

Agilent G6011B
Quiet Cover MS

User Manual



Notices

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CAUTION

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.

WARNING

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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Introduction

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This manual describes how to install, operate, and troubleshoot the Agilent G6011B Quiet Cover MS for LC/MS rough pumps.


Your rough pump fits in the Quiet Cover MS to significantly reduce noise, while an internal fan ensures that your pump will not overheat. There is an easy-to-use kickstand and a full-size oil tray to facilitate changing the oil. There are also multiple access panels for easy access to the pump for routine maintenance.

The Quiet Cover MS is only compatible with the Agilent MS40+ and MS40S Rotary-Vane Pump used with electron microscopy and mass spectrometry including the LC/MS.

General Information

The Quiet Cover MS conforms to the International Electrochemical 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.



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 1** lists the safety symbols that may appear on Quiet Cover MS.

Table 1 Safety symbols

Description	Symbol
See accompanying instructions for more information.	
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 Quiet Cover MS. Failure to comply with these precautions violates safety standards of design and Quiet Cover MS's intended use. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

WARNING

A two-person lift is required when removing the Quiet Cover MS from the packaging. Failure to perform a two person lift may result in personal injury.

WARNING

Never run the pump without also running Quiet Cover MS.

CAUTION

While running Quiet Cover MS:

- Do not block air flow to the fan.
- Do not set items on top of Quiet Cover MS.
- It is important that the Quiet Cover MS not recirculate hot air. Always position the Quiet Cover MS where it can draw cool air on all sides.

CAUTION

Be sure to position 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 certification for Federal Republic of Germany

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

Cleaning

To clean the Quiet Cover MS:

- 1 Reach under the front of Quiet Cover MS and pull out the oil tray.
- 2 Wipe out excess oil with a clean, lint-free cloth.
- 3 Wash the tray with a mild soap solution.
- 4 Wipe away any spills or other debris from the Quiet Cover MS using a clean, lint-free cloth.

Recycling the Product

For recycling, contact your local Agilent sales office.

Parts Identification

Table 2 lists the contents of the Quiet Cover MS kit. **Figure 1** and **Figure 2** on page 10 depict the parts of the Quiet Cover MS.

Table 2 G6011B Quiet Cover MS contents list

Part	Quantity	Part number
Quiet Cover MS	1	G6011B
Oil tray	1	G6011-40100
Power supply	1	5188-1164
KF40 Trim ring	1	n/a
Quiet Cover MS User Manual	1	G6011-90110
MS40+ Mounting Spacer	4	n/a
MS40S Front Air Duct	1	n/a
MS40S Exhaust Fitting	1	n/a

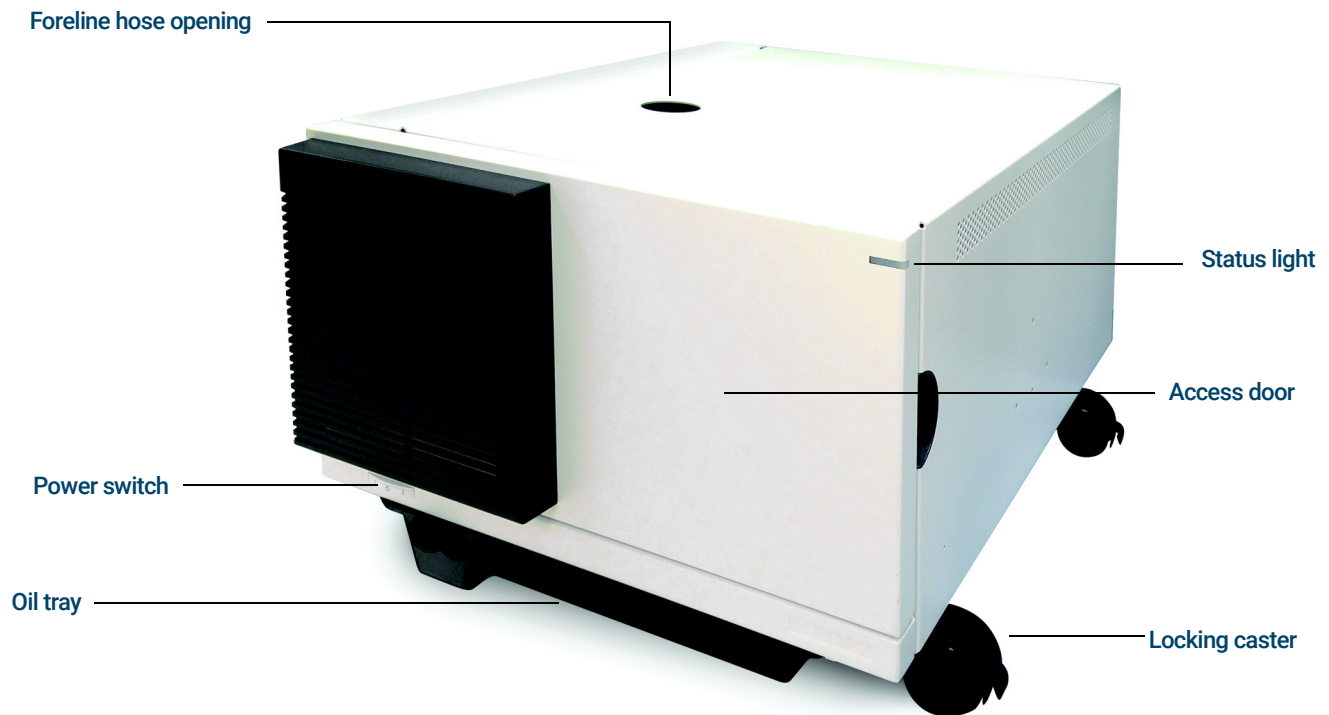


Figure 1. Quiet Cover MS (front view)

NOTE

See **Figure 10** on page 21 for a view of the front panel control.

