STEREO AMPLIFIER
KA-2002A
INSTRUCTION MANUAL

KENWOOD

To the New KA-2002A Amplifier Owner :

Because Kenwood Electronics, Inc., takes great pride in the long tradition of quality components the name Kenwood represents, your purchase of a Kenwood amplifier places you in a distinguished family of connoisseurs of superb high-fidelity sound reproduction.

The purpose of this manual is to acquaint you with the operating features of your new amplifier. You will notice that in every detail of planning, engineering, styling, operating convenience, and adaptability, we have sought to anticipate your needs and desires.

We suggest that you read this manual carefully. Knowing how to set up your amplifier to best advantage will enhance your listening pleasure right from the start. You will also become aware of the ease with which you can adjust your amplifier to meet your special requirements.

Turn the pages and become acquainted with the exciting features of your new amplifier, features that will remain new for endless hours of listening pleasure.

WARRANTY REGISTRATION

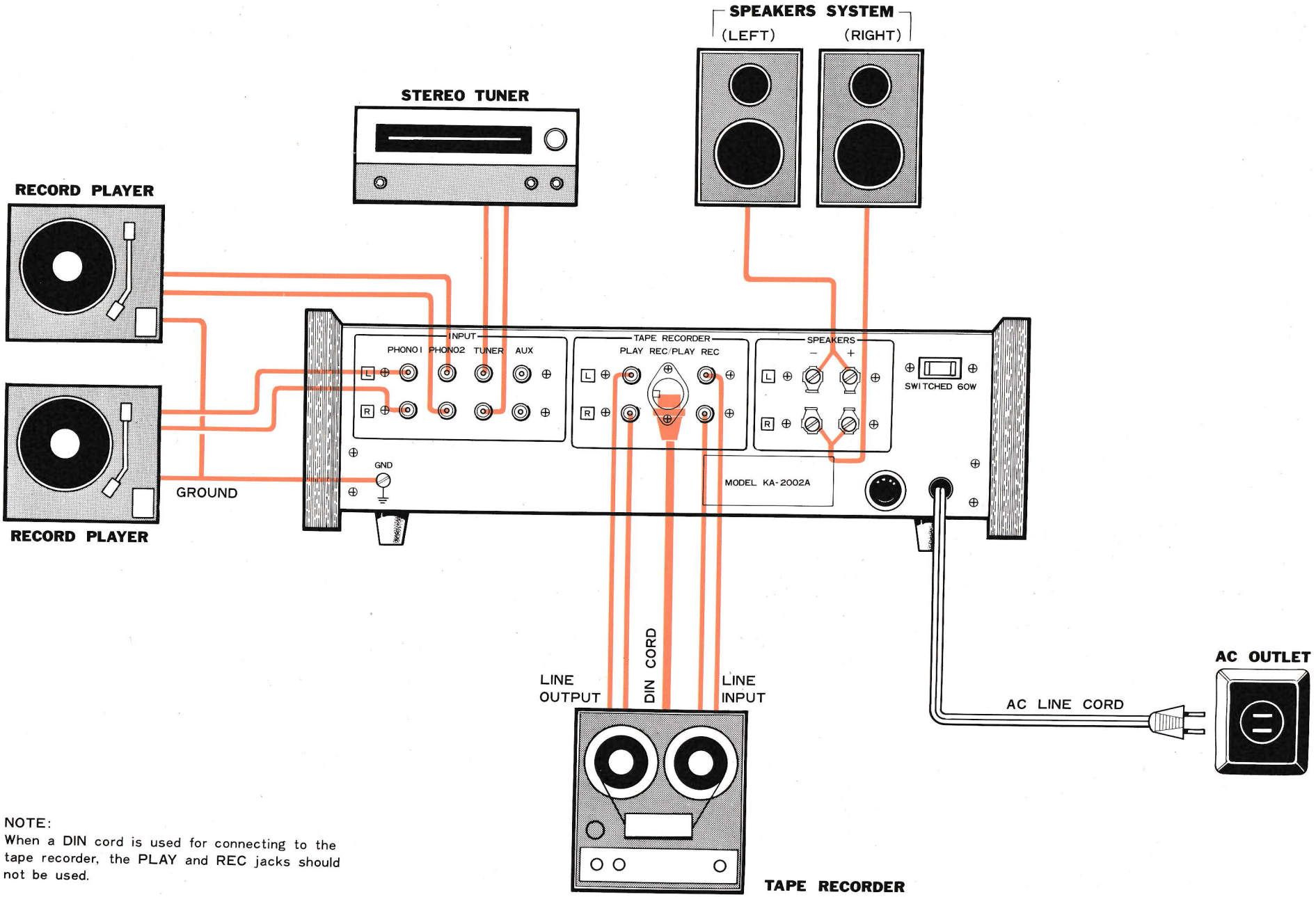
IMPORTANT: Fill out your warranty registration and mail it at once.

