SERVICE MODULE

VIDEO & AUDIO
(ВиА Авг)

SM.1

2000
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INTRODUCTION

These crew procedures contain information for the crew about LIV video system, AGAT-2 system, and GLISSER-M video system operations.

These crew procedures are intended for trained crew members who have completed the full training course and simulations.

These crew procedures may be updated pending systems modification and procedure validation at simulators and training facilities.

ABBREVIATIONS AND ACRONYMS

cbl - Cable
cnctr - Connector
comm pass - Communicational Session
EVA - Extravehicular Activity
LED - Light-Emitting Diode
MCC - Mission Control Center
pb - Push-button
RCVR - Receiver
sw - Switch, Selector Switch, Toggle Switch
VTR - Video Tape Recorder
XMTR - Transmitter

АФУ - Antenna Feeder Unit
БАР - Battery Discharge Unit
БЗУ - Battery Charger
ВКУ - Video Control Unit
ГБ - Sealed Enclosure
ГНШК - Low Noise Headset
ЗАКР - close, closed
ММЗ - Mech-Magnetic Latch
ОТКР - open, opened
п - procedure section
ПРД - transmitter
ПРМ - receiver
РБС - receptacle
СТТС - telephone and telegraph communication system
сх - diagram, schematic
ТВ - television
ТВС - TV subsystem
SYMBOLS

- illuminated
- blinking
- not illuminated
- illumination status changes when command is issued
- sw → On (i.e. up relative to label on panel)
- sw → Off (i.e. down relative to label on panel)
- rotate clockwise
- rotate counterclockwise
- rotate clockwise to stop
- rotate counterclockwise to stop
- adjust by rotating
- place physical device in designated state
- disconnect
- connect
- press pushbutton
- press pushbutton to lock
- press pushbutton to release
- check (in case of discrepancy, attempt a corrective action one time only)
- verify
- continuously monitor
- verify aurally
1. GENERAL INSTRUCTIONS

1.1. CREW RESPONSIBILITIES

While performing operations, the crew is responsible for the following actions:

1. Perform operations per these crew procedures and MCC instructions in accordance with the crew functional responsibilities and current status of the onboard systems.
2. **Report to MCC** completed operations.
3. Monitor systems operation per these crew procedures and MCC instructions.
4. When there is a deviation from nominal systems operation, the crew is responsible for the following actions:
   - record time when deviation (malfunction) was detected;
   - record nature of deviation (malfunction);
   - **report to MCC** at earliest available comm pass.
5. Prior to operations, perform indicator checks on the control panels to be used.
6. Record actual time spent performing operations.
7. When working with the equipment containing protective caps and covers:
   - prior to work remove caps and covers
   - after work is complete install back

1.2. SAFETY PRECAUTIONS

To ensure nominal systems operation and crew safety, the crew is responsible for the following actions:

1. When working with the system, use only hardware, tools and protective devices, designated by these crew procedures or by MCC;
2. Upon detection of an off-nominal situation, not documented in these crew procedures, the crew is responsible for the following actions:
   - stop working with the system;
   - record time when the off-nominal situation was detected;
   - record nature of the off-nominal situation;
   - **report to MCC** at earliest available comm pass.
2. LIV VIDEO SYSTEM

2.1. EQUIPMENT STOWAGE

Associated cables (20) are located in a green kit-bag made of Bogatyr fabric

LIV container #1 (see Figure 2.1-1) contains the following equipment:

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Camera BVP-70P</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>Viewfinder</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Lens A 8.5×5.5 BERM</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>Microphone F115</td>
<td>1</td>
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<tr>
<td>5.</td>
<td>Microphone ECM-55S</td>
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</tr>
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<td>6.</td>
<td>Monitor PVM-9020ME</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>Videocassette BCT-30MA</td>
<td>12</td>
</tr>
<tr>
<td>8.</td>
<td>Headphones MDR-CDR333</td>
<td>1</td>
</tr>
<tr>
<td>9.</td>
<td>Time base corrector</td>
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</table>

LIV container #2 (see Figure 2.1-2) contains the kit with the following equipment:

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<td>1</td>
<td>Videocassette recorder BVW-50P</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Encoder K-015</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Converter UN-941</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Mixer MXP-42</td>
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<tr>
<td>5</td>
<td>Videocassette BCT-30MA</td>
<td>10</td>
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<tr>
<td>6</td>
<td>Microphone ECM-55S power unit</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Multipurpose portable bracket</td>
<td>1</td>
</tr>
</tbody>
</table>
Figure 2.1-1. Contents of LIV container #1
Figure 2.1-2. Contents of LIV container #2
2.2. SETUP

1. Install the video system units on the retractable tray in floor recess near panel 426
   Secure using the Velcro attached to units.

   ![Diagram of LIV video system units]

   Figure 2.2-1. Placement of LIV video system units

2. Install monitors-1, 2 on multipurpose portable brackets inside SM.

   **NOTE**

   Camera-2 is assigned for handshooting, but if necessary, it can be installed on the multipurpose portable bracket

3. Secure Camera-1 onto handrails in shooting location using multipurpose portable bracket

4. Connect devices (see Figure 2.2-2)
   Secure connecting cables on panels using available securing hardware
Figure 2.2.2. LIV video system functional diagram
### 2.3. LIV RECOMMENDED ASSEMBLY SEQUENCE

