

## Multi Channel Replay Controller

### INSTRUCTION MANUAL

VERSION: 111018

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## INTRODUCTION

### FCC RADIO FREQUENCY INTERFERENCE STATEMENT

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by BUF Technology could void the user's authority to operate this equipment. Shielded cables must be used with this equipment to maintain compliance with FCC regulations.

### WARRANTY STATEMENT

BUF Technology warrants that the equipment it manufactures is free from defects in materials and workmanship. Equipment that has been operated within its ratings and has not been subjected to mechanical or other abuse or modification and has failed because of such defects, will, at the option of BUF Technology, be repaired or replaced if it is returned, freight pre-paid, to BUF Technology within two years from the date of shipment. Equipment that fails under conditions other than described herein will be repaired at the price of parts and labor in effect at the time of repair.

This warranty is in lieu of all other warranties, express or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose. BUF Technology is not liable for any consequential damages.

### OVERVIEW

The Sport-EX Replay Controller is the control system for the Sport-HD replay system. It can also control multiple standard definition Sport replay systems and can simultaneously control any combination of Sport-HD recorders and SD Sport replay systems. Up to a total of six HD and/or SD channels can be controlled. All operations are identical except certain menu differences which automatically adapt to selected channel(s). Operation is nearly identical to the standard definition Sport, with minor differences including the ability to select and control any or all replay channels from a single control panel. Channels are identified by number (1-6), HD channels first, then SD. Power to the Sport-EX panel and TBar is supplied by the first channel, so no separate power supply is required for the control system.

Replay channels can be selected together, independently, and/or in any combination. Memory for up to 1000 cue points allows instant cueing of any or all channels to the same point in time. Cue points are referenced by the clip from which they are made, and by timecode within each clip that may begin at zeros or the time of day when recorded. Clips are named as they are recorded using the next available cue point number. When a new cue point is manually marked, it automatically remembers the clip that was playing or recording, which is recalled each time the cue point is used. Clip names are handled transparently to the operator, however a cue point that denotes a recorded clip is indicated by a period (.) after its number, and can be deleted, but not changed. Ten playlists of up to 100 cue points can be programmed and played with seamless cut edits. Cue points or entire playlists can be looped indefinitely.

This manual includes instructions related to the Sport-EX Replay Controller. For questions related specifically to the Sport Integrated Replay System itself, such as video/audio connections, independent control, etc., please refer to the Sport Integrated Replay System Instruction Manual. All BUF Technology manuals are available on our web site: [www.buftek.com](http://www.buftek.com) - hit the MANUALS button.



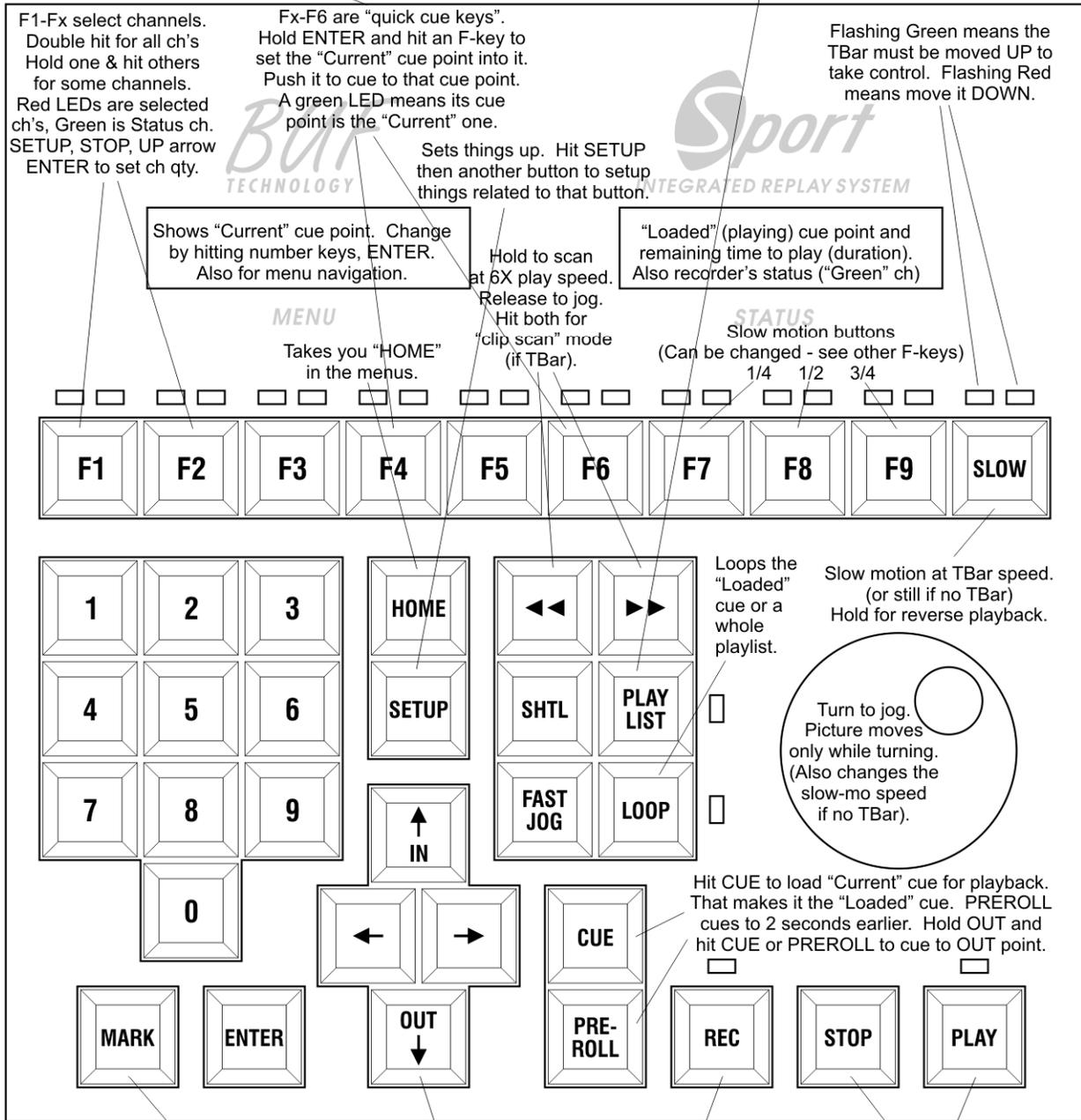
**SPORT-EX CONTROL PANEL**

**QUICK REFERENCE**

To best learn Sport-EX, feed Sports with test sources (tape, off air, or DVD), and outputs to monitors. Don't use static pictures for testing, the more motion the better. Start with displays, F1-Fx, REC, MARK, CUE, PLAY, SLOW, KNOB, SCAN (◀◀, ▶▶). Play with it until you are comfortable, then move on to PLAYLIST, LOOP, BUMP I/O.

