

# REPLACEMENT PARTS & SUPPLIES



Replacement Parts & Supplies

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- Tax exempt number (if applicable).

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**GC Analytical System Supplies**

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## Analytical Supplies

### Cables - Power Cords

		Part #
Australia	220/230 VAC	249276
China	220 VAC	249276
Denmark	220/230 VAC	249300
European Continent	220/230 VAC	249284
Greenland	220 VAC	249300
India	220-250 VAC	249318
Ireland	220 VAC	249268
Israel	230 VAC	249342
Italy	220/230 VAC	249359
Japan	100 VAC 50/60 Hz	249326
New Zealand	230 VAC	249276
North America	120 VAC	116038
South Africa	220-250 VAC	249318
Switzerland	220/230 VAC	249292
United Kingdom	240 VAC	249268

### Chemicals and Standards

		Part #
502.2	100 ppm/MEOH	222919
502.2 Gas/Non-Gas	100 ppm/MEOH	222901
BTEX	100 ppm/MEOH	222885
Pesticide (b-BHC, Chlorpyrifos, Diazinon, Thimet, Atrazine)		222893

### Cleaner











	Part #
Micro All Purpose Cleaner	259945
PID Lamp Cleaning Kit	214924

**OI Analytical's Standards Policy:** OI Analytical sells reference standards prepared in the production laboratory using standard laboratory techniques. Certification of these standards is not implied.

### Columns and Column Supplies\*

		Part #
BTEX Column Kit	30 m x 0.53 mm I.D. x 1.5 µm (Rtx-5) 30 m x 0.53 mm I.D. x 1.5 µm (Stabilwax) Column Splitter	187765
Column Cutters	Ceramic (3/pk)	206888
Column Splitter	Stainless Steel 0.8 mm	193847
DB 624 Column	30 m x 0.53 mm I.D. x 3.0 µm	203059
DB 624 Column	75 m x 0.53 mm I.D. x 3.0 µm	203067
DB VRX Column	60 m x 0.25 mm I.D. x 1.4 µm	319458
DB VRX Column	60 m x 0.32 mm I.D. x 1.8 µm	316851
DB VRX Column	75 m x 0.45 mm I.D. x 2.55 µm	259986
GS-GasPro Column	30 m x 0.32 mm	319451
GS-GasPro Column	60 m x 0.32 mm	319452
USEPA 502.2 Column	105 m x 0.53 mm I.D. x 3.0 µm	186874
Pesticide Column Kit	30 m x 0.32 mm I.D. x 0.25 µm Rtx-5) 30 m x 0.32 mm I.D. x 0.25 µm (Rtx-35) Column Fittings	192831
Rtx-1 Column	105 m x 0.53 mm I.D. x 3.0 µm	236240
Rtx-5 Column	30 m x 0.32 mm I.D. x 0.25 µm	193318
Rtx-5 Column	30 m x 0.53 mm I.D. x 1.5 µm	188193
Rtx-35 Column	30 m x 0.32 mm I.D. x 0.25 µm	193326
Stabilwax	30 m x 0.53 mm I.D. x 1.5 µm	188201

\*Columns may be substituted for exact replacement from other vendors without notice

			
Continental Europe	Australia, New Zealand, China	United Kingdom, Ireland	North America
			
Denmark, Greenland	India, South Africa	Israel	
			
Italy	Japan	Switzerland	

**Power Cord Plugs**

## Analytical Supplies

<b>Electrometers</b>		<b>Part #</b>
Analog Input Board (AIB) Agilent 6890		274886
Analog Input Board (AIB) Agilent 5890		187716K
Dual Channel Electrometer		194910
Single Channel Electrometer		194720
PID or FID Electrometer Card Agilent 6890 (may require 274878)		274860
PID or FID Interface Card Agilent 6890		274878
PID or FID Electrometer Card Agilent 5890		187344

<b>Fuses</b>			<b>Part #</b>
0.5 amp	AGC	Model 4430	115469
2 amp	AGC	CFM	115493
2 amp	GMA	Model 4551A/1051	177453
2 amp	Slo Blo	Model 4551/5200	211441
3.15 amp	Slo Blo	Model 4560/4551/1010/Solids	257329

<b>Gas Flow Modules - Agilent 6890</b>		<b>Part #</b>
PCM (EPC) Pneumatics Control Module Kit - Inlet		285015
OIM EPC Gas Flow Module		285049
OIM EPC Gas Flow Module for the PFPD		312686
Auxiliary - EPC Flow Module		275974

<b>Gas Flow Modules - Agilent 5890</b>		<b>Part #</b>
ELCD	Model 5320 for Agilent 5890	1-Line 225037
ELCD/ELCD	Model 5320 for Agilent 5890	2-Line 232371
PID/ELCD	Model 5350 for Agilent 5890	2-Line 187302
PID/FID	Model 4450 for Agilent 5890	3-Line 192013
Inlet Pressure Control Panel (IPCP) (3 gas control)		204776

<b>Glassware† (Spargers)</b>			<b>Single Part #</b>	<b>Set Part #</b>	<b>#/Set</b>
Caps	40 mL	28 mm	-----	296079	72
Frit	5 mL	12 mm	196626	-----	---
Frit (DPM)	5 mL	18 mm	209015	247916	16
Frit	25 mL	12 mm	196469	-----	---
Frit (DPM)	25 mL	18 mm	209031	247932	16
Needle	5 mL	12 mm	187484	-----	---
Needle	5 mL	18 mm	225623	232207	16
Needle	25 mL	12 mm	188508	-----	---
Needle	25 mL	18 mm	225631	232223	16
Needle**	10 mL	18 mm	-----	199521	125
Septa	40 mL	28 mm	-----	296061	72
Vial Kit***	40 mL	28 mm	-----	296053	72
Vials****	40 mL	28 mm	-----	296087	72

\*\*Disposable \*\*\*Includes Caps and Septa \*\*\*\*Vials Without Caps or Septa

† For glassware for specific instrument configurations, see page GC-84.

<b>Leak Detection</b>		<b>Part #</b>
Leak Hunter	Portable, Detects Nonflammable Gases	258418
Snoop	8 oz Squirt Bottle	129767

## Analytical Supplies

<b>Publications</b>	<b>Part #</b>
Automated Multipoint Process Sampler (AMPS) Operator's Manual	311761
Cryo-Focusing Module Operator's Manual	202879
DPM-16/MHC-16 Operator's Manual	248393
Dual Channel Electrometer Operator's Manual	206839
Fluorinated By-Products Operator's Manual	301119
Guide to Environmental Analytical Methods	259929
Low-Dead-Volume Injector (LDVI) Installation/Maintenance Guide	236414
Model 4410 Flame-Ionization Detector Operator's Manual	192229
Model 4430 Photoionization Detector Operator's Manual (Agilent 5890/Varian)	186678
Model 4430 Photoionization Detector Operator's Manual (Agilent 6890)	252320
Model 4552 W/S Autosampler Operator's Manual	285007
Model 4560 Sample Concentrator Operator's Manual	227959
Model 4551A Vial Autosampler Operator's Manual	310565
Model 4551 Vial Autosampler Operator's Manual	235895
Model 4632M Headspace Autosampler Operator's Manual	238444
Model 5320 Electrolytic Conductivity Detector Operator's Manual	274969
Model 5360 Halogen Specific Detector Operator's Manual(Agilent)	246140
Model 5360 Halogen Specific Detector Operator's Manual(Varian)	307322
Model 5380 Pulsed Flame Photometric Detector Operator's Manual	283101
OI Analytical Quick Reference Method Sheet (Laminated)	260091
VOST Installation and Maintenance Guide	255687
WinTrap Plus Operator's Manual	307470

<b>Regulators</b>	<b>Part #</b>
Helium/Nitrogen Reg., Plastic Diaphragm, 1/8" Tube Fitting	144585
Oxygen Reg., Plastic Diaphragm, 1/8" Tube Fitting	150326
Single Stage, In-Line Reg., Elastomer Diaphragm, 1/8" Tube Fittings	260414

<b>Scrubbers</b>	<b>Part #</b>
Scrubber In-Line Molecular Sieve	258897
Trap GC Ambersorb/Carbon Molecular Sieve (ELCD)	196816
Trap GC S-shaped 30/60 Mesh Charcoal	196782
Trap GC S-shaped 45/60 Mesh Molecular Sieve	196790
Trap Hydrocarbon Canister 1/8"	197848

<b>Syringes</b>	<b>Part #</b>
10.0 µL 2" Needle	167545
10.0 µL 2" Needle Gas Tight	188003
2.5 mL 2" Needle	137051
5.0 mL 2" Needle	169327
5.0 mL Sample with Luer	177659
10.0 mL 2" Needle	169335
25.0 mL Sample with Luer	172461

<b>Tools</b>	<b>Part #</b>
Extractor Ferrule and Septum	231167
Nut Driver 1/4" Hollow	223917
Reamer Small	258368
Reamer Medium	258376
Reamer Large	258384
Wrench 1-1/8" Sparge	227975

## Analytical Supplies

<b>Tubing</b>		<b>Part #</b>
Copper	1/8" x 0.070" I.D.	111427
DB-1	Precolumn 0.53 mm I.D. (5/pk)	226134
Deactivated Fused Silica	Precolumn 0.53 mm I.D. (5/pk)	202754
Nickel	1/16" x 0.020" I.D.	165531
PEEK	1/16" x 0.020" I.D.	197194
PEEK	1/16" x 0.030" I.D.	197202
Silicone	3/16" x 1/16" I.D. Clear	197087
Silicone	1/4" x 1/8" I.D. Clear	179085
Stainless Steel	1/16" x 0.030" I.D.	193409
Stainless Steel	1/16" x 0.040" I.D.	111864
Stainless Steel/Silcosteel	1/16" x 0.020" I.D.	184978
Stainless Steel/Sulfinert	1/16" x 0.040" I.D.	319639
Stainless Steel/Sulfinert	1/16" x 0.020" I.D.	319638
Teflon	0.071" x 0.047" I.D.	111302
Teflon	1/16" x 0.010" I.D.	139065
Teflon	1/16" x 0.020" I.D.	165896
Teflon	1/16" x 0.031" I.D.	145591
Teflon	1/8" x 0.030" Wall	147901
Tygon	0.09" x 0.050" I.D.	111260
Urethane	1/8" x 1/16" I.D. Clear	166224

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## GC Sample Introduction Replacement Parts and Supplies

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Purge Needle Selection Guide .....	GC-85





# Replacement Parts and Supplies

## Model 4560 Sample Concentrator

### Air Sampling Tubes and Containers Part #

4.5" L	1/4" O.D.	Air-Tube Shipping Container			260299
4.5" L	1/4" O.D.	Trap	Blank	Stnls. Steel	260174
4.5" L	1/4" O.D.	Trap	Carbon Molecular Sieve	Stnls. Steel	260190
4.5" L	1/4" O.D.	Trap	Tenax	Stnls. Steel	260182
4.5" L	6 mm O.D.	Air-Tube Shipping Container			260307
4.5" L	6 mm O.D.	Trap	Blank	Glass	260208
4.5" L	6 mm O.D.	Trap	Carbon Molecular Sieve	Glass	260224
4.5" L	6 mm O.D.	Trap	Tenax	Glass	260216

### Cables\* Part #

Handshake Pigtail Agilent 6890		252213
Handshake Pigtail Agilent 5890	(MSD Interface Below)	185868
Handshake Pigtail Varian 3400/3600		188409
Handshake Pigtail Varian 3800		300368
Handshake Pigtail to Spade Lugs		285924
Shimadzu 17A GC		244483
Model 4560 to Any Handshake Pigtail		226530
Model 4560 to CFM		226548
Model 4560 to DPM-16, MPM-16, or MHC-16		226605
RS-232-C (PATTI II, WinTrap, WinTrap Plus)		226621
Y-Remote Start Cable 6890/6850		318691

### Cables - MSD Interface Part #

Handshake Pigtail Agilent 5971 or 5972 (DOS or UNIX)		209874
Handshake Pigtail Agilent 5971 (PASCAL)		209866
Handshake Pigtail Agilent 5970 (RTE-A)		209882

### Ferrules Part #

Teflon	1/16" Tube (5/pk)	196220
Teflon	1/16" Tube Reverse (5/pk)	272443
Teflon	6 mm Tube (Sparger Inlet Arm)	224337
Teflon	18 mm Tube (10/pk)	224352

\* For appropriate cables for various instrument configurations, see page GC-84.

\*\* For heater jacket kits (16/kit), see page GC-75.

\*\*\* For appropriate needles for Model 4560 configurations, see page GC-85.

### Fittings Part #

Adapter	KEL-F Female Luer 10-32	Syringe Port	224584
Fitting	Water Management		252874
Union	Brass 1/4"-1/16" Male	Sparge Inlet Arm	227223
Sparge Filter Assembly			209254

### Heater Jackets (Single)\*\* Part #

Frit Sparger	5 or 25 mL	110/220 V	218669
Needle Sparger	5 mL	110/220 V	198739
Needle Sparger	25 mL	110/220 V	199406

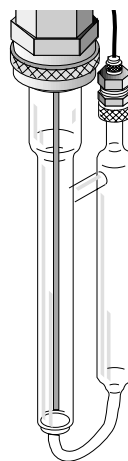
### Needles\*\*\* Part #

Frit Sparger	22.9 cm		209114
Needle/Disposable Sparger	22.9 cm	(side hole)	227371

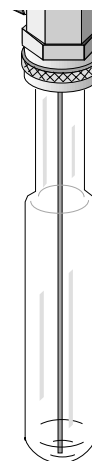
## Replacement Parts and Supplies Model 4560 Sample Concentrators

<b>Sample Heater Parts, Infra-Sparge</b>		<b>Part #</b>
Lamp Cover Assembly		230060
Lamp - Sample Heater 4560 (120 V)		225656
Lamp - Sample Heater 4560 (220 V)		242479
Sparge Door Assembly		230052
Thermocouple - Assembly - Sample Heater		234112

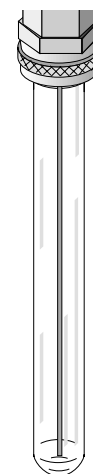
<b>Spargers* and Accessories</b>		<b>Part #</b>
Frit	18 mm Neck O.D. 5 mL Swage Inlet	209015
Frit	18 mm Neck O.D. 25 mL Swage Inlet	209031
Needle	18 mm Neck O.D. 5 mL Swage Inlet	225623
Needle	18 mm Neck O.D. 10 mL Displ. 125/case	199521
Needle	18 mm Neck O.D. 25 mL Swage Inlet	225631
Needle Sparge Hardware Kit (No Glassware)		227397



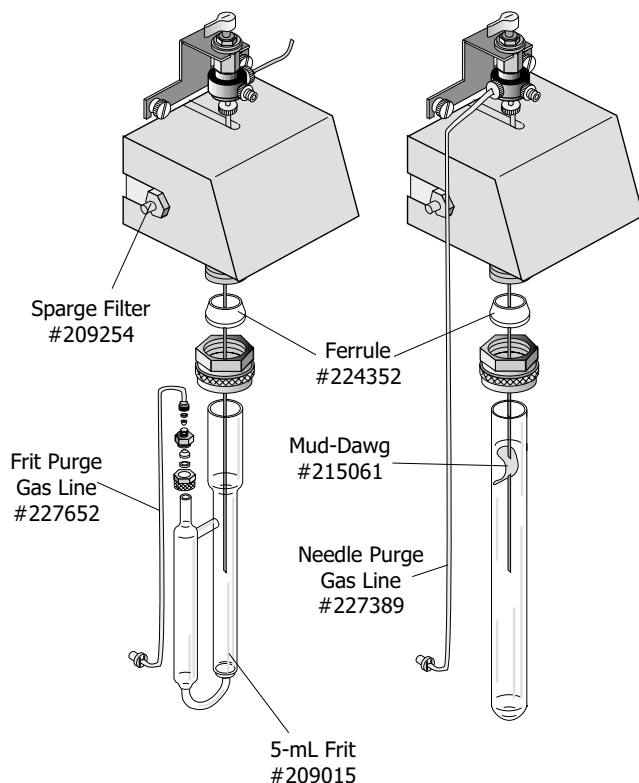
**Frit Sparger (Swage Inlet)**  
#209015,  
#209031



**Needle Sparger (Reusable)**  
#225623,  
#225631



**Needle Sparger (Disposable)**  
#199521



**Spurge Vessel Assemblies**

<b>Syringes</b>	<b>Part #</b>
10 µL x 2 in Needle	167545
5 mL Sample with Luer	177659
25 mL Sample with Luer	172461

<b>Heaters and Thermocouples</b>		<b>Part #</b>
Heater Cable	Valve Manifold (110 V)	233718
Heater Cable	Valve Manifold (220 V)	242529
Heater Cable	Spurge Mount/Water Management (110 V)	233700
Heater Cable	Spurge Mount/Water Management (220 V)	242552
Heater Cable	Valve/Oven (110 V)	227157
Heater Cable	Valve/Oven (220 V)	242503
Kit	Spurge Mount Heater (120 V)	311738
Kit	Spurge Mount Heater (240 V)	310995
Thermocouple	Valve Manifold	225516
Thermocouple	Water Management	317453
Thermocouple Assembly	Valve Oven/Spurge Mount	227314
Thermocouple Assembly	Sample Heater	234112

\* For sparger kits, see page GC-76.

# Replacement Parts and Supplies

## Model 4560 Sample Concentrator

<b>Tubing</b>		<b>Part #</b>
Purge Gas Tube Assembly - Frit Sparger		227652
Purge Gas Tube Assembly - Needle Sparger		227389
Copper (Prcleaned)	1/8" x 0.070 mm I.D.	111427
Silicone (Drain Valve)	1/8" x 1/16" I.D. Clear	179812
Urethane	1/8" x 1/16" I.D. Clear	166224

<b>Transfer Lines</b>		<b>Part #</b>
48"	Silcosteel 110 V	249185
48"	Silcosteel 220 V	249466
60"	Silcosteel 110 V	249490
60"	Silcosteel 220 V	249508

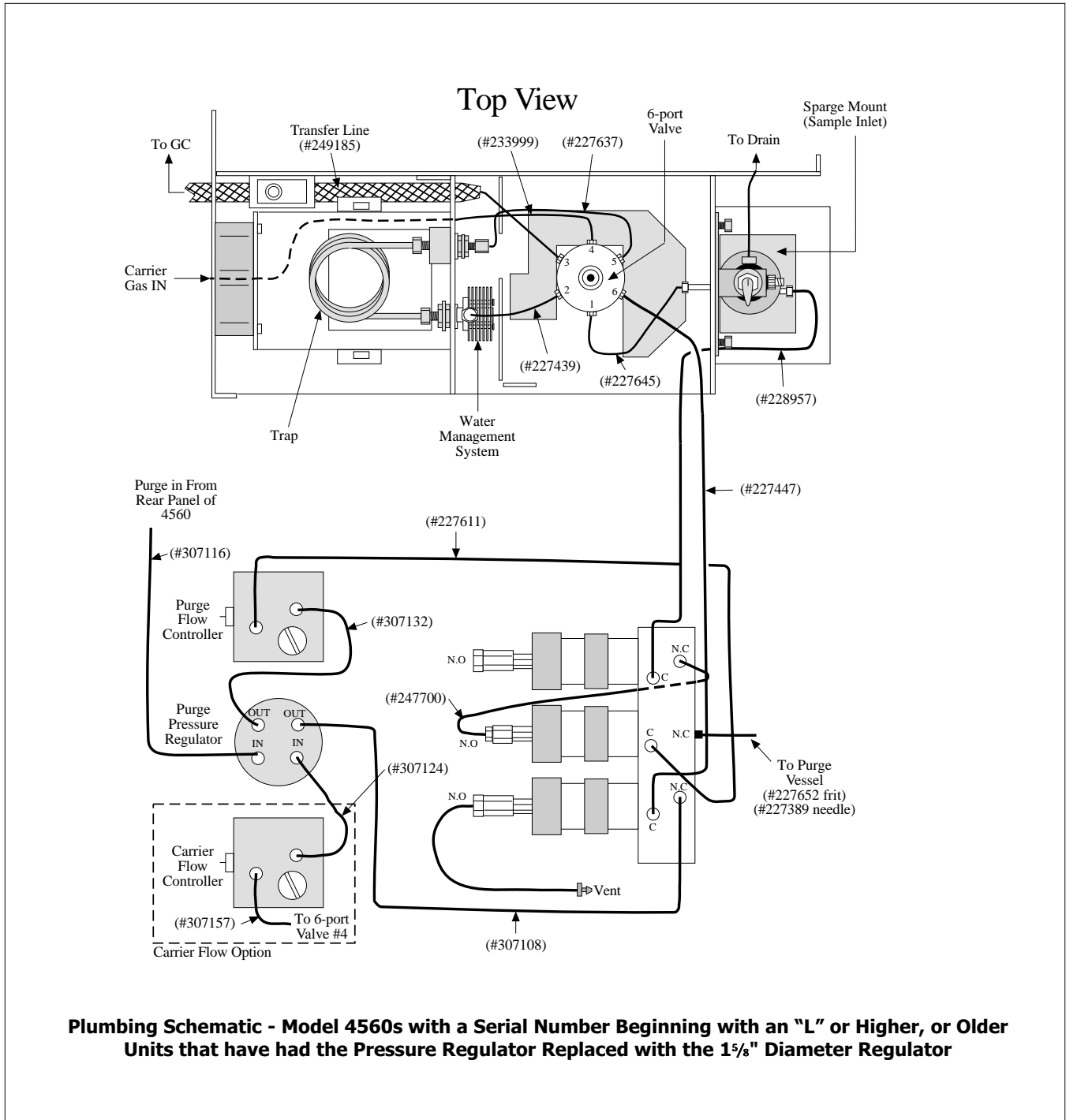
<b>Miscellaneous Parts</b>		<b>Part #</b>
Battery	3.6 V Backup	211953
Board	CPU Board for 4560	228098
Firmware	EPROM with Instructions - 4560	254870
Fitting	Water Management Fitting	252874
Fuse	6.3 Amp Slo Blo	249177
Fuse	4.0 Amp Fast Blo	228536
Fuse	3.0 Amp Fast Blo	228510
Fuse	3.15 Amp Slo Blo	257329
Kit	One Year Supplies	254714
Manual	Model 4560 Operator's Manual	227959
Mud-Dawg		215061
Sparge Filter	Assembly	209254
Water Management Assembly		248062
Wrench	Sparger 1-1/8" Open-end	227975

<b>Valves</b>		<b>Part #</b>
KEL-F	3-Port Sample 10-32	218982
KEL-F	4-Port Sample	237180
Stainless Steel	6-Port with Linkage (No Actuator)	248575

<b>Tube Assemblies</b>		<b>Part #</b>
Purge Gas/Needle Sparger		227389
Water Management/6-port Valve		227439
Solenoid Manifold/6-port Valve		227447
Regulator Out/Solenoid Manifold (1 1/8" diameter)		227454
Regulator Out/Solenoid Manifold (1 5/8" diameter)		307108
Purge Bulkhead/Regulator (1 1/8" diameter)		227520
Purge Bulkhead/Regulator (1 5/8" diameter)		307116
Purge Out/Gauge		227603
Purge FC Out/Solenoid Manifold		227611
Trap/6-port Valve		227637
6-port Valve/Sparge Manifold		227645
Purge Gas/Frit Sparger		227652
Valve Solenoid/Sparge Manifold		228957
Carrier Gas FC 6-port Valve (1 1/8" diameter)		234005
Carrier Gas FC 6-port Valve (1 5/8" diameter)		307157
Carrier Gas Inlet 6-port Valve		233999
Regulator In Carrier Gas FC in 4560 (1 1/8" diameter)		227587
Regulator In Carrier Gas FC in 4560 (1 5/8" diameter)		307124
Regulator Out to Purge Gas FC (1 1/8" diameter)		227595
Regulator Out to Purge Gas FC (1 5/8" diameter)		307132
Solenoid Manifold/Purge Valve		247700

