

STEREO CONTROL CENTER

C-200L INSTRUCTION MANUAL



Accuphase

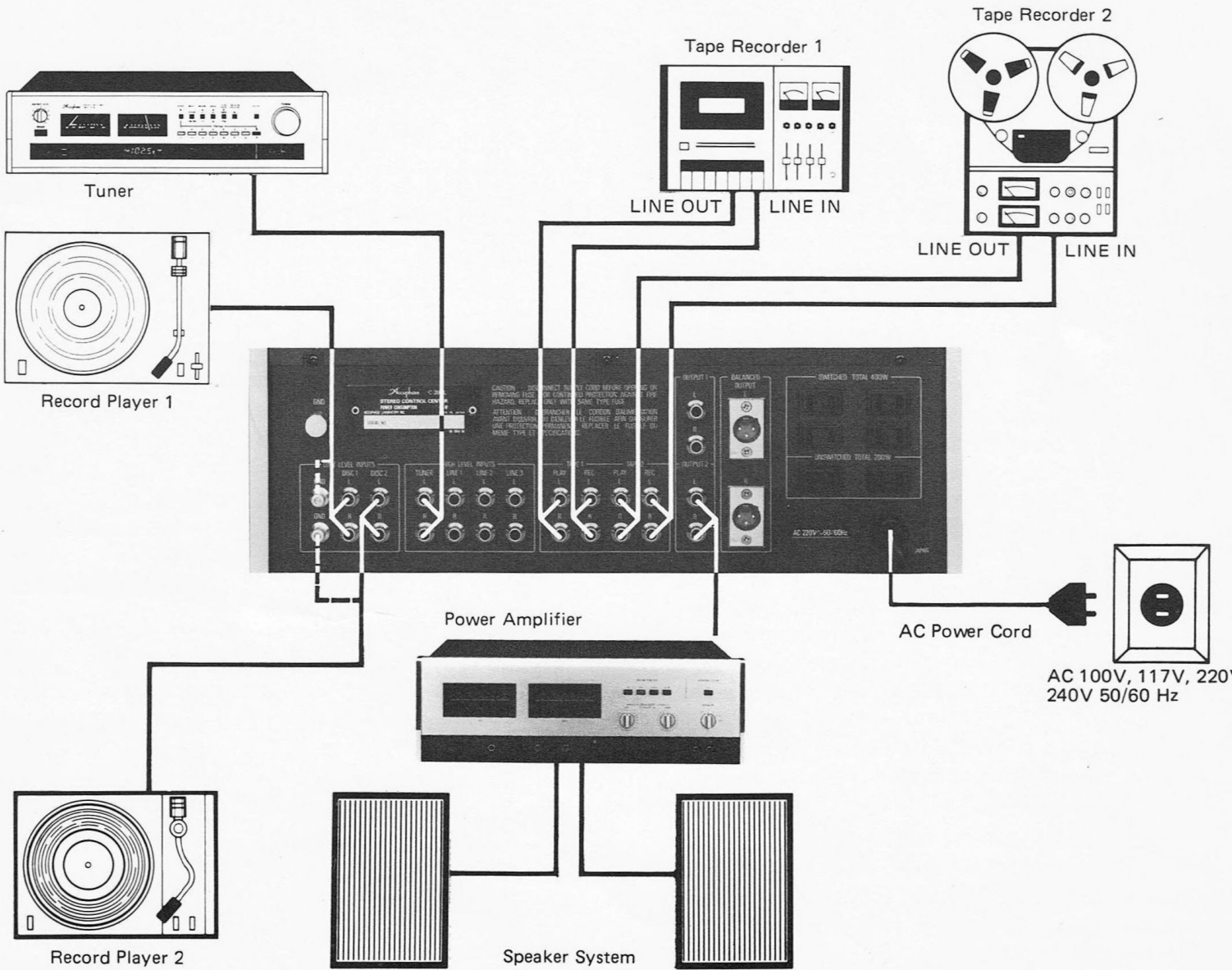
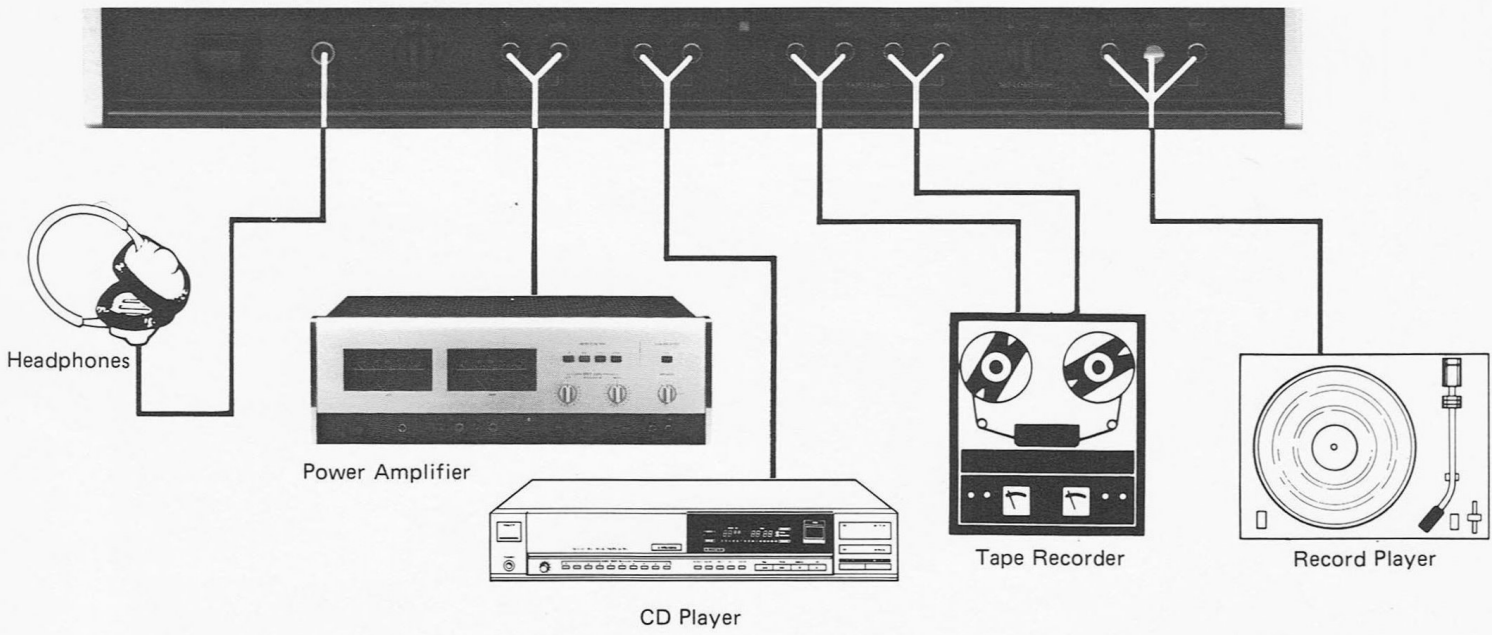
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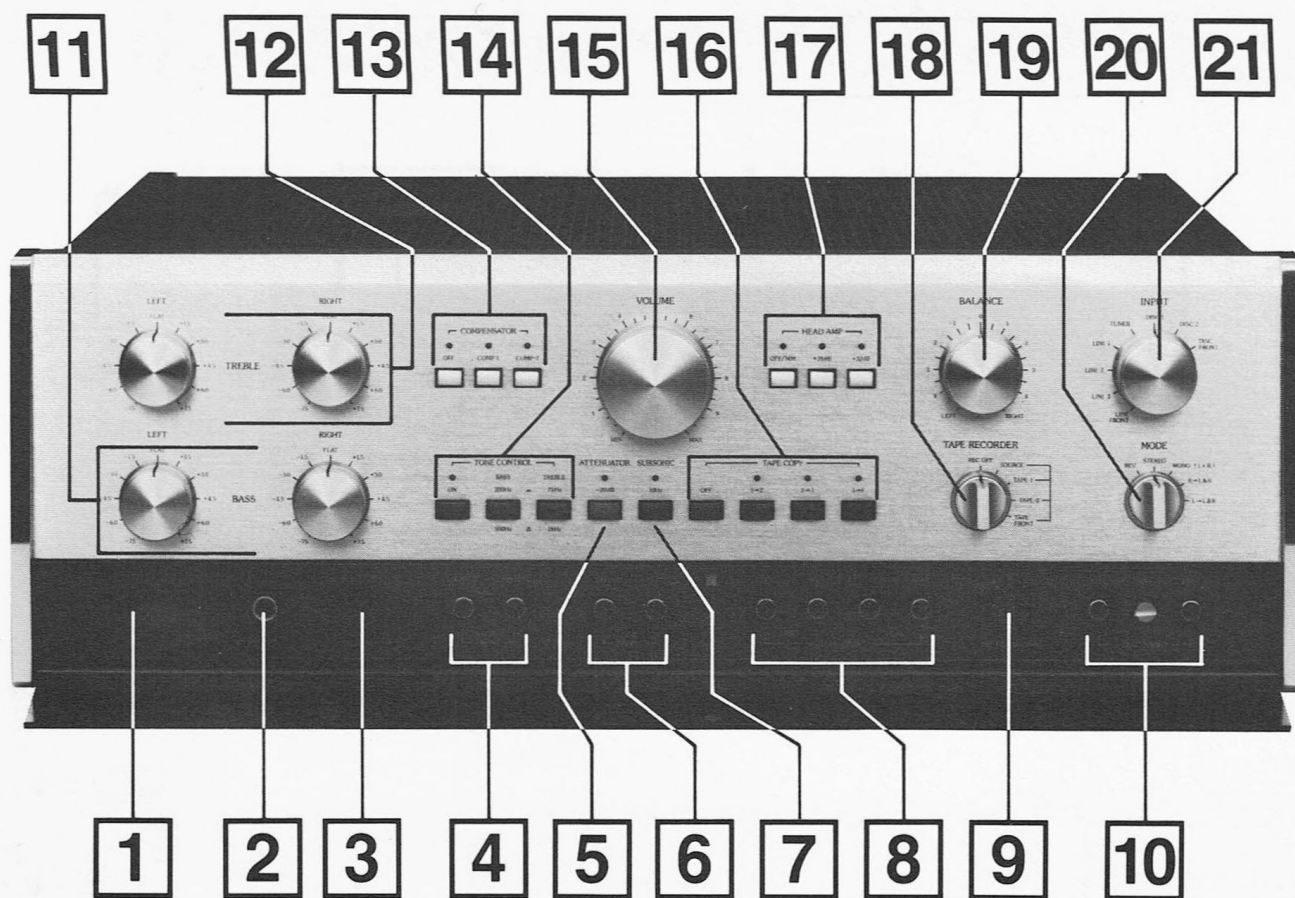
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INTERCONNECTION OF COMPONENTS



