



Bulletin HY14-2703-M1/US
Service and Parts Bulletin

Model V12

Effective: August 1, 2002
Supersedes: Cat. No. GSD-1125 dated 2/88



Sectional Body
Directional Control Valve





WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

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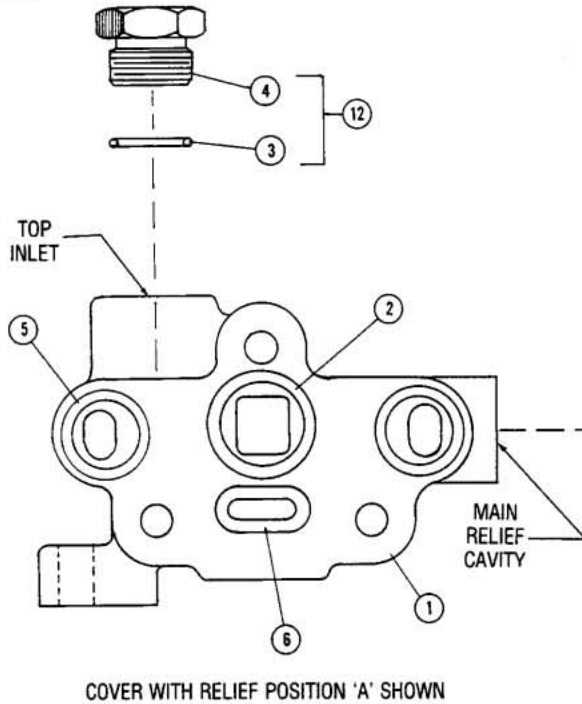
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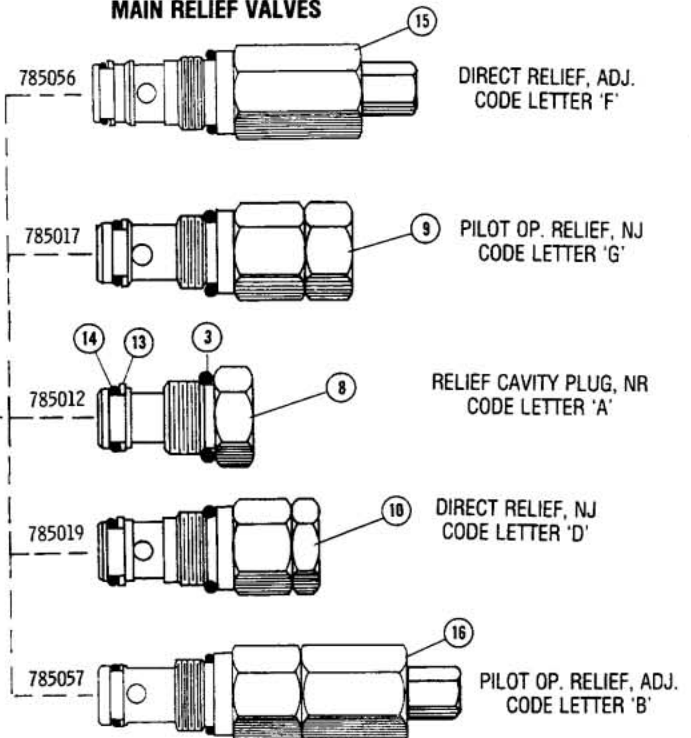


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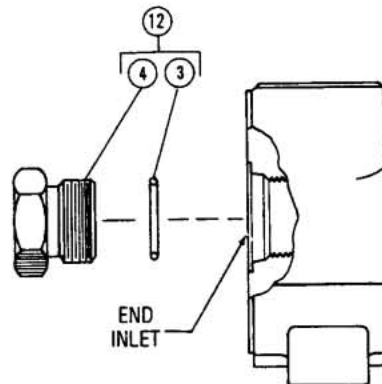
INLET COVER



MAIN RELIEF VALVES



Ref. No.	Part No.	Description	Qty.
1	254005	#8 SAE Top & Side Ports	1
1	254016	#10 SAE Top & Side Ports	1
1	254234	#8 SAE Top & Side Ports	1
1	254233	#10 SAE Top & Side Ports	1
2	405895	O-ring	1
3	405393	O-ring (#8 SAE)	1
3	405688	O-ring (#10 SAE)	1
4	255123	#8 SAE Plug	1
4	255093	#10 SAE Plug	1
5	490308	O-ring	2
6	406127	O-ring	1
8	255033	NR Plug	1
9	See	PO. Relief Valve Cartridge	1
10	Page 4	Direct Relief W/Internal Adjustment	1
12	785009	#8 SAE Plug Assembly	1
12	785038	#10 SAE Plug Assembly	1
13	490963	Back-up Ring	1
14	404463	O-ring	1
15	See	Direct Relief W/External Adjustment	1
16	Page 4	P.O. Relief W/External Adjustment	1
17	410523	Rivet (Not Shown)	4
18	403446	Name Tag (Not Shown)	1



HOW TO ORDER

INLET COVER

V12 P

PORT SIZE

1--#8 SAE
2--#10 SAE

RELIEF POSITION

A--PORT A
*B--PORT B *STANDARD

PORT LOCATION

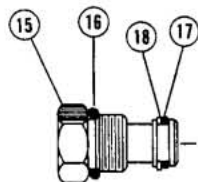
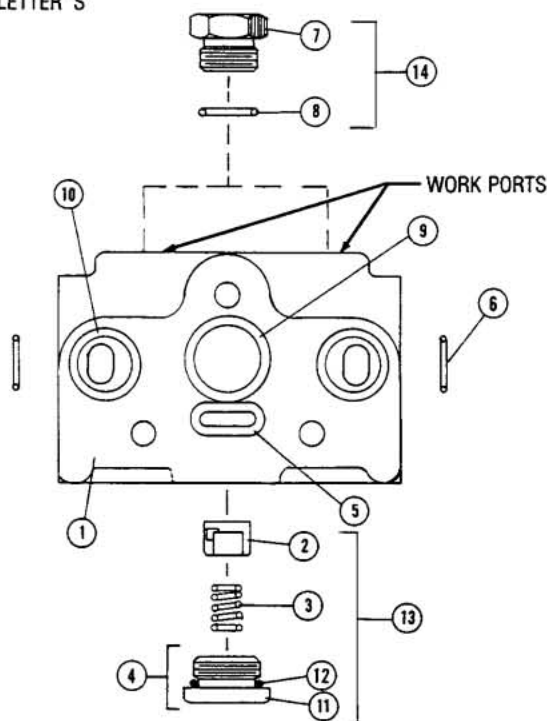
T -- TOP
S -- SIDE
U -- TOP & SIDE
(UNIVERSAL)

RELIEF OPTION

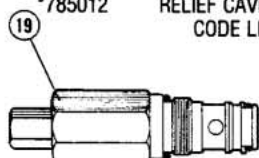
A -- RELIEF CAVITY PLUG
B -- PILOTED OPERATED RELIEF VALVE, ADJ.
D -- DIRECT RELIEF VALVE, NJ
G -- PILOT OPERATED RELIEF VALVE, NJ.
F -- DIRECT RELIEF VALVE, ADJ.

WORK SECTION

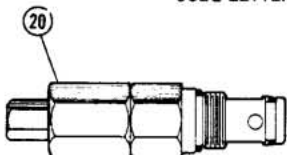
STANDARD BODY (LOW BODY) CODE LETTER 'S'



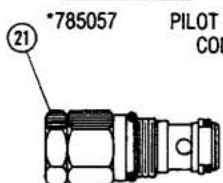
*785012 RELIEF CAVITY PLUG, NR
CODE LETTER 'A'



*785056 DIRECT RELIEF, ADJ.
CODE LETTER 'F'



*785057 PILOT OP. RELIEF, ADJ.
CODE LETTER 'B'



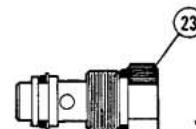
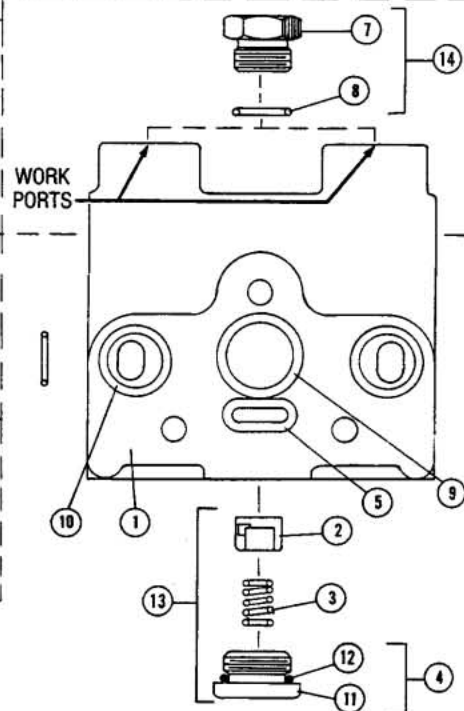
*785019 DIRECT RELIEF, NJ
CODE LETTER 'D'