When not needed for channel selection, F1-F9 can be (1) Quick Cue, (2) Slow-mo preset (3) "Bump I/O" - sandwiches cue between bumper clips. To change one, hit SETUP, the F-key, UP/DOWN arrows. Icons on the MENU display guide you.

Turn on PLAYLIST and hit CUE to play a playlist. Hit 0-9 then PLAYLIST to select one of ten playlists. Hit SETUP, 0-9, PLAYLIST to setup a playlist. Follow the icons.



F1-Fx select channels. Double hit for all ch's Hold one & hit others for some channels. Red LEDs are selected ch's, Green is Status ch. SETUP, STOP, UP arrow ENTER to set ch qty.

Fx-F6 are "quick cue keys". Hold ENTER and hit an F-key to set the "Current" cue point into it. Push it to cue to that cue point. A green LED means its cue point is the "Current" one.

Flashing Green means the TBar must be moved UP to take control. Flashing Red means move it DOWN.

Shows "Current" cue point. Change by hitting number keys, ENTER. Also for menu navigation.

Sets things up. Hit SETUP then another button to setup things related to that button.

"Loaded" (playing) cue point and remaining time to play (duration). Also recorder's status ("Green" ch)

MENU

Takes you "HOME" in the menus.

Hold to scan at 6X play speed. Release to jog. Hit both for "clip scan" mode (if TBar).

STATUS

Slow motion buttons (Can be changed - see other F-keys) 1/4 1/2 3/4

Loops the "Loaded" cue or a whole playlist.

Slow motion at TBar speed. (or still if no TBar) Hold for reverse playback.

Turn to jog. Picture moves only while turning. (Also changes the slow-mo speed if no TBar).

Hit CUE to load "Current" cue for playback. That makes it the "Loaded" cue. PREROLL cues to 2 seconds earlier. Hold OUT and hit CUE or PREROLL to cue to OUT point.

Makes a new cue point at current location. Hold ENTER or IN and hit MARK to change "Current" cue point's IN (start). Hold OUT and hit MARK to change "Current" cue's OUT (end). Hold to "backtime" (runs backwards).

Hold OUT to show TC on STATUS disp. Normally shows Duration to end (OUT).

Starts recording on all channels. Hold ch sel F-key, hit REC to record on one ch. Makes "Record" cue marked by "." after number. "Record" cue can't be changed.

PLAY plays at normal speed. STOP goes to still. Move TBar (or turn Knob) to change speed.

## INSTALLATION

1. Install the Sport Integrated Replay Systems and make power, video, and audio connections following the instructions in the Sport Integrated Replay System Instruction Manual. If you are upgrading an existing Sport system with the Sport-EX, replace the program EPROM in each Sport panel with the new EPROM provided: Remove (4) screws from the top rear and bottom front and separate the halves (do not loosen the other screws on the bottom). Locate the only IC with a label and carefully pry it out with a small screwdriver and install the new EPROM in the same direction. Do not install the EPROM backwards or it will be destroyed when power is applied. Reinstall the top onto the bottom and replace the screws. Test the unit to make sure the displays operate normally. If any Sports in the system have TBars, they will not be used and cannot be connected while the Sport-EX controller is connected (the Sport-EX must have the only connected TBar in the system).
2. If the Sport-EX controller is being used with Sport-HD (RM-HD) recorders as well as SD Sport replay systems, refer to the Sport-HD manual for HD related operations. Channel selection for the SD Sports are after the Sport-HD channels in the system, and must have their REMOTE AUX CH-X settings set accordingly in step 9 (e.g. if two HD and two SD Sports are used in the system, the REMOTE AUX CH-X settings for the SD Sports should be set to 3 and 4, and F3 and F4 will be used to select them while F1 and F2 will select the HD channels).  
Install the system according to the Sport-HD instructions, then connect the last HD recorder's NEXT connector to all SD Sport replay systems in the system using only cables labeled: *"T" TO "T" AND TO SPORT REMOTE AUX CH-2 - CH-6* and RJ45 "T" adapters as required. Then proceed to step 7.
3. Connect the Sport-EX panel to its TBar AUX connector using the short unmarked RJ45 cable (this cable has a reverse conductor order: 1-8 to 8-1, so standard CAT5 type cables will not work).  
If connecting to a production switcher EDITOR port or to a routing switcher, the signal is taken via an additional "T" adapter (referred to as "T6") between the panel and TBar: Connect the cable labeled *SPORT-EX PANEL RJ45 TO SPORT-EX "T6"* from the Sport-EX panel to this "T" adapter. Connect the cable labeled *SPORT-EX "T6" TO SPORT-EX T-BAR AUX* from the "T" to the TBar AUX connector. The *SPORT-EX "T6" TO SWR EDIT/RTR VTA-2001* cable connects from this "T" to the VTA-2001 RJ45 to DB09 adapter for connection to the switcher EDITOR port or routing switcher RS-422 remote connector.
4. Connect the Sport-EX TBar AUX-E connector to an RJ45 "T" adapter (referred to as "T1") using the long cable marked: *SPORT-EX T-BAR AUX-E TO SPORT-EX "T"*. (This is a regular pin to pin cable compatible with a CAT5 cable - it can be substituted with a longer cable, but voltage drop considerations limit its length to about 30 feet or 10 meters).  
NOTE: All RJ45 "T" adapters used (a.k.a. "Y" adapters) have all 3 connectors wired in parallel (not split or crossed over), so connectors are interchangeable (cables can be plugged into any connector on an adapter).
5. Connect the first RJ45 "T" adapter (T1) to the first Sport replay system AUX connector using the cable labeled: *SPORT-EX "T" TO SPORT REMOTE AUX CH-1 ONLY* (also a standard pin to pin cable). The Sport-EX and TBar receive power from this Sport via these connections. The remaining cables have conductors eliminated to avoid interconnecting power and other signals of the other Sport replay systems.
6. Connect the AUX connector of all other Sport replay systems in the installation to the remaining connector of the "T1" adapter using cables labeled: *"T" TO "T" AND TO SPORT REMOTE AUX CH-2 - CH-6* and more "T" adapters as required ("T2"- "T5"). If any Sport-HD (RM-HD) recorders are in the system, connect the AUX connector of all SD Sports to the NEXT connector of the last RM-HD using these cables and "T"s as required.  
**Do not substitute any other RJ45 cables or damage to Sport replay systems could result!**
7. If time of day timecode is available, connect it to the TC connector on the Sport-EX TBar.
8. Power up all Sports as detailed in the Sport manual. The Sport-EX panel's displays should light up (if not, immediately disconnect power and check all connections).
9. Each Sport in the system must be set to AUX REMOTE mode and be given a unique address. On each Sport, press SETUP, PLAY (DDR SETUP ITEMS), UP and DOWN arrows to REMOTE CONTROL, ENTER, UP and DOWN arrows to AUX REMOTE CH X (where X is a unique number for each Sport, starting at 1), ENTER. The STATUS DISPLAY should read REMOTE AUX CH-X.  
NOTE: The Sport system must have panel firmware version 090624 or later to support Sport-EX AUX Remote mode. To check this, press SETUP, ENTER, UP arrow to VERSION & TEST, ENTER, ENTER - MENU display reads VER:SP-YYMMDD, which must be 090624 or later.
10. On the Sport-EX panel, set the total number of Sport channels (SD and/or HD):  
Press SETUP, STOP, UP arrow to CHANNEL QTY, ENTER. Type the number of channels on the keypad (1-6), ENTER. F1 through up to F6, depending on the number of channels, are channel select keys.

