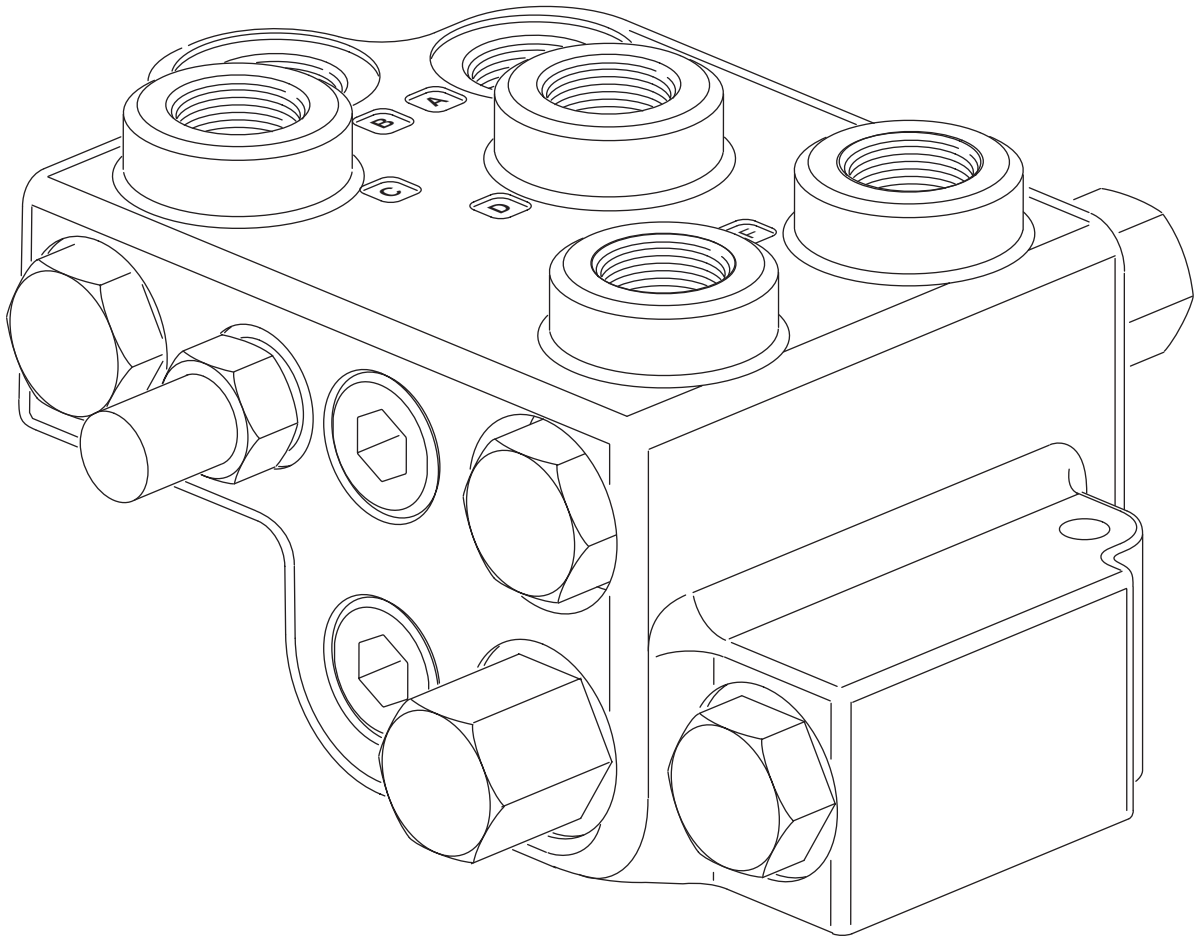
Eaton®

Dual Self-Level Valve

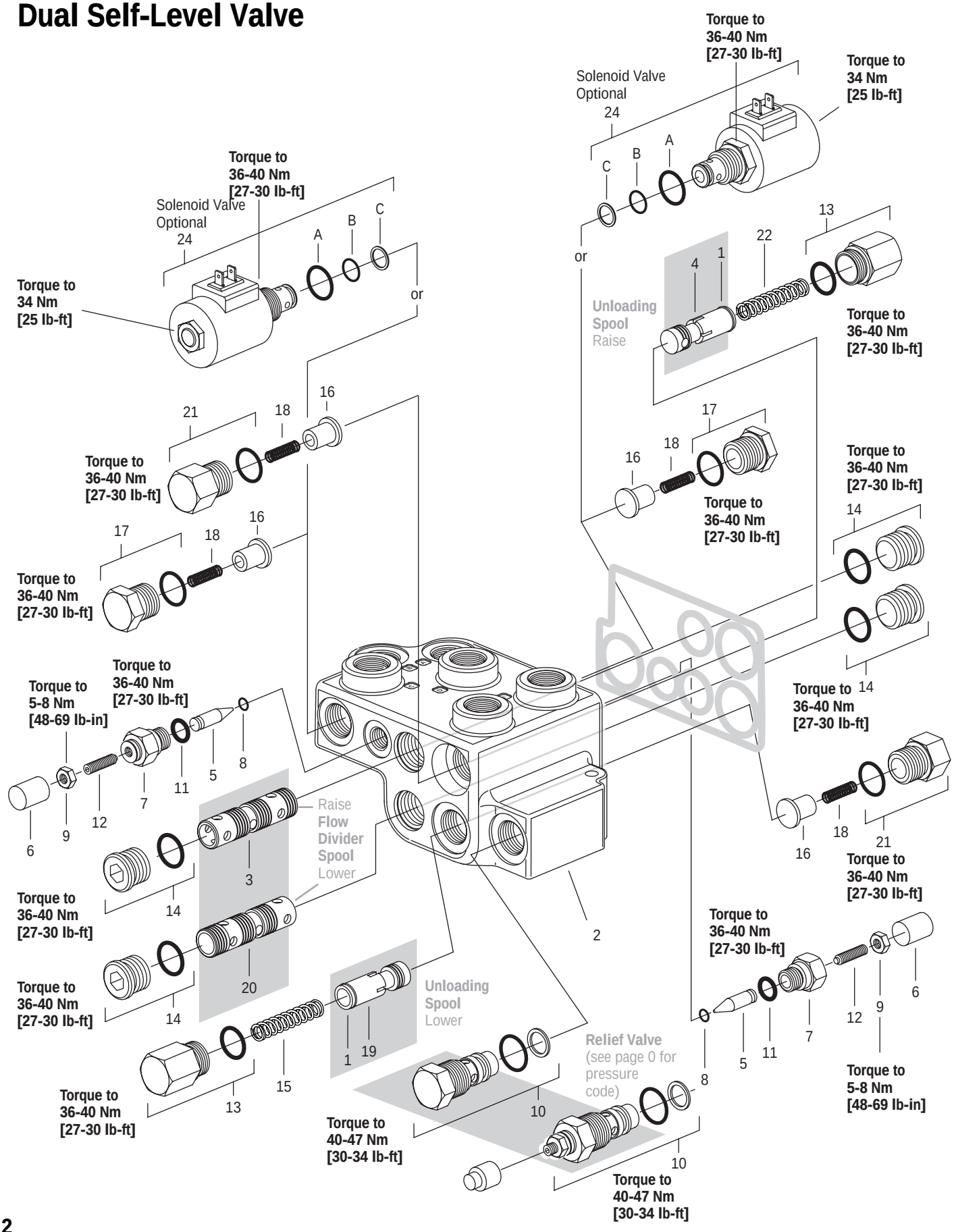
No. 06-530
January, 2000

Parts and Repair Information



Model 39055-XXX

Dual Self-Level Valve



Dual Self-Level Valve

	Ref. No.	Part No.	Description		Quantity
	1	16145-10	Retaining Ring		2
	2	NSS	Body		1
	3	NSS*	Spool - Flow Dividing	Raise Section	1
	4	NSS*	Spool - Unloading		1
	5	39055-322	Pin		2
X	6	70422-619	Cover		2
	7	113997-000	Adjustment Cap		2
X	8	16003-4-90	O-ring		2
	9	16024-4P	Nut		2
	10	32042- **	Relief Valve Assembly (none-adjustable)		1
		32080- **	Relief Valve Assembly (adjustable)		1
X		16015-17	O-ring		1
X		16235-111	Back-up Washer		1
X		32080-8	Cover		A/R
X		16003-11	O-ring		1
X	11	16133-6	O-ring		2
	12	NSS	Set Screw		2
	13	NSS	Plug Assembly		2
X		16133-10	O-ring		1 each
	14	16103-310	Plug Assembly		4
X		16133-10	O-ring		1 each
	15	17045-35	Spring		1
	16	NSS	Load Check		2 or 4
	17	NSS	Plug Assembly		2
X		16133-10	O-ring		1 each
	18	NSS	Spring		2 or 4
	19	NSS*	Spool - Unlaoding	Lower Section	1
	20	NSS*	Spool - Flow Divider		1
	21	NSS	Plug Assembly		2
X		16133-10	O-ring		1 each
	22	17045-16	Spring		1
	24	39088-AA	Soleniod Valve Assembly — Optional		2
X		16133-10	O-ring		1
X		16015-2	O-ring		1
X		16101-102	Back-up Washer		1
		39055-912	**Seal Kit — Contains Parts Indicated by X** (these parts only sold in seal kit)		

