

Figure 11-4. TRIVAC BCS Pumping Module (see Table 11-A for the part number of the complete pumping module assembly)

Table 11-D — Parts List for the TRIVAC BCS Pumping Module (see Figure 11-4)

Item No.	Quantity				Description	Dimensions (mm)	Material	Part Number	Remarks
	D16	D25	D40	D65					
D1	1	1	1	1	Overpressure valve flap	0.4 x 26 x 92	Steel	401 75 023†	
D2	1				Oil nozzle	D 1.2	Steel	200 09 057†	
		1			Oil nozzle	D 1.2	Aluminum	393 50 008†	
			1		Oil nozzle	D 1.5	Aluminum	393 50 007†	
				1	Oil nozzle	D 2.1	Aluminum	393 50 018†	
D3	1	1			Rear end plate	115 x 115 x 16	Cast Iron	351 11 011†	
			1	1	Rear end plate	185 x 143 x 19	Cast Iron	351 11 012†	
D4	2	2	2	2	Dowel pin	8 k4 x 32, DIN 7979		241 03 009†	
	1	1			Silencing nozzle GD	D 0.4	Aluminum	393 50 015†	
			1	1	Silencing nozzle GD	D 0.2	Aluminum	393 50 019†	
D5				1	Silencing nozzle GD	D 0.2	Aluminum	393 50 019†	
	1				Silencing nozzle GD	D 0.2	Aluminum	393 50 019†	
			1		Pump cylinder, forestage	115 x 118 x 26	Cast Iron	231 92 022†	
		1			Pump cylinder, forestage	115 x 118 x 57	Cast Iron	231 92 023†	
D6			1		Pump cylinder, forestage	185 x 147.5 x 38	Cast Iron	231 92 024†	
				1	Pump cylinder, forestage	185 x 147.5 x 79	Cast Iron	231 92 025†	
	1	1	1	1	Split spring	D 0.8 x 10.2 x 15.4	Steel	221 61 031†	
D7	1	1	1	1	Valve deflector plate	72 x 28 x 0.5	Steel	200 09 015†	
		1			Valve deflector plate	72 x 38 x 0.5	Steel	200 09 016†	
			1		Valve deflector plate	146 x 38 x 1.5	Steel	200 09 137†	
D8				1	Valve deflector plate	146 x 70 x 1.5	Steel	200 09 136†	
	1				Exhaust valve plate	0.2 x 19 x 68	Steel	401 75 017†	
		1			Exhaust valve plate	0.2 x 35 x 68	Steel	401 75 019†	
D9		4	7		Exhaust valve finger	16 x 44 x 0.3	Steel	200 11 245†	
	1				Exhaust valve stop	2 x 24 x 72	Steel	451 74 046†	
		1			Exhaust valve stop	2 x 36 x 72	Steel	451 74 048†	
D10		4	7		Exhaust valve stop	15 x 43 x 2.5	Steel	200 11 376†	
	1				Capscrew	M 5 x 8, DIN 912		200 09 231†	
		1	1	1	Nonreturn valve	D 12 x 7	Viton	348 61 028††	
D11	2				Vane, forestage	5 x 37.5 x 26	Inkutex	200 10 656†	
		2			Vane, forestage	5 x 37.5 x 57	Inkutex	200 10 655†	
			2		Vane, forestage	38 x 52 x 6	Inkutex	200 10 653†	
				2	Vane, forestage	79 x 52 x 6	Inkutex	200 10 652†	
D12	1				Rotor, forestage	D 60 x 26	Cast Iron	321 66 168†	
		1			Rotor, forestage	D 60 x 57	Cast Iron	321 66 169†	
			1		Rotor, forestage	D 82.5 x 62	Cast Iron	321 66 170†	
				1	Rotor, forestage	D 82.5 x 103	Cast Iron	321 66 171†	

\* Included in gasket set (see Table 11-A).

† Included in pumping module (see Table 11-A).

