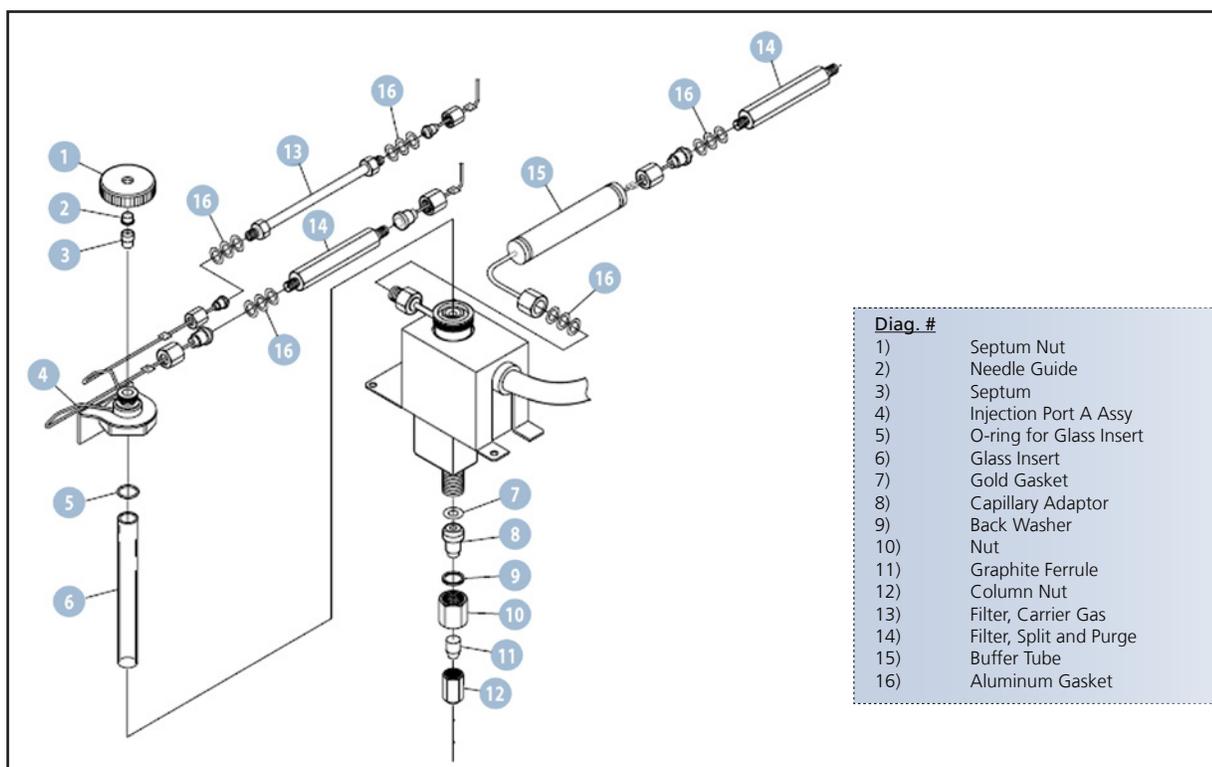


Gas Chromatograph

# GC Consumables





Diag. #	Part No.	Name	Description
1)	221-72615-00	Septum Nut	Works for all GC-2010 and GC-2014, SPL
2)	221-13372-00	Septum Nut for Packed INJ	Works for GC-2014 Packed INJ
3)	221-77117-41	Septum Nut with needle guide for SPL	Needle guide is attached to the septum nut, works for GC-2030, GC-2010 and GC-2014 SPL only
4)	221-44584-00	Needle Guide (required for AOC-20i)	Works for GC-2010 and GC-2014 SPL and INJ, 5.8 mm length
5)	221-45205-00	Needle Guide (required for AOC-20i)	On GC-14 and GC-15 on Column Injection (OCI), 12 mm length
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			
16)			

## Injection Port

Diag. #	Part No.	Name	Description
1	221-72615-00	Septum Nut	Works for all GC-2010 and GC-2014, SPL
1	221-13372-00	Septum Nut for Packed INJ	Works for GC-2014 Packed INJ
1, 2	221-77117-41	Septum Nut with needle guide for SPL	Needle guide is attached to the septum nut, works for GC-2030, GC-2010 and GC-2014 SPL only
2	221-44584-00	Needle Guide (required for AOC-20i)	Works for GC-2010 and GC-2014 SPL and INJ, 5.8 mm length
2	221-45205-00	Needle Guide (required for AOC-20i)	On GC-14 and GC-15 on Column Injection (OCI), 12 mm length

## Septa

Diag. #	Part No.	Name	Description
3	220-90638-00	Septa, White	Low temperature (up to 250°C)
3	221-76650-01	Septa, Green	Low bleed, Medium temperature (up to 340 deg C), pack of 25, replacement for 220-94781-00, 220-90547-00 and 227-35004-01
3	227-35004-01	Premium green septa	Low bleed, Medium temperature (up to 340 °C), pack of 50
3	220-90638-01	Septa, Red, HT	Injection port septa (good to 400°C), pack of 25, low bleed at high temp
3	227-35511-01	Xtra life inlet septa, red	Long life, up to 400°C, pack of 25
3	220-94792-00	Septa for Pyrolysis	High temperature for use with Frontier Pyrolyzer
3	221-76863-96	Septum, perforated, HS-10	Only for use with HS-10

## Glass Inserts (Liners)

Diag. #	Part No.	Name	Description
6	221-75193-00	Split liner with wool	General purpose split liner with wool, 5/pk, for SPL-17/2010/2014/2030, replacement for 220-90784-00
6	227-35007-01	Split liner with wool	Come as standard accessory of GC-2030, pack of 5
6	221-75188-00	Split liner for focusing	Liner used for focusing a split injection with wool
6	221-41444-01	Split liner w/o wool	General purpose split liner w/o wool, individually packed
6	221-48876-02	Splitless liner with wool on top	Splitless liner with wool at high position and tapered bottom, 5/pk
6	221-48876-03	Splitless liner wool on bottom	Splitless liner with wool at low position and tapered bottom, 5/pk, replacement for 227-35008-01
6	220-94735-01	Direct injection liner with wool on bottom	Liner for direct injections of dirty samples, wool acts as a filter, 5/pk
6	221-41599-00	Liner for widebore capillary columns, w/o wool	Liner for direct injections with 0.53mm columns, 5/pk, replacement for 220-94768-00
6	221-75196-00	Low volume liner	Liner for SPME or Purge and Trap applications
6	221-49381-02	OCI glass liner	Liner for 'simple on-column' or 'near on-column', for use with columns smaller than 0.53 mm id
6	221-49300-00	LVI/PTV glass liner	Liner for large volume injections on a capillary column w/o wool for PTV inlet
6	221-76863-73	Inert liner for HS-10	For improved resolution with headspace injection, without wool, 1.2 mm I.D.



