

Agilent G6011A Quiet Cover MS

Service Manual



Agilent Technologies

Notices

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

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

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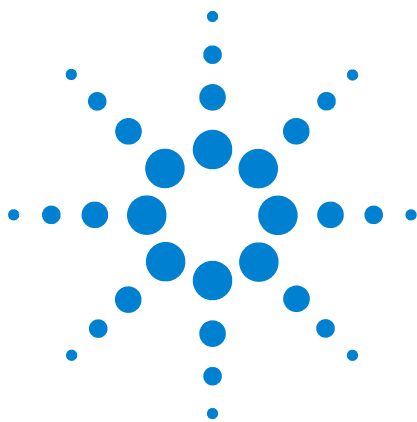
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1 Introduction

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This manual provides information for Agilent service representatives to support the Agilent G6011A Quiet Cover MS for Agilent LC/MS rough pumps. The procedures assume a trained service technician who is familiar with the safety hazards and requirements for working on the Quiet Cover.



Compatibility

Table 1 lists the rough pumps compatible with each Quiet Cover model.

Table 1 Quiet Cover compatibility

Model	Compatible rough pumps	Typical application
G6011A Quiet Cover MS	Agilent MS40+ Rotary-Vane Pump	Agilent: <ul style="list-style-type: none">• Electron microscopy instruments• Mass spectrometry instruments including LC-MS/ICP-MS, GC-TOF-MS• Other scientific instrumentation

Parts Identification

G6011A Quiet Cover MS

Figures 1 through 3 point out the main internal components of the G6011A Quiet Cover MS.

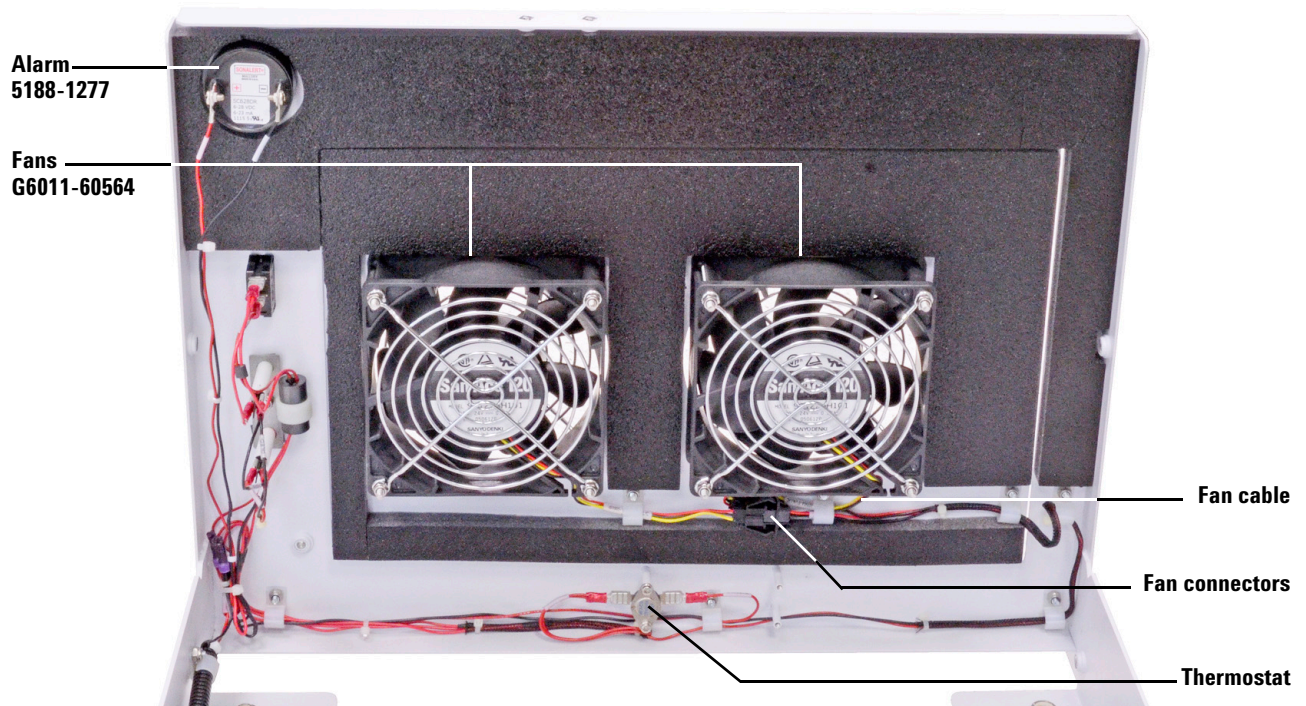


Figure 1 G6011A Quiet Cover MS (internal view of front panel/access door)

