

SONY



QUADRADIAL STEREO TAPECORDER



TC-854-4

Owner's Instruction Manual

The SONY model 854-4 is one of the most professional tape recorders in the world.

The three-motor and four-head model 854-4 accommodates up to 10-1/2" reels and operates at speeds of 15, 7-1/2 and 3-3/4 ips. The model is designed for recording and playback of ordinary 4-track 2-channel stereo as well as 4-channel quadradiial stereo.

Special features of the model 854-4 are:

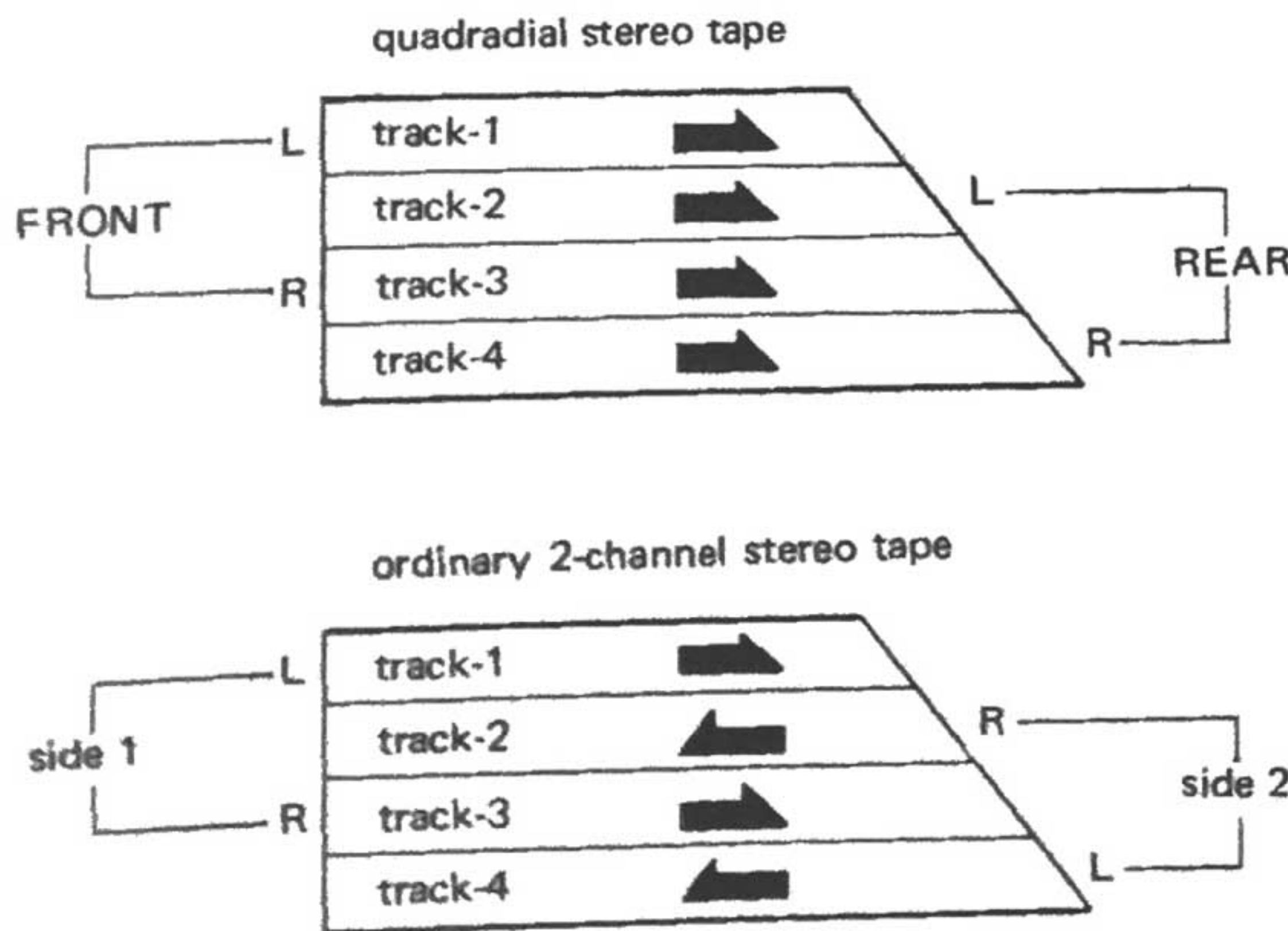
- An AC servo controlled capstan drive motor prevents speed variation regardless of voltage or load changes.
- Dual capstan closed-loop tape drive assures positive tape-to-head contact while isolating external vibration.
- Logic-controlled transport function permits switching the tape transport from fast forward to rewind or from either of these modes to the play mode without going into the stop mode.
- APS(Automatic Program Scanner) and ATS(Automatic Tape Stop) provide program cueing by simply depressing the respective button after a tape is loaded.
- Syncro-Trak to allow synchronous recording of new tracks with previously-recorded tracks
- Microphone and line input mixing
- Tape lift switch for tape cueing and editing
- Tape equalization selector switch for SONY Low-noise High-output tape and standard tape

Before operating the recorder, read this manual thoroughly to become familiar with the model 854-4 features and capabilities. Keep this manual handy for future reference.

SONY QUADRADIAL STEREO

SONY's new Quadradiial stereo reproduces dramatic 4-channel surround sound. In conventional 2-channel stereo recording and playback, it is impossible to present the ambience and radiation of sound as the listener actually hears it in an acoustically live concert hall or auditorium. SONY Quadradiial stereo makes it possible to create the true third dimension. In this 4-channel reproduction, two additional rear channels are added to the existing front two channels providing reflected sound which creates the special characteristics of a fine auditorium and concert hall. This gives a feeling of being immersed and surrounded by sound in the best seat of a concert hall.

For quadradiial stereo recording and playback, the full width of a tape is used; tracks 1 and 3 are for the front channels and tracks 2 and 4 are for the rear channels.



PRECAUTIONS

Keep the model 854-4 away from extreme heat or moisture. Do not block the ventilation grille at the bottom. Avoid intense shock.

Keep the heads and tape guides clean in order to assure optimum performance. For cleaning information, refer to the paragraph MAINTENANCE.

Be sure the built-in reel locks are secured before operating the recorder.

If you record through either the microphone or line input while each input is connected to a source, turn the level controls of the source which will not be recorded fully counterclockwise.

When the microphones are connected to both microphone input jacks and connectors, disconnect the microphones which will not be recorded.

When playing back a conventional 4-track 2-channel stereo tape, turn the REAR playback volume controls fully counterclockwise.

Be sure to insert the shorting plug (supplied) into the remote control connector if the remote control will not be used, or the recorder will not operate properly.

TABLE OF CONTENTS

PREPARATIONS	2
Connections	2
Location of Controls and Connectors	5
Operation of Controls.....	6
Tape Threading	7
OPERATIONS	8
4-Channel Quadradiial Stereo Playback	8
2-Channel 4-Track Stereo Playback	8
APS and ATS	8
4-Channel Quadradiial Stereo Recording	9
2-Channel 4-Track Stereo Recording	9
Monophonic Recording and Playback	9
Erasing Tape	10
Syncro-Trak Recording	10
Microphone and Line Input Mixing	10
Editing and Splicing Tape	11
MAINTENANCE	11
Cleaning Heads	11
Demagnetizing Heads	11
OWNER'S TROUBLE SHOOTING GUIDE	12
TECHNICAL SPECIFICATIONS	13
WARRANTY	14
CIRCUIT DIAGRAM	(attached sheet)

PREPARATIONS

CONNECTIONS

Microphone input jacks [MICROPHONE] (located on the front panel)

Microphone input connectors [MIC INPUT] (located on the left panel)

These inputs accept low impedance microphones and output level of 0.2mV or more. The microphones must be equipped with phone plugs (for jacks) or CANNON connector XLR-3-12C (for connectors).

When the microphones are connected to the microphone input jacks and connectors, the input signals are recorded together. Therefore, disconnect the microphone which will not be recorded.

Line input jacks [LINE INPUT]

Connect any external sound sources which have an output level of at least 0.06V. The input impedance is higher than 100k ohms and will properly match line outputs of most stereo components.

The model 854-4 is equipped to provide microphone and line mixing. When you record through the line inputs only, make sure to disconnect the microphone input sources or set the microphone input level control to the MIN (counterclockwise) position.

Line output jacks [LINE OUTPUT]

Use these outputs for dubbing tape, or reproducing programs through an external amplifier. The input impedance of the equipment connected to these outputs should be at least 100k ohms and output voltage is 0.775V at 0 VU and output impedance is 2.2k ohms.

FRONT For 2-channel stereo playback, use these outputs only. For 4-channel quadrantal stereo playback, use these outputs to reproduce the track-1 and -3 through front speakers.

REAR For 4-channel quadrantal stereo playback, use these outputs to reproduce the track-2 and -4 through rear speakers.

Headphone output jack [HEADPHONE]

This output accepts any high quality 8-ohm stereo headphone equipped with a standard binaural phone plug. The output volume of the headphone can be adjusted using the playback volume controls. For playback of front channel sound (track-1 and -3) set the headphone output selector to the FRONT position and for rear channel sound (track-2 and -4) set it to the REAR position.

Remote control connector [REMOTE CONTROL]

All functions (forward, stop, instant stop, fast forward, rewind and record) are available on the SONY model RM-16 Remote Control, available as an optional accessory.

Be sure to insert the shorting plug (supplied) into the remote control connector if the remote control will not be used, or the recorder will not operate properly.

Ground terminal [GROUND]

Connect a ground wire from the turntable or other equipment in the sound system to this terminal. If residual hum is present, connect this terminal to a convenient external ground, such as a water pipe or plumbing fixture.

AC input [POWER SUPPLY]

Connect the model 854-4 to your local power by using the supplied AC power cord.

AC outlet [OUTLET]

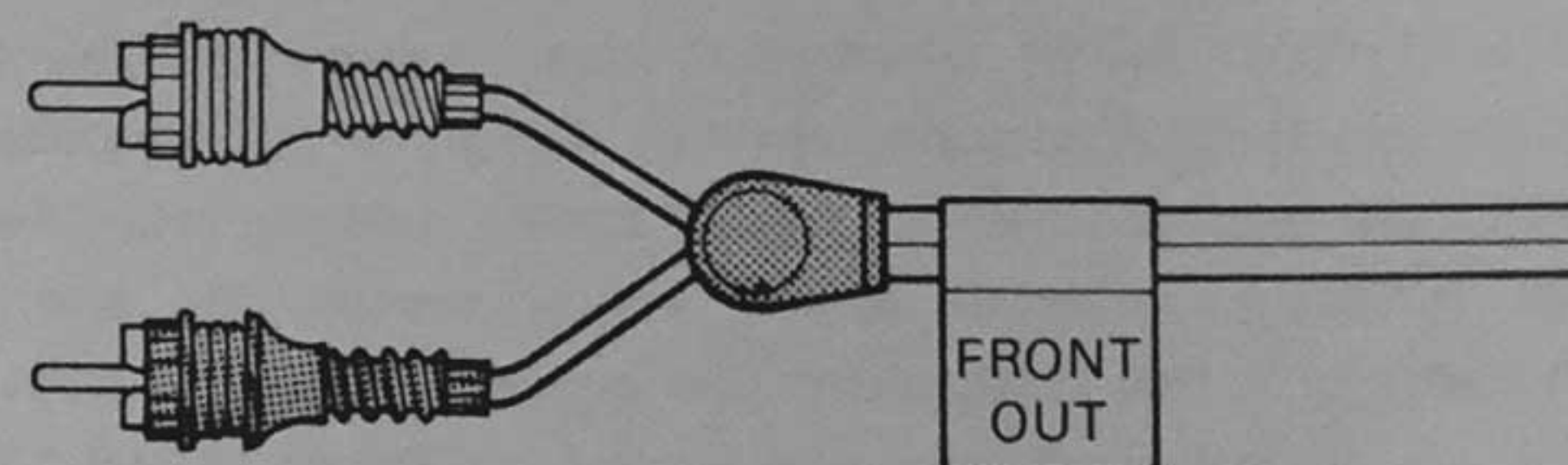
Supplies AC power (maximum 300 watts) to other components such as a turntable or other equipment in the sound system. This outlet is unswitched and, therefore, is not controlled by the power switch on the front panel.

Fuse holder [FUSE]

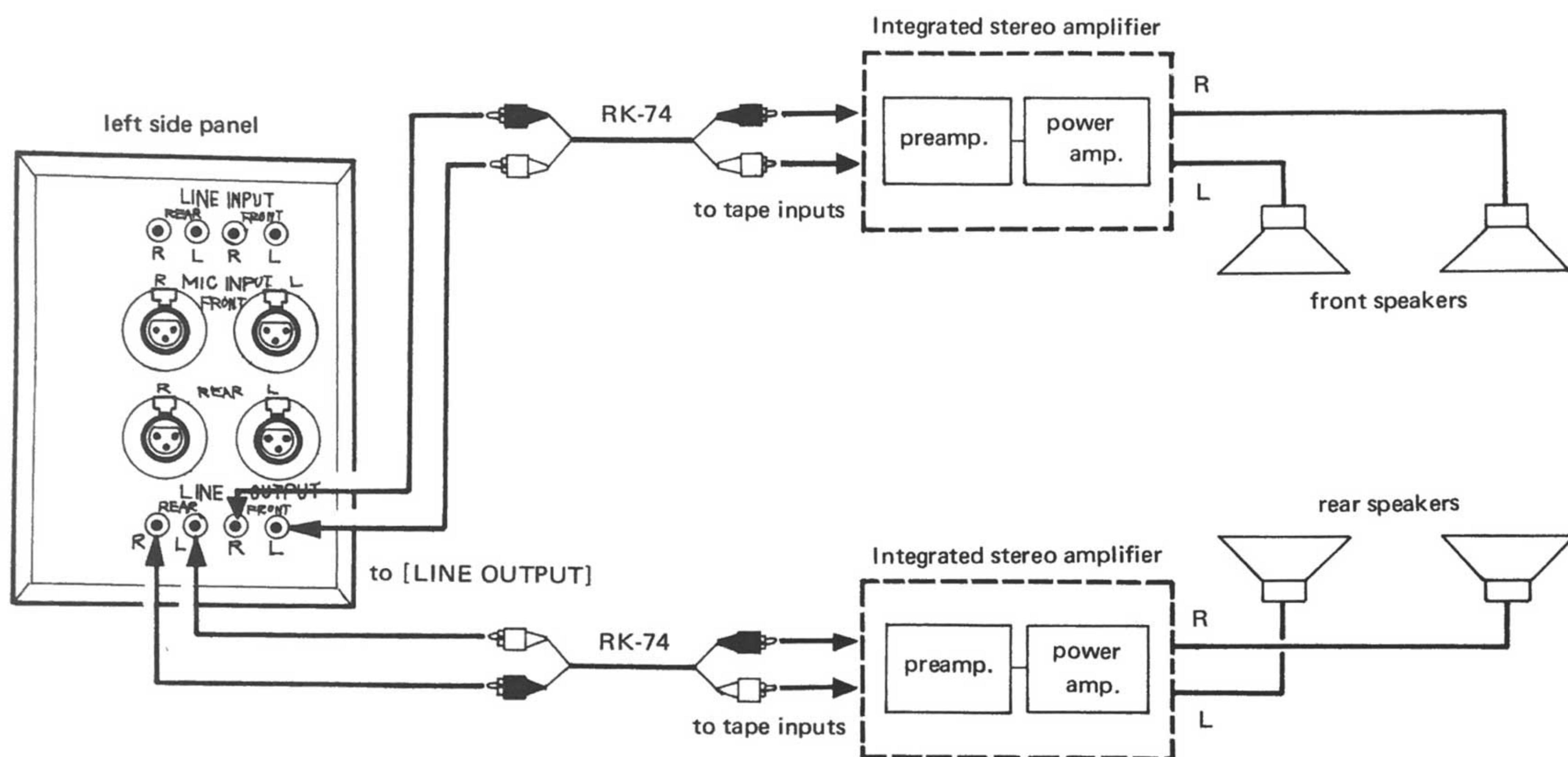
Accommodates a 2A fuse which protects against abnormal electrical surges or other line malfunctions which may be detrimental to the recorder. Before changing the fuse, disconnect the AC power cord.

