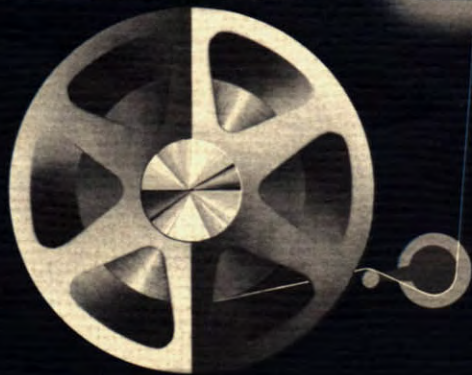
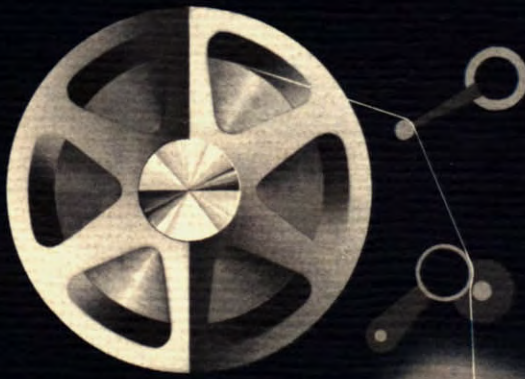


AMPEX

ULTRA HIGH FIDELITY TAPE RECORDERS
FOR STUDIO RECORDING, BROADCASTING AND OTHER USES



- captures and reproduces with lifelike quality the **full range** of sound



**Ampex Machines
in Use at
Capitol Records, Inc.**

In making irreplaceable master tapes, record makers are interested in achieving the highest possible fidelity. They prefer Ampex recorders for their flat frequency response and freedom from flutter, wow and harmonic distortion. And because of its dependability, an Ampex affords maximum assurance of a perfect master recording regardless of whether or not duplicate equipment is used.



Muzak's Ampex Installation at Honolulu

On this continuous music service, an Ampex Model 300 has demonstrated its durability by operating for over 11,000 hours without losing one minute of program time and without major repairs. The service operated 17 hours daily, seven days per week. The recently developed Ampex Model 450 Reproducer plays up to eight hours of music unattended from one reel of tape, ideally fitting this type of service.



An Ampex Recorder at San Jose State College

Ampex fidelity and durability are of value in such fields as education, medicine, psychiatry, research, law, business, government and home enjoyment.

AMPEX

MAGNETIC RECORDERS

Rated supreme by critical users of recorded sound

Sound engineers have been quick to recognize magnetic tape as a big stride toward perfect sound recording. Its low inherent noise level, wide frequency response, great dynamic range and easy editing make tape an ideal recording medium. To match its challenging possibilities, Ampex has designed equipment as close to perfection as the medium itself.

From its start, Ampex has consistently led the tape recorder industry. Ampex machines are the best available. They offer the greatest value and operate at the lowest cost per hour. As a result, Ampex Tape Recorders are preferred over all others in the high quality field. America's four major broadcast networks, and the country's leading makers of phonograph records, are all Ampex users. Professional preference has established Ampex as the world's standard of excellence in sound recording.



A Broadcast Installation at Station WENR

Accuracy of program timing, utmost reliability and highest fidelity are reasons why Ampex Recorders are extensively used by the major broadcast networks. To all stations — whether 250 or 50,000 watts — Ampex durability and low maintenance cost are prime considerations. Neither duplicate equipment nor a maintenance engineer need stand by for an Ampex.

PERFECT sound recording and reproduction

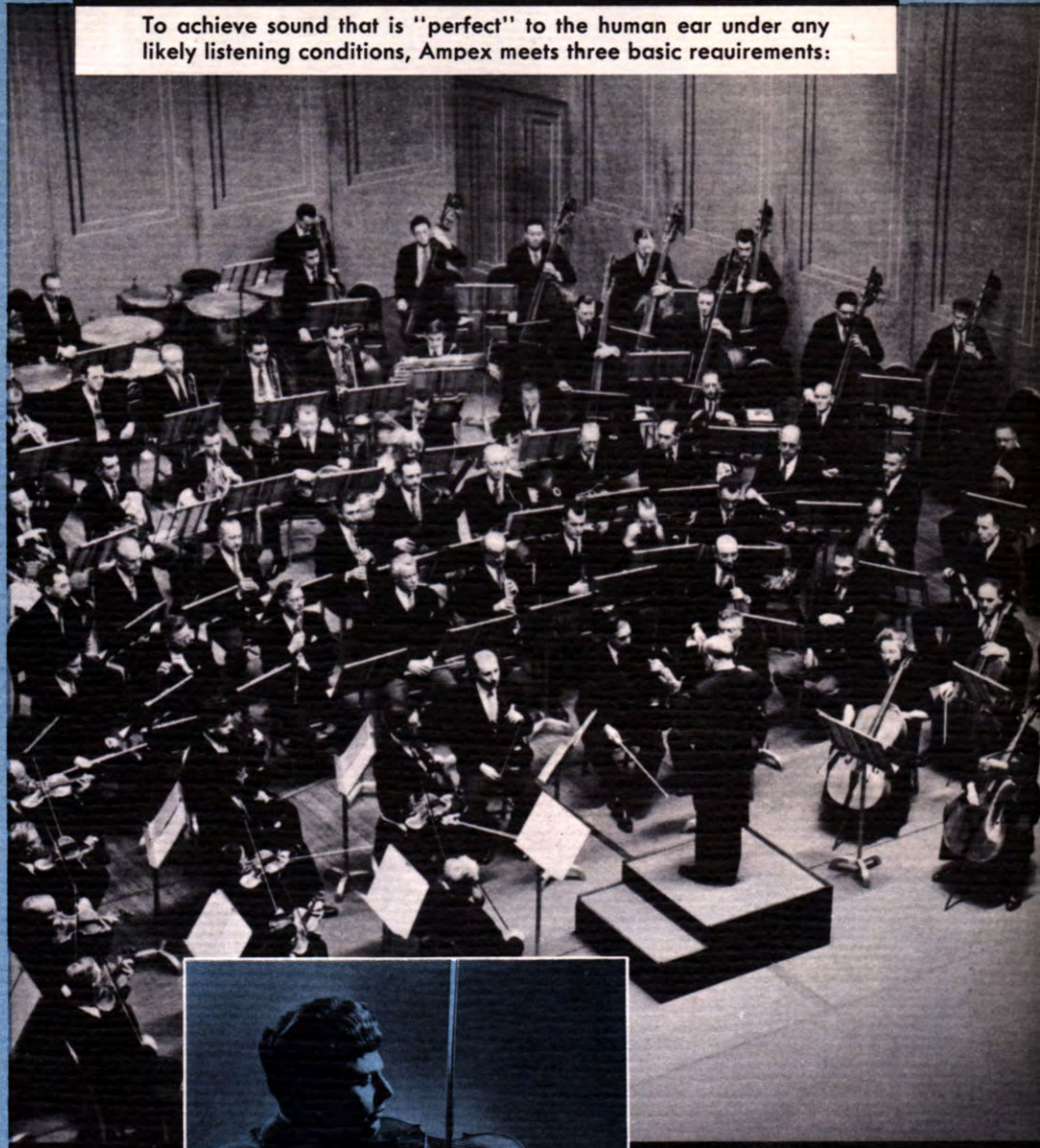
To achieve sound that is "perfect" to the human ear under any likely listening conditions, Ampex meets three basic requirements:

AMPEX

PERFORMANCE

Relying on hearing, emotion and the most perceptive musical sense, a great musician might well describe an Ampex recording as "perfect." Many have passed such judgment and Ampex recorders are in the possession of several leading symphony orchestras. More significant still, some are in the homes of great musical artists such as Arthur Fiedler and Arturo Toscanini, and popular performers like Bing Crosby and Les Paul.

But, besides an appraisal by sense and emotion, **every** Ampex machine has been instrument-tested to equal or exceed the published specification for the model. Ampex specifications are extremely high—but actual performance generally exceeds even these ratings.



Philadelphia Orchestra with Eugene Ormandy conducting, Jacob Krachmalnick, Concertmaster.

Dynamic Range—Ampex can record the full crashing brilliance of a symphonic fortissimo, yet, when the delicacy of a single solo instrument is recorded, it is not lost in a confusion of mechanical noise. This is the potential range and sensitivity of magnetic tape. The potential is fully realized on the Ampex machine because the level of amplifier and background noise is held far below generally audible levels.

Signal to noise ratio—300 series over 60 db. by NARTB standards; 400 series over 55 db.

FREEDOM FROM NOISE AND DISTORTION

Ampex records and reproduces a tonal quality of utmost clarity. The Ampex playback is free from perceptible noise, distortion, flutter, wow and other mechanical and electrical imperfections. This is dramatically demonstrated by Les Paul in his five to ten part guitar recordings in which one by one he plays all parts. He does this by accompanying an Ampex playback of his prior parts. Upon completion, all parts stand out clearly above any accumulated noise from the five to ten recordings.

The Ampex Recorder keeps flutter and wow at a level far below human perception. This is of great importance in the recording of music. Flutter is a high frequency oscillation in the tape motion: its effect on the listener is as irritating as severe frequency or harmonic distortion. Wow is a low frequency tape motion that can create waver in sustained notes (a familiar effect on disc record players). These effects would become noticeable to even the non-critical listener at a level of about 0.5% rms.; note how far below this level Ampex keeps these distortions:

Flutter and wow—At 15 in/sec.: well under 0.1% rms on the model 300; under 0.2% on the series 400. At 7½ in/sec.: well under 0.2% rms on the model 300; under 0.25% on the series 400.

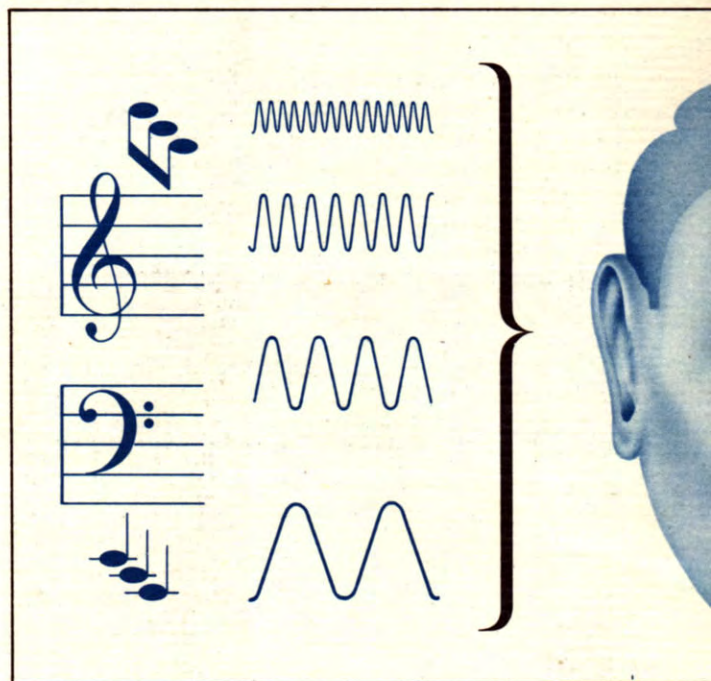
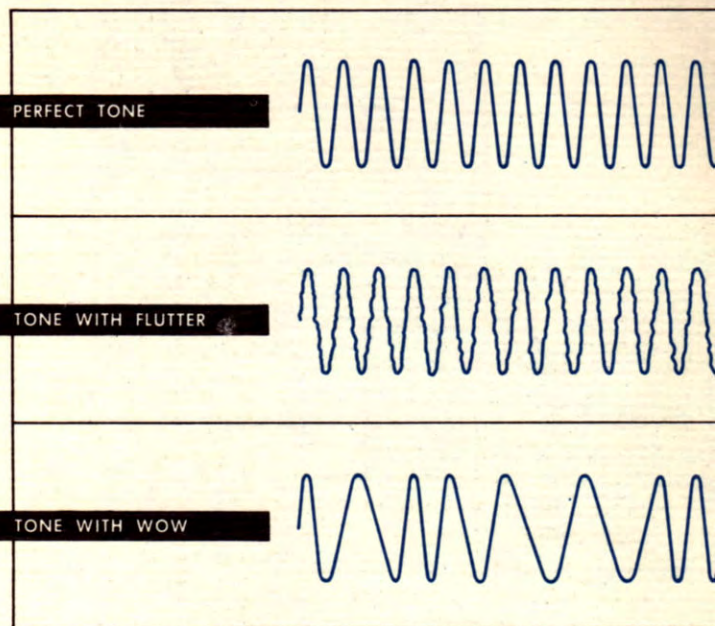
FREQUENCY RESPONSE