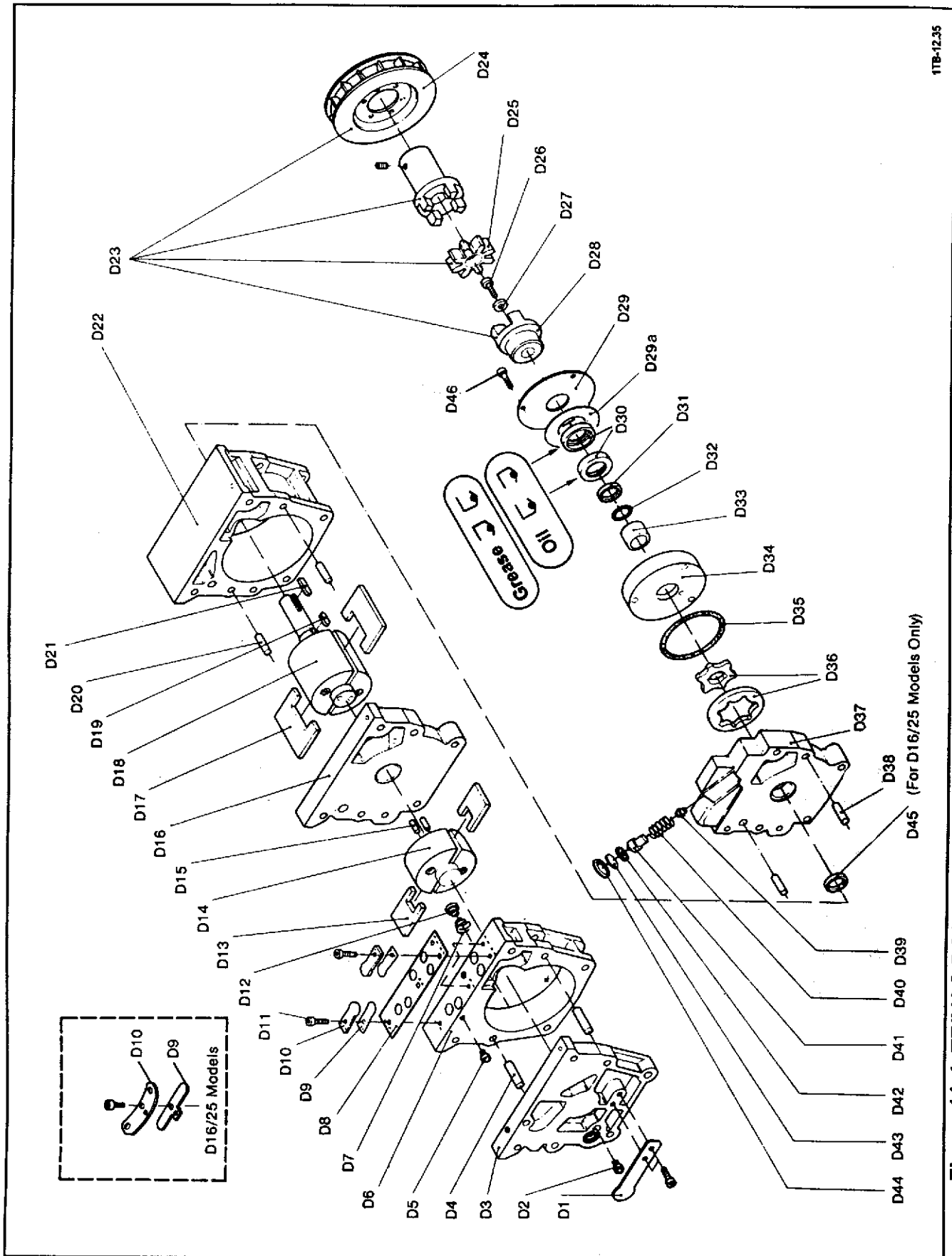


Figure 11-4. TRIVAC BCS Pumping Module (see Table 11-A for the part number of the complete pumping module assembly)

Table 11-D — Parts List for the TRIVAC BCS Pumping Module (see Figure 11-4)