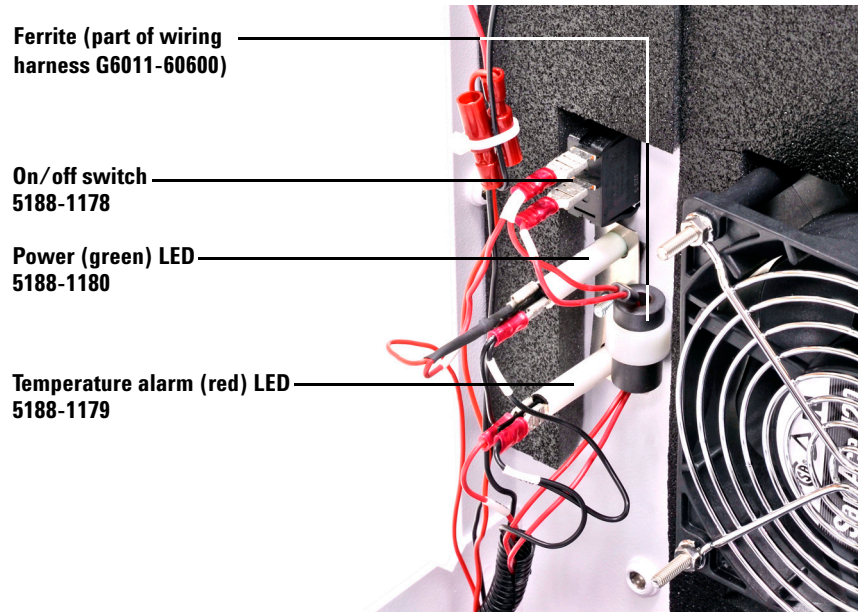


Figure 2 G6011A Quiet Cover MS (internal view of front panel/access door)

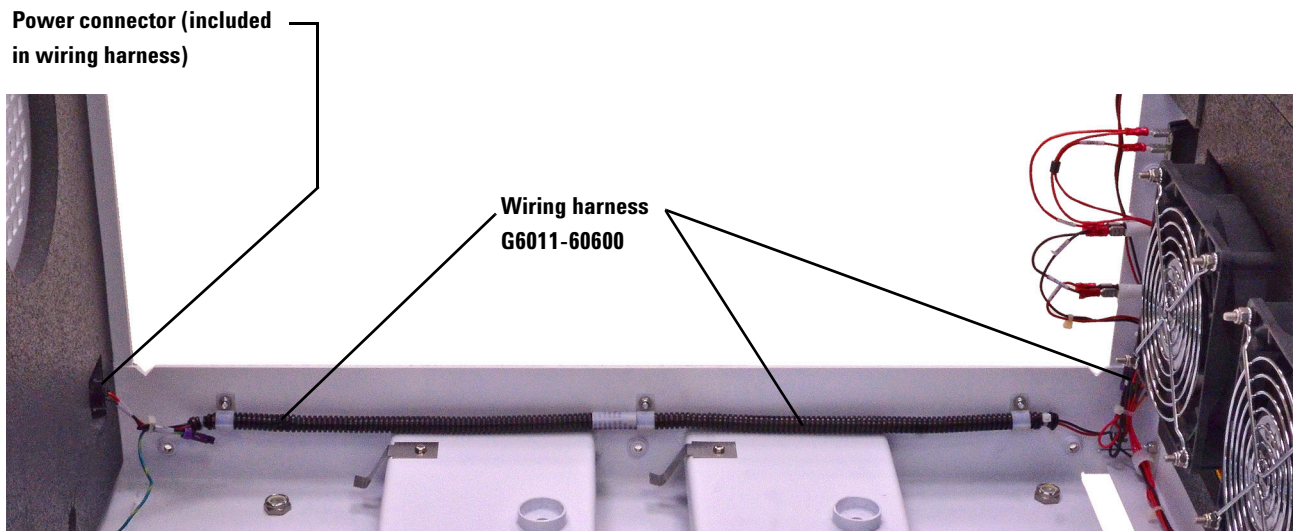



Figure 3 G6011A Quiet Cover MS (internal view showing wiring harness)

Safety Information

General Information

The Quiet Cover MS conforms to the International Electrotechnical Commission (IEC) 61010–1 safety standard.

It also conforms to the following regulations on Electromagnetic Compatibility (EMC) and Radio Frequency Interference (RFI):

- CISPR 11/EN 55011: Group 1, Class A
- IEC/EN 61326
- AUS/NZ 

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



The Quiet Cover MS is designed and manufactured under a quality system registered to ISO 9001.

Information

The Agilent Technologies Quiet Cover MS meets the following IEC classifications: Category II, Pollution Degree 2, Class III.

The Quiet Cover MS has been designed and tested in accordance with recognized safety standards and is designed for use indoors. If it is used in a manner not specified by the manufacturer, the protection provided by the instrument may be impaired. Whenever the safety protection of the Quiet Cover MS has been compromised, disconnect it from all power sources and secure it against unintended operation.






