

UV-4R Adjustment Procedure

For residential, LULA and low flow applications.

- This information is provided with the understanding that it is only to be used by qualified hydraulic elevator professionals.**
- Optimum oil temperature for adjusting valve is 80°F (27°C) min. to 100°F (38°C) maximum.
- Each new valve is adjusted to a set of standard conditions at the factory. You only need to adjust **DM** and **BP** settings. Other minor adjustments may be required to suit your application. Final adjustments are made 1/8 turn (or less) at a time for optimum performance.
- After valve adjustments are finalized, snug tighten lock nuts (**DO NOT over tighten**).
- Valve must be mounted with solenoids in vertical position. 5 inches (127mm) minimum clearance is required to remove the valve cover for service.
- When disconnecting solenoids, do it electrically, not physically.
- It is important to keep system oil clean. ECCO recommends use of a 5 micron filtration system.
- If **DC** requires further adjusting, first preset **DA**, adjust **DC** as required, then readjust **DA**.
- DO NOT** adjust valve to suit switches (vaness/magnets). Adjust the switches to suit the valve.

U1 - Up Fast solenoid U2 - Up Slow solenoid

Up Adjustments

- BP Bypass** - Car at lower floor with **no load**. Disconnect **U2**. Register an up call. Turn **BP** CW until car moves, then CCW until car stalls plus 1/2 turn. Stop pump and reconnect **U2**.
- UA Up Acceleration** - Car at lower floor with **no load**. Turn **UA** CCW 9 turns from preset. Register an up call and observe up acceleration. Turn **UA** a small step at a time CCW for faster or CW for slower up acceleration. **DO NOT DRAG OUT ACCELERATION**.
- UL Up Leveling** - Car at lower floor with **no load**. Disconnect **U1**. Register an up call with **U2** energized only. Turn **UL** CW (faster) or CCW (slower) to set up leveling speed at 9 to 12 fpm (.05 to .06 m/s). Leave **U1** disconnected.
- UT Up Transition** - Car at lower floor with **no load**. Start pump with **U2** energized only. Car will move up at leveling speed. Turn **UT** CW until car speeds up, then slowly CCW until car slows down to leveling speed again. Reconnect **U1**. Cycle car and observe up transition. Turn **UT** CW for slower transition, CCW for faster transition. Slowdown switch should be set to give 3 to 4 inches (75 mm to 100 mm) of stabilized leveling.
- US Up Stop** - Car at lower floor with **no load**. Disconnect **U2**. Register an up call. Car should not move. Turn **US** CW until car moves then slowly CCW until car stops again. Reconnect **U2**. Cycle car and observe up stop. Turn **US** CW for softer stop, CCW for firmer stop. **NOTE:** Pump motor must run approximately 1 second after car has stopped.

