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REAR PANEL DESCRIPTION

1. **PHONO INPUT**
   For conventional moving-magnet phono cartridges with nominal outputs of 2mV.

2. **TUNER INPUT**
   Input from AM/FM Tuner.

3. **AUX INPUT**
   Input from any line level auxiliary component.

4. **TAPE 1 INPUT (Tape Play)**
   From outputs of first tape machine.

5. **TAPE 2 INPUT (Tape Play)**
   From outputs of second tape machine.

6. **CHASSIS GROUND**
   Chassis ground termination for connection of turntable ground.

7. **TAPE 1 OUTPUT (Tape Record)**
   To tape recorder input of first machine.

8. **TAPE 2 OUTPUT (Tape Record)**
   To tape recorder input of second machine.

9. **MAIN OUTPUTS (Switched or Unswitched)**
   The SW outputs are turned off when a headphone is plugged in. This allows headphone listening without speaker background sound. The UNSW outputs are not affected by headphone operation. Both outputs may be used at once, if desired.

10. **AC OUTLETS**
    Three outlets are provided: one unswitched, rated 1200 watts (VA) and two switched, rated 600 watts (VA) each. (5 Amps continuous, 80 Amps surge). Maximum combined power of all outlets is 1200 watts (VA).
Please follow these instructions when installing the Model 3300 preamplifier:

**PREAMPLIFIER CONNECTIONS**

1. Initial Settings:
   a. AC Line Cord not plugged in.
   b. Power switch in out position.
   c. Volume control fully counterclockwise.
   d. All pushbuttons in out positions.
   e. Balance control in center detent position.
   f. Bass and Treble Tone Contour controls centered.

2. External Equipment (See Illustration 2):
   a. Plug the shielded phono leads from turntable into the Phono input, first removing the factory installed shorting plugs. Plug the AC line cord from the turntable into the unswitched AC outlet on the rear of the Model 3300. Connect the ground wire from the turntable to the Chassis Ground lug.
   b. Plug the shielded leads from the tuner into the Tuner inputs and connect all other equipment such as tape decks into the appropriate inputs.
   c. For proper hook-up of auxiliary equipment into the tape monitor loop, please refer to the manufacturer's instruction manual.
   d. Plug the AC line cords from the outboard units into the switched outlets on the rear of the 3300.
   e. Connect the Model 3300's main outputs, either SW (switched) or UNSW (unswitched) depending on headphone listening preference, to the power amplifier's inputs using shielded leads. The power amplifier should be plugged into a switched outlet on the 3300, provided it does not exceed a maximum of 600 watts.

3. Turn-on:
   a. Plug in the AC line cord. Leave the preamplifier turned off.
   b. Make sure the input level controls (if present) on the power amplifier are turned down and the unit is off (if controllable).
   c. Re-check all connections and turn on the Model 3300 Preamplifier. Wait approximately 10 seconds for the solid state output muting circuit to release before continuing.
   d. Turn on the program source (turntable, tuner, tape, etc.). Select the desired source by rotating the Selector switch to the appropriate position.
   e. Turn on the power amplifier and, if applicable, advance the level controls about 3/4 clockwise. When using a power amplifier without level controls, the 3300 Volume knob will provide sole control of the output level.
   f. Advance the Model 3300 volume control until the desired level is obtained. If no sound is heard through the system turn everything off and re-check all connections and setting.
   h. Refer to the Operating Instructions portion of this manual for correct operation of the Model 3300.
FRONT PANEL CONTROLS

Illustration 3

1. SELECTOR SWITCH:
   Determines the source to be played through the Phase Linear 3300 Series Two.

2. TREBLE TONE CONTOUR:
   Clockwise rotation boosts treble, counterclockwise cuts treble.

3. BASS TONE CONTOUR:
   Clockwise rotation boosts bass, counterclockwise cuts bass.

4. VOLUME CONTROL:
   Stepped attenuator featuring 22 positive detented positions. Clockwise rotation increases volume. Control is accurately calibrated in dB attenuation as shown.

