

Manual Changes Supplement

8757D Network Analyzer Operating Manual

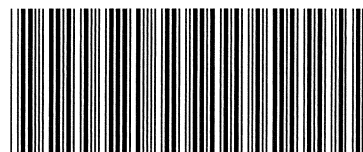
This supplement is written for the 8757D Network Analyzer Operating Manual, part number 08757-90109, print date March 2005. It contains important information for correcting manual errors, and for updating the manual to include analyzer improvements made after the printing of the manual.



Agilent Technologies

Part Number 08757-91081

Printed in USA May 2006



08757-91081

© Agilent Technologies, Inc. 2006

Terminology Used in This Supplement

Replace	Remove the existing manual pages and replace them with the pages provided in this supplement.
Add	Add the pages provided in this supplement to the existing manual. Do not remove any pages.
No Action Required	Leave the manual as it is. The pages affected by the change(s) have already been replaced.

Contacting Agilent

Assistance with test and measurement needs and information on finding a local Agilent office are available on the Web at:

<http://www.agilent.com/find/assist>

If you do not have access to the Internet, please contact your Agilent field engineer.

NOTE In any correspondence or telephone conversation, refer to the Agilent product by its model number and full serial number. With this information, the Agilent representative can determine whether your product is still within its warranty period.

Change 1

Change 1, located on page 1-3, explains the label for the WEEE Directive (2002/96/EC) that is displayed on the network analyzer rear panel.

Instructions

Replace page:

- 1-3/1-4



The AC symbol is used to indicate the required nature of the line module input power.



This is a required mark signifying compliance with an EMC requirement. The C-Tick mark is a registered trademark of the Australian Spectrum Management Agency.



This product complies with the WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical/ electronic product in domestic household waste.

Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as a "Monitoring and Control instrumentation" product.

Do not dispose in domestic household waste.

To return unwanted products, contact your local Agilent office, or see <http://www.agilent.com/environment/product/> for more information.

Warning

The **WARNING** sign denotes a hazard. It calls attention to a procedure, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a **WARNING** sign until the indicated conditions are fully understood and met.

Caution

A **Caution** note denotes a hazard. It calls attention to a procedure, that, if not correctly performed or adhered to, could result in damage to or destruction of the product. Do not proceed beyond a **Caution** note until the indicated conditions are fully understood and met.

Safety Earth Ground

This is a Safety Class I product (provided with a protective earthing terminal). An uninterruptible safety earth ground must be provided from the main power source to the product input wiring terminals, power, cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, the product must be made inoperative and secured against any unintended operation.

Before Applying Power

Verify that the product is configured to match the available main power source. Refer to the input power configuration instructions provided in this manual.

If this product is to be used with an autotransformer make sure the common terminal is connected to the neutral (grounded) side of the main supply.

Servicing

Any servicing, adjustment, maintenance, or repair of this product must be performed only by qualified personnel. Capacitors inside this product may still be charged even when disconnected from their power source.

To avoid a fire hazard, replacement fuses must have the required current rating and be of the type specified in this manual.

Preface

This manual applies directly to all HP/Agilent 8757D network analyzers. See the serial number plate (Figure 1-1) attached to the analyzer back panel. The first four digits followed by a letter are the serial number prefix. The last five digits are the sequential suffix, which are unique to each instrument.

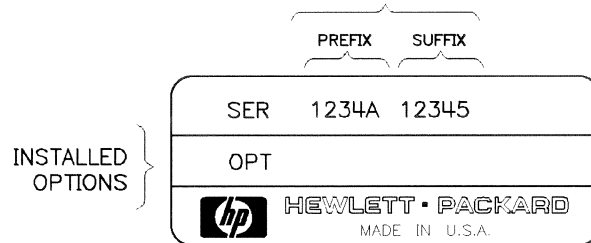


Figure 1-1. Typical Serial Number Label

Change 2

Change 2, located on page 1-19, revises the Declaration of Conformity.

Instructions

Replace page:

- 1-19/1-20

Declaration of Conformity

A declaration of conformity is on file for the 8757D, and a copy is available upon request.