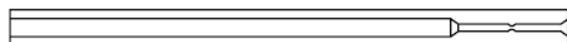
221-75193-00



221-75188-00



221-41444-01



221-48876-02



221-48876-03



220-94735-01



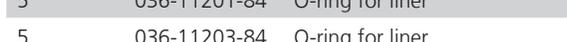
221-41599-00



221-75196-00



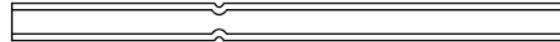
221-49381-02



221-49300-00



227-35007-01



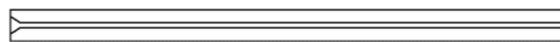
221-75188-00



221-41444-01



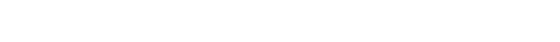
221-48876-02



221-48876-03



220-94735-01



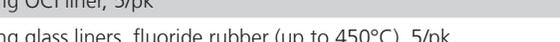
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221-75196-00



221-49381-02



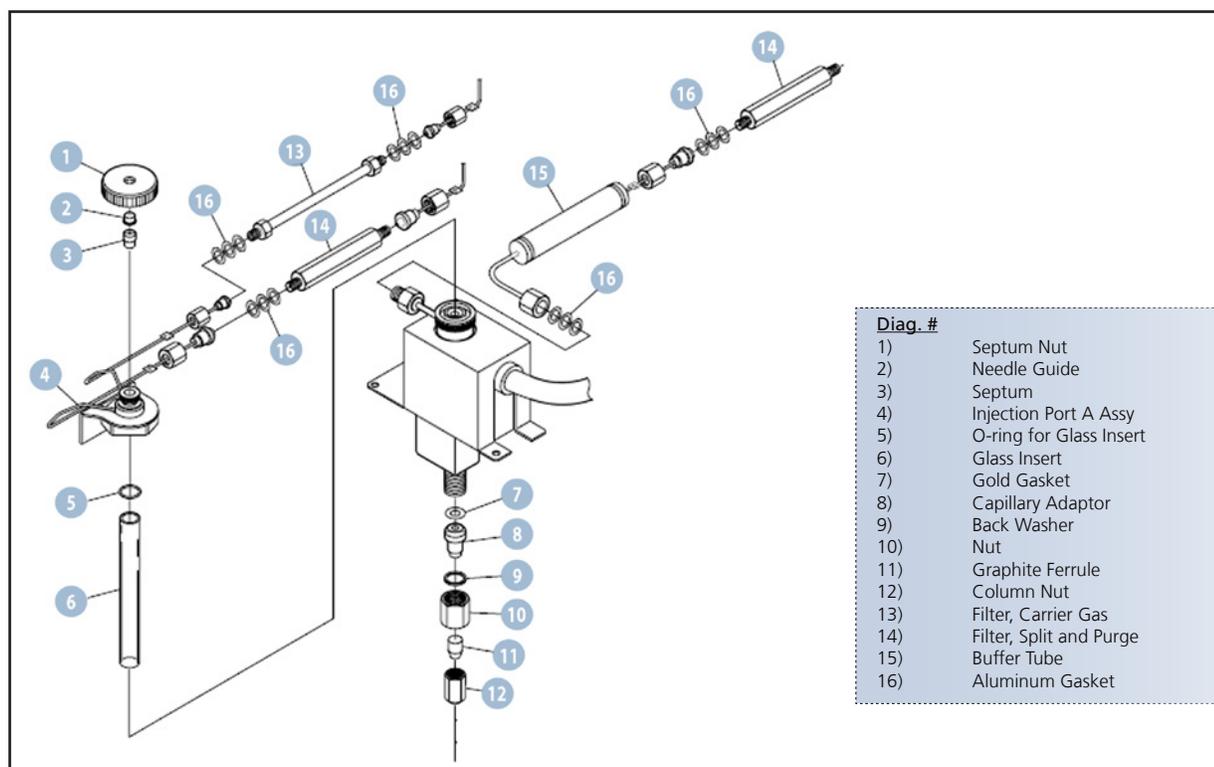
221-49300-00



221-76863-73

## O-rings

Diag. #	Part No.	Name	Description
5	036-11201-84	O-ring for liner	O-ring for sealing OCI liner, 5/pk
5	036-11203-84	O-ring for liner	O-ring for sealing glass liners, fluoride rubber (up to 450°C), 5/pk
5	221-47222-91	Graphite o-ring for liner	Graphite o-ring for splitless/WBI, high temperature (350-450°C), 5/pk
5	221-48393-91	Graphite o-ring for liner	Graphite o-ring for split, high temperature (350-450°C), 5/pk
5	221-49662-91	O-ring for liner when using a pyrolyzer	O-ring for sealing glass liners when using a pyrolyzer
5	036-11544-01	O-ring, white, high temp	High-temperature, low-bleed type for SPL/WBI, pack of 1, suitable for FPD and other high-sensitivity analysis
5	036-11544-02	O-ring, white, high temp	High-temperature, low-bleed type for OCI/PTV, pack of 1, suitable for FPD and other high-sensitivity analysis



- | Diag. # | Part Name               |
|---------|-------------------------|
| 1)      | Septum Nut              |
| 2)      | Needle Guide            |
| 3)      | Septum                  |
| 4)      | Injection Port A Assy   |
| 5)      | O-ring for Glass Insert |
| 6)      | Glass Insert            |
| 7)      | Gold Gasket             |
| 8)      | Capillary Adaptor       |
| 9)      | Back Washer             |
| 10)     | Nut                     |
| 11)     | Graphite Ferrule        |
| 12)     | Column Nut              |
| 13)     | Filter, Carrier Gas     |
| 14)     | Filter, Split and Purge |
| 15)     | Buffer Tube             |
| 16)     | Aluminum Gasket         |

