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INTRODUCTION

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 these instructions carefully—you may find that it can be easily corrected.

This book has been specially prepared to aid you in obtaining a complete knowledge of the recorder operation.

The contents have been arranged to simplify its usage. It is recommended that you obtain a thorough understanding of the controls before attempting the various operations.

When you are ready to perform a specific operation, the table of contents on page 4 will provide a convenient means of locating the pertinent section.

DESCRIPTION

The Model 767 is a three-speed, ¼-track recorder/reproducer having separate record-play magnetic heads and containing its own preamplifier and power amplifier. Its features include: Stereo Play-Record, Monaural Play-Record, Echo Effect, Duet Effect, Sound on Sound, Sound with Sound. Included with the recorder are two Model 702 microphones, two Model 414 speakers and one dust cover.

Fig. 1

SPECIFICATIONS

POWER REQUIREMENTS
1½ amperes maximum at 117V.

PRE-AMP OVERALL FREQUENCY RESPONSE
7½ ips ±4db 70 to 15,000 cps
3¾ ips +3, −5db 50 to 7,500 cps
1⅞ ips ±6 db 50 to 3,000 cps

PRE-AMP SIGNAL TO NOISE, FROM PEAK RECORD LEVEL
7½ ips −46db
3¾ ips −43db
1⅞ ips −39db

FLUTTER
7½ ips 0.20%
3¾ ips 0.25%

SPEED ACCURACY
7½ ips ±2%
3¾ ips ±2%

FAST WIND TIME (1200 ft. tape)
150 sec.

LINE INPUT IMPEDANCE
220K ohm

MICROPHONE INPUT IMPEDANCE
150K ohm

LINE INPUT LEVEL
minimum—150 mv rms
maximum—3v rms

MICROPHONE INPUT LEVEL
minimum—1.7 mv
maximum—30 mv

PRE-AMP OUTPUT IMPEDANCE
approx. 10,000 ohms

PRE-AMP OUTPUT LEVEL
0.7 V rms

TONE CONTROL RANGE
treble— +6 −9 at 10K Hz
bass— +12 −5 at 100 Hz

POWER OUTPUT PER CHANNEL (AVERAGE)
8 watts rms into 8 ohm load

POWER AMP. OUTPUT TERMINATION
8 ohms

OVERALL SIZE
23¾ x 14 x 8½

WEIGHT
approx. 44 pounds

MAGNETIC TAPE

Magnetic tape is a plastic film coated with millions of tiny particles of iron oxide (which give the tape its color). To record sound on tape, it is necessary to convert the sound into an electrical current. This current, flowing through the recording head on a tape recorder, generates an electro-magnetic field which will 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.

In playback, the magnetized tape passes the playback head and the varying magnetic field on the tape induces an electrical current corresponding to the sound that the tape "remembers." This current is amplified and transformed back into sound energy. Magnetic tape's "memory" does not wear out or deteriorate with age. The tape remains magnetized indefinitely, until it is erased or brought into contact with a strong magnetic field.

TYPES OF TAPE

The basic properties (including construction) of all magnetic tapes are the same when they are blank or unrecorded. When the tape is recorded it becomes a particular type. It is the recorder that determines this type. When the tape is recorded it becomes one of four types commonly used in consumer audio recorders. These are

2-track monaural, 4-track monaural
2-track stereo, 4-track stereo.

The Model 767 is a 4-track recorder/reproducer. It will record and play back either a 4-track monaural or 4-track stereo tape. It will also play back 2-track monaural or 2-track stereo tapes, depending on the accuracy of the alignment of the magnetic heads on the recorder that originally recorded the tape.

TAPE PLAYING TIMES

LENGTH	SPEED	4-TRACK STEREO TAPES	4-TRACK MONOPHONIC TAPES
1200′ REEL	7½ ips	1 hr 4 min	2 hrs 8 min
	3¾ ips	2 hrs 8 min	4 hrs 16 min
	1⅞ ips	4 hrs 16 min	8 hrs 32 min
1800′ REEL	7½ ips	1 hr 36 min	3 hrs 12 min
	3¾ ips	3 hrs 12 min	6 hrs 24 min
	1⅞ ips	6 hrs 24 min	12 hrs 48 min
2400′ REEL	7½ ips	2 hrs 8 min	4 hrs 16 min
	3¾ ips	4 hrs 16 min	8 hrs 32 min
	1⅞ ips	8 hrs 32 min	17 hrs 4 min

