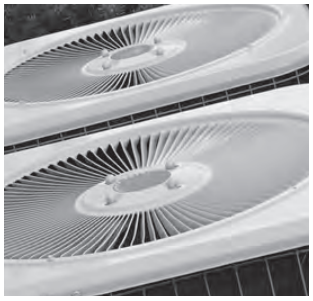
hymatik



aerospace
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Sporlan Replacement Parts

Bulletin 122, May 2019

Parker SPORLAN

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The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

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Bulletin 122, May 2019 supersedes Bulletin 122, November 2009 and all prior publications.

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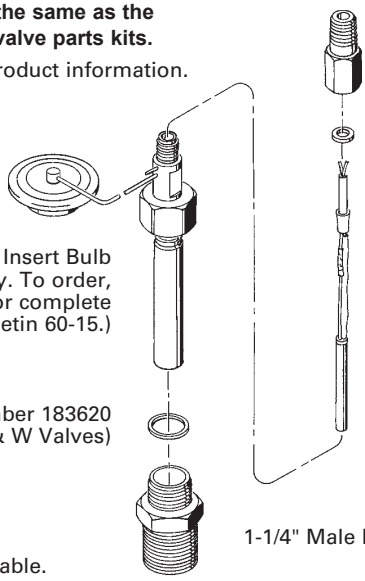
* Obsolete - Consult Bulletin 122, August 2001, available on-line at sporlan.com.

Level Master Control

LMC Valve Internal Parts Kits are the same as the standard thermostatic expansion valve parts kits.
See Bulletin 60-15 for additional product information.



1/2" Male Conduit Adapter*

Spacer*

2' Cord Length

Heater Assembly (consists of heater element, lead wire and protective thermostatic switch). All heater assemblies are supplied with the lock nut gasket, Item Number 183620. (To order, specify voltage and wattage.)

Thermostatic Element and Insert Bulb (supplied with heater assembly. To order, specify voltage and wattage. For complete element description, see Bulletin 60-15.)

Lock Nut Gasket, Item Number 183620 (H, M, P, V, & W Valves)

1-1/4" Male Pipe Adapter (Retainer)*

*Replacement part no longer available.

Thermostatic Expansion Valves

Flare and Solder Connections

THERMOSTATIC EXPANSION VALVE REPLACEMENT PARTS																			
ITEM NUMBER	PART NUMBER and DESCRIPTION DRAWINGS ON PAGES 4 thru 11			VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE															
				R	SR	ER	RC	F	EF	BF	EBF	SBF	G	EG	C	S	EBS	P	Small O	Large O
183019	772-000	Inlet Strainer	1/4" SAE										1							
183015	3008-000			1				1		1										
183017	1538-000		3/8" SAE	1				1		1			1							
183023	588-000														1					
183025	589-000		1/2" SAE												1					
183024	590-000		5/8" SAE												1					
183026	1524-000		3/8" ODF			1			1											
183378	1935-000 *													1						
183002	3427-000 **				1							1		1						
908014	877-003						1				1									
183020	1543-002		1/4" ODF			1			1											
908012	877-004		1/2" ODF			1	1		1								1			
908009	877-005		5/8" ODF			1											1			
183880	220-000	Seal Cap																1		1
183884	20326-000‡												1	1	1	1	1		1	
183888	1053-000 ***			1	1	1	1	1	1	1	1	1								
183606	621-017	Seal Cap Gasket																1		1
—	†	Spring		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
183092	2113-000	Spring Guide																	1	
183094	413-000												1	1	1	1	1			
183098	213-000																	1		1
183422	128-001	Pushrod Packing Nut																2		
183421	124-000	Pushrod Packing																2		

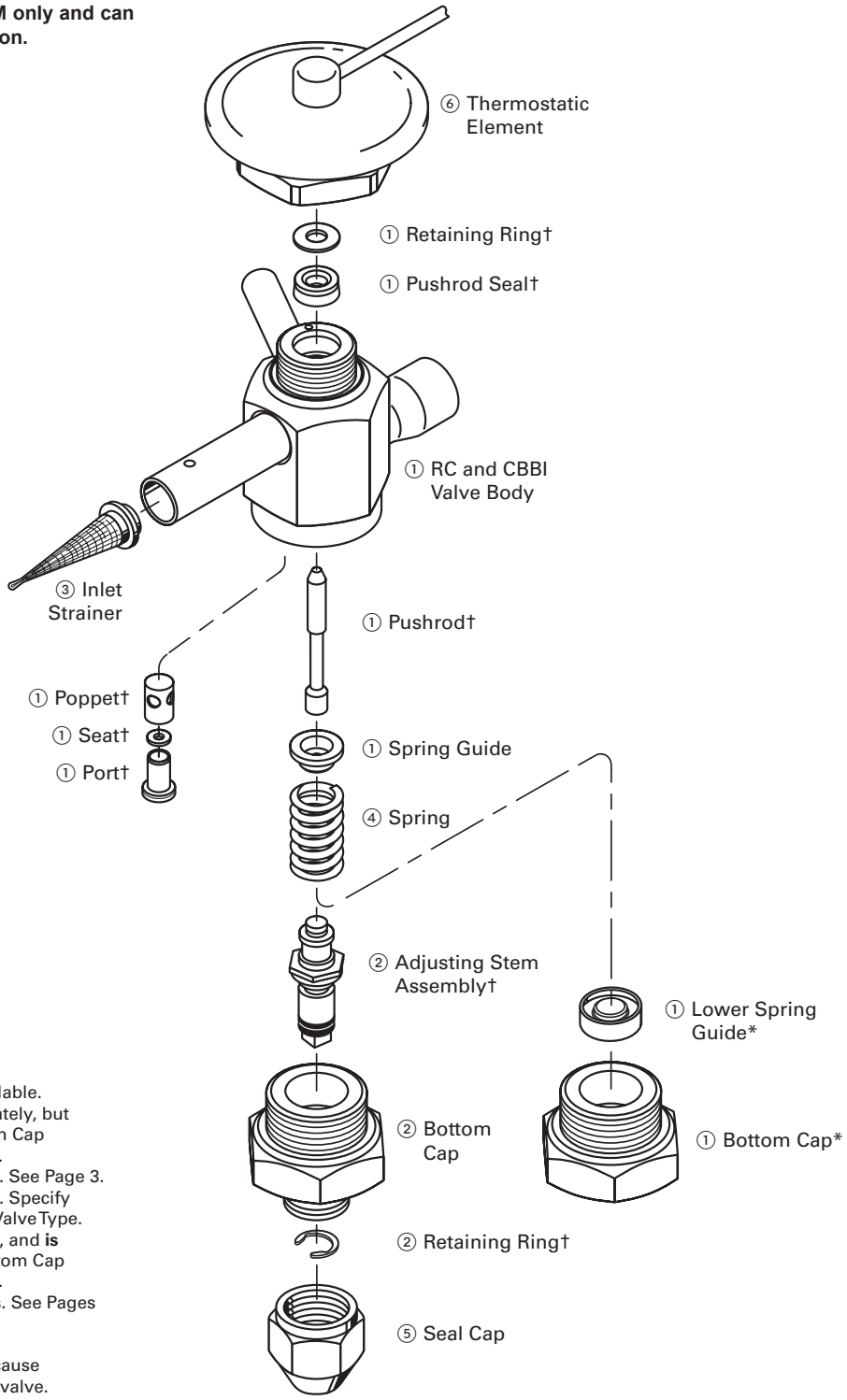
† Specify thermostatic charge and valve type.
‡ 20326-000 replaces obsolete part number 420-000.
* Used on Type EG Valves manufactured prior to date code 2294. Strainer has 1/2" hex head.
** Used on Type EG Valves manufactured on and after date code 2294, and all Type SBF Valves. Strainer has 5/8" hex head. Strainers manufactured prior to 2003 may be shorter in length than current strainer. The current strainer will fit in these valves, but removal of the thermostatic element may be necessary. See page 22, Strainer Modifications, for more information.
*** Same item as part number 20325-000. Use item number 183888 for replacement.

Thermostatic Expansion Valves

Types RC and CBBI*

See Parts Table on Page 3

Type CBBI valves are OEM only and can have any fitting combination.



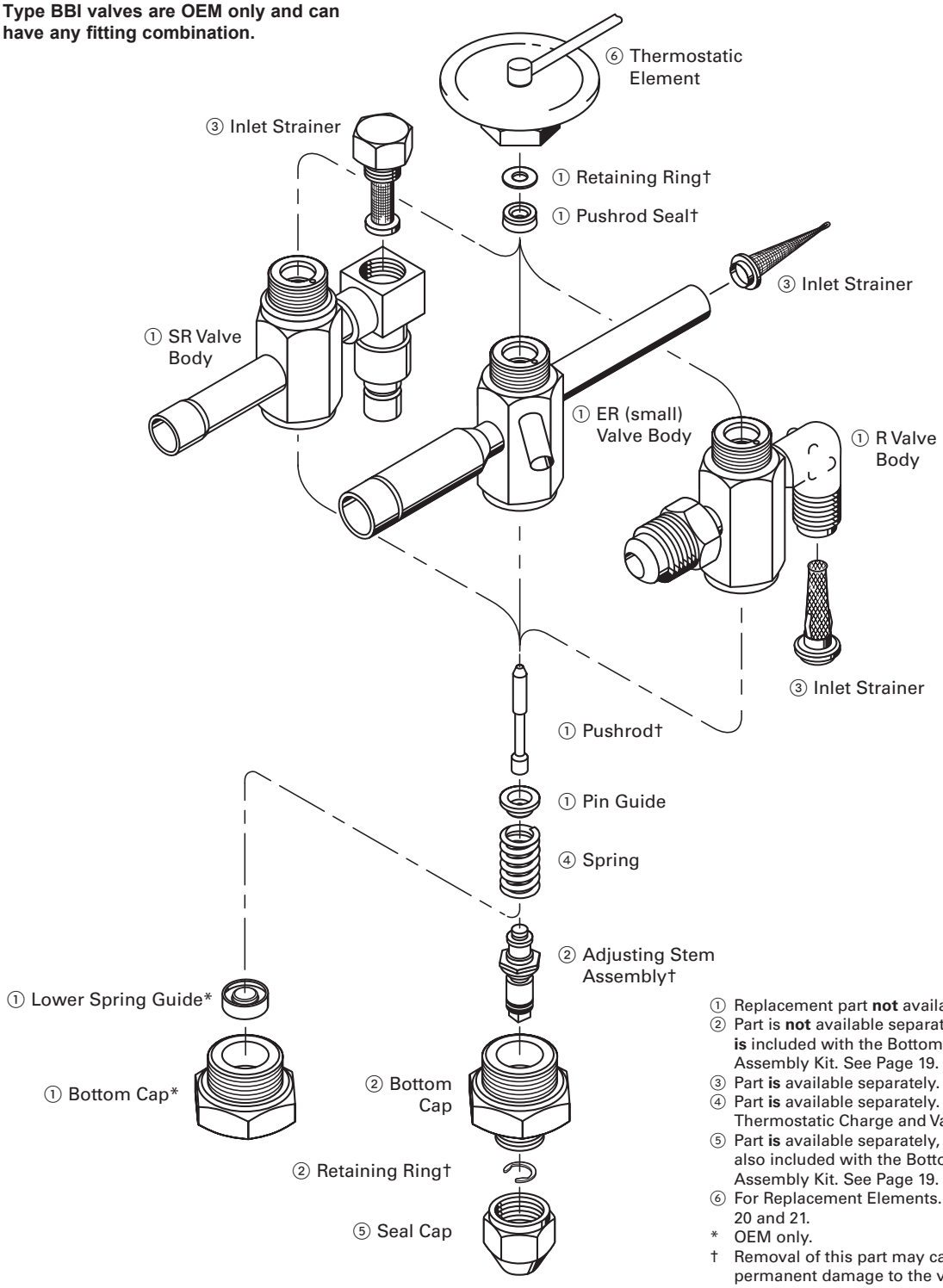
① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
③ Part **is** available separately. See Page 3.
④ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑤ Part **is** available separately, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑥ For Replacement Elements. See Pages 20 and 21.
* OEM only.
† Removal of this part may cause permanent damage to the valve.

Thermostatic Expansion Valves

Types R, SR, ER and BBI*

See Parts Table on Page 3

Type BBI valves are OEM only and can have any fitting combination.

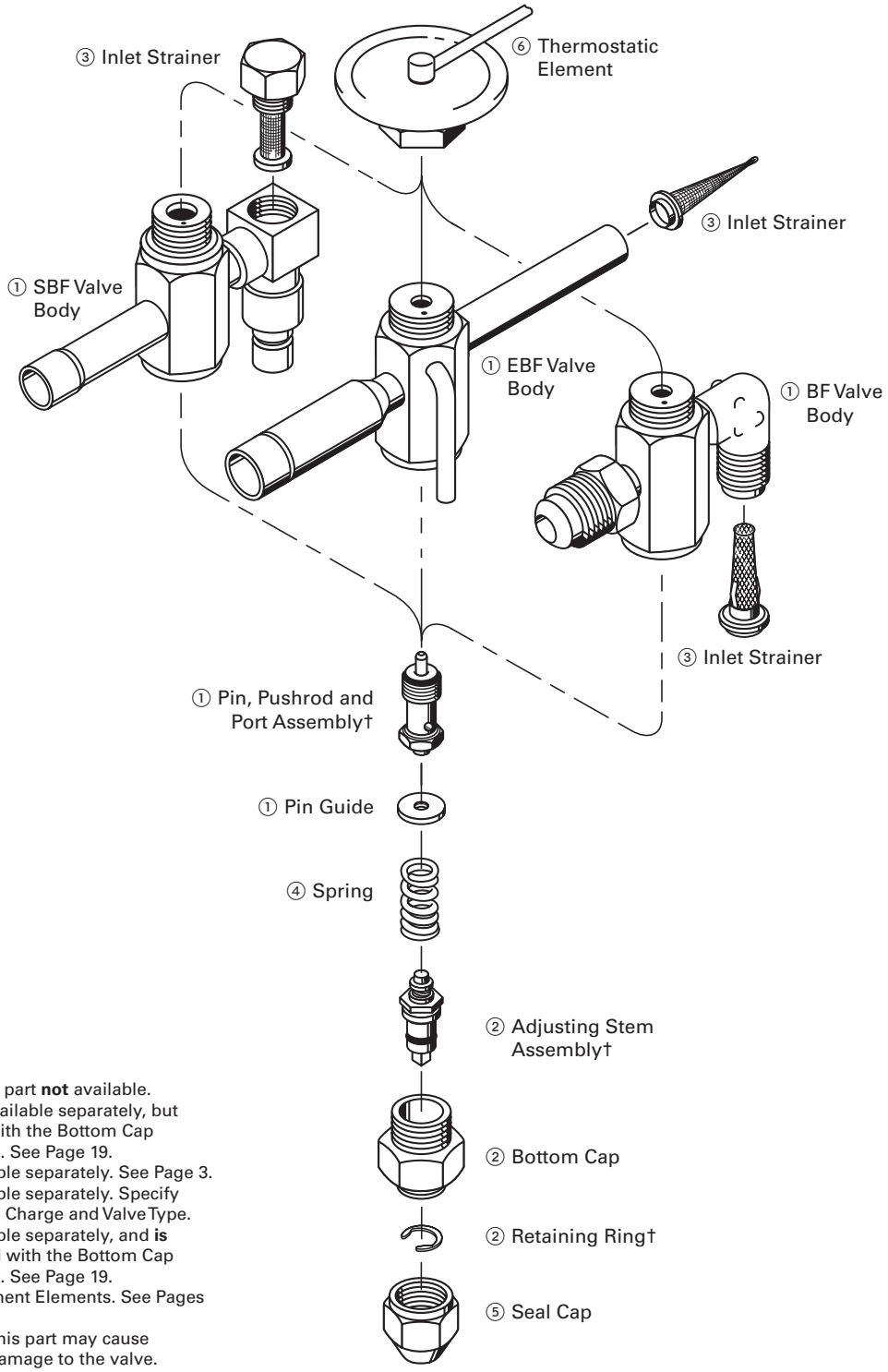


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
③ Part **is** available separately. See Page 3.
④ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑤ Part **is** available separately, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑥ For Replacement Elements. See Pages 20 and 21.
* OEM only.
† Removal of this part may cause permanent damage to the valve.

Thermostatic Expansion Valves

Types BF, SBF and EBF

See Parts Table on Page 3

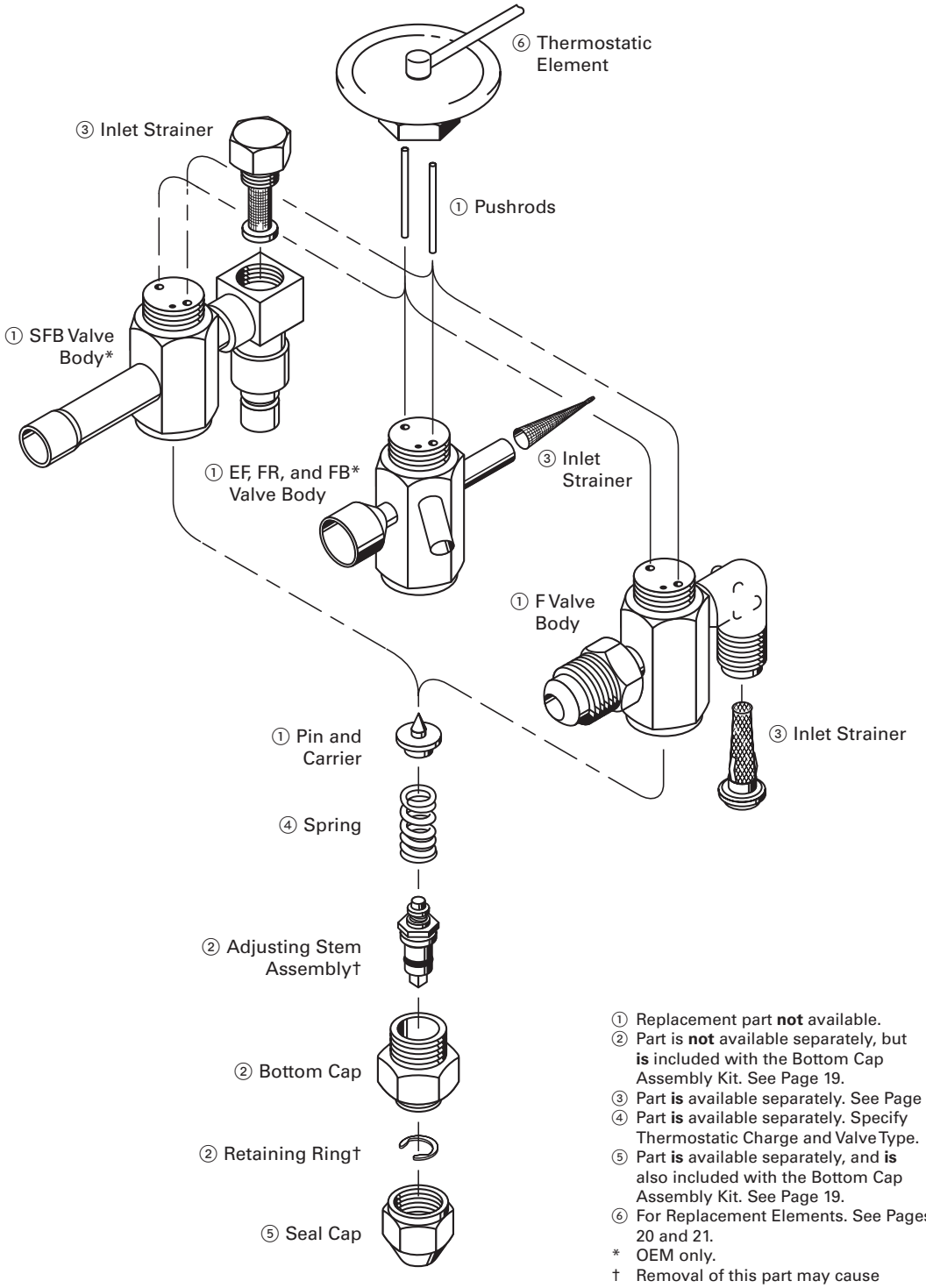


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
③ Part **is** available separately. See Page 3.
④ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑤ Part **is** available separately, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑥ For Replacement Elements. See Pages 20 and 21.
† Removal of this part may cause permanent damage to the valve.

Thermostatic Expansion Valves

Types F, EF, FB* and SFB*

See Parts Table on Page 3

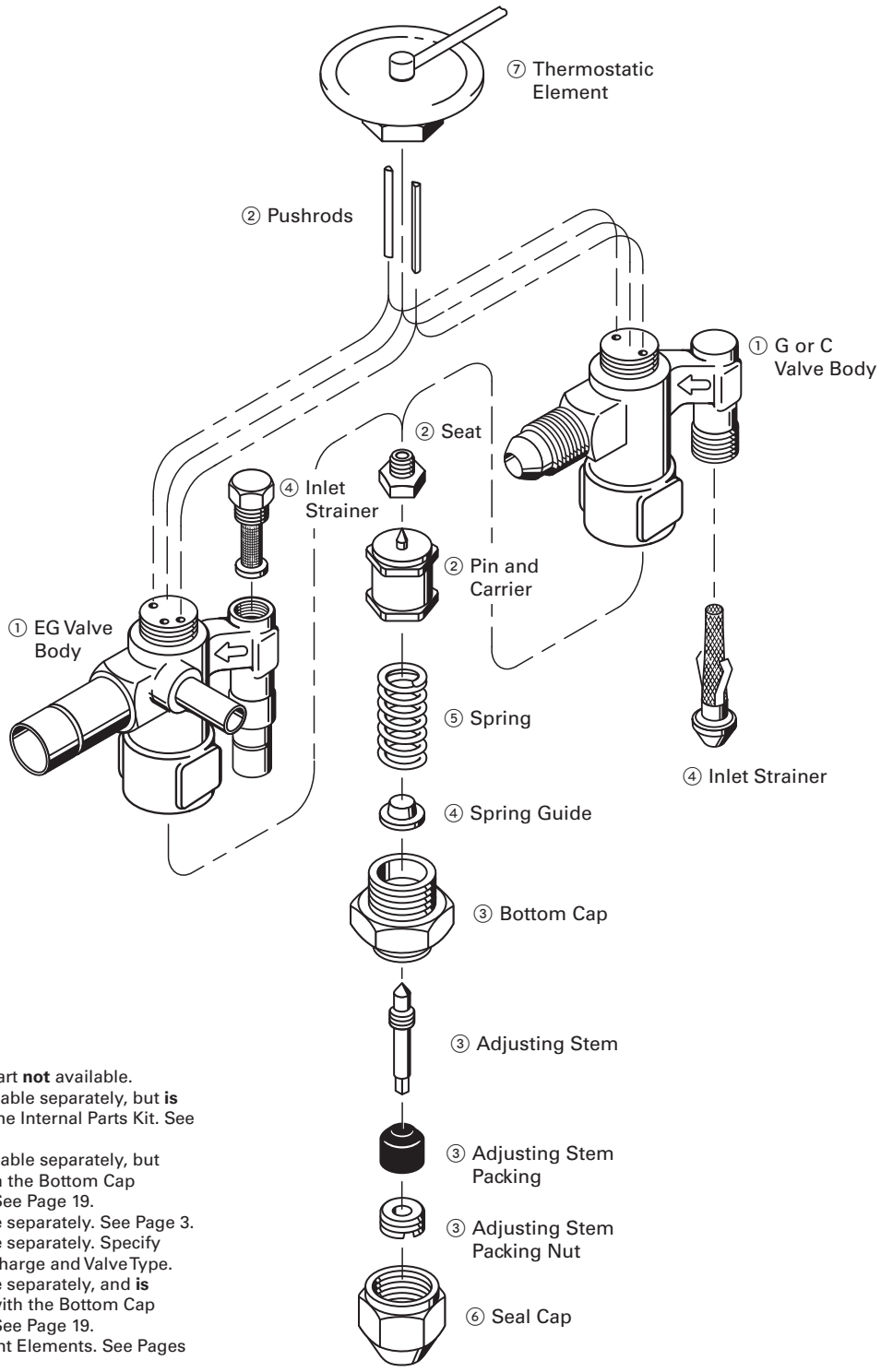


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
③ Part **is** available separately. See Page 3.
④ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑤ Part **is** available separately, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑥ For Replacement Elements. See Pages 20 and 21.
* OEM only.
† Removal of this part may cause permanent damage to the valve.

Thermostatic Expansion Valves

Types EG, G and C

See Parts Table on Page 3

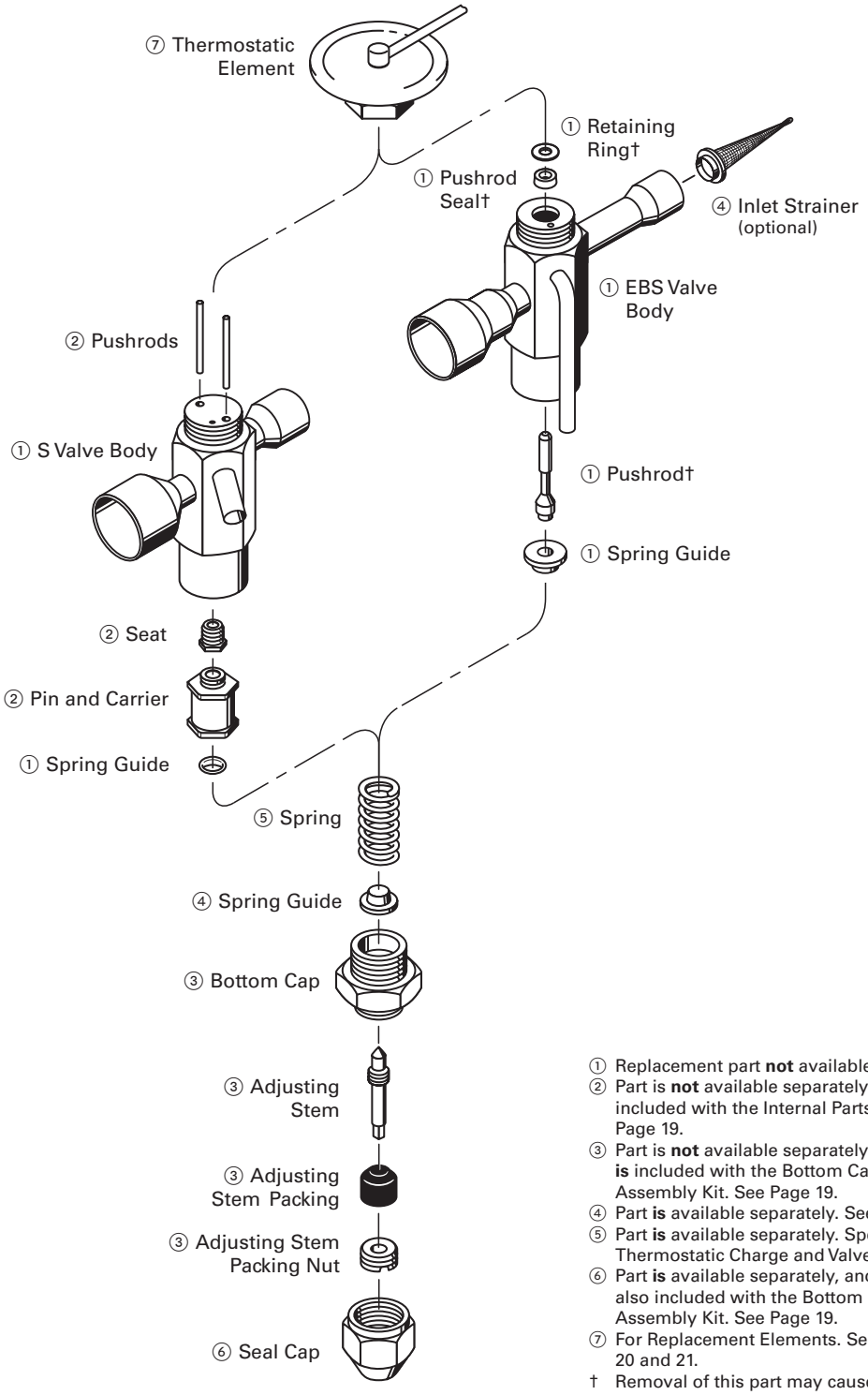


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Internal Parts Kit. See Page 19.
③ Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
④ Part **is** available separately. See Page 3.
⑤ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑥ Part **is** available separately, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑦ For Replacement Elements. See Pages 20 and 21.

Thermostatic Expansion Valves

Types S and EBS

See Parts Table on Page 3

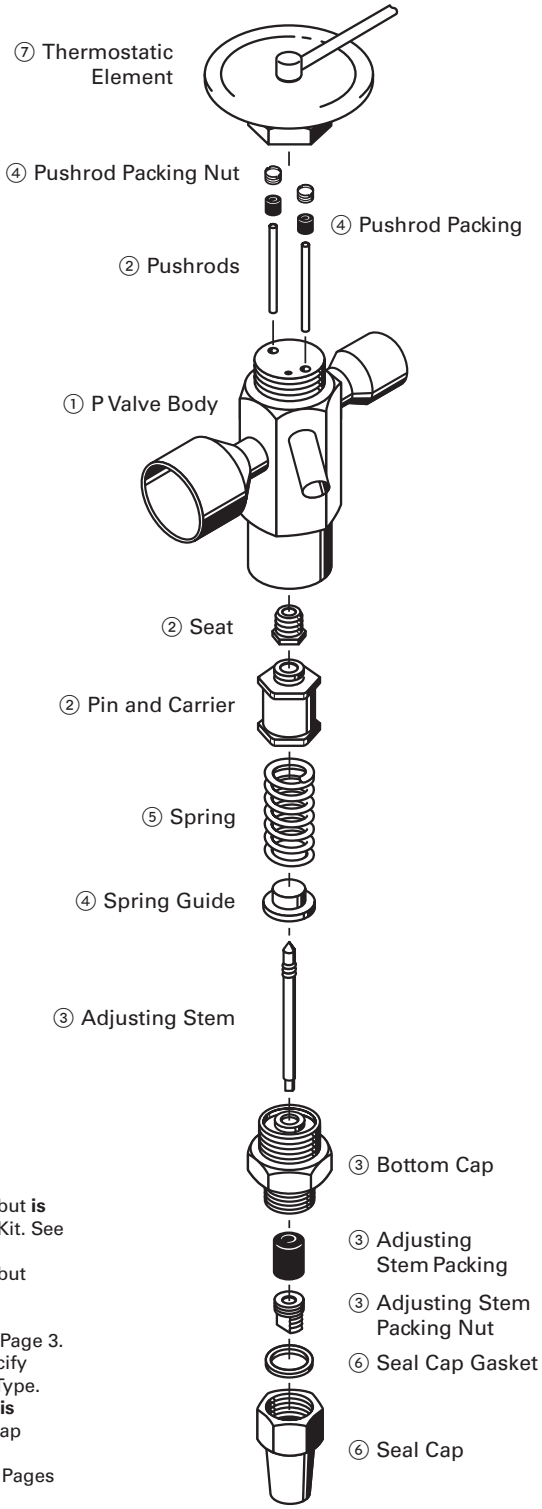


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Internal Parts Kit. See Page 19.
③ Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
④ Part **is** available separately. See Page 3.
⑤ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑥ Part **is** available separately, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑦ For Replacement Elements. See Pages 20 and 21.
† Removal of this part may cause permanent damage to the valve.

Thermostatic Expansion Valves

Type P

See Parts Table on Page 3

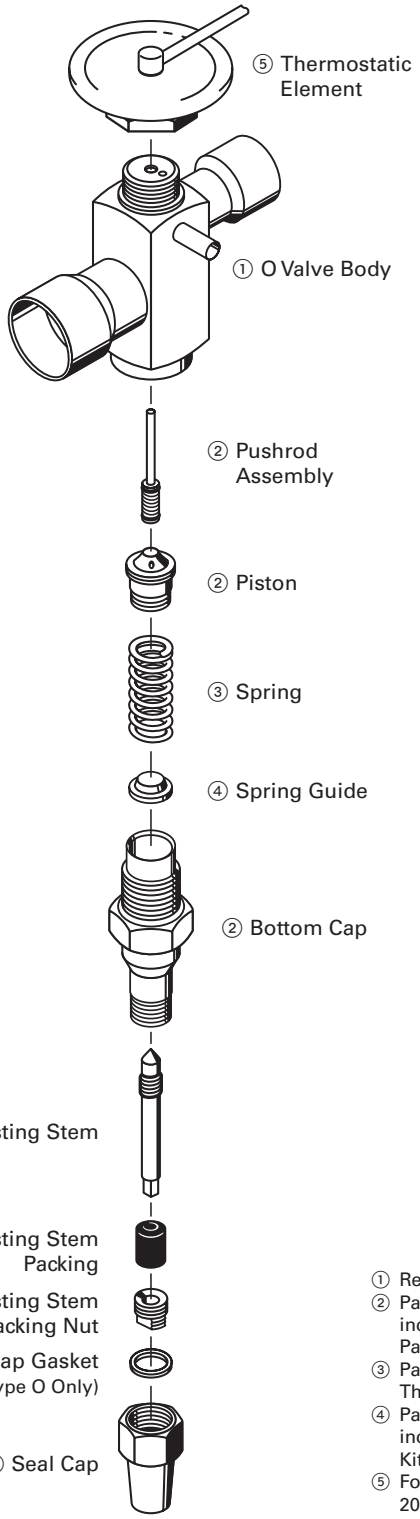


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Internal Parts Kit. See Page 19.
③ Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
④ Part **is** available separately. See Page 3.
⑤ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑥ Part **is** available separately, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑦ For Replacement Elements. See Pages 20 and 21.

Thermostatic Expansion Valves

Type O (small and large)

See Parts Table on Page 3



① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Internal Parts Kit. See Page 19.
③ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
④ Part **is** available separately, and **is** also included with the Internal Valve Parts Kit. See Page 19.
⑤ For Replacement Elements. See Pages 20 and 21.

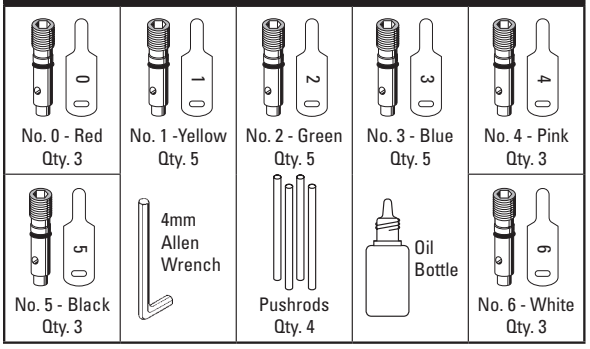
Thermostatic Expansion Valves

Types Q and BQ

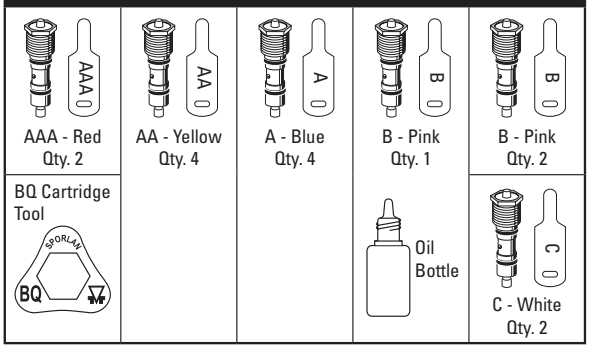
Q CARTRIDGE SERVICE KIT PARTS				BQ CARTRIDGE SERVICE KIT PARTS			
ITEM NUMBER	**PART NUMBER**	**SIZE**	**COLOR CODE**	**ITEM NUMBER**	**PART NUMBER**	**SIZE**	**COLOR CODE**
CARTRIDGE AND I.D. TAG*				**CARTRIDGE AND I.D. TAG***			
168070	QC-0	0	Red	168303	BQC-AAA	AAA	Red
168072	QC-1	1	Yellow	168304	BQC-AA	AA	Yellow
168074	QC-2	2	Green	168306	BQC-A	A	Blue
168076	QC-3	3	Blue	168307	BQC-B	B	Pink
168078	QC-4	4	Pink	168308	BQC-C	C	White
168080	QC-5	5	Black	168701	BQC-AA-B15	AA	Yellow
168082	QC-6	6	White	168702	BQC-A-B15	A	Blue
				168703	BQC-B-B15	B	Pink
				168704	BQC-C-B15	C	White
MISCELLANEOUS PARTS				**MISCELLANEOUS PARTS**			
184001	OB-1	Oil Bottle (With Oil)		184001	OB-1	Oil Bottle (With Oil)	
184002	AW-1	4 mm Allen Wrench		184008	4444-000	BQ Cartridge Tool	
184003	CSK-1	Q Cartridge Service Kit (Empty)		184010	BCSK-1	BQ Cartridge Service Kit (Empty)	
183012	2384-000	(4) Pushrods		958147	4508-010	Cartridge O-Ring (Cartridge Requires 2 O-Rings)	
184004	791-001	Cartridge O-Ring					

* The ID tag is included with each cartridge.
Each cartridge size is available only in multiples of 5.

Q CARTRIDGE SERVICE KIT (ITEM NO. 184000)



BQ CARTRIDGE SERVICE KIT (ITEM NO. 184007)



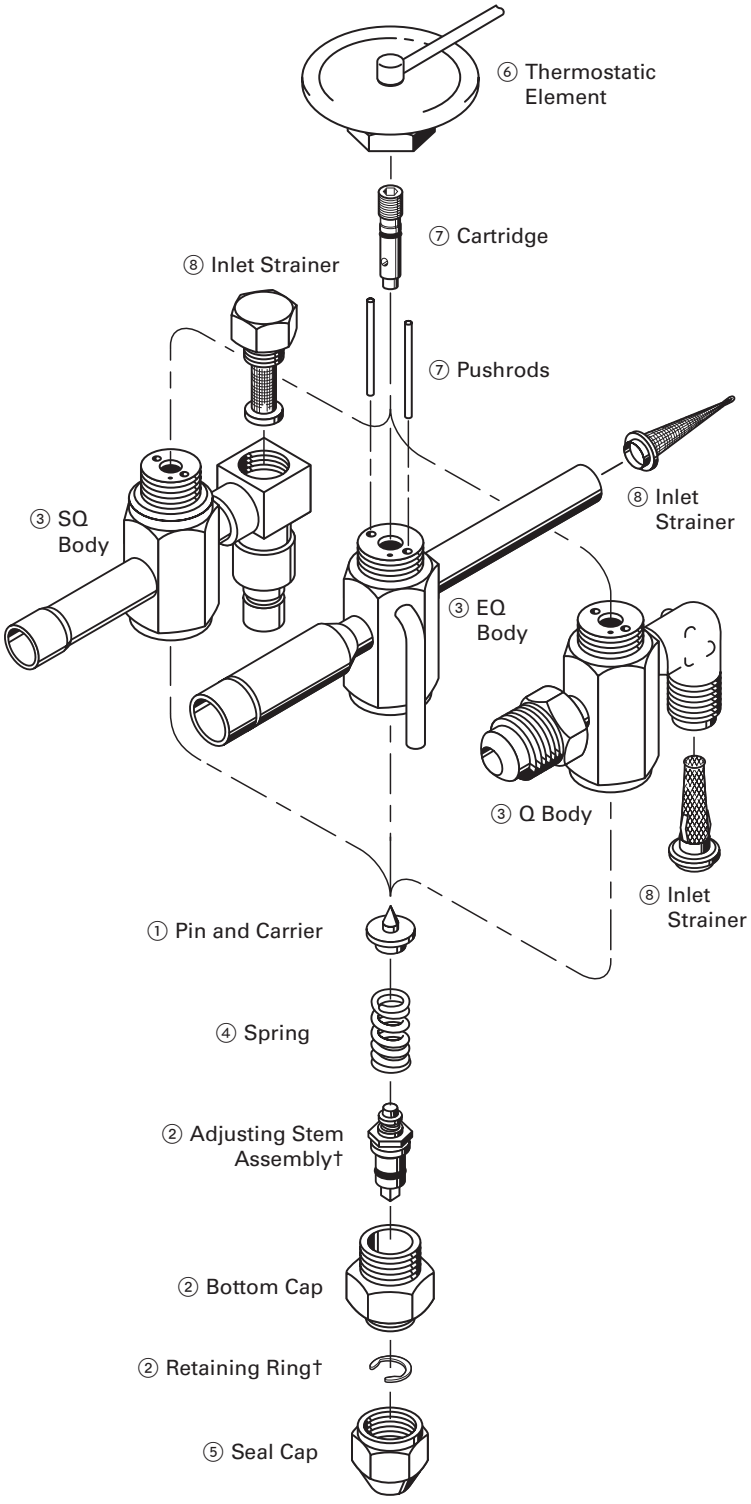
Q and BQ REPLACEMENT PARTS									
ITEM NUMBER	**PART NUMBER**	**PART DESCRIPTION DRAWINGS ON PAGES 13 and 14****		**VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE**					
				Q	**SQ**	**EQ**	**BQ**	**SBQ**	**EBQ**
183015	3008-000	Inlet Strainer	1/4" SAE	1			1		
183017	1538-000		3/8" SAE	1			1		
183002	3427-000		3/8" ODF		1			1	
908014	877-003					1			1
908012	877-004		1/2" ODF						1
183888	20325-000***	Seal Cap		1	1	1	1	1	1
—	†	Spring		1	1	1	1	1	1

† Specify Thermostatic Charge and Valve Type.
** See Page 19 for Bottom Cap Assembly Kit.
*** Part number 20325-000 has replaced part number 1053-000.

