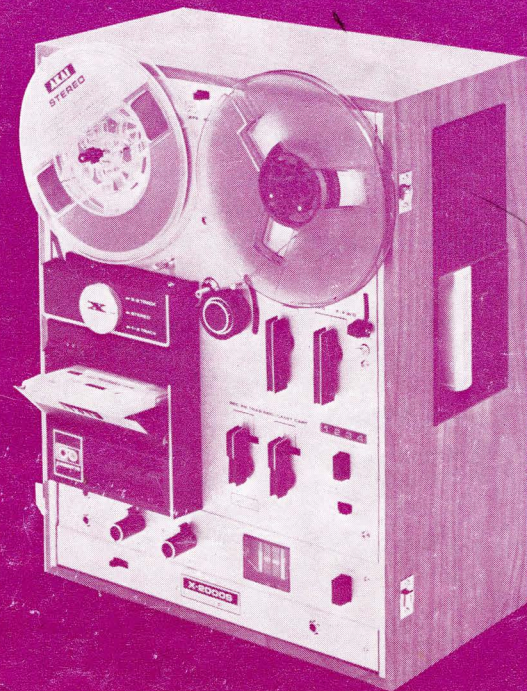


X-2000S

OPERATOR'S MANUAL



AKAI®

1. GENERAL INFORMATION

TABLE OF CONTENTS

I . GENERAL INFORMATION

1. Specifications	4
2. Controls	6
3. Cross-field Head	9
4. Voltage and Cycle Conversion	10
5. Tape Speed Selection	12
6. DIN (One Multiple-Connection) Jack	14
7. Operating Precautions	15

II. RECORDING AND PLAYBACK WITH CONVENTIONAL REEL TAPE

1. 4-Track Recording/Playback System	16
2. Tape Loading	17
3. Automatic Stop/Shut-off	18
4. Pause Control	18
5. Fast Forward and Rewind	19
6. Playback	20
Stereo	
Monaural	
Using External Speakers	
7. Recording	22
Stereo	
Monaural	
From an External Speaker	
From Discs	
From Another Tape Recorder	
8. Monitoring	26
9. Tape Erasing	26
10. Head Cleaning	27
11. Head Demagnetizing	28
12. Lubrication	29

III. RECORDING AND PLAYBACK WITH 8-TRACK CARTRIDGE

1. 8-Track Stereo System	30
2. Cartridge Loading	31
3. Head Cleaning	31
4. 8-Track Cartridge Stereo Playback	32
5. Cartridge Automatic Stop	33
6. 8-Track Cartridge Stereo Recording	34

IV. TRANSFER CONVENTIONAL REEL TAPE TO CARTRIDGE TAPE

35

V. RECORDING PLAYBACK WITH 4-TRACK CASSETTE TAPE

1. 4-Track Stereo System	37
2. Loading Cassette	37
3. 4-Track Stereo Playback	38
4. 4-Track Cassette Recording	39

VI. TRANSFER CONVENTIONAL REEL TAPE TO CASSETTE TAPE

40

VII. ACCESSORIES

1. Optional Accessories	41
2. Standard Accessories	42

VIII. SCHEMATIC

1. PERFORMANCE SPECIFICATIONS

Tape Speed	REEL 1-7/8, 3-3/4, 7-1/2 ips (15 ips w/adapter kit) CARTRIDGE 3-3/4 ips CASSETTE 1-7/8 ips
Wow/Flutter	REEL Less than 0.09% rms at 7-1/2 ips Less than 0.14% rms at 3-3/4 ips Less than 0.20% rms at 1-7/8 ips CARTRIDGE Less than 0.20% rms CASSETTE Less than 0.22% rms
Frequency Response	REEL 30 to 23,000 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 CARTRIDGE 30 to 18,000 Hz (± 3 dB) CASSETTE 30 to 16,000 Hz (± 3 dB)

Signal to Noise Ratio	Reel Better than 50 dB CARTRIDGE Better than 45 dB CASSETTE Better than 45 dB	1-7/8 ips using a 1200 ft. tape 4 hrs. stereo recording at 1-7/8 ips CARTRIDGE 1 hr. stereo recording (300 ft. tape) CASSETTE
Input Level	Mic.—More than 0.15 mV Line—More than 25 mV	2 hr. stereo recording using a C-120 cassette tape
Power Output	12 W max. each channel at Music Power (total 24 W)	
Recording Bias		
Frequency	81 kHz	Max. reel size 7" Reel
Recording Level		Motor 2-speed condenser motor
Indicator	Slide Type VU Meters	Speakers Two 4" built-in high compliance speakers
Recording System	REEL 4 track Stereo/Monaural CROSS-FIELD Bias System CARTRIDGE 8 track Stereo System CASSETTE 4 track Stereo System	Transistors 13 Diodes 16 IC 4 Power Supply A/C 100 to 240 V ; 50/60 Hz Power Consumption 60 W Dimensions 10.6 x 13.8 x 18.3" (270 x 350 x 465 mm) Weight 49.4 lbs. (22.4 kg)
Fast Forward and Rewind Time	REEL 150 seconds using a 1200 ft. tape at 50 Hz 120 seconds at 60 Hz CASSETTE Within 80 seconds	
Recording Capacity	REEL 8 hrs. monaural recording at	

