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OPERATING INSTRUCTIONS

CC-3000

**STEREO
CONTROL AMPLIFIER**

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NOTE: Locate unit's serial number (shown on rear panel of unit) and record it here → _____

General Information

This manual is designed to give all needed information and instructions required for successful operation of your Fisher Control Amplifier. If you are installing the unit yourself, please give careful attention to the section on connecting the control amplifier to other units in your sound system. Complete information is given in the following pages.

Your Fisher Control Amplifier is designed to be insensitive to temperature and voltage changes under normal conditions. For longer service life and operating safety, the unit should not be placed near sources of extreme heat (close to heating units or radiators), direct sunlight or areas of high humidity or moisture. Voltage fluctuations greater than $\pm 10\%$ can lead to mechanical failure of the unit. If you have questions on these points, please ask your dealer for further information.

To get your control amplifier ready for operation, a series of connections to the power amplifier, turntable, tuner and tape or cassette deck must be made. The last connection that should be made is to electrical power.

Follow the connection and operating instructions carefully in a step by step manner and within a short time, you will have gained all knowledge needed for successful operation of your Fisher Control Amplifier.

Before you switch your unit on for the first time, please check that all connections and installation requirements have been completed. The volume control should be set to the minimum position.

Technical Description

General

The Fisher Stereo Control Amplifier CC-3000 is perfectly matched for combination with the following Fisher models.

Tuners: FM-2121	Cassette decks: CR-4031
FM-2421	DD-300

Power amplifier: BA-6000

The Fisher Graphic Equalizer EQ-2322 is also a useful addition to the CC-3000.

Installing the Rack Mount Attachments

(Rack mounting brackets may be purchased through your Fisher dealer.)

Place the rack mount bracket (side with the round holes) against the side of the steel cabinet in such a way that the mounting flange with the slots becomes an extension of the front panel sides.

Then line up the holes in the bracket with the holes in the steel cabinet. Use the screws supplied and fasten the brackets to the unit. Tighten the screws securely.

If an additional height adjustment is required, the felt pads included with the unit may be used as spacers either to increase the height of the existing feet or attached to the cabinet top between units.

