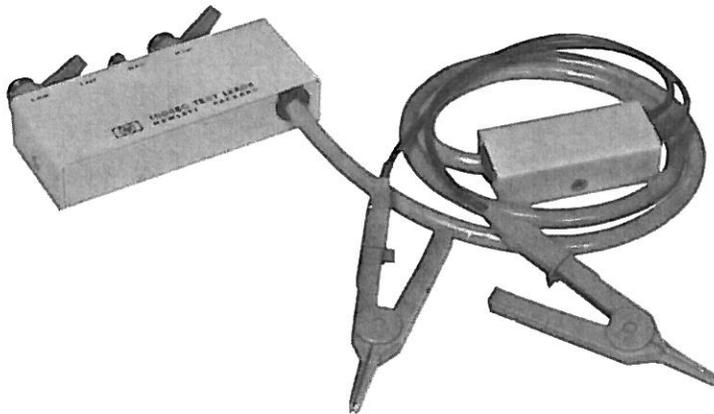


OPERATING NOTE

TEST LEADS

16048C



WARRANTY AND ASSISTANCE

All Hewlett-Packard products are warranted against defects in materials and workmanship. This warranty applies for one year from the date of delivery, or, in the case of certain major components listed in the operating manual, for the specified period. We will repair or replace products which prove to be defective during the warranty period provided they are returned to Hewlett-Packard. No other warranty is expressed or implied. We are not liable for consequential damages.

Service contracts or customer assistance agreements are available for Hewlett-Packard products that require maintenance and repair on-site.

For any assistance, contact your nearest Hewlett-Packard Sales and Service Office. Addresses are provided at the back of this manual.

1. INTRODUCTION

This operating note provides complete information on the Hewlett-Packard Model 16048C Test Lead. The 16048C is shown pictorially on the front cover and its physical dimensions are given in Table 1. To order additional copies of this operating note, use the part number listed on the rear cover.

Table 1. Specifications.

Function: For use with Hewlett-Packard Models 4274A, 4275A, and 4192A. Permits connecting odd-shaped components to the UNKNOWN terminals (4-terminal pair configuration) of the 4274A, 4275A, or 4192A.
Probe: Dual alligator clip type.
DC Bias: $\pm 35V$ maximum
Cable Length: Approximately 1m (39.4 inches)
Weight: 325 grams (0.717 lbs.)
Applicable Measurement Range: Capacitance > 1000pF, Inductance > 100 μ H
Frequency Range: 100kHz maximum

Note: Residual parameter values. $C < 5pF$, $L < 200nH$, $R < 10m\Omega$

2. DESCRIPTION

The Model 16048C Test Fixture is designed for use with the following instruments:

- Model 4192A LF Impedance Analyzer
- Model 4274A Multi-Frequency LCR Meter
- Model 4275A Multi-Frequency LCR Meter

The 16048C consists of a direct attachment, 4-terminal pair type fixture which is equipped with two large, insulated alligator clips. These alligator clips make it possible to measure odd-shaped components that cannot be measured with conventional test fixtures. Maximum frequency is 100kHz. Cable length is approximately 1 meter. The 16048C is shown in Figure 1.

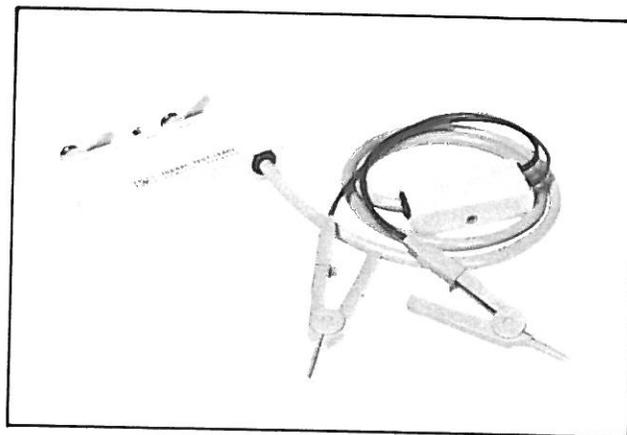


Figure 1. 16048C Test Leads.

