



JVC INSTRUCTION MANUAL

FOR

4-CHANNEL INTEGRATED AMPLIFIER

MODEL MCA-V9E

Line Voltage Adaptation:

Model MCA-V9E is designed to operate on a 50 or 60 Hz power source 100, 120, 220 or 240 V in line voltage. The line voltage to which your Model MCA-V9E has been preset is marked on the tag attached to the power cord. Make sure that the marked voltage agrees with the line voltage to be supplied before connecting the power cord to an AC outlet. If the voltage is different, adapt your Model MCA-V9E as follows: Loosen the four screws fixing the set cover, and remove the cover. (If your Model MCA-V9E is in a wooden cabinet, loosen the six screws on the bottom of the cabinet, and remove the cabinet by pulling it forward.) The AC line voltage selector is located near the power transformer on the chassis. By referring to Figs. 2 and 3, reconnect the selector plug so that the arrow on the plug points the voltage marking conforming to the line voltage to be supplied. The fuse rating changes according to the AC line voltage. Check the fuse in your set as follows.

Specific current capacity.
2.3A for 220 volts or 240 volts.
5.0A for 100 volts or 120 volts.

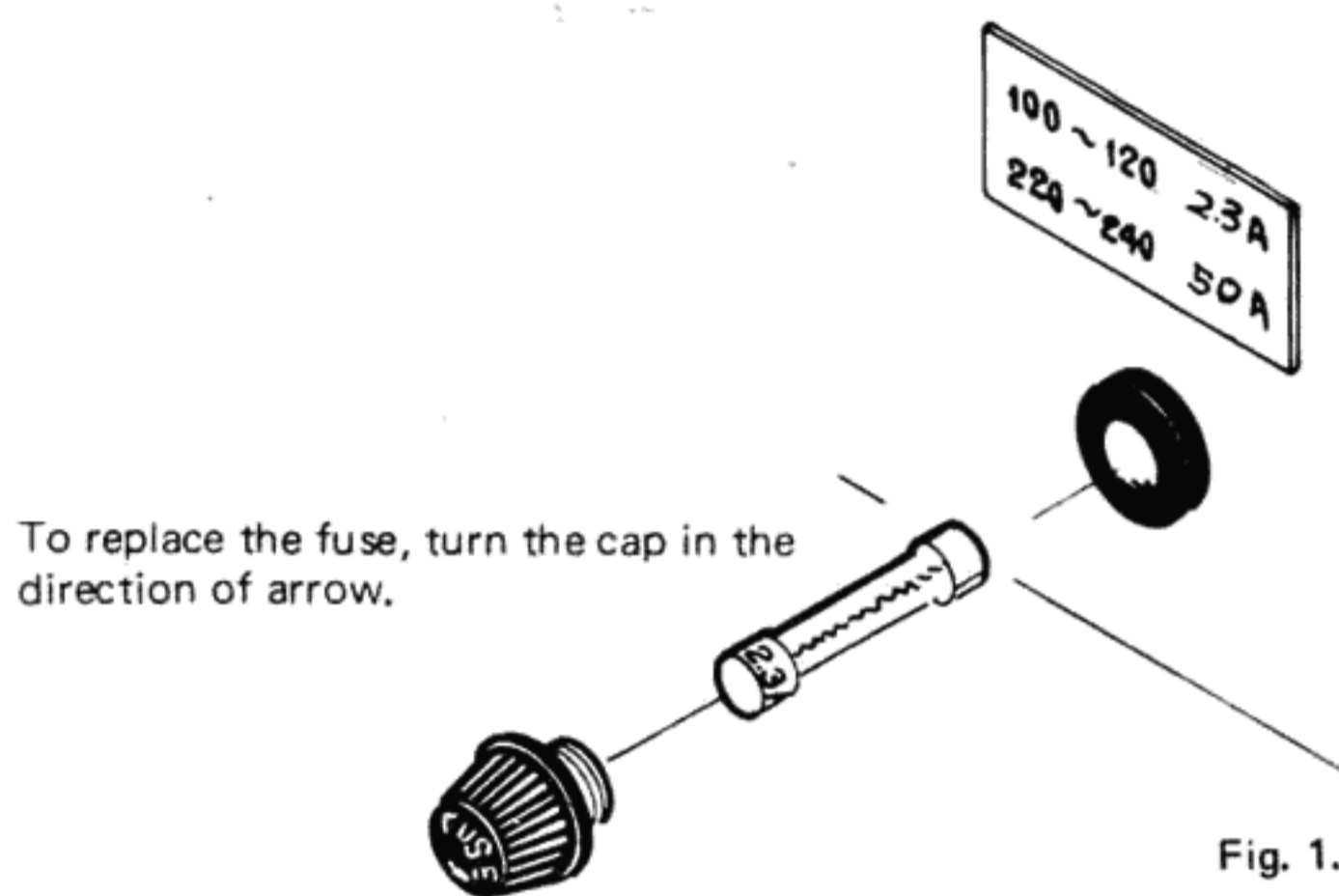


Fig. 1.

Features:

All-stage Direct-coupled OCL Circuitry:

Four completely complementary OCL power amplifiers are built in. Distortion factor less than 0.1%. More than 25 watts of power output through each channel. 100 watts in rated overall output. Specifically designed for 4-channel reproduction. Also usable for multi-channel amplification, SFCS effect and for driving two pairs of stereo speakers in 2-channel reproduction.

Double Power Output Through BTL Connection:

By connecting speakers to the 2SPK terminals, Model MCA-V9E can be operated as a conventional 2-channel stereo amplifier with a double power output.

4 VU Meters:

Each of the four channels is provided with a separate VU meter for accurate level adjustment.

SFCS Circuit:

The SFCS (Sound Field Composer System) circuit is built in to permit reproduction of a 2-channel source similar to that of 4-channel stereo through a four speaker system.

Matrix 4-channel records are also playable.

4-channel DISC Input Terminals:

Through these terminals JVC's 4-channel record can be reproduced.

Auxiliary 4-channel Input Terminals:

A 4-channel tape deck or DISC can be connected here.

4-channel Record/Play Connectors:

Record/play connectors are provided for connection of a 3-head 4-channel tape deck, for example, JVC's Model 1400U.

4-channel Headphone Jacks:

Two headphone jacks are provided for connection of a set of 4-channel headphones. The CH-1/CH-3 jack provides the front sound and CH-2/CH-4 jack the rear.

Remote Control Terminal:

By connecting JVC's Model 5910 (optional) the level and volume of all four channels are remote controllable.

Equalizer:

A 3-stage direct-coupled RIAA equalizer of high stability and low noise is incorporated, using a PNP-PNP-NPN transistor combination.

Tone Control:

The turnover frequency is 150 Hz for bass and 6 kHz for treble, with variation characteristics of ± 10 dB at 50 Hz for bass, and at 15 kHz for treble. Excellent tone control through a 4-gang variable resistor with built-in click control levers.

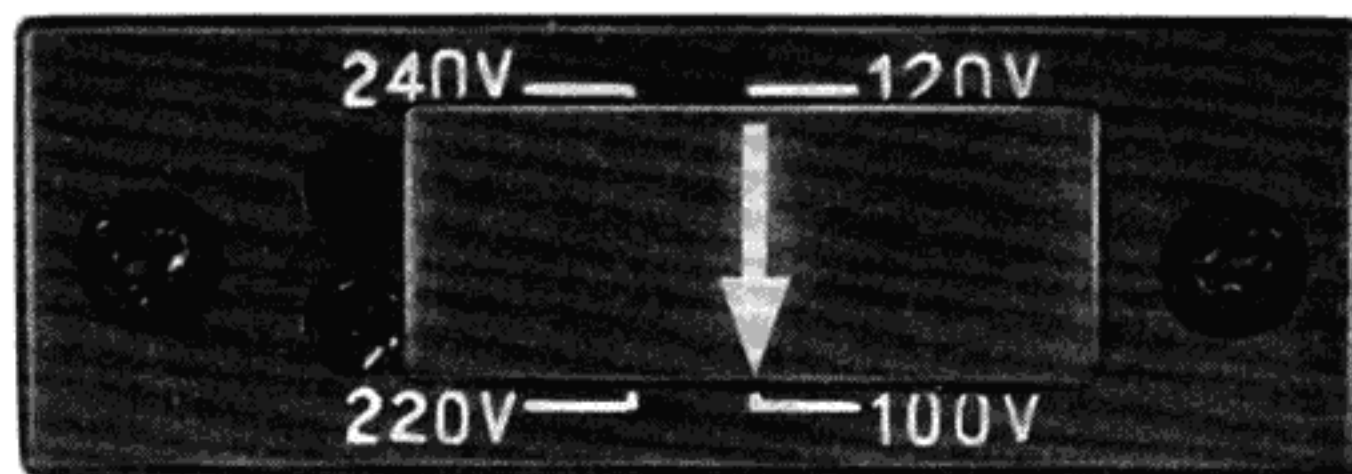
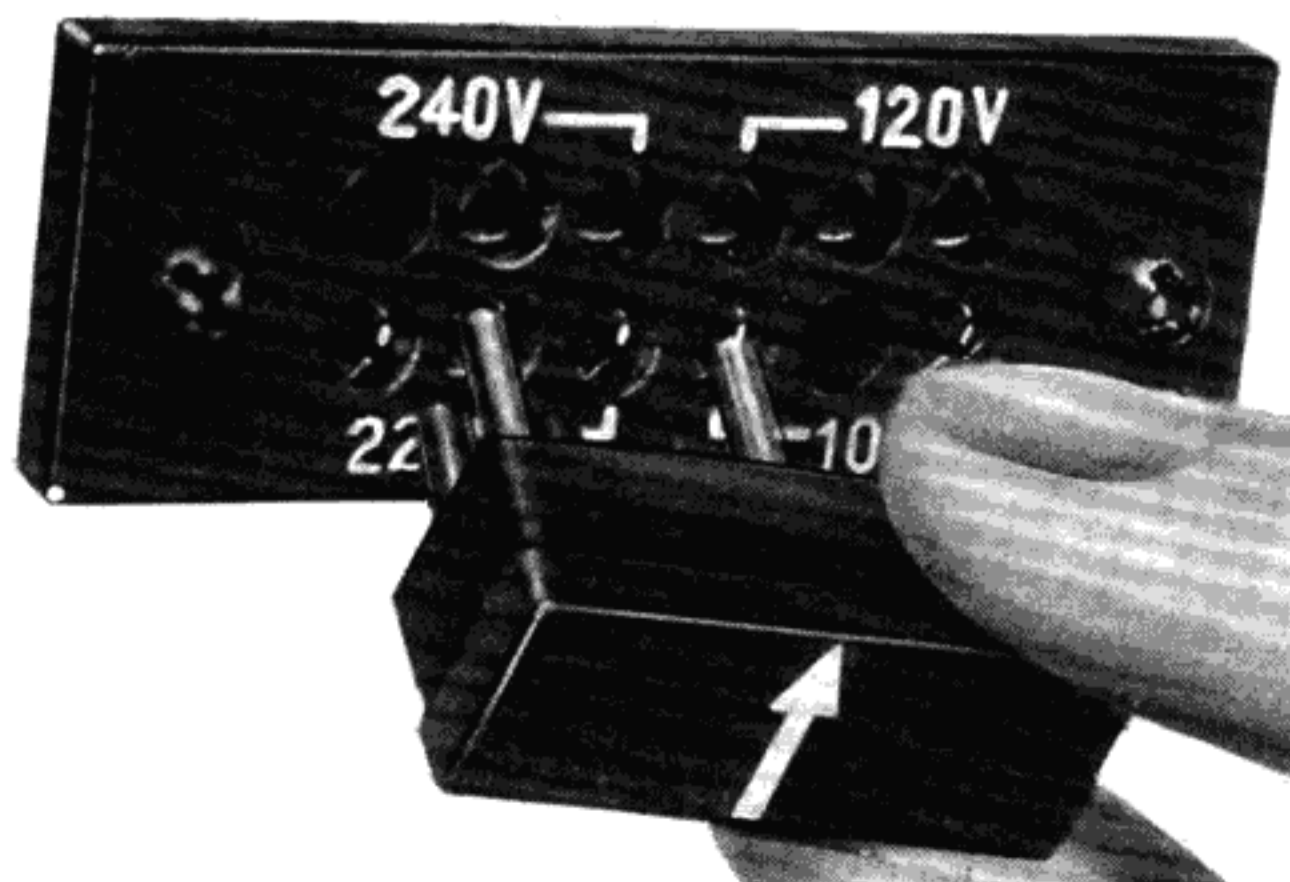