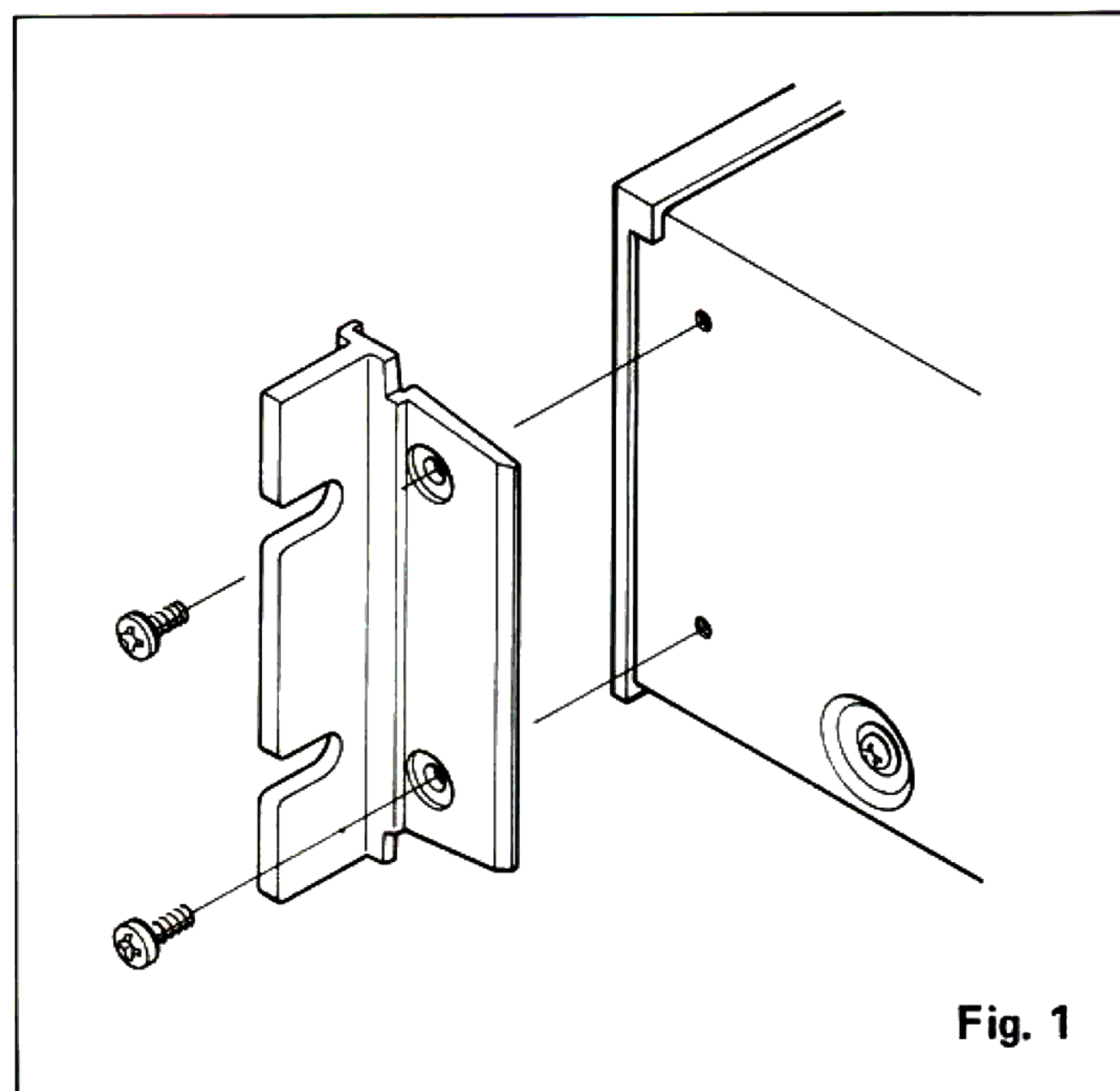


Fig. 1

Phono Preamplifier

The CC-3000 is constructed with a special phono preamplifier for moving coil (dynamic) type cartridges. Special cables, impedance matching devices and transformers are not required when using the CC-3000 with this type of cartridge. Turntables with moving coil (MC) type cartridges should be connected to PHONO MC inputs on the rear panel.

Turntables with magnetic cartridges should be connected to PHONO MM-1 and/or MM-2 on the rear panel. Switching is accomplished on the front panel.

Tone Controls

Independent of the position of the BASS and TREBLE controls, the CC-3000 can be switched to a "flat" response through the use of the TONE CONTROLS OFF switch.

Subsonic Filter

In certain situations, extremely low frequency pulses can be generated that can overload loudspeakers connected to the Stereo DC Power Amplifier. Such signals are generated when the tone arm of the turntable falls onto a record accidentally or when tuning over several FM stations in rapid succession.

Features

- A low-noise MC amplifier is used to yield a high signal-to-noise ratio.
- There are three sets of PHONO input jacks (two sets for MM, one for MC). This enables up to three turntables to be connected and the sound from each to be compared without the bother of having to replace the cartridges.
- The PHONO MM-1 jacks have an input impedance which can be switched to 33 k Ω , 47 k Ω or 100 k Ω . This allows matching with the impedance of the cartridges so that optimal phono reproduction is possible with any cartridge.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

- A muting circuit is used in this unit. This eliminates the unpleasant noise heard when the power is switched on and off, and safeguards the speakers against possible damage.
- The MODE selector is a full-mode (5-position) switch.

- The TAPE MONITOR switch has five positions enabling dubbing from deck 1 to deck 2 or vice versa. When set to the TAPE position, an indicator lights to indicate that TAPE is the current sound source.