5. TAPE 1 MONITOR SWITCH:
   Out for source; in for monitor or playback of Tape 1.

6. TAPE 2 MONITOR SWITCH:
   Out for source; in for monitor or playback of Tape 2.

7. HEADPHONE JACK:
   Stereo jack for either low or high impedance headphones; also controls switching of SW OUTPUT. SW output automatically mutes when headphones are installed while UN-SW output is unaffected.

8. BASS TURNOVER SWITCH:
   In for 250Hz turnover; out for 100 Hz turnover.

9. BALANCE CONTROL:
   Use to shift stereo image to the right (CW), or to the left (CCW). The center position is identified by a positive detent.

10. POWER SWITCH:
    Push in to turn unit on and activate AC switched outlets. Amber LED indicator lights upon power up.

11. MUTE SWITCH:
    Push in to engage the -20dB attenuator network. Used to expand the range of the Volume Control at low listening levels and for quick reduction of overall sound level.

12. TREBLE TURNOVER SWITCH:
    In for 3kHz turnover; out for 6.5kHz turnover.

13. TONE CONTOUR SWITCH:
    Push in to activate Tone Contour circuits. With button out, Tone Contour circuits are bypassed, providing flat frequency response.
VOLUME CONTROL AND MUTE SWITCH

The volume control in the 3300 is a true stepped attenuator consisting of 22 precise positions made by vapor-depositing thick film resistors onto a ceramic substrate. Calibrated 2dB steps are available through the -30dB position, at which point each successive step becomes larger. If normal listening levels puts the volume control into the larger step segments, increased control will be gained by pressing the mute switch. This engages a -20dB pad and will now allow the volume control to be advanced back into the 2dB/step zone.

HEADPHONES

The Model 3300 incorporates a true high-fidelity headphone amplifier that powers the panel mounted jack. Use of headphones involves nothing more than plugging the headphones into the jack. All control functions remain active for use with the headphones. No circuitry is bypassed.

Headphone listeners seem to fall into two broad categories: Those who wish the main speakers muted while using headphones, and those who do not. For this reason, the 3300 provides two sets of main outputs. Output SW is controlled by the headphone jack and disconnects whenever headphones are plugged in: Output UNSW is unaffected by headphone operation.

CAUTION:

The power output of the Model 3300 headphone amplifier may exceed the maximum allowed by some headphone manufacturers. Consult the owner's manual supplied with your headphones for the maximum limitations on either power or voltage and check Illustration 4 before any attempt is made to operate the 3300 at full volume.
TONE CONTOUR AND BASS/TREBLE TURNOVER SWITCHES

The Phase Linear 3300 has adjustable tone contour turnover points. (See Illustration 5.) The turnover point is the frequency where the tone controls begin to take effect. The turnover point for the Bass control may be set at 100Hz by leaving the Bass Turnover button out. In the depressed position the turnover point is switched to 250Hz and the bass boost/cut will be audibly greater. The turnover point for the Treble control is set at 6.5kHz with the Treble Turnover button in the out position. In the depressed position the turnover is changed to 3kHz which will increase the effect of the Treble Tone control. The tone controls can boost or cut up to 14dB starting at the turnover point selected, rotating clockwise for boost and counterclockwise for cut. It should be noted that the Model 3300 tone controls are designed to compensate for typical speaker deficiencies and not to augment poor source material. They are therefore subtle in effect, so as not to alter the critical mid-frequency area; acting instead only on the highest and lowest octaves.

