

# Equipment profiles

## TEAC Model C-1 Cassette Deck



### Manufacturer's Specifications

**Motors:** 3; 1 PLL d.c. servo-controlled dual capstan, 2 d.c. coreless reel.

**Heads:** 3.

**Wow and Flutter:** 0.04 percent.

**Frequency Response:** 30 to 18,000 Hz,  $\pm 3$  dB, with CrO<sub>2</sub> and FeCr; 30 to

16,000 Hz,  $\pm 3$  dB, with FeO.

**Signal-to-Noise Ratio:** 60 dB with FeCr (without Dolby).

**Inputs:** 2 lines, 50 kilohms; 2 mikes, 600 ohms.

**Output:** 0.3 V at 50 kilohms line, 1 mW at 8 ohms for phones.

**Features:** Jacks for external dbx encoder-decoder, 2 bias-equalization plug-in cards.

**Dimensions:** 19 in. (48.26 cm) x 6½ in. (16.51 cm) x 13⅞ in. (35.24 cm).

**Weight:** 32 lbs. (70.4 kg).

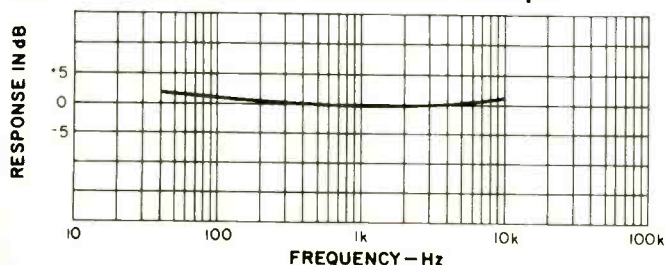
**Price:** \$1,350.00.

There is no official or even commonly accepted set of standards for a professional cassette deck. However, most engineers would stipulate variable bias, equalization and speed, with provision for azimuth head adjustment, off-tape monitoring plus the state-of-the-art parameters in respect to frequency response, signal-to-noise ratio, and so on. TEAC's impressive-looking Model C-1 does not have facilities for external head adjustment, but it certainly has some outstanding features with an excellent overall performance and should at least qualify as "nearly professional." Bias and equalization adjustments are provided on plug-in cards and, normally, two are included: One for cobalt and the other for CrO<sub>2</sub>.

Other tapes — ferric and FeCr — are handled by a pair of three-position bias and equalization switches.

The deck is rather larger than average, measuring just under 14 in. deep, 6½ in. high, and 19 in. wide (yes, it can be rack-mounted). The front panel has the usual satin-silver finish, contrasting with a neat black sub-panel containing the cassette compartment and the associated tape-transport controls. A complex LSI logic system is employed with three motors and two capstans — the drive motor being servo-controlled. The *On-Off* switch, timer button, headphone jack, and variable speed control are located on the left of the cassette compartment. To the right, under the VU meters, are three rotary controls. Number one and number two are the input controls for left and right channels which, although ganged together, can be moved independently if desired. The third control governs the output. On the extreme right is a vertical row of six three-position slide switches. At the top is the source-monitor switch, the center position bypassing the aforementioned output control. Number two switches in the Dolby system or connects an external dbx system, and number three is the mike-line selector with a 20-dB attenuation position. The next switch, number four, works in con-

Fig. 1 — Playback response from standard test tape.



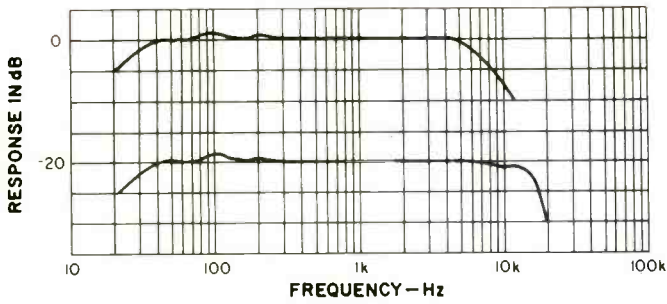


Fig. 2 — Record-replay response with BASF Studio tape.

