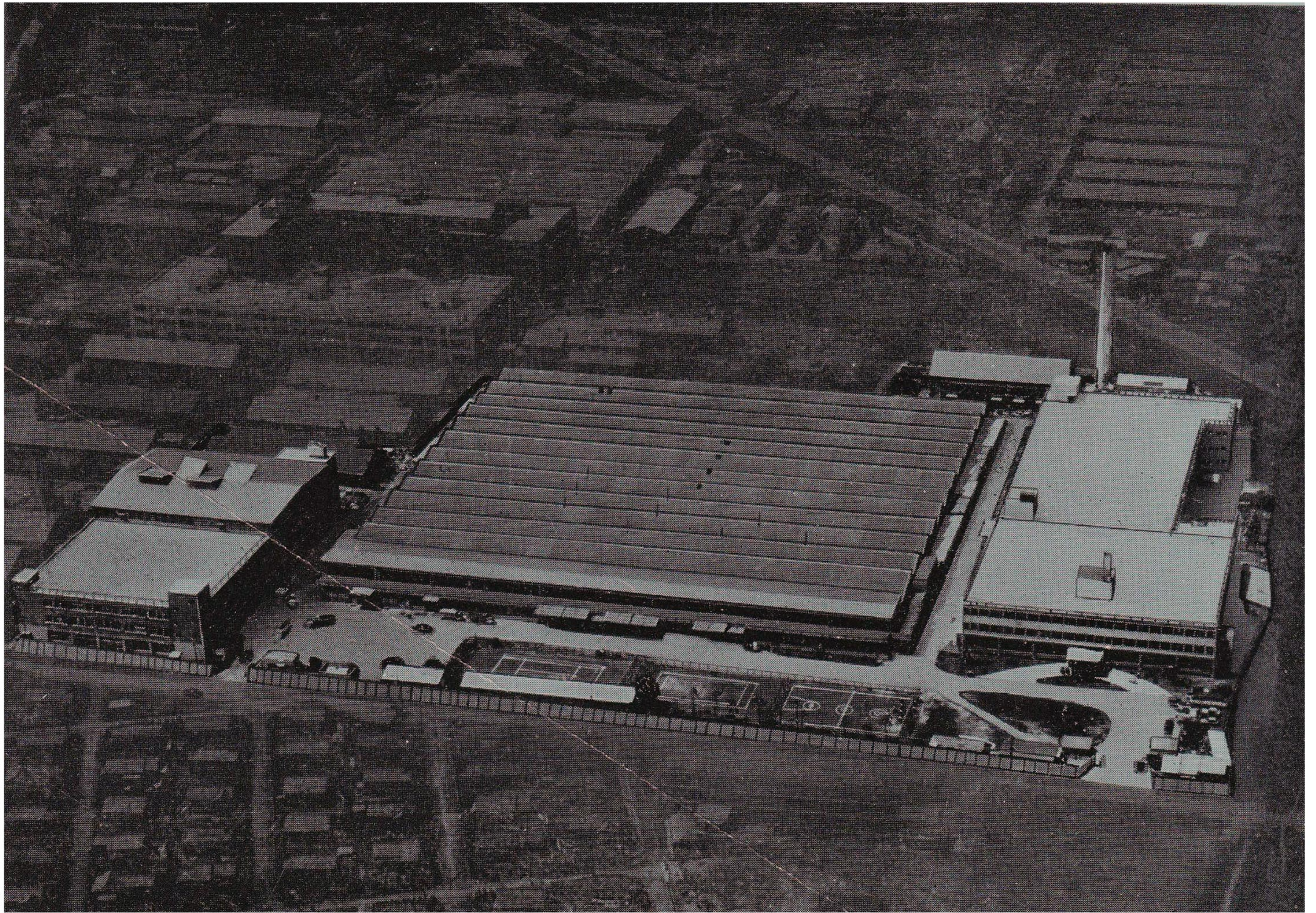


OPERATING INSTRUCTIONS

The **CONCORD** PORTABLE STEREO
TAPE RECORDER MODEL 401



THE HOME OF "CONCORD" TAPE RECORDERS

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INTRODUCTION :

The CONCORD Model 401 Stereo Tape Recorder - one of the newest instruments in the CONCORD line of fine electronic equipment, is an outstanding example of the CONCORD advanced engineering and production techniques which are combined to provide products with truly superior performance, features, and reliability. CONCORD Electronics products are manufactured with painstaking care by world's finest craftsmen in one of the world's largest factories and set the standards for quality and value. The CONCORD Model 401 Stereo Tape Recorder combines the Model 400D Stereo Tape Deck and the Model 400RP Stereo Preamplifier in a single compact easy to carry and easy to use portable unit. The CONCORD 401 Recorder is a self contained unit that can be used to make stereo or monaural recordings anywhere and played back through a conventional high fidelity system. The 401 Recorder may be operated either in vertical or horizontal position within its carrying case or may be mounted in a cabinet or wall.

OUTSTANDING FEATURES OF THE CONCORD 401 STEREO TAPE RECORDER :

RECORDS—4-track stereo or monaural

PLAYS—2 and 4 track stereo

PROFESSIONAL OPERATING FEATURES—recording levels may be set without tape moving - separate equalization circuits for optimum recording and playback quality at either selective speed - VU meters - cathode follower outputs.

CONCORD EXCLUSIVE—ultra precision flutter free transport mechanism - beltless drive for utmost performance and reliability.

CONCORD EXCLUSIVE advanced design salient pole induction drive motor with self lubricating dual directional bearings.