Refer servicing to qualified service personnel. Substituting parts or performing any unauthorized modification to the instrument may result in a safety hazard.

Symbols

Warnings in the manual or on the instrument must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions violates safety standards of design and the intended use of the instrument. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

Table 2 lists the safety symbols that may appear on the Quiet Cover MS.

Table 2 Safety symbols

Description	Symbol
See accompanying instructions for more information.	
Indicates a hot surface.	
Pinch hazard.	
Indicates earth (ground) terminal.	
Indicates that you must not discard this electrical/electronic product in domestic household waste.	

Important Safety Warnings

Safety cautions and warnings must be observed during all phases of operation, service, and repair of the Quiet Cover MS. Failure to comply with these precautions violates safety standards of design and the Quiet Cover MS’s intended use. Agilent Technologies assumes no liability for the customer’s failure to comply with these requirements.

WARNING

Never run the pump without also running the Quiet Cover MS.

CAUTION

While running the Quiet Cover MS:

- Do not block air flow to the fans.
- Do not set items on top of the Quiet Cover MS.
- It is important that the Quiet Cover MS not recirculate hot air. Always position the Quiet Cover MS so that it can cool air into the fan intakes.

CAUTION

Be sure to position the Quiet Cover MS so that there is plenty of room to allow access to panels and controls.

WARNING

In the event of a temperature alarm malfunction or if the alarm has been on for an extended period of time, the Quiet Cover MS and the pump may be dangerously hot. Check that the Quiet Cover MS and pump are cool before you touch them.

Electromagnetic compatibility

This device complies with the requirements of CISPR 11. Operation is subject to the following two conditions:

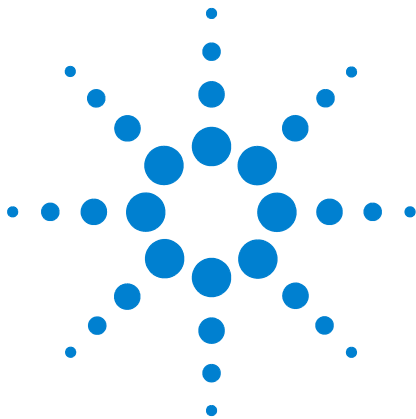
- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

- Relocate the radio or antenna.
- Move the device away from the radio or television.
- Plug the device into a different electrical outlet, so that the device and the radio or television are on separate electrical circuits.
- Make sure that all peripheral devices are also certified.
- Make sure that appropriate cables are used to connect the device to peripheral equipment.
- Consult your equipment dealer, Agilent Technologies, or an experienced technician for assistance.
- Changes or modifications not expressly approved by Agilent Technologies could void the user's authority to operate the equipment.

Sound emission declaration

- Sound pressure – $L_p < 70$ dB am according to EN 27779:1991.
- Schalldruckpegel – $LP < 70$ dB am nach EN 27779:1991.



2 Replacement Procedures

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This chapter contains the service procedures for repairing the Quiet Cover units.



Preparing the Quiet Cover MS for Repair

Before performing any replacement procedures on the Quiet Cover MS, prepare it for service as described below.

Required tools

- 5/16-inch open-end wrench

Procedure

- 1 Turn off and unplug the Quiet Cover MS.
- 2 Remove the two pump access panels by loosening the thumbscrews on the top and sides.
- 3 Remove the lid by loosening the four thumbscrews on each side.

WARNING

The pump:

- **May be hot. Use gloves when moving it or wait until it is cool.**
- **Is heavy. For your safety, a two-person lift is required. Failure to perform a two-person lift can result in injury.**

- 4 Remove the pump.
 - a Disconnect the power cord from the rough pump (see [Figure 4](#)).

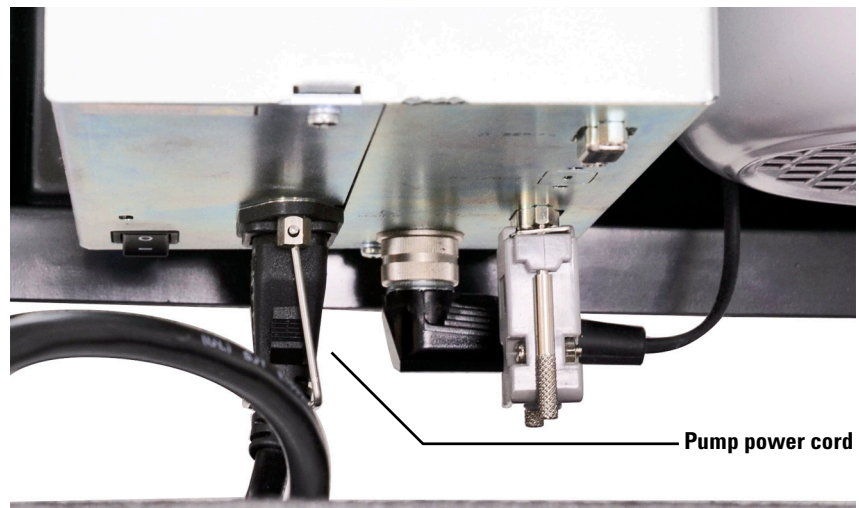


Figure 4 Pump power cord (G6011A Series)

- b Slide the cord and grommet from the groove in the back upper edge of the Quiet Cover MS frame (Figure 5).

