



RESIDENTIAL & LULA ELEVATOR OWNER'S MANUAL

Part No. - MNL-INFO-OM-01
VER. 4 /4-25-13

Elevator Concepts Ltd by Wurtec

**18720 Krause Riverview, MI 48193 | 734.246.4700 | Fax: 734.246.2547
www.elevatorconcepts.com**

CONTENTS

Operations Pg. 3

Maintenance Pg. 4

Troubleshooting Pg. 5

EV 100 Service Manual Pg. 6

1-1 Support Pg. 18

1-3 Special Operations Pg. 19

2-1 Parameter Description & Function Pg. 21

3-1 Programming Tool (P-Tool) Functions Pg. 24

4-1 Temporary Run Mode Pg. 24

5-1 Identifying the Software Version Pg. 25

6-1 Commonly Asked Questions Pg. 25

Manufacturers Warranty Pg. 27

OPERATION

Our elevators are simple to operate. Make sure the doors and gates are closed and push the button for the desired level. The elevator will travel to and automatically stop there. Some guidelines for safe operation:

- ? DO have the elevator inspected regularly by a qualified elevator technician
- ? Do not exceed the rated capacity
- ? Do not put concentrated loads in the elevator
- ? Do not drop or throw loads into the car
- ? Do not yank hard or excessively on the doors
- ? Do not slam the doors closed
- ? Do not defeat any safety devices
- ? Do not use the elevator if you detect anything unusual in its operation – call for service

Following these common sense guidelines will help ensure years of trouble free operation. If you do have problems, consult the troubleshooting section that follows.

MAINTENANCE

With proper installation, our residential and LULA elevators do not require any scheduled maintenance under normal operating conditions. As with all mechanical equipment, it is good practice to have routine inspections performed by qualified technicians so that any potential problems can be found and corrected before they impact the performance of the unit.

FREQUENCY OF INSPECTION

- Normal use (up to 10 trips per day) – annually
- Heavy use (up to 20 trips per day) – semi-annually
- Extra heavy (more than 20 trips per day) or commercial use – quarterly

INSPECTION CHECKLIST

- Electrical - verify the proper operation of:
 - Limit switches
 - Slack cable switch (if equipped) Floor stop switches
 - Door locks and gate contacts
 - Pushbuttons
 - Emergency alarm and phone
 - Cab lights

Mechanical

- Check that all bolts are tight
- Check sheaves for noise or excessive wear
- Check hoist cable for wear; check that cable fastenings are tight
- Check that doorlocks lock and release doors properly
- Check roller guides for excessive wear or flat spots
- Check that all hoistway wiring is secure and cannot snag on moving car
- Check cab for any physical damage

Hydraulic

- Check oil level – motor should be covered with oil with car at top level
- Check oil for contaminants
- Check for leaks in piping
- Check for leaks at hydraulic cylinder seal

Traction / Winding drum

- Check gear motor for oil leaks, excessive noise or overheating
- Check gear motor for oil leaks, ex
- Check brake for proper operation

TROUBLESHOOTING

Only qualified personnel should attempt to install, troubleshoot or repair elevator control systems. Elevators are complex machines, and a troubleshooting guide is not a replacement for the skills acquired by a qualified elevator technician. There are a few simple things to check if the elevator does not function:

- Check incoming power
- Check board fuses
- Check that all gates and doors are closed

If these items are ok and the elevator does not run, call for service. The control system manual that came with the elevator contains information that a qualified elevator technician can use to troubleshoot and repair the elevator. Contact us if you need a replacement control system manual.

Emergency evacuation

In the event a power failure or an elevator system electrical system malfunction traps someone between floors, it is possible to lower the car manually. We recommend practicing the procedure with a qualified technician. Follow these steps:

1. Notify anyone in the elevator that you are going to lower it manually, and that under no circumstance should they attempt to exit the elevator until you tell them it is safe.
2. Turn off the power at the main disconnect.
3. Open the hoistway door at level below the elevator car. If possible have an assistant stand at the hoistway opening to watch the elevator to let you know when it reaches the floor and if there are any problems while lowering it, and to prevent anyone from entering the hoistway.
4. On hydraulic units, open the manual lowering valve on the main hydraulic control unit, located in the oil reservoir.
On drum or traction units, insert the handcrank into the back of the motor, gradually release the brake, and use the crank to move the elevator. **WARNING** – depending on the load and gearbox style, completely releasing the brake may cause overspeed.
USE EXTREME CAUTION WHEN RELEASING THE BRAKE.
5. When the elevator is at the floor level, release the manual lower valve (hydraulics) or the brake (drum or traction). Open the car gate and tell the passengers it is safe to exit.

If you need any information or assistance please contact us:

ELEVATOR CONCEPTS

18720 KRAUSE RIVERVIEW MI 48193

734-246-4700

734-246-2547 fax

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www.elevatorconcepts.com



Caution

Only qualified elevator mechanics are permitted to install and adjust elevator control valves and controllers.

Every Blain control valve is subjected to strong quality standards, from production, adjustment and testing, to final shipment.

This manual will provide assistance whenever servicing is required. If necessary, please contact our technical department, stating the valve number, which is engraved into the EV casting above the nameplate, as well as other related technical data.

Technical Servicing

(from USA)

Dr. F. Celic: Tel. +49 7131 282139 • Tel. 01149 7131 282139

Frank Pausder: Tel. +49 7131 282132 • Tel. 01149 7131 282132

Fax: +49 7131 485216 • Fax 01149 7131 485216

E-Mail: info@blain.de
URL: <http://www.blain.de>



EV 100 Service Manual Elevator Valve - EV 100 3/4" for Home Lifts



-
- Control Elements**
- A Solenoid (UP Stop)
 - B Solenoid (UP Deceleration)
 - C Solenoid (Down Deceleration)
 - D Solenoid (Down Stop)
 - H Manual Lowering
 - S Relief Valve
 - U By Pass Valve
 - V Check Valve
 - W Leveling Valve (Up)
 - X Full Speed Valve (Down)
 - Y Leveling Valve (Down)
- Adjustments UP**
- 1 By Pass
 - 2 Up Acceleration
 - 3 Up Deceleration
 - 4 Up Leveling Speed
 - 5 Up Stop
- Adjustments DOWN**
- 6 Down Acceleration
 - 7 Down Full Speed
 - 8 Down Deceleration
 - 9 Down Leveling Speed

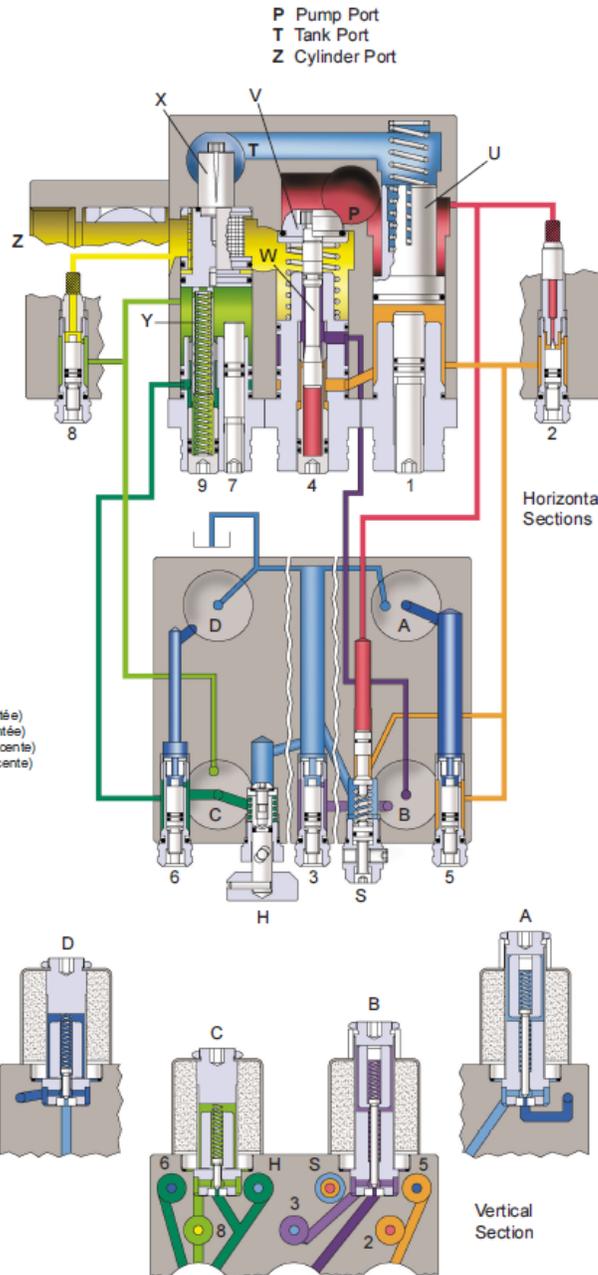
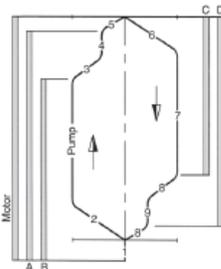
- Pressure**
- Pompe
 - Bypass Valve
 - Up Leveling
 - Tank
 - Cylinder
 - Down Valve
 - Down Leveling

-
- Éléments de commande**
- A Electro-vanne 'arrêt' (en fin de montée)
 - B Electro-vanne 'ralentissement' (montée)
 - C Electro-vanne 'ralentissement' (descente)
 - D Electro-vanne 'arrêt' (en fin de descente)
 - H Descente de secour (homme mort)
 - S Valve de sécurité
 - U By-pass
 - V Clapet anti-retour
 - W Soupape montée petite vitesse
 - X Soupape de descente
 - Y Soupape de descente petite vitesse

