

HEATHKIT AUDIO GENERATOR MODEL 10-1000



Output ~ Amplitude OFF ON

This section contains two output jacks (one black, one red), a knob labeled "Amplitude", and a power switch with "OFF" and "ON" positions. A tilde symbol (~) is positioned above the amplitude knob.

OFF ON ~ Amplitude Output

This section contains a power switch with "OFF" and "ON" positions, a knob labeled "Amplitude", and two output jacks (one red, one black). A tilde symbol (~) is positioned above the amplitude knob.

IG-5282 Audio Generator

The Heathkit IG-5282 Audio Generator is an audio frequency signal generator. It provides sine wave and square wave signals that may be used as a signal source for harmonic distortion measurements, as an external modulator for an RF signal generator, or in tests of audio amplifiers for gain or frequency response. The square wave signals can also be used to trigger digital instruments

SPECIFICATIONS

- Frequency Output 10 Hz to 100 kHz in four ranges
- Sine wave Output Voltage 0 - 3 volts peak
- Square wave Output Voltage 0 - 3 volts peak
- Power Supply (2) 9-volt batteries or IPA-5280-1 Power Supply
- Dimensions 5-3/4" high, 11" wide, 7-3/4" deep
- Net weight 3-1/2 lbs.

Calibration Procedure

- . If using the unit as a portable instrument, install a fresh set of 9-volt batteries and set the SOURCE switch (on rear of unit) to the BATT position.
- . If powered using the IPA-5280-1 AC Power Supply, set the SOURCE switch (on rear of unit) to the LINE position.
- . Disconnect all external components from the front panel terminals.

Ancillary Equipment Needed

Oscilloscope
VTVM

* * * * *

RESISTANCE CHECKS
Refer to Pictorial 18
Illustration Booklet page 3

- () Temporarily remove the 9-volt batteries if installed.
- () Set the SOURCE switch [on rear of unit] to the BATT position if connected to an IPA-5280-1.
- () Set both POWER switches (sine and square waves) to the OFF positions.
- () Set the VTVM FUNCTION switch to the OHMS position.
- () Set the VTVM RANGE switch to the R x 100 position.
- () Connect the VTVM common lead to the chassis.
- () Touch the ohmmeter probe to the collector of transistor Q4.
[Toward the front panel side of the SYM control on the circuit board]
- () Meter indication should be 1000 w or higher when the pointer stops.
- () Set the VTVM RANGE switch to the R x 10K position.
- () Touch the ohmmeter probe to the collector of transistor Q5.
[Left side of the BIAS ADJ control facing the tuning capacitor on the circuit board]
- () Meter indication should be 100K w or higher.
- () Set both POWER switches to the OFF positions.

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INITIAL CIRCUIT BOARD ADJUSTMENTS

- () Install fresh batteries (if using them) and set the SOURCE switch to the BATT position.

ig-5282 alignment instructions.txt

- () If the unit is powered using a IPA-5280-1, set the SOURCE switch to the LINE position.
- () Remove the upper ground shield (see Detail 20A).
- () Set the FLATNESS ADJ control trimmer screw clockwise until snug. [Right side the tuning capacitor on the circuit board]
- () Set the FLATNESS ADJ control trimmer screw one turn counter-clockwise.
- () Set the sine wave AMPLITUDE control to maximum clockwise.
- () Set the square wave AMPLITUDE control to maximum clockwise.
- () Set the RANGE switch to the X 100 position.
- () Set the DIAL FREQUENCY control to maximum counter-clockwise.

