

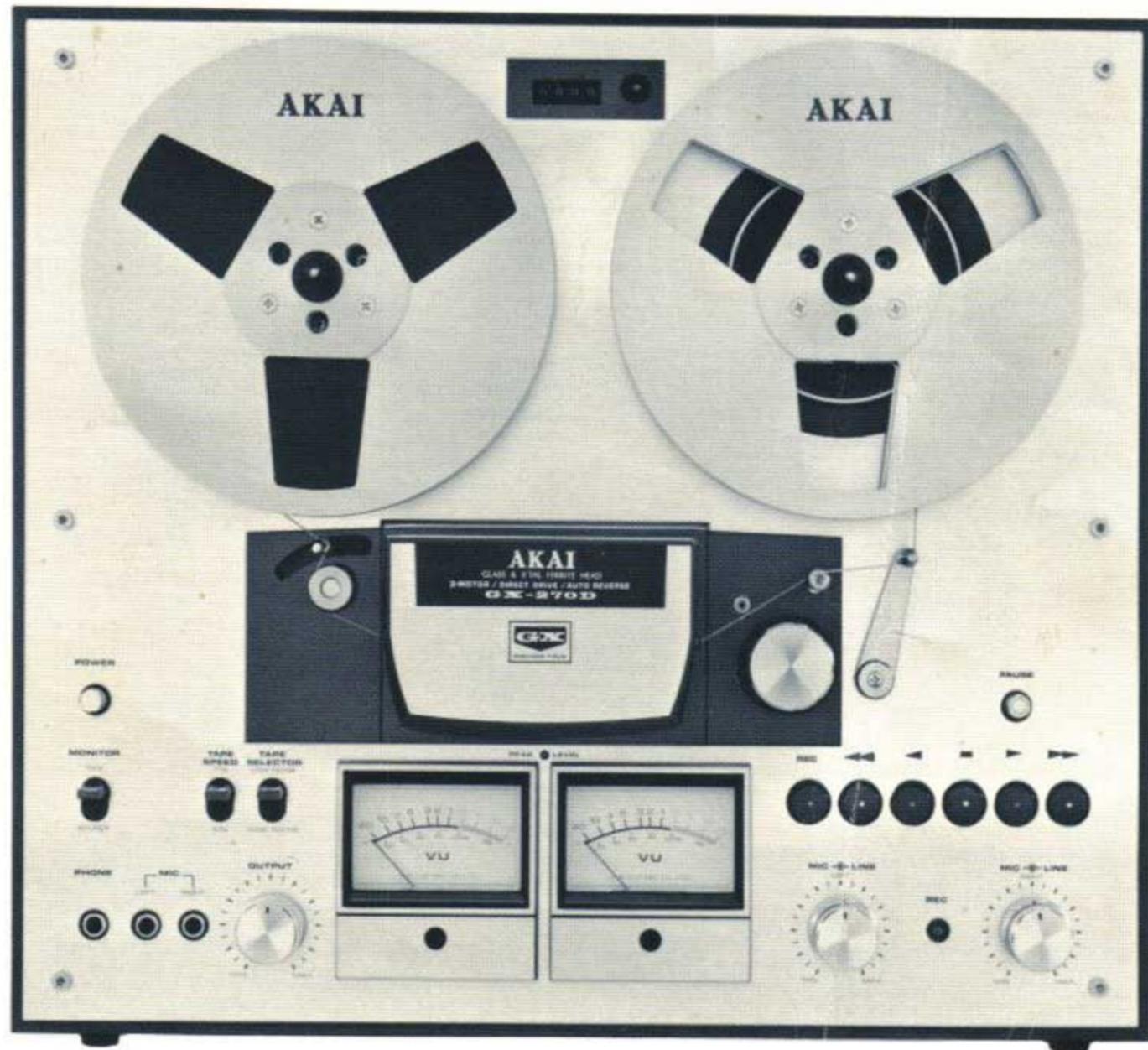
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# GX-270D

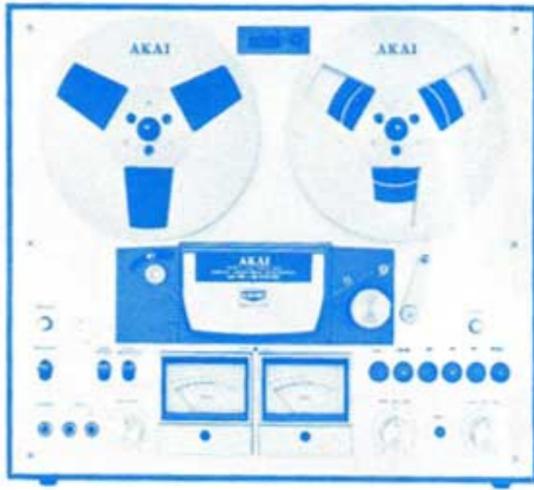
3-HEAD 3-MOTOR AUTOMATIC REVERSE  
STEREO TAPE DECK

## OPERATOR'S MANUAL



**AKAI**

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## INTRODUCTION

Your ALL GX HEAD unit is constructed of the very finest materials and incorporates the very latest in recording and playback techniques.

