

*360 Systems*

# **Instant Replay<sup>®</sup> 2.0**

**HARD DISK DIGITAL AUDIO  
RECORDER/REPRODUCER**

**Model DR-554**

## **OWNER'S MANUAL**





**SEVENTH EDITION  
(Firmware Version 2.1)**







**FEBRUARY 2000**

*360 Systems<sup>®</sup>*

P R O F E S S I O N A L   D I G I T A L   A U D I O

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## INTRODUCTION

Thank you for purchasing Instant Replay. The system provides an unusual combination of mass storage, direct access to stored audio and ease of operation, all in a professional quality package. Key features include:

- Storage of up to 1,000 audio Cuts.
- Twenty-four hours of storage.
- Assignment of Cuts to 50 front panel Hot-Keys.
- Playlists that store a sequence of Hot-Keys for manual or automatic playback.
- 10 Banks – each providing up to 50 Hot-Key Assignments and a Playlist for those Hotkeys.
- "Find" function locates a Cut by entering its Name or Index Number.
- Familiar tape transport style controls to provide fast and sure operation.

References to menu items in this manual are in capital letters, such as RECORD SETUP. References to physical features such as buttons and connectors are in small capitals, such as PLAY.

## GETTING STARTED

### Cuts, Hot-Keys™ and Banks

Perhaps the easiest way to understand Instant Replay is to see how individual recordings (Cuts) relate to the fifty Hot-Keys, and how these relate to the ten Banks.

A Cut is simply a single audio recording. It can range from less than a second to any length, limited only by the time remaining on the hard disk.

Each Cut has a unique Index Number, which identifies it within Instant Replay's library. It also has a Name that you supply to aid in identifying and locating the Cut. To enter a Name, the Hot-Keys assume the function of an alphanumeric keyboard. Cut Names can be added or altered at any time and may consist of up to 15 characters. The Find function can be used to find a Cut by name.

Any Cut can be assigned to any of the 50 Hot-Keys. This way, you have complete control over which recording appears under a particular Hot-Key button. Instant Replay's unique feature is that Hot-Keys allow any Cut to be played on command by a single key press. Whenever an assigned Hot-Key is pressed, the corresponding Cut is selected and played at once. It will immediately end the playback of any other Cut that may have been playing.

The 50 Hot-Key Assignments are referred to as a Bank. There are ten Banks numbered 1 to 10. Each Bank is like a separate "page"; changing Banks is equivalent to flipping a page, and presents a different set of Hot-Key Assignments. Note that the ten Banks all have access to all the Cuts recorded in Instant Replay. Banks are a convenient way to organize Instant Replay's audio collection. The different Banks might contain sounds for different purposes, or they might be used by different people. A total of 500 Cuts can be assigned to Hot-Keys if all 50 keys in each of the 10 banks are assigned to a different Cut. However, any Cut can be assigned to a Hot-Key in any or all of the Banks. A particular Cut can only be assigned to one Hot-Key in a Bank\*.

The remaining Cuts not assigned in the currently selected Bank are still accessible with the SCROLL ARROW keys or the "Find" function, and can be used to replace an existing Hot-Key Assignment at any time. For more information on Find see page 4, The "Find" Function.

---

\* Previous versions of Instant Replay used the term Preset to describe the assignment of a Cut to a Hot-Key. This term has been dropped in favor of the terms Hot-Key and Hot-Key Assignment.

## More About Cuts

Each Cut's length is displayed in HH:MM:SS (hours, minutes, seconds) format. For example, 00:01:30 is 1 minute and 30 seconds. If the Cut is less than a second long, the display shows its time in milliseconds (thousandths of a second; 1,000 ms = 1 Second).

Once the Cut is assigned to a Hot-Key, the Hot-Key number is also displayed in the lower right corner of the display. For example, 4-32 indicates that "4" is the currently selected Bank number and "32" is the Hot-Key number the displayed Cut is assigned to. Cuts that are not assigned to a Hot-Key in the currently selected Bank show the Bank number followed by 00. This is true even if the Cut is assigned to a Hot-Key in one of the other Banks.

Cuts also contain an Output Gain value, which allows you to adjust and store the playback level after the recording has been made. You can adjust output gain in 1 dB increments from +6 dB (twice as loud) to -90 dB, which is close to the softest sound that can be recorded.

When a particular Cut is displayed, the PLAY button starts the Cut. If PLAY is pressed again during playback, the Cut will immediately restart from the beginning.

## Cut Index Numbers

There are 1,000 unique Index Numbers that identify each Cut; they range from 000 to 999. When a Cut is recorded, Instant Replay automatically assigns the lowest available Index Number to the Cut. However, you can also choose another empty Index by using the SCROLL ARROW KEYS. Whenever RECORD OVERWRITE is on, you can choose to re-record and replace an existing Cut while retaining its previously assigned Index Number and any Hot-Key Assignments.

The Index Numbers of Cuts can be changed to any empty Index Number using the Move operation.

When more than one Cut is present on the Hard Disk, the SCROLL ARROW KEYS will select any Index Number for playback.

Pressing FIND and typing an Index Number will immediately locate a Cut for playback.

## Recording Time

Instant Replay is produced with hard disks having different storage capacities. The standard Model DR-554 stores a total of twenty-four hours of stereo audio. Instant Replay normally uses Dolby AC-2™ coding, which provides extended storage time while maintaining superb audio quality. Instant Replay 2.0 can also record in uncompressed linear format at 48K or 44.1K sample rates. Refer to the chart on page 15 for the recording times available for each model in the linear formats.

An individual Cut can be as short or long as you like, limited by the total unused time remaining on the hard disk. The time remaining can be found by holding down the STOP button. The display will read (Hours:Minutes:Seconds):

<b>TIME LEFT</b>	<b>HH:MM:SS</b>
<b>## CUTS</b>	<b>HH:MM:SS</b>

The Time Left Indication reflects the choice of Recording Format, so the displayed value will be accurate whether Dolby AC-2 or a linear format is chosen. Under some conditions, the display may indicate MAX LENGTH rather than TIME LEFT. This is normal for hard drives larger than 2 gig when they have a relatively small amount of space used. This can also happen with any size



drive after the unit has been used for some time, and many Cuts have been recorded and erased. See Disk Maintenance on page 42.

## The "Find" Function

You can quickly locate Cuts with a high-speed search function called Find. The HOT-KEY buttons double as an alphanumeric keyboard for entering a Cut's Name or Index Number. Press the FIND key and type the Name or Index that you wish to locate, followed by ENTER. When searching by Name, a partial entry of a name followed by the ASTERISK ("\*", HOT-KEY number 40) will find any Cut that starts with those letters. See page 10.

## Playlists

A Playlist is a group of Hot-Keys that play sequentially in one of two ways: one-at-a-time, each time the PLAY button is pressed (MANUAL STEP), or one after the other with no breaks (FOLLOW-ON). Playlists are built from Hot-Keys stored within the selected Bank, and may consist of up to 999 events. There is no limit to the number of times a Hot-Key can appear in the list.

Each Bank contains one Playlist, so a total of ten exist within the machine. See page 11.

## External Drive Capability

Instant Replay 2.0 has a PRINTER connector on the rear panel which can also be used for connecting an external drive. This is intended for use with a **parallel port compatible** Iomega Zip drive. (Note that this is different from Instant Replay 2.0 Model 552, which used SCSI devices.) The external drive can be used as a backup device, or to move cuts from one unit to another. Also, material intended for a specific purpose can be removed from the unit to prevent unauthorized use. The Copy features allow a single Cut, a Bank or all Cuts on a Disk to be copied from one drive to another. Although we recommend using the internal hard drive for all critical recording and playback, the external drive can be used exactly the same as the internal drive. See the section on Using an External Drive on page 24.

All menus, displays and functions relating to use of the External Drive are enabled by setting the External Drive item in the Configuration Menu to ENABLED.

## Recording Formats and Sample Rate Conversion

There are three recording formats available. The standard format used is 48K AC-2. This uses the Dolby AC-2 encoding system to allow five times the audio storage of 48K Linear format recording. The AC-2 system is of very high quality and is recommended for all but a few applications:

- When the Instant Replay will be required to provide a digital output at 44.1 K. (Format and Sample Rate are determined at the time of recording and cannot be changed.)
- When the audio being reproduced may be subjected to other forms of data compression as part of the transmission path, for example a satellite link or telephone codec.
- In applications where the exact same digital data must be reproduced. An example of this is when using digital audio test signals to test the digital I/O or other performance factors.

AC-2 has been successfully used in applications with recorded SMPTE Time Code paired with mono audio. This has been applied to the synchronization of lighting and show controllers with Instant Replay.

### WARNING

Note that while you can have Cuts recorded in any of the three formats stored in the unit, it is best not to mix formats on a particular project. Switching from a 48K Linear or 48K AC-2 to 44.1 will cause the output sample rate to change, causing possible disturbance of equipment monitoring the digital outputs. (The analog and headphone outputs will not be affected.)

When playing Hot-Keys in rapid sequence, (three or more keys pressed within one second) changing between formats can cause playback errors which result in momentary noise output or momentary playback at an incorrect sample rate.

When using 48K Linear or 44.1K Linear formats, playback and recording can only be performed on the internal hard drive. Linear Cuts can be copied to and from the External drive for backup and data transport. See the section on "Using an External Drive" on page 24.

