

Performance Maintenance Protocol

ACQUITY UPLC[®] TUV Detector

<i>Waters system:</i>	
<i>PM date:</i>	

Guidelines

This performance maintenance (PM) protocol outlines maintenance tasks you should regularly perform on Waters systems. Regular maintenance ensures optimum performance and uninterrupted trouble-free operation.

Schedule

Waters recommends that performance maintenance visits be performed once a year. Systems under heavy use or using aggressive solvents need more frequent maintenance. For detailed maintenance schedules, refer to the appropriate user guide located on Waters.com. Failure to follow the maintenance schedules as described in the user guide might result in unreliable operation and inaccurate laboratory results.

Safety considerations

Some protocols might involve removing instrument covers, exposing the performer to high voltages, high currents, and moving parts. This presents risks of electric shock or damage to the instrument. To reduce these risks, Waters recommends that these protocols be conducted by certified Waters field service engineers with access to the latest information on Waters products. Waters is not responsible for actions initiated by an unqualified performer. If you are unsure, have a Waters certified field service engineer conduct the performance maintenance activity.

Waters Quality Parts

Waters designs and manufactures Waters Quality Parts® to the same strict regulatory standards it uses for its high-performance Waters systems. Waters recommends using Waters Quality Parts for all maintenance activities. Failure to use Waters Quality Parts might compromise laboratory results and reliability.

Customer education

Waters offers courses on operating and maintaining its high-performance systems, as well as courses designed to help you maintain professional competency and further your knowledge in chromatography, mass spectrometry, and Waters data systems. For more information on available training courses, visit [Waters Educational Services](#) on Waters.com.

Qualification/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 consistently obtain quality data. To learn more, visit [Qualification/Compliance Services](#) on Waters.com.

PM task overview

Table 1 is an overview of the PM tasks performed.

Note: For instructions on performing these procedures, refer to the online Help or the appropriate user manual on Waters.com.

Table 1 - PM tasks

Inspect	Replace/rebuild	Verify
Firmware version	Lamp	Initialization diagnostics
Fan		Calibrate wavelength
Flow cell		
Error logs		

PM task descriptions

Performance maintenance consists of three task categories:

- Inspect
- Replace or rebuild parts
- Verify

Note: If the instrument fails pre- or post-performance maintenance inspections or verifications, it might need additional service beyond the scope of this protocol. Such service might incur additional parts and labor charges.

Inspect

1. If the instrument is off, power it on and allow it to complete software checks.
2. Inspect the firmware and, if appropriate, update it.
3. Ensure that the fan grate on the rear of the instrument is clear of debris and dust; clean if necessary.
4. Inspect the flow cell for leaks.
5. Review error logs for any errors and troubleshoot as necessary.

Replace or rebuild parts

Using the parts in the PM kit, replace or rebuild parts as necessary.

Note: For instructions on replacing parts, see the appropriate user manual on Waters.com.

Verify

After completing the maintenance tasks, verify instrument performance:

1. Power-on the instrument and allow it to complete on-board software checks.
2. Using the Console, run calibrate wavelength.

If the maximum deviation is less than or equal to ($\leq$) 1 nm, record the result.

If the maximum deviation is greater than ($>$) 1 nm, run calibrate wavelength a second time, ensure the value is less than or equal to ($\leq$) 1 nm, and record the result.

Results/checklist

A Waters field service engineer completes the test results, checklist, and confirmation sections.

Test results

Table 2 – Firmware version

Firmware revision	
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Table 3 – Calibrate wavelength results

Pass or fail	Maximum deviation
☐ Pass ☐ Fail	nm Expected result: Maximum deviation less than or equal to ($\leq$) 1 nm

Checklist

Note: Select N/A if the task does not apply.

Inspect

All inspect tasks completed	☐ Yes ☐ No ☐ N/A
	Comments:

Replace/Rebuild

Lamp	☐ Yes ☐ No ☐ N/A
	Comments:

Verify

All verify tasks completed	☐ Yes ☐ No ☐ N/A
	Comments:

Performance maintenance confirmation

I confirm on behalf of _____	
<i>Company name</i>	
that this performance maintenance procedure has been satisfactorily completed on: _____	
<i>Serial no.</i>	
Signed: _____	Date: _____
<i>Customer</i>	

<i>Print name</i>	
I certify that the maintenance procedure has been successfully completed.	
Signed: _____	Date: _____
<i>Waters engineer</i>	

<i>Print name</i>	
Comments: _____	

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