RepeaTer

MANUAL ADDENDUM

Loop Based Digital Recorder

English

ELECTRIX™

MANUAL CHANGES

CHANGES TO MANUAL

CHANGES ON PAGE 7 (TEXT CHANGE)...

KEY FEATURES OF REPEATER

Compact Flash Cards (CFC) are Repeater's main storage mechanism. They supplement Repeater's internal 8MB of memory with up to 512MB of additional storage space. Loops on the CFC are in .WAV file format. With the addition of an inexpensive CFC USB card reader, you can export loops and tracks from Repeater to your PC without any special software.

CHANGES ON PAGE 9 (TEXT CHANGE)...

22 **Tempo Lock** - In beat detect mode, activation of the tempo lock feature locks the unit tempo to the currently detected beat, allowing only minor variations for tracking. In user mode, activation of tempo lock forces all newly loaded loops to run at the current user tempo.

CHANGES ON PAGE 12 (TEXT CHANGE)...

USING THE METRONOME

Repeater has a great training feature that will help you to develop a consistent meter with some practice. Repeater will produce a metronome sound at the current tempo when you press and hold the **Tempo Lock** button for 1 second. While the metronome is playing Repeater will quantize the initial record to the beat of the metronome. To disengage the metronome press and hold **Tempo Lock** for 1 second. You can set the **metronome level** by pressing and holding **Tempo Lock** while tempo Lock is engaged. Use the Tempo knob to adjust the level while holding down the **Tempo Lock** button. When the metronome is active in user sync mode, recordings will be quantized to the beat as they are in MIDI or Beat Detect sync modes.

CHANGES ON PAGE 15 (TEXT ADDED)...

Input Mute

In some situations it may be desirable that the dry signal is not passed through Repeater and mixed with the track outputs. To activate this feature, hold down **Stop** and press the **Overdub** button. The display will state 'Dry Muted' or 'Dry unmuted' depending on whether you are activating or deactivating the feature. This feature can also be accessed via MIDI.

CHANGES ON PAGE 17 (TEXT CHANGED)...

Sampling from Sample CDs

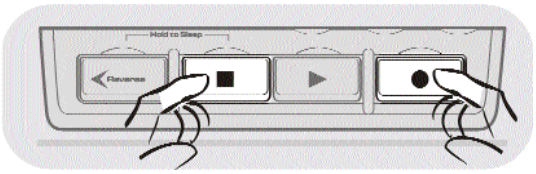
If you need help capturing a loop from a sample CD try using Repeaters "Single Bar Capture" mode. Put Repeater into **Beat Detect** sync mode, arm the Audio Trigger by pressing **Stop** and **Record** together. Now play the sample. Repeater will start recording automatically when the audio kicks in. Now press **Record** near the downbeat of the end of your track, as long as you're close Repeater will automatically tweak the loop end to the nearest transient. Don't worry about your loop speeding up when you're done. This is because you have now left "Single Bar Capture" and are in Beat Detect mode. Just put Repeater into user sync mode and hold down the **Tap Tempo** button to reset to the native tempo of the just-captured loop.

CHANGES ON PAGE 19 (TEXT CHANGED)...

Audio Triggered Recording

You still have to press record manually to finish the loop recording, but try this on for size:

Repeater can begin recording when it hears something, rather than in response to a button being pressed. Here is how to do it:



Setting up for Trigger Recording

- Press and hold **Stop** and then press **Record**. This puts the unit into audio triggered mode.
- Whilst record is held down the trigger level can be adjusted using the tempo encoder.
- The audio trigger is activated when **Record** is released. This is indicated by the record button LED flashing.
- The audio triggered record will start when audio is detected above the selected trigger level.
- Audio triggered record can be cancelled by pressing the **Stop** button

CHANGES ON PAGE 27 (TEXT CHANGED)...

IMPORTANT!

