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Agilent 16085B Terminal Adapter

Operation and Service Manual

Second Edition



Agilent Technologies

Agilent Part No. 16085-90001
March 2000

Printed in Japan

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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.

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

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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:	±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)

Table 2. 16085B Circuit Configuration and Residual Components

Residual Inductance, Lo: 32 nH ± 5 nH

Stray Capacitance, Co: 1.7 pF ± 0.3 pF

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

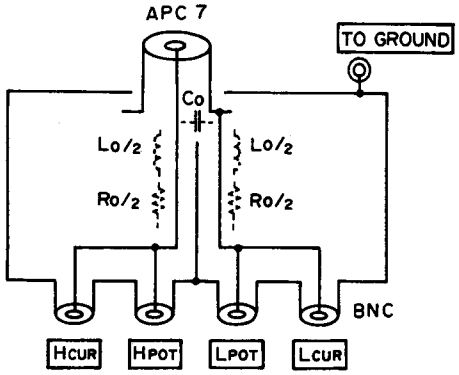
(f is the test frequency in MHz. The frequency range is dc to 40MHz.)

Note

1) Residual elements, Lo, Co and Ro are shown in the figure below.

2) The connectors fringe capacitance is included with Co, 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 nH, C < 0.1pF, R < 5mΩ



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.

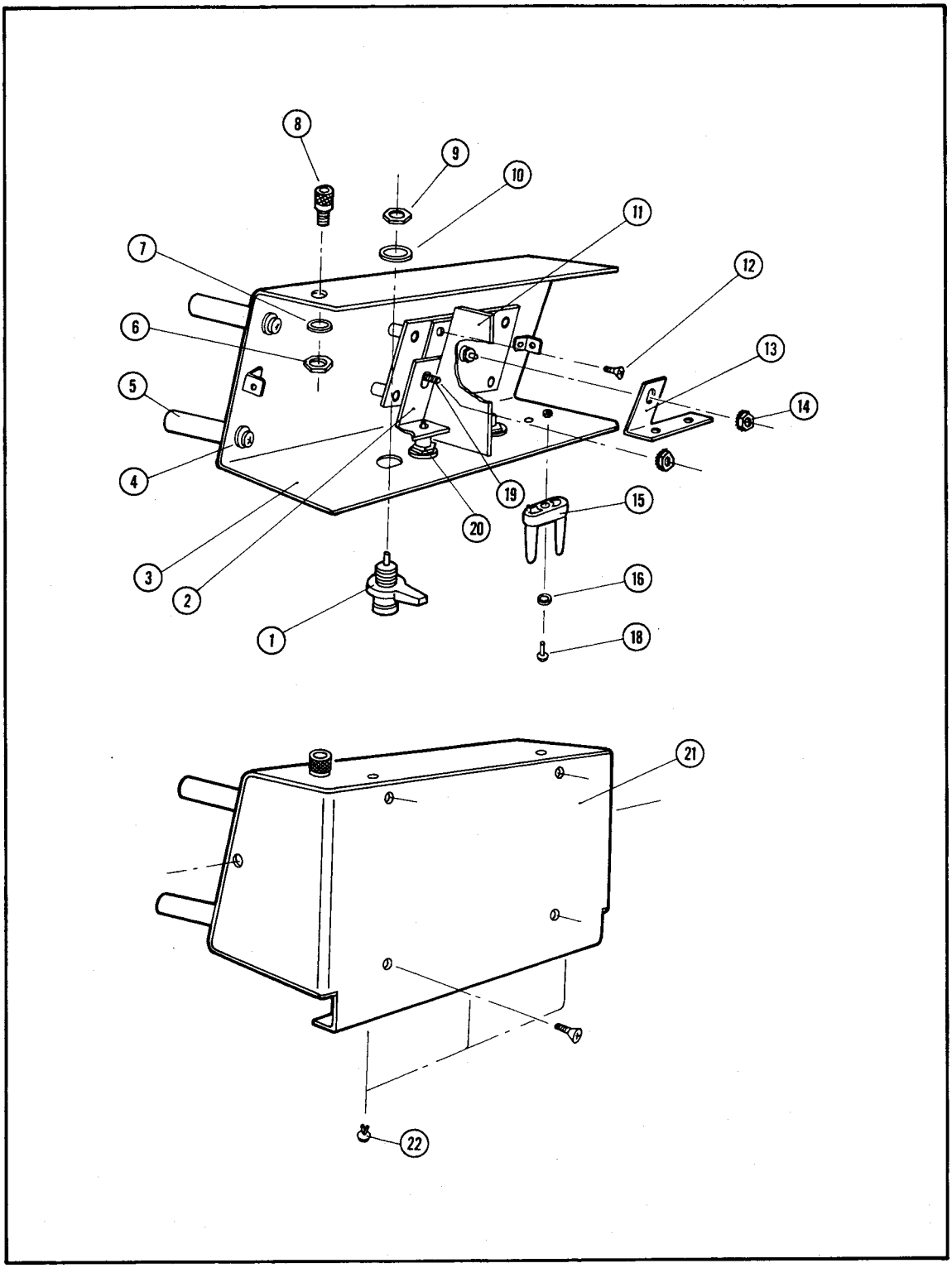


Figure 1. Parts Identification for 16085A (Sheet 1 of 2).

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).

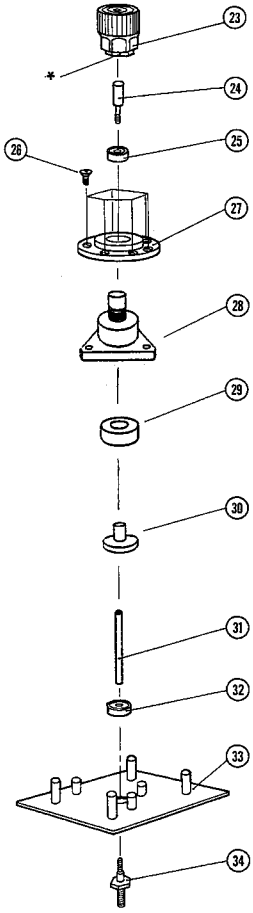


Figure 2. Exploded View of APC-7 RF Connector Assembly

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