

# ALKO *amc*

## Air Suspension Systems

# ALKO

Vehicle Technology



# AL-KO Air Line – Tailored Air Suspension Systems

“Relaxed driving - just like floating on a cloud!”

Comfortable and safe driving is becoming increasingly important for the motor home owner, as more leisure time is spent travelling, than ever before.

AL-KO can offer the right solution for your own individual requirements.

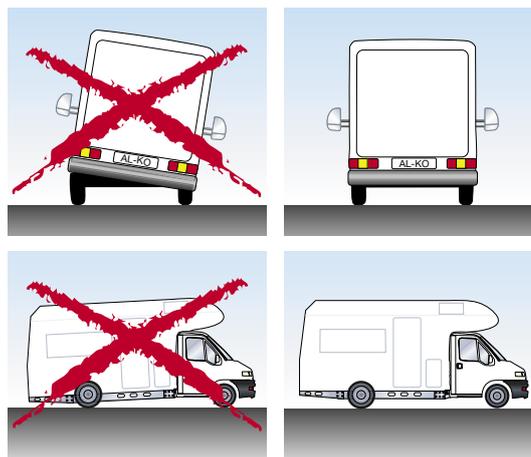
## The AL-KO Air Line Range

The AL-KO Air Line Range	Full details on pages	
<b>AIR PREMIUM</b> AL-KO Air Premium Full air suspension for AL-KO amc rear axle	3 - 5	
<b>AIR PLUS</b> AL-KO Air Plus Additional air suspension for the AL-KO amc rear axle	6 - 7	
<b>AIR TOP</b> AL-KO Air Top Additional air suspension for the original base vehicle, rear axle	8-9	

### Perfect Driving Dynamics

Many parameters influence the driving dynamics of a motor home. Correct loading is one of these important factors.

The AL-KO Air Line concept improves your holiday experience by offering individual air suspension solutions, to provide the best possible driving dynamics for your motor home.



# AL-KO Air Premium **AIR PREMIUM**

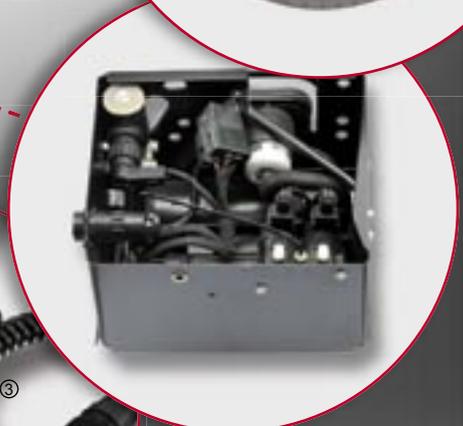
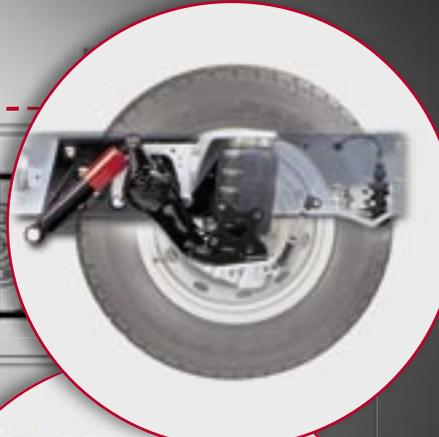
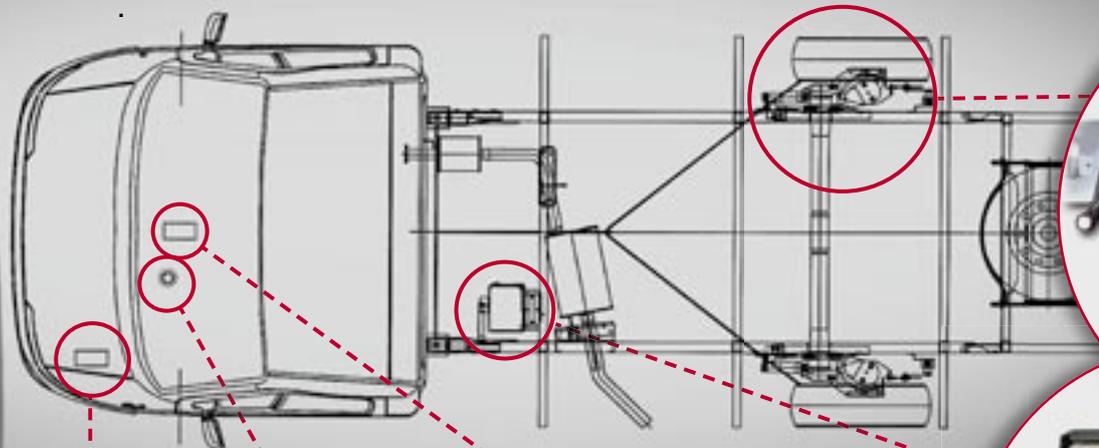
## Full Air Suspension for AL-KO *amc* Rear Axle

