

GX-210D

STEREO TAPE DECK

OPERATOR'S MANUAL



WARNING:

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

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ALL GLASS & CRYSTAL FERRITE HEADS

Akai has equipped this model with its new and amazing Glass & Crystal Ferrite Combination Recording/Erase and Playback Heads to bring you unequalled open reel high fidelity sound. With the Glass & Crystal Ferrite Head, superbly wider frequencies, with clear highs can be recorded in all their true fidelity covering 26,000 Hz with low noise tape. In other words, with this completely new Glass & Crystal Ferrite Head, high dynamic range and excellent signal-to-noise ratio are achieved. The secret of this success lies in the head materials, superior processing technique and the focused-field recording system. The core of this quality head is made of single crystal ferrite and is mounted and set in glass. The superior high range characteristics are contributable to the structure of the head gap which focuses the magnetic field into a sharp oblong radius. This focused-field recording system minimizes high frequency loss, eliminates undue equalization and achieves a wider dynamic range.

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

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

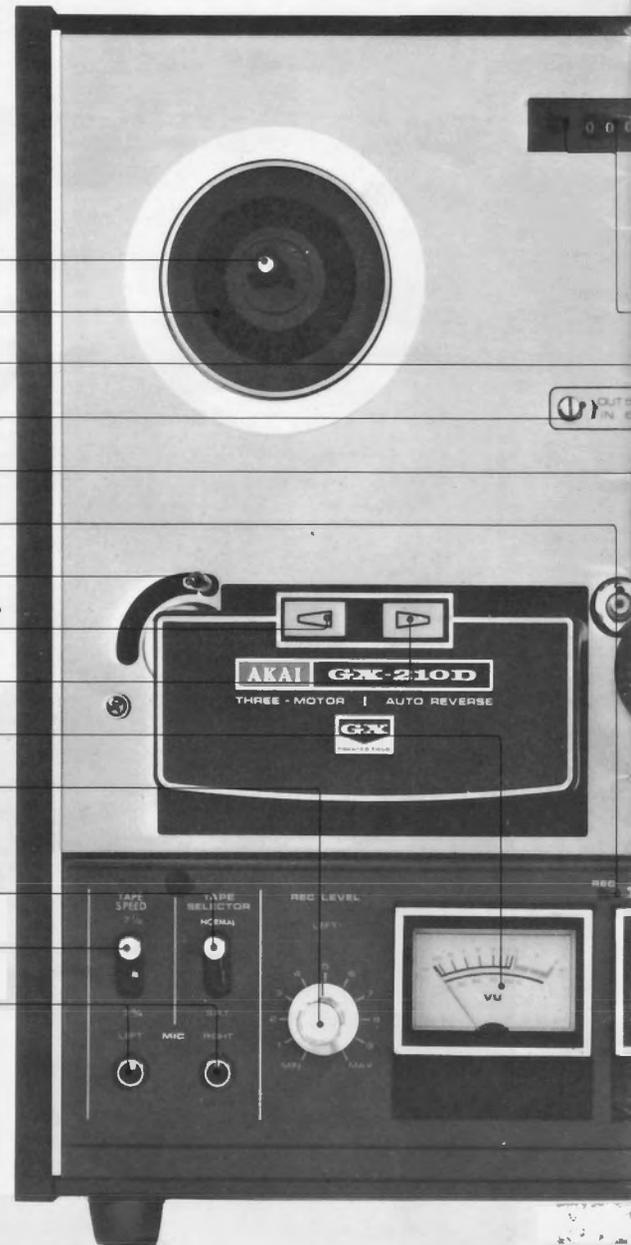
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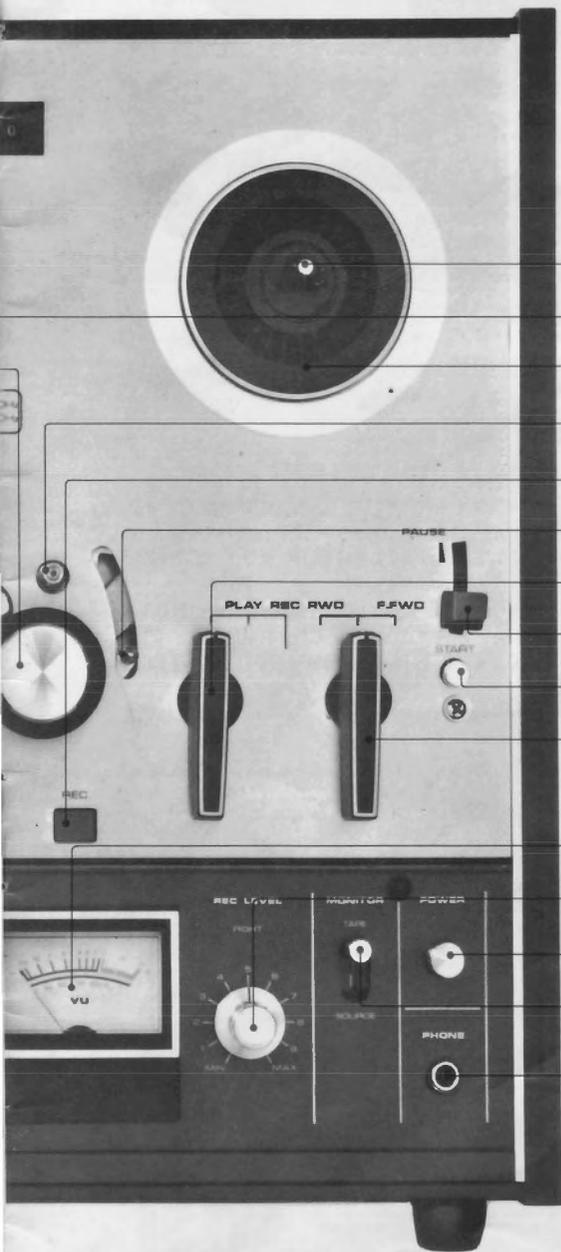
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CONTROLS

