Agilent 5977B Series MSD

Laboratory Operator Quick Reference Guide

Ion Source Cleaning

Scheduled Maintenance

Ion Source Cleaning

Clean the parts that contact the sample or ion beam. The other parts normally should not require cleaning.

If the contamination is serious, such as an oil backflow into the analyzer, seriously consider replacing the contaminated parts.

Abrasively clean the surfaces that contact the sample or ion beam.

Use an abrasive slurry of alumina powder and reagent-grade methanol on a cotton swab. Use enough force to remove all discolorations. Polishing the parts is not necessary; small scratches will not harm performance. Also, abrasively clean the discolorations where electrons from the filaments enter the source body.

Rinse away all abrasive residue with reagent-grade methanol.

Take care to avoid recontaminating cleaned and dried parts. Put on new, clean gloves before handling the parts. Do not set the cleaned parts on a dirty surface. Set them only on clean, lint-free cloths.

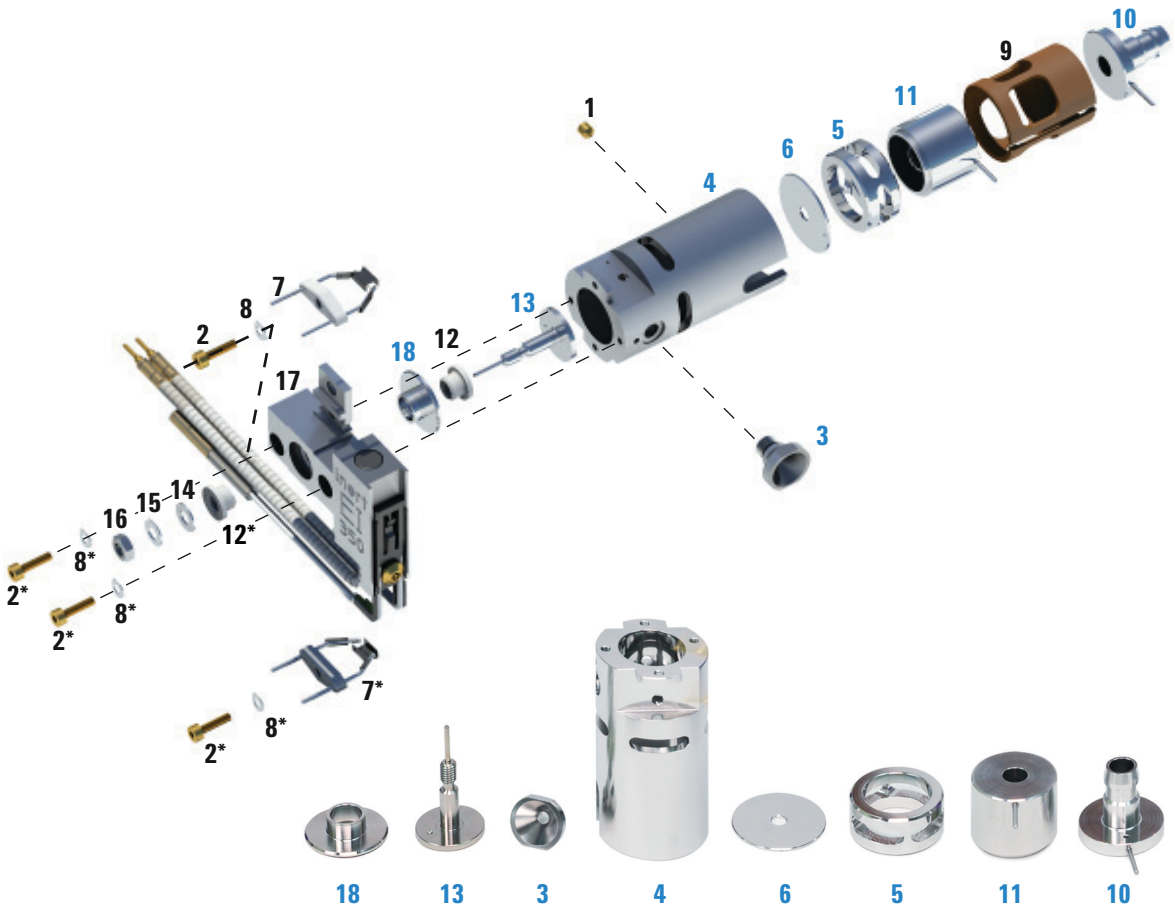
NOTE **The main effect of operating the MSD in CI mode is the need for more frequent ion source cleaning. In CI operation, the ion source chamber is subject to more rapid contamination than in EI operation because of the higher source pressures required for CI.**

