

SERVICE MODULE

VIDEO & AUDIO
(ВиА Авг)

SM.1

2000

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3—2 E	01 Aug 00
4—1 E	01 Aug 00
4—2 E	01 Aug 00
4—3 E	01 Aug 00
4—4 E	01 Aug 00
4—5 E	01 Aug 00
4—6 E	01 Aug 00
4—7 E	01 Aug 00
4—8 E	01 Aug 00
4—9 E	01 Aug 00

TABLE OF CONTENTS

INTRODUCTION	5
1. GENERAL INSTRUCTIONS	1—1
1.1. CREW RESPONSIBILITIES	1—1
1.2. SAFETY PRECAUTIONS	1—1
2. LIV VIDEO SYSTEM	2—1
2.1. EQUIPMENT STOWAGE	2—1
2.2. SETUP.....	2—4
2.3. LIV RECOMMENDED ASSEMBLY SEQUENCE	2—6
2.3.1. VIEWFINDER ADJUSTMENT	2—7
2.3.2. CAMERA-1(2) ADJUSTMENT.....	2—7
2.3.3. MONITOR ADJUSTMENT	2—7
2.3.4. MIXER ADJUSTMENT	2—7
2.4. LIV VIDEO SYSTEM INITIAL CONFIGURATION	2—8
2.5. BETACAM VTR RECORDING FROM CAMERA-1(2).....	2—10
2.5.1. RECORDING PREPARATIONS.....	2—10
2.5.2. VTR TEST RECORDING	2—11
2.5.3. CAMERA-2 RECORDING	2—11
2.5.4. CAMERA-1 RECORDING	2—12
2.5.5. FINAL OPERATIONS.....	2—12
2.6. RECORDING FROM EXTERNAL VIDEO DEVICE.....	2—13
2.7. TV BROADCASTING.....	2—15
2.8. VIEWING VIDEO ON THE BETACAM VTR WITHOUT DOWNLINK	2—16
2.9. VIDEO DOWNLINK FROM THE BETACAM VTR.....	2—17
2.10. DUPLEX TV COMMUNICATION (Ц-Б-Ц) VIA LIRA.....	2—19
2.10.1. CAMERA-1(2) TV SIGNAL TRANSMISSION	2—20
2.10.2. VIEWING RECEIVED SIGNAL.....	2—21
2.10.3. RECEIVED SIGNAL RECORDING	2—21
2.10.4. CLOSEOUT OPERATIONS	2—22
3. AGAT-2 SYSTEM	3—1
3.1.1. SYSTEM ASSEMBLY AND ACTIVATION.....	3—1
3.1.2. VIDEORECORDING PLAYBACK.....	3—2
3.1.3. FILMING.....	3—2
3.1.4. CHARGING THE BATTERY PACK.....	3—2

4. GLISSER-M VIDEO SYSTEM	4—1
4.1. CHARGING BATTERIES	4—1
4.2. EVA PREPARATION	4—2
4.2.1. BATTERY AND VIDEOCASSETTE INSTALLATION.....	4—2
4.2.2. TEST RECORDING	4—2
4.2.3. TV TRANSMITTER INSTALLATION	4—3
4.2.4. PORTABLE BRACKET PREPARATION	4—3
4.2.5. TV RECEIVER FUNCTIONAL CHECKOUT	4—4
4.3. USING THE SYSTEM DURING EVA.....	4—4
4.3.1. RECORDING ON VTR.....	4—5
4.3.2. TRANSMISSION OF VIDEO SIGNAL TO STATION	4—6
4.4. OPERATING VIDEO SYSTEM AFTER EVA.....	4—7
4.4.1. VIDEO SYSTEM DISASSEMBLY.....	4—7
4.4.2. BATTERY DISCHARGING.....	4—7
4.4.3. DISASSEMBLING CONFIGURATION	4—8
4.5. CONNECTION TO LIV SYSTEM	4—8

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:

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

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

#	Name	Quantity
1	Videocassette recorder BVW-50P	1
2	Encorder K-015	1
3	Converter UN-941	1
4	Mixer MXP-42	1
5	Videocassette BCT-30MA	10
6	Microphone ECM-55S power unit	1
7	Multipurpose portable bracket	1