“Driving Comfort comparable to a Luxury Car”

The comfort of electronically controlled suspension, is generally only found, fitted in luxury, top end class cars

- but you will also have the option on the AL-KO *amc* chassis, when fitted with the AL-KO Air Premium, Air Suspension.

Electronically Controlled Air Suspension

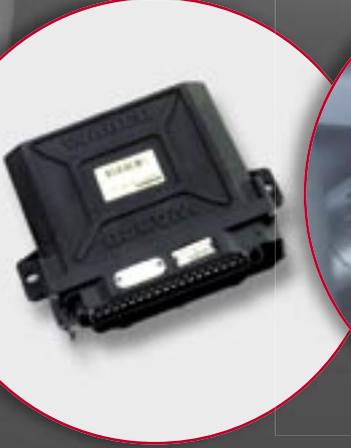


Maintenance free air compressor unit with integrated, regenerative air dryer and 2/2 solenoid valve block.



The remote controller provides individual level control

- ① Spare Button
- ② On/Off
- ③ Spare Button
- ④ Memory 1
- ⑤ Memory 2
- ⑥ Factory Calibrated Level
- ⑦ Lift
- ⑧ Lower
- ⑨ Stop



ECAS Control Electronics - Electronically Controlled Air Suspension



Integrated dashboard lamp indicates correct operation of the air suspension





# ADVANTAGES:

## EXCELLENT SUSPENSION AND DRIVING COMFORT

- Electronically controlled, fully automatic air suspension system.
- Special air bellows with waisted piston and integrated buffer stop, replace the conventional steel springs and provide a completely new driving feeling.
- Optimally matched high performance shock absorbers with integrated, progressive Cellasto assister spring.

## FULLY AUTOMATIC LEVEL CONTROL

- Dual circuit system independently controls the left or right hand wheel level.
- Modern electronically controlled air suspension (ECAS), together with inductive level sensors, provides the vehicle with independent, constant level position, irrespective of load state.

## LIFTING AND LOWERING FUNCTION

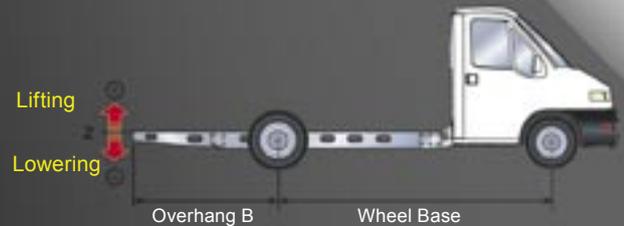
- The level position of the AL-KO *amc* chassis can be raised/ lowered with the aid of the remote control, to alter the ground clearance and rear overhang angles (eg when attempting to drive onto ferries).
- Max. Lowering Capability = 80 mm  
Max. Lifting Capability = 60 mm

## EASY TO SERVICE

- Maintenance free air suspension system
- An intelligent electronic chip is at the heart of the diagnostic air suspension controller.
- Extensive service network.

## Lifting/ Lowering

Example of single axle *amc* chassis.



## Max. Lift or Lowering Dimension

Max. Lowering Dim. Z at rear of vehicle in mm (approx. values)		
Wheel Base	Overhang B	
A	824	1947
2850	-103	-135
3200	-101	-129
3273	-100	-128
3523	-99	-124
3700	-98	-122
3776	-97	-121
3923	-97	-120
4023	-96	-119
4223	-96	-117

Max. Lifting Dim. Z at rear of vehicle in mm (approx. values)		
Wheel Base	Overhang B	
A	824	1947
2850	77	101
3200	75	97
3273	75	96
3523	74	93
3700	73	92
3776	73	91
3923	73	90
4023	72	89
4223	72	88

# AIR PREMIUM

This fully automatic and maintenance free air suspension system, controls the air pressure in the air bellows. Irrespective of pay load usage on the motor home - the electronically controlled air suspension system ECAS\*, provides the vehicle with constant level control.

