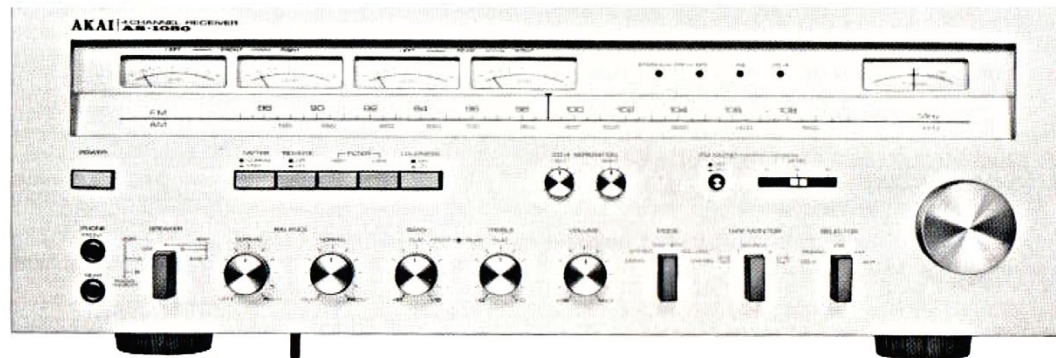


AS-1080

**SOLID STATE FM/AM MPX 4-CH
STEREO TUNER AMPLIFIER**

OPERATOR'S MANUAL



Warning:

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



CONTROLS

OUTPUT LEVEL METERS

Indicates output level of each respective channel.

LOUDNESS SWITCH

When listening at a low volume level, the range audible by the human ear is limited. The loudness circuit supplements this range by boosting the bass and treble response. Depress this switch to ON position for balanced sound at low volume.

LOW FILTER SWITCH

An aid in the elimination of low frequency disturbances such as turntable rumble, etc. Use only when necessary.

HIGH FILTER SWITCH

An aid in the elimination of high frequency surface noise such as noise caused by nearby electrical appliances, noise from old or worn tapes or phonograph record scratch, etc. Use only when such noise exists.

REMOTE CONTROL SWITCH

Depress this switch to ON position when employing remote control unit RC-4CH (optional accessory). While this switch is depressed, the left/right and front/rear Balance Controls have no effect.
Caution: If the 8P DIN Plug is removed while this switch is depressed, a noise will occur. (Unplug after releasing switch to OFF position).

POWER SWITCH

METER LEVEL SWITCH—
Depressing this switch to HIGH position increases meter sensitivity.

HEADPHONE JACKS (Front/Rear)

Front/Rear channel Stereo Headphone Jacks. Use stereo headphones of 8 Ω impedance.
* Headphone output is not changed when Speaker Selector Switch is set to 2-CH Power Doubler position.

SPEAKER SELECTOR SWITCH

OFF : Cuts sound from speakers. Use this setting for private headphone listening.
4-CH A : When utilizing A System speaker terminals.
B : When utilizing B System speaker terminals.
A + B : When utilizing A and B System speaker terminals simultaneously.
Caution : Set to A+B position only when both systems A and B are connected.
2-CH : (When listening to 2-CH or monaural source, if set to 2-CH Doubler A or B position, the output power can be doubled. At this time, the rear speakers and rear channel meters become inoperative).
A : When utilizing A System speaker terminals.
B : When utilizing B System speaker terminals.
Caution : When switched to 2-CH A or B, the output power is doubled and the circuit becomes B.T.L. (balance transformerless) connected and the circuit is not grounded. Therefore, be sure to change to an independent circuit prior to use. If operated without this change, the output will become

FM DIAL SCALE

AM DIAL SCALE

CD-4 CHANNEL SEPARATION CONTROLS

Playback a CD-4 Separation Adjustment Record (one with FRONT right and left channel sound signal only) and adjust to obtain minimum cross talk leakage to REAR left and right channel.
* It is convenient to utilize level meters for determining level.
Set Front/Rear channel Balance Control to full counter-clockwise position, set Meter Switch to HIGH and adjust for minimum left rear and right rear channel indication.

BALANCE CONTROLS (left and right)
For left/right speaker balance adjustment. At NORMAL, volume of left and right speakers is equal.