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INITIAL ADJUSTMENTS WITHOUT THE UPPER GROUND SHIELD
Refer to Pictorial 10
Manual, page 20

- () Connect the common (ground) lead of the VTVM to the chassis.
- () Set the VTVM FUNCTION switch to the DC+ position.
- () Set the VTVM RANGE switch to the 15V position.
- () Connect the VTVM probe to test point A. [White wire from bottom lug on terminal strip to connection B on the circuit board]
- () Adjust the BIAS ADJ control for a zero volt meter indication.
- () Set the RANGE switch to the X1 position.
- . Adjust the FEEDBACK ADJ control at the lower frequency end of the band and the FLATNESS ADJ control at the higher frequency and of the band. No point across the band should exceed a 3 V indication.
- ()* Set the DIAL FREQUENCY control to maximum counter-clockwise.
- ()* Set the FEEDBACK ADJ control until a 3 V meter indication. [Behind the large tuning capacitor]
- ()* Set the DIAL FREQUENCY control to maximum clockwise.
- ()* Adjust the FLATNESS ADJ control trimmer screw until a 3 V meter indication. [Near right front of tuning capacitor on the circuit board]
- ()* Adjust the DIAL FREQUENCY control through each frequency band.
- ()* Note the highest meter indication and the frequency on each band.
- ()* Set the DIAL FREQUENCY control to highest meter indication.
- ()* Adjust the FEEDBACK ADJ control for a 3 V meter indication.

() Repeat the above eight steps* on all four frequency range bands.

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FINAL ADJUSTMENTS WITH THE UPPER GROUND SHIELD

() Set the RANGE switch to the X1k position.

() Set the DIAL FREQUENCY control to maximum clockwise.

()* Set the upper ground shield in place and note the decrease in the meter indication.

()* Remove the upper ground shield.

()* Adjust the FLATNESS ADJ control trimmer for an increase in output voltage to compensate for the loss causes by the shield cover.

()* Set the upper ground shield back in place and check for a 3 v meter indication.

() Repeat the above four steps* until a 3 v meter indication with the shield in place.

() Connect the meter probe to the positive (red) square wave output terminal.

() Set the VTVM FUNCTION input to the DC+ position.

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SQUARE WAVE SYMETRY ADJUSTMENT

Adjustment without an oscilloscope option

() Adjust the SYM control for the largest meter indication.

() Adjust the SYM control for half the highest meter indication.

() Disconnect the VTVM leads from the generator.

Adjustment with an oscilloscope option

() Connect an oscilloscope to the square wave output terminals.

() Set the vertical gain to 1 volt per centimeter.

() Set the sweep rate for a screen display of five cycles (see schematic trace D).

() Adjust the SYM control for the largest vertical trace.

() Adjust the vertical gain to keep the trace on the screen.

() Adjust the SYM control for a 50% duty cycle.

() Disconnect the oscilloscope from the generator.

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FINAL ADJUSTMENTS

() Install the upper ground shield.

ig-5282 alignment instructions.txt

- () Set the sine wave AMPLITUDE control to maximum counter-clockwise.
- () Set the square wave AMPLITUDE control to maximum counter-clockwise.
- () Set the RANGE switch to the X1 position.
- () Set the DIAL FREQUENCY control to maximum counter-clockwise.
- () Set both POWER switches (sine and square waves) to the OFF positions.
- () calibration procedure is complete.

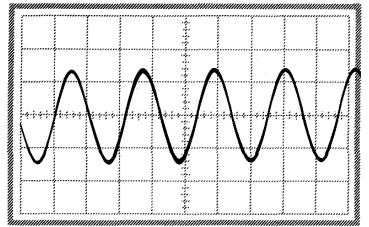
**SCHEMATIC OF THE
HEATHKIT®
AUDIO GENERATOR
MODEL IG-5282**

Part of 595-1959

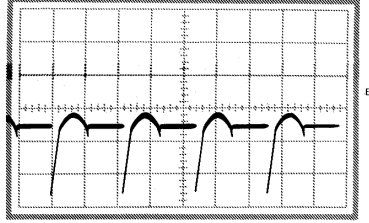
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NOTES:

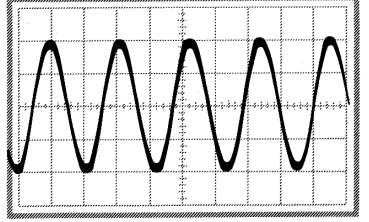
1. ALL RESISTORS ARE 1/2 WATT 5%.
2. ○ INDICATES A LETTERED WIRE CONNECTION TO A CIRCUIT BOARD.
3. ▽ INDICATES A CIRCUIT GROUND.
4. ○ INDICATES A DC VOLTAGE MEASURED FROM POINT INDICATED TO GROUND.
5. ALL VOLTAGES MEASURED WITH HIGH INPUT IMPEDANCE VOLTMETER.
6. RANGE SWITCH IS SHOWN IN X1 POSITION (CCW).



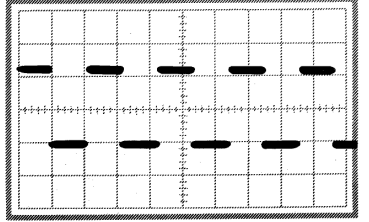
DRAIN OF Q1
VERTICAL - 2V/CM
HORIZ - .5MSEC/CM



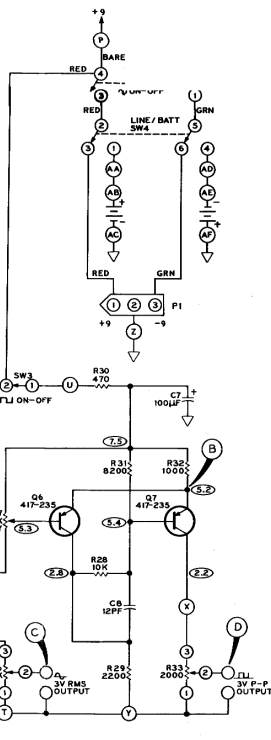
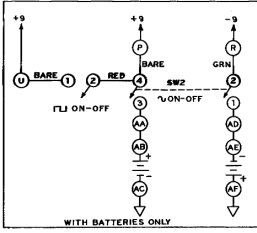
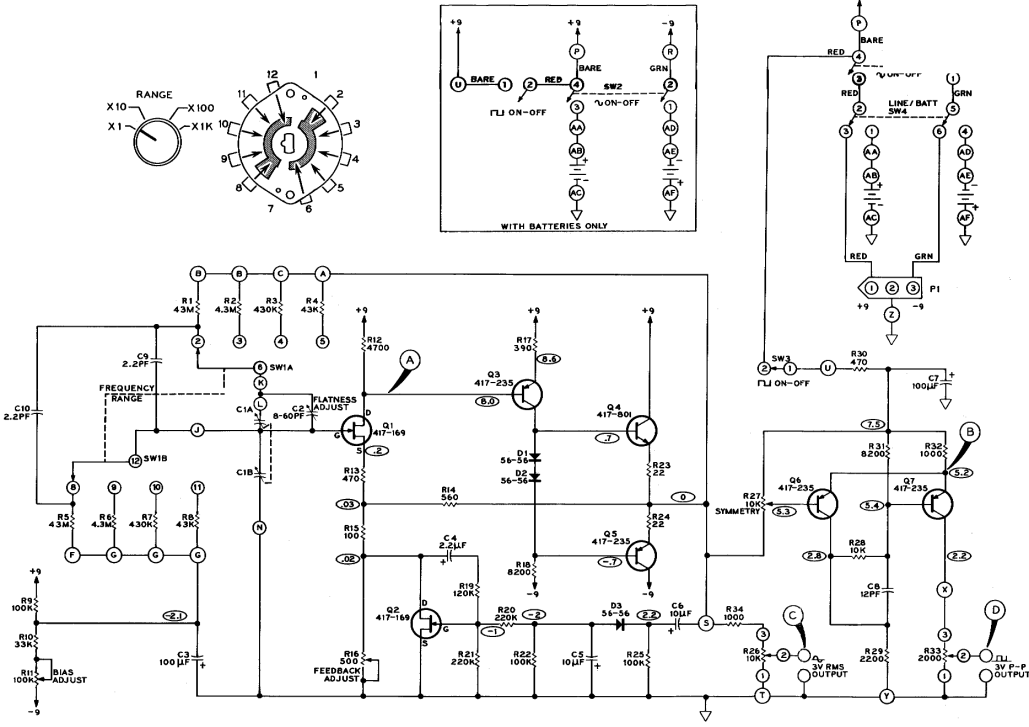
EMITTER OF Q6 & Q7
VERTICAL - 2V/CM
HORIZ - .5MSEC/CM



