

ADJUSTMENT PROCEDURE  
(CONTROL SETTINGS)

H-100 SERIES



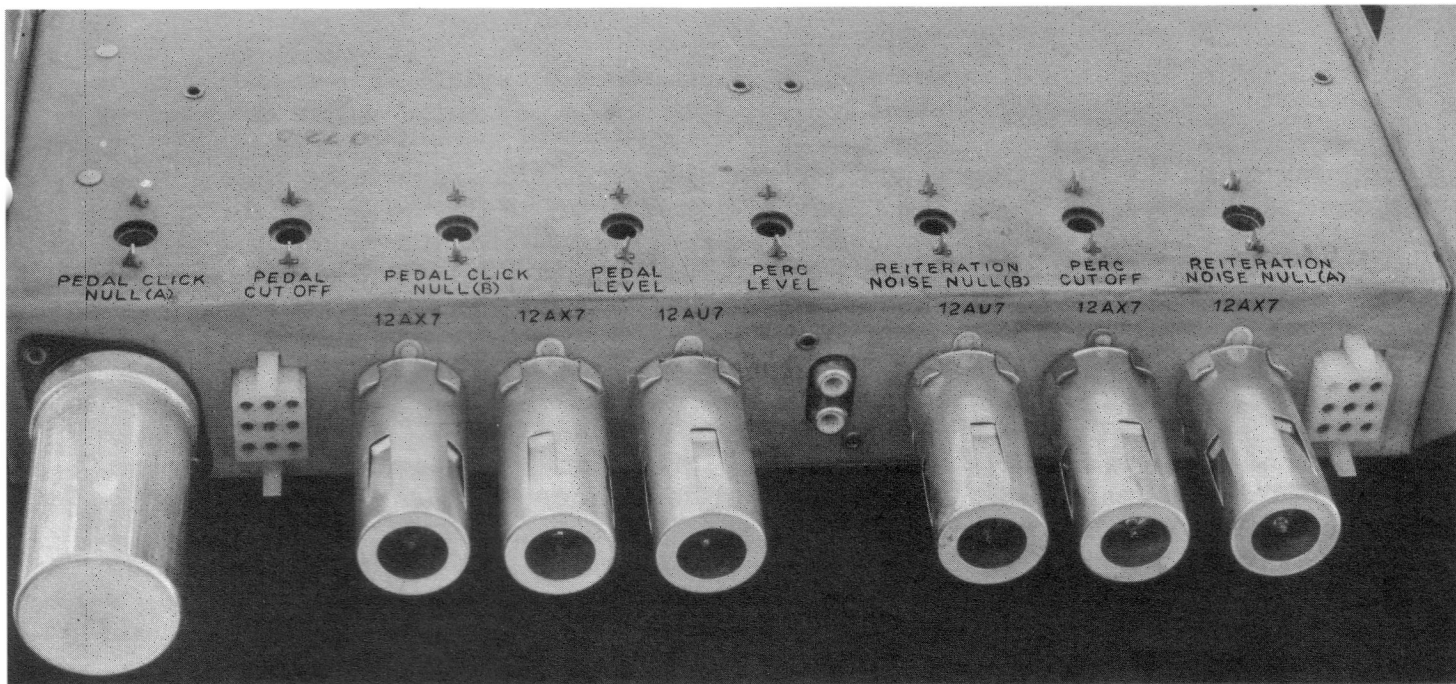
**HAMMOND ORGAN COMPANY**  
**DIVISION OF HAMMOND CORPORATION**  
4200 DIVERSEY | CHICAGO, ILLINOIS 60639