Thermostatic Expansion Valves

Types Q, SQ and EQ

See Parts Table on Page 12



Q VALVE BODY		
VALVE TYPE	STANDARD CONNECTIONS Inches Inlet x Outlet	ITEM NUMBER
Q Internally Equalized	3/8" x 1/2" SAE	168000
	1/4" x 1/2" SAE	168011
	1/2" x 3/8" SAE	168012
QE Externally Equalized	1/4" x 3/8" x 1/4" SAE	168017
	1/4" x 1/2" X 1/4" SAE	168016
	3/8" x 1/2" x 1/4" SAE	168005
SQ Internally Equalized	1/4" x 1/2" ODF	168009
	3/8" x 1/2" ODF	168010
SQE Externally Equalized	1/4" x 3/8" x 1/4" ODF	168034
	1/4" x 1/2" x 1/4" ODF	168014
	3/8" x 1/2" x 1/4" ODF	168015
EQ* Internally Equalized	1/4" x 3/8" ODF	168029
	1/4" x 1/2" ODF	168030
	3/8" x 3/8" ODF	168196
	3/8" x 1/2" ODF	168144
	3/8" Elbow x 1/3" ODF	168007
	3/8" x 5/8" ODF	168164
	1/2" x 5/8" ODF	168153
EQE* Externally Equalized	1/4" x 3/8" x 1/4" ODF	168031
	1/4" x 1/2" x 1/4" ODF	168032
	3/8" x 1/2" x 1/4" ODF	168150
	3/8"Elbow x 1/2" x 1/4" ODF	168018
	3/8" x 5/8" x 1/4" ODF	168156
	1/2" x 5/8" x 1/4" ODF	168151
	1/2" x 7/8" x 1/4" ODF	168152

* The straight extended connections of the EQ body series are designed for easy installation on air conditioning applications. The longer connections and resulting body configurations do not allow it to be packaged in the Q Carrying Case. All EQ and EQE bodies are supplied with an inlet strainer: Item No. 908014, P/N 877-003 (3/8 ODF) or Item No. 908012, P/N 877-004 (1/2 ODF).

① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit, See Page 19.
③ Part **is** available separately. See Table on this Page.
④ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑤ Part **is** available separately, see Table on Page 12, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑥ For Replacement Elements. See Pages 20 and 21.
⑦ Part **is** available separately, and **is** also included with the Cartridge Service Kit. See Page 12.
⑧ Part **is** available separately. See Table on Page 12.
† Removal of this part may cause permanent damage to the valve.

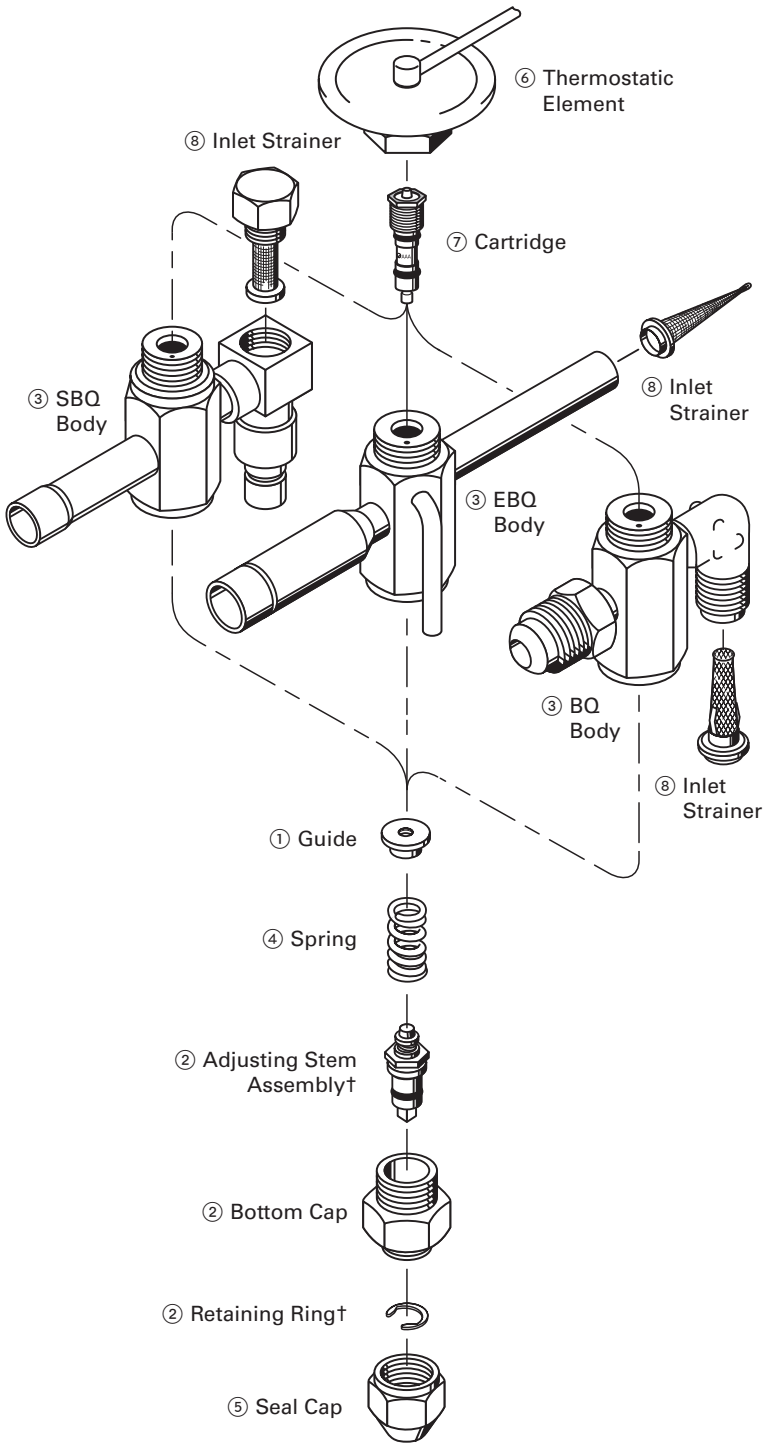
Thermostatic Expansion Valves

Types BQ, SBQ and EBQ

See Parts Table on Page 12

BQ VALVE BODY		
VALVE TYPE	STANDARD CONNECTIONS Inches Inlet x Outlet	ITEM NUMBER
BQ Internally Equalized	1/4" x 3/8" SAE	168192
	1/4" x 1/2" SAE	168191
	3/8" x 1/2" SAE	168190
BQE Externally Equalized	1/4" x 3/8" x 1/4" SAE	168185
	1/4" x 1/2" X 1/4" SAE	168184
	3/8" x 1/2" x 1/4" SAE	168183
SBQ Internally Equalized	3/8" x 1/2" ODF	168193
SBQE Externally Equalized	3/8" x 1/2" x 1/4" ODF	168198
EBQ* Internally Equalized	1/4" x 3/8" ODF	168033
	1/4" x 1/2" ODF	168051
	3/8" x 1/2" ODF	168194
	3/8" x 5/8" ODF	168313
	1/2" x 5/8" ODF	168314
EBQE* Externally Equalized	1/4" x 3/8" x 1/4" ODF	168035
	1/4" x 1/2" x 1/4" ODF	168051
	3/8" x 1/2" x 1/4" ODF	168186
	3/8" x 5/8" x 1/4" ODF	168189
	1/2" x 5/8" x 1/4" ODF	168187
	1/2" x 7/8" x 1/4" ODF	168188

* The straight extended connections of the EBQ body series are designed for easy installation on air conditioning applications. The longer connections and resulting body configurations do not allow it to be packaged in the BQ Carrying Case. All EBQ and EBQE bodies are supplied with an inlet strainer; Item No. 908014, P/N 877-003 (3/8 ODF) or Item No. 908012, P/N 877-004 (1/2 ODF).



① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
③ Part **is** available separately. See Table on this Page.
④ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑤ Part **is** available separately, see Table on Page 12, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑥ For Replacement Elements. See Pages 20 and 21.
⑦ Part **is** available separately, and **is** also included with the Cartridge Service Kit. See Page 12.
⑧ Part **is** available separately. See Table on Page 12.
† Removal of this part may cause permanent damage to the valve.

Thermostatic Expansion Valves

Flanged

THERMOSTATIC EXPANSION VALVE REPLACEMENT PARTS									
ITEM NUMBER	PART NUMBER and DESCRIPTION DRAWINGS ON PAGES 17 and 18			VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE					
				H	M	V	W	A†	D†
**** †	106-001	Bottom Cap Gasket						1	1
183620	123-002				1	1			
183625	123-005						1		
183890 †	358-000	Bottom Cap Locknut			1	1		1	
****	958-000						1		
183620	123-002	Bushing Gasket		2	**	**			
183750	123-000				2	2			
184930 †	108-000	Discharge Tube	A - 1/8" (20T)					1	
184932 †	108-001		A - 5/32" (30T)					1	
184934 †	108-002		A - 3/16" (50T)					1	
184920 †	208-001		D - 1/32" (1T)						1
184922 †	208-002		D - 1/16" (2T)						1
184924 †	208-000		D - 5/64" (5T)						1
184926 †	208-003		D - 7/64" (10T)						1
184928 †	208-004		D - 5/32" (15T)						1
**** †	139-000	Element Cap Screw						2	
**** †	106-000	Element Gasket						1	
183635	123-001				1	1	1		
**** †	106-002								1
183745 †	106-003	Flange Gasket						2	
183746 †	106-004								2
183765	123-004						2		
****	578-000	Inlet Strainer Ring		1					
183879 †	224-000								1*
**** †	124-000							1*	
****	226-000	Inlet Strainer Screen		1					
183034 †	1471-000	Inlet Strainer Screen Assy.						1	
183029	763-000				1	1			
****	735-000						1		
183032 †	3777-000	Inlet Strainer Screen Assy.	1 and 2 TON						1
183033 †	3777-001	Inlet Strainer Screen Assy.	5, 10, 15 TON						1
183030	961-000	Inlet Strainer Screen Retainer					1		
183450	360-000	Pipe Flange (Female)	1/2" FPT		1 or 2	1 or 2			
183452	360-001		3/4" FPT		1 or 2	1 or 2			
183454	362-000		1" FPT		1 or 2	1 or 2			
183456 †	374-000	Pipe Flange (Male)	1/2" FPT					1 or 2	
183458 †	374-001		3/4" FPT					1 or 2	
183460 †	375-000		1" FPT					1 or 2	
183468 †	225-000		1/4" FPT	1 or 2***					2
183470 †	225-001		3/8" FPT	1 or 2***					2
183472 †	225-002		1/2" FPT	1 or 2***					2

† For industrial refrigeration and R-717 applications, please contact Sporlan Division - Refrigeration Business Unit at (708) 681-6300.
* Used in place of inlet strainer screen when external strainer is used with the valve.
** M and V valves use wolverine style bushing gaskets which are not compatible with ammonia. The gaskets used on the A valve and the MA17 solenoid valve are very similar to the M and V valve bushing gaskets; however this material is compatible with Ammonia.
*** Can be added to Type "H" valve with adaptor kit number K-1178.
**** Not available.

(Table Continues on Page 16)

Thermostatic Expansion Valves
Flanged

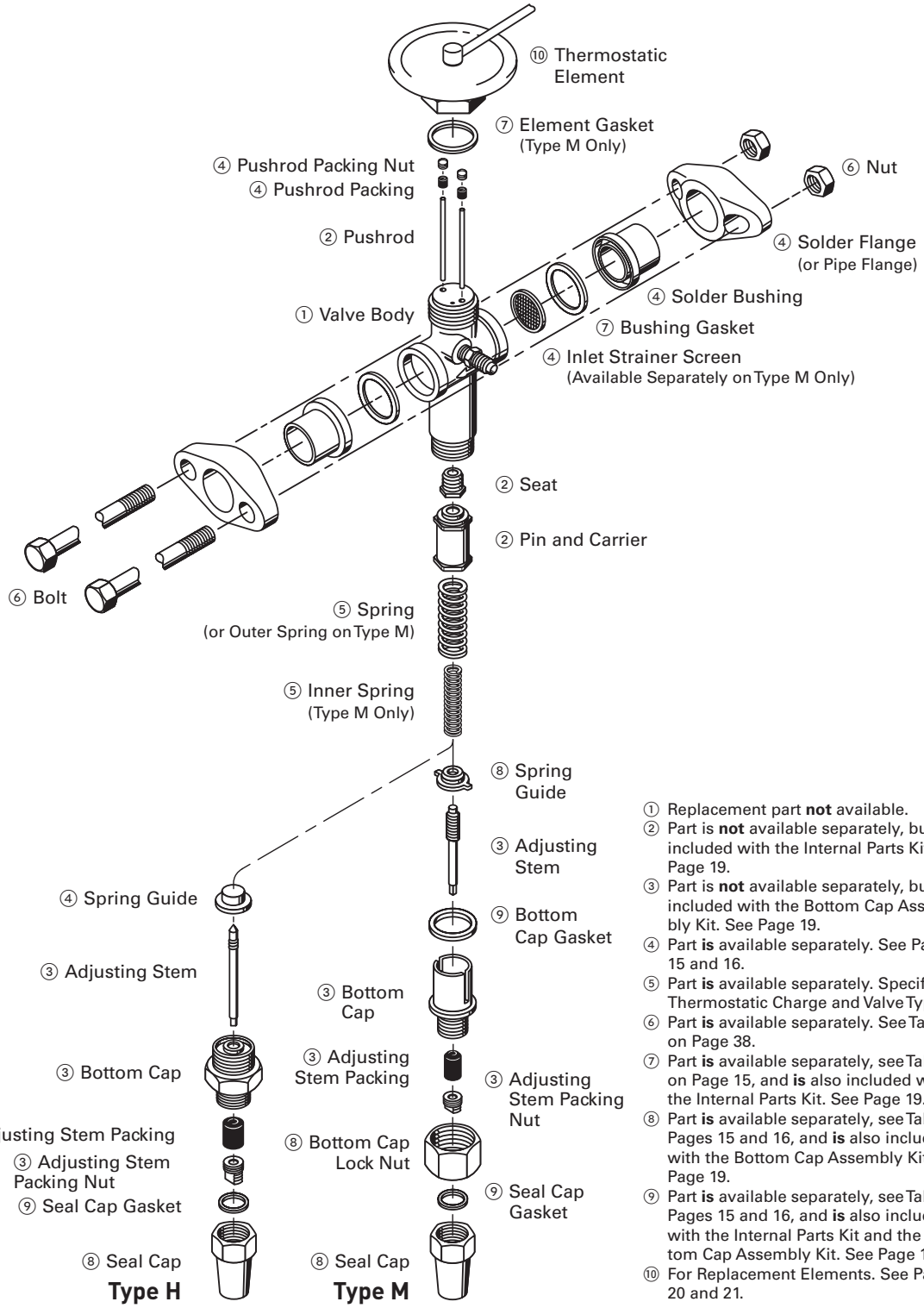
THERMOSTATIC EXPANSION VALVE REPLACEMENT PARTS									
ITEM NUMBER	PART NUMBER and DESCRIPTION DRAWINGS ON PAGES 17 and 18			VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE					
				H	M	V	W	A†	D†
183044	3123-000	Socket Flange (Female)	1/2" Socket Weld		1 or 2	1 or 2			
183561	376-000		3/4" Socket Weld		1 or 2	1 or 2			
183046	3146-000		1" Socket Weld		1 or 2	1 or 2			
183558 †‡	580-000	Socket Flange (Male)	1/2" Socket Weld	1 or 2					1 or 2
183040 †	3122-000		1/2" Socket Weld					1 or 2	
183560 †	377-000		3/4" Socket Weld					1 or 2	
183042 †	3147-000		1" Socket Weld					1 or 2	
183421	129-000	Pushrod Packing		2	2			2	2
183423	729-000					1			
183425	737-000						1		
**** †	128-000	Pushrod Packing Nut						2	2
183422	128-001			2	2				
183424	728-000					1			
183426	736-000						1		
183880	220-000	Seal Cap		1					
183882 †	220-001				1	1		1	1
183886	720-000						1		
183606	621-017	Seal Cap O-Ring		1					
183104	123-003	Seal Cap Gasket					1		
183825 †	106-005			1**	1	1		1	1
183036	574-001	Solder Bushing	1/2" ODF	1 or 2					
183037	574-002		5/8" ODF	1 or 2					
183047	367-001		7/8" ODF		1 or 2	1 or 2			
183039	574-004		7/8" ODF	1 or 2					
183049	368-000		1-1/8" ODF		1 or 2	1 or 2			
183041	575-000		1-1/8" ODF	1 or 2					
183053	368-001		1-3/8" ODF		1 or 2	1 or 2			
183055	370-000		1-5/8" ODF		1 or 2	1 or 2			
183057	576-000	Solder Flange	3/8" thru 7/8" ODF	1 or 2					
183061	361-000		7/8" ODF		1 or 2	1 or 2			
183063	361-001		1-1/8" ODF		1 or 2	1 or 2			
183059	577-000		1-1/8" ODF	1 or 2					
183069	742-000		1-1/8" ODF*				1 or 2		
183065	363-000		1-3/8" ODF		1 or 2	1 or 2			
183071	742-001		1-3/8" ODF*				1 or 2		
183067	364-000		1-5/8" ODF		1 or 2	1 or 2			
183073	742-002		1-5/8" ODF*				1 or 2		
183075	742-003		2-1/8" ODF*				1 or 2		
**** †	***	Spring		1	1 or 2	1 or 2	1	1 or 2	1
183106 †	113-000	Spring Guide			1	1		1	
****	213-xxx***			1					
****	956-000						1		
**** †	213-006								1

† For industrial refrigeration and R-717 applications, please contact Sporlan Division - Refrigeration Business Unit at (708) 681-6300.
‡ Can be added to Type "H" Valve with Adapter Kit K-1178.
* Flange and bushing are one part.
** Used on H Valve manufactured prior to March 1994.
*** Specify Thermostatic Charge and Valve Type.
**** Not available.

Thermostatic Expansion Valves

Types H and M

See Parts Table on Page 15 or 16

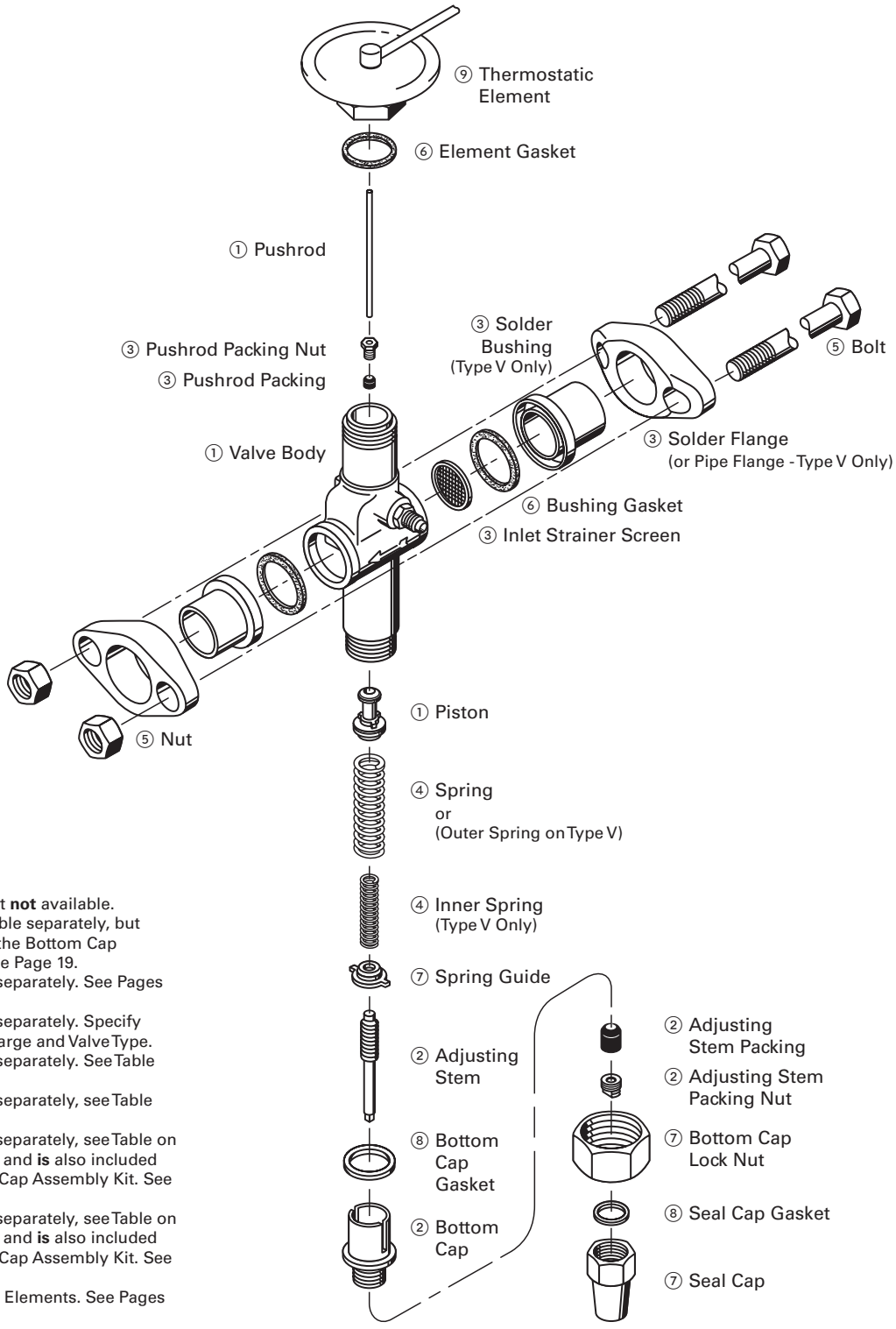


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Internal Parts Kit. See Page 19.
③ Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
④ Part **is** available separately. See Pages 15 and 16.
⑤ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑥ Part **is** available separately. See Table on Page 38.
⑦ Part **is** available separately, see Table on Page 15, and **is** also included with the Internal Parts Kit. See Page 19.
⑧ Part **is** available separately, see Table on Pages 15 and 16, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑨ Part **is** available separately, see Table on Pages 15 and 16, and **is** also included with the Internal Parts Kit and the Bottom Cap Assembly Kit. See Page 19.
⑩ For Replacement Elements. See Pages 20 and 21.

Thermostatic Expansion Valves

Types V and W

See Parts Table on Page 15 or 16



① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Bottom Cap Assembly Kit. See Page 19.
③ Part **is** available separately. See Pages 15 and 16.
④ Part **is** available separately. Specify Thermostatic Charge and Valve Type.
⑤ Part **is** available separately. See Table on Page 38.
⑥ Part **is** available separately, see Table on Page 15.
⑦ Part **is** available separately, see Table on Pages 15 and 16, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑧ Part **is** available separately, see Table on Pages 15 and 16, and **is** also included with the Bottom Cap Assembly Kit. See Page 19.
⑨ For Replacement Elements. See Pages 20 and 21.

Thermostatic Expansion Valves

Replacement Parts Kits

INTERNAL PARTS KITS FOR CURRENT VALVE TYPES

VALVE TYPE	INTERNAL or EXTERNAL EQUALIZER	NOMINAL CAPACITY Tons of Refrigeration 12, 134a	22	404A, 502, 507	KIT No.	ITEM No.

The following Kits contain: 1 Seat, 1 Pin & Carrier, 2 Pushrods, Pushrod Gauge. **Type G valves with external equalizer, Type S valves dated B69 or later and Type C valves dated C70 or later have packless pushrod construction.** The following internal parts kits may be used with packless valves.

G	Internal	1/4	1/2	1/4	KP01-0002	183189
		1/2	1	1/2	KP01-0005	183191
		1	1-1/2	1	KP01-0010	183193
		1-1/2	2-1/2	1-1/2	KP01-0015	183195
C	External	1	1-1/2	1	KP02-0010	183201
	External	1-1/2	2	1-1/2	KP02-0015	183203
	External	2	3	2	KP02-0020	183205
	Internal	2-1/2	4	3	KP03-0025	183225
	External				KP02-0025	183207
	Internal	3	5	4	KP03-0030	183227
	External				KP02-0030	183209
	External	6	8	6	KP02-0050	183211
S	External	1/2	1	1/2	KP02-0005	183199
	External	1	1-1/2	1	KP02-0010	183201
	External	1-1/2	2	1-1/2	KP02-0015	183203
	External	2	3	2	KP02-0020	183205
	Internal	2-1/2	4	3	KP03-0025	183225
	External				KP02-0025	183207
	Internal	3	5	4	KP03-0030	183227
	External				KP02-0030	183209
	External	5	8	6	KP02-0050	183211
	External	6	10	7	KP02-0060	183213

The following Kits contain: 1 Seat, 1 Pin & Carrier, 2 Pushrods, 1 Seal Cap Gasket, Pushrod Gauge.

P	Internal or External	4	7	4	KP12-0040	183259
		5	11	6-1/2	KP12-0050	183261
		8	16	9	KP12-0080	183263
		12	20	12	KP12-0120	183265

BOTTOM CAP ASSEMBLY KITS FOR THERMOSTATIC EXPANSION VALVES

VALVE TYPE	BOTTOM CAP ASSEMBLY KIT NUMBER	ITEM NO.	DESCRIPTION OF CONTENTS
(E)G, EBS, C, (E)MC, S	KA-8	183011	1 Adjustment Assembly 1 Spring Guide, 1 Seal Cap 1 Seal Cap Gasket (KA-3)
P, H, U	KA-3	183005	
X*	KA-5X	183007	
BBI (small), ER (small), (E)F, (E)BF, SBF, (E)Q, SQ, (E)BQ, SBQ, FB, R, SR	KA-4	183006	1 Adjustment Assembly 1 Seal Cap
BI*, I*, RI	KA-I/BI	183013	
RC, ER (large), BBI (large), CBI*, CBBI*	KA-Y1132	183048	
M, V, K	KA-6	183009	1 Adjustment Assembly 1 Spring Guide, 1 Seal Cap 1 Bottom Cap Gasket (except KA-2) 1 Bottom Cap Locknut (except KA-2) 1 Seal Cap Gasket
W	KA-7	183010	
A	KA-1	183001	
DA	KA-2	183003	

* For TEVs with straight through connections only.

INTERNAL PARTS KITS FOR CURRENT VALVE TYPES

VALVE TYPE	INTERNAL or EXTERNAL EQUALIZER	NOMINAL CAPACITY Tons of Refrigeration 12, 134a	22	404A, 502, 507	410A	KIT No.	ITEM No.

The following Kits contain: 1 Seat, 1 Pin & Carrier, 2 Pushrods, 2 Bushing Gaskets, 1 Seal Cap Gasket, Pushrod Gauge.

H	Internal or External	1-1/2	2-1/2	1-1/2	—	KP13-0015	183267
		3	5-1/2	3	—	KP13-0030	183269
		4	7	4	—	KP13-0040	183271
		5	11	6-1/2	—	KP13-0050	183273
		8	16	9	—	KP13-0080	183275
	External	12	20	12	—	KP13-0120	183277

The following Kits contain: 1 Pushrod and Seal Assembly, Piston, Bottom Cap Adjustment Assembly, Pushrod Gauge, and set of instructions.

For Type O Valves with 83 or 85 elements; replacement piston will have extra seal and will allow the valve to work in bi-directional applications.

O	85	External	—	—	—	20	KP19-0060	183285
			—	—	—	25	KP19-0090	183287
			—	—	—	35	KP19-0160	183291
	83		6	10	6	—	KP19-0060	183285
			9	15	9	—	KP19-0090	183287
			12	20	12	—	KP19-0120	183289
			16	30	21	—	KP19-0160	183291
	33		23	40	30	—	KP20-0230	183293
			32	55	35	—	KP20-0320	183295
			40	70	45	—	KP20-0400	183297

The following Kits contain: 1 Seat, 1 Pin & Carrier, 2 Pushrods; the following gaskets: 1 Element, 2 Bushings, 1 Bottom Cap, 1 Seal Cap, Pushrod Gauge.

M	External	7-1/2	12	9	—	KP08-0075	183231
		11	18	—	—	KP08-0110	183233
		13	21	15	—	KP08-0130	183235
		15	26	20	—	KP08-0150	183237
		20	34	25	—	KP08-0200	183239
		25	42	30	—	KP08-0250	183241

The following Kits contain: 1 Element Gasket, 2 Bushing Gaskets, 1 Bottom Cap Gasket, 1 Seal Cap Gasket, 1 Pushrod, 1 Pushrod Gauge, 1 Piston Assembly, 1 Seat Refinishing Tool with Grit Cloth, 1 Set of Instructions. These Kits are for use with V Valves dated B65 or later and for W Valves dated A66 or later. See Bulletin 210-40-2.

V	External	35	52	38	—	KP16-0350	**
		45	70	50	—	KP16-0450	**
		55	100	70	—		
W	External	80	135	100	—	KP17-0800	**
		110	180	130	—		

** Parts kits for Type V and Type W valves are no longer available.

REFRIGERANT 717 (Ammonia)

The following Kits contain: 1 Seat, 1 Pin & Carrier, 2 Pushrods; the following gaskets: 1 Element, 2 Flanges, 1 Bottom Cap, 1 Seal Cap, Pushrod Gauge.

D†	Internal or External	1, 2	KP10-0010	†
		5	KP10-0050	†
		10, 15	KP10-0100	†
A†	Internal or External	20, 30	KP09-0200	†
		50, 75	KP09-0500	†
		100	KP09-1000	†

† For industrial refrigeration and R-717 applications, please contact Sporlan Division - Refrigeration Business Unit at (708) 681-6300.

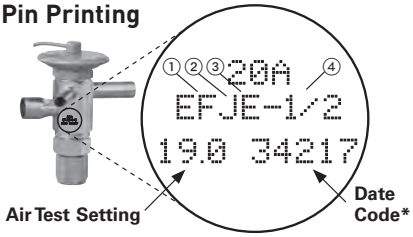
Thermostatic Expansion Valves

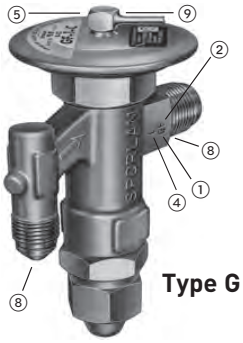
Identifying Sporlan TEVs

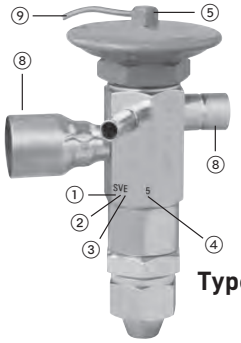
To completely identify a SPORLAN Thermostatic Expansion VALVE the following information is required:

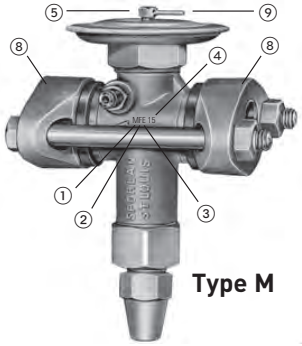
① Type of valve (body style)
② Refrigerant
③ External equalizer
④ Capacity in tons of refrigerant or port size
⑤ Type of Thermostatic Charge
⑥ Thermostatic bulb size if other than standard
⑦ Suffix letters - if any - indicate permanent bleed port or Rapid Pressure Balancer construction (All valves except Type A & D)
⑧ Inlet and outlet connection sizes and style
⑨ Capillary tubing length
⑩ Prefix letters or numbers if any

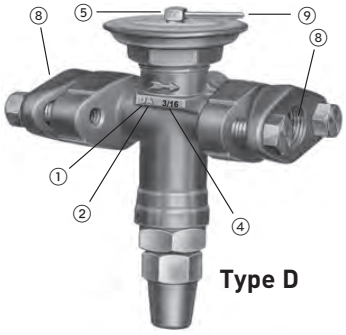
Pin Printing









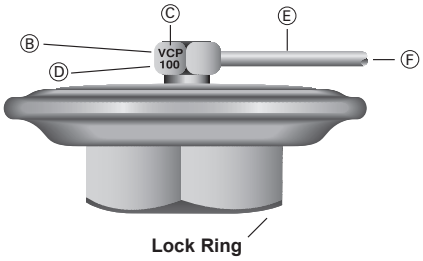


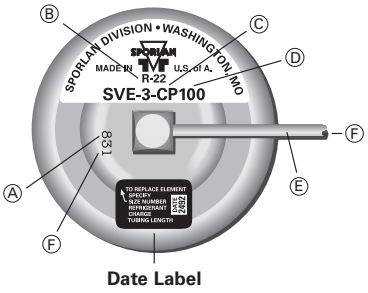
To completely identify a SPORLAN Thermostatic ELEMENT the following information is required:

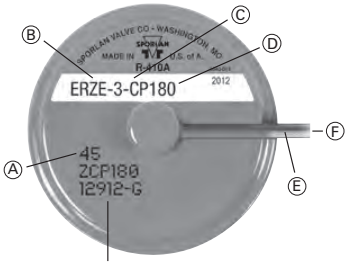
Ⓐ Element size number
Ⓑ Refrigerant
Ⓒ Thermostatic Charge
Ⓓ MOP (Maximum Operating Pressure) if other than standard
Ⓔ Capillary tubing length
Ⓕ Bulb size if other than standard

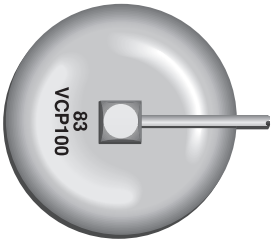
Refrigerant Designation, Letter and Color Code Used on Decals

H	R-11	Blue (Prior to 26516)
F	R-12	Yellow
E	R-13	Blue
T	R-13B1	Blue
V	R-22	Green
G	R-23	Blue
H	R-32	White (26516 & Later)
B	R-114	Blue
Q	R-124	Green
J	R-134a	Blue
X	R401A	Coral
L	R-402A	Sand
S	R-404A	Orange
Z	R-410A	Pink
D	R-448A/449A	Blue/White (00116 & Later)
D	R-500	Orange (Prior to 00116)
R	R-502	Purple
W	R-503	Blue
P	R-507	Teal
A	R-717	White









Replaceable Thermostatic Elements manufactured after 1991 had the element number and thermostatic charge marked on top of the element.

***Date Codes:** 5 digit date codes such as 34217 indicate a day/year. This would be the 342nd day of 2017. 4 digit date codes such as 4316 indicate a week/year. This would be the 43rd week of 2016.

Thermostatic Expansion Valves

Identifying Sporlan TEVs

Table A

THERMOSTATIC ELEMENT KITS‡ *Specify Refrigerant, Thermostatic Charge & Tubing Length*		
CURRENT VALVE TYPES		
VALVE TYPE	**KIT NUMBER**	**KIT CONTENTS**
A†	KT-12†	①
D†	KT-23†	
P, H, O Large	KT-33	②
O Large (R-410A)	KT-85-3	
BBI Small, (E)Q, SQ, (E)BQ, SBQ, (E)F, (E)BF, SBF, ER Small, RC	KT-43	
BBI Small, (E)BQ, SBQ, ER Small, RC (R-410A)	KT-45	
ER Large, BBI Large	KT-45-5	
(E)G, X, (E)MC	KT-53	
M, V, W Small	KT-63	①
W Large	KT-7	
C, S, EBS, O Small	KT-83	②
O Small (R-410A)	KT-85	

① 1 Thermostatic Element, 2 Bulb Clamps, 1 Top Gasket, Instruction Bulletin.
② 1 Thermostatic Element, 2 Bulb Clamps, Instruction Bulletin.
‡ Replacement of the thermostatic element requires a wrench commonly referred to as a pump wrench.

Table B

RECOMMENDED REPLACEMENT THERMOSTATIC CHARGES				
REFRIGERANT	**AIR CONDITIONING OR HEAT PUMP**	**COMMERCIAL REFRIGERATION +50 °F to -10 °F**	**LOW TEMPERATURE REFRIGERATION 0 °F to -40 °F**	**EXTREMELY LOW TEMPERATURE REFRIGERATION -40 °F to -100 °F**
12	FCP60	FC	Z, FZP	—
22	VCP100, VGA	VC	VZ, VZP40	VX
134a	JCP60	JC	—	—
401A	XCP60	XC	—	—
402A	—	LC	LZ, LZP	LX
404A	SCP115	SC	SZ, SZP	SX
448A	VGA	VC	VZ, VZP40	VX
449A	VGA	VC	VZ, VZP40	VX
410A	ZCP180, ZGA	—	—	—
502	RCP115	RC	RZ, RZP	RX
507	—	PC	PZ, PCP	PX

The Sporlan Type ZP thermostatic charges have essentially the same characteristics as the conventional Z cross charges with one exception. They produce a pressure limit or MOP. The ZP charges are not intended as replacements for the Z charges -- they should only be used where a definite pressure limit is required to prevent motor overloading.

A conventional Type L liquid charge is also available for all commonly used refrigerants in most of our element sizes.

Further identification of the element is provided by the use of two or three letters and sometimes two or three numbers stamped on the capillary button of the diaphragm case. The first letter indicates the refrigerant and the second letter (and third if used) the selective charge of the element. Numbers, if used, indicate a special MOP or maximum operating pressure. The Selective Charges C, CP, JC, Z, ZP, VGA, L and X are generally applied in the range of temperatures shown in the Table B.

A Type VCP, Refrigerant 22 air conditioning or heat pump charge with a 100 psig limit is stamped "VCP100".

Table C

GA, CP, and ZP CHARGED VALVES *Table C lists the standard Type "P" charge MOPs.*			
REFRIGERANT	**THERMOSTATIC CHARGE***	**MOP-PSIG FACTORY AIR TEST**	**NOMINAL SYSTEM**
12	FCP60	60	50
	FZP	20	12
22	VGA	110	100**
	VCP100	100	90
	VZP40	40	30
	VZP	30	20
134a	JCP60	60	50
401A	XCP60	60	50
402A	LZP	45	35
404A	SCP115	115	105
	SZP	45	35
410A	ZGA	N/A	200**
	ZCP180		170
502	RCP115	115	105
	RZP	45	35
507	PZP	45	35

* A numeric suffix on a thermostatic charge designation indicates a special MOP. Omission of the number indicates standard MOP as shown.
** Not as well defined as the other Type "P" charges listed in this table.

Table D

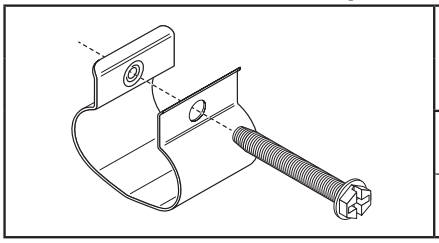
BULB STRAP KITS FOR THERMOSTATIC EXPANSION VALVES			
VALVE TYPE	**R-22** NOMINAL TONNAGE**	**KIT NUMBER**	**ITEM NUMBER**
A	R-717 20 thru 100	KT-131-E	183358
BF*	AAA thru C	KT-131-A	183350
C	4 thru 8	KT-131-B	183352
D	R-717 1 thru 15	KT-131-E	183358
EBF*	AAA thru C	KT-131-A	183350
EBS	8 thru 20	KT-131-C	183354
EG*	1/5 thru 3	KT-131-A	183350
F*	1/4 thru 3		
G*	1/5 thru 3		
H	2-1/2 thru 20	KT-131-C	183354
M	21 thru 34		
M	42	KT-131-D	183356
NI	1/4 thru 1	KT-131-A	183350
O Large	40 thru 70	KT-131-D	183356
O Small	15 thru 30	KT-131-C	183354
P	All		
RI	2 thru 5	KT-131-B	183352
ER Small, R, SR, RC	1 thru 8		
ER Large	10 thru 12	KT-131-C	183354
S	2 thru 5	KT-131-B	183352
S	8 thru 15	KT-131-C	183354
SBF*	AAA thru C	KT-131-A	183350
V	52 thru 100	KT-131-D	183356
W	135 & 180		

* For applications with an external equalizer use kit number KT-131-B.
** The R-22 nominal tonnage is used as a reference except as noted.
Hex bolt for bulb strap Item No. 183502, P/N 20032-000
Nut for bulb strap Item No. 183504, P/N 20033-000
† For industrial refrigeration and R-717 applications, please contact Sporlan Division - Refrigeration Business Unit at (708) 681-6300.

Thermostatic Expansion Valves

Accessories

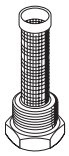
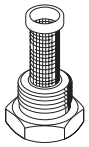
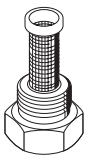
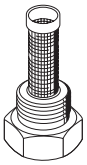
Stainless Steel Bulb Clamp Kits



ITEM NUMBER	PART NUMBER and DESCRIPTION	BULB DIAMETER Inches (mm)	SUCTION LINE DIAMETER Inches (mm)			
			5/8" (16 mm)	3/4" (19 mm)	7/8" (22 mm)	1" (25.4 mm)
183553	KIT 22721-000 SSCLMP 1/2DOUBL	1/2" (12.7 mm)	–	–	✓	✓
183445	KIT 6744-000 SSCLMP 3/4W/INS	3/4" (19.0 mm)	✓	✓	✓	–

*Bulbs with lengths ≥ 2.5" (63.5 mm) require two clamps.

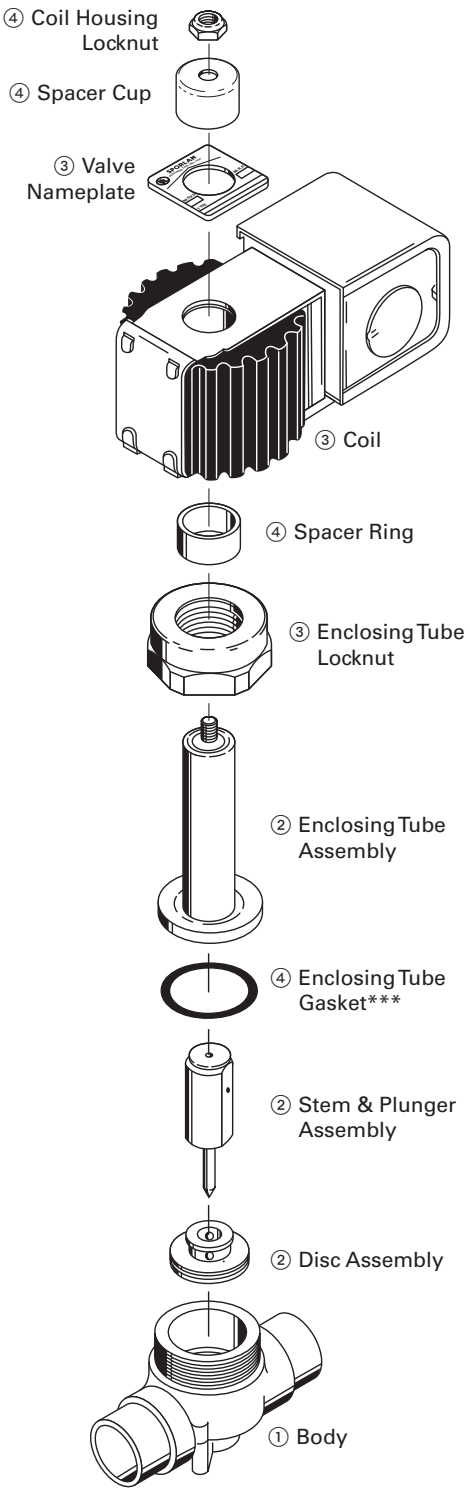
Strainer Modifications

STRAINER DESIGN MODIFICATIONS (PART NUMBER 3427-000)			
MANUFACTURED PRIOR TO 2294 DATE CODE	MANUFACTURED AFTER 2294 DATE CODE	1998 DESIGN MODIFICATION	2003 DESIGN MODIFICATION†
			
1/2" hex brass and 3/8-32 thread for the "EG" valve. (P/N 1935-000)	5/8" hex brass and 1/2-20 thread for the "EG" and other TEVs manufactured on and after date code 2294.	Increased length of hex to ease installation.	Increased length of screen and brass sleeve assembly.
Replaced by Item Number 183378	Replaced by Item Number 183002		

†The inlet fitting on valve types SBF, SBQ, and SFB was modified in 2008 to ease installation. No change to strainer was made at that time.

