Section 2 VTRs and ATRs

Introduction

This section presents setup and edit performance information for a variety of machines. You will find machine descriptions in the order listed below. For ease of reading, details are presented in the same format for each VTR or ATR.

Click on Topic to Link!

Abekas A62/A64/A66

Accom RTD

Ampex DCT 700D

Ampex VPR-3

Ampex VPR-300

Ampex VPR-6/VPR-80

Bosch DCR 100

Bosch DCR 500

Fostex D-20

JVC BR-S525US-VHS

JVC BR-S811U S-VHS

JVC BR-S822I S-VHS

Panasonic AG-7750

Panasonic AJ-D350

Panasonic AJ-D580

Panasonic AU-620

Panasonic AU-650

Panasonic AU-660

Sony APR-5003

Sony BVH-2000/2500/2700

Sony BVH-2800

Sony BVH-3000/3100

Sony BVU-800/820

Sony BVU-950/970

Sony BVW-10/15/40

Sony BVW-60/65/75

Sony DVR-10/20

Sony DVR-1000

Sony DVR-18/28

Sony DVR-2100

Sony DVW-500

Sony PCM-7030

Sony PVW-2800

Sony UVW-1800

Sony VO-9850

Tascam DA-60 **DA-60 MK II (new!)**

Tascam DA-88

JVC BR-D85U

Abekas A62/A64/A66

TBC	None
Latest Revision	10/90
NTSC/PAL	NTSC
Control	Direct, RS-422
VTR Options Required	Dual Channel RS-422 SMPTE Control
Special Modifications	None
VTR Address	1 (The rotary switch located near the center of the board.)
Cable Requirements	Yes, see System Connections
Edit Frame Accuracy	98% of edits are frame accurate if machine/system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Field Select	Selectable on the device
Inverted Color Frame Shift	None, due to use of color processor. Recording inverted color frame under Editor control results in inverted chroma. Note that the A64/A66 are component digital devices and color framing is not applicable
Color Frame Reference	PB Video
Edit Modes	Insert/Record - One channel, A or B port Record/Play - B-channel must be Record; A-channel must be Playback.
Audio Track Section	No Audio
Sync Control Reference	Time Code

Alt TC Ref Selectable	No, NDF Time Code 00:00:00 - 1:39:29
Motion Control Functions	Jog: approximately ±4 frames per revolution of Jogger control. Var: ±393% of play speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with**[SHIFT][SLOW]**.
	SLO-MO Match: Yes
	FILL: Yes
VTR PROM Level	TC Board #68000: IC17 VSI0882 Interface Board #61000: IC2 VSI0735B
Super Edit Software	V7.0L or later

System Connections

The A62/A64/A66 are generally used as two devices (SMPTEA/SMPTEB) with a keyer in the middle used for layering. They can not both PLAY or RECORD at the same time; one will PLAY and the other RECORD. The interconnection shown in Figure 2-1 allows use of the A-62/A64 as a separate record device, using the A62/A64/A66's internal direct digital copy facility.

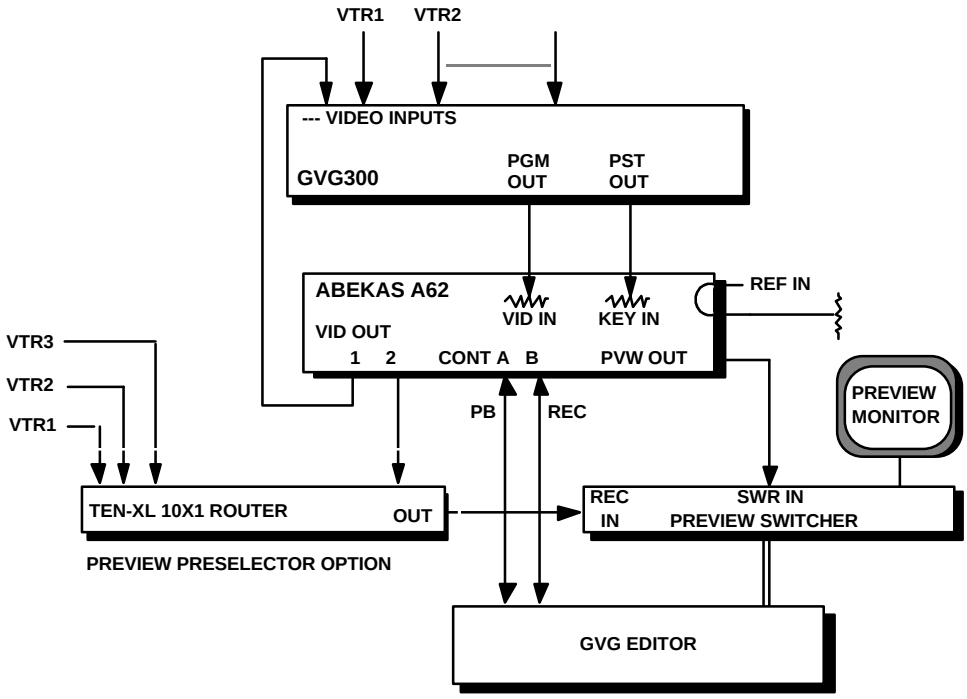

Figure Section 2-1. Editing System & A-62/A64 Interconnections

When another VTR is to be used for the record machine, switch the A62/A64/A66 Key/Matte function OFF to pass video directly from VID IN to VID OUT, and select (PVW Preselect Option) or patch the record VTR to the 8465/8466 Preview Switcher RECORD input. On the GVG300 switcher, use the PST bus to route a key signal to the A62/A64.

NOTE: *On the A66, the Editor must be connected to Remote Port 2 and the Remote Protocol selection in Menu 6 should be SMPTE.*

Switch Settings

Using the Abekas A62/A64/A66 with an external editor is not generally covered in the manufacturer's operating manual. Setup of the VTR in the modes described below is recommended to provide optimum performance when using a VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the Abekas operating manual.

NOTE: *There are no hardware settings.*

Control Panel

For DUAL Channel Operation:

[SETUP]	[REMOTE]
Port A	SMPTE, 38.4K baud
Port B	SMPTE, 38.4K baud
[PVW]	[ON]

NOTE: *The PVW switch is located on the Control Panel.*

For single or dual playback, A-channel or B-channel record:

Press [SETUP], [MATTE], [KY/MAT] = OFF

Press [SETUP, [RECORD], [CONFIG] = NORMAL

Setup Tests

The following information provide tests to verify that the controls of the A62/A64/A66 are set up properly and that the color framing function is working properly. The tests are general and are designed to assist you in isolating a problem to the A62/A64/A66 or the editing system.

System Timing

1. Monitor the video output.
2. Check SC phase: Press **[SETUP]**, **[phase]**, and **[subcar]** on the A62 MENU.
3. Check Sync position: Press **[SETUP]**, **[phase]**, and **[horiz]** on the A62.
4. Horizontal Picture Centering of BARS: NOT adjustable.
5. Press **[hzfine]** to adjust the S/CH phase of the output signal. If adjustment is required, double check the S/CH phase of the signal being compared and the S/CH settings during record.

Record & Playback Settings.

Verify Input Signal Color Frame Detection

1. On the A62 panel, Turn PVW to ON and monitor the PVW output.

2. Connect a properly-adjusted S/CH-phased signal source to the A62.

3. Connect a properly-adjusted S/CH-phased black reference to the A62.

4. Observe the S/CH indicators on the A62 MENU by pressing **[SETUP]**, [phase]. Both should be ON and the corresponding numerical setting near 50. If not, DO NOT proceed and refer to the Abekas manual for A62 set-up procedures.

Verify Color Framing of Playback Video

1. Make a video recording on the disk using the A62 panel.

2. Play back the recorded video and verify Color Framing. An inversion of color indicates bad input SC/H phase adjustment.

Verify Proper Operation Under Editor Control

1. Make a recording from the editor. Verify that RECORD COLOR FRAME (if applicable) is set to Ø.

2. Playback the recorded video. If the color is inverted, check system setup and check for proper Color Frame Identification (CFID) pulse to the editor.

NOTE: *Minor maladjustments of input and reference SC/H phase settings will result in recordings that have inverted color or are H-shifted 140 nSe***c.**

A62/A64/A66 Operation

The A62/A64/A66 are random access, disk-based, video recorders, which when interfaced to a VPE Editor, can be used as source or recording devices, or both. The A64 can be assigned as a single device with a 120 second duration or as two 60 second duration devices.

The A62 can be assigned as a single device with a 100 second duration or as two 50 second duration devices. In use, this device appears in the Mark Table as a VTR. Using 2 control ports, it can be assigned as two independent machines. The A62/A66 has no keyer and cannot simultaneously PLAY and RECORD when assigned as two devices.

NOTE: *When the A64 is used as a single device, the unused port must be unassigned. Failure to do so will cause the A64 not to record the first few frames after switching sides.*

The A62 can be used as a record or playback device, as both simultaneously, or as a digital playback device (in copy mode). The optional TEN-XL Preview Preselector allows the record device, (A62/A64/A66 or other VTR) to be reassigned as a source without patching.

Record Playback

When used as a Record/Playback device, the editor controls the A62/A64/A66 like a VTR, prerolling before an edit and displaying a post roll after edit. All Editor functions are available.

The switcher can create new composite foreground material over a super black (-5 IRE) background luminance level, allowing self-keying over the background in the A62/A64/A66. It can also be used in the additive matte mode to provide insert quality that is superior to a key. After recording a layer on the A62/A64/A66, the Record and Source time codes can be reversed on the editor, and another layer created in the next EDL event.

Editor System Features

1. A swap MACRO can be programmed to reverse Record and Playback time codes so new layers can be created.

NOTE: *The Editor SWAP function is frequently used with ABEKAS equipment. ABEKAS requires the B-Channel to be RECORD and the A-Channel to playback. If problems are encountered in the device reassign the RECORD device to the B-Channel and the PLAY device to the A-Channel.*

2. Switcher E-MEM data and Kaleidoscope effects registers are stored to accurately define composite layers for later Auto Assembly.

3. Global variable speed controls can change the run time of a composite event when controlled devices such as the Abekas A62/A64/A66, most VTRs, and Kaleidoscope are used in the system.

There is no Edit Enable on the A62/A64/A66. A-channel commands (playback) are duplicated on the A62/A64/A66 panel and B-channel commands (record) are reflected only in the Mark Table of the Editor. All Editor transport controls are active.

When playing and recording simultaneously, one virtual A62/A64/A66 machine must be in the upper half of the 100 seconds and the other in the lower half. Prerolls before Ø can be used with the ABEKAS equipment but the A62 will edit 1 frame off the prerolling before Ø.

NOTE: *The A62 has a digital PGM out and an analog PVW out. These two outputs are not in time with each other. Unless adequate precautions are taken, this may present a problem when used with a GVG-3000 switcher that is previewing on the AUX bus.*

Accom RTD

TBC	None
Latest Revision	11/95
NTSC/PAL	NTSC/PAL
Control	Direct, RS-422 SMPTE: 38.4Kbaud rate 1 Start bit 8 Data Bits Odd Parity 1 Stop bit.
Device Options Required	None
Special Modifications	None
Address	0x80a2 (see system setup below)
Edit Field	Field (selectable on the Recorder)
Edit Modes	Insert
Sync Control	Reference
Motion Control Functions	Jog, Shuttle, Variable, Play, Fast Forward, and Rewind
Sync Quality Check	Super Edit: On the Assignment page, set the QC = 3. (As with any device, if difficulty is experienced with synchronization, set the QC =-1.)
Minimum PreRoll	3:00
Postroll	Requires none
Recorder	1.17E 8/19/94 13:09

Super Edit Version Version 7.1b or later

System Setups

On the RTD keyboard, Press Normal Play switch, then press the Setup 1/0 switch. Select Remote Setup from the menu.

1. Set the desired RS422 port as follows:

   Enable - ON
   Protocol - SMPTE
   Baud - 38.4K
   Fld-Dom - fl

   For example: if port #1 is selected, the display should look like this:

   RS422 #1A ON SMPTE 38.4K fl

2. Select CONFIG from the Remote Setup menu. Set the configuration parameters as shown below:

Parameter	**Set to**	**(default value)**
Edit Delay	4 fields	(default 8)
Edit On Adjust	0	(default 0)
Edit Off Adjust	0	(default 0)
Field Reporting (TC)	OFF	(default ON)
Park Offset (Play)	0	(default 0)
Prod ID	128 (0x80) : RTD	(default is same)
Roll Delay (Play)	2 fields (0 fields)	
Roll Delay (Record)	4 fields (0 fields)	
SMPTE Address	1:0x80a2	(default is same)
Time Code Offset	0	0
Transport Delay	0	0

NOTE: *For use as a source, it is very important to set the Roll Delay (Play) to 2 fields for accurate synchronization.*

Ampex DCT 700D

TBC	Frame Store
Latest Revision	3/88
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	None
Special Modifications	None
VTR Address	SETUP - REMOTE, REMOTE 1 address - 1, INTERFACE - RS-422
Cable Requirements	Component Digital Video
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	None
Color Frame Reference	N/A
Edit Field Select	F1/F2
Edit Modes	Insert/Assemble
Audio Track Section	A1 - A4 Analog, AES Audio, CUE channel

Sync Control Reference	Time Code
Alt TC Ref Selectable	Yes
Motion Control Functions	Jog: ±4 frames per revolution of Jogger control. Variable: From -100% to +200% of Play Speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.
VTR PROM Level	V1.1
Software Version	Super Edit v7.0F or later
Record VTR E-E Monitoring	Nominally correct with current software. IN and OUT times are adjustable via the Editor. Audio and video times can be trimmed with a single adjustment.
Super Edit Software	V7.0L or later

Ampex DCT 700D Setup

RS-422 REMOTE 1/REMOTE 2 interface ports, located on the back panel, assist the system communication. Use the procedures below to set up the DCT 700D.

RS-422 Communications Setup

1. Press SETUP function button.
2. Press REMOTE soft key
3. SCROLL or DOWN & CHANGE
4. REMOTE (1 or 2) PROTOCOL - asmpte “VPR300”
5. REMOTE (1 or 2) ADDRESS - 1
6. REMOTE (1 or 2) INTERFACE - rs422

7. REMOTE (1 or 2) PROTOCOL - 38.4k

8. EDIT FIELD SELECT - F1 or F2

Edit Optimize

To ensure proper recordings, use the following Edit Optimize procedure before recording.

1. Press the SETUP function button.

2. Press the EDIT soft key to select EDIT SETUP parameters.

3. Use SCROLL or DOWN until INS/ASM PREROLL AUTO OPTIMIZE is highlighted.

4. Press the CHANGE softkey to set it ON.

Output SC/H Phase/Horizontal Phase

Adjust OUTPUT SC/H-PHASE and HORIZONTAL PHASE to enable correction and match the leading edge of horizontal sync and the Subcarrier Phase to the House source.

Ampex VPR-3

TBC	TBC-3 or Zeus
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	Time Code Reader Serial I.F.
Special Modifications	None
VTR Address	Set to 0001 on Board #20
Cable Requirements	BLK Ref to TBC
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	Left
Color Frame Reference	PB Video, Control Track

NOTE: *VTR color framing is overridden by the Editor*

Edit Field Select	Via Keyboard using the sequence **[EDIT]**, **[SETUP]**, **[MORE]**, **[REMFLD]** to select either Field 1 or Field 2. (See VPR-3 Set Up Menus.)
Edit Modes	Insert/Assemble

Audio Track Section	A1, A2
Sync Control Reference	Time Code, Tape Timer
Alt TC Ref Selectable	No
Motion Control Functions	Jog: Approximately 4 frames/Rev of Jogger control. Variable: From -100% to +300% Play Speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**. SLO-MO Match: Yes
VTR PROM Level	Version 7.3
Record VTR E-E Monitoring	Recommend using Dual Monitor Preview mode. VTR allows E to E operation for source switching only in STOP or SHUTTLE modes.
Super Edit Software	V7.0L or later

Ampex VPR-3 System Setup

The following tests verify VTR control setup and proper operation of the color framing circuitry. The tests are general, but are designed to assist you in determining whether any problems are in the VTR or Editing System.

Verify Input Signal Color Frame Detection

1. Connect a properly adjusted SC/H signal source to the VPR-3 input.

2. Connect a properly adjusted SC/H signal (Black) reference to TBC-3.

3. With no tape on the VPR-3, check the WRONG F/F light to be sure it is OFF. This light is located at the top-right side of the SC/H Phase meter on the VPR-3 panel. If the light is ON, re-check steps 1 and 2, consult the VPR-3 Service manual or call Ampex Service.

4. Verify that properly SC/H phased Black reference is synchronized with the reference feed to the transport by noting the SC/H meter reading on the front panel of the VPR-3. Move the Black reference input from the TBC REF IN jack to the transport reference input jack. The meter reading should remain the same. If not, verify and correct the differences before proceeding.

Synchronization is important for valid Editor operation because the TBC-3 has a sync generator that locks to the incoming system reference Black and feeds a secondary reference to the transport. The secondary reference is used for the SC/H phase meter and the color frame lock of the VTR.

Verify Color Framing of the Playback Video

1. Mount a previously recorded Color Bars tape on the VPR-3. This should be a recording of bars made on a VTR with the color framer turned ON (A-Field mode).

2. Make the following selections with the push-button on the left-center of the operator's control panel:

```
UNITY/VAR = VAR
TAPE/INPUT = TAPE
```

Adjust the SC/H knob until the needle centers at zero. Start and stop the tape several times to ensure a zero setting.

3. Use the Soft Menu to turn ON the color framer:

```
MENU: HOME, setup, Servo
cfrmr = on std
```

   This allows the VPR-3 to do the color framing and verify proper machine operation.

5. Cycle the PLAY and STOP keys while observing the green EDIT READY light on the front inside panel of the TBC-3. If the EDIT READY light goes out, power down the TBC and put the PCB (PWA) #4 on an extender.

   Adjust potentiometer R-117 on this board during PLAY to keep the EDIT READY light ON. Also adjust the BURST SYNC PHASE potentiometer on the front of the same board to keep the EDIT READY light ON after a STOP. There is interplay between the two potentiometers. Check VAR MODE and JOG MODE by moving tape in both modes. The EDIT READY light should remain ON.

6. While alternating between PLAY and STOP, the red WRONG F/F indicator should not remain ON once the servo has stabilized. If the light remains ON, consult your VPR-3 Service Manual or call Ampex service.

7. Use the soft MENU to turn the color framer OFF:

```
MENU: HOME, setup, Servo
cfrmr = OFF
```

   Now, alternate between STOP and PLAY. You should notice that, approximately 50% of the time, the WRONG F/F comes ON, and at the same time, the EDIT READY light goes OFF. This occurs because the VTRs color framer is OFF and there is a 50% chance of coming up on the wrong frame.

System Timing For TBC-3

(See Ampex manual for Zeus TBC)

S.C Phase: **S.C.PHASE** on the side of the TBC-3 Control Panel

Sync Position: **HORIZONTAL PHASE** on the side of the TBC-3 Control Panel.

Horizontal Picture Centering: This adjustment requires that the soft menu be used to turn the machine's color framer ON.

```
MENU: HOME, setup, Servo
cfrmr = ON
```

1. Select a horizontal wipe on the program switcher and wipe between the VPR-3 Playback signal and the Color bars on the switcher.

2. Move the fader handle to a mid position. Adjust the HORIZ PHASE potentiometer on the VPR-3 to align the vertical edges of the two pictures.