11. Double-tap a channel select F-key to control all channels. Select a single channel with a single tap. Hold one and press others to select some channels. The red LED above channel select keys indicate the channels being controlled. The green LED above one indicates which channel is shown on the STATUS display.
12. Check operation of each connected channel by pressing its F-key and testing playback, shuttle, etc.
13. Separately on each channel, set the type of video input, TV standard, external reference, etc. using the menus as you would directly on the individual Sports. These settings on the individual Sports are not used and are overridden by the settings on the Sport-EX panel.
14. Optionally, enter the time of day and date using the menu (if timecode is applied, only the date is relevant): Press SETUP, REC, UP/DOWN arrows to SET TIME OF DAY, ENTER, and enter the time of day (HHMMSS) in 24 hour format (add 12 to hours for PM, 00 for 12AM), ENTER, enter date (YYMMDD), ENTER, HOME.
15. Make a test recording: Press REC, wait at least five seconds, press CUE, the STATUS display should read CUED. Press PLAY, all channels should play back the recorded video.

**IMPORTANT NOTE:** The cables used to make the AUX connections between the *different* Sport Replay units are specially modified. Please contact the factory if replacement cables are needed. Using regular unmodified cables could cause failure and **DAMAGE** to the Sport systems. All cables used to interconnect the Sport systems are pin-to-pin (not reversed), and cables *between* the Sport Replay units must have conductors only for pins 3-4-5, and not for 1-2-6-7-8. The cables from the first Sport to the Sport-EX TBar AUX-E connector have all conductors to supply power to the Sport-EX and TBar. The cable from the Sport-EX panel to TBar AUX is reverse conductor order (1-8 to 8-1), which is not the same as an Ethernet crossover cable. The RJ45 "T" (or "Y") adapters have all 8 conductors wired in parallel to all three connectors. Be careful not to substitute "T" adapters that reverse conductor order or split off selected pairs.

**WARNING:** Whenever power is disconnected from a Sport, always wait at least 5 seconds before reapplying power. Power should be interrupted only at the AC source, never at the 12VDC round connector on the rear panel. Failure to follow these procedures can result in "short cycling" the disk drive power and, on rare occasions, could cause permanent damage to the disk drive. Avoid applying unreliable power that is susceptible to repeated interruptions or "brown outs". The disk drive is not covered under the Sport warranty.

## BASIC OPERATION

1. To select a channel for control, press its F-key (F1 for ch-1, etc.). Double-tap the F-key to select all channels. Hold the F-key and tap others to select some channels. The red LED lights above channels selected for control, the green LED lights above the status channel (the channel shown on the STATUS display).
2. Press REC to start recording. A cue point is automatically created. Cue points are tagged with time of day. Always records on an unused part of the disk(s) so existing material cannot accidentally be recorded over.
3. Stop recording and scan back at 6 times normal speed using the reverse scan (◀◀) key. The forward scan key (▶▶) scans forward. Hold for scan, release for still. Turn the knob to fine tune the position (jog mode).
4. Press PLAY to playback at normal speed (play mode) or press F7, F8, or F9 to playback in slo-mo at ¼, ½, or ¾ normal speed. Use the TBar to adjust slo-mo speed; the knob for jog.  
No button pushes are needed to change between play, slo-mo, and jog modes. All the way up is play mode, move down for slo-mo, still at the bottom. Then just turn the knob for jog, TBar back up to return to slo-mo.
5. During recording or playback, press MARK to create a new cue point.  
NEW: For better accuracy, hold down MARK to back-time the cue point by the amount of time it is held.
6. Press CUE to cue playback to the location that MARK was hit, or press PREROLL to cue 2 seconds earlier. If multiple channels are selected, they will all cue to the same point in time.
7. To select any cue point, BUT NOT cue playback, enter the cue number on the keypad and press ENTER.  
To select any cue point, AND instantly cue playback, enter the cue number on the keypad and press CUE.
8. Hold ENTER and hit F1-F6\* to store a quick cue. Anytime a quick cue key is hit, playback is instantly cued.
9. To change the *current* cue's out point (end), hold the OUT key and press MARK. Normal or slo-mo playback will pause exactly at the out point. To resume playback, press PLAY or a slo-mo key. Playback will again stop at the end of the recording. To cue to the out point, hold OUT while pressing CUE. Hold OUT and press PREROLL to cue 2 seconds before the out point.
10. To change the in point (beginning) of an existing cue, hold ENTER (or IN) and press MARK.
11. Clip scan: To quickly scan a loaded clip from in to out, press both scan keys (◀◀ & ▶▶) together.  
As the TBar is moved, playback continually cues to the point proportional to the TBar position.  
End the clip scan mode by using any playback or record function (example: turn knob to enter jog mode).
12. The STATUS display shows the time remaining before the out point. Slo-mo speed is taken into account so the display shows the actual time it will take to finish playing. Hold IN or OUT to show timecode.
13. Hold ENTER and press PLAY LIST to add the *current* cue to the end of the current playlist. To edit a playlist, press SETUP, PLAYLIST. Use the arrow and number keys to insert cues anywhere in the playlist, to delete cues, or to insert pauses (STL). Press HOME when done.
14. To play a playlist, press PLAYLIST, CUE, then PLAY (or a slo-mo key). As playback reaches the out point of each cue in the list, a clean cut is made to the in point of the next cue. While playing a playlist, the STATUS display shows the time remaining in the entire list (or until the next pause), and is adjusted for slo-mo speed. A pause (STL) stops playback and shows a still frame at the out point of the cue preceding the pause, press PLAY to still frame at the in point of the next cue. Then resume playback as usual.
15. There are ten playlists. To select a different playlist for setup or playback, press a keypad number (0-9) immediately before the PLAYLIST key. To add the *current* cue to any playlist, hold its keypad number (0-9) and press PLAYLIST. Each playlist holds up to 100 cues.

\* Depending on number of channels, F1-Fx will select channels and not perform other functions.

## COLD BOOT

If the Sport-EX controller is acting strangely or not communicating with the connected Sports, normal operation may be restored by performing a COLD BOOT. See COLD BOOT near the end of this manual for directions.

## OPERATION

### SELECTING CHANNELS

This applies only if more than one channel is being controlled.

To select a channel for control, press its F-key (F1 for ch-1, F2 for ch-2, etc.). Double-tap the F-key to select all channels. Hold the F-key and tap others to select some channels. The red LED lights above channels selected for control, the green LED lights above the status channel (the channel shown on the STATUS display). All transport and other functions apply to the selected channels and not unselected ones.

