



2500

OPERATOR'S MANUAL

4-HEAD 3-MOTOR AUTOMATIC REVERSE STEREO TAPE DECK



MANUFACTURED & DISTRIBUTED BY AKAI ELECTRIC CO., LTD./AKAI TRADING CO., LTD.

■ TABLE OF CONTENTS

I. GENERAL INFORMATION	
1. Specifications	1
2. Controls	2
Front Panel Controls	2
Back Panel Controls	4
II. OPERATING INSTRUCTIONS	
1. 4-Track Recording/Playback System	5
2. Tape Loading	5
3. Voltage and Cycle Conversion.....	6
4. Tape Speed Selection.....	7
5. Pause Control	7
6. Automatic Stop/Shut-off	7
7. Fast Forward and Rewind	7
8. Playback	8
Stereo Playback	9
Monaural Playback	9
Playback using Stereo Headphones	10
Manual Reverse	10
Automatic Reverse Playback (Using sensing tape)	10
9. Recording.....	11
Stereo Recording	11
Monaural Recording.....	12
Recording from an External Amplifier	12
Recording from a Record Player	13
Recording from another Tape Recorder	13
DIN Jack	13
Sound-on-Sound Recording	14
Monitoring	15
Sound-over-Sound Recording (Mixing)	15
10. Remote Control	15
11. Tape Splicing and Editing	15
12. Tape Erasing	16
13. Head Cleaning	16
14. Head Demagnetizing.....	17
15. Trouble Shooting Chart	18
III. ACCESSORIES	
1. Standard Accessories	19
2. Optional Accessories	19

SCHEMATIC

I. GENERAL INFORMATION

1- SPECIFICATIONS

Track System	4-track 2-channel stereo/monaural
Maximum Reel Capacity	7" reel
Tape Speed	19 cm/sec. (7½ ips), 9.5 cm/sec. (3¾ ips), 4.8 cm/sec. (1⅞ ips)
Tape Speed Deviation	Within 0.5%
Wow and Flutter	Less than 0.08% RMS at 19 cm/sec. (7½ ips) Less than 0.12% RMS at 9.5 cm/sec. (3¾ ips) Less than 0.18% RMS at 4.8 cm/sec. (1⅞ ips)
Frequency Response	30 to 22,000 Hz (±3 dB) at 19 cm/sec. (7½ ips) 30 to 13,000 Hz (±3 dB) at 9.5 cm/sec. (3¾ ips) 50 to 6,000 Hz (±3 dB) at 4.8 cm/sec. (1⅞ ips)
Signal to Noise Ratio	Better than 50 dB
Distortion	Within 2% at 19 cm/sec. (7½ ips) (1,000 Hz "0" VU recording)
Cross-Talk	Better than 70 dB (monaural) Better than 50 dB (stereo)
Erase Ratio	Better than 70 dB
Equalization	Correct equalization for playback of tapes recorded to NAB curve
Recorded Bias Frequency	100 kHz
Recording Level Indicator	2 VU meters
Heads	4-track 2-channel heads for recording, playback, reverse playback and erase (4 heads in total)
Fast Forward and Rewind Time	75 seconds using 1,200 ft. tapes at 50 Hz 60 seconds using 1,200 ft. tapes at 60 Hz
Line Output Level	1.23 V, "0" VU
Required Load Impedance	More than 25 kΩ
DIN Output Level	0.4 V
Stereo Headphone Output Level/Impedance	30 to 40 mV, 8 Ω
Line Input Level/Impedance	0.1 V, 150 kΩ
DIN Input Level/Impedance	50 mV (High), 5 mV (Low), 68 kΩ
Microphone Input Level/Impedance	0.3 mV, 10 kΩ
Monitor System	Stereo headphones, 8 Ω
Recording Capacity	4 hrs. stereo recording using 1,200 ft. tapes at 4.8 cm/sec. (1⅞ ips)
Motors	One outer-rotor 3-speed motor w/SERVO-CONTROL for capstan drive and two 6-pole eddy-current outer-rotor motor for supply and take-up reel drive.
Semiconductors	34 silicon transistors, 18 diodes
Integrated Circuits	2
Power Supply	100/110/120/200/220/240 V, 50/60 Hz
Power Consumption	33 to 130 W
Dimensions	435(W) × 460(H) × 260(D) mm (17" × 18" × 10")
Weight	20 kg (44 lbs)

2- Controls

Front Panel Controls

INDEX COUNTER

For use in locating positions on a tape. With Reset Button, set Index Counter to "0000" before beginning recording or playback.

REEL RETAINER

SUPPLY REEL TABLE



RECORD INDICATOR LAMP

Recording mode indicator lamp. When Record and Forward Buttons are depressed (recording mode is effected), this Record Indicator Lamp will light.

TRACK SELECTOR BUTTONS

1-4/Stereo/3-2 Buttons show respective markings above each button. Easy selection of proper track for recording or playback operation.

SENSING PIN (Left)

During Playback operation, when the tape is being reversed from  to , such automatic reverse is effected with the sensing tape (affixed to the magnetized tape surface) comes in contact with this sensing pin.

TENSION ARM

The Tension Arm not only works to correct tape slack, but also stabilizes tape speed. As the tape advances, stabilized tension is applied and tape vibration is eliminated.

PAUSE BUTTON

Convenient for use in temporarily suspending tape movement during recording or playback operation. Turning button to right locks it into pause position.

AUTOMATIC SHUT-OFF BUTTON

The Automatic Shut-Off Button is linked to the Automatic Shut-Off Lever. If this button is at depressed position, when the tape comes to the end or is broken, the power of the entire unit is cut off. A convenient safety feature in case the recorder is left unattended.

POWER SWITCH

TAPE SPEED SELECTOR BUTTONS

7-1/2 (19 cm/s), 3-3/4 (9.5 cm/s), and 1-7/8 ips (4.8 cm/s) Speed Selector Buttons. Feather touch for easy selection of desired speed.

MICROPHONE RECORD LEVEL CONTROLS (Left/Right)

When using microphones for recording, adjust input with these controls while observing VU Meters.

MICROPHONE JACKS (Left/Right)

When using microphones for recording, insert microphone plugs into these jacks. Left jack is for left channel recording and right jack for right channel recording.

HEADPHONE JACK

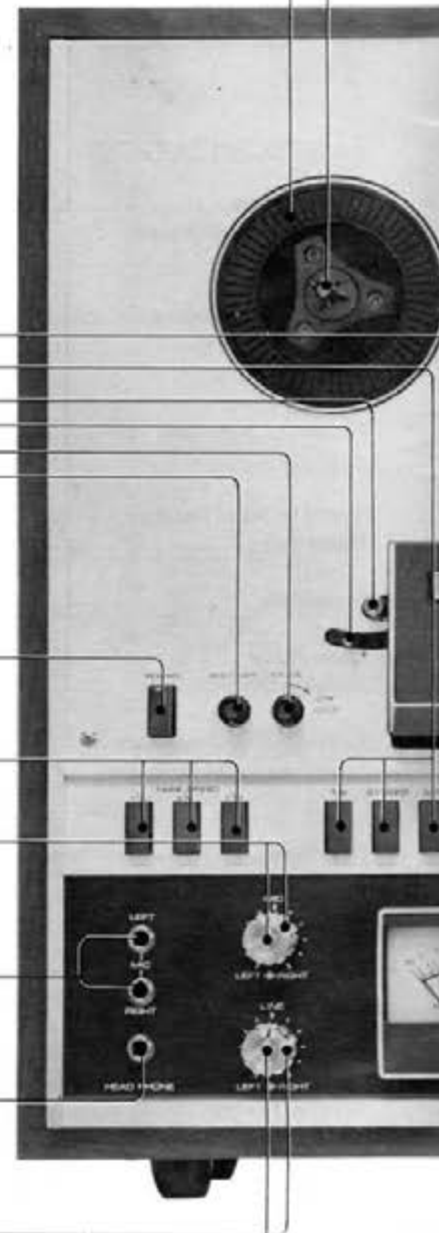
For use in monitoring or private listening. Please use headphones of 8Ω impedance (AKAI ASE-9S, ASE-20, or ASE-22).