## Nuts and Ferrules

Diag. #	Part No.	Name	Description
	225-10167-91	Injection port capillary adaptor for GCMS	Adaptor for connecting capillary columns for INJ on MS
12	670-11009-00	Column nut	Column nut 1/16" for SCD and MS (on MS systems), 5/pk
11	220-90418-14	Ferrule: GVF-004	SCD/MS ferrule for 0.25mm ID capillary columns, 10/pk
11	220-90418-15	Ferrule: GVF-005	SCD/MS ferrule for 0.32mm ID capillary columns, 10/pk
11	220-90418-18	Ferrule: GVF-008	SCD/MS ferrule for 0.53mm ID capillary columns, 10/pk
	221-42998-00	Injection port capillary adaptor for GC	Adaptor for connecting capillary columns to a standard GC
12	221-32705-00	Column nut for GC	Slotted nut for column connection on injection port and detector side for GC
11	220-90765-00	Ferrule, 0.4 mm	Graphite ferrules, for 0.18mm-0.25mm ID capillary columns, 10/pk
11	221-32126-05	Ferrule, 0.5 mm	Graphite ferrules, for 0.25mm-0.32mm ID capillary columns, 10/pk
11	221-32126-08	Ferrule, 0.8 mm	Graphite ferrules, for 0.53mm ID capillary columns, 10/pk
Please reference the diagram on page 5 for the following items.			
17	221-77155-41	Column connector, ClickTek	Use with ClickTek ferrules to install capillary columns in GC-2030 with ClickTek adaptors
18	221-81162-01	ClickTek Ferrule 0.4 mm, pk of 6*	To be used with ClickTek Adaptor (not included), for capillary columns with 0.18-0.25 mm ID
18	221-81162-02	ClickTek Ferrule 0.5 mm, pk of 6*	To be used with ClickTek Adaptor (not included), for capillary columns with 0.32 mm ID
18	221-81162-03	ClickTek Ferrule 0.8 mm, pk of 6*	To be used with ClickTek Adaptor (not included), for capillary columns with 0.53 mm ID
18	221-81162-00	ClickTek Ferrule without holes, pk of 6	To be used with ClickTek Adaptor, ferrule without a hole for sealing injector/detector
18	221-81162-11	ClickTek Ferrule Kit, 0.4 mm	Include 1pk of ferrules and 1 simple ferrule fixing tool, to be used with ClickTek Adaptor (not included), for capillary columns with 0.18-0.25 mm ID
18	221-81162-12	ClickTek Ferrule Kit, 0.5 mm	Include 1pk of ferrules and 1 simple ferrule fixing tool, to be used with ClickTek Adaptor (not included), for capillary columns with 0.32 mm ID
18	221-81162-13	ClickTek Ferrule Kit, 0.8 mm	Include 1pk of ferrules and 1 simple ferrule fixing tool, to be used with ClickTek Adaptor (not included), for capillary columns with 0.53 mm ID
* ClickTek Ferrules must be fixed using ClickTek Jig (the simple tool is included in the ClickTek Ferrule Kits)			

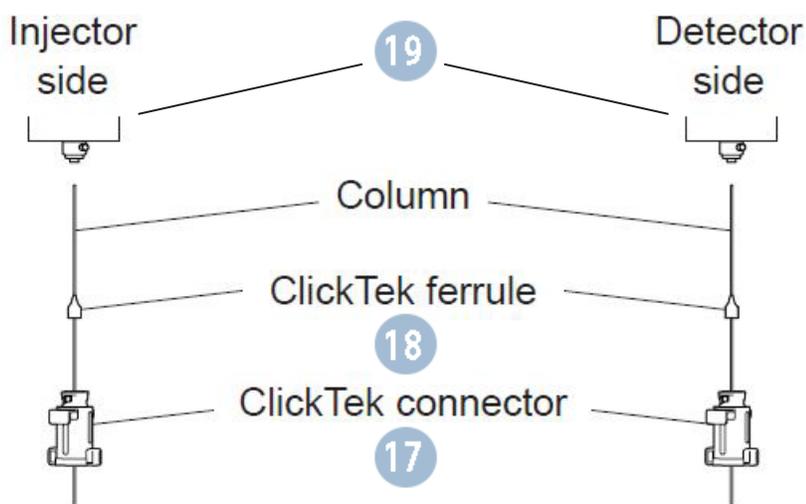
## ClickTek Adaptors

Diag. #	Part No.	Name	Description
19	221-77156-41	ClickTek adapter, SPL	Use with ClickTek ferrules (sold separately) for capillary columns, includes insulation cup and gold gasket
19	221-77156-42	ClickTek adapter, FID/FTD	Use with ClickTek ferrules (sold separately) for capillary columns, includes insulation cup and gold gasket
19	221-77156-43	ClickTek adapter, TCD/FPD	Use with ClickTek ferrules (sold separately) for capillary columns, includes insulation cup and gold gasket
19	221-77156-44	ClickTek adapter, BID	Use with ClickTek ferrules (sold separately) for capillary columns, includes insulation cup and gold gasket

Please reference the diagram below for the above items.

## Gaskets and Filters

Diag. #	Part No.	Name	Description
7	221-49065-91	Gold Gasket	Gasket used for sealing the adapter to the base, 5/pk
16	201-35183-00	Aluminum Gasket	Gasket used for sealing the G-fittings
13	221-34121-94	Filter, carrier gas	Filter for incoming carrier gas, MS-5A, GC-2010/2014
14	221-42559-92	Filter, split and purge	Filter for outgoing gas through split and purge, silica gel, GC-2010/2014 SPL
14	221-42595-92	Filter, split and purge for harsh solvents	Filter for outgoing gas through split and purge, activated carbon, GC-2010/2014 SPL
15	221-48441-91	Buffer tube for split line	Buffer tube for GC-2010/GC-2014 SPL
	221-77580-42	Split filter for GC-2030	Split line filter for GC-2030 SPL
	221-77587-00	Split filter nut for GC-2030	Nut for attaching Split line filter to GC-2030 SPL



Capillary Column Insertion Depth  
(measure from tip of ferrule to end of column)<sup>1-3</sup>

	Ver. 1	Ver. 2
SPL	33 mm	33 mm
FID	71 mm	71 mm
TCD	49 mm	71 mm
FPD	81 mm	81 mm
FTD	68 mm	71 mm
BID	73 mm	71 mm