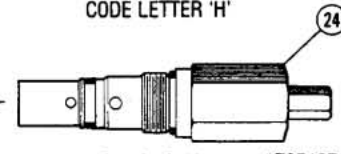
*785017 PILOT OP. RELIEF, NJ
CODE LETTER 'G'

ACCESSORY BODY (HIGH BODY) CODE LETTERS 'R' OR 'L'

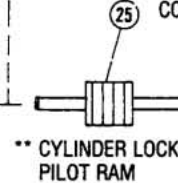
CYLINDER LOCK
BODY SHOWN



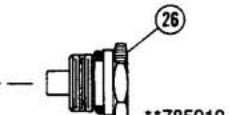
*785107 ANTI-CAVITATION CHECK
CODE LETTER 'H'



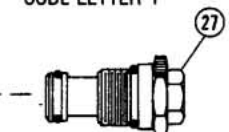
*785197 RELIEF/ANTI-CAV.
CODE LETTER 'C'



** CYLINDER LOCK
PILOT RAM



**785010 LOCK CAVITY PLUG
CODE LETTER 'P'



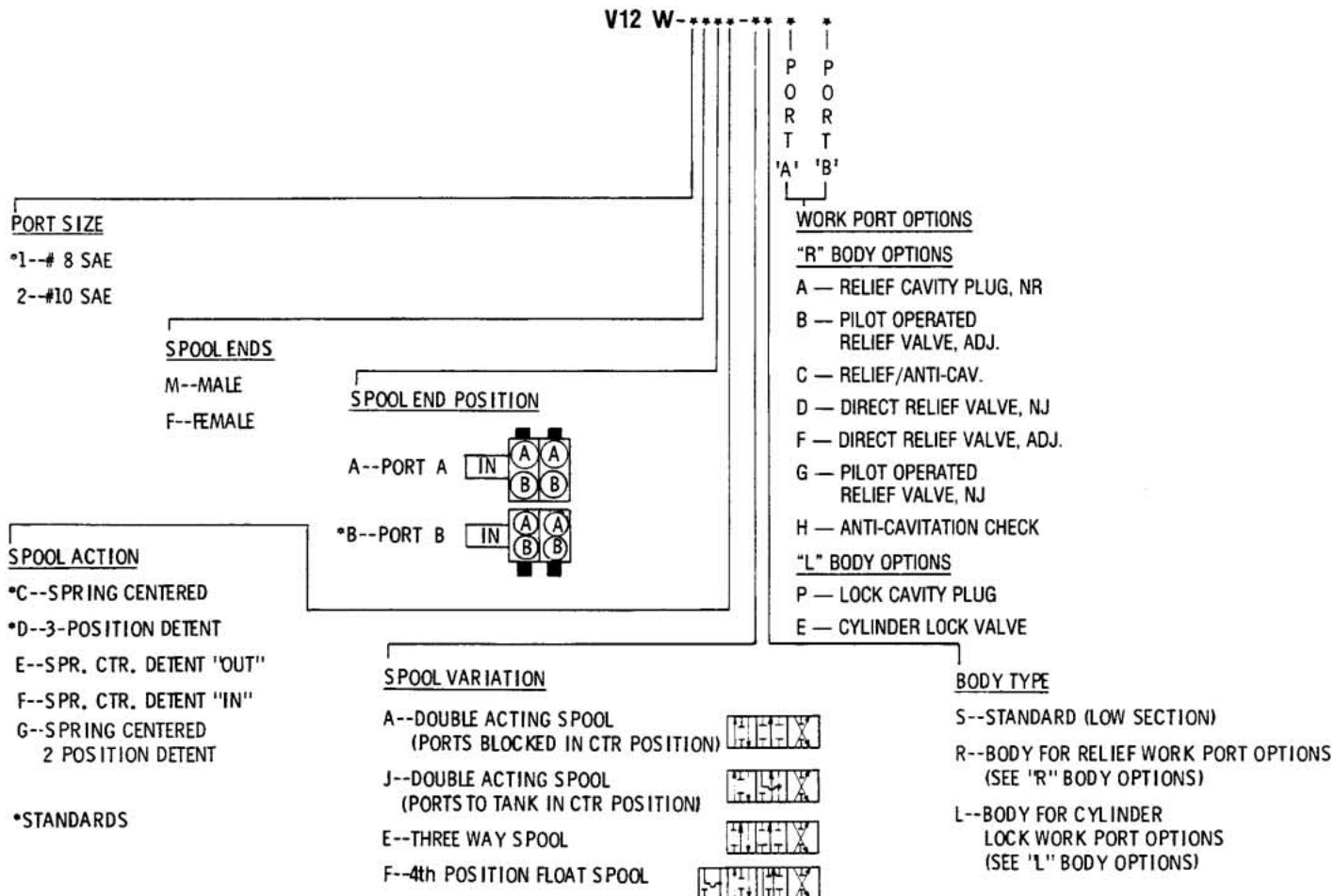
**785008 LOCK VALVE CARTRIDGE
CODE LETTER 'E'

Ref. No.	Part No.	Description	Qty.
1	254006	Low Body, #8 SAE Work Ports	1
1	254010	Low Body, #10 SAE Work Ports	1
1	254007	High Body, for Cylinder Lock Options, #8 SAE Work Ports	1
1	254011	High Body, for Cylinder Lock Options, #10 SAE Work Ports	1
1	254019	High Body, for Work Port Relief Options, #8 SAE Work Ports	1
1	254018	High Body, for Work Port Relief Options, #10 SAE Work Ports	1
2	255021	Piston	1
3	410520	O-ring	1
4	785014	Load Check Plug	1
5	406127	O-Ring, Section	1
† 6	401248	O-Ring, Spool Seal	2
7	225123	#8 SAE Plug	1
7	255093	#10 SAE Plug	1
8	405393	O-ring (#8 SAE)	1
8	405688	O-ring (#10 SAE)	1
9	405895	O-ring, Section	1
10	490308	O-ring, Section	2
11	255020	Load Check Plug	1
12	405688	O-ring	1
13	785011	Load Check Assembly	1
14	785009	#8 SAE Plug Assembly	1
14	784038	#10 SAE Plug Assembly	1
15	255033	NR Plug	1
16	405393	O-ring	1
17	404463	O-ring	1
18	490963	Back-up ring	1
19		Direct Relief, Adj.	1
20		Pilot Op. Relief, Adj.	1
21	See Page 4	Direct Relief, NJ	1
22		Pilot Op. Relief, NJ	1
23		Anti-Cav. Check Relief/Anti-Cav.	1
24		Cylinder Lock Pilot Ram	1
25	255014	Lock Cavity Plug	1
26	See Page 5	Lock Valve Cartridge	1
27			1

†See page 7 for assembly procedure.

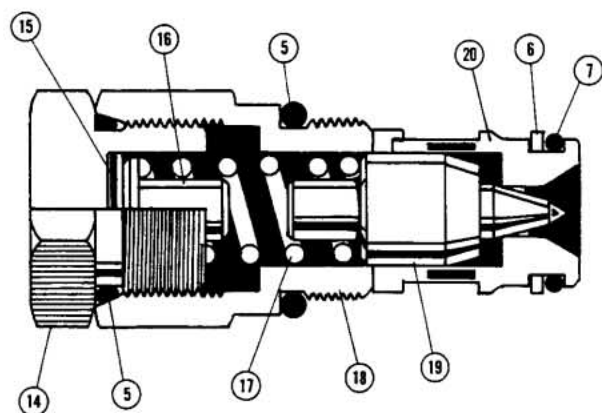
*For use in "R" relief body only.
**For use in "L" cylinder lock body only.

