

Specifications

Standard Flow range	20 – 185 gpm (76 – 700 l/min)
Operating Pressure	
Minimum	50 psi (3.4 bar)
Maximum	800 psi (55 bar)
Line Connections	
Jack, Tank Port	2" NPT
Pump Port (flange)	2" NPT or Vic
Gauge Ports	
	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)
Oil Type	Hyd. ISO VG 32
	150 SUS @ 100° F (38° C)
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)

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.
- 115 VAC / 24 VDC solenoid coils.
- Factory tested prior to shipping.
- 24 month limited warranty.

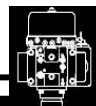
Optional Features

- Explosion Proof Coil Cover
- Thread to Vic Adapters (2")
- Low Pressure Switch
- Tank Discharge Filter

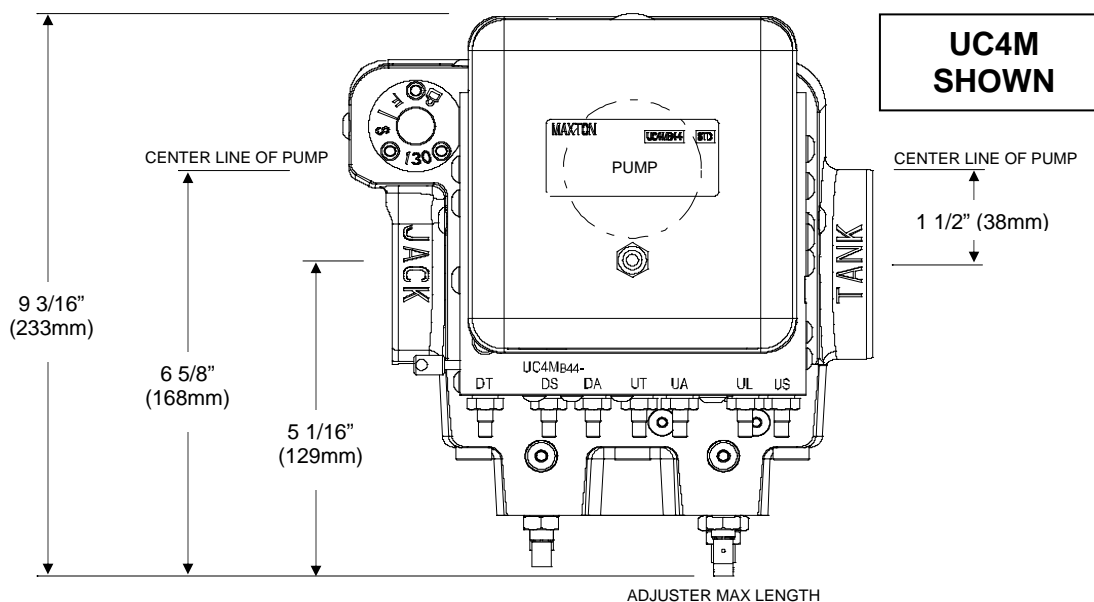
Solenoid Coils

- 12 VDC Coils
- 12 VDC – 120 VAC Dual Voltage Coils
- 230 VAC Coils
- 115 VDC Coils
- 185 VAC Coils
- 48 VDC Coils

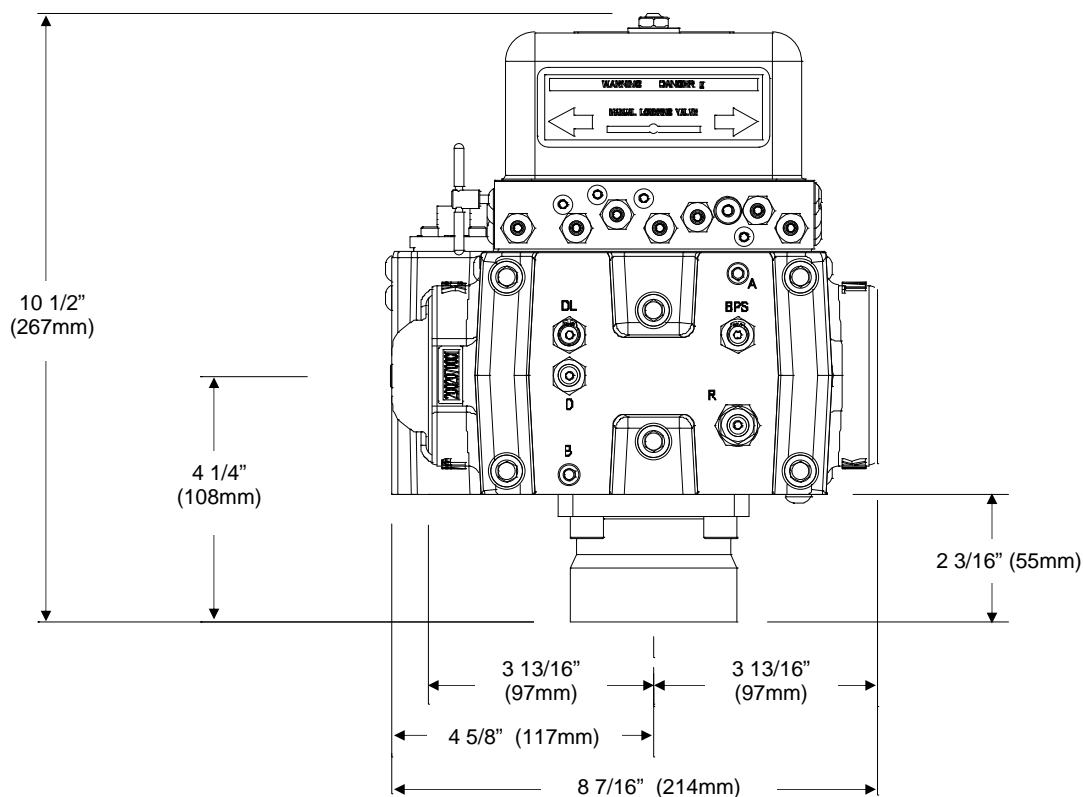


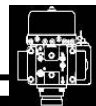


Top View

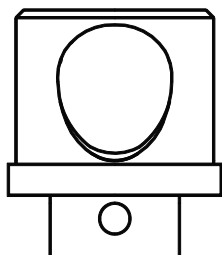


Front View

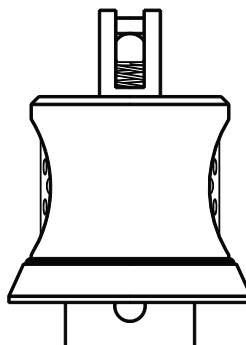




E1
BPS GUIDE

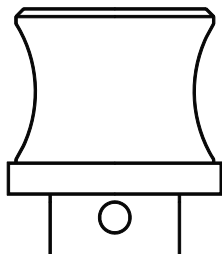


E2
DN / CHK GUIDE

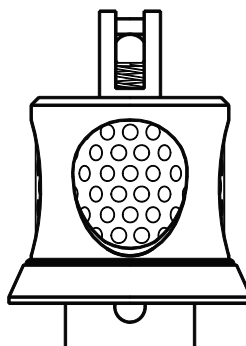


E1 GUIDE CONFIGURATION

E2
BPS GUIDE

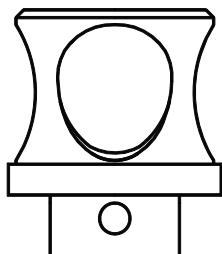


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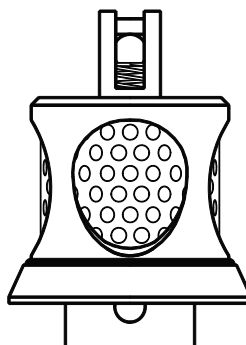


E2 GUIDE CONFIGURATION

E4
BPS GUIDE

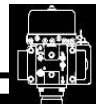


E4
DN / CHK GUIDE



STD GUIDE CONFIGURATION

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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 pipe sizes are 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.