Item No.	Quantity				Description	Dimensions (mm)	Material	Part Number	Remarks
	D16	D25	D40	D65					
D15	2	2	2	2	Dowel pin	6m6 x 24, DIN 6325 8 m6 x 32, DIN 6325		241 03 011† 241 03 292†	
D16	1	1	1	1	Intermediate plate	115 x 115 x 20	Cast Iron	261 51 138†	
					Intermediate plate	185 x 143 x 25	Cast Iron	261 51 139†	
D17	2				Vane, high vacuum stage	5 x 37.5 x 57	Inkutex	200 10 655†	
		2			Vane, high vacuum stage	5 x 37.5 x 88	Inkutex	200 10 885†	
			2		Vane, high vacuum stage	79 x 52 x 6	Inkutex	200 10 652†	
				2	Vane, high vacuum stage	120 x 52 x 6	Inkutex	200 10 886†	
D18	1				Rotor, high vacuum stage	D 60 x 57	Cast Iron	321 66 162†	
		1			Rotor, high vacuum stage	D 60 x 88	Cast Iron	321 66 163†	
			1		Rotor, high vacuum stage	D 82.5 x 186	Cast Iron	321 66 164†	
				1	Rotor, high vacuum stage	D 82.5 x 227	Cast Iron	321 66 165†	
D19	1	1	1	1	Key for gear pump	3.2 x 3.2 x 6	Steel	221 16 022†	
					Key for gear pump	4.8 x 4.8 x 6	Steel	221 16 026†	
D20	2	2	2	2	Dowel pin	8k4 x 45, DIN 7979		241 03 010†	
D21	1	1	1	1	Key for coupling	5 x 5 x 22, DIN 6885		221 16 024†	
					Key for coupling	6 x 6 x 32	Steel	221 16 025†	
D22	1				Pump cylinder, HV-stage	115 x 118 x 57	Cast Iron	231 92 016†	
		1			Pump cylinder, HV-stage	115 x 118 x 88	Cast Iron	231 92 017†	
			1		Pump cylinder, HV-stage	185 x 147.5 x 79	Cast Iron	231 92 018†	
				1	Pump cylinder, HV-stage	185 x 147.5 x 120	Cast Iron	231 92 019†	
D23	1	1	1	1	Coupling, complete		Polyurethane	200 09 158	Includes both halves of coupling, insert, & fan.
					Coupling, complete		Polyurethane	570 42 002	
D24	1	1	1	1	Fan			200 98 007	
					Fan			200 98 006	
D25	1	1	1	1	Coupling Insert	D55	Polyurethane	200 09 094†	
					Coupling Insert	D55, 92 Shore	Polyurethane	701 00 197†	
					Coupling Insert		Polyurethane	200 09 095†	
D26	1	1	1	1	Shaft capscrew	M 5 x 12, DIN 7991		201 03 017†	
					Shaft capscrew	M 6 x 20, DIN 912		201 03 103†	
D27	1	1	1	1	Clamping disc	D 20 x 3.5	Steel	401 57 309†	
					Clamping disc	D 25 x 3	Steel	401 57 311†	
D28	1	1	1	1	Coupling, pump side	D 55		200 09 099†	
					Coupling, pump side			200 09 100†	

\*Included in gasket set (see Table 11-A).

†Included in pumping module (see Table 11-A)