PARTS AND THEIR FUNCTIONS (front panel side)



1 POWER

POWER – Power Switch

Push this button IN to turn power ON. Push it again to turn it OFF. There will be no sound from the speakers for approximately 3 seconds until the circuits stabilize due to automatic action of the muting circuit.

2 PHONES

PHONES – Output Jack for Headphones

Plug stereo headphones into this jack when you wish to use them. Use 4- to 100-ohm impedance headphones. When headphones are plugged in, the signal is not cut off at the four pairs of output terminals. To cut them off and listen to headphones only, turn "OUTPUTS" selector switch **3** to "OFF" position, or cut off the power amplifier output.

3 OUTPUTS

OUTPUTS – Output Selector Switch

When this switch is set to "OFF", the signal is cut off at the four pairs of output terminals. When the switch is set to "1", "2" or "1 & 2" position, the signal is output from the "OUTPUT 1", "OUTPUT 2" or both, on the rear panel **25**.

Output from the "BALANCED OUTPUT" connector **26** on the rear panel and from the "OUTPUT FRONT" **4** jacks on the front panel are not cut off unless this switch is set to "OFF". For normal operations, set this switch to the "1 & 2" position. It is not necessary to cut off the signal at the terminals that are not in use.

4 **OUTPUT FRONT**

OUTPUT FRONT – Front Panel Output Jacks

These are very convenient jacks for power amplifiers located on the front side, from which the output is available just as at the rear panel OUTPUT jacks

25.

5 **ATTENUATOR**

ATTENUATOR – Pushbutton Attenuator

Depress this button to turn Attenuator on. The output level will be attenuated by 20 dB. Release button to OUT and volume will increase. This switch is very convenient for comparative listening tests, and also for use at the start of record play. It can also be effectively used for instantaneous quieting purposes. An LED (Light-Emitting Diode) above the switch illuminates while the switch is pressed.

6 **LINE FRONT**

LINE FRONT – Line input jacks on the front panel

These input jacks on the front panel may be used for connecting the amplifier with the line output terminals of an external audio equipment such as a tuner, a tape recorder, or a CD (Compact Disc) player.

7 **SUBSONIC**

SUBSONIC – Subsonic Filter

Push this button IN to activate the Subsonic Filter and at the same time, an LED above the button illuminates. Push it again to deactivate the filter.

The subsonic filter suppresses infrasonic frequency signals below 10 Hz (that is, below the audio frequency range) with a sharp cutoff characteristic of 18 dB/octave. This prevents infrasonic frequency noise from affecting sound reproduction in the audio frequency range. The subsonic filter is most useful when playing

warped records or when suppressing infrasonic frequency signals that could prevent the woofer from operating properly.

8 **TAPE FRONT**

TAPE FRONT – Recording/playback jacks on the front panel for connection with a tape recorder

Using these jacks on the front panel, the amplifier and a tape recorder can be easily connected for recording and playback operations.

Connect the tape recorder's "LINE OUT" jacks to the amplifier's "PLAY" jacks. Connect the recorder's "LINE IN" jacks to the amplifier's "REC" jacks.

To make recordings from an audio program source, set the "TAPE RECORDER" selector switch **18** as desired to a position other than "REC OFF".