BALANCE CONTROLS (front and rear)
For front/rear speaker balance adjustment. At NORMAL, volume of front and rear speakers is equal.

FRONT CHANNEL BASS CONTROL
For front channel low range frequency response control. With FLAT as center position, adjustment can be made to plus or minus 10 dB.

REAR CHANNEL BASS CONTROL
For rear channel low range frequency response control. With FLAT as center position, adjustment can be made to plus or minus 10 dB.

VOLUME CONTROL
For volume adjustment. Turning clockwise increases volume.

REAR CHANNEL TREBLE CONTROL
For rear channel high range frequency response control. With FLAT as center position, adjustment can be made to plus or minus 10 dB. Each click represents 2 dB.

FRONT CHANNEL TREBLE CONTROL
For front channel high range frequency response control. With FLAT as center position, adjustment can be made to plus or minus 10 dB. Each click represents 2 dB.

REAR CHANNEL BASS CONTROL
For rear channel low range frequency response control. With FLAT as center position, adjustment can be made to plus or minus 10 dB.

FM STEREO INDICATOR LAMP

Lights when FM broadcasts are being received.

FM-AFC INDICATOR LAMP

Lights when FM automatic center tuning is attained.

FM/AM TUNING METER

When tuning in FM broadcasts, bring indicator to within FM center scale (AFC will then be activated, and perfect center tuning will be attained automatically. When tuning in AM broadcasts, tune for indication as far as possible toward the right end of the scale. Movement of the needle to the right indicates AM signal strength. When no signal is being received, the needle will return to mid-scale position.

FM MUTE SWITCH AND LEVEL ADJUSTER

FM Mute Switch cuts noise originating prior to antenna input when receiving FM broadcasts. Level Adjuster controls muting level according to wave strength of FM station.
* Do not use Mute Switch if signals are weak.
* Level Adjuster functions only when the Mute Switch is depressed.

TUNING KNOB

Rotate to select desired FM or AM broadcast.

SOURCE SELECTOR SWITCH

Set according to signal source.
CD-4 : For playback of a CD-4 record.
PHONO : For playback of a regular, 4-channel SQ or MATRIX stereo record.
FM : For FM broadcast reception.
AM : For AM broadcast reception.
AUX : For ceramic or crystal type cartridge record player, recorder, or other external source connected to the AUX Jacks.

TAPE MONITOR SWITCH

1 (Tape 1) : Set to this position to monitor playback of tape recorder or tape deck connected to Tape 1 System terminals.
2 (Tape 2) : Set to this position to monitor playback of tape recorder or tape deck connected to rear panel Tape 2 System terminals.
DUB 1 → 2 : Set to this position when dubbing from Tape 1 to Tape 2 System.
DUB 2 → 1 : Set to this position when dubbing from Tape 2 to Tape 1 System.
SOURCE : Set to this position to monitor source connection.

MODE SWITCH

MONO : Front channel left and right source signals will be mixed and emitted from front channel left and right speakers.
STEREO : Front channel left and right source signals are separated and emitted from front and rear left and right speakers respectively.
* AM signal distribution is the same as outlined under "MONO" above.
DISC-4CH : Discrete 4 channel stereo signals from AUX, or TAPE 1 are emitted from respective front and rear left and right speakers. Also 2 channel stereo signals from PHONO, AUX, TAPE 1, or FM stereo broadcasts can be emitted from front left and right speakers respectively.
* Signals from AM broadcasts can also be emitted from front left and right speakers.
SQ LOGIC : During SQ 4 channel playback, sound is emitted from front and rear left and right speakers.
MATRIX : During Matrix 4 channel playback, sound is emitted from front and rear left and right speakers.

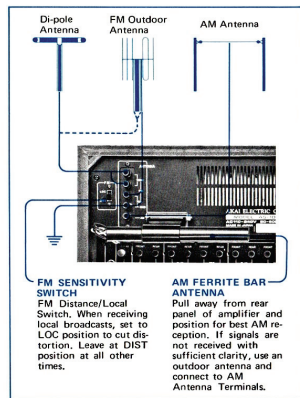
OPERATING PRECAUTIONS

- * Avoid using your machine in extremely hot or humid places.
- * Place unit for proper ventilation and do not block the ventilator.
- * Check to confirm that your machine is set to proper area voltage (not applicable to CEE, CSA, UL and LA models).
- * Use only speakers of 8~16 ohms impedance.

