

ATLAS Apple Technical Learning Administration System

Emily Nahmanson

Repairing All Macs [Close icon]



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Repairing all Macs

Introduction



Course Description

The Repairing all Macs course describes service and support considerations for the Mac computer family.

This course is part of the ACMT 2016 curriculum and is used to prepare for the Mac Service Certification Exam (MAC-16A).



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Repairing all Macs

Overview

Lesson Objectives

After completing this course, you should be able to:

- Identify the tools that are commonly used to service all Mac models.
- Describe the purpose of specified diagnostic tools.
- Given a simulated workstation, identify the supplies that are necessary to reduce the possibility of damaging the customer's Mac while servicing the computer.
- Given a simulated workstation, identify the supplies that are necessary to reduce the possibility of being harmed while servicing Mac models.
- Identify the online resources necessary to ensure proper and safe servicing of a Mac model.
- Identify good and poor documentation of issue and service.
- Identify the steps to take to ensure that a Mac service is completely correctly and completely.
- Correctly answer a set of knowledge-based questions about servicing Mac models.

Audience	Prerequisites	Time Required	You will need...
 Service Technicians	 Successful completion of the Apple Service Fundamentals exam	 2 hours	 No additional materials or equipment are required



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Tool Basics



What happens when you use an incorrect tool?

You may be attempting to quickly repair a device. However, the time saved by using a readily available tool, rather than the correct tool, can end up taking more time in the long run. Incorrect tools can affect successful resolution, resulting in a repeat repair. Haste may cause stripped or missing screws, bent pins, or damaged parts which take time to resolve.

Repairs can also be more costly when the incorrect tools are used. If a part is damaged due to incorrect tool usage, additional parts must be ordered to resolve the issue. This also adds additional turnaround time to the repair. Ultimately, the customer experience can suffer when incorrect tools are used.



Doing It Right

To successfully and correctly complete repairs, follow these steps:

- Review Service Guide documentation and relevant take-apart videos before attempting a new procedure.
- Identify, and have available, the correct tools described in the Service Guide or video.
- Avoid using incorrect tools.
- Keep careful track of screws and other small parts to avoid using the wrong screw in the wrong place.
- Do not overtighten screws—most service guides call for "finger tight."
- If a procedure involves removing multiple parts, be sure to have sufficient static bags for part storage and a means of keeping track of the screws or other small parts you remove.



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Tool Basics

Standard Screwdrivers


The following tools are available from a number of hardware stores and tool manufacturers:


- 
Phillips Screwdrivers
 - Phillips #000 screwdriver
 - Phillips #00 screwdriver
 - Phillips #0 screwdriver
 - Phillips #1 screwdriver
 - Phillips #2 screwdriver
 - Long-handled magnetic Phillips #1 screwdriver
 - Long-handled magnetic Phillips #2 screwdriver
 - Short-handled magnetic Phillips screwdriver (stubby)


- 
TORX Screwdrivers
 - T3 Screwdriver
 - T4 Screwdriver
 - T5 Screwdriver
 - T6 Screwdriver
 - T8 Screwdriver
 - T8 security bit
 - T10 Screwdriver
 - T10 ball-end bit
 - T15 Screwdriver
 - T25 Screwdriver

- 
Nut Drivers
 - 5/32-inch nut driver
 - 9/32-inch nut driver
 - 1/4-inch nut driver
 - 2 mm hex nut driver
 - 4 mm hex nut driver
 - 5 mm hex nut driver
 - 14 mm hex nut driver
 - Handle for nut driver (if needed)

A nut driver may be required when working on six-sided bolts.

- 
Hex Drivers
 - 2.5 mm hex driver with a 10-inch shaft
 - Short-handled or right-handed magnetized 2.5 mm hex screwdriver
 - Set of metric hex keys including 1.5 mm, 2 mm, 2.5 mm

- 
Slotted Screwdriver
 - Flat-blade jeweler's screwdriver
 - Flat-blade screwdriver

- 
Magnetizer

This tool magnetizes screwdrivers and other tools. It also allows for the demagnetization of tools in situations where a magnetized tool may harm components

To magnetize, insert a tool into the positive (+) opening and slide back and forth. To demagnetize, insert a tool into the negative (-) opening and slide back and forth.

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Tool Basics

Identifying the Correct Screwdriver

Screwdrivers are identified from each other based on their physical characteristics and what type of screw they drive.

- A - Tip
- B - Blade
- C - Shaft
- D - Handle
- E - Palm/Finger Rotation Cup (Jewelers Type only)

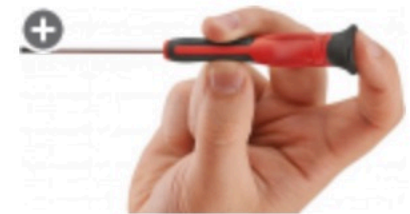


Torque screwdrivers and Jewelers screwdrivers

A torque screwdriver is a screwdriver with components that ensure tightening to a specific value, and will not allow over tightening.



Follow the Service Guide instructions closely when required to set torque settings on adjustable torque screwdrivers.



A jewelers screwdriver is a screwdriver with a rotating cup at the end of the handle, which allows the handle to spin free when held firmly in the palm or with a fingertip.

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Use the size and length numbers on the handle to determine the correct screwdriver size.

For the examples below look to the left of the company logo. The first number will be the tip size of the the driver, the second number is the length of the shaft.



This phillips screwdriver has a tip size of PH1 and the length of the shaft is 60 mm.



This torx screwdriver has a tip size of T10 and the length of the shaft is 50 mm.



This hex nut driver has a size of 5 mm and the length of the shaft is 60 mm.



This hex screwdriver has a tip size of 3 mm and the length of the shaft is 60 mm.



This ball hex screwdriver has a tip size of 3 mm and the length of the shaft is 60 mm.