3. Verify that the VPR-3 is color framed by noting that the WRONG light is not ON.

These elementary tests are good indicators that the VPR-3 is functioning properly and can now be tested for control of the editing system. Note that AMPEX Version 7.3 defaults to TLINE control. To change to DIRECT control:

1. Enable changes to the MENU by turning on Switch 7, Segment 8 on Control PWA #20.

2. In sequence, press: **[HOME]**, **[SETUP]**, **[MORE]**, **[MNENB]**, **[MORE]**, and **[REMOTE]**.

3. Select ENABLE.

4. Now control can be changed by pressing **[HOME]**, **[SETUP]**, **[MORE]**, and **[REMOTE]**.

5. Select DIRECT for CTRL and select IN for 2FRDL.

Ampex VPR-3 Settings for Record and Playback

Using the VPR-3 with an external editor is not generally covered in the manufacturer's operating manual. VTR set up in the following modes is recommended to provide optimum performance using the VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

Ampex version 5.5 software has a set-up procedure that requires a head/tape current calibration after power up. You must run this procedure before you can record on the VPR-3. If a previous calibration has not been SAVED in the VPR-3, you must mount a blank tape and perform this operation. Using the MENU display and selection buttons on the VTR, perform the following sequence:

```
MENU: HOME, setup, tape, setup, auto
Press:  PLAY/RECORD
```

PLAY/RECORD means that you press the PLAY and RECORD buttons, wait 1-2 seconds for the REC indicator to light, and then press AUTO in the soft menu. Pressing the AUTO key the second time starts the calibration process, which takes about three minutes to complete. Calibration is complete when the bar-graph disappears and the AUTO SETUP PASS message appears. Consult the VPR-3 Operations Manual for the SAVE procedure.

Table Section 2-1. AMPEX VPR-3 & TBC-3 PANELS

Control/Function	Setting
Rear Panel	
Vpr-3 Video In	Output From Video Switcher
Tbc-3 Ref In	House Reference (Feed To TBC-3 Only Use TBC Advance Ref For VPR-3 Reference.

Tbc Controls (Board 6)	
Vert Cent Memory Cent	Vertical Centering
Horizontal Phasing	4
Vpr-3 Front Panel	
Rem2	ON For Direct Or Calaway Interface Control
ENAB	INHIB,Sy/A4 On Version 4.0 To Prevent Bad OUT-Edits
Time	Tcr

Table Section 2-2. SETUP MENUS*

Menu Selection	Setting
Menu:Home, Edit, Setup	
Cfrmr	Off (Color Framer)
Cfsrv	Vid (Color Frame Source)
Menu: Home, Setup, Servo	
Ast	Field
Menu: Home, Setup, Video	
P Prc	Off
Pb Hd	Ast
Trkng	Unity
Menu: Home, Setup, Tcgen	
Tc Ø	Øa
Src	Int Or As Required For Record Mode.
Df/Ff	Select Drop-Frame Or Non-Drop Frame As Required.
Menu: Home, Setup, More	
Serial	A-Smpte
Menu: Setup, Edit, Setup, More	
remfld	Field 1 Or Field 2 To Select Desired Edit Field

* See Ampex manual for operation.

Note that the VPR-3 with software version 7.3 defaults to TLINE control. To change to DIRECT control, enable changes to the MENU by turning SW-7, segment 8 (on Control PWA #20) to ON. Now press the following: **[HOME]**, **[SETUP]**, **[MORE]**, **[MNENB]**, **[MORE]**, and **[REMOTE]**. Then select ENABLE. You can now change control by pressing: **[HOME]**, **[SETUP], [MORE]**, and **[REMOTE]**. Complete the control change by selecting DIRECT for CTRL and IN for 2FRDL.

Table Section 2-3. VPR-3 PCBS (PWAS)*

Board/Switch	Setting
Board #20	
Record Lockout	OFF for record
Board #7	
AST	PM
Board #6	
Regen Sync Insert	OFF

Ampex VPR-3 Preliminary Operational Tests

1. At the VPE editing keyboard, run the Super Edit application and assign the I/O ports.

2. Adjust the TBC so that the VPR-3 output video is properly phased to the plant. Verify that the WRONG F/F indicator, located to the left of the numeric keypad, does not illuminate during pre-roll.

NOTE: *This is only true for the record machine. If an out of color frame sequence time code is selected for sources, a WRONG F/F indicator will appear on the VPR-3.*

3. Properly SC/H phased tapes can be verified with the monitor display when you press [PLAY] on either the VPR-3 panel or the VPE Editor Keyboard/Jogger. The indicator can show either WRONG F/F, or not, but it should not change during this play operation. However, if you press STOP and then PLAY, there is a 50% chance of coming up with the WRONG F/F indication.

Tapes that show a change on the WRONG F/F indicator while in continuous PLAY may have non-color framed edits. Inconsistent H-shifts may result when using these tapes.

4. Vertical shifts are caused by the VPR-3 and not the VPE editing system. If they occur, the tach phase and/or the setting of the Field-1/Field-2 switch should be checked.

5. Return to the VPE editing keyboard. While running the editing application, simultaneously press [SHIFT] and [RESET]. This initiates communications to the VPR-3 and turns OFF the color framer. The editing system will control the color framing.

6. Perform ten edits to color bars and verify there are no H-shifts.

7. Perform ten match frame edits to the A-VTR and verify that there are no H-shifts. Check each source machine in this fashion.

8. Now link up all sources (from the INIT page) and perform ten match frame edits from the A-VTR. Check all sources again.

NOTES:

The above steps apply only to normal play speeds of the VPR-3. Do not turn the source CF function ON during these tests, since it applies only to source machines. Record CF applies only to the record machine.

Also, if a high sync abort rate is experienced with the VPR-3, check the CAPSTAN CURRENT. If the CAPSTAN CURRENT is High, check the Air System. Typically, the float is too high and the capstan is working too hard. The float may be too low also, which may cause the capstan to slip.

Ampex VPR-300

TBC	Internal
Latest Revision	3/89
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	None
Special Modifications	None
VTR Address	Set to 1
Cable Requirements	BLK Ref to Ref IN
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	Left
Color Frame Reference	Input video or external reference
Edit Field Select	Selectable in the machine
Edit Modes	Insert/Assemble
Audio Track Section	A1 through A4

Sync Control Reference	Time Code
Alt TC Ref Selectable	Yes, refer to the Ampex manual.
Motion Control Functions	Jog: ±4 frames per revolution of Jogger control. Variable: From -100% to +200% of Play Speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW].** SLO-MO Match: Yes FILL: Yes
VTR PROM Level	Version 3.3
E-E Preview	Nominally correct with current software. In and Out times are adjustable. Audio and video times are trimmed with a single adjustment.
Super Edit Software	V7.0L or later

Ampex VPR-300 System Setup

The following tests verify VTR control setup and proper operation of the color framing circuitry. The tests are general, but are designed to assist you in determining whether any problems are in the VTR or Editing System.

RS-422 Communication Setup

Setup RS-422 communication per the following:

REMOTE: 1

PROTOCOL: ASMPTE

MODE: TRIBUTARY

ADDRESS: 1

Verify Input Signal Color Frame Detection

1. Ensure that the video into both the reference input and the video output connectors of the VPR-300 are properly adjusted and SC/H-phased.

2. Turn E-E on.

3. Adjust VIDEO INPUT LEVEL, if necessary

4. Adjust INPUT CHROMA PHASE, if necessary

5. Within the VIDEO SETUP menu, ensure that the REFERENCE LOCK MODE is set to AUTO.

6. To ensure proper recordings use the EDIT OPTIMIZE procedure before recording. (From the HOME menu, go to EDIT/ANIMATION; then to EDIT SETUP to find EDIT OPTIMIZE.)

7. Do not turn the AST mode to off.

Note the following:

- Proper color frame of the VPR-300 video is indicated by the red LED on the Frame Memory (#11) board being OFF.

- If the SC/H phase of the video is within specification, the yellow LED on the Sync Gen board (#17) will be OFF.

- Further indication of inverted color framing is provided by the Field I.D. being displayed in inverse video. (This indicator is adjacent to the time display in the upper left corner of the front panel display.)

Verify Color Framing of Playback Video

Load a tape, properly striped with SC/H-phased color bars, into the VPR-300 and adjust the following:

1. OUTPUT BLACK LEVEL

2. OUTPUT VIDEO AMPLITUDE

3. OUTPUT CHROMA AMPLITUDE

4. OUTPUT CHROMA PHASE

Once the above elements have been adjusted, the machine can be phased to house by:

1. Adjusting the OUTPUT SC/H-PHASE for zero degrees, and

2. Alternately pressing SYSTEM PHASE and HORIZONTAL PHASE to enable correction and matching the lead edge of sync and subcarrier phase to house.

"Jam-Sync" Time Code

On the Time Code Generator menu, with TIME CODE GENERATOR MODE soft key; cycle through the options to select JAM mode.

System Timing

The VPR-300 must be properly aligned in order to make repeatably good edits. This includes all RECORD, PLAYBACK, PHASING, EDIT OPTIMIZATION, and AST adjustments.

NOTE: *You must EDIT OPTIMIZE before recording on the VPR-300 to ensure accurate edits.*

Output Phasing

Adjust OUTPUT SC/H-PHASE for zero degrees.

Alternately press SYSTEM PHASE and HORIZONTAL PHASE to enable correction and match the lead edge of horizontal sync and the subcarrier phase to HOUSE.

Record Field Select

F1 or F2 recording is selectable on the EDIT SETUP menu:

AST Mode

Can be FIELD or FRAME, but must not be left off. The AST system must also be properly aligned.

Jog Frames

The VPR-300 will move approximately 12 frames per revolution of the Jog Knob.

Still Frame Time-out

The VPR-300 will time-out in 30 seconds (max). The operator can, however, select the video to be displayed after a time-out with the VIDEO MUTE feature on the VIDEO SETUP menu. If set for LAST FIELD, the last tape frame before time-out will be held and displayed.

Variable Speed Audio

The default of the machine is to mute the audio at any speed other than PLAY. The machine can be set to output variable speed audio by setting AUDIO MUTE to SLOW on the AUDIO SETUP menu.

Assemble Edit Commands

REMOTE ASSM can be set to ASSM or RÆW in the REMOTE menu. If set to ASSM, ASSEMBLE edit commands are interpreted by the machine as an ASSEMBLE EDIT command. If set to RÆW, all ASSEMBLE EDIT commands sent from the Editor are translated into a READ-BEFORE-WRITE command.

Ampex VPR-6/VPR-80

TBC	TBC-6 or Zeus
Latest Revision	3/88
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	Time Code Generator
Special Modifications	None
VTR Address	Set to 0001, Setup 13 on Front Panel
Cable Requirements	BLK Ref to TBC and VPR
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	Left
Color Frame Reference	P.B. Video

NOTE: *VTR color framing is overridden by the Editor*

Edit Field Select	Setup 5 on Front Panel
Edit Modes	Insert/Assemble

Audio Track Section	A1, A2
Sync Control Reference	Time Code, Tape Timer
Alt TC Ref Selectable	No
Motion Control Functions	Jog: Approximately 9 frames per revolution of Jogger control. Variable: From -100% to +200% of Play Speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with[**SHIFT][SLOW]**. SLO-MO Match: Yes, with AST FILL: Yes, with AST
VTR PROM Level	VPR-6 must be Version 2.0 to 4.1 VPR-80 must be 3.0 or later
Record VTR E-E Monitoring	Recommend using Dual Monitor Preview mode. VTR allows E to E operation for source switching only in STOP or SHUTTLE modes.
Super Edit Software	V7.0L or later

Ampex VPR-6/VPR-80 System Setup

The following tests verify VTR control setup and proper operation of the color framing circuitry. The tests are general, but are designed to assist you in determining whether any problems are in the VTR or Editing System.

Verify Input Signal Color Frame Detection

1. Connect a properly adjusted SC/H signal source to the VPR-6/VPR-80 input.

2. Connect a properly adjusted SC/H phased Black reference to the TBC.

3. Put the VTR into E-E mode. Verify that the EDIT READY light is illuminated. The CALIBRATE knob on the TBC should be at or near its normal detent position.

4. If the EDIT READY light is NOT ON, recheck steps 1 and 2. If the problem continues, consult the VPR-6/VPR-80 Service Manual or call Ampex Service Department.

Verify Color Framing Playback Video

1. Mount a previously recorded Color Bars tape on the VTR. This should be a recording of bars made on a VTR with the servo color framer turned ON (4-Field mode).

2. Set CLR FRAME switch S3, located on PWA #6 in the top of the VTR, to its ON position.

3. Cycle the **[PLAY]** and **[STOP]** buttons while observing the EDIT READY light on the TBC. This light should come ON and remain ON once the servo has stabilized.

4. Pressing the COLOR FMR INVERT button on the numeric pad of the control panel should cause the yellow INVERT light on the TBC to illuminate when the tape is played.

5. If steps 3 and 4 do not function as explained, it indicates that the machine is not properly set up. Consult your Ampex Service Manual or call the Ampex Service Department.

System Timing For TBC-3

S.C Phase: On the TBC, screwdriver adjust Front Panel PHASE.

Sync Position: HORIZ PHASE, screwdriver adjust near SUBC Phase. If sync position won't match exactly, remove video output PCB (PWA) in the TBC and set jumper P12 to B-C (rear left on board); then adjust OUTPUT SYNC TO BURST on front of same PCB (PWA).

Horizontal Picture Centering of Color Bars: Internally set and, therefore, not adjustable.

Ampex VPR-6/VPR-80 & TBC Settings for Record and Playback

Use of the VTR with an external editor is not generally covered in the manufacturer's operating manual. VTR set up in the following modes is recommended to provide optimum performance using the VPE Editor. Controls not mentioned have no effect on Editor operation or should be set at the user's discretion. See the manufacturer's operating manual.

Table 2-4. VPR-6/VPR-80 & TBC SWITCHES

Setup	Setting	Function
1	1	AST (VPR-6 only)
2	4	Remote #1
5	1 or 2	Field 1 or Field 2
13	0001	VTR ADR
15	15-2	Color Framer OFF (VTR 3.0 Software)
16	16-0	Auto Reference Video Select

NOTE: *Color Framer is overridden by the Editor.*

Ampex VPR-6/VPR-80 Preliminary Operational Tests

1. Run your editing application.
2. Assign your I/O ports.
3. Go to the Initialization Pages and set the VTR QC.
4. Adjust the TBC so that the VTR output video is properly phased to the plant. Verify that the COLOR FRMR INVERT light is OFF during pre-roll.

NOTE: *This is only true for the record machine. If out of color frame sequence time code is selected for sources, the COLOR FRMR INVERT light on the TBC will come turn ON.*

5. Properly SC/H-phased tapes can be verified by the COLOR FRMR INVERT light when you press **[PLAY]** on either the VPR-6/VPR-80 panel or the VPE Editor Keyboard/Jogger. The light can be either ON or OFF, but it should not change during the duration of this PLAY operation. However, if you press STOP and then PLAY, there is a 50% chance of coming up with a different monitor display.

   Tapes that show a change in the COLOR FRMR INVERT light, while in continuous PLAY, may have non-color-framed edits. Inconsistent H-shifts may result when using these tapes.

6. Vertical shifts are caused by the VPR-6/VPR-80, and not the VPE Editor. If they occur, the tach phase and/or the setting of the field-1/field-2 switch should be checked.

7. Return to the editing keyboard. While running the editing application, simultaneously press **[SHIFT]** and **[RESET]**. This initiates com-munications to the VPR-6/VPR-80 and turns OFF the color framer.

8. Now perform ten edits to color bars and verify that there are no H-shifts.

9. Perform ten match frame edits to the A-VTR and verify that there are no H-shifts. Check each source machine in this fashion.

10. Now link up all the sources with slave mode and perform ten match frame edits from the A-VTR. Check all sources again.

NOTE: *All above steps apply only to normal play speeds of the VPR-6 and VPR-80. The VPR-6 does not frame bump.*

If synchronization problems arise, use the VPR-6 to turn the TENSION to low. If the machine starts to synchronize, the CAPSTAN TENSION is misadjusted.

Bosch DCR100

TBC	Internal
Latest Revision	12/90
NTSC/PAL	NTSC/PAL
Control	Direct, RS-422 (must be selected in Remote menu of Setup soft key).
Cable Requirements	Black reference to Ref IN
Edit Frame Accuracy	98% of edits are frame accurate if machine/system are timed to VPE recommendations and Editor QC is set to nominal.
Color Framing	The DCR100 is a component digital machine that does not address color framing.
Edit Modes	Insert/Assemble
Audio Track Section	A1, A2, A3, AND A4
Sync Control Reference	Time Code
Alt TC Ref Selectable	Time Code, VITC, and Tape Timer
Motion Control Functions	Jog: approximately ±4 frames per revolution of Jogger control. Var: from -50% to +133% of play speed.
VTR PROM Level	MCP (BD1323): PR237P BT TCU (BD1200): PR245R BT PR244N BT CCU (BD1201): PR189M BT GW (BD1202): PR190N BT MCU (BD1203): PR238R BT PCU (BD2002): PR175R BT The DCR100 must have the TRACKING and PLAYBACK

EQUALIZER adjustments completed for proper playback of tapes by the machine. This task is initiated by the AUTO ADJUST key found in the HOME menu. Additionally, record currents must be optimized (in RECORD mode) by the AUTO-R feature on the ADJST submenu of the SETUP menu.

The default PARAMETERS for the DCR100 are located on the EDIT SETUP menu. The PARAMETERS are located on two pages. Selection between the pages is done by pressing PARAM which will toggle the current selection. Parameters on this page must be set with the DCR100 in local mode.

On the PARAMETERS page, the DCR100 has the ability to add a frame to the reported time code in order to compensate for the additional delay through the internal frame store which is used when the DCR100 is a playback machine. When the DCR100 is the record machine, this feature must be set to OFF (removing the delay).

Also on the PARAMETERS page, the digipot must be used to select a PARK ACCURACY of 0 frames. This is necessary for proper synchronization.

E-E Preview Performance

If the DCR100 is used as a record machine on a system that uses E-E Preview Switching, a problem can occur: When the machine is in STOP mode and is told to switch into E-E (i.e., when a source is selected), the machine properly shows an E-E picture. However, once in EE mode, the machine does not switch back to the off-tape picture until the tape is moved.

Variable Speed Audio

DCR100 only produces audio at PLAY speed.

Standby Time

Time-out occurs in a maximum of 90 seconds. Actual time-out is operator selected on the SERVO menu under the SETUP menu.

Super Edit Software

V7.0L or later

Timing

Timing is set via the TIMING submenu located under the SETUP menu. Important selections, discussed below, consist of Playback Reference, Output Timing Reference, and System Timing.

Playback Reference

The DCR100 as a playback source can be referenced to either its digital input or to an external analog signal through the PLAYBACK REFERENCE section.

Output Timing Reference

The operator is required to select whether the digital or analog outputs from the machine are properly timed with respect to the external reference. (This action is necessary due to the additional time required from the DCR100 to complete the A/D process for the analog outputs.)

System Timing

Timing of the output video signal is adjusted by first enabling ADJUST to activate the DIGIPOT. The DIGIPOT is used to adjust either H or V timing. Timing parameters are adjusted and learned into the selected GROUP (1 to 5). (Switching between the five preset groups is only enabled when the ADJUST feature is deactivated.)

H: selects horizontal timing adjustment in steps of up to 9.4 µSecs.

V: selects vertical timing adjustment by line, up to seven lines.

Jog Frames

Three frames per revolution of the jog knob.

Record Field Select

The DCR100 is a field 1 recording device. Selection of EVEN/ODD on the PARAMETERS sub-menu (under EDIT SETUP menu) has no effect when the edit system is controlling the DCR100.

Jam Sync Time code

To record continuous time code over an assemble-edit requires certain settings be made in the TC GEN submenu, located under the SETUP menu. Required settings are as follows:

ITEM	SETTING
Gen Mode	RECORD RUN

TC Out Conn	READER or GENERATOR
Jam Mode	TIME CODE
Generator Source	INTERNAL
Reader Source	TAPE
Drop-Frame Mode	User selectable ON/OFF

Bosch DCR500

TBC	Internal
NTSC/PAL:	NTSC/PAL
Control	RS-422
Cable Requirements	Black reference to Playback REF IN
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal. Note that to obtain proper edit timing, the setup item "PLAYER CONTROLLED VIA" must set to R5422. This item can be found in the SETUP submenu of the EDITOR Main Menu.
Color Frame Reference	The DCR500 is a component digital machine that does not address color framing.
Audio Track Section	A1, A2, A3, and A4.
Sync Control Reference	Time Code
Alt TC Ref Selectable	Time Code, VITC, and Tape Timer
Motion Control Functions	Jog: approximately +/-3 frames per revolution of Jogger control. Variable: From -50% to +364% of Play Speed.