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<th>DEVICE CONNECTOR</th>
<th>DEVICE</th>
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<td>cnctr DC IN 28V</td>
<td>Converter LIV/106/01</td>
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<tr>
<td>LIV/02</td>
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<td>cnctr 12V CH1-1</td>
<td>Encoder LIV/106/02</td>
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<td>cnctr DC IN 12V</td>
<td></td>
</tr>
<tr>
<td>LIV/03</td>
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<td>cnctr 12V OUT CH2-1</td>
<td>Converter LIV/106/01</td>
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<tr>
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<td>cnctr DC IN 12V</td>
<td>cnctr DC IN 12V</td>
<td>VTR LIV/106/05</td>
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<tr>
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<td>cnctr 12V OUT CH3-1</td>
<td>Converter LIV/106/01</td>
</tr>
<tr>
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<td>cnctr EXT BAT DC IN 12V</td>
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<td>cnctr TO CHG 28V</td>
<td>Converter LIV/106/01</td>
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<tr>
<td></td>
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<td>cnctr DC IN 28V</td>
<td>TBC LIV/106/01</td>
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<tr>
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<td>cnctr CAMERA-1</td>
<td>Encoder LIV/106/02</td>
</tr>
<tr>
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<td>cnctr ENCODER</td>
<td>Camera-1 LIV/106/03</td>
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<td></td>
<td>cnctr B VIDEO IN Monitor-2</td>
<td>cnctr B VIDEO IN Monitor-2</td>
<td></td>
</tr>
</tbody>
</table>

Лист
2.3.1. VIEWFINDER ADJUSTMENT

Camera-1(2)  sw OUTPUT → BARS
Set all tone gradations from white to black in viewfinder
  with CONTRAST and BRIGHT knobs
Set sharp and clear borders between stripes
  with PEAKING knob

2.3.2. CAMERA ADJUSTMENT

1. sw OUTPUT → CAM
2. Install required filter
   Lens  sw R/A/M (A/M) → A (auto)
   Viewfinder image appears
3. Point Camera-1(2) at sheet of white paper in the area to be
   filmed sing the same illumination, as during shooting
   sw AUTO W/B BAL → WHT (push up and release)
   WHITE: OK
4. sw AUTO W/B BAL → BLK (push down and release)
   BLACK: OK
5. Repeat step 3

2.3.3. MONITOR ADJUSTMENT

Camera-1(2)  sw OUTPUT → BARS
Encoder
In zone SW-2  ↓ CAMERA-1(2)  □ CAMERA-1(2)
Monitor-1  ◄ colored bars
  knob COLOR ↗

NOTE

Adjust all tone gradations from white to black stripes
with sharp and clear borders using BRIGHT, PICTURE,
and SHARP knobs

  knob COLOR → middle position

Camera-1(2)  sw OUTPUT → CAM
Monitor-1  ◄ image reproduction quality

2.3.4. MIXER ADJUSTMENT

Mixer  ◐ OSC
  √ Level indicator → 0
VTR  knob CH-3 ↗
  √CH-3 level indicator → 0
Mixer  ◐ OSC
### 2.4. LIV VIDEO SYSTEM INITIAL CONFIGURATION

| Monitor-1,2 | INPUT, H/V-DELAY | SCAN, B-ONLY, SECAM | COLOR, BRIGHT, PICTURE → middle position (soft stop) | VOL → ON |
| (front pnl) | | | | |
| pb POWER → ON |
| (rear pnl) | CHARGE/OPERATE → OPERATE |
| sw 75Ω (two) → ON |

| Time Base Corrector | POWER |
| Converter | INPUT, CH1, CH2, CH3, CHG |
| Encoder | POWER |
| (right side pnl) | DC OFF SET |

| VTR | POWER |
| (front pnl) | All AUDIO PB LEVEL knobs → middle position |
| sw AUDIO SELECT CH1-CH2 → AUTO |
| sw LIGHT → ON |
| sw KEY INHIBIT → OFF |
| sw DISPLAY → CTL |
| (right side pnl) | sw VIDEO IN CAMERA / LINE → CAMERA |
| sw HEADPHONES → MIX |
| sw AUDIO DUB → CH-2 |
| sw DOLBY NR → ON |
| sw CONFI → OFF |
| sw AFM INPUT CH → ½ |
| sw MONITOR CH1 → ON |
| sw +48V CH-1,2,3,4 → ON |
| sw CAMERA/LINE CH-1,2,3,4 → LINE |
| sw -60/-20/ +4dB CH-1,2,3,4 → -20dB |
| sw MODE → PB/EE |

| Mixer | POWER |
| (left side pnl) | +48V 1, 2, 3, 4 → ON |

**NOTE**

Initial position of controls is marked with white dots.
Channel CH-1
sw MIC/LINE → MIC
sw –20/+4 → -20dB
sw COMP/OFF/COMP+EXP → OFF

Channel CH-2
sw MIC/LINE → MIC
sw –20/+4 → -20dB
sw COMP/OFF/COMP+EXP → OFF

Channel CH-3
sw MIC/LINE → LINE
sw –20/+4 → -20dB
sw COMP/OFF/COMP+EXP → OFF

Channel CH-4
sw MIC/LINE → LINE
sw –20/+4 → -20dB

Channel CH-1,2,3,4
sw 160/80 → OFF
sw 11K → OFF
knob PAN POT → central position
knob GMU to blue dot
knob EXP THLD
(remaining sw are not used)

Channel MASTER
sw MASTER/SLAVE → MASTER
sw PHONES → 1/2
sw LINK 1-2, 3-4 → OFF
sw SUB OUT → -20
sw SUB OUT/MONITOR/PGM → PGM
sw OSC → OFF
knob MASTER to blue dot

(front pnl)

Channels (all)
knob 0-10 (position 0)
sw MONITOR IN/PGM → PGM
Channels 1, 2
knob MIC → -60
Channels 3, 4
knob MIC → -40
(pB PFL, LIGHT, BATT are not used)