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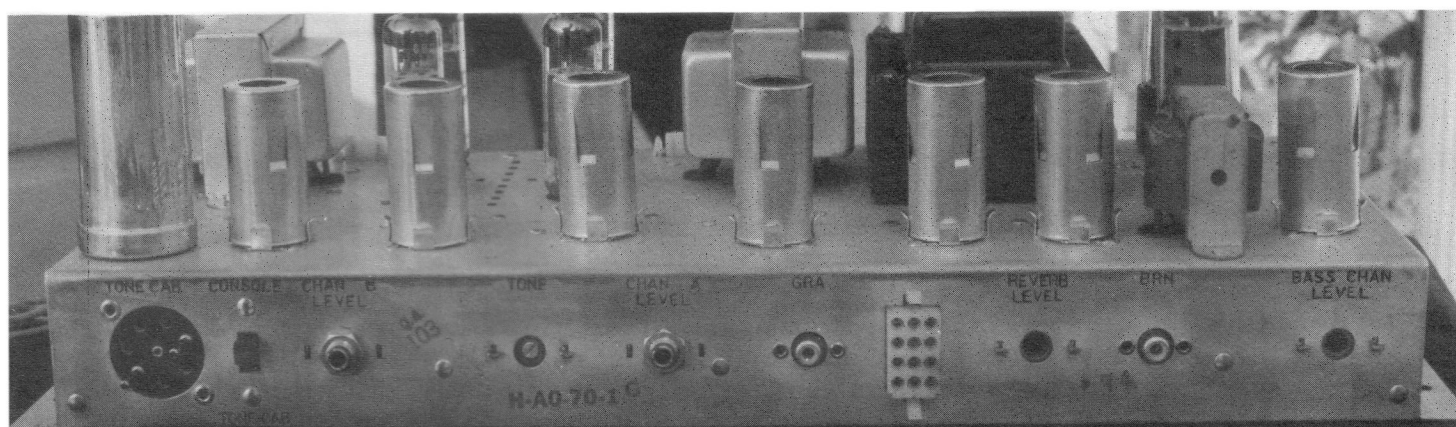
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## NOTICE

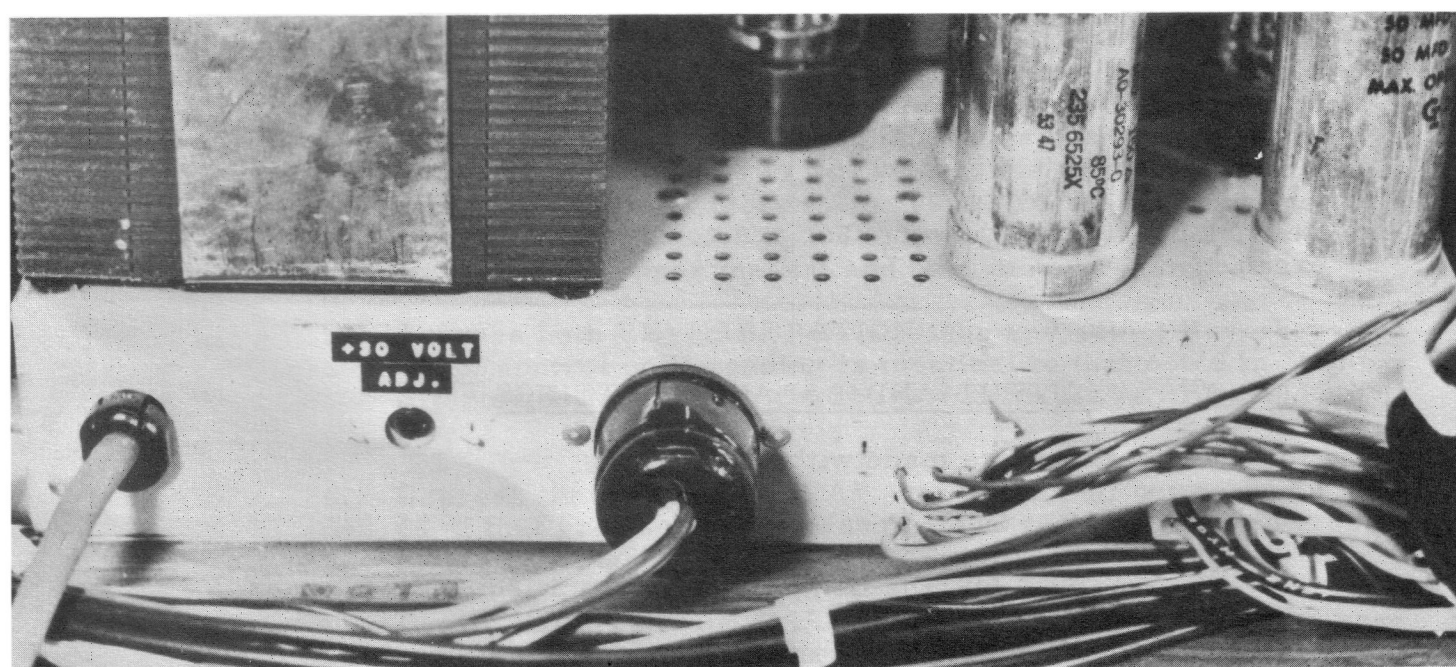
This booklet contains important control setting information. If tests indicate that an adjustment of the control settings is necessary, proceed as outlined on the following pages. For control locations see figures 3, 4, & 5.