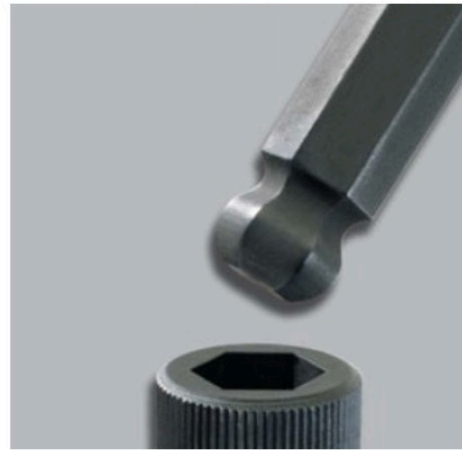
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Tool Basics

Examples (cont.)



A hex bit or screwdriver with ball head type allows screws to be removed at an angle.

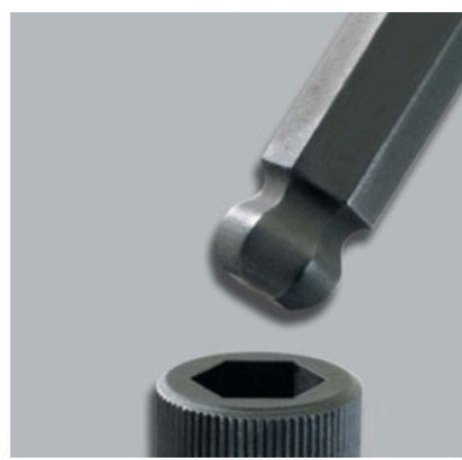
Hex screws can also be removed with allen wrenches which typically come in kits labeled with the size of the hex. This kit contains 10 - 1.5 mm.





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A hex bit or screwdriver with ball head type allows screws to be removed at an angle.

Hex screws can also be removed with allen wrenches which typically come in kits labeled with the size of the hex. This kit contains 10 - 1.5 mm.



This slotted or flat-head screwdriver has a tip size of 3 and the length of the shaft is 50 mm.





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Tool Basics

Miscellaneous Required Tools

This combined tool list contains the tools listed in the service manuals for most recent Apple portable and desktop computers:

- Alcohol wipes
- Apple USB keyboard and mouse
- ESD Safe Cleaning brush
- ESD Safe tweezers
- Dental pick (with up to ninety-degree bend)
- Double-stick tape
- ESD-safe screw box with multiple compartments
- Fine-point felt-tip permanent marker
- Flashlight
- Glue sticks
- Hot melt glue gun
- Metal paper clip
- Multimeter or Voltmeter
- Needle-point metal probe
- Needlenose pliers (small, medium)
- Ruler or straight edge
- Small low-power magnet
- Small mirror
- Small wire cutter
- Soft, lint-free cloth
- Standard #2 graphite pencil
- Standard size CD or DVD disc
- Xacto® Knife or razor blade



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Multimeter or Voltmeter



A multimeter or a multimeter, also known as a voltmeter, is an electronic measuring instrument that combines several measurement functions in one unit. A typical multimeter would include basic features such as the ability to measure voltage, current, and resistance. Each manufacturer may have different setup and usage instructions, check the manufacturer's website for detailed instructions. When repairing Macs, multimeters are typically used to measure logic board battery voltage and checking connectivity of fuses using the meter's ohms setting.

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Specialized Tools

In addition to the generally available hand tools, some Mac products require special screwdrivers, fixtures, or other tools. These special tools are available from Apple and are only sold to Authorized Service Providers. Descriptions of such tools are found on the following pages and in the training courses for specific Mac models.





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NAME	DETAILS
<p>Kit, Tools, Display Cleaning, Starter Kit</p> 	<p>Part Number: 076-1277 Used to clean and remove display</p> <p>Notes: Kits includes:</p> <ul style="list-style-type: none"> ▪ Suction cups (quantity 2) ▪ Anti-static lint-free gloves ▪ Lint-Free Microfiber Polishing Cloth ▪ Six-Inch Silicone Roller ▪ Sticky Sheets (pack of 50) ▪ Five ESD Bags (24x20) ▪ Five Microfoam bags (24x20) <p>Use with: iMac (21.5-inch, Late 2009 – Late 2011) iMac (27-inch, Late 2009 – Mid 2011) LED Cinema Display (27-inch), Thunderbolt Display (27-inch)</p>
<p>Roller, Silicon, 6-inch</p> 	<p>Part Number: 922-8261 Used to clean lint from display glass and LCD</p> <p>Notes: Part of Cleaning Tools Starter Kit 076-1277</p> <p>Use with: iMac (21.5-inch, Late 2009 – Mid 2014) iMac (27-inch, Late 2009 – Mid 2015) LED Cinema Display (27-inch) Thunderbolt Display (27-inch)</p>

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Pad, Sticky Sheets, Pack of 50 sheets



Part Number: 922-8262
Preparation of the silicon roller before cleaning display glass and LCD.

Notes:
These sticky pads are for cleaning the silicone roller (922-8261). Part of Cleaning Tools Starter Kit 076-1277.

Use with:
iMac (21.5-inch, Late 2009 – Mid 2014)
iMac (27-inch, Late 2009 – Mid 2015)
LED Cinema Display (27-inch), Thunderbolt Display (27-inch)

Suction Cups, Pkg. of 2



Part Number: 922-8252
Removal of glass panel

Notes:
Part of iMac Cleaning Tools Starter Kit 076-1277.

Use with:
iMac (21.5-inch, Late 2009 – Late 2011)
iMac (27-inch, Late 2009 – Mid 2011)
LED Cinema Display (27-inch)
Thunderbolt Display (27-inch)

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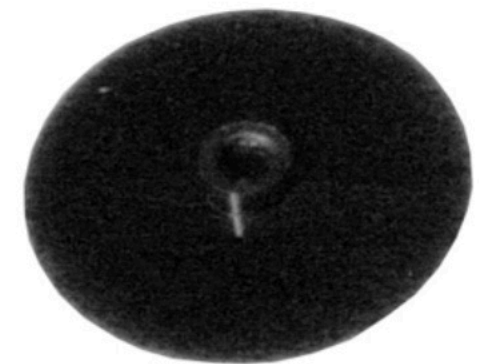


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Kit, 20-count, Display Removal Wheel, iMac (Late 2012) or later



Part Number: 076-1417
Removing Display from housing by cutting VHB.

