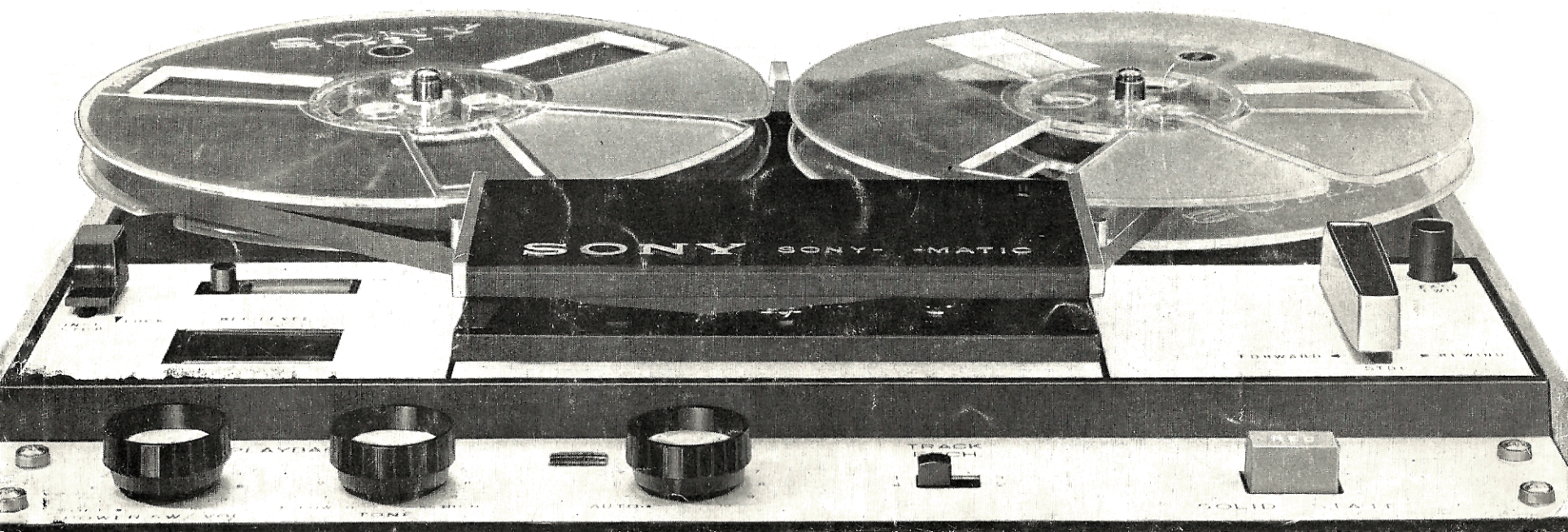


SONY®

SONY-MATIC®

TC-105

OWNER'S INSTRUCTION MANUAL





The Model 105 is a portable solid state 4-track monophonic recorder with the exclusive SONY-MATIC AVC (Automatic Volume Control) system.

This Automatic Volume Control system automatically adjusts recording level for any program material and maintains a uniform recording level without touching a knob.

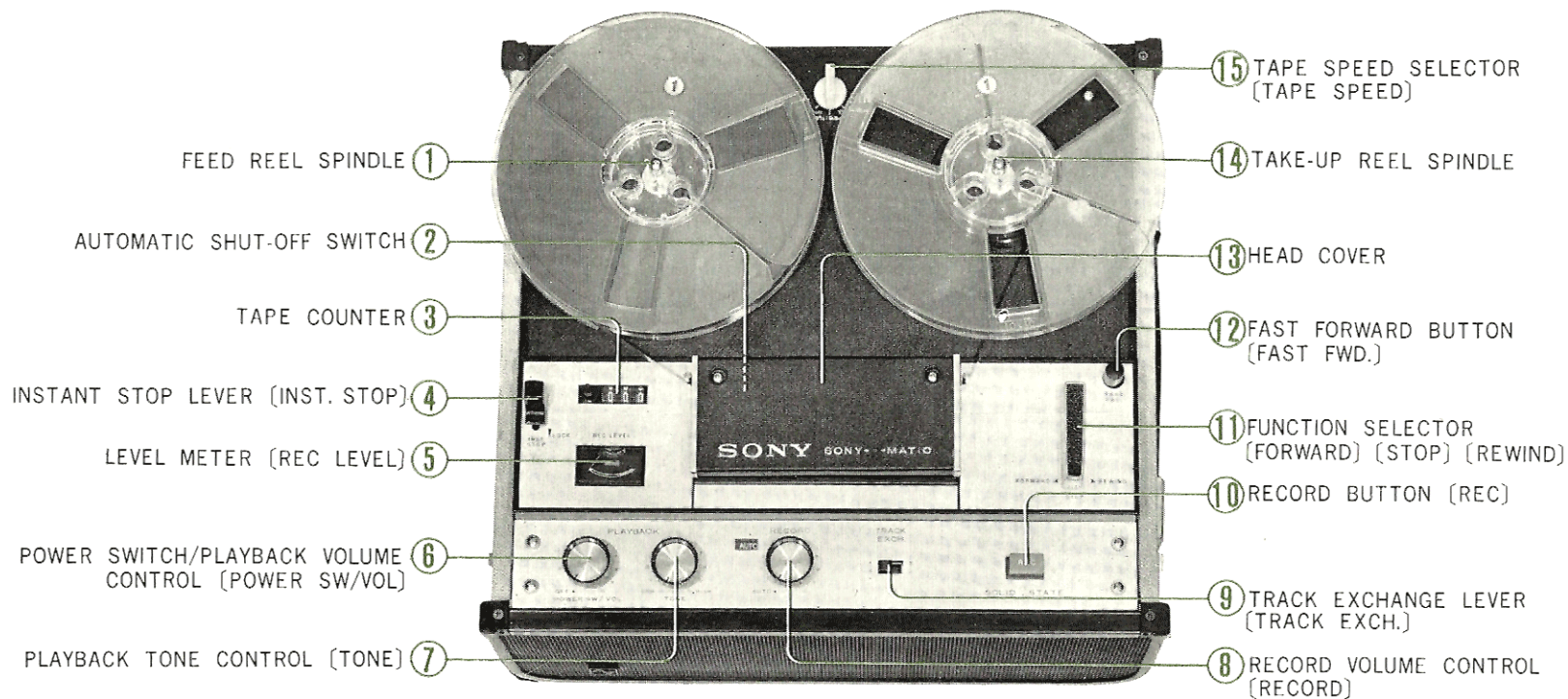
When manual control and indication of recording level is desired, a Record Volume Control and professional Level Meter are incorporated.

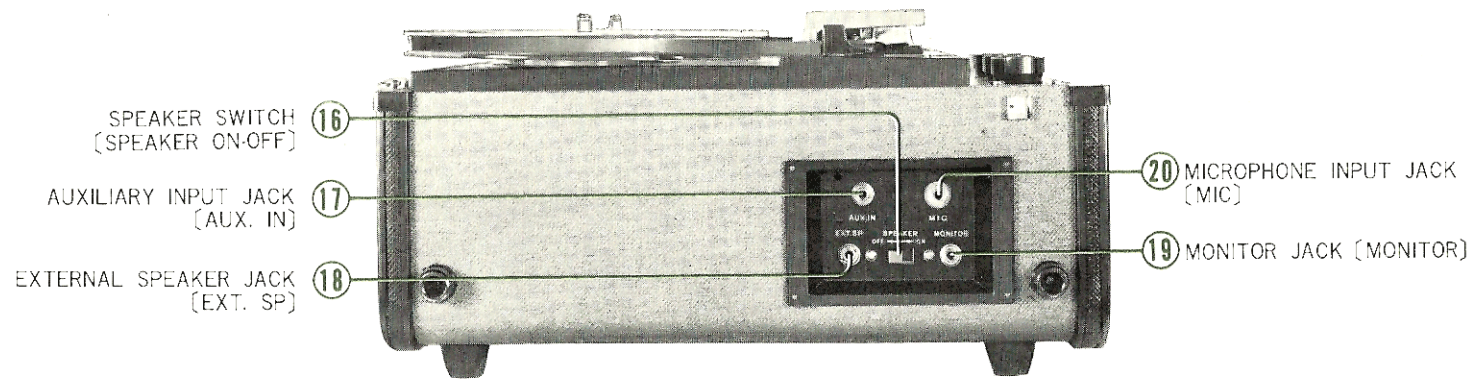
A convenient Track Exchange Lever, provides 4-track monophonic recording facilities allowing 'four' separate recordings on your tape.