- Réglages MONTÉE**
- 1 By-pass
 - 2 Etrangleur de démarrage
 - 3 Etrangleur de ralentissement
 - 4 Réglage de petite vitesse
 - 5 Etrangleur d'arrêt

- Réglages DESCENTE**
- 6 Etrangleur de démarrage
 - 7 Réglage de grande vitesse
 - 8 Etrangleur de ralentissement
 - 9 Réglage de petite vitesse

- Pression**
- Pompe
 - By-pass
 - Montée petit vitesse
 - Cuve
 - Vérin
 - Soupape de descente
 - Descente petite vitesse



-
- Steuerelemente**
- A Magnetventil (Halt oben)
 - B Magnetventil (Abbremsen auf)
 - C Magnetventil (Abbremsen unten)
 - D Magnetventil (Halt unten)
 - H Notablassventil
 - S Überdruckventil
 - U Umlaufkolben
 - V Rückschlagventil
 - W Schleichfahrtventil (auf)
 - X Senkkolben
 - Y Schleichfahrtventil (ab)
- Einstellungen AUF**
- 1 Umlaufeinstellung
 - 2 Anfahrrossel
 - 3 Abbremsrossel
 - 4 Schleichfahreinstellung
 - 5 Haltecrossel
- Einstellungen AB**
- 6 Anfahrrossel
 - 7 Senkfahreinstellung
 - 8 Abbremsrossel
 - 9 Schleichfahreinstellung

- Druck**
- Pumpe
 - Umlaufkolben
 - Sleichfahrt (Auf)
 - Tank
 - Zylinder
 - Senkkolben
 - Sleichfahrt (Ab)

-
- Elementos de mando**
- A Válv. magnética 'parada' (arriba)
 - B Válv. magnética 'frenado' (subida)
 - C Válv. magnética 'frenado' (bajada)
 - D Válv. magnética 'parada' (abajo)
 - H Válv. parada de urgencia (manual)
 - S Válv. de seguridad
 - U Válv. de desviación
 - V Válv. de retención
 - W Válv. de subida lentísima
 - X Válv. de bajada
 - Y Válv. de bajada lentísima

- Ajustes SUBIDA**
- 1 Desviación
 - 2 Arranque
 - 3 Frenado
 - 4 Recorrido lentísimo
 - 5 Parada

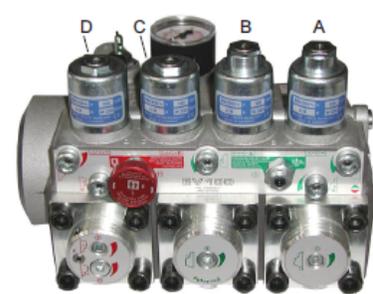
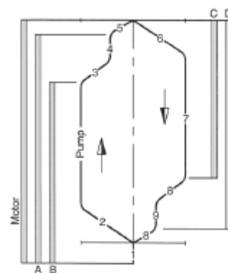
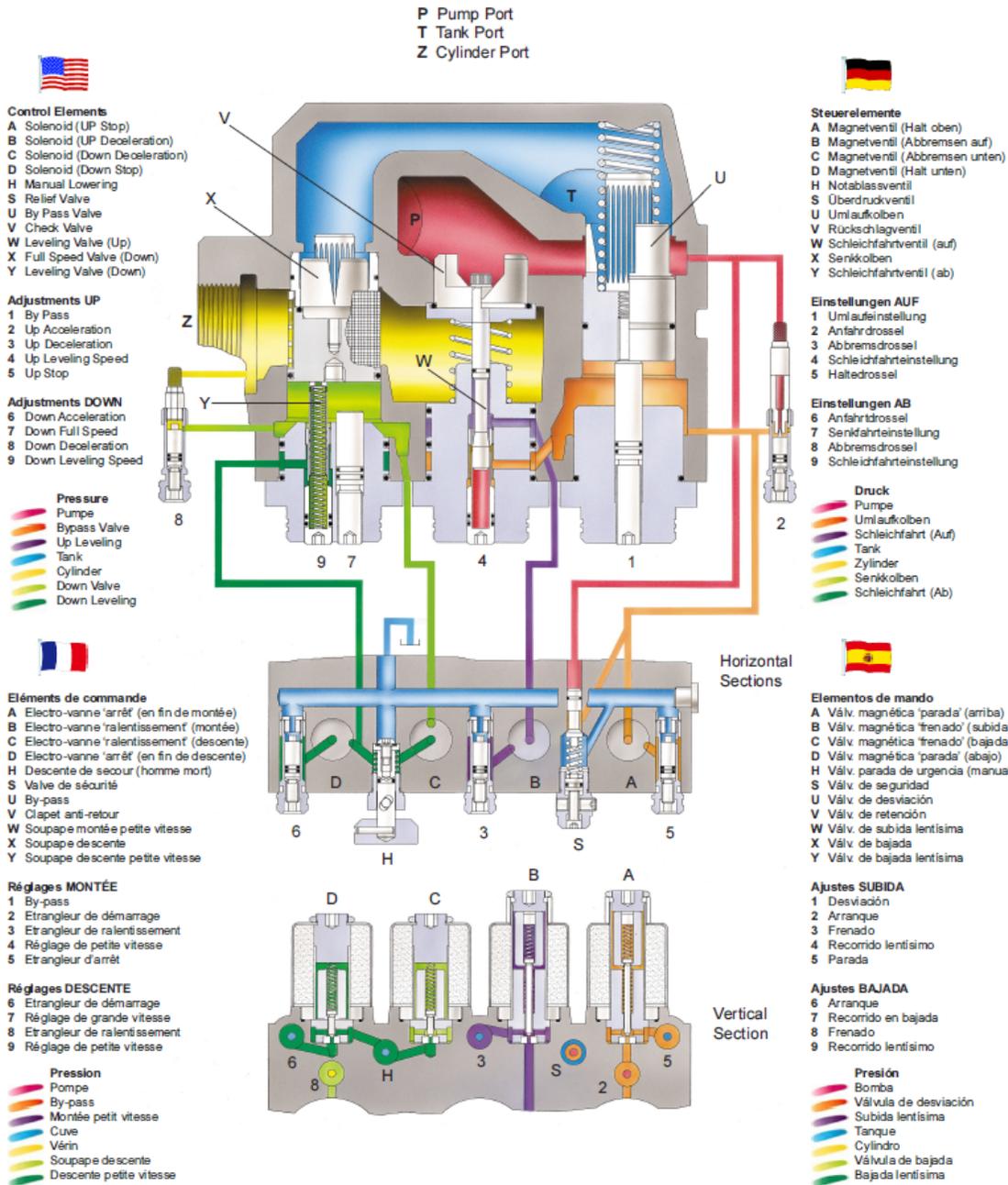
- Ajustes BAJADA**
- 6 Arranque
 - 7 Recorrido en bajada
 - 8 Frenado
 - 9 Recorrido lentísimo

- Presión**
- Bomba
 - Válvula de desviación
 - Subida lentísima
 - Tanque
 - Cilindro
 - Válvula de bajada
 - Bajada lentísima



EV 100 Service Manual

Elevator Valve EV 100 1 1/2", 2", 2 1/2"



Quick adjustment procedure



Solenoid Coils

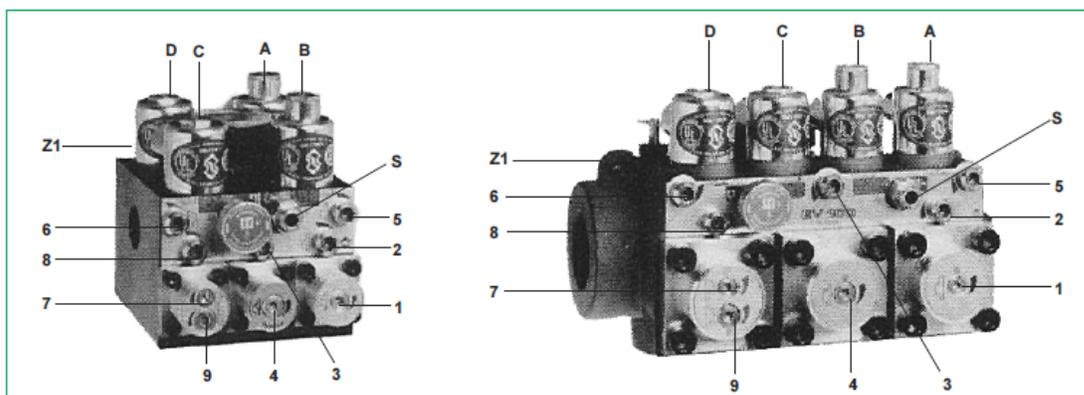
During adjustment of the EV 100 valve, instead of making a full floor to floor travel to check operation, much time can be saved by removing the securing nuts of the coil and switching to deceleration or to acceleration by lifting or replacing the appropriate coil by hand, allowing several adjustment corrections during one car travel between floors.

Caution: Once removed from the solenoid tube, the energised coil will begin to overheat after about 20 secs. If necessary, to slow the rate of heating, place an 8 or 10 mm socket key or similar steel rod as core thru the coil. Do not lay an energised coil to one side, otherwise it may overheat unnoticed.