- * If in a remote area, or inside a concrete building, etc., a multi-element outdoor antenna is recommended.
- * When using TV antenna feeder wire, keep in mind that the wire is susceptible to corrosion and lasts only a few years. Check wire periodically as defective lead-in wire can cause sound distortion or increased noise.
- * A TV/FM Antenna can also be used in place of an FM antenna.

AM ANTENNA

The AM ferrite bar antenna at the rear of the unit is adequate for normal AM reception. Use AM antenna terminals when signal strength is insufficient.



FM BROADCAST RECEPTION

- Turn Volume Control to minimum and turn on Power Switch.
- Set Tape Monitor Switch to SOURCE position.
- Set Mode Selector to STEREO position.
- Set Source Selector to FM position.
- Adjust Volume Control.

F. Turn Tuning Knob to select desired station (FM Stereo Lamp will light to confirm FM Stereo reception).

G. Tune until the FM/AM Tuning Meter indication is within the FM center scale.

* As this machine employs AFC (automatic frequency control), it is not necessary to tune to exact center frequency. Once the needle is brought within the center scale, the AFC circuit is activated and perfect center tuning is automatically attained within about 3 seconds. At this time, the AFC indicator lamp will light to confirm perfect tuning.

H. Adjust Bass and Treble Controls.
* If stereo listening in monaural is desired, set Mode Selector to MONO position.

AM BROADCAST RECEPTION

- Extend AM bar antenna from rear panel.
- Turn Volume Control to minimum and turn on Power Switch.
- Set Tape Monitor Switch to SOURCE position.
- Set Source Selector Switch to AM position.
- Adjust Volume Control.
- Turn Tuning Knob to select desired station.
- As AM broadcasts are tuned in, the FM/AM Tuning Meter Indicator needle will move toward the right of the meter. Extreme right hand position indicates best reception.
- Adjust Bass and Treble Controls.
* As AM broadcasts are in monaural only, position of Mode Selector is irrelevant.

RECORD PLAYBACK

- Turn Volume Control to minimum and turn on Power Switch.
- Set Tape Monitor Switch to SOURCE position.
- Set Source Selector Switch to CD-4 position.
- Set turntable to playback mode. (First, playback a CD-4 Separation Adjustment Record and adjust front and rear channel separation with left and right CD-4 Channel Separation Controls to obtain minimum cross-talk leakage to rear left and right channel respectively.)
* Refer to CD-4 CHANNEL SEPARATION CONTROLS under "CONTROLS".
- After this adjustment has been made, readjustment is not necessary except in case of cartridge or parts replacement.
- Adjust Volume, Bass and Treble, and Balance Controls.

Matrix Playback

- Turn Volume Control to minimum and turn on Power Switch.
- Set Tape Monitor Switch to SOURCE position.
- Set Source Selector Switch to PHONO position.
- Set Mode Selector Switch to MATRIX position.
- Set turntable to playback mode.
- Adjust Volume, Bass and Treble, and Balance Controls.
* Set Front and Rear Bass and Treble Controls to same position.

SQ Playback

Follow Matrix playback procedure, setting Mode Selector Switch to SQ LOGIC position in step D.

Synthesized 4-channel Stereo Playback

4 channel playback with a 2 channel record can be accomplished by following Matrix or SQ playback procedure.

2-channel Stereo Playback

- Turn Volume Control to minimum and turn on Power Switch.
- Set Tape Monitor Switch to SOURCE position.
- Set Mode Selector Switch to STEREO and set Source Selector Switch to PHONO position.
- Set Speaker Selector Switch to 2-CH Power Doubler A or B position to double power and emit sound from front channel left and right speakers, or set to desired 4-CH position for sound from front and rear left and front and rear right speakers.
- Set turntable to playback mode.
- Adjust Volume, Bass and Treble, and Balance Controls.