Recording levels must be adjusted at the tape recorder side since the output signals on the amplifier's "REC" jacks are completely independent of the positions of the volume, bass, treble controls as well as of the loudness compensator.

9 **MC LOAD (OHMS)**

MC LOAD – MC Load Selector Switch

Use this selector switch to select the desired impedance (input impedance to the head amplifier) of the MC (moving-coil) cartridge. Normally, the 100-ohm position should be used with MC cartridges with an internal impedance (also called output impedance) of 20 ohms or more.

When using MC cartridges with internal impedance of less than 20 ohms, use the 30-ohm or 10-ohm position. The general rule is to use the position whose value is two or three times higher than the cartridge's internal impedance. In some instances, however, excellent results may be obtained even with the 100-ohm position when a cartridge of internal

impedance of less than 20 ohms is used. You should therefore listen to the sounds produced using a cartridge to determine which position should be used.

Remember that, unlike step-up transformers, the impedance of head amplifiers must be higher than the used cartridge's internal impedance. Otherwise the armature of the cartridge will be caused to overdamp, which may result in feeble sounds in the low-frequency range and weak or hard sounds in the middle- or high-frequency range. The muting circuit operates about one second when this selector is operated.

10 DISC FRONT

DISC FRONT – Front Panel Jacks for Turntable

These are jacks to which a record player can be conveniently connected to the front side. Connect the turntable's output leads here, left channel to "LEFT" and right channel to "RIGHT". Connect the ground lead to "GND".

<Ground lead connection of record player>

If hum or feedback oscillation occurs when a turntable with two tonearms are connected, one to the rear panel and the other to the frontside input jacks, it is because the tonearms are commonly grounded. Remove the "GND" connection of one tonearm to eliminate this disturbance. If two separate turntables are used and their tonearms are not commonly grounded, their ground leads can be connected to the respective input "GND" connector.

11 BASS

BASS – Low Frequency Adjustment Controls

These controls function only when the "TONE CONTROL" button **14** is set to ON. Bass is emphasized as the controls are turned to the right of center (FLAT), and attenuated when turned to the left. Bass emphasis is adjusted in

1.5 dB steps independently for LEFT and RIGHT channels.

When 200 Hz is set by pushing the "BASS" switch of the "TONE CONTROL" switches, a change of +7.5 dB is obtained at 40 Hz. When 500 Hz is set by releasing the "BASS" switch (i.e., by setting it to the extended position), a change of +7.5 dB at 100 Hz is obtained.

12 TREBLE

TREBLE – High Frequency Adjustment Control

These controls function only when the ON switch of the "TONE CONTROL" switches is pushed. High frequency treble sound is emphasized as the controls are turned to the right of center, and attenuated when turned to the left. Tone is adjusted in 1.5 dB steps, the same as the "BASS" controls.

When the "TREBLE" switch of the "TONE CONTROL" switches is set to 2 kHz position (i.e., when it is extended), a change of +7.5 dB at 10 kHz is obtained. When this "TREBLE" switch is pushed IN to set to 7 kHz position, a change of +7.5 dB at 35 kHz is obtained.

13 COMPENSATOR

COMPENSATOR – Loudness Compensator Switches

This row of pushbutton switches permits audio energy balance compensation when listening at low reproduction levels. The human ear is less sensitive to bass tones especially at these low levels, and sometimes both bass and treble tones may sound deficient. Use of these switches very effectively boosts the sound of those frequencies to which the ear is least sensitive.

Loudness compensation is available in two steps, "COMP 1" and "COMP 2" in gradually increasing degrees.

"COMP 1" provides bass compensation of +3 dB at 100Hz and "COMP 2" provides bass compensation of +8 dB at 100Hz and treble boost of +6 dB to 20kHz.

The above values are based on VOLUME attenuated to the -30 dB levels. The amount of compensation gradually decreases when VOLUME is increased above that level.

Even when the compensator is switched OFF by depressing the OFF switch, an LED above each of these three pushbutton switches remains lit as pilot lamp to indicate that the C-200L's power switch is ON.

14 TONE CONTROL

TONE CONTROL – Tone Control ON/OFF and Turnover Frequency Selector Switches

These switches are used to select turnover frequencies for bass and treble controls. The pushbutton switch on the extreme left is used to turn On and OFF the tone control circuit. Pressing it into its locked position activates the tone control circuit. A second push unlocks the switch into its extended position and turns the tone control circuit OFF for a flat frequency response reproduction irrespective of the positions of the bass and treble controls.

Two pushbutton switches on the right permit selection of bass and treble turnover frequencies. 200 Hz for bass and 7 kHz for treble are selected when it is pushed and becomes locked in depressed position. 500 Hz and 2 kHz are selected respectively when it is pushed again and released in extended position.

15 VOLUME

VOLUME – Volume Level Control

Turn clockwise to raise the volume level. You should acquire the habit of turning down the volume control before turning the power on or off before playing a record and when changing to a different program source.

16 TAPE COPY

TAPE COPY – Tape Copying Control

This control is used when copying tape from one tape recorder to another. Set this control to "1 → 2" when copying from a tape recorder connected to the TAPE 1 jacks on the rear panel [24] to a tape recorder connected to the TAPE 2 jacks. Set the control to "2 → 1" when the reverse is the case.

If copying is desired from a recorder connected to the TAPE 1 jacks to another connected to the TAPE FRONT jacks on the front panel, set the switch to the 1 → F position.

When making tape-to-tape copies using two tape recorders, the TAPE RECORDER switch [18] has no influence on the copying operation even when it is set to the REC OFF position.

Tape-to-tape copying operations can be performed independently while listening to another program source when the TAPE RECORDER control is set to the SOURCE position. In this case, the copying operation remains unaffected by the muting function at the activation of the INPUT selector switch [21].

When copying from TAPE 1 to TAPE 2 with the TAPE RECORDER control set to TAPE 1, the playing condition of TAPE 1 can be checked, and with the TAPE RECORDER control set to TAPE 2, the copied tape can be monitored. Copying from TAPE 2 to TAPE 1, as well as from TAPE 1 to TAPE FRONT, can be monitored in the same manner.

17 HEAD AMP

HEAD AMP – Head Amplifier Switches

These switches are used to turn the head amplifier ON/OFF and for the selection of its gain. With the INPUT selector switch [21] set in the DISC position, operating these switches causes the muting circuit to temporarily function for approximately 1 second.

OFF/MM – MM cartridge button

When a moving magnet (MM) cartridge having a higher output level (and thus requiring no head amplifier) is used, push this button to turn the head amplifier OFF.

On the other hand, moving coil (MC) cartridges generally have low output levels. However, some models feature exceptionally high output levels capable of directly driving preamplifiers without the help of head amplifiers. Even if such a high-output MC cartridge is used, it should not be operated in the MM switch because noise may be generated due to the high input impedance of this switch position.

+26 dB/+32 dB – MC cartridge buttons

For an MC cartridge, the use of the head amplifier is necessary. The figures inscribed above the switches indicate the gains of the head amplifier.