LOCATION OF CONTROLS, JACKS AND INDICATORS

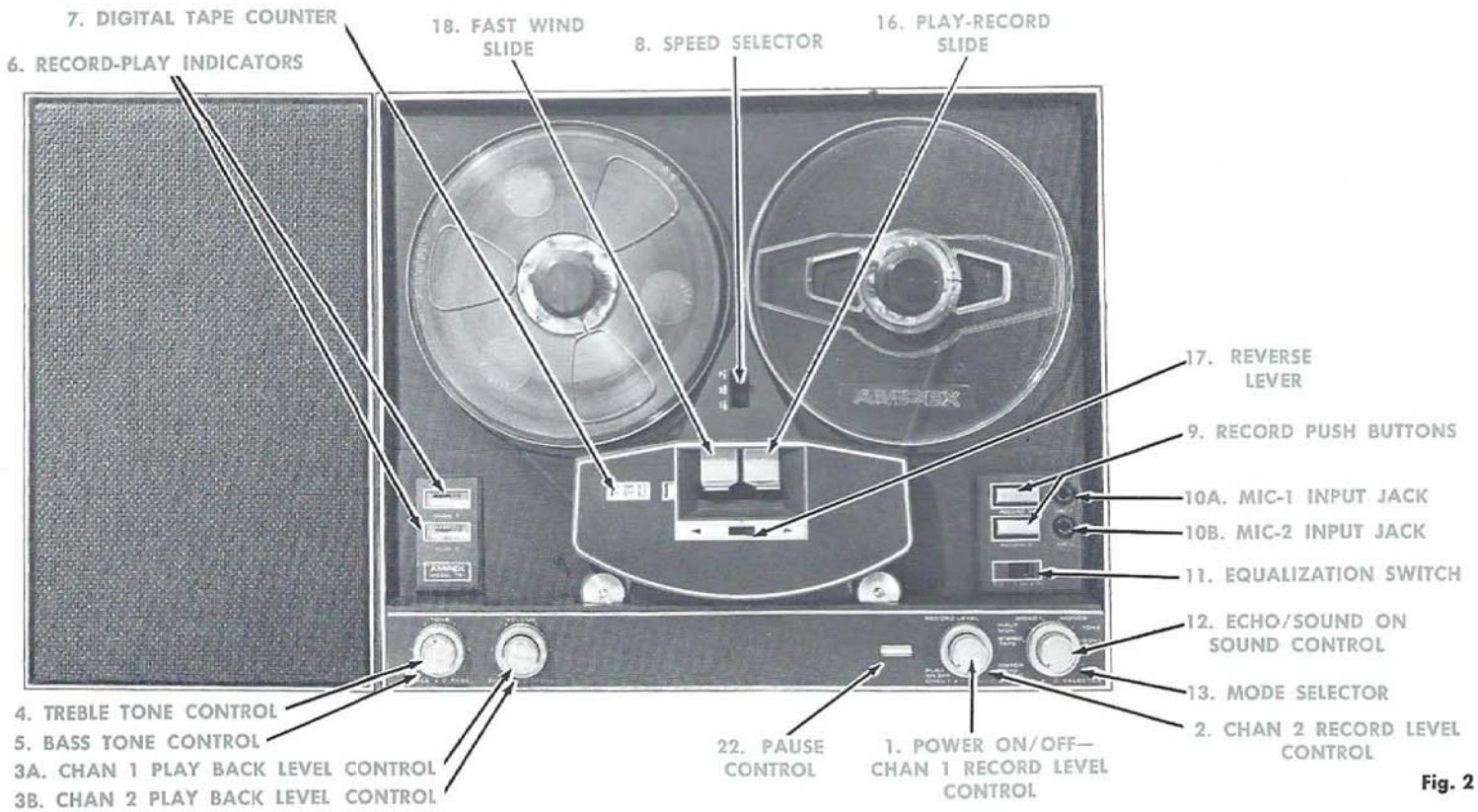

Fig. 2

IDENTIFICATION OF CONTROLS, JACKS AND INDICATORS

(Reference Figure 2)

1. POWER ON/OFF—CHAN. 1 RECORD LEVEL CONTROL

With line cord plugged into a 117-volt, 60 cycle AC outlet, push to turn power ON, push again to turn power OFF. Adjusts the recording level for channel 1 (left channel) sound signal. The RECORD-PLAY indicators will be illuminated when the power is ON.

2. CHANNEL 2 RECORD LEVEL CONTROL

Adjusts the recording level for channel 2 (right channel) sound signal.

3A, 3B. VOLUME CONTROLS

The VOLUME controls adjust the amount of sound heard from the speakers during playback. The controls are designed so that when one is moved the other moves an equal amount allowing the volume of both stereo channels to be adjusted simultaneously.

To adjust the volume of one channel only, hold the control not being adjusted to keep it from moving, then make the adjustment.

4. TREBLE TONE CONTROL

Adjusts the relative loudness of the higher frequencies with reference to the middle audio range. Clockwise adjustment increases the loudness of the higher frequencies; counterclockwise adjustment decreases their loudness.

5. BASS TONE CONTROL

Adjusts the relative loudness of the lower frequencies with reference to the middle audio range. Clockwise adjustment increases the loudness of the lower frequencies; counterclockwise adjustment decreases their loudness.

