Agilent
5977B Series MSD
with MassHunter

Quick Start

Agilent Technologies

Notices

Manual Part Number

Edition

Warranty

Technology Licenses

Restricted Rights Legend
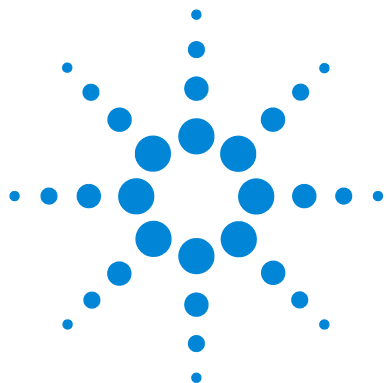
Quick Start

Welcome to the Agilent MSD System

Your system includes:

- The **Agilent 5977B Series MSD** featuring advanced technology, increased analytical abilities, and reduced maintenance requirements.

- **The Agilent 7890 GC**, a remarkable, faster, and more efficient GC, with advanced separation abilities, self-monitoring intelligence, faster oven cool-down, and robust backflushing.

- The **Agilent MassHunter Workstation Software**, a comprehensive portfolio of software, for your GC/MS.

- A comprehensive collection of manuals, videos, eFamiliarization, user applications, and method development tools. You will find these on the:
  - **Agilent GC/MS Software Information and Manuals** memory stick
  - **Agilent GC and GC/MS User Manuals and Tools** DVD

This Quick Start guide provides a brief summary of what is included on the DVD and memory stick supplied with your system.

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The Agilent 5977B Series MSD and Agilent 7890 Series GC

The Agilent 5977B Series MSD is a stand-alone mass selective detector for use with an Agilent 7890 Series Gas Chromatograph. This GC/MS system is also available with the 7820 Series GC.

Included with your system is a full library of reference material. See "Your Hardware Library" on page 6 for how to install and access this wealth of information.

Figure 1   Agilent 5977B Series GC/MSD system, shown with the Agilent 7890B GC

The Agilent MassHunter Workstation

The MassHunter Workstation provides dedicated software modules for quantitation, compound confirmation, target compound screening, degradant and unknown identification, characterization of biomolecules, and protein and metabolite identification.

A full library of reference information for your MassHunter Workstation software is provided on the Agilent GC/MS Software Information and Manuals memory stick. See "Your Software Library" on page 8 for how to install and access this vast library.
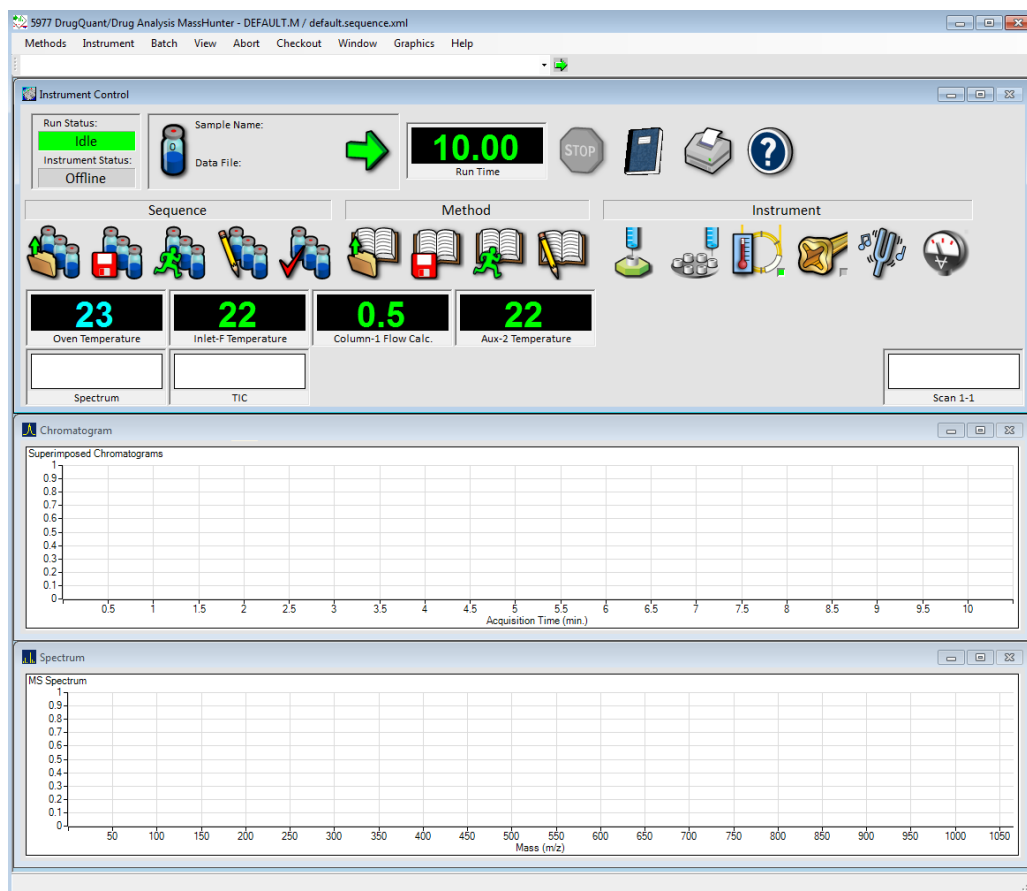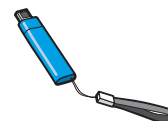
Figure 2   Agilent MassHunter Workstation Software

Your Hardware Library

Use the Agilent GC and GC/MS User Manuals and Tools DVD set to install the full library of Learning Products with manuals (in HTML and PDF formats) and videos (in .wmv format) that explain how to install, operate, maintain, and troubleshoot your system. Also included are valuable user applications, method development tools, and an electronic **Parts Finder** tool which allows you to locate parts quickly by clicking on nested photos rather than thumbing through a paper catalog.

