

**Agilent Technologies
85103G Service Kit
CRT Display Replacement
for the 8510C Network Analyzer**

Installation Manual



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For assistance, refer to [“Contacting Agilent” on page iv](#).

Contacting Agilent

Any adjustment, maintenance, or repair of this product must be performed by qualified personnel. Contact Agilent for assistance.

Online assistance: www.agilent.com/find/assist			
United States <i>(tel)</i> 1 800 452 4844, or 1 800 593 6635 for on-site service of systems	Latin America <i>(tel)</i> (305) 269 7500 <i>(fax)</i> (305) 269 7599	Canada <i>(tel)</i> 1 877 894 4414 <i>(fax)</i> (905) 282-6495	Europe <i>(tel)</i> (+31) 20 547 2323 <i>(fax)</i> (+31) 20 547 2390
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Taiwan <i>(tel)</i> 0800-047-866 <i>(fax)</i> (886) 2 25456723	People's Republic of China <i>(tel) (preferred):</i> 800-810-0189 <i>(tel) (alternate):</i> 10800-650-0021 <i>(fax)</i> 10800-650-0121	India <i>(tel)</i> 1-600-11-2929 <i>(fax)</i> 000-800-650-1101	

Safety and Regulatory Information

Review this product and related documentation to familiarize yourself with safety markings and instructions before you operate the instrument. This product has been designed and tested in accordance with international standards.

WARNING

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

CAUTION

The CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

Instrument Markings



When you see this symbol on your instrument, you should refer to the instrument's instruction manual for important information.



This symbol indicates hazardous voltages.



The C-tick mark is a registered trademark of the Spectrum Management Agency of Australia.



This symbol indicates that the instrument requires alternating current (ac) input.



The CE mark is a registered trademark of the European Community. If it is accompanied by a year, it indicates the year the design was proven.



The CSA mark is a registered trademark of the Canadian Standards Association.

ISM1-A

This text indicates that the instrument is an Industrial Scientific and Medical Group 1 Class A product (CISPER 11, Clause 4).

ICES/NMB-001

This ISM device complies with Canadian ICES-001. Cet appareil ISM est conforme à la norme NMB-001 du Canada.



This symbol indicates that the power line switch is ON.



This symbol indicates that the power line switch is OFF or in STANDBY position.



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

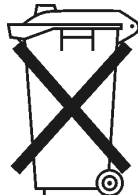
Verify that the product is configured to match the available main power source as described in the input power configuration instructions in this manual. If this product is to be powered by autotransformer, make sure the common terminal is connected to the neutral (grounded) side of the ac power supply.

Battery Information

The 8510C uses a lithium polycarbon monofluoride battery to power the instrument clock. The battery is located on the A7 I/O board of the 85101C display/processor. This battery is not field replaceable. Replace the A7 I/O board if the battery requires replacement.

WARNING

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended. Discard used batteries according to manufacturer's instructions.



DO NOT THROW BATTERIES AWAY BUT
COLLECT AS SMALL CHEMICAL WASTE.

Typeface Conventions

Italics

- Used to emphasize important information:
Use this software *only* with the Agilent Technologies xxxxxX system.
- Used for the title of a publication:
Refer to the *Agilent Technologies xxxxxX System-Level User's Guide*.
- Used to indicate a variable:
Type LOAD BIN *filename*.

Instrument Display

- Used to show on-screen prompts and messages that you will see on the display of an instrument:
The Agilent Technologies xxxxxX will display the message
CAL1 SAVED.

Keycap

- Used for labeled keys on the front panel of an instrument or on a computer keyboard:
Press **Return**.

[Softkey]

- Used for simulated keys that appear on an instrument display:
Press [**Prior Menu**].

User Entry

- Used to indicate text that you will enter using the computer keyboard; text shown in this typeface must be typed *exactly* as printed:
Type LOAD PARMFILE
- Used for examples of programming code:
#endif//ifndef NO_CLASS

Path name

- Used for a subdirectory name or file path:
Edit the file *usr/local/bin/sample.txt*

Computer Display

- Used to show messages, prompts, and window labels that appear on a computer monitor:
The **Edit Parameters** window will appear on the screen.
- Used for menus, lists, dialog boxes, and button boxes on a computer monitor from which you make selections using the mouse or keyboard:
Double-click **EXIT** to quit the program.

8510C CRT Display Replacement Service Kit

The Service Kit

This service kit installation manual details the steps required to replace the CRT display of the 85101C display/processor (top box) of an 8510C system or an 8510XF (E7340/50A) system.

Warranty Information

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

Source Compatibility

For complete compatibility with revision C.07.00 or greater firmware, your source must be an Agilent 8360 series source. If an 8360 series source is not used, power domain and receiver calibration functions will not work.

