HERMON HOSMER SCOTT, INC.
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Cambridge 39, Mass.

INSTRUCTIONS FOR THE OPERATION
of the Type 265-A
Laboratory Power Amplifier

DESCRIPTION

The 265-A is rated at 70 watts short-term output for music, 65 watts con-
tinuous, for the most demanding installations. Outstanding features include:

* Exclusive "Dynamic Power Monitor" which reduces danger of
  speaker burnout on continuous overload.
* Continuously Variable Damping Control that permits the damp-
  ing factor of the amplifier to be set for precisely what the
  speaker manufacturer recommends.
* Class A circuitry throughout for minimum distortion at all
  listening levels.

DO NOT plug in line cord before reading these instructions.

INSTALLATION

Unpack carefully, and inspect to see that everything is intact and that all
rabes are firmly in their sockets. The instrument requires adequate ventilation
to dissipate the generated heat. Do not completely enclose the amplifier. It is
preferable to place the instrument on an open shelf with as much ventilation as
possible.

EXTERNAL CONNECTIONS

Loudspeaker

First obtain the value of the impedance of your speaker or speaker system.
This is usually included in the speaker instructions, or stamped on the speaker
or housing.

Select from the table below the range in which the impedance of your speaker
falls. Then use the two terminals indicated for proper connection:

<table>
<thead>
<tr>
<th>If speaker impedance is between:</th>
<th>Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>use 0 - 2</td>
</tr>
<tr>
<td>4 - 5</td>
<td></td>
</tr>
<tr>
<td>6 - 12</td>
<td>0 - 8</td>
</tr>
<tr>
<td>13 - 24</td>
<td>0 - 16</td>
</tr>
</tbody>
</table>

The amplifier is available with a special 500 ohm output on special order.

* Note: These instructions for all serial numbers above #1018.
If you use more than one speaker, divide each speaker impedance by the number of speakers in the system and connect each speaker to the terminal nearest the value obtained after dividing.

**Input Connections**

Two input jacks are provided. One is labeled "0.5 volt INPUT" and requires .5 volts for full output. The "120-121" jack requires 1.5 volts for full output.

The H. H. Scott 121 DYNAURAL Equalizer-Preamplifier, or the 120-series preamplifier, should be connected to the "120-121" jack. When using other preamplifiers, the jack used will depend upon the output voltage of the preamplifier.

Connections between the 265-A and the preamplifier should be made with a shielded cable. Cinch PC2m "phono" connectors will fit the input jacks of the 265.

**SETTING THE CONTROLS**

**Dynamic Power Monitor**

This feature reduces danger of speaker burnout from continuous overload and yet allows maximum output for musical peaks. If signal of amplitude and duration sufficient to endanger the loudspeaker occurs, the regulator-monitor circuit instantaneously reduces the power to the level for which the control is set. The monitor has absolutely no audible effect on music.

It is an important safety feature when an amplifier with the high power rating of the 265 is used.

1. If no information is available on the power-handling capacity of your speaker system, set the control between 20 and 30 watts.

2. If speaker power handling capacity is rated in terms of the largest power amplifier the speaker will accommodate, set the power monitor to twice this value.

   If speaker power information is in terms of the largest RMS power input to the speaker, set the power monitor to this value.

3. If you are using more than one speaker, the control should be set for the speaker with the lowest power handling capability multiplied by the number of speakers.

   When the power monitor is reducing the average power output, the neon indicator light will go out.

**Speaker Damping Control**

This feature allows the damping factor of the 265-A to be set exactly in accordance with the speaker manufacturer's recommendations. Correct damping
insures superior low frequency response without speaker "ringing" or "hangover". The H. H. Scott variable damping system introduces no change in gain, no loss of power, and no increased distortion or instability. The only characteristic changed by the damping control is the damping factor.

For most speakers, a damping factor between 2 and 10 is satisfactory. The correct setting depends on the impedance tap that is used. For the 16 or 8 ohm speaker taps, damping factor is read directly from the DAMPING FACTOR control. If the 4 or 2 ohm speaker taps are used, refer to Fig. 1 for the correct setting. The setting should be made on the "16 ohm" scale of the control. A low damping factor tends to increase "boom" in speaker response. If the system sounds too "boomy" a higher damping factor should be used. The exact setting of the control will depend on your personal preferences for bass response.