Below are listed some hypothetical loudspeaker irregularities and how to utilize the tone controls and turnover points to correct them:

1. Excessive or "boomy" bass: set bass turnover for 250Hz and gradually turn the bass control knobs counterclockwise until bass response is "tighter."
2. Excessive midrange or presence: set treble turnover to 3kHz and gradually turn the Treble Control knob counterclockwise until the midrange level is more closely matched to the bass response.
3. Lack of high frequency response: set Treble turnover to 6.5kHz and gradually turn the Treble Control knob clockwise until the response is improved.
TAPE FUNCTIONS
The Phase Linear 3300 Series Two preamplifier is equipped with two complete tape recording/playback circuits which provide for a great deal of flexibility. In addition to the usual record and playback facilities for two tape decks it is also possible to copy from Tape 1 onto Tape 2 or vice-versa.

PLAYBACK OF TAPE 1:
Press in the Tape 1 Monitor switch and set the tape machine for playback operation. The position of the Selector switch is irrelevant.

RECORD ON TAPE 1:
Set Selector Switch to the desired source. With the Tape 1 pushbutton in the out position, the source being recorded will be heard. With the Tape 1 button pressed in, the recording being made is monitored.

PLAYBACK OF TAPE 2:
Same as procedure for Tape 1.

RECORD ON TAPE 2:
Same as procedure for Tape 1.

COPY TAPE 1 ONTO TAPE 2:
Rotate the Selector Switch to the Tape Copy 1-2 position and set Tape 1 for playback and Tape 2 for recording. With the Tape 2 button in, the new recording being made on Tape 2 is monitored. To hear the original source (Tape 1) the Tape 2 button must be in the out or source position. The position of the Tape 1 pushbutton is irrelevant.

COPY TAPE 2 ONTO TAPE 1:
Rotate the Selector Switch to the Tape Copy 2-1 position and set Tape 2 for playback and Tape 1 for recording. Make sure the Tape 2 pushbutton is in the out position. When the Tape 1 button is in, the new recording being made on Tape 1 is monitored. To hear the original source (Tape 2) the Tape 1 button should be out. It should be noted that while “dubbing” from one recorder to another only tape may be listened to.

NOTE: For the correct connection and operation of auxiliary equipment normally used in the tape path, such as equalizers, refer to the respective manufacturer’s instruction manual.
A block diagram of the Model 3300 appears in Illustration 6 and is provided as a quick reference for hook-up and operation purposes. The preamplifier phone input connects directly to a non-inverting, 40dB @ 1kHz, RIAA equalized, low distortion, high-speed gain stage. This signal is presented along with all other inputs to a duplicate contact mechanical 5-position switch. The output of this switch provides signal to the tape outputs and one side of the Tape 1 source-monitor switch. The other side of the Tape 1 switch is connected to the Tape 1 input. This provides switching between the input and output of the Tape 1 recording machine. Tape 2 connects following Tape 1. Leaving Tape 2, the signal passes through the muting switch, balance control and volume control. The line amp is a wideband high-speed 20dB gain stage capable of driving loads as low as 1000 ohms. Tone controls are provided, using dual pots, in conjunction with a high-speed gain stage. Turnover selection is provided by addition of appropriate capacitors.

The tone control switch selects either line amp output or tone control output. The selected signal goes to a low distortion headphone amplifier using complementary output. Upon insertion of the headphone jack the main switched outputs open. At the same time the signal from the tone control switch drives the solid-state output muting circuit. On actuation of the power switch, the output controller starts timing and after about 10 seconds the controller deactivates the circuit allowing main and switched outputs to be driven. On power off, the main outputs are immediately shunted to ground, thus preventing output thumps.

RECOMMENDED ACCESSORIES

1. Integral mounted, contoured solid-walnut wood side panels with deep-brushed aluminum top cover.

MAINTENANCE AND SERVICING

CLEANING
To maintain the luster of the front panel, occasionally clean it with a soft paper towel and diluted ammonia. This will remove dulling films which have a tendency to build up on the brushed finish.

