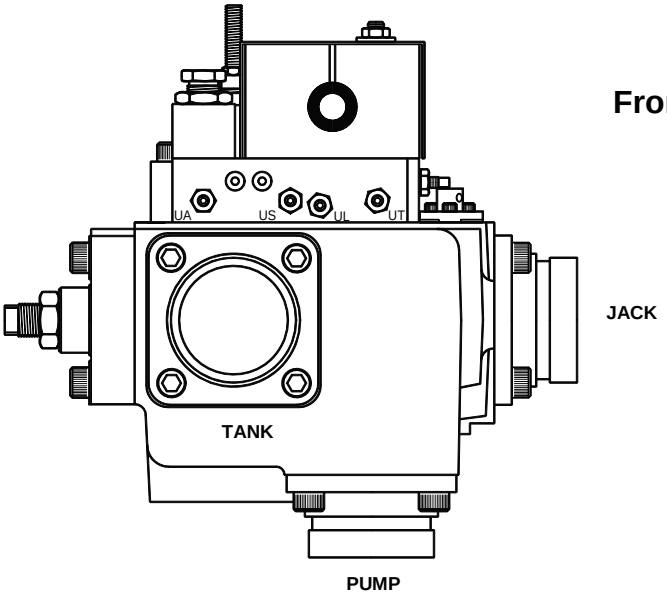
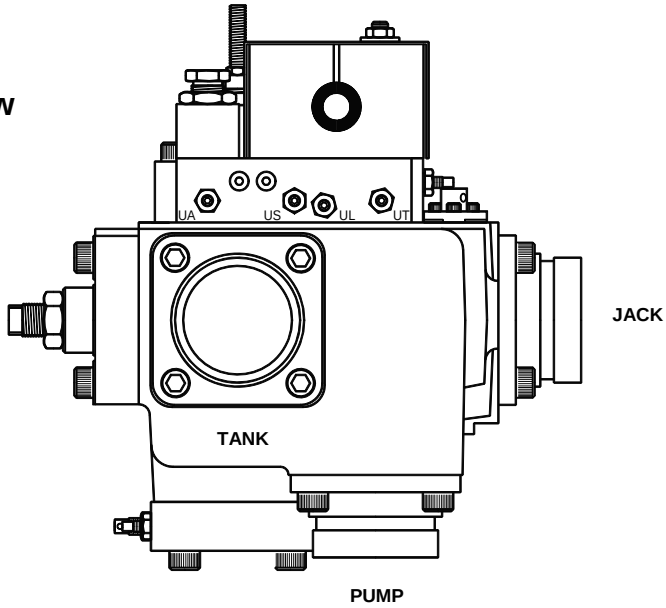


Front View



UC1A B44 **UC2A B44**

Specifications

Standard Flow range	85 – 360 gpm (322 – 1363 l/min)
Operating Pressure	
Minimum	50 psi (3.4 bar)
Maximum	530 psi (36.5 bar)
	See Application Flow Charts
Line Connections	
Jack Port (flange)	2, 2 ½" NPT or Vic
Tank Port (flange)	2, 2 ½" NPT or Vic
Pump Port (flange)	2, 2 ½" 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 13 inches (330mm)	Height 12 3/8 inches (314mm)
Depth 11 1/4 inches (286mm)	Weight UC1A 47 lbs, UC2A 50 lbs

Standard Features

- Unit body construction.
- Steel sleeve inserts in valve body.
- Vic or threaded line connections.
- 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.

Additional Standard Features, UC2AB44

- Regulated Down Speed Control.

