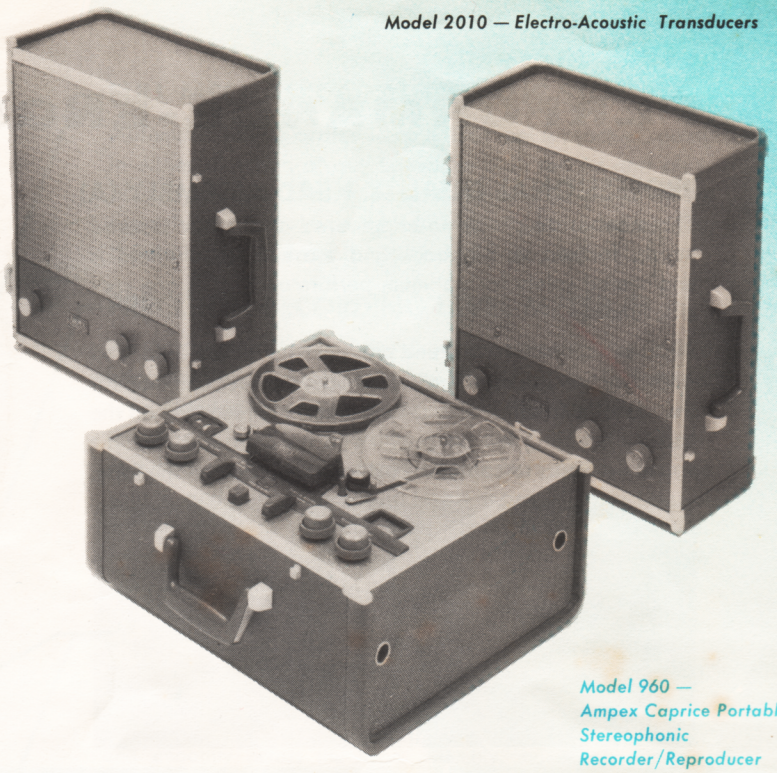
AMPEX

UNIVERSAL "A"

900 SERIES

Stereo Recorder



Model 960 — Ampex Caprice Portable Stereophonic Recorder/Reproducer

Fun will follow you, wherever you go, when you choose the Ampex Caprice (Model 960) as a traveling companion. Its superbly engineered stereophonic capabilities will add a new dimension to your *listening*, and its convenient portability will add a new dimension to your *living*.

- **RECORD STEREO OR MONAURAL from all sources of sound**

  With this professional quality stereo recorder you can make permanent, flawless recordings on magnetic tape from FM or AM radio, from TV sound, from a stereo or monaural record player, or "live" from microphones . . . and you can add "live" music or voice to any of the above sources of sound.

- **RECORD "SOUND ON SOUND," have fun with other professional techniques**

  With the unique selector switch functions on the Ampex Caprice, you can make a recording, then re-record on top of it — and produce such interesting effects as singing a duet with yourself! Many similar techniques are yours to enjoy, available only in the Ampex.

- **RECORD STEREO BROADCASTS directly off the air**

  Build up your own unlimited library of stereo tapes the simplest, most inexpensive way. Simply plug in the output of your AM and FM tuners during any stereo broadcast, and record while you listen!

- **Play both 2-track and 4-track tapes**

  A positive-action head-shift lever enables you to change instantly from 2-track to 4-track tapes, enabling you to play all existing and future stereo recordings.

- **Play regular, long play, and extra-long play tapes**

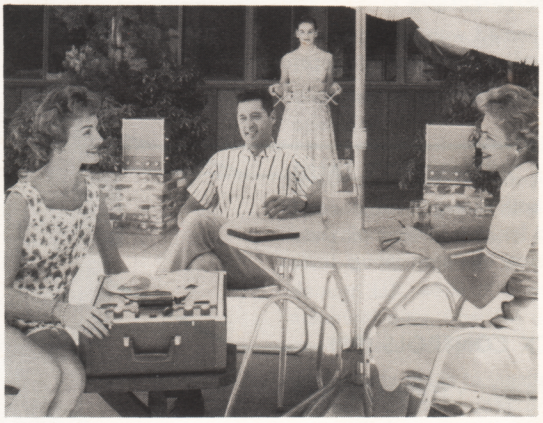
  The Caprice handles tape so gently that it can be used to play the super-thin (.001") tapes, to provide as much as 4 hours and 16 minutes of 4-track stereo music from a standard 7", 2400-foot reel.

