

1320 Detectors

This section contains an illustrated parts breakdown for each of the following 6890 GC detectors and related components.

- Electron Capture Detector (ECD)
- Flame Ionization Detector (FID)
- Nitrogen Phosphorus Detector (NPD)
- Thermal Conductivity Detector (TCD)
- Microcell Electron Capture Detector (μ ECD)
- Flame Photometric Detector (FPD)
- Auxiliary EPC flow block

Electron Capture Detector (ECD)

Description	Part no.	Qty
1. ECD top cover	G1533-00040	1
2. ECD signal wire assembly	19233-60635	1
3. Anode/Ferrule/Nut assembly (specific license required)	19233-67010	1
4. ECD thermal cover	G1533-00030	1
5. Thermal cover clip	19233-00095	1
6. Top cover insulation	G1533-00020	1
7. Screw, M4 × 10 mm, Torx T20	0515-2495	3
8. Clamp, interconnect	19231-00040	1
9. Captive screw, detector pallet, M4 × 20 mm, T20, Torx	1390-1024	4
10. Detector pallet	G1531-40020	1
11. Screw, M4 × 45 mm, Torx T20	0515-2484	2
12. Electron Capture Detector assembly:		1
– General licensed ECD, new	G1533-60576	-
– General licensed ECD, rebuilt	G1533-69576	-
– Japan only ECD, new	G1533-60730	-
– Japan only ECD, rebuilt	G1533-69730	-
13. Detector block insulation	G1533-00010	1
14. Lower seal insulation	G1533-00080	1
15. Screw, M4 × 12 mm, Torx T20	0515-2496	1
16. ECD make-up gas adapter weldment:	G1533-80565	1
– Gigabore liner	19233-20625	-
– End cap	19233-20755	-
17. Ferrules, capillary columns:		1
– No hole (plug), graphitized-vespel	5181-7458	1
– Graphite, 0.5 mm id (10/pkg)	5080-8853	-
– Graphite, 1.0 mm id (10/pkg)	5080-8773	-
18. Capillary column nut (2/pkg)	5181-8830	1
19. Screw, M4 × 12 mm, Torx T20, chromeplate	0515-2711	3
20. ECD interconnect assembly	G1533-60510	1
21. ECD signal board	G1533-60010	1
22. ECD interface board	G1533-60020	1
23. Heater/Sensor assembly	G1533-60625	1
24. Upper heated block	G1533-20525	1
25. Lower heated block	19233-20515	1
26. ECD mounting plate	G1533-00050	1
27. Nut warmer insulation assembly	19234-60715	3
28. Nut warmer cup assembly	19234-60700	1
29. Tubing tygon, (order 30 inches)	0890-0934	30 inches
30. Vent elbow	19303-20590	1
31. Tubing adapter	5020-8231	1

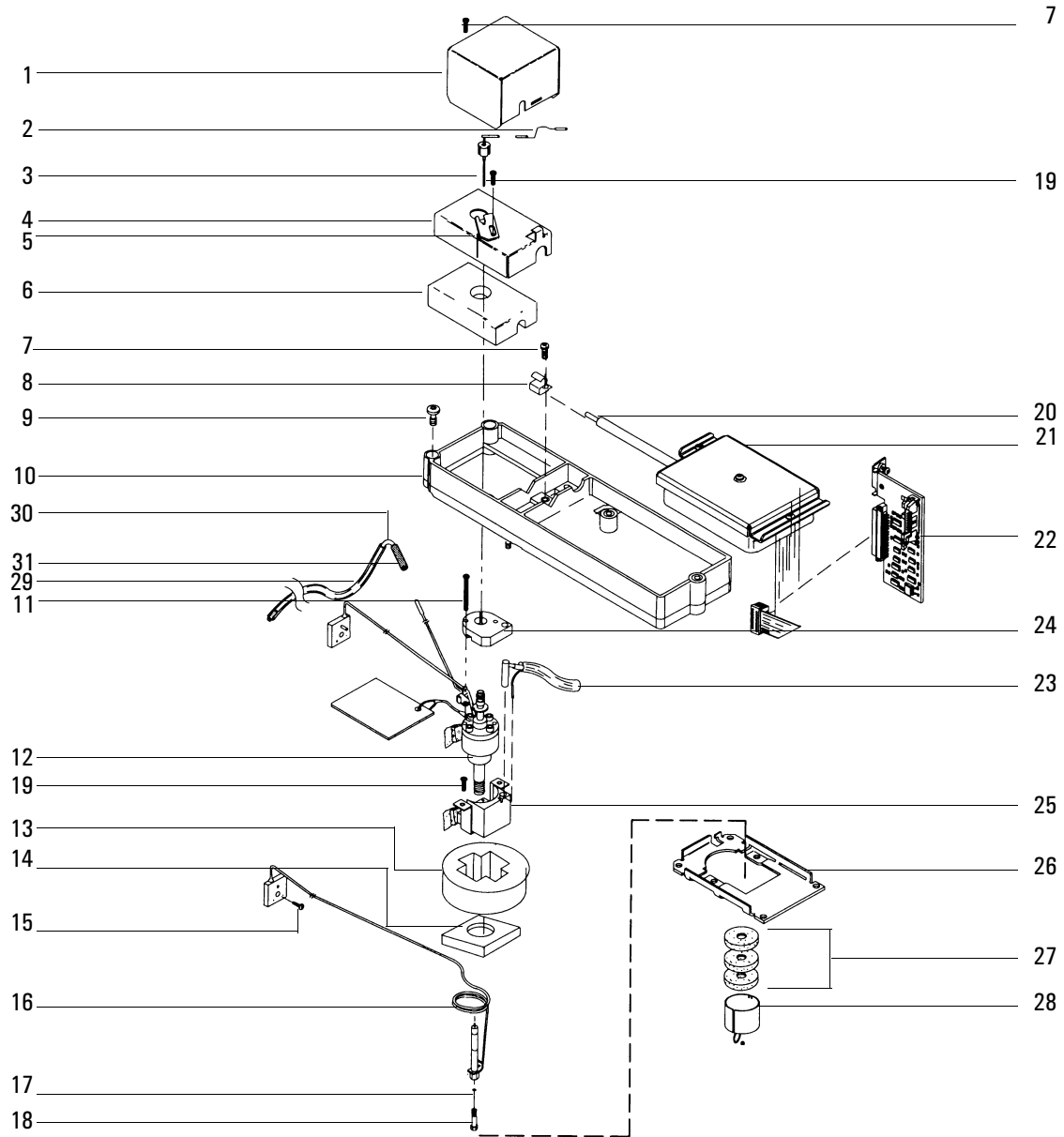


Figure 1320-1 Electron Capture Detector (ECD)

Electron Capture Detector manifold assembly

Description	Part no.	Qty
1. EPC ECD manifold assembly	G1533-60520	1
2. Non-EPC ECD manifold assembly	G1533-60500	1
3. Screw, M3 × 25 mm, Torx, T10	0515-0683	6
4. Screw, M3 × .5 × 8 mm, Torx, T10	0515-0655	2
5. ECD make-up gas assembly (Manual ECD)	G1533-60600	1
5A. Pressure regulator, 0-100 psi (Manual ECD)	G1531-60630	1
5B. ECD manifold regulator brazement (Manual ECD)	G1533-80530	1
NS Chemical traps (Manual ECD)	G1533-80540	2

