



Bulletin HY14-2700/US

Master Distributor Stock Components

Effective: May 1, 2003

Supersedes: Catalog No. DSC-7000 dated 7/1/01



Model V10

Model V11

Model V12

Model V20

Model 25P

Model V40

Model V42

Model V50

Model V70

Model V90

Models HCJ, HCS, HCF

Models SP, SPK, SSK

Models 300/400

Port Plugs

Solenoid Cartridge and Coil Kits

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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.

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9/91-P



23613 Left Cover

V10 INLET COVERS (Housing No. 23613)

Item No.	Model Number	Part Number	End Inlet	End Outlet	Top Inlet	Top Outlet	SAE 10	SAE 8	Pressure Reducing Valves ①
1	10-LC-10	13650709	•	•	•	•	•		
2	10-LC-08	13650710	•	•	•	•		•	
3	10-LC-10-PRV	26157001			•	•	•		•

All inlet covers machined to accept main relief cartridges. Two SAE port plugs are furnished loose with Items 1 and 2.

① Used for Solenoid Valve Assemblies. Only top ports are available with this cover.

V10 Main Relief Cartridges

Item No.	Model Number	Part Number	Pressure Range and Setting					
			500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	2600-3000 Set @ 3000 PSI c/p	3001-3500 Set @ 3500 PSI c/p
1	RCM-1200	13650712	•					
2	RCM-1700	13650713		•				
3	RCM-1950	13650714			•			
4	RCM-2550	13650715				•		
5	RCM-3000	13650716					•	
6	RCM-3500	13650774						•
7	K-10-NR	13650718	No Relief Cavity Plug for V10 Inlet Covers					

Model RCM relief cartridges are internal shirn adjustable.



No Relief Cavity Plug

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	External Screw Adjustment Option for RCM Relief Cartridges



External Adjustment Kit

V10 OUTLET COVERS (Housing No. 23627)

Item No.	Model Number	Part Number	SAE 8	SAE 10	Top Outlet	End Outlet	Machined for Power Beyond	With Mechanical Pressure Control Cartridge ①
1	10-RC-08-EY	13650719	•		•	•	•	
2	10-RC-10-EY	13650720		•	•	•	•	
3	10-RC-10-P-MECH	26157002		•	•	•		•

All outlet covers machined to accept (top) Option Cartridges. Two SAE port plugs furnished loose with each cover.

① Used for Solenoid Valve Assemblies.

The pressure control cartridge must be located in the downstream valve if using the optional power beyond feature in the solenoid-operated upstream valve.



23627 Outlet Cover

V10 Outlet Cover Conversion Kits

Item No.	Model Number	Part Number	Description
1	K-10-C	13650722	Closed Center Plug
2	K-10-08-Y	13650723	SAE 8 Power Beyond Sleeve
3	K-10-10-Y	13650724	SAE 10 Power Beyond Sleeve
4	K-10-P (MECH)	26157055	Pilot Control Cartridge (for Solenoid Valves)

The power beyond sleeves listed here are required for (top) power beyond port only.

To power beyond out the (end) of the valve, requires installation of the K-10-C plug in the (top) option port. Refer to the V10 Service Manual for procedures on selecting Closed Center and Power Beyond options. Pilot control cartridge not required in closed center systems.



Closed Center Plug

V10 Parallel Work Sections with Machined Upper Option Cavities (Housing No. 24990)

Item No.	Model Number	Part Number	SAE 8 [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]	1-Pos. Detent (Spool In) [R]
1	10-08-03	13650776	•	•				•		
2	10-08-R3	13650971	•	•						•
3	10-08-04	13650973	•		•			•		
4	10-08-F4	13650975	•			•		•		
5	10-08-DF4	13650977	•			•			•	
6	10-08-K4	13650979	•				•			

The work sections listed above all have the upper work port relief option cavities machined and plugged.

V10 work sections do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

V10 Parallel Work Sections Without Upper Option Cavities (Housing No. 24990)

Item No.	Model Number	Part Number	SAE 8 [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]	1-Pos. Detent (Spool In) [R]
1	10-08-N-03	13650726	•	•				•		
2	10-08-N-R3	13650970	•	•						•
3	10-08-N-04	13650972	•		•			•		
4	10-08-N-F4	13650974	•			•		•		
5	10-08-N-DF4	13650976	•			•			•	
6	10-08-N-K4	13650978	•				•			

The 'N' in the work sections listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select work section from this group.

V10 work sections do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

V10 Tandem Work Sections with Machined Upper Option Cavities (Housing No. 24990)

Item No.	Model Number	Part Number	SAE 8 [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]	1-Pos. Detent (Spool In) [R]
1	10T-08-03	13650782	•	•				•		
2	10T-08-R3	13650981	•	•						•
3	10T-08-04	13650983	•		•			•		
4	10T-08-F4	13650985	•			•		•		
5	10T-08-DF4	13650987	•			•			•	
6	10T-08-K4	13650989	•				•			

The work sections listed above all have the upper work port relief option cavities machined and plugged.

V10 work sections do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

V10 Tandem Work Sections Without Upper Option Cavities (Housing No. 24990)

Item No.	Model Number	Part Number	SAE 8 [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]	1-Pos. Detent (Spool In) [R]
1	10T-08-N-03	13650738	•	•				•		
2	10T-08-N-R3	13650980	•	•						•
3	10T-08-N-04	13650982	•		•			•		
4	10T-08-N-F4	13650984	•			•		•		
5	10T-08-N-DF4	13650986	•			•			•	
6	10T-08-N-K4	13650988	•				•			

The 'N' in the work sections listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select work section from this group.

V10 work sections do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.



24990 Work Section



24990 Work Section

V10 'Parallel' Solenoid-Operated Work Sections with Machined Upper Option Cavities (Housing No. 23962)

Item No.	Model Number	Part Number	SAE B [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	12 VDC On/Off Solenoid [SOL-I-12]	12 VDC Proportional Solenoid [EPC-I-12]
1	10-08-03-SOL-I-12	26157003	•	•			•	
2	10-08-03-EPC-I-12	26157005	•	•				•
3	10-08-04-SOL-I-12	26157007	•		•		•	
4	10-08-04-EPC-I-12	26157009	•		•			•
5	10-08-F4-SOL-I-12	26157011	•			•	•	
6	10-08-F4-EPC-I-12	26157013	•			•		•

The solenoid-operated work sections listed above all have the upper work port relief option cavities machined and plugged. These sections do **NOT** offer the handle override feature. Contact the Gresen factory in Minneapolis for solenoid sections with handle.

Solenoid Cartridges & Coil Kits

Refer to page 83 in the Electronics Section

V10 Spool Positioner Option Kits



Positioner Kit

Item No.	Model Number	Part Number	Description
1	K-10-A	13650746	Spring Extended Spool Positioner [Ⓢ]
2	K-V10-A	26157056	Spring Extended Spool Positioner (For Use With 24990 Housing) [Ⓢ]
3	K-10-D	13650747	3-Position, 'D' Detent Spool Positioner
4	K-V10-D	26157057	3-Position, 'D' Detent Spool Positioner (For Use With 24990 Housing)
5	K-10-M	13650748	Manual 'M' Spool Positioner
6	K-V10-M	26157058	Manual 'M' Spool Positioner (For Use With 24990 Housing)
7	K-10-S	13650749	Spring Center to Neutral Spool Positioner
8	K-V10-S	26157059	Spring Return to Neutral Spool Positioner (For Use With 24990 Housing)
9	K-10-RI	13650750	1-Position, 'R' Detent Spool 'IN' with Spring return to Neutral
10	K-V10-RI	26157060	1-Position, 'R' Detent Spool 'IN' with Spring return to Neutral (For Use With 24990 Housing)
11	K-10-RO	13650751	1-Position, 'R' Detent Spool 'OUT' with Spring return to Neutral [Ⓢ]
12	K-V10-RO	26157061	1-Position, 'R' Detent Spool 'OUT' with Spring return to Neutral (For Use with 24990 Housing) [Ⓢ]

The Above K-V10-(Kits) are for use with the new style 24990 work section housings. The internal working parts are **NOT** interchangeable with the equivalent K-10-(Kits).

Ⓢ K-10-A and K-V10-A Spool Positioners holds the spool in the 'B' port power (Spool Out) position and will limit the shifting of the spool to the neutral position only.

Ⓢ K-10-RO and K-V10-RO Spool Positioner detent sleeve may be reversed for 'RIO' (Detent 'In' and 'Out') applications. Refer to the V10 Service and Parts manual for procedures.

V10 Mechanical Joysticks

Fits V10 '24990' Work Section Housings. Includes two Spool Clevis Adapters.

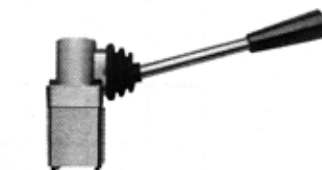
Item No.	Model Number	Part Number	Description
1	MJA2-10L-NB	13650968 [Ⓢ]	V10 Mechanical Joystick, 'LH' Assembly
2	MJA2-10R-NB	13650969 [Ⓢ]	V10 Mechanical Joystick, 'RH' Assembly
3	K-MJA-O	13650691	Mechanical Joystick 'Offset' Handle Assembly
4	K-MJA-S	13650690	Mechanical Joystick 'Straight' Handle Assembly

Ⓢ Includes boot assembly.

V10 Handle Option Kits

Item No.	Model Number	Part Number	Description
1	K-10-VH	13650752	Vertical Handle Assembly
2	K-10-HH	13650753	Horizontal Handle Assembly
3	K-10-VH-EXT	13650786	Extended Vertical Handle Kit - For use in V10/V11 valves using port reliefs on handle end
4	K-10-HH-EXT	13650948	Extended Horizontal Handle Kit - For use in V10/V11 valves using port reliefs on handle end

Refer to Model V10 Service Catalog No. GSD-1010 for information regarding handle installation.



Extended Vertical Handle Assembly



Vertical Handle Assembly



Horizontal Handle Assembly



Assembly Stud Kit

V10 Section Stud Assembly Kits

Item No.	Model Number	Part Number	Description
1	K-10-1	13650755	Stud Kit for One (1) Work Section
2	K-10-2	13650756	Stud Kit for Two (2) Work Sections
3	K-10-3	13650757	Stud Kit for Three (3) Work Sections
4	K-10-4	13650758	Stud Kit for Four (4) Work Sections
5	K-10-5	13650759	Stud Kit for Five (5) Work Sections
6	K-10-6	13650760	Stud Kit for Six (6) Work Sections
7	K-10-7	13650761	Stud Kit for Seven (7) Work Sections
8	K-10-8	13650762	Stud Kit for Eight (8) Work Sections
9	K-10-9	13650763	Stud Kit for Nine (9) Work Sections
10	K-10-10	13650764	Stud Kit for Ten (10) Work Sections
11	K-10-11	13650765	Stud Kit for Eleven (11) Work Sections
12	K-10-SECT-SEAL	13650767	Section Seal Kit
13	K-10-SOL-BRACKET	26157088	(Tall) Mounting Bracket - For use with V10 Solenoid Valve Assemblies
14	K-10-SOL-SEAL	26157030	Section Seal for Solenoid Pilot Passage (25 pieces of 21866001 Seal).

Each Stud Kit includes (4) Studs, (8) Nuts, (2) Mounting Brackets and the required number of Section Seals.

V10 Work Port Relief/Anti-Cav Options

Item No.	Model Number	Part Number	(A) Screw Adjustable	(N) Non-Adj. Tamper Resistant	Anti-Cav Check	Relief Valve	Relief Valve A/C Check	500-5000 Set @ 3000 PSI c/p
1	K-10-AC	13650770						
2	RP10A-3000	13650768	•			•		•
3	RP10N-3000	13650769		•		•		•
4	RP10A-AC 3000	13650771	•				•	•
5	RP10N-AC 3000	13650772		•			•	•

Model RP10A (-AC) relief cartridges are externally adjustable. Model RP10N (-AC) relief cartridges are preset at specified setting and offer a 'tamper resistant' cover.



RP10A Relief Cartridge

V10 Work Port No Relief 'NR' Plug Kit

Item No.	Model Number	Part Number	Description
1	K-10-NR-WP	13650773	Work Port Relief Cavity 'NR' Plug (Not for use in V10 Inlet Covers)



No Relief Cavity Plug



Model V11 Control Valve Porting

SAE 10	SAE 8
Inlet Ports	Work Ports
Outlet Ports	

V11 1-Spool Valves with Machined Upper Option Cavities (Housing No. 23438)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position (4)	4-Way, 3-Position Free Flow (F4)	4-Way, 4-Position Float (K4)	Spring Return to Neutral (0)	3-Pos Detent (D)
1	V11XT-4-2500	13650792	•	•			•	
2	V11XT-F4-2500	13650794	•		•		•	
3	V11XT-D4-2500	13650796	•	•				•
4	V11XT-DF4-2500	13650798	•		•			•
5	V11XT-K4-2500	13650800	•			•		

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The valve assemblies listed above all have the upper work port relief option cavities machined and plugged. Also machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11 1-Spool Valves Without Upper Option Cavities (Housing No. 23438)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position (4)	4-Way, 3-Position Free Flow (F4)	4-Way, 4-Position Float (K4)	Spring Return to Neutral (0)	3-Pos Detent (D)
1	V11XT-N-4-2500	13650791	•	•			•	
2	V11XT-N-F4-2500	13650793	•		•		•	
3	V11XT-N-D4-2500	13650795	•	•				•
4	V11XT-N-DF4-2500	13650797	•		•			•
5	V11XT-N-K4-2500	13650799	•			•		

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The 'N' in the valve assemblies listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select valve assemblies from this group. Machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11 2-Spool Valves with Machined Upper Option Cavities (Housing No. 23537)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position (4)	4-Way, 3-Position Free Flow (F4)	4-Way, 4-Position Float (K4)	Spring Return to Neutral (0)	3-Pos Detent (D)
1	V11XT-4-4-2500	13650808	•	Both Spools			•	
2	V11XT-K4-4-2500	13650810	•	Spool #2		Spool #1	•	
3	V11XT-DF4-DF4-2500	13650812	•		Both Spools			•

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The valve assemblies listed above all have the upper work port relief option cavities machined and plugged. Also machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11 2-Spool Valves Without Upper Option Cavities (Housing No. 23537)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position (4)	4-Way, 3-Position Free Flow (F4)	4-Way, 4-Position Float (K4)	Spring Return to Neutral (0)	3-Pos Detent (D)
1	V11XT-N-4-4-2500	13650807	•	Both Spools			•	
2	V11XT-N-K4-4-2500	13650809	•	Spool #2		Spool #1	•	
3	V11XT-N-DF4-2500	13650811	•		Both Spools			•

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The 'N' in the valve assemblies listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select valve assemblies from this group. Machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11 3-Spool Valves with Machined Upper Option Cavities (Housing No. 23146)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position [4]	4-Way 3-Position Free Flow [F4]	4-Way 4-Position Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]
1	V11XT-4-4-4-2500	13650816	•	All 3 Spools			•	
2	V11XT-DF4-DF4-DF4-2500	13650818	•		All 3 Spools			•
3	V11XT-K4-4-4-2500	13650820	•	Spools 2 & 3		Spool #1	•	

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The valve assemblies listed above all have the upper work port relief option cavities machined and plugged. Also machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11 3-Spool Valves Without Upper Option Cavities (Housing No. 23146)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position [4]	4-Way 3-Position Free Flow [F4]	4-Way 4-Position Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]
1	V11XT-N-4-4-4-2500	13650815	•	All 3 Spools			•	
2	V11XT-N-DF4-DF4-DF4-2500	13650817	•		All 3 Spools			•
3	V11XT-N-K4-4-4-2500	13650819	•	Spools 2 & 3		Spool #1	•	

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The 'N' in the valve assemblies listed above designates that the upper work port relief option cavities are **NOT** machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select valve assemblies from this group. Machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11 Main Relief Cartridges

Item No.	Model Number	Part Number	Pressure Range and Setting					
			500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	2500-3000 Set @ 3000 PSI c/p	3001-3500 Set @ 3500 PSI c/p
1	RCM-1200	13650712	•					
2	RCM-1700	13650713		•				
3	RCM-1950	13650714			•			
4	RCM-2550	13650715				•		
5	RCM-3000	13650716					•	
6	RCM-3500	13650774						•
7	K-10-NR	13650718	No Relief Cavity Plug					

The above RCM relief cartridges are shim adjustable. Installing K-WH-A (listed below) will modify these relief cartridges to offer an external adjustment.



No Relief Cavity Plug

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	Screw Adjustment Option for RCM Relief Cartridges



External Adjustment Kit

V11 Right End Conversion Port Option Kits

Item No.	Model Number	Part Number	Description
1	K-10-C	13650722	Closed Center Plug
2	K-10-08-Y	13650723	SAE 8 Power Beyond Sleeve
3	K-10-10-Y	13650724	SAE 10 Power Beyond Sleeve



Closed Center Plug

Refer to the Model V11 Service Manual for procedures on selecting Closed Center and Power Beyond options.



Positioner Kit

V11 Spool Positioner Option Kits

Item No.	Model Number	Part Number	Description
1	K-10-A	13650746	Spring Extended Spool (Spool Biased to "B" Port Power)②
2	K-10-D	13650747	3-Position Detent
3	K-10-M	13650748	Manual Positioner (No Spring Centering)
4	K-10-S	13650749	Spring Center to Neutral
5	K-10-RI	13650750	Spool "In" Detent With Spring Return to Neutral
6	K-10-RO	13650751	◆ Spool "Out" (also "RIO" Spool "In" and "Out") Detent With Spring Return to Neutral①

① The K-10-RO positioner detent sleeve may be reversed for "RIO" ("In" and "Out") detented positions.

