

**PERFORMANCE AMPLIFIER II
OWNERS MANUAL**

Serial Number _____

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Introduction

Congratulations on choosing the Performance Amplifier. Your unit has been individually hand-made from the finest parts and materials. The Performance Amplifier utilizes proprietary Cello circuitry that represents the true state-of-the-art in audio electronics and is designed to perform to specifications for decades of musical enjoyment.

We want your Performance Amplifier to provide you with complete satisfaction. Please read this manual carefully and if you have any questions, contact your authorized Cello supplier or call the factory. It is our wish to assist you in every way, now and in the future.

Product Concept and Description

CONCEPT

The Performance Amplifier is a no-compromise design for the ultimate in residential music and professional monitor systems. A combination of musical clarity, high output voltage and current capability enables the Performance Amplifier to maximize the performance of all high quality speaker systems. Comprehensively designed to be ultra-reliable and stable, the Performance Amplifier will satisfy the most demanding user and provide decades of trouble-free operation.

DESCRIPTION

The Performance Amplifier is a stereo system of four chassis: one mono power supply and mono amplifier per channel. The power supply is a dual choke input design. Unlike capacitor input supplies which utilize only the peaks of the AC waveform, the choke input system uses the whole AC waveform and is much more efficient. Each audio amplifier chassis employs 8 driver transistors and 40 250W output devices per channel on two electrically conductive heat sink tunnels cooled by two very quiet fans.

Instructions

UNPACKING

Inspect the containers for signs of damage in transit. Report any evidence of abuse immediately. Open containers carefully and remove contents from the packing. Take care not to scratch the surfaces of the units. Save all boxes and foam pieces for reuse in the event that the unit must be moved in the future. If the boxes should become lost, replacement boxes are available from the factory.

Contents:

- 2 amplifier chassis
- 2 power supply chassis
- 2 AC power cables
- 1 DC power cable
- 1 set of fuses (5)
- 1 tool kit containing torx key and 1/8-inch hex key

INSTALLATION

The four chassis can be stacked vertically, arranged as a pair of supply/amps per speaker, or arranged as four chassis in a horizontal row.

When horizontal space is limited, the units can be set on their front panels. In this case, place a piece of thick (.2 inches) cloth, felt or thin foam under each front panel to prevent scratching its metal finish.

When arranged in a set of two units by two units or four horizontally, make sure that fan exhaust from one amp does not blow directly into the intake of the other, or the second set may overheat and shut off.

When stacked, you may wish to place the supplies on top because the circuit breaker/power switches are located on these units. This is not important if a remote A.C. switch is used.

Be certain that the amps are installed so that they have proper ventilation. Placing the units in small, close-fitting enclosures is not recommended. Room air temperature should not exceed 122 degrees F./50 degrees C.

CABLE & ADAPTER SELECTION

The Performance Amplifier has three-pin Fischer connectors for highest quality balanced line input capability. It is recommended that input connections be made using Cello Strings cable. Cello Strings are stocked in lengths of 1, 2, 5, 8, and 10 meters. Terminations are available to suit the particular components of the system. Custom lengths are available on special order.

If it is necessary to convert Fischer inputs to RCA, use the E3 adapters. The best way to convert to single ended operation is to use Cello Strings cable (which has three conductors and a shield) with Fischer male on one end and RCA connector on the other. This preserves the three-wire system from the amplifier to the source unit and provides better grounding and common-mode rejection.

To interface with XLR systems, it is recommended that Cello Strings cable be used with Fischer male on one end and XLR female on the other end.

CUSTOM MADE CABLES (NON-CELLO)

Three-conductor shielded cables should be used to keep audio(+), audio(-), audio ground and chassis earth separate.

If single-ended adapters are made, pins one and three should be jumped and used as ground, and pin two should be used as the audio(+).

Connecting audio ground and chassis ground may or may not cause or solve grounding problems depending on the system as a whole.

