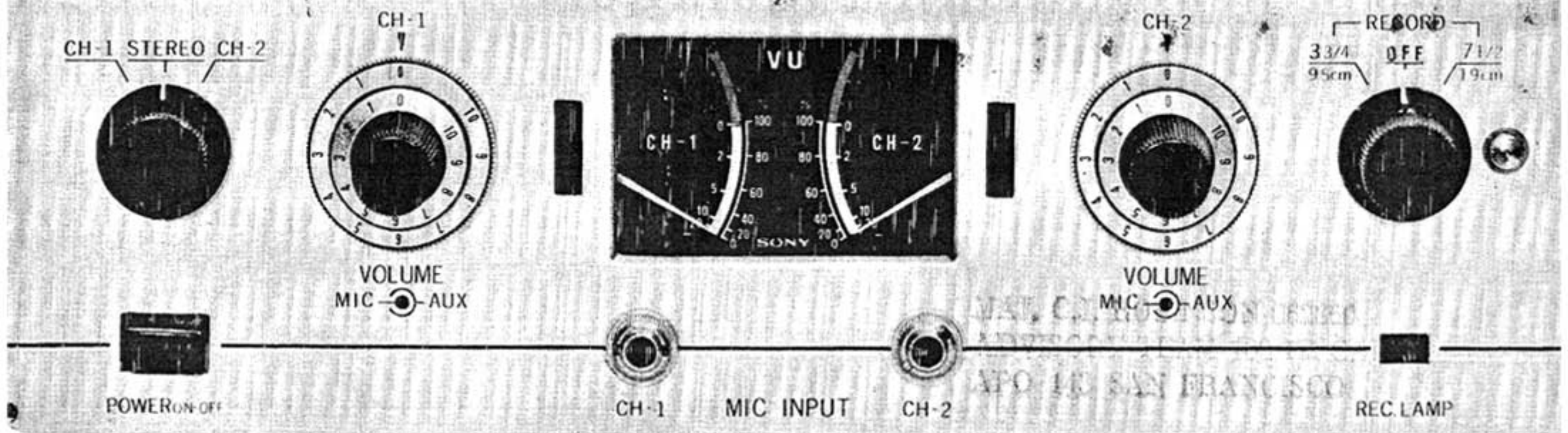


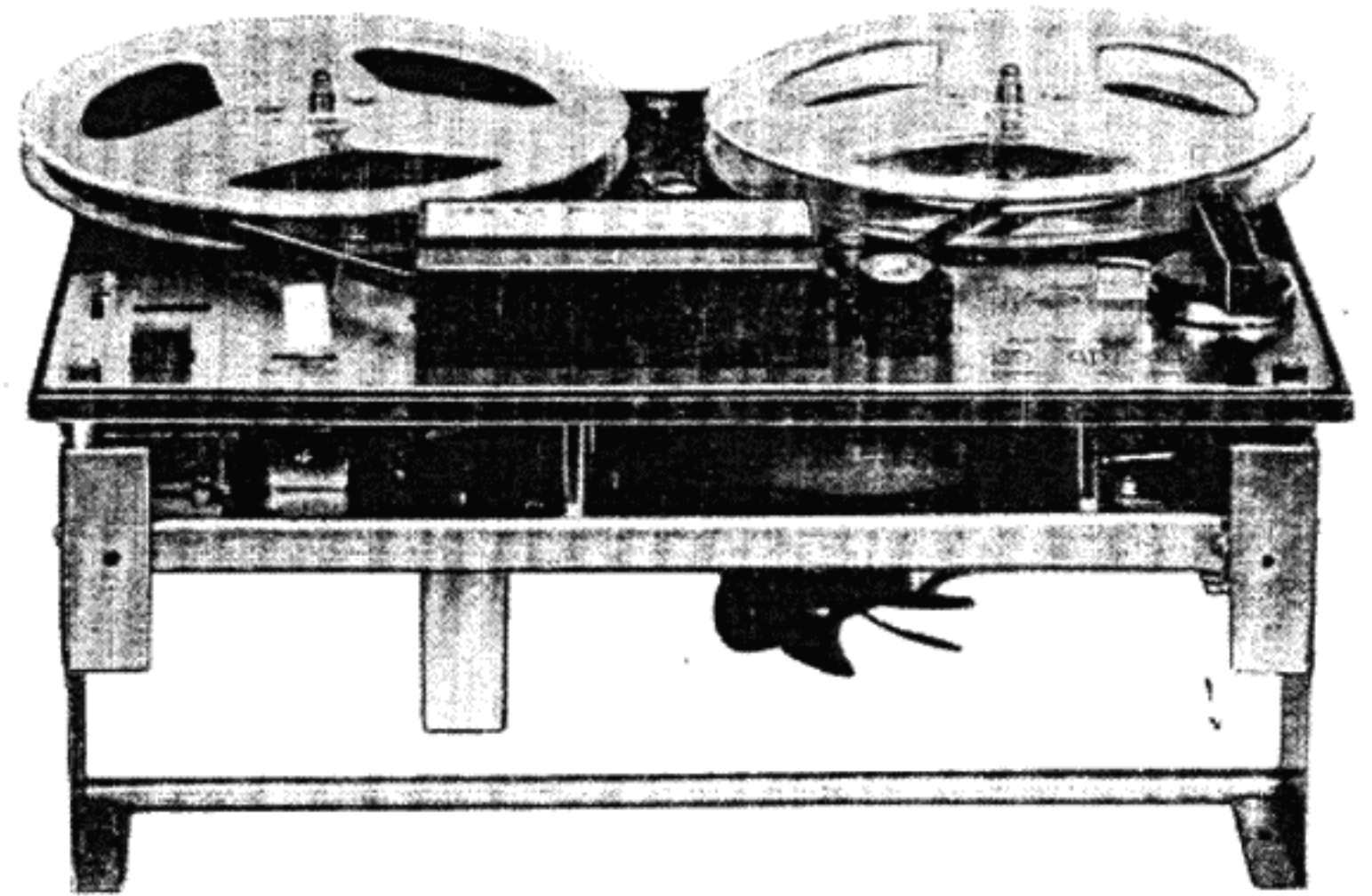
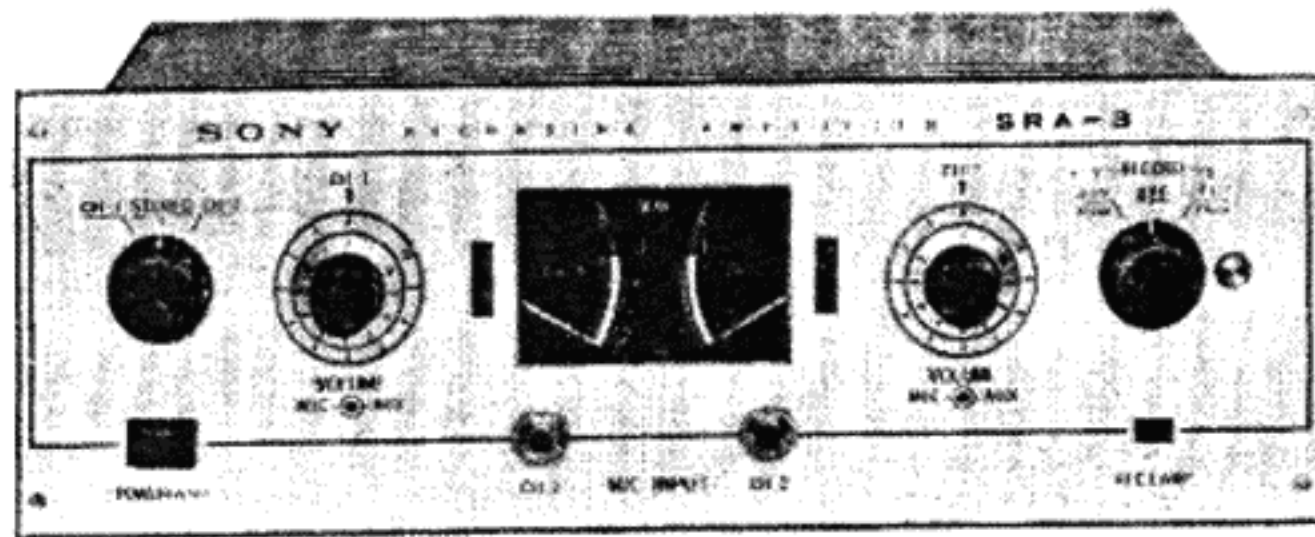
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SONY OWNERS INSTRUCTION MANUAL