When the REC key is pressed to begin recording, ALL CHANNELS are automatically selected, so if you DO NOT want to record on all channels, press and hold the first channel to record, then press others to record, and while still holding the first key, press REC. Only the channels with red LEDs will enter record mode.

To set the number of channels in the system:

Press SETUP, STOP, UP arrow to CHANNEL QTY, ENTER, enter the total number of channels being controlled (both SD and HD, including the Sport's internal channel), ENTER.

### RECORDING

To record, simply press REC. A new recording is made on an unused part of the disks of all channels; existing material will not be recorded over. To stop recording and enter the playback mode, press any playback related key such as STOP, CUE, PREROLL, or reverse scan (◀◀).

To make it more difficult to end record mode (as with important long term recording), you can set the controller to end recording only when the STOP key is hit:

Press SETUP, REC, use the UP and DOWN arrows to select REC END MODE, ENTER, UP arrow (ONLY STOP KEY), ENTER. Recording will stop only when the STOP key is used.

You can check the remaining record time by pressing SETUP, REC - the amount of available recording time for the selected channel is shown in timecode format. If SET TIME OF DAY is shown, then current time of day is shown instead; hit DOWN ARROW to show free space. The "FREE=" time displayed is approximate and can vary somewhat depending on program content. Additional record capacity can be obtained (SD Sport only) at the expense of lower picture quality by changing the compression rate (see RECORD SETTINGS, COMPRESSION (SD CHANNELS ONLY)).

See SELECTING CHANNELS if recording is not to occur on all channels.

### PLAYBACK

Press PLAY to play material at normal speed, or use F7 to play at ¼, F8 to play at ½, or F9 to play at ¾ normal speed (see SLO-MO SPEED PRESET KEYS). Move the TBar to vary playback speed between zero and 100% normal speed. So that speed changes are always smooth and don't change suddenly, the TBar does not affect playback until moved to the position corresponding to the current speed (this assumes the speed was set by keystroke such as PLAY or an F-key). When the TBar needs to be moved to take control, a LED above the SLOW key flashes: green if the TBar needs to be moved up, red if it needs to be moved down. Press the SLOW key to force playback to the TBar speed.

It is not necessary to press any keys to change between variable play (slow motion) and jog modes:

When playback is at still, simply turn the knob to jog or raise the TBar from the bottom to begin playing in slow motion. In jog, playback moves relative to the amount the knob is turned and stops when the knob is stopped.

The FAST JOG key enters the fast jog mode which is identical to jog, but picture movement is much faster (the knob operates with much greater sensitivity), allowing you to quickly move through more material.

Hold the HOME key while jogging for SLOW JOG, which allows moving very slowly to an exact frame.

### REVERSE PLAYBACK

To playback in reverse at the current TBar speed, press and hold the SLOW key. Release the SLOW key to play forward. Speed can be changed while in reverse by moving the TBar. If the TBar is at the top, reverse play will be at normal speed but in reverse. To smoothly reverse speed, move the TBar to the bottom (still), then press and hold the SLOW key, move the TBar up - speed increases in reverse. Then move the TBar back to the bottom

before releasing the SLOW key, move the TBar up. Only hold or release the SLOW key when the TBar is down at still. In this way, you can repeatedly play through a segment forward and reverse with smooth speed control.

### PLAYBACK WITHOUT TBAR

Playback behavior is somewhat different if the TBar is not connected: Press SLOW to begin slow motion playback paused, or press a speed preset key (F7-F9 by default) to start at another speed, use the knob to vary the playback speed from 0% to 100%. Press STOP to enter the jog mode. Reverse playback is not possible without the TBar.

### CUE POINTS

A cue point is a memory location that stores a particular point of recorded material, allowing this location to be recalled at any time. For speed reasons, cue points are referenced numerically, from zero to 999.

When a cue point is created, it includes the currently playing timecode, called the IN point, and the clip filename from which it is being made. When a cue point is used, the stored filename is automatically loaded for playback.

The cue point also contains another timecode number called the OUT point. The *duration* of the cue point (how long it will play) is found by subtracting the OUT point from the IN point. The OUT point is important if the cue point is looped or used in a playlist. It is also handy to pause playback at a certain point, and is frame accurate.

When playing at normal or slow motion speeds, playback goes to still when the OUT point is reached.

Playback is resumed up to the end of the clip by pressing PLAY or entering slow motion when at the OUT point.

The OUT point is ignored when in jog mode making it easy to jog beyond the OUT point.

The duration of a cue point is shown on the MENU display because it is useful information. The OUT point can be observed by holding the OUT key.

### CREATING AND TRIMMING CUE POINTS

A new cue point is created by pressing the MARK key. Cue points are created sequentially from 000 to 999.

To change, or *trim*, a cue point's beginning (IN point) to the current position, hold ENTER and hit MARK.

Often, the IN isn't exactly where you want it, so hit CUE and turn the knob to jog to the perfect point, then hold ENTER and hit MARK.

To set or change a cue point's OUT point (end) to the current position, hold OUT and hit MARK.

You can trim a cue point after entering it into a playlist and the trimmed cue point is inherently fixed in the playlist too (because the playlist simply contains a reference to the cue point's number).

### MARK BACKTIMING

A unique feature of the Sport-EX controller is called *variable mark backtiming*. This feature applies quick and effortless compensation for the amount of time taken to hit the MARK key after "replay worthy" action was observed and evaluated. Events that are worthy of replay generally are not apparent until after they occur.

Also, it is common to want some amount of action prior to the event to be included in the replay. *Variable mark backtiming* is a powerful tool that allows the operator to perfectly mark a cue point, or at least get very close to the optimum IN point the first try, eliminating or reducing the need to trim the IN point.

Backtiming subtracts the time that the MARK key is *held down* from the point at which it is first *hit* to create the mark point. The idea is: Think about how long ago the beginning of action that should be included in the replay occurred, and hold the MARK key down about that length of time. While MARK is held, the IN point runs backwards, the amount of which can be viewed on the STATUS display following the 'M' indicator. When released, the backtiming ends, leaving the marked point placed with unsurpassed flexibility. Speed is taken into account, so if MARK is held during slow motion or shuttle, backtiming works as expected. It also works when marking the OUT point.

### VIEWING AND USING CUE POINTS

The cue point shown on the MENU display is called the *current* cue point.

The CUE key cues playback to the *current* cue point's IN point.

The PREROLL key cues playback to 2 seconds before the cue point (or the beginning of the clip).

Hold OUT and hit CUE to cue to the *current* cue's OUT point.

Hold OUT and hit PREROLL to cue 2 seconds before the OUT point. (You can then play the last 2 seconds.)

To make a cue point *current* without affecting playback, enter its number on the keypad and hit ENTER.

To make a cue point *current* and cue playback, enter its number on the keypad and hit CUE.

The RIGHT/LEFT arrow keys change the *current* cue to the next/previous cue point.

Hold IN and hit the RIGHT/LEFT arrow keys to also cue playback to the next/previous cue point.

