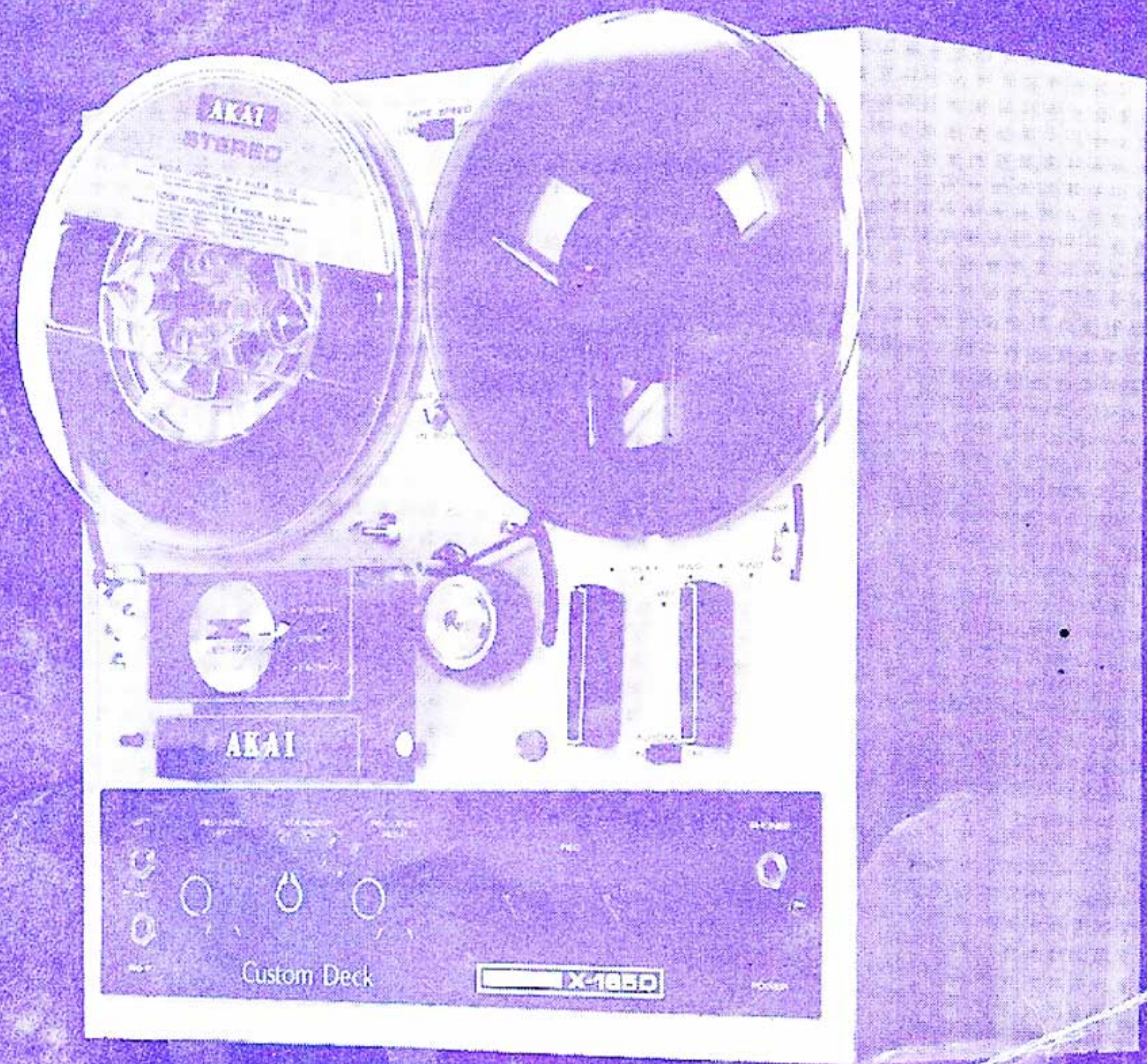


X-165D

CROSS-FIELD
Custom Deck
OPERATOR'S MANUAL



AKAI®

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I . GENERAL INFORMATION

1. SPECIFICATIONS

Tape Speed :	1-7/8, 3-3/4 and 7-1/2 ips (15 ips optional)
Tape Speed Deviation :	Less than $\pm 1.5\%$ at all tape speeds
Wow and Flutter :	Less than 0.12% RMS at 7-1/2 ips Less than 0.15% RMS at 3-3/4 ips Less than 0.20% RMS at 1-7/8 ips
Frequency Response :	30 to 20,000 Hz ± 3 db at 7-1/2 ips 30 to 18,000 Hz ± 3 db at 3-3/4 ips 30 to 9,000 Hz ± 3 db at 1-7/8 ips
S/N Ratio :	Better than 50 dB at 7-1/2 ips Better than 48 dB at 3-3/4 ips Better than 48 dB at 1-7/8 ips
Distortion :	(1000 Hz "0" VU Recording) Within 3% at all speeds
Cross Talk :	Less than -65 dB (monaural) Less than -43 dB (stereo)
Insulation Resistance :	More than 50 M ohms
Insulation Durability :	1000 V for more than one minute
Erase Ratio :	Less than -70 dB
Equalization :	Correct equalization for playback of tapes recorded to the NAB curve.
Recording Bias Frequency :	60 kHz
Recording Level Indicator :	2 VU Meters
Recording Playback Head :	(Type) In-Line 4-track stereo/ monaural (Impedance) 1000 ohms at 1000 Hz

Bias Head :	(Type) In-Line 4-track stereo (Impedance) 500 Ω at 60 kHz	Condenser Capacity : 2.8 μ F at 50 Hz
Erase Head :	(Type) In-Line 4-track stereo (Impedance) 300 Ω at 60 kHz	2.0 μ F at 60 Hz
Recording System :	4-track stereo/monaural CROSS-FIELD Bias System	Transistors : 12 silicon transistors
Fast Forward and Rewind Time :	90 seconds using a 1200 ft. tape at 50 Hz 75 seconds using a 1200 ft. tape at 60 Hz	Diodes : 4
Line Output Level :	1.23 V ("0" VU) for tape recorded at "0" VU	Reel Capacity : Up to 7-1/2" reel capacity
Line Output Impedance :	1.5 K Ohms	Power Supply : AC 100 to 240 V; 50/60 Hz
Din Output Level :	0.4 V	Power Consumption : 55 W
Stereo Headphone Output Level :	30 to 40 mV (Impedance 8 ohms)	Dimensions : 13-1/2" (H) \times 13-1/2" (W) \times 9" (D) (340 (H) \times 340 (W) \times 230 (D) mm)
Line Input Level :	50 mV to 2.5 V	Weight : 30.8 lbs (14.0 kg)
Line Input Impedance :	400 K Ω	
Din Input Level :	High 20 mv Low 0.5 mV	
Din Input Impedance :	High 400 K Ω Low 70 K Ω	
Mic Input Level :	0.5 mV to 50 mV	
Mic Input Impedance :	150 K Ω	
Monitor System :	(a) Stereo Headphone (8 Ω) (b) Crystal Receiver (Line output jack)	
Recording Capacity :	4 hrs. stereo recording using a 1200 ft. tape at 1-7/8 ips	
Motor :	Hysteresis synchronous 2-speed motor Revolutions : 3,000 ; 1,500 RPM at 50 Hz 3,600 ; 1,800 RPM at 60 Hz	

2. CONTROLS

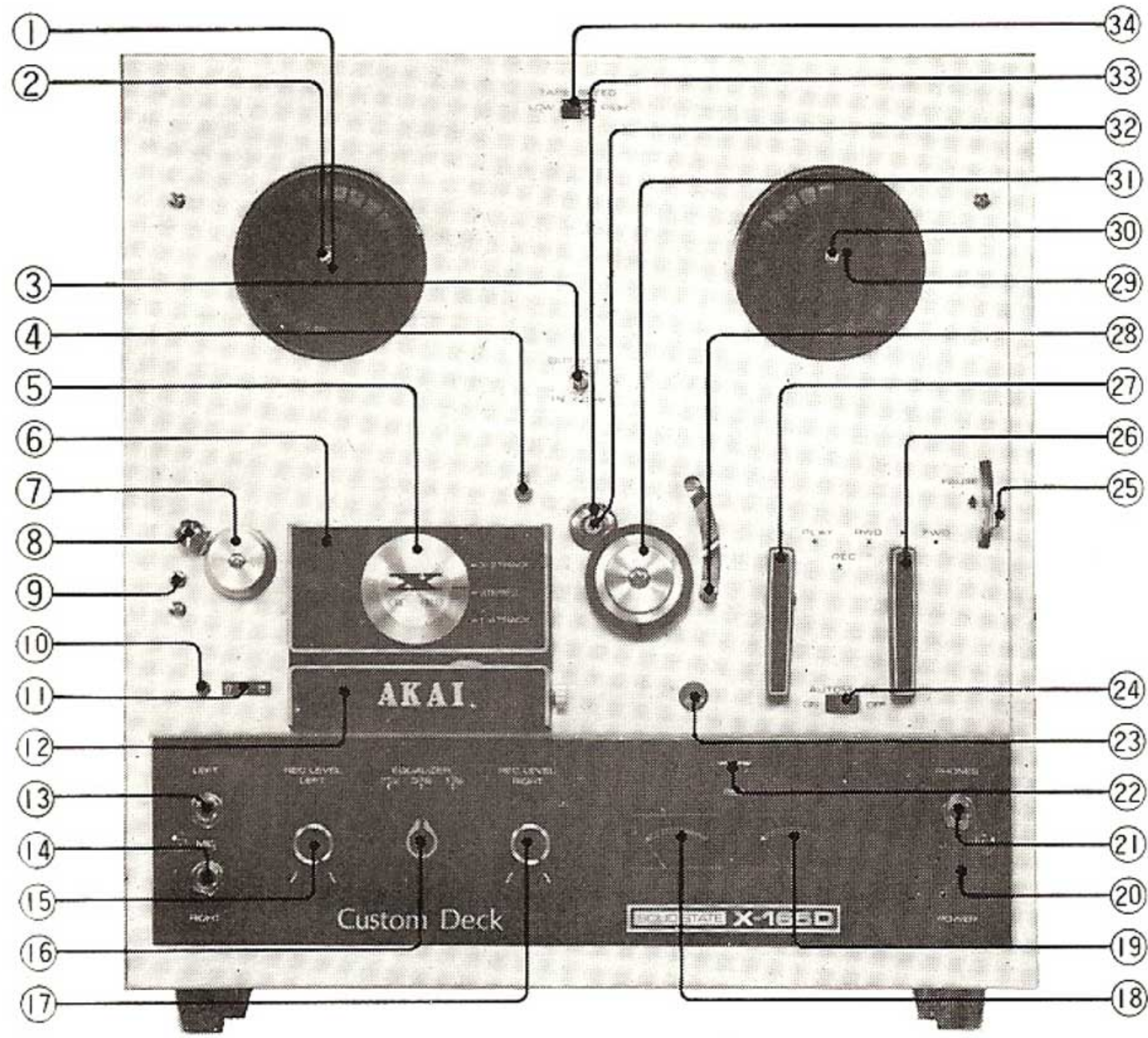


Fig. 1

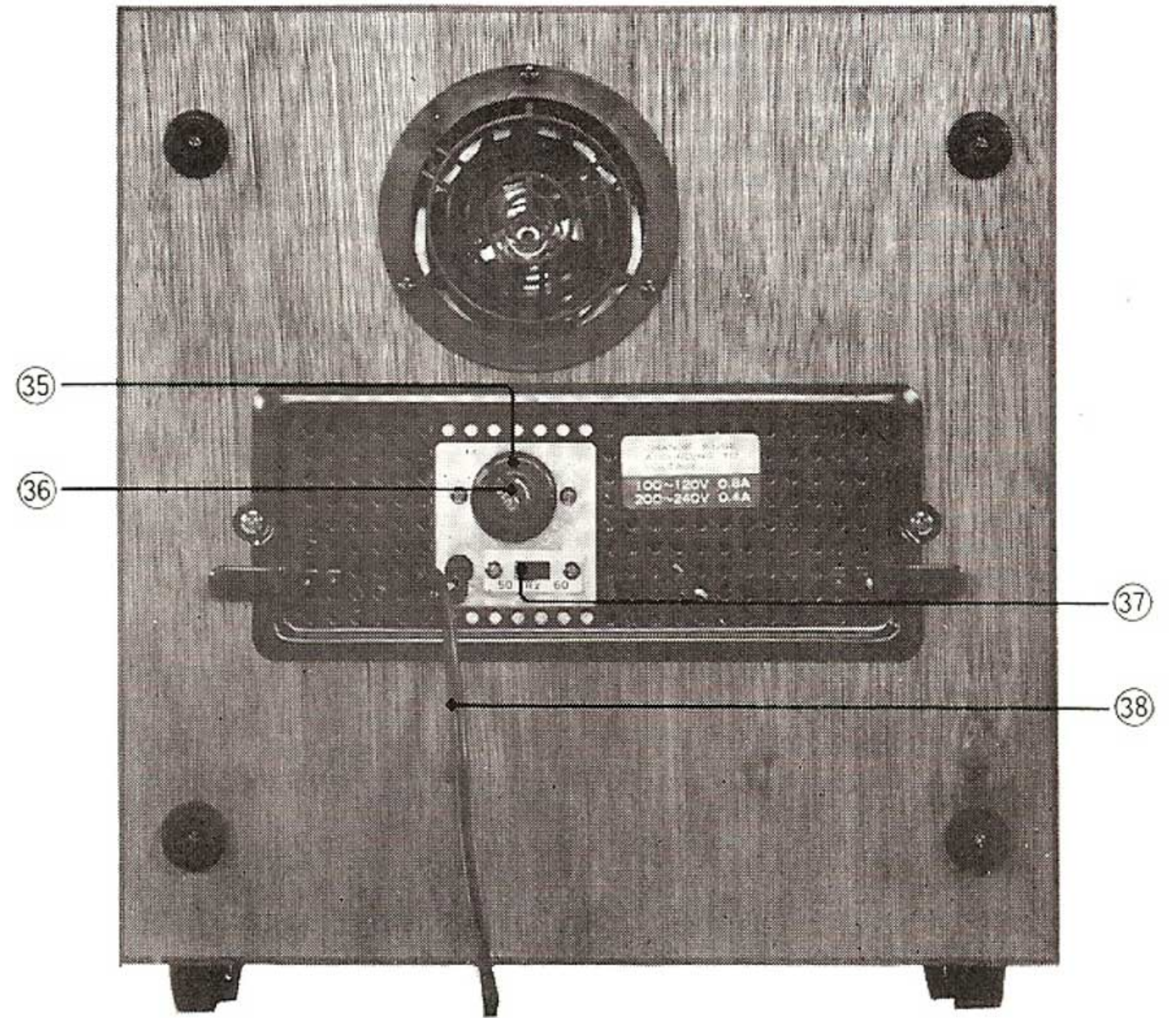


Fig. 2

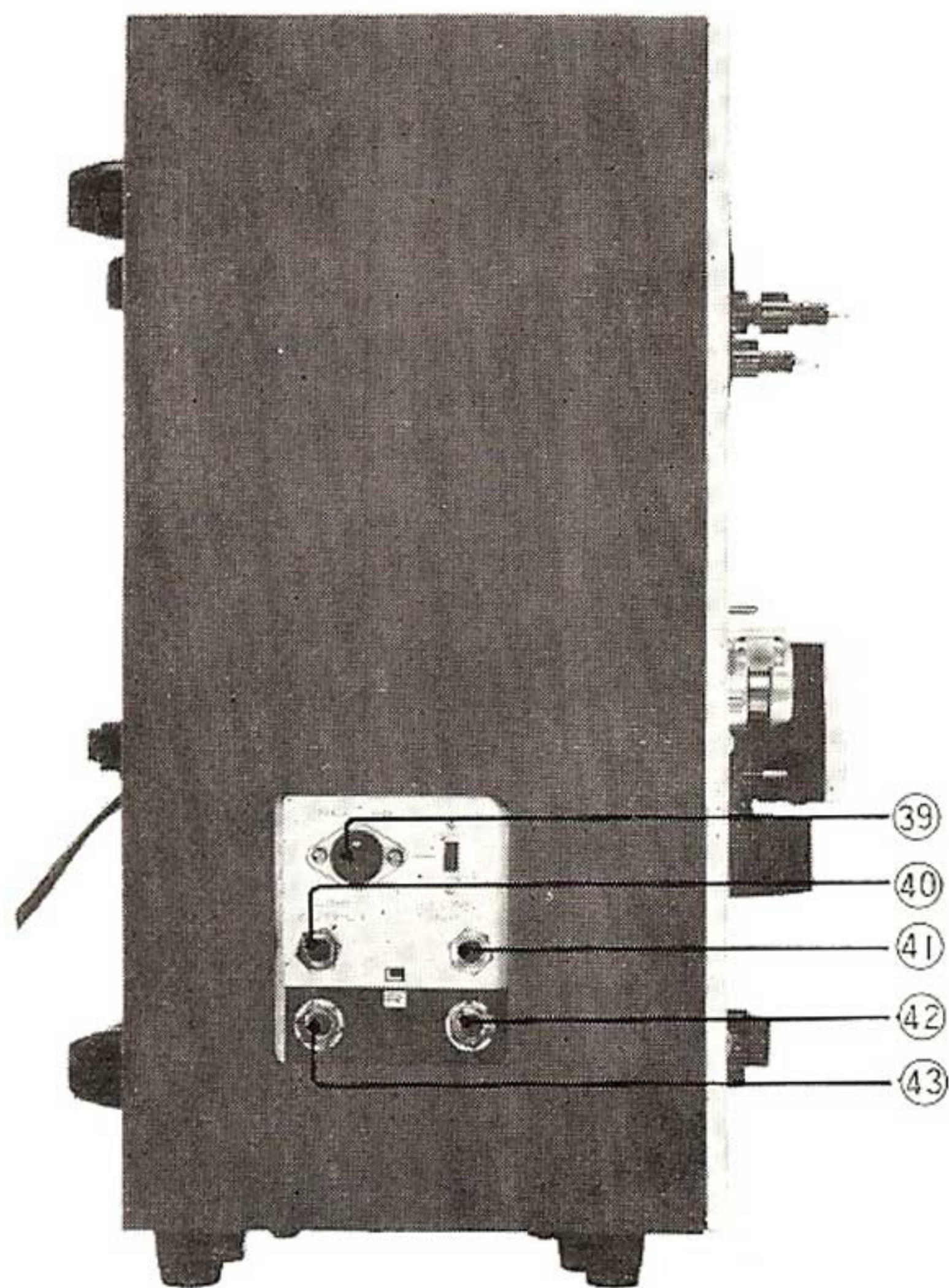


Fig. 3

- | | |
|--|--|
| ① Reel Retainer (Left) | ②② Recording Lamp |
| ② Supply Reel Shaft | ②③ Recording Safety Button |
| ③ Cycle Conversion Switch (A) | ②④ Automatic Shut-Off Switch |
| ④ Capstan Storage Post | ②⑤ Pause Lever |
| ⑤ Track Selector Knob | ②⑥ Fast-Forward/Rewind Knob |
| ⑥ Head Cover (A) | ②⑦ Record/Playback Knob |
| ⑦ Tape Guide | ②⑧ Automatic Shut-Off Lever |
| ⑧ Tape Cleaner | ②⑨ Reel Retainer (Right) |
| ⑨ Tape Cleaner Release Button | ③⑩ Take-Up Reel Shaft |
| ⑩ Reset Button | ③⑪ Pinch Wheel |
| ⑪ Index Counter | ③⑫ Capstan Shaft |
| ⑫ Head Cover (B) | ③⑬ Capstan |
| ⑬ Microphone Jack (Left) | ③⑭ Speed Change Switch |
| ⑭ Microphone Jack (Right) | ③⑮ Voltage Selector |
| ⑮ Recording Level Control Knob (Left) | ③⑯ Fuse Post |
| ⑯ Equalizer Switch | ③⑰ Cycle Conversion Switch (B) |
| ⑰ Recording Level Control Knob (Right) | ③⑱ AC Cord |
| ⑱ VU Meter (Left) | ③⑲ DIN Jack and High/Low Input Selector Switch |
| ⑲ VU Meter (Right) | ④⑰ Line Output Jack (Left) |
| ⑳ Power Switch | ④⑱ Line Input Jack (Left) |
| ㉑ Stereo Headphone Jack | ④⑲ Line Input Jack (Right) |
| | ④⑲ Line Output Jack (Right) |