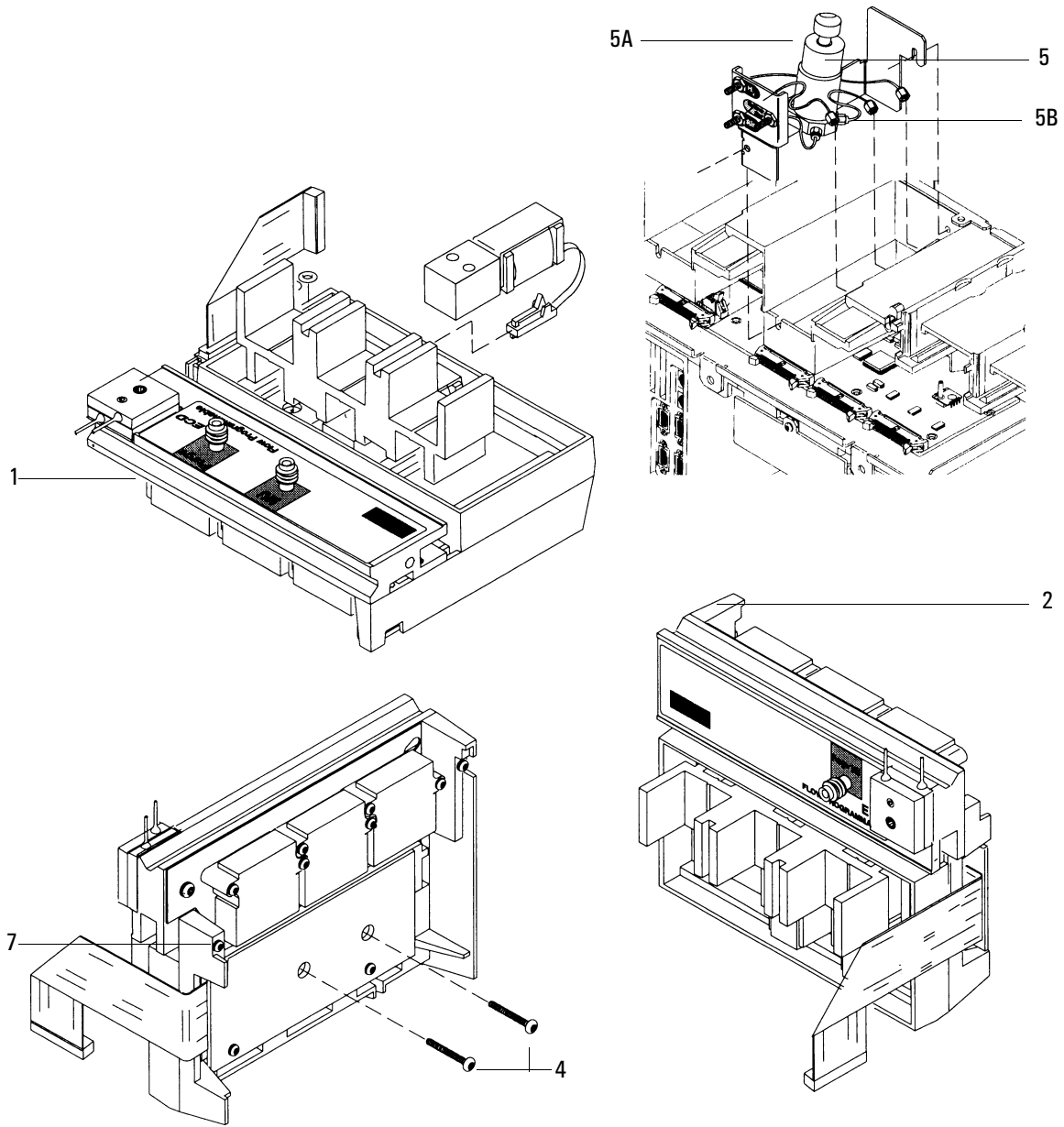


Figure 1320-2 Electron Capture Detector (ECD) manifold assembly

Flame Ionization Detector (FID)

Description	Part no.	Qty
1. Collector assembly:	G1531-60690	1
2. PTFE chimney (optional)	19231-21050	–
3. Collector nut	19231-20940	1
4. Spring washer	3050-1246	1
5. Ignitor castle	19231-20910	1
or optional hastelloy component	19231-21060	1
6. Ignitor (glow plug) assembly	19231-60680	1
6A. Ignitor cable assembly	G1531-60680	
7. Upper/Lower collector insulator	G1531-20700	2
8. Collector body	G1531-20690	1
9. Spanner nut (collector)	19231-20980	1
10. Collector mount	G1531-20550	1
11. Collector housing	G1531-20740	1
12. Gasket	0905-0915	1
13. Screw, M4 × 25 mm, Torx, T20	0515-2712	3
14. Screw, M4 × 10 mm, Torx, T20	0515-2495	5
15. Interconnect clamp	19231-00040	2
16. FID interconnect assembly	G1531-60715	1
17. FID signal board	G1531-60010	1
18. FID interface board	G1531-60020	1
19. Screw (captive) M4 × 20 mm, Torx, T20	1390-1024	4
20. Mounting pallet	G1531-40020	1
21. Base spanner nut	19231-20990	1
22. Thermal strap	G1531-00100	1
23. Jets:		1
Packed column FID		
– Capillary column (0.011-inch id)	19244-80560	1
– Packed column (0.018-inch id)	18710-20119	–
– High temp (for use in simulated distillation, 0.018-inch id)	19244-80620	–
Capillary only FID		
– Fused silica capillary/530 μ (0.011-inch id)	G1531-80560	1
– High temp jet (0.018-inch id)	G1531-80620	–
24. Base weldments:		1
Packed column FID	G1531-80580	–
Capillary column FID (not shown)	G1531-80630	–
25. Heater/Sensor assembly	G1531-61140	1
26. Nut w/lock washer	0535-0043	2
27. FID block insulation	G1531-00030	1
28. FID seal insulation		
– Capillary	G1531-00130	1
– Packed	G1531-00160	1
29. Packed FID column adapters:		1
– FID/NPD capillary column	19244-80610	–
– FID/NPD 1/8-inch packed column	19231-80520	–
– FID/NPD 1/4-inch packed column	19231-80530	–
30. Nut warmer insulation, (order qty 3)	19234-60715	3
31. Nut warmer cup assembly	19234-60700	1

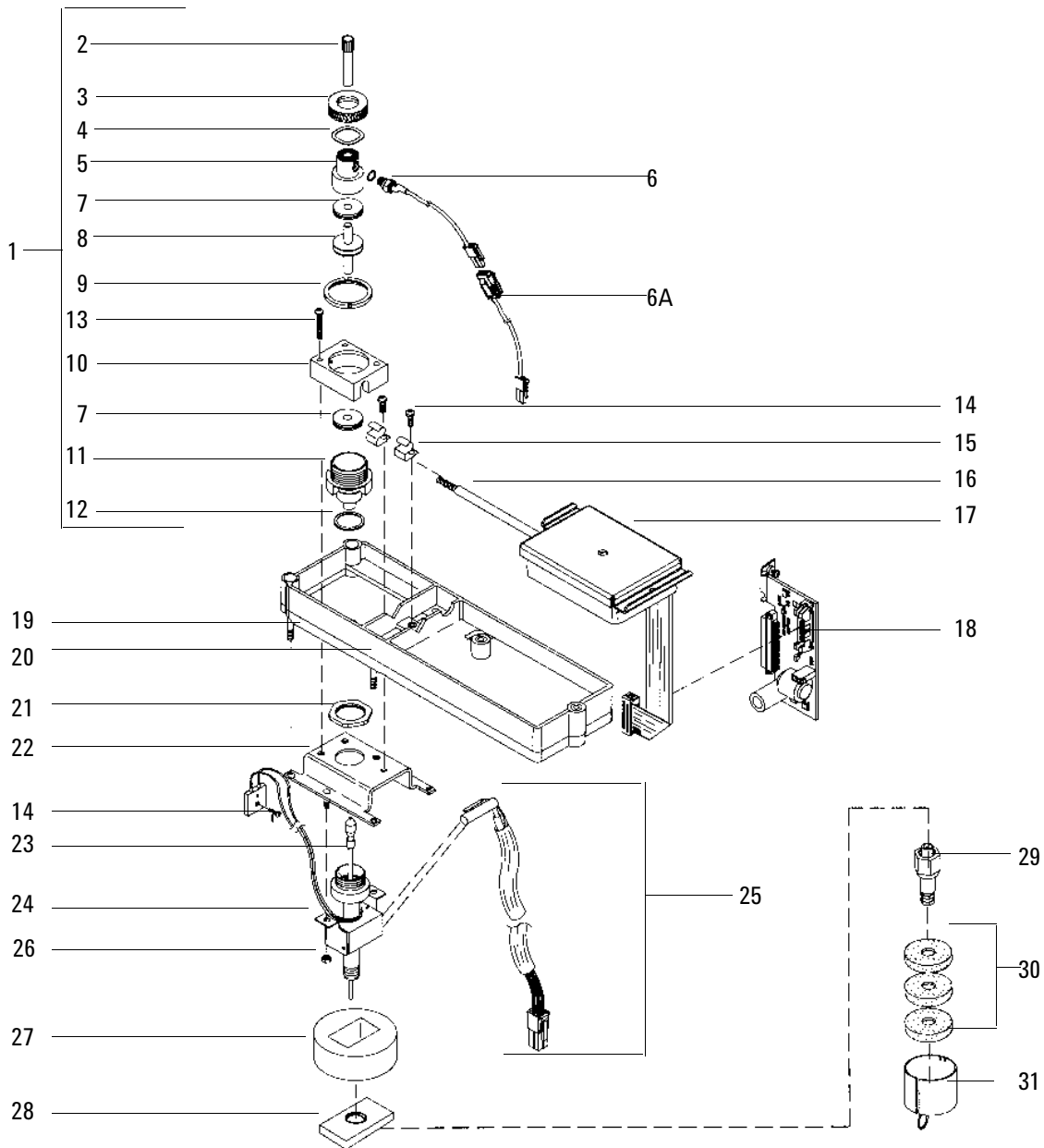
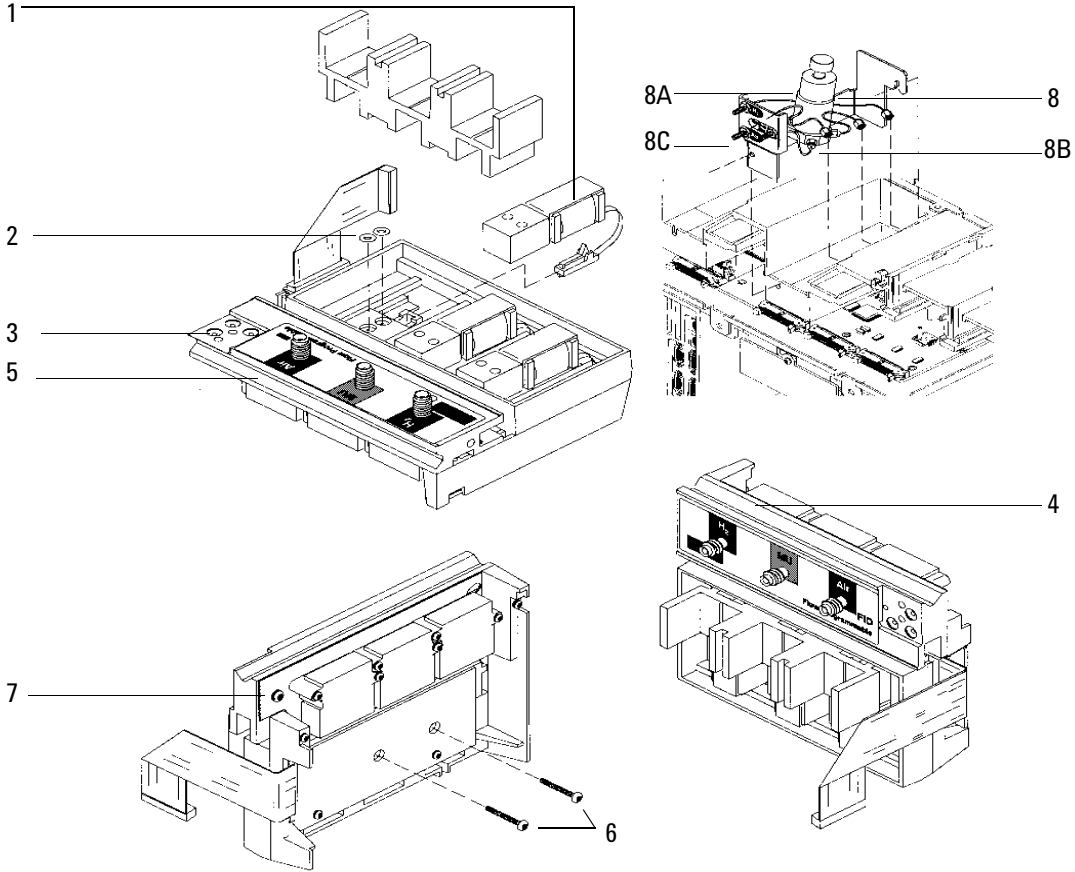