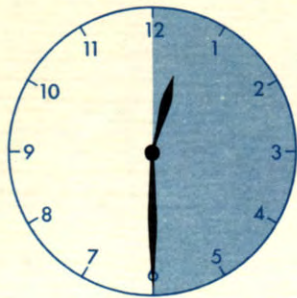
Ampex records frequencies well beyond 15,000 cycles, the top range of the sensitive human ear. It retains all the harmonic overtones which give musical instruments and human voices their characteristic sounds and live, resonant qualities.

In achieving a level frequency response, the Ampex Recorders adhere to NARTB equalization curves, the **one established standard of the industry**. Thus, a recording from one Ampex machine can be played back on any other Ampex or other machine adhering to these same standards; frequency response will remain correct.

Ampex frequency response at various tape speeds is as follows:

- 30 to 15,000 cycles within ± 2 db at 15 in/sec. tape speed
- 30 to 15,000 cycles within ± 4 db at 7½ in/sec. tape speed
- 40 to 10,000 cycles within ± 2 db at 7½ in/sec. tape speed
- 50 to 7500 cycles within ± 2 db at 3¾ in/sec. tape speed

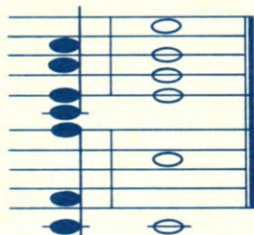




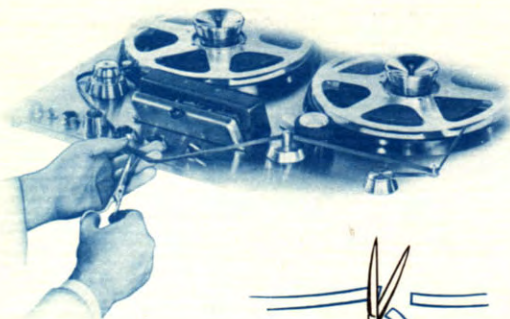
30 MINUTES



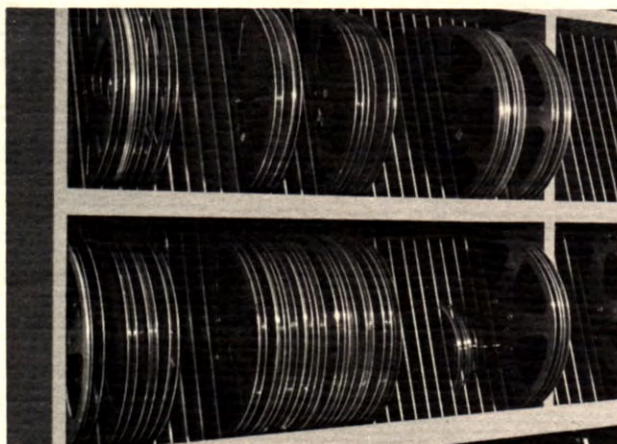
3.6 SECONDS



...Your sponsor has been—



It is now ~~the~~ time



In this typical radio broadcast station, these tapes will be reused thousands of times.

ACCURATE PROGRAM TIMING

Ampex meets the exacting requirements of radio broadcast timing. It avoids the embarrassment of programs cut short and commercials that overlap. It enables the radio broadcast station to maintain its obligation to both the listening audience and to the sponsor whose message must be delivered to the fullest advantage.

Accuracy of timing is inherent in the Ampex design — it is not a precarious balance of adjustments. Month after month Ampex timing will remain correct — not only on any one machine, but also between one Ampex and another. Recordings made on any Ampex can be played back on another Ampex without causing an appreciable change in timing.

Playback time — ± 3.6 seconds (0.2%) in 30 minutes; this includes allowance for likely change in tape dimensions due to temperature, humidity and tape stretch.

EASE OF EDITING

The cutting of a word, the adding of a sentence or the stretching of a pause is done in a simple snipping and splicing of tapes. For example two radio actors in New York and Hollywood could recite their separate parts onto Ampex tapes and the two tapes could be spliced together into a fast-moving dialogue. The splices are completely silent.

In the recording studio, tape has a tremendous psychological advantage. The performers are at ease, knowing that a mistake in the critical last minutes of a 15-minute program will not necessitate a complete rerecording. It also eliminates concern with exact timing, since excess time can generally be eliminated in editing.

The Model 300 Ampex is designed to simplify editing. Even more important, it is sturdily constructed to stand up under the repeated starting, stopping and fast rewinds required in extensive editing work.