Other features of the model 105 are:

7-inch reel capacity, 3-speed operation, Tape counter, Automatic shut-off switch, Instant stop button, Speaker On/Off switch and retractable Pinch roller for easiest tape threading. Read this manual carefully before operating the recorder and save this manual for future reference.

# Location of Controls and Connectors

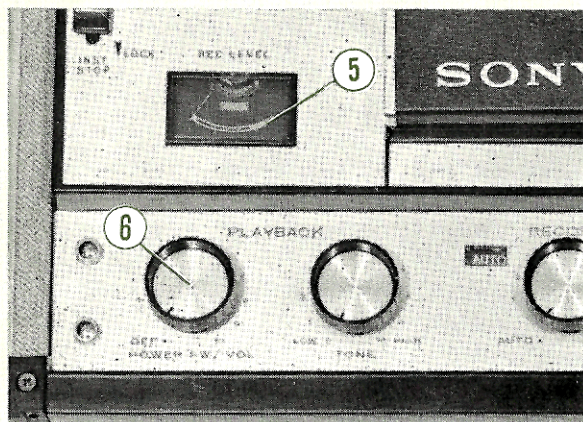




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# Preparation



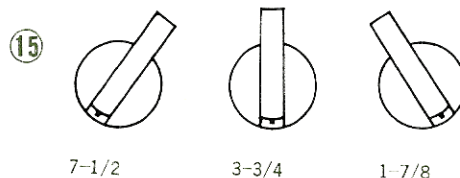
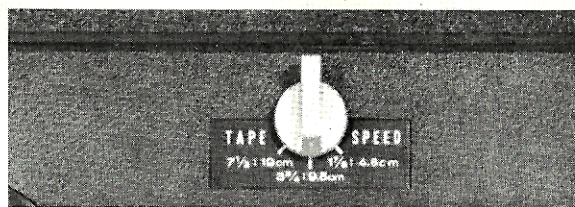
## REMOVING LID

Release the catches and remove lid from the main cabinet.

Take out the accessories and AC Power Cord stored in the rear compartment of the cabinet.

## CONNECTING POWER LINE

Connect the AC Power Cord to a 117V AC outlet and turn POWER SWITCH/PLAYBACK VOLUME CONTROL (6) clockwise to turn the recorder ON. The pilot lamp in the LEVEL METER (5) is illuminated when the recorder is on.



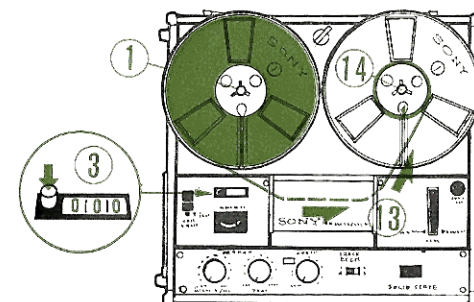
## SELECTING TAPE SPEED

Select the desired tape speed: 7½ ips., 3½ ips. or 1½ ips. by turning TAPE SPEED SELECTOR (15).

When the best sound quality is desired: tape speed of 7½ ips. or 3½ ips. is recommended.

When longer recording time is desired: 1½ ips. tape speed is ideal.

NOTE: Do not change tape speed while tape is in motion.



## LOADING AND THREADING TAPE

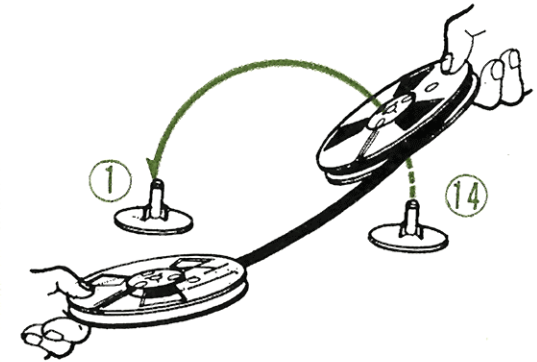
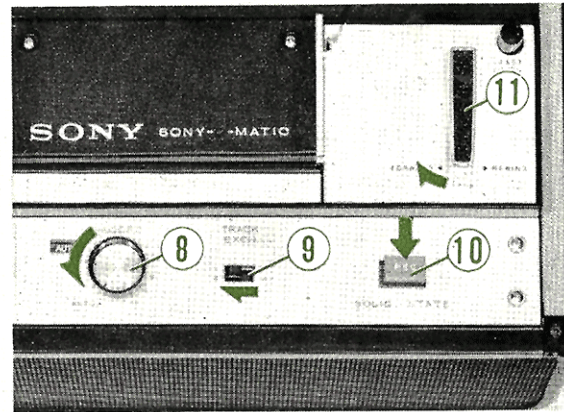
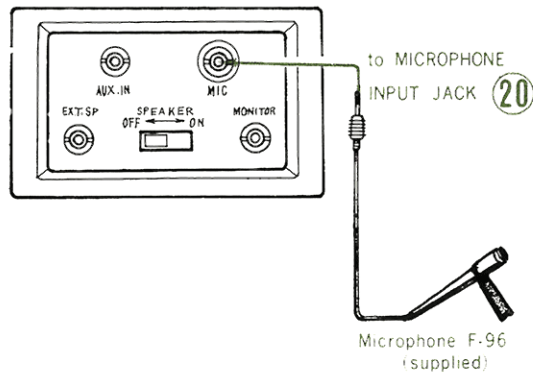
Place a full reel of tape on the FEED REEL SPINDLE (1) (left) and an empty reel on the TAKE-UP REEL SPINDLE (14) (right). Pull out approximately 18 inches of tape from the full reel and thread as illustrated.

## SETTING THE TAPE COUNTER

Press the reset button adjacent to the TAPE COUNTER (3).

This will set the Counter to zero [000] so that it is in position indicating the amount of tape used in either record or playback.

# Recording



## SONY-MATIC RECORDING

1. When recording with microphone, plug the microphone into MICROPHONE INPUT JACK (20) (encircled with red). When recording from radio, television receiver, etc., see page 13, INPUT AND OUTPUT CONNECTORS, for the connection.
2. Turn RECORD VOLUME CONTROL (8) fully counterclockwise to [AUTO] position. The letters [AUTO] appear in the window.

3. Slide TRACK EXCHANGE LEVER (9) to [1, 4] position.
4. While pressing RECORD BUTTON (10), turn FUNCTION SELECTOR (11) to [FORWARD] position. RECORD BUTTON is locked and a blue pilot light illuminates indicating that the recorder is in SONY-MATIC recording mode.

NOTE: During SONY-MATIC recording, the LEVEL METER will not operate. The record level is automatically and electrically adjusted for optimum quality.

Track 1 of the tape is now being recorded.

- The usual 4-track monophonic recording sequence is track 1, 4, 3 and 2. It is advisable to establish a set sequence so that all tapes are compatible.
5. To record track 4, when the end of tape is reached, do not rewind.
  6. Reverse and invert tape reels: place full reel of tape on the FEED REEL SPINDLE (1) and the empty reel on the TAKE-UP REEL SPINDLE (14). Track 4 can now be recorded.



