Eventide
the next step

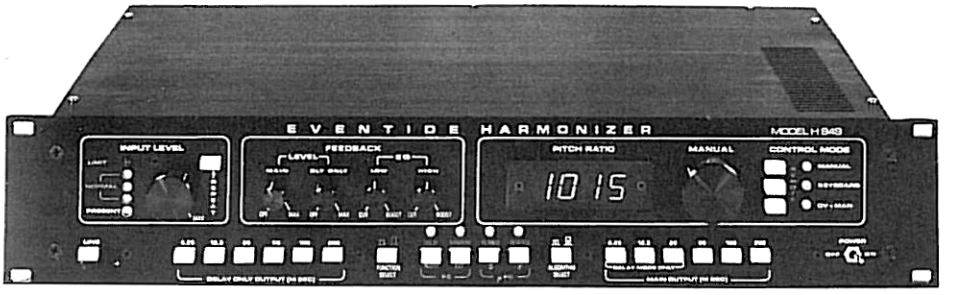
MODEL H949 HARMONIZER®

Audio engineers have made Eventide Harmonizers® the best selling professional pitch changers world-wide. The H949 is the most advanced Harmonizer yet. Its standard features and available options make the H949 unbeatable for versatility and value.

FEATURES:

- ★ PITCH CHANGE
- ★ TIME COMPRESSION/EXPANSION
- ★ DELAY
- ★ REVERB EFFECTS
- ★ FLANGING
- ★ TIME REVERSAL
- ★ REPEAT

EVENTIDE CLOCKWORKS, INC. • 265 WEST 54TH STREET • NEW YORK, N.Y. 10019 • 212-581-9290



FEATURES OF THE H949

PITCH CHANGE—One octave up, two down. A front panel control sets the pitch ratio, which is displayed on a four digit LED readout. Unlike many other special effects devices which attempt pseudo-pitch change effects, the H949 delivers TRUE pitch change. Eventide Harmonizers preserve accurate harmonic relationships. The pitch changed output can be mixed with the input signal to create chorus and harmony effects.

DEGLITCH CIRCUITRY—The H949 now incorporates advanced circuitry to eliminate the problem of "glitches" Glitches will occur in conventional pitch change devices as a function of the differential between input and output data rates. Eventide research has developed circuitry which analyzes the input signal to determine the optimum "splice points" where material can be electronically added or deleted without creating audible glitch problems. First offered as an option on the H949, user response has led Eventide to making deglitch circuitry a standard feature of new H949 Harmonizers. *(Deglitch circuit card is also available as a retrofit option to older units*). To further reduce glitches, and optimize pitch change performance, the H949 provides two different algorithms, which are user selected, depending on the program material.

TIME COMPRESSION/EXPANSION—The H949's pitch change capabilities can be used to normalize the pitch of recordings being played at faster or slower than normal speed. This provides the capacity to alter the running time of recordings without editing, while maintaining normal pitch. The H949 provides three different frequency-control outputs to vary directly the speed of most pro-audio recorders as the Harmonizer's pitch change control is varied. The H949 is also utilized in Eventide's Computerized Timesqueeze™ and Timesqueeze Jr.™ systems (described on the facing page) which provide time compression and expansion for videotape and film chains as well as audiotape players.

DELAY AND REVERB—The versatile H949 will create a wide variety of delay and echo effects. Two outputs are available, each with variable delay (to 400ms.) and variable feedback level. This allows multiple length repeats. And since there are equalization controls for the feedback, "bright" and "dead" acoustic spaces can be simulated.

SUPERB AUDIO QUALITY—15kHz response in all modes and 96dB dynamic range make the H949 Harmonizer suitable for use with all types of program material.

FLANGING—Eventide invented electronic flanging, and the H949 offers the best flanging ever. No external connections or adjustments are required, and because the effect is created digitally, true "delay crossover" is achievable. Pre-flanging delay can be set up to 350 ms.