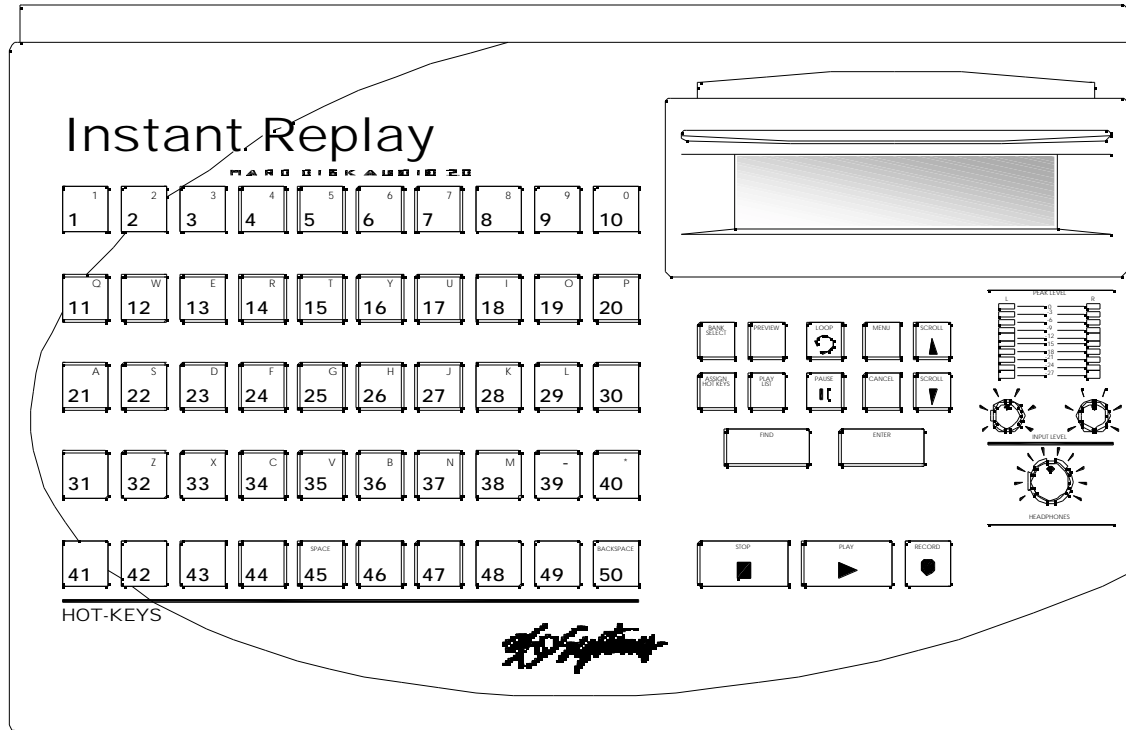
The Sample Rate Converter is a hardware device available on the Digital Inputs. It is normally enabled. It allows digital recordings made from any source to end up at the sample rate defined by the selected Recording Format. When it is disabled, the digital input requires that the incoming digital audio signal match the currently selected format. See page 21, "Record Setup" to disable the converter. The Sample Rate Converter can be used by itself to convert a digital input to 48K or 44.1K output by simply putting Instant Replay into record ready.

## Table of Recording Time Capacity and Recording Format

Times listed are approximate. Some space is used for data storage functions, so the total record time is decreased by approximately 2 seconds for each Cut in addition to the space used by the Cut's audio data. Also, the amount of time may vary depending on specific model of hard drive used in the unit.

MODEL	AC-2	48K LINEAR	44.1K LINEAR
DR554	24 HOURS	4 HOURS 41 MIN.	5 HOURS 5 MIN.
ZIP 100 DISK	46 MIN.	8 MIN.	9 MIN.
ZIP 250 DISK	1 HOUR 55 MIN.	20 MIN.	22 MIN.

# CHAPTER ONE – The Front Panel



FRONT PANEL LAYOUT

## Front Panel Controls

Instant Replay's front panel contains all operating controls, plus an alphanumeric display. Most buttons include an indicator light to show when they are in use. Controls are grouped into five sections:

- Display Module
- Hot-Keys
- Transport Controls
- Function Buttons
- Level Control and Metering

## Display Module



THE DISPLAY MODULE

For most operations, the display shows the Index number, Cut Name, and the running time of the currently selected Cut.

The currently selected Bank number is displayed in the lower right corner, followed by the Hot-Key Assignment of the current Cut. If the displayed Cut is not assigned to a Hot-Key in the current Bank, this number will be 00.

When a Cut starts playing, the lower line of the Display changes to show the Name of that Cut, followed by the running time in Hours:Minutes:Seconds, as shown in the picture above.

Other messages appear on the display during special operations. These are explained in appropriate sections of this manual.

## Hot-Keys

There are four primary uses for Hot-Keys:

- Triggering playback of assigned Cuts
- As an alphanumeric keyboard
- Bank selection, using the top row of keys
- Drive selection, when an external drive is connected, using the "E" and "I" keys

The main array of 50 buttons are Hot-Keys numbered 1 through 50. A Hot-Key's primary function is to trigger playback of a Cut assigned to it. Hot-Keys light up whenever their assigned Cut is playing.

Each button additionally carries an alphabet character. In operations that require the entry of text and numbers, such as Change Cut Name, Change Bank Name and Move Cut, the Hot-Keys serve as a typewriter-style keyboard. Key number 50 is a Backspace key that allows deleting characters. Keys 48 and 49 are cursor movement keys that allow you to move to any character position. Key number 40 is an ASTERISK (\*) character used by the Find function. Keys 41 to 47 all function as a space bar.

In the Bank Select mode, the numbers 1 through 10 on the top row select the corresponding Banks numbered 1 through 10. When an external drive is connected and enabled in the Configuration menu, the I and E keys select the Internal or External drive.

## TRANSPORT CONTROL BUTTONS

The Transport Controls include STOP, PLAY and RECORD. They perform in the traditional manner of tape recorders:

### Stop

Immediately ends recording or playback. Stops some sequential operations, such as File Transfer and Copy Bank.

### Play

Starts playback of the currently selected Cut. Note that pressing PLAY initiates playback from the beginning of the selected Cut, even if it is already playing. The exception is when PLAY is used to disengage PAUSE.

### Record

Places Instant Replay in Record Ready mode. (Instant Replay will allocate disk space, and then enter record when the PLAY button is pressed.)

## FUNCTION BUTTONS

These include:

### Bank Select

When you press the BANK SELECT button, it lights and the top row of Hot-Keys flash. The display changes to show the Number and Name of the current Bank; the number of Hot-Key Assignments it contains; and an indication of the presence of a Playlist in the Bank. Pressing Hot-Keys 1-10 will directly select the corresponding Bank.

Alternately, the SCROLL ARROWS may be used to view the Banks. Pressing ENTER will activate the Bank that is currently shown on the display. Pressing BANK SELECT again or CANCEL exits this mode. If no keys are pressed for 10 seconds, Bank Select mode will time out and return to Stop mode.

When an external drive is connected and enabled in the Configuration menu, the I and E keys are used to select the Internal or External drive. See Using an External Drive on page 24.

### Assign Hot-Key

The ASSIGN HOT-KEY button lights and the Display prompts selection of a HOT-KEY. Pressing a HOT-KEY immediately assigns the Cut shown in the top line of the Display to that HOT-KEY. If this Cut is already assigned *in this bank*, that assignment is cleared.

You can select other Cuts to be assigned using the SCROLL ARROW keys or FIND. With the new Cut selected, press the HOT-KEY you wish to assign it to.

To exit, press ASSIGN HOT-KEY again, or CANCEL.

## Preview

When PREVIEW is pressed in Stop mode the main audio outputs are muted, so Cuts played subsequently can be auditioned from the headphone output only. Both the analog and digital audio outputs are muted.

If PREVIEW is turned on during playback, the display changes from showing the current Cut and playing time, to showing the ID Number, Name, Length and Hot-Key Assignment of the playing Cut. The Cut will continue playing from both the main and headphone outputs. Other Cuts can be selected using the Scroll Arrows, Find, or the Hot-Keys to view their information.

In either case, pressing PREVIEW a second time exits this mode and restores normal operation, including the Cut that was selected when Preview was pressed. If no Cut is playing, CANCEL will also end Preview.

### ***TIP: Using Preview to Find Unassigned Hot-Keys***

PREVIEW is useful when assigning Hot-Keys to find an unassigned or unneeded key without losing track of the Cut you are about to assign. Before pressing ASSIGN HOT-KEY, press PREVIEW and then push HOT-KEYS until you find one that can be re-used or that is unassigned. Press STOP if a Cut is still playing, then press PREVIEW again. The Cut to be assigned reappears. Use the normal Assign Hot-Key procedure to assign the Cut to the Hot-Key you found.

## Playlists

Playlists allow you to create and playback a sequence of Hot-Keys. You can set Playlists for Follow-On as well as Manual-Step playback (see page 11). You can create one Playlist for each Bank.

## Loop

LOOP causes a Cut to repeat endlessly until either STOP or LOOP is pressed. STOP ends playback immediately. Pressing LOOP exits from the Loop mode, and allows the current Cut to continue playing to its end.

While a Cut is looping, another Cut can be selected for playback. A different Hot-Key can also be played. The new Cut will immediately start from the beginning, and will also loop until Loop mode is exited.

Looping works in all modes. You can loop a single Cut, or an individual Cut in a Manual-Step Playlist. Turning Loop on during playback of a Follow-On Playlist causes the entire list to loop, not the individual Cuts.

## Pause

PAUSE interrupts playback of a Cut. When pressed again, playback will resume.

***TIP: Cueing up Cuts Silently using Pause***

Note that while Instant Replay is paused, pressing a Hot-Key displays the Assigned Cut's title and statistics, but the Cut will not play until PAUSE or PLAY is pressed. Several Hot-Keys can be pressed in series to see what Cuts are assigned to them, allowing the Hot-Key Assignments to be reviewed silently. Only the last one pressed will play when Pause is released.

**Menu**

The MENU button selects one of several different Menu items, which appear in rotation when you press the SCROLL ARROWS. When the desired item is displayed, press ENTER to select it. The SCROLL ARROWS will then select the Options available within that Menu. CANCEL will return to the selection of other Menus.

Once a Menu Option is selected, pressing ENTER will allow you to select a value for that Option. The second line of the display will flash to indicate that the value may be changed. THE SCROLL ARROWS (or in some cases the keyboard) are used to select a value. ENTER will confirm the new value, and CANCEL will restore the previous one.

Pressing MENU a second time will exit to normal operation.

**Cancel**

This button is used to end operations, exit menus, or to answer "no" to display prompts. In Playlist mode, CANCEL deletes the currently selected Step of the Playlist.

**Scroll Up/Down Arrows**

Used to select Cuts, Banks, Menus, Option values and Playlist Steps. Cuts can be selected during playback of other Cuts.

**Find**

FIND searches for a Cut by Index Number or Name. When you press the FIND button, any previously found Cut name or ID number is displayed. To use that name for the current FIND simply press ENTER. To use a different Name or Index Number, simply type it and press ENTER.

Cuts can be located by entering part of the name followed by the ASTERISK key ("\*", Hot-Key number 40). In the event many Cuts exist with almost the same name, they will be found in alphabetical order with each subsequent use of the FIND command. The SCROLL ARROWS may be used to examine all similar entries when the SORT BY NAME option is active in the configuration menu.

**Enter**

Used to enter Menus, initiate operations, confirm choices, and to answer "yes" to display prompts.

In Playlist mode, pressing ENTER causes the selected Step to be set as the next Step to play.

## USING PLAYLISTS

### Creating a New Playlist

To create a new Playlist:

- Enter Playlist mode by pressing the PLAYLIST button. It will light, and the display will show:

**LIST IS EMPTY**

**SELECT HOT KEY**

- Press the HOT-KEY you want to use as the first entry. The display will indicate the Step Number, ID Number, Cut Name, running time and Bank-HotKey assignment. The HOT-KEY flashes to indicate it is next to play.