1 **Parts Identification**
Parts Identification



Figure 2. Quiet Cover MS (rear view) (power supply not shown)

Site Preparation

Prepare the installation site to meet the criteria in **Table 3**.

Table 3 Site prep information

Criteria	Description
Physical dimensions	
Weight	11.3 kg (25 lbs)
Dimensions	Kickstand up: 68 × 25 × 44 cm (27 × 13.5 × 17.25 inches) (L × W × H)
Power supply	
AC input voltage	100 to 240 VAC ±10%
DC output voltage	+24 V
Output load (max.)	1.25 A
Input frequency	47 to 63 Hz
Power consumption	11 W
Rated current	450 mA
Temperature and humidity ranges	
Ambient temperature	5 to 35 °C (41 to 95 °F)
Humidity	15 to 95%
Altitude	≤ 4,600 m (14,950 ft)

Installation

- Installing the Oil Tray **13**
- Accommodating a KF40 Foreline Pump Intake Flange **14**
- Installing the Rough Pump Inside the Quiet Cover MS **15**
- Connecting the Power Supply **18**
- Verifying the Installation **19**

This chapter describes how to assemble the Quiet Cover MS and install the rough pump.

Installing the Oil Tray

Your Quiet Cover MS is shipped to you with the oil tray packaged separately. You need to install it prior to using the Quiet Cover MS.

- 1 Remove any protective film from the tray.
- 2 Slide the tray into the bottom of the Quiet Cover MS with the deep part of the tray facing the front of the Quiet Cover MS. Along the bottom edge of the frame, a pair of rails guides the tray into place (**Figure 3**).

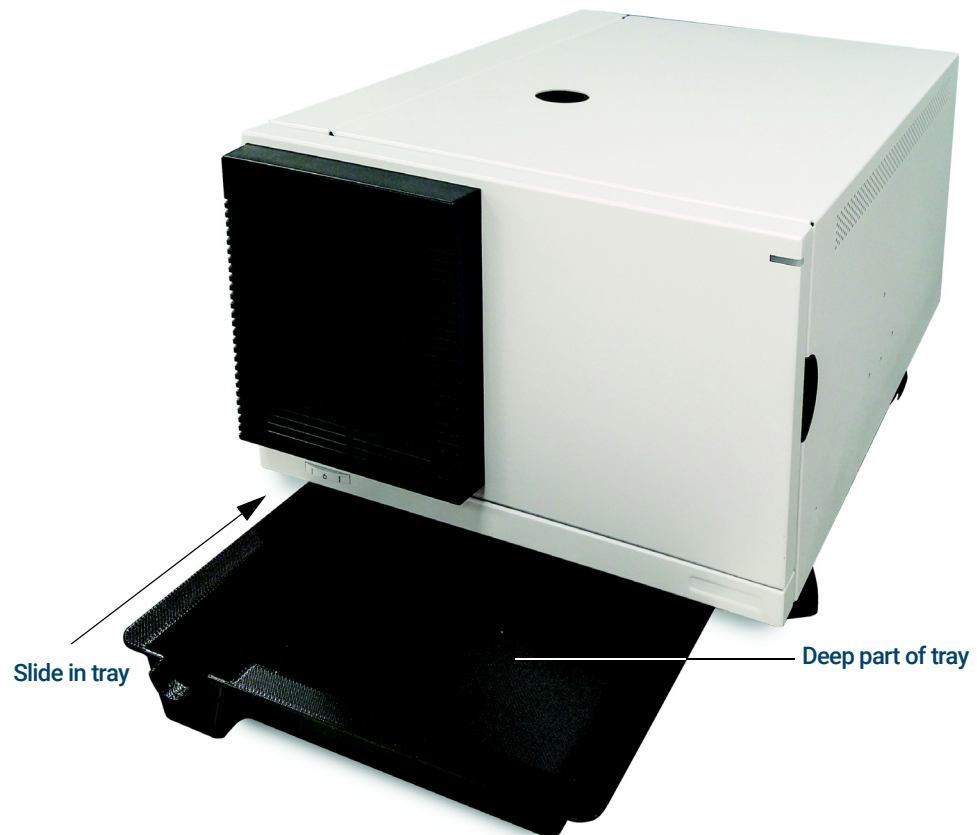


Figure 3. Installing the oil tray

Accommodating a KF40 Foreline Pump Intake Flange

The G6011B Quiet Cover is configured from the factory to accommodate an MS-40+ vacuum pump with a KF25 Foreline Pump intake flange.

If you are installing the G6011B Quiet Cover on an MS-40 vacuum pump with a KF25 Foreline Pump intake flange, skip this procedure.