Solenoid Valves

X Rapid Cycle Series



RAPID CYCLE SOLENOID VALVE REPLACEMENT PARTS

ITEM NUMBER	PART NUMBER and DESCRIPTION		VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE					
			XWG	XXF	XUP*	XRN*	XRM*	XPO*
382009	1025-7	Coil Housing Locknut	1	1	1			
382005	1025-1					1	1	1
382145	13128-2	Enclosing Tube Locknut					1	
382150	13252-1					1		
382155	13256-2			1	1			
382165	13552-1							1
380103	14000-1	Enclosing Tube Gasket***		1	1			
380104	14000-2					1		
380100	14000-3						1	
380101	14000-4							1
382008	14115	Valve Nameplate	Specify valve type, voltage, & frequency					
382036	2371-13	Spacer Ring						1
382060	2371-16					1		
382011	2371-24						1	
382012	15583-1			1	1			
382025	15583-2		1					
382033	15582-4	Spacer Cup	1	1	1			
382014	2717-7					1	1	1
—	OMKC-1**	Coil	1	1	1			
—	OMKC-2**					1	1	1

* Valves with the suffix "-1, -2, -3" etc. use the same parts.
** Specify Voltage and Frequency.
*** See Table below regarding part numbers for the enclosing tube gasket and the new wolverine gasket.

Item Number	New Style Wolverine Gasket	Item Number	Old Style Tetraseal Gasket
380103	14000-1	183655	641-1
380104	14000-2	183660	641-3
380100	14000-3	183665	641-4
380101	14000-4	183670	641-5
380102	14000-5	183675	2645-000
382653	14000-9	—	—

B and E series Solenoid Valves have been redesigned. The new design can be easily identified as a thin, synthetic coated metal gasket, known as a Wolverine gasket. The old gasket is a thicker type of O-ring with a square cross section, known as a tetraseal. See the partial cross section of the valve body above.

The gaskets and the enclosing tubes of the two designs are not interchangeable. The new enclosing tube assembly is included in the replacement parts kit. Page 37.

① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Disc Parts Kit. See Page 36.
③ Part **is** available separately. See Table above.
④ Part **is** available separately, and **is** included with the Disc Parts Kit. See Page 36.

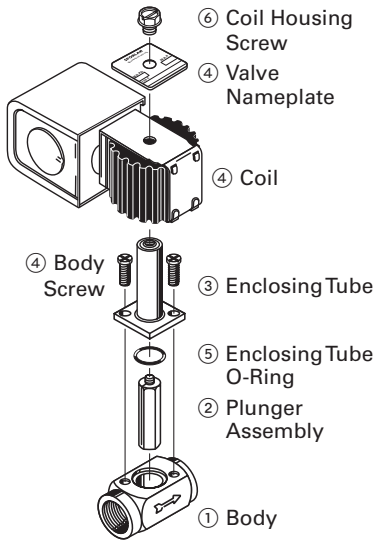
Solenoid Valves

W, R and XOF/XJH Industrial Series

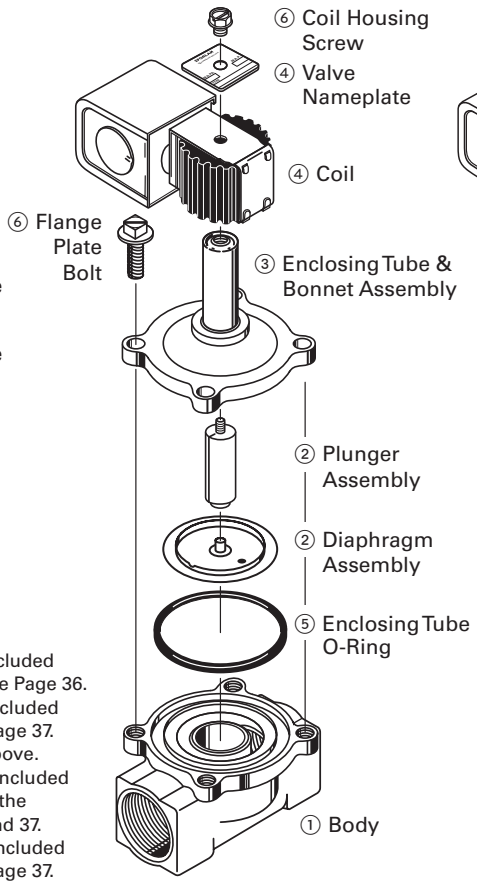
INDUSTRIAL SOLENOID VALVE REPLACEMENT PARTS											
ITEM NUMBER	PART NUMBER and DESCRIPTION		VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE								
			W3	W6	W14	W19	W25	R183	R184	R246	XOF/XJH
382270	2071-3	Body Screw	2								4
382016	13444-1	Closing Spring			1						
382175	13683-1					1	1				
958101	1390-000	Coil Housing Screw	1	1	1	1	1	1	1	1	1
382008	14115	Valve Nameplate	Specify valve type, voltage, and frequency								
183715	1328-14	Enclosing Tube O-Ring	1								
183611	621-15										1
183605	638-132							1	1	1	
380103	14000-1	Enclosing Tube Gasket*		1							
380100	14000-3				1						
380101	14000-4					1					
380102	14000-5						1				
382145	13128-2	Enclosing Tube Locknut			1						
382155	13256-2			1							
382165	13552-1					1					
382170	13681-1						1				
382017	15052-4	Flange Plate Bolt						4	4	4	
—	MKC-1	Coil (specify voltage & frequency)	1	1				1	1	1	1
—	MKC-2				1	1	1				

* See Table on Page 23 regarding part numbers for the enclosing tube gasket and the new wolverine gasket.

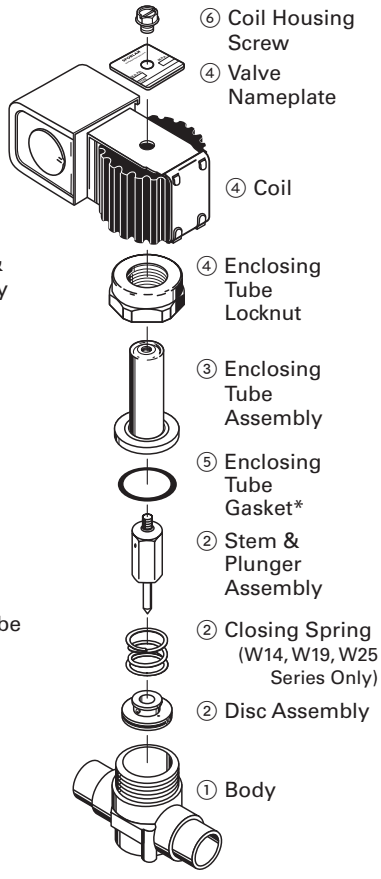
Type W3, XOF, XJH



Type R183, R184, R246



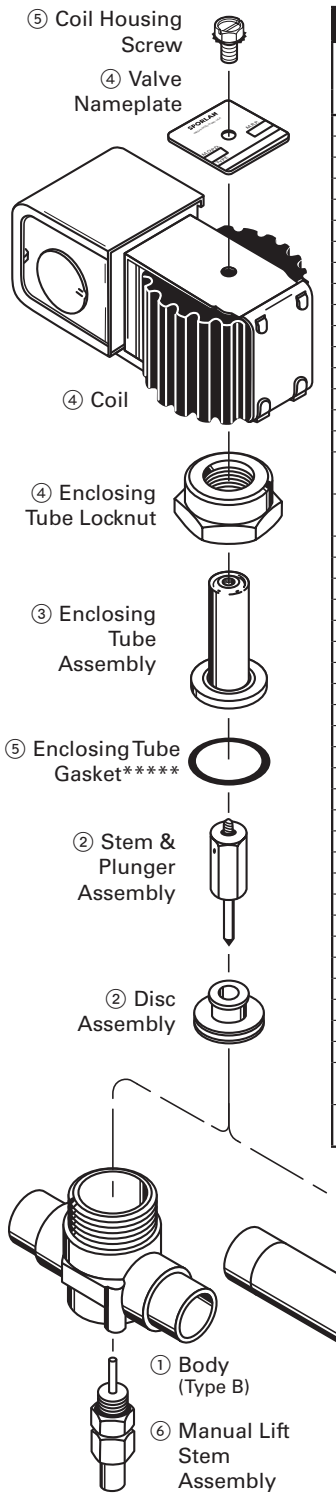
Type W6 to W25



① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Disc or Diaphragm Parts Kit. See Page 36.
③ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit. See Page 37.
④ Part **is** available separately. See Table above.
⑤ Part **is** available separately, and **is** also included with the Disc or Diaphragm Parts Kit or the Enclosing Tube Parts Kit. See Page 36 and 37.
⑥ Part **is** available separately and **is** also included with the Enclosing Tube Parts Kit. See Page 37.

Solenoid Valves

Normally Closed Series



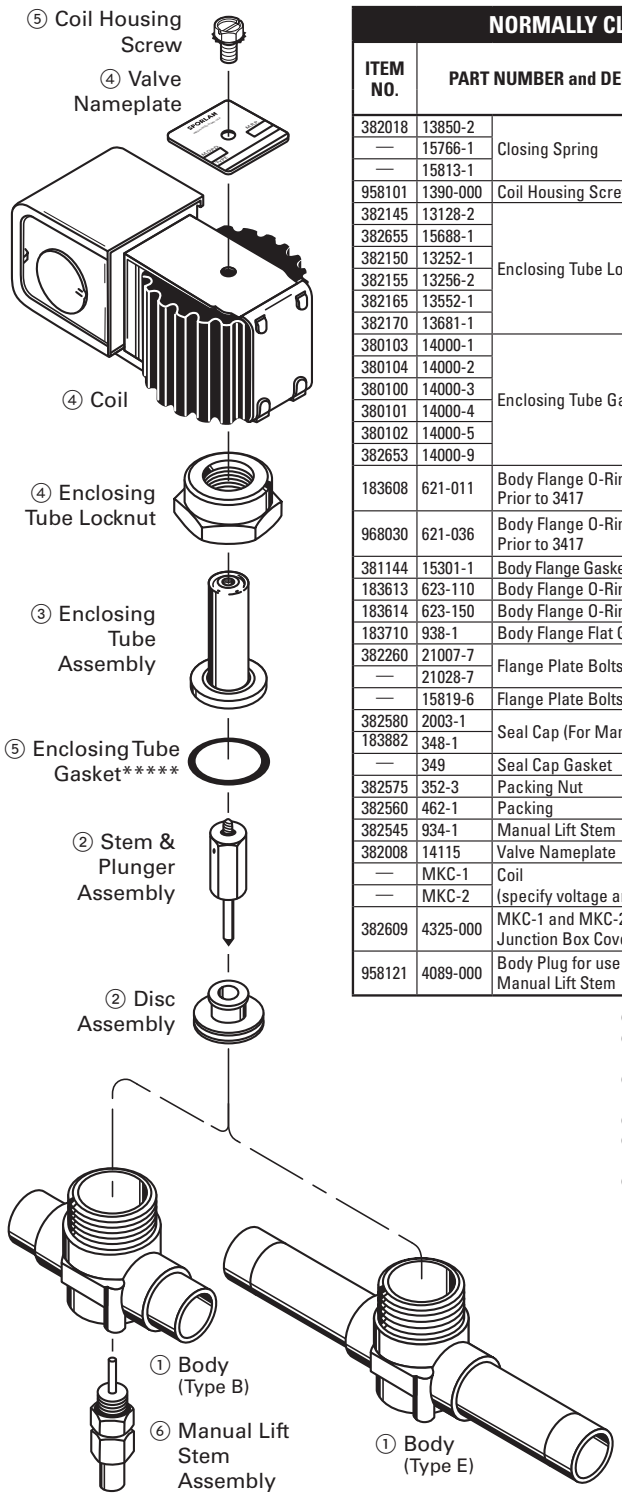
NORMALLY CLOSED SOLENOID VALVE REPLACEMENT PARTS

ITEM NO.	PART NUMBER	DESCRIPTION		VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE												
				3	5	6	9	E10S2	14	19	25	33*	34**	35***	42**	43****
382018	13850-2	Closing Spring													1	
382021	14339-1											1	1			
—	15766-1													1		
—	15813-1															1
958101	1390-000	Coil Housing Screw		1	1	1	1	1	1	1	1	1	1	1	1	1
382145	13128-2	Enclosing Tube Locknut						1	1							
382150	13252-1						1					1	1		1	
382155	13256-2					1								1		1
382165	13552-1									1						
382170	13681-1										1					
380103	14000-1	Enclosing Tube Gasket*****				1								1		1
380104	14000-2						1					1	1		1	
380100	14000-3							1	1							
380101	14000-4									1						
380102	14000-5										1					
—	621-008	Body Flange O-Ring										1				
183608	621-011	Body Flange O-Ring (E35, small) Prior to 3417												1		
968030	621-036	Body Flange O-Ring (E35, large) Prior to 3417												1		
381144	15301-1	Body Flange Gasket 3417 & newer												1		
183613	623-110	Body Flange O-Ring (E43 small)														1
183614	623-150	Body Flange O-Ring (E43 large)														1
183675	2645-000	Body Flange Gasket										1	1			
183710	938-1	Body Flange Flat Gasket													1	
382260	21007-7	Flange Plate Bolts													4	
—	21028-7													4		
382255	4208-4											4	4			
—	15819-6	Flange Plate Bolts														4
382580	2003-1	Seal Cap (For Manual Lift Stem)				1	1	1	1	1	1	1	1	1		1
183882	348-1														1	
—	349	Seal Cap Gasket													1	
382575	352-3	Packing Nut													1	
382560	462-1	Packing													1	
382545	934-1	Manual Lift Stem													1	
183049	368-000	Solder Bushing	1-1/8									1 or 2				
183053	368-001		1-3/8									1 or 2				
183055	370-000		1-5/8									1 or 2				
183750	123-000	Metal Bushing Gasket										2				
183063	361-001	Solder Flange	1-1/8									1 or 2				
183065	363-000		1-3/8									1 or 2				
183067	364-000		1-5/8									1 or 2				
382008	14115	Valve Nameplate		Specify valve type, voltage and frequency												
—	MKC-1	Coil		1	1	1								1		1
—	MKC-2	(specify voltage and frequency)					1	1	1	1	1	1	1		1	
382609	4325-000	MKC-1 and MKC-2 Junction Box Cover		1	1	1	1	1	1	1	1	1	1	1	1	1
958121	4089-000	Body Plug for use to replace Manual Lift Stem		1	1	1	1	1	1	1	1	1		1		1

① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Disc Parts Kit. See Page 36.
③ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit and Disc Parts Kit. See Page 36 & 37.
④ Part **is** available separately. See Table above.
⑤ Part **is** available separately, and **is** also included with the Disc Parts Kit or the Enclosing Tube Parts Kit. See Page 36 & 37.
⑥ Part **is** available separately as a Manual Lift Stem Kit. See Page 37. Body Plug (Item Number 958121) replaces Manual Lift Stem Assembly.
* Refer to drawing on Page 29. (Parts for 33 & 34 Series are no longer available.)
** Refer to drawing on Page 30.
*** Refer to drawing on Page 31.
**** Refer to drawing on Page 32.
***** See Table on Page 23 regarding part numbers for the enclosing tube gasket and the new Wolverine gasket.

Solenoid Valves

Normally Closed E-HP Series



NORMALLY CLOSED SOLENOID VALVE REPLACEMENT PARTS

ITEM NO.	PART NUMBER and DESCRIPTION		VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE											
			2	5	6	8	9	E10S1	14	19	25	35***	42**	43****
382018	13850-2	Closing Spring											1	
—	15766-1											1		
—	15813-1													1
958101	1390-000	Coil Housing Screw	1	1	1	1	1	1	1	1	1	1	1	1
382145	13128-2	Enclosing Tube Locknut							1					
382655	15688-1							1						
382150	13252-1						1						1	
382155	13256-2				1	1						1		1
382165	13552-1									1				
382170	13681-1										1			
380103	14000-1	Enclosing Tube Gasket*****			1	1						1		1
380104	14000-2						1						1	
380100	14000-3								1					
380101	14000-4									1				
380102	14000-5										1			
382653	14000-9							1						
183608	621-011	Body Flange O-Ring (E35, small) Prior to 3417										1		
968030	621-036	Body Flange O-Ring (E35, large) Prior to 3417										1		
381144	15301-1	Body Flange Gasket 3417 & newer										1		
183613	623-110	Body Flange O-Ring (E43 small)												1
183614	623-150	Body Flange O-Ring (E43 large)												1
183710	938-1	Body Flange Flat Gasket											1	
382260	21007-7	Flange Plate Bolts											4	
—	21028-7											4		
—	15819-6	Flange Plate Bolts												4
382580	2003-1	Seal Cap (For Manual Lift Stem)			1	1	1	1	1	1	1	1		1
183882	348-1												1	
—	349	Seal Cap Gasket											1	
382575	352-3	Packing Nut											1	
382560	462-1	Packing											1	
382545	934-1	Manual Lift Stem											1	
382008	14115	Valve Nameplate	Specify valve type, voltage and frequency											
—	MKC-1	Coil	1	1	1	1		1				1		1
—	MKC-2	(specify voltage and frequency)					1		1	1	1		1	
382609	4325-000	MKC-1 and MKC-2 Junction Box Cover	1	1	1	1	1	1	1	1	1	1	1	1
958121	4089-000	Body Plug for use to replace Manual Lift Stem		1	1	1	1	1	1	1	1	1		1

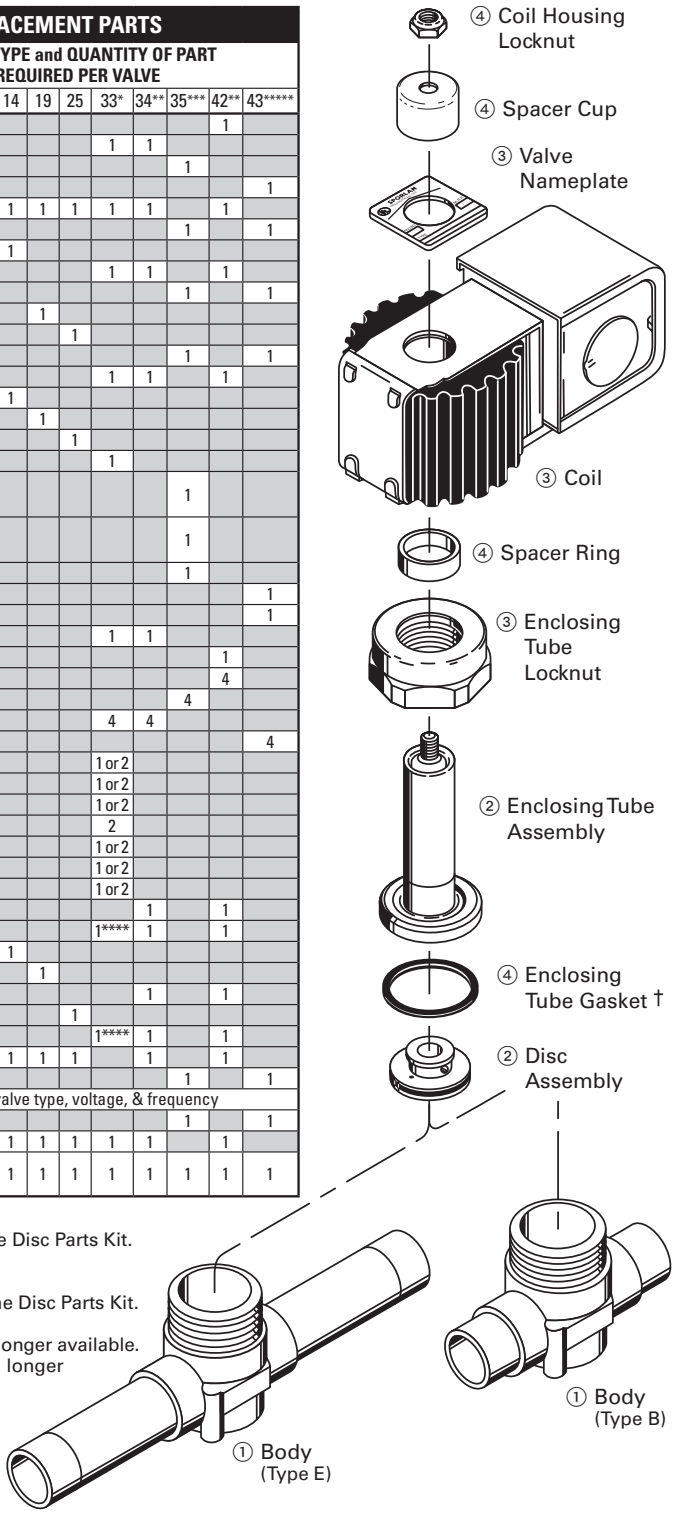
① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Disc Parts Kit. See Page 36.
③ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit and Disc Parts Kit. See Page 36 & 37.
④ Part **is** available separately. See Table above.
⑤ Part **is** available separately, and **is** also included with the Disc Parts Kit or the Enclosing Tube Parts Kit. See Page 36 & 37.
⑥ Part **is** available separately as a Manual Lift Stem Kit. See Page 37. Body Plug (Item Number 958121) replaces Manual Lift Stem Assembly.
* Refer to drawing on Page 29. (Parts for 33 & 34 Series are no longer available.)
** Refer to drawing on Page 30.
*** Refer to drawing on Page 31.
**** Refer to drawing on Page 32.
***** See Table on Page 23 regarding part numbers for the enclosing tube gasket and the new Wolverine gasket.

Solenoid Valves

Normally Open Series

NORMALLY OPEN SOLENOID VALVE REPLACEMENT PARTS															
ITEM NO.	PART NUMBER and DESCRIPTION			VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE											
				6	8	9	10S2	14	19	25	33*	34**	35***	42**	43*****
382018	13850-2	Closing Spring												1	
382021	14339-1										1	1			
—	15766-1												1		
—	15813-1														1
382005	1025-1	Coil Housing Locknut				1	1	1	1	1	1	1		1	
382009	1025-7			1	1								1		1
382145	13128-2	Enclosing Tube Locknut					1	1							
382150	13252-1					1					1	1		1	
382155	13256-2			1	1								1		1
382165	13552-1								1						
382170	13681-1									1					
380103	14000-1	Enclosing Tube Gasket †		1	1								1		1
380104	14000-2					1					1	1		1	
380100	14000-3						1	1							
380101	14000-4								1						
380102	14000-5									1					
—	621-008	Body Flange O-Ring									1				
183608	621-011	Body Flange O-Ring (E35, small) Prior to 3417											1		
968030	621-036	Body Flange O-Ring (E35, large) Prior to 3417											1		
381144	15301-1	Body Flange Gasket 3417 & newer											1		
183613	623-110	Body Flange O-Ring (E43 small)													1
183614	623-150	Body Flange O-Ring (E43 large)													1
183675	2645-000	Body Flange Gasket									1	1			
183710	938-1	Body Flange Flat Gasket												1	
382260	21007-7	Flange Plate Bolts												4	
—	21028-7												4		
382255	4208-4										4	4			
—	15819-6														4
183049	368-000	Solder Bushing	1-1/8								1 or 2				
183053	368-001		1-3/8								1 or 2				
183055	370-000		1-5/8								1 or 2				
183750	123-000	Metal Bushing Gasket									2				
183063	361-001	Solder Flange	1-1/8								1 or 2				
183065	363-000		1-3/8								1 or 2				
183067	364-000		1-5/8								1 or 2				
382003	2527-1	Spacer Ring	5/91 to Present			1						1		1	
382050	2371-14	Spacer Ring	Prior to 8/90			1					1****	1		1	
382060	2371-16		Present				1	1							
382045	2371-11								1						
382019	2371-21		8/90 and 4/91			1						1		1	
382035	2371-7		Present							1					
382026	2717-5	Spacer Cup	Prior to 8/90			1					1****	1		1	
382020	2717-6					1	1	1	1	1		1		1	
—	15582-6												1		1
382008	14115	Valve Nameplate		Specify valve type, voltage, & frequency											
—	OMKC-1	Coil (specify voltage & frequency)		1	1								1		1
—	OMKC-2					1	1	1	1	1	1	1		1	
382609	4325-000	MKC-1 and MKC-2 Junction Box Cover		1	1	1	1	1	1	1	1	1	1	1	1

① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Disc Parts Kit. See Page 36.
③ Part **is** available separately. See Table above.
④ Part **is** available separately and **is** also included with the Disc Parts Kit. See Page 36.
* Refer to drawing on Page 29. Parts for 33 Series are no longer available.
** Refer to drawing on Page 30. Parts for 34 Series are no longer available.
*** Refer to drawing on Page 31.
**** Still present part number.
***** Refer to drawing on Page 32.
† See Table on Page 23 regarding part numbers for the enclosing tube gasket and the new wolverine gasket.

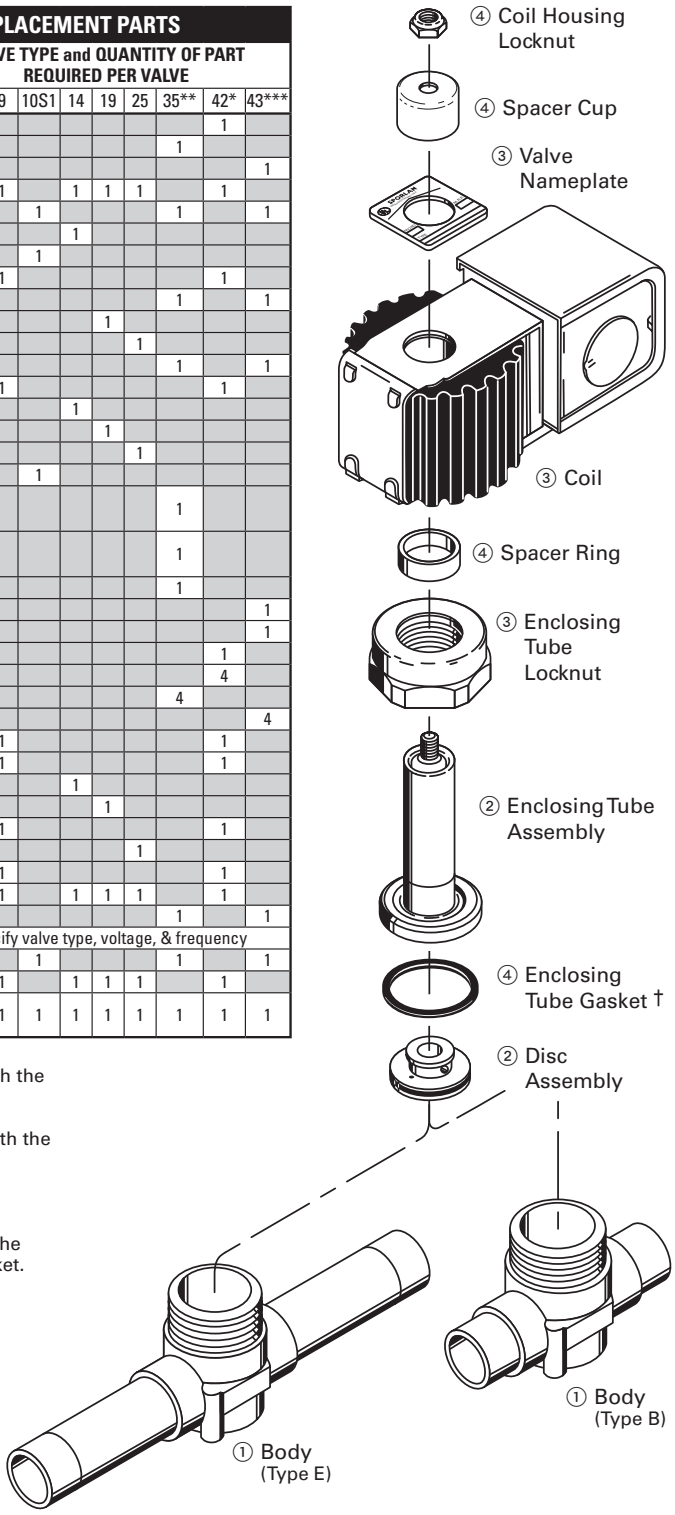


Solenoid Valves

Normally Open OE-HP Series

NORMALLY OPEN SOLENOID VALVE REPLACEMENT PARTS													
ITEM NO.	PART NUMBER and DESCRIPTION			VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE									
				6	8	9	10S1	14	19	25	35**	42*	43***
382018	13850-2	Closing Spring										1	
—	15766-1										1		
—	15813-1												1
382005	1025-1	Coil Housing Locknut				1		1	1	1		1	
382009	1025-7			1	1		1				1		1
382145	13128-2	Enclosing Tube Locknut						1					
382655	15668-1						1						
382150	13252-1					1						1	
382155	13256-2			1	1						1		1
382165	13552-1								1				
382170	13681-1									1			
380103	14000-1	Enclosing Tube Gasket †		1	1						1		1
380104	14000-2					1						1	
380100	14000-3							1					
380101	14000-4								1				
380102	14000-5									1			
382653	14000-9						1						
183608	621-011	Body Flange O-Ring (E35, small) Prior to 3417									1		
968030	621-036	Body Flange O-Ring (E35, large) Prior to 3417									1		
381144	15301-1	Body Flange Gasket 3417 & newer									1		
183613	623-110	Body Flange O-Ring (E43 small)											1
183614	623-150	Body Flange O-Ring (E43 large)											1
183710	938-1	Body Flange Flat Gasket										1	
382260	21007-7	Flange Plate Bolts										4	
—	21028-7										4		
—	15819-6												4
382003	2527-1	Spacer Ring	5/91 to Present			1						1	
382050	2371-14	Spacer Ring	Prior to 8/90			1						1	
382060	2371-16		Present					1					
382045	2371-11								1				
382019	2371-21		8/90 and 4/91			1						1	
382035	2371-7		Present							1			
382026	2717-5	Spacer Cup	Prior to 8/90			1						1	
382020	2717-6					1		1	1	1		1	
—	15582-7			1	1						1		1
382008	14115	Valve Nameplate		Specify valve type, voltage, & frequency									
—	OMKC-1	Coil (specify voltage & frequency)		1	1		1				1		1
—	OMKC-2					1		1	1	1		1	
382609	4325-000	MKC-1 and MKC-2 Junction Box Cover		1	1	1	1	1	1	1	1	1	1

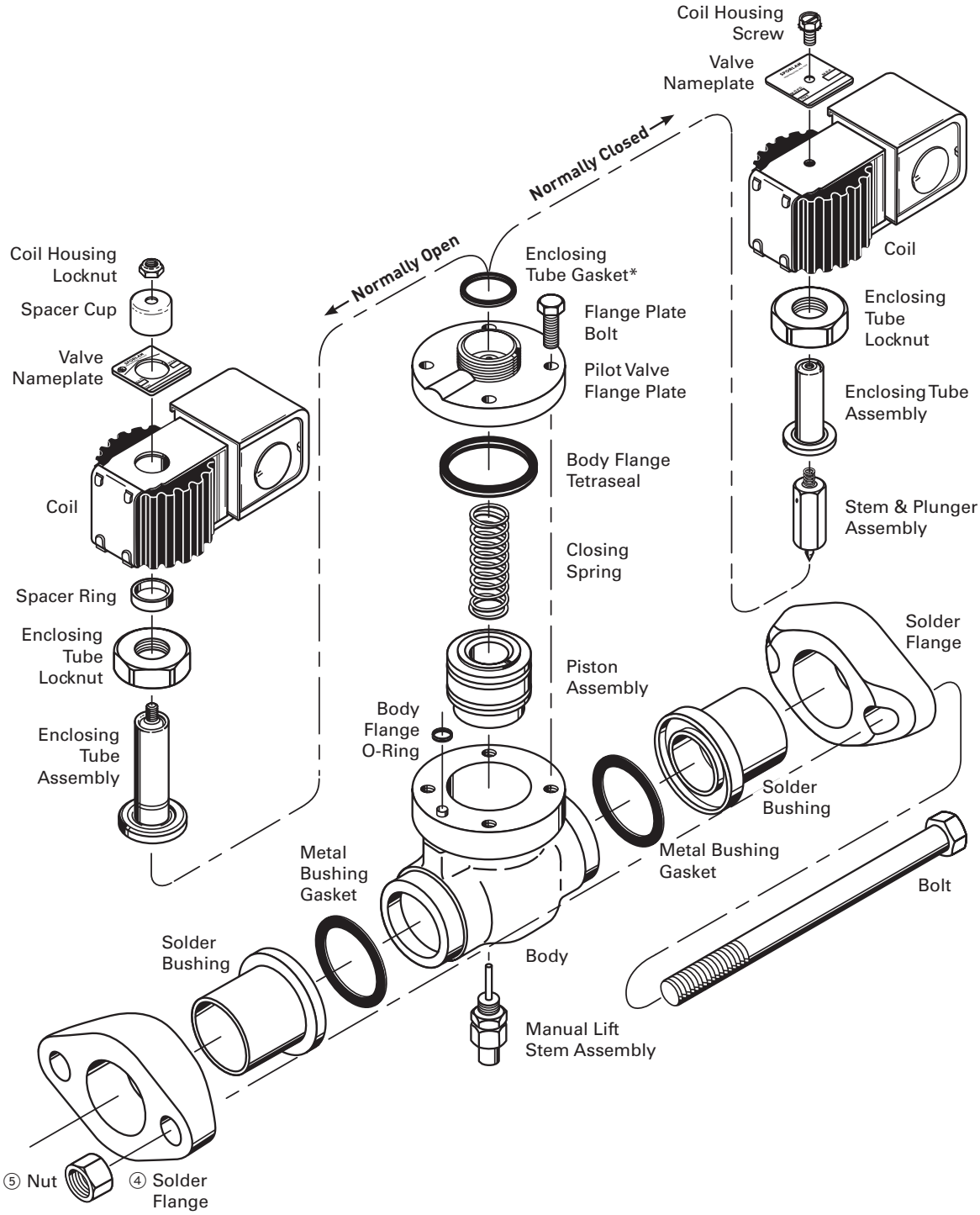
① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Disc Parts Kit. See Page 36.
③ Part **is** available separately. See Table above.
④ Part **is** available separately and **is** also included with the Disc Parts Kit. See Page 36.
* Refer to drawing on Page 30.
** Refer to drawing on Page 31.
*** Refer to drawing on Page 32.
† See Table on Page 23 regarding part numbers for the enclosing tube gasket and the new wolverine gasket.



Solenoid Valves

(O)(M)B33 Series*

FOR REFERENCE ONLY
Replacement Parts are no longer available
See Parts Table on Page 25 and 27

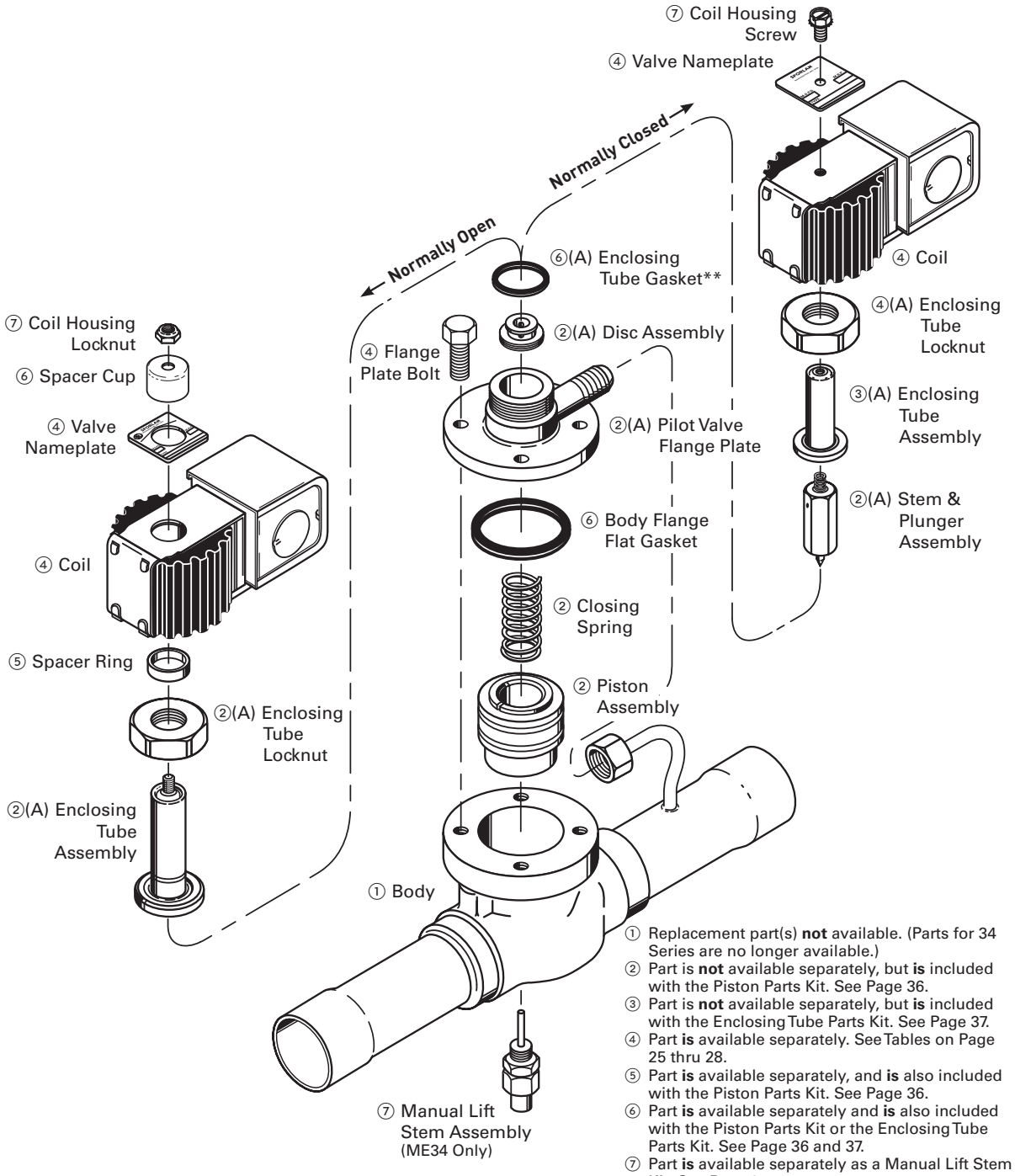


* Replacement parts **not** available.

Solenoid Valves

(O)(M)E34* and (O)(M)E42 Series

See Parts Table on Page 25 thru 28

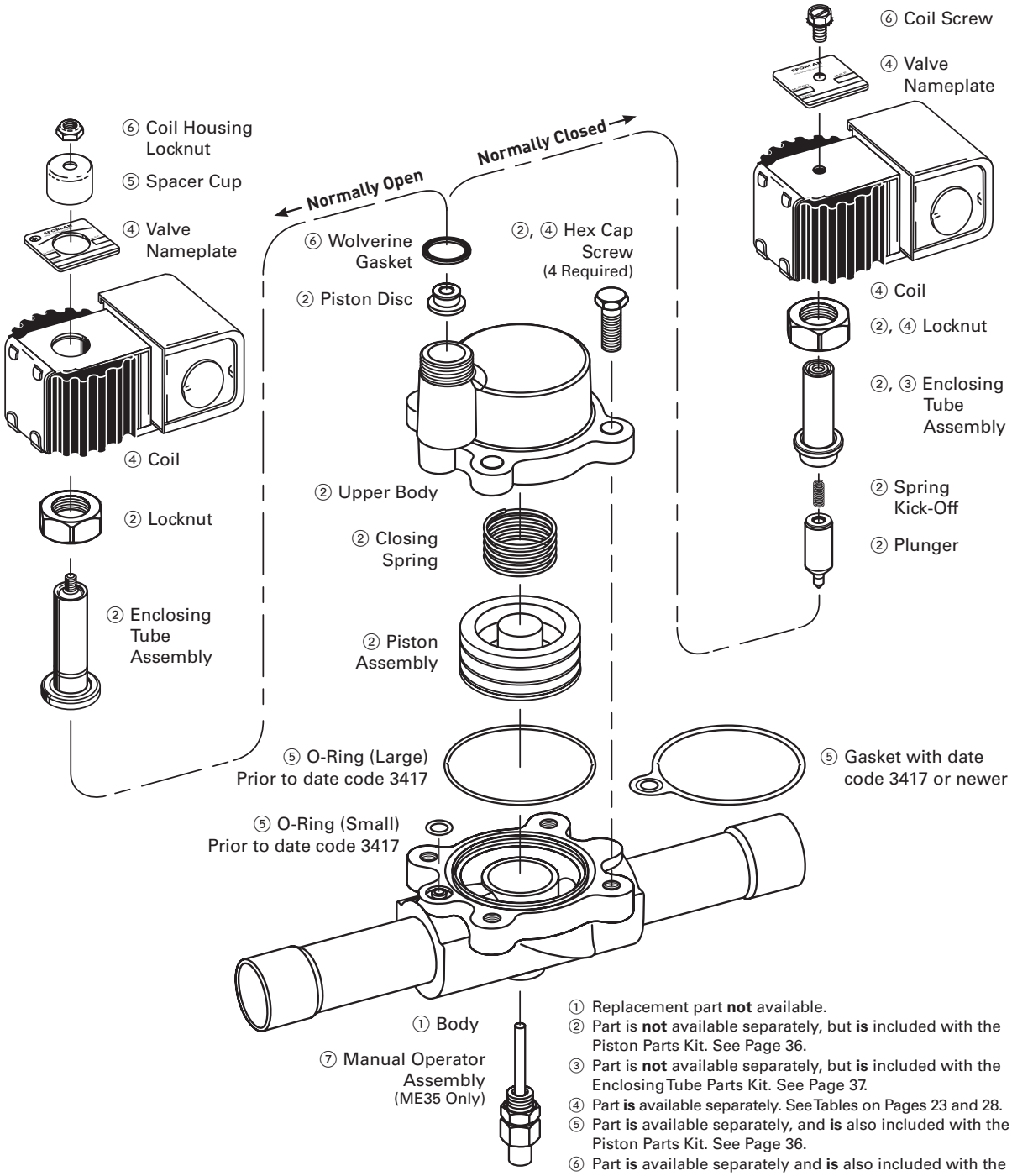


① Replacement part(s) **not** available. (Parts for 34 Series are no longer available.)
② Part is **not** available separately, but **is** included with the Piston Parts Kit. See Page 36.
③ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit. See Page 37.
④ Part **is** available separately. See Tables on Page 25 thru 28.
⑤ Part **is** available separately, and **is** also included with the Piston Parts Kit. See Page 36.
⑥ Part **is** available separately and **is** also included with the Piston Parts Kit or the Enclosing Tube Parts Kit. See Page 36 and 37.
⑦ Part **is** available separately as a Manual Lift Stem Kit. See Page 37.
(A) Part **is** included in the Upper Valve Assembly.
* Replacement parts for 34 Series **not** available.
** See Table on Page 23 regarding part numbers for the enclosing tube gasket and the new wolverine gasket.