NSS - Not Sold Separately * See page 4 ** See page 5 A/R As required

Dual Self-Level Valve

Flow Divider Spools

Ref. No. 3 and 20	Orifice Dia. mm [inch]	Flow Split %
39055-320	3,96 [.156]	46 - 63
39055-326	4,75 [.187]	19 - 44
39055-332	3,25 [.128]	64 - 79
39055-334	1,57 [.062]	80 - 98
39055-342	5,97 [.235]	0 - 18

Unloading Spools

Ref. No. 4 and 19	Orifice Dia. mm [inch]	Notch Type	Integral Relief ?
39055-335	0,61 [.024]	2 end mills, 1 radial cut	Yes
39055-338	0,79 [.031]	4 radial cuts	Yes
39055-339	0,61 [.024]	4 radial cuts	Yes
39055-343	None	4 radial cuts	None
39055-344	None	2 end mills, 2 radial cuts	None
39055-340	None	2 end mills, 2 radial cuts	Yes
113033-000	0,61 [.024]	4 linear cuts	Yes
111958-000	None	2 end mills, 2 radial cuts and high preload spring	None

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Relief Valve Setting Code

Use this chart to find the two-digit suffix that corresponds to the nominal pressure required. Settings in bold print are preferred standard settings.

Suffix	bar	PSI	Suffix	bar	PSI	Suffix	bar	PSI	Suffix	bar	PSI
AA	**17**	**250**	**GA**	**104**	**1500**	**SA**	**190**	**2750**	**ZA**	**276**	**4000**
AB	19	275	GB	105	1525	SB	191	2775	ZB	279	4050
AC	21	300	GC	107	1550	SC	193	2800	ZC	283	4100
AD	23	325	GD	109	1575	SD	195	2825	ZD	286	4150
AE	24	350	GE	111	1600	SE	197	2850	ZE	290	4200
AF	**26**	**375**	**HA**	**112**	**1625**	**TA**	**198**	**2875**	**ZF**	**293**	**4250**
AG	28	400	HB	114	1650	TB	200	2900	ZG	297	4300
AH	29	425	HC	116	1675	TC	202	2925	ZH	300	4350
AJ	31	450	HD	117	1700	TD	204	2950	ZJ	304	4400
AK	33	475	HE	119	1725	TE	205	2975	ZK	307	4450
AL	**35**	**500**	**JA**	**121**	**1750**	**UA**	**207**	**3000**	**ZL**	**311**	**4500**
AM	36	525	JB	123	1775	UB	209	3025	ZM	314	4550
AN	38	550	JC	124	1800	UC	211	3050	ZN	317	4600
AP	40	575	JD	126	1825	UD	212	3075	ZP	321	4650
AQ	42	600	JE	128	1850	UE	214	3100	ZQ	324	4700
AR	**43**	**625**	**KA**	**129**	**1875**	**UF**	**216**	**3125**	**ZR**	**328**	**4750**
AS	45	650	KB	131	1900	UG	217	3150	ZS	331	4800
AT	47	675	KC	133	1925	UH	219	3175	ZT	335	4850
AU	48	700	KD	135	1950	UJ	221	3200	ZU	338	4900
AV	50	725	KE	136	1975	UK	223	3225	ZV	342	4950
BA	**52**	**750**	**LA**	**138**	**2000**	**VA**	**224**	**3250**	**IA**	**345**	**5000**
BB	54	775	LB	140	2025	VB	226	3275	IB	348	5050
BC	55	800	LC	142	2050	VC	228	3300	IC	352	5100
BD	57	825	LD	143	2075	VD	229	3325	ID	355	5150
BE	59	850	LE	145	2100	VE	231	3350	IE	359	5200
BF	**60**	**875**	**MA**	**147**	**2125**	**VF**	**233**	**3375**	**IF**	**362**	**5250**
BG	62	900	MB	148	2150	VG	235	3400	IG	366	5300
BH	64	925	MC	150	2175	VH	236	3425	IH	369	5350
BJ	66	950	MD	152	2200	VJ	238	3450	IJ	372	5400
BK	67	975	ME	154	2225	VK	240	3475	IK	376	5450
CA	**69**	**1000**	**NA**	**155**	**2250**	**WA**	**242**	**3500**	**IL**	**379**	**5500**
CB	71	1025	NB	157	2275	WB	243	3525	IM	383	5550
CC	72	1050	NC	159	2300	WC	245	3550	IN	386	5600
CD	74	1075	ND	160	2325	WD	247	3575	IP	390	5650
CE	76	1100	NE	162	2350	WE	248	3600	IQ	393	5700
DA	**78**	**1125**	**PA**	**164**	**2375**	**WF**	**250**	**3625**	**IR**	**397**	**5750**
DB	79	1150	PB	166	2400	WG	252	3650	IS	400	5800
DC	81	1175	PC	167	2425	WH	254	3675	IT	403	5850
DD	83	1200	PD	169	2450	WJ	255	3700	IU	407	5900
DE	85	1225	PE	171	2475	WK	257	3725	IV	410	5950
EA	**86**	**1250**	**QA**	**172**	**2500**	**YA**	**259**	**3750**	**IW**	**414**	**6000**
EB	88	1275	QB	174	2525	YB	260	3775			
EC	90	1300	QC	176	2550	YC	262	3800	XA through XZ—Special		
ED	91	1325	QD	178	2575	YD	264	3825			
EE	93	1350	QE	179	2600	YE	266	3850			
FA	**95**	**1375**	**RA**	**181**	**2625**	**YF**	**267**	**3875**			
FB	97	1400	RB	183	2650	YG	269	3900			
FC	98	1425	RC	185	2675	YH	271	3925			
FD	100	1450	RD	186	2700	YJ	272	3950			
FE	102	1475	RE	188	2725	YK	274	3975			

