

Performance Maintenance Protocol

ACQUITY[®] QDa[®] Detector

<i>Serial Number</i>	
<i>Date</i>	
<i>Performer</i>	

Performance maintenance

Goal

This performance maintenance protocol is a guide to performing maintenance tasks on your system. Packaged as part of the performance maintenance kit, it is intended to ensure optimum performance and an uninterrupted period of trouble-free operation.

Schedule

Waters recommends that performance maintenance visits be performed once a year. Systems under heavy use or using aggressive solvents will need more frequent maintenance. For detailed maintenance schedules, refer to the appropriate operator's guide(s) located on the Waters web site. Failure to follow the maintenance schedules as described in the operator's guides may result in unreliable operation and inaccurate laboratory results. For some protocols, optional tests can be performed by Waters field service engineers for added confidence and reliability.

Safety considerations

Some protocols may involve removing instrument covers, exposing the performer to high voltages, high currents, and moving parts. This presents risks of electric shock and/or damage to the instrument. To reduce these risks, Waters recommends that these protocols be conducted by certified Waters field service engineers, who have access to the latest information on Waters products. Waters does not advise and is not responsible for an unqualified performer initiating actions that they do not understand. If there is any doubt on the part of the performer, a Waters certified field service engineer should conduct the performance maintenance activity.

Waters Quality Parts

Waters designs and manufactures Waters Quality Parts® to the same strict regulatory standards (ISO 9001) as your high-performance Waters systems. Waters recommends using Waters Quality Parts for all maintenance activities. Failure to use Waters Quality Parts may compromise laboratory results and reliability.

Customer education

Waters offers several operation and maintenance courses for ACQUITY® UPLC®, Alliance® HPLC and MS systems as well as courses designed to help you maintain professional competency and further your knowledge in Chromatography, UPLC, Informatics and Mass Spectrometry. For more information on available training courses from Waters Educational Services please visit the Waters web site.

Compliance services

Waters Compliance Services help you achieve and maintain the regulatory compliance of your LC and MS instruments and software with a combination of expertise, compliant-ready systems and software, and a portfolio of services to ensure that you have quality data, consistently. To learn more about these services, please visit the Waters web site.

General tasks

Use the following guidelines when conducting performance maintenance visits. This information is intended to be a guide only. For example:

- If a particular module has been recently serviced, it may need only testing and replacement of fewer parts.
- Not all procedures apply to all instruments (specify N/A if the procedure does not apply).
- If the instrument fails to perform adequately during pre-performance maintenance checks, further service may be required beyond the scope of this protocol. Such service may incur additional parts and labor charges.

The following table lists the general tasks to be performed during a performance maintenance visit. Perform and confirm the steps listed for each procedure and record any comments that you have about the results at the end of each section.

For detailed instructions and a list of the necessary tools, refer to the overview and maintenance guide located on the Waters website.

Pre-performance maintenance checks	Maintenance tasks	Post-performance maintenance checks
Firmware (PLD)	Source interlocks	Firmware (PLD)
Vacuum	Inspect, power-off and vent	Vacuum
Instrument beam check	Vacuum system	Calibration and resolution
	Exhaust valve assembly pinch valve	Backing up the Flash memory settings
	Source components	Instrument beam check
	Fan filters	Resetting the service interval

Waters Quality Parts

- ACQUITY QDa (KAA/KAB) Standard Performance Maintenance Kit p/n 201000300
- ACQUITY QDa (KAA/KAB) High Performance Maintenance Kit p/n 201000301
- ACQUITY QDa (KAD) Standard Performance Maintenance Kit p/n 201000308
- ACQUITY QDa (KAD) High Performance Maintenance Kit p/n 201000309

Pre-performance maintenance checks

If the instrument fails to perform adequately during initial checks, it may need service work beyond the scope of this performance maintenance protocol; in such cases, the extra service work may incur additional parts and labor charges.

Perform and confirm the steps listed for each procedure and record any comments that you have about the results at the end of each section. Record values for each item in the following tables:

Firmware

Confirm what version of firmware (PLD) is installed.

☐ Yes ☐ No ☐ N/A

Firmware version installed	
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Comments:

Vacuum

Instrument vacuum has been checked.

☐ Yes ☐ No ☐ N/A

Readback	Reading
Vacuum Pump Power	

Comments:

Instrument beam check

Solvent peaks are present.

☐ Yes ☐ No ☐ N/A

Comments:

Maintenance tasks

The following routine procedures are performed as part of performance maintenance. Any additional maintenance requirements identified in the previous section are beyond the scope of this document.

For more information on these procedures, refer to the [ACQUITY QDa Detector Overview and Maintenance Guide](#) (p/n 715003956).

Perform and confirm the steps listed for each procedure and record any comments at the end of each section.

Source interlock

Source interlock functions correctly.

☐ Yes ☐ No ☐ N/A

Comments:

Inspect, power-off, and vent

Cooling fans are spinning.

☐ Yes ☐ No ☐ N/A

Source drain components are configured correctly.

☐ Yes ☐ No ☐ N/A

System powered-off and unplugged from mains supply.

☐ Yes ☐ No ☐ N/A

Comments:

Vacuum system

Turbomolecular pump oil reservoir changed (performed every four years).

☐ Yes ☐ No ☐ N/A

Maintenance tasks associated with the rotary or diaphragm pump performed.

☐ Yes ☐ No ☐ N/A

Vacuum tubing inspected.

☐ Yes ☐ No ☐ N/A

Comments: _____

Exhaust valve assembly pinch valve

Pinch valve replaced.

☐ Yes ☐ No ☐ N/A

Comments: _____

Source components

Maintenance tasks for the source enclosure performed.

☐ Yes ☐ No ☐ N/A

New probe assembly is installed.

☐ Yes ☐ No ☐ N/A

Maintenance tasks for the ion block assembly performed.

☐ Yes ☐ No ☐ N/A

Maintenance tasks for the pumping block and ion guide 1 assembly performed.

☐ Yes ☐ No ☐ N/A

Maintenance tasks for the ion guide 1 differential aperture performed.

☐ Yes ☐ No ☐ N/A

Maintenance tasks for the optional diverter valve performed.

☐ Yes ☐ No ☐ N/A

Comments:

Fan filters

Fan filters replaced.

☐ Yes ☐ No ☐ N/A

Comments:

Post-performance maintenance checks

Firmware

Ensure the latest version of firmware (PLD) is installed.

☐ Yes ☐ No ☐ N/A

Firmware version installed	
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Comments:

Vacuum

Instrument vacuum has been checked.

☐ Yes ☐ No ☐ N/A

Readback	Reading
Vacuum Pump Power	

Comments:

Calibration and resolution

Instrument calibration and resolution has been performed.

☐ Yes ☐ No ☐ N/A

Comments:

Backing up the Flash memory settings

Information on the detector Flash memory has been backed up to the host PC.

☐ Yes ☐ No ☐ N/A

Comments: _____

Instrument beam check

Solvent peaks are present.

☐ Yes ☐ No ☐ N/A

Comments: _____

Resetting the service interval

Service record has been updated with PM details, and date of the next PM.

☐ Yes ☐ No ☐ N/A

Comments: _____

Performance maintenance confirmation

I confirm on
behalf of _____

Company Name

that this performance maintenance
procedure has been satisfactorily completed on: _____

Serial No.

Signed: _____

Customer

Date: _____

Type Name

I certify that the installation has been successfully completed.

Signed: _____

Waters Engineer

Date: _____

Type Name

Comments: _____

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