Accessories and Supplies

See Figure 2-2, “Example of a Static-Safe Workstation,” and Table 1-4 for a list available parts. To order a listed item, provide the part number and the quantity required; send the order to the nearest Agilent Technologies sales and service office, listed at the back of this chapter.

Changes 3 - 6

- Change 3, located on page 1-21, deletes the obsoleted part number 08757-90107.
- Change 4, located on page 1-21, revises the part number for the Connector Care Quick Reference Card to 08510-90360.
- Change 5, located on page 1-21, revises the documents included in the 08757-90109 Operating Manual binder to include the Connector Care Quick Reference Card (08510-90360).
- Change 6, located on page 1-22, revises the Sales and Services Offices with “Contacting Agilent” information.

Instructions

Replace page:

- 1-21/1-22

Table 1-4. Replaceable Parts for the Agilent 8757D

Description	Agilent Part Number
Documentation	
Service Manual	08757-90110
Operating Manual (includes documents below)	08757-90109
Documents included in the 08757-90109 Operating Manual binder:	-
HP 9000 Series 200/300 Programming Guide	08757-90116
HP Vectra Microsoft Quick Basic 4.5 Programming Guide	08757-90117
HP Vectra Microsoft QuickC 2.5 Programming Guide	08757-90118
Quick Reference Programming Guide	08757-90130
Connector Care Quick Reference Card	08510-90360
Other	
Touch-up Paint (cobblestone gray)	6010-1140
Adapter ¹ (type-N male to 3.5 mm female)	08485-60005
HP-IB Cable	10833A
Fuses	
2.5A 250V NTD FE UL-LST	2110-0083
1.5A 250V NTD FE UL-LST	2110-0043
Rack Mount Handles	
Front Handles (standard)	5062-3990
Rack Mounting without Handles (Option 908)	5062-3978
Rack Mounting with Handles (Option 913)	5062-4072
ESD Supplies	
Conductive Table Mat with 15 ft Ground Wire	9300-0797
Wrist Strap to Table Mat Grounding Cord	9300-0980
Grounding Wrist Strap	9300-1367
ESD Heel Strap (reusable 6 to 12 months)	9300-1126
Cleaning Supplies	
Compressed Air (235 ml)	8500-6659
Cleaning Swabs (100)	9301-1243
Isopropyl Alcohol (8 oz)	8500-0559
Isopropyl Alcohol (30 ml)	8500-5344

¹ Part of Option 002.

Contacting Agilent

Assistance with test and measurements needs and information on finding a local Agilent office are available on the Web at:

<http://www.agilent.com/find/assist>

If you do not have access to the Internet, please contact your Agilent field engineer.

NOTE In any correspondence or telephone conversation, refer to the Agilent product by its model number and full serial number. With this information, the Agilent representative can determine whether your product is still within its warranty period.

Change 7 - 8

Change 7, located on page 2-5, revises Table 2-2 by deleting the left-most column and rewording the remaining column headings.

Change 8, located on page 2-6, revises the information on setting the voltage selector switch and checking the fuse.

Instructions

Replace page:

- 2-5/2-6

Power Requirements

Table 2-1. Agilent 8757D Power Requirements

Characteristic	Requirement
Input Voltage	100, 120, 220, or 240 V
Frequency	50/60 Hz
Power	120 VA (max)

Cautions

Before switching on this instrument, make sure

- the line voltage selector switch is set to the voltage of the mains supply
- the correct fuse is installed
- the supply voltage is in the specified range

Checking the Line Voltage and Fuse

Both the voltage selection card and the fuse are located in the AC power module on the rear panel of the analyzer. For continued protection against fire hazard, replace the line fuse with the same type and ratings. The use of other fuses or materials is prohibited. To select the line voltage and to check the fuse:

1. Determine the AC line voltage.
2. Choose values from Table 2-2, and use the following instructions.

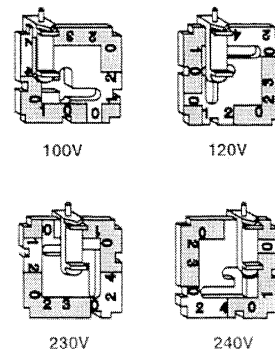
Table 2-2. Line Voltage and Fuse Selection