3. ZERO OFFSET ADJUSTMENT

The 16048C has inherent stray capacitance, residual inductance, and residual resistance that affect the accuracy of measured values. To compensate for, or negate, these residuals to minimize measurement error, the instrument's zero offset adjustment procedure should be performed. The procedure is given in Section III of the instrument's operating manual.

Note

When performing OPEN or SHORT zero offset adjustment for the 16048C on the 4274A, the OSC LEVEL (V) of the 4274A should be set to maximum. OPEN and SHORT zero offset adjustment for the 16048C on the 4275A cannot be performed. This does not, however, mean that the 16048C cannot be used with the 4275A; it simply means that the measured value of the DUT will include the residuals of the test leads.

4. OPERATION

Setup and measurement procedure is as follows:

- a. Set the CABLE LENGTH switch (4275A and 4192A only) on the instrument's front-panel to 1m.
- b. Connect the 16048C directly to the UNKNOWN terminals of the instrument.
- c. Perform ZERO OFFSET ADJUSTMENT (4274A and 4192A only) as described in section III of the instrument's operating manual.
- d. Connect the DUT to the test leads.

5. MAINTENANCE

An exploded view of the 16048C — for parts identification — is shown in Figure 2. Do not disassemble any further than shown. Maintenance consists principally of cleaning contacts and replacing worn or damaged parts. Take special care when cleaning contacts. To order parts, use the Hewlett-Packard part numbers listed in Figure 2. If a faulty part is located in an assembly that cannot be disassembled, order the next higher assembly or return the whole device to the nearest Hewlett-Packard Sales/Service Office for repair or replacement.

