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HP 8510C Operating System Upgrades

Installation Manual

For use with Firmware Revision C.06.50 or Greater of the

HP 11575G Performance Upgrade and HP 85012C Time Domain Upgrade Packages

SERIAL NUMBERS

This manual applies to **all** HP 8510C network **analyzers**, and to **all** HP 8510A and 8510B network analyzers that have been upgraded to HP 8510Cs.



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Introduction

Using this Document

See “**Installing** an Upgrade” in this chapter for information on **installing** any **firmware** upgrade package listed below. The information unique to each upgrade package appears in separate chapters, and appendixes provide information common to all upgrade packages.

The Upgrade Packages

The latest revision number of firmware at the time of shipment is printed on the operating system disk **label**. You can determine your instrument’s current firmware revision at power up when the firmware revision number is displayed. If the number displayed is lower than **C.06.00**, refer to Table 1-1 on the following page, that lists the requirements of each upgrade. Refer to Table 1-2 for the list of features added to each upgrade.

HP 115750

Performance Upgrade

Use this package to upgrade an HP 8510C **from** revision **C.06.00** operating system firmware to revision **C.06.50** or greater.

HP85012C

Time Domain Upgrade

Use this package to upgrade an HP 8510C from revision **C.06.00** or **C.06.50** standard operating system **firmware** to revision **C.06.50** or greater with time domain (option 010).

Warranty Information

Installation of an upgrade does not affect the existing instrument warranty in any way. Specifically, it does not extend the current instrument warranty. Any parts supplied in an upgrade package carry a **90-day** replacement-part warranty.

Upgrade Requirements

Table 1-1 lists the instrument and firmware revision requirements of each operating system upgrade.

Table I-I. Requirements of Each Upgrade Package

HP Upgrade Package	Firmware Revision Provided	Analyzer Model Required	Firmware Revision Required
115756:	C.06.54 ¹	8510C ²	C.06.00 or greater
85012C	Current Revision ¹	8510C ²	C.06.00 or greater

¹ Current **firmware** is the latest revision **available** at the time of shipment.

² Applies to any **HP 8510A** or **8510B** that has been upgraded to an **HP 8510C**.

Revision Features

Table 1-2 lists the features added in each upgrade.

Table I-2. HP **8510C** Operating System Upgrade History

HP Pkg	Added Features
11575G	<ul style="list-style-type: none">• MS-DOS®¹ storage capability.• Color printer capability.
850126	<ul style="list-style-type: none">■ Full error corrected transmission and reflection measurements in timedomain.

¹MS-DOS® is a U.S. **registered trademark** of Microsoft Corporation.

Installing an Upgrade

Procedure

Step 1. Check the Upgrade Package Contents

Using the table in the chapter for your upgrade, ensure that the package is complete. If not, contact your local Hewlett-Packard office (listed inside the back cover of this manual).

Step 2. Get Items Not Included in Upgrade Package.

If needed, get the required items listed in the chapter for your upgrade that are not supplied in the package.

Step 3. Performance Check the HP 8510C System.

Using the instructions in this chapter, check that the system you plan to upgrade functions.

Step 4. Follow the Upgrade Chapter Instructions

Follow the instructions provided in the chapter about your upgrade. Table 1-3 lists which documentation is written for your upgrade.

Table 1-3. The Upgrade Packages and Their Documentation

Upgrade Pkg	Documentation to Use
11575G	chapter 1 chapter 2 Appendix A Appendix B Appendix C "UpgradeRequirements"
85012C	chapter 1 chapter 3 Appendix A Appendix B Appendix C Appendix D "UpgradeRequirements"