If the coil becomes too hot to hold, it must be replaced, back over the solenoid tube and any further adjustment carried out with the elevator making normal floor to floor runs.

Car not visible from Machineroom

If the car cannot be seen during adjustment of the valve, the acceleration and deceleration times can be heard from the change of the turbulent noise within the valve as the speed of the car changes. With no load in the car, the duration of the speed changes should be about 2,5 seconds. This applies to adjustments 2, 3, 6 and 8.



Up Travel (empty car)

PRE-SETTINGS

Adjustment No. 1	level with flange face.	5 mm Socket key
Adjustment No. 2	all the way 'in' then 2 turns 'out'.	3 mm " "
Adjustment No. 3	" " " " " 4 " " "	3 mm " "
Adjustment No. 4	level with flange face.	5 mm " "
Adjustment No. 5	all the way 'in' then 4 turns 'out'.	3 mm " "
Adjustment No. S	" " " " " 2 " " "	3 mm " "

1. Pilot Pressure Setting

Disconnect coil **A**. Energise Motor (pump).

If the car does not move, turn No. 1 'in' until the car begins to move, turn No. 1 'out' until the car stops, then back out again 1/2 turn. The car remains standing still.

DO NOT UP-LEVEL WITH THIS ADJUSTMENT! Between full and empty car, leveling speed differences would be extreme.

2. Up Acceleration

Reconnect coil **A**. Start Motor and energise coil **A** and **B** (normal 'up' call).

Observe the up acceleration. If it is too quick, turn No. 2 'in' 1/2 turn. If it is too long, turn No. 2 'out' 1/2 turn.

Repeat until acceleration is satisfactory. Acceleration time should be about 2,5 secs.

4. Up Leveling

Disconnect coil **B**. Energise Motor and coil **A** (normal 'up-level' call).

With adjustment No. 4 level with the face of the flange the car will up level. If the leveling speed is too fast, turn No. 4 'in' until the speed is as required. If the speed is too slow, turn No. 4 'out'. Recommended speed 6 cm/sec.

Quick adjustment procedure

3. Up Deceleration

With coil **B** still disconnected. Energise motor and coil **A** (normal 'up-level' call). The car will travel upwards at leveling speed. Turn No. **3** 'in' until the car starts to up level faster, then turn No. **3** 'out' until the original leveling speed is observed. Reconnect coil **B** and place a normal up call. Observe the deceleration of the car. If it is too long, turn No. **3** 'out' ¼ turn; if it is too short, turn No. **3** 'in' ¼ turn. Repeat until deceleration is satisfactory. Deceleration time should be about 2,5 secs.

5. Up Soft Stop

Disconnect coil **A**. Energise Motor. The car should not move. Turn No. **5** 'in' until the car starts upwards then turn No. **5** 'out' until the car stops. Reconnect coil **A**. Energise Pump-Motor and **A**. The car will travel upwards at leveling speed. Lift **A** coil by hand briefly and observe the stopping of the car. If the stop is too hard turn No. **5** 'in' ¼ turn. If the stop is too soft, turn No. **5** 'out', ¼ turn. Repeat until the stop is satisfactory.

S Pressure Relief Valve

Turn **S** screw 'out' until about 2 mm of the screw head is showing. Close the ball valve in the cylinder line and open the manual lowering **H** to lower valve pressure down to zero. Place an up call, energising motor and coils **A** and **B**. The relief pressure will show on the pressure gauge. To increase the relief valve setting, turn **S** 'in'. To decrease the relief valve setting, turn **S** 'out', then open the manual lowering for ½ second with the pump still running to release locked-in pressure, before observing the pressure gauge reading.

Down Travel (empty car)

PRE-SETTINGS

Adjustment No. 6	all the way 'in' then 4 turns 'out'.	3 mm Socket key
Adjustment No. 7	3 mm under the flange face.	5 mm " "
Adjustment No. 8	all the way 'in' then 2 turns 'out'.	3 mm " "
Adjustment No. 9	level with flange face.	5 mm " "

8. Down Deceleration

Place down call (coils **C** and **D** energised). As the car approaches full speed, remove coil **D** by hand briefly from the solenoid and observe the deceleration of the car. If the deceleration is too long, turn No. **8** 'out' ¼ turn; if it is too short, turn No. **8** 'in' ¼ turn. Repeat until deceleration is satisfactory. Deceleration time should be about 2,5 secs.

6. Down Acceleration

Turn No. **6** all the way 'in'. Place down call (coils **C** and **D** energised). The car will not move. Turn No. **6** 'out' slowly until the car accelerates downwards. If the acceleration is too long, turn No. **6** 'out' ¼ turn. If it is too short, turn No. **6** 'in' ¼ turn. Acceleration time should be about 2,5 secs.

7. Down Full Speed

Place down call (coils **C** and **D** energised). Observe full down speed. Turn No. **7** 'in' for slower, 'out' for faster speed.

9. Down Leveling Speed

Disconnect coil **C**. Place down call (**D** energised). Observe down leveling speed. Turn No. **9** 'in' for slower, 'out' for a fast down leveling speed. Recommended speed 6 cm/sec.

H Emergency Lowering

The manually operated emergency down speed and the **D** coil operated down leveling speed are the same.

Down Stop

When solenoid **D** is de-energised with solenoid **C** remaining de-energised, the car will stop according to the setting of adjustment 8 and no further adjustment will be required.

KS Slack Rope Valve

The KS is adjusted with a 3 mm Socket Key by turning the screw **K** 'in' for higher pressure and 'out' for lower pressure. With **K** turned all the way 'in', then half a turn back out, the unloaded car should descend when the **D** solenoid alone is energised. Should the car not descend, **K** must be backed off until the car just begins to descend, then backed off a further half turn to ensure that with cold oil, the car can be lowered as required.

EV 100 Service Manual

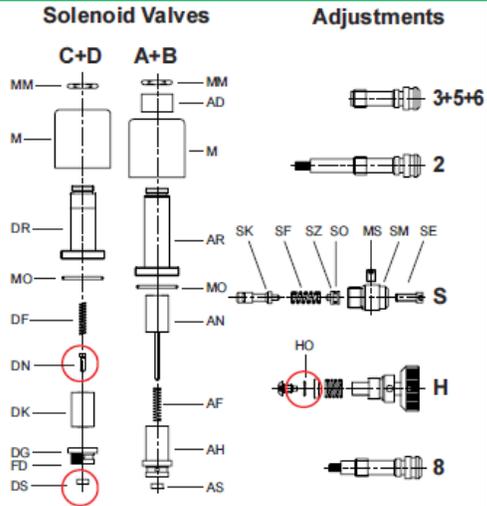
EV Parts List



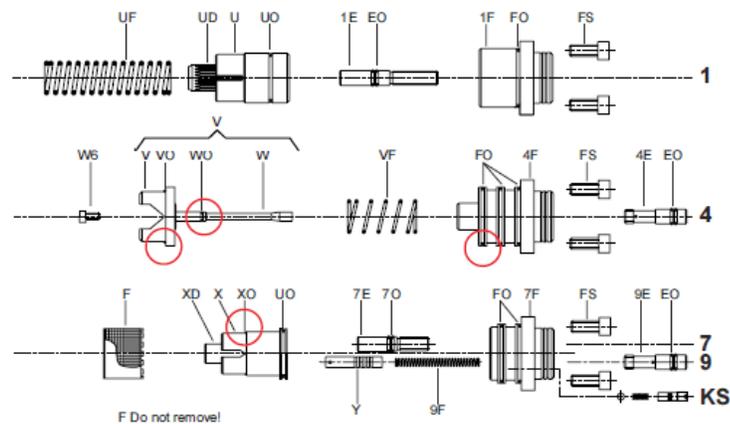
Pos.	No. Item
1	FS Lock Screw - Flange
	FO 0-Ring - Flange
	1F Flange - By Pass
	EO 0-Ring - Adjustment
	1E Adjustment - By Pass
	UO 0-Ring - By Pass Valve
	U By Pass Valve
	UD Noise Suppressor
	UF Spring - By Pass
	2
3	3 Adjustment - Up Deceleration
4	EO 0-Ring - Adjustment
	4E Adjustment - Up Leveling
	4F Flange - Check Valve
	FO 0-Ring - Flange
	VF Spring - Check Valve
	W Up-Leveling Valve
	WO 0-Ring - Up Leveling Valve
	VO Seal - Check Valve
	V Check Valve
	W6 Screw - Check Valve
5	3 Adjustment - Up Stop
6	3 Adjustment - Down Acceleration
7	7F Flange - Down Valve
	FO 0-Ring - Flange
	7O 0-Ring - Adjustment
	7E Adjustment - Down Valve
	UO 0-Ring - Down Valve
	XO Seal - Down Valve
	X Down Valve
XD Noise Suppressor	
F Main Filter	
8	8 Adjustment - Down Deceleration
9	EO 0-Ring - Adjustment
	9E Adjustment - Down Leveling
	9F Spring - Down Valve
H	H Manual Lowering - Self Closing
	HO Seal - Manual Lowering
S	SE Adjustment - Screw
	SM Hexagonal
	MS Grub Screw
	SO 0-Ring - Nipple
	SZ Nipple
	SF Spring
A+B	MM Nut - Solenoid
	AD Collar - Solenoid
	M Coil - Solenoid (indicate voltage)
	AR Tube - Solenoid 'Up'
	MO 0-Ring - Solenoid
	AN Needle - 'Up'
C+D	MM Nut - Solenoid
	M Coil - Solenoid (indicate voltage)
	DR Tube - Solenoid 'Down'
	MO 0-Ring - Solenoid
	DF Spring - Solenoid 'Down'
	DN Needle - 'Down'