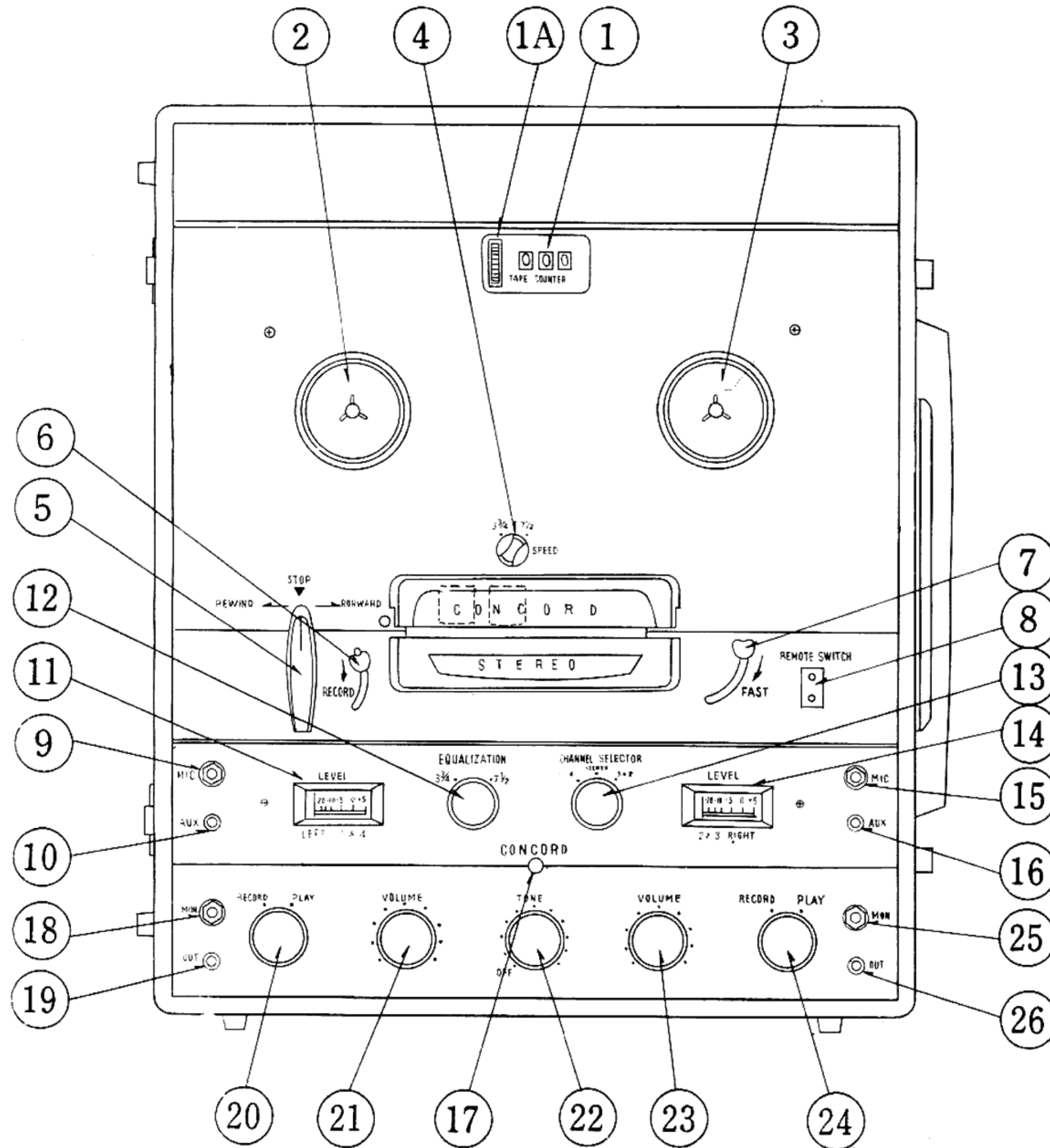
CONCORD EXCLUSIVE electrimatic remote control.

RECORDING HEADS—laminated, triple mu-metal shielded heads manufactured to precise tolerances and tested for superior quality and performance.

SERVICE :

CONCORD Electronics Corporation maintains over 70 authorized service depots throughout the United States operated by trained and competent service personnel equipped with parts for fast efficient service on all CONCORD Electronic products.

BASIC OPERATING INSTRUCTION :



A. MODEL 400D TAPE DECK :

1. Tape Counter
- 1A. Tape Counter Resetting Knob
2. Rewind Reel Spindle
3. Takeup Reel Spindle
4. Takeup Speed Selector Knob
5. Selector Control Knob
6. Record Safety Lever
7. Fast Forward Lever
8. Electrimatic Remote Control Socket

B. MODEL 400RP TAPE PREAMPLIFIER:

9. Left Channel Microphone Input Jack
10. Left Channel Auxiliary Input Jack
11. Left Channel Level Indicator
12. Equalization Selector Knob
13. Channel Selector Knob
14. Right Channel Level Indicator
15. Right Channel Microphone Input Jack
16. Right Channel Auxiliary Input Jack
17. Pilot Lamp
18. Left Channel Monitoring Jack
19. Left Channel Output Jack for External Power Amplifier
20. Left Channel Mode Selector Knob
21. Left Channel Volume Control Knob
22. Tone Control Knob with CN/OFF Switch
23. Right Channel Volume Control Knob
24. Right Channel Mode Selector Knob
25. Right Channel Monitoring Jack
26. Right Channel Output Jack for External Power Amplifier

THE CONTROLS AND THEIR FUNCTIONS :

A. Tape Counter (1) :

For indicating the amount of tape passing over the heads. To reset the counter to the "000" position, turn the RESETTING KNOB (1A) in a forward direction until the counter shows "000".

B: Selector Control Knob (5) :

1. With the SELECTOR CONTROL in the "REWIND" position, the tape just recorded or played is rewound rapidly.

2. In the "STOP" position, the tape motion stops.

Note : Always turn the SELECTOR CONTROL to this position before turning off the recorder, or when threading a new tape.

3. In the "FORWARD" position, the tape advances and the sound recorded on the tape is played back.

Note : ALWAYS PAUSE for a moment at the "STOP" position when changing the Selector from "REWIND" to "FORWARD" or "FAST FORWARD", and vice versa. Otherwise damage to tape can result.

C. Record Safety Lever (6) :

To record, pull the "REC" lever towards you, while you turn the Selector Control to the "FORWARD" position. It prevents you from accidentally erasing the sound you wish to keep. You

can also preset the optimum recording level by switching the Selector Control to "STOP" and by pulling the "REC" lever towards you. The pointer(s) of the Level Indicator should deflect within the black scale (Normal) zone at the optimum record level.

D. Fast Forward Lever (7):

When the SELECTOR CONTROL is set at the "FORWARD" position, pulling this lever towards you advances the tape rapidly in order to playback or begin recording at the point indicated by you on the Tape Counter. To stop fast-forward motion, switch the SELECTOR CONTROL to the "STOP" position, and the FAST FORWARD LEVER is automatically released.