The 8510C works with all 8360 synthesized sweeper models. However, some 8360 instruments must be upgraded to take advantage of two 8510C system features (quick step mode and test port power flatness correction). Refer to [“Upgrading an 8360 Source” on page 8](#).

NOTE	Agilent 8340, 8341, and 8350 series sources are out of support life and are no longer recommended for use in 8510C systems.
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Please consult with your Agilent customer engineer for more information on upgrading a network analyzer and source firmware.

Procedure Overview

Step 1. Check the service kit contents.

[Table 1](#) lists the contents of the service kit. If an item is missing, refer to [“Contacting Agilent” on page iv](#) for assistance.

Step 2. Assemble items not included in the service kit.

If needed, obtain the required items listed in [Table 2](#) that are not supplied in the service kit.

Step 3. Be sure you have a static safe work station.

Check for the following:

- The static mat sits on a clean, flat, sturdy surface.
- The static mat has a connection to earth ground.
- The static mat has a wrist strap connected to it.

Step 4. Remove the 85101C from the system.

Step 5. Transfer the Time Domain IC (Option 010).

Step 6. Install the new 85101C into the system.

Step 7. Check the 8510C and Time Domain option (if transferred).

Step 8. Recycle/dispose of the replaced 85101C display/processor.

Recycle or dispose of the 85101C display/processor according to your state or local requirements. The battery on the A7 I/O board and the A11 display (CRT) may have special requirements. When disposing of the cathode ray tube (CRT), observe the following precautions:

WARNING **The CRT can pose a shock hazard if not properly discharged. Explosion or implosion of the CRT may cause personal injury. Only a properly trained individual should release the vacuum.**

Table 1 Service Kit Contents

Item	Quantity	Model/Part Number
85101C display/processor	1	85101C
Cables		
85101C cables		p/o 85101C
BNC	2	
GPIB	1	
IF Display Interconnect	1	
RS-232	1	
Documentation		
85103G Service Kit Installation Manual	1	85103-90015
8510C Manual set contains:		p/o 85101C
8510C Keyword Dictionary	1	08510-90275
8510C Operating and Programming Manual	1	08510-90280
8510C On-Site Service Manual	1	08510-90281
		08510-90282
Software		
8510C software kit		p/o 85101C
Performance/verification disk	1	85101-60271
Master cal constants disk	1	08510-10033
Service adjustments disk	1	08510-10034
Software tool kit disk	1	08510-10024
Operating system disk for 8510C	1	85103-10002
	1	85101-80116
Operating system disk for 8510XF (E7340/50A)	1	E7340-10001

Table 2 Equipment Required but Not Supplied

Item	Agilent Part Number
Source	8360-series
Test Set	8511A/B, 8514B, 8515A, 8517A/B, or 85110A/L
Static control table mat	9300-0797
Wrist strap	9300-1367
Wrist-strap-to-mat cord (5 ft)	9300-1980
Disk drive	9122C
Controller	HP 9000 series 200/300 ^a or PC
GPIB cables	10388A
For 8511A Only	
Power splitter	5086-7408
Semirigid cable	08510-20005 ^b
Semirigid cable	08510-20006 ^b

a. Except for an 9826A.

b. From an 8510 service kit or 8511A test set.

Removing the 85101C Display/Processor

Procedure

NOTE Before replacing the 85101C display/processor, be sure to save any custom instrument states and calibration kit definitions to disk. This can be done by performing a machine dump. Refer to the *8510C Operating and Programming Manual* for this procedure.

1. At a static-free workstation, check that:
 - 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. Remove the 85101C display/processor from the system.
3. If the 85101C display/processor that is being replaced is currently equipped with time domain (Option 010), continue with [“Transferring the Time Domain IC \(Option 010\).”](#) Otherwise, install the new 85101C display/processor into the system and reconnect all cables and line cords. Refer to [“Reconnecting the System”](#) on page 9.

Transferring the Time Domain IC (Option 010)

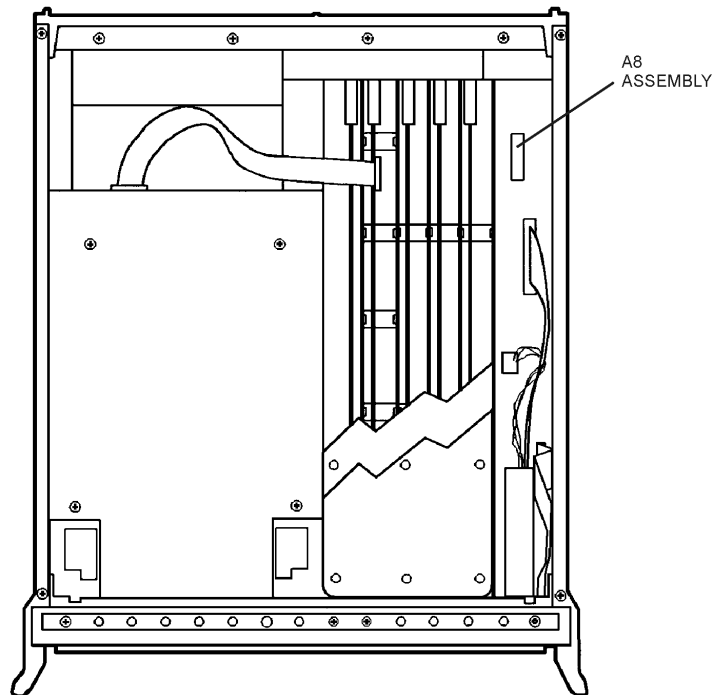
If the 85101C display/processor that is being replaced is currently equipped with time domain (Option 010):