Optional Features

- Explosion Proof Coil Cover
- 3" Vic Flanges
- Low Pressure Switch

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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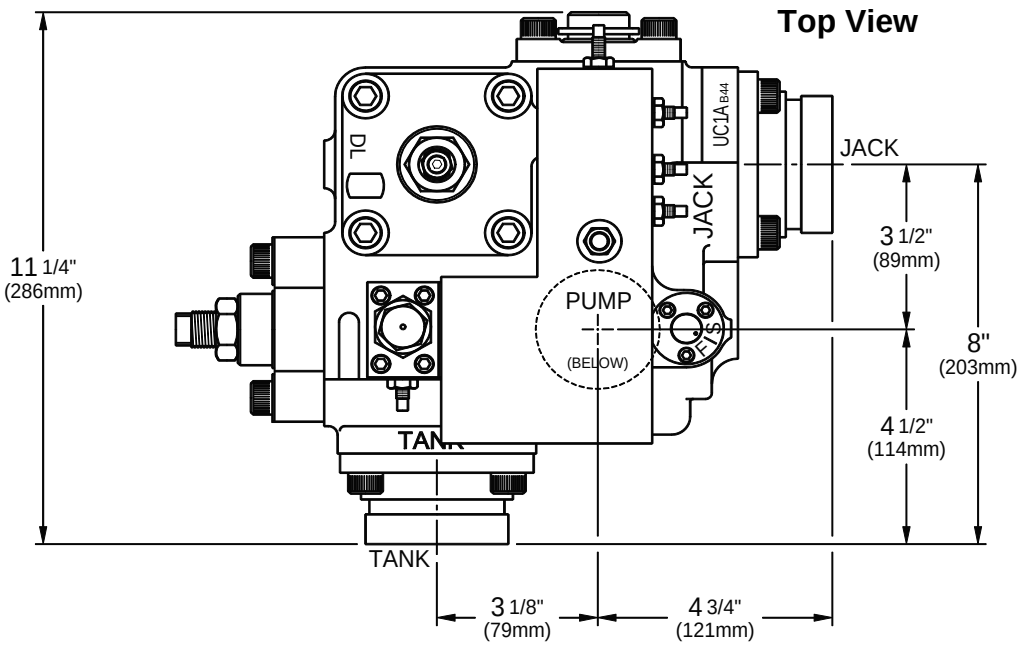
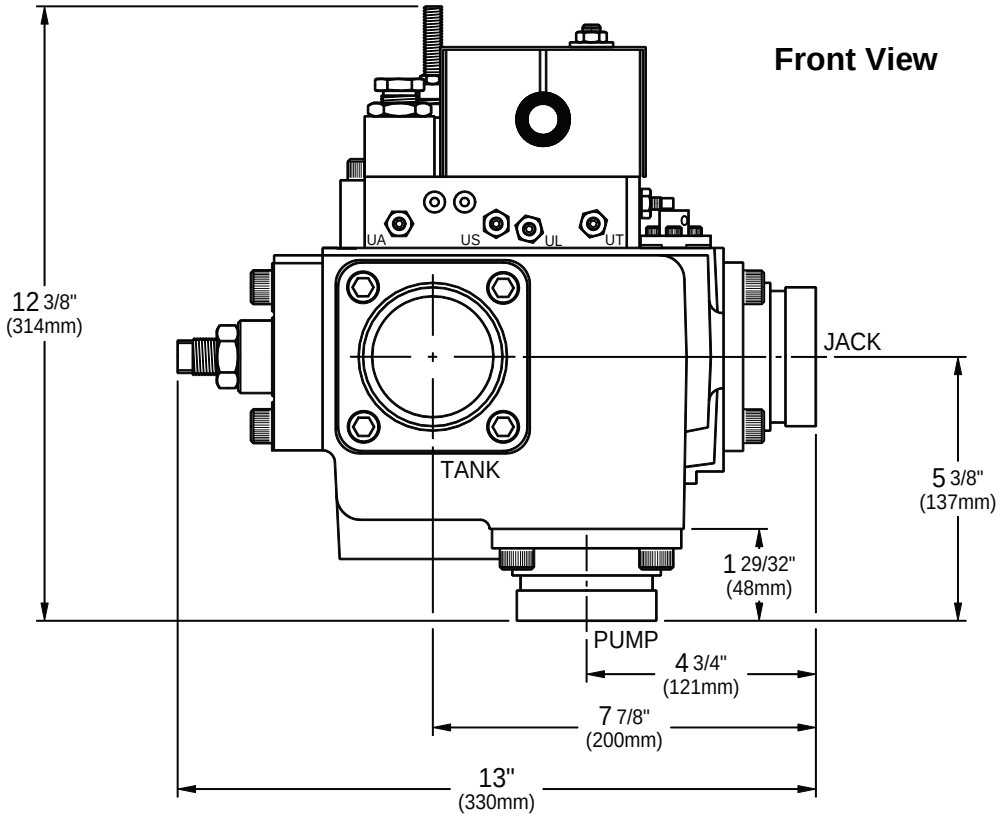
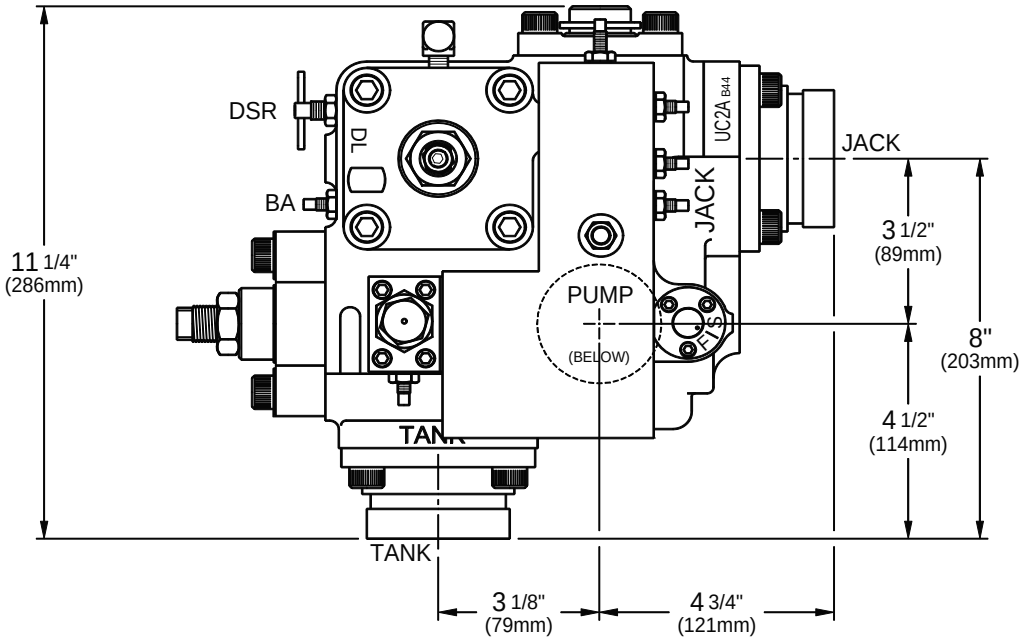
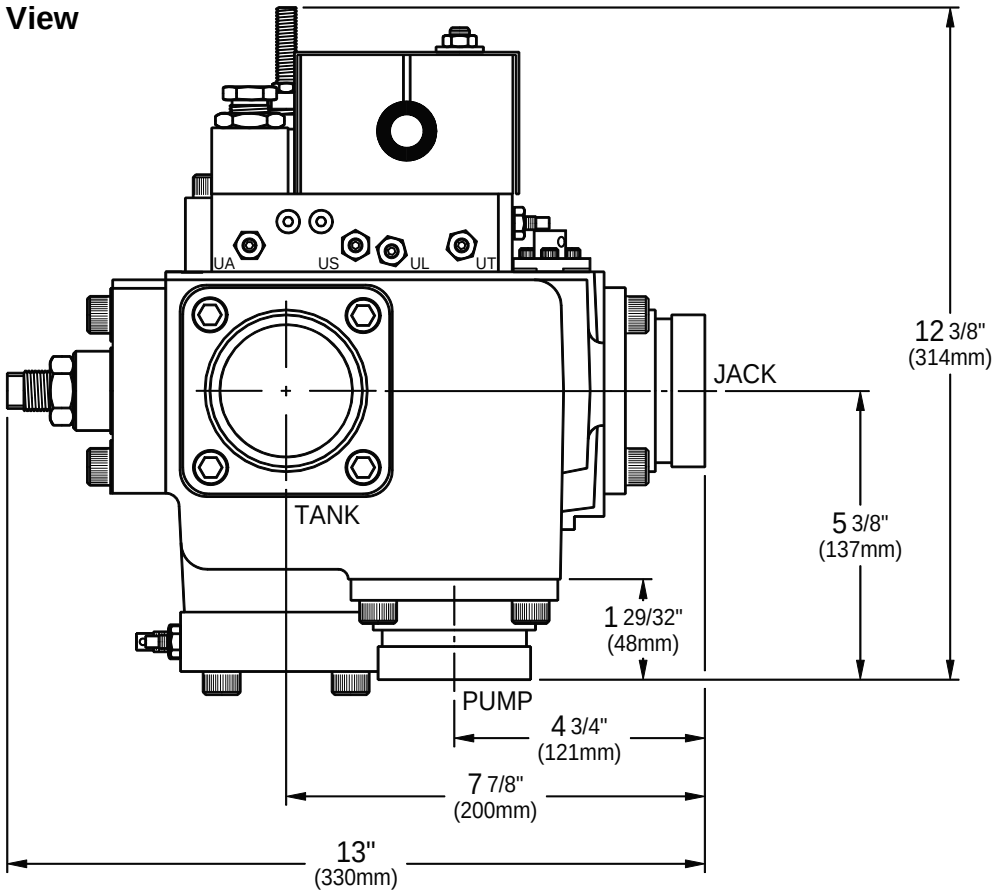