WORK SECTION

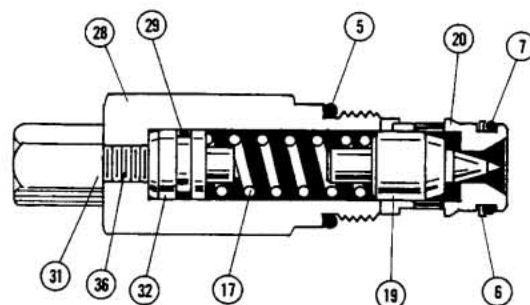


WORK PORT OPTIONS

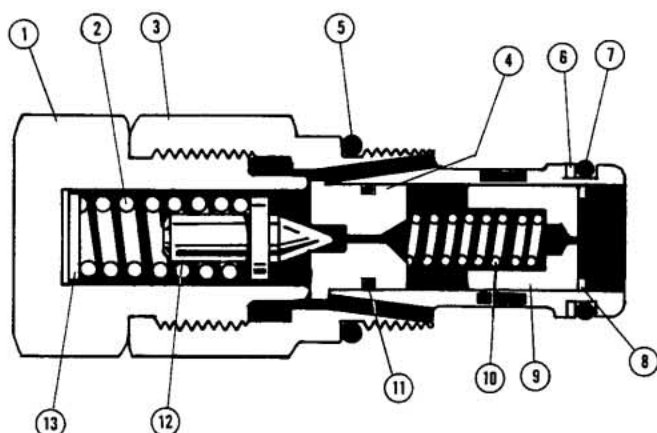
RELIEF VALVE OPTIONS



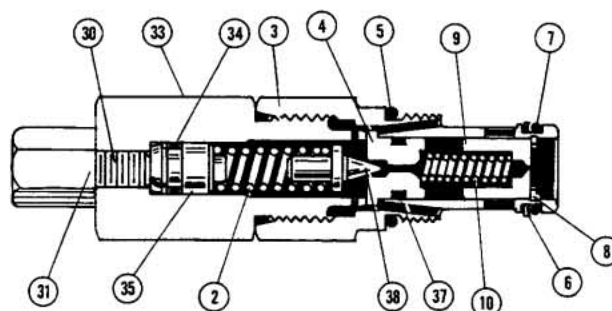
DIRECT RELIEF VALVE CARTRIDGE
CODE LETTER 'D'
785019



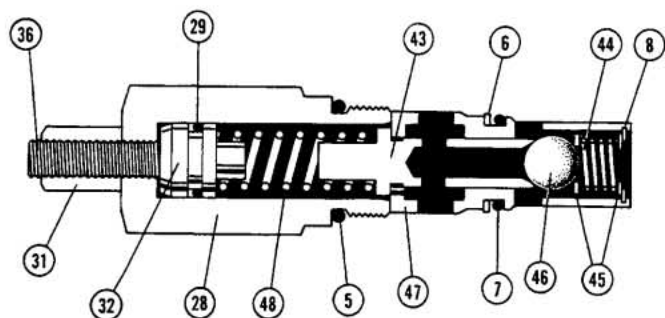
DIRECT RELIEF VALVE CARTRIDGE W/EXTERNAL ADJUSTMENT
CODE LETTER 'F'
785056



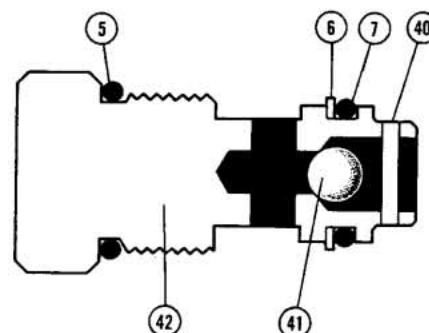
P.O. RELIEF VALVE CARTRIDGE W/INTERNAL ADJUSTMENT
CODE LETTER 'G'
785017



P. O. RELIEF VALVE CARTRIDGE W/EXTERNAL ADJUSTMENT
CODE LETTER 'B'
785057



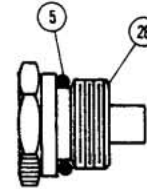
RELIEF/ANTI-CAVITATION CHECK
CODE LETTER 'C'
785197



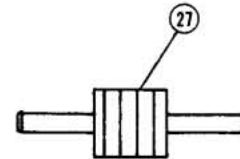
ANTI-CAVITATION CHECK
CODE LETTER 'H'
785107

Ref. No.	Part No.	Description	Qty.
1	255188	Cap	1
2	493850	Spring	1
3	255042	P.O. Relief Valve Cartridge Body	1
4	255040	Seat	1
5	405393	O-ring	2
6	490963	Back-up	1
7	404463	O-ring	1
8	410502	Snap-ring	1
9	255041	Piston	1
10	493785	Spring	1
11	407228	O-ring	1
12	255096	Poppet	1
13	255009	Shim (.02")	As Req'd
13	255135	Shim (.004")	As Req'd
13	255010	Shim (.04")	As Req'd
13	255011	Shim (.01")	As Req'd
14	255178	Cap	1
15	255012	Shim (.01")	As Req'd
15	255136	Shim (.004")	As Req'd
15	255004	Shim (.02")	As Req'd
15	255005	Shim (.04")	As Req'd
16	255006	Spring Seat	1
17	410557	Spring	1
18	255178	Direct Relief Valve Cartridge Body	1
19	255003	Poppet	1
20	255044	Poppet Body	1
21	406072	O-ring	1
22	255008	Poppet	1
23	410513	Spring	1
24	255000	Cylinder Lock Valve Cartridge Body	1
25	255001	Cap	1
26	255018	Cylinder Lock Plug	1
27	255014	Pilot Ram	1
28	255144	Direct Relief Valve Cartridge Body	1
29	401272	O-ring	1
30	405816	Adjustment Screw	1
31	255271	Jam Nut	1
32	255143	Spring Seat	1
33	255189	Pilot Operated Relief Valve Cartridge Body	1
34	401273	O-ring	1
35	255145	Spring Seat	1
36	410556	Adjustment Screw	1
37	407229	O-ring	1
38	255096	Poppet	1
39	406484	O-ring	1
40	410547	Pin	1
41	401065	Ball	1
42	255218	Anti-Cavitation Check Body	1
43	255297	Piston	1
44	410559	Spring	1
45	255302	Spring Guide	2
46	401067	Ball	1
47	255301	Relief/Anti-Cav. Body	1
48	490928	Spring	1

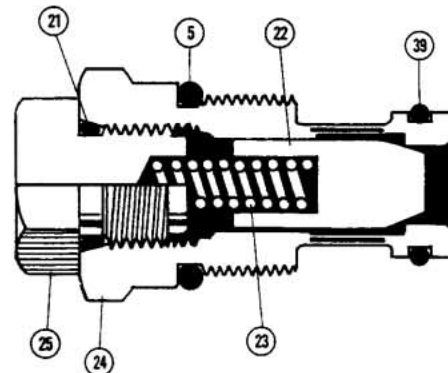
CYLINDER LOCK OPTIONS



LOCK CAVITY PLUG
CODE LETTER 'P'
785010

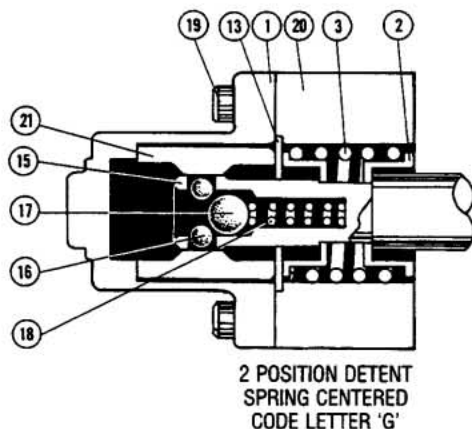
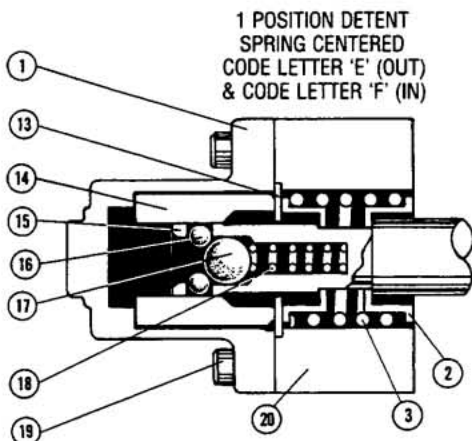
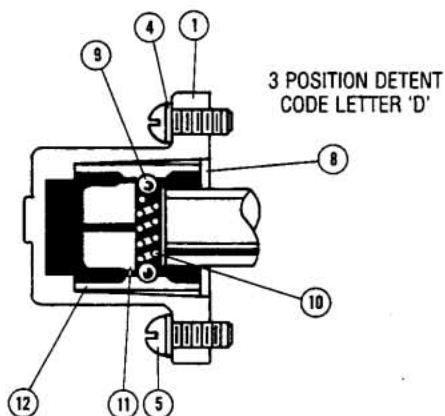
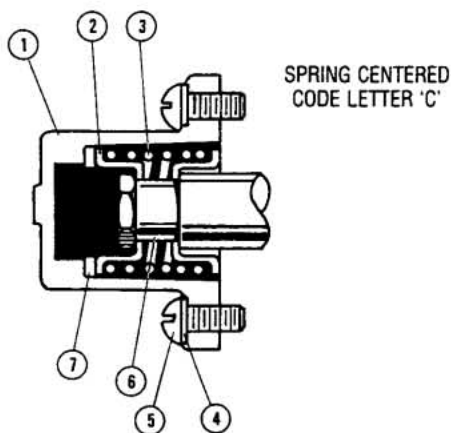