## DELETING CUE POINTS

Cue points can be deleted in various ways, see the RECORD SETTINGS menu. DELETE CLIPS deletes a specified range of cue points and erases the recorded clips included in that range ("record" cue points, marked with a period after the number). DELETE NON-PL CLIPS does the same, but skips cue points and clips that are used in playlists. CLEAR CUES NO DELETE deletes a range of cue points, but not the clips - it does not erase any recorded material. ERASE ALL VIDEO and FORMAT DISK!!! delete all cue point memory, playlists, and recorded clips. A cue point always retains its original number and is not renumbered to fill deleted ones. Instead, deleted cue points are displayed with a "deleted" mark 'd' after its number. There are a couple of reasons for this. First, clips are named with cue point numbers and cannot be renamed, so a cue point that designates a recorded clip must remain available. The second reason is so that any external notes referencing cue points by number remain valid after deleting lower numbered cue points. Cue points marked as deleted can be reused, except when they denote recorded clips. The last used cue point can be made *current* by hitting 999, ENTER. An attempt to cue to a higher cue point (number, CUE) has no effect, unless a clip that is named with that number exists on any channel. In this case, the cue point is marked as a record cue (with a period), and cue points below it are marked with a period if a clip exists, or a "delete" mark (d) if not. If the clip exists on the status channel, its record start (IN) and duration are assigned and the clip is cued. This mechanism allows selected clips to be preserved indefinitely, like ones used in BUMP I/O keys.

## PREROLL

PREROLL cues to the location 2 seconds before the IN point, or to the beginning of the clip if the IN point is within the first 2 seconds. The preroll time can be changed by pressing SETUP, PREROLL and entering a different time.

## FUNCTION KEYS (F-KEYS)

Each of the function keys F1-F9 that are not used to select channels serve any of three purposes: Slo-mo Speed Preset, Quick Cue, or Bump I/O. A Slo-mo Speed Preset key plays in slow motion at a preset speed (then the TBar can be used to vary the speed). A Quick Cue key cues playback instantly to any cue point. A Bump I/O key sandwiches the *current* cue point between pre-designated IN and OUT bumper clips. By default, F1-F6 are Quick Cue keys and F7-F9 are slow motion speed preset keys. To change a key's function, press SETUP, the key, then the UP/DOWN arrow keys.

### SLO-MO SPEED PRESET KEYS

To change the speed of a Slo-mo Speed Preset key, press SETUP, the Slo-mo Speed Preset key, the speed in percent of normal, then ENTER. Press HOME when done.

### QUICK CUE KEYS

The *current* cue point (the one showing on the MENU display) can be assigned to a Quick Cue key at any time by holding the ENTER key while pressing a Quick Cue key. Alternately, press SETUP, the Quick Cue key, the cue point number on the keypad, then press ENTER. Press HOME when done.

The green LED lights above any Quick Cue keys that are assigned to the *current* cue point.

### BUMP I/O (TBAR REQUIRED)

To set the bumper clips, press SETUP, the Bump I/O key, the IN bumper cue point number on the keypad, then press ENTER, then the OUT bumper cue point, then ENTER (ENTER toggles between the IN and OUT bumpers). Press HOME when done.

Any cue points can be set as the IN and OUT bumper clips. A Bump I/O key automatically cues the IN bumper clip, delays, then plays it at normal speed, then cuts to the currently selected cue point and plays it at the speed set on the TBar, then at its OUT point, playback cuts to the OUT bumper, which again plays at normal speed. Speed can be changed with the TBar while the clip is being played. The OUT bumper transition can be forced early (before the currently playing cue point's OUT point), by hitting the RIGHT arrow key.

Bumper clips might be "swoop" animations that take you into and out of replays with a sponsor's graphic or any other desired clip. Bumper clips must be at least two seconds in length. "i" and "o" icons on the STATUS display indicate when the IN and OUT bumpers are playing. When done, the OUT bumper still frames at the OUT point. Hit CUE to change to the *current* cue (and remove the "o" icon).

If you want to press PLAY manually after the IN bumper is cued (instead of it playing automatically), or change the delay before playing, see the BUMP AUTO START item in the OPERATIONAL PREFERENCES menu.

NOTE: Bumper clips need to be somewhat over 2 seconds long to work properly (test to make sure).

Cue points used with bumper clips should be at least 3 seconds long; a shorter duration may not work correctly.

## SCAN

The reverse scan (◀◀) and forward scan (▶▶) keys scan playback while being held, and pause the picture when released. While paused, turning the knob allows fine adjustment of picture position (jog), or lifting the TBar from the bottom to begins slow motion playback. The default scan speeds are 6 times normal speed. To change the scan speed, press SETUP, the scan key to change, turn the knob until the desired speed is shown, then press ENTER.

## CLIP SCAN

“Clip Scan” is entered by tapping both scan keys (◀◀ & ▶▶) together. While in clip scan mode, playback continually cues to the point in the last cued clip relative to the TBar position. This allows clips of any length to be scanned quickly from heads (bottom = IN point) to tails (top = OUT point). Any other transport key (STOP, PLAY, SHTL, etc.) exits the clip scan mode. Also, turning the knob exits the clip scan mode and enters jog (still).

## SHUTTLE

To shuttle quickly through material, press the SHTL key and use the TBar (or knob if no TBar). Near the middle is still, up from middle shuttles forward, down from middle shuttles in reverse. Speed response uses a logarithmic scale providing a natural feel for both fast and slow speeds. While in the still range, the knob can be used to jog without leaving the shuttle mode. The SHTL key sets shuttle speed to still and the SLOW key LEDs indicate the direction the lever must be moved to gain control. A second use of the SHTL key (SHTL when already in shuttle still) sets shuttle speed to the current position of the TBar. As in other modes, the MARK key can be used to mark cue points while in shuttle.

## ERASING RECORDED MATERIAL

Press SETUP, REC and use the UP and DOWN arrows to select DELETE CLIPS to delete entire recordings (material contained in record cue points). ERASE ALL VIDEO deletes all recorded material, cue points, and playlists. The latter selection should be used occasionally to avoid possible disk fragmentation. Deleted material cannot be recovered! See RECORD SETTINGS for more information on deleting.

## PLAYLISTS

Sport has memory for up to ten playlists each containing up to 100 steps which can be assigned cue points or stills. When played, as the OUT point of each step's cue point is reached, a seamless cut is made to the cue point of the following step while motion continues. Cue points must have a duration of at least 1 second for playlists to operate properly. While playlist mode is enabled (PLAYLIST LED lit), the MENU display shows the current playlist number, the current step and cue point, and the next step and cue point. The STATUS display shows the actual time, adjusted for slo-mo speed, that it will take for the playlist to finish playing to the next still (STL) or end. If looping is enabled while playing a playlist, the entire playlist is looped.