STEREOPHONIC RECORDING AMPLIFIER model SRA-3





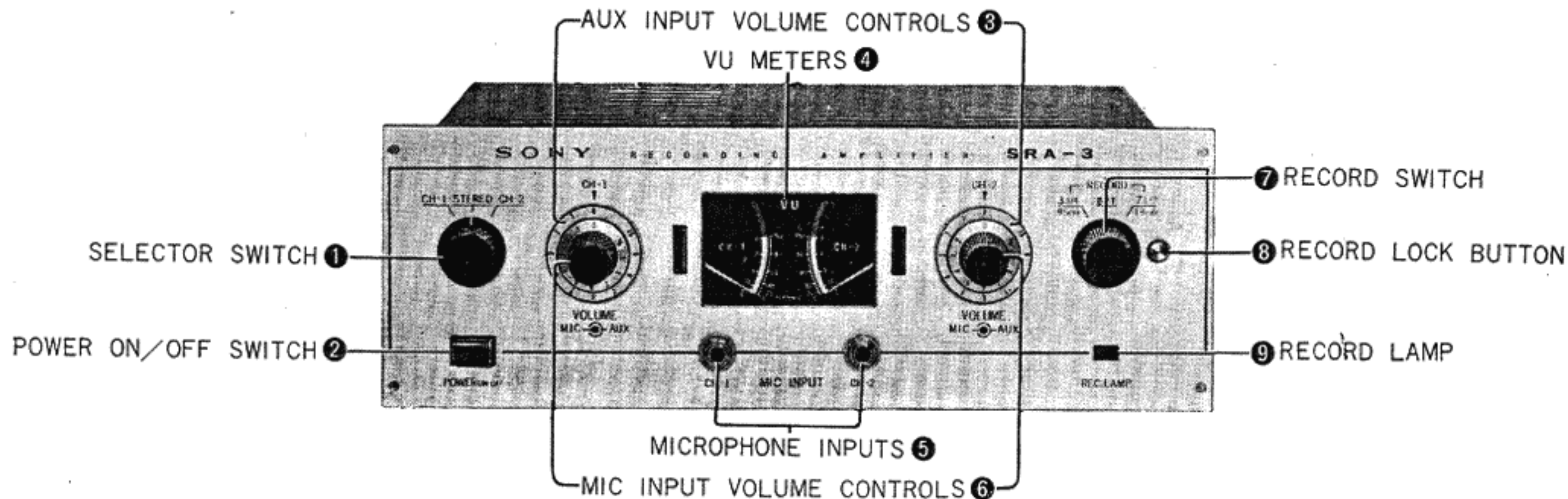
The Sony Model SRA-3 is a complete stereophonic recording amplifier designed primarily to be used with the Sony Model TC-263D Tape Transport which is furnished with a low impedance record head. Because of its versatility, the SRA-3 can also be operated with the Sony Model TC-262D Tape Transport (having a high impedance record/playback head) or with any equivalent, by making a minor adjustment.

This owner's manual will explain the controls, operation, connection and technical information of the SRA-3.

Read this information carefully before connecting and operating and save this manual for future reference.

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To Connect Power :

The Model SRA-3 is to be operated on AC 117 volts only. When it is used in conjunction with the Model TC-263D on any local AC voltage other than 117 volts, connect the power cord of the SRA-3 into the AC Receptacle of this tape transport which is adjusted to supply AC 117 volts only.

- NOTE :
1. The Power Switch of the TC-263D must be "ON" to supply power to the AC Receptacle.
 2. Check on the voltage selector of the TC-263D whether or not the tape transport is set for the operating AC voltage identical to your local power line voltage.

1. POWER ON/OFF SWITCH ②

Located on the lower left of the front panel and designated [POWER ON/OFF]. To turn the power ON or OFF, push the button.

2. INPUT VOLUME CONTROLS ③ ⑥

Two coaxially mounted double knobs are located on the left and right of the front control panel and designated [VOLUME].

The upper knobs increase or decrease recording levels from Microphone Inputs. These microphone input volume controls are also used to adjust recording levels of Magnetic Phono Cartridge Inputs, provided that each microphone is disconnected from the microphone input.

The lower knobs control recording levels from Auxiliary Inputs. Reference calibration for Mic and for AUX input volume controls are numbered 0-10 independently.

The feature of these separate volume controls for microphone and auxiliary inputs provides the facilities to mix "live" microphone recordings simultaneously with program material from stereo tape recorders and tuners, T.V, etc.

NOTE: Mix recording with microphone and magnetic phono cartridge is not possible.

