



# Agilent Technologies

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**Customer Contact:**

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## SERVICE REPORT

<b>Customer Purchase Order Number:</b> 10152720	<b>Customer Number:</b> 70003110
<b>Service Request:</b> 8100462794	<b>Service Request Date:</b> July 16, 2015
<b>Service Order:</b> 6000760785	<b>Service Confirmation:</b>

**Delivery Site:**

City of Scottsdale  
7447 E Indian School Rd  
SCOTTSDALE AZ 85251-3922  
USA

**Direct Inquiries to:**

Contact Name: Customer Contact Center  
Contact E-mail: [soclosurerequest@agilent.com](mailto:soclosurerequest@agilent.com)  
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**Location:**

**Room**  
**Bldg**  
**Lab**  
**Dept**

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Beneficiary Account: 12331-31561  
Beneficiary Name: Agilent Technologies Inc

ORIGINAL

**Service Confirmation Number:**  
**Service Confirmation Date:** August 24, 2015

**Service Instrument:**

<b>Model Number</b>	<b>Model Description</b>	<b>Serial Number</b>	<b>System Handle</b>	<b>Parent Asset</b>
SYS-GC-7890-E	GC 7890 System Enhanced GC Features		SYS-GC-7890-E	

**Service Items:**

<b>Item</b>	<b>Service/Part #</b>	<b>Description</b>	<b>Qty</b>	<b>Entitlement</b>	<b>Service Start</b>	<b>Service End</b>
10	PIPM	Per-incident Preventive Maintenance	1.00	Trade	08/20/2015	08/20/2015
20	G4556-67011	7697A Standard PM Kit	1.00	Trade		
30	G1531-80560	Jet, Capillary Optimized,0.29mm ID	2.00	Trade		
40	5188-6496	QuickPick Split Vent + Inlet PM Kit	2.00	Trade		
50	G3188-27503	Ferrule, flexi, inert 0.53mm col 10/PK	1.00	Trade		

**Additional Information:**

**Service Confirmation Number:**  
**Service Confirmation Date:** August 24, 2015

**Service Information:**

<b>Problem Description:</b> July'15 PM US14173023 &CN1416004		
<b>Service Provided:</b> Performed PM on gc and headspace. Replaced the gold seal, septum, split vent trap, liner, o-ring, transfer line, HS needle and HS sample loop.		
<b>Service Overview Code:</b> Reason Code: Diagnosis Code: N/A Scheduled Service Resolution Code: Scheduled Service		
<b>Reported Hours:</b> 3.00	<b>Travel Hours:</b> 1.00	
<b>Customer Field Service Representative Name:</b> Craig Jones	<b>Customer Field Service Representative Signature:</b> 	<b>Date:</b> 8/24/2015
<b>Customer Name:</b>	<b>Customer Signature:</b>	<b>Date:</b>
<b>Additional Comments:</b>		



## 7697A Headspace Sampler Preventive Maintenance Checklist – Standard

Agilent Preventive Maintenance provides factory recommended service for your analytical 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 Engineer's 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 not delivered, as needed.
- Complete the PM service in the order of the tasks listed.
- Complete the Service Review section together with the customer.
- **It is important to consult with the customer prior to a PM** to determine which parts are installed in the instrument to decide if individual components need to be purchased rather than the 7697A Standard PM Kit. The 7697A Standard PM Kit contents are based off of the contents of the original shipment. Different types of deactivated treatment for the sample probe and sample loop, different sample loop sizes, and transfer line sizes may require for individual parts to be ordered to perform the PM procedure. If different parts are required, reference the Agilent supplies catalog for part numbers.



7697A Headspace Sampler  
Preventive Maintenance Checklist – Standard

### System Information

#### Guidance

- Check this box if an instrument configuration report is attached instead of completing the table.

<b>Instrument system name and ID</b>	GC HS
<b>Instrument system site and location</b>	lab
<b>List system component product numbers</b>	<b>List the serial numbers of each component</b>
1. 64557-64000	1. CM14140045
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.

