

**2000**  
SERIES  
SPEAKERS

**1000**  
SERIES  
SPEAKERS

MODEL 2070  
S/N A 18521

**AMPEX**

**2000 series**

**tape recorder/player**

**owner's operating manual**



# PERFORMANCE SPECIFICATIONS

	2070		2050/2080		
	Average Perform.	Guar. Min. Perform.	Average Perform.	Guar. Min. Perform.	
Overall Record/Reproduce Frequency Response (Pre-Amplifier only)	7½ ips	± 2 db 30 cps to 18 KC	± 3 db 50 cps to 15 KC	± 2 db 30 cps to 18 KC	± 3 db 50 cps to 15 KC
	3¾ ips	± 3 db 40 cps to 12 KC	± 4 db 50 cps to 9 KC	± 3 db 40 cps to 12 KC	± 4 db 50 cps to 9 KC
	1⅞ ips	± 3 db 40 cps to 6 KC	± 4 db 50 cps to 5 KC	± 3 db 40 cps to 6 KC	± 4 db 50 cps to 5 KC
SIGNAL TO NOISE (from peak record level to broad band noise) (pre-amplifier only)	7½	52 db	49 db	53 db	50 db
	3¾	48 db	45 db	49 db	46 db
	1⅞	43 db	40 db	44 db	41 db
TONE CONTROL RANGE	16 db				
Variable at 100 cps	-0 to +12				
Variable at 10 KC	-4 to +10				
POWER OUTPUT:					
Continuous rms per channel.	8W	6W			
Peak Voice & Music power both channels combined.	40W	32W			
FLUTTER: (Flutter & Wow comb. measured according to ASA stds.)					
7½	0.08%	0.12%	0.08%	0.12%	
3¾	0.12%	0.15%	0.12%	0.15%	
1⅞	0.2%	0.25%	0.2%	0.25%	
Speed Accuracy					
7½	± 0.3%	± 1%	± 0.3%	± 1%	
3¾	± 0.7%	± 2%	± 0.7%	± 2%	
1⅞	± 1.5%	± 3%	± 1.5%	± 3%	
Fast Wind Times (1200' of Tape)	115 sec.	130 sec.	115 sec.	130 sec.	

**A WORD OF CAUTION**—The tape recorder industry today is in a horse-power race, and there is no standard procedure for obtaining and stating specifications. Therefore, if you wish to compare Ampex specifications with those of any other competitor, you must make sure that those specifications were obtained under similar conditions. Otherwise, no valid conclusions or comparisons can be obtained. Ampex is proud of the specifications of its tape recorders. Throughout the years, Ampex tape recorders have set the pace for the industry and commanded the biggest in trade in values. They will continue to do so.

	2070	2050/2080
Line Input Impedance:	High (470K ohms)	High (470K ohms)
Microphone Input Impedance:	High (1megohm)	High (1megohm)
Line Input Level:	0.2V min. 2V max.	0.2V min. 2V max.
Microphone Input Level:	3mV min. 30mV max.	3mV min. 30mV max.
Line Output Impedance:	Low (Less than 1K)	Low (Less than 1K)
Line Output Level:	0.3V	1V
Power Amp Output Impedance:	8 ohms	Non Applicable

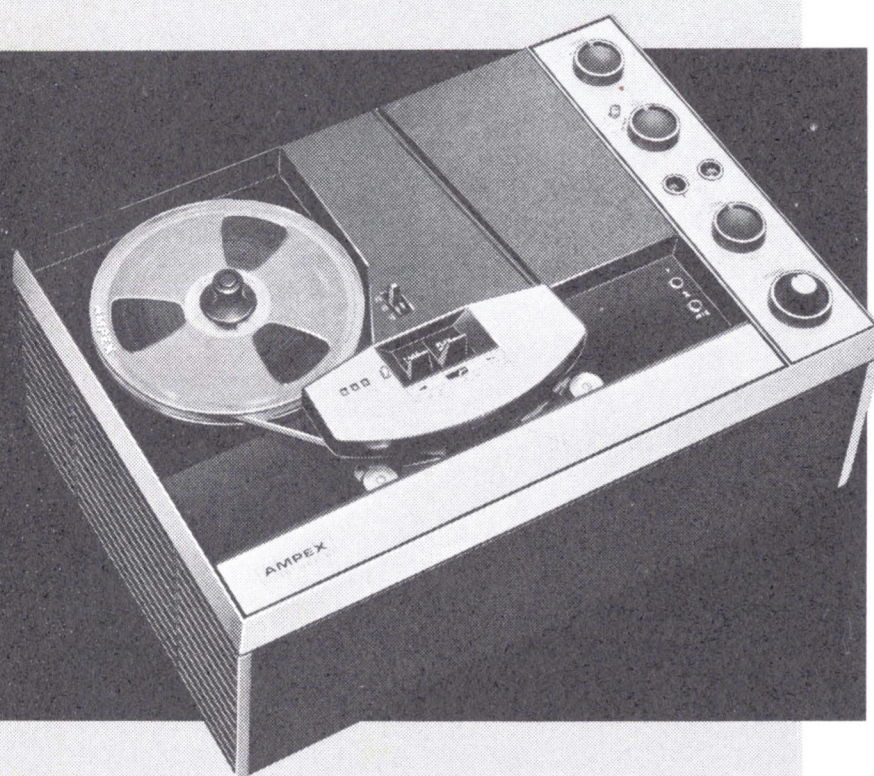
## PHYSICAL DIMENSIONS

Size Overall:	19"x13½" x7½"
Mounting Frame	18⅝"x13"
Maximum Depth behind Mounting Frame	5⅞"
Weight:	39 lbs.      29 lbs.

*Subject to Change Without Notice.*

# AMPEX

## 2000 SERIES



### 2050 TAPE DECK ONLY

### 2070 SELF-CONTAINED PORTABLE

### 2080 TAPE DECK IN WALNUT CABINET

This operator's manual has been prepared so that you may realize the full potential engineered into your new Ampex tape recorder. The recorder is designed to provide the highest level of performance and dependability obtainable in any tape recorder made for home or semi-professional use.

It is suggested that you first read this manual carefully before attempting to operate your instrument. Although there is nothing difficult about the recorder's operation, you will find that when you have read the manual and become familiar with the controls you will enjoy your equipment more thoroughly. When you are ready to perform the various operations, the table of contents will provide a convenient means of locating the pertinent sections of this book.

## TABLE OF CONTENTS

SPECIFICATIONS .....	2
INTRODUCTION .....	3
BASIC TAPE RECORDER KNOWLEDGE..	4
HOW MAGNETIC TAPE WORKS .....	5
LOCATION OF CONTROLS AND INDICATORS .....	6 & 7
THREADING AND OPERATION.....	8 & 9
MODELS 2050 AND 2080 .....	10
AMPEX SPEAKER SYSTEMS .....	11
HOW TO SET UP YOUR RECORDER..	12 & 13
PLAYING MONOPHONIC TAPES .....	14
PLAYING STEREO TAPES.....	15
AUTOMATIC REVERSE SIGNAL .....	16 & 17
RECORDING MONOPHONIC TAPES .....	18
RECORDING STEREO TAPES .....	19
MAINTENANCE PROCEDURES .....	20
EDITING & SPLICING TAPES .....	21
ACCESSORIES .....	22
RECORDING TAPES .....	23
WARRANTY .....	24

## PLAYING TIMES

	2-track stereo tapes	4-track stereo tapes	4-track monophonic tapes
1200' reel, 7½ ips	32 minutes	1 hr 4 min	2 hrs 8 min
3¾ ips	1 hr 4 min	2 hrs 8 min	4 hrs 16 min
1⅞ ips	2 hrs 8 min	4 hrs 16 min	8 hrs 32 min
1800' reel, 7½ ips	48 minutes	1 hr 36 min	3 hrs 12 min
3¾ ips	1 hr 36 min	3 hrs 12 min	6 hrs 24 min
1⅞ ips	3 hrs 12 min	6 hrs 24 min	12 hrs 48 min
2400' reel, 7½ ips	1 hr 4 min	2 hrs 8 min	4 hrs 16 min
3¾ ips	2 hrs 8 min	4 hrs 6 min	8 hrs 32 min
1⅞ ips	4 hrs 16 min	8 hrs 12 min	17 hrs 4 min

# BASIC TAPE RECORDER KNOWLEDGE

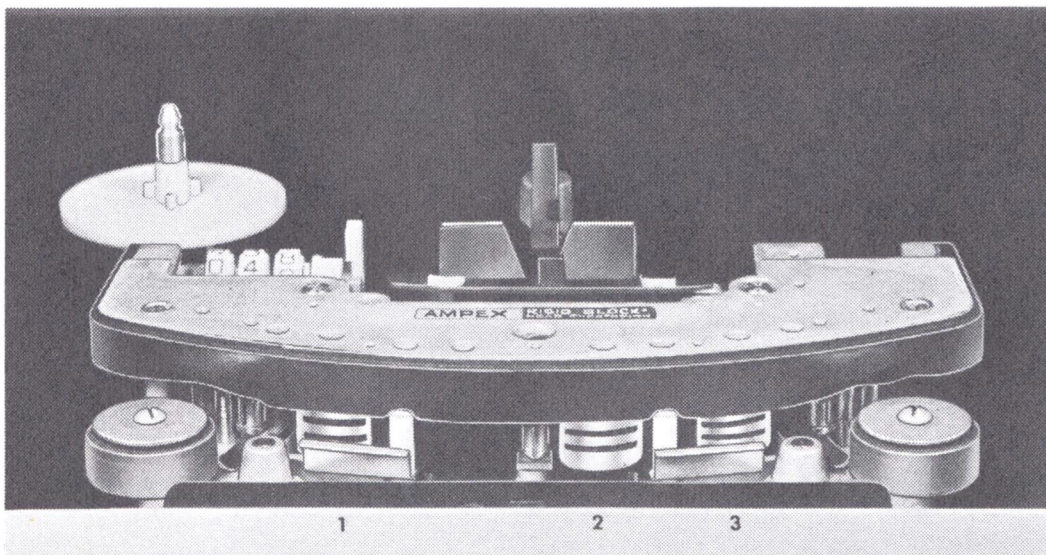
## HOW A TAPE RECORDER WORKS

The function of the Ampex magnetic tape recorder/player is to capture and store sound as magnetic fields on tape, and to translate these fields back into sound when desired. The instrument incorporates a wide range of control functions with which it is capable of a level of performance normally obtainable only with professional equipment.

The recorder/player has been designed to provide optimum results at any of three standard operating speeds— $7\frac{1}{2}$  ips (inches per second),  $3\frac{3}{4}$  ips, and  $1\frac{7}{8}$  ips. Most pre-recorded tapes are now recorded at  $7\frac{1}{2}$  ips and the majority of home audio recordists prefer the  $7\frac{1}{2}$  ips speed for best fidelity. Now, with the Ampex 2000 you may record or listen to more music on less tape and still obtain good results using the  $3\frac{3}{4}$  ips speed. Generally,  $1\frac{7}{8}$  ips is recommended for

voice recording only; where long recording time may be more important than good frequency response.

Your new Ampex 2000 series tape recorder incorporates many design features which make it the easiest to operate, most convenient tape recorder ever offered. Among these features are automatic threading and automatic reverse play. How these features work will be explained fully later in this book. However, it is important to note that Ampex has made the easiest operating recorder with no sacrifice in the traditional Ampex quality. In fact, the new dual capstan drive system plus the new electronic components of the Ampex 2000 provide performance so superior that  $3\frac{3}{4}$  ips recordings can now be made with a degree of fidelity heretofore possible only at speeds  $7\frac{1}{2}$  ips or higher.



As shown in the illustration Ampex "rigid block" mounted heads perform the following functions during normal operations:

- Head 1—Plays back only—tracks 2 and 4.
- Head 2—Erase head—erases tracks 1 and 3 or tracks 2 and 4 when tape moves from left to right only.
- Head 3—Plays tracks 1 and 3, records tracks 1, 2, 3 and 4.

## FAMED AMPEX HEADS

The heart of any recorder is the heads . . . whose function is either recording, playback, or both. Many of the processes used in the manufacture of these heads, and some of the material used in their construction, are the result of highly refined Ampex manufacturing techniques.

Ampex, since it first introduced the magnetic tape recorder in the United States over 15 years ago, has produced the finest heads ever used in a magnetic device—whether the device is used for audio, video, scientific or digital recording. Ampex leadership in the technology and engineering "know-how" of magnetic head manufacture has made Ampex the world's most **EXPERIENCED AND DIVERSIFIED** producer of magnetic recording devices.

# HOW MAGNETIC TAPE WORKS

Magnetic tape is a flexible film coated with millions of tiny particles of magnetic oxide. To store a sound on this tape, it is necessary to convert sound into an electrical current. This current, flowing through the recording head on your tape recorder, causes an electromagnetic field to vary in accordance with the fluctuations in the sound. The oxide particles on the tape, as they pass the recording head, are magnetized by the varying electromagnetic field. On playback, the magnetized tape passes the playback head and induces an electrical current corresponding to the sound that the tape "remembered." This current is amplified and transformed back into sound energy finally emerging through the speakers.

Magnetic tape's "memory" does not wear out or deteriorate with age. The tape remains magnetized indefinitely, until erased or brought into contact with a strong magnetic field. It can be erased and re-recorded with no loss in its ability to capture and playback sound or other information which can be converted into electrical signals.

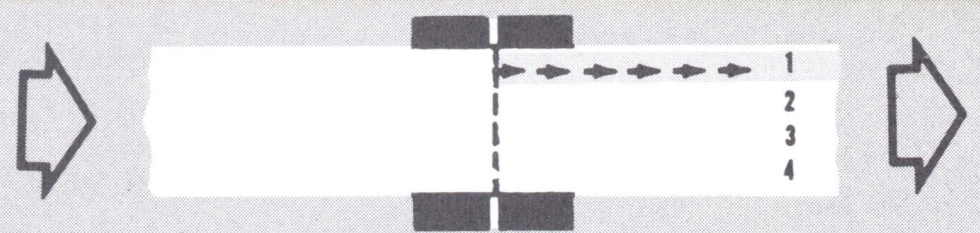
## TYPES OF TAPES

Both monophonic and stereophonic recordings can be recorded on the 2000 series recorders. A monophonic recording is one in which only single channel sound is recorded on the tape. A monophonic tape is generally recorded its full length and then turned over for recording on its track back to the beginning of the reel. In "four track" monophonic recording this process is repeated again so that all four tracks are used for four separate recordings, which provides four times the available recording time.