Insert **Disk 1** into your DVD drive, and follow the system prompts to install these tools on your computer. Once installed, icons will be placed on your desktop for quick access to your material.
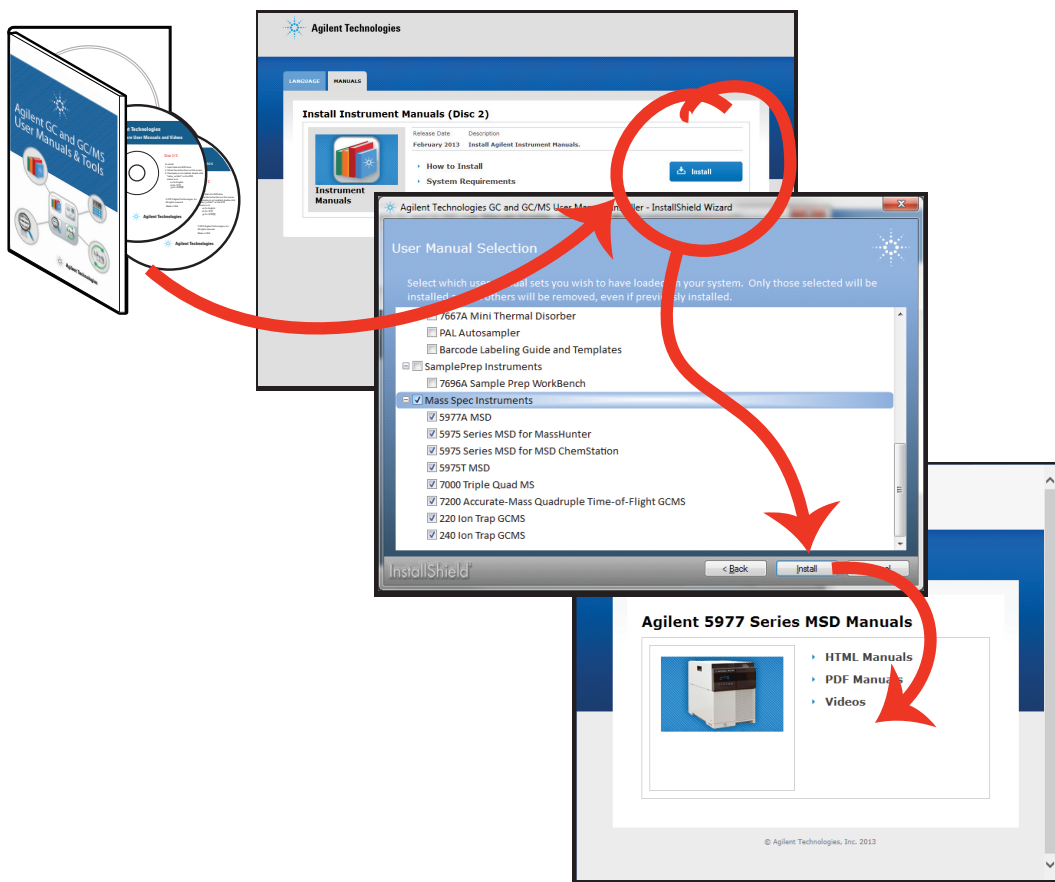
Parts Finder Tool

Included with your system is the **Agilent Parts Finder** tool. This interactive software features an intuitive image-based search capability for quick identification of needed parts and supplies for your Agilent instruments.

Using **Parts Finder**, rather than thumbing through a paper catalog, you can click on nested photos to quickly locate parts you need.
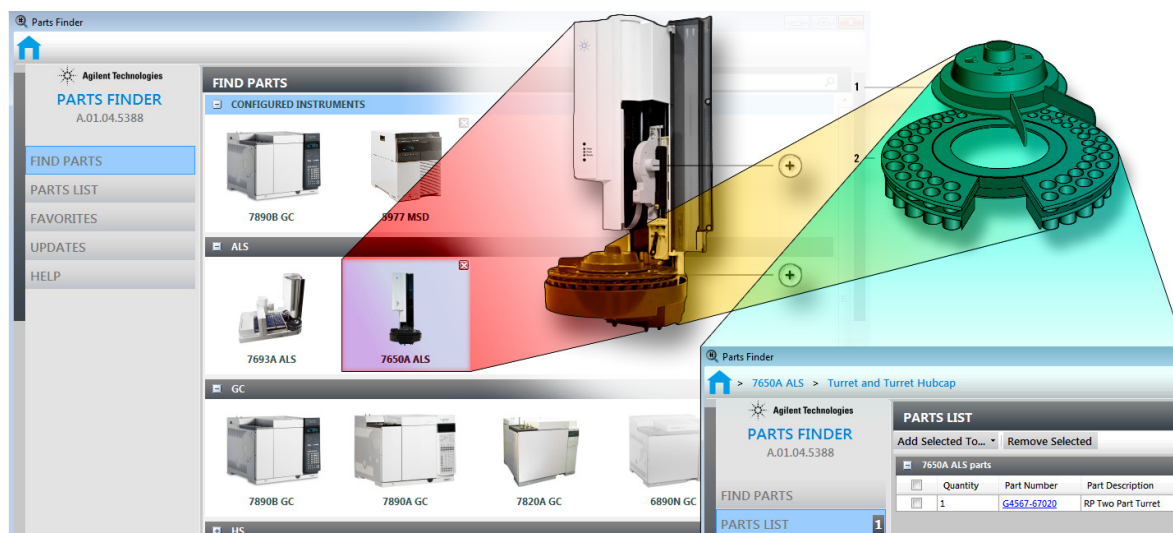
The **Parts Finder** tool is installed on your PC along with MassHunter Workstation. It is also included with the Agilent GC and GC/MS User Manuals and Tools DVD set, and can be installed on any PC from there. See "Your Hardware Library" on page 6.