* **SAFETACH** performance meter validates valve adjustment by providing direct speed and acceleration (g-force) readouts. www.safetach.com

OPERATIONAL DATA:

Min. / Max. Pressure: 50-800 psi (3.4-55 bar)
Min. / Max. Rated Flow: 20-185 gpm (76-700 l / min.)
Operating Temperature: 80°-150° F (26°- 65° C)
Optimal Temp. Range. 100°-130° F (38°- 54° C)
Oil Type: Hyd. ISO VG 32
 150 SUS @ 100° F (38° C)

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

UP SECTION ADJUSTMENTS (Start with car at lower landing)

- 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. ***(Stop 0.04g-0.09g).** The pump must be timed to run 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. Move the **LS** adjuster slightly toward S for slower or F for faster leveling speed. Set coarse adjustment from 3 to 5 fpm with the **LS** adjuster, 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 speed)
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 LINE			(set 3-5 fpm)
R	RELIEF (factory set)	APPROX 450 psi	(CW increases pressure)		

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. Tighten the lock nut (snug) & send car to upper landing. ***(Read high speed).**
- 8 DA** Start by turning **DA** and **DL** 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. ***(Stop 0.04g-0.09g).**

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
- i. 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.

CONTROL PLATE

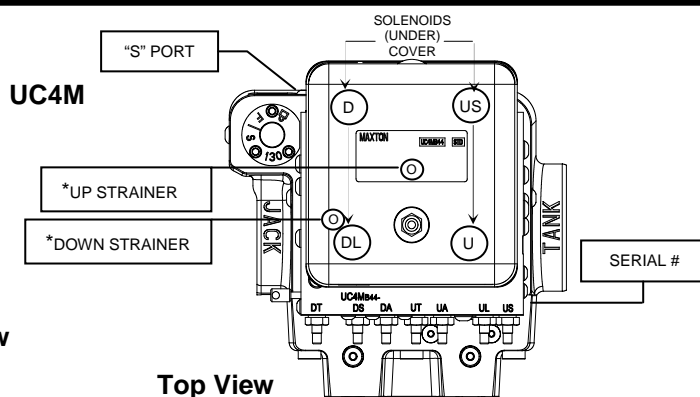
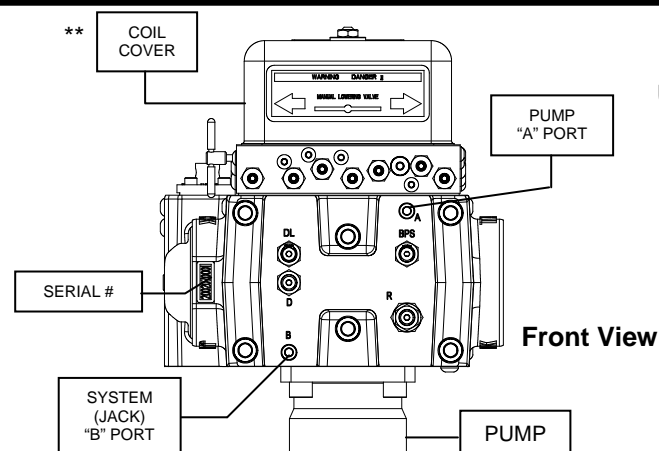
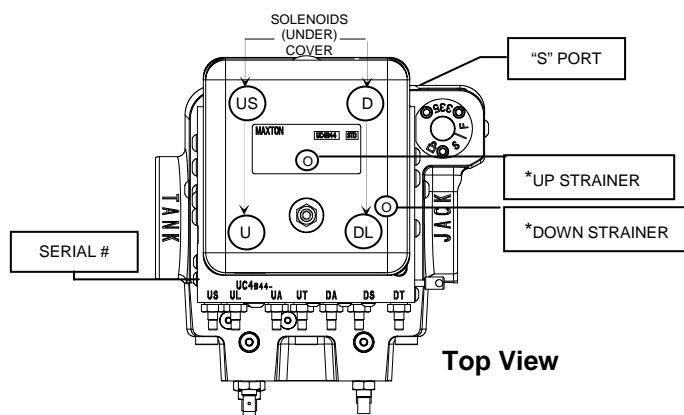
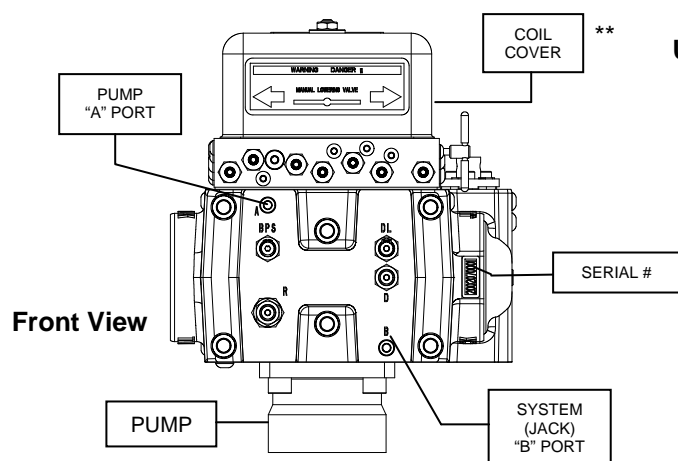
DT	DOWN TRANSITION	OUT	(CCW)	to stop.	(faster rate)
DA	DOWN ACCELERATION	OUT	(CCW)	to stop.	(faster rate)
DS	DOWN STOP	OUT	(CCW)	to stop.	(faster rate)
ML	MANUAL LOWERING	IN	(CW)	to stop.	

VALVE BODY

D	DOWN SPEED	OUT (CCW)	5 threads above lock nut.	(faster speed)
DL	DOWN LEVEL	OUT (CCW)	2 threads above lock nut.	(faster speed)



ADJUSTMENT PROCEDURE UC4, UC4MB44



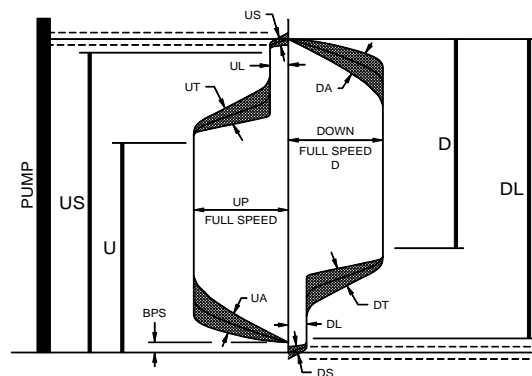
ATTENTION: All Maxton Valves **MUST** be installed with the solenoids in the upright (vertical) position. When replacing a Maxton UC3 / UC3AM or UC4 / UC4M series valve, the pump flange assembly must also be replaced. It is subject to the same wear and tear as the valve.