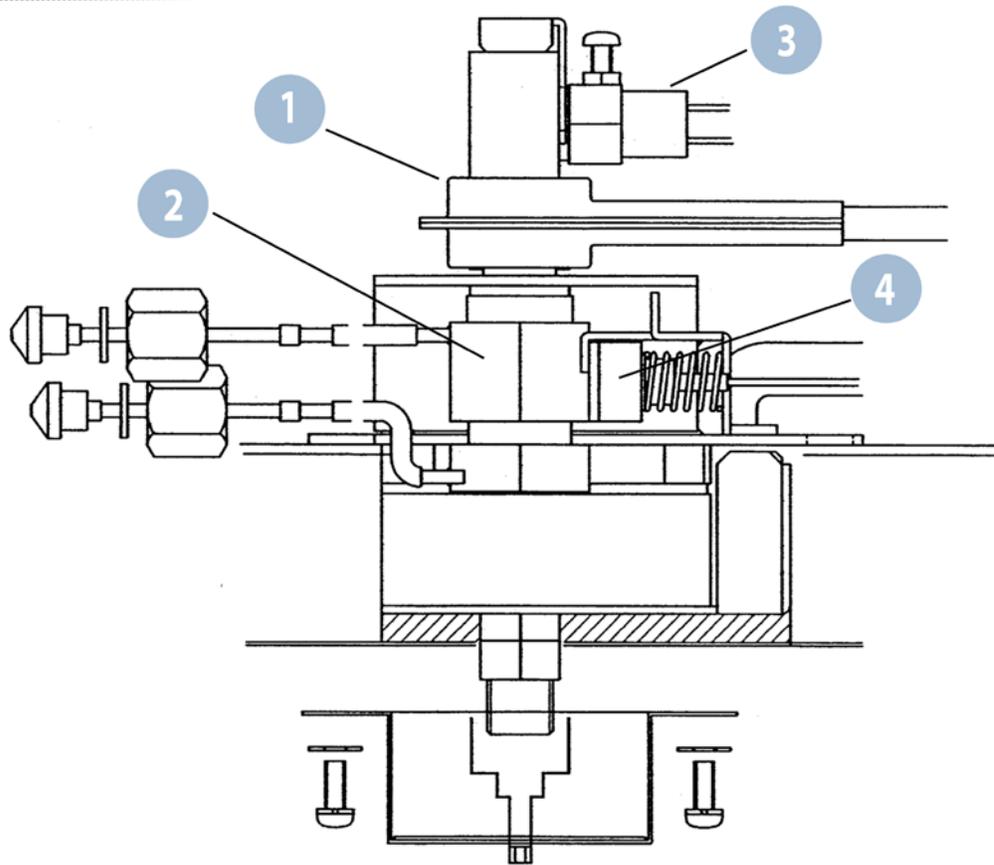
<sup>1</sup>ClickTek ferrules must be fixed using ClickTek jigs.

<sup>2</sup>For fixing graphite ferrules see Appendix.

<sup>3</sup>GC-2030 only

**Diag. #**

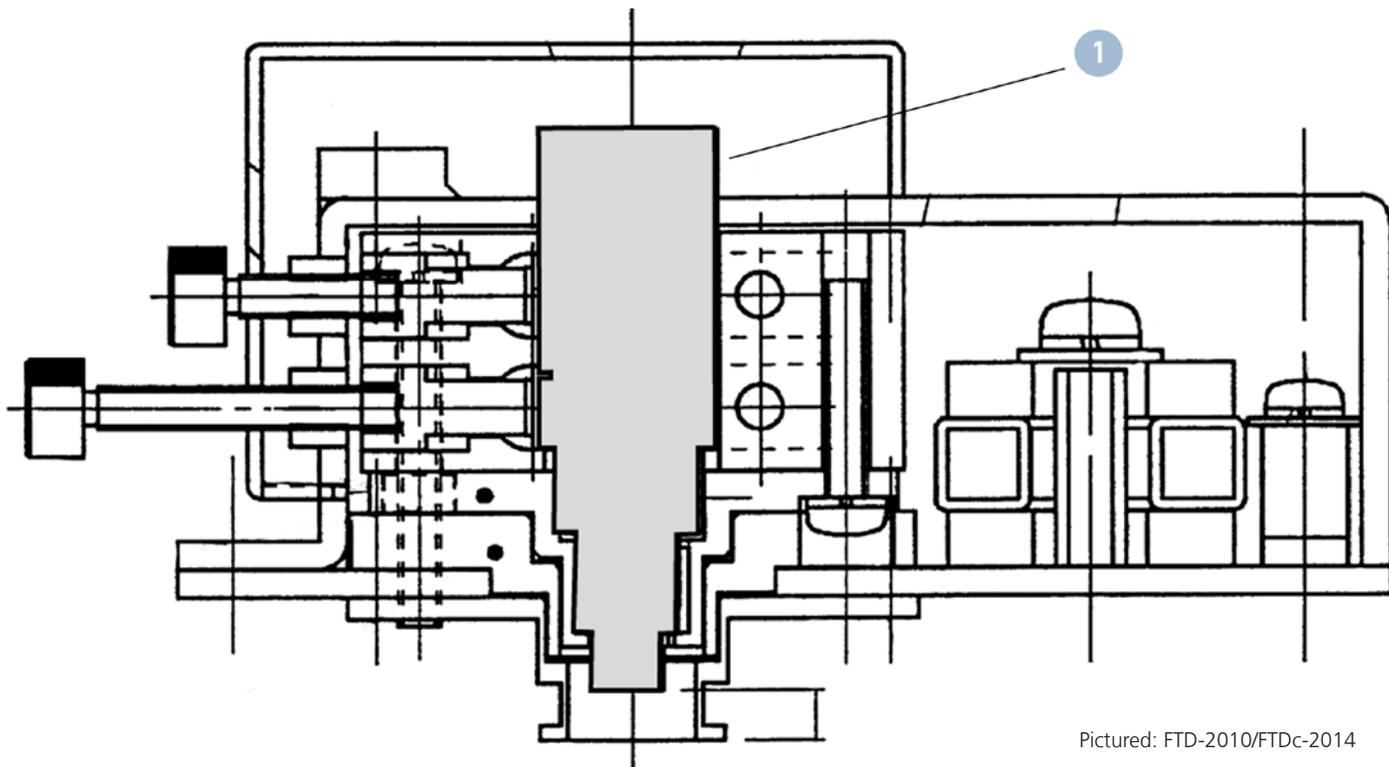
- 1) Collector
- 2) Nozzle
- 3) Igniter
- 4) High Voltage Clip