3. SELECTOR SWITCH ①

Located on the extreme left of the front control panel and designated [CH-1 STEREO CH-2]. This selector facilitates the selection of stereophonic recording or monophonic recording on either channel.

4. RECORD SWITCH ⑦

This three-position switch is located on the extreme right together with a RECORD LOCK BUTTON ⑧, and designated [$3\frac{3}{4}$ (9.5cm) OFF $7\frac{1}{2}$ (19cm)] with the word [RECORD] in the center. The record lock button ⑧ located just to the right of the switch is a safety lock to prevent the accidental erasure of pre-recorded tapes.

To ensure the proper recording equalization for each speed this switch should be set to either $7\frac{1}{2}$ or $3\frac{3}{4}$ ips (19 or 9.5 centimeters per second) position in accordance with the tape speed of the tape transport. When the RECORD LOCK BUTTON and RECORD SWITCH engage, the RECORD LAMP ⑨ will illuminate indicating that the SRA-3 is in record mode.

For playback facility, the RECORD Switch should be set at the center position, designated [OFF].

5. VU METERS ④

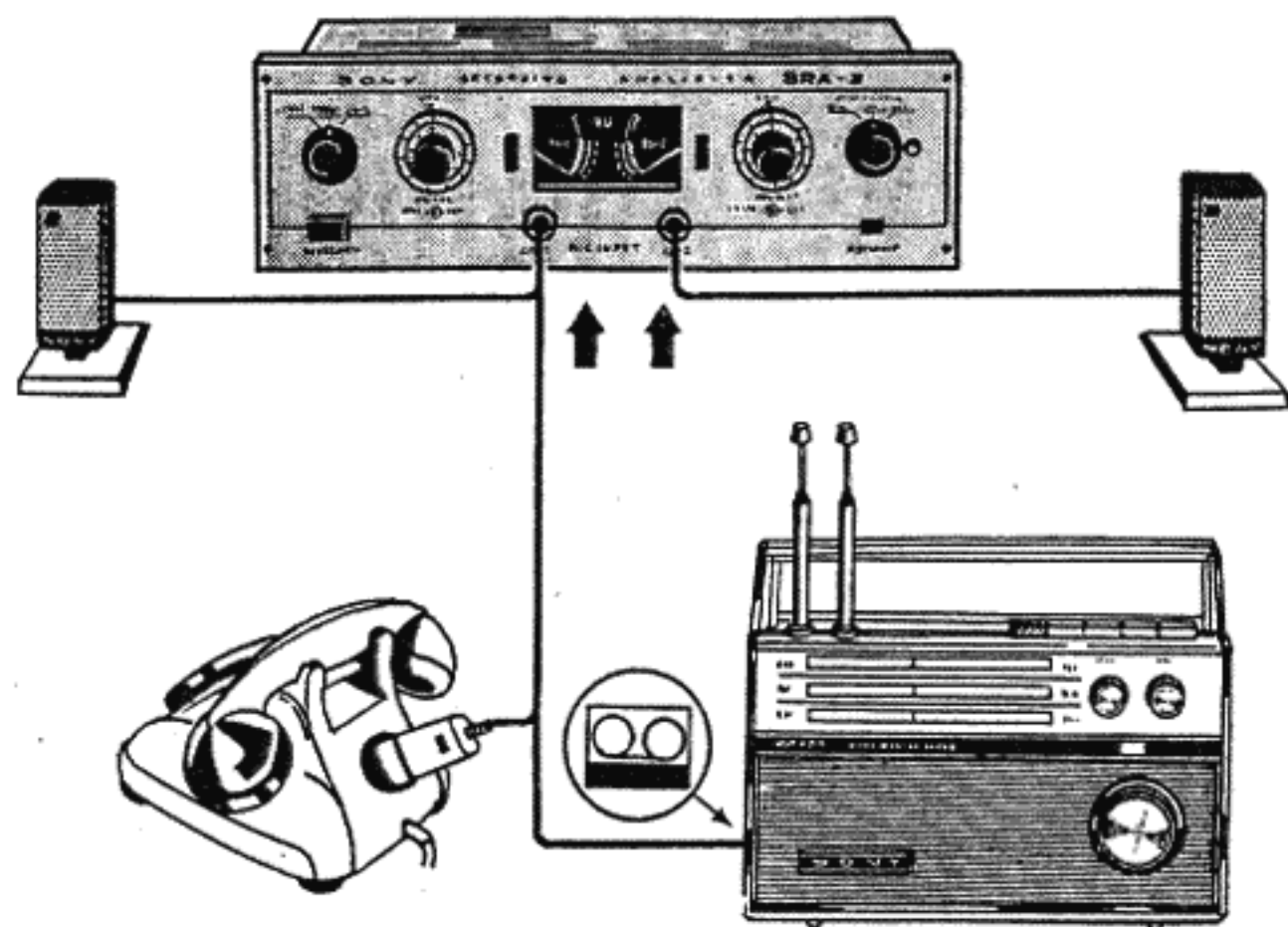
Two VU METERS are provided with the SRA-3 for extremely accurate recording level indication; the left meter for channel 1 and the other for channel 2. These meters are calibrated to NAB standards to allow maximum recording levels without distortion.

For best recording results, the volume control should be adjusted so that the deflection of the VU Meter needle does not exceed 100%. It is normal for transient peaks to deflect the needle into the red zone; however, the level should be lowered slightly if these transient peaks cause the needle to hit the stop pin beyond the red zone.

The SRA-3 internal adjustments have been factory pre-set for use with the Sony TC-263D (low impedance record head). For connection with the Sony TC-262D (high impedance record head) or equivalent, refer to "Technical Information", page 10.

1. MICROPHONE INPUTS ⑤

There are two microphone inputs located to the right and left of lower center on the front panel. They are designated respectively [CH-1] and [CH-2] with the word