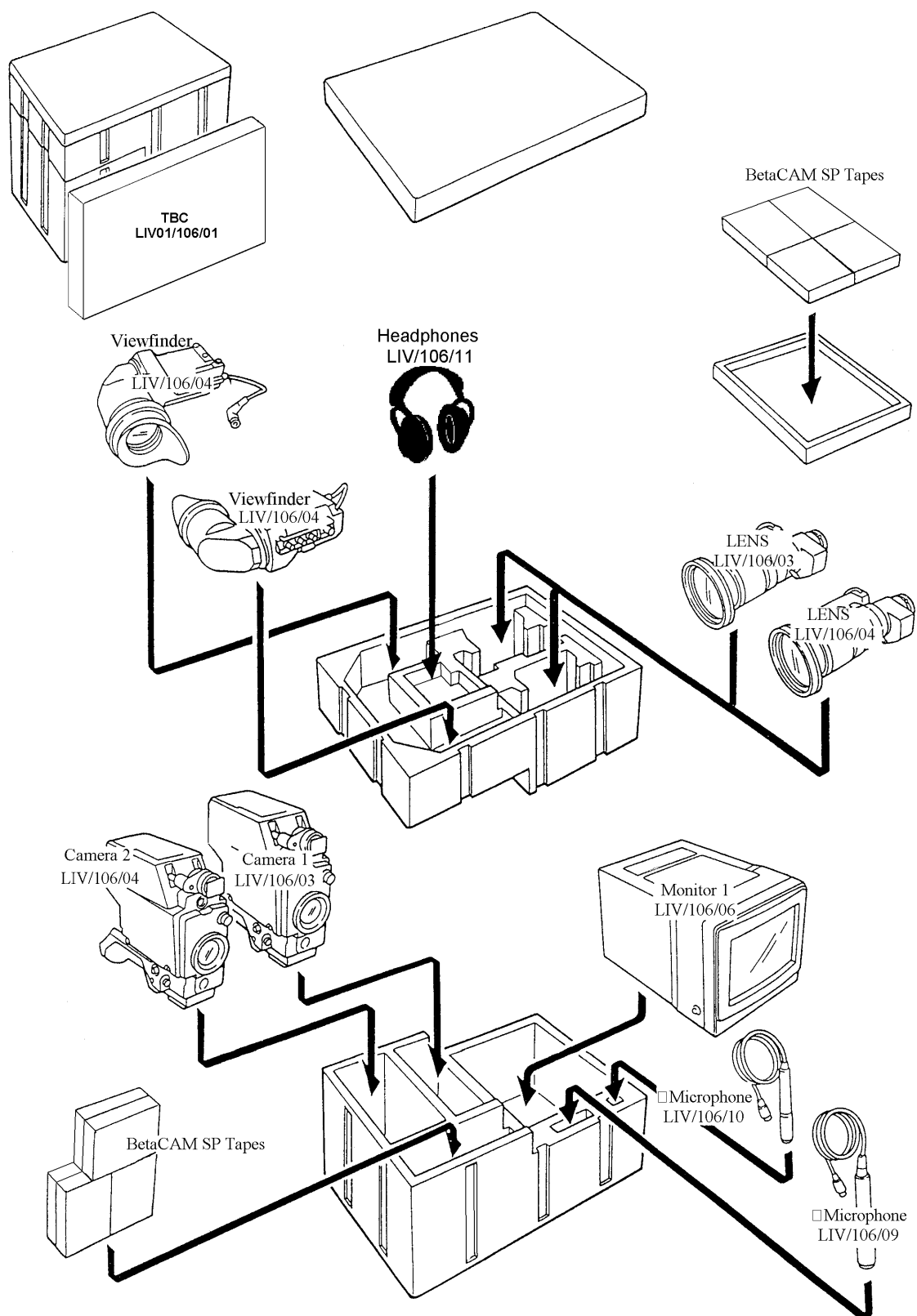


Figure 2.1-1. Contents of LIV container #1

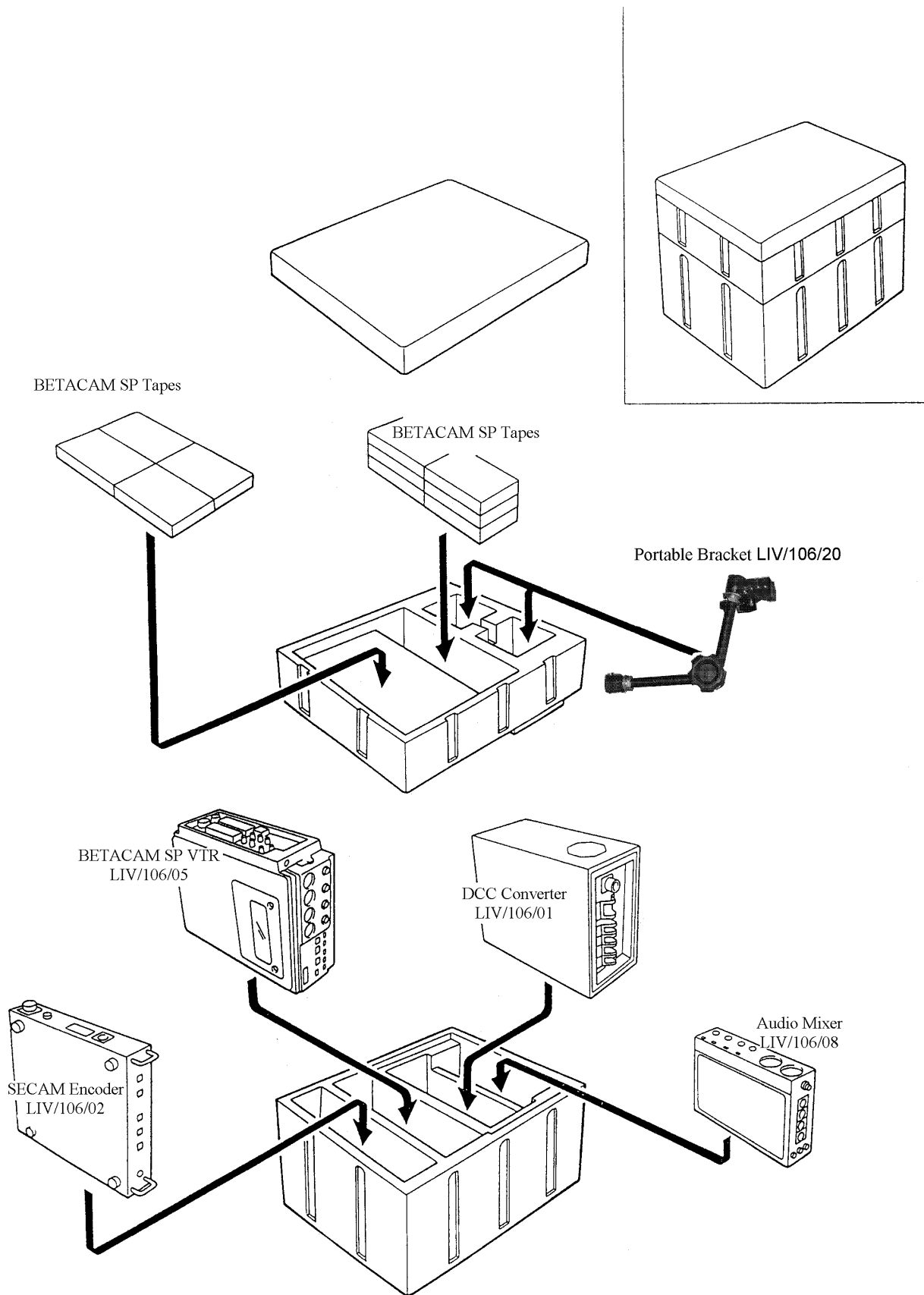


Figure 2.1-2. Contents of LIV container #2

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.