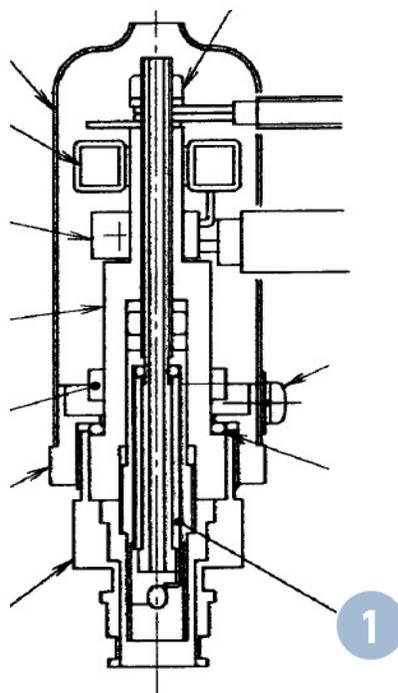
Pictured: FID-2010 series

## | Detectors - FID/FTD (NPD)

Diag. #	Part No.	Name	Description
1	221-72322-91	Collector, FID-2010	For FID-2010 series
1	221-81021-41	Collector, FID-2014	For FID-2014
1	221-72322-95	Collector, FID-2030	For FID-2030
2	221-48258-91	Nozzle, Capillary, FID-2010	0.3mm ID, for FID-2010 (not for FID-2014/2030), FTD-2010/2030/2014 (capillary model only)
2	221-48885-91	Nozzle, Packed, FID-2010	0.5mm ID, for FID/FTD-2010 series to be used with packed columns
2	221-49373-91	Nozzle, Aqueous, FID-2010	0.8 mm ID, for FID/FTD-2010 series
2	221-70162-93	Nozzle, Capillary, FID-2014	0.3 mm ID, for FID/FTD-2014
2	221-70162-92	Nozzle, Factory Capillary, FID-2014	0.5 mm ID, for FID/FTD-2014, comes standard with single capillary FID-2014
2	221-70162-95	Nozzle, Factory Packed, FID-2014	0.5 mm ID, for FID/FTD-2014, comes standard with dual packed FID-2014
2	221-70162-96	Nozzle, Aqueous, FID-2014	0.8 mm ID, for FID/FTD-2014
2	221-75597-03	Nozzle, standard capillary, FID-2030	0.3 mm ID, for FID-2030
2	221-75597-08	Nozzle, Aqueous, FID-2030	0.8 mm ID, for analysis of aqueous samples, FID-2030
2	221-82445-41	Nozzle, Packe, FID-2030	0.5mm ID, for FID-2030, to be used with packed columns
3	221-41847-93	Igniter filament, FID-2010/2014	Glow plug for FID-2010 series and FID-2014 series
3	221-41847-94	Igniter filament, FID-2030	Glow plug for FID-2030
4	221-47146-91	High Voltage Clip, FID-2010	High voltage electrode for FID/FTD-2010 series
4	221-47146-92	High Voltage Clip, FID-2014	High voltage electrode for FID/FTD-2014
4	221-81947-41	High Voltage Clip, FID-2030	High voltage electrode for FID-2030



Pictured: FTD-2010/FTDc-2014



Pictured: FTD-2014

Diag. #  
1) Collector Bead

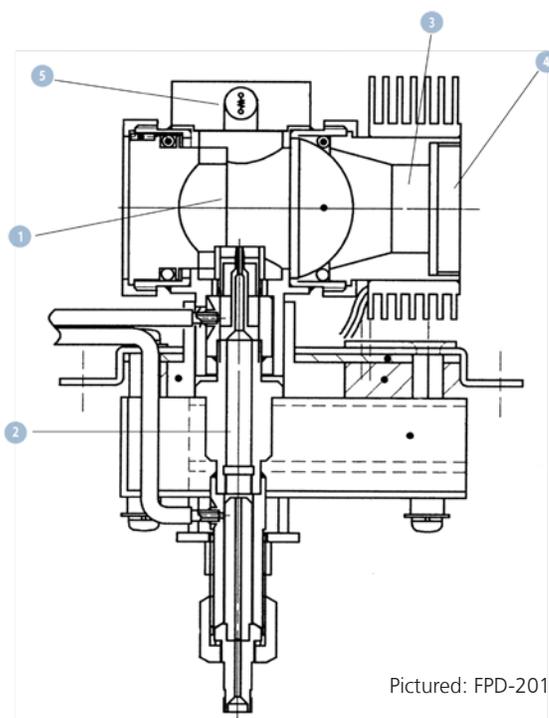
## Detectors - FTD (NPD)

Diag. #	Part No.	Name	Description
1	221-45586-91	Collector Bead (standard)	For FTD-2010, 2030 and FTDc-2014 (capillary model)
1	221-71513-91	Collector Bead (special)	For FTD-2010, 2030 and FTDc-2014 (capillary model)
1	221-18704-91	Collector Bead (packed)	For FTD-2014 (packed model)
	221-49079-91	Collector regeneration kit	Used to regenerate the collector assy
	221-70846-91	Collector regeneration adapter	Used to hold the collector assy during regeneration

\* see FID section for nozzles

**Diag. #**

- 1) Quartz Tube
- 2) Nozzle
- 3) Filter
- 4) PMT
- 5) Igniter Filament



Pictured: FPD-2014

## Detectors - FPD

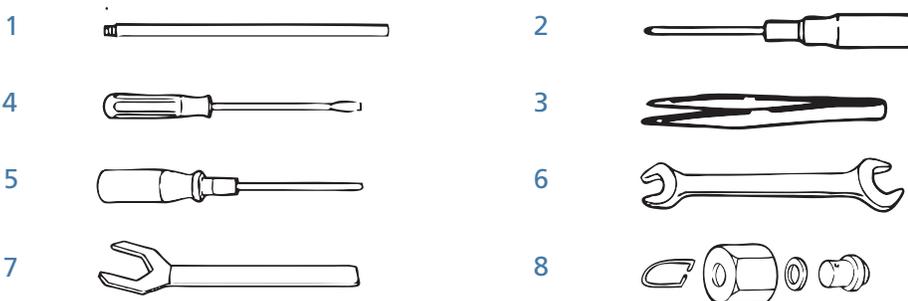
Diag. #	Part No.	Name	Description
1	221-46552-00	Quartz tube	For FPD-2010 series, FPD-2014 and FPD-2030
2	221-48423-91	Quartz nozzle	For packed analysis on FPD-2010 series
2	221-70735-91	Stainless steel nozzle	For capillary analysis on FPD-2014
2	221-70348-91	Quartz nozzle	For packed analysis on FPD-2014
3	221-46310-01	Filter for S	For FPD-2010 and FPD-2014
3	221-46310-02	Filter for P	For FPD-2010 and FPD-2014
3	221-46310-03	Filter for Sn	For FPD-2010 and FPD-2014
3	221-73354-01	Filter for S	For FPD-2010 Plus
3	221-73354-02	Filter for P	For FPD-2010 Plus
3	221-73354-03	Filter for Sn	For FPD-2010 Plus
3	221-80888-01	Filter for S	For FPD-2030
3	221-80888-02	Filter for P	For FPD-2030
3	221-80888-03	Filter for Sn	For FPD-2030
4	221-48578-00	PMT for FPD-2010 and FPD-2014	PMT R5983 for FPD-2010 and FPD-2014
4	221-73413-00	PMT for FPD-2010 Plus and FPD-2030	PMT R5983+ for FPD-2010 Plus and FPD-2030
5	221-73430-82	Igniter filament	For FPD-2010
5	221-73430-91	Igniter filament	For FPD-2010 Plus
5	221-73430-93	Igniter filament	For FPD-2014
5	221-81905-41	Igniter filament	For FPD-2030
	036-19006-17	O-ring for FPD Filter	O-ring for outside the filter, for FPD-2010 series and FPD-2014
	036-19006-14	O-ring for FPD Filter	O-ring for inside the filter, for FPD-2010 series and FPD-2014
	221-81602-41	O-ring for FPD Filter	For FPD-2030
	036-11018-00	O-ring for photomultiplier housing	O-ring for PMT housing for FPD-2010 and FPD-2014
	036-11019-84	O-ring for photomultiplier housing	O-ring for PMT housing for FPD-2010 Plus, 5pk
	221-70562-00	Aluminum washer	For FPD-2014 under the igniter head section

