References

Getting Started

Welcome to the References course. In this course you will review the many online resources supplied by Apple to the public and to service providers.

These resources are vital in efficiently troubleshooting and repairing Mac systems.



Target Audience

This training module is intended for technicians who support and service Apple products.

Prerequisites

You review these courses before reviewing this one:

- Basic Computer Theory and Terms
- Underlying Technologies

Time Required

It will take about ninety minutes to complete this course.

Training Course Objectives

After reviewing this course you should be able to:

- Using the Apple Support site, locate the following resources for a specified Apple product:
 - Troubleshooting Information
 - Configuration (based on serial number)
 - Warranty Status of a product
 - User Manual
 - Product specifications
- Describe how Global Service Exchange (GSX) is used to access other Apple references.
- Using Service Source, Knowledge Base, and GSX (if available), locate the following information for a specified Apple product:
 - Service News (if available)

- Service Manuals
- Compatibility information
- Take-apart procedures
- Symptom Charts
- Screw Matrices
- Parts and configurations (If GSX is available)
- Service part numbers (If GSX is available)
- Disc images/diagnostic software (if available)
- Given a specific service issue, identify which Apple reference will produce the most informative results.

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Next: References Overview

References Overview

- Introduction
- Major Resources
- <u>Apple Support</u>
- <u>Global Service Exchange</u>
- <u>AppleCare Service Source</u>
- Knowledge Base
- <u>Constant Change</u>

Introduction

When Macintosh systems were introduced in 1984, all of the technical resources for the product came either in the box or from Apple-Authorized service facilities. These service facilities, in turn, called Apple for tech support on difficult issues. Remember that this was before the introduction of the Internet and widespread use of email.

At that time, the power of the original Macintosh systems was limited to creating text, doing simple drawings and using very simple spreadsheets. The wide array of communication and media functions that we use with the latest Mac computers was simply not possible.

Today, computers are vastly more powerful and complex. We use them to do many more things and expect our individual Macs to function readily in a great number of production and networking situations.

Just as the Macs and their functions have become more complex, so have the array of support and

service resources that Apple provides to a highly diverse range of customers.

For service technicians, there are now extensive searchable databases of support articles. Printed service manuals have been replaced with downloadable PDFs or readily accessed HTML documents. There are constantly updated online references and training on Apple's products.

With all of this change and expansion, it can sometimes seem very difficult to locate the correct information for a particular service issue. The material and exercises in this course will enable you to navigate Apple's references efficiently and successfully.

Major Resources

Service technicians need to be able to use the following online resources in order to do their jobs:

- Apple Support
- Global Service Exchange (GSX)
- AppleCare Service Source
- Knowledge Base

Apple Support

Apple Support provides general troubleshooting and support information in a well structured online environment. It is updated frequently and is useful for service technicians as well as Apple customers.

Global Service Exchange

Global Service Exchange is an online database that is restricted to Apple-Authorized service facilities. It is used to track repairs, parts orders, and addresses many other aspects of the Apple Service business. We will cover its basic features but will not expect you to work with GSX as part of this course.

AppleCare Service Source

This resource is an online portal to many service tools and references. Apple-Authorized service facilities can access all of its features. Users of AppleCare Technician Training are able to access most of its features for training purposes.

Knowledge Base

Apple maintains a searchable database of service and support articles. It is extremely useful when you need up to date information on troubleshooting and service solutions.

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Constant Change

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All of these resources are in a constant state of change. New products are introduced with new features. New troubleshooting and service techniques are developed for existing products. All of this activity means that the resources are never static.

For this reason, the exercises in this course require that you access and use online materials. This ensures that you will see the latest and most helpful versions of these resources.

NOTE: Screenshots in this course reflect the appearance of various resources at the time this course was written. As you go through the course and do its exercises, you may find that some online resources differ in appearance from what is shown here.

ALSO: The screenshots used in this course reflect the English language version of the resources. If you are studying this course in another language, you should access and review the sites as they appear in your language.

Back to top

Next: Course Exercise

Course Exercise

Open this page <u>separately</u> and keep it open while you review the course.

When you finish reviewing a section of the course, complete the exercise for that section before continuing.

Apple Support Site Questions

Using the Apple Support Site, answer the following questions:

- 1. You have a MacBook that is not displaying video. How do you distinguish between no video and no power?
- 2. You need to boot into Apple Hardware Test on an Intel-based iMac. What key(s) do you hold down to access AHT from the DVD?

- 3. You need to determine the warranty status for a PowerBook G4 with the serial number QT2330YKLP4. Is it in warranty or not?
- 4. What is the model name of this system according to its serial number?

Apple Support Site Activities

- 1. If you are using a Macintosh system, locate the support page for that system. (If you do not have a Mac, assume that you are using an Intel-based iMac (Mid 2007) system.)
- 2. Download the user guide (apple manual) for your system.
- 3. Locate and review the specifications for your system.
- 4. Check the warranty status for the system using the serial number of the system. (Skip this if you do not have a Mac.)
- 5. Review the Knowledge Base articles in the troubleshooting section for your Mac or the Intel-Based iMac.