Fig. 2.

Connection:

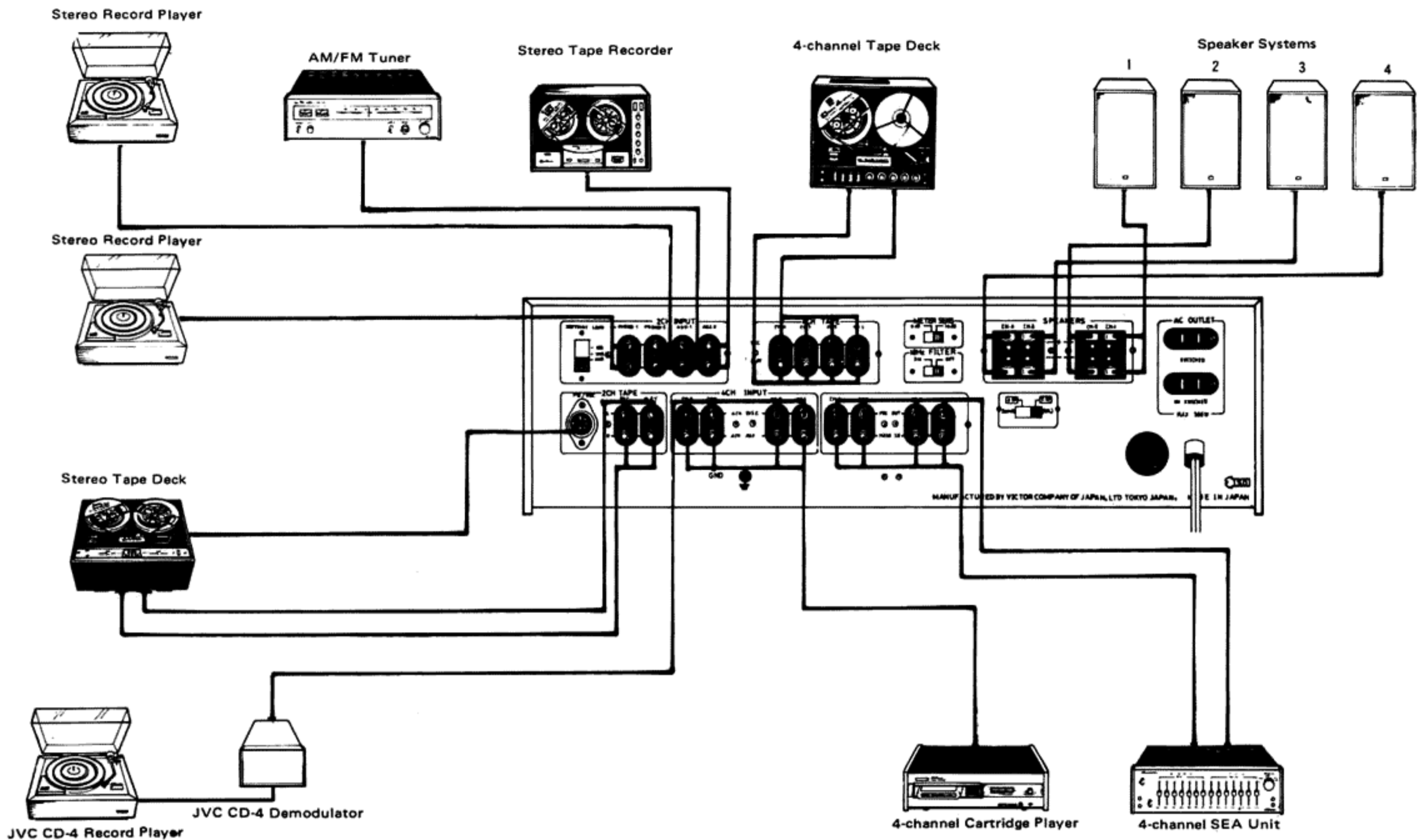


Fig. 3

Using two speaker systems:

1. Connect two speaker systems as illustrated Fig. 8. and BTL connections are effected, giving an output of 25 watts for each channel.
2. Connect a desired external device to appropriate one of the 2CH INPUT PHONO, TUNER, TAPE and AUX terminals on the rear.
3. Set the SELECT knob according to the external device connected. Set the FUNCTION knob to 2CH STEREO. Adjust the BASS, TREBLE and VOLUME controls as desired.
4. The left-channel output level is indicated on the CH-2 level meter, and the right-channel output level is indicated on the CH-3 level meter. The LEVEL CONT CH-1 knob is usable for adjusting the output level of the left channel, and the LEVEL CONT CH-3 knob adjusts the right-channel output level. The LEVEL CONT CH-2 and CH-4 knobs are unrelated.
5. When using headphones, connect them to the CH-1, CH-3 jack. Upon insertion of the headphone plug into the jack, the speaker systems are silenced.

Operating Procedure:

To reproduce 2-channel sources in 4-channel stereo, and to play matrix records:

1. Connect four speakers to the speaker terminals CH-1 to CH-4, respectively.
2. Connect a record player, tuner or tape deck to the 2CH input terminals on the rear panel.
3. Set the FUNCTION knob to SFCS and the SELECT knob to the desired program source.
4. Turn the VOLUME REAR knob to MAX, so that the sound is heard from the rear speakers. With the knob turned to MIN, sound is heard only from the front speakers.
5. A good SFCS effect may not be produced if the program source does not contain reverberation.

To reproduce 2-channel stereo through 2 speakers:

1. Connect two speakers to the CH-1 and CH-3 speaker terminals. Set the slide switch, on the rear panel, to 2SPK (BTL).
2. Connect a record player, tuner or tape deck to the 2CH input terminals on the rear panel.
3. Set the SELECT knob, on the front panel, to the corresponding program source. Set the FUNCTION knob to 2CH STEREO.
4. CH-1 VU meter indicates the level of the left channel; CH-3 VU meter, the right channel. Only CH-1 and CH-3 LEVEL CONTROL knobs are effective for 2-channel stereo reproduction.
5. When using headphones, connect them to the CH-1/CH-3 headphone jack. This will automatically cut out the speakers.

To listen to 2-channel stereo, with 4 speakers connected:

1. Leaving four speakers connected, feed the signal through the 2CH input terminals.
2. Set the speaker selector switch, on the rear panel, to 4SPK, the left channel signal will be reproduced through channel 1 and the right channel signal through channel 3. CH-1 and CH-3 VU meters will monitor these signals. Since input signals don't pass through either channels 2 or 4, sound reproduction will not be heard from those speakers. The output for each channel is 25 watts.
3. With the speaker selector switch set to 2SPK the signals pass through the BTL circuit and are delivered through channels 1 and 3 only. However, the output power in this case is more than doubled totalling 55 watts per channel.

