Agilent Preventive Maintenance (PM) provides factory recommended service for your systems to assure reliable operation and the accuracy of your results. Delivered by highly-trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides everything you need to reduce unplanned downtime and keep your systems operating at their peak.

For more information about Agilent Technologies services please visit our web site using the following URL http://www.chem.agilent.com/en-us/products/services/pages/default.aspx

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures.
- Any parts, not included in the Parts Lists section of this document, are not part of the recommended Preventive Maintenance service, nor are they included in the price of this service.
- If a system requires the use of additional or special procedures and/or parts for the instrument service, then these must be ordered separately and charged as a repair, which may incur additional costs.

Service Engineers Responsibilities

Only complete/printout pages that relate to the system or module being serviced.

Complete empty fields with the relevant information.

Complete the relevant checkboxes in the checklist using a “X” or tick mark “✓” in the checkbox.

Complete Not Applicable check boxes to indicate services that are not delivered as needed.

Complete the PM service in the order of the task listed.

Complete the Service Review section together with the customer. In case of diagnostic tests, record test results in section service review (test results).

Additional Instruction Notes

- Please exercise care when using solvents close to the instrument. It could damage the vapor sensor present in the ELSD.

System Information

Guidance:

- ❑ Check box if instrument configuration report is attached instead of completing the table below.

Instrument System Name/I.D:	Instrument Location:
Record the list of system component product numbers below.	List the serial numbers of the components present in the system below.
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.

Preparation

- ❑ Consult the device user manual for further instructions.

Module List

Module identification: The module identifier (e.g. G7117A) can be found on the lower right side of the module front cover.

Module	Instrument Description
G7102A	Evaporative Light Scattering Detector
G7104A	Flexible Pump
G7114B	Variable Wavelength Detector
G7116B	Multicolumn Thermostat
G7117A/B	Diode Array Detector FS / Diode Array Detector
G7120A	High Speed Pump
G7167A/B	Multisampler

G7104A

G7104A

- ❑ **Section NOT Applicable**
- ❑ Start "Remove/Install Pump Head" procedure (Agilent Lab Advisor Software).
- ❑ Remove or lift up solvent inlets in order to avoid solvent spilling.
- ❑ Remove the pump head assembly.
- ❑ Install the pump head assembly.
- ❑ Finish "Remove/Install Pump Head" procedure (Agilent Lab Advisor software).
- ❑ Replace the high pressure filter frit.
- ❑ Replace the inline filter frit.
- ❑ Replace the seal wash pump cartridge.
- ❑ Perform pump self test (Agilent Lab Advisor Software).

Alternative Procedure

This procedure requires the 1290 Infinity Pump head service kit.

- ❑ **Section NOT Applicable**
- ❑ Start "Remove/Install Pump Head" procedure (Agilent Lab Advisor Software).
- ❑ Remove or lift up solvent inlets in order to avoid solvent spilling.
- ❑ Remove the pump head assembly.
- ❑ Follow the steps provided in the "Agilent 1290 Infinity Pump Head Maintenance" Technote
- ❑ Replace the pump seals.
- ❑ Replace the seal wash seals and gasket.
- ❑ Finish "Remove/Install Pump Head" procedure (Agilent Lab Advisor software).
- ❑ Replace the high pressure filter frit.
- ❑ Replace the inline filter frit.
- ❑ Replace the seal wash pump cartridge.
- ❑ Perform pump self test (Agilent Lab Advisor Software).

G7120A

G7120A

- ❑ **Section NOT Applicable**
- ❑ Start "Remove/Install Pump Head" procedure (Agilent Lab Advisor Software).
- ❑ Remove or lift up solvent inlets in order to avoid solvent spilling.
- ❑ Remove the pump head assembly.
- ❑ Install the pump head assembly.
- ❑ Finish "Remove/Install Pump Head" procedure (Agilent Lab Advisor software).
- ❑ Replace the seal wash pump cartridge.
- ❑ Perform pump leak rate test (Agilent Lab Advisor Software).
- ❑ Perform the system pressure test (Agilent Lab Advisor Software).