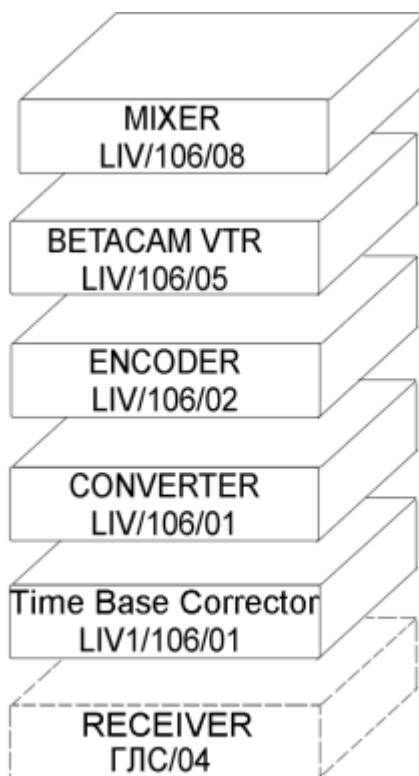


Figure 2.2-1. Placement of LIV video system units

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

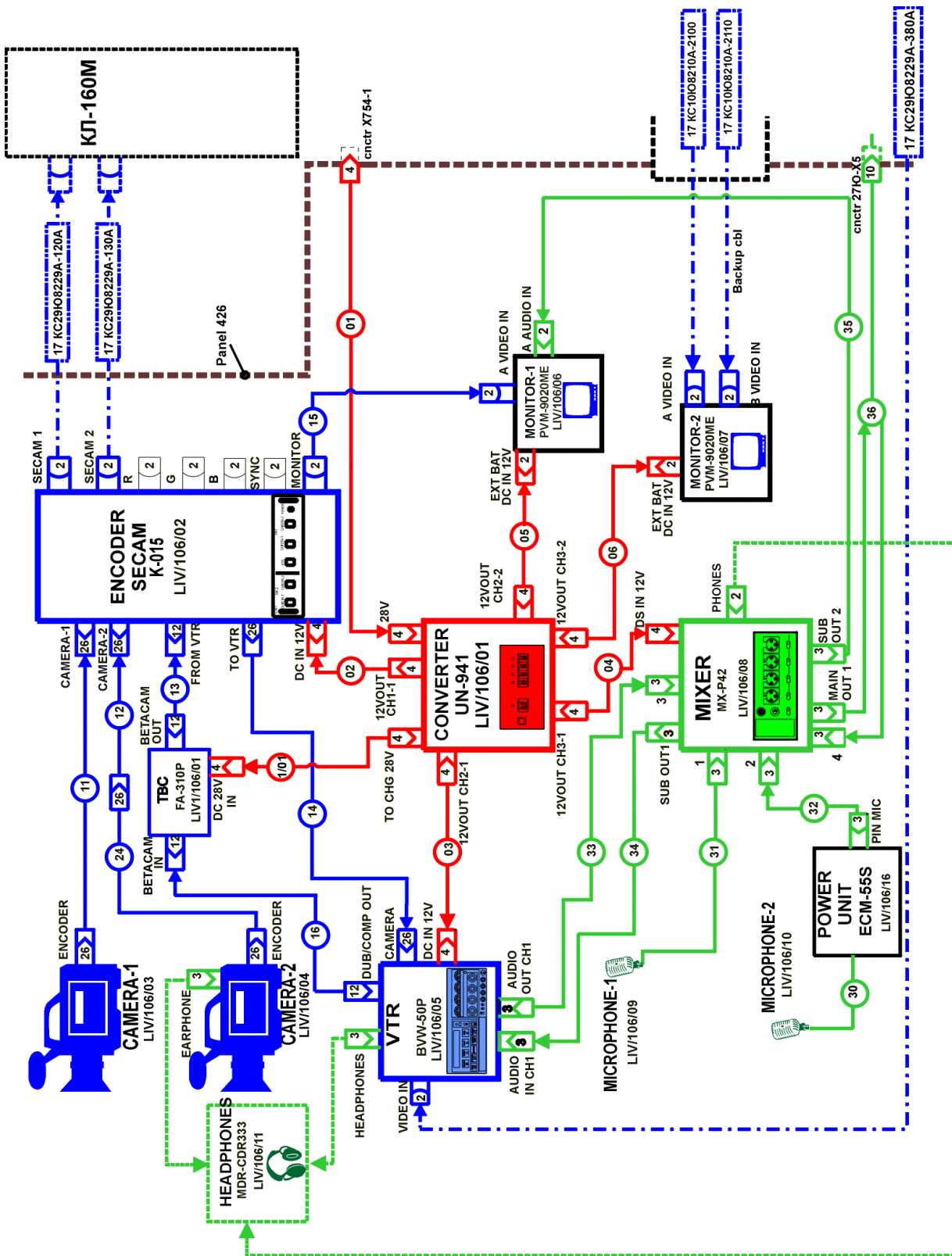


Figure 2.2-2. LIV video system functional diagram

2.3. LIV RECOMMENDED ASSEMBLY SEQUENCE

	CABLE	CABLE CONNECTOR	DEVICE CONNECTOR	DEVICE
P O W E R	LIV/01	cnctr X754-1 cnctr DC IN 28V	cnctr X754-1 cnctr DC IN 28V	pnl 426 Converter LIV/106/01
	LIV/02	cnctr 12V OUT CH1-1 cnctr DC IN 12V	cnctr 12V CH1-1 cnctr DC IN 12V	Converter LIV/106/01 Encoder LIV/106/02
	LIV/03	cnctr 12V OUT CH2-1 cnctr DC IN 12V	cnctr 12V OUT CH2-1 cnctr DC IN 12V	Converter LIV/106/01 VTR LIV/106/05
	LIV/04	cnctr 12V OUT CH3-1 cnctr DC IN 12V	cnctr 12V OUT CH3-1 cnctr DC IN 12V	Converter LIV/106/01 Mixer LIV/106/08
	LIV/05	cnctr 12V OUT CH2-2 cnctr EXT BAT DC IN 12V	cnctr 12V OUT CH2-2 cnctr EXT BAT DC IN 12V	Converter LIV/106/01 Monitor-1 LIV/106/06
	LIV/06	cnctr 12V OUT CH1-1 cnctr EXT BAT DC IN 12V	cnctr 12V OUT CH1-1 cnctr EXT BAT DC IN 12V	Converter LIV/106/01 Monitor-2 LIV/106/07
	LIV1/01	cnctr TO CHG 28V cnctr DC IN 28V	cnctr TO CHG 28V cnctr DC IN 28V	Converter LIV/106/01 TBC LIV1/106/01
V I D E O	LIV/11	cnctr CAMERA-1 cnctr ENCODER	cnctr CAMERA-1 cnctr ENCODER	Encoder LIV/106/02 Camera-1 LIV/106/03
	LIV/12	cnctr CAMERA-2 cnctr ENCODER	cnctr CAMERA-2 cnctr ENCODER	Encoder LIV/106/02 Camera-2 LIV/106/04
	LIV/13	cnctr FROM VTR cnctr BETACAM OUT	cnctr FROM VTR cnctr BETACAM OUT	Encoder LIV/106/02 TBC LIV1/106/01
	LIV/14	cnctr TO VTR cnctr CAMERA	cnctr TO VTR cnctr CAMERA	Encoder LIV/106/02 VTR LIV/106/05
	LIV/15	cnctr MONITOR A VIDEO IN	cnctr MONITOR A VIDEO IN	Encoder LIV/106/02 Monitor-1 LIV/106/06
	LIV/16	cnctr BETACAM IN cnctr DUB/COMP OUT	cnctr BETACAM IN cnctr DUB/COMP OUT	TBC LIV1/106/01 VTR LIV/106/05
	A U D I O	LIV/31	cnctr 1	cnctr 1
LIV/32		cnctr 2 cnctr PIN MIC	cnctr 2 cnctr PIN MIC	Mixer LIV/106/08 Power unit LIV/106/16