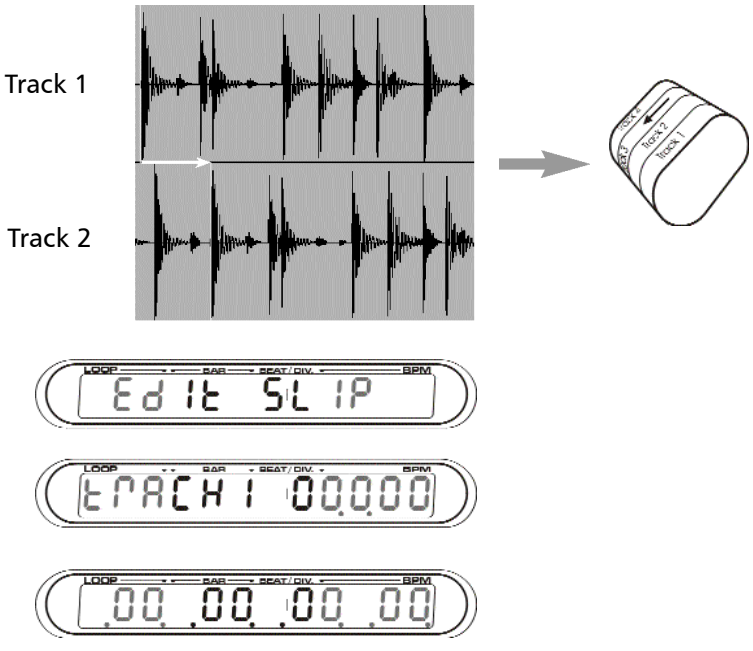
Repeater must record or Overdub though the entire length of the "Virtual Track" after which it flattens the track and it is no longer virtual. If you do not record through the entire length of the loop Repeater will automatically keep recording until the end of the loop. During this time the Record LED will flash to indicate that Repeater is still Recording. If you press Stop during the recording immediately after a Loop Multiply your overdub will be lost.

You can multiply the loop out by a factor greater than two by pressing and holding the **Loop Multiply** Button. Use the **Tempo** encoder to select the multiplication factor. Release **Loop Multiply** to execute. If you have multiplied the loop further than you wanted, you can multiply the loop by a fraction to get back to where you started, or to a smaller number of multiples of the original loop. Just rotate the tempo encoder to the left to access the available fractional multiples of the current loop. Note this is only possible for loops consisting completely of 'virtual' tracks.

CHANGES ON PAGE 28 (TEXT CHANGED)...

SLIPPING

Slipping lets you offset the start position of a loop or its individual tracks.

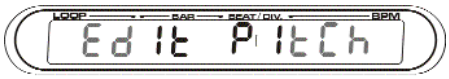


- Press **Slip**, and the display will change to show the slip offset of each active track in beats.
- You can select/deselect the appropriate tracks for Slipping by using the **Track Select** buttons. Editing one track at a time displays the slip amount with a finer resolution.
- Use the **Tempo** knob to set the slip position in bars/beats/1/100 of a beat, with zero being the original position. Use the **Loop** knob to slip whole beats
- Twist the knob quickly to edit in larger steps. Twist the knob slowly to adjust in finer amounts.
- Press **Slip** again to confirm and exit.
- Press and hold **Slip** to reset to 0 slip.

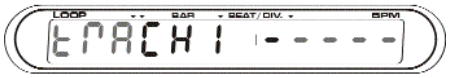
PITCH SHIFTING

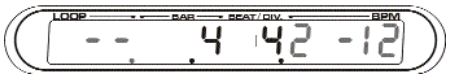
You can alter the pitch of your tracks by one octave up or two octaves down.

- Press the **Pitch** button and the display will change to show pitch information in semi-tones for the selected track(s).



- Deselect any tracks you don't want to Pitch Shift using the **Track Select** buttons. Editing one track at a time displays the pitch shift amount with a finer resolution.





- Use the **Tempo** knob to change the pitch in cents (100th of semitone) intervals. Use the **Loop** knob to shift in semitone increments
- You can press and hold **Pitch** to reset to 0.

Using a Keyboard to Trigger Pitch

Repeater's Track Pitch Shift can be easily controlled with MIDI note information. All the tracks currently selected for slip/pan or pitch will be affected.