### Preparation

- Discuss any specific issues with the customer prior to starting.
- Review the instrument logbook.
- Save instrument control settings before starting the procedure.
- Perform general inspection of system for cleanliness
- Check for proper installation of safety-related parts, assemblies , sensors etc
- Check for required firmware updates and verify with customers if they would like it installed.



**7697A Headspace Sampler  
Preventive Maintenance Checklist – Standard**

**Inspect and Clean Sampler**

- If a tray is part of the system, remove the tray and pneumatics to allow for access to the oven.
- If a tray is part of the system, check that the shutter sensor is not dusty. If it is, use air duster to remove the dust.
- Check for any debris in the carousel and clean if necessary.
- If a tray is part of the system, reinstall the tray and pneumatics unit.
- Remove the front panel of the instrument.
- Check the carousel belt for wear. If it is worn, consult with the customer to determine if it should be replaced.
- Use a dry, clean cloth to wipe the lifter rod(s) clean. Do not apply any lubricant.
- Vacuum the inside of the unit.
- Reinstall the front panel of the instrument.
- Using the Manual Operations function under the Service Mode Key on the instrument keypad, confirm that the following components work:
  - Tray Lifter (If applicable)
  - Sample Lifter
  - Carousel Motor
  - Shutter Motor (If applicable)

**Pneumatic Components**

- Remove the sample probe.
- Remove the sample loop.
- Install the new sample loop.
- Install the new sample probe.
- Remove the fused silica transfer line.  
**Special Note: If OQ will be performed after the PM, remove the fused silica transfer line and do not reinstall it until the transfer line measurement is taken for the OQ procedure.**
- Reinstall the fused silica transfer line.
- Use Service Reminders under the Service Mode Key to reset the counter (press the OFF key) of the sample probe, sample loop and transfer line.
- Use the Leak Test under the Service Mode Key on the instrument keypad to run the instrument restriction and leak test. Verify that it passes (make a note below in the tests results table). If it fails, consult the customer for repair options.



**7697A Headspace Sampler  
Preventive Maintenance Checklist - Standard**

**Tray Components**

- Section NOT applicable.
- Check for any debris in the sample trays and clean if necessary.
- Check that the tray gantry rod is clean. If it is dirty or dusty, wipe it clean with a dry cloth. Do not apply any kind of lubrication.
- Check that the sensors are not dusty. If they are, use air duster to remove the dust.
- Check the tray belts for any wear. If they are worn, consult with the customer to determine if they should be replaced.
- Verify that the three LED's for the tray racks light up when the trays are installed.
- Run the tray calibration.
- Reset the counter (pressing the OFF key) of the tray calibration.

**Restore Instrument**

- Reconnect the headspace transfer line if it has not been already reconnected.
- Return instrument to initial conditions.
- Perform system checkout procedure or test.

**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.



**7697A Headspace Sampler  
Preventive Maintenance Checklist – Standard**

**Service Review**

- Attach available reports/printouts of all tests 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 Review 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's Comments box below or if necessary, in the customer's IQ records.

**7697A Headspace Sampler Test Results Table**

Test Description	Expected Test Result	Actual Test Result
Tray Calibration	Pass	Pass
Leak Test	Pass	Pass
Chemical Checkout Test	Pass	Pass

**7697A Headspace Sampler Parts List Table**

Part Description	Part Number	Product or Model# where used	Quantity Consumed
7697A Standard PM Kit ❶	G4556-67011	7697A HS Sampler	1
Ferrule Flexi Inert 0.53mm Col 5/PK NFS	G3188-27553	7697A HS Sampler AND G3520A module	1 (Optional, not included in PM kit)

❶ Part numbers and descriptions for the kit contents.

Part Description	Part Number	Quantity
Sample Probe	G4556-60125	1
Sample Loop (1mL)	G4556-80106	1
Thermal Gap Insulation Foam	G3530-00610	1
7697A Fused Silica and ProSteel Kit	G3903-61001	1
Polyimide, Valcon Ferrule, 5 pack	0100-2595	1
Nut and reducing union for 6 port valve transfer line connection	0100-2594	1
Liner, direct, 2mm ID, deactivated	5181-8818	1





7697A Headspace Sampler  
Preventive Maintenance Checklist - Standard

**Service Engineer Comments (optional)**

If there are any specific points you wish to note as part of performing the service or other items of interest for the customer, please write in this box.