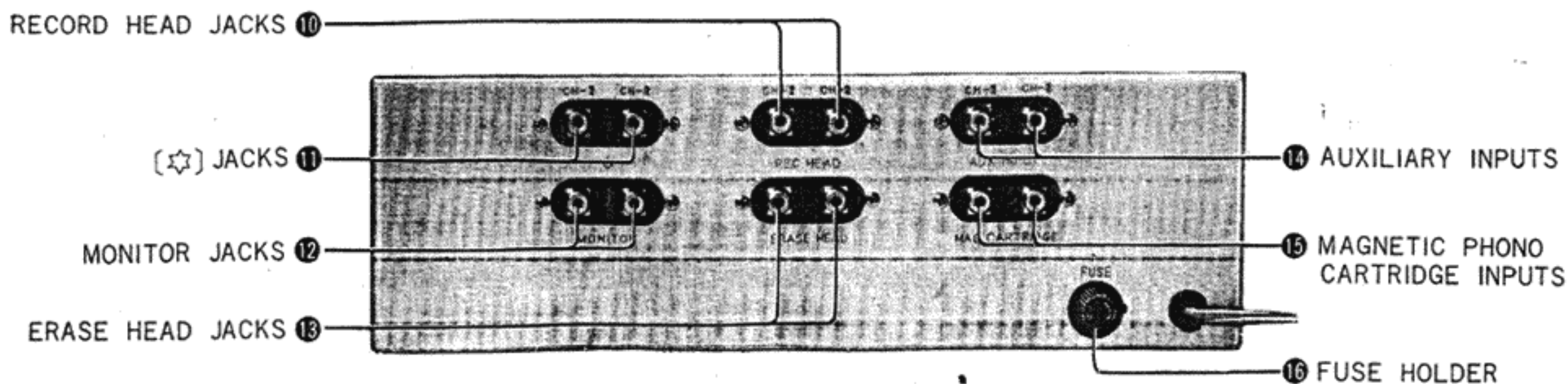
[MIC INPUT] in the center of the inputs. These input jacks are of the standard phone type and will accept a standard phone plug. The microphone input impedance is approx. 10K ohms and will accept the Sony F-81 or F-87 microphone (10K ohm impedance) or any other high quality dynamic microphone of the high impedance variety. The input can also be used for recording from any component that delivers a signal from 0.8 mv to 0.08 v, such as telephone pick-up, low level detector output, etc.

2. AUXILIARY INPUTS 14

The auxiliary inputs are located on the rear panel of the SRA-3 and are designated [AUX. INPUT]. These input jacks are high impedance (approx. 100K ohms) and are used for recording from any components that deliver a signal coverage of 0.06 v to 6 v, such as; AM/FM tuners, TV, tape recorders, pre-amplifier "recorder" outputs, crystal phono cartridges, etc.

3. MAGNETIC PHONO CARTRIDGE INPUTS 15

The jacks, designated [MAG. CARTRIDGE], are provided for the direct and exclusive connection to a record player



equipped with a magnetic phono cartridge, without the use of pre-amplifier.

The input has more than 2.5 mv sensitivity and approx. 22K ohm impedance, and is equalized to RIAA standards. When recording from the magnetic cartridge inputs, disconnect each microphone from the MIC inputs on the front panel of the SRA-3. Record levels can be adjusted with the upper volume controls.

4. RECORD HEAD JACKS ⑩

Located on the rear panel of the SRA-3 and designated [REC. HEAD]. Use the Sony RK-56 connecting cord furnished to connect the record head jacks of the SRA-3 to the record head input jacks of the TC-263D, designated [REC. HEAD].

The Sony RK-56 cord is designed with low capacitance to ensure the very best frequency characteristics. When using other connecting cord, it must be low capacitance and kept as short as possible (preferable within 3 feet); otherwise loss in high frequency response may occur.

5. ERASE HEAD JACKS ⑬

Located on the rear panel of the SRA-3 and designated [ERASE HEAD]. Connect these jacks into erase head input

jacks of the TC-263D designated [ERASE HEAD], using the Sony RK-56 cord.

6. PLAYBACK AMPLIFIER JACKS ⑪

These jacks are indicated with a star mark [☆] and are not used for separate record and playback heads such as on the Sony TC-263D. These jacks are provided for playback with a combination record and playback head such as on the Sony TC-262D. For detail regarding connection, refer to "Technical Information", page 10.

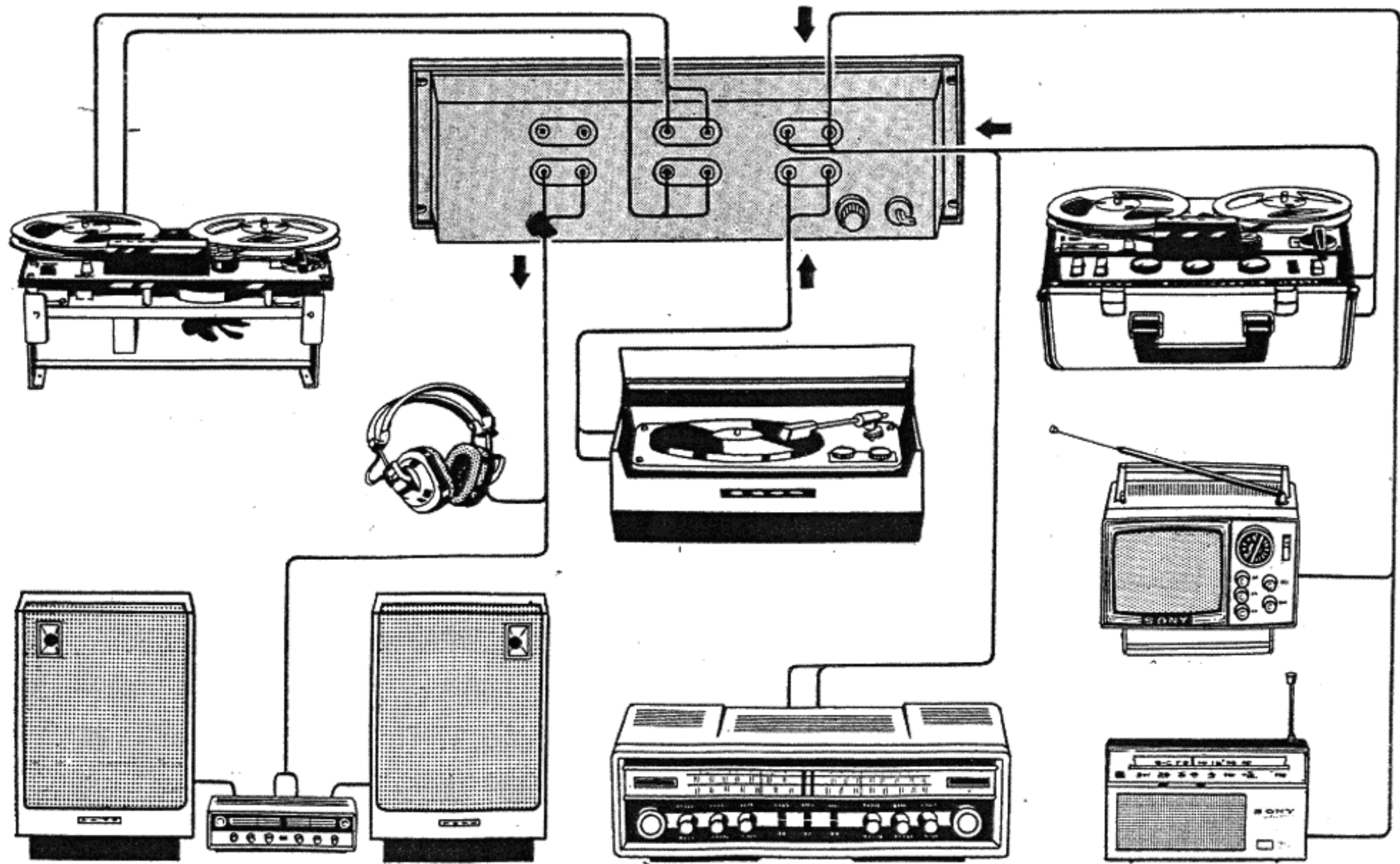
NOTE: Keep the connecting cords as far from AC line and power transformers as possible.

