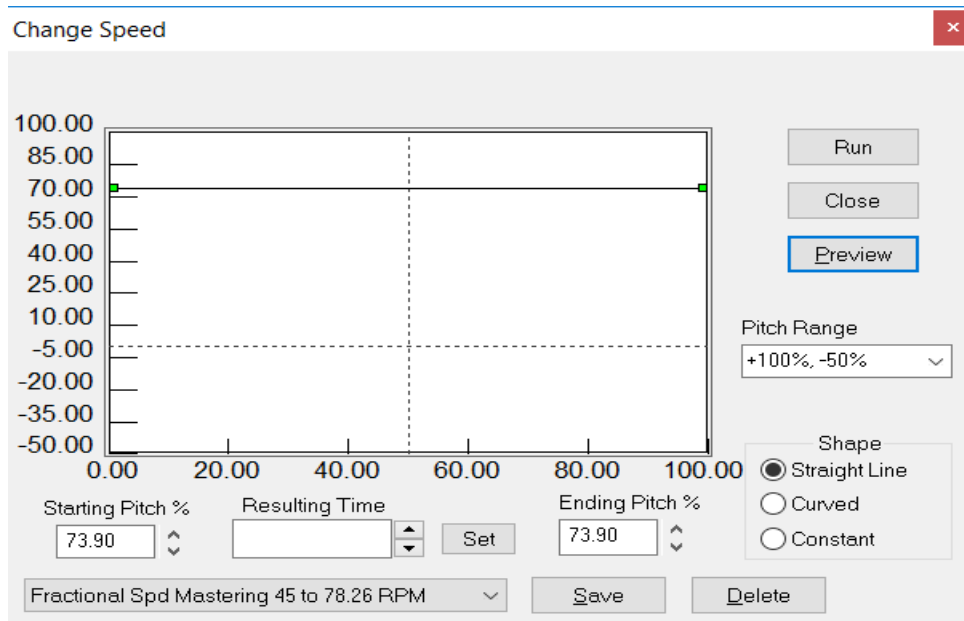


## Preserving the Proper Phonographic EQ curve with Fractional or High Speed Re-mastering

There are circumstances in which half (or fractional) speed re-mastering of a record recording is necessary. Also, some situations require high speed dubbing. In either case, this can be accomplished with the Diamond Cut Productions (DCArt) software "Change Speed" feature found under the "Effects Menu". Examples of situations that require fractional speed re-mastering include warped records which cause skips when played at full speed. For example, a badly warped 78 or LP may play fine (without skipping) at a slower speed. Also, you may have a turntable that only supports 33.3 and 45 rpm, but you want to transfer a 78 or 80 rpm record using it. Conversely, you may have a 16.6 rpm record but do not have a turntable that supports that speed. So, you can transfer it at 33.3 rpm and correct the speed using the "Change Speed" feature. There are numerous presets available under the Diamond Cut Productions "Change Speed" feature to facilitate many situations such as those mentioned here and others. In any case, if these records are transferred using a standard RIAA magnetic phono preamplifier, the EQ curve will become shifted (sometimes called EQ Shift) either upwards or downwards creating an unnatural sound after the speed correction process has been performed.\*

But there is a way around this problem and it involves the use of a Flat Magnetic Phono preamplifier such as the Diamond Cut Productions DCP-47K-F. By transferring the record "flat" you will not be instilling the RIAA curve onto the transfer so the EQ curve of the recording will not be modified. Then, you can correct the speed via the "Change Speed" feature of the software.