N/A

**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](http://www.agilent.com/chem/education)
- Need technical support, FAQs? - [www.agilent.com/chem/techsupp](http://www.agilent.com/chem/techsupp)
- Need supplies? - [www.agilent.com/chem/supplies](http://www.agilent.com/chem/supplies)

**Service Completion**

Service request number 6000760785 Date service completed 8/20/15

Agilent signature  Customer signature 

Document part number: G4556-90022



Agilent Preventive Maintenance provides factory recommended service for your analytical 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 GC Support please visit our web site using the following URL: <http://www.chem.agilent.com/en-US/Technical-Support/Instruments-Systems/Gas-Chromatography/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 Engineer's 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 not delivered, as needed.
- Complete the PM service in the order of the tasks listed.
- Complete the Service Review section together with the customer.

## Additional Instruction Notes

- Check for any active service notes for this unit. If there are any applicable "Safety" or "Modification Recommended" Service notes, plan to implement the changes on this unit before doing any qualification service. Do not implement firmware updates, unless you get approval from the customer and are sure that they are compatible with the instrument control software.



## System Information

### Guidance

- Check this box if an instrument configuration report is attached instead of completing the table.

Instrument system name and ID	GC HS
Instrument system site and location	LS
List system component product numbers	List the serial numbers of each component
1. 63445B	1. U514173023
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.

## Preparation

- Discuss any specific issues with the customer prior to starting.
- Review the instrument logbook.
- Save instrument control settings before starting the procedure.
- Perform general inspection of system for cleanliness
- Check for proper installation of safety-related parts, assemblies , sensors etc.
- Check for required firmware updates and verify with customers if they would like it installed.
- Before starting the following procedures, record the Detector Signal Output(s) in the results table. If the GC is turned OFF or in a service mode, comparing the detector outputs before and after the service is not possible.

**7890 GC****Preventive Maintenance Checklist – Standard****Clean and inspect GC**

- Unplug power cord from the power source.
- Open GC covers and vacuum/remove any dust/debris. Pay particular attention to cooling fans.
- Inspect internal connectors for proper contact and placement.
- Reconnect Power to the GC. Power the GC on and verify the power on self-test passed.
- Verify oven motor spins freely and turns on with the oven door closed; off when the door is opened.
- Verify operation of all other fans - the inlet and EPC cooling fans.
- Verify oven intake/outlet flap assembly is operating smoothly while heating and cooling the oven

**Inlet and detector consumable replacement**

- For the inlets installed, perform inlet maintenance as defined in the 7890 manual – “Maintaining Your GC” - for the inlet(s) installed.
- Replace the split vent trap on units with these inlets: Split/Splitless Capillary (SSL), Multi-Mode Inlet (MMI), Programmed Temperature Vaporizer (PTV), Volatiles Interface (VI).
- If the GC includes a Flame Ionization Detector (FID), replace the jet. If the ignitor shows any buildup of sample or corrosion, replace the ignitor. Examine the FID collector and castle assemblies for contamination – clean as necessary.

**Zero Sensors and Leak test**

- Zero all pressure sensors per the procedure in the 7890 “Advanced User Guide”.
- Perform inlet pressure decay test(s) as defined in the 7890 “Advanced User Guide”. If the PM is done in preparation for an OQ/PV, then the pressure decay test defined within that protocol can be used for the PM.
- Record if test passed or failed in the results table.

**ALS Maintenance**

- Section NOT applicable**
- Check all cabling and configuration settings between GC, tray, and injectors.
- Vacuum or removed any dust, especially around fans.
- Check operation of all fans.
- Check syringe for smooth plunger operation.
- Check for smooth operation of the needle support rod – clean if necessary
- Check for correct operation of syringe volume stops.



### **Restore Instrument**

- Restore the normal operating conditions using the Keyboard or Data System.
- Check and record the post PM detector signal output values.  
Results should be similar or lower than the detector outputs recorded prior to PM.
- Perform a chemical checkout. If this is a routine PM, inject the customer's sample using the ALS if applicable. This will act as a final checkout of both the ALS and the GC.