\*Electronically-Controlled-Air-Suspension

Optimally matched high performance shock absorber with integrated progressive Cellasto assister spring.

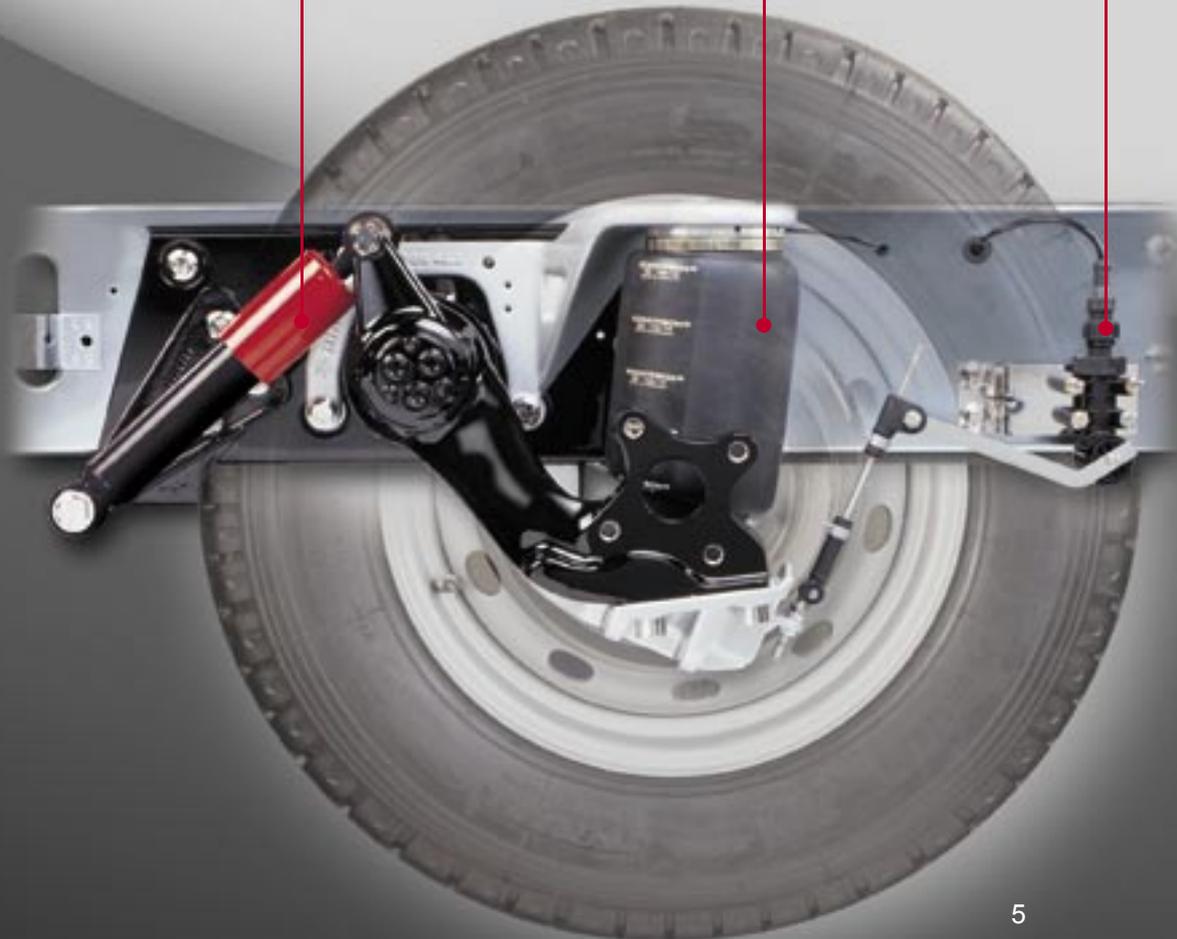


**ELECTRONICALLY CONTROLLED AIR SUSPENSION**

**INDUCTIVE LEVEL SENSORS**

**AIR BELLOWS**

**HIGH PERFORMANCE SHOCK ABSORBERS**



# AL-KO Air Plus **AIR PLUS**

## Additional Air Suspension for the AL-KO *amc* - rear axle

### ADVANTAGES:

#### ENHANCED SUSPENSION AND DRIVING COMFORT

- Manual, external air supply.
- Special air bellows with waisted piston and integrated buffer stop, replace the original steel springs and provide a completely new driving feeling.
- Optimally matched high performance shock absorbers with integrated, progressive Cellasto assister spring.