GSX Question

1. Who can access GSX?

Service Source Question

Using AppleCare Service Source, answer the following question:

1. You are running Apple Hardware Test version 3A104 on a MacBook and get the following error code: 4AIR. What does this signify?

Service Manual Questions

Download the Service Manual for an iMac (17-inch Early 2006) and answer the following questions:

1. You are in the midst of reassembling an iMac (17-inch Early 2006) system and find that you

5 of 35

have a screw that looks like this:

Anna

Where is this screw used?

- 2. You start up an iMac (17-inch Early 2006) system and the computer shows a gray screen while you hear three tones and the LED on the front of the system blinks three times repeatedly. What does this tell you? (Hint: Check POST section.)
- 3. How do you test an IR remote with the iMac (17-inch Early 2006) system?
- 4. List the parts you need to remove before you can access the AC/DC Power Supply on an iMac (17-inch Early 2006) system
- 5. What type of screwdriver do you need to use to remove the front bezel from an iMac (17-inch Early 2006) system?
- 6. In the General Information section, what safety information is provided?

Knowledge Base Activities

1. Review the Help section of Knowledge Base

Next: Apple Support Introduction

Apple Support Introduction

- <u>Access</u>
- <u>Anatomy of a Product Page</u>

Access

The Apple Support site is a portal to specialized support for the full range of Apple products.

The Apple Support site is accessed by going to:

http://www.apple.com/support/

NOTE: This site is available in multiple languages. While the illustrations in this course have been taken from the English language site, the site can be viewed in other languages via the Select Country or Language menu:



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	Support Resources	more.	i Kons Keau
Copyright © 2008 Apple Inc. All r	ghts reserved port	http://service.in	fo.apple.com/service_training/en/006/references/

AppleCale Service Source Language Options

Service technicians will be most interested in the resources that can be reached via the Computer + Server support link:

Apple Support
for Products
Apple TV
Computer + Server
iPod + iTunes
Mac OS
QuickTime
Software
All products
for Services
for Services Aperture Print Products
Aperture Print Products
Aperture Print Products Apple Online Store
Aperture Print Products Apple Online Store iPhoto Print Products

Selecting Computer + Server leads to an extensive list of Apple computer and server support page links:

Ó	Store Mac	iPod + iTunes	iPhone Down	nloads	Support Q, Search	
Select country or language					Q, Search Support	
Browse Support	Computer +	Server				
Apple TV Computer + Server	iMacs		Notebooks		Mac Pro & Power Macs	
Phone Pod + iTunes Mac OS QuickTime	10		10			
Software	-		MacBook	0		
Al products	iMac (Intel-based)	0	MacBook Pro	0	Mac Pro	
or Services ople Photo Services	iMac GS (Sight)	0	Book	0	Power Mac GS	
ople Store	iMac GS	0	PowerBook G4	0	Power Mac G4 + G4 Cube	
unes Store	iMac G4 (Flat Panel)	0	PowerBook G3	0	Power Mac G3	
Mac	iMac G3 (CRT)	0	Earlier PowerBooks	0	Earlier Macs	
upport Resources	Other Macs		Wireless		Server	
Necussions			Airport Extreme + Airport Exp	ress O		-
lownloads		1	Bluetooth	0		18
Annuals pecifications		1	Apple Wireless Keyboard + Mo			



From this point, you select the product you want.

Anatomy of a Product Page

Let's assume that you have some questions concerning an Intel-based iMac. If you choose that option, you will be presented with a support page similar to this one:



Click for larger image

This page contains a wealth of information including:

- 1. Language Selection
- 2. Software Updates (2 locations)
- 3. Knowledge Base Search
- 1 Downloade

- +. Duwilloaus
- 5. User Manuals
- 6. Specifications
- 7. Troubleshooting Tips
- 8. User Discussions
- 9. How-to instructions for DIY parts installation

This material is useful in several ways. First, it can save you time when you are looking for service issues on a particular type of system. It is also a very good way to get acquainted with a new model of computer.

Another major use is as a means of educating your customers. Many of the basic questions that new users have will be addressed by what they find at this site.

Back to top

Next: User Manuals

User Manuals

- <u>Overview</u>
- <u>Names</u>
- Downloading User Manuals
- User Manuals Organization

Overview

User manuals are particularly useful when a product is first introduced. This is because such manuals will normally emphasize new features or elements of the product.

Names

User manuals are also called user guides or apple manuals. They are completely different from the more specialized service manuals that Apple publishes for service technicians.

Downloading User Manuals

From the Apple Support page for a particular product, you can download a PDF of the user manual for that product.

Let's assume that you want to get a copy of the User's Guide for an iMac (Mid 2007)) system. First

Browse Support Intel-based iMac

you would select the "Manuals" link on the Intel-based iMac Support page.