7. To record tracks 3 and 2, place TRACK EXCHANGE LEVER (9) to [3, 2] position and repeat steps 4, 5 and 6.
8. When recording is completed, turn the FUNCTION SELECTOR (11) to [STOP] position.  
The tape can be immediately played back by following the playback procedure on page 8.

#### TO MONITOR WHILE RECORDING

The following methods are recommended.

##### EARPHONE:

Connect the SONY Earphone (supplied) to the MONITOR JACK (19).

This connection will automatically disconnect the built-in speaker.

##### INTERNAL SPEAKER:

Turn the SPEAKER SWITCH (16) ON to monitor through the built-in speaker.

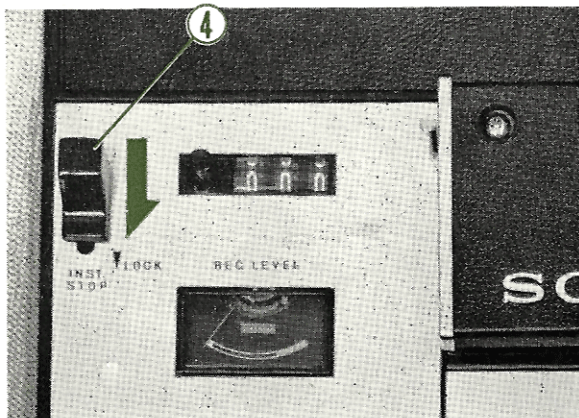
##### EXTERNAL SPEAKER:

Connect an external speaker to the EXTERNAL SPEAKER JACK (18).

This connection will automatically disconnect the built-in speaker.

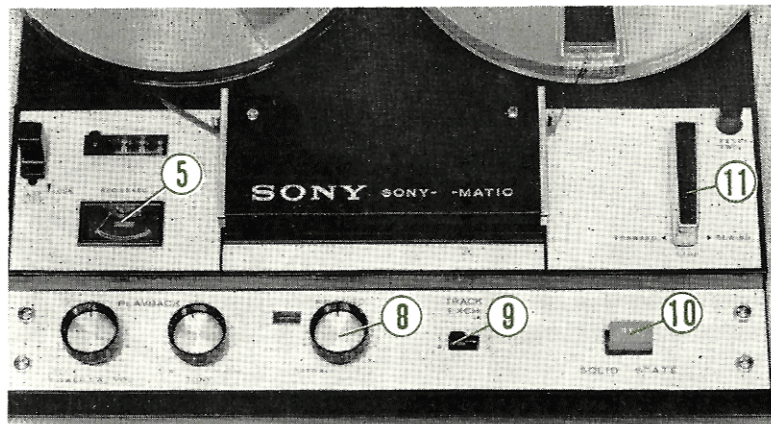
NOTE: During speaker monitoring, howling (acoustic feedback) may occur if the microphone is too near the speaker. In this case, turn the SPEAKER SWITCH (16) OFF and monitor with an earphone.





### TO STOP TAPE INSTANTLY DURING RECORDING

Pull the INSTANT STOP LEVER (4) forward (toward you) until it clicks into position. To release simply push the lever down, the tape will immediately pick up normal forward speed.



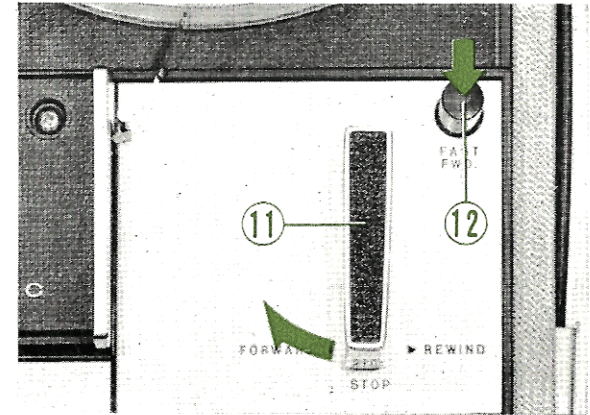
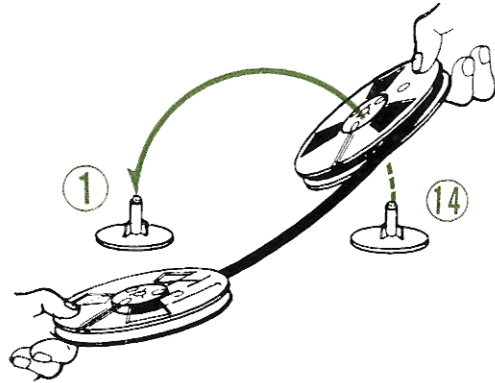
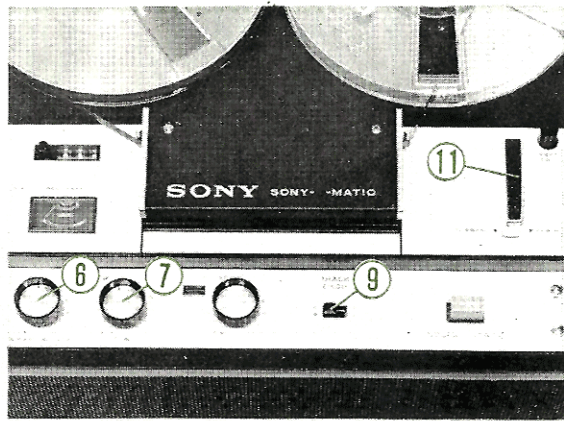
### MANUAL RECORDING

The model 105 has provisions for manual or automatic record level adjustment.

1. Turn RECORD VOLUME CONTROL (8) clockwise until a click is heard.
2. Connect recording source to proper input jack.  
See page 13, INPUT AND OUTPUT CONNECTORS.
3. Slide TRACK EXCHANGE LEVER (9) to [1, 4] position.
4. Press RECORD BUTTON (10). Adjust recording level by turning RECORD VOLUME CONTROL. Recording level must be adjusted so that at peak volume the LEVEL METER (5) needle deflection does not continuously remain in the red zone. It is normal for occasional transient peaks to deflect the needle into the red zone.

5. While holding RECORD BUTTON (10) down, turn FUNCTION SELECTOR (11) to [FORWARD] position the red pilot light illuminates the window. Track 1 of the tape is now being recorded.
6. To record 4, when the end of tape is reached, do not rewind.
7. Reverse and invert tape reels: place the full reel of tape on the FEED REEL SPINDLE (1) (left) and the empty reel on the TAKE-UP REEL SPINDLE (14) (right). Track 4 can now be recorded.
8. To record tracks 3 and 2, place TRACK EXCHANGE LEVER to [3, 2] position and repeat steps 4, 5, 6 and 7.
9. When recording is completed, turn the FUNCTION SELECTOR to [STOP] position. The tape can be immediately played back by reversing and inverting the tape reels. See page 8, PLAYBACK.

# Playback



The following playback procedure is recommended for a tape whose sequence of recording is; track 1, track 4, track 3 and track 2.

1. Thread pre-recorded tape on the recorder.
2. Slide TRACK EXCHANGE LEVER (9) to [1, 4] position.
3. Turn FUNCTION SELECTOR (11) to [FORWARD] position. Track 1 is now being played.
4. Adjust for desired sound volume and tone quality with PLAYBACK VOLUME CONTROL (6) and PLAYBACK TONE CONTROL (7)

5. When the end of tape is reached, do not rewind; reverse and invert tape reels; place the full reel of tape on the FEED REEL SPINDLE (1) and the empty reel on the TAKE-UP REEL SPINDLE (14). Track 4 will then be played.
6. To play tracks 3 and 2, place TRACK EXCHANGE LEVER (9) to [3, 2] position and repeat steps 3 and 4.

