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#### 

- Shut Off Ball Valves
- Bleed Port
- Interlock Hydraulic Valve
- SafeTach2
- TA4M (Field Training Unit)
- PSNO-2 (Low Pressure Switch)
- HPAS-1/HPAS-2 (Load Weigh Switches)

- Isolation Coupling
- TDF (Tank Discharge Filter)
- Adapters (Thread to Grooved, 2" to 3/4")
- Quick Disconnect (Two Way Shut Off)
- MaxGlide (Oil Additive)
- Water Valve / Explosion Proof Coil Cover

Certifications Maxton is ISO 9001:2015 certified and all main line products are CSAB44 and/or UL Listed.







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- Seal Kits

- Solenoid Kits UC1A/2A, UC4/4M/4MR
- Seal Rings











<u>FORWARD</u>: The products and information contained herein have been developed by **MAXTON MANUFACTURING COMPANY**. They are subject to change. The information is intended for use by professionals trained in the manufacture, installation and maintenance of hydraulic elevator systems. While the information is deemed reliable, **MAXTON** disclaims any liability arising from misinterpretation.

<u>LIMITED WARRANTY:</u> All products sold by **MAXTON** are warranted (only to purchasers for resale or for use in business or original equipment manufacture) against defects in workmanship or materials, under normal use. Any part, which is determined by **MAXTON** to be defective in material or workmanship, returned to **MAXTON**, shipping costs prepaid, as exclusive remedy, will be repaired or replaced at **MAXTON'S** option. This warranty cannot be transferred or assigned to third parties. All warranties are considered null and void upon transfer unless the intent to transfer to a third party is expressly indicated in a purchase order or the customer is a known OEM and a user of **MAXTON'S** products. Any alteration or removal of designated serial numbers will cause the warranty to be immediately null and void.

Term Limits as follows:

Valves— Two (2) years from the date of purchase

SafeTach2 & Switches— One (1) year from the date of purchase

Electronic Parts repair/replacement - Ninety (90) days from the date of purchase

\*\* Activation calls are required specifically for the Valve Control Board and Motor Flow Control Assemblies purchased separately for the EMV10 series. Maxton must be contacted at 775-782-1700 with valve serial# and spec information prior to installation. Failure to do so will cause the warranty to be immediately null and void.

<u>WARRANTY DISCLAIMER</u>: **MAXTON** has made diligent effort to provide illustrations, descriptions and technical information for the proper use of its products. In addition **MAXTON** provides on-line and phone technical support for the use of our various products. Nevertheless, there are no warranties given except such expressed warranties offered in connection with the sale of a particular product as stated in the Limited Warranty above. THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE GIVEN IN CONNECTION

<u>WITH THE SALE OF ANY GOODS</u>. In no event shall **MAXTON MANUFACTURING COMPANY** be liable for consequential, incidental, or special damages. The sole and exclusive remedy, and the limit of **MAXTON'S** liability for any loss whatsoever, shall not exceed the price paid by the purchaser for the product to which the claim is made.

<u>PRODUCT SUITABILITY</u>: Many states and localities have codes and regulations governing sales, construction, installation and/or use of products, which may vary from those in neighboring areas. While **MAXTON** attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the application, and national and local codes and regulations to be sure that the product, installation and use comply with them.

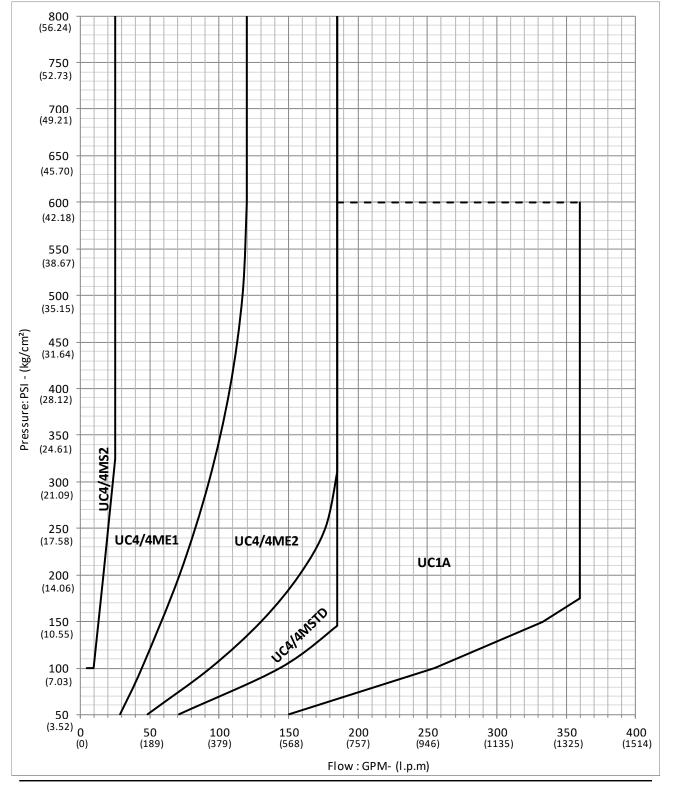
<u>RETURN/REPAIR INQUIRIES</u>: All in and out-of-warranty repair inquiries are to be directed to the **MAXTON** Sales Department. Before returning a product, contact the Sales Department to obtain a return authorization number (RA #). The designated RA # should then be marked on the outside of the package. To avoid processing delays, be sure to include the following: Purchase order number and RA #, returnee's name, address and phone number, the model number and serial number, repair instructions and description of problem. All pipes, coils and covers must be removed prior to shipping. **MAXTON** will not be responsible for lost or damaged pipes, coils or covers. Pipes requiring removal by **MAXTON** are subject to additional charges. A valve returned with missing components, including flanges, is subject to replacement charges. All products must be returned freight prepaid. Product returned without a return authorization number (RA#) will be scrapped at the time of receipt. Brokerage fees, taxes and duties, when applicable, must be paid by returnee. New product returned for credit is subject to a 20% restocking fee, plus the original freight charge.

<u>MODIFICATION AND/OR UNAUTHORIZED REPAIRS</u>: In the event of modification and/or repair of a **MAXTON** product by an unauthorized repair facility, you will indemnify us and hold us harmless from any liability or damage whatsoever arising out of the subsequent use of the product. Use of an unauthorized repair facility voids all warranty claims.

PRODUCT PRICING: Product prices are subject to change without notice.

JOB SPECIFIC	ATION	SHEET	-					m a 🗴	t	o n
In order If Replacing a Ma Quantity of valves	In order to properly size and quote a valve(s) for your job, please complete all fields:          Is this for an order?       Is this for pricing only?         Is this for an order?       Is this for pricing only?         f Replacing a Maxton Valve the Serial Number is:									
		-					-			
Other Info:	ual, DF	cable) Roped (1	l:2), 🗌	tion Required	copic),	Dian	-	-		
Contract Speed			Ca	pacity of Car						
Empty Static Press	sure "PS	SI"; "B" p	ort read	ing: (no load)		_ or e	mpty ca	ar weight:		_
Is Down Speed Re	gulatior	n require	ed?⊡Ye	es 🗌 No						
Do you require an	OSV (p	ipe rupti	ure or se	eismic safety valve)	for inst	tallatior	י?			
Coil Voltage (selec	t one)	[	] 120 V	AC 240 VAC	1	15 VDC				
COMPLETE FOR		-			OR UC	1A/UC	2A:	COMPLETE F	OR OS	SV:
Facing the adjus	linents,	Jack is l	o ine.	Type of Flanges:	Pump	Jack	Tank	Type of Flanges:	Jack	Tank
🗌 Left	🗌 Ri	ght		2" NPT				2" NPT		
				2.5" NPT				2.5" NPT		
Type of Flanges:	Pump	Jack	Tank	2" Grooved				2" Grooved		
2" NPT				2.5" Grooved				2.5" Grooved		
2" Grooved				3" Grooved + not recommended for UC2A	+			3" Grooved		
Optional F	Product	e'	QTY	Optional Produ	icts:			Size		QTY
	Touuci	<u>.</u>		TDF1 (125 GPM)	ſ	2" NF	Υ	2" Grooved		
Low Pressure Switch	(PSNO-	-2)		Tank Discharge Filter				_		
Quick Disconnect Co	oupling (1	/8" NPT)	1	Tank Discharge Filter		2" NF		2" Grooved		
Quick Disconnect Nip	oples (1/8	8" NPT)		Isolation Coupling	l T	2" NF 2.5" (	PT Grooved	☐ 2" Grooved ☐ 3" Grooved		
MAXGLIDE OIL ADD (Eliminates stick slip							Υ	2" Grooved	BV1-4/	4
				Shut Off Ball Valve	-	2.5" N		2.5" Grooved	BV1-8/	4
SafeTach2 Elevator I					_	3" Gr			BV3/4	
Reme				line or size valves ( week! For assistan						
Name:					Ph	none #:				_
Bill To City Addr	ess:									_
Shipping Addres										_
PO# or Credit Ca	ard #			Nan	ne on Cre	edit Caro	l:			_
							dit Card E	xpiration Date		_
(UPS ground se	rvice can	take up to		ss days depending on y	our locat	tion)				
Certifications Maxton is ISO 9001:2015 ce		Sł		S B44	Drion		AB	VISA MasterCard	Cards	NOVER
all main line products are CSAB44	and/or UL List	ed. Safety Re Consultation	& Health Achievement tognition Program An OtifiA Cooperative Program	C US ASME A17.1	D 9001:2015 Certified dity Management	MANAGEMEN CERTIFICA	T SYSTEMS ION BODY			

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#### UC4, UC4M, UC1, UC1AB44

#### HOW TO SELECT A VALVE:

NOTE:

1. APPLY MINIMUM P.S.I. AND G.P.M. (OR kg/cm<sup>2</sup> AND L.P.M.) TO CHART. 2. DETERMINE POINT OF INTERSECTION.

THIS CHART ASSUMES THE UP AND DOWN CONTRACT SPEEDS ARE THE SAME. (CONTRACT SPEED = FULL DOWN SPEED WITH RATED LOAD)

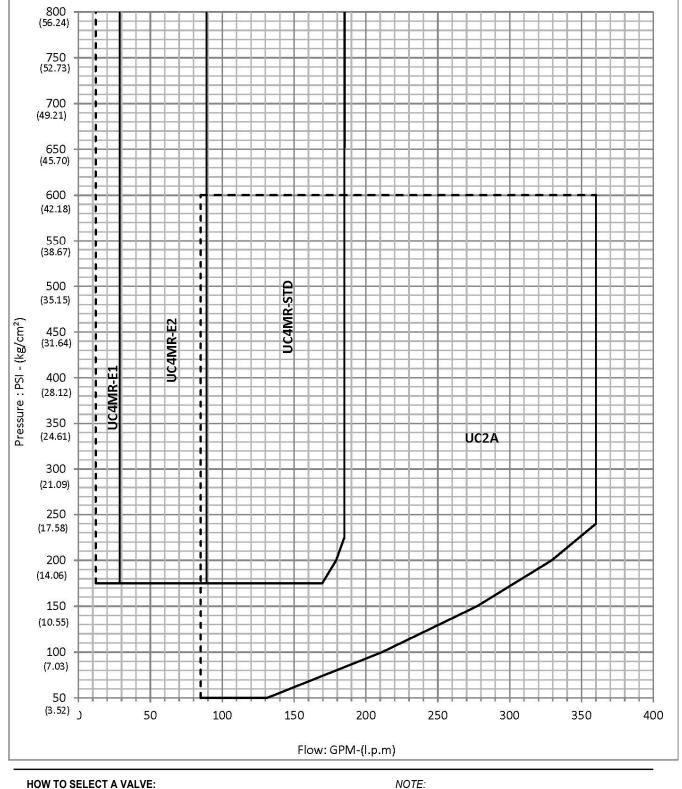
## MAXIMUM OPERATING PRESSURES

UC1 / 1A SERIES VALVES: 600 P.S.I. UC4 / UC4M SERIES VALVES: 800 P.S.I.

5

maxton

#### **Down Speed Regulated Valves**



HOW TO SELECT A VALVE:

2. DETERMINE POINT OF INTERSECTION.

1. APPLY MINIMUM P.S.I. AND G.P.M. (OR kg/cm<sup>2</sup> AND L.P.M.) TO CHART.

THIS CHART ASSUMES THE UP AND DOWN CONTRACT SPEEDS ARE THE SAME. (CONTRACT SPEED = FULL DOWN SPEED WITH RATED LOAD)

ma

to

n

#### **MAXIMUM OPERATING PRESSURES** UC4MR SERIES VALVES: 800 P.S.I. UC2/UC2A SERIES VALVES: 600 P.S.I. EMV10 SERIES VALVE: 1000 P.S.I.



### STATIC PRESSURE TABLE

#### POUNDS PER SQUARE INCH BASED ON NET LOAD (POUNDS) DIRECT ACTING APPLICATIONS

#### **NET JACK PISTON DIAMETER (INCHES)**

		2	2 1/2	2 3/4	3	3 1/2	4	4 3/8	4 1/2	5	5 7/16	5 1/2	6	6 1/2	7	7 1/2	8	8 1/2	9 1/2	10 5⁄8	12 5⁄8
	1000	318	204	168	141	104	80	67	63	51	43	42	35	30	26	23	20	18	14	11	8
	1500	477	306	253	212	156	119	100	94	76	65	63	53	45	39	34	30	26	21	17	12
	2000	637	407	337	283	208	159	133	126	102	86	84	71	60	52	45	40	35	28	23	16
	2500	796	509	421	354	260	199	166	157	127	108	105	88	75	65	57	50	44	35	28	20
	3000	955	611	505	424	312	239	200	189	153	129	126	106	90	78	68	60	53	42	34	24
Е	3500		713	589	495	364	279	233	220	178	151	147	124	105	91	79	70	62	49	39	28
М	4000		815	673	566	416	318	266	252	204	172	168	141	121	104	91	80	70	56	45	32
Ρ	4500		917	758	637	468	358	299	283	229	194	189	159	136	117	102	90	79	63	51	36
Т	5000			842	707	520	398	333	314	255	215	210	177	151	130	113	99	88	71	56	40
Y	5500			926	778	572	438	366	346	280	237	231	195	166	143	124	109	97	78	62	44
	6000				849	624	477	399	377	306	258	253	212	181	156	136	119	106	85	68	48
w	6500				920	676	517	432	409	331	280	274	230	196	169	147	129	115	92	73	52
Е	7000				990	728	557	466	440	357	301	295	248	211	182	158	139	123	99	79	56
I	7500					780	597	499	472	382	323	316	265	226	195	170	149	132	106	85	60
G	8000					832	637	532	503	407	345	337	283	241	208	181	159	141	113	90	64
н	8500					883	676	565	534	433	366	358	301	256	221	192	169	150	120	96	68
т	9000					935	716	599	566	458	388	379	318	271	234	204	179	159	127	102	72
	9500					987	756	632	597	484	409	400	336	286	247	215	189	167	134	107	76
L	10000 12000						796	665	629	509	431	421	354	301	260	226	199	176	141	113	80
B S	12000						955	798	755	611	517	505	424	362	312	272	239	211	169	135	96
3	14000							931	880	713	603	589	495	422	364	317	279	247	198	158	112
	18000									815 917	689 775	673	566 637	482 542	416 468	362 407	318 358	282 317	226 254	180 203	128 144
										917		758									
	20000										861	842	707	603	520	453	398	352	282	226	160
	25000												884	753	650	566	497	441	353	282	200
	30000													904	780	679	597	529	423	338	240
	ADD PER 100 lbs.	31.8	20.4	16.8	14.1	10.4	7.96	6.65	6.29	5.09	4.31	4.21	3.54	3.01	2.60	2.26	1.99	1.76	1.41	1.13	0.80

STATIC PRESSURE (P.S.I.)



### **RATED FLOW TABLE**

#### GALLONS PER MINUTE BASED ON CAR SPEED (FEET PER MINUTE) DIRECT ACTING APPLICATIONS

#### **JACK PISTON DIAMETER (INCHES)**

		2	2 1/2	2 3/4	3	3 1/2	4	4 3/8	4 1/2	5	5 7/16	5 1/2	6	6 1/2	7	71/2	8	8 1/2	9 1/2	10 5/8	12 5/8
	1	0.16	0.26	0.31	0.37	0.50	0.65	0.78	0.83	1.02	1.21	1.23	1.47	1.72	2.00	2.30	2.61	2.95	3.68	4.61	6.50
	5	0.82	1.28	1.54	1.84	2.50	3.26	3.90	4.13	5.10	6.03	6.17	7.34	8.62	10	11	13	15	18	23	33
	10	1.63	2.55	3.09	3.67	5.00	6.53	7.81	8.26	10	12	12	15	17	20	23	26	29	37	46	65
	20	3.26	5.10	6.17	7.34	10	13	16	17	20	24	25	29	34	40	46	52	59	74	92	130
	30	4.90	7.65	9.26	11	15	20	23	25	31	36	37	44	52	60	69	78	88	110	138	195
с	40	6.53	10	12	15	20	26	31	33	41	48	49	59	69	80	92	104	118	147	184	260
A	50	8.16	13	15	18	25	33	39	41	51	60	62	73	86	100	115	131	147	184	230	325
R	60	9.79	15	19	22	30	39	47	50	61	72	74	88	103	120	138	157	177	221	276	390
	70	11	18	22	26	35	46	55	58	71	84	86	103	121	140	161	183	206	258	322	455
s	80	13	20	25	29	40	52	62	66	82	97	99	118	138	160	184	209	236	295	368	520
Р	90	15	23	28	33	45	59	70	74	92	109	111	132	155	180	207	235	265	331	415	585
Е	100	16	26	31	37	50	65	78	83	102	121	123	147	172	200	230	261	295	368	461	650
Е	110	18	28	34	40	55	72	86	91	112	133	136	162	190	220	252	287	324	405	507	715
D	120	20	31	37	44	60	78	94	99	122	145	148	176	207	240	275	313	354	442	553	780
	125	20	32	39	46	62	82	98	103	128	151	154	184	215	250	287	326	368	460	576	813
F	130	21	33	40	48	65	85	102	107	133	157	160	191	224	260	298	339	383	479	599	845
Ρ	140	23	36	43	51	70	91	109	116	143	169	173	206	241	280	321	366	413	516	645	910
м	150	24	38	46	55	75	98	117	124	153	181	185	220	259	300	344	392	442	552	691	975
	160	26	41	49	59	80	104	125	132	163	193	197	235	276	320	367	418	472	589	737	1,040
	170	28	43	52	62	85	111	133	140	173	205	210	250	293	340	390	444	501	626	783	1,106
	180	29	46	56	66	90	118	141	149	184	217	222	264	310	360	413	470	531	663	829	1,171
	190	31	48	59	70	95	124	148	157	194	229	234	279	328	380	436	496	560	700	875	1,236
	200	33	51	62	73	100	131	156	165	204	241	247	294	345	400	459	522	590	736	921	1,301

Flow (GPM)



### STATIC PRESSURE TABLE

PRESSURE IN BARS BASED ON NET LOAD (KILOGRAMS) DIRECT ACTING APPLICATIONS

#### **NET JACK PISTON DIAMETER (mm)**

	-	60	70	80	90	100	110	120	125	140	150	160	180	200	210
	100	3.48													
	200	6.97	5.12	3.92											
	300	10.45	7.68	5.88	4.65	3.76									
	400	13.94	10.24	7.84	6.19	5.02	4.15	3.48							
	500	17.42	12.80	9.80	7.74	6.27	5.18	4.36	4.01						
	1000	34.85	25.60	19.60	15.49	12.54	10.37	8.71	8.03	6.40	5.58	4.90	3.87		
E	1500		38.40	29.40	23.23	18.82	15.55	13.07	12.04	9.60	8.36	7.35	5.81	4.70	4.27
М	2000			39.20	30.97	25.09	20.73	17.42	16.06	12.80	11.15	9.80	7.74	6.27	5.69
Ρ	2500				38.72	31.36	25.92	21.78	20.07	16.00	13.94	12.25	9.68	7.84	7.11
т	3000				46.46	37.63	31.10	26.13	24.08	19.20	16.73	14.70	11.62	9.41	8.53
Y	3500					43.90	36.29	30.49	28.10	22.40	19.51	17.15	13.55	10.98	9.96
	4000						41.47	34.85	32.11	25.60	22.30	19.60	15.49	12.54	11.38
w	4500						46.65	39.20	36.13	28.80	25.09	22.05	17.42	14.11	12.80
Е	5000							43.56	40.14	32.00	27.88	24.50	19.36	15.68	14.22
I I	5500							47.91	44.16	35.20	30.66	26.95	21.29	17.25	15.64
G	6000								48.17	38.40	33.45	29.40	23.23	18.82	17.07
н	6500									41.60	36.24	31.85	25.17	20.38	18.49
т	7000									44.80	39.03	34.30	27.10	21.95	19.90
(kg)	7500									48.00	41.81	36.75	29.04	23.52	21.33
(	8000										44.60	39.20	30.97	25.09	22.76
	8500										47.39	41.65	32.91	26.66	24.18
	9000											44.10	34.85	28.22	25.60
	9500											46.55	36.78	29.79	27.02
	10000												38.72	31.36	28.45
	15000													47.04	42.67

STATIC PRESSURE (bars)



### RATED FLOW TABLE ( METRIC )

#### LITERS PER MINUTE BASED ON CAR SPEED (METERS PER MINUTE) DIRECT ACTING APPLICATIONS

		60	70	80	90	100	110	120	125	140	150	160	180	200	210
с	1	2.83	3.85	5.03	6.36	7.85	9.50	11.3	12.3	15.4	17.7	20.1	25.4	31.4	34.6
Α	2	5.65	7.70	10.1	12.7	15.7	19.0	22.6	24.5	30.8	35.3	40.2	50.9	62.8	69.3
R	3	8.48	11.5	15.1	19.1	23.6	28.5	33.9	36.8	46.2	53.0	60.3	76.3	94.2	104
	4	11.3	15.4	20.1	25.4	31.4	38.0	45.2	49.1	61.6	70.7	80.4	102	126	139
S	5	14.1	19.2	25.1	31.8	39.3	47.5	56.5	61.4	77.0	88.4	101	127	157	173
Р	10	28.3	38.5	50.3	63.6	78.5	95.0	113	123	154	177	201	254	314	346
E	15	42.4	57.7	75.4	95.4	118	143	170	184	231	265	302	382	471	520
Е	20	56.5	77.0	101	127	157	190	226	245	308	353	402	509	628	693
D	25	70.7	96.2	126	159	196	238	283	307	385	442	503	636	785	866
METERS	30	84.8	115	151	191	236	285	339	368	462	530	603	763	942	1039
PER	35	99.0	135	176	223	275	333	396	430	539	619	704	891	1100	1212
MINUTE	40	113	154	201	254	314	380	452	491	616	707	804	1018	1257	
	45	127	173	226	286	353	428	509	552	693	795	905	1145		
	50	141	192	251	318	393	475	565	614	770	884	1005	1272		
	55	156	212	276	350	432	523	622	675	847	972	1106			
	60	170	231	302	382	471	570	679	736	924	1060	1206			

#### JACK PISTON DIAMETER (mm)

FLOW (LITERS PER MINUTE)



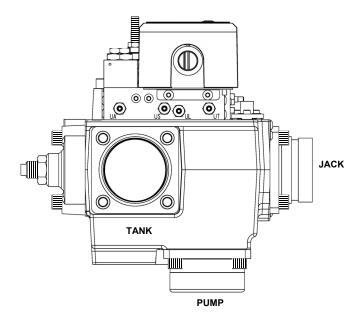
#### SINGLE ACTION CYLINDER DISPLACEMENT

	N DIAMETER	PISTON		DISPLACEMENT			
Inches	Millimeters	in²	Cm <sup>2</sup>	Gallons per foot	Liters per meter		
2	50.80	3.142	20.268	0.163	2.024		
2-1/4	57.15	3.976	25.652	0.206	2.558		
2-1/2	63.50	4.909	31.669	0.255	3.167		
2-3/4	69.85	5.940	38.320	0.309	3.837		
3	76.20	7.069	45.604	0.367	4.558		
3-1/4	82.55	8.296	53.521	0.431	5.353		
3-1/2	88.90	9.621	62.072	0.499	6.197		
3-3/4	92.25	2.25 11.045		0.574	7.129		
3-7/8	98.43	11.793	76.093	0.613	7.613		
4	101.60	12.566	81.073	0.653	8.110		
4-1/4	107.95	14.186	91.524	0.737	9.153		
4-3/8	111.13	15.033	96.996	0.781	9.699		
4-1/2	114.30	15.904	102.608	0.826	10.258		
4-3/4	120.65	17.721	114.326	0.920	11.425		
5	127.00	19.635	126.677	1.020	12.667		
5-1/4	133.35	21.648	139.661	1.124	13.959		
5-7/16	138.11	23.221	149.810	1.206	14.977		
5-1/2	139.70	23.758	153.279	1.234	15.325		
5-3/4	146.05	25.967	167.530	1.349	16.753		
6	152.40	28.274	182.415	1.469	18.244		
6-1/4	158.75	30.590	197.933	1.593	19.783		
6-1/2	165.10	33.183	214.084	1.796	22.305		
6-3/4	171.45	35.785	230.869	1.858	23.075		
7	177.80	38.485	248.287	1.999	24.826		
7-1/2	190.50	44.179	285.023	2.295	28.502		
7-3/4	196.85	47.173	304.341	2.450	30.427		
8	203.20	50.266	324.293	2.611	32.426		
8-1/2	215.90	56.745	366.096	2.947	36.599		
8-3/4	222.25	60.132	387.948	3.123	38.785		
9	228.60	63.617	410.433	3.305	41.045		
9-1/2	241.30	70.882	457.304	3.681	45.714		
9-3/4	247.65	74.652	481.689	3.878	48.161		
10	254.00	78.540	506.707	4.090	50.794		
10-1/4	260.35	82.516	532.360	4.296	53.352		
10-1/2	266.70	86.590	558.645	4.500	55.886		
10-5/8	269.88	88.664	572.046	4.605	57.190		
10-3/4	273.05	90.782	585.564	4.716	58.568		
11	279.40	95.033	613.116	4.937	61.313		
11-1/4	285.75	99.402	641.302	5.160	64.082		
11-1/2	292.10	103.869	670.121	5.395	67.001		
11-3/4	298.45	108.434	699.573	5.636	69.993		
12	304.80	113.098	729.659	5.875	72.962		
12-1/4	311.15	117.859	760.378	6.108	75.855		
12-1/2	317.50	122.718	791.730	6.372	79.134		
12-1/2	320.68	125.185	807.669	6.503	80.761		
12-0/0		Gallons per minute =			00.701		

**Note:** Gallons per minute = displacement (gpf) X car speed (fpm). Liters per minute = displacement (lpm) X car speed (mpm). This page intentionally left blank



### **Front View**



### **UC1A B44**

### Specifications

\*Maximum Flow\*\* **Operating Pressure** Minimum Maximum

360 gpm (1363 l/min)

2, 2 <sup>1</sup>/<sub>2</sub>" NPT or Grooved 2, 2 <sup>1</sup>/<sub>2</sub>" NPT or Grooved

50 psi (3.4 bar) 600 psi (41.5 bar)

#### Note:

Consult factory when applications exceed pressure ratio over 2.5 to 1, example (Max. / Min. :280 / 100 )

### **Line Connections**

Jack Port (flange) Tank Port (flange) Pump Port (flange)

**Gauge Ports** 

**Solenoid Coils** 

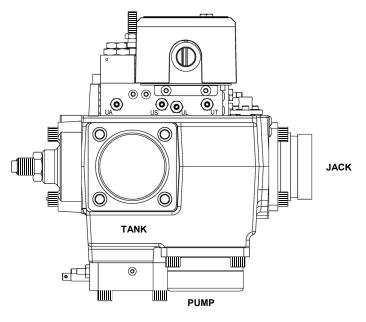
**Oil Type** 

2, 2 <sup>1</sup>/<sub>2</sub>" NPT or Grooved Pump Pressure: "A" Port (1/8" NPT) System pressure: "B" Port (1/8" NPT) Pressure Switch: "S" Port (1/8" NPT) **Operating Temperature** 80° – 150° F (26° – 65° C) Hyd. ISO VG 32 150 SUS @ 100° F (38° C)

Encapsulated CSA / UL Listed

### **Overall Dimensions**

Width 13 inches (330mm) Depth 11 1/4 inches (286mm) Height 12 3/8 inches (314mm) Weight UC1A 47 lbs, UC2A 50 lbs.