6. RECORD/PLAY INDICATORS

These meters indicate the level of signal on the tape in the STEREO TAPE, MONO 1 and MONO 2 positions of the MODE SELECTOR SWITCH. When in the INPUT MONITOR position, they indicate the level of signal at the record head. In the 1 ON 2 position, CHAN 1 indicator indicates the level of the signal on channel 1 of the tape and the CHAN 2 indicator indicates the level of the signal at the channel 2 record head. In the 2 ON 1 position, CHAN 2 indicator indicates the level of signal on channel 2 of the tape and the CHAN 1 indicator indicates the level of signal at the channel 1 record head.

The RECORD/PLAY indicators illuminate when power is ON and become brighter when a RECORD push button is depressed.

7. DIGITAL TAPE COUNTER

Indicates tape position, enables operator to return to predetermined place on tape. Reset button returns counter to 000 and may be depressed at any time.

8. SPEED SELECTOR

CAUTION: CHANGE SPEED ONLY WHEN TAPE IS MOVING.

The SPEED SELECTOR sets the speed of tape travel. A desired speed is accomplished by moving the SPEED SELECTOR knob adjacent to the speed indication on the head cover assembly. The quality of the recording is dependent upon the material being recorded and the proper selection of tape speeds. The 7½ IPS (inches per second) speed is used when it is necessary to obtain the best fidelity. The 3¾ IPS setting allots extra playing time with some sacrifice of fidelity. The 1⅞ IPS speed is used when it is necessary to obtain maximum record-play time. This speed is primarily used when making voice recordings.

9. RECORD PUSH BUTTONS

Are used when it is desired to record a signal on tape. These controls provide an interlock to prevent accidental erasure of previously recorded tapes. The recorder will not fully engage in the record mode unless a RECORD PUSH BUTTON is held in the depressed position while lifting the PLAY-RECORD SLIDE to engage the transport. The RECORD-PLAY indicators will become brighter when a RECORD PUSH BUTTON is depressed. Depress both RECORD PUSH BUTTONS to record stereo. Depress only the RECORD 1 (left channel) PUSH BUTTON to record on channel 1 only; Channel 2 may be played back while channel 1 is being recorded. Depress only the RECORD 2 (right channel) PUSH BUTTON to record on channel 2 only; Channel 1 may be played back while channel 2 is being recorded.

10. MICROPHONE INPUT JACKS

The MICROPHONE INPUTS are used to connect a microphone when making a personal recording of yourself, or for original recordings of sound as it is produced.

10A. MIC 1 INPUT JACK

Used when recording stereo, recording on channel 1 (left channel) only or when recording channel 2 (right channel) on channel 1 while dubbing in from the microphone. Connecting a microphone to the MIC 1 (left channel) INPUT JACK automatically disconnects the CHANNEL 1 LINE INPUT JACK.

10B. MIC 2 INPUT JACK

Used when recording stereo, recording on channel 2 (right channel) only or when recording channel 1 (left channel) on channel 2 while dubbing in an additional signal from the microphone. Connecting a microphone to the MIC 2 (right channel) INPUT JACK automatically disconnects the CHANNEL 2 LINE INPUT JACK.

11. EQUALIZATION SWITCH

The EQUALIZATION SWITCH is used to balance the amplifier for the correct frequency response at each operating speed of the recorder.

12. ECHO/SOUND ON SOUND CONTROL

Adds an echo effect to channel 1 while recording in MONO 1 position or adds an echo effect to channel 2 while recording in MONO 2 position. Turns echo effect on and controls volume of echo effect. This control is also used to add and control record level of channel 1 signal which is being recorded on channel 2 when the MODE SELECTOR switch is in 1 ON 2 position or to add and control record level of channel 2 signal which is being recorded on channel 1 when the MODE SELECTOR switch is in the 2 ON 1 position.

13. MODE SELECTOR SWITCH

Selects the mode of operation of the recorder as follows:

13A. STEREO TAPE POSITION

When this position is selected, the recorder will play or record stereophonically. When monitoring while recording, the sound heard is from the tape and will be heard only when the tape is in motion. The signal on the tape is available at the LINE OUTPUT and SPEAKER or HEADPHONE jacks at the rear of the recorder. The signal at the LINE OUTPUT jacks must be fed to an external amplifier or other tape recorder.

13B. INPUT MONITOR POSITION (Also provides public address)

This position allows the material being recorded to be heard as it is being recorded. This material is available at the LINE OUTPUT and SPEAKER or HEADPHONE jacks at the rear of the recorder. Adjustment of the record level should be made while in this position before recording. Since the signal heard at the LINE OUTPUT and SPEAKER or HEADPHONE jacks is that which is present at the record head (input signal to tape) this position cannot be used for playback (output signal from tape). The recorder can be used as a public address system with the selector in this position by connecting a microphone and adjusting the RECORD LEVEL and VOLUME controls to a setting which does not allow feedback. Feedback is an undesirable "squeal" which is prevented by keeping the microphone away from the loudspeakers in the system and by not using any more volume than is necessary for the application. Sound will be heard without the tape in motion. Recording of public address material can be accomplished by proceeding as described under the RECORDING PROCEDURES section of this manual after setting up the recorder as just described.