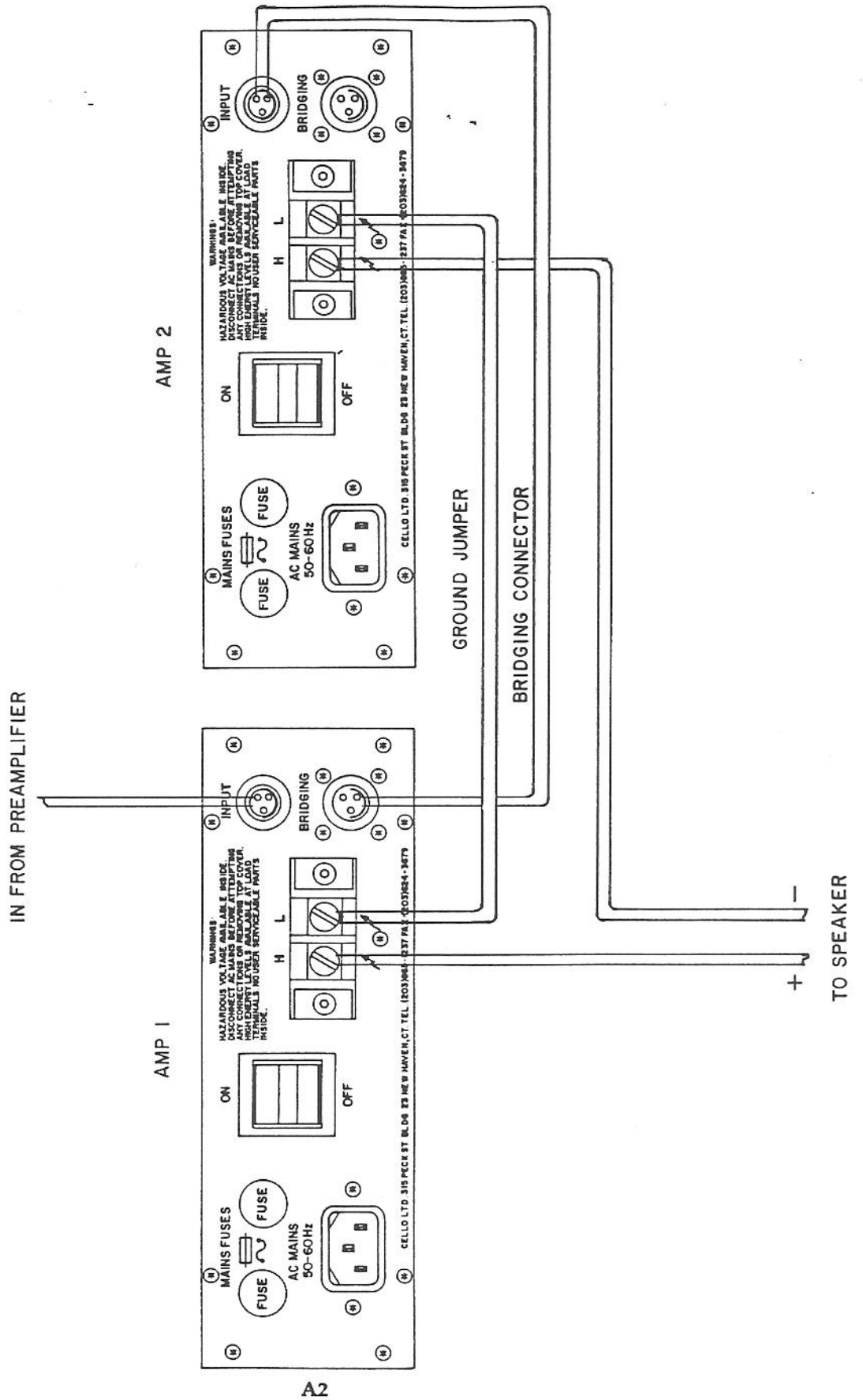
ELECTRICAL CONNECTIONS

- 1) Make sure the circuit breakers on the supplies are "off".
- 2) Install the DC cables according to the color codes using the DC cables supplied.
- 3) Install each terminal screw and tighten until there is zero play, then apply an additional 1/8th turn so that it is snug. Be sure to keep the spade terminal from rotating while turning the screw. Do not over-tighten or you will break the terminal strip.
- 4) Install the terminal block covers. Again, don't over-tighten.
- 5) Verify that AC mains voltage is set correctly.