CAUTION **Do not overtighten the repeller nut or the ceramic repeller insulators will break when the source heats up. The nut should only be finger-tight.**

CAUTION **If insulators are dirty, clean them with a cotton swab dampened with reagent-grade methanol. If that does not clean the insulators, replace them. Do not abrasively or ultrasonically clean the insulators.**

CAUTION **The filaments, source heater assembly, and insulators cannot be cleaned ultrasonically. Replace these components if major contamination occurs.**

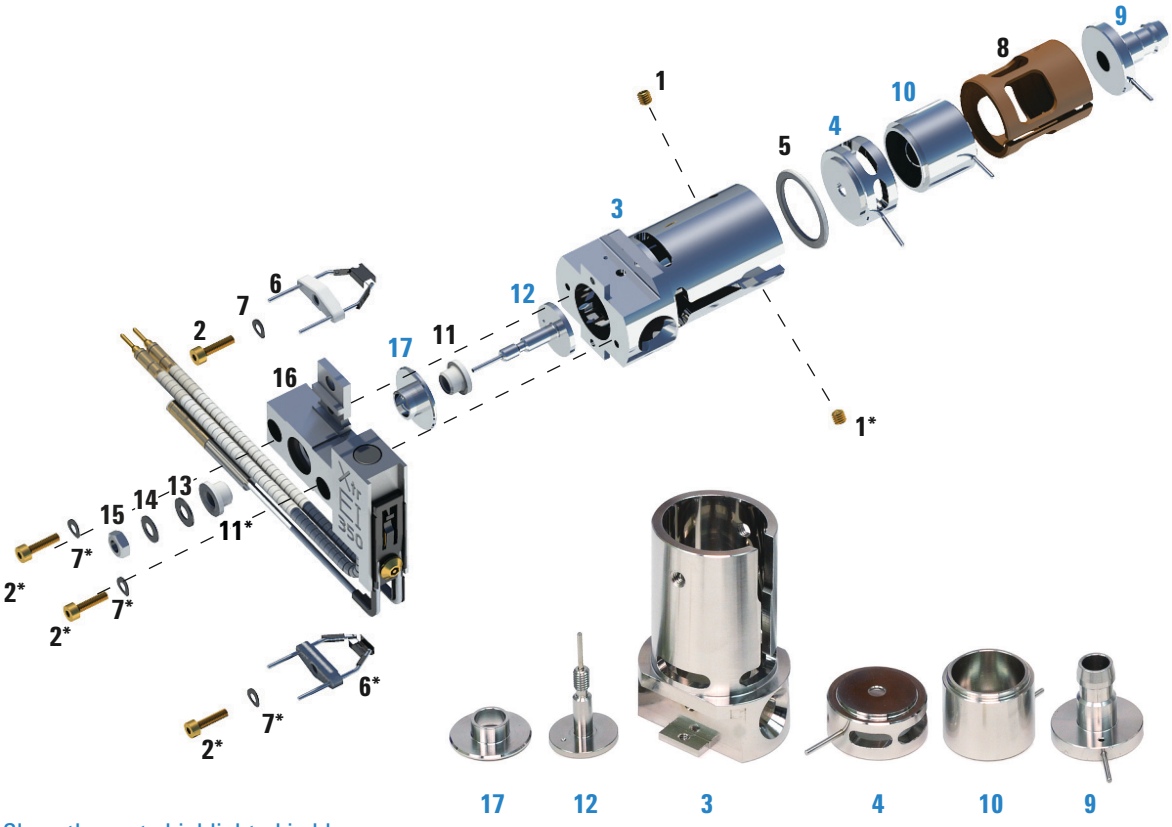
EI Ion Source - Stainless or Inert



Clean the parts highlighted in blue.

