



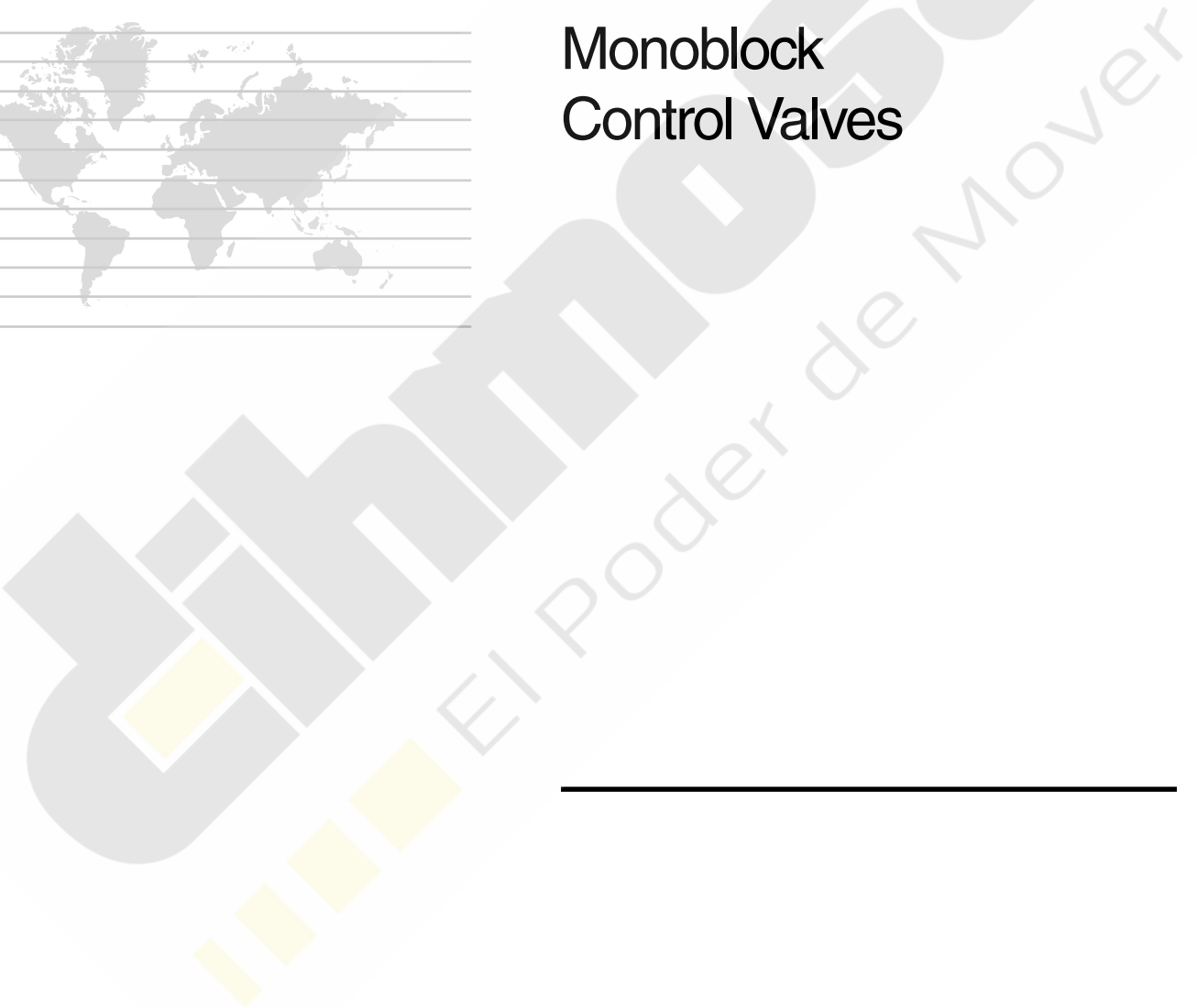
Bulletin HY14-2713-M1/US
Service and Parts Bulletin

Models
300 and 400

Effective: August 1, 2002
Supersedes: Cat. No. GSD-0901 dated 4/97



Monoblock
Control Valves





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This exploded view diagram illustrates the assembly of a mechanical component, likely a valve or actuator. The parts are numbered 1 through 28. The main body (1) features a central port (2) and side ports (3, 4). A lever arm (26) is connected to the side port (4) via a pin (24) and a bracket (25). A long shaft (2) is inserted into the side port (3) and secured with a nut (18) and a washer (19). The shaft (2) is also connected to a lever arm (26) via a pin (24) and a bracket (25). A spring (11) is attached to the lever arm (26) and a pin (10). A pin (9) is inserted into the lever arm (26) and a pin (8). A pin (7) is inserted into the lever arm (26) and a pin (6). A pin (5) is inserted into the lever arm (26) and a pin (4). A pin (3) is inserted into the lever arm (26) and a pin (2). A pin (1) is inserted into the lever arm (26) and a pin (0). A pin (27) is inserted into the lever arm (26) and a pin (28). A pin (13) is inserted into the lever arm (26) and a pin (12). A pin (14) is inserted into the lever arm (26) and a pin (15). A pin (16) is inserted into the lever arm (26) and a pin (17). A pin (20) is inserted into the lever arm (26) and a pin (21). A pin (22) is inserted into the lever arm (26) and a pin (23). A pin (24) is inserted into the lever arm (26) and a pin (25). A pin (26) is inserted into the lever arm (26) and a pin (27). A pin (28) is inserted into the lever arm (26) and a pin (29).