Solenoid Valves

(O)(M)E35 Series

See Parts Table on Page 25 thru 28

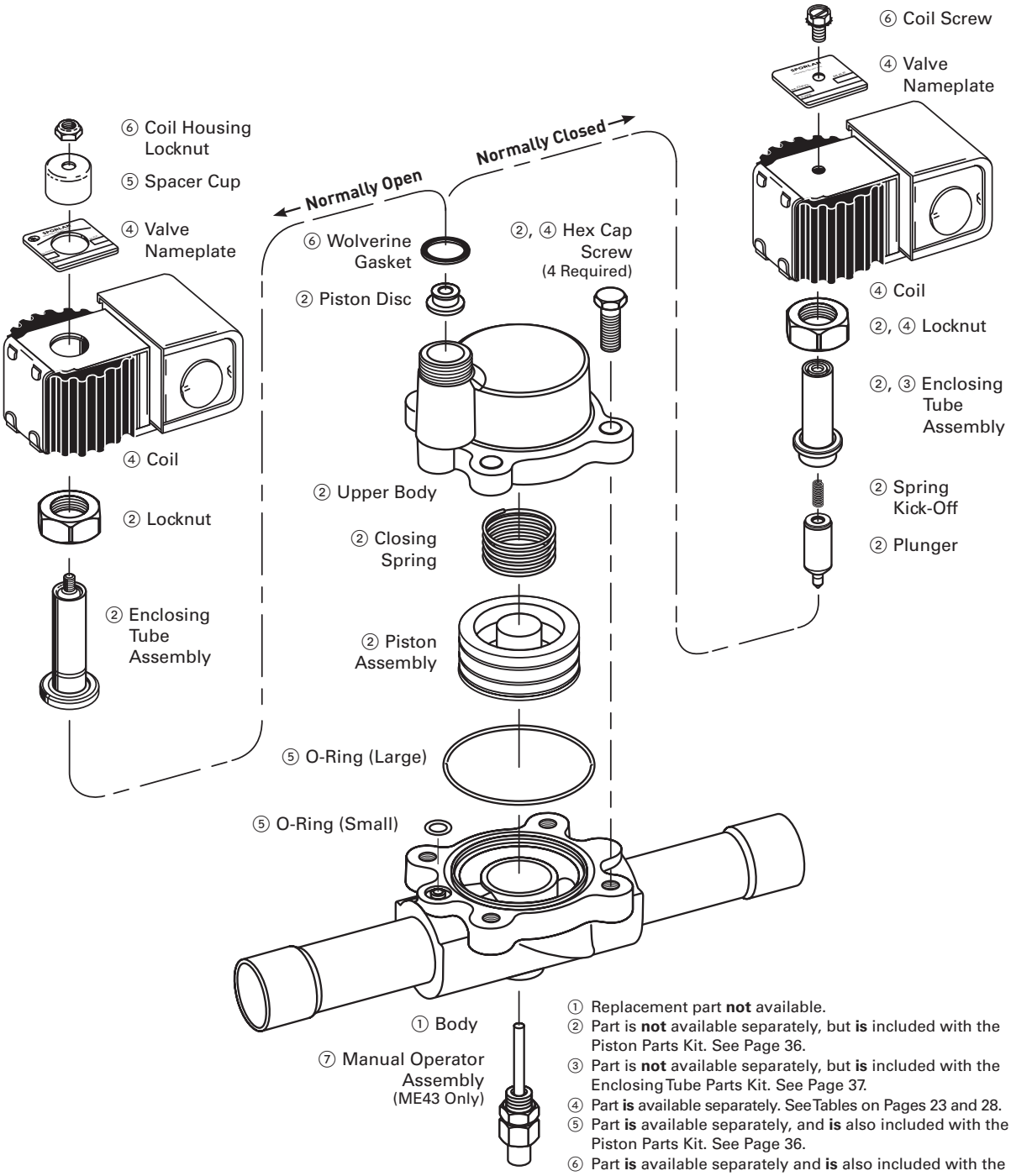


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Piston Parts Kit. See Page 36.
③ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit. See Page 37.
④ Part **is** available separately. See Tables on Pages 23 and 28.
⑤ Part **is** available separately, and **is** also included with the Piston Parts Kit. See Page 36.
⑥ Part **is** available separately and **is** also included with the Piston Parts Kit or the Enclosing Tube Parts Kit. See Page 36 and 37.
⑦ Part **is** available separately as a Manual Lift Stem Kit. See Page 37.

Solenoid Valves

(0)(M)E43 Series

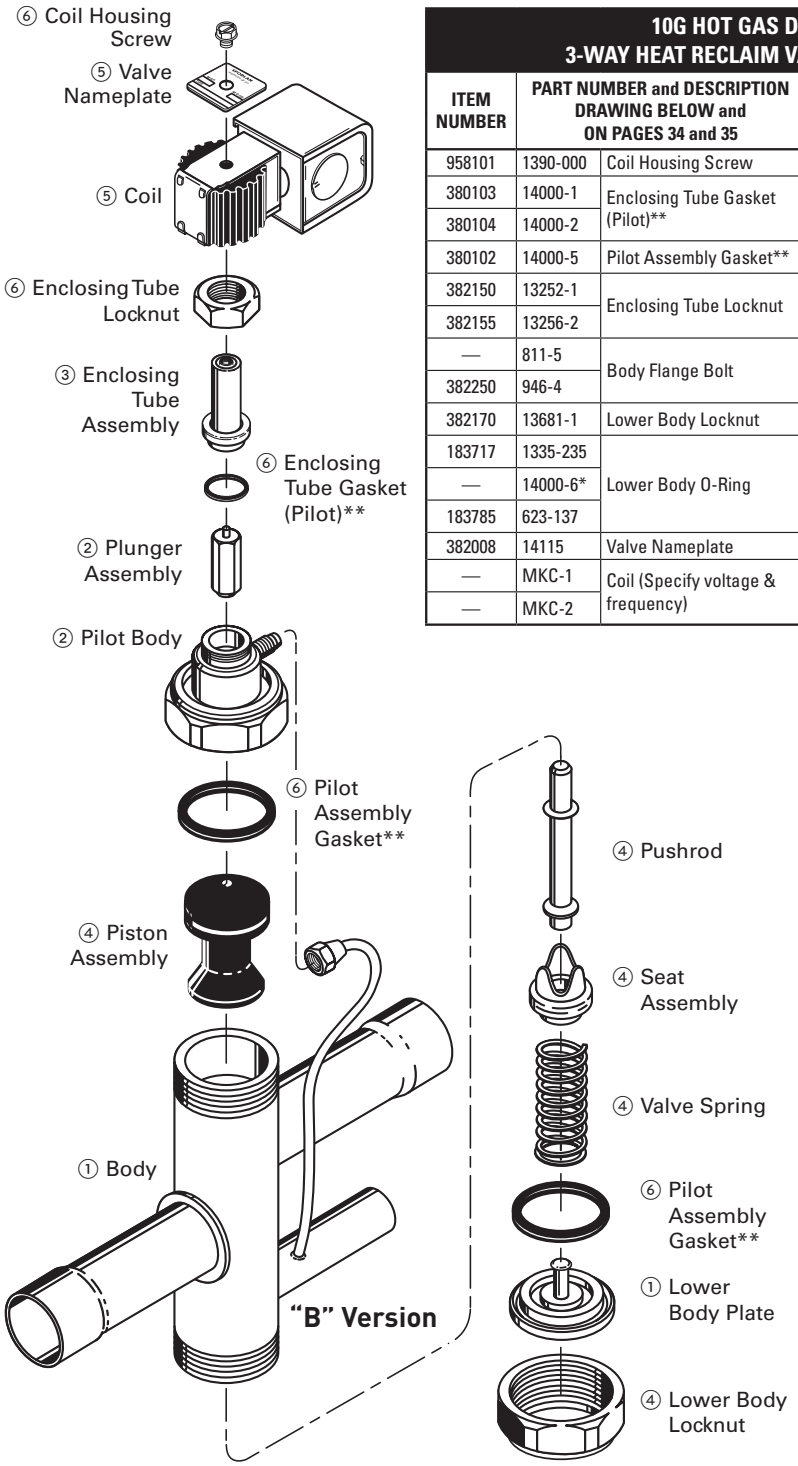
See Parts Table on Page 25 thru 28



① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Piston Parts Kit. See Page 36.
③ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit. See Page 37.
④ Part **is** available separately. See Tables on Pages 23 and 28.
⑤ Part **is** available separately, and **is** also included with the Piston Parts Kit. See Page 36.
⑥ Part **is** available separately and **is** also included with the Piston Parts Kit or the Enclosing Tube Parts Kit. See Page 36 and 37.
⑦ Part **is** available separately as a Manual Lift Stem Kit. See Page 37.

Solenoid Valves

10G Hot Gas Defrost and 3-Way Heat Reclaim Series



10G HOT GAS DEFROST VALVE and 3-WAY HEAT RECLAIM VALVE REPLACEMENT PARTS

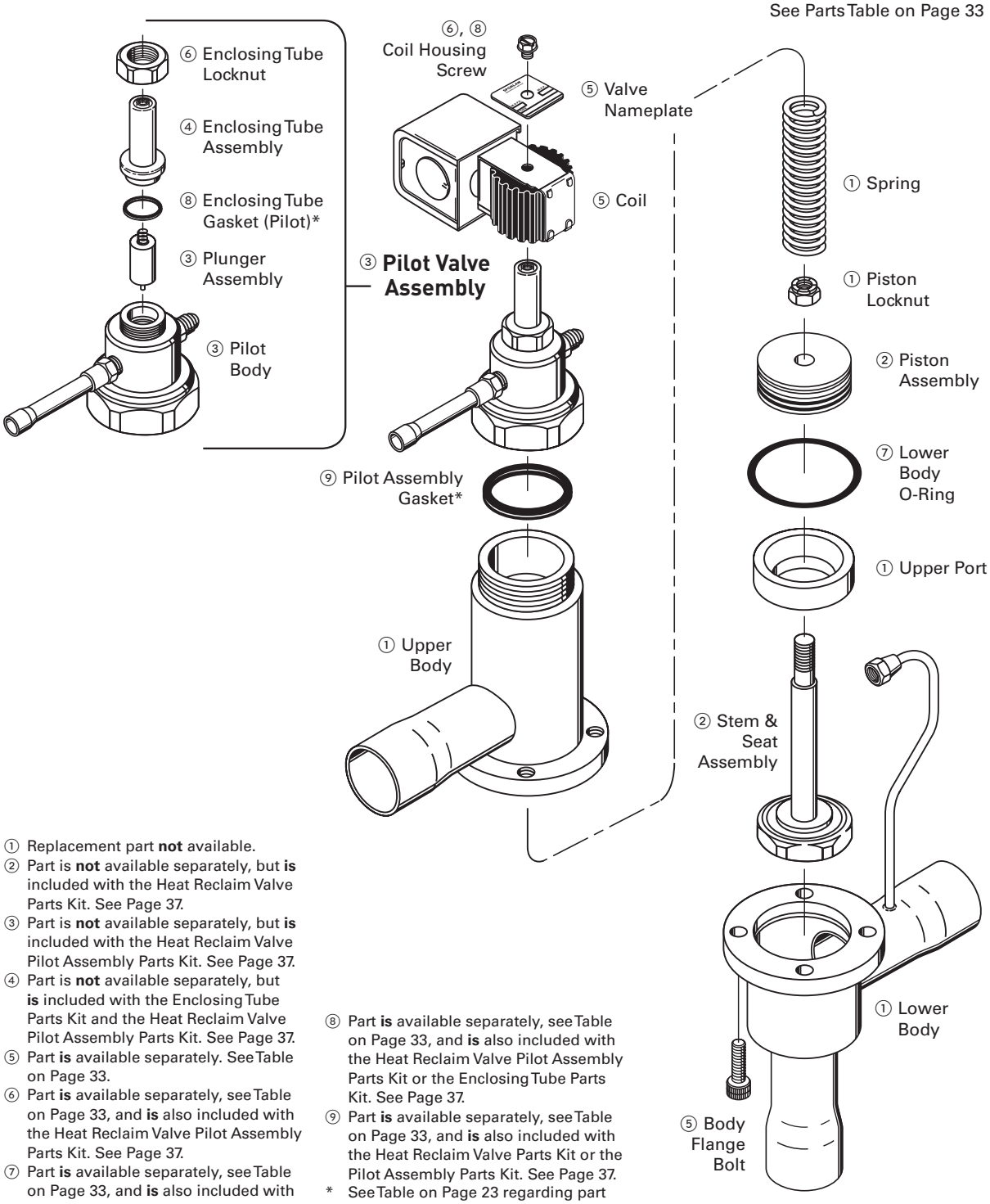
ITEM NUMBER	PART NUMBER and DESCRIPTION DRAWING BELOW and ON PAGES 34 and 35		VALVE TYPE and QUANTITY OF PART REQUIRED PER VALVE			
			8D/8D-SC	12D/12D-SC	16D/16D-SC	10G
958101	1390-000	Coil Housing Screw	1	1	1	1
380103	14000-1	Enclosing Tube Gasket (Pilot)**	1	1	1 Date Code 12-03 & after	1
380104	14000-2				1 Date Code before 12-03	
380102	14000-5	Pilot Assembly Gasket**	1	1	1 Date Code 6-06 & after	2
382150	13252-1	Enclosing Tube Locknut			1 Date Code before 12-03	
382155	13256-2		1	1	1 Date Code 12-03 & after	1
—	811-5	Body Flange Bolt			4 Date Code before 6-06	
382250	946-4			4		
382170	13681-1	Lower Body Locknut				1
183717	1335-235	Lower Body O-Ring			1 Date Code before 6-06	
—	14000-6*		1			
183785	623-137			1		
382008	14115	Valve Nameplate	Specify voltage & frequency			
—	MKC-1	Coil (Specify voltage & frequency)	1	1	1 Date Code 12-03 & after	1
—	MKC-2				1 Date Code before 12-03	

① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Hot Gas Defrost Valve Parts Kit or the Pilot Assembly Parts Kit. See Page 37.
③ Part is **not** available separately, but **is** included with the Hot Gas Defrost Valve Pilot Assembly Parts Kit. See Page 37.
④ Part is **not** available separately, but **is** included with the Hot Gas Defrost Valve Parts Kit. See Page 37.
⑤ Part **is** available separately. See Table above.
⑥ Part **is** available separately, see Table above, and **is** also included with the Hot Gas Defrost Valve Parts Kit or the Pilot Assembly Parts Kit. See Page 37.
* 6-97 and before request part number 623-128.
** See Table on Page 23 regarding part numbers for the enclosing tube gasket and the new wolverine gasket.

Solenoid Valves

(S)12D 3-Way Heat Reclaim and Split Condenser Series

See Parts Table on Page 33

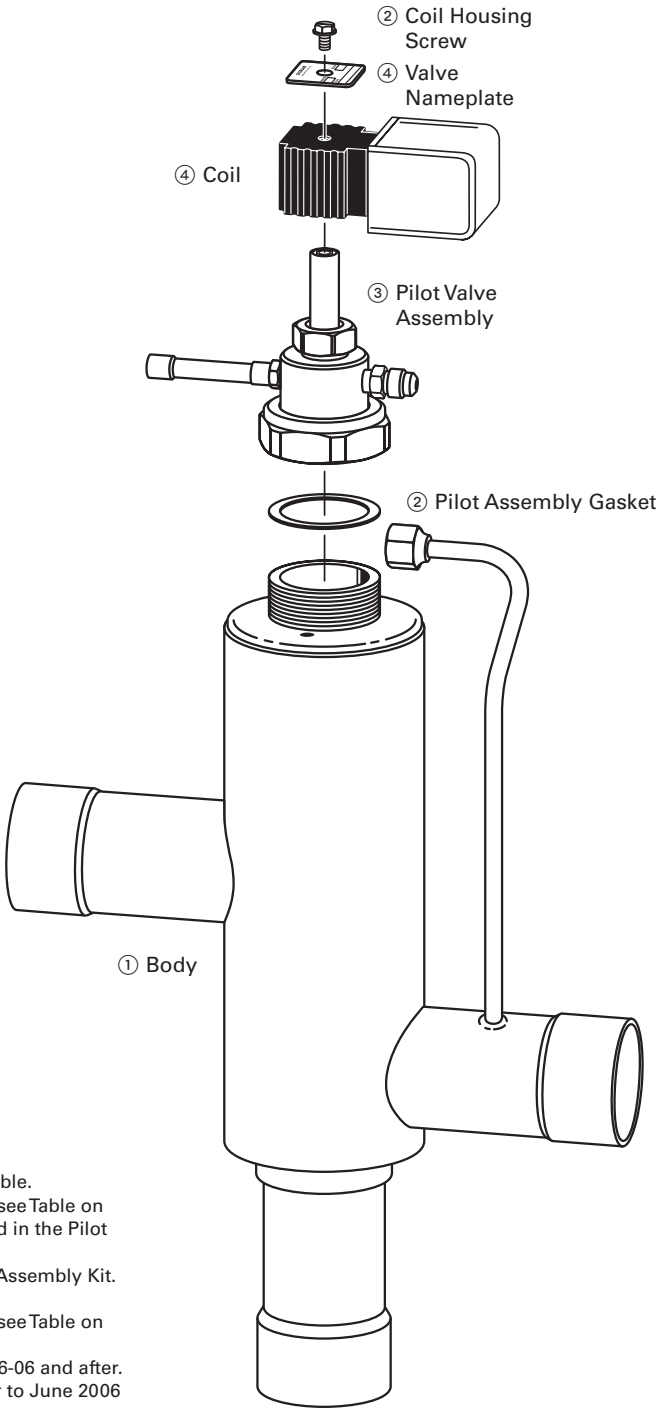


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Heat Reclaim Valve Parts Kit. See Page 37.
③ Part is **not** available separately, but **is** included with the Heat Reclaim Valve Pilot Assembly Parts Kit. See Page 37.
④ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit and the Heat Reclaim Valve Pilot Assembly Parts Kit. See Page 37.
⑤ Part **is** available separately. See Table on Page 33.
⑥ Part **is** available separately, see Table on Page 33, and **is** also included with the Heat Reclaim Valve Pilot Assembly Parts Kit. See Page 37.
⑦ Part **is** available separately, see Table on Page 33, and **is** also included with the Heat Reclaim Valve Parts Kit. See Page 37.
⑧ Part **is** available separately, see Table on Page 33, and **is** also included with the Heat Reclaim Valve Pilot Assembly Parts Kit or the Enclosing Tube Parts Kit. See Page 37.
⑨ Part **is** available separately, see Table on Page 33, and **is** also included with the Heat Reclaim Valve Parts Kit or the Pilot Assembly Parts Kit. See Page 37.
* See Table on Page 23 regarding part numbers for the enclosing tube gasket and the new wolverine gasket.

Solenoid Valves

(S)8D and (S)16D* 3-Way Heat Reclaim and Split Condenser Series

See Parts Table on Page 33



① Replacement part **not** available.
② Part **is** available separately, see Table on Page 33, and **is** also included in the Pilot Assembly Kit. See Page 37.
③ Part **is** available in the Pilot Assembly Kit. See Page 37.
④ Part **is** available separately, see Table on Page 33.
* 16D models with date code 6-06 and after. Valves with date codes prior to June 2006 have flanged bodies.

Solenoid Valves

Parts Kits

DISC / PISTON / DIAPHRAGM KITS NORMALLY CLOSED VALVES			
VALVE TYPE	**KIT NUMBER**	**ITEM NO.**	**DESCRIPTION OF CONTENTS**
A3/E3/E5	N/A	—	Hermetic Valve Non-Repairable
S4/S6/S7	N/A	—	
(M)B6/(M)E6	KS-B6/E6	381145	1 Stem & Plunger Assembly 1 Disc Assembly 1 Enclosing Tube Gasket 1 Enclosing Tube Assembly
(M)B9/(M)E9	KS-B9/E9	381171	
(M)B10/(M)E10	KS-B10/E10	381002	
(M)B14/(M)E14	KS-B14/E14	381028	
(M)B19/(M)E19	KS-B19/E19	381054	
(M)B25/(M)E25	KS-B25/E25	381080	
(C)(M)B9/(C)(M)E9	KS-CB9/CE9	381262	
(C)(M)B10/(C)(M)E10	KS-CB10/CE10	381223	
(C)(M)B14/(C)(M)E14	KS-CB14/CE14	381236	
(C)(M)B19/(C)(M)E19	KS-CB19/CE19	381249	
(M)B6/(M)E6-20	KS-B6/E6-20	381158	
(M)B9/(M)E9-20	KS-B9/E9-20	381184	
(M)B10/(M)E10-20	KS-B10/E10-20	381015	
(M)B14/(M)E14-20	KS-B14/E14-20	381041	
(M)B19/(M)E19-20	KS-B19/E19-20	381067	
(M)B25/(M)E25-20	KS-B25/E25-20	381093	
(M)E6-HP	KS-B6/E6-HP	381111	
(M)E8-HP	KS-E8-HP	380855	
(M)E9-HP	KS-B9/E9-HP	380819	
(M)E10S1	KS-E10S1	380856	
(M)E14-HP	KS-B14/E14-HP	380818	
(M)E19-HP	KS-B19/E19-HP	380817	
(M)E25-HP	KS-B25/E25-HP	381128	
(M)B33, (M)E33, E(M)B33	N/A	—	1 Coil Housing Screw 1 Upper Valve Assembly 1 Piston Assembly 1 Closing Spring 1 Body Flange Gasket or Flat Gasket
(M)E34	N/A	—	
(M)E34-20	N/A	—	
(M)E35 (Prior to 3417)	KS-E35	381118	
(M)E35 W (3417 or newer)	KS-E35 W	381146	
(M)E35-HP (Prior to 3417)	KS-E35-HP	958741	
(M)E35-HP W (3417 or newer)	KS-35-HP W	381142	
(M)E42	KS-E42	381340	
(M)E42-HP	KS-E42-HP	958742	
(M)E42-20	KS-E42-20	381341	
(M)E43	KS-E43	381421	
(M)E43-HP	KS-E43-HP	381422	
RAPID CYCLE VALVES*			
XUP/XXF	KS-XUP/XXF	381638	1 Stem & Plunger Assembly 1 Disc Assembly 1 Enclosing Tube Assembly 1 Coil Housing Locknut 1 Spacer Ring, 1 Spacer Cup 1 Gasket, 1 Valve Nameplate
XRN	KS-XRN	381587	
XRM	KS-XRM	381574	
XPO	KS-XPO	381548	

DISC / PISTON / DIAPHRAGM KITS NORMALLY OPEN VALVES			
VALVE TYPE	**KIT NUMBER**	**ITEM NO.**	**DESCRIPTION OF CONTENTS**
OE6, OE8, OE35, OE43	**KS-OE6/OE8	380857	1 Disc or Piston Assembly 1 Enclosing Tube Assembly 1 Enclosing Tube Gasket 1 Closing Spring (Type OB33 & OE33 Only), 1 Body Flange Gasket (Type OB33 or OE33 Only), 1 Spacer Cup, 1 Spacer Ring 1 Coil Housing Locknut 1 Pilot Valve Flange Plate (Type OB33 & OE33 Only)
OB9/OE9	KS-OB9/OE9	381405	
OB10/OE10	KS-OB10/OE10	381353	
OB14/OE14	KS-OB14/OE14	381366	
OB19/OE19	KS-OB19/OE19	381379	
OB25/OE25	KS-OB25/OE25	381392	
OE6-HP/OE8-HP	KS-OE6-HP/ OE8-HP	380846	
OE9-HP	KS-OE9-HP	380848	
OE10S1-HP	KS-OE10S1-HP	380849	
OE10S2-HP	KS-OE10S2-HP	380850	
OE14-HP	KS-OE14-HP	380851	
OE19-HP	KS-OE19-HP	380852	
OE25-HP	KS-OE25-HP	380853	
OB33/OE33, EOB33	N/A	—	
OE34	N/A	—	1 Upper Valve Assembly 1 Piston Assembly 1 Closing Spring 1 Body Flange Gasket 1 Spacer Ring, 1 Spacer Cup 1 Coil Housing Locknut
OE34-20	N/A	—	
OE35 (Prior to 3417)	KS-OE35	381130	
OE35 W (3417 and newer)	KS-OE35 W	381147	
OE35-HP (Prior to 3417)	KS-OE35-HP	381140	
OE35-HP W (3417 and newer)	KS-OE35-HP W	381143	
OE42	KS-OE42	381418	
OE42-20	KS-OE42-20	381420	
OE43-HP	KS-OE43-HP	381423	
DISC TYPE - INDUSTRIAL VALVES			
RW3	KS-RW3	381495	1 Plunger Assembly 1 Enclosing Tube O-Ring
W3	KS-W3	381496	
W6	KS-W6	381509	1 Stem & Plunger Assembly 1 Closing Spring (Type W14, W19, W25 Only), 1 Disc Assembly 1 Enclosing Tube Gasket
W14	KS-W14	381457	
W19	KS-W19	381470	
W25	KS-W25	381483	
DIAPHRAGM TYPE - INDUSTRIAL VALVES			
(K)R18	KS-R18	381431	1 Plunger Assembly 1 Diaphragm Assembly 1 Enclosing Tube O-Ring
(K)(B)R18	KS-BR18	381197	
(K)R24	KS-R24	381444	
(K)(B)R24	KS-BR24	381210	
DIRECT CONNECTED VALVES			
DB14	KS-DB14	381275	1 Stem, Plunger & Piston Assembly, 1 Enclosing Tube O-Ring or Gasket or Body Flange Flat Gasket

* Rapid Cycle Valves with "-" numbers use the same valve series kit.
** Use as replacement pilot for OE35 and OE43 non-HP valves.

Converting Solenoid Valves

Solenoid valves can be converted from a standard valve to a high pressure (HP) style valve by installing the "HP" parts kit into the standard valve. Likewise, the "HP" valve can be converted to a standard valve by installing a standard parts kit. Care must be taken when converting from a "HP" version to a standard version to ensure the valve will not be used on higher pressure refrigerants such as R-410A.

A Normally Closed solenoid valve can be converted to a normally open solenoid by installing the respective Normally Open parts kit. Likewise, the Normally Open solenoid valve can be converted to a Normally Closed solenoid by installing the Normally Closed solenoid kit.

Solenoid Valves

Parts Kits

HEAT RECLAIM VALVES / SPLIT CONDENSER VALVES			
VALVE TYPE	**KIT NUMBER**	**ITEM NO.**	**DESCRIPTION OF CONTENTS**
(S)8D7B/8D9B(-HP)	KS-8DB	380897	1 Enclosing Tube Gasket 1 Pilot Assembly Gasket 1 Stem & Seat Assembly 1 Piston Assembly 1 Lower Body O-Ring 1 Lower Body Gasket (8D Only)
(S)8D7C/8D9C(-HP)	KS-8DC	380811	
(S)8D9B-SC	KS-8DB-SC	380896	
(S)8D9C-SC	KS-8DC-SC	380812	
(S)12D11B/ 12D13B(-HP)	KS-12DB	380871	
(S)12D11C/ 12D13C(-HP)	KS-12DC	380813	
(S)12D11B-SC/ 12D13B-SC	KS-12DB-SC	380873	
(S)12D11C-SC/ 12D13C-SC	KS-12DC-SC	380814	
16D17B	KS-16DB	380886	1 Stem & Seat Assembly 1 Upper Valve Seat 1 Piston Assembly 1 Lower Body O-Ring
16D17B (12-03 to 0606)	KS-16DB-A	380822	
16D17C	KS-16DC	380815	
16D17C (12-03 to 0606)	KS-16DC-A	380823	
16D17B-SC	KS-16DB-SC	380887	
16D17B-SC (12-03 to 0606)	KS-16DB-SC-A	380825	
16D17C-SC	KS-16DC-SC	380816	
16D17C-SC (12-03 to 0606)	KS-16DC-SC-A	380826	
PILOT ASSEMBLY			1 Pilot Assembly Gasket 1 Coil Housing Screw 1 Pilot Valve Assembly
8D, 12D, 8D-HP, 12D-HP	KS-8DP/12DP-HP	382292	
S8D, S12D, S8D-HP, S12D-HP	KS-S8D/S12DP-HP	958740	
8D-SC, 12D-SC	KS-8D/12D/ 14DP-SC	380803	
S8D-SC, S12D-SC	KS-S8D/S12DP-SC	958744	
16D	KS-16DP	382291	1 Coil Housing Screw 1 Pilot Valve Assembly 1 Pilot Assembly Gasket
16D (12/03 & after)	KS-16DP-A	380824	
S16D (12/03 & after)	KS-S16DP	958748	
16D-SC	KS-16DP-SC	380804	
16D-SC (12/03 & after)	KS-16DP-SC-A	380827	
S16D-SC (12/03 & after)	KS-S16DP-SC	958746	
HOT GAS DEFROST VALVES			
10G79B	KS-10G	380870	1 Enclosing Tube Gasket 2 Pilot Assembly Gaskets 1 Plunger Assembly, 1 Pushrod 1 Seat Assembly, 1 Piston Assembly, 1 Valve Spring
10G711A, B, C			
10G713			
PILOT ASSEMBLY			1 Enclosing Tube Gasket 1 Pilot Valve Assembly 1 Coil Housing Screw
10G-B	KS-10GP-B	382285	
10G-C	KS-10GP-C	382295	

ENCLOSING TUBE KITS			
VALVE TYPE	**KIT NUMBER**	**ITEM NO.**	**DESCRIPTION OF CONTENTS**
(R)W3	KE-3	382401	1 Enclosing Tube Assembly 1 Enclosing Tube Gasket or O-Ring 1 Coil Housing Screw 2 Body Screws (KE-3 Only)
(M)B6/(M)E6, (M)E35, (M)E43	KE-6	382435	
W6/10G			
16D & 16D-SC (12-03 & after)			
(C)(M)B9/(C)(M)E9	KE-9	382355	
(M)E34			
(M)E42			
16D/16D-SC (Prior to 12/03)			
(C)(M)B10/(C)(M)E10	KE-10/14	382390	
(C)(M)B14/(C)(M)E14			
W14			
(C)(M)B19/(C)(M)E19	KE-19	382365	
W19			
(M)B25/(M)E25	KE-25	382400	
W25			
(M)B33/(M)E33	N/A	—	
8D/12D, 8D-SC/12D-SC	KE-8D/12D	382327	
(K)(B)R18	KE-18/24	382445	1 Enclosing Tube & Bonnet Assembly, 1 Enclosing Tube O-Ring, 4 Flange Plate Bolts (KE-18/24 Only), 1 Coil Housing Screw or Locknut
(K)(B)R246			
MANUAL LIFT STEM KIT			
MB6/ME6, ME9	KM-1	382460	KM-1 thru -7 and -9 includes 1 Manual Lift Stem Assembly (Includes P/N 2003-1) † Seal Cap Available Separately
MB9	KM-2	382470	
MB10, MB14	KM-3	382480	
ME14	KM-4	382490	
ME10	KM-5	382500	
MB19, ME19			
MB33, ME33			
ME34			
MB25, ME25	KM-6	382510	
ME35	KM-7	382511	
ME42	KM-8*	382512	
ME43	KM-9	382513	

* KM-8 contains several parts for the manual lift stem for a ME42.
† Seal cap (Item No. 382580) for KM-1 thru -7 and -9 is available separately.

SOLENOID COIL MAGNET	
ITEM NO.	**DESCRIPTION OF CONTENTS**
310250	Sporlan Solenoid Service Magnet

Cap Screw, Bolt and Nut Specifications

CAP SCREW, BOLT and NUT SPECIFICATIONS

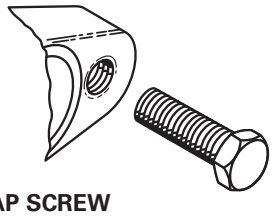
VALVE TYPE	INLET and OUTLET COMBINATION				BOLT DIA. Inches	BOLT LENGTH Inches	BOLT QUANTITY REQUIRED	NUT QUANTITY REQUIRED
	INLET		OUTLET					
THERMOSTATIC EXPANSION VALVES								
H	Flange	1/2, 5/8, 7/8	1124 Distributor		7/16	4-1/2***	2	2
			Flange	5/8, 7/8, 1-1/8		4-1/2		
			1109, 1110, 1192 Distributor					
		Up to 1/2 FPT	Flange	Up to 1/2 FPT				
M, V		Up to 1-3/8	1121, 1193 Distributor		1/2	5-1/2****		
			1119 Distributor			5-1/2		
			Flange	Up to 1-3/8		6		
		1-5/8 ODF		1-5/8 ODF		6-1/2		
		Up to 1 FPT		Up to 1 FPT		5		
W		1-1/8, 1-3/8, 1-5/8, 2-1/8 ODF		1-1/8, 1-3/8, 1-5/8, 2-1/8 ODF		5-1/2	4	4
D	Flange	1/4, 3/8, 1/2 FPT	—		7/16	1-3/4	2	—
	XD Strainer					3		
	XD Strainer x MA5 Solenoid					4-1/2		
	—		Flange	1/4, 3/8, 1/2 FPT		1-3/4		
			1130, 1182 Distributor			1-1/2		
			1132 Distributor			2-1/4		
			1180 Distributor			2		
A	Flange	1/2, 3/4, 1 FPT	—		1/2	1-3/4		
	8000 Strainer							
	8000 Strainer x MA17 Solenoid					5-1/2		
	—		Flange	1/2, 3/4, 1 FPT		1-3/4		
	—		1138, 1185 Distributor					
	Flange on Valve Body		Female Threaded Connections on Element		3/8*	1-1/4*	—	—
COMBINATION VALVES								
XD-074, MA5, SA-K87, D*					7/16	6	2	—
XD-074, MA5, SA-K87, Flange (Female)						6-1/2	2	2
8000, MA17, SA-K90, A*					1/2	7	2	—
8000, MA17, SA-K90, Flange (Female)						7-1/2	2	2
8000, 1179, MB33, SA-K90, Flange (Female)**						8	2	2
DISTRIBUTORS								
1138 1185	Flange	1/2, 3/4, 1 FPT	—		1/2	2-1/2	2	2
1130 1182 1133 1132 1180		1/4, 3/8, 1/2 FPT			7/16	2 3		
SOLENOID VALVES								
MA5A3	Flange	1/4, 3/8, 1/2 FPT	Flange	1/4, 3/8, 1/2 FPT	7/16	4	2	2
			Type D Expansion Valve					—
	XD Strainer		Flange	1/4, 3/8, 1/2 FPT		5-1/2		2
			Type D Expansion Valve			4-1/2		—
MA17A3	Flange	1/2, 3/4 1 FPT	Flange	1/2, 3/4, 1 FPT	1/2	6		2
			Type A Expansion Valve			5-1/2		—
	8000 Strainer		Flange	1/2, 3/4, 1 FPT		5-1/2		2
			Type A Expansion Valve			5-1/2		—
MA32P3	Flange	1, 1-1/4 FPT	Flange	1, 1-1/4 FPT	5/8	3	8	8
	9008, 9010 Strainer							
MA42P3	Flange	1-1/2 FPT	Flange	1-1/2 FPT		3-1/4	8	8
	9012 Strainer (Obsolete)		—					
MA42S3	Flange	1-5/8, 2-1/8 ODF	Flange	1-5/8, 2-1/8 ODF				
MA50S3	Flange	2-1/8, 2-5/8 ODF	Flange	2-1/8, 2-5/8 ODF		3-1/2		
(M)B33S2	Flange	1-1/8, 1-3/8 ODF	Flange	1-1/8, 1-3/8 ODF	1/2	7	2	2
		1-5/8 ODF		—		7-1/2		
STRAINERS								
XD-074	—		Flange	1/4, 3/8, 1/2 FPT	7/16	3-1/2	2	2
8000				1/2, 3/4, 1 FPT	1/2	2-1/2		
9008/9010				1, 1-1/4 FPT	5/8	3	4	4
SEE-ALLS								
SA-K87	Flange	1/4, 3/8, 1/2 FPT	Flange	1/4, 3/8, 1/2 FPT	7/16	3-1/2	2	2
SA-K90		1/2, 3/4, 1 FPT		1/2, 3/4, 1 FPT	1/2	5		

BOLT and NUT KITS

VALVE TYPE	ITEM NUMBER	DESCRIPTION	BOLT DIAMETER Inches	BOLT LENGTH Inches	BOLT & NUT QTY.
H	183170	Bolt Kit #7	7/16	4-1/2	2
M, V	183180	Bolt Kit #9	1/2	5	
	183162	Bolt Kit #4		5-1/2	
	183164	Bolt Kit #5		6	
	183196	Bolt Kit #10		6-1/2	
(M)B33	183168	Bolt Kit #6		7	
	183357	Bolt Kit #11		7-1/2	

Ordering Instructions

CAP SCREW: This terminology refers to a bolt that mates to a threaded flange and does not require a nut.



CAP SCREW
To Order, Specify "Cap Screw" (and give bolt diameter and length).

BOLT and/or NUT
To Order a Bolt, specify "Bolt" (and give bolt diameter and length).
To order a Nut, specify "Nut" (and give hole diameter).

* Note those combinations which bolt to either the Type D or A Valve do not require nuts since valve flanges are threaded.

** The combination with the MB33 Solenoid Valve would not normally be bolted to a TEV (Type M Valve) due to the long length (13") of the bolt.

*** 4" bolts less nuts required for older style 1124 Distributors with threaded bolt holes.

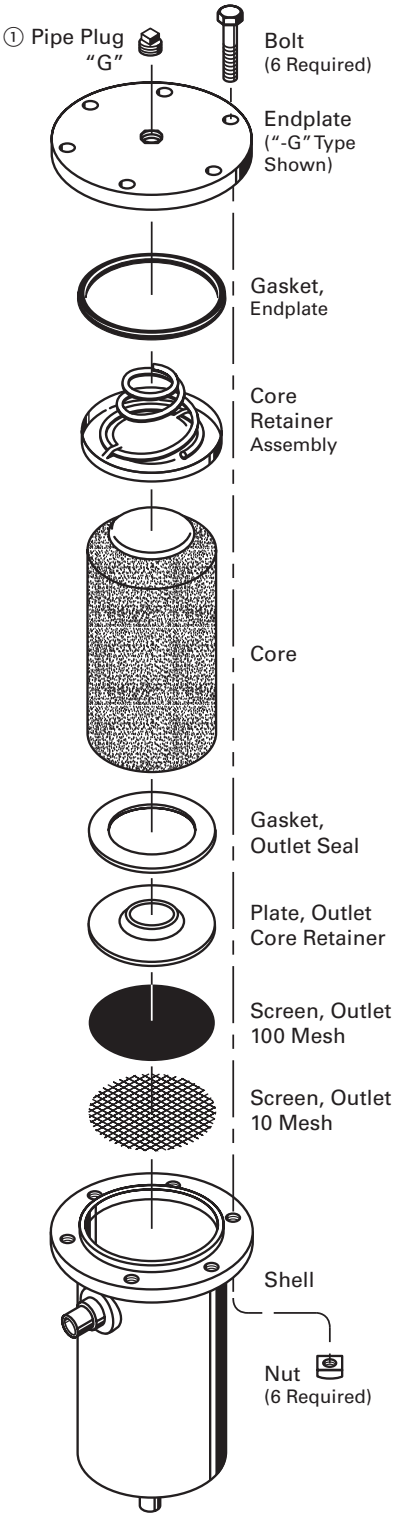
**** 5" bolts less nuts required for older style 1121 & 1193 distributors with threaded bolt holes.

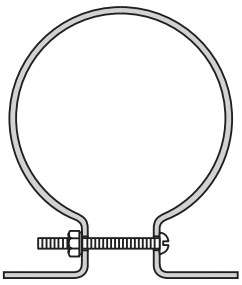
Replaceable Core Catch-All® Filter-Driers

C-R420 Series

C-R420 SERIES REPLACEMENT PARTS and PARTS KITS					
ITEM NUMBER	PART NUMBER		DESCRIPTION	NOT SUPPLIED IN KIT	C-R420 SERIES INTERNAL PARTS KIT *
CURRENT	CURRENT	OBSOLETE			
481300	JP-711-000	4163-9	Bolt, 5/16" x 1-1/2" (6 Req'd)**	X	
481220	JP-679-000	6162	Core Retainer Assembly		1
481216	JP-335-001	6154	Endplate (Plain)	X	
481217	JP-335-000	6154-2	Endplate ("-G" Type)	X	
481103	1288-005	6153-2	Gasket, Endplate	X	
481161	JP-571-001	6155-2	Gasket, Outlet Seal	X	
481322	JP-710-000	—	Nut, 5/16" (6 Req'd)	X	
481101	5310	—	Pipe Plug ("-G")	X	
481224	JP-676-000	6163	Plate, Outlet Core Retainer		1
481288	JP-513-005	6172-1	Screen, Outlet – 10 Mesh		1
481280	JP-514-005	6171-4	Screen, Outlet – 100 Mesh		1

① Access Valve (Item No.: 183174) is available.
Valve Core (Item No.: 480088) may be purchased separately.
* Kit Item No.: 481340, Description: K-RC420
** Grade 5 bolts used on C-R420 Series





Mounting Bracket

Item No.: 481312, A-175-1 Mounting Bracket for shell types C-R424-G, C-R425-G, C-R427-G and ROF-413-T ONLY. One bracket per package. Usually one bracket is adequate for mounting these Catch-Alls or Oil Filters. All brackets are supplied with a bolt, nut, and washer.