Use with:
iMac (21.5-inch, Late 2012 – Mid 2014)
iMac (27-inch, Late 2012 – Mid 2015)

Stand, Corrugated, Service Repair, iMac



Part Number: 923-0416
Supporting display for VESA mount models or for display cable testing.

Use with:
iMac (21.5-inch, Late 2012 – Mid 2014)
iMac (27-inch, Late 2012 – Mid 2015)

Part Number: 076-1444

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Kit, Display Starter, iMac, LCD Panel



Part Number: 076-1444

Display removal kit with replacement VHB strips.

Notes:

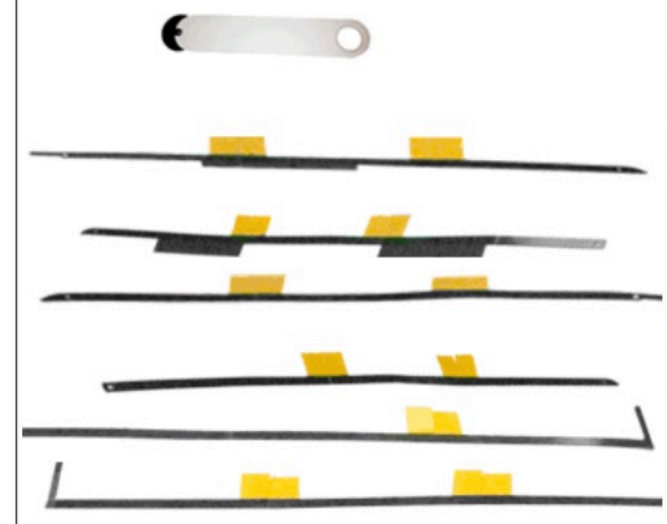
Kit includes:

- Service, Stand Locking Wedge, iMac (quantity 1)
- Very High Bond (VHB) adhesive strip 6-piece set for iMac (27-inch, Late 2012 and Late 2013) (quantity 4)
- Very High Bond (VHB) adhesive strip 6-piece set for iMac (21.5-inch, Late 2012, Early 2013, Late 2013, Mid 2014) (quantity 4)
- Display Removal Wheel (quantity 8)
- Handle, Display Removal Tool, iMac (quantity 1)

Use with:

iMac (21.5-inch, Late 2012 – Mid 2014)
iMac (27-inch, Late 2012 – Mid 2015)

Display refill kit, iMac (21.5-inch Late 2012, Early 2013, Late 2013, Mid 2014)



Part Number: 076-1437

Refill kit for display removal. Has additional cutting wheels and VHB.

Notes:

Kit includes:

- Very High Bond (VHB) adhesive strip 6-piece set (quantity 20)
- Display Removal Wheel (quantity 20)
- Handle, Display Removal Tool, iMac (quantity 1)

Use with:

iMac (21.5-inch, Late 2012 – Mid 2014)

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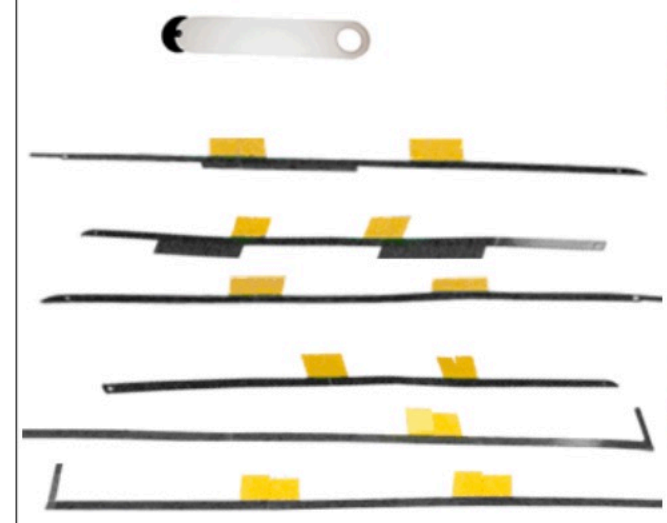


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Display refill kit, iMac (27-inch, Late 2012 and Late 2013)



Part Number: 076-1419
Refill kit for display removal. Has additional cutting wheels and VHB.

Notes:

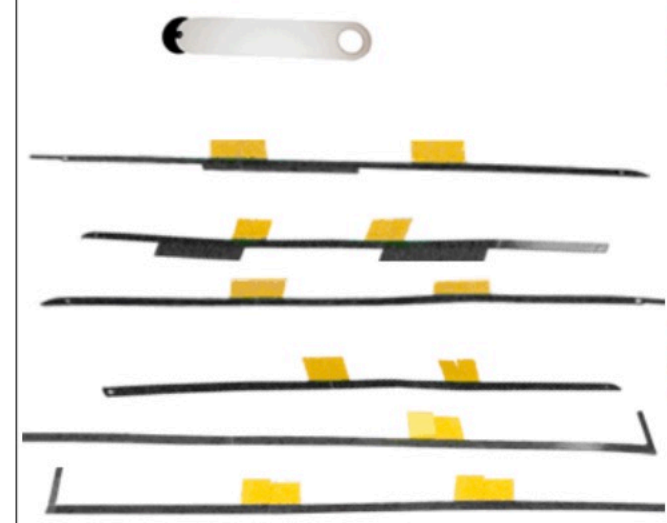
Kit includes:

- Very High Bond (VHB) adhesive strip 6-piece set (quantity 20)
- Display Removal Wheel (quantity 20)
- Handle, Display Removal Tool, iMac (quantity 1)

Use with:

iMac (27-inch, Late 2012 – Late 2013)

Kit, LCD, Service Refill, iMac (Retina 5K, 27-inch, Late 2014)



Part Number: 076-00009

Refill kit for display removal. Has additional cutting wheels and VHB.