REPEAT—This feature captures and repeats a 400 millisecond slice of program input indefinitely. Unlike analog circuitry, the signal never decays or grows noisy.

TIME REVERSAL—Another Eventide exclusive! In the time reversal mode, a signal can be read-in normally and read-out backwards, giving many unique effects, especially in live performances. Talk backwards to the audience!

MICRO-PITCH CHANGE—For many applications, such as automatic double tracking, the most useful pitch range is very close to 1.000. Exclusive circuitry allows extremely accurate and stable settings within one semitone of 1:1.000. Very slight detunings may be achieved with ease.

RANDOMIZED DELAY—In addition to the detuning ability, the Harmonizer has a "randomizing" mode in which the delay varies in a pseudo-random manner. This is an extremely effective method of achieving "doubling" or "ADT" effects. The randomization simulates the desirable imperfections in a performance by singers or musicians who can never be *precisely* synchronized.

CONTROL MODES—You are not limited to using the front panel pitch control. A variety of control modes allow external control of the Harmonizer pitch. For instance, a synthesizer can control the unit using either a frequency or control voltage output. There is even a mode allowing mixing of an external signal with the front panel control. Further remote control is achievable with the remote control card (*see options*)

DIGITAL READOUT—The large, 4-digit pitch radio readout provides absolute digital accuracy. You've got what the readout shows. No artificial limitations on range or settings.

LINE-IN/OUT SWITCH. Completely bypasses unit, even with power turned off. Useful for rapid switching and troubleshooting.

ADD-ON OPTIONS FOR THE 949

HK940 Eventide Keyboard

Eventide manufactures two *different* keyboards for the H949: A mono unit which controls one HARMONIZER, and a polyphonic keyboard that can handle up to three HARMONIZERS. The keyboard controls the pitch ratio of the H949 in discrete musical steps. Middle C on the keyboard represents a pitch ratio of 1:1.

For example, playing the E above middle C will give a harmony of a major third, and playing E flat will give a minor third. The action of the keyboard can range from instantaneous to a gentle glide. The keyboard is essentially an electronic clock, with additional sequencing and timing circuitry. It is slaved to the HARMONIZER clock for perfect unison at Middle C. The keyboard keys select appropriate timing pulses, which command the desired pitch change in the HARMONIZER. The keyboard has a lock switch for each HARMONIZER, and is easily connected to the HARMONIZER with an interconnection socket.

When ordering, specify either mono or polyphonic keyboard.

Remote Control Board

Allows the functions of the H949 to be controlled by a small computer or an automated console. The remote control uses the IEEE-488 standard interface bus which will permit multiple units to be controlled individually on a single bus. In addition, it has the capability of allowing an external control unit to interrogate the control settings of the unit and duplicate those settings at a future time.

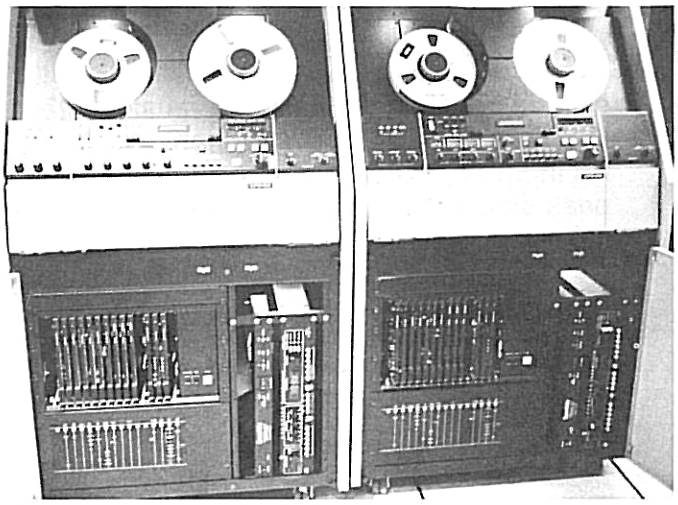
The remote control board can be factory installed in most units already in the field, or ordered as option 09 on new units.

