

## Ampex Micro 52 Stereo Player/Recorder Deck

### MANUFACTURER'S SPECIFICATIONS:

**Frequency Response:**  $\pm 3$  dB, 50 to 10,000 Hz. **Signal-to-Noise Ratio:** 45 dB. **Crosstalk:** 55 dB, side 1 to side 2; 30 dB, left to right channels. **Mic Input Sensitivity:** 0.1 mV,  $\pm 3$  dB. **Mic Input Impedance:** 500 ohms. **Line Input Sensitivity:** .07 V  $\pm 3$  dB to 1.0 V max input. **Line Output Level:** 0.6 to 1.5 V max, 50,000-ohm load. **Speed Accuracy:**  $\pm 1.5\%$ . **Flutter:** 0.25%. **Fast Wind Time:** 65 secs (C-60 cassette). **Dimensions:**  $16\frac{1}{4} \times 10\frac{7}{16} \times 5\frac{1}{16}$  in. **Weight:** 10 lbs. **Price:** \$149.95, including two microphones.

The continually increasing interest in cassette-playing equipment has brought a large number of players and player/recorders to the market, and this recent Ampex model offers its attractive features of convenience, portability, and performance to the cassette enthusiast.

The Micro 52 is an upright cabinet of walnut finished wood with a satin-finished chrome strip along the top broken by seven "piano-key" controls—PAUSE, STOP, FAST FWD, PLAY/REC, REWIND, the interlocking RECORD key, and EJECT. The next 5-in. section of the front is completely black—the left half opening forward to insert or remove cassettes, and the right half obscuring the VU meters until power is turned on, when they become visible through openings in the dark plastic covering.

The next 2½-in. section of panel space accommodates the various operating switches, controls, the tape counter, and the microphone jacks. Playback output level is fixed, but there are two controls for each channel for adjusting the recording level for microphone and line inputs. These controls are of the linear slide type, and the position of the knob indicates the setting immediately. To their right are two switches—the upper one for recording level control, either manual or automatic, and the lower one for line power. A small panel on the rear accommodates the line input and output phono jacks.

In the MANUAL position, the recording level is controlled by the slide pot for either the microphone input or the line signal. In the AUTOMATIC position, a portion of the output of the recording amplifier section is fed through a diode, filtered, and fed to the base of a transistor which effectively shunts part of the input signal

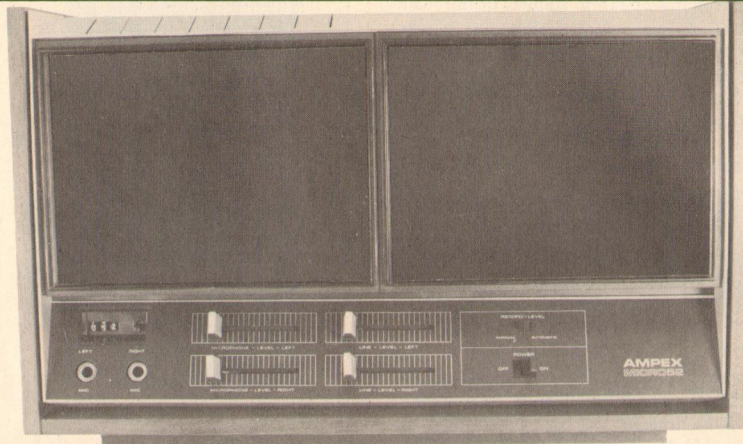


Fig. 1

to maintain a reasonably constant recording level.

Each channel employs seven transistors, and two additional transistors are used in the push-pull oscillator circuit, which operates at approximately 84 kHz. One additional transistor is used in the power supply to provide a regulated voltage supply to the amplifier stages. The preamp section contains two transistors, with equalizing feedback switched around them in the playback mode. The preamp is followed by a two-stage amplifier and an emitter follower which feeds the output, the VU-meter amplifier, and the automatic-level-control section. Internal adjustments are provided for setting playback level and for calibrating the VU meters, which are set for a "0" indication when the level is 8 dB below the 3-per cent distortion point. Adjustments are also provided to set the correct bias level.

