
Assembly-Level Service Manual

This manual describes how to service the Agilent 5071A Primary Frequency Standard. The information in this manual applies to instruments having the number prefix listed below, unless accompanied by a "Manual Updating Changes" package indicating otherwise.

SERIAL NUMBER PREFIX: 3839A and above

Also included at the back of this manual is the Profiling Software disk (Agilent part number 05071-13501) for assistance in the troubleshooting procedures.

Agilent 5071A Primary
Frequency Standard

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Certification and Warranty

Certification

Agilent Technologies certifies that this product met its published specification at the time of shipment from the factory. Agilent further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology (formerly National Bureau of Standards), to the extent allowed by the Institute's calibration facility, and to the calibration facilities of other International Standards Organization members.

Warranty

Agilent warrants Agilent hardware, accessories and supplies against defects in materials and workmanship for a period of one year from date of shipment. If Agilent receives notice of such defects during the warranty period, Agilent will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or like-new.

Agilent warrants that Agilent software will not fail to execute its programming instructions, for the period specified above, due to defects in material and workmanship when properly installed and used. If Agilent receives notice of such defects during the warranty period, Agilent will replace software media which does not execute its programming instructions due to such defects.

For detailed warranty information, see back matter.

Safety Considerations

General

This product and related documentation must be reviewed for familiarization with this safety markings and instructions before operation.

This product is a safety Class I instrument (provided with a protective earth terminal).

Before Applying Power

Verify that the product is set to match the available line voltage and the correct fuse is installed. Refer to instructions in Chapter 1 of the Manual.

Before Cleaning

Disconnect the product from operating power before cleaning.

Safety Earth Ground

An uninterruptible safety earth ground must be provided from the mains power source to the product input wiring terminals or supplied power cable.

Warning Symbols That May Be Used In This Book



Instruction manual symbol; the product will be marked with this symbol when it is necessary for the user to refer to the instruction manual.



Indicates hazardous voltages.

Safety Considerations (contd)



Indicates earth (ground) terminal.



or



Indicates terminal is connected to chassis when such connection is not apparent.



Indicates Alternating current.



Indicates Direct current.

WARNING

BODILY INJURY OR DEATH MAY RESULT FROM FAILURE TO HEED A WARNING. DO NOT PROCEED BEYOND A WARNING SIGN UNTIL THE INDICATED CONDITIONS ARE FULLY UNDERSTOOD AND MET.

CAUTION

Damage to equipment, or incorrect measurement data, may result from failure to heed a caution. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

For additional safety and acoustic noise information, see back matter.

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Profiling Software disk

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Preface

This manual provides assembly-level service information for the Agilent 5071A Primary Frequency Standard.

How to Use This Manual

Repair Strategy

The Agilent 5071A Primary Frequency Standard can be returned to Agilent-Technologies, Inc. for all service work, including troubleshooting, and verifying specifications. Contact your nearest Agilent Sales and Service Office for more details.

If you decide to service the instrument yourself, use the operational verification procedure in Chapter 1, "Performance Tests," in this manual to define the type of problem. For more complete tests, use the full performance tests in Chapter 1. After a repair, re-check the Standard's operation with the verification or full-performance test procedures.

This service manual is designed to isolate failures to the assembly or module level only (except for the A1 Motherboard, where component-level theory and diagrams are provided). If a failure occurs, you can isolate the faulty assembly or module by using the procedures in Chapter 2 "Service." The procedures in Chapter 4 "Replacing Assemblies" enable you to remove and replace defective assemblies or modules.

Text Conventions used in this manual

Throughout this manual there are symbols used to denote special meanings. These are explained below:

< > These separators mark where information may be any value or text (otherwise known as "wild cards"). The actual value in these cases is not critical to the process.

Instrument Identification

Instrument identification is made from the serial number located on the rear panel of the Agilent 5071A. Agilent uses a two-part serial number with the first part (prefix) identifying a series of instruments and the second part (suffix) identifying a particular instrument within a series. An Agilent assigned alpha character between the prefix and suffix identifies the country in which the instrument was manufactured.

Instruments Covered by This manual

This manual applies directly to Agilent 5071A Primary Frequency Standards that have the same serial number prefix(es) shown on the

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title page. If the serial number prefix of your Standard differs from that listed on the title page of this manual, then there may be differences between this manual and your instrument. Instruments having a higher serial prefix are covered when required by one or more manual-change sheets included with this manual. If a required change sheet is missing, contact your nearest Agilent Sales Office listed at the back of this manual. Instruments having a serial prefix lower than that listed on the title page are covered in Chapter 7 "Manual Changes".

Manual Organization

This assembly-level service manual consists of a table of contents, preface, seven chapters and an index. The page running headers identify the chapters and sections of this manual. The chapter contents are summarized as follows:

- Chapter 1, Performance Tests, provides test procedures to ensure that the Standard meets all warranted specifications.
- Chapter 2, Service, is divided into five sections. Section 1 contains instructions for returning the Standard to Agilent for service. Section 2 contains pre-troubleshooting information and Sections 3, 4, and 5 provide the diagnostic troubleshooting-tree procedures (diagnostic trees) to isolate faulty assemblies and/or modules.
- Chapter 3, Theory of Operation, provides two levels of hardware functional description based on a signal-flow block-diagram perspective. In addition, the A1 motherboard/ power-supply is supported to the component level with theory and schematic diagrams.
- Chapter 4, Replacing Assemblies, contains procedures for replacing defective assemblies and/or modules in the instrument.
- Chapter 5, Replaceable Parts, lists the replaceable parts inside the Standard and explains how to order them from Agilent.
- Chapter 6, Specifications, lists the warranted specifications, operating characteristics, and provides information about options and accessories.
- Chapter 7, Manual Changes, contains information required to adapt this manual for older instruments.

Preface

How to Order Manuals

This manual's part number is 05071-90003. Use it to order copies of this manual. The Agilent 5071A Operating and Programming manual part number is 05071-90041.