OUTPUT JACK
TUNING - MAX CC
RANGE - X100
VERTICAL - 2V/CM
HORIZ - .5MSEC/CM



OUTPUT JACK
TUNING - MAX CC
RANGE - X100
VERTICAL - 2V/CM
HORIZ - .5MSEC/CM



PARTS LIST

Check each part against the following list. The key numbers in the Parts List correspond to the numbers on the Parts Pictorial (Illustration Booklet, Page 1). Parts may vary slightly from the illustrations; only the hardware is shown actual size.

Some parts are packaged in containers with the part number marked on the outside. Except for the initial parts check, keep these parts in their containers so they can easily be identified when they are called for in the assembly steps.

Save all packaging material until all parts have been located.

To order a replacement part, use the Parts Order Form furnished with this kit. If a Parts Order Form is not available, refer to "Replacement Parts" inside the rear cover of this Manual. For prices, refer to the separate "Heath Parts Price List."

KEY No.	HEATH Part No.	QTY.	DESCRIPTION	CIRCUIT Comp. No.
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RESISTORS

NOTE: The following resistors have a tolerance of 5%. 5% is indicated by a fourth color band of gold. The resistors may be packed in more than one envelope.

A1	6-220	2	22 Ω (red-red-black)	R23, R24
A1	6-101	1	100 Ω (brown-black-brown)	R15
A1	6-391	1	390 Ω (orange-white-brown)	R17
A1	6-471	2	470 Ω (yellow-violet-brown)	R13, R30
A1	6-561	1	560 Ω (green-blue-brown)	R14
A1	6-102	2	1000 Ω (brown-black-red)	R32, R34
A1	6-222	1	2200 Ω (red-red-red)	R29
A1	6-472	1	4700 Ω (yellow-violet-red)	R12
A1	6-822	2	8200 Ω (gray-red-red)	R18, R31
A1	6-103	1	10 k Ω (brown-black-orange)	R28
A1	6-333	1	33 k Ω (orange-orange-orange)	R10
A1	6-433	2	43 k Ω (yellow-orange-orange)	R4, R8

KEY No.	HEATH Part No.	QTY.	DESCRIPTION	CIRCUIT Comp. No.
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Resistors (cont'd.)

A1	6-104	3	100 k Ω (brown-black-yellow)	R9, R22, R25
A1	6-124	1	120 k Ω (brown-red-yellow)	R19
A1	6-224	2	220 k Ω (red-red-yellow)	R20, R21
A1	6-434	2	430 k Ω (yellow-orange-yellow)	R3, R7
A1	6-435	2	4.3 M Ω (yellow-orange-green)	R2, R6
A1	1-195	2	43 M Ω (yellow-orange-blue)	R1, R5

CAPACITORS

B1	28-1	2	2.2 pF (red-red-white) phenolic	C9, C10
B2	20-130	1	12 pF mica	C8
B3	25-221	1	2.2 μ F tantalum	C4
B3	25-220	2	10 μ F (10M) tantalum	C5, C6
B4	25-117	2	100 μ F electrolytic	C3, C7
B5	26-9	1	420-420 pF 2-section tuning	C1A/C1B
B6	31-52	1	8.0-60.0 pF trimmer	C2