Checking the HP 8510C

1. Configure the system as shown in Figure I-1.
2. Turn on the **instruments** in the following order:
 - a. The **source** (ensure the switch is turned to power on, not **standby**).
 - b. The test set.
 - c. The HP 85102 IF detector.
 - d. The HP 85101 display processor.
3. On the **HP 85102**, press **INSTRUMENT STATE** **RECALL** and select **More Factory Preset**.
4. Does the system pass self-test (HP 85101 self tests, 85102 running error messages, and test set unratio power tests) and display a log MAG **S₁₁** trace? If not, do not perform the upgrade until the system has been serviced.
5. Initialize a blank disk:
 - a. Disable the disk write-protect (move the write-protect tab near the disk corner to close the rectangular hole in the disk).
 - b. Insert the disk in the HP 8510C disk drive.
 - c. Press **DISC**, and select **SETUP DISC** **INITIALIZE DISC**.
6. Does the system initialize the disk (this takes approximately one minute) and display **DISC INITIALIZED**? If not, tag the HP 85101, indicating that it has a defective disk drive.
7. Is there a self-test, running error message, or unratio power test **failure** displayed? If so, check the equipment setup, and do not perform the upgrade until the setup problem is corrected or until the system has been serviced.
8. Continue with the upgrade chapter instructions.

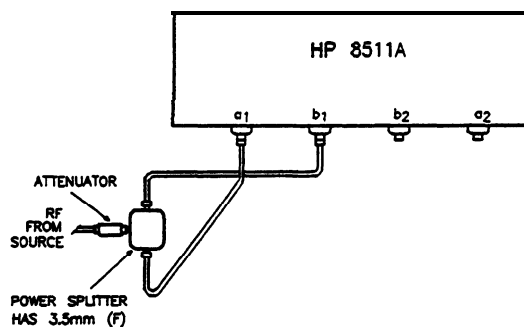
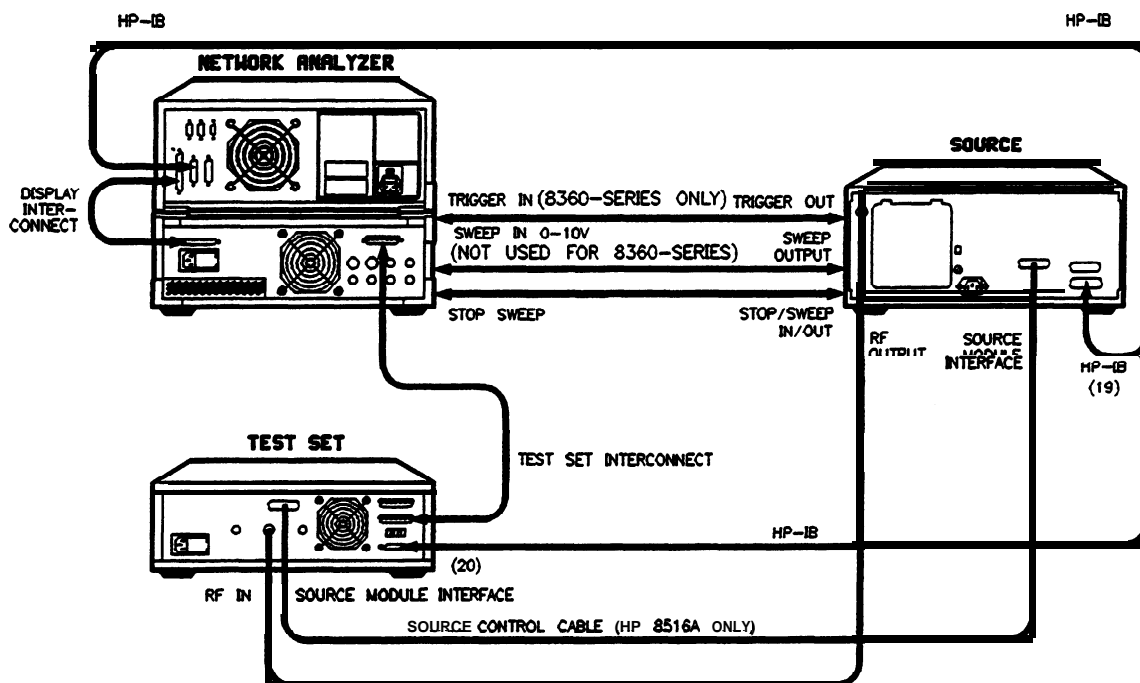


Figure I-I. Equipment Setup and HP 8511A-Specific Connections

HP 115756 Performance Upgrade (Rev. C.06.54 or Greater)

Use this package to upgrade an HP 8510C **from** revision **C.06.00** operating system firmware to the current firmware revision at the time of shipment. Table 1-1, in Chapter 1, lists the requirements of this upgrade. Features added to this upgrade are listed in Table 1-2.