LINE RECORD LEVEL CONTROLS (Left/Right)

For use in adjusting line recording input level. Adjust while observing VU Meters.

VU METERS (Left/Right)

These meters indicate recording and playback levels (Left meter, left channel level and right meter, right channel level). Normal recording level should not exceed white zone on VU Meters ("0" VU).



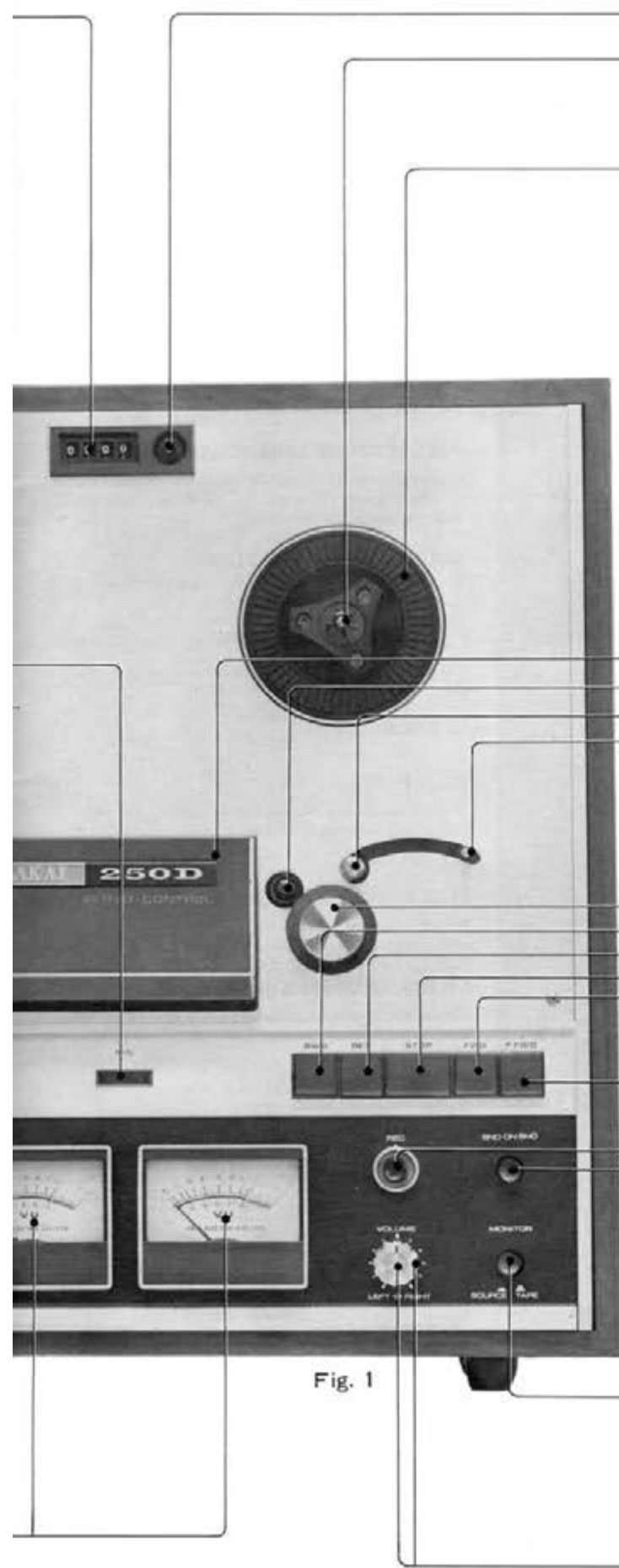


Fig. 1

RESET BUTTON

REEL RETAINER

Lock reels into place with these built-in reel retainers. Pull tip of retainers outward and turn to left or right to firmly lock reels into place.

TAKE-UP REEL TABLE

HEAD COVER

Head cover houses (from left to right) Erase, Recording, Playback and Reverse Playback Heads.

CAPSTAN

Transports tape at consistent speed. The 250D employs a high efficiency Servo Circuit Motor for direct capstan drive, resulting in complete tape speed stability.

SENSING PIN (Right)

For reversing tape from to direction during playback operation. Such Automatic Reverse is effected when the sensing tape (previously affixed to outer edge of tape surface) comes in contact with this sensing pin.

AUTOMATIC SHUT-OFF LEVER

At the end of the tape (or when the tape is broken), the Automatic Shut-Off Lever is released and tape movement is stopped. If the Shut-Off Button is at depressed position, when the Automatic Lever is released, the power of the entire unit is cut off.

PINCH WHEEL

Presses against capstan to transport tape.

REWIND BUTTON

For use in rewinding tape from right to left reel at high speed.

REVERSE BUTTON

For effecting Manual Reverse and Reverse Playback. Sensing tape is used for automatic reverse.

STOP BUTTON

Depress to stop tape travel (releases pinch wheel).

FORWARD BUTTON

Used to advance tape in forward direction. For recording mode, depress Record Button and Forward Button.

FAST FORWARD BUTTON

For advancing tape in forward direction at high speed.

RECORD BUTTON

For effecting recording mode, depress this Record Button before the Forward Button. Check Record Indicator Lamp to confirm recording mode.

SOUND-ON-SOUND BUTTON

Use for language study, compile a duet from a single voice, or use for any number of other interesting Sound-On-Sound operations. Depress this button for second and subsequent recordings (see Sound-On-Sound section of this manual).

MONITOR SWITCH

During recording mode, when Monitor Switch is at "Tape" position, the signals can be monitored as the tape passes the playback head. When at "Source" (in) position, the program source is monitored as it is being recorded. When erasing, or for private listening during playback mode, Monitor Switch should be kept at "Tape" (out) position.

VOLUME CONTROLS (Left/Right)

For adjustment of sound level during playback mode.

