

HEWLETT  PACKARD

OPERATING AND SERVICE MANUAL

SPECTRUM ANALYZER

IF SECTION

8552B

SERIAL NUMBERS

This manual applies directly to instruments with serial numbers prefixed 1410A.

With changes described in Section VII, this manual also applies to instruments with serial numbers prefixed 971-, 974-, 977-, 1050A, 1107A, 1121A, 1131A, 1137A, 1144A, 1209A, 1210A, 1217A, 1234A, 1250A, 1311A, 1335A, and 1345A.

For additional important information about serial numbers, see INSTRUMENTS COVERED BY MANUAL in Section I.

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Figure 1-1. Model 8552B Spectrum Analyzer IF Section

SECTION I GENERAL INFORMATION

1-1. INTRODUCTION

1-2. This manual contains pertinent information required to install, operate, test, adjust and service the Hewlett-Packard Model 8552B Spectrum Analyzer IF Section. This section covers instrument identification, description, accessories, specifications and other basic information. A more complete discussion of overall operation of the Spectrum Analyzer system is given in RF Section manuals.

1-3. Figure 1-1 shows the Hewlett-Packard Model 8552B Spectrum Analyzer IF Section.

1-4. The various sections in this manual provide information as follows:

SECTION II, INSTALLATION, provides information relating to inspection, power requirements, mounting, packing and shipping, etc.

SECTION III, OPERATION, provides information relative to operating the equipment.

SECTION IV, PERFORMANCE TESTS, provides information required to ascertain whether the instrument is performing in accordance with published specifications.

SECTION V, ADJUSTMENTS, provides information required to properly adjust and align the instrument.

SECTION VI, REPLACEABLE PARTS, provides ordering information for all replaceable parts and assemblies.

SECTION VII, MANUAL CHANGES, provides back-dating information.

SECTION VIII, SERVICE, provides information required to service the instrument.

1-5. On the title page of this manual, below the manual part number, is a "Microfiche" part number. This number may be used to order 4 x 6-inch microfilm transparencies of the manual. Each microfiche contains up to 60 photo-duplicates of the manual pages. The microfiche package also includes the latest Manual Changes supplement as well as all pertinent Service Notes.

1-6. Instrument specifications are listed in Table 1-1. These specifications are the performance standards, or limits against which the instrument

may be tested. Table 1-1 also lists supplemental characteristics. Supplemental characteristics are not specifications but are typical characteristics included as additional information for the user.

1-7. INSTRUMENTS COVERED BY MANUAL

1-8. This instrument has a two-part serial number. The first four digits and the letter or the first three digits and the hyphen comprise the serial number prefix. The last five digits form the sequential suffix that is unique to each instrument. The contents of this manual apply directly to instruments having the same serial number prefix(es) as listed under SERIAL NUMBERS on the title page.

1-9. An instrument manufactured after the printing of this manual may have a serial prefix that is not listed on the title page. This unlisted serial prefix indicates that the instrument is different from those documented in this manual. The manual for this instrument is supplied with a yellow Manual Changes supplement that contains "change information" that documents the differences.

1-10. In addition to change information, the supplement may contain information for correcting errors in the manual. To keep this manual as current and accurate as possible, Hewlett-Packard recommends that you periodically request the latest Manual Changes supplement. The supplement for this manual is keyed to this manual's print date and part number, both of which appear on the title page. Complimentary copies of the supplement are available from Hewlett-Packard.

1-11. For information concerning a serial number prefix not listed on the title page or in the Manual Changes supplement, contact your nearest Hewlett-Packard office.

1-12. DESCRIPTION

1-13. The HP Model 8552B Spectrum Analyzer IF Section was designed to be used in conjunction with an RF Section and a Display Section.

1-14. The complete analyzer is a highly sensitive superheterodyne receiver with spectrum scanning capabilities determined by the RF Section. Output video from the receiver circuits is applied to the CRT in the display section; thus, a signal or group of signals can be analyzed in the frequency

domain. Input signals are plotted on the CRT as a function of amplitude versus frequency. The amplitude (Y-axis) of the CRT is calibrated in absolute units of power (dBm) or voltage ($\mu\text{V}/\text{mV}$); accordingly, absolute and relative measurements of both amplitude and frequency can be made.

1-15. The instrument controls are arranged for easy operation. For wide spectrum analysis, the operator can use the preset scan of the RF Section used, or for a more detailed study, the spectrum width can be progressively narrowed. The frequency scan can be stopped to allow use of the instrument as a fixed frequency receiver. The RF Section's widest bandwidth is automatically selected for preset scan operation; for variable scan and fixed frequency operation, narrower bandwidths can be selected by the operator.

