1. INTRODUCTION

This operating note provides information required to operate, test, and repair the Hewlett-Packard Model 16344A 1MHz Phase Standard. To order additional copies of this operating note, use the part number listed on the rear-cover and contact the nearest Hewlett-Packard Sales/Service Office.

2. DESCRIPTION

The Hewlett-Packard Model 16344A 1MHz Phase Standard, pictorially shown on the front cover, is specially designed for calibration of instruments capable of phase difference measurements. It outputs, from the front-panel, two precise, stable 1MHz sine waves of equal amplitude. The phase difference between these two signals can be shifted from 0° to 360° in -22.5° steps, thus providing a known phase difference for the test instrument to measure. For a test instrument requiring phase-locking between its internal signal source and the test input signals, the 16344A outputs, from the rear-panel, a 1MHz square wave. This signal is applied to the test instrument's external reference input connector.

3. SPECIFICATIONS

Table 1 lists the specifications of Model 16344A 1MHz Phase Standard. Test procedures for verification of the specifications are covered in 7, Performance Tests.

4. INSTALLATION

The 16344A requires a power source of 100, 120, 220 Volts ac ±10%, or 240 Volts ac +5% -10%, 48 to 66Hz single phase.

CAUTION

BEFORE CONNECTING THE INSTRUMENT TO THE POWER SOURCE, make sure that the correct fuse has been installed and that the line voltage selection switch is set to the correct voltage.

5. PANEL FEATURES

Front- and rear-panel features for the 16344A are described in Figure 1. Reference numbers in the figure match description numbers.

Table 1. Specifications

Output Characteristics: REFERENCE CHANNEL and TEST CHANNEL

- Frequency: 1MHz Sine Wave
- Frequency Accuracy: ±50ppm (23° C±5° C)
- Phase Difference Range: ±180.00°
- Incremental Phase: 22.50°
- Incremental Phase Accuracy: 0°±0.05°
- Output Amplitude: ≥10dBm (with 50Ω Load Switch ON)
- Harmonic Distortion: Less than -50dBm
- Source Impedance (with 50Ω Load Switch OFF): 140Ω±20%

1MHz Output (Rear-Panel):

- Amplitude: ≥6dBm (@50Ω Load)

General

- Operating Temperature: 23° C±5° C
- Relative Humidity: <70%
- Power Consumption: 10VA max.
- Dimensions: 212.3mm (W) x 88.1mm (H) x 360mm (D)
- Weight: Approximately 3.5kg