

# UV-7BC (Constant Down Speed Valve) Adjustment Procedure

**Notes:**

- This information is to be used only by qualified hydraulic elevator professionals.**
- The optimum oil temperature to adjust the valve is between 80° to 100°F (27° to 38°C). If oil temperature exceeds 100°F (38°C), make down stop firmer.
- The following instructions are for adjusting the valve starting with adjusters on preset. However, each new valve is adjusted to a set of standard conditions at the factory and **you do not have to preset adjusters**. You only need to adjust **DM** and **BP**. Other adjusters may require fine-tuning to suit your application.
- Hand tighten the seal nuts on the adjusters - **DO NOT** over tighten.
- Valve must be mounted with solenoids in vertical position.
- When disconnecting solenoids, do it electrically, not physically.
- Both **UA** and **DC** adjusters have screened inputs and must be kept clean. **ECCO** recommends use of a 5-micron filtration system.
- If **DC** requires further fine-tuning after **DA** is adjusted, first open **DA** 3 turns, fine-tune **DC** and then readjust **DA**.
- DO NOT** adjust the valve to suit switches. Adjust the switches (vanes / magnets) to suit the valve.

U1 - Up Fast solenoid	Up Adjustments (From Preset)	U2 - Up Slow solenoid
1) <b>BP Bypass</b> - Note: <b>UA</b> must be on preset (CW to stop). Car at lower floor with <b>no load</b> . Disconnect <b>U2</b> . Register an up call. Turn <b>BP</b> CW until car moves, then CCW until car stalls plus a minimum of 1/2 turn. Stop pump motor and reconnect <b>U2</b> .		
2) <b>UA Up Acceleration</b> - Car at lower floor with <b>no load</b> . Turn <b>UA</b> CCW 2 1/2 turns from fully closed position. Register an up call and observe up acceleration. Turn <b>UA</b> CCW for faster or CW for slower up acceleration. Car should reach full speed in 2 1/2 feet (.8 m). <b>DO NOT</b> drag out acceleration.		
3) <b>UL Up Leveling</b> - Car at lower floor with <b>no load</b> . Disconnect <b>U1</b> . Register an up call. Adjust <b>UL</b> to set up leveling speed at 10 to 13 fpm (.05 to .07 m/sec). Reconnect <b>U1</b> .		
4) <b>UT Up Transition</b> - Car at lower floor with <b>no load</b> . Register an up call and observe up transition. Turn <b>UT</b> CW (slower) or CCW (faster) until up transition is satisfactory. Slowdown switch should be located to give 3 to 4 inches (75 to 100 mm) of stabilized leveling ( <b>see note 9</b> ).		
5) <b>US Up Stop</b> - Car at lower floor with <b>no load</b> . Disconnect <b>U2</b> . Register an up call. Car should not move. Turn <b>US</b> CW until car moves, then CCW until car stops again. Reconnect <b>U2</b> . Register an up call and observe up stop. Turn <b>US</b> CW for softer stop, CCW for firmer stop. <b>NOTE: Pump motor must run approximately 1 second after car has stopped.</b>		

