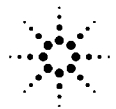


**Agilent 16085B Terminal Adapter**

# **Operation and Service Manual**

**Second Edition**



**Agilent Technologies**

**Agilent Part No. 16085-90001**

**March 2000**

**Printed in Japan**

---

## Notices

The information contained in this document is subject to change without notice.

This document contains proprietary information that is protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced, or translated to another language without the prior written consent of the Agilent Technologies.

Agilent Technologies Japan, Ltd.

Component Test PGU-Kobe

1-3-2, Murotani, Nishi-Ku, Kobe-shi, Hyogo, 651-2241 Japan

Copyright © Agilent Technologies Japan, Ltd. 1990, 2000

---

## Manual Printing History

The manual's printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections and updates that are incorporated at reprint do not cause the date to change.) The manual part number changes when extensive technical changes are incorporated.

March 1990      First Edition (part number: 16085-90001)

March 2000      Second Edition (part number: 16085-90001)

---

## Safety Summary

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific WARNINGS elsewhere in this manual may impair the protection provided by the equipment. In addition it violates safety standards of design, manufacture, and intended use of the instrument.

Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

- **Ground The Instrument**

To avoid electric shock hazard, the instrument chassis and cabinet must be connected to a safety earth ground by the supplied power cable with earth blade.

- **DO NOT Operate In An Explosive Atmosphere**

Do not operate the instrument in the presence of flammable gasses or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.

- **DO NOT Substitute Parts Or Modify Instrument**

Because of the danger of introducing additional hazards, do not install substitute parts or perform unauthorized modifications to the instrument. Return the instrument to a Agilent Technologies Sales and Service Office for service and repair to ensure that safety features are maintained.

- Dangerous Procedure Warnings

Warnings, such as the example below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed.

---

## Safety Symbol

General definitions of safety symbols used on the instrument or in manuals are listed below.



Instruction Manual symbol: the product is marked with this symbol when it is necessary for the user to refer to the instrument manual.



Alternating current.



Direct current.



On (Supply).



Off (Supply).



In position of push-button switch.



Out position of push-button switch.



Frame (or chassis) terminal. A connection to the frame (chassis) of the equipment which normally include all exposed metal structure.

---

### WARNING

**This warning sign denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in injury or death to personnel.**

---

### CAUTION

This Caution sign denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product.

---

### NOTE

Note denotes important information. It calls attention to a procedure, practice, condition or the like, which is essential to highlight.

---

## Certification

Agilent Technologies certifies that this product met its published specifications at the time

of shipment from the factory. Agilent Technologies further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology, to the extent allowed by the Institution's calibration facility, or to the calibration facilities of other International Standards Organization members.

---

## Warranty

This Agilent Technologies instrument product is warranted against defects in material and workmanship for a period corresponding to the individual warranty periods of its component products. Instruments are warranted for a period of one year. Fixtures and adapters are warranted for a period of 90 days. During the warranty period, Agilent Technologies will, at its option, either repair or replace products that prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by Agilent Technologies. Buyer shall prepay shipping charges to Agilent Technologies and Agilent Technologies shall pay shipping charges to return the product to Buyer. However, Buyer shall pay all shipping charges, duties, and taxes for products returned to Agilent Technologies from another country.

Agilent Technologies warrants that its software and firmware designated by Agilent Technologies for use with an instrument will execute its programming instruction when properly installed on that instrument. Agilent Technologies does not warrant that the operation of the instrument, or software, or firmware will be uninterrupted or error free.

---

## Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside the environmental specifications for the product, or improper site preparation or maintenance.

---

### IMPORTANT

No other warranty is expressed or implied. Agilent Technologies specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

---

## Exclusive Remedies

The remedies provided herein are buyer's sole and exclusive remedies. Agilent Technologies shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

---

## **Assistance**

Product maintenance agreements and other customer assistance agreements are available for Agilent Technologies products.

For any assistance, contact your nearest Agilent Technologies Sales and Service Office.

Addresses are provided at the back of this manual.



