Elevator Equipment Corporation

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# UV-5ATC (Constant Down Speed Valve) Adjustment Procedure

**Notes:**

1. **This information is to be used only by qualified hydraulic elevator professionals.**
2. 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.
3. 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.
4. Hand tighten the seal nuts on the adjusters - **DO NOT** over tighten.
5. Valve must be mounted with solenoids in vertical position. Five (5) inches (127mm) minimum clearance is required to remove valve cover for service.
6. When disconnecting solenoids, do it electrically, not physically.
7. Both **UA** and **DC** adjusters have screened inputs and must be kept clean. **EECO** recommends use of a 5-micron filtration system.
8. If **DC** requires further fine-tuning after **DA** is adjusted, first open **DA** 3 turns, fine-tune **DC** and then readjust **DA**.
9. **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) BP** **Bypass -** Car at lower floor with **no load**. Disconnect **U2**. Register an up call. Car should not move. Turn **BP** CW until car moves, then CCW until car stalls plus a minimum of 1/2 turn. Stop pump motor. Reconnect **U2**.

**2) UA** **Up Acceleration -** Car at lower floor with **no load**. Turn **UA** CCW 2 1/2 turns from fully closed position. Register an up call and observe up acceleration. Turn **UA** CCW for faster or CW for slower up acceleration. Car should reach full speed in no more than 2 1/2 feet (.8m). **DO NOT** drag out acceleration.

**3) UL** **Up Leveling -** Car at lower floor with **no load**. Disconnect **U1**. Register an up call. Turn **UL** CCW (faster) or CW (slower) to set up leveling speed at 10 to 13 fpm (.05 to .07 m/sec). Leave **U1** disconnected.

**4) UT** **Up Transition -** Car at lower floor with **no load**. Register an up call 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 again. Reconnect **U1**. Register an up call and observe up transition. Turn **UT** CW (slower) or CCW (faster) until up transition is satisfactory. Slowdown switch should be located to give 3 to 4 inches (75 to 100mm) of stabilized leveling **(see note 9)**.

**5) 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 CCW until car stops again. Reconnect **U2**. Register an up call and observe up stop. Turn **US** CW for softer stop or CCW for firmer stop. **NOTE:** Pump motor must run approximately 1 second after car has stopped.

**D1 - Down Fast solenoid** — **Down Adjustments (From Preset)** — **D2 - Down Slow solenoid**

**1) DL** **Down Leveling -** Car at upper floor with **no load**. Turn **DC** CW 8 1/2 turns from fully open position. Disconnect **D1**. Register a down call. Adjust **DL** to set down leveling speed at 7 to 9 fpm (.04 to .05 m/sec).Reconnect **D1**.

**2) DM** **Down Main -** Car at upper floor with **no load** and **DSC** on preset (CCW to stop). Register a down call. Turn **DM** CW (slower) or CCW (faster) to set down speed at contract (full load) speed.

**3) DSC** **Down Speed Control -** Pressure compensation for down speed control is achieved automatically when **DSC** is completely out (CCW to stop). To close off **DSC**, relieve system pressure by landing car in pit, turn **DSC** CW until snap ring is flush with the end of **DM** adjuster. To reactivate down speed control, turn **DSC** adjuster CCW to stop.

**4) 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)**.

**5) DT** **Down Transition -** Cycle **empty** car and observe down transition. If **DT** requires adjustment, send empty car to upper floor. 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 (slower) or CW (faster) until down transition is satisfactory. Readjust **DL** 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 **(see note 9)**.

**6) 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** 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):**

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.
2. Close main line valve and turn **RV** and **UA** out CCW to stop.
3. Register an up call. Turn **RV** CW to set relief pressure as required by local code (not to exceed 50% above maximum pressure recorded earlier).
4. Restart pump to check pressure relief setting. Seal **RV** as required. Open main line valve to the jack. Readjust **UA** for proper up acceleration.

**CW** = Clockwise (IN) ↻ — **Adjuster Presetting** — ↺ **CCW** = Counter Clockwise (OUT)

| | ADJUSTER | PRESETTING | FUNCTION |
|---|---|---|---|
| Up | **BP Bypass** | CCW to stop, then CW 2 turns. | (CCW - Delays up start) |
| | **UA Up Acceleration** | CW to stop. | (CCW - Faster acceleration) |
| | **UL Up Leveling** | CW to stop. | (CCW - Faster speed) |
| | **UT Up Transition** | CCW to stop, then CW 7 1/2 turns. | (CW - Slower transition) |
| | **US Up Stop** | CCW to stop, then CW 7 1/2 turns. | (CW - Softer stop) |
| | **RV Relief Valve** | Factory set at 550 psi (38 bars). | (CW - Increase pressure setting) |
| Down | **DL Down Leveling** | CW to stop, then CCW 5 1/2 turns. | (CW - Slower speed) |
| | **DM Down Main** | CW to stop, then CCW 5 1/2 turns. | (CW - Slower speed) |
| | **DSC Down Speed Control** | CCW to stop. | (No adjustment required) |
| | **DC Down Closing** | CCW to stop. | (CCW - Firmer stop) |
| | **DT Down Transition** | Closed flush with end of lock nut. | (CCW - Slower transition) |
| | **DA Down Acceleration** | CCW to stop. | (CCW - Faster acceleration) |
| | **ML Manual Lowering** | CW to stop. | (CCW - Opens valve) |