E. Electromatic Remote Control Socket (8):

The plug at the end of the Remote Control Switch fits into this receptacle.

E. Speed Selector Knob (4):

The tape speed can be selected by turning this knob. For 7.5 ips. press this knob down and turn it clockwise. For 3.75 ips. turn this knob counter-clockwise until the knob is automatically lifted. Do not change speeds while tape is moving.

G. Level Indicators (11 & 14):

The greater the intensity of the sound source, the greater will the indicator needles deflect to the RED zone. When recording, the best results are obtained by keeping the needles within the BLACK zone.

H. Microphone Input Jack (9 & 15):

For connection with the microphone cord plug(s).

I. Auxiliary Input Jacks (10 & 16):

For recording from tuner, record player, or T. V. The plug(s) at the end(s) of the patch cord(s) fits into this receptacle.

J. Earphone Jacks (10 & 25):

Earphone(s) may be plugged into these jacks for the purpose of monitoring while recording, or for private listening to reproduced sound.

K. Output Jack For External Amplifier (19 & 26):

For playback, connect one end of the patch cord into this receptacle(s) and the other end(s) to the External Amplifier.

L. Mode Selector Knobs (20 & 24):

For selecting the amplifier modes of each channel separately. When the knob is set at RECORD position, the respective channel amplifier is set at

RECORD mode, and if set at PLAY position, the amplifier is set at PLAY mode.

M. Volume Control Knobs (21 & 23) :

For increasing or decreasing volume levels during playback, or for controlling recording levels during recording. Both Controls operate independently of the other.

O. Channel Selector Knob (13) .

When this knob is set at STEREO position, stereo recording or playback can be made on channels 1 & 3 or 4 & 2, respectively.

When set at MONO. CH. 1 & 4, monaural recording or playback can be made on channel 1 or 4.

When this knob is set at MONO. CH. 3 & 2, monaural recording or playback can be made on channel 3 or 2.

O. Equalization Selector Knob (12) :

For adjusting the record or playback equalization characteristics for each speed, 7.5 ips. and 3.75 ips.

P. Tone Control Knob with on/off Switch (22) :

For turning the recorder "ON". During playback this control also adjusts the tone of both channels. Turn it to the right, and the treble emphasis increases.

OPERATING INSTRUCTIONS :

Power Supply :

The Power Supply Cord is kept in the Storage Pocket at the top of the carrying case. Before plugging it in, make absolutely certain that your house supply is 110 - 120 volts, 60 cycles AC. This tape recorder is designed to operate only on this voltage, AND SEVERE DAMAGE WILL RESULT IF CONNECTION IS MADE TO HIGHER VOLTAGE OR TO A DIRECT CURRENT (D.C.) LINE. If in doubt, consult your dealer.

To Turn "On" the Recorder :

Turn the TONE CONTROL KNOB (22) a few degrees to the right (clockwise direction) until it clicks. After about a half minute the recorder is ready to record or play.

To Thread the Tape :

1. Selector Control Knob (5) must be set at the STOP position.
2. Hold the full reel so that the loose end of the tape hangs down on the left side of the reel. Place the reel on left spindle (2). Turn the reel slightly until it falls into place and is held securely by the ridges of the spindle. Place the empty reel onto the right spindle (3) in the same manner.
3. Unwind about twenty inches of tape from the full reel. Hold a section of tape taut with both hands and insert into tape slot. Make

sure that the dull-coated side faces the tape heads of the recorder, and that the tape is not twisted.

4. Insert free end of the tape into one of the slots in the center of the empty takeup reel, and give the reel two or three turns counter-clockwise until tape is secured to both reels and slack is taken up.



TO RECORD :

A. Monaural 4-Track Individual Recordings :

1. Recording from Microphone :

- a. Insert microphone plug into the Left Channel Microphone Input Jack (9).
- b. Select the proper speed desired with the SPEED SELECTOR KNOB (4).
- c. Set the LEFT CHANNEL MODE SELECTOR KNOB (20) at "RECORD" position and set the RIGHT CHANNEL MODE SELECTOR at "PLAY" position.
- d. Set the EQUALIZATION SELECTOR KNOB (12) at the speed selected.
- e. Set the CHANNEL SELECTOR KNOB (13) at "MONO. CH. 1 & 4".
- f. Pull the RECORD LEVER (6) towards you and feed in the sound source for a few seconds while you turn the LEFT CHANNEL VOLUME CONTROL (21) to the right until the pointer of the LEFT CHANNEL LEVEL INDICATOR (11) deflects within the first half of the black scale zone. You can thus preset the optimum recording level.
- g. Set the SELECTOR CONTROL (5) to FORWARD position after pulling the RECORD LEVER (6) towards you. The sound picked up by the microphone will then be re-

corded at the proper level with minimum further adjustments, on track No. 1.

Note: It is best to have the microphone as far away as possible from the recorder.

- h. At the end of the tape, stop the recorder, and take the full reel from the right spindle, turn it over and place it on the left spindle and re-thread the tape. Repeat the same recording procedure as described above. You can now record on track No. 4.
- i. At the end of the tape, stop the recorder, and interchange the reels as mentioned above.
- j. Insert the microphone plug into the RIGHT CHANNEL MICROPHONE INPUT JACK (15).
- k. Turn the LEFT CHANNEL MODE SELECTOR KNOB (20) to "PLAY" position and turn the RIGHT CHANNEL MODE SELECTOR KNOB (24) to "RECORD" position.
- l. Set the CHANNEL SELECTOR KNOB (13) at "MONO" CH. 3 & 2".
- m. Set the optimum record level with the RIGHT CHANNEL VOLUME CONTROL (23) in the same manner as described in (f).
- n. Start recording as described above. You

can now record on track No. 3.

- o. At the end of the tape, stop the tape motion and take the full reel from the right spindle, turn it over and place it on the left spindle and re-thread the tape. Proceed with recording as described above. You can now record on track No. 2.

2. Recording from Radio, Record Player or T. V.:

While it is possible to record sound from an external reproducing source simply by placing the microphone in front of the speaker, this is not recommended, as the microphone will pickup and pass onto the tape external noises - as well as the sound you wish to record. A recording of superior fidelity can be made by using a shielded patch cord. Connect the patch cord as follows:

- a. Connect the patch cord to the output jack of your AM/FM Tuner, or the recording output jack of the Tuner/Amplifier.
- b. If your radio, record player or TV has no output jack, connect one end of the patch cord to the voice coil terminals of the speaker. Alligator clips are recommended for making connections.

