/TV-9a/118/O/B

(reduced copy)

HOOK  
VELCRO

HOOK  
VELCRO

### IDC DEACTIVATION

1. IDC and Software Shutdown  
A31p      Sel 'Power off' on IDC GUI  
            Close (X) IDC software > 'YES'
2. A31p Screen Resolution Reset  
            Go to RECONFIGURATION OF A31p SCREEN RESOLUTION  
            (LCS/IDC)

### IDC HOT KEY COMMANDS

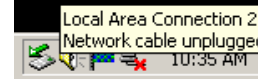
- |                                    |                               |
|------------------------------------|-------------------------------|
| F5 – Toggle Summary View           | F6 – Toggle Image Mode        |
| F7 – Zoom In                       | F8 – Zoom Out                 |
| F9 – Reset Brightness 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

1. 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
2. LCH, LCC, and IDC Reset
    - A31p      Exit IDC software and shut down Windows  
            √OPP to LCC Cable (20 ft) connected to LCC RJ45 port
    - A15      APCU 2 CONV – OFF, then ON  
  
            SM 179 POWER TRANSFER  
            √PTU 2 APCU OUT VOLTS: 123V to 126V
    - A31p      LCC PGSC Pwr – ON  
            √A31p internal RJ45 Network Interface Card LED green  
  
            Perform IDC SOFTWARE ACTIVATION  
            Continue nominal ops
  3. LCC Swap
    - A31p      Exit IDC software and shut down Windows  
            Swap LCC with other A31p  
            Perform IDC Activation  
            Perform IDC Software Activation  
            Continue nominal ops

(For SSPTS APCU 2 flights only)

(reduced copy)