1	Gold plated set screw	7	4-turn filament	13	Repeller
2	Gold plated screw	8	Spring washer	14	Flat washer
3	Interface socket	9	Lens insulator	15	Belleville spring washer
4	Source body	10	Entrance lens	16	Repeller nut
5	Drawout cylinder	11	Ion focus lens	17	Source heater block assembly
6	Drawout plate	12	Repeller insulator	18	Repeller block insert

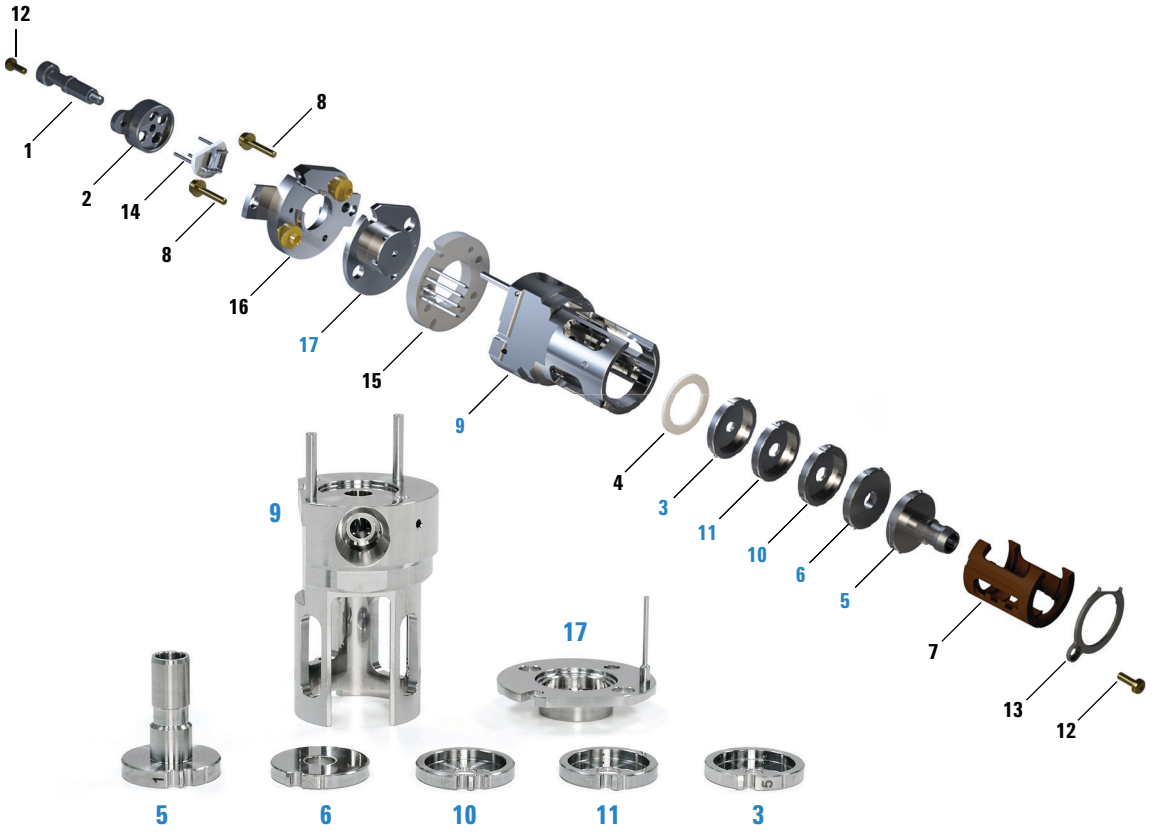
EI Ion Source - Extractor



Clean the parts highlighted in blue.

1 Set screws
2 Screws
3 Source body
4 Extractor lens
5 Extractor lens insulator
6 Filaments
7 Spring washer
8 Lens insulator
9 Entrance lens
10 Ion focus lens
11 Repeller insulator
12 Repeller
13 Flat washer
14 Belleville spring washer
15 Repeller nut
16 Source heater block assembly
17 Repeller block insert