EVENTIDE TIMESQUEEZE™ SYSTEMS

Computerized Timesqueeze aids in teleproduction at Reeves

COMPUTERIZED TIMESQUEEZE SYSTEM—It's the ultimate in automated time compression/expansion for videotape, film and audiotape. The system consists of the H949 Harmonizer, Eventide's PTC 945 Precision Tape Controller and a Hewlett Packard HP85 desktop computer with proprietary Eventide software. The system offers totally automated control of all calculations and operations. Just enter the existing and desired play times; the computer makes all timing, speed and pitch ratio computations. The C.R.T. readout on the HP85 keeps you fully informed. The Computerized Timesqueeze interfaces with virtually every VTR (capable of variable speed playback), film chain and audiotape recorder. The system's memory stores the operating characteristics of dozens of different machines, making initial set-up easy and allowing a single Computerized Timesqueeze to be shifted among different program sources in minutes.

TIMESQUEEZE JR. SYSTEM—Here's the most economical time compression/expansion system for television broadcasters, commercial and program producers . . . with no compromise in performance. The Timesqueeze Jr. couples the H949 Harmonizer with our PTC960 Precision Tape Controller. Operation is simple – enter the percentage of time change desired on the front panel thumbwheel switches of the PTC960. The PTC960 controls the speed of the playback machine and sets the proper pitch ratio on the H949. As with the Computerized Timesqueeze system, the full range of H949 audio production effects is available to the user, in addition to time compression and expansion. Because Eventide's H949 Harmonizer is the heart of Timesqueeze Jr., you get the best specs in time compression at a price that's thousands less than any other T.V. time compression system. Timesqueeze Jr. interfaces with most every VTR (capable of variable speed playback), film chain and audiotape recorder. (Specify units to be controlled when ordering.)



Timesqueeze Jr. installed inside Ampex VPR-2B's at WNEW-TV

MODEL H949 HARMONIZER
specifications:

INPUT CHARACTERISTICS	Impedance nominal 10 k, balanced, maximum level +24 dBm. Full dynamic range from −10 dBm to +24 dBm levels.
OUTPUT CHARACTERISTICS	Impedance nominal 150 ohms. Suitable for driving 600 ohms or greater at +18 dBm. Electronically balanced.
DISTORTION	Less than .15% at 1 kHz, reference output level.
DYNAMIC RANGE	Greater than 96 dB from clipping to noise floor.
PITCH VARIATION	1 octave up, 2 octaves down, continuously variable. Four-digit readout indicates precise ratio.
DELAY	Main output—in Pitch Change mode: 0 to 300 ms in 50 ms steps. In Delay mode: 0 to 393.75 ms in 6.25 ms steps. Delay Only output: 0 to 393.75 ms in 6.25 ms steps.
FREQUENCY RESPONSE	At any delay, unity pitch ratio: 20 Hz to 15 kHz, ± 1 dB. No degradation with increasing delay.
SIZE	Requires 8.89 cm (3½″) x 48.26 cm (19″) panel space. Extends 29.85 cm (11-¾″) behind panel.
POWER REQUIREMENTS	Switchable between 115 VAC (105–120 VAC), 50–60 Hz, and 230 VAC (220-240 VAC), 50–60 Hz. Nominal power dissipation 45 watts.
REMOTE CONTROL	Provision has been made for control by microcomputer using the IEEE standard interface bus (IEEE 488/1975). The HK940 keyboard can be used to control the pitch ratio in discrete musical steps. Option 05 mono keyboard controls one Harmonizer; option 06 polyphonic keyboard controls up to three Harmonizers.

An input is provided to phase-lock the Harmonizer to any synthesizer. A 3 volt peak-to-peak signal is required. The pitch may be varied by a control voltage input in the 5 to 15 volt range (internally selected).