Replaceable Core Catch-All® Filter-Driers

C-480 Series through C-1920 Series

C-480 THROUGH C-1920 REPLACEABLE CORE PARTS and PARTS KITS								
DESIGN	ITEM NUMBER	PART NUMBER and DESCRIPTION DRAWING ON PAGE 41		NOT SUPPLIED IN KIT	C-480 SERIES		C-960 SERIES	
					ITEM NUMBER			
					481350	481349	481360	481359
					K-RC480-B	K-RC480-C	K-RC960-B	K-RC960-C
B, C	481292	4163-11	Bolt 5/16" x 1-3/4" (8 Req'd) ① Grade 8	X				
B, C	480077	5318-1	Endplate (Plain)	X				
B, C	480031	5318-5	Endplate ("-G" Type)	X				
B, C	481125	1288-001	Gasket, Endplate (1/16" Thick)	X				
B	—	—	Gasket, Outer Retainer Plate		1		1	
C	481116	5383-5	Gasket, Outer Retainer Plate			1		1
B	183361	4543-000	Gasket, Outlet Screen (Felt)		1		1	
B, C	481287	6244-2	Nut - 5/16" (8 Req'd) Grade 8	X				
B, C	481101	5310	Pipe Plug ("-G")	X				
B, C	481091	5296-5	Plate, Core Positioning (Solid)		1	1	1	1
B, C	481093	5296-3	Plate, Core Spacer				1	1
B	481095	5296-4	Plate, Outlet Core Retainer		1		1	
C	481090	5295-2	Plate, Outlet Core Retainer			1		1
B	481276	6172-6	Screen, Outlet - 10 Mesh		1		1	
B, C	481272	6171-5	Screen, Outlet - 100 Mesh		1	1	1	1
B, C	481203	5806.1	Spring, End		1	1	1	1
B, C	481228	5320-1	Tie Rod C-480		3	3		
B, C	481232	5320-2	Tie Rod C-960				3	3

DESIGN	ITEM NUMBER	PART NUMBER and DESCRIPTION DRAWING ON PAGE 41		NOT SUPPLIED IN KIT	C-1440 SERIES		C-1920 SERIES	
					ITEM NUMBER			
					481370	481369	481380	481379
					K-RC1440-B	K-RC1440-C	K-RC1920-B	K-RC1920-C
B, C	481292	4163-11	Bolt 5/16" x 1-3/4" (8 Req'd) ① Heat Treated Steel - Grade 8	X				
B, C	481164	5318-3	Endplate (Plain)	X				
B, C	480031	5318-5	Endplate ("-G" Type)	X				
B, C	481125	1288-001	Gasket, Endplate (1/16"Thick)	X				
B	—	—	Gasket, Outer Retainer Plate		1		1	
C	481116	5383-5	Gasket, Outer Retainer Plate			1		1
B	183361	4543-000	Gasket, Outlet Screen (Felt)		1		1	
B, C	481287	6244-2	Nut - 5/16" (8 Req'd)	X				
B, C	481101	5310	Pipe Plug ("-G")	X				
B, C	481091	5296-5	Plate, Core Positioning (Solid)		1	1	1	1
B, C	481093	5296-3	Plate, Core Spacer		2	2	3	3
B	481095	5296-4	Plate, Outlet Core Retainer		1		1	
C	481090	5295-2	Plate, Outlet Core Retainer			1		1
B	481276	6172-6	Screen, Outlet - 10 Mesh		1		1	
B, C	481272	6171-5	Screen, Outlet - 100 Mesh		1	1	1	1
B, C	481203	5806.1	Spring, End		1	1	1	1
B, C	481236	5320-3	Tie Rod C-1440		3	3		
B, C	481240	5320-4	Tie Rod C-19200				3	3

① Grade 8 bolts are used on the C-480 through C-1920 Catch-All shells.

Replaceable Core Catch-All® Filter-Driers

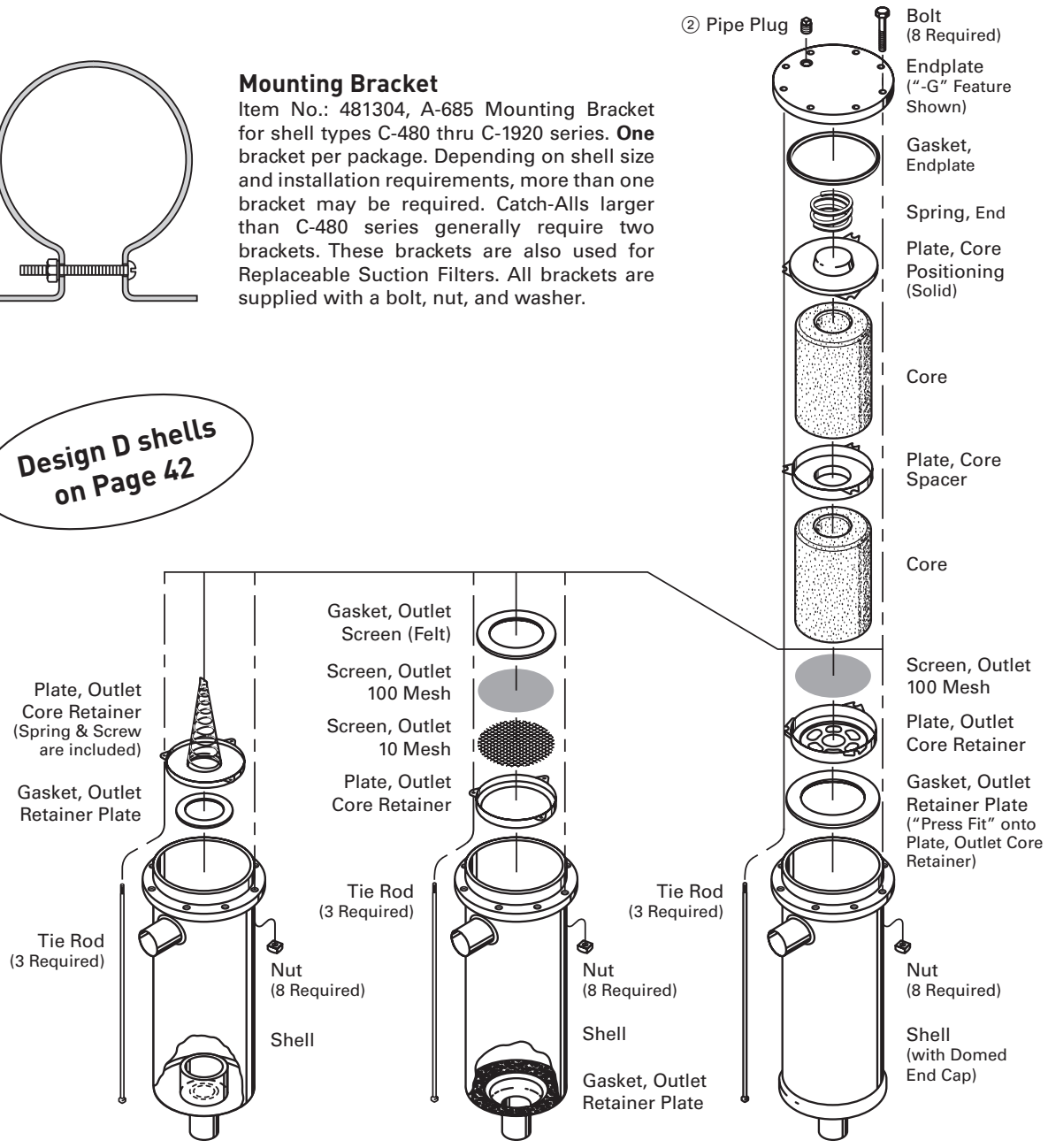
C-480 Series through C-1920 Series

See Parts Table on Page 40

Mounting Bracket

Item No.: 481304, A-685 Mounting Bracket for shell types C-480 thru C-1920 series. **One** bracket per package. Depending on shell size and installation requirements, more than one bracket may be required. Catch-Alls larger than C-480 series generally require two brackets. These brackets are also used for Replaceable Suction Filters. All brackets are supplied with a bolt, nut, and washer.

Design D shells on Page 42



Design A ③
Manufactured until 1983

Design B ①
Manufactured 1983 - 1991

Design C ①
Manufactured 1991 - May 1999 (ODF Version)
(Currently used in "-P" Type Catch-Alls Only)

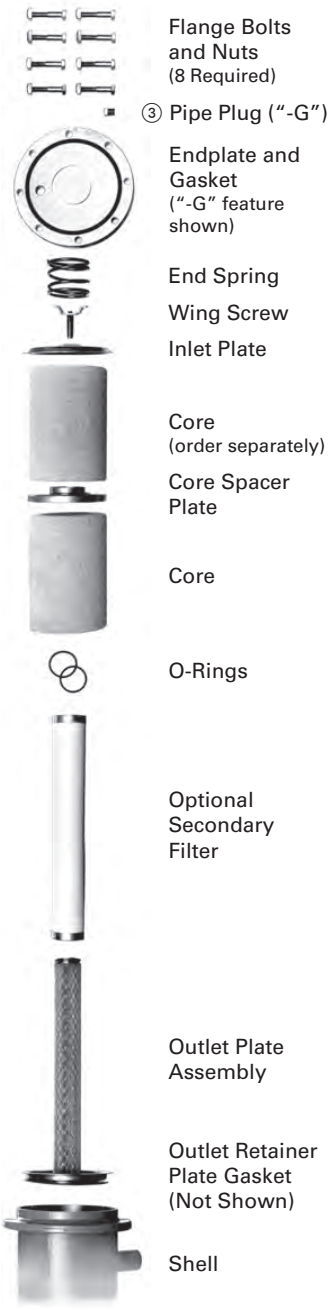
① The B & C/D designs can be differentiated by external shell appearance. The welded cap on the outlet of the shell fits inside the body shell on B versions and it slides over the body shell on C/D versions.
② Access valve (P/N: 183174) is available. Valve core (P/N: 480088) can be purchased separately.
③ Design A components are no longer available.

Replaceable Core Catch-All® Filter-Driers

C-480 Series through C-1920 Series

C-480 THROUGH C-1920 REPLACEABLE CORE PARTS and PARTS KITS							
ITEM NUMBER	PART NUMBER and DESCRIPTION		NOT SUPPLIED IN KIT	C-480 SERIES	C-960 SERIES	C-1440 SERIES	C-1920 SERIES
				ITEM NUMBER			
				481313	481314	481315	481321
				INTERNAL PARTS KIT			
				K-RC480-D	K-RC960-D	K-RC1440-D	K-RC1920-D
481292	4163-11	Bolt 5/16" x 1-3/4" (8 Req'd) Grade 8 ①	X				
481287	6244-2	Nut 5/16" (8 Req'd) Grade 8	X				
481164	5318-3	End Plate (Plain)	X				
480031	5318-5	End Plate ("-G" Type)	X				
481101	5310	Pipe Plug ("-G")	X				
481125	1288-001	Gasket, End Plate (1/16" Thick)	X				
480077	5383-1	Gasket, Outlet Retainer Plate		1	1	1	1
480016	JP-741-000	C-480 Outlet Plate Assembly		1			
480018	JP-741-001	C-960 Outlet Plate Assembly			1		
480020	JP-741-002	C-1440 Outlet Plate Assembly				1	
480022	JP-741-003	C-19200 Outlet Plate Assembly					1
480024	JP-738-000	Plate, Inlet		1	1	1	1
480026	JP-737-000	Plate, Core Spacer			1	2	3
480028	JP-743-000	Screw		1	1	1	1
481203	5806-1	End Spring		1	1	1	1
OPTIONAL SECONDARY FILTER - ORDER SEPARATELY ②							
	FILTER PART NUMBER		DESCRIPTION			QUANTITY REQUIRED	
481461	FS-480		Filter for C-480 Series Shell			1	
481462	FS-960		Filter for C-960 Series Shell			1	
481463	FS-1440		Filter for C-1440 Series Shell			1	
481464	FS-19200		Filter for C-1920 Series Shell			1	

① Grade 8 bolts are used on the C-480 through C-1920 Series Catch-All shells.
② Two O-rings are required for each internal assembly and are supplied with each secondary filter. The O-rings, Item No. 183702, P/N 621-025, can also be purchased separately.
③ Access valve (Item No. 183174) is available. Valve core (Item No. 480088) can be purchased separately.

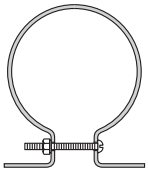


Design D
Manufactured June 1999 - Present
(Liquid Line Only)

Previous Designs – Parts kits for the new internal construction fit in shell Designs B and C. Converting shell Design B requires a thicker outlet retainer plate gasket, Item No. 481115, P/N 5383-3.

The new internal construction cannot be used in Design A shells.

The B and C/D designs can be differentiated by external shell appearance. The welded end cap on the outlet of the shell fits inside the body shell on the B versions and it slides over the body shell on the C/D versions (see illustrations on Page 41).



Mounting Bracket

Item No.: 481304, A-685 Mounting Bracket for shell types C-480 thru C-1920 series. **One** bracket per package. Depending on shell size and installation requirements, more than one bracket may be required. Catch-Alls larger than C-480 series generally require two brackets. These brackets are also used for Replaceable Suction Filters. All brackets are supplied with a bolt, nut, and washer.

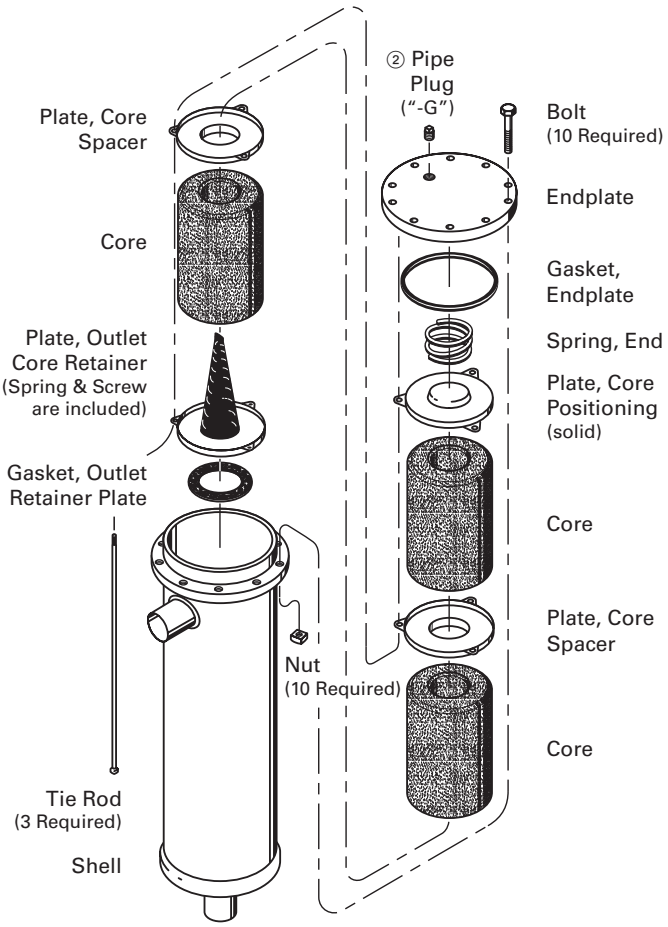
Replaceable Core Catch-All® Filter-Driers

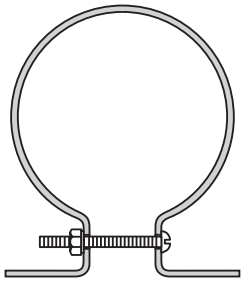
C-30000 and C-40000 Series

C-30000 and C-40000 REPLACEMENT PARTS and PARTS KITS					
ITEM NUMBER	PART NUMBER and DESCRIPTION		NOT SUPPLIED IN KIT	C-30000 SERIES ITEM NUMBER 481390 INTERNAL PARTS KIT K-RC300	C-40000 SERIES ITEM NUMBER 481400 INTERNAL PARTS KIT K-RC400
481293	4103-15	Bolt 3/8" x 2-1/4" (10 Req'd) Heat Treated Steel - Zinc Plated, Grade 5 ①	X		
481197	6278-1	Endplate (Plain)	X		
481200	6278-4	Endplate ("-G")	X		
480096	1288-013	Gasket, Endplate (1/16" Thick)	X		
481151	6230-1	Gasket, Outlet Retainer Plate		1	1
481286	6244-3	Nut, 3/8" (10 Req'd)	X		
481101	5310	Pipe Plug ("-G")	X		
481211	6260-5	Plate, Core Positioning (Solid)		1	1
481213	6260-6	Plate, Core Spacer		2	3
481212	6273-1	Plate, Outlet Core Retainer		1	1
481264	6242-1	Spring, End		1	1
481244	6243-2	Tie Rod C-30000		3	
481248	6243-1	Tie Rod C-40000			3

① Grade 5 bolts are used on the C-30000 and C-40000 Catch-All shells.

② Access valve (P/N: 183174) is available. Valve core (P/N: 480088) can be purchased separately.





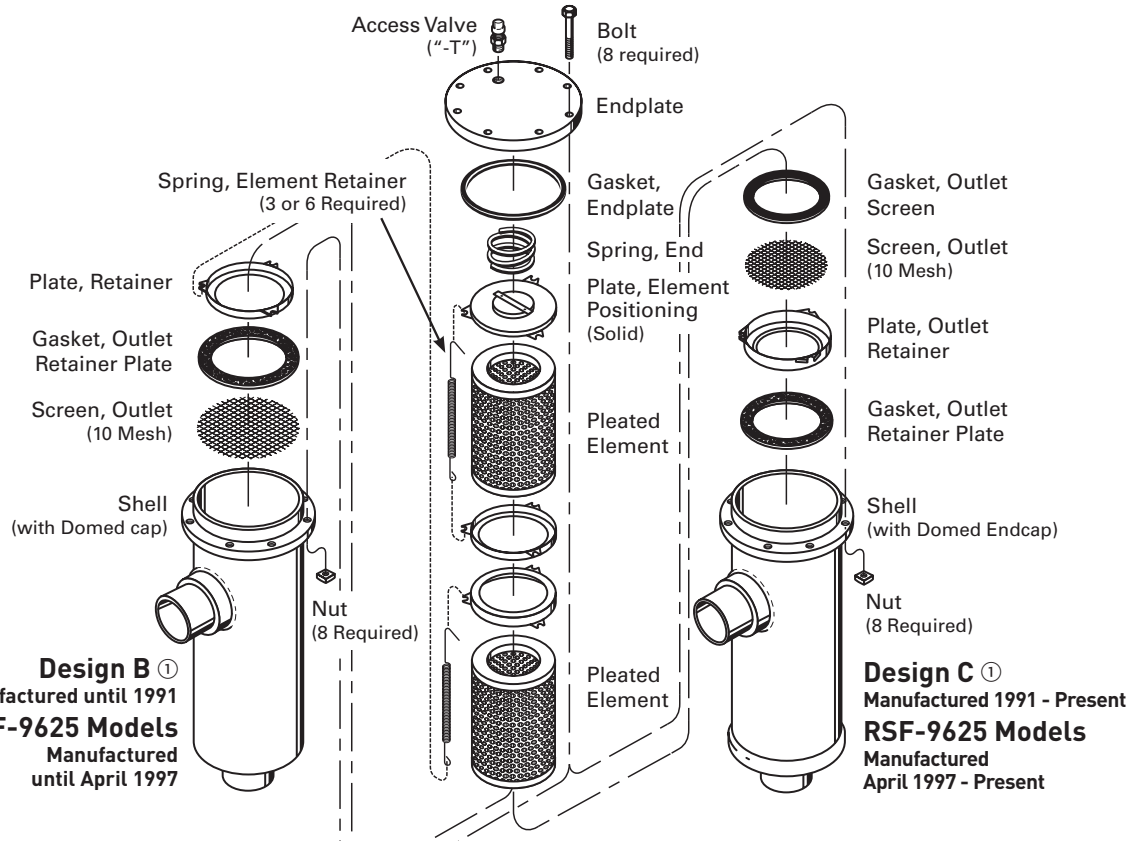
Mounting Bracket

Item No.: 481308, A-175-2 Mounting Bracket for shell types C-30000 and C-40000 series. **Two** brackets per package. Two brackets are generally adequate for mounting these large Catch-Alls. All brackets are supplied with a bolt, nut, and washer.

Replaceable Suction Filters

RSF-480 and RSF-960 Series

RSF-480 and RSF-960 REPLACEMENT PARTS and PARTS KITS								
DESIGN	ITEM NUMBER	PART NUMBER and DESCRIPTION		NOT SUPPLIED IN KIT	RSF-480 SERIES		RSF-960 SERIES	
					ITEM NUMBER			
					801000	481404	801050	481406
					INTERNAL PARTS KIT			
					K-RSF480-B	K-RSF480-C	K-RSF960-B	K-RSF960-C
B, C	183174	—	Access Valve Kit (1/4" SAE x 1/4" NPT) ②	X				
B, C	481292	4163-11	Bolt 5/16" x 1-3/4" (8 Req'd) Grade 8	X				
B, C	480031	5318-5	Endplate	X				
B, C	481125	1288-001	Gasket, Endplate (1/16" Thick)	X				
B	—	—	Gasket, Outlet Retainer Plate		1		1	
C	481116	5383-5	Gasket, Outlet Retainer Plate			1		1
C	481117	5383-6	Gasket, Outlet Screen			1		1
B, C	481287	6244-2	Nut 5/16" (8 Req'd) Grade 8	X				
B, C	481088	5289-1	Plate, Element Positioning (Solid)		1	1	1	1
C	481089	5295-3	Plate, Outlet Retainer			1		1
B, C	481095	5296-4	Plate, Retainer (1 to 3 Req'd)		1		3	2
B	481276	6172-6	Screen, Outlet - 10 Mesh		1		1	
C	481276	6172-6	Screen, Outlet - 10 Mesh			1		1
B, C	481272	6171-5	Screen, Outlet - 100 Mesh ③	X				
B, C	481260	4602-5	Spring, Element Retainer		3	3	6	6
B, C	481203	5806-1	Spring, End		1	1	1	1



① The B and C designs can be differentiated by external shell appearance. The welded end cap on the outlet of the shell fits inside the body shell on the B versions and it slides over the body shell on the C versions.
② Access valve kit includes valve core and cap. Valve core can be purchased separately (P/N: 480088).
③ When using replaceable suction filters with cores (i.e. RC-4864, RCW-48 or RC-4864-HH) remember to use the 100 mesh safety screen.

Pressure Regulating Valves

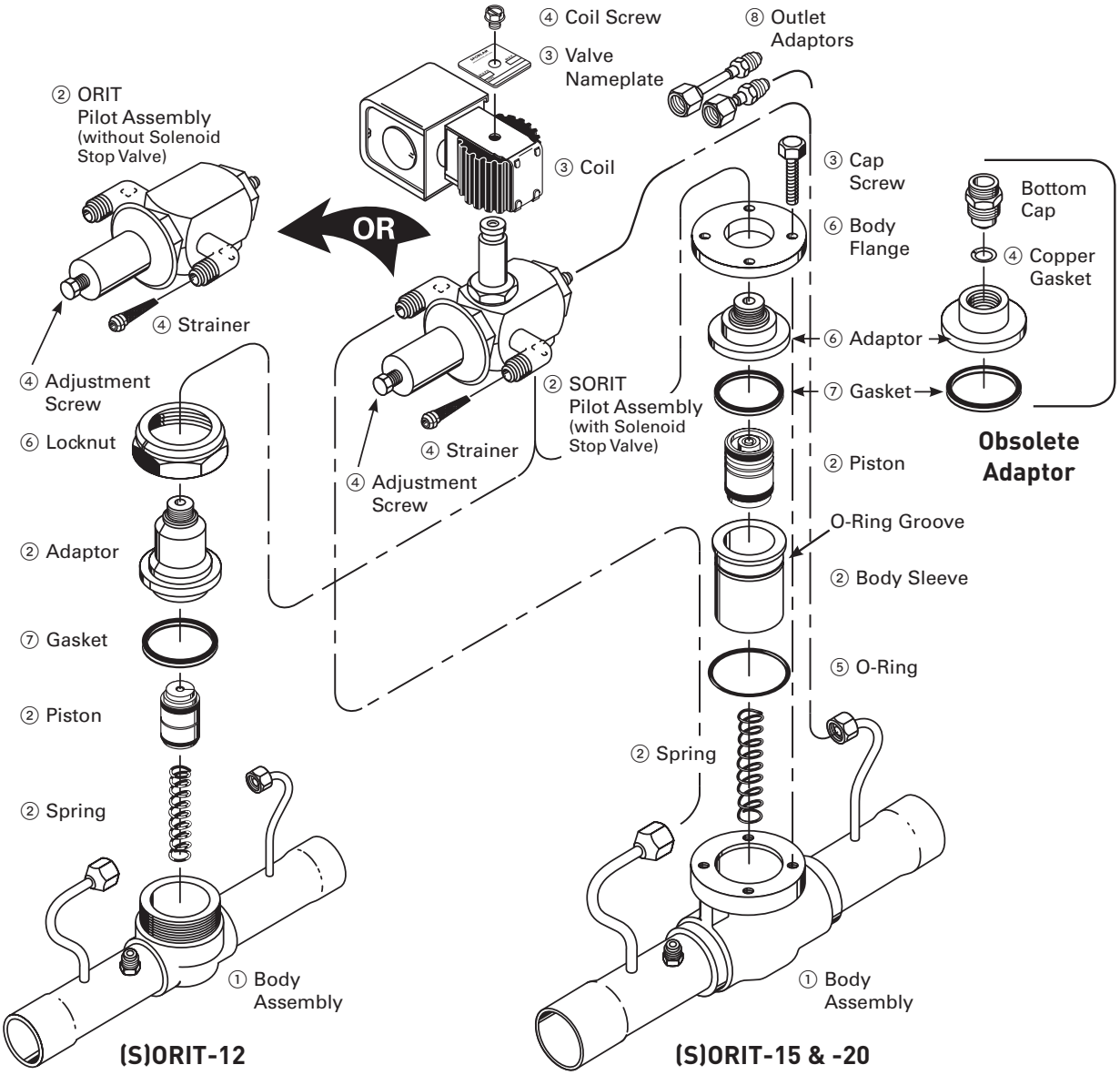
(S)ORIT-12, -15, -20

(S)ORIT REPLACEMENT PARTS and PARTS KITS									
ITEM NUMBER	PART NUMBER and DESCRIPTION DRAWING ON PAGE 46		VALVE TYPE and SIZE						
			ORIT			SORIT			
			12	15	20	12	15	20	
			QUANTITY REQUIRED						
REPLACEMENT PARTS SOLD SEPARATELY									
958070	2421-000	Adaptor		1			1		
958071	2422-000				1			1	
183130	1806-102	Adjustment Screw	1	1	1	1	1	1	
958173	2420-002	Body Flange		1			1		
958174	2423-002				1			1	
958101	1390-000	Coil Screw				1	1	1	
—	5014-xxx	Valve Nameplate (Specify Valve Type, Voltage & Frequency)				1	1	1	
908024	A-4 0/100	Element	1	1	1	1	1	1	
908073	A-4 75/150	Element	1	1	1	1	1	1	
183058	2625-001	Cap Screw			4			4	
183060	2625-002			4			4		
—	MKC-1	Coil, specify voltage & frequency				1	1	1	
183604	2539-000	Adaptor Gasket - Wolverine			1			1	
183675	2645-000	Adaptor Gasket - Tetraseal	1	1		1	1		
183184	4323-000	Gasket (Enclosing Tube Locknut Style From Date Code 3998 to Present) Not Shown				1	1	1	
183690	621-016	O-Ring (Enclosing Tube Locknut Style Prior to Date Code 3898) Not Shown				1	1	1	
183685	621-014	O-Ring (Enclosing Tube 4 Screw Style Only)				1	1	1	
382170	13681-1	Locknut	1			1			
183602	621-028	O-Ring		1			1		
183607	4508-031				1			1	
958042	2445-000	Strainer	1	1	1	1	1	1	
481140	JP-543-002 ①	Copper Flare Gasket	1						
REPLACEMENT PARTS KITS									
PILOT ASSEMBLY KITS									
958016	K-Y1005-1	All Kits include: Pilot Assembly, Inlet Strainer, Gaskets, Tetraseal and Screws				1	1	1	
958002	K-Y1010		1	1	1				
INTERNAL PARTS KITS									
958005	KS-ORI-12 ②	All Kits include: Gasket(s), Piston and Spring. The KS-ORI-12 also includes the Adaptor. The KS-ORI/CDA-15, KS-ORI/CDA-20 and KS-SHGB-15 also include a Body Sleeve & O-Ring	1			1			
958007	KS-ORI/CDA-15			1			1		
958009	KS-ORI/CDA-20				1			1	
CDA TO SORIT CONVERSION KITS									
958076	KSM-ORIT-12	All Kits include: Pilot Assembly Kit and Adaptor. KSM-(S)ORIT-15 & 20 also include: Body Flange. KSM-(S)ORIT-12 also includes: Piston & Locknut	1						
958078	KSM-ORIT-15			1					
958080	KSM-ORIT-20				1				
958075	KSM-SORIT-12 ③					1			
958077	KSM-SORIT-15 ③						1		
958079	KSM-SORIT-20 ③							1	

① This part may be necessary to adapt a new (S)ORIT Pilot to some obsolete valves.
② Replacement (S)ORIT-12 Internal Parts are only compatible with the Y1005 and Y1010 Pilot Valves. When using these parts with obsolete Pilot Valves, the Pilot Valves must also be replaced
③ If ordering an ORIT to (S)ORIT CONVERSION KIT or a CDA to SORIT CONVERSION KIT, an MKC-1 coil is required. Order coil as a separate item and specify electrical specifications.

Pressure Regulating Valves
(S)ORIT-12, -15, -20

See Parts Table on Page 45

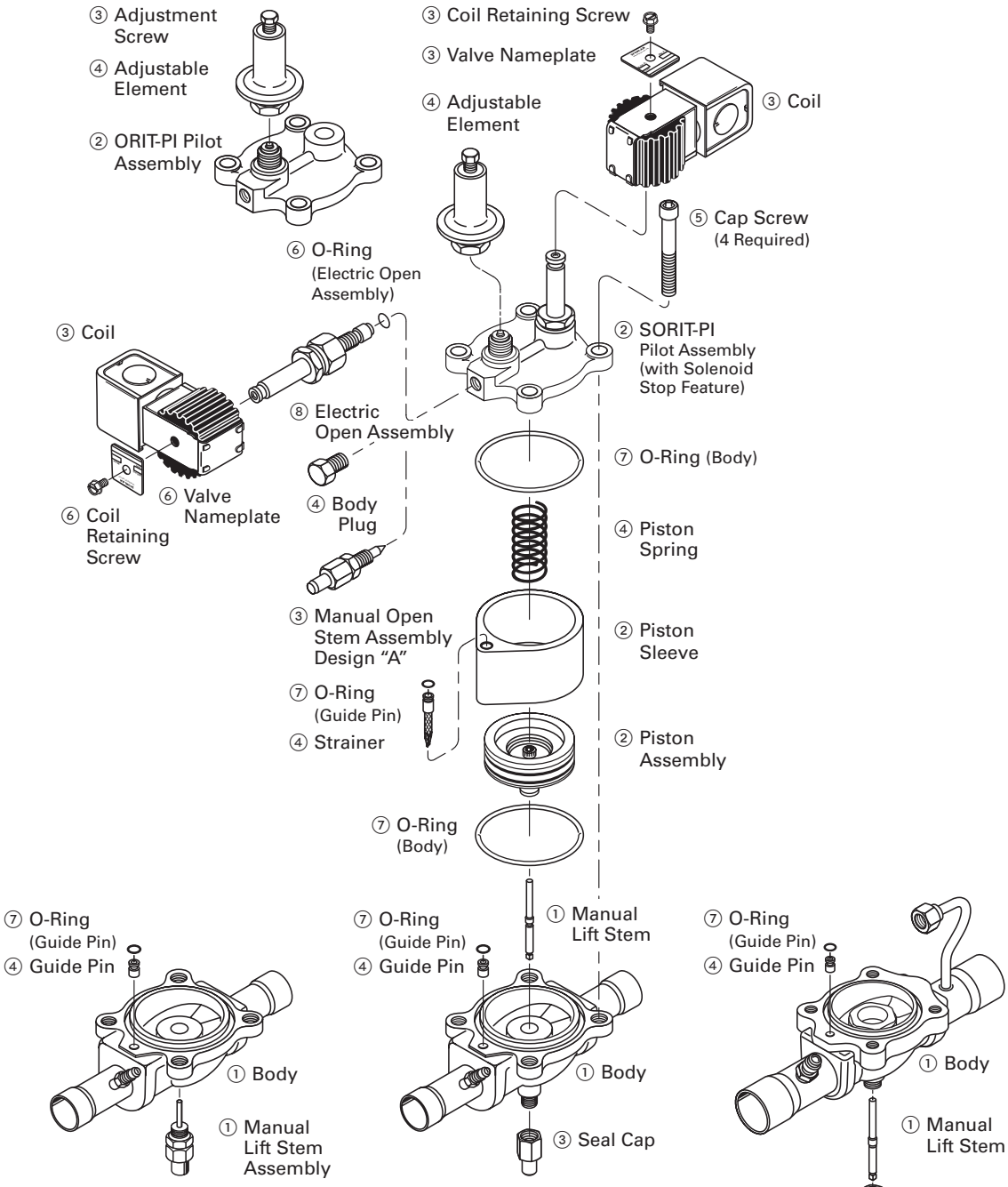


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Parts Kit. See Page 45.
③ Part **is** available separately. See Page 45.
④ Part **is** available separately, and **is** also included with the Pilot Assembly Kit. See Page 45.
⑤ Part **is** available separately and **is** also included with the Internal Parts Kit. See Page 45.
⑥ Part **is** available separately and **is** also included with the CDA to SORIT CONVERSION KIT. See Page 45. Adapter for Y896 is no longer available.
⑦ Part **is** available separately and **is** also included with the Pilot Assembly Kit and the Internal Parts Kit. See Page 45.
⑧ Outlet adaptors applied to original (S)ORIT-15 and -20 (1981-1983). The components are no longer available. Fabricate in the field as required.

Pressure Regulating Valves

(S)ORIT-PI-2, -3, -4, -5

See Notes and Parts Table on Page 48



Design A
(S)ORIT-PI-2, -3, -4
Manufactured 1995 - 1997

Design B
(S)ORIT-PI-2, -3, -4
Manufactured 1996 - 3204*
(S)ORIT-PI-5
Manufactured 1998 - 3204*

Design C
(S)ORIT-PI-2, -3, -4, -5
Manufactured 3204* - Present

*Date Code 00(Week)00(Year), Example: 3204 = 32nd week of 2004

Pressure Regulating Valves
(S)ORIT-PI-2, -3, -4, -5

(S)ORIT-PI REPLACEMENT PARTS and PARTS KITS				
ITEM NO.	PART NUMBER and DESCRIPTION DRAWING ON PAGE 47		VALVE TYPE	
			ORIT-PI	SORIT-PI
			QUANTITY REQUIRED	
REPLACEMENT PARTS SOLD SEPARATELY				
480088	5853-000	Access Valve Core (Not shown)	1	1
908024	A-4-0/100	Adjustable Element	1	1
908073	A-4-75/150	Adjustable Element	1	1
183130	1806-002	Adjustment Screw	1	1
958121	4089-000	Body Plug	1	1
958086	JP-2520-003	Cap, Access Valve (Not Shown)	1	1
958171	506-012	Cap Screws, Socket Head	4	4
—	MKC-1*	Coil, specify voltage & frequency	—	1
958101	1390-000*	Coil Retaining Screw	—	1
958089	3743-000	Guide Pin	1	1
—	2000-10	Manual Open Stem Assembly (Required for Design "A" Only)	1	1
958092	621-143	O-Ring - Body	2	2
958147	4508-010	O-Ring - Guide Pin	2	2
958147	4508-010	O-Ring - Electric Open Assembly	1	1
183184	4323-000	Gasket - Enclosing Tube (Not Shown) For Date Codes 3598 to Present	—	1
183690	621-016	O-Ring - Enclosing Tube (Not Shown) For Date Codes through 3498	—	1
183184	4323-000	Gasket - Electric Open Enclosing Tube (Not Shown) For Date Codes 3798 to Present	1	1
183690	621-016	O-Ring - Electric Open Enclosing Tube (Not Shown) For Date Codes through 3698	1	1
958094	3742-000	Piston Spring	1	1
183200	4169-000	Seal Cap	1	1
183154	4269-000	Strainer (200 mesh)	1	1
—	5014-xxx	Valve Nameplate (Specify valve type, voltage, & frequency)	—	1
—	5773-006	Valve Nameplate, Electric Open (Specify voltage & frequency) ****	1	1
REPLACEMENT PARTS KITS				
381610	RK-ORIT-PI-2-0/100	All Kits include: Pilot Assembly Piston Sleeve Equalizer and Pilot Tube with 1/4 SAE Flare Nut Body O-Ring (2) Guide Pin O-Ring (2) Strainer Piston Assembly Piston Spring Guide Pin Cap Screw (4)	1	1
381611	RK-ORIT-PI-2-75/150			
381612	RK-ORIT-PI-3-0/100			
381614	RK-ORIT-PI-3-75/150			
381615	RK-ORIT-PI-4-0/100			
381616	RK-ORIT-PI-4-75/150			
381617	RK-ORIT-PI-5-0/100			
381618	RK-ORIT-PI-5-75/150			
381603	RK-SORIT-PI-2-0/100			
381606	RK-SORIT-PI-2-75/150			
381602	RK-SORIT-PI-3-0/100			
381605	RK-SORIT-PI-3-75/150			
381604	RK-SORIT-PI-4-0/100			
381607	RK-SORIT-PI-4-75/150			
381608	RK-SORIT-PI-5-0/100			
381609	RK-SORIT-PI-5-75/150			
958088	K-PI-E	Electric Open Assembly (Includes Nameplate, Coil Retaining Screw)	1	1
380901	KG-(S)ORIT-PI	O-Ring Kit (Includes Body O-Ring (2), Guide Pin O-Ring (2)****	1	1

Notes for drawing on Page 47.

① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Replacement Parts Kit. See Table above.
③ Part **is** available separately. See Table above.
④ Part **is** available separately and **is** also included with the Replacement Parts Kit. See Table above.
⑤ Part **is** available separately, however 4 cap screws are included in the Replacement Parts Kit. See Table above.
⑥ Part **is** available separately and **is** also included with the K-PI-E Electric Open Assembly. See Table above.
⑦ Part **is** available separately and **is** also included with the Replacement Parts Kit and O-Ring Kit. See Table above.
⑧ Part is **not** available separately but **is** included with the K-PI-E Electric Open Assembly. See Table above.

(S)ORIT-PI CAPACITY CONVERSION KIT***				
CURRENT VALVE SIZE	DESIRED VALVE SIZE	REMOVE EXISTING SEAT	INSTALL NEW SEAT	PISTON ASSEMBLY AND SEAT KIT
(S)ORIT-PI-2	(S)ORIT-PI-3	Yes	Yes	SK-PI-4 to 3
(S)ORIT-PI-2	(S)ORIT-PI-4	Yes	No	SK-PI-4**
(S)ORIT-PI-3	(S)ORIT-PI-2	Yes	Yes	SK-PI-4 to 2
(S)ORIT-PI-3	(S)ORIT-PI-4	Yes	No	SK-PI-4**
(S)ORIT-PI-4	(S)ORIT-PI-2	N/A	Yes	SK-PI-4 to 2
(S)ORIT-PI-4	(S)ORIT-PI-3	N/A	Yes	SK-PI-4 to 3
(S)ORIT-PI-5	(S)ORIT-PI-3	N/A	Yes	SK-PI-5 to 3
(S)ORIT-PI-5	(S)ORIT-PI-4	N/A	Yes	SK-PI-5 to 4

* Increase quantity required by one when electric open assembly is used.
** Seat not supplied or required.
*** For product with date code 3204 or later.
Date Code 00(Week)00(Year), Example: 3204 = 32nd week of 2004
**** Enclosing tube gasket in not included with kit.

