



User manual

- Level C System (6 supports)
- Level C System (Compact)

EN

Original language

The original language of this document is American-English. All other available language versions of this document are translations of the original version.

Contents

Preface	6
Copyright statement.....	6
Limited warranty.....	6
About this manual	7
Contact information.....	7
Document details.....	7
About the Level C System in this document.....	7
Purpose of this document.....	7
Revision history.....	7
Related documents.....	7
Conventions.....	7
Illustrations.....	7
Safety symbols used in this document.....	8
Safety	9
Intended use.....	9
Possible misuse.....	9
Qualified persons.....	9
Approved installation technician.....	9
Approved operator.....	9
Safety instructions.....	9
General safety instructions.....	9
Specific safety instructions.....	9
Disposal of the Level C System.....	10
Description	11
Description of the levelling system.....	11
Overview of the parts of the levelling system.....	12
Overview of the hydraulic pump.....	13
Overview of the controls.....	14
Overview of the touchscreen.....	14
Signs on the touchscreen.....	15
Symbols and icons used on the touchscreen.....	16
Identification of the touchscreen.....	17
Operation	19
Put the touchscreen into service for the first time.....	19
Set the language.....	19
Set the personal access code	20
Prepare for operation.....	20
Use the device in the fixed location.....	20
Use the device remotely.....	20
Put the device back into the wall frame.....	21
Start the touchscreen.....	21
Stop the touchscreen.....	21
Level the caravan.....	21

Automatic levelling.....	21
Manual levelling.....	23
Retract the jacks.....	24
Emergency operation.....	25
Use the back-up buttons.....	25
Use the emergency button.....	25
Use the emergency button (compact system).....	26
Use the emergency hand pump.....	27
Level the caravan (compact system).....	28
Automatic levelling (compact system).....	28
Manual levelling (compact system).....	29
Retract the jacks (compact system).....	30
Retract the jacks of a freestanding caravan (compact system).....	30
Retract the jacks of a caravan connected to the tow bar (compact system).....	31
Maintenance.....	32
Maintenance schedule.....	32
Preventive maintenance.....	32
Maintenance for cold weather.....	33
Troubleshooting.....	34
General troubleshooting procedure.....	34
Error descriptions.....	34
Troubleshooting table.....	36
Reset the touchscreen settings.....	37
Technical specifications.....	38
Specifications of the hydraulic pump.....	38
Specifications of the hydraulic jacks.....	39
Specifications of the corner steadies.....	40

PREFACE

Copyright statement

This manual is protected by copyright, all rights are reserved. Under copyright laws, no part of this document may be copied, photocopied, reproduced, translated, or made into an electronic medium without written permission from E&P Hydraulics.

Limited warranty

- Read this manual and understand the contents of this manual fully, before you install or use the Level C System. E&P Hydraulics will not be liable for any direct, indirect, consequential or incidental damage that comes forth from the misuse of the product or not obeying the contents of this manual.
- E&P Hydraulics reserves the right to change parts of the product and to make changes to the product and its manual without prior notice given to any party, including the end user.
- E&P Hydraulics offers a 2-year warranty for the Level C System on the material.
- The Level C System comes with a registration number stated on the product. Make sure this number remains legible. This registration number is necessary when the servicing of the product must be done.
- The manufacturer's warranty is only valid if the product is purchased from an authorised E&P Hydraulics dealer.
- The guarantee expires if installation, modification, maintenance or repairs are made to the product or its components by a non E&P Hydraulics authorised dealer or installer.
- An appeal on the manufacturer's limited factory warranty is only eligible for adoption if an official E&P Hydraulics dealer or installer determines the material and/or manufacturing defect within the warranty period and the appeal to guarantee is done within two weeks after this determination.
- Repair and/or restoration work must not be started before the warranty claim is assigned by E&P Hydraulics and the planned repair is approved by E&P Hydraulics.
- A warranty claim must be made promptly upon discovery of the problem to E&P Hydraulics. Should this not be the case, E&P Hydraulics can reject the warranty claim, especially if the problem could be exacerbated by the late reporting, this is at the sole discretion of E&P Hydraulics.
- E&P Hydraulics is not liable for any form of physical, financial or physical direct or consequential damage caused by (parts of) the product, except where the damage concerns the product itself, as per the regulations provided in Directive 85/374/EEC.
- Excluded are (parts of) products which are used for commercial business, in the sale or on offer, or sold with defects, and/or products where the E&P Hydraulics identification signs have been deleted, removed or made unreadable.