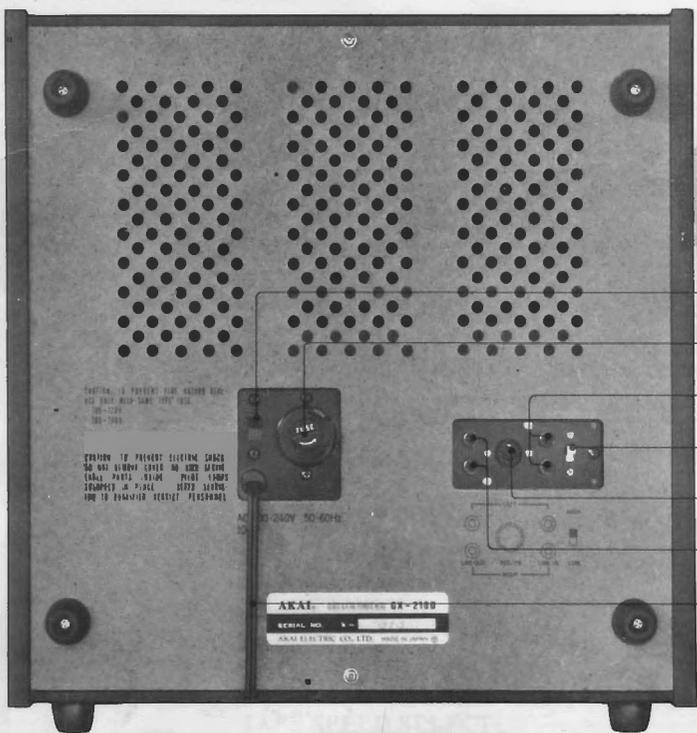
- REEL RETAINER
- SUPPLY REEL TABLE
- PINCH ROLLER
- CYCLE CONVERSION SWITCH (A)
- CAPSTAN
- RECORDING INDICATOR LAMP
- TENSION ARM (Supply side)
- MANUAL REVERSE BUTTON (Reverse direction)
- MANUAL REVERSE BUTTON (Forward direction)
- VU METER (Left)
- RECORDING LEVEL CONTROL (Left)

- TAPE SELECTOR SWITCH
- TAPE SPEED SELECTOR
- MICROPHONE JACKS (Left/Right)





- REEL RETAINER
- INDEX COUNTER & RESET BUTTON
- TAKE-UP REEL TABLE
- TAPE GUIDE
- RECORDING BUTTON
- TENSION ARM (Take-up side)
- PLAYBACK/RECORD LEVER
- PAUSE LEVER
- START BUTTON
- FAST FORWARD/REWIND LEVER
- VU METER (Right)
- RECORDING LEVEL CONTROL (Right)
- POWER SWITCH
- MONITOR SWITCH
- HEADPHONE JACK