Diagram 1. Ordinary recording system

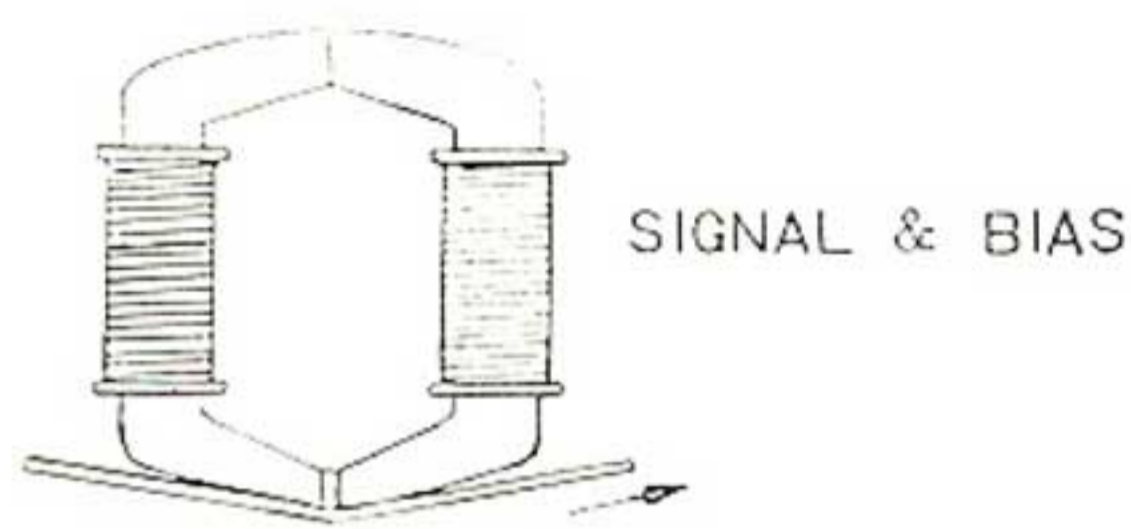
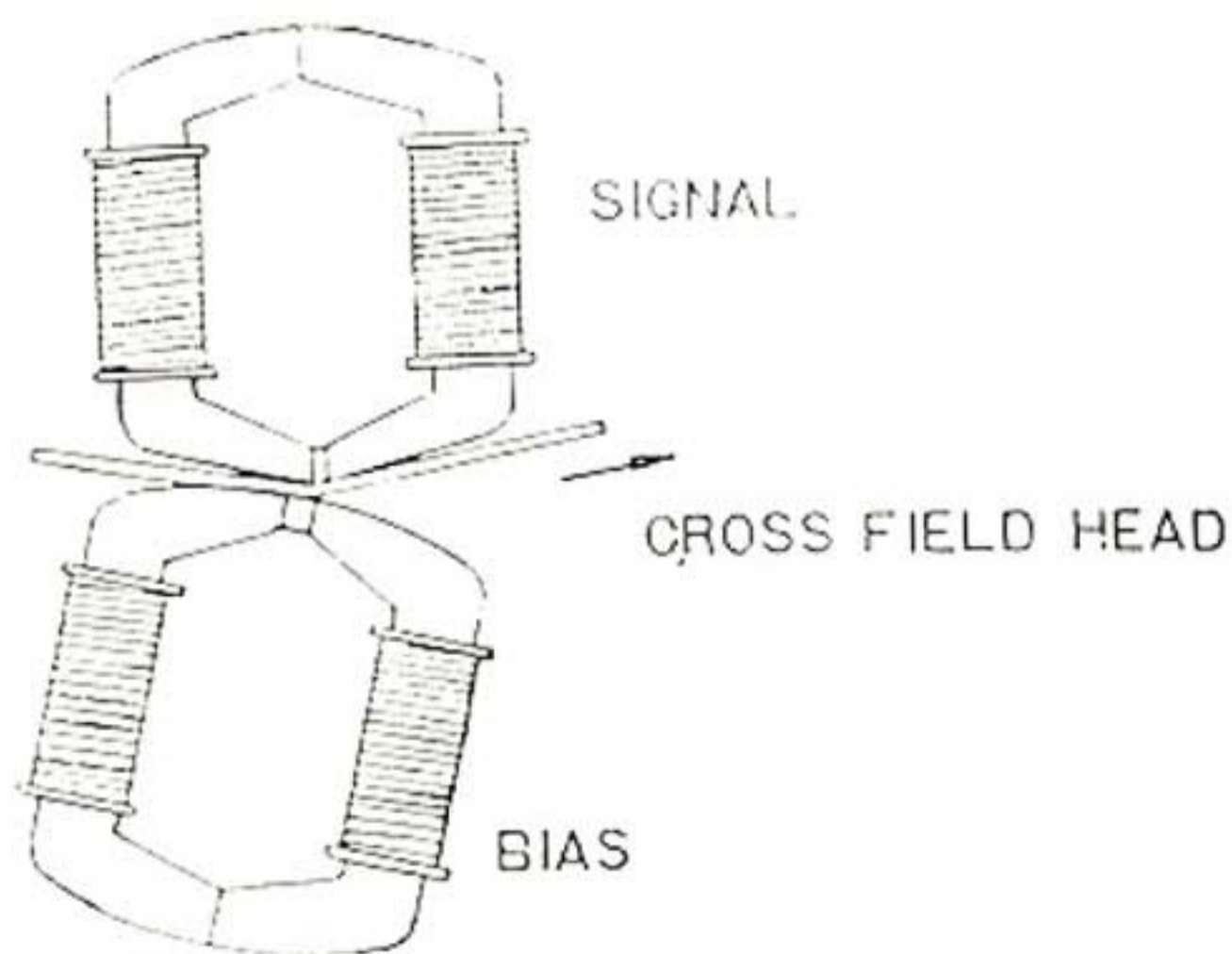


Diagram 2. Cross-field recording system



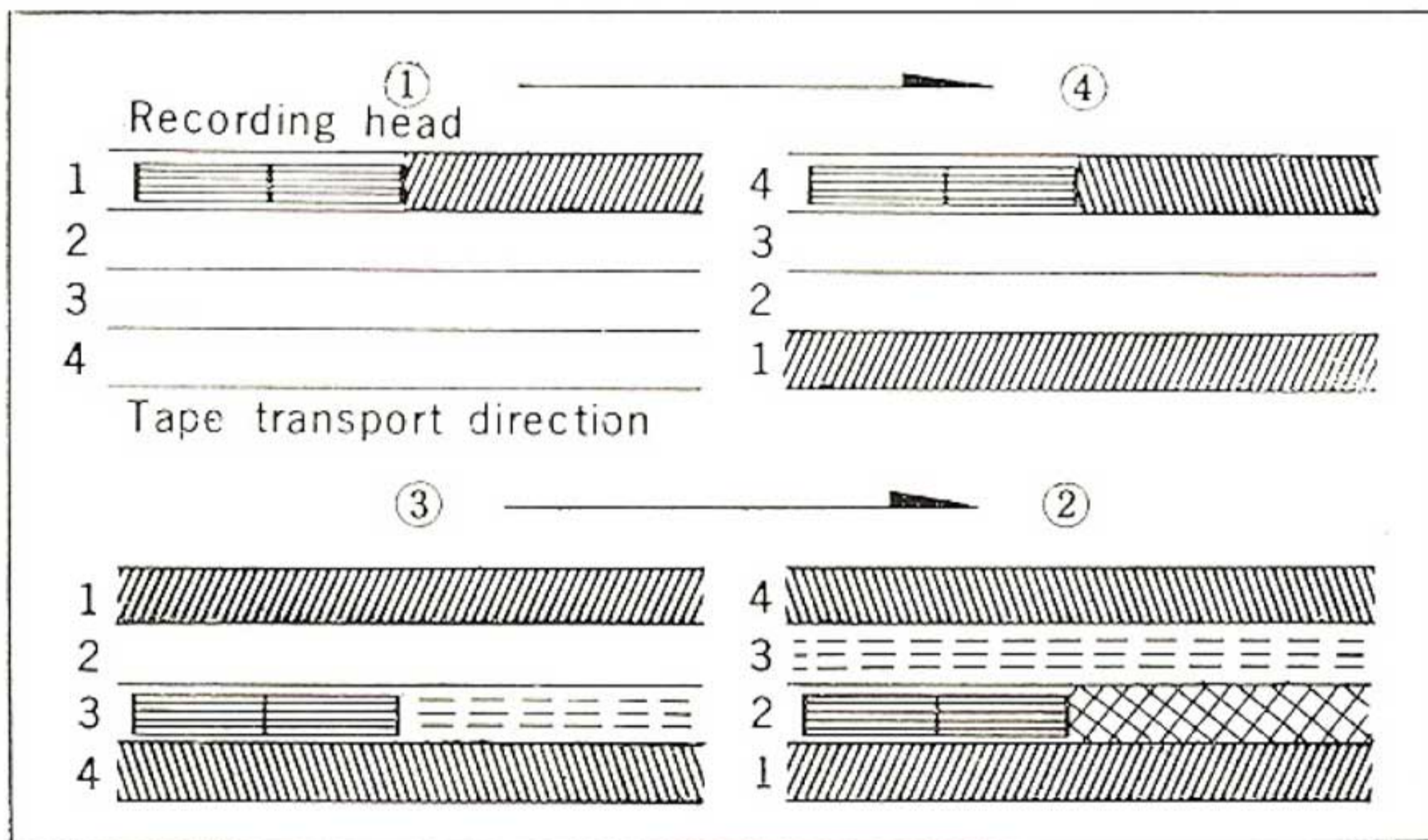
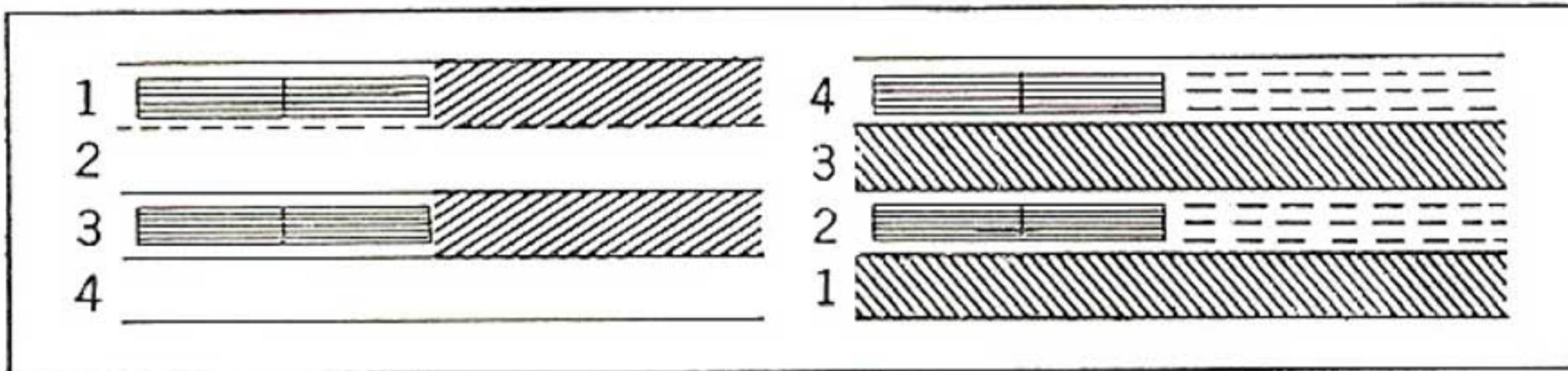
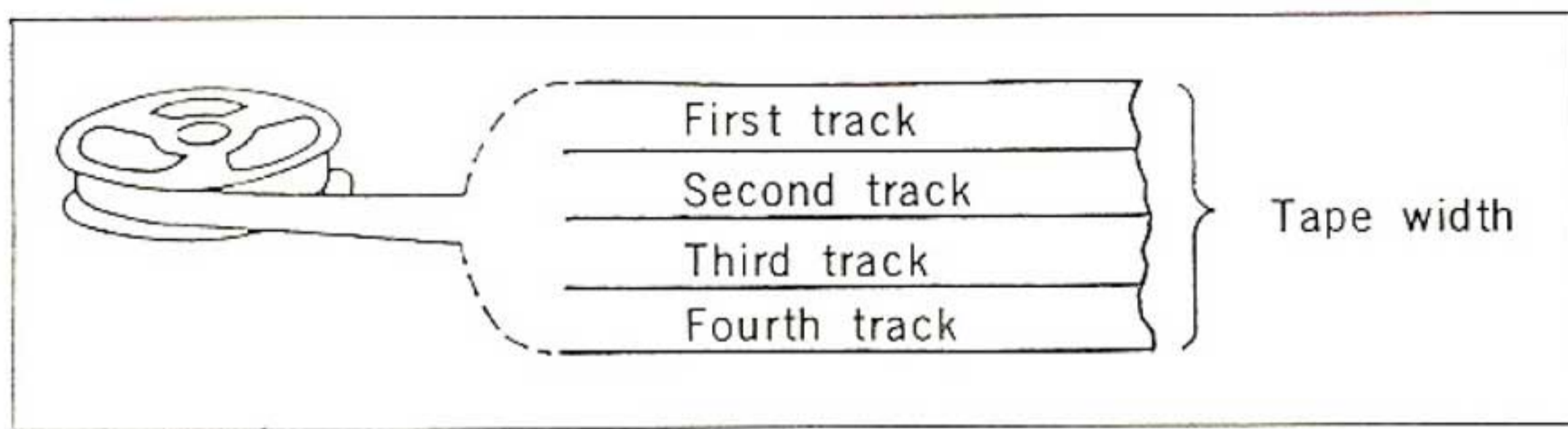
3. CROSS-FIELD HEAD

AKAI's exclusive Cross-Field Head has created a sensation in the tape recorder world by offering a wide recording range which has never been duplicated. Using this cross-field head, Model X-165D gives a surprising recording performance (30 20,000 cps ± 3 dB at a tape speed of 7-1/2 ips).

Why is Cross-Field recording superior? How does it differ to from conventional recording methods?

In the typically conventional recording system, the signal and bias currents are combined and applied to the recording head. (Diagram 1). The purpose of applying the bias current to the recording head is, of course, to minimize distortion while maintaining a proper sensitivity ratio. However the bias current providing such an advantage also has an undesirable effect. That is, the wide magnetic field of the bias current affects the recorded signal, resulting in the weakening or even erasing of the signal. This is particularly noticeable at high frequencies.

On the exclusive AKAI Cross-Field Head, the signal and bias heads are mounted separately with their centers slightly off. (Diagram 2). As the recorded signal is entirely unaffected by the prevailing effect of the bias field, the tape can be recorded over the entire frequency spectrum with maximum fidelity. High Fidelity Recording can be attained even at low speeds.



4. RECORDING/PLAYBACK FOR 4-TRACK

The AKAI X-165D employs a four track system which can be used for either stereo or monaural recording/playback. The desired track or tracks are selected by operating the TRACK SELECTOR.

4-Track Recording/Playback

Stereo recording/playback requires the simultaneous use of two tracks. Set the TRACK SELECTOR to "Stereo". The first stereo recording/playback takes place on tracks 1 and 3, and the second on tracks 2 and 4 after the reels have been inverted.

4-Track Monaural Recording/Playback

Monaural recording/playback track sequence is 1-4-3-2.

(A) Set the TRACK SELECTOR to "1-4". The first monaural recording/playback takes place on track 1, and the second on track 4 after the reels have been inverted.

(B) After inverting reels, set TRACK SELECTOR to "3-2". The third monaural recording/playback takes place on track 3, and the fourth on track 2 after the reels have been inverted.

5. OPERATING PRECAUTIONS

IMPORTANT: READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE OPERATING YOUR MACHINE:

- ① THE USE OF NEW TAPE WILL RESULT IN THE BEST RECORDINGS.
- ② THE SYMPTOMS LISTED BELOW DO NOT NECESSARILY INDICATE MECHANICAL FAILURE OF YOUR TAPE DECK. IF YOUR MACHINE EXHIBITS ANY OF THESE SYMPTOMS, CHECK FOR THE TROUBLE AS INDICATED:
 - (1) Loss of sensitivity and tone quality may be due to:
 - A. Dirty erase head. This will prevent prerecorded material from being completely erased.
 - B. Dust on the recording head. Clean the head gently with a soft cotton swab soaked in rubbing alcohol or carbon tetrachloride.
 - C. A.C. power voltage lower than the standard voltage to which your machine is adjusted.
 - (2) Irregularity in the tape transport may be due to:
 - A. Grime adhering to the heads.
 - B. Oil on the capstan.
 - C. Sticky or dirty tape surface.
 - D. Bent take-up reel.
 - (3) If your machine will not record, check the following for correct position.
 - A. Record/Playback knob.
 - B. Input plugs.

Note:

- (1) Before operating your machine, be sure to clean the surface of the head.
- (2) Unused tape may become soft and sticky. It is advisable to run the tape once from the supply reel to the take-up reel before threading it for recording.

③ THE FOLLOWING NOTES ARE PROVIDED FOR YOUR CONVENIENCE.

- (A) In case your machine needs servicing, take it to the nearest authorized agent in your area or inquire at the Service Dept. of the Akai Company in Tokyo, Japan.
- (B) Your Akai Tape Deck Model X-165D requires constant voltage for optimum performance.
- (C) With a standard 7" reel 1200 ft. tape, playback time is about 32 minutes at 7-1/2 ips in one direction.
- (D) If the sound sources are so far away from the microphones that the volume control must be turned up to a maximum, some hum or noise will inevitably be recorded. In such instance, a test recording is recommended before attempting a final recording.