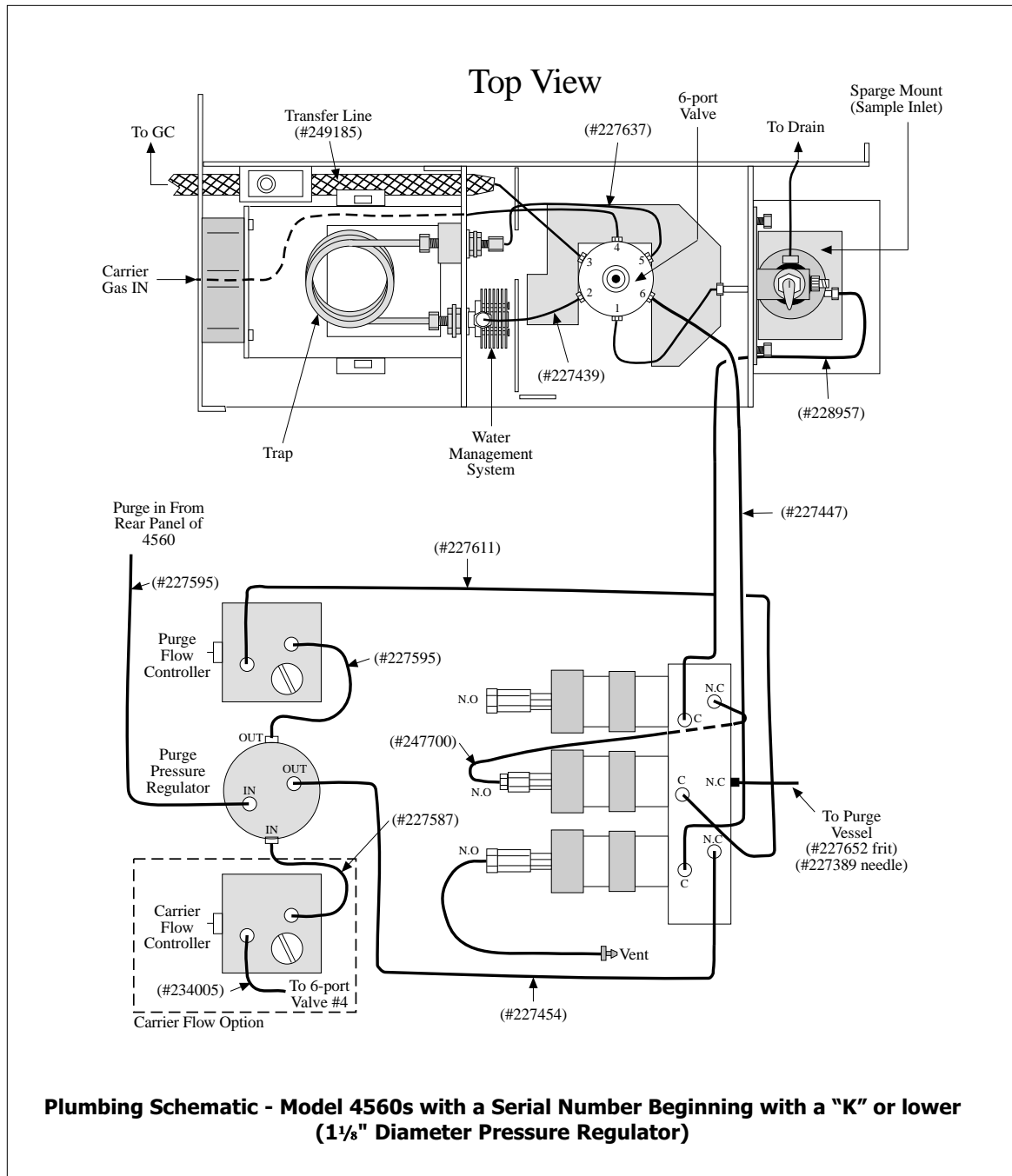
<b>Traps</b>		<b>Part #</b>
#0	Blank (No Sorbent)	228114
#7	Tenax Only	227348
#8	Tenax/Silica Gel	227363
#9	Tenax/Silica Gel/Charcoal	219972
#10	Tenax/Silica Gel/Carbon Molecular Sieve	228122
#11	VOCARB 3000	258830
#12	BTEX (Carbopack B/Carbopack C)	258848
MicroTrap "A" Carboxen 1000 Kit		291435
MicroTrap "B" Carboxen 1000 Kit		291443
MicroTrap "A" Carboxen 1000 Replacement Trap		283549
MicroTrap "B" Carboxen 1000 Replacement Trap		287649

## Replacement Parts and Supplies Model 4560 Sample Concentrator



# Replacement Parts and Supplies

## Model 4560 Sample Concentrator



## Replacement Parts and Supplies Model 4551A Vial Autosampler

<b>Fittings</b>		<b>Part #</b>
Adapter	1/8" Hose x 1/16"	178434
Adapter	1/8" Brass	166208
Bulkhead Fitting	1/8" x 1/8" Stainless Steel	285189
Coupling	1/4-28	166274
Cross Brass/Ni, Swivel	10/32	179499
Nut	Polypr 1/4-28, 1/8" Tube	263764
Nut	1/4" Stainless Steel Female	169682
Nut	1/8" NTL Cheminert	284729
Nut	1/8" Tube	263764
Nut	1/16" Stainless Steel Male	223057
Nut	1/16" Stainless Steel Spring	248757
Plug	Brass/Ni 10-32, O-ring	177502
Tee	1/8"	279125
Union	6 mm Stainless Steel x 1/16" Tube	261313
Union	1/16" Stainless Steel	294025

<b>Glassware</b>		<b>Part #</b>
Assembly	Reagent Water Bottle	248915
Caps	Open Hole for 40 mL Vials	72/pack 296079
Septa	Silicon, Teflon-Faced for 40 mL Vials	72/pack 296061
Vials	40 mL VOA	72/case 296087
Vial Kit	40 mL VOA Vials with Caps and Septa	72/kit 296053
Vial	Wash/Waste Station	232801

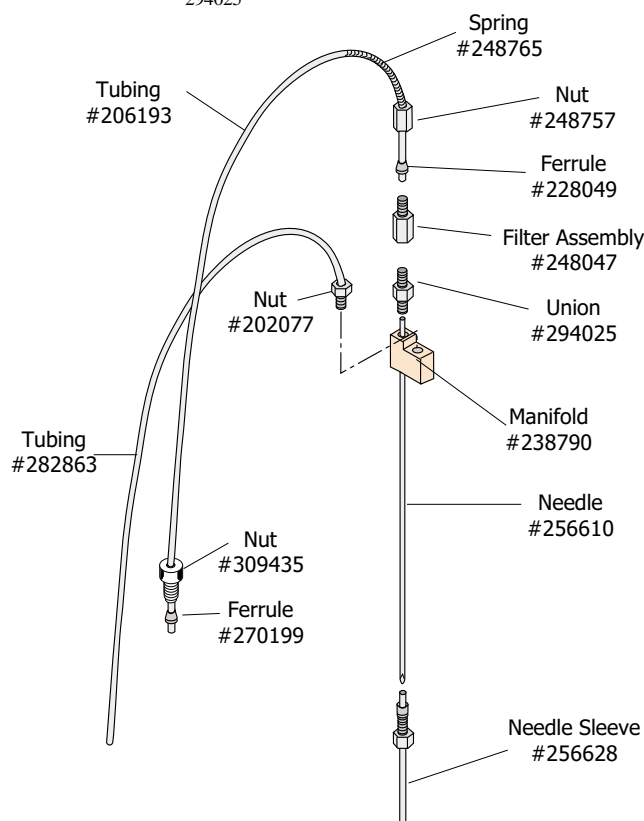
<b>Miscellaneous Parts</b>		<b>Part #</b>
Board	Main	278101
Bushing	1/8" PEEK Cheminert	284828
Cable	BNC to BNC - 3 ft	235515
Cord	Power Cord - 110 V North America	116038
Cover	Carousel	257436
Cover	Loop	257451
Cover	Needle Drive	253518
Door	4560 for 4551A	257428
Ferrule	1/8" PFA Cheminert	284844
Ferrule	1/16" Stainless Steel Tube	227207
Ferrule	1/8" Tefzel Tube	263756
Ferrule	1/16" Brass Tube	228049
Ferrule	1/16" Tefzel Tube	270199
Ferrule	6 mm Teflon Tube	224337
Filter Assembly	Sample Filter Assembly	248047
Firmware	Model 4551A (Latest Revision)	315945
Fuse	2 Amp 250 V Slo Blo	177453
Manual	Model 4551A Operator's Manual	310565
Needle	Septum Piercing with Ferrule Attached	256610
Needle	Transfer Gas Sleeve, Nut and Ferrule Attached	256628
Needle Drive Assembly		282707
Pressure Switch		270173
Pump Assembly	Peristaltic/Sample	263442
Pump	Reagent Water 24 V	296160
Regulator	0-60 psi Gauge	282251
Sample Loop	5 mL	261339
Sample Loop	25 mL	259507
Tray	Sample Tray Assembly	234815
Valve	Polypropylene Check	182238
Valve	3-way Solenoid	282756
Valve Assembly	6-Port	293605

# Replacement Parts and Supplies

## Model 4551A Vial Autosampler

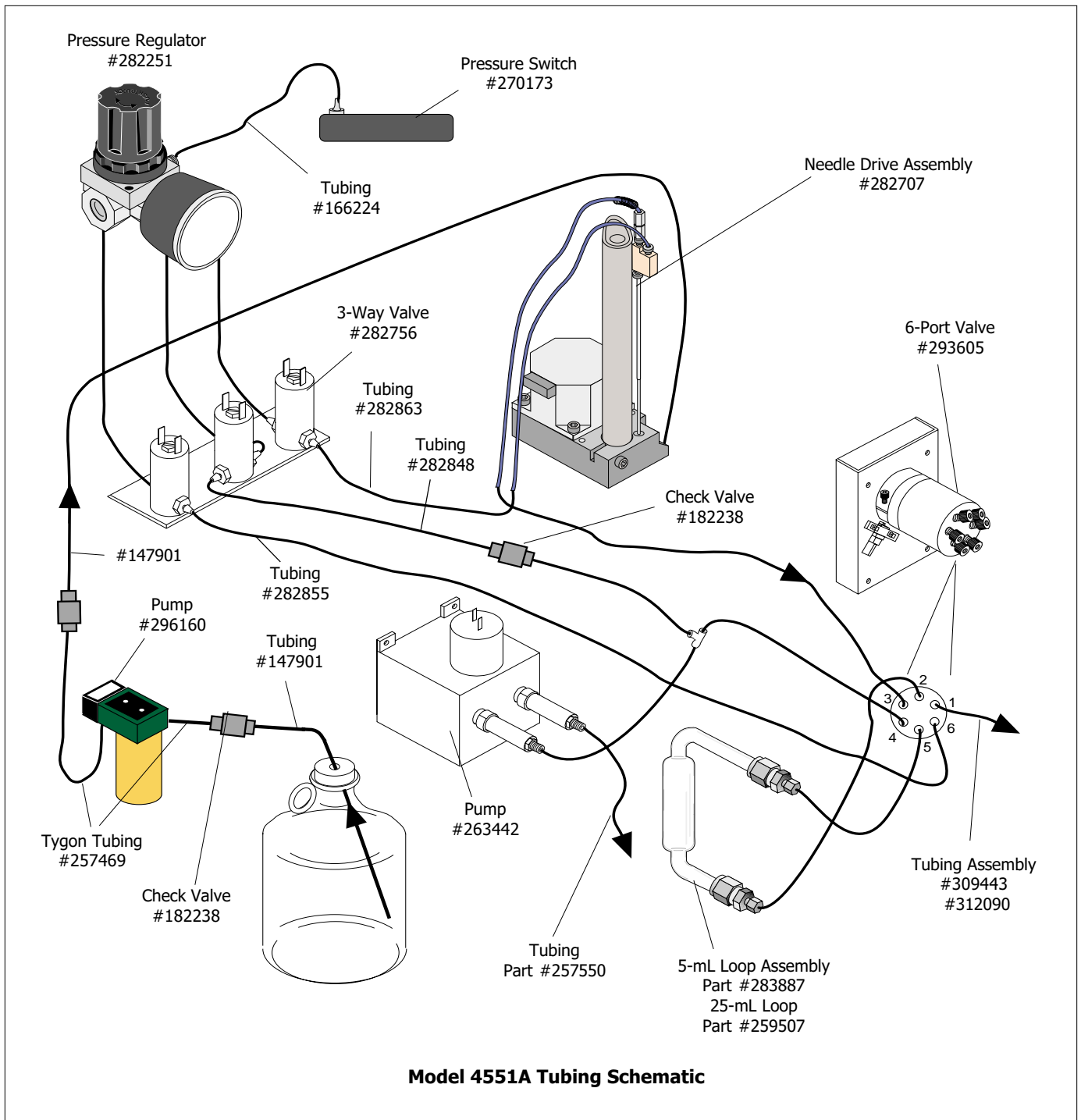
Needle Drive Assembly Parts (see drawing)		Part #
Ferrule	1/16" Brass Tube	228049
Ferrule	1/16" Tefzel Tube	270199
Filter Assembly	Sample Filter Assembly	248047
Manifold	Needle	238790
Needle	Septum Piercing with Ferrule Attached	256610
Needle	Transfer Gas Sleeve, Nut and Ferrule Attached	256628
Nut	1/16" Brass/Ni Hose	202077
Nut	1/16" Stainless Steel Male	223057
Nut	1/16" Stainless Steel Spring	248757
Nut	1/4-28 x 1/16" PP	309435
Spring	Stainless Steel 0.125 O.D.	248765
Tubing	PEEK 1/16" x .040	206193
Tubing	Urethane 1/8" O.D., Blue	282863
Union	1/16" Male Fitting	294025

Tubing (see drawing)		Part #
Assembly	Transfer Line 4560/4551A	309443
Assembly	Transfer Line SAM/4551A	312090
PEEK	1/16" x 0.040 I.D.	206193
Stainless Steel	1/16" x 0.030 I.D.	295543
Teflon	1/8" x 0.030 Wall	147901
Tygon	1/4" x 1/8" I.D. Clear	257469
Urethane	1/8" x 1/16" I.D. Blue	282863
Urethane	1/8" x 1/16" I.D. Brown	257550
Urethane	1/8" x 1/16" I.D. Green	282855
Urethane	1/8" x 1/16" I.D. Red	282848



**Model 4551A Needle Drive Assembly**

# Replacement Parts and Supplies Model 4551A Vial Autosampler





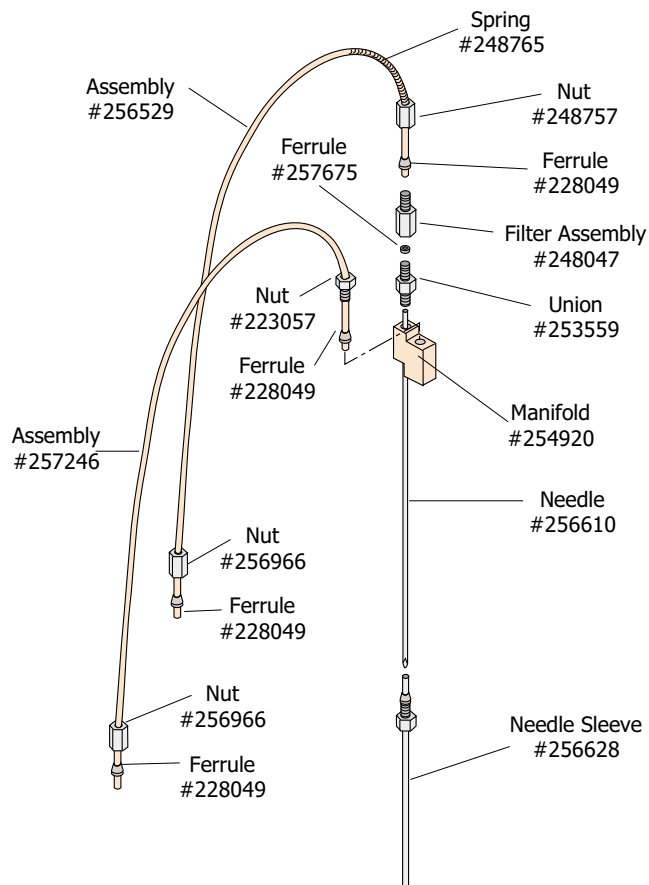
# Replacement Parts and Supplies

## Model 4551 Vial Autosampler

Glassware		Part #
Assembly	Reagent Water Bottle	248915
Caps	Open Hole for 40 mL Vials	72/pack 296079
Septa	Silicon, Teflon-Faced for 40 mL Vials	72/pack 296061
Vials	40 mL VOA	72/case 296087
Vial Kit	40 mL VOA Vials with Caps and Septa	72/kit 296053
Vial	Wash/Waste Station	232801

Miscellaneous Parts		Part #
Battery	3.6 V Back-up	211953
Cable	BNC to BNC - 5 ft	235515
Check Valve		257527
Cord	Power Cord - 110 V North America	116038
Cover	Carousel	257436
Cover	Loop	257451
Cover	Needle Drive	253518
Ferrule	1/16" Tube Brass	228049
Ferrule	1/8" Tube Tefzel	263756
Ferrule	1/16" Tube Tefzel	270199
Filter Assembly	Sample Filter Assembly	248047
Firmware	Model 4551 (Latest Revision)	257147
Fitting Nut	Polypr 1/4-28, 1/8" Tube	263764
Fuse	2 Amp 250 V Slo Blo	211441
Fuse	3.15 Amp 5 mm x 20 mm	257329
Manual	Model 4551 Operator's Manual	235895
Needle	Septum Piercing with Ferrule Attached	256610
Needle	Transfer Gas Sleeve, Nut & Ferrule Attached	256628
Nut	1/16" Stainless Steel Female	256966
Nut	1/16" Stainless Steel Male	223057
Nut	1/16" Stainless Steel Spring	248757
Regulator	In-Line, 1/8" Female Fittings, 0-60 psi Gauge	260414
Sample Loop	5 mL	235911
Sample Loop	25 mL with Clip	263772
Sample Loop	25 mL without Clip	259507
Tray	Sample Tray Assembly	234815
Union	Stainless Steel 1/16" Male DSF	253559
Valve Assembly	6-Port	263673

Needle Drive Assembly Parts (see drawing)		Part #
Assembly	PEEK Sample Transfer	256529
Assembly	PEEK Transfer Gas	257246
Ferrule	1/16" Brass Tube	228049
Ferrule	1/16" PEEK Tube Ring	257675
Filter Assembly	Sample Filter Assembly	248047
Needle	Septum Piercing with Ferrule Attached	256610
Needle	Transfer Gas Sleeve, Nut & Ferrule Attached	256628
Nut	1/16" Stainless Steel Female	256966
Nut	1/16" Stainless Steel Male	223057
Nut	1/16" Stainless Steel Spring	248757
Union	Stainless Steel 1/16" Male DSF	253559

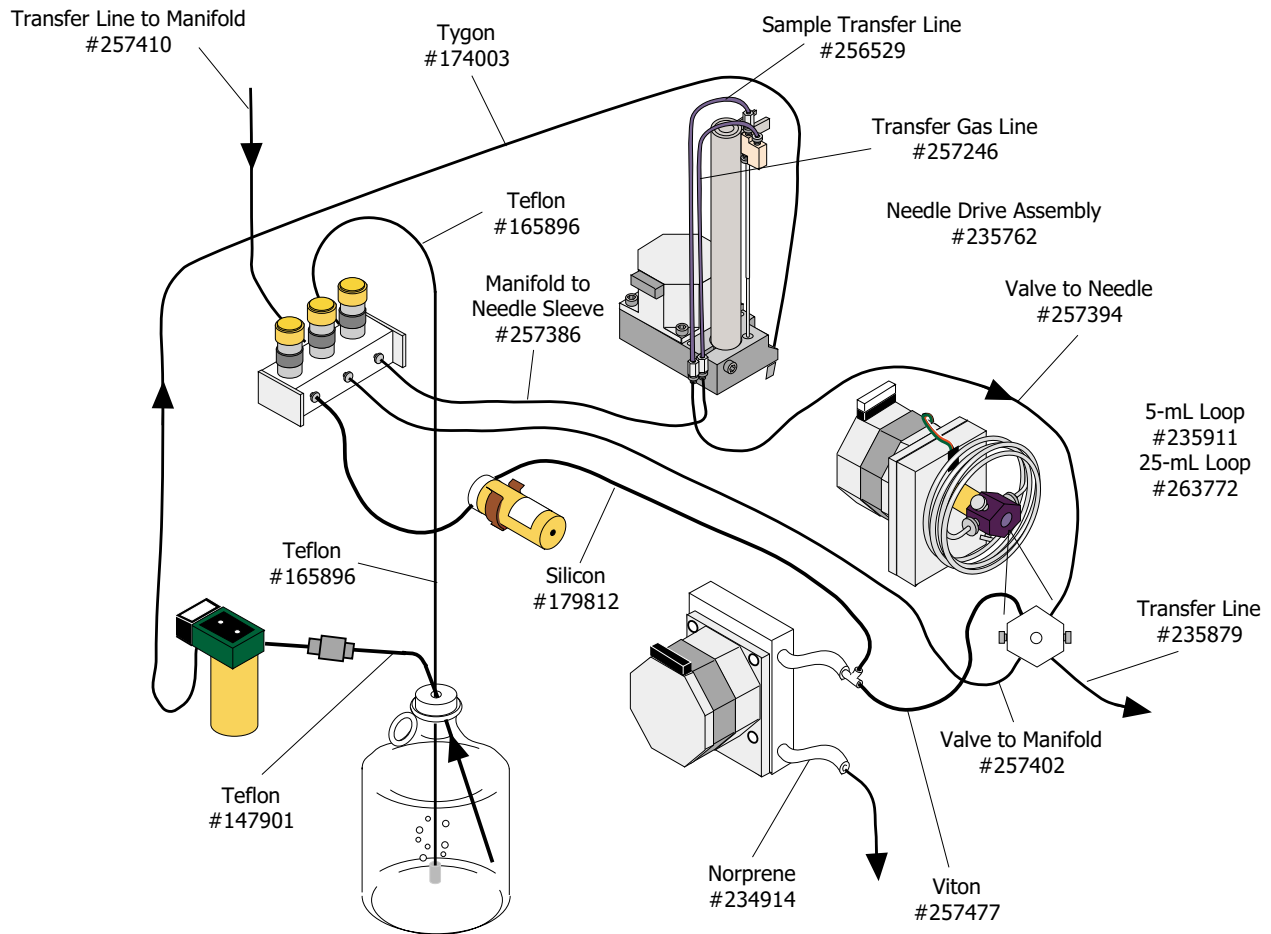


**Model 4551 Needle Drive Assembly**

## Replacement Parts and Supplies Model 4551 Vial Autosampler

<b>Tube Assemblies (see drawing)</b>	<b>Part #</b>
Manifold to Needle Sleeve	257386
PEEK Sample Transfer	256529
PEEK Transfer Gas	257246
Transfer Line to Manifold	257410
Transfer Line to Model 4560/Transfer Line to SIM A	235879
Valve to Manifold	257402
Valve to Needle	257394

<b>Tubing (see drawing)</b>		<b>Part #</b>
Copper	1/8" x 0.070 mm I.D. Cleaned	111427
Norprene	1/8" x 3/8" I.D. x 9"	234914
Silicon	1/8" x 1/16" I.D. Clear	179812
Teflon	1/16" x 0.020 mm I.D.	165896
Teflon	1/8" x 0.030 Wall	147901
Tygon	3/16" x 1/16" I.D.	174003
Tygon	1/4" x 1/8" I.D. Clear	257469
Urethane	1/8" x 1/16" I.D. Brown	257550
Viton	1/4" x 1/8" I.D. Black	257477