COST SAVINGS THROUGH REUSE OF TAPE

Each tape can be erased and reused countless times; one tape manufacturer has recorded and erased over 10,000 times without affecting the quality of sound reproduction on the tape.

To the recording studio it means that the numerous retakes which may be necessary to achieve a perfect program add no extra tape expense. To the broadcast station it means that the heavy load of day to day transcriptions make repeated use of a comparatively few reels of tape. The cost of consumed material is reduced to practically nothing.

In reusing a tape, the erasing of the previous program is done automatically in the same pass that records the new sound. There is no extra labor or expense involved.

SIMPLICITY AND CONVENIENCE OF OPERATION

In a few minutes time a new operator can learn to thread a tape and operate all the controls of an Ampex. In a short time he will find that it operates itself with but a minimum of attention and the simplest of precautions.

To the experienced recording and broadcast engineer, Ampex's reliability and ease of operation leave him free to devote his attention to other problems. In the small radio station, Ampex makes it more readily possible for one man to carry on the entire operation.



Direct or remote control

All functions of the recorder are handled by simple push-button controls. Easily connected remote controls are available as an Ampex accessory.

Fast start

The tape reaches a full constant speed in 1/10th second when the proper button is pressed. Split-second timing of programs is easily handled.

Quick positive brakes

Brakes respond instantly to the stop button, to tape breakage or to end-of-the-reel runoff. Brakes act on both the feed and takeup reel. No slack or spillage of tape will occur under any condition.



Ampex responds instantly and precisely to any phase of control.

- *In every detail
AMPEX performance
reflects
AMPEX quality.*
- *To operate the
machine is to know that
AMPEX is the finest.*

THE ENGINEERING BEHIND THE SOUND

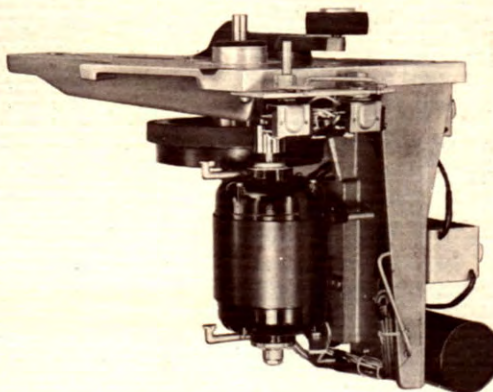
To build a machine that is both fine and practical, Ampex engineers have aimed for two objectives in the design of every component and accessory.

First was the direct problem of function. Each part has had to make its contribution toward fidelity, timing or utility and convenience. Elimination of inherent circuit noises, leveling out of unwanted mechanical motions and creation of desired starting, stopping and tape handling characteristics have presented challenging design and manufacturing problems. Persistence and ingenuity have solved them.

Second is reliability and durability. This consideration has received persistent attention throughout Ampex design. As a result the machine not only meets and exceeds high specifications, but it maintains this exceedingly high order of performance through thousands of hours of service—reason enough why engineers have implicit faith in Ampex machines.

STABILITY OF TAPE MOTION

Accuracy of program timing and freedom from distracting flutters and wows both depend on extreme stability of tape motion. Since the capstan shaft, capstan driving components, idlers and tension arms determine the accuracy of this motion, utmost care has gone into their design and manufacture.



STEADY DRIVING MOTION

is furnished by a hysteresis synchronous motor. Speed is "electrically locked" to the frequency of the alternating current source.

CONSISTENT TAPE SPEED

from one Ampex machine to another is achieved by precise grinding of the capstan shaft. Ampex capstan diameters are held to a tolerance closer than one ten-thousandth inch. Final grinding is done with the capstan mounted on its own bearings, reducing runout to a practical minimum.

POSITIVE TAPE DRIVE AND UNIFORM TENSION

result from the interaction of the capstan, capstan idler, reel idler and tape tension arm. A solenoid pivots the capstan idler, pressing the tape against the capstan. The pressure exerted is sufficient for positive drive. The reel idler shortens the unsupported tape length and provides inertia that resists high frequency tape motion.

RAPID START AND STOP

and quick tape speed stabilization are additional results of the Ampex capstan and idler design. The capstan runs continuously at normal operating speed while the pivoting capstan idler engages or disengages the tape in response to the start or stop buttons.

HIGH PERFORMANCE MAGNETIC HEADS



Design of the record and playback heads is responsible for Ampex's extremely wide frequency response and is also an important factor in high signal to noise ratio. Equally important is the fact that the Ampex head characteristics remain essentially uniform over thousands of operating hours.

PRECISION LAPPING

of gap surfaces to a microscopic flatness is responsible for achieving desired performance. When the heads are assembled, these surfaces are separated by a thin, uniform spacer to form a magnetic gap (.00025-inch wide on the playback head). Narrowness of this gap gives Ampex its high frequency response. Uniformity of the gap preserves constant head characteristics throughout the wear incurred in thousands of hours of service.

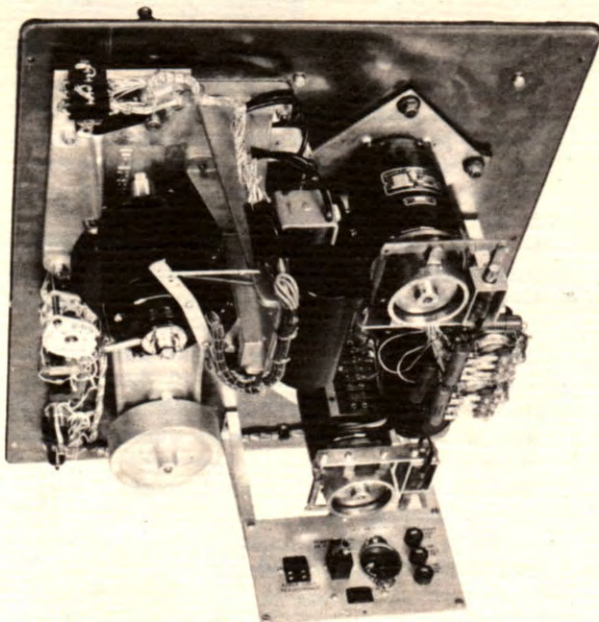
HIGH IMPEDANCE DESIGN

of the Ampex heads helps keep noise level to a minimum. By using a large number of turns on the head, Ampex eliminates head circuit transformers which would be a source of hum. To eliminate eddy currents, the head segments are laminated, consisting of very thin alternating layers of high permeability metal and dielectric material.