Notes:

Kit includes:

- Very High Bond (VHB) adhesive strip 6-piece set (quantity 20)
- Display Removal Wheel (quantity 20)
- Handle, Display Removal Tool, iMac (quantity 1)

Use with:

iMac (27-inch, Late 2014 – Mid 2015)

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Kit, Display Extension Cable Set, iMac (21.5-inch)

Part Number: 076-1428
For display troubleshooting

Notes:
Kit includes:

- Cable, Display Substitution, iMac (21.5-inch)
- Cable, Backlight Extension, iMac (21.5-inch)
- Cable, Display Extension, iMac (21.5-inch)

The following parts must also be ordered to correctly use this extension cable kit:

- 923-0189 Power supply protective covers
- 923-0416 LCD service support stand

Use with:
iMac (21.5-inch, Late 2012 – Mid 2014)

Kit, Display Extension Cable Set, iMac (27-inch)

Part Number: 076-1431
For display troubleshooting

Notes:
Kit includes:

- Cable, Display Substitution, iMac (27-inch)
- Cable, Backlight Extension, iMac (27-inch)
- Cable, Display Extension, iMac (27-inch)

The following parts must also be ordered to correctly use this extension cable kit:

- 923-0189 Power supply protective covers
- 923-0416 LCD service support stand

Use with:
iMac (27-inch, Late 2012 – Late 2011)

Part Number: 076-00010

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Kit, Display Extension Cable Set, iMac (Retina 5K, 27-inch, Late 2014)



Part Number: 070-00010
For display troubleshooting

Notes:

Kit includes:

- Cable, Display Substitution, iMac (Retina 5K, 27-inch, Late 2014)
- Cable, Backlight Extension, iMac (Retina 5K, 27-inch, Late 2014)
- Cable, Display Extension, iMac (Retina 5K, 27-inch, Late 2014)

The following parts must also be ordered to correctly use this extension cable kit:

- 923-0189 Power supply protective covers
- 923-0416 LCD service support stand

Use with:

iMac (27-inch, Late 2014 – Mid 2015)

Nylon Probe Tool (Black Stick)



Part Numbers:

- x4 922-5065
- x24 922-9004
- x96 922-9005

Working with cables and connectors.

Notes:

This tool is ESD-compliant and extremely useful when removing delicate components or working with small cabling.

Use with:



Various products

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various products	
<p>Tool, Access Card</p> 	<p>Part Number: 922-7172 Activating VESA mount lock.</p> <p>Notes: Sometimes used with 922-7849.</p> <p>Use with: iMac (27-inch, Late 2009 – Mid 2011) LED Cinema Display (27-inch) Thunderbolt Display (27-inch)</p>
<p>Tool, Bale Retrieval</p> 	<p>Part Number: 922-7849 Retrieving the clutch bale when reinstalling display stand.</p> <p>Notes: Also known as "clutch mechanism retrieval tool". Used with 922-7172.</p> <p>Use with: iMac (27-inch, Late 2009 – Mid 2011) LED Cinema Display (27-inch) Thunderbolt Display (27-inch)</p>

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Temperature Probe Tool



Part Number: 922-9911
Testing ambient air temperature.

Notes:
This USB temperature probe measures ambient used with the extended Video System Test (VS) Service Toolkit (AST).

Use with:
iMac (27-inch, Late 2009 – Mid 2011)

Pentalobe Driver, VESA, iMac



Part Number: 923-0367
Removing screws from VESA mount adapter.

Use with:
iMac (21.5-inch, Late 2012 – Mid 2014)
iMac (27-inch, Late 2012 – Mid 2015)

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Tape, Kapton, 0.5 inch by 36 yards



Part Number: 922-1731
Replacement of existing ESD compliant tape if necessary.

Notes:
This tape is ESD compliant.

Use with:
Various products

Gloves, Anti-static, Lint Free, One Pair



Part Number: 922-8253
Handling of Glass panel and LCD.

Notes:
Part of Cleaning Tools Starter Kit 076-1277.

Use with:
iMac (21.5-inch, Late 2009 – Late 2011)
iMac (27-inch, Late 2009 – Mid 2011)
LED Cinema Display (24-inch)
LED Cinema Display (27-inch)
Thunderbolt Display (27-inch)

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Cloth, Polishing, Micro-Terry, 14x16, Pkg. of 5

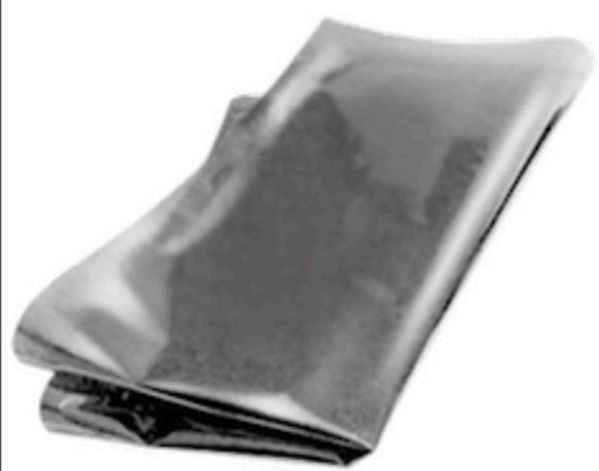


Part Number: 922-8263
 Cleaning of externals.

Notes:
 Part of Cleaning Tools Starter Kit 076-1277.

Use with:
 Various products

Bag, ESD, 24x30, Pkg. of 5



Part Number: 922-9468
 Storing LCD Panels (these bags are very large).