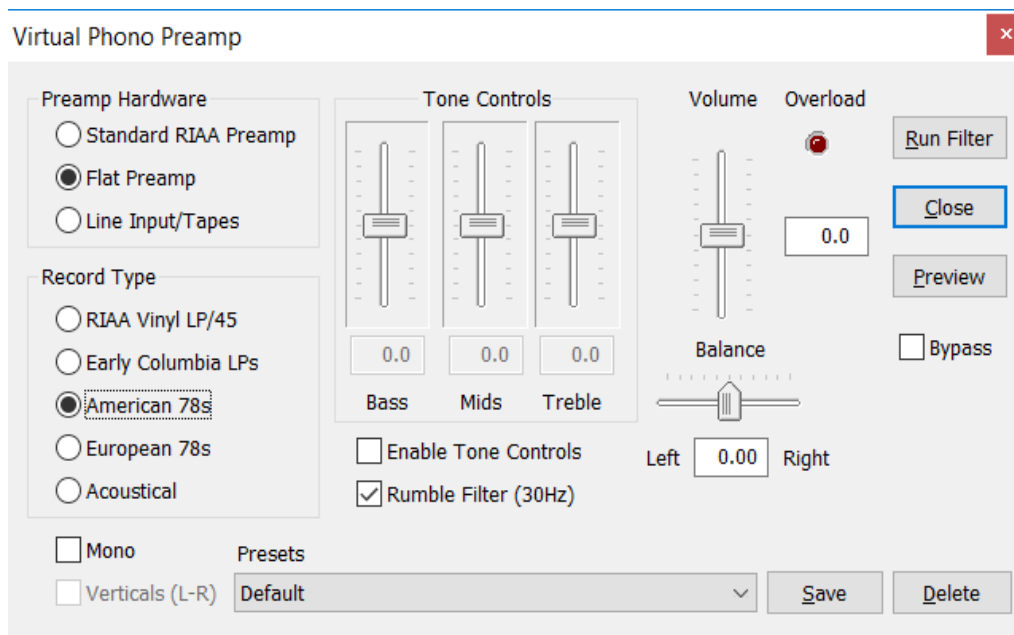
## Change Speed Feature set to correct the speed of a 78 rpm record transferred at 45 rpm

After this speed conversion has been completed, you can go to the Diamond Cut Productions Software Virtual Phono Preamp (VPP) found under the filter menu. Set the VPP “Preamp Hardware” to “Flat Preamp”. Then, set the “Record Type” to the appropriate selection for the speed corrected version of the transfer. If you do not find the “Record Type” at the first level of the routine, check out the presets which contain a wide array of alternate EQ curves.

By using the process outline here, you can preserve the original record EQ (tonal balance). Then, you are ready to perform the normal audio restoration processes including Impulse Noise Reduction (EZ Impulse Filter), random wide-band noise reduction (Continuous Noise Filter) and other process that you deem necessary to bring the recording(s) up to your standards.

**\*Note 1:** When performing high-speed dubbing, it is important to use a higher sample rate to preserve the higher frequencies after down-converting the speed to normal speed. For example, if you are transferring a 16.6 rpm record via a 33.3 rpm turntable, it would be wise to set the sample rate to 96 kHz since all recorded signals will be doubled what they actually will become after completing this process. The higher sampling rate will mitigate that problem to a reasonable degree (minimizing high-frequency loss). You can lower the sample rate after you complete the EZ Impulse Filter portion of your audio restoration.

**Note 2:** For preamp and system setup procedures, please refer to AN13



**VPP shown set up for imparting the proper EQ to a Fractional Speed Transfer of an American Electrical 78 RPM Record**

## DCP-47K-F Flat Preamplifier Specifications

(Typical)

(Subject to change without notice)

Phono Cartridge Type Compatibility: Moving Magnet type (MM)

Voltage Gain: 29 dB

Input Connectors: 2 x RCA type (Gold Plated)

Output Connectors: 2 x RCA type (Gold Plated) & 1/8<sup>th</sup> inch Stereo TRS type

Input Termination Resistance: 47,000 Ohms

Input Termination Capacitance: 5 pF (not including turntable cable capacitance)

Output Impedance: 1000 Ohms @ 1 kHz

Frequency Response: 20 Hz to 20 kHz +/- 0.5 dB

Slew Rate: 4 V/uSec (measured directly at outputs with no output cable connected)

Total Harmonic Distortion: 0.03% @ 1 KHz

Maximum Output Level: 8 Volts Pk-Pk @ 1 kHz into 50 kOhm Load Resistance

Signal to Noise Ratio (S/N unweighted): 80 dB

Turntable Grounding Connector: 3-Way Binding Post (Gold Plated)

Indicators: 1 Power-On LED (Green)

Operating Temperature Range: +5 to +40 degrees C (non-condensing dew point)

Power Input: 12 – 18 VDC

Dimensions: 3.5" x 2" x 1.5"

Weight: 1 Lb.

Power Supply: Wall Wart type, 120 VAC, 60 Hz input (~1 Watt power draw), 15 VDC Output



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