## 1. INTRODUCTION

This operation note provides the information necessary to use and service the HP 16085B Terminal Adapter. The specifications for the 16085B are listed in Table 1. An exploded view of the 16085B, for parts identification and assembly/disassembly, is shown in Figure 1. Figure 2 shows an exploded view of the APC-7 connector.

## 2. DESCRIPTION

The 16085B Terminal Adapter converts the 4-terminal pair configuration of HP's impedance measurement instruments to an APC-7 coaxial connector for connection of the 16092A, 16093A, and 16093B test fixtures. These test fixtures are specially designed for measuring discrete components with radial and axial leads, and chip components. Table 2 shows a simplified diagram of interconnection between APC-7 and BNC connectors and lists the typical values of the 16085B's residual components.

Table 1. Specifications

**Terminals:** APC-7 coaxial connector, 2-terminal configuration. The BNC connectors are compatible with the 4-terminal-pair measurement terminals of HP's impedance measurement instruments.

**Frequency Range:** dc to 40MHz

**DC Bias Voltage:**  $\pm 40V$  max.

**Dimensions in mm (inches):** 178 (7.0) W x 90 (3.5) H x 114 (4.5) D

**Weight in grams (lbs.):** approximately 550 (1.2)

## OPERATION NOTE

Table 2. 16085B Circuit Configuration and Residual Components

Residual Inductance,  $L_o$ :  $32 \text{ nH} \pm 5 \text{ nH}$

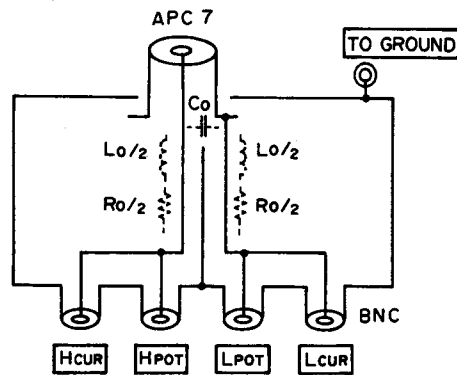
Stray Capacitance,  $C_o$ :  $1.7 \text{ pF} \pm 0.3 \text{ pF}$

Residual Resistance,  $R_o$ : Less than  $0.04(1 + \sqrt{f}) \Omega$

( $f$  is the test frequency in MHz. The frequency range is dc to 40MHz.)

### Note

- 1) Residual elements,  $L_o$ ,  $C_o$  and  $R_o$  are shown in the figure below.
- 2) The connectors fringe capacitance is included with  $C_o$ , the stray capacitance. The Residual elements can be compensated for by making ZERO-OPEN/SHORT measurements.
- 3) The uncertainty of the residual impedances are,  $L < 1 \text{ nH}$ ,  $C < 0.1 \text{ pF}$ ,  $R < 5 \text{ m}\Omega$





### 3. MAINTENANCE

Figure 1 shows an exploded view of the 16085B Terminal Adapter and a list of replaceable parts. Do not disassemble the unit any further than shown in Figure 1. Maintenance consists principally of cleaning the contacts and replacing worn or damaged parts. To order replacement parts, use the HP part numbers listed in Figure 1. If a faulty part is located within an assembly that cannot be disassembled, order the next higher assembly or return the whole unit to your nearest HP Sales/Service Office for repair or replacement. The cleaning and replacement instructions for the APC-7 connector contact are as follows.

#### 1) Cleaning the APC-7 Connector Contact

The APC-7 connector contact surface must be kept clean. HP recommends periodic cleaning using a lint-free cloth, and if a cleaning fluid is needed, use **ISOPROPYL ALCOHOL** only.

#### 2) Replacement of the APC-7 Connector Contact

To maintain optimum contact between the APC-7 connector contact and the test fixture, replace the RF connector contact (PN 1250-0816) every 1000 connections/disconnections or as required by wear or damage). An exploded view of the RF connector contact and its replacement procedure are shown in Figure 2.

The following procedure should be used to replace the RF connector contact.

