Introduction
Your choice of this product indicates that you are a devotee to excellence in sound reproduction.
We appreciate your patronage and take pride in the long tradition of quality components, that our company represents.
So that you can get the most out of your unit, we suggest that you take the time to read through this manual before you hook up and operate your system.
This will acquaint you with operating features, and system-connection considerations, so that your listening pleasure will be enhanced right from the start. You will notice that in all aspects of planning, engineering, styling, operating convenience and adaptability, we have sought to anticipate your needs and desires.
Keep this manual handy for future reference.

For your records
Record the serial number, found on the back of the unit, in the spaces designated on the warranty card, and in the space provided below. Refer to the model and serial numbers whenever you call upon your dealer for information or service on this product.
Model KR-910 Serial Number_____________________________________

Unpacking
Unpack the unit carefully and make sure that all accessories are put aside so they will not be lost.
Examine the unit for any possibility of shipping damage. If your unit is damaged or fails to operate, notify your dealer immediately. If your unit was shipped to you directly, notify the shipping company without delay. Only the consignee (the person or company receiving the unit) can file a claim against the carrier for shipping damage.
We recommend that you retain the original carton and packing materials for use should you transport or ship the unit in the future.

Safety precautions
Service or modifications
Do not remove the cabinet or touch internal parts.
Refer all service to qualified service personnel.
Unauthorized modifications can result in a dangerous shock hazard and can void the warranty.

Power cord
Always insert or remove the power plug from the AC outlet by grasping the plug body. Never pull or stretch the cord. Take care that the cord is not subject to traffic or bent sharply around furniture. Keep heavy objects off the cord, never route it under rugs, and avoid the use of extra extension cords. Attention to these precautions will avoid fire or shock hazards.

Installation precautions
a) Avoid locations subject to direct sunlight.
b) Avoid high or low temperature extremes.
c) Keep the unit away from heat radiating sources.
d) Choose a location that is relatively free of vibration or excessive dust.
e) Make sure power is off before making any system connections.
f) Always place the unit horizontally.
Important!

U.S.A. and Canada
Units shipped to the U.S.A. and Canada are designed for operation on 120 volts AC only. These units are not equipped with an AC voltage selector switch and the discussion of such a switch that follows should be disregarded.

All other countries
Units shipped to countries other than the U.S.A., Canada and U.K. are equipped with an AC voltage selector switch on the rear panel. Refer to the following paragraph for the proper setting of the switch.

AC voltage selection
This unit operates on 110 - 120 volts or 220 - 240 volts AC. The AC voltage selector switch on the rear panel is set to the voltage that prevails in the area to which the unit is shipped. Before connecting the power cord to your AC outlet, make sure that the setting position of this switch matches your line voltage. If not, it must be set to your voltage in accordance with the following direction.

Note:
Our warranty does not cover damage caused by excessive line voltage due to improper setting of the AC voltage selector switch.

For United Kingdom
The mains plug must be removed from the wall socket prior to any internal examination.

Important
The wires in this mains lead are coloured in accordance with the following code:
- Blue: Neutre
- Brown: Live

The wires in this mains lead must be connected to the terminals in the plug as follows:

<table>
<thead>
<tr>
<th>Wire colour</th>
<th>Plug terminal marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>N or Back</td>
</tr>
<tr>
<td>Brown</td>
<td>L or Red</td>
</tr>
</tbody>
</table>

Notes:
1. If a 13-amp plug is used, it must be fitted with a 5-amp fuse.
2. If a 3-pin plug with earthing contact is used, no wire must be connected to the E terminal.

WARNING:
To prevent fire or electric shock, do not expose this appliance to rain or moisture.

Safety precautions

<table>
<thead>
<tr>
<th>CAUTION</th>
<th>RISK OF ELECTRIC SHOCK DO NOT OPEN</th>
</tr>
</thead>
</table>

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.
1. **POWER switch**
   - Turns the power to the unit on and off.

2. **PHONES jack**
   - Stereo headphones are plugged into this jack.

3. **BASS and TREBLE controls**
   - Turn clockwise to increase bass or treble response, counter-clockwise to reduce bass or treble response. Response is flat when set to the center.

4. **SPEAKERS switches**
   - **A, B OFF** — Silences all speakers to permit private use of headphones.
   - **A ON** — Activates speakers connected to the SPEAKERS A terminals on the rear panel.
   - **B ON** — Activates speakers connected to the SPEAKERS B terminals on the rear panel.
   - **A, B ON** — Activates speakers connected to the SPEAKERS A and B terminals simultaneously.

5. **BALANCE control**
   - This control permits balancing of left and right channels when an imbalance exists in the sound source or to correct acoustic imbalance due to room conditions. Turn to the left from the center position to boost the left channel, turn it to the right of center to raise the level of the right channel.