### **UC2A B44**

### Standard Features

- Unit body construction.
- Steel sleeve inserts in valve body.
- Grooved or threaded line connections.
- Feedback control for stall free operation. •
- Individualized adjustments. •
- Integrated relief valve. .
- High efficiency solenoids.
- 120 VAC / 24 VDC solenoid coils.
- Factory tested prior to shipping.
- 2 year limited warranty.

#### Additional Standard Features **UC2AB44**

Regulated Down Speed Control.

#### **Optional Features**

- **Explosion Proof Coil Cover**
- 3" Grooved Flanges
- Low Pressure Switch
- 1/8" or 1/4" Ball Valves
- Quick Disconnect Coupling or Nipple Kit

#### **Solenoid Coils**

- 12 VDC 120 VAC Dual Voltage Coils
- 12 VDC Coils •
- 240 VAC Coils
- 115 VDC Coils
- 185 VAC Coils

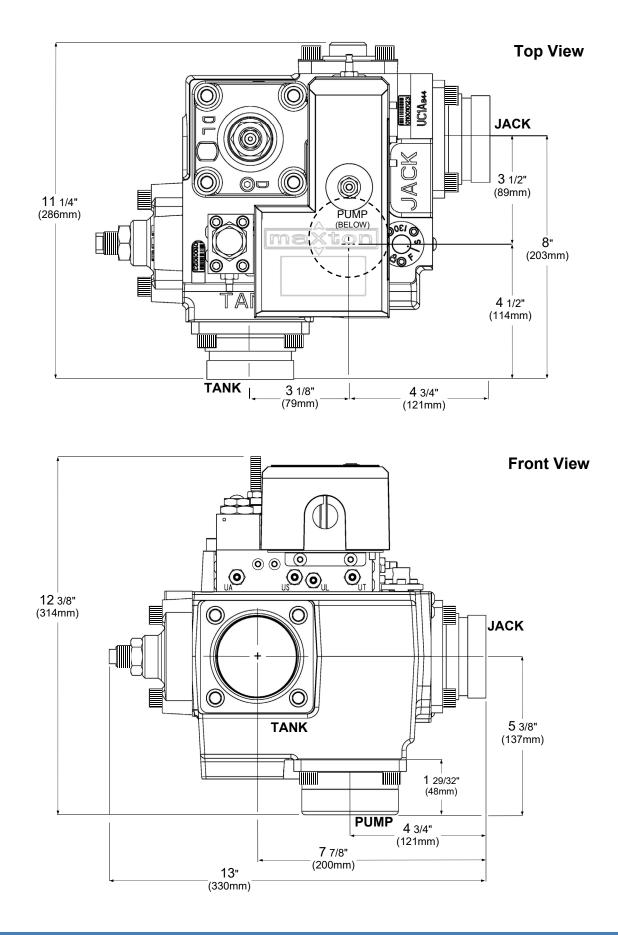


\*Refer to flow Charts (pg.5 & 6)

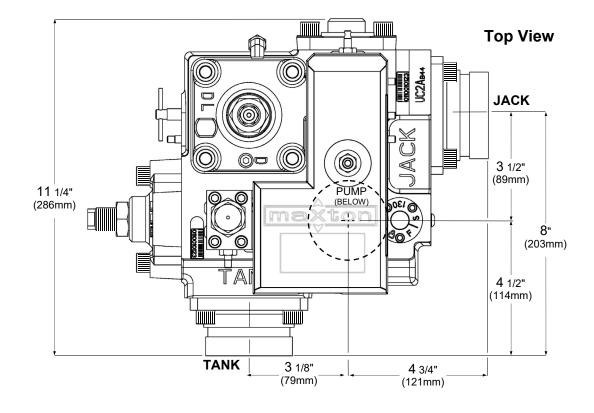
\*\* To insure proper valve selection please return a completed copy of our Job Specification Sheet (pg. 3) to Maxton.

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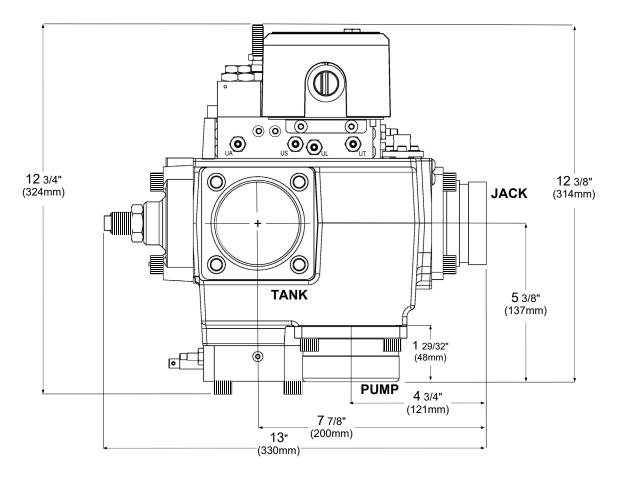








**Front View** 





#### THE INFORMATION PRESENTED HEREIN IS FOR USE BY SKILLED HYDRAULIC ELEVATOR PROFESSIONALS

#### SPECIAL CONSIDERATIONS:

Make all adjustments at minimum pressure (no load on elevator) except where noted. "IN" is ALWAYS (CW) clockwise. "OUT" is ALWAYS (CCW) counterclockwise. THE CONTROL BLOCK ADJUSTERS HAVE SEAL NUTS, NOT LOCK NUTS. Adjust nut only to set seal friction (friction will maintain adjustment). When adjustment procedure calls for coils to be disconnected, disconnect them electrically. Do not remove them physically. Make adjustments with a minimum oil temperature of 80° F, not to exceed 100° F maximum. Maxton recommends the use of a 5-micron filtration system. With the presence of at least some adverse conditions in most installations, serious consideration should be given to overhaul or replacement of a control valve on a five year cycle.

#### GAUGE PORTS:

Gauge ports - 1/8" NPT provided at points A, B and S. A Port: Pump pressure (RELIEF, WORKING PRESSURE). B Port: Jack pressure (STATIC, DOWN RUNNING). **S** Port: Low pressure switch port. Note: The minimum operating pressure at port B should be at least 50 psi (3.4 bar) as car is moving down full speed with no load. See flow chart.

\* **SAFETACH2** performance meter validates valve adjustment by providing direct speed and acceleration (g-force) readouts.

UP SECTION ADJUSTMENTS (Start with car at lower landing)

#### Disconnect the US coil, turn UA IN (CW), register an up call and BPS turn BPS IN (CW) until the car just moves. Next, turn the BPS adjuster OUT (CCW) until it stops the movement of the car, then OUT 1/2 turn more. Snug lock nut on BPS adjuster and stop pump. Reconnect the **US** coil. Register an up call (pump running, **U** & **US** coils energized, car should not move), slowly turn **UA** OUT (CCW) to attain full up speed within 24 to 36 inches. \* (Accel 0.04g-0.09g). 2 UA Disconnect the U coil. Turn UL adjuster IN (CW) to stop and 3 register an up call to verify that the LS adjustment is set to UL 3 to 5 fpm. (If not, readjust LS\*). Turn UL adjuster OUT (CCW) to attain 9 to 12 fpm leveling speed. Reconnect the U coil and lower the car to lowest landing. \*(Read leveling speed).

- Register an up call and turn UT IN (CW) so that the car slows to 4 UT provide 4 to 6 inches of stabilized up leveling. Repeat steps 3 and 4 as necessary. \*(Decel 0.04g-0.09g).
- With US adjuster fully OUT (CCW), car should stop 1/4" to 3/8" 5 US below floor. After a normal up run, turn US IN (CW) as needed to bring car to floor level. The pump must be timed to run  $\frac{1}{2}$  second after the car has reached the floor.
- 6 With empty car at bottom floor, disconnect U & US coils and register a call. The car must not move. If movement occurs, check **BPS** and US
- LS\* Dot on the LS adjuster should be referenced to the line between F / S. When necessary, disconnect the U coil and turn the UL adjuster IN (CW) to stop. Unlock the LS adjuster by loosening the screw next to the 🔒 symbol 1 turn. Move the LS adjuster slightly toward S for slower or F for faster leveling speeds. Set adjustment from 3 to 5 fpm with the LS adjuster, tighten locking screw down, verify LS speed after tightening screw, then repeat step 3. \* (Level Speed Test 3 to 5 fpm).

#### ADDITIONAL ADJUSTMENT INFORMATION FOR THE UC2 / UC2A ON THE BACK SIDE

	DEFAULT SETTINGS If valve is received from Maxton, only minor adjustments may be required.									
CONTR	OL BLOCK									
US	UP STOP	OUT	(CCW)	to stop.	(faster rate).					
UL	UP LEVEL	IN	(CW)	to stop.	(slower speed).					
UA	UP ACCELERATION	IN	(CW)	to stop.	(slower rate).					
UT	UP TRANSITION	OUT	(CCW)	to stop.	(faster rate).					
R	RELIEF (factory set)	APPROX	450 psi (CV	V increases	pressure)					
VALVE	BODY									
BPS LS*	BY-PASS SIZING LEVEL SPEED (factory set)	OUT DOT (	(CCW) ON LINE	to stop	(delays up start) (set 3-5 fpm)					

**OPERATIONAL DATA:** Min. / Max. Pressure: Max. Rated Flow: Operating Temperature: Optimal Temp. Range. Oil Type:

50-600 psi (3.4-41.5 bar) 360 gpm (1363 l / min.) 80°-150° F (26°-65° C) 100°-130° F (38°-54° Ć) Hyd. ISO VG 32 150 SUS @ 100° F (38° C)

Questions: Call Tech Support (775) 782-1700 (7am-4pm PST), use Maxtonvalve.com or download Maxton Mobile Mechanic from your APP Store

#### DOWN SECTION ADJUSTMENTS (Start with car at upper landing)

- 7 D Register a down call to set proper down speed with down speed adjuster D as required. Send car to upper landing. \*(Read high speed).
- Start by turning DA adjuster IN (CW) to stop. Register a down call 8 **DA** and turn the DA adjuster slowly OUT (CCW) until the car accelerates smoothly. Send car to upper landing. \*(Accel 0.04g-0.09g).
- 9 **DT** Register a down call and turn **DT** IN (CW) so that the car slows to provide 4 to 6 inches of stabilized down leveling. Send car to upper landing. \* (Decel 0.04g-0.09g).
- 10 DL Disconnect D coil. Register a down call, hold D adjuster in place and set down level speed at 6 to 9 fpm with the DL adjuster. Tighten both **D** & **DL** lock nuts (snug tight). Reconnect **D** coil. \* (leveling speed 6 to 9 fpm).
- 11 DS Turn DS IN (CW), when necessary, for a softer stop.

ML		NUAL LOWERING: Turn ML screw OUT (CCW) to er car downward at leveling speed when necessary.
R	REL	.IEF:
	a.	Land car in pit and install pressure gauge in <b>A</b> port.
	b.	Register an up call with a fully loaded car, making note of
		Maximum operating pressure.
	C.	Turn <b>UA</b> adjuster OUT (CCW) to stop. Turn RELIEF
		adjuster OUT (CCW) two turns.
	d.	Close the manual shut off valve to the jack.
	e.	Register an up call, observe pressure gauge and turn
		<b>RELIEF</b> IN (CW) to increase pressure. Final setting should be
		in accordance with local code requirement not to exceed
		150% of maximum operating pressure.
	f.	Tighten the lock nut (snug tight).
	g.	Restart to check the pressure relief setting.
	•	Seal as required.
	h.	Open the manual shut off valve to the jack.
	i.	Readjust <b>UA</b> for proper Up acceleration.
		*(Accel 0.04g-0.09g).

DEFAULT SETTINGS If valve is received from Maxton, only minor adjustments may be required.									
CONT	TROL BLOCK								
DT	DOWN TRANSITIO	N		OUT	(CCW)	to stop.	(faster rate)		
DA	DOWN ACCELERA	TION		OUT	(CCW)	to stop.	(faster rate)		
DS	DOWN STOP	to stop.	(faster rate)						
ML	MANUAL LOWERIN	1G		IN	(CW)	to stop.			
VALV	/E BODY								
D	DOWN SPEED	k nut.	(faster speed)						
DL	DOWN LEVEL	k nut.	(faster speed)						

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### UC2 – UC2A CONTROLLERS ONLY

The UC2 – UC2A is down speed regulated to provide a constant rate of speed in the down direction, regardless of varying loads. Speed will not vary more than five percent. To adjust UC2 – UC2A follow the same procedure used in adjusting the UC1 / UC1A with the following exceptions.

The Balance Adjuster (BA) located on the side of the bottom closure is factory set.

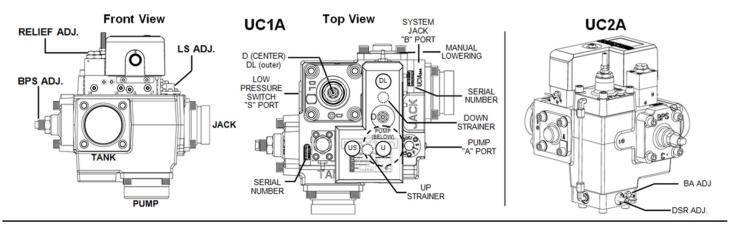
## Systems with operating pressure LESS than 175 psi when The car is traveling down empty.

The DOWN SPEED REGULATOR (DSR) adjuster is located on the side of the bottom closure next to the BA adjuster.

- (1) Turn DSR in (CW) to stop at the start of the down section the adjustment. Set the down speed 10% higher than normal, with no load on the elevator, then adjust the down direction in the normal manner.
- (2) After the down section has been adjusted completely, and the unloaded car is operating 10% above its rated or normal speed, turn the DSR adjuster OUT (CCW) to slow the car to its normal operating speed.

## Systems with operating pressure MORE than 175 psi when car is traveling down empty.

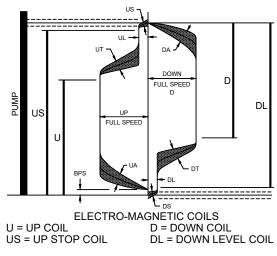
- (1) Turn DOWN SPEED REGULATOR (DSR) adjuster IN (CW) to stop then back out (CCW) two full turns.
- (2) Following the **Regulator** adjustment procedure, adjust down section as instructed.



**ATTENTION:** All Maxton Valves **MUST** be installed with the solenoids in the upright (vertical position). Prior to 2012 the sleeve and baseplate were an integral part of coil operation. 2012 to current the C-Frame is an integral part of coil operation.

### **COIL OPERATING SEQUENCE**

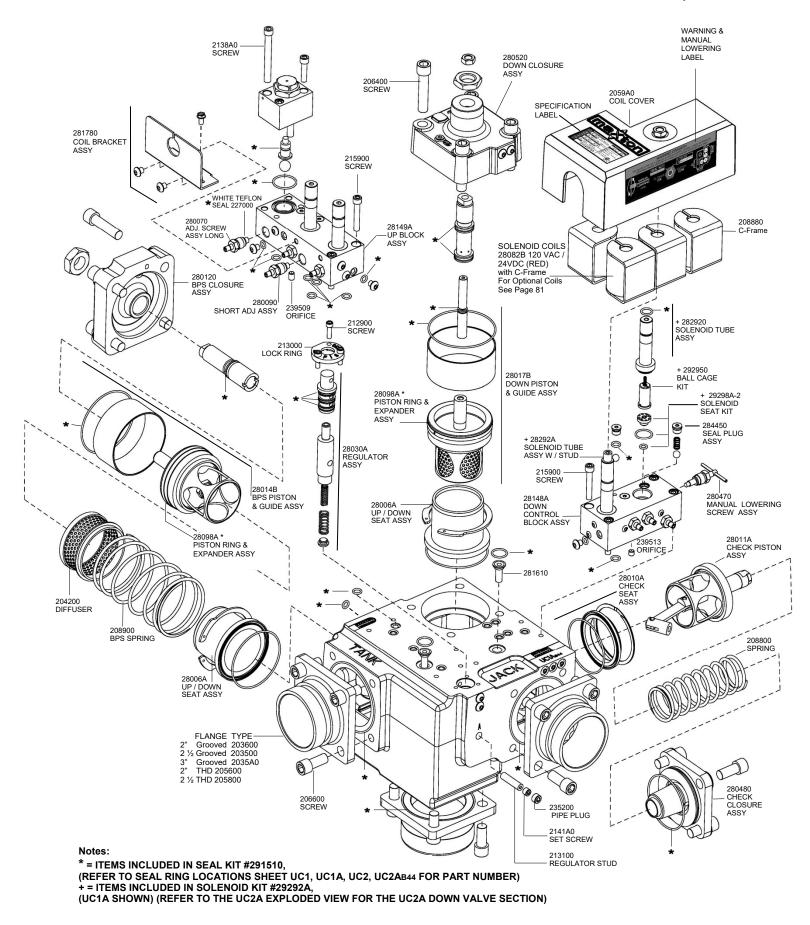
- US For up travel, energize when pump starts and de-energize to stop. With US energized and pump running, car will move up at leveling speed. For "soft stop", pump should run ½ second after US de-energizes.
- U Energize with US coil to run up at contract speed. De-energize at slowdown distance from floor. Slowdown distance = 2 inches for each 10 fpm of car speed NOT to exceed 6 inches for every 25 fpm of car speed. If necessary increase slowdown distance to achieve 4-6 inches of stabilized up leveling.
- DL Energize to move car at leveling speed. De-energize to stop.
- D Energize with DL coil to run down at contract speed. De-energize at slowdown distance from floor. Slowdown distance = 2 inches for each 10 fpm of car speed NOT to exceed 6 inches for every 25 fpm of car speed. If necessary increase slowdown distance to achieve 4-6 inches of stabilized down leveling.



CAUTION: On Wye - Delta Up Start do not energize U and US Coils until motor is running on Delta. With soft starter, energized US coil with motor up to speed signal.

### EXPLODED VIEW UC1A B44





## EXPLODED VIEW UC1A B44 PARTS LIST



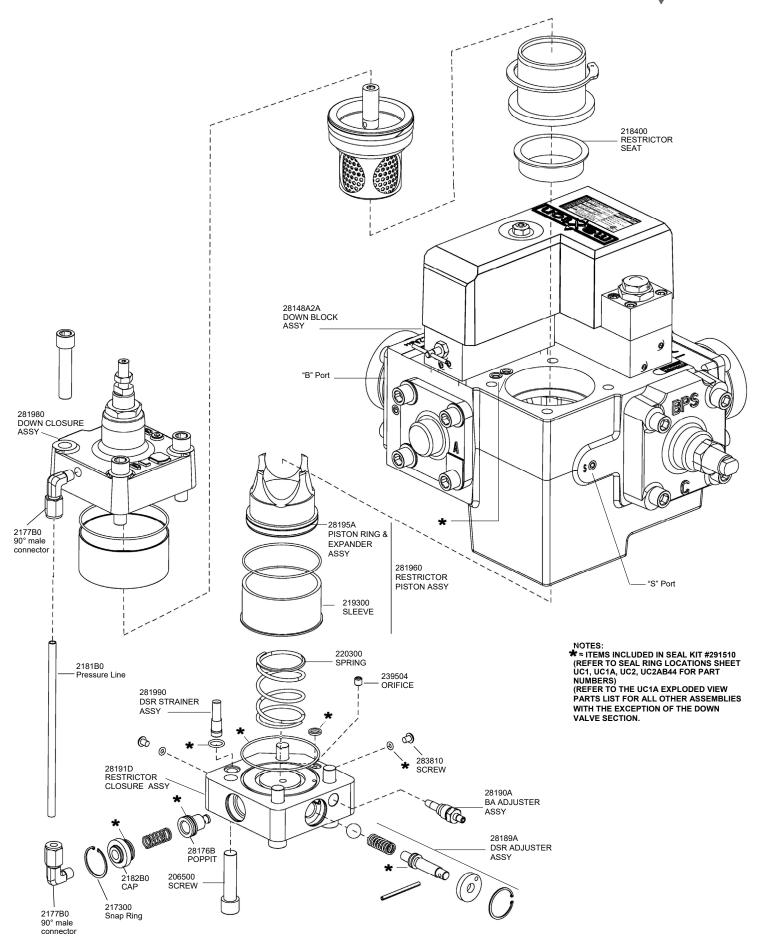
_					MEG
PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
28149A	UP CONTROL BLOCK ASSEMBLY		BPS SECTION (Continued)		CHECK SECTION (Continued)
<b>280070</b> 203400	Adjuster screw assembly (long) Seal nut	201200	BPS closure assy (continued) BPS closure	28010A	Check seat assembly (Continued)
203400 227000	* Teflon seal	201200 201800	BPS closure BPS adjuster screw	2010A0 210370	Check seat Seal ring
200700	Adjuster screw	210600	* Seal ring		
280090	Adjuster screw assembly (short)	28014B	BPS piston & guide assembly	205000	VALVE BODY
203400	Seal nut	204000	Sleeve	28030A	Regulator assembly
227000	* Teflon seal	210000	* Seal ring	2053A0	Up leveling speed adjuster
200900	Adjuster screw (short) Up control block miscellaneous	2038B0 210200	BPS piston rod * Seal ring	210700 2030A0	* Seal ring Regulator
282920	+ Solenoid tube assembly	2023A0	Piston	2030A0 218800	Spring
29298A-2	+ Solenoid seat kit	28098A	* Piston ring & expander assy	212200	Spring
292950	+ Ball cage kit	2057A0	Seal ring	214200	Spring boss
210800	* Seal ring	2011E4	BPS guide (standard)		
244500	Seal plug	2118A0	Lock nut		
2105LC	* Seal ring	204200	BPS Diffuser		Valve body miscellaneous
2110LC	* Seal ring	208900	Spring, BPS diffuser	203500	
238000	Ball	28006A	Up / Down seat assembly	203600	Flange, 2" Grooved
243300 239509	Spring Orifice (max UT) (Steel)	209300 2006A0	Snap ring Up seat	2035A0 205600	Flange, 3" Grooved Flange, 2" Threaded
239309 2379A0	Screw, (¼-28 button head)	2000A0 219200	Seal ring	205800	Flange, 2 <sup>1</sup> / <sub>2</sub> " Threaded
2372LC	* Seal ring		-	2105LC	* Seal ring
	_		DOWN SECTION	210700	* Seal ring
	Relief block assembly	280520	Down closure assembly	2379A0	Screw (¼-28 button head)
	Note: Available in complete up block assy only.	205100	Lock nut	235200	Pipe plug
		206700	Lock nut	213100	Regulator stud
28148A	DOWN CONTROL BLOCK ASSY	205200	Down closure	2141A0	Set screw
280070	Adjuster screw assy (long)	2379A0	Screw (¼-28 button head)	281610	Up / Down strainer assembly
203400	Seal nut	202900	Down leveling speed adjuster		
227000	* Teflon seal	210600	* Seal ring		
200700	Adjuster screw	203700	Down speed adjuster		MISCELLANEOUS
280470	Manual lowering screw assembly	210500	* Seal ring	2059A0	Coil Cover
203400	Seal nut			206400	Screw (Down closure)
227000	* Teflon seal	28017B	Down piston & guide assy (std)	206500	Screw (BPS closure)
204700	Manual lowering screw	2038A0	Down piston rod	206600	Screw (flanges, Check closure)
230000	Roll pin Down control block misc.	210200 2023A0	* Seal ring Piston	213000 210400	Lock ring * Seal ring (flanges)
282920	+ Solenoid tube	28098A	Piston ring & expander assy	212900	Screw (regulator cap)
28292A	+ Solenoid tube w / stud	2057A0	Seal ring	2138A0	Screw (up block)
29298A-2	+ Solenoid seat kit	2017E4	Down guide (std.)	213900	Screw (up block)
292950 210800	+ Ball cage kit * Seal ring	2118A0 204000	Lock nut Sleeve	215900 205100	Screw (up & down blocks) Jam Nut
244500	Seal plug	210000	* Seal ring	2379A0	Screw (Coil Bracket)
263900	* Seal ring	28006A	Up / Down seat assembly		
2105LC	* Seal ring	209300	Snap ring	28082B	Solenoid Coil Assembly
208700	Spring	2006A0	Down seat	2082B0	Solenoid coil 120 VAC / 24 VDC (Red)
238000 238100	Ball Screw (10/32 button head)	219200	Seal ring CHECK SECTION	208880	C-Frame
2379A0	Screw (14-28 button head)	280480	Check closure assembly		
239513	Orifice (max DS)	204800	Check closure		
		210370 208800	* Seal ring		
		200000 28011A	Spring, check piston Check piston & guide assy (std.)		
281780	COIL BRACKET ASSEMBLY	2021A0	Lock nut	Notes: -	REFER TO THE UC2A EXPLODED
281780	COIL BRACKET ASSEMBLY Conduit Bracket	2021A0 200200	LOCK NUT Spacer		VIEW PARTS LIST FOR THE UC2A
207700	Grommet	2025A0	Check piston		DOWN VALVE SECTION.
207900	Ground screw	2057A0	Seal ring		* = PARTS INCLUDED IN
		2011E4 281510	Check guide (std.) Check linkage assembly		SEAL KIT # 291510
	BPS SECTION	210200	* Seal ring		+ = PARTS INCLUDED IN SOLENOID KIT # 29292A
280120	BPS closure assembly	28010A	Check seat assembly		
2067A0	Lock nut	2095A0	Snap ring		
P			· -		