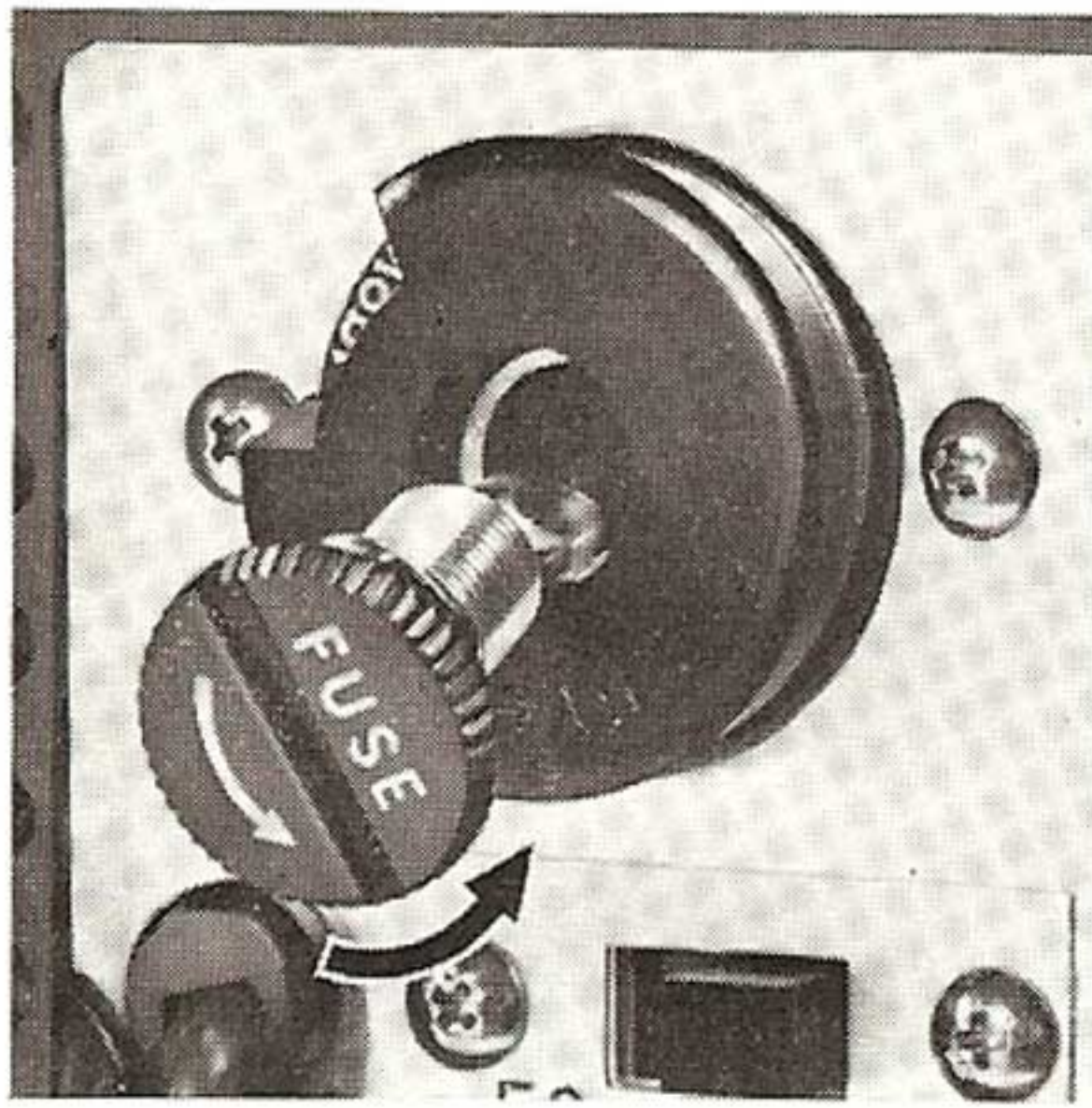


Fig. 4

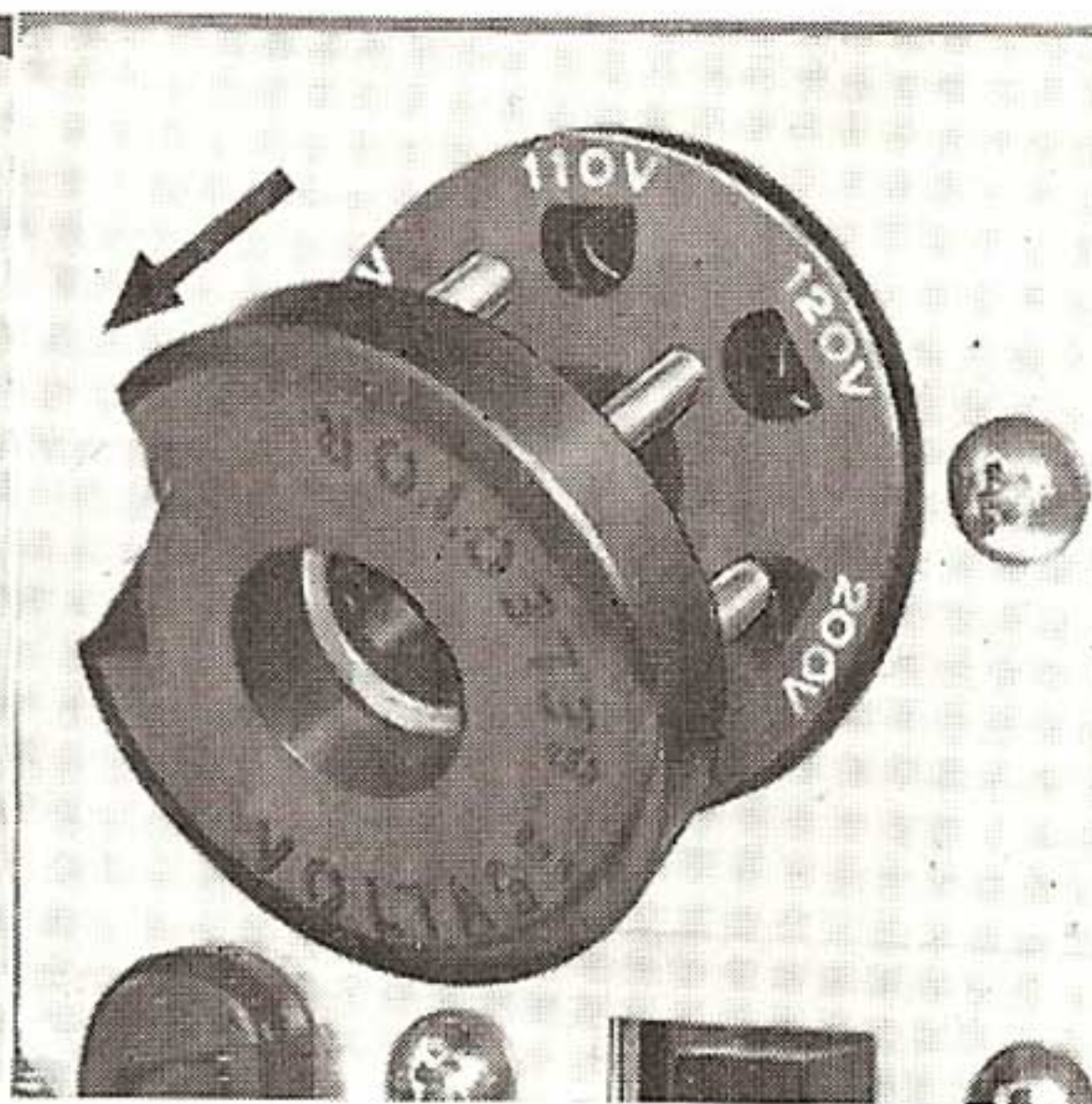


Fig. 5

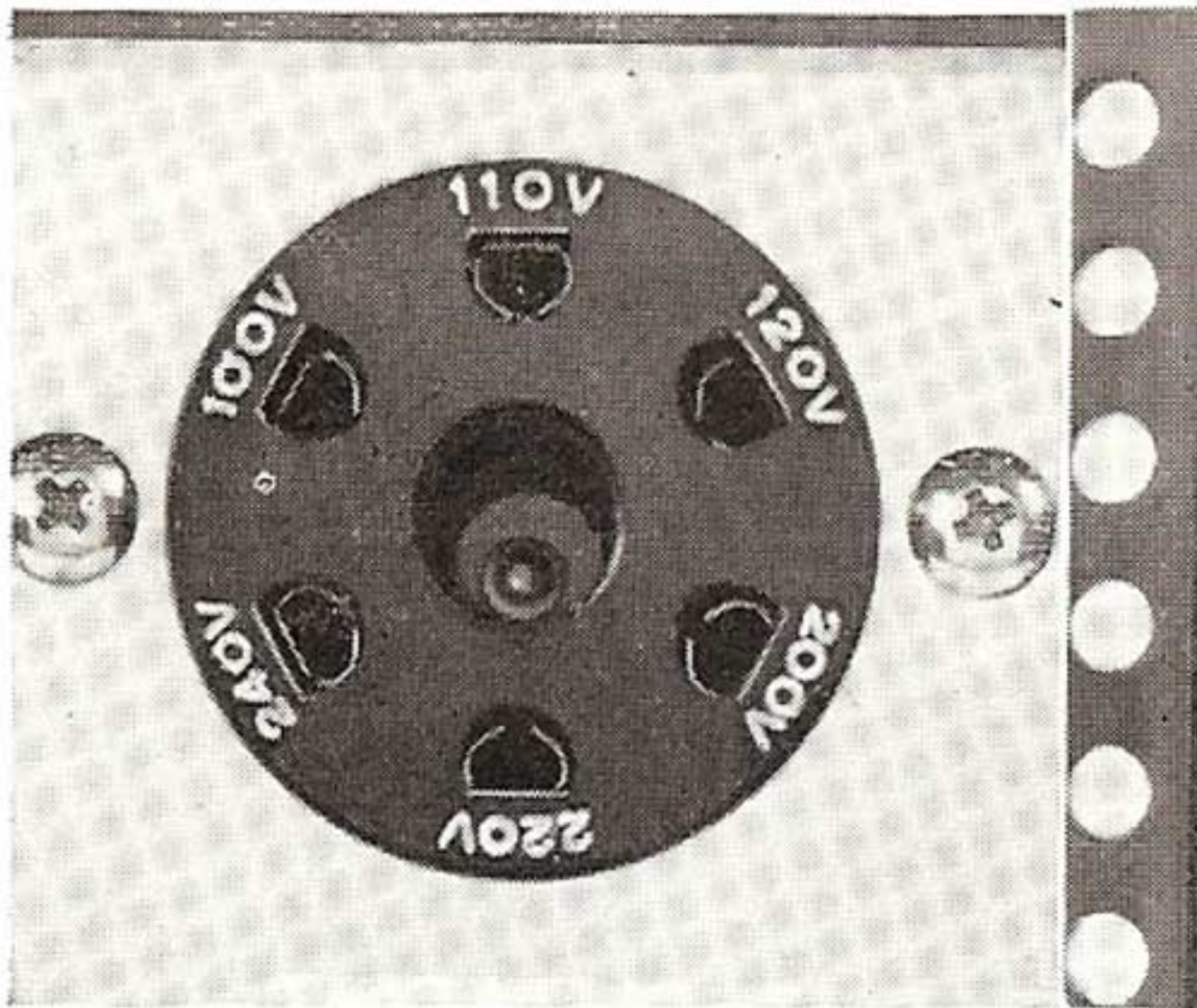


Fig. 6

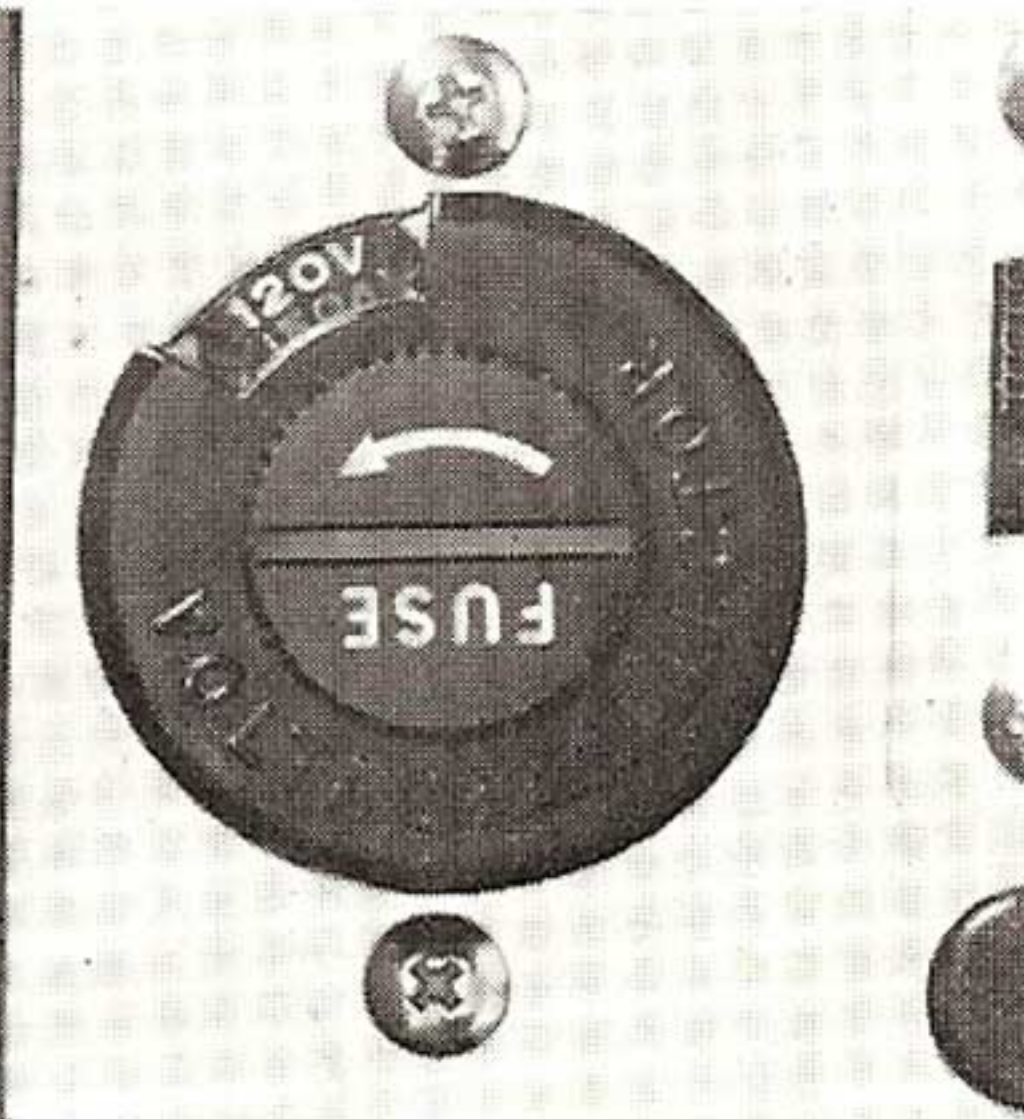


Fig. 7

6. VOLTAGE AND CYCLE CONVERSION

POWER VOLTAGE ADJUSTMENT

The Model X-165D is operable anywhere in the world. With the built in stepdown power transformer, the user can easily readjust the recorder to any one of the six stages of power voltage from 100 to 240 volts A.C. Generally, the recorder's input voltage is preset for the forwarding territory.

The user is requested to check the previously set voltage before operation.

If another voltage is required readjustment of the voltage can be made in accordance with the following instructions.

1. Remove the FUSE POST ③⑥ as shown in Fig. 4. Remove the VOLTAGE SELECTOR PLUG ③⑤ and reinsert to required voltage.
2. The VOLTAGE SELECTOR ③⑤ as shown in Figures is a rotatable plug-in type offering six selections, 100/110/120/200/220/240.
3. Change fuse according to voltage.

Fuse: 100V—120V 0.8 A, 200V—240V 0.4 A

CAUTION: Disconnect the power plug from the AC outlet before readjusting power voltage. To maintain optimum performance and to prolong the life of your machine, it is important that the line voltage be held within 10 percent deviation of standard voltage.