6. **LOUDNESS switch**
   - This switch boosts bass response to compensate for the lack of bass in human hearing at low volume levels. This switch should be switched off when listening at normal and high levels.

7. **VOLUME control**
   - This control adjusts left- and right-channel volume simultaneously. Set it for the desired listening level.

8. **SIGNAL indicators**
   - These indicators show the relative signal levels of incoming broadcasts. For best reception, both the FM and AM antennas should be installed so that both the LOW and HIGH lamps will light.

9. **FM MODE switch**
   - **AUTO** — The receiver switch automatically between stereo and monaural operation in accordance with the manner in which the selected station is operating. And this position is applied to silence interstation noise when tuning. To receive very weak stations, stations that are too weak to overcome the muting threshold, push in to disable muting (MONO).
   - **MONO** — Provides monaural operation regardless of the transmitting mode.

10. **SELECTION switches**
    - **FM** — For reception of FM broadcasts.
    - **AM** — For reception of AM broadcasts.

11. **Input selector switches**
    - **TAPE A** — Push this button to select input from a tape deck connected to the TAPE A jacks.
    - **TAPE B/AUX** — Push this button to select input from a component connected to the TAPE B PLAY/AUX jacks, or to dub from a tape deck connected to the TAPE B PLAY/AUX jacks to a tape deck connected to TAPE A jacks. The TAPE B/AUX button is only selected to the playback.
    - **TUNER** — Push this button to listen to broadcasts.
    - **PHONO** — Push this button to select input from a turntable connected to the PHONO jacks.

   **Note:**
   Theasio selector switch has priority. The order of priority is TAPE A, TAPE B/AUX and TUNER OR PHONO. For example, when the TAPE A, TAPE B/AUX and TUNER indicators light yellow, TAPE A has priority.

12. **Input selector indicators**
    - These indicators turn from green to yellow when the corresponding input selector switches are pressed.

13. **STEREO indicator**
    - With the FM MODE switch set to AUTO the lamp lights to indicate that the selected station is broadcasting in stereo. It remains out for monaural broadcasts and when the FM MODE switch is set to MONO.

14. **TUNING knob**
    - AM and FM stations are selected by turning this knob.
Speakers

If only one set of speakers is to be connected, make connections to the terminals marked SPEAKERS A. Connect the speakers to the + and - terminals in accordance with the location selected for each speaker. To ensure correct speaker phasing, observe polarity marks; connect terminals marked + to the receiver to similarly-marked speaker terminals. Do the same for the receiver and speaker terminals marked with a minus sign. Reversal of speaker leads will result in loss of bass tones and poor stereo separation.

If a second set of speakers is to be used, make connections at the set of terminals, marked B. It is recommended that the tips of the speaker leads be soldered, or the strands of individual leads be twisted together to eliminate any possibility of short circuits forming in the speaker connecting network.

Note:

- Make sure all connections to the receiver and speakers are secure.
- Useweatherproofing kits and connectors when installing outdoor equipment in Canada. Be sure that each speaker cable is tested and safe before installation.
- All connections should be made as tight as possible to prevent any loose connections.
- Figure 1 Speaker lead connection.
Tape decks

When one tape deck is to be connected to the system it is recommended that it be connected to the jacks marked TAPE A. Tape deck input and output cables are normally terminalised with phone plugs.

Playback
Plug the left and right output cables of the tape deck into the \( \ominus \) and \( \oplus \) TAPE A PLAY jacks.

Record
Plug the left and right input cables of the tape deck into the \( \ominus \) and \( \oplus \) TAPE A REC jacks.

Second tape deck
Plug the output cables from the second tape deck into the TAPE B PLAY/AUX jacks.

TAPE B PLAY/AUX
The TAPE B PLAY/AUX jacks are used to connect other high-fidelity signal sources, such as extra tape decks, tuners, TV or VTR sound outputs, mic preamps, etc.

Turntable
Your stereo turntable has two audio cables that are terminalised with phone plugs. Plug the left and right channel plugs into the \( \ominus \) and \( \oplus \) PHONO input jacks, as shown.
If the turntable has a ground wire, connect it to this unit's GND terminal to avoid hum.

Ground
For maximum safety, and minimum interference connect the GND terminal to a good earth ground if practicable. A good earth ground is a cold water pipe or a metal stake driven into moist earth.