## Detectors - SCD

Diag. #	Part No.	Name	Description
1	221-84141-41	SCD consumables set	Contains 3 inner pyrotubes, 1 outer pyrotubes, 3 ferrules for the inner pyrotube, 1 back ring for the inner pyrotube, 1 O-ring for the outer pyrotube, 1 ferrule for the transfer line
2	221-84384-41	Ozone scrubber set, SCD-2030	Pre-filled ozone scrubber assembly with fittings

# Tool Kit

Diag. #	Part No.	Name	Description
1	221-41532-92	Graphite Ferrule Jig FID/FTD-2010/FTD-2030	Used to set insertion depth for FID/FTD-2010 and FTD-2030, does not work for ClickTek
1	221-41532-98	Graphite Ferrule Jig FID/FTD-2014	Used to set insertion depth for FID/FTD-2014, does not work for ClickTek
1	221-48610-01	Graphite Ferrule Jig capillary TCD-2010/2030	Used to set insertion depth for capillary TCD-2010/2030 (not for packed TCD), does not work for ClickTek
1	221-48610-03	Graphite Ferrule Jig ECD-2010	Used to set insertion depth for ECD-2010 (not for ECD-Exceed series), does not work for ClickTek
1	221-41532-91	Graphite Ferrule Jig SPL	Used to set the insertion depth for SPL-2010/2014/2030, does not work for ClickTek
1	221-41532-02	Graphite Ferrule Jig BID	Used to set the insertion depth for BID-2010/2030 series, does not work for ClickTek
1	221-41532-04	Graphite Ferrule Jig, FID-2030	Used to set the insertion depth for FID-2030, does not work for ClickTek
1	221-48610-02	Graphite Ferrule Jig, FPD-2010/2030	Used to set the insertion depth for FPD-2010/2030, does not work for ClickTek
1	221-41532-99	Graphite Ferrule Jig ECD-2014	Used to set insertion depth for ECD-2014, does not work for ClickTek
	221-76547-41	Smart Jig for ClickTek Ferrule (6 in 1)	Convenient jig to set insertion depth and fix ClickTek ferrules in one step
1	221-83764-00	Graphite Vespel Ferrule Jig SCD-2030, Left-side	Used to set insertion depth for SCD-2030 left side model
2	086-11002-00	Phillips screwdriver	#2 Phillips screwdriver
3	086-16101-00	Tweezers	Replacement tweezers from ship kit
4	086-10403-00	Flat-head scredriver	Flat-head 100mm screwdriver
5	670-18800-00	Nut Driver, 8mm deep set	Used for FID/FPD nozzle/jet removal
6	086-03011-00	Wrench, 10mm x 12mm	Open ended 10mm and 12mm wrench
6	086-03003-00	Wrench, 6mm x 8mm	Open ended 6mm and 8mm wrench
7	221-46977-00	Injection port wrench	Used to open injection port top for insert/o-ring replacement
8	221-35566-92	G-type plug	Used for leak checking injection port, 2/pk



# Additional Tools

Part No.	Name	Description
221-47159-00	Column Hanger	Hanger style
221-43947-91	Column Hanger	Windmill style, compatible with any caged capillary columns, up to 2 holder with two columns
221-72849-00	Column Holder	Hanger for multiple columns
220-94797-04	GC TCD/FPD Sensitivity Test Mix	Installation test mix for TCD/FPD
220-94797-06	GC FID/ECD/FTD/BID Sensitivity Test Mix	Installation test mix for FID/ECD/FTD/BID
220-94797-07	GC SCD Sensitivity Test Mix	Installation test mix for SCD
221-48600-00	Silica Wool	Deactivated wool, 2 g/container
220-94702-00	Column cutting tool	Ceramic capillary cutting wafer

## Packed S.S. COL Connection for GC-2014

Part No.	Name	Description
220-90140-02	Adaptor Kit to connect 1/8-in S.S. Column to GC-2014 with FID/ECD/FTD/FPD, not for TCD	Use with 221-14093-00 & 221-22206-00 (one of each included in the kit)
220-90140-03	Adaptor Kit to connect 1/4-in S.S. Column to GC-2014 with FID/ECD/FTD/FPD, not for TCD	Use with 221-14093-00 & 221-22206-00 (one of each included in the kit)
220-90140-05	Adaptor Kit to connect 1/8-in S.S. Column to GC-2014 with TCD detector	Use with 221-14093-00 & 221-22206-00 (one of each included in the kit)
220-90140-06	Adaptor Kit to connect 1/4-in S.S. Column to GC-2014 with TCD detector	Use with 221-14093-00 & 221-22206-00 (one of each included in the kit)
221-14093-00	Insert/Liner, Glass, tapered for S.S Adapters	Used as the liner when using stainless steel packed column, must use with spacer 221-22206-00
221-22206-00	Injection port spacer	Used with packed injection ports, must be placed under the septa (channel side down) to ensure flow through liner

## Packed S.S. COL Connection for GC-8

Part No.	Name	Description
220-90139-02	Adaptor Kit to connect 1/8-in S.S. Column to GC-8 with FID/ECD/FTD/FPD, not for TCD	
220-90139-05	Adaptor Kit to connect 1/8-in S.S. Column to GC-8 with TCD detector	
220-90139-06	Adaptor Kit to connect 1/4-in S.S. Column to GC-8 with TCD detector	

## Packed S.S. COL Connection for GC-2010\*

Part No.	Name	Description
220-94680-01**	GC-2010 Adapter Kit FID/TCD/ECD	Includes one liner 221-48886-00
221-48886-00	Liner for direct injection (no split), SPL	Used as the liner when using the packed column and WBC adaptor

\* For GC-2010 with SPL or WBI, and FID or TCD or ECD

\*\* This kit also works for glass column connection to GC-2010

## Packed S.S. COL Connection for GC-2030

No kit available at the moment; contact your Shimadzu sales representative

## Widebore Capillary COL to Packed INJ/DET, GC-8A, 9, 14, 15, 16 and 2014

Part No.	Name	Description
221-29992-91	WBC Attachment Kit	Order 221-10073-00 & 220-10076-91 in addition if using TCD
221-34012-91	WBC Adaptor Detector Side with Makeup	This is not a kit. Order this part <b>in addition to</b> WBC Attachment Kit without Makeup 221-29992-91 (above) when using a widebore column and the makeup gas for detector is desired; the <b>flow controller is not included - order separately.</b>
221-10073-00	TCD sleeve	Used on TCD side only to connect capillary columns (no makeup connection)
221-10076-91	TCD sleeve ferrule	Used on TCD detector adapter sleeve, 10/pk

