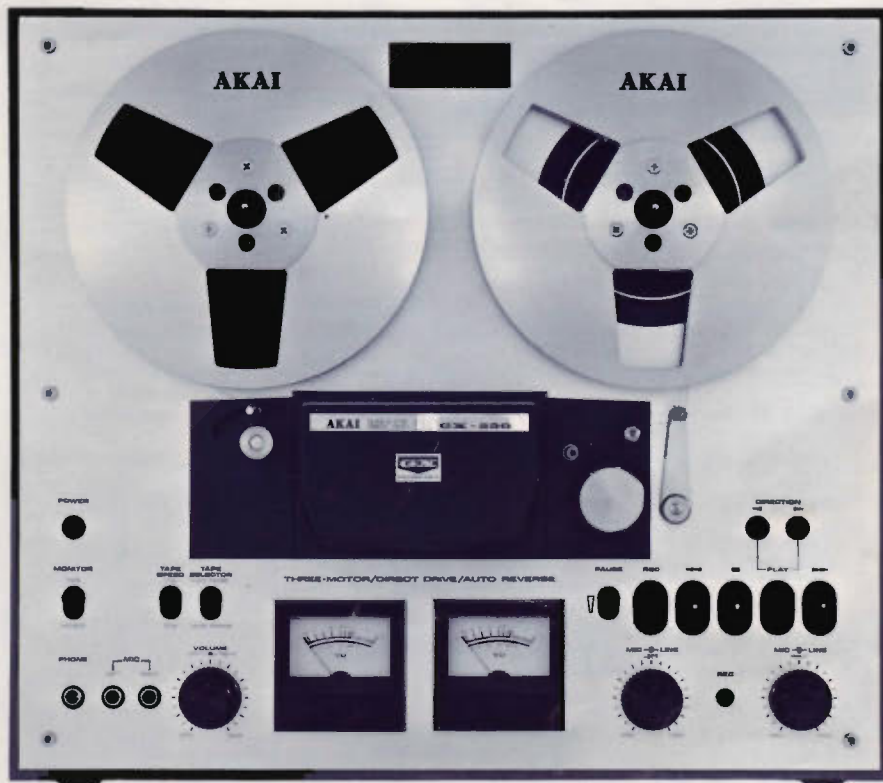


GX-230/230D

STEREO TAPE RECORDER/TAPE DECK

OPERATOR'S MANUAL



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

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.

REEL RETAINER (Left)

SUPPLY REEL TABLE

HEAD COVER

Houses GX Forward Playback, GX Reverse Playback, and Combination GX Recording/Erase Heads.

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).

IMPEDANCE ROLLER

POWER SWITCH

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.

HEADPHONE JACK

Accommodates stereo headphones of 8 ohms impedance.

MICROPHONE JACKS (Left/Right)

TAPE SPEED SWITCH

VOLUME CONTROLS (Left/Right) (GX-230D OUTPUT LEVEL CONTROL)

Adjusts output level at playback time.

TAPE SELECTOR SWITCH

LOW NOISE: Set to this position when using Low Noise Tape.