VTR PROM Level

Servo Pulse Shapper	(BD1206)	PR673A
		PR184
Time Code Unit	(BX1402)	PR666E
		PR680E
Central Control Unit	(BD1202)	PR669
Serial I/O	(BD1202)	PR620E
Motor Control Unit	(BD1203)	PR675E
Digital Motor Unit	(BX0215)	PR195A

E-E Preview If the DCR500 is used as a record machine on a system that uses E-E Preview Switching, a problem can occur: When the machine is in

Performance	STOP mode and is told to switch into E-E (i.e., when a source is selected), the machine properly shows an E-E picture. However, once in E-E mode, the machine does not switch back to the off-tape picture until the tape is moved.
Variable Speed Audio	DCR500 produces audio only at play speed
Standby Time	Time-out occurs in a maximum of 30 seconds. Actual time-out is operator selected in the SERVO menu under the SETUP menu.
Super Edit Software	V7.0J or later

System Setup

The DCR500 must have the TRACKING and PLAYBACK EQUALIZER adjustments completed for proper playback of tapes by the machine. This task is initiated by pressing the AUT-P function key in the ADJUST menu. Additionally, record currents must be optimized (in RECORD mode) by the AUT-R function key in the ADJUST menu.

The default PARAMETERS for the DCR500 are located in the EDITOR menu under SETUP. Selection between the parameters is done with the adjust dial or the cursor control keys; the function keys F1 and F2 change the values.

On the PARAMETERS page, the DCR500 has the ability to add a frame to the reported time code in order to compensate for the additional delay through the internal frame store which is used when the RS422/ESBUS TC DELAY and is set to AUTO.

Also, on the PARAMETERS page, SYNCHRONIZATION ACCURACY +/- is used to select the park accuracy of Ø frames. This is necessary for proper synchronization.

Timing

Timing is set via the VIDEO menu. Important selections consists of Playback Reference, Output Timing Reference, and System Timing. These are discussed below.

Playback Reference: The DCR500 as a playback source can be referenced to either its digital input or to an external analog signal through the setup REF section.

Output Timing Reference: The operator is required to select whether the digital or analog outputs from the machine are properly timed with respect to the external reference. (This action is necessary due to the additional time required from the DCR500 to complete the A/D process for the analog outputs.)

System Timing: Timing of the output video signal is accessed by enabling the setup COMP. The DIGIPOT is used to adjust either H or V timing:

H: Selects horizontal timing adjustment in steps of 74nS.
V: Selects vertical timing adjustment by line, up to 7 lines.

Record Field Select

To allow the setting of the record field for the DCR500, the machine's record field must be in F1/F2 position on the PARAMETERS page of the EDITOR menu under SETUP. Should the DCR500 be left in either F1 or F2 position the edits will not be frame accurate. Once the DCR500 editing timing is set to the F1/F2 position, Super Edit™ INIT #69 will allow setting of the record edit field.

Jam Sync Time Code

To record continuous time code over an assemble edit requires certain settings to be made in the TIMECODE menu. Required settings are as follows:

SETTING
INTR (From Tape)
TC IN Intern Rec
JAM
DF user selectable ON/OFF

Fostex D-20 Digital Master Recorder

TBC	None
NTSC/PAL	NTSC
Control	Direct
Cable Requirements	Bars or composite sync
Edit Frame Accuracy	98% of edits are frame accurate if machine/system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Field Select	F1
Edit Modes	Insert
Audio Track Section	CH1, CH2
Sync Control Reference	Time Code
Motion Control Functions	Jog: ±20 frames per revolution of Jogger control. Var: none
Programmed Motion	None. The D-20 does not have dynamic tracking
VTR PROM Level	MPU Board 8251309, U704, D-20 F9-12 I/F Board 8251347, U2, 8310 F9-12
E-E Preview Performance	Nominally correct with current software. In and out times are adjustable via the Editor. Audio times are trimmed with a single adjustment.
Super Edit Software	V7.0L or later

Record & Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the following modes is recommended to provide optimum performance when using a VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the Fostex operating manual.

Front Panel

CONTROL	SETTING
REC Mode: Edit/Norm	EDIT
TC REC Monitor: Repro/Input	REPRO
AUDIO REC: Repro/Input	REPRO
CLOCK: Int/Ext	INT

Back Panel

CONTROL	SETTING
Mode Switch A	#3 ON selects BARS as the REF input.
	#4 ON selects COMP SYNC as the REF input
Mode Switch C	#2 ON enables serial communications

Setup Menu

Fostex D-20 Menu Setup for:

E0-01 Editor Type (CMX)
E1-00 Machine Type (BVU-950)

JVC BR-S525U S-VHS

TBC	Internal
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	Time Code Reader/Generator Board SA-R22U
Special Modifications	None
VTR Address	Not applicable
Cable Requirements	EXT REF, 1Vp-p Reference
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	Not applicable
Color Frame Reference	No
Edit Field Select	F1
Edit Modes	Source only
Audio Track Section	Normal CH1 (L), CH2 (R). Note: CH2 playback LTC-recorded tape. Hi Fi LEFT, RIGHT.
Sync Control Reference	Time Code

Alt TC Ref Selectable	Time Code/Control Timer
Motion Control Functions	Jog: +3 frames per revolution of Jogger control. Variable: From -100% to +200% of Play Speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.
VTR PROM Level	SYS CON ROM Ver. 03 MECHACON ROM Ver. 08 OPERATION ROM Ver. 10 SLOT ROM Ver. 00 AVM/OS ROM Ver. 13
Record VTR E-E Monitoring	Not applicable
Super Edit Software	V7.0L or later

JVC BR-S525U S-VHS Setup

JVC-BR-S525U System Timing

Use the front subpanel located in the TBC section to adjust the following settings:

S.C. Phase
Video Phase
System Phase

To adjust Video, Chroma, Black Levels and Chroma Phase set the select switches to VAR and adjust to house reference.

JVC-BR-S525U Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Setup of the VTR in the following modes is recommended to provide optimum performance when using a VPE editor. Controls not mentioned have no effect on editor operations or should be set at the user's discretion in accordance with the JVC operating manual.

Setup is as listed below.

FRONT PANEL CONTROLS	SETTING
Counter	TC
Remote	9 PIN

FRONT SUB-PANEL CONTROLS	SETTING
PB HEAD	NORM

TC GENERATOR READER SWITCHES	SETTING
VITC	OFF
DIF/NDF	User Preference
FREE/RECORD	RECORD
PRESET/REGEN	REGEN
AUTO/LTC/VITC	AUTO

Menu

Menu Settings:

1. Set the Menu Switch to ON on the sub-panel.

2. Turn the Jog knob to locate item number. Press **[PLAY]** to change setting, and press **[MENU SET]** to store the setting.

Item No.	Value
206 AUD-2/LTC	[01] - playback LTC record tape.
600 TBC FREEZE	[01] - outputs ‘freeze’ still pictures from TBC’s field memory while in play.

Freeze Command

This feature allows the Editor to toggle the freeze frame function of the JVC BR-S525U S-VHS.

Super Edit:
The function is implemented as a PEGS command per the following:

FUNCTION =	A-VTR – F-VTR (any VTR except the R-VTR)
COMMAND =	990 (FREEZE Off)
	991 (FREEZE On)
TIME =	The same input as with other PEGS

Immediate mode of PEGS execution applies as with all other PEGS types.

JVC BR-S811U S-VHS

TBC	External
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	JVC Interface Unite SA-F911U
Special Modifications	None
VTR Address	Not applicable
Cable Requirements	Composite video to VIDEO IN LINE. Composite sync to SYNC IN
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Inverted Color Frame Picture Shift	Not applicable
Color Frame Reference	No
Edit Field Select	F2 only
Edit Modes	Insert/Assemble
Audio Track Section	CH1 (L), XH2 (R), HiFi. (Note that Audio 2 is mute with TC.)
Sync Control Reference	Time Code
Alt TC Ref Selectable	VITC/LTC/CTL

NOTE: *The JVC will not accept a position or IN-time number into its timer from an external control which can be used as Time Code. However, it will display this in its own window on a monitor with the Character switch set to TC on the JVC Interface Unite SA-F911U.*

Motion Control Functions	Jog: Approximately ±4 frames per revolution of Jogger control. HOME SETUP--> [F3] can select field or frame during Jog and Variable search. Variable: +200% to -100% of play speed. HOME SETUP--> [F2] can be used to limit the maximum shuttle speed of the VTR.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**. PEGS Control : 1.5% resolution over the variable speed range.
VTR PROM Level	SYS CON ROM Board, IC2 6-8 JVC SA-F911U Interface Board, IC2, Version 1.55
Software	V7.0F or later
Record VTR E-E Monitoring	Use standard single monitor preview VTR. VTR allows E-E operations for source switching.
Super Edit Software	V7.0L or later

JVC BR-S811U S-VHS Setup

Record and Playback Settings

Using the VTR with an external editor is not generally covered in the manufacture's operating manual. Setup of the VTR in the following modes is recommended to provide optimum performance when using a VPE Editor. Settings are given for both the JVC BR-S811U S-VHS and the required JVC SA-F911U Interface Unit. Controls not mentioned have no effect on editor operations or should be set at the user's discretion in accordance with the JVC operating manual.

Set up as indicated below:

FRONT PANEL CONTROLS	SETTING
Remote/Local	REMOTE
Automode - Full Repeat/Off/Memory	OFF

FRONT SUB-PANEL CONTROLS	SETTING
Sync - Ext(Ed)/Ext(PB)/Video	VIDEO
Frame Servo On/Off	ON
Video AGC On/Off	ON

JVC SA-F911U Interface Unit

JVC SA-F911U Interface Unite Setup is through the System Switch, SW3 on the front panel and the REMOTE switch on the back panel set to 9P. This unite has switch selectable Tape Timer modes using SW3-1 and SW3-2.

FRONT PANEL SYSTEM SWITCH, SW3

SW3-1	SW3-2	Mode Selected
ON	OFF	VITC + CTL*
OFF	OFF	CTL
OFF	ON	LTC _ CTL
ON	ON	VITC + LTC + CTL

*The recommended Tape Timer mode. Video AGC must bon ON for use of VITC.

SW3-3

ON – Non-Drop Frame
OFF – Drop Frame

SW3-5

ON – Regen mode

BACK PANEL

Remote.Local 9P, RS-422 Remote control.

JVC BR-S822U S-VHS

TBC	Optional SA-T22U
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	Time Code Reader/Generator Board SA-R22U
Special Modifications	None
VTR Address	Not applicable
Cable Requirements	Video In, Line 1Vp-p Video Input: Ext Ref, 1Vp-p Reference signal (with the option TBC SA-T22U)
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	Not applicable
Color Frame Reference	No
Edit Field Select	F1 only
Edit Modes	Insert/Assemble
Audio Track Section	Normal CH1 (L), CH2 (R). Note: Audio signals are recorded on the normal audio 1 track. LTC is recorded on the normal audio 2 track by selecting Menu item #206 setting to a [01] level. To record a mix of audio 1/audio 2, select Menu item @205 and set to [01] level. Hi Fi LEFT, RIGHT. Note: Hi Fi audio records on the video track.

Sync Control Reference	Time Code
Alt TC Ref Selectable	Time Code/Control Timer
Motion Control Functions	Jog: +3 frames per revolution of Jogger control. Variable: 8 x play speed in forward or reverse.
Programmed Motion	**[SLOW]** key: Learn current variable speed into [SLOW] key with**[SHIFT][SLOW]**.
VTR PROM Level	SYS CON ROM Ver. 11 MECHACON ROM Ver. 04 OPERATION ROM Ver. 07
Software Version	V7.0F or later
Record VTR E-E Monitoring	Use standard single monitor preview VTR. VTR allows E-E operations for source switching.
Super Edit Software	7.0L or later

JVC BR-S822U S-VHS Setup

JVC-BR-S822U System Timing

An optional TBC SA-T22U is required for set-up purposes see the JVC-BR-S822U instruction manual.

JVC-BR-S822U Record and Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Setup of the VTR in the following modes is recommended to provide optimum performance when using a VPE video tape editor. Controls not mentioned have no effect on editor operations or should be set at the user's discretion in accordance with the JVC operating manual.

Set up as indicated below:

FRONT PANEL CONTROLS	SETTING
Counter	TC
Remote	9 PIN
FRONT SUB-PANEL CONTROLS	**SETTING**
Sync	EXT
Video AGC	ON
TC GENERATOR READER SWITCHS	**SETTING**
VITC	OFF
DIF/NDF	User Preference
FREE/RECORD	RECORD
PRESET/REGEN	REGEN
AUTO/LTC/VITC	AUTO

Menu

Menu Setting:

1. Set the Menu Switch to ON on the sub-panel.

2. Turn the Jog knob to locate item number. Press **[PLAY]** to change setting, and press **[REC]** to store the setting.

Item No.	Value
206 AUD-2/LTC	[01] - playback LTC recorded tape
403 TCG REGEN MODE	[01] - records time code data in Regen mode and user bit in Preset mode.

Panasonic AG-7750

TBC	Internal
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	Time Code Generator/Reader Board, AG-F700
Special Modifications	None
VTR Address	Not selectable
Cable Requirements	Black Reference Ref In, 1v p-p video to VIDEO IN
Edit Frame Accuracy	98% of edits are frame accurate if machine/system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Field Select	F1 only
Inverted Color Frame Shift	N/A
Color Frame Reference	N/A
Edit Modes	Insert/Assemble
Audio Track Section	CH1, CH2, (TC), Hi Fi. The AG-7750 has two channels of Normal and two channels of Hi Fi which are user-selectable. The HiFi audio channels are recorded on the video. Note that TC is placed on Linear CH2.
Sync Control Reference	Time Code
Alt TC Ref Selectable	VITC, LTC

Motion Control Functions	Jog: ±4 frames per revolution of Jogger control. Var: Editor variable speed is translated to be a subset of the shuttle speeds available. Maximum Shuttle: 12X play speed. Note that there are four speeds between play and fast forward: 3X, 5X, 8X, and 12X.
Programmed Motion	None. The AG-7750 does not have dynamic tracking.
E-E Preview Performance	When the AG-7750 is stopped and receives an E-E command, it will switch Audio CH2 into E-E. If TC is from Audio CH2, the switch will send an unusable TC number to the editor. This problem can be avoided by reading a valid TC number and then switching the editor to update with ALT TC. Also, when the AG-7750 is designated as the R-VTR and is in E-E mode, the machine will obey the ALLSTOP command. However, if the AG-7750 is a source machine and another machine is selected as R-VTR the AG-7750 will continue to play even after receiving the ALLSTOP command.
VTR PROM Level	TC Board #68000: IC17 VSI0882 Interface Board #61000: IC2 VSI0735B
Super Edit Software	V7.0L or later

System Timing

S.C. Phase: Fine and Course Sub-Carrier control.

Sync Position: Horizontal system phase.

Horizontal Picture Centering: Fixed

Record & Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Setup of the VTR in the modes described below is recommended to provide optimum performance when using a VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the Panasonic operating manual.

Front Panel

CONTROL	SETTING
CTL, TC, UB	TC
LTC, AUTO, VITC	AUTO (Setup Menu item 5002 can give precedence to either VITC or LTC when in the AUTO mode.)
Remote/Local	REMOTE

TBC Control

CONTROL	SETTING
Bypass/Local/Remote	LOCAL

Jam Sync Edits (TC Pocket Panel)

CONTROL	SETTING
Int/Ext	INT
Regen/Preset	REGEN
Rec Run/Free Run	REC RUN

Setup Menu

MENU #	SUPERIMPOSED DISPLAY	SETUP VALUE
1014	CH1 REC	00 CH1 audio recording
3002	9P Device type	00 Other Types
3003	Remote Operation	00 9P
5005	TCG Regen Mode	01 TC
5006	TC Out Signal Regen	00 Off Tape

Panasonic AJ-D350

TBC	Internal
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	For an AJ-D350 w/servo v1.23 (and earlier), AJ123 Interface is required. For an AJ-D350 w/servo v1.32 (and later)), AJ132 Interface is required.
Special Modifications	None
VTR Address	N/A
Cable Requirements	Composite Black Burst to REF VIDEO Video (Analog/Digital) to VIDEO INPUT
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Inverted Color Frame Picture Shift	In NTSC, unpredictable (left or right)
Edit Field Select	F1 or F2 (MANUAL EDIT --> [F12] SETUP --> [F9] TIMING to select)
Edit Modes	Insert/Assemble
Audio Track Section	The input to each of the 4 digital audio channels is individually assignable, in the machine, to be from its digital or analog input connectors (AUDIO IN --> [F12] SETUP --> [F1]-[F4] to select ANALOG/DIGITAL) The CUE, [F5], audio channel enables the selection of input signals to be recorded on the analog cue channel. The CUE audio channel is enabled if either AUDIO 1 or AUDIO 2 is selected.
Sync Control Ref	Time Code

Alt TC Ref Selectable	Yes, see Operator's Guide.
Motion Control Functions	Jog: Approximately ±4 frames per revolution of Jogger control. HOME SETUP --> [F3] can select field or frame during Jog and Variable search. Variable: +200% to -100% of play speed. HOME SETUP --> [F2] can be used to limit the maximum shuttle speed of the VTR.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with**[SHIFT][SLOW]**. PEGS Control: 1.5% resolution over the variable speed range.
Super Edit Software	V6.0F or later
VTR PROM Level	FRONT: **FP - N0.31** AV: **L4 - N0.40** REEL: **S5R - N0.53** SYSCON **S7 - N0.74** TC: **S6 - N0.33** CAP: **S5C - N1.03** REMOTE **S6 - N0.61** AT: **S4 - N1.23** DRUM: **S5D - N1.00**
R-VTR E-E Monitoring	Nominally correct with current software. IN and OUT times are adjustable via the Editor. Audio and Video times are trimmed with a single adjustment.

Interfaces

Recent changes in the software for the AJ-D350 has altered its servo characteristics. These changes require two interfaces for the AJ-D350: AJ123 and AJ132. The AJ123 interface must be used to control an AJ-D350 with servo version 1.23 and earlier and the AJ132 interface must be used to control an AJ-D350 with servo version 1.32.

Color Frame Reference

The Color Frame Reference consists of Input Color Frame (CF) Detection and Color Frame (CF) Lock Options.

Input CF Detection

From the HOME SETUP, [F12], menu: With a proper CF signal, leave in FIXED; if input CF changes, switch to AUTO.

NOTE: *The AJ-D350 has a separate CF input on the back of the machine. CF can be obtained either from this input or stripped off incoming video as selectable by the REF option of the CF DETECT menu.*

CF Lock Options

From SETUP menu [F6]: The AJ-D350 can be left in the 4F FORCE (NTSC)/8F FORCE (PAL). Precise CF edits and non-CF edits ARE NOT corrected by the machine. If the AJ-D350 is switched to 4F/8F AUTO, non-CF edits ARE corrected.

With the C PROCESS, [F7], in NORMAL, non-CF edits will shift 140ns horizontally. If changed to PROCESS, video phase will not change, but some degradation of video quality may be noticed.

Jam Sync

The Jam Sync ON setup is as follows:

TC/CHR Menu	Setting
[F1] Source	INT
[F2] TC Slave	ON
[F4] Run Mode	REC RUN
[F7] VITC	ON/OFF (user discretion)

Freeze Command

This feature allows the Editor to toggle the freeze frame function of the AJ-D350.

