KV Elevator Control Valve Trouble Shooting (2018)

UP Travel

EN ISO 9001

Problem	Possible cause	Recommended
No Up-Start (Elevator remains at floor).	Test for KV1S and KV2S: Turn adjustment **5** all the way in, if the elevator now starts upwards the problem is at solenoid **A**.	
	Solenoid **A** not energised or voltage too low.	See Ⓐ below.
	Solenoid **A** tube not screwed down tight.	Tighten Solenoid **A** tube.
	Solenoid valve **A:** Dirt or damage between needle and seat.	Clean or change needle and seat.
	Orifice in bypass valve blocked.	Clean or change bypass valve **U**.
	Adjustment **1** too far back (open). Not enough pilot pressure (minimum 5 bar) or bypass flow guide too large (slots too wide). see*	With the pump running, turn adjustment **1** in, or if already too far in, insert smaller bypass flow guide (see the diagram in KV literature).
	Pressure relief valve **S** is set too low.	Set relief valve higher. Preadjustment all the way in and then 1½ turn out.
	Down valve **7** or **9** are open due to contamination in their orifices. (Especially if the elevator settles back on the buffers. Solenoid **D** is leaking.	Clean or replace down valves **7** (KV2 only) and **9**. Clean solenoid **D**.
	Pump running in the wrong direction.	Check motor direction and install the pump correctly.
	The pump connection flange is leaking excessively.	Seal the pump connection.
	The pump is undersize, worn or crack in the housing.	Select a bigger pump or replace the pump.
	Bypass flow guide too large.	Replace with smaller size.
	* Test: If by turning adjustment **1** with the pump running the pressure does not rise above 5 bar, even with a smaller bypass valve inserted, the problem should be sought at the pump.	
Up-Start too hard.	Adjustment **1** turned in too far.	Turn out adjustment **1**.
	Bypass flow guide **U** too small (slots too narrow).	Change to flow guide with wider slots.
	Star to delta motor switch period is too long.	0.2-0.3 sec. is sufficient.
	O-ring **UO** on the bypass valve **U** is leaking.	Change O-Ring → see KV Spare Parts List.
	Excessive friction on the guide rails or in the cylinder head.	Can not be eliminated through valve adjustment.
Elevator slows down but over travels the floor level.	Solenoid **A** (Up-stop) is de-energised too late.	See Ⓐ below.
	Adjustment **5** (Soft Stop) not far enough open (KV1S and KV2S).	Open further out.
	Adjustment **1** Bypass not far enough open and pump flow does not completely by-pass.	Open adjustment **1** two turns further out.
Relief-Valve not adjustable to lower value.	Adjustment **1** too far in.	Open adjustment **1** further out.
	½" pipe thread connection in return line **T** should not exceed 14 mm.	With tape threads, 4-6 threads of engagement is sufficient.
Elevator doesn't reach full speed.	Bypass piston doesn´t close. Piston orifice is dirty **and** adjustment **1** turned in too far.	Clean the dirt / foreign particles in the by-pass piston orifice or change the piston and turn adjustment **1** out.

Valves are already adjusted and tested. Check electrical operation before changing valve settings. Test that the correct solenoid is energised, by removing nut and raising solenoid slightly to feel pull.

Ⓐ For checking the operation of the solenoids, remove the top nuts. By lifting the coils a few millimetres, the magnetic pull of the coil can be felt. For testing, the operation of the elevator car can also be controlled by lifting and replacing the coil.

If the coil gets too hot, the coil has to be mounted onto the solenoid and the following adjustments have to be carried out on normal travels from floor to floor.

Standard settings: Adjustment **1** level with flange faces. Adjustment **5** (KV1S & KV2S) level with flange faces.

jun 18

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BLAIN HYDRAULICS GmbH

Designer and Manufacturer of the highest quality control valves & safety components for hydraulic elevators

KV Elevator Control Valve Trouble Shooting (2018)

Down Travel

EN ISO 9001

Problem	Possible cause	Recommended
No Down Start (Elevator remains at floor).	Solenoid **D** not energised or voltage too low.	Lift coil to check magnetic pull. See Ⓐ below.
	Adjustment **6** turned in too far.	Turn out adjustment **6**.
	O-ring **YO** on down valve, leaking.	Replace O-ring **YO**.
KV2 only: Down start but no full speed	Solenoid **C** not energised or voltage too low.	Lift coil to check magnetic pull. See Ⓐ below.
	Adjustment **7** (Full speed down) turned in too far.	Turn out adjustment **7**.
	Down piston too small.	Insert the next size higher.
	Filter on Solenoid **D** contaminated.	Clean filter.
KV2 only: Down full speed but no down levelling.	Solenoids **C** and **D** reversed.	See Ⓐ below. Swap solenoid **C** and **D**.
	Adjustment **9** (Down levelling speed) turned in too far.	Turn out adjustment **9**.
	Solenoid **C** contaminated	Clean or change needle & seat.
	Solenoid **C** does not de-energise.	Check voltage on Solenoid **C**.
Only with KV2: Braking is too hard & stop is too soft. (The elevator travels below floor level).	Down piston **7** (Ø 0.2mm orifice; brass) & slow piston **9** (Ø 0.4mm orifice; steel) are reversed.	Swap piston **7** & **9**.
Elevator travels through floor level.	Down levelling speed **9** too fast.	Adjust to 0.05 m/s.
	Solenoid **D** is leaking.	Clean solenoid **D**; turn seat upside down or replace needle & seat.
	Orifice in down flow guide **X** or down levelling flow guide **Y** is blocked or contaminated.	Replace piston.
Leakage (Elevator sinks).	Leak at **N6, S6, XO, VO** or **HO**.	Replace and test in sequence.
	Other valves (ex. handpump) in the system, leaking.	Where possible, isolate and check.
	Contraction of oil during cooling, especially from 35°C or above.	Consider oil cooler to keep oil temperatures down.
	Solenoid **D** tube not screwed down tight.	Tighten Solenoid **D** tube.

Valves are already adjusted and tested. Check electrical operation before changing valve settings. Test that the correct solenoid is energised, by removing nut and raising solenoid slightly to feel pull.

Ⓐ For checking the operation of the solenoids, remove the top nuts. By lifting the coils a few millimetres, the magnetic pull of the coil can be felt. For testing, the operation of the elevator car can also be controlled by lifting and replacing the coil.

If the coil gets too hot, the coil has to be mounted onto the solenoid and the following adjustments have to be carried out on normal travels from floor to floor.

Standard settings: Adjustments **7 & 9**, screw heads level with the hexagon heads.

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