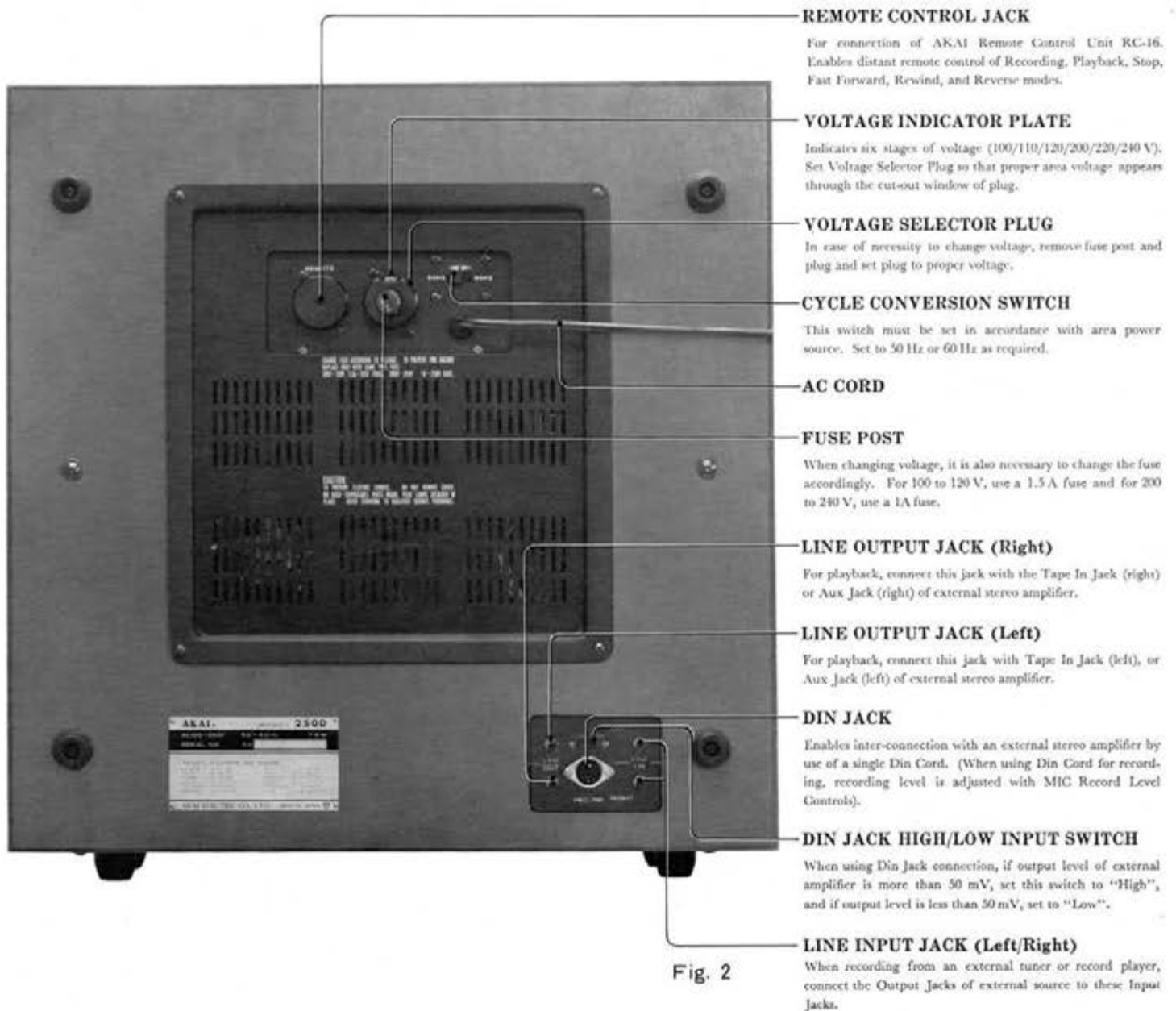


Fig. 2

II. OPERATING INSTRUCTIONS

1- 4-Track Recording/Playback System

The monaural recording/playback track sequence should be 1-4-3-2.

(A) Depress TRACK SELECTOR BUTTON "1-4".

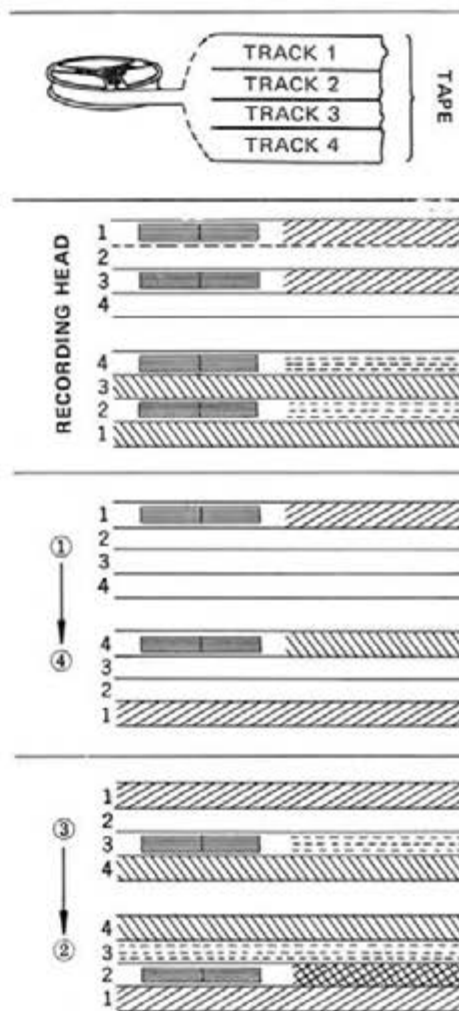
The first monaural recording/playback takes place on track 1, and the second on track 4 after the tape reels have been inverted.

(B) Invert reels.

(C) Depress TRACK SELECTOR BUTTON "3-2".

The third monaural recording/playback takes place on track 3, and the fourth on track 2 after the tape reels have been inverted.

The 250D does not record in reverse direction. Using reverse playback, it is not necessary to turn the Tape Reels over. When the 250D begins reverse playback, the Playback Head is automatically shifted to the remaining tracks.



2- Tape Loading

Place a full reel of tape on SUPPLY REEL TABLE and an empty reel on the TAKE-UP REEL TABLE. Thread the tape as illustrated by the dotted line in Fig. 4.

Lock reels into place with the REEL RETAINERS provided on Reel Shafts.

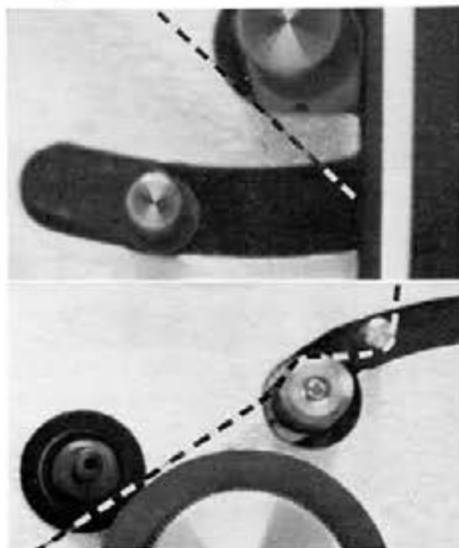


Fig. 3

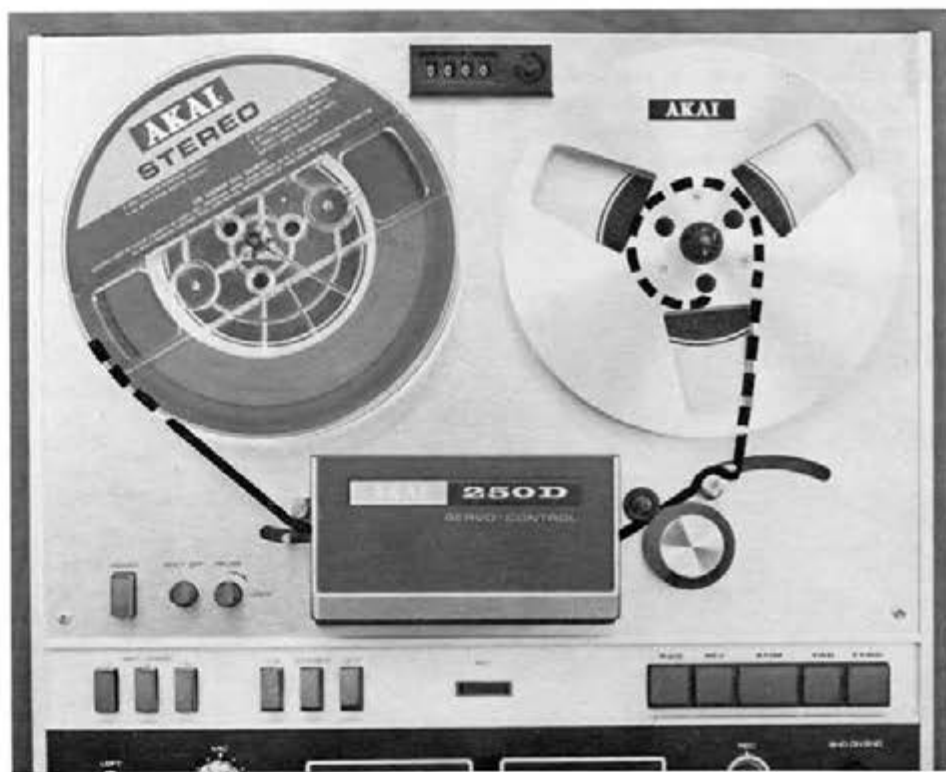


Fig. 4

3- Voltage and Cycle Conversion

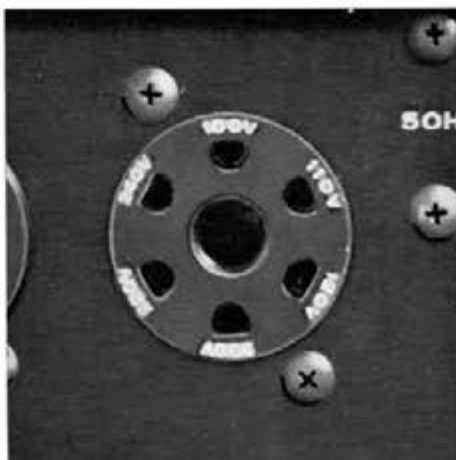
■ Voltage

Model 250D is operable anywhere in the world. With the built-in step-down power transformer, the operator can easily readjust the recorder to any one of the six stages of power voltage from 100 to 240 volts A.C. The operator is requested to check the previously set voltage before operation. If another voltage is required, readjustment can be made as follows:

- (1) Remove the FUSE POST as shown in Fig.5-A. Remove VOLTAGE SELECTOR PLUG and reinsert to standard area voltage.
- (2) The VOLTAGE SELECTOR as shown in Figs. B, C, and D is a rotatable plug-in type offering 6 selections (100/110/120/200/220/240).
- (3) Change the fuse according to voltage.