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### EXPLODED VIEW UC2A B44

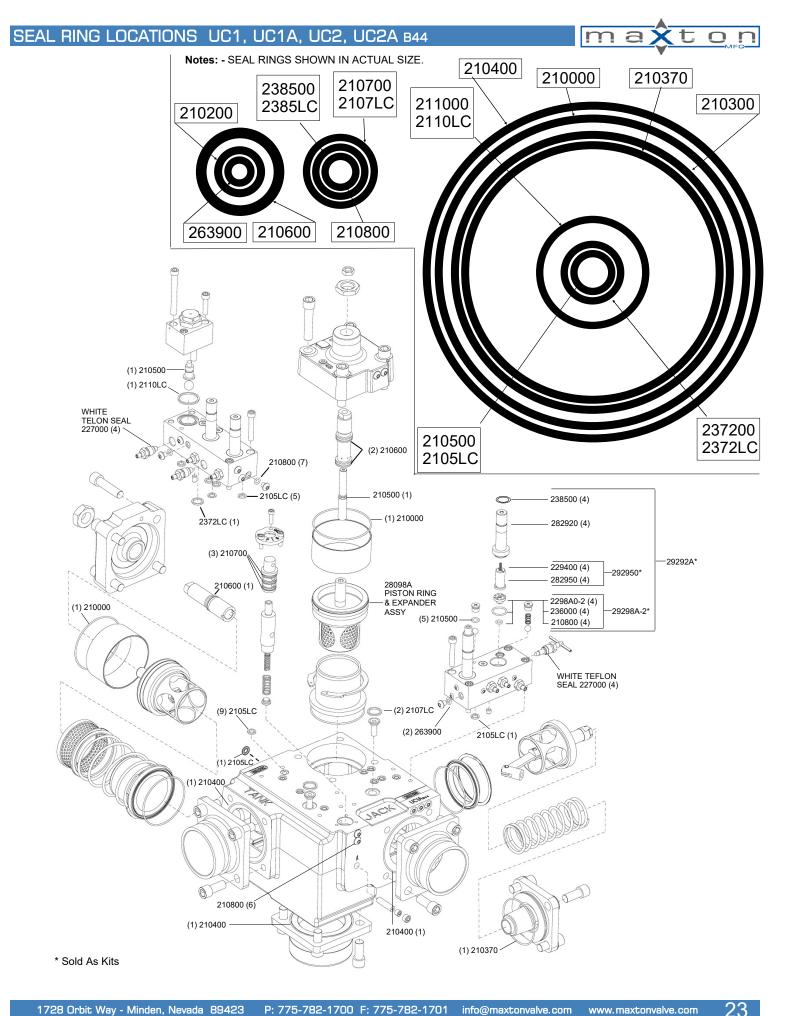




### EXPLODED VIEW UC2A B44 PARTS LIST



PART#	DESCRIPTION	PART#	DESCRIPTION	PART#	DESCRIPTION
28148A-2A	DOWN CONTROL BLOCK ASSY		DOWN SECTION		RESTRICTOR SECTION
280070	Adjuster screw assy (long)	281980	Down closure assembly	28191D	Restrictor closure assy
203400	Seal nut	205100	Lock nut	2191D0	Restrictor closure
227000	* Teflon seal	206700	Lock nut	2105LC	* Seal ring
200700	Adjuster screw	205200	Down closure	210300	* Seal ring
280470	Manual lowering screw assy	210000	* Seal ring	220400	Spring
203400	Seal nut	204000	Sleeve	220300	Restrictor spring
227000	* Teflon seal	203700	Down speed adjuster	2181B0	Pressure line
204700	Manual lowering screw	210600	* Seal ring	217300	Snap ring
230000	Roll pin	202900	Down leveling speed adjuster	2182B0	Cap (pressure line)
	Down control block miscellaneous	2177B0	90 deg. male connector	28176B	Poppit
282920	+ Solenoid tube	210500	* Seal ring	210700	* Seal ring
28292A	+ Solenoid tube w / stud	28017B	Down piston & guide assy (std.)	218300	Roll pin
29298A-2	+ Solenoid seat kit	2038A0	Down piston rod	2177B0	90 deg. male connector
292950	+ Ball cage kit	210500	* Seal ring	212400	Ball
210800	* Seal ring	2023A0	Piston	212200	Spring
244500	Seal plug	28098A	* Piston ring & expander assy	239504	Orifice
263900	* Seal ring	2057A0	Seal ring	210200	* Seal ring
2105LC	* Seal ring	2017E4	Down piston guide (std.)	28190A	Balance adjuster assy
208700	Spring	2118A0	Lock nut	203400	Seal nut
238000	Ball	281840	Down / Restrictor seat assy	227000	* Teflon seal
238100	Screw (10/32 button head)	209300	Snap ring	2190A0	BA adjuster screw
2379A0	Screw (¼-28 button head)	2006A0	Down seat	28189A	DSR adjuster assy
239513	Orifice (max DS)	219200	Seal ring	2189A0	Regulator adjuster
		218400	Restrictor seat	210200	* Seal ring
				217900	Regulator cap
		Notes: *	= PARTS INCLUDED IN	230000	Roll pin
			SEAL KIT #291510	233000	Lock nut
				281960	Restrictor piston assy
		+		219600	Restrictor piston
			SOLENOID KIT #29292A	28195A	Piston ring & expander assy
				219300	Sleeve
			REFER TO THE UC1A EXPLODED VIEW PARTS	210300	* Seal ring
			LIST FOR ALL OTHER		Miscellaneous
			ASSEMBLIES WITH THE	281990	DSR strainer
			EXCEPTION OF THE DOWN VALVE SECTION.	206500	Screw
			BOTH VALVE SECTION.		



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#### CAR AT REST-SOLENOID COILS DE-ENERGIZED

The car at rest is held by a hydraulic fluid system locked in place by a check valve, solenoid pilot valves and a manual-lowering valve.

#### UP DIRECTION

When an up call is registered and the pump starts, the up solenoid (U) and the up stop solenoid (US) are simultaneously energized closing the ball checks US and UT. The pump output flows through the up valve and back to the reservoir.

Hydraulic fluid from the pump travels through the up strainer, to the up acceleration adjustment (UA), then the control side of the up piston. The control side of the up piston is larger in area than the area of the up piston exposed to the pump pressure; therefore, the up piston begins to move towards the up valve restricting the opening in the up valve, raising the pump pressure. As the pump pressure increases above that on the jack side of the check valve, the check valve is opened allowing fluid to flow to the jack cylinder causing the jack to move in the up direction. The elevator then accelerates to full speed as the up piston closes the up valve.

Upon reaching a predetermined distance below the floor to which the car is traveling (2 inches for each 10 fpm of car speed NOT to exceed 6 inches for every 25 fpm of car speed), the up solenoid (U) is de-energized, allowing fluid from the control side of the up piston to flow through the up transition adjustment (UT), then to the up leveling speed regulator (LS) orifice which is held open by a mechanical linkage attached to the check valve. The control fluid then returns to the reservoir and the up piston moves toward the open position. As the up piston moves, opening the up valve, hydraulic fluid begins flowing to the reservoir, reducing the pump pressure. As the pump pressure is reduced, the check valve begins closing, also, partially closing the (LS) orifice in the up leveling speed regulator.

When the flow through the (LS) orifice equals in quantity, the flow through the up acceleration adjustment (UA) and the up leveling adjustment (UL), the car will be in leveling speed. Upon reaching a point slightly before the floor (usually 3/8 of an inch to  $\frac{1}{4}$  of an inch), the up stop solenoid (US) is de-energized. This allows fluid to flow through the up stop adjustment (US), causing the up piston to fully open, permitting the total pump output to flow to the reservoir, causing the car to stop. After the car comes to a complete stop, the pump motor is electrically timed out and stops. If, during up movement, the car has been overloaded or hits an obstruction, the fluid on the control side of the piston is evacuated to the reservoir through the relief valve, causing the up piston to cycle open and by-pass the entire pump output.



#### CAR AT REST – SOLENOID COILS DE-ENERGIZED

The car at rest is held by a hydraulic fluid system locked in place by a check valve, solenoid pilot valves and a manual-lowering valve.

#### DOWN DIRECTION

When a down call is registered, the down leveling solenoid (DL) and the down valve solenoid (D) are simultaneously energized, allowing fluid from the control side of the piston and fluid from the down control adjustments, down stop (DS) and down transition (DT), to flow through the down acceleration adjustment (DA) and back to the reservoir. This reduces the pressure on the control side of the down piston. The pressure acting on the area of the down piston exposed to the jack pressure causes the down piston to open the down valve. The down valve will remain in the open position as long as the flow of control fluid passing through the down acceleration adjustment (DA) exceeds the flow through the down transition (DT) and the down stop adjustment (DS). The maximum down speed is controlled by a mechanical stop limiting the down piston travel (adjustment D).

Upon reaching a predetermined distance above the floor to which the car is traveling (6 inches for each 25 feet per minute of car speed) the down solenoid (D) is de-energized. The fluid input to the control side of the down piston from the jack continues, as the control side of the piston is larger in area than the area exposed to jack pressure. This causes the down piston to start closing. A control rod follows the movement of the piston, uncovering control porting and allowing fluid to flow through the down level adjustment (DL), which when equal in quantity to the flow through the down transition adjustment (DT), stops the motion of the piston, placing the down valve in the leveling position. The rate of movement of the down piston from the open position to the leveling position is controlled by the down transition adjustment (DT). Upon reaching a point slightly before floor level, (usually 3/8 of an inch to 1/4 of an inch), the down leveling solenoid (DL) is de-energized, causing the fluid coming through the down stop (DS) adjusters to be diverted to the control side of the down piston, moving the down piston to the fully closed position of the down valve.

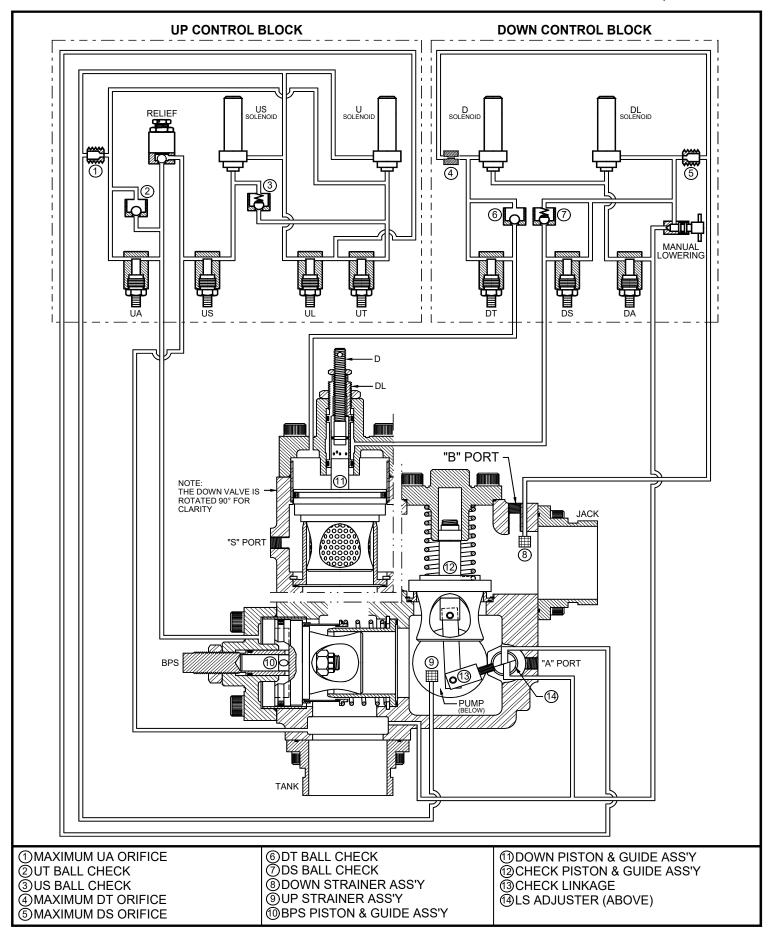
The final closing rate of the down valve is controlled by the down stop adjustment (DS). Opening the down stop adjustment (DS) will cause the car to stop more firmly, as control fluid is sent to the control side of the down piston at a more rapid rate.

#### **DOWN DIRECTION UC2 & UC2A**

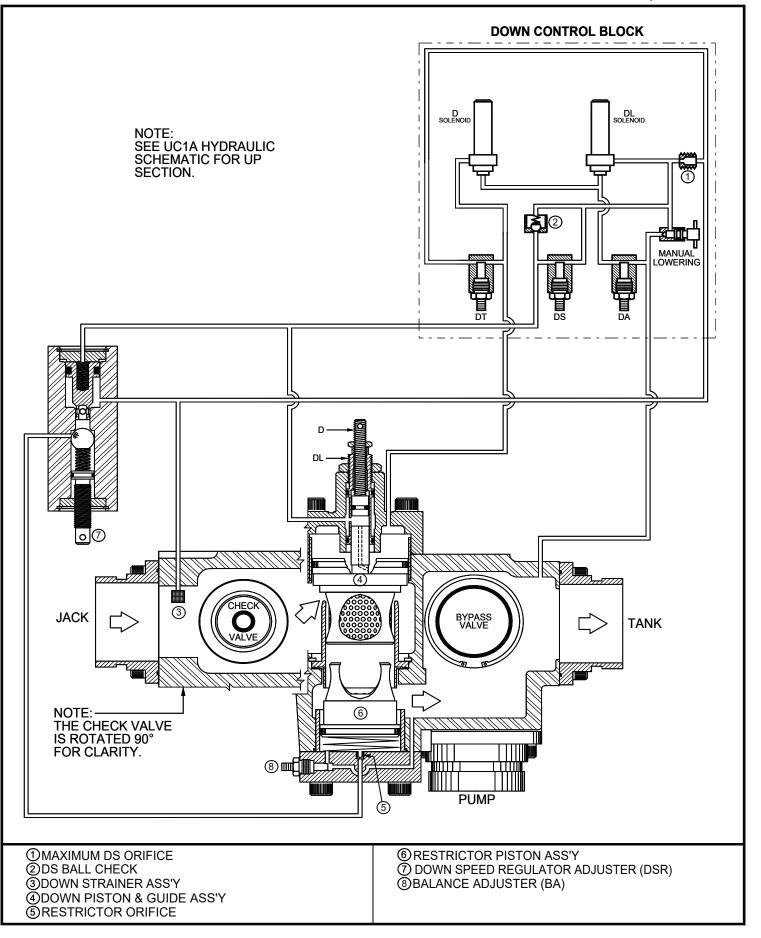
Constant down speed is controlled by the down speed regulator adjustment (DSR), which regulates the movement of the down piston and down valve in the event of increased jack pressure. This continuous regulation causes a constant rate of flow in the down direction from the jack through the down valve and back to the reservoir regardless of varying loads on the elevator. With the above exception, the UC2 and UC2A valves operate in general as the UC1 and UC1A valves.

### HYDRAULIC SCHEMATIC UC1A B44











- The information contained herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

The possible problems and causes are listed in likelihood and ease of checking.

The first section of the guide deals with the UP SECTION, while the second deals with the DOWN SECTION.

It is important to use the following reference materials in conjunction with the trouble shooting procedures.

- UC1, UC1A, UC2, UC2AB44 Operating Sequence
- UC1, UC1A, UC2, UC2AB44 Adjustment Procedure
- UC1A, UC2AB44 Schematic



- The information herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

### **UP SECTION**

### PUMP RUNS, CAR DOES NOT MOVE

- Check valve for proper sizing in accordance with adjustment instruction.
- Make sure gate valves are open in system as required.
- If car is resting on buffers, make sure main down piston is not open by manually closing it with the D (Down Speed adjuster). Turn D (Down Speed) adjuster in clockwise (CW) to stop, then back out counterclockwise (CCW) to it's normal position (count number of turns in and out to avoid lengthy adjustment).
- Turn US (Up Stop) adjuster in (CW) fully.
  - **1.** If car moves, check for proper voltage to coils.
  - 2. If voltage is correct, remove US solenoid assembly. Visually inspect parts for foreign material and / or damage. Ball cage must operate freely within the solenoid tube.
  - **3.** If car does not move, repeat procedure with UT (Up Transition) adjuster and U solenoid assembly.
  - 4. Check up control fluid strainer underneath the up control block for lint. If clogged, remove debris (in this case oil in the system must be filtered).
- Remove BPS closure and piston. Examine piston ring for debris and / or damage, it must expand after it has been
  manually compressed. Clean or free if necessary. Check piston ring for ring groove wear. Make sure the large
  recycle spring grips the shoulder of the piston tightly.

### **SLOW UP ACCELERATION**

- Turn UA (Up Acceleration) adjuster out (CCW).
- Check belts and pulleys on pump and motor to make sure they are not slipping.
- Check relief valve for proper setting. Refer to Adjustment Procedures.
- Check motor for proper HP rating and line voltage for excessive voltage drop.
- Remove control block and check up control fluid strainer for lint. If clogged, remove debris (in this case oil in the system must be filtered).

### **UP ACCELERATION ROUGH**

- Check jack packing and guide shoes for excessive tightness.
- Check valve for proper sizing.

### **UP SPEED SLOW**

- Check belts and pulleys on pump and motor to make sure they are not slipping.
- Check relief valve for proper setting.
- Check motor for proper HP rating and line voltage for excessive voltage drop.
- Turn UT (Up Transition) adjuster in (CW). If this corrects the problem:
  - 1. Check for proper coil voltage on up coils.
  - 2. Check both U and US solenoid assemblies for damage to seats, debris and free movement of ball cages.

# maxton

### CAUTION:

- The information herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

### **UP SECTION (CONTINUED)**

### CAR OVERSHOOTS FLOOR

- Turn the UT (Up Transition) adjuster out (CCW) more.
- Check UL speed, 9-12 FPM
- Disconnect U and US coils, place call. Car should not move.
  - **1.** If car moves turn US adjuster out (CCW) more.
  - 2. Reset BPS adjuster.
- Check hatch slow down switch and stopping circuit to make sure there is no delay (one second lost means a three foot delay at 180 feet per minute).
- Remove the US solenoid assembly and check for foreign material and / or damage. Ball Cage must operate freely within solenoid tube.

### CAR STALLS OR LEVELING SPEED VARIES IN LEVELING ZONE

- Make sure the US (Up Stop) and U (Up) coils are connected in proper operating sequence. Refer to Adjustment Procedure.
- Make sure the LS (Leveling Speed) adjuster dot is referenced to the line between F and S.
- Check Relief for proper setting.
- If car will not adjust using LS (Leveling Speed) adjuster, turn US (Up Stop) adjuster in (CW). Be sure to count the number of turns for later readjustment. If the car moves, then:
  - **1.** Check for proper coil voltage.
  - **2.** Remove the US solenoid assembly and check for foreign material and / or damage. Ball Cage must operate freely within solenoid tube.
  - 3. Replace solenoid seat.
  - 4. Readjust US back to original position.
- Remove BPS closure and piston. Examine piston ring for debris and / or damage, it must expand after it has been manually compressed. Clean or free if necessary. Check piston ring for ring groove wear. Make sure the large recycle spring grips the shoulder of the piston tightly.

### HARSH UP STOP

- Turn US (Up Stop) adjuster in (CW) for smoother stop.
- Check that the pump continues to run after car has stopped for ½ second. As a check to determine
  adequate pump time, turn US (Up Stop) adjuster (CW) all the way. Car should then level and stop above
  the floor. If not, there is not enough pump time.
- Check jack and guide shoes for excessive tightness. If jack packing and guide shoes are in good condition, a soft stop will be accomplished by following the standard Adjustment Procedure.



- The information herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

#### CAR WILL NOT LOWER

#### DOWN SECTION

- Check coil voltage.
- Check line shut off valve and tank shut off valve.
- Turn DS (Down Stop) adjuster in clockwise (CW) to stop.
- Turn DA (Down Acceleration) out counterclockwise (CCW) more.
- Turn DT (Down Transition) adjuster in (CW) slowly. If car will not lower, turn ML (Manual Lowering) screw out (CCW) all the way. If car lowers with ML screw open, first check for proper coil voltage. If voltage is correct, then check both D and DL solenoid assemblies for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Replace solenoid seat.
- Remove Down closure and piston. Examine piston ring for debris and / or damage, it must expand after it has been manually compressed. Clean or free if necessary. Check piston ring for ring groove wear.
- Check piston guide and seat for freedom of movement.

#### **SLOW DOWN START**

- Turn DA (Down Acceleration) adjuster out (CCW).
- Turn DS (Down Stop) adjuster in (CW).
- Check jack packing and guide shoes for any binding.
- Remove D solenoid assembly. Check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Replace solenoid seats.

#### HARSH OR BOUNCY START

- Bleed air from jack.
- Check for tight packing or guide shoe friction.

#### **FAST DOWN START**

• Turn DA (Down Acceleration) adjuster in (CW).

#### CAR COMES DOWN IN LEVELING SPEED ONLY

- Check coil voltage to D (Down Valve) solenoid.
- Land car and remove D solenoid assembly. Check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Replace solenoid seats.

#### MAIN DOWN SPEED TOO SLOW

- Make sure gate valves are open between valve and jack and between valve and tank.
- Turn D (Down Speed) adjuster out (CCW).
- Replace solenoid seats.
- Check flow capacities of pipe between valve and jack and between valve and tank (must not exceed 20 feet per second).
- Remove down closure and piston. Check piston ring on Down piston for debris and / or damage, it must expand after it has been
  manually compressed. Check piston ring for groove wear. Install pressure gauge at "B" port. Check pressure during full down
  speed, no load and compare to flow chart. If there is any abnormal pressure drop, check for restriction in piping from valve to jack
  and from valve to tank.



- The information herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

### **DOWN SECTION (CONTINUED)**

### DOWN TRANSITION TOO SLOW

- Turn DT (Down Transition) out (CCW). This will necessitate readjusting the DA (Down Acceleration) adjustment.
- Check slow down switch and relays for possible delay.
- Remove D solenoid assembly and check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Replace solenoid seat.
- Check down control fluid strainer (under control block) assembly for lint. If clogged, remove debris (in this case oil in the system should be filtered).

### NO DOWN LEVELING SPEED

- Turn DA (Down Acceleration) adjuster out (CCW).
  - Turn ML (Manual Lowering) screw out (CCW).
- If car lowers:
  - 1. Check voltage to DL solenoid coil.
  - 2. Remove DL solenoid assembly and check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
  - 3. Replace solenoid seat.
- If car does not lower, turn DT in (CW) until normal leveling speed is attained.

### DOWN STOP TOO SMOOTH OR INACCURATE

- Turn DS (Down Stop) adjuster out (CCW). This will necessitate readjusting the DA (Down Acceleration) adjustment.
- Check slow down switch and relays for possible delay.
- Remove DL solenoid assembly and check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Check down control fluid strainer (under control block) assembly for lint. If clogged, remove debris (in this case oil in the system should be filtered).

### DOWN STOP TOO ROUGH

- Turn DS (Down Stop) adjuster in (CW).
- Check for tight jack packing or guide shoes.

### CAR WILL NOT STOP IN DOWN DIRECTION

- Make sure coils are not energized.
- Turn DT (Down Transition) adjuster out (CCW) fully.
- Remove D solenoid assembly and check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Replace solenoid ball cage.
- Replace solenoid seat.
- Check down control fluid strainer (under control block) assembly for lint. If clogged, remove debris (in this case oil in the system should be filtered).
- Remove "B" down closure and verify the down piston operates freely within its seat.



- The information herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

### **DOWN SECTION (CONTINUED)**

### CAR DRIFTS DOWN SLOWLY

- Send car to upper floor. Open main power disconnect switch.
- Close pit valve. If car still drifts, the leak is in the jack assembly.
- Back out seal nut on ML (Manual Lowering) screw one half turn. Turn ML screw in (CW) fully and re-tighten seal nut to ensure a good seat.
- Turn DA (Down Acceleration) adjuster in clockwise (CW) fully. If leak stops, this indicates a leak at the down solenoids. Replace D and DL solenoid seats. Refer to solenoid kit# 29292A.
- If leak is present, replace with new valve, or contact Maxton technical support.

### ADDITIONAL PROCEDURE FOR UC2A (UC2)

### FULL DOWN SPEED TOO SLOW

• In examining flow charts, the down flow capacity of the UC2A (UC2) valve is 10 percent less than the UC1A (UC1) valve.

### CAR DRIFTS DOWN SLOW

• Before dismantling the down section except when the problem is pinpointed to the control block, turn DSR (Down Speed Regulator) in (CW) fully. If this stops the leak, examine the Regulator Poppit for debris and / or damage.

