LASER DYNAMIC RANGE IMAGER (LDRI)

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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: LaserTelLT-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: 5 ft

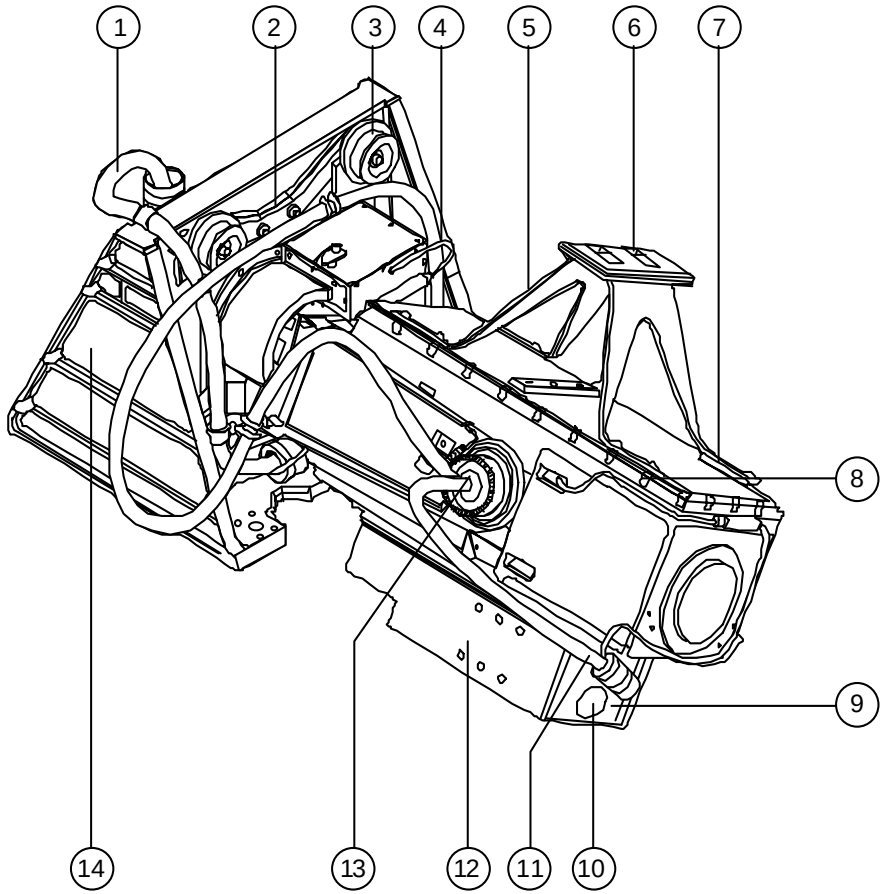
MOUNTING INTERFACE: Bottom of ITVC (ITVC specifications in CCTV section)
POINTING CAPABILITY: Standard Pan Tilt Unit (PTU)
PAN RANGE: Approx +/-168 deg
TILT RANGE: Approx +175 deg to -130 deg
ITVC ILLUMINATOR: LDRI

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*

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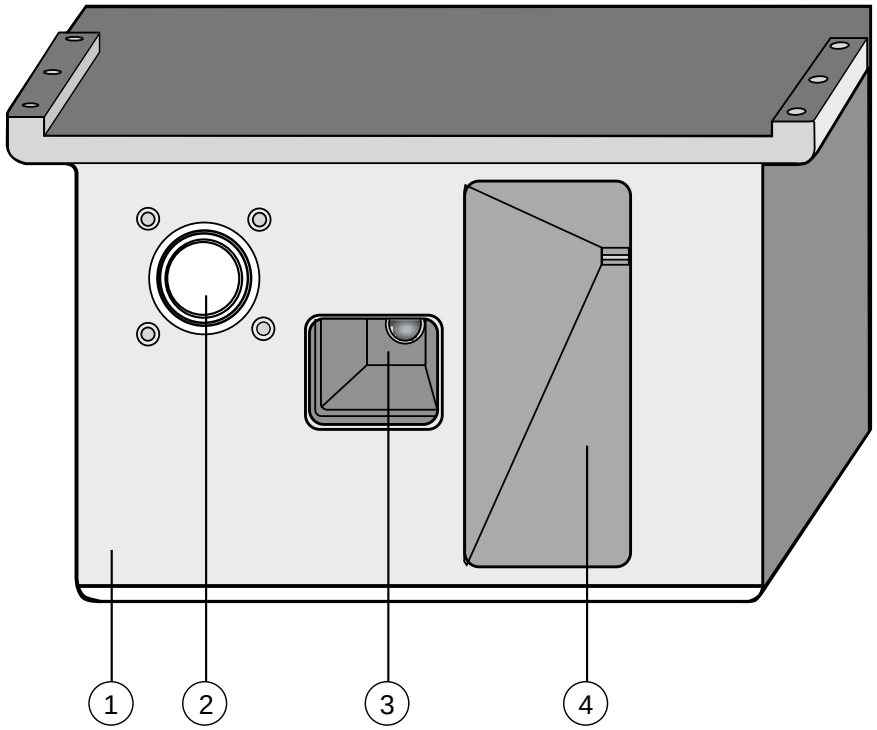
LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