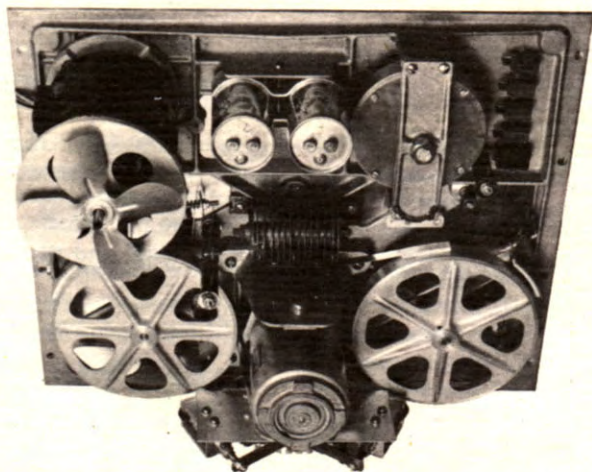
A SPECTACULAR EXAMPLE

of the value of Ampex's careful head design was furnished by a head assembly that was returned to the factory after 11,000 known hours of operation. An instrument check revealed that the head performance was still within Ampex specifications.

BRAKING AND TAPE TENSION CONTROL



300 SERIES Tape handling mechanism of the 300 series is a model of simplicity and effectiveness. Both feed and takeup reels operate on separate motors with torque in opposite directions. Torque-speed relation of these motors is such that they retain very nearly constant tension on the tape throughout the playing of a reel of tape.



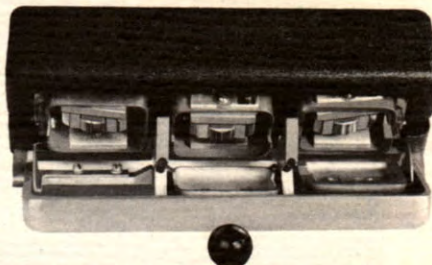
400 SERIES Tape feed and takeup tension on the 400 Series Ampex is maintained by a constant tension holdback arm and a motor driving the takeup reel. The entire system is somewhat lighter in weight than the 300 series system and is partially responsible for the greater portability of the 400 series machine. Very little sacrifice is made in tape handling qualities.

BRAKING

The 300 series machines use quick acting band type brakes; the 400 series use equally fast shoe type brakes. Both types are applied by spring tension, the brakes being held off by a restraining solenoid while in play, fast forward or rewind. Pressing of the stop button, current failure or tape breakage de-energizes the solenoids and applies the brakes.

SHIELDING OF ALL CRITICAL CIRCUIT PARTS

Thorough shielding of the recording and playback heads of the Ampex Recorders minimizes the picking up of noise from stray magnetic fields. Mu-Metal housings with precision fit covers enclose the magnetic heads, shielding them from all external fields. Coaxial head cables are shielded throughout their lengths and use coaxial shielded type connectors.