### PLAYLIST SETUP

To create a playlist, press SETUP, the number of the playlist (0-9), then PLAYLIST. If you skip the number key, the last *setup* playlist is used. The MENU display shows the playlist number and a playlist step with its cue point. To add a cue point to the list, enter its number on the keypad and press ENTER. The next step is then shown. Press ENTER without numbers to add the *current* cue point to the list. The RIGHT and LEFT arrow keys change the displayed step. While holding the zero (0) key, the RIGHT and LEFT arrow keys change the step by 10. If the cue point is END, every new point you enter is added to the end of the list. If not at END, an entry is inserted at the current step and other steps are rippled up to make room. Press the DOWN arrow to program a still (STL) at the current step. To delete the current step and ripple all higher steps down, press the UP arrow key. (Reminders of the UP and DOWN arrow key functions are shown with icons on the display).

### QUICK PLAYLIST CREATION

A shortcut method allows cue points to be added quickly to the end of playlists: Hold the ENTER key and press the PLAYLIST button to add the *current* cue point (the one on the MENU display) to the end of the current *setup* playlist (the one last selected by pressing SETUP, a keypad number 0-9, then PLAYLIST). To add the *current* cue point to *any* playlist, hold the keypad number of the desired playlist (0-9) and press PLAYLIST. This allows separate playlists to be created for different purposes, such as special playlists for key athletes or types of plays.

### PLAYLIST PLAYBACK

To prepare a playlist for playback, press the number of the playlist (0-9), then PLAYLIST. If the number is omitted, the last playback playlist is selected. The PLAYLIST LED lights. When lit, turn the playlist mode off by

again pressing PLAYLIST. Press CUE to cue playback to the first step (the step 00 cue point). Press PLAY or a slo-mo key to begin playlist playback. When a still (STL) step is reached, the OUT point of the preceding step is frozen until PLAY or a slo-mo key is pressed, which freezes on the first frame of the next step. Press PLAY or a slo-mo key again to continue playing. Note that the *playback* playlist can be different than the *setup* playlist, so don't assume pressing PLAYLIST will load the same one you've been setting up (if in doubt, always hit the playlist number on the keypad before hitting PLAYLIST).

Playback speed can be varied while a playlist is playing, just hit F9 to change to 75% (by default), and turn the knob to vary speed on the fly. This allows you to see some events more slowly than others and allows the playback time to be extended. (Slo-mo speeds cannot be programmed into playlist steps, they can only be changed manually.) The STATUS display is continually updated to show the actual amount of time it will take to finish playing the playlist at the speed in effect at each moment (or time until the next STL if any are programmed). Sometimes you don't have time to finish playing a playlist and want to hurry it up. To do this, press the RIGHT arrow key while a playlist is playing, the current step ends early and a switch is made to the next step as though the end of the current step was reached. While stopped, the current step can be changed using the RIGHT and LEFT arrow keys or by entering a step number and pressing ENTER. If the IN or OUT key is held while the LEFT or RIGHT arrow is pressed, playback is cued to the IN or OUT point of the new step's cue point. To cue to the current (not first) step, hold the IN key while pressing CUE. Hold OUT and press CUE to cue to the OUT point (or PREROLL for 2 seconds earlier).

### LOOPING

Looping is enabled by pressing the LOOP key so that the LOOP LED lights. When on, playback will continuously loop between the last used cue point's IN and OUT points. If the playlist mode is enabled, the entire playlist will loop forever. Cue points must have a duration of at least 1 second for looping to operate properly.

### STATUS DISPLAY

The STATUS display always shows the current status of the video server regardless of what is being done in the menu system. Also, all transport keys (PLAY, STOP, CUE, SLO-MO, etc.) are always active. The bottom line of the STATUS display always shows the record or playback status. When in slow motion mode, the speed reads out in percent of normal speed, when in scan or shuttle, the display reads in multiples of normal speed. The beginning of the top line shows the cue point that was last cued with CUE or PREROLL or created with REC.

#### REMAINING TIME DISPLAY

The top line of the STATUS display shows the time remaining in either the current clip (time until OUT point), or if playlist mode is enabled, the time remaining until the end of the playlist or the next still step. The format of the remaining time is -HH:MM:SS:FF, where the - sign indicates playback is before the OUT point (or playlist STL or END), HH is hours, MM is minutes, SS is seconds, and FF is frames. If playback is after the OUT point, the time after is shown preceded by a + sign.

#### REMAINING TIME IN SLO-MO

If playback is in slow motion and not stopped, the approximate remaining time is shown scaled for the current playback speed. As speed is changed (by turning the knob or using speed preset keys), the remaining time is adjusted on the fly to represent the actual time that playback will continue at that speed. If more than one hour of recorded material remains, the speed calculation is not used. When the remaining time is scaled for speed, it is preceded by a 'v' to indicate that variable play speed is taken into account.

#### TIMECODE POSITION DISPLAY

The actual timecode being played is displayed in lieu of remaining time when the OUT key is held down.

### MENU DISPLAY

The MENU display is used for various purposes depending on the panel's mode. Press HOME and turn PLAYLIST off to return to normal display mode.

#### HOME DISPLAY

The MENU display normally shows the "current" cue point number and IN point timecode on the top line and its duration on the bottom line. The OUT point timecode can be viewed instead of duration by holding the OUT key. To change to a different cue point, simply enter the cue point number on the keypad and press ENTER. If you press CUE or PREROLL instead of ENTER, it has the same effect as pressing ENTER, then CUE or PREROLL (playback immediately cues to the newly entered cue point). The RIGHT and LEFT arrow keys

change to the next or previous cue point. If IN or OUT is held while the RIGHT or LEFT arrow is used, playback cues to each new cue point. This allows quick browsing of successive cue points.

### PLAYLIST DISPLAY

The PLAYLIST button toggles the playlist mode on and off. If a number key (0-9) is pressed before PLAYLIST, that playlist is selected for playback. While playlist mode is enabled (PLAYLIST LED lit), the MENU display shows the playlist number and the current and next steps and cue points. To see the IN point and duration for the current step's cue point, press and turn off PLAYLIST. Note that turning PLAYLIST off just before reaching the end of a playlist step will cause playback to pause at the OUT point of the current step.

### MENUS

The MENU display is also used for navigating SETUP menus. Setup menus are entered by pressing SETUP followed by another key. Press HOME when done with a setup menu.