- (1) Rotate the APC-7 connector (PN 1250-1466) counterclockwise until the (\*) marked portion appears.
- (2) Use a 12mm wrench and turn the connector counterclockwise to remove it.
- (3) The RF connector contact (PN 1250-0816) is now exposed as shown in Figure 2.
- (4) The RF connector contact can be removed by turning it counterclockwise using a pair of needle-nose pliers with protective rubber pads on the tips.

OPERATION NOTE

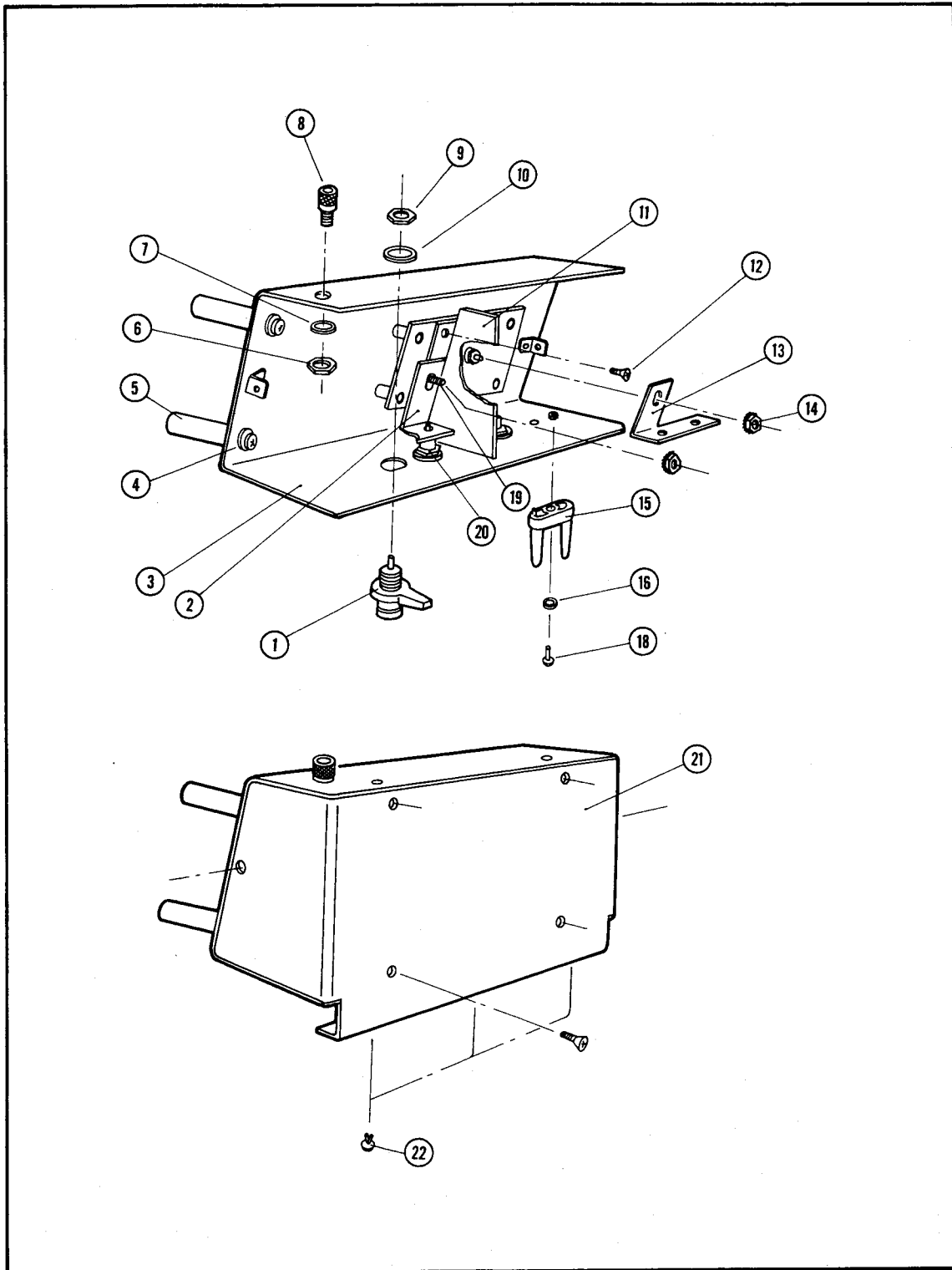


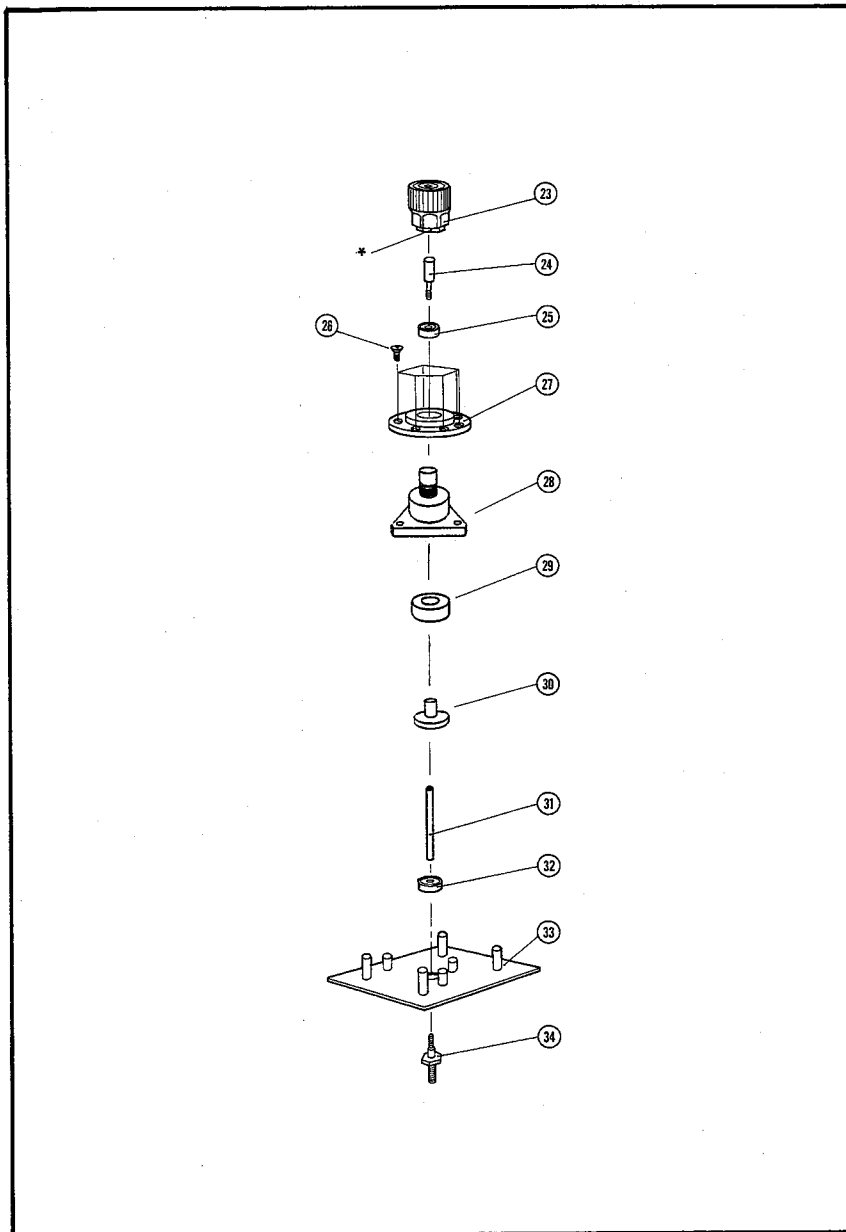
Figure 1. Parts Identification for 16085A (Sheet 1 of 2).