Line Voltage Selection	Fuse Selection (A)
100	2.5
120	2.5
220	1.5
240	1.5

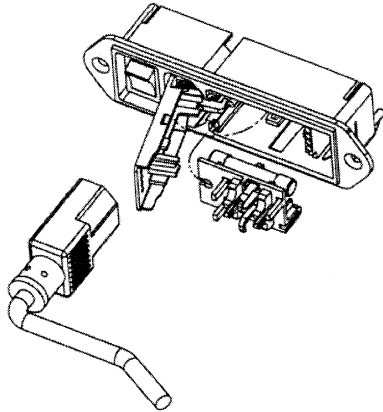
Voltage Selection

To change selected voltage: open cover, using small blade screwdriver or similar tool; set aside cover/fuse block assembly; pull voltage selector card straight out of housing, using indicator pin; orient selector card so that desired voltage is readable at the bottom; orient indicator pin to point up when desired voltage is readable at bottom (note that when indicator pin is fixed, successive voltages are selected by rotating the card 90° clockwise); insert voltage selector card into housing, *printed side of card facing forward toward IEC connector and edge containing the desired voltage first*; replace cover, and verify that indicator pin shows the desired voltage.

Voltage Selector Card Orientation



Fuse Installation Instructions



1. Remove power cord.
2. Pry door open at socket.
3. Lift and swing door into socket.
4. Lift fuse holder out of housing.
5. Install one (1) AG fuse or two (2) metric fuses*.
6. Replace fuse holder into housing.
7. Swing and snap door back in place.

*Install fuses on one side only. do not install both AG and metric fuses at the same time.

Checking the Power Cable

The analyzer is shipped with a three-wire power cable (appropriate for its original destination), in accordance with international safety standards. When connected to an appropriate power line outlet, this cable grounds the analyzer chassis.

Warning **This is a Safety Class 1 Product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor inside or outside of the product is likely to make the product dangerous. Intentional interruption is prohibited. (IEC 348 clauses 17.3.3 c) & 17.3.4)**

Install the instrument so that the ON/OFF switch is readily identifiable and is easily reached by the operator. The ON/OFF switch or the detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. Alternatively, an externally installed switch or circuit breaker (which is readily identifiable and is easily reached by the operator) may be used as a disconnecting device.

Change 9

Change 9, located on pages 1-16, 2-5, and 6-2, revises the Operating Characteristic of Power Requirements to 50/60 Hz, 100/120/220/240 V, typically 120 VA. Note that the “V +/-” in the previous version of the manual now simply reads “V” in this supplement.

Instructions

No action required:

- Page 2-5/2-6 was already replaced for Changes 7-8.

Replace page:

- 1-15/1-16

Add page:

- 6-1/6-2.

Page 6-1/6-2 is part of a wire-bound document that is inserted in the 8757D Operating Manual binder. Add this page to the binder, prior to the document.

Table 1-3. Operating Characteristics¹ (3 of 4)