2. CONTROLS

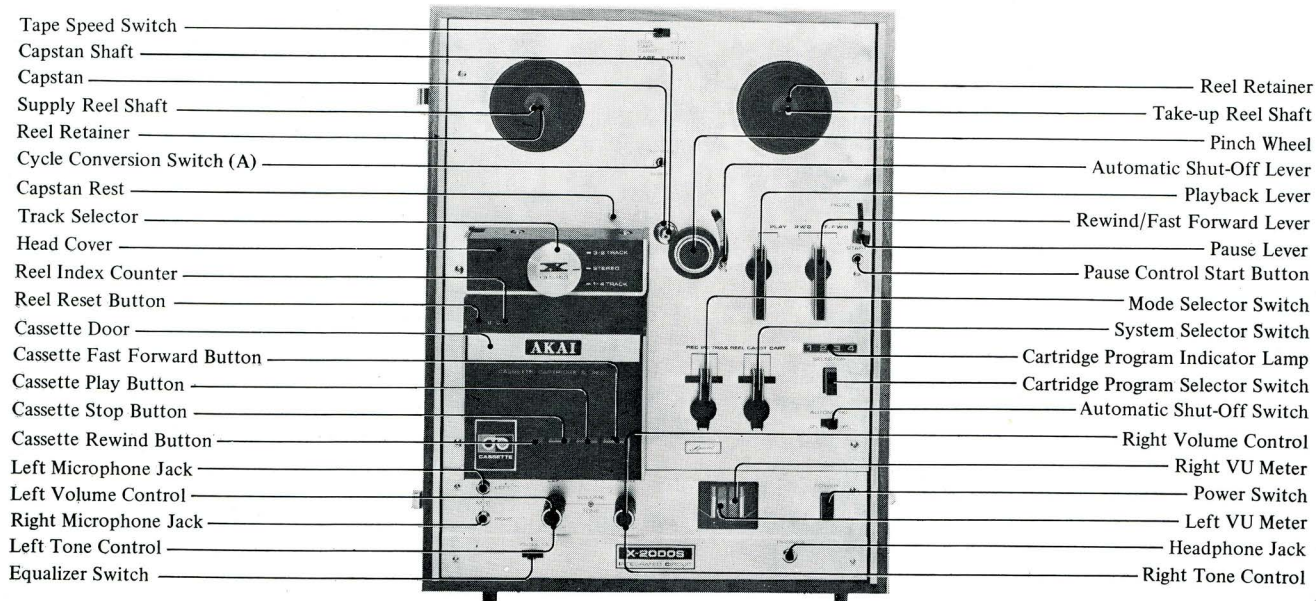


Fig. 1

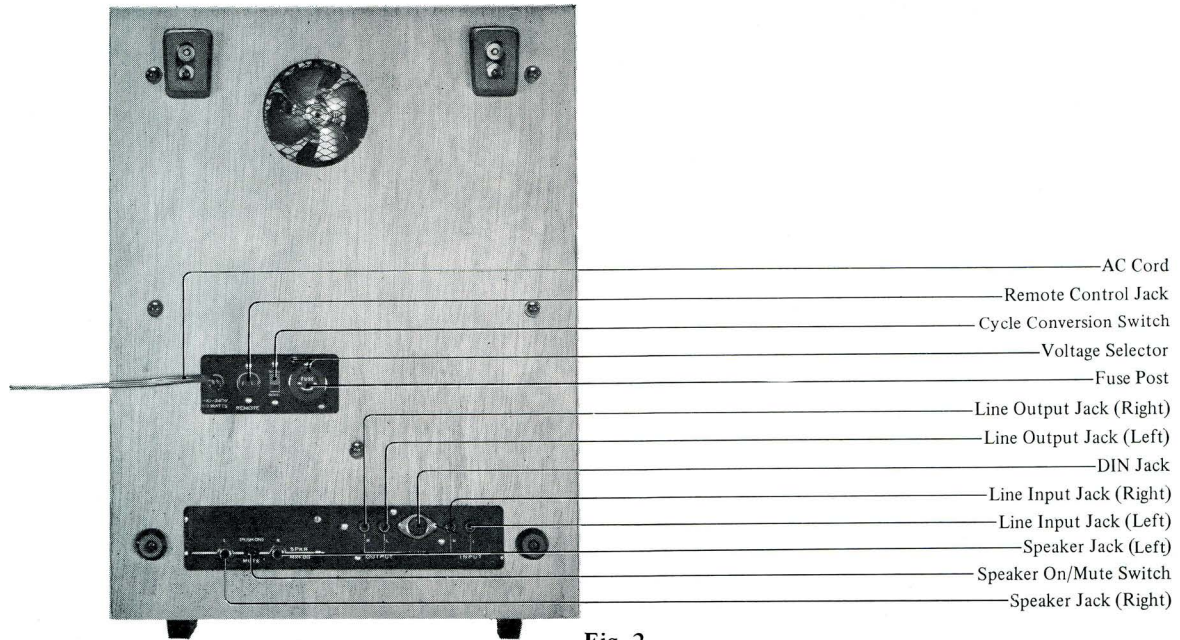


Fig. 2

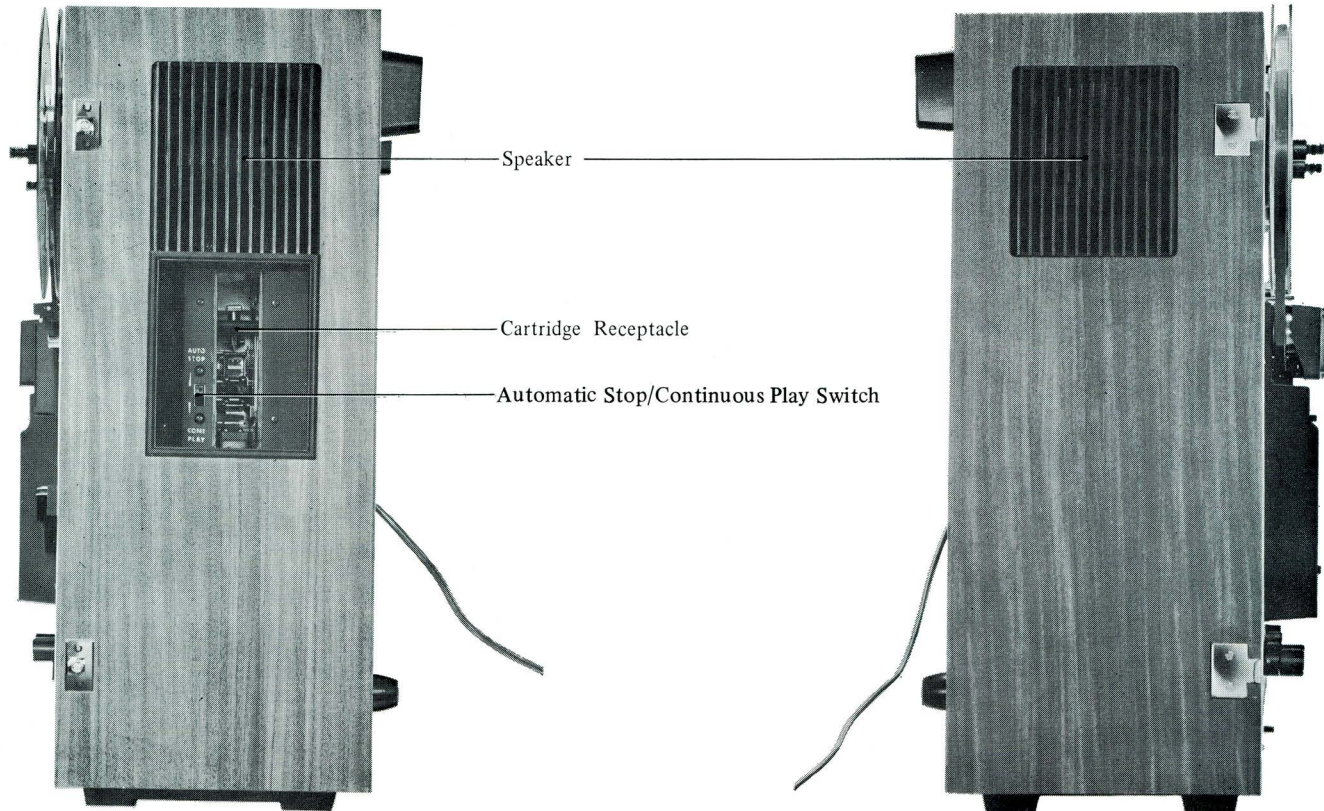


Fig. 3

Fig. 4

Diagram 1. Ordinary recording system

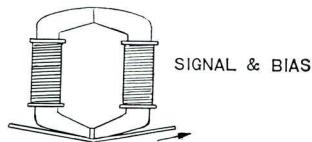
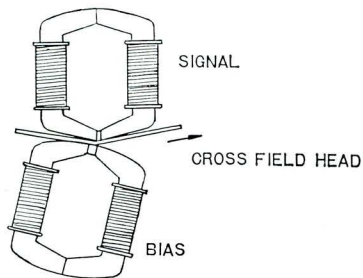


Diagram 2. Cross-field recording system



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-2000S gives a surprising recording performance (30 to 23,000 cps \pm 3 dB at a tape speed of 7-1/2 ips).

Why is Cross-Field recording superior? How does it differ 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.

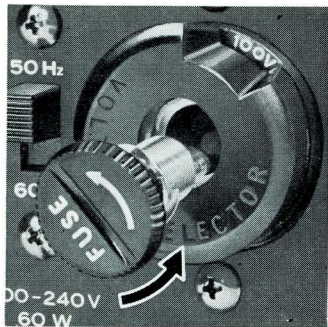


Fig. 5

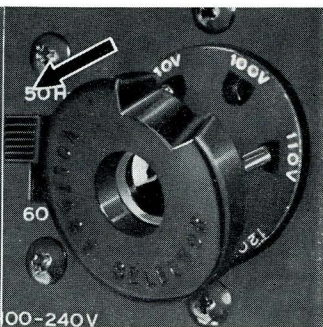


Fig. 6

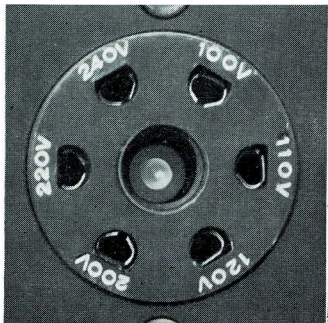


Fig. 7

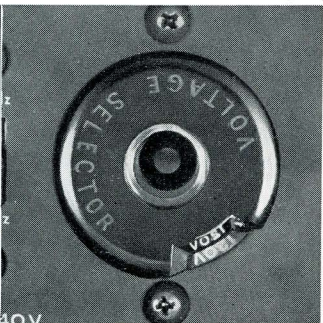


Fig. 8

4. VOLTAGE AND CYCLE CONVERSION

VOLTAGE

Model X-2000S 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. Remove VOLTAGE SELECTOR PLUG and reinsert to standard area voltage.
- (2) The VOLTAGE SELECTOR as shown in Figs. 6, 7, and 8, is a rotatable plug-in type offering 6 selections (100/110/120/200/220/240)
- (3) Change the fuse according to voltage.

Fuse : 100 V ~ 120 V 2 A, 200 V ~ 240 V 1 A

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.



Fig. 9

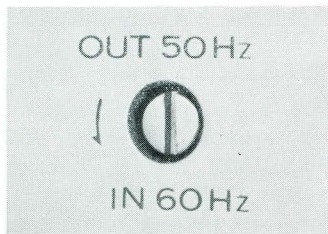


Fig. 10

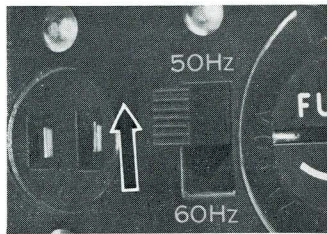


Fig. 11

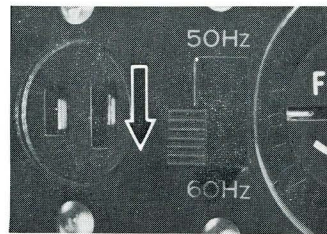


Fig. 12

CYCLE

Correct tape speed cannot be obtained if the CYCLE CONVERSION SWITCHES are not properly positioned. CYCLE CONVERSION SWITCH (A) is located in the upper center of the face panel and (B) is located at the rear of the recorder. Using a screw driver, rotate CYCLE CONVERSION SWITCH (A) 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 (Fig. 9) and 60 cycle operation, by moving the switch IN (Fig. 10). The switch should be rotated back to its original position after it has been moved to either IN or OUT position. CYCLE CONVERSION SWITCH (B) must also be reset accordingly.