Notes:
 These bags are ESD safe and ESD shielded.

Use with:
 iMac (27-inch, Late 2009 – Mid 2015)

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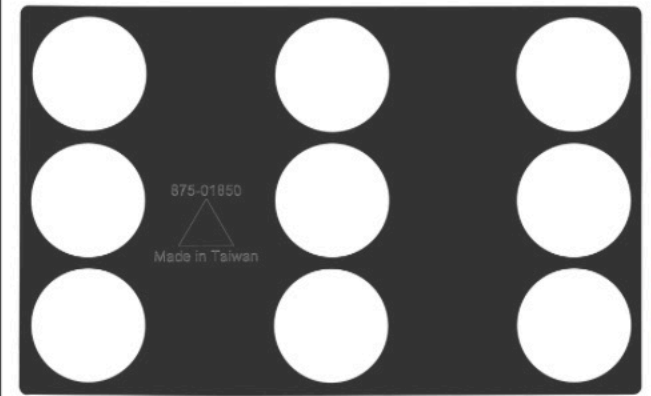


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Specialized Tools

Portables

NAME	DETAILS
MacBook (Retina, 12-inch, Early 2015) Service Stand 	<p>Part Number: 076-00068 Holding Display Module to allow for cable disconnection.</p> <p>Use with: MacBook (Retina, 12-inch, Early 2015)</p>
Weight Placement Rubber Template 	<p>Part Number: 923-00555 Allows for precision placement of the Trackpad Calibration weights.</p> <p>Notes: Each product requires a specific template.</p> <p>Use with: MacBook (Retina, 12-inch, Early 2015)</p>

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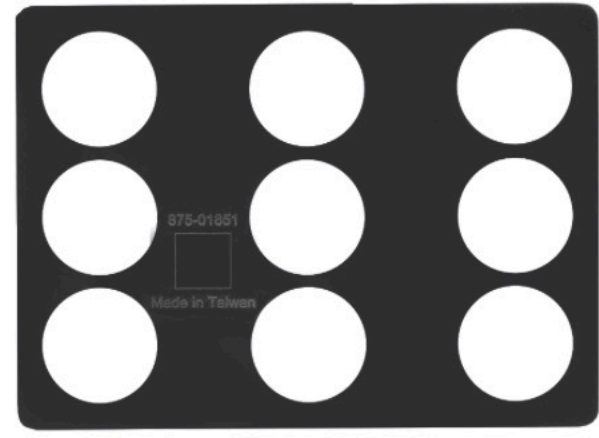
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Weight Placement Rubber Template



Part Number: 923-00599

Allows for precision placement of the Trackpad Calibration weights.

Notes:

Each product requires a specific template.

Use with:

- MacBook Pro (Retina, 13-inch, Early 2015)
- MacBook Pro (Retina, 15-inch, Mid 2015)

Nylon Probe Tool (Black Stick)



Part Numbers:

- x4 922-5065
- x24 922-9004
- x96 922-9005

Working with cables and connectors.

Notes:

This tool is ESD-compliant and extremely useful when removing delicate components or working with small cabling and connectors.

Use with:

Various products

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Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✓
Overview	✓
Tool Basics	✓
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶

Trackpad Calibration Weights



Part Number: 923-00462
Used with AST 2 and a template to calibrate the trackpad.

Use with:
MacBook (Retina, 12-inch, Early 2015)
MacBook Pro (Retina, 13-inch, Early 2015)
MacBook Pro (Retina, 15-inch, Mid 2015)

Cotton gloves, 6 Pair



Part Number: 922-1592
Keeping products clean and scratch free.

Notes:
Cotton gloves for product handling.

Use with:
Various products

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Progress: |||||

Repairing All Macs

- Introduction
- Overview
- Tool Basics
- Specialized Tools
- ESD-Safe Workstation
- Safety Supplies
- AST and AST 2

Motorola® Symbol DS4208 Handheld 2D Imager Barcode Scanner



Part Number: 923-0445
Scanning barcodes.

Notes:
Use this handheld barcode scanner to scan and enter barcodes on mar Apple products. This model replaces 922-9230.

Use with:
Various products

Tool, #00 Tri-Lobe Driver, D3LU00



Part Number: 922-9013
Specialized screwdriver.

Use with:
MacBook (Retina, 12-inch, Early 2015)

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Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✔
Overview	✔
Tool Basics	✔
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶

Tool, #0 Tri-Lobe Driver, D3LU0



Part number: 922-8991
Specialized screwdriver.

Use with:
MacBook Pro (13-inch, Mid 2009 – Mid 2012)
MacBook Pro (15-inch, Mid 2010 – Mid 2012)

Pentalobe Screwdriver



Part number: 923-0731
Specialized screwdriver.

Notes:
This screwdriver replaces the Pentalobe screwdriver that was previously included with the MacBook Air and MacBook Pro Battery cover kits. Battery cover kits no longer include a Pentalobe screwdriver.

Use with:
MacBook (Retina, 12-inch, Early 2015)
MacBook Air (11-inch, Late 2010 – Early 2015)
MacBook Air (13-inch, Late 2010 – Early 2015)
MacBook Pro (13-inch, Late 2012 – Early 2015)
MacBook Pro (15-inch, Mid 2012 – Mid 2015)

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Progress: |||||

Repairing All Macs	
Introduction	☑
Overview	☑
Tool Basics	☑
Specialized Tools	➔
ESD-Safe Workstation	➔
Safety Supplies	➔
AST and AST 2	➔