Figure 1320-3 Exploded diagram of the Flame Ionization Detector.

Flame Ionization Detector manifold assembly

Description	Part no.	Qty
Type 1 Manifold		
1. Non-EPC 2 way valve	G1531-60530	3
2. O-Rings HPM8 (Order no. 5180-4181, 12/pkg)	0905-1039	10
3. Screw, M4 × 10 mm, Torx, T20	0515-2495	1
4. EPC control module assembly	G1531-60520	1
5. Non-EPC control module assembly	G1531-60500	1
6. Screw, M3 × 25 mm, Torx T10	0515-0683	6
7. Screw, M3 × 8 mm, Torx, T10	0515-0655	2
8. Make-up gas, manual forward pressure regulator assembly	G1531-60570	1
8A. Pressure regulator, 0 to 100 psi	G1531-60630	1
8B. FID manifold regulator brazement	G1531-80520	1
8C. Supply gas jumper weldment	G1531-80550	1
Type 2 Manifold		
9. Replacement EPC manifold assembly (replaces either type)	G1531-60720	1

Type 1



Type 2

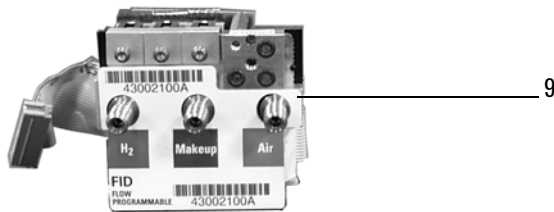


Figure 1320-4 FID Manifold assembly

Nitrogen Phosphorus Detector (NPD)

Description	Part no.	Qty
1. Screw, M4 × 10 mm, Torx, T20	0515-2495	1
2. Hinged cover assembly	G1534-80520	1
3. Screws, M3 × .5 × 8 mm Torx, T10	0515-0655	3
4. NPD bead assembly, white	G1534-60570	1
4A. NPD bead assembly, black (optional, not shown)	5183-2007	
5. Screw, M4, Torx, T20	0515-2495	3
6. Power cable assembly	G1534-60600	1
7. Lid weldment	G1534-80510	1
8. Collector funnel, standard	G1534-20530	1
8A. Collector funnel, small id (optional, not shown)	G1534-20660	
9. NPC ceramic replacement kit, includes:	5182-9722	—
9A. Metal C-ring — 019	0905-2580	1
9B. Alumina insulator, upper	G1534-40020	1
9C. Alumina insulator, lower	G1534-40030	1
9D. Metal C-ring — 014	0905-1284	2
10. Screw, M4 × 10 mm	0515-2495	1
11. J-clamp	1400-0015	1
12. Screw, M4 × 10 mm	0515-2495	2
13. NPD interconnect assembly	G1534-60610	1
14. NPD signal board	G1534-60010	1
15. NPD interface board	G1534-60020	1
16. Pallet captive screws	1390-1024	4
17. O-Rings, HPM8 (Order no. 5180-4181, 12/pkg)	0905-1039	3
18. Screw, M4 × 10 mm, Torx, T20	0515-2495	1
19. Mounting pallet	G1531-40020	1
20. Jets:		1
Packed column NPD		
– Capillary column (0.011-inch id)	19244-80560	1
– Extended jet (optional, not shown)	G1534-80590	—
Capillary only NPD		
– Fused silica capillary (0.011-inch id)	G1531-80560	1
– Extended jet, capillary only (optional, not shown)	G1534-80580	
– High temp jet (0.018-inch id)	G1531-80620	—
21. Heater/Sensor assembly	G1531-61140	1
22. Base weldment:		1
– Capillary column NPD	G1534-80500	—
– Packed column NPD	G1534-80540	—
23. Lid stop	G1534-20590	3
24. NPD block insulation	G1531-00030	1
25. Column adapters for packed NPD:		1
– Capillary column	19244-80610	—
– 1/8-inch packed column	19231-80520	—
– 1/4-inch packed column	19231-80530	—
26. Nut warmer insulation (order qty 3)	19234-60715	3
27. Nut warmer cup	19234-60700	1
28. Flow measurement adapter (not shown)	G1534-60640	—