- 6) Connect the preamplifier or other driving equipment.
- 7) Connect speaker output cables.
- 8) Be sure that the electrical service in the building/house is up to the task, especially if using two sets of bridged amplifiers. The recommended ideal situation is a dedicated line to each amp.
- 9) Install AC cables into IEC mains connector on rear of power supplies.
- 10) Connect AC cables to AC mains.

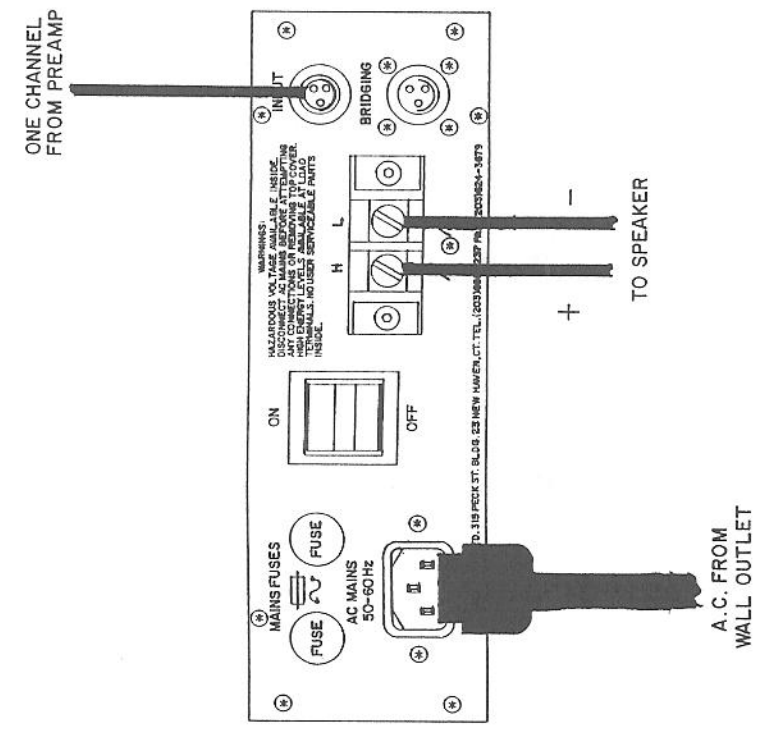
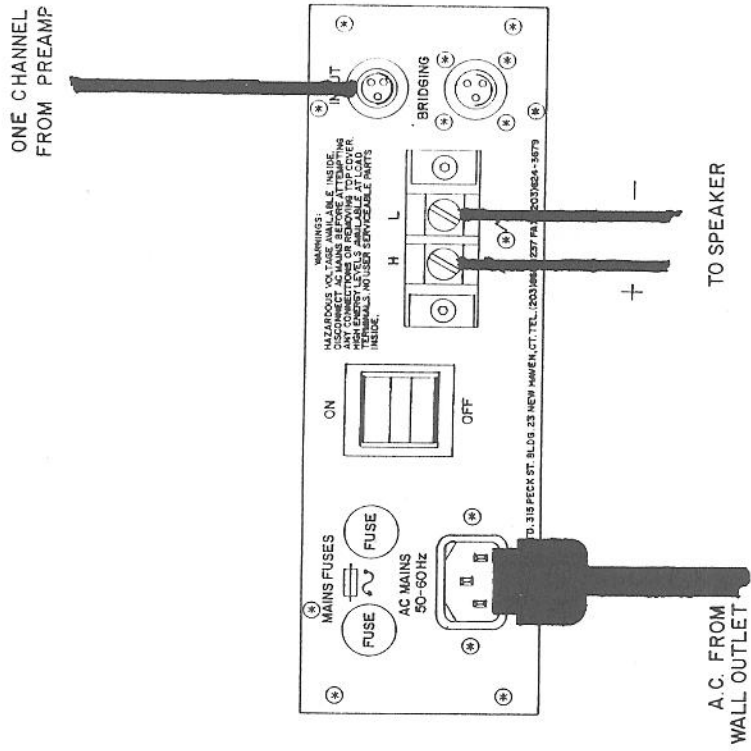
NOTE: The power supply circuit breaker will trip if the power supply is not connected to the amplifier.