1. Remove the top cover of the old 85101C display/processor.

CAUTION

Static electricity can damage this assembly. Wear an anti-static wrist strap connected to earth ground. Place the instrument top cover (connected to earth ground) near the work area with the bare metal side facing up. When you must put them down, place assemblies on the metal surface.

Figure 1 **A8 Assembly Location**



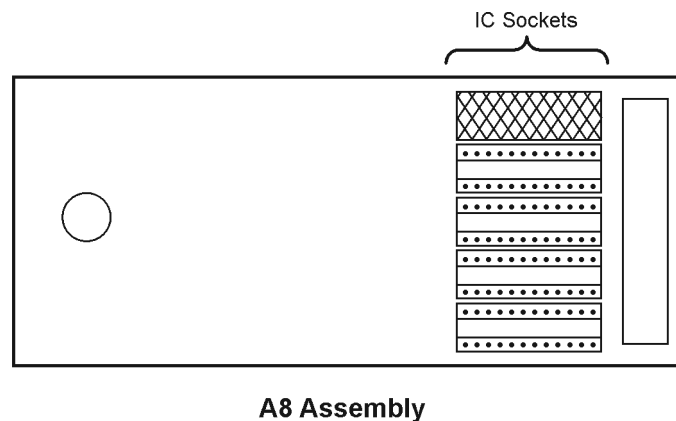
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2. Remove the A8 assembly by grasping the knob on the A8 assembly board and pulling outward and upward. Remove the Time Domain IC (part number 85101-80091) from the A8 assembly board and set it aside for installation in the new 85101C.
3. Replace the A8 assembly and the top cover of the 85101C.

On the new 85101C:

1. Remove the top cover of the display/processor.
2. Remove the A8 assembly by grasping the knob on the A8 assembly board and pulling outward and upward. Refer to [Figure 1](#) for the A8 assembly location.
3. Insert the Time Domain IC (p/n 85101-80091) in an empty socket on the A8 assembly (see [Figure 2](#)).

Figure 2 IC Installation Location on A8 Assembly



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4. Replace the A8 assembly. Push down firmly on the board and inward on the knob until it snaps in place.
5. Replace the top cover of the 85101C.
6. With an indelible pen, write OPT: 010 below the serial number on the new 85101C.
7. Install the new 85101C display/processor into the system.
8. Continue with [“Upgrading an 8360 Source,”](#) next.