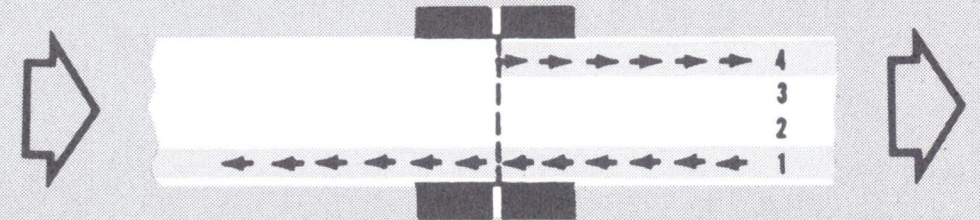
The 4 track stereo tape is recorded on alternate tracks so that the first recording goes on tracks 1 and 3 for the full length of the tape and is then turned over to record on tracks 2 and 4 back to the beginning of the reel.

## HANDLING MAGNETIC TAPE

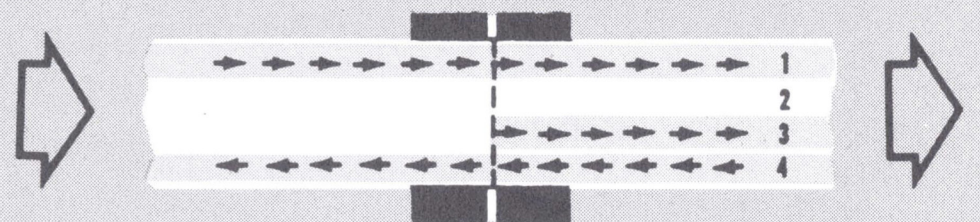
Tape is a strong, permanent recording medium, unaffected by ordinary handling or storage. However, it should be kept away from heat and moisture, and direct contact with other magnetic materials. Avoid stretching tape, or you will distort and destroy the quality of the recording.



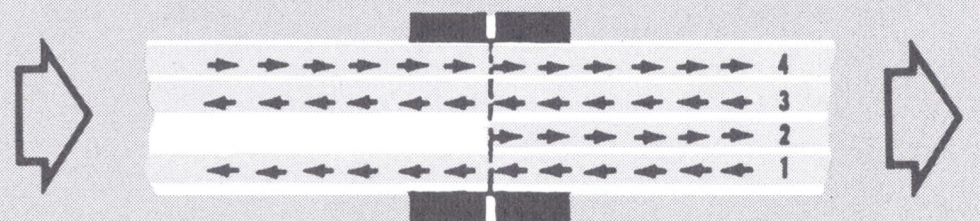
In **MONOPHONIC RECORDING**, the tape is recorded on one-fourth its width (**MONO 1 position**)



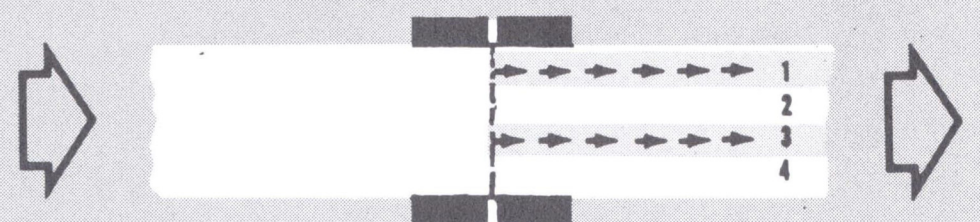
When the end of the reel is reached, the tape is turned over, and the second track is recorded in the opposite direction. (**MONO 1 position**)



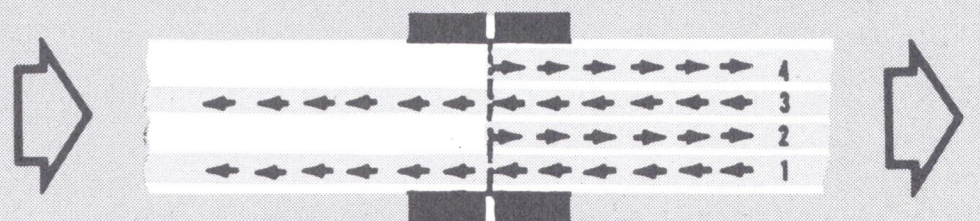
When the end of the second track is reached, the tape is again turned over, and the third track is recorded in the same direction as the original recording. (**MONO 2 position**)



The reel is again turned over and the final track is recorded. (**MONO 2 position**)

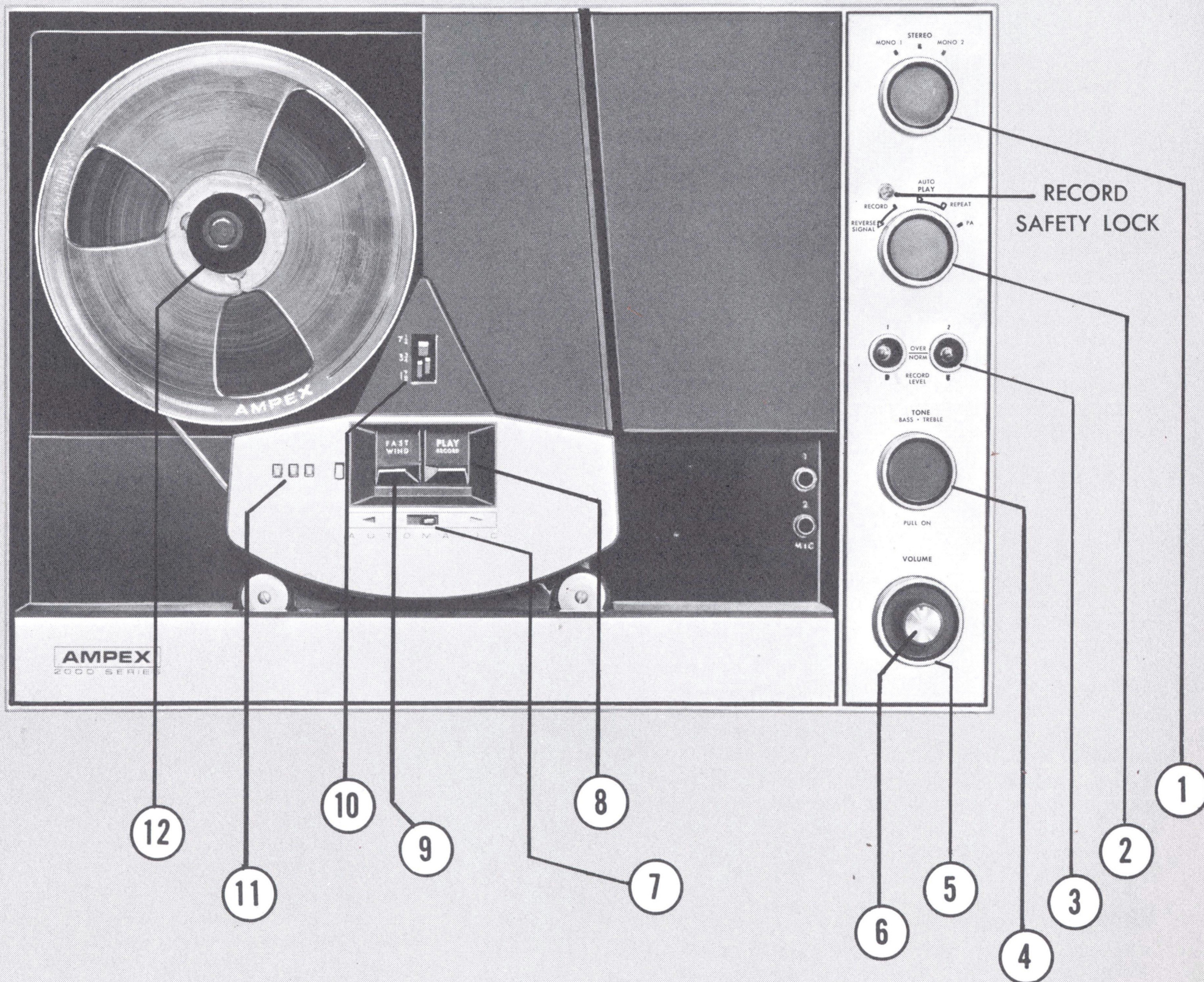


In **4-track STEREO RECORDINGS**, the two stereo channels are recorded on non-adjacent tracks in one direction (tracks 1 and 3 as shown above), from one end of the reel to the other.



At the end of the reel, the tape is turned over and recorded on the remaining tracks (tracks 2 and 4 as shown above).

# LOCATION OF CONTROLS AND INDICATORS



The following list outlines the items you will be concerned with on the recorder. Numbers correspond with those in the illustration at the left. Notice that the volume control is a double knob; the inside knob and the ring surrounding it are separate controls.

1. CHANNEL SELECTOR SWITCH—selects monophonic or stereo recording and playback. In MONO 1 position, input to the left channel (from microphone, tuner, phono, or external source) will be recorded on the upper track (track 1 or 4) with the recording light #1 indicator showing the level of signal. In MONO 2 position, input to the right channel will be recorded on the lower track (track 3 or 2) with the recording light indicator showing the level of signal. In playback with recorder in MONO 1 or MONO 2 positions both speakers will be supplied the same signal. In STEREO, inputs to both channels will be recorded simultaneously, with record light indicators showing signal level for left channel (at 1) or for right channel (at 2).

2. MODE SELECTOR SWITCH—selects play or record operations and is used to add reverse signal to tape. In P.A. position the recorder can be used as a public address system. In AUTO PLAY position you will hear signal(s) that is actually recorded on the tape, and the recorder will reverse itself when operating in the left to right direction. In REPEAT position the recorder will automatically reverse itself each time the automatic reversing signal (previously applied to tape) passes the playback head. In RECORD position the instrument is ready to receive an input from an external source (see page for recording procedures). The mode selector switch will not remain in the REVERSE SIGNAL position. To add a reverse signal to your tape the recorder must first be in the RECORD position before switching to REVERSE SIGNAL (explained fully on page 16).

3. RECORD LIGHT INDICATORS—indicates level of signal being received during record. Left light (1) is for left channel (tracks 1 and 4) right light (2) for right channel (tracks 2 and 3). Adjust appropriate "volume" control until lower half of appropriate indicator lamp flashes almost continually. Ideally, the upper half of the indicator lamps should never flash, however, a flash now and then is not unusual.

4. TONE CONTROL—allows you to balance base and treble or select the most pleasing listening combination. Pull up to switch recorder

on. Recorder can be operated in PLAY position with tone control down and will shut itself off automatically at the completion of a tape.

5. OUTSIDE KNOB—adjusts listening and recording volume for right channel sound signal.

6. INSIDE KNOB—adjust listening and recording volume for left channel sound signal.

7. REVERSE LEVER—In right position tape will move from left to right playing either channels 1 or 3 or both. In left position tape will move from right to left playing either channels 2 or 4 or both. Lever may be operated manually at any time the recorder is in PLAY position. When tape tension is released, lever will return to left to right play position. **DO NOT ATTEMPT TO REVERSE DIRECTION IN FAST WIND MODE.**

8. PLAY RECORD LEVER—When pushed upward, tape moves at normal speed in direction of reverse lever. Locks machine in playback or recording mode of operation. Pull back to stop tape motion. May be activated with tone control in off position for automatic shut-off.

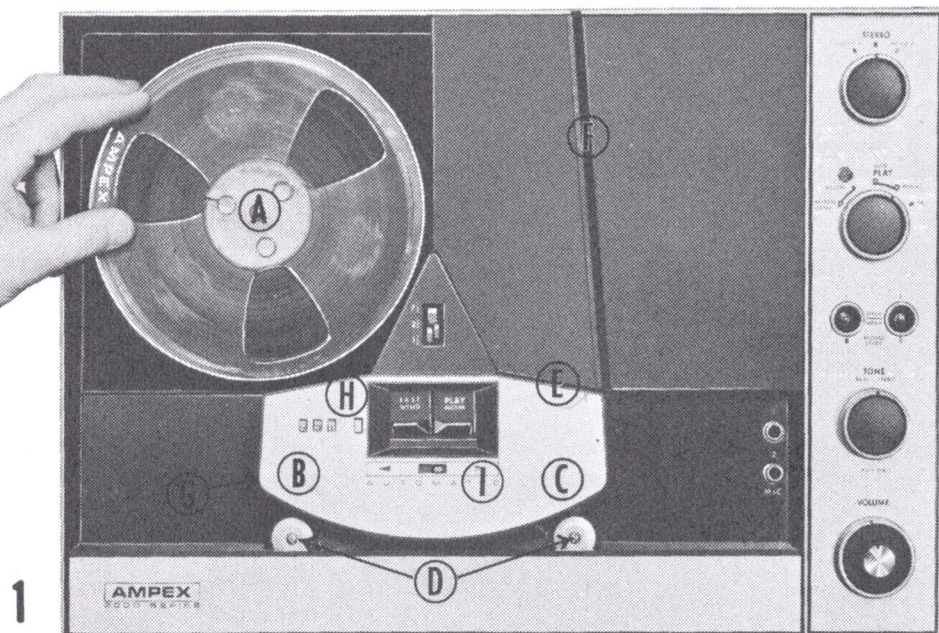
9. FAST WIND—Pushing lever upward will move the tape rapidly in the direction of the Reverse Lever. Pull back lever to stop tape motion. *When going from fast wind to play, always allow tape to come to a complete stop before actuating Play Record Lever.*

10. TAPE SPEED LEVER—top position for  $7\frac{1}{2}$  ips, middle position for  $3\frac{3}{4}$  ips, bottom for  $1\frac{7}{8}$  ips. When changing speeds the recorder should be out of fast wind or play positions with the tone control up. To change from  $7\frac{1}{2}$  to  $1\frac{7}{8}$  or from  $1\frac{7}{8}$  to  $7\frac{1}{2}$ , pause slightly at the  $3\frac{3}{4}$  position. Never change speeds while the recorder is turned off.