Keep all ground connections firm and secure.

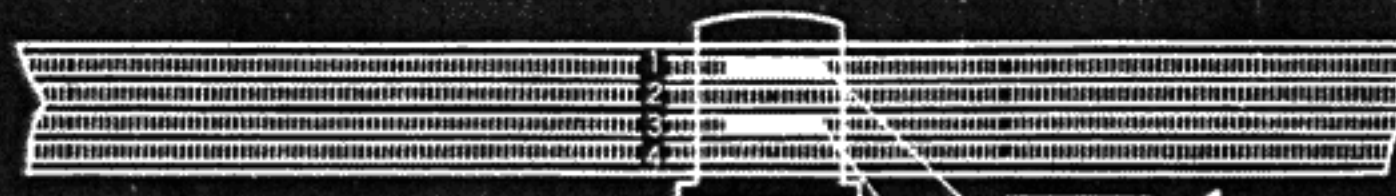
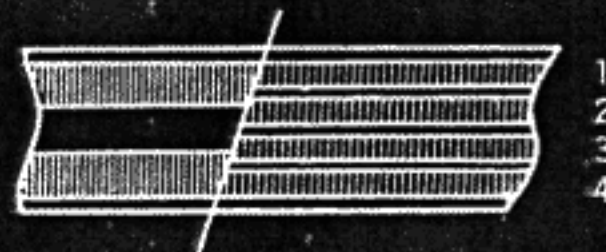
7. MONITOR JACKS ⑫

Designated [MONITOR], these jacks are used for source monitoring. The jacks are of the phono-jack variety and accept phono plugs. The outputs are high impedance (approx. 5K ohms) and deliver approx. 1.2 v output levels per channel when the VU indicator needle points at 0 (100%).

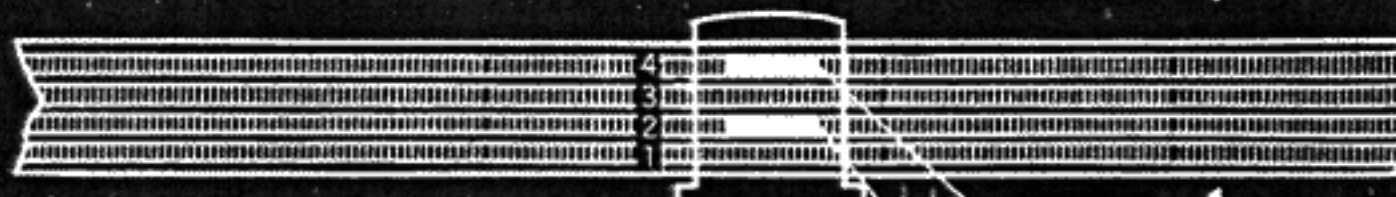
NOTE: Use external amplifiers or earphones having 10K ohm or more impedance.



The two-track system becomes four-track:



Only the required two stereo tracks are heard (1 and 3)—the other two tracks are silent.



The tape is turned over — and the other two stereo tracks (4 and 2) are played. Tracks 1 and 3 are now silent.



HOW FOUR- TRACK WORKS



Chart courtesy of

MAGNETIC RECORDING INDUSTRY ASSOCIATION

WHAT IS 4-TRACK STEREO

4-Track Stereo is the method in which twice as much recorded material can be obtained on $\frac{1}{4}$ " magnetic tape by recording 2 separate pairs of stereo tracks on the tape.

In order to accomplish this, the size and spacing of the magnetic head poles had to be changed to conform with the placement of 4-tracks within the area of $\frac{1}{4}$ " tape.

The above diagram shows the comparison of track placement between: 2-track stereo and 4-track stereo.

4-Track Stereo Recording

1. Connect stereo source to proper inputs on CH-1 and CH-2.
2. Thread tape on a tape transport.
3. Turn SELECTOR Switch ① to STEREO position.
4. Keeping RECORD LOCK BUTTON ⑧ depressed, turn RECORD Switch ⑦ to either $7\frac{1}{2}$ or $3\frac{3}{4}$ ips (19 or 9.5 centimeters per second) position in accordance with the tape speed set in the tape transport.
5. Adjust proper INPUT VOLUME CONTROLS ③⑥ for desired recording level. (See VU METERS, page 4.)
6. Place the tape mechanism in normal forward motion.
7. When the end of the tape is reached, tracks 1 and 3 will have been recorded (see 4-track diagram, page 8).
8. To record tracks 4 and 2, do not rewind. Reverse reels. (The loaded take-up reel is inverted and placed on the feed spindle, and the empty reel is placed on the take-up spindle.)
9. Keep SELECTOR Switch in STEREO and repeat operations 4, 5 and 6.

NOTE: After any recording session, return the RECORD Switch on the SRA-3 to [OFF] position. This practice will prevent any accidental erasure of pre-recorded tapes.

4-Track Monophonic Recording

1. Turn SELECTOR Switch ① counterclockwise to CH-1 position.
2. Connect monophonic source (microphone, tuner, TV, etc.) to CH-1 input for source used. (either MIC or AUX.)
3. Thread tape on a tape transport.
4. Keeping RECORD LOCK BUTTON ⑧ depressed, turn RECORD Switch ⑦ to either $7\frac{1}{2}$ or $3\frac{3}{4}$ ips (19 or 9.5 centimeters per second) position in accordance with the tape speed set in the tape transport, and adjust recording level on CH-1. (Turn all input volume controls on CH-2 to zero.)
5. Place the tape mechanism in normal forward motion.
6. When the end of the tape is reached, you will have recorded Track 1. Do not rewind. Remove both reels and reverse them. The loaded take-up reel will be inverted and placed on the feed spindle, and the empty reel will be placed on the take-up spindle.
7. Repeat operations 4 and 5.
8. When the end of the tape is again reached, do not rewind. You will have recorded Track 4.
9. After tracks 1 and 4 have been recorded, as in the above procedure, reverse reels again and use the following procedure for recording tracks 3 and 2.