FM antennas
FM outdoor antenna
Consult with your dealer or service man about the best method of selecting and erecting an outdoor FM antenna. The choice of lead-in feeder wire is also important. The flat ribbon-shaped twin lead performs well electrically, is cheaper and is somewhat easier to handle in routing through windows and around rooms.
Coaxial cable is more expensive, does a much better job of minimising interference, is less prone to the effects of weather and close-by metal objects, and is nearly as good a signal conductor as the ribbon type wire. The latter is particularly true of foam-type coaxial cables. Coaxial cable is somewhat more difficult to install at the point where the cable enters the building. If coaxial cable is selected, make sure the antenna is designed to drive that type of cable. In many cases a matching transformer (balun) must be used to connect the antenna terminals to the coaxial cable.

FM indoor antenna
Connect the T-shaped indoor antenna supplied to the 300 \( \Omega \) FM ANT/LNA terminals as shown in the system connection diagram. Spread the two arms that form the top of the "T" horizontally and hold them against convenient wall surfaces. Try several locations for best results on your favorite stations. Tape the antenna in place where the best compromise is found between listening results and appearance.

AM antennas
AM loop antenna
Tune in your favorite AM station and position the Loop antenna for best reception. Try other stations and find the position that gives best overall reception.
When this unit is mounted in a rack or placed on a shelf with insufficient space behind, remove the loop antenna and hang it from a wall in the direction which gives best reception. If the length of the lead wire is too short, add a lead wire of an appropriate length.

Fig. 3 AM loop antenna setting

AC outlets
The AC outlets on the rear panel of the unit may be used to supply power to other components such as a turntable, tape deck, etc. Never connect here any equipment whose power consumption exceeds the capacity of each outlet.
1. SWITCHED outlet: This is 100 watts maximum in capacity and is controlled by the POWER switch on the front panel.
2. UNSWITCHED outlet: This is 200 watts maximum in capacity and power is available at all times.

Fig. 2 FM outdoor antenna installation
AM-FM reception
1. Press the TUNER button. Confirm that the TUNER indicator light is on.
2. Set the SELECTOR switch to AM or FM.
3. Turn the TUNING knob to adjust the tuning until you hear the desired frequency. The SIGNAL lamps indicate the strength of the received signal. Weak signals are indicated by the LOW or HIGH lamps; weak signals are indicated by both LOW and HIGH lamps.
4. In the FM mode, the STEREO indicator will light when the FM MODE switch is set to STEREO and a stereo broadcast is strong enough to overcome masking.
5. Adjust VOLUME and for your preference.

Abnormal condition on FM reception
1. In cases where the desired signal is very weak, a high frequency noise may accompany strong broadcast signals. In such cases, better results may be obtained by setting the FM MODE switch to MONO.

Tape deck B/AUX
1. Press the TAPE B AUX button.
2. Operate the component tape deck, TV, etc., connected to the TAPE B PLAY AUX jacks.
3. Adjust VOLUME and tone for your preference.

Tape decks
Playback
1. Press the TAPE A or B AUX button to select input from a tape deck connected to the TAPE A or TAPE B PLAY AUX jacks.
2. Operate the tape deck.
3. Adjust VOLUME and tone for your preference.

Recording
1. Press the PHONO, TUNER or TAPE B AUX button to select the desired program source.
2. Set up the program source component for operation and set up your tape deck connected to the TAPE A jacks for recording.
3. Set recording level with the controls on your tape deck.
4. To monitor the recording, push the TAPE A button. The volume and tone controls on the receiver do not affect the signal recorded.

Note:
The tape deck connected to the TAPE B PLAY AUX jacks can only be used for playback.

Monitoring
If the tape deck connected to the TAPE A jacks is equipped with three heads, you can compare the sound quality of recording in progress with that of the source material by pushing the TAPE A button while the recording is being made.

Tape-to-tape dubbing
1. Push the TAPE B AUX button.
2. Set the tape deck connected to the TAPE A jacks in the recording mode and operate the tape deck connected to the TAPE B PLAY AUX jacks simultaneously.
3. Set recording levels on the deck which is being used for recording using that deck's operating controls.
4. To monitor the recording, push the TAPE A button. The volume and tone controls on the receiver do not affect the signal recorded.

Note:
Tape-to-tape dubbing is only possible from a tape deck connected to the TAPE B PLAY AUX jacks to a tape deck connected to the TAPE A jacks.
In case of difficulty

If your unit should not perform as expected, consult the table below to see if the problem can be corrected before seeking help from your dealer or service representative.

