5973 Ion Source Assembly (EI)

Maintaining the Ion Source

Cleaning procedures for MSDs vary. Refer to your MSD Hardware Manual for specific ion source cleaning procedures.

Common measures of instrument performance:
- Abundance of certain ions (e.g., percentage of the 502 ion from the Autotune report)
- Shape of lens ramps and the chosen voltages, especially Repeller Ramp
- Sensitivity obtainable for a given analysis
- Ability to tune to a given reference compound (e.g., DFTPP)

When to clean:
The ion source should be cleaned:
- According to a customer's predefined schedule
- Based on instrument performance (e.g., deteriorated performance over time)

Frequency of cleaning:
- The number of samples run (throughput)
- The type of samples
- Unique, established laboratory protocol

Selecting a cleaning method:
The primary action of any cleaning procedure is to remove contamination from surfaces. Removing this contamination restores the electrostatic properties of the ion source lensing system. Numerous cleaning methods have been developed for restoring ion source performance. The cleaning methods include abrasive, sonic, and electropolish.

Abrasive methods offer several advantages:
- Provide adequate energy to remove contamination from surfaces
- Require minimal equipment
- Pose minimal risks to the user

Cleaning and Maintenance Supplies

Description	Part No.
Cleaning and Maintenance	
Nylon gloves, lint-free, Large	8650-0030
Nylon gloves, lint-free, Small	8650-0029
Lint-free industrial wipes, 100% cotton, 9 x 9 in. (300/pk)	9310-4828
Generic ion source cleaning kit for all GC/MS types Includes: Cloths, lint-free (15/pk), Abrasive sheets (5/pk), Cotton swabs (100/pk), Nylon gloves, lint-free, Alumina powder, abrasive	5181-8863
Cloths, lint-free (15/pk)	05980-60051
Abrasive Sheets, aluminum oxide green lapping paper for ion source cleaning, 600 mesh (5 sheets)	5061-5896
Alumina powder, abrasive	8660-0791
PFTBA sample, certified (10 g)	8500-0656
PFTBA sample kit, 0.5 mL	05971-60571
Activated alumina, absorbent pellets for Edwards rough pump traps, non-LC/MS (1 lb can)	8500-1233
PFTBA glass vial	05980-20018
Cotton swabs (100/pk)	5080-5400
Tools	
Screwdriver, Pozidriv #1 pt, 3 in., fits no. 2 - 4 screws	8710-0899
Screwdriver, Pozidriv #2 pt, 4 in., fits no. 5 - 10 screws	8710-0900
Wrench, open-end, 1/4 x 5/16 in.	8710-0510
Hex nut driver, 5.5 mm	8710-1220
Screwdriver, TORX, T20	8710-1615
Screwdriver, TORX, T15	8710-1622
Screwdriver, TORX, T10	5182-3466
Ferrules and O-rings	
Teflon 1/4 in. ferrule (back)	0100-0160
Teflon 1/4 in. ferrule (front)	0100-0787
Retainer rings (10/pk)	5181-1258

Cleaning and Maintenance Supplies

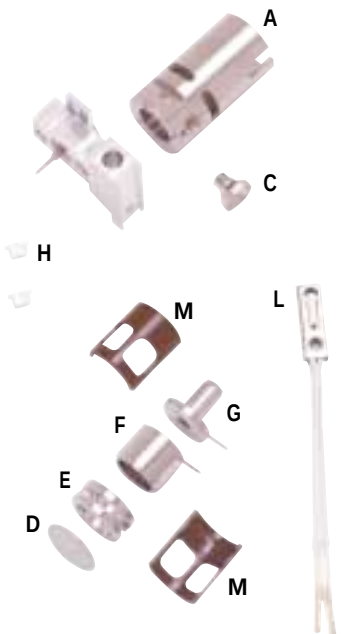
GC / MS Parts and Supplies

MSD Ion Source

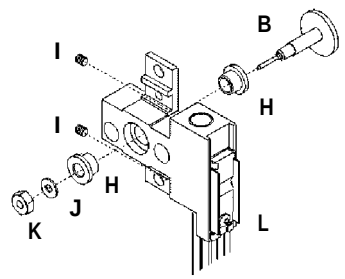
Cleaning and Maintenance Supplies (continued)