Voltage	100V to 120V	200V to 240V
Fuse	1.5A	1A

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



A

B

C

D

Fig. 5

■ Cycle

Correct tape speed cannot be obtained if the CYCLE CONVERSION SWITCH located on the rear panel of recorder is not properly set. For 50Hz operation, set Switch to 50Hz (left) position. For 60Hz operation, set to 60Hz (right) position.

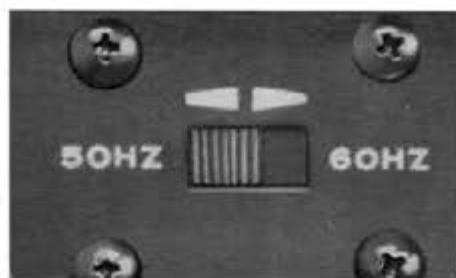


Fig. 6

4- Tape Speed Selection

The 250D operates on 3 tape speeds; 19 cm/sec. (7½ ips), 9.5 cm/sec. (3¾ ips), and 4.8 cm/sec. (1⅞ ips). For selection of tape speed, simply depress Tape Speed Button according to required speed.

RECORDING TIME				
Tape Length	TAPE SPEED			
	4-Track STEREO		4-Track MONO	
	9.5 cm/sec. (3-3/4 ips)	19 cm/sec. (7-1/2 ips)	9.5 cm/sec. (3-3/4 ips)	19 cm/sec. (7-1/2 ips)
1,200 ft.	2 hours	1	4	2
1,800 ft.	3	1.5	6	3
2,400 ft.	4	2	8	4

5- Pause Control

To momentarily stop the tape during recording or playback, depress PAUSE BUTTON. Use of Pause Control permits adjustment and balance of recording level when recorder is set to normal recording mode. Adjust Recording Level Controls while observing VU Meters.

Important: Adjustment of recording level cannot be accomplished while Pause Button is depressed unless Monitor Switch is at "Source" position.

Pause control is also useful in editing the tape during recording. Depress PAUSE BUTTON when certain portions of a program are not desired.

After PAUSE BUTTON has been depressed, it can be locked into position by turning it to the right.

CAUTION: Pause control does not function during fast forward or rewind operation.

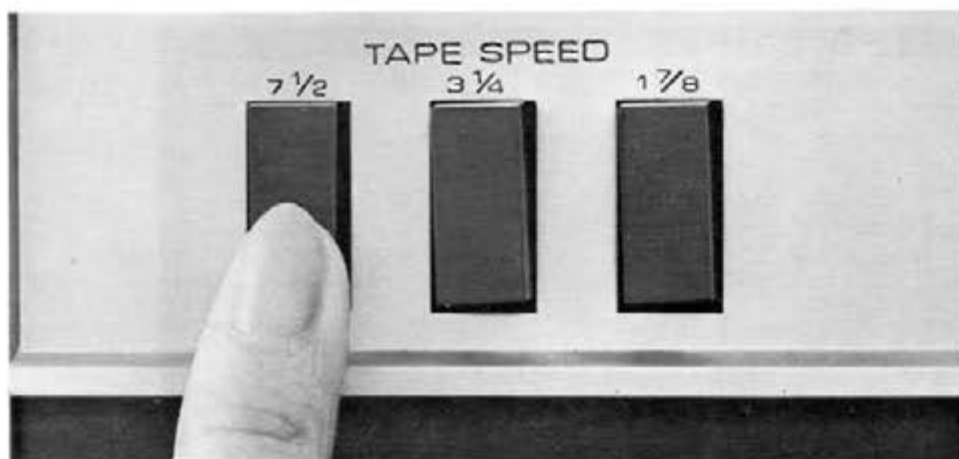


Fig. 7

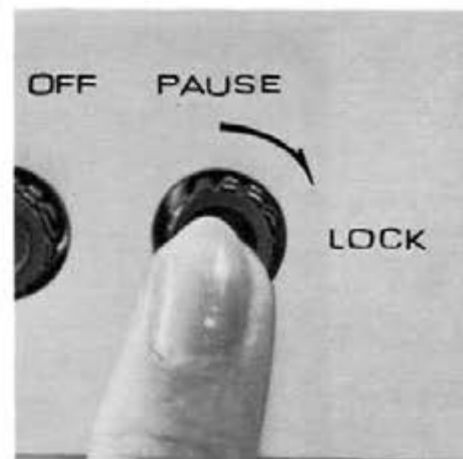


Fig. 8



Fig. 9

6- Automatic Stop/Shut-Off

One of the exclusive features of the Model 250D is the automatic stop/shut-off function of the unit. When the tape comes to the end or is accidentally broken, the SHUT-OFF LEVER is released and reel movement is automatically stopped (Automatic stop is effected).

If the AUTOMATIC SHUT-OFF BUTTON is depressed, when the tape comes to the end or is accidentally broken, the power of the unit is cut off (Automatic shut-off is effected).

7- Fast Forward and Rewind

To effect Fast Forward or Rewind, depress F. FWD or RWD BUTTON of control panel.

Use STOP BUTTON to stop Fast Forward or Rewind operation.

8- Playback



Fig. 10

Please be sure to check the following prior to operation.

- Heads are clean and free of dust.
- As tape which has not been used for a period of time may have become sticky, run tape once before using.
- Tape is loaded properly.



Fig. 11



Fig. 12



Fig. 13

■ Stereo Playback

The Model 250D does not include a Power Amplifier or Loud Speakers. It is, therefore, necessary to provide an external amplifier and a pair of speakers for playback.

Connect LINE OUTPUT JACKS to TAPE INPUT JACKS of Stereo Amplifier and connect two speakers to the amplifier.

Connect Power Cord and load a tape.

- Turn on POWER SWITCH.
- Depress "STEREO" TRACK SELECTOR BUTTON.
- Depress SPEED SELECTOR BUTTON according to required speed.
- Set MONITOR SWITCH to "TAPE" (out) position.
- Depress FORWARD BUTTON for playback.
- The output level of model 250D is 1.23 V maximum. Adjust Volume Controls to correspond with your external amplifier.

■ Monaural Playback

Only the left channel is used for monaural playback on tracks 1 and 4. Connect the LEFT LINE OUTPUT of model 250D to the LEFT TAPE INPUT or AUX JACK of external amplifier and connect a speaker to the LEFT OUTPUT TERMINAL of external amplifier. Substitute the following for steps ② and ⑤ of stereo procedure and follow the rest of the stereo procedure.

- Depress "1-4" TRACK SELECTOR BUTTON. At end of playback on Track 1, depress REVERSE BUTTON for playback on track 4 (or invert reels).
- Adjust LEFT VOLUME CONTROL of Model 250D and LEFT VOLUME CONTROL, etc. of external amplifier.

Only the right channel is used for monaural playback on tracks 3 and 2. Connect the RIGHT LINE OUTPUT of Model 250D to the RIGHT TAPE INPUT or AUX JACK of external amplifier.

Substitute the following for steps ② and ⑤ of stereo procedure and follow the rest of the stereo procedure.

- Depress "3-2" TRACK SELECTOR BUTTON. At end of playback on track 3, depress REVERSE BUTTON for playback on track 2 (or invert reels).
- Adjust RIGHT VOLUME CONTROL of Model 250D and RIGHT VOLUME CONTROL, etc. of external amplifier.