To open **Parts Finder**, click the Parts Finder desktop icon.

Your Software Library

Use the **Agilent GC/MS Software Information and Manuals** memory stick (G1701-60176) to install the extensive library of software manuals, tutorials, online Help, videos, and more for your system.

Here you will find manuals, Help, videos, familiarization guides, and more for the:
- MassHunter 5975/5977 Series GC/MSD
- MassHunter 7000/7010 Series Triple Quad GC/MS
- MassHunter 7200 Accurate-Mass Q-TOF GC/MS System
- MassHunter Data Acquisition and Data Analysis

Insert the memory stick into a USB port, and follow the system prompts to install these manuals on your computer. Once installed, icons will be placed on your desktop for quick access to your manuals.
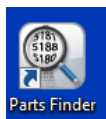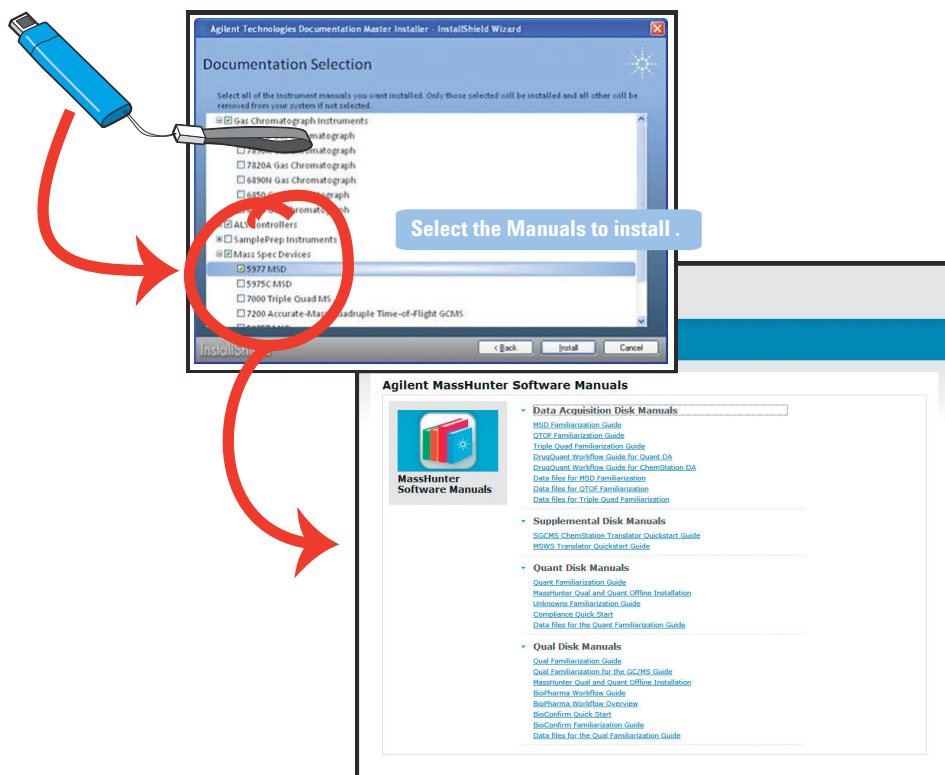
Online Help

Help topics are written as detailed step-by-step instructions that walk you through routine tasks. Many include software demonstration videos.

Getting Started videos provide the information you need to start using your system quickly and efficiently.

Advanced videos explain some of MassHunter's more intricate, but perhaps less frequently used functions.
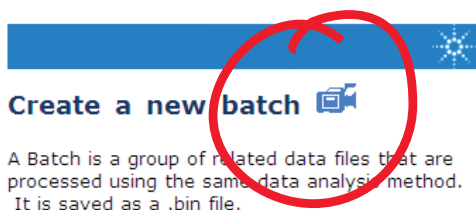
Any topic with the camera icon has a video linked to it. Watch these videos to see a demonstration of using the described feature in your MassHunter software.
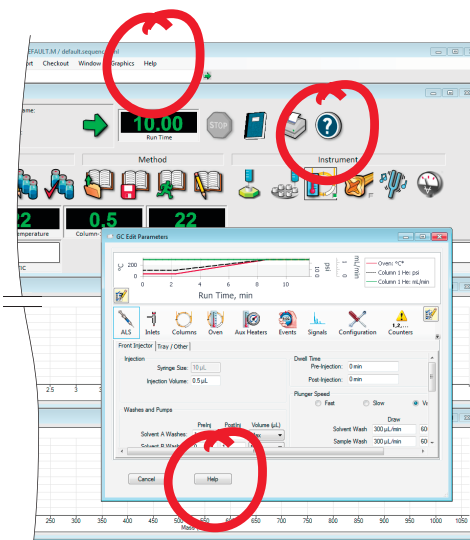
Access online **Help** through the **Help** icon, the **Help** menu, **F1**, or the **Help** button on any dialog box.

