

Equipment Profiles (continued)

Tandberg Model 1241X Stereo Tape Recorder

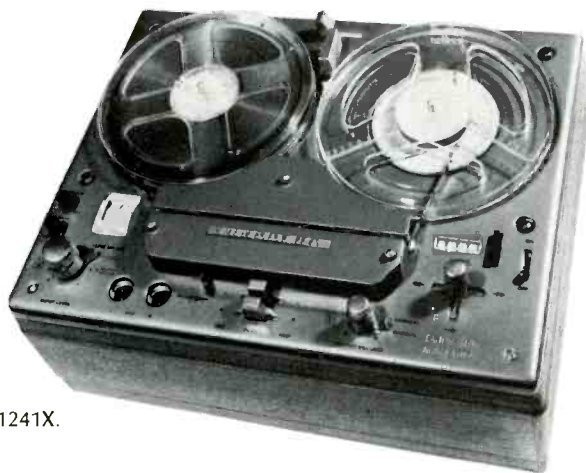


Fig. 1. Tandberg Series 1241X.

MANUFACTURER'S SPECIFICATIONS:

Tape Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, & $1\frac{7}{8}$. Motors: One. Reel size: 7 in. max. Tape Heads: Three—erase, record/playback, cross-field. Frequency Response: 20-25,000 Hz ± 2 dB at $7\frac{1}{2}$; 20-18,000 at $3\frac{3}{4}$; 30-12,000 at $1\frac{7}{8}$. Wow & flutter: $< 0.1\%$ at $7\frac{1}{2}$; $< 0.15\%$ at $3\frac{3}{4}$; $< 0.35\%$ at $1\frac{7}{8}$. Erase & bias signal: 85.5 kHz. S/N: 56 dB. Outputs: pre-amp output, 5000 ohms, 0.75 V; external 4-ohm speaker, 10 W max. Center channel, 75 ohms, 3 V. Speakers: two 4 x 7 in. speakers. Tone Controls: Bass, continuously variable over a range of 12 dB at 80 Hz; Treble, continuously variable over a range of 12 dB at 8000 Hz. Dimensions: $15\frac{3}{8}$ " W, $11\frac{3}{16}$ " D, $6\frac{7}{8}$ " H. Weight: $23\frac{1}{2}$ lbs. Price: \$485.00.

There is an enormous amount of tape recorder packed in this compact housing — three speeds; cross-field head; input for line, microphone, and magnetic phono pickup; two 10-watt amplifiers and two 4 x 7 in. speakers, and a center-channel output. Among its many desirable features are tone controls, a start-stop lever which remains in either position, even a terminal at which 28 V d.c. is available for use with an external solid-state amplifier, Tandberg FM-multiplex filter, or what not.

Over the years we have seen the Tandberg recorder line grow from one simple model to a much wider variety, and each new model appears to retain all the advantages of the previous ones and to add some new feature or to in-

corporate a few improvements. In the earlier machines, there was some difficulty in threading because as you turned one reel to secure the tape, the other also turned and tried to pull the tape away from you. In the 1241X—the model we tested—the tape motion lever, which used to move in a T-shaped slot, now moves in a cross-shaped slot, with the upper section releasing the interconnection between the two reel spindles. Now the machine may be loaded as easily as any other. The 1241X model examined was a 4-track stereo machine, though the model is also available with a 2-track format.