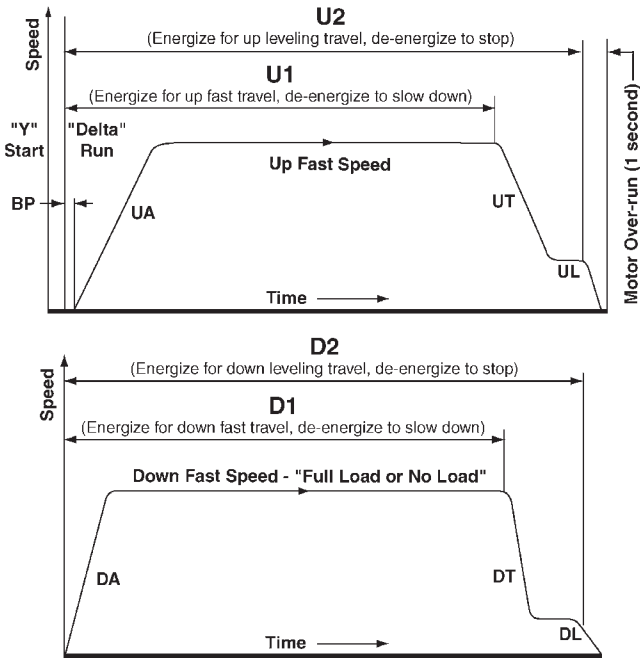
D1 - Down Fast solenoid	Down Adjustments (From Preset)	D2 - Down Slow solenoid
1) <b>DL Down Leveling</b> - Car at upper floor with <b>no load</b> . Turn <b>DC</b> CW 2 1/2 turns from fully open position position. Disconnect <b>D1</b> . Register a down call. Adjust <b>DL</b> to set down leveling speed at 7 to 9 fpm (.04 to .05 m/s). Reconnect <b>D1</b> .		
2) <b>DM Down Main</b> - Car at upper floor with <b>no load</b> and <b>DSC</b> on preset (CCW to stop). Register a down call. Turn <b>DM</b> CW (slower) or CCW (faster) to set down speed at contract (full load) speed.		
3) <b>DSC Down Speed Control</b> - Pressure compensation for down speed control is achieved automatically when <b>DSC</b> is completely out (CCW to stop). To close off <b>DSC</b> , relieve system pressure by landing car in pit, turn <b>DSC</b> CW until snap ring is flush with the end of <b>DM</b> adjuster. To reactivate down speed control, turn <b>DSC</b> CCW to stop.		
4) <b>DC Down Closing</b> - Cycle <b>empty</b> car and observe down stop. Turn <b>DC</b> CW (softer stop) or CCW (firmer stop) until down stop is satisfactory ( <b>see note 8</b> ).		
5) <b>DT Down Transition</b> - Cycle <b>empty</b> car and observe down transition. If <b>DT</b> requires adjustment, send empty car to upper floor. Disconnect <b>D1</b> . Register a down call. Car should come down at leveling speed. Turn <b>DT</b> CCW until car speeds up, then slowly CW until car slows down again. Reconnect <b>D1</b> . Cycle car and turn <b>DT</b> CCW (slower) or CW (faster) until down transition is satisfactory. Readjust <b>DL</b> to maintain down leveling at 7 to 9 fpm (.04 to .05 m/sec). Slowdown switch should be located to give 3 to 4 inches (75 to 100mm) of stabilized leveling ( <b>see note 10</b> ).		
6) <b>DA Down Acceleration</b> - Car at upper floor with <b>no load</b> . Turn <b>DA</b> CW to stop. Register a down call. Car should not move. Turn <b>DA</b> slowly CCW until car breaks away from floor. Turn <b>DA</b> CW (slower) or CCW (faster) until down acceleration is satisfactory.		

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

Relief Valve (RV):	CW = Clockwise (IN) ↻			Adjuster Presetting			↻ CCW = Counter Clockwise (OUT)		
		ADJUSTER	PRESETTING		FUNCTION				
<ol style="list-style-type: none"> <li>With fully loaded car and a pressure gage installed on the <b>pump gage</b> port, register an up call and record maximum pressure as car nears top landing.</li> <li>Close main line valve and turn <b>RV</b> and <b>UA</b> out CCW to stop.</li> <li>Register an up call. Turn <b>RV</b> CW to set relief pressure as required by local code (not to exceed 50% above maximum pressure recorded earlier).</li> <li>Restart pump to check pressure relief setting. Seal <b>RV</b> as required. Open main line valve to the jack. Readjust <b>UA</b> for proper up acceleration.</li> </ol>	Up	<b>BP Bypass</b>	CCW to stop, then CW 2 turns.	(CCW - Delays up start)					
		<b>UA Up Acceleration</b>	CW to stop (flush with end of lock nut).	(CCW - Faster acceleration)					
		<b>UL Up Leveling</b>	CCW to stop.	(CW - Faster speed)					
		<b>UT Up Transition</b>	CCW to stop, then CW 2 1/2 turns.	(CW - Slower transition)					
		<b>US Up Stop</b>	CCW to stop.	(CW - Softer stop)					
		<b>RV Relief Valve</b>	Factory set at 500 psi (34 bars).	(CW - Increase pressure)					
<ol style="list-style-type: none"> <li>Restart pump to check pressure relief setting. Seal <b>RV</b> as required. Open main line valve to the jack. Readjust <b>UA</b> for proper up acceleration.</li> </ol>	Down	<b>DL Down Leveling</b>	CW to stop, then CCW 5 1/2 turns.	(CW - Slower speed)					
		<b>DM Down Main</b>	CW to stop, then CCW 5 1/2 turns.	(CW - Slower speed)					
		<b>DSC Down Speed Control</b>	CCW to stop (flush with end of lock nut).	(No adjustment required)					
		<b>DC Down Closing</b>	CCW to stop.	(CCW - Firmer stop)					
		<b>DT Down Transition</b>	CW to stop.	(CCW - Slower transition)					
		<b>DA Down Acceleration</b>	CCW to stop.	(CCW - Faster acceleration)					
		<b>ML Manual lowering</b>	CW to stop.	(CCW - Opens valve)					