# Gas Filters

## Replacement Filter Cartridges

Part No.	Name	Description
227-37037-01	Shimadzu Super-Clean Carrier Gas Filter	Replacement Filter Cartridge (Oxygen/Moisture/Hydrocarbon), for carrier gas
227-37037-02	Shimadzu Super-Clean Gas Filter for Hydrogen and Air	Replacement Filter Cartridge (Hydrocarbon/Moisture), for Hydrogen and Air for flame detectors
227-37037-04	Shimadzu Super-Clean Gas Filter for Nitrogen	Replacement Filter Cartridge (Oxygen/Moisture), for ECD makeup gas (Nitrogen or Argon/Methane)
227-37037-05	Shimadzu Super-Clean Helium-specific Carrier Gas Filter	Replacement Filter Cartridge (Oxygen/Moisture/Hydrocarbon), for Helium carrier gas

## Replacement Filter Bundles

Part No.	Name	Description
227-37038-01	Gas Filter Bundle of 3 for GC-FID/FPD	Replacement Filter Cartridge Set containing 1 of 227-37011-01 and 2 of 227-37011-02
227-37039-01	Gas Filter Bundle of 2 for GC-ECD	Replacement Filter Cartridge Set containing one each of 227-37011-01 and 227-37011-04

## Accessories

Part No.	Name	Description
226-50790-00	Shimadzu Filter Wall-mounting Bracket Set	fit base plate of 1-3 positions
227-37031-01	Universal Ring Nut	1 pc
227-37031-04	Flush Cap Replacement Set	2 pcs
227-37031-02	O-ring for base plate	Replacement O-ring for base plate, 10 pcs inlet, 10pcs outlet
227-37032-01	Shimadzu M Type Connector Set	1 pc inlet, 1 pc outlet
227-37032-02	1/8" Stainless Steel Connector Set	1 set of two connectors for base plate and 2 sets of ferrules
227-37033-01	Electronic Indicator Kit	Includes electronic indicator device, battery, USB cable, mounting clip and universal ring nut

Please contact your Shimadzu sales representative to order the Super-clean Gas Filter Installation Kits.



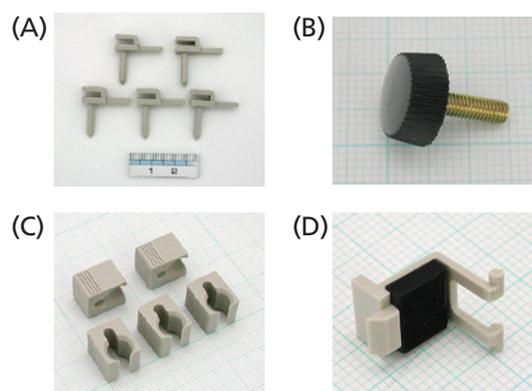
# Autosamplers: AOC-20 and AOC-30

## Syringes

Part No.	Name	Description
221-75173-00	Syringe, 5 µL, fixed needle	Syring for manual injection or for use with AOC-20i or AOC-30i, 0.63 mm needle (23 gauge)
221-34618-00	Syringe, 10 µL, fixed needle	Syring for manual injection or for use with AOC-20i or AOC-30i, 0.63 mm needle (23 gauge)
227-35401-01	Xtra life micro-syringe, 5 µL	Long life, Titanium alloy plunger, for use with AOC-20i or AOC-30i
227-35400-01	Xtra life micro-syringe, 10 µL	Long life, Titanium alloy plunger, for use with AOC-20i or AOC-30i
220-90282-20	Syringe, 10 µL removable needle	Syring for manual injection or for use with AOC-20i or AOC-30i, 0.63 mm needle (23 gauge)
220-90281-20	Removable needles, 0.63 mm (23 gauge)	Replacement needles 0.63 mm for 220-90282-20, 2/pk
220-90282-21	Syringe, 10 µL removable needle, 26 gauge	Syring for manual injection or for use with AOC-20i or AOC-30i, 0.47 mm needle (26 gauge)
220-90281-21	Removable needles, 0.47 mm (26 gauge)	Replacement needles 0.47 mm for 220-90282-21
220-90282-23	Removable needles, 0.63/0.47, tapered	Replacement needles for 220-90282-21, dual gauge (0.63/0.47 mm) for on-column injection (OCI)
221-37282-02	Syringe, 10 µL for OCI, fixed needle	Syring for on-column injection, for use with AOC-20i or AOC-30i, tapered needle
221-74469-00	Syringe, 10 µL teflon tip, fixed needle	AOC-20i or AOC-30i syringe with teflon tip (gas tight) plunger, 23 gauge, replacement for 220-90624-00
221-75173-01	Replacement plunger, for 221-74469	Replacement plungers for 221-74469-00, 2/pk
221-75174-00	Syringe, 10 µL teflon tip, removable needle	AOC-20i or AOC-30i syringe with teflon tip (gas tight) plunger, 23 gauge
221-75174-01	Replacement needles, for 221-75174-00	Replacement needles for 221-75174-00, 2/pk
221-75174-02	Replacement plungers, for 221-75174	Replacement plungers for 221-75174-00, 2/pk
227-35002-01	Syringe, 0.5 µL	AOC-20i or AOC-30i Plunger-in-needle style syringe, 0.5 µL
221-45243-00	Micro-syringe, 50 µL	Syring for manual injection or for use with AOC-20i or AOC-30i
221-4524400	Micro-syringe, 250 µL teflon tip	Syring for manual injection or for use with AOC-20i or AOC-30i

## Syringe Holders

Part No.	Name	Description
221-45177-91	Plunger holder (A)	Holds plunger, 5/pk
037-02820-00	Plunger holder knob (B)	Bellows knob N-1 with M3 x 10
221-45178-91	Barrel holder (C)	Holds syringe barrel, 5/pk
221-48989-91	Barrel clip (D)	Holds syringe in place in the barrel holder assy