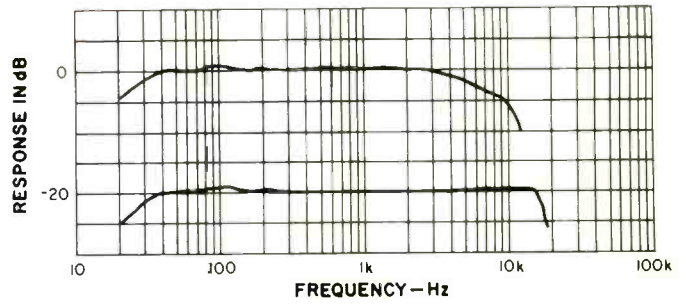


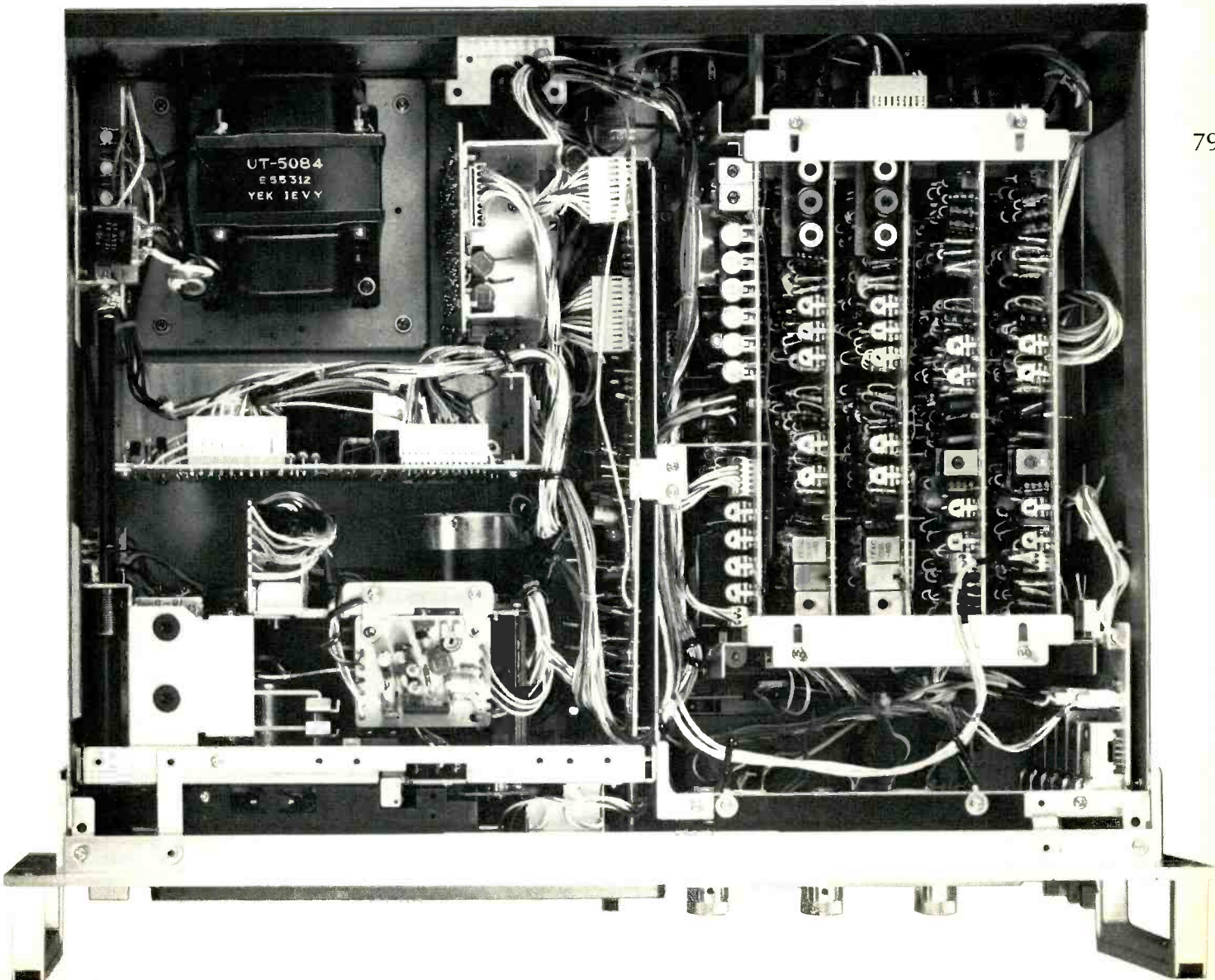
Fig. 3 — Record-replay response with Maxell UD XL-II tape.