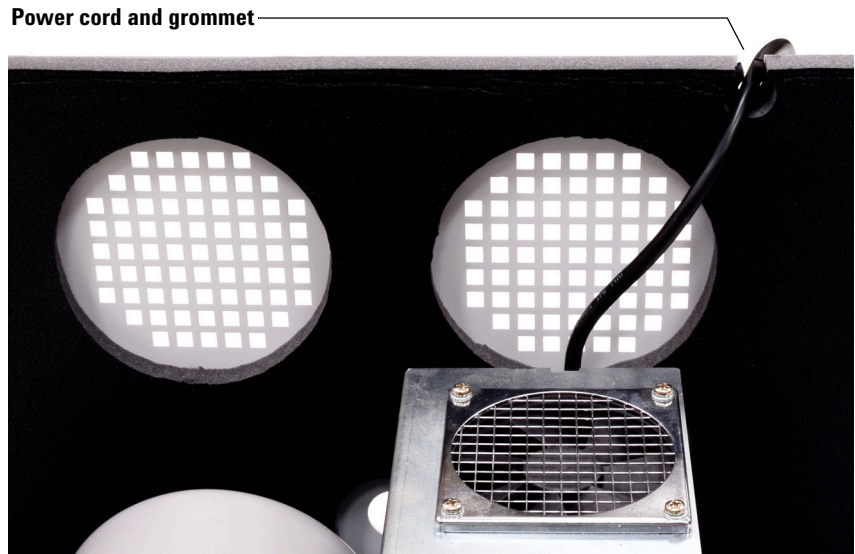


Figure 5 Power cord and grommet

- c Remove the grommet from around the cord and slide the grommet back into the groove in the frame for safekeeping.
 - d Using two people, lift the pump and remove it from the Quiet Cover MS.
- 5 When service is complete, restore the Quiet Cover to operation. Re-install the pump, lid, and pump access panels.

NOTE

Do not forget to replace the pump, lid, and pump access panels when maintenance is complete.

Replacing a Fan

Required tools

- Phillips screwdriver
- A wrench for #8–32 nut

Procedure

To remove the old fan (G6011A)

- 1 Perform the steps under “Preparing the Quiet Cover MS for Repair” on page 14.
- 2 Disconnect the fan cable at the fan connector of the wiring harness (see [Figure 6](#)).

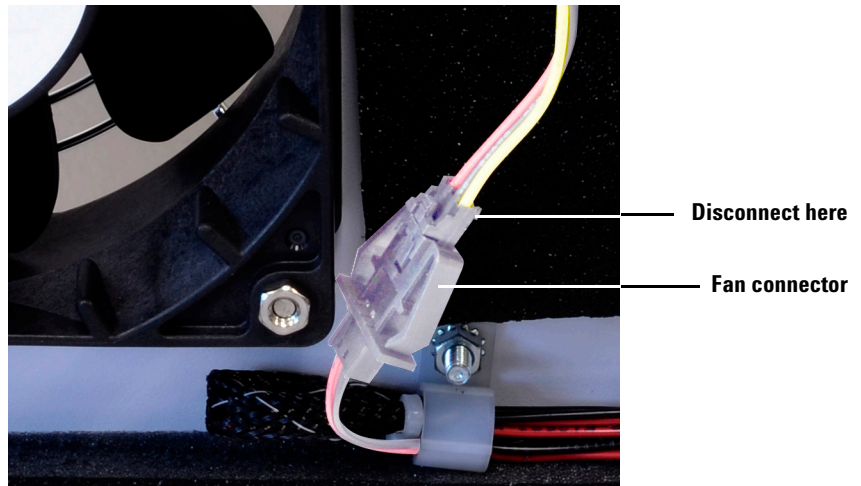


Figure 6 Disconnecting the fan cables (G6011A)

- 3 Remove the four screws and nuts from the faulty fan (see [Figure 7](#)).