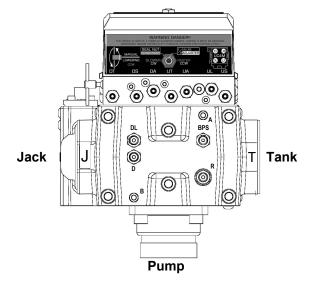
### **DOWN SPEED VARIES**

• Adjusting with BA (Balance Adjustment) adjuster, turn in (CW) for slower and out (CCW) for faster. This adjustment must be made with a full load.

### **BA ADJUSTER NOT AT FACTORY SETTING**

• Call Maxton Technical Support with valve serial number.





UC4М в44

#### **Specifications**

\*Maximum Flow\*\* Operating Pressure Minimum Maximum

50 psi (3.4 bar) 800 psi (55 bar)

2" NPT or Grooved

Pump Pressure: "A" Port (1/8" NPT)

System Pressure: "B" Port (1/8" NPT)

Pressure Switch: "S" Port (1/8" NPT)

80°- 150° F (26°- 65° C)

150 SUS @ 100° F (38° C)

Hyd. ISO VG 32

185 gpm (700 l/min)

#### Note:

Consult factory when applications exceed pressure ratio over 2.5 to 1, example (Max. / Min. :280 / 100 )

2" NPT

### Line Connections

Jack, Tank Port Pump Port (flange)

**Gauge Ports** 

Operating Temperature Oil Type

Solenoid Coils Encapsulated CSA / UL Listed

#### **Overall Dimensions**

Width 8 7/16 inches (214mm) Height 10 1/2 inches (268mm) Depth 9 3/16 inches (233mm) Weight 27 lbs. (12.2kg) Tank Fump

UC4 B44

### **Standard Features**

- Unit body construction.
- Steel sleeve inserts in valve body.
- Feedback control for stall free operation.
- Individualized adjustments.
- Integrated relief valve.
- High efficiency solenoids.
- 120 VAC / 24 VDC solenoid coils.
- Factory tested prior to shipping.
- 2 year limited warranty.

### **Optional Features**

- Explosion Proof Coil Cover
- Thread to Grooved Adapters (2")
- Low Pressure Switch
- Tank Discharge Filter
- 1/8" or 1/4" Ball Valves
- Quick Disconnect Coupling or Nipple Kit

#### Solenoid Coils

- 12 VDC 120 VAC Dual Voltage Coils
- 12 VDC Coils
- 240 VAC Coils
- 115 VDC Coils
- 185 VAC Coils

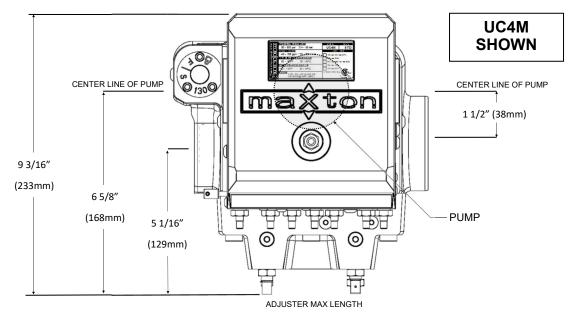


\*Refer to flow Charts (pg.5)

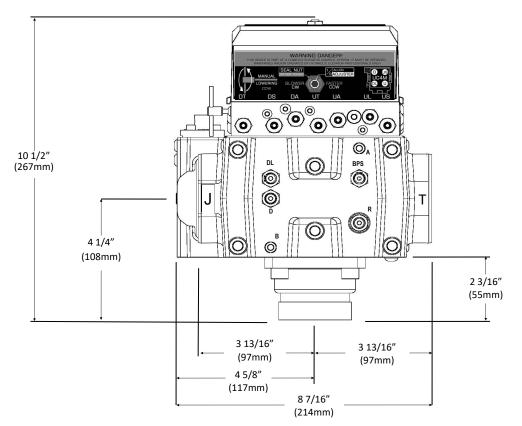
\*\* To insure proper valve selection please return a completed copy of our Job Specification Sheet (pg. 3) to Maxton.



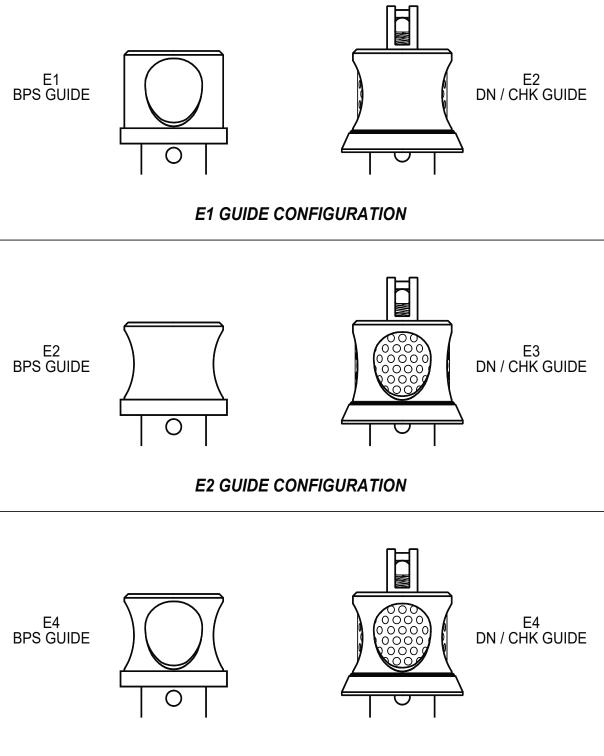




**Front View** 



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STD GUIDE CONFIGURATION



#### THE INFORMATION PRESENTED HEREIN IS FOR USE BY SKILLED HYDRAULIC ELEVATOR PROFESSIONALS

#### SPECIAL CONSIDERATIONS:

Make all adjustments at minimum pressure (no load on elevator) except where noted. "IN" is ALWAYS (CW) clockwise. "OUT" is ALWAYS (CCW) counterclockwise. "*THE CONTROL PLATE ADJUSTERS HAVE SEAL NUTS, NOT LOCK NUTS.* Adjust nut only to set seal friction (friction will maintain adjustment). When adjustment procedure calls for coils to be disconnected, disconnect them electrically. Do not remove them physically. Make adjustments with a minimum oil temperature of 80° F, not to exceed 100° F maximum. Maxton recommends the use of a 5 micron filtration system. With the presence of at least some adverse conditions in most installations, serious consideration should be given to overhaul or replacement of a control valve on a five year cycle.

#### GAUGE PORTS:

Gauge ports - 1/8" NPT provided at points A, B and S. A Port: Pump pressure (RELIEF, WORKING PRESSURE). B Port: Jack pressure (STATIC, DOWN RUNNING). S Port: Low pressure switch port. Note: The minimum operating pressure at port B should be at least 50 psi (3.4 bar) as car is moving down full speed with no load. See flow chart.

 SAFETACH2 performance meter validates valve adjustment by providing direct speed and acceleration (g-force) readouts.

- 1 BPS Disconnect the US coil, turn UA IN (CW) register an up call and turn BPS IN (CW) until the car just moves. Next, turn the BPS adjuster OUT (CCW) until it stops the movement of the car, then OUT 1/2 turn more. Snug lock nut on BPS adjuster and stop pump. NOTE: If car does not move with BPS fully IN (CW), the valve may be oversized for the job (consult factory for proper valve sizing). Reconnect the US coil.
- 2 UA Register an up call (pump running, U & US coils energized, car should not move), slowly turn UA OUT (CCW) to attain full up speed within 24 to 36 inches. \* (Accel 0.04g-0.09g).
- 3 UL Disconnect the U coil. Turn UL adjuster IN (CW) to stop and register an up call. Leveling speed should be 3 to 5 fpm. (If not, readjust LS\*). Turn UL adjuster OUT (CCW) to attain 9 to 12 fpm leveling speed. Reconnect the U coil and lower the car to lowest landing. \*(Read leveling speed).
- 4 UT Register an up call and turn UT IN (CW) so that the car slows to provide 4 to 6 inches of stabilized up leveling. Repeat steps 3 and 4 as necessary. \*(Decel 0.04g-0.09g).
- 5 US With US adjuster fully OUT (CCW), car should stop 1/4" to 3/8" below floor. After a normal up run, turn US IN (CW) as needed to bring car to floor level. The pump must be timed to run ½ second after the car has reached the floor.
- 6 With empty car at bottom floor, disconnect U & US coils and register a call. The car must not move. If movement occurs, check BPS and US.
- LS\* Dot on the LS adjuster should be referenced to the line between F / S. When necessary, disconnect the U coil and turn the UL adjuster IN (CW) to stop. Unlock the LS adjuster by loosening the screw next to the symbol 1 turn. Move the LS adjuster slightly toward S for slower or F for faster leveling speeds. Set adjustment from 3 to 5 fpm with the LS adjuster, tighten locking screw down, verify LS speed after tightening screw, then repeat step 3. \* (Level Speed Test 3 to 5 fpm).

	DEFAULT SETTINGS											
	If valve is received from Maxton, only minor adjustments may be required.											
CONTROL PLATE												
US	UP STOP	OUT	(CCW)	to stop	(faster rate)							
UL	UP LEVEL	IN	(CW)	to stop	(slower rate)							
UA	UP ACCELERATION	IN	(CW)	to stop	(slower rate)							
UT	UP TRANSITION	OUT	(faster rate)									
VALVE	BODY											
BPS	BY-PASS SIZING	OUT	(CCW)	to stop	(delays up start)							
LS	LEVEL SPEED (factory set)	DOT ON LINE (set 3-5 fpm)										
R	R RELIEF APPROX 450 psi (CW increases pressure)											

#### **OPERATIONAL DATA:**

Min. / Max. Pressure: Max. Rated Flow: Operating Temperature: Optimal Temp. Range. Oil Type: 50-800 psi (3.4-55 bar) 185 gpm (700 l / min.) 80°-150° F (26°-65° C) 100°-130° F (38°-54° C) Hyd. ISO VG 32 150 SUS @ 100° F (38° C)

Questions: Call Tech Support (775) 782-1700 (7am-4pm PST), use

- 7 D Register a down call to set proper down speed with down speed adjuster D as required. Tighten the lock nut (snug) & send car to upper landing. \*(Read high speed).
- 8 DA Start by turning DA adjusters IN (CW) to stop. Register a down call and, turn the DA adjuster slowly OUT (CCW) until the car accelerates smoothly. Send car to upper landing. \*(Accel. 0.04g-0.09g).
- 9 DT Register a down call and turn DT IN (CW) so that the car slows to provide 4 to 6 inches of stabilized down leveling. \*(Decel 0.04g-0.09g).
- 10 DL Disconnect D coil. Register a down call and set down leveling speed at 6 to 9 fpm with the DL adjuster. Tighten the lock nut (snug). Reconnect D coil.
   \* (leveling speed 6 to 9 fpm).
- 11 DS Turn DS IN (CW), when necessary, for a softer stop.

ML MANUAL LOWERING: Turn ML screw OUT (CCW) to lower car downward at leveling speed when necessary.

#### R RELIEF:

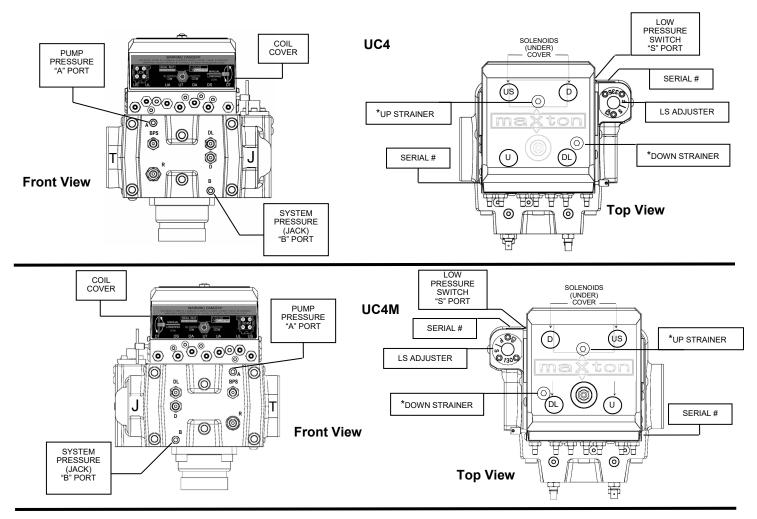
- A. Land car in pit and install pressure gauge in **A** port.
- B. Register an up call with a fully loaded car, making note of Maximum operating pressure.
- C. Turn **UA** and **RELIEF** adjuster OUT (CCW) to stop.
- D. Close the manual shut off valve to the jack.
- E. Register an up call, observe pressure gauge and turn **RELIEF** IN (CW) to increase pressure. Final setting should be in accordance with local code requirement not to exceed 150% of maximum operating pressure.
- F. Tighten the lock nut (snug).
- G. Restart to check the pressure relief setting. Seal as required .
- H. Open the manual shut off valve to the jack.
- Readjust UA for proper Up Acceleration.
   \*(Accel 0.04g-0.09g).

	If valve is recei	ved from		T SETTIN		nts may be	required.
CON	TROL PLATE						
DT	DOWN TRANSITI	ON		OUT	(CCW)	to stop	(faster rate)
DA	DOWN ACCELER	ATION		OUT	(CCW)	to stop	(faster rate)
DS	DOWN STOP			OUT	(CCW)	to stop	(faster rate)
ML	MANUAL LOWER	ING		IN	(CW)	to stop	
VAL	VE BODY						
D	DOWN SPEED	Turn (	OUT (CCW)	5 threads	above loo	k nut.	(faster speed)
DL	DOWN LEVEL	Turn (	OUT (CCW)	2 threads	above loo	k nut.	(faster speed)

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# ADJUSTMENT PROCEDURE UC4, UC4M B44

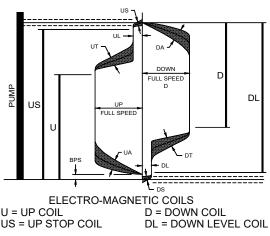
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ATTENTION: All Maxton Valves **MUST** be installed with the solenoids in the upright (vertical) position. When replacing a Maxton UC3 / UC3AM or UC4 / UC4M series valve, the pump flange assembly must also be replaced. It is subject to the same wear and tear as the valve. \*Strainer access is provided from the top of the control plate. Prior to 2012 the sleeve and baseplate were an integral part of coil operation. 2012 to current the C-Frame is an integral part of coil operation.

# COIL OPERATING SEQUENCE

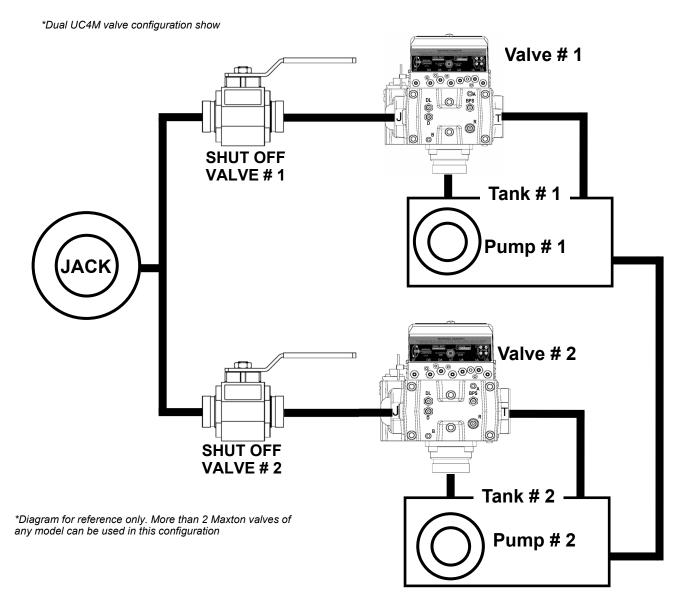
- US For up travel, energize when pump starts and de-energize to stop. With US energized and pump running, car will move up at leveling speed. For "soft stop", pump should run ½ second after US de-energizes.
- U Energize with US coil to run up at contract speed. De-energize at slowdown distance from floor. Slowdown distance = 2 inches for each 10 fpm of car speed NOT to exceed 6 inches for every 25 fpm of car speed. If necessary increase slowdown distance to achieve 4-6 inches of stabilized up leveling.
- DL Energize to move car at leveling speed. De-energize to stop.
- Energize with DL coil to run down at contract speed. De-energize at slowdown distance from floor. Slowdown distance = 2 inches for each 10 fpm NOT to exceed 6 inches for every 25 fpm of car speed.
   If necessary increase slowdown distance to achieve 4-6 inches of stabilized down leveling.



**CAUTION:** On Wye - Delta Up Start do not energize U and US Coils until motor is running on Delta. With soft starter, energize US coil with motor up to speed signal.



# MULTIPLE CONTROL VALVE SETUP AND ADJUSTMENT PROCEDURE



# ADJUSTMENT (Valve # 1)

(If necessary see adjustment procedure in Maxton product guide for more Maxton valve adjusting information.)

<u>UP Section Adjustment</u> - Isolate valve # 1 by electrically disconnecting pump # 2 and closing shut off valve # 2. This will allow independent adjustment between each valve.

1. Set BPS - Disconnect the US Coil, start the pump for the valve to be adjusted. Turn the BPS adjuster in (CW) until the car moves up, then back the adjuster out (CCW) until the car stalls, then back out the adjuster ½ turn more. Snug the adjuster lock nut. No further adjustment is needed.

2. Set UA - Re-connect the US Coil, make an up call. The car should come up to speed in 24 - 36 inches of car motion. Open UA adjuster more (CCW) if the acceleration is sluggish, and turn in UA (CW) if the acceleration is too fast. (Note: When the idle pump and valve unit(s) are later added, the combined acceleration may need to be softened. Soften UA with equal incremental adjustments of UA on each control valve.)



- 3. Set UT Turn the up transition adjuster slightly, in or out, to bring the car to stabilized leveling speed at a distance 4" 6" below the floor level.
- 4. Set UL Disconnect the U Coil, turn the UL adjuster in (CW) to a stop. Place call, the car should move upwards about 3-5 feet per minute. (If not, set the LS adjustor.) Set the elevator to 5 6 feet per minute by turning UL OUT (CCW). Later, with valve units combined the elevator should reach a leveling speed of 10 12 feet per minute.
- 5. Set US Turn the US (Up Stop) adjuster to the full out (CCW) position. The elevator should stop about 1/8" to 3/8" below floor level at each floor with all US adjusters in the full out position. Turn in the US adjuster on one designated valve to bring the car up to the exact floor level. (Each pump motor should be timed to run ½ second after the car has come to a stop at the floor level.)
- 6. Set Relief Land car in pit and install pressure gauge in A port. Then register an up call with a fully loaded car, making note of Maximum operating pressure. Turn UA and RELIEF adjuster OUT (CCW) to stop. Close the manual shut off valve to the jack. Register an up call, observe pressure gauge and turn RELIEF IN (CW) to increase pressure. Final setting should be in accordance with local code requirement not to exceed 150% of maximum operating pressure. Tighten the lock nut (snug). Restart to check the pressure relief setting. Seal as required. Open the manual shut off valve to the jack. Readjust UA for proper Up Acceleration.

**<u>DOWN Section Adjustment</u>** - Start and adjust each valve unit <u>separately</u>. Later, combine the valve units and make final adjustments as indicated.

1. Set the Down Speed (D) - The down speed for an individual unit is obtained by dividing the contract speed by the number of down valves used. Add 10 % for UC-2 and UC-2A valve down speed setting.

2. Set Down Leveling Speed (DL) - Set DL to 3-5 foot per minute on each valve, or set DL on one designated valve for a down leveling speed of 6 - 10 feet per minute.

3. Set Down Transition (DT) so that the car slows to stabilized leveling speed about 4 - 6 inches above the floor.

4. Set the down acceleration (DA) so that the car comes up to speed within 24 - 36 inches of down motion. When the valve units are combined the combined acceleration may need to be softened. If so, adjust each valve DA setting incrementally the same amount.

5. Down Stop (DS) - If a more solid down stop is required, open DS as required. When valves are combined, if adjustment is needed, adjust DS incrementally in or out the same on each valve.

### Adjustment (Valve # 2)

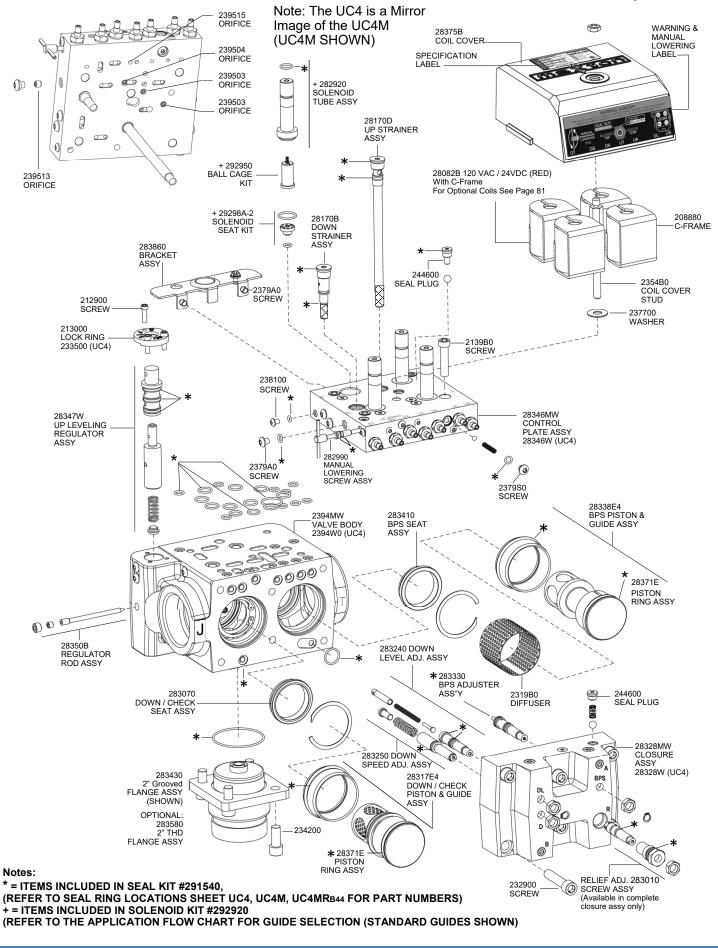
Reconnect pump # 2 and open shut off valve # 2. Electrically disconnect pump # 1 and close shut off valve # 1

1. Perform all previous steps on valve # 2.

Some fine adjustment maybe needed once both systems are reconnected and the independent adjustments are complete. After adjustments of valve # 1 and # 2 are finished, combine the pump and valve units and make final adjustments as indicated.