### Operation

Depressing the EJECT key opens the left side of the black plastic front to permit inserting the cassette into a space provided on the hinged door. The door is then pressed shut, and the PLAY/REC key is depressed to start the machine. A PAUSE key stops the tape motion, enabling the user to set levels on his projected program material. Another press releases the PAUSE key and the tape moves. REWIND and FAST FWD keys may be depressed while playing or recording, but to go back to playing again, you must press the STOP key, since the PLAY/REC key cannot be depressed while the tape is in motion as it would cause the idler to press the tape against

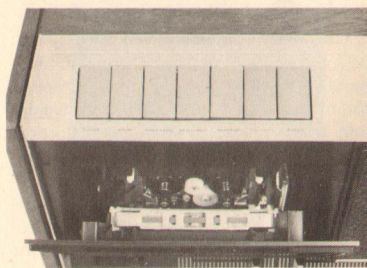


Fig. 2—Showing hinged door open.

ing the stereo system is switched to the mono mode, or that both channels are fed through a "Y" connector to one input.

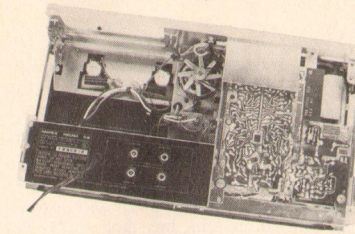


Fig. 3—View of Rear.

### Performance

In order to test out the machine, we used a number of different manufacturers' cassettes, primarily to see how much difference there was in different makes. All were recorded without changing the bias, which probably puts some of them under a handicap, for TDK tape, for example, is said to require slightly more bias than the usual cassette tape. The frequency responses of these five tapes are shown in Fig. 4, and all, of course, reflect the performance of the machine as well as the tape itself.

It is immediately apparent that the bias is not at the optimum value for the TDK

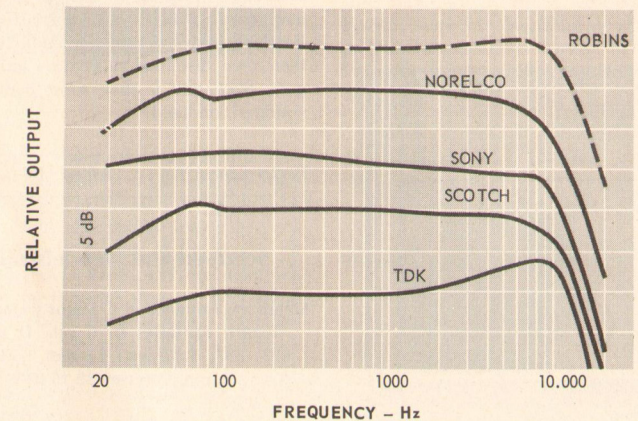


Fig. 4—Record/play response with tapes of five different manufacturers.

tape, which shows a maximum response at 9000 Hz, and a rapid rolloff after 12,000. The tape marketed by Robins Industries shows a flatter response up to 10 kHz, with the rolloff occurring after that frequency. None of the five tapes tested showed a response worse than  $\pm 4$  dB from 20 to 10,000 Hz, with TDK extending to 13,000 kHz, the Robins, Sony, and Scotch tapes to 12,000, and the Norelco

10,000. None of these should be considered specific, since bias was not changed during the several frequency runs. The main result, therefore, is to show that the basic response of the Micro 52 is essentially flat to at least 10,000 Hz, which has to be considered excellent at a tape speed of 1½ ips. We can easily remember when 50 to 8000 was par for the course at 7½ ips, but that was before the present-day tapes were available.

Similarly, signal-to-noise ratios were remarkably constant, ranging from 43 dB on the poorest sample to 45.5 on the TDK. Flutter and wow together measured 0.25 per cent in the range from 0.5 to 6 Hz, but reached a maximum of 0.35 per cent in the ranges above 6 Hz.

Considering all of its functions, its convenience, and its appearance, the Ampex Micro 52 is a machine on which the average recording enthusiast could well transfer a lot of musical material that he wanted to keep so as to free his reels of ¼-inch tape for reuse. That is the main virtue of the cassette recorder, in this observer's opinion. Often one will record something—perhaps off the air or possibly some important family happening—using a typical reel-to-reel ¼-inch machine. The material may be of sufficient importance that the user does not want to erase it, but he still does not want to tie up all his standard tape reels. We submit that he could well

transfer such material to a cassette, break out the safety tab, and store the compact cassettes for his personal "archives" without the probability of accidentally erasing any material he wanted to keep. To this application we commend the cassette recorder, and the Micro 52 does a great job for just such a use.

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