(right side pnl)

knob PHONES → middle position
(remaining controls are not used)

Camera-1,2
sw SHUTTER → OFF
sw CAMERA/VTR → PREHEAT
sw GAIN → 0
sw OUTPUT → BARS
sw WHITE BAL → A
POWER

Viewfinder
knob PEAKING, BRIGHT, CONTRAST → middle position
sw TALLY → HIGH
sw AUDIO/FILTER → FILTER
sw ZEBRA → ON

Lens
sw R/A/M (A/M) → A
(on the bottom)
sw ZOOM → S
(remaining sw are not used)
2.5. BETACAM VTR RECORDING FROM CAMERA-1(2)

2.5.1. RECORDING PREPARATIONS

1. Connect portable lamps (see RODF: СЭП)
   Illuminate subject from camera side

   **CAUTION**
   Prior to powering on LIV video system
   Camera-1,2 POWER sw should be set to OFF,
   CAMERA/VTR sw should be set to PRE HEAT and
   Mixer control knobs 0-10 1,2,3,4 should be set to 0

RS Laptop
2. **CM:БРТК:TV System**
   **cmd** l_ONPLIVT ('LIV power ON')
   Execute

Converter
3. ⚫ INPUT CH1, CH2, CH3 (in order)  □ LED (green)

Camera-1(2)
4. ✕ POWER

5. sw CAMERA/VTR → ON

Viewfinder
6. Adjust (if necessary) (see 2.3.1)

Monitor-1
7. Adjust (if necessary) (see 2.3.3)

VTR
8. Open cassette compartment lid
   Insert cassette aligning it with white marks
   REC, PLAY (simultaneously)  □ LED REC, PLAY
   PAUSE

Encoder
9. 🔰 CAMERA-1(2)  □ CAMERA-1(2)

To record sound via Camera-2:
   MICROPHONE-1  ➔ cnctr MIC IN on Camera-2
   Camera-2
   sw MIC IN  ➔ EXT
   VTR
   sw AUDIO IN CH-1 LINE/CAMERA  ➔ LINE
   sw -60/-20/+4  ➔ -60
   signal level using VTR indicators

To record sound via Mixer:
   MICROPHONE-1  ➔ cnctr 1 on Mixer
   Monitor-1
   knob VOL
   (listen to sound with headphones)
   Mixer
   Adjust knobs 0-10 1(2) in order to get signal level indicator to vary
   into red zone
   Perform a test recording on VTR (if necessary)
2.5.2. VTR TEST RECORDING

NOTE

Test recording should always be performed at the beginning of clear cassette or between video events.
Record duration:
- at the beginning of cassette: ~ 20 seconds
- between video events: ~ 5 seconds

Camera-1(2)

1. sw OUTPUT → BARS
2. ↓ PAUSE
   Record colored stripes
   ↓ STOP
   ↓ REW
   Rewind tape to beginning of bar recording
   ↓ STOP
   ↓ PLAY

Monitor-1

3. ↓ quality of bar recording
4. ↓ STOP
   ↓ REC, PLAY (simultaneously)

2.5.3. CAMERA-2 RECORDING

NOTE

It is only possible to stop recording from the device that started it

Lens

↓ VTR

Camera-2 or

↓ VTR START

or

VTR

↓ PAUSE

Camera-2

☐ LED TALLY

Viewfinder

‘REC’ (red)

VTR

■ LED PAUSE

☐ LED PLAY

☐ LED REC (recording begins)
To stop recording:

VTR ↓ PAUSE
or Lens ↓ VTR or Camera ↓ VTR START
□ LED TALLY
VTR ■ LED PAUSE (pause mode)
□ LED REC, PLAY

For recording closeout:

VTR ↓ STOP
↓ EJECT
Remove cassette and indicate event title and date on the label

2.5.4. CAMERA-1 RECORDING

VTR ↓ PAUSE
□ LED PAUSE
□ LED PLAY
■ LED REC
Monitor-1 ← image
To stop recording:

VTR ↓ PAUSE
■ LED PAUSE
□ LED REC, PLAY

For recording closeout:

VTR ↓ STOP
↓ EJECT
Remove cassette and indicate event title and date on the label

2.5.5. FINAL OPERATIONS

Camera-1,2 1. sw CAMERA/VTR → PRE HEAT ☑ POWER
Converter 2. Lamp deactivation (see RODF: СЭП sec. 4.7)
RS Laptop 3. @ CH1, CH2, CH3, INPUT (in order) ■ LED
RS Laptop 4. CM:5PTK:TV System
cmd 1_OFPLIVT (‘LIV power OFF’)
Execute
2.6. RECORDING FROM EXTERNAL VIDEO DEVICE

RS Laptop
1. **CM:БРТК:TV System**
   cmd: I_ONPLIVT (‘LIV power ON’)
   Execute

**CAUTION**

Prior to powering on LIV video system
Camera-1,2 POWER sw should be set to OFF,
CAMERA/VTR sw should be set to PRE HEAT
and Mixer control knobs 0-10 1,2,3,4 should be
set to 0

Converter
2. ⊕ INPUT, CH1, CH2, CH3  ⊗ LED (green)
VTR
3. Open cassette compartment lid
   Insert cassette aligning it with white marks
4. Perform test recording (see sect 2.5.2 p. 2—11)
   sw VIDEO IN CAMERA/LINE → LINE
   ⊗ LED REC, PLAY (simultaneously)
   ⊔ LED REC, PLAY
   ⊔ LED PAUSE