LCD/CRT and Graphics																
<p>CRT Scan Rate: Raster scan with 60 Hz vertical refresh rate, and 25.5 kHz horizontal scan rate. CRT Graphics Resolution: 1024 horizontal x 400 vertical pixels.</p> <p>LCD Scan Rate: Raster scan with 59.83 Hz vertical refresh rate and 31.41 kHz horizontal scan rate. LCD Graphics Resolution: 640 horizontal x 480 vertical pixels.</p>																
Rear Panel Connectors																
<p>ADC IN: An auxiliary voltage input (−10 to +10V) that can be displayed (in volts) on any channel.</p> <p>Control 1 and 2: Provide digital output signals (TTL open-collector) to drive peripheral equipment in an HP-IB controlled system.</p> <p>DAC Out: Used in troubleshooting.</p> <p>Modulator Drive: Provides the drive for HP 8340/8341 synthesized sweepers and the HP 11665B modulator. You can turn modulator drive on/off at the front panel or by HP-IB.</p> <p>Pos Z Blank Input:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">Voltage Levels</th> </tr> </thead> <tbody> <tr> <td style="padding-left: 2em;">Blanked:</td> <td style="text-align: center;">+5 V</td> </tr> <tr> <td style="padding-left: 2em;">Unblanked:</td> <td style="text-align: center;">0 V</td> </tr> <tr> <td style="padding-left: 2em;">Marker:</td> <td style="text-align: center;">−4 V</td> </tr> <tr> <td style="padding-left: 2em;">Active Marker:</td> <td style="text-align: center;">−8 V</td> </tr> </tbody> </table> <p>Stop Sweep: Used with HP 8350 sweep oscillators and HP 8340, 8341, or 8360 synthesized sweepers (when controlled by the HP 8757 system interface) to stop the sweep at band crossings and at the end of sweep.</p> <p>Sweep In: Accepts the horizontal sweep voltage (usually provided by the source).</p> <p>CRT Video Output: Three BNC connectors used to drive external monitors with the following characteristics:</p> <table style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="padding-left: 2em;">75Ω input impedance.</td> </tr> <tr> <td style="padding-left: 2em;">R, G, B, with sync on green.</td> </tr> <tr> <td style="padding-left: 2em;">60 Hz verticle refresh rate.</td> </tr> <tr> <td style="padding-left: 2em;">25.5 kHz horizontal scan rate.</td> </tr> <tr> <td style="padding-left: 2em;">1 Vp-p (0.7 V = white; 0 V = black; −0.3 V = sync).</td> </tr> </tbody> </table> <p>LCD Video Output: VGA compatible.</p>			Voltage Levels	Blanked:	+5 V	Unblanked:	0 V	Marker:	−4 V	Active Marker:	−8 V	75Ω input impedance.	R, G, B, with sync on green.	60 Hz verticle refresh rate.	25.5 kHz horizontal scan rate.	1 Vp-p (0.7 V = white; 0 V = black; −0.3 V = sync).
	Voltage Levels															
Blanked:	+5 V															
Unblanked:	0 V															
Marker:	−4 V															
Active Marker:	−8 V															
75Ω input impedance.																
R, G, B, with sync on green.																
60 Hz verticle refresh rate.																
25.5 kHz horizontal scan rate.																
1 Vp-p (0.7 V = white; 0 V = black; −0.3 V = sync).																
Internal Save/Recall Registers																
<p>General Capability: Separate front panel states may be saved in registers 1 through 9. If an appropriate source is connected to the 8757D system interface, the front panel state of the source is included in the saved state.</p> <p>Memory Trace and Limit Lines: For channels 1 and 2, the states saved in registers 1 through 4 also include the appropriate trace and limit line data. (Registers 5 through 9 only store front panel states.)</p>																

¹The values in this table are *not* specifications, but typical, non-warranted performance parameters.

Table 1-3. Operating Characteristics¹ (4 of 4)