To play 4-channel records:

1. A 4-channel record player and a 4-channel record adapter are necessary. JVC's 4-channel record player can be identified by a 4-channel symbol similar to the one that appears in the upper left hand corner on the front panel of the MCA-V9E.
2. Connect the record player's output to the input of the adapter. Connect the adapter's output to the 4CH DISC terminals CH-1 to CH-4 located on the rear panel of the MCA-V9E. Check to make sure you have made the correct channel connections.
3. Connect four speakers and position them according to the recording system as instructed on the disc. For example in a 2-2 or 4-0 format.
4. Set the FUNCTION knob to 4CH DISC. In this case the position of the SELECT knob is unrelated.

To play 2-channel records:

1. Connect the record player's output to the PHONO input terminals on the rear panel.
2. Set the SELECT knob to PHONO and the FUNCTION knob to 2CH STEREO for reproduction through two speakers, or to SFCS for SFCS 4-channel reproduction.

To receive FM or AM broadcasts:

1. Connect the tuner's output to the AUX-1 input terminals on the rear panel.
2. Set the SELECT knob to AUX-1 and the FUNCTION knob to 2CH STEREO for reproduction through two speakers, or to SFCS for SFCS 4-channel reproduction. (Note that the SFCS is ineffective for monaural programs.)

To connect a S.E.A. controller:

1. Connect the SEA controller's input to the PRE OUT terminals, and its output to the MAIN IN terminals.
2. One Model SEA-V7E is sufficient as it contains 4-channels. However, if either SEA-100E or SEA-200E Models are used then two units are necessary as they are only designed to control two channels.
3. Set the BASS and TREBLE knobs to FLAT.
4. If all the frequency knobs of the SEA Controller are set to the maximum position, an excessive input will result, distorting the sound reproduction. Adjust the frequency knobs as desired and control the volume with the MCA-V9E's VOLUME control knob.

Parts on Front Panel:

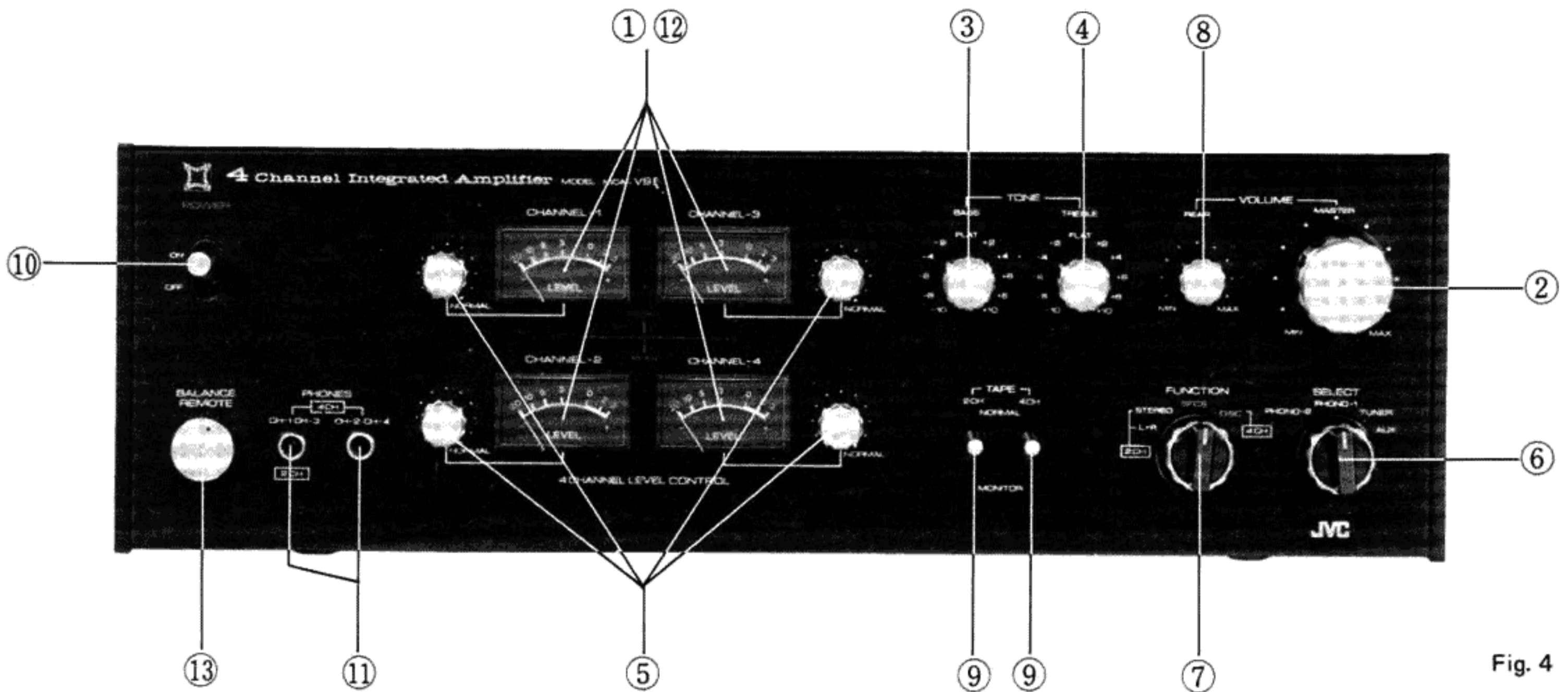


Fig. 4

(1) Pilot lamps

When Model MCA-V9E is turned on, the lamps inside the level meters light to illuminate the meter scales green.

(2) VOLUME control

As the control knob is turned clockwise, the sound volumes of all channels increase simultaneously.

(3) BASS control

As the control knob is turned clockwise, the bass on all channels is boosted simultaneously. Refer the TONE CONTROL graph on Page 9

(4) TREBLE control

As the control knob is turned clockwise, the treble on all channels is boosted simultaneously.

(5) LEVEL controls

All the control knobs are turned fully clockwise to the NORMAL position, and then only the higher-level channels than others should be attenuated counterclockwise. When Model MCA-V9E is operated as 2-channel stereo, the CH-1 knob operates for the left channel, the CH-3 knob operates for the right channel, and the CH-2 and CH-4 knobs do not operate.

(6) SELECT knob (for 2-channel and SFCS.)

PHONO 1 } Selected for playing a record on a magnetic cartridge
PHONO 2 } record player.

AUX 1 Selected for reproducing an output within 0.1 to 2 V
AUX 2 or a reproducing device like a tuner, cassette etc.

(7) FUNCTION knob

2CH L+R Selected to reproduce conventional 2-channel stereo as monaural through two speaker systems.

2CH STEREO Selected to reproduce conventional 2-channel stereo by using two speaker systems.

S.F.C.S. Selected to reproduce SFCS 4-channel stereo by emitting conventional 2-channel stereo from two front speaker systems and effect sound from two rear speaker systems.

4CH DISC Selected to reproduce JVC's 4-channel stereo record through the adaptor.

4CH AUX Selected to reproduce a 4-channel stereo tape.

(8) REAR level control

To set the levels of rear channels (CH-2 & CH-4) to those of front channels according to the listening position and personal taste. Once properly balanced, all 4-channels are simultaneously controllable by the MASTER volume control.

(9) TAPE MONITORS

ON Set to this position (as flipped down) for monitoring reproduced sound. When a 3-head tape recorder is used, recorded sound can be reproduced for monitoring through the playback head immediately after the sound is recorded by the record head.

OFF Recover to this position for monitoring the sound being recorded. (Also set to this position when playing a record; reproduced sound not emitted from speaker systems, with the switch in the ON position.)

(10) POWER switch

Set to the ON position to energize Model MCA-V9E; to the OFF position to deenergize the set.

(11) HEADPHONE jacks

Four-channel headphones are connected to these jacks for private enjoyment. Headphones are usable without connecting speaker systems. For 2-channel stereo, connect headphones to the CH-1, CH-3 jack.

(12) Level meters

The power amplifier output level of each channel can be checked. For the operation with two speaker systems, the BTL connection is used, and, therefore, the CH-1 level meter is for the left channel and the CH-3 level meter is for the right channel.

(13) Remote control connector

JVC 5910 Remote control is connected. For details, refer its operators manual. The cap should not be removed when not in use.

Parts on Rear Panel:

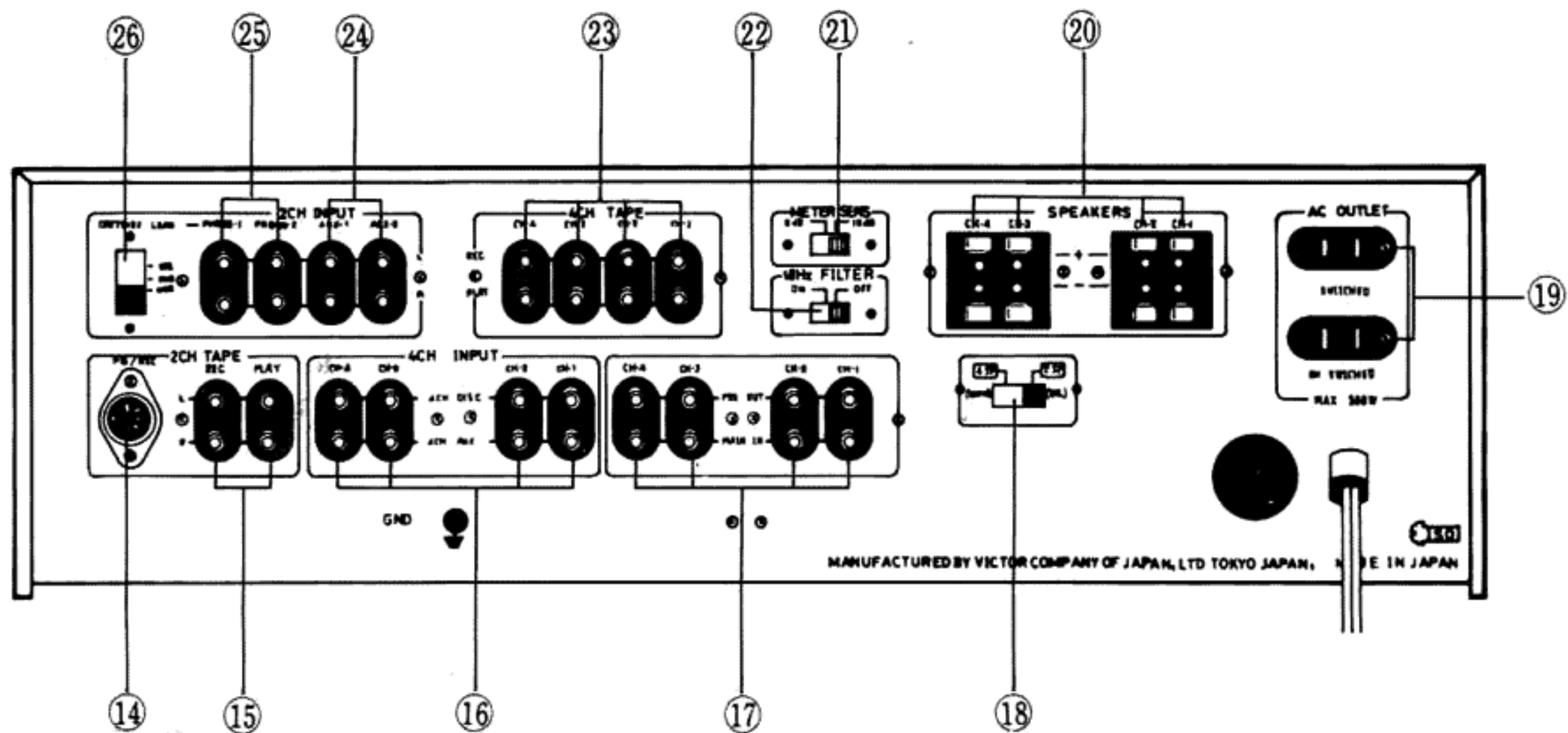


Fig. 5

(14) TAPE REC/PLAY connector

Used for tape recording and playback, with the tape recorder provided with a similar record/playback connector.

(15) TAPE terminals (2-channel)

Used for tape recording and playback.

(16) 4-CH INPUT terminals

The 4-channel disc adaptor is connected to the DISC terminals for enjoyment of a 4-channel stereo record. The AUX terminals are for connection of the output cables from a 4-channel tape player.

(17) Preamp output and power amplifier input terminals

These terminals are usable to insert an SEA controller into the circuitry of Model/MCA-V9E. They are also used to operate the set as a multi-amplifier.

(18) Speaker switch

When using one pair of speaker systems, arrange them for the BTL connection, and set this switch to the 2SPK position. With four speaker systems, set the switch to the 4SPK position.

(19) AC power outlets

From these outlets the line-voltage AC power may be supplied to a radio tuner; tape recorder or record player. The power supplied from the upper outlet is turned on and off in conjunction with the on-off operations of the POWER switch (10).

(20) Speaker terminals

Speaker systems having an impedance of 8 to 16 ohms may be connected as desired. When using four speaker systems, connect them to all the four pairs of upper and lower terminals. When connecting speaker cords, note to connect the positive speaker cord to the "+" terminal, and the negative speaker cord to the "-" terminal.

(21) METER SENS switch

When the set is operated at higher power, the meters' sensitivity can be decreased by 10 dB for easy monitoring.

(22) 18 Hz FILTER switch

Phono motors' rumble is sometimes modulating and distorting the music so much. This switch sharply cuts off this undesired noise with a very steep slope.

(23) TAPE recorder input and output terminals

A 4-channel tape recorder may be connected. A 3-head tape deck may also be connected.

(24) AUX input terminals (for 2-channel stereo)

For connection of an FM tuner or tape recorder. Connect the left-channel signal cord to the "L" terminal, and the right-channel signal to the "R" terminal.

(25) PHONO 1, 2 terminals (for 2-channel stereo)

When using a 2-channel stereo record player, connect it to suitable one of these terminal pairs. Connect the left-channel signal cord to the "L" terminal, and the right-channel signal to the "R" terminal.

(26) CARTRIDGE LOAD selector (effective on PHONO 1)

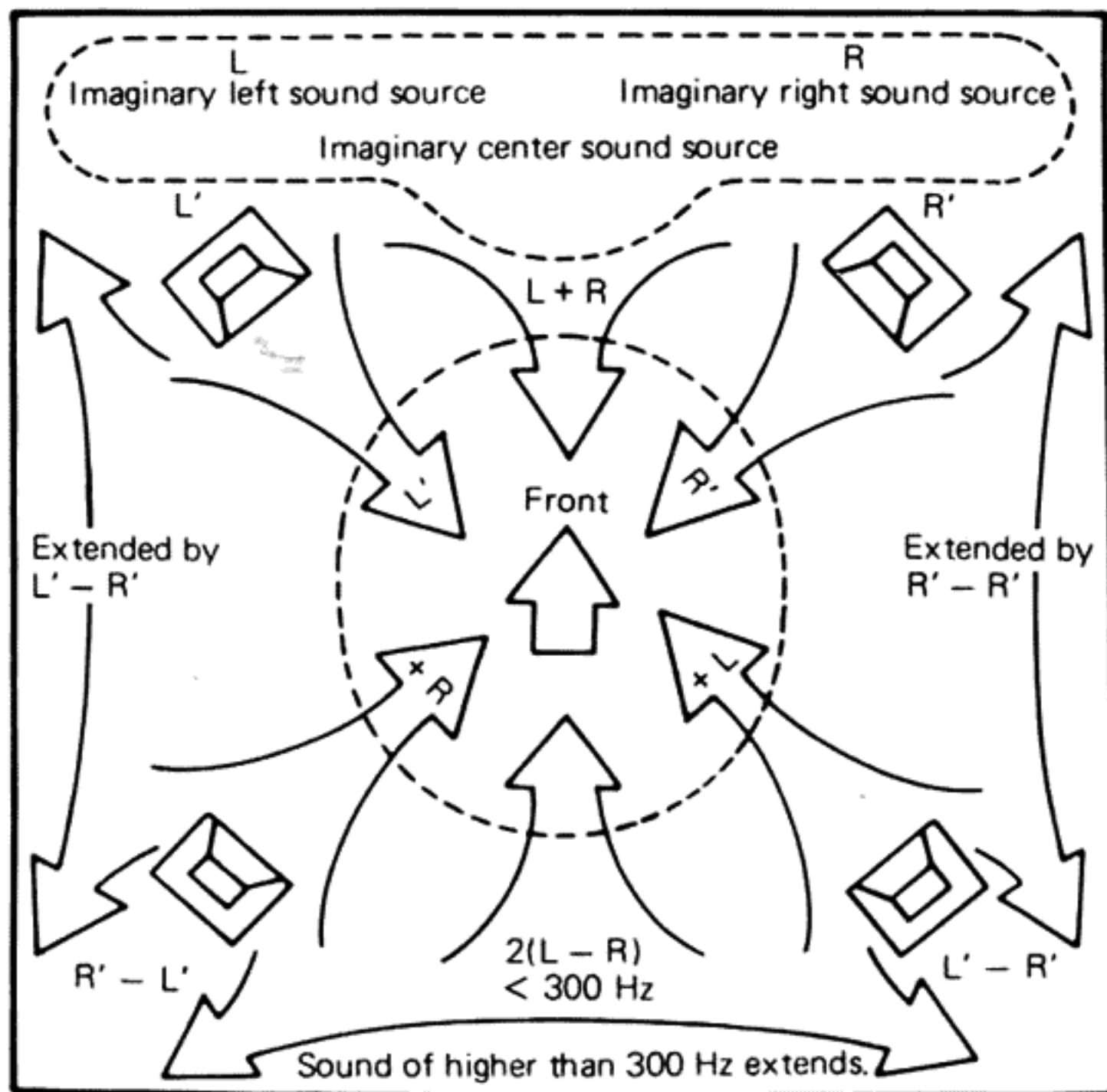
Most cartridges have a load impedance of around 50 k Ω while some specify a special load impedance. Select their adjacent impedance then.

On SFCS effect:

A disc record has reverberation recorded to enhance the acoustic effect of the music recorded. By separately picking up the reverberation and reproducing it from rear speaker systems, a more impressive sound field can be produced for enjoyment. JVC's SFCS (Sound Field Composer System) circuit has been developed by improving the circuit which was previously realized by JVC for reproducing a monaural record stereophonically and is enjoying high reputation. With a conventional 2-channel stereo system, the sound heard from the center between two speaker systems is a virtual image formed by the sounds emitted in phase and at the same level from both channel speaker systems, and the sound heard off the center contains much background sound and reverberation. The sound image at the center goes off when both channels are composed with the phase of one of the two channels inverted 180 degrees. If, for example, the right channel is inverted, L'-R' sound is obtained permitting extraction of the background sound and reverberation. By further inverting the L'-R' sound and emitting the R'-L' sound thus obtained from the left rear speaker system with the above L'-R' sound emitted from the right rear speaker system, creating a marvelous surround-stereo as illustrated below.

The SFCS effect is especially remarkable with a record which contains much reverberation of the place of performance as in a concert or recital. Since the SFCS effect is weak with a record of classic orchestral music involving a large number of instruments, the sound volume from rear speaker systems should be increased when playing such records.

With the SFCS effect, a record of a Latin music band consisting of a comparatively small number of instruments gives sounds spreading in various directions, bringing about enjoyable acoustics.



L (R) : Left (right) signal

L'(R') : Left (right) signal containing reverberation and echo components

Fig. 6.