CONTENTS

KA-2002A FEATURES

1. Very low IM distortion for exceptional clear low level to high level listening.
2. 2 dB step type tone controls with BASS and TREBLE.
3. All transistor amplifier provides wide 20 to 50,000 Hz frequency response and 20 to 50,000 Hz power band width.
4. High damping factor 50 (8 ohms), for excellent transient response.
5. 2 pairs of magnetic phono input jacks for 2 sets of record players.
6. Push-button controls regulate LOUDNESS Control, MODE, TAPE Monitor Switch.
7. Front panel stereo headphone jack.
8. Power transistor protection circuit.

INTERCONNECTING DIAGRAM



NOTE:
When a DIN cord is used for connecting to the tape recorder, the PLAY and REC jacks should not be used.

CONNECTING YOUR KA-2002A

SPEAKER CONNECTIONS

4 to 16 ohm speakers are suitable. Connect right speaker to right speaker terminal; left speaker to left speaker terminal. Should plus or minus of either right or left channels by reversely connected, sound from the center section will be affected by a lack of separation. See "phasing of the speakers".

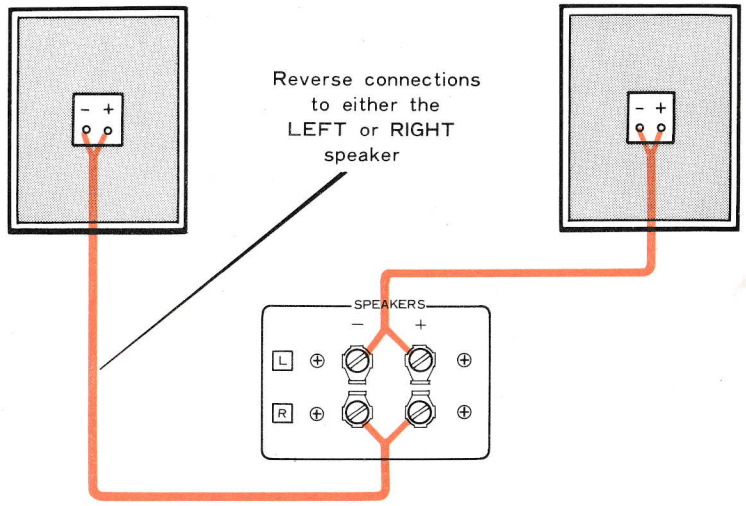
Special Protection: If you operate your KA-2002A when speakers are shorted, a newly developed protection circuit guards against damage from short circuits at the output terminal.

NOTE: Connecting conductor in excess of 100 feet may cause some power loss.

PHASING OF THE SPEAKERS

Correct phasing is important in a stereophonic system. If the speakers are out of phase, they will work in opposition of each other and there will be a noticeable loss in low frequencies. Use the following procedure to make adjustments:

1. Set the INPUT SELECTOR to PHONO 1 (PHONO 2), LOUDNESS to OFF, TAPE MONITOR to SOURCE, MODE switch to MONO and set VOLUME for desired listening level.
2. Play a monophonic record containing heavy bass passages. If a monophonic record is unavailable, substitute a stereo record.
3. After your speakers are connected, listen to the intensity of the bass tone.
   Then reverse the lead connections of the speakers and listen to the sound again. The position of the lead connections where the bass intensity was the greatest is the proper one and the speakers will then be permanently in phase.



If speakers are out of phase, reverse connection to one.