ENCODER
in zone SW-1
5. ⊔ VTR
   ⊔ VTR

For Camera +x connection:
RS Laptop
6. **TV System**
   proc: F25_TVS_8 (Connect TV with TV (КЛ-140СТ) +x to recorder)
   Execute

For Camera -x connection:
RS Laptop
7. **TV System**
   proc: F25_TVS_11 (Connect TV with TV (КЛ-140СТ) –x to recorder)
   Execute

For portable Camera КЛ-103Ц connection:
RS Laptop
8. **TV System**
   cmd: I_ONPKL160T (КЛ-160 power ON)
   Execute
   cmd: I_ONTKRT (Camera ЦТ ON)
   Execute

Cam portable
   cmd: I_ONEXVMLIVT (Connect to LIV ЭВК)
   Execute
For TV Receiver connection:

**CAUTION**

Do not activate KLEST Receiver and Transmitter simultaneously

RS Laptop 9. **TV System**
   - cmd: `I_ONPKL160T` ('КЛ-160 power ON')
   - Execute
   - cmd: `I_ONPRMT` ('TV RCVR b-b ON')
   - Execute
   - **TV RCVR**
   - cmd: `I_ONEXVMLIVT` ('Connect to LIV ЭВК ВМ')
   - Execute

To start recording:

VTR 10. ↓ PAUSE
   - ■ LED PAUSE
   - □ LED PLAY
   - ◼ LED REC

Monitor-1
   - < image

After recording is complete:

VTR 11. ↓ STOP
   - ↓ EJECT
   - Remove cassette and indicate event title and date on the label
   - sw VIDEO IN CAMERA/LINE → CAMERA

RS Laptop 12. **TV System**
   - proc `F25_TVS_26` ('Television OFF')
   - Execute

**NOTE**

There are no icons highlighted blue after proc execution, except Lira XMTR and RCVR, which may stay highlighted.

Converter 13. @ CH1, CH2, CH3, INPUT (sequentially) ■ LED

RS Laptop 14. **TV System**
   - cmd `I_OFPLIVT` ('LIV power OFF')
   - Execute
2.7. TV BROADCASTING

1. PREPARATION
   Perform Prepare to recording (2.5.1. page 2-10)

   NOTE
   1. MAC or SECAM TV downlink format is determined by MCC-M
   2. If required to alternate between cameras use pb Camera-1(2) in zone SW-1 of encoder

2. BROADCASTING VIA LIRA
   RS Laptop 1. CM:5PTK:TV System proc F25_TVS_16 ('Connect LIV to Lira XMTR ГОЦТ')
             Execute
             or
             2. proc F25_TVS_15 ('Connect LIV to Lira XMTR MAC')
             Execute
             Monitor-1 3. <$ the image (if necessary)

3. BROADCASTING VIA [TBC] TELEVISION SUBSYSTEM IN SECAM
   RS Laptop 1. CM:5PTK:TV System cmd I_ONPKL160T ('KL160-T power ON')
             Execute
             cmd I_ONENLIVT ('Link from ЭВК LIV')
             Execute
             cmd I_ONPRDT ('TV XMTR ON')
             Execute
             Monitor-1 2. <$ the image (if necessary)

4. BROADCASTING VIA [TBC] TELEVISION SUBSYSTEM IN MAC
   RS Laptop 1. CM:5PTK:TV System proc F25_TVS_14 ('Connect LIV to TV XMTR MAC')
             Execute
             Monitor-1 2. <$ image (if necessary)
4. **BROADCASTING CLOSEOUT**

**RS Laptop**
1. **CM:5PTK:TV System**
   ```
   proc F25_TVS_26  ('Television OFF')
   ```
   **Execute**

**NOTE**
There are no icons highlighted blue after proc execution, except Lira XMTR and RCVR, which may stay highlighted.

2. sw CAMERA/VTR → PRE HEAT
   @ POWER
3. Deactivate portable lamps (see RODF: СЭП)

**Converter**
4. @ CH1, CH2, CH3 INPUT (sequentially)  ■ LED

**RS Laptop**
5. **cmd I_OFPLIVT** ('LIV power OFF')
   **Execute**

2.8. **VIEWING VIDEO ON THE VTR WITHOUT DOWNLINK**

**CAUTION**
Prior to powering on LIV video system Camera-1,2 POWER sw should be set to OFF, CAMERA/VTR sw should be set to PRE HEAT and Mixer control knobs 0-10 1,2,3,4 should be set to 0

**RS Laptop**
1. **CM:5PTK:TV System**
   ```
   cmd I_ONPLIVT  ('LIV power ON')
   ```
   **Execute**

**Converter**
2. ⊗ INPUT, CH1, CH2, CH3 (sequentially)  □ LED (green)

**Encoder in zone SW-2**
- VTR
  - Open cassette compartment lid
  - Insert cassette aligning it with white marks
  - SEARCH  □ LED SEARCH
  - Select subject with pb REW, F FWD
  - PLAY  □ LED PLAY

**Monitor-1**
- knobs BRIGHT, PICTURE, VOLUME  ✓
After viewing is completed:

VTR 3. \( \downarrow \) STOP
\( \downarrow \) EJECT
Remove cassette

Camera-1,2 4. sw CAMERA/VTR \( \rightarrow \) PRE HEAT
\& POWER

Converter 5. @ CH1, CH2, CH3, INPUT (sequentially) ■ LED

RS Laptop 6. cmd I_OFPLIVT ('LIV power OFF')
Execute

2.9. VIDEO DOWNLINK FROM THE VTR

CAUTION

Prior to powering on LIV video system Camera-1,2 POWER sw should be set to OFF, CAMERA/VTR sw should be set to PRE HEAT and Mixer control knobs 0-10 1,2,3,4 should be set to 0