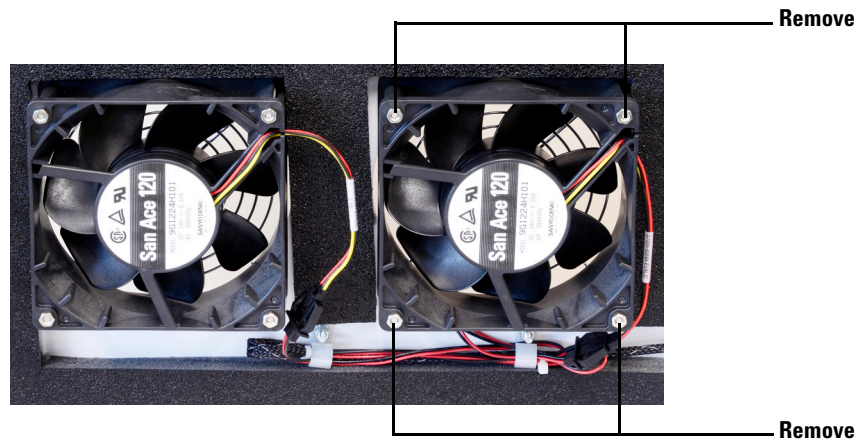


Figure 7 Removing the fan (G6011A)

- 4 Remove the fan and finger guards. Save the finger guards.

To install the new fan (G6011A)

- 1 Orient the new fan so the cable is at the bottom and the airflow will be directed INTO the Quiet Cover MS.
- 2 Position the outside finger guard on the outside of the Quiet Cover MS door and align the screw holes (see [Figure 8](#)).

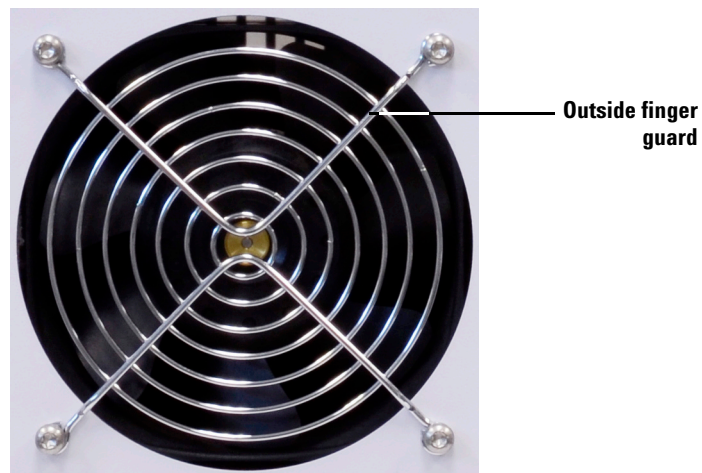


Figure 8 Outside finger guard and screws installed

2 Replacement Procedures

- 3 Feed one screw through the finger guard and Quiet Cover MS door from the outside. Slide the screw all the way in.
- 4 Install the fan and inside finger guard over the screw. Install the remaining screws (see [Figure 9](#)).

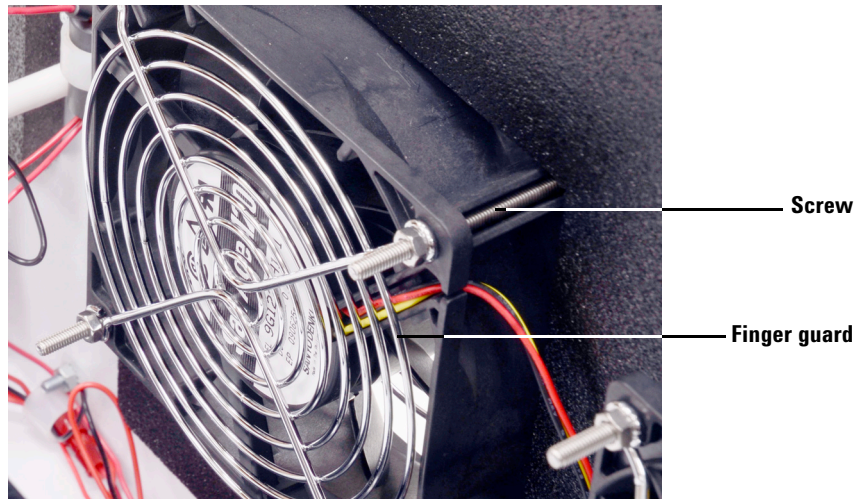


Figure 9 Fan, showing installed finger guard, screw, and bolt

- 5 Install and tighten the nuts over the four screws and finger guard.
- 6 Connect the fan cable to the fan connector of the wiring harness.

Replacing the Alarm

Required tools

- Phillips screwdriver

Procedure

- 1 Perform the steps under “Preparing the Quiet Cover MS for Repair” on page 14.
- 2 Remove the wires (marked **ALRM +** and **ALRM -**) from the alarm (see Figure 10).