HP-IB																		
<p>Interface: HP-IB operates according to IEEE 488-1978 and IEC-625 interface standards. Note that the HP-IB interface does not support the IEEE 488.2 standard.</p>																		
<p>Interface Function Codes: SH1, AH1, T6, TE0, L4, LE0, SR1, RL1, PP0, DC1, DT0, C0, E1.</p>																		
<p>Transfer Formats: You may transfer data either as ASCII characters, or as 16-bit integers (most significant byte first). You may take readings at a single point, or transfer an entire trace at once.</p>																		
<p>Transfer Speed (includes command to initiate output):</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Format</th> <th style="text-align: center;"># Points</th> <th style="text-align: center;">ms (typical)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">ASCII</td> <td style="text-align: center;">401</td> <td style="text-align: center;">500</td> </tr> <tr> <td style="text-align: center;">ASCII</td> <td style="text-align: center;">1</td> <td style="text-align: center;">10</td> </tr> <tr> <td style="text-align: center;">Binary</td> <td style="text-align: center;">401</td> <td style="text-align: center;">30</td> </tr> <tr> <td style="text-align: center;">Binary</td> <td style="text-align: center;">1</td> <td style="text-align: center;">7</td> </tr> </tbody> </table>				Format	# Points	ms (typical)	ASCII	401	500	ASCII	1	10	Binary	401	30	Binary	1	7
Format	# Points	ms (typical)																
ASCII	401	500																
ASCII	1	10																
Binary	401	30																
Binary	1	7																
<p>Programmable Functions: Except for power on/off, all front panel functions are programmable. The analyzer is compatible with all appropriate HP 8757A/C/E programming codes.</p>																		
<p>Interrupts: The following conditions generate HP-IB service interrupts (SRQs):</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: center;">Front panel key pressed</td> <td style="text-align: center;">Illegal command</td> </tr> <tr> <td style="text-align: center;">Instrument self-test error</td> <td style="text-align: center;">Limit test fails</td> </tr> <tr> <td style="text-align: center;">Operation (sweep or plot) completes</td> <td></td> </tr> </tbody> </table>				Front panel key pressed	Illegal command	Instrument self-test error	Limit test fails	Operation (sweep or plot) completes										
Front panel key pressed	Illegal command																	
Instrument self-test error	Limit test fails																	
Operation (sweep or plot) completes																		
System Interface																		
<p>The 8757 system interface is a dedicated HP-IB port used exclusively by the analyzer to control and extract information from a swept source, digital plotter, printer, or other device.</p>																		
General																		
<p>Temperature Range:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: center;">Operating:</td> <td style="text-align: center;">0° to +55°C (+32° to 131°F)</td> </tr> <tr> <td style="text-align: center;">Storage:</td> <td style="text-align: center;">-40° to +70°C (-40° to +158°F)</td> </tr> </tbody> </table>				Operating:	0° to +55°C (+32° to 131°F)	Storage:	-40° to +70°C (-40° to +158°F)											
Operating:	0° to +55°C (+32° to 131°F)																	
Storage:	-40° to +70°C (-40° to +158°F)																	
<p>Humidity: Maximum relative humidity 80% for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40 °C (unless specified otherwise).</p>																		
<p>Altitude: 2000 meters.</p>																		
<p>Power Requirements: 50/60 Hz, 100/120/220/240 V typically 120 VA.</p>																		
<p>Dimensions: 178 x 425 x 445 mm (7.0 x 16.75 x 17.5 in).</p>																		
<p>Weight:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: center;">Net:</td> <td style="text-align: center;">17 kg (38 lb)</td> </tr> <tr> <td style="text-align: center;">Shipping:</td> <td style="text-align: center;">25 kg (55 lb)</td> </tr> </tbody> </table>				Net:	17 kg (38 lb)	Shipping:	25 kg (55 lb)											
Net:	17 kg (38 lb)																	
Shipping:	25 kg (55 lb)																	

¹The values in this table are not specifications, but typical, non-warranted performance parameters.