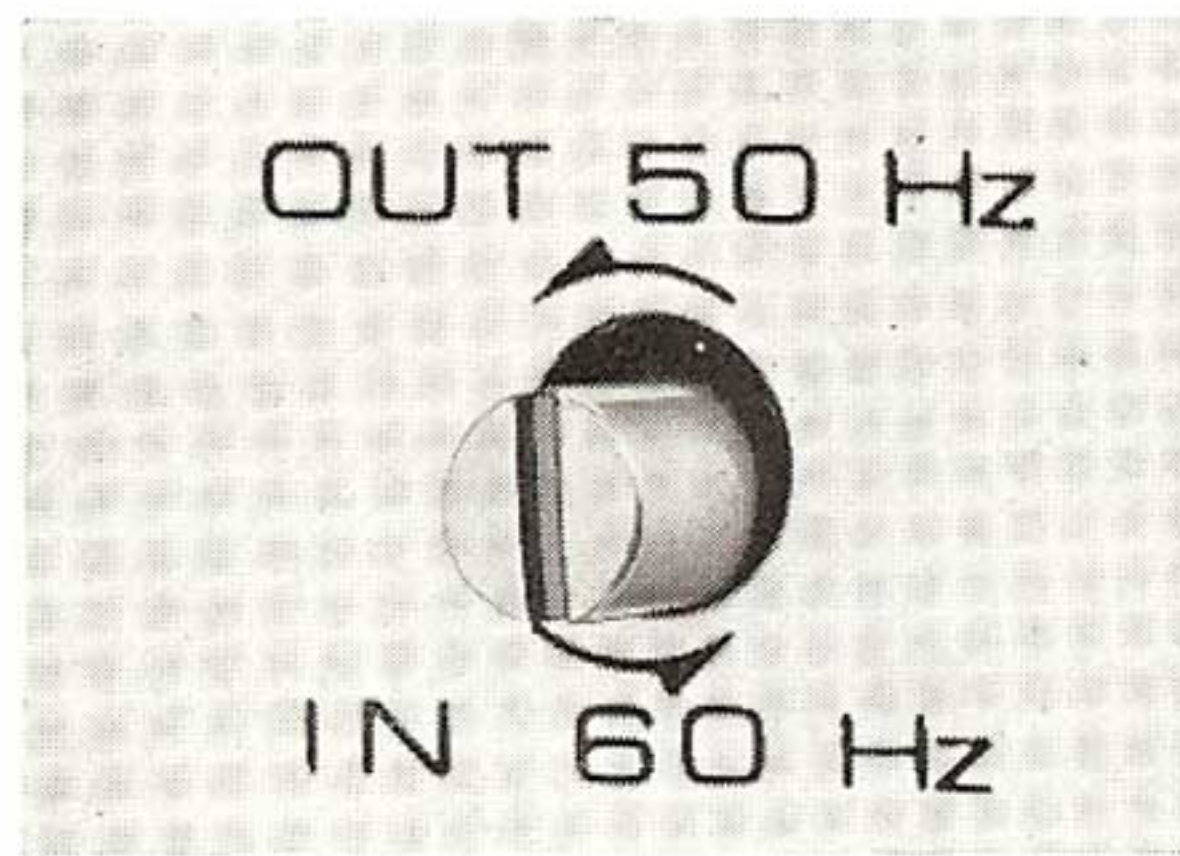


Fig. 8

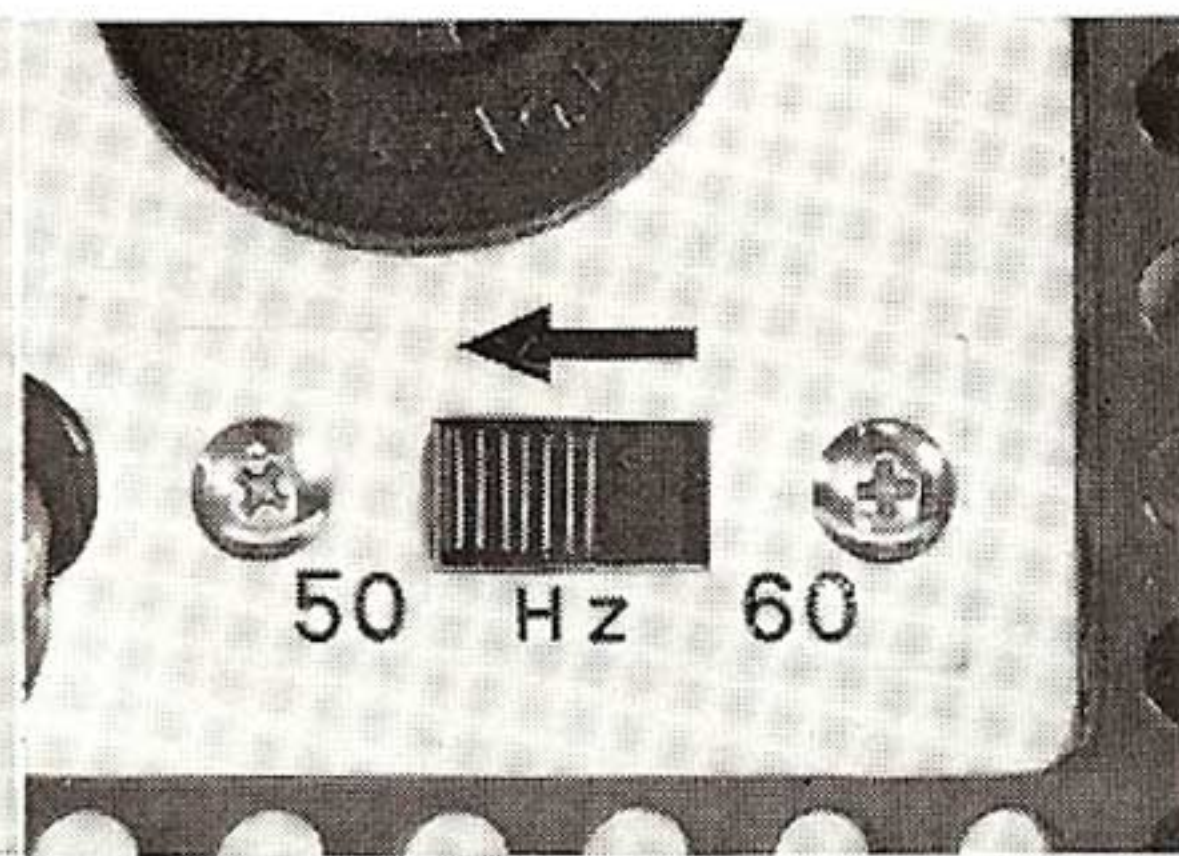


Fig. 9

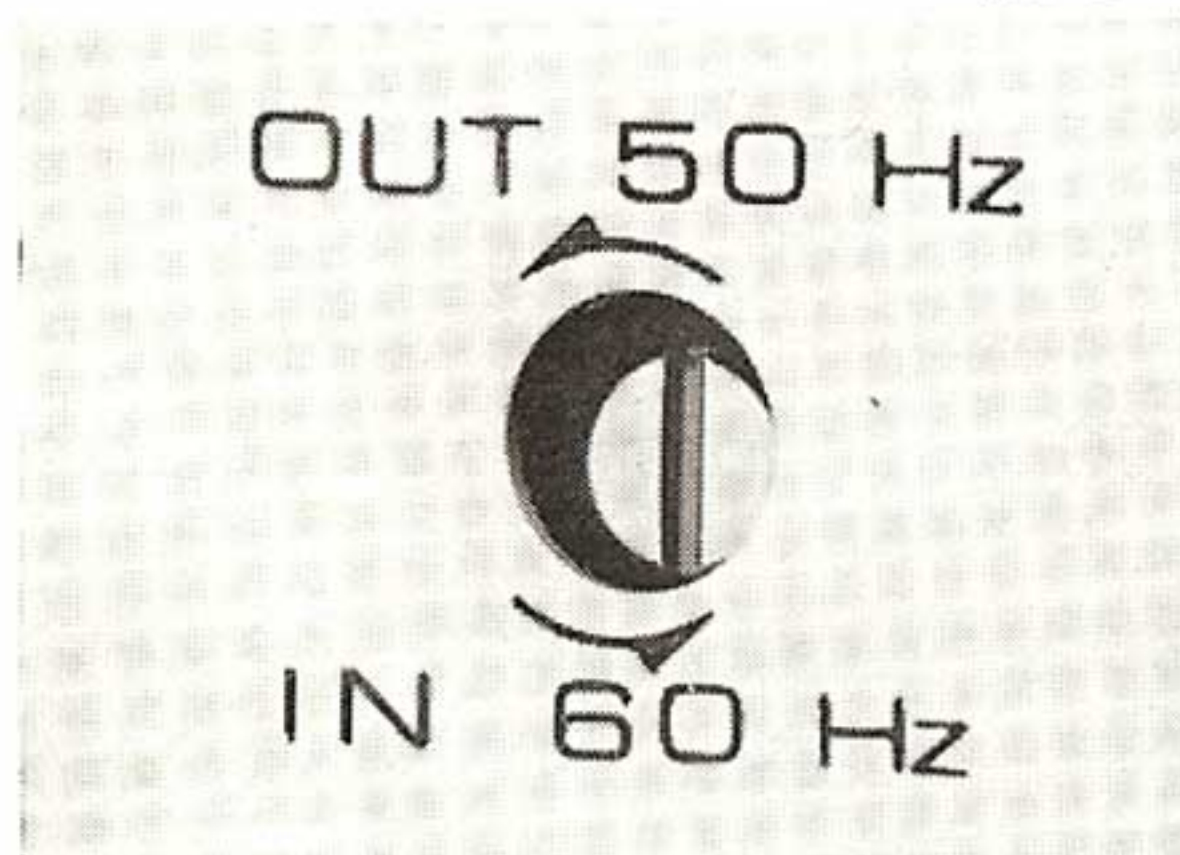


Fig. 10

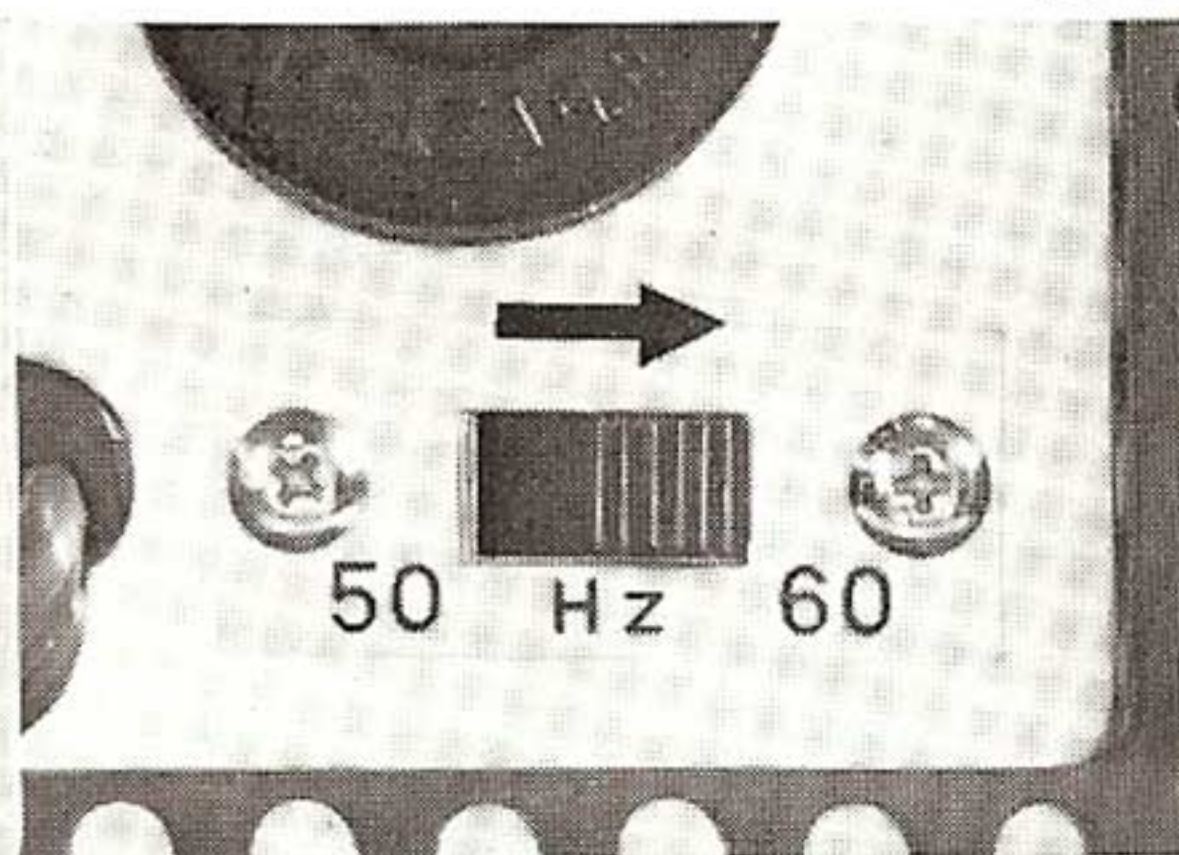


Fig. 11

POWER CYCLE CHANGE

Correct tape speed is not obtainable if the CYCLE CONVERSION SWITCHES are not properly adjusted. The CYCLE CONVERSION SWITCH (A) ③ is located at the center of the deck top panel and the CYCLE CONVERSION SWITCH (B) ③⁷ at the rear of the recorder. Using a screw driver, rotate the CYCLE CONVERSION SWITCH (A) ③ counter clockwise approximately one-eighth of a turn. The switch can then be moved either OUT or IN. 50 cycle operation is obtained by moving the switch OUT, and 60 cycle operation, by moving the switch IN. The switch ③ should be rotated back to its original position after it has been moved either OUT or IN. The CYCLE CONVERSION SWITCH (B) ③⁷ must also be reset, accordingly.

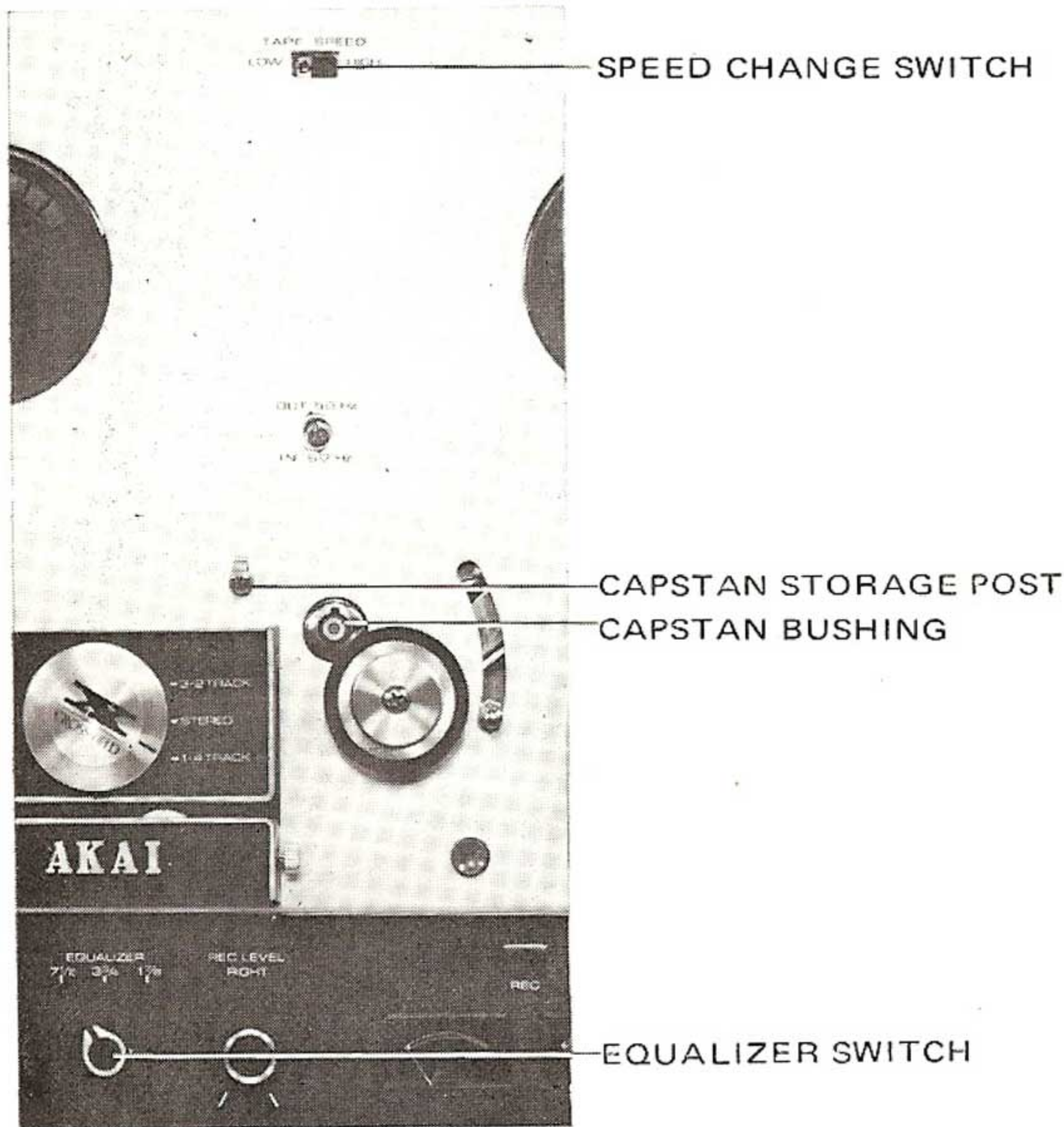
CAUTION: Do not attempt to rotate the CYCLE CONVERSION SWITCHES when the motor is not running.

7. TAPE SPEEDS SELECTION

RECORDING TIME

TAPE Length	TAPE SPEED					
	4-track Stereo			4-track Mono		
	1-7/8ips	3-3/4ips	7-1/2ips	1-7/8ips	3-3/4ips	7-1/2ips
1200 ft	4HRS	2	1	8	4	2
1800	6	3	1.5	12	6	3
2400	8	4	2	16	8	4

TAPE SPEED INCHES PER SECOND	POSITION OF SPEED CHANGE SWITCH		CAPSTAN BUSHING		USE
	LOW	HIGH	YES	NO	
1-7/8	○			○	Long time recording of Jazz, Speech, Lecture, etc.
3-3/4	○		○		High fidelity recording of Popular or Classical music, etc.
7-1/2		○	○		Recording music with max. clarity Playback of pre-recorded tape.



The X-165D operates usually on 3 tape speeds, 7-1/2, 3-3/4 and 1-7/8 ips. Refer to the chart above for selecting an adequate tape speed. Tape speed is determined by the motor speed by the capstan bushing on the tape drive capstan shaft, and by setting the EQUALIZER SWITCH.

- 1-7/8 ips. This tape speed is obtained by setting the SPEED CHANGE SWITCH ③⁴ to "LOW". The capstan bushing is not used but is left on the storage post.
- 3-3/4 ips. This tape speed is obtained by setting the SPEED CHANGE SWITCH ③⁴ also in "LOW" position. The capstan bushing is mounted on the capstan shaft and is locked automatically in position by the notches.
- 7-1/2 ips. This tape speed is obtained by setting the SPEED CHANGE SWITCH ③⁴ in "HIGH" position. The capstan bushing is used. 15 ips tape speed is also available by using an extra capstan and a pinch wheel which are optional.

Important: In each case, set EQUALIZER SWITCH to consistent speed.

Fig. 12

II. OPERATING INSTRUCTIONS

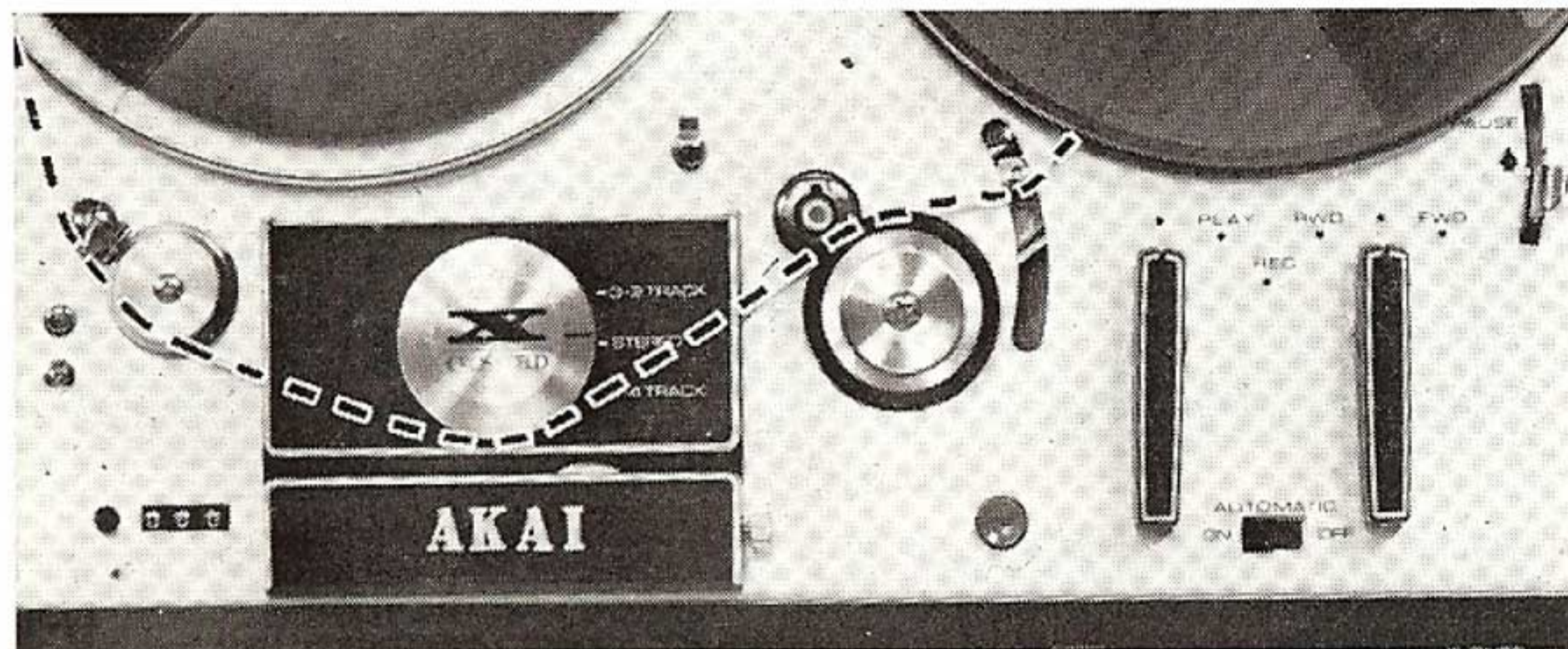


Fig. 13

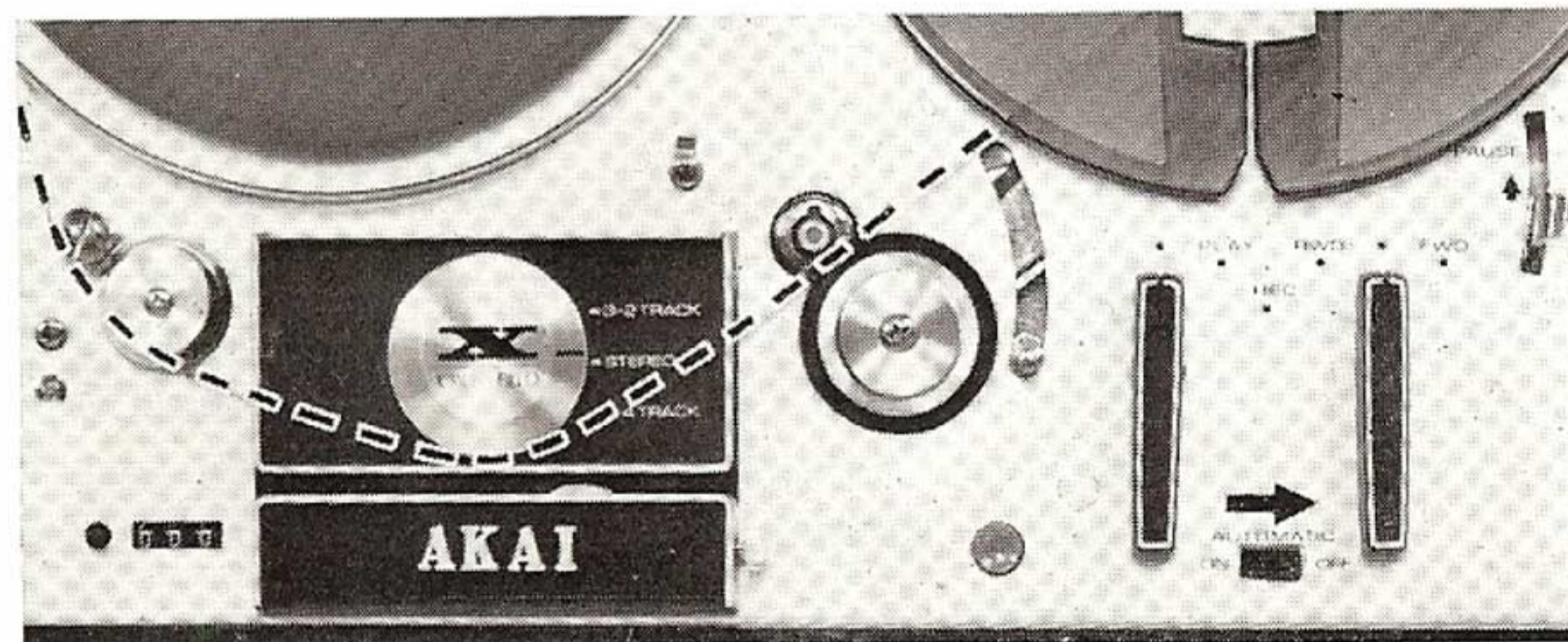


Fig. 14

1. TAPE LOADING

Place your recording tape on the SUPPLY REEL SHAFT ② and the empty reel on the TAKE-UP REEL SHAFT ③⑩. Thread the tape as illustrated by the dotted line.

To keep the reels from falling down, lock the reels with the retainers provided on the REEL SHAFTS.

IMPORTANT:

If automatic shut-off is required, thread the tape through the AUTOMATIC SHUT-OFF LEVER ⑳. If not, pass the tape directly onto the take-up reel. In this case, set the AUTOMATIC SHUT-OFF SWITCH ㉔ to "OFF".



Fig. 15

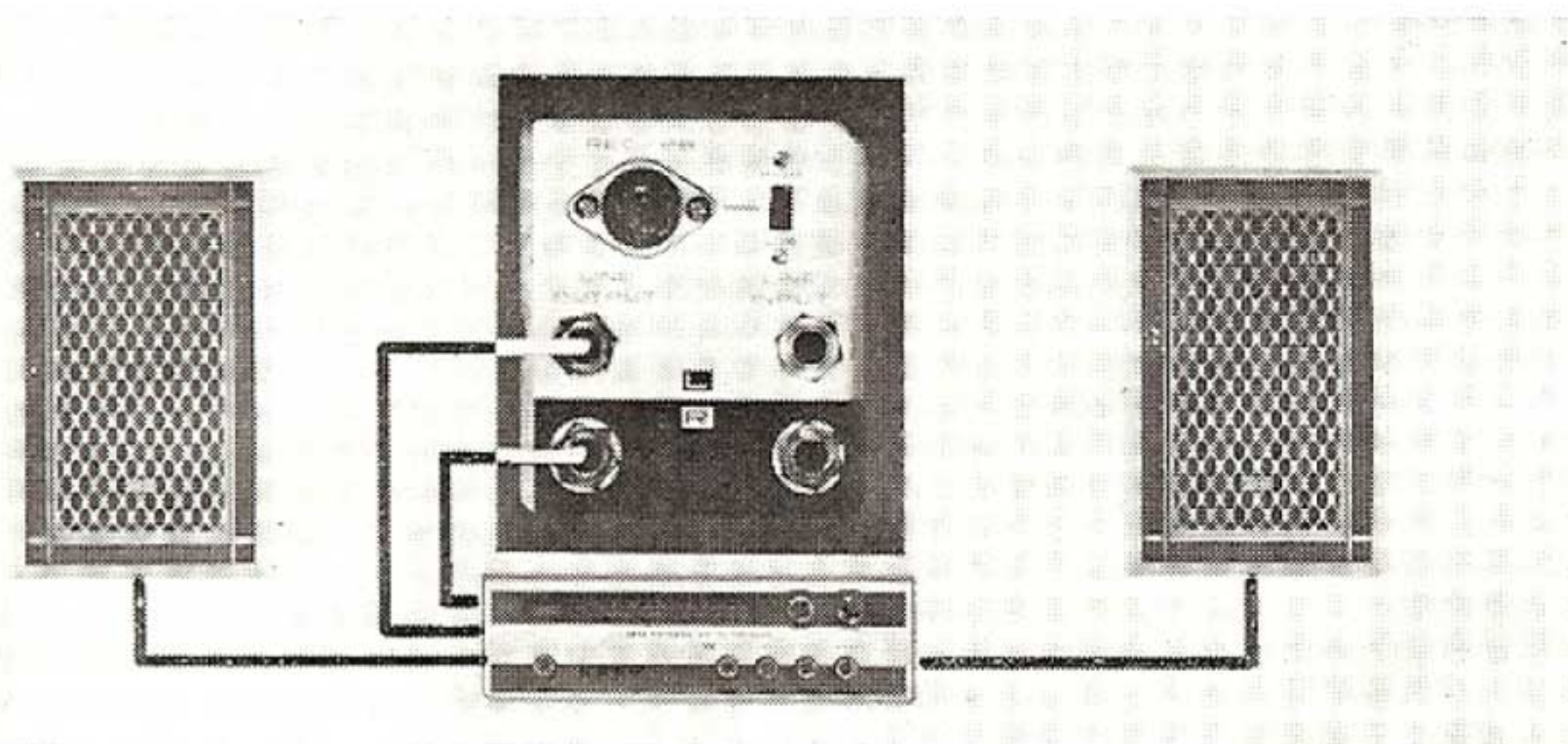


Fig. 16

2. STEREO PLAYBACK

Connect the recorder to AC power source using the attached AC CORD.