② ◆ This positioner holds the spool in the "B" Port Power (Spool "Out") position and will limit the shifting of the spool to the neutral position only.



RP10A Relief Cartridge

V11 Work Port Relief/Anti-Cav Options

Item No.	Model Number	Part Number	(A) Screw Adjustable	(N) Non-Adj. Tamper Resistant	Relief Valve	Relief/Anti-Cav	Anti-Cav Check	500-5000 Set @ 3000 PSI c/p
1	RP10A-3000	13650768	•		•			•
2	RP10N-3000	13650769		•	•			•
3	K-10-AC	13650770					•	
4	RP10A-AC-3000	13650771	•			•		•
5	RP10N-AC-3000	13650772		•		•		•

Models RP10A (-AC) relief cartridges are externally adjustable.

Models RP10N (-AC) relief cartridges are preset at the specified setting and offer a tamper resistant cover.



No Relief Cavity Plug

V11 Work Port No Relief 'NR' Plug Kit

Item No.	Model Number	Part Number	Description
1	K-10-NR-WP	13650773	No Relief (NR) Cavity Plug (For use in the workport relief cavity only).



Vertical Handle Assembly

V11 Handle Option Kits

Item No.	Model Number	Part Number	Description
1	K-10-VH	13650752	Vertical Handle Assembly
2	K-10-HH	13650753	Horizontal Handle Assembly
3	K-10-VH-EXT	13650786	Extended Vertical Handle Kit — For use in V10/V11 valves using port reliefs on handle end.
4	K-10-HH-EXT	13650948	Extended Horizontal Handle Kit — For use in V10/V11 valves using port reliefs on handle end.

Refer to Model V11 Service Catalog No. GSD-1111 for information regarding handle installation.



Horizontal Handle Assembly



Extended Vertical Handle Assembly



V12P Left Cover



Model CRV-15B
Pilot Operated Relief
Valve Cartridge

V12 INLET COVERS

Item No.	Model Number	Part Number	SAE 10 Port Size [2]	SAE 8 Port Size [1]	Top & End Inlet [U]	Plastic Relief Cavity Plug [N]	Relief Position "B" [8]
1	V12P-2UNB	8650584	•		•	•	•
2	V12P-1UNB	8650974		•	•	•	•

All Left Covers are machined to accept Main Relief Cartridge.

V12 Main Relief Options

Item No.	Model Number	Part Number	Description
1	RCP-15A	8650585	No Relief Plug Kit (NR Option)
2	CRV-15B-2500	8650586	Pilot Operated Relief Valve Cartridge set at 2500 PSI. Crack at 1 GPM
3	CRV-15F-2500	8650608	Direct Acting Relief Valve Cartridge set at 2500 PSI. Crack at 1 GPM

Above Relief Valves are screw adjustable from 500 to 3000 PSI.

V12 OUTLET COVERS

Item No.	Model Number	Part Number	SAE 10 Port Size [2]	SAE 8 Port Size [1]	Top & End Outlet [U]	Machined from Opened Center [O]
1	V12E-2UO	8650587	•		•	•
2	V12E-1UO	8650972		•	•	•

Open Center port may be converted to Closed Center or Power Beyond using Option Kits below.

One SAE Port Plug is furnished with each outlet cover.

V12 Outlet Cover Option Kits

Item No.	Model Number	Part Number	Description
1	CBP-15C	8650588	Closed Center Plug
2	PBS-15N	8650589	SAE 8 Power Beyond Sleeve
3	PBS-15P	8650590	SAE 10 Power Beyond Sleeve



V12E Right Cover

V12 'PARALLEL' WORK SECTIONS

Item No.	Model Number	Part Number	Spring Centered [C]	4-Way 3-Position [A]	3-Way 3-Position [E]	4-Way 4-Position Float [F]①	4-Way 3-Position Free Flow Spool [J]	Standard Low Section [S]	Relief Option Section [R ♦]	Lockout Section [L ♦ ♦]
1	V12W-1FBC-ES	8650591	•		•			•		
2	V12W-1FBC-ERNN	8650971	•		•				•	
3	V12W-1FBC-AS	8650593	•	•				•		
4	V12W-1FBC-ARNN	8650970	•	•					•	
5	V12W-1FBC-JS	8650806	•				•	•		
6	V12W-1FBC-FS ①	8650973	•			•		•		
7	V12W-1FBC-FRNN ①	8650969	•			•			•	
8	V12W-1FBC-JLEE	8650807	•				•			•

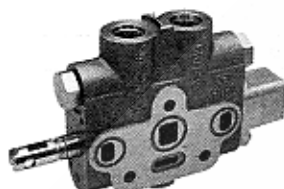
All work ports are SAE B.

All spools include female spool end located on "B" port end - Handle bracket and handle assembly not included.

♦ All relief option sections [R] include machined and plugged (plastic plugs) work port options [NN].

♦ ♦ All lockout sections [L] include cylinder lock valves [EE].

① Float Section(s) must be stacked next to the Inlet Cover to allow proper operation.



Relief Option Section
[R]



Lockout Section
[L]



Standard Low Section
[S]

V12 Vertical Handle Kit

Handle Kit includes necessary hardware.

Item No.	Model Number	Part Number	Description
1	LVR-15-HDA	8650598	Vertical Handle (includes bracket)



Vertical Handle

V12 Section Stud Assembly Kits

Includes Section Seals and Nuts.

Item No.	Model Number	Part Number	Number of Work Sections
1	TRK-15-3 ♦	8650599	One Section
2	TRK-15-4 ♦	8650600	Two Section
3	TRK-15-5 ♦	8650601	Three Section
4	TRK-15-6 ♦	8650602	Four Section
5	TRK-15-7 ♦	8650603	Five Section
6	TRK-15-8 ♦	8650604	Six Section
7	TRK-15-9 ♦	8650605	Seven Section
8	TRK-15-10 ♦	8650606	Eight Section

♦ Total number of sections including inlet, work section(s) and outlet.



Spool Action Assembly
(Bonnet)

V12 Spool Positioner Option Kit

Item No.	Model Number	Part Number	Description
1	K-12-D	8650607	3-Position Detent

Cannot be used on Float Spool.

V12 Work Port Relief/Anti-Cav Options

Item No.	Model Number	Part Number	Pressure Range PSI 500 to 3000 Set at 2500	Description
1	CRV-15F-2500	8650608	•	Direct Acting Relief
2	CRV-15B-2500	8650586	•	Pilot Operated Relief
3	CRV-15C-2500	8650609	•	Combination Relief & Anti-Cav
4	CRA-15H	8650610		Anti-Cavitation Check
5	RCP-15A	8650585		No Relief Plug Kit (NR Option for "R" Body)
6	LCP-15P	8650612		Lock Cavity Plug (for "L" Body)

All above Relief Valves are screw adjustable.
Crack Pressure set at 1 GPM.



Model CRV-15B
Pilot Operated Relief
Valve Cartridge



8398 Left Cover



7736 Left Cover

V20 INLET COVERS (Housing No.'s 8398 & 7736)

Item No.	Model Number	Part Number	End Inlet	End Outlet	Top Inlet	Top Outlet	3/4" NPT Ports [75]	SAE 12 Ports [BSP]	(7736 Only) With 5-25 GPM Flow Control [FC]
1	20-LC-75	8650030	•	•	•	•	•		
2	20-LC-12	8650029	•	•	•	•		•	
3	20-LC-12-FC	8650028	•	•	•	•		•	•

All the above inlet covers are machined to accept the main relief cartridges listed below.
Two port plugs are furnished loose with each cover, one is machined for 1/4" NPTF gauge port.
Excess flow plug is furnished with all 7736 housings.

V20 Main Relief Options

All set at "crack" pressure of 1 GPM.

Item No.	Model Number	Part Number	Pressure Range and Setting				
			500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	500-3500 Set @ 3000 PSI c/p
1	WH-1200	8650417	•				
2	WH-1700	8650418		•			
3	WH-1950	8650419			•		
4	WH-2550	8650420				•	
5	RP51A-3000 ♦	8650421					•
6	K-20-NR	8650382			Relief Plug Kit (NR Option)		

All above Relief Valves have stainless steel springs.
WH Relief Valves are internal shim adjustable.
♦ RP51A Relief Valves are external screw adjustable.

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	External Screw Adjustable Option for WH Relief



Model WH Relief Valve Cartridge



Model RP51 Relief Valve Cartridge

V20 OUTLET COVERS For Open Center (Housing No.'s 6770 & 8644)

Item No.	Model Number	Part Number	SAE 10 Ports [10]	SAE 12 Ports [12]	3/4" NPT Ports [75]	Hsg. 6770 End Outlet [E]	Hsg. 8644 Top Outlet [T]	Solenoid Pilot C'bores Machined [P]	Machined for End Power Beyond (6770 Only) [MY]	① Machined for Top Power Beyond (8644 Only) [MY]	② Includes 12 VDC Pressure Control Cartridge [SOL-12]	③ Includes 24 VDC Pressure Control Cartridge [SOL-24]
1	20-RC-10-E	13650145	•			•						
2	20-RC-12-E	13650146		•		•						
3	20-RC-75-E	13650147			•	•						
4	20-RC-12-E-MY	8650024		•		•			•			
5	20-RC-12-E-MY-P ①	26157054		•		•		•	•			
6	20-RC-75-E-MY	8650027			•	•			•			
7	20-RC-12-ET-12-MY ①	8650022		•			•			•		
8	20-RC-75-ET-75-MY ①	8650023			•		•			•		
9	20-RC-12-E-SOL-12 ②	8650026		•		•					•	
10	20-RC-12-E-SOL-24 ③	13650307		•		•						•

- ① 8644 covers are supplied with the internal power beyond conversion plug installed. Plugging the top power beyond port will convert the valve to closed center with the internal plug installed.
- ② (SOL) covers are used in the downstream (V20) valve if a power beyond sleeve is used in the utility section of a solenoid upstream valve.
- ③ The Solenoid Pilot C'bores machined, designation letter [P], indicates that the pilot seal counterbores have been machined into the upstream side of the right end cover. This outlet cover must be used in V20 valve assemblies when having a solenoid work section next to the outlet cover (i.e. using an upstream Unloading Utility Section).



8644 Right Cover



Right Cover with Pressure Control Cartridge



6770 Right Cover

V20 OUTLET COVERS for Load Sensing (Housing No. 6770)

Item No.	Model Number	Part Number	SAE 12 Ports [12]	End Outlet [E]	Includes Load Sense Bleed-Off Cartridge [LS]	SAE 4 Load Sense Port & Pilot Seal Cbores [P-NB]
1	20-RC-12-E-LS	8650025	•	•	•	
2	20-RC-12-E-LS-P-NB ①	13650169	•	•		•

- ① Covers having the Load Sense Bleed-Off Cartridge [LS] may be converted to No-Bleed-Off. No Bleed-Off covers, however, may NOT be converted to Bleed-Off.

V20 Open Center Option Kits for 6770 'MY' Outlet Covers

Item No.	Model Number	Part Number	Description
1	K-20-C	8650099	Closed Center Plug
2	K-20-X	8650100	Conversion Plug
3	K-20-50-Y	8650101	1/2" NPT Power Beyond Sleeve
4	K-20-08-Y	8650102	SAE 8 Power Beyond Sleeve
5	K-20-10-Y	8650103	SAE 10 Power Beyond Sleeve

These option kits may not be used with 6770 LS (Load Sense) or 8644 covers.

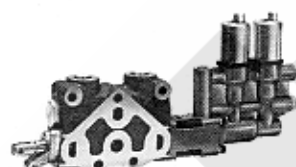


Model V20P
(8072 Section)

V20P 'PARALLEL' WORK SECTIONS (Housing No. 8072) Manually Operated

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	1/2" NPT Ports [50]	SAE 8 Ports [08]	SAE 10 Ports [10]	Spring Return to Neutral	Knock Out [K04]	Rotary Spool Act. [W]	3-Pos Detent [D]	Stainless Steel Spool [SS]
1	20-50-03	8650017	•				•			•				
2	20-08-03	13650149	•					•		•				
3	20-10-03	8650016	•						•	•				
4	20-50-04	8650021		•			•			•				
5	20-08-04	13650148		•				•		•				
6	20-10-04	8650020		•					•	•				
7	20-50-F4	8650019			•		•			•				
8	20-08-F4	13650151			•			•		•				
9	20-10-F4	8650018			•				•	•				
10	20-08-DF4	13650838			•			•					•	
11	20-10-DF4	8650009			•				•	•			•	
12	20-50-K4	8650015				•	•							
13	20-08-K4	13650150				•		•						
14	20-10-K4	8650014				•			•					
15	20-10-K04-2000	8650011							•		•			
16	20-10-W4 ⊕	8650010		•					•			•		
17	20-10-W4-SS ⊕	8650638		•					•			•		•
18	20-10-WF4-SS ⊕	8650639			•				•			•		•

⊕ Bracket assembly not furnished with [W] Rotary Spool Options, Items 16, 17 & 18.



Solenoid Control
(SOL-E)



Hydraulic Remote Control
(HRO)

V20P 'PARALLEL' WORK SECTIONS (Housing No.8072) External Solenoid and Remote Pilot-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	SAE 10 Ports [10]	Pneumatic Remote [PA1]	Hydraulic Remote with Override [HRO]	Hydraulic Remote with Handle [HRH]	12 VDC External Pilot Solenoid [SOL-E]
1	20-10-03-PA1	13650963	•			•	•			
2	20-10-04-PA1	13650964		•		•	•			
3	20-10-04-HRO ⊕	8650578		•		•		•		
4	20-10-F4-HRO	13650965			•	•		•		
5	20-10-04-HRH	8650579		•		•			•	
6	20-10-03-SOL-E-12	13650280	•			•				•
7	20-10-04-SOL-E-12	8650013		•		•				•
8	20-10-F4-SOL-E-12	13650529			•	•				•

⊕ Bracket assembly not furnished with [HRO] or [HRH] Hydraulic Remote Spool Option, Items 3, 4 & 5.

Model V20R
(10954 Section)**V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Manually-Operated**

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	SAE 10 Ports [10]	SAE 12 Ports [12]	Spring Return to Neutral	Knock Out (Set @ 2000 PSI) [K04]	3-Pos Detent [D]	Hydraulic Remote with Override [HRO]	'R' Detent [R]	Internal Pilot Thru-Passage [PILOT]	Pilot Seal Counter Bore [CBORE]
1	20R-10-03	13650856	•				•		•						
2	20R-12-03	13650857	•					•	•						
3	20R-10-R3	13650855	•				•						•		
4	20R-12-R3	13650858	•					•					•		
5	20R-10-04	8650613		•			•		•						
6	20R-12-04	13650859		•				•	•						
7	20R-10-F4	13650276			•		•		•						
8	20R-12-F4	13650860			•			•	•						
9	20R-10-DF4	13650861			•		•				•				
10	20R-10-K4	13650862				•	•								
11	20R-10-04-PILOT⊙	13650863		•			•		•					•	
12	20R-10-04-CBORE⊙	13650962		•			•		•						•

⊙ The "PILOT" code designates that the internal through-passages have been machined for use when intermixing solenoid and manual work sections.

⊙ The "CBORE" designates that the pilot seal counterbores have been machined into the upstream side of the work section. This section must be used as the first manual section in V20 valve assemblies using an upstream Unloading Utility Section when having solenoid and manual sections downstream.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Manually-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	SAE 10 Ports [10]	SAE 12 Ports [12]	Spring Return to Neutral	Knock Out [K04]	'R' Type Detent [R]
1	20T-10-03	13650851	•				•		•		
2	20T-12-03	13650966	•					•	•		
3	20T-10-R3	13650852	•				•				•
4	20T-12-R3	13650853	•					•			•
5	20T-10-04	8650008		•			•		•		
6	20T-10-K4	13650854				•	•				
7	20T-10-K04-2000	13650967		•			•			•	
8	20T-10-04-PILOT⊙	13650943		•			•		•		
9	20T-10-F4	26157027			•		•		•		

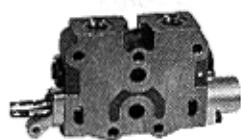
⊙ The "PILOT" code designates that the internal through-passages have been machined for use when intermixing solenoid and manual work sections.

Model V20RT
(10762 Section)**V20S 'SERIES' WORK SECTIONS (Housing No. 11483) Manually-Operated**

Item No.	Model Number	Part Number	SAE 10 Ports [10]	4-Way 3-Pos. [4]	4-Way 3-Pos. Free Flow [F4]	Spring Return to Neutral	4-Way 4-Pos. Float [K4]
1	20S-10-04	8650637	•	•		•	
2	20S-10-F4	13650850	•		•	•	
3	20S-10-K4	8650640	•				•

V20S (Series) sections may be stacked with V20P (Parallel) and V20 T (Tandem) sections. Refer to V20S product literature for stacking sequence restrictions.

Model V20S
(11483 Section)



Model V20LQ
(11571 Section)

V20LQ 'LOCKOUT' WORK SECTIONS (Housing No. 11571) Manually-Operated

Item No.	Model Number	Part Number	Pilot-Operated Checks [L]	4-Way 3-Pos [04]	1/2" BSP Ports [BSP]	SAE 10 Ports [10]	Spring Return to Neutral
1	20-10-LQ4	8650007	•	•		•	•



Model V20C
(8364 Section)

V20C 'CLOSED CENTER' WORK SECTIONS (Housing No. 8364) Manually-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos. [3]	4-Way 3-Pos. [4]	4-Way 3-Pos. Free Flow [F4]	4-Way 4-Pos. Float [K]	Spring Return to Neutral	3-Pos. Detent [D]	R-Type Detent [R]	SAE 10 Ports [10]	Internal Pilot-Thru Passage [PILOT]
1	20C-10-R3	13650839	•						•	•	
2	20C-10-04	8650006		•			•			•	
3	20C-10-F4	13650840			•		•			•	
4	20C-10-DF4	13650841			•			•		•	
5	20C-10-K4	13650842				•				•	
6	20C-10-04-PILOT	13650843		•			•			•	•

The "Pilot" code designates that the internal pilot through-passages have been machined for use when intermixing solenoid and manual sections.