Model 400

Service Parts List for 300 and 400 Control Valves

Ref. No.	Part No.	Description	QTY	Ref. No.	Part Description	QTY	
	K-3001	Spool Seal Kit (Includes Item No. 13 Only) ³		00591001	Centering Spring (Optional - Medium)	1	
	K-3011	High Pressure Relief Kit (Includes Items 14 thru 23 Only)		00582001	Centering Spring (Optional - Light)	1	
	K-3012	Low Pressure Relief Kit (Includes Items 14 thru 23 Only)		12 00577001	Spool Collar	1	
	K-3002	Standard Black Plastic Coated Handle Kit (Includes 24 thru 28 Only)		13 00555001	Spool Seal ³	2	
				14 02503001	O-Ring Seal	1	
	K-3014	(Optional) Plain Handle Kit (Includes 24 thru 28 Only)		15 06382001	Relief Valve Seat	1	
	6470003	(Optional) Plain Offset Handle Kit (Includes 24 thru 28 Only)		16 02504001	.375 (9,53 mm) Ball, 1000 - 2500 PSI (69 - 172 bar) (Model 300 Only)	1	
1	20011XXX	Model 300 Housing ¹	1		00155001	.344 (8,74 mm) Ball, 200 - 999 PSI (16 - 69 bar)	1
	20011XXX	Model 400 Housing ¹	1	17 01450001	High Pressure Relief Spring, 1000 - 2500 PSI (69 - 172 bar) ²	1	
2	20034001	300 Spool (3-Way - Open Center) ¹	1		08378001	Low Pressure Relief Spring, 200 - 999 PSI (16 - 69 bar) ²	1
	20053001	340 Spool (3-Way Free Flow - Open Center) ^{1 4}	1	18 00073001	.375 NPTF Plug	1	
	20961001	400 Spool (4-Way - Open Center) ¹	1	19 08086001	Dampening Sleeve	1	
	20057001	440 Spool (4-Way Free Flow - Open Center) ^{1 4}	1	20 00458001	.040 Shim (1,00 mm) ²	A/R	
	20051001	330/430 Spool (3-Way and 4-Way -Closed Center) ¹	1	21 00459001	.020 Shim (0,50 mm) ²	A/R	
	20052001	330-40/430-40 Spool (3-Way and 4-Way Free Flow - Closed Center) ^{1 4}	1	22 00462001	.010 Shim (0,25 mm) ²	A/R	
3	00963001	Nylon Check Ball (Model 300 Only)	1	23 08087001	Spring Guide	1	
4	00585001	Check Plug (Model 300 Only)	1	24 00551001	Handle Bracket	1	
5	00017001	By-Pass Plug (Model 300 Only)	1	25 03731098	Bracket Screws	2	
6	00559001	Bonnet Screw	4	26 00552001	Handle (Standard Black Plastic Coated)	1	
7	00558001	Bonnet	1		00552003	Handle (Optional - Plain, No Coating)	1
8	00510001	Spool Screw	1		00565001	Handle (Optional - Plain, Offset)	1
9	20345001	Lock Washer	1	27 00086001	Cotter Pin	1	
10	00509001	Flat Washer	1	28 00553001	Clevis Pin	1	
11	00557001	Centering Spring (Standard)	1				

1 Housings and Spools are select fit at the factory and are NOT sold separately.

2 Do not attempt to adjust/shim these reliefs unless you have the capability to test the reliefs for proper pressure setting. Without the capability to test you may exceed the maximum pressure rating of the product or draw the relief spring solid, which in turn means there is no relief (NR).

3 Buna-N seals are standard for all Gresen valve assemblies.

4 **Warning:** If you are using the free flow (340, 440, 330-40 and 430-40) spool configurations in a cylinder lift application, it must be used in conjunction with a load holding device. A load holding device will prevent the load from free falling when the spool is in the neutral position. A free falling load could cause serious bodily injury or property damage if the holding device is not installed.

Optional Spool Positioner Service Kits

Model 300 (400) Standard Spring-Return Spool Positioner (Service Kit No. K-3009)

Part No.	Description	No. Required
00559001	Bonnet Screw	4
00558001	Bonnet	1
00510001	Spool Screw	1
20345001	Lock Washer	1
00509001	Flat Washer	1
00557001	Centering Spring ¹	1
00577001	Spring Collar	1

¹ 00557001 Centering Spring is standard. Optional medium duty (00591001) and light duty (00582001) springs are available.