ABOUT THIS MANUAL

Contact information

To contact the manufacturer:

Manufacturer name	E&P Hydraulics
Post address	Haverstraat 143, 2153 GD, Nieuw Vennepe, The Netherlands
Telephone number	+31 (0)25 2626151
Email address	info@ep-hydraulics.com
Website	www.ep-hydraulics.com

To contact a retailer:

Visit the website www.ep-hydraulics.com, or send an email to: info@ep-hydraulics.com.

Document details

About the Level C System in this document

The Level C System described in this document is used to automatically or manually operate the E&P Hydraulics levelling system for caravans.

Purpose of this document

This document gives the description of the Level C System, and its operation with the touchscreen or the smartphone application.

Read this document to use the Level C System correctly.

This document is a permanent component of the Level C System, and it must stay with the module during the full life cycle of the module.

Revision history

Date	Revision number	Reason
December 2020	1.0	First published version

Related documents

Document name	Document code	Target group
Installation Instructions hydraulic levelling support system	1808283_b	Approved installation technician
Operating Instructions hydraulic Level System	4000894_a	Approved operator

Conventions

Illustrations

The illustrations are for reference only.

Differences between the illustrations and the real Level C System are possible but do not have an effect on the correct use of this document.

Safety symbols used in this document

Symbol	Function	Description
	Warning	Means that death, serious personal injury or damage to the equipment will occur if you do not obey the instructions.
	Caution	Means that damage to equipment is possible if you do not obey the instructions.
	Note	Is used to give additional information.

SAFETY

Intended use

- The E&P Hydraulics Level C System is intended to automatically or manually level caravans.
- Do not use the Level C System for any other purpose than described in this document.

Possible misuse

Do not use the Level C System to do maintenance under the vehicle.

Qualified persons

Approved installation technician

The term approved installation technician is specified here as the person who fully knows the Level C System and its safe operation. The approved installation technician obeys all safety regulations. To install the Level C System, E&P Hydraulics gives a training to the approved installation technician. Only after this training the installation technician is allowed to install the Level C System.

Approved operator

The term approved operator is specified here as the end user of the Level C System. The approved operator obeys all safety regulations. E&P Hydraulics gives a training to the approved operator. Only after this training the operator is allowed to use the Level C System.

Safety instructions

General safety instructions

- Read the manual before you operate the levelling system.
- Only use the E&P Hydraulics levelling system for its intended use.
- Make sure that the levelling system is installed by a qualified installation technician that received training by E&P Hydraulics.
- Only qualified installation technicians are permitted to repair the device.

Specific safety instructions

- Do not use the levelling system to do other work below the caravan, such as change the tires, do maintenance, or apply snow chains.
- The nose weight of the caravan must not be more than 100 kg.
- Do not use the levelling system when there is anything attached to the caravan, such as an awning or a canopy.
- Do not use the levelling system in automatic mode when the caravan is attached to the car.
- Do not come near the caravan when the system is in operation.
- Be careful with fluids that come from the levelling system to prevent injury to the skin and eyes.
- Do not lift the caravan too high. The caravan can become unstable.
- Park the caravan on a solid, non-slippery surface, and make sure that the surface is as level as possible. The location must be free of holes, waste and objects.
- Use a support plate or a E&P Hydraulics footplate cover below each jack to divide the weight if the caravan is parked on very soft soil.
- Do not use supplementary supports below the corner steadies.

- Make sure that the caravan is level after using the levelling system. Walk around the caravan to make sure that all hydraulic jacks are on the ground.
- Do not use the levelling system when a person or animal is inside the caravan.
- Make sure that all supports are retracted before you drive off with the caravan.

Disposal of the Level C System

When you discard of the Level C System or its parts, obey:

- Local regulations;
- Instructions to sort the waste of the module;
- Safety and health instructions with regard to the module.

Prevent pollution. Be friendly to the environment.