- c. Insert the miniature plug at the other end of the patch cord to the AUXILIARY INPUT JACK (10 & 16).
- d. Proceed as described under "recording from microphone".

Note: Mixing your voice or other sounds through the microphone is readily achieved by combining paragraphs 1 and 2.

3. Recording from Phono Cartridge :

- I. To record from low gain magnetic cartridge :
 - a. Feed the output of the cartridge to a phono preamplifier.
 - b. Connect the preamplifier output to the LEFT and/or RIGHT CHANNEL AUXILIARY INPUT JACKS (10 & 16) of the Model 400RP with a patch cord.
 - c. Proceed as described under "recording from microphone".
- II. To record from crystal or ceramic cartridges :
 - a. Connect cartridge lead under the pickup arm to the LEFT and/or RIGHT AUXILIARY INPUT JACK (10 & 16) of

the Model 400RP with a patch cord. Ground lead of the pickup must be connected to the shielding cover of the patch cord.

- b. Proceed as described in "recording from microphone".

B. Stereophonic 4-Track Recording :

1. Recording from Microphone :

- a. Insert microphone plugs into the LEFT and RIGHT CHANNEL MICROPHONE INPUT JACKS (9 & 15).
- b. Set the LEFT and RIGHT CHANNEL MODE SELECTOR KNOBS (20 & 24) at "RECORD" positions.
- c. Set the CHANNEL SELECTOR KNOB (13) at "STEREO" position.
- d. Proceed with recording as described under (A) above. You can now record stereophonic sounds on tracks 1 & 3.
- e. At the end of the tape, stop the motion, take the full reel from the right spindle, turn it over, place it on the left spindle and re-thread the tape. And proceed with recording as described above. You can now record on tracks 4 & 2.

2. Recording from Radio or Record Player :

- a. Connect two shielded patch cords to the two channel (stereo) output jacks of your AM/FM stereo tuner or FM-FM Multiplex adaptor tuner, or the recording output jack of stereo tuner/amp-lifier.
- b. If you have a stereo record player which has no output jacks, connect two patch cords to the voice coil terminals of the two separate speakers for each channel.
- c. Insert the miniature plugs at the other end of the patch cords to the LEFT and RIGHT CHANNELS INPUT JACKS.
- d. Proceed with recording as described under paragraph B.1.

3. Recording from Phono Cartridges :

- I. To record from low gain stereo magnetic cartridge :
 - a. Feed the output of the stereo cartridge to a stereo phono preamplifier.
 - b. Connect the preamplifier outputs to the LEFT and RIGHT CHANNEL AU

XILIARY INPUT JACKS (10 & 16) of the recorder with two patch cords. In this case, the shielding covers of patch cords must be connected to the ground connections of the pre-amplifier output.

- c. Proceed as described under paragraph B1.

PLAYBACK :

1. To playback tape which was just recorded, turn the SELECTOR CONTROL (5) from STOP position to REWIND position. If the tape is rewound on the left reel at the point where the recording started, as per your indication on the TAPE COUNTER (1), then stop the tape motion, by returning the SELECTOR CONTROL to "STOP" position. Or thread a pre-recorded tape.
2. Set the LEFT and/or RIGHT MODE KNOBS (20 & 24) to "PLAY" position according to the number of the track to be played back.
3. Set the CHANNEL SELECTOR KNOB (13) at "STEREO", "MONO CH. 1 & 4" or "MONO. CH. 3 & 2" according to the track or tracks to be played back.
4. Connect the LEFT and/or RIGHT CHANNEL OUTPUT JACKS FOR EXTERNAL AMPLIFIER (19 & 26) to the external Amplifier and also connect the external amplifier to the respective speaker(s).
5. Turn the SELECTOR CONTROL (5) to "FORWARD" and you can listen to the tape. Be certain that the tape is tight between the reels and heads before turning the SELECTOR CONTROL. If loose, tape may tangle under the reel and be snapped.
6. Adjust the VOLUME (21 & 23) and TONE (22) CONTROLS to suit your listening preference.

7. For listening through an earphone, plug the earphone into the LEFT and/or RIGHT EARPHONE JACKS (18 & 25).

MONITORING :

Plug the earphone(s) to the LEFT and/or RIGHT CHANNEL EARPHONE JACKS while recording and you may listen to the sound being recorded. You can adjust the clarity of the program material being recorded by changing the microphone(s) position or angle, thus obtaining a better recording, or adjusting the respective sound level(s).

HOW TO ERASE RECORDING :

Tape passing past the erase head is erased automatically before reaching the recording head, making it possible to make a new recording on a tape that has been previously recorded. A recorded tape may be completely erased by running it over the erase head in record mode, but with the Volume Control turned down to the minimum volume position. In this case, the microphone or other input plugs should not be connected. Only one track is erased in the monaural record mode, while two tracks are erased in the stereo record mode.



ELECTRIMATIC REMOTE CONTROL :

The Remote Control is very convenient for advancing or stopping the tape motion. Plug the Remote Control Switch into the socket located on the side of the recorder. To advance the tape, set the Selector Control to "FORWARD" and push the button of the Remote Control Switch; to stop the tape, simply re-push the button. (The Remote Control does not work when rewinding.)

MAINTENANCE :