■ Playback using Stereo Headphones

For private listening, use Stereo Headphones of low impedance type (8 ohms). Connect Headphones to HEADPHONE JACK. For monaural as well as stereo, use Stereo Headphones (AKAI model ASE-9S, ASE-20, or ASE-22 is highly recommended). Volume is controlled with VOLUME CONTROLS.

■ Manual Reverse

The 250D is equipped with a MANUAL REVERSE BUTTON for Manual Reverse and Reverse Playback. To effect manual reverse, depress MANUAL REVERSE BUTTON on control panel.

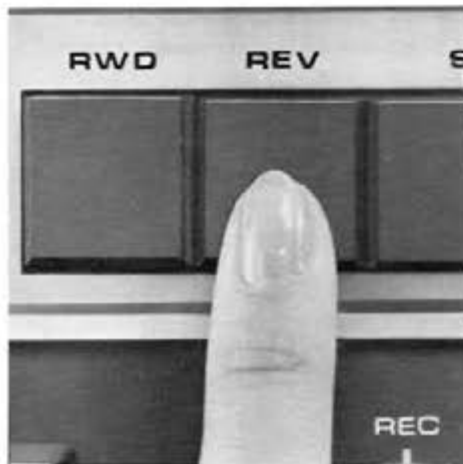


Fig. 14

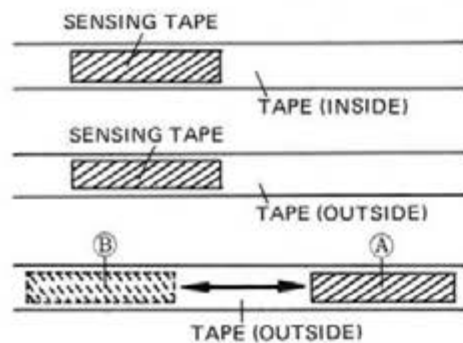
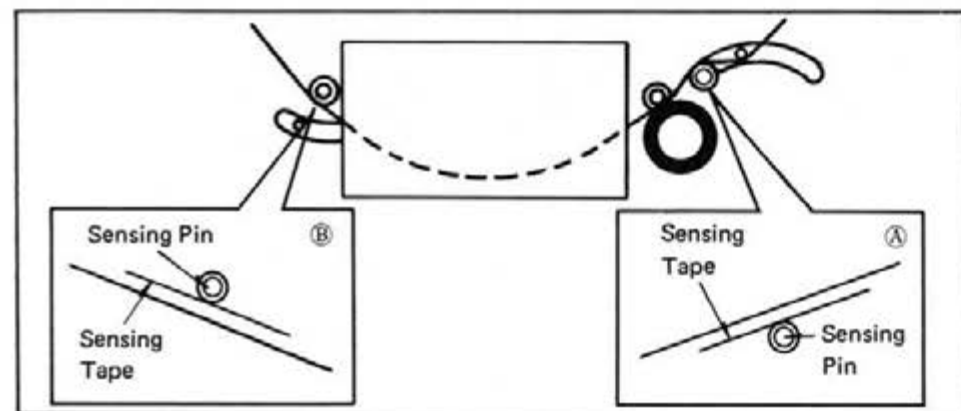


Fig. 15



■ Automatic Reverse Playback (Using Sensing Tape)

- (A) Affix about a 2 cm ($\frac{3}{4}$ " long piece of sensing tape (foil) to the outside of tape at desired reversing point.
- (B) If continuous reverse between two points is desired, affix another piece of sensing tape to the inside of tape at desired reversing point.

As the foil passes the Sensing Pins, reverse is effected.

This AKAI reversing system differs from or-

dinary reversing systems in that when reverse is being effected, the motor revolutions are reversed and the capstan automatically separates from the Pinch Wheel, suspending reel movement momentarily until the exact tape speed (ips) to which the recorder is set is reached. At this time, the Capstan again automatically contacts the Pinch Wheel and the tape begins to travel. Thus, tape speed is always accurately maintained and annoying noise as the tape reverses is completely eliminated.

9- Recording

Please be sure to check the following prior to operation.

- Heads are clean and free of dust.
- Heads are demagnetized.
- Use good quality tape (new tape gives best results).
- As tape which has not been used for a period of time may have become sticky, run tape once before using.
- Tape is loaded properly.

■ Stereo Recording

Connect the power cord and load a tape.

- Ⓐ Turn on POWER SWITCH.
- Ⓑ Depress "STEREO" TRACK SELECTOR BUTTON.
- Ⓒ Depress TAPE SPEED SELECTOR BUTTON according to required speed.
- Ⓓ With RESET BUTTON, set INDEX COUNTER to "0000". This Index Counter



Fig. 16

- provides an easy reference for locating positions on the tape.
- Ⓔ Insert MICROPHONE PLUGS to MICROPHONE JACKS (maintain a distance of at least 2 meters (7 feet) between Microphones).
 - Ⓕ Set MONITOR SWITCH to "SOURCE" (in) position.
 - Ⓖ Depress PAUSE BUTTON and lock into position.
 - Ⓙ Depress REC BUTTON and FWD BUTTON (Recording Indicator Lamp will light).
 - Ⓚ Adjust and balance microphone volume level by operating MIC RECORD LEVEL CONTROLS while observing the VU Meters (normal recording should not exceed "0" VU).
 - Ⓛ When an optimum recording level has been determined, release PAUSE BUTTON to begin recording.
 - Ⓜ Depress STOP BUTTON to stop recording.



Fig. 17



Fig. 18



Fig. 19

■ Monaural Recording

For monaural recording, substitute the following steps for steps ②, ③ and ④ of stereo procedure and add step ⑤.

Recording on Tracks 1 and 4:

Only the left channel is used for monaural recording on tracks 1 and 4.

- ② Depress "1-4" TRACK SELECTOR BUTTON.
- ③ Insert MICROPHONE PLUG into LEFT MICROPHONE JACK.
- ④ Adjust and balance microphone volume level by operating LEFT MIC RECORD LEVEL CONTROL while observing the LEFT VU METER (normal recording should not exceed "0" VU).
- ⑤ Invert reels to record on Track 4.

Recording on Tracks 3 and 2

Only the right channel is used for monaural recording on tracks 3 and 2.

- ② Depress "3-2" TRACK SELECTOR BUTTON.
- ③ Insert MICROPHONE PLUG into RIGHT MICROPHONE JACK.
- ④ Adjust and balance microphone volume level by operating RIGHT MIC RECORD LEVEL CONTROL while observing the RIGHT VU METER (normal recording should not exceed "0").
- ⑤ Invert reels to record on track 2.

■ Recording from an External Amplifier

If an external amplifier or tuner amplifier is used, connect the TAPE OUTPUT leads of the external amplifier to the LINE INPUT JACKS in step ② of recording procedure. VU level is controlled with the LINE RECORD LEVEL CONTROLS.

The 250D will record any source which can be selected on the external amplifier.

Important

If the Din Jack is used for connecting to tape deck, VU level is controlled with MIC RECORD LEVEL CONTROLS.



