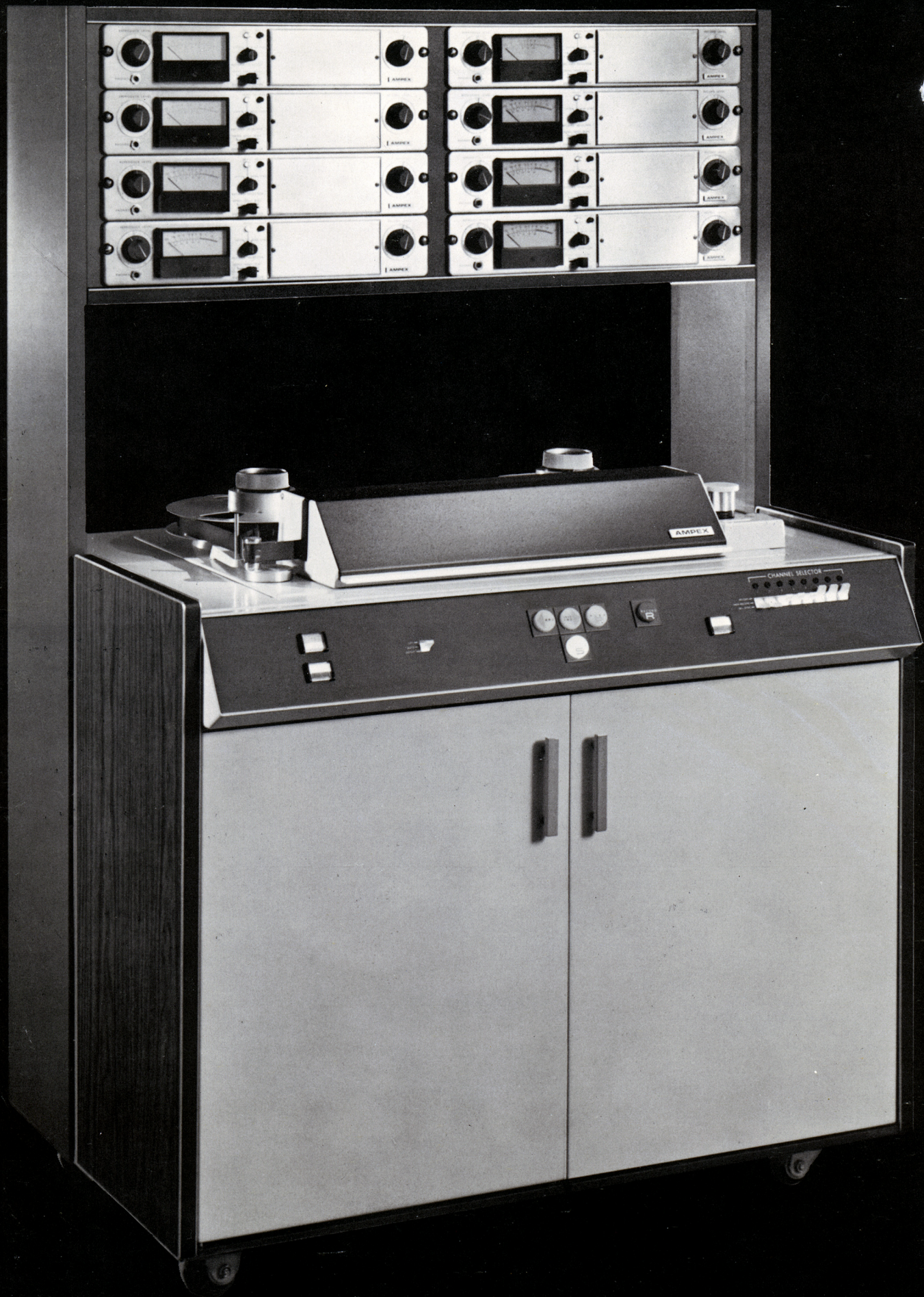




**AMPEX**

**MM-1000  
SERIES**

Multi-channel creativity in the sound revolution



The sound revolution is happening. It's happening in the studios equipped to experiment with new ideas. And, it depends on the creative use and flexibility of multi-channel equipment. Industry wide, present generation audio transports are not designed for wide tape. Ampex drew from its twelve years of experience in two-inch videotape recorder technology to develop a new generation master recorder transport rugged enough and stable enough to handle both two and one-inch wide tape. Its oversize capstan and rugged heavy duty motors handle tape smoothly and gently — hour after hour.