*Strainer access is provided from the top of the control plate.

** The coil cover, sleeve/C-frame and baseplate are 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 1/2 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.



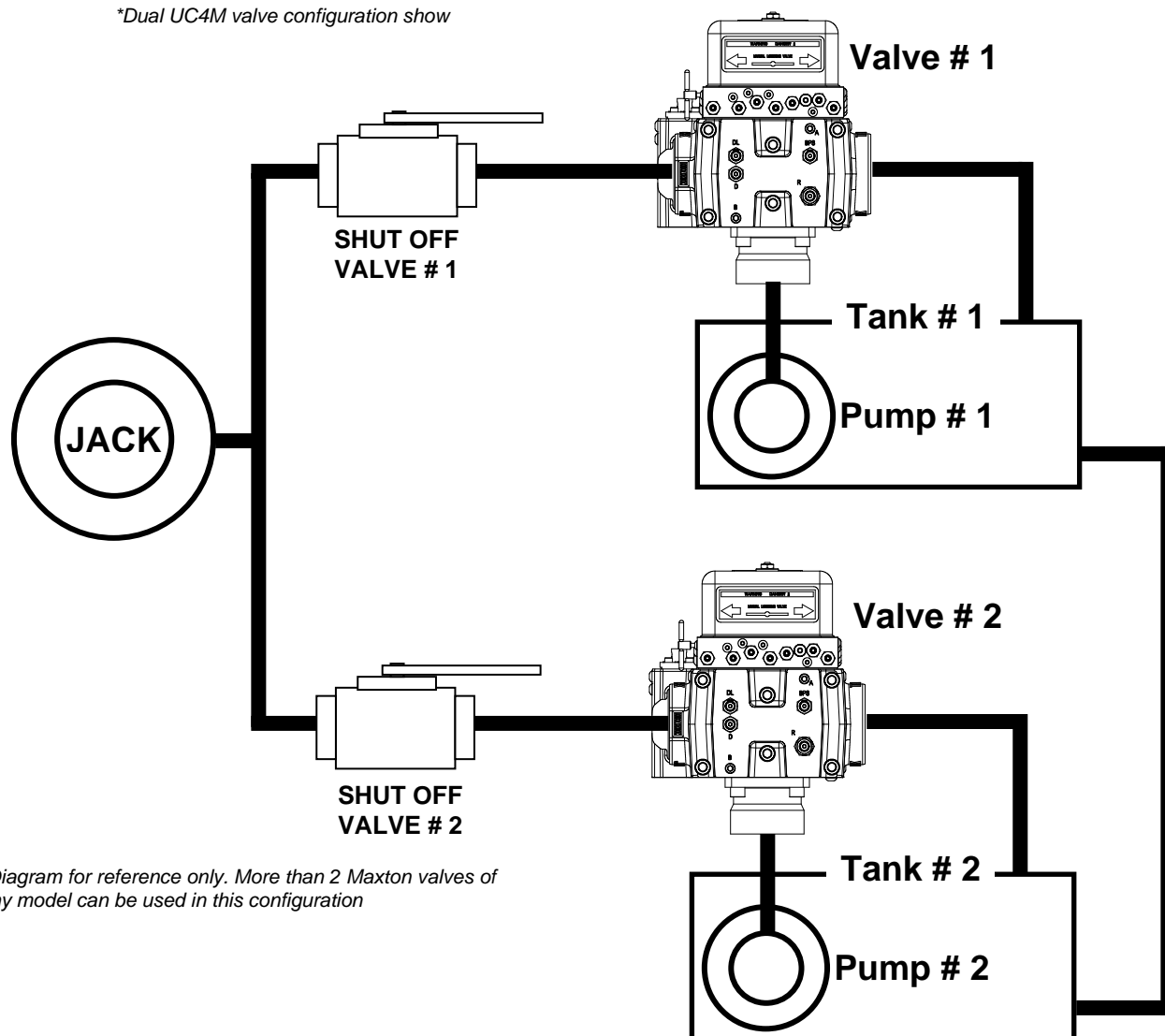
— ELECTRO-MAGNETIC COILS
U = UP COIL
US = UP STOP COIL
D = DOWN COIL
DL = DOWN LEVEL COIL

CAUTION: On Wye - Delta Up Start do not energize U and US Coils until motor is running on Delta



MULTIPLE CONTROL VALVE SETUP AND ADJUSTMENT PROCEDURE

**Dual UC4M valve configuration show*



**Diagram for reference only. More than 2 Maxton valves of any model can be used in this configuration*

ADJUSTMENT (Valve # 1)

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

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

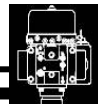
1. Set BPS - disconnect the US Coil, start the pump for the valve to be adjusted. Turn the BPS adjuster in (CW) until the car moves up, then back the adjuster out (CCW) until the car stalls, then back out the adjuster ½ turn more. Snug the adjuster lock nut. No further adjustment is needed.

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.)



DUAL VALVE ADJUSTMENT PROCEDURE



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.*(Accel 0.04g-0.09g).

DOWN Section Adjustment - Start and adjust each valve unit separately. 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.



Note: The UC4 is a Mirror Image of the UC4M (UC4M SHOWN)



(REFER TO SEAL RING LOCATIONS SHEET UC4, UC4M, UC4MR_{B44} FOR PART NUMBERS)

(REFER TO THE APPLICATION FLOW CHART FOR GUIDE SELECTION (STANDARD GUIDES SHOWN))

1728 ORBIT WAY - MINDEN - NEVADA - 89423-4114 - PHONE: 775-782-1700 - FAX: 775-782-1701 - WEB: maxtonvalve.com - EMAIL: info@maxtonvalve.com

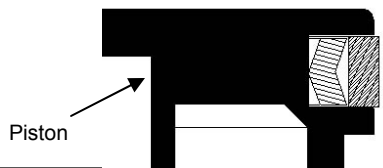
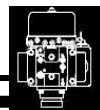




PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
28346MW 28346W 280070 203400 227000 200700 282990 229900 233600 230000 28170D 2170D0 2363A0 210500 237200 28170B 2170C0 2170B0 210500 236900 237200 28390B 2390B0 207700 207900 247300 2379S0 210800 234400 213400 282920 29298A2 292950 238500 21014A 210190 238100 210800 244500 244600 210500 208700 238000 2379A0 2379S0 238100 263900 239503 239504 239513 239515 28328MW 28328W 283330 233100 233000 233300 210200 210500	CONTROL PLATE ASSEMBLY (UC4M) CONTROL PLATE ASSEMBLY (UC4) Adjuster screw assembly Seal nut Teflon seal Adjuster screw Manual lowering assembly Manual lowering screw Seal ring Handle (roll pin) Up strainer assembly Up strainer cap Transfer line with screen Seal ring Seal ring Down strainer assembly Down strainer cap Down strainer base with screen Seal ring Ball, 1/4" Seal ring Coils base plate assembly Coils base plate Grommet Ground screw Washer UT Regulator Screw (1/4-28 button head) Seal Ring Spring Ball 3/16" Control plate assy miscellaneous + Solenoid tube assembly + Solenoid seat kit + Solenoid ball cage kit Seal ring Seal ring Seal ring Screw (# 10-32) Seal ring Seal plug Seal plug Seal ring Spring Ball, 5/16" Screw (¼-28 button head) Screw (UT/DT ¼-28 button head) Screw (# 10-32 button head) Seal ring Orifice (max UA / US) (Blue) Orifice (max UT) (Steel) Orifice (max DT) (Steel) Orifice (UT Reg.) (Black)	224600 2323C0 235100 233600 2353C0 283240 233100 233000 232400 210500 210200 224600 232300 232200 283250 233000 232500 210200 237000 237300 283010 233000 230400 237200 230100 210500 230200 230300 230500 236900 235200 2379A0 210800 238000 244500 210500 208700 2394MW 2394W0 283070 230900 230700 231200 230600 28317E4 232100 232000 2317A0 28371C 231600 231500 2314E4 204500 230800 204600 283410 230900 234100 230600	VALVE CLOSURE ASSY (Continued) BPS adjuster assy (continued) Spring guide Spring Poppit Seal ring Seal retainer Down leveling adjuster assembly Snap ring Lock nut Down leveling adjuster screw Seal ring Seal ring Spring guide Spring Sleeve Down speed adjuster assembly Lock nut Down speed adjuster screw Seal ring Spring Spring guide Relief adjuster assembly Note: Available in complete closure assy only. Lock nut Relief cartridge Seal ring Relief adjuster screw Seal ring Spring boss Spring Ball retainer Ball Valve closure assy miscellaneous Pipe plug (A & B ports) Screw (1/4 -28 button head) Seal ring Ball Seal plug Seal ring Spring VALVE BODY (UC4M) VALVE BODY (UC4) Down / Check seat assembly Snap ring Down / Check seat Spacer Seal ring Down / Check piston & guide assy Seal ring Down piston sleeve Down piston Piston ring & expander assy Snap ring Spring Down / Check guide assy (std.) Seal ring Seal retainer ring Snap ring Up seat assembly Snap ring BPS seat Seal ring	28338E4 233800 28371C 2320A0 232100 231600 233900 2340E4 283430 232100 2362B0 236100 234300 235700 235600 283580 232100 2362B0 236100 235800 235700 235600 28347W 2053W0 210700 2347W0 212200 214200 28350B 235200 214100 2350B0 213000 233500 212900 2139B0 2319B0 232900 234200 2354B0 237500 2376A0 237700 238100 235200 2882B0 2082B0 208880	VALVE BODY (Continued) BPS Piston & guide assy (std.) BPS piston Piston ring & expander assy BPS piston sleeve (w / pin) Seal ring Snap ring Spring BPS guide (standard) Pump flange assy, 2" Vic Seal ring Snap ring Check return Flange, 2" Vic Spring Return check rod Pump flange assy, 2" Threaded Seal ring Snap ring Check return Flange, 2" Threaded Spring Return check rod Regulator assembly Up leveling speed adjuster Seal ring Regulator Spring Spring boss Regulator rod assembly Pipe plug Set screw Regulator rod MISCELLANEOUS Lock ring (UC4M) Lock ring (UC4) Screw (regulator cap) Screw (control plate) Diffuser Screw (valve closure) Screw (pump flange) Coils cover stud Coils cover Jam nut (coil cover) Washer (coil cover) Screw (baseplate) Pipe Plug Solenoid coil Assembly Solenoid coil 115 VAC / 24 VDC (Red) C-Frame
			Notes: - REFER TO APPLICATION FLOW CHART FOR GUIDE SELECTION.		
			E1: 28338E1 (BPS piston assembly) 28317E2 (Down piston assembly) E2: 28338E2 (BPS piston assembly) 28317E3 (Down piston assembly)		
			* = PARTS INCLUDED IN SEAL KIT # 291540 + = PARTS INCLUDED IN SOLENOID KIT # 292920		

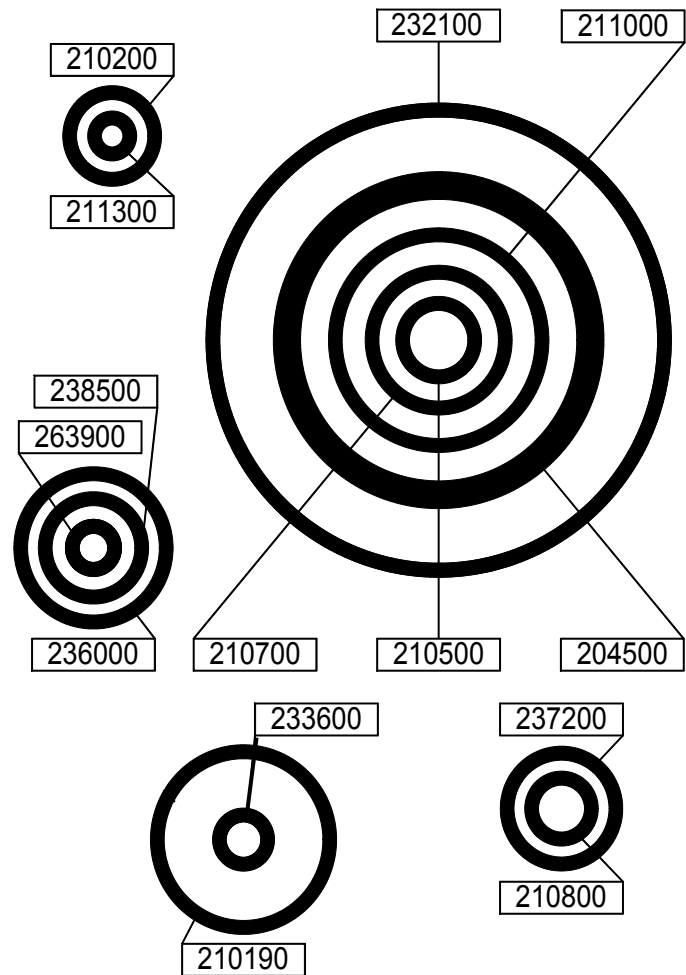
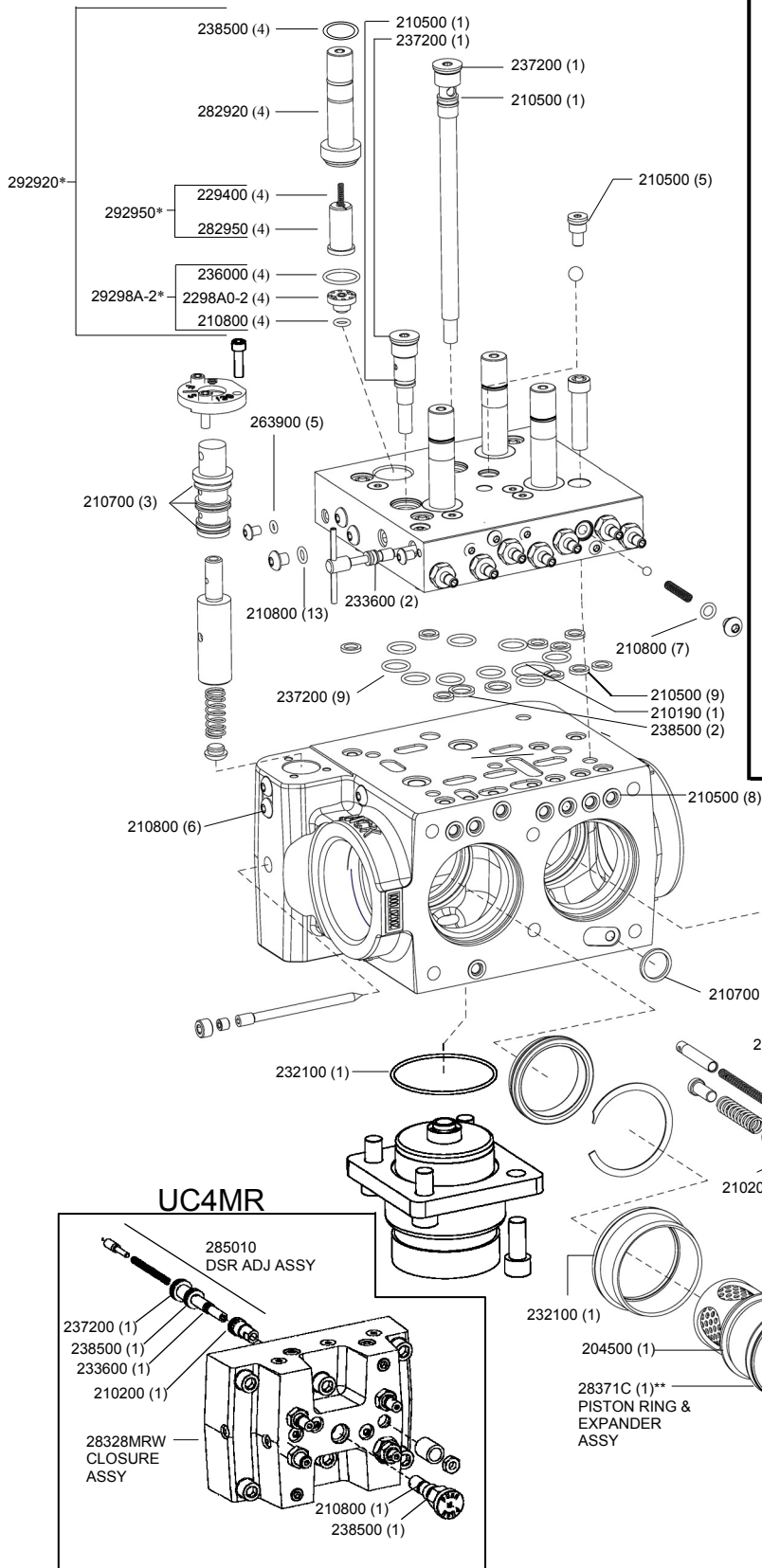