Caution:

1. This unit should not be operated on a power line voltage that exceeds that for which it has been preset by more than 10%. A higher voltage may result in damage to the power transistors and other components.
2. Use the MCA-V9E at an ambient temperature below 35°C and a relative humidity below 90%.
3. Carefully consider the heat radiation of the MCA-V9E when operating it at more than 8 watts of continuous sine-wave output per channel for longer than one hour.
4. Be sure to turn off the MCA-V9E's power switch before making any connections otherwise you may damage the speakers.
5. Connect the speaker and input terminals correctly. Wrong polarity or a short circuit in the speaker connections will cause phase inversion, possibly resulting in unstable sound reproduction or continuous actuation of the protective circuit. A poor ground contact of an input pin plug may result in a hum saturated output that could damage the speakers.
6. After turning the power switch ON or OFF, wait for 7 or 8 seconds for the equipment to stabilize before operating any of the switches or controls. Otherwise abnormal impact noise may be emitted.
7. Use speakers having an impedance of 8Ω or higher. When the load impedance is lower than 4Ω, the protective circuit may sometimes be actuated, making speaker sound intermittent.
8. When the speaker sound is intermittent or ceases because the protective circuit has been actuated for some reason, turn off the power switch and detect the cause.
9. Never touch any of the mechanical parts or electrical circuits inside the cabinet.
10. The capacity of the power cord is 500 watts. The total power supplied from the AC outlets of the MCA-V9E to external equipment should be less than 300 watts.
11. When the power switch is turned ON and OFF repeatedly, speaker sound may be interrupted for several seconds, however this is quite normal and is not due to any defective components in the MCA-V9E.

Note: To prevent troubles from AC cord:

- (1) Be sure to grasp it by the plug, when pulling out AC cord from AC outlet.
- (2) Be sure not to bend AC cord perpendicularly to the plug.
- (3) Avoid any load on the plug.

Conductors are likely to be broken here

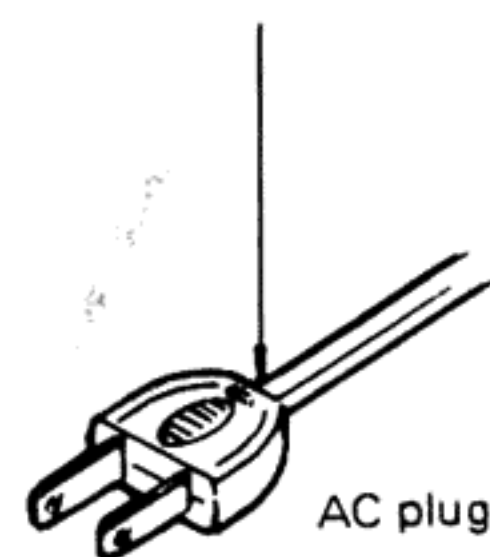
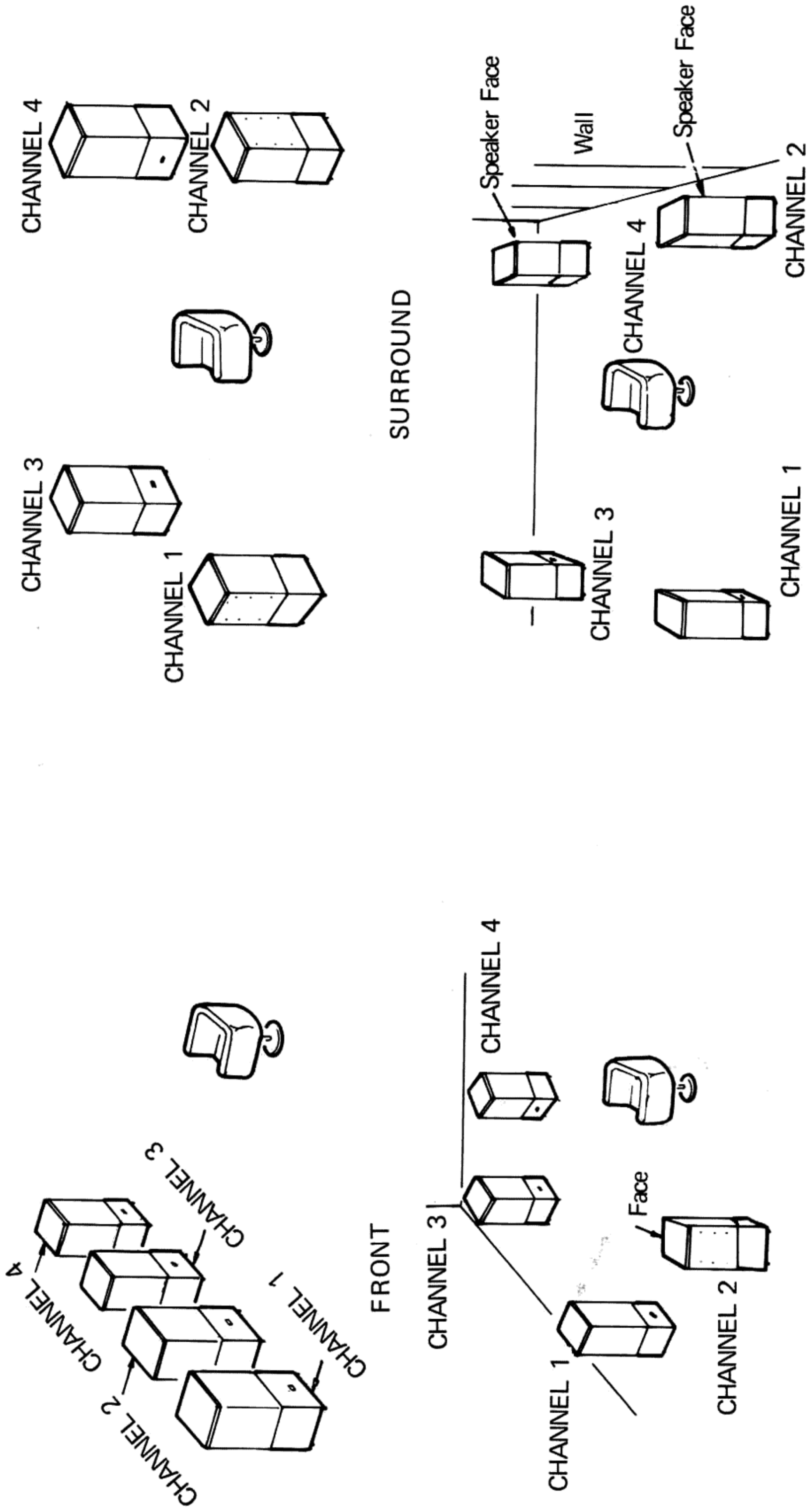


Fig. 7.