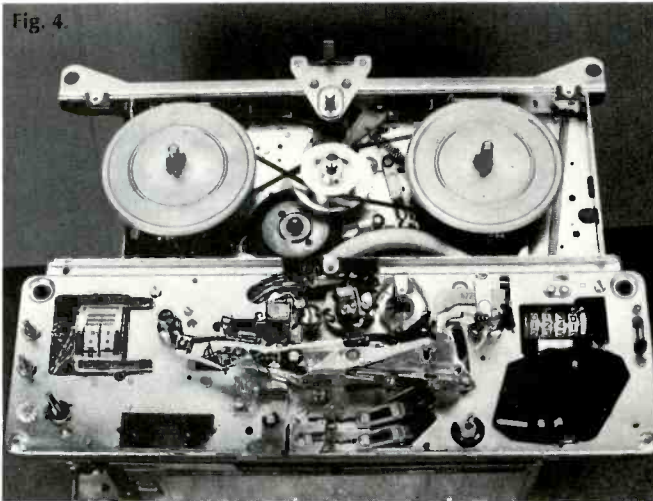
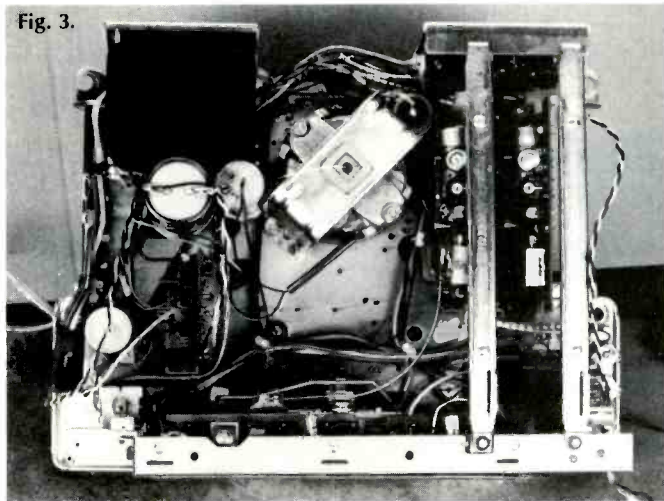
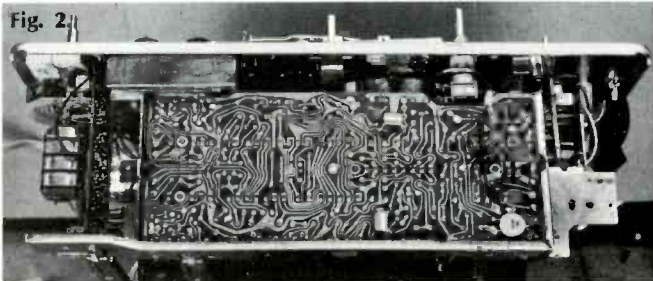
Many of us have long preferred the meter type of record level indicator, but the earlier Tandbergs continued to employ magic-eye tubes. The 1241X has a dual meter, which should please users who are accustomed to mixing by meter, as well as those who feel that meters create a "professional" look. The eye indicator shows the instantaneous peaks better than any meter can, of course.

The flexibility of the machine is made possible by the many controls which are located on the panel, as seen in Fig. 1. At the top is a three-position speaker switch—INT, INT+EXT, and EXT—signifying internal speakers only, both internal and external speakers, and external speakers only (or, if no speakers are connected to the output jacks, no sound at all so that monitoring must be done by headphones. Be-

Fig. 2. View of the main printed-circuit board, which is located along the front of the recorder chassis.

Fig. 3. The underside view of the chassis shows a neat and compact construction.

Fig. 4. Top view of the chassis showing the positions of the erase, record/play, and cross-field heads. Note the four-digit counter at the right.



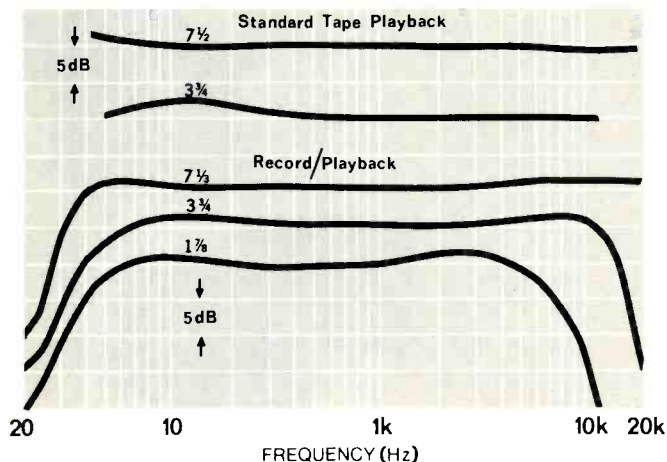


Fig. 5. Response curves under various conditions of operation.

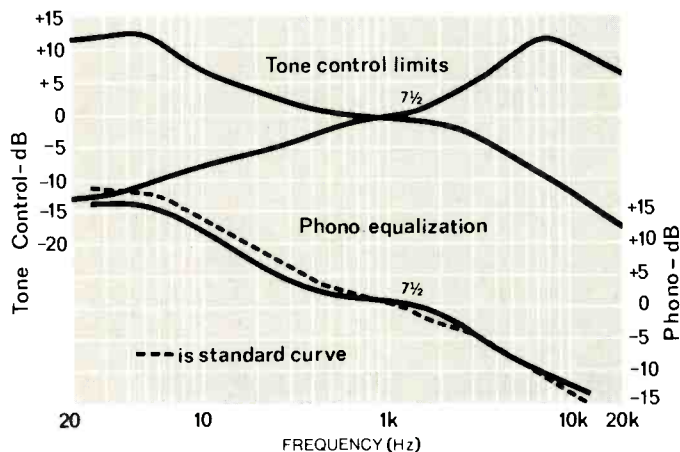


Fig. 6. Curves of tone-control action and the pickup input equalization.