If you are installing the G6011B Quiet Cover on an MS-40 vacuum pump with a KF40 Foreline Pump intake flange, follow this procedure to exchange the fitting to accommodate the KF40.

To exchange the fitting:

- 1 Remove the KF25 Flange, KF25 trim ring, and KF25 insulating foam from the top cover.
- 2 Install the KF40 Trim ring. See [Figure 4](#).

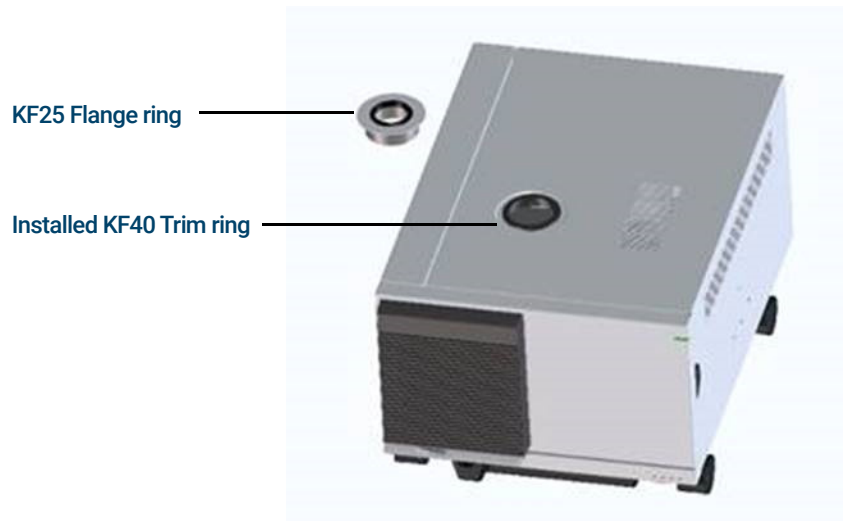


Figure 4. Installing the KF40 foreline trim ring

Installing the Rough Pump Inside the Quiet Cover MS

NOTE

The pump must be disconnected from the LC/MS when placing it inside the Quiet Cover MS.

Configuring the G6011B Quiet Cover for the correct revision of MS-40 vacuum pump:

- MS-40+
- MS-40S (variable speed electrical pump fan)

The G6011B Quiet Cover is configured from the factory to accommodate an MS-40+ vacuum pump. If this revision of pump is being installed, no changes are required and the installer can proceed to the next procedure on [page 16](#).

If an MS-40S pump is being installed, complete the procedure below before proceeding to the next procedure on [page 16](#).

- 1 Remove the MS-40+ mounting spacers attached to the G6011B floor mounting tabs.
- 2 Attach the MS-40S Elbow fitting.
- 3 Use a T10 driver to remove the six M3 screws, and replace the MS-40+ Front Air Duct with the MS-40S Front Air Duct included inside the accessories box.

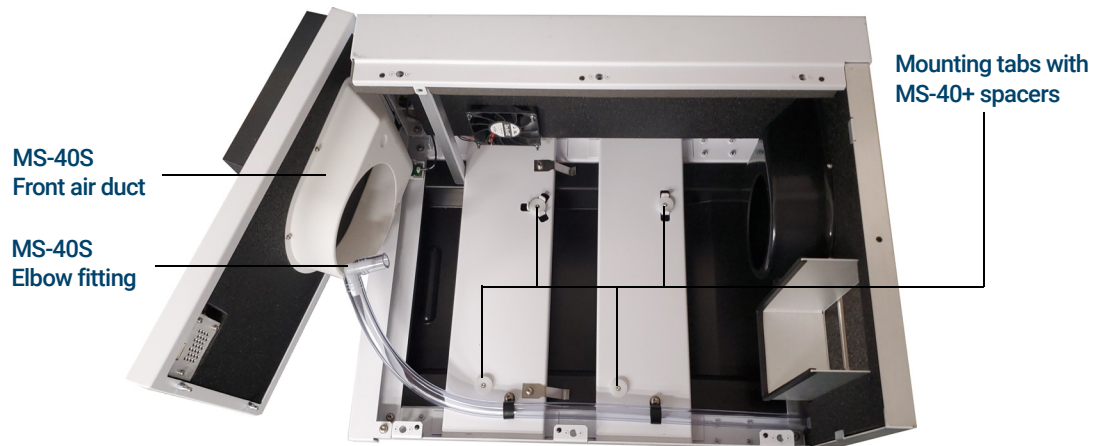


Figure 5. Front air duct, elbow fitting, and mounting tabs

2 Installing the Rough Pump Inside the Quiet Cover MS

Installing the Rough Pump Inside the Quiet Cover MS

To install the rough pump inside the Quiet Cover MS:

- 1 Lock the front locking casters to secure the Quiet Cover MS (**Figure 6**).