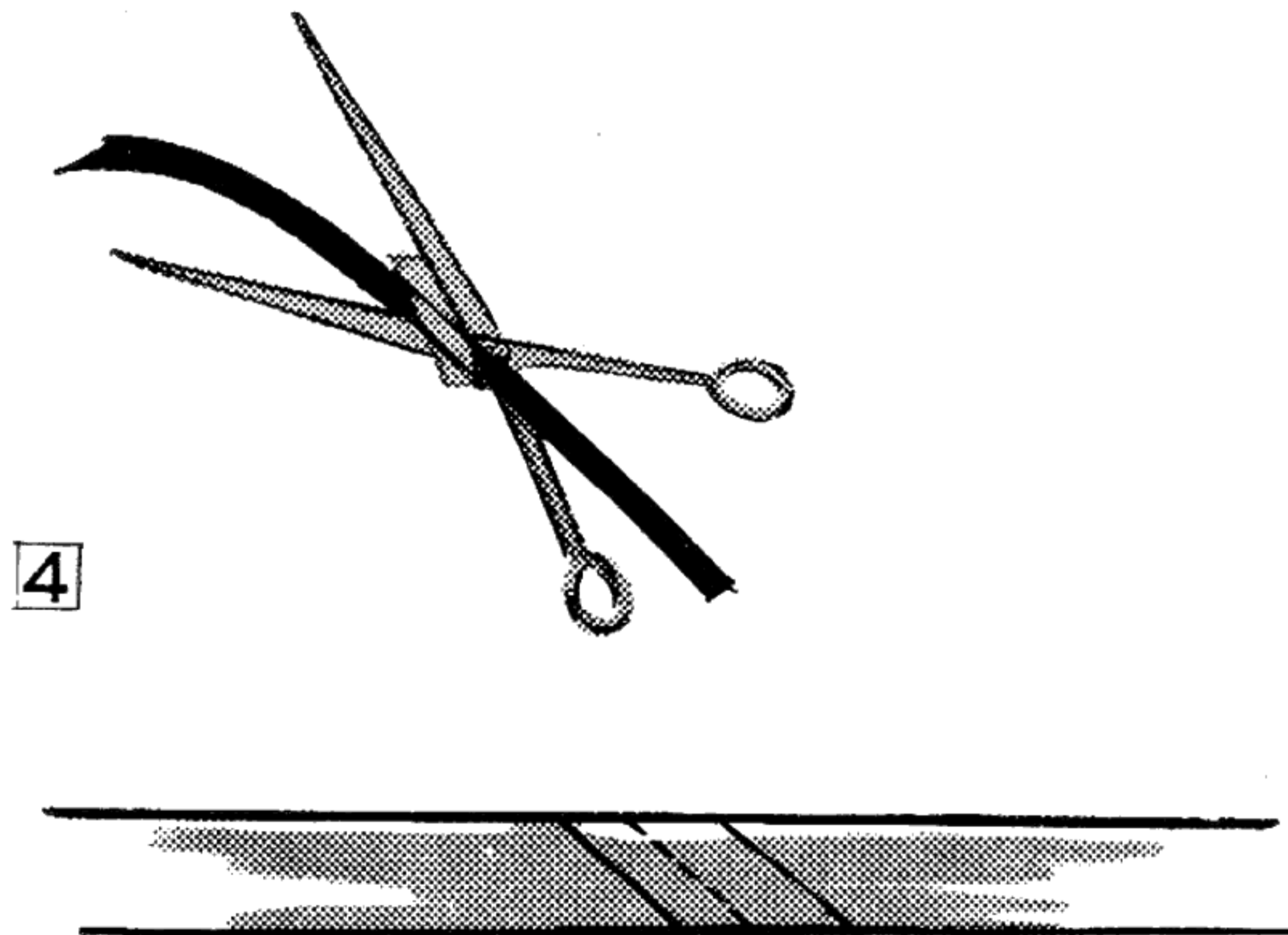
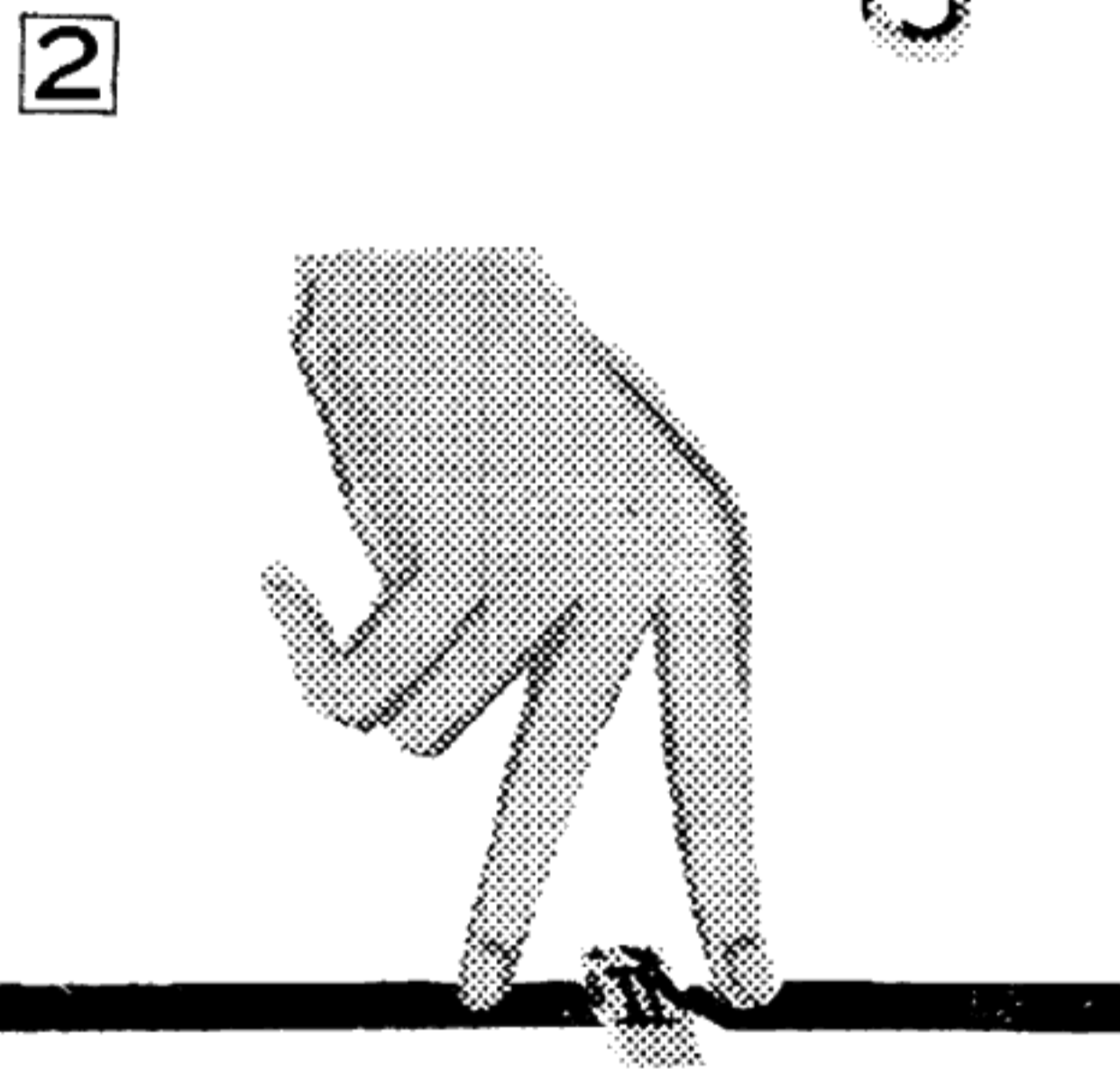