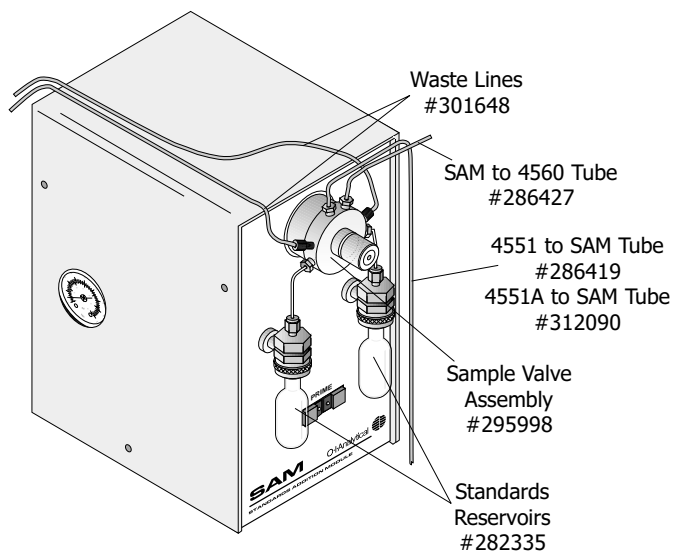
**Model 4551 Tubing Schematic**

# Replacement Parts and Supplies

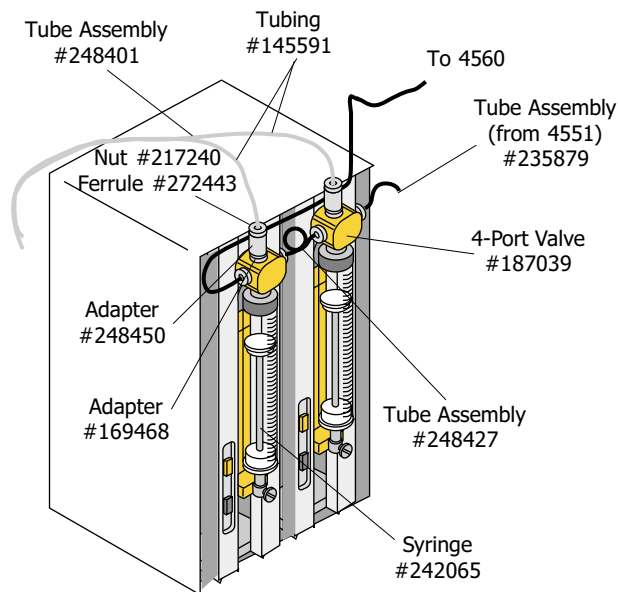
## SAM and SIM/Spiker Options

<b>Standards Addition Module (SAM)</b>		<b>Part #</b>
Cable	Interface Model 4551A to SAM	294660
Cable	Interface Model 4551 to SAM	282293
Ferrule	Teflon 12 mm (10/pk)	223164
Fitting/Ferrule	PEEK (for waste line)	309591
Regulator	0-60 psi	282251
Standard Reservoir	SAM	282335
Tube Assembly	SAM Drain	301648
Tube Assembly	Model 4551A to SAM	312090
Tube Assembly	Model 4551 to SAM	286419
Tube Assembly	SAM to Model 4560	286427
Valve	6-port	295998

<b>SIM/Spiker - Model 4551</b>		<b>Part #</b>
Adapter	Brass, Nickel-Plated Female 10-32 Male Luer	248450
Adapter	KEL-F Female Luer 1/4-28	169468
Cable	Interface Model 4551 to SIM	257683
Ferrule	Teflon 1/16" Tube (5/pk)	272443
Nut	Stainless Steel 1/16" Male Knurled	217240
Syringe	10 mL Sample with Luer 1/4-28	242065
Tube Assembly	Model 4551 to SIM A	235879
Tube Assembly	SIM A to Model 4560	248419
Tube Assembly	SIM A to SIM B	248427
Tube Assembly	SIM B to Model 4560	248435
Tube Assembly	SIM Waste with Fittings	248401
Tubing	Teflon 1/16" x 0.031 mm I.D.	145591
Valve	4-port, Hamilton	187039



**SAM Option**



**SIM/Spiker Option with SIM A and SIM B**

## Replacement Parts and Supplies Model 4552 W/S Autosampler

<b>Model 4552 W/S Autosampler</b>		<b>Part #</b>
Bar Code Reader		276709
Bath	Recirculating for Cooling of Sample Vials	261909
Kit	Interface 4552 to 4560	276592
Kit	Interface 4552 to Tekmar	293043
Kit	Needle Sparge Conversion to SoilVial	276717
Kit	Recirculating Bath Tubing	302810
Kit	Rinse Water - for Interfacing Direct Water Line to Model 4552 W/S	276725
Kit	SoilVial Conversion to Needle Sparge	276733

<b>Gas Controllers</b>	<b>Part #</b>
Helium Flow Controller	03-504156-00
Purge Gas Pressure Gauge	27-239992-00
Purge Gas Regulator	03-918707-04
Rear Regulator	03-918707-05

<b>Interface Cables</b>	<b>Part #</b>
To OI 4460/4560 to Agilent	284935
To OI 4460/4560 to Varian 3400/3600	251694
To OI 4460/4560 to Agilent 5890, RTE Agilent 1000 GC/MS software, Agilent 5970 MSD, or Agilent 5988 MS	03-505875-00
To Tekmar LSC-2000/3000 to Spade Lugs	03-505872-00
To Tekmar LSC-2000/3000 to Agilent 5890	03-505869-00
To Tekmar LSC-2000/3000 to Varian 3400/3700	03-505868-00
To Tekmar 2000/3000 with Agilent 6890	03-505873-00
To Tekmar 2000/3000 with Agilent 5890 with 5970/71/72 MSD and Unix-B or MS-DOS, and 5890/5989 MS Engine	03-505874-00
To Tekmar LSC-2000/3000 with Agilent 5995/85/87/88/92	03-505876-00

<b>Internal Standard Parts</b>		<b>Part #</b>
Ferrule	3/8" Teflon, for Reservoir Vial	03-694637-00
Mount	Standard Reservoir	03-505604-00
Rotor Loop	1 µL for Standards Valve	03-505726-00
Valve	Valco 6-port, Internal Standard	03-505478-00
Valve	Valco 6-port with Motor, Internal Standard	03-505879-00
Vial	5 mL, Standard Reservoir	03-505484-00

<b>Lines/Fittings</b>	<b>Part #</b>	
Ferrule	1/16" Stainless Steel Valco (5/pk)	196246
Ferrule	1/16" Stainless Steel Set Swagelok (5/pk)	178277
Ferrule & Nut	1/16" Flangeless (8/pk)	03-700081-01
Fitting Adapter	Autosampler Interface to 4560	278671
Kit	Waste Line Replacement	03-700019-90
Line	Standard Pick-up	03-700020-00
Nut	1/16" Stainless Steel Female Swagelok (5/pk)	169715
Transfer Line	Soil-Purge-Gas (Ni tubing only)	03-505745-00
Transfer Line	w/Heater Assy, 4560 or Tekmar 2000/3000	03-700001-01
Transfer Line	w/Heater Assembly and Bracket/Clamp, 4560 or Tekmar 2000/3000	03-700025-90
Transfer Line	.062" x 0.40" x 60" Stainless Steel	03-505514-00

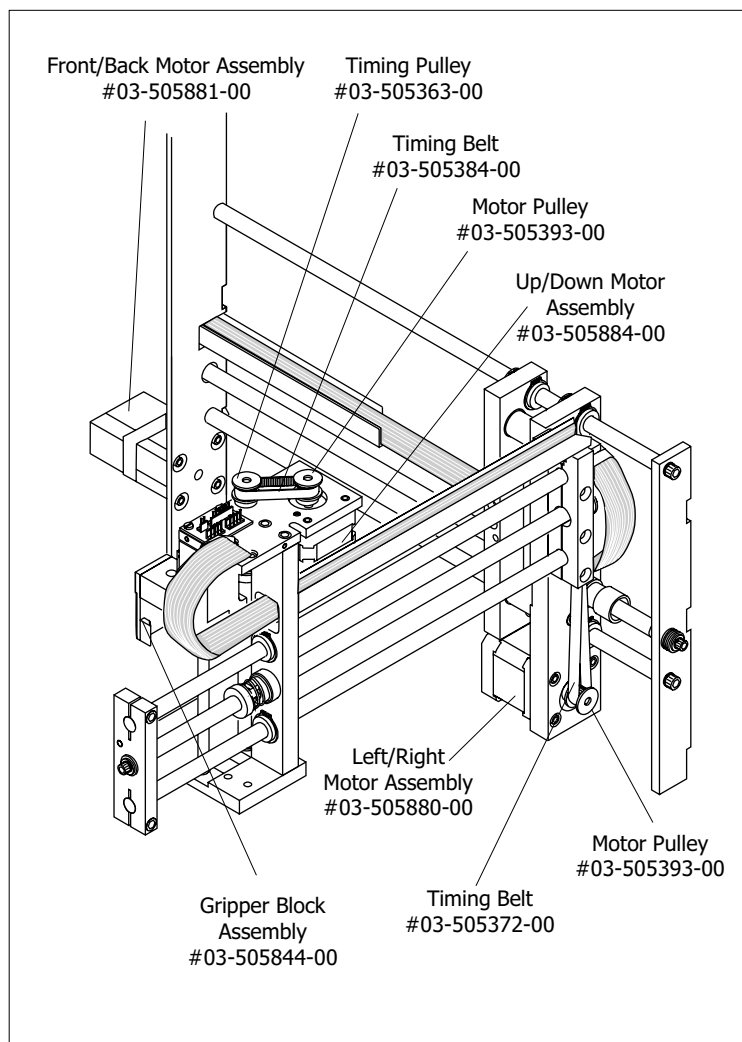
<b>Miscellaneous</b>	<b>Part #</b>
Magnetic Stirrers	03-502955-00
Reservoir Bottle, Safety Coated 80 oz	03-503906-00
Wash Bottle Plug Assembly	03-505816-00
Wash Bottle Top	03-503055-00
Water Probe Screen, 10 µL	03-505598-00

# Replacement Parts and Supplies

## Model 4552 W/S Autosampler

Probe Assemblies	Part #
Needle Sparge Probe Assembly (S/N > 995)	03-505741-90
Needle Sparge Probe Assembly (S/N > 13160)	03-700077-91
Probe Guide Support Rod	03-700024-00
Soil Probe Assembly - Double-Ended Vials (S/N > 995)	03-505743-00
Soil Probe Assembly - Double-Ended Vials (S/N > 13160)	03-700076-91
Lower Soil Purge Gas Needle Assembly - Double-Ended Vials	03-505463-00
Water Probe Assembly (S/N > 995)	03-505739-00

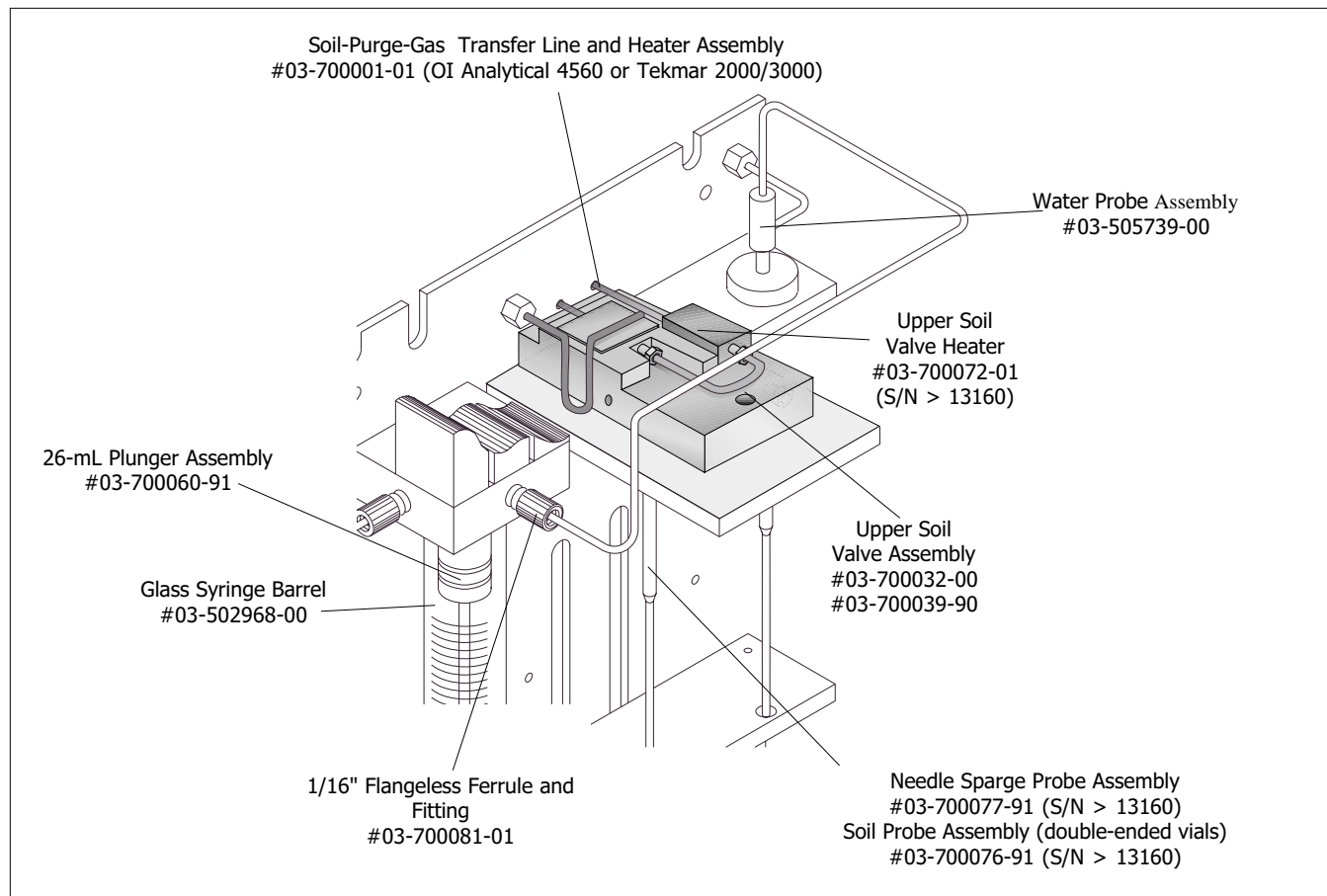
Robotic Mechanism Parts	Part #
Elevator Motor Assembly	03-505882-00
External Ground Wire	03-504235-00
Fuse, 6 amp 250 V	170449
Microswitch	03-500223-00
Motor Assembly, Front/Back	03-505881-00
Motor Assembly, Left/Right	03-505880-00
Motor Assembly, Up/Down	03-505884-00
Motor Assembly, Stir	03-505883-00
Motor Pulley, 1/4" for Elevator and Syringe	03-505429-00
Motor Pulley, Robotic Arm Motors	03-505393-00
O-ring (Gripper)	03-101662-00
Probe Block/Upper Soil Valve Heater Assembly w/TC (S/N < 13161)	03-505895-00
Sensor Assembly, No Vial	03-505269-00
Soil Vial and Upper Soil Heater Assembly (S/N < 13161)	03-505896-00
Syringe and Elevator Limit Switch Assembly	03-505273-00
Syringe Motor Assembly	03-505878-00
Timing Belt, Front/Back Motor	03-505362-00
Timing Belt, Left/Right Motor	03-505372-00
Timing Belt, Up/Down Motor	03-505384-00
Timing Belt, Vial Elevator and Syringe Motors	03-505477-00
Timing Pulley, Leadscrew	03-505363-00
Upper Soil Valve Heater Assembly	03-700072-01
Vial Gripper Block Assembly	03-505844-00
Vial Gripper Piston and O-ring	03-505389-00
Water Heater Assembly	03-505596-90



## Replacement Parts and Supplies Model 4552 W/S Autosampler

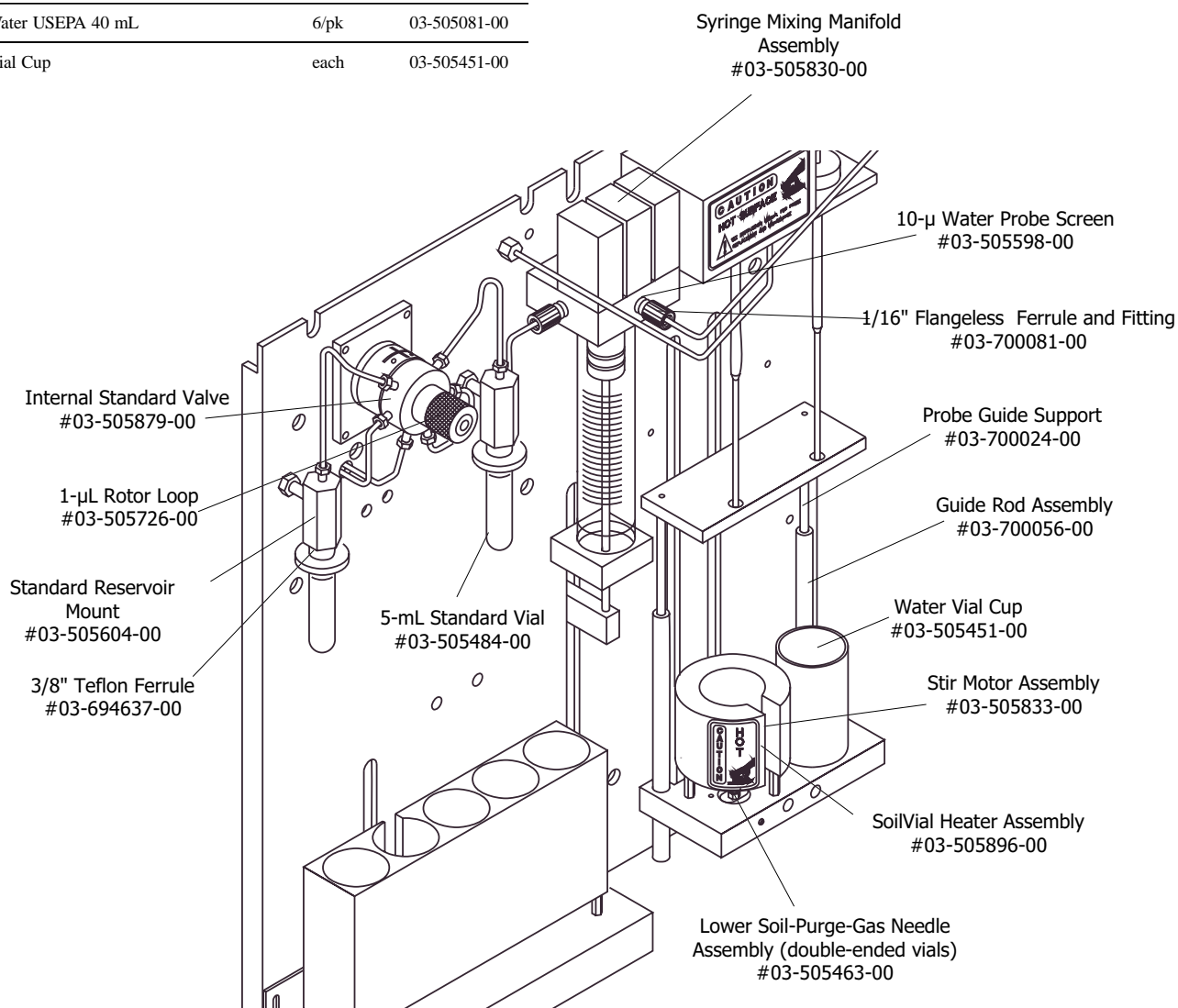
Syringe Parts	Part #
O-ring (Syringe)	03-505495-00
Plunger Assembly, 26 mL	03-700060-91
Plunger Rod	03-502959-00
Plunger Drive Bracket	03-505439-00
Screen, Water Probe 10 µ	03-505598-00
Syringe, Luer Lock 5 mL	177659
Syringe, Luer Lock 10 mL	182006
Syringe Glass Barrel	03-502968-00
Syringe Mixing Manifold Assembly	03-505830-00
Syringe Mount	03-505450-00
Syringe Packing	03-505441-00
Syringe Thumbscrew	03-504936-00

Valves	Part #
Helium Manifold Replacement Assembly	03-700108-90
Kit - Upper Soil Valve Upgrade (S/N < 120039)	03-700039-90
Purge Gas Cut-off Valve Assembly (S/N > 995 & < 12047)	03-505791-00
Purge Gas Cut-off Valve J19 Assembly (S/N > 12047)	03-505899-03
Solenoid Mixing Manifold Assembly	03-505831-00
Valve Assembly, 2-Way Soil Purge Gas Solenoid (Std Mount)	03-505899-01
Valve Assembly, 2-Way Soil Transfer Gas Solenoid (Manifold Mount) (S/N > 12953)	03-700111-00
Valve Assembly, 3-Way Gripper Solenoid (Std Mount)	03-505899-02
Valve Assembly, 3-Way Pressure Gas Solenoid (Manifold Mount) (S/N > 12953)	03-700112-00
Valve Assembly, Burkert Solenoid	03-505720-00
Valve, Heated 3-Way, Upper Soil (S/N > 120039)	03-700032-00

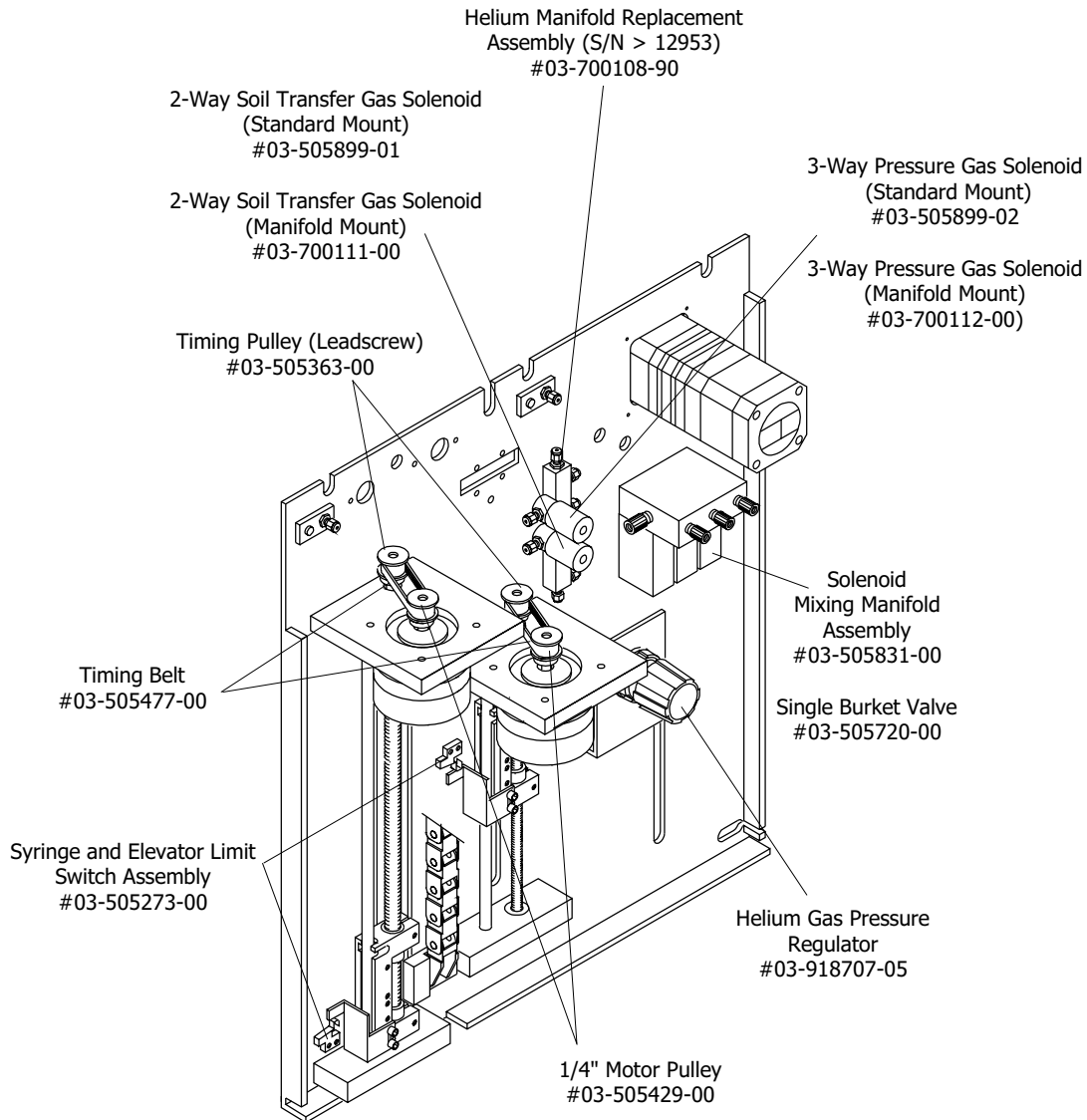


# Replacement Parts and Supplies Model 4552 W/S Autosampler

Vials/Septa		Part #
Screw Cap Vials, 40 mL (with caps and septa)	72/pk	296053
Septa, Teflon/Silica Water Vial	72/pk	296061
Soil Septa, Low Bleed	300/pk	03-504104-00
Soil Vial, 40 mL	6/pk	03-504099-00
Stir Bars for Soil Vial	6/pk	03-504024-00
Stir Bars for Water Vials, 40 mL	each	03-502955-00
Vials, Water USEPA 40 mL	6/pk	03-505081-00
Water Vial Cup	each	03-505451-00