### **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.

**7890 GC  
Preventive Maintenance Checklist – Standard**



**Service Review**

- Attach available reports/printouts of all tests 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 Review 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's Comments box below or if necessary, in the customer's IQ records.

**7890 GC Test Results Table**

<b>Detector Signal Outputs</b>	<b>Before PM service</b>	<b>After PM service</b>
Front detector output	21.2	23.0
Back detector output	21.5	24.1
AUX detector output	N/A	N/A
<b>Pressure decay test</b>	<b>Expected result</b>	<b>Actual result or N/A</b>
Front inlet pressure decay test	Pass	Pass
Back inlet pressure decay test	Pass	N/A

**7890 GC  
Preventive Maintenance Checklist – Standard**



**Agilent Technologies**

**7890 GC Parts List Table**

The following kits are recommended for capillary and purged packed inlets. If this is a general PM and the customer has a preferred set of consumables, you may use the customer's consumables.

<b>Part Description</b>	<b>Part Number</b>	<b>Model# where used</b>	<b>Quantity Consumed</b>
SSL Capillary Inlet PM kit, Splitless	5188-6497	G3440A	0
SSL Capillary Inlet PM kit, split	5188-6496	G3440A	1
SSL Capillary Ultra Inert Inlet Gold Seal with Washer	5190-6144	G3440A	0
SSL Capillary Ultra Inert Inlet Splitless Liner - Single taper with Glass Wool	5190-2293	G3440A	0
SSL Capillary Ultra Inert Inlet Low Pressure Drop Split Liner - with Glass Wool	5190-2295	G3440A	0
PP Inlet PM kit	5188-6498	G3440A	0
Split vent trap PM kit, single cartridge (for MMI, PTV & VI)	5188-6495	G3440A	0
MMI Cleaning Kit	G3510-60820	G3440A	0
PTV Septumless Head Rebuild Kit	5182-9747	G3440A	0
PTV Septumless Head Teflon Guide	5182-9748	G3440A	0
Ignitor (glow plug) assembly with O-ring	19231-60680	G3440A	0
FID Collector Rebuild/Cleaning Kit	G1531-67000	G3440A	0
FID Collector Replacement Kit	G1531-67001	G3440A	0
Standard .011-inch FID Jet for capillary FID base	G1531-80560	G3440A	2
Standard .018-inch FID Jet for packed column with packed FID base	18710-20119	G3440A	0
Standard .011-inch FID Jet for capillary column with packed FID base	19244-80560	G3440A	0



7890 GC

**Preventive Maintenance Checklist - Standard**

**Service Engineer Comments (optional)**

If there are any specific points you wish to note as part of performing the service or other items of interest for the customer, please write in this box.



N/A

**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](http://www.agilent.com/chem/education)
- Need supplies? - [www.agilent.com/chem/supplies](http://www.agilent.com/chem/supplies)

**Service Completion**

Service request number 6000760785      Date service completed 8/20/15

Agilent signature       Customer signature 

Document part number: G3430-90004



Scottsdale Police Department Crime Lab Volatiles Analysis

```

=====
Sample:      post pm test                      Vial:      6
Data File:   C:\Chem32\1\Data\post pm ->      Injected:   8/20/2015  12:04:05 PM
Sequence:
Method:      C:\Chem32\1\Methods\ethanol quant.M
Instrument:   Agilent 7890B GC with 7697A Headspace Sampler:  US14173023 CN14160045
=====
    
```