## TO MOVE TAPE FAST FORWARD

To move tape forward rapidly to a desired portion: turn the FUNCTION SELECTOR (11) to [STOP] and while holding the FAST FORWARD BUTTON (12) in, turn the FUNCTION SELECTOR to [FORWARD].

To stop tape motion, simply turn the FUNCTION SELECTOR to [STOP] position and the FAST FORWARD BUTTON will be released.

## TO MONITOR OR LISTEN THROUGH EARPHONE

Plug the earphone (supplied) into MONITOR JACK (19).

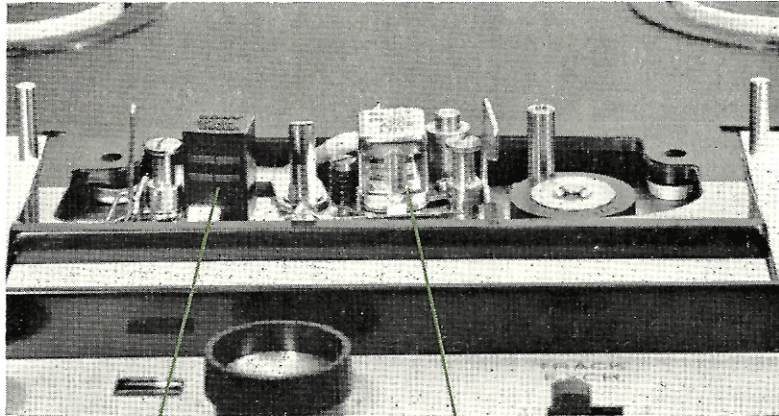
The built-in speaker will be automatically disconnected when this jack is used.

## Erasing Tape

When you start a new recording, any previous recordings are automatically erased as the tape passes the erase head. Therefore, do not use valuable pre-recorded tapes for a new recording.

To erase a tape without adding a new recording, simply place the recorder in record mode and run the tape through.

For quick and easy erasure of tape use a bulk eraser.



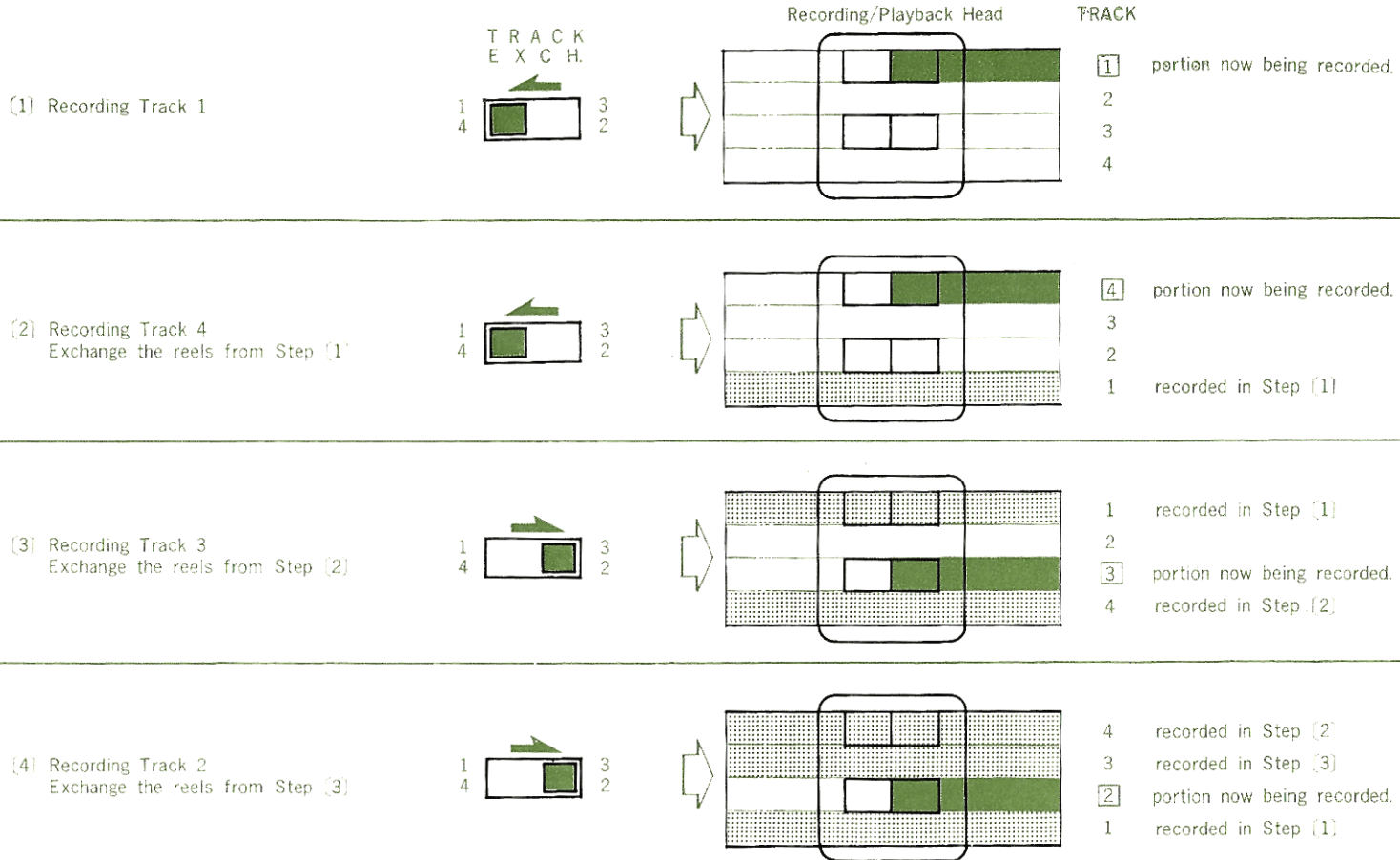
Erase Head

Recording/Playback Head

# Notes on 4-Track Recording

This recorder uses a 4-track system of recording/playback to give the double recording or playback time of a dual-track system.

4-track monophonic recording process are;



# Operation of Controls

## ① FEED REEL SPINDLE

Place a full reel of tape on this spindle.

## ② AUTOMATIC SHUT-OFF SWITCH

This switch is controlled by a wire lever located under the head cover. In [STOP] position, the shut-off lever recedes into a slot to facilitate easy tape threading. After tape is threaded and the mechanism is placed in [FORWARD] [REWIND] or [FAST FORWARD] modes, the shut-off lever contacts the tape and is held in this position. At such time as the tape either runs out or breaks, the lever will fall forward and activate a micro switch which automatically stops the recorder.

## ③ TAPE COUNTER

The digital counter indexes the tape used in record and playback. At the start of a tape, press the reset button; three zeros [000] will appear in the window.

## ④ INSTANT STOP LEVER [INST. STOP]

This lever stops tape motion instantly while the recorder is in either record or playback mode.

Pull the lever forward (toward you) until it clicks into position. To release push the lever down, the tape will immediately pick up normal forward speed.

## ⑤ LEVEL METER [REC LEVEL]

This meter needle indicates the recording level only when the manual level adjustment mode is used. While the recorder is in SONY-MATIC record mode, the meter needle does not operate. For manual adjustment of recording level, turn the RECORD VOLUME CONTROL ⑧ so

that at peak volume the swing of the needle occasionally reaches the red zone.

## ⑥ POWER SWITCH/PLAYBACK VOLUME CONTROL [POWER SW/VOL.]

Rotate this knob clockwise to turn the recorder ON.

This knob also adjusts playback volume level; turn clockwise to increase volume and turn counterclockwise to decrease the volume.

## ⑦ PLAYBACK TONE CONTROL [TONE]

This knob adjusts the playback tone quality.