Tape, Kapton, 0.5 inch by 36 yards

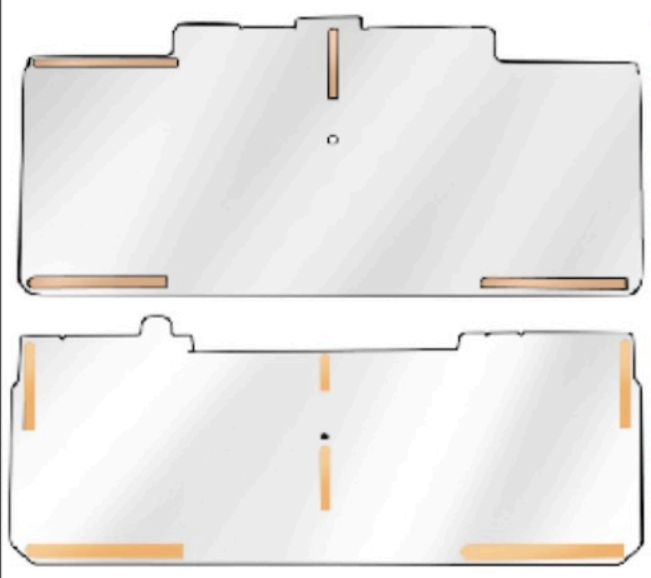


Part Number: 922-1731
Replacement of existing ESD compliant tape if necessary.

Notes:
This tape is ESD compliant.

Use with:
Various products

Kit, Battery Cover



Part number: 076-1372
Protecting the battery during service.

Notes:
Kit includes:

- Battery covers for MacBook Air (11-inch), (quantity 2)
- Battery covers for MacBook Air (13-inch), (quantity 2)

Use with:
MacBook Air (11-inch, Late 2010 – Early 2015)
MacBook Air (13-inch, Late 2010 – Early 2015)

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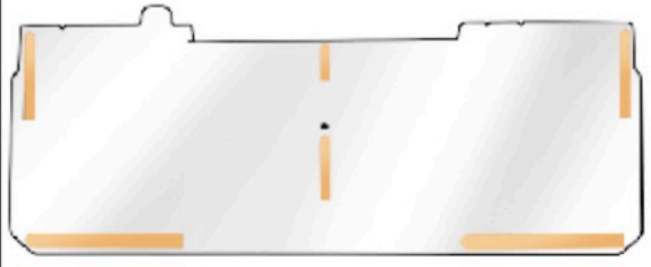
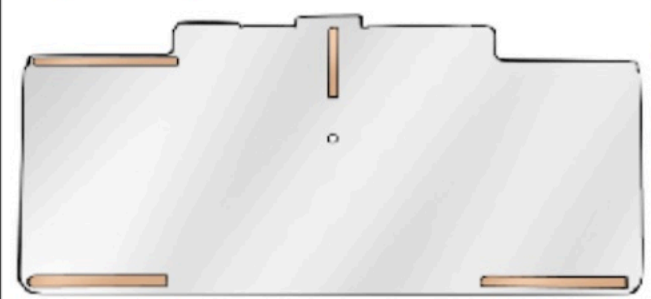


Progress: |||||

Repairing All Macs

- Introduction ✔
- Overview ✔
- Tool Basics ✔
- Specialized Tools ▶
- ESD-Safe Workstation ▶
- Safety Supplies ▶
- AST and AST 2 ▶

Kit, Battery Cover



Part number: 076-1372
Protecting the battery during service.

- Notes:**
Kit includes:
- Battery covers for MacBook Air (11-inch), (quantity 2)
 - Battery covers for MacBook Air (13-inch), (quantity 2)

Use with:
MacBook Air (11-inch, Late 2010 – Early 2015)
MacBook Air (13-inch, Late 2010 – Early 2015)

Kit, Battery Cover (incl. ESD-safe interposer tweezers)



Part number: 076-1411
Removing interposer and protecting the battery during service.

- Notes:**
Kit includes:
- Non-conductive, ESD-safe interposer tweezers
 - Battery covers for MacBook Pro (13-inch, Late 2012), (quantity 2)
 - Battery covers for MacBook Pro (13-inch, Early 2013), (quantity 2)

Use with:
MacBook Pro (13-inch, Late 2012 – Early 2015)

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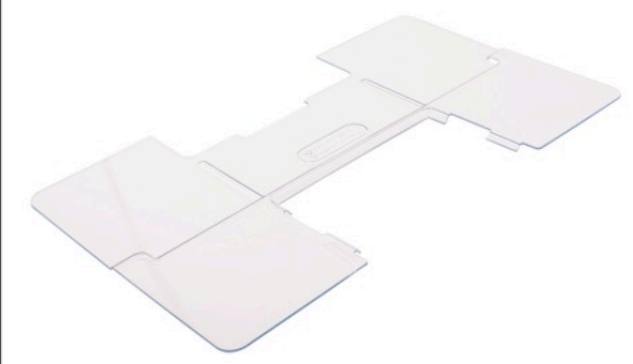
Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✔
Overview	✔
Tool Basics	✔
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶

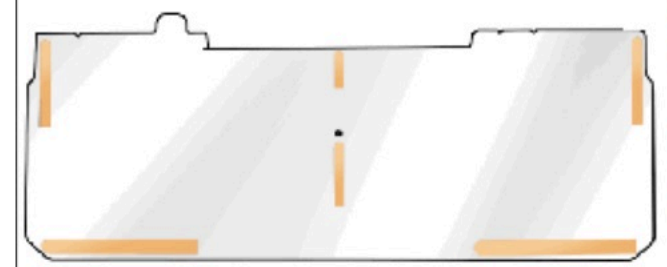
Cover, Battery



Part number: 076-00067
Protecting the battery during service.

Use with:
MacBook (Retina, 12-inch, Early 2015)

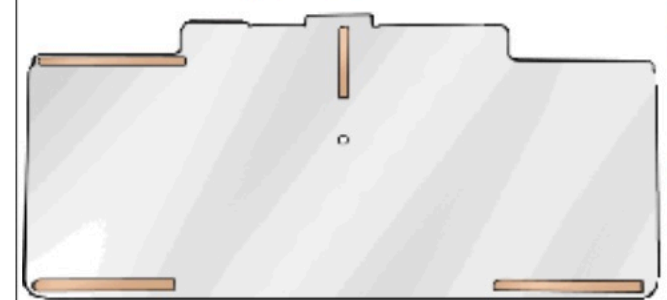
Cover, Battery



Part number: 922-9736
Protecting the battery during service.