CONNECTING YOUR KA-2002A

TUNER CONNECTION

Use the TUNER terminals for connection to an FM stereo or AM-FM stereo tuner.

Connect the left channel of the tuner to the "L" TUNER input jack, and the right channel of the tuner to the "R" TUNER input jack.

RECORD PLAYER CONNECTIONS

Connect the left channel of the record player to the "L" PHONO 1 input jack, and the right channel to the "R" PHONO 1 input jack.

If an additional record player is used in order to operate two record players, connect the left channel to the "L" PHONO 2 input jack, and the right channel to the "R" PHONO 2 input jack.

If the record player has a grounding terminal, connect it to this amplifier's GND terminal to prevent hum.

CONNECTIONS FOR TAPE RECORDER

RECORDING

A tape recorder can be connected as follows for recording.

Left channel input of the tape recorder to "TAPE RECORDER" "L" REC jack.

Right channel input of the tape recorder to "TAPE RECORDER" "R" REC jack.

PLAYBACK

A tape recorder can be connected as follows for playback.

Left channel output of the tape recorder to "TAPE RECORDER" "L" PLAY jack.

Right channel output of the tape recorder to "TAPE RECORDER" "R" PLAY jack.

DIN CONNECTOR (REC/PLAY CONNECTOR)

If your tape recorder is equipped with a DIN type 5-pin connector, connect it to the REC/PLAY connector with a DIN connecting cord. A DIN connector enables recording and playback with this single cord.

When a DIN cord is used for connecting to the tape recorder, the PLAY and REC jacks should not be used. For highest fidelity recording and playback sound, however, it is recommended that the tape recorder be connected to the PLAY and REC jacks instead of the DIN connector.

AUX (AUXILIARY INPUTS)

When a tuner, tape recorder or other unit is connected here, it must have an output of at least 150 mV.

AC OUTLETS

The AC outlets on the rear panel of the amplifier may be used to supply power to other components such as a record player, tape recorder, etc.

SWITCHED outlet is controlled by the POWER switch on the front panel. (The capacity is 60 watts maximum.)

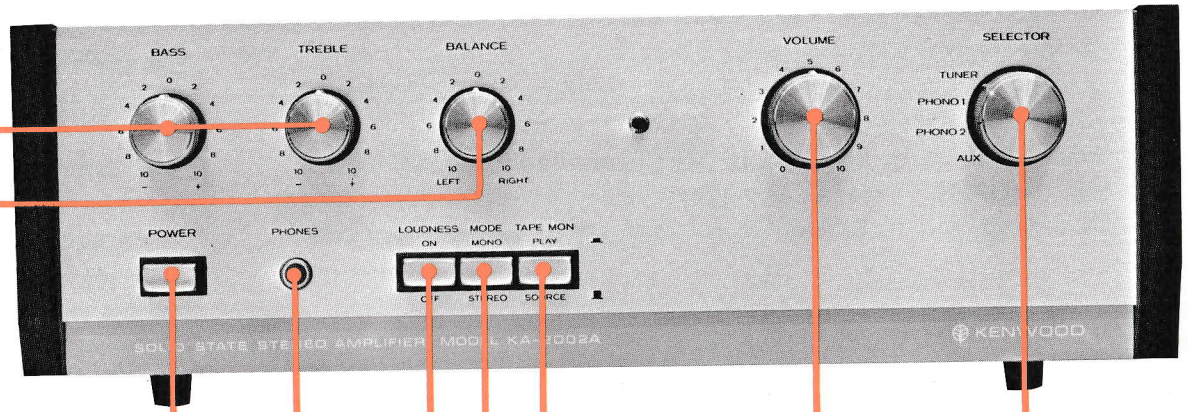
CONTROLS AND THEIR FUNCTIONS

BASS & TREBLE control

Turning clockwise increases bass (treble) tone and counter-clockwise decreases it while center setting is at flat.

BALANCE control

This control provides a simple means of adjusting the levels of both channels for proper balance during stereophonic reproduction.



POWER switch

Push the POWER switch to turn the amplifier on. Push it again to turn the amplifier off.

PHONES jack

This is a jack for stereo headphone.