Familiarization and Workflow Guides

There are several familiarization and workflow guides included on the GC/MS Software Information and Manuals memory stick, including:

- Getting Started
- DrugQuant Workflow
- EnviroQuant Workflow
- Data Acquisition
- Quantitative Analysis
- Qualitative Analysis
- Unknowns Analysis
- Reporting

These and other manuals provide detailed step-by-step instructions on how to prepare your system for data acquisition, how to create acquisition methods, qualitative methods, and quantitative methods, how to use the Unknowns Analysis software, and how to use the MassHunter reporting features.

Once installed, you may access **Familiarization Guides** through the desktop icon, online **Help**, or the **Programs/Start...** menu.

Data Acquisition Software

From one screen in the MassHunter Data Acquisition software you can:

- Start and stop the instrument
- Download instrument settings in real time
- Load, edit, create, or run a method
- Load, edit, create, check, or run a sequence
- Evaluate the MS parameters
- Autotune the MS parameters
- Monitor the real-time conditions of the instrument parameters

- View the instrument logs
- View and print the real-time plot for chromatograms and instrument spectra
- Select and label the total ion chromatograms (TIC) or extracted ion chromatograms (EIC) that you want to appear in the real-time plot

Press **F1**, use the **Help** menu, the **Help** icon, or the **Help** button on any dialog box to access Online **Help** for MassHunter Data Acquisition software.
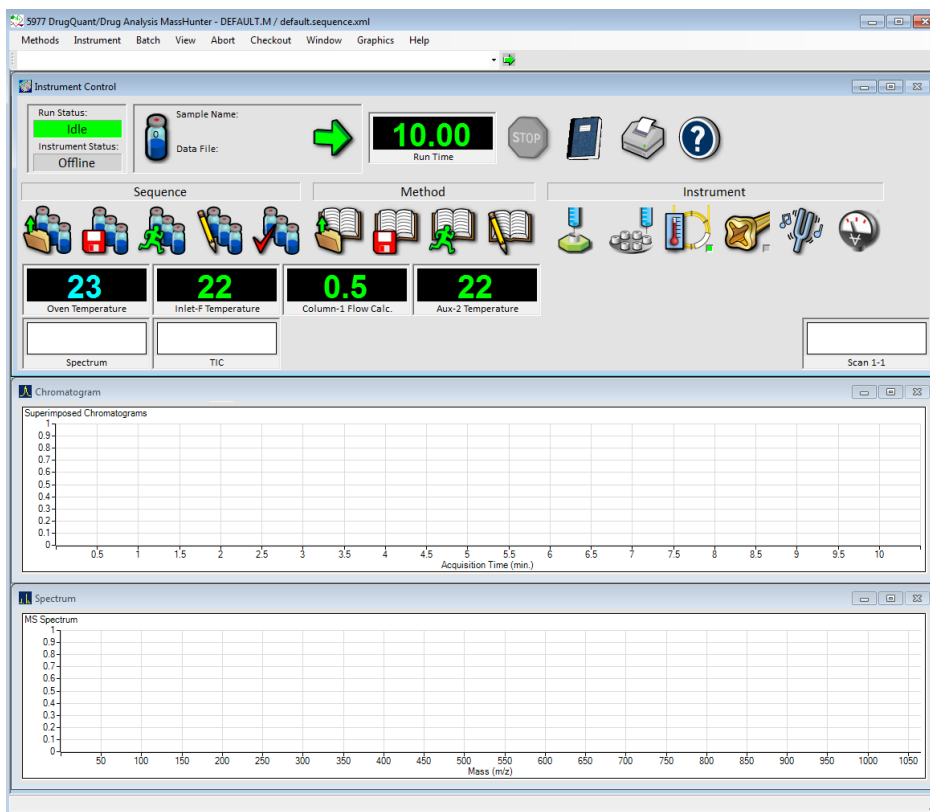
Quantitative Analysis Software
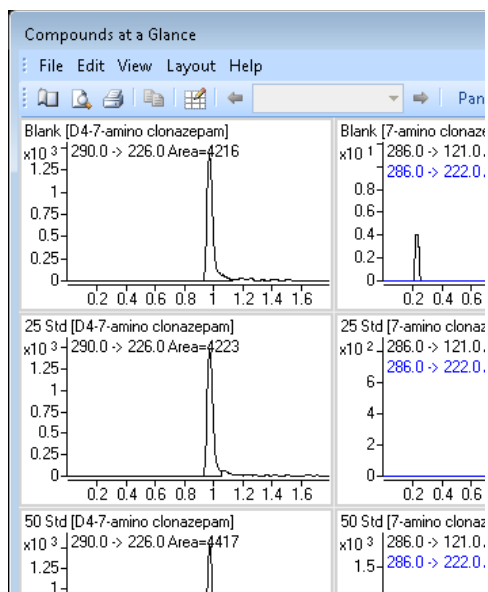
The MassHunter Quantitative Analysis software will quantify very low amounts of sample.