### EXPLODED VIEW UC4M, UC4 B44

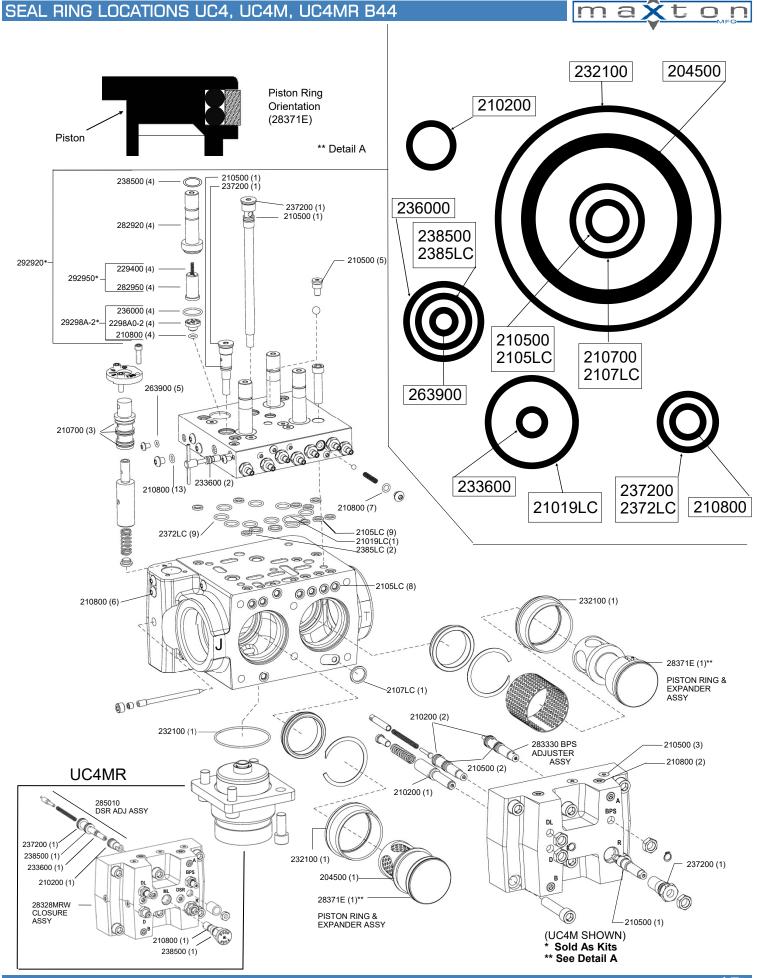




# EXPLODED VIEW PARTS LIST UC4M, UC4 B44



PART # 28346MW 28346W	DESCRIPTION CONTROL PLATE ASSEMBLY (UC4M)	PART #	DESCRIPTION VALVE CLOSURE ASSY (Continued)	PART #	DESCRIPTION
	CONTROL PLATE ASSEMBLY (UC4M)				
200-000	CONTROL PLATE ASSEMBLY (UC4)		BPS adjuster assy (continued)	28338E4	VALVE BODY (Continued) BPS Piston & guide assy (std.)
280070	Adjuster screw assembly	224600	Spring guide	233800	BPS piston
203400	Seal nut	2323C0	Spring	28371E	<ul> <li>* Piston ring &amp; expander assy</li> </ul>
227000	* Teflon seal	235100	Poppit	2320A0	BPS piston sleeve (w / pin)
200700	Adjuster screw	233600	Seal ring	232100	* Seal ring
282990	Manual lowering assembly	2353C0	Seal retainer	231600	Snap ring
229900	Manual lowering screw	283240	Down leveling adjuster assembly	233900	Spring
233600	* Seal ring	233100	Snap ring	2340E4	BPS guide (standard)
230000	Handle (roll pin)	233000	Lock nut	283430	Pump flange assy, 2" Grooved
28170D	Up strainer assembly	232400	Down leveling adjuster screw	232100	* Seal ring
2170D0	Up strainer cap	210500	* Seal ring	2362B0	Snap ring
2363A0	Transfer line with screen	210200	* Seal ring	236100	Check return
210500	* Seal ring	224600	Spring guide	234300	Flange, 2" Grooved
237200	* Seal ring	232300	Spring	235700	Spring
28170B	Down strainer assembly	232200	Sleeve	235600	Return check rod
2170C0	Down strainer cap	283250	Down speed adjuster assembly	283580	Pump flange assy, 2" Threaded
2170B0	Down strainer base with screen	233000	Lock nut	232100	* Seal ring
210500	* Seal ring	232500	Down speed adjuster screw	2362B0	Snap ring
236900	Ball, 1/4"	210200	* Seal ring	236100	Check return
237200	* Seal ring	237000	Spring	235800	Flange, 2" Threaded
283860	Coils bracket assembly	237300	Spring guide	235700	Spring
238600	Coil Bracket	283010	Relief adjuster assembly	235600	Return check rod
207700	Grommet		Note: Available in complete closure assy only.	28347W	Regulator assembly
207900	Ground screw	233000	Lock nut	2053W0	Up leveling speed adjuster
247300	Washer	230400	Relief cartridge	210700	* Seal ring
	UT Regulator	237200	* Seal ring	2347W0	Regulator
2379S0	Screw (1/4-28 button head)	230100	Relief adjuster screw	212200	Spring
210800	Seal Ring	210500	* Seal ring	214200	Spring boss
234400	Spring	230200	Spring boss		
213400	Ball 3/16"	230300	Spring	28350B	Regulator rod assembly
	Control plate assy miscellaneous	230500	Ball retainer	235200	Pipe plug
282920	+ Solenoid tube assembly	236900	Ball	214100	Set screw
29298A2	+ Solenoid seat kit		Valve closure assy miscellaneous	2350B0	Regulator rod
292950	+ Solenoid ball cage kit	235200	Pipe plug (A & B ports)		Ť
2385LC	* Seal ring	2379A0	Screw (1/4 -28 button head)		
2372LC	* Seal ring	2107LC	* Seal ring		MISCELLANEOUS
21019LC	* Seal ring	238000	Ball	213000	Lock ring (UC4M)
238100	Screw (# 10-32)	244500	Seal plug	233500	Lock ring (UC4)
210800	* Seal ring	2105LC	* Seal ring	212900	Screw (regulator cap)
244500	Seal plug	208700	Spring	2139B0	Screw (control plate)
244600	Seal plug			2319B0	Diffuser
2105LC	* Seal ring	2394MW	VALVE BODY (UC4M)	232900	Screw (valve closure)
208700	Spring	2394W0	VALVE BODY (UC4)	234200	Screw (pump flange)
238000	Ball, 5/16"	283070	Down / Check seat assembly	2354B0	Coil cover stud
2379A0	Screw (1/4-28 button head)	230900	Snap ring	28375B	Coil cover
2379S0	Screw (UT/DT ¼-28 button head)	230700	Down / Check seat	2376A0	Jam nut (coil cover)
238100	Screw (# 10-32 button head)	231200	Spacer	237700	Washer (coil cover)
263900	* Seal ring	230600	Seal ring	2379A0	Screw (bracket)
239503	Orifice (max UA / US) (Blue)	28317E4	Down / Check piston & guide assy	235200	Pipe Plug
239504	Orifice (max UT) (Steel)	232100	* Seal ring	28082B	Solenoid coil Assembly
239513	Orifice (max DT) (Steel)	232000	Down piston sleeve	2082B0	Solenoid coil 120 VAC / 24 VDC (Red)
239515	Orifice (UT Reg.) (Black)	2317A0	Down piston	208880	C-Frame
		28371E	<ul> <li>Piston ring &amp; expander assy</li> </ul>		
		231600	Snap ring		-
28328MW	VALVE CLOSURE ASSEMBLY (UC4M)	231500	Spring		REFER TO APPLICATION FLOW
28328W	VALVE CLOSURE ASSEMBLY (UC4)	2314E4	Down / Check guide assy (std.)		CHART FOR GUIDE SELECTION.
283330	* BPS adjuster assembly	204500	* Seal ring		E1: 28338E1 (BPS piston assembly)
233100	Snap ring	230800	Seal retainer ring		28317E2 (Down piston assembly)
233000	Lock nut	204600	Snap ring		E2: 28338E2 (BPS piston assembly)
233300	BPS adjuster screw	283410	Up seat assembly		28317E3 (Down piston assembly)
210200	* Seal ring	230900	Snap ring		* = PARTS INCLUDED IN
	* Seal ring	234100	BPS seat		SEAL KIT # 291540
210500	Searning	230600	Seal ring		+ = PARTS INCLUDED IN





#### CAR AT REST-SOLENOID COILS DE-ENERGIZED

The car at rest is held by a hydraulic fluid system locked in place by a check valve, solenoid pilot valves and a manual-lowering valve.

#### UP DIRECTION

When an up call is registered and the pump starts, the up solenoid (U) and the up stop solenoid (US) are simultaneously energized; closing ball checks US and UT, the pump output flows through the up valve and back to the reservoir.

Hydraulic fluid from the pump travels through the up control fluid strainer to the by-pass sizing adjustment, then the control side of the up piston. The control side of the up piston is larger in area than the area of the up piston exposed to the pump pressure; therefore, the up piston begins to move rapidly towards the up valve, restricting the opening in the up valve, raising the pump pressure. When the pump pressure reaches a point slightly below the pressure on the jack side of the check valve, the fluid coming through the by-pass sizing adjustment is shut off. Then, the fluid from the up acceleration adjustment (UA), which also comes from the control fluid strainer, causes a continuing movement of the up valve. Fluid begins flowing from the up control fluid strainer through a ball check to the down piston holding it firmly in position. This allows the guide end of the down check assembly to act independently as a check valve. As the pump pressure increases above that on the jack side of the check valve is opened, allowing fluid to flow to the jack cylinder, causing the jack to move in the up direction. The elevator then accelerates to full speed as the up piston closes the up valve.

Upon reaching a predetermined distance below the floor to which the car is traveling (2 inches for each 10 fpm of car speed NOT to exceed 6 inches for every 25 fpm of car speed), the up solenoid (U) is de-energized, allowing fluid from the control side of the up piston to flow through the up transition adjustment (UT), then to the up leveling speed regulator (LS) orifice which is held open by a mechanical linkage attached to the check valve. The control fluid then returns to the reservoir and the up piston moves toward the open position. As the up piston moves, opening the up valve, hydraulic fluid begins flowing to the reservoir, reducing the pump pressure. As the pump pressure is reduced, the check valve begins closing, also, partially closing the (LS) orifice in the up leveling speed regulator.

When the flow through the (LS) orifice equals in quantity, the flow through the maximum up acceleration adjustment (UA) and the up leveling adjustment (UL), the car will be in leveling speed. Upon reaching a point slightly before the floor (usually 3/8 of an inch to 1/4 of an inch), the up stop solenoid (US) is de-energized. This allows fluid to flow through the up stop adjustment (US), causing the up piston to fully open, permitting the total pump output to flow to the reservoir, causing the car to stop. After the car comes to a complete stop, the pump motor is then electrically timed out and stops. If, during up movement, the car has been overloaded or hits an obstruction, the fluid on the control side of the up piston is evacuated to the reservoir through the relief valve, causing the up piston to cycle open and by-pass the entire pump output.

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#### CAR AT REST – SOLENOID COILS DE-ENERGIZED

The car at rest is held by a hydraulic fluid system locked in place by a check valve, solenoid pilot valves and a manual-lowering valve.

#### DOWN DIRECTION

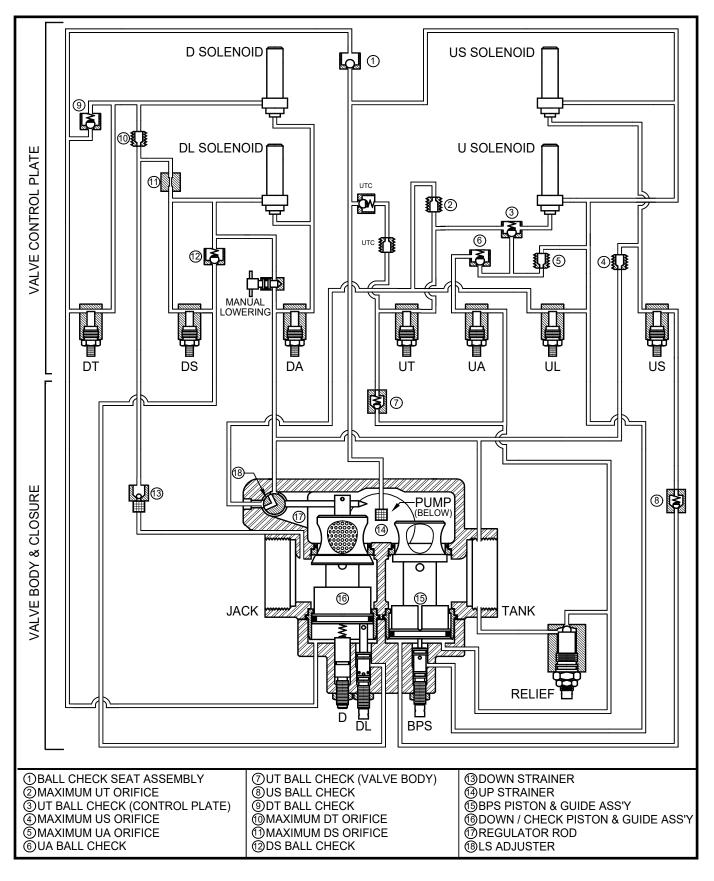
When a down call is registered, the down leveling solenoid (DL) and the down valve solenoid (D) are simultaneously energized, allowing fluid from the control side of the down piston and fluid from the down control adjustments, down stop (DS) and down transition (DT), to flow through the down acceleration adjustment (DA) and back to the reservoir. This reduces the pressure on the control side of the down piston. The pressure acting on the area of the down piston exposed to the jack pressure causes the down piston to open the down valve. The down valve will remain in the open position as long as the flow of control fluid passing through the down acceleration adjustment (DA) exceeds the flow through the down transition (DT) and the down stop (DS) adjustments. The maximum down speed is controlled by a mechanical stop limiting the down piston travel (Down Adjustment (D)).

Upon reaching a predetermined distance above the floor to which the car is traveling (6 inches for each 25 feet per minute of car speed) the down solenoid (D) is de-energized. The fluid input to the control side of the down piston from the jack continues, as the control side of the piston is larger in area than the area exposed to jack pressure. This causes the down piston to start closing. A control rod follows the movement of the piston, uncovering control porting and allowing fluid to flow through the down level adjustment (DL), which when equal in quantity to the flow through the down transition adjustment (DT), stops the motion of the piston, placing the down valve in the leveling position. The rate of movement of the down piston from the open position to the leveling position is controlled by the down transition adjustment (DT). Upon reaching a point slightly before floor level, (usually 3/8 of an inch to 1/4 of an inch), the down leveling solenoid (DL) is de-energized, causing the fluid coming through the down stop (DS) adjusters to be diverted to the control side of the down piston, moving the down piston to the fully closed position of the down valve.

The final closing rate of the down value is controlled by the down stop adjustment (DS). Opening the down stop adjustment (DS) will cause the car to stop more firmly, as control fluid is sent to the control side of the down piston at a more rapid rate.

#### DOWN DIRECTION UC4MR

Constant down speed is controlled by the down speed regulator adjustment (DSR) which regulates the movement of the down piston and down valve in the event of increased jack pressure. This continuous regulation causes a constant rate of flow in the down direction from the jack through the down valve and back to the reservoir regardless of varying loads on the elevator. The UC4MR valve does not require the down stop adjustment (DS) as does the UC4 and UC4M valves. With the above exception, the UC4MR valve operates in general as the UC4 and UC4M valves.



NOTE: UC4 IS A MIRROR IMAGE OF THE UC4M

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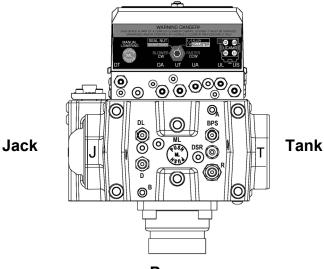
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**Standard Features** 

#### Introduction

The UC4MR hydraulic controller was designed to meet changing application trends. The greater variation in temperature and pressure seen in today's market demand much more from the valve design. The first steps of improvement are to regulate the area of greatest variation (down high speed). The UC4MR valve will allow the user to have direct adjustment control of loaded and unloaded down main speeds without applying a load.



Pump

# **Specifications**

Maximum Flow Operating Pressure Minimum Maximum Note: Consult factory when application over 2.5 to 1, example (Max. 1)	-	<ul> <li>Unit body construction.</li> <li>Steel sleeve inserts in valve body.</li> <li>Feed back control for stall free operation.</li> <li>Individualized adjustments.</li> <li>Regulated down speed control.</li> <li>Integrated relief valve.</li> <li>Push button manual lowering.</li> <li>Low pressure cutoff manual lowering.</li> <li>High efficiency solenoids.</li> <li>120 VAC / 24 VDC solenoid coils.</li> </ul>
Line Connections		<ul> <li>Factory tested prior to shipping.</li> <li>A year limited warranty</li> </ul>
Jack, Tank Port	2" NPT	• 2 year limited warranty.
Pump Port (flange)	2" NPT or Grooved	<u>Optional Features</u>
Gauge Ports	Pump Pressure: "A" Port (1/8" NPT) System pressure: "B" Port (1/8" NPT) Pressure Switch: "S" Port (1/8" NPT)	<ul> <li>Explosion Proof Coil Cover</li> <li>Thread to Grooved Adapters (2")</li> <li>Low Pressure Switch</li> <li>Tank Discharge Filter</li> </ul>
Operating Temperature	80°– 150° F (26°– 65° C)	• 1/8" or 1/4" Ball Valves
Oil Type	Hyd. ISO VG 32	<ul> <li>Quick Disconnect Coupling or Nipple Kit</li> </ul>
	150 SUS @ 100° F (38° C)	Solenoid Coils
Solenoid Coils	Encapsulated CSA / UL Listed	<ul> <li>12 VDC – 120 VAC Dual Voltage Coils</li> <li>12 VDC Coils</li> <li>240 VAC Coils</li> </ul>
Overall Dimensions Width 8 7/16 inches (214mm	) Height 10 1/2 inches (268mm)	<ul> <li>115 VDC Coils • 185 VAC Coils • Some ATZ 1     </li> </ul>

\*Refer to flow Charts (pg.6)

\*\* To insure proper valve selection please return a completed copy of our Job Specification Sheet (pg. 3) to Maxton.



#### THE INFORMATION PRESENTED HEREIN IS FOR USE BY SKILLED HYDRAULIC ELEVATOR PROFESSIONALS

#### SPECIAL CONSIDERATIONS:

Make all adjustments at minimum pressure (no load on elevator) except where noted. "IN" is ALWAYS (CW) clockwise. "OUT" is ALWAYS (CCW) counterclockwise. *THE CONTROL PLATE ADJUSTERS HAVE SEAL NUTS, NOT LOCK NUTS.* Adjust nut only to set seal friction (friction will maintain adjustment). When adjustment procedure calls for coils to be disconnected, disconnect them electrically. Do not remove them physically. Make adjustments with a minimum oil temperature of 80° F, not to exceed 100° F maximum. Maxton recommends the use of a 5 micron filtration system. With the presence of at least some adverse conditions in most installations, serious consideration should be given to overhaul or replacement of a control valve on a five year cycle.

#### GAUGE PORTS:

Gauge ports - 1/8" NPT provided at points A, B and S. A Port: Pump pressure (RELIEF, WORKING PRESSURE). B Port: Jack pressure (STATIC, DOWN RUNNING). S Port: Low pressure switch port. Note: The minimum operating pressure at port B should be at least 175 psi (12 bar) as car is moving down full speed with no load. See flow chart.

\* **SAFETACH2** performance meter validates valve adjustment by providing direct speed and acceleration (g-force) readouts.

- 1 BPS Disconnect the US coil, turn UA IN (CW) register an up call and turn BPS IN (CW) until the car just moves. Next, turn the BPS adjuster OUT (CCW) until it stops the movement of the car, then OUT 1/2 turn more. Snug lock nut on BPS adjuster and stop pump. NOTE: If car does not move with BPS fully IN (CW), the valve may be oversized for the job (consult factory for proper valve sizing). Reconnect the US coil.
- 2 UA Register an up call (pump running, U & US coils energized, car should not move), slowly turn UA OUT (CCW) to attain full up speed within 24 to 36 inches. \* (Accel 0.04g-0.09g).
- <sup>3</sup> UL Disconnect the U coil. Turn UL adjuster IN (CW) to stop and register an up call. Leveling speed should be 3 to 5 fpm. (If not, readjust LS\*). Turn UL adjuster OUT (CCW) to attain 9 to 12 fpm leveling speed. Reconnect the U coil and lower the car to lowest landing. \*(Read leveling speed).
- 4 UT Register an up call and turn UT IN (CW) so that the car slows to provide 4 to 6 inches of stabilized up leveling. Repeat steps 3 and 4 as necessary. \*(Decel 0.04g-0.09g).
- 5 **US** With **US** adjuster fully OUT (CCW), car should stop 1/4" to 3/8" below floor. After a normal up run, turn **US** IN (CW) as needed to bring car to floor level. The pump must be timed to run ½ second after the car has reached the floor.
- 6 With empty car at bottom floor, disconnect U & US coils and register a call. The car must not move. If movement occurs, check BPS and US.
- LS\* Dot on the LS adjuster should be referenced to the line between F / S. When necessary, disconnect the U coil and turn the UL adjuster IN (CW) to stop. Unlock the LS adjuster by loosening the screw next to the G symbol 1 turn. Move the LS adjuster slightly toward S for slower or F for faster leveling speeds. Set adjustment from 3 to 5 fpm with the LS adjuster, tighten locking screw down, verify LS speed after tightening screw, then repeat step 3.
  \* (Level Speed Test 3 to 5 fpm).

	DEFAULT SETTINGS If valve is received from Maxton, only minor adjustments may be required.												
CONTR	CONTROL PLATE												
US	UP STOP	OUT	(CCW)	to stop	(faster rate)								
UL	UP LEVEL	IN	(CW)	to stop	(slower rate)								
UA	UP ACCELERATION	IN	(CW)	to stop	(slower rate)								
UT	UP TRANSITION	OUT	(CCW)	to stop	(faster rate)								
VALVE	BODY												
BPS	BY-PASS SIZING	OUT	(CCW)	to stop	(delays up start)								
LS	LEVEL SPEED (factory set)	DOT ON	N LINE		(set 3-5 fpm)								
R	R RELIEF APPROX 450 psi (CW increases pressure)												

OPERATIONAL DATA: Min. / Max. Pressure: Max. Rated Flow: Operating Temperature: Optimal Temp. Range. Oil Type:

175-800 psi (3.4-55 bar) 185 gpm (700 l / min.) 80°-150° F (26°- 65° C) 100°-130° F (38°- 54° C) Hyd. ISO VG 32 150 SUS @ 100° F (38° C)

**Questions:** Call Tech Support (775) 782-1700 (7am-4pm PST), use Maxtonvalve.com or download Maxton Mobile Mechanic from your APP Store

- 7 DSR Register a down call and turn DSR OUT (CCW) until the car reaches approx. 5% above contract speed. NOTE: You may need to turn DT IN (CW) until the car begins down acceleration. In order to achieve desired speed, D may need to be turn OUT (CCW).
- 8 D Register a down call to set your actual contract speed with D adjuster (CW slower). Tighten the lock nut (snug) & send car to upper landing. \*(Read high speed).
- 9 DL Disconnect D coil. Register a down call and set down leveling speed at 6 to 9 fpm with the DL adjuster. Tighten the lock nut (snug tight). Reconnect D coil. \* (leveling speed 6 to 9 fpm).
- 10 **DT** Register a down call and turn **DT** IN (CW) so that the car slows to provide 4 to 6 inches of stabilized down leveling. NOTE: A minor re-adjustment of **DL** may be necessary. Send car to upper landing. \* (Decel 0.04g-0.09g).
- 11 DA Turn DA IN (CW) until desired rate of acceleration is achieved. Full down speed should be attained within 24 to 36 inches. \* (Accel 0.04-0.09g).
- ML MANUAL LOWERING: Push ML button to lower car downward at leveling speed when necessary

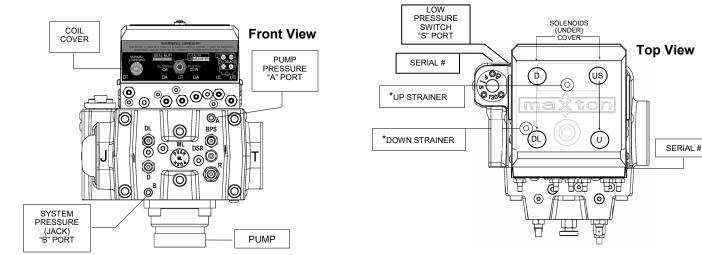
#### R RELIEF:

- A. Land car in pit and install pressure gauge in **A** port.
- B. Register an up call with a fully loaded car, making note of Maximum operating pressure.
- C. Turn UA and RELIEF adjuster OUT (CCW) to stop.
- D. Close the manual shut off valve to the jack.
- E. Register an up call, observe pressure gauge and turn **RELIEF** IN (CW) to increase pressure. Final setting should be in accordance with local code requirement not to exceed 150% of maximum operating pressure.
- F. Tighten the lock nut (snug).
- G. Restart to check the pressure relief setting. Seal as required .
- H. Open the manual shut off valve to the jack.
- Readjust UA for proper Up Acceleration.
   \*(Accel 0.04g-0.09g).

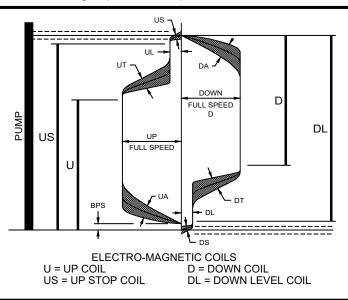
	DEFAULT SETTINGS If valve is received from Maxton, only minor adjustments may be required.												
CON	CONTROL PLATE												
DT	DOWN TRANSITI	NC	OUT	(CCW)	to stop	(faster rate)							
DA	DOWN ACCELER	ATION	OUT	(CCW)	to stop	(faster rate)							
ML	MANUAL LOWER	ING		Push Butto									
VALV	E BODY												
D	DOWN SPEED	Turn OUT (	CCW) 9 thread	ds above loo	k nut.	(faster speed)							
DL	DOWN LEVEL	(faster speed)											
DSR	DSR DOWN SPEED REGULATOR Turn IN (CW) 1 thread above jam nut												

1728 Orbit Way - Minden, Nevada 89423





\* Strainer access is provided from the top of the control plate. Prior to 2012 the sleeve and baseplate were an integral part of coil operation. 2012 to current the C-Frame is an integral part of coil operation.



**ATTENTION:** All Maxton Valves **MUST** be installed with the solenoids in the upright (vertical) position. When replacing a Maxton UC3 / UC3AM or UC4 / UC4M series valve, pump flange assembly must also be replaced. It is subject to the same wear and tear as the valve.

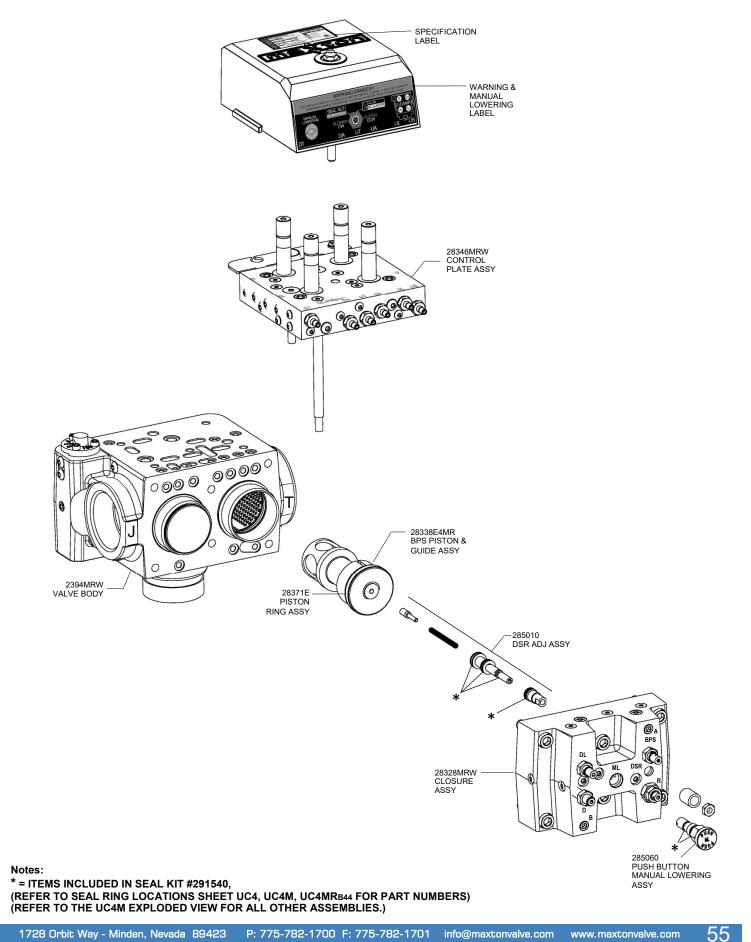
#### **COIL OPERATING SEQUENCE**

- US For up travel, energize when pump starts and de-energize to stop. With US energized and pump running, car will move up at leveling speed. For "soft stop", pump should run ½ second after US de-energizes.
- U Energize with US coil to run up at contract speed. De-energize at slowdown distance from floor. Slowdown distance = 2 inches for each 10 fpm of car speed NOT to exceed 6 inches for every 25 fpm of car speed. *If necessary increase slowdown distance to achieve 4-6 inches of stabilized up leveling.*
- DL Energize to move car at leveling speed. De-energize to stop.
- D Energize with DL coil to run down at contract speed. De-energize at slowdown distance from floor. Slowdown distance = 2 inches for each 10 fpm NOT to exceed 6 inches for every 25 fpm of car speed. *If necessary increase slowdown distance to achieve 4-6 inches of stabilized down leveling.*

### CAUTION: On Wye - Delta Up Start do not energize U and US Coils until motor is running on Delta. With soft starter, energize US coil with motor up to speed signal.