- (A) Set the POWER SWITCH ⑳ to "ON".
- (B) Set the TRACK SELECTOR KNOB ⑤ to "STEREO".
- (C) Select the tape speed.
- (D) Set the EQUALIZER SWITCH ⑯ to 7-1/2, 3-3/4 or 1-7/8, whichever is consistent with tape speed, and load a pre-recorded tape on the recorder.

The Model X-165D does not include power amplifier or loud-speakers. It, therefore, is necessary to provide an external stereo amplifier and speakers for stereophonic playback.

- (E) Connect both LINE OUTPUT JACKS (④⑩ and ④③) to TAPE INPUT JACKS or AUX INPUT JACKS of the external amplifier. Connect two loud speakers to the power amplifier.

IMPORTANT:

The output level of model X-165D is 1.23V maximum. Please be sure to check the input level of your external amplifier before connecting to Model X-165D.

- (F) Set the RECORD/PLAYBACK KNOB ⑳ to "PLAY".
- (G) Adjust the volume of sound by the volume control knobs of the external amplifier.



Fig. 17

3. AUTOMATIC SHUT-OFF

One of the exclusive features of the X-165D is the automatic shut-off function of the unit. Whenever the tape comes to the end, or breaks by accident, the AUTOMATIC SHUT-OFF LEVER (28) drops down so that the functions of both deck and amplifier are automatically cut off. If automatic shut-off operation is desired, set the AUTOMATIC SHUT-OFF SWITCH (24) to "ON" position.



Fig. 18

4. PAUSE CONTROL

To stop the tape momentarily during recording or playback, set the PAUSE LEVER (25) to "PAUSE" position. The lever will be locked in position. It can be released by lifting the curved tip slightly upward, and then bringing it down to normal position. The PAUSE LEVER (25) will not function when the recorder is in either fast forward or rewind operation. An optimum recording level can be determined before starting the recording by using the PAUSE LEVER (25) after the recorder is set to normal recording mode. Adjust the volume control while watching the VU METERS (18 and 19).

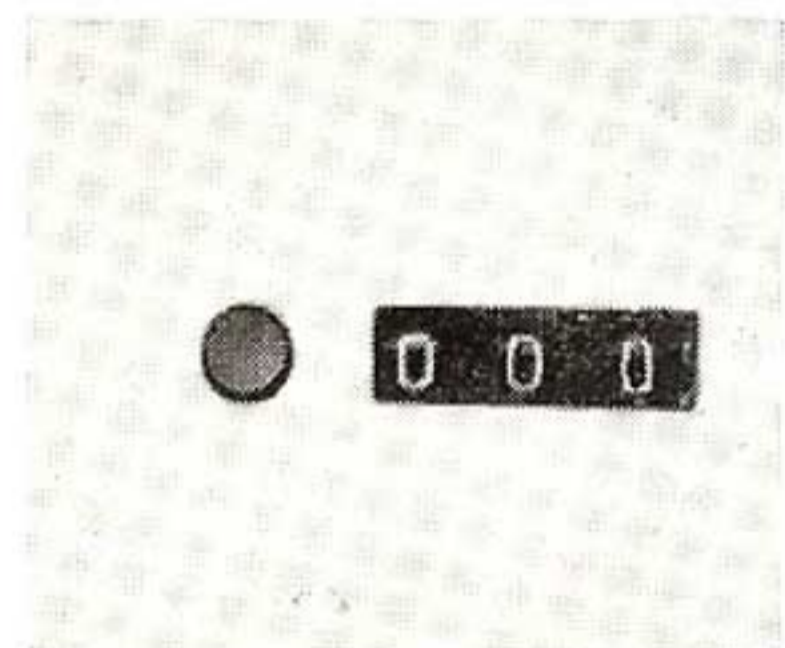


Fig. 19

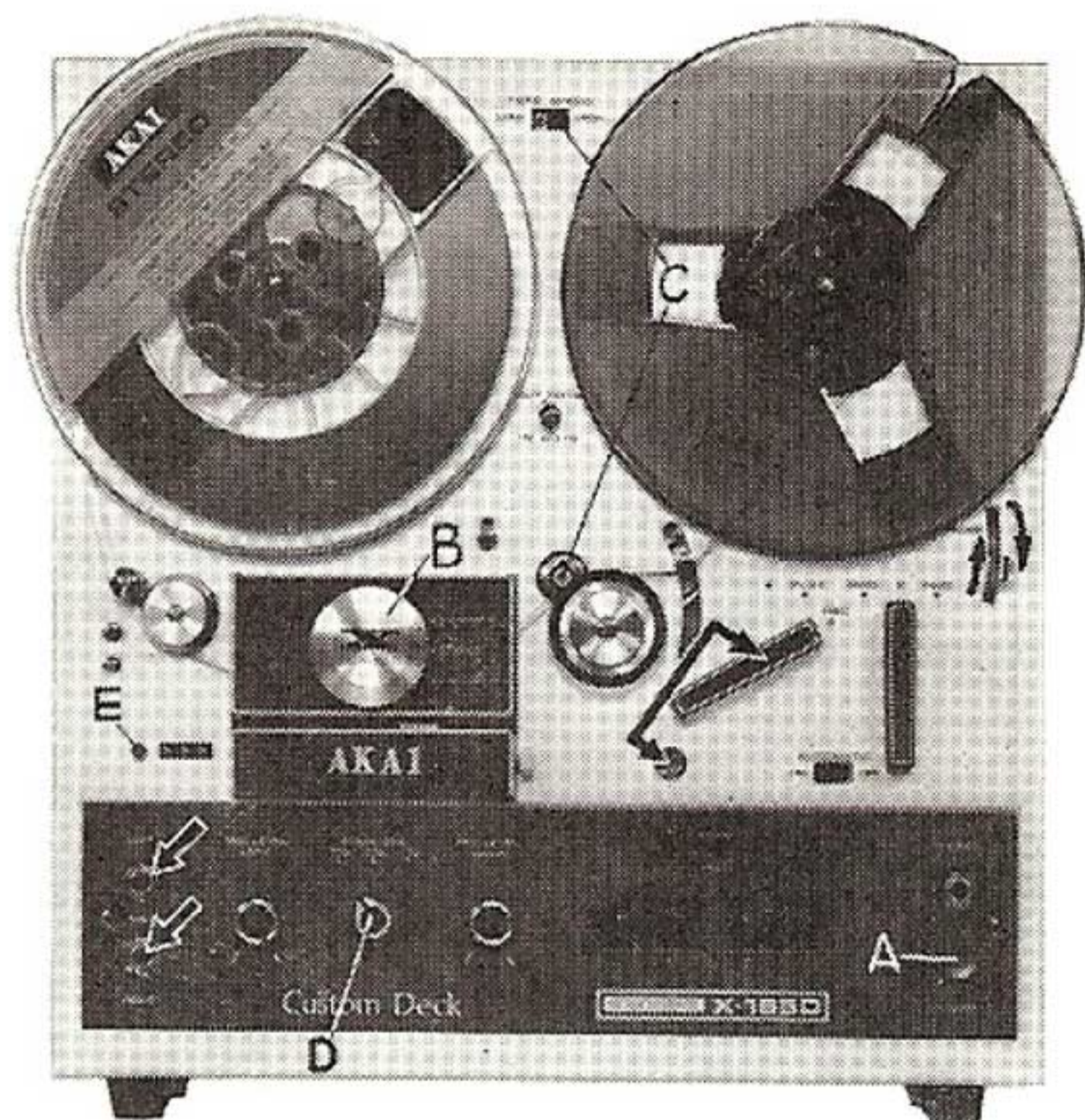


Fig. 20

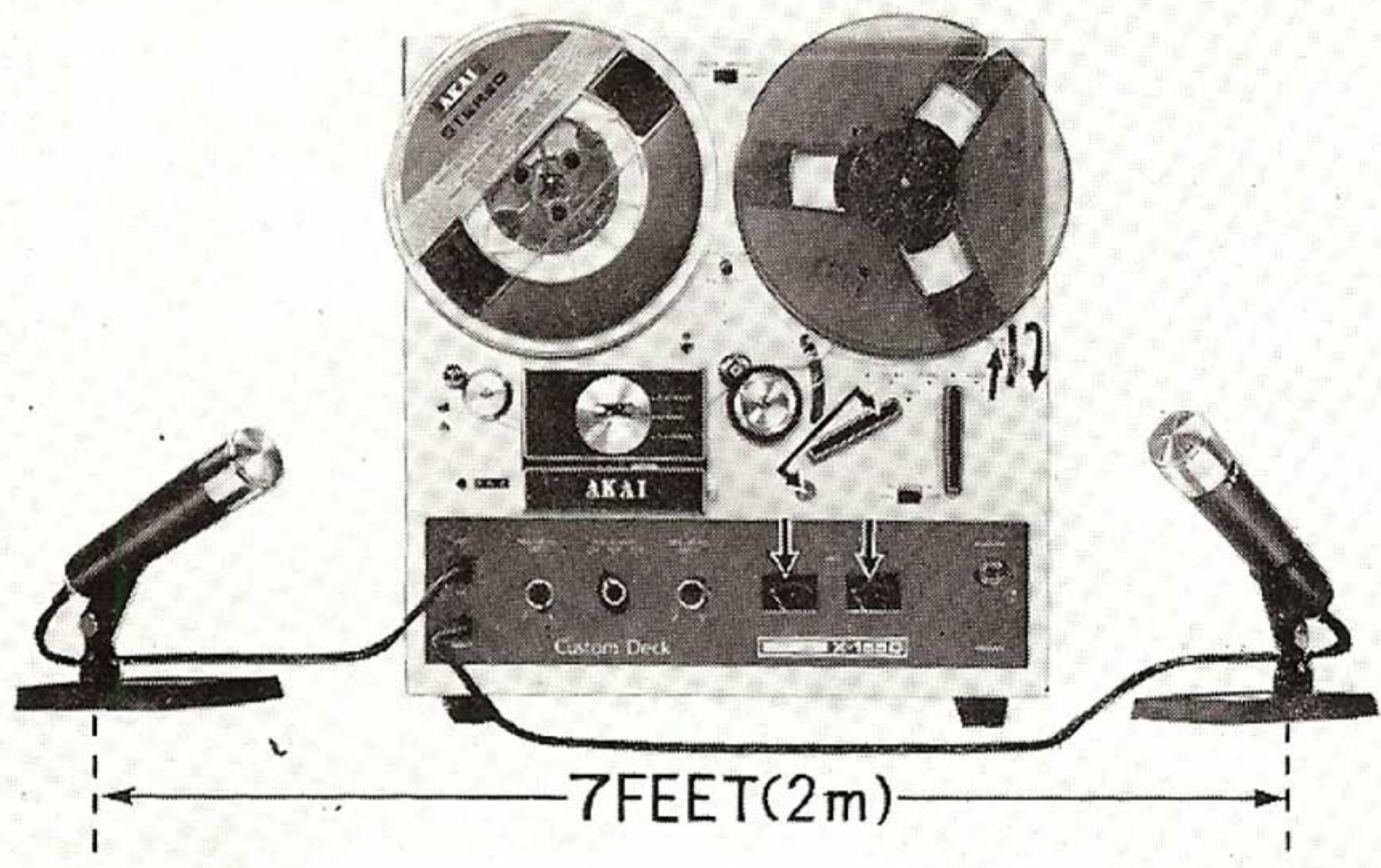


Fig. 21

5. STEREO RECORDING

- (A) Set the POWER SWITCH ⑳ to "ON".
- (B) Set the TRACK SELECTOR KNOB ⑤ to "STEREO".
- (C) Select the tape speed as desired.
- (D) Set the EQUALIZER KNOB ⑯ to 7-1/2, 3-3/4 or 1-7/8, whichever is consistent with tape speed.
- (E) Push the RESET BUTTON ⑩ and set the INDEX COUNTER ⑪ to "000". This counter provides reference numbers for locating specific points of the recordings on the tape.
- (F) Load a tape on the recorder.
- (G) Insert the MICROPHONE PLUGS into the MICROPHONE INPUT JACKS (⑬ and ⑭).

Keep the two microphones at least 7 feet apart. Thread the tape in the usual manner and push the PAUSE LEVER ⑳ upward until it locks. Then, turn the RECORD/PLAYBACK KNOB ㉓ into "REC." position while depressing the RECORDING SAFETY BUTTON ㉔.

Microphone volume level may be adjusted and balanced by operating the RECORDING LEVEL CONTROL KNOBS (⑮ and ⑰). Normal recording should not exceed the black zone on VU METERS (⑱ and ㉒).

After an optimum recording level is determined, release the PAUSE LEVER ⑳ to start stereo recording.

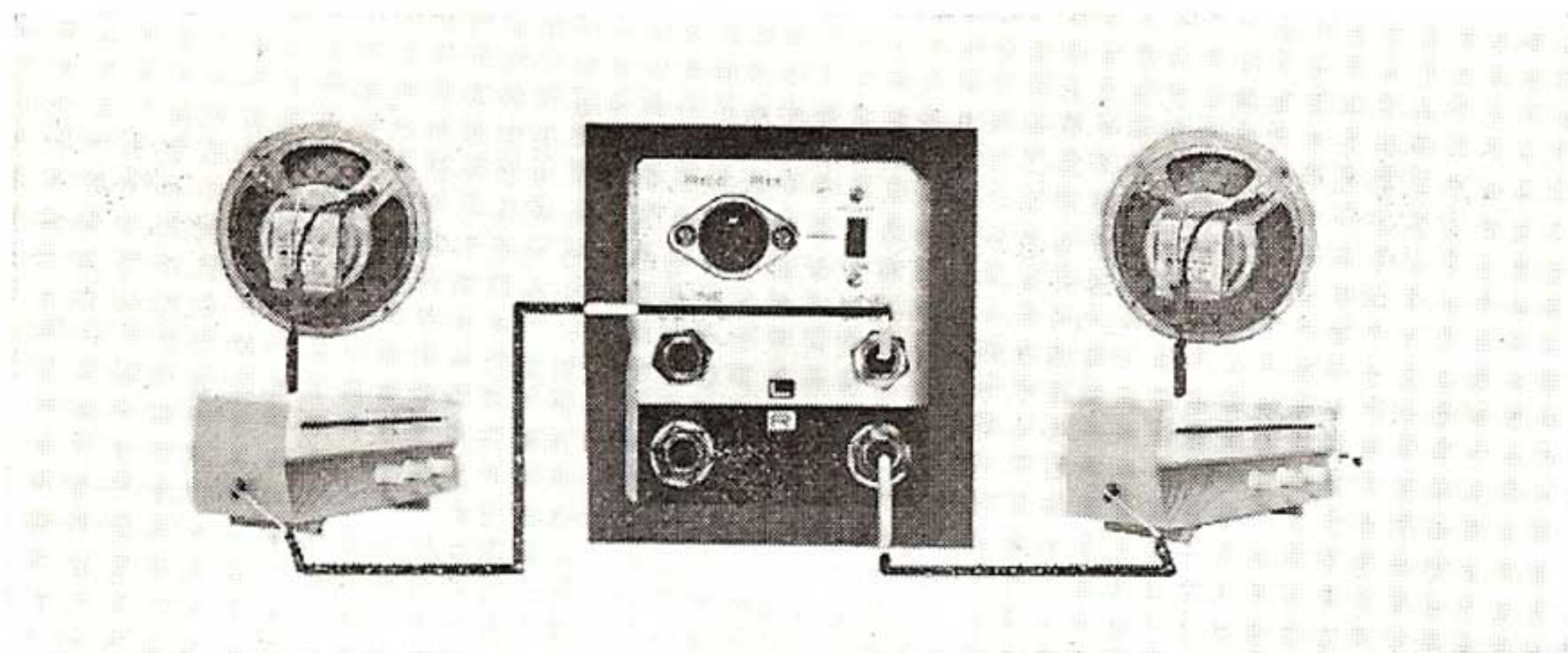


Fig. 22



Fig. 23

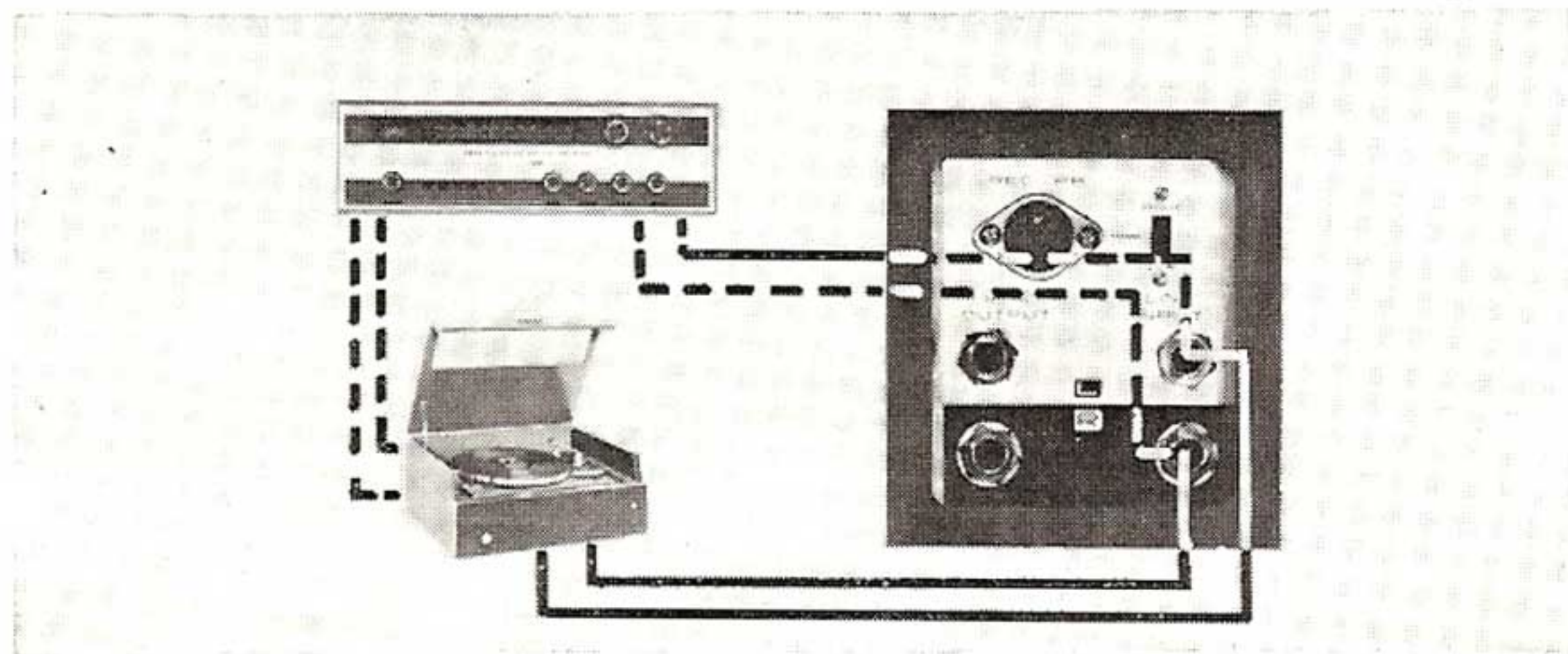


Fig. 24

6. RECORDING FROM STEREO BROADCAST

Stereophonic broadcast programs may be recorded from two sets of radio receivers. This is accomplished by connecting LINE INPUT JACK (LEFT) (41) of Model X-165D to the voice coil terminals of the left-hand speaker and LINE INPUT JACK (RIGHT) (42) to similar terminals of the right-hand speaker of the respective radio set. Recording level is adjusted by operating RECORDING LEVEL CONTROL KNOBS (15) and (17).

7. RECORDING FROM STEREO DISCS

To record from a stereo disc, a crystal pick up or ceramic pick up can be connected directly to the LINE INPUT JACKS (41) and (42). A magnetic cartridge must be connected to a separate preamplifier before being connected to the LINE INPUT JACKS (41) and (42).