11. DIGITAL COUNTER—Indicates tape position, enables you to return to pre-determined place on tape. Reset button returns counter to 000 and may be depressed at any time.

12. REEL RETAINER—Holds reel on shaft when recorder is operated in vertical position.

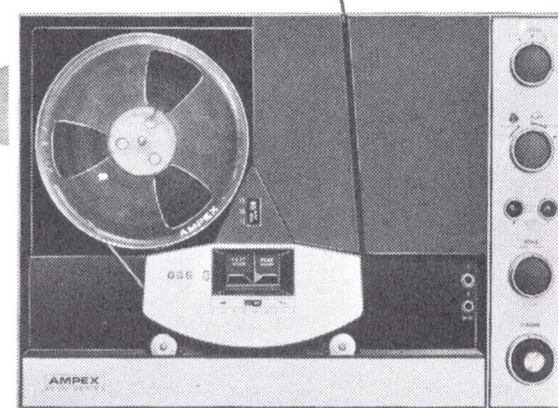
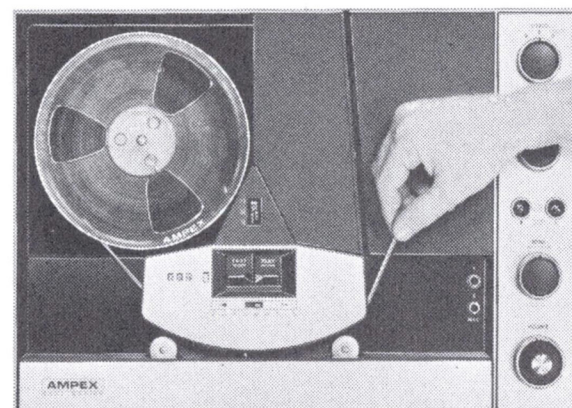
# HOW TO THREAD TAPE AND OPERATE THE CONTROLS



## ELEMENTS OF THE TAPE THREADING PATH

- A. Supply reel; may be any standard reel up to and including 7 inches in diameter.
- B. Left capstan (creates holdback tension for tape moving right—imparts steady forward motion to tape moving left).
- C. Right capstan (creates holdback tension for tape moving left—imparts steady forward motion to tape moving right).
- D. Capstan idlers press tape against capstans.
- E. Head Cover
- F. Takeup slot
- G. Automatic stop lever, stops machine when end of tape is reached.
- H. Digital counter reset button
- I. Reverse Lever—controls tape direction

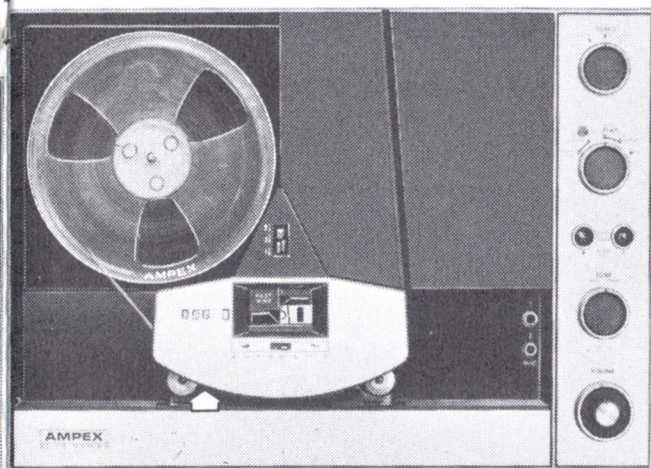
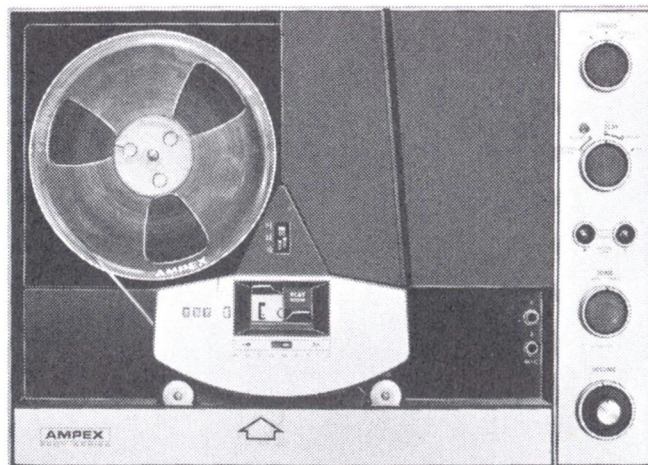
## THREADING TAPE ON THE RECORDER



To place tape on the recorder, ready it for operation, refer to figs. 1-4 and proceed as follows:

1. Pull tone control up to turn the recorder on.
2. Reverse lever should be pointing to the right.
3. Place a full reel of tape on the left turntable. Tape must be coming off the left side of the reel, with shiny side facing the front of the recorder. Make sure the slots in the reel are engaged in the turntable.
4. Without twisting the tape, pull it off the reel and place it between the 2 capstans and capstan idlers.
5. Place the tape in the tape take-up slot (without twisting) and extend it about 1" past the far side (or top) of the machine.
6. Push the PLAY-RECORD lever forward to start take up reel. Tape should start winding into the tape take-up slot. Pull the PLAY-RECORD LEVER back to stop tape motion.
7. When recording, depress the digital counter lever to set at 000. Tape is now threaded and you are ready to operate the recorder.

*Note: When operating the recorder in vertical position be sure to place reel retainer on the left shaft. This will hold take reel in place.*



4

### SPECIAL NOTES:

1. Your recorder has been designed to eliminate awkward and confusing operating procedures. In all cases, excepting record, *you need only one hand to operate the recorder.* It is good practice to follow this suggestion because it allows the recorder a slight pause when changing from one mode to another. This pause eliminates strain on tape and recorder mechanisms.

2. When recording 4 track stereo or monophonic tapes, replace automatic take-up reel with a standard 7" reel with 2 $\frac{1}{4}$ " hub. To do this, remove cover plates 1 and 2, remove device holding "automatic take-up reel," replace reel, making sure new reel seats on turntable, and thread recorder manually. Do not replace cover plates until you have finished recording and have replaced standard reel with automatic take-up reel. (See page 17.)

### FAST WINDING

The purpose of the Fast Wind lever is to move the tape rapidly from one reel to another. Using it, a full reel can be unwound in either direction in a little over a minute. To check fast winding operation push the reverse lever toward the take-up slot to the right. Push fast winding lever forward. The tape should start to wind into the take-up slot and increase rapidly in speed. After a few seconds stop the tape by pulling fast wind lever back to its original position.

*Note: Always return fast wind lever to stop position before turning off the power switch. If not, brake will not energize and tape can "spill."*

Now push the reverse lever to the left. With this done, again push the fast wind lever forward and allow the tape to unwind out of the take-up slot. When the tape has come completely out of the slot, pull back fast lever. When fast winding in either direction be sure the tone control is in the up (on) position. This will avoid possibility of tape spillage. To place recorder into fast wind, you must first return PLAY-RECORD LEVER TO STOP POSITION.

### STOPPING TAPE MOTION

To stop the tape from moving either at standard operating speed or at fast winding speed, merely return the PLAY or FAST WIND levers to their original position. This automatically stops all tape motion. Never use the on-off switch to stop the tape motion. Always allow tape to come to a complete stop when going into or out of fast wind mode.

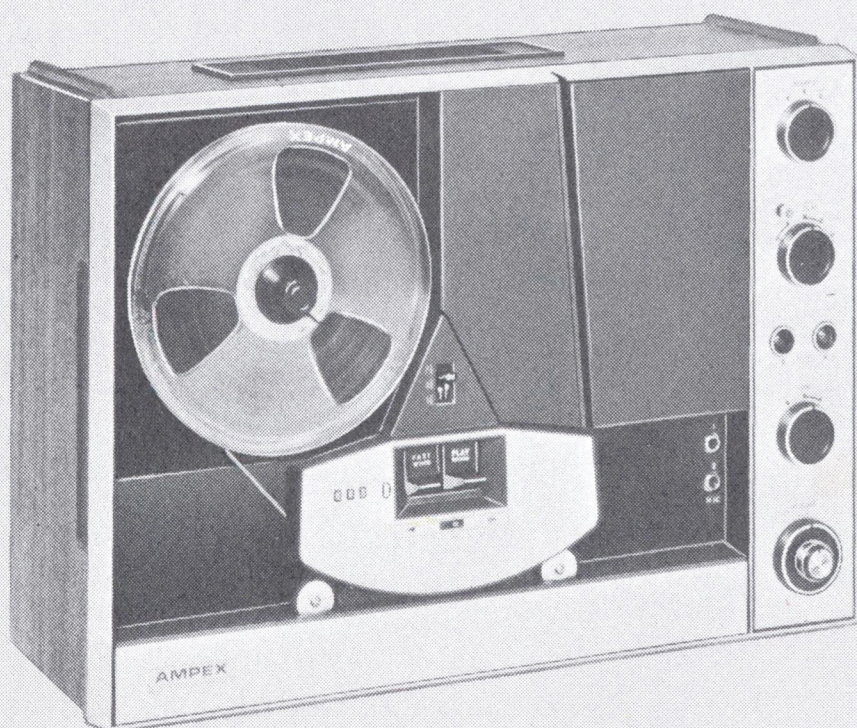
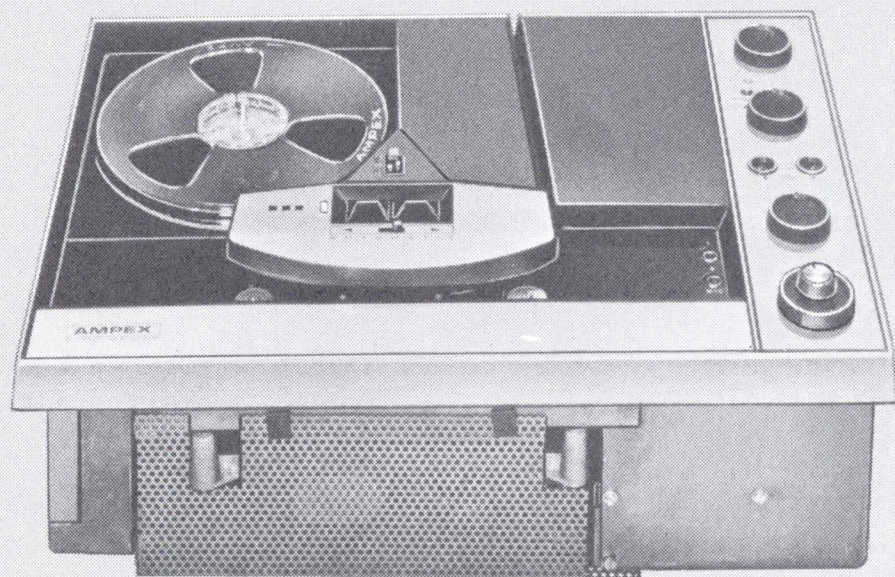
### SPECIAL FEATURES

*An automatic shut off feature has been included that allows you to turn off the machine (on-off switch) with tape still playing. At the end of the tape, the recorder will automatically shut all mechanical elements completely off. Automatic shut off is not activated at the conclusions of fast wind operations.*

# AMPEX

## MODELS 2050 AND 2080

### TAPE DECKS ONLY



## MODEL 2050

### TAPE DECK

The Ampex Model 2050 provides the same tape transport system as the Model 2070, but is not a completely self-contained stereo system. It retains all the convenience features such as automatic loading and automatic reversing. However to fully utilize the Model 2050, it must be integrated into an existing high-fidelity system including: power amplifiers and speakers. Should you wish to operate the tape deck with Ampex 2000 Series speakers it is necessary to add power amplifiers.

Operation of the controls is identical to Model 2070, with one exception. The TONE control has been eliminated and is replaced by an ON/OFF switch. Using the 110 volt line output (AUX 2 AMP) located on back panel, the recorder may be hooked up to turn off all components of a system. To do this, plug power supply cord of the amplifier into the output socket and operate the recorder with the ON/OFF switch in the OFF position. At the completion of the tape, all units will be shut off. Switch is also used to silence speakers during record. External speakers will play, allowing you to monitor incoming signals, if the recorder is operated in the ON/OFF position. They will not play with the switch in MONITORING OFF position.

## MODEL 2080

### TAPE DECK

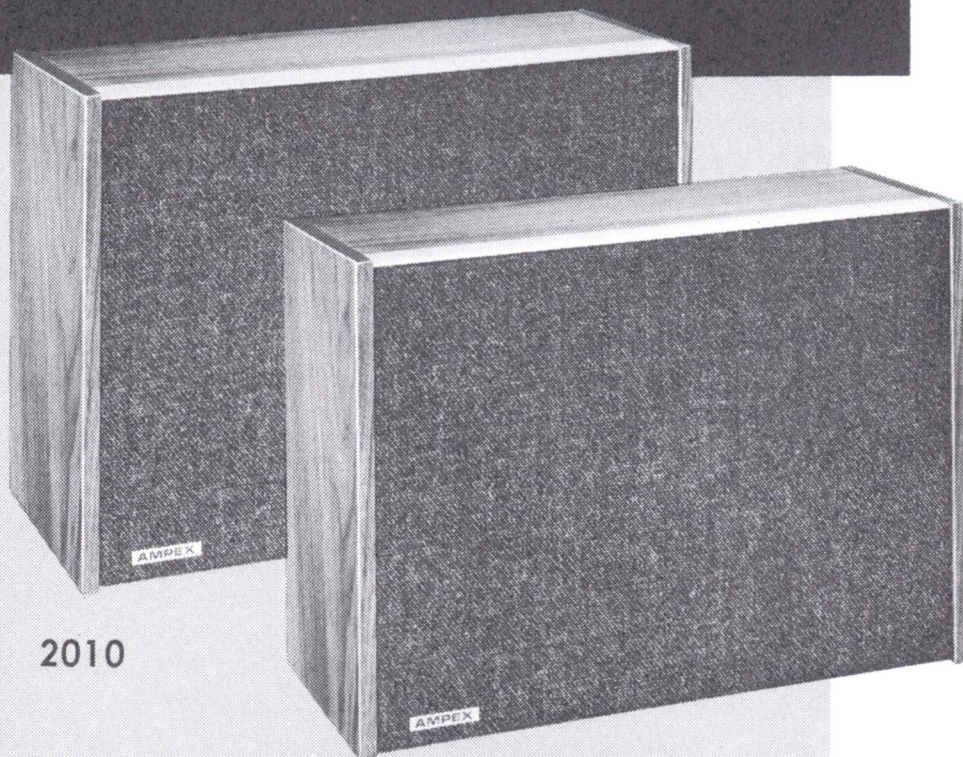
Identical to Model 2050 in features and performance. Comes mounted in a handsome walnut cabinet suitable for table top use.