1-16. OPTIONS

1-17. The standard 8552B provides -30 ± 0.3 dBm calibrator output (7.07 mV into 50 ohms) at 30 ± 0.003 MHz. A standard BNC connector is used.

1-18. Option H01. The calibrator output impedance is 75 ohms with an output of 8.66 mV (-30 dBm). The CAL OUTPUT Connector is equivalent to the Western Electric WE-560A.

1-19. Option H02. The calibrator output impedance is 75 ohms with an output of 8.66 mV (-30 dBm). The CAL OUTPUT connector is a BNC.

1-20. Option H04. The Log Amplitude reference is calibrated in dB μV (0 dB μV is 1 μV across 50 ohms).

1-21. EQUIPMENT REQUIRED BUT NOT SUPPLIED

1-22. The Model 8552B must be mated with a standard 8550 series RF Section and a 140 series Display Section before it can function as a spectrum analysis system.

1-23. RF Sections

1-24. The available 8552B Options must be mated with the following RF Sections:

- 1) 8552B-H01 8553B-H01
- 2) 8553B-H02 8553B-H02
- 3) 8552B-H04 . . . 8553, 8554, 8555 (standard)
8556A-H11 (special)

1-25. Display Sections

1-26. The 140 Display Sections are equipped with a fixed-persistence, non-storage CRT. 141T Display Sections are equipped with a variable persistence, storage CRT. The 143 Display Sections have a large screen (8 x 10 inch) fixed-persistence, non-storage CRT.

Table 1-1. 8552B Specifications

SPECIFICATIONS

FREQUENCY

Resolution:

Bandwidth: IF bandwidths of 10 Hz to 300 kHz provided in a 1, 3 sequence.

Bandwidth Accuracy: Individual IF bandwidths' 3 dB points calibrated to $\pm 20\%$ (10 kHz bandwidth $\pm 5\%$).

Bandwidth Selectivity: 60 dB/3 dB IF bandwidth ratio $< 11:1$ for IF bandwidths from 10 Hz to 3 kHz and $< 20:1$ for IF bandwidths from 10 kHz to 300 kHz, 60 dB points separated by < 100 Hz for 10 Hz bandwidth.

AMPLITUDE

Absolute Amplitude Calibration Range:

Log: From -130 to $+10$ dBm, 10 dB/div on a 70 dB display or 2 dB/div expand below LOG reference.

H04: From -23 to $+117$ dBV, 10 dB/div on a 70 dB display or 2 dB/div expand below LOG reference.

Calibrator Output:

Amplitude: -30 dBm ± 0.3 dB; $+77$ dB μ V (H04)
Standard/H04-8552B: 7.07 mV into 50 ohms
H01/H02-8552B: 8.66 mV into 75 ohms

Amplitude Accuracy:

Switching between bandwidths (at 20°C):	Log	Linear
0.1 - 300 kHz	± 0.5 dB	$\pm 5.8\%$
0.03 - 300 kHz	± 1.0 dB	$\pm 12.0\%$
0.01 - 300 kHz	± 1.5 dB	$\pm 19.0\%$
Amplitude Display	± 0.25 dB/dB but not more than ± 1.5 dB over full 70 dB display range	$\pm 2.8\%$ of full 8 div. deflection

GENERAL

Scan Time: 16 internal scan rates from 0.1 ms/div to 10 sec/div in a 1, 2, 5 sequence, or Manual Scan.

Scan Time Accuracy:

0.1 ms/div to 20 ms/div: $\pm 10\%$
 50 ms/div to 10 sec/div: $\pm 20\%$

Power Requirements: 115 or 230 volts $\pm 10\%$, 50 to 60 Hz, normally less than 225 watts for complete analyzer (varies with plug-in units used).

Weight: Model 8552B IF Section: Net 9 lb., 11 oz., (4.4 kg.)

Scan Characteristics

Scan Mode:

Internal: Analyzer repetitively scanned by internally generated ramp; synchronization selected by Scan Trigger.

Single: Single scan actuated by front panel push-button.

External: Scan determined by 0 to +8 volt external signal; scan input impedance > 10 k Ω .

Blanking: -1.5 V external blanking signal required.

Manual: Scan controlled by position of Manual Scan knob.

Scan Trigger: For Internal scan mode, select between:

Auto: Scan free runs.

Line: Scan synchronized with power line frequency.

External: Scan synchronized with > 2 volt (20V max) trigger signal. Polarity selected by internal switch (on assembly A6) of 8552B IF Section. Scan triggers with negative impulse when switch in NORMAL position.

Video: Scan internally synchronized to envelope of RF input signal (signal amplitude of 1.5 major divisions peak-to-peak required on display section CRT).