Top View
11 1/4"
(286mm)
DL
UC1A B44
JACK
JACK
3 1/2"
(89mm)
PUMP
(BELOW)
8"
(203mm)
4 1/2"
(114mm)
TANK
TANK
3 1/8"
(79mm)
4 3/4"
(121mm)


Front View
12 3/8"
(314mm)
UA
US
UL
UT
JACK
TANK
5 3/8"
(137mm)
1 29/32"
(48mm)
PUMP
4 3/4"
(121mm)
7 7/8"
(200mm)
13"
(330mm)

Top View



Front View



ADJUSTMENT PROCEDURE UC1, UC1A, UC2, UC2AB44

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 pipe size is 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:	50-530 psi (3.4-36.5 bar)
Min. / Max. Rated Flow:	85-360 gpm (322-1363 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. 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 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. Move the **LS** adjuster slightly toward S for slower or F for faster leveling speeds. Set coarse adjustment from 3 to 5 fpm with the **LS** adjuster, then repeat step 3. *** (Level Speed Test 3 to 5 fpm).**

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

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).**

8 **DA** Start by turning **DA** adjuster 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. 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. *** (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** 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 **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 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 (CW increases pressure)			
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)

DEFAULT SETTINGS
If valve is received from Maxton, only minor adjustments may be required.

CONTROL BLOCK					
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)	4 threads above lock nut.		(faster speed)
DL	DOWN LEVEL	OUT (CCW)	2 threads above lock nut.		(faster speed)

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

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.

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 adjustment. Set the down speed 10% higher than normal, with no load on the elevator, then adjust the down direction in the normal manner.

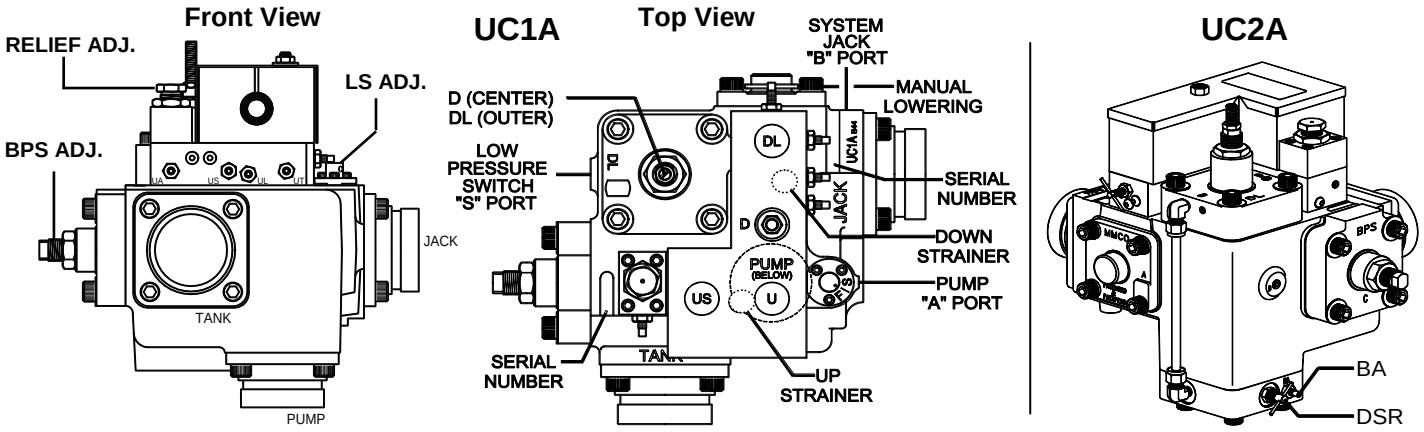
(2) After the down section has been adjusted completely, and the unloaded car is operating 10% above its rated or normal speed, turn the DSR adjuster OUT (CCW) to slow the car to its normal operating speed.

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 the down section as instructed.

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



ATTENTION: All Maxton Valves ***MUST*** be installed with the solenoids in the upright (vertical) position.
** The coil cover, sleeve/C-frame and baseplate are an integral part of coil operation**

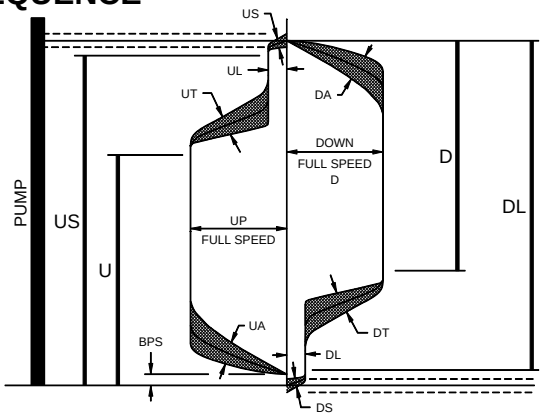
COIL OPERATING SEQUENCE

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 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.