This link takes you to a page listing the available User Manuals:

Title	Posted v	Pages		Search Advanced Search
Intel-based iMac (Mid 2007) User's Guide (Manual)	08/07/2007	76	♣ 2.3MB	
Intel-based iMac User's Guide (Late 2006) Manual	09/06/2006	76	# 1.5MB	Restrict to Manuals
iMac 24-Inch (late 2006) VESA Mount Adapter Installation Guide (Manual)	09/06/2006	60	₩ 1.7MB	Choose Your Language
iMac (Mid 2006) User's Guide (Manual)	07/20/2006	104	4 1.7MB	Select
iMac (Early 2006) User's Guide (Manual)	01/10/2006	120	# 2MB	
iMac G5 20-inch Inverter Replacement Instructions (Do It Yourself Manual)	10/22/2005	22	₩ SMB	Hardware Manuals
iMac G5 (ISight) User's Guide (Manual)	10/14/2005	96	₿ 2.4MB	iPhone > All iPhone manuals
iMac G5 17-inch Power Supply Replacement Instructions (Do It Yourself Manual)	08/15/2005	18	♣ 3.2MB	iPod All iPod manuals
IMac G5 Hard Drive 17-inch Replacement Instructions Education Only (Do It Yourself Manual)	06/03/2005	16	₩ 5.3MB	Desktops and Servers > IMac > IMac (DIY)
IMac GS 17-inch AirPort Extreme Card Replacement Instructions (Do It Yourself Manual)	06/01/2005	12	₩ 2.3MB	 eMac Mac mini Mac Pro Mac Pro (DIY)
IMac G5 20-inch AirPort Extreme Card Replacement Instructions (Do It Yourself Manual)	06/01/2005	11	₩ 2.2MB	 Power Mac Power Mac (DIY) Xserve & Xserve RAID
iMac G5 17-inch Upper Fan Education Only (Do It Yourself Manual)	06/01/2005	11	₩ 1.2MB	Portables MacBook Pro
iMac GS 20-inch Memory Replacement Instructions (Do It Yourself Manual)	06/01/2005	10	8 1.4MB	 MacBook Pro (DIY) MacBook PowerBook
iMac G5 17" Memory Replacement Instructions (Do It Yourself Manual)	06/01/2005	11	₩ 1.6MB	 IBook Other Hardware
iMac GS 17-inch Hard Drive Replacement Instructions (Do It Yourself Manual)	06/01/2005	17	₩ 4MB	Apple TV AirPort Sight
iMac GS 20-inch Optical Drive (CD/DVD) Replacement Instructions (Do It Yourself Manual)	05/11/2005	12	₿ 1.4MB	 Displays MagSafe Airline Adapte

Apple Manuals

From here you select the Intel-based iMac (Mid 2007) User's Guide and download the PDF.



iMac_Intelbased_Mid2...erGuide.pdf

When opened the User Guide will appear:



User Manuals Organization

While there will be differences between user manuals for different products, some basic sections are normally used. These include:

- Setting up the product
- Upgrading the product
- Basic features
- Support Options
- Basic troubleshooting issues
- Safety instructions
- Maintenance

Back to top

Next: Product Specifications

Product Specifications

Specifications for Apple products are available online at:

http://support.apple.com/specs/

	1	
Specifications		
Title	Date Introduced V	Search Advanced Search Help
iMac (Mid 2007)	08/07/2007	Q
Mac mini (Mid 2007)	08/07/2007	Restrict to Specs
iPhone	06/29/2007	
MacBook Pro (2.4/2.2GHz)	06/05/2007	Find by Serial Number Help
MacBook (Mid 2007)	05/15/2007	Q
Apple TV	03/22/2007	
AirPort Extreme (802.11n)	01/30/2007	Hardware Specs
Xserve RAID (Early 2007)	01/23/2007	iPhone
Xserve (Late 2006)	11/12/2005	All iPhone Specs
MacBook (Late 2006)	11/08/2006	Pod All iPod Specs
MacBook Pro (Late 2006)	10/24/2006	Desktops and Servers
Fifth Generation iPod (Late 2006)	09/12/2006	> IMac
iPod nano (Second Generation)	09/12/2006	 eMac Mac mini
iPod shuffle (Second Generation)	09/12/2006	Mac Pro Power Mac
iMac (Late 2006)	09/06/2006	Xserve & Xserve RAID
Mac mini (Late 2006)	09/06/2006	Portables MacBook Pro
Mac Pro	08/07/2005	PowerBook
MacBook	05/16/2006	 iBook Other Hardware
MacBook Pro (15-inch Glossy)	05/16/2006	 AirPort
MacSook Pro (17-inch)	04/24/2006	> Display
Mac mini (Early 2006)	02/28/2006	Older Products (Pre Nov. 1997)
iMac (Early 2006)	01/10/2006	≻ Systems
MacBook Pro	01/10/2005	 Display Printers
Power Mac GS (Late 2005)	10/19/2005	

From this page you can readily find a detailed list of the specifications for a particular product. Details of identifying products and locating their specifications will be covered in the Hardware Service Issues course.

Next: Configuration - Warranty

Configuration - Warranty

Locating Configuration and Warranty Information

Locating Configuration and Warranty Information

Locating the warranty status and the specific product name for a particular system is made easy by using the Apple Support site. At the bottom of the Apple Support home page, you should see a section similar to this one:

With the serial number of the system, you can identify the products' warranty status and also determine the name AppleCare uses for this particular model. This will be discussed in more detail in the Hardware Service Issues course.