LIV/33		cnctr 3 cnctr AUDIO OUT CH1	cnctr 3 cnctr AUDIO OUT CH1	Mixer LIV/106/08 VTR LIV/106/05
LIV/34		cnctr SUB OUT 1 cnctr AUDIO IN CH1	cnctr SUB OUT 1 cnctr AUDIO IN CH1	Mixer LIV/106/08 VTR LIV/106/05
LIV/35		cnctr SUB OUT2 cnctr A AUDIO IN	cnctr SUB OUT2 cnctr A AUDIO IN	Mixer LIV/106/08 Monitor-1 LIV/106/06
LIV/36		cnctr MAINOUT 1 cnctr 4 cnctr 27Ю-X5	cnctr MAINOUT 1 cnctr 4 cnctr 27Ю-X5	Mixer LIV/106/08 Mixer LIV/106/08 pnl 426

pnl 426 cbl 17KC29Ю8229A-120A →|← cnctr SECAM-1 Encoder LIV/106/02
 cbl 17KC29Ю8229A-130A →|← cnctr SECAM-2 Encoder LIV/106/02
 cbl 17KC29Ю8229A-380A →|← cnctr VIDEO IN VTR LIV/106/05

 cbl 17KC10Ю8210A-2100 →|← cnctr A VIDEO IN Monitor-2 LIV/106/07
 cbl 17KC10Ю8210A-2110 →|← cnctr B VIDEO IN Monitor-2 LIV/106/07

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

Lens

1. sw OUTPUT → CAM
2. Install required filter
 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

Camera-1(2) knob COLOR → middle position
 Monitor-1 sw OUTPUT → CAM
 ◀ 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**NOTE**

Initial position of controls is marked with white dots

Monitor-1,2 (front pnl)	<ul style="list-style-type: none"> ↕ INPUT, H/V-DELAY ↕ SCAN, B-ONLY, SECAM knob COLOR, BRIGHT, PICTURE → middle position (soft stop) ↻ VOL 	
(rear pnl)	<ul style="list-style-type: none"> pb POWER → ON sw CHARGE/OPERATE → OPERATE sw 75Ω (two) → ON 	
Time Base Corrector	<ul style="list-style-type: none"> Ⓢ POWER 	
Converter	<ul style="list-style-type: none"> Ⓢ INPUT, CH1, CH2, CH3, CHG 	■ LED
Encoder (right side pnl)	<ul style="list-style-type: none"> Ⓢ POWER Ⓢ DC OFF SET 	
VTR (front pnl)	<ul style="list-style-type: none"> Ⓢ POWER 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)	<ul style="list-style-type: none"> 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 (remaining switches are not used) 	
Mixer (left side pnl)	<ul style="list-style-type: none"> Ⓢ POWER sw +48V 1, 2, 3, 4 → ON 	

(top pnl)

