

Best Yet from Ampex



The Equipment: Ampex AX-300, an automatic-reverse open-reel three-speed (7½, 3¼, 1½ ips) stereo tape deck, including recording and playback preamps. Dimensions: 16½ by 15 by 8½ inches. Price: less than \$650 with wood case. (Optional RC-204, a remote-control unit with 10-foot interconnect cable for the AX-300 or similarly equipped decks. Dimensions: 6½ by 2½ by 1½ inches. Price: \$39.95.) Manufacturer: Ampex Corporation, 2201 Estes Ave., Elk Grove Village, Ill. 60007.

Comment: This is the most impressive recorder we have yet seen from the Consumer Products group of Ampex. It is unequivocally a consumer product, yet it includes so many features adapted from professional equipment that, despite the convenience of automatic reversing, it can be taken seriously as a hobbyist recorder. In concept and appearance the AX-300 is radically different from anything that has come out of Elk Grove Village in the last few years.

The automatic threading system and dual capstan drive of the earlier premium models has been abandoned along with the styling. The AX-300 has a central capstan flanked by the three heads for forward tape motion (to its left) and those for reverse motion (to the right) which permit monitored recording in both directions. All the controls are on the front panels or sides below the head cover (assuming vertical use of the deck, for which rubber reel hold-downs are supplied). Just below the tape-loading slot are the counter, speed-change switch, recording interlock button, and the main solenoid controls: pause, fast reverse, reverse play/record, stop, forward play/record, and fast forward.

Across the bottom of the panel are the mike and headphone jacks, dual sliders for the mike/aux inputs, and those for the line inputs (also used for sound-on-sound and tape echo). Line inputs can be mixed with mike or aux. Next come the VU meters, a five-position mode switch (which includes special positions for sound-on-sound recording), and a continuously variable noise filter calibrated at 16, 10, 6, and 3 kHz—representing in each case the frequency at which high-end playback response is rolled off by 3 dB. (Lab

tests proved these indications to be very near exact, with typical slopes above the 3-dB points of about 12 dB per octave). Below the last two knobs are a series of switches: output and meter monitoring (source/tape), echo, sound-with-sound/sound-on-sound, reversing signal, automatic operation (out-and-back/continuous), and AC power.

In a well at the left of the deck are screwdriver controls for bias adjustment; in a similar well at the right are those for meter adjustment. On the back are pairs of phono jacks for the inputs and outputs: aux input with screwdriver level controls, line input, tape/source monitor output (depending on the position of the front-panel monitor switch position), and tape-only monitor. Next to this last pair of jacks is a switch that will convert the meters to read source only, regardless of the front-panel monitor-switch position.

The full ramifications of all these controls cannot be dealt with in detail here. Note, however, that the echo circuit can be applied independently to either or both channels of a stereo input arriving via the mike or aux connections; also the sound-with-sound feature does not provide precise syncing (it is intended for language-lab use rather than music) though recording and playback heads are so close together that the lag is barely audible at 7½ ips. The unusually thorough instruction manual provides a number of alternate hookup schemes and explains the relevance of the various control possibilities to each. At first it takes a good deal of thought and care to master the more intricate configurations, but most users will want to standardize on a single basic hookup. Once that is done the controls are relatively easy to use by comparison to those on some multi-feature decks.

So is the remote-control unit, which plugs into a

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jack on the back panel (or another beneath the solenoid control panel, as we shall explain) and duplicates all the solenoid controls: pause through fast-forward. These controls handle smoothly and are unusually sophisticated in design for a home unit. The deck includes a memory circuit that operates in combination with a motion sensor on the righthand reel turntable. Let's say you are winding into the tape and want to find a passage on the second side. You press the reverse play button. First the reel brakes are applied; but until tape motion stops altogether the play mode will not be activated. Then the tape lifters and pinch roller push forward and playback begins.

The pinch roller is held in a pivoted mount so that it is self-aligning when it is pressed against the tape and capstan. (The usual arrangement, with a rigidly aligned pinch-roller mount, may not press both edges of the tape with equal firmness, according to Ampex, and can cause problems in using triple- and quadruple-play tapes.)