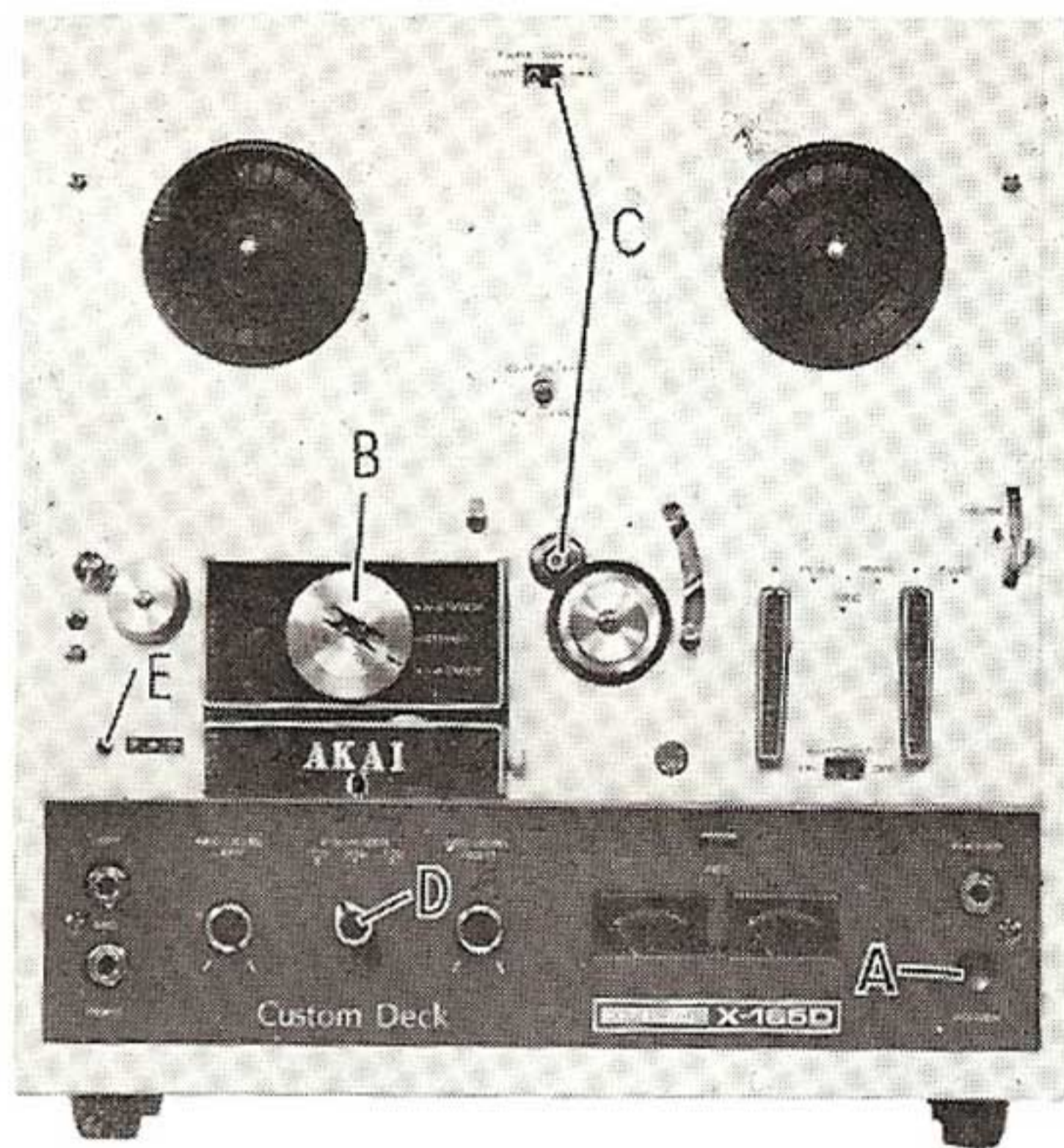


Fig. 25

8. MONAURAL RECORDING ON TRACKS NO. 1-4

- (A) Set the POWER SWITCH ⑳ to "ON".
- (B) Set the TRACK SELECTOR KNOB ⑤ to "1-4".
- (C) Select the tape speed as desired.
- (D) Set the EQUALIZER SWITCH ⑯ to 7-1/2, 3-3/4 or 1-7/8, whichever is consistent with tape speed.
- (E) Push the RESET BUTTON ⑩ and set the INDEX COUNTER ⑪ to "000".

In monaural recording, only the left channel amplifier is used. The microphone plug should be inserted into the MICROPHONE INPUT JACK (LEFT) ⑬.

Place a recording tape on the recorder.

Push the PAUSE LEVER ⑳ upward until it locks, and then turn the RECORD/PLAYBACK KNOB ㉓ to "REC" position while depressing the RECORDING SAFETY BUTTON ㉒. Adjust the RECORDING LEVEL CONTROL KNOB (LEFT) ⑮ to normal recording level, while watching the left VU meter. VU meter reading should not exceed the black zone.

After a correct recording level is determined, release the PAUSE LEVER ⑳ to start recording on track No. 1.

At the end of recording on track No. 1, invert reels for recording on track No. 4.

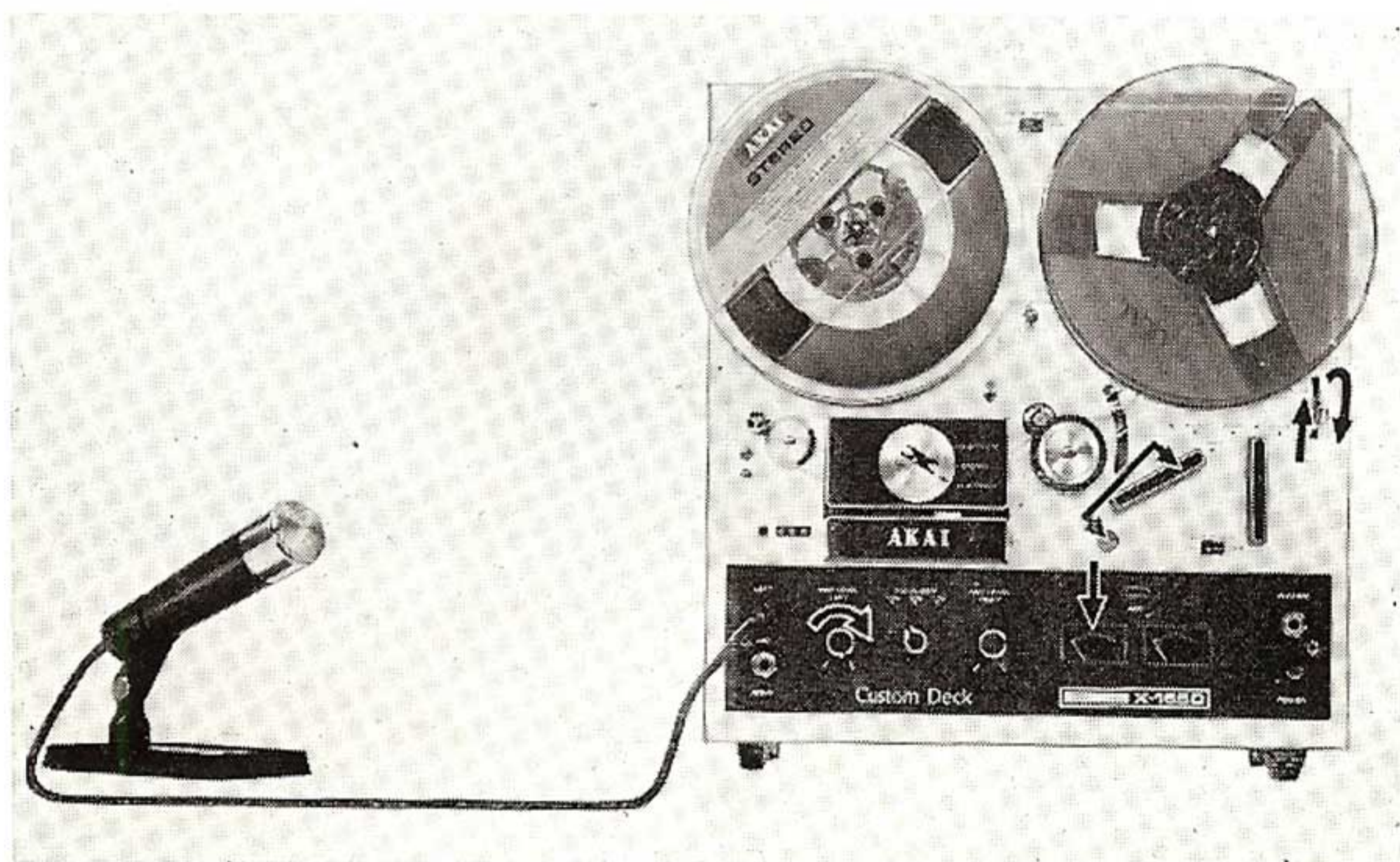


Fig. 26

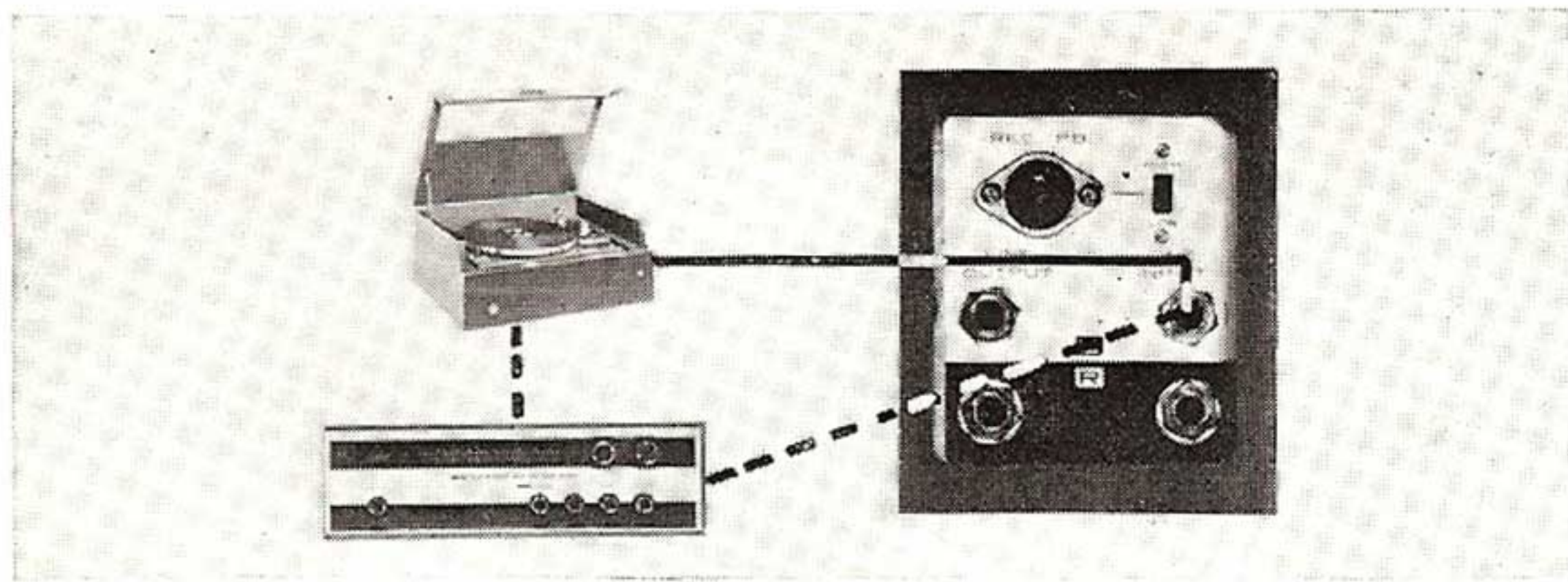


Fig. 27

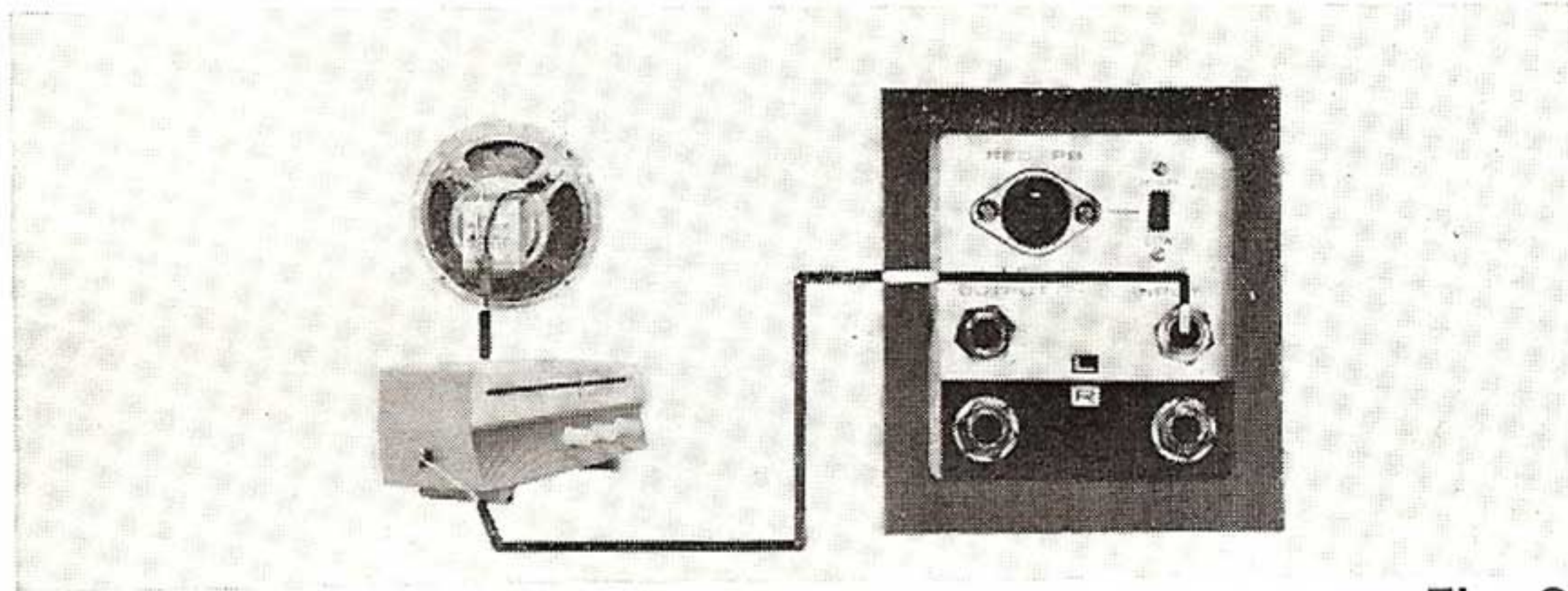


Fig. 28



Fig. 29

9. MONAURAL RECORDING ON TRACKS NO. 3-2

Set the TRACK SELECTOR KNOB ⑤ to "3-2". For the rest of operation, follow instructions given for recording on tracks No. 1-4. Recording is made first on track No. 3, then on track No. 2 after reels have been inverted.

For monaural recording from a disc player or an external amplifier, use the LINE INPUT JACK (LEFT) ④. A crystal pick up can be connected direct to the LINE INPUT JACK (LEFT) ④. When recording from an external amplifier connect TAPE OUTPUT of external amplifier to the LINE INPUT JACK (LEFT) ④. To record from a radio, connect radio cable to the radio speaker or to the earphone jack. The cable plug should be inserted in LINE INPUT JACK (LEFT) ④.

10. MONAURAL PLAYBACK

- (A) Set the POWER SWITCH ⑳ to "ON"
- (B) Set the TRACK SELECTOR KNOB ⑤ to "1-4".
- (C) Select the tape speed as desired.
- (D) Set the EQUALIZER SWITCH ⑯ to 7-1/2, 3-3/4 or 1-7/8, whichever is consistent with tape speed.

Load a pre-recorded tape.

For monaural playback, only the left the channel amplifier is used.

- (E) Connect LINE OUTPUT JACK (LEFT) ④ to TAPE INPUT or AUX INPUT JACK of external amplifier. Also connect a loud speaker to the power amplifier. (See Fig. 30)
- (F) Set RECORD/PLAYBACK KNOB ⑳ to "PLAY".

After completing monaural playback on track No. 1 and No. 4, set the TRACK SELECTOR KNOB ⑤ to "3-2" for continuing with track No. 3, then track No. 2.

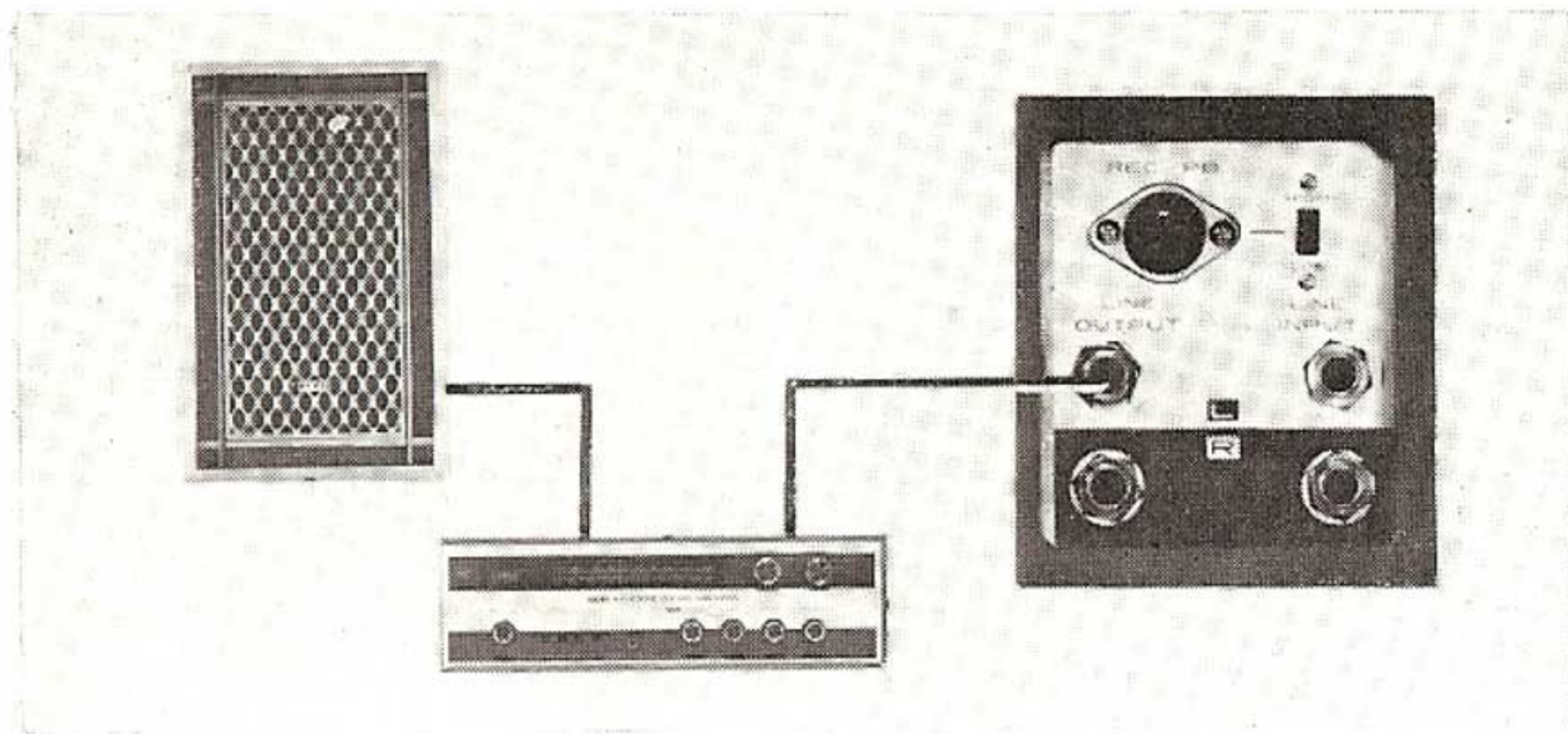


Fig. 30

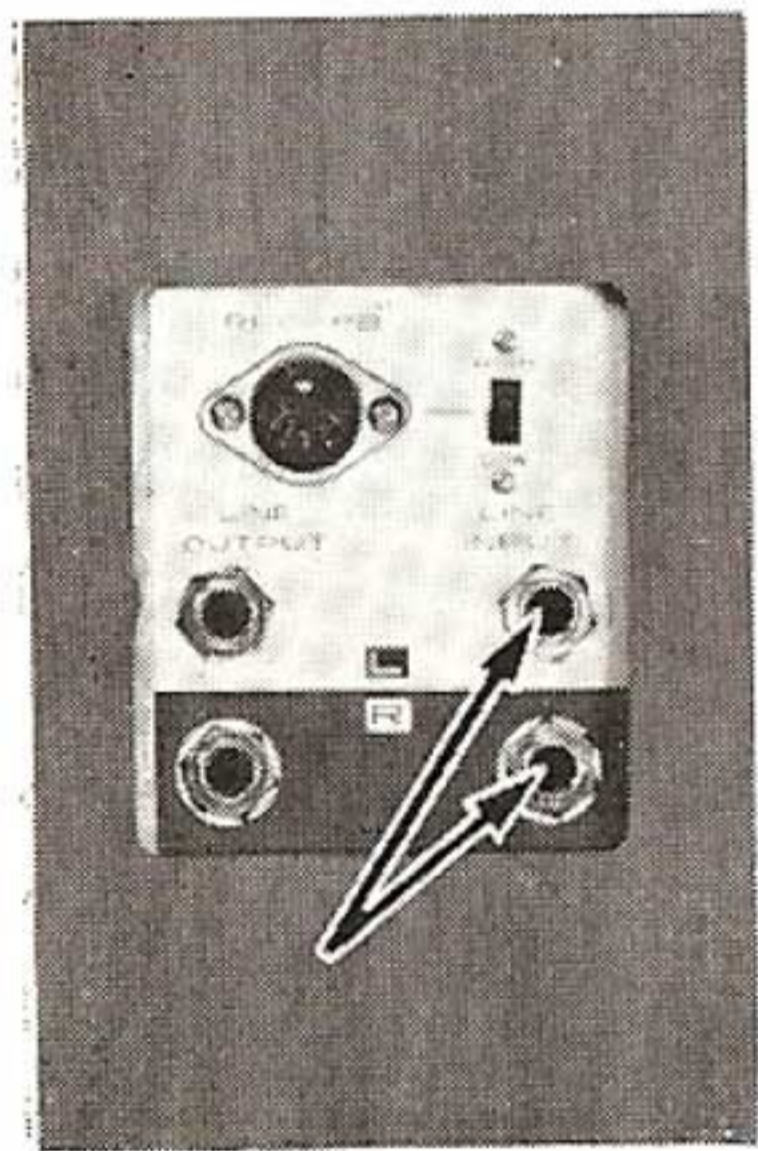


Fig. 31



Fig. 32

11. TAPE ERASING (Ref. Figs. 31 and 32)

Any signal information previously recorded on a tape will be erased automatically as a new recording is made on the same tape. For erasing only, thread the tape, and place in normal record position. There should be no plugs connected to recorder's input jacks. RECORDING LEVEL CONTROL KNOBS (15) and (17) should be held in "0" position. A BULK TAPE ERASER is recommended for quick and complete erasure.