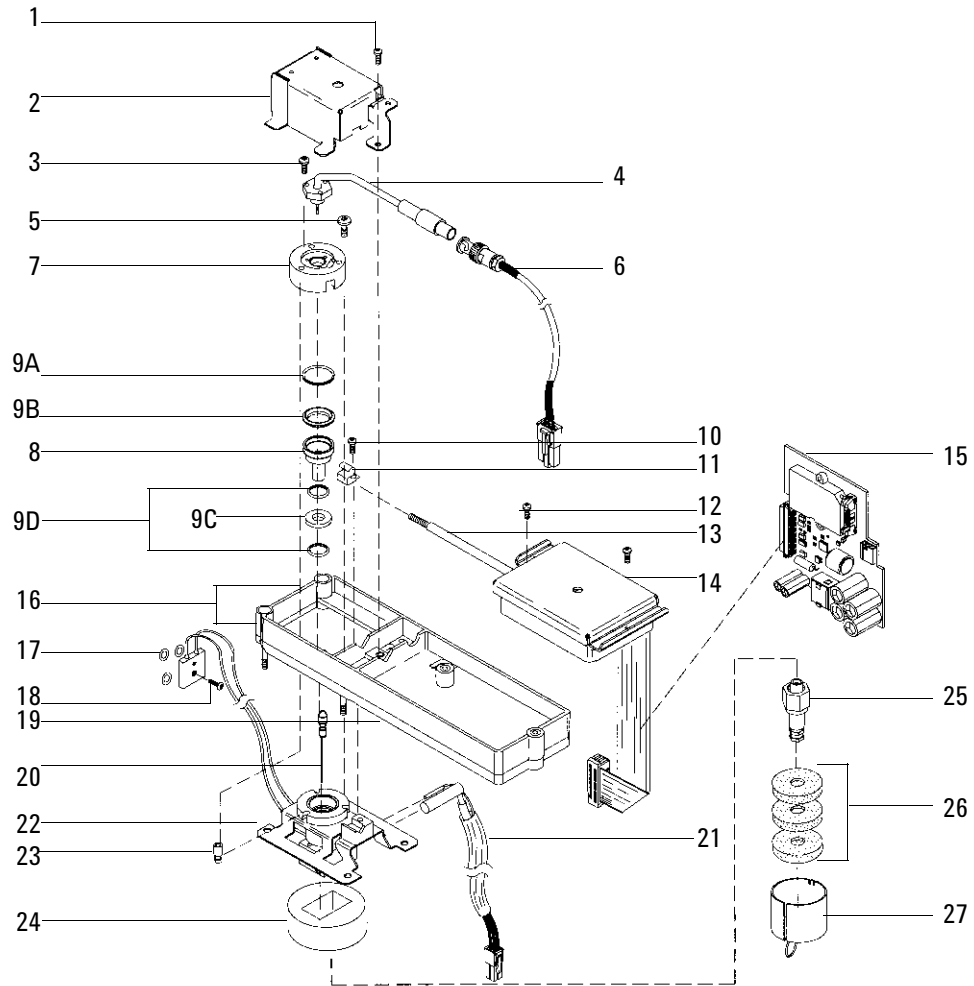


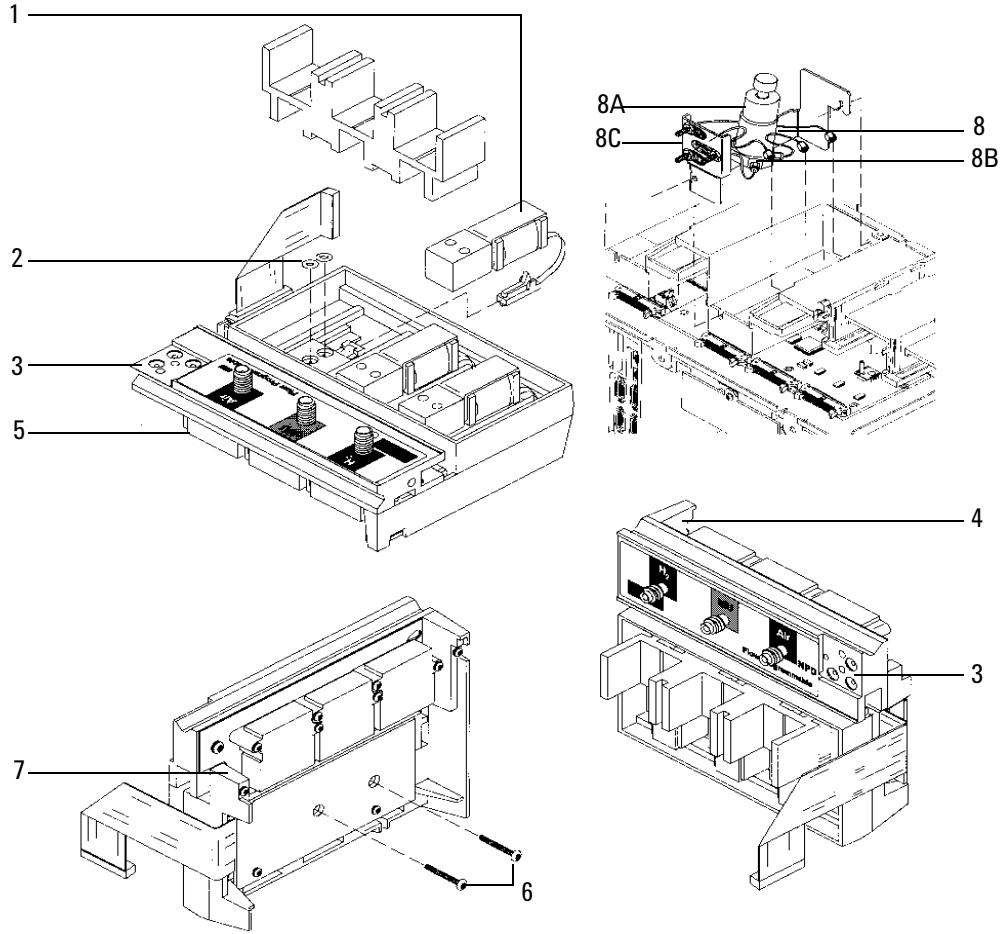
Figure 1320-5 Exploded diagram of the Nitrogen Phosphorus Detector

Nitrogen Phosphorus Detector manifold assembly

Description	Part no.	Qty
Type 1 Manifold		
1. Non-EPC 2 way valve	G1531-60530	3
2. O-rings HPM8 (Order no. 5180-4181, 12/pkg)	0905-1039	9
3. Screw, M4 x 6 mm, Torx, T20	0515-2832	1
4. EPC control module assembly	G1534-60520	1
5. Non-EPC control module	G1534-60500	1
6. Screw, M3 × 25 mm, Torx T10	0515-0683	6
7. Screw, M3 × 8 mm, Torx, T10	0515-0655	2
8. Make-up Gas, manual forward pressure regulator assembly	G1531-60570	1
8A. Pressure regulator, 0 to 100 psi	G1531-60630	1
8B. NPD manifold regulator brazement	G1531-80520	1
8C. Supply gas jumper brazement	G1531-80550	1
Type 2 Manifold		
9. Replacement EPC manifold assembly	G1534-60720	1

Nitrogen Phosphorus Detector manifold assembly

Type 1



Type 2

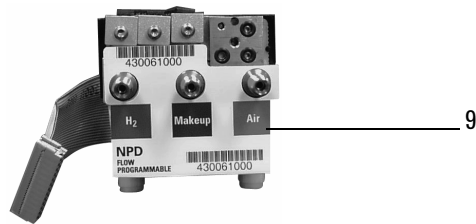


Figure 1320-6 NPD manifold assembly

Thermal Conductivity Detector (TCD)

Description	Part no.	Qty
1. Screw, M4 × 12 mm, captive Torx, T20	0515-2496	2
2. Thermal cover	G1532-00040	1
3. Top insulation	G1532-00020	1
4. Screw, M4 × 0.7 × 8 mm, chrome plated	0515-2711	2
5. O-rings, HPM8 (Order no. 5180-4181, 12/pkg)	0905-1039	3
6. Screw, M4 × 10 mm, Torx, T20	0515-2495	1
7. TCD assembly	G1532-60675	1
8. Column adapters:		1
TCD capillary	G1532-80540	–
– 1/8-inch nut (10/pkg)	5180-4103	–
– 1/8-inch vespel ferrule, graphitized (10/pkg)	0100-1332	–
TCD packed, 1/8-inch Tube to 1/4-inch Female (not shown)	G1532-20710	–
– 1/8-inch nut (10/pkg)	5180-4103	–
– 1/8-inch vespel ferrule (10/pkg)	0100-1332	–
9. Column ferrules:		
– Graphite, 0.5 mm id (10/pkg)	5080-8853	–
– Graphite, 1.0 mm id (10/pkg)	5080-8773	–
10. Column nut (2/pkg)	5181-8830	1
11. TCD signal board*	G1532-60015	1
12. Heater/Sensor assembly	G1531-61140	1
13. PRT	G1531-60660	1
14. TCD mounting pallet	G1532-00030	1
15. Bottom insulation	G1532-00010	1
16. TCD seal insulation	G1532-00080	1
17. TCD vent restrictor kit (not shown)	G1532-60700	

* For TCDs manufactured before June 1997, order upgrade kit G1532-60540 to replace TCD signal board part no. G1532-60010.