Turn clockwise to increase treble tones and turn counterclockwise to increase bass tones.

## ⑧ RECORD VOLUME CONTROL [RECORD]

For SONY-MATIC recording, this knob should be kept in [AUTO] position. The letters [AUTO] are in the window and a blue pilot light illuminates. While the recorder is in SONY-MATIC record mode, level adjustment is entirely unnecessary.

For manual recording, turn this knob clockwise to switch the recording mode from AUTO to MANUAL. A red pilot light illuminates the window when manual recording. Adjust the recording level by turning this knob. The recording level is indicated on the LEVEL METER ⑤.

## ⑨ TRACK EXCHANGE LEVER [TRACK EXCH.]

This lever selects tape track for recording or playback

When the lever is placed in [1, 4] position, the tape tracks 1 and 4 will be recorded or played back. When the lever is placed in [3, 2] position, the tape tracks 3 and 2 will be recorded or played back.

## ⑩ RECORD BUTTON [REC]

This red push button activates the record mode switch. While pressing this button turn the FUNCTION SELECTOR ⑪ to [FORWARD] position. The RECORD BUTTON is locked and the recording will start.

NOTE: If the FUNCTION SELECTOR is turned to [STOP] position the RECORD BUTTON is released and the recorder will automatically switch from record to playback mode.

If this button is locked while the FUNCTION SELECTOR is in [STOP] position, turn the FUNCTION SELECTOR to either [FORWARD] or [REWIND] position so that the RECORD BUTTON ⑩ will come up. Then, turn the FUNCTION SELECTOR to [STOP].

## ⑪ FUNCTION SELECTOR [FORWARD] [STOP] [REWIND]

This knob controls [FORWARD], [STOP] and [REWIND] tape motions. Fast forward tape motion is also activated by this knob when it is used in conjunction with the FAST FORWARD BUTTON ⑫.

To play tape, turn FUNCTION SELECTOR to [FORWARD].

To stop tape, turn FUNCTION SELECTOR to [STOP].

\*If FUNCTION SELECTOR is turned to [STOP] position while in record mode, the recorder will automatically be switched from record to playback mode.

To rewind tape, turn FUNCTION SELECTOR to [REWIND].

For fast forward tape motion, turn FUNCTION SELECTOR to [STOP]. While pressing the FAST FORWARD BUTTON, turn FUNCTION SELECTOR to [FORWARD].

## ⑫ FAST FORWARD BUTTON [FAST FWD.]

This push button is used to move the tape forward rapidly. Turn the FUNCTION SELECTOR ⑪ to [STOP] position. Press this button, then turn the FUNCTION SELECTOR to [FORWARD] position. The button is locked and the tape will move forward rapidly.

## ⑬ HEAD COVER

This cover protects the heads. When cleaning the tape path, demagnetizing head or lubricating capstan or pinch roller, remove the cover by loosening the screws on the cover.

## ⑭ TAKE-UP REEL SPINDLE

Place an empty reel on this spindle.

## ⑮ TAPE SPEED SELECTOR [TAPE SPEED]

This knob selects the desired tape speed of 7½ ips., 3¾ ips. or 1½ ips. and automatically sets the proper recording and playback characteristics for each speed.

1½ ips. is ideal when longer recording time is desired.

3¾ ips. and 7½ ips. are ideal when recordings of better sound quality are desired.

In playback mode, set the tape speed to the recommended speed of the pre-recorded tape.

NOTE: Do not change tape speed while the tape is in motion.

## ⑯ SPEAKER SWITCH [SPEAKER, ON-OFF]

This switch is located at the left side of the recorder and turns the built-in speaker on and off while recording.

# Input and Output Connectors

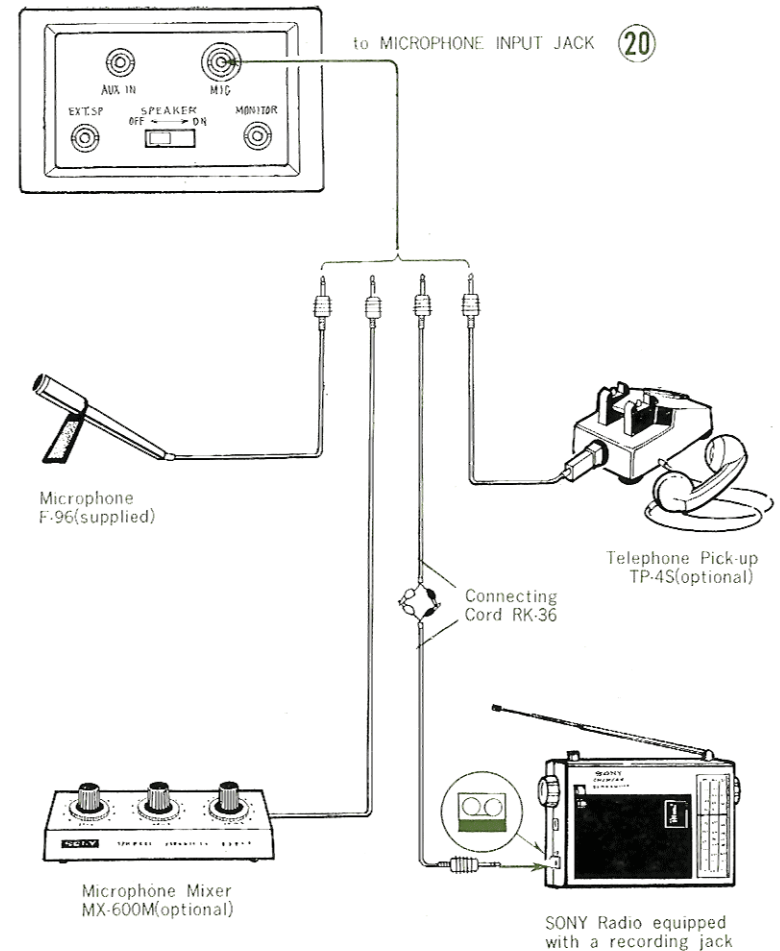
## 20 MICROPHONE INPUT JACK

This mini type input jack encircled with red is used for connecting microphone SONY model F-96 (supplied) or any high quality low impedance microphone.

NOTE: When recording with a microphone, howling sound (acoustic feedback) may occur if the microphone is too near the speaker.

In this case, turn the SPEAKER SWITCH 16 off.

This input jack can also be used with a telephone pick-up SONY TP-4S (optional) for recording telephone conversations, a microphone mixer SONY model MX-600M (optional), SONY radio or television receiver equipped with a recording jack for direct recording of the programs.