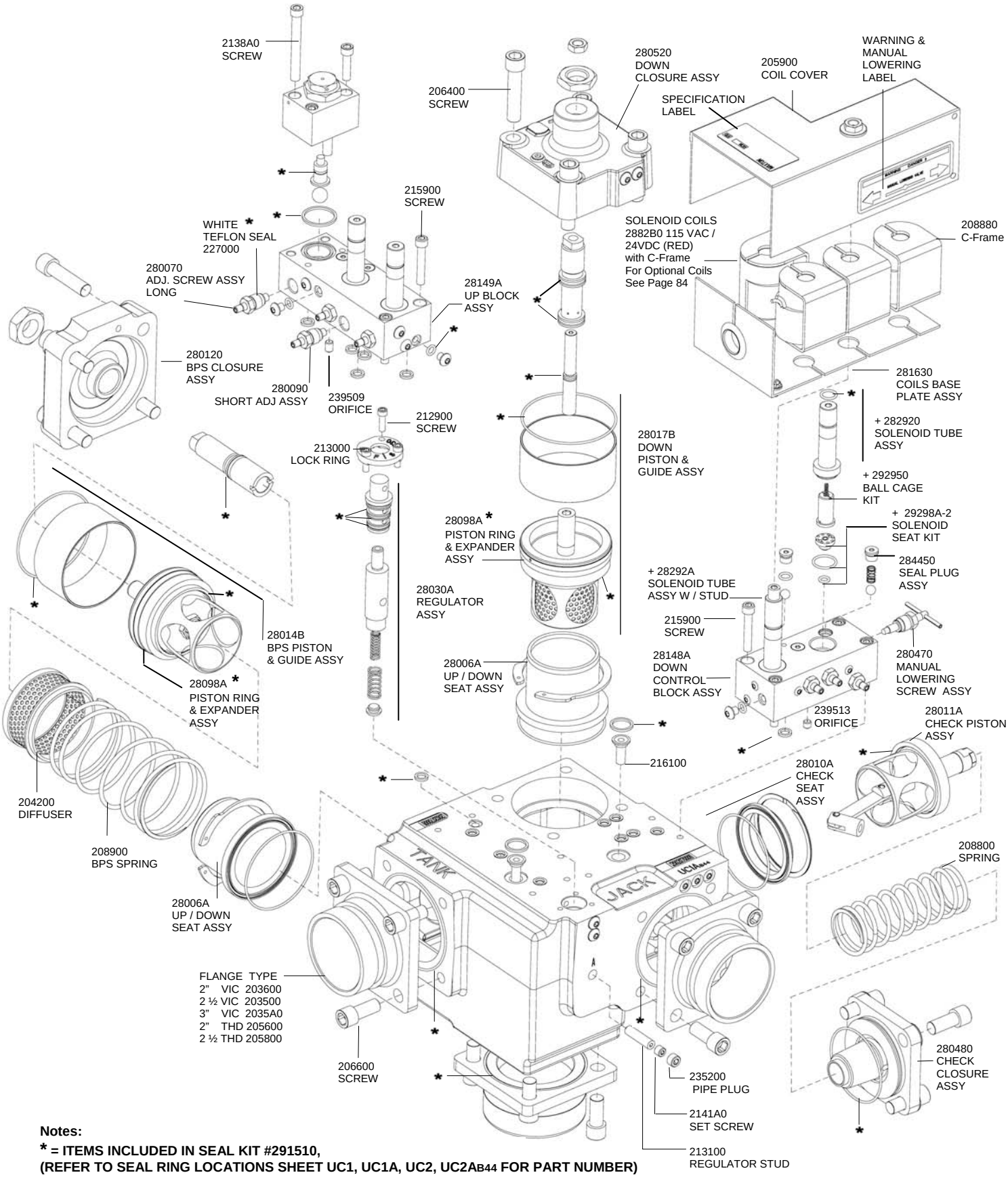
D — Energize with DL coil to run down at contract speed. De-energize at slowdown distance from floor. Slowdown distance = 2 inches for each 10 fpm of car speed NOT to exceed 6 inches for every 25 fpm of car speed.
If necessary increase slowdown distance to achieve 4-6 inches of stabilized down leveling.



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

EXPLODED VIEW UC1AB44



Notes:

*** = ITEMS INCLUDED IN SEAL KIT #291510,**
(REFER TO SEAL RING LOCATIONS SHEET UC1, UC1A, UC2, UC2AB44 FOR PART NUMBER)
+ = ITEMS INCLUDED IN SOLENOID KIT #29292A,
(UC1A SHOWN) (REFER TO THE UC2A EXPLODED VIEW FOR THE UC2A DOWN VALVE SECTION)

EXPLODED VIEW UC1AB44 PARTS LIST

PART #		DESCRIPTION
28149A		**UP CONTROL BLOCK ASSEMBLY**
280070		**Adjuster screw assembly (long)**
203400		Seal nut
227000	*	Teflon seal
200700		Adjuster screw
280090		**Adjuster screw assembly (short)**
203400		Seal nut
227000	*	Teflon seal
200900		Adjuster screw (short)
		Up control block miscellaneous
282920	+	Solenoid tube assembly
29298A-2	+	Solenoid seat kit
292950	+	Ball cage kit
210800	*	Seal ring
244500		Seal plug
210500	*	Seal ring
211000	*	Seal ring
238000		Ball
243300		Spring
239509		Orifice (max UT) (Steel)
2379A0		Screw, (¼-28 button head)
21014A	*	Seal ring
		Relief block assembly
		Note: Available in complete up block assy only.
28148A		**DOWN CONTROL BLOCK ASSY**
280070		**Adjuster screw assy (long)**
203400		Seal nut
227000	*	Teflon seal
200700		Adjuster screw
280470		**Manual lowering screw assembly**
203400		Seal nut
227000	*	Teflon seal
204700		Manual lowering screw
230000		Roll pin
		Down control block miscellaneous
282920	+	Solenoid tube
28292A	+	Solenoid tube w / stud
29298A-2	+	Solenoid seat kit
292950	+	Ball cage kit
210800	*	Seal ring
244500		Seal plug
263900	*	Seal ring
210500	*	Seal ring
208700		Spring
238000		Ball
238100		Screw (10/32 button head)
2379A0		Screw (¼-28 button head)
239513		Orifice (max DS)
281630		**COILS BASE PLATE ASSEMBLY**
216300		Coils base plate
207700		Grommet
207900		Ground screw
247300		Washer
		BPS SECTION
280120		**BPS closure assembly**
2067A0		Lock nut