# Replacement Parts and Supplies Model 4552 W/S Autosampler





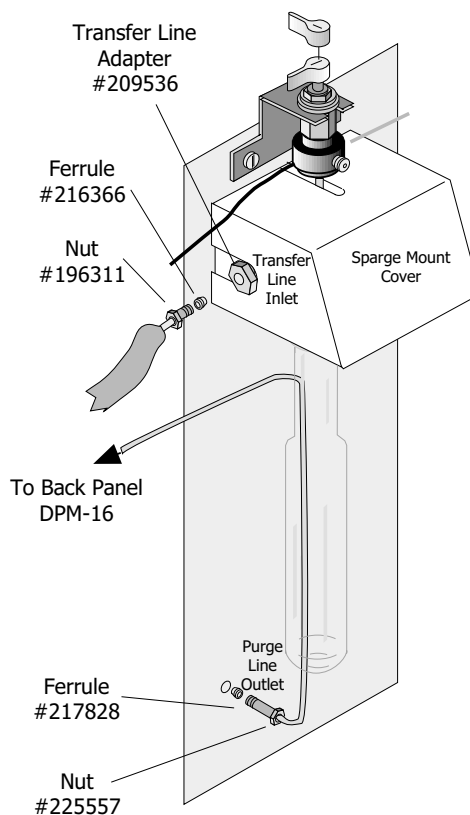
# Replacement Parts and Supplies

## DPM-16 Autosampler

Ferrules		Part #
Brass	1/16" Tube Reverse	228049
Graphite/Vespel	1/16" Tube	10/pk 216366
KEL-F 1/4-28	1/16" x 0.8 mm	5/pk 196204
Stainless Steel, Gold-Plated	1/16" Tube	5/pk 217828
Stainless Steel	1/16" Tube	5/pk 196246
Teflon	1/16" Tube	5/pk 196220
Teflon	6 mm Tube	224337
Teflon	18 mm Tube	10/pk 224352

Fittings		Part #
Adapter	Transfer Line Adapter 4560	209536
Luer	KEL-F Female Luer 1/4-28	169468
Nut	Aluminum 1/4-28, 1/16" (5/pk)	196287
Nut	Stainless Steel 1/16" x 1" Male	225557
Nut	Stainless Steel 1/16" Male (5/pk)	196311
Nut	Stainless Steel 1/16" Male Knurled	217240
Nut	Stainless Steel 18 mm Female Knurled	224675
Union	Brass 1/4"-1/16" Male	197251
Union	Stainless Steel, Gold-Plated 18 mm (w/o Nut)	271809

Gas Line Connections (see drawing)		Part #
Adapter	Transfer Line 4560 Adapter Fitting	209536
Ferrule	Graphite/Vespel 1/16" Tube (10/pk)	216366
Ferrule	Stainless Steel, Gold-Plated 1/16" Tube (5/pk)	217828
Nut	Stainless Steel 1/16" x 1" Male	225557
Nut	Stainless Steel 1/16" Male (5/pk)	196311



**DPM-16 to Model 4560  
Gas Line Connections**

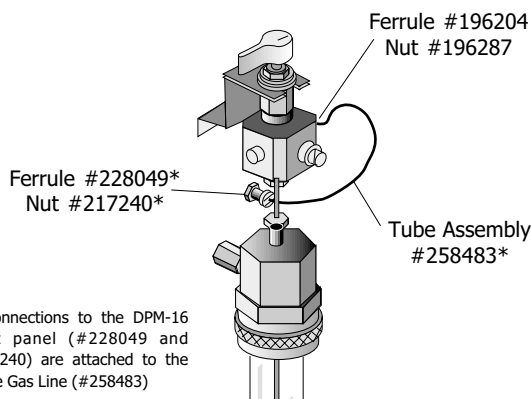
## Replacement Parts and Supplies DPM-16 Autosampler

<b>Heater Jacket Kits</b>				<b>Part #</b>
Needle Sparger	5 mL	110/220 V	16/kit	198689
Needle Sparger	10/25 mL	110/220 V	16/kit	198697
Frit Sparger	5/25 mL	110/220 V	16/kit	218651

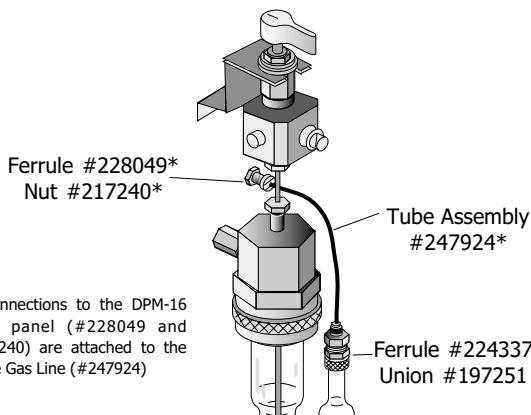
<b>Miscellaneous Parts</b>			<b>Part #</b>
Bracket	Sample Valve Mounting Bracket		252049
Fuse	5 Amp Slo Blo, 5 x 20 mm		313205
Fuse	500 mA Slo Blo, 5 x 20 mm		249987
Heater Line	Heated Transfer Line 48"		247783
Manual	DPM-16/MHC-16 Operator's Manual		248393
Mud-Dawgs	Mud-Dawgs (50/pack)		215061
Transfer Line	DPM-16		247783

<b>Needles</b>			<b>Part #</b>
Frit Needle	19.6 cm		203042
Needle (inc. Disposable) Spargers	19.5 cm	(Side Hole)	232348

<b>Purge Tube Connections (see drawing)</b>			<b>Part #</b>
Ferrule	Brass 1/16" Tube Reverse		228049
Ferrule	KEL-F 1/4-28 1/16" x 0.8 mm (5/pk)		196204
Ferrule	Teflon 6 mm Tube		224337
Nut	Aluminum 1/4-28, 1/16" (5/pk)		196287
Nut	Stainless Steel 1/16" Male Knurled		217240
Tube Assembly	DPM-16 Frit Sparging Purge		247924
Tube Assembly	DPM-16 Needle Sparging Purge		258483
Union	Brass 1/4" - 1/16" Male		197251
Union	Stainless Steel 1/16" - 1/16" Female		218081



**DPM-16 Purge Tube Connections  
for Needle Sparging**



**DPM-16 Purge Tube Connections  
for Frit Sparging**

# Replacement Parts and Supplies

## DPM-16 Autosampler

### Sample Valve and Sparge Mount Assemblies (see drawing)

		Part #
Bracket	Sample Valve Mounting Bracket	252049
Ferrule	1/16" Tube Teflon (5/pk)	196220
Ferrule	18 mm Tube Teflon (10/pk)	224352
Fitting	KEL-F Female Luer 1/4-28	169468
Needle	Needle Spargers 19.5 cm (Side Hole)	232348
Nut	Stainless Steel 1/16" Male (5/pk)	196311
Nut	Stainless Steel 18 mm Female Knurled	224675
Union	18 mm Stainless Steel Gold-Plated (w/o Nut)	271809
Valve	KEL-F 3-Port Sample Valve 1/4-28	169484

### Sparger Kits\*

				Part #
Frit	18 mm Neck O.D.	5 mL	16/kit	247916
Frit	18 mm Neck O.D.	25 mL	16/kit	247932
Needle	18 mm Neck O.D.	5 mL	16/kit	232207
Needle	18 mm Neck O.D.	10 mL	Dispbl. 125/case	199521
Needle	18 mm Neck O.D.	25 mL	16/kit	232223

### Syringes

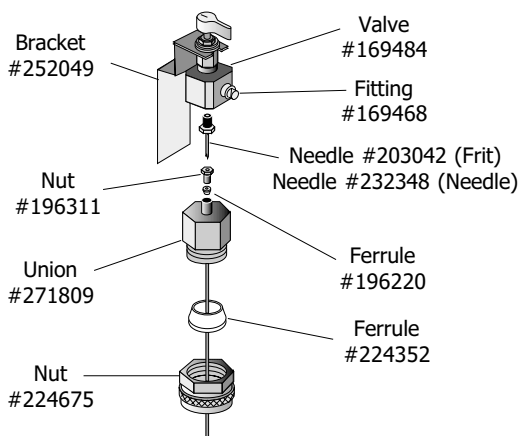
	Part #
10 µL x 2" Needle	167545
5 mL Sample with Luer	177659
25 mL Sample with Luer	172461

### Tube Assemblies

	Part #
DPM-16 Frit Sparging Purge Tube Assembly	247924
DPM-16 Needle Sparging Purge Tube Assembly	258483

### Valves

	Part #
KEL-F 3-Port Sample Valve 1/4-28	169484
Stainless Steel 34-Port with Electric Actuator (110 V)	187179



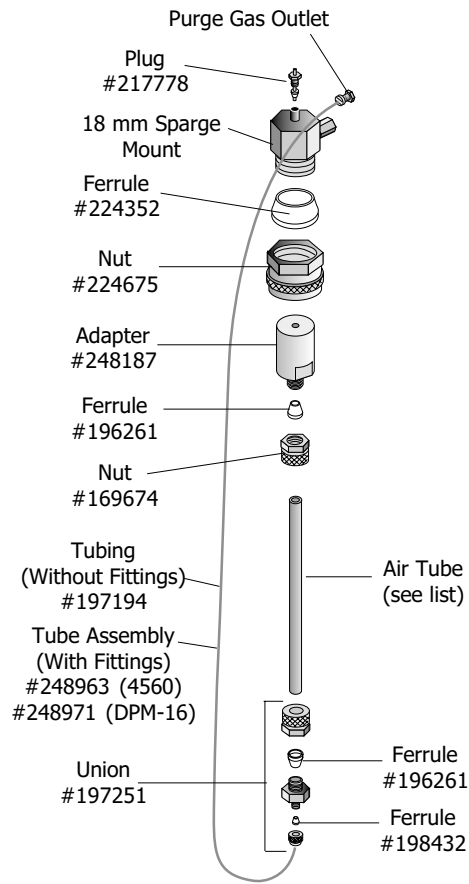
**Sample Valve and Sparge Mount Assemblies**

\* For individual spargers, see page GC-59, GC- 60, or GC-85.

## Replacement Parts and Supplies Air Analysis Products

<b>Air-Tube Desorber Accessory (see drawings)</b>			<b>Part #</b>
Adapter	18 mm-1/4" Stainless Steel, Gold-Plated		248187
Air Tube	1/4" O.D. x 4.75" Stainless Steel, Glass-Lined		197319
Ferrule	1/16" Tube Set Teflon (10/pk)		198432
Ferrule	1/4" Tube Teflon (5/pk)		196261
Ferrule	18 mm Tube Teflon (10/pk)		224352
Nut	1/4" Female Knurled Stainless Steel		169674
Nut	18 mm Stainless Steel Female Knurled		224675
Plug	1/16" Tube Male Stainless Steel (with Ferrule)		217778
Tube Assembly	4560 Purge to Air Tube		248963
Tube Assembly	DPM Purge to Air Tube		248971
Tubing	1/16" x 0.020 mm I.D. PEEK (w/o Attachments)		197194
Union Assembly	1/4" x 1/16" Male Brass (with Ferrules)		197251

<b>Air Sampling Tubes and Containers</b>					<b>Part #</b>
4.5" L	1/4" O.D.	Air-Tube Shipping Container			260299
4.5" L	1/4" O.D.	Trap	Blank	Stnls. Steel	260174
4.5" L	1/4" O.D.	Trap	Carbon Molecular Sieve	Stnls. Steel	260190
4.5" L	1/4" O.D.	Trap	Tenax	Stnls. Steel	260182
4.5" L	6 mm O.D.	Air-Tube Shipping Container			260307
4.5" L	6 mm O.D.	Trap	Blank	Glass	260208
4.5" L	6 mm O.D.	Trap	Carbon Molecular Sieve	Glass	260224
4.5" L	6 mm O.D.	Trap	Tenax	Glass	260216



**18 mm Air-Tube  
Desorber Assembly**

<b>VOST Desorber Accessory</b>				<b>Part #</b>
Ferrule	1/4" Tube	Teflon	(5/pk)	196261
Ferrule	1/16" Tube	Teflon	(5/pk)	196220
Nut	1/16" Male	Stainless Steel	(5/pk)	196311
Tube	VOST	Glass		229716
Tubing	1/16" x 0.020 mm I.D.	PEEK	(per ft)	197194
Union	1/4"-1/16" Tube Male	Stainless Steel		229880
Union	1/4" Tube Male	Stainless Steel		229872

# Replacement Parts and Supplies

## Cryo-Focusing Module (CFM)

<b>Boards</b>	<b>Part #</b>
Backplane Board	203661
Front Panel LED	203596
Front Panel Thumbwheel	203604
Microprocessor Board	203810
Power Supply	203802

<b>Cables</b>	<b>Part #</b>
Handshake Pigtail Agilent 5890/6890	185868
CFM to Injector Agilent 5890	204024
CFM Injector to Ground	229401
CFM/4560/4552	297309
CFM/4560/4552/Agilent GC	297259
GC Ready Invert	297234
Model 4560 to CFM	226548
Probe-Thermocouple	216838

<b>Ferrules</b>	<b>Part #</b>
Graphite/Vespel 1/16" x 0.8 mm Tube	10/pk 196105
Graphite/Vespel 1/16" x 0.5 mm Tube	10/pk 196113
Graphite/Vespel 1/16" Tube	10/pk 216366
Graphite/Vespel Adapter 1/16" x 0.5 mm	5/pk 217679
Graphite/Vespel Adapter 1/16" x 0.4 mm	5/pk 217687
Graphite/Vespel Adapter 1/16" x 0.8 mm	5/pk 216416
Graphite/Vespel Adapter 1/16" x 0.2 mm	5/pk 217695

<b>Fittings</b>	<b>Part #</b>
Adapter 1/16" Tee LDVI	217851
Nut 1/16" Female Extended	218024
Nut Stainless Steel Injector 10-32 x 26 Gauge	187104
Union Brass 1/4-1/8 Female	208785
Union Stainless Steel Injector End	202671

<b>Miscellaneous</b>	<b>Part #</b>
Ceramic Column Cutter (3/pk)	206888
CFM Operator's Manual	202879
CFM Valve Assembly	203554
Cryo Focusing Control Module	203836
Fuse, 2 amp	115493
Heater Assembly - CFM Injector (115 V)	205708
Injector Assembly (115 V) Agilent 5890	202580
Locking Ring, Aluminum 1.25 x .75	206409
Power Cord (110 V)	116038
Septa, Silicone 3.3 mm x .125 (10/pk)	217984
Syringe, 10 µL x 2"	167545
Thermocouple - Type K with Plug 10"	202846
Thermocouple - Type K 0.20 Stainless Steel	208314
Tube Assembly - Exhaust CFM	218123

<b>Tubing</b>	<b>Part #</b>
Alumina 1/16" x 0.031 x 6.5	206557
Cryogen Supply Line	208256
Fused Silica DB-1 Precolumn 0.53 mm I.D. (5/pk)	226134
Teflon 1/16" x 0.20 x 1.0" (5/pk)	217901
Uncoated Fused Silica Precolumn 0.53 mm I.D. (5/pk)	202754

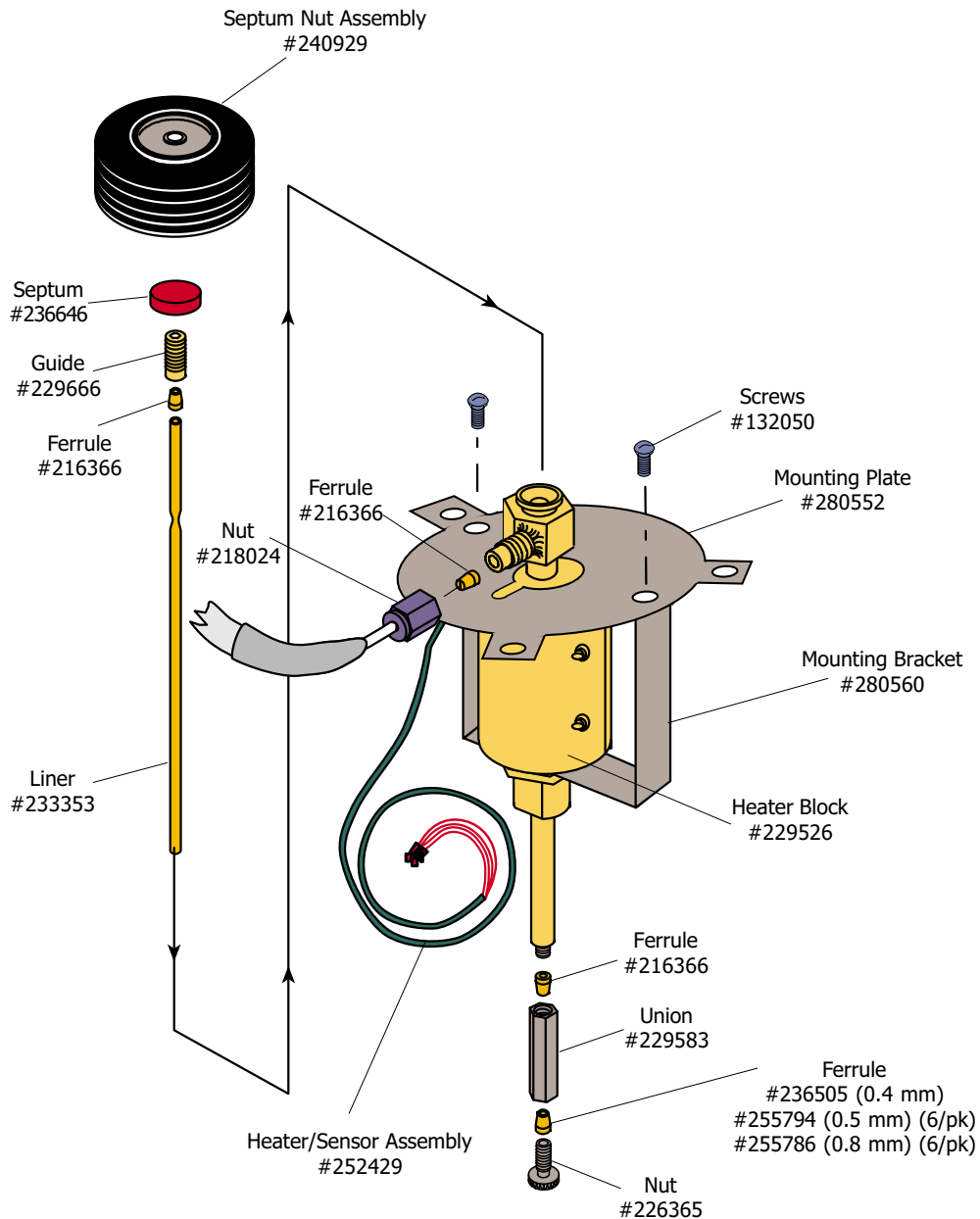
## Replacement Parts and Supplies Low-Dead-Volume Injector

6890	5890	<b>Low-Dead Volume Injector</b>		<b>Part #</b>
■		Bracket	Injector Mounting	280560
■	●	Ferrule	Graphite/Vespel 1/32" x 0.4 mm	236505
■	●	Ferrule	Graphite/Vespel 1/16" Tube (10/pk)	216366
■	●	Ferrule	Graphite/Vespel 1/32" x 0.5 mm (6/pk)	255794
■	●	Ferrule	Graphite/Vespel 1/32" x 0.8 mm (6/pk)	255786
■	●	Guide	Secondary Needle Guide, 26 gauge	229666
	●	Heater		226340
■		Heater and Sensor Cable Assembly		252429
■		Heater Block		229526
■	●	Injector Body	Stainless Steel, Gold-Plated LDVI Body	242586
■		Manual	Installation and Maintenance Guide	280586
	●	Manual	Installation and Maintenance Guide	236414
■		Nut	Locking Hex	214817
■	●	Nut	Septum Nut Assembly, 26 Gauge	240929
■	●	Nut	Stainless Steel 1/32" Knurled Male	226365
■	●	Nut	Stainless Steel 1/16" Female Extended	218024
■		Plate	Injector Mounting	280552
	●	PRT		170093
■		Screws	Injector Mounting Bracket	132050
■		Screws	Mounting, TORX M4X10	252585
■	●	Septum	Septum 1/4" x 0.125" (5/pk)	236646
■		Tool	Allen Wrench 3/32	233346
■		Tube	LDVI Liner	233353
	●	Tube	Carrier Outlet Line Tube Assembly (ICM)	229302
■	●	Union	Stainless Steel 1/32" x 1/16" Female	229583