- **Automatic Stop at end of reel**

  Positive, foolproof stop when end of reel is reached, fully automatic in action. No electrical switching; nothing to adjust or get out of order.

The Ampex Caprice is a precision instrument of full professional quality, designed for you by the same engineers who first developed the revolutionary Ampex Videotape Recorder which captures both sight and sound on magnetic tape . . . incorporating the same engineering skills used in designing the equipment on which the original sound for every long-playing disc is recorded.

The Caprice is equally at home on the patio, in the rumpus room, in a college dormitory, or at a church social. And no matter where you play it, its magic stereophonic capabilities will bring your listeners the tremendously exciting experience of re-creating the music with all its original depth and quality. At the touch of a button, the Caprice has the power to put you in front of a jazz combo in New Orleans, an a cappella choir in a great cathedral, or the world's finest symphony orchestra.

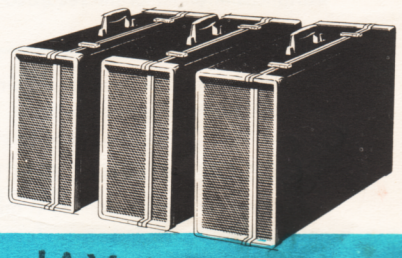


The Caprice Portable home music system consists of an Ampex Universal "A" Stereophonic recorder/reproducer (Model 960)* and two matched electro-acoustic transducers (Model 2010) delivering in a typical stereo installation an effective 20 watts of audio power (peak power output of 40 watts). All necessary operating controls are located at the recorder itself.

*Also available in an optional model (Model 910) which reproduces stereophonically, records monaurally.

You CAN take it with you!

The Caprice is rugged and lightweight, and is finished in smart two-tone grey scuff-proof carrying cases with satin aluminum trim. Plugs in anywhere — cords and cables are self-contained. Each of the three matching units enclosed in its luggage-type carrying case measures only 9" deep x 15" wide x 17½" high. The recorder/reproducer weighs only 36 pounds; each transducer weighs 31 pounds. See back page for complete specifications.



AMPEX STEREOPHONIC SOUND

SIGNATURE OF PERFECTION IN SOUND

a new dimension in listening

a new dimension in living

JAX Hi-Fi House
523 E. Silver Spring
Whitefish Bay, Wisconsin
EDgewood 2-1700

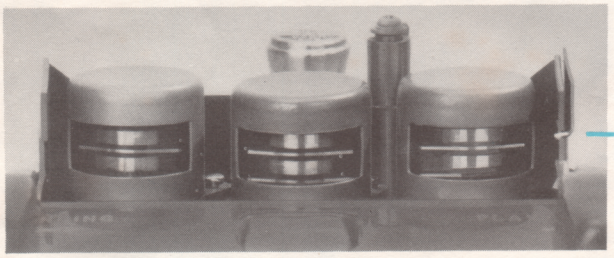
check these

PERFORMANCE-ENGINEERED FEATURES

PROFESSIONAL QUALITY HEAD ASSEMBLY (A)

Three separate precision-engineered dual-track stacked heads, for record, playback and erase. Each of these is engineered solely for optimum performance in its one specific function.