*For complete  
mounting instructions write:*

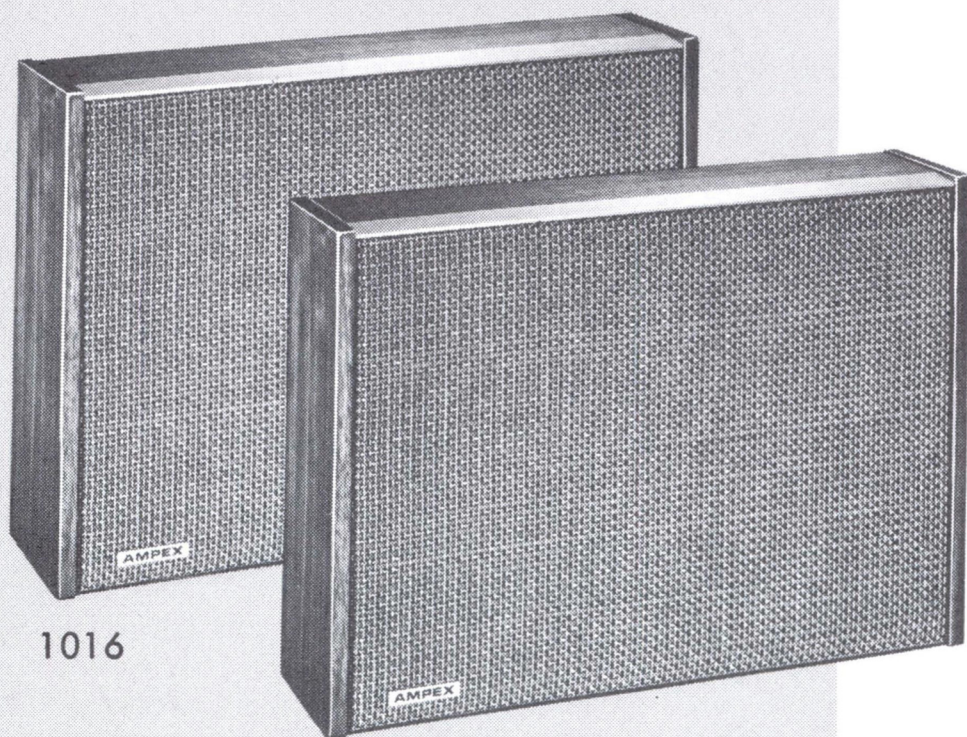
**AMPEX CORPORATION**

**SERVICE DEPARTMENT**

# AMPEX SPEAKER SYSTEMS



2010



1016

## 2000 SERIES

Ampex 2000 series speakers are specifically designed to be used with Ampex 2000 Series Tape Recorders. Walnut speaker cabinets measure  $18\frac{1}{2}$ " x  $13\frac{1}{2}$ " x  $7\frac{1}{2}$ " and come complete with wall mounting brackets. Each 2000 speaker enclosure contains an 8" extended range speaker and a 3" tweeter speaker with an Ampex engineered 2000 cps cross over network for optimum speaker efficiency. Speakers are baffled and ported in a unique fibre glass filled cabinet. On the back of each enclosure is a high frequency attenuator switch which compensates for the varying acoustical characteristics encountered in different surroundings. Many rooms tend to absorb high frequencies, while others tend to increase them. The switch should be positioned to suit your listening preference. Speakers come complete with 15' cord and jack ready to plug into the back of the 2000 series recorder.

Ampex 2010 speaker system with oiled walnut cabinet and charcoal grille cloth. Model 2011 identical with cane grille cloth.

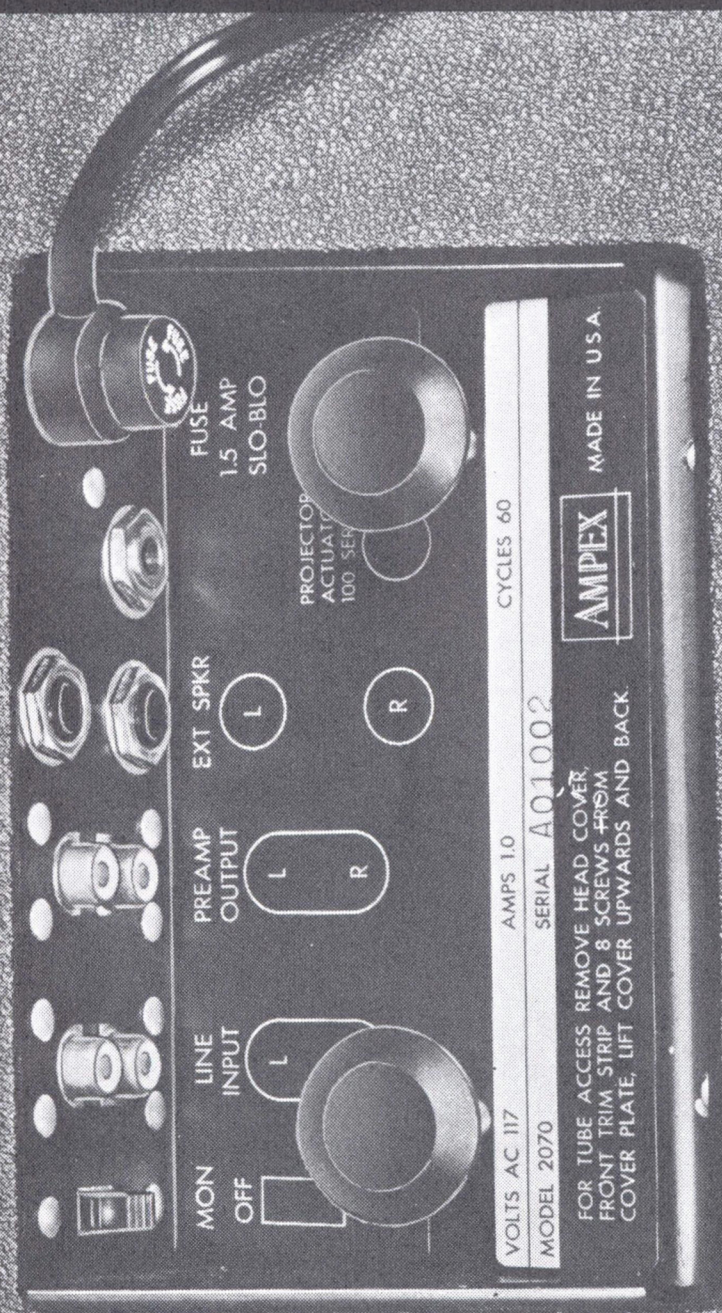
## 1000 SERIES

Ampex 1000 series speakers are extremely low priced, but perform exceptionally well throughout the normal human hearing range. They are similar in appearance to the 2000 series speakers, measuring  $18\frac{1}{2}$ " x 13" x  $4\frac{1}{2}$ ". Within the walnut enclosure are a  $5\frac{1}{2}$ " woofer speaker, a  $5\frac{1}{2}$ " wide-range speaker and a  $2\frac{1}{2}$ " tweeter speaker. The system is Ampex engineered with a 2000 cps cross over network. On the back of the unit is a 2 position high frequency attenuator to compensate for varying room acoustical characteristics.

Ampex 1016 speaker set with cane grille cloth. Model 1015 similar with oiled walnut cabinet and charcoal grille cloth.

*Both speakers come complete with 15' cord which plugs into the back of the 2000 or 1000 series recorders, and include wall mounting brackets. Model 1010, a portable version of model 1015, available after January 1, 1965.*

# HOW TO SET UP YOUR AMPEX STEREO SYSTEM



Though there is nothing critical about placement of the units in your Ampex stereo system, a few general suggestions are noted here. In the average room, speakers may be placed against a wall, separated by a distance of  $\frac{1}{3}$  to  $\frac{1}{2}$  the width of the room. Corner placement is not recommended, nor should the speakers ever face inward.

Packed with each Ampex speaker is a packet containing wall mounting brackets. Inside the packet are instructions for affixing mounting brackets to speakers and then to the wall. Most people will find it more convenient to operate the recorder in the horizontal position, but where space is at a premium it can be mounted horizontally on a wall with no harm to the unit.

2000 and 1000 speakers require no external power source. They are plugged directly into the recorder (see illustration left) when this is completed plug in main power source to standard 110V 60 cycle wall outlet and your recorder is ready to operate. Pull up the tone control and all units are now being supplied with power. When the recorder is operated in the automatic shut off mode at the completion of the tape the entire unit and speaker system will be shut down, just as surely as you would pull the plug out of the wall.

## CHECKING STEREO BALANCE

Although volume control is matched at the factory; if you would like to determine that your system is in balance, follow this procedure:

1. Turn on system power, set CHANNEL SELECTOR to MONO 1.
2. Set both listening volume knobs to the same setting, at approximately mid level. Place the recorded tape on the machine and play it back in accordance with instructions on page 14.
3. Stand in front of the speakers at a point of equal distance from both. Have someone adjust the volume controls until it sounds as if it originates midway between the two speakers.
4. The volume controls are friction loaded and will retain their relative positions when one or the other is turned in either direction. Use the same relative settings whenever you regulate the volume of the tape recorder.

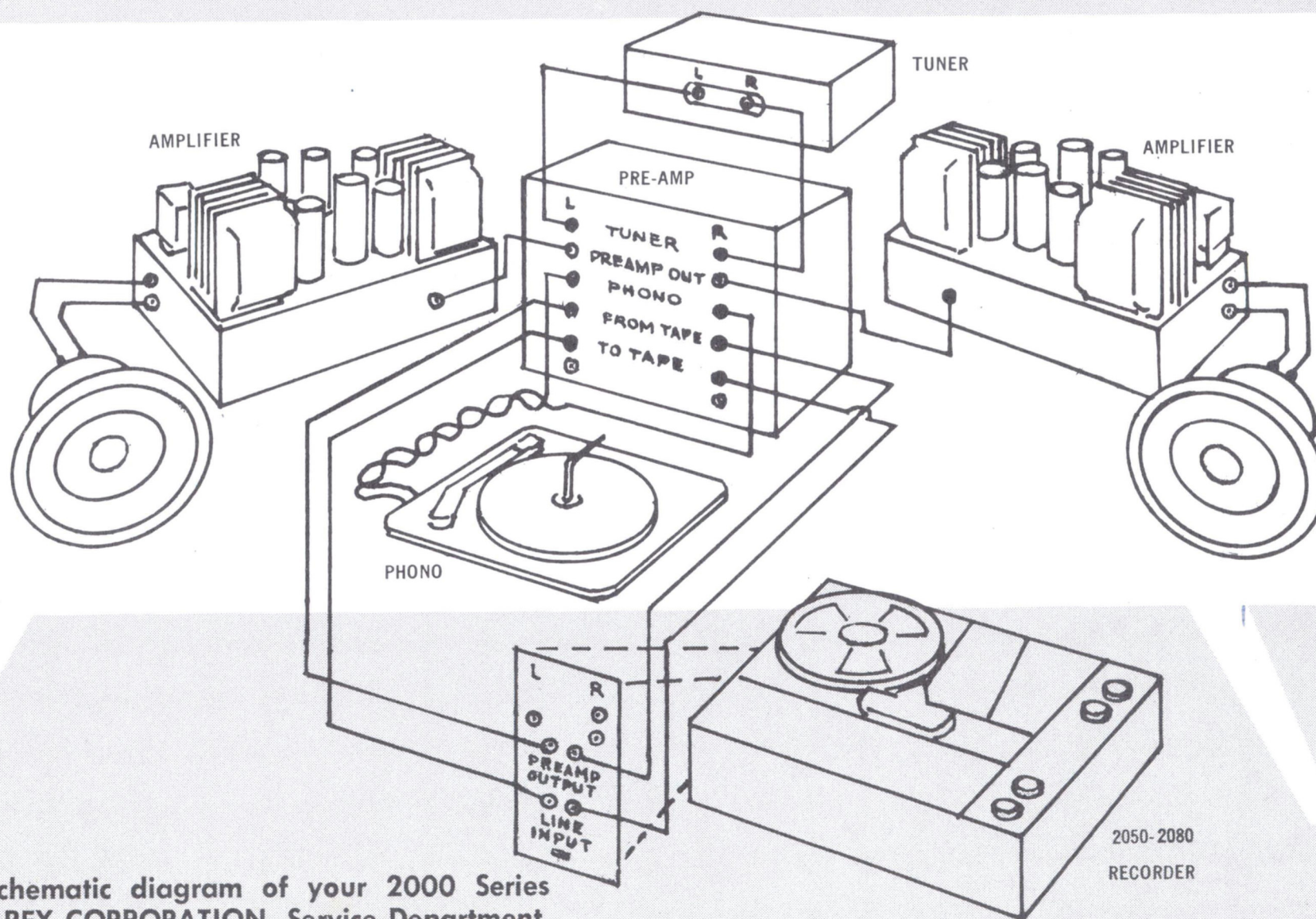
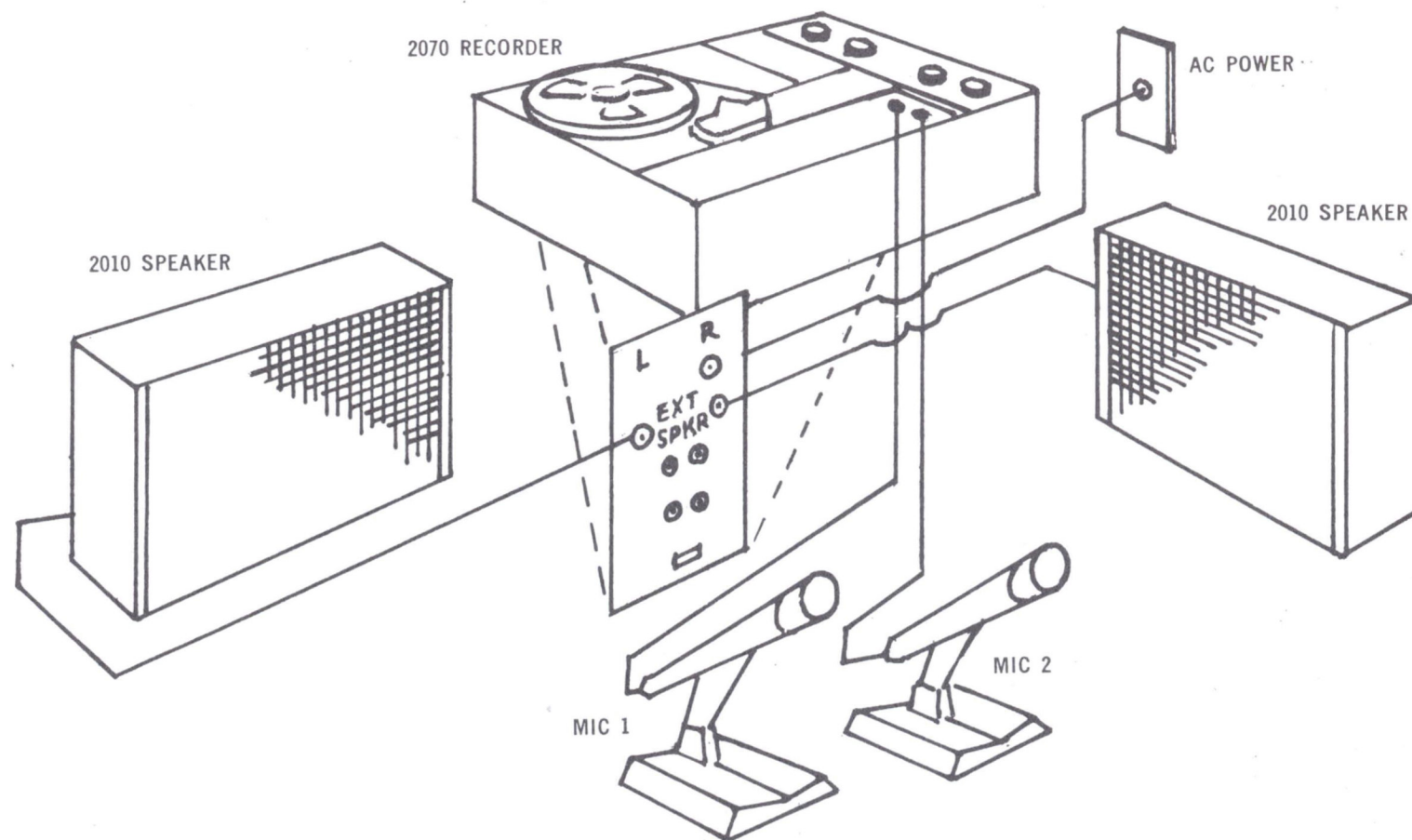
*Note: You may wish to experiment with HIGH FREQUENCY CONTROL on speakers, when unit is first installed. This is easily done before speakers are mounted on the wall.*