H-100 PRE-AMP. FIGURE 1



H-100 POWER AMPLIFIER. FIGURE 2



POWER SUPPLY. FIGURE 3

## ADJUSTMENT PROCEDURES

To properly make the following adjustment settings, you should have the following equipment:

1. An AC VTVM such as Simpson Model 715 for \$75.00, or a Heathkit Model IM-21 for \$34.00 in "kit" form, or Model IMW-21 for \$53.00 "Ready Built".
2. A Quality Volt OHM Meter, such as Simpson Model 260-5 for \$58.00.

We have found a single meter, Heathkit Model IM-25, in "kit" form for \$80.00 or Model IMW-25 "Ready Built" for \$115.00 to be an acceptable substitute for both the above meters.

Before adjustments can be made it will be necessary to:

1. Remove console back cover.
2. Remove screw that secures Harp Assembly to preamplifier, and swing Harp Assembly out.
3. Remove console top. Be sure to unplug music rack light.
4. Remove the two covers located on the rear of the Control Panel Assembly.
5. Remove the top cover of the Control Panel Assembly.

NOTE: Before making any AC output adjustment, make the following DC settings.

1. Check the collector voltage of the finned transistor on the vibrato drive board. The case of this transistor is the collector. If the collector voltage is not 70 volts, adjust the bias control near this transistor so that 70 volts is attained.
2. Depress any STRING BASS tab. Press and release any pedal. Adjust 30 volt control on power pack so that 18 volts\* appears between pin 6 of plug P-702 (positive) and ground. \*On later series instruments (those which have additional contacts on lowest 8 notes when using 16' Mellow drawbar) set control for 14 volts instead of 18 volts.

NOTE: Keys or pedals called by number are counted from low note end of the organ.

## OUTPUT AND BALANCE SETTINGS

All of the following settings are made with:

- A. Swell Pedal wide open.
- B. All tabs UP, except as specified.

Later model H-100 organs with power amplifiers coded G and above, incorporate Concentric Level controls for the A and B channels. The inner control is accessible

by inserting a screwdriver through the hole in the outside Pot, and adjusts the level of the signal being fed to the tone cabinet outlet.

The outer controls adjusts the level of the console speakers only. To adjust the tone cabinet level it will be necessary to connect an AC VTVM with a 47K resistor across its input terminals to pins 1 and 7 of the tone cabinet outlet. Pin 1 is the A channel and Pin 7 is the B channel. Proceed as in Step #1 below, in which case each pin should show a reading of .17 volts. Adjust proper control until this reading is attained.

For the following adjustments an AC VTVM should be connected across specified speaker. The A speaker is mounted above the power supply. The B speaker is above the power amplifier. The Bass speaker is the large speaker above the power amplifier.

Before starting this procedure, set Percussion and Pedal Level and REITERATION RATE controls to a full clockwise position. Set tone control on power amplifier to midway position.