In the "+26 dB" position, an output voltage from the cartridge is amplified 20 times. In other words, a cartridge output of 0.1 mV is amplified to 2 mV for interfacing with a subsequent equalizer amplifier. In the "+32 dB" position, an amplification factor of 40 times is obtained.

The use of the "+26 dB" button normally assures sufficient gain for most MC cartridges. However, the powerful "+32 dB" button is useful for a cartridge that has an extremely low output voltage level of below 0.1 mV (at 5 cm/sec., 1 kHz).

The "32 dB" button is recommended only when sufficient amplifier gain cannot be obtained in an actual aural test with an MC cartridge. If a high-output MC cartridge, for instance, having an output level of over 0.5mV (at 5 cm/sec., 1 kHz), is used for +32 dB, high fidelity audio reproduction becomes impossible since the audio waveform will be distorted at large amplitude input signals.

The head amplifier should not be used for an MM cartridge since the audio levels in the high audio frequency region will be attenuated and the proper audio frequency response will be impaired.

If the volume control is not lowered first, an increase in amplification factor, i.e., switching from +26 dB to +32 dB may cause an increase of audible noise level if high efficiency speaker systems are used. This is a result of the amplifier's increased amplification factor despite the fact that its noise level remains unchanged.

18 TAPE RECORDER

TAPE RECORDER – Recording monitor/ Recording output ON/OFF switch

When this selector is set to "REC OFF" or "SOURCE", all source signals applied to the INPUT jacks, other than TAPE PLAY jacks, can be reproduced. For this reason, always set this switch to "SOURCE" or "REC OFF" except for tape playbacks.

For tape playbacks, set this switch to the "TAPE 1", "TAPE 2" [24] on the rear panel or "TAPE FRONT" [8] on the front panel, i.e., to whichever jack the tape recorder is connected. By setting this switch to the "REC OFF" position, outputs from three pairs of REC jacks for tape recorders are turned OFF. For reproduction, set the switch to "SOURCE", "TAPE 1", "TAPE 2" or "TAPE FRONT" as desired. On a tape-to-tape copying operation, the "TAPE RECORDER" switch [18] has no influence in any of these positions and it can even be set

in the "REC OFF" position. Thanks to this circuit configuration, monitoring of the source program being recorded can be performed by setting the switch to the "SOURCE" position. Likewise, setting the switch to the "TAPE 1", "TAPE 2" or "TAPE FRONT" position, permits monitoring of the new tape whose recording is in progress (provided three-head tape recorders are used).

During recording operations, operating the "INPUT" selector switch [21], the "HEAD AMP" switch or the "MC LOAD" switch [9] causes the muting circuit to function and output to the REC jacks to turn off for approximately one second.

19 BALANCE

BALANCE – Balance Control

This control knob adjusts the balance of left and right channel volume levels in stereophonic reproduction. Turn it clockwise to decrease the left speaker level and counterclockwise to decrease the right speaker level.

20 MODE

MODE – Mode Selector Switch

STEREO:

Set the switch in this position for normal stereophonic reproduction.

REV:

This switch position reverses the left and right channels for stereophonic reproduction.

MONO (L + R):

The signals of both left and right channels are completely mixed for monophonic reproduction using both speaker systems. When listening from a position equidistant from both left and right channel speaker systems, reproduced sound image localizes at the center.

R – L & R:

Only the right channel signal is reproduced on both left and right speaker systems.

L – L & R:

Only the left channel signal is reproduced on both left and right speaker systems.

21 INPUT

INPUT – Input Selector Switch

DISC 1/DISC 2/DISC FRONT – Disc input selector positions

These switch positions enable the selection of the desired record players from those connected to the "DISC 1" and "DISC 2" input jacks [22] on the rear panel as well as to the "DISC FRONT" jacks on the subpanel.

When setting the "INPUT" selector switch to "DISC", "TUNER" or LINE position, the muting function is activated which will temporarily silence output for approximately one second. An LED above the head amplifier switch lights when one of the DISC positions is selected. However, the LED goes off when the "TUNER" or LINE position is selected.

***TUNER – Tuner Selector position**

This position selects the tuner that is connected to the rear panel TUNER Input Jacks [23]. The "VOLUME" control of the tuner should be adjusted so that output level will be identical for both tuner and phono program sources. Operation of the system will become easier thereafter.

***LINE/LINE FRONT – LINE Input Selector Positions**

These positions select the tuner, tape recorder, or CD (compact disc) player that is connected to LINE jacks [23] on the rear panel or LINE jacks [6] on the front panel.

Make it a habit to turn "VOLUME" control down before selecting the program source with the "INPUT" selector switch.

The rated input voltage (i.e., the input voltage required to yield the rated output power) of the C-200L's TUNER and LINE input jacks is 126 mV.

PARTS AND THEIR FUNCTIONS (rear panel side)



22 LOW LEVEL INPUTS

DISC 1/DISC 2 – Record player input jacks

Two record players (or tonearms) can be connected to the C-200L using the "DISC 1" and "DISC 2" input jacks. One more pair of input jacks is available on the front panel for yet another record player. The "GND" terminals are provided on the left and on the upper left corner of the rear panel. Connect a ground lead from the record player's phono cable together with left and right channel leads, to these terminals. For cautions regarding ground connection, see **10** DISC FRONT above.

The "DISC 2" input jacks are plugged with shorted pin plugs prior to shipment. If only the "DISC 1" input jacks are used, the shorting pin plugs must be left inserted in the "DISC 2" jacks. To

accommodate another record player by connecting it to the "DISC 2" jacks, remove the shorting pin plugs and insert them into the LINE input jacks. It is proper to insert these shorted pin plugs into an unused pair of input jacks. However, the shorting pin plugs should never be inserted into any of the output jacks (TAPE REC and OUTPUT) since they will short-circuit the amplifier's output and may result in the damage of its output circuits.

23 HIGH LEVEL INPUTS

TUNER/LINE – Tuner/Line input jacks

Output cords from a tuner must be connected to the "TUNER" jacks. On the other hand, the LINE input jacks permit convenient connection of various audio equipment such as a tuner, tape recorder, or CD (Compact Disc) player.

24 TAPE 1/TAPE 2

PLAY/REC – Tape recorder Playback/ recording jacks

Two tape recorders can be connected using the "TAPE 1" and "TAPE 2" jacks. The tape recorders' LINE OUTPUT must be connected to the PLAY jacks while LINE INPUT must be connected to the REC jacks. One more pair of playback/recording jacks is provided on the front panel for a third tape recorder.

To make a program source recording, the "TAPE RECORDER" switch [18] must be set to the "SOURCE" position. Recording level must be adjusted on the tape recorder as the output at the "REC" jacks is completely independent from the knob positions of the "VOLUME", "BASS", "TREBLE", and "COMPENSATOR" controls.