Model V20LS
(8364 Section)

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Manually-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	3-Pos Detent [D]	4-Way 4-Pos Float [K]	Spring Return to Neutral	'R' Type Detent [R]	SAE 10 Ports [10]	SAE 12 Ports [12]	O-Ring C'bores Machined [CBORE]	Internal Pilot Thru Passage [PILOT]
1	20LS-10-03	13650844	•					•		•			
2	20LS-12-03	13650575	•					•			•		
3	20LS-10-R3	13650572	•						•	•			
4	20LS-12-R3	13650954	•						•		•		
5	20LS-10-04	8650005		•				•		•			
6	20LS-12-04	13650576		•				•			•		
7	20LS-10-F4	13650277			•			•		•			
8	20LS-12-F4	13650845			•			•			•		
9	20LS-10-DF4	13650846			•	•				•			
10	20LS-12-DF4	13650847			•	•					•		
11	20LS-10-K4	13650848					•			•			
12	20LS-12-K4	13650849					•				•		
13	20LS-10-04-CBORE	13650574		•				•		•		•	
14	20LS-10-04-PILOT	13650170		•				•		•			•

NOTES: The "C'core" code designates that the pilot seal counterbores have been machined into the upstream side of the work section. This section must be used as the first manual section in V20 valve assemblies using an upstream Unloading Utility Section when having V20LS solenoid and manual sections downstream.

The "Pilot" code designates that the internal pilot through-passages have been machined for use when intermixing solenoid and manual sections.

Solenoid Cartridges & Coil Kits

Refer to page 83 in the Electronics Section

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Manually-Operated

Load Checks not available with V20PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	Maximum Flow (GPM)		
							[05]	[10]	[15]
1	20PC-LS-10-04-05	13650001		•		•	•		
2	20PC-LS-10-04-10	13650002		•		•		•	
3	20PC-LS-10-04-15	13650003		•		•			•
4	20PC-LS-10-03-05	13650004	•			•	•		
5	20PC-LS-10-03-10	13650005	•			•		•	
6	20PC-LS-10-03-15	13650006	•			•			•
7	20PC-LS-10-F4-05	13650007			•	•	•		
8	20PC-LS-10-F4-10	13650008			•	•		•	
9	20PC-LS-10-F4-15	13650009			•	•			•

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

Proportional Solenoids (EPC)

Load Checks not available with V20PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	2-Way 2-Pos. [2]	2-Way 2-Pos. Free Flow [F2]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	Maximum Flow (GPM)			12 VDC EPC Actuator [EPC-I-12]
										[05]	[10]	[15]	
1	20PC-LS-10-04-05-EPC-I-12	13650010		•				•		•			•
2	20PC-LS-10-04-10-EPC-I-12	13650011		•				•			•		•
3	20PC-LS-10-04-15-EPC-I-12	13650012		•				•				•	•
4	20PC-LS-10-03-05-EPC-I-12	13650013	•					•		•			•
5	20PC-LS-10-03-10-EPC-I-12	13650014	•					•			•		•
6	20PC-LS-10-03-15-EPC-I-12	13650015	•					•				•	•
7	20PC-LS-10-F4-05-EPC-I-12	13650016			•			•		•			•
8	20PC-LS-10-F4-10-EPC-I-12	13650017			•			•			•		•
9	20PC-LS-10-F4-15-EPC-I-12	13650018			•			•				•	•
10	20PC-LS-10-02-05-EPC-I-12	13650058				•		•		•			•
11	20PC-LS-10-02-10-EPC-I-12	13650059				•		•			•		•
12	20PC-LS-10-02-15-EPC-I-12	13650060				•		•				•	•
13	20PC-LS-12-02-15-EPC-I-12	13650865				•			•			•	•
14	20PC-LS-10-F2-05-EPC-I-12	13650866					•	•		•			•
15	20PC-LS-10-F2-10-EPC-I-12	13650867					•	•			•		•
16	20PC-LS-10-F2-15-EPC-I-12	13650868					•	•				•	•
17	20PC-LS-12-F2-15-EPC-I-12	13650869					•		•			•	•

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

On/Off Solenoids (SOL)

Load Checks not available with V20PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos [03]	4-Way 3-Pos [04]	4-Way 3-Pos Free Flow [F4]	SAE 10 Work Ports [10]	Maximum Flow (GPM)			12 VDC SOL [SOL-I-12]
							[05]	[10]	[15]	
1	20PC-LS-10-04-05-SOL-I-12	13650061		•		•	•			•
2	20PC-LS-10-04-10-SOL-I-12	13650062		•		•		•		•
3	20PC-LS-10-04-15-SOL-I-12	13650063		•		•			•	•
4	20PC-LS-10-03-05-SOL-I-12	13650064	•			•	•			•
5	20PC-LS-10-03-10-SOL-I-12	13650065	•			•		•		•
6	20PC-LS-10-03-15-SOL-I-12	13650066	•			•			•	•
7	20PC-LS-10-F4-05-SOL-I-12	13650067			•	•	•			•
8	20PC-LS-10-F4-10-SOL-I-12	13650068			•	•		•		•
9	20PC-LS-10-F4-15-SOL-I-12	13650069			•	•			•	•

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

Proportional Solenoids With Handle (EPC-IH)

Load Checks not available with V20 PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	Maximum Flow (GPM)			12 VDC EPC with Handle [EPC-IH-12]
							[05]	[10]	[15]	
1	20PC-LS-10-04-05-EPC-IH-12	13650225		•		•	•			•
2	20PC-LS-10-04-10-EPC-IH-12	13650226		•		•		•		•
3	20PC-LS-10-04-15-EPC-IH-12	13650227		•		•			•	•
4	20PC-LS-10-03-05-EPC-IH-12	13650228	•			•	•			•
5	20PC-LS-10-03-10-EPC-IH-12	13650229	•			•		•		•
6	20PC-LS-10-03-15-EPC-IH-12	13650230	•			•			•	•
7	20PC-LS-10-F4-05-EPC-IH-12	13650231			•	•	•			•
8	20PC-LS-10-F4-10-EPC-IH-12	13650232			•	•		•		•
9	20PC-LS-10-F4-15-EPC-IH-12	13650233			•	•			•	•

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

On/Off Solenoids With Handle (SOL-IH)

Load Checks not available with V20 PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	Maximum Flow (GPM)			12 VDC SOL with Handle [SOL-IH-12]
							[05]	[10]	[15]	
1	20PC-LS-10-04-05-SOL-IH-12	13650234		•		•	•			•
2	20PC-LS-10-04-10-SOL-IH-12	13650235		•		•		•		•
3	20PC-LS-10-04-15-SOL-IH-12	13650236		•		•			•	•
4	20PC-LS-10-03-05-SOL-IH-12	13650237	•			•	•			•
5	20PC-LS-10-03-10-SOL-IH-12	13650238	•			•		•		•
6	20PC-LS-10-03-15-SOL-IH-12	13650239	•			•			•	•
7	20PC-LS-10-F4-05-SOL-IH-12	13650240			•	•	•			•
8	20PC-LS-10-F4-10-SOL-IH-12	13650241			•	•		•		•
9	20PC-LS-10-F4-15-SOL-IH-12	13650242			•	•			•	•

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Solenoid-Operated

On/Off Solenoids (SOL)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	12 VDC SOL Actuator [SOL-I-12]
1	20-10-04-SOL-I-12	8650986		•		•		•
2	20-10-03-SOL-I-12	8650988	•			•		•
3	20-10-F4-SOL-I-12	8650990			•	•		•
4	20-12-03-SOL-I-12	13650879	•				•	•
5	20-12-04-SOL-I-12	13650880		•			•	•
6	20-12-F4-SOL-I-12	13650881			•		•	•

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Solenoid-Operated

On/Off Solenoids (SOL)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Ports [10]	SAE 12 Ports [12]	12 VDC SOL Actuator [SOL-I-12]
1	20T-10-03-SOL-I-12	13650870	•			•		•
2	20T-12-03-SOL-I-12	13650871	•				•	•
3	20T-10-04-SOL-I-12	13650873		•		•		•
4	20T-12-04-SOL-I-12	13650874		•			•	•
5	20T-10-F4-SOL-I-12	13650876			•	•		•
6	20T-12-F4-SOL-I-12	13650877			•		•	•

Because of the internal porting of V20T tandem solenoid work sections, they may only be used in valve assemblies using an upstream Unloading Utility Section.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Solenoid-Operated

Proportional Solenoids (EPC)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	12 VDC EPC Actuator [EPC-I-12]
1	20-10-04-EPC-I-12	8650987		*		*		*
2	20-10-03-EPC-I-12	8650989	*			*		*
3	20-10-F4-EPC-I-12	8650991			*	*		*
4	20-12-03-EPC-I-12	13650891	*				*	*
5	20-12-04-EPC-I-12	13650892		*			*	*
6	20-12-F4-EPC-I-12	13650893			*		*	*

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Solenoid-Operated

Proportional Solenoids (EPC)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [03]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	12 VDC EPC Actuator [EPC-I-12]
1	20T-10-03-EPC-I-12	13650882	*			*		*
2	20T-12-03-EPC-I-12	13650883	*				*	*
3	20T-10-04-EPC-I-12	13650885		*		*		*
4	20T-12-04-EPC-I-12	13650925		*			*	*
5	20T-10-F4-EPC-I-12	13650927			*	*		*
6	20T-12-F4-EPC-I-12	13650889			*		*	*

Because of the internal porting of V20T tandem solenoid work sections, they may only be used in valve assemblies using an upstream Unloading Utility Section.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

On/Off Solenoids (SOL)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	12 VDC On-Off SOL Actuator [SOL-I]
1	20LS-10-04-SOL-I-12	8650992		•		•	•
2	20LS-10-03-SOL-I-12	8650994	•			•	•
3	20LS-10-F4-SOL-I-12	8650996			•	•	•



V20 EPC Load Sensing Valve

Load Sensing sections may be used for Closed Center or Load Sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

Proportional Solenoids (EPC)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	12 VDC EPC Actuator [EPC-I-12]
1	20LS-10-04-EPC-I-12	8650993		•		•	•
2	20LS-10-03-EPC-I-12	8650995	•			•	•
3	20LS-10-F4-EPC-I-12	8650997			•	•	•

Load Sensing sections may be used for Closed Center or Load Sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Solenoid-Operated

On/Off Solenoids with Handle (SOL-IH)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [F4]	SAE 12 Work Ports [12]	12 VDC SOL with Handle [SOL-IH-12]
1	20-10-04-SOL-IH-12	13650183		•		•		•
2	20-10-03-SOL-IH-12	13650185	•			•		•
3	20-10-F4-SOL-IH-12	13650187			•	•		•
4	20-12-03-SOL-IH-12	13650903	•				•	•
5	20-12-04-SOL-IH-12	13650904		•			•	•
6	20-12-F4-SOL-IH-12	13650905			•		•	•

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Solenoid-Operated

On/Off Solenoids with Handle (SOL-IH)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	12 VDC SOL with Handle [SOL-IH-12]
1	20T-10-03-SOL-IH-12	13650894	•			•		•
2	20T-12-03-SOL-IH-12	13650895	•				•	•
3	20T-10-04-SOL-IH-12	13650897		•		•		•
4	20T-12-04-SOL-IH-12	13650898		•			•	•
5	20T-10-F4-SOL-IH-12	13650900			•	•		•
6	20T-12-F4-SOL-IH-12	13650901			•		•	•

Because of internal porting of V20T tandem solenoid work sections, they may only be used in valve assemblies using an upstream Unloading Utility Section.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Solenoid-Operated

Proportional Solenoids with Handle.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	12 VDC EPC with Handle [EPC-IH-12]
1	20-10-04-EPC-IH-12	13650184		•		•		•
2	20-10-03-EPC-IH-12	13650186	•			•		•
3	20-10-F4-EPC-IH-12	13650188			•	•		•
4	20-12-03-EPC-IH-12	13650915	•				•	•
5	20-12-04-EPC-IH-12	13650916		•			•	•
6	20-12-F4-EPC-IH-12	13650917			•		•	•

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Solenoid-Operated

Proportional Solenoids With Handle.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Ports [10]	SAE 12 Ports [12]	12 VDC EPC with Handle [EPC-IH-12]
1	20T-10-03-EPC-IH-12	13650906	•			•		•
2	20T-12-03-EPC-IH-12	13650907	•				•	•
3	20T-10-04-EPC-IH-12	13650909		•		•		•
4	20T-12-04-EPC-IH-12	13650910		•			•	•
5	20T-10-F4-EPC-IH-12	13650912			•	•		•
6	20T-12-F4-EPC-IH-12	13650913			•		•	•

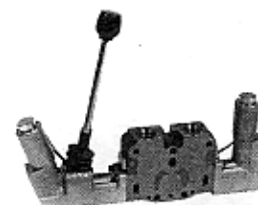
Because of the internal porting of V20T tandem solenoid work sections, they may only be used in valve assemblies using an upstream Unloading Utility Section.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

On/Off Solenoids with Handle.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	12 VDC SOL with Handle [SOL-IH-12]
1	20LS-10-04-SOL-IH-12	13650243		•		•	•
2	20LS-10-03-SOL-IH-12	13650245	•			•	•
3	20LS-10-F4-SOL-IH-12	13650247			•	•	•



V20 Load Sensing Valve with Handle and Manual Override

Load Sensing sections may be used for Closed Center or Load Sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Solenoid-Operated Proportional Solenoids with Handle.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow (F4)	SAE 10 Work Ports (10)	12 VDC EPC with Handle (EPC-IH-12)
1	20LS-10-04-EPC-IH-12	13650244		•		•	•
2	20LS-10-03-EPC-IH-12	13650246	•			•	•
3	20LS-10-F4-EPC-IH-12	13650248			•	•	•

Load Sensing sections may be used for Closed Center or Load Sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20 Travel Limiter/Manual Overrides

May be added to above Solenoid/EPC positioners

Item No.	Model Number	Part Number	Description
1	K-20-MO-P	13650080	Push type manual override for use with [SOL] and [EPC] Sections
2	K-20-TL-MO-S	13650081	Screw type travel limiter/manual override for use with [SOL] and [EPC] Sections
3	K-20-TL-IH	13650937	Screw type travel limiter for use with [SOL-IH] and [EPC-IH] sections, handle end only

Each kit includes one assembly for one end of valve.



V20 Valve Utility Section

V20 UTILITY SECTIONS For Use With Internally Piloted Valves (Housing No. 7820)

For use with V20 Internally Piloted Solenoid Work Sections. (Not compatible with Externally Piloted Sections)

Item No.	Model Number	Part Number	Description
1	20-SOL-I-UT-12	13650056	Utility Section with 12 VDC Pressure Control Cartridge Installed.
2	20-SOL-I-UT-24	13650308	Utility Section with 24 VDC Pressure Control Cartridge Installed.
3	20-SOL-I-UT-LS	13650057	Utility Section for use with Closed Center/Load Sensing valve assemblies.
4	20-SOL-I-UT-MECH	13650920	Utility Section with Continuous-On Pressure Control Cartridge
5	20-SOL-I-UT-PB	13650921	Utility Section for use with SAE #12 Power Beyond Sleeve

Utility Section must be stacked directly upstream from the right outlet cover.

V20 UTILITY SECTIONS For Use With Externally Piloted Valves (Housing No. 7820)

(Not for Use in Internally Piloted Valve Assemblies)

Item No.	Model Number	Part Number	Description
1	20-SOL-E-UT-12	8650031	Utility Section with 12 VDC Pressure Control Cartridge Installed.
2	20-SOL-E-UT-24	13650309	Utility Section with 24 VDC Pressure Control Cartridge Installed.
3	20-SOL-E-UT-MECH	13650922	Utility Section with Continuous-On Pressure Control Cartridge
4	20-SOL-E-UT-PB	13650923	Utility Section with SAE #12 Power Beyond Sleeve

Tubing Kit for Externally-Piloted Utility Sections

1	K-20-TUBE	8650086	Tubing assembly between Utility Section and Solenoid Spool Actuator
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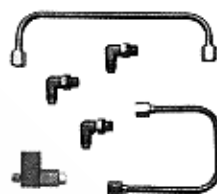


V20 Utility Section for Solenoid Option

Fitting Kits For Externally Piloted V20 and V42 Solenoid Valves

Item No.	Model Number	Part Number	Description
1	K-20-S1	8650085	For single spool solenoid valve
2	K-20-S2	8650082	For First section (closest to valve inlet) in a multi-spool solenoid valve. (Last section for Model V42)
3	K-20-S3	8650083	For the center section(s) in a multi-spool solenoid valve.
4	K-20-S4	8650084	For the last section (closest to utility section) in a multi-spool solenoid valve. (First section for Model V42)

Each kit contains one adjustable speed control fitting assembly and one non-adjustable fitting assembly for one actuator assembly.



External Tubing Kit

Optional Cartridges for the Utility Section

Item No.	Model Number	Part Number	Description
1	K-20-CONT-ON	8650430	Mechanical Pressure Control Cartridge
2	K-20-12-CNTRL	13650938	12 VDC Pressure Control Cartridge
3	K-20-24-CNTRL	13650939	24 VDC Pressure Control Cartridge
4	K-20-S12Y	8650115	Power Beyond Sleeve, SAE 12
5	K-20-SC	8650114	Closed Center Plug

V20 UNLOADING UTILITY SECTIONS (Housing No. 22952)

Allows closed center, load sensing and pressure compensated work sections to be used with a fixed displacement pump.