LOUDNESS control

The LOUDNESS control boosts bass and treble tones at low listening levels. Our ears have less sensitivity to low and high frequencies at low listening levels and the LOUDNESS control compensates for this deficiency. This control should be switched off when listening at normal and high levels.

MODE switch

This switch determines the manner in which program sources (previously selected by the SELECTOR switch) will go through the amplifier section.

- STEREO – This provides stereophonic reproduction of any stereo program source. This position will also provide monophonic reproduction through both channels when the LEFT and RIGHT input are mono.
- MONO – Mixes left and right channels.

MONO: Press button in.
STEREO: Press button to release.

TAPE MONITOR switch

For playback of tapes or for monitoring of the recording. (See page 8)

TAPE PLAY:
Press button in.

SOURCE:
Press button to release.

VOLUME control

The single control designated VOLUME adjusts the relative level of both channels simultaneously.

SELECTOR switch

This switch selects the program source. The following describes each function:

- TUNER – Selects sources connected to the TUNER input jacks.
- PHONO 1 – Selects sources connected to the PHONO 1 input jacks.
- PHONO 2 – Selects sources connected to the PHONO 2 input jacks.
- AUX – Selects sources connected to the AUX input jacks.

OPERATING INSTRUCTIONS

AM-FM RECEPTION

1. Set the SELECTOR switch to TUNER.
2. Set the MODE switch to STEREO and the TAPE MONITOR switch to SOURCE.
3. Adjust the VOLUME control to the desired listening level.
4. Use the BASS, TREBLE, and LOUDNESS controls to adjust sound as desired and to match the acoustic conditions of your room.

PHONO OPERATION

1. Two pairs of phono input jacks, PHONO 1 and PHONO 2, are provided to enable connections to two record players. To reproduce the output of the record player that is connected to PHONO 1 jacks, set the SELECTOR switch to PHONO 1. To reproduce the output of the record player that is connected to PHONO 2 jacks, set the SELECTOR switch to PHONO 2.
2. Set the MODE switch to STEREO and the TAPE MONITOR switch to SOURCE.
3. Adjust the VOLUME to the desired listening level.
4. Use the BASS, TREBLE, and LOUDNESS controls to adjust the sound to your preference and to the acoustic conditions of your room.

TAPE RECORDER OPERATION

TAPE MONITORING

If you use the KA-2002A with 3-head type tape recorders, you can check the sound quality of the recording that is being made by momentarily comparing the recorded signal with the source signal as follows. Set the TAPE MONITOR switch to "PLAY" to monitor the recorded sound. Set the TAPE MONITOR switch to SOURCE to monitor the source signal before it is recorded.

RECORDING

Connect the tape recorder to "TAPE RECORDER" jacks on the rear panel.

1. Set the SELECTOR switch to the desired program source.
2. Recordings can now be made into the tape recorder. To monitor these recordings, use the TAPE MONITOR switch as follows. Set it to "PLAY" to monitor the recording being made with the tape recorder connected to "TAPE RECORDER" jacks.
3. Recording levels should be adjusted exactly as described previously for the tape recorder operation.

PLAYBACK

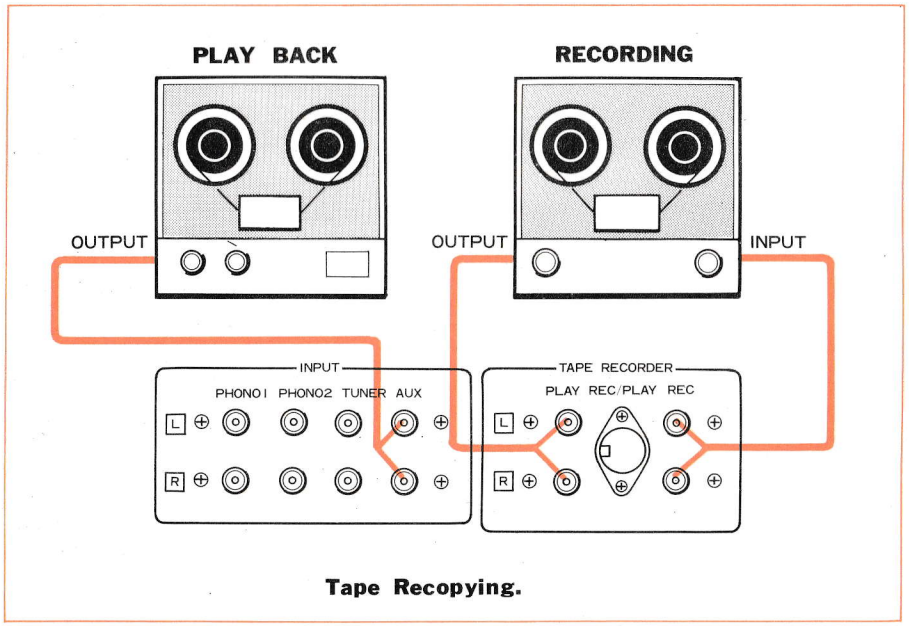
1. The SELECTOR switch can be at any position.
2. Set the TAPE MONITOR switch to the "PLAY" position.
3. Adjust volume and tone quality.