**1 015 CUT NAME**

**00:01:30                    1-32**

- Continue pressing HOT-KEYS to add steps to the Playlist in the order they are to play.
- Press PLAY to hear the Playlist. Depending on the programmed Playlist Type, you will hear the first Cut or all the Cuts in order.
- If it is a Manual Step playlist, press Play to hear the next Cut, before or after the first Cut ends.
- Press Stop to end playback of the current Cut and automatically select the next Cut in the list to be played. If it is the last Cut in the list, Playlist mode will end automatically.
- Press PLAYLIST to exit. The Playlist is saved to disk upon exiting Playlist mode.

Note that whenever PLAYLIST is enabled, the Hot-Keys are used only for adding events to the Playlist and do not play audio. Only Cuts assigned to the currently selected Bank can be included in the Playlist.

### Setting the Type of Playlist

After you have created a Playlist, you can change it from MANUAL STEP to FOLLOW-ON or vice-versa. Once Playlist Type has been set for a particular Bank's Playlist, it will not change unless reprogrammed, even if the Playlist is cleared. The original setting is MANUAL STEP.

- SCROLL DOWN until you see START OF PLAYLIST. (If it is a long list, the fastest way to do this is to turn PLAYLIST off and back on again, then press the SCROLL DOWN ARROW key.) The display shows the Playlist type.

**START OF PLAYLIST**

**MANUAL STEP**

- Press ENTER to edit the type; the bottom line will start flashing.
- Use the SCROLL ARROWS to choose between MANUAL STEP and FOLLOW-ON.
- Press ENTER to accept the new Playlist Type or CANCEL to quit.

Note that if PLAYLIST PROTECTION is ON, the Playlist Type cannot be changed.(See page 22).



## Manual Step Playlist Characteristics

If the Playlist Type is MANUAL STEP, the PLAY button will play the first Cut in the Playlist and stop. When PLAY is pressed again, the next Cut will play. If PLAY is pressed during playback of a Cut, the playing Cut will stop and the next Cut will play immediately. The sequence will continue in this manner until the end of the Playlist, or until the PLAYLIST button is turned off.

If LOOP is on, individual Cuts will loop until LOOP is turned off, STOP is pressed, or PLAY is pressed. If Play is pressed, the next Cut in the Playlist will begin looping.

## Follow-On Playlist Characteristics

If the Playlist Type is FOLLOW-ON, the PLAY button will play the first Cut in the Playlist. When the first Cut ends, the next Cut in the Playlist will automatically begin playing immediately. The Hot-Key corresponding to the current Cut will light when playing, and the next-to-follow Hot-Key will flash indicating that it is queued to play.

A Follow-On Playlist will continue to play to its end unless you press STOP. Pressing PLAY will then cause the next Cut in sequence to begin. If you exit the Playlist mode while a Follow-On Playlist is executing, the current Cut will play to completion and then the Playlist will stop. Pressing PLAY while a Follow-On Playlist is executing has no effect.

If LOOP is on, the **entire sequence of Cuts in the Playlist** will repeat. Pressing STOP ends playback of the current cut immediately. Turning off PLAYLIST will cause playback to end after the currently playing Cut finishes. Turning off LOOP will cause playback to end at the end of the Playlist.

## Selecting and Playing a List

To select and play a Playlist:

- If necessary, select the Bank that contains the desired Playlist. (The Playlist number is always the same as the Bank.)
- Push the PLAYLIST button.
- Push the PLAY button.

Playlists always start at their first Step when turned on. A Playlist can be enabled "on the fly" during playback of another Cut. The next time PLAY is pressed, the first Step in the Playlist will be heard. If it is a Follow-On list, the entire list will play in succession.

PLAYLIST can be turned off during playback, causing playback to stop at the end of the currently playing Cut. Also, the Hot-Keys immediately become active and can interrupt the playing Cut.

For convenience, the HOT-KEY corresponding to a Playlist Step will light when playing; and the next-to-follow HOT-KEY will flash. The display always shows the Cut currently playing on the bottom line, and the Cut in the currently selected Step on the top line; see Changing Playlist Playback Order below.

Upon completion of a Playlist (the last Cut in the list Plays to completion or Stop is pressed during its playback), the Playlist mode is automatically turned off.

## Editing the Playlist

Note that if PLAYLIST PROTECTION is ON, the Playlist cannot be edited. See page 22.

To remove a Cut from the Playlist:

- Use the SCROLL ARROWS to find the Cut you want to delete.
- Press CANCEL to remove it from the list.
- Press Enter to confirm the operation.

To insert a new Cut into the Playlist:

- SCROLL to the position you desire within the list.
- Press the HOT-KEY that corresponds to the Cut you want to insert. It will be inserted immediately after the position you selected, and the Playlist will increment to display the new Cut.

To append a Cut to the end of the Playlist:

- SCROLL UP through the list until you see END OF PLAYLIST.
- Press the appropriate HOT-KEYS to add additional Cuts to the list.

## Changing the Playlist Playback Order “On-the-Fly”

The SCROLL ARROWS and ENTER key can be used in real time to change the sequence in which the Cuts are played. At any time you can SCROLL through the list. If you then press ENTER, the step you selected will be played next, and the Playlist will continue from that point onward. You can SCROLL UP the list, effectively skipping steps in the Playlist, or you can SCROLL DOWN to repeat steps. This can be done while stopped or during playback.

When a Cut is playing (and Playlist is not enabled), pressing the PLAYLIST key enables the Playlist mode and "cues up" the first Cut of the Playlist. The current Cut will play to completion and the button corresponding to the first Cut in the Playlist will flash. However, the Playlist will not execute until you press PLAY, even if it is a Follow-On Playlist.

When executing a Playlist, the bottom line of the display shows the Cut currently playing. The top line shows the Cut that is selected. Once you have SCROLLED to another step, it will be displayed until playback stops. If you have not pressed ENTER, the programmed next to play Cut will be selected. This is important during Manual Step Playback as you will have to reselect the next step if the playing cut ends.

## Clearing the Playlist

To clear the Playlist in the currently selected Bank:

- Hold down the CANCEL button, then press PLAYLIST.
- The display shows the message

**CLEAR PLAYLIST?**

**PRESS ENTER/CANCEL**

- Press ENTER to confirm that you wish to clear the Playlist.

There is also a CLEAR PLAYLIST entry in the Playlist Menu that performs the same function. Clearing the Playlist does not change the programmed Playlist Type for that Bank. Note that if PLAYLIST PROTECTION is ON, the Playlist cannot be cleared. See page 22.

## METERING AND LEVEL CONTROLS

### Level Meters

The LEVEL METERS show the current record or playback level. The LEVEL METERS are not affected by the setting of the rear panel OUTPUT ATTENUATOR switch.

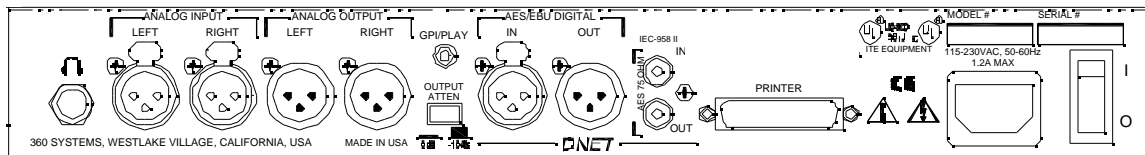
### **Input Level Controls**

The Left and Right INPUT LEVEL Controls set the levels for recording. Set the levels so that the loudest part of your recording causes the first red segment of the meter to light. When turned all the way down, no sound will pass.

### **Headphone Level Control**

Sets the level of the HEADPHONE OUTPUT. This output is not affected by the OUTPUT ATTENUATOR Switch.

## CHAPTER TWO – The Rear Panel



INSTANT REPLAY REAR PANEL

### ELECTRICAL POWER

#### CAUTION!

CONNECT THIS PRODUCT ONLY TO AN AC POWER SOURCE OF THE SAME VOLTAGE AND FREQUENCY INDICATED ON THE REAR PANEL. THE PRODUCT IS SUPPLIED WITH A DETACHABLE IEC TYPE AC LINE CORD APPROPRIATE TO THE COUNTRY TO WHICH THE UNIT WAS ORIGINALLY DELIVERED. CHECK TO SEE THAT IT MATCHES THE ELECTRICAL OUTLET YOU WILL BE USING.

#### Power Switch

The POWER SWITCH is located next to the AC POWER INPUT on the rear of the product.

#### Fuses

The fuses in this product are not user replaceable. Failure of a fuse is an indication of other component failure, and will require service by a qualified repair technician. Contact 360 Systems, or your 360 Systems distributor.

### ANALOG AUDIO CONNECTIONS

#### Analog Audio Inputs

The ANALOG INPUTS are a pair of female XLR-3 connectors marked LEFT and RIGHT. The inputs are electronically balanced, with an impedance of 40k ohms. With the INPUT LEVEL controls up full, a 6.75dBu tone will produce a full scale output, approximately 15dBu with the OUTPUT ATTENUATOR in the -10 position and 25 dBu in the 0 position.

***WARNING: Replace power cord only with Underwriters Laboratories (UL) listed cord of equivalent type and rating!***

Input cables should be wired as follows:

XLR Connector Pin	Balanced Connection	Unbalanced Connection
PIN 1	COMMON	GROUND
PIN 2	+ INPUT	SIGNAL
PIN 3	- INPUT	No Connect

TABLE OF INPUT AND OUTPUT CONNECTIONS

Unbalanced connections should be made by connecting the unbalanced signal output to pin 2 of the Instant Replay and ground to pin 1, with pin 3 left unconnected.

### Analog Audio Outputs

The main ANALOG OUTPUTS are a pair of male XLR-3 connectors. The output is electronically balanced, and is capable of driving loads of 600 ohms or greater. Full scale output level is +25 dBu with the OUTPUT ATTENUATOR in the 0 position. Output cables should be wired the same as shown above for the inputs.

Unbalanced connections are achieved by connecting pin 2 of the Instant Replay XLR Output to the unbalanced input and pin 1 to ground, with pin 3 left unconnected.

### Output Attenuator Switch

The OUTPUT ATTENUATOR switch is located on the rear panel. Set this switch to the **in** position for operation of Instant Replay with equipment having a nominal operating level of +4 dBu. Set the switch to the **out** position for use with equipment operating at -10 dBm.

The switch has no effect on the LEVEL METERS, digital audio outputs, or the HEADPHONE OUTPUT.

### Headphone Output

The HEADPHONE OUTPUT always carries the same signal as the Main outputs, but its level is controlled by the HEADPHONES LEVEL control on the front panel.

When the PREVIEW button is activated in Stop mode, the HEADPHONE OUTPUT is active and the Main Outputs (ANALOG OUTPUT, AES/EBU DIGITAL OUT and IEC-958 II OUT) are turned off during subsequent playback. It may be helpful to use the HEADPHONE OUTPUT for control room monitoring, while the Main Outputs provide the main feed to a mixer or transmitter.