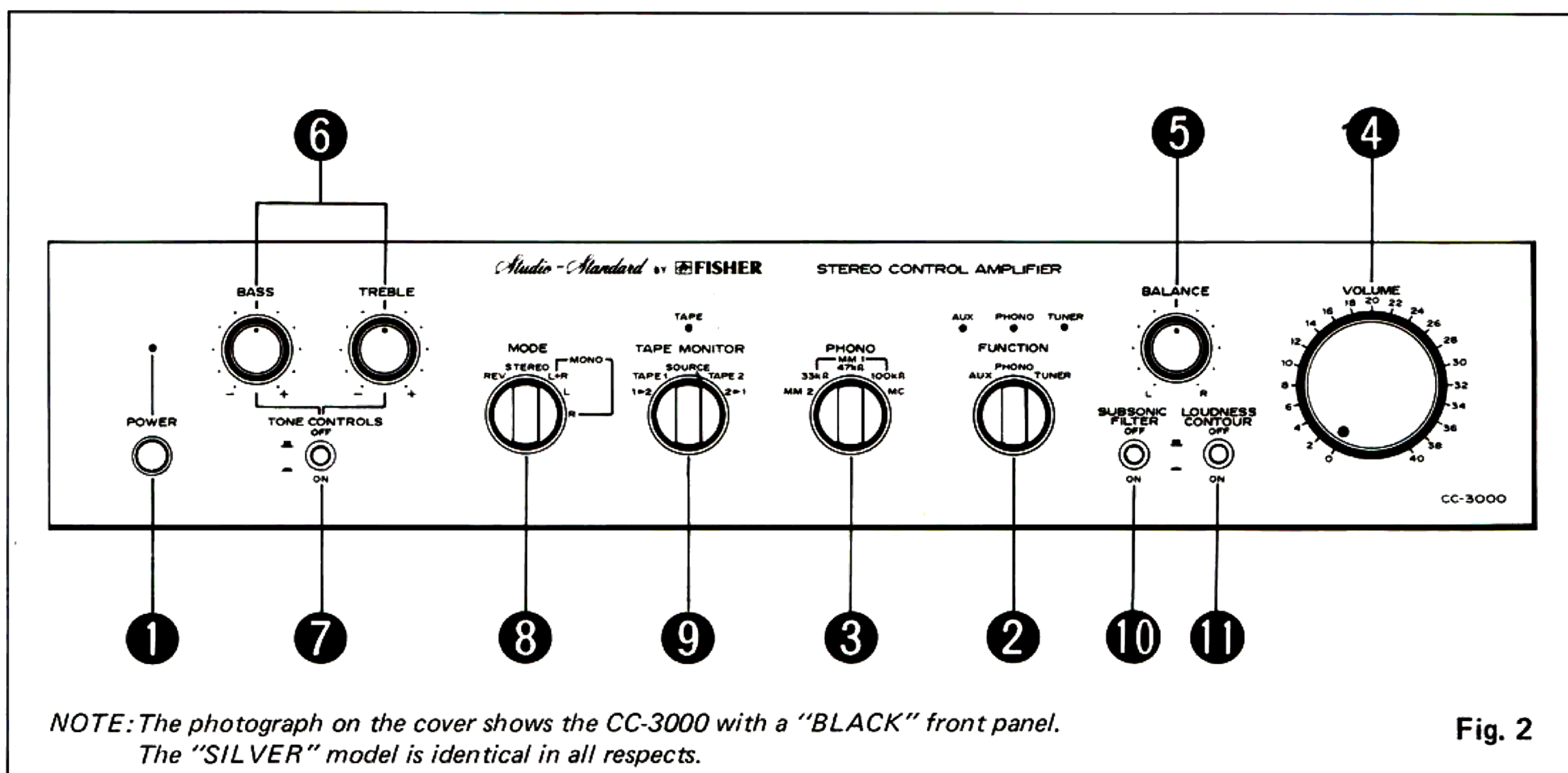


Fig. 2

Controls on the Front Panel

1. POWER Switch

By gently pushing the power switch, the unit is switched on. A power indicator located above the power switch will light when the unit is switched on. Approximately 5 seconds after the power switch is depressed the unit is ready for use. To switch off, depress the power switch again. The power indicator light will go out.

2. FUNCTION Selector & Indicators

Selection of the following program sources can be done with this selector:

- TUNER: AM or FM reception with a connected Fisher tuner.
- PHONO: Records from turntables using moving magnet or moving coil type cartridges by choosing the PHONO selector (3).
- AUX: Extra program source (e.g. television audio signal).