13C. MONO 1 POSITION

In the MONO 1 POSITION, the recorder will record on channel 1 (left channel) and playback the audio recorded on channel 1 over both SPEAKERS. An external playback amplifier can be connected to the LINE OUTPUT JACKS. When monitoring while recording, the sound heard is being taken from the tape by the Ch 1 playback head and has already been recorded on the tape. No sound will be heard unless the tape is in motion.

13D. MONO 2 POSITION

In the MONO 2 POSITION, the recorder will record on channel 2 (right channel) and playback the audio recorded on channel 2 through both SPEAKERS. An external playback amplifier can be connected to the LINE OUTPUT JACKS. When monitoring while recording, the sound heard is being taken from the tape by the Ch 2 playback head and has already been recorded on the tape. No sound will be heard unless the tape is in motion.

13E. 1 ON 2 POSITION

In the 1 ON 2 position, the sound on channel 1 (left channel) can be recorded on channel 2 (right channel) and mixed with sound from a microphone (MIC-2) or from the line input (LINE IN-RIGHT). Sound can be heard from the speakers, headphones or an external playback amplifier for channel 1 connected to the LINE OUTPUT JACKS. When monitoring channel 2 in this position, the sound heard is the sound from the recording source and is not the sound recorded on tape.

13F. 2 ON 1 POSITION

In the 2 ON 1 position, the sound on channel 2 (right channel) can be recorded on channel 1 (left channel) together with sound from a microphone (MIC-1) or from the line input (LINE IN-LEFT). Sound can be heard from the speakers, headphones or an external playback amplifier for channel 2 connected to the LINE OUTPUT JACKS. When monitoring channel 1 in this position, the sound heard is the sound from the recording source and is not the sound recorded on the tape.

14. PLAY-RECORD SLIDE

When pushed upward, tape moves at selected speed from left to right. Locks recorder in playback or recording mode of operation and locks out fast wind slide. Return to the down position to stop tape motion.

15. REVERSE LEVER

Selects direction of fast wind. DO NOT ATTEMPT TO REVERSE DIRECTION WHEN TAPE IS MOVING. Lever must be in left-to-right position for play or record operation.

16. FAST WIND SLIDE

Pushing slide upward will move the tape rapidly in the direction of the FAST REVERSE LEVER. Pull back to stop tape motion. When going from fast wind to play, allow tape to come to a complete stop before actuating PLAY RECORD SLIDE.

17. LINE INPUT JACKS—pin type jacks for recording directly from a tuner, phonograph, or another tape recorder. Will accept dual pin plugs.

18. LINE OUTPUT JACKS

(Reference Figure 3)

These are pin type jacks for connection of external power amplifiers which will allow the monitoring of tapes as they are being recorded or played back.

The level available at these outputs is not affected by either the playback VOLUME controls or the TREBLE or BASE controls.

20. SPEAKER JACKS

(Reference Figure 3)

Plug in speakers here before turning on the recorder. The Model 414 speakers may be plugged into these jacks for transit or storage without adverse effect.

21. STEREO HEADPHONE JACK

(Reference Figure 3)

Accepts phone-type jack for connection of stereo headphones. Loudspeakers are disabled while this jack is in use.

22. PAUSE CONTROL

Stops the tape transport momentarily or indefinitely while the recorder is engaged in a play or record mode. The RECORD pushbuttons will remain engaged when this control is activated during the record mode. Simply engage the PLAY/RECORD control to resume recording or playing.

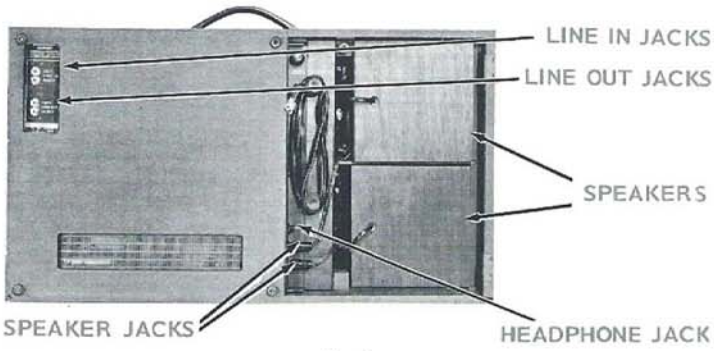

Fig. 3

INSTALLATION

PLAYBACK

(Reference Figures 3, 4)

It is advisable to leave the Model 414 speakers plugged into the jacks while the speakers are stored in their compartments. Plug the power cord into a standard 117-volt, 60-cycle outlet. Open the rear compartment and remove the two speakers. Plug each speaker into its respective SPEAKER JACK (21). Separate the speakers and place one on each side of the recorder cabinet (the greater the separation, the better the stereo effect). The speakers may be left in place within the recorder cabinet, but this will eliminate the stereo effect.