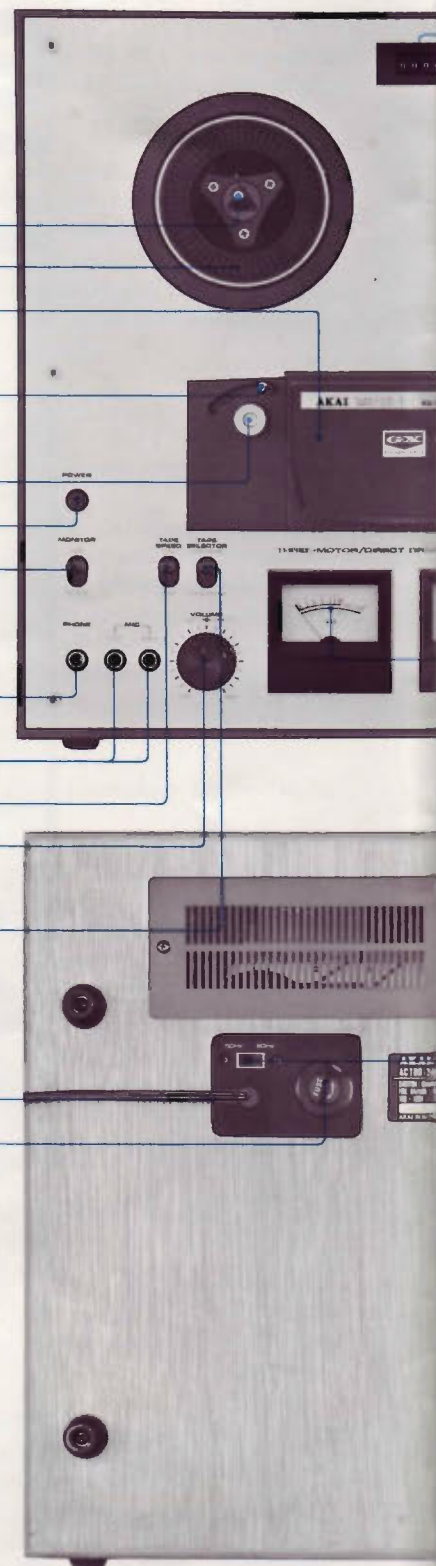
WIDE RANGE: Set to this position when using Wide Range Tape.

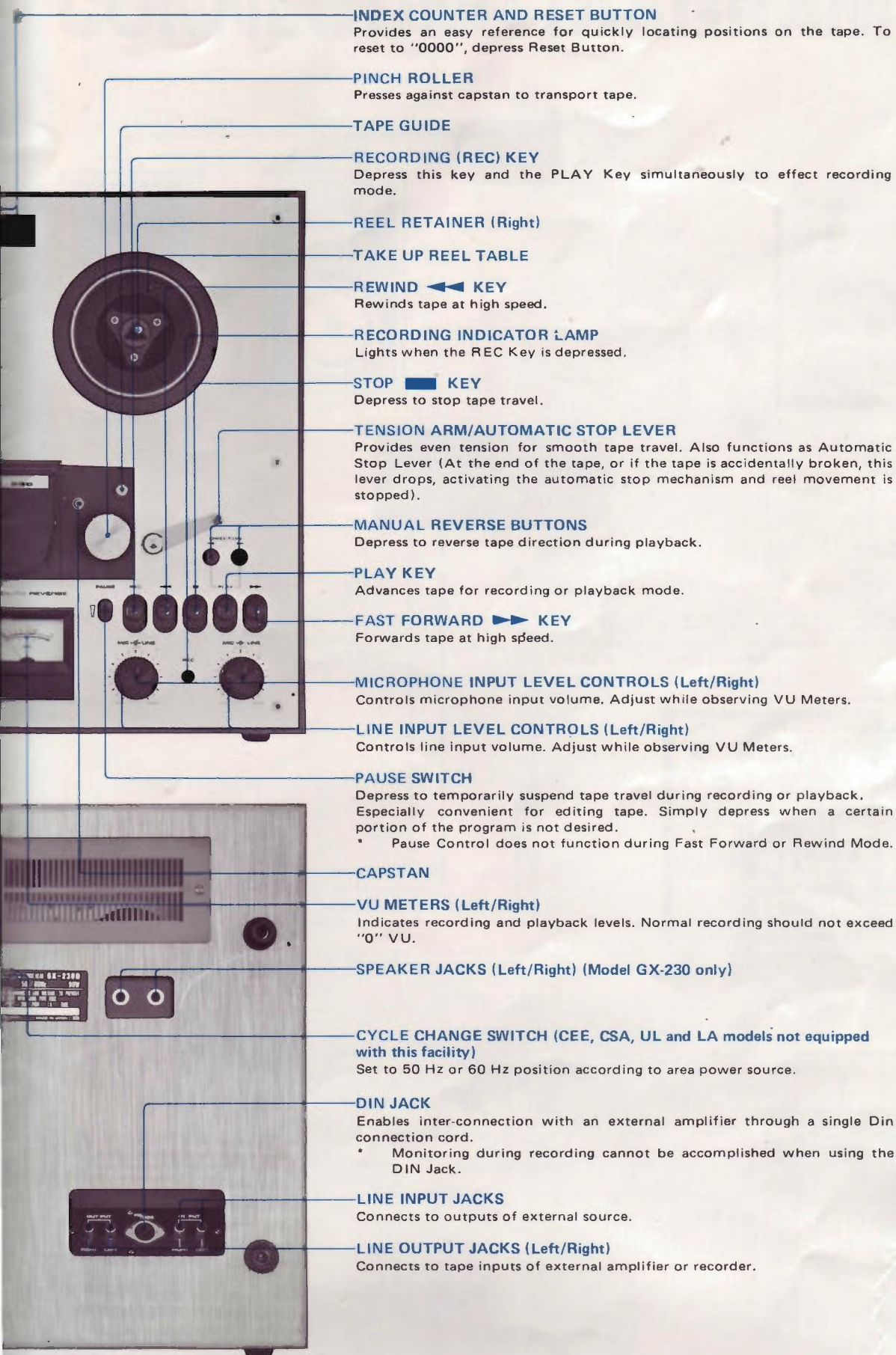
- Scotch #211 Low Noise Tape is considered standard for this machine. The use of regular tape is not recommended.
- Set to Wide Range position only when using special Wide Range Tape of a grade higher than Low Noise Tape.