Procedure Overview

Note



You should have checked system performance, already. If not, return to Chapter 1, read and follow the instructions.

Step 1. Load the new **operating** system.

Step 2. Backup the new operating system.

Step 3. Update documentation.

step 4. Become **aware** of instrument state limitations.

Upgrade Package Contents

Table 2-1. HP 115756 Performance Upgrade Package Contents

Item	Qty	HP Part Number
Performance Upgrade Data Disk	1	85101-80113
Installation manual	1	85012-90009

Procedure

Continue with Appendix A.

HP 85012C Time Domain Upgrade (C.06.50 or Greater)

Use this package to upgrade an HP 8510C from revision C.06.00 or C.06.50 standard operating system firmware to revision C.06.50 or greater with time domain (option 010).

Firmware Features

With this upgrade installed, you can make **full** error corrected transmission and reflection measurements in terms not only of frequency, but **also** of time. Frequency domain measurements are converted mathematically to the time domain using the Chirp **Z** Fast Fourier Transform technique.

Note



This upgrade provides the same capabilities as option 010 (ordered at time-of-purchase). See the HP 8510 operating and programming manual for information on time domain measurements.

Procedure Overview

Note You should have checked system performance, already. If not, return to Chapter 1, read and follow the instructions.

Step 1. To update the operating system to a current revision:

- Load the new operating system.
- Backup the new operating system.
- Update documentation.
- Become aware of instrument state limitations.

Step 2. Install and the time domain IC

Step 3. Reconnect the system

Step 4. Check the time domain upgrade

The Upgrade Package Contents

Table 3-1. HP 85012C Time Domain Upgrade Package Contents

Item	Qty	HP Part Number
Time domain IC	1	85101-80091
Performance Upgrade Data Disk Operating System Revision C.06.50 or greater	1	85101-80116
Installation manual	1	8501290009

Equipment Required But Not Supplied

Table 3-2. Equipment Required But Not Supplied

Item	HP Part or Model Number
Source	8350B with plug-in, 8340A/B, 8341A/B, or 8360-series
Test Set	8511A/B, 8512A, 8513A, 8514A/B, 8515A, 8516A, or 8517A
HP-IB cables	10833A
Static control table mat	9300-0797
Wrist strap	9300-1367
Wrist-strap-to-mat cord (5 ft)	9300-1980
Pozi-drive (#2)	8710-0900
For HP 8511A Only	
Power splitter	50867408
Semi-rigid cable	08510-20005 ¹
Semi-rigid cable	08510-20006 ¹

¹ From HP 8510 service kit or HP 8511A test set

Procedure

If the original operating system is **C.06.00**, continue with Appendix A. If not, continue with Appendix D.

Loading the HP 8510C Operating System

Procedure

Note



This procedure differs from the **usual** disk-loading procedure. This method **allows** you to load a disk with or without a previously installed operating system. Load the operating system supplied in the upgrade package to ensure that the proper operating system is installed. (that is, with or without the time **domain** option).

1. While holding down the **=MARKER** key, turn on the system instruments in the following order:
 - a. The source (turn the switch to power on, not standby).
 - b. The test set.
 - c. The analyzer.

Ignore the self-test error **14**, **subtest 2** error.
2. Press **=MARKER** again and insert the operating system disk into the network **analyzer** disk drive and press **1 9 =MARKER**.
3. **Select the file named PC 8510C, then select Load File.**

The program loads in three to four minutes, then the system is available for normal operation.

Note



Confirm that the **current firmware revision** number displayed in the title line on the screen **matches** the number on your system's operating disk label. **If** these numbers do not match, call an HP Sales and Service Office.

4. Check the current firmware revision in your instrument.

The revision number of your system firmware appears in the title line on the display and should resemble this example: **C. 06 . rev.**

XX represents the revision number which should match the revision number on the system operating disk. **XX can** be any number between **.50** and **.99**.