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Next: Troubleshooting Info

Troubleshooting Information

• Support Page for Troubleshooting Information

Support Page for Troubleshooting Information

if you are working on a particular system for the first time, it is often useful to see what Knowledge Base articles are called out on the Apple Support page for that product. These articles can often serve as a starting point for your investigations.

These articles on the Intel-based iMac Support page are one example:





This materials does not replace the use of service manuals or other specialized service resources but is a good way to quickly access a list of issues for a particular product.

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Next: GSX Overview

GSX Overview

- <u>Global Service Exchange Access</u>
- <u>GSX Reference Links</u>

Global Service Exchange Access

Apple provides Global Service Exchange (GSX) to Apple-Authorized service facilities. This Web-based tool is is used to create and track repairs, identify and order service parts, and gives a service provider a good means of tracking their service business.

NOTE: GSX is NOT available to the general public.

GSX Reference Links

GSX gives service providers links to the following service-related resources via the menu bar at the top of the GSX home page:

- AppleCare Service Source
- Knowladza Pasa



- KIIUWICUge Dase
- Service News
- Training and Certification

Care (Repairs	and Orders	A Welcome, Lewis
mart Search Inter Criteria and select below: Parts Lookup Bepair/Support History Bing Inguiry Lookup Seclation Lookup	Serial # Coverage Check Carry-In Mail-In Onuite Fulfillment Orders Upload Repains Stocking Orders	Learn More	User Info Tech ID: My Profile Users More Company Info APPLE COMPUTER INC Switch Sold-To Account Order Activity
Learn More Returns Good Parts	AppleCa	ire Products	S Active Orders The Badge: Learn More
Repair Parts DOA Stock Parts DOA Print Return Labels Learn More Account Management Invoice Lookup Statements Online Statements Online	AppleCare P AppleCare H AppleCare H AppleCare T	rotection Plan remium Service/Support elp Desk Tools elp Desk Support lac. OS X Server SW Support - Select echnician Training	
Administer Access	Messa	ge Center	
Learn More	Invoice Issue Resolved GSX Maintenance Sep 12, GSX Maintenance Sep 11, GSX Help More News		

We will review AppleCare Service Source and Knowledge Base in detail later in this course. Training and Certification consists of the same courses you are reviewing right now.

Back to top

Next: Service Source Overview

Service Source Overview

- Apple-Authorized Service Provider (AASP) Access to AppleCare Service Source
- AppleCare Technician Training (ATT) Access to AppleCare Service Source
- <u>Service Source Resources</u>

Apple-Authorized Service Provider (AASP) Access to AppleCare Service Source

Apple Service Source is the primary online resource for Apple-Authorized service facilities.

If you are on the staff of an Apple Authorized Service Provider (AASP), you use your Apple ID along with the service account number supplied by your management to access Service Source via GSX.

Accessing Service Source by that path will give you complete access to Service Source resources.

AppleCare Technician Training (ATT) Access to AppleCare Service Source

AppleCare Technician Training (ATT) provides the user with one year of online access to Apple Service Training resources. ATT comes with complete directions for accessing AppleCare Service Training via the training version of AppleCare Service Source.

NOTE: ATT access provides you access to the areas you need to complete your preparation for Service Certification.

ATT will NOT give you complete access to all of Service Source.

Service Source Resources

Service Source changes frequently in appearance since it is a primary means of providing service technicians with the latest news on products and programs.

Many of its functions, however, will be the same over time.

This screenshot calls out some of the basic resources that Service Source provides. This screenshot is taken from the Apple-Authorized Service Provider version of the site.

Persons using AppleCare Technician Training access a somewhat different version of this site.



	(CAP) Wesste Apple Service Provider Program Manual Self-Servicing Account Program Manual CRT Selfey CRT Safety Tools for Desktop and Portable Repairs Battery Handling	11 • • • Service News Updates: Now available, get the latest AppleCare service news affecting all service providers world wide. Part shipping delays, new product releases, service manual updates, procedure changes and more.	
7	Drives Matrix Self-Paced Training Podcasts	12 Browse Products () 13 Search by Mardware Serial Number: () Search () Search () Product Browser	
8 9 10	Regional Links Service Certifications GSX	Search Support Site: Q+ Search Support Search 14	
	Support Site Map	Have feedback? Found a bug? Let us know. Support Site Help Contact Support RSS Feeds Privacy Policy Terms of Use Product Security Export Compliance	

Click image for a larger version.

Let's briefly review what these resource links do.

1. **Select a Language**- Service Source is available in multiple languages. Here is a list of those available:

- 2. **Online Help** This link gives Apple-Authorized service facilities access to links for technical questions, feedback for Service Source, Service Certification questions, or questions on AppleCare Technician Training.
- 3. Email an Agent This link is used by Apple-Authorized service facilities for technical assistance on difficult troubleshooting or repair issues.
- 4. **Chat** This link provides Apple- Authorized service facilities real time chat with Apple technical support.
- 5. **Product Menu** This section provides Apple-Authorized service facilities direct links to product pages that contain Service Manuals, diagnostics, and other materials for specific Macintosh models.
- 6. Quick Links This section changes fairly often and provides access to frequently used

resources such as tool lists, online training, safety information, service news archives, and repair program information.