The Performance Amplifier can be used as part of a complete Cello System, or in conjunction with other speakers, electronics, and cables.

ENCORE TRUE DUAL MONO AMPLIFIER



ENCORE TRUE DUAL MONO AMPLIFIER



A1

Instructions (cont.)

The performance Amplifier can be used as part of a complete Cello System, or in conjunction with other speakers, electronics, and cables.

CHOOSING ASSOCIATED EQUIPMENT

The following should be kept in mind:

- 1) Speakers should be of a design and type capable of handling the extremely high power levels produced by the amplifier. This is especially important if you plan to use the bridged amplifier configuration.
- 2) Use only with preamplifiers having protection against turn-on/turn off thumps, surges or noises. All Cello equipment uses muting circuits to guard against such problems.
- 3) Make certain that units such as the CD, tuner, tape and phono have no major turn-on turn-off noises. If they do, turn them on or off only while the system is not operating.
- 4) Any failure of Cello equipment due to the improper selection and operation of related non-Cello components shall void the warranty.

OPERATION

The Performance Amplifier is capable of producing extremely high voltage and current levels. Be sure to observe standard precautions when operating. The following steps are recommended.

- 1) Be sure all electrical connections are correct. Triple check them.
- 2) Be certain that the terminal block covers are installed. Do not run the Performance Amplifier without these covers in place.
- 3) Do not run power supply cables, AC mains or audio cables under rugs or sharp objects.
- 4) Turn peripheral source electronics on first. Avoid switching these on or off while amplifiers are in use.
- 5) Set volume controls on preamplifier to minimum.
- 6) Turn amp supply switches on.
- 7) Bring the volume control up slowly to the desired level. Use the amplifier for musical enjoyment. Do not overdrive to create distortion. The

Performance Amplifier is capable of damaging loudspeakers if the volume is up too high.

When you are through switch the amps off first, before turning off the peripheral equipment. Leaving the amps on will not harm them, but be advised that each unit draws approximately 400 watts at idle.

If physical damage has occurred to the unit or it is exposed to water or other liquids, do not use this device until proper repairs and/or unit integrity tests have been effected by authorized personnel.

BRIDGED OPERATION

One pair of Performance Amplifiers may be used as a mono amplifier in bridged mode. In this case, four times the power is available. *CAUTION: Bridged operation should only be carried out with the recommendation of the speaker manufacturer.*

A bridging kit (part number 75-BRDG-00) is required to operate Performance Amplifiers in the bridged mode. The kit may be purchased from

Instructions (cont.)

your Cello Designer. The bridging kit comes with the proper quantity of parts to convert two sets of Performance Amplifiers (four supplies, four amps) to stereo operation by combining one set of amps for the left channel and one set of amps for the right channel.

The following instructions are for connecting only one set of amps (one channel). To connect for stereo, simply repeat the procedure on the second set of amps. See the block wiring diagram for bridged operation to identify these connections.