CYCLE CONVERSION SWITCH (B)

VOLTAGE SELECTOR & FUSE POST

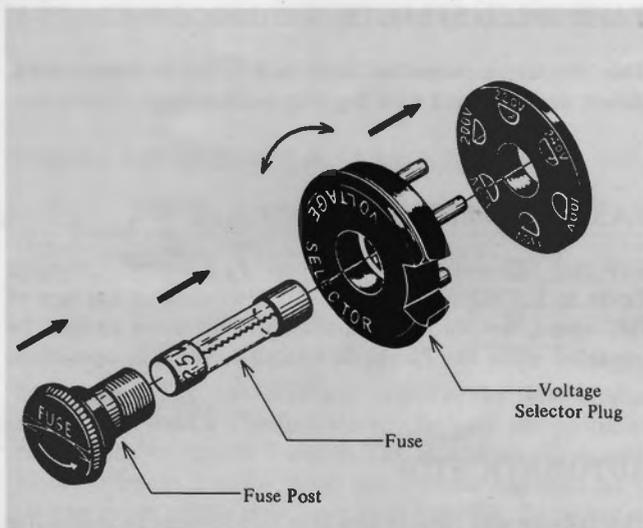
LINE INPUT JACKS (Left/Right)

DIN JACK HIGH/LOW INPUT SWITCH

DIN JACK

LINE OUTPUT JACKS (Left/Right)

A.C. CORD



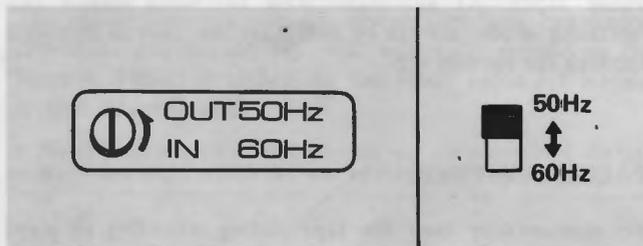
VOLTAGE & CYCLE CONVERSION

VOLTAGE

Your machine is equipped with a universal voltage selector offering six selections of voltage from 100 V to 240 V AC for use anywhere in the world. Voltage is preset at the factory according to destination. Please confirm setting prior to operation and if readjustment is necessary, proceed as follows:

1. Disconnect power cord and remove the Fuse Post by turning in direction of arrow.
2. Remove the Voltage Selector Plug and reinsert so that proper area voltage is shown through the plug cut-out.
3. Change fuse according to voltage (please refer to supplied fuse tag instructions).

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



CYCLE

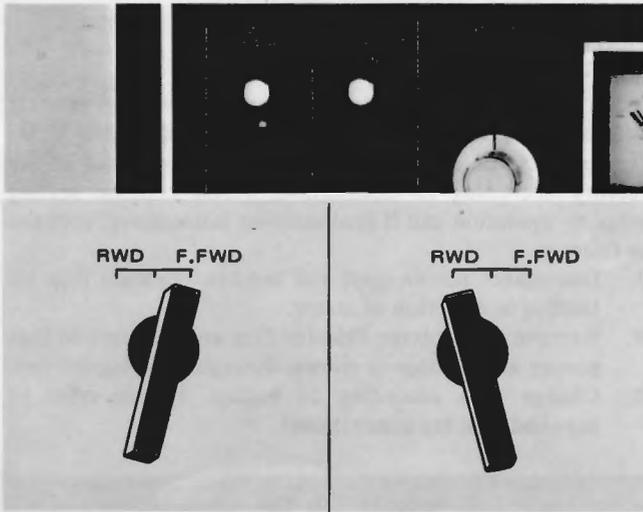
Correct tape speed cannot be obtained if the Cycle Conversion Switches are not properly positioned. Cycle Conversion Switch (A) is located on the upper center of the face panel and (B) is located at the rear of the machine. Using a screw driver, rotate Cycle Conversion Switch (A) counter-clockwise approximately one-eighth of a turn. The switch can then be moved to either in or out. The switch must be rotated back to its original position after being reset. Cycle Conversion Switch (B) must be set accordingly. Set to 50 Hz or 60 Hz to correspond with area power source. Tighten screw.