Column	Ferrule
0.25 mm	#236505
0.32 mm	#255794
0.53 mm	#255786

# Replacement Parts and Supplies

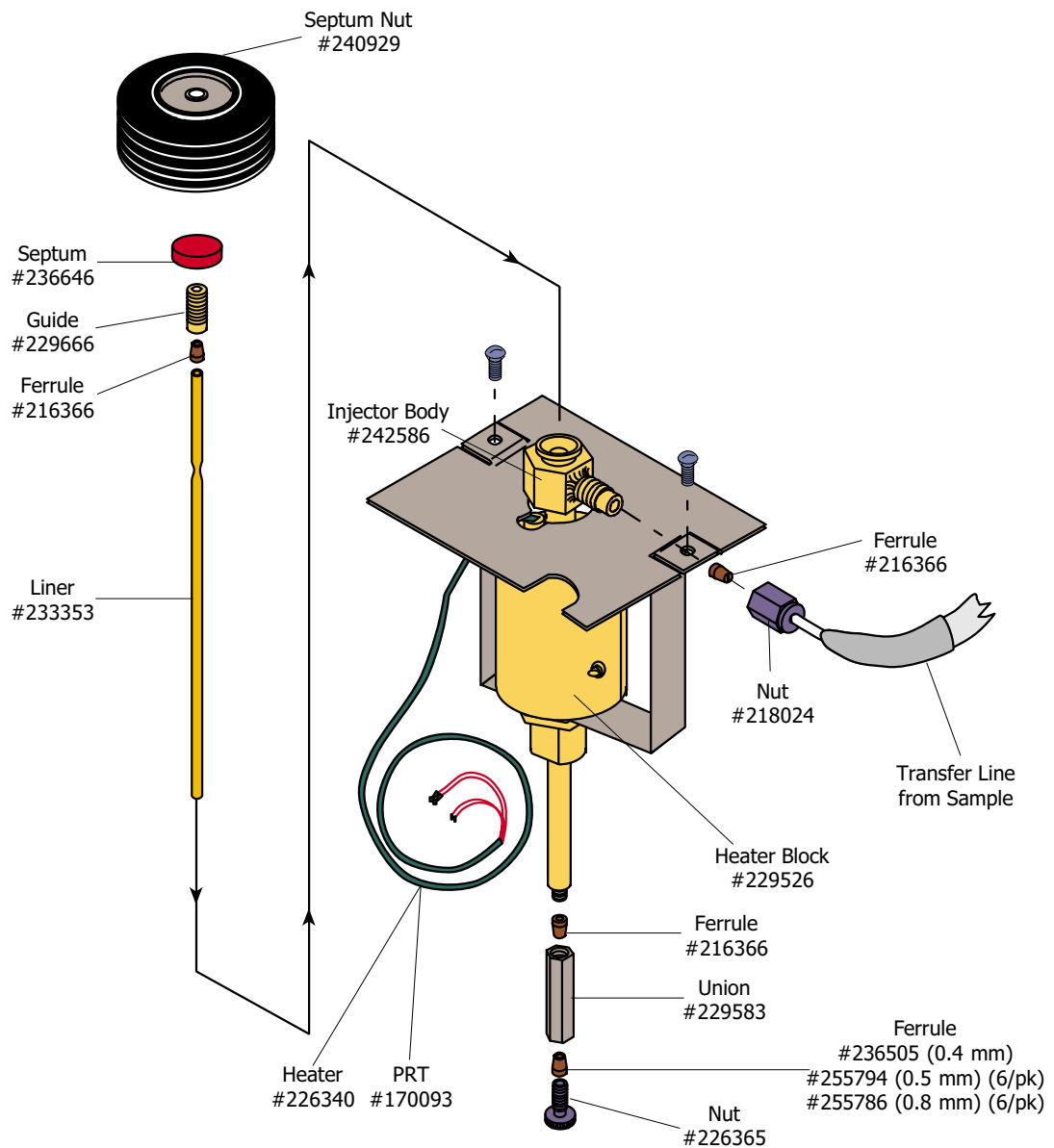
## Low-Dead-Volume Injector



**Low-Dead-Volume Injector  
For Agilent 6890 GC**

# Replacement Parts and Supplies

## Low-Dead-Volume Injector



**Low-Dead-Volume Injector  
For Agilent 5890 GC**



# Replacement Parts and Supplies

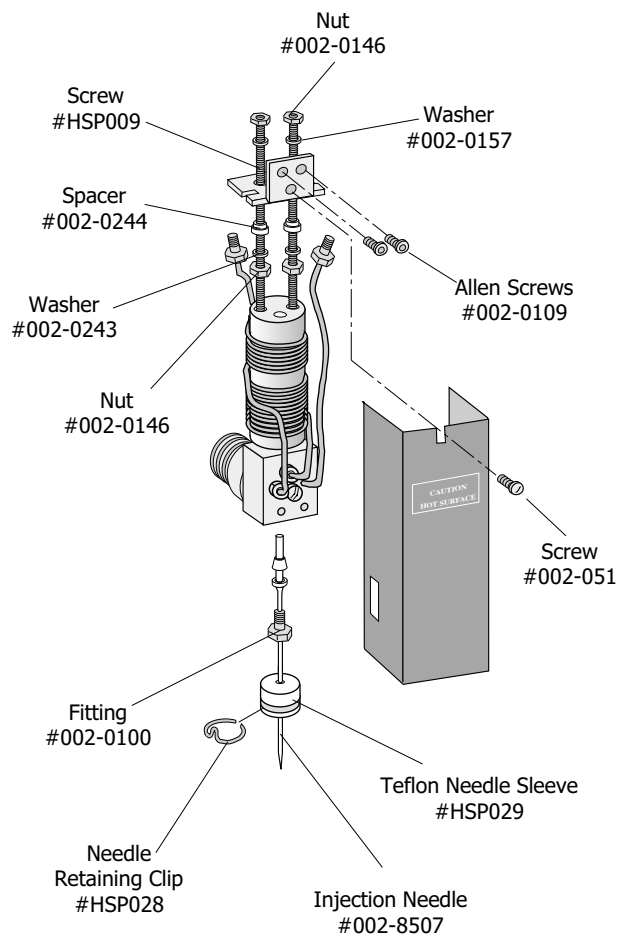
## Model 4632M Headspace Autosampler

Boards		Part #
Keyboard/Display		001-5121
Main Board		001-5284
Slave Board	110V	002-5282/1
Slave Board	220V	002-5282/2

Oven		Part #
Cartridge	110 VAC Heat for Oven	002-5093
Cartridge	230 VAC Heat for Oven	002-5092
O-ring	33 x 1.8 mm	002-0160
Sensor	Temperature PRT	002-5090
Wheel	Oven Drive, Rubber-Coated	002-8013

Loop/Needle/Valve		Part #
Cartridge	24 VDC Heater for 4-port Valve	002-5010
Clip	For Needle-Guide	HSP028
Gas Valve Assembly with 0.5 mL Loop		002-8501
Loop	1.5 mL Injection Valve	002-7003
Loop	1 mL Injection Valve	002-7002
Loop	0.5 mL Injection Valve	002-7001
Needle	Mechanical Gripper	288431
Needle	Needle Assembly	002-8507
Screws	Allen, Valve Mounting	002-0109
Sensor	Temperature PT 100	002-5090
Sleeve	Teflon, for Needle	HSP029
Spacers	Valve Mounting	002-0244

Miscellaneous		Part #
Curtain	X-Arm	SCH023
Display and Keyboard Assembly		001-8001
Filter/Power Entry		001-5132
Transformer	110 V	002-5135
Transformer	230 V	002-5131
Tray	32 Position, 23 mm dia	001-9008
Tubing	Teflon, Valve to Ground Plate	234401
Valve Assembly	Carrier, Pressurization, or Vent	002-8023

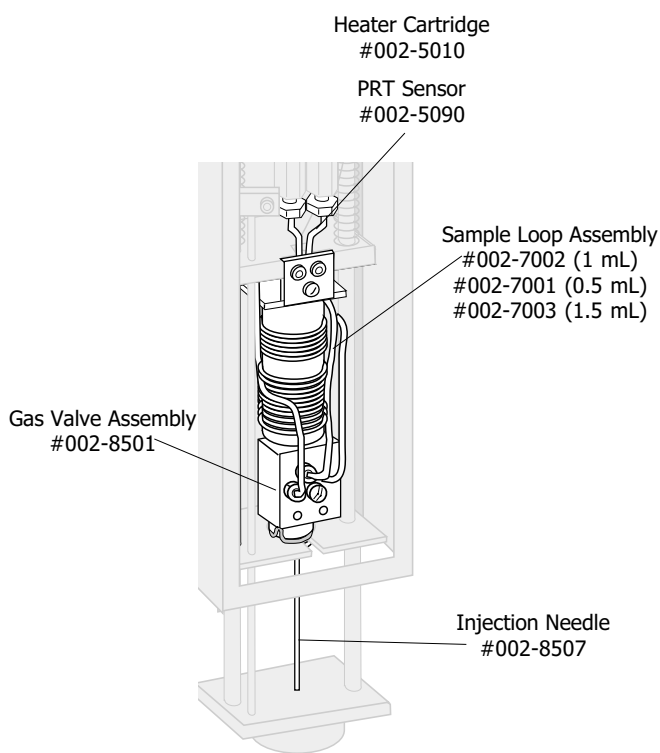


**Model 4632M Gas Valve Assembly**

## Replacement Parts and Supplies Model 4632M Headspace Autosampler

<b>Robotic Arm Components</b>		<b>Part #</b>
Belt	1032 mm X-axis	001-099
Belt	335 mm Y-axis	001-100
Belt	Z-axis	002-313
Microswitch	Oven Limit	HSP306
Motor	Stepper Valve Drive	002-6011
Motor	Stepper, X-axis	001-8032
Motor	Stepper, Y-axis	001-8224
Motor	Stepper, Injection Head, Z-axis Drive	002-8011
Pulley	15 Cog, X-axis	SCH014
Pulley	12 Cog, Y-motor	SCH036
Pulley	15 Cog, X-axis Motor	SCH013
Pulley	Y-bearing, Valve Drive	SCH064
Pulley	Agitator Motor 12 mm	HSP074
Pulley	Agitator Motor 15 mm	HSP073
Pinion	90 Teeth Valve Drive	HSP013
X-Guide Block		001-8031
Y-axis Bearing Block		001-8060

<b>Vials</b>		<b>Part #</b>
Caps	20 mm Headspace (125/pk)	307439
Crimper	For 20 mm Seals	276362
Kit	20 mm Cap/Seals/Vials (125/pk)	307421
Vials	10 mL, 22 mm (125/pk)	307538



## Cable Selection Guide

Cable Connections	4560	4551A	4552 to 4560	DPM-16
4460A	---	----		230656
4560	---	181750		226605
Agilent 6890 GC			284935, 226530, & 252213	
Agilent 5890 GC (No MSD)	185868 & 226530	----	284935, 226530, & 185868	----
Agilent 5890/5971 or 5972 (DOS or UNIX)	209874 & 226530**	----	----	----
Agilent 5890/5970* (PASCAL)	209866 & 226530	----	----	----
Agilent 5890/5970* (RTE-A)	209882 & 226530	----	----	----
MHC-16 (Rev. A)	226605	----	----	192443
MHC-16 (Rev. B)	226605	----	----	229450
DPM-16 or MPM-16	226605	----	----	----
CFM	226548	----	----	----
* Requires MSD cable in addition to those listed    ** Also Agilent 35900-60700 (included with Agilent 5971 and Agilent 5972)				

Autosampler	Purge and Trap	GC	Cable Required	Interface Kit Required
4552	4560	Agilent	284935	276592 (cable #284935 is included)
	4460A	Agilent	284935	276592
	4560/4460A	Varian 3400/3600	251694	276592
	4560/4460A	Agilent 5890/5970 MSD	03-505875-00	276592
	Tekmar 2/3000/3100	Agilent 5890/5970 MSD	03-505874-00	293043
	Tekmar 2/3000/3100	Varian 3400/3600	03-505868-00	293043
	Tekmar 2/3000/3100	Agilent 6890	03-505873-00	293043
	Tekmar 2/3000/3100	MS-5895/85/87/88/92	03-505876-00	293043
	Tekmar 2/3000/3100	Spade Lug	03-505633-00	----
	Tekmar 2/3000/3100	Varian 3800	03-925673-01	293043
4551A	4560	Any	Included	Included
DPM-16	4560	Any	Included	Included

## Glassware Selection Guide & Purge Needle Selection Guide

Sparger	Size	Neck	4560	4551A	DPM	4552	4105	4632	Part # (1)	Kit Part #	#/kit
Frit	5 mL	18 mm	✓		✓				209015	247916	16
Frit	25 mL	18 mm	✓		✓				209031	247932	16
Needle	5 mL	18 mm	✓		✓				225623	232207	16
Needle	25 mL	18 mm	✓		✓				225631	232223	16
Disposable	10 mL	18 mm	✓		✓				-----	199521	125
Vial Kit***	40 mL	28 mm		✓		✓			-----	296053	72
Vials	2 mL						✓		-----	276378	100
Vials	10 mL							✓	-----	307421	100
Vials	40 mL	28 mm		✓					-----	296087	72
SoilVials (Double-Ended)									03-504099-00	-----	6
Wash/Waste Station Vial				✓					232801	-----	-----

\*\*\* Includes caps and septa

Purge Needles			4560	DPM-16
Sparger	Size	Neck	18 mm	2 - 18 mm
Frit	5 mL	18 mm	<b>209114</b>	203042
Frit	25 mL	18 mm	209114	203042
Needle	5 mL	12 mm	-----	-----
Needle	5 mL	18 mm	227371*	<b>232348*</b>
Needle	25 mL	18 mm	227371*	232348*
Disposable	10 mL	18 mm	227371*	232348*

\* Side hole  
**Standard instrument configuration in bold print.**

Needle Lengths (with Fittings)	
203042	19.6 cm
209114	22.9 cm
227371	22.9 cm
232348	19.5 cm



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**GC Detectors Replacement Parts and Supplies**

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XSD .....	GC-96
PID/ELCD and PID/XSD .....	GC-98
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# Replacement Parts and Supplies

## Photoionization Detector (PID)

<b>Cables</b>	<b>Part #</b>
Analog Signal Cable (0-1 V) (Agilent 5890)	185850
Analog Signal Cable (0-10 V) (Agilent 6890)	252551
Electrometer Cable 3.7" (Agilent 5890)	206094
Electrometer Cable 5.0" (Agilent 6890)	252544
Electrometer Cable 6.5" (Agilent 5890)	206110
Electrometer Cable 14.0" (Agilent 5890)	206102
External Event (Agilent 6890)	252569
Lamp High Voltage Cable	181750
Power Cord (110 VAC)	116038
Remote Start Lamp Cable, Model 4430 PID	185843
Vent Valve Cable, Model 4430 PID (from 187476 to Agilent 5890)	185967
Vent Valve Cable, Model 4430 PID	187476
Vent Valve Cable, Model 5230 PID	242062

<b>Ferrules</b>	<b>Part #</b>
Brass 1/16" Tube Back 5/pk	196162
Brass 1/16" Tube Front 5/pk	196170
Brass 1/16" Tube 6/pk	223776
Brass 1/8" Tube Set 10/pk	196089
Graphite 1/8" x 1/16" Tube 5/pk	196196
Graphite 1/16" Tube 10/pk	204693
Graphite 1/16" x 0.8 mm Tube 10/pk	196097
Graphite/Vespel 1/16" Tube 10/pk	216366
Graphite/Vespel 1/4" Tube 10/pk	222794
Graphite/Vespel 1/16" x 0.8 mm Tube 10/pk	196105
Graphite/Vespel 1/16" x 0.5 mm Tube 10/pk	196113
Graphite/Vespel 1/16" x 0.4 mm Tube 10/pk	208330
Stainless Steel 1/16" Tube 5/pk	196246

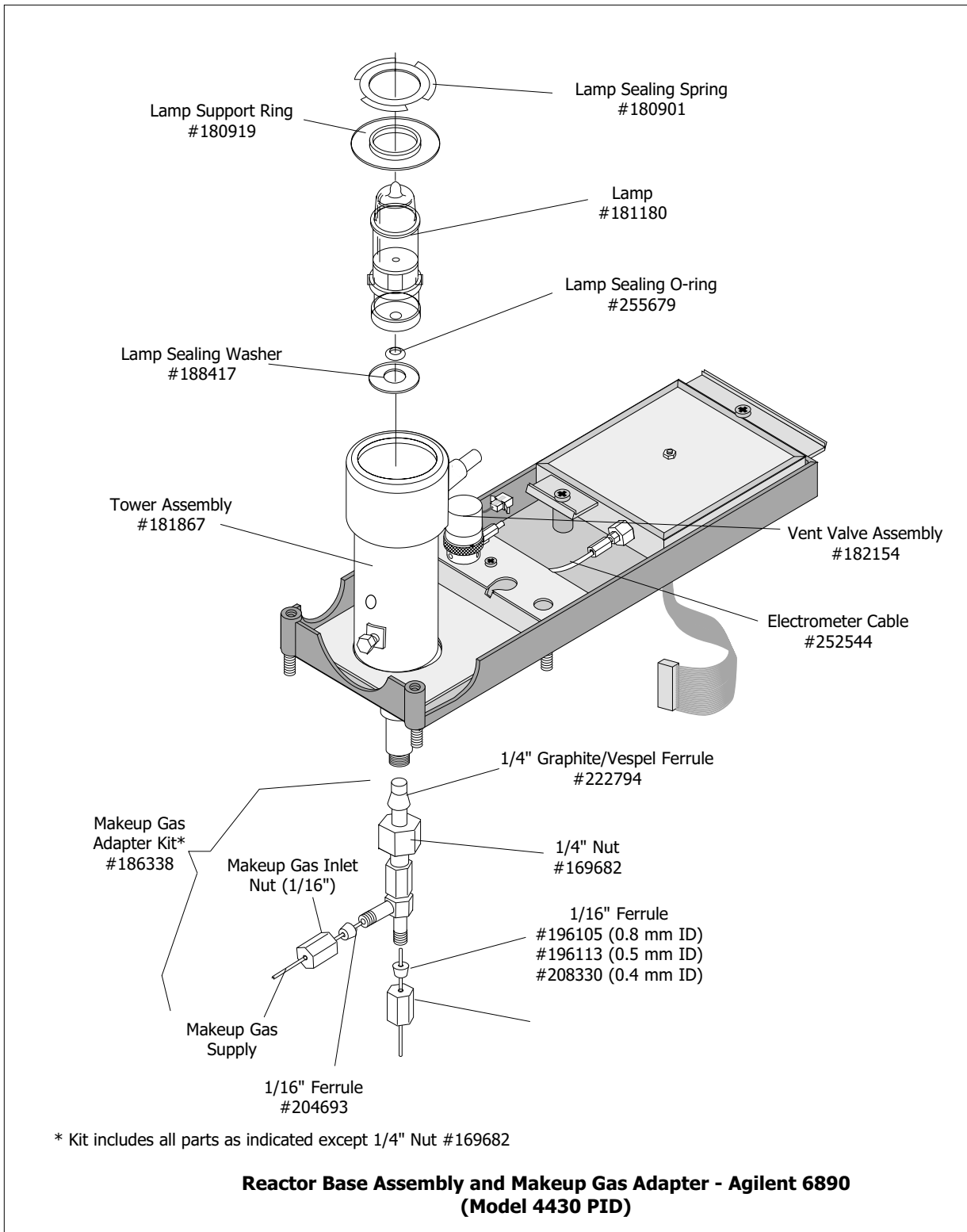
<b>Fittings - Nuts</b>	<b>Part #</b>
Brass, Nickel Plated 1/16" Male 5/pk	196303
Stainless Steel 1/4" Female	169682
Stainless Steel 1/16" Male	223057
Stainless Steel 1/16" Male 5/pk	196311
Stainless Steel For Outlet Restrictor	188490

<b>Lamp Supplies (see drawing)</b>	<b>Part #</b>
Lamp - 9.6 eV	189423
Lamp - 10.0 eV	181180
Lamp - 11.8 eV	189431
Lamp Polishing Kit	214924
Lamp Sealing O-ring (5/pk)	255679
Lamp Sealing Spring	180901
Lamp Sealing Washer	188417
Lamp Support Ring	180919
Tower Assembly	181867

<b>Tubes</b>	<b>Part #</b>
Copper 1/8" x 0.070" I.D.	111427
Stainless Steel 1/16" x 0.020" I.D.	111732
Stainless Steel Outlet Restrictor Tube	188482

<b>Vent Supplies</b>	<b>Part #</b>
Vent Valve Assembly (Agilent, Varian, Shimadzu) (24 V)	182154
Vent Valve, Brass/Nickel 2-way 24 VAC	183939
Vent Outlet Tube Assembly (Agilent 5890)	181826
Vent Outlet Tube Assembly (Agilent 6890)	252510
Vent Valve Needle Valve	195461

## Replacement Parts and Supplies Photoionization Detector (PID)





# Replacement Parts and Supplies

## Electrolytic Conductivity Detector (ELCD)

5320	5220	Cables	Part #
■		Cell to Reactor Interface Cable	216010
▲		Detector Controller to Cell Interface Cable	247007
▲		External Events Cable (Agilent 6890)	252569
■		Remote Start Cable	229658
■		Reactor Interface Cable	231365
▲		Reactor Power Cable	245506
■		Signal Out BNC to Agilent 5890 AIB	229641
■		Signal Out BNC to Agilent 6890 AIB	274852
■		Signal Out BNC to Agilent Integrator	229633
■		Signal Out BNC to Spades	215962
▲		Signal Out From CAB to Spades	246405
▲		Signal Out Cable from CAB to Agilent Integrator	246397
▲		Signal Out Cable from CAB to Agilent 6890 AIB	246389
▲		Signal Out Cable from CAB to Agilent 5890 AIB	246371
■		Vent Valve Cable - 5220	214890
▲		Vent Valve Cable - 5320 (Agilent 5890)	242062
▲		Vent Valve Cable - 5320 (Agilent 6890)	187476

5320	5220	Fittings	Part #
▲	■	Nut Stainless Steel 1/32" Male Knurled	226365
▲	■	Nut Stainless Steel 1/16" Female Knurled	226357
▲	■	Nut Stainless Steel 1/16" Male Knurled	217240
▲	■	Nut Stainless Steel 1/16" Reactor Top	227462
	■	Nut Stainless Steel 1/4" Male	178574
▲	■	Nut Reactor Assembly	272369
▲		Nut Reactor Base Adapter	223743
▲	■	Union Stainless Steel 1/16" Tube Female	204735
▲	■	Union Assembly 1/16" Reactor Top	226464

5320	5220	Ferrules	Part #
▲	■	Brass 1/16" Tube	6/pk 223776
	■	Brass 1/8" Tube Set	10/pk 196089
▲		Brass 1/16" Tube Back	5/pk 196162
▲		Brass 1/16" Tube Front	5/pk 196170
▲	■	Graphite/Vespel 1/16" x 0.8 mm	10/pk 196105
▲	■	Graphite/Vespel 1/16" x 0.5 mm	10/pk 196113
▲	■	Graphite/Vespel 1/16" x 0.4 mm	10/pk 208330
	■	Graphite/Vespel 1/32" x 0.5 mm Tube	6/pk 255794
	■	Graphite/Vespel 1/32" x 0.4 mm Tube	1/pk 236505
	■	Graphite/Vespel 1/32" x 0.8 mm Tube	6/pk 255786
▲	■	Graphite/Vespel 1/16" Tube	10/pk 216366
▲	■	Stainless Steel 1/16" Tube	5/pk 196246
▲	■	Teflon 1/16" Tube	5/pk 272443

5320	5220	Mode Kits	Part #
▲	■	Halogen Mode Kit	219402
▲	■	Nitrogen Mode Kit	224972
▲	■	Sulfur Mode Kit	224980

## Replacement Parts and Supplies Electrolytic Conductivity Detector (ELCD)

5320	5220	<b>Resin</b>	<b>Part #</b>
▲	■	Disposable Resin Cartridge - Halogen Mode	213579
▲	■	Disposable Resin Cartridge - Nitrogen Mode	230524
▲	■	Disposable Resin Cartridge - Sulfur Mode	225003

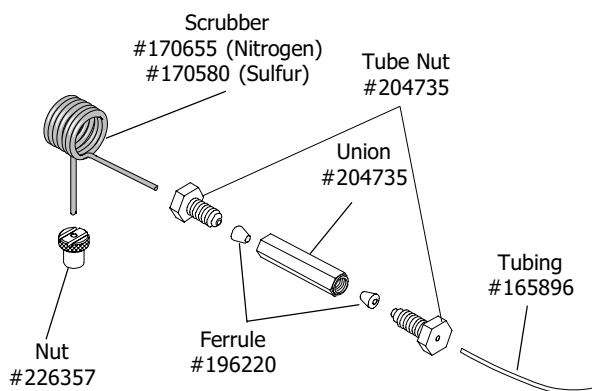
5320	5220	<b>Solvent System Parts</b>	<b>Part #</b>
▲	■	Solvent Flow Block	214577
▲	■	Solvent Pump Assembly	216267
▲	■	Solvent Reservoir (500 mL)	216507