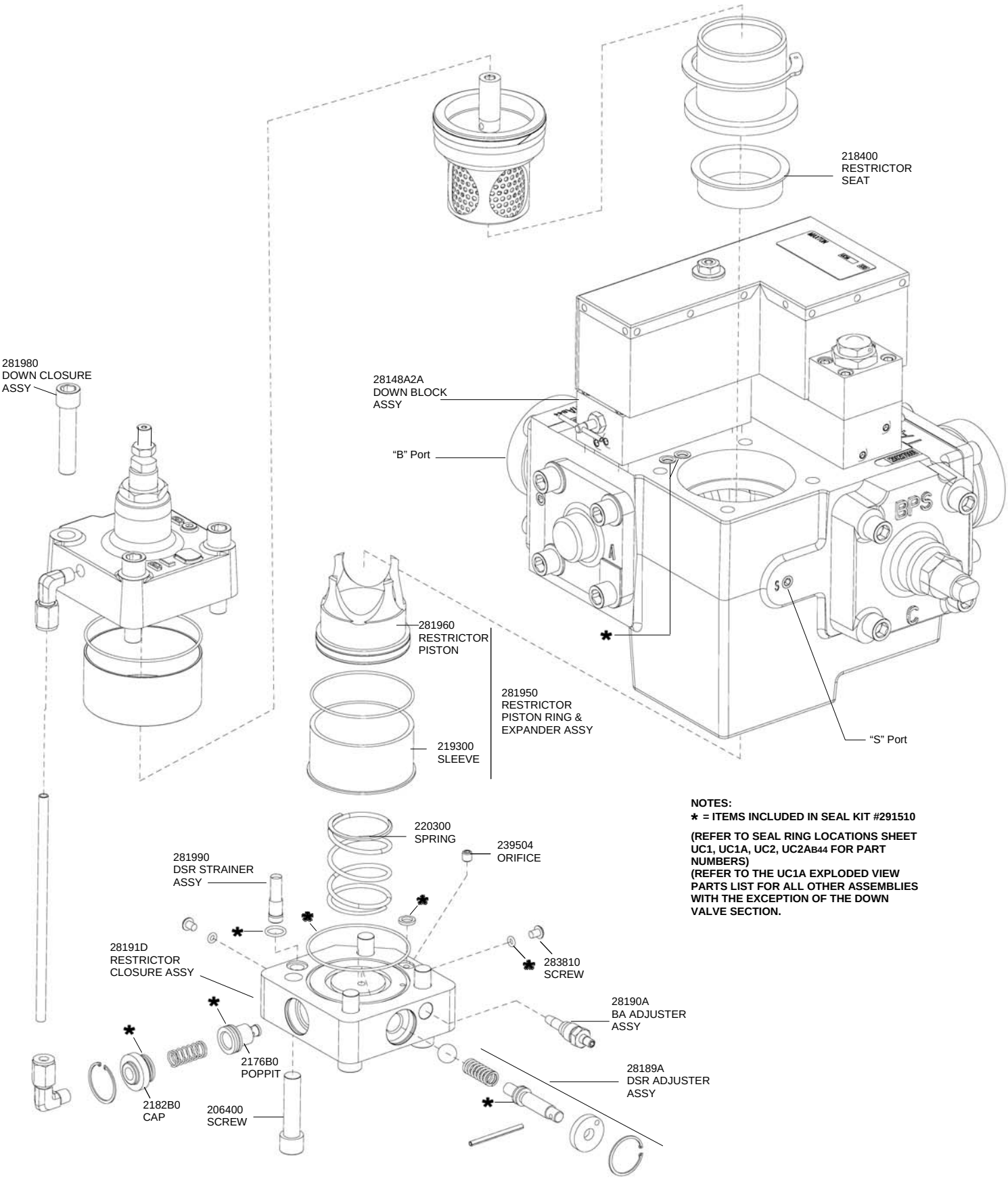
PART #		DESCRIPTION
		BPS SECTION (Continued)
		BPS closure assy (continued)
201200		BPS closure
201800		BPS adjuster screw
210600	*	Seal ring
28014B		**BPS piston & guide assembly**
204000		Sleeve
210000	*	Seal ring
2038B0		BPS piston rod
210200	*	Seal ring
2023A0		Piston
28098A	*	Piston ring & expander assy
2057A0	*	Seal ring
2011E4		BPS guide (standard)
2118A0		Lock nut
204200		BPS Diffuser
208900		Spring, BPS diffuser
28006A		**Up / Down seat assembly**
209300		Snap ring
2006A0		Up seat
219200		Seal ring
		DOWN SECTION
280520		**Down closure assembly**
205100		Lock nut
206700		Lock nut
205200		Down closure
213700		Pipe plug
202900		Down leveling speed adjuster
210600	*	Seal ring
203700		Down speed adjuster
210500	*	Seal ring
28017B		**Down piston & guide assy (std...)**
2038A0		Down piston rod
210200	*	Seal ring
2023A0		Piston
28098A		Piston ring & expander assy
2057A0	*	Seal ring
2017B0		Down guide (std.)
2118A0		Lock nut
204000		Sleeve
210000	*	Seal ring
28006A		**Up / Down seat assembly**
209300		Snap ring
2006A0		Down seat
219200		Seal ring
		CHECK SECTION
280480		**Check closure assembly**
204800		Check closure
210370	*	Seal ring
208800		Spring, check piston
28011A		**Check piston & guide assy (std.)**
2021A0		Lock nut
200200		Spacer
2025A0		Check piston
2057A0	*	Seal ring
2011E4		Check guide (std.)
281510		Check linkage assembly
210200	*	Seal ring
28010A		**Check seat assembly**
2095A0		Snap ring

PART #		DESCRIPTION
		CHECK SECTION (Continued)
28010A		**Check seat assembly (Continued)**
2010A0		Check seat
210370		Seal ring
205000		**VALVE BODY**
28030A		**Regulator assembly**
2053A0		Up leveling speed adjuster
210700	*	Seal ring
2030A0		Regulator
218800		Spring
212200		Spring
214200		Spring boss
281610		**Up / Down strainer assembly**
210700	*	Seal ring
216100		Strainer
		Valve body miscellaneous
203500		Flange, 2½" Vic (Shown)
203600		Flange, 2" Vic
2035A0		Flange, 3" Vic
205600		Flange, 2" Threaded
205800		Flange, 2½" Threaded
210500	*	Seal ring
210700	*	Seal ring
213700		Pipe plug
235200		Pipe plug
213100		Regulator stud
2141A0		Set screw
		MISCELLANEOUS
205900		Coils cover
206400		Screw (Down closure)
206500		Screw (BPS closure)
206600		Screw (flanges, Check closure)
213000		Lock ring
210400	*	Seal ring (flanges)
212900		Screw (regulator cap)
2138A0		Screw (up block)
213900		Screw (up block)
215900		Screw (up & down blocks)
238100		Screw (base plate)
237400		3/8" Washer (coil cover)
205100		Jam Nut
2882B0		**Solenoid coil Assembly**
2082B0		Solenoid coil 115 VAC / 24 VDC (Red)
208880		C-Frame

Notes: - REFER TO THE UC2A EXPLODED VIEW PARTS LIST FOR THE UC2A DOWN VALVE SECTION.

* = PARTS INCLUDED IN SEAL KIT # 291510

+ = PARTS INCLUDED IN SOLENOID KIT # 29292A



NOTES:
*** = ITEMS INCLUDED IN SEAL KIT #291510**

(REFER TO SEAL RING LOCATIONS SHEET UC1, UC1A, UC2, UC2AB44 FOR PART NUMBERS)
(REFER TO THE UC1A EXPLODED VIEW PARTS LIST FOR ALL OTHER ASSEMBLIES WITH THE EXCEPTION OF THE DOWN VALVE SECTION.