RS Laptop 1. СМ:БРТК:TV System
cmd I_ONPLIVT ('LIV power ON')
Execute

Converter 2. @ INPUT, CH1, CH2, CH3, CHG □ LED (green)

VTR 3. Open cassette compartment lid
Insert cassette aligning it with white marks

Encoder in zone SW-1

VTR ▼ VTR □ LED VTR
▼ SEARCH
Select subject using pb REW, F FWD
▼ PAUSE □ LED PAUSE
NOTE
MAC or SECAM TV downlink format is determined by MCC-M

2. BROADCASTING VIA Lira

RS Laptop 1. **CM:БРТК:TV System**
   - **proc F25_TVS_16** ('Connect LIV to Lira XMTR ГОСТ')
   - **Execute**

or

2. **proc F25_TVS_15** ('Connect LIV to Lira XMTR MAC')
   - **Execute**

VTR Monitor-1 3. **PLAY** □ LED PLAY
   - the image

3. BROADCASTING VIA [TBC] TELEVISION SUBSYSTEM IN SECAM

RS Laptop 1. **CM:БРТК:TV System**
   - **cmd I_ONPKL160T** ('КЛ160-T power ON')
   - **Execute**

   - **cmd I_ONENLIVT** ('Link from ЭВК LIV')
   - **Execute**

   - **cmd I_ONPRDT** ('TV XMTR ON')
   - **Execute**

VTR Monitor-1 2. **PLAY** □ LED PLAY
   - the image

4. BROADCASTING VIA [TBC] TELEVISION SUBSYSTEM IN MAC

RS Laptop 1. **CM:БРТК:TV System**
   - **proc F25_TVS_14** ('Connect LIV to TV XMTR MAC')
   - **Execute**

VTR Monitor-1 2. **PLAY** □ LED PLAY
   - the image
5. CLOSEOUT OPERATIONS

VTR  1. ↓ STOP

RS Laptop  2. CM:5PTK:TV System
          proc F25_TVS_26 (‘Television OFF’)
          Execute

          NOTE
          There are no icons highlighted blue after proc
          execution, except Lira XMTR and RCVR , which
          may stay highlighted.

VTR  3. ↓ EJECT
          Remove cassette

Camera-1,2  4. sw CAMERA/VTR → PRE HEAT
          @ POWER

Converter  5. @ CH1, CH2, CH3, CHG, INPUT (sequentially) ■ LED

RS Laptop  6. cmd I_OFPLIVT (‘LIV power OFF’)
          Execute

2.10. DUPLEX TV COMMUNICATION (Ц-Б-Ц) VIA LIRA

PREPARATION TO DOWNLINK

Prepare to recording (see 2.5.1 page 2—10)

          NOTE
          If required to alternate between cameras use
          pb Camera-1(2) in zone SW-1 of Encoder
2.10.1. CAMERA-1(2) TV SIGNAL TRANSMISSION

Camera-1(2)

1. Set POWER
   sw CAMERA/VTR \rightarrow ON

Monitor-1

2. Perform Camera-1,2 ADJUSTMENT (see 2.3.2 p. 2—7)

3. Adjust (if necessary) (see 2.3.3 p. 2—7)

For downlink via Lira in SECAM:

RS Laptop

4. proc F25_TVS_16 (‘Connect LIV to Lira XMTR ГОСТ’)
   Execute
   "LIV" \rightarrow BK

   Lira XMTR

For downlink via Lira in MAC:

5. proc F25_TVS_15 (‘Connect LIV to Lira XMTR MAC’)
   Execute
   "LIV" \rightarrow BK

   MUX

   Lira XMTR

For downlink via [TBC] Television Subsystem in MAC:

6. proc F25_TVS_14 (‘Connect LIV to XMTR Т MAC’)
   Execute
   "LIV" \rightarrow BK

   MUX

   Lira XMTR

For downlink via [TBC] Television Subsystem in SECAM:

7. cmd I_ONPKL160T (‘КЛ160-T power ON’)
   Execute
   cmd I_ONENLIVT (‘Link from \EBK LIV’)
   Execute
   cmd I_ONPRDT (‘TV XMTR ON’)
   Execute
   TV XMTR

Monitor-1

8. image

Low noise headset

\EBK sound quality
For downlink signal recording:
VTR
9. Open cassette compartment lid
   Insert cassette aligning it with white marks
   REC, PLAY (simultaneously)  LED REC, PLAY
   LED REC, PLAY
Encoder in zone SW-2
CAMERA-1(2)
10. Perform test recording on VTR (see 2.5.2)
   or
11. Perform CAMERA-1 RECORDING (see 2.5.4)
      Perform CAMERA-2 RECORDING (see 2.5.3)

2.10.2. VIEWING RECEIVED SIGNAL
Monitor-2
1. POWER  ON

After establishing communication
RS Laptop
2. proc F25_TVS_24 ('Connect Lira RCVR to LIV MON')
   Execute
   Monitor-2
   3. image
   Low noise headset
      sound quality

2.10.3. RECEIVED SIGNAL RECORDING
VTR
1. Open cassette compartment lid
   Insert cassette aligning it with white marks
   REC, PLAY (simultaneously)  LED REC, PLAY
   LED REC, PLAY

Monitor-2
2. POWER  ON

After establishing communication
RS Laptop
3. proc F25_TVS_25 ('Connect Lira RCVR to LIV recorder')
   Execute

VTR
4. PAUSE  LED PAUSE
      LED REC
      LED PLAY

Monitor-2
5. knob COLOR, BRIGHT, PICTURE, SHARP
      image

VTR
6. PAUSE  LED PAUSE
      STOP
      EJECT

Remove cassette and indicate event title and date on the label
2.10.4. CLOSEOUT OPERATIONS

RS Laptop
1. СМ:БРТК:TV System
   proc F25_TVS_26 (‘Television OFF’)
   Execute

   NOTE
   There are no icons highlighted blue after proc
   execution, except Lira XMTR and RCVR, which
   may stay highlighted.

