

## Technics RS-279US Cassette Recorder



### MANUFACTURER'S SPECIFICATIONS

**Frequency Response:** 20 to 15,000 Hz with normal tape, 20 to 16,000 Hz with CrO<sub>2</sub>. **Wow and Flutter:** Less than 0.10%. **Signal-to-Noise:** Better than 50 dB, 59 dB with Dolby. **Heads:** Three, 2 HPF, 1 double gap ferrite for erase. **Motors:** Two, 1 direct-drive for capstan, 1 d.c. for reel drive.

**Headphone:** 8 ohms. **Dimensions:** 5 $\frac{3}{8}$  in. H x 16 $\frac{5}{8}$  in. W x 13 $\frac{1}{2}$  in D. **Weight:** 19 lbs. **Price:** \$499.95.

I suppose most readers know by now that Technics is the name for the audiophile range of products made by Panasonic; the same kind of styling and general design but with a performance to satisfy the most critical—to use a well-worn cliché. Model RS-279US is another addition to the new generation of cassette recorders incorporating the Dolby noise reduction system, provision for CrO<sub>2</sub> tapes and so on. It is a trifle larger than some other recorders in this class and it boasts an extra feature—a monitor head. There are two motors, one for the reel drive and the other for the tape—a Pabst type with the rotor on the outside. The shaft itself forms the capstan that moves the tape—in other words, a direct drive. The tape selector switch is marked CrO<sub>2</sub> and NORMAL, which puzzled me until I read the instruction sheet. Normal means low-noise tapes, at least for this machine!

The two buttons at the extreme left are for RECORD and EJECT. To the right of these is a group of four tape controls: STOP, REWIND, FAST FORWARD, and PAUSE, which has a lock position. Then comes a row of four aluminum knobs for INPUT and OUTPUT levels. Just above is the MEMORY REWIND switch and digital counter, a dual concentric control for Dolby calibration, a Dolby switch, tape selector and then a MONITOR switch. Under the latter is the HEADPHONE socket and power

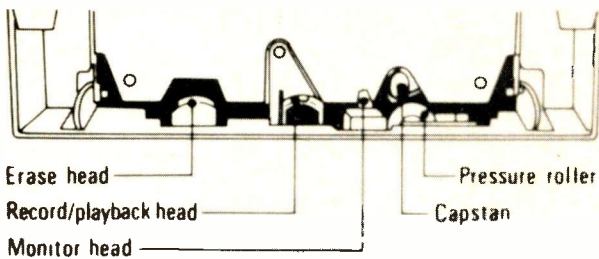


Fig. 1—Head configuration.

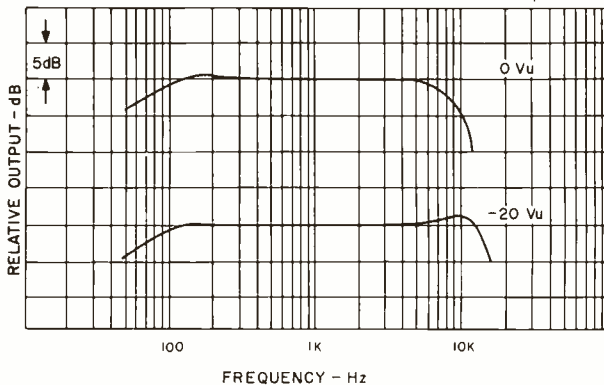


Fig. 2—Record-replay response with Maxell UD tape.

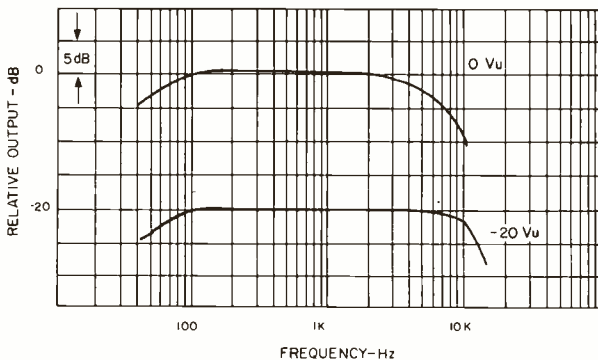


Fig. 3—Record-replay response with Capitol LN tape.

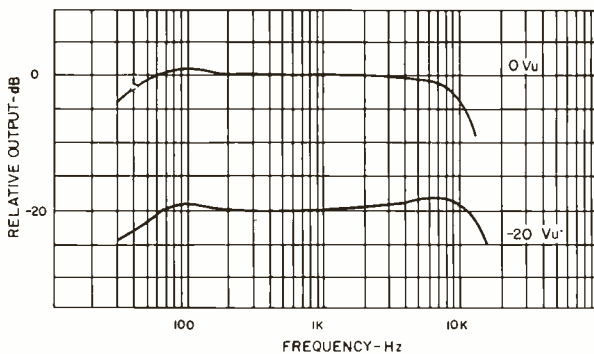


Fig. 4—Record-replay response with CrO<sub>2</sub> tape.

ON/OFF button. The two large VU meters are at the back and behind them is an inclined panel with four neat, illuminated indicators for RECORD, PLAY, DOLBY and CrO<sub>2</sub> functions. Input and output sockets (all RCA phono) are located at the back together with a microphone switch. Also at the rear is a socket for a remote control unit.