Each function indicator located above the function selector will light up when the function selector is turned to the desired program source.

3. PHONO Selector

Selection of the following cartridges can be done with this selector:

- MC: For playing records on a turntable equipped with a moving coil type cartridge connected to the PHONO MC jacks on the rear panel.

- MM 1: For playing records on a turntable equipped with a moving magnet type cartridge connected to the PHONO MM-1 jacks on the rear panel. Input impedance of the amplifier can be matched to cartridges with a nominal impedance of 33 k Ω , 47 k Ω or 100 k Ω .
- MM 2: For playing records on a turntable equipped with a moving magnet cartridge connected to the PHONO MM-2 jacks on the rear panel. Input impedance of this input is 47 k Ω .

4. VOLUME Control

5. BALANCE Control

To adjust the audio balance of a stereo program source, turn this control to either the right or left. The normal position has a detent in the middle.

6. TONE Controls

BASS Control:

When adjusted to the middle position, the frequency response is flat. When the control is turned to the right, bass frequencies will be increased. When turned to the left bass frequencies will be decreased.

TREBLE Control:

When adjusted to the middle position, the frequency response is flat. When the control is turned to the right, treble frequencies will be increased. When turned to the left these treble will be decreased.

7. TONE CONTROLS Switch

When this switch is in the ON position (depressed), the tone controls are activated. When the switch is in the OFF (released) position, the tone controls are disconnected from the circuitry. In the OFF position, the frequency response of the CC-3000 is flat.

8. MODE Selector

- STEREO Position: Signal source will be reproduced in normal stereo.
- REVERSE Position: Signal source left and right channel will be reversed.
- MONO “L+R” Position: Both channels (L+R) are mixed together for a monophonic signal and reproduced by both speakers.
- MONO “L” Position: Signal source of the left channel only will be reproduced by both speakers.
- MONO “R” Position: Signal source of the right channel only will be reproduced by both speakers.

9. TAPE MONITOR Switch & Indicator

Normal Position: SOURCE

Two cassette or open reel tape decks can be connected to the Fisher CC-3000. To use a tape deck as sound source, the unit must be connected to the appropriate inputs on the rear panel and the selector switch must be set to the corresponding position, TAPE 1 or TAPE 2. Only one tape deck can be used as program source at a time.

Tape decks with separate record and playback heads can be monitored during recording for rapid and accurate control during the recording process by switching to TAPE 1 or TAPE 2 during recording.

A tape indicator located above the tape monitor switch will light up when tape monitor switch is turned from SOURCE to the other positions.

Because two tape decks can be connected simultaneously, copying of tapes from deck 1 or 2 and vice versa is possible with the Fisher CC-3000. The required connection is made by selecting the proper switch position as indicated by the arrows.

10. SUBSONIC FILTER Switch

Some signal sources, such as warped phonograph records contain frequencies below 20 Hz. Although these very low frequencies cannot be heard by human ears, if amplified they can damage loudspeakers. The Subsonic Filter removes these low frequencies without affecting the musical bass notes. If you notice your speaker's woofer cones making large movements, switch on the Subsonic Filter to prevent damage.

11. LOUDNESS CONTOUR Switch

At lower volume levels, the human ear requires an increase in certain frequency ranges so that the reproduced sound source sounds normal. Depressing the Loudness button automatically places emphasis on the proper frequencies at low volume levels. For reproduction at higher volume levels the loudness switch should be in the OFF (out) position.

Connections on the Rear Panel

1. PHONO Inputs

- PHONO MC
Connection for turntable using a dynamic (moving coil) cartridge. The CC-3000 requires no external cartridge preamplifier for use with MC cartridges.
- PHONO MM-1, MM-2
Connection for turntables using moving magnet cartridges.
 - MM-1: These jacks have an input impedance which can be switched to 33 k Ω , 47 k Ω or 100 k Ω by turning the PHONO selector on the front panel. This allows matching to the impedance of the cartridge.
 - MM-2: These jacks have an input impedance which can be used only with a 47 k Ω cartridge.