Penlift Characteristics

Penlift output: 0 to +14 volts (0V pen down). Available in Internal and Single Scan modes and Auto, Line and Video Scan Trigger.

1-27. EQUIPMENT AVAILABLE

1-28. The following equipment is recommended for maintenance purposes:

- a. HP 11592A Service Kit (shown in Figure 1-2).
- b. Six-pin extender board (not included in HP 11592A Service Kit) HP Part Number 5060-5914.

1-29. RECOMMENDED TEST EQUIPMENT

1-30. Table 1-2 lists the test equipment and accessories required to check, adjust and repair the 8552B Spectrum Analyzer IF Section. If substitute equipment is used, it must meet the Minimum Specifications listed in Table 1-2.

Table 1-2. Test Equipment and Accessories

Item	Minimum Specifications or Required Features	Suggested Model	Note*
Amplifier	Frequency Range: 3 to 30 MHz Gain: 20 dB Input and Output Impedance: 50 ohms Flatness: ±1 dB	HP 8447A	P, A
Attenuator	Frequency Range: 0 – 30 MHz Flatness: ±0.5 dB Steps: 1 dB from 0 to 12 dB	HP 355C	A
Attenuator	Frequency Range: 0 – 30 MHz Flatness: ±0.5 dB Steps: 10 dB – 0 to 110 dB	HP 355D	A
Audio Oscillator	Frequency Range: 10 kHz Output Amplitude: 2V rms Frequency Accuracy: ±2% Output Impedance: 600 ohms	HP 200CD	P, A
Digital Voltmeter	Voltage Accuracy: ±0.2% Range Selection: Manual or Automatic Voltage Range: 1 – 1000 Vdc full scale Input Impedance: 10 megohms Polarity: Automatic Indication	HP 3440A Digital Voltmeter with HP 3443A Plug-in	P, A, T
Crystal Detector	Frequency: 1 – 50 MHz Sensitivity: >0.04 mV/μW Frequency Response: ±0.2 dB Polarity: Negative	HP 423A Crystal Detector	A
Frequency Counter	Frequency Range: 100 kHz – 50 MHz Accuracy: ±0.001% Sensitivity: 30 mV rms Readout Digits: 7	HP 5245L Frequency Counter with HP 5261A Plug-in	P, A
Oscilloscope	Frequency Range: Dc to 50 MHz Time Base: 1 μs/div to 10 ms/div Time Base Accuracy: ±3% Dual Channel, Alternate Operation Ac or dc Coupling External Sweep Mode Voltage Accuracy: ±3% Sensitivity: 0.005 V/div	HP 180A with HP 1801A Vertical Amplifier and HP 1821A Horizontal Amplifier HP 10004A 10:1 Divider Probes (2)	A, T
Note* Performance = P; Adjustment = A; Troubleshooting = T			

Table 1-2. Test Equipment and Accessories (cont'd)

Item	Minimum Specifications or Required Features	Suggested Model	Note*
Ohmmeter	Resistance Range: 1 ohm to 100 megohms Accuracy: $\pm 10\%$ of Reading	HP 412A	T
Power Supply	Output Voltage: Variable, 0 – 30 Vdc Output Current: 0 – 400 mA Meter Resolution: < 5 mV	HP 6217A Power Supply	A
Signal Generator	Frequency Range: 1 – 30 MHz Output Amplitude: > 0 dBm Amplitude Accuracy: $\pm 1\%$ Frequency Accuracy: $\pm 1\%$ Output Impedance: 50 ohms Modulation: External to 100%	HP 606B HF Signal Generator	A
Signal Generator	Frequency Range: 30 to 50 MHz Output Amplitude: > -20 dBm Amplitude Accuracy: $\pm 1\%$ Output Impedance: 50 ohms Modulation: External Pulse or CW to 100%	HP 608F VHF Signal Generator	P, A, T
Oscillator Synchronizer	Frequency Range: 50 kHz – 310 MHz Input Signal Level: 50 kHz – 20 MHz; 0.1 – 2V rms into 50 ohms, 10 – 310 MHz; 180 – 500 mV rms into 50 ohms. Frequency Reference Stability: Short term, 5×10^{-5} /minute Frequency Control Output: Frequency control voltage directly compatible with HP 606B and HP 608F signal generators; output voltage range, -2 to -32 Vdc (maximum)	HP 8708A Synchronizer	A
Sweep Oscillator	Frequency Range: 1 – 60 MHz Output Flatness: ± 0.25 dB over full band Output Impedance: 50 ohms Sweep Width: Up to 10 MHz Output Amplitude: At least 0 dBm.	HP 8601A Generator/Sweeper	A
Pulse Generator	Rep Rate: 10 kHz to 100 kHz Pulse Width: 0.5 to 5 msec Pulse Amplitude: 2V	HP 222A	A
RF Voltmeter	Frequency Range: 3 MHz to 50 MHz Amplitude Range: 0 to -40 dBm Accuracy: $\pm 5\%$	HP 3406A	T
Tunable RF Voltmeter	Bandwidth: 1 kHz Frequency Range: 1 – 50 MHz Sensitivity: 10 mV – 1V rms Input Impedance: ≥ 0.1 megohms	HP 8405A Vector Voltmeter	P, A, T
Extender Board	6-Pin	HP 5060-5914	A, T
50-ohm Tee	Type N female connectors on two ports, with the third port able to accept HP 8405A probe tips.	HP 11536A 50-ohm Tee	P, A
Note* Performance = P; Adjustment = A; Troubleshooting = T			