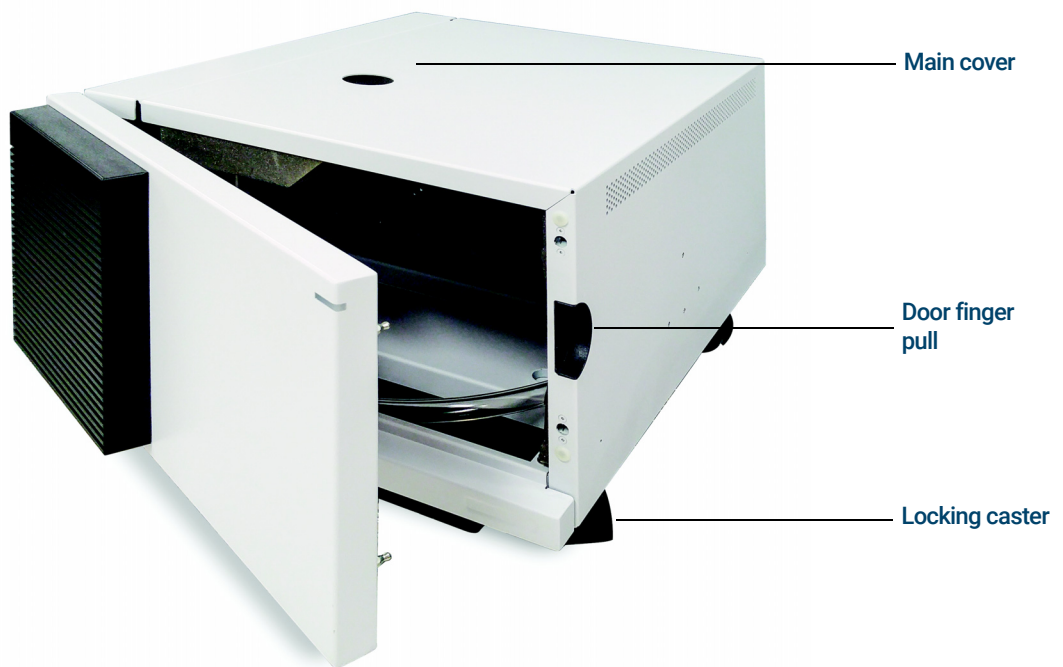


Figure 6. Locking casters, top access panels, and main cover

- 2 To remove the main cover assembly:
 - a Open the front access door.
 - b Lift the main cover vertically to detach it from the guide pins.

WARNING

A two-person lift is required when installing the rough pump into the Quiet Cover MS. Failure to perform a two person lift may result in personal injury.

WARNING

The pump may be hot. Use gloves when moving it or wait until it is cool.

2 Installing the Rough Pump Inside the Quiet Cover MS

Installing the Rough Pump Inside the Quiet Cover MS

- 3 Install the rough pump into the Quiet Cover MS. Orient the rough pump support foot into the front mounting cup inside the Quiet Cover MS and between the Quiet Cover MS mounting tabs so that the pump oil level window sight glass faces the front access door (Figure 7).

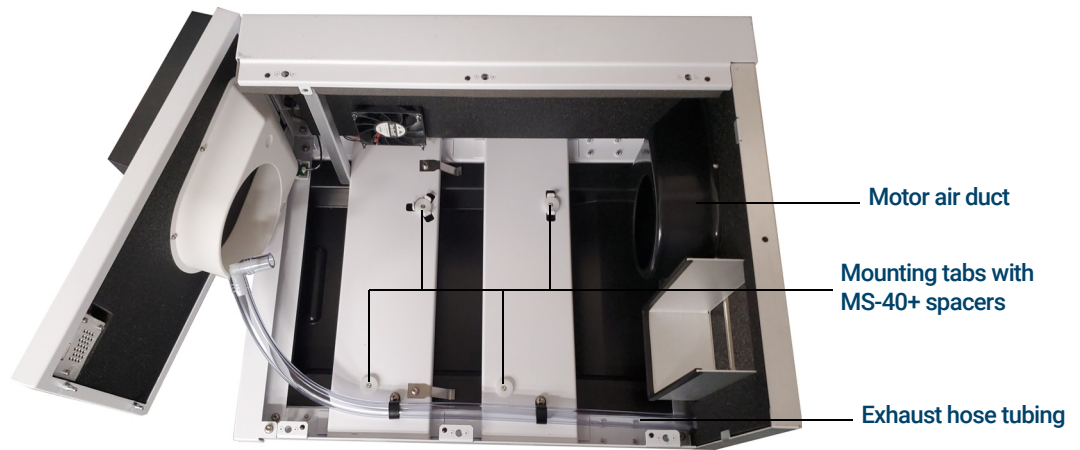


Figure 7. Mounting cup and mounting tabs on the Quiet Cover MS

- The rough pump should fit against the Quiet Cover MS motor air duct when the pump feet are positioned between the mounting tabs and inside the one mounting cup. A slight gap is acceptable. If the support feet do not align with the mounting cup and mounting tabs, the rough pump orientation is incorrect.
 - Pump should be slightly touching both the motor air duct and the electrical panel access door.
- 4 Connect the pump power cord to the rough pump through the EBox opening (Figure 8).