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



Fig. 13

5. TAPE SPEED SELECTION

A. Conventional Reel Tape

TAPE SPEED

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

The X-2000S operates on 4 tape speeds, 15, 7-1/2, 3-3/4, and 1-7/8 ips. Refer to the chart for selection of adequate speed. Tape speed is determined by motor speed, the capstan on the tape drive capstan shaft, and by adjusting the equalizer switch.

NOTE : Equalizer switch influences only reel to reel tape speed (It has no connection with Cassette or Cartridge recording and playback).

- 1-7/8 ips Set TAPE SPEED SWITCH TO "LOW" (CART) position. Do not use capstan (mount on capstan rest).
- 3-3/4 ips Set TAPE SPEED SWITCH TO "LOW" (CART) position. Mount capstan on capstan shaft and lock into position with notches.
- 7-1/2 ips Set TAPE SPEED SWITCH to "HIGH" position. Use capstan.
- 15 ips Set TAPE SPEED SWITCH to "HIGH" and use 15 ips adapter (15 ips capstan and smaller pinch roller).

RECORDING TIME

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

B. Cartridge Tape

3-3/4 ips Set TAPE SPEED SWITCH to “LOW” (CART) position.

C. Cassette Tape

1-7/8 ips Set TAPE SPEED SWITCH to “LOW” (CASST) position.

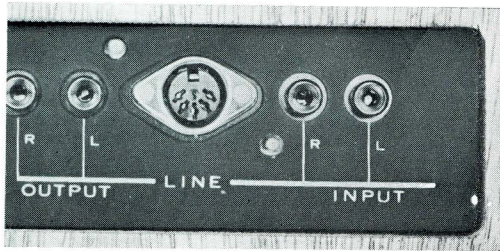
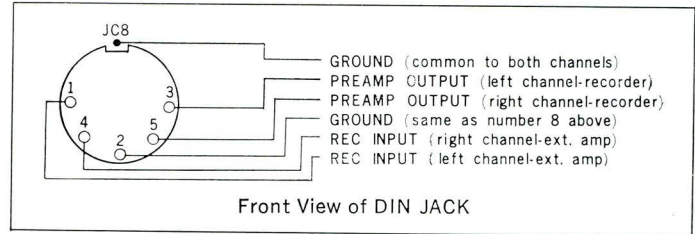


Fig. 14

6. DIN JACK (One multiple connection)

The Din Jack at the rear of the recorder is used for inter-connecting Model X-2000S with an external stereo amplifier with the same connection jack. This system enables easy recording and playback of stereo programs through an external amplifier as the complex connection or disconnection of 4 or more separate plugs is not necessary. If your amplifier is not equipped with a DIN Jack and the use of this one-connection system is required, AKAI optional accessory DR-110 is available.



7. OPERATING PRECAUTIONS

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

- (1) The use of NEW TAPE will result in the best recordings.
- (2) The conditions listed below do not necessarily indicate mechanical failure of your tape recorder. If your machine exhibits any of these conditions, check for trouble as indicated :

Loss of sensitivity and tone quality may be due to :

- A. Dirty Erase Head. This prevents pre-recorded 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 voltage to which your machine is adjusted.

Irregularity in 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. Position of Mode Selector and System Selector Switches and Playback Lever.
 - B. Input plugs.
 - (4) Read the following carefully before **recording or playback with Cartridge Tape**:

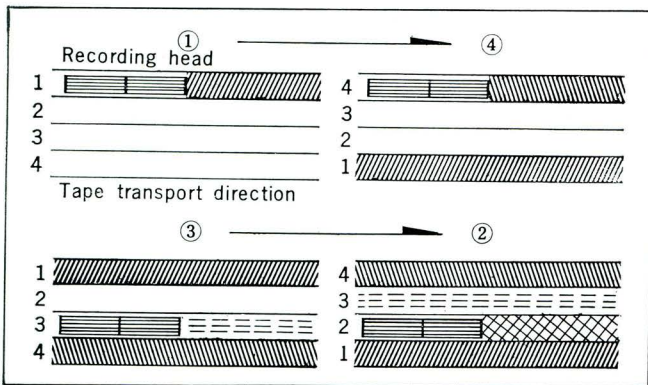
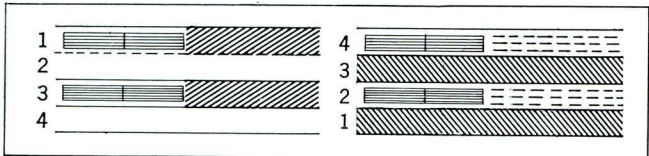
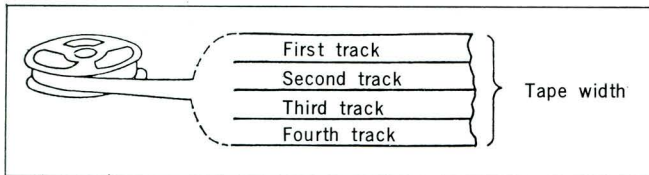
- A. When Cartridge is inserted to proper position, the PROGRAM INDICATOR LAMP will light and the tape will begin to move. As soon as recording on the last channel is completed, remove tape to prevent erasure of initial recording. (Recording time for each channel is 15 minutes).

- (5) Read the following carefully before **recording or playback with Cassette Tape**.

- A. Although your cassette tapes are equipped with break-out lugs, Model X-2000S is not equipped with this safety feature. A new recording can be made on the tape whether or not the lugs have been removed.
- B. Do not touch the tape surface with your fingers. High Frequency signals cannot be recorded in places which are not clean on the tape.

The following notes are provided for your convenience :

- (1) If any trouble should develop, please take your machine to your nearest authorized agent or inquire at the Service Department of the Akai Company in Tokyo, Japan.
- (2) Your Akai Tape Recorder Model X-2000S requires constant voltage for optimum performance.
- (3) If the sound sources are so far away from the microphones that the volume controls must be turned up to maximum, some hum or noise will inevitably be recorded. In such instance, a test recording is recommended before attempting a final recording.



II. RECORDING AND PLAYBACK WITH CONVENTIONAL TAPE REEL

1. 4-TRACK RECORDING/PLAYBACK SYSTEM (REEL TO REEL)

The AKAI X-2000S 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.

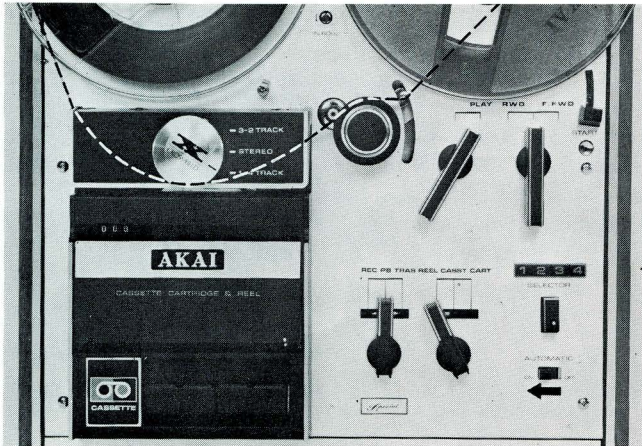


Fig. 15

2. TAPE LOADING

Place the full reel of tape on the SUPPLY REEL SHAFT and the empty reel on the TAKE-UP REEL SHAFT. Thread the tape as illustrated by the dotted line in Fig. 15.

IMPORTANT : If the automatic shut-off is required, thread the tape through the AUTOMATIC SHUT-OFF LEVER. If not, thread the tape directly onto the TAKE-UP REEL. In this case, set the AUTOMATIC SHUT-OFF SWITCH (Fig. 16) to "OFF".