CYLINDER LOCK
PILOT RAM



CYLINDER LOCK VALVE CARTRIDGE
CODE LETTER 'E'
785008

POSITIONER OPTIONS



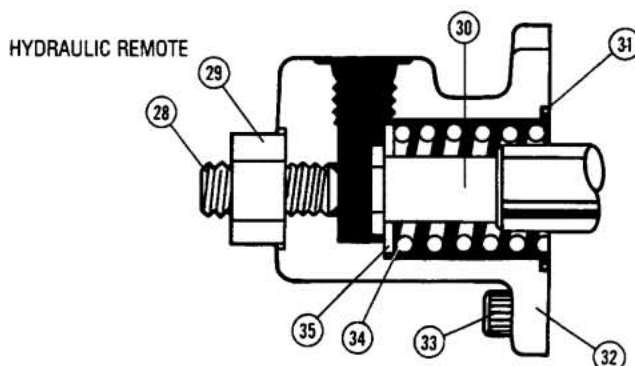
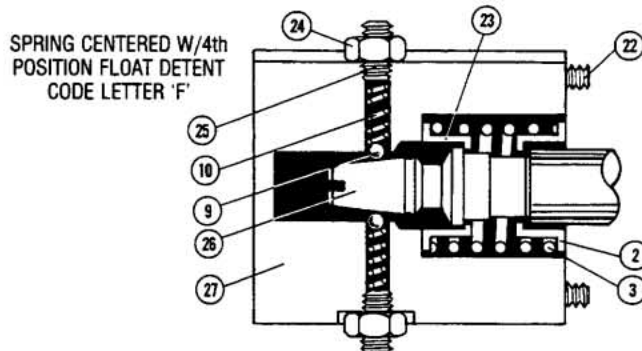
Ref. No.	Part No.	Description	Qty.
1	254000	Cover	1
2	255013	Spring Retainer	2
3	410512	Spring	1
4	400905	Lock Washer	2
5	401603	Screw	2
6	255035	Spool End	1
7	255034	Spacer	1
8	255037	Spacer	1
9	401072	Ball	2
10	410514	Spring	1/2
11	255036	Shoulder	1
12	255039	Detent Ring	1
13	255150	Spacer	1
14	255151	Detent Ring	1
15	255149	Spool End	1
16	408990	Ball	2
17	401067	Ball	1
18	405612	Spring	1
19	402964	Screw	2
20	254126	Spacer	1
21	255215	Detent Ring	1
22	402964	Screw	2
23	255258	Spring Retainer	1
24	401032	Nut	2
25	410540	Screw	2
26	255259	Spool End	1
27	254235	Housing	1
28	407728	Set Screw, Socket Head	2
29	494149	Locknut	2
30	494150	Spud, Positioner	2
31	407581	O-ring	2
32	253588	Bonnet, Hydraulic Remote	2
33	402396	Screw, HSHC	4
34	494147	Spring	2
35	494148	Washer	2

Spring Center Kit No. 785183 Includes Ref. Nos. 2, 3, 4, 5, 6, 7

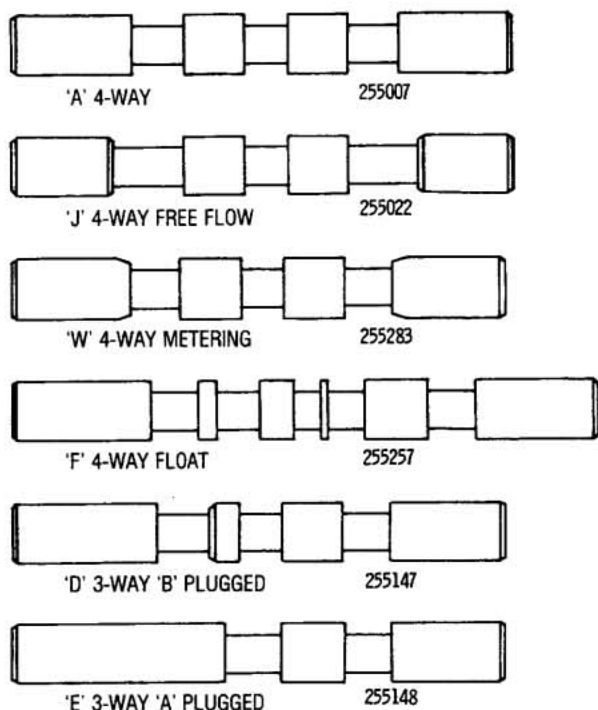
3 Position Detent Kit No. 785076 Includes Ref. Nos. 8, 9, 10, 11, 12

1 Position Detent Kit No. 785086 Includes Ref. Nos. 13, 14, 15, 16, 17, 18, 19, 20

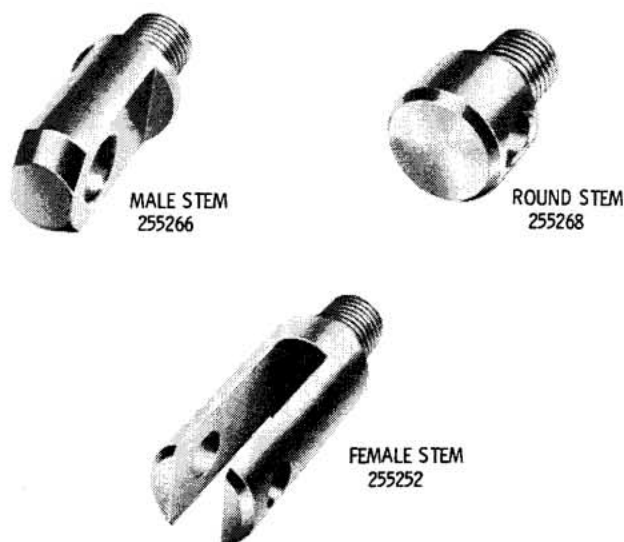
2 Position Detent Kit No. 785087 Includes Ref. Nos. 13, 15, 16, 17, 18, 19, 20, 21



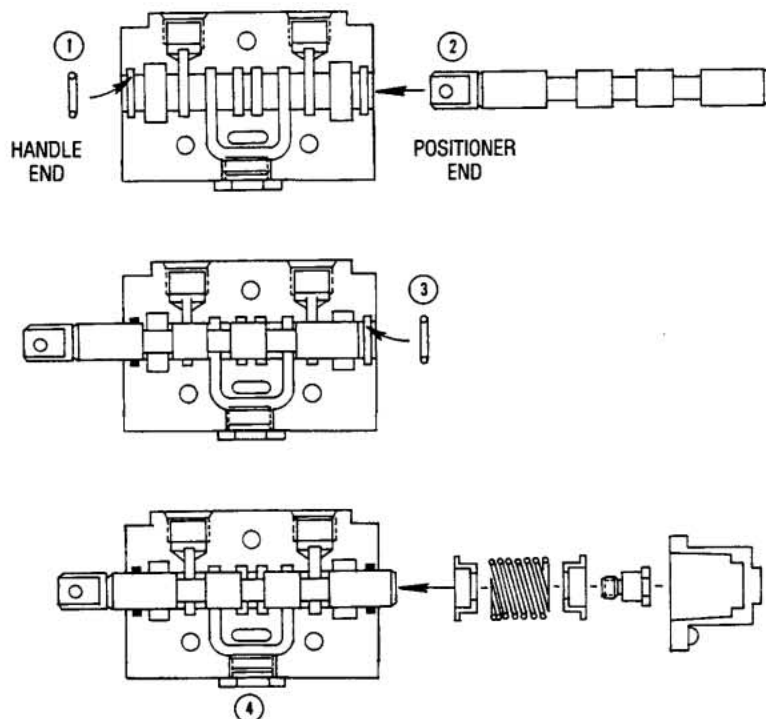
SPOOL OPTIONS



SPOOL ENDS



**SPOOL SEAL
ASSEMBLY PROCEDURE**



1. PLACE O-RING IN THE HANDLE END SEAL GROOVE.
2. INTRODUCE SPOOL INTO THE BORE AND PASS OVER THE POSITIONER END SEAL GROOVE.
3. PLACE THE POSITIONER END O-RING INTO THE SEAL GROOVE.
4. RETURN SPOOL TO MIDDLE POSITION. PLACE THE RETAINERS, SPRING, AND SPOOL END (OR OTHER POSITIONER, AS REQUIRED) ON, THEN TIGHTEN.