This model employs a 3-motor system including an AC Servo motor for direct capstan drive. This new system assures perfectly stable motor revolutions and tape speed. The precision mechanisms of this machine matches the famous wear-free GX Head characteristics for unequalled performance. Thus, with proper care, your unit will give you many years of service. We, therefore, urge you to **READ THIS MANUAL CAREFULLY** prior to operation.

CEE, CSA, UL, and LA standard models are not equipped with a Voltage Selector. Therefore, voltage conversion is not necessary. If your machine corresponds to any of these standards, please disregard all references to voltage adjustment throughout this manual.

CEE Models : 220V, 50 Hz  
CSA Models : 120V, 60 Hz  
UL & LA Models: 120V, 60 Hz

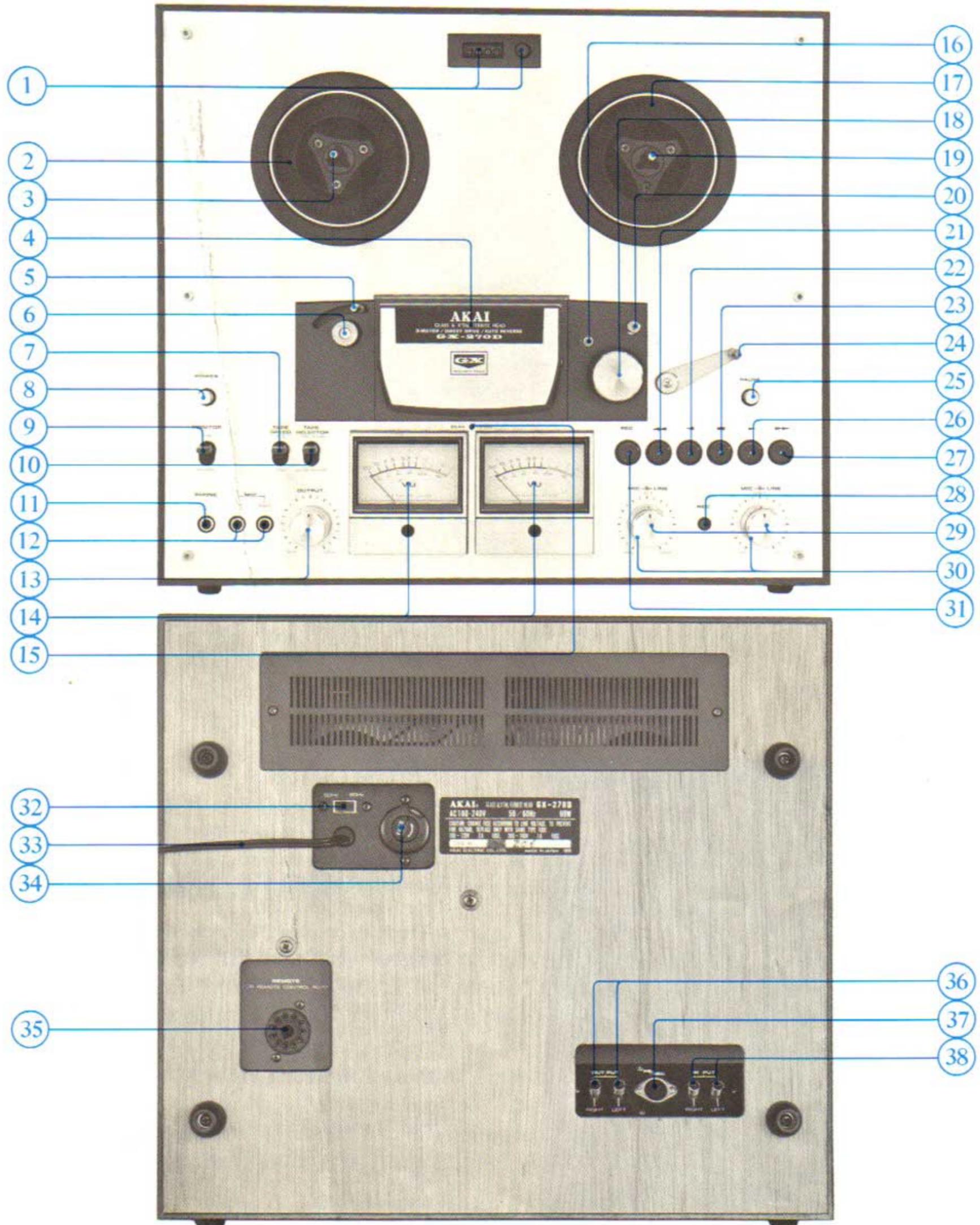
**WARNING:**

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

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# CONTROLS



- 1. INDEX COUNTER AND RESET BUTTON**  
Provides an easy reference for quickly locating positions on the tape. To reset to "0000", depress Reset Button.
- 2. SUPPLY REEL TABLE**
- 3. REEL RETAINER (Left)**
- 4. HEAD COVER**  
Houses GX Forward Playback, GX Reverse Playback, and Combination GX Recording/Erase Heads.
- 5. TENSION ARM/SENSING POLE**  
Provides proper tension for smooth tape travel. Also functions as a sensing pole for automatic reverse (Refer to Automatic and Manual Reverse).
- 6. IMPEDANCE ROLLER**
- 7. TAPE SPEED SWITCH**
- 8. POWER SWITCH**
- 9. TAPE MONITOR SWITCH**  
To monitor recorded signals or for playback, set to TAPE position, and to monitor program source, set to SOURCE position.  
Monitoring during recording cannot be accomplished when using the DIN Jack.
- 10. TAPE SELECTOR SWITCH**  
**LOW NOISE:** Set to this position when using Low Noise Tape.  
**WIDE RANGE:** Set to this position when using Wide Range Tape.
  - \* Scotch #211 Low Noise Tape is considered standard for this machine. The use of regular tape is not recommended.
  - \* Set to Wide Range position only when using special Wide Range Tape of a grade higher than Low Noise Tape.
- 11. HEADPHONE JACK**  
Accommodates stereo headphones of 8 ohms impedance.
- 12. MICROPHONE JACKS (Left/Right)**
- 13. OUTPUT LEVEL CONTROL**  
Adjusts output level at playback time.
- 14. VU METERS (Left/Right)**  
Indicates recording and playback levels. Normal recording is "0" VU.
- 15. PEAK LEVEL INDICATOR**  
At normal recording, VU Meter response is usually accurate, but when pulsive signals enter, such as signals from percussion instruments, etc., response is slow and lower than actual volume is registered. This peak level indicator acts as a warning device by lighting at excessive input. Because, for recording with the least noise possible, it is advantageous to keep the recording level as high as possible not to exceed the level at which distortion occurs due to excessive input, for best recording results, the level range in which this light flickers at largest input parts only is most ideal.  