2. GND (Ground Terminal)

This connection serves as a separate grounding point for turntables. In a special situation it can also be used as a central grounding point for the whole sound system.

3. TUNER Input

Input connection for separate tuner.

4. AUX Input

Connection for any high level output program source such as short wave receiver, television audio signal, etc.

5. Tape Deck Connections (TAPE-1, TAPE-2, DIN)

REC (Record Output)

All reproduced program signals can be recorded by a tape deck over these connections. Tape decks that have only DIN type connections should be connected to the DIN jack. Tape decks that have both RCA pin jack and DIN connectors should be connected with the RCA pin jacks.

PB (Play Back)

Connection for output from tape decks. With 3 head tape decks (separate record and playback heads) this connection also facilitates tape monitoring during recording.

DIN Connector

Tape decks with DIN plugs can be connected using this connector. Connection is made over the TAPE-1 connection. If shorting plugs are found in TAPE-1 or TAPE-2 connectors on the control amplifier, they must be removed before attempting to use the DIN connector.

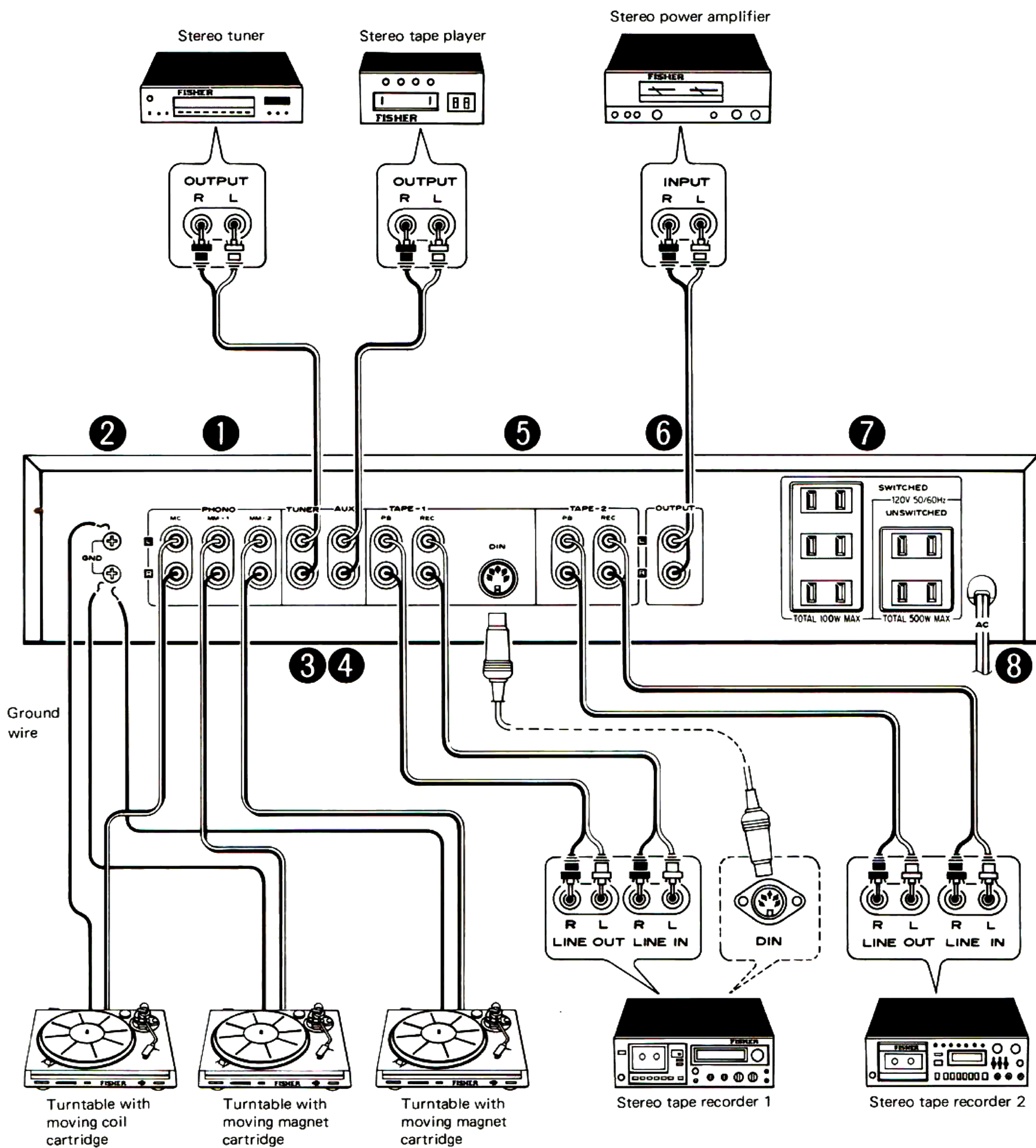


Fig. 3

6. OUTPUT Connection

Connection for the INPUT of the power amplifier. Please observe L and R polarity.

7. AC Outlets

SWITCHED:

Controlled by the power switch, these outlets are capable of delivering up to 100 W of AC power. Use these outlets as the power supply for the tuners or turntables.

UNSWITCHED:

These outlets are live irrespective of the position of the power switch and deliver up to 500 W of AC power. Use these outlets as the power supply for the power amplifier or tape decks.

8. AC (Power Cord)

After completing the connections of all system components, make sure that the POWER switch on the front panel of this control amplifier is set to OFF. Then, plug the power cord into an AC wall outlet.

NOTE:

Hold the power cord by the plug when disconnecting it from the power source. Do not pull on the cord.

Connections Operating Information

Connection to the Power Amplifier

The control amplifier must be connected to the power amplifier with the connecting cables supplied. The red ends of the cable should be placed in the RIGHT output of the control amplifier and RIGHT input of the power amplifier. The white ends of the cable should be connected to the LEFT output jack of the control amplifier and the LEFT input jack of the power amplifier.