## DIGITAL AUDIO CONNECTIONS

### AES/EBU Input

An XLR-3 female connector is provided for digital input in the AES/EBU format. There is a selectable Sample Rate Converter built in to Instant Replay. When SAMPLE RATE CONVERTER is ENABLED, the input will accept any sample rate from 24k samples/second to 50k samples/second. Use only special AES cable having an impedance of 110 ohms. Limit the cable run to 100 feet. Do not use microphone cables for runs of over 6 feet.

### IEC 958 Type II Input

An RCA "phono" connector provides a digital input from consumer or semi-pro equipment. Most equipment with connectors marked "S/P DIF" can be connected to this input.

As described in the previous section, when SAMPLE RATE CONVERTER is ENABLED the input will accept any sample rate from 24k samples/second to 50k samples/second. Use only low-capacitance 75  $\Omega$  coaxial cable, such as those made for video connection between VCRs and television video inputs. Do not use audio cables with RCA connectors.

### Digital Audio Interfacing

Should Instant Replay detect a mismatch at its digital audio ports when preparing to record, the PLAY button is disabled and an error message appears in the display. Possible mismatches can include format conflicts, non-audio data and data flagged as invalid. Copyright Protected data ("SCMS") will cause a similar error message. Correct the mismatch as necessary.

If the SAMPLE RATE CONVERTER is DISABLED, another mismatch condition can arise between the selected RECORDING FORMAT and the sample rate of the incoming digital audio. The AC-2 and 48K Linear formats require the digital audio to be input from a 48K source. The 44.1K Linear format requires digital audio to be input from a 44.1K source.

Some digital audio equipment does not output audio data or flags the data as invalid when not in play mode. This is most common in consumer CD players with digital outputs. The following techniques may help:

1. Put the device in Play and Pause before pressing Play on Instant Replay to start recording.
2. Put the device in play and "cue" or "scan" backwards until the previous audio selection is heard, or in the case of CDs the "preroll" seconds are displayed (usually shown as P :02 or -:02). Let go of the button on the device and press Play on Instant Replay either immediately, or as soon as the previous selection ends.
3. Start Instant Replay recording on the fly between two selections. This can be useful with DAT machines that are unstable until they have played for a few seconds.

In cases where Instant Replay records for only a few milliseconds or seconds and then stops, check for proper connections and cabling. Try another cable, or different device equipped with a digital output.

If all else fails, use the analog inputs. The conversion to digital is of high quality and will result in minimal loss of fidelity.

### Digital Audio Output

When using Instant Replay as a digital audio source, RECEIVER ECHO should be DISABLED in the FILE TRANSFER MENU. Also, **it is not a good idea to use cuts with different sample rates on the same project**, as this may cause equipment connected to the digital outputs to click, pop, mute or stop recording when the sample rate changes. The analog outputs are not affected by sample rate changes.

### AES/EBU Output

An XLR-3 male connector provides a digital audio output in the AES/EBU format. Use only special AES cable having an impedance of 110 ohms. Limit the cable run to 100 feet. Do not use microphone cable for runs over 6 feet.

Always set the DIGITAL AUDIO OUTPUT parameter in the CONFIGURATION Menu to PROFESSIONAL when using the AES/EBU output. Although the output is still active with the CONSUMER output formats selected, the signal is not AES/EBU compliant.

### IEC 958 Type II Output

An RCA "phono" connector provides a digital audio output to consumer or semi-pro equipment. Most equipment with input connectors marked "S/P DIF" can also be connected to this output.

Always set the DIGITAL AUDIO OUTPUT parameter in the CONFIGURATION Menu to CONSUMER or COPY PROT. CONS. when using the IEC 958 Type II output with IEC 958 or S/P DIF equipment. Recordings made from Instant Replay in COPY PROT. CONS. mode can not be copied by other digital audio input devices equipped with the Serial Copy Management System (SCMS).

When DIGITAL AUDIO OUTPUT is set to PROFESSIONAL, this output produces a signal that is compatible with the AES/SMPTE digital audio standard. This signal is normally supplied on a BNC connector. It is designed to allow digital audio to be routed and cabled using the same methods as 75 video signals.

### D-NET File Transfer Ports

Instant Replay can transfer its files to other 360 Systems products and certain DAT recorders using the D-NET file transfer network. D-NET uses AES/EBU protocols, and the digital audio inputs and outputs described above. The choice between XLR and RCA input connectors is made as a menu selection. Both XLR and RCA outputs are always active during D-NET transfers.

D-NET data is not standard digital audio, and may not be listened to. See the section titled D-NET File Transfers for complete information on using this network.

<b>WARNING: SOME EQUIPMENT CONNECTED TO THE DIGITAL AUDIO OUTPUTS OF THE INSTANT REPLAY MAY TRY TO REPRODUCE D-NET TRANSFERS. THIS CAN CAUSE DAMAGE TO LOUDSPEAKERS IF THE LEVEL IS SUFFICIENT.</b>
---

## Printer Port

This is a standard parallel printer port on a 25 pin "D" connector. Although many printers may be used, 360 Systems has tested the following models:

MANUFACTURER	PRODUCT NAME	MODEL NUMBER
CANON	BUBBLE JET	BJ-200E
CANON	BUBBLE JET	BJ-200EX
HEWLETT PACKARD	LASER JET	4
HEWLETT PACKARD	LASER JET	6L

Canon, BJ and Bubble Jet are trademarks of Canon, Inc. LaserJet is a trademark of Hewlett Packard, Inc.

Printers that implement Hewlett Packard PCL Level 4 and above should be compatible with the HEWLETT PACKARD mode. Printers that support Epson LQ mode should be compatible with the CANON BJ mode. See page 22.

Note that printers that *require* Windows 95 or 98 may not work with Instant Replay.

The printer can provide a variety of different listings about audio materials stored in Instant Replay. See the section titled MENU for further information.

The Printer port is also used to connect external storage devices such as an Iomega Zip drive that are designed to be connected to a parallel port. See the section Using an External Drive on page 24.

## GPI/Play Remote Input

Instant Replay includes a General Purpose Interface (GPI) that duplicates the PLAY button. It is on a 1/8" mini phone jack on the back panel. Connect a momentary switch (console button, footswitch, etc.) to the back panel jack marked GPI/PLAY. The Configuration Menu contains an item GPI INPUT. To access it, press MENU, then use the SCROLL ARROW KEYS to select CONFIGURATION and press ENTER again. Use the SCROLL ARROW KEYS to select GPI INPUT and be sure it is set to ENABLE. If it is set to DISABLE, press ENTER, then the UP ARROW key and ENTER again. Press MENU to return to normal operation.

When you activate the remote momentary switch, Instant Replay will behave as if you had pressed PLAY. You can also initiate recording remotely by putting Instant Replay in Record Ready and activating the remote switch.

Note that activating the remote switch will also cancel PAUSE if it is active. While Instant Replay is Paused, pressing a Hot-Key displays the Assigned Cut's title and statistics but does not play it. This lets you check the Hot-Key assignment silently, and is most useful in a live broadcast or performance application. For example, an engineer can find and cue up a Hot-Key Cut to be played, and on-air talent can start playback with the remote switch.



## CHAPTER THREE – Command Summary

### To Use The Menus

- Press MENU.
- Use the SCROLL ARROWS to select the desired Menu. Press ENTER to select a specific Menu item.
- Use the SCROLL ARROWS to select the desired option for that menu item.
- To adjust the value of the selected item press ENTER. The second line of the display will flash.
- Use the SCROLL ARROWS to set the value. (Where required, enter it using the keyboard keys).
- Press ENTER to confirm your selection or CANCEL to restore the previous programmed value.

NOTE: At any time, CANCEL will move operation back one level (from Value Entry to Option Selection to Menu Selection to Normal Operation). Also, pressing MENU again (turning it off) will return to normal operation. Refer to the Menu Map below for the location of the various options within the Menu tree.

### To Record A Cut

- Set THRESHOLD and turn off RECORD/ERASE LOCKOUT (Record Setup Menu).
- Set AUDIO INPUT to ANALOG or DIGITAL (in Configuration Menu).
- Press RECORD button. Set Input Level controls (for Analog Input only).
- Select an alternate Index Number if desired using SCROLL ARROWS.
- Press PLAY; machine will enter Record mode.
- When done, press STOP.
- Enter Cut Title using alphanumeric keys.
- Press ENTER to save title.

#### ***TIP:***

If you wish to place a Cut in an Index Number that is far from the one supplied by default, just use the number supplied. After recording, use the Move operation to reassign it to the desired Index Number. Move allows direct entry of an Index number using numeric keys.

### To Erase A Cut

- Select the Cut.
- Press the MENU button.
- Select OPERATIONS.
- Press ENTER.
- Select ERASE.
- Press ENTER.
- Press ENTER again to confirm.
- To erase additional Cuts, select another Cut using the CURSOR ARROW keys (HOT-KEYS 48 and 49) and press ENTER twice.
- When done, press MENU to exit.
- Note that RECORD/ERASE LOCKOUT (in RECORD SETUP Menu) must be OFF.

### To Assign A Cut To A Hot-Key

- Press the ASSIGN HOT-KEY button.
- Select the desired Cut using SCROLL ARROWS or FIND.

- Press the desired HOT-KEY.
- Repeat to assign another, or press ASSIGN HOTKEY to end.

### To Select A New Bank

- Press the BANK SELECT button.
- Press a HOT-KEY from 1 to 10 to select the desired Bank Number,  
**OR**
- Use the SCROLL ARROWS to select the desired Bank.
- Press ENTER to confirm selection.  
**OR**
- Press the BANK SELECT button to exit.

Note that the Bank Select operation will time out after a few seconds if no keys are pressed, and return to the normal Cut display.

### To Select the External or Internal Drive

- Press the BANK SELECT button.
- Press the "E" Key (HOT-KEY 13) to select the External Drive.
- Press the "I" Key (HOT-KEY 18) to select the Internal Drive.

Note that the EXTERNAL DRIVE item in the CONFIGURATION Menu must be ENABLED.

### To Create and Edit a Playlist

- Press the PLAYLIST button.
- Press the HOT-KEY you wish to use as the first entry.
- Press additional HOT-KEYS for subsequent Playlist entries.
- When all entries have been made, press ENTER to conclude the list.
- Use the SCROLL ARROWS to scroll back to the START OF PLAYLIST.
- Press ENTER to change the Playlist type.
- Select MANUAL STEP or FOLLOW ON using the SCROLL ARROWS.
- Press ENTER to confirm your choice.
- The Playlist is now complete, and may be reviewed with the SCROLL ARROWS, or auditioned with the PLAY button.
- Press ENTER to set the Playback Pointer to the currently displayed Step.
- To insert a new Step into the Playlist, use the SCROLL ARROWS to select the position within the list, then press a HOT-KEY to add the new Step.
- To remove a Step from the Playlist, use the SCROLL ARROWS to select the Step, then press CANCEL to remove it from the list. Press ENTER to confirm, or CANCEL.
- To append a Step to the end of the Playlist, SCROLL to the end of the list and press additional HOT-KEYS to add additional Steps.