Caution : Do not connect a crystal or ceramic type pick-up record player to the PHONO terminals. When using this type of record player, employ the AUX terminals and set Source Selector to AUX position.

- * When a pick-up ground line is available, connect to the Phono Ground Terminal.
- * Avoid placing player too close to the speaker system. If placed too close, transmission of vibration from the speakers will cause howling.
- * Confirm that connections are complete and that thickness of wire is sufficient. Incorrect or incomplete wiring is, in some cases, the cause of hum.

TAPE 1 AND TAPE 2 SYSTEM OPERATION

The AS-1080 is equipped with 2 separate tape systems. However, as each system is designed for a different

type operation, the operator is requested to use these terminals for tape deck or recorder connection according to desired operation.

Operation with tape deck connected to Tape 1 System terminals

By setting the Source Selector to PHONO, FM, AM, or AUX according to connections, recording to Tape 1 System can be accomplished. In this case, position of Mode Switch is irrelevant. (Signals are recorded according to source). For playback, set Mode Switch according to desired mode.

Operation with tape deck connected to Tape 2 System terminals

By setting the Source Selector to PHONO, FM, AM, or AUX, recording to Tape 2 System can be accomplished. In this case, set Mode Selector according to desired mode. For CD-4 recording, set Source Selector to CD-4 position. (Position of mode switch is irrelevant). For playback, position of the Mode Switch is irrelevant (DISC-4CH mode will prevail).

PLAYBACK OF PRE-RECORDED TAPE

- Turn Volume Control to minimum and turn on Power Switch.
- Set Tape Monitor Switch to 1 (Tape 1) or 2 (Tape 2) position according to connection.
* When using Tape 1 System terminals, set Mode Switch according to desired mode. When using Tape 2 System terminals, position of the Mode Switch is irrelevant (DISC-4CH mode will prevail).
- Set tape deck to playback mode.
- Adjust Volume, Bass and Treble, and Balance Controls.
* Position of Source Selector Switch is irrelevant during playback except in case of Tape 1 System playback. In this case, the Source Selector must not be set to CD-4 position.

RECORDING

For recording with a tape deck from FM or AM broadcast or turntable, follow FM or AM Broadcast Reception or Record Playback procedure, and set Source Selector accordingly. Set tape deck to recording mode.

Dubbing from pre-recorded tape can be accomplished by and of the following methods.

Dubbing from Tape 1 to Tape 2 System
Set tape deck or recorder connected to Tape 1 System

terminals to playback mode and set tape deck or recorder connected to Tape 2 System terminals to recording mode. In this case, Set Tape Monitor Switch to DUB 1 → 2 position. In this case, set Mode Selector according to desired mode.
Caution : Do not set Source Selector Switch to CD-4 position at this time.

Dubbing from Tape 2 to Tape 1 System

Set tape deck or recorder connected to Tape 2 System terminals to playback mode and set tape deck or recorder connected to Tape 1 System terminals to recording mode. Set Tape Monitor Switch to DUB 2 → 1 position. In this case, position of Mode Switch is irrelevant. (Signals are recorded according to source).

Dubbing from AUX Jacks to Tape 1 or Tape 2 System

Set machine connected to AUX terminals to playback mode and set tape deck or recorder connected to Tape 1 or Tape 2 System terminals to recording mode. Set Source Selector Switch to AUX position. When using Tape 1 System terminals, position of Mode Switch is irrelevant. When using Tape 2 System terminals, set Mode Switch according to desired mode.
* Simultaneous dubbing to Tape 1 and Tape 2 Systems can also be accomplished. However, for identical results, the Mode Switch must be set to DISC 4-CH position.

MONITORING

When using a 3 head machine for recording (independent recording, playback and erase heads), the recording being made can be compared with the source. In this case, connect the recording machine to both the REC and P.B. terminals of the amplifier and set the Tape Monitor Switch of the recording machine to TAPE position. Comparison of signals can then be made through the speaker system by alternately setting the Tape Monitor Switch of the AS-1080 to SOURCE to monitor source signals and to TAPE 1 or TAPE 2 position to monitor just-recorded signals. During Dubbing to and from Tape 1 and Tape 2 Systems, only the just-recorded signals can be monitored through the speaker system. During Dubbing from the AUX Jacks to Tape 1 and or Tape 2 System, only the source signals can be monitored through the speaker system. For monitoring through headphones, use 8 ohms impedance type stereo headphones.