Item No.	Model Number	Part Number	Description
1	20-UV-12-LS	13650683	V20 Unloading Valve Section without Internal Pilot Pressure (Manual Valves)
2	20-UV-12-PRV-LS	13650684	V20 Unloader Valve Section with Internal Pilot Pressure (Solenoid Valves)
3	K-20-UNL-PLUGS	13650775	Option Plugs for Utility Section with Unloading Valve (See Note 2)

NOTE 1: The Unloading Valve section should be stacked next to the inlet cover unless priority sections are required. When priority is required, install unloading valve section downstream of priority pressure compensated sections. Open center, tandem and parallel sections should be stacked downstream of the unloading valve section.

NOTE 2: The following parts will be included to cover several application requirements:

Part No.	Quantity	Description
21866001	3	Pilot Hole Seals
21857001	2	Section Seals
21733001	2	Section Seals
00017001	1	1/4" NPTF Plug
22962001	3	Expansion Plugs 6 mm - Old Style
26095006	3	Expansion Plugs 6 mm - New Style
26291001	1	Form No. 3933

K-20-UNL-PLUGS

V20 Spool Positioner Option Kits

Will not fit Float [F] or Internal Hydraulic Detent Release [KO] Spools.

Item No.	Model Number	Part Number	Description
1	K-20-A	8650104	Spring Extended Spool Positioner Kit
2	K-20-D	8650105	3-Position Detent Kit
3	K-20-R	8650106	Spool "IN" Detent w/Spring Return to Neutral Positioner Kit
4	K-20-R0	26157043	Spool "OUT" Detent w/Spring Return to Neutral Positioner Kit
5	◆◆ K-20-SOL-E-12	8650098	12VDC Solenoid Actuator (External Pilot Design)
6	◆◆ K-20-SOL-E-24	13650531	24 VDC Solenoid Actuator (External Pilot Design)
7	K-20-E	8650119	Electro Magnetic Spool Release Positioner Kit
8	◆ K-20-HR	8650575	Hydraulic Remote Spool Actuator Kit
9	◆ K-20-HRO	8650574	Hydraulic Remote w/Override Spool Actuator Kit
10	K-20-PA1	8650630	Pneumatic Spool Actuator Kit
11	K-20-PA2	8650631	12V DC Solenoid Operated Pneumatic Spool Actuator Kit

◆ Contains both Bonnets needed.

◆◆ Cannot be used with Float Spool (K4) or Standard Free Flow Spool (F4)



Spool Action Assembly
(Bonnets)

V20 Handle End Options

Handle Kits Contain Necessary Links and Pins.

Item No.	Model Number	Part Number	Description
1	K-20-VH-B	8650151	Vertical Handle (Black)
2	K-20-VH-P	8650153	Vertical Handle (Plain)
3	K-20-HH-B	8650154	Horizontal Handle (Black)
4	K-20-HH-P	8650156	Horizontal Handle (Plain)
5	K-20-RET	8650107	Standard Seal Retainer Plate
6	K-20-RET-HD	8650108	Heavy Duty Seal Retainer
7	K-20-WIPER	8650097	Sec. Spool Wiper
8	K-20-HBO-CI	8650113	Complete Bracket (Cast Iron) less Handle and Links
9	K-20-BOOT	8650112	Spool Boot Assembly



Vertical Handle Assemblies



Horizontal Handle Assemblies

V20 Mechanical Joysticks

Includes the Spool Adapter Clevis.

Item No.	Model Number	Part Number	Description
1	MJA2-20L-NN	13650688	V20 Mechanical Joystick, Left-Hand Kit
2	MJA2-20R-NN	13650689	V20 Mechanical Joystick, Right-Hand Kit
3	K-20-MJA-O	26157200	V20 Mechanical Joystick 'Offset' Handle Kit
4	K-20-MJA-S	26157201	V20 Mechanical Joystick 'Straight' Handle Kit

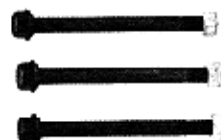
V20 Standard Section Stud Assembly Kits

Includes Section Seals and Nuts. (Stud Kits Do Not include 21866-001 Load Sensing and Solenoid Pilot Passage Section Seals. These seals must be purchased separately if required.)

Item No.	Model Number	Part Number	Description
1	K-20-1	8650087	One Section
2	K-20-2	8650088	Two Section
3	K-20-3	8650089	Three Section
4	K-20-4	8650090	Four Section
5	K-20-5	8650091	Five Section
6	K-20-6	8650092	Six Section
7	K-20-7	8650093	Seven Section
8	K-20-8	8650094	Eight Section
9	K-20-9	8650095	Nine Section
10	K-20-10	8650096	Ten Section
11	K-20-SECT-SEAL ♦	13650405	Section seal for load sensing and/or solenoid pilot passages.

When using an 8644 Right End Cover add one section to assure proper stud length.

♦ Kit includes 25 pieces of seal number 21866001.



Stud Assembly Kit



Model RC
Work Port Relief Valve



CRA Combination
Relief Anti-Cavitation
Check Valve



Anti-Cavitation
Check Valve

Work Port Options for use in V20P, V20R, V20T, V20C & V20LS Work Sections

Item No.	Model Number	Part Number	Relief Valve	Combination Relief & Anti-Cav Check	Anti-Cavitation Check Assembly	Pressure Range and Setting				
						500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	500-3500 Set @ 2500 PSI c/p
1	RC-1200	8650394	•			•				
2	RC-1700	8650395	•				•			
3	RC-1950	8650396	•					•		
4	RC-2550	8650397	•						•	
5	RP20A-2500	8650975	•							•
6	CRA-1200	8650387		•		•				
7	CRA-1700	8650388		•			•			
8	CRA-1950	8650389		•				•		
9	CRA-2550	8650390		•					•	
10	K-20-AC	8650380			•					

Work Port Options for use in V20S Work Sections

Item No.	Model Number	Part Number	Relief Valve	Anti-Cavitation Check Assembly	Pressure Range and Setting			
					500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p
1	RCS-1200	8650632	•		•			
2	RCS-1700	8650633	•			•		
3	RCS-1950	8650634	•				•	
4	RCS-2550	8650635	•					•
5	K-20-ACS	8650636		•				

For use in V20S Series sections only.

Work Port Options for use in V20PC Work Sections

Item No.	Model Number	Part Number	Relief Valve	Pressure Range and Setting			
				500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p
1	RCPC-1200	13650930	•	•			
2	RCPC-1700	13650931	•		•		
3	RCPC-1950	13650932	•			•	
4	RCPC-2550	13650933	•				•

All above Relief Valves have stainless steel springs. Crack Pressures (c/p) set at 1 GPM.

RC, CRA, RCS, and RCPC Relief Valves are internal shim adjustable. RP20A Relief Valve is external screw adjustable.

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	External Screw Adjustable Option for RC, CRA, RCS, and RCPC Relief Valves

V20 MID-INLET SECTIONS (Housing No. 6825)

Item No.	Model Number	Part Number	Split Flow [SF]	Combined Flow [CF]	3/4" NPT Inlet Ports [75]	SAE 12 Inlet Ports [12]	Internal Pilot Thru-Passage Machined [PILOT]
1	20-75-SF	8650002	•		•		
2	20-75-CF	8650001		•	•		
3	20-12-SF	8650004	•			•	
4	20-12-CF	8650003		•		•	
5	20-12-SF-PILOT	13650918	•			•	•
6	20-12-CF-PILOT	13650919		•		•	•



V20
Mid-Inlet Section

Housing No. 6825 is rated to a maximum pressure of 2500 PSI.

Contact the factory with higher pressure requirements.

V20 TRANSITION SECTIONS (Housing No.'s 24707 and 12138)

Item No.	Model Number	Part Number	Split Flow [SF]	Combined Flow [CF]	SAE 16 Inlet Port [16]	SAE 20 Outlet Port	Load Sense and Pilot Drain [LS]	Unloading Valve [UNL]	Pressure Reducing Cartridge [PRV]	Housing No.
1	20/40-16-SF	26157015	•		•	•				24707
2	20/40-16-CF	26157017		•	•	•				24707
3	20/40-16-CF-PRV	26157018		•	•	•			•	24707
4	20/40-16-LS	26157019		•	•	•	•			24707
5	20/40-16-LS-PRV	26157020		•	•	•	•		•	24707
6	20/40-16-LS-UNL	26157021		•	•	•	•	•		24707
7	20/40-16-LS-UNL-PRV	26157022		•	•	•	•	•	•	24707
8	20/50-16-SF	8650798	•		•					12138
9	20/50-16-CF	8650797		•	•					12138

All of the above Mid-Inlet and Transition Sections are machined to accept main relief cartridges.

V20/V40 and V20/V50 mid-inlet sections combine V20 work sections (upstream) with V40 or V50 work sections (downstream).

Standard V40 or V50 section stud kits are used for downstream V40 or V50 work sections.

Special V20 section stud kits listed below are used for upstream V20 work sections.

V20/V40 & V20/V50 Section Stud Assembly Kits

For use with upstream V20 work sections in V20/V40 and V20/V50 Mid-Inlet Valve Assemblies. Includes section seals.

Item No.	Model Number	Part Number	Number of Work Sections
1	K-20/50-1	8650800	One Section
2	K-20/50-2	8650801	Two Section
3	K-20/50-3	8650802	Three Section
4	K-20/50-4	8650803	Four Section



8089 Left Cover

25P INLET COVERS (Housing No. 8089)

Two Port Plugs are furnished with each Cover. One Plug is machined for 1/4" NPT gauge port. Gauge port will be plugged. All Left Covers machined to accept Main Relief Cartridges.

Item No.	Model Number	Part Number	Top Inlet and Outlet	End Inlet and Outlet	1" NPT Ports (100)	SAE 16 Ports (16)
1	25-LC-100	8650058	•	•	•	
2	40-LC-16	8650057	•	•		•

8089 Left Cover with trepan grooves for use with 25P and V40 Valves

Main Relief Options For 25P, V40 and V42 Inlet Covers

Item No.	Model Number	Part Number	Pressure Range and Setting		
			400-1400 Set @ 1100 PSI c/p	1401-2000 Set @ 2000 PSI c/p	500-3500 Set @ 2500 PSI c/p
1	KC-LP-1100	8650391	•		
2	KC-HP-2000	8650392		•	
3	RP60A-2500 ♦	8650393			•
4	K-40-NR	8650379	No Relief Plug Kit (NR option)		

For use in all 25P, V40 and V42 Inlet Covers

♦ KC and RP60A Relief Valves are external screw adjustable. Crack Pressure set at 1 GPM.

Note: Two internal holes identifies a turnaround or outlet cover. One internal hole identifies a power beyond or closed center cover.

25P OUTLET COVERS (Housing No.'s 1644 & 8090)

Item No.	Model Number	Part Number	Housing No. 1644 End Outlet (E)	Housing No. 8090 Top Outlet (T)	1644 End Power Beyond Outlet (EY) ①	1" NPT Port (100)	SAE 16 Port (16)	Machined for Conversion to Power Beyond or Closed Center (MY) ①
1	25-RC-100-E	8650051	•			•		
2	25-RC-16-E	8650052	•				•	
3	25-RC-100-EY	8650053			•	•		
4	25-RC-16-EY	8650054			•		•	
5	25-RC-100-MY	8650327		•		•		•
6	40-RC-16-TMY	8650328		•			•	•

3/4" NPT plug furnished with 8090 covers for conversion to power beyond.

① Outlet must be located in the Inlet Cover when using Power Beyond or Closed Center in the Outlet Cover.



1644 Right Cover
No trepan grooves, for use
with 25P Valves



8090 Right cover
No trepan grooves, for use
with 25P Valves

25P INLET/INTEGRAL WORK SECTION (Housing No.'s 3000 & 3001)

Integral Work Section Includes Handle Bracket.

Item No.	Model Number	Part Number	3-Way 3-Pos. [3]	4-Way 3-Pos. [4]	1" NPT Inlet & Outlet Ports [100]	SAE 16 Inlet & Outlet Ports [16]	3/4" NPT Work Ports [75]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	Top Inlet/Outlet [T]	End Inlet/Outlet [E]	Rotary Spool Actuator [W]	Upper & Lower Work Port Options Machined & Plugged [UL]
1	25-L-T-100-75-04	8650372		•	•		•			•			
2	25-L-T-100-75-UL-04	13650133		•	•		•			•			•
3	25-L-T-16-12-UL-04	13650134		•		•		•		•			•
4	25-L-T-16-16-04	8650371		•		•			•	•			
5	25-L-E-100-75-04	8650370		•	•		•				•		
6	25-L-E-100-75-UL-04	13650131		•	•		•				•		•
7	25-L-E-16-16-04	8650369		•		•			•		•		
8	25-L-E-16-16-UL-04	13650132		•		•			•		•		•
9	25-L-E-100-75-W4	8650641		•	•		•				•	•	
10	25-L-T-16-16-03	13650824	•			•			•	•			

Machined for Main Relief Options. Not machined for gauge port.
Bracket Assembly not furnished with Rotary Spool Option [W].



3000 Left Cover



3001 Left Cover

25P OUTLET/INTEGRAL WORK SECTION (Housing No. 1624)

Integral Work Section includes Handle Bracket.

Item No.	Model Number	Part Number	4-Way 3-Pos [4]	3/4" NPT Work Ports [75]	SAE 16 Work Ports [16]	1" NPT Outlet [100]	SAE 16 Outlet [16]	Upper Work Port Options Machined & Plugged [U]	Machined for Power Beyond [MY]
1	25-R-75-100-04	8650368	•	•		•			
2	25-R-75-100-U-04	13650135	•	•		•		•	
3	25-R-75-MY-04	8650367	•	•		•	•		•
4	25-R-16-16-04	8650366	•		•		•		
5	25-R-16-MY-04	8650365	•		•		•		•
6	25-R-16-MY-U-04	13650136	•		•		•	•	•



1624 Right Integral Section

Option Kits for No. 1624 Outlet/Integral Work Section

Item No.	Model Number	Part Number	Description
1	K-25-X	8650109	Conversion Plug Kit
2	K-25-C	8650110	Closed Center Plug Kit
3	K-25-12-Y	8650081	SAE 12 Power Beyond Sleeve Kit
4	K-25-75-Y	8650111	3/4" NPT Power Beyond Sleeve Kit



1614 3-Way or 4-Way

25P PARALLEL WORK SECTIONS (Housing No. 1614)

Includes Handle Bracket.

Item No.	Model Number	Part Number	3-Way 3-Pos. [3]	4-Way 3-Pos. [4]	4-Way 3-Pos. Free Flow [F4]	4-Way 4-Pos. Float [K4]	3/4" NPT Work Ports [75]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	Upper Work Port Options Machined & Plugged [U]	Upper & Lower Work Port Options Machined & Plugged [UL]	Rotary Spool Actuator [W]	Stain- less Steel Spool [SS]
1	25-75-03	13650120	•				•							
2	25-75-U-03	8650343	•				•				•			
3	25-12-03	13650123	•						•					
4	25-12-U-03	13650128	•						•		•			
5	25-16-U-03	8650364	•							•	•			
6	25-75-04	8650341		•			•							
7	25-75-U-04	13650121		•			•				•			
8	25-75-UL-04	8650339		•			•					•		
9	25-75-W4	8650941		•			•						•	
10	25-10-04	8650615		•				•						
11	25-10-U-04	8650479		•				•			•			
12	25-12-04	13650122		•					•					
13	25-12-U-04	13650129		•					•		•			
14	25-12-UL-04	13650130		•					•			•		
15	25-16-04	8650338		•						•				
16	25-16-UL-04	8650340		•						•		•		
17	25-16-UL-W4-SS	8650508		•						•		•	•	•
18	25-75-F4	8650337			•		•							
19	25-12-F4	13650124			•			•						
20	25-16-F4	8650342			•					•				
21	25-16-WF4-SS	8650509			•					•			•	•
22	25-75-K4 ⊕	8650333				•	•							
23	25-75-UL-K4 ⊕	8650331				•	•					•		
24	25-10-U-K4 ⊕	8650480				•		•			•			
25	25-12-K4 ⊕	13650125				•			•					
26	25-12-U-K4 ⊕	13650126				•			•		•			
27	25-12-UL-K4 ⊕	13650127				•			•			•		
28	25-16-K4 ⊕	8650332				•				•				
29	25-16-UL-K4 ⊕	8650330				•				•		•		

Bracket Assembly not furnished with Rotary Spool Option [W], Items 9, 17 and 21.

⊕ When using (K4) Float Sections in Model 25P Control Valve assemblies, it must be placed next to the inlet cover. Only ONE float section may be used in the valve assembly.

Work Port Relief Cartridges for 25P and V42 Control Valves Relief Model 'YC'

Item No.	Model Number	Part Number	Pressure Range and Setting		
			500-1000 Set @ 1000 PSI c/p	1001-1500 Set @ 1500 PSI c/p	1501-3000 Set @ 3000 PSI c/p
1	YC-1000	8650399	•		
2	YC-1500	8650400		•	
3	YC-3000	8650401			•



YC Relief Valve Cartridge

'WH' and 'RP51' Relief Cartridges

Item No.	Model Number	Part Number	Pressure Range and Setting					
			500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	2501-3000 Set @ 3000 PSI c/p	500-3500 Set @ 3000 PSI c/p
1	WH-1200	8650417	•					
2	WH-1700	8650418		•				
3	WH-1950	8650419			•			
4	WH-2550	8650420				•		
5	WH-3000	8650398					•	
6	RP51A-3000	8650421						•
7	K-20-NR	8650382	Relief Cavity Plug Kit (NR Option)					



WH Relief Valve Cartridge

Model 'YC' and 'WH' Relief Valves are internal shim adjustable. Model 'RP51' Relief Valves are external screw adjustable. Crack Pressure (c/p) set at 1 GPM.