To control the track Pitch Shift via MIDI:

- Connect the MIDI out of your keyboard to the MIDI In on Repeater
- Set the MIDI receive channel on the back of Repeater to match the MIDI transmit channel on your keyboard
- Play monophonically (one note at a time) to shift the pitch
- Middle C will return the track(s) back to their default key

CHANGES ON PAGE 31 (TEXT CHANGED/ADDED)...

External Flash Memory

CFC memory is non-volatile, and will hold its content forever without the need for power of any kind. CFC memory is designed to work like a hard drive, in fact most computers treat it simply as a hard drive which makes it a widely compatible storage medium. CFC's come in a variety of sizes; Repeater is compatible with Type 1 CFCs up to 512MB in size. Some CFCs perform better than others. We tested a number of brands of card before settling on the brand that we ship with Repeater. This card has been found to provide the performance required to allow all operations that can be performed through the use of internal memory. Not all cards are so lucky. All CFC cards should work with Repeater, but there may be speed issues which prevent multiple tracks or stereo recording from behaving well with some cards. For details of recommended cards to use with Repeater, get the latest information from our website.

Checking available memory space

To find out how much record time you have left, press and hold the 'copy' button for about half a second. The display will change to show firstly internal memory remaining, and if a CFC is inserted a further press of copy will show the amount of CFC memory remaining. A final press will return the display to normal. The space remaining is displayed in minutes and seconds.

CHANGES ON PAGE 34 (TEXT CHANGED)...

REPEATER & MIDI CLOCK

Repeater responds to the following MIDI clock related messages:

System Common Messages:

- **SPP** - Identifies the location of the next timing clock by 1/16 note (6 ticks).

System Real-time Messages:

- Start - Regarded as a SPP of 0 and a sequencer start message (0x FA)
- Stop - Stops the sequencer (0xFC)
- Clock - Sent out 24 times per quarter note (0xF8)

Advanced MIDI RT tweaking

In some situations it may be desirable for Repeater to NOT send out MIDI RT start, stop and SPP messages. The output of these messages can be inhibited/enabled by sending Repeater the Inhibit MIDI RT Control CC message.

When syncing via MIDI, it may be necessary to tell Repeater where the downbeat is. This is done by pressing the tap tempo button.

CHANGES ON PAGE 35 (TEXT ADDED)...

SELECTING LOOPS VIA MIDI

Repeater uses the MIDI Bank control change messages for remote selection of loops via MIDI. They work as a MSB/LSB pair. MSB stands for Most Significant Bit and LSB: Least Significant bit - think of it as chapter and verse. MIDI CCs are limited to 127 values. Using MSB/LSB allows us to utilize banks of 127 to access all of Repeaters 1000+ loops. Use the Bank Select MSB CC#0 to Select the Bank as follows:

- Bank 0 = Internal 1-16
- Bank 1= External 1-128
- Bank 2= External 129-256
- Bank 3= External 257-384
- Bank 4= External 385-512
- Bank 5= External 513-640
- Bank 6= External 641-768
- Bank 7= External 769-896
- Bank 8= External 897-999

Use the Loop Select LSB to select the loop within the bank. i.e. to select External 387, send CC#0 (Loop select MSB) at 4, and CC #32 (Loop select LSB) at 3.

There are some other ways of moving between loops too. Try these for size:

- Loop select up/down via PC or CC messages.
- Direct loop select PC messages.

CHANGES ON PAGE 35 (TEXT CHANGED)...