## MODEL 2070

Upper portion of drawing shows the recorder/reproducer used in conjunction with 2010 speakers. When used with self-contained speakers Model 2070 is a completely portable stereo system in itself. However, for optimum performance Ampex external speakers are recommended. When external speaker jacks are inserted into recorder, built in speakers are automatically silenced.

## MODEL 2050 OR 2080

Pictorial drawing, of a completely integrated hi-fi system showing hook-ups for phono, radio, external amplifiers, and speakers.



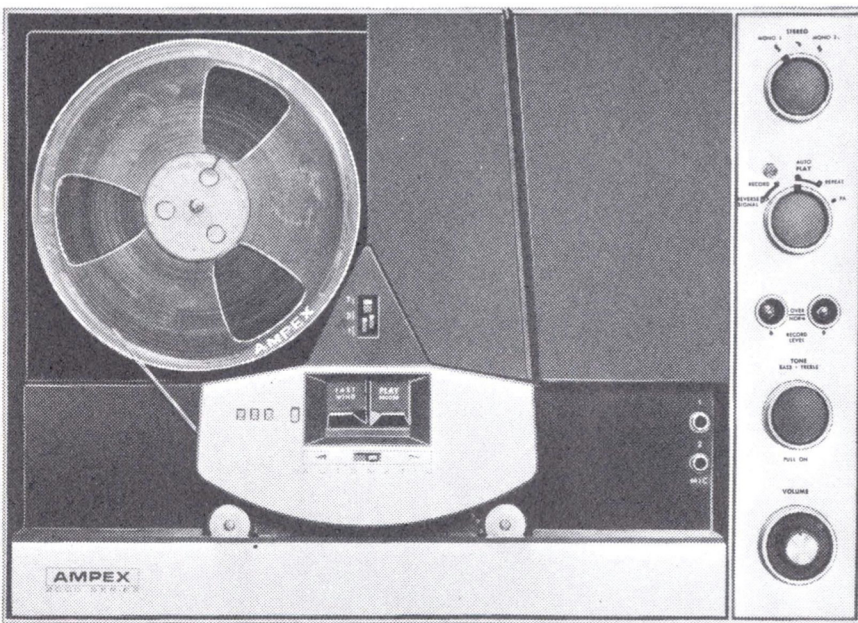
For a complete schematic diagram of your 2000 Series recorder, write AMPEX CORPORATION, Service Department.

# HOW TO PLAY RECORDED TAPES

Before playing tapes on your recorder it is particularly important that you be familiar with the proper use of certain operating controls. Until you have thoroughly mastered your recorder's controls and operations it will be helpful to refer to page 6 from time to time. Never press the RECORD button unless you are actually recording.

**NOTES:** (1) See Page 8 HOW TO THREAD TAPE  
(2) Do not attempt to add reverse signal until reading page 16.  
Never add signal over previously recorded program.

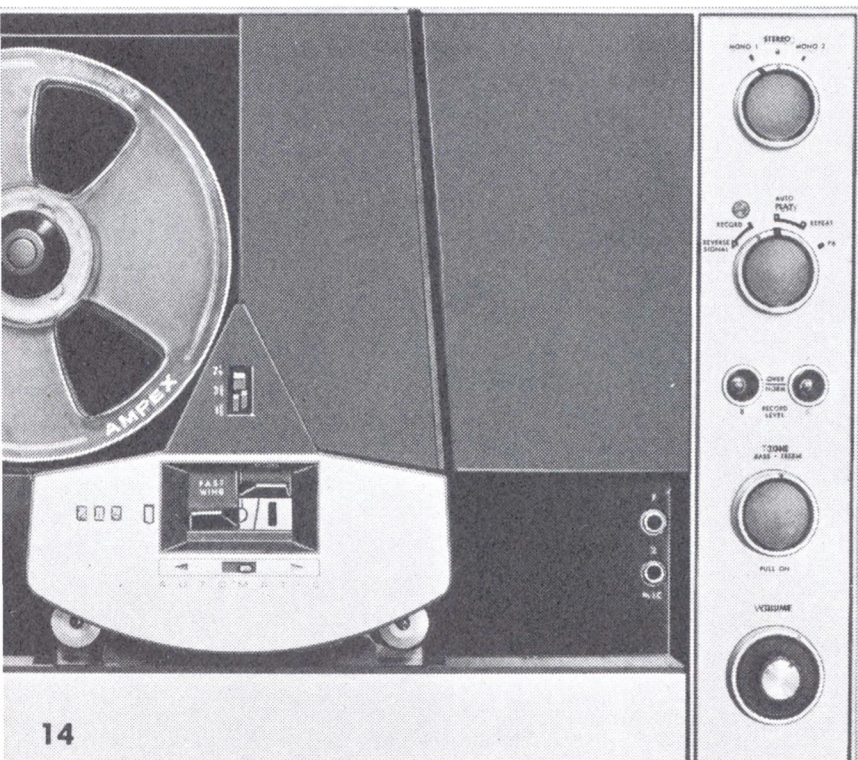
## ● TO PLAY MONOPHONIC SINGLE TRACK TAPES



Most pre-recorded 4-track monophonic tapes are recorded as follows: track 1, track 2, track 3, track 4. (See page 5.) To play back these tapes set the controls as shown in the photograph at the left. Push the PLAY-RECORD LEVER to start. Play the first track until recorded material is completed but some tape still remains on left reel. Reverse tape direction to play back track 2. At the completion of track 2, reverse tape direction again, and switch CHANNEL SELECTOR to MONO 2. Track 3 will then play. Finally, reverse tape direction at the conclusion of track 3 and you will hear track 4.

This rather lengthy process can be eliminated if you record your own 4 track monophonic tapes. This will be fully explained under HOW TO RECORD 4-TRACK MONOPHONIC TAPES. To eliminate reel changing you simply record track 1, track 4, track 3 and then track 2. You may add automatic reversing signals on track 1 and on track 4. This allows you to set selector switch on MONO 1 and play track 1 to completion. The recorder will then reverse itself and play back track 4. Again the recorder will reverse itself and play back track 3. However, going from track 3 to track 2 you must manually push the reverse lever to the left. Going from channel 4 to channel 3 you must remember to switch channel selector switch to MONO 2 position.

**NOTE:** You may add an automatic reverse signal at completion of track 1. Machine will then reverse itself and play channel 2 if you change the channel selector switch to the MONO 2 position.



## SUMMARY

1. Thread recorder
2. Select proper speed
3. Select MONO 1
4. Push PLAY RECORD LEVER forward
5. Adjust listening volume
6. At completion of track 1 push reversing lever to left-hand position and recorder will play track 2.
7. At completion of track 2 reverse lever right, change selector switch to MONO 2. Track 3 will then play.
8. At completion of track 3, reverse lever left and play to completion of tape.
9. With TONE control down instrument will automatically shut off.

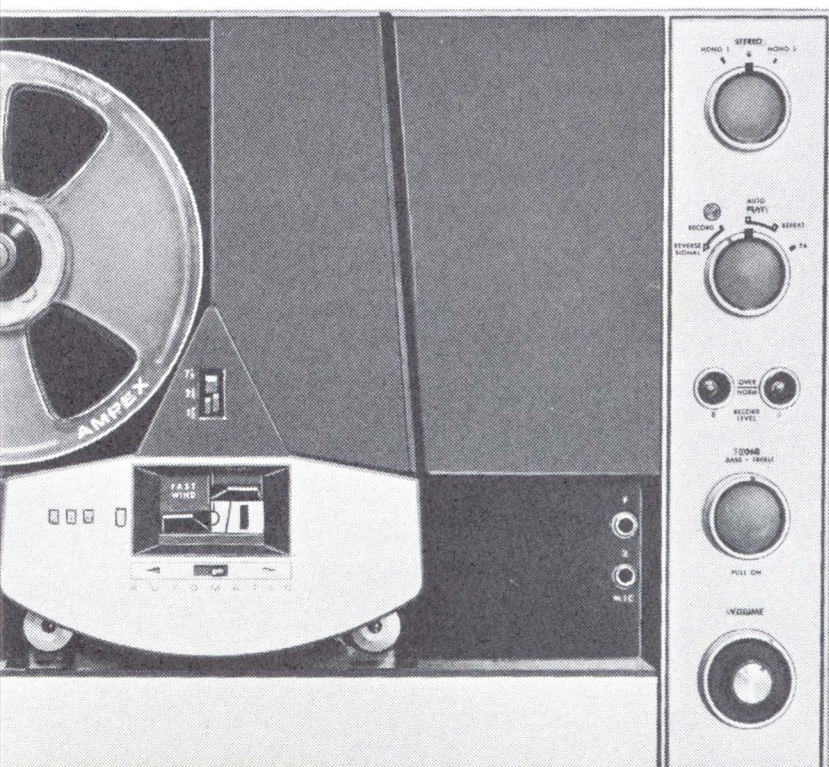
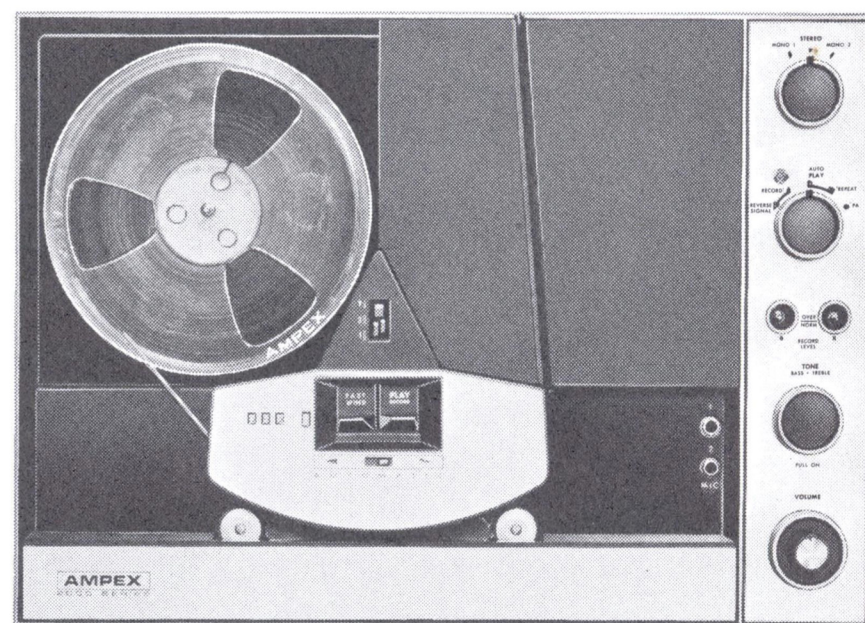
### *How to use the control setting photographs:*

Accompanying each mode of operation is a control setting photograph showing the proper position for every control. Before performing any operation check to make sure your controls are set exactly as those in the illustration.

## ... TO PLAY 4-TRACK STEREO TAPES

Set controls as noted in photo at right, making sure the speed selector switch is set in accordance with the speed at which your tape has been recorded. Push PLAY-RECORD lever forward (towards the speed change lever) to start. Let the recorder play to the conclusion of the final selection as the tape plays from left to right. At the conclusion of this selection, pull back the PLAY-RECORD lever to stop the reels and consult page 16 on HOW TO ADD THE REVERSE SIGNAL. When this operation is completed, push the PLAY-RECORD lever forward to start tape motion and then push the reverse lever to the left. Your recorder will then play from right to left, to the completion of your tape. Once the reverse signal has been added to a tape, the mode selector switch can be placed on REPEAT and the recorder will automatically reverse itself and allow you to play a complete 4-track stereo tape without interruption.