Connection diagram

It is convenient for checking connections later to attach the supplied cord labels to each cord as the following example.

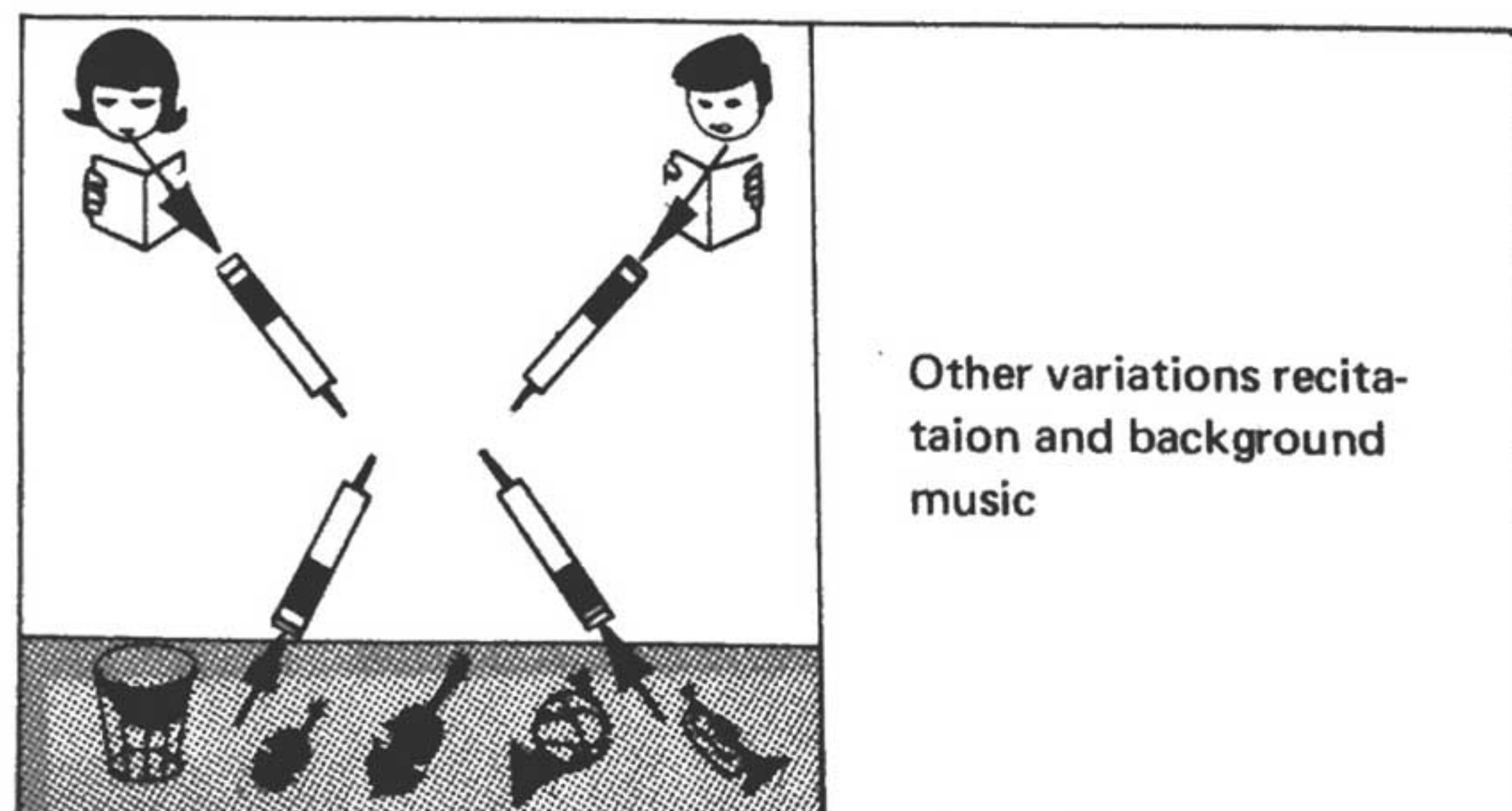
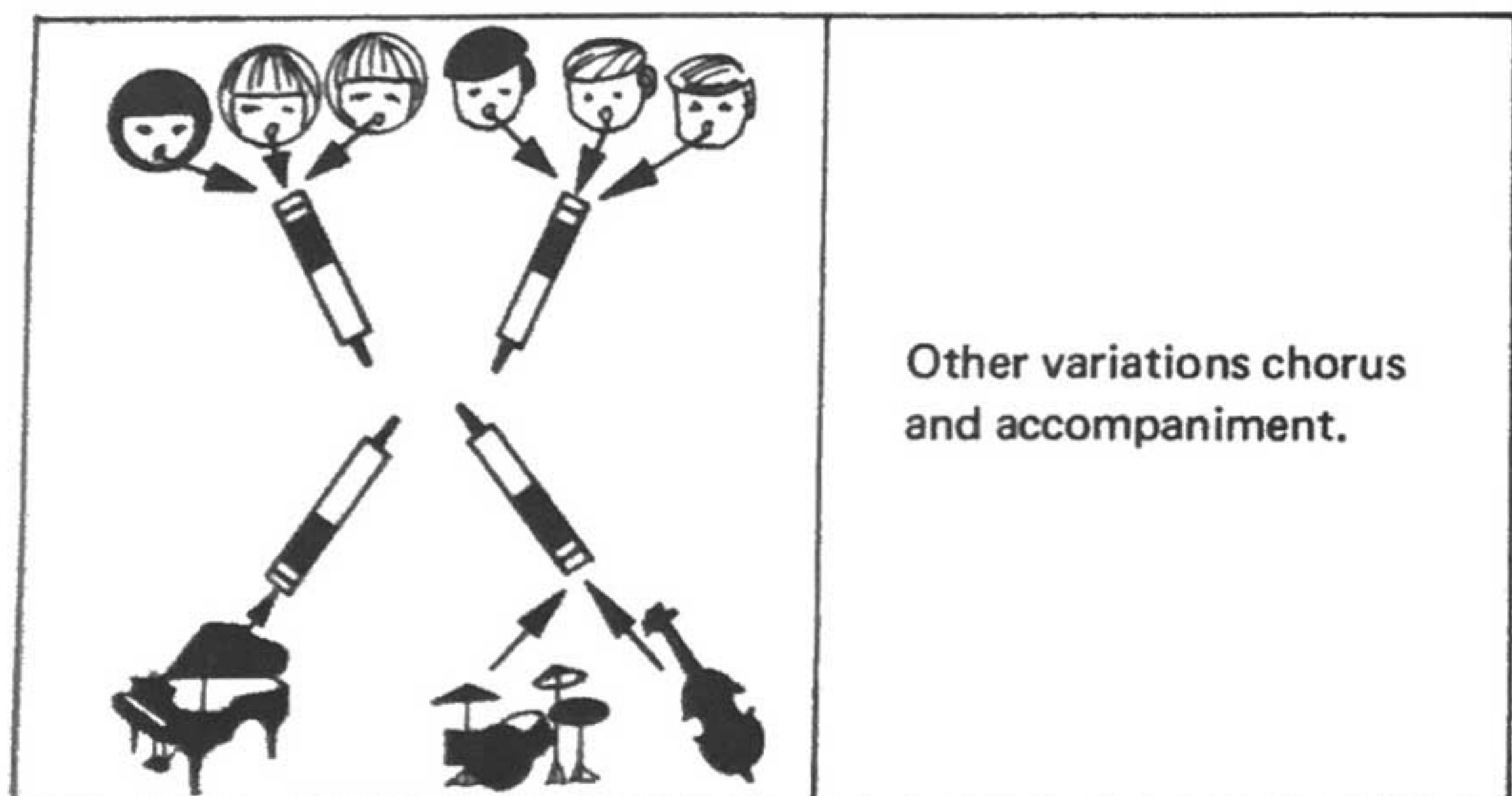
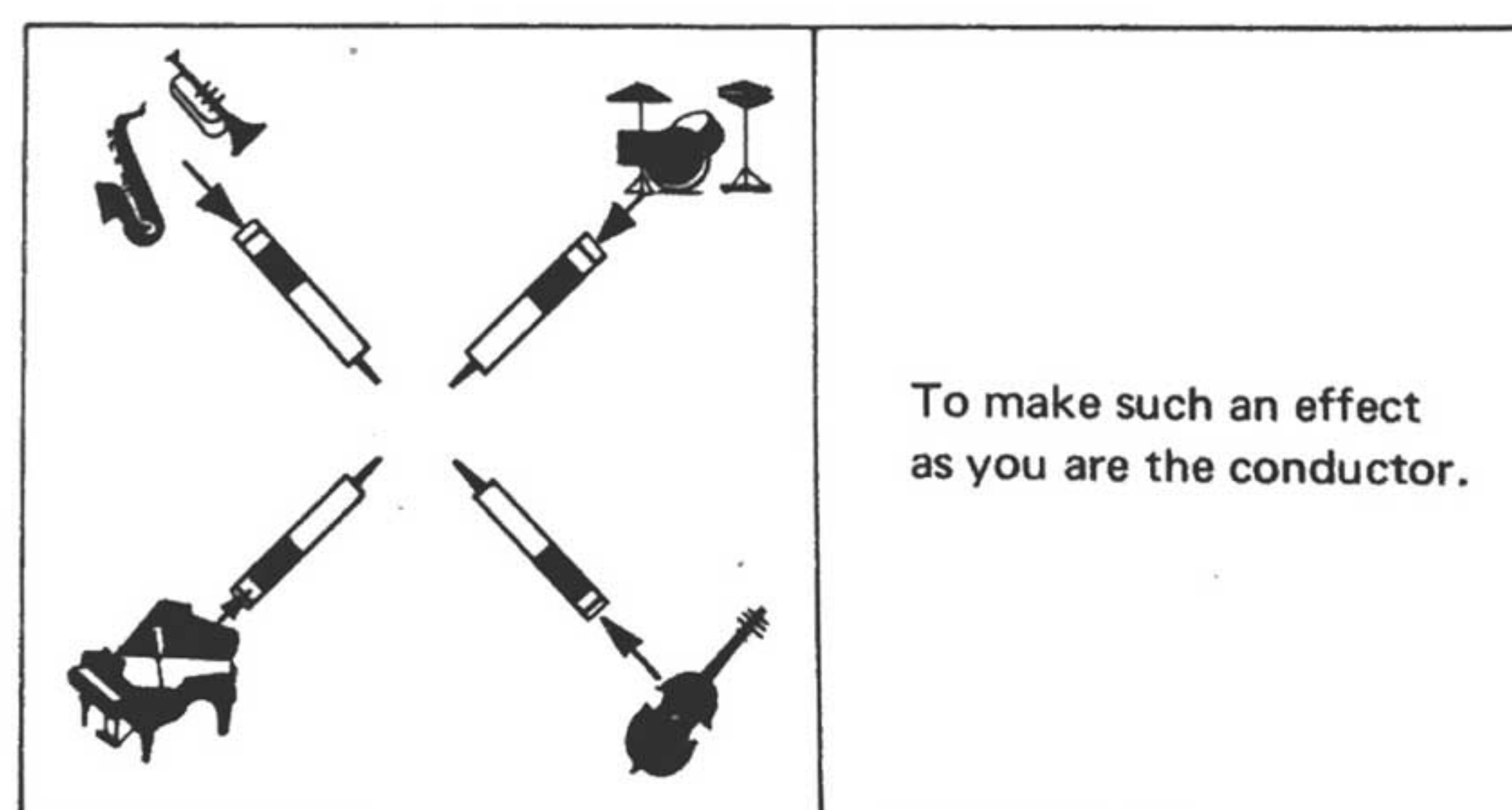
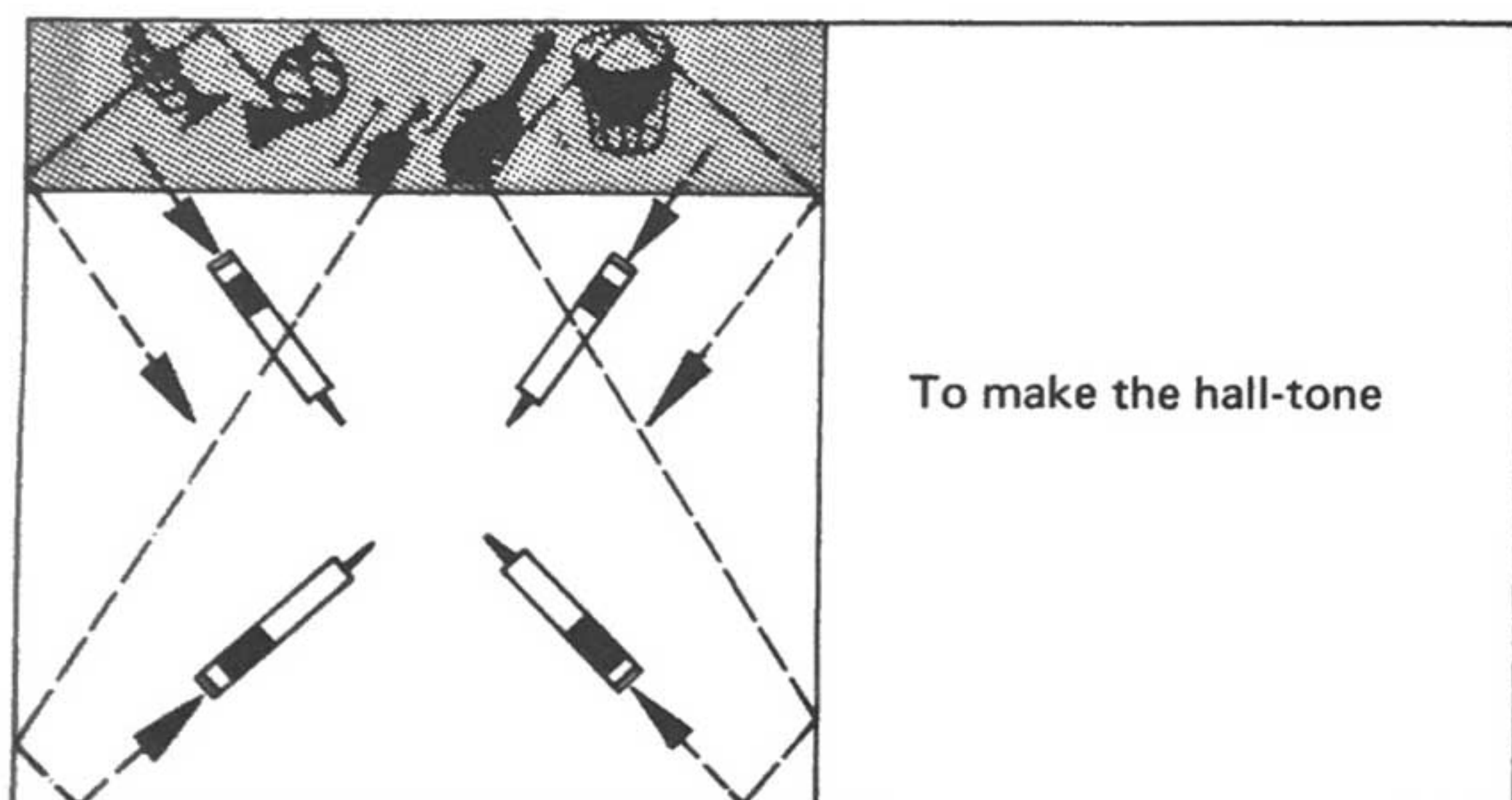