The function is implemented as a PEGS command per the following:

FUNCTION = A-VTR – F-VTR (any VTR except the R-VTR)

COMMAND = 990 (FREEZE Off)
991 (FREEZE On)

TIME = The same input as with other PEGS

Immediate mode of PEGS execution applies as with all other PEGS types.

Communication Setup

Communication protocol is RS-422 through the back panel RS-422A REMOTE IN connector. Setup is:

1. Press SETUP --> [F9] INTERFACE --> [F1] MODE 1

2. Press HOME --> [F11] CONTROL --> REMOTE

System Timing

Horizontal Adjust: VIDEO OUT --> [F6] SYS H. While in the PLAY mode, use the ADJUST CONTROL while looking at a waveform monitor until the horizontal phase is set.

Subcarrier Adjust: VIDEO OUT --> [F7] SYS SC. While in the PLAY mode, use the ADJUST CONTROL while looking at a vectorscope monitor until the subcarrier phase is set.

Panasonic AJ-D580

TBC	Internal
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	None. An option is available to allow the playback, but not recording of D3 tapes.
Cable Requirements	Composite Black Burst to REF INPUT. Serial or Parallel Digital Component video to INPUT.
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Field Select	In the SETUP —> MAN EDIT —> [F12]TIMING (Normally useF1).
Edit Modes	Insert/Assemble
Audio Track Section:	The input to each of the 4 digital audio channels is individually assignable in the machine to be from its digital or analog input connectors. AUDIO IN—>[F8]SETUP—>[F1]thru[F4]to select ANALOG/DIGITAL The CUE [F9] audio channel enables the selection of input signal to be recorded on the analog cue channel. the CUE audio channel is enabled if either Audio 1 or Audio 2 is selected
Sync Control Ref	Time Code
Alt TC Ref Selectable	Yes, see Operator's Guide.
Motion Control Functions	Jog: +4 frames per revolution of Jogger control. Variable: From +2 times play to –1 time of Play Speed.

Programmed Motion

[SLOW] key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.

Program Motion provides higher resolution around play speed through Program Play commands on the AJ-D580. Note that to provide higher resolution, additional PEGS numbers have been activated providing 0.1% resolution between 90.1% and 109.9% of play speed. Program Play PEGS executed at time 00:00 pre-roll at play speed, then change speed just before the edit point.These speeds are indicated by the PEGS numbers from 902 to 1099, which will be displayed in the speed column of the Mark Table. (The decimal point is implied.) The standard 1% increment using Program Play is available over the 85% to 115% range of play speed with PEGS.

Pre-Read:

Yes. Accessed using **[SHIFT] [YES/NO]** (Sabre Edit) or PEGS (Super Edit).

Rec VTR EtoE Monitoring

E-E preview of material with a VVV ok. E-E selection of R-VTR or source material using the source selection ("Green") keys DOES NOT WORK in the current revisions of AD-J580 firmware. We will be working with Panasonic in order to resolve this problem.

Super Edit Software

V7.0M or later

VTR PROM Level:

(Use TEST key to view.)

FRONT:	FP–N1.02
AV:	S5–N1.07
SERVO:	S4–N1.07
SYSCON:	S5–N1.07
TC:	S3–N1.03

Color Frame Reference

CF LOCK OPTIONS: SETUP —> CAP LOCK [F5]

The AJ-D580 can be set to either 4F FORCE / 8F FORCE or 4F/8F AUTO. In 4F FORCE/8F FORCE, precise CF editing occurs and non-CF edits are not corrected by the machine and will cause sync aborts. In 4F/8F AUTO, non-CF edits are corrected.

The CPROCESS SETUP —> C PRCS[F10] is only effective in the D3 playback board is installed. NORMAL will cause non-CF edits to shift horizontally by 140ns. If changed to PROCESS, video phase will not

change but some degradation of video quality may be noticed.

System Setup

RS422–Communication Setup

Communication is through the back panel RS-422A **REMOTE IN** connector.

- Press SETUP —> [F10]INTERFACE —> [F1]MODE 1
- Press HOME —> [F11]CONTROL —> REMOTE

Jam Sync Time Code

All selections are made in the TC/CHR menu:

- [F1] Source: INT
- [F2] TC Slave: AUTO
- [F4] Run Mode: REC RUN
- [F7] VITC: ON/OFF (user discretion)

System Timing

System Phase VIDEO OUT —> [F3]SYS PHASE adjusts the sync phase of the component output.

Other adjustments are available for both the component output and the composite output.

Panasonic AU-620

TBC	Internal
Latest Revision	6/89
NTSC/PAL	NTSC
Control	Direct
Cable Requirements	Black reference to Ref Video IN
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Field Select	Field 1
Inverted Color Frame Shift	Left
Color Frame Reference	Recorded pulse read off tape.
Edit Modes	Playback only
Audio Track Section	A1, A2
Alt TC Ref Selectable	Time Code, Tape Timer
Motion Control Functions	Jog: ±4 frames per revolution of Jogger control. Var: -200% or +200% of play speed.
VTR PROM Level	Version 1.0
Super Edit Software	V7.0L or later

System Setup

Color Frame Playback Video

When playing back tapes recorded with the color frame marker, leave the AU-620 color frame switch in the **[2F]** position to allow the editor to control color framing. On the L6 board, leave switch 3-1 (Non-matched Phase/Matched Phase) ON for shiftless editing.

NOTE: *With the switch ON there will be no H-Shift noticed for improperly color framed edits but chroma anomalies may be noticed over multiple generations in composite video mode.*

System Timing

S. C. Phase: Course and Fine control on the VTR pull out drawer.

Sync Position: H on the VTR pull out drawer.

Horizontal Picture Centering: Fixed

Recommended Switch Settings

FRONT PANEL & SUB-PANEL

Remote/Local	REMOTE 2 (9-pin)
CF PB Mode	AUTO

INTERNAL BOARD

S3-1	ON - No shifts when playing back inverted color frame edits; Chroma anomalies may be noticed.
	OFF - H-Shift (140ns) when playing back non-color framed edits
S3-5	ID SELECT switch must be left On (ID for AU-620).

Panasonic AU-650

TBC	Internal
Latest Revision	3/88
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	None
Special Modifications	None
VTR Address	None
Cable Requirements	Black to reference video In
Edit Frame Accuracy	98% of edits are frame accurate if machine/system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust In and Out times. Audio/video times trimmed with single adjustments.
Edit Field Select	F1 only
Inverted Color Frame Shift	Left
Color Frame Reference	PB Video
Edit Modes	Insert/Assemble
Audio Track Section	A1, A2 (linear); A3, A4 (FM) recorded with video.
Sync Control Reference	Time Code, Tape Timer

Alt TC Ref Selectable	Yes, see Operator's Guide

Motion Control Functions	Jog: approximately 2 frames per revolution of Jogger control. Var: -100% to +200% of play speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW].**
	SLO-MO Match: Yes
	FILL: Yes
VTR PROM Level	Version 2.0
Super Edit Software	V7.0L or later

System Setup

The following discuss system set up of the Panasonic AU-650.

Input Signal Color Frame Detection

Fixed internal; color frame flag can be deleted in record by selecting NON-STD on the sub-panel located under the main control panel. On playback, no H-shift will occur on out-of-color frame edits. However, video quality will change at the edit point.

NOTE: *In the component environment, there is no need to color frame and the switch can be left in the NON-STD position.*

Color Frame Playback Video

Fixed internal; always outputs H-shifted video for non-color-framed edits where color frame flag is recorded.

System Timing

S.C. Phase: Fine and Course (adjust on Encoder - front panel pull-out).

Sync Position: Horizontal system phase.

Horizontal Picture Centering: Video phase.

Record & Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Setup of the VTR in the modes described below is recommended to provide optimum performance when using a VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the Panasonic operating manual.

Front Panel

CONTROL	SETTING
Mode	TAPE
Head	PLAY
Control	REM 2

Internal SYS CON PC Board

SWITCH	SETTING	DESCRIPTION
S3-1	ON	No shifts for inverted color frame edits
	OFF	Forces an H-Shift on improperly color framed edits.

NOTE: *Chroma anomalies may be noted on improperly color framed edits.*

S3-5	ON	Must be left in the factory default position.

Panasonic AU-660

TBC	Internal
Latest Revision	55/88
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	None
Special Modifications	None
VTR Address	Not selectable
Cable Requirements	Black Reference Ref In
Edit Frame Accuracy	98% of edits are frame accurate if machine/system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust In and Out times. Audio/video times trimmed with single adjustments.
Edit Field Select	F1
Inverted Color Frame Shift	In NTSC, unpredictable (left or right)
Color Frame Reference	Recorded pulse in NTSC STD
Edit Modes	Insert/Assemble
Audio Track Section	A1, A2 and A3/A4 (FM tracks)
Sync Control Reference	Time Code

Alt TC Ref Selectable	Time Code and Tape Timer
Motion Control Functions	Jog: ±3 frames per revolution of Jogger control. Var: -100% to +300% of play speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW].** SLO-MO Match: Yes FILL: Yes
E-E Preview Performance	Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.
VTR PROM Level	Version 2.1
Super Edit Software	V7.0L or later

System Setup

The AU-660 will record a color frame marker for use during playback with the video input switch in the STD position. In the NON-STD position this marker is omitted, deactivating the machine's color framer during playback.

Input Signal Color Frame Detection

For tapes recorded with the color frame marker (Video Input Switch in the STD position) the Capstan Lock switch should be in the 2F position to allow the Editor to control color-framing. With this setup, switch 3-1 on the L6 board (Match Phase/Phase Inhibit) should be on for shiftless editing.

NOTE: *With this switch ON, chroma anomalies may be noted on improperly color framed edits.*

Color Frame Playback Video

With the capstan lock switch in the 4F position, only properly color- framed edits will be allowed by the machine.

System Timing

S.C. Phase: Fine and Course Sub-Carrier control.

Sync Position: Horizontal system phase.

Horizontal Picture Centering: Fixed

Record & Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Setup of the VTR in the modes described below is recommended to provide optimum performance when using a VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the Panasonic operating manual.

For Assemble Edits with continuous Time Code:

Set the Front Panel Ext/Int switch to EXT (with no external input applied).

Rec/Free Run to REC RUN

Preset/Regen to REGEN

Front Panel

CONTROL	SETTING
Remote/Local	REMOTE 2 (9-pin)
Head	PLAY
Mode	TAPE
CF PB	AUTO

Internal SYS CON PC Board

SWITCH	SETTING	DESCIPTION
S3-1	ON	No shifts for inverted color frame edits
	OFF	Forces an H-Shift on improperly color framed edits.

NOTE: *Chroma anomalies may be noted on improperly color framed edits.*

S3-5	ON	Must be left in the factory default (AU-660) position.

Sony APR-5003

Control	Direct, RS-422
ATR Options Required	None
Special Modifications	None
ATR Address	N/A
Edit Frame Accuracy	98% of all edits are frame accurate if machine/system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominally correct with current software. In and out times are adjustable within Super Edit. Audio times are trimmed with a single adjustment.
Edit Field Select	F1 only
Edit Modes	Insert (Assemble edits are not currently supported by the APR-5003.)
Audio Track Section	A1, A2
Sync Control Reference	Time Code, Tape Timer
Alt TC Ref Selectable	Yes, see the Operator's Guide. Continuous track reference selectable (DF or NDF), see Switch Settings.
Motion Control Functions	The APR-5003 will not start at a slow speed from a stopped state. Therefore, it is not possible to jog a single frame with the APR-5003.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW].** SLO-MO Match: Yes FILL: Yes

ATR PROM Level P40201.6

System Setup

Machine Communication

The baud rate for the APR-5003 is set by switch S1 on the LNT board. For operation, all segments should be left in the factory default position (all segments ON) for operation at 38.4 kbaud. Other communication parameters are set within the APR-5003 and cannot be altered by the operator.

Preferred Settings For Record & Playback

The APR-5003 interface has been developed at 15 ips operating speed. This speed is recommended for the best combination of fidelity, tape utilization, and external control efficiency. Storing and recalling setups on the APR-5003 is accomplished with the STO and RCL buttons on the APR-5003 keypad. For use with the Editor, the storage locations discussed below are important and should be set as stated.

Reference Select

SETUP #39 must be set to a 1. This tells the APR-5003 to RESOLVE ON PLAY, which means to maintain synchronization between time code off of tape and the reference set by SETUP #37. SETUP #37 is then set to 1, selecting VIDEO as the LOCK REF.

NOTE: *The APR-5003 manual refers to this selection as VITC, but it is actually VIDEO.*

Head Selection

SETUP #47 selects the SYNC HEAD or the PLAYBACK HEAD as the default head. The APR-5003 should be left in the SYNC HEAD position (i.e., SETUP #47 = 0).

Time Code

As the APR-5003 does not read time code in FFWD and REW, time code in these modes is interpolated with roller guide information. SETUP #30 must be set to a 1 so that the APR-5003 will update time code at fast wind speeds with the last type of time code read (DF vs. NDF).

To properly locate a time code number during a CUE, the machine will depend on continuous ascending time code numbers. To read time code, the (front panel) TC lamp must be ON. If this lamp goes off or start blinking, the validity of the time code is in question.

The APR-5003 will send only LTC to the editor. Therefore, the Editor will request only LTC from the machine, regardless of the PRIMARY or ALT TC setting in the Editor.

Note that if a dot in the time code display starts to blink, the position of the dot indicates an area of possible concern per the following:

- **Minutes** - Master TC validity is in question.
- **Seconds** - Off Tape TC validity is in question.
- **Hours** - Validity of the VIDEO reference is in question.

Variable Speeds

Single frames cannot be jogged with the APR-5003, since it does not move well at slow speeds from a stopped state. (JOG and VARIABLE speeds from an editor move the APR-5003 at high speed.)

Sony BVH-2000/2500/2700

TBC	BVT 2000, BKH 2100-2400
Latest Revision	3/88
NTSC/PAL	None
Control	Direct
VTR Options Required	Internal Time Code Generator Serial Remote Interface
Special Modifications	If using a BKH TBC, see Section 2 of the BVH-2000 manual. Modify the BKH TBC per "Color Frame Editing Using BKH TBC." (Refer to the manual for applicable serial numbers.)
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	BLK Reference to TBC and BVH-2000. CFID cable loop on BVH-2000. (See Special Modifications above.)
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	Right
Color Frame Reference	P.B. Video; Control Track
Edit Field Select	Set EDIT TIMING switch on board 13 to F1 or F2. Some editors can control BVH-2000 edit timing via the Initialization Page. To enable this feature, set EDIT TIMING to F1/F2 and see the Editor Operator's Guide for details of Editor setup.
Edit Modes	Insert/Assemble

Audio Track Section	A1, A2
Sync Control Reference	Time Code, VITC, Tape Timer
Alt TC Ref Selectable	Yes, see Operator's Guide: Alt TC.
Motion Control Functions	Jog: Approximately 4 frames per revolution of Jogger control.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with**[SHIFT][SLOW]**. SLO-MO Match: Yes, with Dynamic Tracking FILL: Yes, with Dynamic Tracking

Software Level Supported

	2000	2500
SY79, 80 SYSCON	3.6	3.1
SV43 SERVO	3.9	3.2

The level of software can be read on the VTR display. Refer to the Manufacturer's Maintenance Manual.

E-E Preview Performance	Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.
Super Edit Software	V7.0L or later

System Setup

The following tests verify VTR control setup and proper operation of the color framing circuitry. The tests are general, but are designed to assist you in determining whether any problems are in the VTR or Editing System.

Verify Input Signal Color Frame Detection

1. Connect a properly adjusted SC/H signal source to the input of the BVH-2000/2500/2700.

2. Connect a properly adjusted SC/H signal (Black) reference to the BVT-2000.

3. Press the white INSERT button on the operator's panel until it lights.

4. Raise the front panel so the PCBs can be seen. Observe the SC meter above the switch on the S-15 PCB. It should be near zero, with insert (step 3) ON and OFF. Select the MANU position on the S-15 PCB.

5. Adjust the SC ADJ pot until the SC meter on the S-15 PCB centers at the zero position.

6. If the meter cannot be zeroed, recheck steps 1 and 2. If the problem remains, consult the BVH-2000 Service Manual or call the Sony Service Department.

Verify Color Framing of Playback Video

1. Set the SERVO REF switch on the operator's panel to AUTO.

2. Set the pulse out switch on PCB S-15 to the PBCF position.

3. Set the color frame switch on PCB CD-17 to the 4F position.

4. Mount a previously recorded color bars tape on the BVH-2000. Open the front door on the BVT-2000 so the PCBs are visible.

5. Adjust the TBC ref CF. Adjust the PB CF.

Cycle the PLAY and STOP buttons several times. The green CF LOCK light on the operator's control panel should illuminate after the servo stabilizes. (NOTE: This lamp will not light when the CD-17 “Cap Lock” is set to 2F, even though the Editor guarantees Color Framing).

1. The color frame switch on PCB CD-17 should be returned to the 2F position. This permits the VPE Editing System to control color framing. However, the switch can be left in 4F Mode. Under Editor control, any edit will be aborted if the machine is asked to lock up out of the Color Frame.

These elementary tests are good indicators that the BVH-2000 is functioning properly and can be tested for control by the editing system.

System Timing

S.C Phase: SC front of the TBC PCB Signal Generator

Sync Position: H-Phase front of the TBC PCB Signal Generator

NOTE: *Above adjustments affect SC/H phase and should be made with an SC/H phase meter connected to the video output.*

Horizontal Picture Centering: Not adjustable on the front panel

BVH Sync Head

The Editor permits independent control of the Sync Head. To control the On/Off feature of SONY BVH machines, the following switches must be set on the LG-04 board:

S1-1 VIDEO/SYNC SIMUL switch must be set to OFF to enable separate VIDEO & SYNC recording.

PLAY mode switch must be set to the 1.5 HD position.

Settings For Record & Playback

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the following modes is recommended to provide optimum performance when using the VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

Table 2-5. RECORD 7 PLAYBACK SETTINGS

Control	Setting
BVH Front Panel	
Tape/Input	Tape
Servo Ref	Auto
Head	Play (Record mode);

	Play or R/P (Playback use)
Timer Code/timer	Time Code
Remote/Local	Remote
BVH Rear Panel	Plug the Editor control line into REM 2 or REM 2 OUT (looping inputs). Editware recommends soldering a 100 ohm resistor from pin 3 to pine 8 of a male connector and the plug the connector into REM 2. This properly terminates the RS-422 Control Receive line.
<u>BVT 2000 Front Panel</u>	
Bypass/Normal	Normal

PCB Settings

Board 2 (AE-03)	A3 SEL = TC; INT (for EE PVW)
Board 10 (LG-02)	SYNC HD 1.5 = ON, 1 = OFF S2-6 = ON for auto VITC/LTC read from Editor. Set Editor Alternate Time Code to 03 (see Init Pages). REC. INHIBIT = ON for P/B, OFF for REC
Board 11	READ (TC/AUTO/VITC) = TC
(TC14, TC14A)	REC (FREE/RUN) = RUN
(req'd for editing)	TC/UB = TC PRESET/REGEN = REGEN TC/TC - UB/UB = TC VITC (On/Off) = OFF

NOTE: *DIP Switch #8 settings are different for the two, NTSC only, versions (TC14 & TC14A) of this board. These settings are as follows:*

TC14	TC14A
1 = OFF (LTC Time pulse correction	1 = OFF
2 = OFF: DUDS (SW-1 ON; SW-2 OFF)	2 = OFF
3 = OFF (even Parity)	3 = OFF
4 = OFF	4 = OFF
5 = OFF	5 = OFF
6 = ON	6 = ON (Control track correction of LTC)
7 = OFF	7 = OFF

8 = ON	8 = OFF (ON to record burned-in TC)

NOTE: *The "A" version was built to support the current SMPTE TC standard. New bits were added to the Time Code to accommodate Color Framing. Older boards will not read Time Code generated by the newer boards as these bits were not masked in the earlier readers.*

Board 12	PARA RUN SWITCH (ON/OFF) = OFF TAPE RUN (NORM/STOP) = NORM REMOTE (1/2/3) = 2
Board 13	Set the EDIT TIMING switch (Edit Field Selection) to F1 or F2. Some Editors can control BVH edit timing via the Initialization Page. To enable this feature, set EDIT TIMING to F1 or F2 and see the Editor Operator's Guide for details of Editor setup. Set DF/NDF (Drop-Frame/Non-Drop-Frame to match the optional Time Code Generator (TC14A) to the time code that is on the tape.
Board 14 (SV-43	TAPE RUN (NORM/STOP) = NORM
Board 15 (RL-12)	SKEW (MAN/AUTO) = AUTO
Board 16 (CD-17)	ADV (BVT/OFF/BKH) = (select TBC model or OFF) CAP LOCK (4F/2F): 2F = Allow CF, REC, or PB 4F = Inhibits wrong CF on REC or PB.