low this control is the speed selector which simultaneously changes the internal equalization circuits. At the left side of the panel are two small black knobs for playback tone control. Below them is the dual-concentric record-level control, and at its base another concentric control actuated by a lever which selects the input—line or microphone, pickup, or “mixer mono.” The first two positions permit recording of stereo programs on the two channels, while the third position permits recording of line or microphone on the right channel and a pickup input on the left channel, all in mono, of course. The two edgewise-mounted meters are next, both being illuminated during recording. Toward the front are the two phono jacks for microphone inputs in the U. S. models (they are DIN receptacles in the European models). The START/STOP lever projects from under the front head cover. Next are the two recording levers with REC, PLAY, and AMP designations. To record, the lever for the desired channel(s) is pushed to the REC position and held there while moving the tape motion lever to the play position. When the tape motion lever is returned to the stop position, the record lever(s) return to the PLAY position automatically. For use as an amplifier only, the levers are pushed to the AMP position.

Next to the right are the dual-concentric playback level controls, also with a lever concentrically located at the base of the knobs. This lever has two positions—NORMAL and SPECIAL. In the NORMAL position, the outputs are fed from the respective channels to the two speakers or speaker outputs. In the SPECIAL a mono signal is reproduced through both speakers or speaker outputs. The tape motion lever with its four positions is next, and it controls

the movement of the tape, or frees the reel spindles for easier threading. The small lever at the right is the power switch.

At the back of the wood base are three cutouts—the one in the center provides storage space for the line cord, while the other two provide access to the internal circuits. At the left are two phono jacks for line input, a DIN socket for stereo line inputs, another for phono pickup inputs, and two more phono jacks for phono. At the top is the 28-V insulated terminal used to power accessory equipment. A similar panel at the right mounts two phono jacks for the preamp output, three phono jacks for speaker outputs—the center one is for the center channel—and three two-terminal DIN receptacles which parallel the phone jacks.

The recorder employs 36 transistors, one Zener diode, two additional diodes, and a bridge rectifier. These are arranged on a number of separate printed-circuit boards, one of which is shown in Fig. 2. The bottom of the recorder is shown in Fig. 3, while Fig. 4 shows the top with the panel removed. Note the “figure-eight” path of the belt, which accounts for the interlocking movement of the reel spindles. The cross-field head is carried on the same arm as the idler, and during recording is held about .004 in. from the back of the tape.

Operation

The machine is a versatile one since practically any desired operation may be performed with it. Figure 5 shows the response curves in various modes—at the top are the curves for playback from a standard tape, followed by record/playback curves for the three speeds. Figure 6 shows the limits of the tone controls at the top, and the pick-

up-input response below. Note that this response is within ± 2 dB of the standard RIAA curve. Fast forward and rewind times were identical—87 sec. for a 1200 ft. roll of tape.

Judged by the performance table on page 26 of the January 1969 issue, the Tandberg 1241X is excellent in every department. Wow and flutter measured 0.08, 0.11, and 0.15% at the three speeds, and S/N measured 60 dB (using Scotch 202 tape). Channel separation measured better than 50 dB, even between adjacent tracks.

The 3% distortion point was reached at a signal 2 dB above the indicated zero level. Output voltage at the preamp output jacks measured 0.64 V, but the output at the speaker jacks measured 10 W across 4 ohms. It was noted that the meters indicated the level at the recording head, and therefore were influenced by the recording equalization, which may seem to give an erroneous indication to the inexperienced user, although it does actually indicate the maximum level of the actual signal applied to the heads. It does complicate the measurement of the various curves, however, and corrections have to be made to obtain the desired correct values.

In use, the performance of the machine showed up as a smooth operator, with excellent sound quality. And this includes its performance at slow speeds. Perhaps the only criticism that could be levelled against the unit is its poor fuse location (the machine has to be removed from its base to gain access to it). But this is a very minor point when balanced against the Tandberg 1241X's fine performance—which includes superb high-frequency response, rugged construction, compact design, and notable operating versatility.

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