2. Deactivate portable lamps (see RODF: СЭП)

Camera-1,2
3. sw CAMERA/VTR → PRE HEAT
   @ POWER

Converter
4. @ CH1, CH2, CH3, CHG, INPUT (sequentially)  ■ LED

RS Laptop
5. cmd L_OFPLIVT (‘LIV power OFF’)
   Execute
3. AGAT-2 SYSTEM

Figure 3.1-1. Audio system

Figure 3.1-2. Camcoder

3.1.1. SYSTEM ASSEMBLY AND ACTIVATION

1. \( \sqrt{\Phi} \) AGAT 2 AUD/VIDEO
2. \( \sqrt{\Phi} \) ПИТ
3. Set up configuration (see Figure 3.1-1)
4. Install joystick on the attachment site near the LED ПИТ (POWER)

ППС 23 (338)

5. \( \Phi \) AGAT 2 AUD/VIDEO
6. \( \Phi \) ПИТ

LED ПИТ (green)

\( \heartsuit \) fan noise
3.1.2. VIDEORECORDING PLAYBACK

1. Assemble hardware per Figure 3.1-2
RS Laptop
2. **CM:BPTK:TV System**
   cmd: I_ONPLIVT (‘LIV power ON’)
   Execute
Converter LIV
3. @ INPUT, CH1, CH2, CH3 (in order) □ LED (green)
Camcoder
4. ↓ and hold green pb of sw CAMERA/OFF/PLAYER
   sw CAMERA/OFF/PLAYER → PLAYER
   ↓ and hold pb EJECT (blue)
   Move sw EJECT in the arrow direction
   Insert cassette in cassette receiver
   Open the door upwards camcoder
   ↓ ▶ (Playback starts)

3.1.3. FILMING

1. FILMING PREPARATION
   1. Switch the power on (see Figure 3.1-2)
   or
   Supply power battery
Camcoder
2. Insert blank video tape
   sw AUTO LOCK → Upper position (green label)
   sw FOCUS → AUTO
   Remove lens cover and attach it to the holder
   ↓ and hold green pb of sw CAMERA/OFF/PLAYER
   sw CAMERA/OFF/PLAYER → CAMERA
   sw STANDBY → STANDBY
Viewfinder
   □ STBY

2. VIDEORECORDING
   ↓ START/STOP □ LED REC (in viewfinder)
   □ LED TALLY (red light in front)
To stop video recording momentary:
   ↓ START/STOP □ LED STBY (in viewfinder)

3. TO FINISH RECORDING
   @ STANDBY → LOCK (to cover pb START/STOP)
   ↓ and hold green pb of sw CAMERA/OFF/PLAYER
   sw CAMERA/OFF/PLAYER → OFF
   Move sw EJECT in the arrow direction
   Remove cassette

3.1.4. CHARGING THE BATTERY PACK

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Charging time ~2 hours 20 minutes</td>
</tr>
<tr>
<td>2. Working time ~1 hour 15 minutes</td>
</tr>
</tbody>
</table>

1. Install the battery on the battery charger
2. sw CHARGE/VTR → CHARGE □ LED CHARGE (orange)
   After charging is complete: ■ LED CHARGE
4. GLISSER-M VIDEO SYSTEM

4.1. CHARGING BATTERIES

NOTE
Do not obstruct the intake vents on the sides of the battery charger

1. Set up configuration

![Battery Charging Configuration Diagram]

Figure 4.1. Battery Charging Configuration

NOTE
1. Battery trimming is required if time period from charging to usage is more than 48 hours
2. Trimming time ~3 hours

2. Supply power to battery charger
   - LED STATUS (battery charger preparing for operation)
   - LED STATUS (battery charger is ready to operate)
   - LED CHARGE
   - LED READY alternating (battery charger preparing for charging)
   - LED CHARGE (battery charging ~3 hours)
   - LED READY (battery charging complete, battery trimming in progress)
   - LED READY (battery trimming complete)

   LED state after entire charging process complete:
   - LED STATUS
   - LED CHARGE
   - (LED) LED READY

3. Shut off power from the battery charger
4. Depress and hold release levers
   Remove battery from battery charger
5. Disassemble configuration
4.2. EVA PREPARATION

Prepare battery and clear videocassette

4.2.1. BATTERY AND VIDEOCASSETTE INSTALLATION

![Diagram of sealed enclosure and VTR connections]

Figure 4.2.1. Filming Configuration Diagram

Sealed Enclosure
1. Tie bolts
   Remove VTR lid from sealed enclosure

Remote Control
   √ ПИТАНИЕ
   LED (two, green)

Sealed Enclosure Lid
   cbl ГЛС/К/02 → cnctr X5

2. Install battery in VTR until secured

VTR, Automatic
   and hold on device
   LED

Power Down Device
   on device
   LED

Remote Control
   ПИТАНИЕ
   LED (two, green)

VTR
   EJECT
   Insert video cassette into VTR (window facing out)
   Close cassette compartment lid