Fig. 20

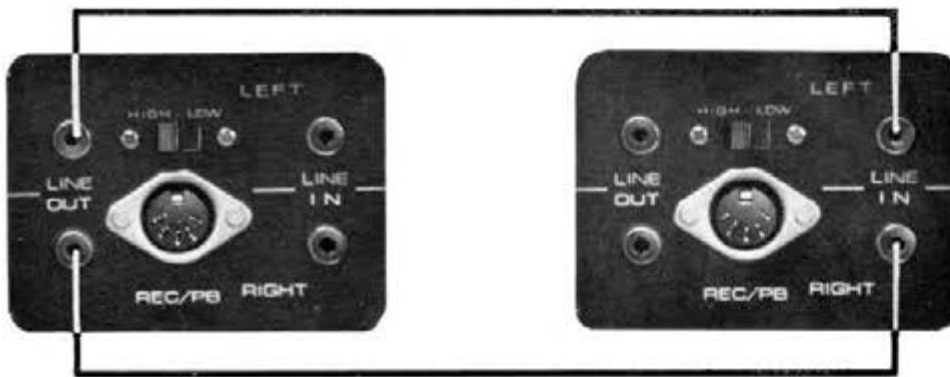


Fig. 21

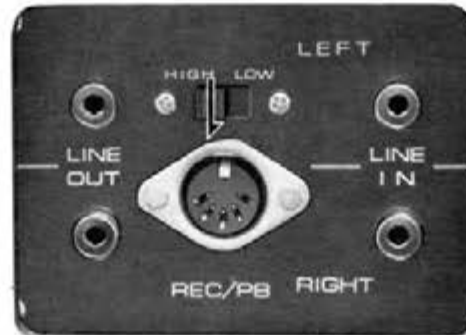
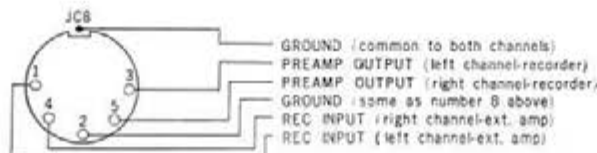


Fig. 22



Front View of DIN JACK

■ Recording from a Record Player

To record from a stereo or monaural disc, a crystal pick-up (0.5 to 1 volt) or a ceramic pick-up can be connected directly to the LINE INPUT JACKS in step (D) of recording procedure. If a magnetic cartridge is used, it must be connected to a separate pre-amplifier or external amplifier before being connected to the LINE INPUT JACKS. VU level is controlled with the LINE RECORD LEVEL CONTROLS.

■ Recording from another Tape Recorder

Connect the LINE OUTPUT JACKS or EXTERNAL SPEAKER JACKS of playback machine to the LINE INPUT JACKS of the Model 250D in step (E) of recording procedure. VU level is controlled with the LINE RECORD LEVEL CONTROLS.

■ DIN Jack

The DIN JACK at the rear of the recorder is used for inter-connecting Model 250D with an external stereo amplifier. This system enables easy recording or playback through an external amplifier as the complex connection or disconnection of 4 separate plugs is not necessary. When recording from an external amplifier, if the output level of the amplifier is more than 50mV, set the HIGH/LOW INPUT SWITCH to "HIGH". But, when output level is less than 50mV, set it to "LOW".

Note: When using DIN Cord connection, VU level is controlled with MIC RECORD LEVEL CONTROLS.

■ Sound-on-Sound Recording

For transfer of previously recorded material from one track to the other, accumulating as many individual recordings on one track as is desired. Can be applied to language study, musical compilations and various other uses.

First Recording

- Ⓐ Confirm that there are no connections to the LINE INPUT JACKS.
- Ⓑ Depress "1-4" TRACK SELECTOR BUTTON for recording on track 1
- Ⓒ Insert microphone plug into LEFT MICROPHONE JACK.
- Ⓓ Depress MONITOR SWITCH to "Source" (in) position.
- Ⓔ Depress REC BUTTON and FWD BUTTON simultaneously to begin first recording, i. e., Do-Re-Mi.
- Ⓕ Adjust the LEFT MICROPHONE RE-

CORD LEVEL CONTROL while observing the LEFT VU METER.

- Ⓖ When the first recording is completed, rewind tape to starting position.

Second Recording

- Ⓖ Confirm that MONITOR SWITCH is at "SOURCE" position and depress SOUND ON SOUND BUTTON.
- Ⓗ Depress "3-2" TRACK SELECTOR BUTTON for recording on track 3 while listening to track 1.
- Ⓙ Insert microphone plug into RIGHT MICROPHONE JACK.
- Ⓚ Increase LINE RECORD LEVEL CONTROL to approximately maximum.
- Ⓛ Connect STEREO HEADPHONES for monitoring the first recording on track 1.
- Ⓜ Depress REC BUTTON and FWD BUTTON simultaneously to begin second

recording, i.e., Mi-Fa-Sol (first recording is heard through headphones).

- Ⓝ Adjust RIGHT MICROPHONE RECORD LEVEL CONTROL while observing the RIGHT VU METER.

(As the second recording, Mi-Fa-Sol, is made on track 3, the first recording, Do-Re-Mi, is monitored in headphones. The two recordings will be completely merged on track 3, i. e., Do-Mi-Re-Fa-Mi-Sol.

- Ⓞ The third and subsequent recordings are made in the same as the second recording by alternating tracks 1-4 and 3-2.
- Ⓟ For playback, if last recording was made on track 1-4, depress 1-4 TRACK SELECTOR BUTTON. If last recording on track 3-2, depress "3-2" TRACK SELECTOR BUTTON.