Rear Panel Features

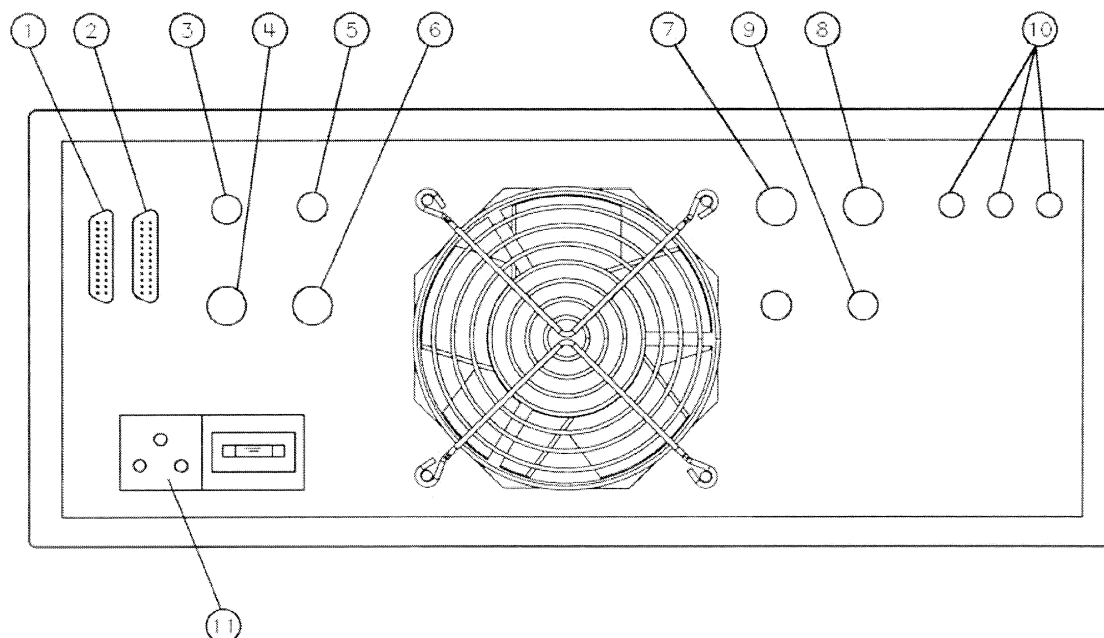


Figure 6-1. The HP 8757D Rear Panel

- ① **8757 SYSTEM INTERFACE** This interface is a private bus that lets the analyzer control peripherals such as the source, plotter, and printer. Since the analyzer itself controls the HP 8757 system interface bus, other controllers must not be attached to this connector, unless the **SYSINTF ON OFF** function is *off*.

With a system interface establishing a communication between the instruments, the analyzer can detect and display the source frequency information.

- ② **HP INTERFACE BUS** This interface bus allows the analyzer to interface with a computer controller and other HP-IB instruments.
- ③ **POS Z BLANK** This input accepts positive retrace, bandswitch blanking, and negative intensity marker (z-axis modulation) signals. The signal levels sensed on this input are +5 V for blanking, 0 V for display, -4 V for markers, and -8 V for the active marker.

Rear Panel Features

- ④ **SWEEP IN 0-10V** This input accepts a source sweep ramp signal that can be anywhere between 0 to +10 volts. You can modify the A4 ADC assembly so the analyzer can accept sweep ramps greater than +10V. The sweep in signal is necessary for the analyzer to operate as a receiver. An HP 83750 source creates a pulse train that consists of 1μ second pulses in both continuous and step sweep modes.
- ⑤ **STOP SWEEP** This connector provides the interface signal to stop a source's sweep when it is controlled over the system interface.

The analyzer also uses this connector to sense when the source has stopped the sweep.

- ⑥ **MODULATOR DRIVE** This output provides a 27.778 kHz square wave signal, (nominally ± 6 V open circuit), for driving an external modulator, a source's external amplitude, or pulse modulation input.
- ⑦ **DAC OUT 0-10V** This connector is provided for future enhancements included with later firmware revisions. You can also use this output for troubleshooting.
- ⑧ **ADC IN** This connector shows an external voltage on the analyzer display using **MEAS AUX**. The connector is also referred to as AUX input. You can also use this input for troubleshooting.
- ⑨ **CONTROL 1 and CONTROL 2** These connectors provide digital output signals (TTL open-collector) as a convenience for driving other peripheral equipment in an HP-IB controlled system. The CONTROL 1 signal can be used as an oscilloscope trigger source when continuous loop service-related tests are performed.
- ⑩ **Internal CRT Display: R, G, and B VIDEO OUTPUT**—These connectors provide analog red, green, and blue video signals that you can use to drive an external color monitor or monochrome monitor. Any analog multisync monitor can be used if it is compatible with the analyzer's 25.5 kHz scan rate and video levels (1 V p-p, 0.7 V = white, 0 V = black, -0.3 V = sync, sync on green).

Internal LCD-Based Display: Instruments with the LCD-based display are equipped with a single VGA OUTPUT connector on the rear panel so that an external monitor may be connected. See previous blue tab labeled "Installation," Figure 2-9.

- ⑪ **LINE V** This input connector accepts primary line voltage (100, 120, 220, or 240 V) to power the analyzer. Use the printed circuit selector board to set the correct line voltage. See chapter 2, "Installation," for information on line voltage and fuse selection.

Change 10

Change 10, located on page 6-1, revises the appearance of the network analyzer rear panel in Figure 6-1.

Instructions

No action required:

- Page 6-1/6-2 was already added for Change 9.

Change 11

Change 11, located on page 1-16, revises the Operating Characteristic of Altitude to 2000 meters.

Instructions

No action required.

- Page 1-15/1-16 was already replaced for Change 9.

Change 12

Change 12 is located on the Connector Care Quick Reference Card, found just prior to the binder's Glossary. This change revises the suggestion "Use isopropyl alcohol" with a footnote.

Instructions

Replace:

- Connector Care Quick Reference Card, found just prior to the binder's Glossary.