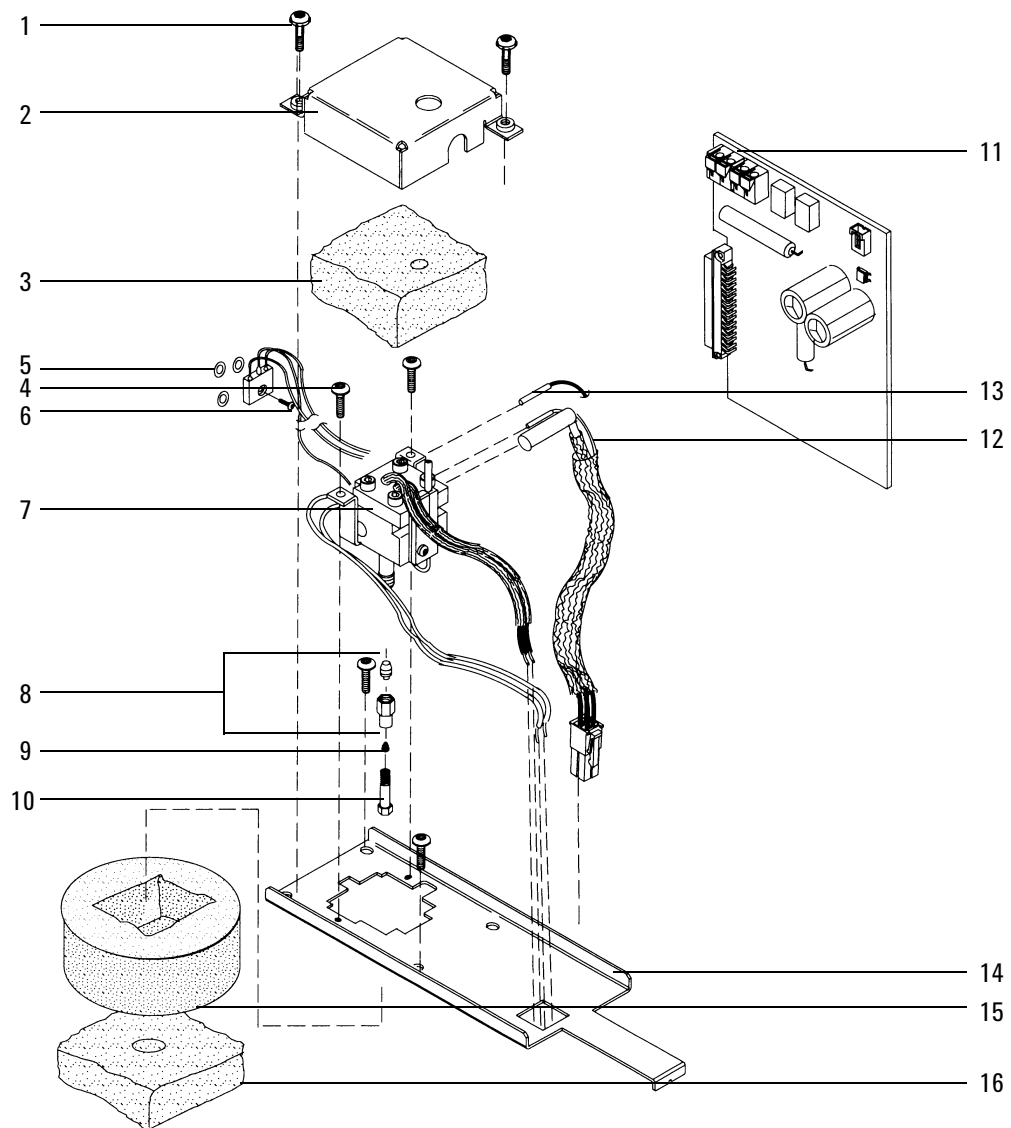
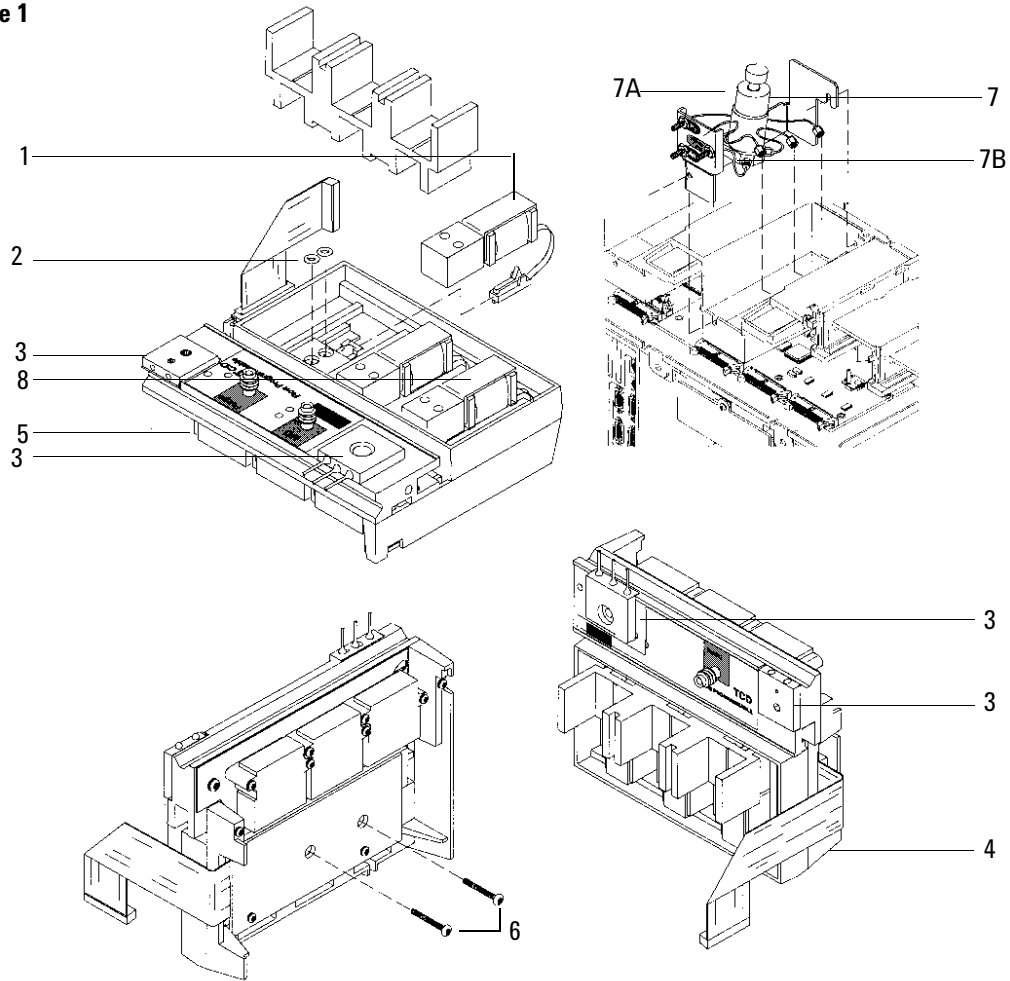


Figure 1320-7 Exploded diagram of the Thermal Conductivity Detector

Thermal Conductivity Detector manifold assembly

Description	Part no.	Qty
Type 1 Manifold		
1. Non-EPC detector on-off valve	G1531-60530	2
2. O-rings HPM8 Order no. 5180-4181, 12/pkg)	0905-1039	9
3. Screw, M4 × 6 mm, Torx, T20	0515-2832	2
4. EPC control module assembly	G1532-60720	1
5. Non-EPC control module assembly	G1532-60500	1
6. Screw, M3 × 8 mm, Torx T10	0515-0655	2
7. Make-up gas, manual forward pressure regulator assembly	G1532-60530	1
7A. Pressure regulator, 0 to 100 psi	G1531-60630	1
7B. TCD Manifold regulator brazement	G1532-80530	1
8. TCD 3-Way switching valve	G1532-60570	1
Type 2 Manifold		
9. Replacement EPC manifold assembly (replaces either type)	G1532-60720	1

Type 1



Type 2

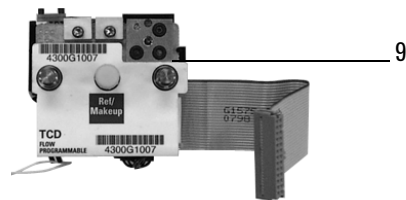


Figure 1320-8 TCD manifold assembly

Microcell Electron Capture Detector (μ ECD)

Description	Part no.	Qty
1. Micro ECD top cover	G2397-00011	1
2. ECD signal wire assembly	19233-60635	1
3. Anode/Ferrule/Nut assembly (specific license required)	G2397-60540	1
4. ECD thermal cover	G1533-00030	1
5. Thermal cover clip	19233-00095	1
6. EDC top insulation	G1533-00020	1
7. Screw, M4 \times 10 mm, Torx T20	0515-2495	3
8. Clamp, interconnect	19231-00040	1
9. Captive screw, detector pallet, M4 \times 20 mm, T20, Torx	1390-1024	4
10. FID pallet	G1531-40020	1
11. Screw, M4 \times 45 mm, Torx T20	0515-2484	2
12. Microcell Electron Capture Detector assembly:		1
– General licensed ECD, new	G2397-65500	–
– General licensed ECD, rebuilt	G2397-69900	–
13. ECD block insulation	G1533-00010	1
14. ECD seal insulation	G1533-00080	1
15. Screw, M4 \times 12 mm, Torx T20	0515-2496	1
16. ECD make-up gas adapter weldment assembly:	G2397-80520	1
– Gigabore liner	G2397-20540	–
– End cap	19233-20755	–
17. Ferrules, capillary columns:		1
– No hole (plug), graphitized-vespel	5181-7458	–
– Graphite, 0.5 mm id (10/pkg)	5080-8853	–
– Graphite, 1.0 mm id (10/pkg)	5080-8773	–
18. Capillary column nut (2/pkg)	5181-8830	1
19. Screw, M4 \times 12 mm, Torx T20, chromeplate	0515-2711	2
20. ECD interconnect assembly	G1533-60510	1
21. Micro ECD signal PCB assembly	G2397-60010	1
22. Micro ECD interface PCB assembly	G2397-60020	1
23. Heater/Sensor assembly	G1533-60625	1
24. Upper heated block	G1533-20525	1
25. Lower heated block	19233-20515	1
26. ecd mounting plate	G1533-00050	1
NS Nut warmer assembly	19234-60720	1
27. Nut warmer insulation	19234-60715	1
28. Nut warmer cup assembly	19234-60700	1
29. Tubing tygon (30 in.)	0890-0934	1
30. Vent elbow (if present)	19303-20590	1
31. Tubing adapter (if present)	5020-8231	1