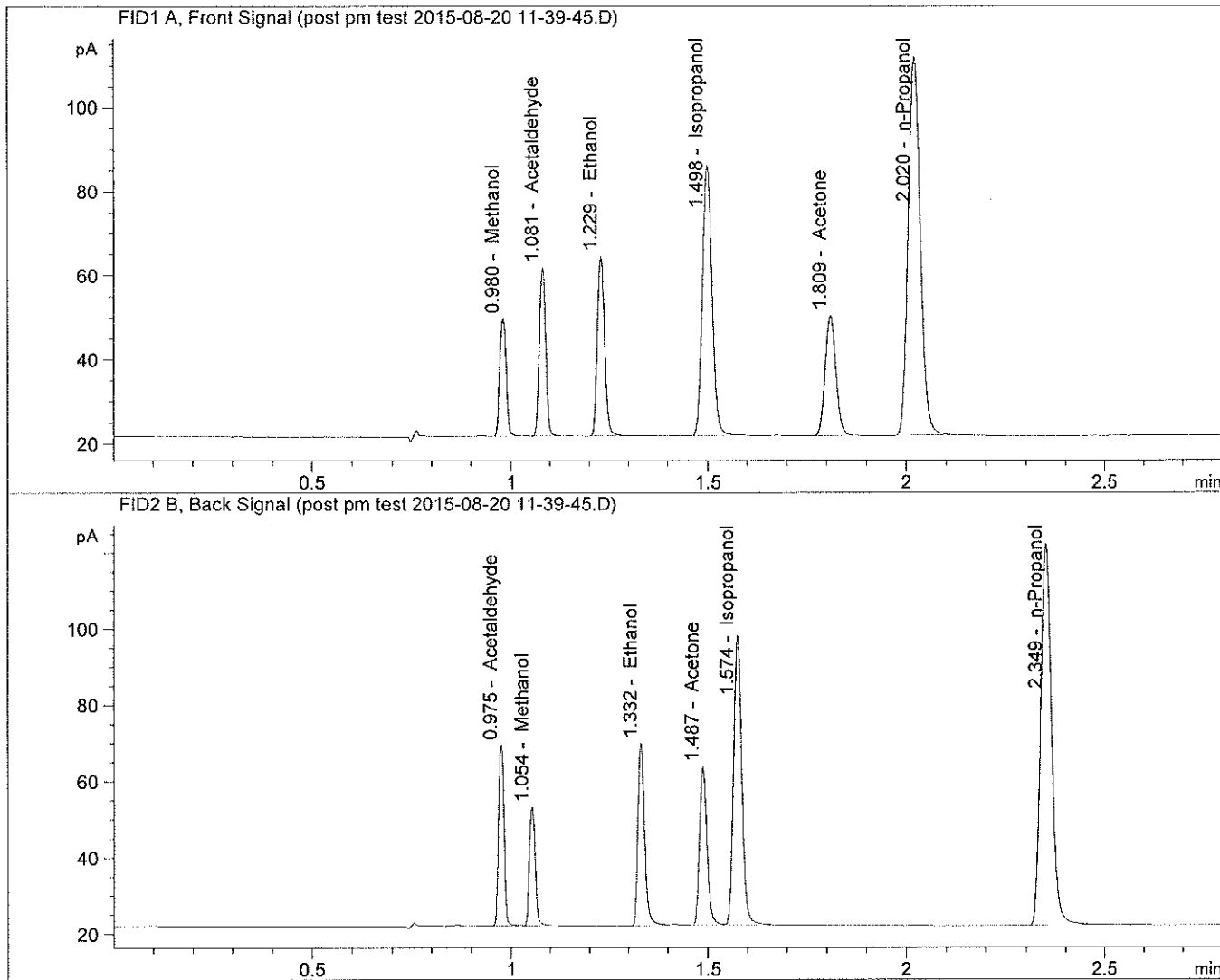


Table 1: FID 1 column DB-ALC1

```

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```

Compound	Amount (g/dL)	Time (min)	Peak Area
Methanol		0.980	32.252
Acetaldehyde		1.081	44.657
Ethanol	0.0831	1.229	55.602
Isopropanol		1.498	109.121
Acetone		1.809	53.356
n-Propanol		2.020	189.922

```

=====
    
```

Table 2: FID 2 column DB-ALC2

```

=====

```

Compound	Time (min)	Peak Area
Acetaldehyde	0.975	46.005
Methanol	1.054	32.847
Ethanol	1.332	56.643
Acetone	1.487	54.177
Isopropanol	1.574	110.608
n-Propanol	2.349	192.816

```

=====
    
```