Table 1-2. Test Equipment and Accessories (cont'd)

Item	Minimum Specifications or Required Features	Suggested Model	Note*
50-ohm Termination	Frequency Range: Dc — 310 MHz VSWR: 1.1 Power Rating: 0.5 Watt Connector: Type N Male	HP 908A Coaxial Termination	P, A
Variable Voltage Transformer	Range: 102 — 127 Vac Voltmeter Range: 103 — 127 Vac ±1 volt	General Radio W5MT3A or Superior Electric UC1M	A
BNC Tee (2)	Two BNC Female Connectors; one Male BNC Connector	UG-274B/U HP 1250-0781	P, A, T
Adapter	BNC Male to Type N Female	UG-349A/U HP 1250-0077	A
Adapter	BNC Male to Binding Post	HP 10110A	A
Adapter (3)	BNC Female to Type N Male	UG-201A/U HP 1250-0780	P, A
Voltage Probe	Dual Banana Plug-to-Probe Tip and Clip (Ground) Lead	HP 10025A Straight-thru Voltage Probe	A, T
Cable Assy (6)	Male BNC Connectors, 48 inches long	HP 10503A	P, A, T
Cable Assy	BNC Male to Dual Banana Plug, 45 inches long	HP 11001A	P, A, T
Cable Assy	Dual Banana Plug to Clip Leads, 45 inches long	HP 11002A	A, T
Cable Assy	Dual Banana Plug to Dual Banana Plug, 44 inches long	HP 11000A	A, T
Cable Assy	BNC Male to one end only; 44 inches. (Attach Test Clips to Shield and Center Conductor.)	HP 10501A	A, T
Tuning Tool, Slot	Nonmetallic, 6-inch shaft	Gowanda PC9668	A, T
Screwdrivers	Pozidrive No. 1 (small) Stanley No. 5531	HP 8710-0899	A, T
Tuning Tool, Slot	Nonmetallic, 2.5-inch shaft	HP 8710-0095	A, T
Capacitor	8200 pF (approx.), See paragraph 5-38	HP 0140-0184	A, T
Adapter	Type N Female Connector to Type N Female Connector	UG-29B/U HP 1250-0777	A, T
Adapter	Type N Female to BNC Female Adapter	FXR 21850	A, T
Adapter	Type NBC Plug-to-Plug Adapter	UG-491B/U HP 1250-0216	A, T
Tuning Tool	Fluted Tip, Siemens Halske B63399-B004-X000	HP 8710-0957	A
Note Performance = P; Adjustment = A; Troubleshooting = T			

Table 1-2. Test Equipment and Test Accessories (cont'd)

Item	Minimum Specifications or Required Features	Suggested Model	Note
Service Kit	<p>Contents:</p> <p>140/141 Display Section to Spectrum Analyzer Plug-in Extender Assembly (HP 11592-60015)</p> <p>IF to RF Unit Interconnection Extender Cable Assembly (HP 11592-60016)</p> <p>Selectro Female to BNC Male Test Cable, Three each, 36 inches long (HP 11592-60001)</p> <p>Selectro Male to Selectro Female Test Cable, Two each, 8 inches long (HP 11592-60003)</p> <p>Selectro Female to Selectro Female Cable, One each, 8 inches long (HP 11592-60002)</p> <p>Extender Board Assembly, 15 pins, 30 conductors, for Plug-in Circuit Boards (HP 11592-60011)</p> <p>Fastener Assembly, 8553 Circuit Board Extender, Two each (HP 11592-20001 and HP 1390-0170)</p> <p>Selectro Jack-to-Jack Adapter (HP 1250-0827)</p> <p>Wrench, open end, 15/64 inch (HP 8710-0946)</p> <p>BNC Jack-to-OSM Plug Adapter (HP 1250-1200)</p> <p>OSM Plug-to-Plug Adapter (HP 1250-1158)</p> <p>Cable Assembly, R and P Connector (HP 11592-60013)</p>	HP 11592A Service Kit	Adjustment, Troubleshooting