5. Press **RECALL** and select **None**, then **Factory Preset**.
6. Continue with Appendix B.

Backing Up the Operating System

Procedure

Use the following procedure to make a working copy of the instrument firmware *after* you install it. Store the original in a safe place.

1. Initialize a blank disk:
 - a. Insert a blank disk into the HP 85101C disk drive.
 - b. Locate the AUXILIARY MENUS keys and press **SYSTEM**.
 - c. From the displayed menu, press **MORE**, then **SERVICE FUNCTIONS** and **TEST MENU**.
 - d. When the system displays the MAIN SERVICE FUNCTIONS MENU, enter **2 1** labeled INITIALIZE DISC.
 - e. Press **=MARKER** to initialize the blank disk.
2. With the initialized disk still in the HP 85101C disk drive, copy the operating system:
 - a. Enter **2 0** labeled RECORD PROGRAM DISC. **=MARKER**
 - b. Use the RPG to select an instrument program file name, such as 8510C.
 - c. Now press **STORE FILE**.
3. Remove the disk, attach a label, then write protect the disk file.
4. Replace your existing *Keyword Dictionary* and *Operating and Programming Manual* with those provided in this upgrade.
5. Continue with Appendix C.

Instrument State Files

HP 8510C Network Analyzers

Not **all** instrument state **files** are interchangeable between the various firmware revisions. Table **C-1** lists the firmware revisions and their file **compatibility**.

Be aware that if you save instrument state files (on tape or disk) on an analyzer with a given firmware revision, you may not be able to use those **files** in an instrument having a more recent firmware version.

In the first **vertical** column, Table **1-1** lists the firmware revision number under which your work disk **files** were created. The horizontal row lists the upgrade operating system revision numbers.

- To read Table C-1, look for the revision number you used to save data on disks.
- Then look for the current operating system (horizontal axis) **installed** in your instrument.
- If your previously saved disk information is saved with a compatible operating system revision, there is a “**yes**” printed in the vertical column where the two columns meet.
- If there is a “**no**” printed there, the data from your work disk must be recreated and saved under the new operating system.

Caution



The analyzer successfully **loads** incompatible instrument state files. When the incompatible **file** is **recalled**, however, the display blanks, and the front panel does not respond. **Do not** press **PRESET**. See “Recovering from an Error State” for instructions about recovering properly **from** a crashed system.

Table **C-1**. Operating System File Compatibility

Revisions	Firmware Revision C.06.00	Firmware Revision C.06.50 or greater
C.06.00-system stored files	Yes	No (must be recreated)
C.06.50-system stored files	Yes	Yes

Recovering from an Error State

To recover an instrument **from** the error state described above:

Using a **narrow** tool (such as a small screwdriver), press the **TEST** button on the analyzer front panel.

To clear the incompatible instrument state:

Press **SAVE**, then select each instrument state register.

Do not press Pressing **PRESET** may **allow** the instrument to partially recover. However the data may remain corrupted and cause the analyzer to fail at a later time.
(PRESET)!



Do not cycle power. This does not work if the incompatible instrument state was loaded into instrument state 8.

Recreating the Instrument State

In the case of **file** incompatibility just described, you must manually recreate the desired instrument state, then reload it on disk.

If you encounter an incompatibility after upgrading your instrument to firmware revision **C.06.50** or greater, and you do not have time to recreate earlier instrument states, reload the old firmware. This gives you full use of instrument state files created on an instrument with the earlier firmware revision.

Remember Machine dump files contain instrument states, and have the same compatibility rules.



HP 8510C Millimeter-Wave Systems

Caution



The analyzer successfully **loads** incompatible revision-version **files**. When incompatible files are **recalled**, however, the display goes blank and there is no front panel response. **Do not** press **(PRESET)**. Refer to “Recovering from an Error State” for instructions about recovering properly **from** a crashed system.

HP 85106C

Table C-2 defines the compatibility of HP 851066 **configuration** disk revisions versus analyzer **firmware** revisions.

Table C-2. HP **85106C** mm-Wave Rev. vs System **Firmware** Rev.