Channel CH-1	sw MIC/LINE	→ MIC
	sw -20/ +4	→ -20dB
Channel CH-2	sw COMP/OFF/COMP+EXP	→ OFF
	sw MIC/LINE	→ MIC
	sw -20/ +4	→ -20dB
Channel CH-3	sw COMP/OFF/COMP+EXP	→ OFF
	sw MIC/LINE	→ LINE
	sw -20/ +4	→ -20dB
Channel CH-4	sw COMP/OFF/COMP+EXP	→ OFF
	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)
between level indicators	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. | <u>CM:БРТК:TV System</u>
cmd I_ONPLIVT ('LIV power ON')
Execute | |
| Converter
Camera-1(2) | 3. | ⊕ INPUT CH1, CH2, CH3 (in order) | <input type="checkbox"/> LED (green) |
| | 4. | ⊕ POWER | |
| Viewfinder
Monitor-1 | 5. | sw CAMERA/VTR → ON
Adjust (if necessary) (see 2.3.1) | |
| | 6. | Adjust (if necessary) (see 2.3.3) | |
| VTR | 7. | Perform Camera-1(2) adjustmet (see 2.3.2) | |
| | 8. | Open cassette compartment lid
Insert cassette aligning it with white marks
↓ REC, PLAY (simultaneously) | <input type="checkbox"/> LED REC, PLAY
<input checked="" type="checkbox"/> LED PAUSE |
| Encoder
SW-2(VTR) zone
SW-1(VIDEO OUT) zone | 9. | ↓ CAMERA-1(2)
√ <input type="checkbox"/> VTR | <input type="checkbox"/> CAMERA-1(2) |

To record sound via Camera-2:

- | | | | |
|----------|--------------------------------------|-----|--------------------------|
| Camera-2 | MICROPHONE-1 | → ← | cnctr MIC IN on Camera-2 |
| VTR | sw MIC IN | | → EXT |
| | sw AUDIO IN CH-1 LINE/CAMERA | | → LINE |
| | sw -60/-20/+4 | | → -60 |
| | ◀◀ signal level using VTR indicators | | |

To record sound via Mixer:

- | | | | |
|-----------|---|-----|-----------------------------------|
| Monitor-1 | MICROPHONE-1 | → ← | cnctr 1 on Mixer |
| Mixer | knob VOL | ↻ | (listen to sound with headphones) |
| | 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)
VTR | 1. | sw OUTPUT | → BARS |
| | 2. | ↓ PAUSE | |
| | | Record colored stripes | |
| | | ↓ STOP | |
| | | ↓ REW | |
| | | Rewind tape to beginning of bar recording | |
| | | ↓ STOP | |
| | | ↓ PLAY | |
| Monitor-1
VTR | 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 |
| | or | |
| Camera-2 | | ↓ 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
4. CM:БПТК:TV System
cmd I_OFPLIVT ('LIV power OFF')
Execute

For TV Receiver connection:

CAUTION

Do not activate KLEST Receiver and Transmitter simultaneously

- RS Laptop
9. **TV System**
cmd: I_ONPKL160T ('KJ-160 power ON')
Execute
cmd: I_ONPRMT ('TV RCVR b-b ON')
Execute
TV RCVR
cmd: I_ONEXVMLIVT ('Connect to LIV ЭBK BM')
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_TV5_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)

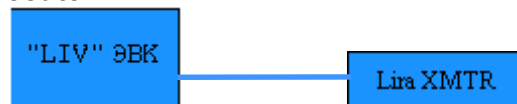
NOTE

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:БРТК:TV System`
`proc F25_TV5_16` ('Connect LIV to Lira XMTR ГООТ')
Execute



or

2. `proc F25_TV5_15` ('Connect LIV to Lira XMTR MAC')
Execute



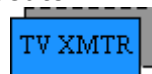
Monitor-1

3. ◀ the image (if necessary)

3. BROADCASTING VIA [TBC] TELEVISION SUBSYSTEM IN SECAM

RS Laptop

1. `CM:БРТК:TV System`
`cmd I_ONPKL160T` ('КЛ160-T power ON')
Execute
`cmd I_ONENLIVT` ('Link from ЭБК 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:БРТК:TV System`
`proc F25_TV5_14` ('Connect LIV to TV XMTR MAC')
Execute



Monitor-1

2. ◀ image (if necessary)

4. BROADCASTING CLOSEOUT

- RS Laptop 1. **CM:БПТК:TV System**
proc F25_TV5_26 ('Television OFF')
Execute

NOTE

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

- Camera-1,2 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:БПТК:TV System**
cmd I_ONPLIVT ('LIV power ON')
Execute
- Converter 2. ⊗ INPUT, CH1, CH2, CH3 (sequentially) □ LED (green)
- Encoder in zone SW-2 ↓ VTR □ VTR
- 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. | ↓ STOP
↓ EJECT
Remove cassette | |
| Camera-1,2 | 4. | sw CAMERA/VTR → 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

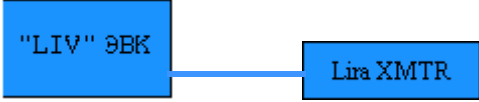
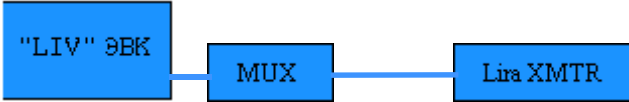
Prior to powering on LIV video system Camera-1,2 POWER sw should be set to OFF, CAMERA/VTR sw should be set to PRE HEAT and Mixer control knobs 0-10 1,2,3,4 should be set to 0

- | | | | |
|-------------------------|----|---|---------------|
| RS Laptop | 1. | <u>CM:БРТК:TV System</u>
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 | □ LED VTR |
| 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_TV5_16 ('Connect LIV to Lira XMTR ГOCT')
Execute

- or
2. **proc** F25_TV5_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 ('KЛ160-T power ON')
Execute
cmd I_ONENLIVT ('Link from ЭBK 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_TV5_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:БРТК:TV System**
proc F25_TV5_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 DO0WNLINK

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.  POWER
sw CAMERA/VTR → 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. `CM:БРТК:TV System`
`proc F25_TV5_16` ('Connect LIV to Lira XMTR ГOCT')
Execute



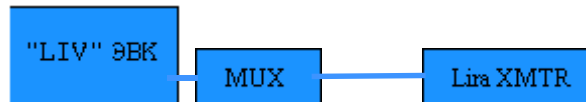
For downlink via Lira in MAC:

5. `proc F25_TV5_15` ('Connect LIV to Lira XMTR MAC')
Execute



For downlink via [TBC] Television Subsystem in MAC:



6. `proc F25_TV5_14` ('Connect LIV to XMTR T MAC')
Execute



For downlink via [TBC] Television Subsystem in SECAM:

7. `cmd I_ONPKL160T` ('КЛ160-T power ON')
Execute
`cmd I_ONENLIVT` ('Link from ЭBK LIV')
Execute
`cmd I_ONPRDT` ('TV XMTR ON')
Execute



- Monitor-1 8.  image
- Low noise headset  sound quality

2.10.4. CLOSEOUT OPERATIONS

- RS Laptop
1. CM:БРТК:TV System
proc F25_TV5_26 (*Television OFF*)
Execute

NOTE

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

- Camera-1,2
2. Deactivate portable lamps (see RODF: СЭП)
 3. sw CAMERA/VTR → PRE HEAT
Ⓢ POWER
- Converter
4. Ⓢ CH1, CH2, CH3, CHG, INPUT (sequentially) ■ LED
- RS Laptop
5. **cmd** I_OFPLIVT (*LIV power OFF*)
Execute

3. AGAT-2 SYSTEM

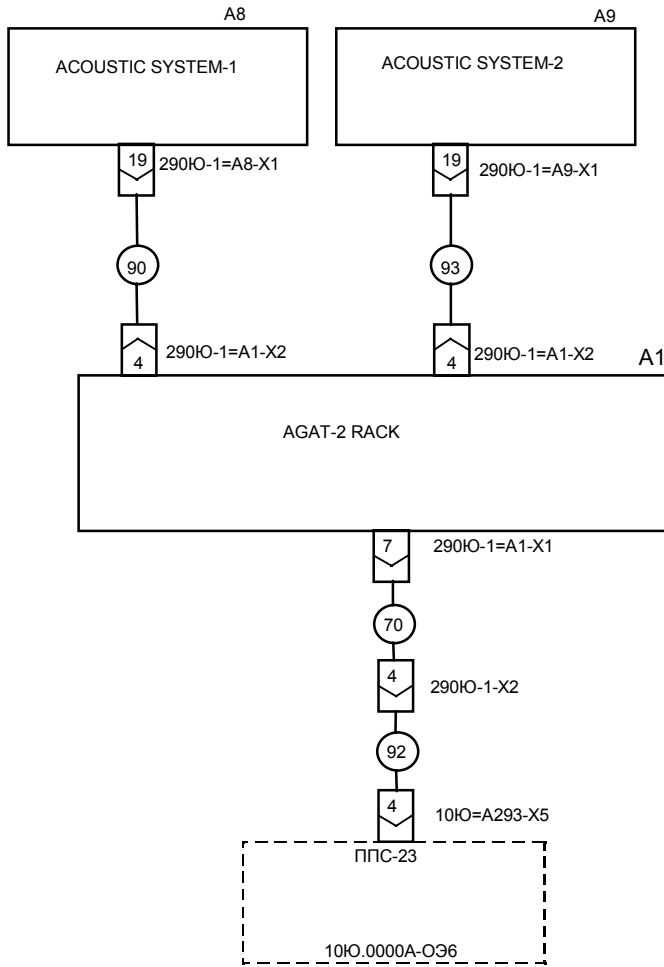


Figure 3.1-1. Audio system

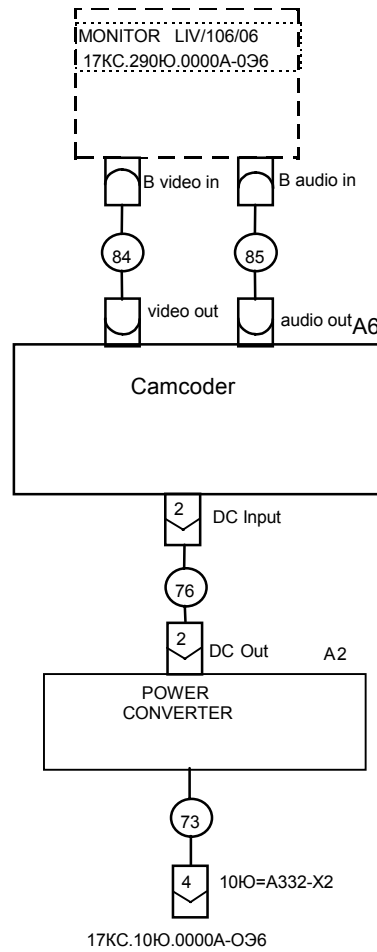


Figure 3.1-2. Camcoder

3.1.1. SYSTEM ASSEMBLY AND ACTIVATION

- | | |
|-----------------------|---|
| ППС 23 (338)
Rack | 1. ✓ Ⓢ АГАТ 2 AUD/VIDEO |
| | 2. ✓ Ⓢ ПИТ |
| | 3. Set up configuration (see Figure 3.1-1) |
| | 4. Install joystick on the attachment site near the LED ПИТ (POWER) |
| ППС 23
Rack | 5. Ⓢ АГАТ 2 AUD/VIDEO |
| | 6. Ⓢ ПИТ LED ПИТ (green) |
| | 👂 fan noise |

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

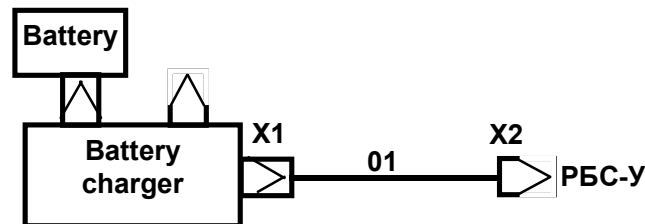


Figure 4.1. Battery Charging Configuration

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 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 videocasste