AC CORD

UNIVERSAL VOLTAGE SELECTOR (CEE, CSA, UL and LA models not equipped with this facility)

Offers six selections of AC voltage for worldwide operation. (Refer to VOLTAGE CONVERSION procedure).





INDEX COUNTER AND RESET BUTTON

Provides an easy reference for quickly locating positions on the tape. To reset to "0000", depress Reset Button.

PINCH ROLLER

Presses against capstan to transport tape.

TAPE GUIDE

RECORDING (REC) KEY

Depress this key and the PLAY Key simultaneously to effect recording mode.

REEL RETAINER (Right)

TAKE UP REEL TABLE

REWIND ◀◀ KEY

Rewinds tape at high speed.

RECORDING INDICATOR LAMP

Lights when the REC Key is depressed.

STOP ■ KEY

Depress to stop tape travel.

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).

MANUAL REVERSE BUTTONS

Depress to reverse tape direction during playback.

PLAY KEY

Advances tape for recording or playback mode.

FAST FORWARD ▶▶ KEY

Forwards tape at high speed.

MICROPHONE INPUT LEVEL CONTROLS (Left/Right)

Controls microphone input volume. Adjust while observing VU Meters.

LINE INPUT LEVEL CONTROLS (Left/Right)

Controls line input volume. Adjust while observing VU Meters.

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.

CAPSTAN

VU METERS (Left/Right)

Indicates recording and playback levels. Normal recording should not exceed "0" VU.

SPEAKER JACKS (Left/Right) (Model GX-230 only)

CYCLE CHANGE SWITCH (CEE, CSA, UL and LA models not equipped with this facility)

Set to 50 Hz or 60 Hz position according to area power source.

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.