Model 301 (401) Manual Spool Positioner

Part No.	Description	No. Required	Standard Parts Replaced
00573001	Conversion Spacer	1	00557001 (Spring) 00577001 (Spool Collar)

Model 310 (410) 3-Position Detent Spool Positioner (Service Kit No. CK-3004)

Part No.	Description	No. Required	Standard Parts Replaced
00969001	Detent Spring	1	00509001 (Spring Washer)
00970001	Detent Spring Washer	1	00577001 (Spool Collar)
00971001	Detent Pin	1	00557001 (Spring)
01214001	Washer	1	00558001 (Bonnet)
02519001	Detent Cap	1	00559001 (Bonnet Screw)
02526001	Detent Bonnet	1	
02527001	Spool Adapter (3-Groove)	1	
02537001	Bonnet Screw	4	
00510001	Screw	1	
02528001	Detent Sleeve	1	
20345001	Lock Washer	1	

This option is **NOT** intended for use as a positive spool locking device against excessive external forces or machine vibration

Model 320 (420) Spring Extended to Spool 'Out' Positioner (Service Kit No. K-3008)

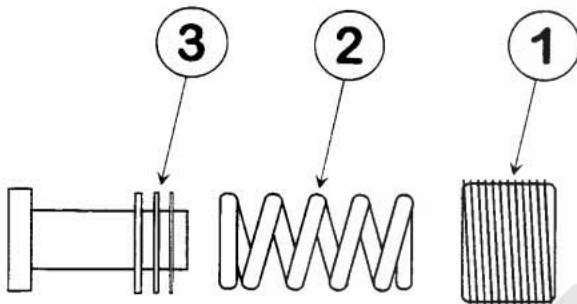
Part No.	Description	No. Required	Standard Parts Replaced
00566001	Spring	1	00509001 (Spring Washer)
00578001	Spacer	1	00577001 (Spring Collar)
00579001	Stop Collar	1	00557001 (Spring)
00558002	Bonnet	1	00558001 (Bonnet)

Relief Adjusting & Spool Seal Replacement Procedures

Relief Valve Adjustment Procedures

Relief valves are factory set at 1500 PSI (103 bar) unless otherwise specified. Relief valves are not externally adjustable. However, they may be reset to different pressures by the use of shims. In attempting to reset relief valve pressure, the use of a pressure gauge is essential.

Do not attempt to adjust/shim these reliefs unless you have the capability to test the reliefs for proper pressure setting. Without the capability to test you may exceed the maximum pressure rating of the product or draw the relief spring solid, which in turn means there is no relief (NR).



Follow these procedures to change the relief setting:

CAUTION

Do not attempt to adjust the pressure setting by tightening the .375 inch NPTF plug (No.1). This is a tapered plug, and any attempt to tighten beyond its normal depth may crack or break the valve housing.

1. Remove .375 inch NPTF plug (No.1) from the housing.
2. Remove the Centering Spring (No.2).
3. Add or remove shims (No.3) as necessary to increase or decrease pressure setting. A .010 (0,25 mm) shim will increase or decrease the relief setting by approximately 120 PSI (8,0 bar).
4. Replace spring and plug.
5. Always test relief to new setting.

Warning

Maximum pressure rating for Model 300 and 400 control valves is 2500 PSI (172 bar) for SAE Porting and 2000 PSI (138 bar) for NPT Porting.

Spool Seal Replacement Procedures

1. Remove the 4 cap screws (No.6) and bonnet (No.7) and set aside.
2. Remove all remaining spool positioner parts from the rear of the valve housing.
3. Remove handle (No. 26).
4. Remove 2 cap screws (No.25) in handle bracket (No.24). Remove bracket.
5. With the bracket removed, temporarily return handle into spool clevis and install spool clevis pin. Pull spool (No.2) out of the housing (No.1).
6. Observe position of 'U' cup seals (No.13) for proper replacement. Carefully remove worn seal rings to prevent any damage to valve housing.
7. Lightly oil spool and insert into the housing from the front (relief end) without the new seal rings. Push the spool into the housing until the front seal ring groove is completely exposed.
8. Lube one of the new seal rings and carefully insert into groove 'A'. Once in place, be sure to carefully squeeze lips of ring into housing at the same time turning and pushing lightly on spool.
9. Pull spool back toward the handle and until the rear (bonnet end) seal groove is exposed.

CAUTION

Do not pull the spool more than is necessary to expose seal ring groove 'B'. If the spool is pulled too far, the seal ring will drop into the spool recess and could be damaged when centering the spool.

10. Carefully insert new seal ring into groove 'B'. After ring is in place, be sure to carefully squeeze lips of ring into housing at the same time turning and pushing lightly on spool.
11. Replace collar, spring, washer and round head machine screw. Tighten machine screw to 10 Ft. Lbs. (13,6 Nm). After tightening, make sure washer is free to slide on spool against spring.
12. Replace handle bracket and handle.
13. Replace bonnet and 4 cap screws. If spool action appears to bind, loosen four cap screws and retighten. Bonnet MUST be properly centered over spool end.

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