**Disposable Resin Cartridge**

5320	5220	<b>Tubing</b>	<b>Part #</b>
▲	■	PEEK 1/16" x 0.030" I.D.	197202
▲	■	Silicone 1/4" x 1/8" I.D. Clear	179085
▲	■	Stainless Steel 1/16" x 0.030" I.D.	193409
▲	■	Teflon 1/16" x 0.007" I.D.	272542
▲	■	Teflon 1/16" x 0.020" I.D.	165896
▲	■	Teflon 1/16" x 0.031" I.D.	145591
▲	■	Teflon 1/16" x 0.38" I.D.	234401

5320	5220	<b>Scrubber Parts (see drawing)</b>	<b>Part #</b>
▲	■	Ferrule - Teflon 1/16" Tube (5/pk)	196220
▲	■	Nitrogen Mode Scrubber	170655
▲	■	Nut - Stainless Steel 1/16" Female Knurled (Reactor)	226357
▲	■	Sulfur Mode Scrubber	170580
▲	■	Tubing-PEEK 1/16" x 0.020 mm I.D. (N & S Modes)	197194
▲	■	Union - Stainless Steel 1/16" Tube Female with Nuts	204735

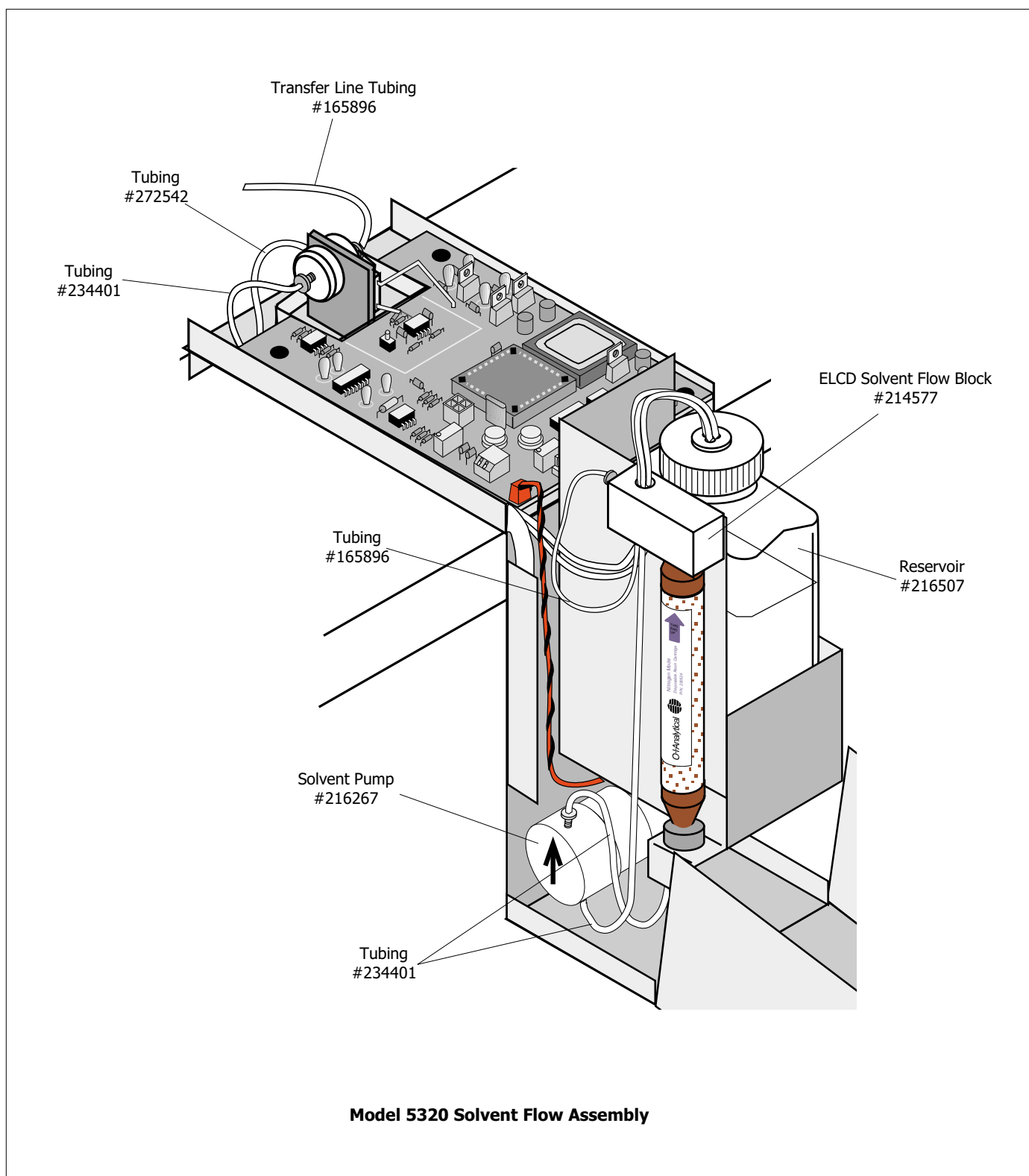


**Scrubber Assembly**

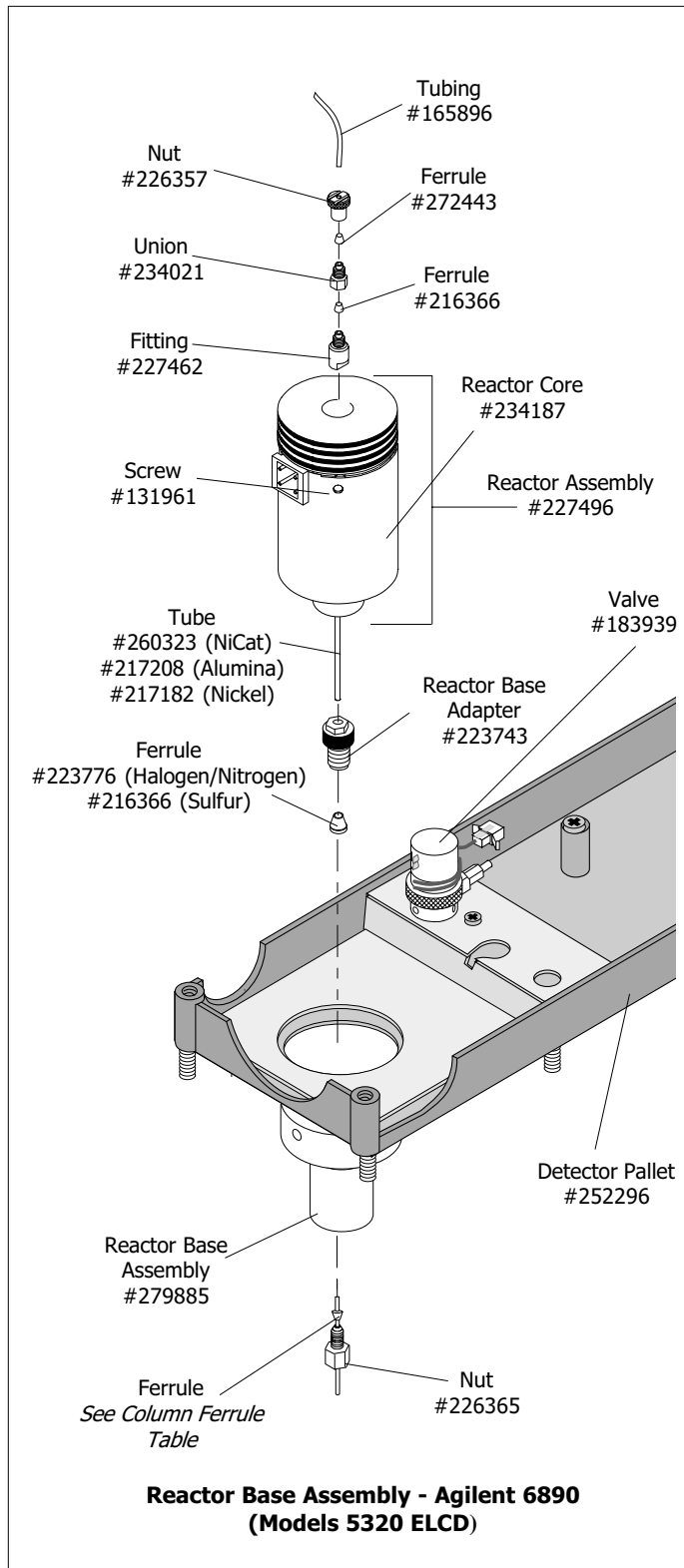
**☎ Call 1-800-653-1711 or 979-690-1711, or FAX 979-690-0440 ☎  
(USA/Canada)**

# Replacement Parts and Supplies

## Electrolytic Conductivity Detector (ELCD)



## Replacement Parts and Supplies Electrolytic Conductivity Detector (ELCD)



5320	5220	Miscellaneous Parts	Part #
■		Board - PCA - Model 5220 CPU	230565
▲		Board - PCA - Model 5300 Controller Board	266833
■		Board - PCA - Model 5220 Cell Interface	223222
▲		Board - PCA - Model 5320 Cell Amplifier	274266
■		Board - PCA - Model 5220 Cell Amplifier	259416
▲ ■		Board - Analog Input (Agilent 6890)	274886
▲ ■		Cell Assembly	234237
▲		Fan Assembly - Model 5300 Controller	245712
■		Fan Assembly - Model 5200 Controller	216952
▲		Manual - Model 5320 ELCD (Agilent 5890)	274969
▲		Manual - Model 5320 ELCD (Agilent 6890)	278846
▲		Manual - Model 5320 ELCD (Varian)	307306
■		Manual - Model 5220 ELCD (Agilent)	224923
■		Manual - Model 5220 ELCD (Varian)	255778
▲ ■		Nut Driver Tool	223917

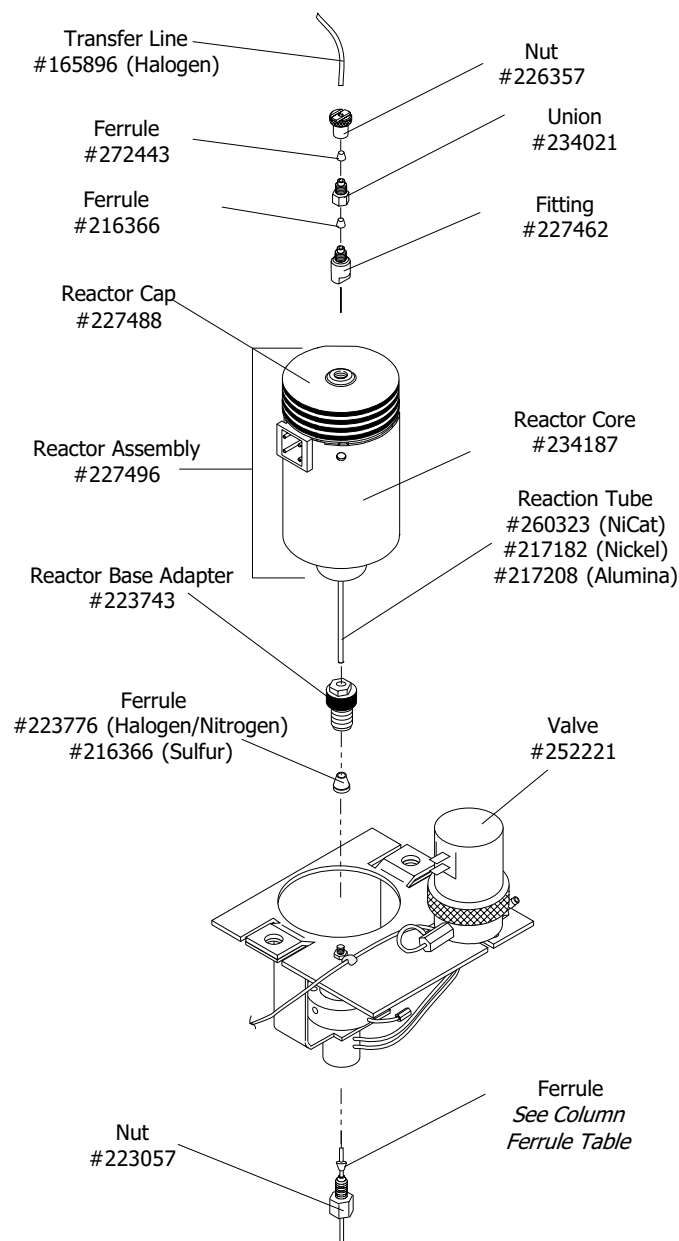
Base	Column	Ferrule I.D.	Part #
1/32"	0.53	0.8 mm	255786
1/32"	0.32	0.5 mm	255794
1/32"	< 0.32	0.4 mm	236505
1/16"	0.53	0.8 mm	196105
1/16"	0.32	0.5 mm	196113
1/16"	< 0.32	0.4 mm	208330
1/8"	packed	—	—
1/4"	packed	—	—

**Column Ferrule Table**

# Replacement Parts and Supplies

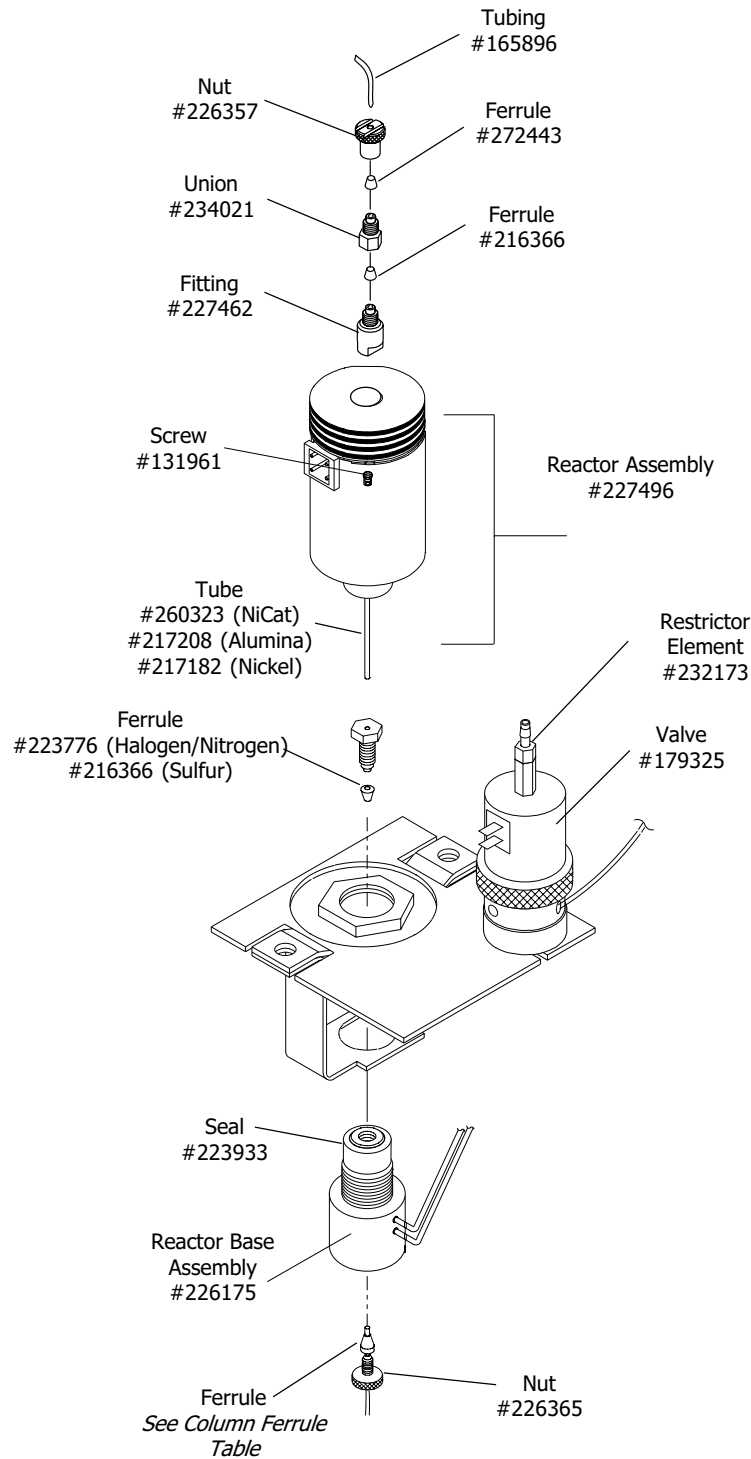
## Electrolytic Conductivity Detector (ELCD)

5320	5220	Reactor Assembly Parts	Part #
▲		Adapter Reactor Base	223743
▲	■	Ferrule 1/32" Tube Graphite/Vespel (6/pk)	255786
▲	■	Ferrule 1/16" Tube Brass (H and N Modes) (6/pk)	223776
▲	■	Ferrule 1/16" Tube GRP/VSP (S Mode) (10/pk)	216366
▲	■	Ferrule 1/16" Tube Teflon (5/pk)	272443
▲		Ferrule 1/16" GRP/VSP 0.8 mm I.D. (10/pk)	196105
▲		Ferrule 1/16" GRP/VSP 0.5 mm I.D. (10/pk)	196113
▲		Ferrule 1/16" GRP/VSP 0.4 mm I.D. (10/pk)	208330
▲	■	Nut 1/16" Reactor Base	272369
▲	■	Nut 1/32" Stainless Steel Male Knurled	226365
▲	■	Nut 1/16" Stainless Steel (Reactor Top Fitting)	227462
▲		Nut 1/16" Stainless Steel Male	223057
▲	■	Nut 1/16" Stainless Steel Female Knurled	226357
▲	■	Reactor Assembly - Models 5220/5320	227496
▲	■	Reactor Core - Models 5220/5320	234187
▲	■	Screw Allen Set 6-32, 1/8"	131961
▲	■	Seal Graphite/Meldin Reactor Base Seal	223933
▲	■	Tube Alumina Reaction Tube (S Mode)(3/pk)	217208
▲	■	Tube NiCat Reaction 3.45"(Halogen)(12/pk)	260323
▲	■	Tube Nickel Reaction Tube (Nitrogen) (6/pk)	217182
▲	■	Tubing 1/16" x 0.020 mm I.D. Teflon	165896
▲	■	Union 1/16" Stainless Steel Male Female Tapered	234021
	■	Valve Brass, Nickel 3-way, 12 V Vent	179325
▲		Valve Brass, Nickel 2-way, 12 V Vent (5890)	252221
▲		Valve Brass, Nickel 2-way, 24 V Vent (6890)	183939
▲	■	Valve Vent Valve Restrictor Element 500 mL	232173



**Reactor Base Assembly - Agilent 5890 (Model 5320 ELCD)**

## Replacement Parts and Supplies Electrolytic Conductivity Detector (ELCD)



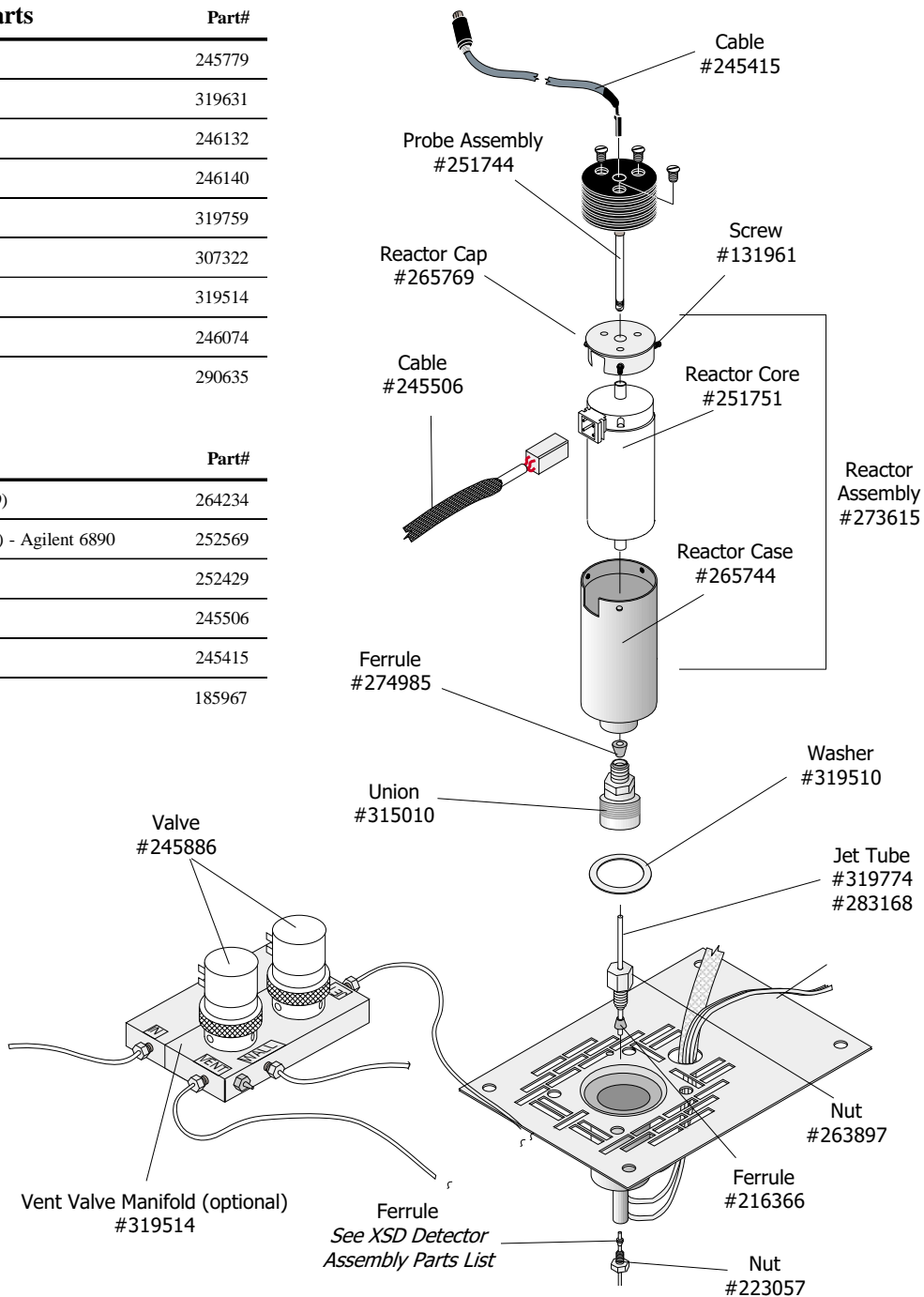
**Reactor Base Assembly - Agilent 5890  
(Model 5220 ELCD)**

# Replacement Parts and Supplies

## Halogen Specific Detector (XSD)

Adapters and Miscellaneous Parts	Part#
Flow Measurement Adapter (Model 5360)	245779
Flow Measurement Adapter (Model 5360A)	319631
Jet Removal Tool	246132
Operator's Manual (Agilent 5890)	246140
Operator's Manual (Agilent 6890)	319759
Operator's Manual (Varian)	307322
Venting Option - Agilent 6890	319514
Venting Option - Agilent 5890	246074
Venting Option - Shimadzu 17A	290635