(This indicator lights at +7 dB above 0 VU.)
- 16. CAPSTAN**
- 17. TAKE UP REEL TABLE**
- 18. PINCH ROLLER**  
Presses against capstan to transport tape.
- 19. REEL RETAINER (Right)**
- 20. TAPE GUIDE**
- 21. REWIND ◀◀ BUTTON**  
Rewinds tape at high speed.
- 22. REVERSE PLAY ◀ BUTTON**  
Depress for manual reverse playback.
- 23. STOP ■ BUTTON**  
Depress to stop tape travel.
- 24. TENSION ARM/AUTOMATIC STOP LEVER**  
Provides even tension for smooth tape travel. Also functions as Automatic Stop Lever (At the end of the tape, or if the tape is accidentally broken, this lever drops, activating the automatic stop mechanism and reel movement is stopped).
- 25. PAUSE SWITCH**  
Depress to temporarily suspend tape travel during recording or playback.  
Especially convenient for editing tape. Simply depress when a certain portion of the program is not desired.
  - \* Pause Control does not function during Fast Forward or Rewind Mode.
- 26. FORWARD PLAY ▶ BUTTON**  
Advances tape for recording or playback mode.
- 27. FAST FORWARD ▶▶ BUTTON**  
Forwards tape at high speed.
- 28. RECORDING INDICATOR LAMP**  
Lights when the REC Key is depressed.
- 29. MICROPHONE INPUT LEVEL CONTROLS (Left/Right)**  
Controls microphone input volume. Adjust while observing VU Meters.
- 30. LINE INPUT LEVEL CONTROLS (Left/Right)**  
Controls line input volume. Adjust while observing VU Meters.
- 31. RECORDING (REC) BUTTON**  
Depress this Button and the Forward PLAY ▶ Button simultaneously to effect recording mode.
- 32. CYCLE CHANGE SWITCH (CEE, CSA, UL and LA models are not equipped with this facility.)**  
Set to 50 Hz or 60 Hz according to area voltage. Refer to VOLTAGE AND CYCLE CONVERSION procedure.
- 33. AC CORD**
- 34. UNIVERSAL VOLTAGE SELECTOR (CEE, CSA, UL and LA models are not equipped with this facility.)**  
Offers six selections of AC voltage for worldwide operation. (Refer to VOLTAGE AND CYCLE CONVERSION procedure).
- 35. REMOTE CONTROL JACK**  
Accommodates AKAI Remote Control Unit RC-17 for remote control of all operating functions. Can also be used together with external timer for absentee recording. (Refer to Absentee Recording procedure.)
- 36. LINE OUTPUT JACKS (Left/Right)**  
Connects to tape inputs of external amplifier or recorder.
- 37. DIN JACK**  
Enables inter-connection with an external amplifier through a single Din connection cord.
  - \* Monitoring during recording cannot be accomplished when using the DIN Jack.
- 38. LINE INPUT JACKS**  
Connects to outputs of external source.

## VOLTAGE & CYCLE CONVERSION

### VOLTAGE

Your machine is equipped with a universal voltage selector offering six selections of voltage from 100V to 240V AC. Voltage is preset at the factory according to destination. However, the operator is requested to reconfirm setting and, if necessary, readjust as follows:

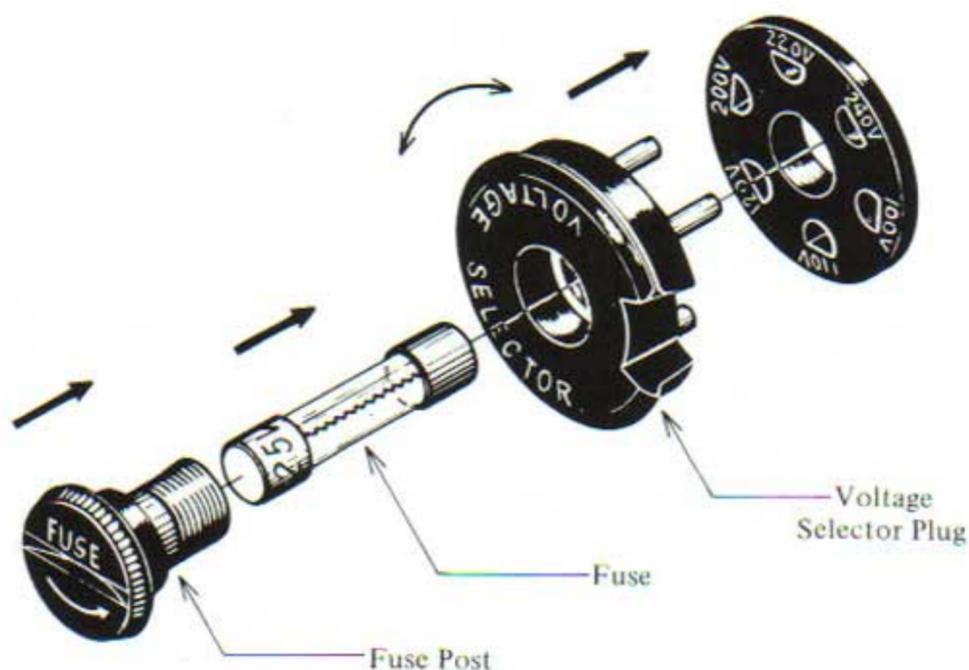
- (1) DISCONNECT POWER CORD and remove the Fuse Post by screwing in direction of arrow.
- (2) Remove the Voltage Selector Plug and reinsert so that proper area voltage shows through the plug cut-out.
- (3) Change fuse to correspond with fuse post. (Refer to standard accessory spare fuse tag instructions for proper fuse).

To maintain optimum performance and prolong the life of your machine, it is important that the line voltage be held within 10% of standard area voltage.

### CYCLE

Set Cycle Change Switch to 50 Hz or 60 Hz position according to area voltage.

**CAUTION:** CEE, CSA, UL and LA models are not equipped with voltage and cycle conversion apparatus.

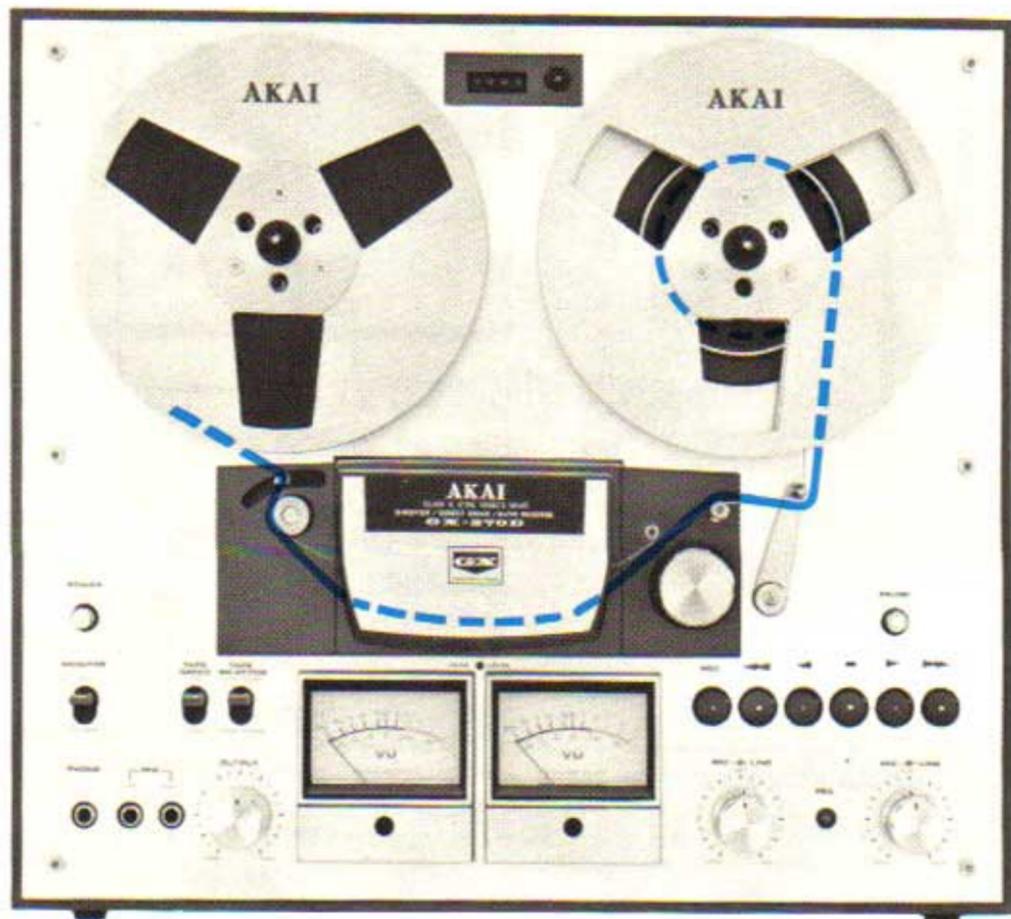


## OPERATING PRECAUTIONS

- \* Your machine requires constant voltage for optimum performance.
- \* As dirty or magnetized heads become the source of loss of sound, sound drop-out, distortion, and other recording and playback failures, the heads should be kept clean and demagnetized at all times.
- \* Place machine on a flat level surface and operate in either a vertical or horizontal position.
- \* Do not place unit near appliances etc. which generate noise.
- \* Avoid using your machine in extremely hot and humid or dusty places.
- \* Do not block the ventilator.
- \* If the sound sources are so far away from the microphones that the input level controls must be turned to maximum, some hum or noise will inevitably be recorded. A test recording is recommended before making a final recording.
- \* Scotch #211 Low Noise Tape is standard for this machine. The use of regular tape is not recommended.