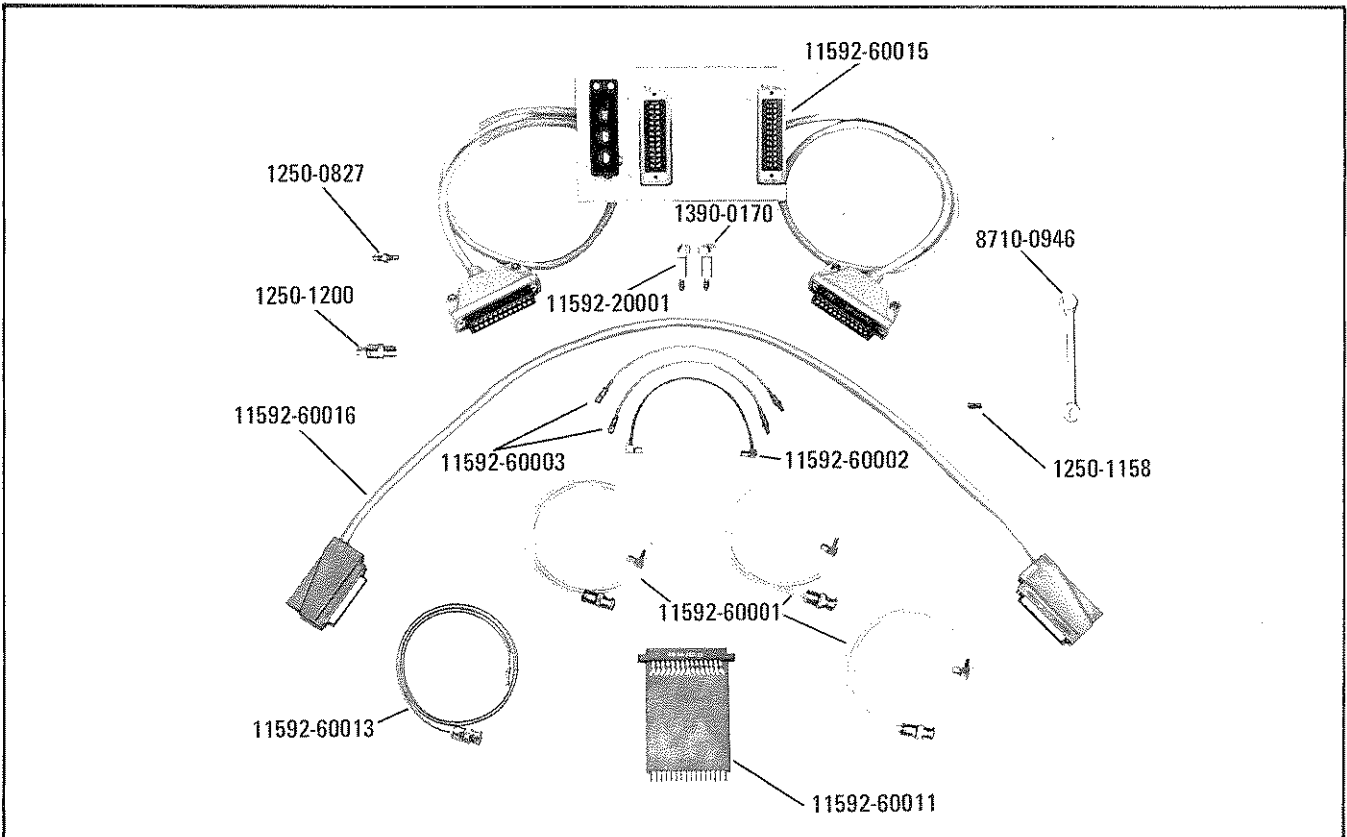


Figure 1-2. HP 11592A Service Kit Required for Maintenance



Figure 2-1. Model 8552B Spectrum Analyzer IF Section with 8553B RF Section and 141T Display Section

SECTION II INSTALLATION

2-1. SHIPPING INFORMATION

2-2. Because of individual customer requirements, shipping configurations are flexible. Initial inspection is based on the premise that the RF and IF Sections are installed in the Display Section; thus the instrument is physically and functionally complete for test. Since the RF and IF Sections are received separately, the plug-ins must be mechanically fitted together, electrically connected, and inserted in a Display Section.

2-3. INITIAL INSPECTION

2-4. Mechanical Check

2-5. If shipping carton is damaged, ask that agent of carrier be present when instrument is unpacked. Inspect instrument for mechanical damage such as scratches, dents, broken knobs, or other defects. Also, check cushioning material for signs of severe stress.