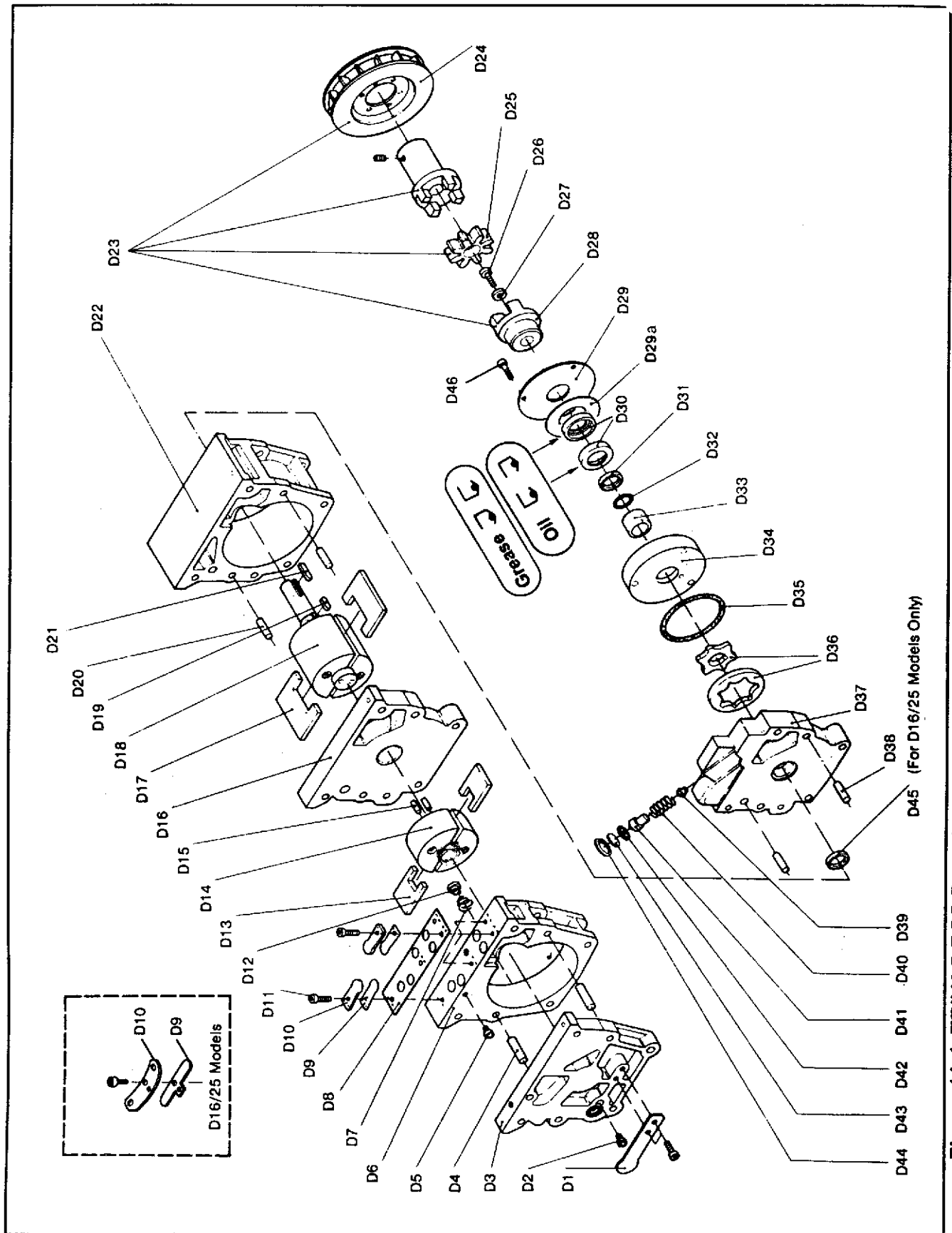


Figure 11-4. TRIVAC BCS Pumping Module (see Table 11-A for the part number of the complete pumping module assembly)

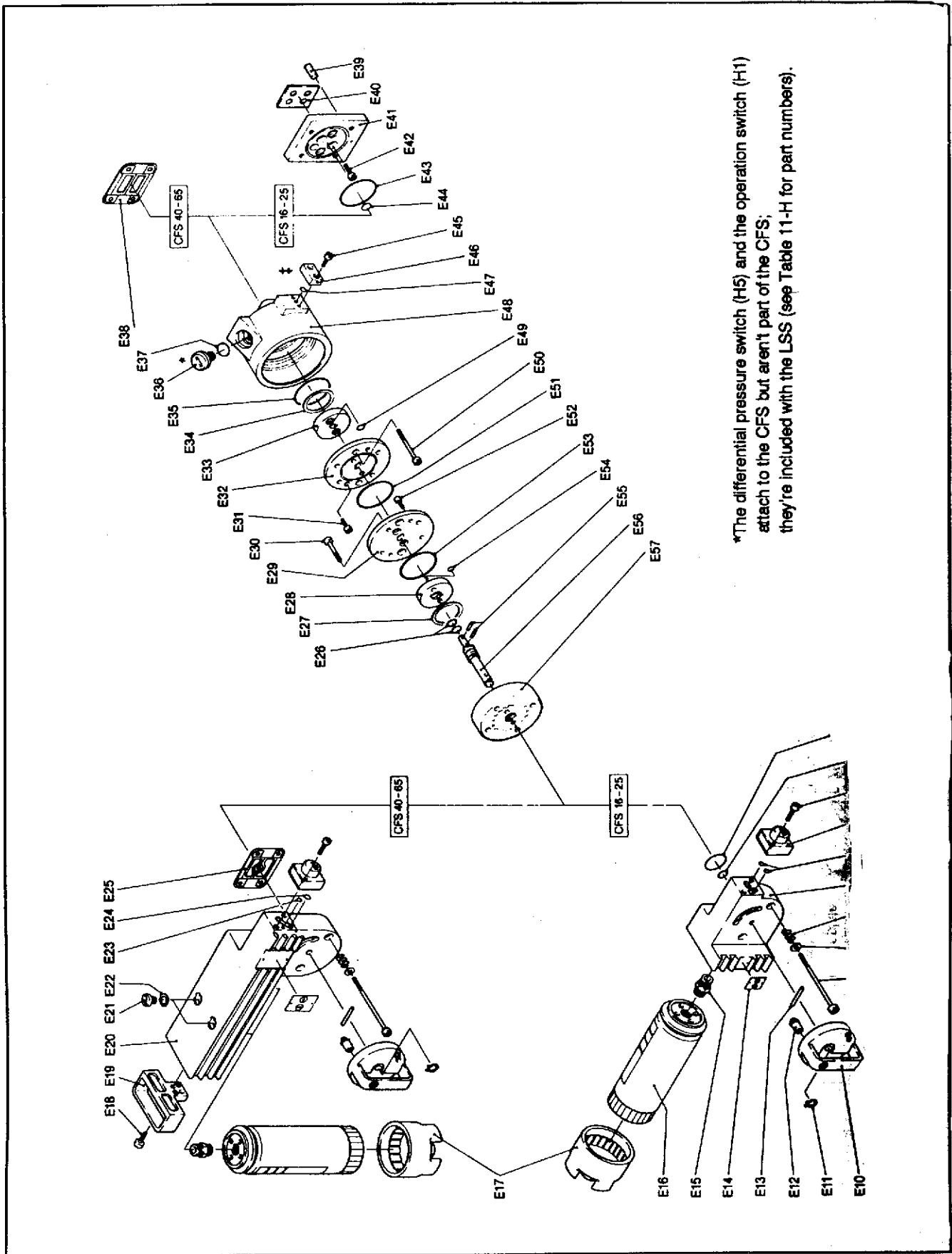
Table 11-D — Parts List for the TRIVAC BCS Pumping Module (see Figure 11-4)