0-Ring-Size		
No. 3/4"	1 1/2"	2 1/2"
FO 26x2P	47x2.5P	58x3P *
EO 9x2P	9x2P	9x2P
UO 26x2V	39.34x2.62V	58x3V
WO 5.28x1.78V	5.28x1.78V	5.28x1.78V
VO 23x2.5V	42x3V	60x3V **
7O 5.28x1.78P	9x2P	9x2P
XO 13x2V	30x3V	47x3V
HO 5.28x1.78V	5.28x1.78V	5.28x1.78V
SO 5.28x1.78P	5.28x1.78P	5.28x1.78P
MO 26x2P	26x2P	26x2P

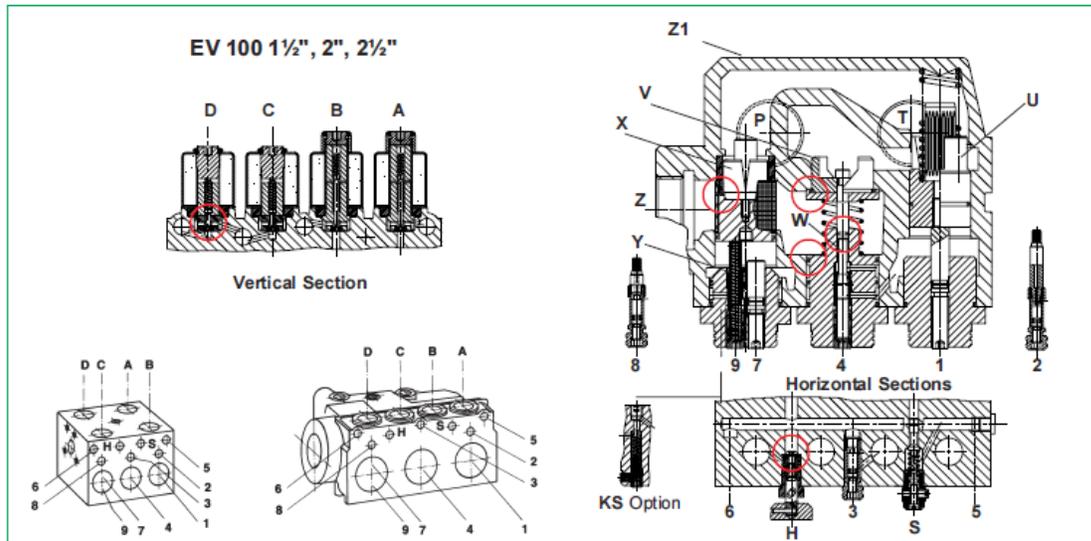
* FO by 4F 2 1/2" is 67x2.5P
 ** 90 Shore
 0-Ring: V - Viton
 P - Perbunan



Flow Valves



Down Leakage (Releving)
 In case of down leakage, replace and test in the following order: DS & DN, XO, VO, WO, FO and HO.



- ① For checking the operation of the solenoids, remove the top nuts. By lifting the solenoids a few millimeters, the magnetic pull of the solenoid can be felt. For testing, the operation of the elevator car, can also be controlled by lifting and replacing the coil.

Valves are fully adjusted and tested in the factory. Check electrical operation before changing valve setting.

Problem	Possible cause	Recommended
No Up-Start (Elevator remains at floor)	Test: 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.	Lift coil to check magnetic pull (see ① above).
	Solenoid A tube not screwed down tight.	Tighten Solenoid A tube.
	Solenoid valve A - dirt or damage between needle AN and seat AS.	Clean or change needle and seat.
	Adjustment 2 not far enough open.	Turn out adjustment 2.
	Adjustment 1 too far back (open). Not enough pilot pressure.	Turn in adjustment 1 with the pump running.
	Relief valve is set too low.	Set relief valve higher.
	Adjustment 8 turned in too far (car sits on the buffer).	Turn out adjustment 8.
	Bypass flow guide is too large.	Insert smaller bypass flow guide (see flow guide charts at EV catalogue).
	Pump running in the wrong direction.	Install the pump correct.
The pump connection flange is leaking excessively.	Seal the pump connection.	
The pump is undersize or worn.	Select bigger pump or replace pump.	
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, but no Full Speed	Test: Turn adjustment 3 all the way in. If the elevator now travels upwards at full speed the problem is at solenoid B.	
	Solenoid B not energised or voltage too low.	Lift coil to check magnetic pull (see ① above).
	Solenoid B tube not screwed down tight.	Tighten Solenoid B tube.
	Solenoid valve B - dirt or damage between needle AN and seat AS.	Clean or change needle and seat.
	The pump connection flange is leaking excessively.	Seal the pump connection.
	The pump is undersize or worn.	Select bigger pump or replace pump.
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.
	Adjustment 2 turned out too far.	Turn in adjustment 2.
	O-Ring UO on Bypass Valve U is leaking.	Change O-Ring → see EV Spare Parts List.
	Star to Delta motor switch period is too long.	0.2-0.3 sec. is sufficient.
	Excessive friction on the guide rails or in the cylinder head.	Can not be eliminated thru valve adjustment.
No deceleration into leveling speed	Solenoid B does not de-energise.	Lift coil to check magnetic pull (see ① above). Slow down switch possibly set to high (late).
	Adjustment 3 turned in too far.	Turn out adjustment 3. Turn in adjustment 2.
	O-Ring UO on Bypass Valve U is leaking.	Change O-Ring → see EV Spare Parts List.
Aufzug brems ab, fährt jedoch über die Halte- stelle	Magnetventil A (Halt oben) zu spät stromlos.	Magnetspule anheben (siehe Vermerk ②).
	Drossel 5 (Weich-Halt) nicht weit genug geöffnet.	Drossel 5 weiter aufdrehen.
	Einstellung 1 nicht weit genug geöffnet.	Einstellung 1 zwei Umdrehungen weiter öffnen.
	Schleichfahrt aufwärts zu schnell (zu weit geöffnet).	Einstellung 4 auf 6 - 10 cm/sek. hineindrehen
Aufzug bleibt vor der Haltstelle stehen (keine Schleichfahrt)	Solenoid A and B reversed.	Lift coil to check magnetic pull (see ① above).
	Up leveling speed too slow.	Turn out adjustment 4.
	Middle O-Ring FO of flange 4F is leaking.	Change O-Ring → see EV Spare Parts List.
	Relief valve is set too low.	Set relief valve higher.
Down Leak Releveling	For possible down leakage points, see 'EV Parts List', page 5. Releveling may also occur as hot oil cools down and contracts.	Replace one seal point and test before proceeding to the next point of possible leakage, if still necessary.

Trouble Shooting

DOWN Travel



- ① For checking the operation of the solenoids, remove the top nuts. By lifting the solenoids a few millimeters, the magnetic pull of the solenoid can be felt. For testing, the operation of the elevator car, can also be controlled by lifting and replacing the coil.

Valves are fully adjusted and tested in the factory. Check electrical operation before changing valve setting.

Problem	Possible cause	Recommended
No Down Start	Solenoid D not energised or voltage too low.	Lift coil to check magnetic pull (see ① above).
	Adjustment 6 turned in too far.	Turn out adjustment 6 .
	Adjustment 8 turned out too far.	Turn in adjustment 8 cautiously. Attention: Danger of traveling through
	O-Ring UO on Down Valve X is leaking.	Change O-Ring → see EV Spare Parts List.
No full speed	Solenoid C not energised or voltage too low.	Lift coil to check magnetic pull (see ① above).
	Adjustment 7 turned in too far.	Turn out adjustment 6 .
	Down Valve flow guide too small.	Check insert size (see flow guide charts page 12)
No down leveling. Elevator stops before floor level	Solenoid C and D reversed.	Lift coil to check magnetic pull (see ① above).
	Solenoid D not energised or voltage too low.	Lift coil to check magnetic pull (see ① above).
	Adjustment 9 turned in too far.	Turn out adjustment 9 to about 10 ft/min. leveling speed.
	Spring 9F in adjustment 9 broken.	Replace adjustment 9 complete.
No down leveling. Elevator travels thru floor level	Adjustment 8 turned in too far.	Turn out adjustment 8 about ½ turn.
	Adjustment 9 turned out too far.	Turn in adjustment 9 to about 10 ft/min. leveling speed.
	Solenoid valve C dirt or damage between needle DN and seat DS .	Clean or change needle and seat.
	Inner O-Ring FO on flange 7F is leaking.	Change O-Ring → see EV Spare Parts List.
Elevator sinks quickly	Solenoid D tube not screwed down tight.	Tighten Solenoid D tube.
	Adjustment 8 turned in too far.	Turn out adjustment 8 about ½ turn.
Elevator sinks slowly due to inner leakage	Solenoid valve D - dirt or damage between needle DN and seat DS .	Clean or change needle and seat.
	O-Ring XO of Down Valve X is leaking.	Change O-Ring → see EV Spare Parts List. When Down Valve is compensated, replace Down Valve.
	O-Ring VO of Check Valve V is leaking.	Change Check Valve → see EV Spare Parts List.
	O-Ring WO of Leveling Valve W is leaking.	Change O-Ring → see EV Spare Parts List.
	Inner O-Ring FO on flange 4F is leaking.	Change O-Ring → see EV Spare Parts List.
	O-Ring HO of Manual Lowering H is leaking.	Replace Manual Lowering.
	Handpump leaking.	Remove suction tube and observe if handpump leaks. Replace complete handpump.
	Adjustment 8M turned in too far.	Turn out adjustment 8 .
	Down valve HX/MX leaking. At MX - dirt or damage between needle DN and seat DS .	Clean or change needle and seat.
	O-Ring XO of Down Valve YM is leaking.	Change O-Ring → see EV Spare Parts List.
	Manual Lowering is leaking.	Replace Manual Lowering.
	Contraction of oil during cooling especially from above 35°C.	Consider oil cooler if hot oil is a problem.