4-channel quadradial stereo playback

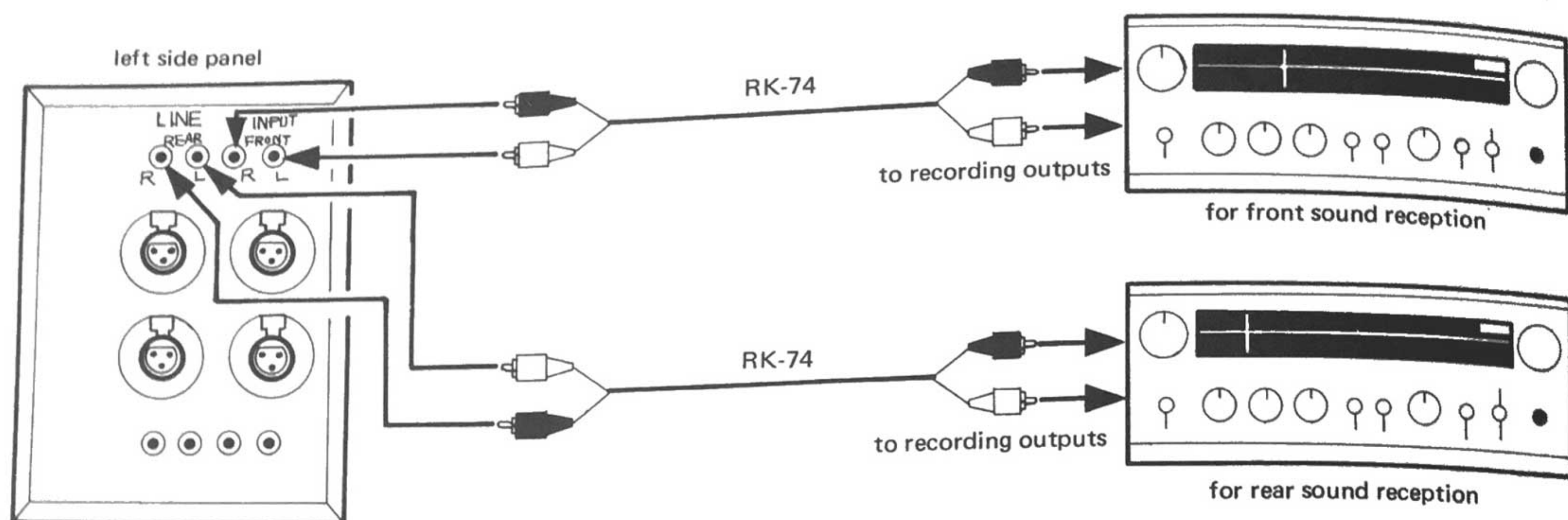


4-channel quadradial stereo recording

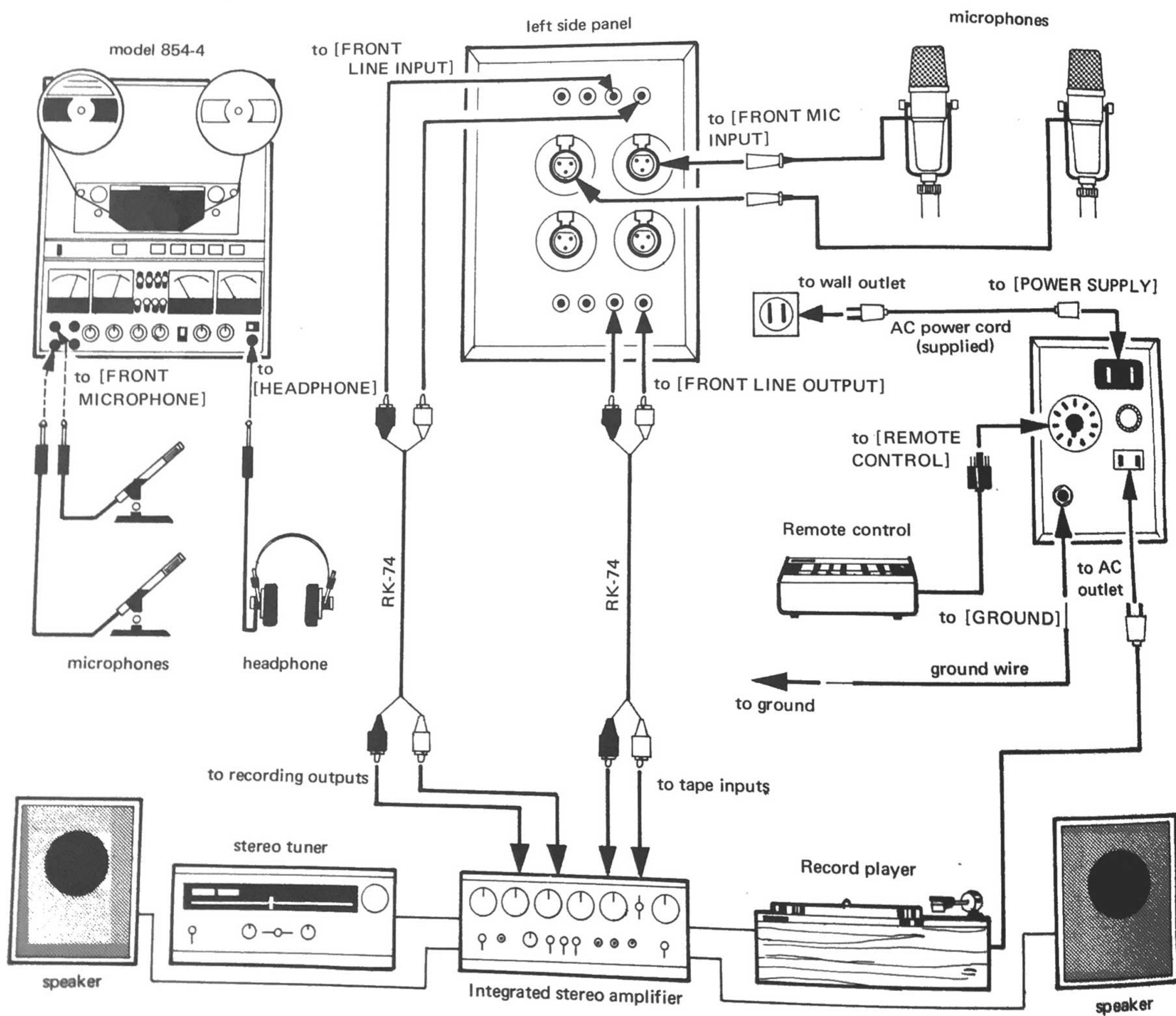
Recording through microphones(examples)



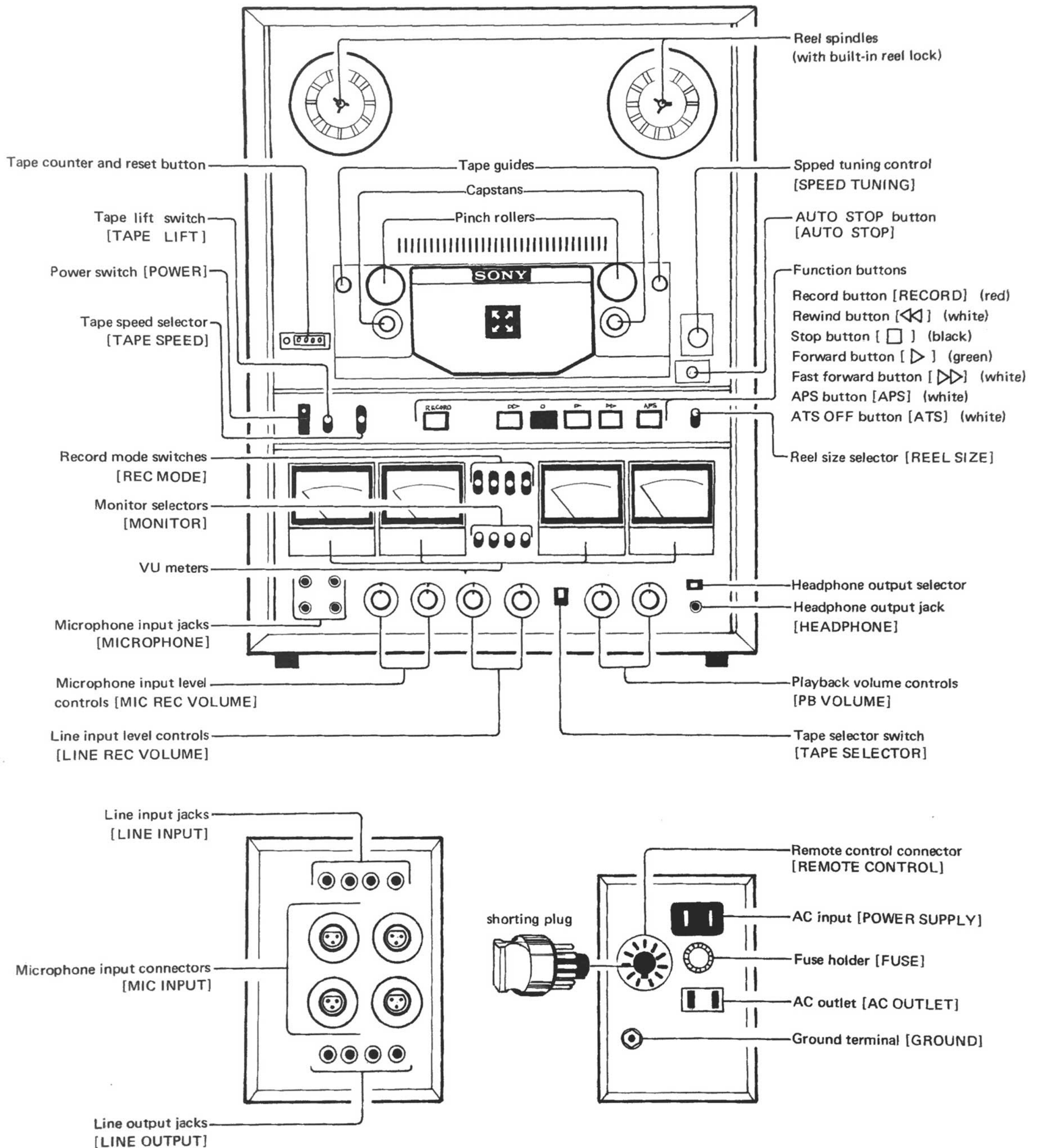
* Arrow means the directivity of the microphone.



2-channel stereo playback and recording



LOCATION OF CONTROLS AND CONNECTORS



OPERATION OF CONTROLS

Tape counter and reset button

The tape counter may be used to index the tape in record or playback. Once a reel of tape is threaded, press the reset button. Four zeros will appear in the window to register starting point of the tape. Notations may then be made on the location of various portions of the tape using the counter as a reference.

Power switch [POWER]

Turn the model 854-4 on or off.

Tape lift switch [TAPE LIFT]

When the switch is set in OFF position, the tape lifters will be retracted, allowing the tape to contact the heads while in stop, fast forward or rewind mode. Normally the tape lift switch should be left in the ON position. For easier cueing and editing, switch to the OFF position.

Tape speed selector [TAPE SPEED]

Speeds are 15, 7-1/2 and 3-3/4 ips. Use 15 ips for critical recording where extended frequency response and dynamic range are required. 3-3/4 ips is ideal for non-critical music recording or voice recording. In playback mode, set to the tape speed which corresponds to the speed of the prerecorded tape.

Speed tuning control [SPEED TUNING]

The recording and playback speed may be varied approx. $\pm 5\%$ by turning the control clockwise (to speed up) or counterclockwise (to slow down). The center position [NORMAL] indicates normal tape speed. In general, set the control to the NORMAL position.

Built-in reel locks

Retain reels.

Function buttons

- Record button [RECORD] (red)
For recording, push this button and forward button simultaneously.
The button will illuminate and indicate that the unit is recording. The VU meters will indicate the recording level.
- Rewind button [⏮] (white)
Push this button to rewind tape.
- Stop button [⏹] (black)
Push this button to stop tape motion.
- Forward button [⏭] (green)
Push this button to move the tape at normal tape speed for recording and playback.
- Fast forward button [⏭⏭] (white)
Push this button for fast forward tape motion.
- APS button [APS] (white)
Push this button to activate the automatic program scanner facility.

AUTO STOP button [AUTO STOP]

Push this button to disengage the automatic tape stop facility.

VU meters

While recording (with the monitor selectors set to SOURCE position), the swing of the needle indicates the record level. Control the input levels by turning the microphone or line input level controls as needed. While in playback (with the monitor selectors set to TAPE position), the meter indicates the output level through the line outputs. 0 (zero) VU reading on the meter corresponds to an output level of 0.775V.

If the playback volume controls are turned fully counterclockwise, the needle of the meter will not move even though the monitor selector is set to the TAPE position.

Microphone input level controls [MIC REC VOLUME]

Control the record level of the microphone inputs located on the front panel and left side panel; the FRONT knobs adjust the front channel sound through the FRONT microphone inputs (track-1 and -3), and the REAR knobs adjust the rear channel sound through the REAR microphone inputs (track-2 and -4). The knobs will rotate simultaneously or separately. The outer knob controls the left channel and the inner knob controls the right channel. To adjust the balance, turn one knob while holding the other stationary.

Line input level controls [LINE REC VOLUME]

Control the record level of the line inputs located on the left side panel; the FRONT knobs adjust the front channel sound through the FRONT line input jacks, and the REAR knobs adjust the rear channel sound through the REAR line input jacks. The knobs will rotate simultaneously or separately, the same as the microphone input level controls.

Monitor selector [MONITOR]

For playback of tapes, set the selectors to the TAPE position. While recording, the TAPE position monitors tape and the SOURCE position monitors source. Record level adjustment can be accomplished by setting these selectors to the SOURCE position without activating the record button.

Record mode switches [REC MODE]

For mono or stereo record selection or recording level adjustment, set these switches to the REC position. A red jewel on the VU meters will illuminate indicating that the channel is ready for recording. For playback, set the switches to the PB position.

For Syncro-Trak recording, set the switch of the pre-recorded track(s) to the SYNCRO-TRAK position. Set the switch of the track(s) to be recorded to the REC position.

Tape selector switch [TAPE SELECTOR]

When you use the SONY Low-noise High-output tape (SLH-180), set the selector switch to the SPECIAL position. For standard tape, set the selector switch to the NORMAL position.

Playback volume controls [PB VOLUME]

Control the line output level; the FRONT knobs adjust the front channel sound through the FRONT line outputs (track-1 and -3),

and the M-A-M knobs adjust the rear channel sound through the M-A-M line outputs (track 3 and 4). The outer knob controls the left channel and the inner knob controls the right channel. Both knobs will rotate simultaneously or separately. For balancing stereo sound, turn one knob while holding the other stationary. The headphone volume can also be adjusted with these controls. When reproducing a 4 track 2 channel stereo tape, turn the REAR playback volume controls fully counter-clockwise.

Headphone output selector

For playback of front channel sound (track 1 and 3) through the headphones, set this selector to the FRONT position. For playback of rear channel sound (track 2 and 4), set it to the REAR position.

Automatic shut off switch

When the tape runs out, the wire lever located under the head cover swings outward and the transport mechanism will automatically shut off.