EI HES Source

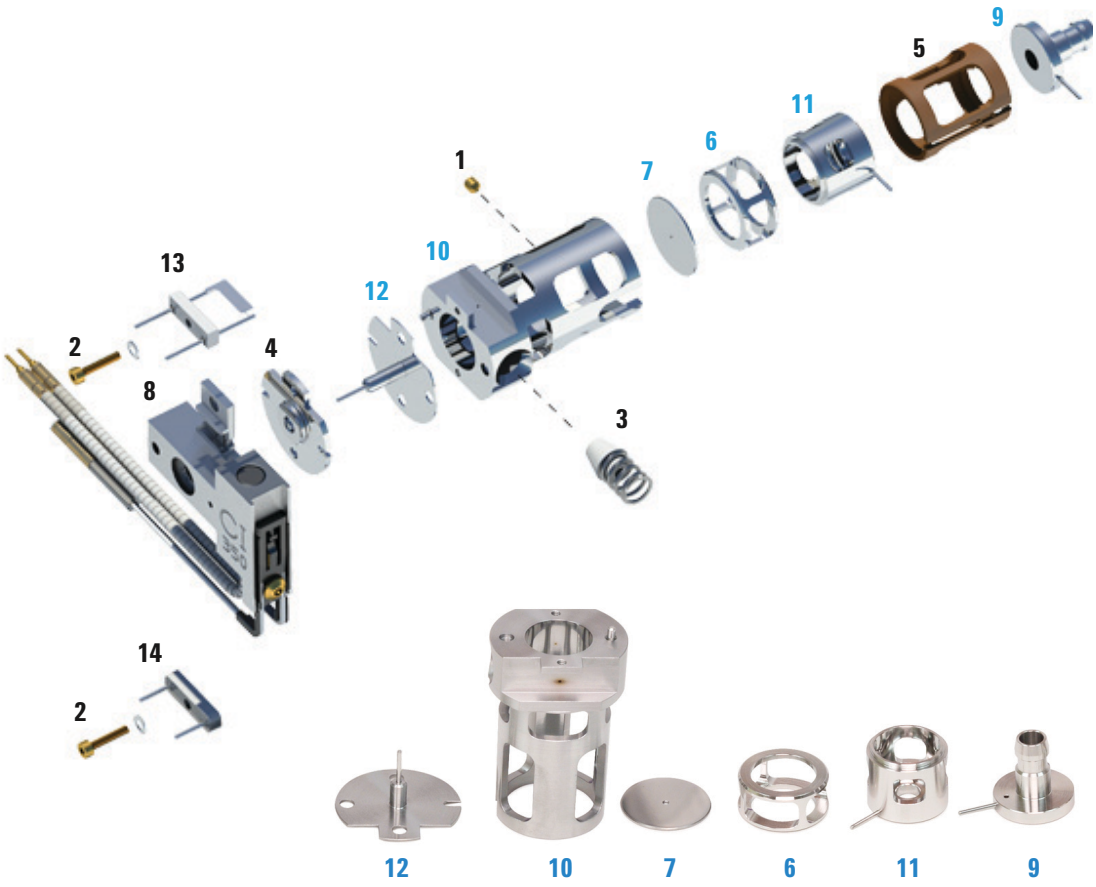


Clean the parts highlighted in blue.

1	Source finger grip	7	Lens insulator/holder	13	Locking ring lens insulator
2	Filament block	8	M2 × 0.4 screw × 12 mm screw	14	High efficiency dual filament
3	Extractor lens (5)*	9	Source body	15	Ring heater/sensor assembly
4	Ceramic insulator for extrctor	10	Post extractor lens 2 (3)*	16	Source mount 1.5 mm
5	Entrance lens (1)*	11	Post extractor lens 1 (4)*	17	Repeller assembly
6	Ion focus lens (2)*	12	M2 × 6 mm screw		

* The number in parenthesis is the number engraved on the lens

CI Ion Source



Clean the parts highlighted in blue.

1 Set screw
2 Filament screw
3 CI interface tip seal
4 CI repeller insulator
5 CI lens insulator
6 CI drawout cylinder
7 CI drawout plate
8 CI source heater block assembly
9 Entrace lens
10 CI source body
11 CI ion focus lens
12 CI repeller
13 CI filament
14 Dummy filament

Scheduled maintenance

Task	Every week	Every 6 months	Every year	As needed
Tune the MSD				X
Check the foreline pump oil level	X			
Check the calibration vial(s)		X		
Replace the foreline pump oil*		X		
Replace the diffusion pump fluid			X	
Check the dry foreline pump				X
Change the dry foreline pump tip seal			X	
Change the foreline pump oil mist filter				X
Clean the ion source				X
Check the carrier gas trap(s) on the GC and MSD				X
Replace the worn out parts				X
Lubricate sideplate or vent valve O-rings†				X
Replace CI Reagent gas supply				X
Replace GC gas supplies				X

* Every 3 months for CI MSDs using ammonia reagent gas.

† Vacuum seals other than the side plate O-ring and vent valve O-ring do not need to be lubricated. Lubricating other seals can interfere with their correct function.

www.agilent.com

First edition, January 2019

G7077-90038

Agilent