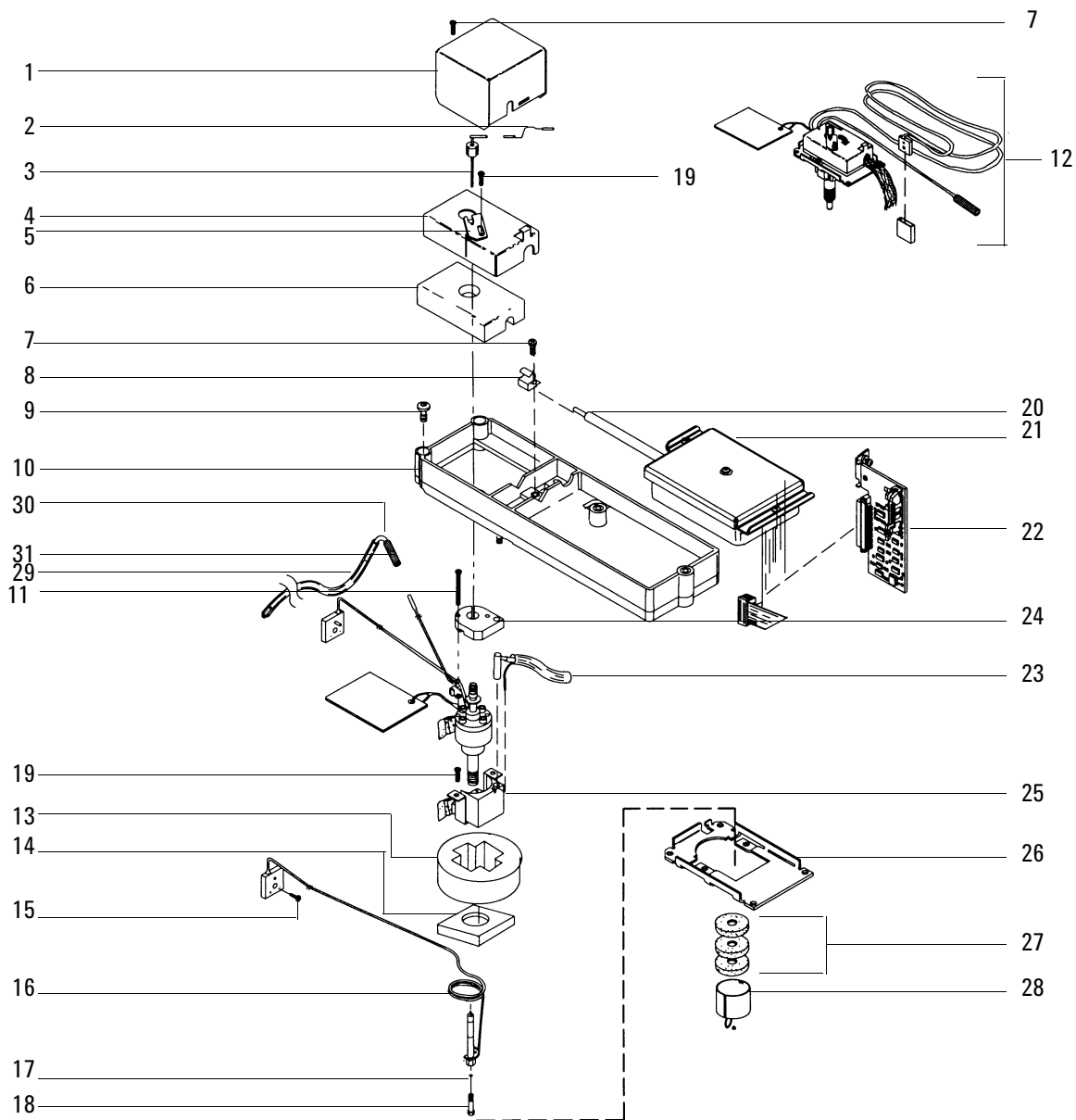
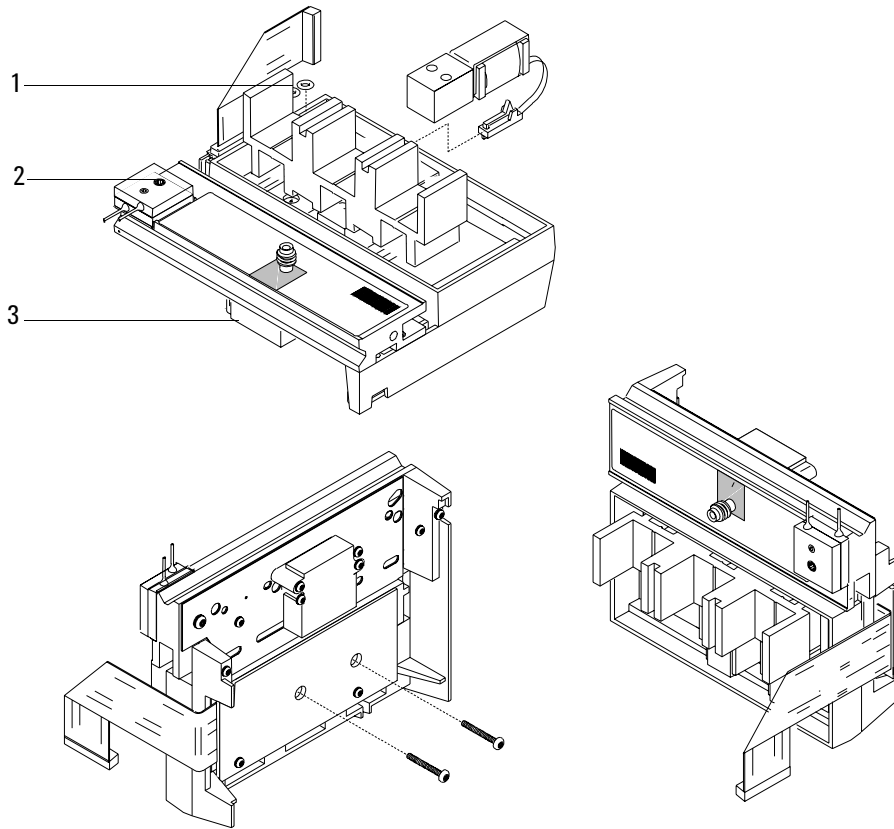


Figure 1320-9 Exploded diagram of the Microcell Electron Capture Detector

Microcell Electron Capture Detector manifold assembly

Description	Part no.	Qty
Type 1 Manifold		
1. O-rings HPM8	0905-1493	13
2. Screw, M4 × 8 mm, Torx, T20	0515-0910	1
3. EPC Micro ECD manifold assembly	G2397-60550	1
NS Screw, M3 × 25 mm, Torx, T10	0515-0683	8
NS Screw, M3 × .5 × 8 mm, Torx, T10	0515-0655	2
4. ECD make-up gas assembly	G2397-20540	1
Chemical traps	G1533-80540	2
Type 2 Manifold		
5. Replacement EPC manifold assembly (replaces either type)	G2397-60720	1

Type 1



Type 2

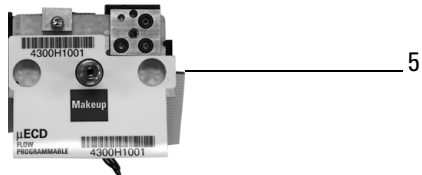


Figure 1320-10 μ ECD manifold assemblies

Flame Photometric Detector (FPD)

Description	Part no.	Qty.
1. Exit tube assembly–A1	19256-20700	1
1A. Exit tube assembly–SST	19256-20705	1
2. Nut, brass, 1/4-inch	0100-0056	1
3. Ferrule, Vespel, 1/4-inch ID (order no. 5080-8774)	0100-1061	1
4. Weldment, block	19256-80560	1
5. O-ring (Kalrez) ignitor	0905-1102	1
6. Spacer, ignitor	19256-20590	1
7. Glow plug	0854-0141	1
8. Ignitor cable assembly	G1535-60600	–
9. Gasket, heat shield	19256-80040	1
10. Window, first heat shield	19256-80030	1
11. Disk, heat shield	19256-20580	1
12. Coupling, stainless steel	19256-20550	1
13. Lockwasher (4 required)	2190-0108	4
14. Screw, M3 × 12 (4 required)	0515-0911	4
15. Clamp	19256-00090	1
16. O-ring, silicone, 0.926-inch ID (orange)	0905-0955	1
17. Window, second heat shield	19256-80060	1
18. O-ring, silicone, 1.05-inch ID (orange)	0905-1104	1
19. Flange adapter	19256-20510	1
20. Flange ring	19256-00200	1
21. Screw, M3 × 25 (4 required)	0515-0065	4
22. O-ring, Viton, 1.239-inch ID (brown)	0905-1100	1