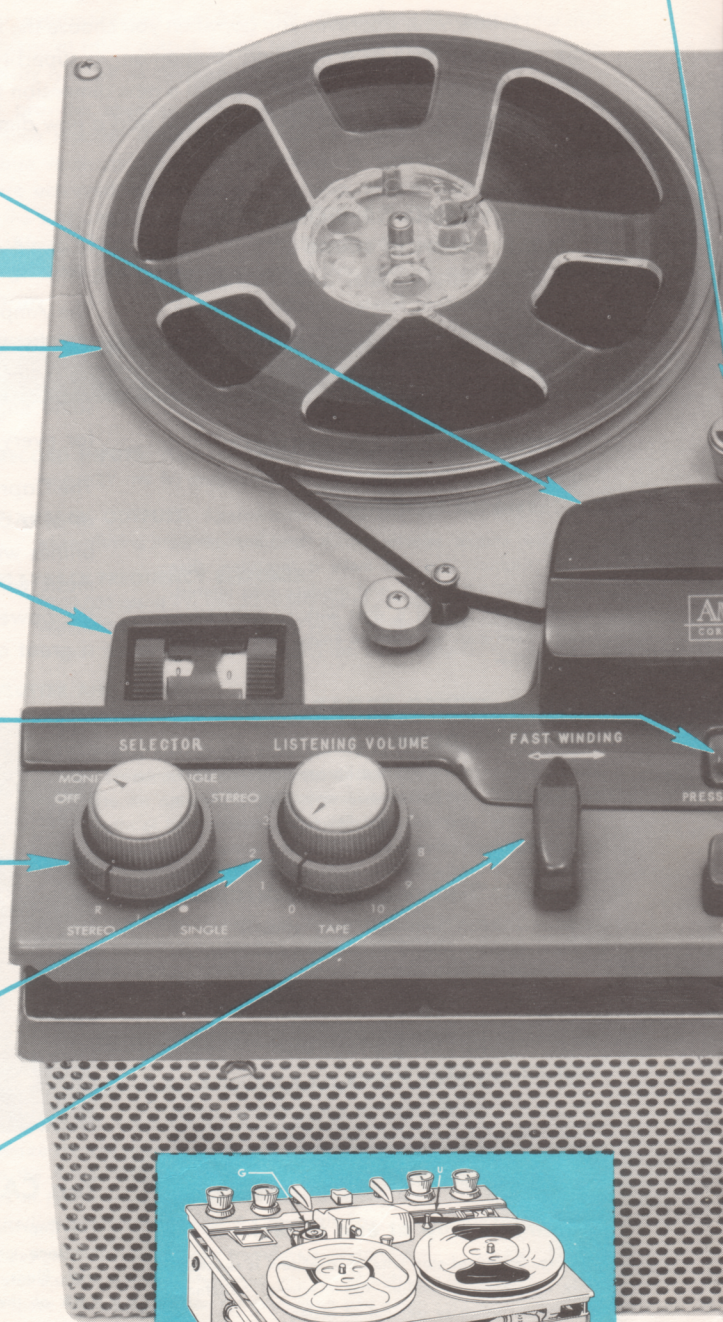
Because separate record and playback heads are used, and both function during the record mode, the user can monitor the signal a fraction of a second after it is recorded on the tape — enabling him to prove with his own ears that the sound he wants to capture is actually recorded on the tape.



CONVENIENT SPEED CHANGE (B)

In "up" position recorder operates at 7½ inches per second; in "down" position at 3¾ inches per second.

AUTOMATIC CHANGE OF EQUALIZATION occurs in playback circuit when speed change plunger is actuated, providing optimum playback characteristics in either speed.



SUPPLY REEL (V)

Accommodates all standard reels up to and including 7" diameter, holding 1200 feet of regular thickness (.002"), 1800 feet of long play (.0015"), and 2400 feet of extra-long play (.001") tape. Complete specifications shown on back.

TAPE POSITION INDICATOR (T)

Calibrated 0-100 with vernier, enabling quick and accurate return to any specific point on a recorded tape. Full accuracy in both normal and high speeds. Indicator adds no drag to transport mechanism, hence induces no wow or flutter. Instant finger-tip zero setting.

SAFETY-INTERLOCKED RECORD BUTTON (S)

Foolproof recessed pushbutton, coordinated with record lever in such a manner that simultaneous actuation is necessary to record — thus preventing inadvertent erasure of tapes.

DUAL SELECTOR SWITCHES (RR)

Convenient switch controls, concentric-shafted, for power on-off, for monitoring the input to either or both channels, for monaural playback through both channels, and for stereophonic playback. Switching is also provided for selection of stereo inputs to the recording level meter.