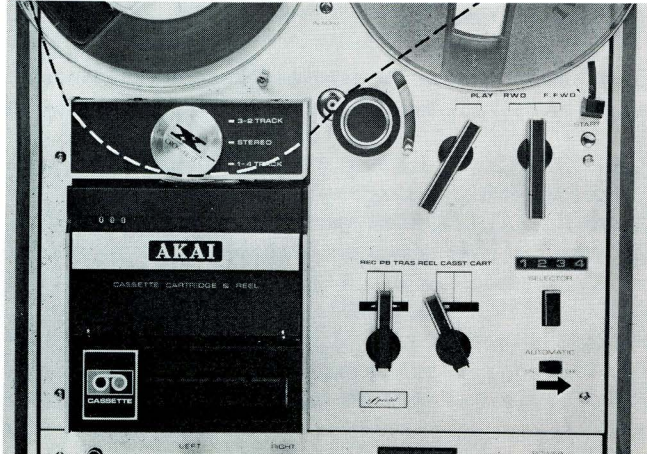


Fig. 16

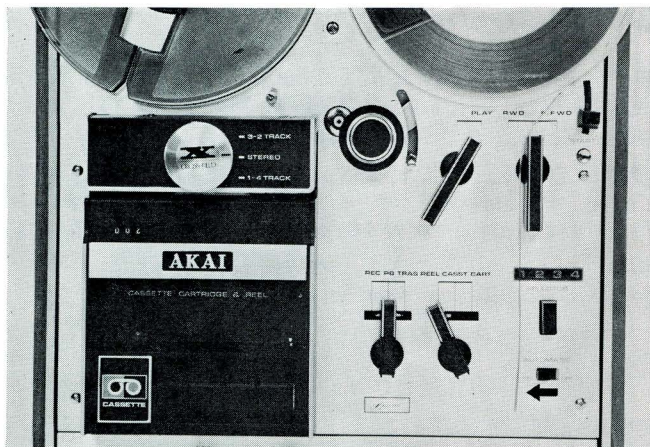


Fig. 17

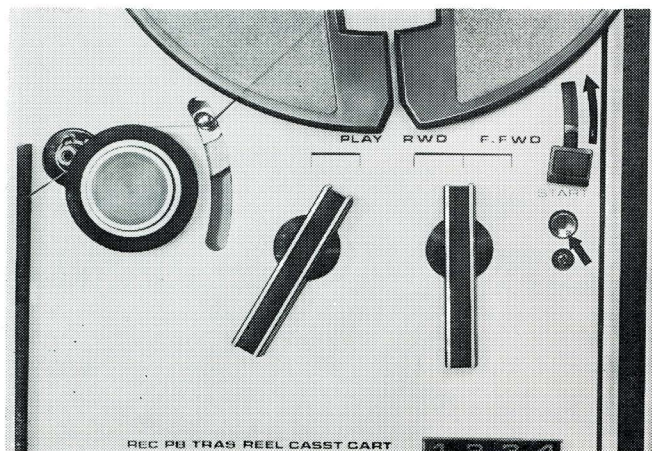


Fig. 18

3. AUTOMATIC STOP/SHUT-OFF

One of the exclusive features of Model X-2000SD is the function of the automatic shut-off unit. When the tape comes to the end or is accidentally broken, the AUTOMATIC SHUT-OFF LEVER drops, cutting off the power, and thus stopping reel movement.

For automatic shut-off, the AUTOMATIC SHUT-OFF SWITCH must be set to "ON" position. See Fig. 17.

4. PAUSE CONTROL

To momentarily stop the tape during recording/playback, set the PAUSE LEVER TO "Pause" position. (as shown in Fig. 18.)

PAUSE CONTROL LEVER will not function during fast forward or rewind operation.

Use of the PAUSE LEVER permits adjustment and balance of recording level when the recorder is set to normal recording mode. Adjust VOLUME CONTROLS while viewing VU METERS. PAUSE CONTROL is also useful in editing the tape during recording (lift lever to stop recording when a certain portion of the program is not desired). Note that when the lever is released and recording again commences, no annoying "click" is impressed on the tape. To release pause lever press Start Button.

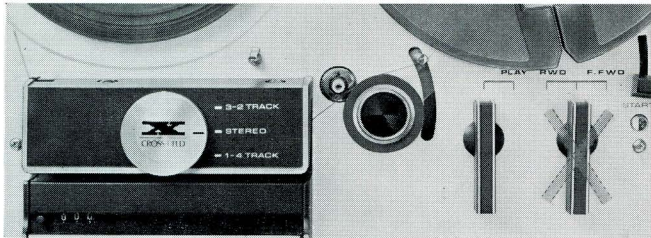


Fig. 19

5. FAST FORWARD AND REWIND

Fast Forward or Rewind is performed by operating FAST FORWARD/REWIND LEVER. Fast Forward or Rewind permits rapid selection of recordings on the tape. FAST FORWARD/REWIND LEVER is automatically locked into position and cannot be operated while **PLAYBACK LEVER** is in operation and vice-versa.

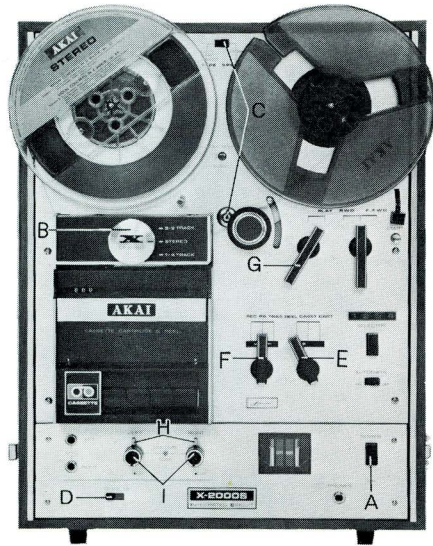


Fig. 20

6. PLAYBACK

STEREO

Connect recorder to AC power source with attached AC cord and load a tape.

- (A) Turn on POWER SWITCH.
- (B) Set TRACK SELECTOR to "Stereo".
- (C) Select Tape Speed.
- (D) Set EQUALIZER SWITCH to consistent speed.
- (E) Set SYSTEM SELECTOR to "Reel"
- (F) Set MODE SELECTOR to "PB" position and depress SPEAKER SWITCH to "ON" position.
- (G) Set PLAYBACK LEVER to "Play".
- (H) Adjust LEFT and RIGHT VOLUME CONTROLS.
- (I) Adjust LEFT and RIGHT TONE CONTROLS.
(Turning tone controls clockwise will increase treble response.)
- (J) Invert reels for playback on track 2-4.

CAUTION :

- (1) Do not attempt to operate SYSTEM SELECTOR and MODE SELECTOR SWITCHES until PLAYBACK LEVER is returned to "stop" position.
- (2) When Speaker Switch is at "Mute" position, the Speakers are inoperative.

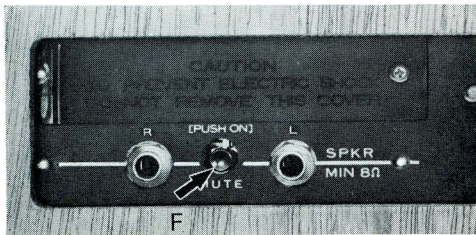


Fig. 21



Fig. 22

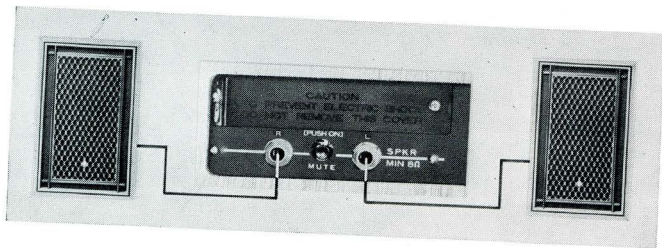


Fig. 23

MONAURAL

For monaural playback, substitute the following steps (B), (H), (I) and (J) of the stereo procedure. Follow the rest of the stereo procedure.

Playback on Tracks 1 and 4

Only the Left Channel Amplifier is used for monaural playback on tracks 1 and 4.

- (B) Set TRACK SELECTOR to "1-4".
- (H) Adjust LEFT VOLUME CONTROL.
- (I) Adjust LEFT TONE CONTROL.
- (J) Invert reels to playback on track 4.

Playback on Tracks 3 and 2

Only the Left Channel Amplifier is used for monaural playback on tracks 3 and 2.

- (B) Set TRACK SELECTOR to "3-2".
- (H) Adjust LEFT VOLUME CONTROL.
- (I) Adjust LEFT TONE CONTROL.
- (J) Invert reels for playback on track 2.

USING EXTERNAL SPEAKERS

Though your AKAI X-2000S is equipped with two internal speakers, a pair of high fidelity external speakers will enable you to enjoy the ultimate in sound reproduction. (Con't on page 22)

- (A) Depress SPEAKER SWITCH to “ON” position.
- (B) Insert plugs from external speakers into LEFT AND RIGHT EXTERNAL SPEAKER JACKS. Volume Controls should be held at “O” position.

The external speakers should be separated by at least 7 feet. When speaker plugs are connected to speaker jacks, the internal speakers are inoperative.

USING STEREO HEADPHONES

For private listening, please use stereo Headphones of Low Impedance.

Set Speaker Switch to “Mute” position and connect Headphones to HEADPHONE JACK.