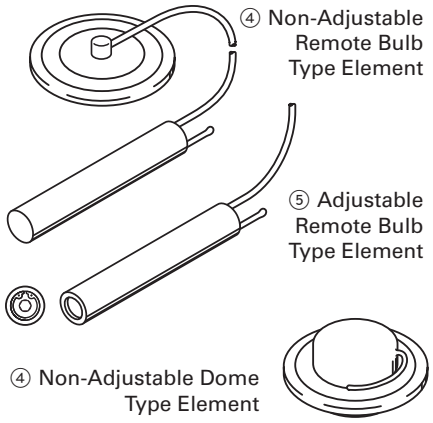
Pressure Regulating Valves

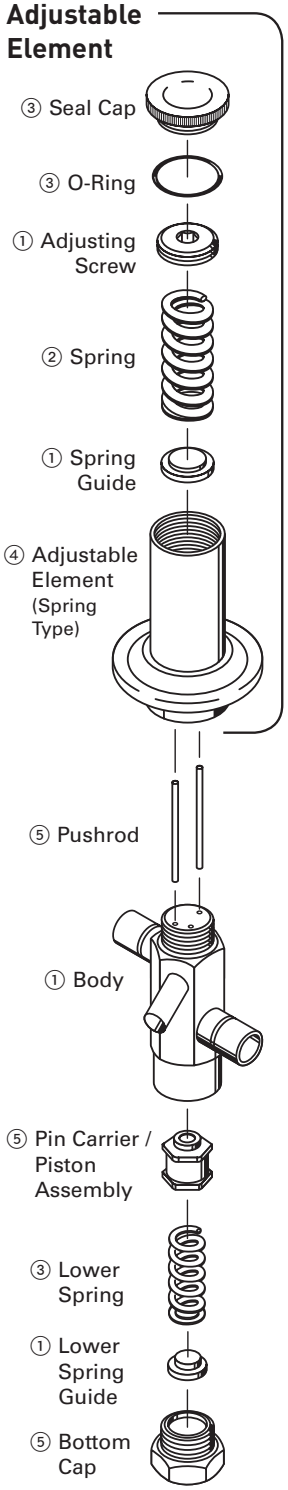
(A)DRI(E), (A)DRS(E), (A)DRP(E) and (A)DRH(E)

REPLACEMENT PARTS and PARTS KITS									
ITEM NO.	PART NUMBER and DESCRIPTION		VALVE TYPE						
			(A)DRI(E)	(A)DRS(E)-2	(A)DRP(E)-3	(A)DRH(E)-6	DRS(E)-2	DRP(E)-3	DRH(E)-6
			QUANTITY REQUIRED						
REPLACEMENT PARTS SOLD SEPARATELY									
183701	621-024	O-Ring		1	1	1			
908006	1373-000	Seal Cap		1	1	1			
183155	558-000	Lower Spring				1			1
183157	559-000				1				
183159	561-000							1	
183169	696-000			1			1		
183145	1031-000		1						
183026	1524-000	Inlet Str. 3/8 ODF	1						
908014	877-003	Inlet Str. 3/8 ODF		1			1		
908012	877-004	Inlet Str. 1/2 ODF		1	1		1	1	
908009	877-005	Inlet Str. 5/8 ODF		1	1	1	1	1	1
908011	877-007	Inlet Str. 7/8 ODF				1			1
908013	877-009	Inlet Str. 1-1/8 ODF				1			1
REPLACEMENT SPRING KITS (FOR ADJUSTABLE ELEMENTS)									
908023	K-1800E-1	0/30 Adj. Range		1	1	1			
908025	K-1800E-2	0/80 Adj. Range		1	1	1			
REPLACEMENT ELEMENTS									
—	A-4-****	Adjustable	1						
—	A-8-*			1					
—	A-3-*				1	1			
—	B-3P-**AR	Adjustable Remote Bulb						1	
—	B-3H-**AR								1
—	D-8-***	Non-Adjustable Dome					1		
—	D-3P-***							1	
—	D-3H-***								1
—	R-8-***	Non-Adjustable Bulb					1		
—	R-3P-***							1	
—	R-3H-***								1
REPLACEMENT INTERNAL PARTS KITS									
908043	KH-6	Includes: Pushrod, Piston Assembly, Lower Spring, Bottom Cap				1			1

* Specify 0/30 or 0/80 adjustment range.
** Specify 25/35, 32/44, 55/70, 50/65, or 65/80 adjustment range.
*** Specify pressure setting.
**** Specify 0/55, 0/75 or 0/100 adjustment range. Available for replaceable element style valves only. The design change to replaceable elements began in 1993.

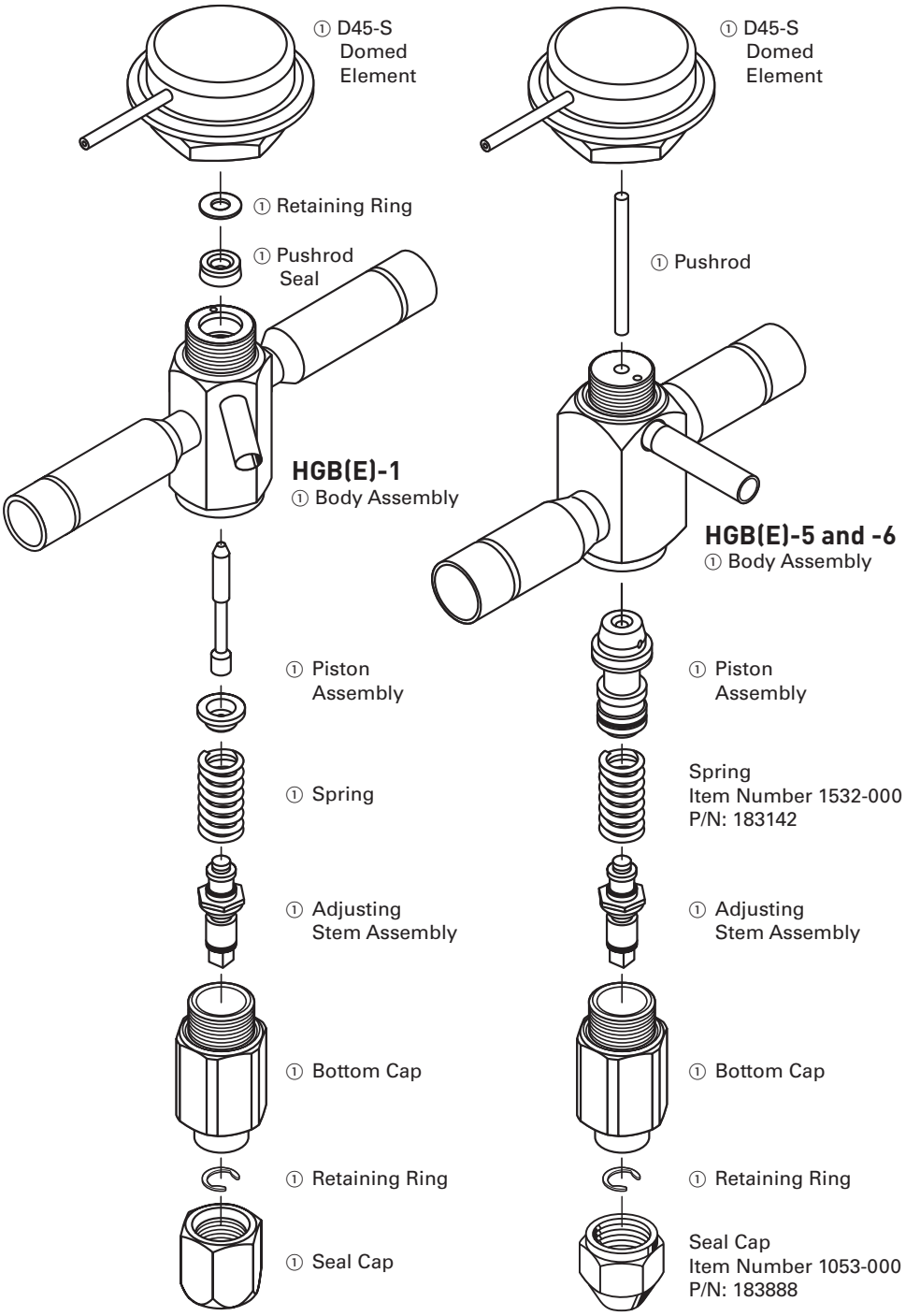
① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Replacement Springs Kit and **is** in the Replacement Element. See Table above.
③ Part **is** available separately. See Table above.
④ Part **is** available as a replacement element. See Table above.
⑤ Part available for (A)DRHE-6 only in KH-6 kit.





Pressure Regulating Valves

HGB(E)-1, -5, -6



① Replacement part **not** available.

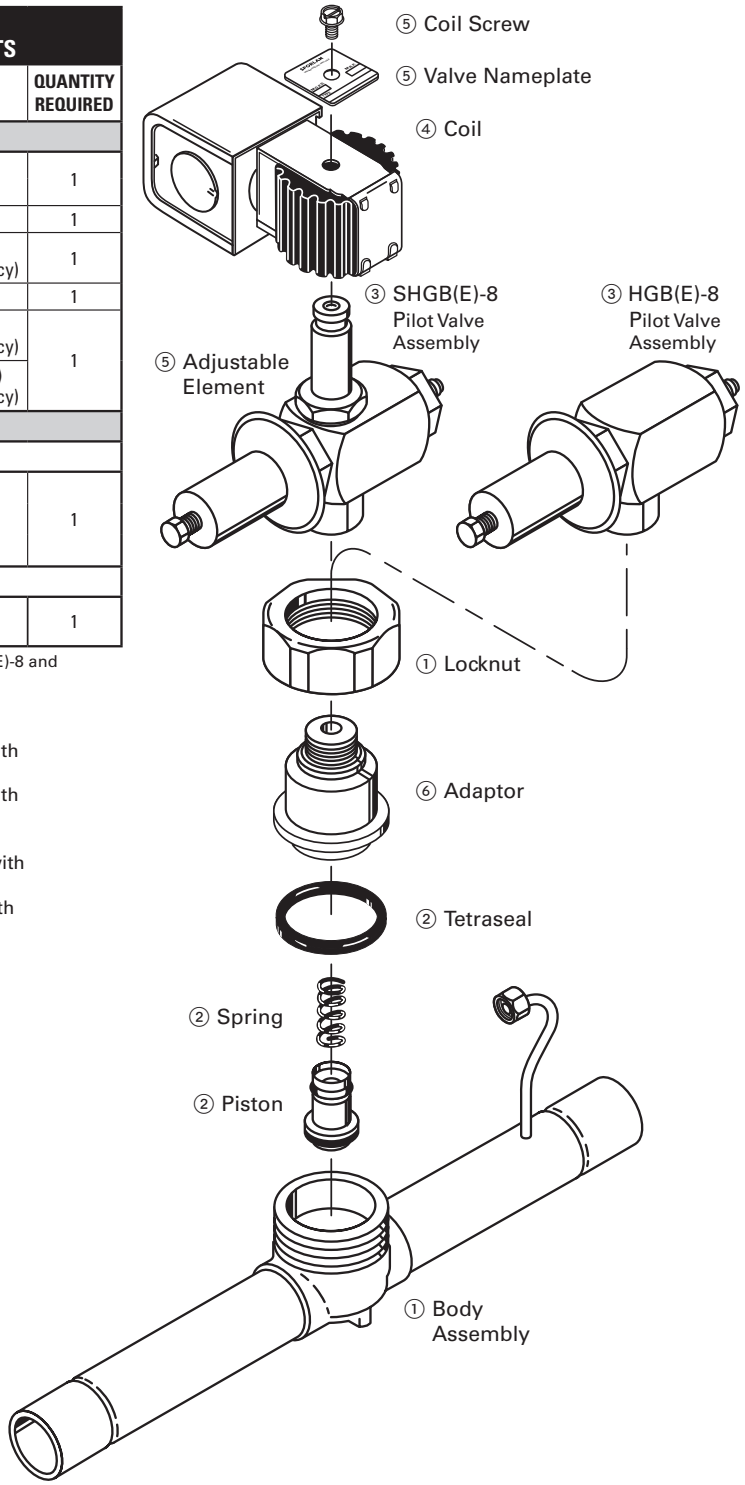
Pressure Regulating Valves

(S)HGB(E)-8

SHGB(E)-8-0/100 REPLACEMENT PARTS and PARTS KITS			
ITEM NUMBER	**PART NUMBER and DESCRIPTION**		**QUANTITY REQUIRED**
REPLACEMENT PARTS SOLD SEPARATELY			
908024	A-4-0/100	Adjustable Element	1
908073	A-4-75/150		
958101	1390-000	Coil Screw	1
—	MKC-1 Coil	MKC-1 Coil (Specify Voltage & Frequency)	1
183620	123-002	Gasket	1
—	5041-000	Valve Nameplate (SHGB-8) (Specify Voltage & Frequency)	1
—	5041-001	Valve Nameplate (SHGBE-8) (Specify Voltage & Frequency)	
REPLACEMENT PARTS KITS			
PILOT ASSEMBLY KIT			
958157	K-(S)HGB(E)-8-0/75	Includes: Pilot Valve Assembly, Coil Screw, and Valve Nameplate	1
958156	K-HGB(E)-8-75/150		
958110	K-(S)HGB(E)-8-0/100		
INTERNAL PARTS KIT			
958120	KS-(S)HGB(E)-8*	Includes: Adaptor, Gasket, Spring and Piston	1

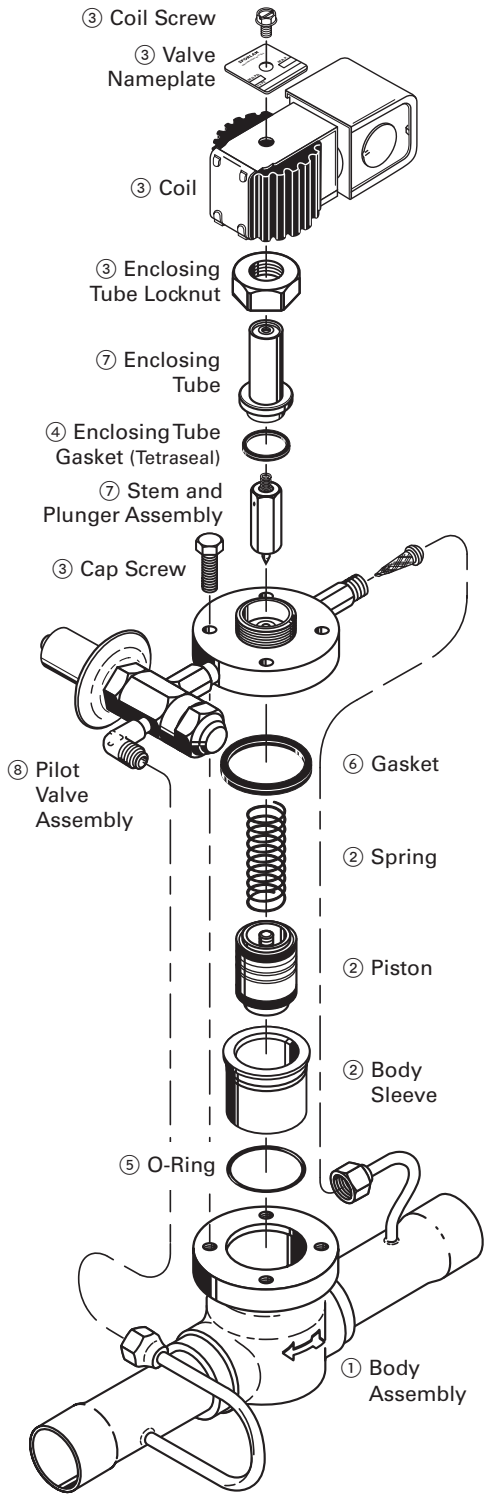
* The KS-(S)HGB(E)-8 parts kit is used with both the SHGB(E)-8 and the HGB(E)-8.

① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Parts Kit.
③ Part is **not** available separately, but **is** included with the Pilot Assembly Parts Kit.
④ Part **is** available separately.
⑤ Part **is** available separately and **is** also included with the Pilot Assembly Parts Kit.
⑥ Part is **not** available separately but **is** included with the Pilot Assembly Kit and the Internal Parts Kit.



Pressure Regulating Valves

SHGB(E)-15



SHGB(E)-15-0/75 REPLACEMENT PARTS and PARTS KITS			
ITEM NUMBER	**PART NUMBER and DESCRIPTION**		**QUANTITY REQUIRED**
REPLACEMENT PARTS SOLD SEPARATELY			
908024	A-4-0/75	Adjustable Element	1
183060	2625-002	Cap Screw	4
958101	1390-000	Coil Screw	1
—	MKC-2 Coil	MKC-2 Coil (Specify Voltage & Frequency)	1
183660	641-3*	Enclosing Tube Gasket	1
382150	13252-1	Enclosing Tube Locknut	1
183675	2645-000	Gasket	1
183602	621-028	O-Ring	1
958042	2445-000	Strainer	1
—	548-001	Valve Nameplate (SHGB) (Specify Voltage & Frequency)	1
—	548-003	Valve Nameplate (SHGBE) (Specify Voltage & Frequency)	1
REPLACEMENT PARTS KITS			
PILOT ASSEMBLY KIT			
958022	K-Y917	Includes: Pilot Valve Assembly, Enclosing Tube Locknut, Enclosing Tube, Stem and Plunger Assembly, Enclosing Tube Gasket, Inlet Strainer Screen and Tetraseal, (4) Cap Screws	1
INTERNAL PARTS KIT			
958021	KS-SHGB-15	Includes: Piston, Body Sleeve, O-Ring, Spring and Gasket	1
ENCLOSING TUBE KIT			
382355	KE-9	Includes: Enclosing Tube Assembly, Enclosing Tube Gasket, Coil Screw	1

* Refer to the table below regarding part numbers for the enclosing tube gasket (tetraseal) and the new wolverine gasket.

Item Number	New Style Wolverine Gasket	Item Number	Old Style Tetraseal Gasket
380104	14000-2	183660	641-3

The SHGB(E)-15, OLDR-15, LDR-15, XTM, XTO, LDR-20, OLDR-20 and DDR-20 valves have been redesigned. The design change includes a new enclosing tube gasket that can easily be identified as a thin, synthetic coated metal gasket. The old gasket is a thicker type of O-ring with a square cross section, known as a tetraseal. See the partial cross sections of the valve body above.

The gaskets and the enclosing tubes of the two designs are not interchangeable. The new enclosing tube assembly with both a wolverine gasket and a tetraseal are included in the replacement parts kit for the valves listed above.

① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Internal Parts Kit.
③ Part **is** available separately.
④ Part **is** available separately and **is** also included with the Enclosing Tube Kit.
⑤ Part **is** available separately and **is** also included with the Internal Parts Kit.
⑥ Part **is** available separately and **is** also included with the Pilot Assembly Kit and the Internal Parts Kit.
⑦ Part is **not** available separately but **is** included with the Pilot Assembly Kit and the Enclosing Tube Kit.
⑧ Part is **not** available separately but **is** included with the Pilot Assembly Kit.

Pressure Regulating Valves

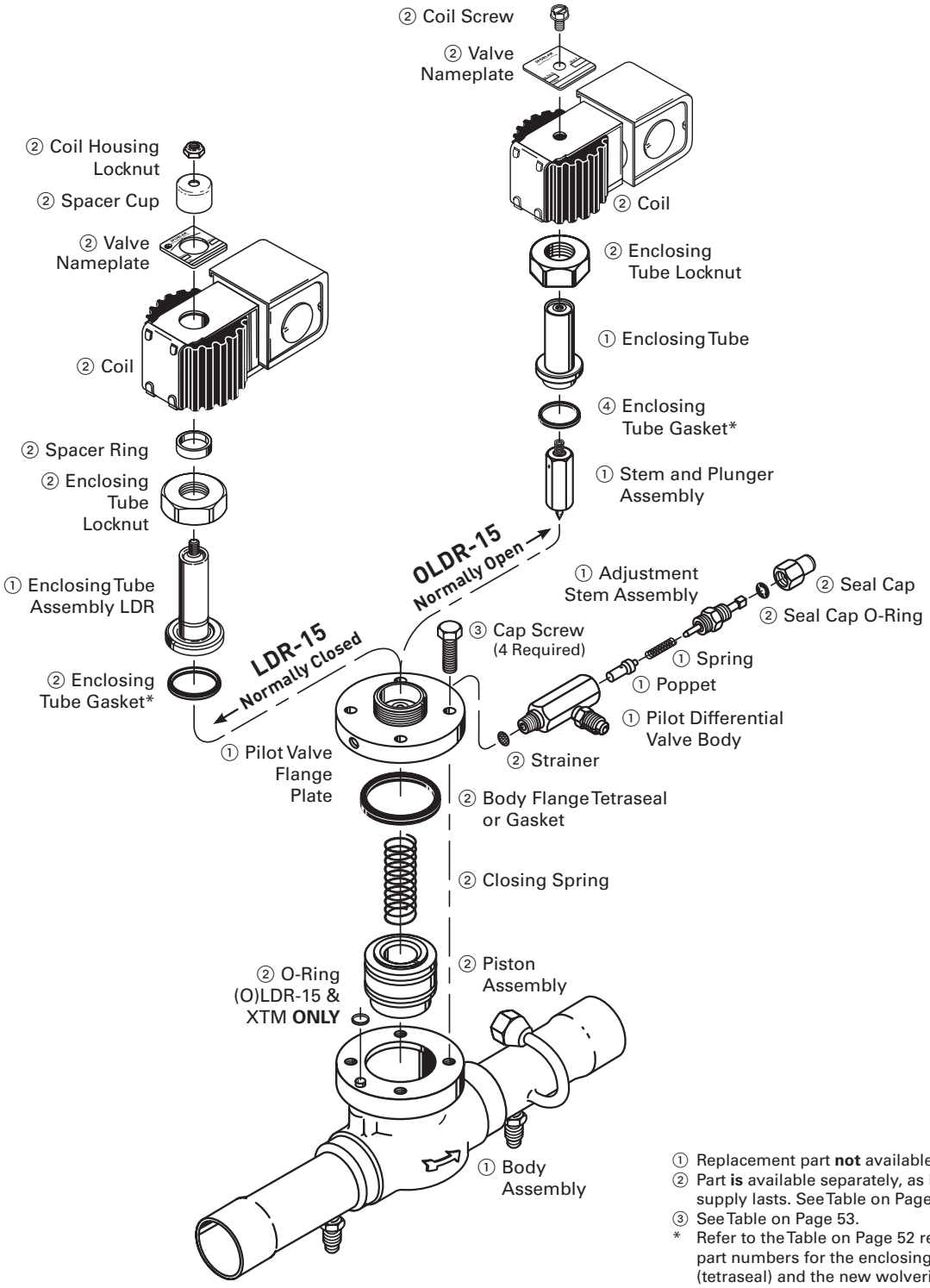
(O)LDR

(O)LDR REPLACEMENT PARTS and PARTS KITS												
ITEM NUMBER	PART NUMBER and DESCRIPTION DRAWINGS ON PAGES 54, 55 and 56		VALVE TYPE and SIZE									
			LDR-15	XTM	OLDR-15	LDR-16	OLDR-16	LDR-20	XTO	OLDR-20	LDR-21	OLDR-21
			QUANTITY REQUIRED									
REPLACEMENT PARTS SOLD SEPARATELY												
—	641-006 (Prior to 2004)		1	1	1							
183675	2645-000 (2004 or newer)	Body Flange Tetraseal	1	1	1							
382260	21007-7	Cap Screw						4	4	4		
—	21028-7					4	4					
382200	4208-5		4	4	4							
—	15819-6										4	4
—	MKC-1	Coil (Specify Voltage & Frequency)					1					1
—	MKC-2				1					1		
—	OMKC-1					1					1	
—	OMKC-2		1	1				1	1			
382005	1025-1	Coil Housing Locknut	1	1				1	1			
382009	1025-7					1					1	
958101	1390-000	Coil Housing Screw			1		1			1		1
183660	641-3 (Prior to 3-1999)	Enclosing Tube Gasket (Tetraseal)*	1	1	1			1	1	1		
380104	14000-2 (As of 3-1999)											
380103	14000-1					1	1				1	1
382150	13252-1	Enclosing Tube Locknut	1	1	1			1	1	1		
382155	13256-2					1	1				1	1
183710	938-1	Gasket						1	1	1		
183703	621-008 (Prior to 2004)	O-Ring	1	1	1							
958148	4508-008 (2004 or newer)	O-Ring	1	1	1							
183608	621-11	O-Ring (small)				2	2					
968030	621-036	O-Ring (large)				1	1					
183613	623-110	O-Ring (small)									2	2
183614	623-150	O-Ring (large)									1	1
382580	2003-1	Seal Cap	1	1	1	1	1	1	1	1	1	1
382623	638-106	Seal Cap O-Ring	1	1	1	1	1	1	1	1	1	1
382003	2527-1	Spacer Ring	1	1				1	1			
382020	2717-6	Spacer Cup	1	1				1	1			
382034	15582-6					1						
—	15582-7										1	
958069	173-000	Strainer	1	1	1			1	1	1		
382008	14115	Valve Nameplate (Specify Valve Type, Voltage & Frequency)	1	1	1	1	1	1	1	1	1	1
REPLACEMENT PARTS KITS												
PILOT DIFFERENTIAL ASSEMBLY KIT												
382640	KS-XTT-1	Pilot Differential Valve	1	1	1			1	1	1		
INTERNAL PARTS KIT												
—	KS-XTM	N/A										
—	KS-OLDR -15	N/A										
381653	KS-OLDR-16	Upper Valve Assembly Piston Assembly Enclosing Tube Locknut Closing Spring, O-Ring (large) O-Ring (small), Cap Screws					1					
381634	KS-XTO	Enclosing Tube Enclosing Tube Gasket Stem & Plunger Assembly Piston Assembly Closing Spring, Gasket						1	1			
381650	KS-OLDR -20	Enclosing Tube Gasket Plunger Assembly Piston Assembly, Closing Spring Gasket, Enclosing Tube								1		
382652	KS-OLDR -21	Upper Valve Assembly Piston Assembly Enclosing Tube Locknut Closing Spring, O-Ring (large) O-Ring (small), Cap Screws										1
ENCLOSING TUBE KIT												
382355	KE-9	Enclosing Tube Assembly Enclosing Tube Gasket, Coil Screw			1					1		
382435	KE-6						1					1
381405	KSOB9/OE9		1					1				

* Refer to the table on Page 52 regarding part numbers for the enclosing tube gasket (tetraseal) and the new wolverine gasket.

Pressure Regulating Valves
(O)LDR-15

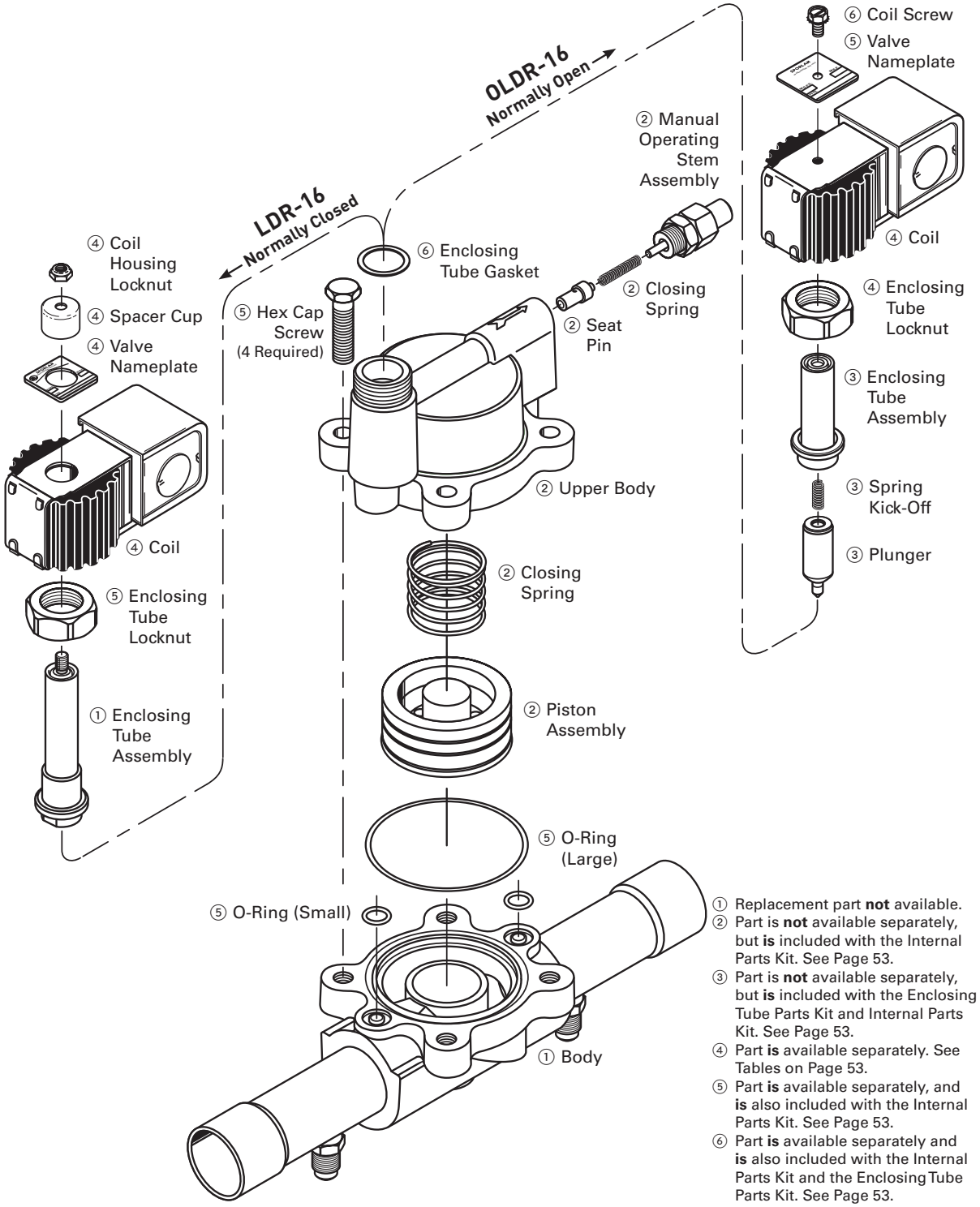
FOR REFERENCE ONLY
Replacement Parts are no longer available
See Parts Table on Page 53



① Replacement part **not** available.
② Part **is** available separately, as long as supply lasts. See Table on Page 53.
③ See Table on Page 53.
* Refer to the Table on Page 52 regarding part numbers for the enclosing tube gasket (tetraseal) and the new wolverine gasket.

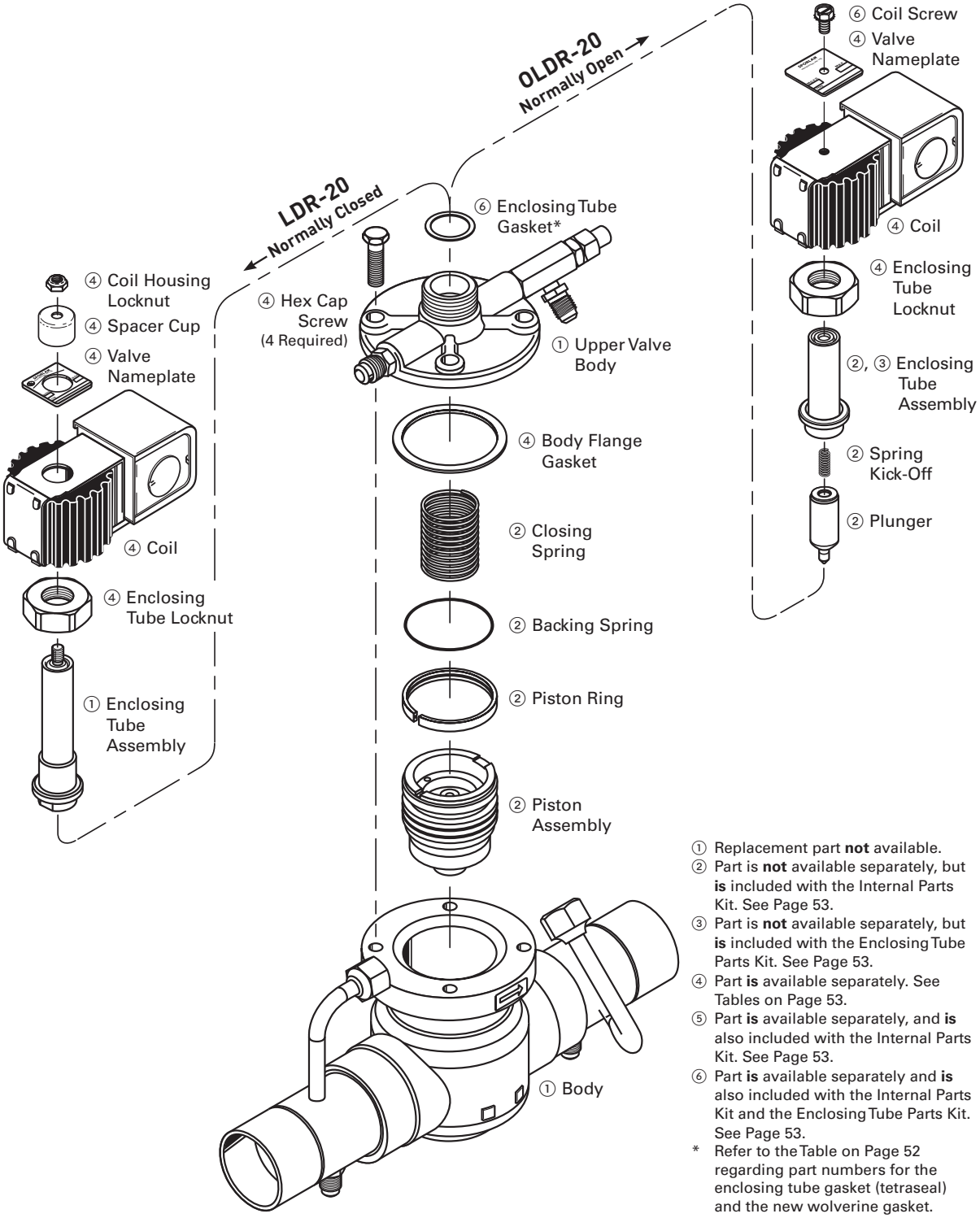
Pressure Regulating Valves

(O)LDR-16



① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Internal Parts Kit. See Page 53.
③ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit and Internal Parts Kit. See Page 53.
④ Part **is** available separately. See Tables on Page 53.
⑤ Part **is** available separately, and **is** also included with the Internal Parts Kit. See Page 53.
⑥ Part **is** available separately and **is** also included with the Internal Parts Kit and the Enclosing Tube Parts Kit. See Page 53.

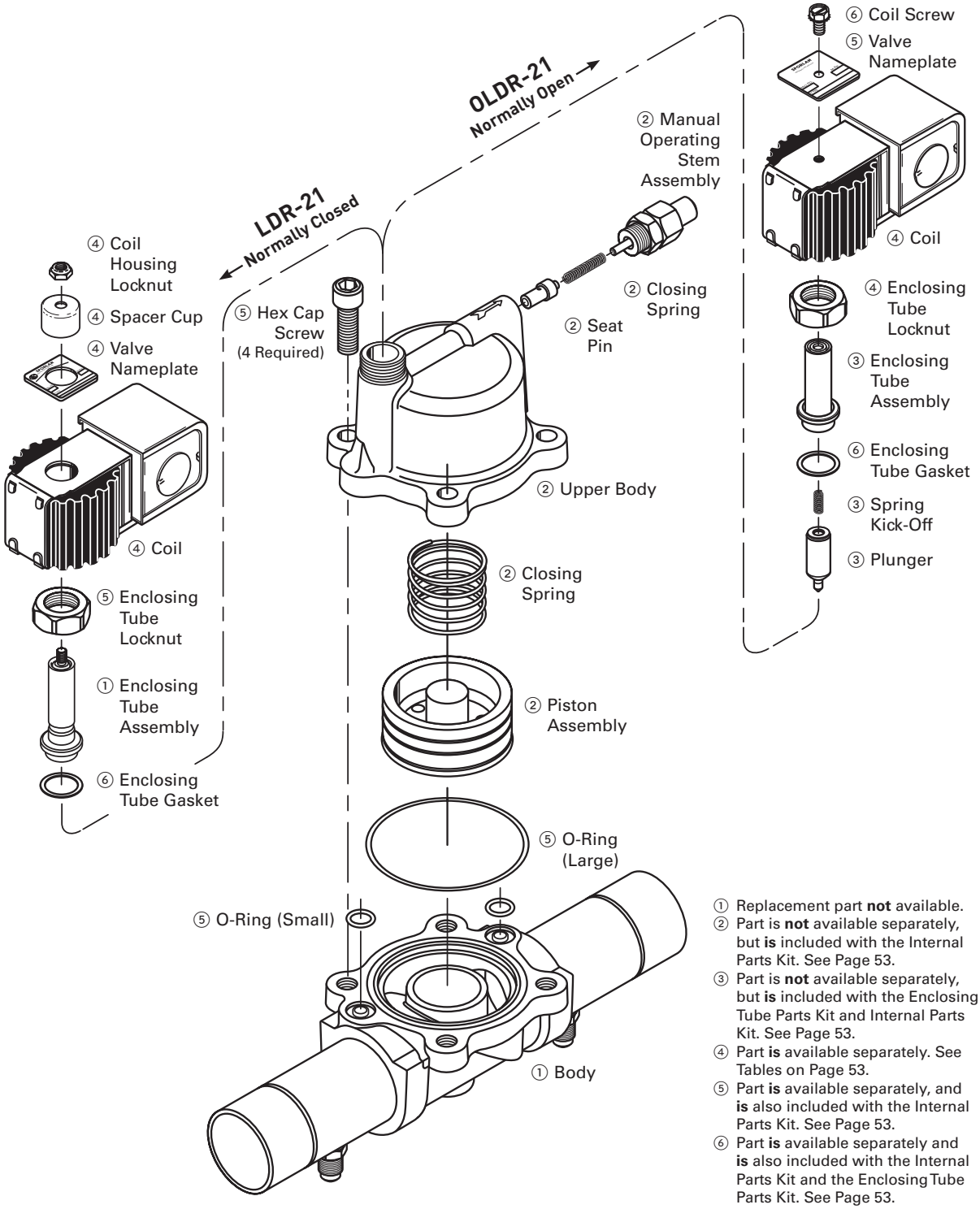
Pressure Regulating Valves
(O)LDR-20



① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Internal Parts Kit. See Page 53.
③ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit. See Page 53.
④ Part **is** available separately. See Tables on Page 53.
⑤ Part **is** available separately, and **is** also included with the Internal Parts Kit. See Page 53.
⑥ Part **is** available separately and **is** also included with the Internal Parts Kit and the Enclosing Tube Parts Kit. See Page 53.
* Refer to the Table on Page 52 regarding part numbers for the enclosing tube gasket (tetraseal) and the new wolverine gasket.

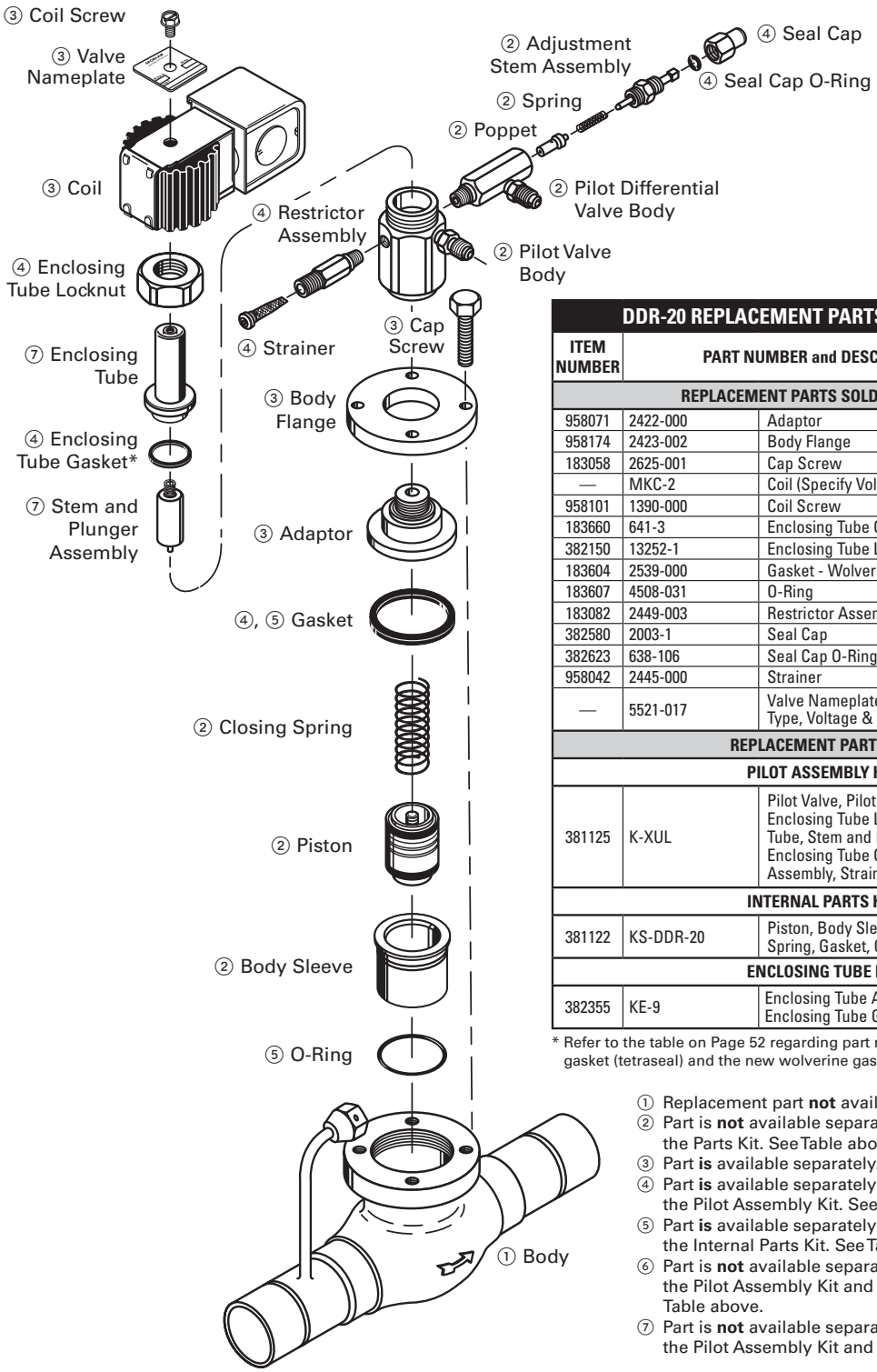
Pressure Regulating Valves

(O)LDR-21



① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Internal Parts Kit. See Page 53.
③ Part is **not** available separately, but **is** included with the Enclosing Tube Parts Kit and Internal Parts Kit. See Page 53.
④ Part **is** available separately. See Tables on Page 53.
⑤ Part **is** available separately, and **is** also included with the Internal Parts Kit. See Page 53.
⑥ Part **is** available separately and **is** also included with the Internal Parts Kit and the Enclosing Tube Parts Kit. See Page 53.