- \* Set Tape Selector Switch to Wide Range position only when using special wide range tape of a grade higher than low noise tape.
- \* As tapes which have not been used for a period of time may have become sticky, run tape once before using.
- \* Always store tapes in a cool, dry place.
- \* Proper tape tension and automatic stop cannot be effected if the tape is not threaded through the Tension Arm/Automatic Stop Lever. Refer to Tape Loading.
- \* If your machine will not record or playback, check input and output connections and controls and position of Pause Switch.

Should there be a problem with your machine, write down the model and serial numbers and all pertinent data regarding warranty coverage as well as a clear description of the existing trouble and contact your nearest authorized Akai Service Station or the Service Department of Akai Company, Tokyo, Japan.



## TAPE LOADING

Place a full reel of tape on the Supply Reel Table and an empty reel on the Take-Up Reel Table. Thread the tape as illustrated by the dotted lines in the figure. Lock reels into place with Reel Retainers provided on reel shafts.

\* Be sure to thread tape through Tension Arm/Automatic Stop Lever.

## TAPE SPEED SELECTION

This model operates at 7-1/2 and 3-3/4 ips tape speed. Select desired speed with Tape Speed Switch.

Stereo recording time using an 1,800 ft. tape is 3 hrs. at 3-3/4 ips and 1-1/2 hrs. at 7-1/2 ips.

## 4-TRACK RECORDING/PLAYBACK SYSTEM

This model employs a 4-track, 2-channel stereo recording and playback system.



## STEREO RECORDING AND PLAYBACK

Stereo recording and playback requires the simultaneous use of two tracks. The first stereo recording and playback takes place on tracks 1 and 3. The second playback takes place on tracks 2 and 4 after the machine has been set to reverse playback mode or the reels have been inverted. To record on tracks 2 and 4, invert reels.

\* This model does not record in reverse direction.

## AUTOMATIC & MANUAL REVERSE PLAYBACK

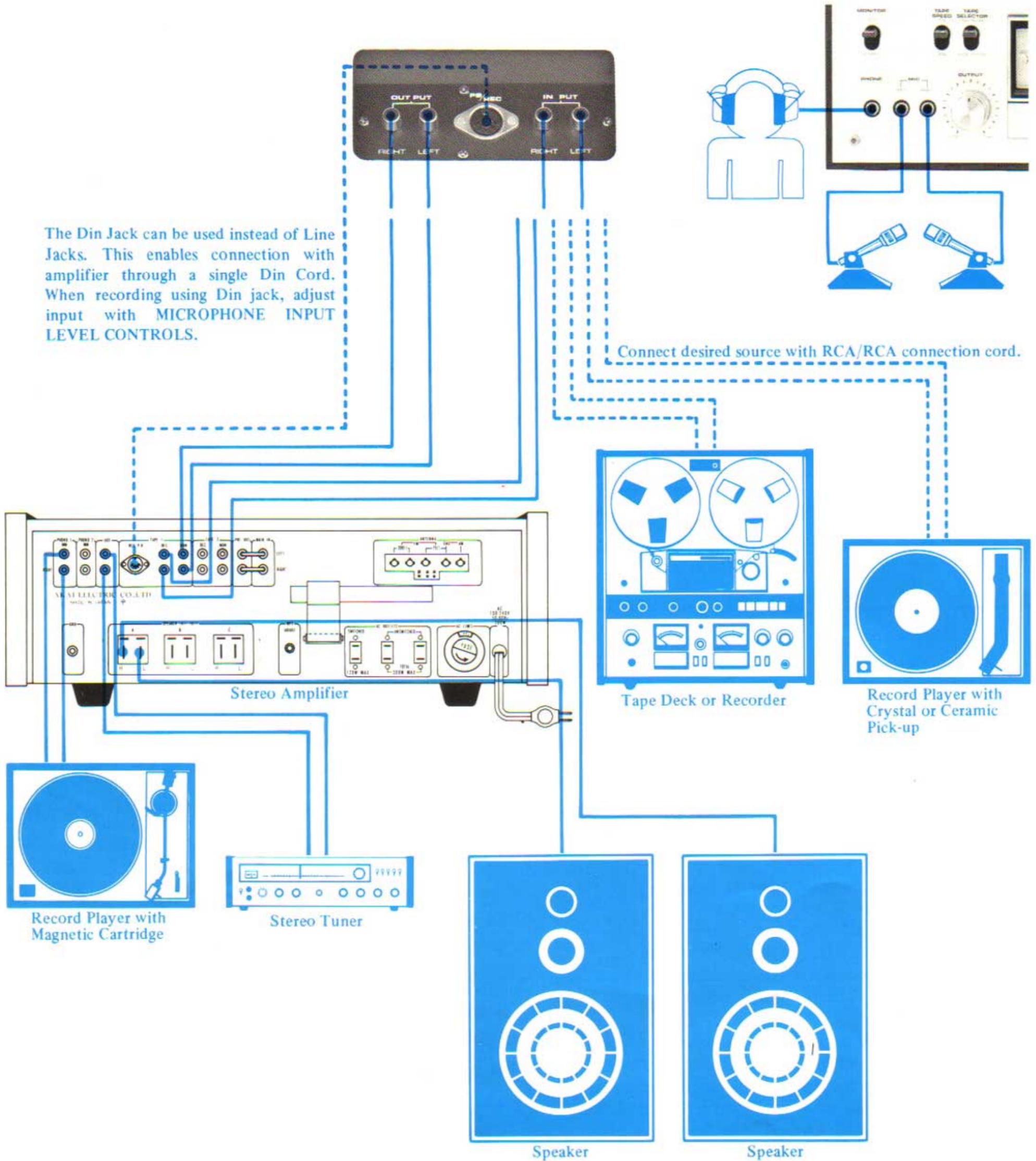
This model features automatic and manual reverse playback which eliminates the trouble of inverting reels by hand. For automatic reverse (from forward to reverse playback), simply apply about a 3/4" (2 cm) piece of sensing foil to the outside of the tape at desired reversing point.