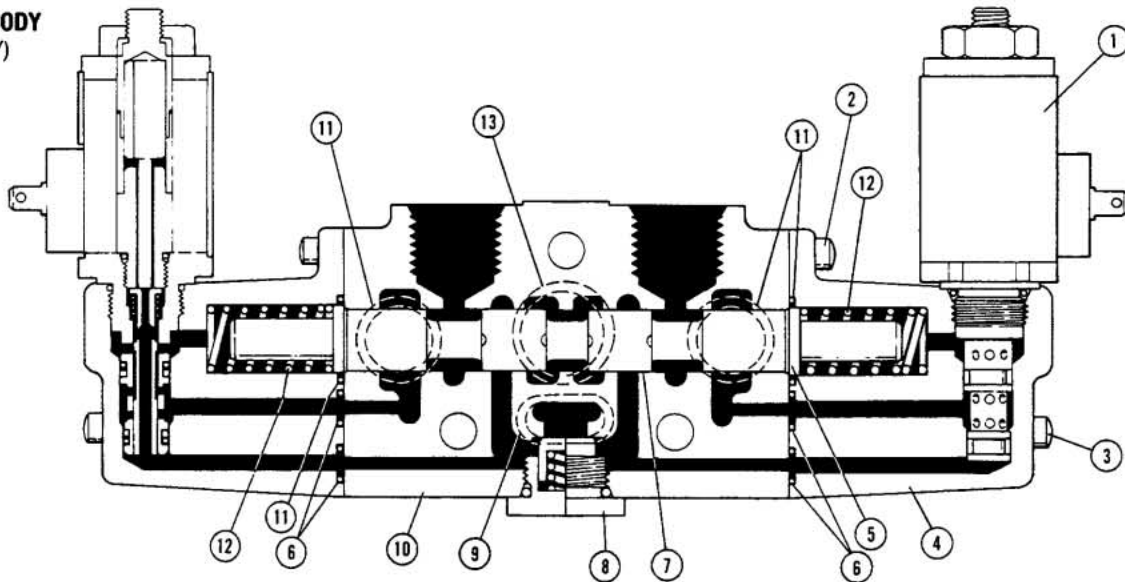
SOLENOID WORK SECTION

SINGLE SOLENOID EACH END

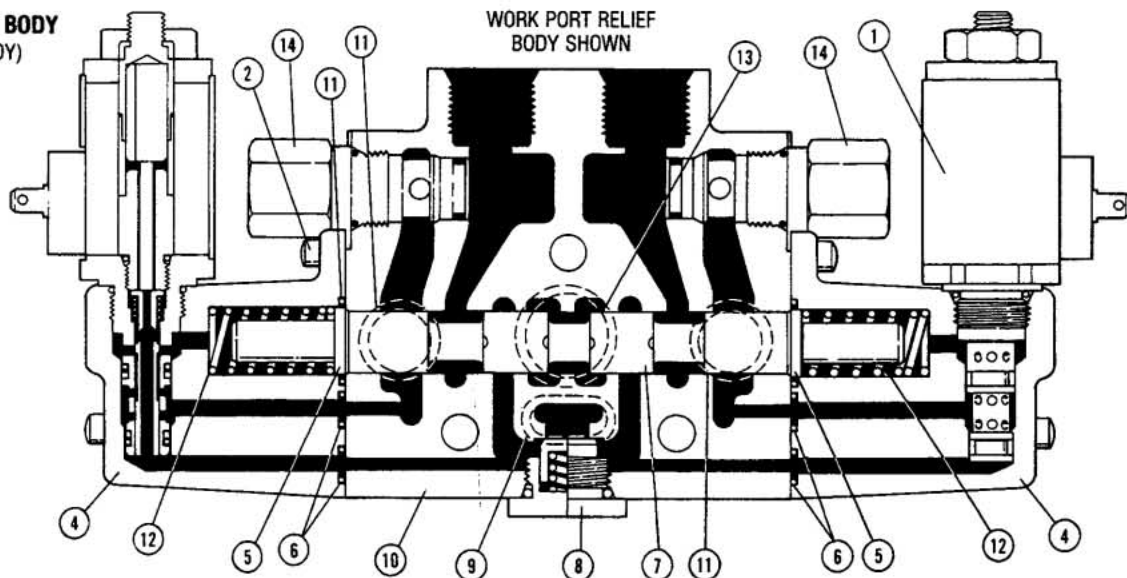
Ref. No.	Part No.	Description	Qty.
1	708465	Solenoid Cartridge, 12 VDC w/Spade Terminals (See Page 10)	2
1	708478	Solenoid Cartridge, 12 VDC w/Wire Leads (See Page 10)	2
1	708479	Solenoid Cartridge, 24 VDC w/Wire Leads (See Page 10)	2
1	708466	Solenoid Cartridge w/Manual Override, 12 VDC w/Spade Terminals (See Page 10)	2
1	708511	Solenoid Cartridge w/Manual Override, 12 VDC w/Wire Leads (See Page 10)	2
1	708485	Solenoid Cartridge w/Manual Override, 24 VDC w/Spade Terminals (See Page 10)	2
1	708475	Solenoid Cartridge w/Manual Override, 24 VDC w/Wire Leads (See Page 10)	2
2	400995	Screw, Fil. Hd. #10-24 x 5/8" long	4
3	493459	Screw, Fil. Hd. #10-24 x 2 7/16" long	4
4	253584	Housing, Solenoid Actuator	2
5	494155	Washer, Centering	2
6	401273	O-Ring	4
7	355924	Spool, 4-Way	1

Ref. No.	Part No.	Description	Qty.
7	355925	Spool, 4-Way Free Flow	1
7	355926	Spool, 4-Way Bleeder	1
8	785011	Load Check Assembly (See Item 13 on Page 2)	1
9	406127	O-Ring, Section	1
10	253597	Low Body, #8 SAE Work Ports	1
10	253594	Low Body, #10 SAE Work Ports	1
10	253598	High Body, for Work Port Relief Option, #8 SAE Work Ports	1
10	253595	High Body, for Work Port Relief Option, #10 SAE Work Ports	1
10	253599	High Body, for Cylinder Lock Options, #8 SAE Work Ports	1
10	253596	High Body, for Cylinder Lock Options, #10 SAE Work Ports	1
11	490308	O-Ring	4
12	494156	Spring, Centering	2
13	405895	O-Ring, Section	1
14		Work Port Options (See Items 15 thru 27 on Page 2.)	2

**STANDARD BODY
(LOW BODY)**



**ACCESSORY BODY
(HIGH BODY)**



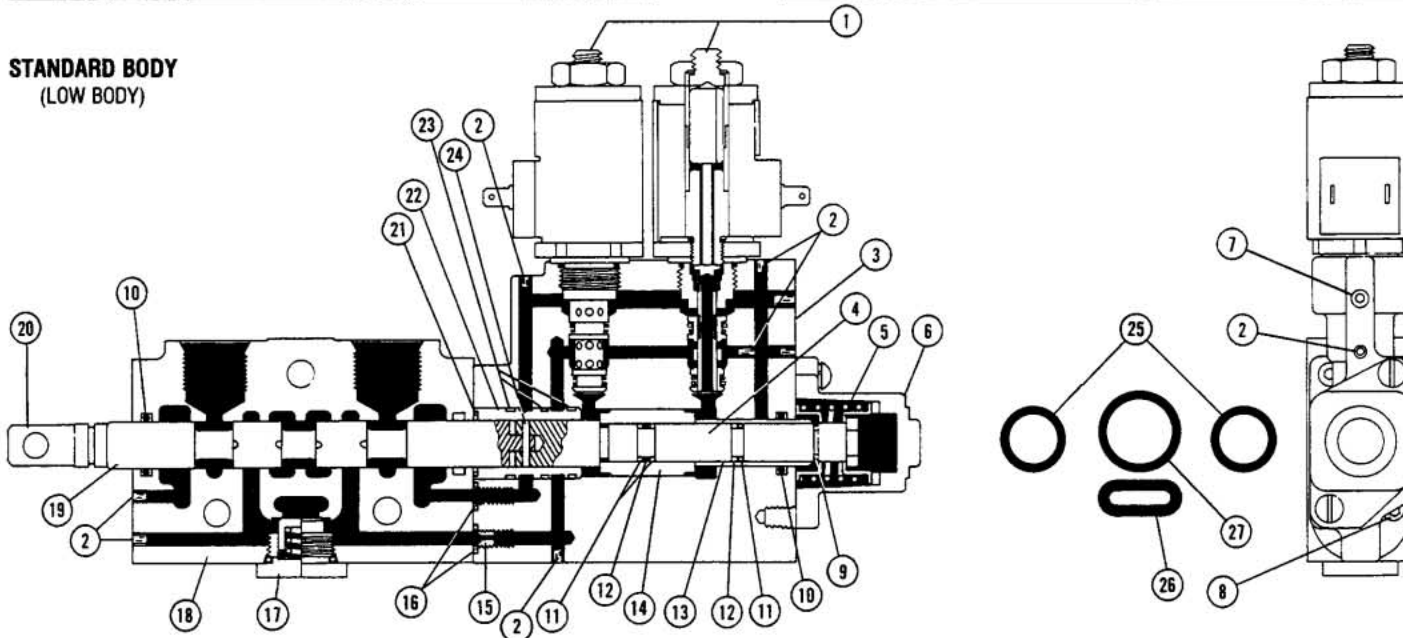
SOLENOID WORK SECTION

DOUBLE SOLENOID PILOT HEAD W/LEVER OPTION

Ref. No.	Part No.	Description	Qty.
1	708467	Solenoid Cartridge, 12 VDC w/Spade Terminals (See Page 10)	2
1	708498	Solenoid Cartridge, 12 VDC w/Wire Leads (See Page 10)	2
2	494141	Plug, Expander	7
3	253606	Housing, Solenoid Actuator	1
4	355969	Spool Extension	1
5	785183	Spring Center Kit (See Page 6)	1
6	254000	Bonnet	1
7	494189	Screw, HSHC #10-24 x 5/8" long	4
8	400774	Washer	1
9	407955	O-Ring, Spool Seal	2
10	401248	Back-Up Ring	3
11	408846	O-Ring	2
12	401272	Spool Sleeve	1
13	355956	Piston	1
14	355955	Set Screw with Orifice	1
15	492007	O-Ring	2
16	401273	Load Check Assembly (See Item 13 on Page 3)	1