Description	Part No.
5973 One Year Maintenance Kit (for diffusion pump systems) Includes: Big Universal Trap for He (1/8 in.), Abrasive sheets (5/pk), Cloths, lint-free (15/pk), Cotton swabs (100/pk), SantoVac Ultra, 18.5 mL (2 each), Rough pump oil, 1 liter, Filament assembly, Octafluoronapthalene (OFN)	5183-2096
MSD Tool Kit Includes: Small cleaning rod, Large cleaning rod, Source hold tool, Cotton swabs (100/pk), Nylon gloves, lint-free, Abrasive sheet, 30 mm (5/pk), Tool kit (wrenches, driving tools)	05971-60561

Helpful Hint: Details about specific MSD maintenance can be found in your model's specific hardware manual.



5973 Ion Source Parts (EI)



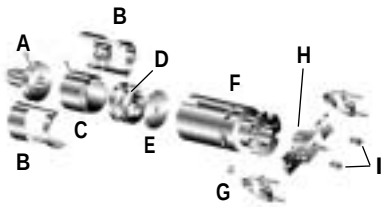
5973 Repeller Assembly (EI)

MSD Ion Source Parts (EI) 5973

Item	Description	5973 Part No.
(A)	Ion source body	G1099-20130
(B)	Repeller	G1099-20132
(C)	Interface socket	G1099-20136
(D)	Drawout plate	05971-20134
(E)	Drawout cylinder	G1072-20008
(F)	Ion focus lens	05971-20143
(G)	Entrance lens	05971-20126
(H)	Repeller insulator	G1099-20133
(I)	Set screw	0515-1446
(J)	Washer, M3 (5/pk)	3050-0891
(K)	Nut, 5.5 mm	0535-0071
(L)	Ion Source Sensor	G1099-60104
(M)	Lens insulator, (2/pk)	05971-20130
	Ion source assembly	G1099-60106
	Source heater assembly	G1099-60177
	Repeller assembly	G1099-60170
	Screw (for filament on the source)	0515-1046

5972 / 5971 / GCD MSD Ion Source Parts (EI)

Item	Description	Unit	Part No.
(A)	Entrance lens		05971-20126
(B)	Lens insulator	2/pk	05971-20130
(C)	Ion focus lens		05971-20143
(D)	Drawout cylinder		G1072-20008
(E)	Drawout plate		05971-20134
(F)	Ion source body		05971-20128
(G)	Set screw		0515-1446
(H)	Repeller assembly		05971-60170
(I)	Screw (for filament on the source)		0515-1046
	Ion source assembly (5972)		05971-60226
	Ion source assembly (5971/GCD)		05971-60102
	Transfer line tip, gold plated (5972/5971)		05971-20305
	Transfer line tip, gold plated (GCD)		G1800-20305



5972/5971/GCD Ion Source (EI)

Helpful Hint: It is good practice to replace scratched lenses and other ion source parts. Scratched source parts lead to poor performance.

Maintaining the Filaments

Like the filament in an incandescent light bulb, the ion source filaments will eventually burn out. Certain practices will reduce the chance of early failure:

- When setting up data acquisition parameters, set the solvent delay so that the analyzer will not turn on while the solvent peak is eluting.
- When the software prompts "Override solvent delay at the beginning of a run" always select **No.**
- Higher emission current will reduce filament life.
- If you are controlling your MSD from the Edit Parameters screen, always select **MS Off** before changing any of the filament parameters.

5973/5972 Filament

Description	Unit	Part No.
Filament, 5973 (EI)		05971-60053
Filament, 5973 (CI)	2/pk	G1099-80053
Filament, 5972 (EI/CI)		05971-60053
Filament, 5971 (EI/CI) / GCD (EI)		05971-60140

Helpful Hint: It is very useful to switch from one filament to the other every three months so that when one filament fails, you know the other will fail soon. This will allow you to change both filaments at the same time.