OPERATING INSTRUCTIONS

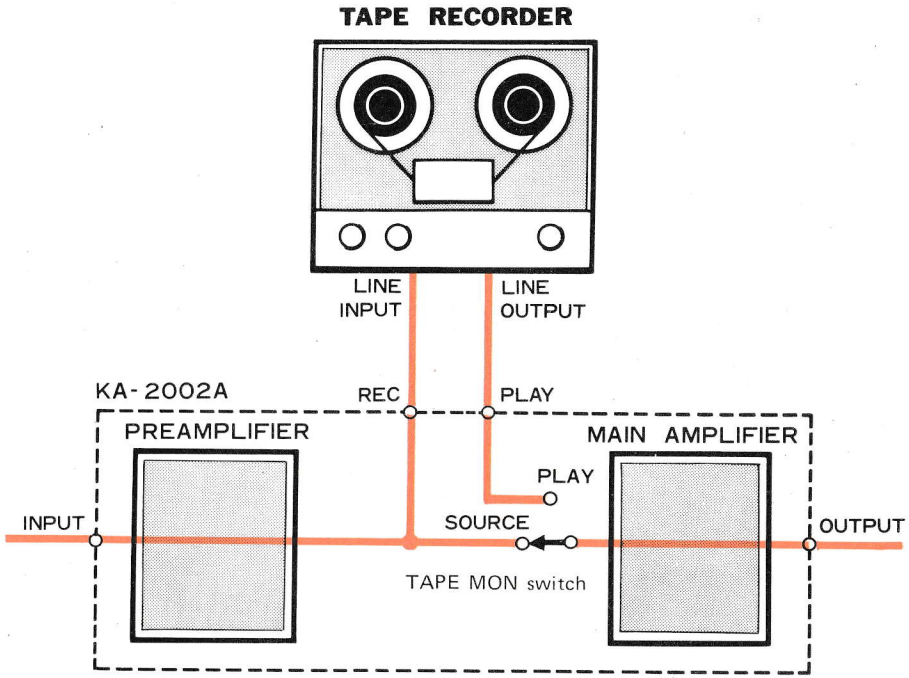
TAPE RECOPYING

To make a copy of a recorded tape on to another tape, follow the connecting intsruction as shown below.

1. Push the POWER switch for power on.
2. Set the SELECTOR switch to AUX position.
3. Push the TAPE MONITOR switch to PLAY.
4. Operate your equipments simultaneously.



Tape Recopying.



Interconnecting Diagram For Tape Monitoring And For Tape Playback

OPERATING INSTRUCTIONS

CONTROL / OPERATION	INPUT terminals (rear panel)	OUTPUT selector	SELECTOR switch	MODE switch	TAPE MONITOR switch	BASS & TREBLE controls	BALANCE controls
TUNER	TUNER	SPEAKERS or PHONES	TUNER	STEREO or MONO	SOURCE	"O" POSITION	TO BE BALANCED
RECORD PLAYER	PHONO 1	SPEAKERS or PHONES	PHONO 1	STEREO or MONO	SOURCE	"O" POSITION	TO BE BALANCED
	PHONO 2		PHONO 2				
TAPE RECORDER	TAPE PLAY	SPEAKERS or PHONES	AUX	STEREO or MONO	PLAY	"O" POSITION	TO BE BALANCED
	AUX	SPEAKERS or PHONES	AUX	STEREO or MONO	SOURCE	"O" POSITION	TO BE BALANCED
	REC/PLAY	SPEAKERS or PHONES	AUX	STEREO or MONO	SOURCE	"O" POSITION	TO BE BALANCED

NOTE: This chart shows the most usual operations, Bass control, Treble control and loudness switches can be set according to your listening desire.