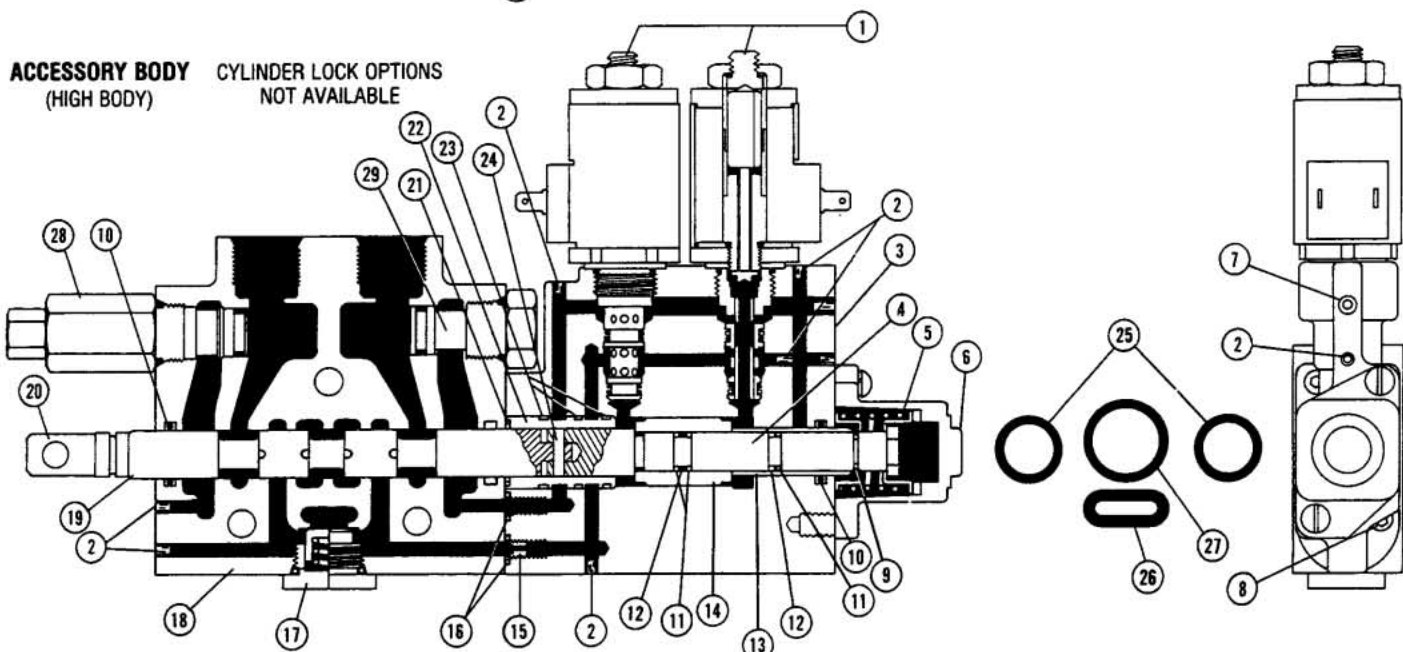
Ref. No.	Part No.	Description	Qty.
18	253597	Low Body, #8 SAE Work Ports	1
18	253594	Low Body, #10 SAE Work Ports	1
18	253598	High Body, for Work Port Relief Option, #8 SAE Work Ports	1
18	253595	High Body, for Work Port Relief Option, #10 SAE Work Ports	1
19	355970	Spool, 4-Way	1
19	355971	Spool, 4-Way Free Flow	1
20		Spool End (See Page 7)	1
21	490308	O-Ring	1
22	355954	Piston	1
23	407235	O-Ring	3
24	494191	Pin, Dowel, 1/8" x 5/8" long	1
25	490308	O-Ring, Section	2
26	406127	O-Ring, Section	1
27	405895	O-Ring, Section	1
28		Work Port Options (Handle End Only). (See Items 15 thru 24 on Page 2.)	1
29		Work Port Options (Solenoid Actuator End). (See Items 15, 16, 17, 18 and 23 on Page 2.)	1

STANDARD BODY (LOW BODY)



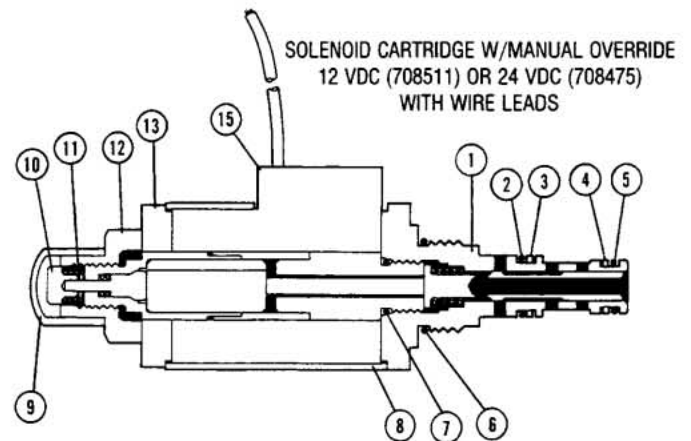
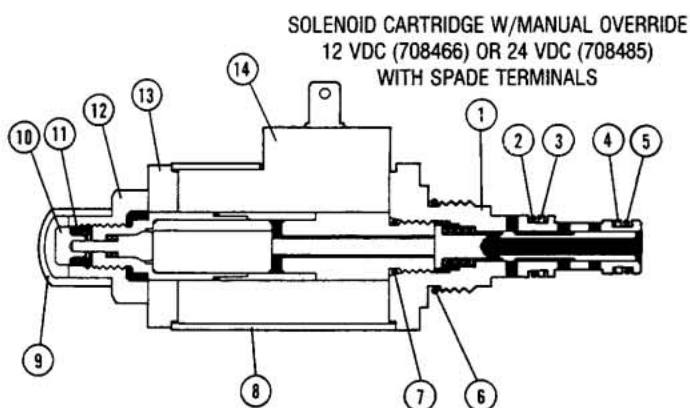
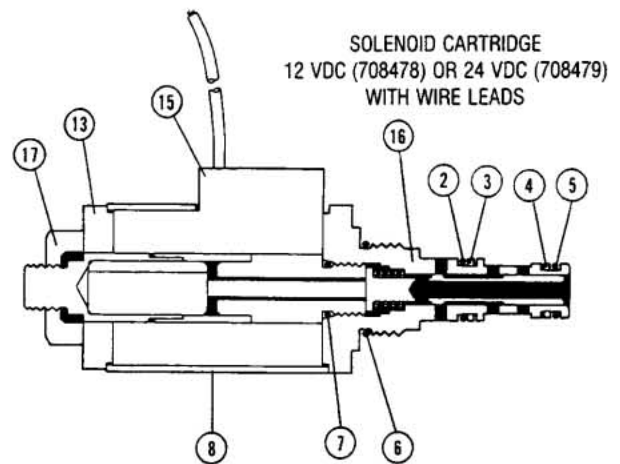
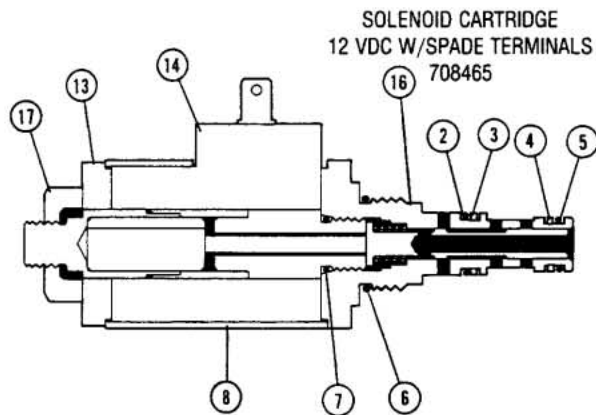
ACCESSORY BODY (HIGH BODY)

CYLINDER LOCK OPTIONS
NOT AVAILABLE

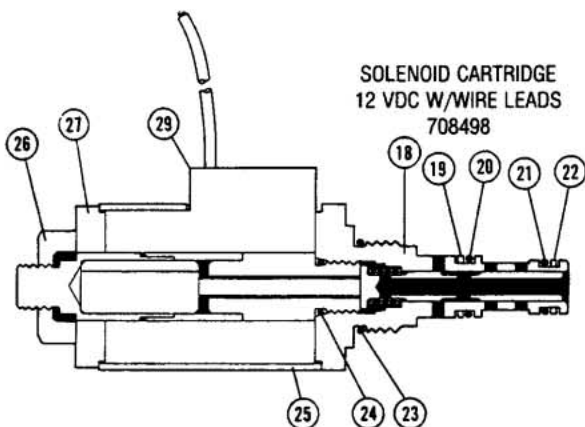
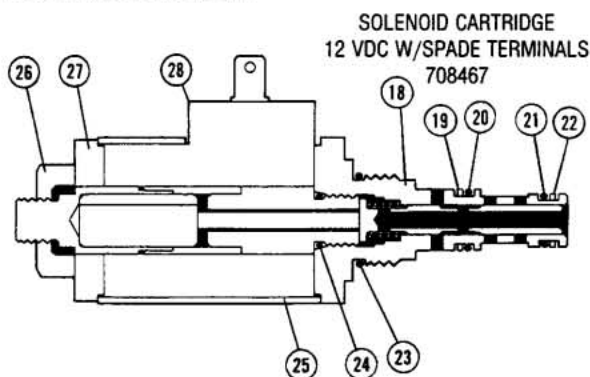