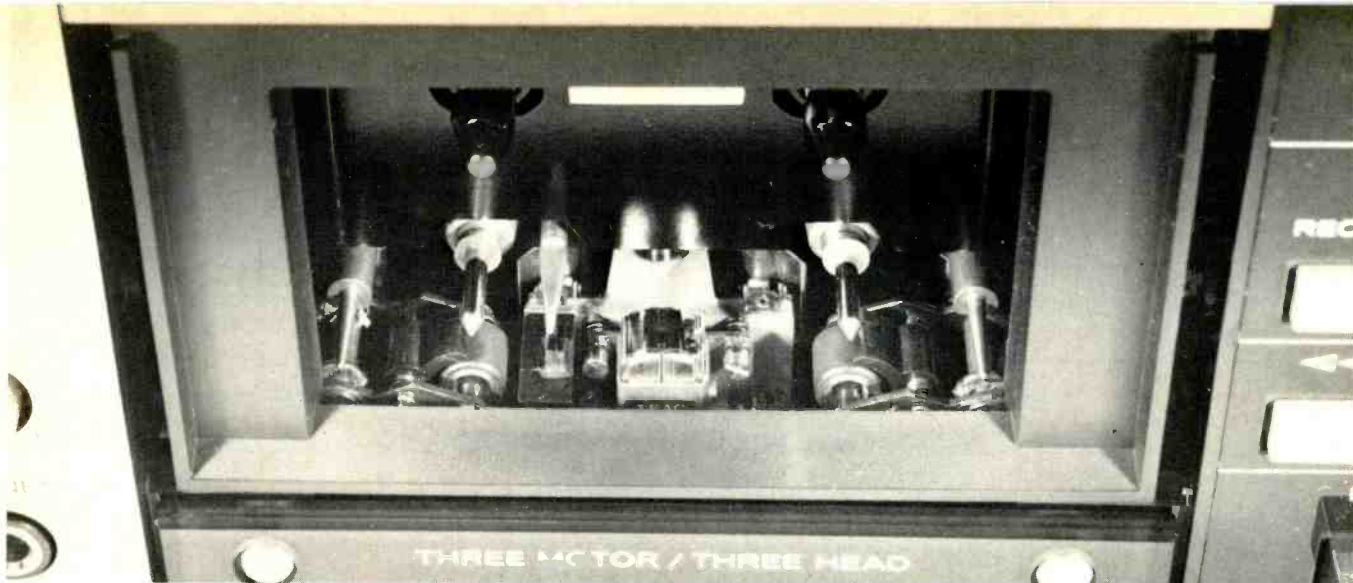
junction with the digital tape counter to initiate automatic rewind when the tape reaches the end — either in the play or record modes. Switches five and six are the bias and equalization selectors mentioned earlier, and they are marked *Normal*, *FeCr*, and *CrO<sub>2</sub>/Option* — which last refers to the plug-in board. The two VU meters are calibrated for peak readings with the 0 VU indicating a flux density of 200 nWb/m, the Dolby level. I ought to mention that one of the controls on the sub-panel is the *Record Muting* switch which discon-

nects the recording input signal from the heads, leaving the erase head functioning to clean the tape. Input and output sockets — including a pair of microphone jacks (standard 1/4-in. types) — are at the rear.

### Measurements

Figure 1 shows the playback response from a standard test tape, and Fig. 2 shows the record-playback response with BASF Studio tape which has a “normal” 120- $\mu$ S equaliza-





tion. The upper -3 dB point was at 16.8 kHz, with an extended low end free from "fringing." Next, a CrO<sub>2</sub> cassette was tested, a Maxell UD XL-II "chrome substitute." As can be seen in Fig. 3, the high-frequency response was extended to 18 kHz. While the plug-in card was switched in for this tape, it was possible to adjust the controls for the flattest response. The third tape to be checked out was a Sony FeCr-46 which (see Fig. 4) had the widest response with the -3 dB frequency point at an amazing 22 kHz!

Distortion at 1 kHz is shown in Fig. 5. Note that the ferric tape, the BASF Studio, has the greatest headroom at +7.6 dB, against +4.5 dB for the UD XL-II and +5.2 dB for the FeCr-46. Figure 6 shows distortion versus frequency, and here the differences are not so marked.