- 1) Connect all AC and DC cables as instructed previously.
- 2) Make all input connections to one amplifier only.
- 3) Connect the input jumper cable from the bridging output connector of the first amplifier into the input connector of the second amplifier.
- 4) Connect the speaker high lead to one of the output terminals labeled "H" (high) on the first amplifier. Connect the speaker low lead to one of the output terminals labeled "H" (high) on the second amplifier.
- 5) Connect the output ground jumper cable from one of the output terminals labeled "L" (low) on the first amplifier to one of the output terminals labeled "L" (low) on the second amplifier.
- 6) Connect the DC bridging cable, using the color code, from the supply terminals on the first amp to the supply terminals on the second amp.

After repeating the above procedure on the second set of amps the amplifiers are ready for use in stereo. *CAUTION: Make certain the preamp volume is turned down to minimum. Turn AC power "on" for operation.*

MAINTENANCE INFORMATION

The Performance Amplifier is essentially a maintenance-free device designed to last for many decades of enjoyment. No routine maintenance or adjustments are required, however it is recommended that you undertake two actions.

1. Periodic cleaning of the foam fan-air filters.

When these filters become clogged with dirt and dust, the ability of the

amplifier to dissipate heat is reduced. To clean them, gently pull the plastic grille covers off. Rinse foam filters in cold water, allow to air dry, then re-install.

2. Care of finish.

The finish of the Performance Amplifier is of brushed and anodized aluminum. Ammonia based glass cleaner or alcohol works well to restore the shine and remove fingerprints. Be sure that the units are off and unplugged before cleaning and that excess cleaning fluid does not get inside the amplifier. Take care when cleaning near printed words not to rub so hard as to remove the printing.