NOMENCLATURE (Concluded)



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

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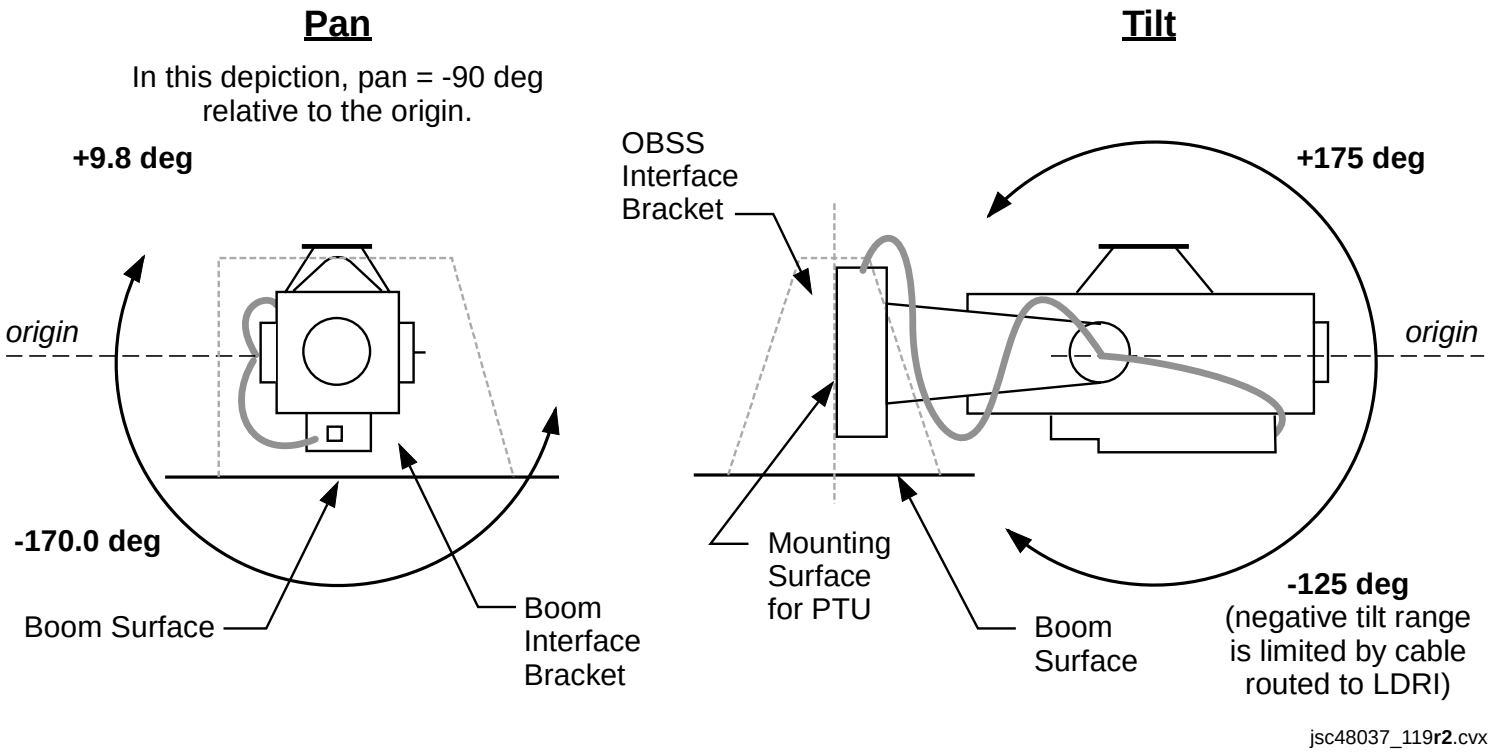
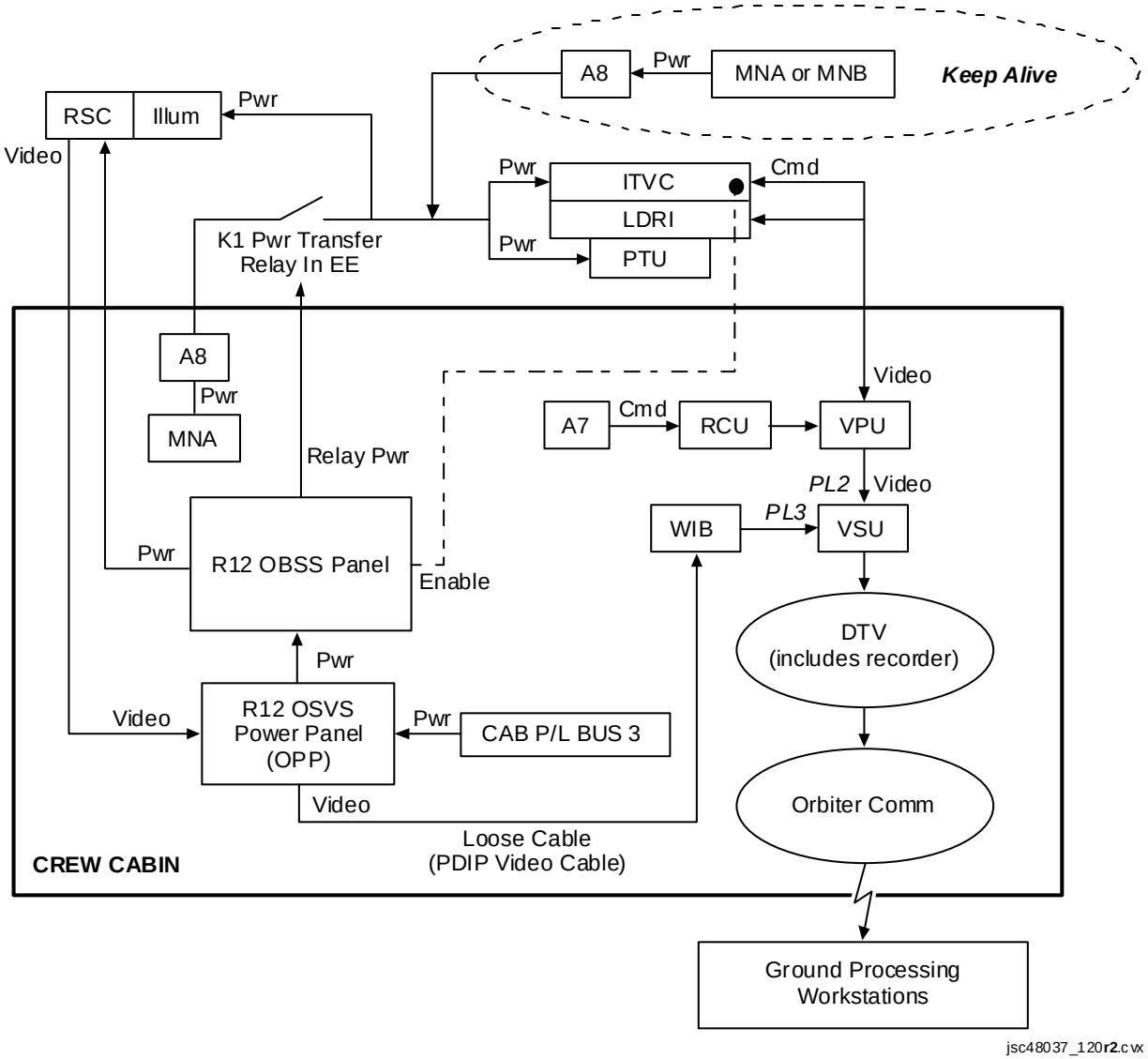
OBSS PTU PAN AND TILT RANGES