DUAL CONCENTRIC PLAYBACK CONTROLS (PP)

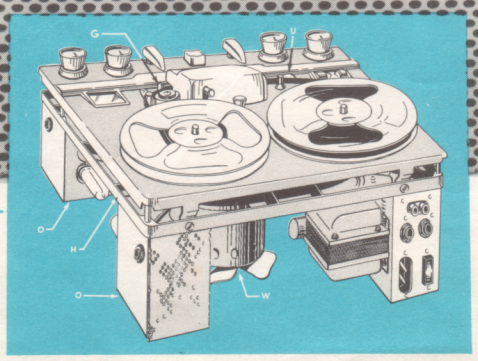
These controls permit individual adjustment of either channel during stereo playback, aid in achieving proper acoustic balance within the room, and enable the user to compensate for possible variances in either of the recorded stereo tracks.

HIGH SPEED LEVER (Q)

For fast forward or rewind; requires less than 90 seconds for a full 1200 foot reel.

PRECISION INTERNAL ELECTRONICS (O)

Recording electronics circuitry is on a par with that developed for much more costly Ampex professional recorders. Separate electronics sections for each channel are physically isolated, and critical assemblies are shock-mounted to assure trouble-free operation under the most rugged conditions of use.



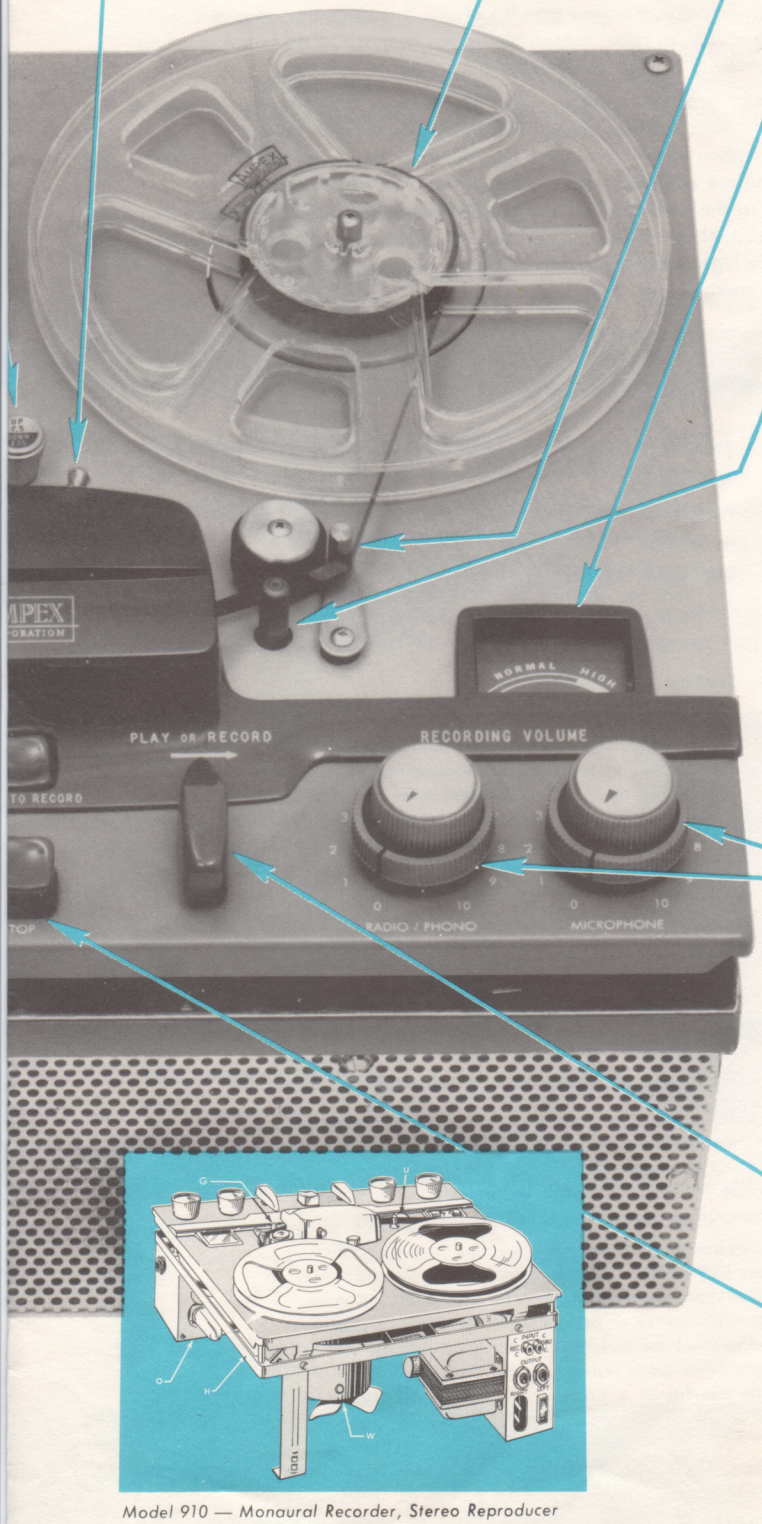
Model 960 — Stereo Recorder/Reproducer

AUTOMATIC TAPE THREADING (C)

Simply pull a few inches of tape within the take-up reel and start the recorder — you will find that the carefully engineered Ampex take-up mechanism virtually eliminates the annoying problems of hand-threading.

SIMPLE 2-TRACK, 4-TRACK SELECTION (D)

Positive-acting shift lever aligns heads precisely with recorded tracks on either 2-track or 4-track tapes. When changing from one to the other, the head stack clicks firmly and solidly into position, insuring that precise head alignment is positively maintained.



Model 910 — Monaural Recorder, Stereo Reproducer

FULL MECHANICAL AUTOMATIC STOP (E)

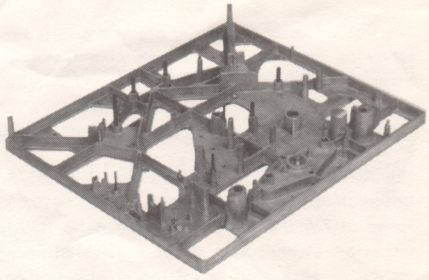
Automatic stop operates when end of reel is reached, going in either direction at any speed, in both record and playback operation. The Ampex automatic stop performs the same functions as pushing the "stop" button, disengaging the tape capstan, capstan idler and drive mechanisms.