The new generation MM-1000 master recorder/reproducer is available in 8, 16 and two 24 channel versions. Or, start with 8 channels and expand to 16 or 24 channels without obsoleting any of the original components. Thus, studio capability can be increased as the trend develops. And all the time, capital investment is protected.

**PROMOTION MINDED.** All the excitement of a totally new system for creative multi-channel master recording is built into the MM-1000. The new sound groups demand this kind of excitement in the equipment they use, and record at the studios that offer it. The new MM-1000 will capture the imagination of these groups and challenge their creativity. Thus, a studio offering MM-1000 multi-channel capability has a promotable edge over studios that do not.

**FIELD-PROVEN.** Because it was designed specifically to handle wide tape, the MM-1000 transport assures proper movement of both two-inch and one-inch tape. Only Ampex offers a field-proven two-inch transport. More than 3000 transports of this type are in daily use in video tape recording.

**INVESTMENT PROTECTION.** Modular construction allows the basic MM-1000 8-channel one-inch recorder to be built up to 16 or 24 channels using two-inch tape by simply changing heads and adding standard electronics and controls (available as a kit). This expandability keeps your studio competitive and up-to-the-minute.

**SERVICE EASE.** MM-1000 components are packaged for quick access, allowing easy maintenance and minimum down-time. Modular construction and front panel mounting mean quick replacement or servicing of the electronics boards. Individual head stacks are replaced quickly and easily. Transport motors, guides and major components can be quickly removed and replaced in exact alignment because of the precision-milled transport deck. Transport and electronics are accessible from all sides.

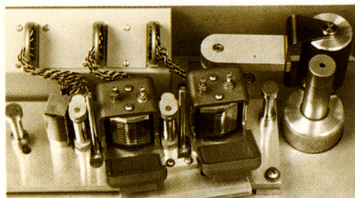
**START YOUR FUTURE TODAY.** Ampex offers both lease and extended-pay plans on the MM-1000. With one of these plans, the MM-1000 can pay for itself out of current earnings. Contact your Ampex District Office today for full details.

# New rugged transport designed to handle two-inch tape

## New tracking stability • New oversize capstan • Heavy duty motor

### features

**HEAVY-DUTY TRANSPORT** provides rigid mounting of all mechanical components, assuring permanent alignment of head assembly and tape guiding elements. Major components are identical to video tape transport components.



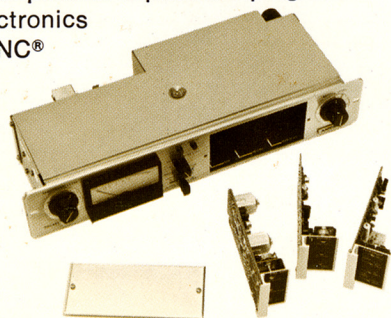
**PLUG-IN HEAD ASSEMBLIES** allow easy and rapid change from 8 to 16 or 24-channel configurations. A dowel pin assures accurate alignment of heads. Head

cover opens fully for easy access to heads for cleaning, editing and degaussing.

**AUTOMATIC TAPE LIFTERS**, with manual override, ease the tape away from the heads during rewind and fast forward, return after tape comes to a complete stop. Defeat switch is included on accessory remote control.

**MASTER BIAS-OSCILLATOR** feeds all channels. Use of single oscillator eliminates interchannel beats and assures stability. 150 kHz bias and erase frequency reduces modulation noise.

**ALL SOLID-STATE PLUG-IN MODULES** provide the ultimate in sophisticated electronics. A separate module for each channel contains individual plug-in record, reproduce and bias amplifiers. Equalizers plug into the amplifier boards. Electronics have built-in **SEL-SYNC®** (selective synchronization) with full remote control capability. Boards plug in from the front with adjustments made from the front.

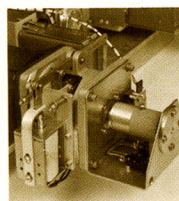


**SELECTION CONTROLS ILLUMINATE** red, green or yellow to indicate electronics mode. Transport controls also illuminate to indicate operating mode.