Anti-Cavitation Check Cartridge Kits

Item No.	Model Number	Part Number	Description
1	K-42-UAC	8650378	Upper Anti-Cavitation Check
2	K-42-LAC	8650377	Lower Anti-Cavitation Check



Upper Anti-Cavitation Check

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	External Screw Adjustable Option for WH Relief



Lower Anti-Cavitation Check

MID INLET SECTIONS FOR 25P AND V40 CONTROL VALVES (Housing No. 3953)

Item No.	Model Number	Part Number	Combined Flow [CF]	Split Flow [SF]	1" NPT Port [100]	SAE 16 Port [16]
1	25-100-CF	8650055	•		•	
2	40-16-CF	8650056	•			•
3	40-16-SF	13650166		•		•

Machined to accept the same relief options as the Left Inlet Cover.



3953 Mid-Inlet Section

Mid Inlet Conversion Kits

Item No.	Model Number	Part Number	Description
1	K-40-SF	8650080	Mid-Inlet Split Flow Conversion Kit
2	K-40-CF	13650929	Mid-Inlet Combined Flow Conversion Kit



Spool Action Assembly
(Bonnet)

25P Spool Positioner Option Kits

Item No.	Model Number	Part Number	Description
1	K-25-D	8650386	3-Position Detent Kit
2	K-25-R	8650385	Spool "IN" Detent w/Spring Return to Neutral Positioner Kit
3	K-25-W	8650384	Rotary Spool Positioner Kit
4	K-25-L	8650159	Spool Travel Limiter
5	K-PA100-25	13030001	Pneumatic Spool Actuator Kit

The above kits will not work with float or regenerative spools.



Vertical Handle



Horizontal Handle

25P Handle End Options

Handle Kits contain necessary links and pins.

Item No.	Model Number	Part Number	Description
1	K-25-VH-B	8650150	Vertical Handle Assembly (Black)
2	K-25-VH-P	8650148	Vertical Handle Assembly (Plain)
3	K-25-HH-B	8650147	Horizontal Handle Assembly (Black)
4	K-25-HH-P	8650145	Horizontal Handle Assembly (Plain)
5	K-25-BOOT ♦	8650157	Spool Boot Assembly (See Note)
6	K-25-MA	8650158	Male Spool Clevis

♦ Special Order Only – Standard Distributor Stock sections do not have boot grooves in spools.

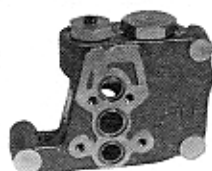


Section Stud Assembly Kit

25P Section Stud Assembly Kits

Includes section seals, studs and nuts.

Item No.	Valve with 8089 Left Cover & 1644 Right	Part Number	Valve with 8089 Left cover & 8090 Right Cover	Part Number	Valve with 3000 or 3001 Left Integral Sect. & 1624 Right Integral Sect or 1644 Right Cover	Part Number	Valve with 3000 or 3001 Left Integral Sect & 8090 Right Cover	Part Number	Number of Valve spools & Mid-Inlet Sections
1	K-40-LRE-1	8650280	K-40-LRT-1	8650288	K-25-SLE-1	8650272	K-25-SLT-1	8650264	1
2	K-40-LRE-2	8650281	K-40-LRT-2	8650289	K-25-SLE-2	8650273	K-25-SLT-2	8650265	2
3	K-40-LRE-3	8650282	K-40-LRT-3	8650290	K-25-SLE-3	8650274	K-25-SLT-3	8650266	3
4	K-40-LRE-4	8650283	K-40-LRT-4	8650291	K-25-SLE-4	8650275	K-25-SLT-4	8650267	4
5	K-40-LRE-5	8650284	K-40-LRT-5	8650292	K-25-SLE-5	8650276	K-25-SLT-5	8650268	5
6	K-40-LRE-6	8650285	K-40-LRT-6	8650293	K-25-SLE-6	8650277	K-25-SLT-6	8650269	6
7	K-40-LRE-7	8650286	K-40-LRT-7	8650294	K-25-SLE-7	8650278	K-25-SLT-7	8650270	7
8	K-40-LRE-8	8650287	K-40-LRT-8	8650295	K-25-SLE-8	8650279	K-25-SLT-8	8650271	8

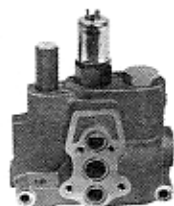


8089 V40 Left Cover

V40 INLET COVER (Housing No. 8089) For Manual Operation

Item No.	Model Number	Part Number	End Inlet	End Outlet	Top Inlet	Top Outlet	SAE 16 Ports (16)	SAE 20 Ports (20)
1	40-LC-16	8650057	•	•	•	•	•	
2	40-LC-20	13650085	•	•	•	•		•

Two Port Plugs are furnished with No. 8089 Covers, one Plug is machined for 1/4" NPT Gauge port. Gauge Port will be plugged. All 8089 Inlet Covers machined to accept the Main Relief Cartridge or NR Plug.



20929 V40 Left Cover with Pressure Reducing Valve

V40 INLET COVERS (Housing No. 20929) For Solenoid Operation

Item No.	Model Number	Part Number	End Inlet	End Outlet	Top Inlet	Top Outlet	SAE 16 Ports (16)	SAE 20 Ports (20)	SAE 4 Gauge Port Machined (Plugged)	With Pressure Reducing Valve and 12 VDC Pressure Control Cartridge (P-12)	With Pressure Reducing Valve and 24 VDC Pressure Control Cartridge (P-24)	With Pressure Reducing Valve and Mechanical Pressure Control Cartridge (P-MECH)
1	40-LC-16-P-12	13650086	•	•	•	•			•	•		
2	40-LC-20-P-12	13650087	•	•	•	•			•	•		
3	40-LC-16-P-24	13650287	•	•	•	•			•		•	
4	40-LC-20-P-24	13650288	•	•	•	•			•		•	
5	40-LC-16-P-MECH	13650944	•	•	•	•			•			•
6	40-LC-20-P-MECH	13650945	•	•	•	•			•			•

One Port Plug is furnished with No. 20929 Covers. All 20929 Inlet Covers machined to accept the Main Relief Cartridge or NR Plug.

No. 20929 Pilot Inlet Cover Options

Item No.	Model Number	Part Number	Description
1	K-40-CONT-ON	13650108	Mechanical Pressure Control Cartridge
2	K-40-24-CNTRL	13650109	24 VDC Pressure Control Cartridge
3	K-40-12-CNTRL	13650940	12 VDC Pressure Control Cartridge
4	K-40-LC-CC-PLUG [Ⓢ]	13650947	Closed Center Plug - For use in Closed Center and Load Sensing Systems

For use in place of the standard 12 VDC pressure control cartridge.

Ⓢ In addition to this plug, the 20931 Right End Cover must also be converted to closed center.



Continuous-On Pressure Control Cartridge

V40 INLET COVERS (Housing No.'s 8089 & 20929) For Load Sensing

Item No.	Model Number	Part Number	End Inlet	Top Inlet	End Outlet	Top Outlet	SAE 16 Ports (16)	SAE 20 Ports (20)	SAE 4 Gauge Port (Plugged)	With PRV Cartridge (P)	SAE 6 External Pilot Ports (WEP)
1	40-LC-16-LS	13650584	•	•	•	•	•				
2	40-LC-20-LS	13650585	•	•	•	•		•			
3	40-LC-16-P-LS	13650586	•		•	•	•		•	•	
4	40-LC-20-P-LS	13650587	•		•	•		•	•	•	
5	40-LC-16-LS-WEP [Ⓢ]	26157086	•	•	•	•	•				•
6	40-LC-20-LS-WEP [Ⓢ]	26157087	•	•	•	•		•			•

Ⓢ These [WEP] covers may be used in load sense and open center applications where an external pilot source is available. (2) SAE 6 Pilot Ports are machined into this cover for external pilot connection. These covers also include the seal counterbores for both solenoid pilot and load sense passages.

Main Relief Options for 25P, V40 and V42 Inlet Covers

Item No.	Model Number	Part Number	Pressure Range and Setting 500-3500 Set @ 2500 PSI c/p
1	RP60A-2500	8650393	•
2	K-40-NR	8650379	Relief Plug Kit (NR Option)

For use in 25P, V40 and V42 Inlet Covers.



RP60 Relief Cartridge

V40 OUTLET COVERS for Open Center, Closed Center or Power Beyond Applications (Housing No.'s 8090 & 20931)

Item No.	Model Number	Part Number	SAE 16 Ports [16]	SAE 20 Ports [20]	End Outlet (20931 Only) [E]	Top Outlet (8090 Only) [T]	End Power Beyond (20931 Only) [EY]	Machined for Top Power Beyond (8090 Only) [MY]
1	40-RC-16-TMY [Ⓢ]	8650328	•			•		•
2	40-RC-16-E	13650960	•		•			
3	40-RC-20-E	13650088		•	•			
4	40-RC-16-EY	13650961	•				•	
5	40-RC-20-EY	13650089		•			•	

[Ⓢ] A 3/4" NPT Plug is furnished with 8090 Covers for internal conversion to Power Beyond or Closed Center. If Power Beyond or Closed Center options are utilized, the outlet port must be located in the inlet cover. 8090 Covers are NOT intended for use in SOL/EPC valves.

8090 Right Cover
(No trepan grooves, for use with 25P and V40 Valves.)20931 Right Cover
(No trepan grooves, for use in V40 Valves.)

V40 OUTLET COVERS (Housing No. 20931) For Load Sensing

Item No.	Model Number	Part Number	End Outlet [E]	SAE 16 Port [16]	SAE 20 Port [20]
1	40-RC-16-LS-E	13650588	•	•	
2	40-RC-20-LS-E	13650651	•		•

With load sensing port.

NOTE: Two internal holes identifies a turnaround or outlet cover. One hole identifies a power beyond or closed center cover.

V40P 'PARALLEL' WORK SECTIONS with machined and plugged upper option cavities (Housing No. 20645 and 21105) Manual and Hydraulic Remote Piloted

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. Free Flow [F4]	4-Way, 4-Pos. Float [K4]	4-Way, 4-Pos. Regenerative [R4]	SAE 12 Ports [12]	SAE 16 Ports [16]	Spring Return to Neutral	3-Pos. Detent [D]	Rotary Spool Act. [W]	Knock Out Set @ 2000 PSI [K04-2000]	Hydraulic Remote Actuator w/Over-ride [HRO]	Stainless Steel Spool [SS]
1	40-12-03	13650653	•					•		•					
2	40-16-03	13650090	•						•	•					
3	40-12-04	13650654		•				•		•					
4	40-16-04	13650091		•					•	•					
5	40-12-F4	13650655			•			•		•					
6	40-16-F4	13650092			•				•	•					
7	40-16-DF4	13650093			•				•		•				
8	40-12-K4	13650656				•		•							
9	40-16-K4	13650094				•			•						
10	40-16-K04-2000	13650095		•					•				•		
11	40-12-04-HRO	13650657		•				•						•	
12	40-16-04-HRO	13650096		•					•					•	
13	40-16-W4-SS	13650098		•					•		•				•
14	40-16-WF4-SS	13650099			•				•		•				•
15	40-16-RG4	13650100					•		•						

Bracket assembly not furnished with Rotary Spool Option [W], Items 13 & 14.

V40P 'PARALLEL' WORK SECTIONS without upper option cavities (Housing No. 20645 and 21105) Manual and Hydraulic Remote Piloted

Item No.	Model Number	Part Number	3-Way, 3-Pos. [3]	4-Way, 3-Pos. [4]	4-Way, 3-Pos. Free Flow [F4]	4-Way, 4-Pos. Float [K4]	SAE 12 Ports [12]	SAE 16 Ports [16]	Spring Return to Neutral	3-Pos. Detent [D]	Knock Out Set @ 2000 PSI [K04]	Hydraulic Remote Actuator w/Over-ride [HRO]
1	40-12-N-03	26157028	•				•		•			
2	40-16-N-03	26157029	•					•	•			
3	40-12-N-04	26157031		•			•		•			
4	40-16-N-04	26157032		•				•	•	•		
5	40-12-N-F4	26157034			•		•		•			
6	40-16-N-F4	26157035			•			•	•			
7	40-16-N-DF4	26157037			•			•		•		
8	40-12-N-K4	26157038				•	•					
9	40-16-N-K4	26157039				•		•				
10	40-16-N-K04-2000	26157040		•				•			•	
11	40-12-N-04-HRO	26157041		•			•					•
12	40-16-N-04-HRO	26157042		•				•				•

The 'N' in the valve assemblies listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges (i.e. reliefs or anti-cavitation checks), do not select valve assemblies from the group.

V40 'PARALLEL' WORK SECTIONS With Machined And Plugged Upper Option Cavities (Housing No. 20645) Solenoid-Operated

On/Off Solenoids (SOL)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. Free Flow [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC SOL Actuator [SOL-12]
1	40-12-04-SOL-12	13650659		•		•		•
2	40-16-04-SOL-12	13650102		•			•	•
3	40-12-03-SOL-12	13650661	•			•		•
4	40-16-03-SOL-12	13650104	•				•	•
5	40-12-F4-SOL-12	13650663			•	•		•
6	40-16-F4-SOL-12	13650106			•		•	•
7	40-12-04-SOL-12	13650665		•		•		•

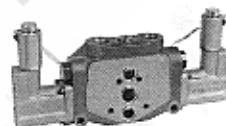
Because of the internal pilot porting, these sections must be stacked directly downstream from the No. 20929 Inlet Cover.

V40 'PARALLEL' WORK SECTIONS With Machined And Plugged Upper Option Cavities (Housing No. 20645) Solenoid-Operated

Proportional Solenoids

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. Free Flow [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC EPC Actuator [EPC-12]
1	40-12-04-EPC-12	13650660		•		•		•
2	40-16-04-EPC-12	13650103		•			•	•
3	40-12-03-EPC-12	13650662	•			•		•
4	40-16-03-EPC-12	13650105	•				•	•
5	40-12-F4-EPC-12	13650664			•	•		•
6	40-16-F4-EPC-12	13650107			•		•	•

Because of the internal pilot porting, these sections must be stacked directly downstream from the No. 20929 Inlet Cover.



V40 EPC Work Section

Solenoid Cartridges & Coil Kits

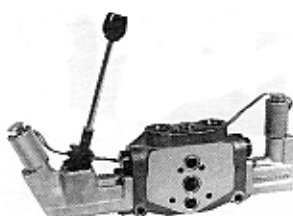
Refer to page 83 in the Electronics Section

V40 'PARALLEL' WORK SECTIONS With Machined And Plugged Upper Option Cavities (Housing No. 20645) Solenoid-Operated

(On/Off Solenoids with Handle)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. Free Flow [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC SOL with Handle [SOL-12-H]
1	40-12-04-SOL-12-H	13650671		•		•		•
2	40-16-04-SOL-12-H	13650295		•			•	•
3	40-12-03-SOL-12-H	13650673	•			•		•
4	40-16-03-SOL-12-H	13650297	•				•	•
5	40-12-F4-SOL-12-H	13650675			•	•		•
6	40-16-F4-SOL-12-H	13650299			•		•	•

Because of the internal pilot porting, these sections must be stacked directly downstream from the No. 20929 Inlet Cover.



V40 EPC Work Section with Handle

V40 'PARALLEL' WORK SECTIONS With Machined And Plugged Upper Option Cavities (Housing No. 20645) Solenoid-Operated

(Proportional Solenoids with Handle)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. Free Flow [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC EPC with Handle [EPC-12-H]
1	40-12-04-EPC-12-H	13650672		•		•		•
2	40-16-04-EPC-12-H	13650296		•			•	•
3	40-12-03-EPC-12-H	13650674	•			•		•
4	40-16-03-EPC-12-H	13650298	•				•	•
5	40-12-F4-EPC-12-H	13650676			•	•		•
6	40-16-F4-EPC-12-H	13650300			•		•	•

Because of the internal pilot porting, these sections must be stacked directly downstream from the No. 20929 Inlet Cover.

V40LS 'LOAD SENSING' WORK SECTIONS (Housing No. 24054) Manually-Operated

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	Spring Return to Neutral	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]
1	40LS-12-03	26157089	•			•	•	
2	40LS-16-03	26157090	•			•		•
3	40LS-12-04	26157091		•		•	•	
4	40LS-16-04	26157092		•		•		•
5	40LS-12-F4	26157093			•	•	•	
6	40LS-16-F4	26157094			•	•		•

V40LS 'LOAD SENSING' WORK SECTIONS (Housing No. 24054) Solenoid-Operated (On/Off Solenoid-SOL)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12VDC On-off Solenoid Actuator [SOL]
1	40LS-12-04-SOL-12	13650596		•		•		•
2	40LS-16-04-SOL-12	13650597		•			•	•
3	40LS-12-03-SOL-12	13650600	•			•		•
4	40LS-16-03-SOL-12	13650601	•				•	•
5	40LS-12-F4-SOL-12	13650604			•	•		•
6	40LS-16-F4-SOL-12	13650605			•		•	•

V40LS 'LOAD SENSING' WORK SECTIONS (Housing No. 24054) Solenoid-Operated Proportional Solenoid-EPC

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC EPC Actuator (EPC-12)
1	40LS-12-04-EPC-12	13650598		*		*		*
2	40LS-16-04-EPC-12	13650599		*			*	*
3	40LS-12-03-EPC-12	13650602	*			*		*
4	40LS-16-03-EPC-12	13650603	*				*	*
5	40LS-12-F4-EPC-12	13650606			*	*		*
6	40LS-16-F4-EPC-12	13650607			*		*	*

V40 'PARALLEL' WORK SECTIONS, (Housing No. 20645) Solenoid-Operated On/Off Solenoids with Handle (SOL-H)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC SOL with Handle (SOL-12-H)
1	40LS-12-04-SOL-12H	13650620		*		*		*
2	40LS-16-04-SOL-12H	13650621		*			*	*
3	40LS-12-03-SOL-12H	13650624	*			*		*
4	40LS-16-03-SOL-12H	13650625	*				*	*
5	40LS-12-F4-SOL-12H	13650628			*	*		*
6	40LS-16-F4-SOL-12H	13650629			*		*	*

V40LS 'LOAD SENSING' WORK SECTIONS (Housing No. 24054) Solenoid-Operated Proportional Solenoids-EPC with Handle (EPC-H)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12VDC EPC with Handle (EPC-12-H)
1	40LS-12-04-EPC-12H	13650622		*		*		*
2	40LS-16-04-EPC-12H	13650623		*			*	*
3	40LS-12-03-EPC-12H	13650626	*			*		*
4	40LS-16-03-EPC-12H	13650627	*				*	*
5	40LS-12-F4-EPC-12H	13650630			*	*		*
6	40LS-16-F4-EPC-12H	13650631			*		*	*

V40 TRAVEL LIMITER/MANUAL OVERRIDE

May be added to above Solenoid/EPC Positioners.