TRACK SELECTOR
MONO. 1-4

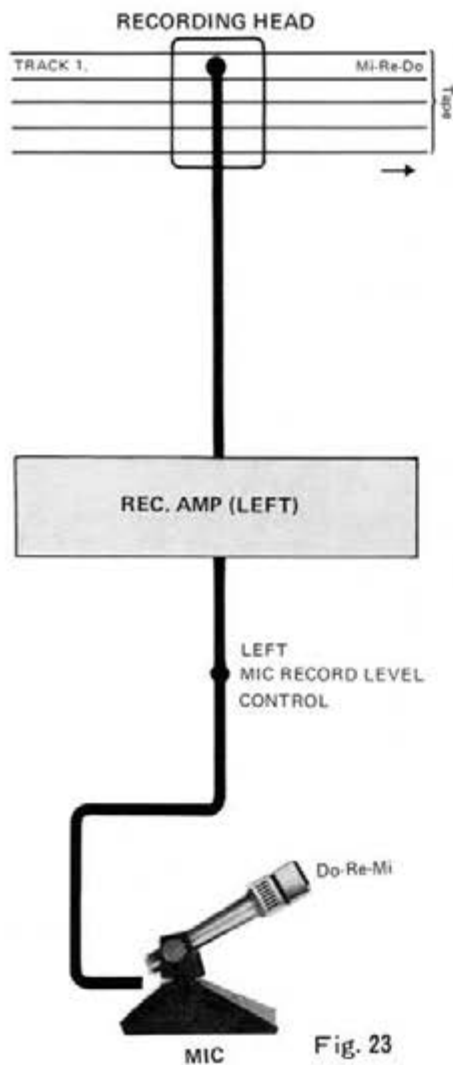


Fig. 23

TRACK SELECTOR
MONO. 3-2

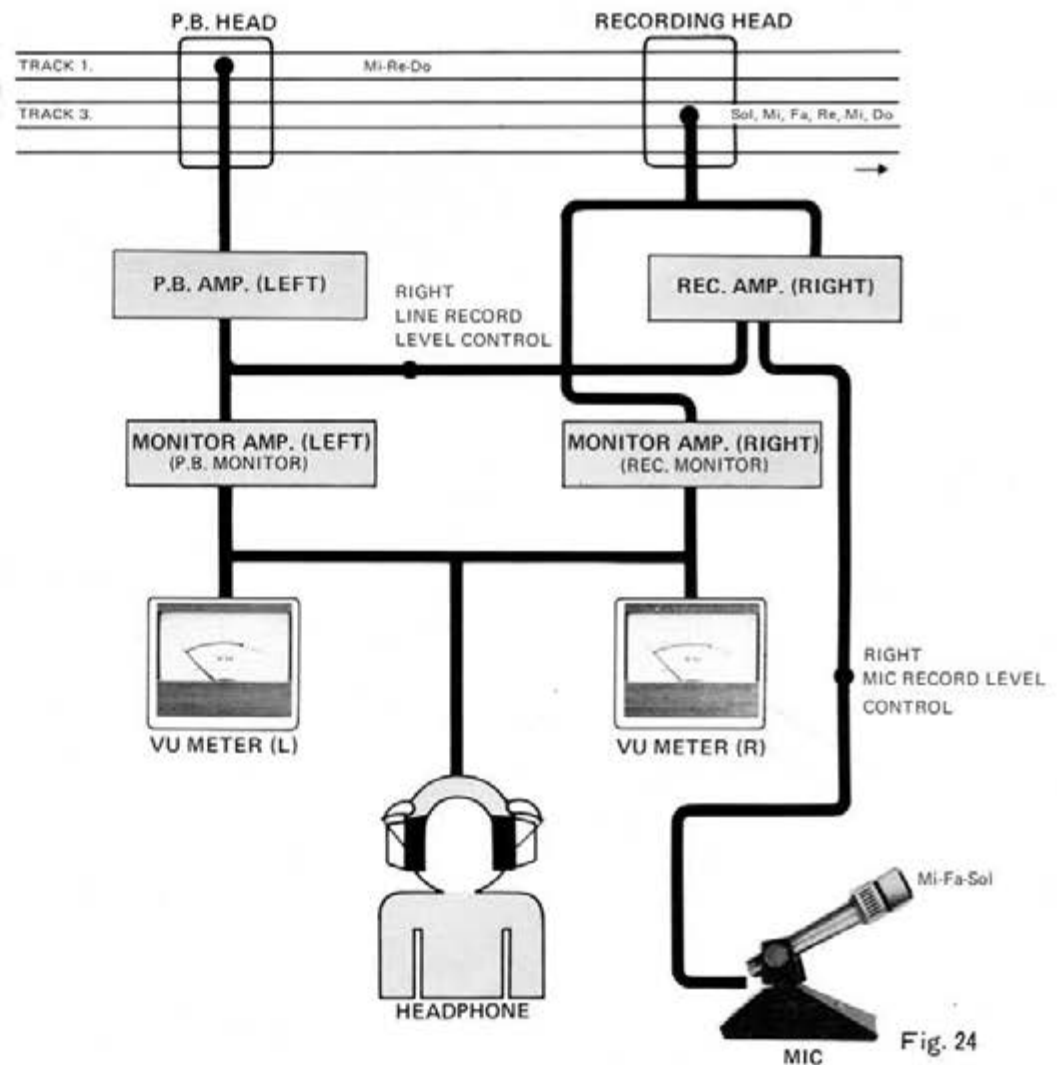


Fig. 24



Fig. 25

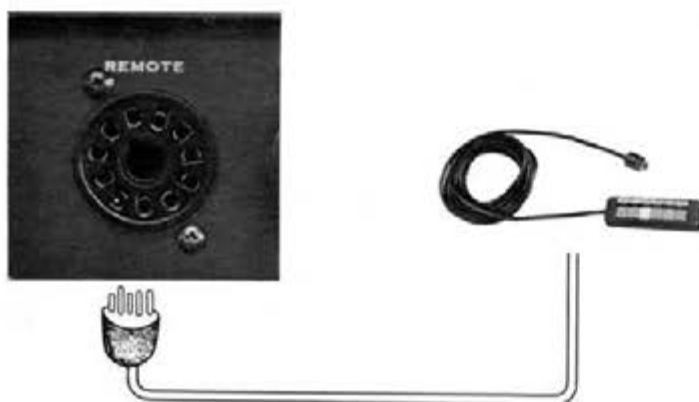


Fig. 26

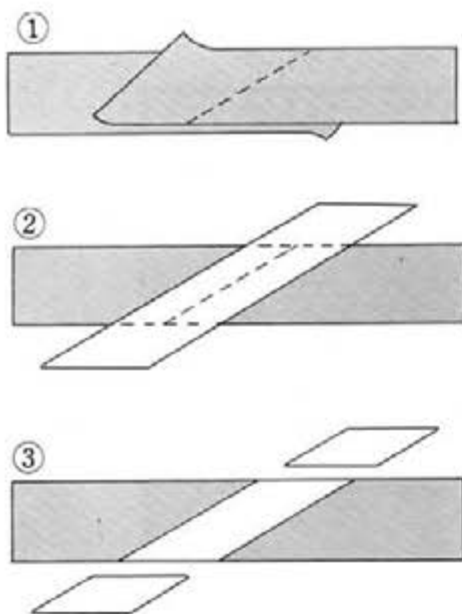


Fig. 27

■ Monitoring

For monitoring, connect stereo headphone plug into HEADPHONE JACK. Volume is controlled with VOLUME CONTROLS. Please use stereo headphones of low impedance type (8 ohms).

■ Sound-over-Sound Recording (Mixing)

- Ⓐ Insert microphone plug(s) into microphone jack(s) and connect LINE OUTPUT of external source to LINE INPUT of Model 250D.
- Ⓑ Adjust microphone volume level with MIC RECORD LEVEL CONTROLS and line record level with LINE RECORD LEVEL CONTROLS.

Mixing can also be accomplished by using Din Jack and Line Input connections simultaneously.

For playback, operate TRACK SELECTOR BUTTONS according to tracks used in making recordings.

10- Remote Control

All operating functions of the 250D can be remote controlled by using AKAI Remote Control unit RC-16 (optional accessory). Plug in remote control to socket provided on rear panel.

11- Tape Splicing and Editing

Cut tape diagonally with an overlap so that the ends are 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.

12- Tape Erasing

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. A bulk tape eraser is recommended for quick and complete erasure.

13- Head Cleaning

Tape Oxide/Dust Deposits Cause 90% of Tape Recording Failures

For quality performance it is imperative that tape recorder heads be kept clean at all times. Dust and magnetic particles from the tape tend to deposit on the heads after prolonged use of the recorder. This results in poor head-to-tape contact deteriorating sound quality and

sensitivity. Such dust causes drastic drops in recording/playback levels and nullifies high quality sound.

Make it a rule to clean the heads every time you use your 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.

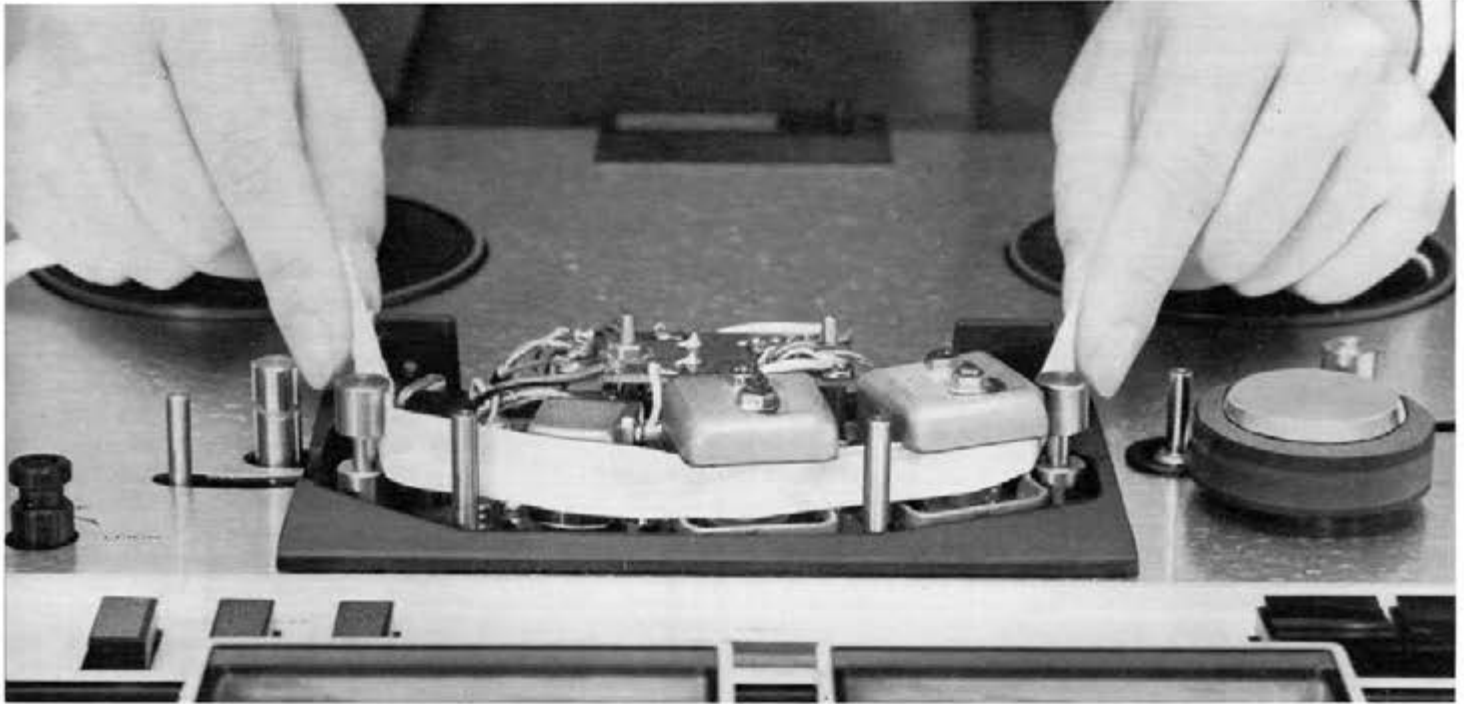
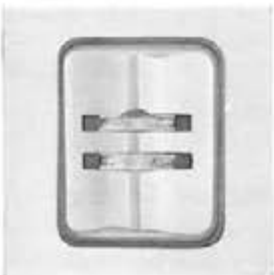