- 7. **Podcasts** This link goes to a series of podcasts provided by Apple to Apple-Authorized service facilities.
- 8. **Regional Links** This link provides access to information that is specific to a regional area such as Latin America or Europe.
- 9. Service Certifications This link offers details on how to become an Apple Certified Macintosh Technician, certification class schedules, and online training courses.
- 10. GSX This section provides training and references on how to use Global Service Exchange.
- 11. Service News Updates New articles from Apple on service issues. This section will change frequently.
- 12. **Browse Products** This section links to product-specific pages that offer service manuals, diagnostics, and other model-specific materials.
- 13. Search by Hardware Serial Number This section provides access to resources for a particular Macintosh model via serial number search. This eliminates problems raised by using incorrect references or diagnostics during the troubleshooting process.
- 14. **Search** Search is your portal to Apple's Knowledge Base. Details of Knowledge Base use will be covered later in this course.

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Next: Service Manuals

Service Manuals

- <u>Service Manual's Importance</u>
- <u>Service Manual Components</u>
- <u>Recap</u>

Service Manual's Importance

In situations where you have to troubleshoot or take apart an Apple computer, the Apple Service Manual is your best resource. If you consult the service manual before opening up a system, you will avoid making mistakes that waste time and cost money.

During the time before a product is released, Service Writers at Apple are part of the product development process. It is their job to identify and document issues that impact how a service technician will troubleshoot an issue and how the technician will replace the service parts in the system.

This documentation results in the service manual resources that you can access or download from Service Source.

Understanding how service manuals are organized will enable you to use them appropriately and efficiently.

Service Manual Components

Service manuals will differ from product to product but the basic types of information offered stay much the same.

Let's take a look at the iMac (24-inch Mid 2007) Service Manual. While some service manuals are available in HTML, we will concentrate for now on the manuals available as PDF downloads from AppleCare Service Source.





We have called out two sections of this manual:

- 1. The Drawer button which opens and closes the Table of Contents.
- 2. The Table of Contents

To use this manual, which has over 290 pages of content, you need to be able to use the links from the table of contents to go directly to the manual section you need.

Take Apart

Let's assume that you have not worked on an iMac (24-inch Mid 2007) before and need to replace an AirPort Extreme card. First of all, you must open up the Take Apart section of the Table of Contents.



There is a section for the AirPort Extreme card. If you select it, you will see the following page:

-	-	12			•		(
mes.	T	+	51	•	4	~	- 1	A [] /	9	8: 🔳 Q- Search
Drawer	Previous	Next	Page	Back/Forward	Zoom In	Zoom Out		Tool Mode		
										iMac (24-inch Mid 2007)
									- 1	Contents
									- 1	▼Take Apart
									- 1	► General Information
									- 1	Access Deces

11/18/08 10:39 PM



http://service.info.apple.com/service_training/en/006/references/...



There are several very important types of information on this page.

- 1. First, you have a list of the tools needed to get to the AirPort Extreme card.
- 2. Secondly, you have a list of the parts that need to be removed before you can access the AirPort Extreme card.
- 3. Lastly, there is an illustration that shows the location of the AirPort Extreme card in this computer.

Having this information is vital if you are to avoid damaging the customer's iMac.

If you go to the next page in this section, you will find the remaining steps needed to access and remove the AirPort Extreme card.

Having the service manual available when you first work on a new model of Macintosh will enable you to avoid damage, expense and lost time. The Take Apart sections of the manual will give you the guidance you require.

Troubleshooting

The other major section of the service manual is the Troubleshooting section. In this part of the manual, You will find Symptom Charts which offer basic troubleshooting steps to follow for specific symptoms.

Let's assume that you have a customer's iMac (24-inch Mid 2007) that is running its fans at full speed all the time.

If you check the symptom charts, you will find that this set of symptoms is called out as something that can be corrected by resetting the System Management Controller (SMC). You select the procedure link and get the following result:

😝 \ominus 😁 🔮 iMac (24-inch Mid 2007).pdf (234 pages)	0
Image: Second	e B B B C Contents Fake Apart Troubleshooting ♥ General Information Serial Number Power On Self Test (P DDR Memory Diagnostic LEDs ♥ Symptom Charts Power Issues No Video Display
 generating standards of comparison on reaction of the standard standard	Hard Drive Optical Drive Fan Sound AirPort Bluetooth IR Remote IR Sensor/Receiver Built-in iSight Camera Speakers Mouse Keyboard Error Beep(s) USB I► Views
modelų). Mac (24-inch Mid 2007) Taka Apart — Ceneral information 197	

You find the SMC reset procedure described in the service manual and follow its directions. The system upon restart is running normally.

While not all symptoms are listed in the symptom charts, they are still a good primary reference when troubleshooting a Mac system.