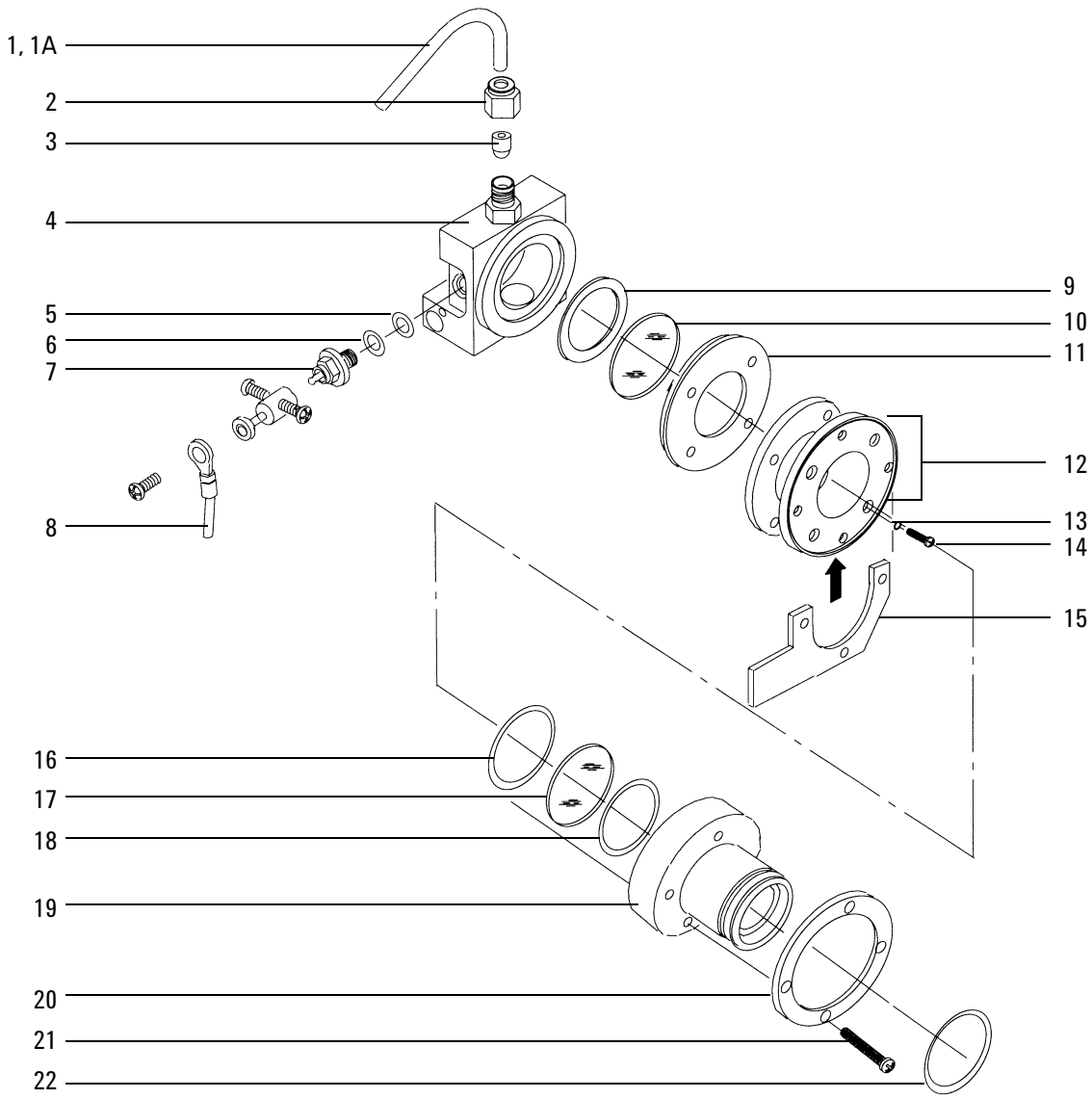


Figure 1320-11 Exploded diagram of the Flame Photometric Detector

Flame Photometric Detector jet and transfer tube assemblies

Description	Part no.	Qty.
1. O-ring, Kalrez, transfer tube	0905-1101	1
2. Transfer tube	19256-80550	1
3. Gigabore liner/ferrule assembly	19256-60590	1
4. Base assy, weldment	G1535-80510	1
5. Heater/sensor assembly	G1535-60620	1
6. Lower heater block	19256-20500	1
7. O-ring (Kalrez), jet cartridge	0905-1103	1
8. Jet cartridge	G1535-80500	1
9. Ferrule, Vespel, 1/4-inch ID (Order no. 5080-8774)	0100-1061	1
10. Nut, brass, 1/4-inch	0100-0056	1

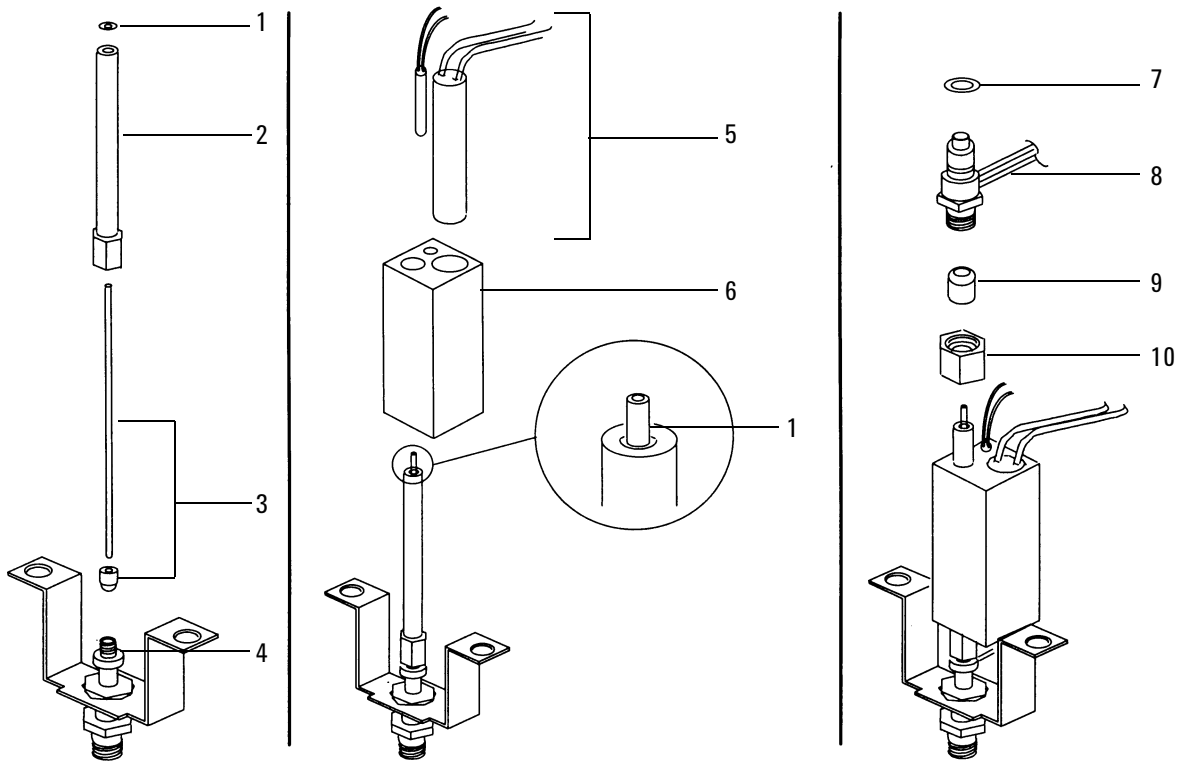


Figure 1320-12 Exploded diagram of the jet and transfer tube assemblies

Flame Photometric Detector PMT and bracket assemblies

Description	Part no.	Qty.
1. Heater/sensor assembly	G1535-60610	1
2. Photomultiplier Tube (PMT)	G1535-80050	–
3. O-ring	0905-1099	–
4. PM tube and housing assembly	19256-60510	1
5. Main bracket	G1535-00010	1
6. Chimney, back	G1535-00020	1
7. Chimney, front	G1535-00030	1
Filters		1
Sulfur mode (not shown)	19256-80000	
Phosphorus mode (not shown)	19256-80010	