CONNECTIONS

PHONO GROUND TERMINAL

For use in grounding the amplifier with a record player. If this connection causes excessive noise, connect a thick cable from this terminal to a buried underground bar.

- * Do not connect to a gas line, etc.

PHONO JACKS

Connect to outputs of magnetic cartridge type turntable.

- * Use AUX Jacks for connection of crystal type pick-up turntable.
- * Use shorting plug and short these terminals when not in use.

4-CH REMOTE CONTROL JACK

For connection of 4-CH Remote Control Unit model RC-4CH. By utilizing this unit, 4-CH front/rear and left/right speaker balance and volume are remote controlled.

- * Maximum volume is determined by the preset position of front panel Volume Control.

FM SENSITIVITY SWITCH

See ANTENNA INFORMATION.

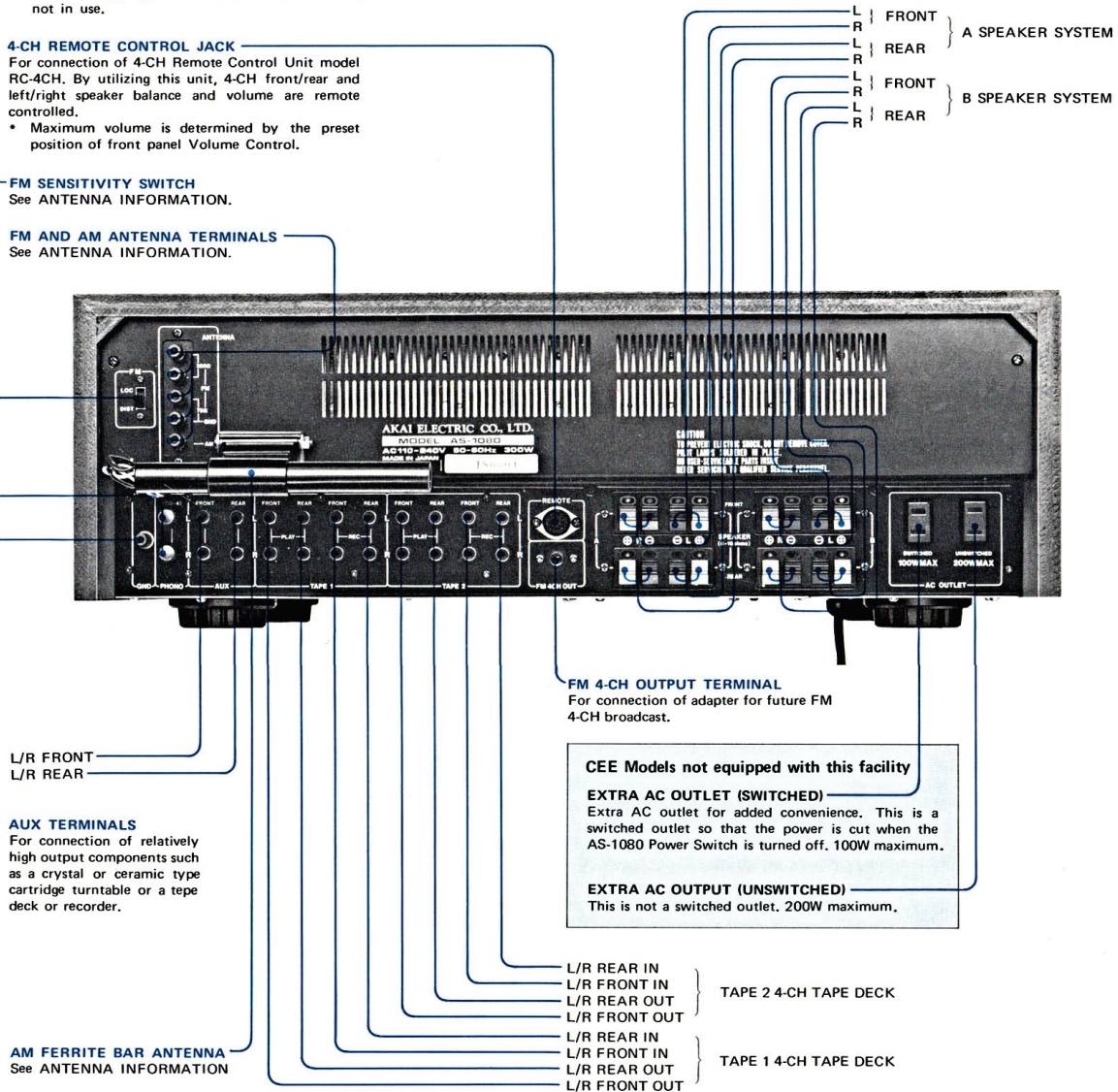
FM AND AM ANTENNA TERMINALS

See ANTENNA INFORMATION.

A AND B SYSTEM SPEAKER TERMINALS

These push-button speaker terminals facilitate easy speaker connection.

1. A and B System accommodates speakers of 8 to 16 ohms impedance.
2. Strip about a 1 cm length of vinyl covering from end of speaker cord.
3. Push respective button and insert in terminal.
4. Be sure to match plus and minus and left and right. If plus and minus terminals are reversed, poor and un-natural sound will result.



L/R FRONT
L/R REAR

AUX TERMINALS

For connection of relatively high output components such as a crystal or ceramic type cartridge turntable or a tape deck or recorder.

AM FERRITE BAR ANTENNA
See ANTENNA INFORMATION

FM 4-CH OUTPUT TERMINAL
For connection of adapter for future FM 4-CH broadcast.

CEE Models not equipped with this facility

EXTRA AC OUTLET (SWITCHED)

Extra AC outlet for added convenience. This is a switched outlet so that the power is cut when the AS-1080 Power Switch is turned off. 100W maximum.

EXTRA AC OUTPUT (UNSWITCHED)

This is not a switched outlet. 200W maximum.

L/R REAR IN
L/R FRONT IN
L/R REAR OUT
L/R FRONT OUT } TAPE 2 4-CH TAPE DECK