CC 23-19

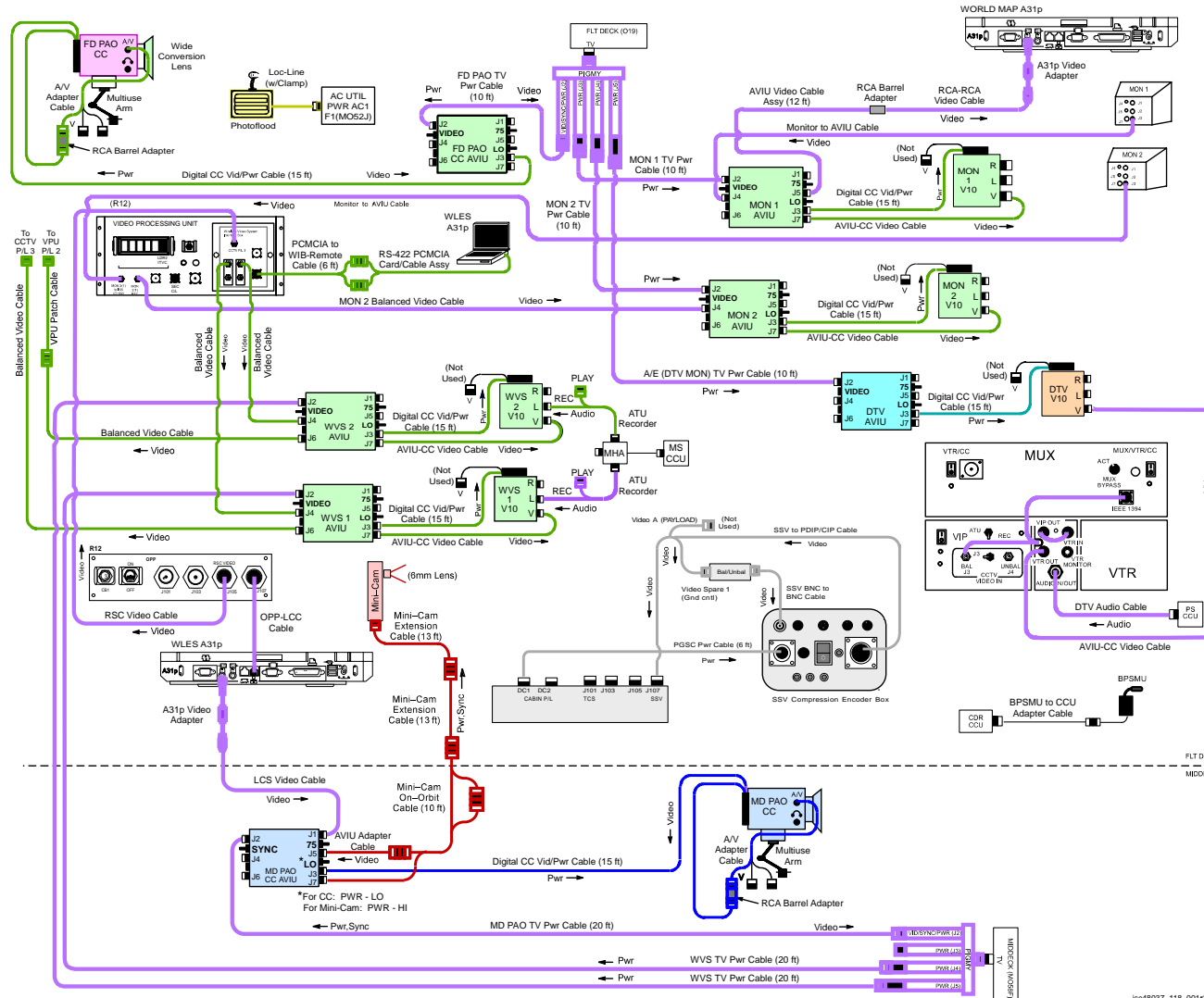
P/TV-9b/118/O/C

P/TV/118/FIN

TOP

HOOK  
VELCRO

HOOK  
VELCRO



VIDEO SETUP

STORAGE LOC

MA16J/Stow-n-Go	Green
L10:A1	Cyan
MS1 FDF	Orange
Vol 3B	Pink
MF43M	Yellow
MF43C	Light Green
A17/CC Bag	Blue
A17/DTV Bag	Red

HOOK  
VELCRO

HOOK  
VELCRO

P/TV-10a/118/O/C

(reduced copy)