## MENUS AND MENU OPTIONS

Default values are UNDERLINED. All settings are saved on disk and restored on power up.

### Record Setup

Audio Input - ANALOG, AES/EBU XLR-3,  
AES/SMPTE 75 OHM RCA, IEC 958 TYPE II RCA  
Threshold (in dB) - OFF, -6, -12, -18, -24, -30, -36, -42, -48, -54, -60

Record Overwrite - OFF, ON  
Record Time Limit - NONE, 60 MIN, 30 MIN, 5 MIN (On 16 and 24 hour units this is set to 60 min during factory set-up to speed the Record process.)  
Record/Erase Lockout - OFF, ON  
Recording Format – AC-2, 48K Linear, 44.1K Linear  
Sample Rate Converter – Enabled, Disabled

## Operations

Change Cut Name - Changes name of currently selected Cut.  
Erase - Erases currently selected Cut.  
Move - Move currently selected Cut to any unused Index number.  
Adjust Output Gain - Variable from +6 to -90 dB. Default is 0 dB.  
Defragment Disk - Eliminate fragmentation of audio files on disk.  
Change Bank Name - Changes name of currently selected Bank.

The following are available only when EXTERNAL DRIVE is set to ENABLED:

Copy Cut – Copies a single Cut to or from the Internal Drive to the External Drive.  
Copy Bank – Copies a Bank including the Cuts, Hot-Key Assignments and Playlist.  
Copy Disk – Copies all Cuts to or from the Internal to the External Drive.

## Configuration

Time Display - TIME REMAINING, ELAPSED TIME  
Sort Directory By - INDEX, NAME  
Select Language - ENGLISH, SPANISH  
Digital Output - OFF, PROFESSIONAL FORMAT,  
CONSUMER FORMAT, COPY PROT. CONSUMER  
GPI Input- ENABLE, DISABLE  
External Drive – DISABLED, ENABLED

## Printer Output

Print - CURRENT BANK, ALL, LEGEND OVERLAY  
Sort By - NAME, INDEX, HOTKEY #, PLAYLIST  
Printer Type – CANON BJ200E, HP LASERJET

Note that Sort By only appears after the Print selections CURRENT, BANK or ALL have been selected.

## Playlist

Clear Playlist? - Press ENTER to clear Playlist stored within the current Bank.  
Playlist Protection - OFF, ON

## Hot-Keys

Assign Hot-Key - Scans list of Hot-Key Assignments in current Bank using SCROLL ARROWS. Pressing ENTER assigns current Cut (selected before the MENU key is pressed) to the displayed Hot-Key Assignment. This is equivalent to using the ASSIGN HOT-KEY button.

Clear Hot-Key - Scans list of Hot-Key Assignments in Current Bank using SCROLL ARROWS. Pressing ENTER clears the displayed Hot-Key Assignment.

Assign Bank - Assigns all available Cuts in a selected range of 50 consecutive Index Numbers to the corresponding Hot-Keys.

First select the Cut to begin the range before pressing MENU. When ENTER is pressed in ASSIGN BANK, any Cuts that exist in the range are automatically assigned to a Hot-Key. Empty Index Numbers in the range result in the corresponding Hot-Key remaining unassigned, or left intact if a previous Hot-Key Assignment existed. All other previously existing Hot-Key Assignments will be replaced.

Hot-Key Protect - OFF, ON

### **File Transfer**

Transfer Cut

Transfer All Cuts

Backup Drive

Backup Bank

Restore From Backup

File Receiver - OFF, ON

Echo During Receive - OFF, ON

Receiver Input - RCA, XLR-3

Transfers to Accept - MAIL BOX ONLY, ALL

Receiver Name - (NONE - RECEIVE ALL) or programmed name

## CHAPTER FOUR – Using an External Drive

Instant Replay 2.0 model DR-554 offers the option of connecting an Iomega Zip 100 Parallel (or PC), Zip 100 Plus drive or Zip 250 Parallel Port (PC). This allows Cuts to be archived, transferred from one unit to another, or brought in from another 360 Systems product such as DigiCart/II Plus or Short/cut. While Zip 250 disks are compatible with Instant Replay, they are not compatible with DigiCart/II Plus for the purpose of file exchange.

Note that the Zip drive must be Parallel Port compatible. Zip Plus is compatible with SCSI and Parallel Port operation, but some Zip drives are for SCSI operation only, and are not compatible with Instant Replay model DR-554.

The Zip drive allows most of the same operations as the hard drive, and has ten additional Banks to organize the Cuts on the Zip drive. Note that Hot-Keys can only be assigned to Cuts on the currently selected drive, so Banks on the Zip drive cannot access Cuts on the internal drive.

### WARNING

- When using Dolby™ AC-2 format, you can record directly to and play back from the Zip drive. However, **we recommend that the Internal hard drive be used for critical recording and playback.**
- It is not possible to Record or Play material in 48K or 44.1K Linear formats using the External drive. The display will show “DRIVE TOO SLOW” if a Linear Cut attempts to Play.
- It is not possible to Record directly to 100 mb disks in a 250 mb drive. AC-2 Files *can* be Played from a 100 mb disk using a 250 mb drive.
- **Any file** can be **Copied** to or from either type of disk.

## INITIAL SETUP

### Connections

The external drive is connected to Instant Replay's rear panel PRINTER connector.

**NOTE:** If you are using a **Zip Plus**, the cable supplied with the Zip Plus Drive **must** be used.

Other Zip drives come with compatible cables. If a different cable is used it must not be more than six feet long.

If you are also using a printer, the printer should be connected to the printer connection on the Zip drive.

### Configuring Instant Replay

- Press MENU
- Select CONFIGURATION using the SCROLL ARROW keys
- Press ENTER
- Select EXTERNAL DRIVE using the SCROLL ARROW keys
- Press ENTER
- Select ENABLED using the SCROLL ARROW keys
- Press ENTER
- Press MENU to exit.

## OPERATION

## Format External Disk

Before a new disk can be used, it must be formatted. Format is also a fast way to erase all the material on a disk in order to re-use it.

Note that the Iomega Tools disks that come with some Zip Drives are not compatible with Instant Replay and will not format.

To format a disk:

- Insert the disk into the drive
- Press MENU
- Select OPERATIONS using the SCROLL ARROW keys
- Press ENTER
- Select FORMAT EXT DRIVE using the SCROLL ARROW keys
- The display shows:

**FORMAT & ERASE DISK?**

**PRESS ENTER/CANCEL**

- Press ENTER, then PLAY. The display will show:

**FORMATTING DISK**

**PLEASE WAIT**

- When the display returns to FORMAT EXT DRIVE then press MENU to exit.

You can now perform Copy operations from the Internal Drive to the External Drive. To record on or play from the External Drive, or Copy from External to Internal Drive, you must first select the External Drive as described below.

### Selecting the External or Internal Drive

- Press the BANK SELECT button.
  - The I and the E Keys light up along with the NUMERIC (Bank Number) keys. The "I" key lights continuously to indicate that the Internal Drive is the currently selected drive, The "E" key flashes to indicate that it can be selected. (If the External Drive is the active drive, the "E" key lights continuously and the "I" key flashes.)
  - Press the "E" Key (HOT-KEY 13) to select the External Drive.
  - Press the "I" Key (HOT-KEY 18) to select the Internal Drive.  
Instant Replay immediately logs on to the selected Drive and turns off BANK SELECT.
- OR**
- An alternate method is to press MENU and SCROLL to OPERATIONS. Press ENTER.
  - SCROLL to SELECT EXT DRIVE (The menu item will read SELECT INT DRIVE if the External drive is selected). Press ENTER.

Initially, the display will indicate that no cuts are available if a newly formatted disk is in the drive. Once some cuts are recorded or copied to the disk, the display will look the same as when the Internal drive is selected, except that there will be a small "E" after the Cut Index Number:

**000<sup>E</sup> CUT NAME**

**00:00:32 AC-2 1-00**

If you attempt to select an unformatted disk (or a disk formatted for another system), the display will show

**WRONG DISK FORMAT**

**SELECT INT DRIVE?**

Pressing ENTER causes Instant Replay to reselect the internal hard drive. The SCROLL ARROW keys allow selection of other options in the second line of the display:

**FORMAT EXT DRIVE?**

Pressing ENTER during this display starts the format process.

**SELECT EXT DRIVE?**

Pressing ENTER during this display causes Instant Replay to try to relog the External drive.

You can now record directly to the External Drive, play Cuts on the External Drive or copy Cuts from the External Drive to the Internal Drive. You can also Assign Hot-Keys to any of the ten Banks on the External Drive. Bank Select and all other operations and features) work the same as they do on the Internal Drive.

Unlike the Internal Drive, the Zip Drive will “spin down” after some period of inactivity to prolong drive and disk life. When this happens, a Play command will be delayed until the drive spins back up. The drive can be forced to spin up in preparation for playback by pressing and holding Stop until the drive access light comes on; instant playback will be available again in about 3 seconds. If instant response is always required, use the internal drive.

## Ejecting a Disk

To eject a disk from the external drive, first select INTERNAL DRIVE, then press the eject button on the external drive.

## Copy Cut

Copy operations always copy material from the currently selected drive to the other drive. Cuts are never copied to the same drive.

- Select the Cut to be copied.
  - Press MENU and select OPERATIONS with the SCROLL ARROW keys. Press ENTER.
  - Select COPY CUT using the SCROLL ARROW keys. Press ENTER.
  - If desired, select a different Index Number to copy to using the SCROLL ARROW keys. You can only select unused Index Numbers. If the Index Number of the Cut being copied matches an existing Cut on the destination drive, the Display warns you. Pressing ENTER will start the copy and replace the Cut on the destination drive. If you do not wish to replace the Cut, select a new number, then press ENTER to start the copy process.
  - The display will show COPYING FILE, the file name and the percentage copied as the operation progresses. When done, the display will show COPY COMPLETE.
  - Press ENTER. At this point you can press MENU to exit,
- OR**
- Use the LEFT ARROW or RIGHT ARROW keys (HOT-KEYS 48 and 49) to select another Cut to copy.
  - Press ENTER to repeat the copy operation.

## Copy Bank

When copying Banks, both the Hot-Key assignments and the Cuts they are assigned to are copied, as well as the Playlist. Copies are always between the two drives. You have the option of replacing cuts on the destination drive when Index Numbers of cuts being copied match them, or of assigning new Index Numbers to the copied Cuts. Instant Replay automatically reassigns the Hot-Keys to match the new Index Numbers. You also have the option to replace Cuts on the destination drive that have Names that match any of the Cuts being copied.