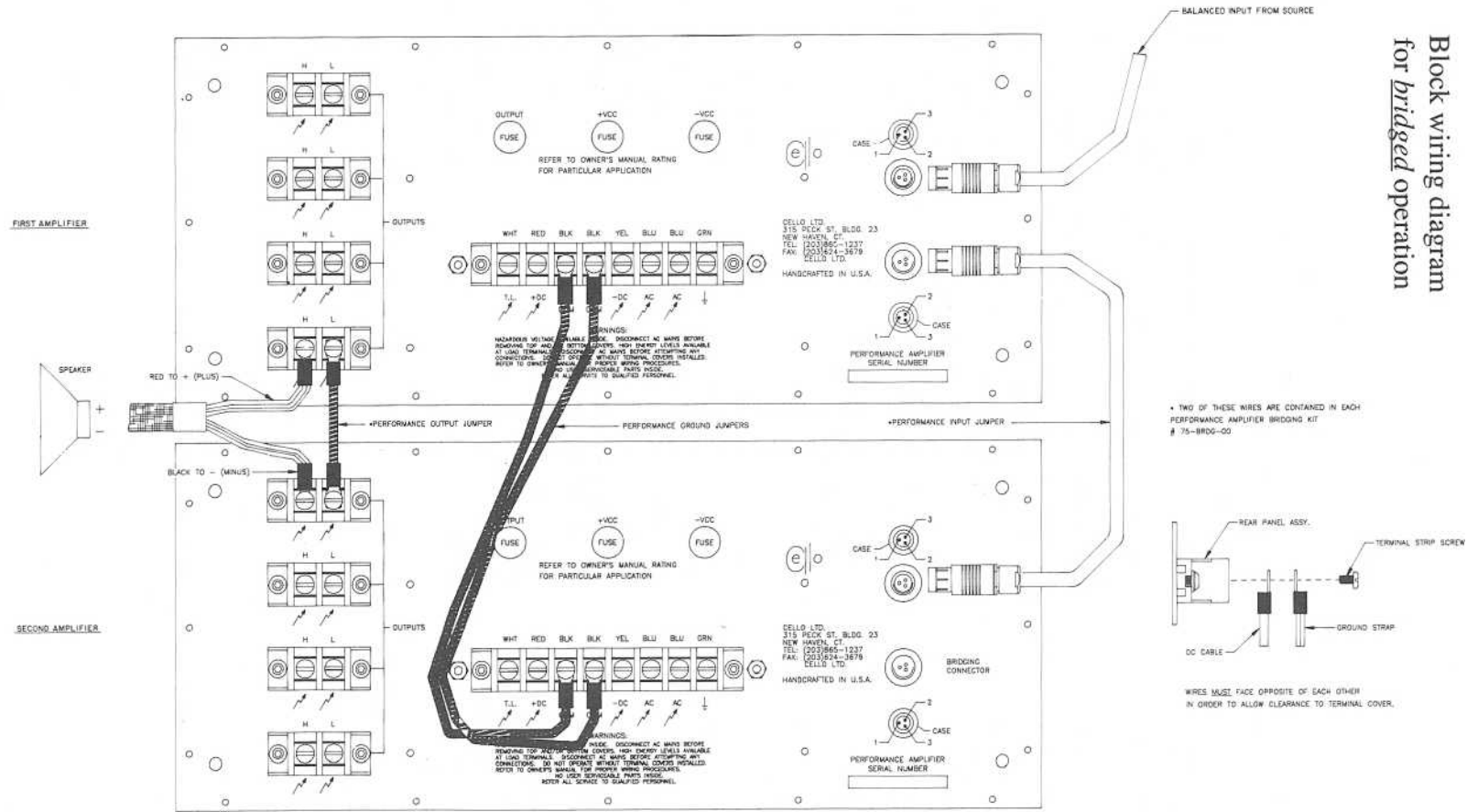
WIRING FOR DIFFERENT LINE VOLTAGES

For voltage change information, contact the factory.

240V OPERATION

Some 220V lines run high, in some cases close to 240V. This may cause mechanical noise in the supply chassis if it is set for 220V. Changing to 240V operation may solve this problem.

Block wiring diagram for *bridged* operation



Instructions (cont.)

ADDITIONAL ACCESSORIES AND PARTS

Cello Strings component interconnect cables are available in pre-made or custom lengths to provide the optimum in signal transfer.

Adapters: A full line of adapters is available to connect Fischer three pin connectors (used on all Cello equipment) to RCA, XLR and Camac as well as other Fischer type connectors.

Replacement Foam Fan-air Filters are available in the event yours should become damaged or lost.

Custom Amplifier DC Cables are available if the supplied length of DC cables is inadequate due to unusual amplifier placement. Please be advised that these are special order items and subject to certain time and availability constraints. Requested lengths should not exceed 20 feet.

CELLO LIMITED WARRANTY

Parts: Cello warranties all mechanical parts for five years and electronic parts for life.

Labor: Labor is the responsibility of the distributor except for the following:

Any defective product during the first year shall be repaired by the distributor with labor paid by Cello according to factory rates for a given repair.

At Cello's discretion, or if the distributor is unable to perform the repair, the unit may be returned to the factory for service using agreed-upon air freight. After repair, the unit will be returned by the same carrier or equivalent. During years 2-5, if the distributor is unable to perform the repair Cello will pay return air freight from the factory by agreed upon carrier provided the unit was shipped to the factory with air freight prepaid.

Cello will not pay freight if units are returned without a Return Authorization number (RA#). Cello will not pay freight if units are found to be in perfect working order.

Warranty of Repair Work Performed:

Any specific repairs or modifications effected by the factory or authorized service facility shall be guaranteed for 100% parts and labor for the remainder of the warranty period for the unit or one year (whichever is longer), except for electronic parts which carry a lifetime warranty.

Product Registration & Transferability:

Distributors shall fill out the form on the outside of the carton when the goods are delivered to the retailer. The form should be sent to Cello, Limited. Warranty cards inside the box shall be completed by the retailer and customer respectively and returned to Cello, Limited within 30 days from the date of the sale to the customer.