4.2.1. BATTERY AND VIDEOCASSETTE INSTALLATION

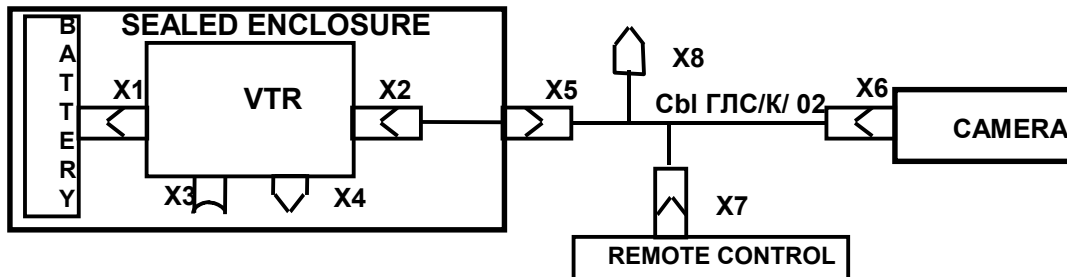


Figure 4.2.1. Filming Configuration Diagram

Sealed Enclosure	1.	Tie bolts ↻	
		Remove VTR lid from sealed enclosure	
Remote Control		√ Ⓢ ПИТАНИЕ	■ LED (two, green)
Sealed Enclosure Lid		сбл 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		↓ ЕJECT	
		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)	■ LED (two, red (pause))
		Ⓢ ПИТАНИЕ	■ LED (two, green)
Sealed Enclosure Lid	2.	сбл 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 ↻	

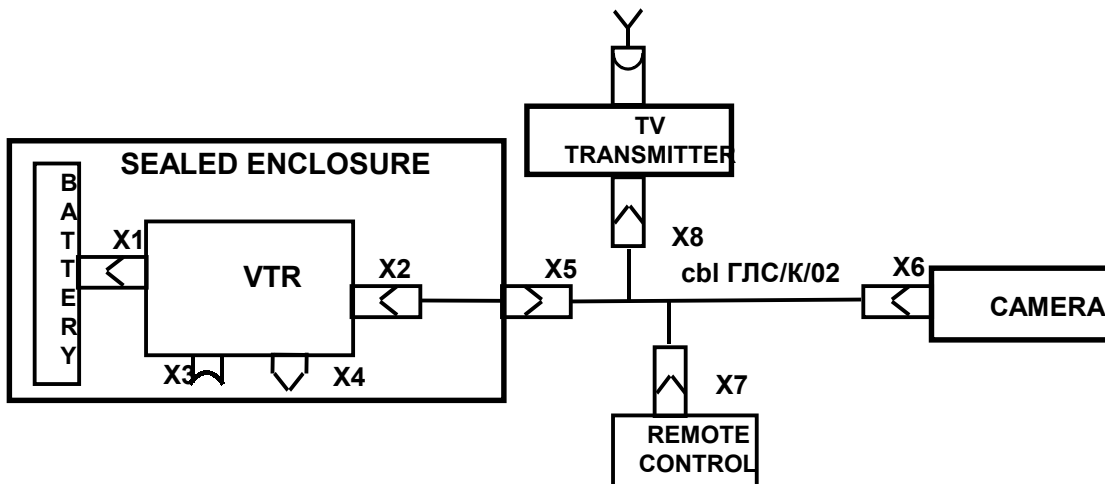
4.2.3. TV TRANSMITTER INSTALLATION

Figure 4.2.3. Filming and TV Transmission Configuration Diagram

1. Run cnctr X8 of cbI ГЛС/К/02 through multilayer insulater pocket flap for TV Transmitter

cnctr X8 of cbI ГЛС/К/02 →|← cnctr X8 of TV Transmitter

Place TV Transmitter with switch facing out, antenna cnctr up

Stow TV Transmitter in multilayer insulater pocket]

Extend cbI ГЛС/К/02] simultaneously

Antenna →|← cnctr TV transmitter

TV transmitter Ⓟ ПИТ

■ LED

Close pocket flap

Remote

control

2. √ Ⓟ ПИТАНИЕ ■ LED (two)

cnctr X5 of cbI 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 insulater

Stow cbI 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 MM3 (mech-magnetic latch)

Sealed Encloser

Bottom side Screw transitional rack in

Tighten transitional rack with wrench S = 19 mm

Portable

Bracket √ telescopic rod →|← Lower MM3 (mech-magnetic latch)

Secure lower MM3

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

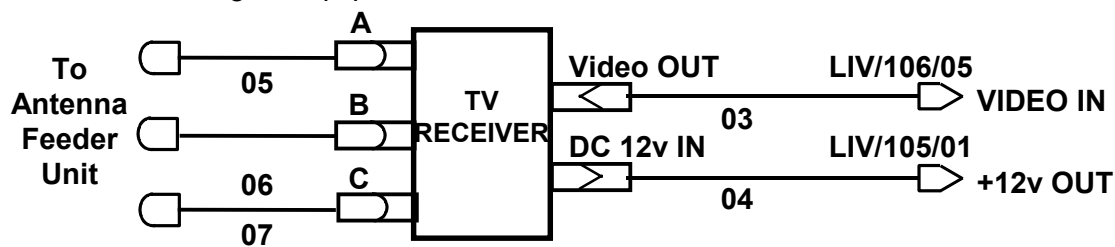


Figure 4.2.5. Receiver connection diagram

1. LIV ACTIVATION

RS Laptop

1. `CM:БРТК: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)
- ANTENNA SWITCH (left) LED (green A)
- or LED (yellow B)
- or LED (green C)
- ANTENNA SWITCH (right) LED (green A)
- or LED (green C)

- POWER LED

3. LIV VIDEO SYSTEM DEACTIVATIONConverter LIV
RS Laptop

- CH1, CH2, CH3, INPUT (in order) LED
- `CM:БРТК: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)