Item No.	Quantity			Description	Dimensions (mm)	Material	Part Number	Remarks
	D16	D25	D40					
D29	1	1	1	Cover plate	D 75 x 0.5		200 09 211†	
D29a		1	1	Cover plate	D 104 x 1	Steel	200 09 212†	
	2	2		Felt washer	58 x 29 x 1	Felt	200 39 108†	For pump models with grease-lubricated shaft seals.
D30				Radial shaft seal	WDR 20 x 30 x 4.5	Viton	200 09 235**	
	2			Radial shaft seal	WDR 30 x 45 x 8	Viton	200 39 118††	For extreme-corrosive service pumps with PFPE grease-lubricated shaft seals. The PFPE grease P/N is 726-25-001.
D31	1	1	1	Inner radial shaft seal	WDR 30 x 40 x 7	Viton	239 53 007††	For standard pumps with hydrocarbon grease-lubricated shaft seals. The hydrocarbon grease P/N is 200-39-107.
	1	1	1	Outer radial shaft seal	WDR 30 x 42 x 6/5.5	Viton	200 39 115††	
D32	1	1	1	Pressed Disc	D 30 x 6.4	Steel	231 92 033†	
		1	1	0-ring	12 x 1.5	Viton	239 70 108††	
D33		1	1	0-ring	22 x 1.5	Viton	239 70 016††	
	1	1	1	Shaft bushing sleeve	15 x 20 x 13 EGS	Steel	231 92 026†	
		1	1	Shaft bushing sleeve	D 22 x 24	Steel	231 92 034†	
	1	1		Centering plate	D 76 x 11	Cast Iron	200 09 208†	
D34		1	1	Centering plate	D 106 x 22	Cast Iron	200 39 117††	For extreme-corrosive service pumps with PFPE grease-lubricated shaft seals.
	1	1	1	Centering plate	D 106 x 22	Cast Iron	200 39 110††	For standard pumps with hydrocarbon grease-lubricated shaft seals.
D35	1	1	1	0-ring	60 x 2	Viton	239 70 409††	
		1	1	0-ring	85 x 3	Viton	701 20 381††	
D36	1	1		Gear pump rotors	D 51 x 6.4	Type 6063	321 66 158†	
		1	1	Gear pump rotors	D 40 x 7.5	Type 6170	321 66 159†	
D37	1	1		Front end plate	119 x 149 x 35	Cast Iron	200 09 205†	
		1	1	Front end plate	192 x 166 x 34	Cast Iron	200 09 206†	
D38	2	2	2	Dowel pin	8 k4 x 32, DIN 7979		241 03 009†	
D39	1	1	1	Seal	D 8 x 6	Viton	239 73 146††	
D40	1	1	1	Split spring	D 18 x 1.5 x 29	Steel	221 61 040†	
D41	1	1	1	Oil-flow piston	D 20 x 31.5	Aluminum	321 06 152†	
D42	1	1	1	Flat gasket	D 23.8 x 0.5	AFM	200 10 734††	
D43	1	1	1	Cover disc	D 23.5 x 1	Steel	221 02 035†	
D44	1	1	1	Retainer ring	24 x 1.2, DIN 472		231 04 009†	
D45	1	1		Radial shaft seal	BA 20 x 30 x 7	Viton	239 53 004*†	For inside of front end plate
D46	3	3		Capscrew	M4 X 18, DIN 912		201 03 206†	
			3	Capscrew	M5 X 35, DIN 912		201 03 223†	See Figure 11-4.

\*Included in gasket set (see Table 11-A).

†Included in pumping module (see Table 11-A).