NOTE: *Tape should be pre-striped in the 4F mode.*

DIP Switch #3

1 = OFF

2 = ON

3 = ON

4 = ON (CTL corrected Timer Pulse update)

5 = **(DO NOT CHANGE FACTORY SETTING!)**

6 = **(DO NOT CHANGE FACTORY SETTING!)**

7 = ON

8 = OFF

Board 17 (SR-15)	SC ADJ (MANU/FIX/EXT) = FIX or MANUAL PULSE OUT (REF2/REF4/PBCF) = PBCF
Board 18 (DT-04)	S2 (REM/FIELD/FRAME) = FIELD

Preliminary Operational Tests

1. Run the editing application andassign the I/O ports.

2. Adjust the TBC so that the BVH output video is properly phased to the plant.

NOTE: *This is only true for the record machine. If out of color frame sequence time code is selected for sources, a REVERSE indicator will appear on the monitor of the BVH.*

3. Properly SC/H-phased tapes can be verified with the CF LOCK light when you press PLAY on either the BVH panel or the VPE Editor Keyboard/Jogger. Select 4F Mode on the CD-17 PC board for this test.

NOTE: *Tapes that show a change of the CF LOCK light while in continuous PLAY may have non-color-framed edits. Inconsistent H-shifts may result when using these tapes.*

4. Vertical shifts are caused by the BVH and not the VPE Editing System. If they occur, the tach phase should be checked.

5. Return to the VPE editing keyboard. While running the editing application, simultaneously depress **[SHIFT]** and **[RESET]**. This initiates communications to the BVH.

6. Now perform ten edits to color bars and verify there are no H-shifts.

7. Perform ten match frame edits to the A-VTR and verify that there are no H-shifts. Check each source VTR in this fashion.

8. Now link up all the sources with slave mode and perform ten match frame edits from the A-VTR. Check all sources again.

NOTE: *All above steps apply only to normal play speeds of the BVH.*

Do not turn the SOURCE CF function ON during these tests since it applies only to source machines.

Sony BVH-2800

TBC	Internal or external
Latest Revision	3/88
NTSC/PAL	None
Control	Direct
VTR Options Required	Internal Time Code Generator Serial Remote Interface
Special Modifications	None
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	BLK Reference to TBC and BVH-2800. CFID cable loop on BVH-2800.
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to GV recommendations and Editor QC is set to nominal.G
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	Right
Color Frame Reference	PB Video; Control Track

NOTE: *VTR Color Frame control can be set in the VTR to override Editor control.*

Edit Field Select	Switch on Board 13 set in F1 or F2 position
Edit Modes	Insert/Assemble

Audio Track Section	A1, A2
Sync Control Reference	Time Code, VITC, Tape Timer
Alt TC Ref Selectable	Yes, see Operator's Guide: Alt TC.
Motion Control Functions	Jog: Approximately 4 frames per revolution of Jogger control. Variable: From -100% to +200% of play speed
Programmed Motion	**[SLOW]** key: Learn current variable speed into [SLOW] key with**[SHIFT][SLOW]**. SLO-MO Match: Yes, with Dynamic Tracking FILL: Yes, with Dynamic Tracking
Software Level	1.4
E-E Preview Performance	Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.
Super Edit Software	V7.0L or later

System Setup

The following tests verify VTR control setup and proper operation of the color framing circuitry. The tests are general, but are designed to assist you in determining whether any problems are in the VTR or Editing System.

Verify Input Signal Color Frame Detection

1. Connect a properly adjusted SC/H-phased signal source to the input of the BVH-2800.

2. Connect a properly adjusted SC/H-phased signal (Black) reference to the BVT-2800.

3. Press the white INSERT button on the operator's panel until it lights.

4. Raise the front panel so the PCBs can be seen. Observe the SC meter above the switch on the S-15 PCB. It should be near zero, with insert (step 3) ON and OFF. Select the MANU position on the S-15 PCB.

5. Adjust the SC ADJ pot until the SC meter on the S-15 PCB centers at the zero position.

6. If the meter cannot be zeroed, recheck steps1 and 2. If the problem remains, consult the BVH-2800 Service manual or call the Sony Service Department.

Verify Color Framing of Playback Video

1. Set the SERVO REF switch on the operator's panel to AUTO.

2. Set the pulse out switch on PCB S-15 to the PBCF position.

3. Set the color frame switch on PCB CD-17 to the 4F position.

4. Mount a previously recorded color bars tape on the BVH-2800.

5. Open the front door on the BVT-2800 so the PCBs are visible.

6. Adjust the TBC ref CF and the PB CF.

7. Cycle the PLAY and STOP buttons several times. The green CF LOCK light on the operator's control panel should illuminate after the servo stabilizes. (NOTE: This lamp will not light when the CD-17 Cap Lock is set to 2F, even though the Editor guarantees Color Framing).

8. The color frame switch on PCB CD-17 may be returned to the 2F position to permit the VPE Editing System to control color framing. The switch can be left in the 4F Mode; however, under editor control, any edit will be aborted if the machine is asked to lock up out of the Color Frame.

These elementary tests are good indicators that the BVH-2800 is functioning properly and can be tested for control by the editing system.

System Timing

S.C Phase: SC front of the TBC PCB Signal Generator.

Sync Position: H-PHASE front of the TBC PCB Signal Generator.

NOTE: *Above adjustments affect SC/H phase and should be made with an SC/H meter connected to the video output.*

Horizontal Picture Centering: Not adjustable on front panel.

Settings For Record & Playback

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the following modes is recommended to provide optimum performance when using the VPE Videotape Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

BVH-2800 Front Panel

Tape/Input = TAPE

Servo Ref = AUTO

Head = PLAY (Record mode)
PLAY or R/P (Playback use)

Time Code/Timer = TIME CODE

Remote/Local = REMOTE

BVH-2800 Rear Panel

Plug the Editor control line into REM 2 or REM 2 OUT (looping inputs). Editware recommends soldering a 100 ohm resistor from pin3 to pin 8 of a male connector and then plug the connector into REM 2. This properly terminates the RS-422 Control Receive line.

BVT-2800 Front Panel

Bypass/Normal = NORMAL

PCB Settings

Board 2 (AE-03)	A3 SEL = TC; INT (for EE PVW)
Board 10 (LG-09)	REM PRSET = NORM

Board 11 (TC14A)	READ (TC/AUTO/VITC) = TC
(req'd for editing)	REC (FREE/RUN) = RUN TC/UB = TC PRESET/REGEN = REGEN TC/TC - UB/UB = TC VITC (On/Off) = OFF

NOTE: *DIP Switch #8 settings are different for the two, NTSC only, versions (TC14 & TC14A) of this board. These settings are as follows:*

TC14	TC14A
1 = OFF (LTC Time pulse correction)	1 = OFF
2 = OFF: DUDS (SW-1 ON; SW-2 OFF)	2 = OFF
3 = OFF (even Parity)	3 = OFF
4 = OFF	4 = OFF
5 = OFF	5 = OFF
6 = ON	6 = O (Control track correction of LTC)
7 = OFF	7 = OFF
8 = ON	8 = OFF (ON to record burned-in TC)

NOTE: *The "A" version was built to support the current SMPTE TC standard. New bits were added to the Time Code to accommodate Color Framing. Older boards will not read Time Code generated by the newer boards as these bits were not masked in the earlier readers.*

Board 12	PARA RUN SWITCH (ON/OFF) = OFF TAPE RUN (NORM/STOP) = NORM REMOTE (1/2/3) = 2
Board 13	Set the EDIT TIMING switch (Edit Field Selection) to F1 or F2. Set DF/NDF (Drop-Frame/Non-Drop-Frame to match the optional Time Code Generator (TC14A)

	to the time code that is on the tape.
Board 14 (SV-43	TAPE RUN (NORM/STOP) = NORM
Board 15 (RL-12)	SKEW (MAN/AUTO) = AUTO
Board 16 (CD-17)	ADV (BVT/OFF/BKH) = (select TBC model or OFF) CAP LOCK (4F/2F): 2F = Allow CF, REC, or PB 4F = Inhibits wrong CF on REC or PB.

NOTE: *Tape should be pre-striped in the 4F mode.*

DIP Switch #3

1 = OFF
2 = ON
3 = ON
4 = ON (CTL corrected Timer Pulse update)
5 = (DO NOT CHANGE FACTORY SETTING!)
6 = (DO NOT CHANGE FACTORY SETTING!)
7 = ON
8 = OFF

Board 17 (SR-15)	SC ADJ (MANU/FIX/EXT) = FIX or MANUAL
	PULSE OUT (REF2/REF4/PBCF) = PBCF
Board 18 (DT-04)	S2 (REM/FIELD/FRAME) = FIELD

Preliminary Operational Tests

1. Run the editing application and assign the I/O ports.

2. Adjust the TBC so that the BVH-2800 output video is properly phased to the plant. Verify on the monitor that SCH NORMAL appears during the preroll time.

NOTE: *This is only true for the record machine. If out of color frame sequence time code is selected for sources, a REVERSE indicator will appear on the monitor of the BVH-2800.*

3. Properly SC/H-phased tapes can be verified with the CF LOCK light when you press PLAY on either the BVH0 panel or the VPE Editor Keyboard/Jogger. Select 4F Mode on the CD-17 PC board for this test.

NOTE: *Tapes that show a change of the CF LOCK light while in continuous PLAY may have non-color-framed edits. Inconsistent H-shifts may result when using these tapes.*

4. Vertical shifts are caused by the BVH-2800 and not the VPE Editing System. If they occur, the tach phase should be checked.

5. Return to the VPE editing keyboard. Depress **[SHIFT]** and **[RESET]**. This initiates communications to the BVH-2800 and turns OFF the color framer.

Now perform ten edits to color bars and verify there are no H-shifts.

4. Perform ten match frame edits to the A-VTR and verify that there are no H-shifts. Check each source VTR in this fashion.

5. Now link up all the sources with slave mode and perform ten match frame edits from the A-VTR. Check all sources again.

NOTE: *All above steps apply only to normal play speeds of the BVH-2800.*

Do not turn the SOURCE CF function ON during these tests since it applies only to source machines.

Sony BVH-3000/3100

TBC	Internal or external
Latest Revision	10/90
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	TBC (NTSC: BKH-3010 or BKH-3050, PAL: BKH-3020 or BKH-3060)
Special Modifications	None
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	BLK Reference to Ref IN.
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	Left. Random color frame shifts have been noted if the PBCF on the VTR is out of adjustment. Performing the following procedure will result in pre- dictable color frame shifts when they are encountered. 1. Play back a tape with propely recorded color frame video (as indicated on the TAPE SCH meter). 2. Set the PBCF to the point at which the PBCF LED turns off.
Color Frame Reference	Internal PB, CF, EXT
Edit Field Select	F1 or F2 with Setup menu item S05.

Edit Modes	Insert/Assemble
Audio Track Section	A1, A2
Sync Control Reference	Time Code
Alt TC Ref Selectable	Time Code, Tape Timer, VITC, and User Bits (see Operator's Guide).
Motion Control Functions	Jog: Approximately 4 frames per revolution of Jogger control. Variable: From -100% to +300% of play speed
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with**[SHIFT][SLOW]**. SLO-MO Match: Yes FILL: Yes
Software Level	SY 103 - Version 2.4 SV 90 - Version 3.1 SV 9 - Version 3.1 (Version numbers may be verified through menu T.17)
E-E Preview Performance	Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.
Super Edit Software	V7.0L or later

System Setup

The following tests verify VTR control setup and proper operation of the color framing circuitry. The tests are general, but are designed to assist you in determining whether any problems are in the VTR or Editing System.

Verify Input Signal Color Frame Detection

The REF SCH meter on the front panel of the machine reads the SC/H phase of the input signal selected by S40 in the machine software Setup Menu. If the SC/H phase represented on the meter is not within the ± 40 degree range and the Setup Menu item S42 is in the Internal setting, the SC/H phase of the EXT REF or Video Input signal should be adjusted to bring the reference into proper SC/H phase.

Verify Color Framing of Playback Video

Playing back a properly SC/H-phased tape with Setup Menu item S87 (NTSC only) in the PRESET mode should light the REF CF indicator on the RD-6 board. If not, select ADJ in Setup Menu item S87 and adjust the REF CF on the RD-6 board until the indicator lights properly. Then return Setup Menu item S87 to the PRESET position.

If the front panel TAPE SC/H phase meter is out of the ± 40 degree range, select the LOC ADJ on Setup Menu item S88 (PAL only) and adjust the PB CF control on the CK-26 board to light the PB CF indicator (also on the CK-26 board).

System Timing

S.C Phase: SC Phase control on the RD-6 Board

Sync Position: Sync Phase control on the RD-6 Board

Horizontal Picture Centering (video phase): Setup menu item S85

VTR & TBC Switch Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the following modes is recommended to provide optimum performance when using the VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

When used with a VPE Editor, optimum performance can be realized with the following switch settings for Playback or Record use. Controls not mentioned can be set at the users' discretion. See the Sony manual for more detail. Setups on the BVH-3000/3100 are done through software menus (Refer to Section 1-5, BVH-3000/3100 Maintenance Manual). The following settings are for proper use of the machine with a VPE Editing System.

NOTE: *The BVH3000/3100 works properly with a preroll which is a multiple of one second.*

SYSTEM

S01 Remote Select	RM2A or RM2B (user defined)
S05 Edit Field	F1/F2 (user defined)

SERVO

S40 Servo Ref Select	AUTO
S41 Capstan Lock Mode	2F
S42 Servo Ref CF Pulse	INT

TIME CODE

S50 A3 Input Select	TC
S51 Time Code Source	INT
S52 TC Generator Run Mode	REC
S55 TC Gen Preset/Regen	REG

VIDEO

S85 Video Phase	Ø
S87 Ref CF Detect Mode (NTSC)	PRESET
S88 PB CF Detect Mode (PAL)	PRESET

PRESELECT MODE

PB/E-E	Tape mode ON [SETUP], [TAPE/IN], [SETUP]
Play Head	ON [SETUP], [PLAY/IN], [SETUP]

INIT MODE

I10 EE Sync Delay	ENABLE
I17 Rec Confi Mode	CONFI
I85 Sync Phase	LOCAL
I91 SC/H Phase (Video Out, NTSC)	NORM

Use of VITC With Sony BVH VTRs

Tests conducted with the BVH series VTRs under VPE Editor control showed that LTC (Longitudinal Time Code) with control track interpolation gave accurate results at jog speeds equal to those attainable with VITC (Vertical Internal Time Code).

Either mode resulted in a match between picture and the editor-displayed time code position within one frame. In addition, these tests have revealed some operational differences when using VITC rather than LTC.

Time Code Display Options

Time code display options on the Editor and BVH-3000 are different for VITC and LTC when using VITC during editing. It is desirable to read VITC at low speed and then automatically switch to LTC at higher speeds. This can be accomplished by setting the local VTR time code display to the AUTO mode (READ switch on TC 14 board). VITC and LTC must be recorded identically when the tape is striped.

Note that the READ switch does not affect the mode of time code sent to the Editor. However, you can set the Alternate Time code selection on the Editor so that the Editor display can be switched to VITC, LTC, or VITC/LTC mode from the normal LTC mode when alternate TC is selected. These modes are set through the editing application start-up.

The automatic VITC/LTC function is available only on the BVH series. VTRs and can be accessed by setting the Alternate Time code mode on the Editor to 3 and DIP switch S3-6 on the LGØ2 board in the BVH-3000 as follows:

- S3-6 set to OFF causes normal LTC to be read.
- S3-6 set to ON causes VITC to be read whenever LTC is not present (auto mode). If VITC is not present, interpolated LTC will be read.

NOTE: *The remote VITC/LTC function operates differently than the AUTO mode local VTR display.*

Cueing

Use of the VITC only mode for playback cueing is not recommended, as time code information is lost at shuttle speeds. The VITC mode is useful only for reference purposes at low speed search or when jogging.

Attempts to use VITC for cueing purposes on the record VTR will result in sync aborts, as VITC cannot be read accurately when the VTR is in Insert mode during pre-roll. If VITC tapes are used on the R-VTR, the Play mode switch on the LGØ2 board should be in the 1-head position to avoid recording over the VITC track. The VITC track can be re-recorded with jam sync from the LTC track (Play mode = 1.5). However, this mode may result in bad VITC numbers at the edit point.

To operate with re-recorded VITC: set the READ switch on the TC14 board to TC; the PRESET/REGEN switch to REGEN, and the VITC switch to ON. Note that the LGØ2 Play Mode switch and the TC14 board VITC switch control both record and playback functions in the BVH-3000.

Because of the number of variables in recording and using VITC, VPE recommends that careful attention be directed toward BVH switch settings to assure useable results. If VITC must be re-recorded after the fact, dip switch S1-1 on the LGØ2 board can be turned OFF, allowing for manual inserting on the sync track (not available through editor control).

Switch S1 separates the video and sync track record functions from the local panel when the LGØ2 Play Mode switch is in the 1.5 position. However, the Editor will still command video and sync while recording in this mode.

Sony BVU-800/820

TBC	External
Latest Revision	3/88
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	BK-806 Serial I.F.
Special Modifications	KF-1 Board for selectable F1/F2 editing and automatic re-framing for bad time code. (NOTE: Re-framing, if necessary, causes a 1 line vertical shift.)
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	BLK Reference to TBC. When using a BVT-800/810 TBC, DO NOT connect any reference pulse to the VTR REF VIDEO input.
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Edit Field Select	F1 or, with VPE/Calaway KF-1 Board, F1 or F2.
Edit Modes	Insert/Assemble. (In Assemble mode, S5-5 on SY-37 Board must be OFF. [See Sony Technical Bulletin 85-042].)
Audio Track Section	A1, A2
Sync Control Reference	Time Code or Tape Timer
Alt TC Ref Selectable	Yes. (See Operator's Guide).

Motion Control Functions	Jog: Approximately 4 frames per revolution of Jogger control. Variable: From -100% to +300% of play speed, however, limited range of speeds with a Calaway interface.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**. SLO-MO Match: BVU-820 only FILL: BVU-820 only
VTR PROM Level	BVU-800: Version 8.0 on SY-37 Board (in VTR) BVU-820: Version 5.0 on SY-37 Board (in VTR)
E-E Preview Performance	Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.
Super Edit Software	V7.0L or later

System Setup

The following tests verify VTR control setup and proper operation of the color framing circuitry. The tests are general, but are designed to assist you in determining whether any problems are in the VTR or Editing System.

Verify Input Signal Color Frame Detection

Not applicable.

Verify Color Framing of Playback Video

Not applicable.