Other Service Manual Components

Screw Matrices or Callouts - One of the major issues when replacing parts in a computer is keeping track of the screws that are used to hold the components together.

In some Macs you can find over 20 different screws used. Being able to identify the correct screw for a specific connection avoids possible damage to the system and makes it easier to order replacement screws when necessary.

For the iMac (24-inch Mid 2007), illustrations are provided that identify the required screws for a specific location. This example is for the AirPort Extreme Card:



Other manuals will provide illustrations of individual screws along with their specifications.

Exploded Views

Some manuals will provide exploded views of the product. This is sometimes useful for getting a general idea of the component locations for that model.

Here is an example of the exploded view for the iMac (24-inch Mid 2007) system:



11/18/08 10:39 PM

There to an example of the expression iten for the infine (2 + men infin 2007) of oten



Most exploded views will also offer the parts numbers for the service modules.

Recap

Service manuals enable you to follow recommended procedures for troubleshooting and take apart of Mac systems. Attempting to service a new model before consulting the appropriate service manual can be costly.

When a new service manual comes out, you should make sure to quickly review it. Also, you should make sure that the service manual you are using is the latest version. Apple updates its service manuals on an ongoing basis.

In the next section, you will see how to access the correct service manual and other materials using AppleCare Service Source.

Back to top

Next: <u>Disc Images-Diagnostics</u>

Diagnostics-Disc Images

- <u>Who Can Access Diagnostics</u>
- Locating Diagnostics
- Using the AppleCare Name to Locate Diagnostics and Service Manuals
- Using the Serial Number to Locate Diagnostics and Service Manuals
- <u>AppleCare Service Source Recap</u>

Who Can Access Diagnostics

Only service technicians at Apple-Authorized service facilities can access and download Apple Diagnostics. This is done via the service facilities' AppleCare Service Source site.

Please note that the version of AppleCare Service Source provided for AppleCare Technician Training users does NOT provide access to diagnostics. Sample diagnostics are provided on discs in the training kits.

Locating Diagnostics and Service Manuals

Determining the correct diagnostic or service manual to use with a specific Macintosh model can be pretty confusing. Apple recently updated AppleCare Service Source to simplify this process and make it relatively easy.

To access the correct service manual and diagnostic for a particular Mac, you simply access the product page for that Mac via its AppleCare Name or its serial number.

Here is how you do it.

Using the AppleCare Name to Locate Diagnostics and Service Manuals

To locate diagnostics by use of the AppleCare name for a product, follow these steps:

1. From the AppleCare Service Source home page, select the product type from the product picture menu (A) or from the Browse Products button (B).

Store Mac iPod + iTunes iPhone Downloads Suspect Q Search



2. Let's assume that we need the diagnostic for the iMac (24-inch Mid 2007) system. If we select the Intel iMac icon in section A, we will get the following screen:

() s	tore Mac i	Pod + iTunes iPhone	Downloads Suppor	t Q. Search
nulo Car				
ppiecare	e Service Source			
Select Language: Engli	ish 🚦		Online Help () Email as	Agent SI Chat Offline O
			and the state of the second	1
		and the second second	ARCHITECTURE OF THE OWNER OF THE	
		See and the second s		
	And the second second	No. of Concession, Name	And a state of the	-
Mac mini	MacBook	MacBook Pro	IMac	Mac Pro
Max mini	Macbook	PowerPC	INIAC	Other
A CONTRACTOR OF THE OWNER		PowerPt		Cover manning
wick Links				
sick Links	Product Browser			
AppleCar		Models/iMac (intel)/		
Service Excel	Manage		Size Last Mo	dified
Learn Mor	e_ iMac (17-inch La	te 2005)		8-14 17:49
	iMac (17-inch La	ite 2006) CD	2007-08	1-14 18:04
Battery Replacement Pro	ogram iMac (17-inch Mi		2007-08	3-14 18:16
Repair Extension Progra Details	am 🔤 iMac (20-inch La	ite 2005)	2007-08	1-14 18:27
CALIFORNIA STATEMENTS			2002 00	3-14 19:19
Vintage and Obsolete	iMac (20-inch Mi	id 2007)	2007-08	2-14 13:13

	Clobal Account Performance	iMac (24-inch Mid 2007)	 2007-08-14 19:52	
	(CAP) Website	iMac (Early 2006 17-inch)	 2007-08-14 20:31	
	 Apple Service Provider Program Manual 	iMac (Early 2006 20-inch)	 2007-08-14 20:42	
	 Self-Servicing Account Program Manual 			
	ESD Precautions			
	CRT Safety			
	 Tools for Desktop and Portable Repairs 			
	Battery Handling			
	 Drives Matrix 			
	Self-Paced Training			
	AppleCare Service News			
	Podcasts	AppleCare Service Source		
	Regional Links	Search Support Site: Q- Search Support Search		
-	Service Certifications			
-	GSX			
	U.3A			

On this page we can see listings for the iMac (Mid 2007) models.