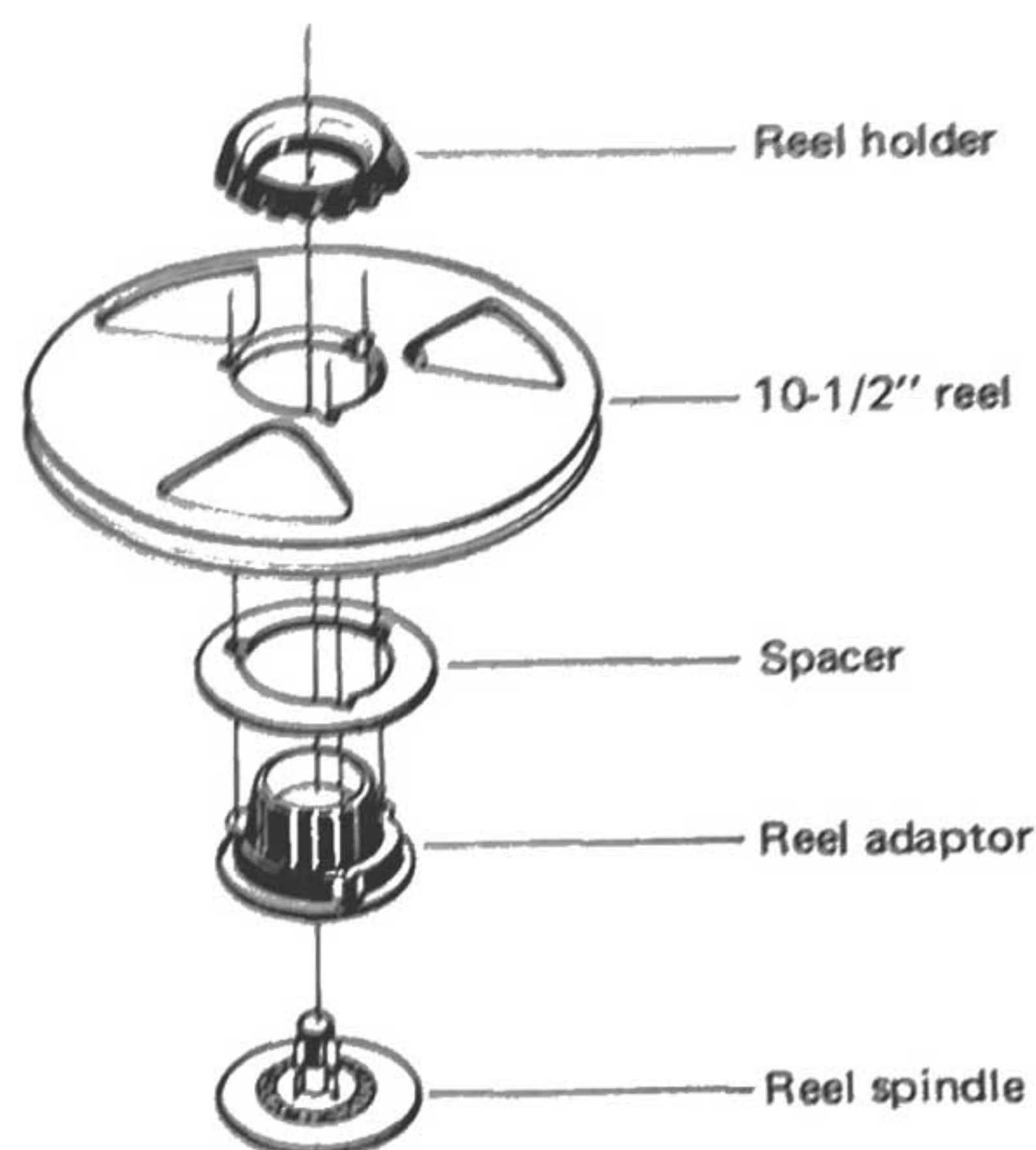
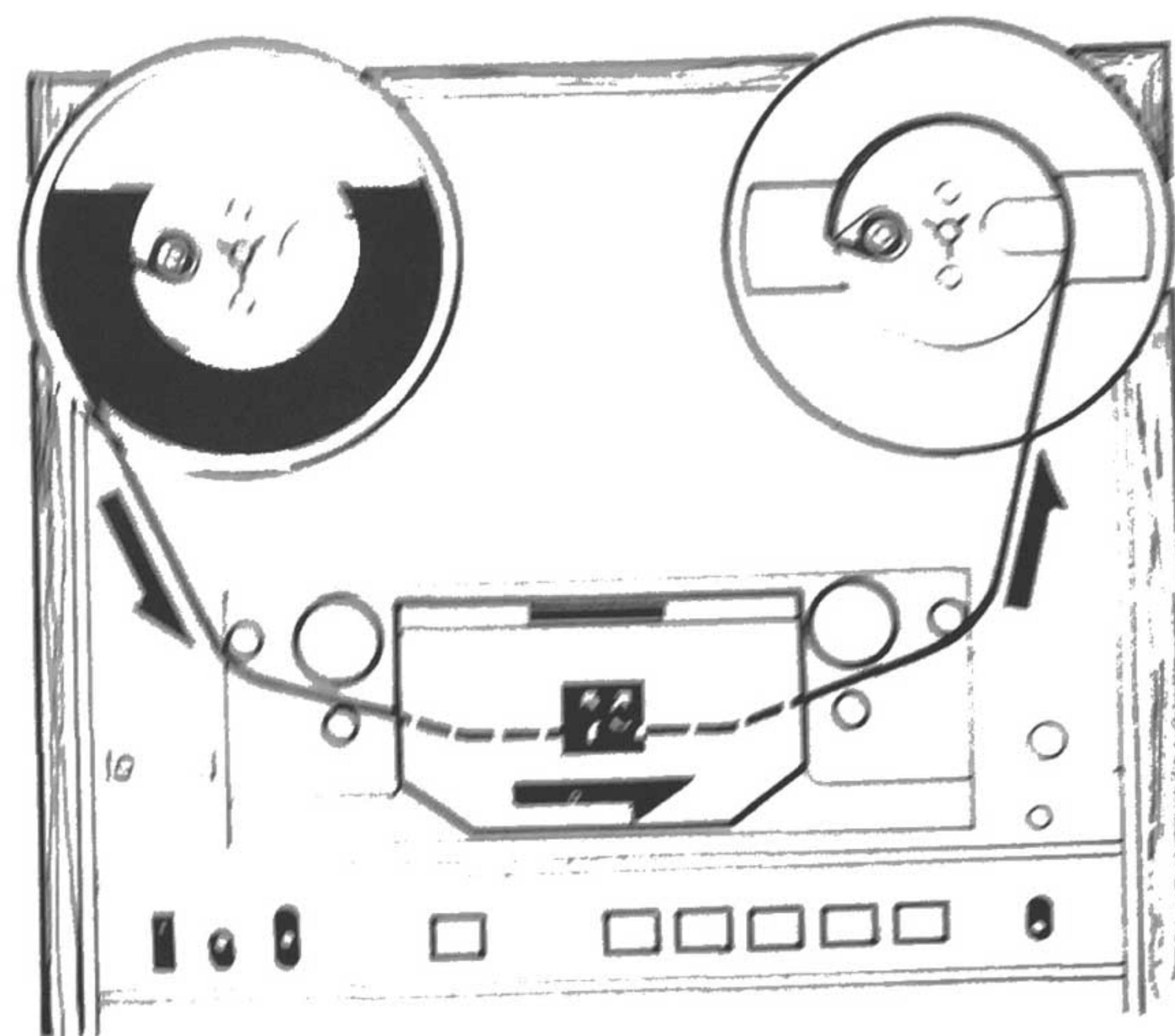
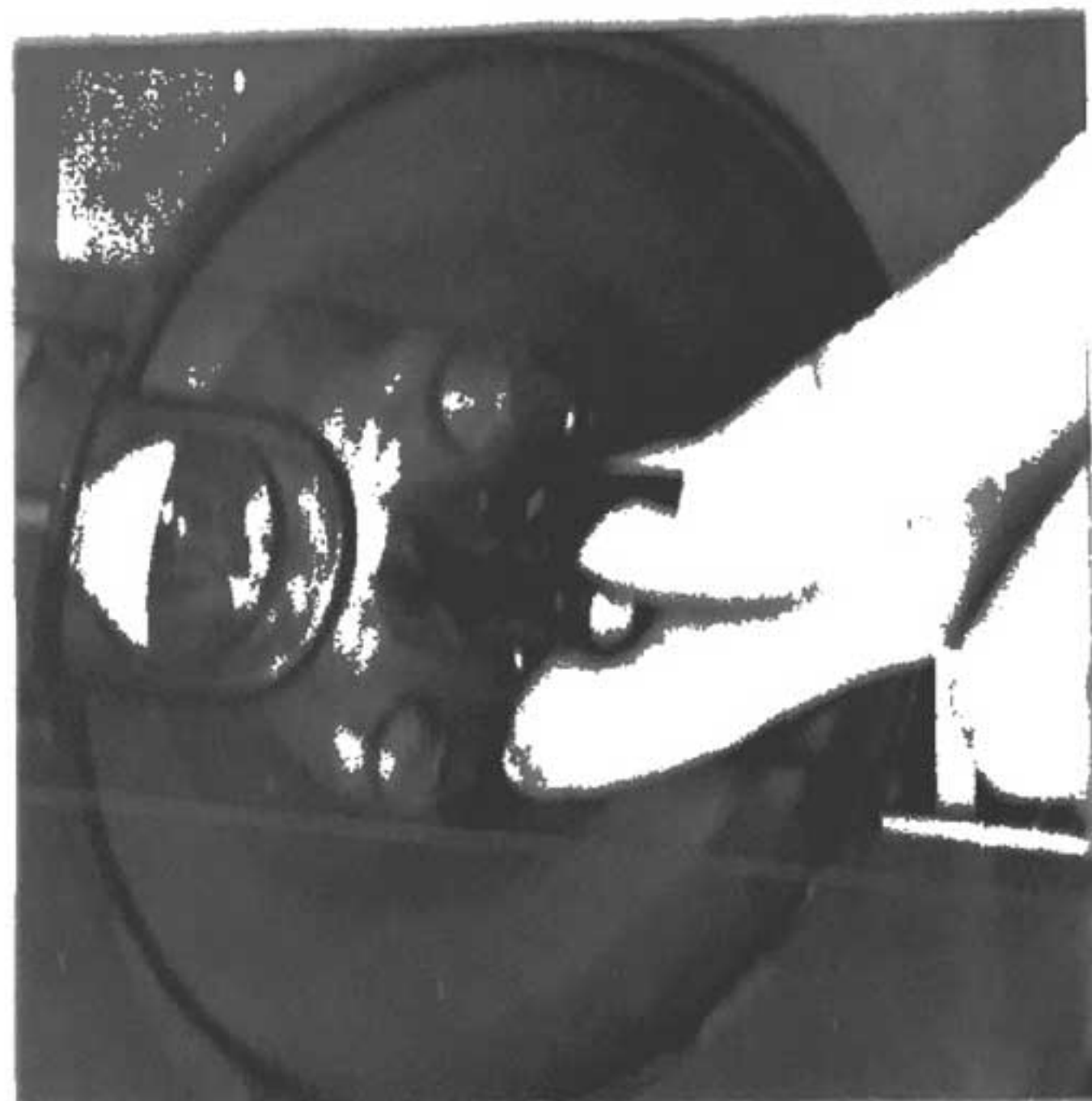
Reel size selector (REEL SIZE)

Tension tension and reel torque are adjusted with this selector according to the reel being used. [10] position; for 10 1/2" reel and [7] position; for 7" reel.

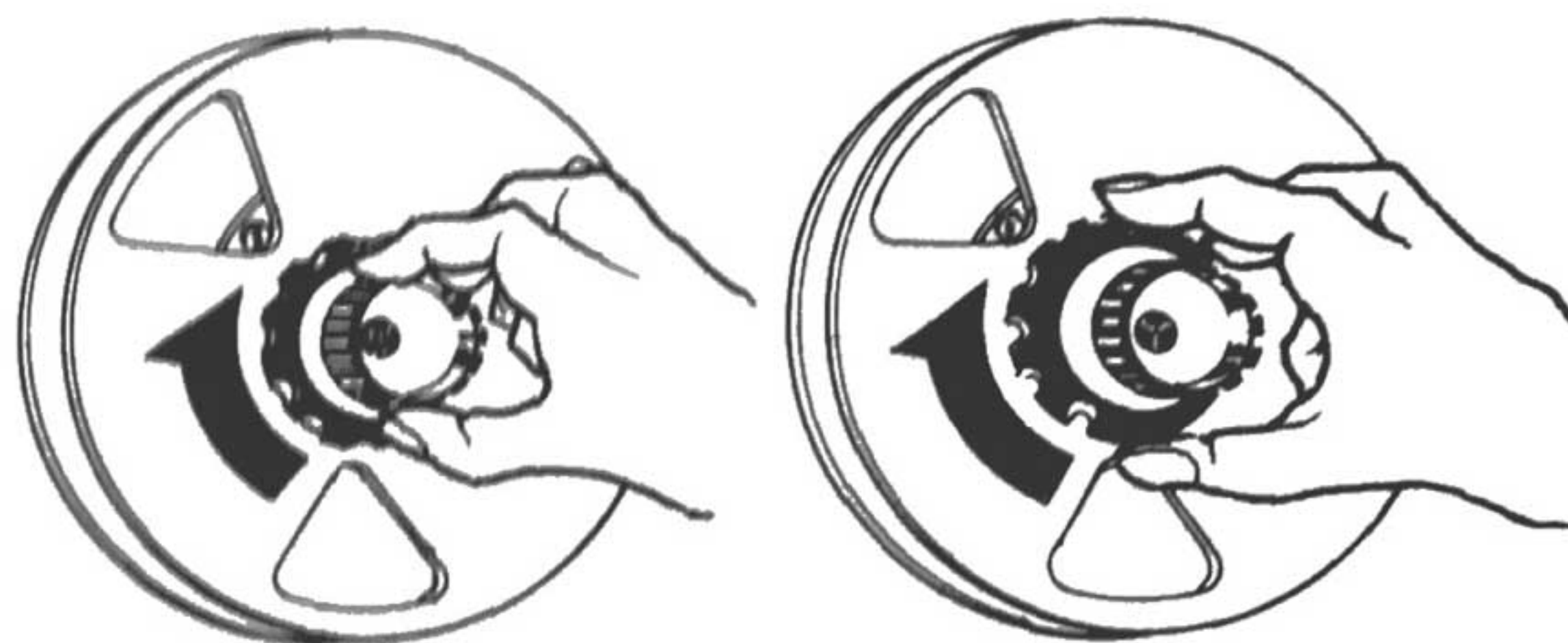
TAPE THREADING

1. Place an empty reel on the take up reel spindle and a full reel on the supply reel spindle.
2. Lock the reels with the built in reel locks. To place a reel on the spindle, line up the spline of the black plastic spindle with the metal spline directly behind it. Line up the spline grooves of the reel and push the reel firmly into place. Pull out spring loaded black plastic spindle and turn slightly right or left.
3. Thread the tape from the supply reel around the tape guides and between the capstans and pinch rollers, as illustrated.
4. Wrap the tape around the hub of the right reel or insert the end of the tape into the reel slot. Rotate the reels a few times to take up the slack of the tape so that the automatic shut-off switch moves into the playing position.

It is recommended that reel of the same size be used for both supply and take up.