DESCRIPTION

Description of the levelling system

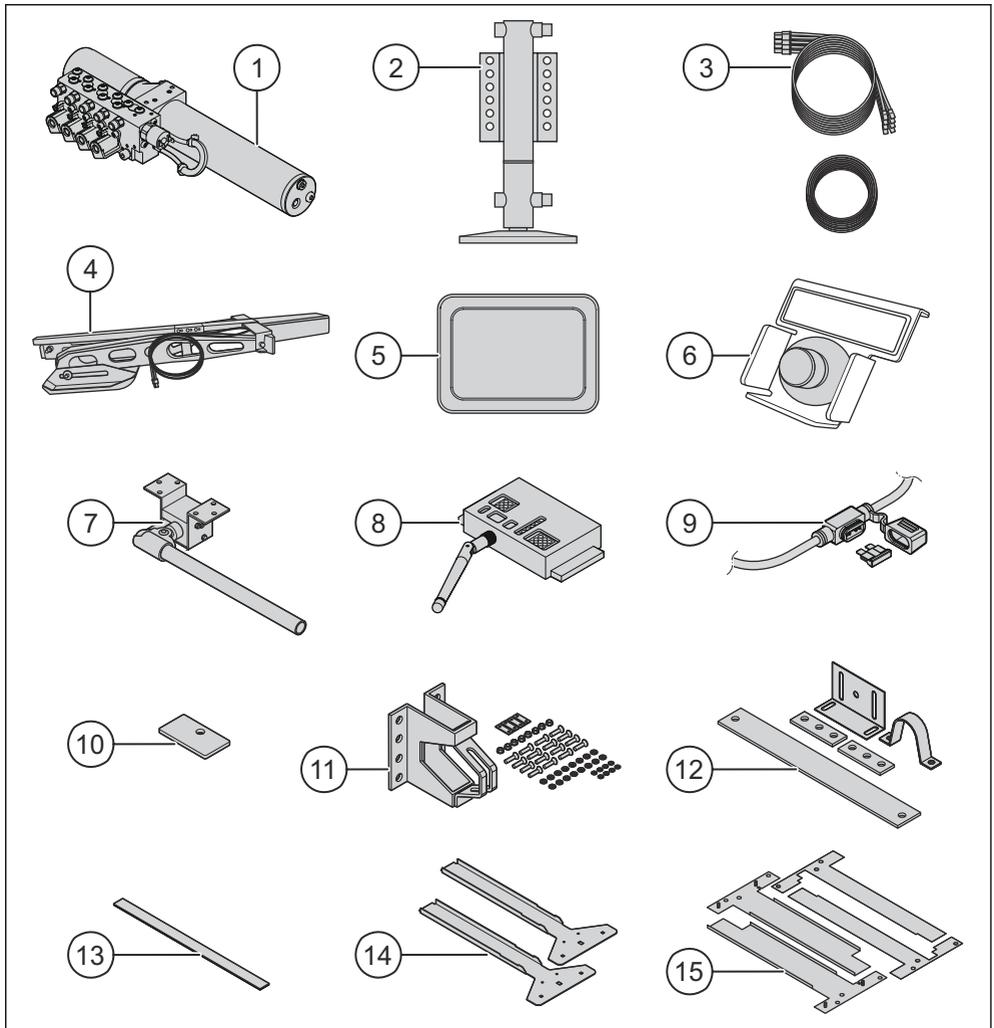
The Level C System (6 supports) is a hydraulic system used to automatically level your caravan. The E&P Hydraulics levelling system has:

- A hydraulic pump that pumps hydraulic oil through a system of hydraulic hoses, two hydraulic jacks with foot plates, and four corner steadies that make the caravan stable and level.
- A main unit installed on a central location below the caravan.
- A built-in touchscreen to automatically or manually operate the levelling system. The touchscreen can be taken out of the wall frame and be used as a remote control.
- Four corner steadies.
- Two hydraulic jacks.
- An emergency button.
- Hoses and electric wirings.
- Individual brackets adapted to the caravan.
- An optional emergency hand pump.
- An optional Weight Measuring Module.



Note: The compact levelling system has a control panel instead of a touchscreen, and does not have 4 corner steadies.