3. If we start by selecting the Product Browser in section **B**, we will get this result:

AppleCare se	rvice Source				
Select Language English	•			Online Help ()	Email an Agent 😒
	1 hourses	1 and the second		*	
Mac mini	MacBook	MacBook Pro		-iMac	Mac Pro
		PowerPC			Other
		POWERL			CONT
Quick Links	Analafara fan instanten				
Quick Links	AppleCare Service Source				
AppleCare	Product Browser				
Service Excellence	All Models/				
Learn More_					
	Name		Size	Last Modified	
Battery Replacement Program	Apple TV			2007-08-21 12:28	
Repair Extension Program	Displays			2007-08-17 15:32	
Details	eMac eMac			2007-08-14 14:16	
 Vintage and Obsolete 	ill iBook			2007-08-14 23:50	
Products	iMac (Intel)			2007-08-14 20:31	
 Global Account Performance (GAP) Website 	imac (PowerPC)			2007-08-14 17:15	
Apple Service Provider	iPod (IPod VIII)			2007-08-17 15:28	
Program Manual	IPod HIFI			2007-08-14 14:43	
Self-Servicing Account	MacBook			2007-08-15 02:59	
Program Manual	MacBook Pro			2007-08-15 01:17	
ESD Precautions	Mac Mini			2007-08-15 05:13	
CRT Safety	Mac Pro			2007-08-15 04:17 2007-08-14 12:43	
Yools for Desktop and	PowerBook			2007-08-19 12:45	
Portable Repairs	Vintage and Obsolete			2007-08-15 12:54	
 Battery Handling 	Xserve			2007-08-14 14:41	
 Drives Matrix 	ASEIVE			5001-00-14 14:41	
Self-Paced Training					
AppleCare Service News					
Podcasts					
Regional Links	Search Support Site: Qr Se	tarch Support Search			
Service Certifications					
Service Certifications					



- 4. Selection of the iMac (Intel) folder will yield the same screen as the iMac (Intel) icon did.
- 5. Once you have the iMac (Intel) screen, you can select the iMac (Mid 2007) model you want (20-inch or 24-inch). Let's assume that you want a diagnostic for the 24-inch version. Selecting the link for that version will give you this result.

Select Language: English	•		Online Help () Email an Agent :	
Mac mini	MacBook Pro			
Mac milli	PowerPC	IMAC	Mac Pro Other	-
Quick Links	Product Browser			
	All Models/iMac (Intel)/iMac (24-int	the Mild 2007) /		
AppleCare Service Excellence	Caller			
Learn More	Name Mac (24-inch Mid 2007).pdf	Size	Last Modified	
Battery Replacement Program Repair Extension Program Details Vintage and Obsolete Products Clobal Account Performance (GAP) Website Apple Service Provider Program Manual Self-Servicing Account Program Manual Self-Servicing Account Program Manual Self-Service Provider CRT Safety Tools for Desktop and Pertable Repairs Battery Handling Battery Handling Drives Matrix Self-Paced Training AppleCare Service News				
Bardana da	Service and Diagnostic Disc Images			-
Podcasts	AppleCare Service Source			
Regional Links Service Certifications	Search Support Site: Q- Search Support) (Search	a		
	search support site: (My search support) [Search			

Here you have the default screen which had the correct service manual PDF for download. In addition, there is another tab towards the bottom of the screen labeled Service and Diagnostic Disc Image.

6. Select that Disc Image tab and you will see the following screen:

								ſ
(C)	Store	Mac	iPod + iTunes	iPhone	Downloads	Support	Q, Search	



A closer view of the tab shows that there is access to a number of disc images and documentation for Apple Diagnostics.

Product Browser Service and Diagnostic Disc Images		
All Models/iMac (Intel)/iMac (24-inch Mid 2007)/		
ame	Size	Last Modified
Apple Hardware Test 3A126.dmg		2007-08-14 19:19
Apple Service Diagnostic (Dual Boot) 3S116.dmg Burning ASD to Disc Read Me Suser Guide ASD Test Results Guide		
Blank Board Serializer.dmg		2007-08-14 19:19

Anala Cara Canalas Course	
AppleCare Service Source	2
Search Support Site: Q	Search Support Search

In this screen an Apple-Authorized service facility can access Apple Hardware Test for the iMac (24-inch Mid-2007) system as well as the error codes for that diagnostic. They can also get the correct version of Apple Service Diagnostic and its supporting documentation. Lastly, they can access a utility used for putting serial numbers on replacement logic boards.

Using the Serial Number to Locate Diagnostics and Service Manuals

If you have the serial number for a system, locating the correct manual and diagnostics is even simpler.