OPERATION NOTE

| Item No. | Part No.    | Qty. | Description      |
|----------|-------------|------|------------------|
| 1        | 16012-7122  | 2    | BNC ASSY.        |
| 2        | 16085-01212 | 1    | ANGLE(B)         |
| 3        | 16085-04011 | 1    | TOP COVER        |
| 4        | 04192-40001 | 4    | INSULATOR        |
| 5        | 16085-26011 | 2    | POST             |
| 6        | 2950-0006   | 1    | NUT              |
| 7        | 2190-0084   | 1    | WASHER           |
| 8        | 1510-0130   | 1    | GND POST         |
| 9        | 2950-0043   | 4    | NUT              |
| 10       | 2190-0016   | 4    | WASHER           |
| 11       | 16085-00612 | 1    | SHIELD PLATE     |
| 12       | 0515-0914   | 17   | SCREW            |
| 13       | 16085-01211 | 1    | ANGLE (A)        |
| 14       | 0535-0031   | 2    | NUT              |
| 15       | 16047-40000 | 1    | STOPPER          |
| 16       | 2190-0206   | 1    | WASHER           |
| 17       |             |      | not assigned     |
| 18       | 0515-1551   | 1    | SCREW            |
| 19       | 16085-24001 | 1    | STUD (A)         |
| 20       | 1250-1798   | 2    | BNC CONNECTOR    |
| 21       | 16085-04012 | 1    | BOTTOM COVER     |
| 22       | 6960-0016   | 3    | PLUG-HOLE        |
| 23       | 1250-1466   | 1    | APC-7            |
| 24       | 1250-0816   | 1    | RF CONNECTOR     |
| 25       | 5040-0306   | 1    | INSULATOR        |
| 26       | 0515-1005   | 6    | SCREW            |
| 27       | 16085-25011 | 1    | INSULATOR        |
| 28       | 16085-21011 | 1    | FLANGE           |
| 29       | 16085-25012 | 1    | BUSH             |
| 30       | 16085-21012 | 1    | BUSH             |
| 31       | 16085-23001 | 1    | CENTER CONDUCTOR |
| 32       | 5040-0306   | 1    | INSULATOR        |
| 33       | 16085-00611 | 1    | PLATE            |
| 34       | 16085-24002 | 1    | STUD (B)         |

Figure 1. Parts Identification for 16085A (Sheet 2 of 2).

**OPERATION NOTE**



**Figure 2. Exploded View of APC-7 RF Connector Assembly**

## REGIONAL SALES AND SUPPORT OFFICES

*For more information about Agilent Technologies test and measurement products, applications, services, and for a current sales office listing, visit our web site: <http://www.agilent.com/find/tmdir>. You can also contact one of the following centers and ask for a test and measurement sales representative.*

11/29/99

### **United States:**

Agilent Technologies  
Test and Measurement Call Center  
P.O.Box 4026  
Englewood, CO 80155-4026  
(tel) 1 800 452 4844

347 Burwood Highway  
Forest Hill, Victoria 3131  
(tel) 1-800 629 485 (Australia)  
(fax) (61 3) 9272 0749  
(tel) 0 800 738 378 (New Zealand)  
(fax) (64 4) 802 6881

### **Canada:**

Agilent Technologies Canada Inc.  
5150 Spectrum Way  
Mississauga, Ontario  
L4W 5G1  
(tel) 1 877 894 4414

### **Asia Pacific:**

Agilent Technologies  
24/F, Cityplaza One, 1111 King's Road,  
Taikoo Shing, Hong Kong  
(tel) (852)-3197-7777  
(fax) (852)-2506-9284

### **Europe:**

Agilent Technologies  
Test & Measurement  
European Marketing Organization  
P.O.Box 999  
1180 AZ Amstelveen  
The Netherlands  
(tel) (31 20) 547 9999

### **Japan:**

Agilent Technologies Japan Ltd.  
Call Center  
9-1, Takakura-Cho, Hachioji-Shi,  
Tokyo 192-8510, Japan  
(tel) (81) 426 56 7832  
(fax) (81) 426 56 7840

### **Latin America:**

Agilent Technologies  
Latin American Region Headquarters  
5200 Blue Lagoon Drive, Suite #950  
Miami, Florida 33126  
U.S.A.  
(tel) (305) 267 4245  
(fax) (305) 267 4286

### **Australia/New Zealand:**

Agilent Technologies Australia Pty Ltd