HP 85106C mm-Wave Revision	Firmware Revision C.06.00	Firmware Revision C.06.50 or greater
1.0-revision stored files	Yes	No (must be recreated)
2.0-revision stored files	Yes	Yes

If the network analyzer in your HP **85106C** millimeter-wave system fails after you load the system configuration disk, order the millimeter-wave system configuration disk revision 2.0 (HP part number 8510640009).

Time Domain



If your system upgrade includes time domain (option **010**), continue with Appendix D. **If** not, “Upgrade Requirements” in Chapter 1 provides **additional** information that you may **find** useful.

Installing Time Domain

Procedure

1. Ensure a static-safe work station. Check for the following:
 - a. The static mat sits on a clean, flat, sturdy surface.
 - b. The static mat has an earth ground connection.
 - c. The static mat has a connected wrist strap.
2. **Instal** the IC:
 - a. Remove the HP **85101** display processor from the system.
 - b. Remove the top cover of the display processor.
 - c. Refer to Figure **D-1**. Remove the A8 assembly.

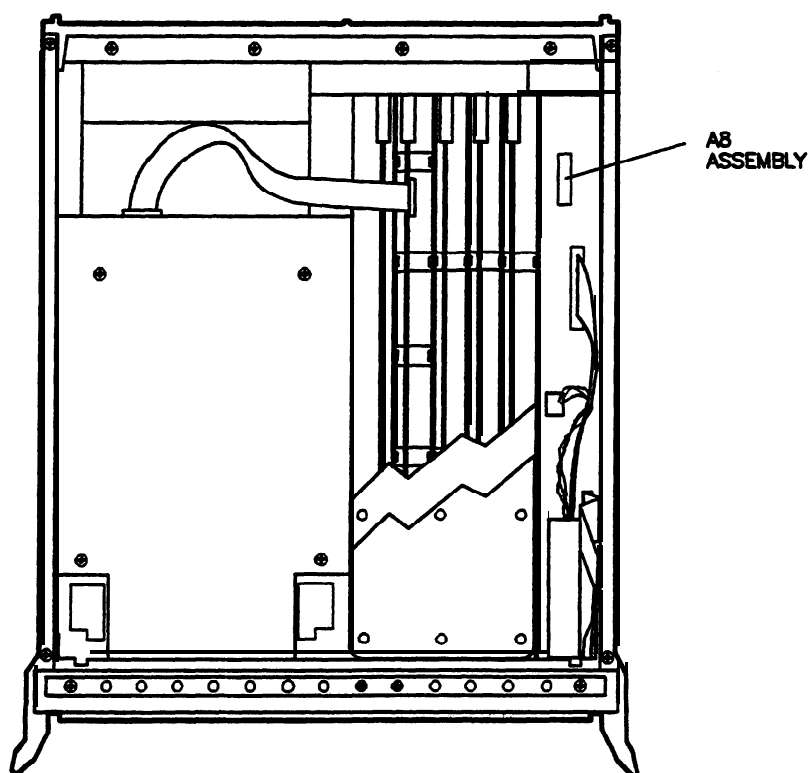
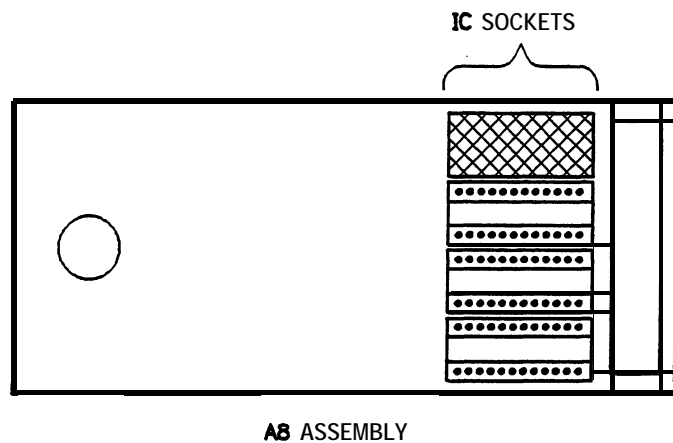


Figure D-1. A8 Assembly Location

- d. Install the IC **from** the upgrade kit in any one of the empty IC sockets on the A8 assembly (see Figure D-2).
- e. Replace the A8 assembly; replace the top cover.
- f. Return the display processor to the system; reconnect all cables and line cords.
- g. Continue with “Checking Time Domain” .