L/R REAR IN
L/R FRONT IN
L/R REAR OUT
L/R FRONT OUT } TAPE 1 4-CH TAPE DECK

TAPE 1 AND TAPE 2 SYSTEM REC/P.B. JACKS

For connection to a tape deck or recorder for recording/playback.

- REC Jacks : Connects to inputs tape deck for recording.
- P.B. (PLAY) Jacks: Connects to outputs of tape deck for playback.
- * Refer to TAPE 1 AND TAPE 2 SYSTEM OPERATION.

TROUBLE SHOOTING CHART

Summarized below are some typical symptoms and remedies. It should be noted, however, that some of these seemingly failure-like situations may not always be the real trouble. In such an instance, check the whole unit for proper condition.

HEAVY NOISE AND POOR RESPONSE OF THE TUNING METER DURING FM RECEPTION

- * Check to see if the antenna is oriented in the right direction; a gust of wind sometimes changes the direction of the antenna.
- * Check for broken wiring from the antenna to the receiver set, especially at the output terminal of the antenna and the antenna terminal of the amplifier.
- * Also check the antenna for proper size from the geographical point of view.

JAMMING IN FM RECEPTION WHEN CARS ARE RUNNING NEARBY

It is necessary to install the antenna away from the highways or high in the air. It is also advisable, for noise

suppression, to use an exclusive FM multi-element antenna for strengthening the wave and to use a 75 Ω coaxial cable in place of TV feeder.

POOR SOUND SEPARATION BETWEEN LEFT AND RIGHT SPEAKER ON FM STEREOBPHONIC BROADCASTS

- * Is the MODE SELECTOR SWITCH at proper position?
- * Is the antenna installed correctly?

HEAVY NOISE DURING AM RECEPTION

Move the bar antenna on the rear panel while receiving AM broadcast. Maximum sensitivity is obtained when the FM/AM Tuning Meter Indicator reaches the extreme right end of the meter. In congested areas of the city or in an area remote from the station, connect a vinyl covered wire to the AM ANTENNA terminal. Hanging the wire out of the window is advisable for better sensitivity.