In the pause mode the capstan continues to turn (aiding fast start-up, which we found unusually smooth for a solenoid-operated deck) and the tape lifters do not retract. As a result the tape can be cued and edited (mechanically or by re-recording) easily in either direction of tape motion. As a further aid to such undertakings, the entire head cover slips off (exposing the clearly marked gap-position indices on the six heads), and by slipping the speed-change knob off its switch shank the entire upper section of the control panel can be removed, leaving ample room around the heads for marking edit points on the tape itself. This is practical only if you have bought the remote-control unit, however, because you otherwise have no way of starting and stopping the tape. The remote unit can be attached to a socket from which you have unplugged the normal control panel in removing it.

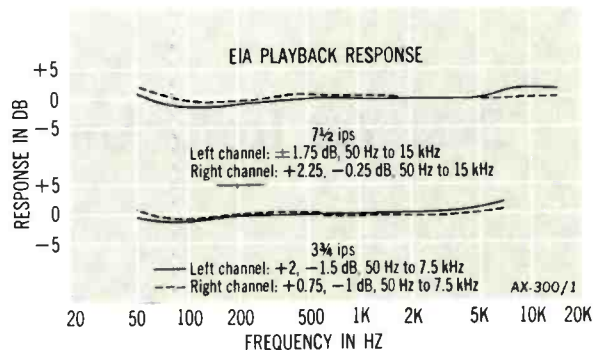
The automatic reversing system is the only one in which the AX-300 retains a recognizable feature of previous Ampex home models—the subaudible 20-Hz cue tone. It can be recorded onto any tape by using the spring-loaded button on the front panel. This tone already is recorded on all Ampex Stereo Tapes, of course, which therefore will reverse (or even repeat) automatically on this unit.

CBS Labs' data show the AX-300 to perform unusually well for a home deck, and exceptionally well for one with the automatic-reverse feature. The separate, fixed heads for each direction of tape travel undoubtedly contribute to this excellence. Performance in the two directions is virtually indistinguishable, so we have included graphs and figures only for the forward direction.

Note that the playback curves are for the EIA equalization rather than the NAB specification that we normally use. The two actually are identical except in the extreme bass; at 7½ ips they differ by only 3 dB at 100 Hz, while the difference is even less at 3¾ ips. The AX-300 (and many other new units) appears to be designed to the EIA specification, which presently looks as though it will replace the NAB specification in home equipment. The curves appear to reflect Ampex's "controlled bandwidth" philosophy that response should be as flat as possible, without arbitrary attempts to extend response upward at the expense of over-all linearity, distortion, and noise factors. The AX-300 curves show unusually little tendency to peak at the high end, and they drop off rapidly above maximum useful response.

Considering both features and performance, the new model is among the most exciting to be offered for the open-reel enthusiast in some time. While it makes no attempt at the ultimate in either ruggedness or simplicity of operation, its finish and general construction are good for a home unit and its controls are not difficult to use. At long last it looks as though Ampex has a winner for the serious recordist.

CIRCLE 144 ON READER-SERVICE CARD



Ampex AX-300 Tape Deck Additional Data

Speed accuracy 7½ ips	105 VAC: 0.23% fast 120 VAC: 0.23% fast 127 VAC: 0.23% fast
3¾ ips	105 VAC: 0.53% fast 120 VAC: 0.53% fast 127 VAC: 0.53% fast
1½ ips	105 VAC: 0.40% fast 120 VAC: 0.40% fast 127 VAC: 0.40% fast
Wow and flutter 7½ ips	playback: 0.07% record/playback: 0.08%
3¾ ips	playback: 0.08% record/playback: 0.09%
1½ ips	record/playback: 0.17%
Rewind time, 7-in. 1200-ft. reel	1 min. 6 sec.
Fast forward time, same reel	1 min. 6 sec.
S/N ratio (ref. 0 VU):	
playback	L ch: 52.5 dB R ch: 54.0 dB
record/playback	L ch: 50.5 dB R ch: 51.5 dB
Erasure (400 Hz at normal level)	55 dB
Crosstalk (at 400 Hz)	
record left, playback right	54.0 dB
record right, playback left	52.5 dB
Sensitivity (for 0-VU recording level)	
line input	L ch: 51.0 mV R ch: 51.0 mV
aux input	L ch: 14.0 mV R ch: 15.0 mV
mike input	L ch: 0.43 mV R ch: 0.43 mV
Accuracy, built-in meters	externally adjustable
IM distortion (record/play, -10 VU)	
7½ ips	L ch: 2.3% R ch: 2.0%
3¾ ips	L ch: 3.5% R ch: 3.0%
1½ ips	L ch: 4.0% R ch: 4.0%
Maximum output (preamp or line, 0-VU)	
	L ch: 0.6 V R ch: 0.6 V