RECORD

(Reference Figure 5)

Plug the power cord into a standard 117-volt, 60-cycle outlet. Plug a microphone into the MIC 1 jack or MIC 2 jack for monaural recording or plug in both microphones to record stereo.

USING RECORDER AS PART OF HI-FI SYSTEM

To use your recorder as part of a Hi-Fi system, connect the components of your system together in accordance with the instructions supplied by their manufacturer. Then, connect the LINE INPUT jacks on the rear of your recorder to the output (TO TAPE) jacks on the power amplifier of your Hi-Fi system. To record from microphones, plug a microphone into the MIC 1 jack for MONO 1 operation or the MIC 2 jack for MONO 2 operation. One microphone must be connected to each MIC jack for STEREO operation.

NOTE: *Connecting a microphone automatically disconnects the associated line in jack.*

Connect the LINE OUTPUT jacks at the rear of the recorder deck to the jacks labeled MONITOR IN, AUXILIARY IN-PUT, TAPE IN, etc. on the power amplifier. See figure 5.

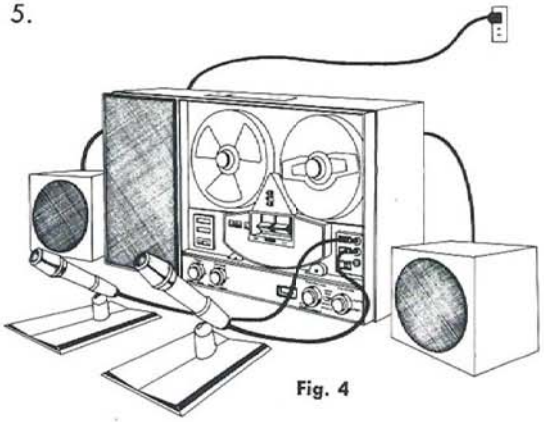

Fig. 4

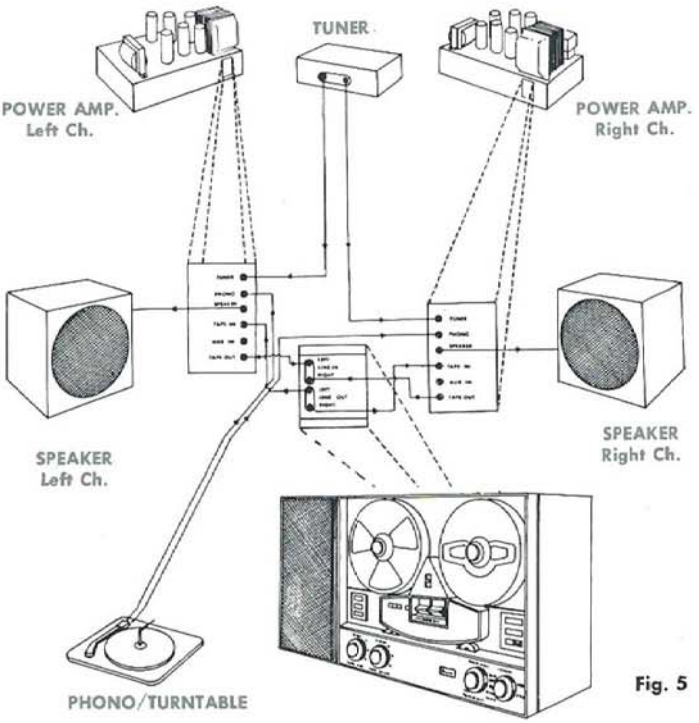

Fig. 5

THREADING TAPE

1. Place a full reel of tape on the left reel spindle and an empty tape reel on the right reel spindle. Be sure that the slots in the tape reels engage with the spindles. Place reel retainers over the spindle shafts.

2. Unwind about 18 inches of tape from the full reel and thread it through the tape guide path and onto the take-up reel.

3. Wrap the end of the tape around the hub of the take-up reel.

4. Engage the Play-Record Slide for a few seconds to start the tape winding on the take-up reel .

NOTE: *The tape transport is equipped with a tape switch. Unless the tape is threaded tightly (in the tape path) the transport will not run. Correct by turning right (take-up) reel counterclockwise until the tape is taut.*

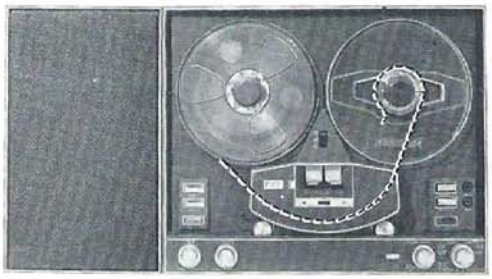

Fig. 6

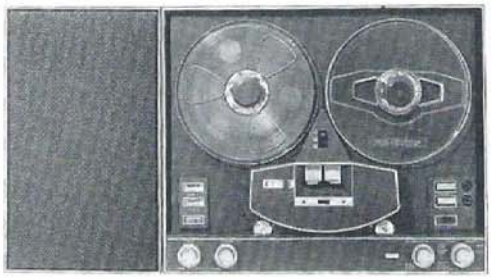

Fig. 7

PLAYBACK PROCEDURES

PLAYING MONOPHONIC AND STEREO TAPES

Before playing tapes on your recorder it is important that you be familiar with the proper use of the operating controls. Until you have a complete knowledge of each control, it will be helpful to refer to page 7 - 8 from time to time.