#### MANUAL LEVEL CONTROL

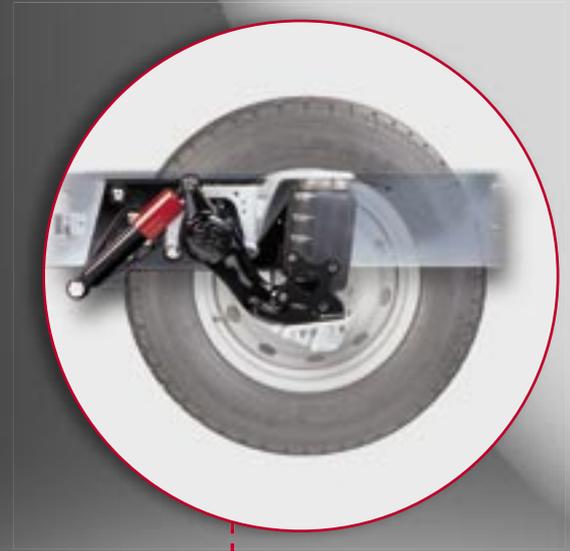
- The dual circuit system is brought to the required level via an external air supply (ie garage/ compressor).
- The left or right hand rear bellows can be independently supplied with the necessary air pressure.

#### LIFTING AND LOWERING FUNCTION

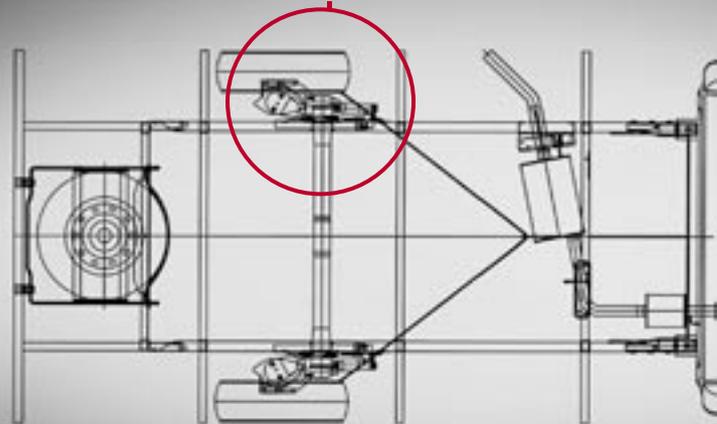
- The ground clearance and the rear overhang angle can be altered via an external air supply (ie garage/ compressor).
- Operation only possible when vehicle is stationary or travelling at a max. speed of 30 km/h.
- Values:  
Lowering Capability dependent on rear axle load  
Lifting in the axle area approx. 60 mm

#### EASY TO SERVICE

- Maintenance free air suspension system.
- Double pressure gauge.



Manual Controlled Air Suspension



Double Pressure Gauge



## System Specification

Dual circuit system with independent, manual control of left or right hand air bellow pressure. The air bellows are vented and bled via an external air supply or can be done manually. The air suspension system is maintenance free.

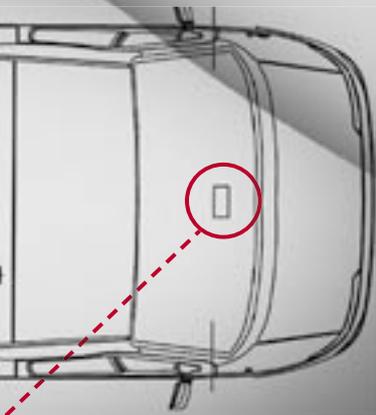


Optimally matched high performance shock absorbers with integrated progressive Cellasto assister spring.

**EXTERNALLY CONTROLLED AIR PRESSURE**

**AIR BELLOWS**

**HIGH PERFORMANCE SHOCK ABSORBER**



We have an AL-KO system for your original base vehicle chassis!