From one screen in the MassHunter Quantitative Analysis software you can:

- Import information directly from the acquisition method
- Use the curve-fit assistant to test all fits and statistics on the calibration curve quality
- Use the **Compounds at a Glance** feature to review all the chromatograms in your batch at once, side-by-side
- Quickly scan the batch table and see your quality metrics such as high outliers (in red) or low outliers (in blue)
- Press **F1** to access context sensitive online **Help**

Once installed, you may access **Familiarization Guides** for this software through the desktop icon, online **Help**, or the **Programs/Start...** menu.


| Exp. Conc.	RT	Resp.	MI	Calc. Conc.	Final Conc.	Accuracy	Ratio	MI	RT	Resp.
25.0000	0.982	2400		29.0230	29.0230	116.1	79.1		0.974	4223
50.0000	0.982	5192		48.6966	48.6966	97.4	79.2		0.974	4417
125.0000	0.982	12941		111.0894	111.0894	88.9	85.4		0.973	4173
250.0000	0.984	28338		227.0264	227.0264	90.8	82.6		0.977	4243
500.0000	0.983	60068		534.1646	534.1646	106.8	74.5		0.975	3717
									0.972	4216
									0.976	4599
189.0000	0.982	17646		145.8304	145.8304	77.2	75.8		0.974	4228

Qualitative Analysis Software
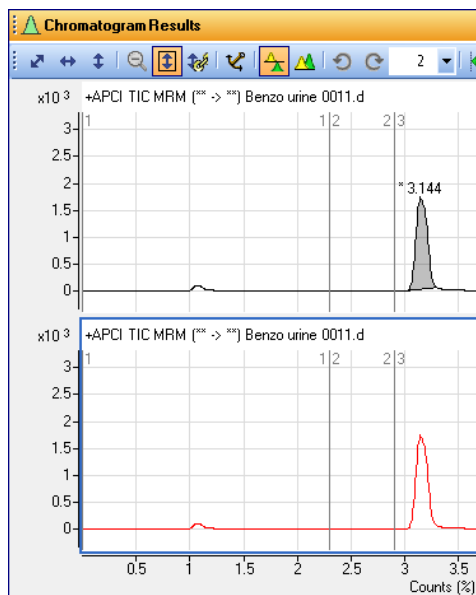
The MassHunter Qualitative Analysis software uses advanced data mining and processing tools, including integrated deconvolution algorithms, to rapidly and accurately find all detectable compounds in your samples and easily confirm targets or identify unknowns.

This software presents large amounts of data for review in one central location. From one screen you can:

- Extract chromatograms
- View and extract peak spectra
- Subtract background
- Integrate the chromatogram
- Find compounds and generate formulas
- Press **F1** to see context sensitive online **Help**

You can also set up methods to automatically do the tasks in the above list, as well as others, when you open the data files.

Once installed, you may access **Familiarization Guides** for this software through the desktop icon, online **Help**, or the **Programs/Start...** menu.
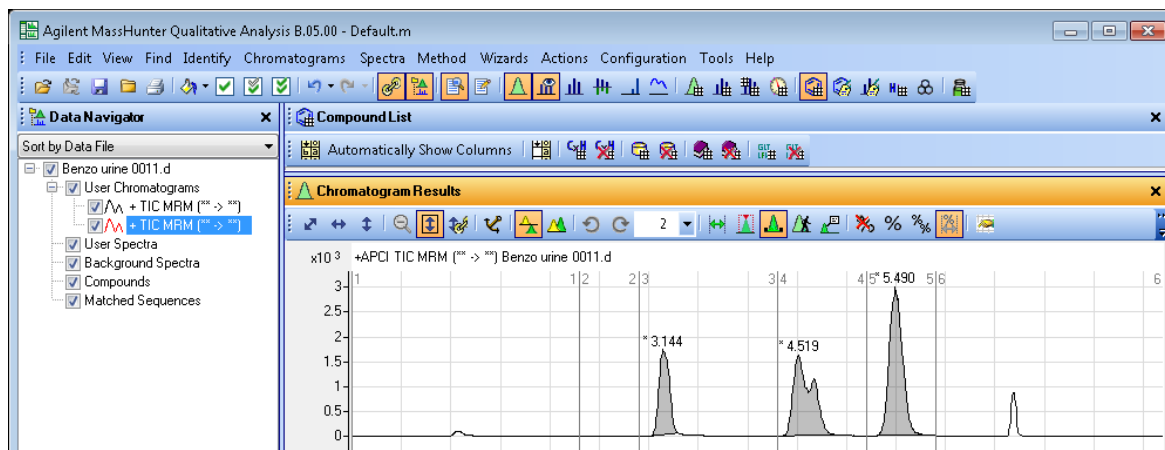
Compliance and Security Mode

Both MassHunter Data Acquisition and MassHunter Quantitative Analysis Software can be installed in one of three modes: **Standard Workflow**, **User Management and Audit Trail** mode, or the **Compliance** mode.

- In the **Standard Workflow** mode, all users have the same privileges, and data are saved to a designated drive. Records are not treated as regulated records.
- In the **User Management and Audit Trail** mode, similar to the Standard Workflow mode, records are not treated as regulated records. However, this mode includes four security user groups, each with its own set of privileges, plus a detailed audit trail that tracks all changes to method files, sequence files, data files, and the instrument configuration.
- The **Compliance** mode is designed to support the requirements of the U.S. Food and Drug Administration (FDA) regulations and the handling of electronic records and electronic signatures published as 21 CFR Part 11. Records are treated as regulated records.

  This mode includes the four security user groups, an audit trail of all activity, similar to the User Management and Audit Trail mode, plus a secure ECM storage location. All regulated records are stored in ECM, with digital signatures being applied using ECM. This option requires that the computer is connected to an ECM server, and that the ECM client is installed and operational.