D1 - Down Fast solenoid D2 - Down Slow solenoid

Down Adjustments

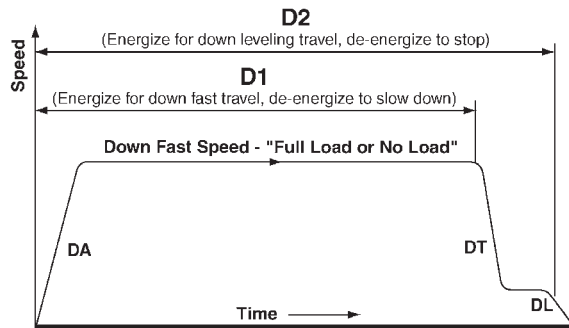
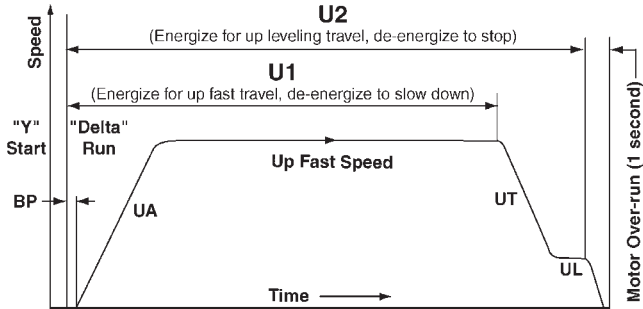
- DL Down Leveling** - Car at upper floor with **no load**. Register a down call. Turn **DC** CW approximately 10 turns from preset until car comes down at full speed. Send car back up. Disconnect **D1**. Make a down call. Adjust **DL** to set down leveling speed at 7 to 9 fpm (.04 to .05 m/s). Cycle car and observe down stop. Adjust **DC** for proper stop (CW for softer stop, CCW for firmer stop). **STOP SHOULD BE FIRM**. Reconnect **D1**.
- DM Down Main** - With car at upper floor with **no load** and **DSC** on preset, register a down call. Adjust **DM** to down contract speed. Turn **DM** CW for slower or CCW for faster speed.
- DC Down Closing** - Cycle **empty** car and observe down stop. Turn **DC** CW (softer stop) or CCW (firmer stop) until down stop is satisfactory (see **note 8**).
- DT Down Transition** - Car at upper floor with **no load**. Disconnect **D1**. Register a down call. Car should come down at leveling speed. Turn **DT** CCW until car speeds up, then slowly CW until car slows down again. Reconnect **D1**. Cycle car and turn **DT** CCW for slower or CW for faster transition. Readjust **DL** to maintain 7 to 9 fpm (.04 to .05 m/s) leveling speed. Slowdown switch should be set as to give 3 to 4 inches (75 to 100mm) of stabilized leveling.
- DA Down Acceleration** - Car at upper floor with **no load**. Turn **DA** CW to stop. Register a down call. Car should not move. Turn **DA** slowly CCW until car breaks away from the floor. Turn **DA** CCW (faster) or CW (slower) until down acceleration is satisfactory.
- DSC Down Speed Control** - Car at upper floor with **full load**. Register a down call. Turn **DSC** CW from preset to slow car to down contract speed. Remove the load, cycle car and recheck empty car speed (should be the same as set before).

ML Manual Lowering - Open **ML** CCW to lower car at leveling speed. All electrical power **MUST** be off when using manual lowering!

Relief Valve (RV):	Adjuster Presetting			
	ADJUSTER	PRESETTING	FUNCTION	
1. With fully loaded car and a pressure gage installed on the pump gage port, register an up call and record maximum pressure as car nears top landing.	Up	BP Bypass	CCW to stop.	(CCW - Delays up start)
		UA Up Acceleration	3/16" in from end of locknut.	(CCW - Faster acceleration)
		UL Up Leveling	CW to stop then CCW 5 turns.	(CW - Faster speed)
		UT Up Transition	CCW to stop.	(CW - Slower transition)
		US Up Stop	CCW to stop.	(CW - Softer stop)
		RV Relief Valve	Factory set at 550 psi (38 bars).	(CW - Increase pressure setting)
2. With fully loaded car at bottom landing, close main line valve and turn RV and UA out CCW to stop.	Down	DL Down Leveling	CCW to stop then CW 6 turns.	(CW - Slower speed)
		DM Down Main	CW to stop then CCW 6 turns.	(CW - Slower speed)
		DC Down Closing	CCW to stop.	(CW - Softer stop)
		DT Down Transition	CW to stop.	(CCW - Slower transition)
		DA Down Acceleration	CCW to stop.	(CW - Slower acceleration)
		DSC Down Speed Control	CCW to stop.	(CW - Slower down speed with full load)
		ML Manual Lowering	CW to stop.	(CCW - Opens valve)
3. Register an up call. Turn RV in CW to set relief pressure as required by local code (not to exceed 50% above maximum pressure recorded earlier).				
4. Restart pump to check the RV setting. Seal RV as required. Open main line valve to the jack. Readjust UA for proper up acceleration.				

UV-4R Operational Data

PERFORMANCE CHART FOR UV-4R VALVE



PRESSURE

CSA-B44/UL Minimum/Maximum: 50 - 1200 psi (3.5 - 84 BAR).

FLOW RATE

Minimum 3 gpm to maximum 35 gpm (11 - 133 l/min).

OPERATING TEMPERATURE

80°F (27°C) minimum to 150°F (65°C) maximum.

GAGE PORTS

Two 1/8" NPT gage ports are provided on the valve. The cylinder gage port (labeled as "C" port) is located on the unused jack port cover. The pump gage port is labeled "P".

OIL SPECIFICATIONS

Recommended oil: A good brand of 32 grade turbine oil with a viscosity of 150 SSU at 100°F (38° C). **Other oils:** The UV-4R is also compatible with 46 grade as well as biodegradable (vegetable) oil.