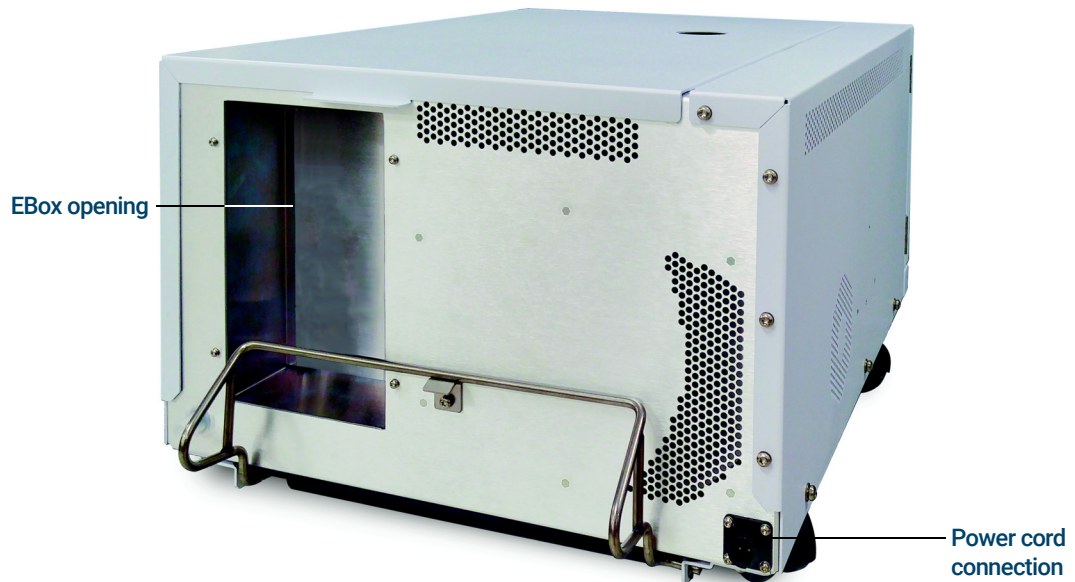


Figure 8. Pump power cord

- 5 Set the power switch to the On position through the EBox opening (Figure 8 on page 17).

NOTE

The pump is controlled by the MS and should always be left on.

- 6 Install the clear PVC exhaust hose included with the quiet cover to the MS40 exhaust port. Refer to MS40 installation manual for more information.

2 Connecting the Power Supply

Connecting the Power Supply

- 7 Install the main cover assembly. Confirm the cover stud guide pins are aligned properly with the main chassis assembly.
- 8 Close the front access door.
- 9 Connect MS Foreline hose to the pump. Refer to pump documentation or more information.
- 10 If the Quiet Cover MS is not currently in its operating location, unlock the locking casters, carefully push the Quiet Cover MS to its operating location, and lock the front locking casters.

WARNING

Do not attempt to lift the Quiet Cover MS with the rough pump installed. Lifting the Quiet Cover MS with the rough pump installed may result in personal injury.

Connecting the Power Supply

Connect the power supply to the back of Quiet Cover MS by twisting the ring on the circular connector of the power cord (Figure 9). Plug the pronged end of the power cable into the wall outlet.

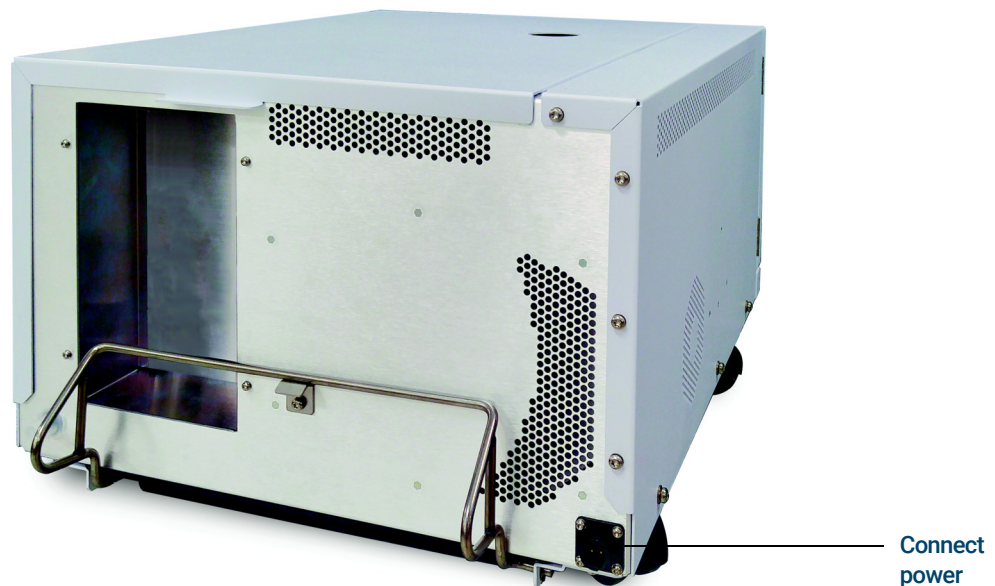


Figure 9. Connecting the power supply

Verifying the Installation

NOTE

When the G6011B Quiet Cover is plugged into an external power outlet, the Power Switch (front lower left-hand corner of the Quiet Cover) will light up orange. This indicates that power is connected to the Quiet Cover.

To verify that you installed the Quiet Cover MS correctly,

- 1 Position the power cords so they do not interfere with the kickstand (**Figure 2**).
- 2 Lock the casters to avoid unwanted movement of the Quiet Cover MS.
- 3 Turn the Power Switch to the off position.
- 4 Plug the G6011B Quiet Cover into an external power outlet. If the instrument is receiving power, the Power Switch (**Figure 1**) should light up orange.
- 5 Turn the Power Switch on. If the instrument is turned on correctly, the Power Switch (**Figure 1**) should light up green.