CC 23-20

P/TV/118/FIN 1

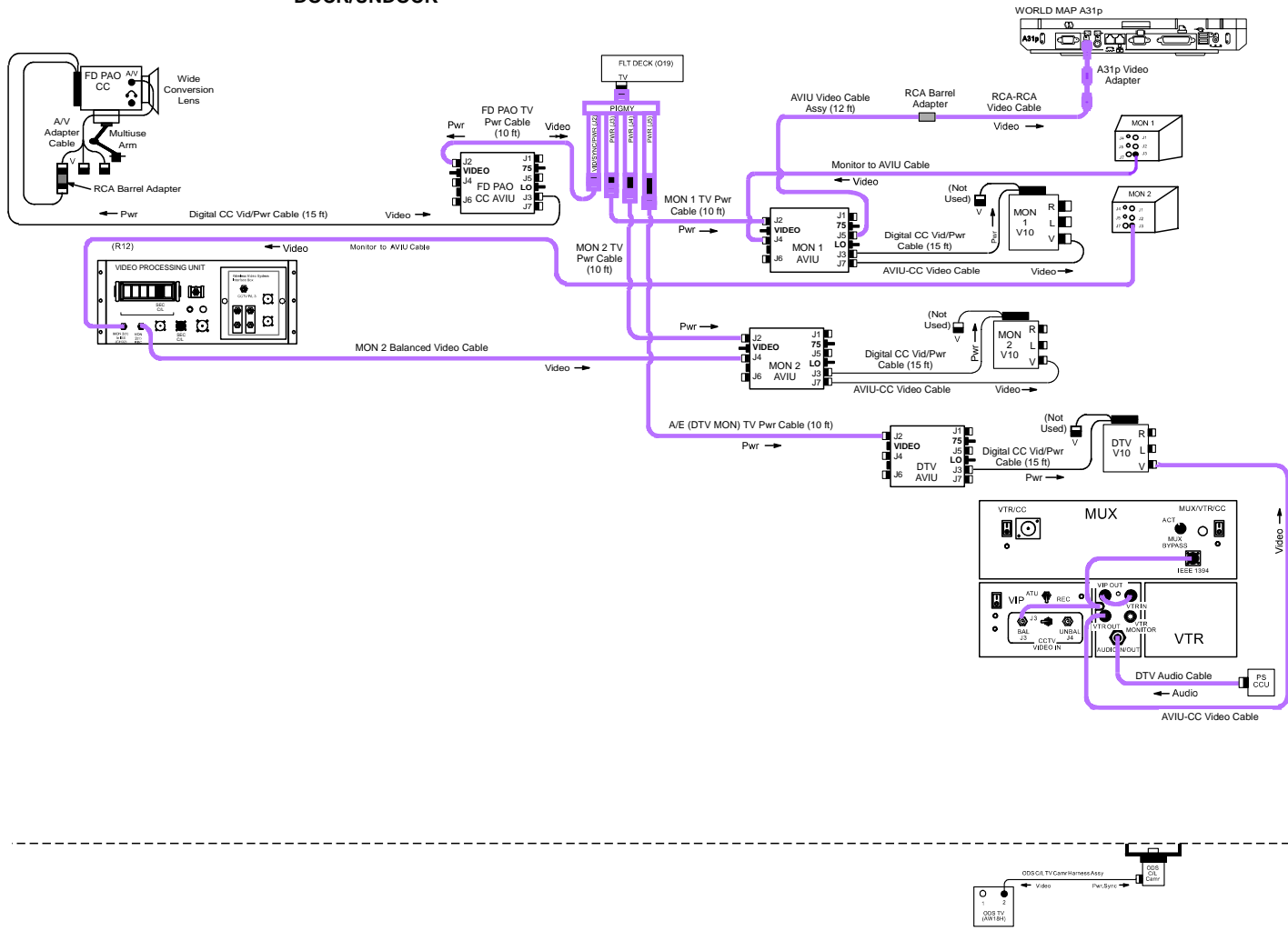
jsa48037\_118\_001r3.cvx

TOP  
BACK OF 'VIDEO SETUP'

HOOK  
VELCRO

HOOK  
VELCRO

DOCK/UNDOCK



HOOK  
VELCRO

HOOK  
VELCRO

P/TV-10b/118/O/B

(reduced copy)

CC 23-21

P/TV/118/FIN

jsc48037\_118\_002r1.cvx

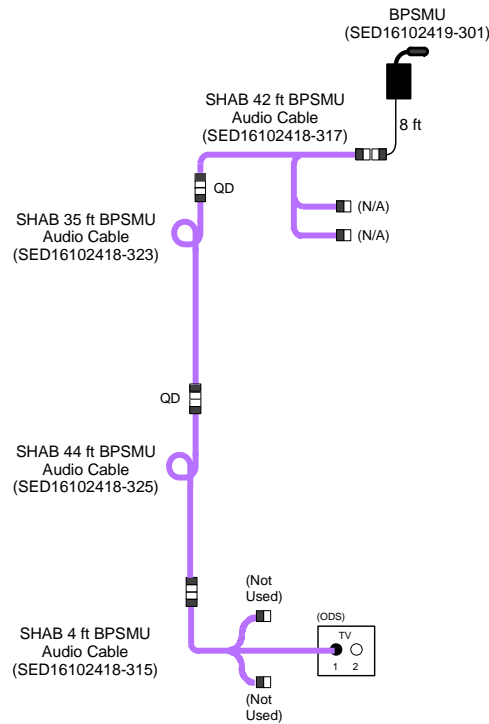
TOP

HOOK  
VELCRO

**SPACEHAB BPSMU AUDIO ONLY**

- BPSMU L12 (SSP 2)
1. Set up BPSMU, Safe ODS TV Port  
Connect Batt  
C/L CAM PWR – OFF

Config H/W per dwg below



jsc48037\_118\_022r2.cvx

P/TV-11a/118/O/C

(reduced copy)

CC 23-22

P/TV/118/FIN 1

TOP  
BACK OF 'SPACEHAB BPSMU AUDIO ONLY'

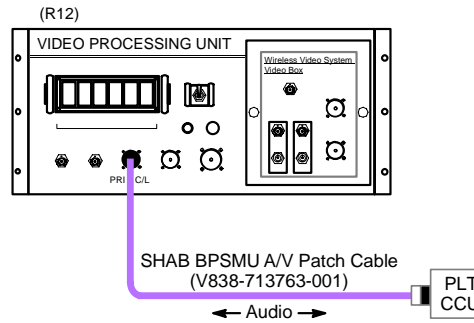
HOOK  
VELCRO

2. Config TV System  
Config H/W per dwg below

R12 (VPU)    √VPU PWR – ON (LED on)