MAINTENANCE

CONCERNING TRANSISTORS

Transistors differ fundamentally from radio vacuum tubes and require special attention to ensure their full performance capabilities. Given proper care, transistors will provide years of practically trouble-free performance.

(a) Avoid locations subject to direct sunlight.
(b) Avoid high or low temperature extremes.
(c) Keep the amplifier away from heat radiating sources.
(d) Avoid placing anything, including the tuner, on top of the amplifier. This will assure free air circulation.

PROTECTION CIRCUIT

The newly developed protection circuit is completely effective and prevents damage which may be caused by short-circuiting at the speaker outputs or the electrical overloading point. When a short-circuit occurs, this protection circuit will function automatically to protect the power output transistors. The program sound will be heard off and on intermittently about every four seconds. If this occurs, there is no danger of damaging the power output transistors. Just switch off the supply line and check the speaker connections.

ACOUSTIC FEEDBACK

Occasionally a disturbing howling sound caused by acoustic feedback, may be heard. This is generally caused by the relative positions of the turntable and speaker enclosures. The sound pressure radiated from the speaker box surrounds and vibrates the turntable. This vibration is picked up by the cartridge, sent to the amplifier as an electrical signal, and returned to the speaker. This again causes the speakers to causes the speakers to radiate vibration which induces sympathetic vibrations in the turntable and cartridge. Sympathetic vibrations are reinforced with each repeating cycle and result in an undesirable sound called oscillation or "howling". To prevent it, keep your turntable away from your speakers. Also mounting your turntable on shock-absorbing pads may help.

POWER FUSE

A shield 1.5 A fuse is used. If the power fuse fails, remove blown fuse and replace with the same type fuse of the same rating. Any trouble in the power supply circuit will cause the fuse to blow again. In such a case, consult a qualified serviceman.

NOTE:

Always disconnect power supply before replacing a fuse.

TROUBLE SHOOTING

In initially installing this amplifier improper connections may result in one of the following indications of trouble. Their possible causes and corrective measures are listed below to facilitate installation.

During AM, FM Record Playback	Cause	Correction
No pilot lamp indication, no sound although AC is switched ON.	Poor AC plug connection. Blown fuse.	Check plug contact. Replace fuse. If it blows again, trouble must be corrected.
No sound from LEFT or RIGHT.	Speaker cords disconnected. Volume Control at 0 (extreme left) TAPE MON switch at PLAY position.	Check connections from amp output to speakers. Set to appropriate volume level. Always set to source except when using tape recorders.
Sound only from one side.	Poor speaker cord connections. BALANCE control set to one extreme or other.	Check amp output and speakers connections. Adjust BALANCE control.
Noise when AC is switched ON or when volume is adjusted immediately after.	Insufficient circuit warmup.	Allow 5 - 6 second interval after switching AC ON, before manipulating volume control.
Unbalance results when volume is lowered.	LEFT RIGHT resistor values unbalanced.	Adjust BALANCE control.
Intermittent speaker response.	Protection Circuit indication of short circuit in the output.	Check speaker cord connections.
Difference in volume level of radio and phono.	Difference in received signal and phono output levels.	Set to appropriate volume level.
During Phono Record Playbacks Only	**Cause**	**Correction**
No sound from LEFT or RIGHT, or sound only from one side.	Player output disconnected.	See that Player Output Cord is firmly plugged into Amp input.
Loud hum drowns out sound.	Poor Player output cord prong connections.	See that Player Output Cord is firmly plugged into Amp input.
Sound audible but background hum occurs.	Player output cord picking up hum from AC cord. Player not grounded.	Keep Player Output Cord away from AC cords. Choose cord paths which keep hum at a minimum. Twist LEFT RIGHT Player Output Cords together. Reverse Player AC plug connections. Connect Player Ground wire to GND terminal.
Sound audible but continuous background buzz interferes.	TV signal picked up by Player output cord. Frequently occurs near TV transmitting antenna.	Route Player Cord so that hum is minimized.
Howling noise occurs when volume is raised or bass response is increased.	Called howling, speaker vibrations induce feedback in Pickup.	Increase distance between Player and Speakers. Choose speaker locations carefully. Remember, loose flooring induces howling.