Dual Self-Level Valve

Adustment Instructions

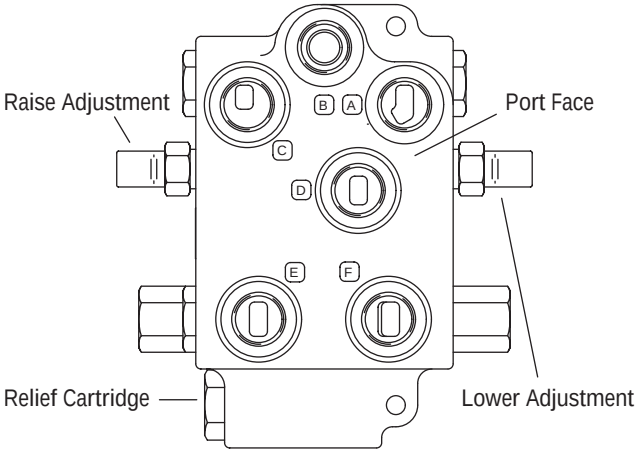

Figure 1

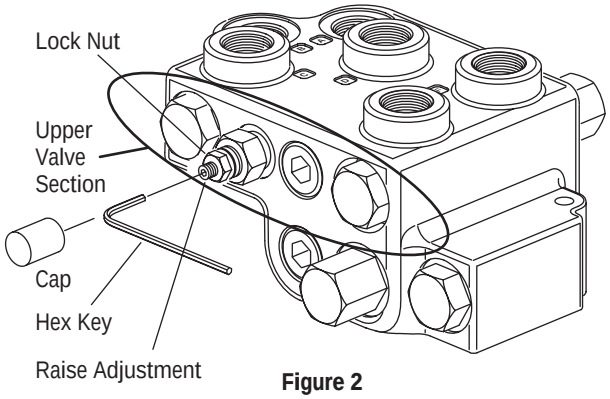

Figure 2

1.) Raise Leveling Adjustment

A.) Start with the bucket flat on the ground and raise the boom to **full** height with the engine at low rpm. If the bucket is tilted forward when the boom is at **full** height, lower the boom and adjust the *raise* adjustment screw **"IN".** If the bucket is tilted back when the boom is at **full** height, adjust the *raise* screw "OUT". (Typically 1/2 turn is a good increment of change.) When the bucket is level through the raise cycle proceed to step B.