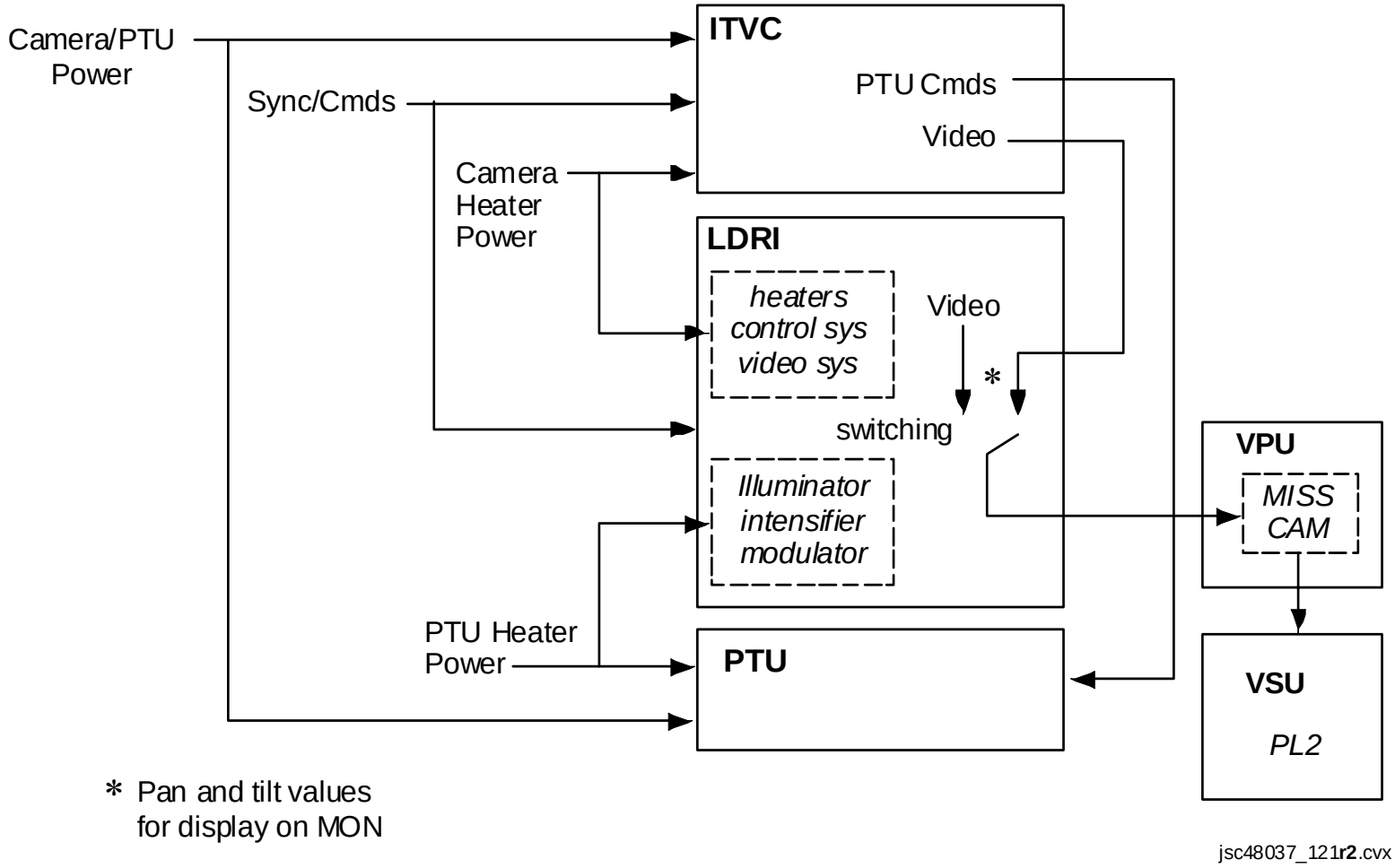
LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

FUNCTIONAL FLOW



LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

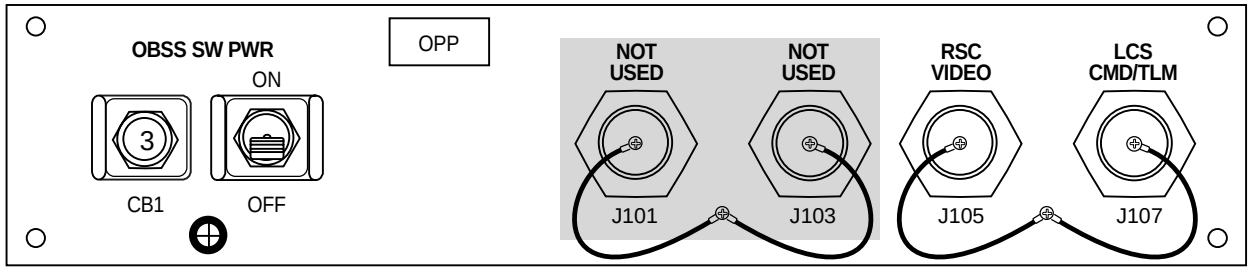
ITVC, LDRI, AND PTU INTERACTIONS



LASER DYNAMIC RANGE IMAGER (LDRI) (Continued)