Signal to noise came out at 61 dB for the Studio and 60 dB for the FeCr-46 and UD XL-II (ref. 3 percent THD) with the Dolby system adding 8 to 10 dB. Input required for 0 VU was 72 mV, the output then being approximately 800 mV. Microphone sensitivity was 0.25 mV with a handling capacity of 50 mV, increasing to 500 mV with the attenuator switched in. With the input switch in the microphone position and the control in its maximum position, signal to noise decreased by some 11 dB. The Dolby system tracked down to -40 dB with an error of less than 1.5 dB.

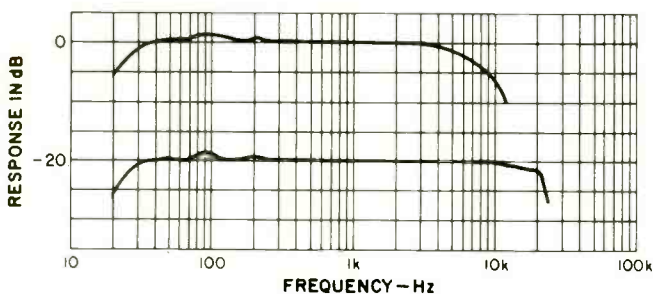


Fig. 4 — Record-replay response with Sony FeCr tape.

Fig. 5 — Distortion at 1 kHz with three tapes.

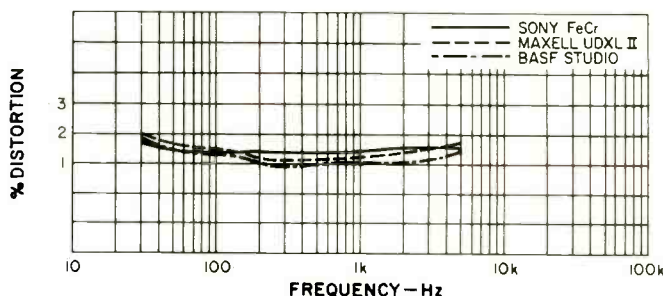
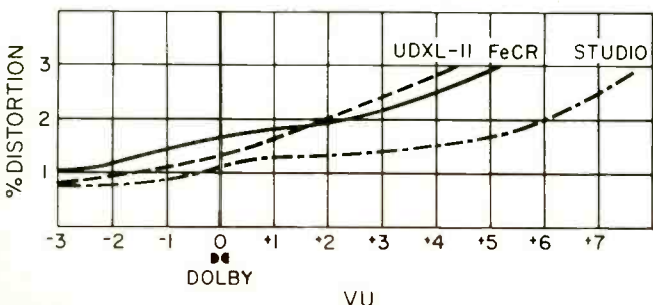


Fig. 6 — Distortion vs. frequency with three tapes.

Wow and flutter measured 0.04 percent (DIN 45 507), and the speed control gave a variation of +10 and -7 percent. Rewind time for a C-90 cassette was 75 S.

### Use and Listening Tests

Logic controls are really a delight to use, and those on the C-1 proved to be no exception. The VU meters with their fast rise time and peak indicator capability gave a more accurate reading than most, but I did miss the convenience of a peak limiter. The deck was used to make a number of recordings at the local college where a well-known soprano, Maria Niles, was rehearsing. As a matter of interest, the microphone used was a Sennheiser Profipower with a Nakamichi Model 1000 condenser type for the piano. I found the ganged input controls a mixed blessing; the piano levels remained more or less constant, but occasionally the soprano tended to get close to the microphone and the control had to be backed off a little — which meant using both hands on the controls! This dual arrangement, however, does permit instant fades, and, when you return to the correct level position for channel number 1, number 2 is also bound to be right!

The plug-in cards will appeal to both the professional user and discriminating audio enthusiast since they not only guarantee optimum performance from any current tape, but extra cards will presumably be available for new formulations. (I understand complete conversion kits can now be obtained to suit metal-particle tapes.) The outboard dbx noise-reduction unit mentioned earlier (TEAC Model RX-8) is recommended for the professional recordist; it can increase the dynamic range by adding 10 dB to the saturation point and 30 dB to the noise reduction. In other words, recordings can be made with a total range of 100 dB!

George W. Tillet

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