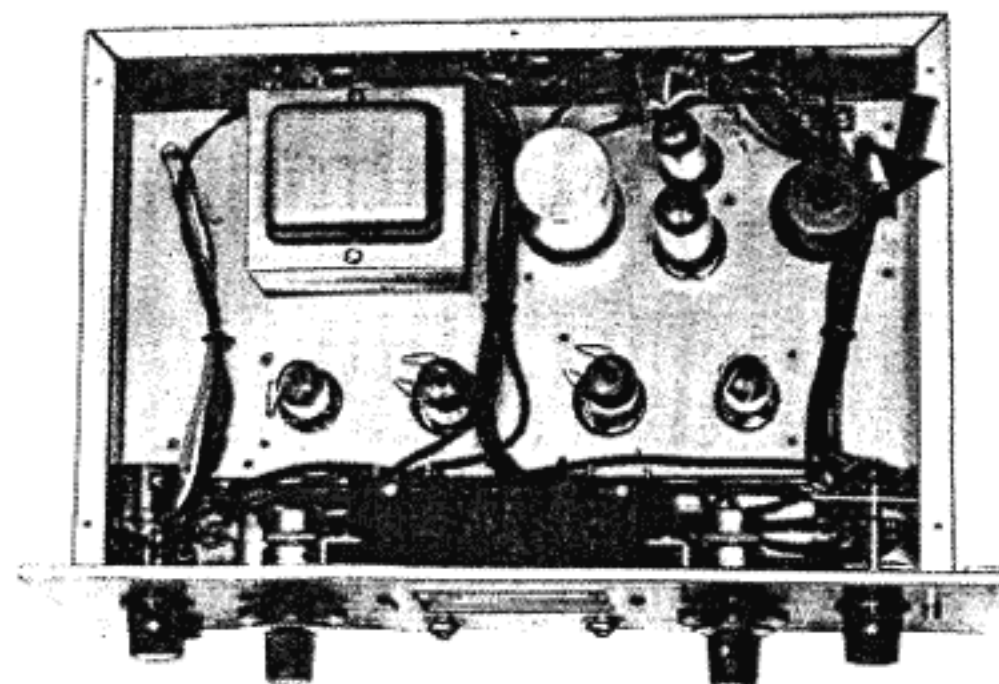
10. Change the SELECTOR Switch clockwise to CH-2 position.
11. Change source connection from CH-1 to CH-2.
12. Adjust recording level on CH-2 and proceed with recording. (Turn all input volume controls on CH-1 to zero.)
13. When the end of the tape is reached, Track 3 has been recorded. Do not rewind. Reverse reels and repeat operation 12. When the end of the tape is now reached, you will have recorded Track 2 and completed four tracks of monophonic recording.

NOTE: Playback sequence of each track should conform to the sequence of recording, i. e.

| | |
|---------|------|
| TRACK 1 | CH-1 |
| TRACK 4 | CH-1 |
| TRACK 3 | CH-2 |
| TRACK 2 | CH-2 |

As previously noted, the SRA-3 internal adjustments have been factory pre-set for connection with the Sony TC-263D. In the event that the SRA-3 is to be connected to a high impedance record head such as Sony TC-262D, the following procedure is necessary.

- a. Remove the top chassis cover of the SRA-3.
- b. Set the slide switch located at the extreme right of the chassis to [Hi-Z] position. (See photo.)



To Connect to the TC-262D terminals:

1. For recording

After the above modification is complete, connect the [REC. HEAD] jacks and the [REC. HEAD] jacks of the

TC-262D, using the Sony RK-56 cord. Also connect the [ERASE HEAD] jacks to the corresponding terminals of the TC-262D.

NOTE: Refer to "Complete Recording Procedure", page 9, for recording procedure.

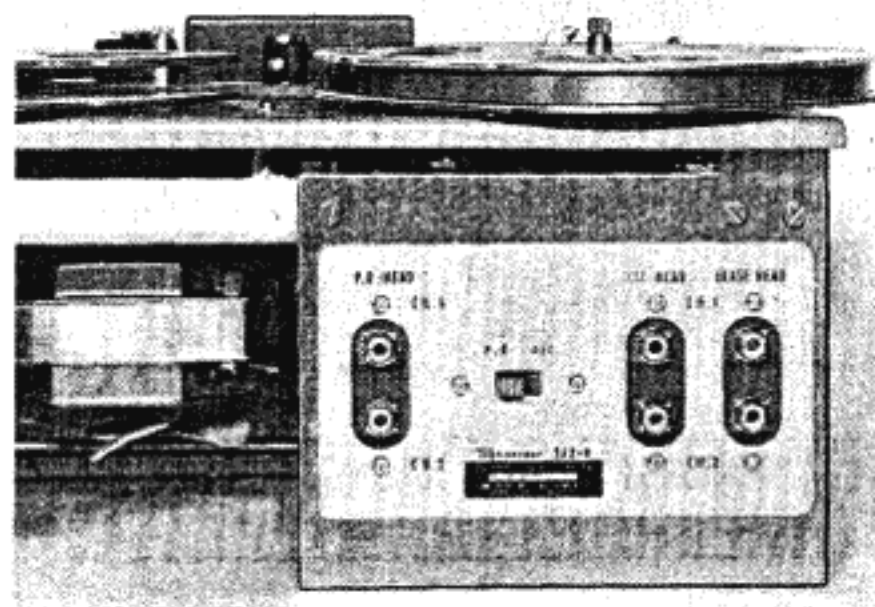
2. For playback

Though the TC-262D provides playback terminals for instant connection with pre-amp/amplifier, this requires switching between playback and recording modes on the TC-262D. To avoid this, the SRA-3 features PLAYBACK AMPLIFIER jacks, indicated with a star mark [☆].

Using the Sony RK-56 cord, connect these jacks to the TAPE HEAD INPUTS of a pre-amp/amplifier. For best results the TAPE HEAD INPUTS should have an impedance between 100K to 250K ohms.