OPP PANEL

R12



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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)

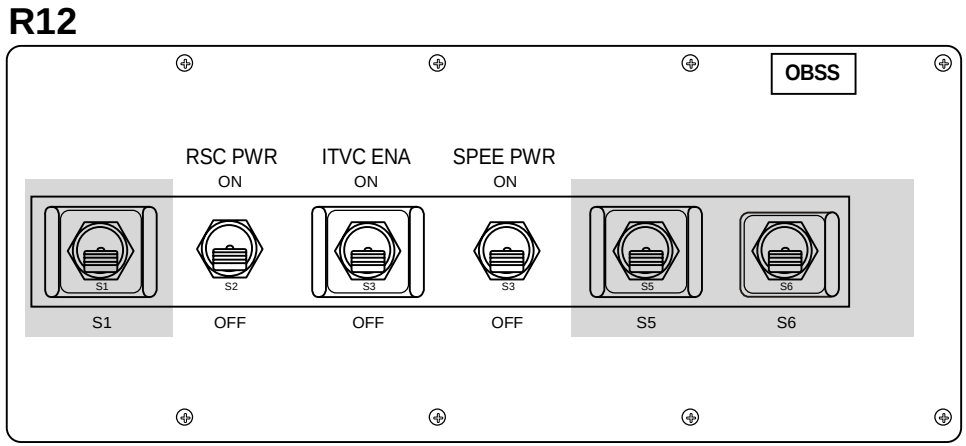
- Provides balanced, asynchronous video from RMS Sideview Camr (RSC)
- Video will be routed to VSU PL3 input on R12/VPU/WIB using PDIP Video Cable to support viewing/recording/dnlk ops

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



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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

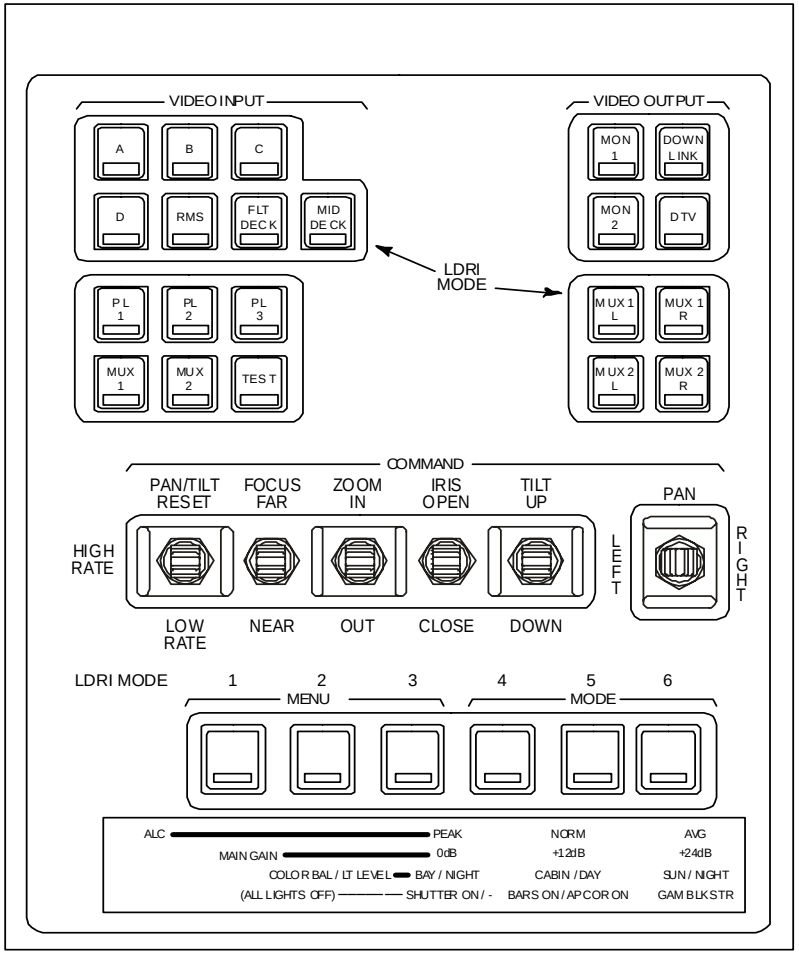
SPEE PWR (S4)