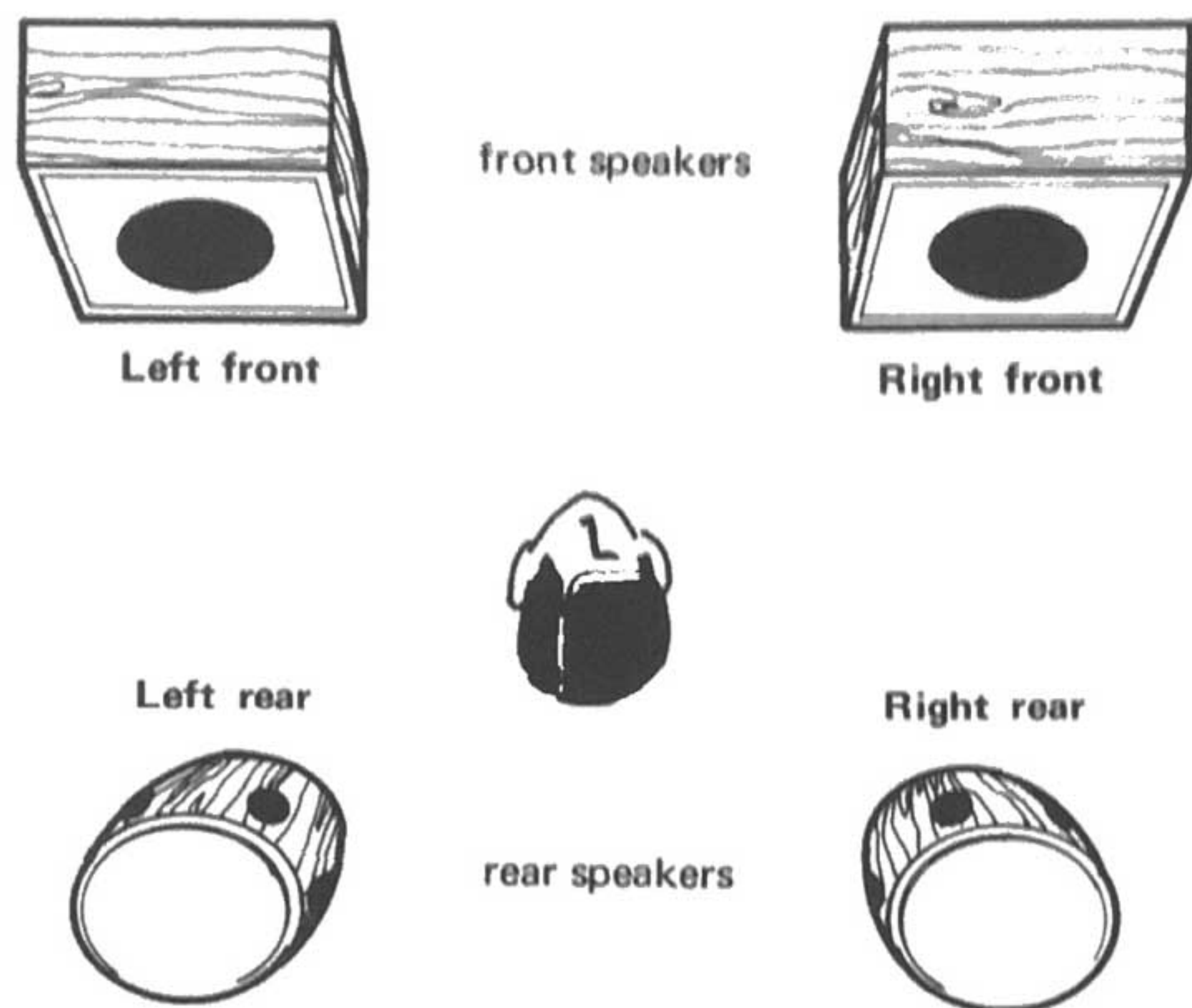
To fix the reel and reel adaptor. To fix the reel and reel spindle.



OPERATIONS

4-CHANNEL QUADRADIAL STEREO PLAYBACK

For playback 4-channel quadradial stereo tape, adjust the both FRONT and REAR controls, selectors and switches. The reproducing sound can be heard from four speaker systems which are located at the four corners as illustrated.



1. Set up the quadradial stereo playback system. Refer to the connection diagram on page 3, and turn the power of each component on.
2. Thread a quadradial (4-channel) stereo recorded tape.
3. Set the tape speed which matches the recorded tape.
Set the tape counter to [0000] by pressing the reset button.
4. Set the tape selector switch to the proper position, NORMAL or SPECIAL.
5. Readjust the FRONT and REAR playback volume controls a little higher than the MIN position.
6. Set the FRONT monitor selectors to the TAPE position.
Set the FRONT record mode switches to the PB position and the lamp in the VU meter goes out.
7. Push the forward button [▶].
To activate the automatic program scanner facility, push the APS button [APS]. (Refer to the paragraph "APS and ATS". Playback of tape will begin.
8. Adjust the output level by turning the FRONT playback volume controls so that the pointer of the VU meter indicates 0 VU.
9. Set the REAR monitor selectors to the TAPE position.
Adjust the output level by turning the REAR playback volume controls so that the pointer of the VU meter indicates 0 VU.
10. Adjust the volume and tone controls of the connected amplifiers.
11. When the end of tape is reached, push the stop button [□].
To activate the automatic tape stop facility, push the AUTO STOP button [ATS]. (Refer to the paragraph "APS and ATS".)

At the beginning of the supplied quadradial demonstration tape, the narration for speakers placement is recorded. Check whether the connection and adjustment are correctly done.

2-CHANNEL 4-TRACK STEREO PLAYBACK

(Conventional stereo playback)

Use the FRONT controls and connectors only. Set the FRONT monitor selectors to the TAPE position, and set the REAR monitor selectors to the SOURCE position.

The procedure of 2-channel stereo playback is same as that of 4-channel quadradial stereo playback. Refer to the 4-CHANNEL QUADRADIAL STEREO PLAYBACK.

APS (Automatic Program Scanner) and ATS (Automatic Tape Stop)

Automatic program scanner:

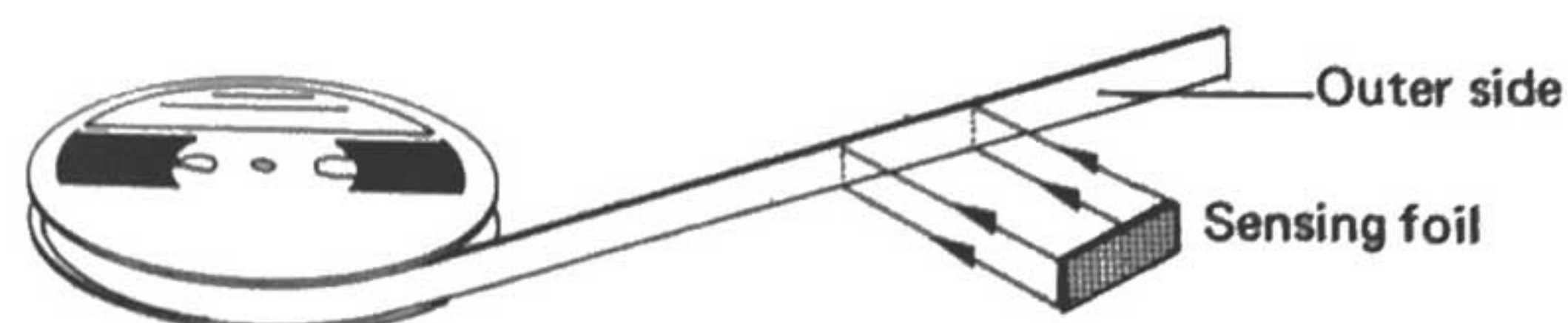
To activate this feature, place a piece of sensing foil (approx. 1/3") on the outer (shiny) side of a tape at the desired starting point. The tape will start in fast forward mode when the APS button is pressed. When the tape reaches the sensing foil, the transport will automatically stop, rewind and go into the play mode starting at the exact preselected stop.

Automatic Tape Stop:

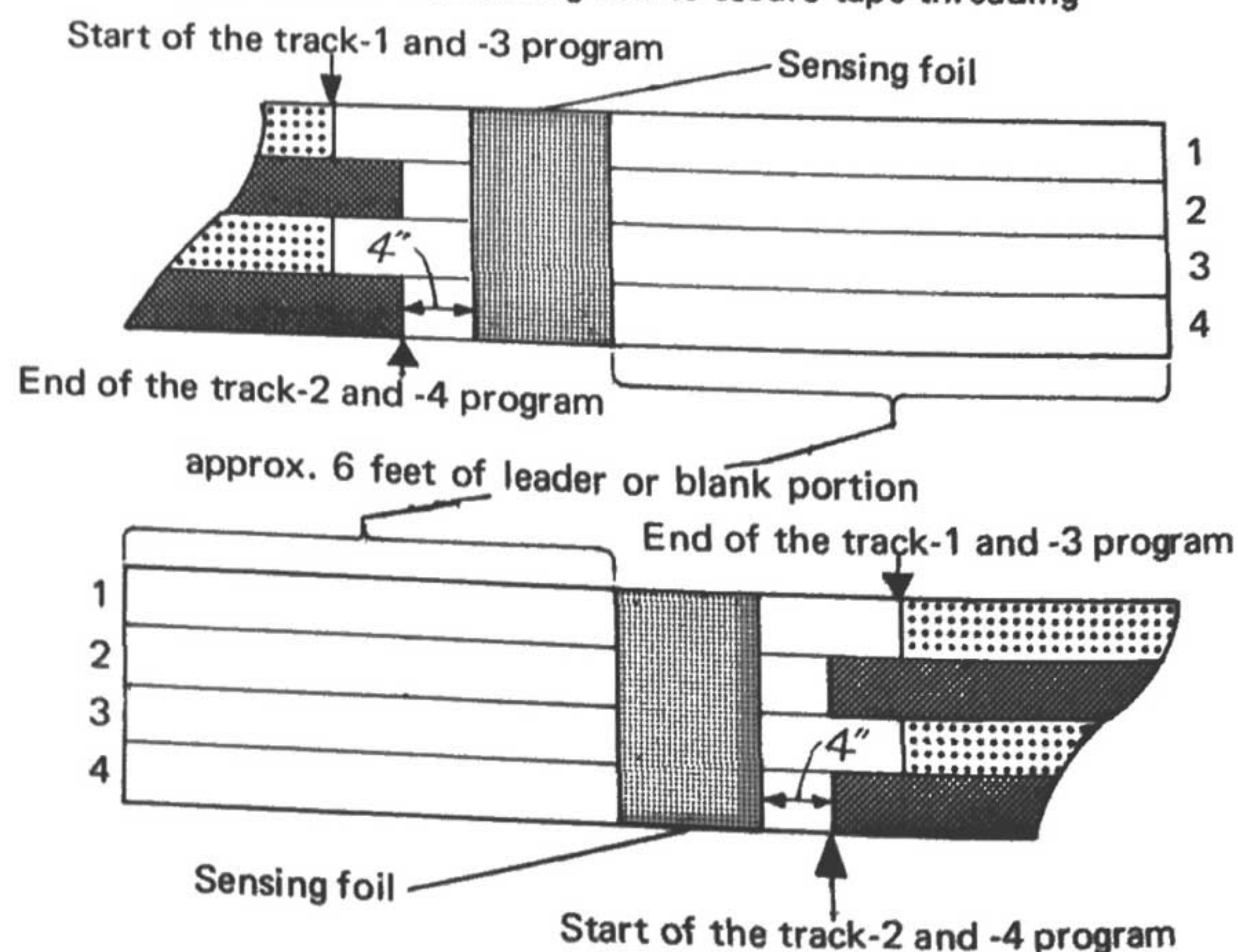
Place a piece of sensing foil on the outer side of the tape at the end of the program. The tape transport will automatically stop when the tape reaches the sensing foil in any mode. To start the tape transport again, push the appropriate function button again.

To wind tape back or in fast forward mode when you use a tape with attached sensing foils to activate APS and/or ATS, push the AUTO STOP button [AUTO STOP]. Then, the tape will wind without stopping.

To attach the sensing foil, strip the foil from the paper and place it on the outer (shiny) side of the tape.



Note: Leave approx. 6 feet leader or unrecorded portion before and/or after the sensing foil to secure tape threading

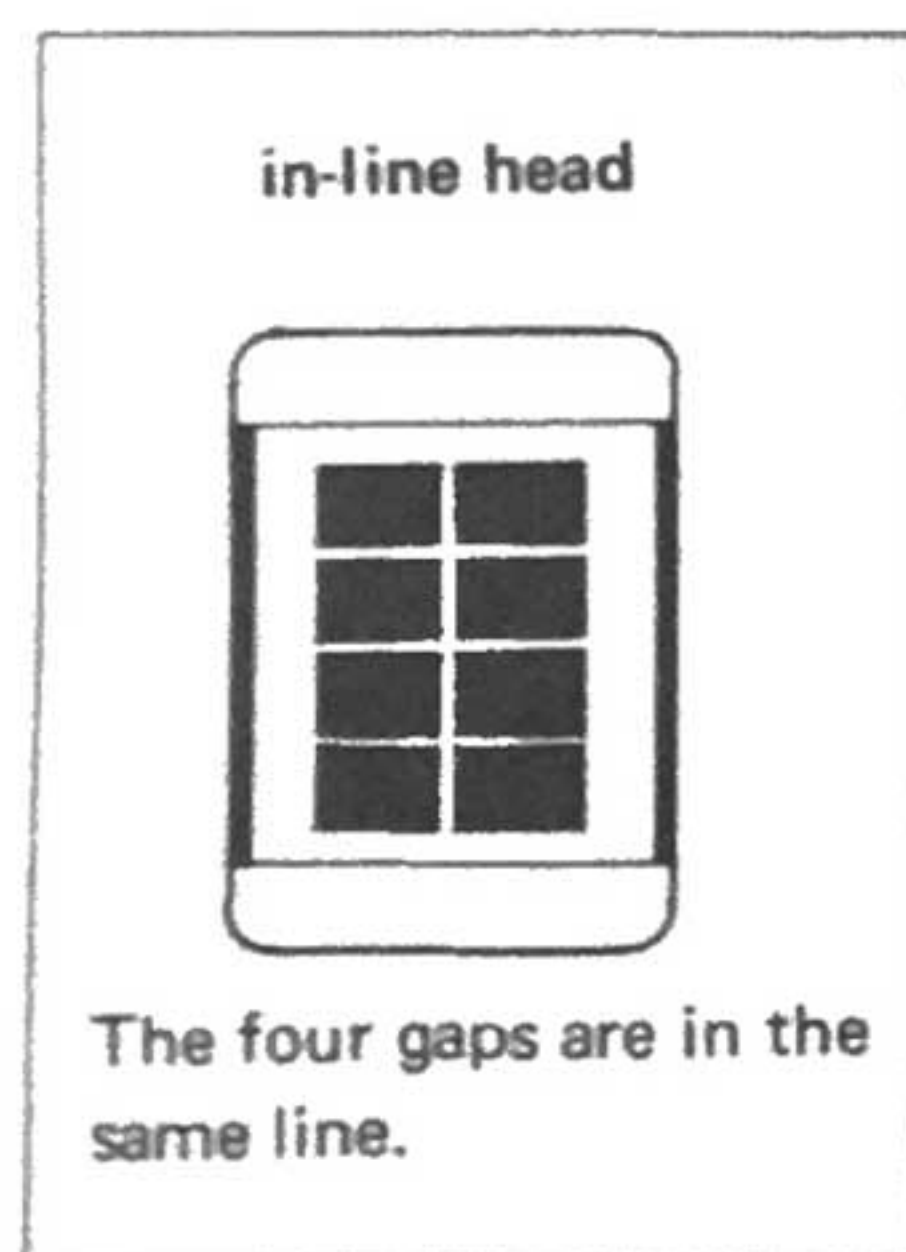


4-CHANNEL QUADRADIAL STEREO RECORDING

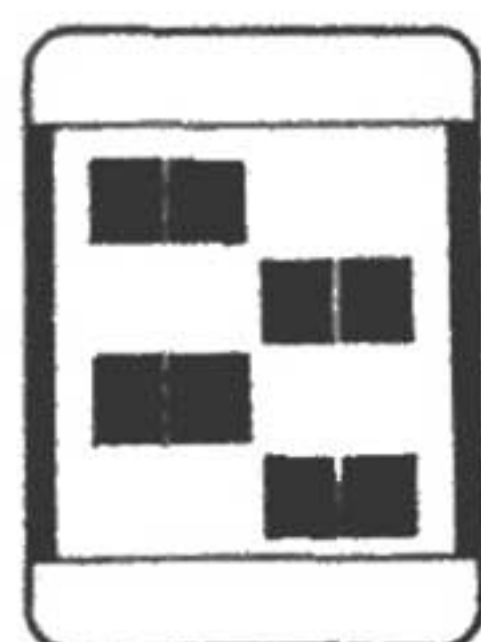
For 4-channel quadradial stereo recording, use both FRONT and REAR connectors, jacks, controls, selectors, etc.