B.) Recheck the raise cycle at high engine rpm starting with the bucket flat on the ground and raising the boom to full height. The bucket should be level when the boom is at **full** height. If the bucket is tilted back slightly when the boom is at full height, the *raise* unloading spool metering notch may be too restrictive or the unloading spool relief feature may be set too low. A high flow spool and/or a heavier unloading spool spring will correct this problem.

2.) Lower Leveling Adjustment

A.) Start with the boom in the fully raised position and the bucket parallel to the ground and lower the boom with the engine at low rpm. If the bucket is tilted forward with the boom on the ground, adjust the *lower* adjustment screw "OUT". If the bucket is tilted back with the boom on the ground, adjust the *lower* adjustment screw **"IN".** (Typically 1/2 turn is a good increment of change.) When the bucket is level through the raise cycle proceed to step B.

B.) Recheck the lower cycle at high engine rpm starting with the bucket parallel with the boom at full height then lowering to the ground. **If** the bucket is tilted forward slightly when the boom is on the ground, unloading spool metering notch may be too restrictive or the lower relief valve may be set too low. A high flow spool and/or a higher relief valve setting will correct this problem.

3.) Set Lower Relief Valve:

A.) With no load in the bucket, raise the boom to an intermediate height and fully curl the bucket. Lower the boom. If the boom does not lower, the *lower* relief valve setting must be reduced.***** If the relief valve is adjustable, loosen the lock nut and turn the adjustment screw "OUT". (Typically 1/4 turn is a good starting point.) When the boom begins to lower at a reasonable rate, hold adjustment screw in position and tigthen lock nut.

B.) Recheck the relief setting with a full load in the bucket. Start with the boom at full height with the bucket parallel to the ground then lower the boom to the ground. The bucket should be level with the ground. If the bucket is tilted slightly forward, the relief valve is set too low.***** **If** the relief valve is adjustable, loosen the lock nut and turn the adjustment screw **"IN".** (Typically 1/4 turn is a good starting point.)

***Note:** An adjustable relief valve is provided for initial prototyping and qualification of the valve. Once the valve has been configured and all settings are fixed, a non-adjustable relief valve can be used for cost savings.

Dual Self-Level Valve

Troubleshooting

Symptom	Problem	Solution
System does not level correctly in the raise and/or lower function.	Valve is not adjusted properly.	Adjust leveling adjustments screws as outlined on page 6 (Adjustment Instructions).
	Pressure balancing orifice in flow divider spool is plugged with debris.	Remove flow divider spool, clean and replace. Change oil and filter in system.
	Flow divider spool is damaged.	Remove and replace flow divider spool.
	Flow divider spool is sticking/stuck.	Remove flow divider spools from valve, clean valve and flow divider spools and reassemble.
Under load, bucket dumps when boom is actuated.	Dual Self-Level valve relief valve setting is set too low.	If adjustable, increase the spring load by tightening the adjustment screw. If not adjustable, see an Eaton distributor and order a relief valve with a higher relief setting.
Valve causes instability/vibration in the system.	Flow split is incorrect. Valve has come out of adjustment.	Adjust leveling adjustments screws as outlined on page 6 (Adjustment Instructions).
	Relief valve is set too high.	If adjustable, decrease the spring load by loosening the adjustment screw. If not adjustable, see an Eaton distributor and order a relief valve with a lower relief setting.
	Machine is overloaded.	Match job to machine's capabilities.
	Machine flows are too high for the valve's capability.	Run machine at lower RPM.
Leveling hesitates at beginning of operating cycle.	Air has become trapped in the system.	Cycle the system several times to expel air from that system.
	Flow divider spool is sticking.	Remove flow divider spools from valve, clean valve and flow divider spools and reassemble.
Dual Self-Level Valve causes system to "freeze" or halt downward motion when bucket cylinder becomes fully retracted.	Dual Self-Level Valve relief valve setting is set too high.	If adjustable, increase the spring load by loosening the adjustment screw. If not adjustable, see an Eaton distributor and order a relief valve with a lower relief setting.

Eaton Valve

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Information contained in this catalog is accurate as of the publication date and is subject to change without notice. Performance values are typical values. Customers are responsible for selecting products for their applications using normal engineering methods.

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Form No. 06-530

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