Alternative Procedure

This procedure requires the 1290 Infinity Pump head service kit

- ❑ **Section NOT Applicable**
- ❑ Start "Remove/Install Pump Head" procedure (Agilent Lab Advisor Software).
- ❑ Remove or lift up solvent inlets in order to avoid solvent spilling.
- ❑ Remove the pump head assembly.
- ❑ Follow the steps provided in the "Agilent 1290 Infinity Pump Head Maintenance" Technote
- ❑ Replace the pump seals.
- ❑ Replace the seal wash seals and gasket.
- ❑ Replace the filter frit (PTFE frits (pack of 5) (01018-22707)) and seal cap (Seal cap (5067-4728)) of the high pressure filter assembly.
- ❑ Finish "Remove/Install Pump Head" procedure (Agilent Lab Advisor software).
- ❑ Replace the seal wash pump cartridge.
- ❑ Perform pump leak rate test (Agilent Lab Advisor Software).
- ❑ Perform the system pressure test (Agilent Lab Advisor Software).

G7167A/B

- ❑ **Section NOT Applicable**
- ❑ Verify the proper function of the drawer.
- ❑ Replace the rotor seal.
- ❑ Replace the needle assembly and the high pressure needle seat assembly.
- ❑ Replace the peristaltic pump cartridge (if applicable).
- ❑ Check that the Sample Cooler is operating well and change cooler temperature to a setpoint which is 10 °C lower (if possible) as the ambient temperature. Confirm that the temperature has reached the set point within an appropriate time by checking the cooler readings. Record if this test failed or pass on the PM Checklist (if applicable).
- ❑ Clean the instrument, especially the ventilation.
- ❑ Clean the Sample Cooler, especially the ventilation and verify that the drain tube is positioned correctly (if applicable).
- ❑ After maintaining the multicolumn thermostat, purge both modules with isopropanol for 5 min.
- ❑ Cap the outlet of the multisampler with a blank nut (Blank Nut SL (5067-6127)). If this blank nut is not immediatly availabe perform the test with the TCC included.
- ❑ Perform a System Pressure Test.

G7116B

- ❑ **Section NOT Applicable**
- ❑ Before disconnecting the columns, please record the columns and their position as a reference for re-installation.
- ❑ If a valve is installed, replace the rotor seal (see parts section for details).
- ❑ Perform a System Pressure Test. Use a ZDV to install a blank nut onto the heat exchanger's outlet capillary. If a valve is installed use the blanking nut to block one of the outlet ports. In case of a column selector valve use a ZDV-union to mount the blanking nut on the outlet port capillary with the valve switched to the bypass channel.
- ❑ Perform the MCT Thermostat Test with the Lab Advisor Software.
- ❑ Purge LC system with HPLC grade water for 10 min.

G7114B

The maintenance procedure requires NO consumables.

- ❑ **Section NOT Applicable**
- ❑ Inspect flow cell for leaks.
- ❑ Perform holmium oxide test.
- ❑ Perform Intensity Test.
- ❑ Perform Wavelength Verification Test.
- ❑ Perform Dark Current Test.
- ❑ Perform Filter Test.

G7117A/B

The maintenance procedure requires NO consumables (2x Position Cell Drawer Assembly G4212-40007 (Replace only if worn))

- ❑ **Section NOT Applicable**
- ❑ Inspect flow cell for leaks.
- ❑ Check the condition of the positioner cell drawer assembly.
- ❑ Perform Wavelength Verification Test.
- ❑ Perform Intensity Test.
- ❑ Perform dark current test.
- ❑ Perform Slit Test (not available in G7117A).

G7102A

- ❑ **Section NOT Applicable**
- ❑ Check communication of Control Software with the instrument
- ❑ Mass Flow Controller - Check control of gas flow
- ❑ Lamp Assembly - Check change in baseline from standby to run.
- ❑ Photo Detector Module - Check change in baseline from standby to run
- ❑ Check autozero function
- ❑ Evaporator Heater Assembly - Check evaporator temperature increases/decreases
- ❑ Nebuliser Heater Assembly - Check nebuliser temperature increases/decreases
- ❑ Peltier Assembly (on G7102A cooled only) - Check for cooling to sub-ambient temperatures
- ❑ Clean optics block assembly if baseline noise greater than 3 LSD units
- ❑ If cleaning the Optics did not achieve the results then proceed with the cleaning of the prism assembly.
- ❑ Check for dust around cooling fan, and clean if necessary
- ❑ Replace the following parts:
  - ❑ Evaporator Cartridge
  - ❑ Gas Inlet Plug Assembly
- ❑ Clean the Nebuliser Assembly if cleaning prism and optics assembly, and replacing above parts does not resolve baseline noise issues
- ❑ Return the instrument to initial conditions.