Overview of the parts of the levelling system

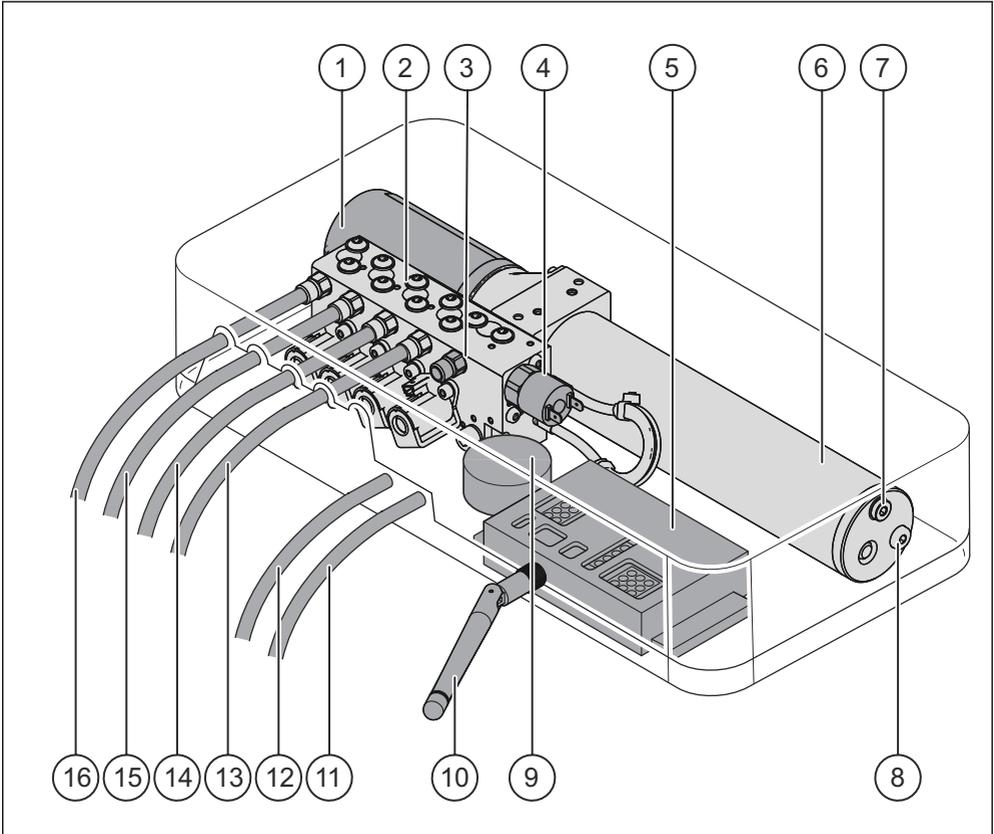


- | | | | |
|---|--------------------------------|----|---|
| 1 | Hydraulic pump | 9 | Fuses |
| 2 | Hydraulic jacks (2x) | 10 | Aluminum spacer |
| 3 | Hoses and electric wirings | 11 | Individual brackets adapted to the caravan |
| 4 | Corner steadies (4x) | 12 | Individual brackets adapted to the caravan (optional) |
| 5 | Touchscreen | 13 | ALKO fill strip |
| 6 | Emergency button | 14 | ALKO adapter plates |
| 7 | Emergency hand pump (optional) | 15 | BPW adapter plates |
| 8 | Main unit | | |



Note: The compact levelling system has a control panel instead of a touchscreen, and does not have 4 corner steadies.