**PROVEN BRAKING SYSTEM** provides smooth, fast, positive control of both one-inch and two-inch tape. Heavy-duty friction type brakes are used to assure absolute braking, even with power loss. Extreme position of tension arm releases brakes for easy tape threading.

**TAPE POSITION INDEX** is driven directly by tape in all modes of operation. Indicator is calibrated to read directly (at 15 ips) in hours, minutes and seconds, repeatable within  $\pm 0.1\%$  in all modes. Electronic timer is available as an accessory.



**TAPE MOTION SENSING** is an integral feature of the transport. Built-in logic and memory enables smooth transition from one mode to another without danger of tape breakage or stretch. Tape motion sensing is included with all models.

**TAPE TRANSPORT CONVERTS** quickly from one-inch to two-inch tape by changing rotary tape guides and head assembly. The field proven transport properly moves both one-inch and two-inch tape because it was designed specifically to handle wide tape.

**HANDLES 1 MIL OR 1.5 MIL TAPES** in either pancake or standard reel configurations. Accommodates 10½, 12 or 14-inch reels; provides up to 192 minutes of continuous recording.

**UP TO 300 IPS FAST-FORWARD AND REVERSE**—requires 1.4 minutes to rewind 10½" reel using two-inch 1.5 mil tape.

- Only 16 or 24 channel recorder/reproducer available for long term operation
- Quiet trouble-free plug-in electronics

**MUMETAL HEAD SHIELD** guards against hum from stray fields. Tapes recorded on the MM-1000 are fully interchangeable with tapes recorded on other Ampex multi-track machines of the same tape-track format.

**TWO CONFIGURATIONS** allow maximum flexibility. Expandable version contains 8 channels in console overbridge; for 16-channel recorder, the additional 8 are housed in console base; for 24-channel recorder, 8 more are housed in side rack (Fig. A). A single-console 24-channel version is also available, having all electronic modules mounted in console base (Fig. B).

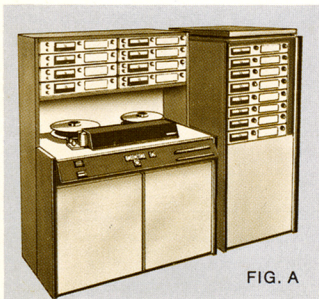


FIG. A

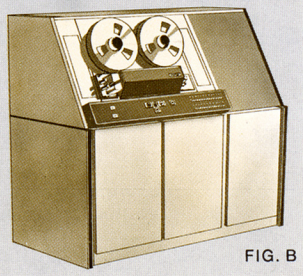
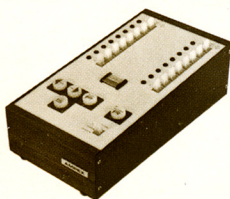


FIG. B

## accessories

**CAPSTAN MOTOR DRIVE AMPLIFIER**—Allows tape speed to be referenced to external or internal standard.

**REMOTE TRANSPORT CONTROL**—Desk top control unit duplicates all transport functions allowing remote operation of MM-1000.



**REMOTE SEL-SYNC SYSTEM CONTROL**—Duplicates mode controls on control panel for record, non-record and SEL-SYNC in convenient desk top unit.

**TRANSPORT AND SEL-SYNC SYSTEM REMOTE CONTROL**—Duplicates all transport and SEL-SYNC functions in single desk top unit. Illuminated controls for record, play, fast forward, reverse, stop and SEL-SYNC/play plus tape-lifter defeat switch in transport section. SEL-SYNC section has three-position illuminated switch for each channel, indicating: record (red), non-record (yellow) and SEL-SYNC (green); and a red pilot light to indicate the channel is in the record mode.



**ELECTRONIC TIMER**—Recorder mounted unit can be installed at customer's location; provides large luminous digital readout (NIXIE display) of "elapsed time" or "time remaining." Permits up to four remote read-out slaves which can be mounted at studio console or other locations. Mechanical tape-position index removed when electronic timer is installed.



**CONVERSION KITS**—Complete package of electronics, head, controls and wiring harness for conversion of 8-channel MM-1000 to 16 or 24 channels. 24-channel conversion must be made at factory.

