# Pitch Correction for Telecine Transfers

1. **Purpose.** For telecine transfer of super-8 sound film with low cost equipment, it is necessary to run the film at a speed that is suited to the video standard in use, to prevent flicker, instead of using the original filming rate. This causes the pacing and pitch of the audio to be incorrect, for an unnatural or even comic effect where men sound like women or vice versa. Pitch correction will restore the audio to a believable range of frequencies. The pacing will still be off, but this can vary a lot in real life and so it is less noticeable to the viewer.

2. **Connection.** A typical unit is the Behringer Minifex FEX800 Multi-FX Audio Processor which has Pitch Shift as one of its many options. The audio from the telecine is output from its RCA phono jack, and fed to the Left (Mono) Input jack of the processor. For this, use a shielded cable with an RCA phono plug at one end and a 1/4 inch (6.35mm) phone plug at the other end. Use another similar cable to connect from either processor Output jack to the RCA audio input of the video recorder that will copy the film and its audio. If the recorder is stereo capable, use the Y-cord to feed the corrected audio into both audio channels: The RCA output of the processor cable will plug into the RCA female jack on the Y-cord, and the two RCA male plugs will then connect to the two recorder audio inputs. Plug the power supply transformer cable into the inverted power jack on the rear of the processor, and plug the transformer into your AC line (mains) receptacle.

| View of the rear connections of the FEX800 ➡ |
| View of the front controls of the FEX800 ⬇ |
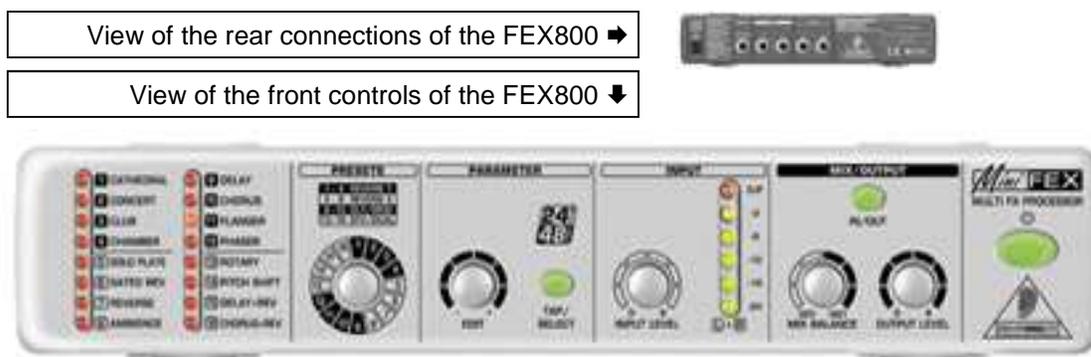
3. **Definite Settings.** In all cases, the controls from left to right must be as follows:
    A. The Presets switch will be in position **14.** The corresponding **Pitch Shift** red light #14 will be lit.
    B. The Tap/Select button will be left in the **Out** position and will not be lit.
    C. The Mix Balance knob will be turned fully clockwise to the **Wet** position.
    D. The Mix/Output In/Out switch will be pushed **In** and will light up.
    E. The Power On-Off switch will be pushed **In** and will light up.

4. **Variable Settings.** These settings will depend on the conditions of use.
    F. The Parameter Edit knob will be set about as follows:
        For 18 FPS sound film being NTSC transferred at 19.98 FPS, set **1/4 of a mark left** of center.
        For 18 FPS sound film being PAL transferred at 16-2/3 FPS, set **1/4 of a mark right** of center.
        These settings can be modified if need be, for example if the film camera was off-speed.
    G. With audio, set the Input Level to approximately **1 mark right** of center, so that the loudest sounds flash the yellow –3 light occasionally, but never the red Clip light.
    H. With audio, set the Output Level to **1 and 1/4 mark right** of center, so that a normal volume level is recorded on the video. Once set, this will not need to be changed unless switching to a different model of recorder.
    The In/Out button can be used to compare the corrected audio to the uncorrected original. Be sure to set it back to **In** (lit) or else the signal is not being corrected.

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