PRECISION RECORDING LEVEL METER (F)

An accurate meter is more than a convenience — it is a necessity for proper recording. This sensitive, D'Arsonval type, jeweled-movement meter enables the user to establish the proper level for recording, provides the means for correct balance in mixing input signals from more than one source, and permits matching levels in recording sections of tape that are to be spliced together. The meter functions during all modes of operation, and illuminates automatically to indicate when in record function.

CONSTANT SPEED TAPE TRANSPORT (G)

Consists of capstan (G), capstan idler, constant-tension tape holdback (U), powerful 4-pole uniform-speed motor (W), and associated driving mechanisms. The capstan drives the tape positively and smoothly across the head assembly, maintaining uniform head-contact pressure. The tape holdback is designed to produce equal tension throughout a reel of tape, even though the effective diameter and resultant torque are constantly changing. During fast forward and rewind, tape tension is automatically relaxed to such a degree that tape-to-head contact is negligible, and tape-lifting devices are unnecessary.



RUGGED DIE-CAST FRAME (H)

A single, massive casting serves as a reference plate and mounting for all critical mechanical parts, assuring positive, permanent alignment of all rotating shafts, and providing quiet, vibrationless operation.

DUAL CONCENTRIC LEVEL CONTROLS (JJ & KK)

These controls are in effect a professional "mixing" panel, enabling the user to achieve perfect balance between any two input sources. Microphone input levels are separately controllable through (JJ), while (KK) controls auxiliary inputs from stereo or monaural discs, from FM and AM radio, from TV sound, or from another tape recorder.