2-6. Performance Check

2-7. As soon as possible after receipt, the instrument should be checked in accordance with the Performance Tests in Section IV.

2-8. CLAIMS FOR DAMAGE

2-9. If the Spectrum Analyzer IF Section is mechanically damaged or fails to meet the specified performance tests, immediately notify the carrier and the nearest Hewlett-Packard Sales and Service office. (A current list of sales and service offices appears at the back of this manual.) Retain shipping carton and padding material for inspection by the carrier. Any Hewlett-Packard Sales and Service office will arrange for instrument repair or replacement without waiting for a claim settlement with the carrier.

2-10. POWER REQUIREMENTS

2-11. The IF Section receives its power from the Display Section. Before connecting the analyzer to a line power source, perform the installation procedures given in the Display Section manual.

2-12. CONNECTIONS

2-13. Since the RF and IF Sections are shipped separately, the plug-ins must be mechanically fitted

together, electrically connected, and then inserted into the Display Section mainframe. To make these connections refer to the RF Section Manual.

2-14. INSTALLATION CHECK

2-15. After installing the IF/RF Sections in the Display Section, the installation procedures given in Section II of the RF Section manual should be performed.

2-16. STORAGE AND SHIPMENT

2-17. Original Packaging

2-18. The same containers and materials used in factory packaging can be obtained through the Hewlett-Packard Sales and Service offices listed at the rear of this manual.

2-19. If the instrument is being returned to Hewlett-Packard for servicing attach a tag indicating the type of service required, return address, model number and full serial number. Also mark the container FRAGILE to assure careful handling.

2-20. In any correspondence refer to the instrument by model number and full serial number.

2-21. Other Packaging Materials

2-22. The following general instructions should be used for repackaging with commercially available materials.

a. Wrap the instrument in heavy paper or plastic. (If shipping to a Hewlett-Packard Service office or center, attach a tag indicating the type of service required, return address, model number and full serial number.)

b. Use a strong shipping container. A double-wall carton made of 350 pound test material is adequate.

c. Use enough shock-absorbing material (three to four inch layer) around all sides of the instrument to provide firm cushion and prevent movement inside the container. Protect the control panel with cardboard.

d. Seal the shipping container securely.

e. Mark the shipping container FRAGILE to assure careful handling.

SECTION III OPERATION

3-1. INTRODUCTION

3-2. This section provides operating instructions for the HP 8552B IF Section. The panel features are described in Figure 3-1, Operator's Checks are outlined in Figure 3-2, and Operating Instructions are provided in the appropriate RF Section manual. Operator's Maintenance provides instructions for maintenance that can be done by the operator.

3-3. PANEL FEATURES

3-4. The panel features of the 8552B are shown and explained in Figure 3-1, 8552B Spectrum Analyzer IF Section Controls, Connectors and Indicators.

3-5. OPERATOR'S CHECKS

3-6. The Operator's Checks are designed to familiarize the operator with the 8552B and give him an understanding of the instrument capabilities.

3-7. The FRONT PANEL CHECK PROCEDURE and Table 4-1, (in Section 4), provide the Operator's Checks for the 8552B.

NOTE

When the 8552B-H04 is being used, the adjustments of paragraph 3-14 should be substituted for those in Section IV.

3-8. OPERATIONAL ADJUSTMENTS

3-9. During checkout at the factory, the IF Section is adjusted for proper operation. Upon receipt of the instrument the operator must perform the front panel adjustments as shown in the RF Section manual.

3-10. H01/H02 Instruments

3-11. For H01/H02 instruments it should be recalled that at -30 dBm, the equivalent voltage is 8.66 mV (75 ohms). Perform the tests and adjustments as shown in the RF Section Manual.

3-12. H04 Instruments

3-13. The -30 dBm CAL OUTPUT signal is used to calibrate the analyzer. However, since 0 dB μ V (across 50 ohms) = -107 dBm, the -30 dBm signal corresponds to $+77$ dB μ V. To achieve correct log calibration, LOG REF LEVEL is set to 80 dB μ V

and AMPL CAL is set so that the signal peaks 3 dB below the LOG REF graticule line. And since -30 dBm = 7.07 mV (across 50 ohms), AMPL CAL is fine-adjusted for 7.1 mV (≈ 7.07 mV) on the CRT display.

Use the following procedure as a supplement to the procedures specified in Section IV and the RF Section manuals for AMPL CAL adjustment.

NOTE

When the 8556A RF Section is used, the correct adjustment procedure is located in the RF Section manual.