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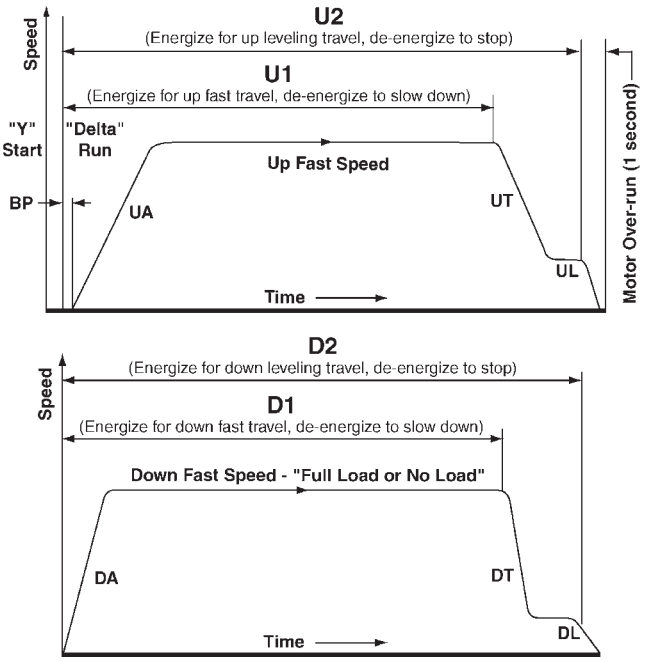
# UV-5ATC Operational Data

### PERFORMANCE CHART FOR UV-5ATC VALVES




**PRESSURE**

CSA-B44/UL Minimum/Maximum: 90 - 800 psi (6.2 - 55.2 bars). Standard pressure rating 50 psi minimum to 1150 psi maximum (3.4 - 79.3 bars).

**FLOW RATE**

Minimum 20 gpm to maximum 200 gpm (76 - 836 l/min).

**OPERATING TEMPERATURE**

80°F (27°C) minimum to 150°F (66°C) maximum.

**GAGE PORTS**

"Ram"(jack) and "Pump" gage ports are 1/8" NPT and are provided on top of the valve. Optional quick connect/disconnect fittings as well as 0-1000 psi liquid filled pressure gages can be installed and/or 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-5ATC is also compatible with 46 grade as well as biodegradable (vegetable) oil.

**LINE CONNECTION**

Factory standard for each of the three valve ports is 2" NPT, 2" grooved ports are optional.

**STANDARD CSA-B44/UL APPROVED SOLENOID COILS**

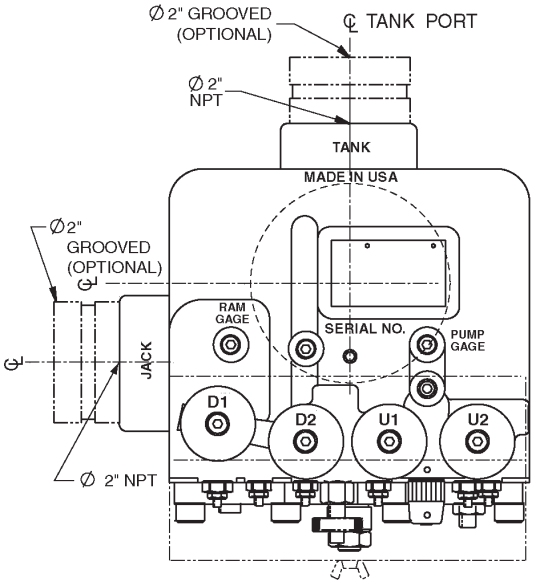
24 VDC, 110 VAC, 208 VAC, 220 VAC/110 VDC, 440 VAC/220 VDC. For emergency (battery backup) lowering: 110 VAC/12 VDC (dual voltage). For other coil options, please contact EECO.

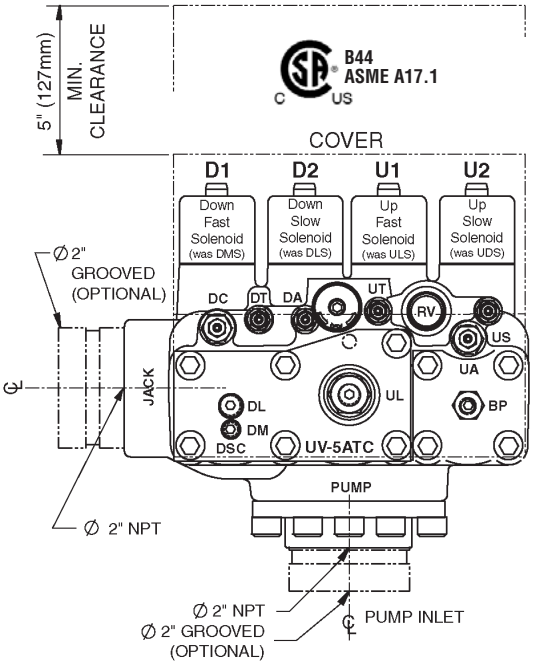
**PLEASE NOTE NEW SOLENOID LABELING (since August 2003):**

**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.




### 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.