1. Let's assume that we have an iMac (24-inch Mid 2007) system with the following serial number:

W87311HMX89

If we enter this serial number into the Search by Hardware Serial Number area of AppleCare Service Source:



	CRT Safety	RSS All Feeds RSS Technical Ne	ws and the second se
	 Tools for Desktop and Portable Repairs 		AppleCare Service News
	Battery Handling		
	Drives Matrix		
	Self-Paced Training	Browse Products @	Search by Hardware Serial Number: Q- W87311HMX89 0 (Search)
	 AppleCare Service News 	(and the second	
		Dead and Dearson	
- 1	Podcasts	Product Browser	
	Regional Links	Search Support Site: Q= Search Support	ort Search
	Service Certifications		
	CSX		
			d a bug? Let us know.
	Support Site Map	Support Site Help Contact Support RSS Feeds	Privacy Policy Terms of Use Product Security Export Compliance

2. We end up with the same screen we reached using the AppleCare name.

AppleCare Se Select Language English	•			Online Help () Email an Ager	
Mac mini	MacBook	MacBook Pro	iMac		
(intel		PowerPC		Other	
Quick Links	Product Browser				
Quick Links					
AppleCare Service Excellence	All Mode	ls/iMac (Intel)/iMac (24-inch	Mid 2007)/		
Learn More	Name		Size	Last Modified	
	Mac (24-Inch Mid	2007).pdf	48.54 MB	2007-08-14 19:52	
Battery Replacement Program					
 Repair Extension Program Details 					
 Vintage and Obsolete Products 					
Global Account Performance (GAP) Website					
 Apple Service Provider Program Manual 					
 Self-Servicing Account Program Manual 					
ESD Precautions					
CRT Safety					
 Tools for Desktop and Portable Repairs 					
Battery Handling					
Drives Matrix					
Self-Paced Training					
 AppleCare Service News 					
	Service and Diagnostic	Disc Images			
Podcasts	AppleCare Service Sou				
Regional Links					
Service Certifications	Search Support Site:	Q.= Search Support (Search)			
CSX					

3. Once again you can download the service manual PDF or else select the Service and Diagnostics Disc Images tab and you have the correct diagnostic for that system.

ſ

Select Language: English	•		Online Help () Email an Ag	ent 53 Chat Offline 🕲
Mac mini	MacSook	MacBook Pro PowerPC	e Junaco,	Mac ProOther
Quick Links	Product Browser Service and Diagnostic D	isc Images		
AppleCare Service Excellence		/iMac (Intel)/iMac (24-inch Mid	2007)/	
Learn More	Name	,		Last Modified
Battery Replacement Program Repair Extension Program Details Vintage and Obsolete Products Global Account Performance (GAP) Website Apple Service Provider Program Manual Self-Servicing Account Program Manual Self-Servicing Account Program Manual CRT Safety Tools for Desktop and Portable Repairs Extery Handling Drives Matrix Self-Ace Service News	Apple Hardware Test View Error Codes Apple Service Diagno Burning ASD to Di Read Me User Guide ASD Test Results O Blank Board Serializer View BBS Readme	stic (Dual Boot) 35116.dmg sc Duide		2007-08-14 19:19
Podcasts Regional Links	AppleCare Service Source			
Regional Links Service Certifications GSX	Search Support Site: Q	Search Support Search		

Generally, it is more efficient to use the serial number for access to service manuals or diagnostics.

AppleCare Service Source Recap

So far, we have only looked at some of the basic features of AppleCare Service Source. The Course Exercise will enable you to practice locating and using this useful reference.

Next: Knowledge Base Overview

Knowledge Base Overview

- <u>Overview</u>
- <u>Accessing Knowledge Base</u>
- Levels of Access
- <u>Using Knowledge Base</u>
- <u>Using Knowledge Base for Troubleshooting Information</u>

Overview

Knowledge Base is a searchable database containing tens of thousands of articles on support and service issues.

So far, you have seen a number of resources that are located or accessed via Apple's Knowledge Base.

In addition, you have been introduced to Knowledge Base access points from the public Apple Support site, the GSX home page, and the AppleCare Service Source home page.

This emphasizes the importance of understanding the strengths and limitations of the Knowledge Base resource.

Accessing Knowledge Base

Besides access from Apple Support, GSX, and Service Source, you can find the Apple Knowledge Base at this URL:

http://search.info.apple.com

Levels of Access

Technicians at Apple-Authorized service facilities and users of AppleCare Technician Training have what is called "extended" access to Knowledge Base. This means that they can see Knowledge Base articles that the general public cannot see.

An example of this access is Knowledge Base article #50078 (Japanese version) "About CRT Safety". This article reviews the necessary precautions for working around CRTs. It is not available to the general public.

Anyone who accesses Knowledge Base via GSX, Service Source, or AppleCare Technician Training sign in can view the article.

A member of the public coming to Knowledge Base via the Apple Support site would not be able to view it.

Using Knowledge Base

Using Knowledge Base is straight forward. You use the same type of search terms you would use for a conventional search engine.

Details on getting the most out of Knowledge Base are included in Knowledge Base Search Help. This is found at the following URL:

http://www.apple.com/support/help/search/

Using Knowledge Base for Troubleshooting Information

Normally, Knowledge Base is not the first place to look for troubleshooting assistance. This is the case because you need to have a clear idea of what you are looking for before you start doing searches.

Novice troubleshooters will often get lost in Knowledge Base because they do very wide searches and have to wade through hundreds of articles to find relevant information.

Normally, you get better results by staying current with Service News, reviewing new service manuals as they are released, and having a good idea of the product-specific issues outlined in the Apple Support site. All of these resources have found relevant materials that might take you some time to locate.

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