For manual reverse playback, operate Reverse Button.

## DIRECT FUNCTION CHANGE CONTROL

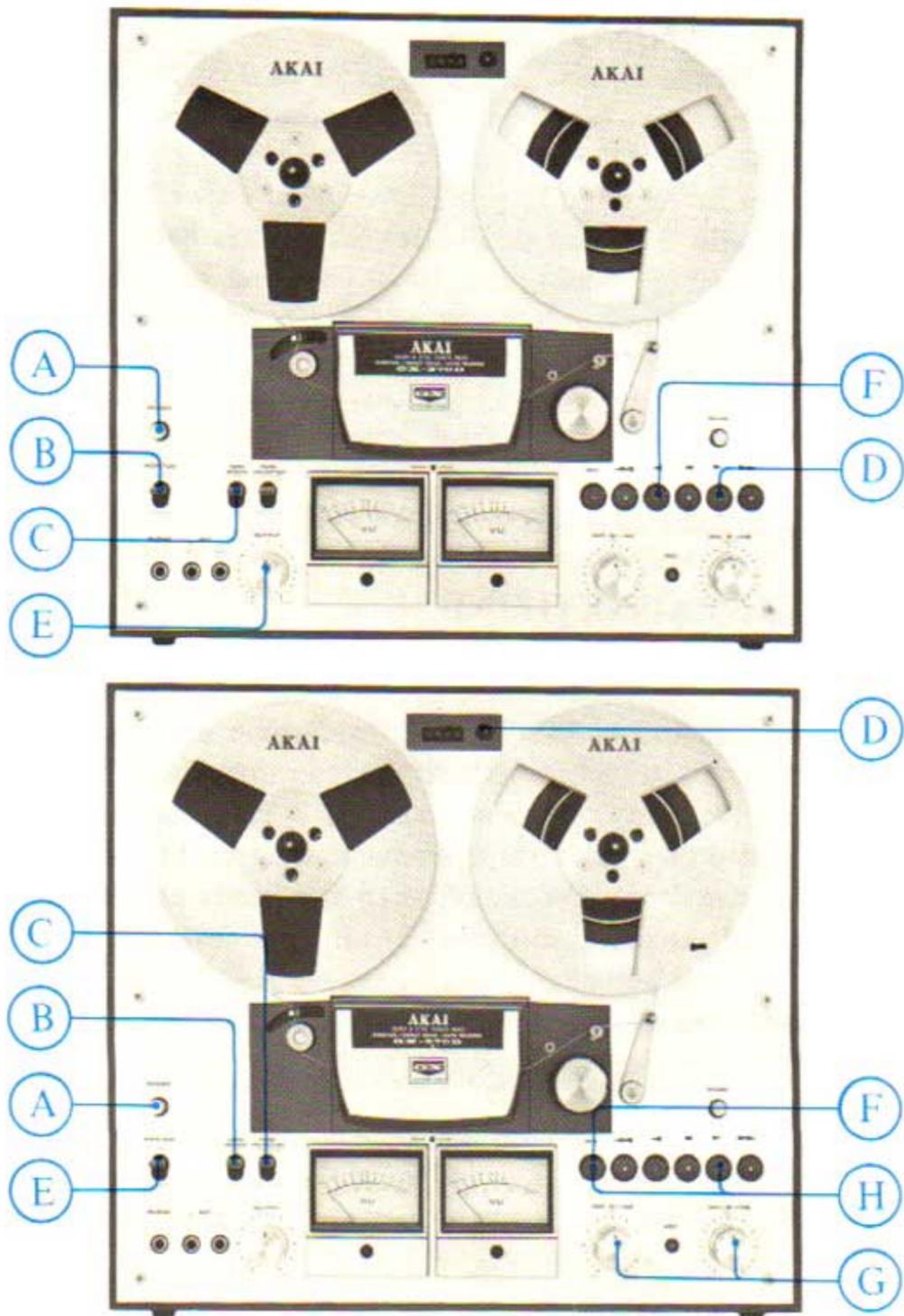
This machine features direct function change control including direct change to recording mode for fast and easy add-on recording.