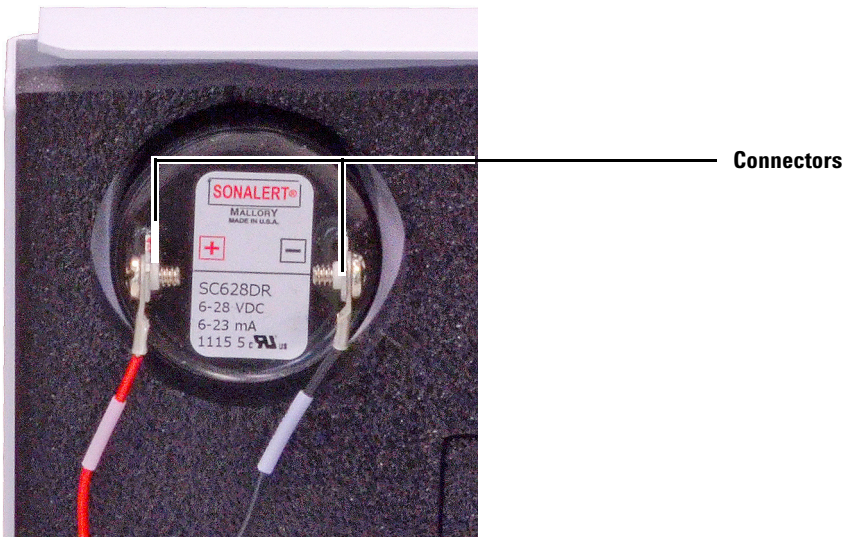


Figure 10 Inside view of the alarm (G6011A shown.)

- 3 From the outside of the Quiet Cover MS, unscrew the ring securing the alarm and remove the alarm (see Figure 11).

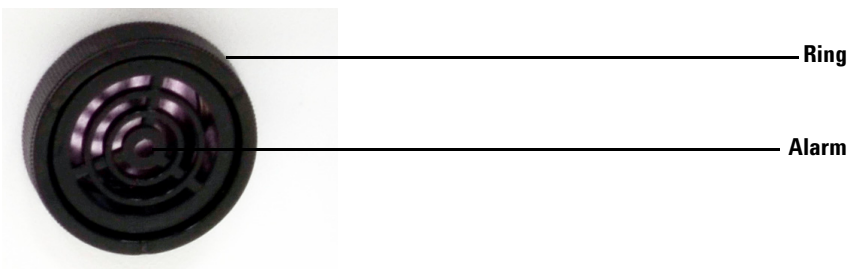


Figure 11 Outside view of the alarm

2 Replacement Procedures

- 4 Screw a new alarm into place.
- 5 Reconnect the wires to the alarm, matching the **ALRM +** and **ALRM -** wires to the + and - terminals on the alarm.

Replacing the Thermostat

Required tools

- Phillips screwdriver

Procedure

NOTE

For units with serial number SG13223001 to SG13223026, you must also replace the wiring harness (part number G6011-60600). See [“Replacing the Wiring Harness”](#) on page 25 for more information.

- 1 Perform the steps under [“Preparing the Quiet Cover MS for Repair”](#) on page 14.
- 2 Remove the two wires **THERM-1** and **THERM-2** from the thermostat (see [Figure 12](#)).

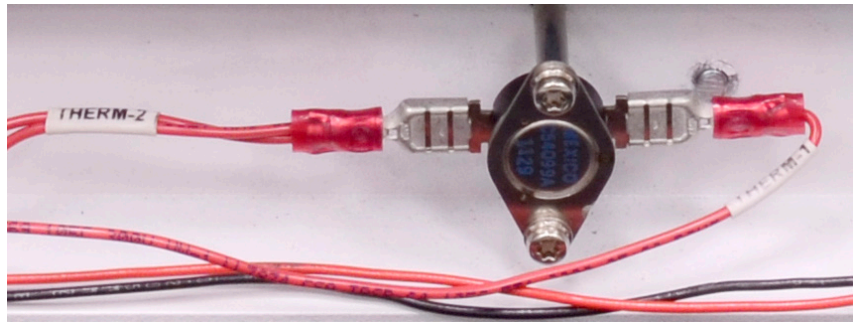


Figure 12 Thermostat

- 3 Remove the two screws that hold the thermostat in place, and remove the thermostat (see [Figure 12](#)).
- 4 Place the new thermostat on the thermostat studs. The left/right orientation is not important. Reinstall the two screws that hold the thermostat.
- 5 Attach the wires marked **THERM-1** and **THERM-2** on the wiring harness to the connectors on the thermostat. It does not matter which wire is attached to which side of the thermostat (see [Figure 12](#)).

Replacing the On/Off Switch

Required tools

None

Procedure

- 1 Perform the steps under “Preparing the Quiet Cover MS for Repair” on page 14.
- 2 Inside the cabinet remove the two wires **SW-1** and **SW-2** from the on/off switch (see [Figure 13](#)).

