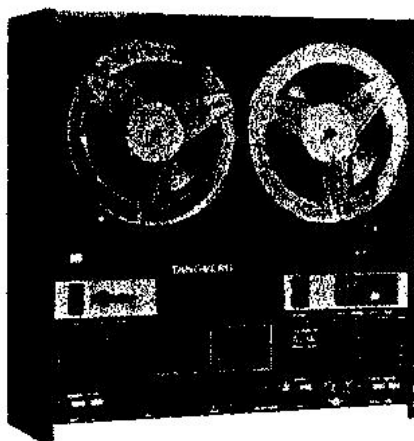


Tandberg 9000X Stereo Tape Deck



● The Tandberg name has long been associated with single-motor tape decks, but the company's new Model 9000X departs from tradition by offering a three-motor transport that has a unique and highly sophisticated integrated-circuit (IC) logic control system. The 9000X is a three-speed (7 1/2, 3 3/4, and 1 1/2 ips) machine with separate record and playback heads (and preamps) that permit off-the-tape monitoring. Like the other Tandberg recorders, this one uses a separate cross-field head to apply the recording bias to the tape. With this technique, relatively little high-frequency boost in the recording equalization is necessary (only 6 dB at 20,000 Hz and 7 1/2 ips). This means that there is a substantial improvement in recording "headroom" before signal saturation (overload) occurs. The capstan is driven by a hysteresis-synchronous motor, and separate motors are used for the tape hubs, which accept reels of up to 7 inches in diameter. A photoelectric system stops and disengages the transport at the end of a tape or at any point where a piece of clear leader tape has been spliced into the reel.

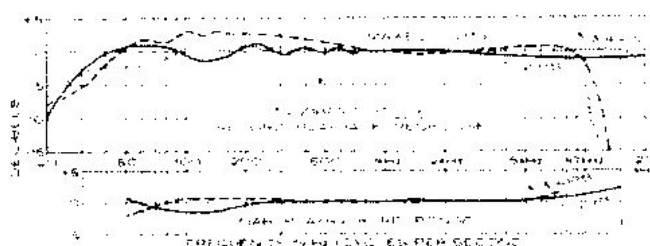
In the rear of the 9000X are the line inputs and outputs (and a DIN connector). Twin front-panel slider controls set recording levels, and another pair adjusts the playback-output levels. Signals applied to the two front-panel microphone jacks mix with the line inputs and share their level controls; there is no provision for separate adjustment of microphone levels. Microphones with rated impedances of 200 to 700 ohms can be used, and the input circuit automatically adjusts the preamplifier characteristics to suit the microphone impedance, maintaining an optimum signal-to-noise ratio.

During recording, the two level meters read the input recording levels, whether or not off-the-tape monitoring is used. When the PLAY button is pressed the meters are electrically switched to read the actual output levels under the control of the playback-level sliders. Meter circuits are designed to have the same response characteristics as the *equalized* signals fed to the tape head. This minimizes the possibility of tape saturation with high-frequency signals of the sort that conventional meters don't

respond to. In addition, the meters are fast-acting, reading the signal peaks within 40 to 50 milliseconds.

Below the meters are two red RECORD interlock buttons. Two other buttons (labeled SOURCE TAP) connect the line outputs to the program source or to the playback amplifiers. A small switch connects the playback from either channel to the other channel's recording input for making sound-on-sound or echo recordings. A headphone jack drives stereo phones with impedances ranging from 8 to 2,000 ohms.

The upper portion of the panel, finished in black like the lower control section, contains the reel hubs, a green pilot lamp for the power switch, and a four-digit index counter. At mid-height on the panel are the five feather-touch pushbutton transport controls, the power switch, and a tape-speed selector lever.



The logic-controlled tape transport system is one of the most fascinating features of the 9000X. Fifteen integrated circuits (equivalent to about seven hundred transistors!) are devoted to this function. The user can switch directly from any mode to any other, except that RECORD can only be engaged when the tape is stopped. For example, during fast forward and rewind, pressing the PLAY button stops the tape almost instantly, and in less than two seconds the transport resumes operation at the selected playing speed.

The RECORD function will not operate unless one or both of the interlock buttons is engaged. Since its action is virtually instantaneous, there is no need for the separate pause control found on most recorders. Once the input levels have been set, the 9000X is ready to record at the touch of a single button. If the PLAY button is touched while recording, the transport switches instantaneously from record to play (if the RECORD button is pressed while the tape is playing, nothing happens). Each button is illuminated in green (except for the red RECORD button) when activated; it is dark at all other times. The foolproof design of the 9000X transport, especially of its braking system, is illustrated by the fact that shutting off the power while the tape is in fast forward or rewind brings the machine to a smooth stop, with no tendency to spill or break tape.

The Tandberg 9000X is mounted on an attractive wooden base, and can be installed vertically or horizontally. Spring-loaded reel-lock hubs eliminate the need for

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