3. Config Comm System  
R AUD PWR – AUD/TONE  
  √MSTR VOL 1(2) – MAX  
  A/G 2,ICOM B – T/R (or loop as desired)  
  XMIT/ICOM MODE sel – PTT/PTT  
  VOL A/G 2,ICOM B tw – 8  
Other Loops – OFF

Perform audio check w/BPSMU



jsc48037\_118\_023r1.cvx

P/TV-11b/118/O/C

(reduced copy)

CC 23-23

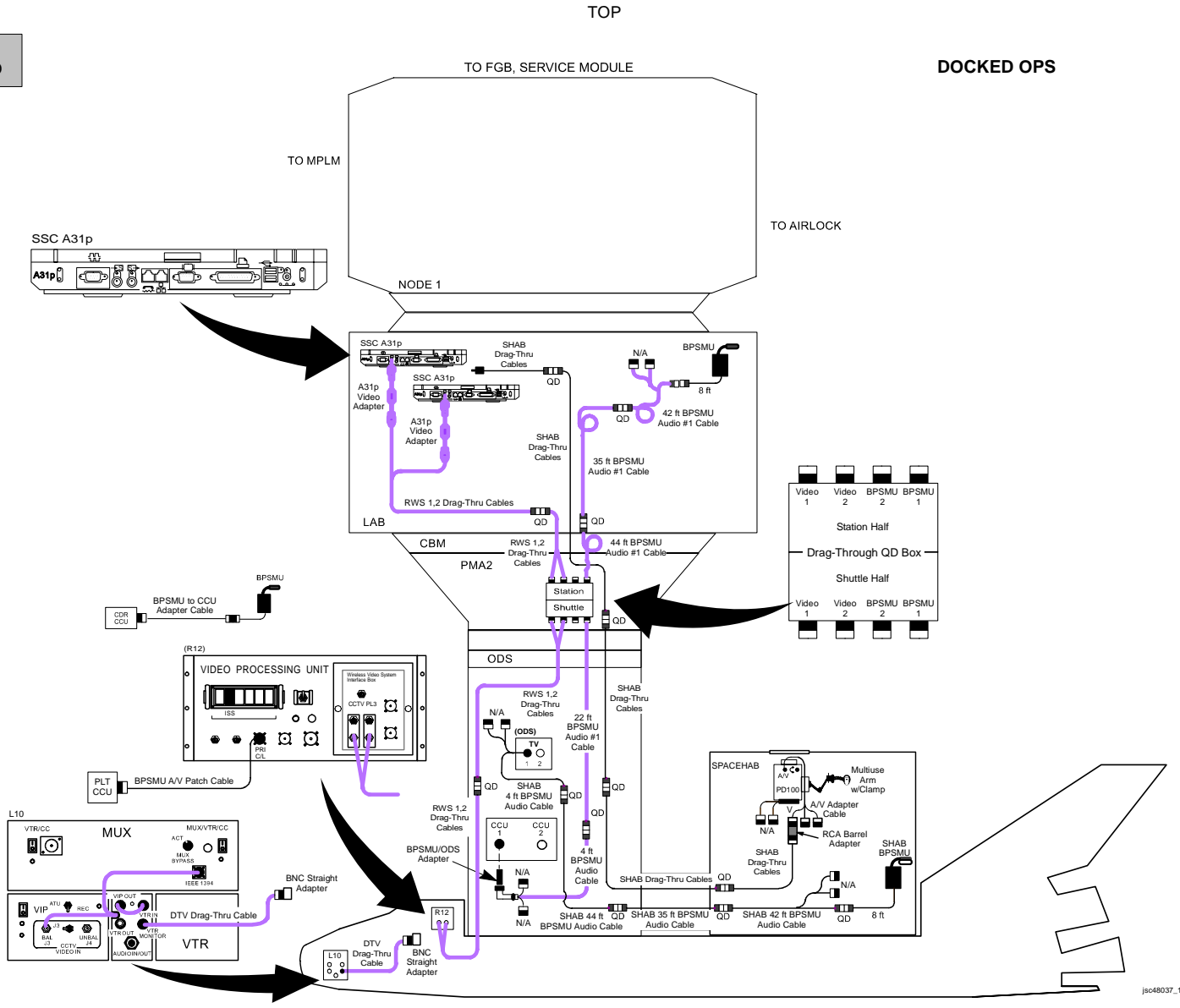
P/TV/118/FIN 1

HOOK VELCRO

HOOK VELCRO

TOP

DOCKED OPS



HOOK VELCRO

HOOK VELCRO

P/TV-12a/118/O/B

(reduced copy)