A8 ASSEMBLY
Figure D-2. IC Installation Location

Checking Time Domain

Check that the time domain feature has been installed on your system:

1. Turn on the instruments in the **following** order:
 - a. The source (ensure the switch is turned to power on, not standby).
 - b. The test set.
 - c. The HP 85102 IF detector.
 - d. The HP 85101 display processor.
2. On the HP 85102:
 - a. Press INSTRUMENT STATE **RECALL** and select **More Factory Preset**.
 - b. Press **DOMAIN** and select **Time Low Pass**.

Does the instrument display the Set **Frequency** (low pass) Menu? If so, the time **domain** option is installed properly. If not, recheck the installation of the IC.

Additional Information “Upgrade Requirements” in Chapter 1 provides additional information that you may find useful.



Hewlett-Packard Sales and Service Offices

IN THE UNITED STATES

California

Hewlett-Packard Co.
1421 South Manhattan Ave.
P.O. Box 4230
Fullerton, CA 92631
(714) 999-6700

Hewlett-Packard Co.
301 E. Evelyn
Mountain View, CA 94039
(415) 694-2000

Colorado
Hewlett-Packard Co.
24 Inverness Place, East
Englewood, CO 80112
(303) 649-5000

Georgia
Hewlett-Packard Co.
2000 South Park Place
P.O. Box 105005
Atlanta, GA 30339
(404) 955-1500

Illinois
Hewlett-Packard Co.
5201 Tollview Drive
Rolling Meadows, IL 60008
(312) 255-9800

New Jersey
Hewlett-Packard Co.
120 W. Century Road
Paramus, NJ 07653
(201) 265-5000

Texas
Hewlett-Packard Co.
930 E. Campbell Rd.
Richardson, TX 75081
(214) 231-6101

IN AUSTRALIA

Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
895-2895

IN CANADA

Hewlett-Packard (Canada) Ltd.
17500 South Service Road
Trans-Canada Highway
Kirkland, Quebec H9J 2X8
(514) 697-4232

IN FRANCE

Hewlett-Packard France
F-91947 Les Ulis Cedex
Orsay
(6) 907-78-25

IN GERMAN FEDERAL REPUBLIC

Hewlett-Packard GmbH
Vertriebszentrum Frankfurt
Berner Strasse 117
Postfach 560 140
D-6000 Frankfurt 56
(0611) 50-04-1

IN GREAT BRITAIN

Hewlett-Packard Ltd.
King Street Lane
Winnersh, Wokingham
Berkshire RG11 5AR
0734 784774

IN OTHER EUROPEAN COUNTRIES

Hewlett-Packard (Schweiz) AG
Allmend 2
CH-8967 Widen (Zurich)
(0041) 57 31 21 11

IN JAPAN

Yokogawa-Hewlett-Packard Ltd.
29-21 Takaido-Higashi, 3 Chome
Suginami-ku Tokyo 168
(03) 331-6111

IN PEOPLE'S REPUBLIC OF CHINA

China Hewlett-Packard, Ltd.
P.O. Box 9610, Beijing
4th Floor, 2nd Watch Factory
Main Bldg.
Shuang Yu Shu, Bei San Huan Rd.
Beijing, PRC
256-6888

IN SINGAPORE

Hewlett-Packard Singapore
Pte. Ltd.
1150 Depot Road
Singapore 0410
2737388
Telex HPSGSO RS34209
Fax (65) 2788990

IN TAIWAN

Hewlett-Packard Taiwan
8th Floor, Hewlett-Packard
Building
337 Fu Hsing North Road
Taipei
(02) 7120404

IN ALL OTHER LOCATIONS

Hewlett-Packard Inter-Americas
3495 Deer Creek Rd.
Palo Alto, California 94304



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