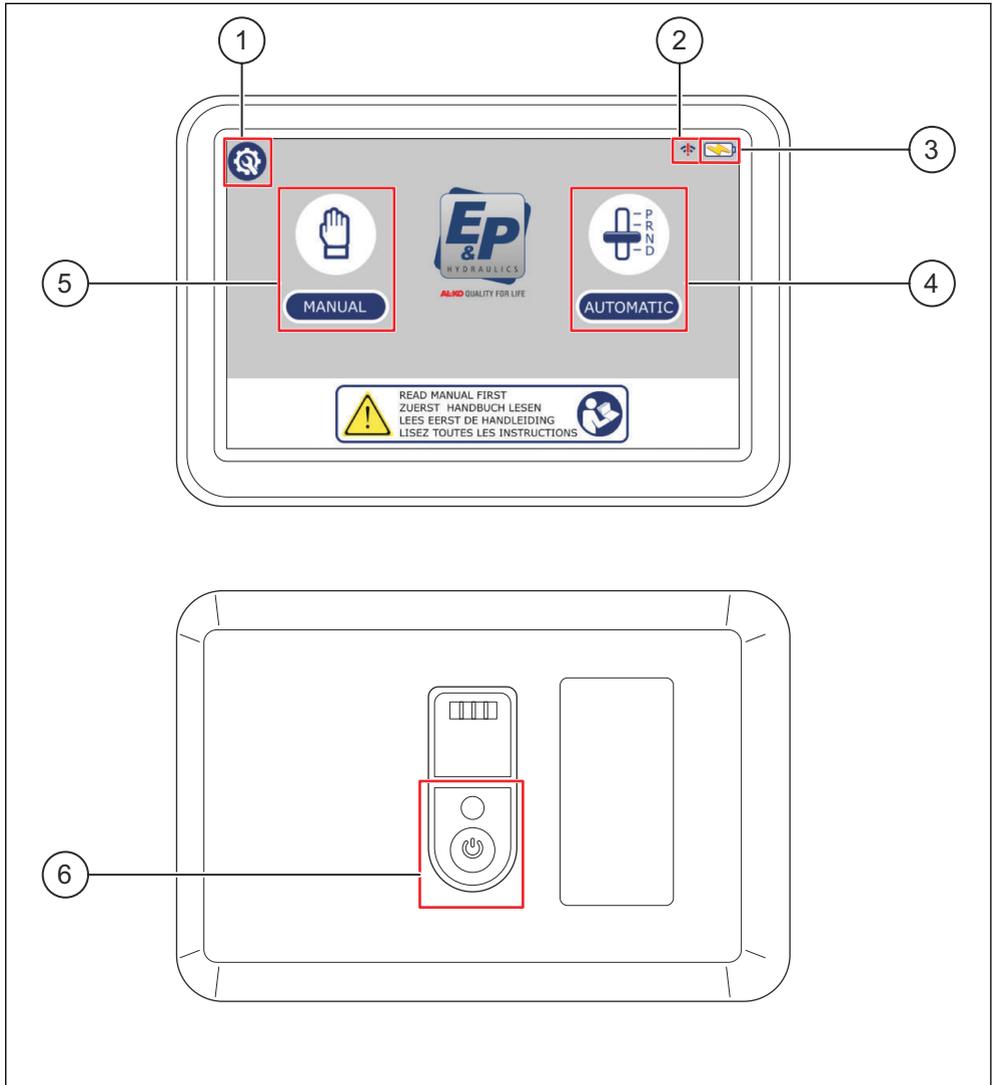
Overview of the hydraulic pump



- | | | | |
|---|------------------------------------|----|---|
| 1 | Electric motor | 9 | Buzzer |
| 2 | Valve block | 10 | Antenna |
| 3 | Return connection | 11 | 12V and ground connection |
| 4 | Pressure valve | 12 | Connection to the control panel |
| 5 | Main unit | 13 | Supply hose to the left hydraulic jack |
| 6 | Oil reservoir | 14 | Supply hose to the right hydraulic jack |
| 7 | Connection to the emergency pump | 15 | Supply hose to the rear corner steadies
(not applicable for the compact system) |
| 8 | Filling hole for the oil reservoir | 16 | Supply hose to the front corner steadies
(not applicable for the compact system) |

Overview of the controls

Overview of the touchscreen



- 1 Settings button
- 2 Signal indicator
- 3 Battery indicator

- 4 Automatic levelling button
- 5 Manual levelling button
- 6 ON/OFF button

Signs on the touchscreen

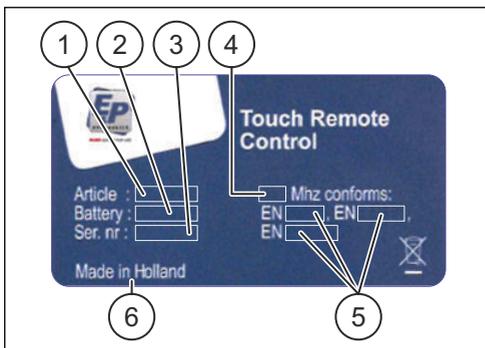
Symbol	Function	Description
	Settings icon	Use this button to change the settings.
	No signal indicator	This sign is shown when the touchscreen is used as a remote controller and there is no connection between the touchscreen and the operation unit.
	Battery status indicator	The battery is fully charged.
	Battery status indicator	The battery is charging.
	Battery status indicator	The battery is empty.
	Manual levelling button	Button on the start screen. Selecting this button brings you to the manual levelling procedure.
	Automatic levelling button	Button on the start screen. Selecting this button brings you to the automatic levelling procedure.
	Notification	Read the manual first.