Item No.	Model Number	Part Number	Description
1	K-40-MO-P	13650118	Push Type Manual Override
2	K-40-TL-MO-S	13650119	Screw Type Travel Limiter/Manual Override
3	K-40-TL-IH	13650936	Screw Type Travel Limiter for use with Manual Handle Option (Handle End Only)

Each kit includes one assembly for one end of valve.



K-40-TL-MO-S
Manual Override

25P and V40 MID-INLET SECTIONS (Housing No. 3953)

Item No.	Model Number	Part Number	SAE 16 Ports [16]	Combined Flow with Top Inlet [CF]	Split Flow with Top Inlet [SF]	Select Flow with Top Inlet [SF/CF] ①
1	40-16-CF	8650056	•	•		
2	40-16-SF	13650166	•		•	
3	40-16-SF/CF	26157025	•			•

① The 40-16-SF/CF Select Flow Mid-Inlet is spring loaded to Split Flow as ordered above. Shifting the spool will select Combined Flow. The internal spool positioner parts may be repositioned so that the Mid-Inlet is spring-loaded to Combined Flow.



3953
Mid-Inlet Section

V40 Mid Inlet Option Kits

Also used with 25P and V42 Valves.

Item No.	Model Number	Part Number	Description
1	K-40-SF	8650080	Mid-Inlet Conversion Kit to Split Flow
2	K-40-CF	13650929	Mid-Inlet Conversion Kit to Combined Flow

V40 Work Port Relief Cartridges and Anti-Cavitation Check Kits

Model RD30 differential poppet type relief valves are best suited for flows below 25GPM. Model RP30 pilot operated Relief Valves are recommended for applications requiring flows greater than 25GPM.



RD30



RP30A

Item No.	Model Number	Part Number	Relief Valve	Combination Relief Valve & Anti-Cav. Check	Anti-Cav. Check	Pressure Range and Setting				
						500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2500 PSI c/p	500-3500 Set @ 2500 PSI c/p
1	RD30-1200	8650779	•			•				
2	RD30-1700	8650780	•				•			
3	RD30-1950	8650781	•					•		
4	RD30-2550	8650782	•						•	
5	RP30A-2500	8650776	•							•
6	RP30A-AC-2500	8650777		•						•
7	K-30-AC	8650778			•					
8	K-30-NR	8650733	No Relief Plug Kit (NR OPTION)							

Model RD30 not available with Anti-Cavitation Check.
Above Relief Valves set at crack pressure (c/p) of 1 GPM.



3-Position Detent

V40 Spool Positioner Option Kits

Item No.	Model Number	Part Number	Description
1	K-40-A	13650112	Spring Extended Spool Positioner Kit
2	K-40-D	13650113	3-Position Detent Kit
3	K-40-R	13650114	Spool "IN" Detent w/Spring Return to Neutral Positioner Kit
4	K-PA100-40	13082001	Pneumatic Spool Actuator Kit
5	K-40-HR	13650953	Hydraulic Remote Actuator Kit

The above kits will not work with Float, Hydraulic Detent Release (KO), or Regenerative Spools.

- ① K-40-HR actuators are not interchangeable with factory ordered sections having hydraulic remote positioners. The spools are different as well as some of the positioner parts.

V40 Handle End Options

Handle Kit contains necessary Links and Pins.

Item No.	Model Number	Part Number	Description
1	K-40-VH	13650115	Vertical Handle
2	K-40-HH	13650116	Horizontal Handle
3	K-40-IH	13650117	Inverted Handle
4	K-30-RET	8650757	Standard Seal Retainer Plate
5	K-30-BOOT	8650758	Spool Boot Assembly

Vertical & Horizontal Handles

V40 Section Stud Assembly Kits

Includes Section Seals, Studs and Nuts. Also used with 25P and V42 Valves. (Stud Kits do not include 9000112 Solenoid Pilot Passage Seals. This seal must be purchased separately, if required. (See Below.)

Item No.	Valve with 20931 Right End Outlet	Part Number	Number of Valve Spools & Mid-Inlet Sections	Valve with 8090 Right Top Outlet	Part Number
1	K-40-LRE-1	8650280	One Section	K-40-LRT-1	8650288
2	K-40-LRE-2	8650281	Two Sections	K-40-LRT-2	8650289
3	K-40-LRE-3	8650282	Three Sections	K-40-LRT-3	8650290
4	K-40-LRE-4	8650283	Four Sections	K-40-LRT-4	8650291
5	K-40-LRE-5	8650284	Five Sections	K-40-LRT-5	8650292
6	K-40-LRE-6	8650285	Six Sections	K-40-LRT-6	8650293
7	K-40-LRE-7	8650286	Seven Sections	K-40-LRT-7	8650294
8	K-40-LRE-8	8650287	Eight Sections	K-40-LRT-8	8650295

Item No.	Model Number	Part Number	Description
1	K-40-SECT-SEAL	13650406	Section Seal for Solenoid Pilot Passages

Kit Includes 25 pieces of Seal Number 9000112.



Stud Kit



8089 Left Cover



8288 Left Cover
Trepan grooves not machined.
Use with V42 Valves



RP60A
Relief Valve Cartridge

V42 INLET COVERS (Housing No.'s 8089 & 8288)

Item No.	Model Number	Part Number	Top Inlet & Outlet	End Inlet & Outlet	SAE 20 [20]	With Pressure Reducing Valve for Solenoid Option
1	42-LC-20	8650032	•	•	•	
2	42-LC-20-P	8650033	•	•	•	•

Two Port Plugs are furnished with each cover.
One Plug is machined for 1/4" NPT gauge port.
Gauge port will be plugged.
All inlet Covers machined to accept Relief Cartridges.

Main Relief Options for 25P, V40 and V42 Inlet Covers

Item No.	Model Number	Part Number	Pressure Range and Setting 500-3500 Set @ 2500 PSI c/p
1	RP60A-2500	8650393	•
2	K-40-NR	8650379	Relief Plug Kit (NR Option)

Above Relief Valve has stainless steel spring and is external screw adjustable.
Crack Pressure (c/p) set at 1 GPM.

Note: Two internal holes identifies a turnaround or outlet cover.
One internal hole identifies a Power Beyond or Closed Center Cover.



20931 Right Cover
Trepan grooves machined
for use with V42 Valves



8287 Right cover
Trepan grooves machined
for use with V42 Valves



8090 Right Cover
Trepan grooves machined
for use with V42 Valves

V42 OUTLET COVERS (Housing No.'s 8090, 20931 & 8287)

Item No.	Model Number	Part Number	SAE 16 Port [16]	SAE 20 Port [20]	20931 End Outlet [E]	8287 & 8090 Top Outlet [T]	20931 End Power Beyond [EY]	(8090) Machined for Conversion Top Power Beyond or Closed Center [MY]	(8287) With 12 VDC Pressure Build-Up Valve for Solenoid [P-12]	(8287) With 24 VDC Pressure Build-Up Valve for Solenoid [P-24]	(8287) With Mechanical Pressure Build-Up Valve for Solenoid [PM]
1	42-RC-20-E	8650034		•	•						
2	42-RC-20-EY	8650036		•			•				
3	42-RC-16-MY [Ⓢ]	8650582	•					•			
4	42-RC-16-TP-24	13650282	•			•				•	
5	42-RC-16-TP-12	8650583	•			•			•		
6	42-RC-16-TPM	8650964	•			•					•

Ⓢ A 3/4" NPT Plug is furnished with 8090 Covers for Internal Conversion to Power Beyond or Closed Center.
If the Power Beyond or Closed Center Option is utilized, the Outlet Port must be located in the Inlet Cover.



8045
3-Way Work Section

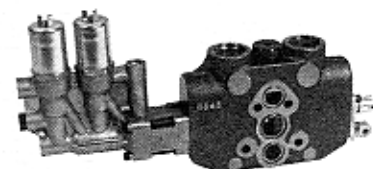


8045
4-Way Work Section

V42 'PARALLEL' WORK SECTIONS (Housing No. 8045) Manually-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	4-Pos. Float [K4]	4-Way 4-Pos. Regen-erative- [R4]	3-Pos. Detent [D]	Hydraulic Detent (Set at 2000 PSI) [KD]	Rotary Spool Pos [W]	Spring Return to Neutral	SAE 12 Work Port [12]	SAE 16 Work Port [16]	Upper Options Machined & Plugged [U]	Upper & Lower Options Machined & Plugged [UL]	Stainless Steel Spool [SS]
1	42-12-03	13650138	•								•	•				
2	42-12-U-03	13650142	•								•	•		•		
3	42-16-U-03	08650038	•								•		•	•		
4	42-12-04	13650137		•							•	•				
5	42-12-U-04	13650140		•							•	•		•		
6	42-12-UL-04	13650141		•							•	•			•	
7	42-12-F4	13650139			•						•	•				
8	42-12-K4	13650143				•						•				
9	42-16-F4	8650040			•						•		•			
10	42-16-UL-04	8650041		•							•		•		•	
11	42-16-DF4	8650050			•			•					•			
12	42-16-U-K04-2000	8650616							•				•	•		
13	42-16-UL-DF4	8650047			•			•					•		•	
14	42-16-04	8650481		•							•		•			
15	42-16-U-04	8650617		•							•		•	•		
16	42-16-UL-W4-SS⊙	8650511		•						•			•		•	•
17	42-16-WF4-SS⊙	8650510			•					•			•			•
18	42-16-W4⊙	8650642		•						•			•			
19	42-16-U-F4	13650284			•						•		•	•		
20	42-16-UL-F4	13650285			•						•		•		•	

⊙ Handle Bracket assembly not furnished with Rotary Spool Option[W] Sections (Items 16, 17 and 18).



8045
External Solenoid
Controlled Work Section

V42 'PARALLEL' WORK SECTIONS (Housing No. 8045) Remote-Operated

Item No.	Model Number	Part Number	4-Way, 3-Pos. [04]	SAE 16 Work Ports [16]	Hydraulic Remote with Override [HRO]	Hydraulic Remote with Handle [HRH]	12 VDC Solenoid Cartridge [SOL-12]	24 VDC Solenoid Cartridge [SOL-24]
1	42-16-04-HRO	8650581	•	•	•			
2	42-16-04-HRH	8650580	•	•		•		
3	42-16-04-SOL-12	8650044	•	•			•	
4	42-16-04-SOL-24	13650281	•	•				•

V42 SPECIAL WORK SECTIONS, (Housing No.'s 8046, 8138 & 8675)

Includes Handle Bracket.



8138 Regenerative
Work Section
or
8046 Float Section

Item No.	Model Number	Part Number	4-Way, 3-Pos. [4]	4-Way, 4-Pos. [K4]	4-Way 4-Pos Regenerative [RG4]	SAE 16 Work Ports [16]	Parallel Circuit	Tandem Circuit [T]	Upper Options Machined & Plugged [U]	Upper & Lower Options Machined & Plugged [UL]
1	42-16-UL-K4	8650045		•		•	•			•
2	42-16-RG4	8650046			•	•	•			
3	42T-16-U-04	8650039	•			•		•	•	

V42 MID-INLET SECTIONS (Housing No. 3953)



3953 Mid Inlet Section

Item No.	Model Number	Part Number	SAE 16 Ports [16]	Combined Flow with Top Inlet [CF]	Split Flow with Top Inlet [SF]	Select Flow with Top Inlet [SF/CF] ①
1	42-16-CF	8650048	•	•		
2	42-16-SF	8650049	•		•	
3	42-16-SF/CF	26157026	•			•

① The 42-16-SF/CF Select Flow Mid-Inlet is spring loaded to Split Flow as ordered above. Shifting the spool will select Combined Flow. The internal spool positioner parts may be repositioned so that the Mid-Inlet is spring-loaded to Combined Flow.

V42 Spool Positioner Option Kits



Spool Action Assembly
(Bonnet)

Item No.	Model Number	Part Number	Description
1	K-42-A	8650162	Spring Extended Spool Positioner Kit
2	K-42-D	8650163	3-Position Detent Kit
3	K-42-R	8650164	Spool "IN" Detent w/Spring Return to Neutral Positioner Kit
4	K-42-W	8650165	Rotary Spool Positioner Kit
5	K-42-SOL-12	8650166	12VDC Solenoid Actuator
6	K-42-SOL-24	13650283	24VDC Solenoid Actuator
7	K-42-HR	8650576	Hydraulic Remote Spool Actuator Kit ②
8	K-42-HRO	8650577	Hydraulic Remote Spool Actuator Kit w/Override ②
9	K-PA100-42	13028001	Pneumatic Spool Positioner Kit

The above kits will not work with Float, Hydraulic Detent Release (KD), or Regenerative spools.

② Contains both Bonnets Required.

Work Port Relief Cartridges for 25P and V42 Control Valves Relief Model 'YC'

Item No.	Model Number	Part Number	Pressure Range and Setting		
			500-1000 Set @ 1000 PSI c/p	1001-1500 Set @ 1500 PSI c/p	1501-3000 Set @ 3000 PSI c/p
1	YC-1000	8650399	•		
2	YC-1500	8650400		•	
3	YC-3000	8650401			•

'WH' and 'RP51' Relief Cartridges

Item No.	Model Number	Part Number	Pressure Range and Setting					
			500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	2501-3000 Set @ 3000 PSI c/p	500-3500 Set @ 3000 PSI c/p
1	WH-1200	8650417	•					
2	WH-1700	8650418		•				
3	WH-1950	8650419			•			
4	WH-2550	8650420				•		
5	WH-3000	8650398					•	
6	RP51A-3000	8650421						•
7	K-20-NR	8650382	Relief Cavity Plug Kit (NR Option)					

The above Relief Valves have stainless steel springs.
Model 'WH' Relief Valves are internal shim adjustable. Model 'RP51' Relief Valves are external screw adjustable.
Crack Pressure (c/p) set at 1 GPM.



WH Relief Valve Cartridge

Anti-Cavitation Check Kits

Item No.	Model Number	Part Number	Description
1	K-42-UAC	8650378	Upper Anti-Cavitation Check Assembly (For use in the "upper" option cavity only)
2	K-42-LAC	8650377	Lower Anti-Cavitation Check Assembly (For use in the "lower" option cavity only)



Upper Anti-Cavitation Check

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	External Screw Adjustable Option for WH Relief



Lower Anti-Cavitation Check



Vertical Handle



Horizontal Handle

V42 Handle End Option

Handle Kit contains necessary Links and Pins.

Item No.	Model Number	Part Number	Description
1	K-42-VH-B	8650174	Vertical Handle Assembly (Black)
2	K-42-VH-P	8650172	Vertical Handle Assembly (Plain)
3	K-42-HH-B	8650171	Horizontal Handle Assembly (Black)
4	K-42-HH-P	8650169	Horizontal Handle Assembly (Plain)
5	K-42-RET	8650175	Standard Seal Retainer Plate
6	K-42-BOOT	8650176	Spool Boot Assembly
7	K-42-MA	8650177	Male Spool Clevis

V42 Section Stud Assembly Kits

Includes Section Seals, Studs and Nuts.



Section Stud Assembly Kit

Item No.	Valve with 8089 Left Cover and 20931 Right End Out	Part Number	Number of Valve Spools & Mid-Inlet Sections	Valve with 8090 or 8287 Right Top Out	Part Number
1	K-40-LRE-1	8650280	One Section	K-40-LRT-1	8650288
2	K-40-LRE-2	8650281	Two Sections	K-40-LRT-2	8650289
3	K-40-LRE-3	8650282	Three Sections	K-40-LRT-3	8650290
4	K-40-LRE-4	8650283	Four Sections	K-40-LRT-4	8650291
5	K-40-LRE-5	8650284	Five Sections	K-40-LRT-5	8650292
6	K-40-LRE-6	8650285	Six Sections	K-40-LRT-6	8650293
7	K-40-LRE-7	8650286	Seven Sections	K-40-LRT-7	8650294
8	K-40-LRE-8	8650287	Eight Sections	K-40-LRT-8	8650295
9	K-40-LRE-9	13650957	Nine Sections		
10	K-40-LRE-10	13650958	Ten Sections		

Solenoid Tubing Kit

Item No.	Model Number	Part Number	Description
1	K-42-TUBE	8650486	Tubing assembly between Utility Section and Solenoid Spool Actuator



8916 Left Cover

V50 INLET COVERS (Housing No. 8916)

Item No.	Model Number	Part Number	End Inlet [E]	Top Inlet [T]	End Outlet [E]	Top Outlet [T]	1/4" NPT Gauge Port Plugged	SAE 20 Port Size [20]
1	50-LC-20-E	8650535	•		•		•	•
2	50-LC-20-T	8650536		•		•	•	•

All Left Covers are machined to accept Main Relief Valve, Model RP50A.