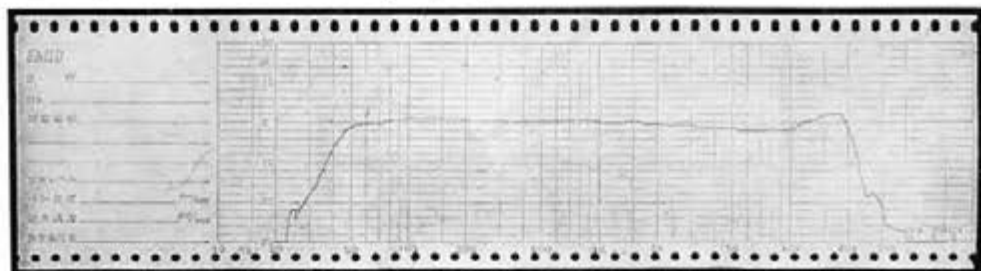
Fig. 28

EXAMPLE



CLEAN HEAD

Frequency response curve



DUSTY HEAD

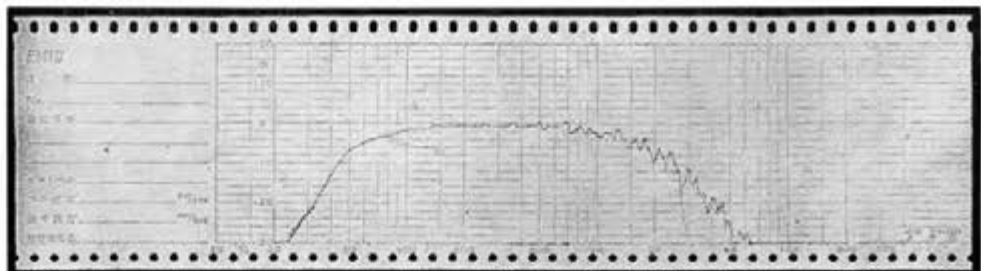


Fig. 29

14- Head Demagnetizing

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 250D already has a built-in head demagnetizing circuit, it is recommended that head demagnetization be performed periodically. This can be accomplished by touching the head lightly with the

demagnetizer and making several small circular motions over all heads 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.

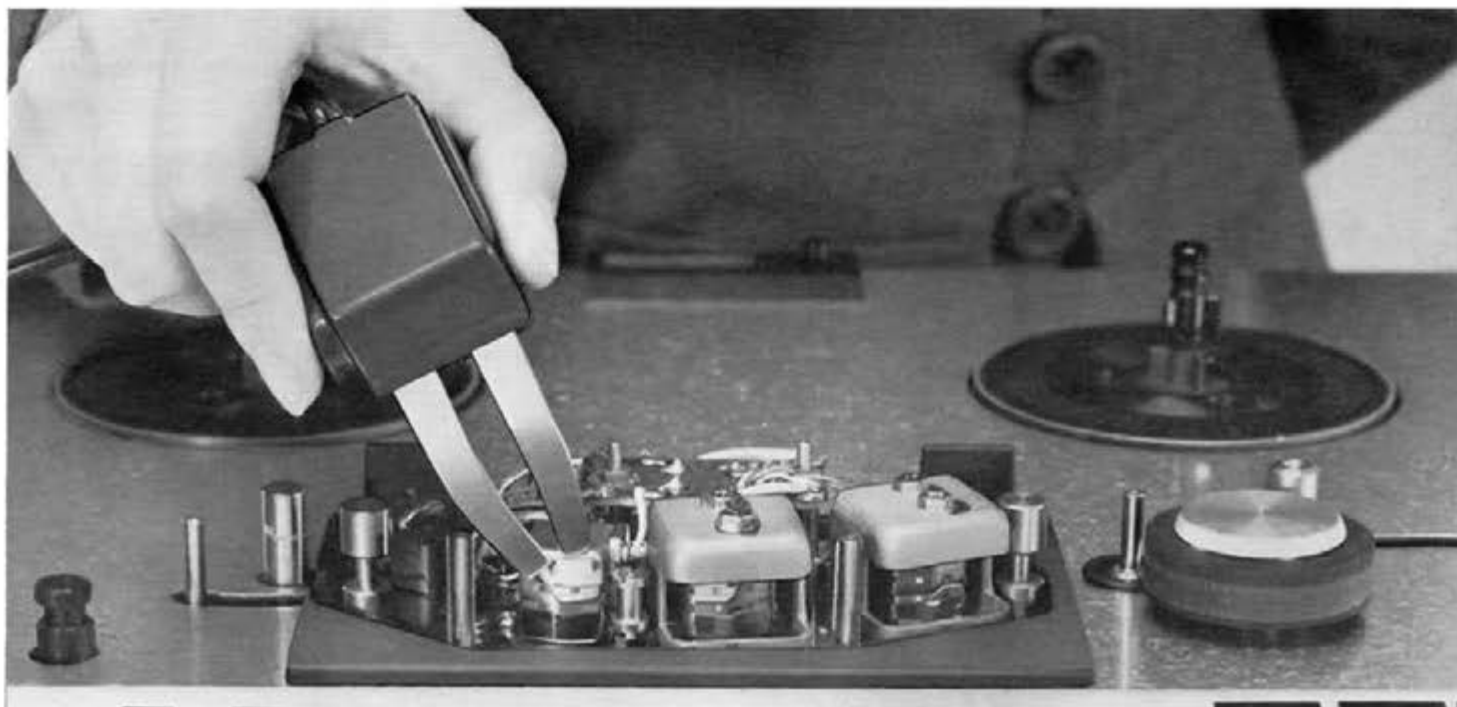


Fig. 30

15- TROUBLE SHOOTING CHART

The conditions listed below do not indicate mechanical failure of your unit. If your machine exhibits any of these conditions, check for trouble as indicated.

Loss of sensitivity and tone quality	<ul style="list-style-type: none">• Dirty Erase Head This prevents pre-recorded material from being completely erased.• Dust adhering to Recording Head For head cleaning instructions, see "HEAD CLEANING" procedure.• Magnetized Head. For demagnetizing instructions, see "HEAD DEMAGNETIZING" procedure.• AC Power Voltage lower than the Voltage to which your machine is adjusted.
Irregularity of tape transport	<ul style="list-style-type: none">• Grime adhering to heads• Oil on capstan.• Sticky or dirty tape surface• Bent Take-Up Reel
Will not record	<ul style="list-style-type: none">• Check position of controls and plugs of both Model 250D and external Source

Notes:

1. Your machine requires constant voltage for optimum performance.
2. If the sound sources are so far away from the microphones that the recording level controls must be turned up to maximum, some hum or noise will inevitably be recorded. A test recording is recommended before attempting a final recording.
3. Should there be any problem with your machine, please take it to your nearest authorized agent or inquire at our Service Dept. in Tokyo, Japan.

III. ACCESSORIES

1. Standard Accessories

7" Empty Reel	1
Connection Cord	1
Sensing Tape	1
Spare Fuses	2
Operator's Manual	1

2. Optional Accessories



Uni-directional UM-101



ASE-22



Non-directional DM-13



ASE-20



D-100



ASE-9S



DM-120



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