LINE CONNECTION

Factory standard for each of the three valve ports is 3/4" NPT.

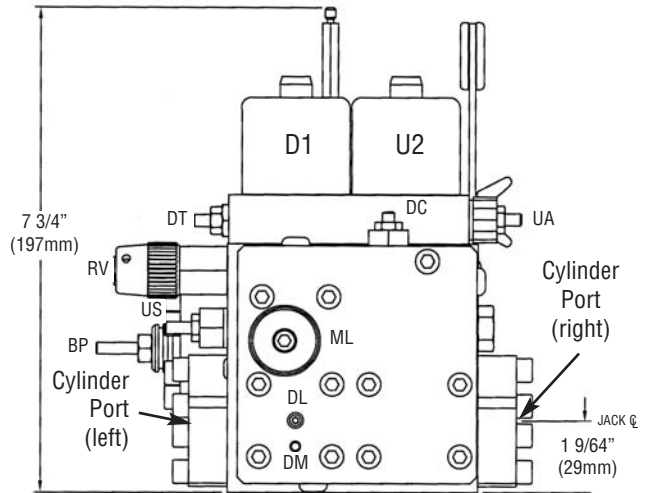
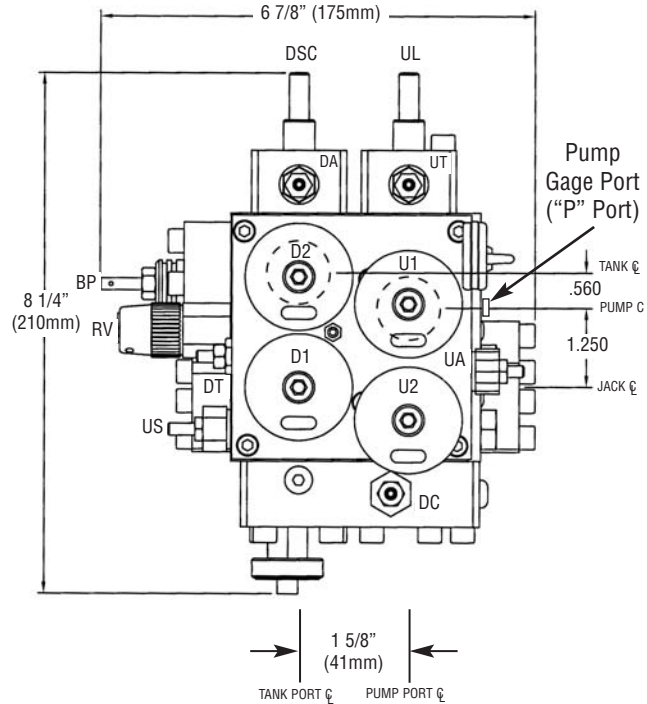
STANDARD CSA-B44/UL APPROVED SOLENOID COILS

24 VDC, 110 VAC, 208 VAC, 220 VAC/110 VDC (dual voltage), 440 VAC/220 VDC (dual voltage). For emergency (battery backup) lowering: 110 VAC/12 VDC (dual voltage). For other coil options, please contact EECO.

SOLENOID LABELING:

- Solenoids:** U1 - Up Fast (Red wires*)
- U2 - Up Slow (Yellow wires*)
- D1 - Down Fast (Black wires*)
- D2 - Down Slow (Blue wires*)

* Please see page 70 for complete solenoid coil descriptions. Not all coils have colored wires.



NOTE: The cylinder gage port ("C" port) is located on the unused jack port cover.

SEQUENCE OF SOLENOID OPERATION

Up Start:

- A) "ATL" (Across The Line) start:** pump motor "ON". Energize both U2 and U1 solenoids to run up at fast speed.
- B) "Y" start:** Pump motor "ON" (reduced voltage). "Delta" run: Pump motor "ON" full voltage. Energize both U2 and U1 solenoids to run up at fast speed. De-energize U1 to slowdown to leveling speed. De-energize U2 to stop at floor.

CAUTION: Never energize U2 and U1 during "Y" start, only after "Delta" run!

Down Start:

- Energize D1 and D2 to lower car at fast speed.
- De-energize D1 to slowdown to leveling speed.
- De-energize D2 to stop at floor.

Note 1: For additional clarification on the sequence of operation please refer to the Performance Chart above.

Note 2: Pump motor must be timed to run approximately 1 second after car has stopped.