* Do not attempt to rotate the Cycle Conversion Switches when the motor is not running.



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.



TAPE SPEED SELECTION

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

FAST FORWARD & REWIND

For fast forwarding the tape set Fast Forward/Rewind Lever to F.FWD position, and for rewinding of the tape at fast speed, set to RWD position. This lever cannot be operated while the Playback/Record Lever is in operation.

AUTOMATIC STOP

The take-up side tension arm also functions as an automatic stop mechanism. When the tape comes to the end, the tension arm will drop, activating the mechanism to effect Pause Mode. As automatic stop functions during any operating mode, always be sure that the tape is threaded through the tension arm.

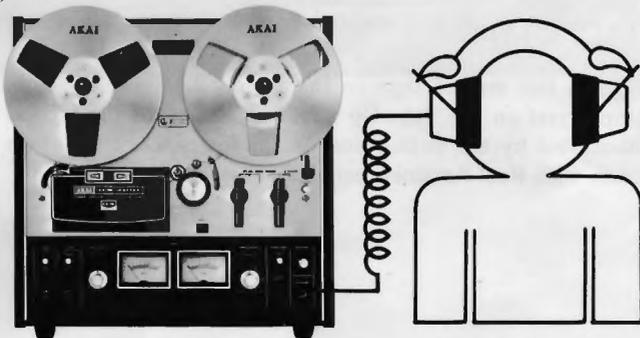
PAUSE CONTROL

To momentarily stop the tape during recording or playback, set Pause Lever to pause position. Pause control is useful in editing tape during recording, or to adjust input level. To release depress the Start Button.

* Pause control does not function during fast forward or rewind mode.

MONITORING

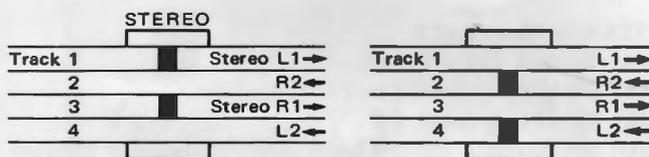
For monitoring, connect stereo headphones to Headphone Jack. Use stereo headphones of low (8Ω) impedance. Akai model ASE-22 or ASE-20 is highly recommended.



4-TRACK RECORDING/PLAYBACK SYSTEM

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

STEREO RECORDING & PLAYBACK



Stereo recording and playback requires the simultaneous use of two tracks. The first stereo playback and recording 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 mode or the reels have been inverted. To record on tracks 2 and 4, invert reels.

This model does not record in reverse direction. For reverse playback, use sensing tape for automatic reverse or the Reverse Button provided on the front panel for manual reverse, or invert reels.

* Front panel manual reverse buttons will not function if the tape is not threaded through the take-up side tension arm.

OPERATING PRECAUTIONS

Your machine is constructed of the very finest materials and with proper care will bring you many years of musical enjoyment. We therefore urge you to read the following instructions carefully prior to operation.

- * The use of new tapes will result in the best recordings.
- * As tape which has not been used for a period of time may have become sticky, run tape once before using.
- * Operate machine on a flat horizontal surface in either horizontal or vertical position.

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

Loss of sensitivity and tone quality may be due to:

- * Dust on combination recording/erase or playback head. See Head Cleaning procedure.
- * Magnetized head. See Head Demagnetizing procedure.
- * AC power voltage lower than the voltage to which your machine is set.

Irregularity in tape transport may be due to:

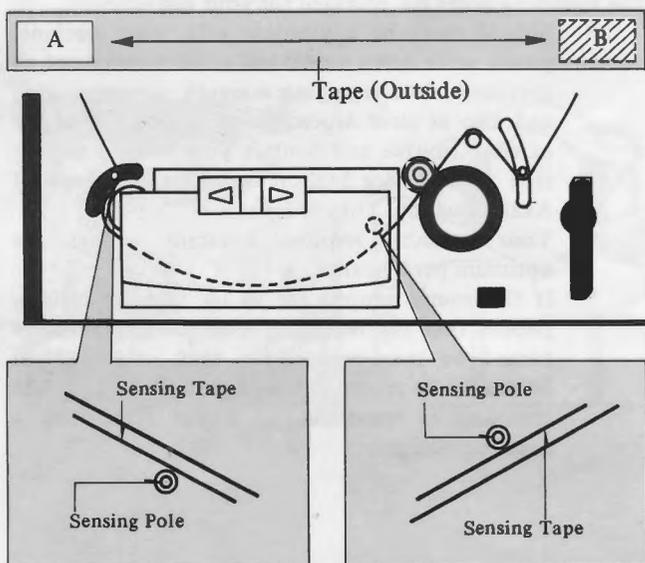
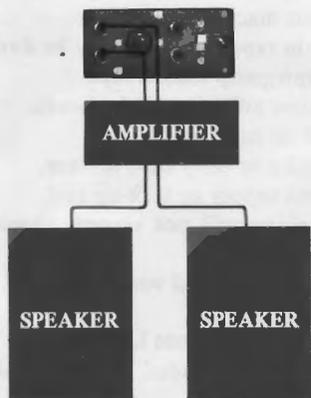
- * Improperly loaded tape.
- * Grime adhering to the heads.
- * Oil on capstan.
- * Sticky or dirty tape surface.
- * Bent supply or take-up reel.

If your machine will not record, check the following for correct position:

- * Input plugs and connections.
- * Controls.
- * Position of Pause Lever.
- * Is tape threaded through take-up side tension arm?

The following notes are provided for your convenience.

- * Should there be a problem with your machine, please write down model and serial number and all pertinent data regarding warranty coverage, etc., and also as clear a description as possible of the existing trouble and contact your nearest authorized Akai Service Station or the Service Dept. of Akai Company, Tokyo, Japan.
- * Your machine requires constant voltage for optimum performance.
- * If the sound sources are so far from the microphones that the recording level controls must be turned to maximum, some hum or noise will inevitably be recorded. In such an instance, a test recording is recommended before attempting a final recording.



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PLAYBACK

For playback of recorded tapes connect the line outputs to the tape inputs of your stereo amplifier and connect a pair of speakers to the amplifier. Connect power cord and load a pre-recorded tape.

STEREO PLAYBACK

- (A) Turn on Power Switch.
- (B) Set Monitor Switch to TAPE position.
- (C) Select tape speed.
- (D) Set Playback/Record Lever to PLAY position to begin playback.
- (E) Adjust external amplifier controls.
- (F) Depress Manual Reverse Button  for playback of tracks 3-2.

* The output level of this model is 1.23 V. Check your amplifier for proper connection.

AUTOMATIC REVERSE PLAYBACK

One of the main features of this model is the automatic reverse playback mechanism which eliminates troublesome inverting of reels by hand. Simple application of a piece of sensing foil to the tape at the desired reversing points is all that is necessary for continuous playback in both directions.

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

As the foil passes the sensing pole (supply side tension arm), reverse is effected.



RECORDING FROM MICROPHONES

STEREO RECORDING

Connect power cord and load a tape. New tape gives best results.

- (A) Turn on Power Switch.
- (B) Select tape speed.
- (C) Set Tape Selector Switch (S.R.T position when using AKAI S.R.T or other make low noise tape and NORMAL position when using ordinary tape).
- (D) With Reset Button, set Index Counter to "0000". This Index Counter provides an easy reference for locating positions on the tape.
- (E) Plug in microphones to Microphone Jacks. Maintain a distance of at least 2 meters (7 ft) between microphones.
- (F) Set Monitor Switch to SOURCE position.
- (G) Adjust and balance microphone volume with left and right Recording Level Controls while observing left and right VU Meters. Normal recording should not exceed "0" VU on either meter.
- (H) While holding the Recording Safety Button at depressed position, set Playback/Record Lever to REC position. The Recording Indicator Lamp will light to indicate recording mode.

* Tape will not travel while the Pause Lever is at lifted position (Pause Mode). To release Pause Mode, depress Start Button.

* To compare the tone quality, volume, etc. of the tape with source, set Monitor Switch to TAPE position. Such comparison during recording will enable the operator to make precise adjustments for more professional recording results.