CAUTION:

- *Never press a record push button unless you intend to record.*
- *Never change speed unless tape is moving.*

1. Connect your recorder according to the instructions on page 9.

2. Playing pre-recorded tapes requires the connection of speakers to the SPEAKER OUT jacks or headphones to the HEADPHONE jack or other hi-fi components to the LINE OUTPUT jacks.

3. Thread tape on the recorder.

4. Push the ON-OFF/CHANNEL 1 RECORD LEVEL CONTROL to turn recorder on.

5. If SPEED SELECTOR is not set for the correct speed, advance play record slide to move tape, then set the SPEED SELECTOR to the speed of the recorded tape.

6. Set the EQUALIZATION CONTROL to the same speed setting as the SPEED SELECTOR.

7. Set the DIGITAL TAPE COUNTER to 000 by depressing the automatic reset button.

8. Set the MODE SELECTOR switch for the type of recording you wish to play. For stereo tapes, to STEREO TAPE; for monaural tapes, to MONO 1 or MONO 2.

9. Advance the PLAY RECORD SLIDE.

10. Adjust the volume and tone controls to suit your listening taste.

To play the remaining two tracks remove the reels from the recorder and invert them ; place the full reel on the left reel spindle, the empty reel on the right reel spindle. Thread the tape.

RECORDING PROCEDURES

RECORDING STEREO TAPES

NOTE

The Pause push button stops tape motion in the PLAY or RECORD mode without disturbing the mode of operation. Lifting the RECORD/PLAY key while in the pause mode restarts tape motion.

1. Thread the tape on the recorder. See page 10.
2. Push the ON-OFF/CHANNEL 1 RECORD LEVEL CONTROL to turn recorder on.
3. Set the SPEED SELECTOR to the desired recording speed. Tape must be moving when changing speeds.
4. Set the EQUALIZATION CONTROL to the same speed setting as the SPEED SELECTOR.
5. Set the DIGITAL TAPE COUNTER to 000 by depressing the automatic reset button.
6. Set the MODE SELECTOR to INPUT MON.
7. Apply the desired input signals and adjust the RECORD LEVEL CONTROLS so that RECORD-PLAY INDICATORS fluctuate in the black area. The indicators should enter the red areas only on peak sound levels. If the indicators constantly enter the red area, either the RECORD LEVEL controls are set too high or, if you are recording from microphones, they may be too close to the sound source.
8. Hold both RECORD PUSH BUTTONS depressed and advance the PLAY RECORD SLIDE. You are now recording.
9. Set the MODE SELECTOR switch to STEREO TAPE.

In the STEREO TAPE position the sound you hear has been recorded on the tape and is being played back through the recorder. In the INPUT MON. position, the material being recorded can be monitored through external components connected to the MONITOR OUTPUT jacks on the back of the recorder.

RECORDING MONAURAL TAPES

1. Thread tape on recorder.
2. Push the ON-OFF/CHANNEL 1 RECORD LEVEL CONTROL to turn recorder on.
3. Set the SPEED SELECTOR to the desired recording speed.
4. Set the EQUALIZATION CONTROL to the same speed setting as the SPEED SELECTOR.
5. Set the DIGITAL TAPE COUNTER to 000 by depressing the automatic reset button.
6. Set the MODE SELECTOR to INPUT MON.
7. Apply the desired input signal and adjust the appropriate RECORD LEVEL CONTROL so that the RECORD-PLAY INDICATOR for the channel to be recorded fluctuates in the black area. The indicator should enter the red area only on peak sound levels. If the indicator constantly enters the red area, either the RECORD LEVEL CONTROL is set too high or, if you are recording from the microphone, it may be too close to the sound source.
8. Set the MODE SELECTOR to the MONO 1 position to record channel 1 or to the MONO 2 position to record channel 2.
9. Hold the appropriate RECORD PUSH BUTTON depressed and advance the PLAY-RECORD SLIDE. You are now recording.

NOTE: *Only depress the RECORD PUSH BUTTON for the channel you wish to record. Do not depress both RECORD PUSH BUTTONS at the same time when recording monaurally.*

In the MONO 1 or MONO 2 positions of the selector switch the sound you hear has been recorded on the tape and is being played back through the recorder.