1. Connect the desired source program to the input jacks and/or connectors of the model 854-4. Refer to the connection diagram on pages 3 and 4.
2. Turn on the 854-4 and the source equipment.
3. Thread a tape and set the tape counter to [0000] by pressing the reset button at the left of the counter.
4. Set the tape selector to proper position.
5. Select the tape speed with the tape speed selector.
6. Set the monitor selectors to the SOURCE position and the record mode selectors to the REC position. While watching the VU meters, adjust the respective level controls so that the needle of each meter deflects to the boundary of red and white zones.
7. Push the record (red) and forward (green) buttons simultaneously.
Recording will now begin. The record button will illuminate indicating that the model 854-4 is in record mode.
8. At the end of the tape, push the stop button (black).

Note: The model 854-4 employs in-line record and playback heads. Therefore, a tape made on the model 854-4 can be satisfactorily played back on another 4-channel tape recorder with an in-line playback head. But there will be a time lag between front sounds and rear sounds when the tape is played back on a tape recorder equipped with a staggered playback head.



staggered head



When monitoring through speakers or headphones, preset the playback volume controls a little higher than the MIN position.

The professional feature of separate record and playback heads permits the instantaneous comparison of source signals and the recorded signals by switching the monitor selectors alternately to TAPE and SOURCE.

If you wish to monitor while recording from the microphones, use a headphone for monitoring, and turn off the power amplifier and speaker (if connected) or reduce volume to zero. Otherwise the sound from the speaker will be picked up by the microphone (feedback) and spoil the recording.

2-CHANNEL 4-TRACK STEREO RECORDING

(Conventional stereo recording)

Use the FRONT controls and connectors only. Set the FRONT record mode switches to the REC position, and REAR record mode switches to the PB position.

The recording procedure of 2-channel stereo is the same as that of 4-channel quadradial stereo recording. Refer to the 4-CHANNEL QUADRADIAL STEREO RECORDING. At the end of the side 1 (track-1 and -3), do not rewind the tape but reverse the reel positions. Record on the side 2 (track-2 and -4).

MONOPHONIC RECORDING AND PLAYBACK

Recording

The sequence of monophonic recording should be track-1, track-4, track-3 and track-2. The monophonic recording procedure is the same as with stereo recording except set only one record mode switch to the REC position.

For recording on track-1 and track-4, use the left channel inputs and controls, and for recording on track-3 and track-2, use the right channel inputs and controls. At the end of the tape, push the stop button (black). Do not rewind the tape but reverse the reel positions.

For orientation of recording tracks and channels, refer to the chart below.

Recording track	Upper side of the tape	Input connection	Set the record mode switch
Track-1	side 1	to left input	left switch to REC position
Track-4	side 2		
Track-3	side 1	to right input	right switch to REC position
Track-2	side 2		

Playback

Playback sequence of the tape should conform to the sequence of recording, i.e. track-1, track-4, track-3 and track-2. For playback of track-1 and -4, set the mode selector and/or other controls of the amplifier to reproduce the left channel only. For playback of track-3 and -2, set the amplifier to reproduce the right channel only.

ERASING TAPE

The erase head operates in the record mode, therefore, every time you make a recording, any previous recording on the tape will be automatically erased.

You can also erase a tape without adding a new recording as follows:

1. Thread the tape which is to be erased.
2. Turn the microphone and line input level controls fully counter-clockwise.
3. Set the monitor selectors to the TAPE position.
4. While setting the record mode switches to the REC position, push the record (red) and forward (green) buttons simultaneously. The tape will be fully erased. The tape speed of 15 ips is recommended.

SYNCHRO-TRAK RECORDING

For purpose of explaining Syncro-Trak operation, the originally recorded program will be called the primary program and the program to be added to the primary program will be called the secondary program.

1. Record the primary program on one or more tracks as explained on page 9.
2. Rewind the tape to the beginning of the primary program.
3. Set the record mode switch of each primary program track to the SYNCHRO-TRAK position, and the monitor selector to the TAPE position.
4. Connect the secondary program source to an unrecorded channel (or channels).
5. Set the record mode switch of each secondary program track to the REC position.
6. Set the monitor selector of each secondary program track to the SOURCE position.
7. The primary program may be monitored through headphones using the headphone output jack, or from the line outputs, using an external amplifier and/or mixer.
8. While monitoring the primary program, record the secondary program in the usual manner.
9. Syncro-Trak recording may be done any time that one or more tracks are not recorded.

Note: In the event that the secondary program is unsatisfactory, the tape can be rewound and a new secondary program may be recorded, erasing the original secondary program.

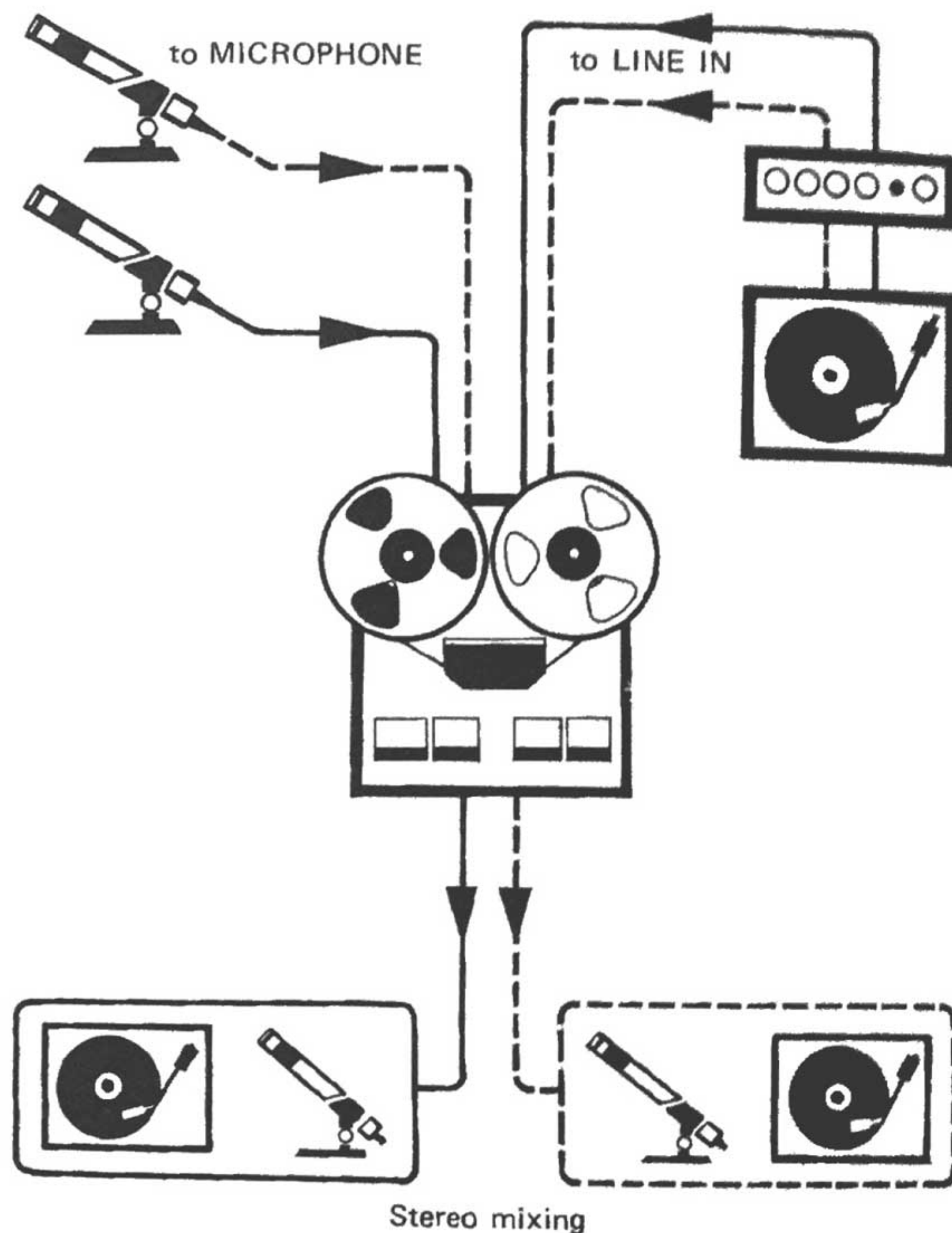
The figure below is one example for Syncro-Trak.

	REC MODE	MONITOR	tape
primary program			track 1 2 3 4
secondary program			track 1 2 3 4

MICROPHONE AND LINE INPUT MIXING

When the microphone and the line sources are connected to their respective inputs, these input signals are recorded together. In addition, each input level can be controlled independently using the associated level controls.

1. Set the monitor selectors to the SOURCE position.
2. Set the record mode switches to the REC position.
The VU meters indicate the composite recording level of the line and microphone inputs.
3. Adjust the recording level by turning the respective controls.
4. Push the record (red) and forward (green) buttons simultaneously.



EDITING AND SPLICING TAPE

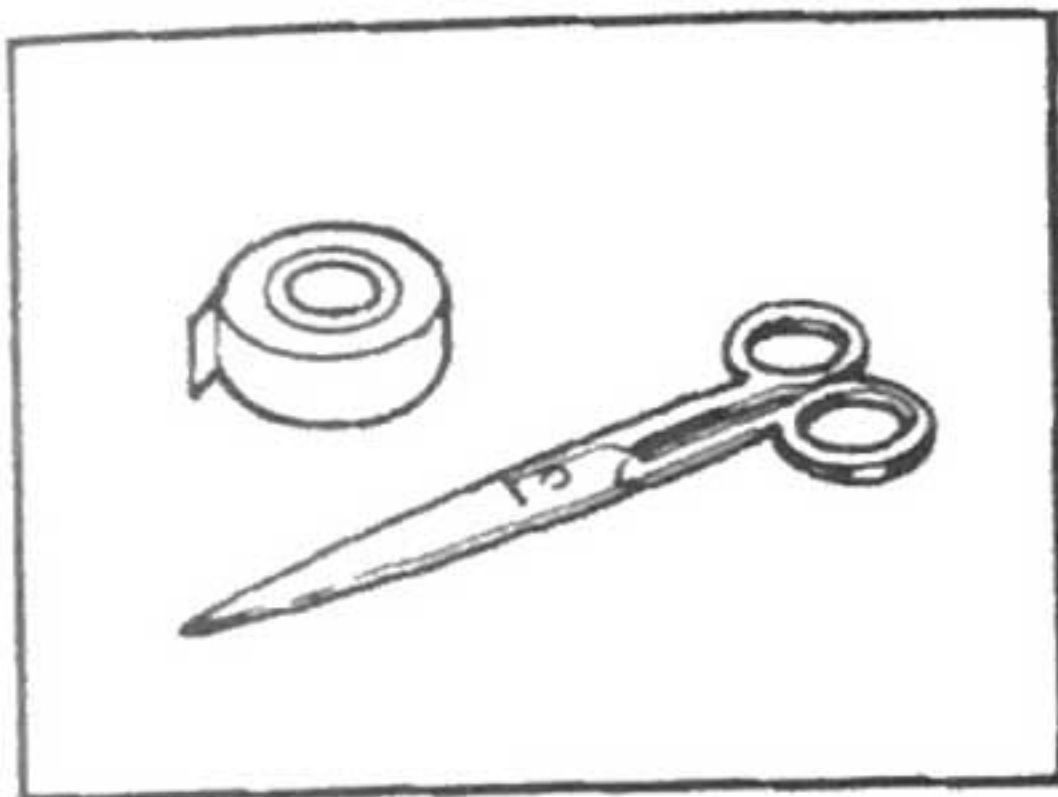
Editing

Set the tape lift switch to the OFF position. Push the fast forward or rewind button to locate the starting point of the program. Then, push the stop button and wind the tape by hand to the exact start of the program.

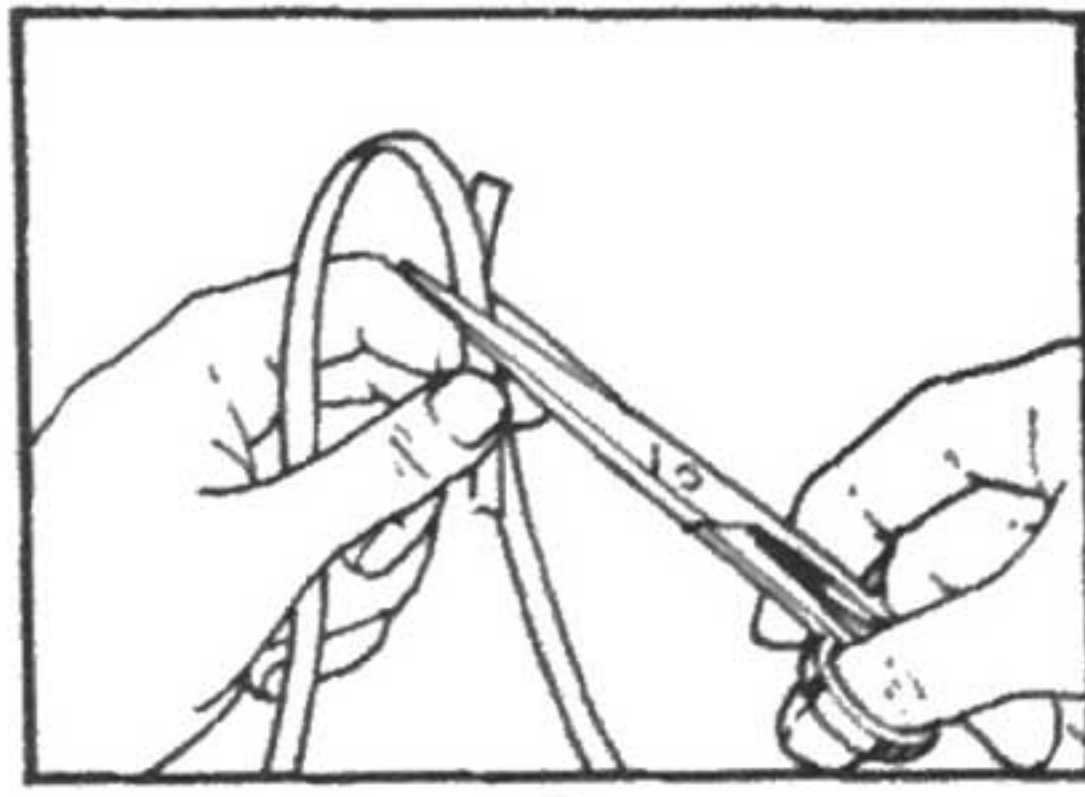
Splicing

Proceed as follows.