# EXPLODED VIEW UC4MR B44



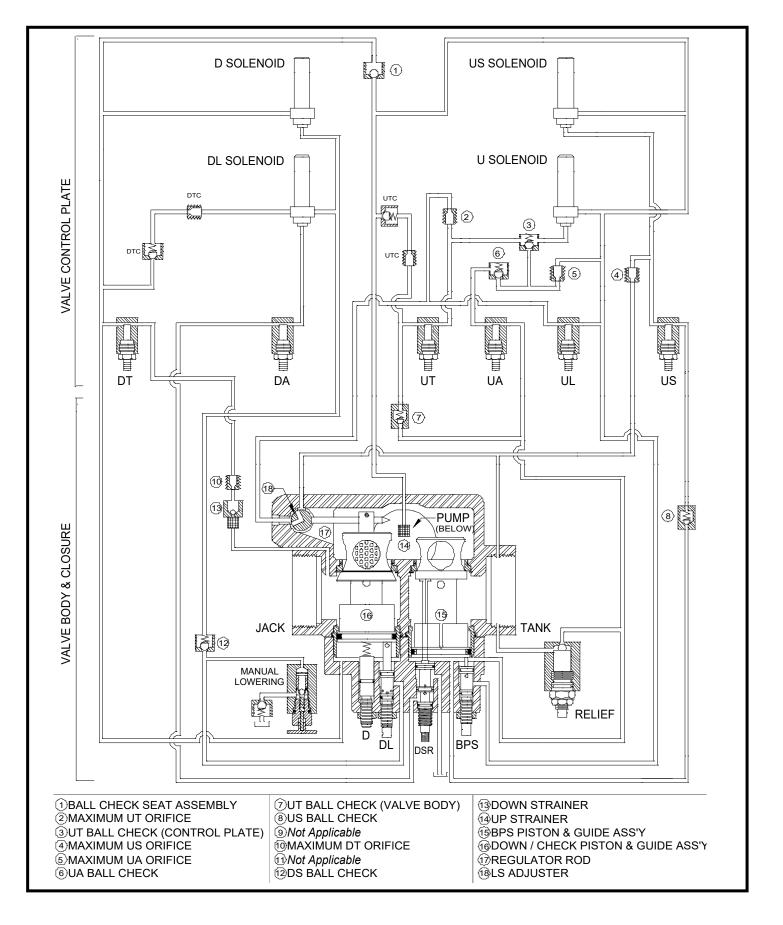


# EXPLODED VIEW PARTS LIST UC4MR B44



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PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
28346MW	CONTROL PLATE ASSEMBLY		VALVE CLOSURE ASSY (Cont.)		VALVE BODY (Cont.)
<b>280070</b> 203400	Adjuster screw assembly Seal nut	283240 233100	Down leveling adjuster assembly	230600	Up seat assembly (cont.) Seal ring
203400	Teflon seal	233100	Snap ring Lock nut	230000 2833E4MR	BPS piston & guide assy (std.)
200700	Adjuster screw	232400	Down leveling adjuster screw	232100	* Seal ring
28170D	Up strainer assembly	210500	* Seal ring	2320A0	BPS piston sleeve (w/pin)
2170D0	Up strainer cap	210200	* Seal ring	28371E	* Piston ring & expander assy
2363A0	Transfer line with screen	224600	Spring guide	2338MR	BPS piston
210500	* Seal ring	232300	Spring	231600	Snap ring
237200	* Seal ring	232200	Sleeve	251500	Control rod
		283250	Down speed adjuster assembly	233100	Snap ring
28170B	Down strainer assembly	233000	Lock nut	251400	Control tube
2170C0	Down strainer cap	232500	Down speed adjuster screw	2339B0	Spring
2170B0	Down strainer base with screen	210200	* Seal ring	233600	Seal ring
210500 236900	* Seal ring	237000 237300	Spring	2340E4MR	BPS guide (standard)
236900	Ball, 1/4" * Seal ring	237300 285010	Spring guide DSR adjuster assembly	283430	Pump flange assy, 2" Grooved
237200 283860	Coils bracket assembly	250200	DSR adjuster screw	232100	* Seal ring
238600	Coils bracket	250200	DSR cartridge	232100 2362B0	Snap ring
207700	Grommet	2504A0	Sleeve	236100	Check return
207900	Ground screw	2323MR	Spring	234300	Flange, 2" Grooved
247300	Washer	251700	Roll pin	235700	Spring
	UT Regulator	251800	Spacer	235600	Return check rod
2379S0	Screw (1/4-28 button head)	250500	Lock nut	283580	Pump flange assy, 2" Threaded
210800	Seal ring	210200	* Seal ring	232100	* Seal ring
234400	Spring	233600	* Seal ring	2362B0	Snap ring
213400	Ball 3/16"	237200	* Seal ring	236100	Check return
	DT Regulator	238500	* Seal ring	235800	Flange, 2" Threaded
2379A0	Screw (1/4-28 button head)	283010	Relief adjuster assembly	235700	Spring
210800	Seal ring	233000	Note: Available in complete closure assy only.	235600	Return check rod
234400 213400	Spring Ball 3/16"	230400	Lock nut Relief cartridge	28347W 2053W0	Regulator assembly Up leveling speed adjuster
213400	Control plate assy miscellaneous	230400	* Seal ring	210700	* Seal ring
282920	+ Solenoid tube assembly	230100	Relief adjuster screw	2347W0	Regulator
29298A2	+ Solenoid seat kit	210500	* Seal ring	212200	Spring
292950	+ Solenoid ball cage kit	230200	Spring boss	214200	Spring boss
2385LC	* Seal ring	230300	Spring		
2372LC	* Seal ring	230500	Ball retainer	28350B	Regulator rod assembly
21019LC	* Seal ring	236900	Ball	235200	Pipe plug
238100	Screw (#10-32)		Valve closure assy miscellaneous	214100	Set screw
210800	* Seal ring	235200	Pipe plug (A & B ports)	2350B0	Regulator rod
244500	Seal plug	2379A0	Screw (1/4-28 button head)		
244600	Seal plug	2107LC	* Seal ring	200000	MISCELLANEOUS
210500 208700	* Seal ring	244500 2105LC	Seal plug	208880 208000	C-Frame
238000	Spring Ball, 5/16"	2105LC 208700	* Seal ring Spring	208000	Solenoid coil 240 VAC (Green) Solenoid coil 115 VDC (Black)
230000 2379A0	Screw 1/4-28 button head)	238000	Ball, 5/16"	2082B0	Solenoid coil 120 VAC/24 VDC (Red)
238100	Screw (#10-32 button head)	236900	Ball, 1/4"	213000	Lock ring
263900	* Seal ring	251000	Spring	212900	Screw (regulator cap)
239503	Orifice (max UA, US) (Blue)	2394MRW	VALVE BODY	2139B0	Screw (control plate)
239504	Orifice (max UT) (Steel)	283070	Down / Check seat assembly	2319B0	Diffuser
239513	Orifice (max DT) (Steel)	230900	Snap ring	232900	Screw (valve closure)
239515	Orifice (UT Reg.) (Black)	230700	Down / Check seat	234200	Screw (pump flange)
		231200	Spacer	2354B0	Coil cover stud
28328MRW	VALVE CLOSURE ASSEMBLY	230600	Seal ring	28375B	Coil cover
285060 228500	Manual lower push button assy	28317E4	* Down / Check piston & guide assy	2376A0	Jam nut (coil cover)
238500 210800	* Seal ring * Seal ring	232100 232000	* Seal ring	237700 2379A0	Washer (coil cover)
210800 283330	<ul> <li>* Seal ring</li> <li>* BPS adjuster assembly</li> </ul>	232000 2317A0	Down piston sleeve Down piston	2379A0 235200	Screw (bracket) Pipe plug
23330	Snap ring	28371E	Piston ring & expander assy	200200	, 120 bigg
233000	Lock nut	231600	Snap ring		
233300	BPS adjuster screw	231500	Spring	Notes: -	
210200	* Seal ring	204600	Snap ring	10100	REFER TO APPLICATION FLOW CHART FOR GUIDE SELECTION.
210200	* Seal ring	2314E4	Down / Check guide assy (std.)		E1: 28338E1MR (BPS piston assembly)
224600	Spring guide	204500	* Seal ring		28317E2MR (Down piston assembly)
2323C0	Spring	230800	Seal retainer ring		E2: 28338E2MR (BPS piston assembly) 28317E3MR (Down piston assembly)
235100	Poppit	283410	Up seat assembly		
233600	Seal ring	230900	Snap ring		* = PARTS INCLUDED IN SEAL KIT #291540 + = PARTS INCLUDED IN SOLENOID KIT #292920
2353C0	Seal retainer	234100	BPS seat		

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- The information contained herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

The possible problems and causes are listed in order of likelihood and ease of checking.

The first section of the guide deals with the UP SECTION, while the second deals with the DOWN SECTION.

It is important to use the following reference materials in conjunction with the trouble shooting procedures:

- UC4, UC4MB44 Operating Sequence
- UC4, UC4MB44 Adjustment Procedure
- UC4, UC4MB44 Schematic



- The information contained herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

#### **UP SECTION**

#### PUMP RUNS, CAR DOES NOT MOVE

- Check valve for proper sizing in accord with adjustment procedures.
- Make sure gate valves are open in system as required.
- Turn US (Up Stop) adjuster in clockwise (CW) until it stops.
  - **1.** If car moves, check for proper voltage to coils.
  - 2. If voltage is correct, remove US solenoid assembly. Visually inspect parts for foreign material and / or damage. Ball Cage must operate freely within the solenoid tube.
  - 3. Replace solenoid seat.
  - **4.** Remove transfer line. Check up control fluid strainer on the end of the transfer line for lint. If clogged remove debris (in this case oil in the system must be filtered).
- If car does not move, remove valve closure. Examine bypass piston ring for damage.

### SLOW UP ACCELERATION

- Turn UA (Up Acceleration) adjuster out counterclockwise (CCW).
- Check relief valve for proper setting. Refer to adjustment procedures.
- Check belts and pulleys on pump and motor to make sure they are not slipping.
- Check motor for proper HP rating and line voltage for excessive voltage drop.
- Remove transfer line. Check up control fluid strainer on the end of the transfer line for lint. If clogged remove debris (in this case oil in the system must be filtered).
- Remove valve closure. Examine bypass piston ring for damage.
- Turn UT (Up Transition) and US (Up Stop) adjusters in (CW) fully. If car then accelerates properly, check both U and US solenoid assemblies for damage to seats, debris and free movement of Ball Cage.

### **UP ACCELERATION ROUGH**

- Check jack packing and guide shoes for excessive tightness.
- Check valve for proper sizing.
- Turn US (Up Stop) and UT (Up Transition) adjusters in (CW) fully (count the number of turns to avoid lengthy readjustment).
  - **1.** Register an up call; if problem continues replace BPS adjuster.
  - 2. If car accelerates properly, or stalls in BPS sizing operation, either the US or UT ball check assembly must be replaced. Turn either US or UT adjuster out (CCW) one at a time and register an up call. When valve does not respond properly, replace respective ball check assembly or consult MAXTON regarding replacement.



- The information contained herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

### **UP SECTION (CONTINUED)**

#### **UP SPEED SLOW**

- Check belts and pulleys on pump and motor to make sure they are not slipping.
- Check relief valve for proper setting.
- Check for proper voltage on up coils
- Check motor for proper HP rating and line voltage for excessive voltage drop.
- Check both U and US solenoid for damage to seats, debris and free movement of Ball Cage.

### CAR OVERSHOOTS FLOOR

- Turn the UT (Up Transition) adjuster out (CCW) more.
- Check UL speed, 9-12 FPM
- Disconnect U and US coils, place call. Car should not move.
  - **1.** If car moves turn US adjuster out (CCW) more.
    - 2. Reset BPS adjuster.
- Check hatch slow down switch and stopping circuit to make sure there is no delay (one second lost means a three foot delay at 180 feet per minute).
- Remove the US solenoid assembly and check for foreign material and / or damage. Ball Cage must operate freely within solenoid tube.
- Replace the BPS adjuster.

#### CAR STALLS OR LEVELING SPEED VARIES IN LEVELING ZONE

- Make sure the US (Up Stop) and U (Up) coils are connected in proper operating sequence. Refer to Adjustment Procedure.
- Make sure LS (Leveling Speed) adjuster dot is referenced to the line between F and S.
- Check relief valve for proper setting.
- If car will not adjust using LS (Leveling Speed) adjuster, turn US (Up Stop) adjuster in (CW), then if car moves;
  - **1.** Check for proper coil voltage.
  - **2.** Remove US (Up Stop) solenoid assembly and check for debris and / or damage. Ball Cage must operate freely within the solenoid tube.
  - 3. Replace the solenoid seat.
- Remove the valve closure, examine bypass piston for damage.

### HARSH UP STOP

- Turn US (Up Stop) adjuster in (CW) for smoother stop.
- Check that the pump continues to run after car has stopped for 1/2 second.
- As a check to determine adequate pump time, turn US (Up Stop) adjuster in (CW) fully. Car should then level and stop above the floor. If not, there is not enough pump time.
- Check for tight packing or guide shoes. If jack packing and guide shoes are in good condition, a soft stop will be accomplished by following the standard Adjustment Procedures.



- The information herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

#### DOWN SECTION

#### CAR WILL NOT LOWER

- Check coil voltage.
- Check line shut off valve and tank shut off valve.
- Turn DS (Down Stop) adjuster in clockwise (CW) to stop.
- Turn DA (Down Acceleration) adjuster out counterclockwise (CCW) more.
- Turn DT (Down Transition) adjuster in (CW) slowly. If car will not lower, turn ML (Manual Lowering) screw out (CCW) all the way. If car lowers with ML screw open, first check for proper coil voltage. If voltage is correct, then check both D and DL solenoid assemblies for debris and / or damage. Ball Cage must operate freely within the solenoid tube.
- Replace the solenoid seat.
- Check down piston ring for damage
- Check piston guide and seat for freedom of movement.

#### **SLOW DOWN START**

- Turn DA (Down Acceleration) adjuster out (CCW).
- Turn DS (Down Stop) adjuster in (CW).
- Check jack packing and guide shoes for any binding.
- Remove D solenoid assembly. Check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Replace solenoid seats.

#### HARSH OR BOUNCY START

- Bleed air from jack.
- Check for packing or guide shoe friction.

#### **FAST DOWN START**

• Turn DA (Down Acceleration) adjuster in (CW).

#### CAR COMES DOWN IN LEVELING SPEED ONLY

- Check coil voltage to D (Down Valve) solenoid.
- Land car and remove D solenoid assembly. Check for debris and /or damage. Ball Cage must operate freely within solenoid tube.
- Replace solenoid seats.

#### MAIN DOWN SPEED TOO SLOW

- Make sure gate valves are open between valve and jack and between valve and tank.
- Turn D (Down Speed) adjuster out (CCW).
- Install pressure gauge at "B" port. Check pressure during full down speed and compare to flow chart. If there is any abnormal pressure drop, check for restriction in piping from valve to jack and from valve to tank.
- Check flow capacities of pipe between valve and jack and between valve and tank.
- Replace solenoid seats.
- Check down piston for damage.



- The information herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

# **DOWN SECTION (CONTINUED)**

#### DOWN TRANSITION TOO SLOW

- Turn DT (Down Transition) adjuster out (CCW).
- Check slow down switch and relays for possible delay
- Remove D solenoid assembly and check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Replace solenoid seat.
- Check down control fluid strainer assembly for lint. If clogged remove debris (in this case oil in the system should be filtered).

### NO DOWN LEVELING SPEED

- Turn DA (Down Acceleration) adjuster out (CCW).
- Turn ML (Manual Lowering) screw out (CCW).
- If car lowers:
  - 1. Check voltage to DL solenoid coil.
  - 2. Remove DL solenoid assembly and check for debris and / or damage.
  - Ball Cage must operate freely within solenoid tube.
  - 3. Replace solenoid seat.
- If car does not lower, remove valve closure, check down leveling spool and spring to make sure it is not sticking (or broken) and is assembled in proper order.

### DOWN STOP TOO SMOOTH OR INACCURATE

- Turn DS (Down Stop) adjuster out (CCW). This will necessitate readjusting the DA (Down Acceleration) adjustment.
- Check hatch switches and relays for possible delay.
- Remove DL solenoid assembly and check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Check down control fluid strainer assembly for lint. If clogged remove debris (in this case oil in the system should be filtered).

### DOWN STOP TOO ROUGH

- Turn DS (Down Stop) adjuster in (CW).
- Check for tight jack packing or guide shoes.



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- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the buffers (zero system pressure).

# **DOWN SECTION (CONTINUED)**

#### CAR WILL NOT STOP IN DOWN DIRECTION

- Make sure coils are not energized.
- Turn DT (Down Transition) adjuster out (CCW) fully.
- Remove D solenoid assembly and check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
- Replace solenoid Ball Cage.
- Replace solenoid seat.
- Remove valve closure and check piston guides to make sure they operate freely within their respective seats.
- Check down control fluid strainer assembly for lint. If clogged remove debris (in this case oil in the system should be filtered).

#### CAR DRIFTS SLOWLY DOWN

- Send car to upper floor. Open main power disconnect switch.
- Close pit valve. If car still drifts the leak is in the jack assembly.
- Turn ML (Manual Lowering) screw out (CCW) and then turn in (CW) fully to insure a good seat.
- Turn DA (Down Acceleration) adjuster in clockwise (CW) fully. If leak stops, this indicates a leak at the down solenoids. Replace D and DL solenoid seats. Refer to Solenoid Kit #292920.
- If leak does not stop, this indicates a leak at the down guide seal. Remove Down / Check guide and examine seal on guide for damage and / or debris. Examine Down / Check seat. It must be free from nicks or scratches on the small internal radius.
   CAUTION: If the down piston is removed from the valve then regulator rod must be reconnected to the back side of the down piston between the roll pin and ball bearing. Call Maxton for reassembly instruction

### OVERSPEED VALVE (PIPE RUPTURE / SHUT OFF VALVE)

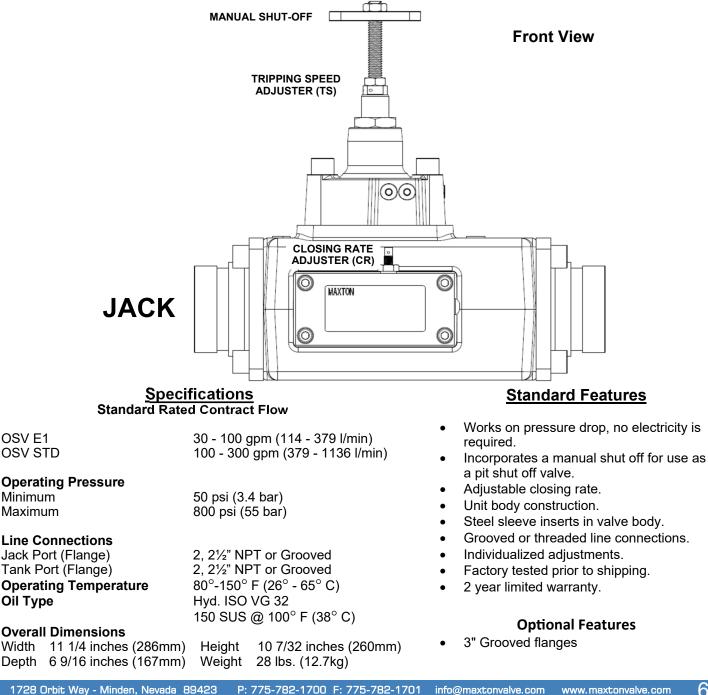
### Introduction

The Maxton OSV line is a uniquely designed, 2 for 1, elevator safety shut off valve designed to protect against elevator car overspeed in the down direction due to pipe rupture and car overload situations. The key combined feature to this valve is a "T" handle shut off pit valve. That means no additional shut of ball valve is required in the pit which reduces cost, time, and number of connections at install.

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The OSV STD is used in high flow system applications (300 gpm max,1136 l/min max). Use the Maxton valve calculator for valve sizing to the job specifications. The Maxton OSV STD can be adjusted to stop the elevator in the event of an overspeed condition resulting in an abnormally high rate of flow between the OSV STD valve and the power unit. Can be installed in a horizontal or vertical position. The Maxton OSV STD complies with ASME A17.1/CSA B44 and meets (UFGS Division 14 Conveying Equip Section 14 24 00 Part 2.4.2.2) requiring a valve equipped with manufacturer's manual shut off feature. The use of this valve is required in areas of high level seismic activity IE: California. Check your local codes for compliance.





#### THE INFORMATION CONTAINED HEREIN IS FOR USE BY SKILLED HYDRAULIC ELEVATOR PROFESSIONALS

#### CAUTION

Never adjust the OSV while the car is in motion. (Stay out of the pit when the car is running.)

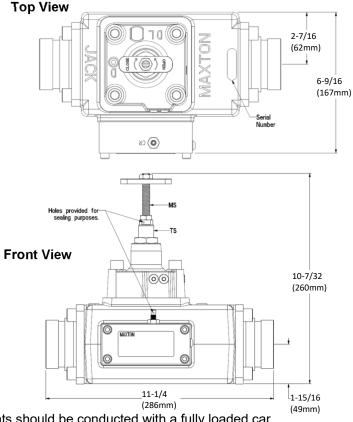
Manual shut off (MS) must be fully open (CCW) during normal operation.

When utilizing the OSV as a pit valve, turn Manual Shut Off in (CW) to stop.

Once tripped or after opening the Manual Shut Off, the OSV must be reset to a normal open position by making an up run.

Maxton recommends the OSV have a threaded connection to the jack.

INITIAL SETTINGS										
TS	TRIPPING SPEED	OUT	(CCW) to stop.							
CR	CLOSING RATE	OUT	(CCW) to stop.							
MS	MANUAL SHUT OFF	OUT	(CCW) to stop.							



**NOTE:** To achieve accurate settings, OSV adjustments should be conducted with a fully loaded car. Whenever possible, run car to an intermediate floor during adjustments and tests. It may be advisable to adjust for a slightly faster down transition to insure floor stop.

#### ADJUSTMENT PROCEDURES

- 1. Set car speed to contract down speed +25% (contract speed = full down speed with rated load).
- 2. Return car to the upper floor; Verify tripping flow on the PRECALCULATED TRIPPING FLOW TABLE. Turn **TS** in (CW) the number of turns indicated on the TRIPPING SPEED PRESET GRAPH. Exit the pit and register a down call. Minor Adjustment may be needed for final tripping speed. Lock jam nut.

**If piston diameter is unknown**, turn **TS** in (CW) one turn. Exit the pit and register a down call. Repeat this procedure until the valve actuates. Lock jam nut.

- 3. Return the car to the upper floor, turn **CR** in (CW) three turns initially. Exit the pit and register a down call. Repeat this procedure using one-turn increments to obtain a comfortable, firm stop.
- 4. Seal adjustments **TS** and **CR** as required by local code.
- 5. Adjust the down valve and down transition back to normal settings (contract speed = full down speed with rated load).

#### (SEE NOTE ABOVE)

#### FULL LOAD TEST PROCEDURE

- 1. Load car to rated capacity.
- Increase down speed in accordance with Main Control Valve's manufacturer's instructions until rupture valve sets.
   Verify rupture valve set within range permitted by local code.
- 4. Verify adjustments are sealed on rupture valve.
- Return Main control valve to operational settings.