4.3.2. TRANSMISSION OF VIDEO SIGNAL TO STATION**1. PREPARATION FOR TRANSMISSION**

- | | | | |
|----------------|----|---|---|
| VTR LIV/106/05 | 1. | Configure equipment (see Figure 4.2.5.) | |
| RS Laptop | 2. | sw VIDEO IN CAMERA/LINE → LINE
CM:БРТК:TV System
cmd I_ONPLIVT ('LIV power ON')
Execute | |
| Converter LIV | 3. | <input checked="" type="checkbox"/> INPUT, CH1, CH2, CH3 (sequentially) | <input type="checkbox"/> LED (green) |
| TV Receiver | | <input checked="" type="checkbox"/> POWER | <input type="checkbox"/> LED (green) |
| | | <input checked="" type="checkbox"/> CHANNEL | <input type="checkbox"/> LED (yellow B) |
| | | <input checked="" type="checkbox"/> ANTENNA SWITCH (left) | <input type="checkbox"/> LED (green A) |
| | or | <input type="checkbox"/> LED (yellow B) | |
| | or | <input type="checkbox"/> LED (green C) | |
| | | <input checked="" type="checkbox"/> ANTENNA SWITCH (right) | <input type="checkbox"/> LED (green A) |
| | or | <input type="checkbox"/> LED (green C) | |

2. SIGNAL TRANSMITTING**NOTE**

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

- | | | | |
|----------------|----|---|---|
| TV Transmitter | 1. | <input checked="" type="checkbox"/> ПИТАНИЕ | <input type="checkbox"/> LED (two, green) |
| Remote Control | 2. | <input checked="" type="checkbox"/> ПИТ | <input type="checkbox"/> LED (green) |
| TV Receiver | | <input type="checkbox"/> 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 | 1. | <input checked="" type="checkbox"/> ПИТ | <input checked="" type="checkbox"/> LED (green) |
| Remote Control | 2. | <input checked="" type="checkbox"/> ПИТАНИЕ | <input checked="" type="checkbox"/> 2 LED (green) |
| TV RECEIVER | 3. | <input checked="" type="checkbox"/> POWER | <input checked="" type="checkbox"/> 2 LED (green) |
| Converter | 4. | <input checked="" type="checkbox"/> CH1, CH2, CH3, INPUT (sequentially) | <input checked="" type="checkbox"/> LED |
| RS Laptop | 5. | CM:БРТК:TV System
cmd I_OFPLIVT ('LIV power OFF')
Execute | |

4.4. OPERATING VIDEO SYSTEM AFTER EVA**4.4.1. VIDEO SYSTEM DISASSEMBLY**

- | | | | |
|---------------------|----|---|--------------------|
| cbI 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 | |
| cbI 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) |
| cbI ГЛС/02 | 7. | cnctr X5 ↔ cnctr X5 of Sealed Encloser | |

4.4.2. BATTERY DISCHARGING

- | | | |
|--------------------|----|---------------------|
| Battery discharger | 1. | Ⓢ |
| | 2. | Configure equipment |

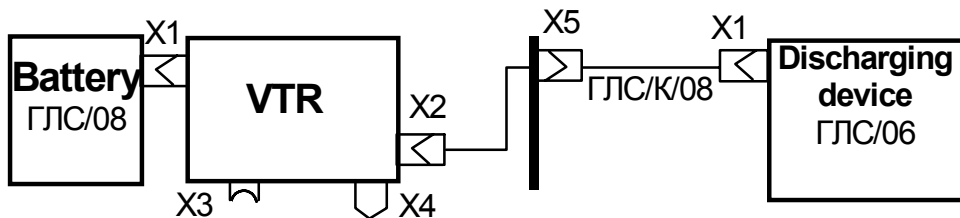


Figure 4.4.2 Connection diagram for battery discharging

CAUTION

During battery discharger operating do not
block enter and exhaust ventilation holes

- | | | | |
|--------------------------------|----|--------------------------------------|-------------|
| Battery discharger | 3. | Ⓢ (battery discharge)
Ⓢ fan noise | □ LED (red) |
| After discharging is complete: | | ■ LED (red)
Ⓢ | |

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

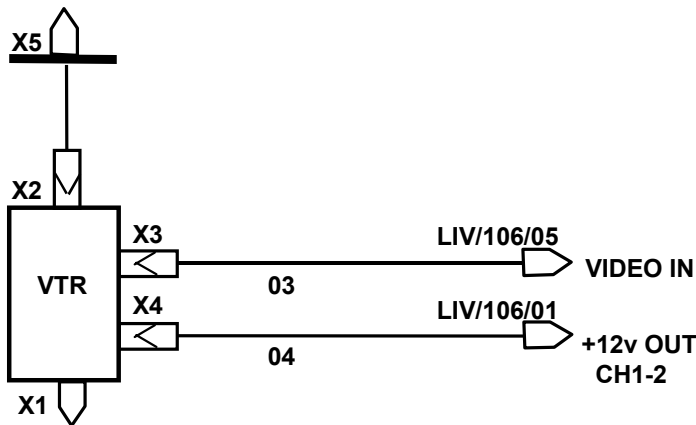


Figure 4.5. Connection to LIV video system diagram

RS Laptop

2. `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 LIV
VTR ГЛС/01

3. ⏻ INPUT, CH1, CH2, CH3, CHG (sequentially) ☐ LED (green)
4. ⏴ EJECT
Insert cassette
Close cassette compartment

VTR LIV/106/05

5. sw VIDEO IN CAMERA/LINE → LINE

VTR ГЛС/01
Monitor – 1
(LIV/106/06)

6. Rewind the tape to the event beginning
⏮ Event beginning

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 I_OFPLIVT ('LIV power OFF')
Execute |
| | 17. Disassemble connection (see Figure 4.5) |