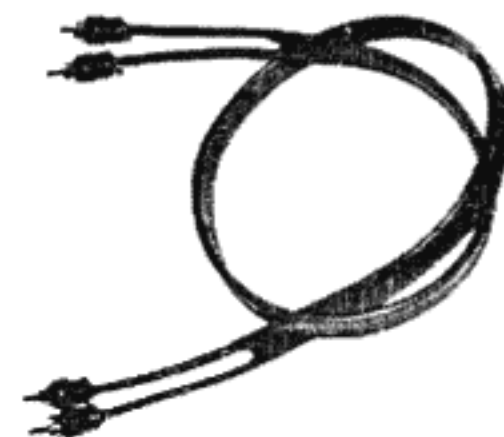
NOTE: When the PLAYBACK AMPLIFIER jacks are connected, the RECORD/PLAYBACK Switch on the TC-262D, designated [P.B REC], must be kept in [REC] position. This cancels the PLAYBACK HEAD terminals of the TC-262D and they must not be used.

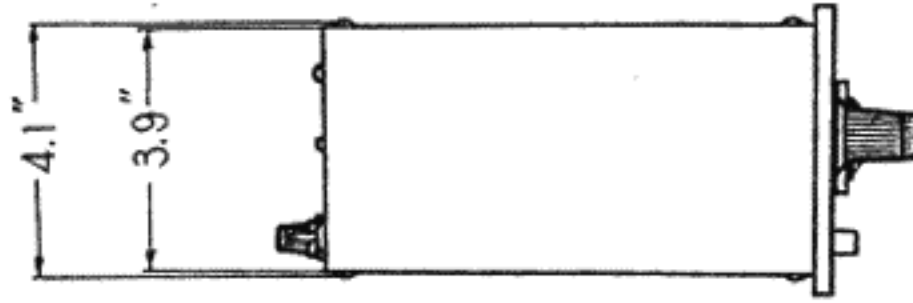
Playback mode is then accomplished by placing the RECORD Switch ⑦ on the front panel of the SRA-3 in the center position, designated [OFF].



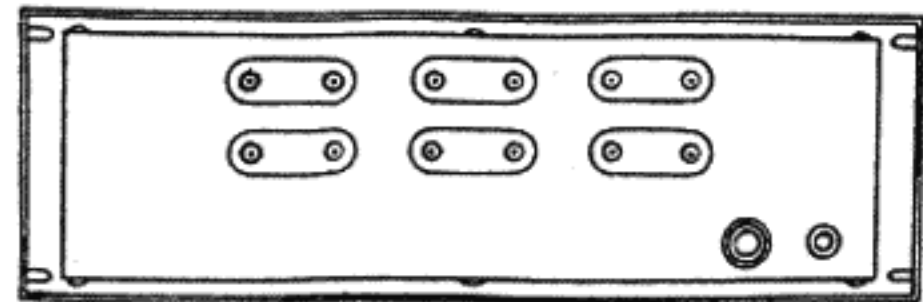
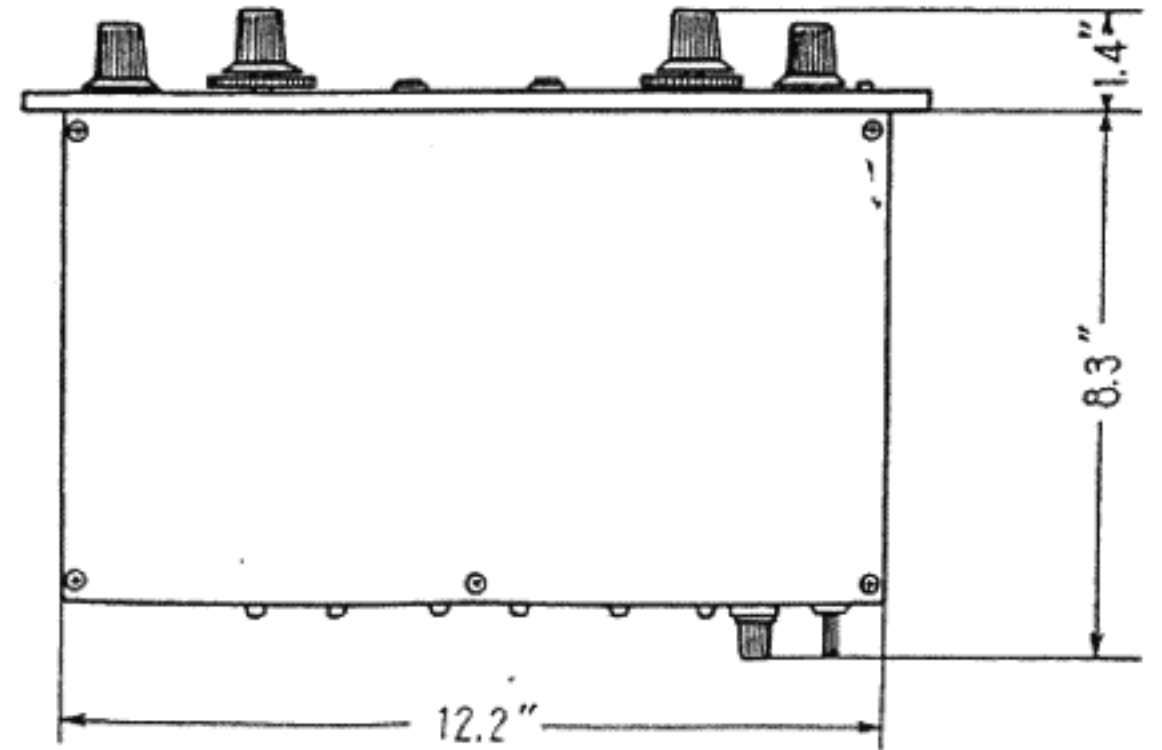
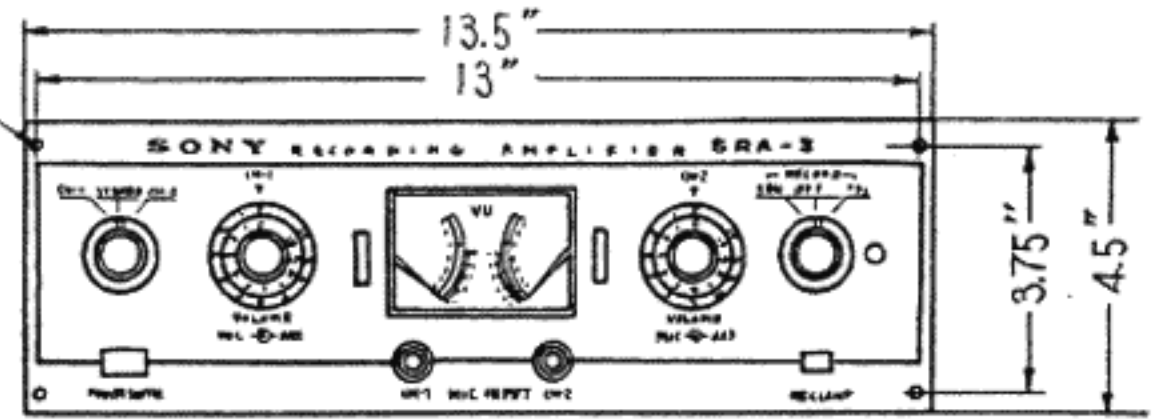
The rear panel of the TC-262D

Sony Connecting Cord (RK-56)





4-4 ϕ mm HOLE



- NOTE: 1. In mounting the SRA-3 the top and bottom chassis covers should not be in close contact with any material to permit proper ventilation.
2. Keep the SRA-3 away from high temperature, high humidity and direct sun.