KA-2002A SPECIFICATIONS

MAIN AMPLIFIER SECTION

Dynamic Power Output	:	46 watts into 4 ohms
	:	38 watts into 8 ohms
RMS Power Output		
Each Channel Driven	:	19 x 2 watts into 4 ohms at 1,000 Hz
	:	17 x 2 watts into 8 ohms at 1,000 Hz
Both Channel Driven	:	15 x 2 watts into 4 ohms at 1,000 Hz
	:	13 x 2 watts into 8 ohms at 1,000 Hz
Total Harmonic Distortion	:	0.8% at rated power into 8 ohms (1,000 Hz)
	:	0.2% at ½ rated power into 8 ohms
Inter Modulation Distortion	:	0.8% at rated power into 8 ohms
(60 Hz 7 kHz = 4 : 1)	:	0.2% at ½ rated power into 8 ohms
Power Bandwidth	:	20 ~ 50,000 Hz
Frequency Response	:	20 ~ 50,000 Hz ±2.0 dB
Damping Factor	:	50 at 8 ohms
Speaker Impedance	:	Accept 4 ohms to 16 ohms

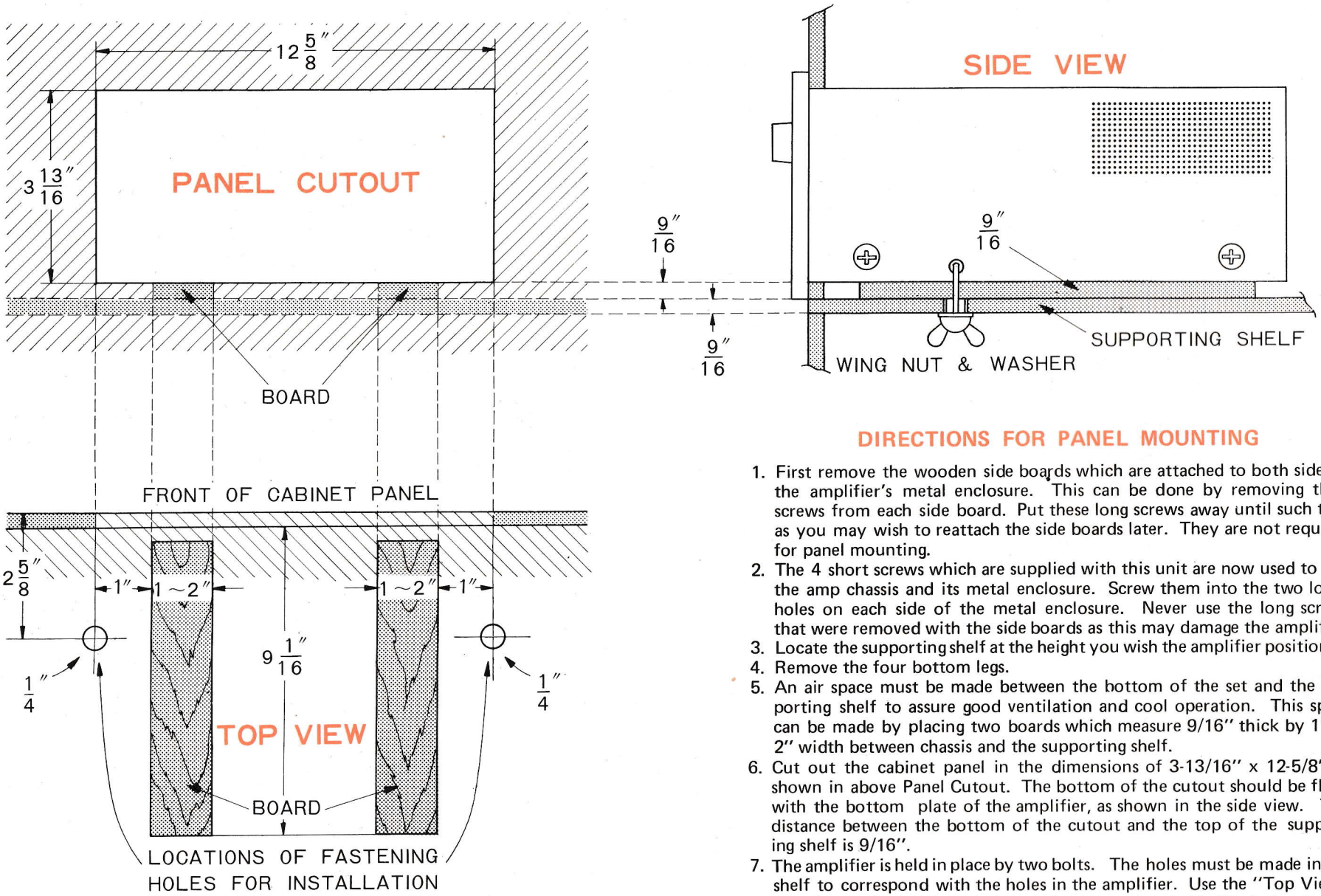
PRE AMPLIFIER SECTION

Input Sensitivity, Impedance and S/N ratio				
Phono 1, 2	:	2 mV	50 K ohms	60 dB
Tuner	:	150 mV	50 K ohms	70 dB
AUX	:	150 mV	50 K ohms	70 dB
Tape Play	:	150 mV	50 K ohms	70 dB
Recording Output				
Tape Rec	:	150 mV		
Din Connector	:	30 mV		
Tone Control				
Bass	:	± 10 dB		
Treble	:	± 10 dB		
Loudness Control (at –30 dB)	:	+ 8 dB at 100 Hz		
		+ 4 dB at 10,000 Hz		

GENERAL

Switches		
SELECTOR	:	Aux, Tuner, Phono 1, Phono 2
MODE	:	Stereo, Mono
TAPE MONITOR	:	Source, Tape
LOUDNESS		
POWER		
AC Outlets	:	Switched 1
Power Consumption	:	60 watts at full power
		8 watts at no signal
Dimensions	:	W 13-7/8" (352mm), H4-5/8" (118mm),
		D 9-7/16" (240mm)
Weight	:	11.9 lbs. (5.4 Kg)

MOUNTING TEMPLATE



DIRECTIONS FOR PANEL MOUNTING