RECORDING FROM AN EXTERNAL AMPLIFIER

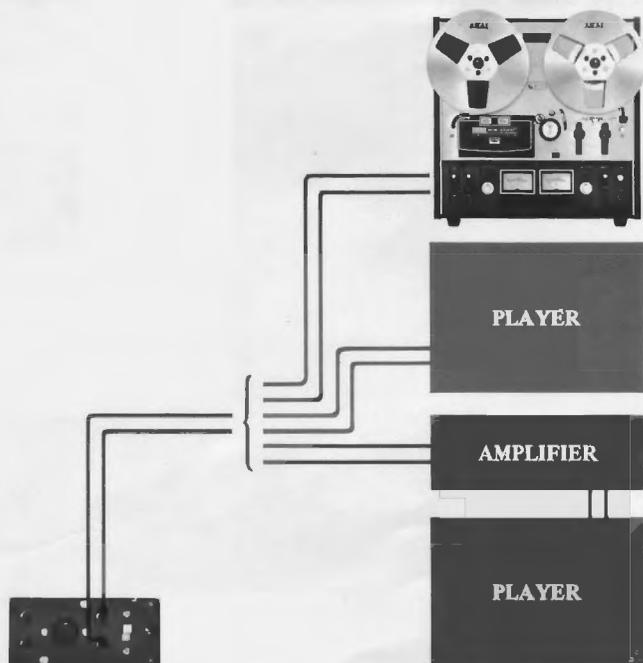
If an external amplifier or tuner amplifier is used, connect the recording outputs of the external amplifier to the Line Inputs instead of Step E of recording procedure. This model will record any source which can be selected on the external source.

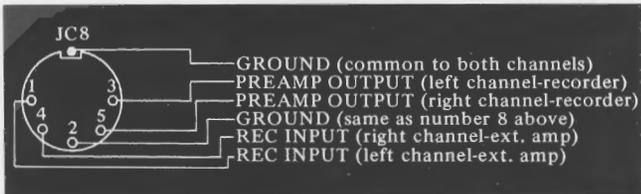
RECORDING FROM ANOTHER TAPE RECORDER (Tape Dubbing)

Connect the line output jacks of the playback machine to the Line Inputs of this model instead of step E of recording procedure.

RECORDING FROM A RECORD PLAYER

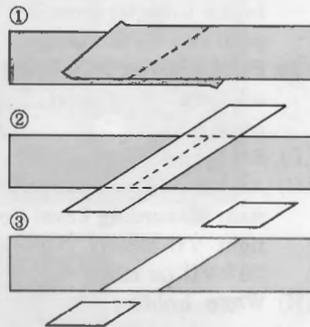
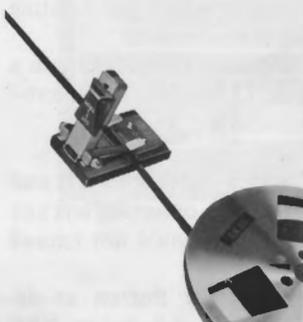
To record from a stereo or monaural disc, a crystal pick-up (0.5 V to 1 V) or a ceramic pick-up can be connected directly to the Line Input Jacks instead of step E of recording procedure. If a magnetic cartridge is used, it must be connected to the Line Input Jacks through an external amplifier.





DIN JACK

The Din Jack at the rear of the unit is for inter-connecting this model 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 your amplifier is high, set the High/Low Input Switch to HIGH position, and if the output level is low, set to LOW position.



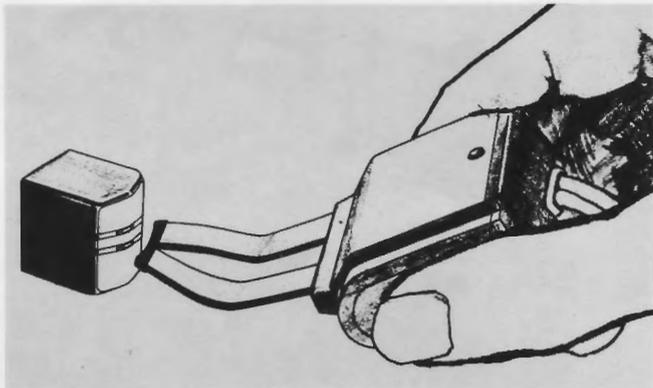
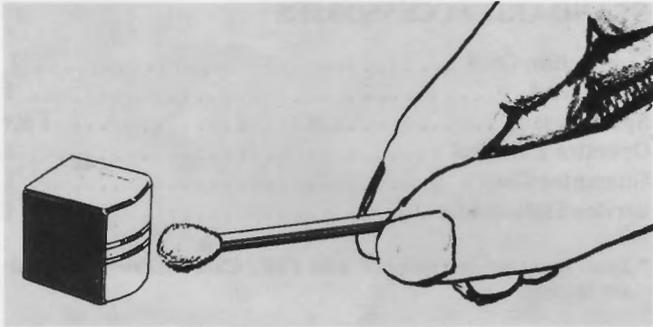
TAPE SPLICING & EDITING

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, cutting into tape very slightly. This eliminates the possibility of a sticky splice. For smooth and easy splicing, we recommend Akai's portable Tape Splicer AS-3.