Purpose

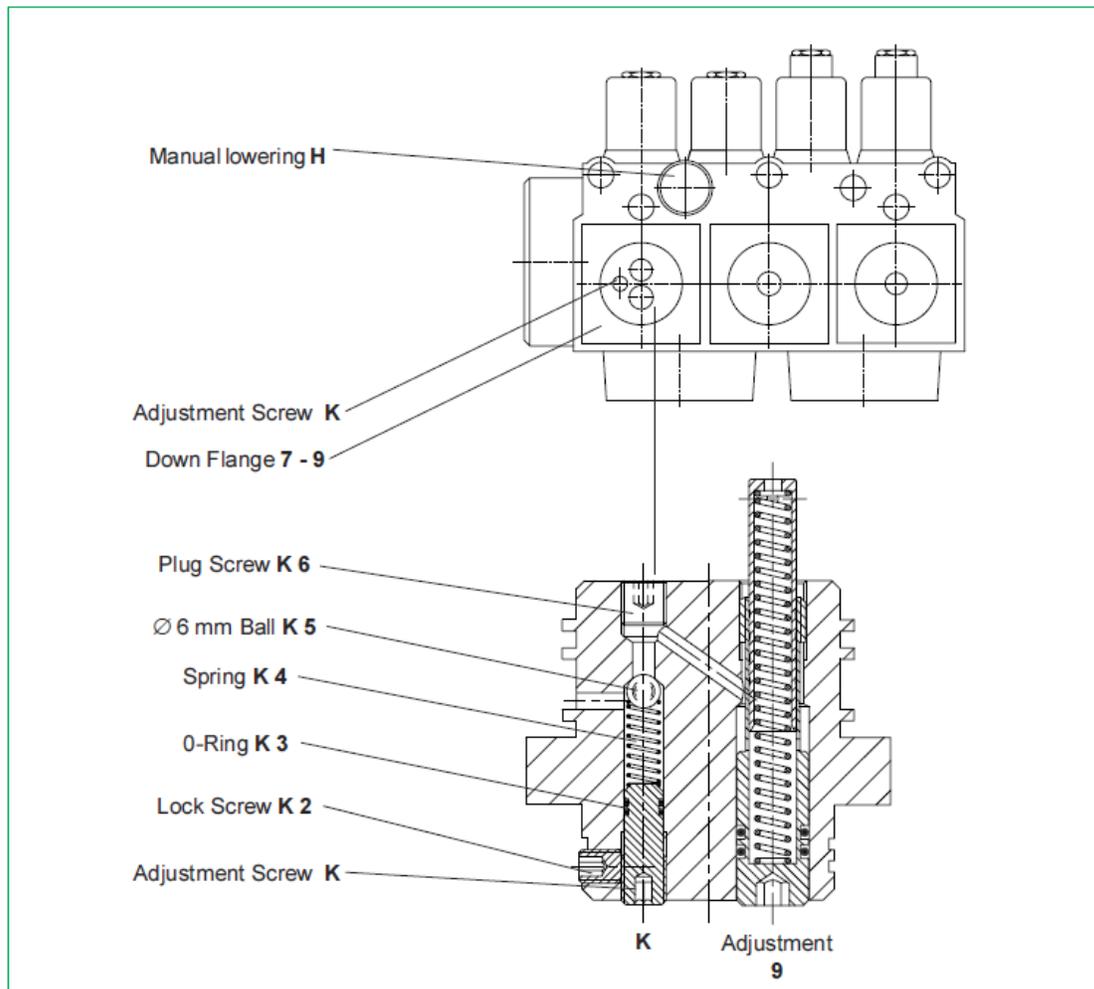
In the case of the operation of the safeties in a 1:2 hydraulic lift system when the weight of the car is no longer carried by the ropes, the electrical supply to the elevator must automatically be switched off. The **K** Slack Rope Valve avoids the ram being lowered by the opening of the manual lowering valve which could otherwise cause a tangled rope condition. The **K** Slack Rope Valve prevents the pressure holding up the ram from being evacuated through the manual lowering valve.

Function

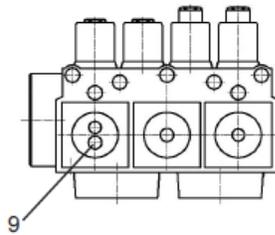
The **K** valve is adjusted to a pressure just above the pressure produced by the weight of the ram. When under normal operating conditions, the weight of the car acts upon the ram through the 1:2 roping, the resulting pressure is sufficient to open the poppet of the **K** valve when the manual lowering **H** is opened, allowing the car to descend as required. When however the 'safeties' have operated and only the weight of the ram and sheave block are acting upon the hydraulic system, the resulting pressure is too low to open the **K** valve. The ram and sheave block can not be lowered.

Adjustment

The **K** is adjusted with a 3 mm Socket Key by turning the screw **K** 'in' for higher pressure and 'out' for lower pressure. With **K** turned all the way 'in', then half a turn back out, the unloaded car should descend when the **D** solenoid alone is energised. Should the car not descend, **K** must be backed off until the car just begins to descend, then backed off a further half turn to ensure that with cold oil, the car can be lowered as required.



Down Leveling Adjustment 9 Replacement



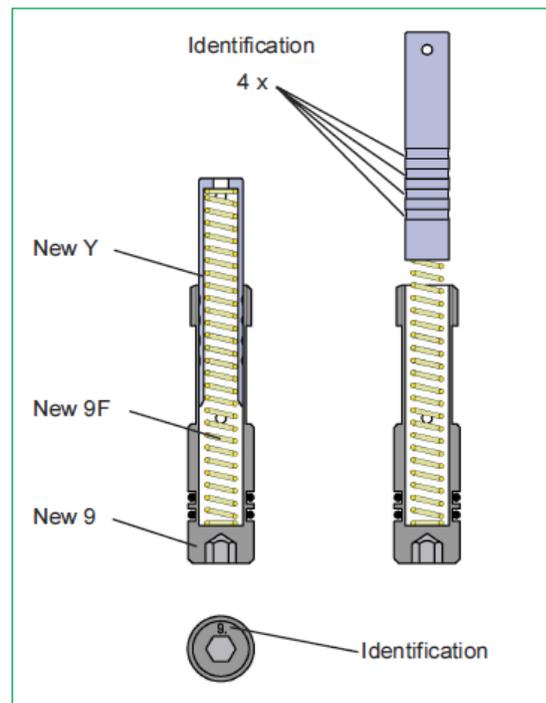
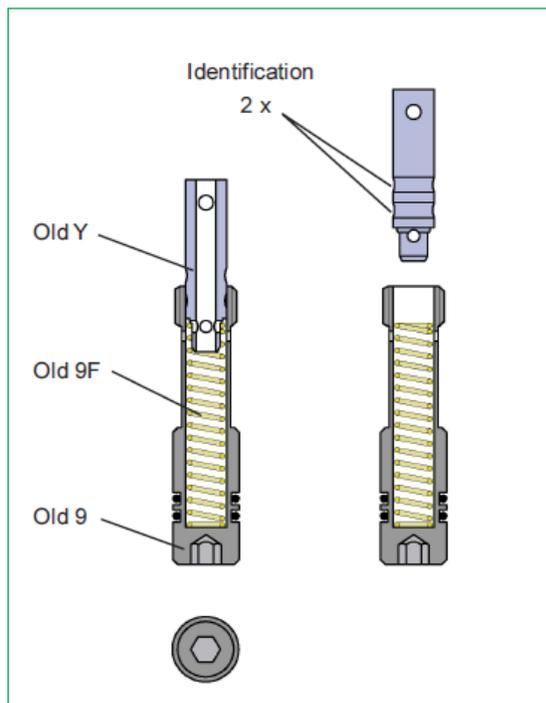
Old Type

1971 - 1999

Replacement not necessary
if operation is normal

New Type

from Jan. 2000



Advantages of new type

- Smoother deceleration
- Higher mechanical closing force
- Longer spring life
- Easier assembly

In the past, a small number of the original springs No. 9F have broken. Beginning January 2000, the design of the down leveling adjustment was modified to take a stronger spring.

The complete new adjustment is interchangeable with the original adjustment 9.

A broken spring 9 would cause the down leveling speed to be slower. No danger to passengers would arise as a consequence.

EV 100 Service Manual **Overheating of Power Units** **- System Leakage**



Oil temperatures above 55 °C (130 °F) should be avoided, otherwise the efficiency of the pump drops considerably and its life is reduced. Aging of the oil is also accelerated.

Possible causes of overheating:

1. Up leveling too long due to the leveling speed being too slow or the slow down switch being set too low.
2. Machine room ventilation inadequate.
3. The frequency of operation is too high for the normal rate of heat dissipation.

Temporary solution:

As a temporary measure to avoid overheating of the oil resulting in the shut down of the elevator, the down speed can be slowed to reduce frequency of operation until a permanent solution is installed.