Pressure Regulating Valves
DDR-20



DDR-20 REPLACEMENT PARTS and PARTS KITS			
ITEM NUMBER	**PART NUMBER and DESCRIPTION**		**QUANTITY REQUIRED**
REPLACEMENT PARTS SOLD SEPARATELY			
958071	2422-000	Adaptor	1
958174	2423-002	Body Flange	1
183058	2625-001	Cap Screw	4
—	MKC-2	Coil (Specify Voltage & Frequency)	1
958101	1390-000	Coil Screw	1
183660	641-3	Enclosing Tube Gasket (Tetraseal)*	1
382150	13252-1	Enclosing Tube Locknut	1
183604	2539-000	Gasket - Wolverine	1
183607	4508-031	O-Ring	1
183082	2449-003	Restrictor Assembly	1
382580	2003-1	Seal Cap	1
382623	638-106	Seal Cap O-Ring	1
958042	2445-000	Strainer	1
—	5521-017	Valve Nameplate (Specify Valve Type, Voltage & Frequency)	1
REPLACEMENT PARTS KITS			
PILOT ASSEMBLY KITS			
381125	K-XUL	Pilot Valve, Pilot Differential Valve, Enclosing Tube Locknut, Enclosing Tube, Stem and Plunger Assembly, Enclosing Tube Gasket, Restrictor Assembly, Strainer, Gasket	1
INTERNAL PARTS KITS			
381122	KS-DDR-20	Piston, Body Sleeve, Closing Spring, Gasket, O-Ring	1
ENCLOSING TUBE KIT			
382355	KE-9	Enclosing Tube Assembly, Enclosing Tube Gasket, Coil Screw	1

* Refer to the table on Page 52 regarding part numbers for the enclosing tube gasket (tetraseal) and the new wolverine gasket.

① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the Parts Kit. See Table above.
③ Part **is** available separately. See Table above.
④ Part **is** available separately and **is** also included with the Pilot Assembly Kit. See Table above.
⑤ Part **is** available separately and **is** also included with the Internal Parts Kit. See Table above.
⑥ Part is **not** available separately, but **is** included with the Pilot Assembly Kit and the Internal Parts Kit. See Table above.
⑦ Part is **not** available separately but **is** included with the Pilot Assembly Kit and the Enclosing Tube Kit.

Pressure Regulating Valves

Replacement Parts

CRANKCASE PRVs - EVAPORATOR PRVs - HEAD PRESSURE REGULATING VALVES								
ITEM NUMBER	PART NUMBER and DESCRIPTION		VALVE TYPE					
			CRO(E)-4	CRO(T)-6	CRO(T)-10	ORI(T)-6	ORI(T)-10	OROA-5
908039	838-000 ③	Valve Cap		1		1		
908041	895-000 ③				1		1	
183690	621-016	O-Ring, Valve Cap		1		1		
183601	621-023				1		1	
908017	KO-6-100/290	Spring Kit ①				1		
908019	KO-10-100/290	Spring Kit ②					1	
908008	A4-S-0/20	Adjustable Element	1					
908010	A4-S-0/50							
908074	825-003	Inlet Strainer (3/8" ODF)	1					
908002	825-004	Inlet Strainer (1/2" ODF)						
908001	825-005	Inlet Strainer (5/8" ODF)		1		1		1
908003	825-007	Inlet Strainer (7/8" ODF)			1		1	1
908005	825-009	Inlet Strainer (1-1/8" ODF)						
908007	825-011	Inlet Strainer (1-3/8" ODF)						

CONSTANT PRESSURE (AUTOMATIC) EXPANSION VALVES							
ITEM NUMBER	PART NUMBER and DESCRIPTION		VALVE TYPE				
			C	S	P	PDA	AJ(E) or ADRI(E)
908026	A-2-0/80	Adjustable Element				1	
908028	A-3-0/30				1		
908030	A-3-0/80						
908020	A4-0/55						1
908022	A4-0/75						
908073	A4-75/150						
908027	A-8-0/30		1	1			
908029	A-8-0/80						

Internal Parts Kits for Constant Pressure Expansion Valves are identical to the corresponding G, C, S, or PTEV Internal Parts Kits (refer to Page 20), however, the pushrod height requirements are different. The PDA-1-0/80 requires a pushrod height 0.008" greater than a DA(E)-1, the C and S Constant Pressure Expansion Valves require a pushrod height 0.018" greater than a C or S Thermostatic Expansion Valve and the P Constant Pressure Expansion Valve requires a pushrod height 0.010" greater than a P Thermostatic Expansion Valve. Internal Parts Kits are not available for AJ(E), NJ(E), or (A)DRI(E) valves.

① Can be used with ORI-6-65/225 to change adjustment range to 80/325.
② Can be used with ORI-10-65/225 to change adjustment range to 100/290.
③ Specify valve type and adjustment range.

HEAD PRESSURE CONTROL VALVES					
ITEM NUMBER	PART NUMBER and DESCRIPTION		VALVE TYPE		
			LAC-4	LAC-5	LAC-10
908074	825-003	Inlet Strainer (3/8" ODF)	2		
908002	825-004	Inlet Strainer (1/2" ODF)			
—	D3L-④	Non-adjustable Dome Element		1	1
—	R3L-④	Non-adjustable Remote Bulb Element		1	1

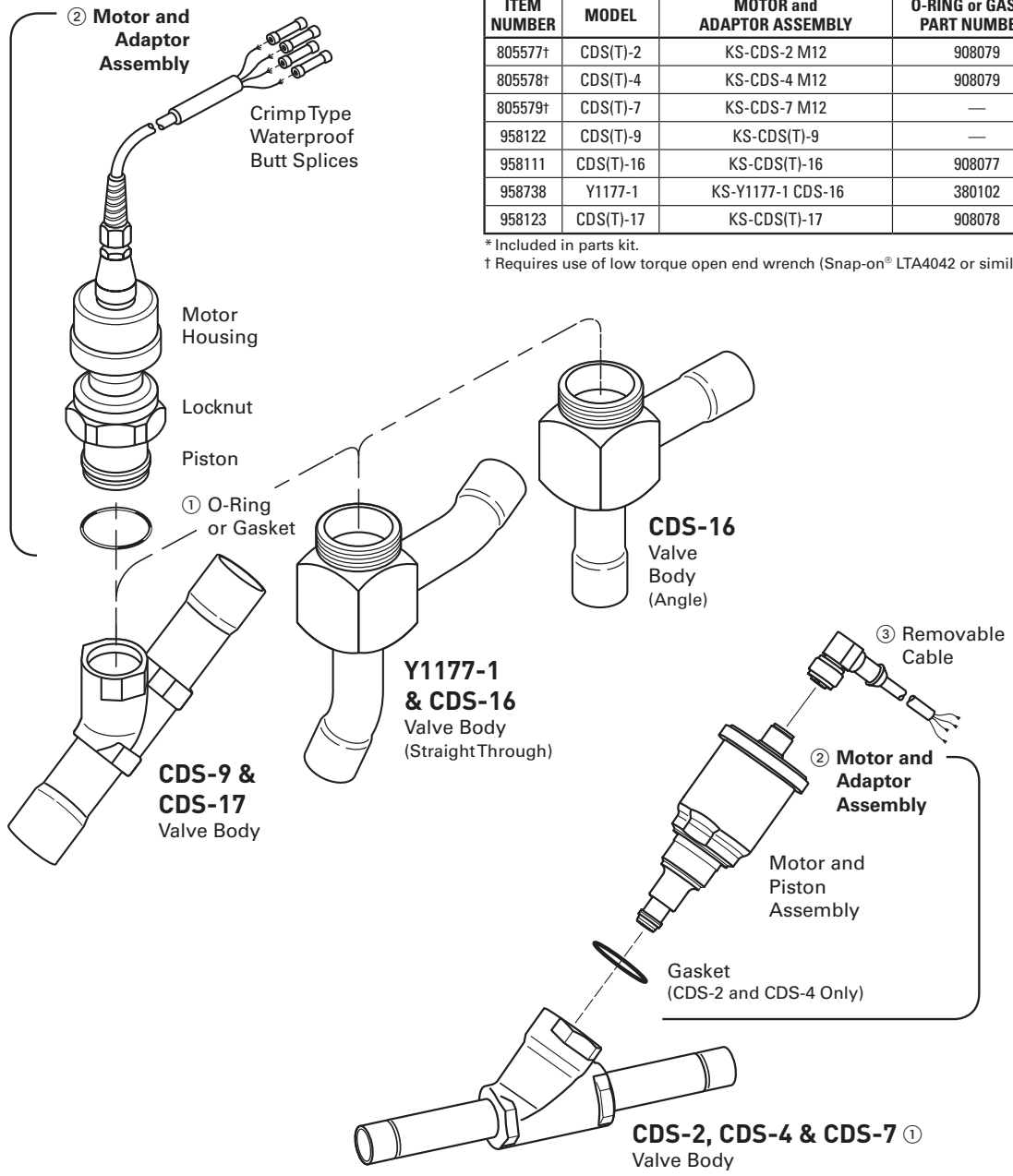
④ Specify setting.

Electronic Temperature Control Systems - Electric Valves

CDS Series

CDS PARTS KITS			
ITEM NUMBER	MODEL	MOTOR and ADAPTOR ASSEMBLY	O-RING or GASKET PART NUMBER*
805577†	CDS(T)-2	KS-CDS-2 M12	908079
805578†	CDS(T)-4	KS-CDS-4 M12	908079
805579†	CDS(T)-7	KS-CDS-7 M12	—
958122	CDS(T)-9	KS-CDS(T)-9	—
958111	CDS(T)-16	KS-CDS(T)-16	908077
958738	Y1177-1	KS-Y1177-1 CDS-16	380102
958123	CDS(T)-17	KS-CDS(T)-17	908078

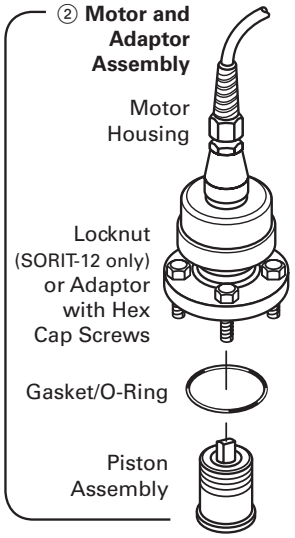
* Included in parts kit.
† Requires use of low torque open end wrench (Snap-on® LTA4042 or similar).



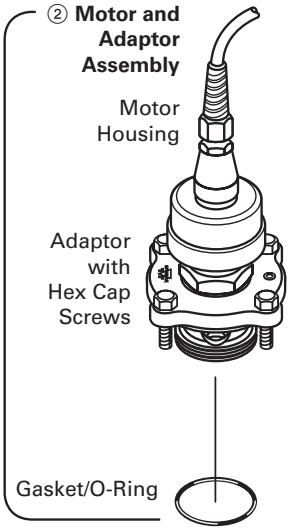
① CDS-7 and CDS-9 do not require an O-Ring or Gasket.
② All joints are sealed and no attempt should be made to disassemble.
③ Replacement motor kit will have M12 connector for CDS-2, 4, and 7. Replacement of existing cable may be necessary. Cable styles are shown on page 69 for reference.

Electronic Temperature Control Systems - Electric Valves

SORIT / A8 / A9 to CDS Series



SORIT to CDS
Conversion Kit



A8/A9 to CDS†
Conversion Kit

SORIT TO CDS CONVERSION KITS				
ITEM NUMBER	KIT NUMBER and DESCRIPTION		VALVE TYPE	GASKET PART NUMBER
901656	KIT-SORIT-12 to CDS	Motor, Adaptor, Lock Nut 2645-000 Seal Gasket Piston Assembly	(S)ORIT-12	183675
901654	KIT-SORIT-15 to CDS	Motor Adaptor with Hex Cap Screws 0621-129 O-Ring Piston Assembly	(S)ORIT-15	183603
901655	KIT-SORIT-20 to CDS	Motor Adaptor with Hex Cap Screws 2539-000 Gasket Piston Assembly	(S)ORIT-20	183604

CONVERSION KIT CROSS REFERENCE†				
VALVE TYPE	PORT SIZE	CONVERSION KIT	ITEM NUMBER	GASKET PART NUMBER
A81	5/8″	A81 to SDR-5	183903	202701 Parker Refrigerating Specialties
A8A	3/8″			
	5/8″			
(S)PORT or (S)PORT-II	3/8″			
	5/8″			
A81	7/8″	A81 to CDS-17	183904	
	1-1/8″			
	1-3/8″			
A8A	7/8″			
(S)PORT or (S)PORT-II	7/8″			
	1-1/8″			
	1-3/8″			
A82*	1-5/8″	A82 to CDS-17	183905	
	2-1/8″			
(S)PORT*	1-5/8″			
	2-1/8″			
A9	3/8″	A9 to CDS	805580	
	5/8″			
	7/8″			
	1-1/8″			

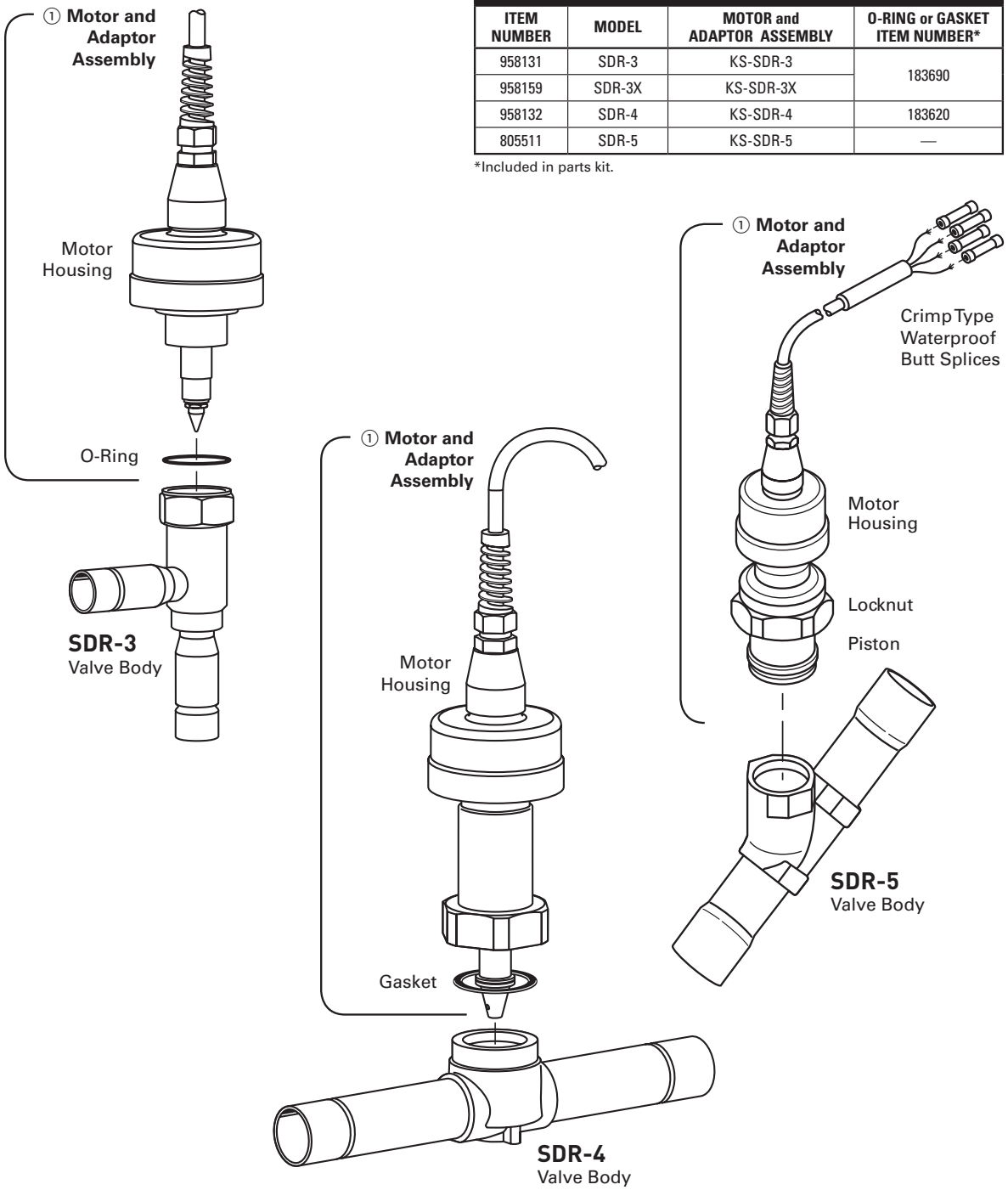
*2-5/8″ port not supported.
† A8 shown.

Electronic Temperature Control Systems - Electric Valves

SDR Series

SDR PARTS KITS			
ITEM NUMBER	MODEL	MOTOR and ADAPTOR ASSEMBLY	O-RING or GASKET ITEM NUMBER*
958131	SDR-3	KS-SDR-3	183690
958159	SDR-3X	KS-SDR-3X	
958132	SDR-4	KS-SDR-4	183620
805511	SDR-5	KS-SDR-5	—

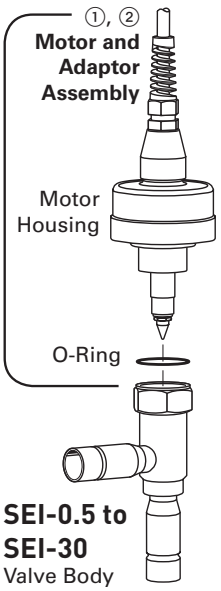
*Included in parts kit.



No motor kit available for SDR-1X, 2, and 2X.
① All joints are sealed and no attempt should be made to disassemble.

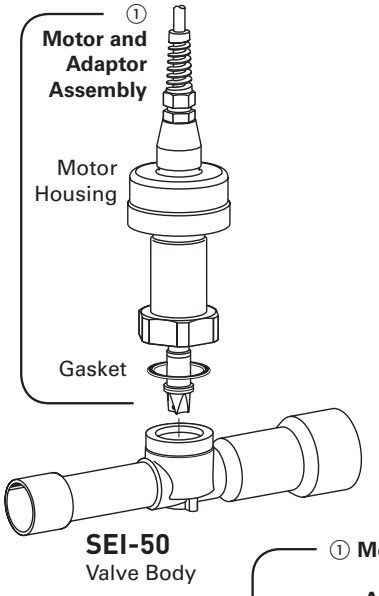
Electronic Temperature Control Systems - Electric Valves

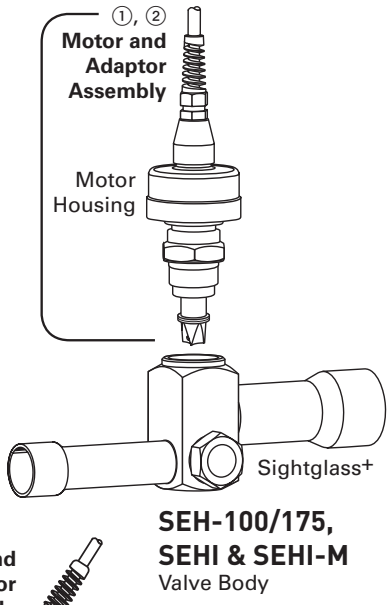
SEI, SEH and SEHI Series

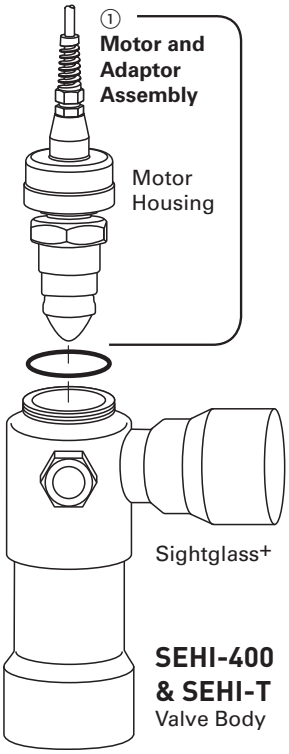


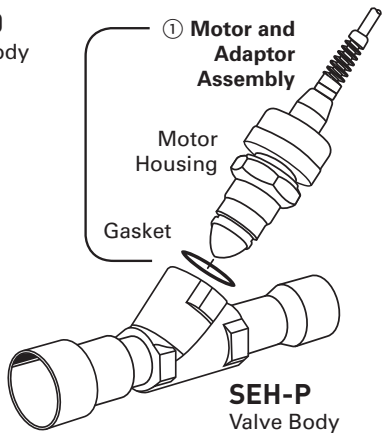
SEI, SEH and SEHI PARTS KITS					
ITEM NUMBER	MODEL	MOTOR and ADAPTOR ASSEMBLY	O-RING or GASKET ITEM NUMBER*	SIGHTGLASS** ITEM NUMBER	TORQUE VALUE
—	SEI-0.5-SEI-11	No Motor Kit Available	183690	None	45 ft.-lbs.
958146	SEI-30	KS-SEI-30	183690	None	45 ft.-lbs.
958124	SEI-50	KS-SEI-50	183620	None	45 ft.-lbs.
958125	SEH-100, SEH-175	KS-SEH-100/175	None	None	Not Applicable
—	SEH-P	No Motor Kit Available	908078	None	Not Applicable
958126	SEHI-100, SEHI-175	KS-SEH(I)-100/175	None	780043	Not Applicable
380821	SEHI-400	KS-Y1218/Y1231/SEHI-400	908078	780043	Not Applicable
958126	SEHI-M	KS-SEH(I)-100/175	None	780043	Not Applicable
953349	SEHI-T	Kit SEHI-T Motor Kit 20'-S	None	780043	Not Applicable

All motor kits are supplied with a 24 inch lead wire with waterproof butt splice connections.
* Included in parts kit.
** Sightglass includes indicator paper.









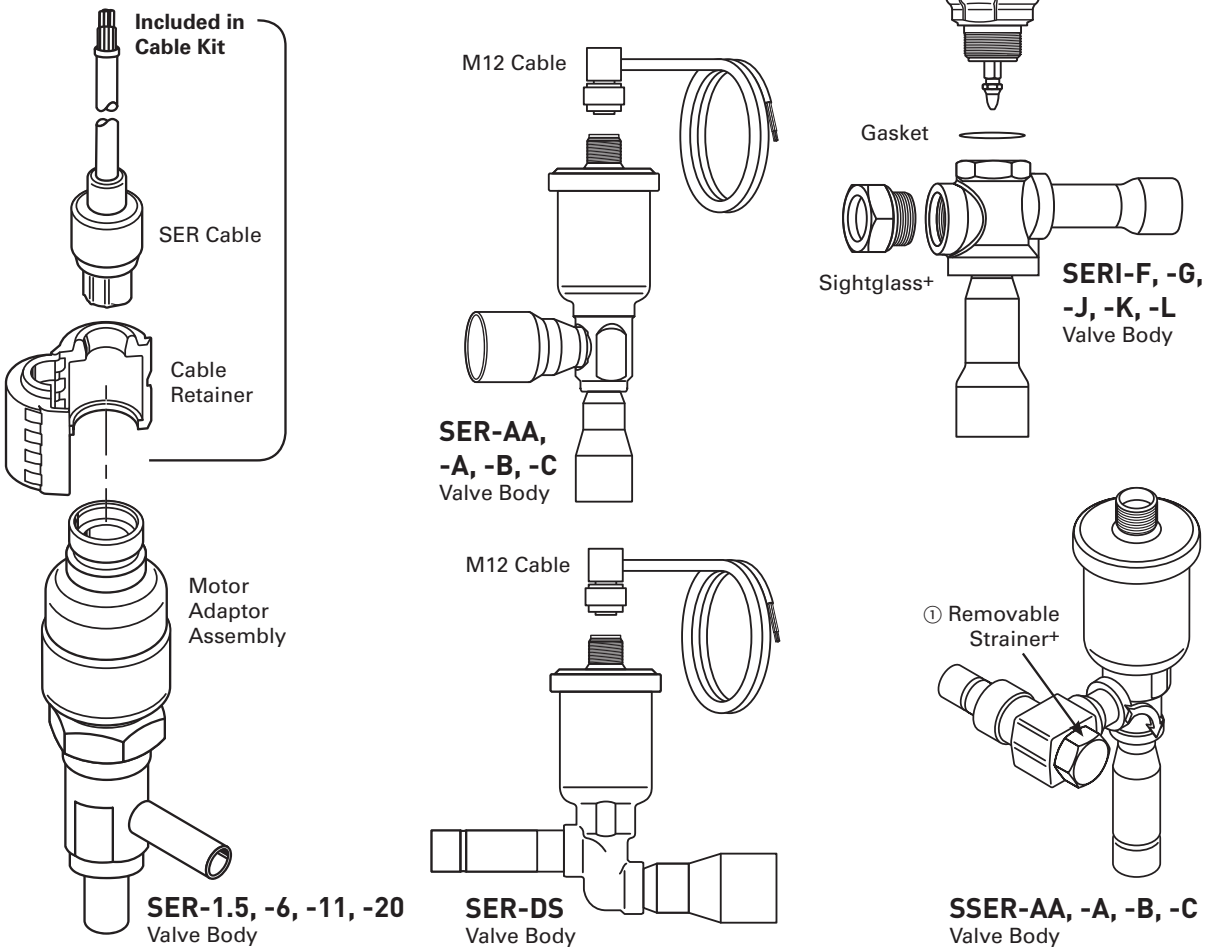
SEI valves are considered obsolete, see EEV Cross Reference on page 65 for recommend valve replacement. Number of steps and chopping current set points may have to be modified for replacement valve.
① All joints are sealed and no attempt should be made to disassemble.
② Motor kit not available for SEI-0.5 – SEI-11 but may be serviced without removing the body.
\+ Knife edge joint, no gasket required.

Electronic Temperature Control Systems - Electric Valves

SER, SERI and SSER Series

SER(I) PARTS KITS				
ITEM NUMBER	MODEL	MOTOR and ADAPTOR ASSEMBLY	O-RING or GASKET ITEM NUMBER*	SIGHTGLASS** ITEM NUMBER
—	SER-1.5, -6, -11, -20	Not Available		
—	SER-AA, -A, -B, -C, -DS	Not Available		
805572	SERI-F†	KIT-KS-SER-FM12 ②	908079	780043
805573	SERI-G(S)†	KIT-KS-SER-GM12 ②	908079	780043
805574	SERI-J(S)†	KIT-KS-SER-JM12 ②	908079	780043
805575	SERI-K(S)†	KIT-KS-SER-KM12 ②	908079	780043
805576	SERI-L(S)†	KIT-KS-SER-LM12 ②	908079	780043

* Included in parts kit.
** Sightglass includes indicator paper.
† Requires use of low torque open end wrench (Snap-on® LTA4042 or similar).



SER valves ending in a number are considered obsolete, see EEV Cross Reference on page 65 for recommend valve replacement. Number of steps and chopping current set points may have to be modified for replacement valve.

① SSER-AA, A, B, and C are similar to corresponding SER models but have **Removable Strainer P/N: 183002**. Motor assemblies are not serviceable.

② Replacement motor kit will have M12 connector. Cable replacement may be necessary. See page 69.

\+ Knife edge joint, no gasket required.

Electronic Temperature Control Systems - Electric Valves

EEV Cross Reference

EEV CROSS REFERENCE				
ORIGINAL VALVE			PREFERRED VALVE	
Steps	Model		Model	Steps
1,596	SEI-.5	SER-1.5	SER-AA	2,500
	SEI-1.5		SER-A SER-B	
	SEI-2.5 SEI-3.5 SEI-6	SER-6	SER-C	
	SEI-8.5 SEI-11	SER-11	SER-D	
3,193	SEI-30	SER-20*	SERI-F SERI-G(S)	
		—	SERI-J(S)	
6,386	SEI-50	—	SERI-K(S)	
	SEH(I)-100	—	SERI-L(S)	
			SEH(I)-175	6,386
			SEH-P	
			SEHI-400	
			SEHI-T	

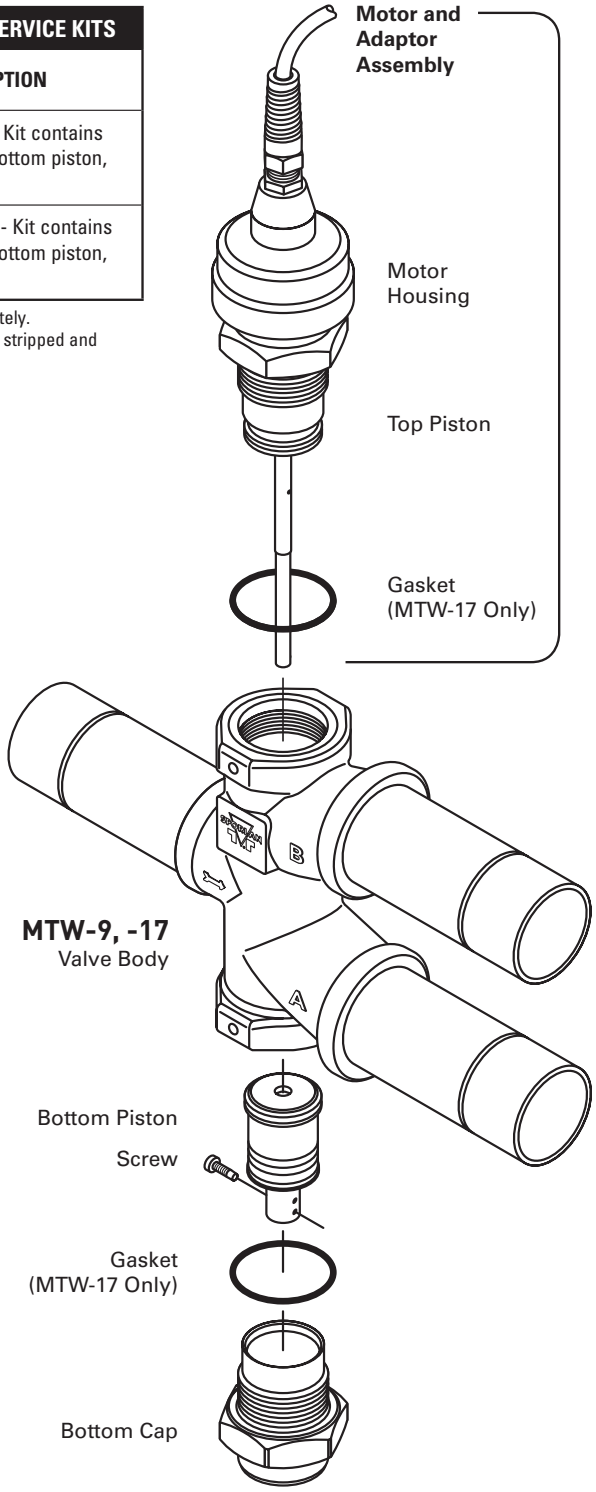
*SER-20 has 1,596 steps.

Electronic Temperature Control Systems - Electric Valves

MTW Series

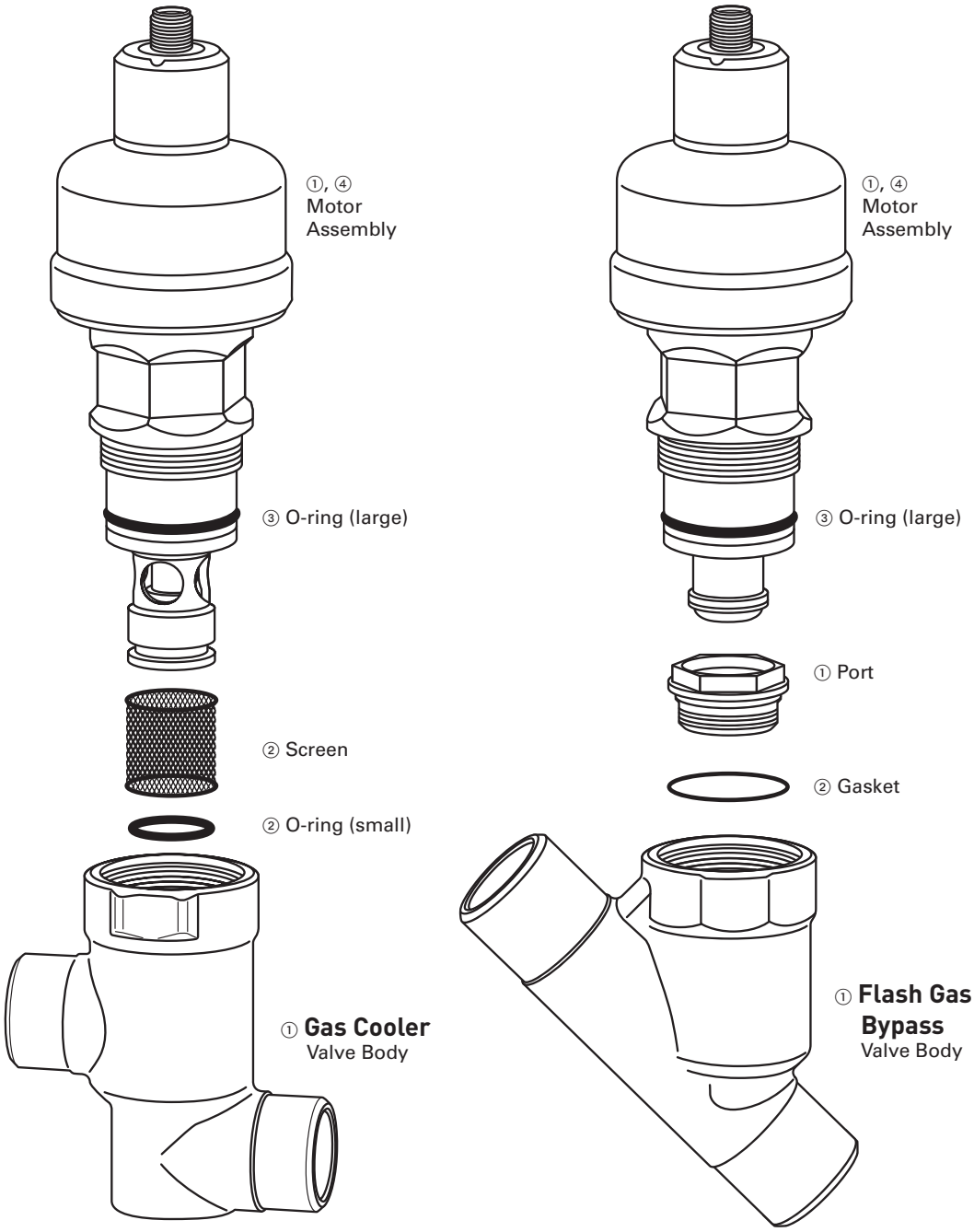
MODULATING 3-WAY VALVE SERVICE KITS	
ITEM NUMBER	**ITEM DESCRIPTION**
183924	**KT-MTW-9S Assembly** - Kit contains new motor, top piston, bottom piston, screw, and bottom cap.
183925	**KT-MTW-17S Assembly** - Kit contains new motor, top piston, bottom piston, screw, and bottom cap.

Replacement parts are not offered separately.
Motor assembly will have a 20' cable with stripped and tinned ends.



Electronic Temperature Control Systems - Electric Valves

GC and FGB Series

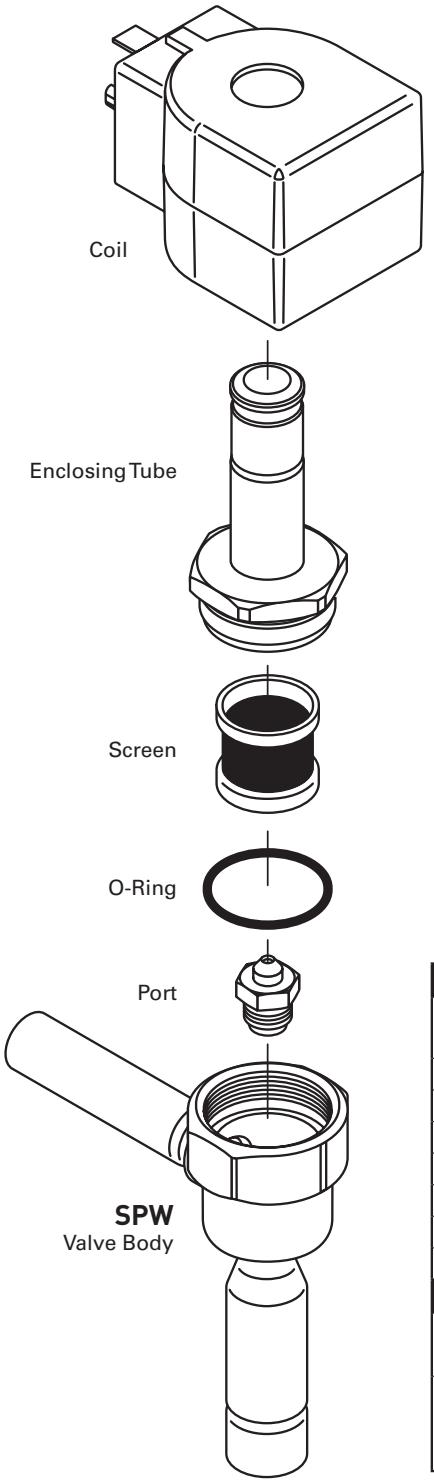


① Replacement part **not** available.
② Part is **not** available separately, but **is** included with the **GC/FGB Service Kit P/N: 953378**.
③ Part **is** available separately **(621-125 O-Ring, Large O-Ring P/N: 968019)**, and **is** also included with the **GC/FGB Service Kit P/N: 953378**.
④ Motor assembly requires a M12 connector.

GC/FGB Service Kit P/N: 953378 includes screen, FGB gasket, 2 large o-rings, and 1 small o-ring. One kit will do both valves.

Electronic Temperature Control Systems - Electric Valves

SPW Series



SPW COILS	
ITEM NUMBER	**ITEM DESCRIPTION**
335002	PWC-1 24/60 CA18
335003	PWC-1 110-120/50-60 CA18
335004	PWC-1 220-240/50-60 CA18
335005	PWC-1E 24/60
335006	PWC-1E 110-120/50-60
335007	PWC-1E 220-240/50-60
382616	DIN Connector (DIN 43650 Form A)
SERVICE PARTS	
953423	**KS - SPW Service Kit** - Includes replacement o-ring and screen.
953424	**KS - SPW Port Service Kit** - Includes replacement ports (0 through 7 sizes), o-ring and screen.

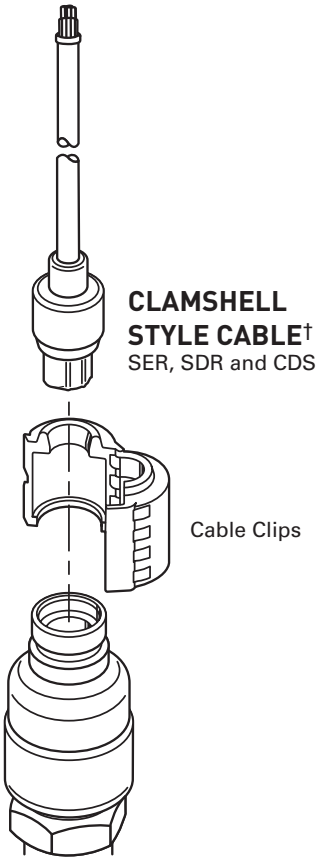
Electronic Temperature Control Systems - Electric Valves

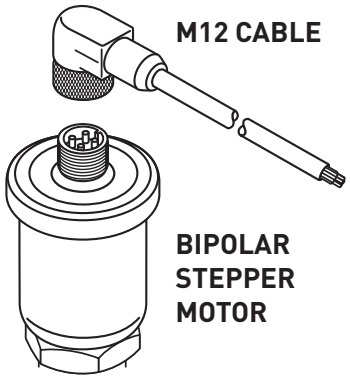
Electric Valve Cable Kits

CABLE KIT REPLACEMENT PARTS		
ITEM NUMBER	**MODEL**	**CABLE KIT**
805081*	CDS-2, -4, -7 † SER Number Valves SER-F, -G, -J, -K, -L † SDR-1X, 2, 2X	Cable Assembly SER 10′
805082*		Cable Assembly SER 20′
805083*		Cable Assembly SER 30′
805084*		Cable Assembly SER 40′
958187		KIT - SER Cable Clips

M12 CABLE KITS		
ITEM NUMBER	**PART NUMBER and DESCRIPTION**	
805194	KIT - CABLE - M12-10′-S-4 WIRE	10′ Cable with stripped and tinned ends
805195	KIT - CABLE - M12-20′-S-4 WIRE	20′ Cable with stripped and tinned ends
805343	KIT - CABLE - M12-30′-S-4 WIRE	30′ Cable with stripped and tinned ends
805344	KIT - CABLE - M12-40′-S-4 WIRE	40′ Cable with stripped and tinned ends

* Cable clips included in kit.
† Valve with clamshell style cable is obsolete as of December 2017. Confirm valve cable type before ordering.





M12 cables can be installed in any orientation.

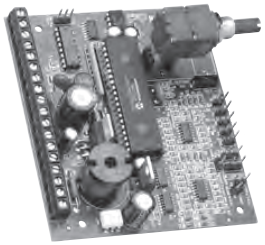
Electronic Temperature Control Systems - Control Boards

IB and ESX Series

INTERFACE BOARDS		
DESCRIPTION - OLD VERSION	**REPLACEMENT**	**ITEM NUMBER**
IB1, IB2, IB3, IB6, IB ESX	IB-G Ver-B	953580
IB1, IB2, IB3, IB6, IB ESX	IB-G Ver-B W/Conformal Coating	953680

TCB Series

TCB TEMPERATURE CONTROL AND ACCESSORIES	
ITEM NUMBER	**DESCRIPTION**
952664	TCB with Potentiometer
952660	TCB less Potentiometer
952669	Air Sensor (-40°F – 210°F)
952662	2K Surface Sensor with Tie Wrap (-40°F – 210°F)
952792	High Amp TCB to control 2 valves
952793	High Amp TCB with Potentiometer
952714	TCB quik response (EEV Interface)*
953276	SMA-12 Diagnostic Tool



* When TCB quick response is used to control an Electric Expansion Valve (EEV), the external controller must sense and control superheat. Failure to do so may lead to floodback and system damage.