1. Make VERTICAL GAIN and POSITION adjustments as specified in the manuals.
2. Set LOG REF LEVEL to 80 dB μ V (check that LOG/LINEAR is set to 10 dB LOG, LOG REF LEVEL Vernier is set to 0 , and CAL OUTPUT is connected to RF INPUT).
3. Adjust AMPL CAL to set the 30 MHz calibrator signal 3 dB *below* the top (0 dB) graticule line on the CRT.
4. Step INPUT ATTENUATION and LOG REF LEVEL through their ranges. The signal should increase or decrease 10 dB per step.
5. Set LOG/LINEAR to LINEAR and LINEAR SENSITIVITY to 1 mV/div. Adjust AMPL CAL to set the 30 MHz calibrator signal for 7.1 divisions on the CRT.

3-14. OPERATING INSTRUCTIONS

3-15. Refer to the RF Section manuals for specific operating instructions.

3-16. OPERATING TIPS

3-17. When using the 10 Hz Bandwidth, use a scan time of 1 second or slower. Special provision is made in the 8552B IF Section to increase the stability of the 50 MHz Converter during the slow scans.

3-18. When using MANUAL SCAN or EXTERNAL SCAN, the DISPLAY UNCAL lamp warns if the combination of control settings being used degrades the calibration. Do not sweep the analyzer any faster than it would be swept by an internal scan with the control settings selected.

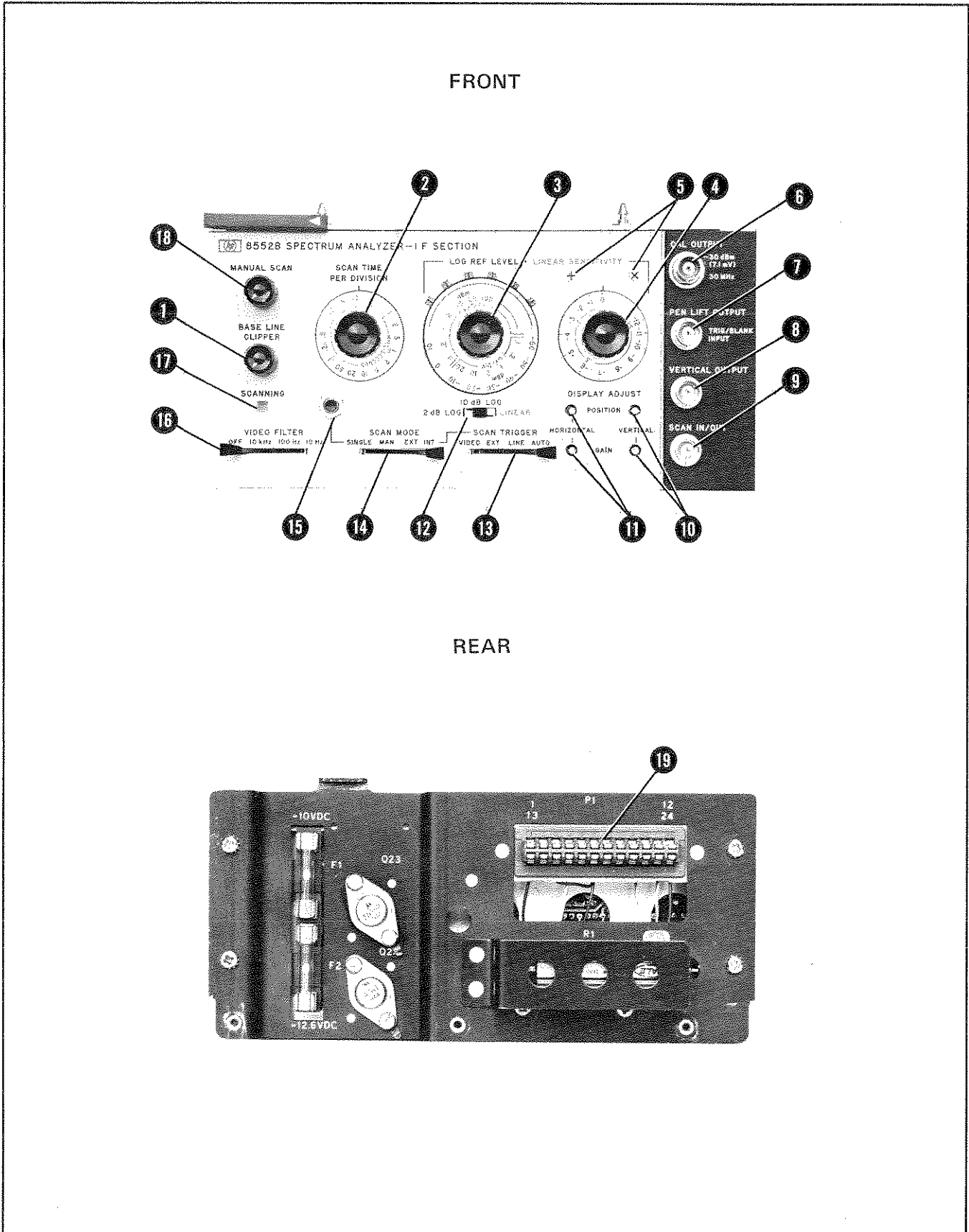


Figure 3-1. 8552B Spectrum Analyzer IF Section Controls and Connectors Indicators