SOLENOID CARTRIDGES

SINGLE SOLENOID EACH END



DOUBLE SOLENOID PILOT HEAD

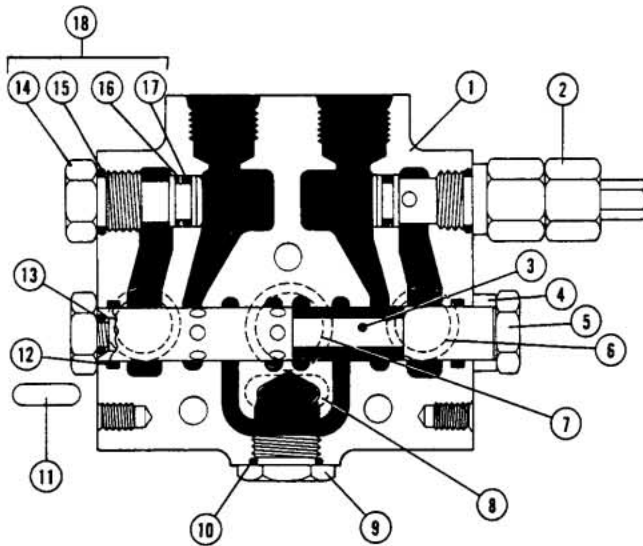


Ref. No.	Part No.	Description	Qty.
1	784229	Solenoid Cartridge Sub-Assembly (Includes Seals)	1
2	401272	O-Ring	1
3	408846	Back-Up Ring	1
4	494151	Back-Up Ring	1
5	402664	O-Ring	1
6	405393	O-Ring	1
7	405990	O-Ring	1
8	494138	Cover, Solenoid Coil	1
9	494170	Protector, Button	1
10	355930	Button, Override	1
11	494157	Spring	1
12	355931	Nut, Hex Jam	1
13	355912	Cap, Solenoid Cartridge	1
14	494132	Coil, 12 VDC w/Spade Terminals	1
14	494165	Coil, 24 VDC w/Spade Terminals	1
15	494131	Coil, 12 VDC w/Wire Leads	1
15	494137	Coil, 24 VDC w/Wire Leads	1
16	784227	Solenoid Cartridge Sub-Assembly (Includes Seals)	1
17	355911	Nut, Hex Jam	1

Ref. No.	Part No.	Description	Qty.
18	784228	Solenoid Cartridge Sub-Assembly (Includes Seals)	1
19	408846	Back-Up Ring	1
20	401272	O-Ring	1
21	402664	O-Ring	1
22	494151	Back-Up Ring	1
23	405393	O-Ring	1
24	405990	O-Ring	1
25	494138	Cover, Solenoid Coil	1
26	355911	Nut, Hex Jam	1
27	355912	Cap, Solenoid Cartridge	1
28	494132	Coil, 12 VDC w/Spade Terminals	1
29	494131	Coil, 12 VDC w/Wire Leads	1

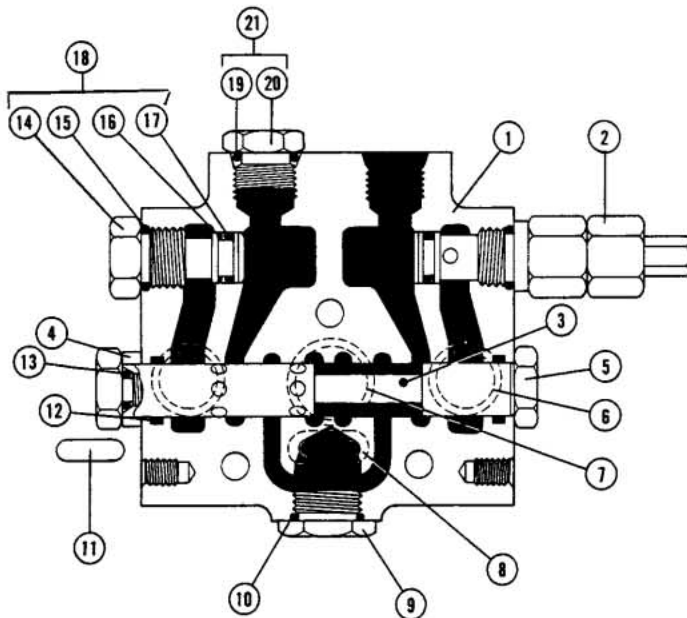
MID-INLET SECTION

SPLIT FLOW

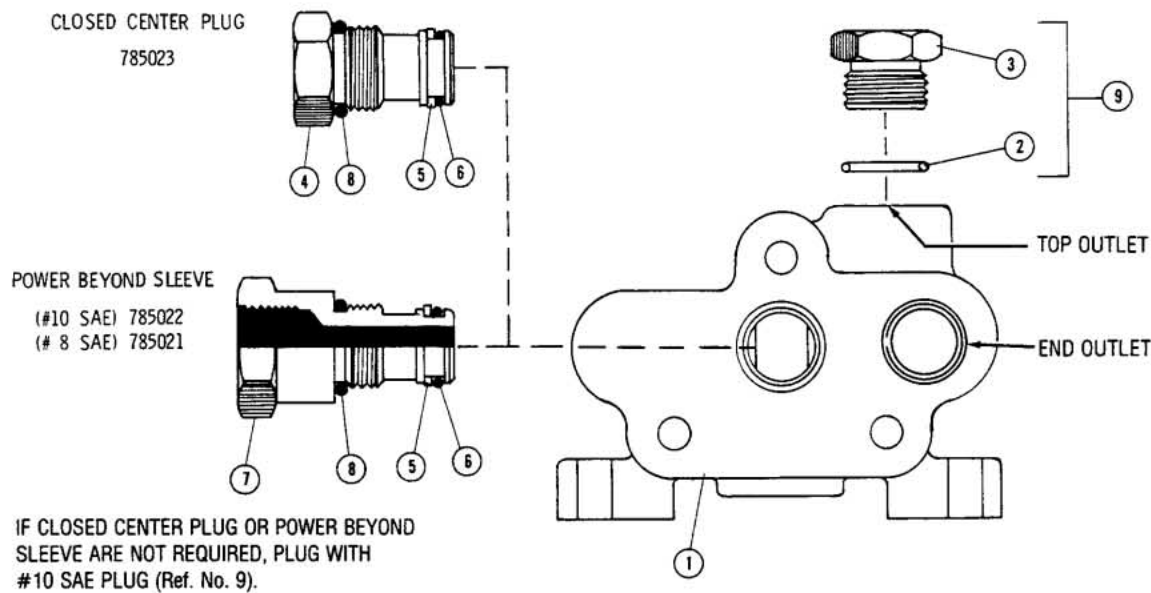


Ref. No.	Part No.	Description	Qty.
[1	254019	Mid-Inlet Body, #8 SAE Ports	1
1	254018	Mid-Inlet Body, #10 SAE Ports	1
2		Main Relief Valve (See Page 2)	1
3	255140	Spool, Mid-Inlet	1
4	255141	Spacer	1
5	255142	Cap	2
6	490308	O-Ring, Section	2
7	405895	O-Ring, Section	1
8	406127	O-Ring, Section	1
9	255020	Plug	1
10	405688	O-Ring	1
11	255310	Blocking Plate	1
12	401248	O-Ring, Spool Seal	2
13	407229	O-Ring	1
14	255033	NR Plug	1
15	405393	O-Ring	1
16	490963	Back-Up Ring	1
17	404463	O-Ring	1
18	785012	Relief Cavity Plug, NR	1
19	405393	O-Ring (#8 SAE)	1
19	405688	O-Ring (#10 SAE)	1
20	255123	#8 SAE Plug	1
20	255093	#10 SAE Plug	1
21	785009	#8 SAE Plug Assembly	1
21	785038	#10 SAE Plug Assembly	1