‡Pumps with serial numbers before L931300000 had oil-lubricated shaft seal. The part number of the D40/65 BCS oil-lubricated shaft seal is 239-53-007. If you want to switch to the new grease-lubricated design, use kit 200-39-116 for D40/65 BCS extreme-corrosive service pumps lubricated with PFPE oil; use kit 200-39-106 for D40/65 BCS pumps lubricated with hydrocarbon oil. The conversion kits include the shaft seals, grease, centering plate, shaft bushing sleeve, felt disk, and O-rings.



\*The differential pressure switch (H5) and the operation switch (H1) attach to the CFS but aren't part of the CFS; they're included with the LSS (see Table 11-H for part numbers).

Figure 11-5: CFS Oil Filter System (CFS 16/25 complete - P/N 10176, CFS 40/65 complete - P/N 10177-82)

Table 11-E — Parts List for the CFS-B2 Oil Filter\* (see Figure 11-5)

Item No.	Quantity		Description	Dimensions (mm)	Material	Part Number	Remarks
	16/25	40/65					
E1	1		O-ring	40 x 1.5	Viton	239 70 015†	
E2	1		O-ring	42 x 1.78	Viton	239 70 010†	
E3	2	2	Capscrew	M5 x 25	DIN 912	201 03 221	
E4	1	1	Oil-pressure meter	2.2 & 4 bar scales		200 09 803	Two scales displayed.
E5	2		O-ring	12 x 1.5	Viton	239 70 108†	
E6	1		Filter housing	92 x 98 x 143	Aluminum	200 09 799	
E7	1	1	Split spring	1 x 9 x 28	Steel	200 09 805	
			Split spring	1 x 11 x 30	Steel	200 09 794	
E8	2	2	Washer	A 6.4, DIN 125		221 01 103	
			Washer	A 8.4, DIN 125		221 01 106	
E9	2	2	Capscrew	M6 x 90, DIN 912		200 09 481	
			Capscrew	M8 x 125, DIN 912		201 03 722	
E10	1	1	Handle	D 98 x 50	Ultramid	200 09 758	
E11	1	1	Snap ring	12 x 1	Steel	231 03 101	
E12	1	1	Stop	D8 x 10		200 09 792	
E13	1	1	Dowel pin	5 x 40, DIN 7		241 03 173	
E14	1	1	Position-indicator label	24 x 31 x 0.8	Aluminum	200 09 484	
			Position-indicator label	37 x 45 x 0.8	Aluminum	200 09 403	
E15	1	1	Double-threaded nipple	M18 x 1.5	Steel	200 09 149	
			Double-threaded nipple	M24 x 1.5	Steel	200 09 160	
			Oil filter element:	10 bar			
E16	1	2	Combination filter*	1.6 ltr, 110 x 233	Al <sub>2</sub> O <sub>3</sub> & Fiberglass	18999	Three stripes.
			Particulate filter*	1.6 ltr, 110 x 233	Fiberglass	200 09 804	One wide stripe.
			Alumina filter*†	1 ltr, 93 x 210	Al <sub>2</sub> O <sub>3</sub>	18996	Two stripes.
E17	1	1	Filter removal tool	D 115/27 SW	Aluminum	200 09 800	For 1.6 ltr elements.
			Filter removal tool	D 102/27 SW		200 09 171	For 1 ltr elements.
E18	2	2	Capscrew	M6 x 16, DIN 912		201 03 102	
E19	1	1	Handle	100 x 50 x 40	Ultramid	200 09 757	
E20	1	1	Filter housing	99 x 152 x 323	Aluminum	200 09 762	
E21	2	2	Plugscrew	M16 x 1.5, DIN 908		201 27 105	
E22	2	2	Gasket Ring	15.1 x 22 x 2	Viton	239 55 165†	
E23	1	1	O-ring	2.57 x 1.78	Viton	239 74 102†	
E24	1	1	O-ring	24.8 x 1.5	Viton	239 70 102†	
E25	1	1	Flat gasket	62.5 x 88.5 x 0.5	AFM	200 10 755†	
E26	2	2	O-ring	9 x 2.5	Viton	239 70 103†	
			O-ring	14 x 2	Viton	239 70 414†	
E27	1	1	Ring-gasket	UAI 35.5 x 40 x 3	PTFE	200 09 483†	
			Ring-gasket	UAI 45.5 x 50 x 3	PTFE	200 09 400†	
E28	1	1	Valve rotor - filter side	D42 x 12, C15		200 09 795	
			Valve rotor - filter side	D54 x 14, C15		200 09 783	
E29	1	1	Valve plate - filter side	D82 x 6.5	Cast Iron 25	200 09 475	
			Valve plate - filter side	D100 x 8.5	Cast Iron 25	200 09 321	
E30	2	2	Capscrew	M 6 x 35, DIN 912		201 03 106	
			Capscrew	M 8 x 40, DIN 912		201 03 124	