If the ambient temperature is $< 35\text{ }^{\circ}\text{C}$, the temperature alarm and the **fan should be off**, and the status indicator should light up green.

If the Quiet Cover internal temperature exceeds $35\text{ }^{\circ}\text{C}$, the fan should turn on, and the status light will light up orange. This is the normal operating mode.

NOTE

In normal operating modes, the status light will be either green or orange, depending on if the fan is on or not.

Operation

Control Panel and Indicators **21**

Handling Temperature Alarms **21**

Changing Rough Pump Oil **22**

Using the Kickstand **24**

To operate Quiet Cover MS, you will need to:

- Understand the controls and indicators on the front panel
- Know how to handle temperature alarms and signals
- Know how to drain oil from the rough pump and oil tray
- Be able to tilt the Quiet Cover MS using the kickstand for draining the oil

Control Panel and Indicators

Figure 10 shows the location of the on/off switch and indicators of the Quiet Cover MS control panel.



Figure 10. Control panel

Handling Temperature Alarms

In normal operation the Quiet Cover MS fan will turn off and on to maintain the temperature set limits. The status light will be green when the fan is off. The status light will be orange when the fan is on, but the temperature is still within set limits. *Both statuses are normal operating modes.*

If the air flow to the Quiet Cover MS is restricted or if the room temperature is above 35 °C (95 °F), the red status indicator on the front panel lights and the temperature alarm sounds.

When this condition occurs, remove any items from around the Quiet Cover MS that could be restricting air flow. Check that the fan is turning and that air flow to the Quiet Cover MS is not restricted.

NOTE

It is important that the Quiet Cover MS not recirculate hot air. Always position the front end of the Quiet Cover MS where it can draw cool air.

You cannot turn the alarm off. It will stop when the temperature returns to an acceptable level.

Changing Rough Pump Oil

Periodically, you must change the rough pump oil. The oil tray of the Quiet Cover MS is designed to collect the oil as it drains from the pump. Please refer to your pump documentation for detailed information regarding changing your pump oil.

To change the oil:

- 1 Properly prepare your system for release of primary vacuum.
- 2 Turn off the rough pump.
- 3 Turn off the Quiet Cover MS.
- 4 Unplug the power supply from the Quiet Cover MS.
- 5 Lock the locking casters to secure the Quiet Cover MS.
- 6 Open the front access door of the Quiet Cover MS.
- 7 Tilt the Quiet Cover MS by using the kickstand located at the back of the Quiet Cover MS (**Using the Kickstand** on page 24.) This technique is the most efficient way to drain the pump oil.
- 8 Be sure the oil tray is securely seated.

NOTE

The pump sits close to the front of the Quiet Cover MS. Pull the tray out 1 to 2 inches to avoid oil spillage.

- 9 Remove the oil drain plug from your rough pump (**Figure 11**). Refer to your pump documentation.

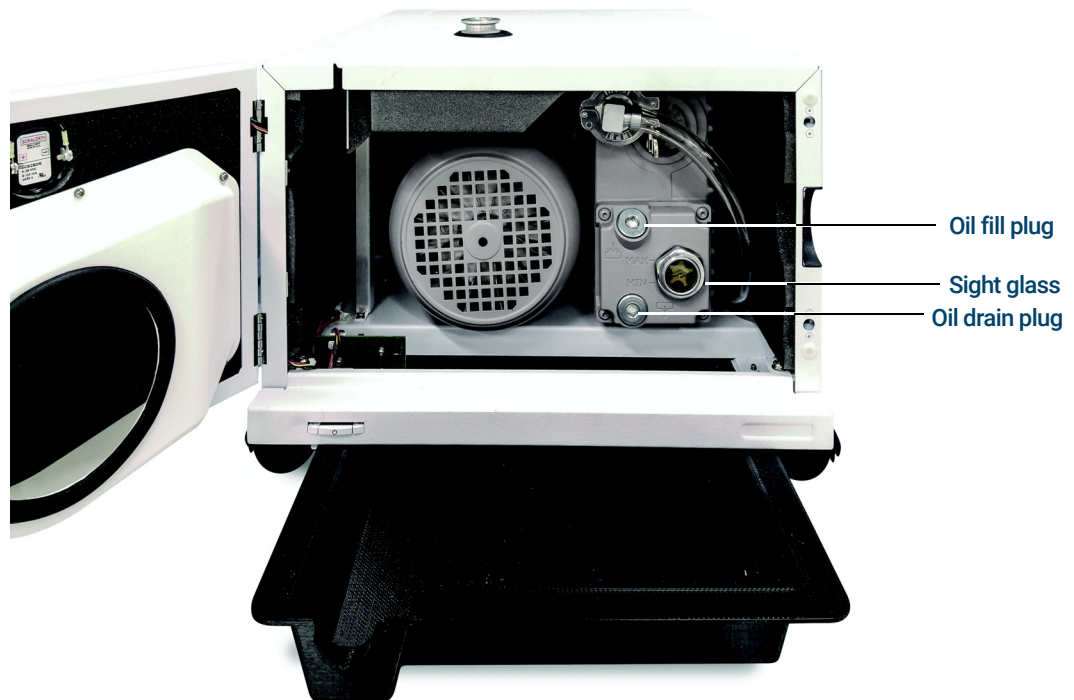


Figure 11. View of pump through access door

3 Changing Rough Pump Oil

Changing Rough Pump Oil

- 10 Reinstall the drain plug when the oil has completely drained.
- 11 Remove the oil tray and dispose of the oil according to local safety and environmental guidelines.
- 12 Return the Quiet Cover MS to its untilted position. See **"Using the Kickstand"** on page 24.
- 13 Reinsert the oil tray.
- 14 Remove the oil fill plug (**Figure 12**) and refill the pump (**Figure 13**). Refer to the pump documentation for more information.