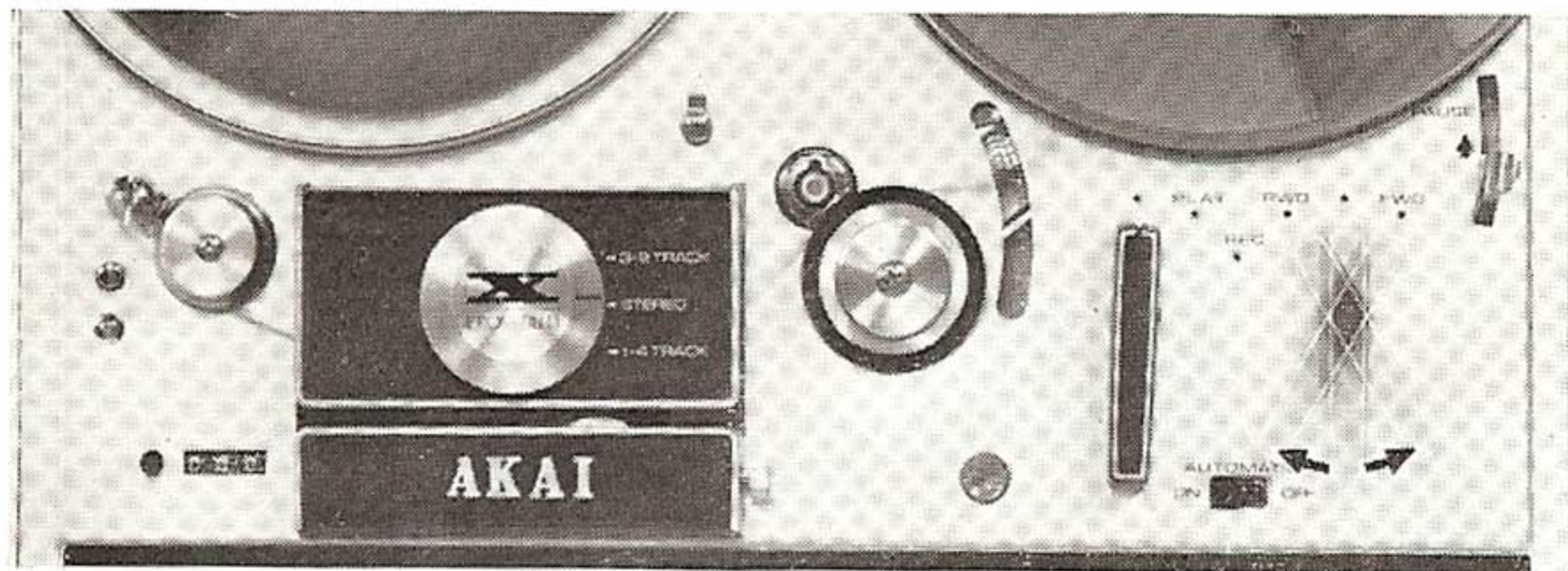


Fig. 33

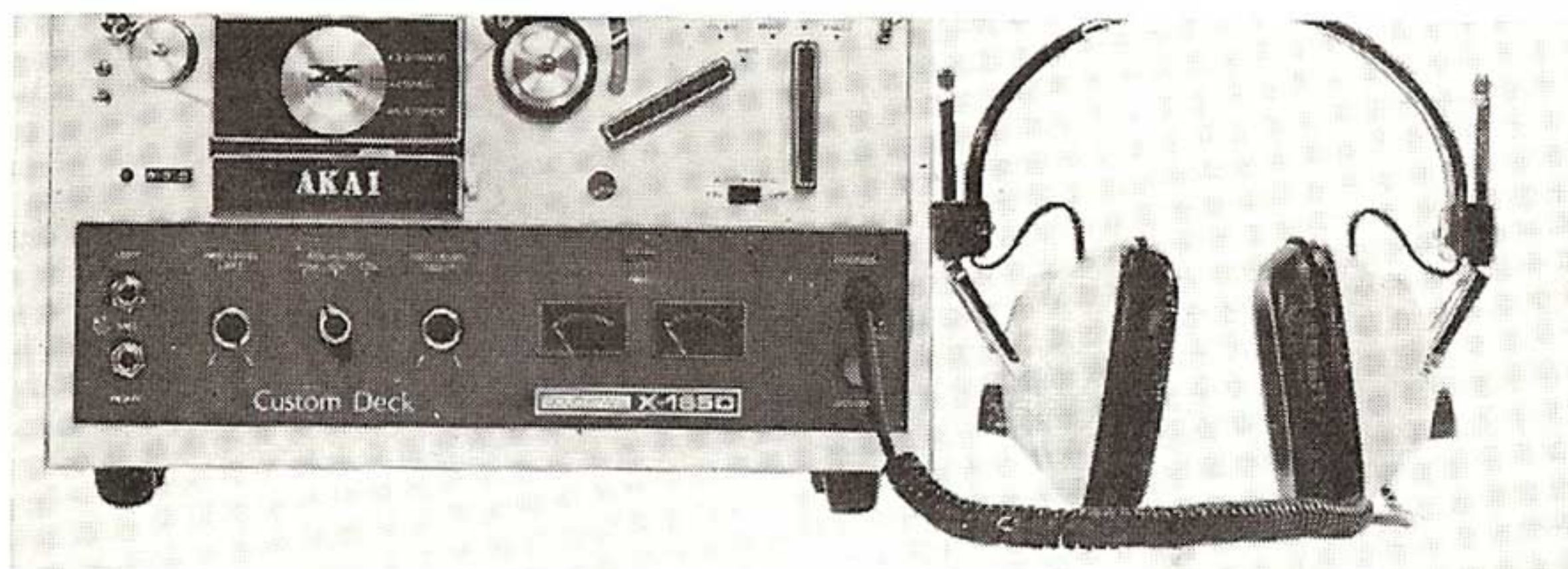
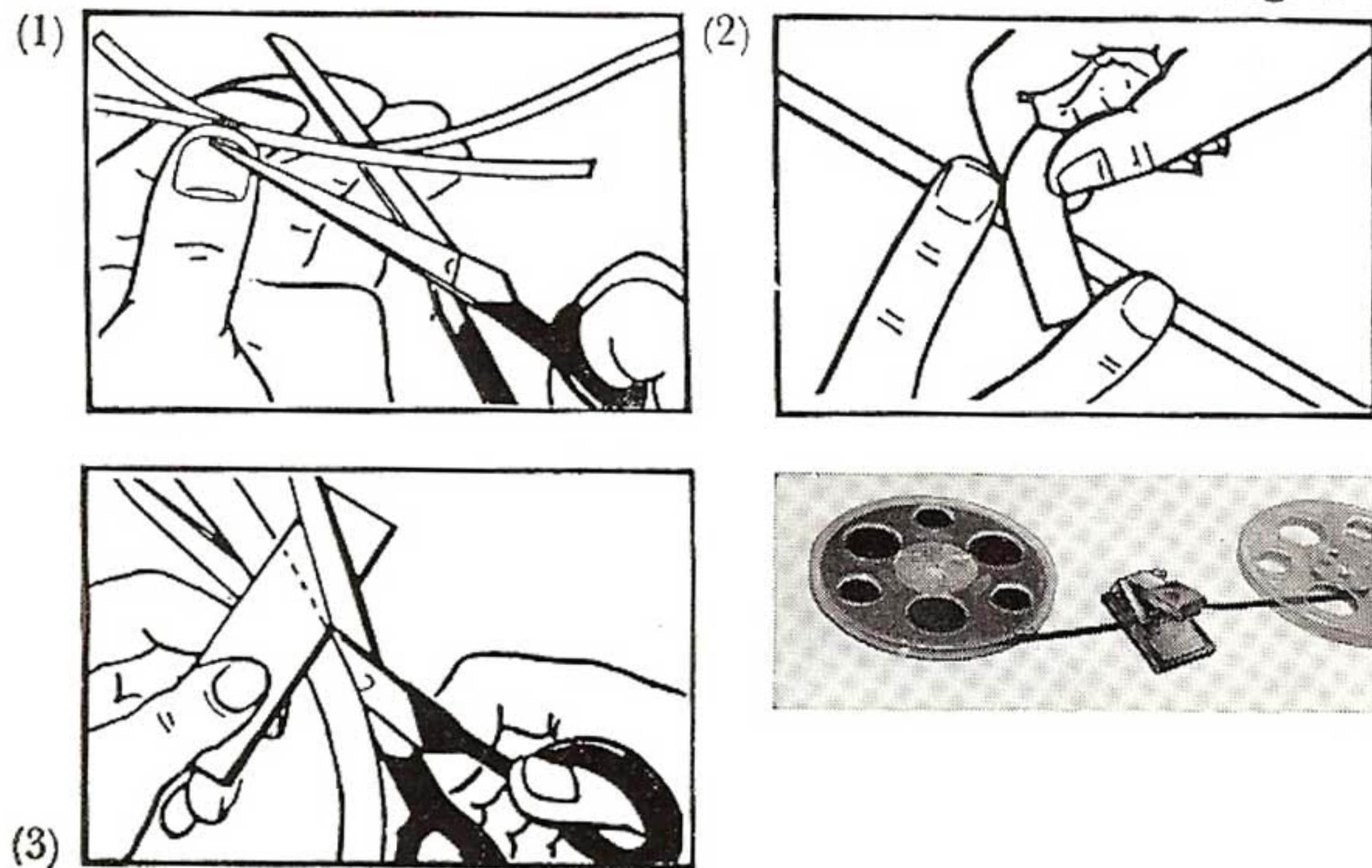


Fig. 34



12. FAST FORWARD AND REWIND

Fast forward or rewind is accomplished by turning the FAST FORWARD/REWIND KNOB ②⑥ to the proper position. Use fast forward or rewind for rapid selection of the recordings on the tape. The FAST FORWARD/REWIND KNOB ②⑥ cannot be turned out of the stop position unless the RECORD/PLAYBACK KNOB ②⑦ is in stop position, and vice versa.

13. MONITORING

Monitoring is made by connecting the stereo headphone to the STEREO HEADPHONE JACK ②①.

On monaural as well as stereo recording, please use the stereo headphones.

Caution: Stereo headphones should be of low impedance type (8 ohms).

14. TAPE SPLICING AND EDITING

Cut tape diagonally with an overlap so that the ends will be lined up (cutting tape on diagonal eliminates detection of the splice in recording).

Cover aligned ends with SPLICING TAPE. Press firmly, exerting pressure to secure ends evenly. Trim off excess splicing tape (Cut into recording tape very slightly as illustrated by dotted lines. This eliminates the possibility of a sticky splice). Splicing of tape using scissors requires skillful work. With our specially designed PORTABLE SPLICER, splicing can be done very smoothly.

15. HEAD CLEANING

TAPE OXIDE DEPOSITS CAUSE 90% OF TAPE RECORDING FAILURES

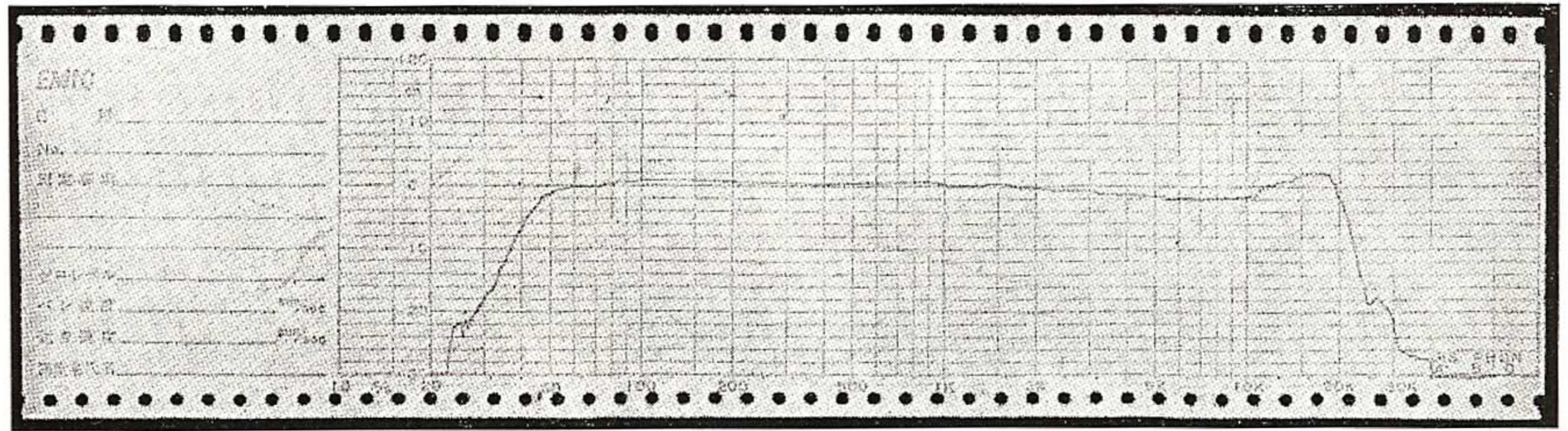
It is imperative for quality performance of a tape recorder to keep the heads clean at all times.

Dust and magnetic particles from the tape tend to deposit on the heads after prolonged use of the tape recorder. This results in poor head-to-tape contact, deteriorating sound quality and sensitivity.

Such dust also causes a significant drop in recording, playback and erase quality levels.

EXAMPLE

CLEAN HEAD



Frequency response curve

Fig.35

DUSTY HEAD

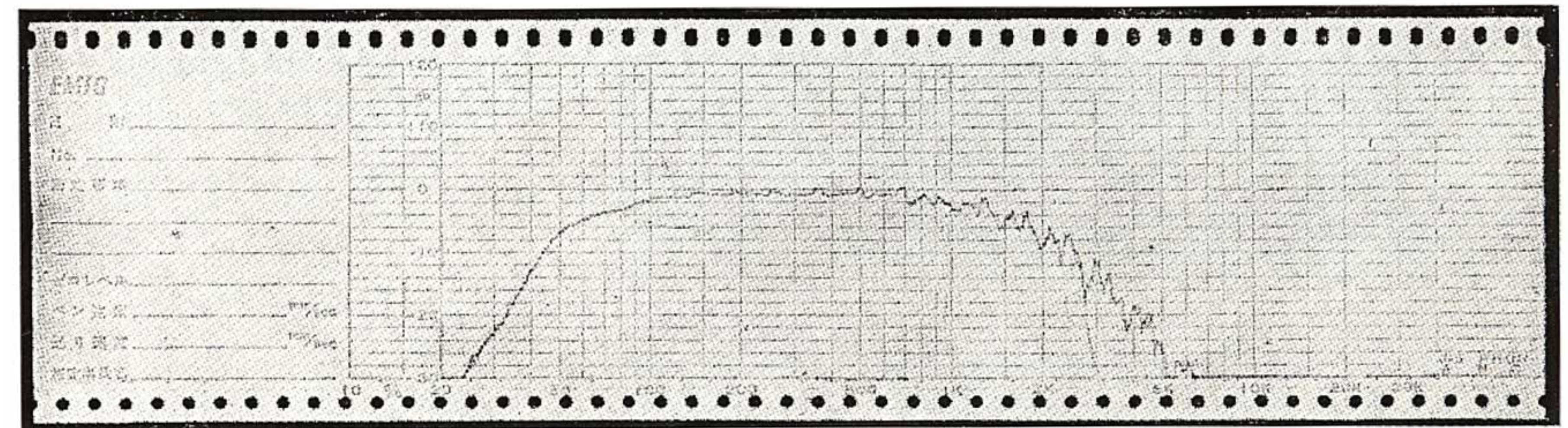
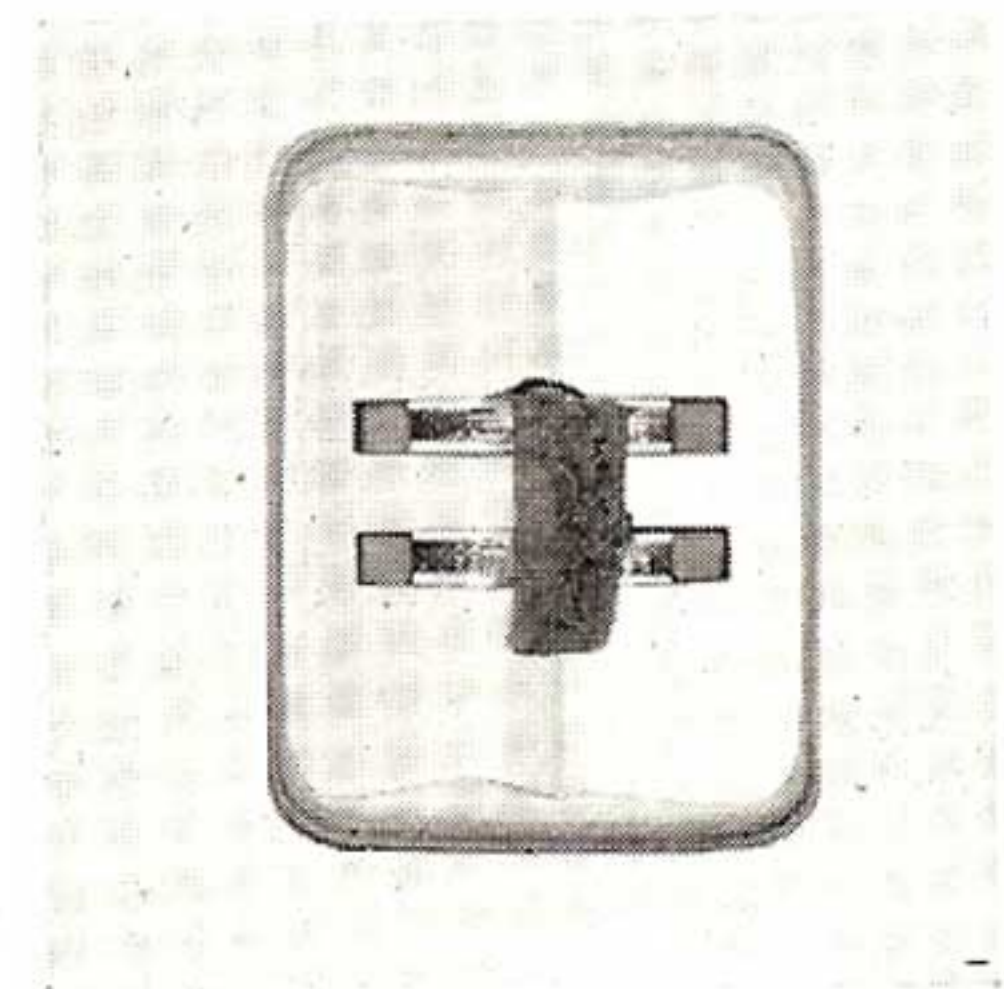
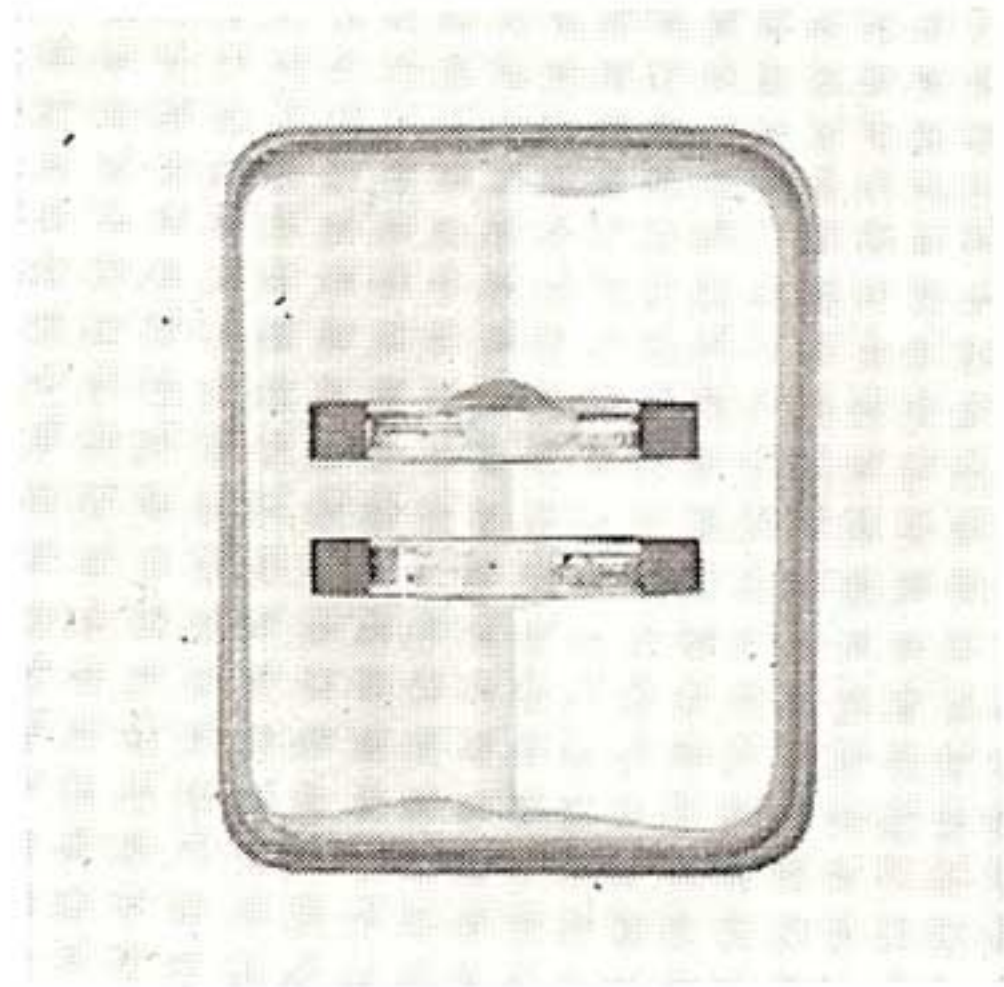