REPAIR FACILITIES
Only qualified technicians should be allowed to repair the Phase Linear Model 3300. Phase Linear Corporation and its authorized warranty stations have the personnel and equipment to repair the Model 3300. Should any problems occur with the unit, BE SURE to consult the dealer nearest you, or call or write the Factory Service Department BEFORE sending it anywhere for repairs. This will help you to identify and locate any specific malfunctions and possibly avoid needless shipment. Please include the serial number of the Model 3300 in any correspondence.

If the Model 3300 is in need of service, either send it to the factory or take it to the nearest warranty station described on the enclosed list. Be sure to enclose a complete description of any problem, serial number, copy of sales slip, warranty card, name and return address with returned unit. If assistance of any kind is required, please feel free to contact the Factory Service Department, 20121-48th Avenue West, Lynnwood, WA 98036. Phone (206) 774-8848.

SHIPPING
Never ship the Model 3300 in any shipping carton other than the original or a replacement supplied by Phase Linear. Ship only via a reputable carrier. DO NOT USE PARCEL POST! Insure the unit for the full value and double check to ensure the unit is properly packaged.

CAUTION: Do not ship the Model 3300 with wooden sides or decorative top cover.
SPECIFICATIONS

RATED OUTPUT VOLTAGE:
2.0 Volts RMS
(0.5 Volts RMS, IHF)

THD @ RATED OUTPUT:
less than 0.003% (20Hz-20kHz)

FREQUENCY RESPONSE:
Phono RIAA Deviation: ± 0.25 dB
High Level: 10Hz-135kHz ± 0, −3dB

SIGNAL-TO-NOISE RATIO:
Phono: 92dB below 2.0V rms,
A-weighted (-80dB, IHF)
High Level: 98dB below 2.0V rms,
A-weighted (-86dB, IHF)

INTERMODULATION DISTORTION:
SMFTE (60Hz, 7kHz @ 4:1): less than 0.002%
IHF (Two frequencies 200Hz apart
sweep from 200Hz-20kHz): less than 0.008%

INPUT IMPEDANCE:
Phono: 47k ohms shunted by 100pF
High Level: 35k ohms

INPUT SENSITIVITY RATED
OUTPUT:
Phono: 2.2mV (0.55mV IHF)
High Level: 225mV (50 mV IHF)

MAXIMUM OUTPUT AT CLIPPING:
Greater than 10 volts into 10k ohms
@1kHz

PHONO OVERLOAD LEVEL (1kHz):
100mV
VOLUME CONTROL TRACKING:
± 0.5dB

SLEW FACTOR (IHF):
60

SLEW RATE:
10 Volts per microsecond

CHANNEL SEPARATION:
80dB @ 1kHz; 50dB @ 20kHz

TONE CONTROLS:
Maximum Range: ± 14dB
Bass Turnover Points: 100Hz and
250Hz
Treble Turnover Points: 3kHz and
6.5kHz

HEADPHONE AMPLIFIER:
Rated Power Output: 90mW into 8
ohms with less than 0.05% THD
from 20Hz-20kHz, both channels
driven.
Frequency Response: 20Hz-20kHz
+ 0, −9dB
Load Impedance: 2-2000 ohms

GENERAL
Power Requirements: 90-132 VAC,
50/60Hz (USA, Canadian and
selected export markets),
180-264 VAC, 50/60Hz (General
export model).
Power Consumption: 10 watts

AC Outlets: 2 switched rated 600
watts (VA) maximum
each.--
1 unswitched rated 1200
watts (VA) maximum.
(Maximum combined
power of all outlets can-
not exceed 1200 watts
(VA).)

UNIT
Dimensions: 19"w x 2½"h x
9 5/8"d; (48.3cm x 6.4 cm x 25.6
cm)
Weight: 9 lbs.; (4.1kgs)

SHIPPING
Dimensions: 22"w x 6½" h x
12¾"d (55.9 cm x 16.5 cm x
32.4 cm)
Weight: 11.5 lbs.; (5.2 kgs)

NOTE:
Specifications subject to change
without notice.