# CONNECTING DIAGRAM



The Din Jack can be used instead of Line Jacks. This enables connection with amplifier through a single Din Cord. When recording using Din jack, adjust input with MICROPHONE INPUT LEVEL CONTROLS.

Connect desired source with RCA/RCA connection cord.



## STEREO PLAYBACK

Make necessary connections as shown in CONNECTING DIAGRAM and load a pre-recorded tape.

- A. Turn on Power Switch
- B. Set Monitor Switch to TAPE position.
- C. Select tape speed.
- D. Depress Forward Play ► Button to begin playback.
- E. Adjust Output Level Control and external amplifier controls.
- F. Depress Reverse Play ◀ Button for playback of track 2-4.

## STEREO RECORDING

Make necessary connections as shown in CONNECTING DIAGRAM and load a tape (New tape gives best results).

- A. Turn on Power Switch.
- B. Select tape speed.
- C. Set Tape Selector Switch according to tape being used. (Refer to Tape Selector Switch under CONTROLS).
- D. With Reset Button, set Index Counter to "0000". (Provides an easy reference for locating positions on the tape).
- E. Set Tape Monitor Switch to SOURCE position.
- F. Depress Recording (REC) Button. (Recording Indicator Lamp will light).
- G. Adjust and balance input level with appropriate Input Level Controls.
- H. When an optimum recording level has been determined, while holding the REC Button at depressed position, depress Forward Play ► Button to begin recording.
- I. Invert reels to record on tracks 2-4.

\* Dual Monitoring (comparing signals being recorded with source) can be accomplished by switching the Tape Monitor Switch to and from TAPE and SOURCE positions. This enables more precise adjustment of input level for professional recording results.

Caution: Monitoring during recording cannot be accomplished when using the Din Jack.

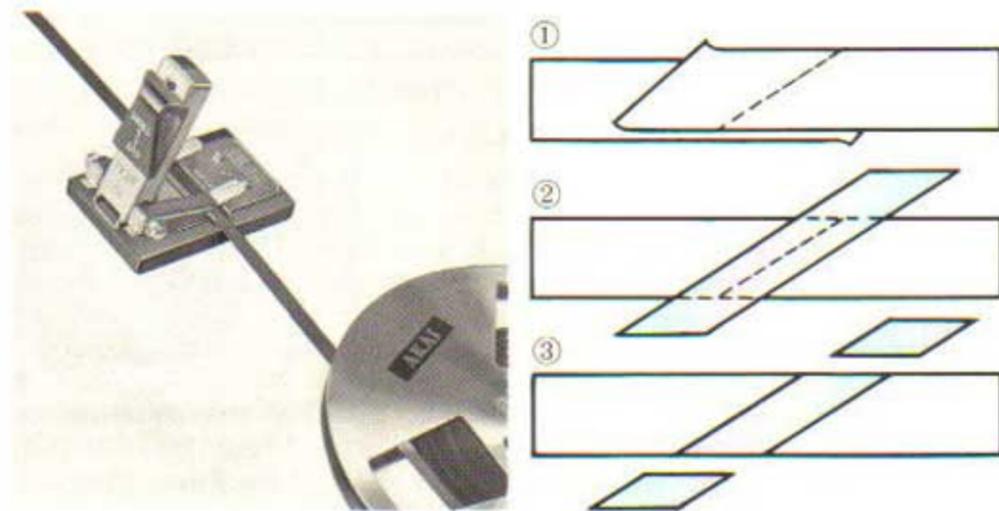
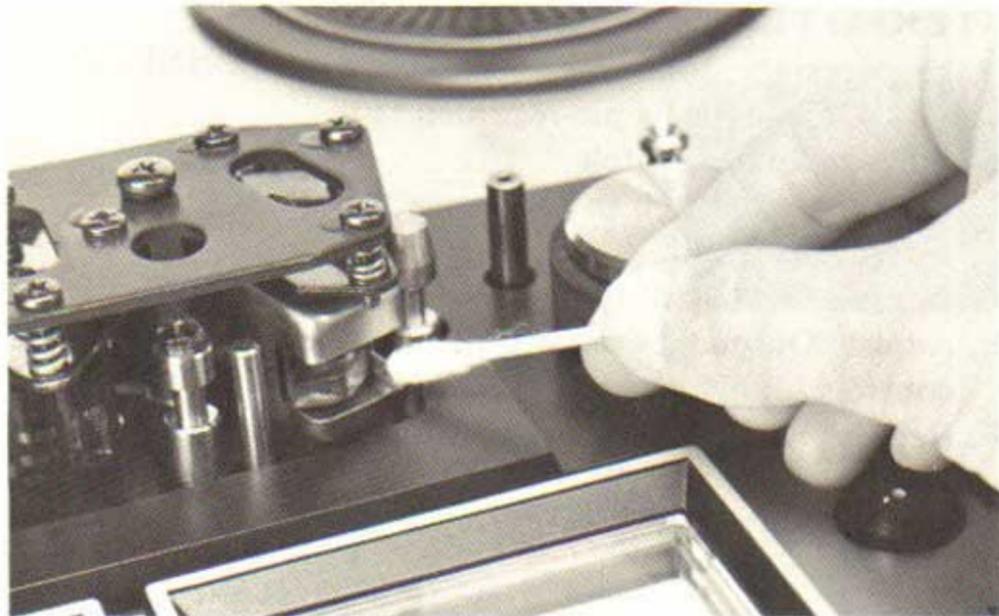
\* For Microphone and Line Mixing, connect microphones to Microphone Jacks and other source to Line Input Jacks. Adjust microphone input with Microphone Recording Level Controls and line input with Line Input Level Controls.