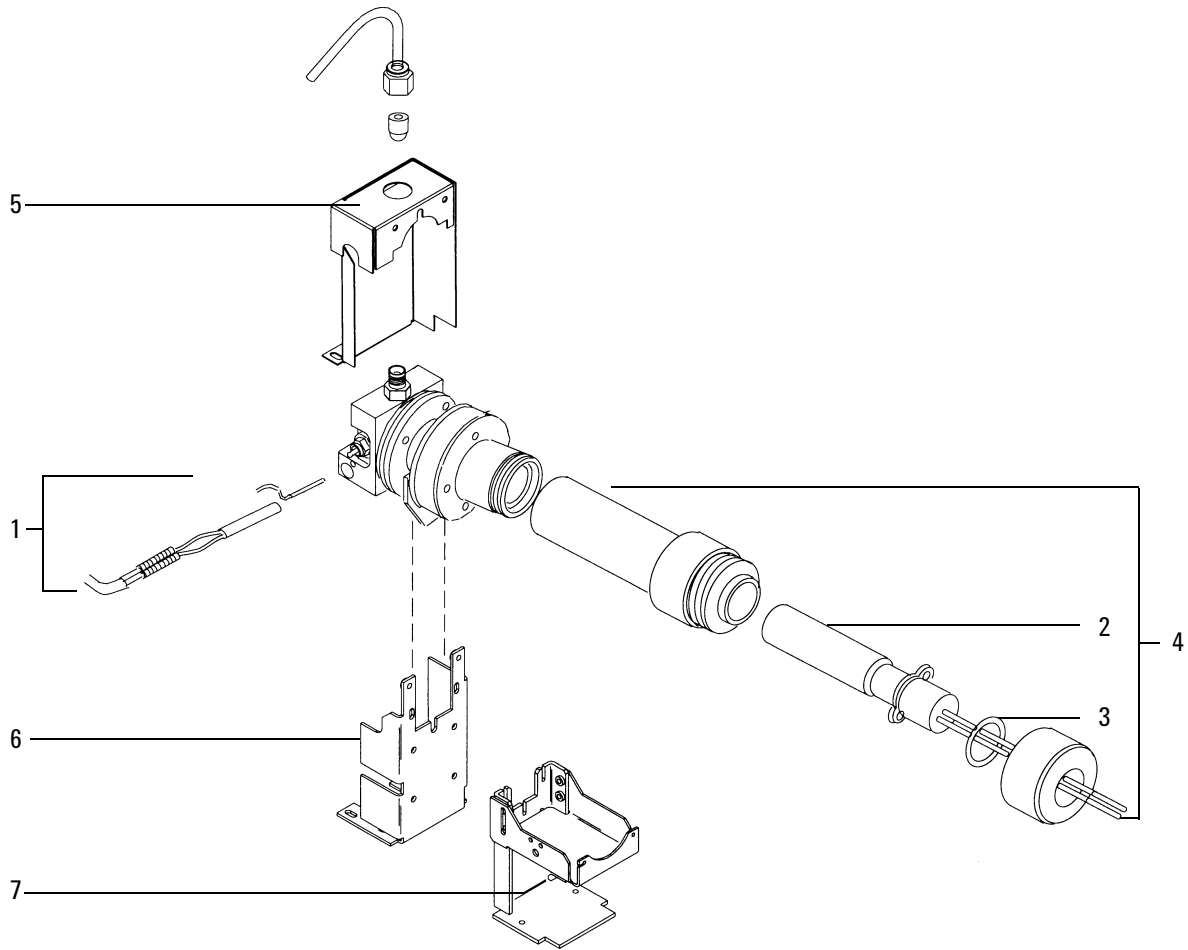


Figure 1320-13 Exploded diagram of the PMT and bracket assemblies

Flame Photometric Detector covers, manifolds, and electronics

Description	Part no.	Qty.
Covers and electronics		
1. Flame photometric detector assembly		1
Single wavelength FPD	G1535-60555	
Dual wavelength FPD (not shown)	G1535-60565	
2. Detector top cover, single FPD (not shown)	G1535-80550	1
2A. Detector top cover, dual FPDs	G1535-80560	1
3. Electronics cover pan	G1535-00120	1
4. Electronics top cover	G1535-80540	1
Cover assembly (6890 GC) (not shown)	G1535-80520	1
5. Actuator solenoid bracket (optional)	G1580-00070	—
6. Printed circuit board	G1535-60010	1
Spring (not shown)	1460-1160	1
Manifolds		
7. Replacement FPD manifold	G1535-60720	
8. Replacement EPC FPD manifold, Type 2, Kit (replaces either type)	G1535-60720	

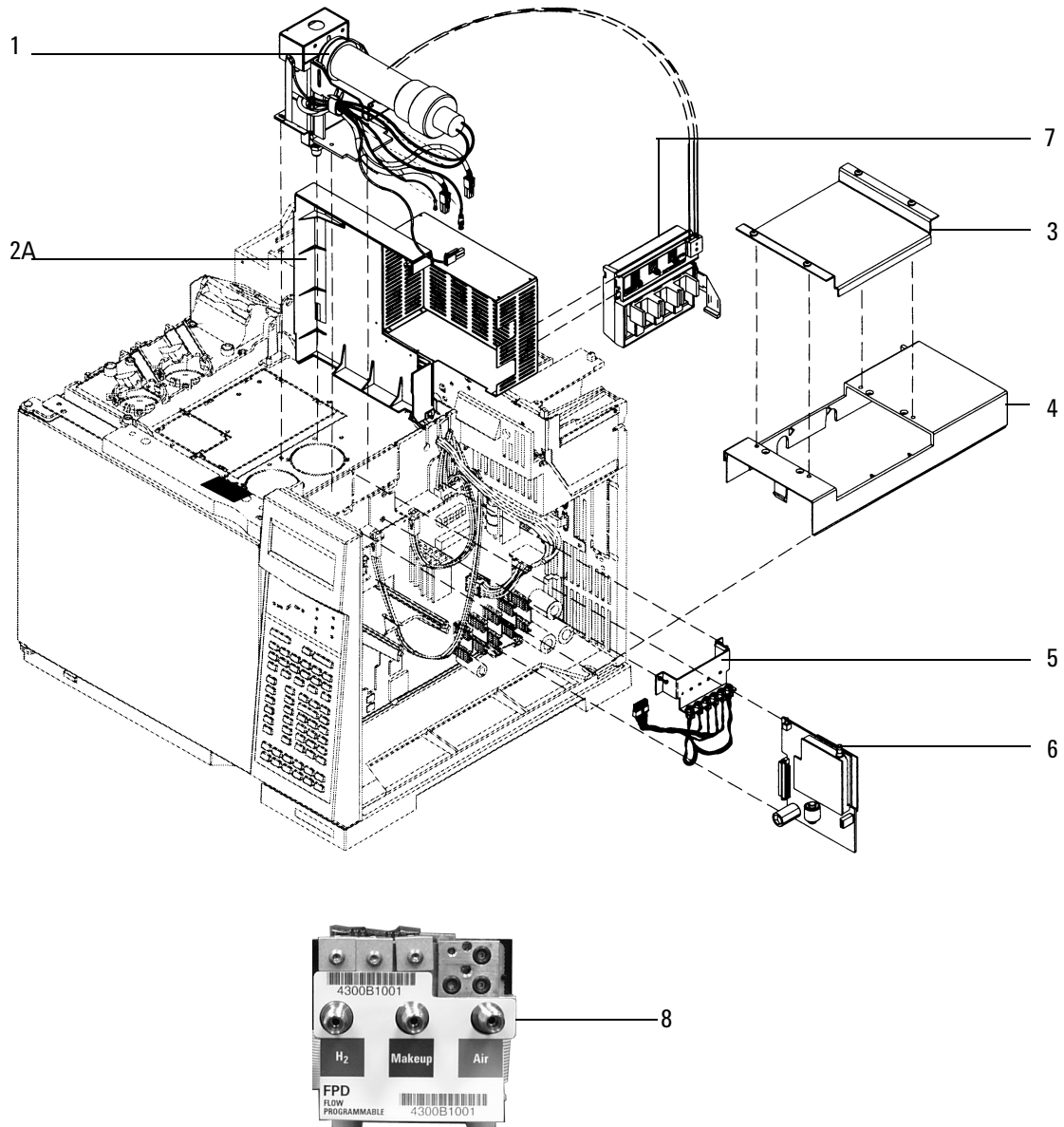


Figure 1320-14 Exploded diagram of the FPD covers, manifolds, and electronics

Auxiliary flow block

Description	Part no.	Qty.
1. Exit fitting weldment	G1570-80500	1
2. Restrictors kit*, includes:	G1570-60540	1
FID H ₂ (red dot)	19231-60770	
FID air (brown dot)	19231-60610	
NPD HYD (blue dot)	19234-60660	
Zero resistance tube (brass tube)	G1570-20540	
3. External flow restrictor (2/pk)	G1530-XXXXX	
4. Replacement Aux EPC Manifold, Type 2, kit (replaces either type)	G1570-64000	1
NS O-ring, 239-inch (part no. 5181-3345, 6/pk)	0905-1014	3
NS Aux EPC manifold only assy (Type 1)	G1570-60520	
NS Aux EPC kit	G1570-60500	
NS Aux EPC replacement kit	G1570-64000	
NS AED/AUX EPC (G2606A)	G1570-60560	

*Refer to 360 Auxiliary EPC, for more information

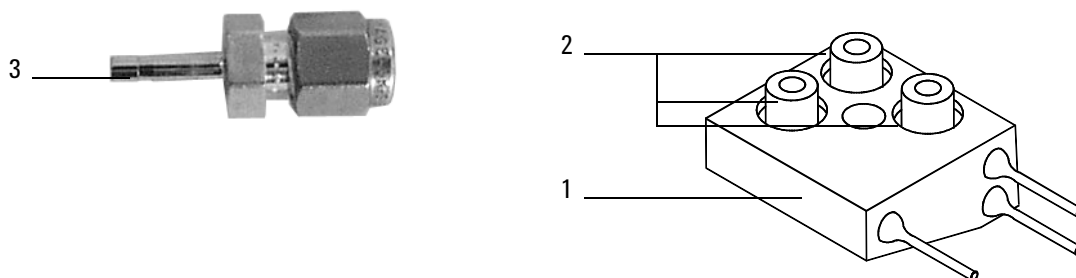


Figure 1320-15 Auxiliary flow block