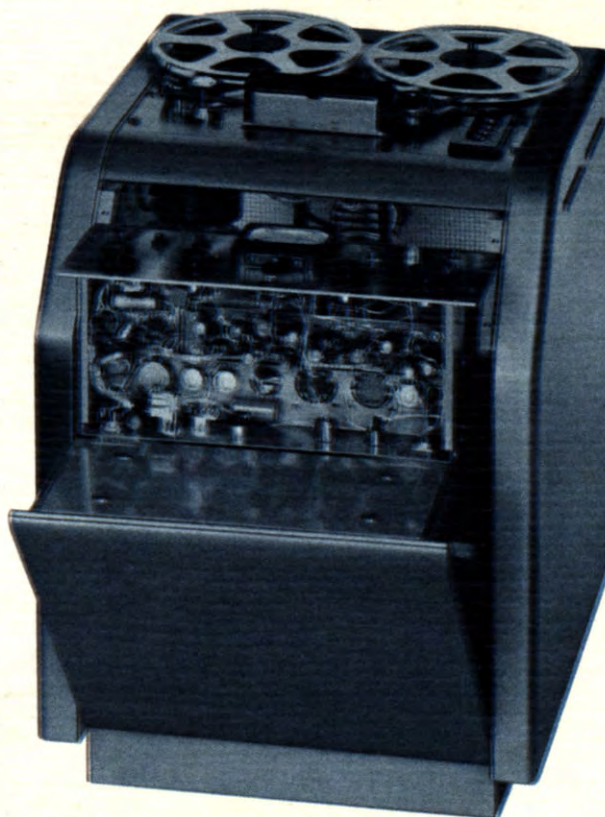


LOW NOISE LEVEL IN THE AMPLIFICATION CIRCUITRY

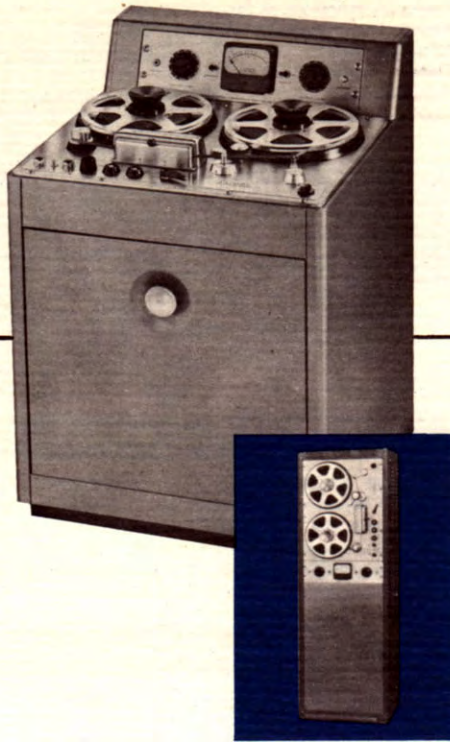
The entire amplification circuitry of the Ampex operates substantially below the low basic noise level of the tape itself. To achieve this, the head circuits use no transformers; head leads have low capacitance and minimum surface to intercept stray fields; preamplifier tubes are D.C. heated and all amplifier components are carefully laid out to minimize hum.

ACCESSIBILITY FOR SERVICE AND CHECKING

Ampex tape recorders have been designed for accessibility to a maximum number of test points while the machine is recording or playing. Accessibility is particularly notable in the latest Ampex model 402 and 403 consoles which have slide-out front panels, tipover electronic chassis and other provisions that make them the most accessible console machines on the market.



**SERIES
300**



Where a speaking or musical performance justifies the finest recording that it is possible to make, the Ampex 300 Series Recorder is universally preferred. It is the most carefully engineered sound recorder ever perfected for commercial use — and by far the most widely used machine in its price class.

In fidelity, reliability and ease of operation, the Series 300 Recorder shows its superlative design. Recordings produced on the Model 300 have flutter and wow reduced to minimum feasible levels (substantially below human perception). Signal to noise ratio exceeds 60 decibels, by NARTB standards. Starting, stopping, reversing and all other aspects of tape movement are flawlessly controlled.

The 300 Series Ampex is also the preferred type for tape editing. By a single control switch, the tape can be shuttled rapidly between forward and reverse to locate correct cutting places.

**SERIES
400**



By providing high fidelity, reliability and durability in a tape recorder of more modest cost, the Ampex 400 Series fills the need of radio stations, music conservatories, schools, universities and numerous other professional and non-professional uses.

In every sense, the Ampex 400 Series are high fidelity machines. For the radio station they provide transcriptions that are indiscernible from live broadcasts. For the school, university and music conservatory, the 400 Series records and plays back with lifelike fidelity that has maximum teaching value. For commercial, industrial, medical and other uses, they provide the highest professional class of performance.

As an investment in long, trouble-free service, the Ampex 400 is a truly outstanding value. Life expectancy of the recording and playback heads is more than 5000 hours depending on tape speed (many times as long as that of any other recorder). Other mechanical and electrical components are built to similarly high standards of durability.

APPLICATIONS

BROADCASTING

For studio recording of radio shows, spot commercials, holding of programs for delayed broadcasts, editing of program material and special sound effects.

RECORD MANUFACTURERS

For the making of full fidelity master recordings of all types of musical and dramatic performances.

COMMERCIAL RECORDING STUDIOS

For recording radio shows, spot commercials, musical performances and spot insertions and for editing.

SYMPHONY ORCHESTRAS, BANDS, CONCERT ARTISTS

For recording and playback of rehearsals and the making of private recordings.

SPECIFICATIONS

These brief specifications are conservative ratings, each individual machine being instrument-tested to equal or exceed all figures. More detailed specifications are given in bulletins on each particular model.

FREQUENCY RESPONSE

15 in/sec. — 30 to 15,000 cycles within ± 2 db.
7½ in/sec. — 40 to 15,000 cycles within ± 4 db.
— 40 to 10,000 cycles within ± 2 db.

SIGNAL TO NOISE RATIO

Over 70 db. maximum recording level to unweighted noise.
Over 60 db. as defined by NARTB standards.

STARTING TIME

0.1 second to stable playing speed at 15 inches per second.

STOPPING TIME

Less than 2 inches tape movement after the stop button is pressed at 15 in/sec. tape speed.

FLUTTER AND WOW

Well under 0.1% rms. at 15 in/sec.
Well under 0.2% rms. at 7½ in/sec.

PLAYBACK TIMING ACCURACY

0.2% or ± 3.6 seconds in a 30 minute program.

REWIND TIME

One minute for the full NARTB reel (2400 feet).

APPLICATIONS

RADIO STATIONS

Recording and delayed broadcasting of commercials, announcements and programs; exchange of program material; outside pickup of programs (on portable models).

BANDS, ORCHESTRAS AND MUSIC CONSERVATORIES

Recording and playback as a teaching and rehearsal aid; making of private recordings.

INFORMATION SERVICES

Preparation of informational programs for dissemination of religious, educational or propaganda material.

MEDICAL

Study and teaching of heart sounds, psychiatric interviews, etc.

HOME MUSIC SYSTEMS

Ultra high fidelity recording and playback.

OTHER APPLICATIONS

Any use where reliability, fidelity and long life are important.

SPECIFICATIONS

Each individual 400 Series machine is instrument-tested to equal or exceed all figures. More detailed specifications are given in bulletins on each particular model.

FREQUENCY RESPONSE

Same as the 300 Series.

SIGNAL TO NOISE RATIO

Over 65 db. maximum recording level to unweighted noise.
Over 55 db. as defined by NARTB standards.

STARTING TIME

0.5 seconds to stable playing speed at 15 in/sec.

STOPPING TIME

Same as 300 Series.

FLUTTER AND WOW

Well under 0.2% rms. at 15 in/sec.
Well under 0.25% rms at 7½ in/sec.

PLAYBACK TIMING ACCURACY

Same as 300 Series.

REWIND TIME

Approximately 1½ minutes for the full 2400 foot NARTB reel.