To Copy a Bank:

- Select the Bank to be copied
- Press MENU and select COPY BANK using the SCROLL ARROW keys.
- Press ENTER. The display will show:

**REPL DUPL INDEX?  
ENTER=YES, CANCEL=NO**

- Press ENTER or CANCEL as desired
- The display will show:

**REPL DUPL NAMES?  
ENTER=YES, CANCEL=NO**

- Press ENTER or CANCEL as desired
- The display will show:

**SELECT DEST BANK  
PRESS ENTER/CANCEL**

- The number of the currently selected Bank will flash as a reminder in case you want to copy to the same Bank number on the destination drive.
- Press CANCEL to terminate the copy operation and return to the menu
- Press ENTER to copy to the selected Bank
- Press a HOT-KEY from 1 to 10 to select a Bank to copy to, then press ENTER to start the operation.
- The display will show the file being copied, and the total number of files to copy:

**COPYING 1 OF XX  
001 CUT NAME            01%**

- If you chose either of the REPLACE options and the operation results in a cut being replaced, the display will show REPLACE 1 OF XX during that portion of the copy operation. When the operation is complete, the display will show:

**FILES COPIED:            XX  
FILES NOT COPIED:      0**

- Press ENTER or CANCEL to return to the menu.
- Press MENU to exit.

Files Not Copied should be zero unless the destination disk became full, or there was a disk error on the source or destination drive.

## Copy Drive



Copy Drive copies all the cuts from one drive to the other. Banks and Playlists are *not* copied. This function is mainly used to get the Cuts from a Zip disk onto the Internal Drive. Copy Drive offers the same options for replacing duplicates as Copy Bank.

- Select the Drive to be copied.
- If desired, Select the first Cut to be copied. (This allows starting from a particular cut when backing up to several Zip disks.)
- Press MENU and select COPY DRIVE using the SCROLL ARROW keys.
- Press ENTER. The display will show:

**REPL DUPL INDEX?  
ENTER=YES, CANCEL=NO**

- Press ENTER or CANCEL as desired
- The display will show:

**REPL DUPL NAMES?  
ENTER=YES, CANCEL=NO**

- Press ENTER or CANCEL as desired. The display will show:

**PRESS ENTER TO BEGIN  
STOP/CANCEL TO QUIT**

- Press CANCEL or STOP to return to the menu

**OR**

- Press ENTER to start the operation.
- The display will show:

**COPYING 1 OF XX  
001 CUT NAME            01%**

- If you chose either of the REPLACE options and the operation results in a cut being replaced, the display will show REPLACE 1 OF XX during that portion of the copy operation. When the operation is complete, the display will show:

**FILES COPIED:            XX  
FILES NOT COPIED:      0**

- Press ENTER or CANCEL to return to the menu.
- Press MENU to exit.

## Replacing Cuts with Hot-Key Assignments

When Cuts that are assigned to Hot-Keys are replaced for any reason (Copy, D-NET Transfer, or Record Overwrite) the Hot-Key Assignments will still exist, and will be assigned to the new audio. This allows material to be updated without the need for reassigning Hot-Keys. For instance, hourly promos can be named for their time slot and day of the week. Each week the new promos can be loaded in from a Zip Disk using the Replace Names option in Copy Disk or Copy Bank, and will appear at the same places in *all* Banks and Playlists. Replace Index and D-NET Receive work the same way, with the added requirement that a numbering system for the Cuts must be adhered to carefully.

## Disk Compatibility with other 360 Systems Products

Instant Replay Zip disks are compatible with DigiCart/II Plus\*.

- Disks made in the Instant Replay can be played in the DigiCart/II Plus. If the disk contains a large number of Cuts, the DigiCart/II Plus will log the disk faster if the Update Directories function in the DigiCart/II Utility Menu is performed. This must be repeated after any recording or erasing of Cuts is performed on the disk by Instant Replay.
- Cuts recorded in **Directory 0** of a DigiCart/II Plus disk can be played by the Instant Replay. Hot-Key assignments and Playlists are not interchangeable with DigiCart/II Presets and Stacks. Cuts in Directories 1-9 are not accessible.

The Short/cut Personal Audio Editor can make disks compatible with Instant Replay through the use of its Export function. **Cuts must be Exported to Directory 0 only.** Hot-Key Assignments are not transferred by Export.

\*See "Using an External Drive" on page 23 for information regarding special restrictions on Zip disk compatibility.

# CHAPTER FIVE – D-NET File Transfer Operations

## Introduction

D-NET is a new kind of audio network designed by 360 Systems. It uses Instant Replay's digital audio interfaces for high-speed audio transfers, and to backup and restore files for archival purposes. Unlike other networking schemes, there is no extra cost for networking cards or hardware, no special software, and it is compatible with other products such as routers and distribution systems that use the AES/EBU digital audio interface standard. It can also use the coaxial connection (AES/SMPTE 75 ) which is compatible with 75 video equipment.

## Features

- Transfer individual audio Cuts, or the contents of entire drives, from one Instant Replay to another.
- Transfer to and from DigiCart/II hard disk recorders. (Note: the DigiCart/II machines must have the file transfer option installed. DigiCart/II Plus includes file transfer as standard.)
- Backup and restore a bank of files, or an entire drive, to an AES/EBU equipped DAT recorder.
- Transfers file headers with File Name, Index Number, running time, etc.
- Transfers audio faster than standard playback rates.
- Supports AES/EBU and AES/SMPTE-75 digital interfaces.
- Individual machines can be configured to allow or disallow automatic reception of transfers.
- Optional protection for overwrite of existing drive contents (via the 'Mail Box' feature).

## File Transfer Characteristics

Transfers are one-way, without acknowledgment from the receiver, and are initiated from the sending machine. The sender specifies a destination name, or partial name with a wild card character. All machines that are configured with a matching name can receive the file.

A file is transferred to a specific Cut Index, or optionally to a 'Mail Box' location. A transfer to a specific disk location will replace an existing file if one exists at that location. A file transferred to the Mail Box will be placed in the next available Index Number in the destination machine. Each receiving machine can be configured to disallow transfers to specific Cut locations.

All machines to receive a transfer must be enabled to receive file transfers, must be configured with a name matching the name specified by the transfer, and must not be playing or recording. Receivers offer the option of a "blank receiver name" which matches all names, and thus receives all transfers.

The destination machine will discard files received with errors. Since files received with errors are discarded the user does not get a direct indication of which files in a multiple-file transfer need to be re-sent.

An operator at a receiving or sending machine can easily cancel file reception to regain control of the machine at any time by pressing the STOP or CANCEL buttons. The user is prompted to confirm before the transfer is aborted.

Only one sender can be transferring files at a time.

See the section Replacing Cuts Assigned to Hot-Keys on page 28.

## Backup/Restore Characteristics

BACKUP BANK saves a specific bank to a DAT tape. BACKUP DRIVE saves the contents of the entire drive to a DAT tape. RESTORE FROM BACKUP adds files to the drive from the DAT backup tape, replacing any with the same Cut Index. RESTORE FROM BACKUP does not discard files on disk unless a file at the same Index is successfully read from the DAT tape.

Backup and restore data for AC-2 encoded Cuts is left in its compressed form, so a disk with 4 hours of audio can be backed up using about 65 minutes of DAT tape. A disk with 8 hours of audio can be backed up with about 115 minutes of tape.

Backup and Restore support the AES/EBU interface only.

The device used to store the data must not alter the data in any way, such as through signal processing (high-pass filtering or data compression, for example) or sample rate conversion. Although this discussion assumes the use of a DAT recorder, any AES/EBU compliant device that meets the above criteria can be used. Instant Replay data has been successfully saved on to digital multitracks and 360 Systems DigiCart/II using the 48K Linear format.

We recommend that you keep at least two copies of important data on each of at least two different tapes. In the event that one tape develops an error, simply repeat the process of restoring using one of the copies. Unless the error occurs on the same file in both tapes, all the files will remain on the hard drive.

### CAUTION!

**PLAYBACK OF BACKUP DATA OR D-NET TRANSFER SOUNDS LIKE LOUD NOISE AND BEARS NO RESEMBLANCE TO THE UNCOMPRESSED MATERIAL. EQUIPMENT MONITORING THE DIGITAL OUTPUT COULD BE DAMAGED IF LEVELS ARE EXCESSIVE.**

## Managing Large Drive Backup.

When using DAT tapes to back up data from 2 Gigabyte or larger drives that contain more than about 1 Gigabyte of material, the length of backup files can exceed the length of a single DAT tape. In this case it is necessary to do individual Bank backups. If you have Cuts to back up that are not assigned to Hot-Keys in any Bank, they must be assigned to a Bank for the purpose of backing them up. If you have more than 50 unassigned Cuts, back up the first 50 then reprogram the Bank and repeat the backup. It is suggested that you reserve Bank 10 for this function.

If it is not possible to reserve a Bank, then when backing up first back up the ten banks that exist, then reprogram one or more of the banks with temporary assignments to the unassigned Cuts. When you are finished, reload the banks that you reprogrammed from their backups or manually reassign the Hot-Keys. When restoring, load the Banks of unassigned Cuts first, then load the Banks with the Cuts that are to remain assigned.

## Verifying tapes

When Instant Replay loads files from a backup tape it holds them in a temporary file until the entire file loads and is checked for errors. Only then is the file allowed to replace any existing file in the same Index number. This allows you to perform the Restore from Backup process to verify that a backup tape is good. Any files that contained errors on the backup will not overwrite the good files on the hard drive. Note that you must have sufficient hard drive space to hold the largest of your Cuts; insufficient space will result in file creation errors during the verify process.

This will not hurt the data on the hard drive, but it will cause the backup tape to appear to be flawed.

### **Loading Multiple Tapes**

You can load multiple backups with differing material as long as they do not contain conflicting Index Numbers. In the case of a conflict only the last Cut with that Index number remains. You can use the Move function before loading the second backup to resolve Index Number conflicts.

### **Starting in the Middle of a Backup Tape**

You can start in the middle of a backup tape and Instant Replay will start restoring from the first full backup file it receives. This allows you to note the time that an error took place, and then start a restore operation a bit before the same location on a similar backup tape and get only the file that produced an error.

See the section on Error messages for information of their meaning and possible corrective steps.

### **Machine-to-Machine Transfers**

Backup and Restore can be used to transfer material directly from one Instant Replay to another. This is similar to D-NET file transfer (discussed in the next section) with the advantage that it also transfers Hot-Key assignments. It is somewhat slower than D-NET as it uses 16 bit data rather than 24 to maintain compatibility with DAT.

To perform a transfer between two units using Backup and Restore:

- Connect the AES/EBU output of the unit containing the material to the AES/EBU input of the unit that will be receiving it.
- Follow the directions above for Restore on the unit that is to receive the material
- Follow the directions for Backup Drive or Backup Bank as desired on the unit that will be sending the material.

## FILE TRANSFER MENUS

FILE TRANSFER is a sub-menu selected from the main Menu. It has menu items for file transfer configuration, for selecting transfer of a single Cut or all Cuts, and for performing backup and restore.