System Timing

S.C Phase: SC on front of BVT-800/810 TBC

Sync Position: H on front of TBC

Horizontal Picture Centering: Fixed

Record & Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the following modes is recommended to provide optimum performance when using the VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

FRONT PANEL

Remote/Local	REMOTE
D.T. Select	VAR (see manual)
Remote 1	RS-422 operation with 9-pin input
Mode Select	TBC for record or playback (allows use of direct SC from BVT-800/810 TBC NORM when TBC not used
PB-PB/EE	PB

REAR PANEL

Servo Lock	AUTO
Ext Sync In	DO NOT connect signal when BVT-800/810 TBC is used.
Framing Servo	ON (always)

When the BVU-800/820 with the BVT-800/810 is used as a record machine, during the preroll and record process of an edit, the monitor video will be displaced one line down, but the recording will be correct. For accurate vertical framing in the case of the BVT-800/810, put the NORMAL/BYPASS switch located on the front panel in BYPASS. The Preview Modes are unaffected.

BVU-800/820 PCB Settings

Time Code (TC) Board (BK-806)

NOTE: *BK-806 Time Code Board must be installed for RS-422 Direct Editor control.*

SW3	INT TC
SW1-1	OFF (to generate DF code ON (for NDF) in Record mode (In Playback or edit, mode depends on mode previously recorded on tape.)
SW1-3	ON (for TC error correction)
SW2	AUTO

BVT-800/810 (as used with the BVU-800/820)

Front Panel

Process/SC-Direct	SC-DIRECT
Bypass/Normal	NORMAL
V-Phase	Adjust until green LED lights while in PB mode.

Sony BVU-950/970

TBC	Internal
Latest Revision	3/88
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	Time Code Generator
Special Modifications	None
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	Reference Video input
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Edit Field Select	F1 only
Edit Modes	Insert/Assemble.
Audio Track Section	A1, A2
Sync Control Reference	Time Code or Tape Timer
Alt TC Ref Selectable	Tape Timer
Motion Control	Jog: Approximately 4 frames per revolution of Jogger control.

Functions

Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.
	SLO-MO Match: Yes
	FILL: Yes
VTR PROM Level	SV Version 1.05 SY Version 1.05
E-E Preview Performance	Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.
Super Edit Software	V7.0L or later

System Setup

System Timing

S.C Phase: TBC control panel

Sync Position: TBC control panel

Horizontal Picture Centering: Fixed

Record & Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the following modes is recommended to provide optimum performance when using the VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

FRONT PANEL

Remote/Local	REMOTE
Input	LINE
CTL/TC	TC
PB-PB/EE	PB

REAR PANEL

Servo Lock	AUTO
Ext TBC	OFF
Framing Servo	ON (always)

NOTE: *The EDIT DELAY (Setup item #217) must be left in the factory default position of 6 FRAMES (data #1) for proper edit timing. The ENHANCED FUNCTION items can be accessed by setting the SETUP GRADE (Setup item #200) to ENHANCED (data #1).*

Sony BETA (BVW-10/15/40)

TBC	Internal
Latest Revision	3/88
NTSC/PAL	NTSC
Control	Direct (Calaway interface performance exceptions noted below)
VTR Options Required	None
Special Modifications	None
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	Black Reference to REF IN
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Edit Field Select	F1
Inverted Color Frame Shift	Right
Edit Modes	BVW-10/15 Playback only; BVW-40 - Insert/Assemble
Audio Track Section	A1, A2
Sync Control Reference	Time Code
Alt TC Ref	Yes, see Operator's Guide

Selectable

Motion Control Functions	Jog: Approximately 4 frames per revolution of Jogger control. Var: BVW-10/40 – ±394%; BVW-15 – -100%/+200% w/ Dynamic Tracking (Limited range with a Calaway interface.)
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**. SLO-MO Match: BVW-10/40 – No; BVW-15 – Yes with Dynamic Tracking FILL: BVW-10/40 – No; BVW-15 – Yes with Dynamic Tracking
VTR PROM Level	Version 4
Super Edit Software	7.0L or later

System Setup

While a component recorder does not inherently have color framing, later BVW-10s have a feature which detects a recorded CF pulse. When editing in NTSC or component, this feature can be disabled, eliminating any possibility of H-shifts due to color framing error. See Color Framing Playback Video below.

Color Framing Playback Video

Color Framing Playback Video is slightly different for the BVW-10/15 and the BVW-40. Each is discussed separately below.

BVW-10/15 Color Framing Playback Video

On the EN20 board, remove connector CN1 from the DVS93 Board.

NOTE: The purpose of the H-shift during playback "out of color frame" is to optimize video quality.

BVW-40 Color Framing Playback Video

On the EN21 Board, turn S801 ON (Color Framing disabled). This disables detection of any color frame pulse which may have been recorded on tape.

The front panel switch (STD - NON STD) may be used to control the BVW-40 pseudo color framing when recording NTSC signals. In STD a Color Frame ID Pulse (CFID) is recorded in the vertical interval, which is blanked out in the TBC on Playback. In NON STD, the ID Pulse is omitted, and such recordings are not subject to color framing problems on playback due to the color frame synthesizer.

NOTE: *In a component environment, it is not necessary to color frame the STD/Non STD switch. It may be left in either position.*

System Timing

S.C Phase: SC behind front control panel

Sync Position: SYNC behind control panel

Horizontal Picture Centering: Fixed

NOTE: *The BVW-15 detects the opposite color frame as inverted, compared to the BVW-10 or -40.*

Record & Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the following modes is recommended to provide optimum performance when using the VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

FRONT PANEL

Front Panel settings for the BVW-10/15 and BVW-40 are slightly different.

For the BVW-10/15:

Remote/Local	REMOTE 1 or 2 (9-pin or 36-pin depending on which remote connector is used.
CTL/TC	Local control for Time Code/Control Track

For the BVW-40:

Remote/Local	REMOTE 1 or 2 (9-pin or 36-pin depending on which remote connector is used.
CTL/TC	Local control for Time Code/Control Track
Std/Non-Std	See Color Framing Playback Video above.
Input Select	Type of input signal
Mode Select	EDIT
PB/PB-EE	PB

BEHIND CONTROL PANEL

Settings behind the Control Panel are slightly different for the BVW-10, the BVW-15, and the BVW-40.

For the BVW-10:

Preset panel (left side)	Select normal positions (yellow flag not showing) for all controls.

For the BVW-15:

Preset panel (left side)	Select normal positions (yellow flag not showing) for all controls.
Capstan Lock	2F

For the BVW-40:

Preset panel (left side)	
Bypass	OFF
	Select normal positions (yellow flag not showing) for all other controls.

REAR PANEL (BVW-40 only)

There are no settings on the rear panel of the BVW-10 and BVW-15. The one on the BVW-40 is:

Reference Video Ext/Auto	AUTO (Must connect system reference video for use as playback machine.)

PCB Switch Settings

There are no PCB switch settings for the BVW-10. Those for the BVW-15 and BVW-40 are different and discussed separately below.

For the BVW-15:

SY38 BOARD

S4	Bit 8
Control Track Counter	ON = NDF OFF = DF

For the BVW-40:

TC-28 TIME CODE GENERATOR

Regen/Preset	PRESET (user discretion)
Ext-Int	INT
S4-4	ON
S5-3	OFF

CK-17 BOARD

S1	OFF (for shiftless E-E switching)

SY-4 BOARD

S4-4	OFF (drum motor off in Standby)
S4-5	OFF (Tape Protection mode is Search x Y30)
S4-6	OFF (Audio & Video to use the same remote command timing.)
S6	OFF (Play command start delay)

Sony BETA-SP (BVW-60/65/75)

TBC	Internal
Latest Revision	5/88
NTSC/PAL	NTSC
Control	Direct (Calaway interface performance exceptions noted below).
VTR Options Required	None
Special Modifications	None
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	Black Reference to REF IN
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Edit Field Select	F1 or F2
Inverted Color Frame Shift	Left
Edit Modes	Insert/Assemble
Audio Track Section	A1, A2, A3, and A4 (FM tracks)
Sync Control Reference	Time Code
Alt TC Ref	Time Code and Tape Timer

Selectable

Motion Control Functions	Jog: Approximately 4 frames per revolution of Jogger control. Var: From -100% to +200% of play speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.
	SLO-MO Match: Yes
	FILL: Yes
E-E Preview Performance	Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.

VTR PROM Level	SY-61 Board	SV-82 Board
	SY 1-25 (IC6) V1.10	SV-25 (IC)109) V1.11
	SY 2-25 (IC39) V1.07	

Super Edit Software	V7.OL or later

System Setup

The following discusses Input Signal Color Frame Detection and Color Framing Playback Video setup of the BVW.

Input Signal Color Frame Detection

The BVW will record a color frame marker during the vertical interval with the video input switch (found on the front sub-panel) in the AUTO position. In the NON-STD position this marker is omitted, deactivating the machine color framer during playback.

NOTE: *In a component environment, it is not necessary to color frame and the AUTO/NON-STD switch can be left in NON-STD.*

Color Framing Playback Video

Enable the Capstan Lock switch by setting Setup item #106 to DATA Ø. The Capstan Lock switch has the following effect on tapes recorded with a color frame marker (Video Input Switch in AUTO position):

- **2F position:** Edits occur anywhere with no H-Shift on playback. Inserts record CFID which is not used during playback.
- **2F/4F:** Edits occur anywhere with H-Shifts on improperly color framed edits. Inserts record CFID that is not used at playback.
- **4F/NTSC&8F/PAL:** Only properly color framed edits will be allowed by the machine. Improperly color framed edits result in a synchronization abort.
- **4F/PAL:** Only proper time code phased edits will be allowed. H-shifts can occur on improperly color-framed edits.

CAUTION:

In the 2F mode, non-color framed edits will degrade video quality over multiple generations in composite video mode.

System Timing

S.C Phase: SC on front control sub-panel

Sync Position: SYNC on front control sub-panel

Horizontal Picture Centering: Fixed Slow Key - Learn current.

Record & Playback Settings

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the following modes is recommended to provide optimum performance when using the VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

FRONT PANEL

Remote/Local	REMOTE 1 (9-pin connector)
CTL/TC	Local control for Time Code/Control Track
Std/Non-Std	(See Color Framing Playback Video above.)
Input Select	Type of input signal
PB/PB-EE	PB

MENU ITEMS

#106	Switch (DATA 1)
#201	Parallel Run OFF (DATA Ø)
#401	Still (DATA 1)
#501	1 minute (DATA Ø7)
#502	Tension Release (DATA 2). In ALLSTOP, the picture will be still for 1 minute and then go to Tension Release.

BEHIND CONTROL PANEL

Preset panel (left side)

Bypass	OFF
VTR Control	Does not effect Editor Control.
Synchronize On/Off	Does not effect Editor Control.
All other controls	Select normal positions (yellow flag not showing)

REAR PANEL

Reference Video

Ext/Auto	AUTO (Must connect system reference video for use as playback machine.)

PCB Switch Settings

To prevent Vertical Shift in E-E mode:

TBC-9 Board

S4-8	ON (Sync delay)

To lay down successive Assemble edits with continuous Time Code:

SY-64 BOARD

Internal/External	EXTERNAL
Regen/Preset	REGEN
Rec Run/Free Run	REC RUN

Note that to access the EXTENDED PARAMETERS of the BVW menu (SETUP items above), S106 on the SY-61 board must be on. Also note that for altered data to remain after the BVW is powered down, the SYSTEM SETUP switch on the SY-61 board must be pressed (after new data has been entered).

Sony DVR-10/20

TBC	Internal
Latest Revision	2/89
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	None
Special Modifications	None
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	Black Reference to REF IN
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Edit Field Select	**MAN EDIT ----->[F12] SETUP-----[F9] TO SELECT**
Inverted Color Frame Shift	Right
Edit Modes	Insert/Assemble
Audio Track Section	The input to each of the 4 digital audio channels is individually assignable in the machine to be from its digital or analog input connectors. The CUE audio channel is enabled if either Digital Audio 1 and/or 2 is selected.

Sync Control Reference	Time Code
Alt TC Ref Selectable	Yes, see Operator's Guide

Motion Control Functions

Jog: ±4 frames per revolution of Jogger control.
Var: -100% or +200% of play speed.

Programmed Motion

[SLOW] key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.

PEGS Control: 1.5% resolution over Variable speed range.

SLO-MO Match: Yes

FILL: Yes

E-E Preview Performance

Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.

VTR PROM Level (DVR10 ONLY)

BOARD/VERSION		BOARD/VERSION	
CP	40	SY	41
	40	SP	41
		SV	40
		DT	40
		EN	41

Super Edit Software

V7.0L or later

System Setup

Communications is through the back panel RS-422 REMOTE IN connector. Use the procedures below to set up the DVR.

RS-422-Communication Setup

Press **[F9]** INTERFACE
Press **[F1]** MODE 3

Input Signal Color Frame Detection

The SC/H phase of the input signal is displayed on the front panel of the DVR in the Setup **[F12]** option of the VIDEO IN menu. Depending on the conformity of the video in signal to RS-170A, the VIDEO IN menu can be set for optimum performance. With a properly color framed input signal, DVR CF should be left in the FIX **[F1]** position. If the display indicates that the incoming video signal is not SC/H phased, the DVR can be changed to **[F2]** AUTO ADJ.

NOTE: *If the COLOR FRAME mode is other than FIX [F1], the DVR front panel SC/H meter will not indicate SC/H phase of the input signal.*

Color Framing Playback Video

The phase of the output signal should be locked to the signal input on the EXT REF connector (rear panel). Make the following selection:

VIDEO OUT MENU
Press **[F1]** OUT REF

If the output video from the DVR conforms to RS-170A, the DVR should be left in the FIX **[F4]** mode of COLOR FRAME DETECT. The DVR can either correct or ignore changes in Color Frame as they are encountered during playback. This feature is turned on and off in the following manner:

Setup:	**[F1]** HOME **[F6]** EXT
Normal:	Video phase shifts 140ns if playing back non-color framed edits. No picture deterioration will be observed.
Process:	Video phase will not shift even when non-color framed edits are encountered during playback. Picture quality may deteriorate.

NOTE: *The DVR has three options for color frame lock.*

Color Frame Lock Options

4F LOCK	CF Lock Mode. CF lamp lights. VTR relocks when new CF is detected during playback from playback video.
4F HOLD	CF Lock Mode. CF lamp lights. VTR stays locked to CF established at the start of playback regardless of CF changes

during playback.

2F Frame Lock Mode. CF lamp doesn't light.

NOTE: *Frame Bump will not will not work in the 4F Lock Mode.*

Preferred Record & Playback Settings

REMOTE SETUP---->[F9] INTERFACE---->[F1] SONY MODE1

COLOR FRAME VID IN MENU----->[F12]SETUP----->[F1]FIXED

COLOR FRAME REF SETUP---->[F5]VID OUT---->[F1]OURREF---->REF

Jam Sync Time Code

To do record ASSEMBLE edits with continuous time code, set up as follows:

VID IN MENU
VIDEO
VID OUT MENU
VIDEO

TC & CHR	[F1]	INT
	[F2]	(TC SLAVE) ON
	[F4]	REC RUN
	[F7]	VITC ON/OFF (user discretion)

Horizontal Adjust

VIDEO OUT----->[F12] SETUP----->[F2] SYNC

While in VAR mode, the LEVEL CONTROL is adjusted while looking at a waveform monitor until the horizontal phase is set. Once set, **[F2]** is pressed again to disable further adjustment.

Subcarrier Adjust

VIDEO OUT----->[F12] SETUP----->[F3] SC

While in VAR mode, the LEVEL CONTROL is adjusted while looking at a vectorscope monitor until the subcarrier phase is set. Once set, **[F3]** is pressed again to disable further adjustment.

Record Field Select

F1/F2 RECORD START is available on the HOME, MANUAL EDIT and the AUTO EDIT menus. When a selection is made on any of these menus, the unaltered menus are updated with the current selection.

Manual Edit----->[F12] SETUP----->[F9] Select F1 or F2
Auto Edit----->[F12] SETUP----->[F9] Select F1 or F2

NOTES:
The color frame shift is to the RIGHT.
The DVR moves 4 frames per revolution of the Jog Knob on the VPE-151.

Freeze Command

This feature allows the Editor to toggle the freeze frame function of the DVR-10/20.

The function is implemented as a PEGS command per the following:

FUNCTION =	A-VTR – F-VTR (any VTR except the R-VTR)
COMMAND =	990 (FREEZE Off)
	991 (FREEZE On)
TIME =	The same input as with other PEGS

Immediate mode of PEGS execution applies as with all other PEGS types.

Additional Setup Suggestions

Home Menu

Rec Ref----->Input P.Play----->Off TC----->TC

Setup (from Home Menu)

SYNC PLAY OFF

Setup (on the Panel - not the soft key)

VIDEO OUT

CF Pulse OUT CF

MAN EDIT

Timing	House Standard
Cap Lock	Recommend 4F Lock (RVTR) Recommend 2F Lock (Players)

AUTO EDIT

W/PLYR	OFF
EDIT	NORMAL

VIDEO INPUT

INPUT CF	FIX (Note: INPUT SCH must be ± 20°)

VIDEO OUTPUT

OUTPUT REF	Ref
OUTREF CF	FIXED

Sony DVR-1000

TBC	Internal
Latest Revision	2/89
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	None
Special Modifications	None
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	Black Reference to REF IN, if analogue component IN
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Edit Field Select	The DVR-1000 is capable of F1 or F2 edits. Set the DVR-1000 to Field 1 for nominal operation.
Inverted Color Frame Shift	Right
Edit Modes	Insert/Assemble
Audio Track Section	The input to each of the 4 digital audio channels is individually assignable in the machine to be from its digital or analog input connectors. The CUE audio channel is enabled if either Digital Audio 1 and/or 2 is selected.
Sync Control Reference	Time Code

Alt TC Ref Selectable	Yes, see the DVR-1000 Operator's Manual
Motion Control Functions	Jog: ±4 frames per revolution of Jogger control. Var: -100% or +200% of play speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with**[SHIFT][SLOW]**. SLO-MO Match: Yes FILL: Yes
E-E Preview Performance	Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.
VTR PROM Level	Must be v2.0 or later. To check the version level, make the following selection. DIAG----->[F2] VER
Super Edit Software	7.0L or later

System Setup

Communications is through the back panel RS-422 REMOTE IN connector. Use the procedures below to set up the DVR-10

RS-422-Communication Setup

Press **[F9]** INTERFACE
Press **[F1]** SONY MODE 1

NOTE: *The DVR-1000's setup screens require control = [LOCAL] to enable selection keys. Ensure that control = [REMOTE] after completion of the Setup procedure.*

Color Frame Reference

A 50% duty cycle 4-field TTL-Level signal to CF PULSE IN.

NOTE: *If the COLOR FRAME mode is other than FIX [F1], the DVR-10 front panel SC/H meter will not indicate SC/H phase of the input signal.*

Color Framing Considerations

For use as an R-machine, the DVR-1000 servo lock mode must be set to 4-FIELD Mode (for NTSC) or 8-FIELD (PAL) to obtain clean edits. If the TTL-Level CF PULSE IN is left open, the DVR-1000 will normally default at power-up to color framing that requires Super Edit CF=000.

Random noise pulses will intermittently cause the DVR's internal CF Flip Flop to jump a frame, causing edits to fail for color frame lock and resulting in the R-VTR NOT SYNCHRONIZED error message. To continue editing, change Super Edit's RECORD CF to CF = 001. However, the best solution is to connect the DVR-1000's CF PULSE IN to an appropriate square wave color framing signal per Sony's instructions.

NOTE: *The standard CFID pulse does not have a 50% duty cycle. Therefore it is inappropriate for the DVR-1000.*

As a source machine, the DVR-1000's servo CF MODE should be set to RELOCK.