Listed below are suggested damping factors for several well known speakers:

<table>
<thead>
<tr>
<th>Speaker manufacturer</th>
<th>Damping factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stevens</td>
<td>1:1</td>
</tr>
<tr>
<td>Altec</td>
<td>1:1</td>
</tr>
<tr>
<td>Klipsch-type speakers</td>
<td>Between 10:1 and 15:1</td>
</tr>
</tbody>
</table>

Information on other speakers is often supplied by the manufacturer.

LEVEL Control

When the 265-A is used in conjunction with the H. H. Scott Type 120 or 121 Equalizer-Preamplifiers, set LEVEL control to 50 for average speakers and rooms. Final adjustment of the LEVEL control on the 265-A may be necessary for proper operation of the LOUDNESS control on the Equalizer-Preamplifier. This can be done as follows: Play a record of fairly steady volume and with a good balance of highs and lows, such as a symphony, etc. Turn the LOUDNESS control to 7 and listen for the balance of highs and lows. Then turn the LOUDNESS Control to 3 and listen again. If the music sounds too thin and lacking in bass with the LOUDNESS control at 3, then increase the setting of the 265-A LEVEL control. If the music sounds too boomy in that position, decrease the 265-A LEVEL control setting. Be sure that the Loudness-Volume switch on the Preamplifier is in the Loudness position.

When the 265-A is used as a separate laboratory power amplifier, the LEVEL control can be used as a variable gain control for changing the degree of amplification. The maximum undistorted power rating is not changed by the LEVEL setting. The LEVEL control is merely a means for compensating for different input signals and external conditions.

POWER CONNECTIONS

The 265-A should be operated from a 117 volt, 50-60 cycle AC ONLY source. The power is controlled with the ON-OFF switch located on the chassis. 3.2 ampere slow-bio fuses are provided. Two accessory AC outlets are included which provide power up to 3.5 amperes or 400 watts. These outlets are unfused, and are operated with the ON-OFF switch.
If desired, the AC line-cord can be plugged into the spare outlet on the preamplifier, and the 265 power turned on when the preamp is turned on.

FACTORY ADJUSTMENTS

Balance Control: The self-balancing phase inverter automatically balances the output circuit of the 265-A. For extremely precise laboratory adjustment, a balance control is provided which is factory set for the original tubes. This control has no audible affect when the amplifier is used with music and may be left as received or set at mid-position. When the amplifier is used for laboratory applications the balance control may be adjusted with the aid of a wave analyzer or distortion meter if tube replacement or ageing requires it.

SERVICE

Service attention on this unit is virtually never required. However, if the performance appears defective, our experience has shown the most likely reason to be vacuum tubes which have become defective, or improper connections made to the amplifier. Replace each tube with a new one, noting if there is any improvement. It is preferable to start with the 1614 power tubes or the 5U4GA power rectifiers. All four 1614's should be replaced at once. If no difference is noted after replacing the tubes, the original ones are probably satisfactory and may be returned to use. Checking with a radio tube tester may not indicate tube faults which cause unsatisfactory operation of the 265-A. Make sure all connections are carefully made, and that inputs to the 265-A are well shielded.

Tubes: 12AX7 Voltage Amplifier, 12AX7 Phase Inverter, 2-5U4GA Rectifiers, 6080 Power Regulator, GAMS Power Regulator Control Tube, 4-1614 Power Output.

TECHNICAL SPECIFICATIONS

Power Output: 70 watts RMS short-time, 65 watts long-time, 140 watts instantaneous peak.

Frequency Response: Flat from 12 cps to 80,000 cps.

Harmonic Distortion: Less than 0.5% at full output, negligible at lower levels

Intermodulation Distortion: First order difference tone less than 0.1% at rated peak output.

Input voltage to operate at full output: .5 volts for .5 megohm input
1.5 volts for 1.5 megohm input

Damping range: Continuously variable from 0.5 : 1 to 30 : 1 on 16 ohm tap.

Power Monitor Range: Continuously variable between 8 watts and 70 watts.

Hum and Noise: Greater than 90 db below full power output.
FIG. 1