7. RECORDING

STEREO

- (A) Turn on POWER SWITCH.
- (B) Set TRACK SELECTOR to “Stereo”.
- (C) Select Tape Speed.
- (D) Set EQUALIZER SWITCH to consistent speed.
- (E) Set SYSTEM SELECTOR to “Reel”.
- (F) With RESET BUTTON, set INDEX COUNTER to “000”. (This index counter provides an easy reference for locating positions on the tape.)
- (G) Insert MICROPHONE PLUGS into LEFT and RIGHT MICROPHONE JACKS. Maintain a distance of at least 7 feet between the microphones.
- (H) Set PAUSE LEVER to “Pause” position.
- (I) Set MODE SELECTOR (I) to “Rec” and lock into position by setting PLAYBACK LEVER to “Play”.
- (J) Microphone volume level can be adjusted and balanced

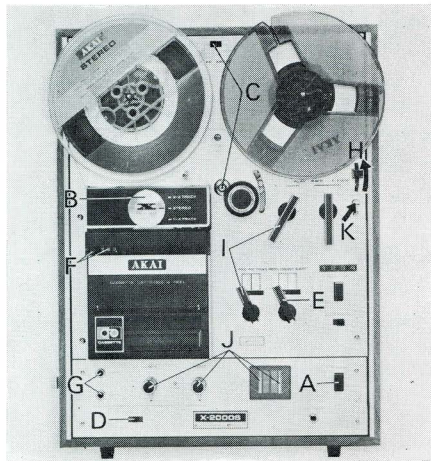


Fig. 24

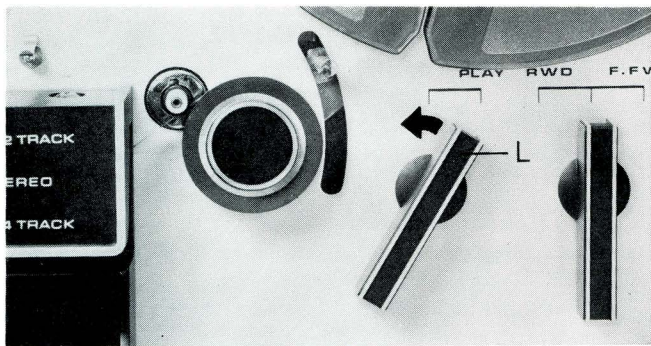


Fig. 25

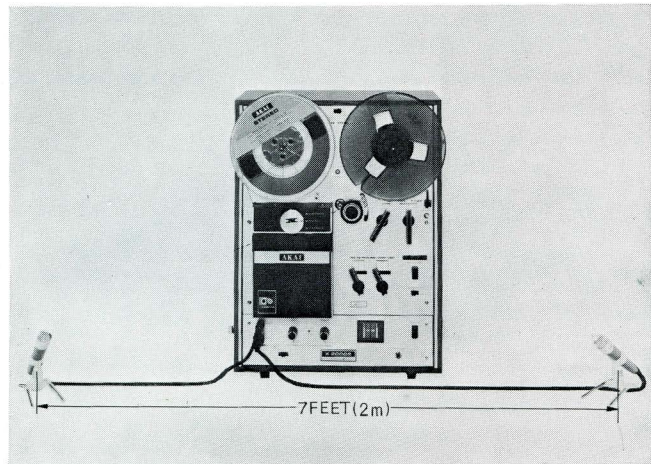


Fig. 26

by adjusting LEFT and RIGHT VOLUME CONTROLS. Normal recording should not exceed "0" VU on VU METERS.

- (K) When optimum recording level is determined, release PAUSE LEVER (return to "Start" position by pressing START BUTTON).
- (L) When recording is completed, return PLAYBACK LEVER to "Stop" position (Fig. 25).
- (M) When the PLAYBACK LEVER is returned to "Stop" position and the MODE SELECTOR automatically returns from "REC" to "PB" position, playback can be accomplished without re-setting the Mode Selector.

Caution : Tone control has no effect during recording. It is automatically disconnected when recording commences.

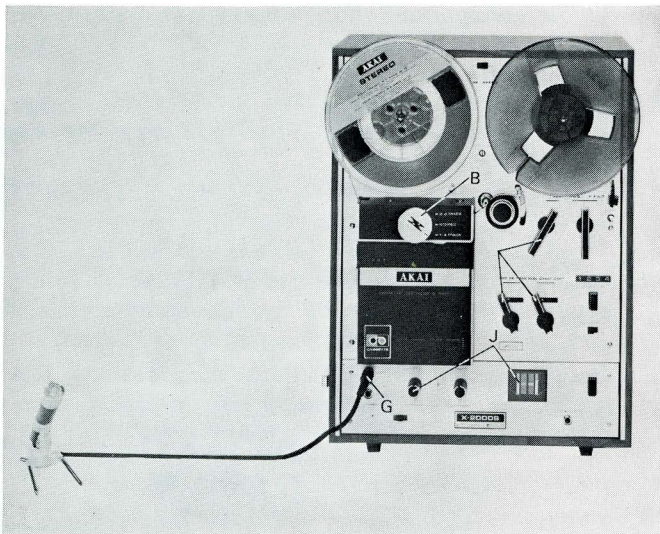


Fig. 27

MONAURAL

For monaural recording substitute the following steps (B), (G), (J) and (M) of stereo procedure. Follow the rest of the stereo procedure.

Recording on tracks 1 and 4

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

(B) Set TRACK SELECTOR to "1-4".

(G) Insert microphone plug into LEFT MICROPHONE JACK.

(J) Microphone volume level can be adjusted and balanced by adjusting the LEFT VOLUME CONTROL while observing the LEFT VU METER.

(M) Invert reels to record on track 4.

Recording on tracks 3 and 2

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

(B) Set TRACK SELECTOR to "3-2".

(G) Insert microphone plug into LEFT MICROPHONE JACK.

(J) Microphone volume level may be adjusted and balanced by adjusting the LEFT VOLUME CONTROL while observing the LEFT VU METER.

(M) Invert reels to record on track 2.

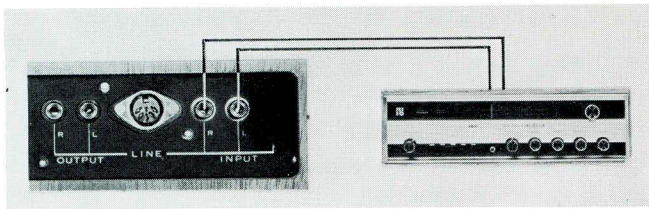


Fig. 28

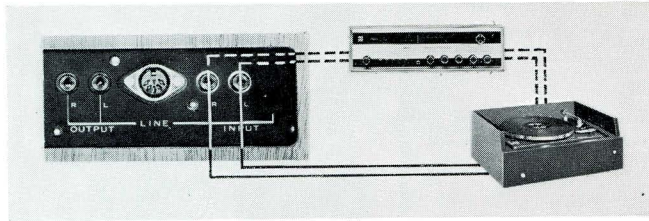


Fig. 29

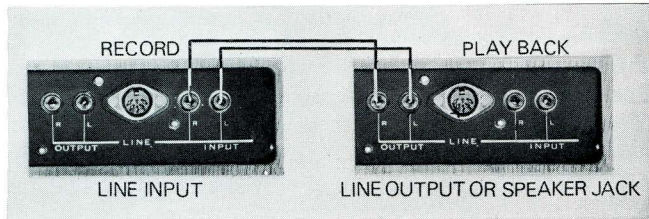


Fig. 30

FROM AN EXTERNAL AMPLIFIER

If an external amplifier or tuner-amplifier combination is used, connect TAPE OUTPUT leads of the external amplifier to the LINE INPUT JACKS instead of step (G) of recording procedure (Fig. 28).

FROM DISCS

To record from a stereo or monaural disc, a "CRYSTAL PICK UP" or a "CERAMIC PICK UP" can be directly connected to the LINE INPUT JACKS instead of step (G) 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 (Fig. 29).

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 recording procedure (Fig. 30).



Fig. 31

8. MONITORING

Monitoring can be done by connecting the stereo headphones to the STEREO HEADPHONE JACK. On monaural as well as stereo recording, please use stereo headphones.

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

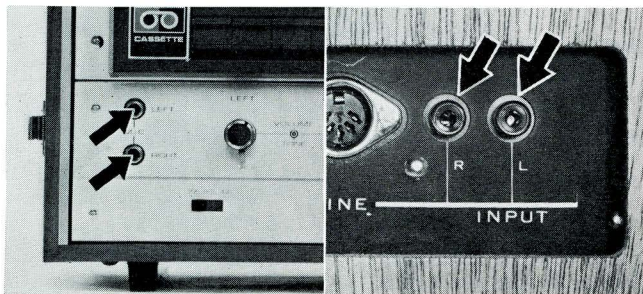


Fig. 32

9. TAPE ERASING

Any signal previously recorded on the tape will be automatically erased as a new recording takes place.

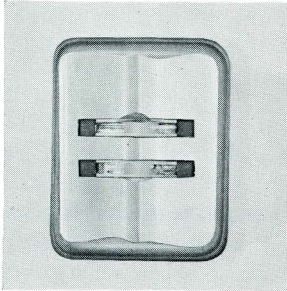
For erasing only, load the tape and set recorder to normal recording position. No plugs should be connected to the LINE INPUT JACKS or MICROPHONE JACKS. For quick and complete erasing, the use of a BULK TAPE ERASER is recommended.