COMBINED FLOW

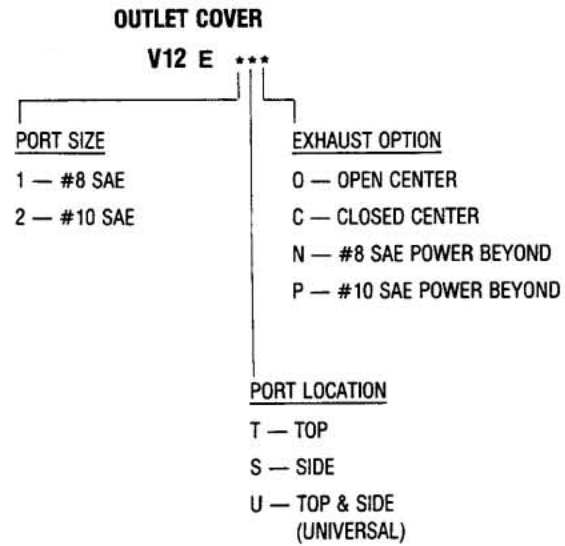


OUTLET COVER

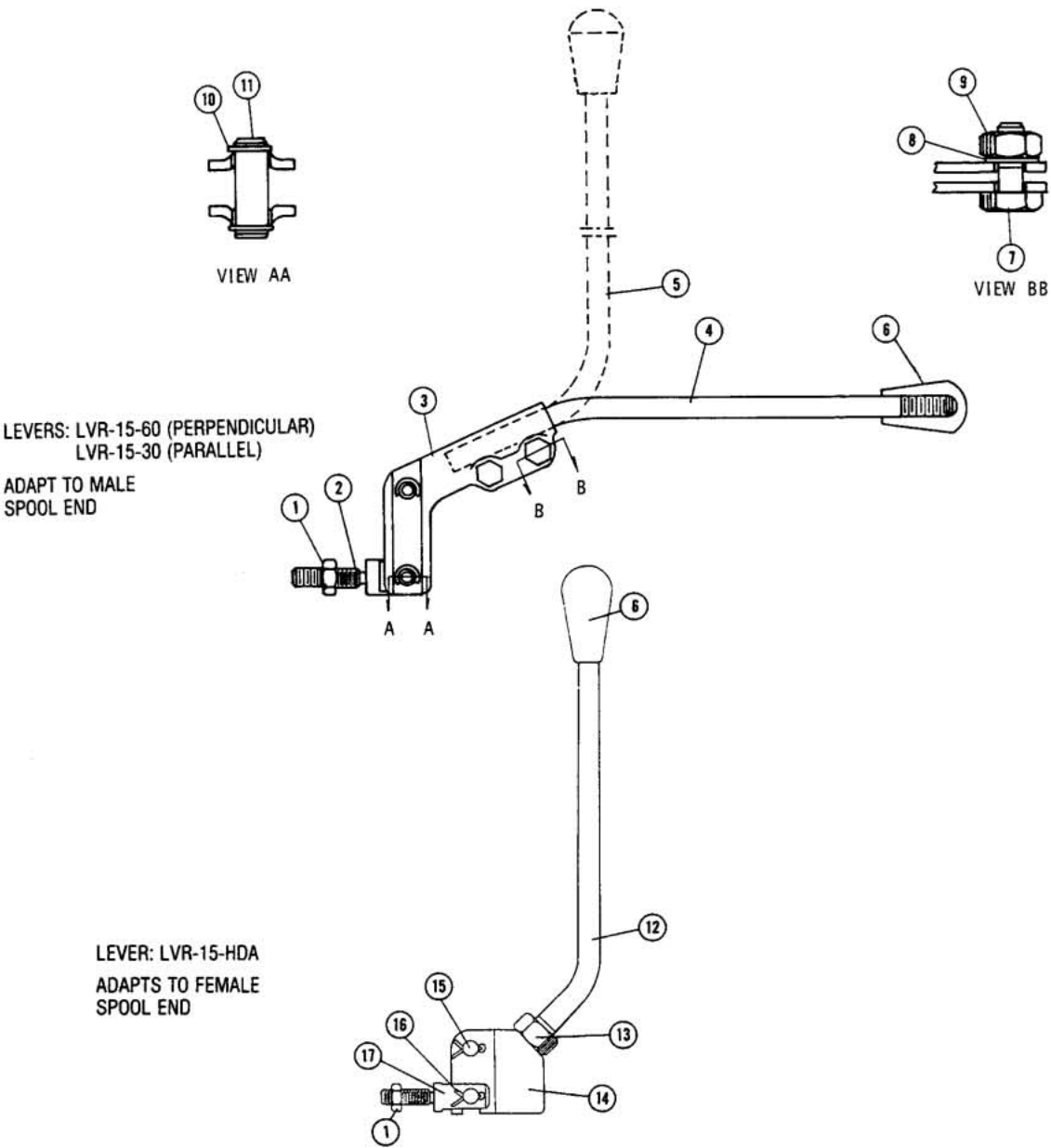


Ref. No.	Part No.	Description	Qty.
1	254027	Outlet Manifold #8 SAE Top & Side Ports	1
1	254074	Outlet Manifold #10 SAE Top & Side Ports	1
1	254025	Outlet Manifold #8 SAE Top Port W/Power Beyond	1
1	254026	Outlet Manifold #10 SAE Top Port W/Power Beyond	1
2	405393	O-ring (#8 SAE)	1
2	405688	O-ring (#10 SAE)	1
3	255123	#8 SAE Plug	1
3	255093	#10 SAE Plug	1
4	255048	Closed Center Plug	1
5	490975	Back-up Ring	1
6	404547	O-ring	1
7	255050	#8 SAE Power Beyond Sleeve	1
7	255049	#10 SAE Power Beyond Sleeve	1
8	405688	O-ring	1
9	785009	#8 SAE Plug Assembly	1
9	785038	#10 SAE Plug Assembly	1

HOW TO ORDER



LEVER OPTIONS

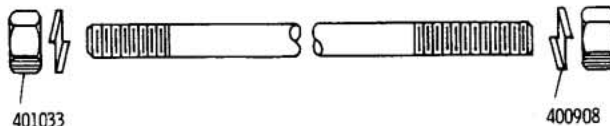


Ref. No.	Part No.	Description	Qty.
1	401023	Jam Nut	1
2	255270	Lever Pivot	1
3	255078	Lever Support	1
4	255017	Parallel Lever Bar	1
5	255016	Perpendicular Lever Bar	1
6	410526	Knob	1
7	410500	Bolt	2
8	400906	Lock Washer	2
9	401032	Nut	2

Ref. No.	Part No.	Description	Qty.
10	410509	Pin	2
11	410504	Snap Ring	4
12	255229	Lever Bar	1
13	490069	Jam Nut	1
14	254219	Lever Bracket	1
15	255234	Pin	2
16	410510	Cotter Pin	2
17	255231	Lower Pivot	1

Assembly No. 785016 includes Ref. No.'s 3, 7, 8, 9, 10, 11
Assembly No. 785182 includes Ref. No.'s 3, 4, 6, 7, 8, 9, 10, 11
Assembly No. 785181 includes Ref. No.'s 3, 5, 6, 7, 8, 9, 10, 11
Assembly No. 785130 includes Ref. No.'s 1, 6, 12, 13, 14, 15, 16, 17

TIE RODS



NOTE: Torque tie rod nuts to
13 ft. lbs. (17.6 Nm)

# of Sections (Includes Covers)	3	4	5	6	7	8	9	10	11
Assembly Part No.	785224	785225	785226	785227	785228	785229	785230	785231	785232
Tie Rod No.	255019	255023	255024	255025	255026	255027	255028	255046	255241
Order Code	TRK-15-3	TRK-15-4	TRK-15-5	TRK-15-6	TRK-15-7	TRK-15-8	TRK-15-9	TRK-15-10	TRK-15-11

SEAL KITS

SERVICE SEAL KITS:	
KIT P/N	KIT APPLICATION
785139	Relief Valve CRV-15B (P/N 785057) Relief Valve CRV-15G (P/N 785017)
785165	Cyl. Lock Valve CLV-15E (P/N 785008) Lock Cavity Plug LCP-15P (P/N 785010)
785166	Relief Valve CRV-15F (P/N 785056) Relief Valve CRV-15D (P/N 785019) Relief Cavity Plug RCP-15A (P/N 785012)
785167	All Non-Solenoid V12 Work Sections & Inlets
785168	Power Beyond Sleeve PBS-15N (P/N 785021) Power Beyond Sleeve PBS-15P (P/N 785022) Closed Center Plug CBP-15C (P/N 785023)
794417	All Solenoid V12 Work Sections

Offer of Sale

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1. Terms and Conditions of Sale: All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from Parker Hannifin Corporation. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGNS OR SPECIFICATIONS.**

5. Limitation Of Remedy: SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. 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 items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges

paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. 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, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are 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. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. Patents, U.S. Trademarks, copyrights, trade dress and trade secrets (hereinafter '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 an item sold pursuant to this contract 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 an item sold hereunder 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 said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items 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 item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights. If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter 'Events of Force Majeure'). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

9/91-P





Parker Hannifin Corporation
Hydraulic Valve Division
520 Ternes Avenue
Elyria, Ohio, USA 44035
Tel: (440) 366-5200
Fax: (440) 366-5253
www.parker.com/hydraulicvalve

Bulletin HY14-2703-M1/US,
2C, 8/02, PHD