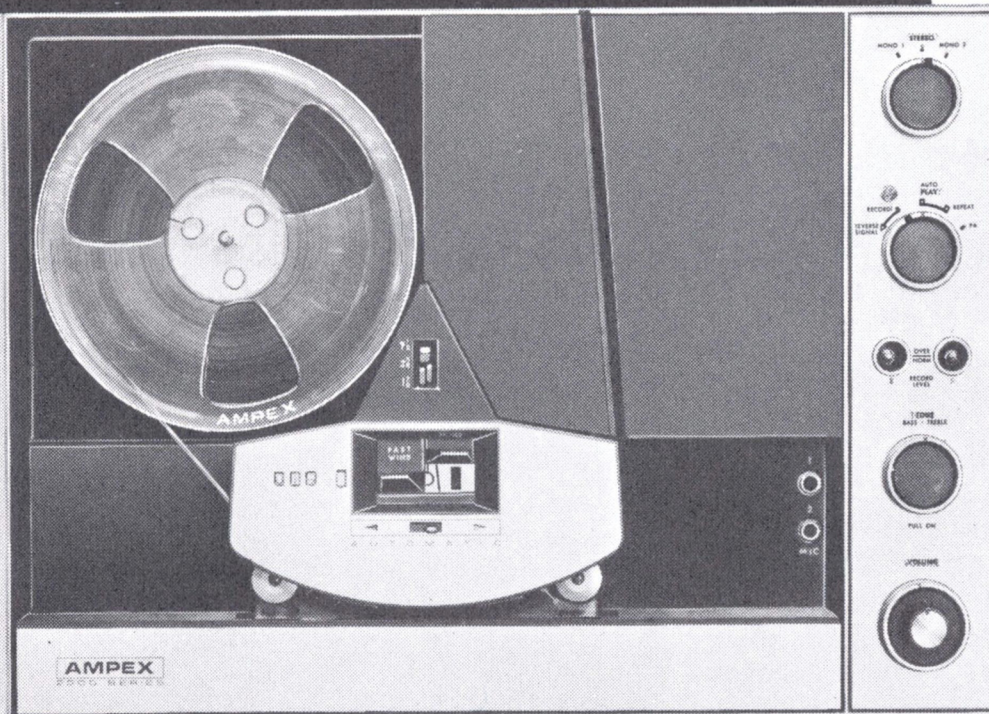
*THERE IS NEVER ANY NEED  
TO SWITCH REELS  
OR REWIND DURING PLAYBACK*



## SUMMARY

1. Thread recorder
2. Select proper speed
3. Push **PLAY RECORD LEVER** forward
4. Adjust listening level
5. At completion of tracks 1 and 3 move reverse lever to left position.
6. Continue playing to completion of tape.
7. With tone control down instrument will automatically shut off.

## HOW TO APPLY AUTOMATIC REVERSE SIGNAL



Your Ampex 2000 series recorder is equipped to apply a 20 cycle (inaudible) signal to your tapes. This signal will, in subsequent playing, automatically trigger the automatic reverse mechanism and cause the tape to move in the opposite direction. Normally, you will want to add this signal to your pre-recorded tapes to allow you to listen to a full 4-track stereo tape without reel changing or other attention to the recorder. However, you may if you wish, add this signal to any portion of the tape *which has not been previously recorded.*

*Note: When reverse signal is applied, previously recorded material is erased.*

Where repetitive programming is desired, you may add a reverse signal to both ends of your tape. Thus, when your recorder is operated in REPEAT mode it will play left to right, reverse itself automatically, play back right to left and then re-cycle itself indefinitely.

**NOTES:** 1. Reverse signal is added to tracks 1 and 4, permitting continuous stereo programming, however, 4-track mono tapes cannot be programmed for continuous operation.

2. Reverse signal can be erased at any time just like any other signal.

The following steps outline how to add the reverse signal:

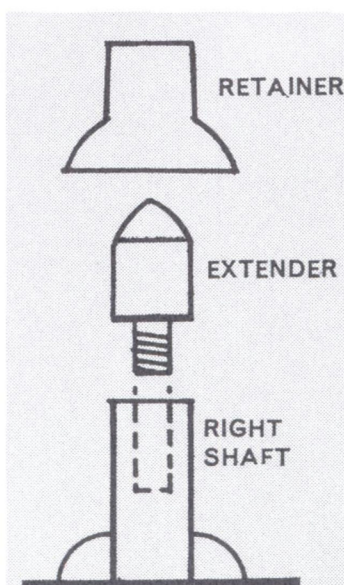
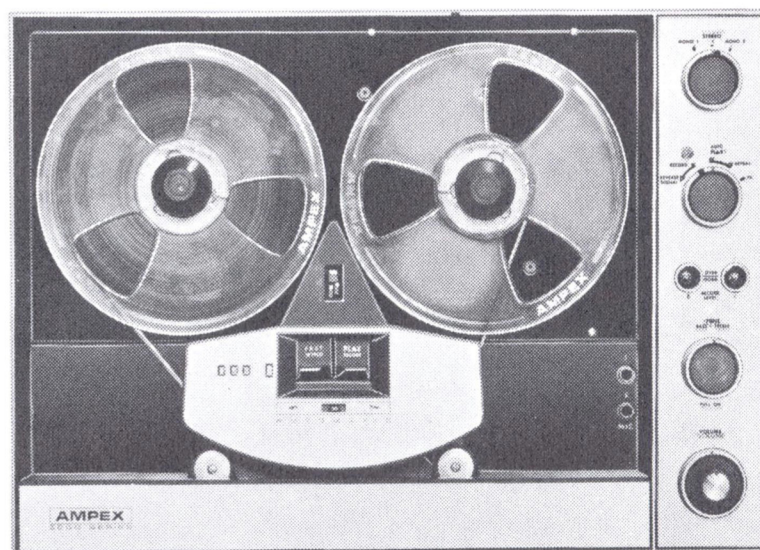
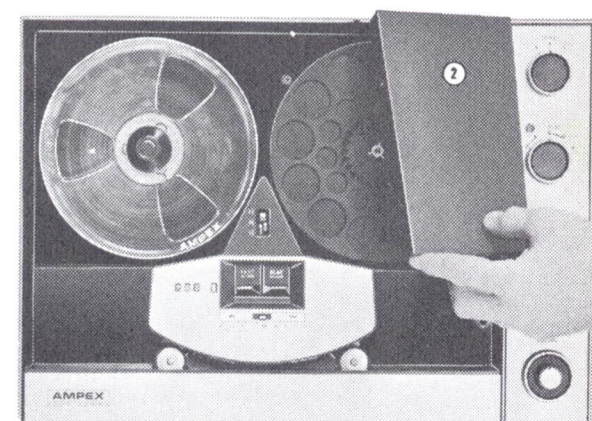
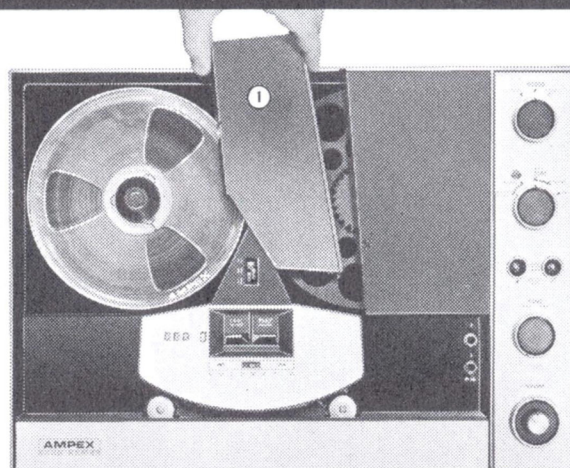
1. Thread recorder and proceed to the area of the tape to which you wish to add the reverse signal.
2. Turn MODE SELECTOR SWITCH to RECORD.
3. Depress SAFETY LOCK and at the same time place recorder in play. Safety lock will remain in down position.
4. Turn MODE SELECTOR briskly to REVERSE SIGNAL and hold in this position for a count of three, then release.
5. Pull PLAY LEVER back to stop tape motion.
6. Put MODE SELECTOR on REVERSE PLAY.
7. Change REVERSE LEVER to *Repeat* opposite direction and rewind a small amount of tape.
8. Stop, put recorder in play and change reverse lever to opposite direction.

*Whenever you play a tape with reverse signal on it and you wish to have the automatic feature in operation, merely set your recorder on REPEAT... That's all there is to it. Should you wish to reverse the tape where an audible signal has not been applied, you may do so manually by moving the reverse lever right to left or left to right. Reverse lever cannot be changed during fast wind operation.*

## HOW TO ADD REVERSE SIGNAL AT THE COMPLETION OF A TAPE

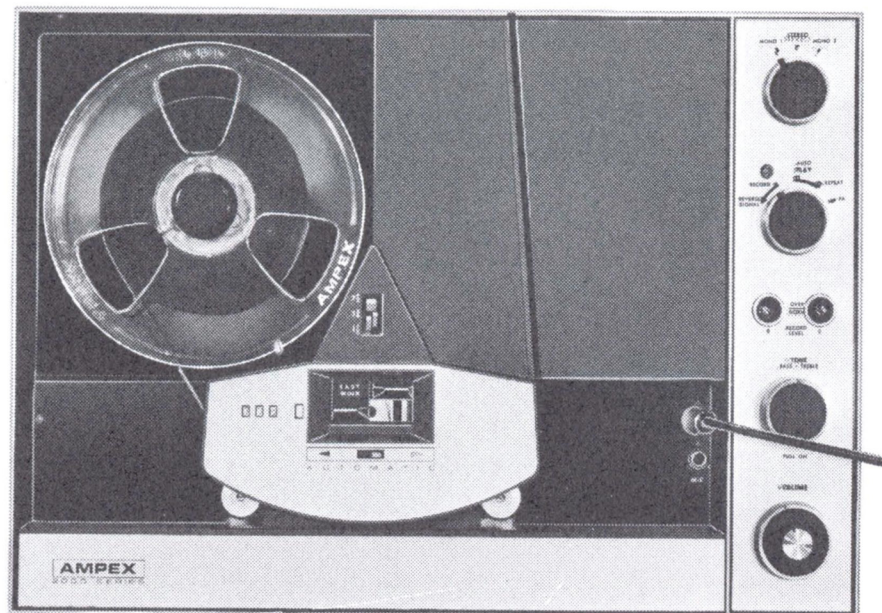
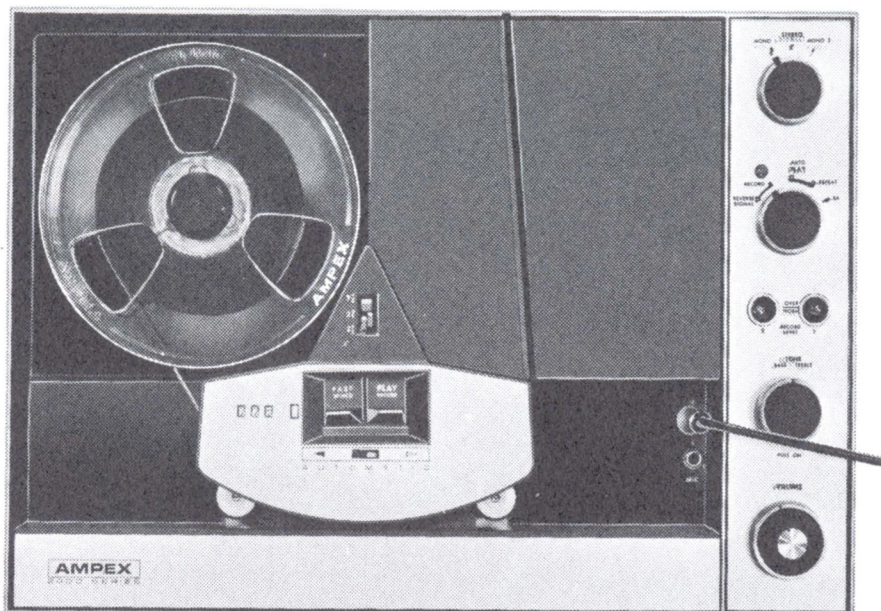
The procedures outlined at left on how to add a reverse signal when your recorder is playing from left to right, should be used whenever you wish to add a reverse signal at the completion of half of your tape. Where a reverse signal is desired at the end of the tape procedures are similar with these exceptions:

1. Remove cover plates 1 and 2.
2. Replace automatic take up reel with standard 7" reel with 2 $\frac{1}{4}$ " hub.
3. Thread tape recorder and play to completion of reel in left to right direction.
4. Interchange reels making sure full reel is on left spindle.
5. Thread recorder and put in play mode of operation. Play to completion of recorded material.
6. Follow steps 2 through 5 (page 16).
7. Rewind all tape on to right reel.
8. Interchange reels again and you are ready for continuous programming.



### TO REMOVE AUTOMATIC TAKE UP REEL

1. Holding reel in place unscrew Phillips head screw on top of right spindle.
2. Remove screw and retaining spring.
3. Screw shaft extender into top of shaft.
4. If machine is to be operated in vertical position be sure to place reel retainer on shaft after standard reel has been inserted on turn table.



## HOW TO RECORD

Before you begin your recording you should estimate the length of time you wish to record. If you find that it will require more time than an entire length of tape, you should observe the following procedure:

1. Remove cover plates.
2. Replace automatic take-up reel with standard 7" reel
3. Place tip and retainer on shaft if unit is in vertical position. This procedure is necessary because your Ampex recorder only records in the left to right direction and thus should your selection run more than the length of tape you will need to switch reels.

### TO RECORD MONOPHONIC TAPES FROM A MICROPHONE

Set controls as shown in photos 1 and 2... The selector switch can be in either MONO 1 or MONO 2 positions, depending upon which of 4 tracks is to be recorded. Mike jack should be inserted in corresponding mike input. Exact distance between microphone and person speaking can vary upward from a minimum of a few inches; however, it must be close enough to register a normal indication of the record level indicator. Set volume control so that lower half of appropriate indicator light flashes continually. The upper half may light occasionally on only the loudest peaks. When you are ready, press the RECORD SAFETY LOCK downward at the same time as you push the PLAY RECORD LEVER forward, as in photo 2. Your recorder is now recording.