Cooling systems

- a. If the degree of overheating is not excessive and it takes for example two to three hours for the oil temperature to rise from 20° to 55°C (70° to 130° F), it may be sufficient to improve air circulation around the power unit, for example through the installation of a 0.05 to 0.10 kW ventilator extracting air out of the machine room or through a fan of similar power, blowing air over the power unit.
- b. Should the above be inadequate, depending on the size of the elevator, it will be necessary to install a 10-50 l/min (3 - 13 gpm) pump to circulate the hot oil through an air cooled radiator of about 0.1 to 0.2 fan kW. It is also essential that there is sufficient extraction of warm air out of the machine room or that the cooler is out side of the machine room, for example in the elevator shaft. The effective cooling power of an air cooled radiator should not be confused with the power of the fan drive which normally need only be 0.1 or 0.2 kW. Normally, the effective cooling power of a cooler need only be approximately ¼ of the main hydraulic elevator motor, in the case of submersible drives.

Cooling systems for the above purpose should be switched into operation when the oil reaches 30° - 35°C (85° - 95° F).

System leakage (re-leveling)

The aim of manufacturers of hydraulic elevator control valves is to produce valves with zero leakage. Due to fine contamination in the oil perfect sealing between valve parts may not always be achieved, leading to a slow down leak of the elevator car.

It would become unnecessarily expensive to strive for perfect sealing in every valve in operation. Therefore, because code requirements assure a safe releveling system whether descent of the car is caused by valve leakage or through the cooling of the oil in the cylinder pressure system, a minor leakage of the control valve can be tolerated.

1. The European Code EN 81-2 require: that the loaded elevator does not leak downwards by more than 10 mm (3/8") in 10 minutes. This is the standard used to determine if a valve should be serviced for leakage.
2. For practical reasons, a quicker method for judging valve leakage is to close the ball valve in the cylinder line and observe the gauge showing pressure in the cylinder chamber of the valve. If this pressure falls to zero in less than 20 secs, it may be necessary to service the valve, depending on the diameter of the main ram and sensitivity of the customer.
3. Down sinking giving the impression of leakage can be due to cooling of the oil.

When the elevator is at rest and the temperature of the oil falls, contraction of the oil in the cylinder and piping causes the car to sink. This sinking is very slow but overnight without releveling could amount to as much as half a meter, depending on the temperature drop of the oil and the volume of oil in the cylinder system. The elevator releveling system, operating normally however, keeps the car at floor level.

4. In the case of Blain EV valves, see page 6 indicating where valve down leakage can occur.

Recommended distances between leveling and stop switches

Elevator Speed	Switch Distance	Elevator Speed	Switch Distance
mtrs/sec.	approx. cm	ft/min.	approx. inches
0,10	5	20	2
0,15	10	30	4
0,20	15	40	6
0,25	18	50	7
0,30	25	60	9
0,35	30	70	12
0,40	40	80	16
0,45	46	90	18
0,50	50	100	20
0,55	58	110	23
0,60	70	120	28
0,70	80	140	31
0,80	95	160	36
0,90	105	180	41
1,00	120	200	48

With no load in the car, the deceleration time should be 2 to 2,5 secs. from full speed to leveling speed. The leveling time should be 1 to 2 secs.

Accurate landing can be affected by different factors as follows:

- If the leveling speed is fast i.e. 0,1 m/sec (20 ft/min), landing will not be as accurate as when the leveling speed is slower i.e. 0,05 m/sec (10 ft/min).
- If the soft stop adjustment '5' is set too soft, stopping will be less accurate as when '5' is set for a quicker stop.
- Particularly when the mechanic can not see the operation of the elevator car, it is possible that the elevator has not finished decelerating from fast speed before reaching the floor. In other words, the elevator has not slowed down to its correct leveling speed before the stop switch is actuated.
Usually, the leveling operation can be observed through the crack in the car doors. Alternatively, in the machine room, the turbulent noise within the valve during leveling can be heard and should last 1 to 2 secs. following 2 to 2,5 secs. deceleration time with no load in the car.
- A difference in landing accuracy between the elevator being loaded and unloaded, can be due to the car under load, leaning to one side by several millimeters causing an alteration in the operating position of the stop switch by some centimetres.

1-1) SUPPORT:

We are available to accept your calls from 8:00 am to 5:00 pm, Eastern Time, Monday through Friday. 734-246-4700. Please call from a phone that can be used while working at the controller. Have the unit's serial number and a P-Tool available.

*** WARNING ***

The information in this manual is intended for the sole use of professional elevator technicians. ECL by Wurtec assumes no responsibility for injury, illness, damage to property, or death as a result of the use or misuse of any information contained in this manual. Installation, maintenance, or repair of the elevator, must be performed by qualified, experienced, and trained elevator technicians. Technicians must have five years of hands-on experience with elevator equipment.

The procedures in this manual are to be used as a general guide for the elevator technician. Working in the elevator hoistway and on elevator equipment can be dangerous. All Safety Rules associated with installing elevator equipment must be followed at all times. Proper protective equipment must be used at all times during installation, maintenance and repair of the elevator equipment.

Read this manual carefully. Be thoroughly familiar with all parts and procedures before attempting any installation, maintenance or repair functions on this equipment. Failure to do so may cause damage to equipment, improper installation, unsafe operation, possible injury or death.

1-2) GENERAL INFORMATION:

The 4M2 control board contains the following features:

- Same control board is used for all 3 models of Elevators
- UL recognized for Residential Elevators
- Supports 2 through 4 stop units
- Supports Porta Power Gate operators (maximum of 2)
- Supports Swing Door operators (maximum of 4)
- Allows use of GAL or Electric Locks (24 vdc)
- Supports Retiring Cam function (Additional relay req'd)
- Automatic or Constant Pressure Controls
- "Short Floors" (12 inch min Automatic operation and 24 inch min for Constant Pressure)
- Red LED's on inputs - yellow LED's on outputs
- 110 vac coils on Contactors and Valves
- 20 event Fault Log feature
- Log viewable with Programming Tool
- Parameters can be field modified
- Fault Flash code to help identify the type of problem
- Trip and Re-level counters
- Sabbath Control feature
- Monitors for Gate contacts being bypassed and shuts unit down if activated
- During a power failure or Overload activation, the car, if not at a floor, will automatically lower to the next level down.
- Control can be set to a Temporary Run mode for use during installation

1-3) SPECIAL OPERATIONS:

1. Board Re-set: Any time that the controller is powered up, or the star key on the P-Tool is pressed, the system will automatically go into a Re-set sequence. During this sequence, if all of the required safety circuits are made (normal run requirements), the Unit will respond as follows:

- A. If not at a floor, unit will automatically lower itself to the first floor encountered.
- B. If at floor level, unit will re-set and then return to normal operation.
- C. If in a floor Zone but not level, unit will move to that floor level.

Warning: If you jump out key safety circuits and then the power is turned on, or the re-set key is pressed, the unit may move when not expected. This can create a hazardous situation that could cause injury or even death. Do not jump out safety circuits. Provisions have been made to run unit on Temporary Mode, which will be explained in this manual.

2. Emergency Lowering during Power Failure: Once the controller senses a loss of power, the emergency light output “EL” will activate and the buzzer output “BZ” will pulse for 1sec every 15 sec. The elevator will respond as follows:

- A. Power loss during an UP run , the destination call will be dropped and the unit will automatically lower itself to the next lowest floor. If that floor is not the lowest landing, car can be moved to a lower landing by pressing the selected floor button.
- B. Power loss during a DOWN run, the destination call will be dropped and the unit will automatically lower itself to the next lowest floor. If that floor is not the lowest landing, car can be moved to a lower landing by pressing the selected floor button.
- C. Power loss while at a floor, unit will stay at the floor level. If a call is placed to a lower floor, and all normally required safety circuits are in the correct state, the unit will lower to the requested floor.

Note: The “EL” and “BZ” output will disable themselves 30 sec after the lower terminal floor had been reached.

3. Run Timer: If the Run Timer times out unit will respond as follows:

- A. Hydraulic unit running up, unit will respond the same as in Emergency Lowering.
- B. Hydraulic unit running down, unit will stop and shut down. If unit is level at a floor and power gates are being used, the gate will open.
- C. Drum units running up or down , unit will stop and shut down. If unit is level at a floor and power gates are being used, the gate will open.

Note: In order to reset a drum unit after a Run Timer trip, you must manually move the car to a floor level before a reset can be performed. Floor level is selector inputs DZ & PX on and UL & DL signals off.

4. Power Gate:

- A. If the open command is given (OPR or OPF) and the gate does not open within 2 seconds, the open command will turn off for ten seconds and then retry the open command. After 3 attempts without the gate opening, the unit will wait for another open request.
- B. Sequence is the same for closing; a failure will allow 3 attempts before call is cancelled.

5. Gate Switch Bypassed:

- A. The system monitors the function of the car gate switch. If the unit is run 5 consecutive times with the hoistway doors opening after the runs, but the gate not being opened, the unit will shut down.
6. Sabbath Control: When input IN1 is activate (+24V) the unit goes to Sabbath mode and will respond as follows:
 - A. Unit will travel to the Lower Terminal Floor (LTF) and disable a calls.
 - B. Wait one minute at LTF , then run up to the next highest floor.
 - C. Wait one minute at floor, then run up to the next highest floor.
 - D. This will repeat until the Upper Terminal Floor (UTF) is reached.
 - E. When the UTF is reached unit will wait one minute then run down to next lower floor.
 - F. This will repeat to each next lower floor
 - G. When LTF is reached the unit will wait 15 minutes then begin run cycle again. H. When the IN1 input is deactivated, the unit will return to normal operation.