PERMANENTLY LUBRICATED BEARINGS

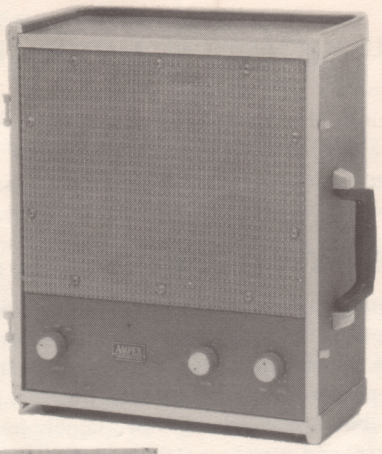
All internal rotating shafts are fitted with precision sintered-metal type bearings, lifetime-lubricated by impregnation with high-grade turbine oil.

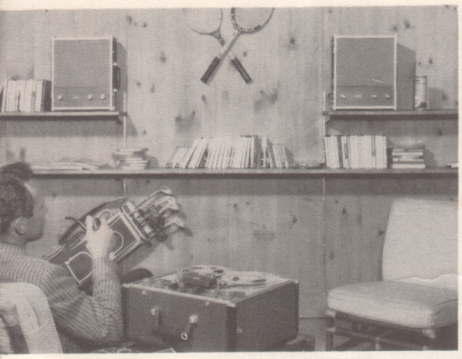
POSITIVE START LEVER (M)

Starts transport in either play or record mode, brings tape up to proper record or playback speed in approximately 1/10 second.

INSTANT STOP PUSHBUTTON (N)

Releases capstan, relaxes tape tension, and applies braking action to take-up system, bringing tape to a complete stop in less than 1/3 second, thus assuring freedom from long dead spaces between consecutive recorded sections.





Ampex Electro-Acoustic Transducer, Model 2010

To present to the ear a completely accurate, undistorted re-creation of the original sound, Ampex engineers have designed an electronically and acoustically integrated system of components which, functioning together, far transcends any previous concepts of amplifier-speaker combinations. Because each part of the system— amplifier, sound projector and enclosure — is engineered with as much attention to its function within the system as for its individual operation, the result is coverage of a far greater portion of the audio spectrum with lower distortion and greater smoothness than ever before attainable at any power level.

Each of the two transducers in the Caprice system utilizes a powerful 10-watt linear amplifier (20 watts peak) and a specially designed 8" sound projector within an acoustically correct enclosure. Individual balance and tone controls are located on the front panel of each unit, and input jacks are provided for sound from any external source. A front-panel selector switch enables you to select sound from the tape reproducer, phonograph, FM or AM radio tuner, or TV sound.

The amplifier section provides operating characteristics (unequalized) flat within ±0.1 db, with total harmonic distortion less than 0.5 of 1%, throughout the maximum range of human hearing ability, at rated output. Noise and hum are 80 db below rated output, and input sensitivity is 0.18V to develop rated power.

The sound projector provides smooth, peak-free response throughout a remarkably wide audio range. Such superior design features as its massive die-cast frame and edgewise-wound ribbon voice coil contribute effectively to higher levels of performance than ever before achieved with a speaker this size. Inverse feedback from the voice coil circuit to the first amplifier cathode affords improved damping and lower distortion. A special Alnico V DG magnet in a high-efficiency magnetic circuit provides an unusually high total gap energy to deliver a maximum of undistorted sound per watt of audio energy.

RECORDER/REPRODUCER SPECIFICATIONS

The true values of a recorder are best assessed through careful evaluation of its performance specifications and operating features. It is worthwhile noting here that these specifications are based not on theoretical design parameters but on actual performance tests. They are specifications which the recorder not only meets or exceeds today, but which years from now will still hold true.