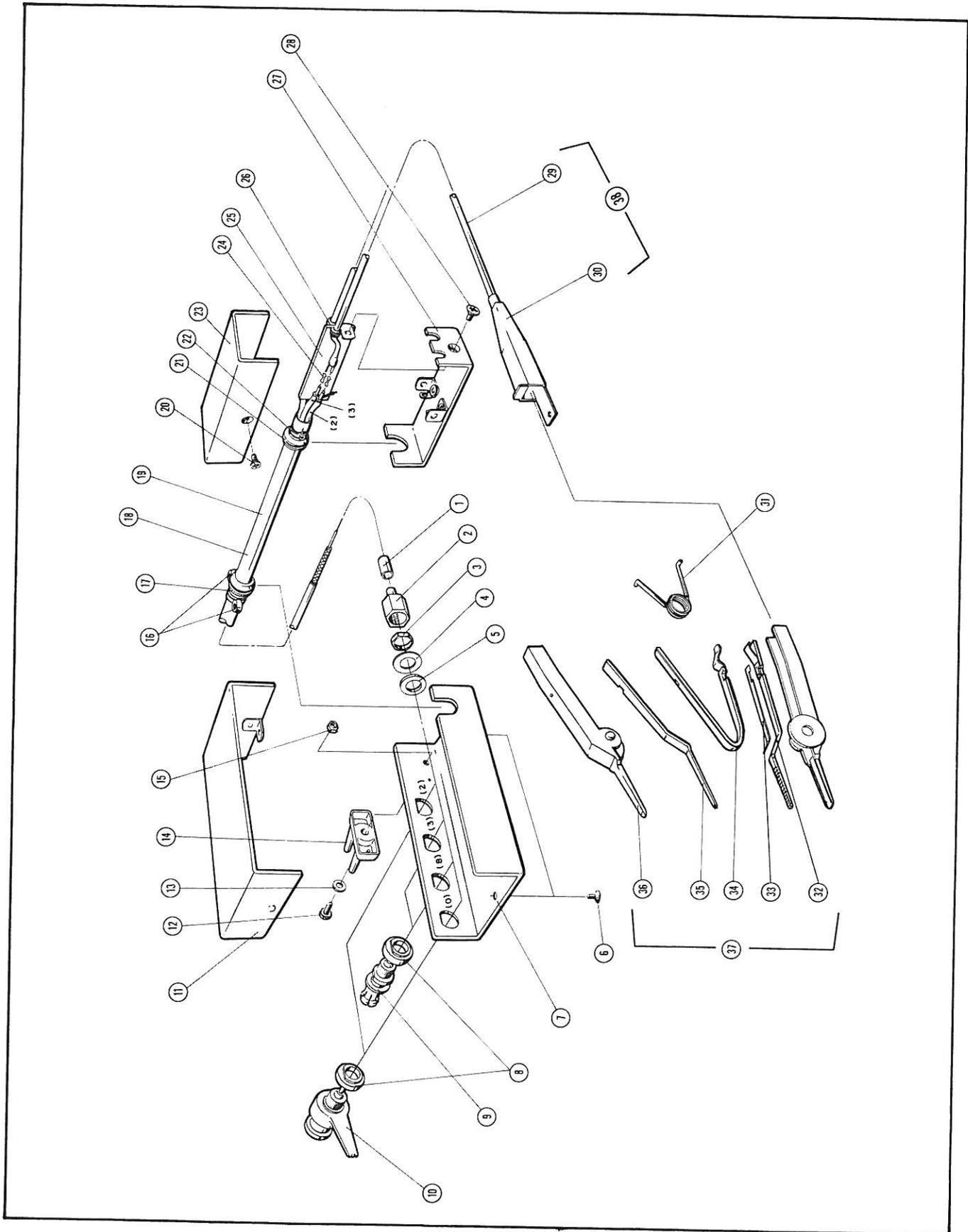


Figure 2. Parts Identification for 16048C (Sheet 1 of 2).

Reference	HP Part No.	Qty	Description	Note
1	0362-0007	4	SLEEVE	
2	16047-24000	4	NUT	
3	2950-0043	4	NUT	
4	2190-0878	4	WASHER	
5	3050-0789	4	WASHER	
6	2360-0192	2	SCREW	
7	16047-04002	1	COVER-BOTTOM	
8	16047-40002	4	INSULATOR	
9	16038-30021	2	CONNECTOR-BNC	
10	16012-7122	2	CONNECTOR-BNC	
11	16048-04002	1	COVER-TOP	
12	2200-0105	1	SCREW	
13	3050-0229	1	WASHER	
14	16047-40000	1	STOPPER	
15	2260-0009	1	NUT	
16	1400-0719	2	TIE RAP	
17	0400-0011	1	GROMMET	
18	8120-0367	1	CABLE	
19	16048-61602	1	ASS'Y-CABLE	
20	2360-0190	2	SCREW	
21	0400-0010	1	GROMMET	
22	1400-0493	1	CABLE TIE	
23	16048-04004	1	COVER-TOP	
24	0362-0215	4	CONTACT	
25	16034-00600	1	SHIELD PLATE	
26	0400-0009	2	GROMMET	
27	16048-04003	1	COVER-BOTTOM	
28	2360-0190	1	SCREW	
29	8120-0041	4	WIRE	
30	4093-0120	1	MOLD	
31	16036-8521	1	SPRING	
32	16036-7021	1	ASS'Y-CLIP	
33	16036-8522	1	INSULATION FILM	
34	16036-1024	1	SPRING	
35	16036-1022	1	CLIP	
36	16036-5121	2	PROBE SHELL	
37	16036-7511	1	ASS'Y-PROBE	
38	16048-61603	1	ASS'Y-CABLE BLACK	③① thru ③⑥
	16048-61604	1	ASS'Y-CABLE RED	②⑨ and ③⑦ ②⑨ and ③⑧

Figure 2. Parts Identification for 16048C (Sheet 2 of 2).