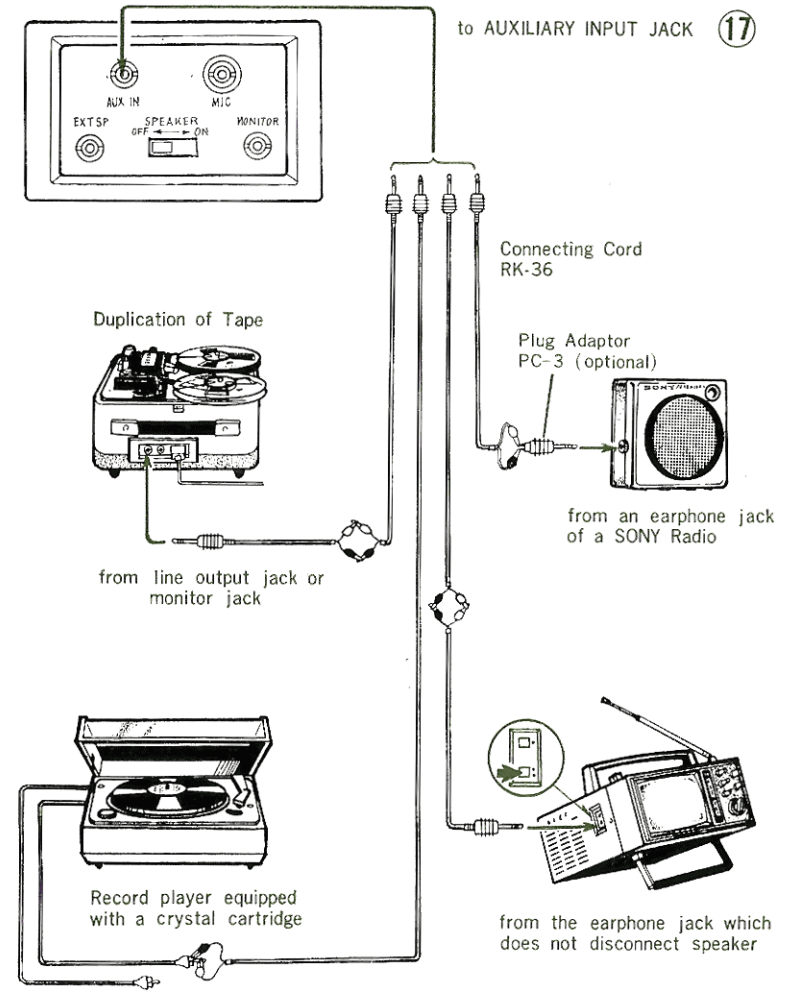


## 17 AUXILIARY INPUT JACK [AUX. IN]

This mini type input jack is used for connecting SONY radio or television receiver (from earphone jack, etc.), phonograph equipped with a crystal cartridge, or another tape recorder.

Use SONY Connecting Cord RK-36 (supplied) for connection.

NOTE: When the MICROPHONE INPUT JACK (20) is used, this input is automatically disconnected.

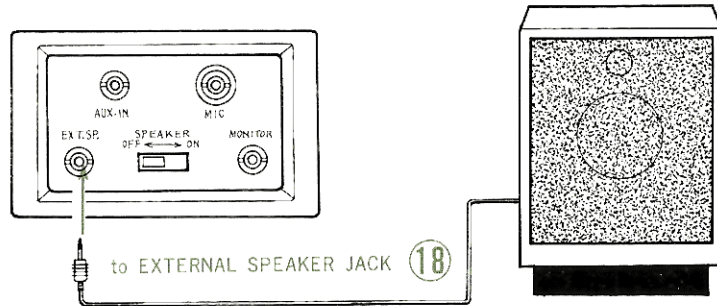




### 18 EXTERNAL SPEAKER JACK [EXT. SP]

This mini type output jack is used for connecting an external speaker having an impedance of 8 ohms.

NOTE: The external speaker connection will automatically disconnect the built-in speaker.



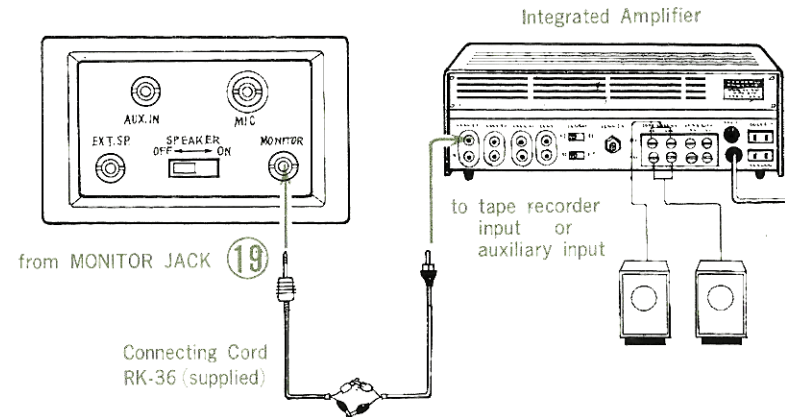
### 19 MONITOR JACK [MONITOR]

This mini type output jack is used for connecting the SONY earphone (supplied) for monitoring or private listening.

The monitoring level is regulated by the recording level.

NOTE: When this jack is used, the built-in speaker is automatically disconnected.

This jack is also used for connecting the recorder to an external amplifier.



## Public Address

This recorder can be used as public address system for microphone, phonographs, AM/FM tuner, etc.

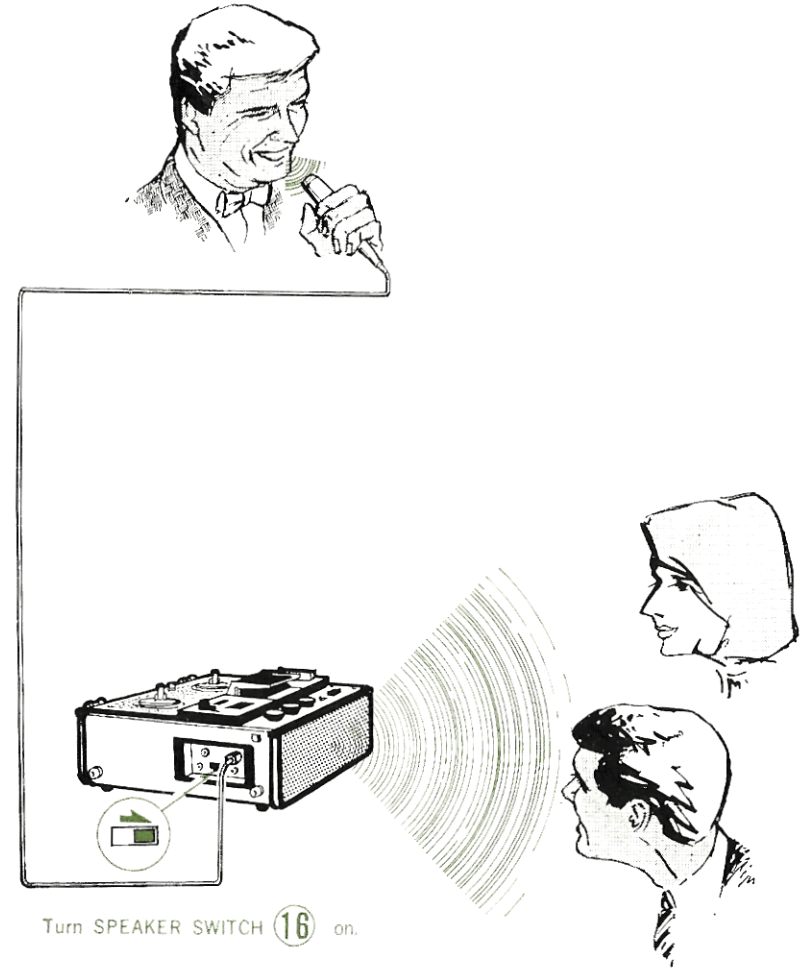
This advanced feature is accomplished by the use of a special RECORD BUTTON (10) which permits the use of the built-in speaker independent of tape motion.

1. Set the recorder in manual recording mode, without threading tape.
2. Connect input program source to the proper input jack.  
See page 13, INPUT AND OUTPUT CONNECTORS.
3. Press the RECORD BUTTON and turn the SPEAKER SWITCH (16) ON.
4. The volume level can be adjusted by turning the RECORD VOLUME CONTROL (8).

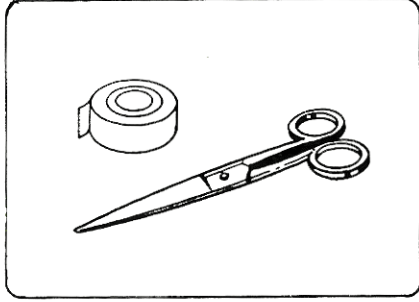
NOTE: The volume should not be increased to the point where the LEVEL METER needle goes beyond the red zone.