Guidance

If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Service Review

- ❑ Attach available reports or printouts to this documentation.
- ❑ Record the PM service activity in the customer's instrument records/logbook
- ❑ Update/reset instrument maintenance counters as appropriate
- ❑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ❑ Complete the Service Engineer Comments section below if there are additional comments.
- ❑ Review the service and any test results with the customer.
- ❑ If the instrument firmware was updated, record the details of the change in the Service Engineer Comments box below or if necessary, in the customer's IQ records.

Pump Test Results Table

❑ **Section NOT applicable**

Test Description	Expected Test Result	Actual Test Result
System Pressure Test	Pass	
Pump Leak Rate Test	Pass	
Pump Self Test	Pass	

G7104A, G7120A Parts List Table

❑ **Section NOT applicable**

Part Description	Product/Model # where used	Part Number	Quantity Consumed
Pump Head Channel A with Seal Wash	G7120A	G4220-60900	
Pump Head Channel B with Seal Wash	G7120A	G4220-60910	
Pump head assembly	G7104A	G4204-60600	
Wash Seal PE	G7104A G7120A	0905-1718	
PE Seal	G7104A G7120A	0905-1719	
Gasket, seal wash (pack of 6)	G7104A G7120A	5062-2484	
PTFE frits (pack of 5)	G7120A	01018-22707	
Frit for 1290 pump outlet filter 2/pk	G7104A	5067-5716	
Frit 0.3 µm for inline filter, 5/pk	G7104A	5023-0271	

G7167A/B Sampler Test Results Table

❑ **Section NOT applicable**

Test Description	Expected Test Result	Actual Test Result
System Pressure Test	Pass	
Cooler operational test	Pass	

G7167A/B Parts List Table

❑ **Section NOT applicable**

Part Description	Product/Model # where used	Part Number	Quantity Consumed
Needle Assembly	G7167A/B	G4267-87201	
High Pressure Needle Seat, 0.12 mm (PEEK)	G7167A/B	G4267-87012	
Rotor Seal for VICI Injection Valve (PAEK)	G7167B	5068-0198	
Peristaltic pump with Pharmed tubing	G1367E G4226A G7167A/B G7104A G7120A	5065-4445	
Rotor Seal for Rheodyne Injection Valve	G7167A	5068-0209	

G7116B Test Results Table

❑ **Section NOT applicable**

Test Description	Expected Test Result	Actual Test Result
Thermostat Test	Pass	
System Pressure Test	Pass	

G7116B Parts List Table

❑ **Section NOT applicable**

Part Description	Product/Model # where used	Part Number	Quantity Consumed
Rotor Seal (PEEK)	8-Column Selector valve (5067-4233)	5068-0200	
Rotor Seal (PEEK)	2 Pos/10 Port valve head 1300 bar (5067-4240)	5068-0205	
Rotor Seal (PEEK)	2 Pos/6 Port valve head 1300 bar (5067-4198)	5068-0163	
Rotor Seal (PEEK)	6-Column Selector 1300 bar (5067-4243)	5068-0212	

Detector Test Results Table

❑ **Section NOT applicable**

Test Description	Product/Model # where used	Expected Test Result	Actual Test Result
Holmium Oxide Test	G7114A	Pass	
Intensity Test	G7114A G7117A/B	Pass	
Wavelength Verification/Calibration	G7114A G7117A/B	Pass	
Dark Current Test	G7117A/B	Pass	
Slit Test	G7117A	Pass	

Detector Parts List Table

❑ **Section NOT applicable**

Please note that the following modules do not require consumables as a part of the standard PM:

- G7114A
- G7117A/B

G7102A Parts List Table

❑ **Section NOT applicable**

Part Description	Product/Model # where used	Part Number	Quantity Consumed
Evaporator cartridge	G7102A	PL0890-0475	
Gas inlet plug assembly	G7102A	PL0890-0530	

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of delivering the PM service including any follow-up activities, specific observations made or other items of interest for the customer, please write in this box.

Other Important Customer Web Links

How to get information on your product: Literature Library - http://www.agilent.com/chem/library

Need to know more? - www.agilent.com/chem/education

Need technical support? - www.agilent.com/chem/techsupp

Need supplies? - www.agilent.com/chem/supplies

Service Completion

Service Request number.....

Date service completed.....

Agilent Signature.....

Customer Signature.....

Total no. of pages for this document:.....