As an added safety feature, the safety lock button will be illuminated when the recorder is in the record mode operation.

When you have finished recording merely pull back PLAY RECORD LEVER and tape motion will stop. Safety lock will return to up position and the machine will no longer be in the record mode operation. It is important to note although the mode selector switch remains in record, unless the SAFETY LOCK is depressed simultaneously with the PLAY RECORD LEVER, your recorder will not be in the record mode operation.

*vol @ 12 o'clock with  
Ampex mike*

*vol @ 4<sup>30</sup> from PM*  
*vol @ 2 from records*

## SUMMARY

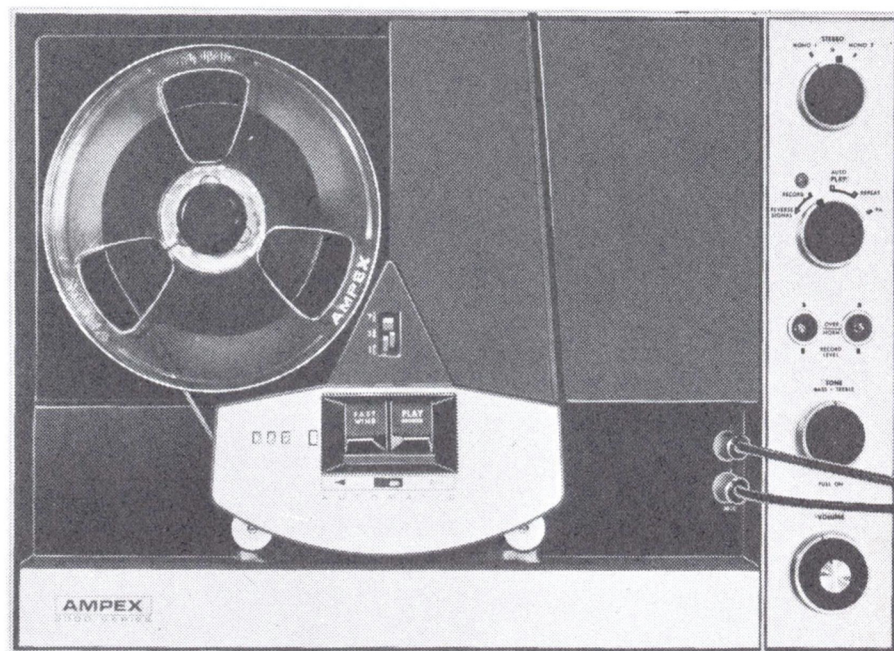
Thread recorder  
Channel selector switch in MONO 1  
Mode selector in record position  
Microphone jack in MIC 1  
Depress SAFETY LOCK and push PLAY RECORD LEVER forward simultaneously  
Continue recording as long as desired. Pull back PLAY RECORD LEVER to stop recorder

## TO RECORD STEREO TAPES FROM MICROPHONES

Set controls as noted in photo 3. Plug microphones in both right and left microphone jacks. Adjust left channel microphone volume control for the normal indication on the recording while someone speaks into the left channel microphone.

Now place selector switch in MONO 2 position and adjust the right channel microphone volume control in a similar manner. When both channels have been adjusted turn the CHANNEL SELECTOR CONTROL to the stereo position. Now press the record SAFETY LOCK BUTTON while you put the recorder into play. Your recorder is now recording. When you finished recording pull back PLAY RECORD LEVER and recorder will return to the standby record position.

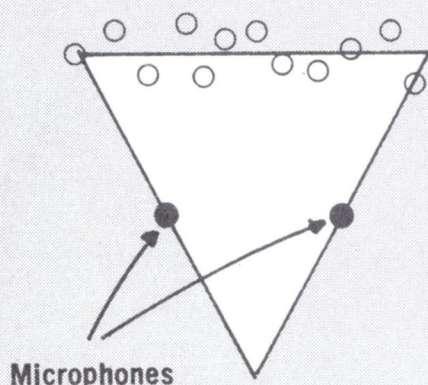
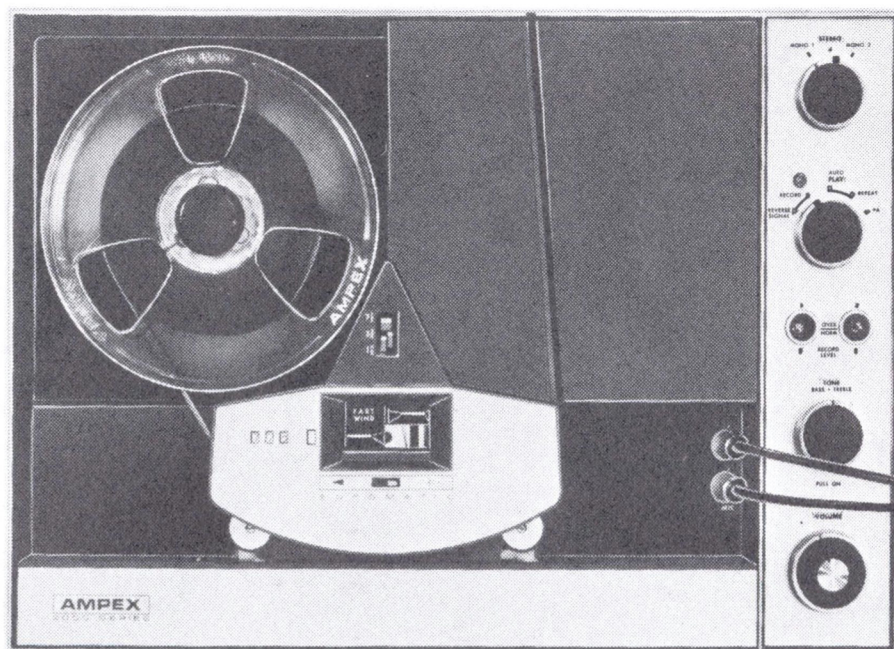
3



## SUMMARY

Thread recorder  
CHANNEL SELECTOR SWITCH in stereo position  
MODE SELECTOR in record position  
Left microphone jack in mic 1, right microphone jack in input 2  
Depress SAFETY LOCK and push PLAY RECORD LEVER forward simultaneously.  
Continue recording as long as desired. Pull back PLAY RECORD LEVER TO STOP RECORDER.

4

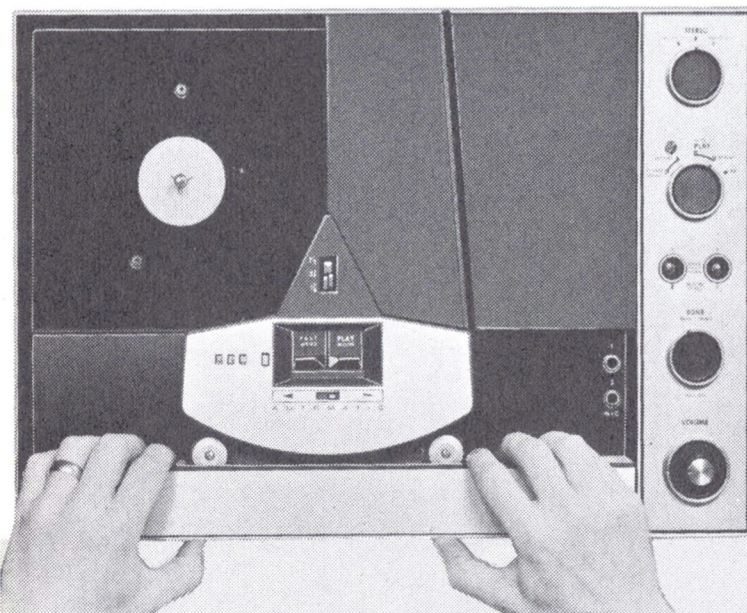


## MICROPHONE PLACEMENT

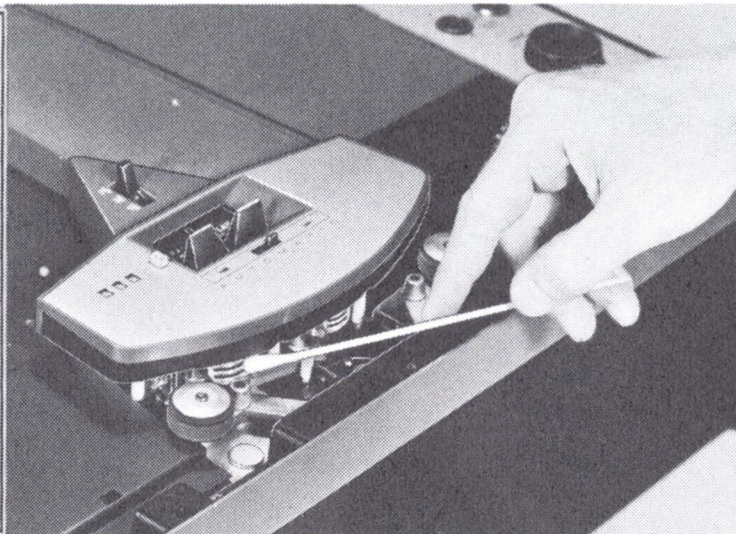
In stereo recording, the distance between the two microphones must be determined by the acoustics of the room and the preference of the person recording. A workable rule-of-thumb, the "Equilateral" method,

consists of placing the microphones as shown at right, at the halfway point on the adjacent sides of an equilateral triangle with sides equal to the maximum width of the source of sound.

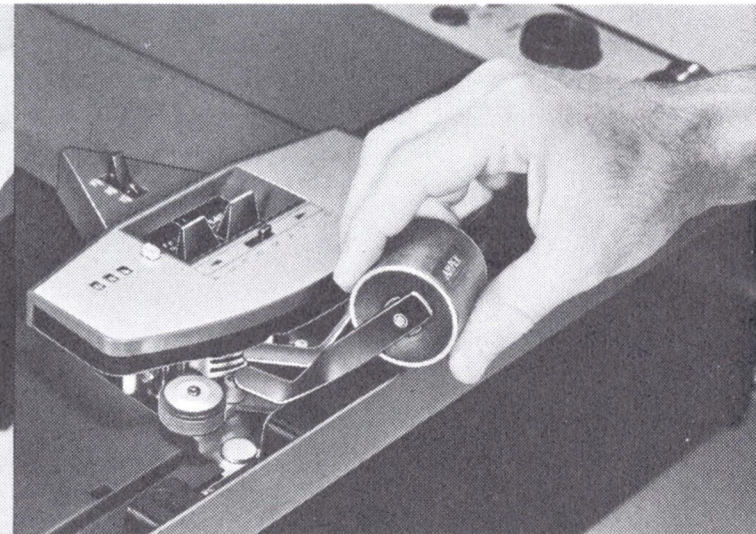
# MAINTENANCE PROCEDURES



1. Name Plate Panel is removed by slight pinching pressure backward, then pulling upward.



2. Cleaning solution is applied with cotton swab applicator.



3. In demagnetizing, tips of demagnetizer are brought within 1/16" of head gap (but not touching), and gradually moved away while being moved up and down along head gap.

## CARE OF HEADS

Dust and oxide from magnetic tape may accumulate on the magnetic heads of the tape recorder and impair their efficiency . . . or even decrease head life drastically. To avoid this, you should periodically clean all the items in the tape-threading path.

To clean the heads, use a Q-tip moistened in standard Ampex Head Cleaner — Accessory No. 823. Be sure to remove name plate, and keep cleaning solution away from plastic parts. **DON'T USE ANY OTHER SOLVENTS ON THE HEADS**, or you may damage them. Never use an abrasive or any metallic object which might cause scratches or nicks.

For cleaning the capstans, and capstan idlers, use a clean lintless cloth moistened with denatured or isopropyl alcohol.

## DEMAGNETIZING THE HEADS

Occasionally the heads may become slightly magnetized through continued use. If this condition is not corrected, you may find the noise level of your tapes increasing, recorded signals becoming distorted and, in extreme cases, the high frequencies on recorded tapes gradually being erased. This condition can be corrected with a Head Demagnetizer (available from your local dealer as Ampex accessory #820). To use the demagnetizer:

1. Depress tone control to turn off recorder.
2. Press name plate panel backward & remove.
3. Plug the head demagnetizer into a wall outlet (117 volts AC).
4. Align the tips of the demagnetizer to the recording (right) head so that they straddle the head gap.  
Don't touch the surface of the head with the metal tips of the demagnetizer. Run the tips up and down the head several times and slowly withdraw the demagnetizer.
5. Repeat above for playback (left) head. It's not necessary to demagnetize the erase head.