25 OUTPUT 1/OUTPUT 2

OUTPUT – Output jacks

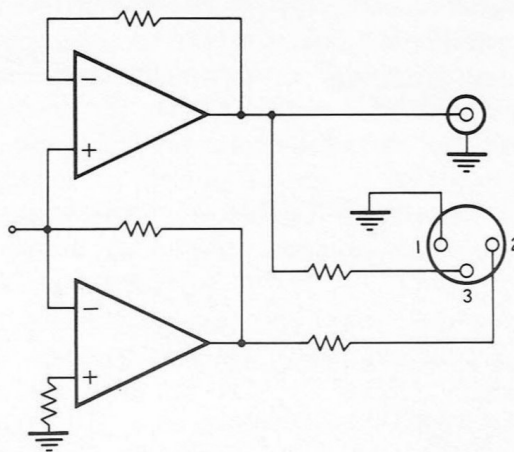
These RCA-type phono jacks are unbalanced type output jacks and have an impedance of 1 ohm. Two sets of output jacks are provided on the rear panel. One more pair of output jacks is provided on the front panel. They can be conveniently used when output to another power amplifier is desired. For normal operations, either pair of the output jacks is connected to a power amplifier.

26 BALANCED OUTPUT

BALANCED OUTPUT – Balanced output connector

These output connectors (3P XLR type) have a balanced type connection and output impedance of 600 ohms and facilitate connection to professional type audio equipment. The schematic diagram below shows the configuration of the input circuitry.

In normal use, the C-200L's output is from the RCA-type phono jacks for connection to a power amplifier. The



C-200L's accessories include high-performance audio cables. When using these cables, the left and right channel cables should either be twisted together or routed close together and attached to some object at several points with adhesive tape and connected to the power amplifier.

If the output from the 600-ohm balanced XLR connector is fed into an unbalanced XLR connector, such as the one used on the Accuphase Power Amplifier M-100, the output impedance of the C-200L becomes 300 ohms.

27 SWITCHED/UNSWITCHED

SWITCHED – Switched Power Outlet

Associated equipment can be connected to these power outlets and AC ON/OFF switching will then be controlled thereafter by this amplifier's front panel POWER switch.

Care must be taken to see that the total power consumption of equipment connected to these power outlets does not exceed 400 watts.

UNSWITCHED – Unswitched AC Power Outlets

Other equipment can be connected to these power outlets which will supply power regardless of whether this amplifier's "POWER" switch is on or off. However, be careful not to connect anything with a total power consumption of more than 200 watts.

28

AC POWER CORD

AC POWER CORD

AC LINE VOLTAGE SELECTION

The C-200L can be used with any of four different power voltage sources, namely 100V, 117V, 220V, and 240V. The wiring on the junction terminal plate beneath the power transformer will need to be changed to accommodate the voltage selected. This wiring is exposed by removing the bottom plate.

Rewiring directions for the various voltage sources are explained on the sticker attached to the bottom plate. If you happen to move to another area where the line voltage is different, consult an Accuphase dealer before using your C-200L there.

REPLACING AC LINE FUSE

The AC LINE FUSE in the primary circuit of the power transformer is near the junction terminal of the voltage selector, which is exposed by removal of the bottom plate. Always check the cause of a fuse failure and correct it before replacing the fuse. Sometimes a fuse may fail by itself, however, with no other direct cause. Be sure to use correctly rated fuses as replacements.

Use 1-ampere Slow-Blow fuses for 100/117V areas and the same type 0.5-ampere fuses for 220/240V areas. When moving to a new area or replacing the fuse, be safe and sure: consult your new Accuphase dealer.

OPERATING INSTRUCTIONS

To Play Records

First confirm that both the L (left) and R (right) output cords of the record player are connected to the "DISC 1" (or "DISC 2") jacks on the rear panel [22] and that the ground wire of the player is connected to the "GND" terminals. Then follow these procedures.

- (1) Make certain the "VOLUME" level control [15] is turned to the minimum position. Turn on the POWER switch. Set the "INPUT" selector switch to "DISC 1" (or "DISC 2") position.
- (2) If a high-output pickup cartridge such as MM (moving magnet), is used, the head amplifier is not required and the OFF/MM switch of the "HEAD AMP" [17] switches should be pushed. In contrast, if an MC (moving-coil) cartridge is used, turn on this switch because the head amplifier is necessary. When the "HEAD AMP" switch is turned on, step 3 must be performed.
- (3) Select the load impedance of the MC cartridge by an "MC LOAD" selector switch [9]. The internal impedance (also known as output impedance) of MC cartridges varies from about 2 ohms to 50 ohms. Basically, the 100-ohm switch should be used with an MC cartridge whose internal impedance is 20 ohms or more. When using an MC cartridge whose internal impedance is less than 20 ohms, use the 30-ohm or 10-ohm switch according to the actual value of the internal impedance. The general rule is to use the selector switch with a value two or three times higher than the cartridge's internal impedance.
- (4) Confirm that the "ATTENUATOR" switch (5) is turned off and the "TAPE RECORDER" switch [18] is turned to the "SOURCE" (or "REC OFF") position.
- (5) Place the cartridge on the record surface, and turn the "VOLUME" control to increase the volume. By turning the "VOLUME" control clockwise or counterclockwise, increase or decrease the volume and make sure that sufficient gain has been obtained. If the output voltage of

the cartridge being used is 0.1 mV (at a cutting velocity of 5 cm/sec., at 1 kHz) or less, depress the "+32 dB" HEAD AMP switch [17] so as to obtain an adequate gain. However, when using a high output MC cartridge having an output voltage of 0.5 mV (5 cm/sec., 1 kHz) or greater, using the "+32 dB" switch may result in the distortion of waveforms and deterioration of the reproduction quality.

- (6) By setting the "MODE" switch to the "MONO (L + R)" position, check whether the reproduced sound image properly localizes at the center of both speakers. Then use one of the "COMPENSATOR" switches [13] and the "TONE CONTROL" to adjust the sounds to your preference.
- (7) Use the subsonic filter by depressing the "SUBSONIC" switch [7] to suppress infrasonic frequency signals that could prevent the woofer from operating properly. Engage this filter also if you intend to play a warped record.
- (8) When an MC cartridge is used, you must check whether the appropriate load impedance was selected in step 3. In some instances, excellent sound quality may be obtained by setting the "MC LOAD" to 100-ohm position even with an MC cartridge whose internal impedance is lower than 20 ohms.

Other positions of the MC LOAD selector switch should therefore also be tried. Changing the load impedance, however, does not bring about a significantly great change in sound quality. So to determine the best load impedance, you must devote time and careful and patient listening.

To listen to Broadcast with Tuner

Make sure that both L (left) and R (right) output cords of the tuner are correctly connected to the "TUNER" jacks [23] of the C-200L. Just as when playing records, check the position of the "TAPE RECORDER" selector, and set the "INPUT" selector switch [21] to the "TUNER" position. Then turn the VOLUME control until the volume increases to the desired level. If the levels of

record playback and the tuner are matched beforehand, no adjustment of volume will be required later when input selector switches are to be operated. Adjust the output level of the tuner by using its level control.

Playback or Recording with Tape Recorder

Make sure the "REC" and "PLAY" jacks of the C-200L "TAPE 1" (or "TAPE 2", "TAPE FRONT") jacks on the rear panel [24] are connected to the LINE IN ("REC") and LINE OUT ("PLAY") terminals of the tape recorder.