For details on the Compliance and Security features, see the online **Help** in the software, and the Administrator Guide and Quick Start Guide on the GC/MS Software Information and Manuals memory stick.

For details on setting roles and responsibilities for security groups:
- For MassHunter Data Acquisition, see the **Configuration Editor's** online **Help**
- For MassHunter Quantitative Analysis, see the **Audit Trail Map's (ATM)** configuration window online **Help**

Report Designer Add-in

MassHunter stores all results in XML format and uses Microsoft Excel and the Report Designer Add-in for reporting. Many application-specific templates and customized reports, including custom calculations for your specific application needs, are available in the familiar Excel environment.

Using these preconfigured templates, you can easily create reports in the Data Acquisition software, the Qualitative Analysis software, and the Quantitative Analysis software.

You can also customize many of the application-specific templates, including the custom calculations, with the Report Designer Add-in.

Once installed, you may access **Familiarization Guides** for this software through the desktop icon, online **Help**, or the **Programs/Start...** menu.
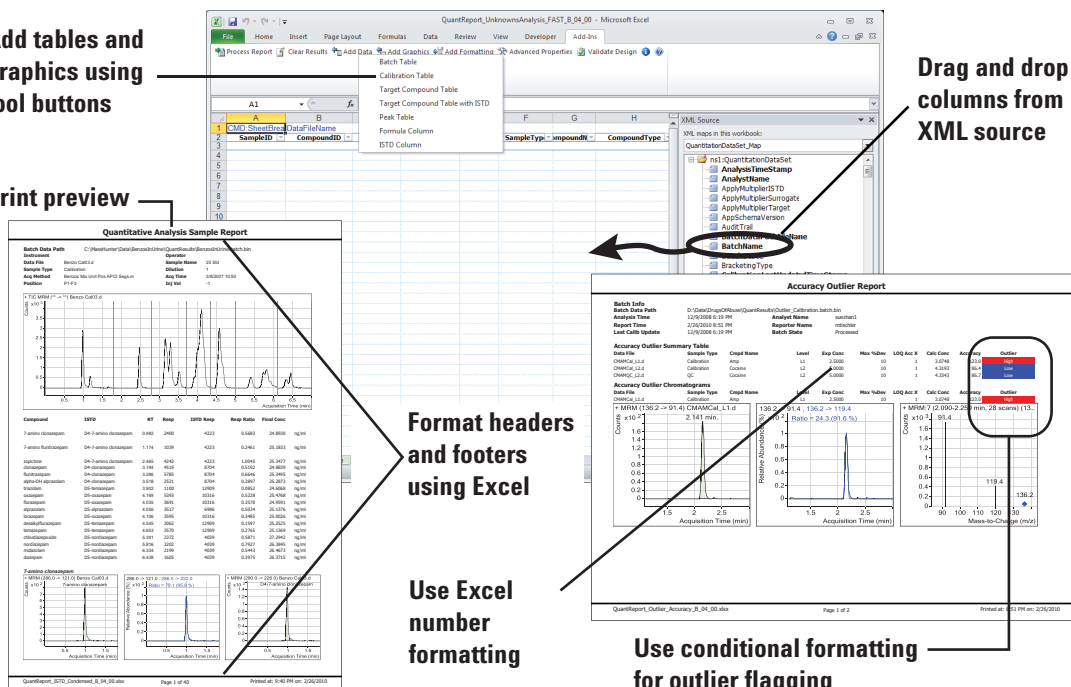
Add tables and graphics using tool buttons

Print preview

Drag and drop columns from XML source

Format headers and footers using Excel

Use Excel number formatting

Use conditional formatting for outlier flagging

Unknown Analysis Software

The MassHunter Unknowns Analysis software identifies compounds that may be present in a sample batch beyond those that have been identified in the MassHunter Quantitative Analysis software.

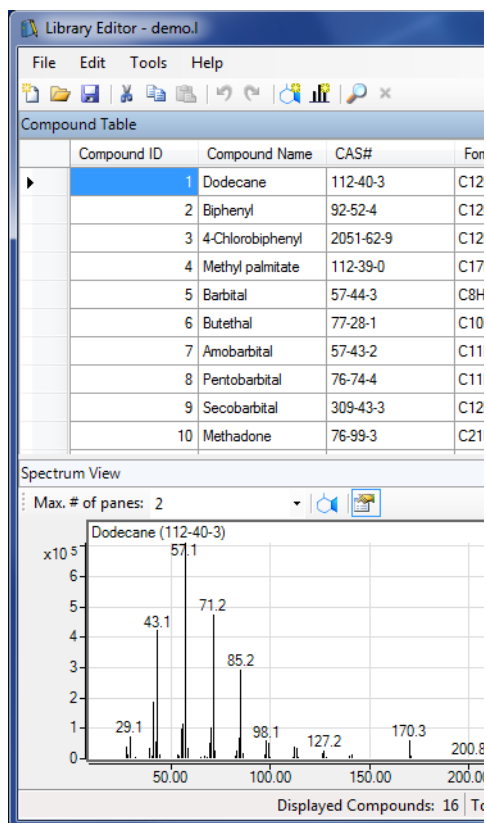From one screen in the MassHunter Unknowns Analysis you can:

- Import data directly from the MassHunter Quantitative Analysis software
- Use optimized deconvolution and library match algorithms to identify target and non-target hits
- View chromatograms, component lists, spectrums, ion peaks, and molecular structures side-by-side
- Easily review library match and peak shape metrics of unknown components in table and spectrum formats