Controls to be set in Steps #1, 3, 4, 5 and 6 are located on Power Amplifier Chassis.

1. B Meter Across Speaker Indicated  
Depress Upper Manual B Preset Key. Pull out 4th draw bar of upper manual B group. Depress Key 25 and adjust Channel B Level for a meter reading of .54 volts.
2. B Add ON UPPER tab to above registration and adjust Vibrato Gain control located on top of vibrato drive board for a reading of .54 volts. After adjusting lift ON UPPER tab.
3. B Push in 4th drawbar and pull out drawbar #9 of upper manual B group. Depress key 48 and adjust Tone Control for a meter reading of .14 volts.
4. A Push in 9th drawbar and pull out 4th drawbar of upper manual B group. Depress key 25 and adjust Channel A Level for a meter reading of .54 volts.
5. Bass Push in 4th drawbar and pull out 1st drawbar of upper manual B group. Depress key 25 and adjust Bass Level control for a meter reading of 1.5 volts.
6. A
  - a. Setup the following registration 00060708000, on the upper manual B group drawbars. Depress keys 13, 14, 15, 16 and 17 on the upper manual and note meter reading.
  - b. Depress both REVERBERATION tabs and adjust Reverberation Level control until reading is identical to that noted in Step 6a. After adjusting push in drawbars and lift REVERBERATION tabs.
7. A
  - a. Depress the upper manual A# preset and pull out drawbar #4 of that group. Depress keys 13, 15 and 17, and note meter reading.
  - b. Depress B preset and HARP SUSTAIN tab. Depress same keys and adjust Harp Level control on harp board until reading is identical to that noted in Step 7a. After adjusting push in drawbar and lift HARP SUSTAIN tab.

8. A Depress BANJO tab. Depress key 25 and adjust Percussion Cutoff control until note is barely audible.
9. A
  - a. Depress the upper manual A# preset and setup the following registration 00078888800 on the upper manual A# group. Depress key 25 through A# preset, and note meter reading.
  - b. Depress BANJO and SECOND VOICE tab. Play key 25 through B preset and adjust Percussion Level control until reading is identical to that noted in Step 9a.
10. A
  - a. Depress BANJO and SECOND VOICE tabs. Play the middle C E G chord percussively at about 5 strokes per second, and observe the maximum swings in the output of the A channel.
  - b. Lift SECOND VOICE tab and continue to play the chord percussively. Adjust the Reiteration Drive control, located on the rear of the reiterator chassis, until reading is identical to that noted in Step 10a.
11. Bass Depress BANJO and REITERATION tabs. Partially depress the highest key on the upper manual to the point where the reiteration thump is heard. Wedge key in this position. Adjust Reiteration Noise Nulls A and B for minimum audible keying thump and meter reading. After adjustment lift BANJO and REITERATION tabs.
12. Bass Pull out all pedal drawbars and depress either STRING BASS tab. Depress the highest pedal and release, adjust Pedal Cutoff control until note disappears. After adjusting lift STRING BASS tabs.
13. Bass Pull out Pedal drawbar #1 and depress pedal #13. Adjust Pedal Level control for a meter reading of 6.0 volts.
14. Bass With all drawbars IN, and all tabs UP, depress any pedal repeatedly and adjust Pedal Click Nulls A and B for minimum audible keying thump and meter reading.
15. B Set BRUSH-CYMBAL LEVEL control to full clockwise position. Depress CYMBAL PEDAL tab. Depress any pedal rapidly, observe fluctuating output reading. Adjust CYMBAL LEVEL control on brush and cymbal board for a reading of 3.0 volts.
16. B Depress BRUSH tabs. Play any three keys repeatedly and adjust Brush Level control to attain reading identical to that in Step 15.
17. Bass
  - a. With all controls properly set, all metal covers in place, and all keys and tabs up, hum and noise should be less than .040 volts.
  - A or B b. Under same conditions as stated above hum and noise should be less than .015 volts.