Channel Testing

Turn the BALANCE control to the full left position. Sound should only come from the left speaker connected to the power amplifier. Turn the BALANCE control to the right position. Sound should only come from the right speaker connected to the power amplifier. If sound comes from the opposite speaker, reverse the speaker connection of the power amplifier.

Phase Testing

Place a test record on the turntable (preferably male voice) or, with the tuner, select a news broadcast. Take up a listening position directly between the two speakers connected to the power amplifier and at a distance about 6 – 10 feet in front of them. Close your eyes and attempt to localize from which direction the sound is coming. If the voice comes directly from the middle, between the two speakers connected to the power amplifier, your system is connected in the proper phasing. If the direction is not definite, the voice comes from several portions of the room, check the polarity of both sets of connections. Repeat the test again as a double check of the system.

Basic Control Amplifier Adjustment

Before operating the control amplifier for the first time, we recommend that the control amplifier be adjusted as follows:

- Volume Control turned fully counterclockwise (0 position).
- Tape Monitor in SOURCE position.
- Balance Control in the middle position.
- Mode Selector in the STEREO position.
- Power switch in the ON (depressed) position.

Listening to a Record. . .

- Place the FUNCTION selector in the PHONO position.
- Place the PHONO selector in either position MM 1, MM 2 or MC depending on the cartridge in your turntable.
- Start the Turntable (see operating instructions for your turntable).
- Adjust the VOLUME and TONE CONTROLS (Bass and Treble) to meet your personal tastes.

Listening to the Tuner. . .

- Place the FUNCTION selector in the TUNER position.
- Press the POWER switch on the tuner (ON position).
- Select either AM or FM and tune in a station.
- Adjust the VOLUME and TONE CONTROLS (Bass and Treble) to meet your personal tastes.

Listening to a Pre-Recorded Cassette. . .

- Place the TAPE Monitor switch to the TAPE 1 or TAPE 2 position depending on which inputs have been connected.
- Start the cassette deck (see operating instructions for your cassette deck).
- Adjust the VOLUME and TONE CONTROLS (Bass and Treble) to meet your personal tastes.