Fig. 36



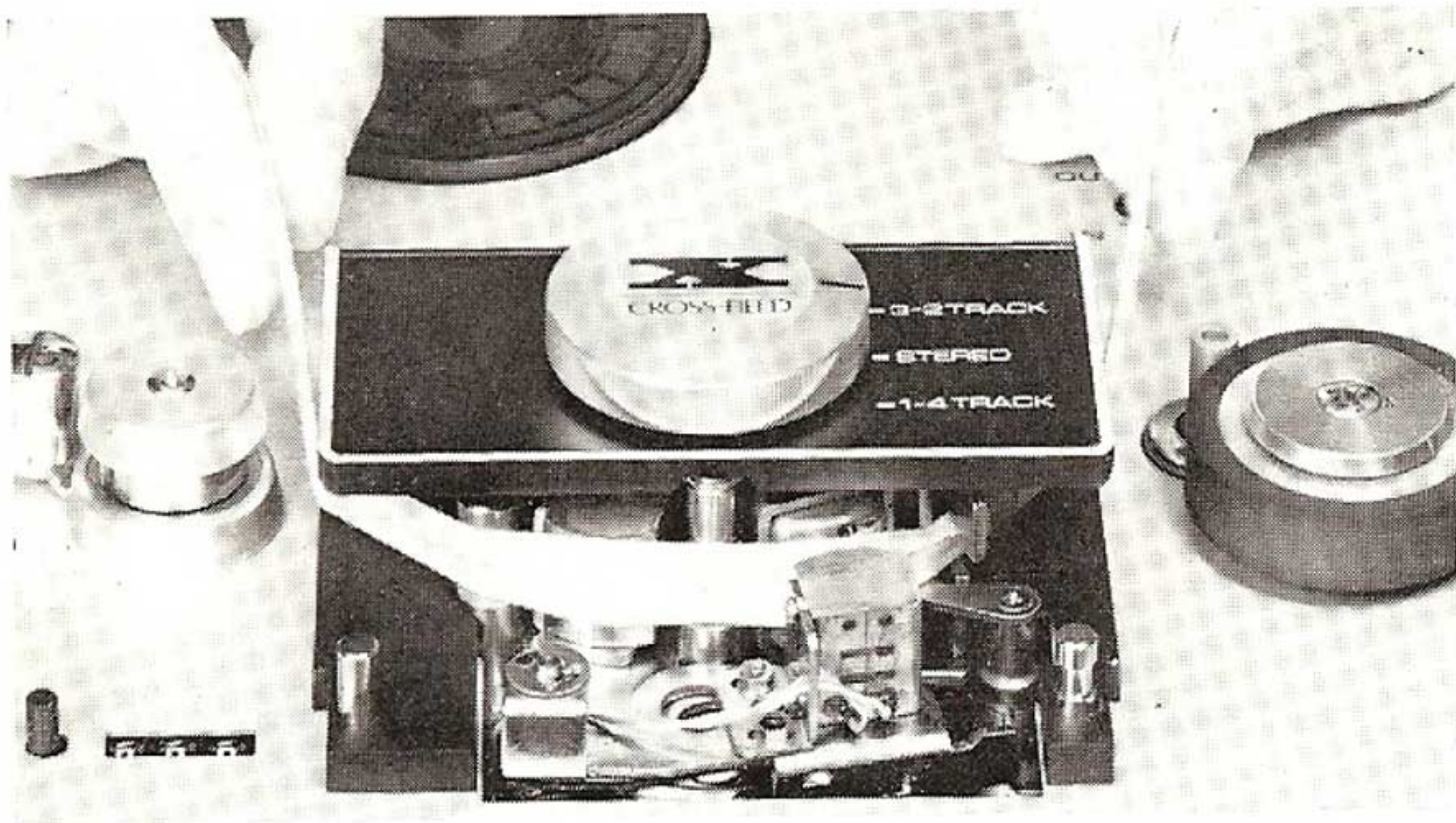


Fig. 37



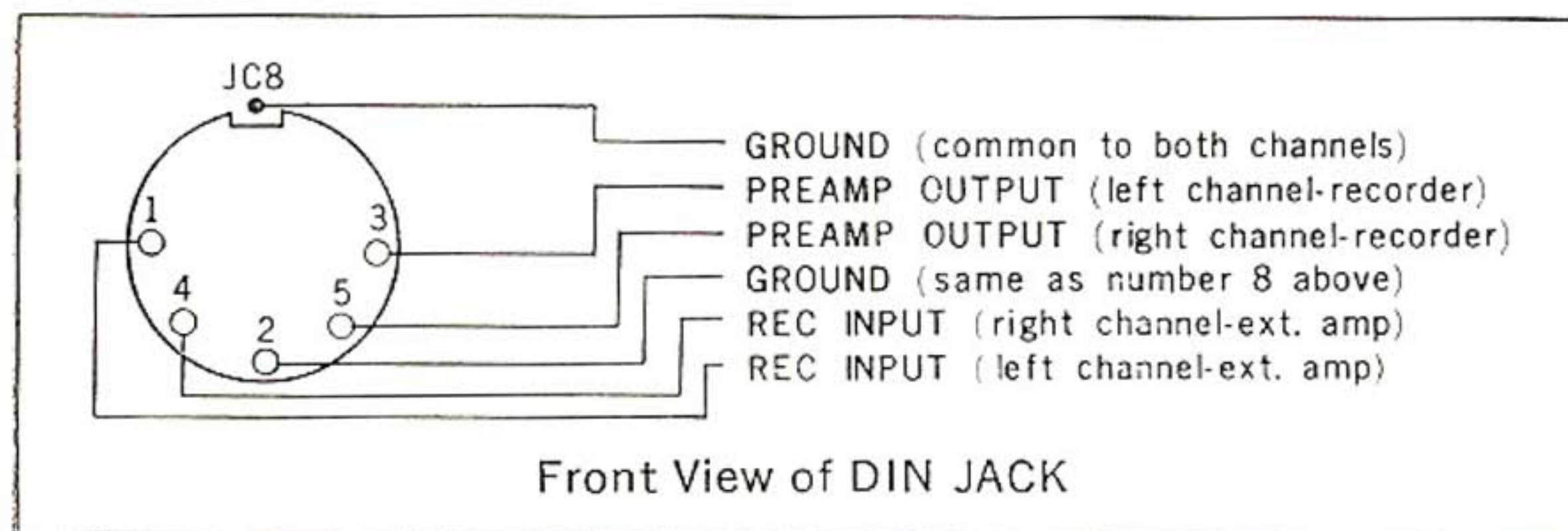
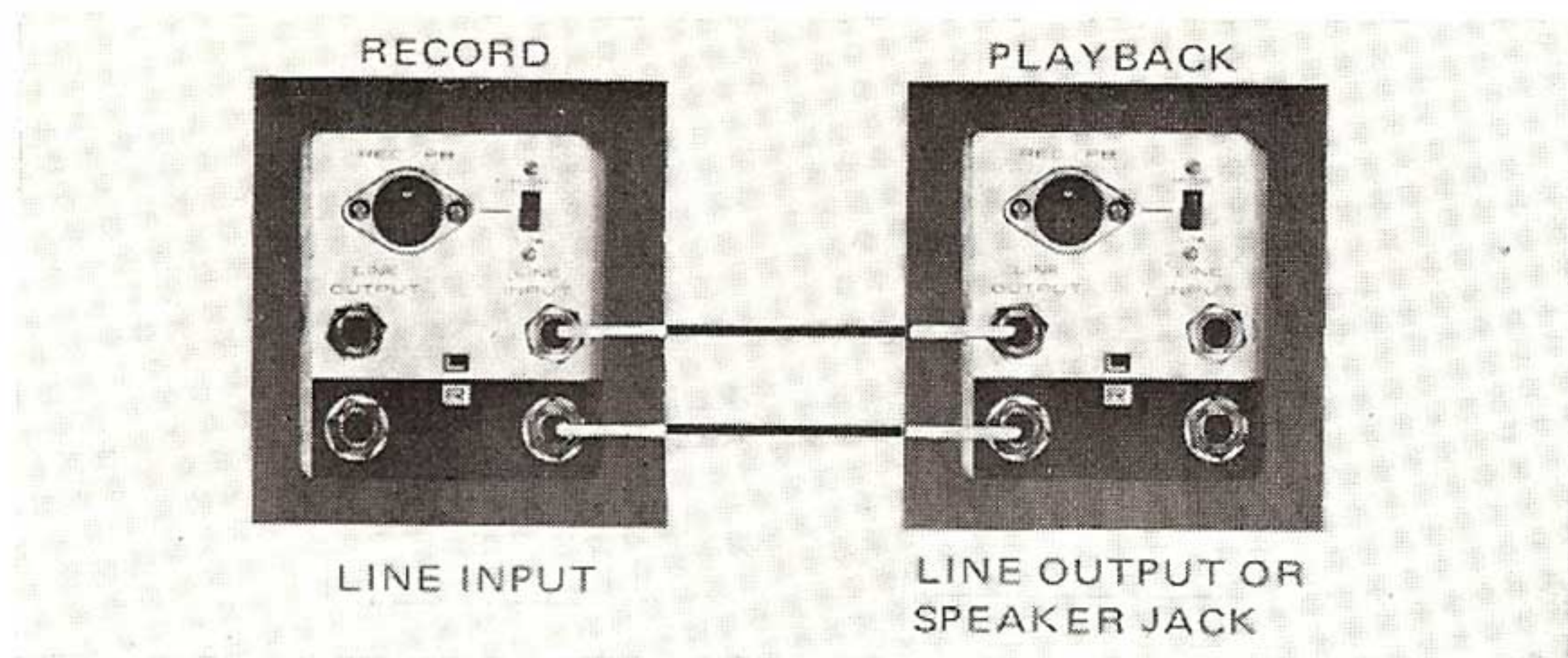
Fig. 38

Make it a rule to clean the heads every time you use your tape recorder. AKAI's Head Cleaning Kit (Accessory No. HC-500) is recommended for removing foreign matter deposited on the heads. If this kit is not available, use alcohol.

16. HEAD DEMAGNETIZATION

Normally the steel pole pieces which form a part of the recording and playback heads become slightly magnetized. The effect of slight head magnetization is that it partially erases the tape, especially at high frequencies. Generally, this condition can be detected by the loss of high frequency response which cannot be corrected through head alignment. Severe magnetization (which may be caused by using magnetized tools in the vicinity of the heads) will result in noise or considerable distortion in addition to the loss of high frequency response. Although Model X-165D already has a built-in Head Demagnetizing Circuit, it is recommended that head de-magnetization be performed periodically. This can be accomplished by touching the head lightly with the demagnetizer and making several small circular motions all over head surface areas as well as the head housing.

NOTE: To avoid scratching the head surface, we suggest that you cover both prongs of the head demagnetizer with a sort of masking tape.



17. TAPE DUPLICATION

FROM ANOTHER TAPE RECORDER

Connect LINE OUTPUT JACKS or EXTERNAL SPEAKER JACKS of the playback machine to LINE INPUT JACKS instead of step (G) of stereo recording procedure.

18. DIN (ONE MULTIPLE-CONNECTION) JACK

The DIN JACK is provided at the left side of the X-165D for interconnecting the X-165D with an external stereo amplifier that has the same connection jack. This system permits easy recording and playback of stereophonic programs through an external stereo amplifier as the complexity of connecting or disconnecting 4 separate plugs from the recorder's side panel is not necessary.

If your amplifier is not equipped with a DIN jack and the use of this one connection system is required, AKAI Cord (standard accessory) DR 110 can be used.

Note: When the output level of an external amplifier is more than 50 mV, set the HIGH/LOW CHANGE SWITCH to "HIGH." When output level is more than 5 mV, set it to "LOW."

19. VENTILATION

The Model X-165D is equipped with a unique ventilation system to prevent excessive heat which would shorten the life of the component parts.

However, it is recommended that the unit always be spaced a short distance apart from a wall, screen, or any other obstacle which might prevent good air circulation.

III. ACCESSORIES



CM-15



DM-13



AS-3



AH-6

1. ACCESSORIES OPTIONAL

Condenser Microphones No. CM-15

Akai's very latest high fidelity microphone is designed for the professional and Hi-Fi enthusiasts. This unit consists of a microphone and pre-amplifier, and permits simultaneous use of two microphones for stereo purposes.

Frequency response: 50 to 15,000

Dynamic Microphones No. DM-13

Although compact, these are extremely high quality dynamic microphones. They are guaranteed to give complete satisfaction to the most critical audio enthusiasts and professional users.

Frequency response: 50 to 12,000

Tape Splicer No. AS-3

This tape splicer is a small pocket sized device and not only provides easy splicing but also preserves the original quality of recording.

Head Demagnetizer No. AH-6

Normally the steel pole pieces which form a part of the tape heads become slightly magnetized. The effect of the slight magnetization is to partially erase the tape (especially high frequencies). Periodical Head Demagnetization is the best way to maintain original quality of the tape. The AH-6 has a built-in on-off switch and a neon bulb.

Telephone Pick-up No. AP-2

This is designed to record telephone conversations with maximum clarity and sensitivity. Just press it on to the back of the telephone receiver. Rubber suction cup holds the pick-up in position.



AP-2

Tape Eraser No. ATE-7

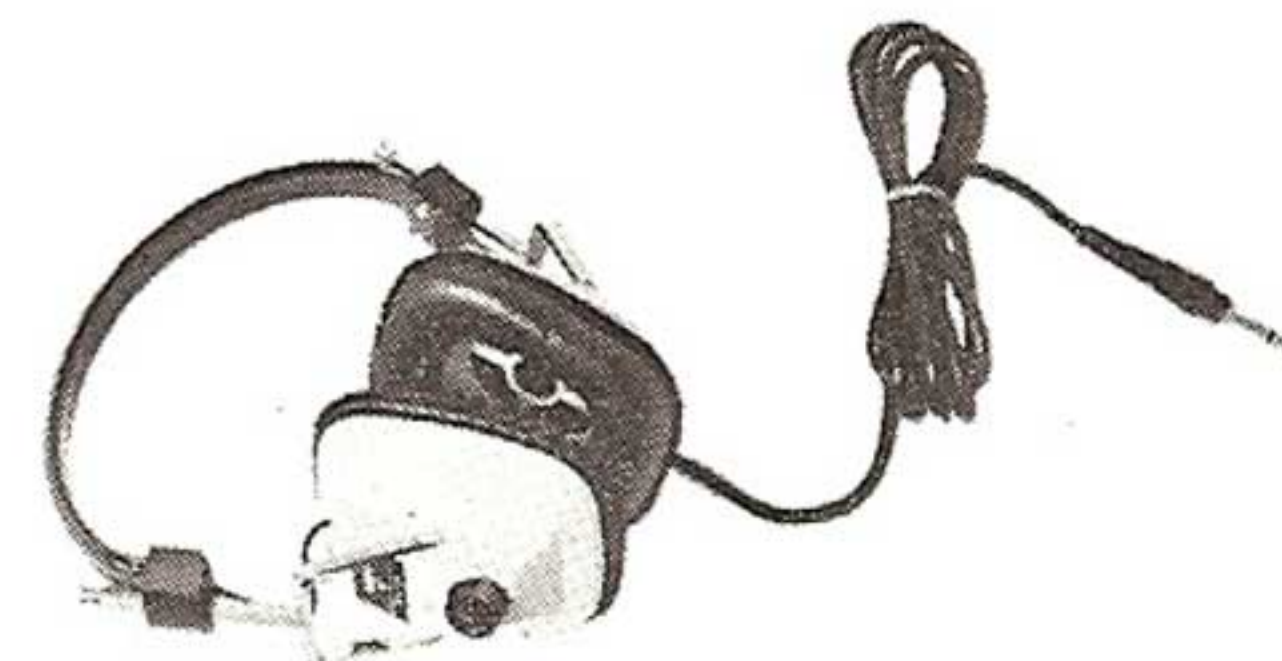
This unit erases any previously recorded materials completely in a few seconds and accommodates tapereels from 3" to 7" in diameter. It is designed to provide maximum erasing efficiency. Has a pop-up shaft to hold the tape reel in position and also serves as a power switch and on-off bulb indicator of the unit.



ATE-7

Stereo Headphone No. ASE-9S

In order to enjoy true stereophonic effects of your Akai tape recorder, Stereo Headphones ASE-9S is recommended.



ASE-9S

Head Cleaning Kit No. HC-500

90% of tape recording failures are due to the accumulation of foreign matter on the heads. However, only high quality cleaner should be used for cleaning heads. Head Cleaning Kit HC-500 is highly recommended.



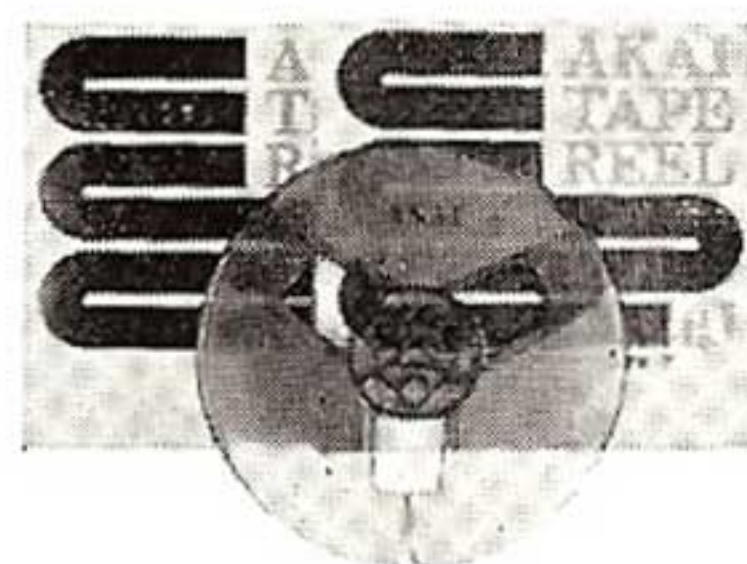
HC-500



TC-300



MAGNETIC TAPE



TAPE REEL

Tape Cleaning Kit No. TC-300

This Kit has been designed for the discriminating home enthusiast who wants to insure the longevity, and frequency response of his tapes. It enables you to clean off dust and other foreign particles that accumulate on tape, thus eliminating the main cause of tape squeaking.

AKAI Magnetic Tape & Tape Reel

AKAI Magnetic Tape

AT-5S	(600 feet)
AT-7S	(1,200 feet)
AT-10S	(2,400 feet)
AT-5L	(900 feet)
AT-7L	(1,800 feet)
AT-10L	(3,600 feet)

AKAI Tape Reel

ATR-5	(for 5")
ATR-7	(for 7")

2. ACCESSORIES STANDARD

DR-110 Connection Cord	1
Silicon Oil Kit.....	1
Smoked Plastic Dust Cover	1
Operators Manual.....	1



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