1-5) WIRING INFORMATION:

1. Schematic drawings: (Refer to the drawing with the SCH suffix) These drawings show a system with all features and control options that are available with the 4M2 controllers.

Note: All wiring shown below the terminals, shown as a circle with a square around it, are circuits or connections outside of the logic board. Wiring shown above those terminals, are circuits that are on the logic board.

2. Hook up drawings: (Refer to the drawing with the FLD suffix) These drawings show a system with all features and control options that are available with the 4M2 controllers.

Note: Logic board terminals are shown as a square with the nomenclature inside. All other connection points are shown as circles.

3. **Travel Cable** connections at the controller: When bringing the traveling cable into the controller, be sure to allow enough length, inside the box to reach all needed connection points. While most connection points are on the logic board, others may on an auxiliary terminal strip. depending on the job requirements.
4. **Hoistway wiring:** You should allow enough cable to run each device back to the controller for termination. Drawings are set up based on this “home run” principle. The drawing shows optional devices that you may not have, or will not use, on your unit.

Note: The knockouts furnished on the cabinet suit most applications. If you need other entry points, install knockouts with the panel removed from the box. This eliminates the possibility of metal shavings dropping into the controls. If you do not remove the panel, you must adequately cover it to protect from shavings.

2-1) PARAMETER DESCRIPTION & FUNCTION

The controller parameters are set to factory default. You will need to configure each controller to the specifics of that installation.

1. Password: Factory default is 12345. Password must be 5 characters in length and must be numbers. The A,B,C,D keys can not be used for password.

Note: If you change the password, use one that you will not forget. If you forget the password you will not be able to access the Program menu. The only recourse for access is to return the control board to the factory for a password re-set.

2. Number of Floors: {default = 2} Selection is 2,3, or 4.
3. Single Automatic PB: {default = Y} "Yes" is for automatic, "No" selects Constant Pressure
4. Drive System: {default = 0} Selections are (0) Drum or (1) Hydro
5. Fixed Cam: {default = 1} GAL locks require (1) Yes, EMI locks or retiring cam require (0) No
6. Delay Up Stop: {default = 0} Used only on Hydro applications to create a larger dead zone between top of magnet and UL sensor. This helps reduce or eliminate re-leveling due to temperature or loading variations. Time increment is 10 milliseconds; range is 0-200
7. Run Timer: {default = 90} All units. Time increment is in seconds, range is 30-180
8. Car light Timer: {default = 5} This is for the automatic car light and determines the time that the car light will remain on after completion of a call when the car gate and hoistway door are closed. Time increment is minutes; range is 1-10.
9. Non-Interference Timer: {default = 10} Time between the completion of a run and the acceptance of another call. Time increment is seconds; range is 2-60.
10. Car Call Cancel Timer: {default = 10} This is the time that a call will be held while a gate or door is still open. If gate or door is not closed within this time period, the call will be dropped. Time increment is in seconds; range is 0-60.
11. Automatic (Power) Gate: {default = 0} Selections are (1) Yes, or (0) No. If Yes is chosen then parameters 12-17 will show for selection entries. If No is chosen, then you will not see these parameters. These settings control which gate open signal is present for that floor.
 - Floors that do not coincide with your number of stops may be ignored, as they will not have any effect on the system. Example: 3 stop unit, default entry may be left for the 4th floor.
 - "Rear" indicates use of two gates, the second gate may also be located adjacent.
12. Gate preopening: Set to (1) Yes if you want the car to continue to run if the gate is opened when the car is in the leveling zone with a position signal (manual gate operation only)
13. Floor 1 Gate: Selections are (1) Front only, (2) Rear only, (3) Front & Rear opening.
14. Floor 2 Gate: Selections are (1) Front only, (2) Rear only, (3) Front & Rear opening
15. Floor 3 Gate: Selections are (1) Front only, (2) Rear only, (3) Front & Rear opening
16. Floor 4 Gate: Selections are (1) Front only, (2) Rear only, (3) Front & Rear opening

2-1 PARAMETER DESCRIPTION & FUNCTION (CONTINUED)

17. Gate Open Timer: {default = 15} Time that the power gate is open after completion of a call. This includes the time that it takes the gate to open. Time increment is seconds; range is 5-60.
18. Gate Re-open Timer: {default = 10} Time that the power gate is open after a door open button is activated, or a call, from the floor where the car is parked, is registered. Time increment is seconds; range is 5-60.
19. G & D Timer Cancel: {default = 1} Selections are (1) Yes, (2) No. If Yes, is chosen, then the Gate Open time and DC time settings will be interrupted and canceled when a call is placed.

Example: If you have chosen a open time for power gate or power door to be 20 seconds, and a call is registered after 10 seconds of open time, the remaining 10 seconds will be cancelled and the gate or door will start to close immediately upon the call being placed.

Note: If your power gate and/or power door unit is being used in an application where the user may need most of the open time to enter or exit the car, then you may want to set this selection to (2) so the open time always remains at the setting.

20. Homing Floor: {default = 0} Allows home return feature to selected floor. Selections are (0) No homing, (1) to 1st, (2) to 2nd, (3) to 3rd, and (4) to 4th.
21. Homing Timer: Time car parks at a non-home floor, after the gate & door are closed, before returning to Home floor. If Gate or Door is open, unit will not Home return. Time increment is minutes; range is 1-30.
22. DC Timer: {default = 15} The time that the 1EL thru 4EL & PD1 thru PD4 outputs remain on, after a completion of a run or door re-open activation. Time increment is seconds; range is 0-60. If set at (0) then output will remain on until a call is placed.

Note: The 1EL thru 4EL outputs supply the feed for Electric locks and Car Here lights while the PD1 thru PD4 outputs supply the “Open” signal for power Hoistway Door openers.

23. Short Floors: This feature inhibits the high speed run (VF Drum & Hydro) between the floors indicated. Minimum floor to floor allowed for Automatic pushbuttons is 12 inches. Minimum floor to floor allowed for Constant Pressure push buttons is 24 inches.
 - Short Floor 1-2: (Short floor between 1 & 2) Selections are (0) No, (1) Yes.
 - Short Floor 2-3: (Short floor between 2 & 3) Selections are (0) No, (1) Yes.
 - Short Floor 3-4: (Short floor between 1 & 2) Selections are (0) No, (1) Yes.
24. Call Button Fault: {default = 0} Selections are (1) Yes, (0) No. If “yes”, a code is flashed, at the call button when the unit is unable to accept a call. Factory setting (1) Yes. See Section 2-2 for detail on Fault Codes

2-1) PARAMETER DESCRIPTION & FUNCTION (CONTINUED)

- 26. Re-level shutdown Counter:** (Hydro only) {default = 5} If unit re-levels the number of times set in the counter, during the time period set on the Re-level shutdown Timer, car will return to the bottom terminal floor and shut down. Range is 0-10, (0) disables the function.
- 27. Re-level shutdown Timer:** {default = 2} If number of re-levels equal counter setting, before the timer setting expires, car will return to the bottom terminal floor and shut down. Time increment is minutes; Range is 0-10.
- 28. Auto shut down counter:** {default = 0} If activated, car will shut down when number of runs equals counter setting. Number of runs equals the setting times 10. This feature auto-disables after four activations.
- 29. Sabbath:** Select (0) No and press # to disable the Sabbath feature. This enables Inspection operation on controllers that have external inspection relay circuits added.

2-2) FAULT FLASH CODES:

All codes that begin with a long flash (2 seconds on) are Call for Service codes. These are problems that the user can not correct. The main purpose of these codes is so a user could convey to you, over the phone, the flash sequence. This may save a trip to the site if it is one of the User codes, or could give you an idea of what parts you may need to take with you, when you go to the site, if it is a call for service code.

- **Call For Service (1):** One long, one short. This code indicates that there is a problem is one of the following areas:

Overload Trip	Run Timer Trip	Main Safety Chain open
Gate switch bypassed	Door lock fault	Auto Shut Down counter

- **Call For Service (2):** One long, two short. This code indicates that there is a problem is one of the following areas:

Re-level shutdown	Low Pressure Switch
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- **Call For Service (3):** One long, three short. This code indicates that there is a problem is one of the following areas:

Selector Fault	Selector Encoding error	Position Error
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- **User Code (1):** One short. This indicates that the Gate is open, or the In-car stop is in the stop position.
- **User Code (2):** Two short. This indicates that a Door is open.

3-1) PROGRAMMING TOOL (P-TOOL) FUNCTIONS

The P-Tool is available in either a board mount or held versions. The recommended minimum is that each installation technician have a P-Tool.

The P-Tool can be used to:

- View the status of the elevator
- Change parameter settings
- View and clear the fault log
- View and clear the counters
- Put the system into Temporary Run Mode
- Run the elevator while in Temporary Run Mode

Note: While using the P-Tool in programming mode, the elevator will not respond to calls

Note: The P-Tool is rendered in-operable while the elevator is running. The elevator must be at rest.

4-1) TEMPORARY RUN MODE:

The purpose for this mode of operation is to allow the installer to move the platform up or down during the installation process. During this mode of operation safety chains MSC, LPS, GC, HDC and HDL will be disregarded. If the motor overload connected to PT1 and PT2 opens, the platform will not move.