4.2.2. TEST RECORDING

Remote Control
1. ЗАПИСЬ
   00:00:00 (two, red)
   00:00:03 (two, red) (recording begins)
   00:00:20 ЗАПИСЬ (again) (two, red (pause))
   LED (two, red (pause))
   LED (two, green)

Sealed Enclosure Lid 2.
   cbl ГЛС/К/02 → cnctr X5

Sealed Enclosure
   Insert VTR lid into sealed enclosure
   Tie bolts crosswise method (in pairs)
   Tighten with #12 wrench (crosswise)
   Pressure equalization plug
4.2.3. TV TRANSMITTER INSTALLATION

Figure 4.2.3. Filming and TV Transmission Configuration Diagram

1. Run cnctr X8 of cbl ГЛС/К/02 through multilayer insulator pocket flap for TV Transmitter
cnctr X8 of cbl ГЛС/К/02 → cnctr X8 of TV Transmitter
Place TV Transmitter with switch facing out, antenna cnctr up
Stow TV Transmitter in multilayer insulator pocket
Extend cbl ГЛС/К/02 simultaneously
Antenna → cnctr TV transmitter

TV transmitter @ ПИТ ■ LED
Close pocket flap
Remote control 2. √ @ ПИТАНИЕ ■ LED (two)
cnctr X5 of cbl ГЛС/К/02 → cnctr X5 of sealed enclosure
Secure safety springhooks on ribs of sealed enclosure (near cnctr X5)
Close flap of sealed enclosure lid
Install remote control and TV camera on multilayer insulator
Stow cbl ГЛС/К/02 in thermal insulation pocket
Secure TV camera with rubber harness (if necessary)

4.2.4. PORTABLE BRACKET PREPARATION

Portable Bracket Transitional rack ←→ Upper MMЗ (mech-magnetic latch)
Sealed Encloser Bottom side Screw transitional rack in
Tighten transitional rack with wrench S = 19 mm
Portable Bracket √ telescopic rod → Lower MMЗ (mech-magnetic latch)
Secure lower MMЗ
Secure and fold completely telescopic rod
Close and secure clamp
Two holders → lower position
Verify lower plate opens and closes freely
4.2.5. TV RECEIVER FUNCTIONAL CHECKOUT

Configure equipment

To Antenna Feeder Unit

TV RECEIVER

Video OUT

LIV/106/05

VIDEO IN

03

DC 12v IN

LIV/105/01

+12v OUT

Figure 4.2.5. Receiver connection diagram

1. LIV ACTIVATION

RS Laptop

1. CM:5РТК:TV System

cmd I_ONPLIVT ('LIV power ON')

Execute

Converter LIV

2. INPUT, CH1, CH2, CH3 (sequentially) □ LED (green)

2. INDICATORS CHECKOUT

TV Receiver

□ POWER □ LED (green)

□ CHANNEL □ LED (yellow B)

□ ANTEENA SWITCH (left) □ LED (green A)

or □ LED (yellow B)

or □ LED (green C)

□ ANTEENA SWITCH (right) □ LED (green A)

or □ LED (green C)

□ POWER □ LED

3. LIV VIDEO SYSTEM DEACTIVATION

Converter LIV

@ CH1, CH2, CH3, INPUT (in order) □ LED

RS Laptop

CM:5РТК:TV System

cmd I_OFPLIVT ('LIV power OFF')

Execute

4.3. USING THE SYSTEM DURING EVA

NOTE

1. Recording and transmit to station modes are compatible

2. The battery charge is sufficient for

In record mode

– 3 hours of continuous operation (including Pause and Stop modes)

In transmit to station mode

– 2 hours of continuous operation (including Pause and Stop modes)

In record and transmit to station mode

– 1 hour of continuous operation (including Pause and Stop modes)
4.3.1. RECORDING ON VTR

1. PREPARATION

Select subject for filming

Remote Control

- ПИТАНИЕ
- ЗАПИСЬ

- LED (two, green)
- LED (two, red) (~3 seconds)
- LED (two, red) (recording begins)

NOTE

When operating:

- two LED red occasionally - tape in video cassette or battery charge is running out
- two LED red frequently - tape in video cassette or battery charge has run out

2. SETTING VTR INTO PAUSE MODE

- ЗАПИСЬ (again)
- LED (two, red) (pause mode)

NOTE

After operating for 5 minutes in PAUSE mode, VTR automatically goes into STOP mode without visible indication changings.

If interval is more then 5 minutes or recording has stopped

- ПИТАНИЕ
- LED (two, green)

3. USING PORTABLE BRACKET

Find an empty part of station handrail not less 20 centimeters in length.

- The filming subject can be shot
- Secure portable bracket on handrail with clasp
- Open clamp
- Place clamp upper part on handrail close clamp
- Connection is tight
- Securing detents → vertical position
- Connection is tight
- Open upper mech-magnetic latch (MM3)
- Install transitional rack connected to sealed encloser (ГБ) with spherical end into MM3 socket
- Secure sealed ecloser (ГБ) on telescopic rod by clasp with holder
- Open lower MM3
- Telescopic rod (Camera coarse aiming on filming subject)
- Close lower MM3
- Release rod holders
- Set requiring length of telescopic rod and tighten rod holders

Upper MM3
- Transitional rack (Camera fine aiming on filming subject)
- Close MM3

When work is complete: Disassemble portable bracket
**4.3.2. TRANSMISSION OF VIDEO SIGNAL TO STATION**