SEAL RING LOCATIONS UC4, UC4M, UC4MR_{B44}



Piston Ring
Orientation
(28371C)

** Detail A

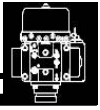
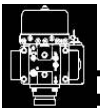


(UC4M SHOWN)

* Sold As Kits

** See Detail A

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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.

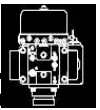
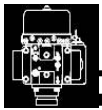
UP DIRECTION

When an up call is registered and the pump starts, the up solenoid (U) and the up stop solenoid (US) are simultaneously energized; closing 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, 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.



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

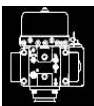
When a down call is registered, the down leveling solenoid (DL) and the down valve solenoid (D) are simultaneously energized, allowing fluid from the control side of the down piston and fluid from the down control adjustments, down stop (DS) and down transition (DT), to flow through the down acceleration 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 transition (DT) and 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.

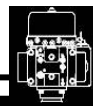
The final closing rate of the down valve is controlled by the down stop adjustment (DS). Opening the down stop adjustment (DS) will cause the car to stop more firmly, as control fluid is sent to the control side of the down piston at a more rapid rate.

DOWN DIRECTION 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.



HYDRAULIC SCHEMATIC UC4M, UC4B44



VALVE CONTROL PLATE

VALVE BODY & CLOSURE

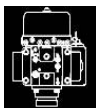
- | | | |
|---------------------------------|----------------------|-------------------------------------|
| ① BALL CHECK SEAT ASSEMBLY | ⑦ UT BALL CHECK | ⑬ DOWN STRAINER |
| ② MAXIMUM UT ORIFICE | ⑧ US BALL CHECK | ⑭ UP STRAINER |
| ③ UT BALL CHECK (CONTROL PLATE) | ⑨ DT BALL CHECK | ⑮ BPS PISTON & GUIDE ASS'Y |
| ④ MAXIMUM US ORIFICE | ⑩ MAXIMUM DT ORIFICE | ⑯ DOWN / CHECK PISTON & GUIDE ASS'Y |
| ⑤ MAXIMUM UA ORIFICE | ⑪ MAXIMUM DS ORIFICE | ⑰ REGULATOR ROD |
| ⑥ UA BALL CHECK | ⑫ DS BALL CHECK | ⑱ LS ADJUSTER |

NOTE: UC4 IS A MIRROR IMAGE OF THE UC4M

1728 ORBIT WAY - MINDEN - NEVADA - 89423-4114 - PHONE: 775-782-1700 - FAX: 775-782-1701 - WEB: maxtonvalve.com - EMAIL: info@maxtonvalve.com

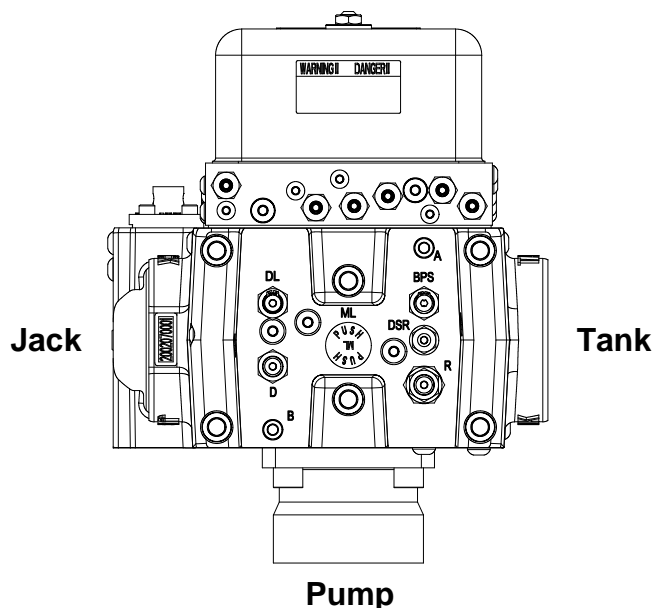


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Introduction

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.



Specifications

Standard Flow range	20 – 185 gpm (76 – 700 l/min)
Operating Pressure	
Minimum	50 psi (3.4 bar)
Maximum	800 psi (55 bar)
Line Connections	
Jack, Tank Port	2" NPT
Pump Port (flange)	2" NPT or Vic
Gauge Ports	
	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)
Oil Type	Hyd. ISO VG 32 150 SUS @ 100° F (38° C)
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)

Standard Features

- Unit body construction.
- Steel sleeve inserts in valve body.
- Feed back control for stall free operation.
- Individualized adjustments.
- Regulated down speed control.
- Integrated relief valve.
- Push button manual lowering.
- Low pressure cutoff manual lowering.
- High efficiency solenoids.
- 115 VAC / 24 VDC solenoid coils.
- Factory tested prior to shipping.
- 24 month limited warranty.