FRONT AND REAR PANEL CONTROLS AND CONNECTORS

- ① **BASE LINE CLIPPER.** Blanks lower part of trace to blank baseline noise. Blanking function also prevents blooming with a variable-persistence storage display section.
- ② **SCAN TIME PER DIVISION.** Controls scan time.
- ③ **LOG REF LEVEL · LINEAR SENSITIVITY Ranges.** When the Log-Linear Mode Switch is in either of the Log positions and the vernier dial to the right is set at *black* zero, the *black* number under any illuminated index lamp indicates the power level at the display's LOG REF LEVEL. With the Log-Linear Mode Switch in the LINEAR position, the *blue* number under any illuminated index lamp indicates the per division multiplier for calibrated voltage amplitude, provided the vernier is set to *blue* 1. If the LOG REF LEVEL switch carries a third red scale, these numbers apply only when an 8556 RF Section is used.
- ④ **LOG REF LEVEL · LINEAR SENSITIVITY Vernier.** Indicates 1-dB increments for logarithmic amplification; indicates multiplication factors up to unity for linear amplification.
- ⑤ **LOG REF LEVEL LINEAR SENSITIVITY Mode Indicators.**
 “+” indicates the amplitude is to be read in dB-Log mode (the Range, Vernier and Display levels are to be added algebraically).
 “x” indicates the amplitude is to be read in volts-linear mode (the Range, Vernier and Display levels are to be multiplied together).
- ⑥ **CAL OUTPUT.** Provides a 30-MHz signal at -30 dBm for amplitude calibration of spectrum analyzer.
- ⑦ Provides penlift output 0 to 14 Vdc (0 Vdc while scanning) to compatible TTL HP recorders (HP 7005, 7035, 7004 and 7034). Blanking input when SCAN MODE is set to EXT (-15 Vdc required). Trigger Input of > 2 Vpk maximum) when SCAN MODE is set to INT and SCAN TRIG is set to EXT. (Polarity depends on position of internal switch A6S1, NORM-negative and REV-positive; factory set in the NORM (normal) position).
- ⑧ **VERTICAL OUTPUT.** Detected video output proportional to vertical deflection on CRT.
- ⑨ **SCAN IN/OUT.** Scan Output of -5 to +5 Vdc for 10-divisions of horizontal deflection on CRT (1k ohm output impedance). Scan Input 0 to +8 Vdc for 10-divisions of horizontal deflection on CRT (10k ohm input impedance).
- ⑩ **VERTICAL.** Adjusts vertical position and gain of deflection amplifier.
- ⑪ **HORIZONTAL.** Adjusts horizontal position and gain of deflection amplifier.
- ⑫ **Log-Linear Mode Switch.** Selects log (2 or 10 dB) or linear display modes.
- ⑬ **SCAN TRIGGER.** Selects scan trigger mode. Operable only when SCAN MODE is in the INT position.
- ⑭ **SCAN MODE.** Selects an internally generated ramp scan voltage in SINGLE or INT. The manual scan voltage is set by the MANUAL SCAN control. The EXT. scan voltage must be provided by an external generator.
- ⑮ **SINGLE.** Press to initiate or stop scan with SCAN MODE switch set to SINGLE.
- ⑯ **VIDEO FILTER.** May select 10 Hz, 100 Hz, 10 kHz or OFF sections of low-pass filter for detected video.
- ⑰ **SCANNING.** Lights for duration of each scan.
- ⑱ **MANUAL SCAN.** Controls scan in MAN position of SCAN MODE (14).
- ⑲ **P1.** Connects to display section.

NOTE

Do NOT make any VERTICAL GAIN or POSITION adjustments in the 2 dB LOG mode as the front panel calibration will become invalid.

Figure 3-1. 8552B Spectrum Analyzer IF Section Controls, Connectors and Indicators (cont'd)

3-19. OPERATOR'S MAINTENANCE

3-20. Operator's maintenance involves changing the -12.6 and -10 Vdc fuses, which are located on the rear panel of the 8552B.

3-21. Both fuses (F1 and F2), may be ordered under HP part number 2110-0001.

3-22. If the fuse is replaced and it immediately burns out again, a competent technician should be called to troubleshoot the instrument, or it should be returned to Hewlett-Packard for servicing. Refer to Section II under STORAGE AND SHIPMENT.