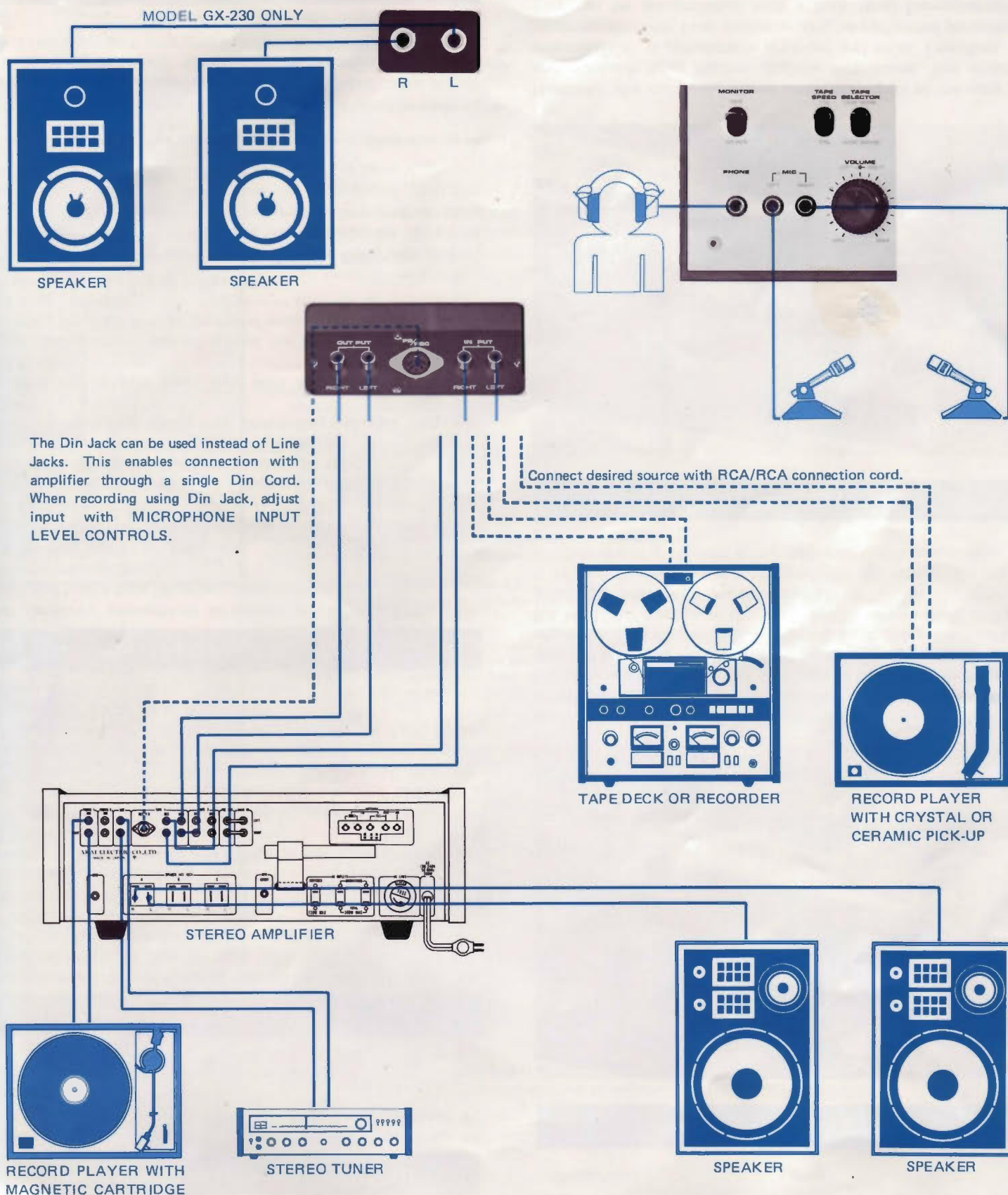
LINE INPUT JACKS

Connects to outputs of external source.

LINE OUTPUT JACKS (Left/Right)

Connects to tape inputs of external amplifier or recorder.

CONNECTING DIAGRAM



OPERATING PRECAUTIONS

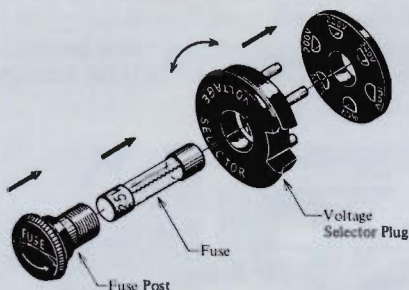
- * Your machine requires constant voltage for optimum performance. If voltage change is necessary, refer to **VOLTAGE CONVERSION** procedure.
- * As dirty or magnetized heads become the source of loss of sound, sound drop-out, distortion, and other recording and playback failures, the heads should be 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.
- * For clear sound, avoid over-level recording. Normal recording is "0" VU.
- * 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.