A howling sound (acoustic feedback) may occur when the microphone is too near the speaker. In this case, keep the microphone away from the speaker by using any of SONY Microphone Extension Cords EC-5M, EC-10M or EC-25M which are available as optional accessories, or connect an external speaker to the recorder and turn off the SPEAKER SWITCH.

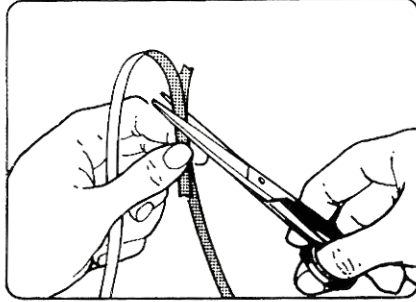
5. To release the depressed RECORD BUTTON turn the FUNCTION SELECTOR (11) to either [FORWARD] or [REWIND] position and then, turn to [STOP] position.



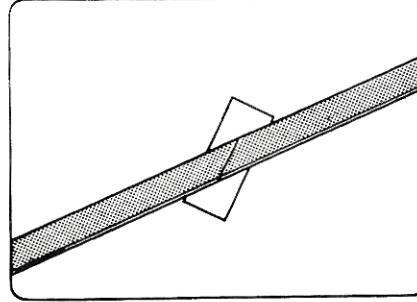
## Splicing Tape



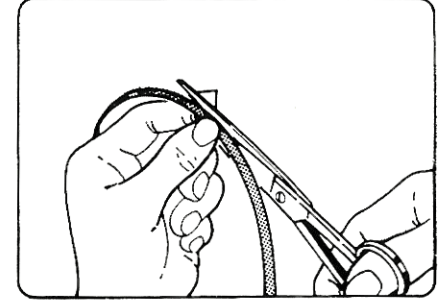
1. Use splicing tape and a pair of cissors.



2. Overlap the recording tapes and make a diagonal cut across both tapes.



3. Carefully align and butt the cut ends together. Keeping the ends in contact, firmly press a piece of splicing tape over the shiny side of the recording tape to make a firm joint.



4. Trim off the excess splicing tape.

# Maintenance

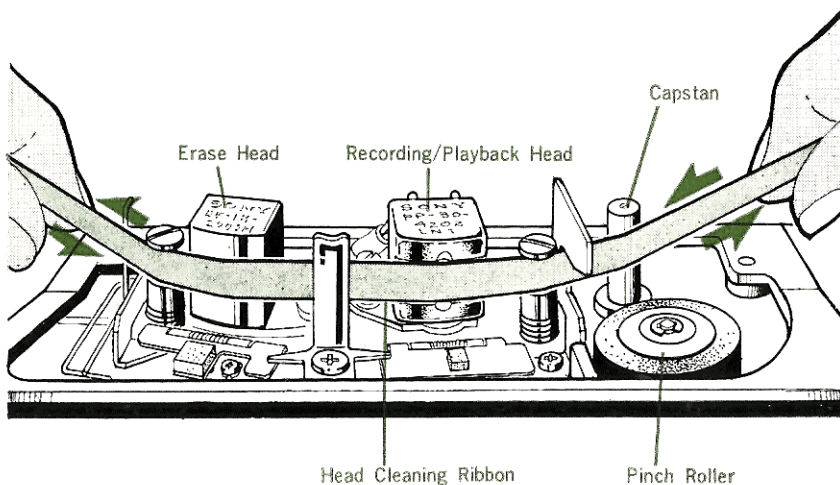
## CLEANING HEAD

A clean contact between head and tape is important for optimum performance. Generally, cleaning heads after every ten hours of use will be sufficient.

To clean

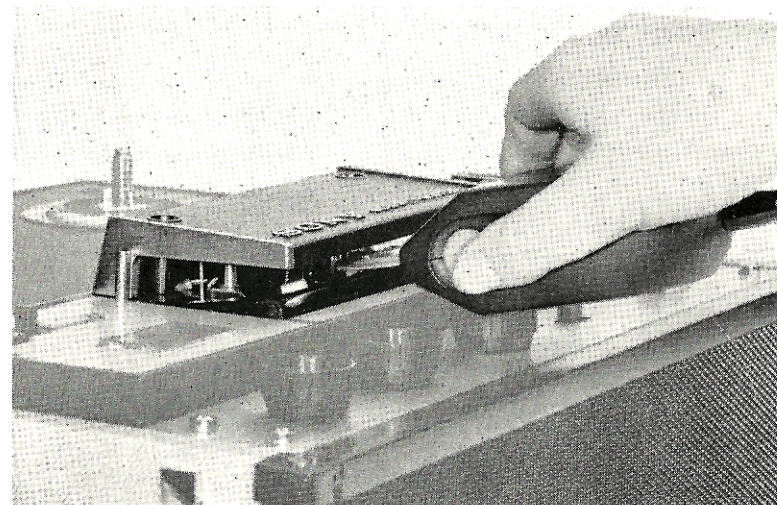
1. Remove the head cover by loosening the screws located on the cover with a screw driver.
2. Take the head cleaning ribbon (supplied) and carefully wipe the portion of the heads over which the tape travels.  
In case the deposits on the heads cannot be removed, dampen the cleaning ribbon with denatured alcohol.
3. Clean the capstan and the pinch roller surfaces in the same procedure. This will prevent oxide deposits from causing flutter and wow.

NOTE: Do not bring magnets or piece of steel near the heads.



## DEMAGNETIZING HEAD

Through continuous use, residual magnetism will be gradually built up on the head and this excessive residual magnetism will produce noise while the tape is being played. Therefore, periodic use of the SONY Head Demagnetizer HE-2, which is available as an optional accessory, is recommended for best possible performance.



## CLEANING CABINET

Should the cabinet of the recorder may become soiled after long use, clean it with a clean, soft cloth moistened with soapsuds.

## CLEANING MECHANISM

The drive mechanism under the top panel (the rubber belt, rubber idler wheels, etc.) should be cleaned periodically with a piece of soft cloth dampened with denatured alcohol.

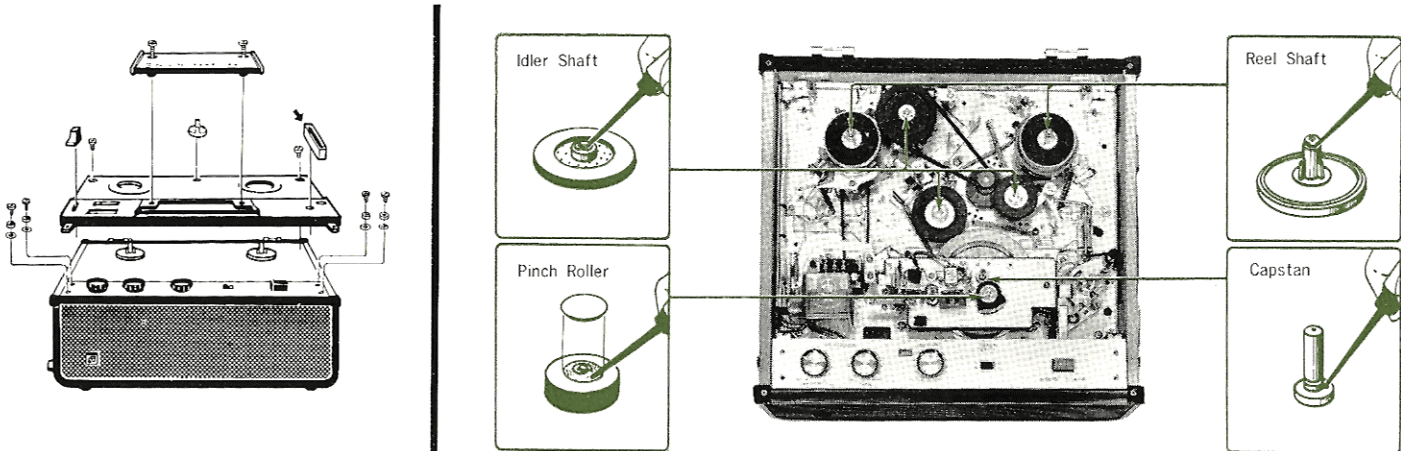
Remove the top panel in the following procedure:

1. Remove the HEAD COVER by loosening the screws.
2. Pull off the INSTANT STOP LEVER and TAPE SPEED SELECTOR knob.
3. Remove the FUNCTION SELECTOR by loosening the retaining screw.
4. Unscrew the six screws on the panel and the top panel can be removed.