By lining up a MIDI foot controller with some of the above mentioned parameters it is possible to control a Repeater entirely with one's feet. May we make a few suggestions:

Name	Default	PC	CC	Value ranges and meaning	
Track 1 Record Select	0	6	80	0 - 127	64-127 (active)
Track 2 Record Select	0	7	81	0 - 127	64-127 (active)
Track 3 Record Select	0	8	82	0 - 127	64-127 (active)
Track 4 Record Select	0	9	83	0 - 127	64-127 (active)
Track 1 Level/Mute	100	16	16	0 - 127	see Appendix G
Track 2 Level/Mute	100	17	17	0 - 127	see Appendix G
Track 3 Level/Mute	100	18	18	0 - 127	see Appendix G
Track 4 Level/Mute	100	19	19	0 - 127	see Appendix G
Overdub Feedback Level	90	N/A	11	0 - 127	(no feedback - 100% feedback)
Reverse	forward	10	84	0 - 127	0-63 (forward), 64-127 (reverse)
Play	0	20	85	0 - 127	64-127 (Press)
Record	0	3	86	0 - 127	64-127 (Press)
Stop	0	21	87	0 - 127	64-127 (Press)
Undo	0	1	89	0-63 (off) 64-127 (Undo) Momentary	
Loop Multiply	0	0	102	0 - 127	64-127 (Press)
FX Insert	0	11	103	0 - 16	As per Appendix E
Tap Tempo	0	12	68	0 - 127	64-127 (Press)
Loop Select Up	0	4	96	0 - 127	64-127 (Action)
Loop Select Down	0	5	97	0 - 127	64-127 (Action)

CHANGES ON PAGE 37 (TEXT CHANGED)...

MIDI SPECIFICATIONS TABLE

Name	Default	PC	CC	Value	Ranges and meaning
Track 1 Record Select	0	6	80	0 - 127	64-127 (active)
Track 2 Record Select	0	7	81	0 - 127	64-127 (active)
Track 1&2 Record Select	0	14	90	0 - 127	64-127 (active) Selects stereo pair 1&2
Track 3 Record Select	0	8	82	0 - 127	64-127 (active)
Track 4 Record Select	0	9	83	0 - 127	64-127 (active)
Track 3&4 Record Select	0	15	91	0 - 127	64-127 (active) Selects stereo pair 3&4
Track 1 Level/Mute	100	16	16	0 - 127	see Appendix G
Track 2 Level/Mute	100	17	17	0 - 127	see Appendix G
Track 3 Level/Mute	100	18	18	0 - 127	see Appendix G
Track 4 Level/Mute	100	19	19	0 - 127	see Appendix G
Loop Select MSB	0	N/A	0		Selects Loop in combination with Loop Select LSB messages see Appendix A
Loop Select LSB	0	N/A	32		
Slip Track 1 Beats	0	N/A	20		Slips by beat as per Appendix B
Slip Track 1 MS	0	N/A	52		Slips between beats as per Appendix C
Slip Track 2 Beats	0	N/A	21		Slips by beat as per Appendix B
Slip Track 2 MS	0	N/A	53		Slips between beats as per Appendix C
Slip Track 3 Beats	0	N/A	22		Slips by beat as per Appendix B
Slip Track 3 MS	0	N/A	54		Slips between beats as per Appendix C
Slip Track 4 Beats	0	N/A	23		Slips by beat as per Appendix B
Slip Track 4 MS	0	N/A	55		Slips between beats as per Appendix C
Pan Track 1	64	N/A	24	0 - 127	0(full left), 64 (centre), 127(full right)
Pan Track 2	64	N/A	25	0 - 127	0(full left), 64 (centre), 127(full right)
Pan Track 3	64	N/A	26	0 - 127	0(full left), 64 (centre), 127(full right)
Pan Track 4	64	N/A	27	0 - 127	0(full left), 64 (centre), 127(full right)
Pitch Track 1 Semi	64	N/A	28	±12	Semitones as per Appendix D
Pitch Track 1 Cents	0	N/A	60	0 - 99	0-99 (cents) [99 - 127 = 99]
Pitch Track 2 Semi	64	N/A	29	±12	Semitones as per Appendix D
Pitch Track 2 Cents	0	N/A	61	0 - 99	0-99 (cents) [99 - 127 = 99]
Pitch Track 3 Semi	64	N/A	30	±12	Semitones as per Appendix D
Pitch Track 3 Cents	0	N/A	62	0 - 99	0-99 (cents) [99 - 127 = 99]
Pitch Track 4 Semi	64	N/A	31	±12	Semitones as per Appendix D
Pitch Track 4 Cents	0	N/A	63	0 - 99	0-99 (cents) [99 - 127 = 99]
BPM & Pitch MSB	64	N/A	14	0 - 127	(-75%+150%) Adjusts the Tempo and Pitch of all four tracks as a percentage of the current tempo 76 is zero shift
BPM & Pitch LSB	0	N/A	46		
Tempo MSB	64	N/A	9	0 - 127	1-240 bpm in 2 bpm increments
Tempo LSB	0	N/A	41		fine increments 0-2 bpm
Overdub Feedback Level	90	N/A	11	0 - 127	(no feedback - 100% feedback)
Overdub/Replace	90	13	105		On/Off Off=replace On=overdub
Reverse	forward	10	84	0 - 127	0-63 (forward), 64-127 (reverse)
Play	0	20	85	0 - 127	64-127 (Press)
Record	0	3	86	0 - 127	64-127 (Press)
Stop	0	21	87	0 - 127	64-127 (Press)
Play/Stop	N/A	2	88	0 - 127	64-127 (Press)
Undo	0	1	89	0 - 127	64-127 (Press)
Loop Multiply	0	0	102	0 - 127	64-127 (Press)
FX Insert	0	11	103	0 - 16	As per Appendix E
Tempo Lock	Off	N/A	104	0 - 127	0-63 (off) 64-127 (on)