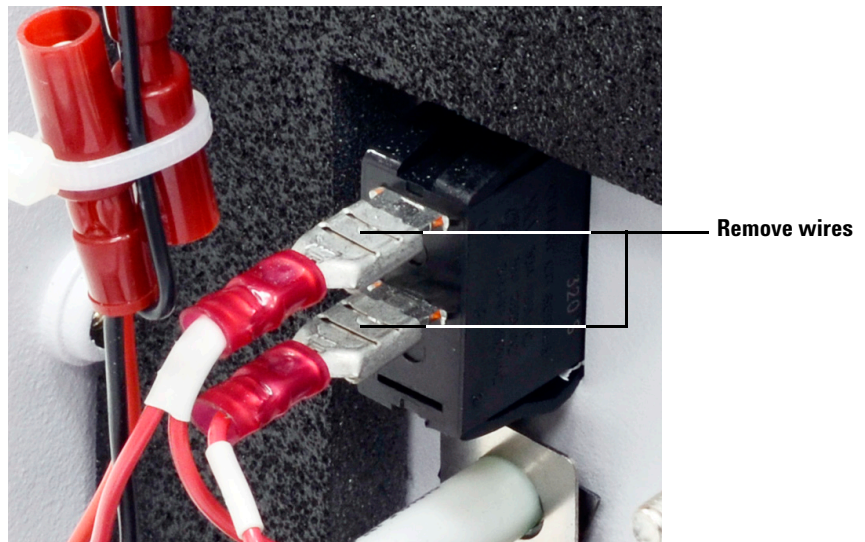


Figure 13 Wires to remove from the on/off switch (G6011A shown.)

- 3 Squeeze the latches on the back of the switch and push it out through the front of the Quiet Cover MS.
- 4 Toggle the new switch so the red does not show.
- 5 With the raised end of the switch at the top, push the new switch in place. (The two wiring connectors will be towards the bottom of the switch, see [Figure 13](#).)
- 6 Connect the **SW-2** wire from the wiring harness to the top connector of the switch and the **SW-1** wire to the bottom connector.

Replacing an LED

Required tools

- A wrench for #6–32 nut

Procedure

- 1 Perform the steps under “Preparing the Quiet Cover MS for Repair” on page 14.
- 2 Remove the + and – wires (marked **GLED+/-** or **RLED+/-**) from the faulty LED (Figure 14).

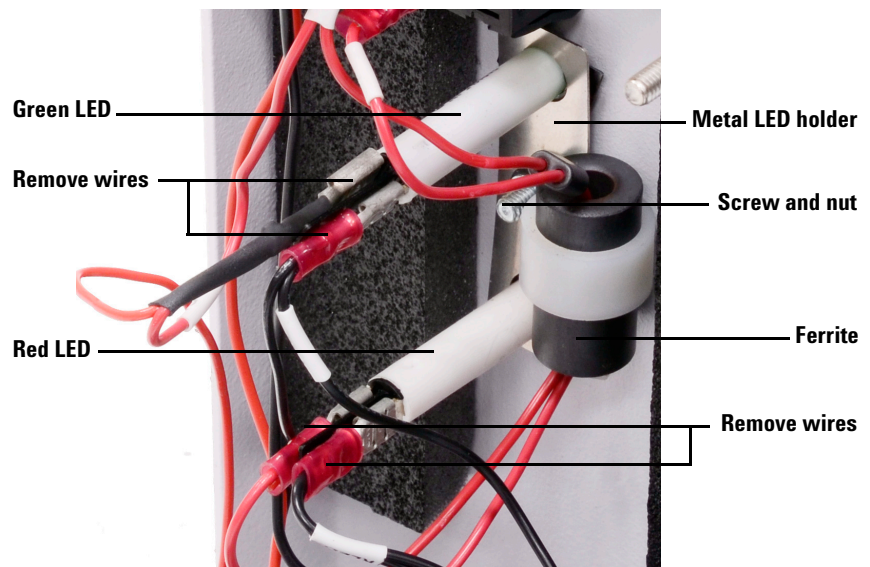


Figure 14 LED connectors (G6011A shown.)

- 3 Remove the nut from the screw that secures the metal LED (Figure 14).
- 4 Remove the faulty LED and replace it with a new one.
- 5 Replace the metal LED holder, making sure that both LEDs and the nylon holder for the ferrite are in place.
- 6 While holding the metal LED holder, secure it with the nut. Check once again that the ferrite in the wire holder is still attached to the back of the LED holder.

2 Replacement Procedures

- 7 Reattach wires to the replacement LED. Hold the LED firmly so that the connectors do not bend.
 - If replacing the red LED, connect the **RLED+** wire to the red + connector tab and the **RLED-** wire to the red - connector tab.
 - If replacing the green LED, connect the **GLED+** wire to the green + connector tab and the **GLED-** wire to the green - connector tab.

Replacing the Wiring Harness

Required tools

- Pliers with wire cutter
- Phillips screwdriver

Procedure

NOTE

For units with serial number SG132230012 to SG13223026, you must also replace the thermostat (part number G6011-60010). See [“Replacing the Thermostat”](#) on page 21 for more information.