The FILE TRANSFER menu contains a number of its own sub-menus. At the outer most level, the SCROLL ARROW keys select a specific menu item. When editing input fields, the alphanumeric legends on the Hot-Keys are used to enter data, and the left and right arrows move the cursor. The ENTER key initiates an activity, or completes an edit operation.

### Transfer Cut

Transfer a single selected Cut to a Mail Box or to a specific Drive, Directory and Index.

### Transfer All Cuts

Transfer the entire contents of an audio disk Drive to the Mail Box, or to a designated Drive and Directory in a destination machine.

### Backup Drive

BACKUP DRIVE backs up the entire contents of the internal hard disk through the AES/EBU (XLR-3) output connector to a DAT tape. (RCA I/O connectors can not be used.)

### Backup Bank

BACKUP BANK backs up the Hot-Key Assignments of the current bank and the Cuts assigned to those Hot-Keys. Its operation is identical to BACKUP DRIVE.

### Restore From Backup

Restores the internal hard disk contents through the AES/EBU (XLR-3) input connector from a DAT tape previously created via BACKUP BANK or BACKUP DRIVE.

### File Receiver

Selects whether file reception is ON or OFF. When ON, an idle machine receives all file transfers specifying a destination name that matches the configured receiver name. When OFF, the machine does not receive file transfers.

### Echo During Receive

Selects whether received data is passed through to the digital output. The ON selection is useful when machines are daisy-chained for file transfer. Note that any machine in a daisy-chain that is playing or recording can not echo file transfer data to subsequent machines. The OFF selection prevents file transfer data from being echoed through the digital output.

Note that when File Receive and Echo are both ON and the digital audio outputs are in use, pops or clicks may be heard on equipment monitoring the digital outputs when Cuts start or stop. This is due to the master sample clock switching between the digital input (necessary to monitor the input for D-NET transfers) and the internal sample clock (to control playback).

This in turn causes the digital audio transmitter to resynchronize. This is unavoidable; turn off Echo or File Receive when using the Digital outputs.

## Receiver Input

Selects either the RCA or the XLR-3 digital input connector for receiving files.

## Receiver Name

This field specifies an optional name for addressing the receiver during file transfer. A blank name causes a machine to receive all file transfers regardless of the Receiver Name specified by the transmission (provided the destination Drive and Directory are correct).

Leading and trailing blanks in names are not allowed and are removed whenever a name is saved.

When sending to a specific location instead of sending to a Mail Box, the destination Drive defaults to '1', the destination Directory defaults to '0' and the destination Index defaults to the Index of the currently selected Cut in the source machine. Applicable portions of the destination disk location may be edited by the user.

## Transfers To Accept

This menu determines whether transfers can be made to locations outside of the Mail Box are accepted. The MAIL BOX ONLY choice causes the receiver to accept transfers with a destination location of MAIL BOX and to reject transfers to specific locations. The ALL choice causes the receiver to accept MAIL BOX transfers as well as transfers to specific locations.

## Backup Drive and Backup Bank Procedure

Backup Drive and Backup Bank operate in a similar manner. Backup Bank transmits only the Cuts assigned in the currently selected Bank, the Hot-Key assignments and the Playlist. Select the Bank to be backed up before beginning the operation. The Bank will always be Restored to the same Bank number that it came from.

- From the FILE TRANSFER menu select BACKUP DRIVE and press ENTER.
- The MENU button begins to flash and the display shows:

**START BACKUP DEVICE**

**PRESS ENTER/CANCEL**

- Place the DAT machine in record (via its AES/EBU digital input) and press ENTER. (Or CANCEL to prevent starting the backup). The display shows:

**PREPARING TO BACKUP**

**STOP/CANCEL TO QUIT**

Backup begins and the display shows the current file number and the percent completion for the current file:

**FILE 1 OF 193**  
**00% BACKED UP**

Backup will proceed until all files are backed up, and the display will show the total number of files.

If STOP or CANCEL is pressed during backup the display changes to:

**QUIT BACKUP?**  
**PRESS ENTER/CANCEL**

Press CANCEL or STOP and the backup will continue. Press ENTER to stop backup. An ending summary will be displayed.

## Restore From Backup Procedure

The procedure for Restoring a Bank or Drive are the same. Instant Replay identifies the type of backup automatically.

- From the file transfer menu select RESTORE FROM BACKUP and press ENTER.
- The display changes to:

**ARE YOU SURE?**  
**PRESS ENTER/CANCEL**

- Press ENTER to continue, or CANCEL to exit this operation.
- After pressing ENTER the menu button begins to flash and the display shows:

**START RESTORE DEVICE**  
**STOP/CANCEL TO QUIT**

- At this time start the DAT machine playing a backup tape through its AES/EBU digital output, and press Enter. Alternately, press Cancel to exit from this operation .

When backup data is received from the DAT player, the display changes to show the current file number and the percent completion for the current file:

**FILE 1 OF 193**  
**00% RESTORED**

Restore will proceed until all files are restored; the display will show the number of files successfully restored. Files received with DAT tape errors are skipped.

If the STOP or CANCEL buttons are pressed, the operation continues but the display shows:

**QUIT RESTORE?**  
**PRESS ENTER/CANCEL**

If you press ENTER the restore discontinues and an ending summary is displayed.

If you press CANCEL or STOP at the prompt to quit, the display reverts to updating the file number and percentage complete and the restore operation continues.

- After the ending summary you are prompted to press ENTER. The machine resets itself and restarts as it does when power is first applied.



### File Transfer Setup Procedure (First Time Configuration)

- Select the FILE TRANSFER menu.
- Use the SCROLL ARROW keys to select the FILE RECEIVER menu item. Press ENTER and then use the arrows to select ON to enable receiving of files. Press ENTER again to confirm the selection.
- If this Instant Replay is going to be used in a network with other units connected to its output, then you must turn on the Echo function. Use the SCROLL ARROW keys to select the ECHO DURING RECEIVE menu item. Press ENTER and then use the arrows to select ON to echo received file data through the digital outputs. Press ENTER again to confirm the selection.
- Use the SCROLL ARROW keys to select the RECEIVER INPUT menu item. Press ENTER and then use the SCROLL ARROW keys to select either the RCA or the XLR-3 connector. Press ENTER again to confirm the selection.
- Use the SCROLL ARROW keys to select the RECEIVER NAME menu item. Press ENTER to edit the receiver name. The name can be blank to receive all file transfers or can have from 1 to 15 characters consisting of any combination of letters, digits, dashes and spaces. Leading and trailing spaces are not significant and are removed when the name is saved. Press ENTER to confirm the selection.
- Use the SCROLL ARROW keys to select the TRANSFERS TO ACCEPT menu item. Press ENTER and then use the arrows to select the appropriate setting:
  - MAIL BOX ONLY - when *only* Mail Box transfers are to be allowed.
  - ALL - when Mail Box transfers *and* transfers to specific locations are to be allowed.
- Press ENTER again to confirm the selection.
- Press CANCEL or MENU to exit from the File Transfer Menu.

The machine is now configured, and is ready to be connected to D-NET.

### File Transfer Procedure (SENDER)

- Select a Cut to be transferred. (This is unnecessary for TRANSFER ALL CUTS)
- Press MENU
- Select the FILE TRANSFER menu. The Display will show:

**TRANSFER CUT**  
**PRESS ENTER/CANCEL**

- Press ENTER to proceed

**OR**

- Press the SCROLL UP ARROW key to select the TRANSFER ALL CUTS menu item and press ENTER to proceed.
- The display will show:

<b>DESTINATION NAME</b>		<b>DESTINATION NAME</b>
<b>(NONE SPECIFIED)</b>	<b>OR</b>	<b>POST RM1</b>

In the above example, POST RM1 is the name entered for a previous transfer operation. The first transfer after power up always defaults to (NONE SPECIFIED).

When the display indicates (NONE SPECIFIED) only machines that have no receiver name programmed can receive the transfer.

- Press the SCROLL UP ARROW key to proceed using the current Receiver Name.
- OR**
- Press ENTER to edit the Destination Receiver name.



**PRESS ENTER/CANCEL**

- Press ENTER and the transfer will proceed. The display initially shows:

**PREPARING TO SEND****STOP/CANCEL TO QUIT**

Once the transfer begins the display changes to:

**FILE 1 OF 1** ← FILE NUMBER AND TOTAL NUMBER OF FILES

**00% COMPLETED** ← PERCENT OF CURRENT FILE COMPLETED

If no buttons are pressed, the percentage is updated until an error occurs or the transfer is completed. The display then shows:

**TRANSFER COMPLETE****PRESS ENTER/CANCEL**

- To cancel a transfer in progress, press CANCEL, then ENTER.

If you press CANCEL or STOP during the transfer, the transfer will proceed while the display shows:

**QUIT TRANSFER?****PRESS ENTER/CANCEL**

Press CANCEL to continue the transfer.

Press ENTER to confirm the cancellation of the transfer. The display will briefly show:

**TRANSFER ERROR****CANCELED BY USER**

After the brief error message the display then changes to:

**TRANSFER INCOMPLETE****PRESS ENTER/CANCEL**

If an error occurs during a transfer the display briefly shows:

**TRANSFER ERROR**

**XXXX** ← ERROR MESSAGE

Some possible error messages are:

COULD NOT OPEN FILE ..... FILE TO SEND COULD NOT BE OPENED  
 DISK ERROR..... ERROR READING FILE TO SEND  
 FILE IS EMPTY ..... FILE TO SEND IS EMPTY  
 NO FILES TO SEND ..... DRIVE TO SEND IS EMPTY  
 PART OF FILE MISSING ..... FILE IS SHORTER THAN EXPECTED  
 TOO MANY ERRORS ..... 20 DISK OR FILE ERRORS OCCURRED

After the brief error message the display then changes to:

**TRANSFER INCOMPLETE**  
**PRESS ENTER/CANCEL**

After pressing ENTER or CANCEL the display shows briefly:

**FILES SENT: 0** ← NUMBER OF FILES TRANSFERRED WITHOUT ERRORS  
**PLEASE WAIT**

If any files could not be sent the display shows:

**FILES SENT: 0** ← NUMBER OF FILES TRANSFERRED WITHOUT ERRORS  
**FILES NOT SENT: 1** ← NUMBER OF FILES NOT SENT DUE TO ERRORS

Note that Errors shown in the Transmitter are never the result of cabling or interface problems; they reflect a problem within the unit. Transmitter errors will also be shown on the Receiver, but Receiver errors are shown on the Receiver only.