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#### PRECALCULATED OSV TRIPPING FLOW TABLE DIRECT ACTING APPLICATIONS

JACK PISTON DIAMETER (INCHES)

_		2	2 1/2	2 3/4	3	3 1/2	4	4 3/8	4 1/2	5	5 7/16	5 1/2	6	6 1/2	7	71//2	8	8 1/2	9 1/2	10 5⁄8	12 5⁄8
L	1	0.20	0.33	0.39	0.46	0.63	0.81	0.98	1.04	1.28	1.51	1.54	1.84	2.15	2.50	2.88	3.26	3.69	4.60	5.76	8.13
0	5	1.03	1.60	1.93	2.30	3.13	4.08	4.88	5.16	6.38	7.54	7.71	9.18	11	13	14	16	19	23	29	41
A	10	2.04	3.19	3.86	4.59	6.25	8.16	10	10	13	15	15	19	21	25	29	33	36	46	58	81
D	20	4.08	6.38	7.71	9.18	13	16	20	21	25	30	31	36	43	50	58	65	74	93	115	163
Е	30	6.13	10	12	14	19	25	29	31	39	45	46	55	65	75	86	98	110	138	173	244
D	40	8.16	13	15	19	25	33	39	41	51	60	61	74	86	100	115	130	148	184	230	325
	50	10	16	19	23	31	41	49	51	64	75	78	91	108	125	144	164	184	230	288	406
С	60	12	19	24	28	38	49	59	63	76	90	93	110	129	150	173	196	221	276	345	488
Α	70	14	23	28	33	44	58	69	73	89	105	108	129	151	175	201	229	258	323	403	569
R	80	16	25	31	36	50	65	78	83	103	121	124	148	173	200	230	261	295	369	460	650
	90	19	29	35	41	56	74	88	93	115	136	139	165	194	225	259	294	331	414	519	731
S	100	20	33	39	46	63	81	98	104	128	151	154	184	215	250	288	326	369	460	576	813
Ρ	110	23	35	43	50	69	90	108	114	140	166	170	203	238	275	315	359	405	506	634	894
Е	120	25	39	46	55	75	98	118	124	153	181	185	220	259	300	344	391	443	553	691	975
Е	125	25	40	49	58	78	103	123	129	160	189	193	230	269	313	359	408	460	575	720	1016
D	130	26	41	50	60	81	106	128	134	166	196	200	239	280	325	373	424	479	599	749	1056
	140	29	45	54	64	88	114	136	145	179	211	216	258	301	350	401	458	516	645	806	1138
F	150	30	48	58	69	94	123	146	155	191	226	231	275	324	375	430	490	553	690	864	1219
Ρ	160	33	51	61	74	100	130	156	165	204	241	246	294	345	400	459	523	590	736	921	1300
м	170	35	54	65	78	106	139	166	175	216	256	263	313	366	425	488	555	626	783	979	1383
	180	36	58	70	83	113	148	176	186	230	271	278	330	388	450	516	588	664	829	1036	1464
	190	39	60	74	88	119	155	185	196	243	286	293	349	410	475	545	620	700	875	1094	1545
	200	41	64	78	91	125	164	195	206	255	301	309	368	431	500	574	653	738	920	1151	1626

# **Tripping Flow (GPM)**

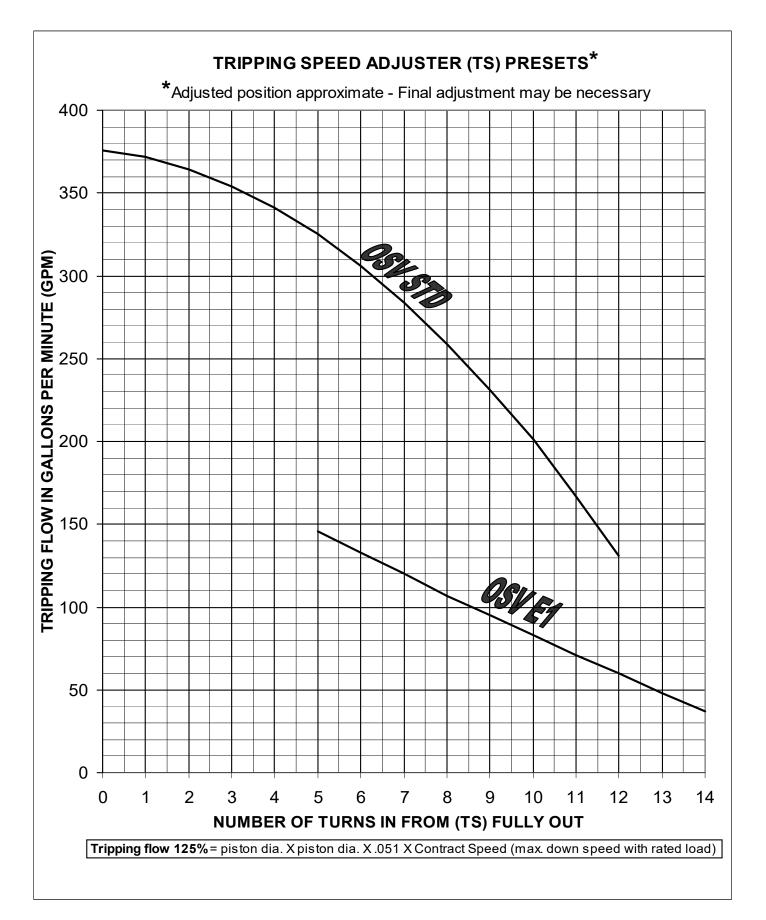
**NOTICE**: DO NOT USE THIS TABLE FOR CALCULATING PUMP OUTPUT. TABLE REPRESENTS OSV TRIPPING FLOW ONLY. RATED FLOW X 125%

Table Instructions:

- 1. Intersect loaded down speed with the piston diameter.
- 2. Intersection = Tripping Flow.
- 3. Apply tripping flow to the chart on the following page to determine the number turns needed in on the TS adjuster.



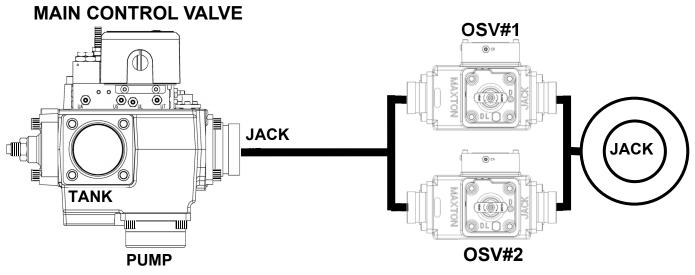






### THE INFORMATION CONTAINED HEREIN IS FOR USE BY SKILLED HYDRAULIC ELEVATOR PROFESSIONALS

# DUAL OSV ADJUSTMENT PROCEDURES



ADJUSTMENT (OSV#1):

# IMPORTANT: NOTE THE NUMBER OF TURNS IN ON THE TS AND CR ADJUSTERS.

- 1. Set car speed by adjusting the down valve (Main control valve) to **HALF** of the desired tripping speed.
- 2. Return car to the upper floor; Turn MS (Manual Shut Off) adjuster IN (CW) to stop on the OSV#2.
- 3. OSV#1: Turn TS Adjuster IN (CW) one turn. Exit the pit and register a down call. Repeat this procedure until the valve actuates. **NOTE THE NUMBER OF TURNS IN ON THE TS ADJUSTER**.
- 4. Return car to the upper floor. Lock TS jam nut. Turn CR IN (CW) three turns. Exit the pit and register a down call. Repeat this procedure using one-turn increments to obtain a comfortable, firm stop. **NOTE THE NUMBER OF TURNS IN ON THE CR ADJUSTER**.

# ADJUSTMENT (OSV#2):

- 5. OSV#2: Turn MS and TS adjusters OUT (CCW) to stop.
- 6. Turn TS adjuster IN (CW) the same number of turns as TS on OSV#1 from initial setting.
- 7. Turn CR adjuster IN (CW) the same number of turns as CR on OSV#1 from initial setting.
- 8. Send car down. OSV#1 should trip. Send car to upper floor.

# **TESTING OSV's:**

- 9. Increase the car speed by opening the down valve (Main control valve) to verify that tripping speed is within Local Code requirements.
- 10. Seal **TS** and **CR** adjusters on both OSV's as required by local code.
- 11. Adjust the main down valve and down transition back to normal settings. (Contract Speed = Full down speed with rated load).

# ALTERNATE METHOD (TABLE AND CHART)

Verify tripping flow on the PRECALCULATED TRIPPING FLOW TABLE. Divide TRIPPING FLOW by two (TRIPPING FLOW / 2). Turn **TS** in (CW) on both valves as indicated on the TRIPPING SPEED PRESET GRAPH. Exit the pit and register a down call. Minor adjustment may be needed for final tripping speed. Adjust valves equally.

www.maxtonvalve.com



#### Introduction

The Maxton OSVB25 Overspeed Valve (Pipe Rupture) is designed to provide protection against supply line failure or over speed in the down direction. The OSVB25 can be adjusted to stop the elevator in the event of an over speed condition caused by a broken supply line or an abnormally high rate of flow between the OSVB25 and the power unit. The OSVB25 complies with ASME A17.1 / CSA B44.

J	ACK	the setures			
	<ul> <li>Works on pressure</li> <li>Unit body constructi</li> <li>Factory tested prior</li> <li>2 year limited warra</li> </ul>	to shipping.	ed.		
Working Flow	3 – 24 gpm (11.4 – 90.8 l/min.) (80% of Tripping Flow)	Oil Type	Hydraulic IS 150 SUS @	SO VG 32 100°F (38°C)	
<b>Operating Pressure</b> Minimum	150 psi (10.3 bars)	Operating Temperature	80° - 150°F	(26 - 65°C)	
Maximum Line Connections <sup>3</sup> / <sub>4</sub>	1000 psi (68.9 bars)	<b>Overall Dimensions</b> Width Height Depth	4-5/8 inches(118 mm) 5-1/2 inches(140 mm) 2-1/2 inches(63.5 mm)		
		Weight	4.2 lbs.	(1.91 kg.)	



1 1/4"

(31.75 mm)

2 1/2" (63.5 mm)

# THE INFORMATION CONTAINED HEREIN IS FOR USE BY SKILLED HYDRAULIC ELEVATOR

**Top View** 

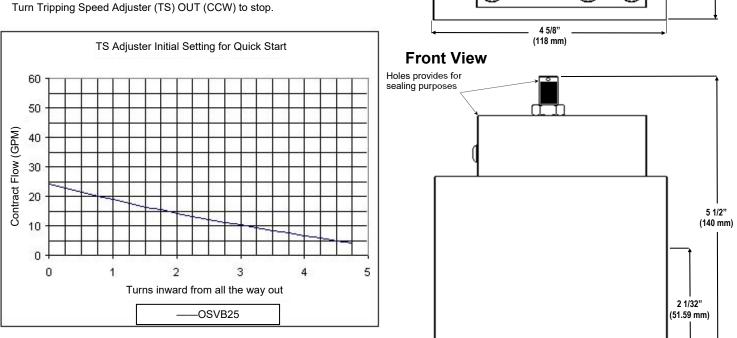
JACK

# CAUTION

Stay out of the pit when the car is in motion.

Once tripped, the OSVB25 must be reset to a normal open position by making an up run.

### INITIAL SETTING:



# ADJUSTMENT PROCEDURES

**NOTE:** OSVB25 adjustments should be conducted with a fully loaded car. Whenever possible, run car to an intermediate floor during adjustments and tests. It may be advisable to adjust for a slightly faster down transition to insure floor stop.

- 1. Set car speed to contract down speed +25% (contract speed = full down speed with rated load).
- 2. Return car to the upper floor; turn TS in (CW) one quarter turn. Exit the pit and register a down call. Repeat this procedure until the valve actuates. Tighten jam nut to lock setting in place.
- 3. Apply seal to TS adjuster as required by state and local code.
- 4. Adjust the down valve back to normal settings.

3



(UC4M shown)

# CAUTION:

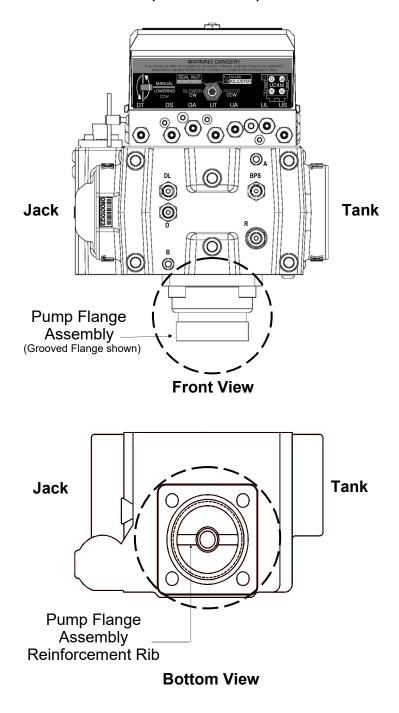
All Maxton valves *MUST* be installed with the solenoids in the upright (vertical) position.

# Pump Flange Replacement:

# When replacing a Maxton UC3A / UC3AM or UC4 / UC4M / UC4MR series valve, the Pump Flange Assembly must also be replaced.

It is subject to the same wear and tear as the valve. It is important that when installing the flange, the Reinforcement Rib inside the flange be installed in line with the Jack and Tank ports on the valve body.

Maxton has not manufactured the UC3 since 1977 and the UC3A/UC3AM since 1983. We no longer support the UC3/3A/3AM in the form of parts, kits or repairs. The UC4 series valve is the direct piping replacement for the UC3/3A/3AM. To determine which of the UC4 valves is best suited for your job, please contact our sales department with your job specs (piston diameter, car speed, capacity, no-load PSI or empty car weight).



ΤΔ

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# COIL SPECIFICATIONS



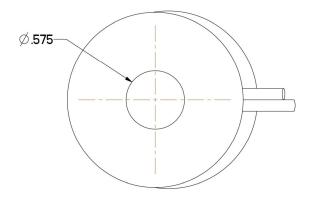
Dout No.			Coil Color / Coil Wire		Coil Wire		Coil Wire		OHMS ± 10%	Current ( ± 10	
Part No.	Label Color	Length (inches) +2", -0"	(AWG)	Voltage	DC Resistance At 25° C With Leads	DC	AC				
208200	Black / Red	36	26	120 VAC	28.6		.55				
2082C0	Black / White	5	26	24 VDC	24.5	.9	-				
208000	Black / Green	36	29	240 VAC	116		.230				
208100	Black / White	36	32	115 VDC	522	.22					
208300	Black / White	36	22	12 VDC	5.30	2.19					
2080A0	Blue / White	36	28	185 VAC	78.2		.220				

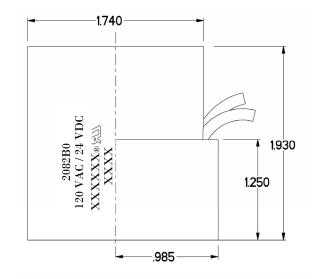
Current (AMPS) measured when coil is tested on a fully assembled control plate with C-Frame installed.



\* Part # 290820 AND # 290800 COME IN SETS OF 4 WITH MULTI-COLORED LEAD WIRES. COLORS ARE RED, YELLOW, ORANGE AND BLUE. ALL OTHERS ARE BLACK UNLESS OTHERWISE NOTED







/



The normal mechanical life of a Maxton valve is in excess of two million cycles. Valve operating life can be affected by many variables, i.e. the operating temperature, the usage frequency, the pressure ratio, and the presence of contaminants in the oil, their size, type and amount, etc. With the presence of at least some adverse conditions in most installations, serious consideration should be given to overhaul or replacement of a control valve on a five year cycle.

Rebuild of a control valve requires proper tools, detailed knowledge of critical areas in the valve, and full testing of the completed assembly. Machining and component replacement may be necessary to meet current design specifications. Few facilities have the knowledge and capability. For this reason, Maxton no longer offers a valve service kit. Valve seal kits, seat kits, and solenoid kits are available, but are neither designed nor intended for field rebuild of a valve unit.

Seat kits, seal kits, and solenoid kits are intended for use by professionals trained in the manufacture, installation and maintenance of hydraulic elevator systems. Before disassembly or replacement of a control valve, the main line power switch should be disconnected and locked out and the car landed on the buffers (zero system pressure).

Manual lowering is used to lower a car for service, and to depressurize the oil system. This control should be fully closed after use. If a car is stuck in the hoist way, manual lowering must be shut to ensure the car remains supported by a column of oil.

There are neither parts nor kits available for the UC3/3A/3AM or Minimax control valves. These valve models are no longer manufactured nor supported in the form of kits, parts, and repairs. For replacement of a UC3 or MiniMax valve, contact our sales department with the job specifications to determine the correct valve for replacement. Job specifications needed would include car speed, jack piston diameter, capacity, empty static pressure or empty car weight, the coil voltage and the pump flange type.

It is recommended that solenoid seats and ball cage assemblies be replaced every 2,000,000 cycles. For a valve that was manufactured or last repaired before May 1995, the solenoid seat and solenoid tube assembly must be changed together (use the appropriate solenoid kit).



Seal kit # 291510 (for UC1/1A/2/2A valves) contains field replaceable seals and piston rings for these model valves. The check piston, and the piston seat assemblies are not considered removable, and seal parts for these assemblies are not provided.

Seal kit # 291540 (for UC4/4M/4MR valves) contains field replaceable seals as well as a BPS adjuster (#283330). Due to the presence of an internal seal, and the nature of the problems should the seal fail, it is recommended that the BPS adjuster be replaced during periodic maintenance (3-5 years), and whenever valve seals must otherwise be replaced. Seals for the piston seat assemblies in these valves are not provided as the seats vary between valve years, are not easily removed and can be improperly re-installed in the field.

Seal kit # 291500 is used to replace the seals in the OSV (seismic safety or pipe rupture) valve.

UC1/UC1A/UC2/UC2A valves manufactured prior to 1980 have solenoid stems that are held in place with a snap ring. There are no longer parts, seats or seals available for this style solenoid assembly. The valve may be replaced through the purchase of a new valve.

Solenoid kit # 29292A (UC1/1A/2/2A valves) Each kit contains matched solenoid seats, ball cages and solenoid tube assemblies sufficient for one valve.

Solenoid kit # 292920 (UC4/4M/4MR valves) Each kit contains matched solenoid seats, ball cages and solenoid tube assemblies sufficient for one valve.

For valves manufactured since May 1995, Seat kit # 29298A-2 (UC1/1A/2/2A/UC4/4M/4MR valves) is used to replace the solenoid seats only.

When replacing a UC3/3A/3AM or UC4 series valve, the pump flange assembly must also be replaced. This pump flange assembly has moving parts with a service life.

To provide trouble free startup and operation, the oil system should be purged and the oil filtered or replaced when a valve replacement takes place.



Disconnect power and land car on the buffers (zero system pressure) before installation. Do not save and reuse parts.

	291510 KIT FOR UC1 / UC1A / UC2 / UC2A VALVES								
Quantity	Part No.	Description	Quantity	Part No.	Description				
2	210000	Seal Ring (BPS / Down closure sleeve)	3	210600	Seal Ring (Adjuster; down leveling, BPS)				
1	2372LC	Square C.S. Seal Ring (Face Seal)	19	210800	Seal Ring (1/4-28 Button head screw)				
5	210200	Seal Ring (BPS / Down / Check piston rod)	1	2110LC	Square C.S. Seal Ring (Relief block bore)				
1	210300	Seal Ring (Restrictor closure)	9	227000	Adjuster Seal (Teflon ring)				
1	210370	Seal Ring (Check Closure with groove)	2	28098A	Piston Ring & Expander (BPS / Down)				
3	210400	Seal Ring (Flanges, Pump, Tank & Jack)	2	2107LC	Square C.S. Seal Ring (Face Seal)				
17	2105LC	Square C.S. Seal Ring (Face Seal)	4	210700	Seal Ring (LS adjuster)				
7	210500	Seal Ring (Seal plug, Relief push rod)	7	263900	Seal Ring (10-32 button head screw)				
1	2385LC	Square C.S. Seal Ring (Face Seal)							

Disconnect power and land car on the buffers (zero system pressure) before installation. Do not save and reuse parts.

	291500 KIT FOR OSV VALVE								
Quantity	Part No.	Description	Quantity	Part No.	Description				
1	210000	Seal Ring (Closure sleeve)	1	2107LC	Square C.S. Seal Ring (Face Seal)				
2	210400	Seal Ring (Flanges, Pump & Jack)	1	227000	Adjuster Seal (Teflon ring)				
3	210500	Seal Ring (Seal plug)	1	28098A	Piston Ring & Expander (Down piston)				
7	2105LC	Square C.S. Seal Ring (Face Seal)	1	2385LC	Square C.S. Seal Ring (Spring Guide)				
1	210600	Seal Ring (Tripping speed adjuster)	1	210190	Seal Ring (Spring guide, new style)				
1	210700	Seal Ring (Control block, Valve Body)	3	210800	Seal Ring (1/4-28 Button head screw)				

Disconnect power and land car on the buffers (zero system pressure) before installation. Do not save and reuse parts.

	291540 KIT FOR UC4/4M/4MR VALVES								
Quantity	Part No.	Description	Quantity	Part No.	Description				
1	204500	Seal Ring (Down guide retainer)	8	227000	Adjuster Seal (Teflon ring)				
9	2372LC	Square C.S. Seal Ring (Face Seal)	3	232100	Seal Ring (Flange, piston sleeves)				
4	237200	Seal Ring (Relief cart. up/down strainer, DSR)	2	233600	Seal Ring (Manual Lowering / DSR)				
1	21019LC	Seal Ring (Face seal, B44)	1	2107LC	Square C.S. Seal Ring (Face Seal)				
3	210200	Seal Ring (Closure adj.)	3	210700	Seal Ring (LS adjuster)				
18	2105LC	Square C.S. Seal Ring (Face Seal)	2	2385LC	Square C.S. Seal Ring (Face Seal)				
15	210500	Seal Ring (Closure adj., Seal Plug)	2	238500	Seal Ring				
1	283330	BPS Adjuster Assembly	2	28371E*	Piston Ring & Expander (Up / Down)				
29	210800	Seal Ring (1/4-28 Button head screw)	15	263900	Seal Ring (10-32 Button head screw)				

\* Warning: When replacing Teflon Piston Ring (2371C0) the Expander Ring must be replaced as well.



Disconnect power and land car on the buffers (zero system pressure) before installation. Do not save and reuse parts.

	292920 SOLENOID KIT FOR UC4 / UC4M / UC4MR								
Quantity         Part No.         Description         Quantity         Part No.         Description									
1	29298A-2	Solenoid Seat Kit	4	282920	Solenoid Tube Assembly				
1	Seal Ring (Solenoid Tube)								

	29292A SOLENOID KIT FOR UC1A / UC1 / UC2A / UC2								
Quantity Part No. Description Q				Part No.	Description				
1	29298A-2	Solenoid Seat Kit	1	28292A	Solenoid Tube Assembly				
1 292950 Ball Cage Kit		3	282920	Solenoid Tube Assembly					
4	238500	Seal Ring (Solenoid Tube)							

	29298A-2 SOLENOID SEAT KIT FOR UC4 / UC4M / UC4MR / UC1A / UC1 / UC2A / UC2								
Quantity	Part No.	Description	Quantity	Part No.	Description				
4	2298A0-2	Solenoid Seat	4	236000	Seal Ring				
4	4 210800 Seal Ring								

	292950 BALL CAGE KIT UC4 / UC4M / UC4MR / UC1A / UC1 / UC2A / UC2							
Quantity         Part No.         Description         Quantity         Part No.         Description								
4	282950	Ball Cage Assembly	4	229400	Spring			

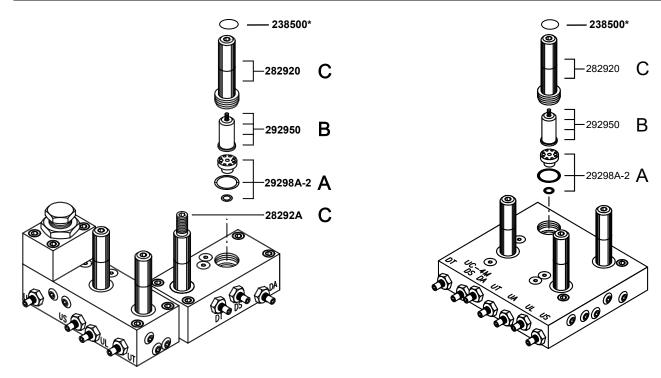
	29298EMV SOLENOID SEAT KIT with CHECK SEAT SEAL FOR EMV10 / EMV10T								
Quantity	Part No.	Description	Quantity	Part No.	Description				
2	312980	Solenoid Seat, EMV	2	236000	Seal Ring				
2 210800 Seal Ring		2	311270	Seal Ring					

	29896EMV SOLENOID KIT FOR EMV10 / EMV10T								
Quantity	Part No.	Description	Quantity	Part No.	Description				
1	312980	Solenoid Seat, EMV	1	288960	Solenoid Tube Assembly				
1	236000	Seal Ring	1	238500	Seal Ring (Solenoid Tube)				
1	210800	Seal Ring	1	282950	Ball Cage				
1	229400	Spring	1	311270	Seal Ring				

8



SC	DLENOID KIT PART No UC1A / UC1 / UC2A			SO	LENOID KIT PART No UC4 / UC4M / UC4		
QTY.	DESCRIPTION	ASSY NO.	SYMBOL	QTY.	DESCRIPTION	ASSY NO.	
1	Solenoid Seat Kit	29298A-2	A	1	Solenoid Seat Kit	29298A-2	
1	Ball Cage Kit	292950	В	1	Ball Cage Kit	292950	
3	Solenoid Tube Assembly	282920	С	4	Solenoid Tube Assembly	282920	
1	Solenoid Tube Assembly	28292A		4	Seal Ring	238500	
4 Seal Ring 238500							
	Replacement Recommendation				Replace every 2,000,000 cycles		
			A & C	Retrofit valves produced prior to July 1995.			



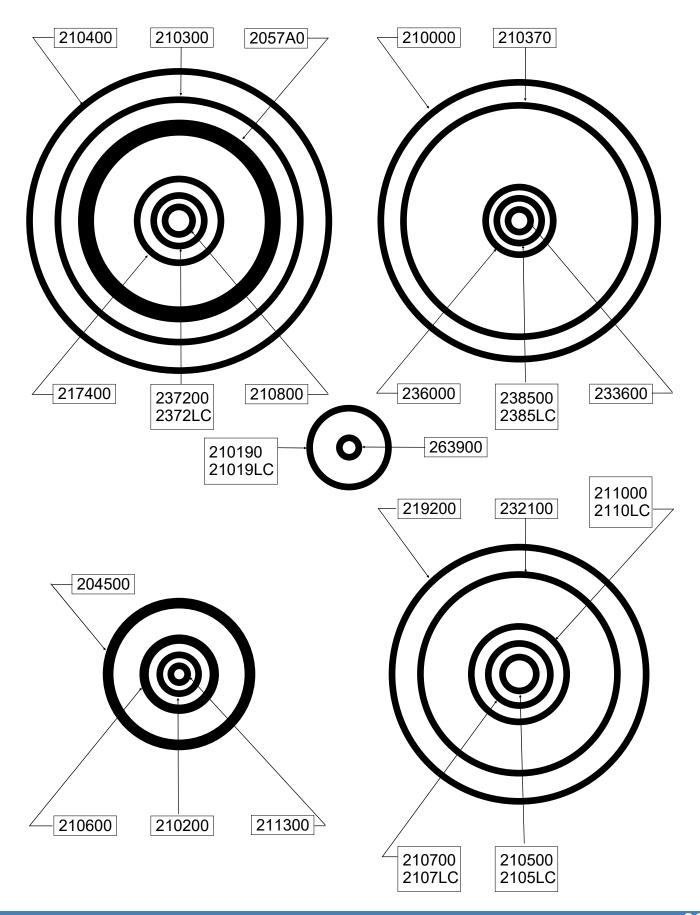
UC1A / UC2A CONTROL BLOCKS SHOWN

# **REPLACEMENT PROCEDURE**

- 1. Turn power off at main disconnect switch.
- 2. Land car on buffers (zero system pressure).
- 3. Use caution when handling seats. Tools should be used on the outer holes only to avoid damaging the sealing edge of the center hole. \* 238500 should be installed dry.
- 4. Dip seal rings in oil and install new parts as depicted above.
- 5. Make sure the solenoid seats are centered and all the way down before installing remaining parts.
- 6. Tighten solenoid tubes to 156 in lbs. (13 ft lbs). The solenoid tubes should be checked periodically for proper torque.