Model RP50A
Relief Valve Cartridge

V50 Main Relief Options

Item No.	Model Number	Part Number	Description
1	K-50-NR	8650561	No Relief Plug Kit (NR Option)
2	RP50A-2500	8650560	500 to 3500 PSI Pilot-Operated Relief Cartridge (Set @ 2500 PSI)



22691 Right Cover

V50 OUTLET COVERS (Housing No. 22691)

Item No.	Model Number	Part Number	End Outlet [E]	Top Outlet [T]	SAE 20 Port Size [20]	Machined for Power Beyond [Y]
1	50-RC-20-ETY	13650650	•	•	•	•

Top Port plugged. End port may be converted to Closed Center or Power Beyond using Option Kits below.

V50 Outlet Cover Conversion Kits

Item No.	Model Number	Part Number	Description
1	K-SAE-20	8650302	Conversion Plug
2	K-50-C	8650563	Closed Center Plug
3	K-50-16Y	8650564	SAE 16 Power Beyond Sleeve



Section with Hydraulic Remote Spool Actuator (HR)

V50 WORK SECTIONS (Housing No.'s 8917 & 8918)

3-Way or 4-Way Sections include Handle Brackets and drilled and plugged work port options.

Item No.	Model Number	Part Number	3-Way 3-Pos. [3]	4-Way 3-Pos. [4]	Free Flow Motor Spool [F4]	4-Way 4-Position Float [K4]	SAE 16 Work Ports [16]	3-Position Defeat [D]	Hydraulic Remote Spool Actuator [HR]	Tandem Circuit [T]	Series Circuit [S]	Parallel Circuit
1	50-16-03	8650538	•				•					•
2	50-16-04	8650540		•			•					•
3	50-16-F4	8650541			•		•					•
4	50-16-DF4	8650542			•		•	•				•
5	50-16-K4	8650543				•	•					•
6	50-16-04-HR	8650544		•			•		•			•
7	50-16-F4-HR	8650545			•		•		•			•
8	50T-16-03	8650546	•				•			•		
9	50T-16-04	8650547		•			•			•		
10	50T-16-K4	8650548				•	•			•		
11	50T-16-04-HR	8650549		•			•		•	•		
12	50S-16-04	13650144		•			•				•	

Items 6, 7 and 11 do not include handle brackets.



8918 3-Way, 4-Way or 4-Way Float Tandem Section



8917 3-Way, 4-Way or 4-Way Float Parallel Section

V50 MID-INLET SECTIONS (Housing No.'s 12138, 8918 & 8917)

Item No.	Model Number	Part Number	Split [SF]	Combined [CF]	SAE 16 Inlet [16]	Description	Housing No.
1	20/50-16-SF	8650798	•		•	V20/V50 Split Flow Transition Mid Inlet	12138
2	20/50-16-CF	8650797		•	•	V20/V50 Combined Flow Transition Mid Inlet	12138
3	50-16-SF	13650941	•		•	V50 Split Flow Mid Inlet	8917
4	50-16-CF	13650942		•	•	V50 Combined Flow Mid Inlet	8918

Sections machined to accept RP50 main relief cartridges.

V20/V50 mid-inlet sections combine V20 work sections (upstream) with V50 work sections (downstream)

Standard V50 section stud kits are used for downstream V50 work sections. Special V20/V50 section stud kits are listed in the V20 section.

V50 Handle End Options

Handle Kits contain necessary Links and Pins.

Item No.	Model Number	Part Number	Description
1	K-50-VH	8650567	Vertical Handle
2	K-50-HH	8650566	Horizontal Handle
3	K-50-BOOT	8650565	Spool Boot Assembly



Horizontal Handle



Vertical Handle

V50 Section Stud Assembly Kits

Includes Section Seals and Nuts.

Item No.	Model Number	Part Number	Number of Work Sections
1	K-50-1L	13650644	One Section
2	K-50-2L	13650645	Two Section
3	K-50-3L	13650646	Three Section
4	K-50-4L	13650647	Four Section
5	K-50-5L	13650648	Five Section
6	K-50-6L	13650649	Six Section



Spool Action Assembly (Bonnet)

V50 Spool Positioner Option Kits

Item No.	Model Number	Part Number	Description
1	K-50-D	8650562	3-Position Detent
2	K-PA100-50	13044001	Pneumatic Spool Positioner Kit
3	K-50-HR	13650949	Hydraulic Remote Spool Actuator Kit [Ⓞ]
4	K-50-HRO	13650950	Hydraulic Remote with Override Spool Actuator Kit [Ⓞ]

Cannot be used on Float Spool.

Ⓞ Contains both bonnets needed.



Model RP50A Relief Valve Cartridge

V50 Work Port Relief and Anti-Cavitation Cartridges

Item No.	Model Number	Part Number	Pressure Range, 500-3500 PSI Set @ 2500 PSI c/p	Description
1	RP50A-2500	8650560	•	Pilot-Operated Relief Cartridge
2	RP50A-AC-2500	8650966	•	Combination Relief & Anti-Cav.
3	K-50-AC	8650558		Anti-Cavitation Check
4	K-50-NR	8650561		No Relief Plug Kit (NR Option)

All above Relief Valves have stainless steel springs and are external screw adjustable. Crack Pressure (c/p) set at 1 GPM.



8565 Left Cover

V70 INLET COVERS (Housing No. 8565)

Item No.	Model Number	Part Number	1-1/2" Split Flange [150]	SAE 24 Ports [24]	End Inlet	End Outlet	Top Inlet	Top Outlet	1/4" NPT Gauge Port (Plugged)
1	70-LC-150-E	8650068	•		•	•			•
2	70-LC-150-T	8650066	•				•	•	•
3	70-LC-24-E	8650069		•	•	•			•
4	70-LC-24-T	8650067		•			•	•	•

All 8565 Inlet Covers are machined to accept the Main Relief Options listed below.



RP70A Relief Valve Cartridge

V70/V90 Main Relief Options

Item No.	Model Number	Part Number	Description
1	K-70-NR	8650376	No Relief Plug Kit (NR Option)
2	RP70A-2500	8650968	500 to 3500 PSI Pilot-Operated Relief Cartridge (Set @ 2500 PSI)

Above Relief Valve has stainless steel spring and is external screw adjustable. Also used in the V90 Control Valve.



8545 Right Cover

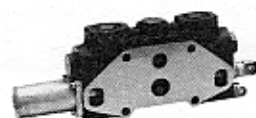
V70 OUTLET COVERS (Housing No. 8545)

Item No.	Model Number	Part Number	1-1/2" Split Flange [150]	SAE 24 Ports [24]	End Outlet [E]	Top Outlet [T]	End Power Beyond (SAE 24) [Y]	End Power Beyond (1-1/4" S.F.) [Y]
1	70-RC-24-TY⊙	8650427		•		•	•	
2	70-RC-150T-125Y⊙	8650426	•			•		•
3	70-RC-150-T	8650059	•			•		
4	70-RC-24-ET⊙	8650060		•	•	•		
5	70-RC-150-E⊙	8650061	•		•			

⊙ Includes Internal Power Beyond Conversion Plug.

⊙ Includes External Port Plug Only. Does NOT include the Internal Power Beyond Conversion Plug.

V70P 'PARALLEL' WORK SECTIONS (Housing No. 8566)

8566
Work Section

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	Spring Return to Neutral [O]	3-Position Defeat [D]	Hydraulic Remote Spool Actuator [HR]	1" Split Flange Ports [100]	SAE 20 Ports [20]
1	70-100-03	08650449	•				•			•	
2	70-20-03	08650071	•				•				•
3	70-100-04	08650073		•			•			•	
4	70-20-04	08650074		•			•				•
5	70-100-F4	08650075			•		•			•	
6	70-20-F4	08650076			•		•				•
7	70-20-DF4	08650079			•			•		•	•
8	70-100-04-HR	08650524		•					•	•	
9	70-20-04-HR	08650525		•					•		•
10	70-100-F4-HR	08650522			•				•	•	
11	70-20-F4-HR	08650523			•				•		•
12	70-100-K4	08650077				•				•	
13	70-20-K4	08650078				•					•

The above work sections are all machined for work port relief option.
With the exception of sections 8, 9, 10 & 11 all are supplied with the handle bracket.

V70T 'TANDEM' WORK SECTIONS (Housing No. 8567)

Item No.	Model Number	Part Number	4-Way 3-Pos [4]	1" Split Flange Ports [100]	SAE 20 Ports [20]	Spring Return to Neutral [O]	Hydraulic Remote Spool Actuator [HR]
1	70T-100-04	13650990	•	•		•	
2	70T-20-04	13650991	•		•	•	
3	70T-100-04-HR	13650992	•	•			•
4	70T-20-04-HR	13650993	•		•		•

The above work sections are all machined for work port relief option.
With the exception of sections 3 & 4 all are supplied with the handle bracket.



Vertical Handle

Horizontal Handle

V70/V90 Handle End Options

Item No.	Model Number	Part Number	Description
1	K-70-VH	8650120	Vertical Handle
2	K-70-HH	8650121	Horizontal Handle

Also used in the V90 Control Valve.

V70 Section Stud Assembly Kits

Includes Section Seals and Nuts.

Item No.	Model Number	Part Number	Number of Work Sections
1	K-70-1	8650123	One Section
2	K-70-2	8650124	Two Section
3	K-70-3	8650125	Three Section
4	K-70-4	8650126	Four Section
5	K-70-5	8650127	Five Section
6	K-70-6	8650128	Six Section



Spool Action Assembly
(Bonnet)

V70/V90 Spool Positioner Option Kits

Item No.	Model Number	Part Number	Description
1	K-70-D	8650129	3-Position Detent
2	K-70-PA1	8650622	Pneumatic Spool Positioner Kit
3	◆ K-70-HR	13650951	Hydraulic Remote Spool Actuator Kit
4	◆ K-70-HRO	13650952	Hydraulic Remote with Override Spool Actuator Kit

Cannot be used on Float Spool.
Also used in the V90 Control Valve.

◆ Contains both bonnets needed.



RP70A Relief
Valve Cartridge

V70/V90 Work Port Option Kit

Item No.	Model Number	Part Number	Pressure Range, PSI 500 to 3500 Set @ 2500 PSI c/p	Description
1	RP70A-2500	8650968	•	Pilot-operated Relief Cartridge, Adjustable
2	RP70A-AC-2500	8650967	•	Combination Relief & Anti-Cav, Adjustable
3	K-70-AC	8650375		Anti-Cavitation Check
4	K-70-NR	8650376		No Relief Plug Kit (NR Option)

All above Relief Valves have stainless steel springs and are external screw adjustable.
Also used in the V90 Control Valve.



Left Cover

V90 INLET COVERS (Housing No. 8565)

Item No.	Model Number	Part Number	1-1/2" Split Flange [150]	SAE 24 Ports [24]	End Inlet	End Outlet	Top Inlet	Top Outlet	1/4" NPT Gauge Port (Plugged)
1	90-LC-150-E	13650022	•		•	•			•
2	90-LC-150-T	13650023	•				•	•	•
3	90-LC-24-E	13650024		•	•	•			•
4	90-LC-24-T	13650025		•			•	•	•

All Left Covers are machined to accept Main Relief Valve, Model RP70A.

V70/V90 Main Relief Options

Item No.	Model Number	Part Number	Description
1	K-70-NR	8650376	No Relief Plug Kit (NR Option)
2	RP70A-2500	8650968	500 to 3500 PSI Pilot-Operated Relief Cartridge (Set @ 2500 PSI)

Above Relief Valve has stainless steel spring and is external screw adjustable. Also used in the V70 Control Valve.
Relief Valve Cartridge set at 2500 PSI crack (c/p) at 1 GPM.



Right Cover

V90 OUTLET COVERS (Housing No. 8545)

Item No.	Model Number	Part Number	1-1/2" Split Flange [150]	SAE 24 Ports [24]	End Outlet [E]	Top Outlet [T]	End Power Beyond (SAE 24) [Y]	End Power Beyond (1-1/4" S.F.) [Y]
1	90-RC-24-TY [Ⓢ]	13650026		•		•	•	
2	90-RC-150-TY [Ⓢ]	13650027	•			•		•
3	90-RC-150-T	13650028	•			•		
4	90-RC-24-ET [Ⓢ]	13650029		•	•	•		
5	90-RC-150-E [Ⓢ]	13650030	•		•			

[Ⓢ] Includes Internal Power Beyond Conversion Plug.

[Ⓢ] Outlet Cover Only. Does NOT include the Internal Power Beyond Conversion Plug or the External BSP Port Plug.

V90P 'PARALLEL' WORK SECTIONS (Housing No. 8566)

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	Free Flow Motor Spool [F4]	4-Way 4-Pos. Float [K4]	1" Split Flange Work Ports [100]	SAE 20 Work Ports [20]	Spring Return to Neutral	Hydraulic Remote Spool Actuator [HR]	3-Pos Detent [D]
1	90-100-03	13650031	•				•		•		
2	90-20-03	13650032	•					•	•		
3	90-100-04	13650035		•			•		•		
4	90-20-04	13650036		•				•	•		
5	90-100-F4	13650037			•		•		•		
6	90-20-F4	13650038			•			•	•		
7	90-100-F4-HR	13650039			•		•			•	
8	90-20-F4-HR	13650040			•			•		•	
9	90-100-K4	13650041				•	•				
10	90-20-K4	13650042				•		•			
11	90-100-04-HR	13650043		•			•			•	
12	90-20-04-HR	13650044		•				•		•	
13	90-100-DF4	13650045			•		•				•
14	90-20-DF4	13650046			•			•			•

Items 7, 8, 11 and 12 do not include Handle Brackets.

The above work sections are all machined for work port relief option.

With the exception of sections 7, 8, 11 & 12 all are supplied with the handle bracket.



8566 Work Section

V90T 'TANDEM' WORK SECTIONS (Housing No. 8567)

Item No.	Model Number	Part Number	4-Way 3-Pos [04]	1" Split Flange Ports [100]	SAE 20 Ports [20]	Spring Return to Neutral	Hydraulic Remote Spool Actuator [HR]
1	90T-100-04	13650994	•	•		•	
2	90T-20-04	13650995	•		•	•	
3	90T-100-04-HR	13650996	•	•			•
4	90T-20-04-HR	13650997	•		•		•

The above work sections are all machined for work port relief option.

With the exception of sections 3 & 4 all are supplied with the handle bracket.

V90 Section Stud Assembly Kits

Includes Section Seals and Nuts.

Item No.	Model Number	Part Number	Number of Work Sections
1	K-90-1	13650050	One Section
2	K-90-2	13650051	Two Section
3	K-90-3	13650052	Three Section
4	K-90-4	13650053	Four Section
5	K-90-5	13650054	Five Section
6	K-90-6	13650055	Six Section

V70/V90 Handle End Options

Item No.	Model Number	Part Number	Description
1	K-70-VH	8650120	Vertical Handle
2	K-70-HH	8650121	Horizontal Handle

Also used in the V70 Control Valve.

V70/V90 Spool Positioner Option Kits

Item No.	Model Number	Part Number	Description
1	K-70-D	8650129	3-Position Detent
2	K-70-PA1	8650622	Pneumatic Spool Positioner Kit
3	K-70-HR	13650951	Hydraulic Remote Spool Positioner Kit
4	K-70-HRO	13650952	Hydraulic Remote with Override Spool Positioner Kit

Cannot be used on Float Spool.
Also used in the V70 Control Valve.

V70/V90 Work Port Option Kit

Item No.	Model Number	Part Number	Pressure Range, PSI 500 to 3500 Set @ 2500 PSI c/p	Description
1	RP70A-2500	8650968	•	Pilot-operated Relief Cartridge, Adjustable
2	RP70A-AC-2500	8650967	•	Combination Relief & Anti-Cav, Adjustable
3	K-70-AC	8650375		Anti-Cavitation Check
4	K-70-NR	8650376		No Relief Plug Kit (NR Option)

All above Relief Valves have stainless steel springs and are external screw adjustable.
Also used in the V70 Control Valve.



HCJ Hydraulic Controller

Model HCJ and HCJ2 Hydraulic Joystick Controllers

Item No.	Model Number	Part Number	SAE 6 Side 'P' and 'T' Ported Housing [HCJ]	SAE 6 Side and Bottom 'P' and 'T' Ported Housing [HCJ2]	Pressure Control Range 55 PSI to 205 PSI	Standard Handle	Molded Handle Without Switches [MH-NS]	Molded Handle With Push Button Switch [MH-PB]	Marine Duty Version [SS]
1	HCJ	08650551	•		•	•			
2	HCJ-SS	08650552	•		•	•			•
3	HCJ2	26157095		•	•	•			
4	HCJ2-MH-NS	26157096		•	•		•		
5	HCJ2-MH-PB	26157097		•	•			•	

HCJ2 Hydraulic Controllers offer both side and bottom Pressure 'P' and Tank 'T' porting. Two SAE Plugs will be supplied with each HCJ2 controller (side 'P' and 'T' ports plugged). All porting is SAE 6.



HCS Hydraulic Controller

Model HCS (Sectional) Hydraulic Controllers

Item No.	Model Number	Part Number	Sectional Left Hand or Single [HCS-L]	Sectional Right Hand or Center [HCS-R]	Pressure Control Range 55 PSI to 205 PSI	Standard Handle	Marine Duty Version [SS]
1	HCS-L	8650555	•		•	•	
2	HCS-L-SS	8650556	•		•	•	•
3	HCS-R	8650553		•	•	•	
4	HCS-R-SS	8650554		•	•	•	•

HCS-L (Left Hand) sectional hydraulic controller should be used when only one function is required. HCS Hydraulic Controllers can be panel mounted as received. For foot mounting, order K-HCSF Foot Mount Kit and appropriate K-HC-'X' Stud Kit. All porting is SAE 6.