Before the platform can be moved the following electrical connections will need to be made:

- Drive system (hydro or drum) including motor overload
- L1, L2 & N
- SW1 & SW2

The following jumpers are required:

- From TLC to LT
- From TLC to UT
- From 24V to HDL

Temporary run mode can be initiated in either of the following:

- Hold keys 1,5 and 0 on P-TOOL, then power up
- Logic board Inputs P1, P4 and DOB tied to REF, then power up

The platform will travel UP by constant pressure of either of the following:

- "A" key of PTOOL
- While logic board input 4C is tied to REF

The platform will travel down by constant pressure of either of the following:

- "D" key of PTOOL
- While logic board input 1C is tied to REF

Note: During Temporary Run Mode, the platform will move at low speed. To return too normal operation, remove power then power up without the initiating conditions.

5-1) IDENTIFYING THE SOFTWARE VERSION:

Periodically we enhance or add features to the operational software. If you call for assistance on a unit, you may be asked to identify the software on your unit.

There are two ways to identify your software:

- 1) The date stamp on the 40 pin EPROM.
- 2) Connect the Programming tool, perform a reset by pressing the star key and reading the version that shows on the upper right side of the display. Note, if a ? mark is displayed it is an indication that you have the first version of software. If you have a revised version, you will see a "V" followed by an identifier (1.1, 1.2, 2.1, etc).

6-1) COMMON QUESTIONS:

A. Call button flashes

- (Q): I press a button to call the car to my floor, the button flashes but car does not move. Why is the button flashing?
- (A): When the car is not allowed to move, which can be for a number of reasons, a fault flash code is displayed at the button pressed. If the flash sequence is one long (2 seconds on) and then followed by a short (1/2 second on) flash or flashes, it indicates that a service representative needs to correct the problem. If the flash sequence does not include the long (2 second on) but only a short flash or flashes, this generally indicates that the user can correct the problem by, making sure the "stop switch in the car is in the run position, shutting the car gate, or shutting a hoistway door.
- (Q): I press a button to call the car to my floor, the button lights up but the car does not move, after some time the light in the button turns off and then flashes on once. If I press the button again, the light does not stay on but again flashes on once. Why won't my unit run?
- (A): The first time you pressed the button, the call to your floor was being held, waiting for either the car gate or a hoistway door to be closed. The car gate or hoistway door was not closed within the time period set in the parameter field, and the call was then dropped. The single flash of the button light indicates that the car gate circuit is in an open position and needs to be closed in order to allow a run. Check the "Stop" button and make sure it is in the run position and also make sure the gate is closed.
- (Q): I press a button to call the car to my floor, the button lights up but the car does not move, after some time the light in the button turns off and then flashes twice. If I press the button again, the light does not stay on but again flashes twice. Why won't my unit run?
- (A): The first time you pressed the button, the call to your floor was being held, waiting for either the car gate or a hoistway door to be closed. The car gate or hoistway door was not closed within the time period set in the parameter field, and the call was then dropped. If the two flashes on the button light were short (1/2 second on each), this indicates that the hoistway door is in an open position and needs to be closed in order to allow a run. Make sure all hoistway doors are closed. Note: If the two flashes were one long (2 seconds on) and then one short (1/2 second on), this is not a door open condition and you need to call a service representative.

B. AUTOMATIC CAR LIGHT

- (Q): My customer wants the car lights to turn off sooner. What can I do?
- (A): The time can be changed by the Car Light Timer parameter. Use the P-Tool and access the program section, and then change the setting for the “Car Light Timer”.
- (Q): My customer says the car light never turn off. They can see the light shining under the door.
- (A): The number one cause for this condition is that either the car gate is not closed, or the hoistway door is not closed. The light timer does not function until both the car gate and hoistway doors are closed. One other possible cause would be that the AL relay is not functioning. The control uses the N/C contacts of the relay to power the lights, if the relay is functioning correctly then the light could stay on.

C. MISCELLANEOUS

- (Q): If we want to add a power gate operator to a unit that was not ordered with one, do we have to buy a new controller or make major modification to the current one?
- (A): No, with the 4M2 controls you will not need a new controller nor will there be any major modifications to the existing control. All 4M2 controls have provisions built in for control of two power gate operators and four power door operators. All you need to do is add the power operators, connect the correct wires into the controller and change some parameters (using the P-tool).
- (Q): Do I need to put limit switch, pushbutton and interlock wiring in metallic conduit?
- (A): Maybe, this would typically be determined by your local building codes. All power supplied to these devices is low voltage (24 VDC). Check with your local authority for determination.
- (Q): We had a power loss while trying to go the lower level but the car stopped at the 2 nd level. Do we have to get out at the 2nd level or can we ride the car down to the lower level?
- (A): Yes, you may ride the car to a lower level. When main power is lost the car goes into “Emergency Lowering Mode” and will stop at the next lower floor that it comes to. The car can then be called or sent to a lower level if all the appropriate safety circuits are made.
- (Q): I want to use my elevator but how do I tell if the car is at my level or needs to be called to my level?
- (A): In our opinion, the best thing to do is press the call button before pulling on the door. If the car is at your level, the button light will extinguish when the button is released. If the light stays illuminated, then the car is at another floor. We feel this is the best operation because units that utilize electro-mechanical locks may require the pressing of the button to unlock the door.

MANUFACTURER'S LIMITED WARRANTY

WARRANTY

Elevator and dumbwaiter systems and component parts sold by Elevator Concepts LTD are warranted to the purchaser to be free of defects in material and workmanship for a period of 12 months from the date placed in service, or 14 months from the date shipped from our plant, whichever shall occur first. Elevator Concepts LTD will repair or replace, at its option, any part which proves to be defective, and shall be the sole judge of what constitutes defective workmanship and materials. This warranty does not extend to the installation itself, and any defects attributable to the installation shall not be the responsibility of Elevator Concepts LTD and are specifically excluded from this limited warranty.

Elevator Concepts LTD shall be responsible only for costs incurred by it in the direct repair or replacement of defective parts at its plant. All other costs, including but not limited to removal and replacement, adjustments, freight or re-inspection, shall be the responsibility of others unless prior written approval is issued by an officer of Elevator Concepts LTD. All warranty returns must be authorized in advance by Elevator Concepts LTD. Elevator Concepts LTD shall not be obligated to honor warranty claims unless all sums due Elevator Concepts LTD are paid in full. All parts sales are final, subject to the provisions of this warranty.

This warranty is not intended to supplant normal maintenance service, and shall not be construed to mean that Elevator Concepts LTD provides free service for periodic adjustment or lubrication due to normal use. Lack of proper maintenance will void this warranty. Elevator Concepts LTD will not correct, without charge, breakage, maladjustment, or other defects arising from improper or inadequate maintenance, abuse, misuse, or other causes beyond our control, including but not limited to improper installation, improper material supplied by others, improper repairs or modifications, abnormal environmental conditions, power supply deficiencies, or acts of God. This warranty is non-transferable, except with the express written consent of Elevator Concepts LTD.

Elevator Concepts LTD reserves the right to make changes in the design of its products including software. Elevator Concepts LTD shall not incur any obligation to install such changes or changes required by any other agency to products previously manufactured.

The foregoing is in lieu of all other warranties expressed or implied including but not limited to the implied warranties of merchantability and fitness for a particular purpose, and is the only remedy available for defects in workmanship and material. In no event shall Elevator Concepts LTD be liable for special, consequential, contingent, indirect or incidental damages arising from the use of this product or delay in the performance of warranty obligations.

Some States do not allow the exclusion or limitation of incidental or consequential damages, or limitations in the length of implied warranties, so the above limitations may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary according to State.

LIMITATION OF LIABILITY

Elevator Concepts LTD's entire liability, and the purchaser's exclusive remedy shall be as follows: In all instances of defects in material or workmanship, the customer's sole remedy is that provided under the warranty provisions expressed above. For any other claim of performance or non-performance by Elevator Concepts LTD, pursuant to such defects, the purchaser shall be entitled to recover actual damages to the limits set forth in this Limitation of Liability.

Elevator Concepts LTD's liability for loss or damages to purchaser, for any cause whatsoever, regardless of the form of action, in contract or tort including negligence, shall be limited to the purchase price of the part on which such liability is based; however, Elevator Concepts LTD in no event shall be responsible for any loss or damage resulting from any cause beyond its control. In no event will Elevator Concepts LTD be liable for any damages caused by purchaser, or for any lost profits, special, incidental, indirect, or consequential damages.

All technical advice and recommendations are furnished by Elevator Concepts LTD gratis, and are accepted by the user at their own risk. Such advice and recommendations are intended for use only by persons having the skill and knowledge required to assess their validity for the application. Use of parts and components other than those supplied by Elevator Concepts LTD is solely at the risk of the user, who is solely responsible for determining the suitability of such parts for their intended use, and assumes all risks and liabilities in connection therewith.

WARNING: THE INSTALLATION, ADJUSTMENT AND MAINTENANCE OF THIS PRODUCT, OR ANY REPLACEMENT PARTS OR COMPONENTS IN THE PRODUCT SHOULD BE PERFORMED ONLY BY TRAINED TECHNICIANS WHO ARE FAMILIAR WITH THE OPERATION AND CONTROL OF THE SYSTEM INVOLVED. IMPROPER INSTALLATION, ADJUSTMENT OR MAINTENANCE CAN ENDANGER THE PERSON PERFORMING THE WORK, THE USER, AND THE EQUIPMENT, AND MAY VOID THIS WARRANTY.