UC4M CONTROL PLATE SHOWN



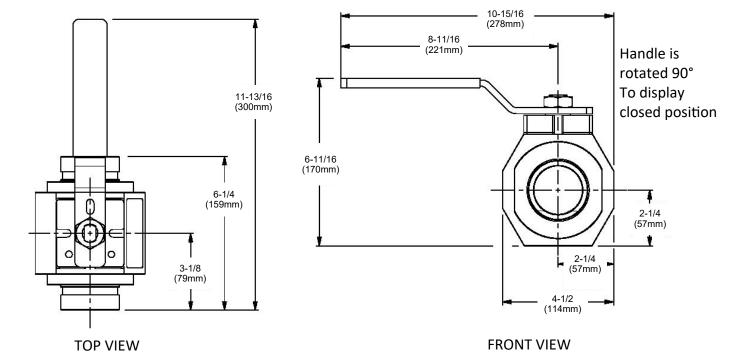




Maxton Elevator Shut Off Valves are specifically built for hydraulic elevators and are labeled and tested to comply with ASME A17.1 / CSA B44 at a 5:1 Safety factor.



- Hard chrome plated carbon steel ball
- Blow out proof stem used across the line
- Unique locking handle design preventing accidental fluid loss
- 2 year Maxton valve warranty
- Interchangeable flange sizing of 2" & 2.5" grooved or threaded connections (contact Maxton for combinations not listed below)



# **SPECIFICATIONS**

Oil Type Max. Operating Temperature Max. Operating Pressure Line Connections

Valve Type

Hydraulic Fluid 150° F (65° C) 1000 psi (69 bar) 2", 2.5", Grooved or NPT 3" Grooved 1/4 Turn, Ball

# VALVE MODEL

# <u>WEIGHT</u>

 BV2G2G
 11.30lbs. (5.13 kg)

 2" Full Port Grooved
 13.05 lbs. (5.92 kg)

 2" Full Port NPT
 11.65 lbs. (5.28 kg)

 2.5" Grooved
 11.65 lbs. (5.28 kg)

 BV25T25T
 11.65 lbs. (5.28 kg)

 2.5" NPT
 13.30 lbs. (6.03 kg)

 3" Grooved
 13.30 lbs. (6.03 kg)

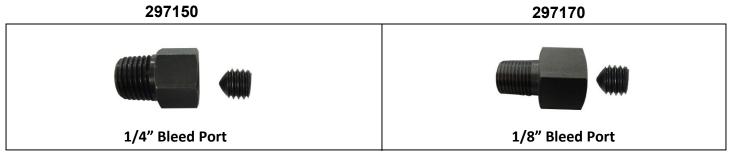
# SHUT OFF BALL VALVE / BLEED PORT



The Maxton Hydraulic Shut Off Ball Valve has been tested specifically for hydraulic elevator applications and comply with ASME A17.1 / CSA B44.

BV1-4A		BV1	-8A	BV3-4
				matten i imatten i imatten imatten imatten i i i i i i i i i i i i i i i i i i i
1/4" NPT Female to	Male	1/8" NPT Ma	le to Male	3/4" NPT Female to Female
<b>Specifications</b>				
Max Operating Pressure	9	1000 psi (55 1/8" NPT, 1/4	bar) 4" NPT or 3/4" NPT	-
Max Operating Temper	rature	150° F (65°	C)	
Oil Type		Hydraulic F	luid	
Overall Dimensions:Width (inch)BV1-4A.950BV1-8A.950BV3-41.875		Length (inch) 2.050 1.900 6.250	Height (inch) 1.275 1.275 2.900	Weight (ounce) 4 oz. 3 oz. 24 oz. (1.5 lbs)
Piping Dimension: BV3-4	Length (inch) 2.900			

Maxton Bleed Port's are machined parts with black oxide finish designed to aid in the bleeding of air from the jack during installation, oil replacement, or other repairs where unwanted air might enter the jack. No more oil showers or worn out threads in the jack when typical pipe drain plugs were used. Simply back out the center set screw slightly releasing air while leaving the main body attached to the jack.



# **Specifications**

Material Max Operating Pressure Line Connections Max Operating Temperature		5/8" Hex, Ledloy 1000 psi (55 bar) 1/4" NPT or 1/8" NPT 150° F (65° C)	
Oil Type           Overall Dimensions:         Width (inch)           297150         .625		Hydraulic F Height (inch) .900	Weight (ounce) 1.0 oz.
297170	.625	.900	0.8 oz.

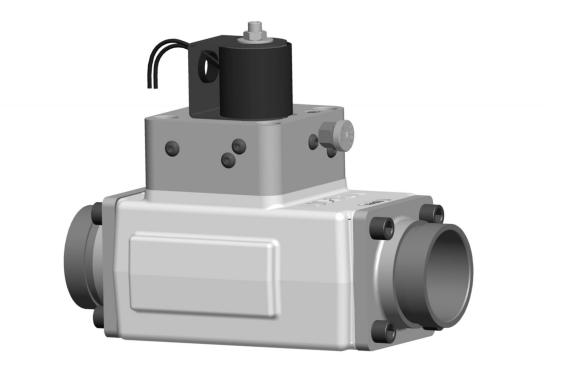
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# Introduction

The Maxton Interlock Hydraulic Valve (ILV) is a solenoid operated, normally closed check valve designed to prevent unintended elevator down movement. The ILV only allows the oil to flow in the down direction when the solenoid coil is energized. Due to its unique design the up flow is unrestricted and does not require power to the solenoid coil. The ILV should be installed adjacent to the main control valve, no adjustments are required. A push button Manual Lowering is provided to lower the hydraulic elevator in case of emergency.

The Maxton ILV complies with ASME A17.1 / CSA B44



# **Specifications**

**RATED FLOW** 

**Operating Pressure** Minimum Maximum

Line Connections Jack Port (Flange) Tank Port (Flange) **Operating Temperature** Oil Type

# **Overall Dimensions**

Width 11 1/4 inches (286mm) Depth 5 1/4 inches (133mm) Weight 28 lbs. (12.7kg)

Maximum 360 gpm (1362 l/min)

100 psi (6.9 bar) 800 psi (55 bar)

2, 2<sup>1</sup>/<sub>2</sub>" NPT or Grooved 2. 2<sup>1</sup>/<sub>2</sub>" NPT or Grooved 80°-150° F (26° - 65° C) Hyd. ISO VG 32 150 SUS @ 100° F (38° C)

Height 8 13/16 inches (224mm)

# **Standard Features**

- Unit body construction.
- Steel sleeve inserts in valve body •
- Grooved or threaded line connections •
- 115 VDC solenoid coil •
- Factory tested prior to shipping
- 2 year limited warranty •

# **Optional Features**

- 3" Grooved flanges •
- 120 VAC / 12 VDC solenoid coil .
- 240 VAC solenoid coil
- 120 VAC / 24 VDC solenoid coil



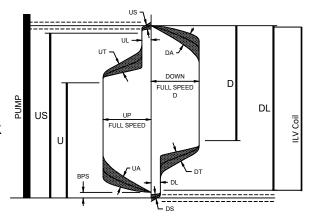
# **ILV COIL OPERATING SEQUENCE**

# ILV

Energize when a down call is registered along with down solenoid Coils ( D & DL) to allow down flow. De-Energize to stop.

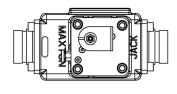
# MANUAL LOWERING

Open main valve manual lowering first. On Interlock Valve, push ML Button to lower car downward at leveling speed when necessary.

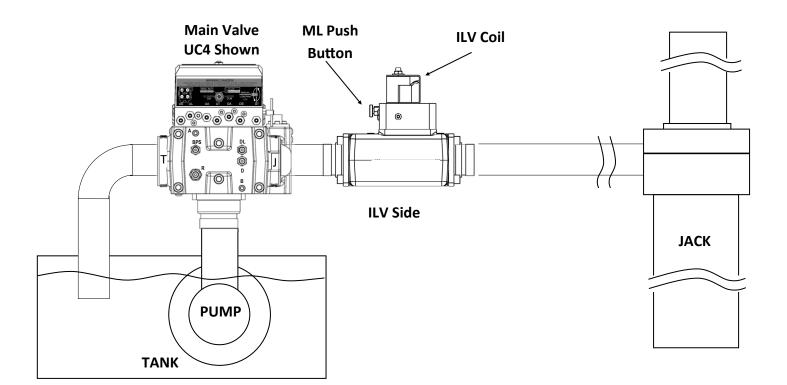


# **ILV TYPICAL INSTALLATION**

NOTE: Solenoid/Coil Assembly must be mounted in the vertical position



**ILV Top** 







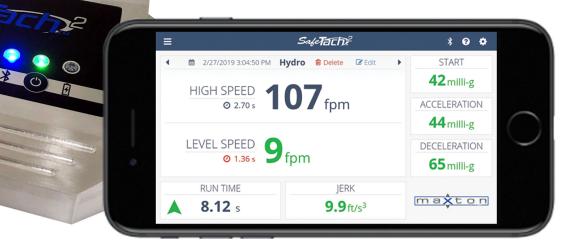
The next generation SafeTach2 Elevator Performance Meter (APP/Node combo) from Maxton is the most fiscally responsible tool available for the elevator industry to date. With the cost of labor reaching historic levels maximizing ROI, use of time, and volume of work completed is what really matters to your bottom line. \*\*

*"It's the only tool out there that gives me graphs and speeds for quick accurate adjusting of hydraulic and traction elevators. It's like having another guy," said David Hall, Elevator Mechanic, Koch Elevator.* 

SafeTach2 now incorporates an APP with the user's mobile device to provide remote access of accurate hydraulic & traction elevator performance measurements.

Resolution:

- Speed +/- 1 fpm
- Acceleration +/- 1 milli-g
- Jerk +/- 1 ft/sec<sup>3</sup>



New benefits:

- Bluetooth remote connectivity w/ App on user's mobile device
- Report generation for up to 8 runs (name/time/date) print, email, or send to cloud
- 3 axes (X, Y, Z)
- Graphing (Velocity, Acceleration, Jerk, Sound)
- 24 continuous hours of operation per charge
- Unlimited run data collection
- The SafeTach2 is factory calibrated for the life of the unit. Barring physical damage to the unit, the state-of-the-art electronic circuitry ensures the SAFETACH2 never needs re-calibration.

Download APP for a FREE look!!





\*\*Scan for Case Study ROI example here.



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# TA4M RENTAL PROGRAM FIELD TRAINING AID

The TA4M is a complete portable Hydraulic Elevator Simulator with automatic controls. It is used for adjustment training for Maxton UC4 and UC4M control valves. With this simulator, installation and service technicians can be easily trained in a class room environment to setup these Maxton control valves utilizing the same control features as a commercial elevator.

*Elevator car motion is simulated by the movement of a piston traveling up to 36 inches at 35 feet per minute. The slowdown signals and stopping points have been set based on cylinder travel and speed.* 



# Features:

- Maxton UC4M control valve
- Pressure gauges (A port, B port)
- PLC control operator Interface.
  - Speed Readout
  - Easily toggle ON/OFF coils
  - Digital position feedback
- Direct drive power unit with overload
- Instruction manual
- Clean and quiet, suitable for classroom use



# Portable Elevator Simulator

# An instruction manual and built in visual aids for operation of the TA4M, allows comprehensive hands-on experience in operation of MAXTON UC4 and UC4M control valves.

TA4M System -two stop selective PLC control & hydraulic drive

# Power Requirements: 115vac 60hz 15amps

System Weight:	520	lbs
Crate	350	Ibs
Total	870	lbs each
Shipping	FOB	Minden, NV

9(



The Maxton Pressure Switch (PSNO-2) has been tested specifically for hydraulic elevator applications. The switch has been pre-set for a fast and accurate response in a low-pressure activation and can be mounted directly to all Maxton control valves.

ASME A17.1-2010 Rule 3.26.8 - When cylinders are installed with the top of the cylinder above the top of the storage tank, a pressure switch shall be provided in the line between the cylinder and the valve, which shall be activated by the loss of positive pressure at the top of the cylinder. The switch shall prevent automatic door opening and the operation of the lowering valve or valves. The door(s) shall be permitted to open by operation of the in-car door button, when the car is within the unlocking zone.

# **Specifications**

Actuation pressure / rise Release pressure / fall

Nominal system pressure Max. working pressure Burst pressure Oil Type Line connection Overall dimensions Oil Temperature range

Electrical rating cURus

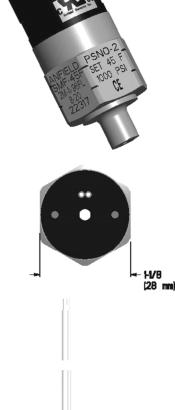
Life at 800 psi Switch configuration 45 ±5 psi (contacts open) 800 psi 1000 psi 5000 psi

65 ±10 psi (contacts closed)

Hydraulic Fluid 1/8" NPT (Male) (see drawing) 80° F to 150° F

10A 125 VAC, 6A 250 VAC (RESISTIVE) E327045

2,000,000 cycles SPST, at atmospheric pressure: open





Lead Length:96" +/- 2" (2438mm) Wire Spec. 18# AWG-STYLE 3173 125° C 600V XLPE CSA-CL1251 Wire color: Gray

# LOAD WEIGH SWITCHES (HPAS-1, HPAS-2)

# Load Weigh Switches (HPAS-1, HPAS-2) Comply with ASME A17.1 / CSA B44

The Maxton's Load Weigh Switches (HPAS-1, HPAS-2) have been tested specifically for hydraulic elevator applications. The High Pressure adjustable switch can be mounted directly to all Maxton control valves.

Code Compliance: Under the latest Section 2.16.10 revision NYC DOB requirements all passenger and freight elevators must have a load detection sensor. This device detects if the load exceeds the capacity of the elevator. If an overload is detected, the elevator doors shall reopen and remain open, and a voice notification and visual signal must indicate that the car is overloaded.

Maxton Load Weigh Switches get the job done for NYC DOB and all others that adopt similar hydraulic elevator load detection safety codes.

Features:

- · Smaller footprint for easier fit within power unit
- · Normally open or closed lead options
- · Single tamper resistant 5/64" Hex wrench adjuster
- · Larger pressure range with 2 switches
- · 1 Year Warranty

# Oil Type Line connection Overall dimensions Oil Temperature range Burst pressure

Electrical rating cURus

Life at 1000 psi Switch configuration

# HPAS-1

Actuation Pressure / Rise Release Pressure / Fall Nom. System Pressure Max Working Pressure

# HPAS-2

Actuation Pressure / Rise Release Pressure / Fall Nom. System Pressure Max Working Pressure

1728 Orbit Way - Minden, Nevada 89423

Hydraulic Fluid 1/8" NPT (Male) (see drawing)

80° F to 150° F 5000 psi

5A 12/24 VDC, 5A 125VAC, 3A 250VAC E327045

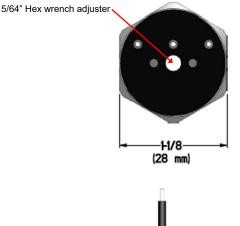
1,000,000 cycles SPDT (NO and NC)

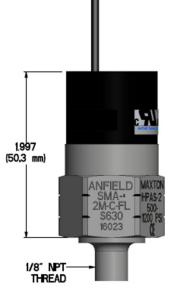
150-600 PSI 95% of Actuation Pressure +/-2% 150-600 PSI 600 PSI

500-1200 PSI 90% of Actuation Pressure +/-2% 500-1200 PSI 1200 PSI

P: 775-782-1700 F: 775-782-1701







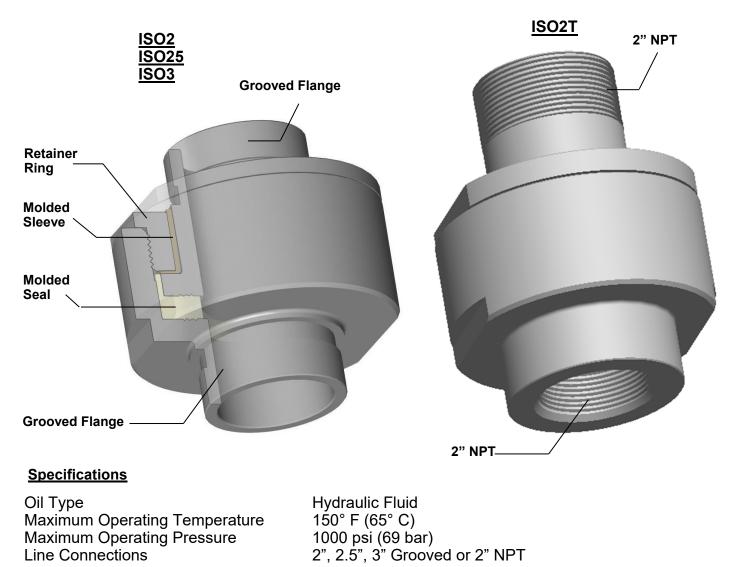
Lead Length:18" +/- 2" (457mm) Wire Spec. 18# AWG-STYLE 1015/1230/1032 105°C 600v PVC CSA-TEW Wire color: Black, Red, Blue



# **Specifications**



The Maxton Isolation Couplings designed for electric isolation (preventing electrolysis) in hydraulic elevators. The ISO2 is comprised of two grooved pipe flanges coupled by a threaded retainer ring. This design has increased strength, reduced weight, and all at a lower cost. The threaded ring design provides superior strength through the consistent sealing torque around the Thermoplastic Seal. Our insulators are created with the highest quality hybrid thermoplastic to provide superior performance, noise and vibration reduction. Complies with ASME A17.1/CSA B44.



	IS02	ISO2T	IS025	IS03
	2" Grooved	2" NPT	2.5" Grooved	3" Grooved
Maximum Flow Range Overall Dime	200 gpm (757 l/min)	200 gpm (757 l/min)	300 gpm (1135 l/min)	400 gpm (1514 l/min)
Width:	$4 \frac{1}{2}$ in. dia. (115 mm)	4 ½ in. dia. (115 mm)	5 ¼ in. dia. (133 mm)	5 ¼ in. dia. (133 mm)
Length:	$4 \frac{1}{2}$ in. (115 mm)	5 ½ in. (140 mm)	4 ½ in. (115 mm)	4 ½ in. (115 mm)
Weight:	8.15 lbs. (3.65 kg)	8.85 lbs. (4.01 kg)	10.85 lbs. (4.92 kg)	10.05 lbs (4.55 kg)



The Tank Discharge Filter (TDF) is a simple yet effective hydraulic elevator oil filter system that removes contaminants down to 5 microns. The TDF system mounts vertically on the valve/tank discharge line as shown below (image bottom right). The filter bag is designed for easy replacement when dirty to maintain a clean, well performing, hydraulic system (see TDF usage below).

The TDF system can be applied to all Maxton commercial elevator control valves (UC1/1A/2/2A and UC4/4M/ MR) as well as other commercial valves on the market using a 2 inch connection. When an elevator system flow goes beyond 250 gpm multiple filters can be put together, accommodating more flow, using a manifold arrangement. In this case make sure installation allows room for proper filter bag operation (expansion of filter bag) with complete clearance.

# TDF usage and maintenance recommendations:

<u>Clean System Definition</u> – This can be described as a completely new hydraulic elevator installation with new oil. Maxton recommends checking the TDF quarterly to maintain optimal elevator performance. Filters need replacing when white bag color turns brown/black to maintain a clean system.

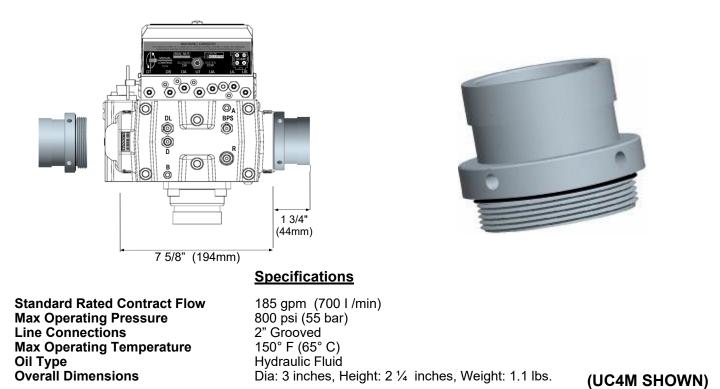
<u>Non-Clean System Definition</u> – This is an elevator system in use without an oil filtration device. Maxton recommends installing the TDF and running the pump (no coils energized) for several minutes to filter the oil in the system. **Note:** If the TDF captures a substantial amount of contaminants (white bag turns brown/black in color) during this process then Maxton recommends cleaning the tank, purging or replacing the oil and replacing the TDF bag. Perform quarterly filter checks to maintain clean oil for optimal elevator performance.

# **Specifications**

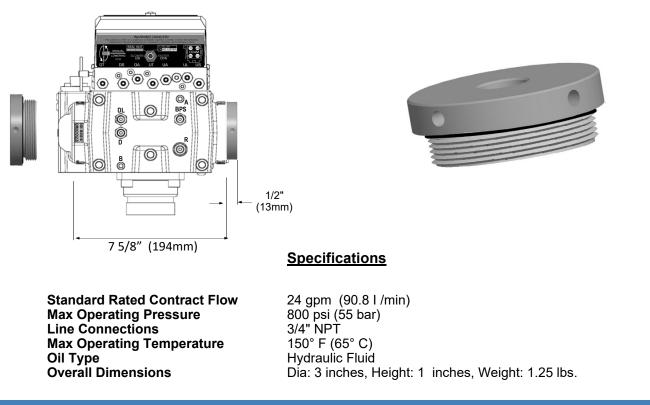
Max. flow per filter (TDF1 / 1V)	20" w/ bag
Available in:         2" Grooved         Output         2" Threaded	Jack     Tank       Minimum Oil Level     Image: Constrained of the second of the sec



Maxton Thread to Grooved Adapters are another quality Maxton product that allows the UC4, UC4M, and UC4MR valve models to be easily adapted for installation by providing the choice between threaded or Grooved connections on the jack and tank ports. The seal ring design eliminates the need for sealant while providing a liquid and air tight seal.



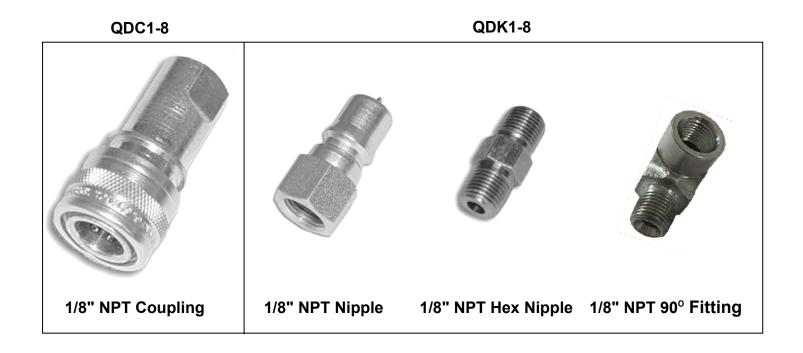
Maxton 2" to 3/4" Port Adapter Flange was designed for Residential/LULA or low flow hydraulic elevator applications using the UC4, UC4M Series of Maxton Valves. These easy to install flanges use a seal ring design to insure proper sealing of the 2" side against the Maxton valve while the 3/4" NPT side allows for the easy conversion of the valve to fit most Residential/LULA applications.





The Hydraulic Quick Disconnect installed into the "A" port of your Maxton valve provides for fast and easy gauge installation when measuring working pressure and setting the relief valve. Included In kit QDK1-8 is the 1/8" NPT nipple, 1/8" NPT Hex Nipple and a 1/8" NPT 90° fitting to accommodate possible space constraints.

Quick Disconnect Couplings and Nipples are Interchangeable with ISO B 7241 Fittings and can also be installed in the "B" Port for compliance with code ASME A17.1-2010 3.19.4.5.



# **Specifications**

Series "H" Hydraulics	Steel		
Max Operating Pressure	800 psi (55 bar)		
Line Connections	1/8" NPT - A, B ports		
Max Operating Temperature	150° F (65° C)		
Oil Type	Hydraulic Fluid		
Overall Dimensions:	Width (inch)	Height (inch)	Weight (ounce)
Coupling	1	2	2
Nipple	1/2	1-1/4	0.5
Hex Nipple	1/2	1-1/16	0.05
90° Fitting	5/8	1-1/4	0.05



4XGLID

DRAULIC OIL ADDITIL



This product is not new to the field. MAXGLIDE is a proven product in the reduction and elimination of serious jack piston packing friction (STICK SLIP) problems.

# Performance Claims:

- Reduced oil operating temperature
- Minimizes packing friction
- Increases floor stop accuracy
- Stabilizes operating performance
- Reduces heat and operating wear
   on hydraulic system components
- Can be used with Petroleum and vegetable based Hydraulic fluids

# Application:

To determine if **MAXGLIDE** will be effective: Apply 2 to 4 ounces onto piston surface just above packing gland. If STICK-SLIP is eliminated add 1% to 5% by volume to oil contents of reservoir.

# (Minimum 1 gallon to a maximum 5 gallons MAXGLIDE to 100 gallons of oil)

MAXGLIDE is not a miracle cure, but it has provided remarkable ride improvement under difficult field conditions.

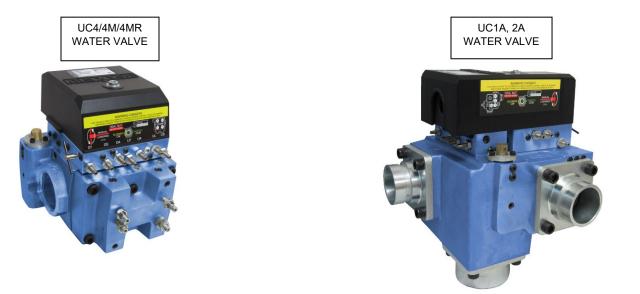
MAXGLIDE IS SAFE FOR SUBMERSIBLE MOTORS



# WATER VALVE

Maxton MFG. Co produces all current valve series (UC1A,2A,4,4M,4MR) as Water Valves. These valves are designed for use in water glycol systems.

Please contact Maxton Technical Support for further information at support@maxtonvalve.com



# **EXPLOSION PROOF COIL COVER**

Maxton MFG. Co produces Explosion Proof Coil Covers for "Use in Hazardous Classified Locations" on a special order case-by-case basis. Class 1, Division 1, Groups A, B, C, D and Class 2, Division 1, Groups E, F, and G

Please contact Maxton Technical Support for further information at support@maxtonvalve.com