Use with:
MacBook Air (11-inch, Late 2010-Early 2015)




Cover, Battery, Pkg. of 2



Part number: 922-9735
Protecting the battery during service.

Use with:
MacBook Air (13-inch, Late 2010-Early 2015)

- ESD-Safe workstation
- Safety Supplies
- AST and AST 2
- Global Service Exchange (GSX)
- Service Guides
- Documenting Issues
- Verifying the Repair
- Cleaning the Mac
- Quiz
- Summary
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<p>Cover, Battery, Pkg. of 2</p> 	<p>Part number: 923-0230 Protecting the battery during service.</p> <p>Use with: MacBook Pro (13-inch, Late 2012-Early 2013)</p>
<p>Cover, Battery, Pkg. of 2</p> 	<p>Part number: 923-0705 Protecting the battery during service.</p> <p>Use with: MacBook Pro (13-inch, Late 2013-Early 2015)</p>
<p>Cover, Battery, Pkg. of 2</p> 	<p>Part number: 923-0089 Protecting the battery during service.</p> <p>Use with: MacBook Pro (15-inch, Mid-2012-Early 2013)</p>
<p>Cover, Battery, Pkg. of 2</p>	<p>Part number: 923-0706 Protecting the battery during service.</p> <p>Use with: MacBook Pro (15-inch, Late 2013-Mid 2015)</p>

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Repairing All Macs ✕





Progress: |||||

Repairing All Macs	
Introduction	✓
Overview	✓
Tool Basics	✓
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶
Global Service Exchange (GSX)	▶
Service Guides	▶
Documenting Issues	▶

Repairing all Macs

Specialized Tools

Mac mini

NAME	DETAILS
Suction Cups, Pkg. of 2	 <p>Part Number: 922-8252 Removing bottom cover.</p> <p>Notes: Part of iMac Cleaning Tools Starter Kit 076-1277.</p> <p>Use with: Mac mini (Late 2014)</p>
Logic Board Removal Tool	 <p>Part number: 922-9588 Removing logic board.</p> <p>Use with: Mac mini (Late 2014)</p>

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Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✔
Overview	✔
Tool Basics	✔
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶

Torx T6 Security Bit



Part number: 923-00304
Remove six T6 antenna plate screws.

Notes:
This bit is used with torque driver 923-00308.

Use with:
Mac mini (Late 2014)

Adjustable torque driver (0.3-1.2 Nm)



Part number: 923-0735
Used for screws that require torque setting.

Notes:
This tool is calibrated in SI Metric units of Nm.

Use with:
Mac mini (Late 2014)

Torque driver (preset to 2.0 in.-lbs.)



Part number: 923-00308
Used for screws that require torque setting.

Notes:
This tool is calibrated in SAE units of in.-lbs.

Use with:
Mac mini (Late 2014)

- Tool Basics
- Specialized Tools**
- ESD-Safe Workstation
- Safety Supplies
- AST and AST 2
- Global Service Exchange (GSX)
- Service Guides
- Documenting Issues
- Verifying the Repair
- Cleaning the Mac
- Quiz
- Summary
- Course Evaluation

Nylon Probe Tool (Black Stick)



Part Numbers:

- x4 922-5065
- x24 922-9004
- x96 922-9005

Working with cables and connectors.

Notes:

This tool is ESD-compliant and extremely useful when removing delicate components or working with small cabling.

Use with:

Various products

Tape, Kapton, 0.5 inch by 36 yards



Part Number: 922-1731

Replacement of existing ESD compliant tape if necessary.

Notes:

This tape is ESD compliant.

Use with:

Various products

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Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✔
Overview	✔
Tool Basics	✔
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶

Mac Pro

NAME	DETAILS
Suction Cups, Pkg. of 2 	<p>Part Number: 922-8252 Roof replacement.</p> <p>Notes: Part of iMac Cleaning Tools Starter Kit 076-1277.</p> <p>Use with: Mac Pro (Late 2013)</p>
Torx T8 Security Bit 	<p>Part number: 923-0734 Used with torque driver for T8 screws.</p> <p>Use with: Mac Pro (Late 2013)</p>

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Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✔
Overview	✔
Tool Basics	✔
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶

Nylon Probe Tool (Black Stick)



Part Numbers:

- x4 922-5065
- x24 922-9004
- x96 922-9005

Working with cables and connectors.

Notes:

This tool is ESD-compliant and extremely useful when removing delicate components or working with small cabling.

Use with:

Various products

Tape, Kapton, 0.5 inch by 36 yards



Part Number: 922-1731

Replacement of existing ESD compliant tape if necessary.

Notes:

This tape is ESD compliant.

Use with:

Various products

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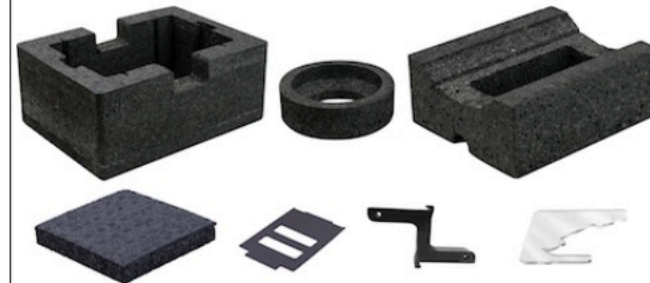
Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✔
Overview	✔
Tool Basics	✔
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶

Kit, Mac Pro (Late 2013) Service Fixture Starter



Part number: 076-1455
Required for various repairs.