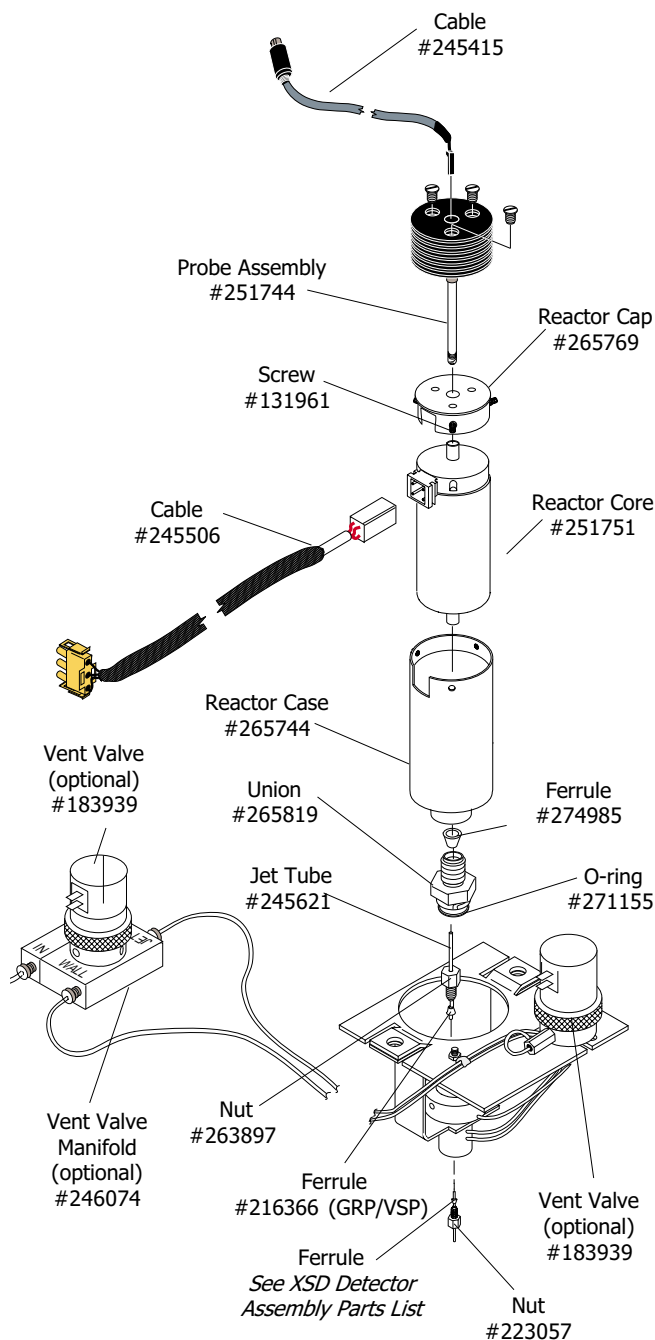
Cables	Part#
Dual Vent Valve Cable (also requires #252569)	264234
External Events Cable (also requires #264234) - Agilent 6890	252569
Heater/Sensor Model 5360A - Agilent 6890	252429
Reactor to Controller Power Cable	245506
Signal Probe to Controller Cable	245415
Vent Valve Power Cable - Agilent 5890	185967



**Reactor Base Assembly - Agilent 6890  
(Model 5360A XSD)**

## Replacement Parts and Supplies Halogen Specific Detector (XSD)

<b>Detector Assembly Parts (see drawing)</b>		<b>Part #</b>
Bracket Base Assembly - Agilent 6890		280735
Bracket Base Assembly - Agilent 5890		265827
Bracket Base Assembly - Varian 3400/3600		278861
Bracket Base Assembly - Shimadzu 17A		290627
Ferrule	1/4" Tube Graphite	273623
Ferrule	1/4" Tube Graphite (10/pk)	274985
Ferrule	1/16" Tube Graphite/Vespel (10/pk)	216366
Ferrule	1/16" x 0.4 mm I.D. Graphite/Vespel (10/pk)	208330
Ferrule	1/16" x 0.5 mm I.D. Graphite/Vespel (10/pk)	196113
Ferrule	1/16" x 0.8 mm I.D. Graphite/Vespel (10/pk)	196105
Jet Tube	Model 5360A, nonventing	319774
Jet Tube	Model 5360A, venting	283168
Jet Tube	Model 5360, 1/16" Glass Lined	245621
Nut	5/16" Jet Connector	263897
Nut	1/16" Stainless Steel Male	223057
O-ring	Kalrez O-ring	271155
Probe Assembly		251744
Reactor Assembly (includes Reactor Cap, Case, and Core)		273615
Reactor Cap		265769
Reactor Case		265744
Reactor Core		251751
Screw	Allen Set 6-32, 1/8"	131961
Union	5360A Base to Reactor	315010
Union	Bayonet to XSD Reactor (Model 5360)	265819
Valve	Brass, Nickel 2-way, 24 V Vent Boost	245886
Valve	Brass, Nickel 2-way, 24 V Vent Exit	183939
Vent Valve Option - Model 5360A		319514
Vent Valve Option - Model 5360		246074
Washer	Aluminum, 0.695 x 0.566 x 0.032	319510

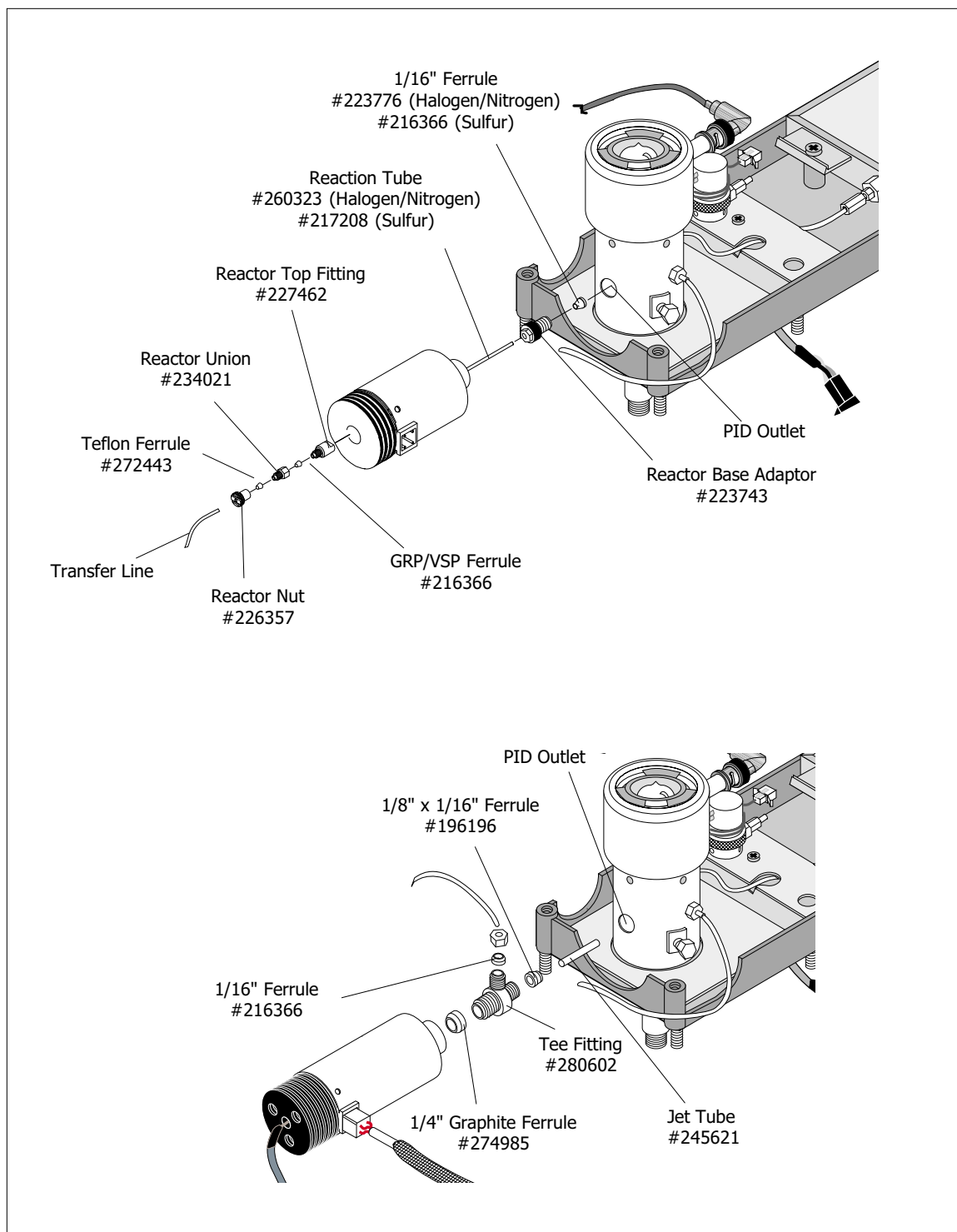


**XSD Detector Assembly - Agilent 5890**



# Replacement Parts and Supplies

## Tandem PID/ELCD and Tandem PID/XSD



## Replacement Parts and Supplies Pulsed Flame Photometric Detector (PFPD)

<b>Cables</b>	<b>Part#</b>
Analog Out Signal Cable - Agilent 6890	252551
External Event for Agilent 6890	252569
Handshake for Agilent 5890	185868
Heater Assembly for Agilent 5890	178954
Heater Assembly for Agilent 6890	252429
Heater Assembly for Shimadzu 17A (110 V)	244814
Heater Assembly for Shimadzu 17A (220 V)	270413
Heater Assembly for Shimadzu 17A (240 V)	299933
Ignitor Assembly	282624
PFPD Remote Start for Agilent 6890 and 5890	288902
PFPD Remote Start for Shimadzu 17A	288977
Power Cord - 110 V for North America	116038
RS-232 9-pin to 9-pin Serial (for WinPulse software) (10 ft)	226621
RS-232 9-pin to 9-pin Serial (for WinPulse software) (25 ft)	316893
Signal Output to Agilent Integrator	215962
Signal Output to Agilent 6890 AIB	274852
Signal Output to Agilent 5890 AIB	229641
Signal Output to Spade Lugs	274852
Temperature Sensor Assembly for Agilent 5890	170093

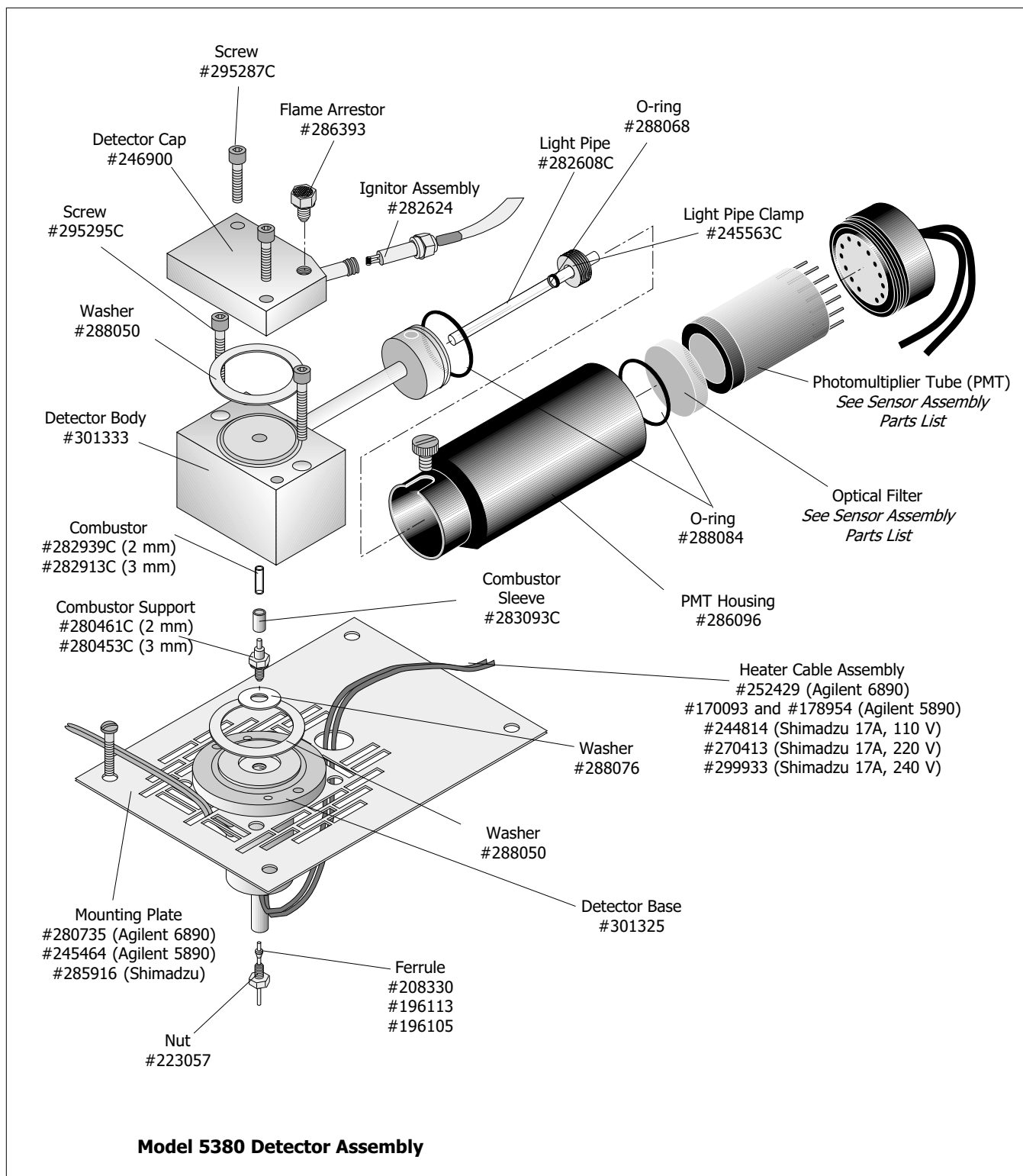
<b>Ferrules</b>				<b>Part #</b>
Graphite/Vespel	1/16"	Plug	10/pk	197079
Graphite/Vespel	1/16" x 0.4 mm	Tube	10/pk	208330
Graphite/Vespel	1/16" x 0.5 mm	Tube	10/pk	196113
Graphite/Vespel	1/16" x 0.8 mm	Tube	10/pk	196105
Graphite/Vespel	1/16" x 1/16"	Tube	10/pk	216366
Stainless Steel	1/8"	Tube	5/pk	210591

<b>Fittings</b>			<b>Part #</b>
Barbed Adapter	10-32 x 1/16"	Hose	202077
Fitting	1/16"	Column Nut	223057
Fitting	1/16"	Male Tee	282509
Fitting	Stainless Steel 1/8"	Male Nut	112458

<b>Gas Flow Control</b>		<b>Part #</b>
Gas Flow Controller	25 mL Hydrogen	282483
Gas Flow Controller	60 mL Air	282475
Gas Flow Module	AUX EPC for Agilent 6890	275974
Gas Flow Module	OIM EPC for Agilent 6890	312678
Gas Flow Module	OIM EPC for Agilent 6850	312595
Gas Flow Module Kit, PFPD	Agilent 6890 (used with #275974)	286344
Needle Valve	Nupro	282491

# Replacement Parts and Supplies

## Pulsed Flame Photometric Detector (PFPD)



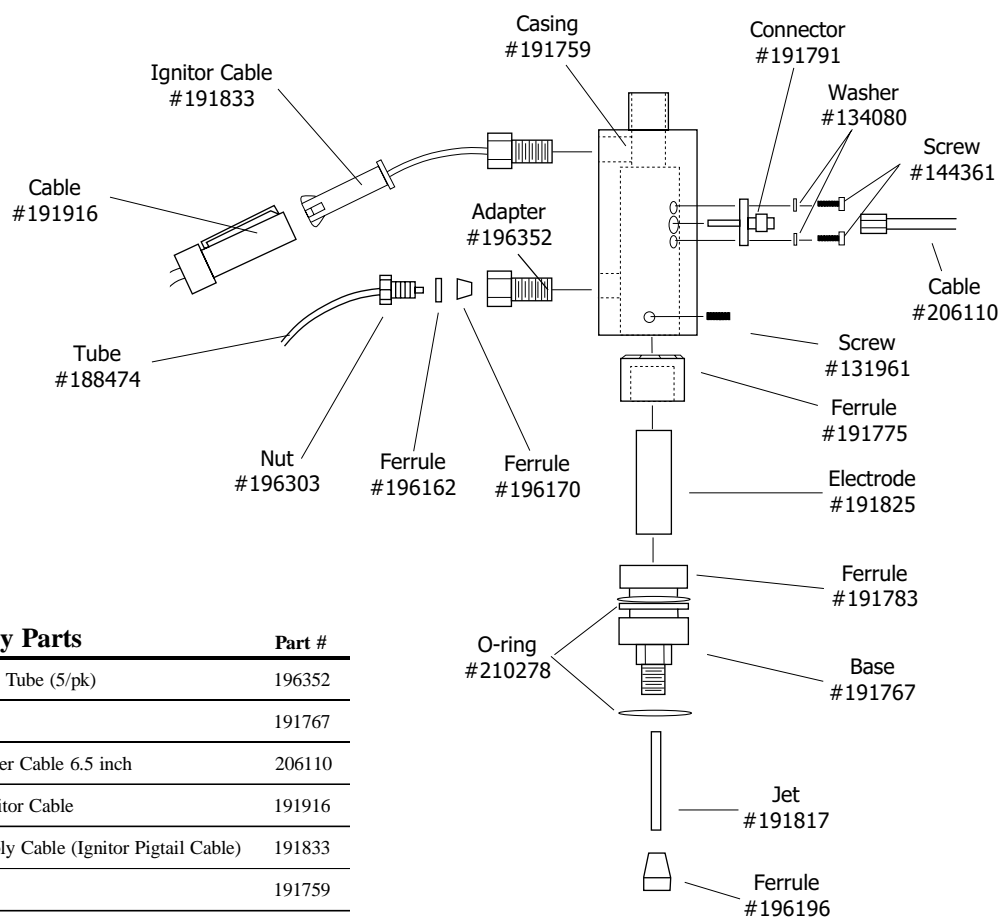
## Replacement Parts and Supplies Pulsed Flame Photometric Detector (PFPD)

<b>Miscellaneous</b>		<b>Part #</b>
Fuse	0.5 amp	282426
Fuse	1 amp	282434
LED	Green with Cable	284414
LED	Red with Cable	245894
Manual	Operator's	283101
Permeation Device	Sulfur Kit, incl Permeation Tube	290411
Permeation Device	Phosphorus Kit, incl Permeation Tube	290429
Permeation Tube	Dimethyl Disulfide	290452
Permeation Tube	Dimethyl Methyl Phosphonate	290460
PFPDView Software Kit		312330
Tool	2 mm Combustor Extractor	280719
Tool	3 mm Combustor Extractor	280727
Tool	Allen Wrench	284539
Tool	Column Positioning	318949
Tool	Teflon-Coated Forceps	283051
WinPulse Software Kit		286302

<b>PFPD Sensor Assembly</b>		<b>Part #</b>
Combustor	2 mm	282939C
Combustor	3 mm	282913C
Combustor Sleeve		283093C
Combustor Support	2 mm	280461C
Combustor Support	3 mm	280453C
Detector Base		301325
Detector Body		301333
Detector Cap		246900
Flame Arrestor		286393
Kit, 3-mm Combustor		282905
Light Pipe		282608C
Light Pipe Clamp		245563C
Mounting Plate	Agilent 5890	245464
Mounting Plate	Agilent 6890	280735
Mounting Plate	Shimadzu 17A	285916
O-ring	Large Viton (5/pk)	288084
O-ring	Light Pipe Viton (5/pk)	288068
Optical Filter	BG-12 (Purple)	282947
Optical Filter	BG-39 (Blue)	290015
Optical Filter	GG-495 (Yellow)	282921
Optical Filter	RG-695 (Black)	290007
Optical Filter	UV-34 (Clear)	310623
Optical Filter	BG-3	302919
Photomultiplier Housing Assembly		286096
Photomultiplier Tube	R1924	284364
Photomultiplier Tube	R1925	290049
Photomultiplier Tube	R5070	290106
Screw	6-32 x 1"	295295C
Screw	6-32 x 3/4"	295287C
Screw	6-32 x 1/4"	207621
Screw	Torx	252585
Screw	Stainless Steel M4-0.7 x 8 mm	169963
Thumbscrew	6-32 x 1/4" PMT	177065
Washer	Aluminum Combustor Support (10/pk)	288076
Washer	Aluminum, Large (10/pk)	288050

# Replacement Parts and Supplies

## Model 4410 Flame-Ionization Detector (FID)



**Model 4410 FID Assembly**

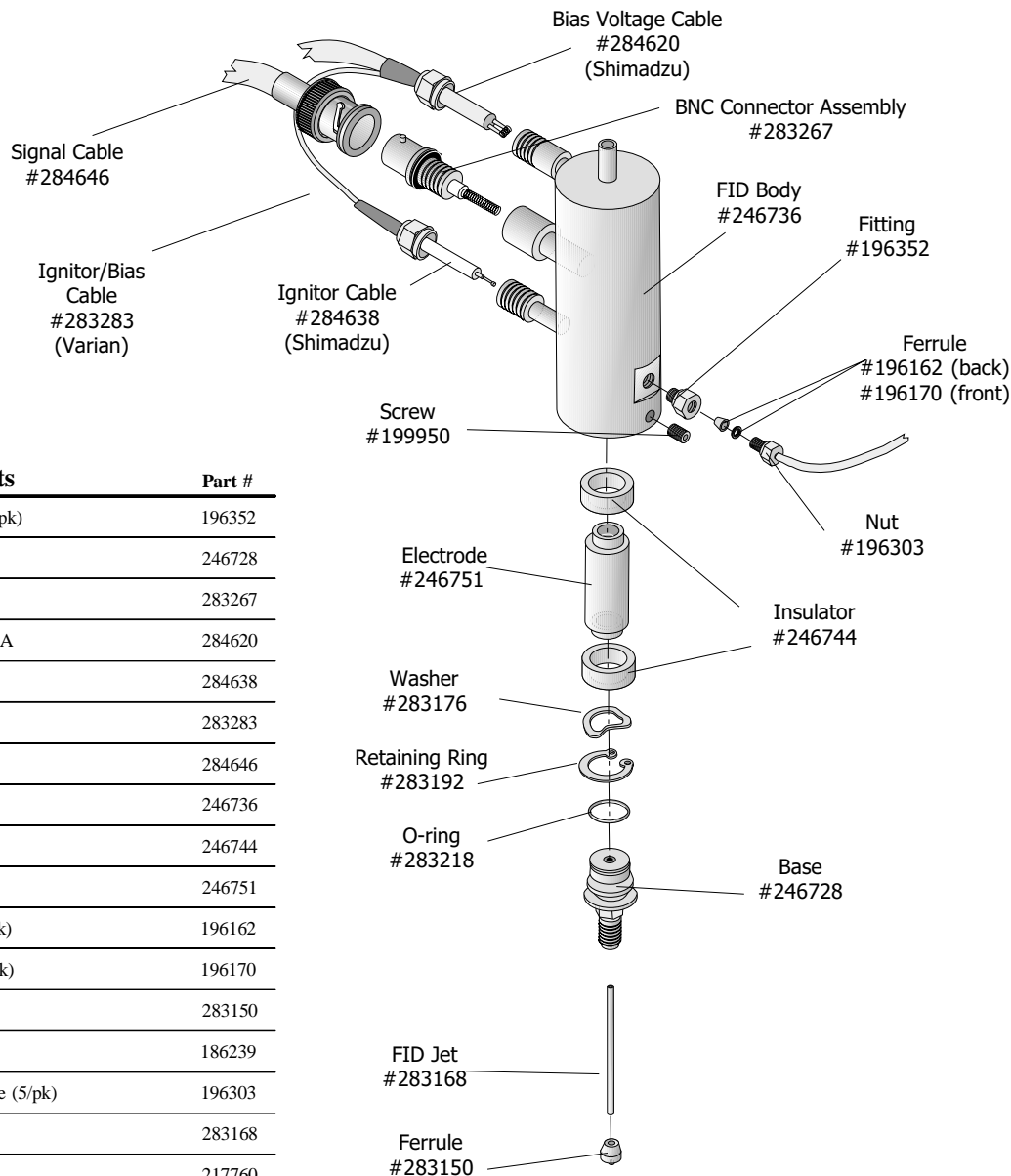
**Model 4410 FID Assembly Parts** **Part #**