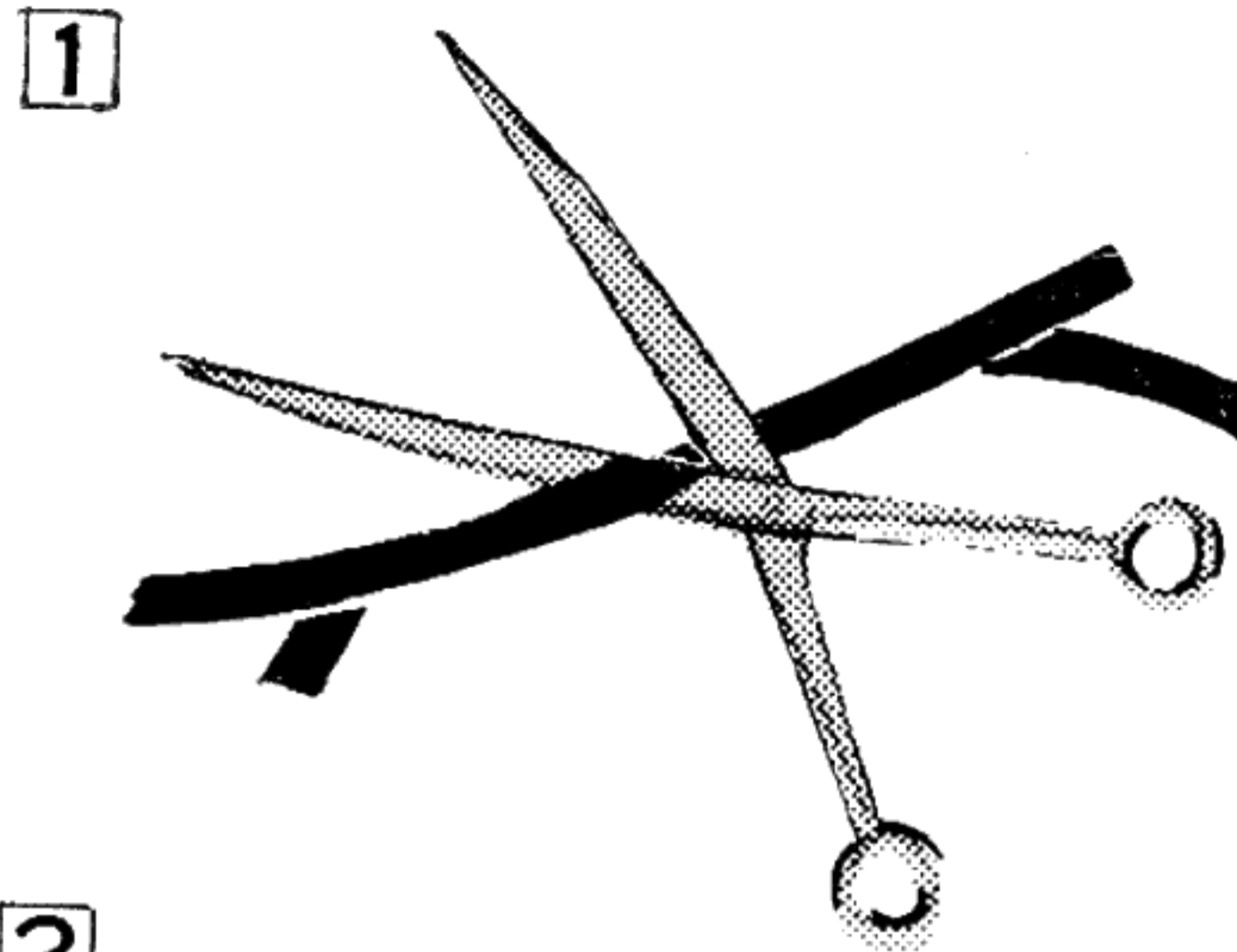
Cleaning :