1. First remove the wooden side boards which are attached to both sides of the amplifier's metal enclosure. This can be done by removing three screws from each side board. Put these long screws away until such time as you may wish to reattach the side boards later. They are not required for panel mounting.
2. The 4 short screws which are supplied with this unit are now used to join the amp chassis and its metal enclosure. Screw them into the two lower holes on each side of the metal enclosure. Never use the long screws that were removed with the side boards as this may damage the amplifier.
3. Locate the supporting shelf at the height you wish the amplifier positioned.
4. Remove the four bottom legs.
5. An air space must be made between the bottom of the set and the supporting shelf to assure good ventilation and cool operation. This space can be made by placing two boards which measure 9/16" thick by 1" to 2" width between chassis and the supporting shelf.
6. Cut out the cabinet panel in the dimensions of 3-13/16" x 12-5/8" as shown in above Panel Cutout. The bottom of the cutout should be flush with the bottom plate of the amplifier, as shown in the side view. The distance between the bottom of the cutout and the top of the supporting shelf is 9/16".
7. The amplifier is held in place by two bolts. The holes must be made in the shelf to correspond with the holes in the amplifier. Use the "Top View" template to locate these holes on the supporting shelf. The holes should be made 1/4" in diameter or somewhat larger.

NOTE

KA-2002A Serial No. _____

Owner _____

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- 14 BANIGAN DRIVE THORNCLIFFE PARK TORONTO CANADA

 PRINTED IN JAPAN B50-0926-00 (K.P) (T)

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