Optional Features

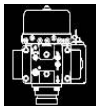
- Explosion Proof Coil Cover
- Thread to Vic Adapters (2")
- Low Pressure Switch
- Tank Discharge Filter

Solenoid Coils

- 12 VDC Coils
- 12 VDC – 120 VAC Dual Voltage Coils
- 230 VAC Coils
- 115 VDC Coils
- 185 VAC Coils
- 48 VDC Coils



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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 pipe sizes are 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.

* **SAFETACH** performance meter validates valve adjustment by providing direct speed and acceleration (g-force) readouts. www.safetach.com

OPERATIONAL DATA:

Min. / Max. Pressure: 50-800 psi (3.4-55 bar)

Min. / Max. Rated Flow: 20-185 gpm (76-700 l / min.)

Operating Temperature: 80°-150° F (26°-65° C)

Optimal Temp. Range: 100°-130° F (38°-54° C)

Oil Type: Hyd. ISO VG 32
150 SUS @ 100° F (38° C)

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

UP SECTION ADJUSTMENTS (Start with car at lower landing)

- 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 the car to floor level. * **(Stop 0.04g-0.09g)**. The pump must be timed to run 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. Move the **LS** adjuster slightly toward S for slower or F for faster leveling speed. Set coarse adjustment from 3 to 5 fpm with the **LS** adjuster, 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 speed)
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 LINE			(set 3-5 fpm)
R	RELIEF (factory set)	APPROX 450 psi	(CW increases pressure)		

DOWN SECTION ADJUSTMENTS (Start with car at upper landing)

- 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 0.04g-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 tight).
 - g. Restart to check the pressure relief setting. Seal as required.
 - h. Open the manual shut off valve to the jack
 - i. 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.

CONTROL PLATE

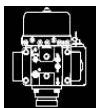
DT	DOWN TRANSITION	OUT	(CCW)	to stop.	(faster rate)
DA	DOWN ACCELERATION	OUT	(CCW)	to stop.	(faster rate)

ML MANUAL LOWERING

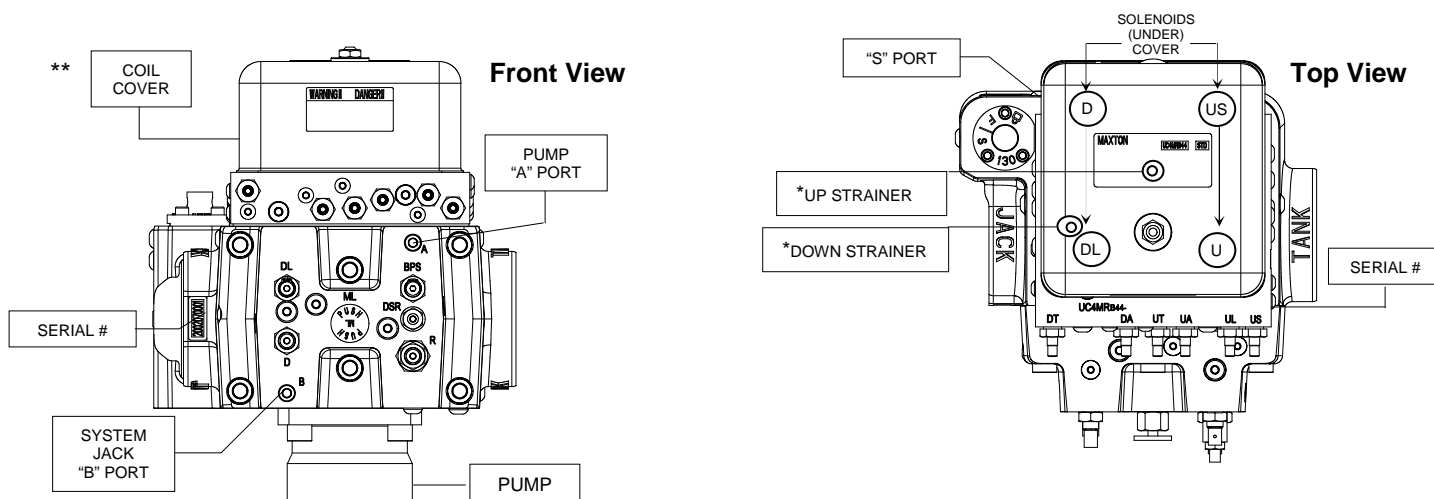
Push Button

VALVE BODY

D	DOWN SPEED	OUT (CCW)	9 threads above lock nut.	(faster speed)
DL	DOWN LEVEL	OUT (CCW)	2 threads above lock nut.	(faster speed)
DSR	DOWN SPEED REGULATOR	IN	1 thread above jam nut	

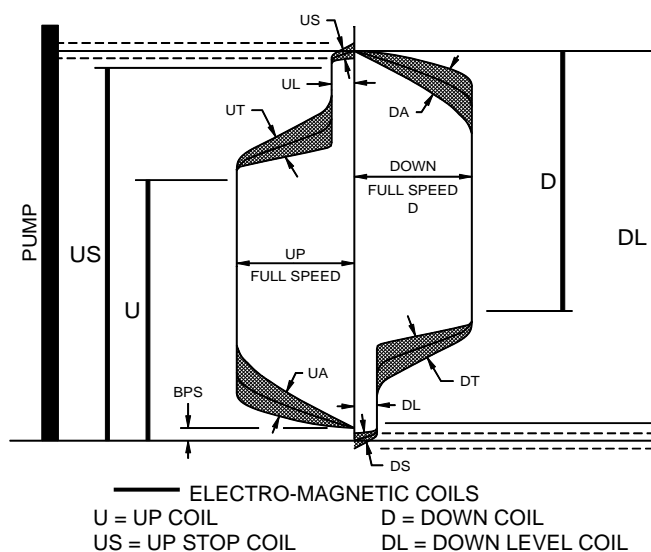


ADJUSTMENT PROCEDURE UC4MR_{B44}



* Strainer access is provided from the top of the control plate.

** The COIL COVER, C-Frame, and BASE PLATE are an integral part of the valve assembly and must not be removed during normal operation

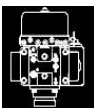


ATTENTION: All Maxton Valves **MUST** be installed with the solenoids in the upright (vertical) position. When replacing a Maxton UC3 / UC3AM or UC4 / UC4M series valve, pump flange assembly must also be replaced. It is subject to the same wear and tear as the valve.