The Ampex Model 960 Stereophonic Recorder/Reproducer is capable of essentially distortionless frequency response from 30 to 20,000 cycles per second at the operating speed of 7½ inches per second, and from 30 to 15,000 cycles per second at 3¾ inches per second. Its precision-engineered timing accuracy is such that it offers perfection of pitch held to tolerances of less than one-third of a half-tone. Playing times, using standard (.002"), long play (.0015"), and extra-long play (.001") tapes are as follows:

	(a) 4-Track Stereo Tapes	(b) 2-Track Stereo Tapes	(c) Monaural Tapes, half-track
1200 foot reel	3¾ ips - 2 hrs. 8 min. 7½ ips - 1 hr 4 min.	3¾ ips - 1 hr. 4 min. 7½ ips - 32 minutes	3¾ ips - 2 hrs. 8 min. 7½ ips - 1 hr. 4 min.
1800 foot reel	3¾ ips - 3 hrs. 12 min. 7½ ips - 1 hr 36 min.	3¾ ips - 1 hr 36 min. 7½ ips - 48 minutes	3¾ ips - 3 hrs. 12 min. 7½ ips - 1 hr. 36 min.
2400 foot reel	3¾ ips - 4 hrs. 16 min. 7½ ips - 2 hrs. 8 min.	3¾ ips - 2 hrs 8 min. 7½ ips - 1 hr. 4 min.	3¾ ips - 4 hrs. 16 min. 7½ ips - 2 hrs. 8 min.

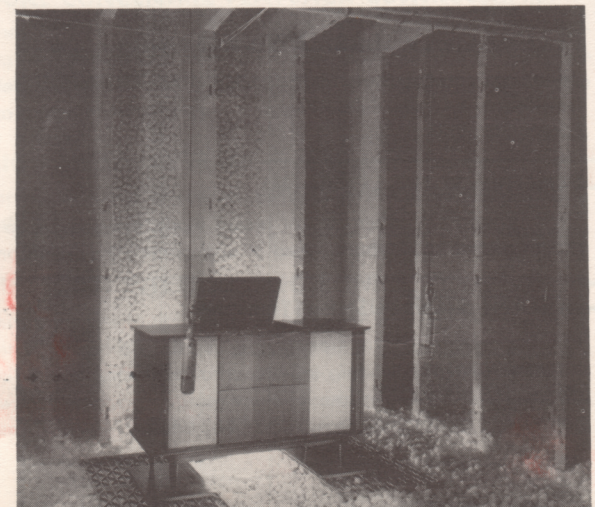
RECORD INPUTS: High impedance line inputs (radio/TV/phono/auxiliary) 0.3V rms for program level; high impedance microphone inputs

PLAYBACK OUTPUTS: Approximately 0.5V rms from cathode follower when playing program level tapes

PLAYBACK FREQUENCY RESPONSE:
30-20,000 cps at 7½ ips; 30-15,000 cps at 3¾ ips
Within ±2 db 50-15,000 cps at 7½ ips, 55 db dynamic range
Within ±2 db 50-10,000 cps at 3¾ ips, 50 db dynamic range

FLUTTER AND WOW:
Under 0.2% rms at 7½ ips; under 0.25% rms at 3¾ ips

HEADS: Manufactured to the same standards of precision that exist in Ampex broadcast and recording studio equipment. Surfaces are lapped to an optical flatness so precise that they reflect specified wavelengths of light, resulting in uniform performance characteristics and greatly minimizing the effects of head wear. Azimuth alignment of stereo head gaps in the same stack is held within 20 seconds of arc, equivalent to less than 10 millionths of an inch — a degree of precision achieved through use of a unique process involving micro-accurate optical measurements within a controlled environment. Head gap width is 90 millionths of an inch ± 5 millionths of an inch.



An Ampex console music system gets a check-out in the anechoic chamber

Anechoic Test Chamber Procedures

To insure that every Ampex transducer meets or exceeds its specifications, it is performance-checked in comparison with production standards developed in the Ampex anechoic chamber. The Ampex Audio chamber is unique in that it is used as an extension of *production* techniques in controlling product quality off the assembly line.

Actual production designs of electro-acoustic transducers — amplifiers, sound projectors and enclosures — are introduced into the chamber's conditions of free space wave propagation for evaluation and determination of absolute values of performance. Standards thus established are used to check the performance of every transducer as it is assembled into a home music system, insuring that the future owner will receive the benefits of a properly integrated and completely tested group of acoustical components.

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AA-PB-758-100M