4-CHANNEL SPEAKER SYSTEM ARRANGEMENT EXAMPLES



TRAPEZOID

Fig. 8

HALL EFFECT

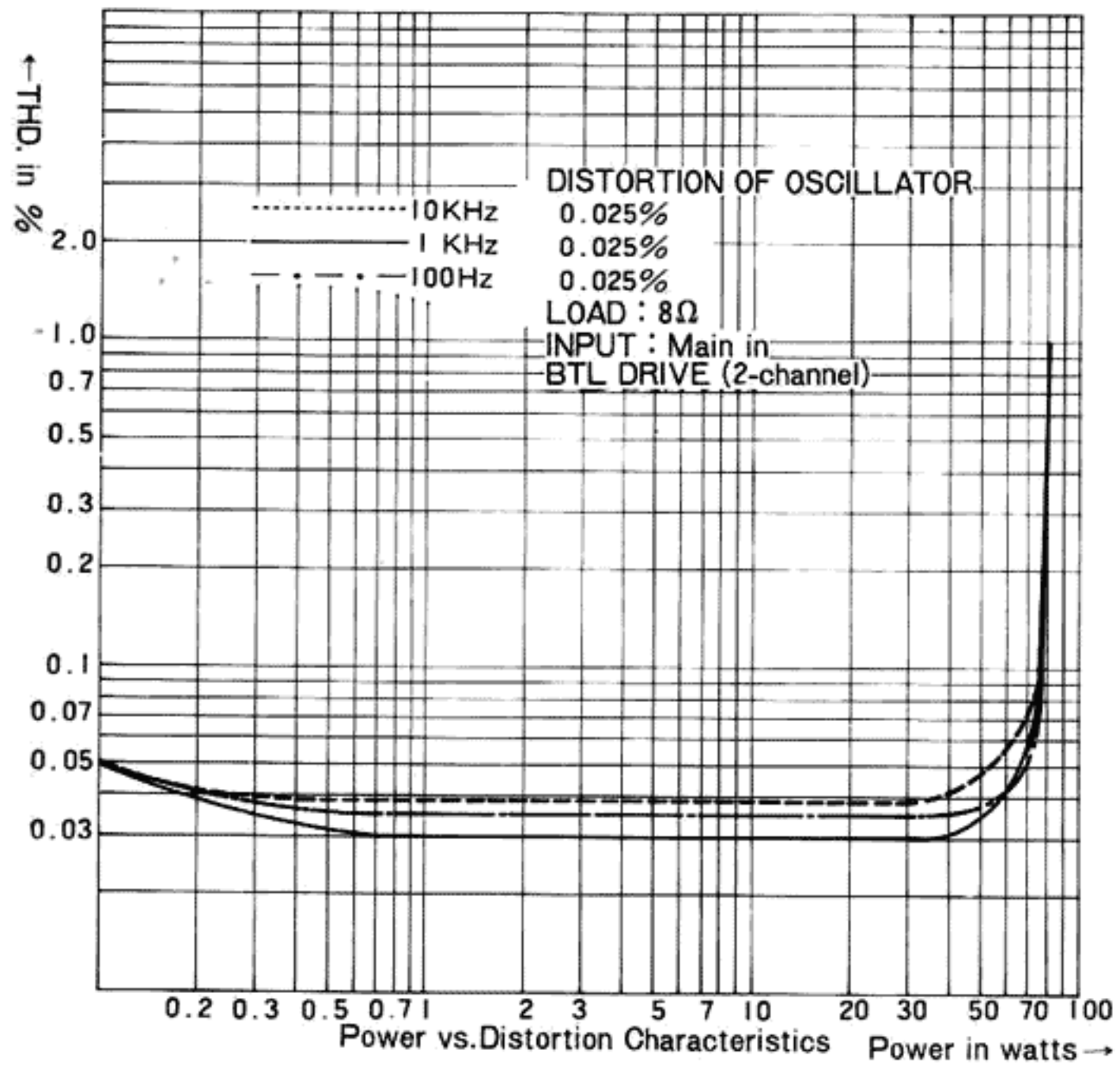


Fig. 9

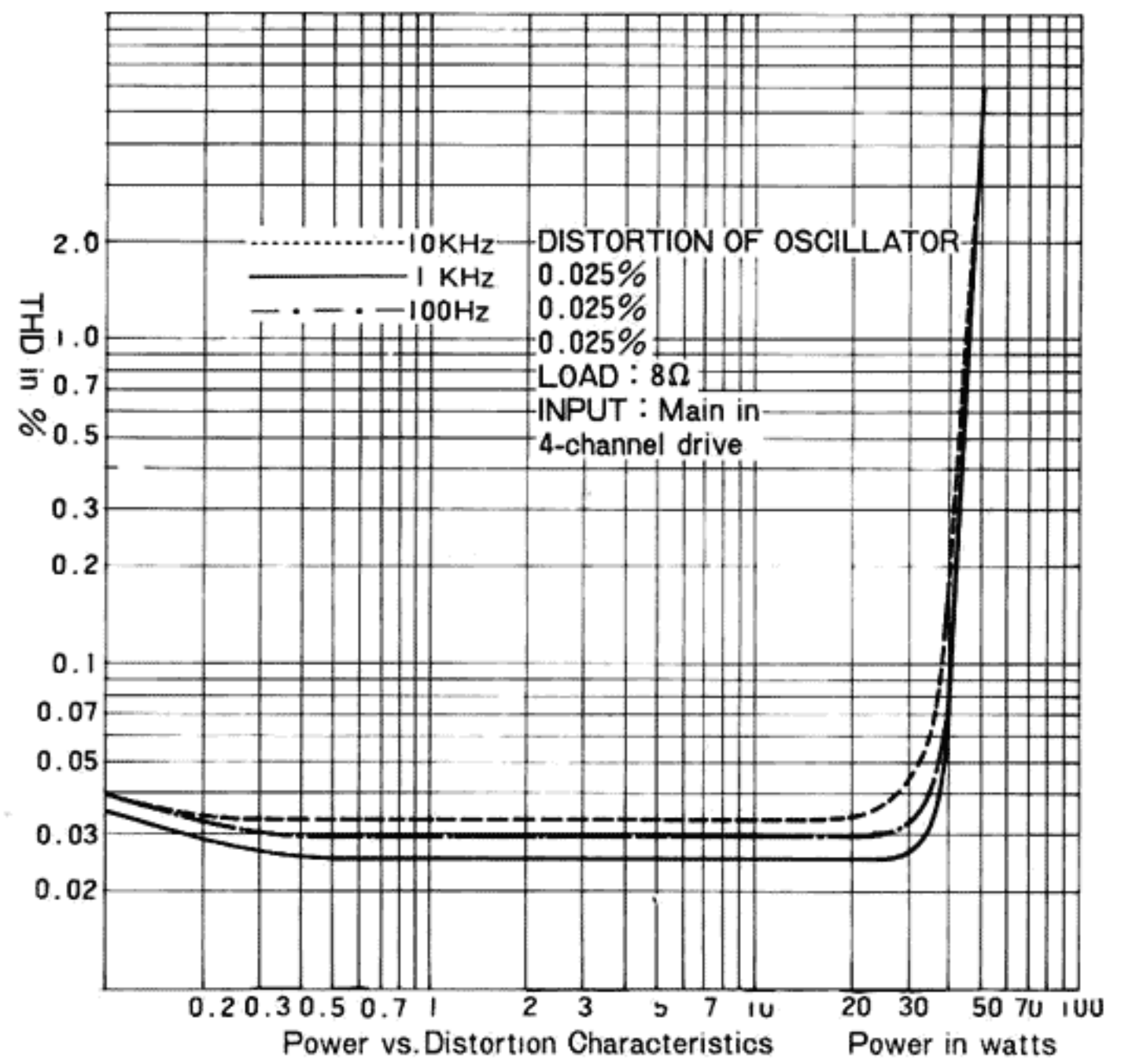


Fig. 11

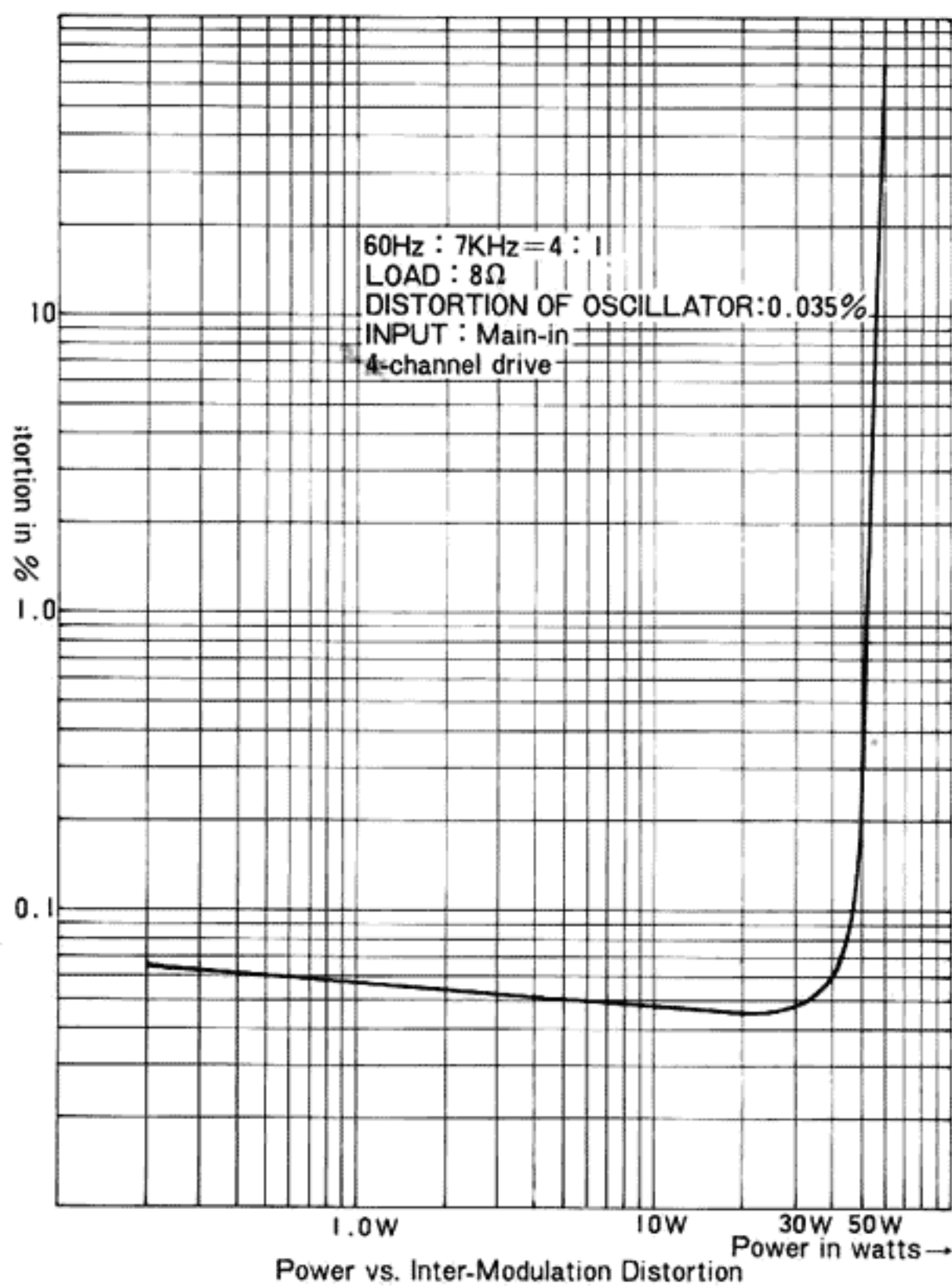


Fig. 10

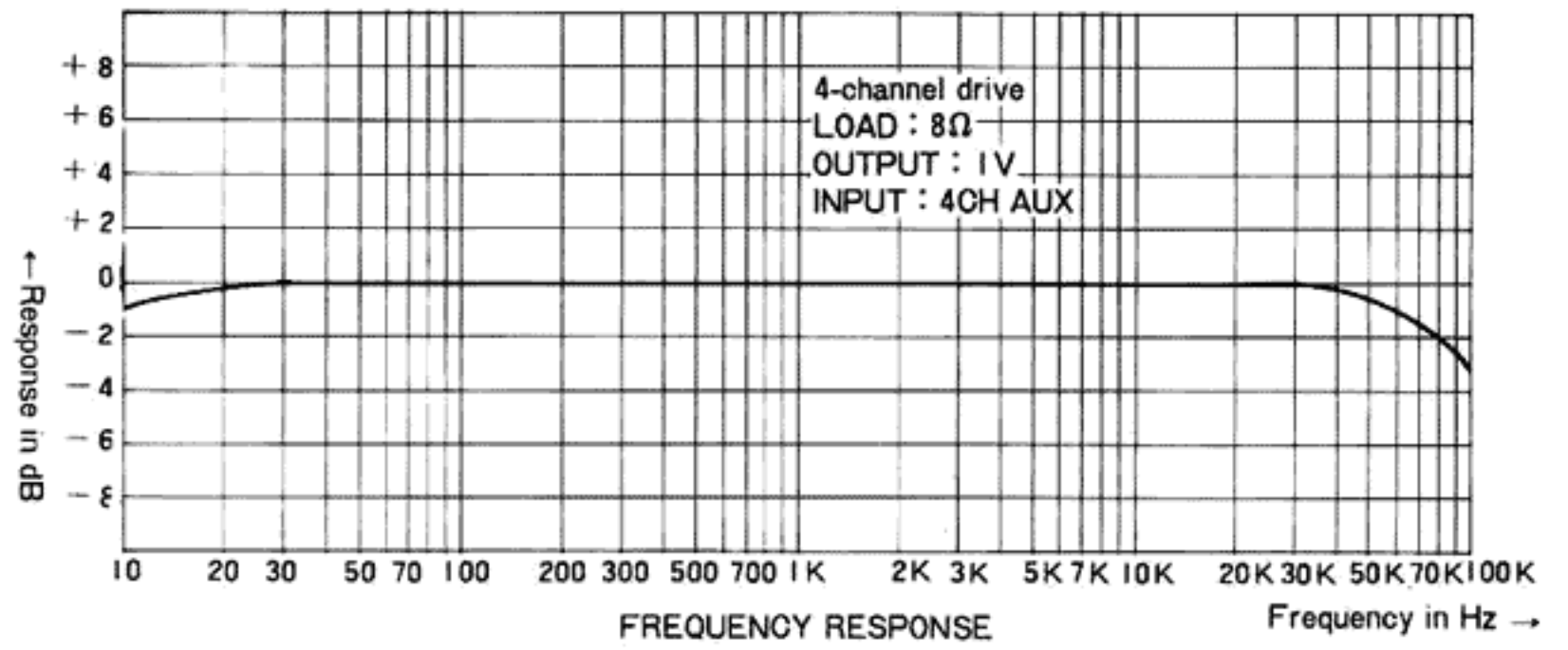


Fig. 12

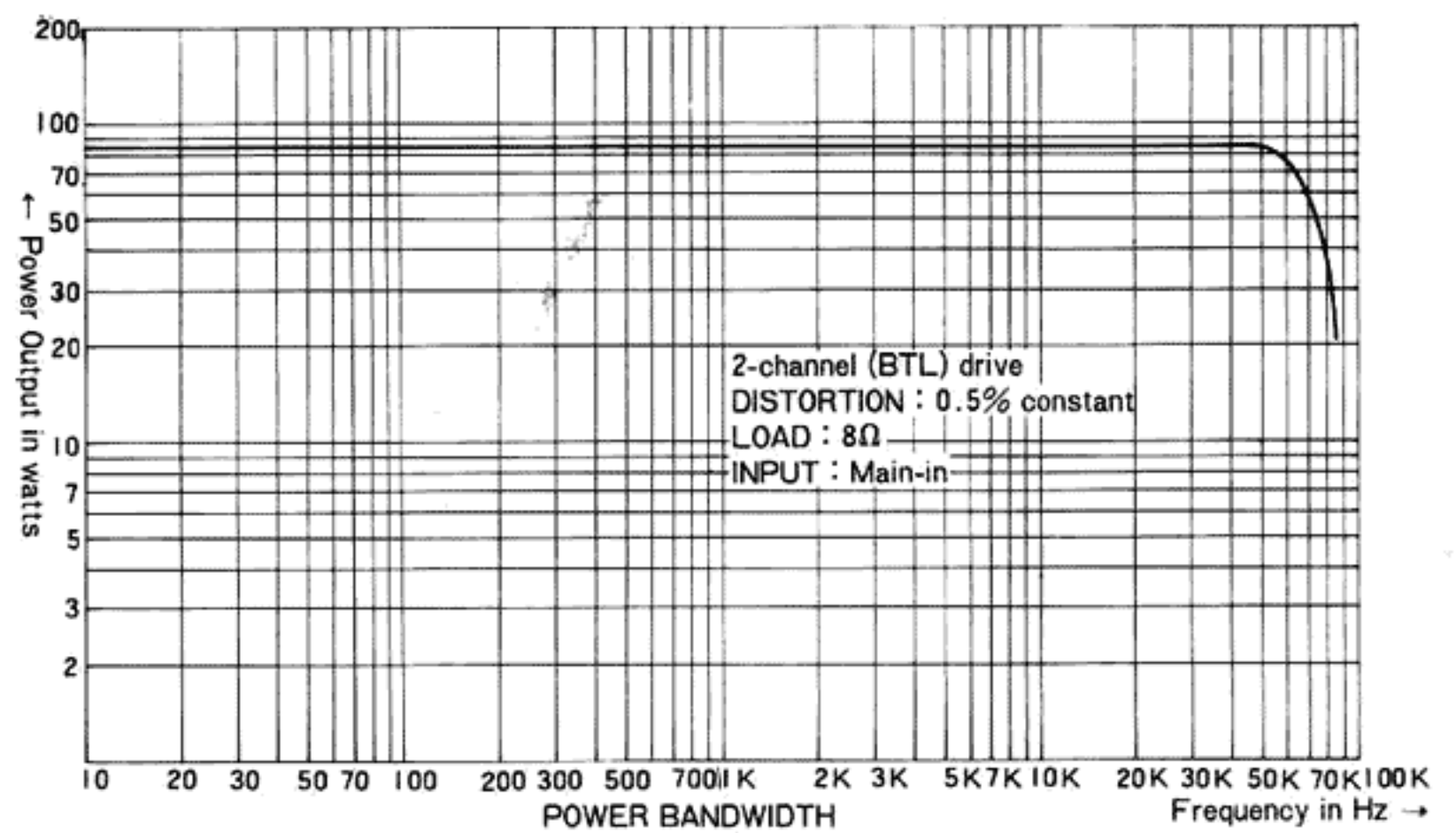


Fig. 13

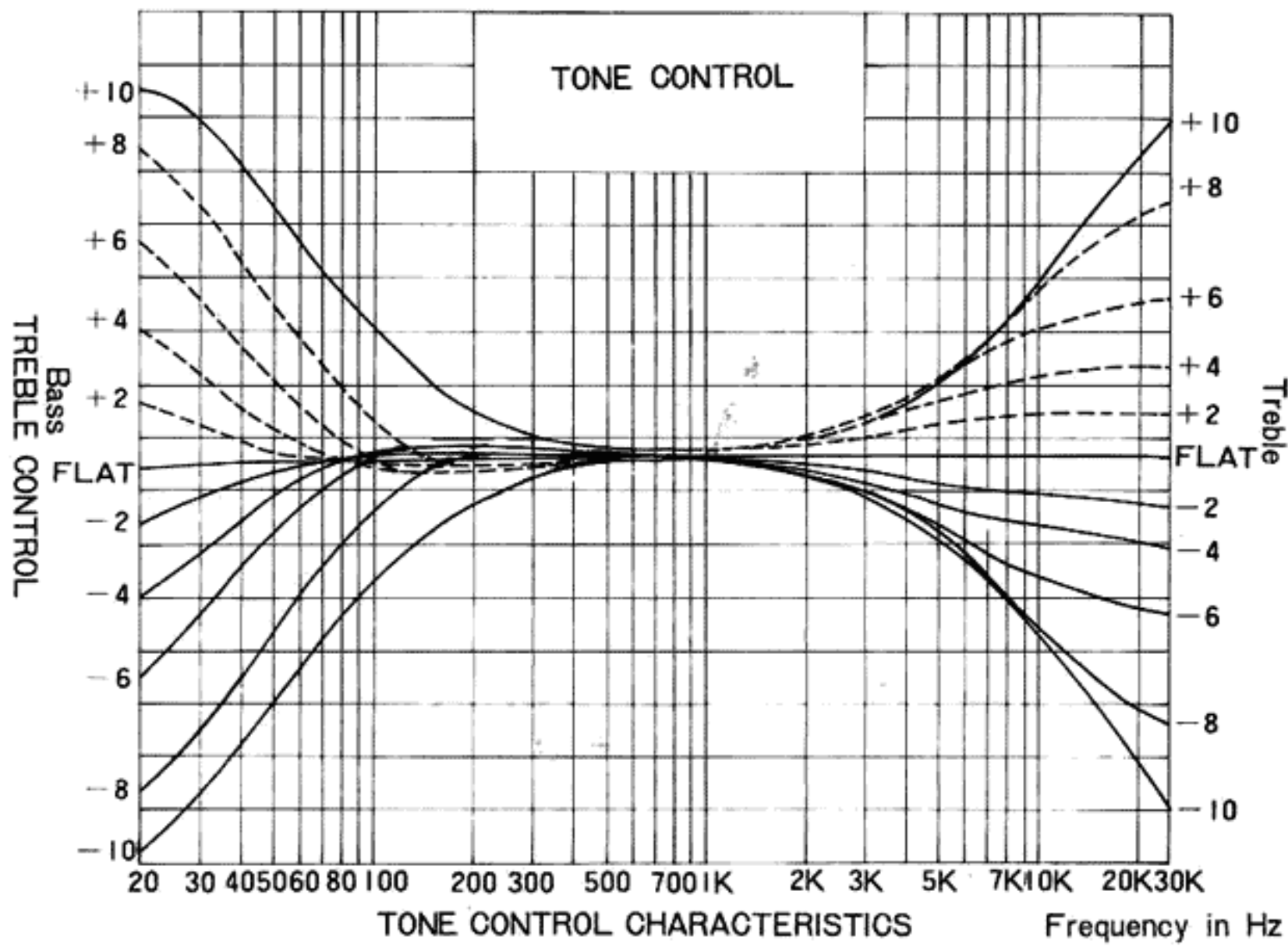


Fig. 14

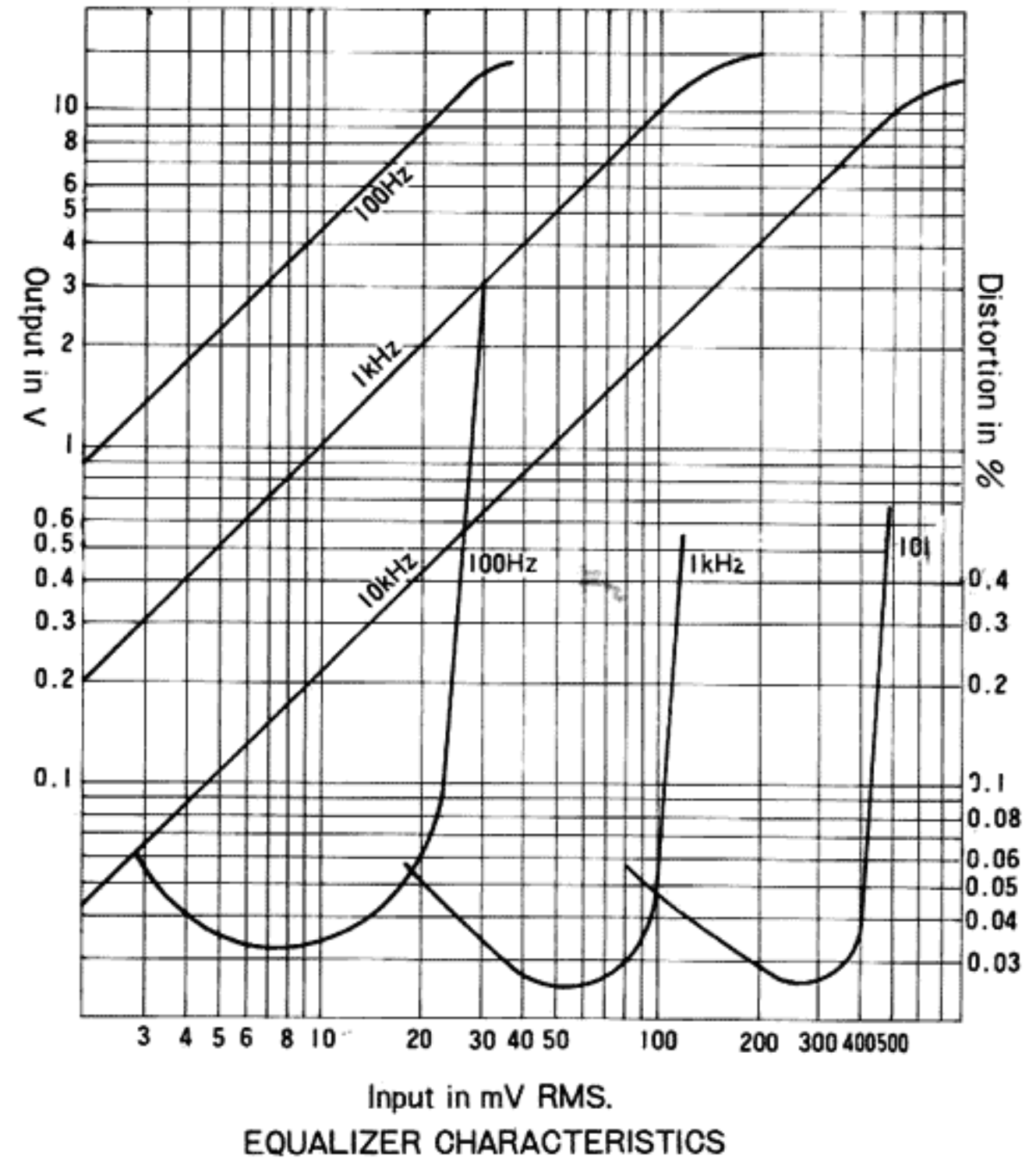


Fig. 16

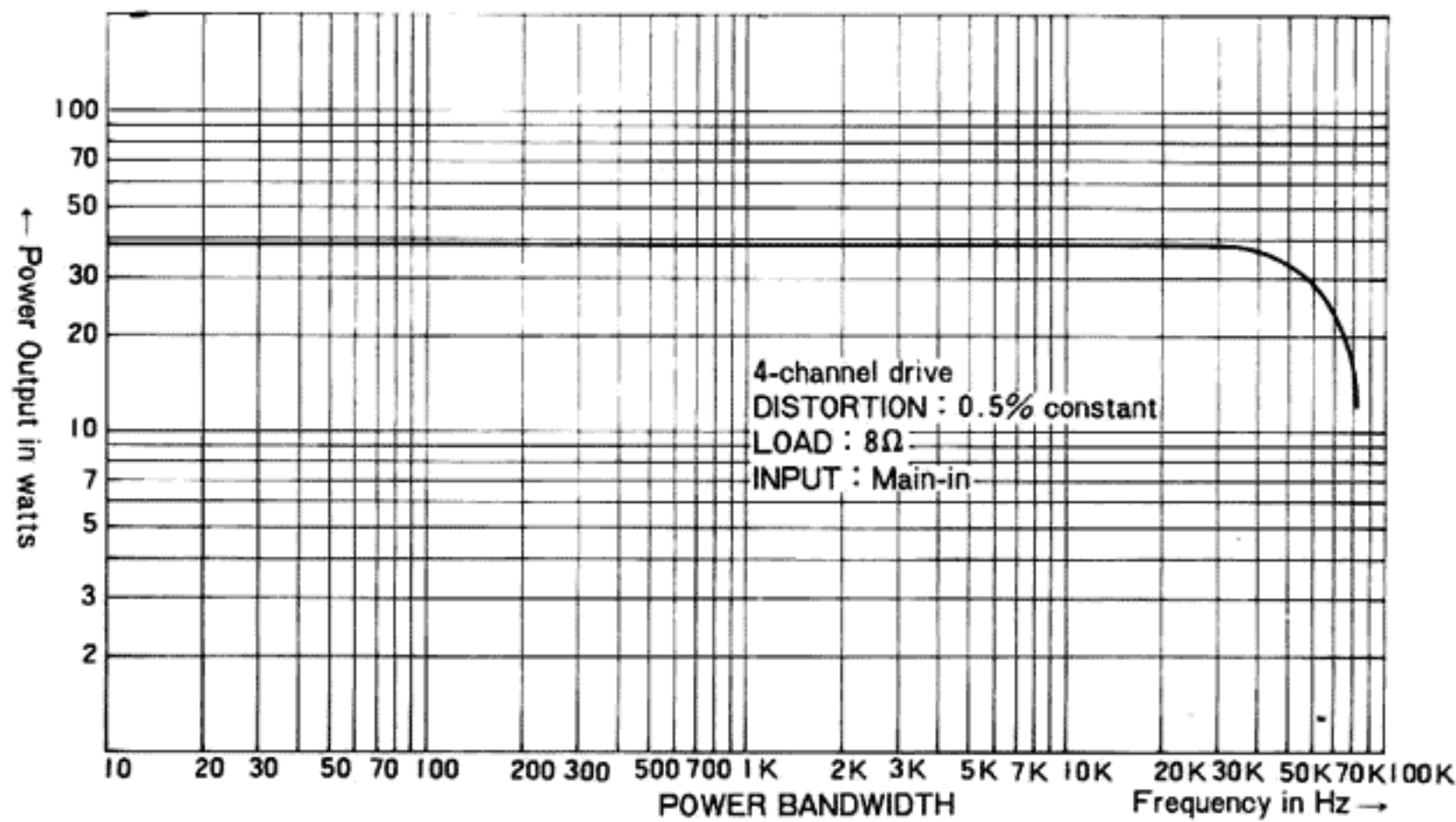


Fig. 15

SPECIFICATIONS:

SOLID STATE 4-CHANNEL INTEGRATED AMPLIFIER