10. HEAD CLEANING

TAPE OXIDE/DUST DEPOSITS CAUSE 90% OF TAPE RECORDING FAILURES !!

For quality performance, it is imperative that the 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 deposits cause drastic drops in recording/playback levels and is detrimental to high quality sound.

EXAMPLE



CLEAN HEAD

Frequency response curve

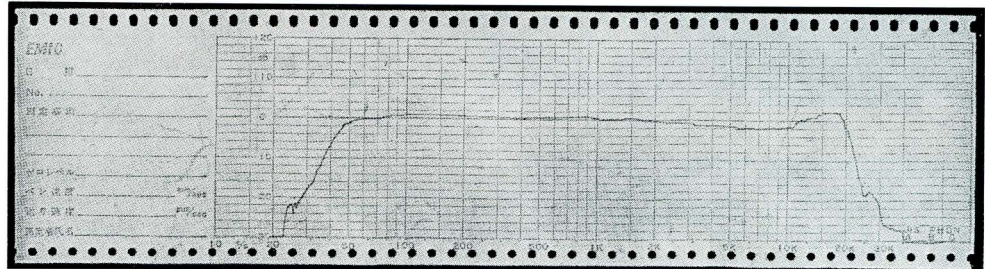
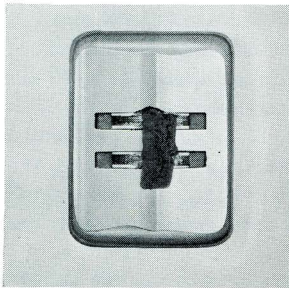


Fig. 33



DUSTY HEAD

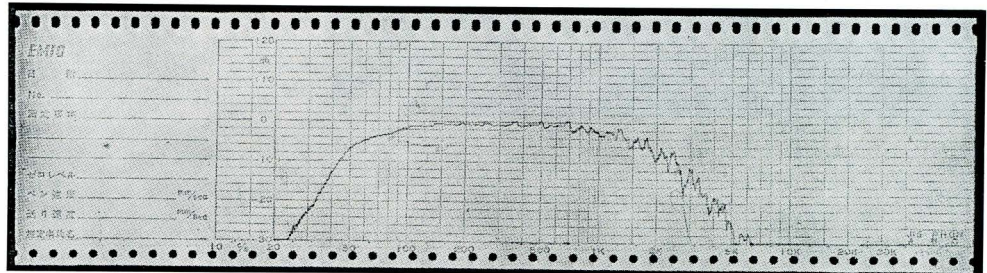


Fig. 34

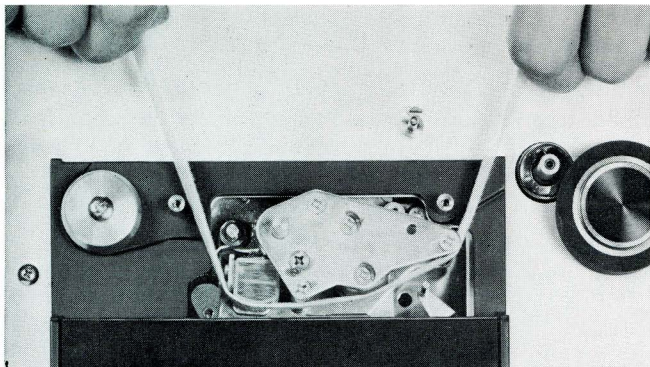


Fig. 35

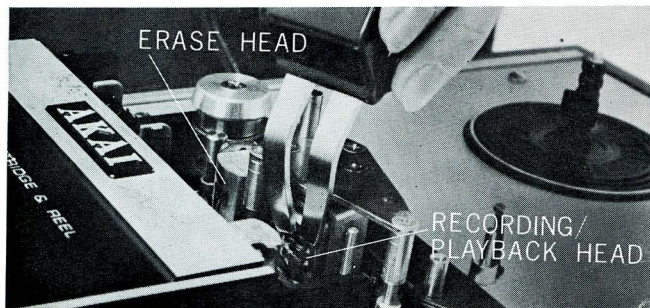


Fig. 36

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.

CAUTION : When cleaning head, Set REEL-TO-REEL LEVER to "PLAY" position.

11. 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 X-2000S 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 over all head surface areas as well as the head housing.

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

12. LUBRICATION

Although the motor of model X-2000S is sufficiently lubricated for prolonged use, for maximum service and optimum performance, we suggest that the motor be re-lubricated at each 1000 hours of use.

For proper lubrication, please refer to your local authorized Akai agent.

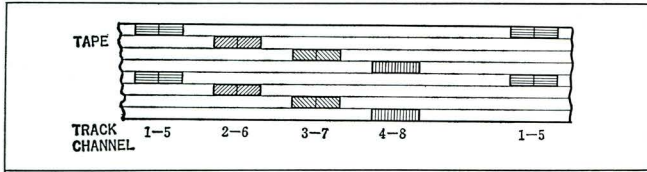


Fig. 37

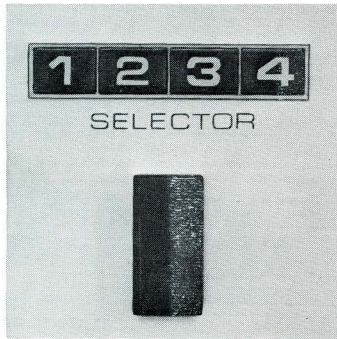


Fig. 38

III. RECORDING AND PLAYBACK WITH 8-TRACK CARTRIDGE TAPES

1. 8-TRACK STEREO SYSTEM

Model X-2000S employs an 8-track cartridge stereo system. The tape has a total of 8 tracks, two of which are used at a time for stereo recording or playback. Therefore, you have 4 choices of channels for stereo recording and playback (Fig. 37). When recording on the first channel terminates, the second channel is automatically set to position for continued operation. Thus, a 300 ft. cartridge tape accommodates one hour of continuous stereo performance. Desired channel can be selected by manually setting the CARTRIDGE PROGRAM SELECTOR BUTTON.

NOTE : Cartridge Program Selector can be remote-controlled by the use of AKAI optional accessory ARC-18.

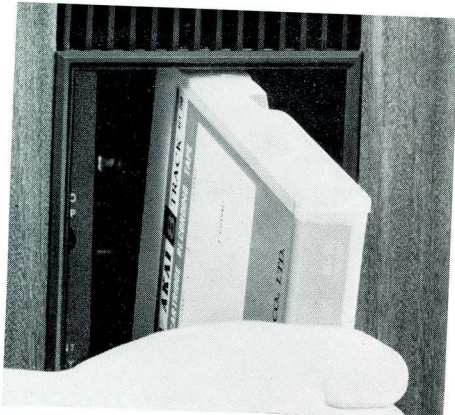


Fig. 39

2. CARTRIDGE LOADING

Insert cartridge (with notch upward) until CARTRIDGE PROGRAM INDICATOR LAMP lights.

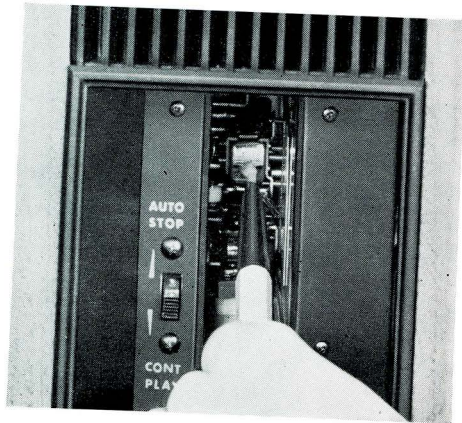


Fig. 40

3. HEAD CLEANING

To clean cartridge heads, use head cleaning PEN BRUSH as shown in Fig. 40.

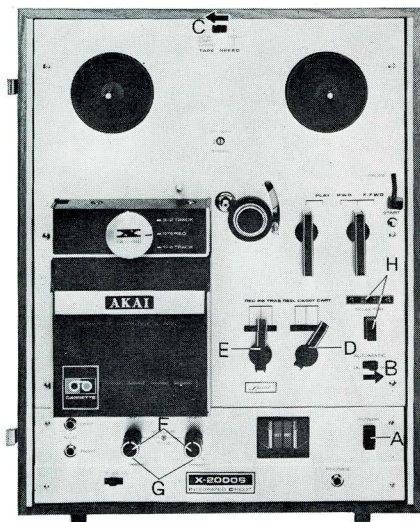


Fig. 41

4. 8-TRACK CARTRIDGES STEREO PLAYBACK

- (A) Turn on POWER SWITCH
- (B) Set AUTOMATIC SHUT-OFF SWITCH to "OFF" position.
- (C) Set TAPE SPEED SWITCH to "LOW" (CART).
- (D) Set SYSTEM SELECTOR to "Cart".
- (E) Set MODE SELECTOR to "PB" position and insert cartridge as previously described. When in correct position, CARTRIDGE INDICATOR LAMP will light and playback will commence.
- (F) Adjust VOLUME CONTROLS.
- (G) Adjust TONE CONTROLS.
- (H) The CARTRIDGE PROGRAM INDICATOR LAMP shows which track is being played back. Program can be changed by operating the PROGRAM SELECTOR BUTTON.
- (I) When the tape comes to the end, subsequent tracks are automatically set into position for playback.
- (J) Set SPEAKER SWITCH to "ON" position for playback through built-in or external speakers.