Part Name	Description	Part #
Adapter	1/16" Brass, Nickel Tube (5/pk)	196352
Base	FID Base	191767
Cable	Coaxial Electrometer Cable 6.5 inch	206110
Cable	Gas Module to Ignitor Cable	191916
Cable	Glow Plug Assembly Cable (Ignitor Pigtail Cable)	191833
Casing	FID Body Casing	191759
Connector	Coaxial Cable	191791
Electrode	Collector	191825
Ferrule	1/16" Brass Tube Back (5/pk)	196162
Ferrule	1/16" Brass Tube Front (5/pk)	196170
Ferrule	1/8" x 1/16" Graphite Tube (5/pk)	196196
Ferrule	Vespel Upper FID Body	191775
Ferrule	Vespel Lower FID Body	191783
Jet	1/16" O.D. x 0.3 mm I.D. Flame Jet	191817
Nut	1/16" Brass, Nickel Male (5/pk)	196303
O-ring	Viton Base (5/pk)	210278
Screw	Allen Set 6-32, 1/8"	131961
Screw	Machine 2-56, 3/16" Stainless Steel	144361
Tube	Stainless Steel Gas Module Output	188474
Washer	Lock Split Stainless Steel #2	134080

**Model 4410 Miscellaneous Parts** **Part #**

Part Name	Description	Part #
Cable	Analog Signal Cable (0-1 V)	185850
Cable	Ignitor Power Cable - Mother Board Gas Module	191866
Connector Assembly	Electrometer - Agilent 5890	193797
Kit	Gas Module PID/FID 2-line - Agilent 5890	192013
O-ring	Viton Manifold (12/pk)	185116
Standard	Detector 100 ppm	222919
Sub Assembly	FID	191742
Tube	Copper 1/8" x 0.070 mm I.D.	111427

## Replacement Parts and Supplies Model 4415 Flame-Ionization Detector (FID)



**Model 4415 FID Assembly Parts** **Part #**

Adapter	1/16" Brass/Nickel Tube (5/pk)	196352
Base	FID Fitting	246728
BNC Connector Assembly		283267
Cable	Bias Voltage - Shimadzu 17A	284620
Cable	Ignitor - Shimadzu 17A	284638
Cable	Ignitor/Bias - Varian	283283
Cable	Signal BNC to BNC	284646
Casing	FID Body	246736
Collector Insulator		246744
Electrode	Collector	246751
Ferrule	1/16" Brass Tube Back (5/pk)	196162
Ferrule	1/16" Brass Tube Front (5/pk)	196170
Ferrule	Vespel FID Jet	283150
Fitting	1/8" Brass Cross Tube Male	186239
Fitting	1/16" Brass/Nickel Nut Male (5/pk)	196303
Jet	0.3 mm I.D.	283168
O-ring	Silicone (5/pk)	217760
O-ring	Silicone FID Base 0.364 x 0.70	283218
Retaining Ring	Stainless Steel	283192
Screw	Allen Set 8-32 x 1/4	199950
Spring Contact Waffle Tip		283325
Tubing	Copper 1/8 x 0.070 I.D.	111427
Tubing	Stainless Steel 1/16"	111732
Washer	Curved Spring	283176

**Model 4415 FID Assembly**

**Model 4415 Miscellaneous Parts** **Part #**

Standard	Detector 100 ppm	222919
Sub Assembly	FID 4415	283226
Tool	Allen Wrench 5/64"	284521
Tool	Retaining Ring Pliers	283200

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**GC Application Notes**

BTEX/Hydrocarbon Analysis .....	GC-106
Headspace Analysis .....	GC-106
Pesticides/PCB Analysis .....	GC-106
Purge-and-Trap/VOC Analysis ..	GC-107
Selective Detectors .....	GC-108
Sulfur and Petrochem Analysis.	GC-108
Field and Mobile Monitoring ....	GC-109
Maintenance and Support .....	GC-109



**BTEX/Hydrocarbon Analysis**

- #0506 An Analyzer for the Rapid Analysis of BTEX and GRO in Water and Soil
- #0054 New PID/FID for GC
- #0048 Hydrocarbon Confirmation Analysis Using PID/FID
- #0047 Determination of Hydrocarbon's Class Using PID/FID

**Headspace Analysis**

- #1502 Determination of Volatile Sulfur Compounds in Beverages Using Static Headspace and Pulsed Flame Photometric Detection
- #1445 Analysis of Organic Solvents in Pharmaceutical Products Using United States Pharmacopoeia (USP) Method 467 (*Pittcon 2000*)
- #1442 Analysis of BTEX in Soil and Water Matrices by USEPA Method 5021 Using the Model 4632M Headspace Autosampler
- #1440 Analysis of Toner Resin Polymers Using the Model 4632M Headspace Autosampler
- #1420 Blood Alcohol Determination Using the Model 4632M Headspace Autosampler and PLOT Column
- #1418 Blood Alcohol Analysis Using the Model 4632M Headspace Autosampler
- #1107 Trihalomethane Analysis Using Static Headspace Gas Chromatography/Mass Spectrometry
- #1106 Low-Level Purgeable Aromatic Hydrocarbon Analysis Using Static Headspace with Gas Chromatography/Mass Spectrometry
- #1105 BTEX Analysis Using Static Headspace with Gas Chromatography/Mass Spectrometry
- #1104 Purgeable Aromatic Hydrocarbon Analysis Using Static Headspace with Gas Chromatography/Mass Spectrometry
- #1103 Purgeable Halogenated Hydrocarbon Analysis Using Static Headspace with Gas Chromatography/Mass Spectrometry
- #0887 Rapid Sample Screening for BTEX in Soils Using Static Headspace/GC/Flame-Ionization-Photoionization Detection

**Pesticides/PCB Analysis**

- #1656 Using the Halogen Specific Detector (XSD) as an Alternative to the ELCD in USEPA Methods (*Pittcon 2001*)
- #1546 Analysis of a Complex Garlic Extract for Chlorinated Pesticides Using the OI Analytical Model 5360 Halogen Specific Detector
- #1379 Multi-element Analysis of Pesticides Using GC Systems Equipped with Multiple Selective GC Detectors (*Pittcon '99*)
- #1195 Analysis of Organophosphorus Pesticides Using Gas Chromatography with Pulsed Flame Photometric Detection
- #1174 Analysis of Polychlorinated Biphenyls Using Gas Chromatography with a Halogen Specific Detector
- #1079 Analysis of Chlorinated Pesticides Using Gas Chromatography with a Halogen Specific Detector
- #1076 A New Pulsed Flame Photometric Detector for the Analysis of Pesticides
- #0982 Analysis of USEPA Method 608 Chlorinated Pesticides Using the OI Analytical XSD
- #0614 An Alternative Method for the Determination of *n*-Methyl Carbamates in Milk
- #0503\* Comparative Analysis of Propargite by FPD- and ELCD-Equipped Gas Chromatograph
- #0457\* Analysis of Organochlorine Pesticide Residues Using Simultaneous Injection of Two Capillary Columns with Electron Capture and Electrolytic Conductivity Detectors
- #0441\* Maintaining a Dual Column, Dual ELCD GC System for Extended Analysis of Multi-Residue Pesticide Extracts
- #0437 A System Configuration for Dual Method, Simultaneous Analysis of Volatile and Semivolatile Organic Compounds by GC
- #0357\* The Introduction of an Improved ELCD for Gas Chromatographic Analysis of Pesticides
- #0273 Maintaining Optimal Performance of the ELCD in Pesticides and PCB Analysis
- #0222\* Screening Pesticides and PCBs
- #0192 Applications of ELCD for Selective Detection of Halogen, Nitrogen, and Sulfur Pesticides
- #0130\* Applications for Model 4420 ELCD: PCBs in Transformer Oil

- #0129\* OI Analytical Applications: Model 4420 Pentachlorophenol
- #0080 Selective Detection of PCBs in Transformer Oil Using ELCD
- #0068 Chlorinated Pesticide Detection Using ELCD

## Purge-and-Trap/VOC Analysis

- #1618 Low-Level Sulfur Compounds in Beer by Purge and Trap with a Pulsed Flame Photometric Detector (PFPD)
- #1454 Improved Volatile Organic Compound Analysis Using a New Vial Autosampler for Water Matrices (*Pittcon 2000*)
- #1441 Identification of Flavors and Fragrances by Purge-and-Trap GC/MS
- #1432 Analysis of Organic Pollutants in the Pharmaceutical Industry Using USEPA Method 1666 (*Pittcon 2000*)
- #1426 Analysis of Methyl *tert*-Butyl Ether (MTBE)
- #1412 Low-Level Volatiles in Soil and Water by USEPA Method 5035 Using the Model 4552 Water/Soil Autosampler (*Pittcon 2000*)
- #1388 Acetaldehyde in Polyethylene Terephthalate (PET) Using the Air-Tube Desorber Accessory
- #1377 Description of a New Multipoint Water Sampler for Continuous, On-Line Sampling and Analysis of VOCs by Purge and Trap/GC (*Pittcon '99*)
- #1371 Shorter Purge-and-Trap Desorption Times with Direct Trap Heating (*Pittcon '99*)
- #1358 Analysis of Environmental Endocrine Disrupters Using the OI Analytical Model 4560 Purge-and-Trap Sample Concentrator and GC/MS-SIM Detection
- #1327 USEPA Method 524.2 Revision 4: Optimization of the Analysis of VOAs in Water by GC/MS
- #1286 Proper Trap Selection for the OI Analytical Model 4560 Purge-and-Trap Sample Concentrator
- #1285 Proper Trap Selection for the OI Analytical Model 4460A Purge-and-Trap Sample Concentrator
- #1173 High Speed Purge-and-Trap/Gas Chromatographic Analysis of BTEX Samples
- #1077 A New Standard Additions Module for Purge-and-Trap Autosampling
- #1024 Maximize P&T/GC/MS Productivity with the MicroTrap™
- #1008 A New MicroTrap for Purge-and-Trap Sample Concentration
- #0983 Purge-and-Trap Analysis of Trihalomethanes
- #0875 A New Purge-and-Trap Sample Concentrator Optimized for Low Desorb Flow Operation
- #0775 Parameter Optimization to Eliminate the Need for Cryogenic Focusing in Purge and Trap/Gas Chromatography/Mass Spectrometry
- #0653 "Trends in Purge and Trap" *Journal of Chromatographic Science*, Aug. '94
- #0525 GC/MS Analysis of Volatiles in Less Than 15 Minutes!
- #0518 Cycle Time as a Productivity Factor in Purge-and-Trap Analysis
- #0506 An Analyzer for the Rapid Analysis of BTEX and GRO in Water and Soil
- #0452 OI Analytical Model 4560 Sample Concentrator—Rapid Trap Heating
- #0451 Advantages of the OI Analytical Tenax®/Silica Gel/Carbon Molecular Sieve (#10) Trap
- #0444 Model 4560 Sample Concentrator—Sample Heating Techniques
- #0442 An Automated GC/MS System for the Analysis of Volatile and Semivolatile Organic Compounds in Water
- #0433 A Low-Dead-Volume Injector for Both Semi-Volatile and Volatile Gas Chromatographic Analysis
- #0420 OI Analytical Model 4560 Sample Concentrator—Cyclone Water Management™ System
- #0409 Operation of Purge-and-Trap Systems in the Real World: Performance and Pitfalls
- #0406 A Comparison of Sample Heating Techniques Used in Purge-and-Trap Gas Chromatography
- #0405 Theory and Operation of Water Management Methods in Purge-and-Trap Gas Chromatography
- #0404 Efficiency of Cryo-Focusing Traps for Purge-and-Trap Gas Chromatography
- #0403\* Use of a Cryo-Focusing Module as a Water Management Tool in Purge-and-Trap/GC/MS Analysis

- #0294 Using the OI Analytical Cryo-Focusing Module to Optimize Purge-and-Trap Chromatography with Small-Bore Capillary Columns
- #0297 Volatile Organics Analysis: Building a State-of-the-Art Purge-and-Trap GC/MS System
- #0285\* Detection Limits and Analysis Time Using Wide and Narrow Bore Capillary Columns for Purge-and-Trap GC/MS Analyses
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**Our Customers Come First.**

OI Analytical has a continuously growing network of support services designed to provide high quality service to our customers. Our goal is to provide the highest quality instruments available, backed by a commitment to quality, service, and support.

At OI Analytical we are always looking for ways to improve the service and value we provide to our customers. We welcome comments and suggestions. *Please call (800) 336-1911 (U.S.A.) or (979) 690-1711 (international locations) and ask for the Technical Support Manager.*

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## Service Products

### Installation

Installation may be purchased for all of our products and is included with our GC systems delivered in the U.S.A. Our service representative will install and verify operation to factory specifications as well as provide basic operation and maintenance familiarization. Please contact the International Sales Department regarding international installations.

### Domestic Toll-Free Technical Support Hotline



Toll-free technical assistance is available at **(800)-336-1911**. *For best service, please use our 800 number for technical support only.* Support specialists are available from 7:30 A.M. to 5:30 P.M. CT, Monday–Friday (excluding holidays). The hotline is available to take messages 24 hours a day, 7 days a week. When calling from international locations, please call (979) 690-1711.

### Upgrade Products

Call for more information on upgrading existing OI Analytical equipment.

### On-Site Repair

For equipment maintenance and repair, we offer on-site service at your lab. *Please call (800) 336-1911.*

### Return to Factory for Repair

For equipment maintenance and repair, we offer in-house repair at our Service Repair Center. *Please call (800) 336-1911 to arrange to ship your equipment to the factory for repair.*

**For international repairs:** All return-to-factory repairs must be coordinated through the Customer Service Department and an Authorization Number must be assigned prior to shipment. Shipments must be shipped to OI Analytical in the following manner: door to door with all customs clearances, duty free, and delivery charges prepaid. Please request broker information to expedite customs clearances.

### Loaner Program

To minimize your downtime, loaner equipment is available for a nominal fee while your unit is being repaired. Loaner instruments can be shipped overnight, upon receipt of a valid purchase order, and may be used for up to 28 days. *Request our Loaner Agreement for details. Subject to availability.*

### 24-Hour Parts Delivery

We can provide same-day shipping of orders for most routine parts and expendables received before 3:30 P.M. CT. *Call our Order Entry Department at (800) 673-3750 to order.*

### Extended Warranties and Service Contracts

We offer a wide range of extended warranties and service contracts designed to meet your specific needs. *Request our Maintenance Agreement for details.*

### Computerized Tracking System

Some services are automatic and free of charge—like our customer tracking system. We keep your company and equipment information on file to help when you call for any reason: parts, repairs, or troubleshooting.

### Applications Support

Technical support for customers interested in specialized applications is also available. When purchased as an option, a support chemist provides specific applications training on-site. *Request our Applications Package for details.* Free application/technical notes are available. Call (800) 653-1711 for information.

### System Support and Training

All instruments receive performance verification with installation. Training is available, as a purchase option, in instrument familiarization and operation, maintenance, and minor repairs. An operator's manual is included with all instrument shipments. *Call for information on additional training.*

## Hands-On Seminars

Hands-on seminars are available at our headquarters in College Station, Texas. These seminars cover operation, maintenance, troubleshooting, and repair of OI Analytical equipment. Classes are small for personalized attention and are highly rated by our customers. *Call for more information and a registration form.*

## Warranty Information

### Warranties

OI Analytical warrants each instrument and its optional accessories against defects in materials and workmanship under normal use and service. Warranty periods vary by product; see quotations and product literature for time periods. Equipment installed by OI Analytical is warranted from the installation date; all other equipment is warranted from the ship date. If the purchaser schedules or delays installation for more than 90 days after delivery, the warranty period starts on the 91st day from the ship date. This warranty extends only to the original purchaser. OI Analytical will, at its option, repair or replace equipment that proves to be defective during the warranty period, if the equipment is returned to OI Analytical at the purchaser's expense. Parts, labor, and return shipment to the customer shall be at OI Analytical's expense.

Software and firmware designed by OI Analytical for use with a CPU will execute its programming instructions when properly installed on that CPU. OI Analytical does not warrant that the operation of the CPU, software, or firmware will be uninterrupted or error-free.

Consumables, columns, lamps, and high temperature furnaces are warranted for 30 days (parts only) and are not available for coverage under extended warranties or service contracts.

This warranty shall not apply to defects originating from:

- Improper maintenance or operation by purchaser.
- Purchaser-supplied accessories or consumables.

- Modification or misuse by purchaser.
- Operation outside of the environmental and electrical product specifications.
- Improper or inadequate site preparation.
- Purchaser-induced contamination or leaks.

The foregoing warranty is in lieu of all other warranties, expressed or implied, including, but not limited to, any warranty of merchantability, fitness, or adequacy for any particular purpose or use. OI Analytical shall not be liable for any special, incidental, or consequential damages, whether in contract, tort, or otherwise.

### Damages or Loss in Shipment

Inspect all shipments for damage before signing the carrier's bill of lading. If damage is found after unpacking the shipment, immediately contact the carrier to return and inspect the damage. Freight carriers are liable for damages only when the damage is promptly reported and a claim is filed with the carrier. Retain all packaging for carrier inspection. Call OI Analytical within five days of shipment receipt if any part of the purchase will be returned. The customer may be subject to a restocking charge if OI Analytical is not notified of damages within the allotted five days. (UPS and Federal Express are liable for damages up to \$100 and freight up to \$50.)

**For international shipments:** If damage is obvious upon receipt, refuse to accept the order. If damage is found after unpacking, immediately contact OI Analytical and keep all packing materials. Do not send shipment back to OI Analytical until directed to do so. A return material authorization (RMA) number must be issued by OI Analytical before sending any equipment back.

### Returns

If, after shipment inspection, defective material is found, contact the Customer Service Department for correction. Obtain a return material authorization (RMA) number and mark it clearly on the return packaging. On all returned items not defective or damaged by shipping, contact the Order Entry Department at (800) 673-3750 or (979) 690-1711. A 25% restocking charge will apply.



## Catalog Information

### Methods and Applications

The method and application information contained herein is intended only as a reference for this catalog and is not intended to define method requirements. Complete method information is available in the *Annual Book of ASTM Standards*, *Federal Register*, *Standard Methods*, and *USP XXII*.

### Electrical

OI Analytical instruments are designed for use with 100/110 ( $\pm 10\%$ ) volts alternating current (VAC) and/or 220 ( $\pm 10\%$ ) VAC. In the catalog text, all voltages are listed as 100 V, 110 V, or 220 V and  $\pm 10\%$  applies. If the voltage is not stated, the product is 110 ( $\pm 10\%$ ) VAC.

Power cords are available for both voltage options and for various countries. See "Cables - Power Cords" in the Gas Chromatography Analytical Systems and Supplies section of this catalog for a list of these cables.

### OI Analytical's Standards Policy

Certification of standards sold by OI Analytical, unless specifically stated, is not implied. Standards for which no certification is stated are prepared in the production laboratory using standard laboratory techniques.

### Renting and Leasing

OI Analytical offers a number of ways to help you get the equipment you need, for as long as you need it. If a capital equipment purchase is not in your plans, you can lease or rent any product we carry. Renting is an ideal solution for short-term projects, or choose our rent-to-own or lease plans if you want to keep your option to buy.

### Discontinued Products

Several OI Analytical products, including the Models 4420 ELCD, 4440 PID/ELCD, 4460A Sample Concentrator, 5220 ELCD, 5222 ELCD, 5232 PID, 5240 PID/ELCD, 5320 PID, MPM-16 Autosampler, Autoprep 500, CNLab, SP-1000, and the Model 1020 and Model 700 TOC Analyzers are no longer avail-

able for purchase. These and other products will be supported with replacement parts and supplies for at least five years from the last date of production.

### Catalog

The information in this catalog and related documents supersedes all previous information and may be revised without notice. OI Analytical reserves the right to correct errors and to change prices and/or specifications without notice. OI Analytical shall not be liable for errors contained herein, nor for incidental or consequential damages in connection with the furnishing, performance, or use of this material. No part of this document may be reproduced or photocopied, or translated to another language, without the prior written consent of OI Analytical.

### Installation

Installation may be purchased for all of our products and is included with our GC systems delivered in the U.S.A. Please contact the International Sales Department at (979) 690-1711 to obtain information regarding international installations.

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#### Trademarks

Aqua-Check, CNSolution, Cryo-Focusing Module (CFM), Cyclone Water Management, ER Detector, Infra-Sparge, MicroTrap, MINI-LINK, MINI-NET, Mud-Dawg, NiCat, OI-NET, RA Sampler, Soxtherm, Triple Check, Window Sweep, WinFLOW, WinTOC, WinTrap *Plus*, WinWave, and XSD are trademarks; and Envirobeads, Flow Solution, and Autovap are registered trademarks of O.I. Corporation dba OI Analytical.

Ambersorb is a registered trademark of Rohm and Haas Co.

Carbopack, Vocarb, and Vocol are registered trademarks of Supelco Inc.

Carboxen is a trademark of Supelco.

ChemStation is a trademark of Agilent Technologies.

Cyclouniliner and Uniliner are registered trademarks of Hewlett-Packard Company.

DB is a trademark of J&W Scientific, Division of Curtin Matheson Scientific, Inc.

Envirosep-ABC is a trademark of Phenomenix Inc.

Florisil is a registered trademark of Floridin Co.

KEL-F is a registered trademark of 3M Co., Chemical Div.

Kynar is a registered trademark of Atochem North America, Inc.

Luer-Lok is a trademark of Becton-Dickinson & Co.

Matheson is a registered trademark and Leak Hunter is a trademark of Matheson Gas Products.

Micro is a registered trademark of International Products Corp.

Microsoft, MS-DOS, and Windows are registered trademarks of Microsoft Corp.

Nalgene is a trademark of Nalge.

OV is a registered trademark of Ohio Valley Specialty Chemicals Co.

Snoop is a registered trademark of Nupro Company.

SoilVials is a trademark of Dynatech Precision Sampling Inc.

Swagelok is a registered trademark of Crawford Fittings Co.

Teflon, Tefzel, Viton, and Vespel are registered trademarks of E.I. duPont de Nemours & Co., Inc.

Tenax is a registered trademark of Enka Research Institute Arnhem.

Tygon is a registered trademark of Norton Co.

Varian is a registered trademark of Varian Associates Inc.

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## Terms

### USA and Canada

- Terms—net 30 days from invoice date, subject to credit approval.
- Minimum order is \$50.
- Purchase order number(s) or credit card number required. (A hard copy of the order may be required before shipment.)
- Mail orders can include credit cards (Visa, MasterCard, American Express), checks or money orders (payable to O.I. Corporation) instead of purchase orders if credit has not been established.

### Outside the USA and Canada

Contact International Sales at (979) 690-1711 for more information.

## Price Quotations

Price quotations are valid for 30 days after the quotation. International price quotations are valid for 60 days.

## Order Shipment

Orders are shipped by the best available method. Standard shipping and handling charges are added to each order based on weight and handling costs. Orders are shipped FOB Shipping Point (insurance is available upon request for an additional charge). Hazardous chemicals will be shipped at an extra charge. **Note:** Hazardous chemicals can be shipped to some international locations.

### For international orders:

All international orders require a 24-hour notice before shipping. *If a special freight forwarding company is desired, please supply us with company name, telephone number, contact, and account number.*

## Customer Accounts

New customers can establish a customer account. Please use this account number on subsequent calls to avoid credit or processing delays. Companies with multiple sites should have multiple customer account numbers.