Notes:

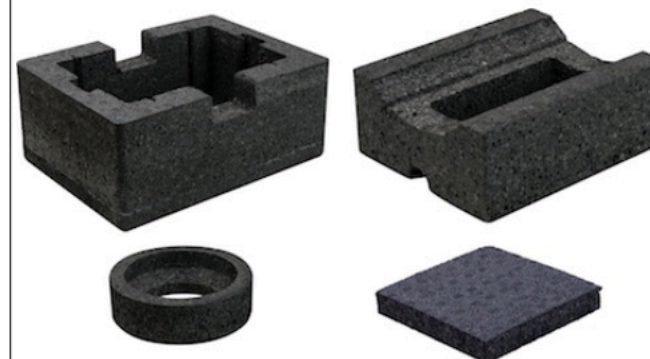
Kit includes:

- I/O Wall Stand
- Roof Alignment Fixture
- Core Cradle
- Foam Block
- CPU Riser Cover
- Mezzanine Connector Removal Tool (also available separately as 076 1458)
- Core End Caps

Use with:

Mac Pro (Late 2013)

Kit, Mac Pro (Late 2013) Fixture Foam



Part number: 076-1456
Required for various repairs.

Notes:

Kit includes:

- I/O Wall Stand
- Roof Alignment Fixture
- Core Cradle
- Foam Block

Use with:

Mac Pro (Late 2013)

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Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✔
Overview	✔
Tool Basics	✔
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶

CPU Riser Spring Press



Part number: 076-1459
CPU riser card repairs.

Notes:
076-1455 Mac Pro Service Starter kit is required to use this too.

Use with:
Mac Pro (Late 2013)

Tool, Mezzanine Connector Removal



Part number: 076-1458
Disconnecting cables which use the mezzanine style connector.

Use with:
Mac Pro (Late 2013)

Tool, Access Card

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Repairing All Macs ✕



Progress: ■■■■■■■■■■

Repairing All Macs	
Introduction	✔
Overview	✔
Tool Basics	✔
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶



USE WITH:
Mac Pro (Late 2013)

Tool, Access Card



Part Number: 922-7172
Used with stencils to spread thermal grease on GPU or CPU die.

Use with:
Mac Pro (Late 2013)

Torx T10 ball-end bit



Part Number: 923-0733
Used for T10 screws that must be address at an angle.

Notes:
Shown with adjustable torque driver.

Use with:
Mac Pro (Late 2013)

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Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✔
Overview	✔
Tool Basics	✔
Specialized Tools	▶
ESD-Safe Workstation	▶
Safety Supplies	▶
AST and AST 2	▶

Torx T10 1/4 in. Hex, 50 mm bit



Part Number: 923-0740
T10 screws.

Use with:
Mac Pro (Late 2013)

Tool, 2.5 mm Hex Driver



Part Number: 922-8980

Use with:
Mac Pro (Late 2013)

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Repairing All Macs ✕



Progress: |||||

Repairing All Macs	
Introduction	✓
Overview	✓
Tool Basics	✓
Specialized Tools	➔
ESD-Safe Workstation	➔
Safety Supplies	➔
AST and AST 2	➔

Tool, 2.5 mm Hex Driver



Part Number: 922-8980

Use with:
Mac Pro (Late 2013)

Tool, 3 mm Flathead Hex Driver, with 8" Shaft

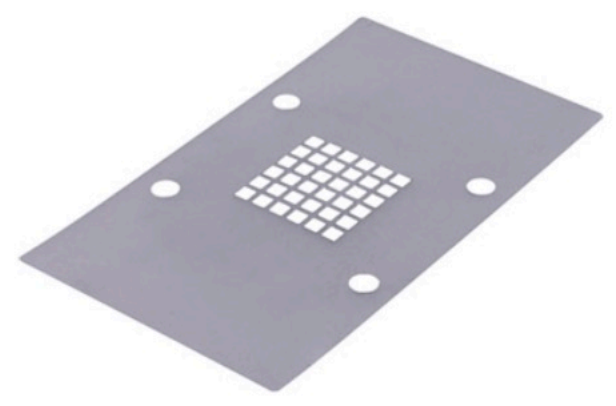


Part Number: 922-7122
Removing heatsink screws.

Use with:
Mac Pro (Mid 2012)

- Introduction
- Overview
- Tool Basics
- Specialized Tools**
- ESD-Safe Workstation
- Safety Supplies
- AST and AST 2
- Global Service Exchange (GSX)
- Service Guides
- Documenting Issues
- Verifying the Repair
- Cleaning the Mac
- Quiz
- Summary

CPU Grease Stencil, Pkg. of 5

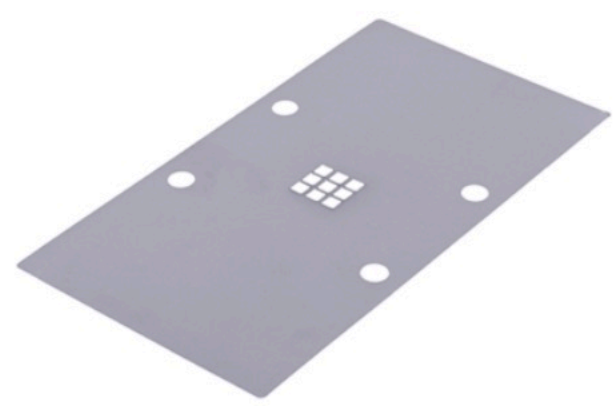


Part number: 076-1460
Used with access card to apply the proper amount of thermal grease.

Notes:
One of these stencils also comes with replacement service modules.

Use with:
Mac Pro (Late 2013)

GPU Grease Stencil, Pkg. of 5



Part number: 076-1461
Used with access card to apply the proper amount of thermal grease.

Notes:
One of these stencils also comes with replacement service modules.

Use with:
Mac Pro (Late 2013)

Thermal Grease Kit



Part number: 076-1225
CPU thermal grease.

Use with:
Mac Pro (Mid 2012)