# EDITING AND SPLICING TAPES

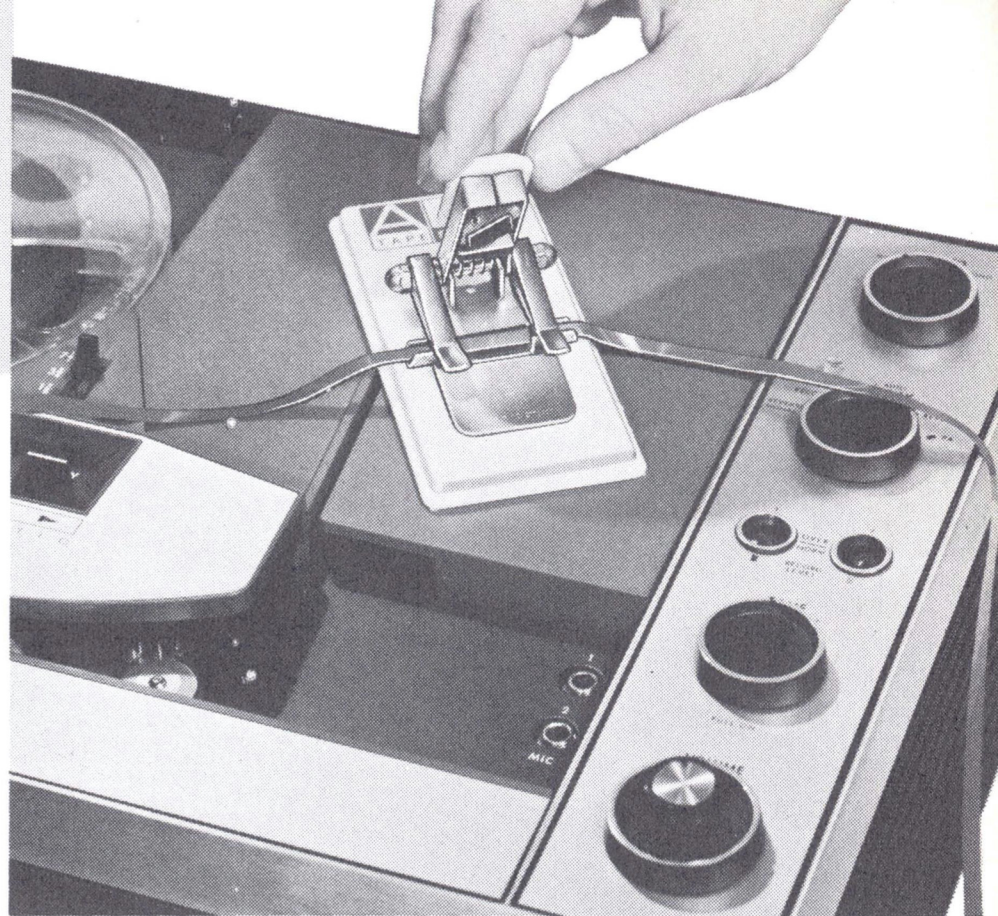
## EDITING BY ERASURE

Extraneous noise or conversation between selections can easily be erased by using the erase head on the tape recorder. Turn all **VOLUME** controls to zero and put channel **SELECTOR** control in **MONO 1**, **MONO 2** or **STEREO**, depending on type of recording. Run the tape in the fast-winding mode to the point to be erased. (The exact place to be edited can be located by rotating the reels manually and listening to the output of the speaker. Then note the points to start and stop erasing on the digital counter.) Depress the **SAFETY LOCK BUTTON** as you push the **PLAY RECORD LEVER** forward to start tape motion. When you reach the point where the next selection starts, return the **PLAY RECORD LEVER** to its neutral position.

When erasing, it is important to remember that the recorder will erase in the left to right direction only. Thus if you wish to erase material on tracks 2 or 4 it is necessary to replace automatic take-up reel with a standard reel. You must then completely wind your tape onto the right reel. At this point you merely exchange reels and proceed as outlined before. In **MONO 1** the recorder will now erase track 4; in **MONO 2** it will erase track 2; and in **STEREO** it will erase both 2 and 4.

## COMPLETELY ERASING RECORDED TAPES

The tape will be erased during the recording process, so it is not necessary to completely erase before re-recording. However, if there are to be gaps between newly-recorded sections of the tape, and you wish to avoid having previously recorded material in the gaps, leave the **RECORD SAFETY LOCK** in, with recording level at zero, between sections you are recording. Completely erasing the tape before re-recording can lessen your editing problems. If bulk erasing facilities are not available, complete erasure can be accomplished by running the tape in the recording mode at 7½ ips with all **VOLUME** controls at zero.



## EDITING BY CUTTING

The recorded tape can also be edited by determining the portions to be deleted, physically cutting those portions out of the tape, and then splicing the program tape together. Note that this cannot be accomplished with a tape recorded in both directions unless one side is sacrificed. An inexpensive tape splicer, such as the Ampex Model 805, will aid you in making the correct splice.

## MAINTENANCE AND THE DEALER

With any precision equipment, lubrication and alignment is necessary from time to time. With average use, lubrication and alignment should be necessary only once a year in order to keep your Ampex recorder in the best possible operating condition. Your Ampex dealer or Ampex Authorized Service Center is best equipped to handle this normal preventive maintenance as well as corrective maintenance should it be needed. If corrective maintenance becomes necessary, your Ampex Service Center would appreciate as much information as possible regarding symptoms of the malfunction as well as the model and serial number of your equipment.

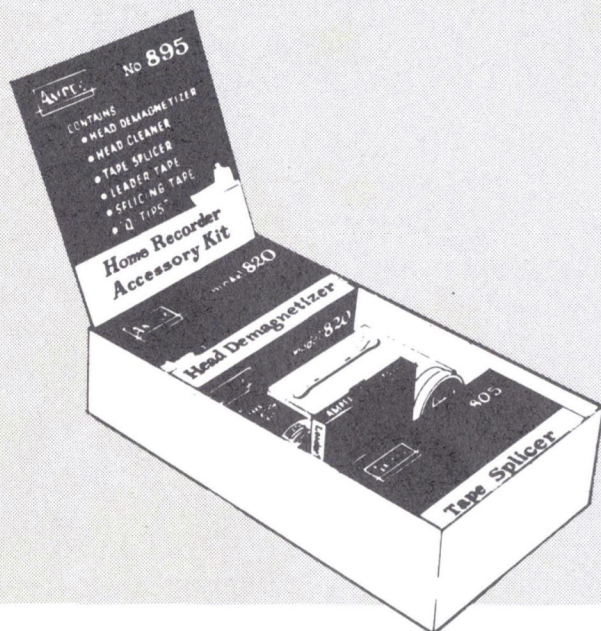


## MICROPHONE MODEL NO. 2001

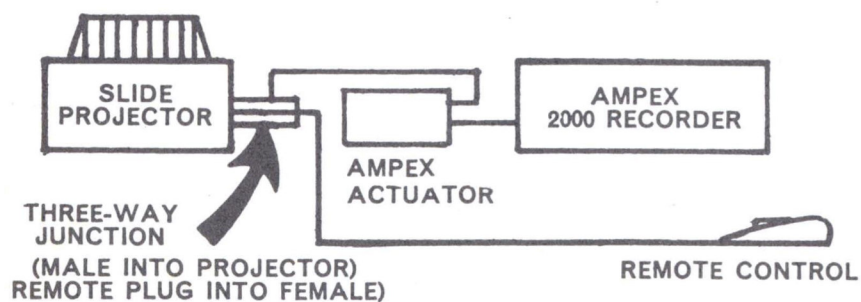
The new Ampex Microphone is a high impedance omnidirectional dynamic microphone for recording. Optimum frequency response is provided in the critical range from 50 to 15,000 cps. The microphone has been styled for a slim, tapered appearance, is light in weight and comfortably balanced for hand-held use. Two microphones are required for stereo recording. (Attractive matching brushed chrome base available.)

## AMPEX HOME RECORDER ACCESSORY KIT

The Ampex 895 Home Recorder Accessory Kit contains an AMPEX 805 Tape Splicer, an AMPEX 820 Head Demagnetizer, a can of AMPEX 823 Head Cleaner, a roll of AMPEX Splicing Tape, a roll of AMPEX Leader Tape, and a box of "Q-Tips" cotton swabs. Each of these products (except perhaps the "Q-Tips" cotton swabs) is also available separately at your AMPEX dealer. Their use is described on pages 20 and 21.



## HOW TO HOOK UP THE AMPEX ACTUATOR

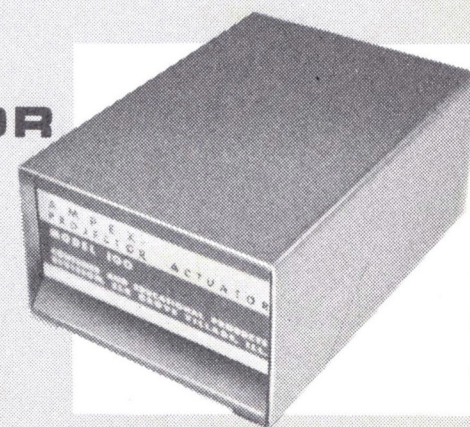


## HOW TO ACTUATE THE SLIDE PROJECTOR

In advance of your showing, simply apply the reverse signal to any portion of your tape at which you wish the projector to advance. After rewinding, put the mode selector control in AUTO PLAY and you are ready to begin. At any point on the tape where the subsonic signal is applied the slide projector will advance to the next slide while the recorder continues to provide narration.

## AMPEX SLIDE PROJECTOR ACTUATOR

Your new Ampex 2000 series tape recorder is designed to provide synchronized narration for slide shows. To accomplish this you need the Ampex PROJECTOR ACTUATOR which can be purchased from your local Ampex dealer. When properly hooked-up to a 2000 series recorder and most popular models of remote controlled slide projectors, the actuator provides a low cost convenient way to add sound to slide presentations.



# FOR DEPENDABLE PERFORMANCE AMPEX RECORDING TAPE

## 500 SERIES RECORDING TAPE

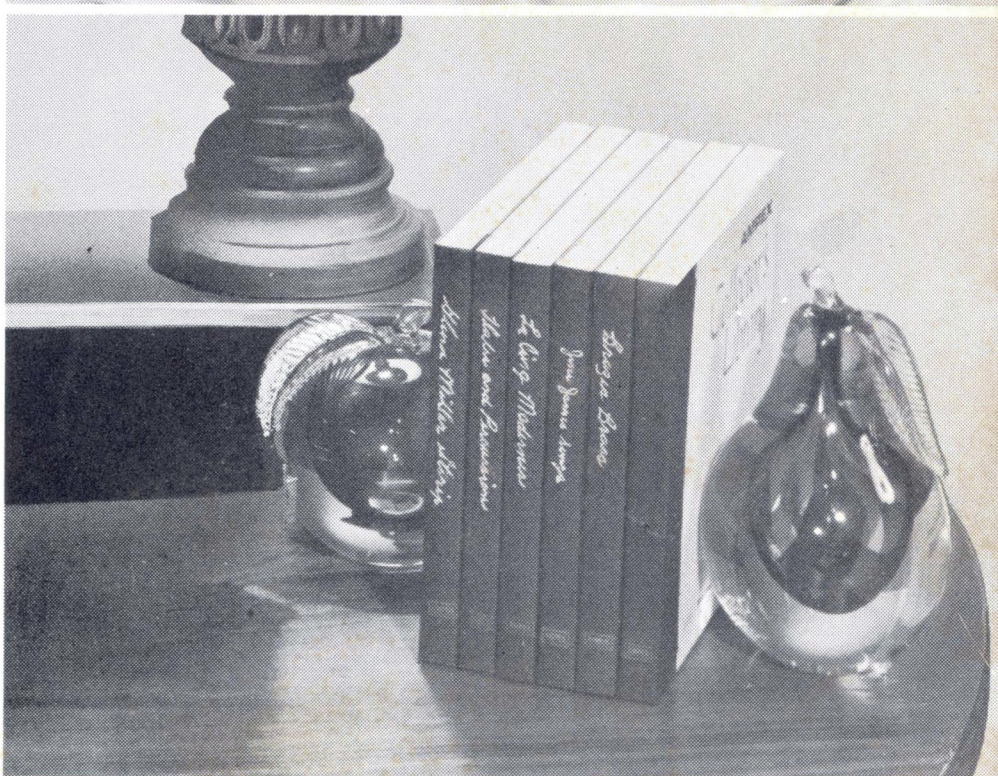
- All Mylar base
- New slow speed oxide
- New flutter reducing reels with 4" hubs
- Attractive new packaging

Here's the most advanced line of magnetic recording tape on the market . . . for quality performance and for protection of your cherished recordings. All tapes in this series have Mylar® base to eliminate breakage, distortion and damage from severe climatic changes and rough handling. For maximum economy new slow speed tapes are offered for recording at  $3\frac{3}{4}$  ips and  $1\frac{7}{8}$  ips. But, perhaps the most important feature of all Ampex recording tape is the Ferro-Sheen finish. Here's an exclusive Ampex process that assures you of uniform oxide finish to reduce head wear and oxide shed. Ampex 500 series tapes are offered in lengths of 600' to 2400' with base thickness of 0.5 mil to 1.5 mil Mylar.

## 900 SERIES COLLECTOR'S LIBRARY

A complete line of Mylar and acetate base recording tape for every recording requirement. Each reel comes packaged in an attractive book-like binding. All 900 series tapes have exclusive Ferro-Sheen finish for optimum performance. Inside each package is a strip of green leatherette binding and 23K gold foil for labeling. To custom label a box, simply place the foil on the leatherette, write the title on the foil with a ball point pen, and remove the foil. Then apply the pressure sensitive binding around the hinged edge of the box. You will be proud to display your completed tape box on your shelves as part of your personal tape and literary collections.

Ampex 900 series recording tapes are offered in lengths of 150' to 2400' with base thickness from 0.5 mil to 1.5 mil.



# AMPEX CORPORATION

CONSUMER AND  
EDUCATIONAL PRODUCTS  
DIVISION

2201 LANDMEIER RD.  
ELK GROVE VILLAGE,  
ILLINOIS

60007



PART No. 7890002-10 R

PRINTED IN U.S.A.

## OWNER'S WARRANTY

Your new Ampex tape recorder was accurately adjusted, carefully inspected and thoroughly tested before shipment from the factory and found to meet the recognized high quality standards of Ampex products. If it does not function properly or if there is some question about how it should operate, read your instruction book carefully — you may find that it can be easily corrected.

Ampex Corporation warrants to the purchaser of each new Ampex recorder-reproducer that any part thereof which proves to be defective in material or workmanship within one year from the date of original purchase for use will be repaired or replaced by Ampex in accordance with the terms of this warranty (including tubes, transistors and diodes.)

If any part should prove to be defective during the aforementioned 1 year period, such defects should be brought to the attention of the Ampex dealer from whom the equipment was purchased. If upon examination the part is determined to be defective in material or workmanship, the dealer will replace the defective part at no charge. Responsibility of Ampex Corporation is limited to making a new or factory-reconditioned replacement part available to the dealer through an Ampex Authorized Service Center. It is the responsibility of the dealer to replace defective parts, either by his own service personnel or through an Ampex Authorized Service Center.

The foregoing is in lieu of all other warranties, expressed or implied or statutory and Ampex Corporation neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with said equipment.

*THIS WARRANTY IS EFFECTIVE ONLY WHEN ACCOMPANYING CARD IS FULLY AND PROPERLY FILLED OUT AND RETURNED TO FACTORY WITHIN TEN (10) DAYS OF ORIGINAL PURCHASE DATE.*

Scans:

<https://archive.org/>