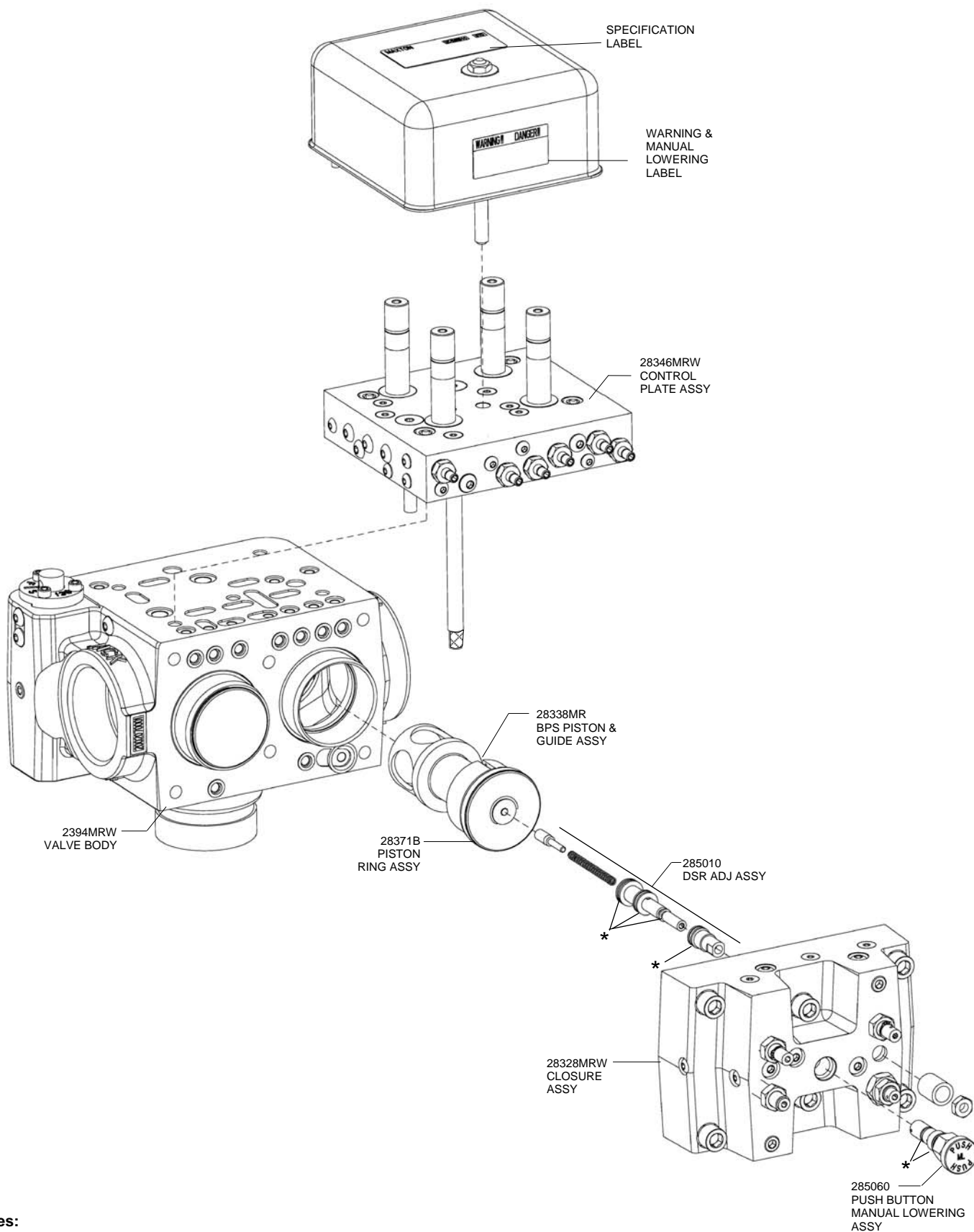
COIL OPERATING SEQUENCE

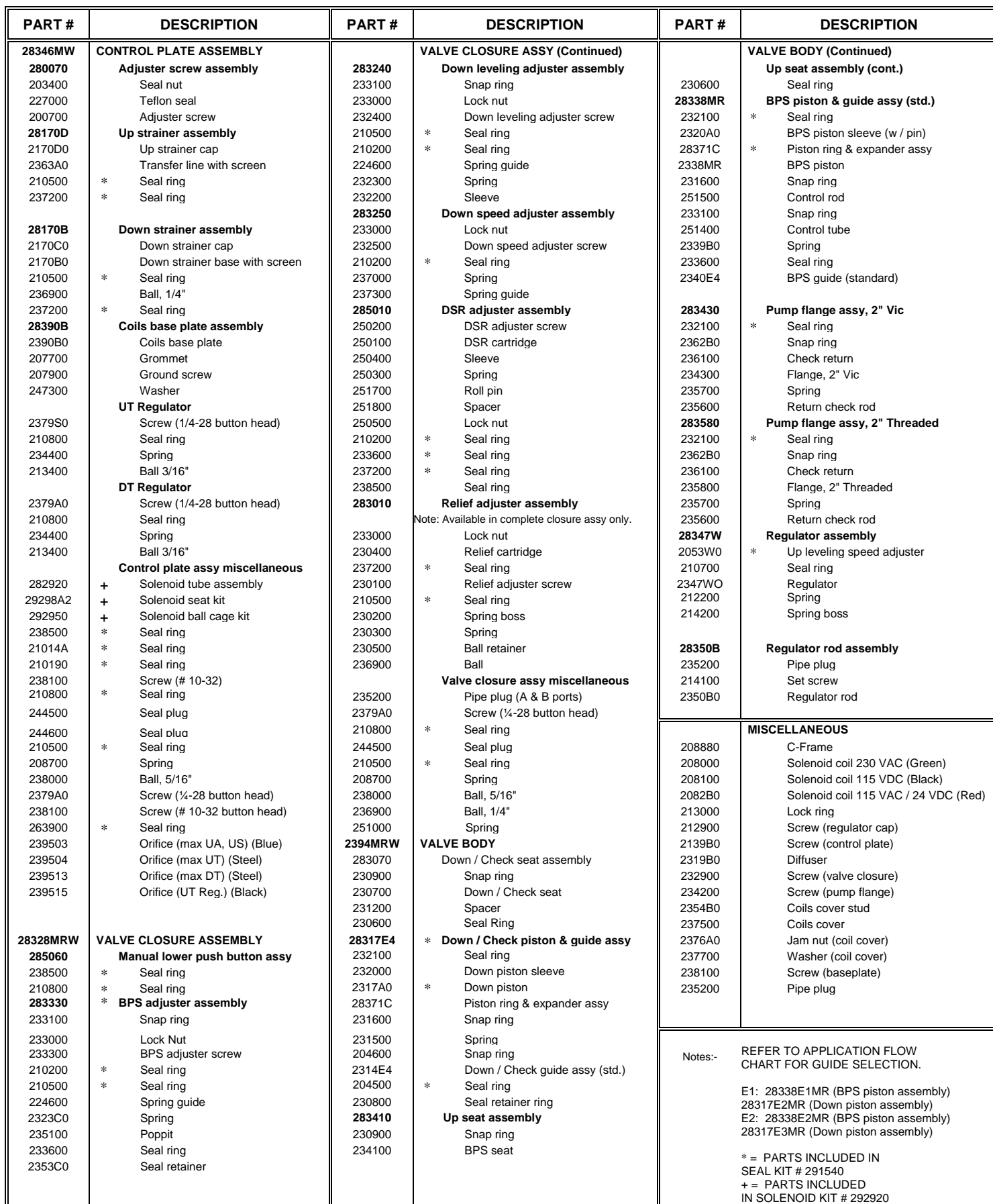
- US For up travel, energize when pump starts and de-energize to stop. With US energized and pump running, car will move up at leveling speed. For "soft stop", pump should run ½ second after US de-energizes.
- U Energize with US coil to run up at contract speed. De-energize at slowdown distance from 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 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