VOLTAGE AND CYCLE CONVERSION

(CEE, CSA, UL and LA models are not equipped with Voltage and Cycle conversion apparatus.)

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

CYCLES

Correct tape speed cannot be attained if the Cycle Change Switch is not properly positioned. Set to 50 or 60 Hz position according to area power source.

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

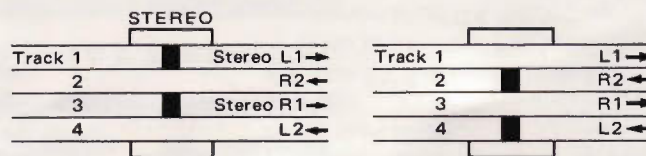
This model operates at 7-1/2 and 3-3/4 ips tape speed. Select desired speed with Tape Speed Switch.

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 in either direction, operate Manual Reverse Buttons at any time during playback.

DIRECT FUNCTION CHANGE CONTROL

This machine features direct function change from Play or Recording mode to F. Forward or Rewind and between F. Forward and Rewind.

Depress STOP Key to stop F. Forward or Rewind.

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 PLAY Key to begin playback.
- E. Adjust Volume Controls (GX-230D Output Level Control) and external amplifier controls.
- F. Depress Manual Reverse Button ◀ for playback of tracks 2-4.
 - * Because Model GX-230 is equipped with a built-in amplifier, a pair of speakers is all that is necessary for playback. However, this model can also be connected to a pair of speakers through an external amplifier in the same way as Model GX-230D (Refer to CONNECTING DIAGRAM).

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) Key. (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 Key at depressed position, depress PLAY Key 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 (timer recording)

By using an external timer, absentee recording can be accomplished with this machine. Load a tape for recording, avoiding tape slack. Adjust input level following recording procedure and, with the Power Switch turned ON and the REC and PLAY Keys locked into recording mode positions, set timer, following manufacturer's instructions. If timer is set to coincide with source timing, the

recorder 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.

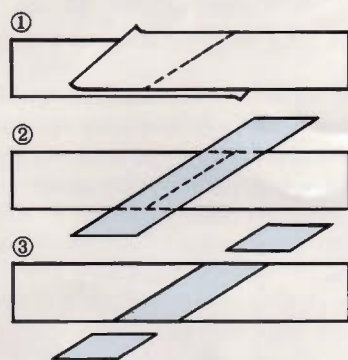
HEAD DEMAGNETIZING



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 0.06% RMS at 7-1/2 ips; Less than 0.08% at 3-3/4 ips
Frequency Response	30 Hz to 23,000 Hz (± 3 dB) at 7-1/2 ips using AKAI LN-150-7 Tape. 30 Hz to 19,000 Hz (± 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 and Rewind	
Time	75 sec. 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 Speaker(2): Continuous power output: 7 watts per channel minimum RMS at 8 ohms load impedance from 100 Hz to 20,000 Hz, both channels fully driven to rated per channel power with no more than 3% total harmonic distortion.
Input Jacks	Microphone(2): 0.3 mV/4.7 K ohms Line (2): 70 mV
Din Jack	0.5 V/3 mV
Semi Conductors	GX-230: Transistors 41, Diodes 32, ICs 2 GX-230D: Transistors 41, Diodes 28
Power Requirements	U.S.A. and Canada (CSA, UL, and LA) Models: 120V, 60 Hz only; CEE Models: 220V, 50 Hz only; Other Models: 100V to 240V, 50/60 Hz (Switchable)
Power Consumption	GX-230: 120W; GX-230D: 90W
Dimensions	440(W) x 395(H) x 205(D) mm (17.3 x 15.6 x 8.1")
Weight	GX-230: 16.7 kg (36.7 lbs.) GX-230D: 15.2 kg (33.4 lbs.)

- * Specifications determined with Scotch #211 tape unless otherwise noted.
- * For improvement purposes, specifications and design are subject to change without notice.

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.



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