Electronic Temperature Control Systems - Controller Packages

CO_2 Series

PSK3L CO_2 CONTROLLER	
ITEM NUMBER	**ITEM DESCRIPTION**
PSK3LXP2SA01	PSK3LXP2SA01 CO2 Controller
PSD4BX3XXXVP	PSD4B Interface Board
PSS4B	PSS4B Controller Back Up Module

Electronic Temperature Control Systems - Controller Packages

Kelvin II Series

KELVIN II SERIES CONTROLS	
ITEM NUMBER	**ITEM DESCRIPTION**
953463	Chiller Control
952570	Kelvin II Subcool Control
952567	Kelvin II Superheat Control with Display
952569	Kelvin II Superheat Control w/o Display
953462	Kelvin II Temperature Control
952563	Kelvin IId Remote Display Unit
953474	Pressure Control
953553	Secondary Fluid w/o Display

PSK Series

PSK REFRIGERATION CONTROLS	
ITEM NUMBER	**MODELS**
PSK201N5	PSK201N5 115 VAC MT 1/2HP
PSK201N7	PSK201N7 230 VAC MT 1.5HP
PSK203N5	PSK203N5 115 VAC LT 1/2HP
PSK203N7	PSK203N7 230 VAC LT 1.5HP
PSK204N9	PSK204N9 115-230 VAC LT
PSK214N9EXBS	PSK214N9EXBS 115-230 V 4 RELAY
PSK221N5EXBS	PSK221N5EXBS 115 VAC MT 1/2HP
PSK221N7EXBS	PSK221N7EXBS 230 VAC MT 1.5HP
PSK223N5EXBS	PSK223N5EXBS 120 VAC LT 1/3HP
PSK223N7EXBS	PSK223N7EXBS 230 VAC LT 1/2HP
PSK231N5EXBS	PSK231N5EXBS 115 VAC MT 1HP
PSK231N7EXBS	PSK231N7EXBS 230 VAC MT 2HP
PSK233N5EXBS	PSK233N5EXBS 115 VAC LT 1HP
PSK233N7EXBS	PSK223N7EXBS 230 VAC LT 1/2HP

PSK ACCESSORIES	
ITEM NUMBER	**MODELS**
952899	NTC Temperature Probe 5' cable
952898	NTC Temperature Probe 10' cable
PSKey	PSK Programming Key
PSPS01	PSKey Power Supply
PSIF20TSX	TTL to RS485 Adaptor

S3C Series

S3C SERIES CONTROLS	
ITEM NUMBER	**ITEM DESCRIPTION**
953621	Case Control
953623	Valve Module
953622	Display Module
S3C SERIES SENSORS	
953503	Temperature and Humidity Sensor
953507	Current Transformer 25 amp to 5 VDC

See accessories on page 72.
*S3C Controls use 10k temperature probes.

Electronic Temperature Control Systems - Controller Packages

Control Accessories

VALVE CONTROL ACCESSORIES				
ITEM NUMBER	**ITEM DESCRIPTION**			**NOTES**
Parker-Sporlan Temperature Probes				
952669	**2k**	**Air Sensor**		10′ (3.0 m)
952795		**Well Sensor**		Single Shielded Black Cable - 12′ (3.7 m)
952662		**Surface Sensor**		Single Shielded Black Cable - 12′ (3.7 m)
952551	**3k**	**Surface**		6.6′ (2.0 m)
952571				20′ (6.1 m)
230072	**10k**	**Surface** (Recommended)		Orange Cable - 20′ (6.1 m)
230076				Blue Cable -20′ (6.1 m)
230078				Red Cable - 20′ (6.1 m)
230073		**Air** (Recommended)		Green Cable - 20′ (6.1 m)
230075				Yellow Cable - 20′ (6.1 m)
952899		**NTC Temperature Probes for PSK** PSTPN615F200		5′ (1.5 m)
952898		PSTPN630F200		10′ (3.0 m)
952565	**98.6k**	**Surface (High Temperature)**		15′ (4.6 m)
Parker-Sporlan Pressure Transducers				
952579	PSPT0652SVSP-S			0-625 psis transducer (R744)
952576	PSPT0500SVSP-S			0-500 psig / 0-34.5 bar transducer (R-744 subcritical)
952574	PSPT0300SVSP-S			0-300 psig / 0-20.7 bar transducer (R-410A)
952572	PSPT0150SVSP-S			0-150 psig / 0-10.3 bar transducer (all other refrigerants)
953291	PSPT0150AVSP-B			0-150 psia / 0-10.3 bar transducer
Parker-Sporlan Pressure Transducer Cables				
953192	PSPT 000000 CP20			6.5′ (2 meter) cable
953100	PSPT 000000 CP50			16′ (5 meter) cable

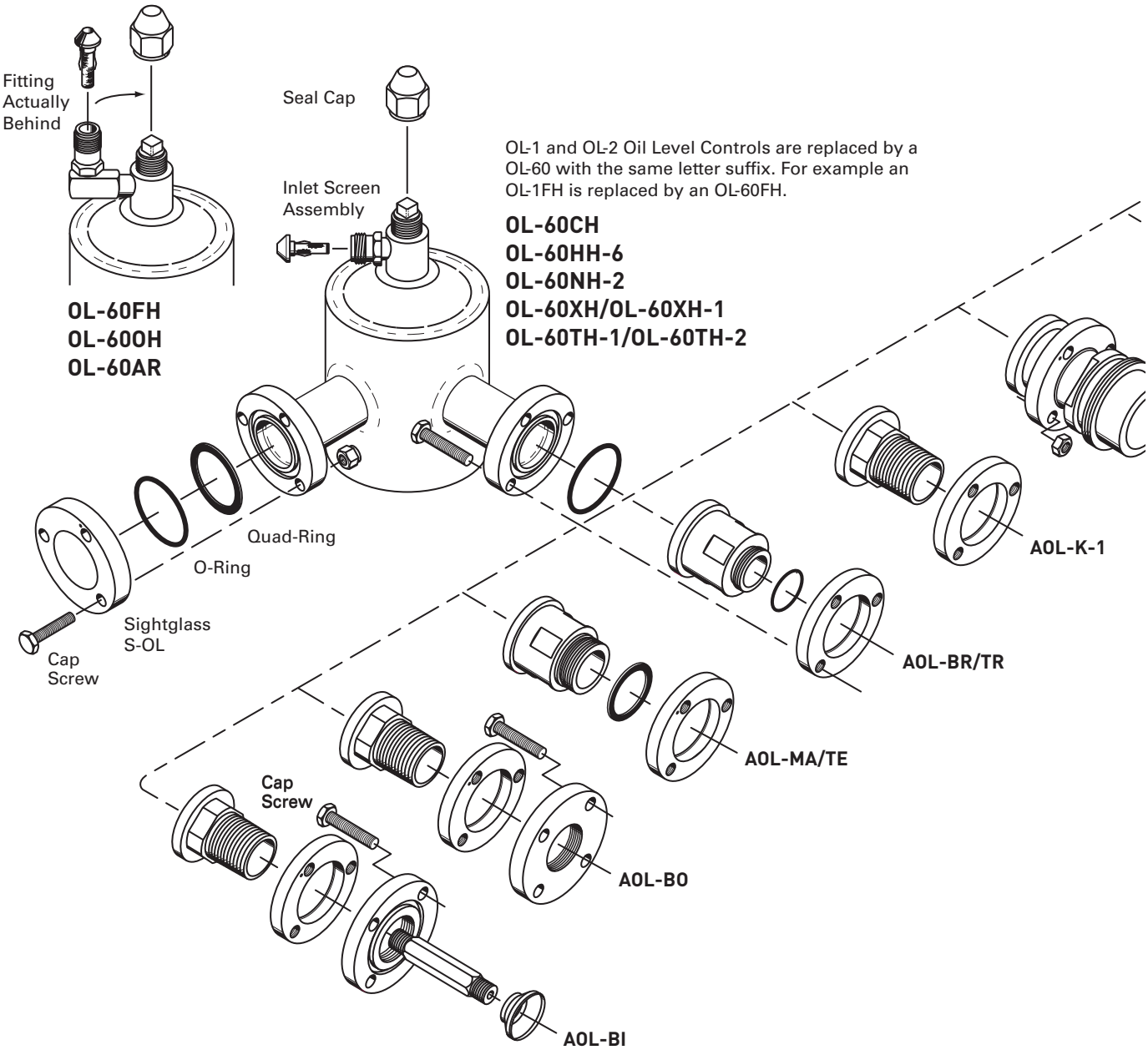
Electronic Temperature Control Systems - Controller Packages

Control Accessories

VALVE CONTROL ACCESSORIES			
ITEM NUMBER	**ITEM DESCRIPTION**	**ITEM NUMBER**	**ITEM DESCRIPTION**
Troubleshooting Accessories			
953276	**SMA-12** *Handheld digital instrument for testing electric valve performance.* 	958112	**4 PIN Packard (18 AWG x 18")** *Cable*
953193	**CDS/CPC 2.5mm Pigtail (18.5")** *Cable* 	958113	**5 PIN Packard (20 AWG x 24")** *Cable*
953158	**SMA-12 w/CPC 2.5mm Conn** *Assembly* 	953277	**SMA-12 ASSY w/Packard Pigtail* (20 AWG x 24")** *Assembly*
952919	**CDS/CPC Pigtail (18.5")** *Cable* 	805620	**M-12 Connector**
953229	**SMA-12 Assy w/CPC Pigtail** *Assembly* 	**Miscellaneous**	
		953444	**Power Supply** *Input: 100-240 VAC* *Output: 24VDC, 60W*

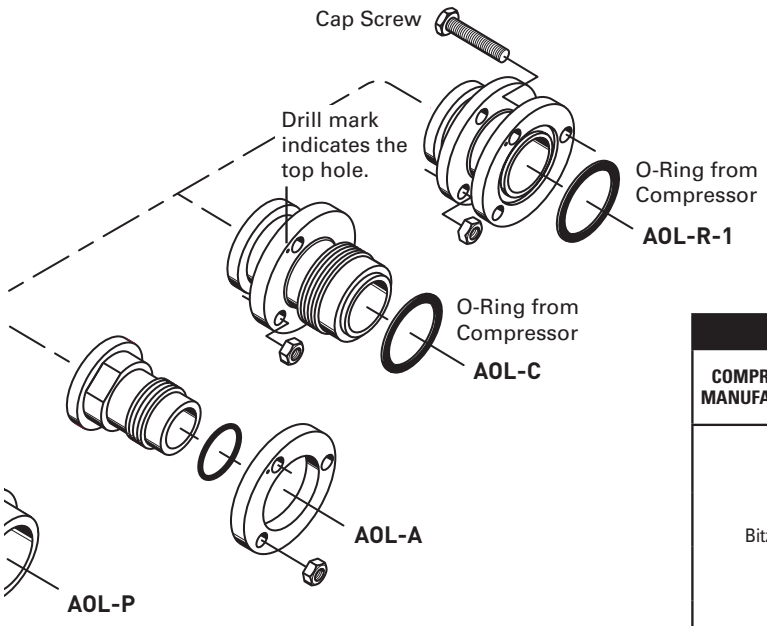
*Both 4 and 5 PIN Packard Pigtails are included in this assembly.

Oil Level Control Systems
Adaptor Kits



Oil Level Control Systems

Adaptor Kits



OIL RESERVOIR REPLACEMENT PARTS		
ITEM NUMBER	**PART NUMBER and DESCRIPTION**	
380105	14000-8	OR 1-1/2 Reservoir Sightglass Gasket (Reservoir Obsolete)
780000	AC-20-K27	Sightglass for OR-1½ Oil Reservoir
033028-00	—	POR Sightglass
053683-00	—	O-Ring for POR Sightglass
059577-00	—	POR Oil Reservoir Kit*

Refer to Bulletin 110-11 for Adaptor Kit contents.
* Contains 2 shut-off valves, 2 brackets, 2 nuts

OIL LEVEL CONTROL REPLACEMENT PARTS		
ITEM NUMBER	**PART NUMBER and DESCRIPTION**	
968019	621-125	O-Ring 1-5/16 ID
183888	1053-000	Seal Cap
968003	JP-1222-000	Quad Ring 1-5/16 ID
183190	JP-1218-000	Sightglass Cap Screw 1/4 - 20 x 3/4
183192	JP-1218-001	Cap Screw 1/4 - 20 x 1
183194	JP-1218-002	Cap Screw 1/4 - 20 x 1-1/4 Fits AOL-P, AOL-A, AOL-C and AOL-R-1 Adaptors
183118	3952-000	Cap Screw 1/4 - 20 x 2 Fits AOL-BI, AOL-BO, AOL-MA/TE, AOL-BR/TR and AOL-K-1 Adaptors
968006	JP-1215-000	Inlet Screen Assembly
968013	S-OL Kit	(1) JP-0726-000 Sightglass (1) JP-1222-000 Quad Ring (1) 621-125 O-Ring (3) JP-1218-001 1/4 - 20 x 1 Cap Screws (3) JP-1223-000 1/4 - 20 Locknuts
968031	K-OL-AD	(2) JP-1222-000 Quad Ring (2) 621-125 O-Ring (4) JP-1218-001 1/4 - 20 x 1 Cap Screws (4) JP-1223-000 1/4 - 20 Locknuts
968029	K-OL-Seal-Kit	(1) 0621-024 O-ring (1) 0621-118 O-ring (3) 0621-125 O-ring (1) JP-1222-000 Quad Ring (1) JP-0745-000 Seal Ring (1) 4238-000 Seal Ring

ADAPTOR KITS				
COMPRESSOR MANUFACTURER	**COMPRESSOR MODEL NUMBER**	**COMPRESSOR ATTACHMENT PATTERN**	**ITEM NUMBER**	**SPORLAN ADAPTOR KIT NUMBER****
Bitzer	2KC, 2JC, 2HC, 2GC, 2FC, 2EC, 2DC, 2CC, 4FC, 4EC, 4DC,4CC	1-1/8" Thread	**968026**	**AOL-MA/TE** ②
	4VC, 4TC, 4PC, 4NC	3 Bolt, 1-7/8" B.C. (47.6mm B.C.)	—	**NONE** ①
	4J, 4H, 4G, 6J, 6H, 6G, 6F	4 Bolt, 50mm B.C.	—	**NONE** ①
	8GC, 8FC	3 Bolt, 1-7/8" B.C. (47.6mm B.C.)	**968023**	**AOL-R-1** ①
Bock	HA3-5, HG3-5, AM/F2-5, HA8, HG6	4 Bolt, 50mm B.C.	—	—
	F...	3 Bolt, 1-7/8" B.C. (47.6mm B.C.)	**968023**	**AOL-R-1** ①
Bristol	—	15/16" - 20 Thread	—	—
Carrier	06EA, 06ER	3 Bolt, 1-7/8" B.C. (47.6mm B.C.)	**968023**	**AOL-R-1** ①
	06DA, 06DR, 5F, 5H	1-1/2" - 18 Thread	**968009**	**AOL-C** ②
Copeland	Over 5 Ton	3 Bolt, 1-7/8" B.C. (47.6mm B.C.)	**968023**	**AOL-R-1** ①
	Under 5 HP	1-1/8" - 12 Thread	***968007***	***AOL-A*** ②
	8R, 3D Front, 2D, 4D, 6D, 8D	3 Bolt, 1-7/8" (47.6mm) B.C.	**968023**	**AOL-R-1** ①
Dorin	4 cyl-15 HP	3 Bolt, 1-7/8" (47.6mm) B.C.	—	
Dunham-Bush	Big 4	3 Bolt, 1-7/8" (47.6mm) B.C.	**968023**	**AOL-R-1** ①
Frascold	All models	3 Bolt, 1-7/8" (47.6mm) B.C.		
Maneurop	MT.., LT..,	1-1/8" - 18 Thread	**968026**	**AOL-MA/TE** ②
Prestcold	E, C	42 MM Thread		*AOL-P* ②
Tecumseh	P, R, S, PA, RA, SA, CK, CM, CH, CG	1-1/8" 12 Thread	***968007***	***AOL-A*** ②
	—	1-1/8" - 18 Thread	**968026**	**AOL-MA/TE** ②
Trane	M, R	3 Bolt, 1-7/8" (47.6mm) B.C.	**968023**	**AOL-R-1** ①
	K	3/4" NPT	*968024*	*AOL-K-1* ②
	—	15/16" - 20 Thread	—	—
York	GC, GS, JS	3 Bolt, 1-7/8" (47.6mm) B.C.	**968023**	**AOL-R-1** ①

**** BOLD** items use the sealing method provided.
ITALIC items use Teflon® tape as the sealing method.
BOLD ITALIC items use the seal from the compressor as the sealing method.

① Use sightglass from compressor.
② Use sightglass provided with adaptor.

Oil Level Control Systems
Oil Filters

OIL FILTER REPLACEMENT PARTS			
ITEM NUMBER	**PART NUMBER and DESCRIPTION**		**USED ON**
481300	JP-711-000	Bolt 5/16" x 1-1/2" (6 required)**	ROF-413-T Oil Filter
—	—	Endplate**	
481103	1288-005	Gasket, Endplate	
481322	JP-710-000	Nut 5/16" (6 Required)	
183174	Access Valve Kit (1/4" SAE x 1/4" NPT) Valve Core (P/N: 480088) can be purchased separately.		
960015	OFE-1	Oil Filter Element with Gasket	

* Grade 5 bolts used on ROF
** Replacement endplate no longer available.

Moisture and Liquid Indicators
See-All® Series

Replacement is through the bottom

SA-217

AC-20

Replacement Indicator Paper--Sporlan Kit K-SA-4 consisting of a new slotted cylinder and indicator paper assembly is available for replacing the indicator in the fused glass style Sporlan See-Alls (1/4" thru 1-1/8" sizes) manufactured since 1984. Replacement is through the bottom. Use a 6 point 1/2" boxed end wrench or 6 point socket to remove and reinstall the indicator post plug. If the indicator becomes damaged, it is generally recommended that the entire See-All be replaced. However, the parts kit can be used in situations where it is difficult to remove the See-All.

Types SA-211, 213 and 217 features a **removable cartridge** containing the moisture indicating element. The cartridge has a knife edge joint and is available as a separate unit for field replacement purposes if necessary. It is designated as AC-20 and fits all three sizes.

SEE-ALL REPLACEMENT PARTS		
ITEM NUMBER	**PART NUMBER and DESCRIPTION**	
780002	K-SA-4	Indicator Assembly
780005	AC-20	Replaceable Cartridge
780011	JP-1023-000	Dust Cover for SA-12, SA-13
780009	JP-1099-000	Dust Cover for SA-14, SA-15, SA-17, SA-19
481201	JP-1121-000	Dust Cover for SA-211, SA-213, SA-217, AC-20

Temperature Sensors and Pressure Transducers

SMART Service Tools

SMART SERVICE TOOLS	
ITEM NUMBER	**PART NUMBER and DESCRIPTION**
953495	SMART Service Tool Kit - SVD
SMART Service Tool Kit Parts	
953499	SMART Temp Clamp
953501	SMART Low Pressure Sensor 300 psi
953502	SMART High Pressure Sensor 700 psi
953700	SMART Caps
183701	621-024 O-ring
*SMART Service Tool pressure transducers and temperature clamps use a **CR2450** replaceable battery.*	
SMART Pro/R Parts	
953702	SMART Pro/R Temp Sensor
953703	SMART Pro/R Low Pressure 300 psi
953704	SMART Pro/R High Pressure 700 psi
953706	SMART Pro/R Batt Cap Kit - SVD Contains a red and blue cap, replacement o-rings, and Pro/R label sheet.
*SMART Pro/R temperature sensors and pressure transducers use a **CR123A** replaceable battery.*	

SMART Service Tools

SMART Pro/R Sensors

Strainers

STRAINER REPLACEMENT PARTS				
STRAINER TYPE	**GASKET**		**STRAINER SCREEN****	
	ITEM NUMBER	**PART NUMBER**	**ITEM NUMBER**	**PART NUMBER**
XD-074*	207790	609	—	635-3
8004*	183855	4160	580045	4097-3
8006*				
9008*	183840	4111	580048	4110-3
9010*				
9012*	—	4119	—	4117-4
6022, 6023	Not Required		580006	4385-2
6034			580009	4395-2
6056			580012	4405-1
6088			580013	4415-1

* For industrial refrigeration and R717 applications, please contact Sporlan Division - Refrigeration Business Unit at (708) 681-6300.
** All replacement screens are supplied with gasket, if applicable.

TYPE 6000 SERIES

TYPE 8000 SERIES

TYPE XD

TYPE 9000 SERIES

Flame-Free Refrigerant Fittings

ZoomLock®

ZOOMLOCK CRIMPING TOOLS AND JAW SELECTION			
	J Series Jaw	**KJ Series Jaw**	**RJ Series Jaw**
	Klauke 15kN Crimping Tool MAP2LCER	**Klauke 19 kN Crimping Tool MAP2L19**	**RIDGID Compact Press Tools* RP 240, RP 241, RP 200, RP 210, RP 100**
JAW KITS / PART NUMBER			
8 PIECE JAW KITS	J4-J18† 770208 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1-1/8	KJ4-KJ22† 770239 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1-1/8, 1-3/8	RJ4-RJ22 770219 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1-1/8, 1-3/8
JAW CASE (EMPTY)	770240 (8 empty slots)		770220 (9 empty slots)
INDIVIDUAL JAWS/ PART NUMBER			
1/4″	PZK-J4† 770200	PZK-KJ4† 770230	PZK-RJ4 770210
5/16″	PZK-J5† 770201	PZK-KJ5† 770231	PZK-RJ5 770211
3/8″	PZK-J6† 770202	PZK-KJ6† 770232	PZK-RJ6 770212
1/2″	PZK-J8† 770203	PZK-KJ8† 770233	PZK-RJ8 770213
5/8″	PZK-J10† 770204	PZK-KJ10† 770234	PZK-RJ10 770214
3/4″	PZK-J12† 770205	PZK-KJ12† 770235	PZK-RJ12 770215
7/8″	PZK-J14† 770206	PZK-KJ14† 770236	PZK-RJ14 770216
1″	—	PZK-KJ16† 770241	—
1-1/8″	PZK-J18† 770207	PZK-KJ18† 770237	PZK-RJ18 770217
1-3/8″	—	PZK-KJ22† 770238	PZK-RJ22 770218

* Sold through RIDGID distributors.
† Jaw(s) may have black oxide coating.

Flame-Free Refrigerant Fittings

ZoomLock®

ZOOMLOCK REPLACEMENT PARTS AND ACCESSORIES

TUBING CUTTER

ZoomLock approved tubing cutter.

- Description: 1/4" to 1-1/8" Capacity Tubing Cutter
- Part Number: 770006

DEBURRING TOOL

ZoomLock approved deburring tool.

- Description: 1/4" to 1-3/8" Capacity Tube Deburring Tool
- Part Number: 770007

RLS CRIMP GAUGE

Confirms the measurement of the finished crimp band diameter.

- Description: PZK-GNG1
- Part Number: 770005

DEPTH GAUGE

Plastic depth gauge confirms the proper insertion depth of the tubing.

- Description: PZK-IDGP
- Part Number: 770015

DIAGNOSTIC TOOL

Adaptor tool for crimping tool diagnostics. Easily connect to PC via USB-Interface. Provides statistical evaluation of average crimping process of tool. Free downloading of Software "iPress" via www.klauke com.

- Description: PGA1
- Part Number: 770008
- Compatible with:
  Klauke MAP2LCER
  Klauke MAP2L19

Old to New Part Numbers

Sporlan Alpha-Numeric Parts List

Sporlan has changed to a new part numbering system for the parts of some product groups. The following tables only include those items that have had a part number change. The table on this Page is sorted in alpha-numeric order on the old part number. Page 81 is a table of the same parts only sorted on the new part number.

OLD PART NUMBER	NEW PART NUMBER	DESCRIPTION
105-40-1	144-000	Conduit Hub for LMC
105-44	148-000	Male Pipe Adaptor
105-45	149-000	Spacer for LMC
106-A	106-000	Gasket, Element
106-F	123-001	
108-20	108-000	Discharge Tube (A-1/8)
108-30	108-001	Discharge Tube (A-5/32)
108-50	108-002	Discharge Tube (A-3/16)
112-A-1	356-000	Spring, Inner M/V/A
114-A	106-001	Gasket, Bottom Cap
114-F	123-002	Gasket, Bottom/Bushing
115-A	106-002	Gasket, Element
1176	1176-000	Adaptor
1177	1177-000	
1178	1178-000	
1179	1179-000	
117-C	358-000	Bottom Cap Locknut (M/V)
122-1	122-000	Screen, Inlet Flange
123-A	106-003	Gasket, Flange
123-F	123-000	
124-A	124-000	Ring, Inlet Strainer
125-0	377-000	Flange, Socket Weld
125-F-11F	368-001	Bushing, 1-3/8" ODF
125-F-13F	370-000	Bushing, 1-5/8" ODF
125-F-1"	362-000	FPT Flange
125-F-1-1/8"	361-001	Flange, Solder
125-F-1-3/8"	363-000	
125-F-1-5/8"	364-000	
125-F-1/2"	360-000	FPT Flange
125-F-3/4"	360-001	
125-F-7F	367-001	Bushing, 7/8" ODF
125-F-7/8	361-000	Flange, Solder
125-F-9F	368-000	Bushing, 1-1/8" ODF
125-L-7	372-000	Flange, Angle Solder
125-L-9	373-000	
125-M-1"	375-000	FPT Flange
125-M-1/2"	374-000	
125-M-3/4"	374-001	
125-N	376-000	Flange, Socket Weld
128	128-000	Pushrod Packing Nut
128-A	128-001	Pushrod Pckg Nut (1)
129-A	129-000	Pushrod Pckg Gland (1)
139	139-000	Capscrew, Element (A)
1412-DG	1412-000	Spring
1412-FG	1031-000	
1412-VG	1030-000	
1412-VG-1	1284-000	
1412-VG-2	1285-000	
1456	1456-000	Screen, Inlet 1/2 SAE
1524	1524-000	Screen, Inlet 3/8 ODF
1532-1	1532-000	Spring
1538	1538-000	Screen, Inlet 3/8 SAE
15477-1	173-000	Strainer
641-6	2645-000	Gasket

OLD PART NUMBER	NEW PART NUMBER	DESCRIPTION
1542	1542-000	Screen, Inlet 1/4 SAE
1543	1543-000	Screen, Inlet 3/8 SAE
1543-2	1543-002	Screen, Inlet 1/4 ODF
208-1	208-001	Discharge Tube (D-1/32)
208-10	208-003	Discharge Tube (D-7/64)
208-15	208-004	Discharge Tube (D-5/32)
208-2	208-002	Discharge Tube (D-1/16)
208-5	208-000	Discharge Tube (D-5/64)
212-A	212-000	Spring
212-F	558-000	
212-M	559-000	
212-S	560-000	
212-V	561-000	
220-A	220-000	Seal Cap
220-A-1	220-001	
225-F-1/4"	573-000	FPT Flange
225-F-23	574-000	Bushing, 3/8" ODF
225-F-24	574-001	Bushing, 1/2" ODF
225-F-25	574-002	Bushing, 5/8" ODF
225-F-26	574-003	Bushing, Solder
225-F-27	574-004	Bushing, 7/8" ODF
225-F-29	575-000	Bushing, 1-1/8" ODF
225-F-3/8"	573-001	FPT Flange, 3/8 FPT
225-G	576-000	Flange, 3/8 - 7/8" ODF
225-H	577-000	Flange, 1-1/8" ODF
225-K	578-000	Retainer Ring, Screen
225-L	579-000	Flange, Socket Weld
225-M	580-000	
225-M-1/2"	225-002	FPT Flange
225-M-1/4"	225-000	
225-M-3/8"	225-001	
226-K	226-000	Screen, Inlet Flange
319-A	106-005	Gasket, Seal Cap
327-D	588-000	Screen, Inlet 3/8 SAE
327-E	589-000	Screen, Inlet 1/2 SAE
327-G	590-000	Screen, Inlet 5/8 SAE
412-HV	698-000	Spring
412-MF	694-000	
412-MFL	696-000	
412-S	692-000	
412-SL	695-000	
412-V	697-000	
4163-9	JP-711-000	Bolt/Nut, 5/16 x 1.5 Steel
420-B	20326-000	Seal Cap
472-D	770-000	Screen, Inlet 3/8 SAE
427-F	772-000	Screen, Inlet 1/4 SAE
6153-2	1288-005	Gasket, Endplate
6154	JP-335-001	Endplate (Plain)
6154-2	JP-335-000	Endplate "-G" Type
6155-2	JP-571-000	Gasket, Outlet Seal
6162	JP-679-000	Plate, Core Retainer
6163	JP-676-000	Plate, Outlet Core Ret

OLD PART NUMBER	NEW PART NUMBER	DESCRIPTION
6171-4	JP-514-005	Screen, Outlet 100 Mesh
6172-1	JP-513-005	Screen, Outlet 10 Mesh
621-14	621-014	Gasket, Encl Tube
621-16	621-016	
621-18	621-018	
621-19	621-019	
621-22	621-022	
621-28	621-028	O-Ring For SORIT/CDA
621-31	621-031	
621-8	621-008	Gasket
712	712-000	Spring, Outer V
717-C	958-000	Bottom Cap Locknut (W)
720	720-000	Seal Cap
728	728-000	Pushrod Pckg Nut (1)
729	729-000	Pushrod Pckg Gland (1)
735-A	735-000	Screen, Inlet Flange
735-B	961-000	Retainer Ring, Screen
736	736-000	Pushrod Pckg Nut (1)
737	737-000	Pushrod Pckg Gland (1)
738	738-000	Spring
740	123-005	Gasket, Bottom Cap
741	123-004	Gasket, Flange
742-1-1/8"	742-000	Flange, Solder
742-1-3/8"	742-001	
742-1-5/8"	742-002	
742-2-1/8"	742-003	
825-11	825-011	40 Mesh Strainer
825-4	825-004	
825-5	825-005	
825-7	825-007	
825-9	825-009	
838	838-000	CRO-6/ORI-6 Caps
877-11	877-011	100 Mesh Strainer
877-3	877-003	
877-4	877-004	
877-5	877-005	
877-7	877-007	
877-9	877-009	
JP-1023	JP-1023-000	S/A Dust Cvr, 1/2 Up
JP-1066	JP-1066-000	Color Tag (SAK-16)
JP-1067	JP-1067-000	Color Tag (SAK-13)
JP-1072-1	JP-1072-001	Saddle Adaptor, 1-3/8
JP-1072-2	JP-1072-002	Saddle Adaptor, 1-5/8
JP-1072-3	JP-1072-003	Saddle Adaptor, 2-1/8
JP-1099	JP-1099-000	S/A Dust Cvr, 1/4 & 3/8
JP-232	JP-232-000	Adaptor, Cap Tube
JP-543-1	JP-543-001	Gasket, Copper 3/8 SAE
JP-543-2	JP-543-002	Gasket, Copper 1/2 SAE
JP-534-3	JP-543-003	Gasket, Copper 5/8 SAE
JP-543-4	JP-543-004	SPL Gskt, Copper 1/4
JP-543-5	JP-543-005	SPL Gskt, Copper 3/8
JP-543-6	JP-543-006	SPL Gskt, Copper 1/2

New to Old Part Numbers

Sporlan Alpha-Numeric Parts List

NEW PART NUMBER	OLD PART NUMBER	DESCRIPTION
1030-000	1412-VG	Spring
1031-000	1412-FG	
106-000	106-A	Gasket, Element
106-001	114-A	Gasket, Bottom Cap
106-002	115-A	Gasket, Element
106-003	123-A	Gasket, Flange
106-005	319-A	Gasket, Seat Cap
108-000	108-20	Discharge Tube (A-1/8)
108-001	108-30	Discharge Tube (A-5/32)
108-002	108-50	Discharge Tube (A-3/16)
1176-000	1176	Adaptor
1177-000	1177	
1178-000	1178	
1179-000	1179	
122-000	122-1	Screen, Inlet Flange
123-000	123-F	Gasket, Flange
123-001	106-F	Gasket, Element
123-002	114-F	Gasket, Bottom/Bushing
123-004	741	Gasket, Flange
123-005	740	Gasket, Bottom Cap
124-000	124-A	Ring, Inlet Strainer
1284-000	1412-VG-1	Spring
1285-000	1412-VG-2	
1288-005	6153-2	Gasket, Endplate
128-000	128	Pushrod Packing Nut
128-001	128-A	Pushrod Pckg Nut (1)
129-000	129-A	Pushrod Pckg Gland (1)
139-000	139	Capscrew, Element (A)
1412-000	1412-DG	Spring
144-000	105-40-1	Conduit Hub for LMC
1456-000	1456	Screen, Inlet 1/2 SAE
148-000	105-44	Male Pipe Adaptor
149-000	105-45	Spacer for LMC
1524-000	1524	Screen, Inlet 3/8 ODF
1532-000	1532-1	Spring
1538-000	1538	Screen, Inlet 3/8 SAE
1542-000	1542	Screen, Inlet 1/4 SAE
1543-000	1543	Screen, Inlet 3/8 SAE
1543-002	1543-2	Screen, Inlet 1/4 ODF
208-000	208-5	Discharge Tube (D-5/64)
208-001	208-1	Discharge Tube (D-1/32)
208-002	208-2	Discharge Tube (D-1/16)
208-003	208-10	Discharge Tube (D-7/64)
208-004	208-15	Discharge Tube (D-5/32)
20326-000	420-B	Seal Cap
212-000	212-A	Spring
220-000	220-A	Seal Cap
220-001	220-A-1	
225-000	225-M-1/4"	FPT Flange
225-001	225-M-3/8"	
225-002	225-M-1/2"	
226-000	226-K	Screen, Inlet Flange

NEW PART NUMBER	OLD PART NUMBER	DESCRIPTION
356-000	112-A-1	Spring, Inner M/V/A)
358-000	117-C	Bottom Cap Locknut (M/V)
360-000	125-F-1/2"	FPT Flange
360-001	125-F-3/4"	
361-000	125-F-7/8"	Flange, Solder
361-001	125-F-1-1/8"	
362-000	125-F-1"	FPT Flange
363-000	125-F-1-3/8"	Flange, Solder
364-000	125-F-1-5/8"	
367-001	125-F-7F	Bushing, 7/8" ODF
368-000	125-F-9F	Bushing, 1-1/8" ODF
368-001	125-F-11F	Bushing, 1-3/8" ODF
370-000	125-F-13F	Bushing, 1-5/8" ODF
372-000	125-L-7	Flange, Angle Solder
373-000	125-L-9	
374-000	125-M-1/2"	FPT Flange
374-001	125-M-3/4"	
375-000	125-M-1"	
376-000	125-N	Flange, Socket Weld
377-000	125-O	
558-000	212-F	Spring
559-000	212-M	
560-000	212-S	
561-000	212-V	
573-000	225-F-1/4"	FPT Flange
573-001	225-F-3/8"	
574-000	225-F-23	Bushing, 3/8" ODF
574-001	225-F-24	Bushing, 1/2" ODF
574-002	225-F-25	Bushing, 5/8" ODF
574-003	225-F-26	Bushing, Solder
574-004	225-F-27	Bushing, 7/8" ODF
575-000	225-F-29	Bushing, 1-1/8" ODF
576-000	225-G	Flange, 3/8 - 7/8" ODF
577-000	225-H	Flange, 1-1/8" Odf
578-000	225-K	Retainer Ring, Screen
579-000	225-L	Flange, Socket Weld
580-000	225-M	
588-000	227-D	Screen, Inlet 3/8" SAE
589-000	227-E	Screen, Inlet 1/2" SAE
590-000	227-G	Screen, Inlet 5/8" SAE
621-008	621-8	Gasket
621-014	621-14	Gasket, Enclosing Tube
621-016	621-16	
621-018	621-18	
621-019	621-19	
621-022	621-22	
621-028	621-28	O-Ring for SORIT/CDA
621-031	621-31	
692-000	412-S	Spring
694-000	412-MF	
695-000	412-SL	
696-000	412-FML	

NEW PART NUMBER	OLD PART NUMBER	DESCRIPTION
697-000	412-V	Spring
698-000	412-HV	
712-000	712	Spring, Outer V
720-000	720	Seal Cap
728-000	728	Pushrod Pckg Nut (1)
729-000	729	Pushrod Pckg Gland (1)
735-000	735-A	Screen, Inlet Flange
736-000	736	Pushrod Pckg Nut (1)
737-000	737	Pushrod Pckg Gland (1)
738-000	738	Spring
742-000	742-1-1/8"	Flange, Solder
742-001	742-1-3/8"	
742-002	742-1-5/8"	
742-003	742-2-1/8"	
772-000	427-F	Screen, Inlet 1/4 SAE
825-004	825-4	40 Mesh Strainer
825-005	825-5	
825-007	825-7	
825-009	825-9	
825-011	825-11	
838-000	838	CRO-6/ORI-6 Caps
877-003	877-3	100 Mesh Strainer
877-004	877-4	
877-005	877-5	
877-007	877-7	
877-009	877-9	
877-011	877-11	
958-000	717-C	Bottom Cap Locknut (W)
961-000	735-B	Retainer Ring, Screen
JP-1023-000	JP-1023	S/A Dust Cvr, 1/2 Up
JP-1066-000	JP-1066	Color Tag (SAK-16)
JP-1067-000	JP-1067	Color Tag (SAK-13)
JP-1072-001	JP-1072-1	Saddle Adaptor, 1-3/8
JP-1072-002	JP-1072-2	Saddle Adaptor, 1-5/8
JP-1072-003	JP-1072-3	Saddle Adaptor, 2-1/8
JP-1099-000	JP-1099	S/A Dust Cvr, 1/4 & 3/8
JP-232-000	JP-232	Adaptor, Cap Tube
JP-335-000	6154-2	Endplate "-G" Type
JP-335-001	6154	Endplate (Plain)
JP-513-005	6172-1	Screen Outlet 10 Mesh
JP-514-005	6171-4	Screen Outlet 100 Mesh
JP-543-001	JP-543-1	Gasket, Copper 3/8 SAE
JP-543-002	JP-543-2	Gasket, Copper 1/2 SAE
JP-543-003	JP-543-3	Gasket, Copper 5/8 SAE
JP-543-004	JP-543-4	SPL Gskt, Copper 1/4
JP-543-005	JP-543-5	SPL Gskt, Copper 3/8
JP-543-006	JP-543-6	SPL Gskt, Copper 1/2
JP-571-000	6155-2	Gasket, Outlet Seal
JP-676-000	6163	Plate, Outlet Core Ret
JP-679-000	6162	Plate, Core Retainer
JP-711-000	4163-9	Bolt/Nut, 5/16 x 1.5 Steel

OFFER OF SALE

The goods, services or work (referred to as the "Products") offered by **Parker-Hannifin Corporation**, its subsidiaries, groups, divisions, and authorized distributors ("Seller") are offered for sale at prices indicated in the offer, or as may be established by Seller. The offer to sell the Products and acceptance of Seller's offer by any customer ("Buyer") is contingent upon, and will be governed by all of the terms and conditions contained in this Offer of Sale. Buyer's order for any Products specified in Buyer's purchase document or Seller's offer, proposal or quote ("Quote") attached to the purchase order, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions. Seller's willingness to offer Products for sale or accept an order for Products is subject to the terms and conditions contained in this Offer of Sale or any newer version of the same, published by Seller electronically at www.parker.com/saleterms/. Seller objects to any contrary or additional terms or conditions of Buyer's order or any other document or other communication issued by Buyer.

2. Price; Payment. Prices stated on Seller's Quote are valid for thirty (30) days, except as explicitly otherwise stated therein, and do not include any sales, use, or other taxes or duties unless specifically stated. Seller reserves the right to modify prices to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). Payment is subject to credit approval and payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified by Seller's Credit Department). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

3. Shipment; Delivery; Title and Risk of Loss. All delivery dates are approximate. Seller is not responsible for damages resulting from any delay. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the shipment carrier at Seller's facility. Unless otherwise stated, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyers' request beyond the respective dates indicated will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.

4. Warranty. Seller warrants that the Products sold hereunder shall be free from defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of normal use, whichever occurs first. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer: **DISCLAIMER OF WARRANTY: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS PROVIDED. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

5. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to the Seller within ten (10) days of delivery. No other claims against Seller will be allowed unless asserted in writing within thirty (30) days after delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the defect is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

6. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE WITHIN A REASONABLE PERIOD OF TIME. **IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.**

7. User Responsibility. The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

8. Loss to Buyer's Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the items manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Special Tooling. A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

10. Buyer's Obligation; Rights of Seller. To secure payment of all sums due or otherwise, Seller retains a security interest in all Products delivered to Buyer and this agreement is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.

11. Improper Use and Indemnity. Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Products; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

12. Cancellations and Changes. Buyer may not cancel or modify or cancel any order for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller may change Product features, specifications, designs and availability.

13. Limitation on Assignment. Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

14. Force Majeure. Seller does not assume the risk and is not liable for delay or failure to perform any of Seller's obligations by reason of events or circumstances beyond its reasonable control (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

15. Waiver and Severability. Failure to enforce any provision of this agreement will not invalidate that provision; nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

16. Termination. Seller may terminate this agreement for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate this agreement, in writing, if Buyer: (a) breaches any provision of this agreement (b) appoints a trustee, receiver or custodian for all or any part of Buyer's property (c) files a petition for relief in bankruptcy on its own behalf, or one if filed by a third party (d) makes an assignment for the benefit of creditors; or (e) dissolves its business or liquidates all or a majority of its assets.

17. Governing Law. This agreement and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement.

18. Indemnity for Infringement of Intellectual Property Rights. Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that a Product sold pursuant to this agreement infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and refund the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller is not liable for claims of infringement based on information provided by Buyer, or directed to Products delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any Product sold hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

19. Entire Agreement. This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged. The terms contained herein may not be modified unless in writing and signed by an authorized representative of Seller.

20. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards of care, including those of the United Kingdom, the United States of America, and the country or countries in which Buyer may operate, including without limitation the U. K. Bribery Act, the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act") and the U.S. Food Drug and Cosmetic Act ("FDCA"),each as currently amended, and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), and agrees to indemnify and hold harmless Seller from the consequences of any violation of such provisions by Buyer, its employees or agents. Buyer acknowledges that it is familiar with the provisions of the U. K. Bribery Act, the FCPA, the FDA, and the Anti-Kickback Act, and certifies that Buyer will adhere to the requirements thereof. In particular, Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly to any governmental official, any foreign political party or official thereof, any candidate for foreign political office, or any commercial entity or person, for the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller.

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