# UV-7BC Operational Data

## PERFORMANCE CHART FOR UV-7BC VALVES

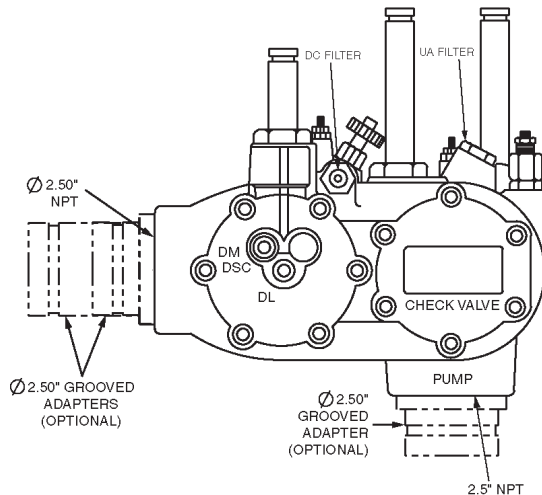
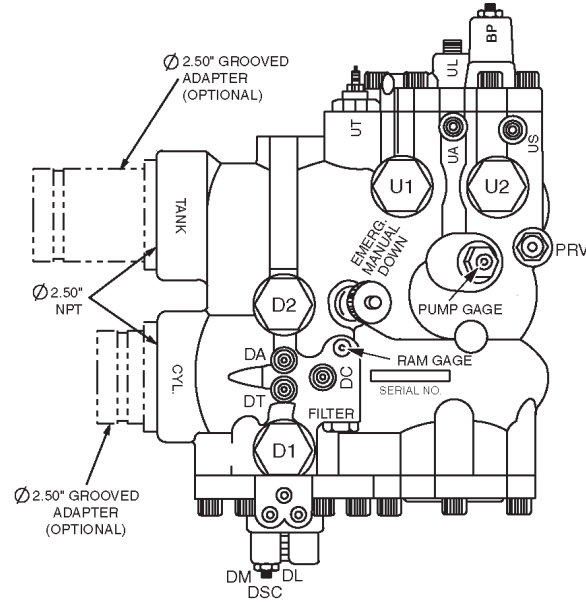


## PLEASE NOTE NEW SOLENOID LABELING (since August 2003):

- Solenoids:** U1 - Up Fast (Red wires\*) - (was ULS)  
 U2 - Up Slow (Yellow wires\*) - (was UDS)  
 D1 - Down Fast (Black wires\*) - (was DMS)  
 D2 - Down Slow (Blue wires\*) - (was DLS)

**Adjuster:** US - Up Stop - (was UD)

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



### PRESSURE

CSA-B44/UL Minimum/Maximum: 50 - 500 psi (3.5 - 34.5 bars).

### FLOW RATE

Minimum 75 gpm to maximum 400 gpm (284 - 1514 l/min). For higher flow rates contact EECO.

### OPERATING TEMPERATURE

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

### GAGE PORTS

Gage ports are 1/8" NPT and are provided on the top of the valve. Please refer to the illustration at right. Optional quick connect/disconnect fittings as well as 0-1000 psi liquid filled pressure gage can be supplied with the valve upon request.

### 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-7B is also compatible with 46 grade as well as biodegradable (vegetable) oil.

### STANDARD CSA/UL APPROVED SOLENOID COILS

110 VAC, 208 VAC, 220 VAC, 440 VAC, 110 VDC, 220 VDC, For other coil options, please contact EECO.

## 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.