VDLY CMP

When used as a source machine, the DVR-1000's VDLY CMP should be ON to compensate for the delay of the frame buffer. To set the VDLY CMP on, select the following:

TC & CHR-----> [F10] VDLY CMP

IND EDT

If the error rate off tape is excessive when used as an R-machine, the DVR-1000 will not enter insert mode. There is no remote indication that it is not recording. To force the DVR-1000 to always record, make the following selection:

SETUP----->[F9] EDIT----->[F10] IND EDT

Color Frame

When used as an R-machine, select 4-Field mode for NTSC (or 8-field for PAL):

SETUP----->[F1] SERVO----->[F4] 4 FLD

Edit Field Select

For all usage, select CF Relock:

SETUP----->[F1] SERVO----->[F5] RELOCK

E-E Preview Systems

For normal Field 1 edits:

SETUP----->[F9] EDIT----->[F2] FLD 1

Set monitor select for Still Frame Video:

MON----->[F8] ON

Using cursor arrow keys, select **[STBY OFF]**. The VIDEO/DIGITAL AUDIO selection will flash.

Using the center button select **[PB] [MUTE]**.

Arrow down to CUE. Select **[PB]**.

Cursor to **[STBY ON]**. Make the same settings as before to

VIDEO/DIGITAL AUDIO and CUE.

NOTE: *The DVR-1000 does not refresh the frame buffer with R-machine still video if a green key selection of a source is followed by a green key selection of an R-machine. To refresh the frame buffer the tape must move.*

Freeze Command

This feature allows the Editor to toggle the freeze frame function of the DVR-1000.

The function is implemented as a PEGS command per the following:

FUNCTION =	A-VTR – F-VTR (any VTR except the R-VTR)
COMMAND =	990 (FREEZE Off)
	991 (FREEZE On)
TIME =	The same input as with other PEGS

Immediate mode of PEGS execution applies as with all other PEGS types.

Sony DVR-18/28

TBC	Internal
Latest Revision	2/89
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	None
Special Modifications	None
VTR Address	Not selectable (not used in Sony protocol).
Cable Requirements	Black Reference to REF IN
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Edit Field Select	**MAN EDIT ----->[F12] SETUP-----[F9] TO SELECT**
Inverted Color Frame Shift	Right
Edit Modes	Insert/Assemble
Audio Track Section	The input to each of the 4 digital audio channels is individually assignable in the machine to be from its digital or analog input connectors. The CUE audio channel is enabled if either Digital Audio 1 and/or 2 is selected.
Sync Control Reference	Time Code

Alt TC Ref Selectable	Yes, see Operator's Guide

Motion Control Functions	Jog: ±4 frames per revolution of Jogger control. Var: -100% or +200% of play speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**. SLO-MO Match: Yes FILL: Yes
E-E Preview Performance	Nominally correct with current software. In and out times are adjustable via te Editor. Audio and video times are trimmed with a single adjustment.

VTR PROM Level (DVR28 ONLY)

BOARD/VERSION		BOARD/VERSION	
CP	61	SY	62
	61	SP	61
		SV	61
		DT	61
		EN	61
		UC	61

Super Edit Software	V7.0L or later

System Setup

Communications is through the back panel RS-422A REMOTE IN connector. Use the procedures below to set up the DVR.

RS-422-Communication Setup

Press **[F9]** INTERFACE
Press **[F1]** 9 Pin MODE-3

Input Signal Color Frame Detection

The SC/H phase of the input signal is displayed on the front panel of the DVR in the Setup **[F12]** option of the VIDEO IN menu. Depending on the conformity of the video in signal to RS-170A, the VIDEO IN menu can be set for optimum performance.

With a properly color framed input signal, DVR CF should be left in the FIX **[F1]** position. If the display indicates that the incoming video signal is not SC/H phased, the DVR can be changed to **[F2]** AUTO ADJ.

NOTE: *If the COLOR FRAME mode is other than FIX [F1], the DVR front panel SC/H meter will not indicate SC/H phase of the input signal.*

Color Framing Playback Video

The phase of the output signal should be locked to the signal input on the EXT REF connector (rear panel). Make the following selection:

VIDEO OUT MENU----->Press [F12] SETUP----->Press [F1] OUT REF

If the output video from the DVR conforms to RS-170A, the DVR should be left in the FIX **[F4]** mode of COLOR FRAME DETECT. The DVR can either correct or ignore changes in Color Frame as they are encountered during playback. This feature is turned on and off in the following manner:

VIDEO OUT MENU----->Press [F12] SETUP----->Press [F6] EXT

Normal:	Video phase shifts 140ns if playing back non-color framed edits. No picture deterioration will be observed.
Process:	Video phase will not shift even when non-color framed edits are encountered during playback. Picture quality may deteriorate.

NOTE: *The DVR has three options for color frame lock.*

Color Frame Lock Options

4F LOCK	CF Lock Mode. CF lamp lights. VTR relocks when new CF is detected during playback from playback video.
4F HOLD	CF Lock Mode. CF lamp lights. VTR stays locked to CF established at the start of playback regardless of CF changes during playback.

2F Frame Lock Mode. CF lamp does not light.

NOTE: *Frame Bump will not will not work in the 4F Lock Mode.*

Preferred Record & Playback Settings

REMOTE	SETUP---->[F9] INTERFACE---->[F1] 9 Pin MODE 3
COLOR FRAME	VIDEO IN MENU----->[F12]SETUP----->[F1]FIXED
COLOR FRAME REF	SETUP---->[F5]VID OUT---->[F1]OUT REF---->REF

Jam Sync Time Code

To do record ASSEMBLE edits with continuous time code, set up as follows:

TC & CHR	[F1]	INT
	[F2]	(TC SLAVE) ON
	[F4]	REC RUN
	[F7]	VITC ON/OFF (user discretion)

Horizontal Adjust

VIDEO OUT----->[F12] SETUP----->[F2] SYNC

While in VAR mode, the LEVEL CONTROL is adjusted while looking at a waveform monitor until the horizontal phase is set. Once set, [F2] is pressed again to disable further adjustment.

Subcarrier Adjust

VIDEO OUT----->[F12] SETUP----->[F3] SC

While in VAR mode, the LEVEL CONTROL is adjusted while looking at a vectorscope monitor until the subcarrier phase is set. Once set, [F3] is pressed again to disable further adjustment.

Record Field Select

F1/F2 RECORD START is available on the HOME, MANUAL EDIT and the AUTO EDIT menus. When a selection is made on any of these menus, the unaltered menus are updated with the current selection.

Manual Edit----->[F12] SETUP----->[F9] Select F1 or F2

Auto Edit----->[F12] SETUP----->[F9] Select F1 or F2

NOTES:

The color frame shift is to the RIGHT.

The DVR moves 4 frames per revolution of the Jog Knob on the VPE-151.

Freeze Command

This feature allows the Editor to toggle the freeze frame function of the DVR-18/28.

The function is implemented as a PEGS command per the following:

FUNCTION =	A-VTR – F-VTR (any VTR except the R-VTR)
COMMAND =	990 (FREEZE Off)
	991 (FREEZE On)
TIME =	The same input as with other PEGS

Immediate mode of PEGS execution applies as with all other PEGS types.

Sony DVR-2100

TBC	Internal
NTSC/PAL	NTSC/PAL
Control	Direct
VTR Options Required	None
Cable Requirements	Black Reference to REF IN, if analogue component IN. REF VIDEO - Analog or Serial Digital. Selected in the SYSTEM Submenu
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Timing Accuracy	Nominal with current VTR software. The Editor can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Edit Field Select	In the EDIT –> SETUP menu, set TIMING for F1 or F2.
Audio Track Section:	The DVR-2100, like all D1 format machines have three sources of audio; the incoming serial data, XLR 1Channel mode, and XLR 2Channel mode. Selection and mixing are accomplished in the menu under the Audio key (located on the front panel). The digital format of the input audio is selected in this menu, also. (Refer to the Sony Operations manual for specifics)
Sync Control Reference	Selected Time Code
Alt TC Ref Selectable	Time Code, VITC, and ASTC. ASTC is time code recorded on the Audio track. It is turned ON with the ASTC REC feature on the TIME CODE sub-menu. To keep ASTC locked to LTC (time code recorded on the time code track) leave the TC CH (F7 of the EDIT SETUP sub-menu) in the TC+ASTC position. Note: The TC DELAY feature is found in the TIME

CODE sub-menu. TC DELAY should be left in the AUTO position to maintain the proper time code to video relationship.

Motion Control Functions

Jog: approximately +/-3 frames per revolution of Jogger control.
Variable: From -100% to +300% of Play Speed.

Program Motion

[SLOW] key: Learn current variable speed into **[SLOW]** with **[SHIFT][SLOW].**

To provide a higher resolution of control in Super Edit, additional PEGS numbers have been activated. This provides 0.1% resolution between 90.1% and 109.9% of play speed. For Program Motion, these speeds are the play speed synchronized parameters, sending the actual speed frames before the In Point. These speeds are indicated by the PEGS numbers from 901 to 1099, which are displayed in the speed column of the Mark Table. Note that the Freeze ON/OFF commands, which use the values 990 and 991, are within this range.

SLO-MO Match: Yes

Pre-Read:

Not capable.

Rec VTR E to E

Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.

Super Edit Software

V7.0L or later;

VTR PROM Level:

CP		2.20
VN-03	A	2.06
	B	2.03
	C	2.00
SV-120	A	2.04
	B	1.02
	C	2.20
RF-23		12.03
DT-26		1.08

System Setup

RS422–Communication Setup

Communication is through the back panel **REMOTE 3** (9-pin D) connector, using Mode 3 in the SYSTEM sub-menu.

- Press REMOTE on the front panel from the HOME menu.

Jam Sync Time Code

All selections are made in the TIME CODE sub-menu:

- RUN MODE (F1) – REC RUN
  - Select INTERNAL GENERATOR
  - Select TC GENERATOR

Color Framing Play Back Video

The COLOR FRAME LOCK MODE is selected with the F3 key in the SYSTEM sub-menu.

- In the LOCK mode, the servo is locked to the input color frame pulse.
- In the HOLD position, the servo is locked to the color frame detected when playback is started.

In the lock mode should the input color frame pulse become unstable, the servo also becomes unstable. Therefore, SONY recommends leaving the machine in HOLD mode whenever possible.

The Color Frame Lock Options

When editing or playing back a tape in which component signals are recorded, the following CF options are applied:

- **2FD:** Capstan locks in units of 2 fields; H shifts can occur, but can be defeated by setup MENU item #712. Note that if H shifts are defeated with setup item #712, some deterioration of video quality may be noticed.
- **4FD:** Capstan locks in units of 4 field color mode; none color framed edits will abort.
- **8FD:** (PAL) 8 Field Color Lock

- **Inverted Color Frame Shift:** Right

NOTE: *When 4F is selected for 525/60 systems; or 8F for 625/50 systems, the CF MODE indicator will light on the control panel.*

System Timing

- **Horizontal Adjust:** VIDEO PHASE is adjusted in the VIDEO sub-menu.
- **Subcarrier Adjust**: SYNC PHASE is adjusted in the VIDEO sub-menu.

Freeze Command

This feature allows the Editor to toggle the freeze frame function of the DVR-2100.

The function is implemented as a PEGS command per the following:

FUNCTION =	A-VTR – F-VTR (any VTR except the R-VTR)
COMMAND =	990 (FREEZE Off)
	991 (FREEZE On)
TIME =	The same input as with other PEGS

Immediate mode of PEGS execution applies as with all other PEGS types.

Sony DVW-500

TBC	Internal
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	For a Composite environment; BKDW-505/506–Analog Composite Decoder Board (NTSC/PAL)
Special Modifications	None
VTR Address	Not applicable
Cable Requirements	REF. VIDEO–Black burst or Composite Sync 0.3 Vp-p Negative Sync Composite–1.0 Vp-p Negative Sync Component–Y: 1.0 Vp-p negative Sync
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to three (3).
Edit Timing Accuracy	Nominal with current VTR software. Super Edit‘ can adjust IN and OUT times. Audio/video times are trimmed with a single adjustment.
Inverted Color Frame Picture Shift	Not applicable
Color Frame Reference	Analog Playback; Input Video; User Selectable 2 field/4 field Switch. Digital Playback; Automatic (not user selectable).
Edit Field Select	F1 or F2. In the Customized Menu set F1 or F2. To access the Customize Menu, set switch S100-1 and S100-5 to ON, on the SS-52 board. Press the MENU button and observe the monitor display. Locate Edit Field Select (item #304) by first pressing the **[JOG]** button and then turning the Search dial. While doing this, change the item data to the desired field. Store the changed data by pressing the **[SET]** button located next to the **[MENU]** button.
Edit Modes	Insert/Assemble

Audio Track Section	Four channels selectable either analog or digital with the **[INPUT SELECT]** button (front panel). Recording in CUE channel is controlled by Super Edit Init #27.
Sync Control Reference	Time Code
Alt TC Ref Selectable	TC and CTL
Motion Control Functions	Jog: +3 frames per revolution of Jogger control. Variable: From -100% to +300% of Play Speed. Set MENU ITEM #401 to data 1 (STILL) for the machine to end a CUE in STILL mode. Failure to do so can adversely affect synchronization.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**. SLOW-MO Match: Yes FILL: Yes Program Motion provides higher resolution around play speed through the use of Program Play commands on the DVW-500. Note that to provide higher resolution, additional PEGS numbers have been activated providing 0.1% resolution between 90.2% and 109.9% of play speed. Program Play PEGS executed at time 00:00 pre-roll at play speed, then change speed just before the edit point.These speeds are indicated by the PEGS numbers from 902 to 1099, which will be displayed in the speed column of the Mark Table. (The decimal point is implied.) In the Customized Menu enable the Program Play mode. To access the Customize Menu, set switch S100-1 and S100-5 to ON, on the SS-52 board. Press the **[MENU]** button and observe the monitor display. Locate Program Play (item #111) by first pressing the **[JOG]** button and turning the Search dial.While doing this, change the item data to the desired field. Store the changed data by pressing the **[SET]** button located next to the**[MENU]** button.
Pre-read	Yes. Pre-read is implemented as a PEGS command; **Function = R-VTR ([A]** key)

Command = **Ø** (OFF)
= **1** (ON)

Pre-Read can also be toggled through the keyboard to immediately turn the function On/Off. For all systems except 41/51 systems, **[SHIFT][YES]** toggles it ON; **[SHIFT][NO]** toggles it OFF. For 41/51 systems, **[CTRL][Y]** and **[CTRL][N]**, respectively, toggle the function ON and OFF.

Record VTR E-E Monitoring Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.

VTR PROM Level

SS52 Board

IC12	SYS1V104
IC54	SYS2V101
IC761	SV-V106
	IC2110
	DT-V102

Super Edit Software V7.0G or later

System Setup

Communication is through the back panel **REMOTE IN** (9-pin "D") connector.

RS422–Communication Setup

- Press the REMOTE 1 (9P) button.

Jam Sync Time Code

- Switch settings access the Sub-control panel
  - TC GENERATOR INT
  - TC GENERATOR REGEN
  - CAPSTAN LOCK 2FD
- Access the Set-Up Panel
  - TC AUTO
  - TC GENERATOR REC RUN

- TC GENERATOR NDF/DF
- VITC OFF/ON

Color Framing Play Back Video

Phase of the output signal will be locked to the signal selected by the OUT REF located in the sub-control panel.

The Color Frame Lock Options

When editing or playing back a tape in which component signals are recorded, the following CF options are applied:

- **2FD:** Capstan locks in units of 2 fields, H-shifts can occur, but can be defeated by setup MENU item #712. Note that if H shifts are defeated with setup item #712 some deterioration of video quality may be noticed.
- **4FD:** Capstan servo locks in units of 4 field color mode; non-color framed edits will abort.
- **Inverted Color Frame Shift:** Right

System Timing

- **Horizontal Adjust:** Access the sub-control panel: Using a waveform monitor, adjust Sync until the horizontal phase is set.
- **Subcarrier Adjust:** Using a waveform monitor, adjust SC until the subcarrier phase is set.

Sony PCM-7030

TBC	None
NTSC/PAL	NTSC/PAL
Control	Direct
DAT Options Required	DABK-7030 Time Code Reader/Generator
Special Modifications	None
DAT Address	N/A
Cable Requirements	Ref Video Sync
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Inverted Color Frame Picture Shift	N/A
Color Frame Ref	N/A
Edit Field Select	Not selectable
Edit Modes	Insert/Assemble
Audio Track Section	Two channel audio track: Ch1 (L) Analog Audio; Ch2 (R) Analog Audio. In addition, Monitor Outputs Ch1 (L) and Ch2 (R). (Note that Digital Input/Output requires an optional DABK-7031 AES/EBU format. Also note that there is no individual channel control.)
Sync Control Reference	Time Code
Alt TC Ref Selectable	Yes. However, the timer cannot be set to match In-time or tape time a frame numbers count in timer time.nd

Motion Control	Jog: ±12 frames per revolution of Jogger control. Variable: Limited range of speeds near play speed (±20%). The PCM-7030 has various ranges but the audio is inaudible.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.
VTR PROM Level	Serial Interface Board ICC3 #06147 SYC3V3.0 ICC4 #06148 SYC4V3.0
R-VTR E-E Monitoring	Use standard monitor preview VTR. (VTR allows E-E operation for source switching.)
Super Edit Software	V7.0L or later

Record & Playback Settings

Using the DAT with an external editor is not generally covered in the manufacturer's operating manual. Setup of the DAT in the mode below is recommended to provide optimum performance when using a VPE Editor. Controls not mentioned either have no effect on Editor operation or should be set in accordance with the Sony operating Manual.

Front Panel

CONTROL	SETTING
Remote/Local	REMOTE (9P)
Ext/Int/Video	VIDEO (synchronizes with REF INPUT VIDEO on the optional DABK-7030)

Menu Setups

When doing the menu setups on the PCM-7030, note the following:

- To select the menu setups, while holding the MENU key down, turn the Search dial.
- To enter data, while holding the DATA key down, turn the search dial.

- To store data, press the SET key. (Flashing stops and stored setting data is recalled.
- When the unit is powered down and subsequently turned back on, all data is assigned automatically.

The menu setups are:

rEF tCF (reference TC Format)	NTSC SMPTE	DF: 2997d NDF:2997ndf
	PAL/SECAM	25 EBU
SYnC Pb (Sync Playback)	Enable (The time code on tape is played back in sync with the phase of the video sync signal input.)	
rEC tC (Recording TC)	REAR SEL Depends on the TC Selector on the rear panel where: INT records the internally generated TC. INPUT records the input TC from the TIME CODE INPUT connector.	

Jam Sync

Jam Sync menu setups are:

SEt Grd (Setup menu grade)	ENHANCED - Selects the level setups of the menu from basic to expanded.
SEt tC	OPEN - Opens the Time menu
FrEE run	OFF (for Record Run)

Back Panel

Ref input Ext/Int set to EXT.

Sony PVW-2800

TBC	Internal
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	None
Special Modifications	None
VTR Address	N/A
Cable Requirements	Black Burst to REF VIDEO Composite Video to VIDEO INPUT
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Inverted Color Frame Picture Shift	Right
Edit Field Select	F1
Edit Modes	Insert/Assemble
Audio Track Section	CH1, CH2
Sync Control Reference	Time Code
Alt TC Ref Selectable	Yes, see Operator's Guide.
Motion Control Functions	Jog: Approximately ±4 frames per revolution of Jogger control. Variable: +200% or -100% of play speed

Programmed Motion **[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.

Super Edit Software V7.0 or later

VTR PROM Level

Board	**Version**
SS-48 (IC7)	SY1.03
SS-48 (IC403)	TC 1.01

R-VTR E-E Nominally correct with current software. IN and OUT times are adjustable
Monitoring within the editing application. Audio and Video times are trimmed with a single adjustment.

System Setup

The PVW-2800 will record a color frame marker during the vertical interval with the REF IN composite video signal set to AUTO (Item #308 in the System Setup Menu). In the NON-STD mode, the marker is omitted, which deactivates the machine color framer during playback

Color Framing Playback Video

The Capstan Lock switch has the following effect on tapes recorded with a color frame marker.

2FD/2FD-4FD/2FD **2FD** — Edits occur anywhere with no H-shifts.