RADIO NETWORKS AND MAJOR BROADCASTING STATIONS



Ampex Tape Recorders are firmly established as a basic item of equipment in network broadcasting. Tape is used as a program-originating medium and is utilized throughout the network as a means to hold and relay programs.

When used as an originating medium, the Ampex Tape Recorder allows performers to give a free moving, spontaneous performance. In tape form the program is easily edited for corrections and exact timing. As a program holdover, the Ampex tape has the advantage that successive rerecording adds no perceptible noise or distortion.

High fidelity, accurate playback timing, ease of editing, reliability and durability are Ampex advantages of great importance in this application.

LOCAL RADIO STATIONS



Tape transcriptions of programs, announcements and commercials give the local station greatly increased flexibility with its limited personnel. Also, an Ampex can be used to pick up program material from local events, schools, businesses and farms. If desired, programs can be exchanged with other independent stations, networks and other outside sources.

Although the need for tape recorders in local broadcasting is universally recognized, many operators have underestimated the demands they would make on the equipment. Consequently they have purchased relatively light equipment. In prolonged usage these machines prove uneconomical from the standpoint of maintenance and reliability.

By comparison, Ampex offers reduced maintenance cost, longer practical life, more accurate program timing and far higher reliability. These savings alone justify purchase of Ampex Recorders as replacements for existing light-duty equipment.

RECORDING STUDIOS

Economy, flexibility and high fidelity have made the Ampex Tape Recorder the heart of practically every well-equipped commercial recording studio. Whether the job is a radio commercial, a 15 or 30 minute radio program or a master recording for disc records, the original recording is almost always done on tape.



Tape recording has a tremendous psychological advantage in putting performers at ease. Exact timing becomes less important and minor errors can be corrected in editing.

For the manufacture of disc recordings, Ampex makes master tapes that defy obsolescence. The fidelity of the master is ample to handle any likely future improvements in record manufacture—or to meet future demands for high fidelity copy tapes. Fidelity, ease of editing and durability are Ampex characteristics of great importance to the recording studio.

AMPEX

APPLICATIONS

Ampex Tape Recorders are in greatest use in radio broadcasting and commercial studio recording. It is in these fields of discriminating usage that Ampex has established its leadership in the tape recorder industry. In some of the other fields of tape recorder usage, the demand for high fidelity and long reliable life are causing more and more users to turn to Ampex.

These descriptions of the various fields of use are necessarily short. More detailed information will be found in Ampex bulletins on each application.

CONTINUOUS MUSIC SERVICES

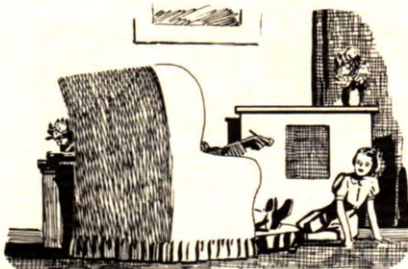


In providing up to eight hours of continuous music without attention from an operator, the Ampex Model 450 sets new standards of economy and convenience for Muzak franchises and other users of background music.

In background music applications, tape will withstand any likely number of replays without loss of fidelity. In addition, it offers lower distortion and eliminates needle scratch noise encountered with discs.

Automatic control of the Model 450 makes it highly practical either in centralized or isolated installations. No attention to the machine is required except at 8-hour change periods (or even less frequently if clock-controlled silent periods are incorporated). Starting, stopping and reversing can all be controlled automatically with accessory equipment.

HIGH FIDELITY MUSIC SYSTEMS FOR THE HOME



The growing popularity of high fidelity music systems in the home is creating a significant demand for the Ampex 400 Series machine in this field. Ampex playback of high fidelity tapes provides a fullness and realism unequaled by any other recording means. It brings noted performers or symphony orchestras "right into the home." From F-M broadcasts, the Ampex can make high fidelity tapes to build a tape library. High fidelity tape performances are also available commercially.

REHEARSAL AID FOR MUSICAL PERFORMERS



Numerous Ampex machines are owned by noted musicians, symphony orchestras, bands, dance orchestras, conservatories and schools. The practicing individual or the rehearsing group gains new insight by sitting as "audience" to an immediate playback of his own performance. The fidelity of the Ampex is extremely important in this application and the fact that the tape can be reused is a highly worthwhile economy.

LANGUAGE, SPEECH AND DRAMATICS INSTRUCTION

In schools, colleges and universities, the value of tape recorders is widely recognized by teachers and professors. Recording and playback of speech affords an excellent means for self-criticism. In dramatics the Ampex Tape Recorder serves also as a means for making a permanent recording of noteworthy performances.



The fidelity of the Ampex is valuable in giving "true to life" playback of spoken words. Durability and freedom from constant maintenance is a major consideration in schools where extensive use will be made of the machine.

RESEARCH

Study of noises is of particular interest in the designing of automobiles, buses, railroad equipment, airplanes and components. It is also of great interest in the study of sound insulation, acoustical phenomenon and other noise reduction problems.

The Ampex Recorder gives a research engineer an infallible "sound memory." In effect he is able to save "test tube samples" of sound.

With these samples of sound, the engineer is able to make instrument analyses and compare sounds gathered in tests over a period of time under a variety of test conditions.

MEDICINE

The Ampex Recorder makes it possible to build up libraries of typical sounds from a wide variety of heart disorders. From such a permanent collection, demonstrations and comparisons can be made at any time, either for personal study or for teaching or lecture before any size group of students or doctors. Fidelity of the Ampex is ample to record these sounds with no perceptible distortion.

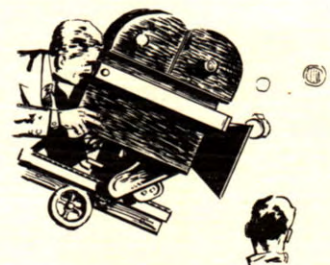


Similarly, the Ampex can be used to record psychiatric interviews for later discussion among groups of students or psychiatrists. High fidelity of the machine serves to capture the full emotional content of the interview.