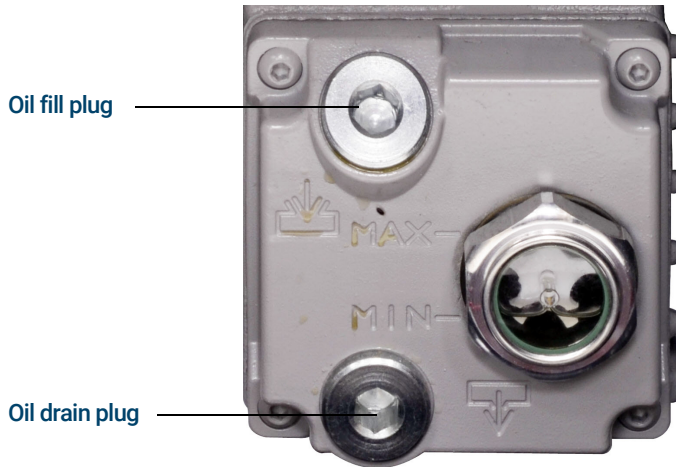


Figure 12. View of pump through access door



Figure 13. Refilling the pump with oil

- 15 Reinstall the oil fill plug and close the access door.

Using the Kickstand

To tilt the Quiet Cover MS:

- 1 Make sure the Quiet Cover MS is on a level surface.
- 2 Lock the two locking casters located on the front of the Quiet Cover MS (**Figure 14**).

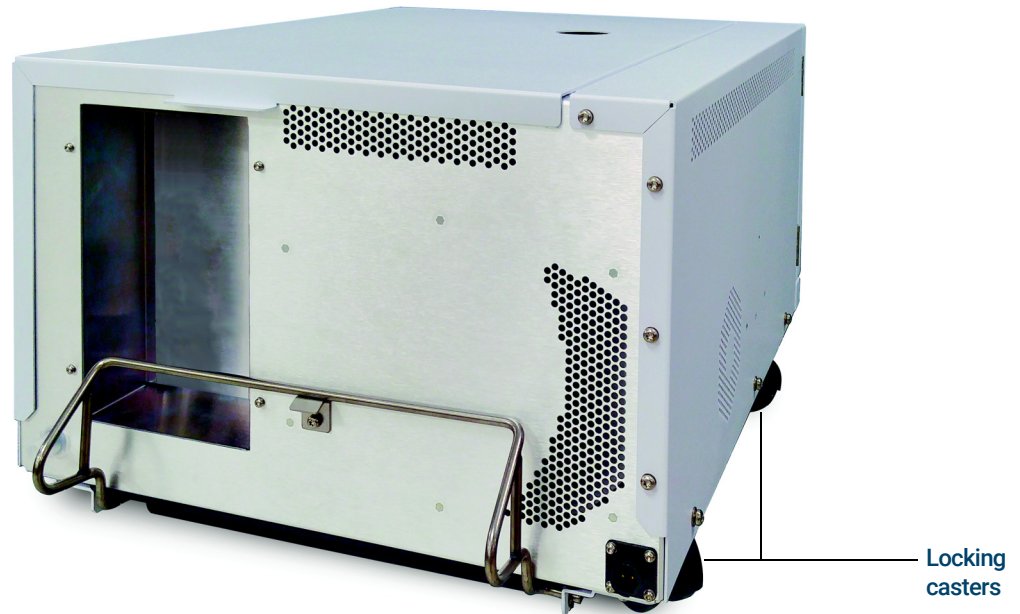


Figure 14. Locking casters on the front of the Quiet Cover MS

- 3 Release the kickstand from the retaining clip (**Figure 15**).