## File Transfer (RECEIVER)

When Instant Replay is idle and FILE RECEIVE is ON, it monitors the selected RECEIVER INPUT (XLR-3 or RCA) for a file transfer with destination name that matches the stored receiver name. When a file transfer addressed to the Receiver begins, the display shows the following:

**FILE 1 OF XX** ← FILE NUMBER AND TOTAL NUMBER OF FILES  
**00% COMPLETED** ← PERCENT COMPLETION FOR THE CURRENT FILE

- If CANCEL or STOP is pressed, the transfer proceeds while the following prompt is displayed:

**QUIT TRANSFER?**  
**PRESS ENTER/CANCEL**

- Press CANCEL for the transfer to proceed.
- Press ENTER to exit from the transfer. The display will show:

**TRANSFER INCOMPLETE**  
**PRESS ENTER/CANCEL**

When a transfer is completed without errors, the following message appears:

**TRANSFER COMPLETE**  
**NO ERRORS**

If a multi-file transfer was performed, the display then shows:

**GOOD FILES: XX** ← FILES RECEIVED WITHOUT ERRORS

**BAD FILES : 0** ← FILES DISCARDED DUE TO ERRORS

- Press ENTER or CANCEL. The display will briefly show:

**FILES SENT: X**  
**PLEASE WAIT**

If any files were received with errors, the display will show:

**GOOD FILES: 10** ← FILES RECEIVED WITHOUT ERRORS  
**BAD FILES : 5** ← FILES DISCARDED DUE TO ERRORS

If an error occurs for a received file, the cause of the error is displayed briefly and the percent complete line on the display changes to:

**SKIPPING FILE**

The 'skipping' message remains on the display until a new file is received, or the transfer is complete. At the end of the transfer the display briefly shows:

**TRANSFER INCOMPLETE**  
**ERRORS OCCURRED**

Then the display briefly shows:

**GOOD FILES: 10** ← FILES RECEIVED WITHOUT ERRORS  
**BAD FILES : 5** ← FILES DISCARDED DUE TO ERRORS

After the machine returns to the idle state, the following error conditions are possible:

DISK ERROR.....ERROR READING OR WRITING THE DISK  
OVERRUN ERROR.....THE DESTINATION DRIVE IS HIGHLY FRAGMENTED  
OUT OF DISK SPACE.....THE DESTINATION DRIVE DOES NOT HAVE SPACE  
TO SAVE THE RECEIVED FILE  
DATA ERROR.....PARITY OR OTHER DATA CORRUPTION ERRORS  
CANCELED BY USER.....USER ABORTED BY PRESSING CANCEL OR STOP  
TIMED OUT .....DATA WAS NOT RECEIVED FOR 10 SECONDS  
PART OF FILE MISSING .....FILE IS INCOMPLETE  
CANCELED BY SENDER .....THE USER AT THE SENDING MACHINE CANCELED  
MAIL BOX FULL.....INDEX 999 IN THE DESTINATION MACHINE IS IN-USE

## Differences from DigiCart/II D-NET Implementation

DigiCart/II files in formats other than AC-2, 48K Stereo or 44.1K Stereo will be rejected by Instant Replay.

Sending to the Mail Box in a DigiCart/II means sending to the first unused Index Number following the highest used Index in Directory 9 (for Cuts) on Drive 1. In Instant Replay, sending to the Mail Box means sending to the first unused Index following the highest used Index.

Instant Replay accepts transfers destined *only* for Drive 1, Directory 0. Note that DigiCart/II defaults to sending to the same address as the source file or directory, so when sending from the cartridge or a hard drive other than number 1 the address *must* be adjusted.

The entire contents of an Instant Replay Drive may be transferred to the Mail Box of a receiving machine.

The SCROLL ARROW keys on Instant Replay perform the functions of the Select knob on a DigiCart/II recorder.

On the Instant Replay, you must perform an extra step of pressing ENTER before transfer parameters or setup values can be adjusted.

The Transfer Stack and Transfer Directory menu selections are not present on Instant Replay.

On Instant Replay the TRANSFER DRIVE feature is really a transfer of the only Directory an Instant Replay has: Drive 1, Directory 0.

Backup and restore are not provided in DigiCart/II machines.

## CHAPTER SIX – Maintenance and Disk Operations

### FORMAT INTERNAL HARD DISK

The Format Disk option for the internal drive is only available through a special "power-on" sequence. **This option will erase the entire contents of Instant Replay's internal hard disk.** It is essential to back up the contents of your hard drive using the D-NET File Transfer or Backup/Restore procedures detailed in Chapter 4 before beginning the Format Disk operation.

During FORMAT DISK, if you wait too long to select an option, Instant Replay will "time out", aborting the Format Disk operation.

**CAUTION!**

**FORMAT DISK WILL PERMANENTLY ERASE THE CONTENTS OF THE HARD DISK .  
IF AT ANY TIME THE FORMATTING PROCESS IS ABORTED, YOU MUST RECYCLE  
POWER (TURN THE MACHINE OFF, THEN BACK ON AGAIN) TO ENSURE PROPER  
OPERATION. REPEAT THE FORMAT PROCESS AFTER CYCLING POWER.**

#### To Format the Internal Hard Disk

- Turn Instant Replay's power switch OFF.
- While holding down the STOP button, turn power ON. Continue to hold stop until the unit initializes. The display will prompt:

**FORMAT & ERASE DISK?  
PRESS ENTER/CANCEL**

- Press ENTER to proceed, or CANCEL to abort. If you press ENTER, the display will prompt:

**PRESS PLAY TO FORMAT  
PRESS CANCEL TO QUIT**

- Press PLAY to continue. The display will prompt:

**FORMATTING DISK  
PLEASE WAIT**

After the formatting operation is complete, the display will show the initializing message, then will indicate "NO CUTS AVAILABLE". At this point, you may:

- Press RECORD and begin recording new material.

**OR**

- Press MENU, select the FILE TRANSFER Menu, then select RESTORE FROM BACKUP. Audio material previously backed up to DAT may now be restored to the hard drive via the AES/EBU input.

### FORMAT EXTERNAL DISK

The Format Disk option for the external drive accessed through the Operations menu. This option will erase the entire contents of the external disk. New removable disks such as Iomega Zip disks must be formatted before they can be used.

The EXTERNAL DISK option in the CONFIGURATION menu must be set to ENABLED to perform any operation specific to the External Disk Drive.

<b>CAUTION!</b>
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**FORMAT DISK WILL PERMANENTLY ERASE THE CONTENTS OF THE DISK .**

**IF AT ANY TIME THE FORMATTING PROCESS IS ABORTED, YOU MUST RECYCLE POWER (TURN THE MACHINE OFF, THEN BACK ON AGAIN) TO ENSURE PROPER OPERATION. REPEAT THE FORMAT PROCESS AFTER CYCLING POWER.**

### **To Format the External Disk**

- Press MENU and use the SCROLL ARROWS to locate OPERATIONS.
- Press ENTER and use the SCROLL ARROWS to locate FORMAT EXT DISK. Press ENTER, and the display will prompt:

**FORMAT & ERASE DISK?**

**PRESS ENTER/CANCEL**

- Press ENTER to proceed, or CANCEL to abort. If you press ENTER, the display will prompt:

**PRESS PLAY TO FORMAT**

**PRESS CANCEL TO QUIT**

- Press PLAY to continue. The display will prompt:

**FORMATTING DISK**

**PLEASE WAIT**

- After the formatting operation is complete, the display will show the initializing message, then will indicate "NO CUTS AVAILABLE".



## DEFRAGMENT DISK

As Cuts are recorded and then erased, or overwritten by new recordings of different lengths, disk space will become fragmented into small blocks of free space separated by blocks of audio. Eventually, the available space is broken up into too many small blocks. When this happens, the message "DISK IS FRAGMENTED" can appear when RECORD is pressed. Another sign is the display of MAX LENGTH when going into Record, rather than TIME LEFT. Both of these symptoms indicate that the drive is too fragmented to allow all the free space on the drive to be used in a single recording. In addition, a severely fragmented disk can interfere with D-NET file transfers, causing the display to indicate an overrun error.

The Defragmentation program will restore the continuity of a fragmented disk. It does this by moving blocks of audio from one position on the disk to another, always seeking to combine the various parts of a Cut into a single continuous file. When the Defragmentation program is finished, it leaves each Cut in a single continuous file, and all available disk space is combined into one contiguous area on the disk.

The Defragmentation program needs free disk space in which to re-arrange the audio blocks, and it cannot proceed if any Cut is severely fragmented. Lack of disk space, or the presence of a severely fragmented Cut will produce error messages, and the Defragmentation program will not continue. If a severely fragmented Cut is present, its Index Number will appear in the error message. The only cure for this is to reformat the drive and restore from a backup.

Defragmentation should be done occasionally, especially if Cuts are frequently overwritten with new recordings or if Cuts are often erased. The process can take from a few minutes to over an hour. The machine should not be turned off while defragmentation is being done. If necessary, defragmentation can be interrupted by pressing the CANCEL key. The process will not stop immediately, since transfer of a file from one area of the disk to another must first be completed. Eventually, the program will pause and ask for confirmation that defragmentation should be canceled. If the response is yes (ENTER), the process will stop.

### Defragment Disk Command

The Defragment Disk command is accessible from the OPERATIONS menu. It is advisable to back up the contents of your hard drive using the D-NET File Transfer or the Backup/Restore procedures detailed elsewhere in this manual before you begin.

Defragment Disk cannot be performed on the External drive.

### CAUTION!

**DEFRAGMENT DISK WILL TAKE SOME TIME. FOR A HIGHLY FRAGMENTED HARD DISK, THE OPERATION MAY REQUIRE AS MUCH AS 30 MINUTES TO AN HOUR. DO NOT BEGIN THE DEFRAGMENT DISK OPERATION UNLESS YOU HAVE ADEQUATE TIME FOR INSTANT REPLAY TO REMAIN OFF-LINE.**

**IF AT ANY TIME THE DEFRAGMENTATION PROCESS IS ABORTED, YOU MUST RECYCLE POWER (TURN THE MACHINE OFF, THEN BACK ON AGAIN) TO ENSURE PROPER OPERATION.**

### To Defragment the Disk

- Press MENU and use the SCROLL ARROWS to locate OPERATIONS.
- Press ENTER and use the SCROLL ARROWS to locate DEFRAGMENT DISK. Press ENTER, and the display will prompt:

**DEFRAGMENT DISK?  
PRESS ENTER/CANCEL**

- Press ENTER to proceed, press CANCEL to abort. If you press ENTER, the display prompts:

**ARE YOU SURE?  
PRESS ENTER/CANCEL**

- Press CANCEL to abort, or press ENTER to proceed. The display will prompt:

**DEFRAGMENTING DISK  
00% COMPLETE**

As Defragmentation takes place, the lower line of the display will indicate progress by displaying the percentage completed. When defragmentation is complete, the display will prompt:

**DEFRAGMENTATION COMPLETE  
RESTARTING MACHINE**

Instant Replay will restart itself, and after a few moments the display will return to the normal "Play Ready" state.



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