

SECTION I GENERAL INFORMATION

1-1. INTRODUCTION.

1-2. This section contains general information about the -hp- Model 204C, the -hp- Model H20-204C, and -hp- Model 204D Oscillators. Throughout this manual the instrument will be referred to as the Model 204C/D when referring to all instruments, and the Model 204C, the Model H20-204C, or the Model 204D when referring to one of the instruments individually.

1-3. SPECIFICATIONS AND GENERAL INFORMATION.

1-4. Table 1-1 lists the specifications for the Model 204C/D. Table 1-2 lists other useful information about the instruments which is not specified.

1-5. DESCRIPTION.

1-6. The Model 204C/D is a wide range oscillator with a sine wave output at frequencies from 5 Hz to 1.2 MHz. The output impedance is 600 ohms; and the maximum voltage output is 5 V rms into open circuit, or 2.5 V rms into a 600 ohm load.

1-7. The Model 204D is basically the same instrument as the Model 204C, except the Model 204D has a step attenuator added.

1-8. The Model 204C has a variable output with greater than 40 dB attenuation, providing a minimum open circuit output of less than 50 mV rms. The Specification H20-204C has greater than 20 dB attenuation. In addition, the H20-204C is obtainable with the Opt. 02 Power supply board only.

1-9. The Model 204D has greater than 10 dB variable attenuation and 80 dB step attenuation in 10 dB steps, providing a minimum open circuit output of less than 150 μ V rms.

1-10. The output of the Model 204C/D may be isolated from the cabinet and power line ground. This floating output is balanced to better than 40 dB for frequencies up to 20 kHz.

1-11. The Model 204C/D may be synchronized with other instruments. The SYNC connector on the front panel provides a sync output signal greater than 100 mV rms over the entire frequency range, or accepts at external sync signal from another source. This permits the Model 204C/D to be synchronized with another signal source of the same frequency or harmonic thereof. With a 5 V rms (\approx 7 V peak) sync input signal, the external source may vary as much as \pm 5% in frequency and the Model 204C/D will remain synchronized.

p/o Table 1-1. Specifications.

RANGES				
Frequency: 5 Hz to 1.2 MHz in 6 overlapping ranges.				
PERFORMANCE				
Dial Accuracy: \pm 3% of frequency setting.				
Flatness (At maximum output into 600 ohms resistive load 1 kHz reference):				
Low Dist. Mode	\pm 1%	\pm 0.5%	\pm 1%	
Normal Mode	+5%	\pm 0.5%	\pm 1%	
	5	100	300k	1.2M (Hz)
Hum and Noise: Less than 0.01% of output of 2.5 V rms into a 100 kHz BW (10 Hz to 100 kHz) with the 204C/D tuned above 200 Hz.				

Distortion at 2.5 V rms into 600 ohms, or 5.0 V rms open circuit:

Frequency (Hz)	Normal Mode Distortion (%)	Low Dist. Mode Distortion (%)
5	0.3	0.6
10	0.6	0.3
20	0.2	0.1
30	0.15	0.1
100	0.1	0.1
200	0.1	0.1
100k	0.1	0.1
300k	0.2	0.2
1.2M	0.6	0.6

OUTPUT CHARACTERISTICS

Output Control: 204C, greater than 40 dB range, continuously adjustable. H20-204C, greater than 20 dB range continuously adjustable. 204D, greater than 10 dB continuously adjustable and 80 dB in 10 dB steps.

Table 1-1. Specifications (cont'd).


<p>204D Attenuator Accuracy: (Amplitude vernier fully clockwise.) Referenced to +10 dB position; +/- 0.3 dB to - 60 dB, +/- 0.5 dB to - 70 dB.</p>	<p>sync frequency and set frequency, is a linear function of sync voltage. Sync Range \approx +/-1% of set frequency per VRMS sine wave with a maximum input of +/-7 volts peak.</p>
<p>Output Balance: Greater than 40 dB, below 20 kHz. Can be floated up to +/-500V peak between circuit common ∇ and outer chassis ground \perp</p>	
<p>SYNCHRONIZATION</p>	
<p>Sync Output: Sine wave in phase with output; greater than 100 mV rms into less than 100 pF.</p>	<p>IF YOUR INSTRUMENT HAS A GROUND STRAP BETWEEN CIRCUIT COMMON AND OUTER CHASSIS GROUND, THE STRAP MUST BE REMOVED BEFORE ANY ATTEMPT IS MADE TO FLOAT THE INSTRUMENT.</p>
<p>Sync Input: Oscillator can be synchronized to an external signal. Sync range, the difference between</p>	

Table 1-2. General Information.

<p>Output Voltage: 2.5V rms (10 mW) into 600 ohms; 5V rms open circuit.</p>	<p>Power: Standard: AC-Line 115V or 230V +/-10%, 48 Hz to 440 Hz, less than 4W.</p>
<p>Output Impedance: 600 ohms.</p>	<p>Opt 001: Mercury batteries 300 hours operation.</p>
<p>Sync Impedance: 10 kΩ.</p>	<p>Opt 002: Line/Rechargeable batteries 115 V or 230 V +/- 10%, 48 Hz to 440 Hz, less than 4W. 35 hours operation per recharge.</p>
<p>Operating Temperature: Instrument will operate within specifications from 0°C to 55°C. Except Opt 02, 0°C to 45°C.</p>	<p>Dimensions: Standard 1/3 module, 6-3/32" high, 5-1/8" wide, 8" deep (155 x 130,1 x 203,2 mm).</p>
<p>Storage Temperature: -40°C to +75°C. Except Opt 02, -40°C to +60°C.</p>	

1-12. The standard Model 204C/D operates from 115 or 230 V ac, 48 to 440 Hz. The instrument is also available as an Option 001 using a mercury battery power supply, or as an Option 002 using a rechargeable nickel cadmium battery power supply.

1-13. ACCESSORIES AVAILABLE.

1-14. The following accessories are available for field installation in the Model 204C/D:

hp 11135A	AC power Pack (Supplied in standard)
hp 11136A	Mercury Battery Supply (Option 01)
hp 11137A	Rechargeable Battery/Ac Power Supply (Option 02)

1-15. INSTRUMENT AND MANUAL IDENTIFICATION.

1-16. Hewlett-Packard uses a two-section serial number. The first section (prefix) identifies a series of instruments. The last section (suffix) identifies a particular instrument within the series. If a letter is included with the serial number, it identifies the country in which the instrument was manufactured. If the serial prefix of your instrument

differs from the one on the title page of this manual, a change sheet will be supplied to make this manual compatible with newer instruments or the backdating information on the schematics will adapt this manual to earlier instruments. All correspondence with Hewlett-Packard should include the complete serial number.

1-17. CHANGE SHEETS.

1-18. If the serial prefix of your instrument is greater than the one listed on the title page of this manual, a change sheet will be supplied. The change sheet is included to correct errors in the manual (ERRATA) and to make the manual compatible with instruments manufactured after the printing date of the manual (numbered changes).

1-19. OPTIONS AVAILABLE.

1-20. The following options are available for either the 204C or 204D:

Option 001	Mercury battery power supply
Option 002	Rechargeable battery power supply
Option 908	Additional Operating and Service Manual