# AL-KO Air Top **AIR TOP**

**Additional Air Suspension for original base vehicle**  
(for Fiat Ducato, Peugeot Boxer, Citroën Relay)

## ENHANCED DRIVING COMFORT

- Manual, external air supply.
- Using the AL-KO Air Top increases the spring rigidity and thus improves the roll stability.

## MANUAL LEVEL CONTROL

- The dual circuit system is brought to the required level by an external air supply (ie garage/compressor).
- Independent air pressure for left or right hand bellows.

## LIFTING FUNCTION

- The ground clearance and rear overhang angles can be altered via an external air supply (ie garage/compressor).
- Function only operable whilst vehicle is stationary
- Values:  
Lifting (in the axle area) ca. 50 mm  
(This function is only possible at the max. permissible bellows pressure when stationary, e.g for easier loading /unloading or when driving onto ferries. When driving, the pressure must be adjusted according to suspension comfort and to specification).  
Due to the leaf spring design, lowering from the basic level is not possible.

## EASY TO SERVICE

- Maintenance free air suspension system
- Extensive service network

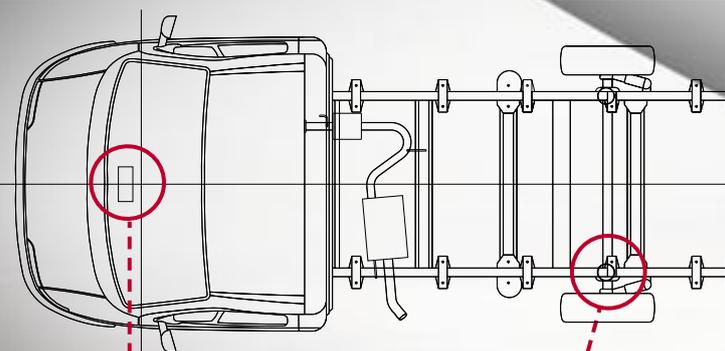
### Supply Details

- 1 Air Bellows with left air line
- 1 Air Bellows with right air line
- 1 Double Pressure Gauge
- 1 Assembly Kit
- 1 Assembly Instructions
- 1 Operating Instructions



### ■ TECHNICAL DATA/ORDER SPECIFICATIONS

Description	Suitable For	Part No.	Net Weight in kg	Price £
AL-KO Air Top Kit	Chassis with ABS Type 230/244 for: FIAT Ducato PEUGEOT Boxer CITROEN Relay (also flat bed/box body)	222 619	12.5	POA
Bolt on AL-KO Air Top Control for vehicles without ABS	Chassis without ABS Type 230/244 for: FIAT Ducato PEUGEOT Boxer CITROEN Relay (also flat bed/box body)	420 150	0.5	POA excludes fitting