POWER AMPLIFIER SECTION

TOTAL DYNAMIC POWER: 230W(115W+115W) 2CH IHF 8 Ω
180W(4 x 45W) 4CH IHF 8 Ω
CONTINUOUS POWER: 110W(55W+ 55W) 2CH 8 Ω
100W(4 x 25W) 4CH 8 Ω
LOAD IMPEDANCE: 8 – 16 Ω
THD AT RATED POWER: 0.08% at 1kHz
POWER BANDWIDTH: 10 – 60kHz
DAMPING FACTOR: 50 at 8 Ω

PRE-AMPLIFIER SECTION

FREQUENCY RESPONSE: 20 – 50kHz, ± 0.5 dB
TONE CONTROL: Bass ± 5 dB at 100Hz
Treble ± 7 dB at 10kHz
EQUALIZER: RIAA (Mag.)
SFCS: Matrix & phase inverse scatter circuit

INPUT SENSITIVITY: Phono 2.0mV
Tape 100mV
Tuner 100mV
Aux 100mV
DIN 100mV

SIGNAL TO NOISE RATIO: Phono 76dB
Tape 84dB
Tuner 84dB
Aux 84dB

LOW FILTER: 8Hz -6 dB ± 3 dB

FRONT PANEL CONTROLS

POWER SWITCH:

TAPE: 2CH (Normal/Monitor)
4CH (Normal/Monitor)

TONE CONTROLS: Bass, Treble

MASTER VOLUME:

REAR VOLUME

FUNCTION: 2CH (L+R/Stereo), SFCS,
4CH (Disc/Aux)

SELECT: Phono-1, Phono-2, Aux, Tuner

4CH LEVEL CONTROL:

POWER CONSUMPTION: 160W

POWER SOURCE: AC 100–240V (selectable) 50/60Hz

DIMENSIONS: H 5-3/8", W 16-1/2", D 14-1/4"

WEIGHT: 29.8 lbs



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