Power Requirement: 40 watts, 117 volts AC,
50/60 cps

Recommended

Heads: Sony 4-track in-line, stereo
Record RP30-2902 (TC-263D)
Impedance 45 ohms @ 1 Kc
Record current 146 μ A @ 1 Kc
Bias current 4.5 mA @ 100 Kc,
or PP15-2902 (TC-262D)
Impedance 4.5K ohms @ 1 Kc
Record current 25 μ A @ 1 Kc
Bias current 0.5 mA @ 100 Kc

Erase EF18-2902 (TC-263D)
Impedance 7.5 ohms @ 100 Kc
Erase current 1A
or EF13-2902 (TC-262D)
Impedance 12 ohms @ 100 Kc
Erase current 1A

Bias Frequency: Approx. 100 Kc

Level Indication: 2 VU meters
(calibrated to NAB standards)

Level Controls: Separate controls for MIC/AUX inputs
on each channel for record

Mode Selection: CH-1/STEREO/CH-2 for monophonic
or stereophonic recording

Record Switch: With selection of 7 1/2 or 3 3/4 ips (19
or 9.5 centimeters per second) tape
speed for equalization

Inputs: High impedance microphone inputs
(per channel) (approx. 10K ohms)
High impedance auxiliary inputs
(approx. 100K ohms)
High impedance magnetic cartridge
inputs (approx. 22K ohms)

Outputs: High impedance monitor outputs
(per channel) (approx. 5K ohms)
Recording signal and bias to Recording
Head
Erase current to Erase Head
Playback amplifier jacks for a combina-
tion record and playback head

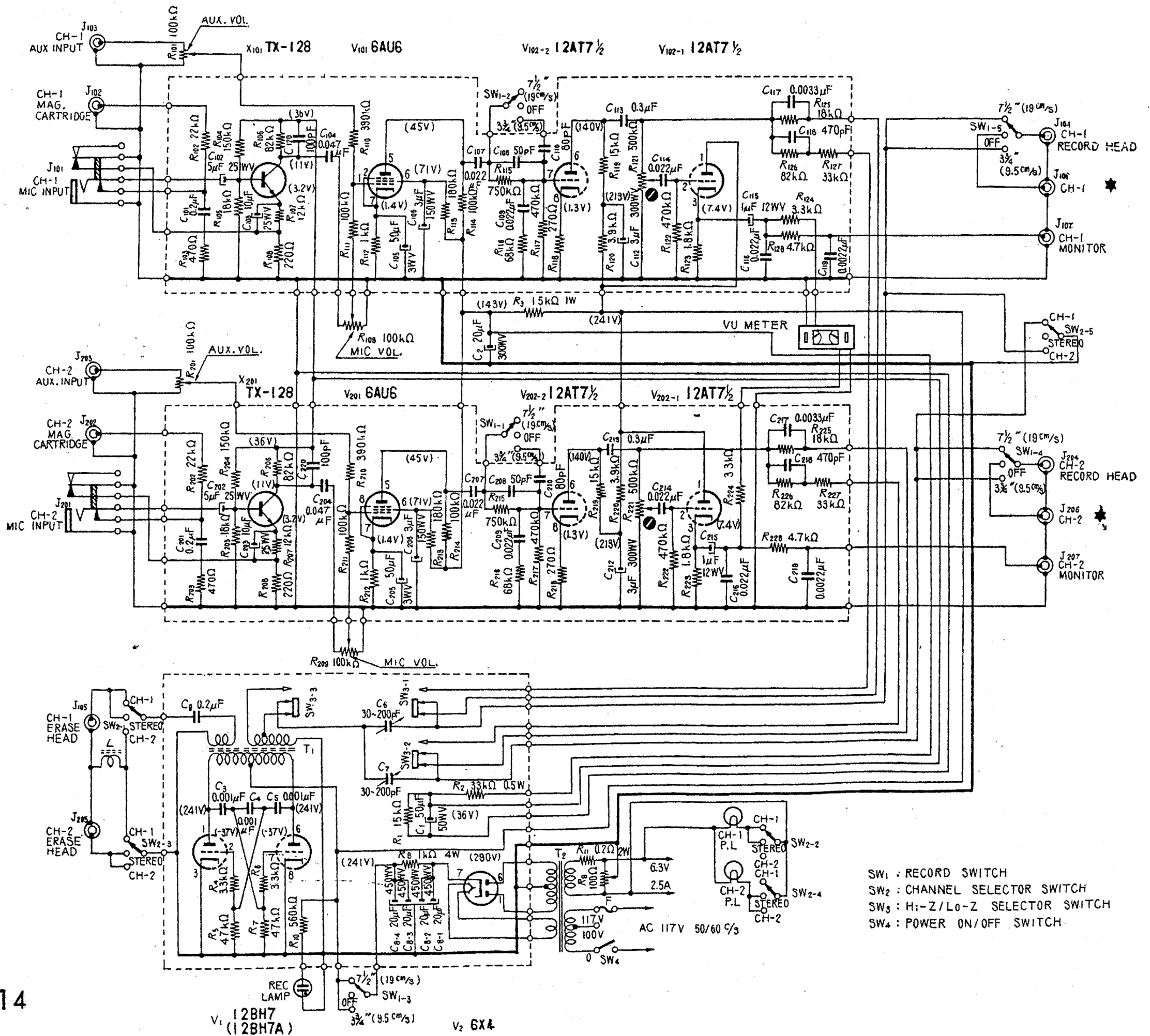
Tube Complement: 6AU6(x2), 12AT7(x2), 12BH7A(x1),
6X4 (x1)

Transistor: TX-128 (x2)

Weight: Approx. 13 lbs (5.8kg)

Dimensions: 13.5"W x 9.7"D x 4.5"H
(344 x 246 x 115 mm) (maximum)

Accessory: 3 Sony connecting cords, RK-56
Metal washers, nylon washers and
wood screws (4 each)



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