ADDING ECHO EFFECT

Echo effect can only be accomplished in a monaural mode. To record monaural tapes with an echo effect, just turn the ECHO/SOUND ON SOUND control clockwise, while recording normally, until the desired effect is achieved. The echo effect is greatest at the 1 7/8 speed, somewhat less at 3 3/4 speed, and minimum at the 7 1/2 speed.

CAUTION: *Under certain conditions noise will build up if the ECHO/SOUND-ON-SOUND CONTROL is turned up too far. Advance it only as far as required for the amount of echo desired.*

RECORDING PROCEDURES (CONTINUED)

DUET EFFECT

There are two ways of obtaining a duet effect:

A. If a monaural recording has already been made:

1. Set the MODE SELECTOR to 1 ON 2 if channel 1 has been recorded, or to 2 ON 1 if channel 2 has been recorded.
2. Hold appropriate RECORD PUSH BUTTON depressed (RECORD 2 if in 1 ON 2 or RECORD 1 if in 2 ON 1) and advance PLAY-RECORD SLIDE.
3. Turn the ECHO/SOUND-ON-SOUND CONTROL clockwise and adjust so that the RECORD-PLAY INDICATOR for the channel being recorded fluctuates in the black area. The indicator should enter the red area only on peaks. If the indicator constantly enters the red area, the ECHO/SOUND-ON-SOUND CONTROL is set too high.
4. Play back tape with MODE SELECTOR in STEREO TAPE position.

B. If a monaural recording has not been made:

1. Perform steps 1 thru 9 of Recording Monaural Tapes.
2. Set the MODE SELECTOR to 1 ON 2.
3. Hold both RECORD PUSH BUTTONS depressed and advance the PLAY-RECORD SLIDE.
4. Turn the ECHO/SOUND-ON-SOUND CONTROL clockwise and adjust so that the CHANNEL 2 RECORD-PLAY INDICATOR fluctuates in the black area. The indicator should enter the red area only on peak sound levels. If the indicator constantly enters the red area, the ECHO/SOUND-ON-SOUND CONTROL is set too high.
5. Play back tape with MODE SELECTOR in the STEREO TAPE position.

SOUND-ON-SOUND

Sound on sound can only be accomplished monaurally. Sound on sound is accomplished by recording the program from a pre-recorded monaural track onto a second track, while recording a new program, leaving the original program on the first track unchanged. There are two ways to record sound on sound:

1 ON 2—This method takes the signal from Channel 1 and records it on channel 2 simultaneously with a new program.

2 on 1—This method takes the signal from channel 2 and records it on channel 1 simultaneously with a new program.

In making a sound on sound recording the following steps are to be followed.

If a monaural recording has not been made, perform steps through of RECORDING MONAURAL TAPES.
If a monaural recording has been made, proceed as follows:

A. 1 ON 2 Sound-on-Sound

1. Connect the new signal source which is to be added to the pre-recorded signal (on channel 1) to the channel 2 input (either MIC-2 or LINE-IN RIGHT).
2. Set the mode SELECTOR switch to 1 on 2 position.
3. Adjust the new signal level by rotating RECORD LEVEL control for CHAN 2 so that the CHAN 2 RECORD-PLAY INDICATOR fluctuates in the black area.
4. Hold the RECORD 2 push button depressed while lifting the PLAY-RECORD slide.
5. Turn the ECHO/SOUND-ON-SOUND control clockwise, to adjust the pre-recorded signal from channel 1, so that the CHAN 2 RECORD-PLAY INDICATOR fluctuates in the black area. The indicator should enter the red area on peak sound levels. If the indicator constantly enters the red area, either the CHAN 2 RECORD LEVEL control or the ECHO/SOUND-ON-SOUND control is set too high and should be reduced.
6. After you have completed recording and rewinding the tape to the start of the program, the program may be played back with the mode SELECTOR switch in MONO 2 position.

B. 2 ON 1 Sound-on-Sound

1. Connect the new signal source desired to be added to the pre-recorded signal (on channel 2) to the channel 1 input (either MIC 1 or LINE-IN LEFT).
2. Set the mode SELECTOR switch to 2 on 1 position.
3. Adjust the new signal level by rotating the CHAN. 1 RECORD LEVEL control so that the CHAN 1 RECORD-PLAY indicator fluctuates in the black area.
4. Hold the RECORD 1 push button depressed while lifting the play-record slide.

5. Turn the ECHO/SOUND-ON-SOUND control clockwise, to adjust the pre-recorded signal from channel 2, so that the CHAN 1 RECORD-PLAY indicator fluctuates in the black area. The indicator should enter the red area on peak sound levels. If the indicator constantly enters the red area, either the CHAN 1 RECORD LEVEL control on the ECHO/SOUND-ON-SOUND control is set too high and the level should be reduced.

6. After you have completed recording and rewinding the tape to the start of the program, the program may be played back with the mode SELECTOR switch in MONO 1 position.

SOUND WITH SOUND

Sound with Sound is accomplished by recording one channel while listening to another. Then playback the recording with the MODE SELECTOR in the STEREO POSITION.