## ABSENTEE RECORDING

By using an external timer together with Akai Remote Control Unit RC-17, absentee recording can be accomplished with this machine. Connect Remote Control Unit to Remote Control Jack and properly load tape, avoiding tape slack. Plug in AC Cord through external timer. Adjust input level following recording procedure and with the Power Switch turned ON and the Remote Control

Unit REC and FWD. Play Keys locked into recording mode positions, set Timer, following manufacturers instructions. If timer is set to coincide with source timing, the GX-270D will automatically begin recording according to setting.

\* This machine features Automatic Stop which is effected at the end of the tape (The Tension Arm/Automatic Stop Lever drops and the automatic stop mechanism is activated to stop reel movement).



## HEAD CLEANING

While GX Heads do not require a great deal of cleaning, if old tape which has been spliced, etc. is used, head cleaning is recommended. It is especially important that the heads be clean prior to recording. Remove head cover and clean the heads with a cotton swab stick which has been dipped in Akai Cleaning Fluid (from Head Cleaning Kit HC-500). Also clean the pinch roller, capstan shaft, and tape guides, etc. over which the tape travels.

- \* If Akai Cleaning Fluid is not available, use alcohol. Do not use other chemical cleaners as the rubber parts will deteriorate.

## HEAD DEMAGNETIZING

Normally, the steel pole pieces which form part of the recording and playback head become slightly magnetized. The effect of magnetization is considerable drop-out and noise. Therefore, it is recommended that head demagnetizing be performed periodically. This can be accomplished with a bulk Head Demagnetizer by bringing the prongs of the demagnetizer close to the heads and making several small circular motions over all head surface areas as well as the head housing.

- \* Be sure to cut off the power of the unit prior to demagnetizing the heads.
- \* Avoid switching the demagnetizer on and off near the head block area or VU Meters.
- \* Do not use magnetized tools in the vicinity of the heads.

## TAPE SPLICING AND EDITING

Cut tape diagonally with an overlap so that the ends are lined up (cutting on diagonal eliminates detection of splice in recording). Cover aligned ends with splicing tape. Press firmly exerting pressure to secure ends evenly. Trim off excess splicing tape, cutting into tape very slightly. This eliminates the possibility of a sticky splice. For smooth and easy tape splicing, Akai's portable tape splicer, Model AS-3 is recommended.

## 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 set machine to recording mode. No plugs should be connected to the input jacks and recording input level controls should be set to minimum.

## TECHNICAL DATA

Track System	4-track 2 channel stereo system
Reel Capacity	Up to 7" reel
Tape Speed	7-1/2 and 3-3/4 ips ( $\pm 0.7\%$ )
Wow and Flutter	Less than 0.07% RMS at 7-1/2 ips; Less than 0.1% RMS at 3-3/4 ips.
Frequency	
Response	30 Hz to 23,000 Hz ( $\pm 3$ dB) at 7-1/2 ips and 30 Hz to 19,000 Hz ( $\pm 3$ dB) at 3-3/4 ips using AKAI LN-150-7 Tape
Distortion	Less than 1% (1,000 Hz "0" VU)
Signal-to- Noise Ratio	Better than 60 dB (measured via tape with peak recording level of +6 VU)
Erase Ratio	Better than 70 dB
Bias Frequency	100 kHz
Heads	(3): One GX Forward Playback, One GX Reverse Playback, One Combination GX Recording/Erase Head.
Motors	(3): One AC Servo Motor for capstan drive, Two Eddy Current Motors for reel drive.
Fast Forward & Rewind Time	75 seconds using a 1,200 ft. Tape
Output Jacks	Line (2): 0.775V ("0" VU) (Required load impedance: more than 20 k ohms) Phone (1): 30 mV/8 ohms
Input Jacks	Microphone (2): 0.3 mV/4.7 k ohms Line (2): 70 mV
Din Jack	0.5 V/3 mV
Semi Conductors	Transistors: 52, Diodes: 62
Power Requirements	Canada and U.S.A. (CSA, UL and LA) Models: 120V, 60 Hz only CEE Models: 220V, 50 Hz only Other Models: 100 to 240 V, 50/60 Hz (Switchable)
Power Consumption	90 W
Dimensions	441(W) x 404(H) x 210(D)mm (17.4 x 15.9 x 8.3")
Weight	15.6 kg (34.3 lbs)

## STANDARD ACCESSORIES

Empty Reel	1
Connection Cord	1
Fuses	1 set
Operator's Manual	1

\* Spare fuses not included with CEE, CSA, UL, and LA models.

\* Specifications determined with Scotch #211 tape unless otherwise noted.

\* For improvement purposes, specifications and design are subject to change without notice.



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