1. **PREPARATION FOR TRANSMISSION**

   1. Configure equipment (see Figure 4.2.5.)

   **VTR LIV/106/05**
   - sw VIDEO IN CAMERA/LINE → LINE

   **RS Laptop**
   - [SM:БРТК:TV System]
   - cmd I_ONPLIVT ('LIV power ON')
   - Execute

   **Converter LIV**
   - ⏯ INPUT, CH1, CH2, CH3 (sequentially) □ LED (green)
   - ⏯ POWER □ LED (green)
   - ⏯ CHANNEL □ LED (yellow B)
   - ⏯ ANTENNA SWITCH (left) □ LED (green A)
   - or □ LED (yellow B)
   - or □ LED (green C)
   - or ⏯ ANTENNA SWITCH (right) □ LED (green A)

2. **SIGNAL TRANSMITTING**

   **NOTE**
   
   Operator (crew member) on board commands to EVA-1(2) to activate video system and TV Transmitter

   **TV Transmitter**
   - ⏯ ПИТАНИЕ □ LED (two, green)

   **Remote Control**
   - ⏯ ПИТ □ LED (green)

   **TV Receiver**
   - □ indicator SIGNAL STRENGTH (third of the scale or more lit)

   **NOTE**
   
   Operator (crew member) on board monitors the Monitor-2 (LIV/106/06) image and commands to change Camera or TV Transmitter Antenna position if required

3. **TRANSMISSION CLOSEOUT**

   **TV TRANSMITTER**
   - ⏯ ПИТ ■ LED (green)

   **Remote Control**
   - ⏯ ПИТАНИЕ ■ 2 LED (green)

   **TV RECEIVER**
   - ⏯ POWER ■ 2 LED (green)

   **Converter**
   - ⏯ CH1, CH2, CH3, INPUT (sequentially) ■ LED

   **RS Laptop**
   - [SM:БРТК:TV System]
   - cmd I_OFPLIVT ('LIV power OFF')
   - Execute
4.4. OPERATING VIDEO SYSTEM AFTER EVA

4.4.1. VIDEO SYSTEM DISASSEMBLY

cbl ГЛС/02 1. cnctr X5 ←→ cnctr X5 Sealed Encloser
cnctr X8 ←→ cnctr X8 TV Transmitter
TV Transmitter Antenna ←→ TV Transmitter
Remove TV Transmitter from multilayer insulater
Sealed Encloser Lid 2. Plug КВД
Plug КВД
Plug КВД
Clamp bolts
Remove Sealed Encloser Lid with VTR from Sealed Encloser
cbl ГЛС/02 3. cnctr X5 ←→ cnctr X5 Sealed Encloser
Remote Control 4. ПИТАНИЕ LED (two, green)
VTR 5. ЕJECT
Remove cassette from VTR
Indicate event date on cassette
Put cassette in cassette case
Stow cassette in kit-bag
Close cassette compartment
Remote Control 6. ПИТАНИЕ LED (two, green)
cbl ГЛС/02 7. cnctr X5 ←→ cnctr X5 of Sealed Encloser

4.4.2. BATTERY DISCHARGING

Battery discharger 1. ПИТАНИЕ
2. Configure equipment

Battery discharger 3. (battery discharge) LED (red)
fan noise
After discharging is complete:

CAUTION
During battery discharger operating do not block entered and exhaust ventilation holes

Battery discharger 3. LED (red)
fan noise
LED (red)

Figure 4.4.2 Connection diagram for battery discharging

Лист
4.4.3. DISASSEMBLING CONFIGURATION

VTR 1. Release levers → Press and hold
Battery ↔ VTR adapter
Close Sealed Encloser Lid
Corner clamp bolts

Portable bracket 2. Transitional rack unscrew from Camera
Transitional rack → upper MM3
Upper MM3 → Close
Furl the telescopic rod
Secure telescopic rod with holders

4.5. CONNECTION TO LIV SYSTEM

1. Configure equipment

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**CAUTION**

Prior to powering on LIV video system Camera-1,2 POWER sw should be set to OFF, CAMERA/VTR sw should be set to PRE HEAT and Mixer control knobs 0-10 1,2,3,4 should be set to 0

Converter LIV 3. ◊ INPUT, CH1, CH2, CH3, CHG (sequentially) ◯ LED (green)
VTR ГЛС/01 4. ▼ EJECT
Insert cassette
Close cassette compartment
VTR LIV/106/05 5. sw VIDEO IN CAMERA/LINE → LINE
VTR ГЛС/01 Monitor – 1 6. Rewind the tape to the event beginning (LIV/106/06)

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Figure 4.5. Connection to LIV video system diagram
After communication is established:

For SECAM downlink via Lira system:
7. Perform step 4 2.10.1 p. 2-20

For MAC downlink via Lira system:
8. Perform step 5 2.10.1 p. 2-20

For MAC downlink via Television subsystem:
9. Perform step 6 2.10.1 p. 2-20

For SECAM downlink via TV subsystem:
10. Perform step 7 2.10.1 p. 2-20

VTR ГЛС/01
11. ↓ PLAY
Monitor-1  ↓ image (if necessary)
Low Noise Headset  ↓ sound quality

To finish transmitting:

VTR ГЛС/01
12. ↓ STOP

RS Laptop  13. CM:БРТК:TV System
proc F25_TVS_26 (Television OFF)
Execute

NOTE
There are no icons highlighted blue after proc execution, except Lira XMTR and Receiver, which may stay highlighted.

VTR LIV/106/05
14. sw VIDEO IN CAMERA/LINE → CAMERA

Converter  15. @ CH1, CH2, CH3, CHG, INPUT (in order)  ■ LED

RS Laptop  16. TV System
cmd l_OFPLIVT  ('LIV power OFF')
Execute

17. Disassemble connection (see Figure 4.5)