PART#		DESCRIPTION
28148A-2A		**DOWN CONTROL BLOCK ASSY**
280070		**Adjuster screw assy (long)**
203400		Seal nut
227000	*	Teflon seal
200700		Adjuster screw
280470		**Manual lowering screw assy**
203400		Seal nut
227000	*	Teflon seal
204700		Manual lowering screw
230000		Roll pin
		Down control block miscellaneous
282920	+	Solenoid tube
28292A	+	Solenoid tube w / stud
29298A-2	+	Solenoid seat kit
292950	+	Ball cage kit
210800	*	Seal ring
244500		Seal plug
263900	*	Seal ring
210500	*	Seal ring
208700		Spring
238000		Ball
238100		Screw (10/32 button head)
2379A0		Screw (¼-28 button head)
239513		Orifice (max DS)

PART#		DESCRIPTION
		DOWN SECTION
281980		**Down closure assembly**
205100		Lock nut
206700		Lock nut
205200		Down closure
210000	*	Seal ring
204000		Sleeve
203700		Down speed adjuster
210600	*	Seal ring
202900		Down leveling speed adjuster
210500	*	Seal ring
28017B		**Down piston & guide assy (std.)**
2038A0		Down piston rod
210500	*	Seal ring
2023A0		Piston
28098A	*	Piston ring & expander assy
2057A0	*	Seal ring
2017B0		Down piston guide (std.)
2118A0		Lock nut
281840		**Down / Restrictor seat assy**
209300		Snap ring
2006A0		Down seat
219200		Seal ring
218400		Restrictor seat

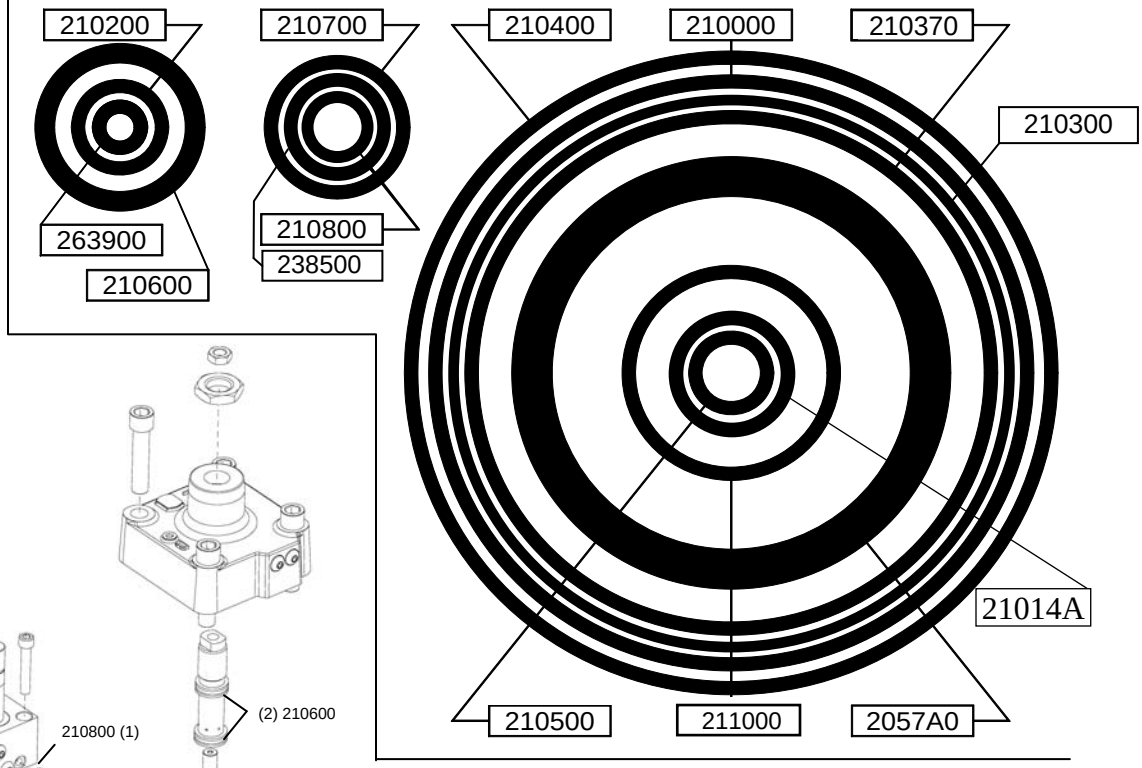
Notes: * **= PARTS INCLUDED IN SEAL KIT #291510**

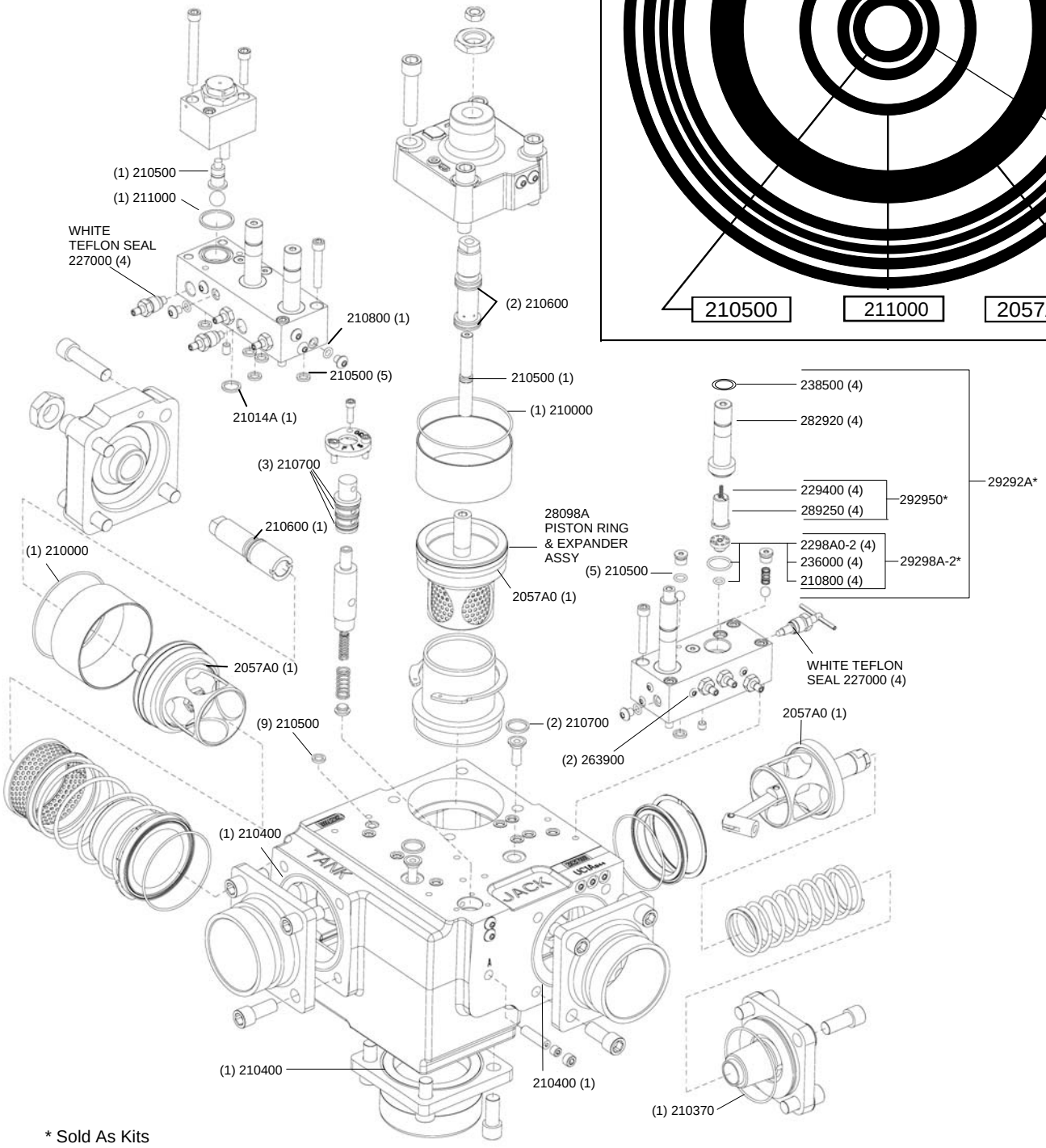
+ = PARTS INCLUDED IN SOLENOID KIT #29292A