CAUTION: Do not attempt to operate SYSTEM SELECTOR and MODE SELECTOR SWITCHES until PLAYBACK LEVER is returned to "stop" position.

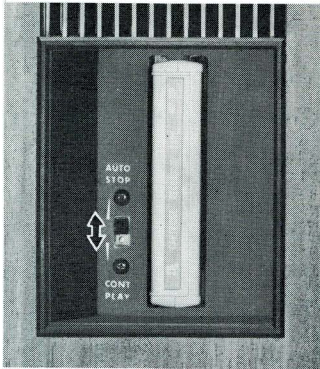


Fig. 42

5. CARTRIDGE AUTOMATIC STOP

The X-2000S Cartridge unit is equipped with an “Auto Stop” and “Cont. Play” Switch.

When the switch is set to “Auto Stop”, at the end of the tape on channel 4, the tape will return to Channel 1 position and stop automatically.

In order to continue operation, you must either pull out the cartridge and re-insert, or set the switch to “Cont. Play”.

CAUTION : When CARTRIDGE PROGRAM SELECTOR SWITCH is operated after tape is stopped by Automatic Stop Switch, the channel indicator lamp will light, but play will not resume until above instructions have been carried out, (i.e, cartridge pulled out and re-inserted or switch is re-set to “Cont. Play”).

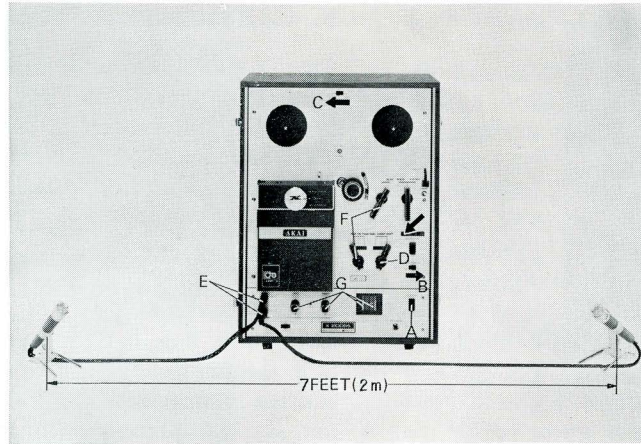


Fig. 43

6. 8-TRACK CARTRIDGE STEREO RECORDING

- (A) Turn on POWER SWITCH
- (B) Set AUTOMATIC SHUT-OFF SWITCH to "OFF" position.
- (C) Set SPEED CHANGE SWITCH to "LOW" (CART).
- (D) Set SYSTEM SELECTOR to "Cart".
- (E) Follow instructions pertaining to conventional reel recording. Connect recording program source to MICROPHONE JACKS or LINE INPUT JACKS.

- (F) Set MODE SELECTOR to "Rec" and lock into position by setting PLAYBACK LEVER to "Play".
- (G) Adjust VOLUME CONTROLS while observing VU METERS (Refer to section of stereo recording on conventional reel tape). After volume controls have been set, insert cartridge. When cartridge is in correct position, the CARTRIDGE PROGRAM INDICATOR LAMP will light and recording will begin.

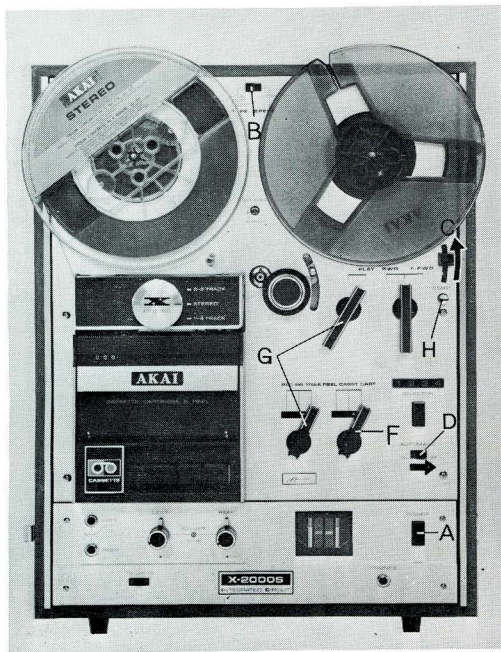


Fig. 44

The CARTRIDGE PROGRAM SELECTOR BUTTON should be set to channel 1 before initiating recording operation. When the tape comes to the end, the next channel is automatically set into position for recording. Recording time for each channel is 15 minutes (4 channels 1 hr) using 300 ft. cartridge tape. Upon completion of recording on channel 4, remove cartridge to prevent erasure of initial recordings.

Recording from External Sources

(See Figs. 28, 29, and 30 of this manual).

Monitoring

(See Fig. 32 of this manual).

IV. TRANSFER FROM CONVENTIONAL REEL TAPE TO CARTRIDGE TAPE

One of the exclusive features of the X-2000S is that pre-recorded conventional Reel tape can be dubbed onto the cartridge tape.

- (A) Turn on POWER SWITCH
- (B) Set TAPE SPEED SWITCH to "LOW" (CART).
- (C) Set PAUSE LEVER to "pause" position.
- (D) Set AUTOMATIC SHUT-OFF SWITCH to "OFF".
- (E) Place a pre-recorded reel tape on the recorder.
- (F) Set SYSTEM SELECTOR to "CART".
- (G) Set MODE SELECTOR to "TRAS" and lock into position by setting PLAYBACK LEVER to "Play".
- (H) Release PAUSE LEVER by pressing START BUTTON.
- (I) Insert Cartridge (when in correct position CARTRIDGE PROGRAM SELECTOR lamp will light).

NOTES : Volume Controls have no effect during recording (recording level depends upon level of pre-recorded tape).

- (2) Monitoring is done by connecting the headphone to HEADPHONE JACK. Monitoring can also be done through the Speakers by operating the Volume Controls.
- (3) Recording time for one channel is 15 minutes (about 1 hour for 4 channels) using a 300 ft. cartridge tape.
- (4) If pre-recorded tape requires a speed of 7-1/2 ips, use standard accessory 15 ips kit (replace pinch wheel and capstan with 15 ips capstan and pinch wheel).

CAUTION : Operate MODE SELECTOR "TRAS" only in case of dubbing. The use of this switch at other times will result in tape erasure.

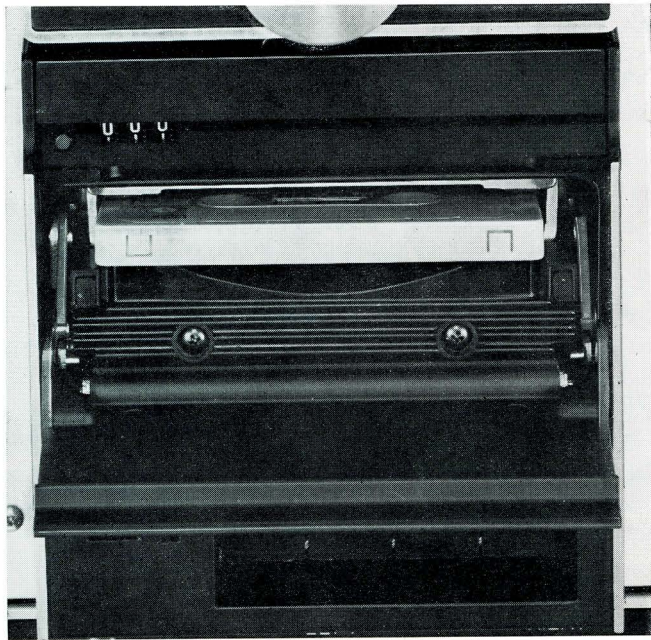


Fig. 45

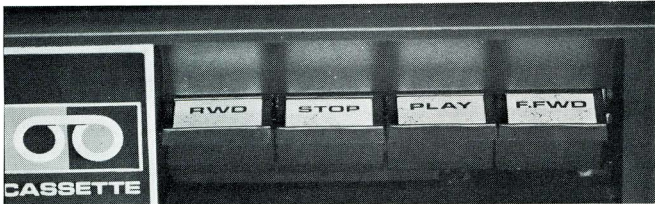


Fig. 46

V. RECORDING AND PLAYBACK WITH 4-TRACK CASSETTE TAPES

1. 4-TRACK STEREO SYSTEM

The Model X-2000S employs a 4-track stereo recording system. The first half of the stereophonic recording/playback takes place on tracks 1 and 2. The second half takes place on tracks 3 and 4 after the cassette tape has been turned over.

