

### 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 buffers (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

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## 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 buffers, 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.
  4. Check up control fluid strainer underneath the up control block for lint. If clogged, remove debris (in this case oil in the system must be filtered).
- 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.

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### UP SECTION (CONTINUED)

#### CAR OVERTHOOTS 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. **If the car moves, 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.

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**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.

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**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.
- 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).
- Remove "B" down closure and verify the down piston operates freely within its seat.

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**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.