### Measurements

Figure 2 shows the record-replay response using Maxell UD tape and Fig. 3 shows the results with Capitol 2 LN. The third graph, Fig. 4, gives the response with CrO<sub>2</sub> tapes—Advocate, TDK KROM and Norelco, the differences being insignificant. The high frequency 3 dB point for low-noise tapes was about 13 kHz and 14.5 kHz for CrO<sub>2</sub>. Other tapes giving good results with the 279 included Certron "Gamma," TDK LN, Sony C60 and BASF SK. Figure 5 gives the playback response from a standard test tape and the distortion characteristics can be seen in Fig. 6. Distortion was lower than average being only 1.3% THD at 0 VU increasing to 2.0% at +5 dB. Equating this with the 0 VU saturation curves, it will be seen that there is a reasonable margin against overload, especially if the Dolby system is used to increase signal-to-noise. This, incidentally, measured 53 dB and switching in the Dolby brought it to 59 dB. The signal required for 0 VU was 30 millivolts and the output voltage was then 150 millivolts. Microphone sensitivity was 0.27 millivolts (600 ohms). Erase efficiency was 68 dB with CrO<sub>2</sub> tape.

Wow and flutter was exceptionally low—only 0.10% (DIN) record-replay, a tribute to the servo direct-drive system. Tape rewind time was 98 seconds for a C60 cassette and speed was 0.3% low.

As far as I am concerned, that monitor head is a big plus. I am used to open-reel machines and one of the facilities I miss with cassette decks is this monitoring facility. I like to know what is actually coming off the tape so that corrections can be made quickly.

### Circuit Details

In most respects, the circuit arrangement of the 279 is fairly conventional. The playback amplifier is switched for recording and the signal from the monitor heads is taken to another pair of amplifiers using 3 transistors each. Eight transistors are used in the servo amplifier for the motor and another 3 are used in conjunction with a photocell to operate an automatic stop device which functions at the end of the tape. No ICs are used and there is a total of 55 transistors. A remote control box (RP-9275) is available and this gives full control of the machine from a distance of 12 feet—a useful feature.

If you were a little puzzled by the reference to HPF in the specifications, I must tell you it means "Hot Pressed Ferrite"

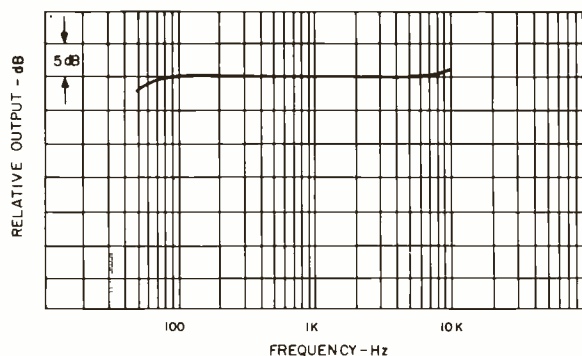


Fig. 5—Playback response from standard test tape.

heads. The once-popular Permalloy types are now being superceded by ferrite or ferrite-glass combinations, mainly because of the greater intrinsic hardness. Even when used with the more abrasive CrO<sub>2</sub> tapes, such heads have a much longer life than Permalloy. The head gaps have to be minute to maintain full bandwidth with the narrow tapes, and any wear would cause trouble.

Now, as far as frequency response is concerned, there are several other machines with a wider range than the 279, but this is probably offset by the monitoring facility and other features. For instance, the wow and flutter is exceptionally low, so is the distortion. As for the general operation, I found this machine to be one of the best. The control push-buttons are described as "feather-touch" and they do indeed need very little pressure to operate. I also like the large, easy-to-read VU meters and the convenience of the panel-mounted Dolby calibration controls. (A Dolby calibration tape is supplied with the 279.) Several recordings were made via the Dolby system, including some with quite a large dynamic range. I still prefer CrO<sub>2</sub> tapes for the best possible results but the best low-noise tapes are awfully close! All in all, the Technics 279 is a nice machine to use and it is capable of giving excellent account of itself. Because of the monitoring facility, it is especially suitable for the novice. This is why: Tapes used in cassettes have a much narrower track width than open-reel tapes. Not only that, but the speed is far slower. The net result is a greater danger of tape saturation (or self-erase) at high frequencies. You soon get used to it, but a monitoring facility is a big help!

*George W. Tillett*

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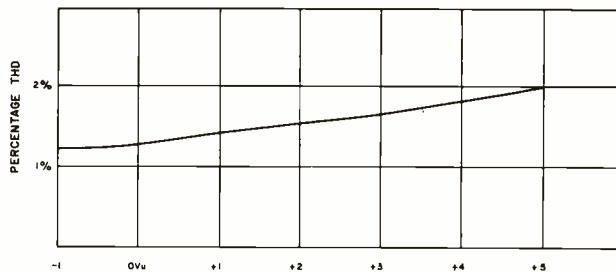


Fig. 6—Distortion characteristics.

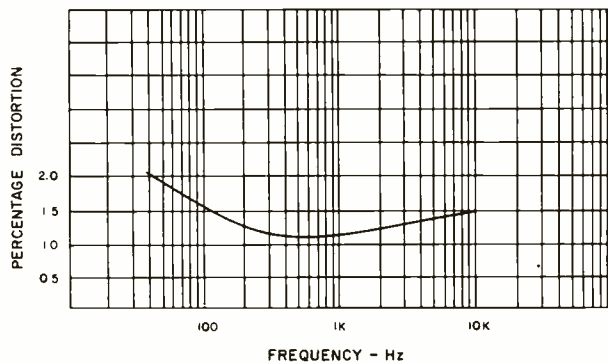


Fig. 7—Distortion vs. frequency.