**PLUG-IN INPUT UNIT**—Interchangeable units match various inputs such as transformer for balanced bridging, 600 ohm line matching, or preamplifiers for both low and high impedance microphones.

**PLUG-IN EQUALIZERS**—Interchangeable units provide NAB or CCIR curves appropriate to each tape speed.

**EXTENDER BOARDS**—Permit servicing or testing electronics boards while in operation. Four types available: master power supply/bias oscillator, playback, record and bias amplifier.

# specifications

**TAPE SPEEDS (DUAL):** 7.5 and 15 ips (15 and 30 ips available on special order)

**NUMBER OF CHANNELS:** 8, 16 or 24 channels

**SIGNAL TO NOISE RATIO:** 7.5/15 ips; 60 dB min, 8 and 16 channel

Peak record level to unweighted noise (30 Hz to 18 kHz). Includes bias, erase, and playback amplifier noise using Ampex 404 series tape or equivalent.

**FREQUENCY RESPONSE (OVERALL):**

15 ips:  $\pm 2$  dB, 30 Hz—18 kHz

7.5 ips:  $\pm 2$  dB, 30 Hz—15 kHz

**ERASURE:** (Selective erasure on each channel)

7.5/15 ips, 70 dB (50 dB min, 8 and 16 channel)

**FLUTTER:** 15 ips: below 0.08% rms

7.5 ips: below 0.1% rms

percentage of total flutter is measured by the methods of the ASA 257.1-1-1954, in a band 0.50200 Hz, while reproducing an Ampex flutter test tape (flutter on test tape less than 0.03%).

**THIRD HARMONIC DISTORTION:** 7.5/15 ips: below 1.1% at normal operating level

**CROSSTALK:** -50 dB minimum 8 and 16 channels at 500 Hz

**PLAYBACK OUTPUT:** +8 dBm into 600 ohms, restrapable for +4dBm output, balanced or unbalanced. Maximum +28 dBm before clipping.

**RECORD INPUT:** 100K unbalanced-bridging with dummy plug supplied or 20K balanced-bridging with plug-in transformer supplied with each electronics—17 dBm to produce recommended operating level.

**ELECTRONIC ADJUSTMENTS:** Accessible from front: equalization, reproduce level, record level, reproduce calibration, bias adjustment, bias calibration, erase ad-

just SEL-SYNC system level and bias trap adjustments.

**HEADS:** 8-track head stacks have adjustable azimuth, 16- and 24-track head stacks are fixed azimuth.

**INDICATORS:** 1. Illuminated transport controls.  
2. "Red" record, "Yellow" non-record, "Green" SEL-SYNC System.

**TIMING ACCURACY:**  $\pm 0.1\%$  ( $\pm 1.8$  seconds in 30 minute record time) for a reel of tape recorded, rewind and played back on the same unit;  $\pm 0.2\%$  from unit to unit.

**TAPE POSITION INDEX:** Reads hours, minutes, and seconds with repeat accuracy of  $\pm 0.1\%$  (15 ips only).

**TIMING REFERENCE:** A.C. line is standard. Accessory M.D.A. allows capstan to be driven from external frequency standard or from interval VFO.

**TAPE WIDTH:** One-inch and two-inch wide up to 14" NAB reels or pancakes. Ampex type 434 (1.5 mil) or 444 (1.0 mil) low-noise mastering tape recommended.

**EQUALIZATION:** All standard models supplied with NAB equalization. CCIR curves available on special order.

**REWIND TIME:** 1.4 minutes to rewind 10½" reel using two-inch 1.5 mil tape.

**START TIME:** Tape at full speed in less than 0.5 second.

**POWER REQUIREMENTS:** 117 volts, 60 Hz. (50 Hz units with multiple-tapped power input transformers are available on special order.)

MM 1000-8 1.7KVA MAX.

MM 1000-16 1.9KVA MAX.

**DIMENSIONS:** Height: 41.5" plus overbridge (total 65")  
(MM-1000 Width: 42.3"  
8 or 16) Depth: 27.5"

Weight: MM 1000-8 approx. 500 lbs.

MM 1000-16 approx. 630 lbs.

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