REFER TO THE UC1A EXPLODED VIEW PARTS LIST FOR ALL OTHER ASSEMBLIES WITH THE EXCEPTION OF THE DOWN VALVE SECTION.

PART#		DESCRIPTION
		RESTRICTOR SECTION
28191D		**Restrictor closure assy**
2191D0		Restrictor closure
210500	*	Seal ring
210300	*	Seal ring
220400		Spring
220300		Restrictor spring
218100		Pressure line
217300		Snap ring
2182B0		Cap (pressure line)
2176B0		Poppit
210700	*	Seal ring
218300		Roll pin
217700		90 deg. male connector
212400		Ball
212200		Spring
239504		Orifice
210200	*	Seal ring
28190A		**Balance adjuster assy**
203400		Seal nut
227000	*	Teflon seal
2190A0		BA adjuster screw
28189A		**DSR adjuster assy**
2189A0		Regulator adjuster
210200	*	Seal ring
217900		Regulator cap
230000		Roll pin
233000		Lock nut
281960		**Restrictor piston assy**
219600		Restrictor piston
281950		Piston ring & expander assy
219300		Sleeve
210300	*	Seal ring
		Miscellaneous
281990		DSR strainer
206400		Screw

Notes: - SEAL RINGS SHOWN IN ACTUAL SIZE.
Dip in oil prior to installation.





* Sold As Kits

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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 ¼ 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

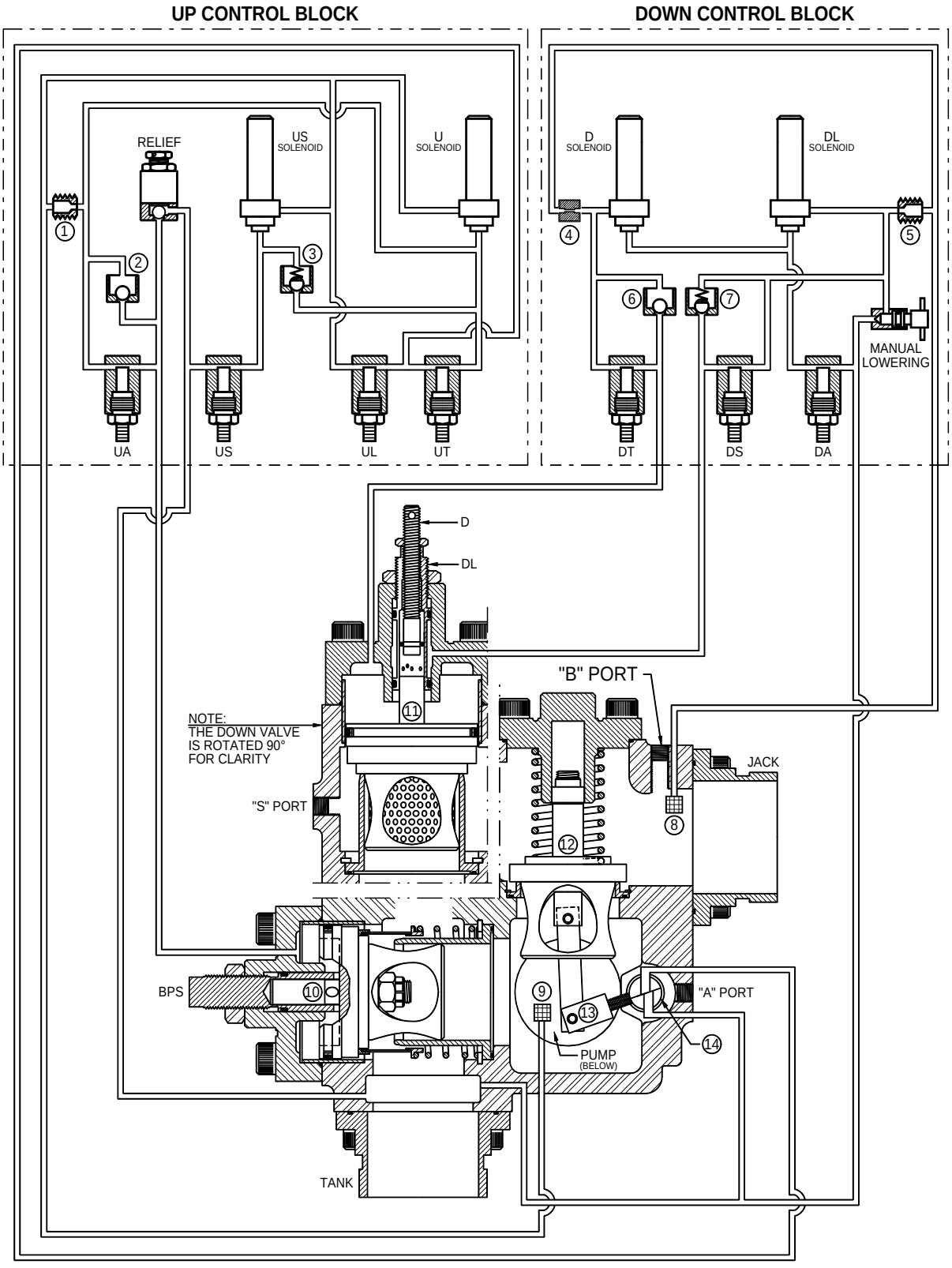
When a down call is registered, the down leveling solenoid (DL) and the down valve solenoid (D) are simultaneously energized, allowing fluid from the control side of the piston and fluid from the down control adjustments, down stop (DS) and down transition (DT), to flow through the down acceleration 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 (2 inches for every 10 fpm 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 the down valve. A control rod follows the movement of the piston, uncovering control porting and allowing fluid to 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 (DT) adjustment. Upon reaching a point slightly before floor level, (usually 3/8 of an inch to ¼ of an inch), the down solenoid (DL) is de-energized, causing the fluid coming through the down transition (DT) and the down stop (DS) adjuster to be diverted to the control side of the down piston, moving the down piston to the fully closed position of the down valve.