EXPLODED VIEW UC4MR_{B44}

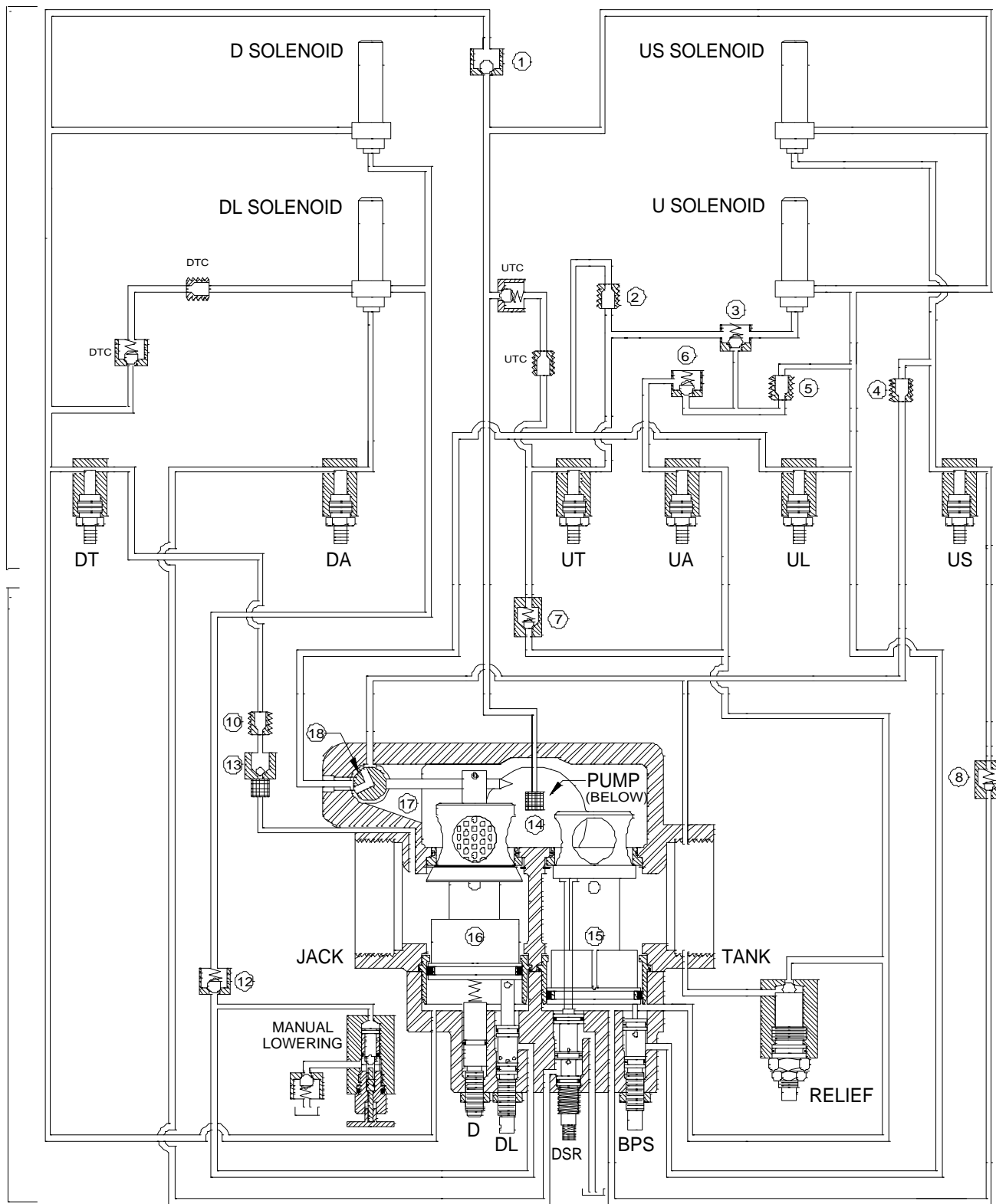






VALVE CONTROL PLATE

VALVE BODY & CLOSURE



- | | | |
|---------------------------------|------------------------------|-------------------------------------|
| ① BALL CHECK SEAT ASSEMBLY | ⑦ UT BALL CHECK (VALVE BODY) | ⑬ DOWN STRAINER |
| ② MAXIMUM UT ORIFICE | ⑧ US BALL CHECK | ⑭ UP STRAINER |
| ③ UT BALL CHECK (CONTROL PLATE) | ⑨ <i>Not Applicable</i> | ⑮ BPS PISTON & GUIDE ASS'Y |
| ④ MAXIMUM US ORIFICE | ⑩ MAXIMUM DT ORIFICE | ⑯ DOWN / CHECK PISTON & GUIDE ASS'Y |
| ⑤ MAXIMUM UA ORIFICE | ⑪ <i>Not Applicable</i> | ⑰ REGULATOR ROD |
| ⑥ UA BALL CHECK | ⑫ DS BALL CHECK | ⑱ LS ADJUSTER |

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CAUTION:

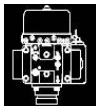
- The information contained herein is for use by skilled hydraulic elevator professionals.
- Before disassembly of the valve, make sure the power is off by turning the main disconnect switch off and that the elevator is resting on the bumpers (zero system pressure).

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



CAUTION:

- 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 bumpers (zero system pressure).

UP SECTION

PUMP RUNS, CAR DOES NOT MOVE

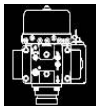
- Check valve for proper sizing in accord with adjustment procedures.
- Make sure gate valves are open in system as required.
- Turn US (Up Stop) adjuster in clockwise (CW) until it stops.
 1. If car moves, check for proper voltage to coils.
 2. If voltage is correct, remove US solenoid assembly. Visually 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 control plate and check up control fluid strainer for lint, especially the bottom of strainer. 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.



CAUTION:

- 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 bumpers (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

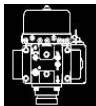
- Turn the UT (Up Transition) adjuster out (CCW) more.
- Check UL speed, 9-12 FPM
- Disconnect U and US coils, place call. Car should not move.
 1. If car moves turn US adjuster out (CCW) more.
 2. Reset BPS adjuster.
- Check hatch slow down switch and stopping circuit to make sure there is no delay (one second lost means a three foot delay at 180 feet per minute).
- Replace the BPS adjuster.
- 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 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 ½ 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.

**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 bumpers (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

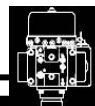
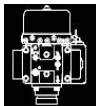
- Turn DA (Down Acceleration) adjuster in (CW).

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.



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 bumpers (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

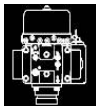
- Turn DA (Down Acceleration) adjuster out (CCW).
- Turn ML (Manual Lowering) screw out (CCW).
- If car lowers:
 - (1) Check voltage to DL solenoid coil.
 - (2) Remove DL solenoid assembly and check for debris and / or damage. Ball Cage must operate freely within solenoid tube.
 - (3) Replace solenoid 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 (under control plate) 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.



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 bumpers (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 (under control plate) 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.