2FD-4FD — Edits occur anywhere with H-shifts; the video output signal may shift up to 140ns.

4FD — Only properly color framed edits will be allowed by the machine. Improperly color framed edits result in a synchronization abort.

System Timing

S.C Phase: SC behind front Control Panel.

Sync Position: SYNC behind front Control Panel

Horizontal Picture Centering: Fixed

BVH Sync Head

The editing application permits independent control of the Sync Head. To control the On/Off feature of SONY BVH machines, the following switches must be set on the LG-04 board:

S1-1 VIDEO/SYNC SIMUL switch must be set to OFF to enable separate VIDEO & SYNC recording.

PLAY mode switch must be set to the 1.5 HD position.

Settings For Record & Playback

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the modes as shown in Table 2-6 is recommended to provide optimum performance when using a VPE Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

Table 2-6 RECORD 7 PLAYBACK SETTINGS

Control	Setting
PVW Front Panel	
Input Select Y-R-B/Composite/S-Video	Type of Input signal
Remote/Local	REMOTE
DB/PB-EE	PB
CTL/TC/U-BIT	TC
Behind Control Panel	
TC Select Switch	AUTO (Automatically displays VITC, LTC
VITC On/Off	User discretion
NDF/DF	User discretion

Menus

Menu Setups

Item No.	Value
106 Capstan lock	Ø - use setting of Capstan Lock switch on panel.

System Menu Setup

308 STD/NON-STD	Ø - AUTO (see Color Frame Ref.).
309 Servo Reference Select	Ø - AUTO
401 Function mode after Cue-up	Ø - Stop mode
501 Still Timer	Ø7 - 1 minute (tape protection)
502 Tape Protection mode from search	Ø2 - In ALLSTOP, the picture will be still for 1 minute, then go to Tension Release.

NOTE: *To access the extended parameters of the PVW- 2800 menu (setup items above #11), the SYSTEM SETUP MENU SELECT button, located behind the Control Panel, must be activated. After data has been entered, press the SET button.*

Jam Sync Time Code

To do record ASSEMBLE edits with continuous time code, set up the TC GENERATOR switches (behind the Control Panel) as follows:

Ext/Int	EXT
Regen/Preset	REGEN
Rec Run/Run Free	REC RUN

Sony UVW-1800

TBC	Internal
NTSC/PAL	NTSC
Control	Direct
VTR Options Required	None
Special Modifications	None
VTR Address	N/A
Cable Requirements	Black Burst to REF VIDEO Composite Video to VIDEO INPUT
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Inverted Color Frame Picture Shift	Right
Edit Field Select	F1
Edit Modes	Insert/Assemble
Audio Track Section	CH1, CH2
Sync Control Reference	Time Code
Alt TC Ref Selectable	Yes, see Operator's Guide.
Motion Control Functions	Jog: Approximately ±4 frames per revolution of Jogger control. Variable: +200% or -100% of play speed

Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.
Super Edit Software	V7.0L or later

VTR PROM Level	**Board**	**Version**
	SS-53	(IC4) 1.03
	SS-53	(IC212) 1.04

R-VTR E-E Monitoring	Nominally correct with current software. IN and OUT times are adjustable within Super Edit. Audio and Video times are trimmed with a single adjustment.

System Timing

SC Phase: SC behind front Access Panel.
Sync Position: SYNC behind front Access Panel
Horizontal Picture Centering: Fixed

Settings For Record and Playback

Using the VTR with an external editor is not generally covered in the manufacturer's operating manual. Set up of the VTR in the modes as shown in Table 2 is recommended to provide optimum performance when using the VPE Videotape Editor. Controls not mentioned have no effect on editor operation or should be set at the user's discretion in accordance with the manufacturer's operating manual.

Table 2-7. Record and Playback Settings

Control	Setting
Behind UVW Front Panel Access Door	
Video In Y-R-B/Composite/S-Video	(Type of Input signal)
Remote/Local	REMOTE
CTL/LTC/U-BIT	LTC

Menus

NOTE: *The menu grade must be ENHANCED to allow access to certain other menu functions.*

Menu Grade: ENHAN

Operational Function:

After Cue-Up: Stop
Cut-In Field: (user discretion)
Play Start: 5

Tape Protection:

From Stop:
Stop Timer: 1 minute (Tape Protection)
Next Mode: T.RLSE (Tension Release)

From Still:
Still Timer: 1 minute (Tape Protection)
Next Mode: T.RLSE (Tension Release)

Time Code:

DF Mode: (user discretion)
CF Flag: (user discretion – controls the recording of a color-frame Mark)

Sony VO-9850

TBC	BVT-810
Latest Revision	9/90
NTSC/PAL	NTSC
Control	Direct, RS-422
VTR Options Required	BKU-705 Time Code Generator/Reader
Special Modifications	None
VTR Address	N/A
Cable Requirements	Sync and SC with Video IN. External Sync is required when the VO-9850 is used with a TBC.
Edit Frame Accuracy	Nominally correct.
Edit Timing Accuracy	Nominally correct.
Edit Field Select	Field 1
Inverted Color Frame Shift	N/A
Edit Modes	Insert/Assemble
Audio Track Section	A1, A2
Sync Control Reference	Time Code, Tape Timer
Alt TC Ref	Timer 1

Selectable

Motion Control Functions	Jog: ±4 frames per revolution of Jogger control. Var: -100% to +300% of play speed.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**.
	SLO-MO Match: Yes, with Dynamic Tracking
	FILL: Yes, with Dynamic Tracking
E-E Preview Performance	Use standard single monitor preview VTR. VTR allows E-E operation for source switching in all transport modes.
VTR PROM Level	Version 101
Super Edit Software	V7.0L or later

System Setup

Only a few setups within the VO-9850 affect its operation when under Editor control. Those that do are accessed in ENHANCED functions by setting the SETUP GRADE (MENU item #200) to a 1.

In the ENHANCED functions, the following items apply:

- Function #17, EDIT DELAY, must be left in the factory default position of 6F (data = 1) for proper edit and preview timing.
- Function #225, NOISELESS STILL, can be set to ON (data = 1) to eliminate the guard band noise that can appear in the middle of the monitor during SEARCH.
- Function #207, STILL TIMER, can be set to any duration desired by the operator.
- Function #202, DF/NDF SELECT, selects either DROP FRAME or NON-DROP FRAME operation for the LTC generator.

When the VO-9850 is used as the Record VTR, the time code in the VPE MARKS TABLE will match burned-in video (from an on-time character inserter) and the machine's own character inserter output. When the VO-9850 is used as a Source, the time code burned into the picture will be one frame ahead of the Mark Table and the machine's own character inserter.

Tascam DA-60

ATR Options Required	SY-D6 Synchronizer Board
Special Mod.	None
ATR Address	N/A
Control	Direct
Cable Requirements	Composite Video or Black Burst to VIDEO IN. Analog or Digital Audio to INPUTS.
Edit Frame Accuracy	In the tested firmware versions of the DA-60, occasionally both the in-time and out-time of insert edits would be one frame early.
Edit Field Select	F1, not selectable
Edit Modes	Insert and Assemble modes supported.
Audio Track Section:	Super Edit controls Audio Channels 1 and 2.
Alt TC Ref Selectable	Yes, but still uses the Linear timecode reference.
Motion Control Functions	Jog: Jogger motion places the DA-60 into play or reverse play which continues while there is jogger motion. Variable: Any variable or shuttle jogger or speed-key command causes DA-60 motion in play speed for forward speeds and reverse play for reverse speeds.
Program Motion	Super Edit does not support PEGS Programmed Motion as of the tested DA-60 prom levels. SLO-MO Match: Yes FILL: Yes
VTR PROM	DA-60 System Prom: 5.21 Can be viewed at power-up on the front

Level:		panel display.
	SY-D6:	2.22 Can be viewed at power-up on the front panel display.
Necessary Super Edit Settings	As of the tested DA-60 firmware versions, Super Edit preroll must be set to eight (8) seconds (240 frames NTSC, 200 frames PAL) to ensure an approximately 90% sychronization rate. If the DA-60 fails to sychronize, endure that the CLOCK is set to VIDEO and that the display "video" field is not blinking.	
Super Edit Software	V7.1A or later	

RS-422 Communication Setup

Communication is through the back panel's RS-422 connector. There are not switch settings on the DA-60 board

Required Front Panel Setups

Clock:

Select CLOCK to be VIDEO by pressing the front panel slide-switch.

NOTE: *If the front panel display "video" field is blinking, check the setting of the menu item #22 (as noted below) and check for the presence of video or black burst to the back panel video input port.*

Remote:

Set to ON.

Necessary Menu Settings:

Press and hold the Shift key and press the Menu [↓] (down arrow) key to scroll to various menu items listed below:

1. Step to: "**—tc- close.**"

2. Press the Data key, the “close” should begin to blink.

3. Turn the front-panel knob until the display indicates blinking “open.”

4. Depress the Set key to accept.

Continue pressing Shift key and press the Menu [↓] key to access the following items.

1. Set “**21 Pb tc**” to “tc”

2. Set “**22 ref tc**” to “2997 ndf” (this rate needs to match the reference video and df/ndf per your installation preference).

3. Set “**26 sync P**” to “on” (Sync for Playback).

4. Depress the Set key to accept.

Continue pressing Menu [↓] (Down) key to get back to “**—tc- open**”

1. Press the Data key, the “open” should begin to blink.

2. Turn the front-panel knob until the display indicates blinking “close.”

3. Depress the Set key to accept.

Continue pressing Menu [↓] key to get to “**—p2- close.**”

1. Press the Data key, the “close” should begin to blink.

2. Turn the front-panel knob until the display indicates blinking “open.”

3. Depress the Set key to accept.

Continue pressing Menu [↓] key and set these items if necessary:

1. Set “**9p- id**” to “7050”

2. Set “**speed fast**” to “150”

Continue pressing Menu [Ø] (Down) key to get back to “**—P2- open.**”

1. Press the Data key, the “close” should begin to blink.

2. Turn the front-panel knob until the display indicates blinking “close.”

3. Depress the Set key to accept.

Tascam DA-88

ATR Options Required	SY-88 Serial Interface
Special Mod.	None
ATR Address	N/A
Control	Direct
Cable Requirements	REF. VIDEO–Black burst or Composite Sync 0.3 Vp-p Negative Sync Composite–1.0 Vp-p Negative Sync Component–Y: 1.0 Vp-p negative Sync
Edit Frame Accuracy	98% of edits are frame accurate if machine and system are timed to VPE recommendations and Editor QC is set to nominal.
Edit Field Select	F1, not selectable
Edit Modes	Insert only supported.
Audio Track Section:	Super Edit controls Audio Channels 1 thru 4. These channels are assignable to analog or digital inputs with a switch on the SY-88 board described later in this note.
Alt TC Ref Selectable	Yes, but still uses the Linear timecode reference.
Motion Control Functions	Jog: +4 frames per revolution of Jogger with attenuated-level audio. Variable: From +2 times play to –1 play with attenuated-level audio.
Programmed Motion	**[SLOW]** key: Learn current variable speed into **[SLOW]** key with **[SHIFT][SLOW]**. VAR speeds over the range of -100 to +200 available using PEGS. 1% steps using Programmed Play available over range of 85% to 115% of play speed using PEGS. 0.1% steps using Programmed Play available over range of 90.1% and109.9% of play speed using PEGS. These speeds are indicated by the PEGS numbers from 902 to 1099, which will be displayed in the

speed column of the Mark Table. (The decimal point is implied.) The standard 1% increment using Program Play is available over the 85% to 115% range of play speed with PEGS.

NOTE: *As of the tested prom revision levels, AUDIO is Muted while running at a Programmed Play speed.*

SLO-MO Match: Yes

FILL: Yes

VTR PROM Level:	DA-88 System Prom: [STOP][PLAY][REC]	3.03	Verify by holding at power-up.
	DA-88:	2.02	Verify by holding [STOP][REW][FF] at power-up.
	SY-88 SERVO:	33.13	Verify by holding [REC][PLAY][FF] at power up.
Super Edit Software	V7.1A or later		

RS-422 Communication Setup

Communication is through the back panel's RS-422 connector. Set the S1 switch (located on the back panel of the SY-88 module) to the settings indicated in Table 2, below. Note that the SY88 board is the third from the top in the chassis. Note, also, that Ø indicates the switch-lever is ON and 1 indicates the switch-lever is OFF.

Table 2-8. Switch S1

Switch #	Switch Selection	Setting
1	75• Termination for VIDEO IN	Ø
2	MID/RS422	1
3	Not Used	1
4	Not Used	1
5	Not Used	1

6	Not Used	1
7	Video Sync Playback	Ø
8	Controller Mode Selection	1

Make the following settings to S2 and S3 on the SY-88 module. Note that the SY-88 module must be removed to access these switches. Remove the back labeled plate (14 machine screws) and then remove the SY-88 module (third board from the top). Set all the switches on S2 to Ø(ON). Set the switches on S3 to the following settings:

Table 2-9. Switch S3

Switch #	Switch Selection	Setting
1	PMC/7050	Ø
2	PMC-7050	Ø
3	PMC-7050	Ø
4	Track Mapping Refer to SY-88 Documentation	See Note †[1]
5	Track Mapping Refer to SY-88 Documentation	See Note [a]
6	RWD/FF Speed	1†[2]
7	Video Sync Playback	0
8	Not Used	–

†[1]. The two most common settings might be ON for Analog tracks 1 thru 4, or OFF for Digital Tracks 1 thru 4.

†[2]. Enables 100x speed for Rewind and Fast Forward. These high speeds work well with Super Edit. If desired RWD and FF speeds may be limited to 8x play speed by placing this switch to ON (Ø).

Required Front Panel Setups

Clock

Select CLOCK to be VIDEO by pressing the front panel pushbutton in the clock group. This setting is retained at power-off.

Preroll

The DA-88 has a minimum preroll setting accessed via the front panel. This value has a minimum value of 5 seconds. To access, either RHSL or AUTO IN/OUT must be active. Press [RHSL] button twice to activate RHSL mode. DISPLAY must be showing ABS. Press DOWN key while holding UP key. Edit value with DOWN key, ensure it is the minimum allowed. Press [DISPLAY] key to end data entry, press [CLEAR] to reset RHSL mode.

The preroll value set here becomes the minimum value for RS422 control by Super Edit. Therefore, for any edit including the DA-88, the Super Edit preroll time (Init setting #1) can not be less than the DA-88 preroll value.

Format and Timecode Generate

The tape should be formatted for its entire length per Tascam operational instructions. The procedure to start a format is as follows:

1. After FF & REW to unpack, clean with HC-8 CLeaning Tape.
2. Press [FORMAT] twice (LED turns solid).
3. Select Sample Frequency.
4. Press [REC] and [PLAY].

NOTE: *The DA-88 does not allow the use of the "ABS" reference as Time Code thru the RS422 control port, and that the tape must be "stripped" with time code using the procedure below.*

It is recommended that a starting time code of at least 10 Seconds is selected. The procedure to stripe a tape is as follows:

1. Hold [DISPLAY], press the down arrow [↓], TC LED lights.
2. Press [↑] and [↓] arrows simultaneously.
3. Select TC Frame rate using [↑] and [↓] arrows.
4. Press [DISPLAY] until GEN LED lights.
5. Use [↑]/[↓] keys to define starting TC Address.
6. Press [TC RECD] (LED Blinks).
7. Hold [RECODE], press [PLAY], and tape is rolling.
8. Press TC Generate key (RECORD, TC GENERATE, TC REC LEDs all light). TC is now being written to the tape

JVC BR-D85U

1. **Machine Type** - Machine is Digital-S Component 422.

2. **Pre-Read** - Machine has Pre-Read capability. Control of Pre-Read is from Super Edit [SHIFT][YES] and [SHIFT][NO] or through PEGS.

3. **Program Motion** - Controllable from Super. Accuracy and picture quality is a function of the VTR and varies depending on speed.

4. **Machine Menu Setup** - These are accessed via the MENU key on the VTR's front panel. Most options can be set per user preference. The following are suggested settings of certain options for best performance with Super Edit:

   005 Auto Tracking - ON

   311 Auto Play - OFF

   312 Auto Rew - OFF

   317 9 Pin Device ID - JVC D80 (Required)

   340 Search Speed - X32

   355 PB/EE Select Standby - PB

Tascam DA60 – MKII

ATR Options Required	SY-D6 Synchronizer Board
Special Mod.	None
ATR Address	N/A
Control	Direct
Cable Requirements	Composite Video or Black Burst to VIDEO IN. Analog or Digital Audio to INPUTS.
Edit Frame Accuracy	In the tested firmware versions of the DA-60 MKII, occasionally both the in-time and the out-time of insert edits would be one frame early.
Edit Field Select	F1, not selectable
Edit Modes	Insert and Assemble modes supported
Audio Track Selection	Super Edit controls Audio Channels 1 and 2.
Alt TC Ref Selectable	Yes, but uses the Linear timecode reference
Motion Control Functions	JOG: Jogger motion places the DA-60 MKII into play or reverse play which continues while there is jogger motion VARIABLE: Any variable or shuttle jogger or speed command forces the DA-60 MKII motion into play speed for reverse speeds and reverse play for reverse speeds.
Programmed Motion	Super Edit supports PEGS control of Programmed Motion. Set the Clock Slide Switch on the DA-60 MKII front panel to INT. Programmed Motion provides higher resolution around play speed through the use of Program Play commands on the DA-60 MKII. Additional PEGS commands have been made available to provide 0.1% resolution between 90.2% and 109.9% of play speed. These speeds are indicated by the PEGS commands from 902 to 1099, which will be displayed in the speed column of the Mark Table (the decimal point is implied).

Prom Level	*DA-60 System Prom:* 6.05	Can be viewed at power-up on the front panel display.
	SY-D6: 33-02	Can be viewed at power-up on the front panel display.

Necessary Super Edit Settings

If the DA-60 MKII fails to synchronize, ensure that the CLOCK is set to VIDEO and that the display "video" field is not blinking.

Editor Software Version

Super Edit V8.1 or later

RS-422 Communication Setup

Communication is through the back panel's RS-422 connector. There are no switch settings on the DA-60 MKII board.

Front Panel Settings

CLOCK: Select CLOCK to be VIDEO by pressing the front panel slide-switch.

> **NOTE**: If the front panel display "video" field is blinking, check the settings of Menu item # 22 (as noted below), and check for the presence of video or black burst to the back panel video input port.

Remote

Set to **ON.**

Menu Settings

Press and hold the Shift key and press the Menu **[↓]** (down arrow) key to scroll to the menu items listed below:

1. Step to: **" --- tc – close."**
2. Press the Data key. The **"close"** should begin to blink.
3. Turn the front panel knob until the display indicates blinking **"open".**
4. Press the Set Key to accept.

Press and hold the Shift key and press the Menu **[↓]** (down arrow) key to access the following items:

1. Set **"21 Pb tc"** to **"tc".**
2. Set **"22 ref tc"** to **"2997 ndf".** (This rate needs to match the reference video and df/ndf per your installation preference.)
3. Set **"26 sync P"** to **"on"** (Sync for playback)
4. Press the Set key to accept.

Press Menu **[↓]** (down arrow) key to return to: **" --- tc – open."**

1. Press the Data key. "**open**" should begin to blink.
2. Turn the front panel knob until the display indicates blinking "**open**".
3. Press the Set key to accept.

Press Menu **[↓]** (down arrow) key to return to: **---p2- close."**

1. Press the Data key. "**close**" should begin to blink.
2. Turn the front panel knob until the display indicates blinking "**open**".
3. Press the Set key to accept.

Press Menu **[↓]** (down arrow) key and set these items:

1. Set "**9p-id**" to "**teac**"
2. Set "**speed fast**" to "**150**"

Press Menu **[↓]** (down arrow) key to return to: **---p2- open."**

4. Press the Data key. "**close**" should begin to blink.
5. Turn the front panel knob until the display indicates blinking "**close**".
6. Press the Set key to accept.