The recod head, erase head, tape guides, capstan and pinch roller are subject to an accumulation of tape coating residue. Use a soft cloth and alcohol to clean the residue from the above mentioned parts. Rubber tired idler wheels and pressure rollers must be kept free from oil or grease. Use a soft cloth and alcohol or carbon tetrachloride to clean oil and grease from rubber parts.

Lubrication :

All rotating parts are provided with large oilite bearings, which are factory lubricated and normally require no further attention. However, should lubrication be required, use sewing machine oil sparingly.

CAUTION : All surfaces which come in contact with tape, and all rubber parts must be kept clean and free from oil.



HOW TO SPLICE TAPE :

Although magnetic tape is durable, it can be broken or torn. When this happens, it is simple to correct. Overlap the ends of the broken tape and cut an angle (step No. 1). Butte the cut ends of the tape together on a flat surface (step No. 2)—glossy side up—and connect the two ends together with a piece of splicing tape, such as Scotch Splicing Tape (step No. 3). Trim the splicing tape even with the edge of the recording tape, cutting very slightly into the recording tape, then rewind as usual.

CAUTION: Do not use ordinary cellulose tape because it will bleed through, causing the tape to stick together.

HOW TO CONNECT THE DECK AND PREAMPLIFIER:

(IF PURCHASED SEPARATELY)

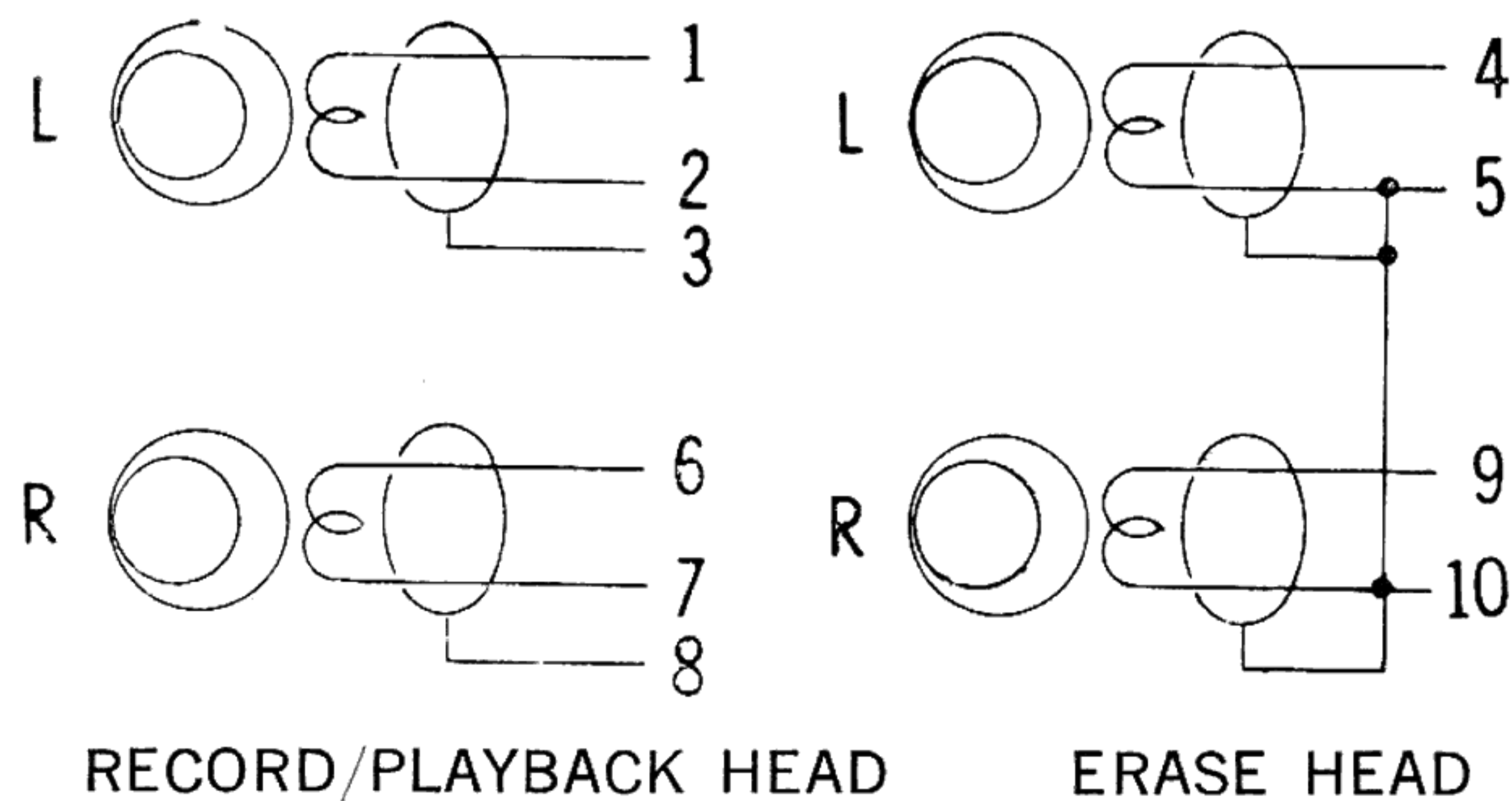
1. Connect the erase and record/play heads to the preamplifier by plugging in the 10-pin connector of the cord attached to the preamplifier to the female receptacle on the deck, located underneath the head cover and the top plate.
2. Supply the necessary A.C. power to the Deck Motor by plugging in the square plug of the cord attached to the preamplifier to the jack located at the right side of the 10-pin connector socket.

HOW TO CONNECT DECK TO RECORD/PLAY AMPLIFIER OTHER THAN CONCORD 400RP PREAMPLIFIER :

1. To connect the 400D deck to the other preamplifier, be certain that the impedances and the current are to be matched as follows :
 - a. Impedance of Recording/Playback Head : $3K\Omega$ at $1KC$.
 - b. Recording Current (Signal) at -10 db level : $20\mu A$ at $1KC$.
 - c. Recording Bias Level : A.C. $37V \pm 1V$.
 - d. Impedance of the Erasing Head : 50Ω at $1KC$.
 - e. Bias Frequency : $60 KC. \pm 5KC$.
 - f. Erase Current : $65 \sim 75V$ A.C., $60 KC$.

If not matched with the above specifications, the recorded sound will be distorted and the erasing efficiency will be decreased considerably.