Once installed, you may access **Familiarization Guides** for this software through the desktop icon, online **Help**, or the **Programs/Start...** menu.
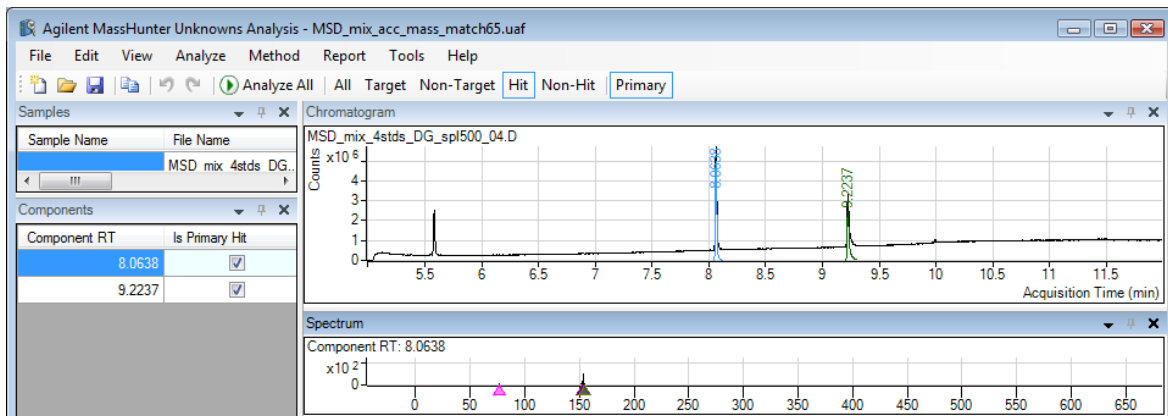
Library Editor Software

The MassHunter Library Editor software customizes libraries used to identify compounds and components in the MassHunter Qualitative and Quantitative Data Analysis software.

From one screen in the MassHunter Library Editor you can:

• Add compounds to a library
• Copy spectral data from your data analysis software to a library
• Add a structure to your custom library
• Import JCAMP files into a custom library
• Create a reference pattern library

Once installed, you may access **Familiarization Guides** for this software through the desktop icon, online **Help**, or the **Programs/Start...** menu.

Concepts Guide
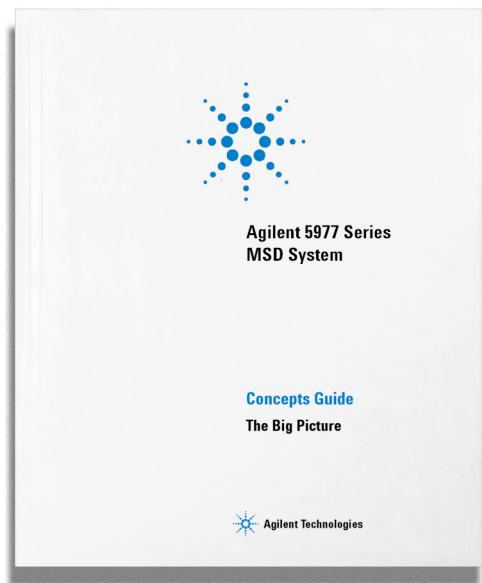
To learn how your Agilent 5977B Series MSD works in conjunction with the MassHunter software, take a look at the Concepts Guide. This document includes:

- Conceptual models
- Illustrations
- Screen captures
- An overview of how the 5977B Series MSD works
- Concepts behind the design of the Agilent MassHunter Data Acquisition software
- The theory behind chemical ionization in GC/MS