AM broadcast is more susceptible than FM broadcast to city noise.

Be sure not to place the antenna near fluorescent lamps.

HUMMING DURING AM RECEPTION

The tuning hum varies with the location of the receiver. Move the bar antenna on the rear panel to find a point at which the humming is held to a minimum.

HUM OR BUZZ WHEN PLAYING RECORDS

- * Check to see if connections are correct and are not loose.
- * Check for correct grounding.
- * Shielded wire is away from fluorescent lamps.

POOR TONALITY OR NOISY SOUND WHEN PLAYING RECORDS

- * Worn out stylus or record must be replaced.
- * Check to see if stylus or record is clean.
- * Pressure of stylus must be properly set.

TECHNICAL DATA

AMPLIFIER SECTION

Continuous Power Output

4 channels driven 40 watts per channel, min.
RMS, from 20 Hz to 20,000
Hz, with no more than 0.2%
total harmonic distortion.
4x50 watts into 8 ohms at
1 KHz, with no more than 0.2
% total harmonic distortion.

2 channels driven
(Power Doubler ON) 80 watts per channel, min.
RMS, from 20 Hz to 20,000
Hz, with no more than 0.2%
total harmonic distortion.
2x100 watts into 8 ohms at
1 KHz, with no more than 0.2
% total harmonic distortion.

Power Bandwidth (IHF) 10 Hz to 60,000 Hz/8 ohms
(Distortion within 0.2%)

Input Sensitivity

Phono 3 mV/47 K ohms
(CD-4 1.5 mV/47 K ohms)

AUX 160 mV/47 K ohms

Tape 1 & 2 160 mV/47 K ohms

Signal-to-Noise Ratio (IHF)

Phono Better than 80 dB

AUX Better than 90 dB

Channel Separation (IHF)

Phono Better than 50 dB (at 1,000 Hz)

Equalizer RIAA \pm 1 dB (Phono)

Tone Control

Bass \pm 10 dB at 100 Hz

Treble \pm 10 dB at 10 KHz

Loudness Control +9 dB at 100 Hz, +4 dB at
10 KHz (Volume Control at
-30 dB position)

Filter

High -6 dB at 10 KHz

Low -10 dB at 50 Hz

FM TUNER SECTION

Frequency Range 88 MHz to 108 MHz

Sensitivity (IHF) 1.9 μ V

Capture Ratio (IHF) 1.0 dB

Selectivity (IHF) Better than 70 dB at 98 MHz

Signal-to-Noise Ratio Better than 70 dB

Image Rejection Better than 75 dB at 98 MHz

IF Rejection Better than 90 dB at 98 MHz

Spurious Rejection Better than 80 dB at 98 MHz

Harmonic Distortion

Monaural Less than 0.2%

Stereo Less than 0.4%

FM Stereo Separation Better than 40 dB (1,000 Hz)

FM Muting Variable (3 μ V to 300 μ V)
ON-OFF

Antenna Input

Impedance 300 ohms balanced, 75 ohms
unbalanced

AM TUNER SECTION

Frequency Range 535 KHz to 1,605 KHz

Sensitivity (IHF) 200 μ V/m (Bar Antenna),
5 μ V (EXT. Antenna)

Image Rejection Better than 55dB at 1,000 KHz

IF Rejection Better than 45dB at 1,000 KHz

Selectivity (IHF) Better than 30dB at 1,000 KHz

AM Distortion Less than 0.6%

Signal-to-Noise Ratio Better than 50 dB

Semi-Conductors 1 FET, 85 Transistors, 58
Diodes, 14 ICs

Power Requirement CSA, UL and LA Models:
120V, 60 Hz only.
CEE Models: 220V, 50 Hz only.
Other Models:
110V/220V/240V (Switchable).

Dimensions 520(W) x 182(H) x 409(D) mm
20.5(W) x 7.2(H) x 16.1(D)
inches

Weight 19.0 kg (41.8 lbs)

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

STANDARD ACCESSORIES

FM Di-pole Antenna 1

4-CH Test Record 1

Spare Fuses 1 set

Operator's Manual 1

* Spare Fuses not included with CEE, CSA, UL, or LA models.



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