The setup menus are:

KEY PRESSED AFTER SETUP	MENU	MENU ITEMS
MARK	PERSONALITY MENU ITEMS	SAVE PERSONALITY RECALL PERSONALITY REGISTER RECALL DEFAULTS CALC VS. PHONE STYLE NUMERIC KEYPAD
PLAY	DDR SETUP ITEMS	EXTERNAL REF (SD CHANNELS ONLY) SET INPUT LEVELS (SD CHANNELS ONLY) EXT DDR CONTROL EXT DDR SOFTWARE UPDATE
REC	RECORD SETTINGS (SHOWS DISK SPACE)	INPUT VIDEO SEL TIME OF DAY & DATE COMPRESSION (SD CHANNELS ONLY) TV STANDARD SEL DELETE CLIPS DELETE NON-PL CLIPS CLEAR CUES NO DELETE ERASE ALL VIDEO FORMAT DISK!!! REC END MODE MAXIMUM RECORD DURATION
STOP	OPERATIONAL PREFERENCES	CHANNEL QUANTITY RECUE WHEN PLAY BUMP AUTO START KNOB SENSITIVITY JOG MAX SPEED JOG SENSITIVITY
SCAN (◀◀ & ▶▶)	SCANNING SPEEDS	SCANNING SPEEDS
PLAYLIST	PLAYLIST SETUP MENU	PLAYLIST SETUP
CUE	CUE POINTS	KNOB SCROLLS THROUGH CUE POINTS
PREROLL	SET PREROLL	IN FRAMES TO 99 SECONDS
F1-F9	F-KEYS SETUP MENU	FUNCTION KEYS (F-KEYS)
ENTER	MISC MENU ITEMS	VERSION AND TEST LED BRIGHTNESS MENU & STATUS DISPLAY ANGLES INITIALIZE UNIT

## CUSTOMIZATION

### PERSONALITY MENU ITEMS

All user configuration settings are stored in permanent memory and remain safe even after extended periods without power (at least 10 years). Settings can be stored in any of five personality registers for later recall, allowing different users to personalize the panel to their preferences. Press SETUP, MARK to enter the PERSONALITY MENU ITEMS menu. Use the UP and DOWN arrows to choose a selection and select it with the ENTER key.

#### SAVE PERSONALITY

After selecting this item, enter a register number on the keypad (0-9), then press ENTER. You can then name the register by turning the knob to change the character and using the RIGHT and LEFT arrow keys to change the character position. Press ENTER when done. The personality remains protected unless the unit is initialized (see MISC MENU ITEMS, INITIALIZE UNIT).

#### RECALL PERSONALITY REGISTER

To recall a previously stored personality, enter the register number (0-9) on the keypad (names of registers are shown as you press different keypad keys), then press ENTER. The settings that were in effect when the register was saved are recalled.

#### RECALL DEFAULTS

Recalls the factory default settings. Saved personality registers are not altered.

#### CALC VS. PHONE STYLE NUMERIC KEYPAD

The numeric keypad is arranged telephone style. The panel can be changed to calculator style by changing this menu item. This setting is stored separately from personality data and can only be changed using this menu. After changing the style, it is necessary to physically swap the keycaps between the 1-2-3 and 7-8-9 keys.

### DDR SETUP ITEMS

Press SETUP, PLAY to enter the DDR SETUP ITEMS menu. Use the UP and DOWN arrows to choose a selection and select it with the ENTER key. This menu changes video server related settings.

#### EXTERNAL REF (SD CHANNELS ONLY)

Enables or disables external video timing reference and facilitates subcarrier and horizontal phase adjustments. If reference video is not supplied to the REF connector, you MUST disable this menu or serious random picture breakup and timing disturbances will occur. If external reference is not required or applied, select DISABLED and press ENTER to select internal "free run" reference.

Video timing can be adjusted only in playback mode. In the record and EE (input check - double hit REC) modes, input video is fed directly to the outputs without processing and the input to output delay is fixed and not affected by timing adjustments. Record a short clip of color bars (at least two seconds), press CUE, turn on LOOP, and press PLAY to continually play the signal for timing reference adjustment.

If external "blackburst" video reference is applied to the REF connector, select ENABLED in this menu and press ENTER. The UP arrow selects SUBCARRIER for adjustment, the DOWN arrow selects HORIZONTAL. The knob adjusts the selected phase. Phase adjustments affect the outputs as the knob is turned, but the new values are not stored in memory until ENTER is pressed. HOME cancels the adjustment process without saving and restores the original timing.

#### SET INPUT LEVELS (SD CHANNELS ONLY)

Allows adjustment of the input video processing levels. The UP and DOWN arrows select which adjustment to make, the knob adjusts the level. Unlike most other adjustments, the results are saved as soon as the adjustments are made (the ENTER key need not be used). The input adjustments should be done while in the input check mode (double-tap the STOP key). Adjustments are for BRIGHTNESS (black level), CONTRAST (like gain, but counteracts with black), SATURATION, and HUE. This adjustment does not affect the SDI input.

#### EXT DDR CONTROL

This menu setting prepares recorder channels (HD recorders and/or SD Sports) to be remotely controlled by external equipment such as nonlinear editing or automation systems. External equipment connects to the REMOTE connector on SD Sport systems. Sport-HD recorders use a special adapter to the NEXT connector.

To allow Sport-EX to send configuration commands to the recorders, external equipment must be disconnected when using this menu until the STATUS display indicates that REMOTE has finished CONFIGURING. The default setting is PANEL CONTROL. In this mode, Sport-EX has control of recorder channels, and external control equipment must remain disconnected from REMOTE (SD) and NEXT (HD) connectors. EXT NATIVE CONTROL and EXT ODETICS CONTROL prepare recorder channels to be remotely controlled by external equipment. EXT NATIVE CONT selects the proprietary "FFV Native" mode, while EXT ODETICS CNT selects the standard "Odetics" video server control protocol. Both of these protocols are based on the Sony "P2" protocol, and most VTR protocol commands work in both modes.

### **EXT DDR SOFTWARE UPDATE**

This menu prepares the video subsystems in selected SD Sport and/or Sport-HD recorders to receive updated firmware data. A data upload mode is initiated and control is temporarily released to the REMOTE connector(s). A personal computer running terminal software sends the firmware data using the "XMODEM" protocol. To connect the computer to the recorder's REMOTE connector, a serial (RS-232) to RS-422 or USB to RS-422 adapter is used. When the update is finished, the recorder(s) must be power cycled before normal operation is possible. Use VERSION AND TEST to check the new firmware version.

### **RECORD SETTINGS**

Press SETUP, REC to enter the RECORD SETTINGS menu. Use the UP and DOWN arrows to choose a selection and select it with the ENTER key. While in this menu, the available FREE recording time is shown on the MENU display top line. This is an approximate time and is affected by picture content.

#### **INPUT VIDEO SEL**

**(HD: PROGRESSIVE, INTERLACED, SD: COMPOSITE, Y/C, OR SDI)**

Selects the type of input video that will be recorded. This must match the input format or recordings will not succeed, even though it may appear so when recording.

#### **TIME OF DAY & DATE**

Do not set (set to zeros) if using HD channels! Sets the current time of day and date. When enabled (nonzero) clips are created with IN points at the time of day. This does not work with HD channels, which must start at zero or cueing will not work. Once set, SD channels keep track of time of day even through power interruptions. If a timecode signal is applied to the TBar TC input, time of day is automatically set.  
**DO NOT APPLY TIMECODE TO THE TBAR IF HD CHANNELS ARE USED!**

#### **COMPRESSION (SD CHANNELS ONLY)**

Sets the amount of data compression used for recording from 4:1 to 20:1 (default is 5:1). The best picture quality is achieved at 4:1, with no noticeable signal degradation. At 20:1, the picture quality is poor, but the available record time is significantly increased. A compression rate of about 6:1 provides a good compromise between quality and record capacity and is similar to DV compression. As the compression rate is changed, the display shows the approximate amount of available record time taking into account the compression shown. The new setting is not put into effect until the ENTER key is used and a new recording is started.