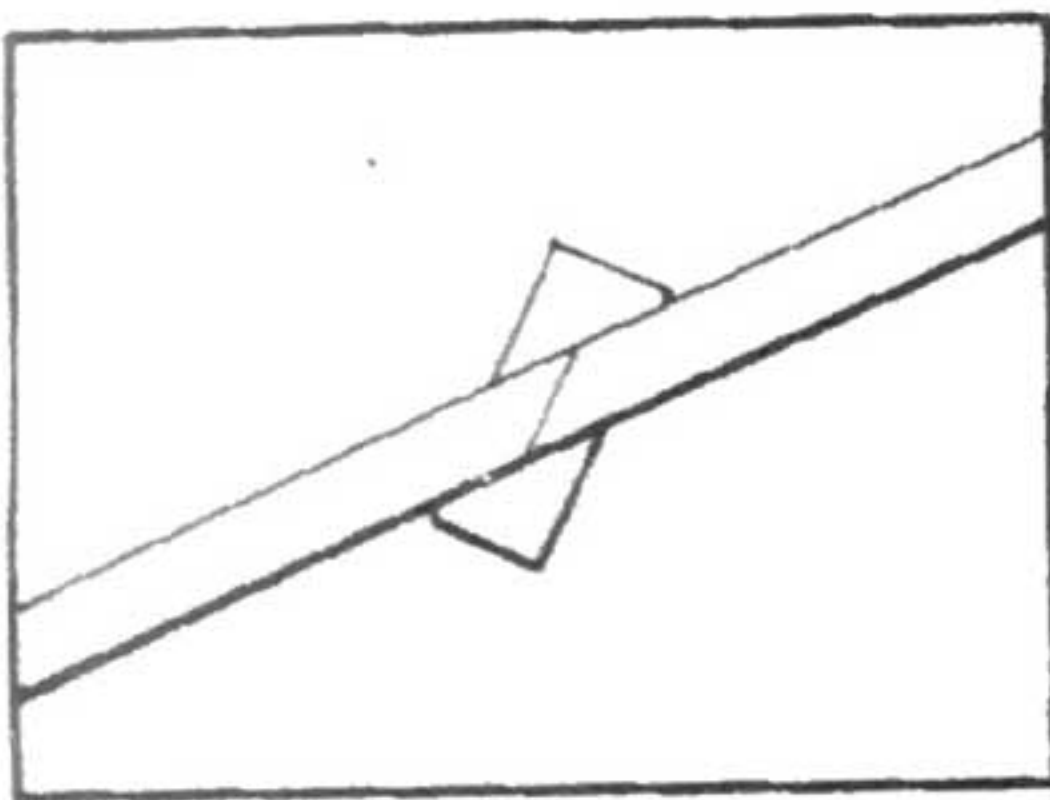
1. Use splicing tape and a pair of scissors. Do not use ordinary cellophane tape as it tends to deteriorate.
2. Overlap the tapes to be spliced and make a diagonal cut across the overlapped position.
3. Place the two diagonal ends together, outer side down on a flat surface. Be careful to make the ends meet, but not overlap.
4. Apply splicing tape, then trim off the excess tape.



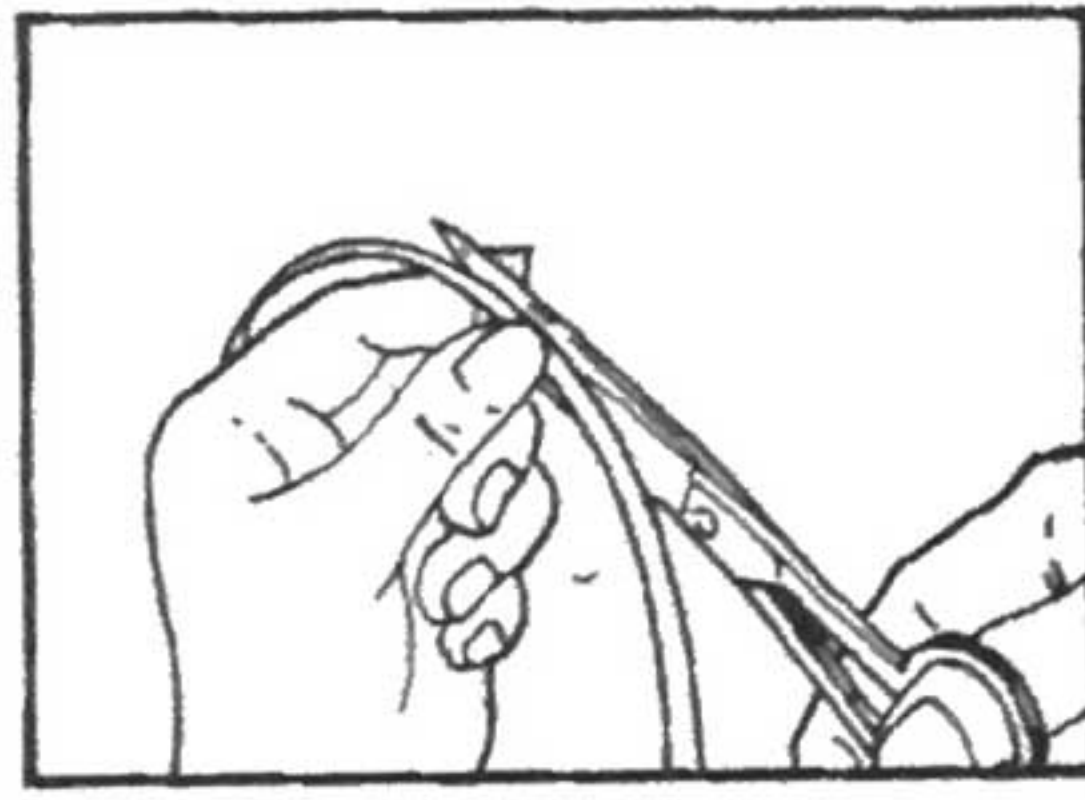
1



2



3



4

MAINTENANCE

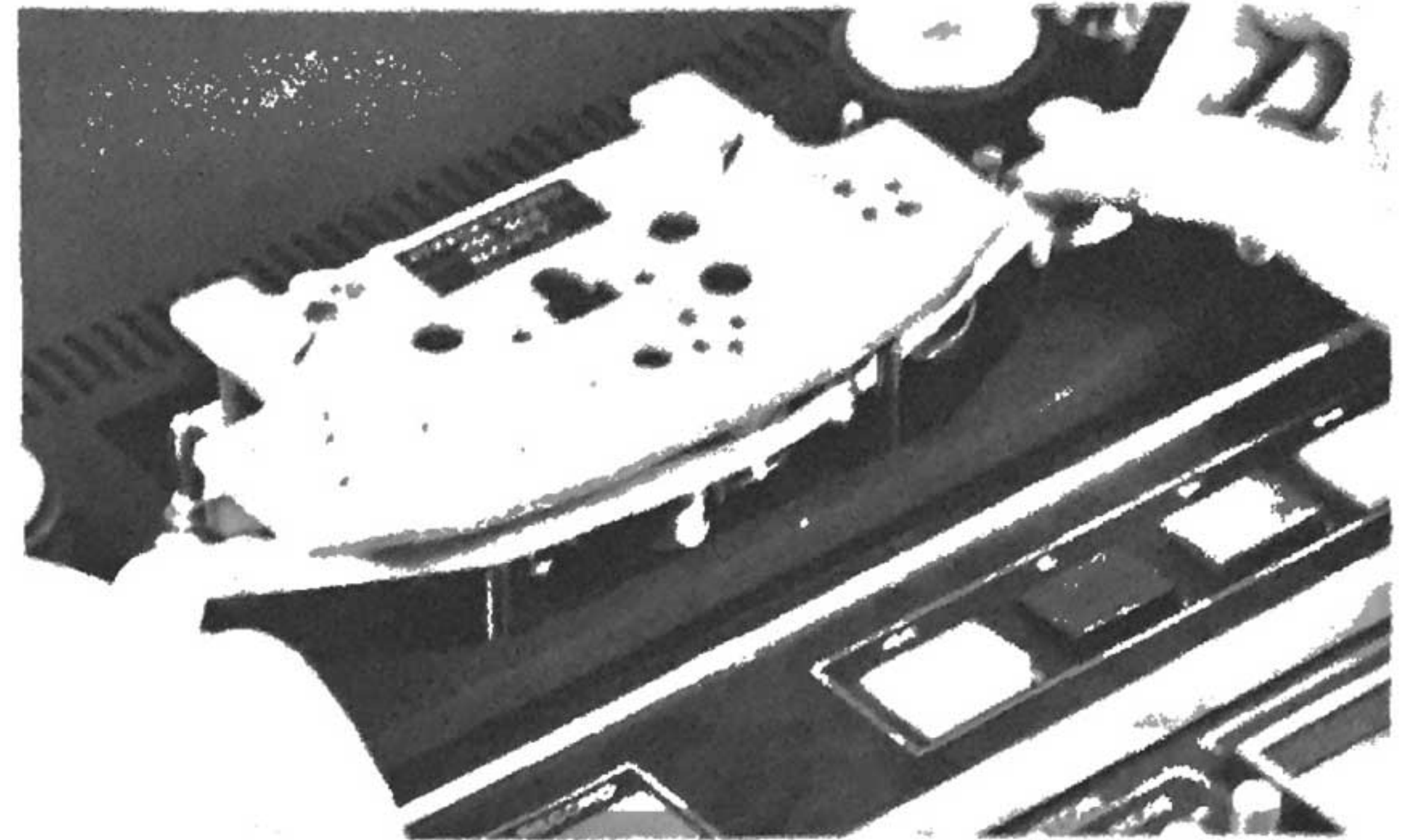
CLEANING HEADS

For optimum performance of the recorder, it is compulsory to keep all surfaces over which the tape travels clean; contamination on heads, capstans, pinch rollers, tape guides, etc. will impair an intimate contact between heads and tape, or disturb uniform tape motion.

Cleaning will be required after approximately 10 hours of use. The use of inferior brands of tape is detrimental as it will cause almost immediate contamination of the tape path.

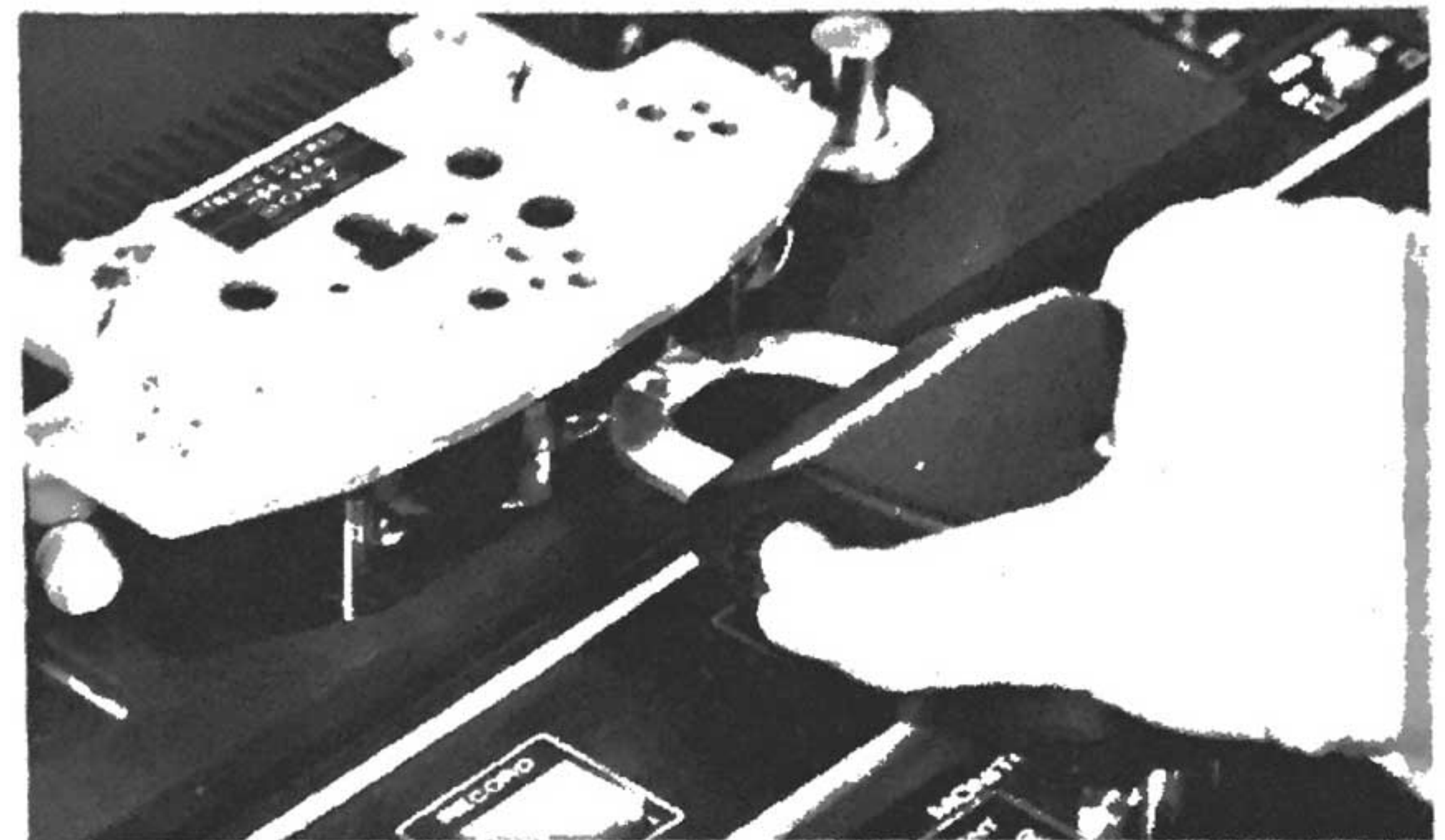
Remove the head cover by removing the screw. The heads should be cleaned with a special head cleaning solution such as supplied head cleaning ribbon or soft cloth.

When using head cleaner solutions, avoid spilling the solution on the function controls as damage may result.