<table>
<thead>
<tr>
<th>Occurs during AM reception only</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous low-frequency buzz</td>
<td>Interference from fluorescent lamps, lamp dimmers, other appliances.</td>
<td>Turn off fluorescent lamps or lamp dimmer. (Interference may come from neighbor's lamps.) Try AM outdoor antenna and good ground at GND connections. This problem may be impossible to remove altogether.</td>
</tr>
<tr>
<td>Most noticeable on weak stations or at night</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-frequency whistle especially at night</td>
<td>Interference from TV set. Beat from adjacent AM station.</td>
<td>Turn off TV set. If problem disappears try relocating TV set. Impossible to eliminate.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occurs during FM reception only</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous hiss or buzzing with broadcast.</td>
<td>Weak antenna signal.</td>
<td>Install outdoor antenna.</td>
</tr>
<tr>
<td>Occasional sharp rhythmic cracking noise.</td>
<td>Ignition interference from autos.</td>
<td>Locate outdoor antenna as far from road as possible, use coaxial feeder cable.</td>
</tr>
<tr>
<td>FM automatic circuit fail to respond to stereo broadcast.</td>
<td>Incoming signal is too weak.</td>
<td>Reposition indoor antenna or erect an outdoor antenna.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHONO playback only</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No sound from both or one speaker.</td>
<td>Turntable output disconnected.</td>
<td>Check phono cables.</td>
</tr>
<tr>
<td>Loud hum draws out sound.</td>
<td>Poor ground connection at phono-cable connections.</td>
<td>Check phono plugs, particularly outer-shell connections.</td>
</tr>
<tr>
<td>Background buzz</td>
<td>TV signal picked up by phono cable (especially near transmitter).</td>
<td>Route phono cables to minimize buzz.</td>
</tr>
</tbody>
</table>
Audio Section

Power Output
30 watts* per channel minimum RMS, both channels driven at 8 ohms from 40 Hz to 20,000 Hz with no more than 0.09% total harmonic distortion.

Both Channels Driven
Into 8 ohms at 1,000 Hz .......... 31 W + 31 W
Into 4 ohms at 1,000 Hz .......... 31 W + 31 W
Dynamic Power Output at 4 ohms 100 W
Total Harmonic Distortion (40 Hz to 20,000 Hz from AUX)
rated power into 8 ohms 0.09%
1 watt power into 8 ohms 0.05%
Intermodulation Distortion (60 Hz:7 kHz = 4:1 SMPTE)
rated power into 8 ohms 0.04%
1 watt power into 8 ohms 0.03%
Damping Factor 30 at 1 kHz, 8 ohms
Input Sensitivity/Impedance
PHONO 2.5 mV/50 k ohms
TAPE, AUX 150 mV/50 k ohms
Signal to Noise Ratio (A weighted)
PHONO 72 dB for 2.5 mV input
78 dB for 5.0 mV input
TAPE, AUX 100 dB for 150 mV input
Maximum PHONO Input Level
at 1,000 Hz 120 mV (RMS), THD 0.05%
Frequency Response
PHONO RIAA Standard Curve 20 Hz to 20,000 Hz ± 0.3 dB
TAPE, AUX 10 Hz to 100 kHz +0 db – 3 dB
Tone Control
BASS +8 dB at 100 Hz
TREBLE +8 dB at 10 kHz
 Loudness Control (VOL. – 30 dB) +10 dB at 100 Hz
Output Level/Impedance
TAPE REC Out (PIn) 150 mV/500 ohms

FM Tuner Section

Usable Sensitivity
50 dB Quieting Sensitivity
Mono 10.8 dB (1.9 µV)
Stereo 17.2 dB (4.0 µV)
Signal-to-Noise Ratio at 65 dBf
Mono 75 dB
Stereo 70 dB
Total Harmonic Distortion at 1,000 Hz
Mono 0.1%
Stereo 0.2%
Frequency Response
30 Hz to 15,000 Hz
+0 2 dB, -0.2 dB
Capture Ratio 1.5 dB
Image Rejection Ratio 50 dB
Spurious Response Ratio 80 dB
RF Response Ratio 90 dB
Alternate Channel Selectivity 45 dB at 400 kHz
AM Suppression Ratio 65 dB
Stereo Separation Ratio 40 dB at 1,000 Hz
35 dB at 50 Hz to 10 kHz
Subcarrier Product Ratio 45 dB
Antenna Impedance 75 ohms balanced and 300 ohms unbalanced
FM Frequency Range
87.5 MHz to 108 MHz

AM Tuner Section

Usable Sensitivity
13 µV
Signal-to-Noise Ratio 45 dB
Image Rejection 45 dB
Selectivity 25 dB

General

Power Consumption 110 V (UL and CSA)
120 W 8 ohms at rated power
AC Outlet Switched, 1, Uns switched 1
Dimensions
W 440 mm (17.3/16")
H 109 mm (4-1/4")
D 250 mm (9-5/16")
Weight (Net) 5.2 kg (11.4 lb)
(Gross) 5.8 kg (12.8 lb)

* Measured pursuant to Federal Trade Commission's Trade Regulation rule. Note: We follow a policy of continuous advancements in development. For this reason specifications may be changed without notice.