#### **TV STANDARD SEL**

**(HD: 59.94, 50, SD: NTSC, PAL)**

Selects the television frame rate standard (or field rate for interlaced) to be used for recording (typically 59.94 in North and South America, 50 elsewhere). Also must match the input format for recordings to succeed.

#### **DELETE CLIPS**

Permanently erases recorded clips from all selected channels. Clips defined by record cue points (ones marked with periods) that fall within the range entered are deleted. Deleted material cannot be recovered! If material in these recordings is used in cue points outside of this range, it will be erased regardless, and those cue points will be marked as deleted. Deleted cue points are indicated with a small 'd', but are not removed so any external documentation of higher cue points that you may be keeping will still refer to the correct cue point numbers. Deleted cue points are removed if there are no other higher numbered cue points.

#### **DELETE NON-PL CLIPS**

Same as DELETE CLIPS, except does not delete clips that are used in any playlists.

**CLEAR CUES NO DELETE**

Clears all cue points in the specified range, but does not delete any recorded clips. Existing clips are skipped by subsequent recordings and cue points and as they are used (cued), their IN and OUT points are restored.

**ERASE ALL VIDEO**

Deletes all recorded clips, cue points, and playlists. This cannot be undone!

**FORMAT DISK!!!**

Formats a disk for recording. This menu item allows a new disk to be formatted for use. Once formatted, power must be removed (always for at least 5 seconds), then restored. Format will erase any material that may exist on the disk and erases all cue points and playlists. You will be asked to hold the REC key and press MARK to confirm before formatting begins.

**REC END MODE**

The default is ANY XPORT KEY. While recording, the record process is stopped and playback mode is entered whenever any playback related key such as STOP, CUE, or reverse scan (◀◀) is hit while recording. If you do not want to stop recording so easily, set this menu to ONLY STOP KEY.

**MAXIMUM RECORD DURATION**

Sets the maximum length of time that a clip will record. If set to zero (default), recording continues until disk is filled. This is useful for applications where long term unattended recording is desired, especially when some remaining disk space is needed.

**OPERATIONAL PREFERENCES**

Press SETUP, STOP to enter the OPERATIONAL PREFERENCES menu. Use the UP and DOWN arrows to choose a selection and select it with the ENTER key.

**CHANNEL QUANTITY**

Sets the number of replay channels being controlled. When only one channel is used, the F1 key is not needed to select channels, so is available for other F-key features (see FUNCTION KEYS (F-KEYS)).

**RECUE WHEN PLAY**

When enabled, if playing at normal or slow motion speeds, the CUE key causes a clean cut to the *current* cue (the one on the MENU display) without stopping or even pausing. Normally, the CUE key stops playback and cues to a still. This works like a manual playlist step, continuing to the new cue point at the current speed.

When playing, enter any cue point number on the keypad then hit CUE to switch to the next cue, then repeat as desired. If disabled (default), this feature can be used by holding HOME when hitting CUE (while playing, enter cue number, ENTER, hold HOME, hit CUE).

**BUMP AUTO START**

When disabled, requires manual playing of the IN bumper clip after using a Bump I/O key. For more information see BUMP I/O. Default is ENABLED. When enabled, a second part of this menu allows changing the IN bumper delay, which delays at still after cueing the IN bumper before playing. Default is 10 frames delay.

**KNOB SENSITIVITY**

Reduces the overall sensitivity of the knob by two or four fold. If you feel the knob is too sensitive in all modes, use this item to reduce its sensitivity.

**JOG MAX SPEED**

Limits the maximum speed the jog mode uses. Use the knob to set the fastest speed that the picture will travel by turning the knob in the jog mode. The JOG MAX SPEED may be set from zero to 500% normal speed. The default is 500%. This setting does not affect the fast jog mode.

**JOG SENSITIVITY**

Adjusts the speed the knob must be turned in the jog mode to reach the JOG MAX SPEED. This setting affects the fast jog mode also. Default is 10 units (units are arbitrary).

## SCANNING SPEEDS

By default, the scan keys (◀◀&▶▶) scan playback at 6 times normal speed. To change the speed of either key, press SETUP, the scan key, turn the knob until the desired speed is shown, then press ENTER.

## PLAYLIST SETUP MENU

See PLAYLIST SETUP in the OPERATION, PLAYLISTS section.

## CUE POINTS

Press SETUP, CUE to enter the CUE POINTS menu. While in this menu, you can scroll through all cue points using the knob.

## SET PREROLL

Press SETUP, PREROLL to change the preroll time. The PREROLL key operates identically to the CUE key except it cues to a point earlier than the IN or OUT point being cued. 2 seconds is the default, but the preroll advance can be changed in 1 frame increments to any amount of time up to 99 seconds.

## F-KEYS SETUP MENU

See FUNCTION KEYS (F-KEYS) in the OPERATION section.

## MISC MENU ITEMS

Press SETUP, ENTER to enter the MISC MENU ITEMS menu. Use the UP and DOWN arrows to choose a selection and select it with the ENTER key.

### VERSION AND TEST

Displays software version dates and performs a self test. First, the version dates of the selected video server are shown, press any key to show the control panel firmware version. All 24 LED indicators light and the keyboard can be tested by checking that keystrokes show on the STATUS display. Move the TBar up and down and observe the TBar readings from 1 to 4095. Turn the knob to end the keyboard test. If a PROM FAILED! message appears, the program PROM needs replacement. The unused stack space (MEM FREE:) is also displayed and should be a non-zero number, if not, please call the factory. If any HD channels are connected and selected, a firmware version of the first HD recorder's I/O board is checked and will produce an error message here if not up to date. Please contact the factory if HD recorders need updating.

### LED BRIGHTNESS

Adjusts the brightness of the 24 LED indicators. Turn the knob until the desired LED brightness is reached, then press any key.

### MENU & STATUS DISPLAY ANGLES

Adjusts display contrasts to optimize for viewing angle.

### INITIALIZE UNIT

DO NOT USE THIS MENU ITEM LIGHTLY! This menu item clears all PERSONALITY REGS which is not recommended unless you really mean to clear them. This can be done without erasing personality data by using the COLD BOOT function (see COLD BOOT).

## COLD BOOT

A COLD BOOT restores all system memory except the personality registers to factory defaults. It erases all cue points and playlists. Lightning or other electrostatic discharge can corrupt memory, a COLD BOOT can fix it. To perform a COLD BOOT: Disconnect the RJ45 cable from the main panel, and hold down the MARK and PLAY keys while reconnecting. Continue holding the keys until you see characters on the displays. Personality registers can be recalled after a COLD BOOT to bring the controller back to its saved configuration. If you save a personality register after memory is already corrupted, it will likely still exhibit problems when recalled. If saved personality data becomes corrupted, a stored register will appear as "default", so if a saved name is displayed, it is safe to assume a register is good (see PERSONALITY MENU ITEMS).