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 recorder to normal recording mode. No plugs should be connected to the input jacks and recording input level controls should be set to minimum. Akai Model ATE-7 Tape Eraser is recommended for fast and complete tape erasure.



HEAD CLEANING

While GX heads do not require a great deal of cleaning, if old tape or tape which has been spliced is used, head cleaning is recommended. It is especially important that the heads be clean prior to recording. Remove the Head Cover and clean the heads with a stiff cotton swab dipped in cleaning fluid (Akai Head Cleaning Kit HC-500 is highly recommended). The capstan shaft, tape lifter and other parts over which the tape travels should also be cleaned.

- * Do not use chlorothane 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 will cause considerable drop out or introduce noise into your recordings. Therefore, it is recommended that head demagnetizing be performed periodically. This can be accomplished with a bulk demagnetizer by bringing it 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.
- * Both prongs of the demagnetizer should be covered with masking tape to prevent the heads from being scratched.
- * Do not use magnetized tools in the vicinity of the heads.
- * Read the demagnetizer's instructions carefully before operation.

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 ($\pm 0.8\%$) |
| Wow & Flutter | Less than 0.08% RMS at 7-1/2 ips Less than 0.12% RMS at 3-3/4 ips |
| Equalization | Correct equalization for playback of tapes recorded to the NAB curve. |
| Frequency Response | Using low noise tape 30 Hz to 25,000 Hz (± 3 dB) at 7-1/2 ips 40 Hz to 20,000 Hz (± 3 dB) at 3-3/4 ips Using regular tape 30 Hz to 23,000 Hz (± 3 dB) at 7-1/2 ips 40 Hz to 18,000 Hz (± 3 dB) at 3-3/4 ips |
| Distortion | Less than 1.5% (1,000 Hz, zero VU) |
| Signal-To-Noise Ratio | Better than 50 dB |
| Erase Ratio | Better than 70 dB |
| Cross-Talk | Better than 45 dB (stereo) |
| Bias Frequency | 102 kHz |
| Heads | One recording/erase combination GX head; one playback GX head. |
| Motors | (3): One 4/8-pole self-lubricating hysteresis synchronous capstan drive motor; two eddy-current outer-toror reel drive motors. |
| Fast Forward & Rewind Time | Within 75 secs. using a 1,200 ft. tape |
| Recording Capacity | Two hours stereo recording using a 1,200 ft. tape at 3-3/4 ips |
| Output Jacks | Line(2): 1.23 V (zero VU)/100 Ω (Required load impedance: more than 20 k Ω) Phone: 30 mV/8 Ω |
| Input Jacks | Microphone(2): 0.3 mV/4.7 k Ω Line(2): 60 mV/500 k Ω |
| Din Jack | 0.5 V/60 mV (high)/5 mV (low) |
| Semi-Conductors | Transistors: 29; Diodes: 15 |
| Power Requirements | 100 V to 240 V A.C., 50/60 Hz |
| Power Consumption | 100 W max. |
| Dimensions | 371(H) x 368(W) x 227(D) mm (14.6 x 14.5 x 8.9") |
| Weight | 15.4 kg. (33.9 lbs.) |

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

STANDARD ACCESSORIES

| | |
|----------------------|-------|
| Connection Cord | 1 |
| Empty reel | 1 |
| Spare Fuse | 1 set |
| Operator's Manual | 1 |
| Guarantee Card | 1 |
| Service Station List | 1 |

* Spare fuses are not included with CEE, CSA, UL and LA Standard Models.



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

12-14, 2-chome, Higashi-Kojiya,
Ohta-ku, Tokyo, Japan

AKAI AMERICA, LTD.

2139 E. Del Amo Blvd., Compton, Calif., 90220, U.S.A.

TELEPHONE: (213) 537-3880

TELEX: 67-7494

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