1. Playback

Perform necessary settings of the tape recorder for playback, and turn the "TAPE RECORDER" selector [18] to either the "TAPE 1", "TAPE 2" or "TAPE FRONT" position. You can listen to the tape regardless of the position of the "INPUT" selector switch [21]. If the "TAPE RECORDER" selector is turned to the "SOURCE" position, the playback will return to the program source selected by the input selector switch.

2. Recording

When recording tapes, observe these procedures.

- (1) Before recording, make sure you have the proper tape.
- (2) Turn the "TAPE RECORDER" [18] selector clockwise to the "SOURCE" position; turn on the recording output.
- (3) The sounds that can be heard from the speakers will be recorded to the tape if the tape recorder has been set for recording.
- (4) Because recording can be carried out independently of the C-200L's "VOLUME" control or COMPENSATOR switches, the volume can be lowered as required and you can record tapes quietly. The recording level should therefore be adjusted on the tape recorder side.
- (5) If the "TAPE RECORDER" selector is turned to the "SOURCE" position during recording, the program source can be checked. If the selector is turned to the "TAPE 1" ("TAPE 2" or "TAPE FRONT") position, the recorded tape can be monitored as it is being recorded. Note, however, that this applies only when using a tape recorder that employs a three-head

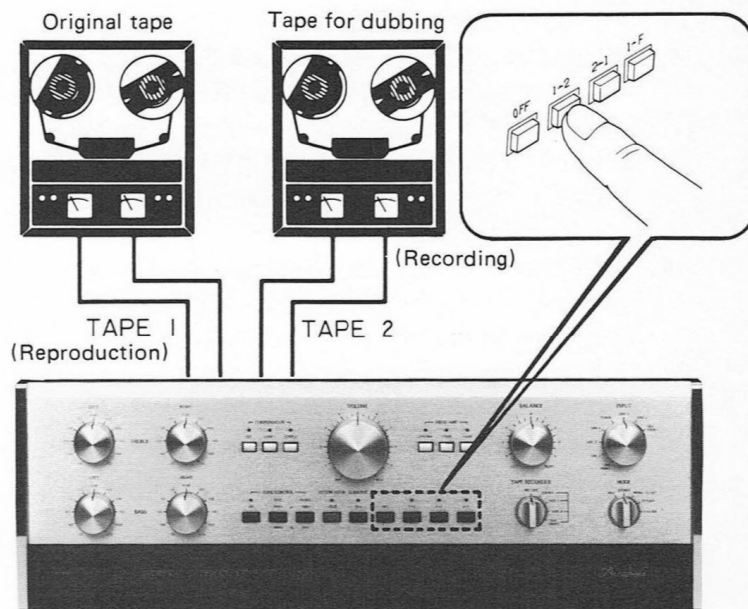
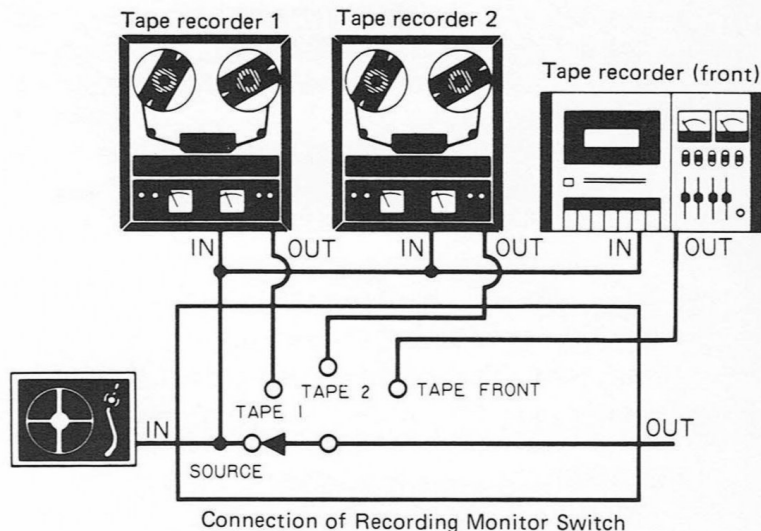
system.

- (6) Simultaneous recording is also possible by using three tape recorders.

3. Tape Copying

The TAPE COPY switches on the C-200L allow tape dubbing as you listen to records or the radio because dubbing can be carried out independently of playback or broadcast. Observe these procedures, however.

- (1) When dubbing from the tape recorder connected to the "TAPE 1" jack to the one connected to the "TAPE 2" jack, use the "1→2" TAPE COPY switch. To dub in the other direction, depress the "2→1" switch.
- (2) When playback of the tape recorder connected to the "TAPE 1" jack and recording of the other tape recorder starts, the copying operation is performed.
- (3) As copying from "TAPE 1" to "TAPE 2" occurs, sound from the tape recorder connected to the "TAPE 1" jack will be heard when the "TAPE RECORDER" switch is turned to the "TAPE 1" position. If this switch is turned to the "TAPE 2" position, the sound just recorded will be heard from the tape recorder connected to the "TAPE 2" jack.
- (4) While dubbing is under way, turning the "TAPE RECORDER" switch to either the "SOURCE" or "REC OFF" position allows you to listen to records or radio broadcast as the copying operation goes on. If the "INPUT" selector switch is changed from DISC to "TUNER", the muting circuit will operate and the sound will not be heard for about one second. This silence, however, does not affect the dubbing operation in any way.



PRECAUTIONS

Heat dissipation and caution regarding operation

All the stages of each C-200L unit amplifier employs Class-A push-pull circuitry. For this reason, the Stereo Control Center generates heat which can be felt when you touch the top of the housing. This, however, does not affect the operation and durability of the preamplifier at all. Sufficient consideration concerning the heat dissipation of the C-200L has been given to the housing design. However, the preamplifier should not be placed in a confined location where ventilation is not good. Also, do not place the preamplifier in a location exposed to direct sunlight or close to heating equipment.

Do not place the C-200L directly on top of or underneath a power amplifier

This unit contains a high gain preamp with a moving coil cartridge (MC) head amplifier. If it is placed too close to a power amplifier or another component that generates a strong magnetic flux, a hum may be produced in this unit through magnetic induction. Therefore, leave a gap of at least 10 cm between this unit and other audio and video components. When placing components in a rack, be sure to allow sufficient ventilating space for the power amp.