\*See Figure 11-1 for the part number of the complete CFS filter assembly. If you have the B1 version of the CFS, see Edition B of this manual for replacement part numbers. The B1 version has a white valve handle as shown in Figure 11-1, and the B2 version has the black plastic valve handle as shown in Figure 11-5. The B1 version can use only the 1-liter elements; the B2 version can use either the 1.6-liter elements or the 1-liter elements.  
 †Included in the CFS gasket set. The P/N of the CFS 16/25 gasket set is 720-24-012; the P/N of the CFS 40/65 gasket set is 720-24-013.



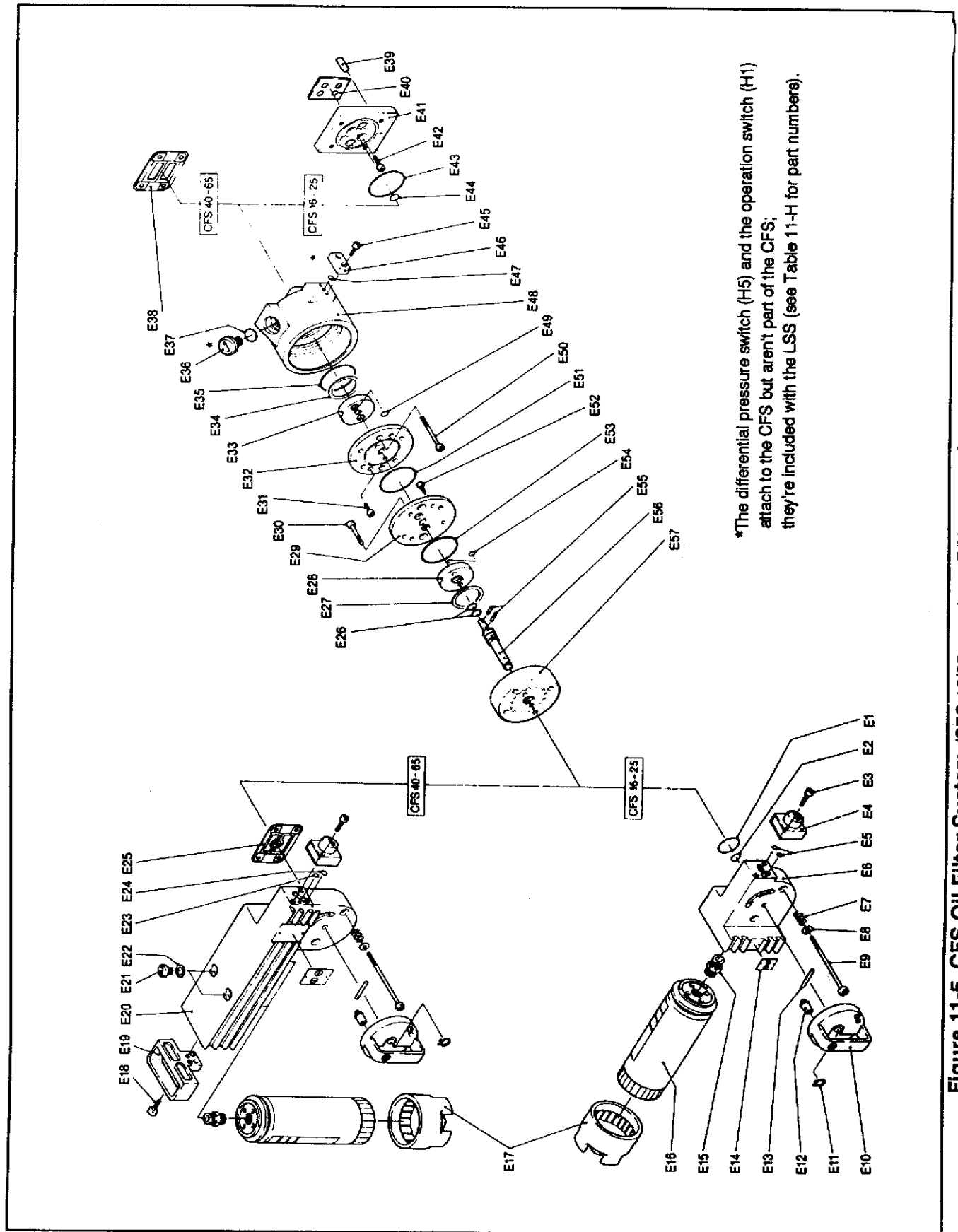


Figure 11-5. CFS Oil Filter System (CFS 16/25 complete - P/N 10176. CFS 40/65 complete - P/N 101 77-B2)