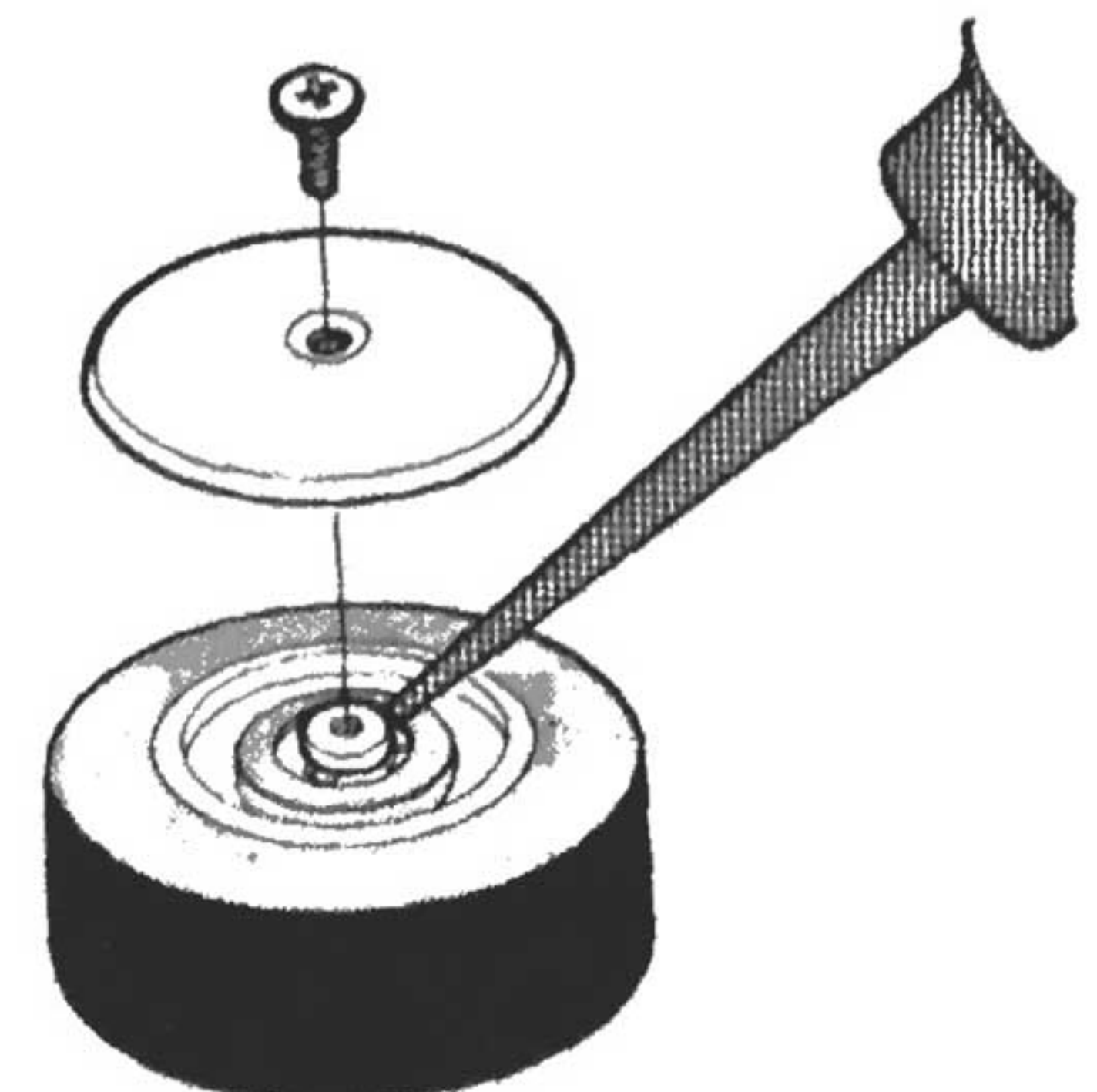
DEMAGNETIZING HEADS

With continuous use, residual magnetism will gradually be built up on the heads. This excessive residual magnetism will produce noise while the tape is being played. Therefore, periodic use of the SONY Head Demagnetizer HE-2 (optional accessory) or equivalent is recommended.



LUBRICATION

Use light machine oil and lubricate the pinch rollers once a year.



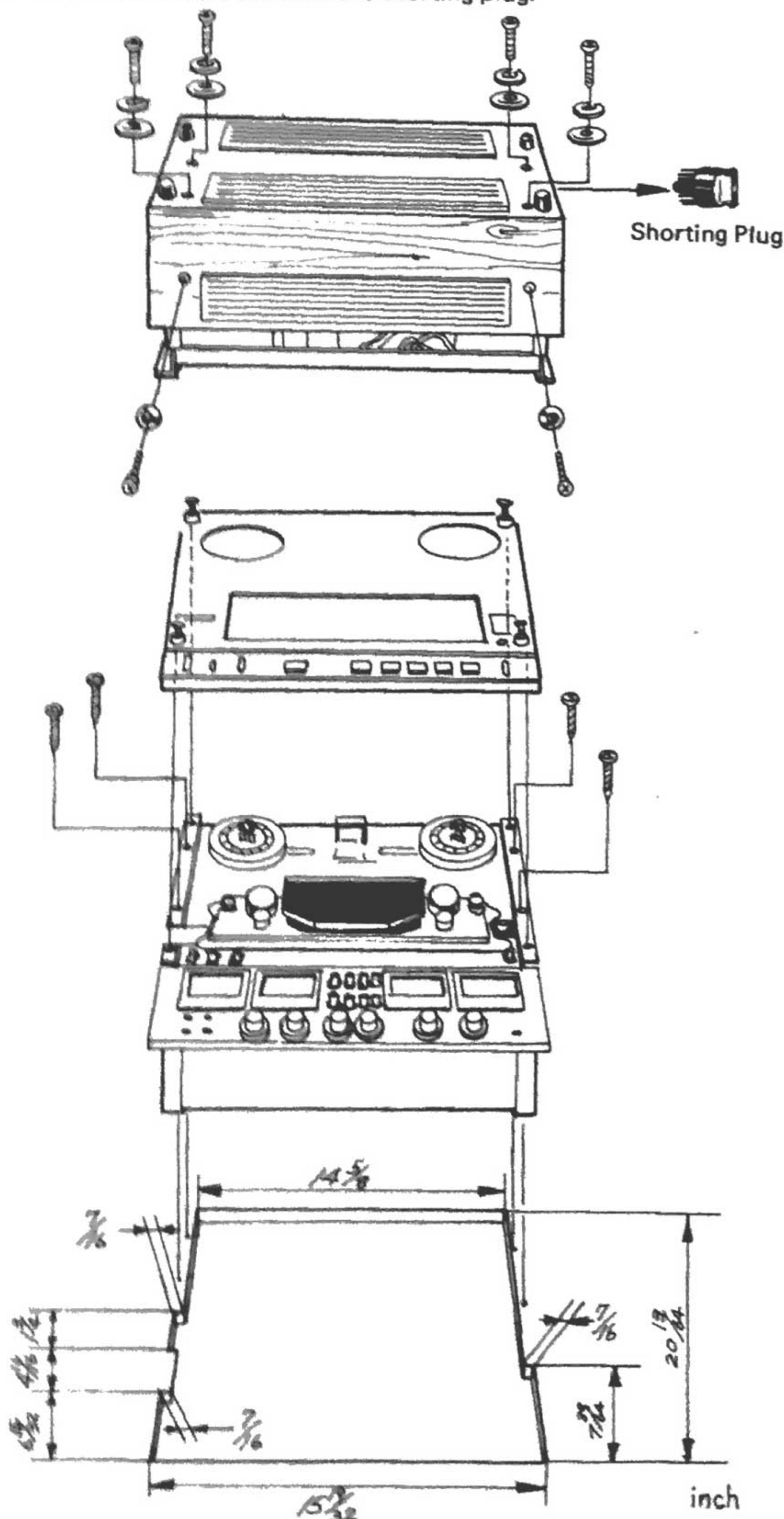
OWNER'S TROUBLE SHOOTING GUIDE

The following chart is designed to help correct any trouble which may occur with the 854-4. If you have any difficulties that cannot be rectified by going over this check list, consult your SONY/Superscope service station.

MOUNTING

The model 854-4 can be installed in a either vertical or horizontal position. Consult your SONY/Superscope service station to mount the recorder in the following procedure.

1. Disconnect the AC power cord from the model 854-4.
2. Make a rectangular hole at the desired location on the panel or the cabinet in accordance with the measurement. Refer to the mounting dimensions.
3. Loosen the four screws from the top panel of the model 854-4 and remove the panel as illustrated.
4. Place the recorder bottom side up. Remove the six screws from the wooden case and remove the shorting plug from the remote control connector. Remove the wooden case.
5. Slide the 854-4 into the mounting holde.
6. Fasten the chassis to the mounting board with four wood screws.
7. Replace the top panel and the shorting plug.



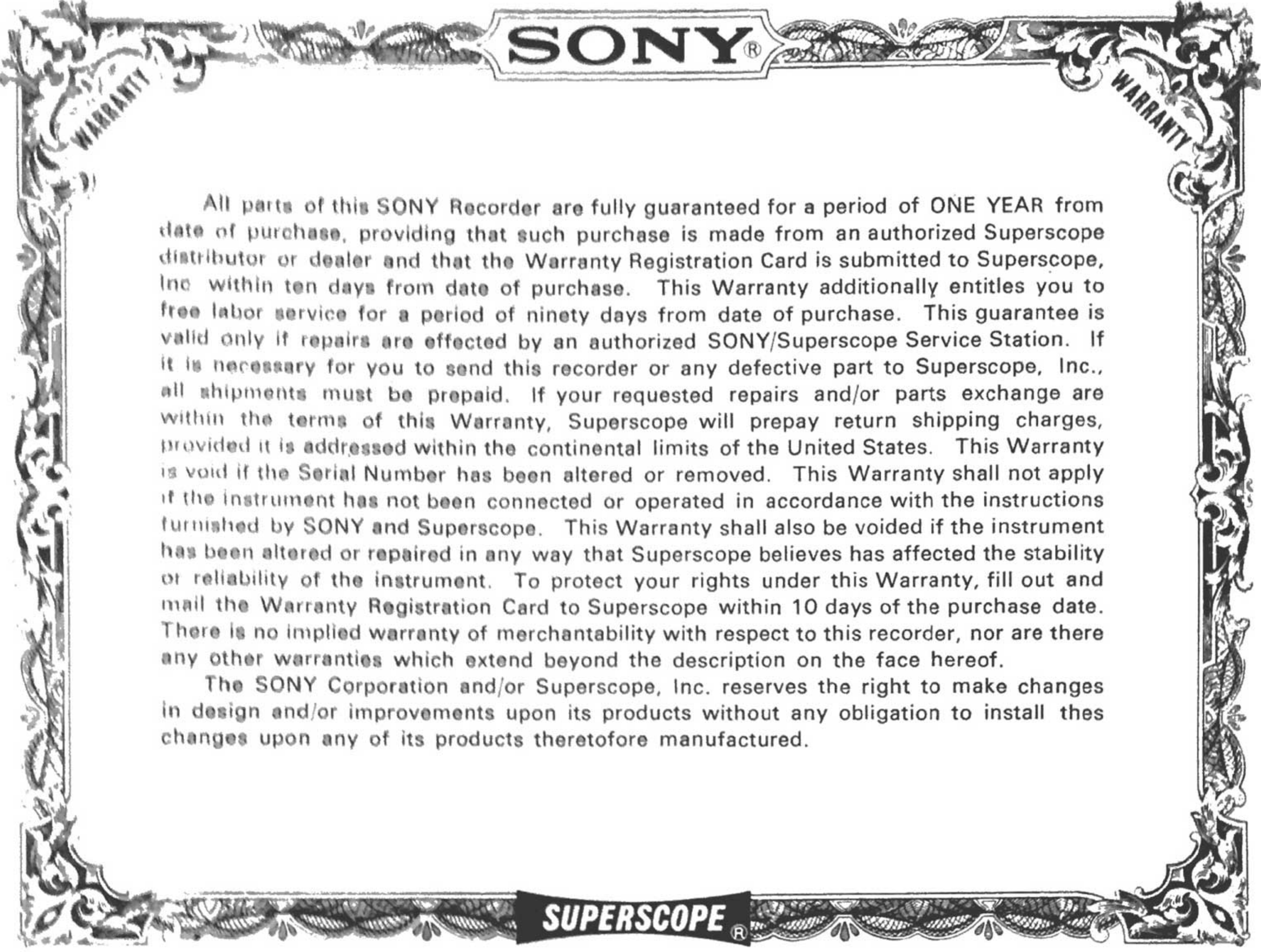
Symptoms	Adjustments
The tape does not move when the function button is pressed.	Check whether the tape is threaded properly. Make sure there is no slack in the threaded tape. Check whether the remote control jack is connected with the supplied shorting plug or with the remote control unit. Make sure the AC power cord is connected.
No sound	Check the connections between the 854-4 and the external amplifier. Check the source selector of the amplifier for correct position. Check the setting of the playback level controls.
Unclear or distorted recording or too much wow and flutter.	Clean the heads Clean the capstans and pinch rollers. Check the reels for warp.
Severe hum or noise	Use shielded connecting cables. Keep cables away from transformers generators or AC power cords. Ground the 854-4 to the amplifier's chassis ground. Reverse the AC plug in

TECHNICAL SPECIFICATIONS

Power requirements: 120V, 60Hz AC
Power consumption: 110W AC
Semiconductors: 109 transistors
103 diodes
Track system: 4-channel 4-track stereo recording
and playback
2-channel 4-track stereo and mono,
recording and playback
Heads: 1 record head
1 playback head
2 erase heads
Tape speed: 15 ips, 7-1/2 ips, 3-3/4 ips
Reels: 10-1/2 inch or smaller
Recording time: 30 min., 4-channel stereo at 15 ips with
2400 ft tape
1 hr., 4-channel stereo at 7-1/2 ips with
2400 ft tape
Fast winding time: 2 min. 10 sec. with 2400 ft tape
Inputs: Microphone input jacks
(phone jack)
Microphone input connectors
(CANNON XLR-3-13)
Sensitivity -72dB (0.2mV)
Impedance 600 ohms
Line input jacks
Sensitivity -22dB (0.06V)
Impedance 100k ohms
Outputs: Line outputs
Output level 0dB (0.775V)
Load impedance 100k ohms
Output impedance 2.2k ohms
Headphone output jack
Accepts 8 ohms stereo headphone
Frequency response: (with SONY Super Low-noise High-
output tape)
20 - 30,000 Hz at 15 ips
20 - 30,000 Hz at 7-1/2 ips
20 - 20,000 Hz at 3-3/4 ips
(with standard tape)
20 - 28,000 Hz at 15 ips
20 - 25,000 Hz at 7-1/2 ips
20 - 18,000 Hz at 3-3/4 ips
Signal to noise ratio: 59dB (with SLH tape)
56dB (with standard tape)
Harmonic distortion: Less than 1.5%
Wow and flutter: 0.03% at 15 ips
0.04% at 7-1/2 ips
0.08% at 3-3/4 ips
AC outlet: 300 W unswitched
Remote control connector: Accepts SONY Remote Control
RM-16
Dimensions: 17-5/16"(W) x 22"(H) x 10"(D)
Weight: 61 lb 7 oz
Accessories supplied: 10-1/2" reel (1)
Reel adaptors, holders, spacers (2)
AC power cord (1)
Connecting cords (4)
4-channel demonstration tape (1)
Cord label (1 sheet)
Sensing foil (1 sheet)

Head cleaning ribbon (1)
Dust protector (1)
Optional accessories: Remote Control RM-16
Microphone ECM-21

Design and specifications subject to change without notice.

**SONY®**

All parts of this SONY Recorder are fully guaranteed for a period of ONE YEAR from date of purchase, providing that such purchase is made from an authorized Superscope distributor or dealer and that the Warranty Registration Card is submitted to Superscope, Inc. within ten days from date of purchase. This Warranty additionally entitles you to free labor service for a period of ninety days from date of purchase. This guarantee is valid only if repairs are effected by an authorized SONY/Superscope Service Station. If it is necessary for you to send this recorder or any defective part to Superscope, Inc., all shipments must be prepaid. If your requested repairs and/or parts exchange are within the terms of this Warranty, Superscope will prepay return shipping charges, provided it is addressed within the continental limits of the United States. This Warranty is void if the Serial Number has been altered or removed. This Warranty shall not apply if the instrument has not been connected or operated in accordance with the instructions furnished by SONY and Superscope. This Warranty shall also be voided if the instrument has been altered or repaired in any way that Superscope believes has affected the stability or reliability of the instrument. To protect your rights under this Warranty, fill out and mail the Warranty Registration Card to Superscope within 10 days of the purchase date. There is no implied warranty of merchantability with respect to this recorder, nor are there any other warranties which extend beyond the description on the face hereof.

The SONY Corporation and/or Superscope, Inc. reserves the right to make changes in design and/or improvements upon its products without any obligation to install these changes upon any of its products theretofore manufactured.

SUPERSCOPE®