## Vial Kits

Part No.	Name	Description
220-97331-30	Vial Kit, 1.5mL Clear Glass Vial w/ Cap & Septa	12 x 32mm, 9mm opening, PP Screw Cap with Silicone/PTFE septa, 100/pk
220-97331-31	Vial Kit, 1.5mL Amber Glass Vial w/ Cap & Septa	12 x 32mm, 9mm opening, PP Screw Cap with Silicone/PTFE septa, 100/pk
220-97331-46	Vial Kit, 1.5mL Clear Glass Vial w/ Cap & Septa,	12 x 32mm, 9mm opening, PP Screw Cap with Silicone/PTFE septa, 1000/pk
220-97331-47	Vial Kit, 1.5mL Amber Glass Vial w/ Cap & Septa	12 x 32mm, 9mm opening, PP Screw Cap with Silicone/PTFE septa, 1000/pk
220-97331-67	Vial Kit, 1.5mL Clear Silanized Glass Vial w/ Cap & Septa	12 x 32mm, 9mm opening, PP Screw Cap with Silicone/PTFE septa, 100/pk
220-97331-68	Vial Kit, 1.5mL Amber Silanized Glass Vial w/ Cap & Septa	12 x 32mm, 9mm opening, PP Screw Cap with Silicone/PTFE septa, 100/pk
220-97331-22	Vial Kit, 4mL Clear Glass Screw Top Vial w/ Cap & Septa	45 x 14.7mm, 13mm PP Screw Cap with Silicone/PTFE septa, 100/pk
220-97331-23	Vial Kit, 4mL Amber Glass Screw Top Vial w/ Cap & Septa	45 x 14.7mm, 13mm PP Screw Cap with Silicone/PTFE septa, 100/pk
220-97331-40	Vials, 4mL Clear Glass Screw Top Vial w/ Cap & Septa	45 x 14.7mm, 13mm PP Screw Cap with Silicone/PTFE septa, 1000/pk
220-97331-41	Vials, 4mL Amber Glass Screw Top Vial w/ Cap & Septa	45 x 14.7mm, 13mm PP Screw Cap with Silicone/PTFE septa, 1000/pk

## Replacement Vials, Caps & Septa

Part No.	Name	Description
220-97331-25	Vials, 1.5mL Clear Glass Vial Only	Short Thread Vial, 12 x 32mm, 9mm opening 100/pk
220-97331-26	Vials, 1.5mL Amber Glass Vial Only	Short Thread Vial, 12 x 32mm, 9mm opening 100/pk
220-97331-65	Vials, 1.5mL Clear Silanized Glass Vial Only	Short Thread Vial, 12 x 32mm, 9mm opening, 100/pk
220-97331-66	Vials, 1.5mL Amber Silanized Glass Vial Only	Short Thread Vial, 12 x 32mm, 9mm opening, 100/pk
220-97331-27	Screw Cap & Septa Only, for 1.5mL Vials	9mm PP Screw Cap, Silicone/PTFE Septa, 100/pk
220-97331-17	Vials, 4mL Vial Only, clear glass	Screw Cap Style, 45 x 14.7mm, 100pk
220-97331-18	Vials, 4mL Vial Only, amber glass	Screw Cap Style, 45 x 14.7mm, 100pk
220-97331-20	Screw Cap & Septa Only, for 4mL Vials	13mm PP Screw Cap, Silicone/PTFE Septa, 100pk
227-35600-01	Xtra clean conical cap, 4mL, 12pcs	Caps only, for rinse vials to reduce septum contamination

## Vial Inserts

Part No.	Name	Description
220-97331-62	Vials, 200uL Glass Insert Only, 100/pk	For 1.5mL Glass Vials
220-97331-63	200uL Glass Insert Only, Silanized, 100/pk	For 1.5mL Glass Vials

# Appendix

Capillary Column Insertion Depth for Graphite Ferrules (measure from tip of ferrule to end of column)

	GC-2030	GC-2010	GC-2014
SPL	34 mm	34 mm	34 mm
FID	72 mm (5-6 mm shorter when using metal capillary column)	69 mm (2-3 mm shorter when using metal capillary column)	99 mm (2-3 mm shorter when using metal capillary column)
TCD	50 mm	50 mm	89 mm
FPD	82 mm	82 mm	120 mm
FTD	69 mm (2-3 mm shorter when using metal capillary column)	69 mm (2-3 mm shorter when using metal capillary column)	99 mm (2-3 mm shorter when using metal capillary column) For FTD-2014c use 69 mm (2-3 mm shorter when using metal capillary column)
BID	74 mm	74 mm	NA
ECD	Varied length, see details below	37mm (not ECD-Exceed) -- for ECD-Exceed see details below	75 mm

ECD-Exceed (GC-2030 and GC-2010)

	Graphite ferrule
Column flow <2 mL/min	43 mm
Column flow 2-10 mL/min	39-42mm*
Column flow >10 mL/min	38 mm

\*Optimal insertion depth depends on analytical settings and samples; shorter insertion depth may decrease sensitivity but will increase the endurance of the cell



Glass COL (5 mm x 3 mm) to Packed INJ, GC-9, 14, 15, 16 and 2014

Part No.	Name	Description
221-46403-92	Graphite Ferrule, 5 mm	Used on the glass column
221-15561-91	Glass Column Joint Kit	Used as nut, washer and back ferrule that connects the column to the injector
221-14094-00	Liner for GC-9, 14, 15, 16, 2014	Used as the injector insert for glass columns
221-22206-00	Injection port spacer	Used with packed injection ports, must be placed under the septa (channel side down) to ensure flow through liner
201-47614-00	O-RING SILICON, 20/Pk	Optional, can be used instead of graphite ferrule if max column temperature is below 250°C

Glass COL (5 mm x 3 mm) to TCD, GC-9, 14, 15, 16 and 2014

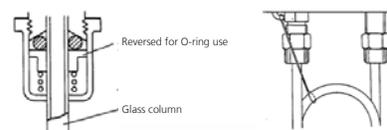
Part No.	Name	Description
221-10076-91	TCD sleeve ferrule	Used on TCD detector adapter sleeve, 10/pk
221-10073-00	TCD sleeve	Used on TCD detector for glass column
221-15561-91	Glass Column Joint Kit	Used as nut, washer and back ferrule that connects the column to the detector
201-47614-00	O-RING SILICON, 20/Pk	Optional, can be used instead of graphite ferrule if max column temperature is below 250°C

Glass COL (5 mm x 3 mm) to Other Packed DET, GC-9, 14, 15, 16 and 2014

Part No.	Name	Description
221-46403-92	Graphite Ferrule, 5 mm	Used on the glass column
221-15561-91	Glass Column Joint Kit	Used as nut, washer and back ferrule that connects the column to the detector
201-47614-00	O-RING SILICON, 20/Pk	Optional, can be used instead of graphite ferrule if max column temperature is below 250°C

An O-ring can be used as the gasket of a glass column joint. In this case, exercise caution about the following points.

- The back ring of the glass column joint should be set in the opposite direction of that for graphite ferrule use.
- Support the column with wire, etc. to prevent it from popping out of the joints due to the pressure of the carrier gas. If the column slides down by 40mm or more, hydrogen gas will leak from the detector (FID), thus causing a dangerous condition.
- Although O-rings can be used easily, all O-rings have certain heat-resistance limits. Observe the limit for the type of O-ring used to prevent elution of compounds which will cause ghost peaks. (Silicon rubber O-ring ... 250°C max.)





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