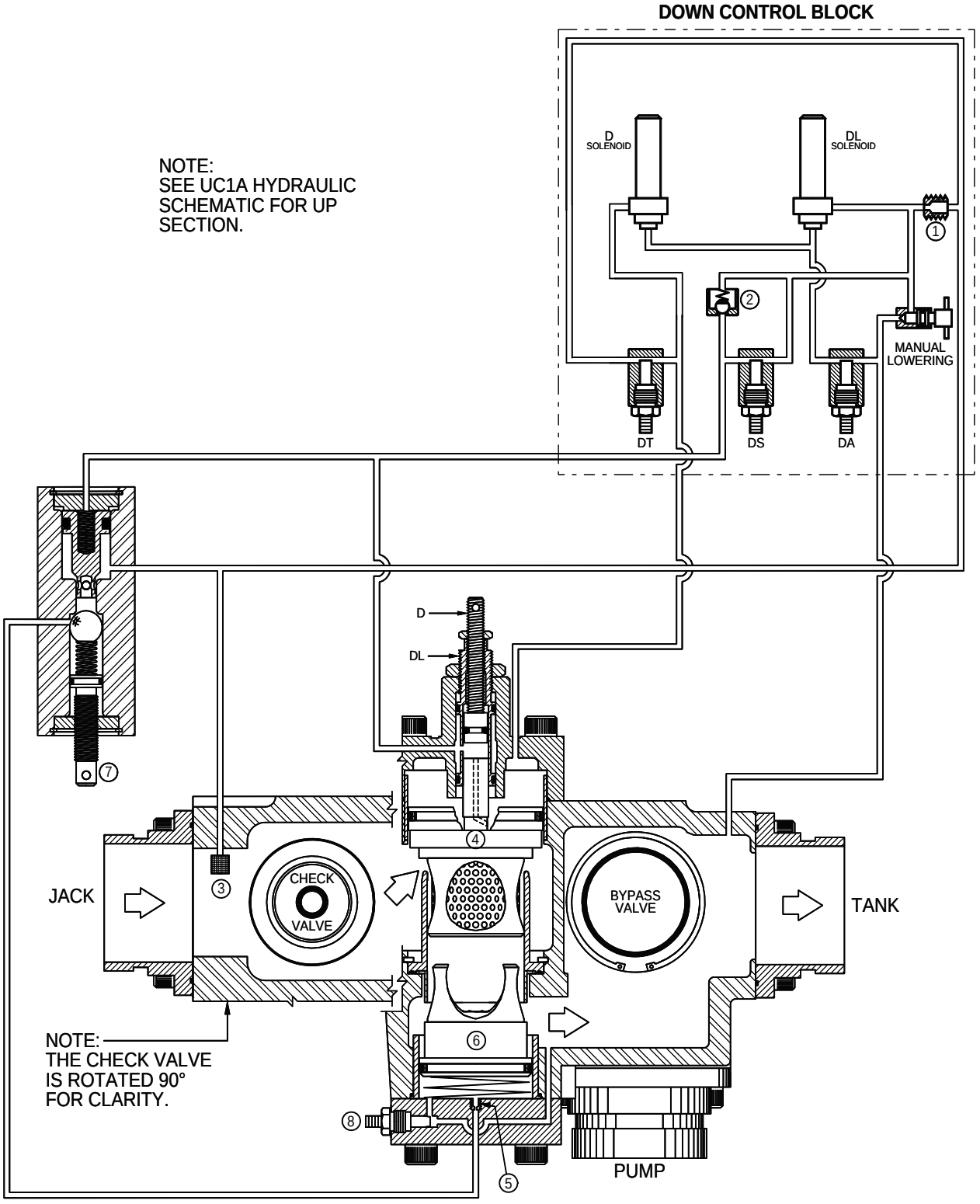
The final closing rate of the down valve is controlled by the down stop adjustment (DS). Opening the down stop adjustment (DS) will cause the car to stop more firmly, as control fluid is sent to the control side of the down piston at a more rapid rate.

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.



①MAXIMUM UA ORIFICE	⑥DT BALL CHECK	⑪DOWN PISTON & GUIDE ASS'Y
②UT BALL CHECK	⑦DS BALL CHECK	⑫CHECK PISTON & GUIDE ASS'Y
③US BALL CHECK	⑧DOWN STRAINER ASS'Y	⑬CHECK LINKAGE
④MAXIMUM DT ORIFICE	⑨UP STRAINER ASS'Y	⑭LS ADJUSTER (ABOVE)
⑤MAXIMUM DS ORIFICE	⑩BPS PISTON & GUIDE ASS'Y	



①MAXIMUM DS ORIFICE
②DS BALL CHECK
③DOWN STRAINER ASS'Y
④DOWN PISTON & GUIDE ASS'Y
⑤RESTRICTOR ORIFICE
⑥RESTRICTOR PISTON ASS'Y
⑦ DOWN SPEED REGULATOR ADJUSTER (DSR)
⑧BALANCE ADJUSTER (BA)

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 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

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).

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 bumpers, 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.
- 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

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).

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. **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.

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) 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.

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) 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.
- Remove valve closure and check piston guides to make sure they operate freely within their respective seats.
- 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).

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 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 valve exchange, 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.