CC 23-24

P/TV/118/FIN 1

iss48037\_118\_0042.cvx

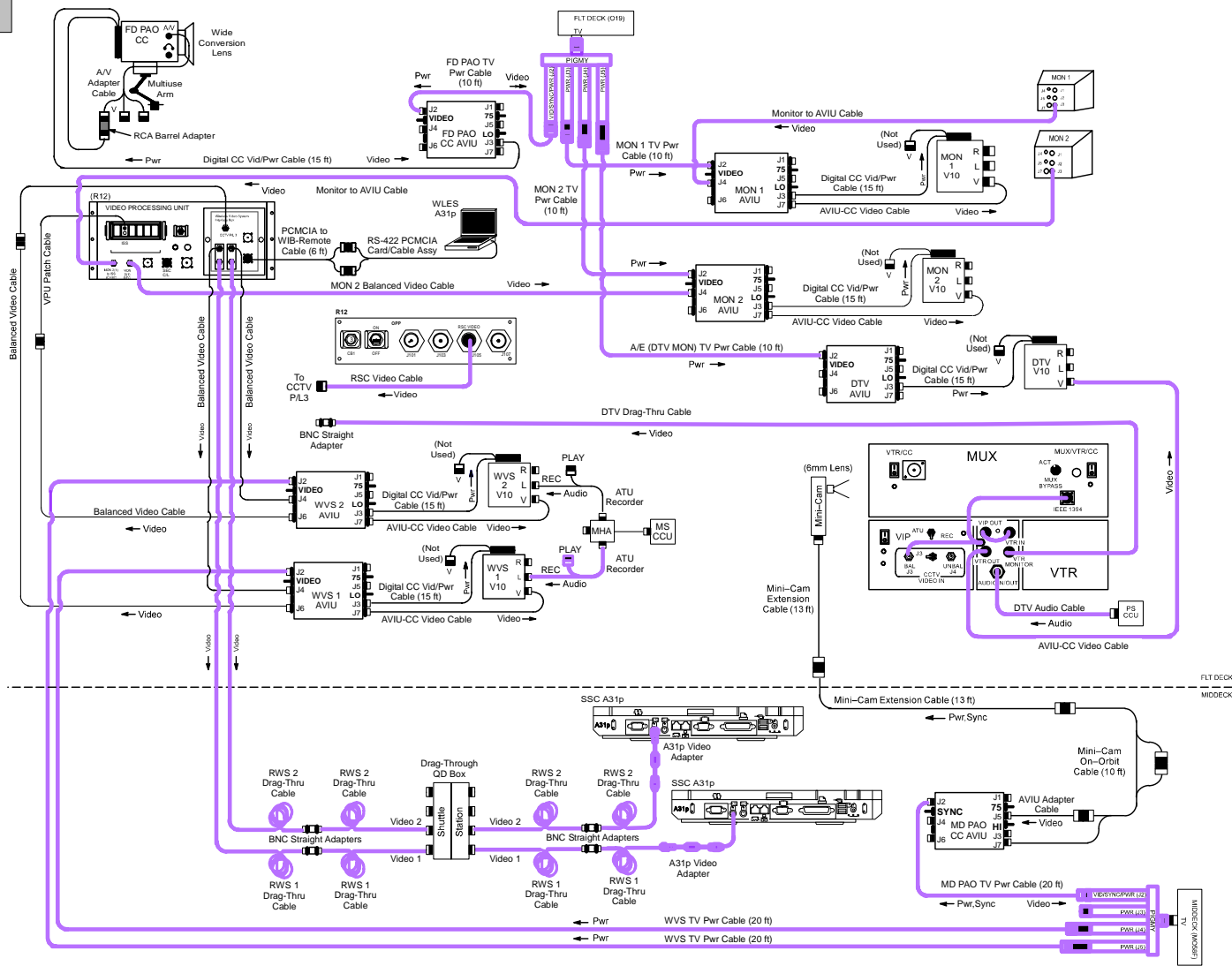


HOOK VELCRO

HOOK VELCRO

TOP  
BACK OF 'DOCKED OPS'