Double Pressure Gauge



Assembled Air Top Unit

# AL-KO Air Line System Comparisons

			
<b>System Description</b>	The following is fitted on the AL-KO amc chassis: <ul style="list-style-type: none"> <li>■ A trailing link axle with special air bellows, high performance shock absorbers</li> <li>■ A maintenance free air compressor unit with air dryer</li> </ul> The following are located in the driver's cab of the AL-KO amc chassis: <ul style="list-style-type: none"> <li>■ The ECAS control electronics</li> <li>■ The remote control</li> </ul>	The following is fitted on the AL-KO amc chassis: <ul style="list-style-type: none"> <li>■ A trailing link axle with special air bellows, high performance shock absorbers</li> </ul> The following are located in the driver's cab of the AL-KO amc chassis: <ul style="list-style-type: none"> <li>■ A fitted double pressure gauge with which the air bellows can be supplied with air, via valves (garage/compressor)</li> </ul>	An AL-KO dealer can fit two air bellows on the original base vehicle (eg. Fiat Ducato Type 230), between the leaf spring and the chassis frame. These are connected to the dual pressure gauge in the driver's vehicle cab.
<b>Assembly</b>	Only as Original Equipment Supply on the AL-KO amc chassis conversion Applies to the following vehicles: <ul style="list-style-type: none"> <li>■ FIAT Ducato</li> <li>■ PEUGEOT Boxer</li> <li>■ CITROËN Relay</li> </ul> } all Types 244	Only as Original Equipment Supply on the AL-KO amc chassis conversion Applies to the following vehicles: <ul style="list-style-type: none"> <li>■ FIAT Ducato</li> <li>■ PEUGEOT Boxer</li> <li>■ CITROËN Jumper</li> </ul> } all Types 244	Can be fitted to the following base vehicles <ul style="list-style-type: none"> <li>■ FIAT Ducato</li> <li>■ PEUGEOT Boxer</li> <li>■ CITROËN Relay</li> </ul> } all Types 230/244 Fitting is possible by AL-KO dealers as original equipment or as a retrofit option on chassis, flat beds and box bodies.
<b>Suspension type or proportion of load</b>	Proportion of ultimate load ca. 92 % Air, ca. 8 % Steel	Proportion of ultimate load ca. 70% steel, ca. 30% air (with permissible rear axle load)	Proportion of ultimate load up to 100% leaf spring (bellows are pressure dependent)
<b>Air Supply</b>	Independent - by means of maintenance free air compressor unit	Vented air bellows bled manually or via garage/compressor	Vented air bellows bled manually or via garage/compressor
<b>Suspension and Comfort</b>	Excellent vehicle and driving comfort <ul style="list-style-type: none"> <li>■ Electronically controlled, fully automatic air suspension system</li> <li>■ Special air bellows with waisted piston and integrated buffer stop</li> <li>■ Optimally matched high performance shock absorber with int. progressive Cellessto spring.</li> </ul>	Good suspension and driving comfort <ul style="list-style-type: none"> <li>■ Manual, external air supply</li> <li>■ Special air bellows with waisted piston and integrated buffer stop</li> <li>■ Optimally matched high performance shock absorber with int. progressive Cellessto spring</li> </ul>	Offers improved driving comfort <ul style="list-style-type: none"> <li>■ Manual, external air supply</li> <li>■ Increases roll stability</li> </ul>
<b>Level Control</b>	Fully automatic level control <ul style="list-style-type: none"> <li>■ The dual circuit system independently controls the left or right hand wheel axle</li> <li>■ Modern ECAS- Control electronics (Electronically-Controlled-Air-Suspension) together with inductive level sensors provide the vehicle with an independent, constant level position, irrespective of loading status</li> </ul>	Manual level control <ul style="list-style-type: none"> <li>■ Dual circuit system provides independent, manual level control for left or right hand rear wheel</li> </ul>	Manual level control <ul style="list-style-type: none"> <li>■ The dual circuit system provides independent, manual level control for the left for right hand wheel.</li> </ul>
<b>Lift and Lowering Functions</b>	<ul style="list-style-type: none"> <li>■ The level position of the AL-KO amc chassis can be lifted or lowered with the aid of a remote control. The ground clearance and rear overhang angle can also be altered (e.g. when driving onto ferries or rough ground). This function is also possible when driving up to a max. speed of 30 km/h.</li> </ul> <ul style="list-style-type: none"> <li>■ Values: Lifting approx. 60 mm Lowering max. approx. 80 mm</li> </ul>	<ul style="list-style-type: none"> <li>■ The ground clearance and rear overhang angle can be altered via an external air supply (garage/compressor). This function is only possible when the vehicle is stationary or travelling at a max. speed of 30 km/h.</li> </ul> <ul style="list-style-type: none"> <li>■ Values: Lowering dependent on the rear axle load Lifting in the axle area approx. 60 mm</li> </ul>	<ul style="list-style-type: none"> <li>■ Lift function only possible when stationary, with the aid of an external air supply. Due to the leaf spring design, lowering from the basic level is not possible.</li> <li>■ Values: Lifting in the rear axle area max. approx. 50 mm (only possible at max. permissible bellows pressure when stationary, eg for loading/unloading, driving onto ferries). Lowering is not possible</li> </ul>
<b>Service/Maintenance</b>	<ul style="list-style-type: none"> <li>■ Maintenance free air suspension system</li> <li>■ An intelligent electronic chip represents the heart of the diagnostic control electronics, of the new air suspension system</li> <li>■ Extensive service network</li> </ul>	<ul style="list-style-type: none"> <li>■ Maintenance free air suspension system</li> <li>■ Extensive service network</li> </ul>	<ul style="list-style-type: none"> <li>■ Maintenance free air suspension system</li> <li>■ Extensive service network</li> </ul>
<b>Max. weight limits</b>	<ul style="list-style-type: none"> <li>■ For single/tandem axles vehicles (up to a max. permissible overall weight of 4.5 T)</li> <li>■ ABS is essential for commercial vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>■ For single axle vehicles (up to a max. permissible overall weight of 4.0 T)</li> <li>■ ABS is essential for commercial vehicles</li> </ul>	<ul style="list-style-type: none"> <li>■ For single axle vehicles (up to a max. weight of 3.85 T) fitted with original chassis:</li> <li>• FIAT Ducato 15 (up to 3.5 T) with/without ABS.</li> <li>• FIAT Ducato Maxi (up to 3.5 T) with/without ABS.</li> <li>• FIAT Ducato Maxi (up to 3.85 T) with/without ABS in vehicle class M1*</li> <li>• FIAT Ducato Maxi (up to 3.85 T) with/without ABS in vehicle class N2*</li> </ul> A bolt on controller must be ordered for vehicles without ABS (order this item separately) * Body builder can supply information on respective vehicle class.
<b>TÜV tested</b>	Braking system tested as EC-RL 71/320*2002/78	Braking system as EC-RL 71/320*2002/78	TÜV approval required (EG-Brake certificate available)
<b>Availability</b>	Immediately	Immediately	End 2003
<b>Part No.</b>	Only as original equipment supply	Only as original equipment supply	222 619 (Air Top ABS Type 230/244) 420 150 (bolt on kit for vehicles without ABS)
<b>Recommend Retail Price (inc. VAT).</b>	On request from respective body builder/motor home manufacturer	On request from respective body builder/motor home manufacturer	POA excludes fitting (assembly time approx. 2 hrs)