- 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



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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 – 70 (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

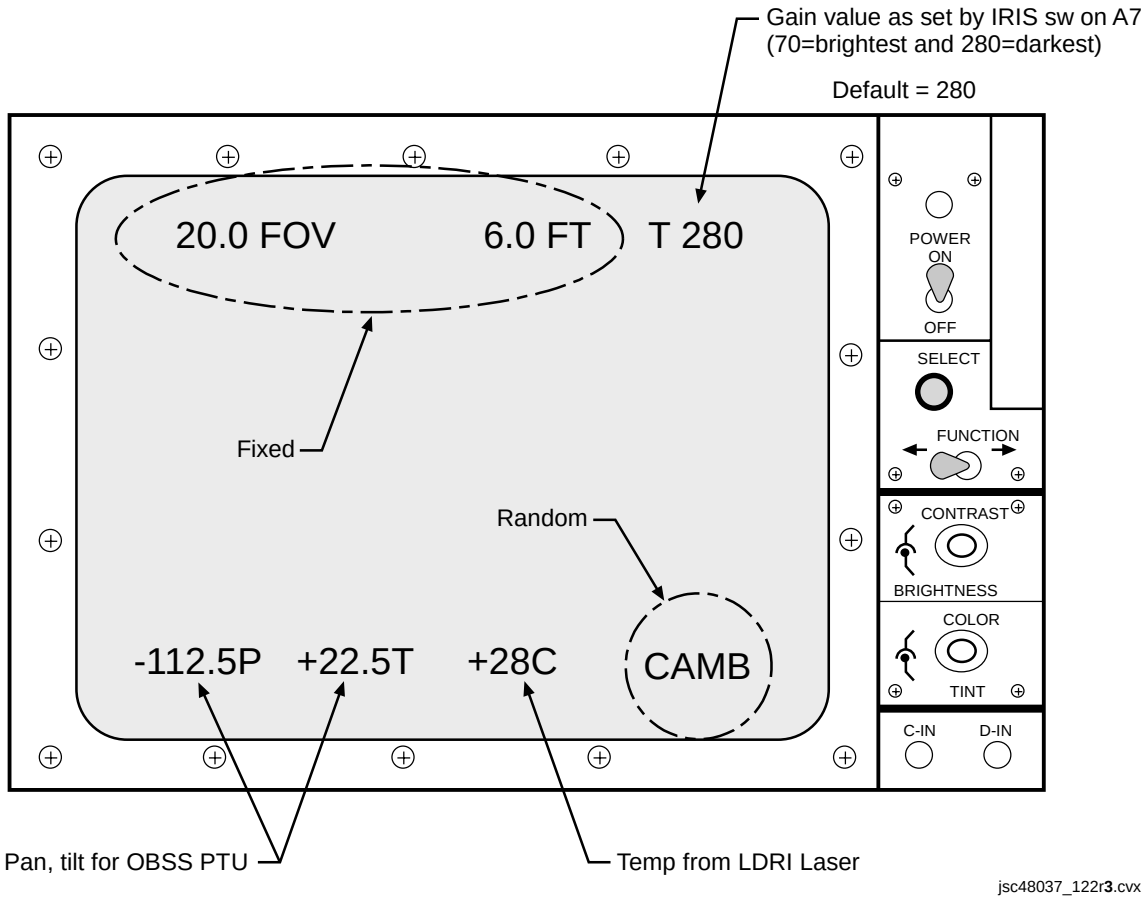
- If OBSS/ITVC cntl selected (by depressing VID OUT pb selected for PL2) while in LDRI modes 3(4,5,6), LDRI video will continue to flow to VID OUT. For this scenario, all ITVC cmds active in blind
- Mode fdbk for Modes 3,4,5,6 avail when PL2 illuminated. In Modes 1 and 2, MODE/MENU pb indicate ITVC exposure 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



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