Using this feature of your recorder, TAPE TEACHING can be accomplished easily by having the program to be learned on one channel. If it is a foreign language, for example, you can play it back and while listening at low level or through headphones, record your responses onto the other channel. When finished, rewind to the start and playback in STEREO TAPE position of SELECTOR. You will hear the "teacher" and your response. If it is a musical selection you can play or sing along and compare the two on playback.

1. Make a monaural recording on one channel only. Follow steps 1 thru 9 of Recording Monaural Tapes.

2. Apply a signal to the unrecorded channel.

3. Set the MODE SELECTOR to the appropriate channel. (Set to 1 ON 2 position, if Channel 1 is prerecorded, or 2 ON 1 if Channel 2 is prerecorded.)

4. Hold the appropriate record push button depressed (record 2 if Channel 1 is prerecorded, record 1 if Channel 2 is prerecorded) and advance the RECORD PLAY SLIDE.

MAINTENANCE

CLEANING THE HEADS

Dust and oxide from the magnetic tape may accumulate on the Record-Play Heads of the recorder and impair their efficiency. To avoid this you should periodically clean the Heads and Tape Guide surfaces.

To gain access to the head, first remove the eight (8) control knobs by inserting tips of fingers under large bottom knobs and pull up; then remove the front trim panel by slightly depressing its vertical wall then pulling upward. (See figure 8). To clean the heads use a cotton swab moistened in Ampex Head Cleaning Solution. Do not use any other solvents on the heads, or you may damage them. To avoid damage, keep the head cleaning solution away from plastic parts. Never use an abrasive or any metallic object which may cause scratches or nicks.

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

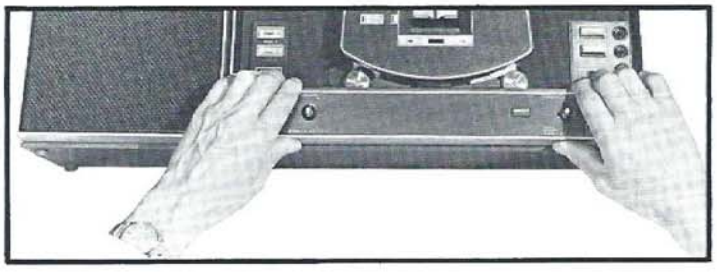

Fig. 8

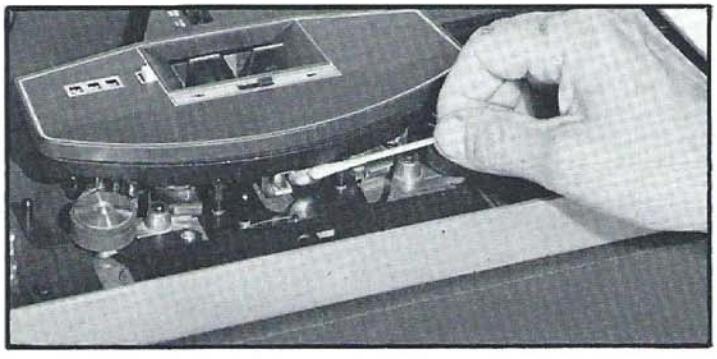

Fig. 9

DEMAGNETIZING THE HEADS

Demagnetizing the heads at regular intervals is a necessary maintenance in order to achieve the greatest performance available in your recorder. To demagnetize the heads use an Ampex Head Demagnetizer, and follow the instructions below:

1. Turn the recorder off (See figure 8).
2. Remove the front trim panel.
3. Plug the head demagnetizer into a wall outlet (117 Volts A.C.).
4. Align the tips of the demagnetizer to the Record-Play Head so that they straddle the head gap, (approximately ⅛ inch away from the head surface). Do not 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.

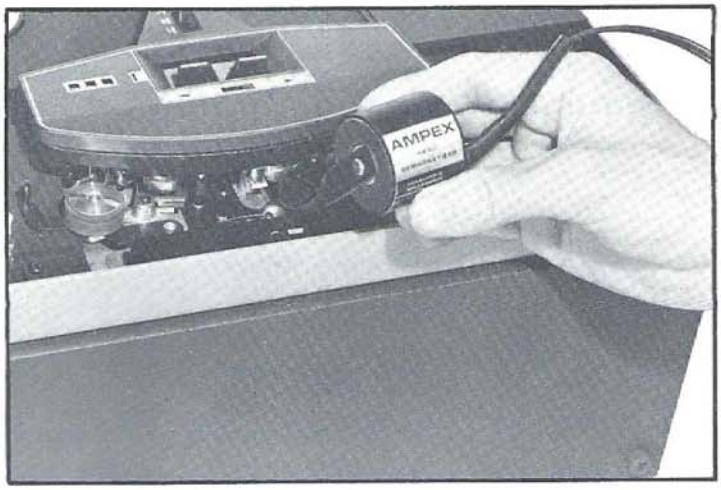

Fig. 10