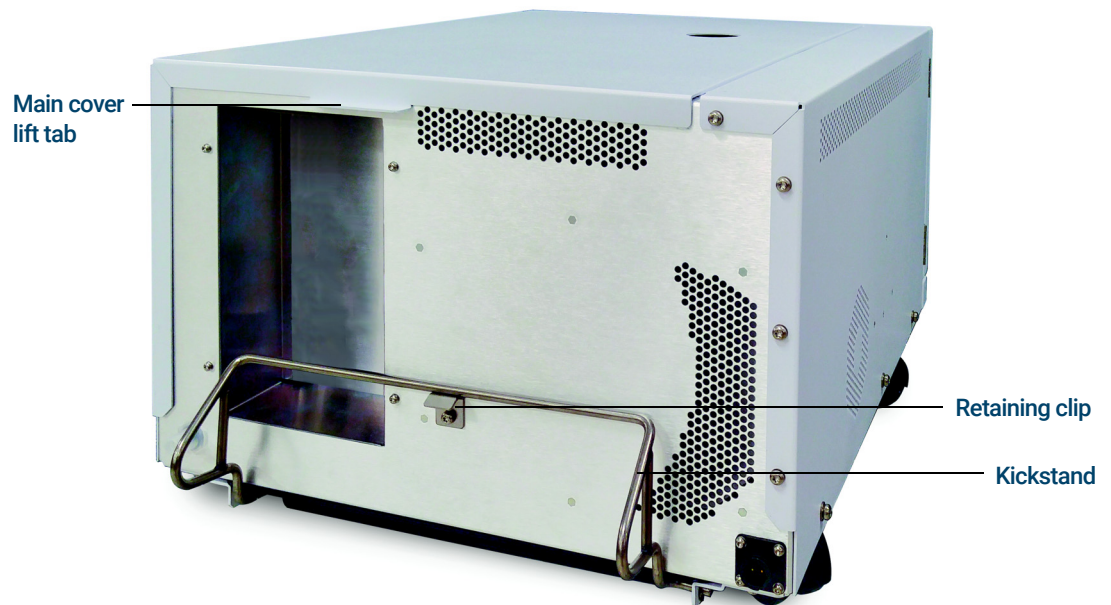


Figure 15. Releasing the kickstand

3 Using the Kickstand

Using the Kickstand

- 4 Step down on the horizontal bar and lift gently on the back end of the Quiet Cover MS while stepping on the kickstand until the Quiet Cover MS is in its tilted position (**Figure 16**).

NOTE

Do not lift by the main cover assembly. Use the main cover lift tab.



Figure 16. Quiet Cover MS in a tilted position

CAUTION

Be sure that the kickstand's horizontal bar sits flat on the floor when Quiet Cover MS is tilted.

To return Quiet Cover MS to the untilted position:

- 1 Grasp the back of the Quiet Cover MS and gently push the Quiet Cover MS forward, off the kickstand. To avoid dropping it, step on the kickstand as you lower the unit.

CAUTION

Take care when lowering the Quiet Cover MS from the tilted position.

- 2 Raise the kickstand to its locked position.
- 3 If necessary, unlock the front locking casters, push the Quiet Cover MS back to its operating location, and lock the front locking casters to secure the Quiet Cover MS.

Troubleshooting

Table 4 describes solutions to problems that may occur with Quiet Cover MS. If your problem is not listed or the solution listed does not work, consult your pump documentation or contact your Agilent service representative.

Table 4 Problems and solutions

Problem	Solution
Pump does not fit in Quiet Cover MS.	Check for proper orientation of the pump and configuration of mounting spacers. See Installing the Rough Pump Inside the Quiet Cover MS on page 15. Call your Agilent service representative if the orientation and configuration are correct. Confirm the correct Quiet Cover configuration depending on whether you are installing an MS40+ or MS40S.
Quiet Cover MS does not turn on.	Check that the power supply is plugged securely into both Quiet Cover MS and the wall outlet. If it is, call your Agilent service representative. Do not continue to use your rough pump in the Quiet Cover MS.
Temperature alarm does not turn off.	Remove the Quiet Cover MS main cover. Ensure that adequate cool air is available to the Quiet Cover MS. Call your Agilent service representative if the lab temperature is within specifications.
Quiet Cover MS poorly muffles the sound of the pump.	Ensure that the main cover is properly fitted onto the Quiet Cover MS. Confirm that the front access door is fully closed.
The rough pump oil does not drain completely.	Be sure the kickstand is down, with the bar sitting flat on the floor. If so, refer to the rough pump documentation for more information.
Green LED does not light.	Check that power is supplied to Quiet Cover MS and the power switch is on. If it is, call your Agilent service representative.
Fan does not turn.	The Quiet Cover MS fan will be off while the status light is Green. During normal operation, the Quiet Cover MS is designed to use the pump's fans to cool the pump. When additional cooling is required, the Quiet Cover MS fan will turn on and the status light will turn orange. If the fan is NOT on when the status light is orange or red, call your Agilent service representative. Do not continue to use your rough pump in the Quiet Cover MS.
The temperature alarm does not sound even though the room temperature is above 35 °C (95 °F) and the red over-temperature LED is lit.	Check that power is supplied to Quiet Cover MS and the power switch is on. If it is, call your Agilent service representative. Do not continue to use your rough pump in the Quiet Cover MS, the alarm may have failed.
The red over-temperature LED is not lit even though the room temperature is above 35 °C (95 °F) and the alarm is sounding.	Check that power is supplied to Quiet Cover MS and the power switch is on. If it is, call your Agilent service representative. Do not continue to use your rough pump in the Quiet Cover MS, the LED may have failed.
The temperature alarm is not sounding and the red over-temperature LED is not lit even though the room temperature is above 35 °C (95 °F).	Check that power is supplied to Quiet Cover MS and the power switch is on. If it is, call your Agilent service representative. Do not continue to use your rough pump in the Quiet Cover MS, the thermostat may have failed.

The Service Manual (part number G6011-90120) contains part replacement information (procedures performed by Agilent service representatives). Visit www.agilent.com/chem to download a copy of the Service Manual and look for any other current information.

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