To remove the old wiring harness

- 1 Perform the steps under [“Preparing the Quiet Cover MS for Repair”](#) on page 14.
- 2 Disconnect the wiring harness connections for the alarm, fans, thermostat, on/off switch, and LEDs. Loosen and remove the nut retaining the grounding wire. The grounding wire connects to the side rail of the Quiet Cover MS.
- 3 Remove the ferrite from the nylon holder.
- 4 Cut the red **24+** and the green **24-** wires from the power connector on the inside back of the Quiet Cover MS. Remove the old wiring harness, slipping the wires out of each of the nylon holders.
- 5 Remove the four screws from the power connector on the outside of the Quiet Cover MS (bottom back). Save the screws; you will reuse them when connecting the new power connector (see [Figure 15](#)).



Figure 15 Power connector (outside view)

- 6 Remove the power connector.

To connect the new wiring harness

- 1 Install the new power connector into the back of the Quiet Cover MS using the same screws as before. Pinhole 1 should be on the top inside and pinhole 4 should be on the bottom. (Pinholes 2 and 3 are horizontal from each other and used for the electrical connection in [step 4](#).)
- 2 Place the new wiring harness along the side rail of the Quiet Cover MS, with the ferrite end at the front of the box.
- 3 Slide the wires into the nylon wire holders along the inside of the rail.
- 4 Connect all the wiring as indicated below:
 - **Power connector.** Insert the red **24+** wire into pin 2 and the black **24-** wire into pin 3 of the power connector on the inside back of the Quiet Cover MS (see [Figure 16](#)).

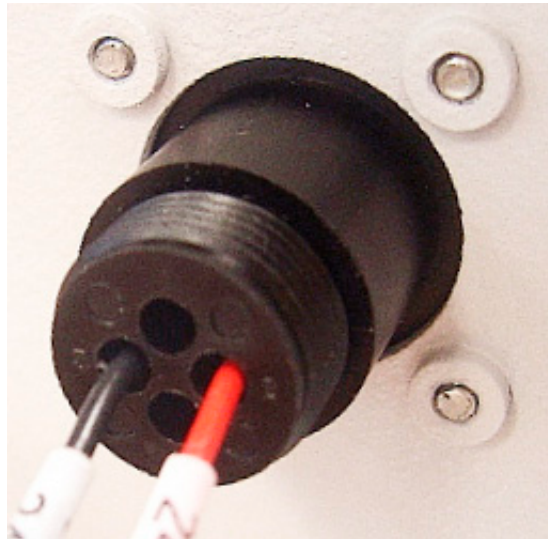
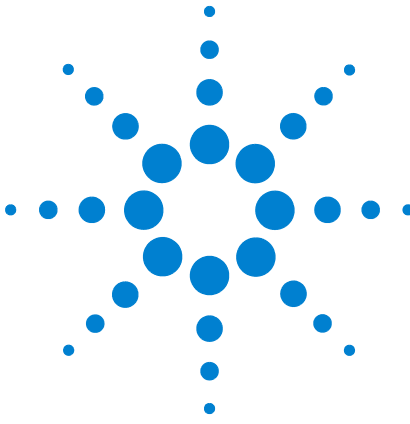


Figure 16 Connecting the power connector on the inside of the Quiet Cover MS

- **Thermostat.** On the inside front of the Quiet Cover MS, attach the **THERM-1** and the **THERM-2** wires to the two thermostat connector tabs.
- **Alarm.** Attach the **ALRM +** wire to the + side of the alarm connector tab and the **ALRM -** wire to the - side of the alarm.
- **Fans.** Connect both fans.

- **Ferrite.** Slide the wires of the ferrite into the wire holder attached to the center of the LED holder. Then, slide the ferrite into the holder so it is held firmly in place next to the LED holder.
 - **LEDs.** Connect the + and – wires (marked **GLED +/-** and **RLED +/-**) to the green and red LEDs, respectively.
 - **On/off switch.** Connect the **SW-2** wire to the top switch connector tab and the **SW-1** wire to the bottom connector tab.
- 5 Verify that the oil tray does not pinch any of the wires when sliding the oil tray in and out of the Quiet Cover MS.

2 Replacement Procedures



3 Replaceable Parts

This chapter lists the Quiet Cover replacement part numbers.

Replacement Parts

Table 3 lists the G6011A Quiet Cover MS's replaceable parts.

Table 3 Replaceable parts

Part	Part number	
	G6011A	Quantity
Casters		
Locking front caster	5040-4691	2
Non-locking back caster	5188-6571	2
Electronics		
On/off switch	5188-1178	1
Fan	G6011-60564	1
Red LED	5188-1179	1
Green LED	5188-1180	1
Alarm	5188-1277	1
Thermostat*	G6011-60010	1
Wiring harness†	G6011-60600	1
Power supply	5188-1164	1
Pin extraction tool (for power connector)	8710-0614	1
Oil tray		
Oil tray	G6011-40000	1

* For units with serial number SG132230012 to SG13223026, you must also replace the wiring harness (part number G6011-60600).

† For units with serial number SG132230012 to SG13223026, you must also replace the thermostat (part number G6011-60010).