HCF Hydraulic Controller

Model HCF (Foot - Operated) Hydraulic Controller

Item No.	Model Number	Part Number	Hydraulic Controller with Foot Treadle [HCF]	Pressure Control Range 55 PSI to 205 PSI
1	HCF	8650557	•	•

All porting is SAE 6.

Section Stud Assembly Kits

Includes Section Seals, Studs, and Nuts.

Item No.	Model Number	Part Number	Description
1	K-HC-1	8650320	One Section
2	K-HC-2	8650321	Two Section
3	K-HC-3	8650322	Three Section
4	K-HC-4	8650323	Four Section
5	K-HC-5	8650324	Five Section
6	K-HC-6	8650325	Six Section

Spacer Option

Provides additional 1-1/16" space between handles. (1/2 of section width)

Item No.	Model Number	Part Number	Description
1	K-HCS-SPACER	8650550	Section Spacer (HCS only)

When adding K-HCS-SPACER's to the HCS assembly, use the following information to help select the proper Stud Assembly Kits.

- For an even number of spacers, select from the studs kits listed above.
- When adding an odd number of spacers, refer to Gresen HC Service Manual No. GSD-4001 for help in choosing the proper studs.

Positioner Option

Includes boot and required hardware.

Item No.	Model Number	Part Number	Description
1	K-HCS-FD	8650533	Friction Detent, Infinite Position (HCS only)

HCJ Handle Option Kits

Includes Boot and boot retainer.

Item No.	Model Number	Part Number	Description
1	K-HCJ-GRIP-NS	26157052	Grip Handle Only (no Electric Switch)
2	K-HCJ-GRIP-PM	26157053	Grip Handle with Top Push Button (Momentary) Electric Switch
3	K-HCJ-GRIP	8650532	Old Style Handle Grip with Top Electric Switch

Mounting Option

Includes 2 mounting plates. Mounting bolts are not included.

Item No.	Model Number	Part Number	Description
1	K-HCSF	8650451	Mounting Plate, Foot (HCS or HCF only)



HCS Spacer



Foot Mounting Plate



Model SP Monoblock Directional Control Valves

SP Single-Spool Valves (Housing No. 2701)

SPK 3-Spool Monoblock

Item No.	Model Number	Part Number	Conversion Port Machined [Ⓢ] [X]	Top Outlet [T]	End Outlet [E]	3-Way, 3-Pos [3]	4-Way, 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	Spring Return to Neutral (Standard)	3-Pos Detent [D]	Rotary Spool Positioner [W]	Stainless Steel Spool(s) [SS]	Optional SAE Porting [G]
1	SP-3-HP	8650668			•	•			•				
2	SPXTE-3-HP	8659665	•	•	•	•			•				
3	SP-4-HP	8650674			•		•		•				
4	GSP-4-HP	8650667			•		•		•				•
5	SPXTE-4-HP	8650670	•	•	•		•		•				
6	GSPXTE-4-HP	8650666	•	•	•		•		•				•
7	SPXTE-4-HP-SS	8650936	•	•	•		•		•			•	
8	SP-D4-HP	8650673			•		•			•			
9	SPXTE-F4-HP	8650938	•	•	•			•	•				
10	SP-W4-HP	8650671			•		•				•		
11	SPXTE-W4-HP-SS	8650937	•	•	•		•				•	•	

Ⓢ When the valve housing is machined with the conversion port (XTE), the top outlet port will be plugged.

SP Two-Spool Valves (Housing No. 2702)

Item No.	Model Number	Part Number	Conversion Port Machined [Ⓢ] [X]	Top Outlet [T]	End Outlet [E]	3-Way, 3-Pos [3]	4-Way, 3-Pos [4]	Spring Return to Neutral (Standard)	Stainless Steel Spool(s) [SS]	Optional SAE Porting [G]
1	SPXTE-3-4-HP	8650659	•	•	•	Spool #1	Spool #2	•		
2	SPXTE-4-3-HP	8650660	•	•	•	Spool #2	Spool #1	•		
3	SP-4-4-HP	8650664			•		Both Spools	•		
4	SPXTE-4-4-HP	8650663	•	•	•		Both Spools	•		
5	GSPXTE-4-4-HP	8650661	•	•	•		Both Spools	•		•
6	SPXTE-4-4-HP-SS	8650662	•	•	•		Both Spools	•	•	

Ⓢ When the valve housing is machined with the conversion port (XTE), the top outlet port will be plugged.

SP Three-Spool Valves (Housing No. 2703)

Item No.	Model Number	Part Number	Conversion Port Machined [Ⓢ] [X]	Top Outlet [T]	End Outlet [E]	3-Way, 3-Pos [3]	4-Way, 3-Pos [4]	Spring Return to Neutral (Standard)	Stainless Steel Spool(s) [SS]	Optional SAE Porting [G]
1	SPXTE-3-4-4-HP	8650658	•	•	•	Spool #1	Spools 2 & 3	•		
2	SPXTE-4-4-4-HP	8650655	•	•	•		All 3 Spools	•		
3	SP-4-4-4-HP	8650657			•		All 3 Spools	•		
4	GSPXTE-4-4-4-HP	8650653	•	•	•		All 3 Spools	•		•
5	SPXTE-4-4-4-HP-SS	8650939	•	•	•		All 3 Spools	•	•	

All of the above SP valves are shipped with complete handle assembly with exception of the two valves offering the Rotary "W" spool positioner.

Ⓢ When the valve housing is machined with the conversion port (XTE), the top outlet port will be plugged.

All of the above SP valves include the adjustable 'J-HP' relief valve set @ 1500 PSI (104 bar).

Model SPK Monoblock Directional Control Valves

SPK Single-Spool Valves (Housing No. 2711)

Item No.	Model Number	Part Number	Conversion Port Machined [Ⓞ] [X]	Top Outlet [T]	End Outlet [E]	4-Way, 4-Pos Float [K-4]	4-Way, 3-Pos [4]	Spring Return to Neutral (Standard)	Optional SAE Porting [G]
1	SPK-4-HP	8650652			•	•			
2	SPKXTE-4-HP	8650651	•	•	•	•			
3	GSPKXTE-4-HP	8650650	•	•	•	•			•

Ⓞ When the valve housing is machined with the conversion port (XTE), the top outlet port will be plugged.

SPK Two-Spool Valves (Housing No. 2712)

Item No.	Model Number	Part Number	Conversion Port Machined [Ⓞ] [X]	Top Outlet [T]	End Outlet [E]	4-Way, 4-Pos Float [K-4]	4-Way, 3-Pos [4]	Spring Return to Neutral (Standard)	Optional SAE Porting [G]
1	SPK-4-4-HP	8650649			•	Spool #1	Spool #2	Spool #2	
2	SPKXTE-4-4-HP	8650648	•	•	•	Spool #1	Spool #2	Spool #2	
3	GSPKXTE-4-4-HP	8650647	•	•	•	Spool #1	Spool #2	Spool #2	•

Ⓞ When the valve housing is machined with the conversion port (XTE), the top outlet port will be plugged.

SPK Three-Spool Valves (Housing No. 2753)

Item No.	Model Number	Part Number	Conversion Port Machined [Ⓞ] [X]	Top Outlet [T]	End Outlet [E]	4-Way, 4-Pos Float [K-4]	4-Way, 3-Pos [4]	Spring Return to Neutral (Standard)	Optional SAE Porting [G]
1	SPK-4-4-4-HP	8650646			•	Spool #1	Spools 2 & 3	Spools 2 & 3	
2	SPKXTE-4-4-4-HP	8650645	•	•	•	Spool #1	Spools 2 & 3	Spools 2 & 3	
3	GSPKXTE-4-4-4-HP	8650644	•	•	•	Spool #1	Spools 2 & 3	Spools 2 & 3	•

All of the above SPK valves are shipped with complete handle assembly.

Spool No. 1 of SPK valve assemblies is always a 4-way, 4-position Float (K4).

All of the above SPK valves include the adjustable 'J-HP' relief valve set @ 1500 PSI (104 bar).

Ⓞ When the valve housing is machined with the conversion port (XTE), the top outlet port will be plugged.

Model SSK Monoblock Directional Control Valves

SSK Two-Spool Valves (Housing No. 2822)

Item No.	Model Number	Part Number	Conversion Port Machined [Ⓞ] [X]	Top Outlet [T]	End Outlet [E]	4-Way, 4-Pos Float [K-4]	4-Way, 3-Pos [4]	Spring Return to Neutral (Standard)
1	SSKXT-4-4-HP	8650643	•	•		Spool #1	Spool #2	Spool #2

The above SSK valve assembly is shipped with complete handle assembly.

Spool No. 1 of SSK valve assemblies is always a 4-way, 4-position Float (K4).

All of the above SSK valves include the adjustable 'J-HP' relief valve set @ 1500 PSI (104 bar).

Ⓞ Model SSK valves may be converted to power beyond but cannot be converted to closed center operation.

SP Porting Options

Porting (Standard)	Optional SAE Porting (G)
Inlet - 3/4" NPT	Inlet - SAE 12
Work Ports - 1/2" NPT	Work Ports - SAE 10
Outlets - 3/4" NPT	Outlet - Standard, SAE 12 End With Optional Conversion Machining (X) SAE 10 (Top or End)

SP OPTION KITS

Right End Modification Kits

Item No.	Model Number	Part Number	Description
1	K-SP-75-Y	8650130	3/4" NPT Power Beyond Sleeve Kit
2	K-SP-10-Y	8650131	SAE 10 Power Beyond Sleeve Kit
3	K-SP-12-Y	8650132	SAE 12 Power Beyond Sleeve Kit
4	K-SP-C	8650133	Closed Center Plug Kit
5	K-SP-X	8650134	Conversion Plug Kit



Power Beyond Sleeve

SP Spool Action Option Kits

Item No.	Model Number	Part Number	Description
1	K-SP-D	8650135	3-Position Detent Kit
2	K-SP-DS	8650136	Detent Stop for Neutral & Spool Out or Spool In
3	K-SP-A	8650137	Spring Extended Spool
4	K-SP-L	8650138	Spool "IN" Travel Limiter, Adjustable

SP Handle End Option Kits

Item No.	Model Number	Part Number	Description
1	K-SP-HB ♦	8650117	Standard Handle (Black)
2	K-SP-HP ♦	8650072	Standard Handle (Plain)
3	K-SP-LINK	13650946	Link and Pin Kit for SP Handles

♦ Does not include Links or Pins.



SP Handle

SP Relief Kit

Item No.	Model Number	Part Number	Description
1	K-SP-NR	8650211	No Relief Conversion Plug Kit

Porting Options

NPT Porting	SAE Porting
Inlet = 3/4"	Inlet = SAE 12
Work Ports = 1/2"	Work Ports = SAE 10
Outlet = 3/4"	Outlet = SAE 12

300 Single-Spool Valves (Housing No. 20011)

Item No.	Model Number	Part Number	(Standard) NTP Porting	3-Way 3-Pos	Spring Return to Neutral	3-Pos. Detent	Open Center Spool	Shim Adjustable Main Relief ①
1	300	8650682	•	•	•	•	•	•
2	310	8650683	•	•	•	•	•	•

① Shim Adjustable Relief Set @ 1500 PSI @ 7.6 GPM (103 bar @ 29 lpm). The above Model 300 valves are shipped with complete handle assembly.



300 Valve

400 Single-Spool Valves (Housing No. 20011)

Item No.	Model Number	Part Number	(Standard) NTP Porting	(Optional) SAE Porting	4-Way 3-Pos	4-Way 3-Pos. Free Flow	Spring Return to Neutral	3-Pos. Detent	Open Center Spool	Closed Center Spool	Shim Adjustable Main Relief	No Relief Valve Plug
1	400	8650681	•	•	•	•	•	•	•	•	•	•
2	G400	7239146	•	•	•	•	•	•	•	•	•	•
3	G-400-NR	7239171	•	•	•	•	•	•	•	•	•	•
4	410	8650680	•	•	•	•	•	•	•	•	•	•
5	410-40	8650679	•	•	•	•	•	•	•	•	•	•
6	430	8650678	•	•	•	•	•	•	•	•	•	•
7	440	8650677	•	•	•	•	•	•	•	•	•	•

① Shim Adjustable Relief Set @ 1500 PSI @ 7.6 GPM (103 bar @ 29 lpm). The above Model 400 valves are shipped with complete handle assembly.



400 Valve

300/400 Spool Action Option Kits

Item No.	Model Number	Part Number	Description
1	K-400-D	8650141	Three Position Detent for Models 300 and 400
2	K-400-A	8650143	Spring Extended Spool for Models 300 and 400

Port Plugs



NPT Plug



SAE Plug

PORT PLUGS

For use with all directional control valves.

Item No.	Model Number	Part Number	Description
1	K-NPT-13	8650306	1/8" NPTF Pipe Plug
2	K-NPT-25	8650307	1/4" NPTF Pipe Plug
3	K-NPT-38	8650308	3/8" NPTF Pipe Plug
4	K-NPT-50	8650309	1/2" NPTF Pipe Plug
5	K-NPT-75	8650310	3/4" NPTF Pipe Plug
6	K-NPT-100	8650305	1" NPTF Pipe Plug
7	K-NPT-125	8650304	1-1/4" NPTF Pipe Plug
8	K-SAE-6	8650296	SAE 6 Plug
9	K-SAE-8	8650297	SAE 8 Plug
10	K-SAE-10	8650298	SAE 10 Plug
11	K-SAE-12	8650299	SAE 12 Plug
12	K-20-X	8650100	SAE 14 Plug
13	K-SAE-16	8650301	SAE 16 Plug
14	K-SAE-20	8650302	SAE 20 Plug
15	K-SAE-24	8650303	SAE 24 Plug

Solenoid Cartridge Kits

For use in Model V10, V20 and V40 Internally-Piloted Solenoid Work Sections.

For simple coil conversions from 12 VDC to 24 VDC, refer to **Solenoid Coil Kits** for coil selection.

Item No.	Model Number	Part Number	Proportional Cartridge [E]	On/Off Solenoid Cartridge [S]	12 VDC Coil [12]	24 VDC Coil [24]	Flying Leads [F]	43650 D/N Connector [D]	Weather Pack® Connector [W]	1/4" Spade Terminals [S]	With Deutsch® DT04-2P [H]
1	K-CRT-E12F	21226001	•		•		•				
2	K-CRT-E24F	21226002	•			•	•				
3	K-CRT-E12D	21226006	•		•			•			
4	K-CRT-E24D	21226007	•			•		•			
5	K-CRT-E12W	21226008	•		•				•		
6	K-CRT-E24W	21226009	•			•			•		
7	K-CRT-E12S	21226004	•		•					•	
8	K-CRT-E24S	21226005	•			•				•	
9	K-CRT-E12H	21226015	•		•						•
10	K-CRT-E24H	21226016	•			•					•
11	K-CRT-S12F	21246001		•	•		•				
12	K-CRT-S24F	21246002		•		•	•				
13	K-CRT-S12D	23535001		•	•			•			
14	K-CRT-S24D	23535002		•		•		•			
15	K-CRT-S12W	22969001		•	•				•		
16	K-CRT-S24W	22969002		•		•			•		
17	K-CRT-S12S	24102001		•	•					•	
18	K-CRT-S24S	24102002		•		•				•	
19	K-CRT-S12H	25479001		•	•						•
20	K-CRT-S24H	25479002		•		•					•
21	K-10-CRT-S12F ①	26157048		•	•		•				
22	K-10-CRT-S24F ①	26157049		•		•	•				
23	K-10-CRT-S12S ①	26157050		•	•					•	
24	K-10-CRT-S24S ①	26157051		•		•				•	

① These ON/Off Solenoid Cartridge Kits must be used in the Model V10 On/Off Solenoid-Operated Work Sections.

Solenoid Coil Kits

For simple in-field coil conversions from 12 VDC to 24 VDC.

Coils are not interchangeable from On/Off to EPC or from EPC to On/Off. Refer to **Solenoid Cartridge Kits** for cartridge selection.

Item No.	Model Number	Part Number	Proportional [EPC] Coil [E]	On/Off [SOL] Coil [S]	12 VDC [12]	24VDC [24]	With Flying Leads [F]	With 43650 D/N Connector [D]	With Weather Pack® Connector [W]	With 1/4" Spade Terminals [S]	With Deutsch® DT04-2P Connector® [H]
1	K-COIL-E12F	26157062	•		•		•				
2	K-COIL-E24F	26157063	•			•	•				
3	K-COIL-E12D	26157064	•		•			•			
4	K-COIL-E24D	26157065	•			•		•			
5	K-COIL-E12W	26157066	•		•				•		
6	K-COIL-E24W	26157067	•			•			•		
7	K-COIL-E12S	26157068	•		•					•	
8	K-COIL-E24S	26157069	•			•				•	
9	K-COIL-E12H	26157070	•		•						•
10	K-COIL-E24H	26157071	•			•					•
11	K-COIL-S12F	26157072		•	•		•				
12	K-COIL-S24F	26157073		•		•	•				
13	K-COIL-S12D	26157074		•	•			•			
14	K-COIL-S24D	26157075		•		•		•			
15	K-COIL-S12W	26157076		•	•				•		
16	K-COIL-S24W	26157077		•		•			•		
17	K-COIL-S12S	26157078		•	•					•	
18	K-COIL-S24S	26157079		•		•				•	
19	K-COIL-S12H	26157080		•	•						•
20	K-COIL-S24H	26157081		•		•					•
21	K-10-COIL-S12F ①	26157082		•	•		•				
22	K-10-COIL-S24F ①	26157083		•		•	•				
23	K-10-COIL-S12S ①	26157084		•	•					•	
24	K-10-COIL-S24S ①	26157085		•		•				•	

① These ON/Off Solenoid Coil Kits must be used in the Model V10 On/Off Solenoid-Operated Work Sections.

HyMOSA
El Poder de Mover



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