Tap Tempo	0	12	68	0 - 127	64-127 (Press)
Loop Select Up	0	4	96	0 - 127	64-127 (Action)
Loop Select Down	0	5	97	0 - 127	64-127 (Action)
Dry Mute*	Off	22	107		0-63 (Off) 64-127 (On)
Erase Loop*	N/A	N/A	108		Value of 123 erases the current loop
Audio Trigger Record*	N/A	23	92		64-86 arm trigger at current programmed level. Values 87-127 arm the audio trigger at -40dB to 0 dB respectively
Advance Track Select*	N/A	24	109		64-127 (Action)
Tracks 1&2 Level /Mute*	N/A	25	110	0 - 127	See Appendix G
Tracks 3&4 Level /Mute*	N/A	26	111	0 - 127	See Appendix G
Inhibit MIDI RT Start/Stop Output*	Off	N/A	112		0-63 (off) 64-127 (on)
Internal Loop Select PC*	N/A	48 - 63	N/A		Selects Internal loop 1-16
CFC Loop Select PC*	N/A	64 - 127	N/A		Selects CFC loop 1-64

* Denotes new options in OS 1.1

CHANGES ON PAGE 41 (TEXT CHANGED)...

CFC States

- **Card Ready:** Card inserted in socket and socket LEDs off
- **Reading from card:** Green.
- **Writing to card:** Red.
- **Reading/Writing:** Amber.
- **Card rejected:** Flashing Red

Note: Removing the card whilst reading or writing is in progress can potentially corrupt the file system on the card. To be safe, ensure the CFC slot LEDs are off before removing the card.

CHANGES ON PAGE 43 (TEXT ADDED)...

✎ **Noisy results with Guitar amp inputs or FX loops** - Guitar inputs are typically sensitive to low level signals (typically -20dBu). FX loops are typically designed to operate at or near 'line' level (-4dBu). Repeater is designed to produce a clean high level signal (typically around +8dBu) suitable for a studio environment. As a result, the output from Repeater can mis-match with some guitar amps producing a noisy result.

The first step in improving the situation is to try and optimise the levels in the system to minimise noise. Try adjusting the input level of the guitar amp down so that it will accept a signal from Repeater that corresponds to 0dB or better on the track level indicators without clipping. Reducing the output of Repeater using the track sliders or input level control is undesirable as this will reduce the ratio of signal to noise in the system.

If you cannot achieve a good result by this means, the diagram to the right shows how to build an in-line attenuator cable that will help match the output of Repeater to a high-gain input such as a guitar amplifier.