Once installed, you may access this guide through the desktop icon, or the **Programs/Start...** menu.
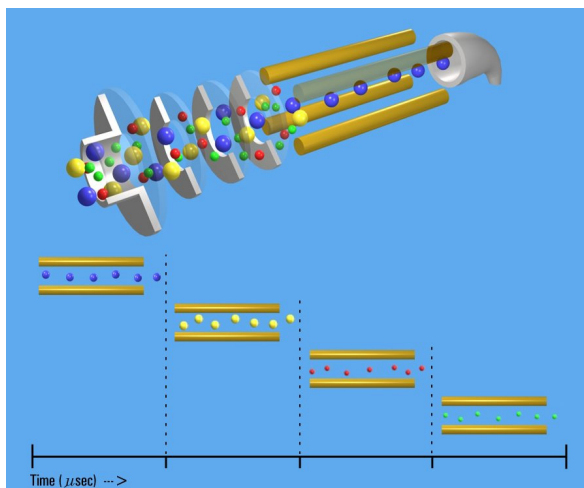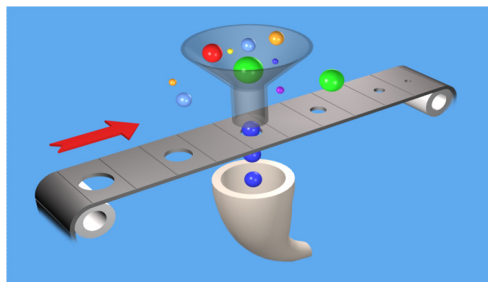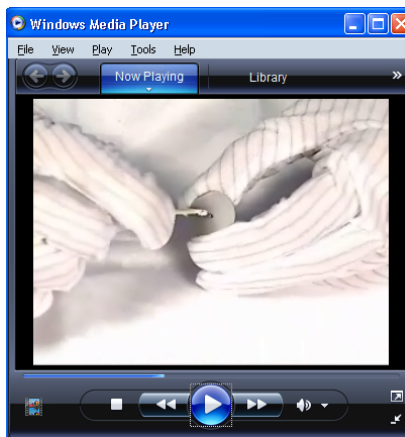
Operating Manual
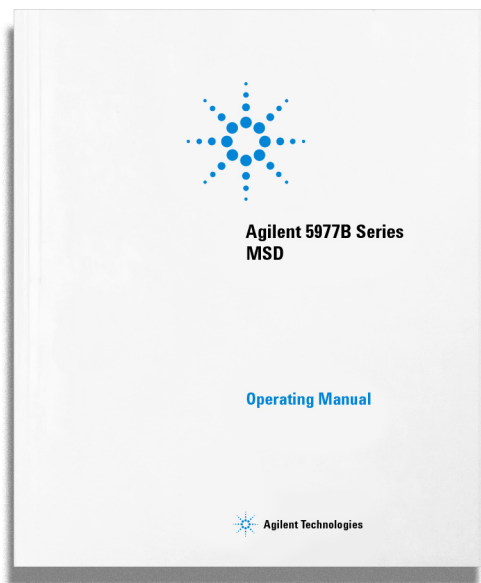
Your Agilent 5977B Series MSD is extremely powerful and flexible. Refer to the Operating Manual for extensive information on operating the instrument and performing routine maintenance on it. Included are step-by-step instructions and videos on installing GC columns, operating in electron impact (EI) mode, general maintenance procedures, and more.
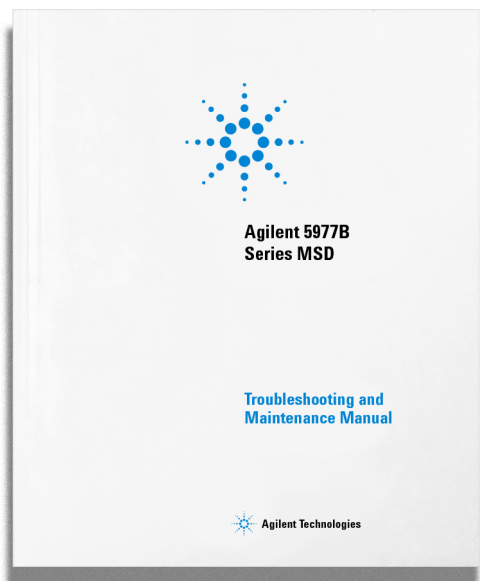
Once installed, you may access this guide through the desktop icon, or the **Programs/Start...** menu.

Any topic with the camera icon is linked to a video. Watch these videos to learn more.

Troubleshooting and Maintenance Manual

**Agilent 5977B
Series MSD**

**Troubleshooting and
Maintenance Manual**

Agilent Technologies

The Agilent 5977B Series MSD system consists of an Agilent 5977B Series MSD, and a 7890/7820 Gas Chromatograph (GC).

The Troubleshooting and Maintenance Manual for your system includes step-by-step instructions along with videos, IPBs, and annotated high-resolution photos to help you identify the cause of problems in your system. Also included are detailed procedures for completing common maintenance tasks, sections on the components of the GC/MS vacuum system and analyzer system, and a listing of parts.
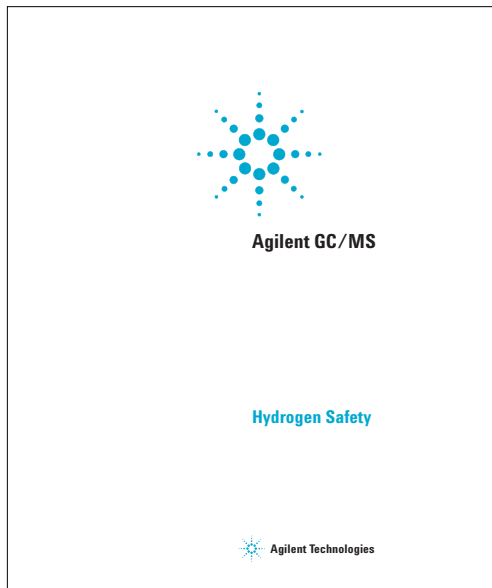
Once installed, you may access this guide through the desktop icon, or the **Programs/Start...** menu.

Any topic with the camera icon is linked to a video. Watch these videos to learn more.
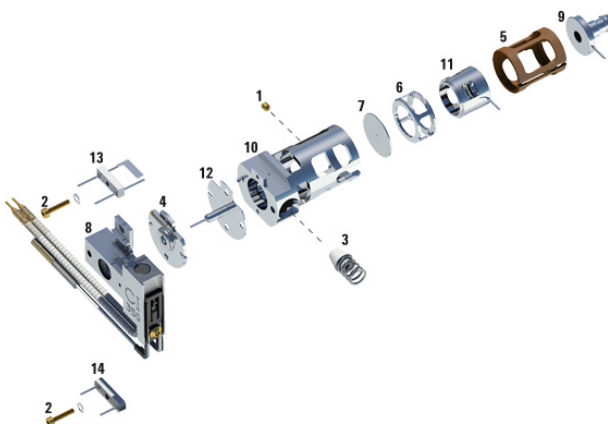
Hydrogen Safety Manual

Hydrogen presents a number of dangers. Some are general, others are unique to GC or GC/MS operation. Review this document for details on the use of Hydrogen with the GC/MS.

Once installed, you may access this guide through the desktop icon, or the **Programs/Start...** menu.

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