Upgrading an 8360 Source

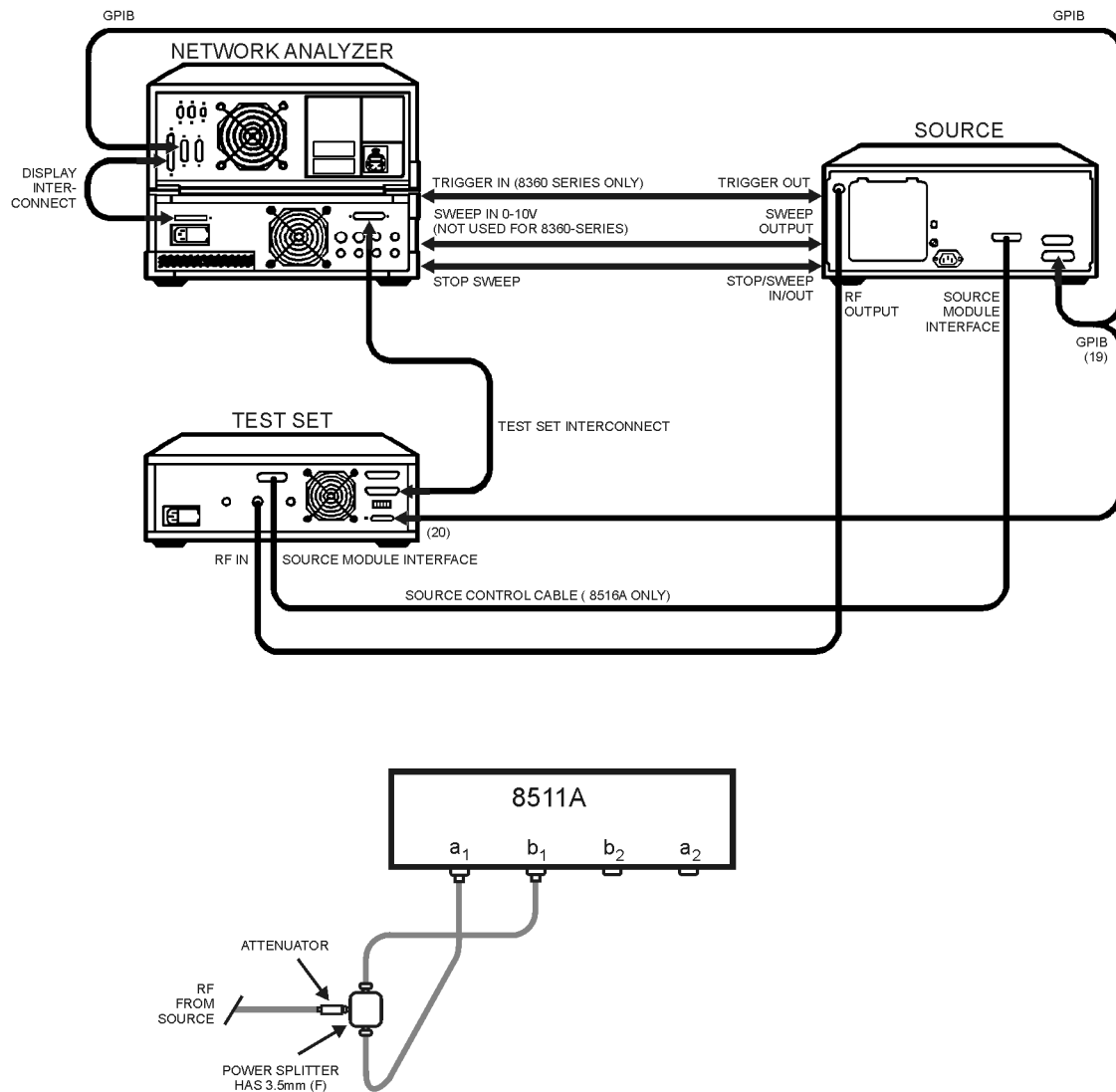
Refer to the chapter, “*Main Troubleshooting Procedure*,” in the *8510C Network Analyzer On-Site Service Manual* (p/n 08510-90282).

After upgrading source(s), continue with “[Reconnecting the System.](#)”

Reconnecting the System

Install the new 85101C display/processor into the system and reconnect as shown in [Figure 3](#). For a typical system, reconnect the GPIB, Display Interconnect, and line cord to the new 85101C display/processor.

Figure 3 Typical 8510 System Connections



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Loading the 8510C Operating System (If Needed)

The new 85101C display/processor comes preloaded with the proper 8510C operating system. If needed, the operating system can be reloaded using the procedure below.

This procedure for loading the operating system differs from the usual disk loading procedure. This method allows you to load a disk with or without an operating system previously loaded in the analyzer, and requires fewer keystrokes.

Selecting the appropriate operating system (CRT or LCD version) supplied in the upgrade package will ensure that the proper operating system is loaded. The time domain option firmware is included in both 8510C operating system versions and is enabled by the time domain option security key IC.

Procedure

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

This causes the instrument to detect an apparent keyboard failure and display self-test error 14, subtest 2. Ignore this error.

2. Press **=MARKER** again.
3. Insert the operating system disk into the analyzer disk drive, and press **1, 9, =MARKER**.
4. Select the file named PG_8510C, then select **[LOAD FILE]**.

The disk loads in three to four minutes, and the system begins normal operation. The screen displays: S11 Log Mag.

5. Press **INSTRUMENT STATE RECALL** and select **[MORE]**, **[FACTORY PRESET]**.
6. Continue with [“Checking the 8510C.”](#)

Checking the 8510C

Turn on the instruments in the following order:

1. Source (make sure that the switch is turned to power on and not standby).
2. Test set
3. 85102 IF/detector
4. 85101C display/processor

Does the analyzer display any internal self-test failure on the self-test status LEDs or display? If not, the instrument passed the internal self tests, and functions fully. If a self-test fails, or a running error is displayed, refer to the *Agilent Technologies 8510C On-Site Service Manual*.

Checking Time Domain Option (If Transferred)

Check that the time domain IC has been installed properly in the new 85101C.

1. On the 85101C:
 - a. Press **INSTRUMENT STATE RECALL**, **[MORE]**, **[FACTORY PRESET]**.
 - b. Press **MENUS 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.