All products must be registered. When sold, new owners must be registered for the transfer of the warranty to be effected. All warranties are transferable to any succession of subsequent registered owners. Please contact you nearest authorized Cello supplier or the Customer Service Department at the factory for details of subsequent owner warranty registration.

Tampering/Abuse/Misuse: Any unauthorized modifications, repairs or tampering, and/or any indications of obvious owner abuse, negligence or improper usage, as determined by Cello Limited shall be grounds to void the warranty.

Service: If you believe your Cello equipment is not functioning properly, please call the Customer Service department at the factory. If you need to return your component, you will be given an R/A (return authorization) number. This number must appear on the outside of the shipping boxes. Returns without R/A numbers will not be accepted. Returns received in original Cello packaging will be returned in original packing. Returns received in non-Cello packing will be returned in new Cello packaging at the owner's expense. If you need replacement packing materials, please contact the Customer Service Department at the factory.

Electrical Specifications

Power Output

Single Amp Load (Ohms)	Rated Watts (RMS)	* Clipping @ 1kHz Watts (RMS)
8	200	> 350
4	400	> 700
2	800	>1000
1	1000	>1300

Bridged Set

Load (Ohms)	Watts (RMS)	Watts (RMS)
8	800	>1400
4	1600	>2800
2	3200	>4000

* NOTE: Clipping levels obtained with 1kHz continuous sine wave. It may be necessary to alter the AC line in order to provide the current needed to reach these levels for testing. This does not become a major issue when playing music, even at continued high volume levels into low impedance loads.

IMD SMPTE

60Hz & 7kHz
 40V output.....08%

THD

20Hz - 20kHz
 8 & 4 Ohms, 40V output<0.1%
 1 Ohm, 33V output<.3%

Frequency Response

20kHz -0.8dB
 40kHz -3.0dB

Channel Separation

L - R.....Infinite

Signal to noise

40V output
 20Hz - 20kHz.....<-105dB

Input Impedance

Non-inverting.....1MOhm
 Inverting.....5kOhms

Input Sensitivity

40V output, 8 Ohms
 200W(RMS)1.485V

Gain.....28dB

NOTE: All measurements are for one supply, one amp.
 (All specifications subject to change without notice)

Physical Specifications

AMPLIFIER

	ENGLISH	METRIC
Height (chassis)	7.56 in.	19.2 cm
Height (max.)	8.44 in.	21.5 cm
Width (foothold)	16.50 in.	42.0 cm
Width (chassis)	17.50 in.	44.5 cm
Depth (foothold)	16.2 5in.	41.2 cm
Depth (chassis)	17.00 in.	42.7 cm
Depth (max.*)	18.05 in.	47.1 cm
Weight: Net	45 lbs.	20.4 kg
Boxed	60 lbs.	27.2 kg

SUPPLY

	ENGLISH	METRIC
Height (chassis)	7.56 in.	19.2 cm
Height (max.)	8.44 in.	21.5 cm
Width (foothold)	16.50 in.	42.0 cm
Width (chassis)	17.50 in.	44.5 cm
Depth (foothold)	16.20 in.	41.2 cm
Depth (chassis)	17.00 in.	42.7 cm
Depth (max.*)	18.50 in.	47.1 cm
Weight: Net	45 lbs.	20.4 kg
Boxed	60 lbs.	27.2 kg

Boxed Dimensions: 14.0" H x 25.0" D x 25.0" W
 36.5 cm x 63.6 cm x 63.6 cm

All weights are approximate and do not include exterior cabling.
 Measurement from the rear of terminal strip covers to front plate.
 Does not account for space cabling.

SUPPLIED CABLES AND CONNECTORS:

LENGTH	ENGLISH	METRIC
DC Cable	3 ft., 3 in.	1.0m
AC Mains Cable	7 ft., 4 in.	2.24m

NOTE: All measurements for Amplifiers and Supplies are for individual chassis only.

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