Tape Recording from your System

There are no control adjustments required on the control amplifier for making a recording. Place your tape deck in the RECORD mode and adjust the input levels. See your cassette deck's instruction manual for further explanations.

When using tape decks with separate record and playback heads (3 heads), monitoring the tape during recording is possible. To monitor during recording, simply place the TAPE Monitor switch in either TAPE 1 or TAPE 2 (dependent on which inputs are used). By switching between TAPE and SOURCE, a comparison can be made of recording quality to that of the original program source. Recording will not be disturbed by this comparison.

Duplicating Tapes

Two tape decks are required for duplication, one in each of the monitor circuits. Place the tape to be duplicated in one unit and a blank tape in the other, noting which tape deck is connected to the TAPE 1 inputs. If the tape to be duplicated is in tape deck 1, place the TAPE Monitor switch in 1 ► 2. If the tape to be duplicated is in tape deck 2, place the switch in the 2 ► 1 position. Monitoring of the tape being recorded can be done as mentioned in "Tape Recording from your System".

Specifications

Output Voltage and Impedance	1000 mV/5 k Ω
Harmonic Distortion at Rated Output (1 V Output). .	0.007 %
IM Distortion (1 V Output)	0.005 %
Frequency Response	
PHONO MC, MM	RIAA, ± 0.2 dB
AUX	20 Hz – 20 kHz, (+0/–0.5 dB)
Input Sensitivity and Impedance	
PHONO MC	70 μ V/22 Ω
PHONO MM-1 (Switchable Impedance)	
.	2.5 mV/33 k Ω , 47 k Ω , 100 k Ω
PHONO MM-2	2.5 mV/47 k Ω
TUNER	150 mV/100 k Ω
AUX	150 mV/100 k Ω
TAPE 1, 2	150 mV/100 k Ω
TAPE (DIN)	150 mV/100 k Ω
Treble Control 10 kHz	± 10 dB
Bass Control 100 Hz	± 10 dB
Loudness Contour (at –30 dB)	
100 Hz/10 kHz	+8 dB/+4 dB
Subsonic Filter (15 Hz, 12 dB/oct.)	–3 dB
Output Voltage	
TAPE 1, 2	150 mV
TAPE (DIN)	4 mV (10 k Ω termination)
Crosstalk	
PHONO	60 dB
AUX	65 dB
S/N Ratio	
PHONO MM	86 dB
AUX	105 dB
Power Requirements	120 V AC ± 10 %, 60 Hz, 13 W
Dimensions (W x D x H)	17-1/3" x 11-4/5" x 5-1/4"
	440 x 300 x 89 mm
Weight (approx.)	11 lbs./5 kg

Because its products are subject to continuous improvement, Fisher reserves the right to modify design or specifications without notice and without incurring any obligation.

Trouble-Shooting Guide

If you have followed the instructions in the "Controls on the Front Panel" and "Connections on the Rear Panel" sections, and have difficulty operating your system, locate the SYMPTOM in the left column below. Check the corresponding POSSIBLE CAUSE and CORRECTIVE ACTION columns to locate and remedy the problem.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
POWER switched ON but no sound and no light on Power Indicator.	Faulty AC power plug connection to wall outlet.	Examine plug. Old wall-outlets sometimes cause power loss. Plug must fit snugly in outlet.
Power Indicator lit but no sound (or very weak sound) from TUNER and PHONO.	TAPE MONITOR switch is in TAPE 1 or TAPE 2 position.	Turn the switch to SOURCE except when playing back a tape with a tape deck.
	VOLUME control is at its minimum position.	Turn VOLUME control to a proper sound level.
	Faulty connection between Power Amplifier and Control Amplifier.	Connect the plugs firmly to the Power Amplifier INPUT jacks.
Sound from one speaker only connected to Power Amplifier.	BALANCE control turned all the way to one side.	Reset BALANCE control to center position.
PHONO has loud hum with normal, little, or no audio. TUNER is OK.	Faulty connection between Turntable and Control Amplifier.	Check and crimp outside (shell) of phono cable plugs.
		Turn PHONO selector to a proper input impedance of cartridge.

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