EVA



js648037\_118\_006r2.cvx

P/TV-12b/118/O/B

HOOK VELCRO

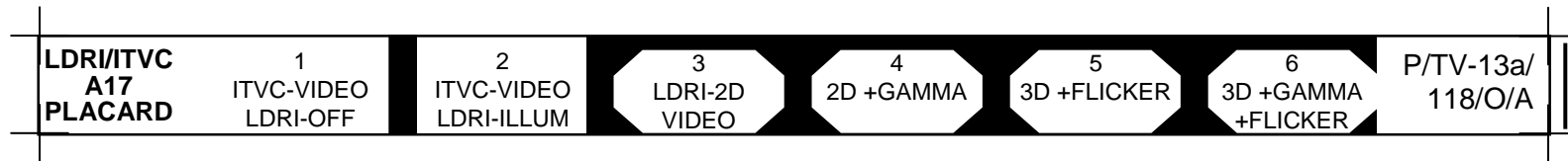
HOOK VELCRO

(reduced copy)

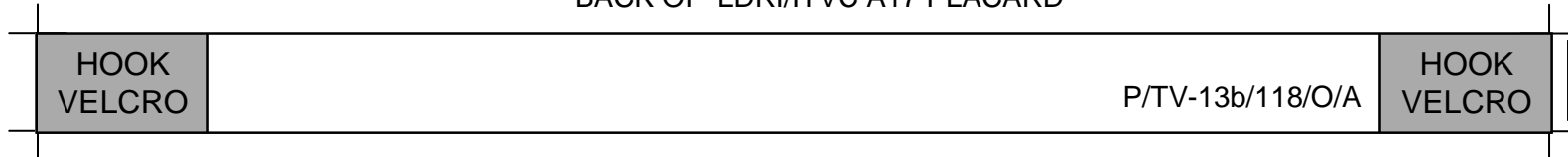
CC 23-25

P/TV/118/FIN 1

TOP



TOP  
BACK OF 'LDRI/ITVC A17 PLACARD'



TOP

**SPACEHAB VIDEO DNLK**

ISS Dnlk via Spacehab Drag-Thru Cables:

1. Remove A31p video adapter from Spacehab Drag-Thru Cable at RWS station
2. Install RCA-BNC Adapter to Drag-Thru Cable
3. Connect Cable/Adapter to Lab Camcorder AVIU J1 Connector  
(same side of lab as RWS, about mid-module; would be cable string routing retraction if anything)
4. Switch AVIU Pwr Sw to HI to turn off Camcorder and allow video from J1 to go into system via AVIU J2
5. Have MCC dnlk Lab TV port

Shuttle Dnlk via BPSMU Cable:

1. Disconnect PD100 A/V Adapter Cable from Spacehab Drag-Thru Cable string
2. Connect PD100 A/V Adapter Cable to video leg of 42 ft BPSMU string
3. Move 4 ft BPSMU Cable from TV1 to TV2 in ODS
4. Connect two 4 ft BPSMU Ccable connectors to TVCU; secure TVCU to wall
5. Turn on C/L Camr pwr to SEC C/L on pnl L12L
6. Move BPSMU A/V Patch Cable from PRI C/L to SEC C/L on VPU at R12
7. Move VPU Green Jumper to SEC C/L
8. Dnlk PL2

P/TV-14a/118/O/A

TOP  
BACK OF 'SPACEHAB VIDEO DNLK'

HOOK  
VELCRO



P/TV-14b/118/O/A

CC 23-28

P/TV/118/FIN 1

NOTE

Replace this page with four (4) pieces of blue  
K-10 stock in crew copies only

NOTE

Replace this page with four (4) pieces of blue  
K-10 stock in crew copies only



# PHOTO/TV CHECKLIST

STS  
118