2. The connections of 10-pin connector are made as follows :



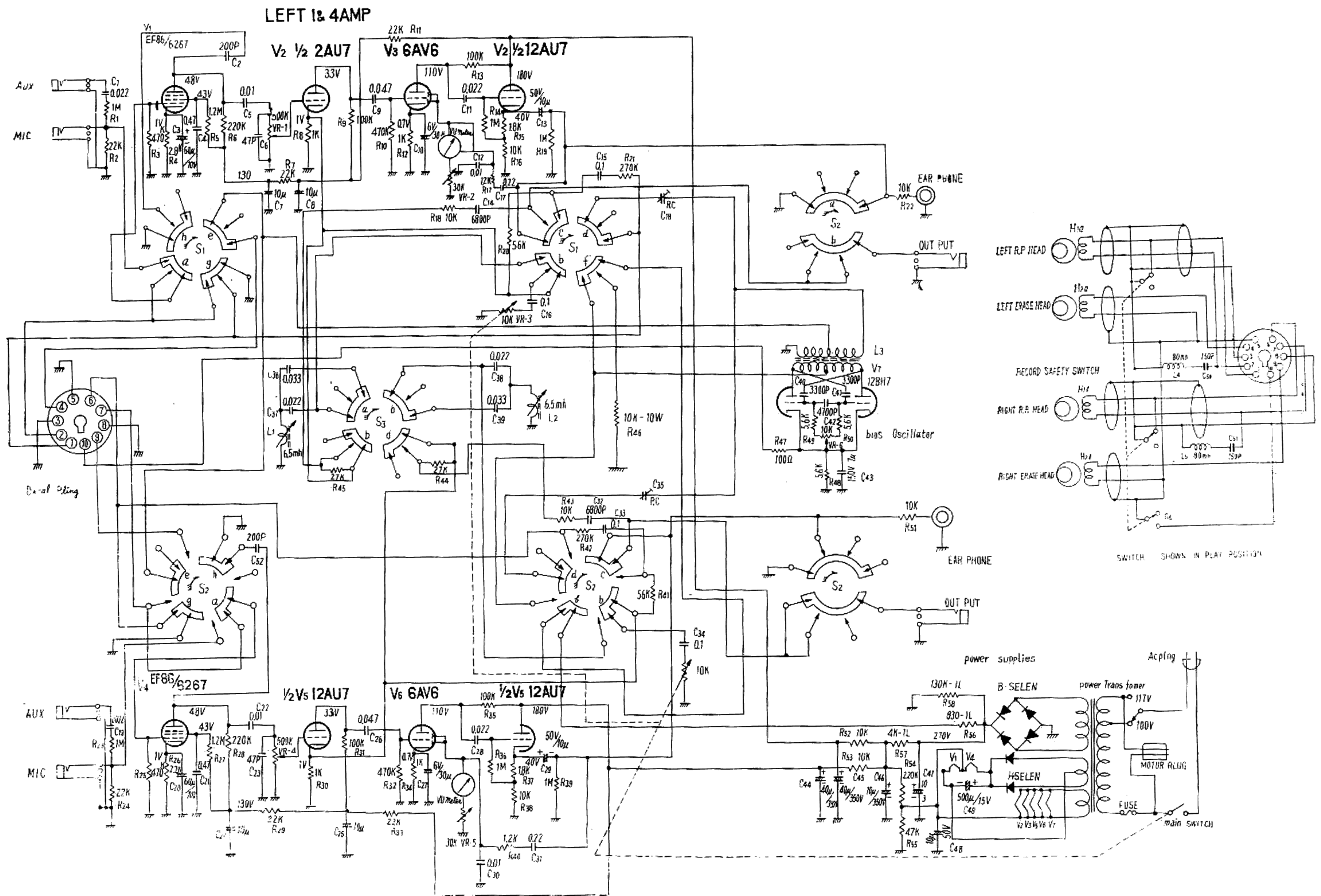
For playback of pre-recorded tapes connect an accessory 10-pin plug with shielded wire to the "TAPE HEAD" input jack(s) of a pre-amplifier.

Make absolutely certain that the phase of the Left and Right Channel connection is properly made. Otherwise stereophonic sound effects cannot be obtained.

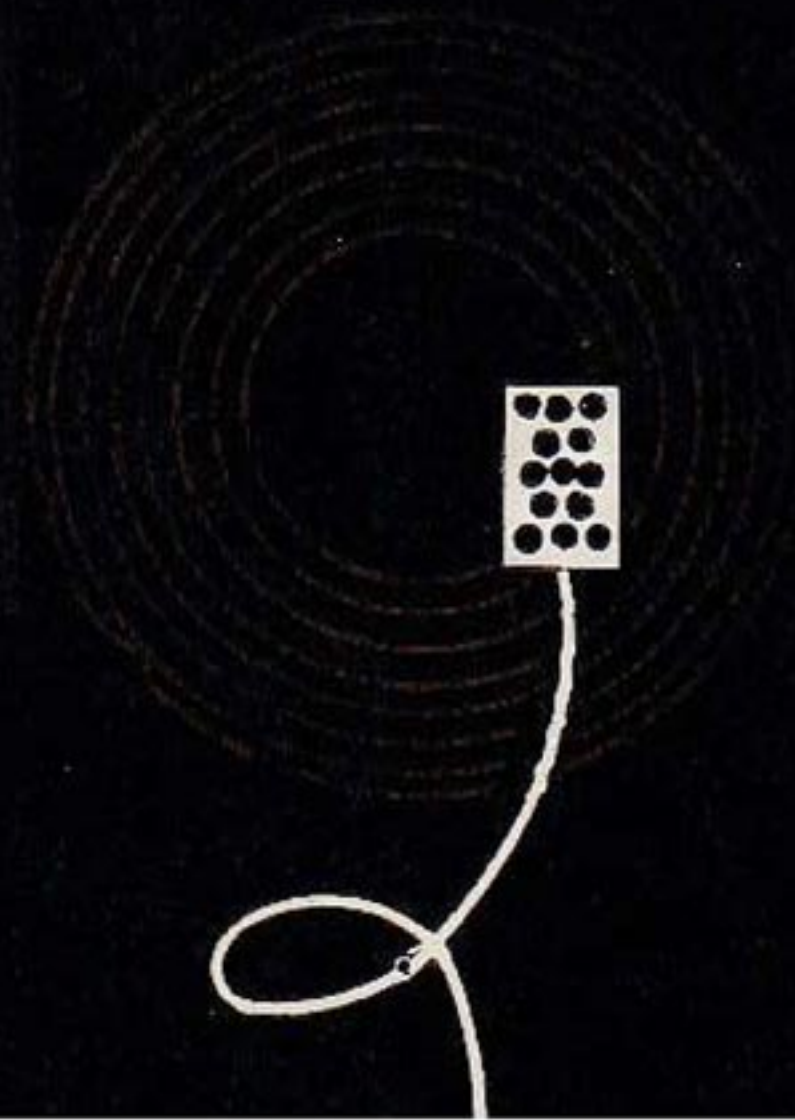
3. The A. C. power can be supplied to the Deck Motor directly from your A.C. supply by plugging the square plug to the jack located at the right side of the 10-pin connector socket and by connecting the other end of the cord to your AC supply.

HOW TO MOUNT THE DECK TO A RACK OTHER THAN CARRYING CASE :

1. Remove all the removable parts on the Deck panel.
2. Unscrew the two tape guides and the screws holding the front panel to the baseplate.
3. Lift the panel gently.
4. Secure the Deck by four screws through the rubber bushings located at four corners of the base-plate.
5. Re-affix all the parts previously removed.



NOTE: S1 shown in RECORD position.
 S2 shown in PLAYBACK position.
 S3 (Equalizer Selector Switch) shown in 3-3/4 ips position.
 S4 (Channel Selector Switch) shown in 3 & 2 position.
 Capacitance in μF , 400WV, unless otherwise specified.
 Resistance in ohms, 1/4 watt $\pm 10\%$ unless otherwise specified
 $\mu\text{F} = 1,000$ PF = 1,000,000



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ELECTRONICS CORPORATION

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