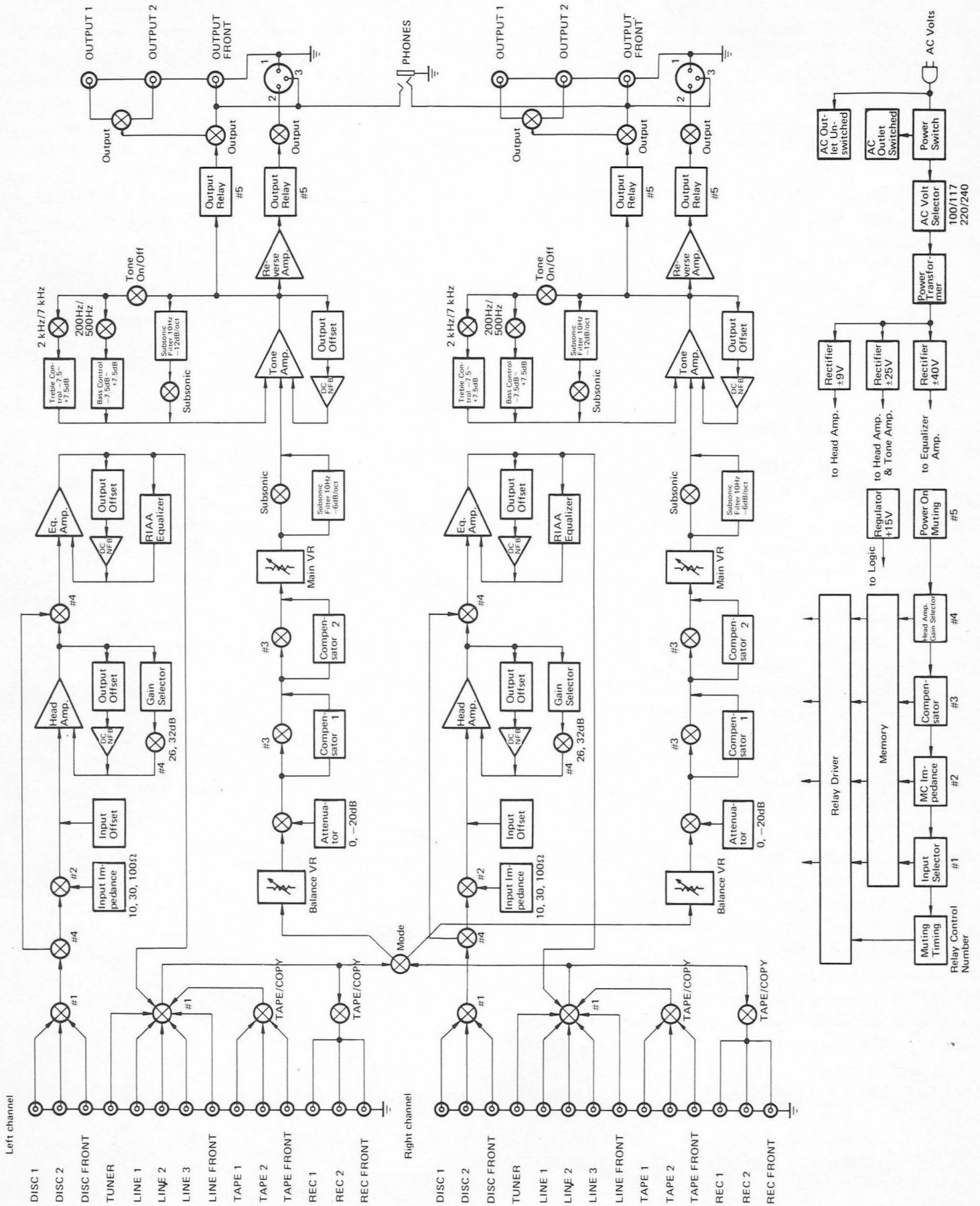
Turn AC power off when connecting or disconnecting interconnecting cables

When RCA type pin plugs, the most widely used connectors for interconnecting cables, are used, the (+) and (-) leads are connected or disconnected separately, i.e., one side before the other. If this is done without having first turned off the AC power, a momentary current surge that results may damage the speaker. Always remember to turn the AC power off before trying to connect or disconnect the cables between associated components.

Using the shorting pin plugs

The "DISC 2" jacks are equipped with shorting pin plugs. When only the "DISC 1" jacks are used, the "DISC 2" shorting pin plugs should be left in place. If they are removed to accommodate a second turntable, the plugs should be reinserted in another set of unused input jacks (TUNER, LINE, TAPE PLAY) that is not being used. The shorting plugs should never be inserted in any of the output jacks as no sound will be heard.

BLOCK DIAGRAM



GUARANTY SPECIFICATIONS

FREQUENCY RESPONSE:

TUNER/LINE/TAPE PLAY INPUT: 1Hz to 500,000Hz : +0, -3.0 dB
 20Hz to 20,000Hz : +0, -0.2 dB
 DISC INPUT: 20Hz to 20,000Hz : +0.2 dB

TOTAL HARMONIC DISTORTION (E1A):

Will not exceed 0.005% at rated output level, 20Hz to 20,000Hz

INPUT SENSITIVITY AND IMPEDANCE:

| Input Terminal | Sensitivity | | Impedance (ohms) |
|-------------------------|--------------|-------------------------------|---------------------|
| | Rated Output | EIA Standard (0.5V Output) | |
| DISC (Head Amp: OFF/MM) | 2.0 mV | 0.5 mV | 47k |
| DISC (Head Amp: +26 dB) | 0.1 mV | 0.025 mV | 10, 30, 100 |
| DISC (Head Amp: +32 dB) | 0.05 mV | 0.0125 mV | 10, 30, 100 |
| TUNER/LINE/TAPE PLAY | 126 mV | 31.5 mV | 20k |

OUTPUT LEVEL AND IMPEDANCE

OUTPUT (UNBALANCED) : 2.0V, 1.0 ohm (Connector: Phono Jack)
 OUTPUT (BALANCED) : 2.0V, 600 ohms (Connector: XLR type)
 TAPE REC : 126mV, 200 ohms (Input: DISC)

HEADPHONE JACK:

For listening with low impedance (4 to 100 ohms) dynamic stereo headphones

A-WEIGHTED SIGNAL-TO-NOISE RATIO:

| Input Terminal | Rated Input | EIA |
|-------------------------|-------------|-------|
| DISC (Head Amp: OFF/MM) | 85 dB | 82 dB |
| DISC (Head Amp: +26 dB) | 72 dB | 76 dB |
| DISC (Head Amp: +32 dB) | 66 dB | 76 dB |
| TUNER/LINE/TAPE PLAY | 110 dB | 88 dB |

MAXIMUM OUTPUT LEVEL (at 0.005% distortion, 20Hz to 20,000Hz):

OUTPUT (UNBALANCED): 8.0V (Connector: Phono Jack)
 OUTPUT (BALANCED): 8.0V (Connector: XLR type)
 TAPE REC: 19.0V (Input: DISC)

MAXIMUM INPUT FOR DISC INPUT (at 0.005% distortion, 1kHz):

HEAD AMP OFF/MM: 300 mV
 HEAD AMP +26 dB: 15 mV
 HEAD AMP +32 dB: 7.5 mV

MINIMUM LOAD IMPEDANCE:

OUTPUT (UNBALANCED): 1k ohms minimum
 TAPE REC: 10k ohms minimum

VOLTAGE AMPLIFICATION IN DECIBELS:

TUNER/LINE/TAPE PLAY Input to OUTPUT: 24 dB
 TUNER/LINE/TAPE PLAY Input to TAPE REC Output: 0 dB
 DISC (Head Amp OFF/MM) Input to OUTPUT: 60 dB
 DISC (Head Amp OFF/MM) Input to TAPE REC Output: 36 dB
 HEAD AMP Gain: Selectable for +26 dB and +32 dB.