# AL-KO<sup>amc</sup> Electric Steady Leg

## + Product Features



Simple to use remote control

- Simple operation via remote control (10 m range)
- Individual leg operation
- Robust construction (static load bearing capacity 1000 kg/ dynamic capacity 500 kg). Lifting force 500 kg
- Powerful electric motors with planetary gears
- Overload protection (over 500kg)
- Simple to fit
- Easy emergency operation should power fail
- Minimum power consumption (max. 10 to 14A. for 64 Ah battery, this equates to approx. 150 lifts).



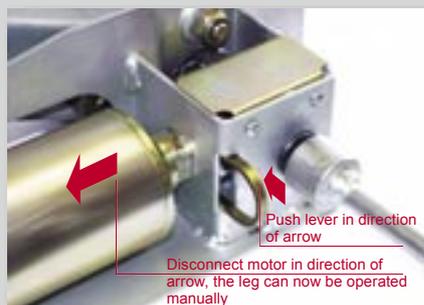
Safety switch in driver's cab

## Safety Switch

The safety switch (located in the driver's cab) prevents accidental movement of the steady legs, as the operating system is only functional when the safety switch has been depressed. The system automatically switches off 2 minutes after the remote control has last been operated. If the ignition is switched on, when the steady legs are operated, the driver is given an acoustic warning. If the driver ignores this warning and accidentally moves off while the steady legs are down, they automatically fold forwards or backwards, to prevent damage to the leg or vehicle.

## Operation:

Depress the safety switch (located inside the driver's cab) - the system is now ready for operation. By using the remote control, raise or lower the each steady leg into the desired position. An overload protection switch allows a maximum lifting force of 500 kg per leg. Both legs can be lowered or raised in approx. 2.5 minutes. The system automatically switches off 2 minutes after the remote control has last been operated.



Emergency operation (if power fails)

## Fitting:

We recommend that fitting is carried out by trained AL-KO Service Centres.

Assembly is possible on AL-KO chassis/ chassis extensions, please check your vehicle log book to determine if your vehicle is fitted with an original chassis (eg FIAT) or has been fitted with an AL-KO chassis/chassis extension. Assembly holes are pre-drilled on AL-KO chassis manufactured from 1995 onwards. If the vehicle is fitted with a non AL-KO chassis extension or has an original chassis, the body builder must check that assembly is possible. Assembly holes can be made after approval has been received from the body builder.