THREE DIMENSIONAL SOUND

For research work and special sound effects, Ampex stereophonic recorders provide three dimensional sound. The stereophonic recorders have two tracks which record simultaneously from two properly placed microphones. The sound is played back through two properly placed speakers (or earphones), gaining directional characteristics similar to human hearing through two ears.

MOVING PICTURE SYNCHRONIZATION



A sound track tape with "lip synchronization" to the moving picture can be made by using Model 380 speed lock equipment in conjunction with any Ampex Recorder. Tape can be monitored as it is recorded, immediately showing up any effects of incorrect microphone placement, etc. Cost of magnetic tape is about 1/20th that of film.

The tape sound track can be used either directly with projection of the film, or can be used to make optical sound track on copies of the original film.

**CONSOLE
RECORDERS,
STANDARD
TYPE**

MODEL 300-C

Console recorder — full track; two speed, 7½ and 15 inches per second; matching or bridging inputs optional.

**RACK
MOUNTED
RECORDERS,
STANDARD
TYPE**

MODEL 300-R

Rack mounted recorder — same components and performance as the model 300-C.

**PORTABLE
RECORDERS,
STANDARD
TYPE**

MODEL 300-S

Two case portable recorder — same components and performance as the model 300-C.

AMPEX

AUDIO RECORDER MODELS

**RECORDERS
WITH
SPECIAL SPEEDS,
TWO-SPEED
TYPES**

MODEL 301

Recorders of console, rack mount or portable type — tape speeds 15 and 30 inches per second; otherwise same as model 300. Other special speed combinations — 3¾ and 7½ inches per second and 1⅞ and 3¾ inches per second.

**RECORDERS
WITH
SPECIAL SPEEDS,
THREE-SPEED
TYPES**

MODEL 305

Recorders of console, rack mount or portable type — tape speeds 7½, 15 and 30 inches per second; otherwise same as model 300. Other special speed combinations — 3¾, 7½ and 15 inches per second and 1⅞, 3¾ and 7½ inches per second.

**STEREOPHONIC
RECORDERS**

MODEL 300-2C

Console mounted stereophonic recorder — records two tracks simultaneously; dual track erase, record and playback heads; two amplifiers and power supplies; two speeds, 7½ and 15 inches per second; matching or bridging input optional.

MODEL 300-2R

Rack mounted stereophonic recorder — same components and performance as the model 300-2C.

**CONTINUOUS
TAPE
PLAY-BACK
MACHINES**

MODEL 403-C

Console recorder—full track; two speed, $7\frac{1}{2}$ and 15 inches per second; input selector for microphone or bridging (balanced or unbalanced line).

MODEL 402-C

Console recorder—same as 403-C except for half track heads.

MODELS 403-R AND 402-R

Rack mounted recorders—same components and performance as models 403-C and 402-C respectively.

MODELS 403-P AND 402-P

Two case portable recorders—same components and performance as models 403-C and 402-C respectively.

MODEL 401-A

Single case portable recorder—full track; similar components and performance to the model 403.

MODEL 400-A

Single case portable recorder—half track; similar components and performance to the model 402.

MODEL 403-2S

Three case portable stereophonic recorder—all interconnecting cables furnished; two speeds, $7\frac{1}{2}$ and 15 inches per second; input selectors for microphones or bridging inputs (balanced or unbalanced).

MODEL 403-2R

Rack mounted stereophonic recorder—same components and performance as the model 403-2S.

MODEL 450

Continuous player—up to 8-hours continuous playback at $3\frac{3}{4}$ inches per second standard tape speed; dual track to play double track tape without turning over reel; no erase or record heads and no rapid rewind.

To adapt Ampex Recorders to special physical or operational requirements, various Ampex accessories are available, a few of which are briefly described below. Full descriptions of accessories are given in individual specification sheets.

MIXERS



Mixing of low level inputs of several microphones is provided by these units. Each microphone input is individually amplified and attenuated before mixing. Mixers are designed and built to give the highest practical signal to noise ratio. Mixer output feeds to a single input of the recorder itself.

Model 385—Three channel mixer for the Series 300 Ampex Recorders; designed for mounting on a standard 19-inch relay rack or in a portable case.

Four channel mixer—Designed for the 400 Series Recorders, this four channel mixer fits the electronics case of the two case portable. It also fits a standard 19-inch relay rack.

MOVING PICTURE SYNCHRONIZATION EQUIPMENT

To tape record the sound track for moving pictures, Ampex Speed-Lock Equipment provides positive "lip synchronization" between picture and tape. During filming, sound is recorded with a 60-cycle control signal incorporated. For playback during projection or copying of the film, this control signal is electrically compared to the frequency of the projector drive current. From this frequency comparison the tape playback is synchronized with the picture, eliminating the effects of tape stretch and other variables.

380 SPEED LOCK EQUIPMENT

380 Control Track Generator—Used with the magnetic tape recorder at the time the original recording is made. It puts a control signal onto the tape along with the program material.

380 Demodulator—Separates the control signal from the program and compares frequencies of the control signal and the current to the projector motor.

380 Power Amplifier—Provides the tape capstan motor with driving power whose frequency is controlled to make necessary speed adjustments. The power amplifier is controlled by the frequency corrections provided by the demodulator.

REMOTE CONTROL PANELS



Start, stop, rewind and record functions of the 400 Series Recorders can be controlled from any desired location by using the simple Ampex remote control panel. Since all these functions are already solenoid operated, the remote control panel connects very simply to the recorder and in no way changes any of the control circuits of the recorder itself (there is an additional charge for recorders factory-equipped with plug-in socket).

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