TONE CONTROLS:

10-step Rotary Switch for both channels with turnover frequency switches and ON/OFF switch. Tone is varied in 1.5 dB steps.

BASS: Turnover Frequency: 500Hz + 7.5 dB at 100Hz
200Hz + 7.5 dB at 40Hz

TREBLE: Turnover Frequency: 2,000Hz +7.5 dB at 10 kHz
7,000Hz +7.5 dB at 35 kHz

LOUDNESS COMPENSATOR (volume attenuation at -30 dB):

COMP 1: +3 dB at 100Hz

COMP 2: +8 dB at 100Hz, +6 dB at 20 kHz

SUBSONIC FILTER: 10Hz cutoff, -18 dB/oct.

ATTENUATOR: -20 dB

SEMICONDUCTOR COMPLEMENT: 164 Tr's, 16 FETs, 21 ICs and 123 Di's

POWER REQUIREMENT:

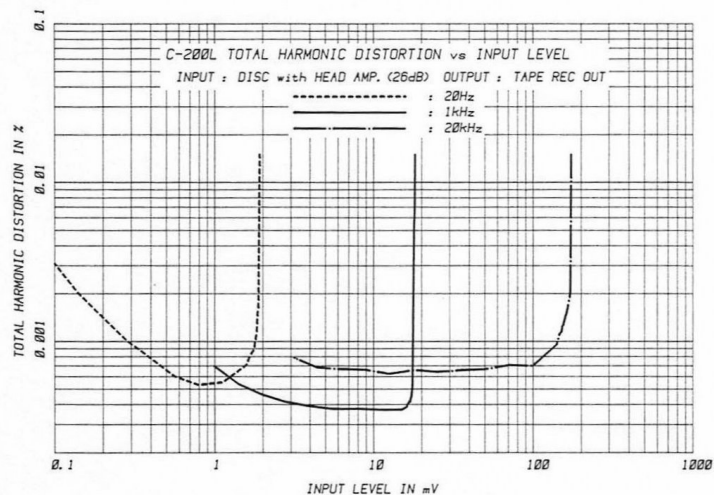
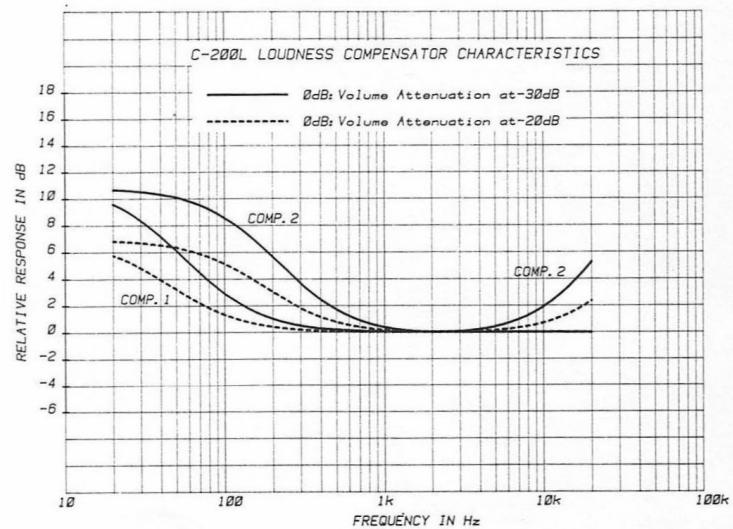
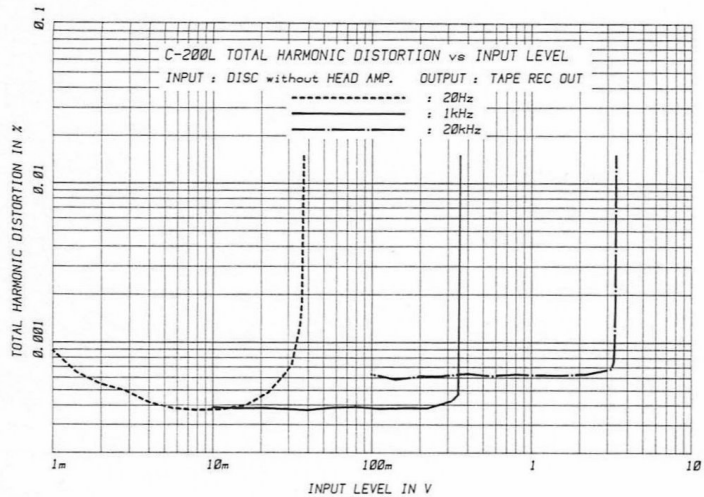
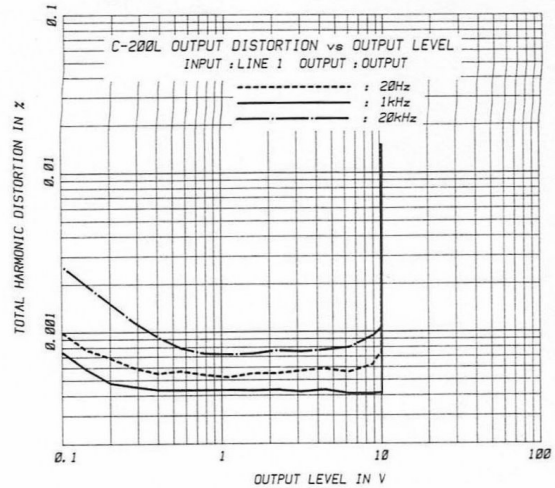
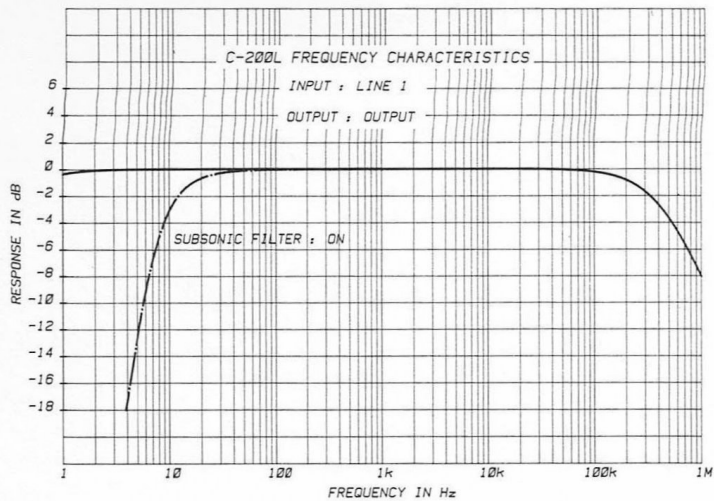
Voltage selection by rewiring for 100V, 117V, 220V and 240V, 50/60Hz operation

Power Consumption: 45 watts

DIMENSIONS: width 445mm (17-1/2 inches), max. height 160mm
(6-5/16 inches), depth 373mm (14-11/16 inches)

WEIGHT: 13.6 kg (30.0 lb) net, 18.1 kg (40.0 lb) in shipping carton

PERFORMANCE CURVES





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