## Note:

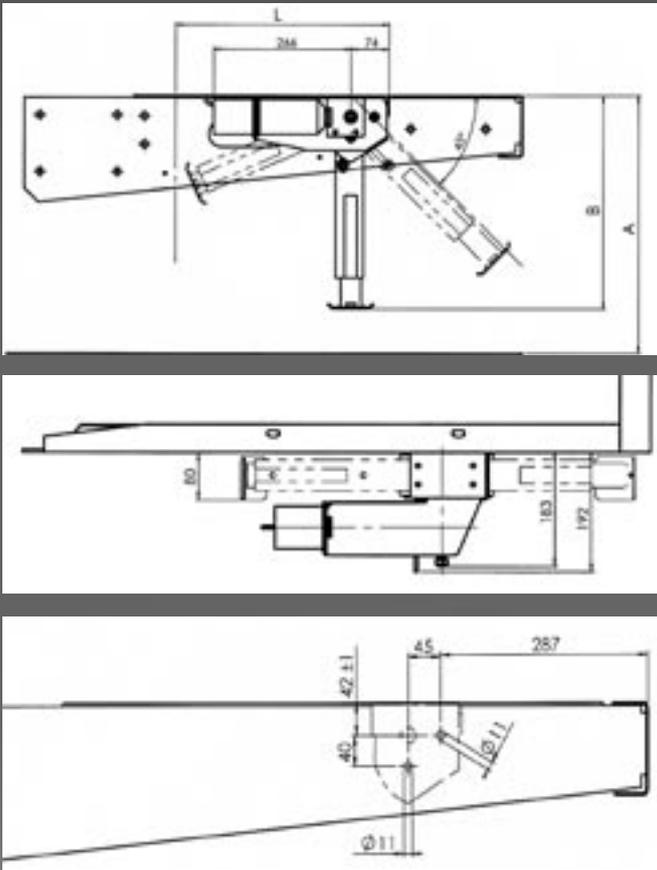
The electric motors are protected against dust and spray (protection class IP 64). The use of pressure jet cleaning is not permitted.

# with Remote Control

## Determining Which Steady you Require.

1. Measure your chassis frame height A (when vehicle is loaded).
2. When you have measured Dim. A - use the table below to select one of the three measurement ranges.
3. From the option selected, ensure you have the required free working range ( Dim. L).

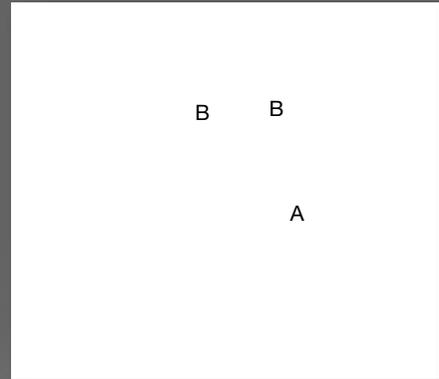
4. The wiring harness required can be determined by measuring your vehicle length and selecting the appropriate harness listed under Dim C



## Kit Contents:

- A) Steady Leg Set
- 1 steady leg with electric motor (for LH rear)
  - 1 Steady leg with electric motor (for RH rear)
  - 1 control unit
  - 1 remote control
  - 1 cable harness from control unit to drive unit
  - 1 set of assembly instructions
  - 1 set of operating instructions
  - 1 fitting kit (including safety switch)
- B) Cable Harness (from control unit to steady):
- 1 cable harness (LH rear)
  - 1 cable harness (RH rear)

Set A & B are supplied as one kit - see technical data for correct kit part numbers.



## Surface Finish:

- Inner tube leg - hot galvanised
- Outer tube leg - dacromet coated

### TECHNICAL DATA

To determine correct steady leg				To determine correct wiring harness				Complete kit Part No.			
Frame Height A min. in mm	Frame Height A max. in mm	Leg Height B min. in mm	Leg Height B max. in mm	Lifting Spindle in mm	Working Space req L in mm	Vehicle length in mm	Cable length C in mm	Kit Part	Net weight in kg	EAN-Code	Price
420	570	410	580	170	340	6000	5200	1229988	22	4003718030860	POA
						7000	6200	1229989	22	4003718030877	POA
						8000	7200	1229990	22	4003718030884	POA
570	720	560	730	170	480	6000	5200	1229991	22	4003718030891	POA
						7000	6200	1229992	22	4003718030907	POA
						8000	7200	1229993	22	4003718030914	POA
345*	495*	335*	415*	78	270*	6000	5200	1229994	23	4003718030921	POA
		365*	445*		300*	7000	6200	1229995	23	4003718030938	POA
		395*	475*		330*	8000	7200	1229996	23	4003718030945	POA
		425*	505*		360*						

\* these legs can be altered using a split pin

# AL-KO

Vehicle Technology



**AL-KO** *amc*

We reserve the right to alter any specification without prior notice

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