## LUBRICATION

Use light machine oil and lubricate Idler, Pinch Roller, Reel Shafts and Capstan with one drop in every 6 months.

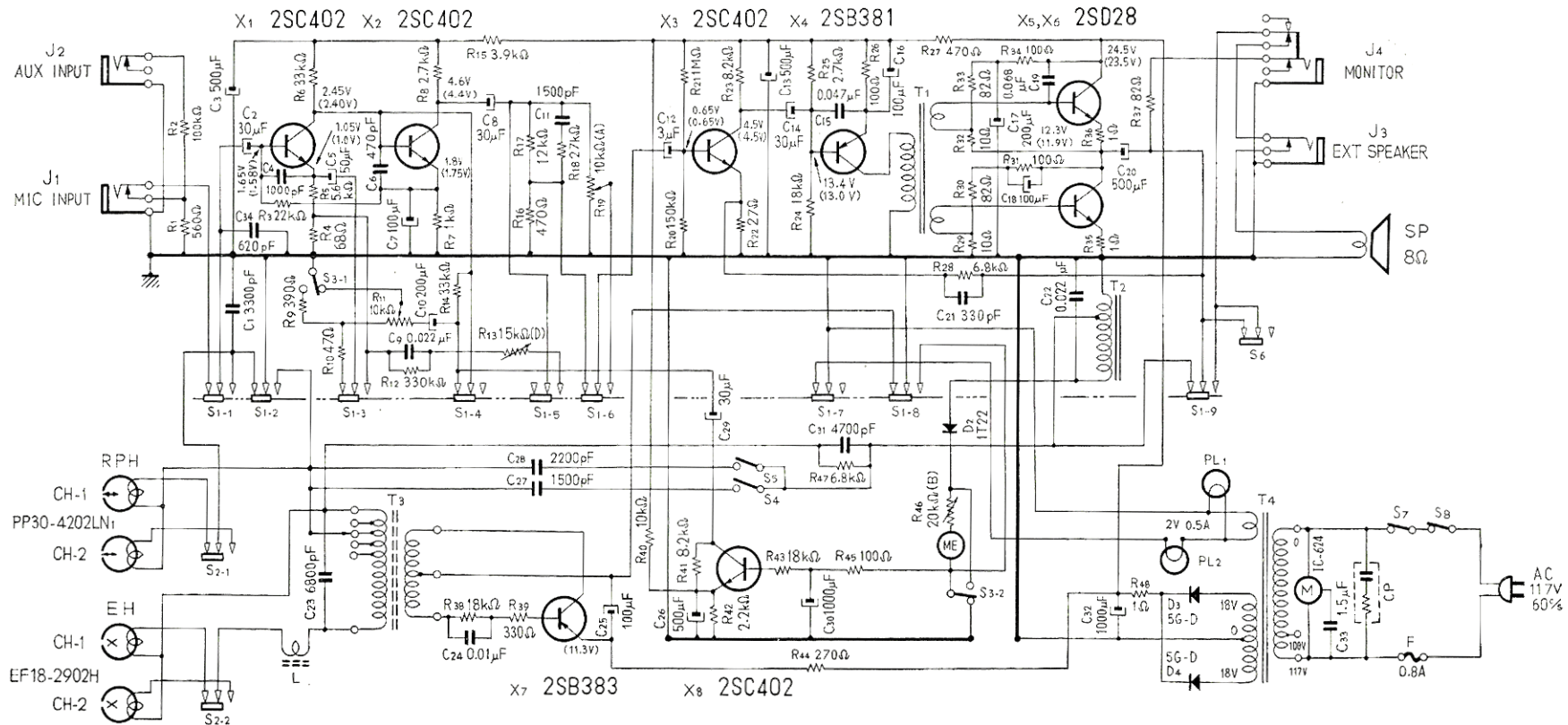
NOTE: Avoid excessive lubrication. It will cause slippage in the mechanism and contamination of your tape.  
Never try to oil any other part of the recorder.



# Technical Specifications

Power requirements:	45 watts, 117 volts, 60 Hz	Record/Playback head:	In-line quarter track (2 channel)
Tape speed:	Instantaneous selection 7½ ips., 3¾ ips. or 1½ ips.	Erase head:	In-line quarter track (2 channel)
Recording system:	4-track monophonic	Inputs:	Low impedance Microphone Input Jack (1) High impedance Auxiliary Input Jack (1)
Recording time:	45 minutes per track, 3 hours total at 7½ ips. (with 1800 ft. tape) 1.5 hours per track, 6 hours total at 3¾ ips. 3 hours per track, 12 hours total at 1½ ips.	Outputs:	High impedance Monitor Jack (1) Low impedance External Speaker Jack (1)
Tape reels:	7 inches or smaller	Speaker:	4 × 6" dynamic speaker
Frequency response:	40~18,000 Hz at 7½ ips. 40~13,000 Hz at 3¾ ips. 50~6,000 Hz at 1½ ips.	Power output:	4 watts
Flutter and wow:	less than 0.12% at 7½ ips. less than 0.15% at 3¾ ips. less than 0.20% at 1½ ips.	Transistors:	2SC402 (× 4) 2SB381 (× 1), 2SB383 (× 1) 2SD28 (× 2)
		Diodes:	1T22 (× 1), 5G-D (× 2)
		Dimensions:	14¾ (w) × 7¾ (h) × 13¾ (d)"
		Weight:	21 lb.
		Accessories:	Microphone F-96 (1), Reel (1), Earphone (1) Connecting cord RK-36 (1), Head Cleaning ribbon (1)
		Hz (Hertz):	cycles per second

# Schematic Diagram



- S<sub>1</sub> RECORD/PLAYBACK SWITCH (Shown in RECORD mode)
- S<sub>2</sub> TRACK EXCHANGE SWITCH (Shown at CH-1 1, 4 position)
- S<sub>3</sub> AUTO/MANUAL SWITCH (Shown at MANUAL position)
- S<sub>4</sub>, S<sub>5</sub> EQUALIZER SWITCH (Shown at 7½ ips. position)
- S<sub>6</sub> SPEAKER ON/OFF SWITCH (Shown at ON position)
- S<sub>7</sub> POWER ON/OFF SWITCH (Shown at ON position)
- S<sub>8</sub> AUTOMATIC SHUT-OFF SWITCH (Shown at ON position)



**SONY**<sup>®</sup>

Your SONY tape recorder is a quality product and fully guaranteed against defective materials and workmanship for a period of 90 days from date of purchase.

This guarantee is valid only if repairs are effected by an authorized SONY/SUPERSCOPE Service Station and the attached Warranty Registration Card has been returned to SUPERSCOPE within 10 days of the purchase date. If it is necessary to send this Recorder to SUPERSCOPE Inc., or the nearest authorized service station, all shipments must be prepaid. If the repairs are within the terms of this Warranty, the recorder will be returned prepaid, 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. This Warranty is in lieu of all others expressed or implied.

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

**SUPERSCOPE**<sup>®</sup>