Table 11-E — Parts List for the CFS-B2 Oil Filter\* (see Figure 11-5)

Item No	Quantity		Description	Dimensions (mm)	Material	Part Number	Remarks
	16/25	40/65					
E31	4		Capscrew	M 4 x 8, DIN 912		201 03 202	
		4	Capscrew	M 4 x 10, DIN 912		201 03 203	
E32	1		Valve plate - pump side	D82 x 6.5	Cast Iron 25	200 09 653	
		1	Valve plate - pump side	D100 x 8.5	Cast Iron 25	200 09 654	
E33	1		Valve rotor, pump side	D42 x 12, C15		200 09 796	
		1	Valve rotor, pump side	D64 x 18, C15		200 09 793	
E34	1		Ring-gasket	UAI 35.5 x 40 x 3	PTFE	200 09 489†	
		1	Ring-gasket	UAI45.5 x 50 x 3	PTFE	200 09 400†	
E35	1		O-ring	45 x 2	Viton	239 70 434†	
		1	O-ring	58 x 2	Viton	200 09 402†	
E36	1		Screw bolt	M18 X 1.5 X 22	Steel	200 09 361	
E37	1		O-ring	D 29 x 3	Viton	239 70 117†	
E38	1		Flat gasket	62.5 x 88.5 x 0.5	AFM 37	200 10 746†	
E39	1		Capscrew	6 x 14, DIN 7		241 03 176	
E40	1		Flat gasket	40 x 27.5 x 2	Viton	200 10 319†	
E41	1		Adapter	75 x 66 x 16	Cast Iron 25	200 10 320†	
E42	2		Capscrew	M 6 x 20, DIN 912		201 03 103	
E43	1		O-ring	56 x 2	Viton	239 70 402†	
E44	2		Flat gasket	14.7 x 1.5	Viton	200 10 325	
E45	2		Capscrew	M 5 x 16, DIN 912		201 03 217	
E46	1		Guard	12 x 20 x 32	Steel	200 09 443	
E47	1		O-ring	4.2 x 1.9	Viton	239 70 224†	
E48	1		Valve housing	129 x 100 x 65	Cast Iron 25	200 09 480	
		1	Valve housing	139 x 121 x 93	Cast Iron 25	200 09 329	
E49	2		Ring-gasket	CAX 7.5 12 x 3	PTFE	200 09 482†	
		2	Ring-gasket	UAX 11.5 x 16 x 3	PTFE	200 09 401†	
E50	2		Capscrew	M 6 x 35, DIN 912		201 03 106	
		2	Capscrew	M 8 x 65, DIN 912		201 03 126	
E51	1		O-ring	43 x 3	Viton	200 09 660†	
		1	O-ring	55 x 3	Viton	239 70 121†	
E52	4		Capscrew	M 4 x 8, DIN 912		201 03 202	
		4	Capscrew	M 4 x 10, DIN 912		201 03 203	
E53	1		O-ring	45 x 2	Viton	239 70 434†	
		1	O-ring	58 x 2	Viton	200 09 402†	
E54	2		Ring-gasket	CAX 7.5 12 x 3	PTFE	200 09 482†	
		2	Ring-gasket	UAX 11.5 x 16 x 3	PTFE	200 09 401†	
E55	2		Pin	M6 x 12		200 09 497	
		2	Pin	M6 x 16		241 33 151	
E56	1		Valve stem	D 14 x 84	Steel	200 09 797	
		1	Valve stem	D 18 x 102	Steel	200 09 784	
E57	1		Flange	D 88 x 24	Cast Iron 25	200 09 798	
		1	Flange	D 108 x 30	Cast Iron 25	200 09 791	

\*See Figure 11-1 for the part number of the complete CFS filter assembly. If you have the B1 version of the CFS, see Edition B of this manual for replacement part numbers. The B1 version has a white valve handle as shown in Figure 11-1, and the B2 version has the black plastic valve handle as shown in Figure 11-5. The B1 version can use only the 1-liter elements; the B2 version can use either the 1.6-liter elements or the 1-liter elements.  
 †If your model has an O-ring rather than a gasket, replace both E40 & E41 with the new design.  
 ‡Included in the CFS gasket set. The P/N of the CFS 16/25 gasket set is 720-24-012; the P/N of the CFS 40/65 gasket set is 720-24-013.