Recording/Playback time depends on the length of tapes :

C- 30 (30 minutes)

C- 60 (60 minutes)

C- 90 (90 minutes)

C-120 (120 minutes)

2. LOADING CASSETTE

To load Cassette, insert into slot provided. When the CASSETTE DOOR is opened, the cassette will “pop forward” enabling easy removal or tape change.

NOTE : The Cassette unit is equipped with its' own individual control panel.

CAUTION : While the Cassette panel buttons are depressed (except Stop Button) DO NOT OPEN CASSETTE DOOR.

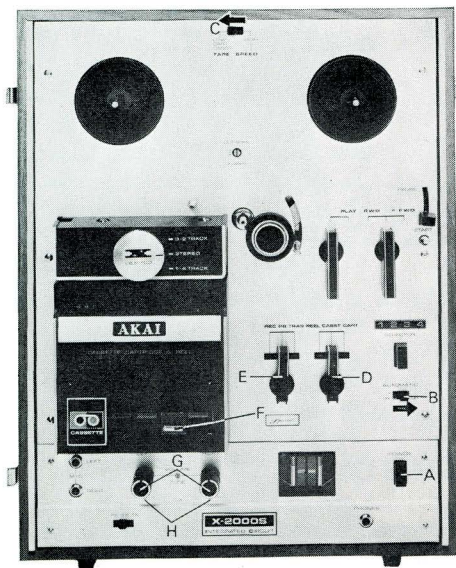


Fig. 47

3. 4-TRACK STEREO PLAYBACK

- (A) Turn on POWER SWITCH
- (B) Set AUTOMATIC SHUT-OFF SWITCH to "OFF" position.
- (C) Set TAPE SPEED SWITCH to "LOW" (CASST).
- (D) Set SYSTEM SELECTOR to "CASST".
- (E) Set MODE SELECTOR to "PB" position. Load pre-recorded Cassette Tape as previously described.
- (F) Depress "PLAY" BUTTON of Cassette Control Panel to begin playback.
- (G) Adjust volume level with VOLUME CONTROL KNOBS.
- (H) Adjust tone with TONE CONTROL KNOBS.

CAUTION : Do not attempt to operate SYSTEM SELECTOR AND MODE SELECTOR SWITCHES until the "STOP" Button of Cassette Control Panel has been depressed.

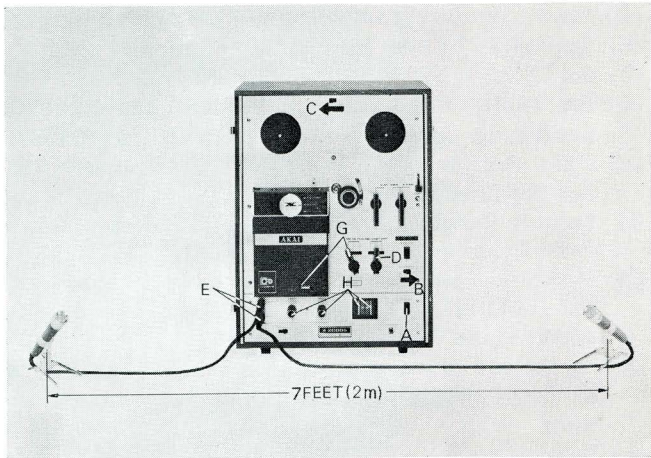


Fig. 48

4. 4-TRACK CASSETTE RECORDING

- (A) Turn on POWER SWITCH
- (B) Set AUTOMATIC SHUT-OFF SWITCH to "OFF" position.
- (C) Set TAPE SPEED SWITCH to "LOW" (CASST).
- (D) Set SYSTEM SELECTOR to "CASST".
- (E) Follow instructions for reel recording, connecting recording source to MICROPHONE JACKS or LINE INPUT JACKS.
- (F) Load Cassette Tape.
- (G) Set MODE SELECTOR to "REC" and lock into position by depressing the "PLAY" BUTTON of Cassette Control Panel.
- (H) Adjust VOLUME CONTROLS while observing VU METERS. (Refer to section of stereo recording on conventional reel tape.)

Recording from External Sources

(See Figs. 28, 29, and 30 of this manual)

Monitoring

(See Fig. 32 of this manual)

NOTE : When recording ends and the Cassette control panel STOP BUTTON is depressed, the MODE SELECTOR will automatically return to "PB" position.

VI. TRANSFER FROM CONVENTIONAL REEL TAPE TO CASSETTE TAPE

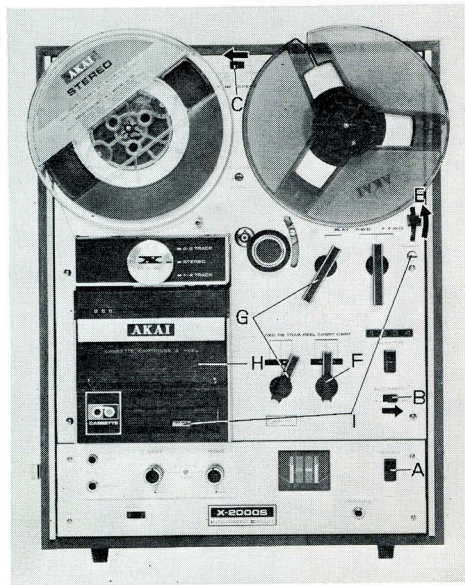


Fig. 49

- (A) Turn on POWER SWITCH.
- (B) Set AUTOMATIC SHUT-OFF SWITCH to "OFF" position.
- (C) Set TAPE SPEED SWITCH to "LOW" (CASST). If prerecorded tape requires a speed of 7-1/2 ips, use standard accessory 15 ips kit (replace pinch wheel and capstan with 15 ips capstan and pinchwheel).

- (D) Place a pre-recorded conventional reel tape on recorder.
- (E) Set PAUSE LEVER to "PAUSE" position.
- (F) Set SYSTEM SELECTOR to "CASST".
- (G) Set MODE SELECTOR to "TRAS" and lock into position by setting PLAYBACK LEVER to "PLAY".
- (H) Open cassette door and properly insert cassette tape into slot provided.
- (I) Depress Cassette panel PLAY BUTTON and release Pause Lever by pressing START BUTTON.
- (J) Monitoring can be done by connecting Headphones to the HEADPHONE JACK or through the speakers by operating the VOLUME CONTROLS.
- (K) At the end of the tape, depress Cassette Panel STOP BUTTON and set PAUSE LEVER to "PAUSE" position.
- (L) Invert cassette tape.
- (M) Depress Cassette Panel PLAY BUTTON and release PAUSE LEVER by pressing START BUTTON to start recording on side 2.
- (N) When PLAYBACK LEVER is returned to "Stop" position and cassette panel STOP BUTTON is depressed, MODE SELECTOR will automatically return to "PB" position.

CAUTION: Do not attempt to operate SYSTEM SELECTOR and MODE SELECTOR until PLAYBACK LEVER is returned to "Stop" position.

Note: Volume Controls have no effect during recording. Recording level depends upon level of prerecorded tape.

VII. ACCESSORIES

OPTIONAL ACCESSORIES :

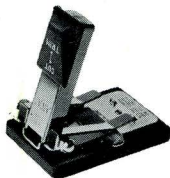
Tape Eraser ATE-7



Telephone Pick up AP-2



Tape Splicer AS-3



Head Demagnetizer AH-6



Cartridge Program Remote Control Unit

The ARC-18 is specially designed for Model X-2000S. The Cord is 16 ft. in length allowing convenient remote control.

Remote Control ARC-18



Stereo Headphone ASE-9S

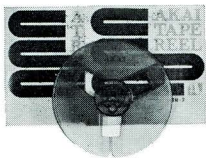


Head Cleaning Kit HC-500



Dynamic Microphones DM-13





TAPE REEL



MAGNETIC TAPE

AKAI Magnetic Tape & Tape Reel

AKAI Magnetic Tape

AT-5S (600 foot)

AT-7S (1,200 foot)

AT-10S (2,400 foot)

AT-5L (900 foot)

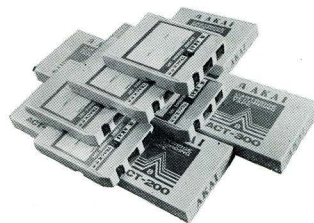
AT-7L (1,800 foot)

AT-10L (3,600 foot)

AKAI Tape Reel

ATR-5 (for 7")

ATR-7 (for 7")



AKAI Cartridge Tape

ACT-200 (200 foot)

ACT-300 (300 foot)

STANDARD ACCESSORIES

Microphones (ADM 11)	2
Microphone Stands	2
7" Empty Reel	1
Cassette Tape (C-30)	1
15 ips Adapter Kit	1
Spare Fuse	1
Silicon Oil Kit	1
Head Cleaning Brush Pen	1
Operators Manual	1

778
172
006



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

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

Price ¥ 360.00
US \$ 1.00

Printed in Japan