Symbols and icons used on the touchscreen

Symbol	Function	Description
	Home button	To go to the home screen.
	Stop button	To stop the automatic levelling procedure.
	Automatic levelling button	To automatically level the caravan.
	Retract all jacks button	To automatically retract the jacks.
	Jacks in withdrawn position	When the circle is gray, the jacks are in withdrawn position.
	Jacks in operation	If the circle is yellow, the jacks are in operation.
	Jacks in extended position	If the circle is red, the jacks are in extended position.
	Corner steadies in withdrawn position	If the square is gray, the corner steadies are in withdrawn position.
	Corner steadies in operation	When the square is yellow, the corner steadies are in operation.

Symbol	Function	Description
	Corner steadies in extended position	When the square is red, the corner steadies are in extended position.
	Left side button	To operate the extension of the left jack during the manual levelling procedure.
	Right side button	To operate the extension of the right jack during the manual levelling procedure.
	Front side button	To operate the extension of the front corner steadies during the manual levelling procedure.
	Rear side button	To operate the extension of the rear corner steadies during the manual levelling procedure.
	Spirit level	The spirit level shows the position of the caravan. If the blue circle is in the center of the spirit level, the vehicle is levelled.
	Level indicator	The level indicator has 4 arrows and a circle in the middle. 1 or 2 arrows light up during the manual levelling procedure when the caravan is not yet level. Use the level buttons on the sides where the arrows are yellow. The caravan is levelled when there are no yellow arrows and the circle in the middle is green.

Identification of the touchscreen



- 1 Article name
- 2 Battery
- 3 Serial number

- 4 Radio frequency
- 5 Safety standards
- 6 Origin

Reference	Name	Description
1	Article name	Specific identification name of the touchscreen
2	Battery	Specific battery used for the touchscreen
3	Serial number	Unique identification code of the touchscreen
4	Radio frequency	Ultra high radio frequency used by the touchscreen to communicate
5	Safety standards	Directives applicable to the touchscreen
6	Origin	Country of origin of the touchscreen

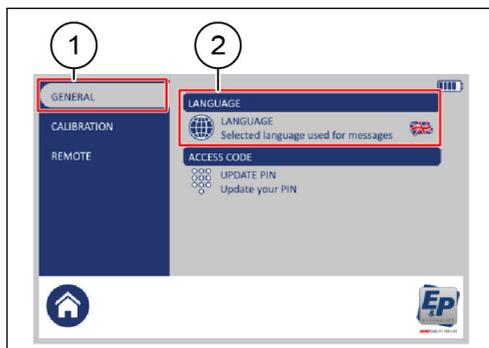
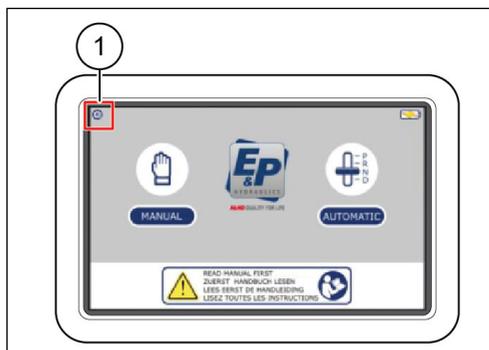
OPERATION

Put the touchscreen into service for the first time

When you use the E&P Hydraulics touchscreen for the first time, you can select your personal language and set the personal access code. These procedures have been done at your dealer or installer. It is possible to change these settings.

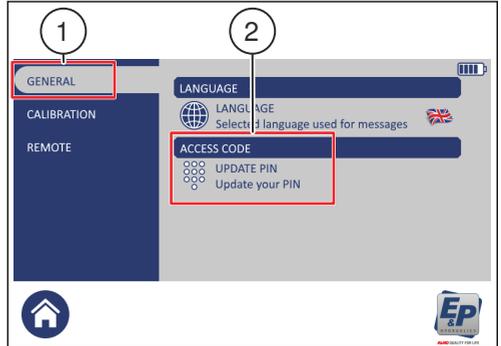
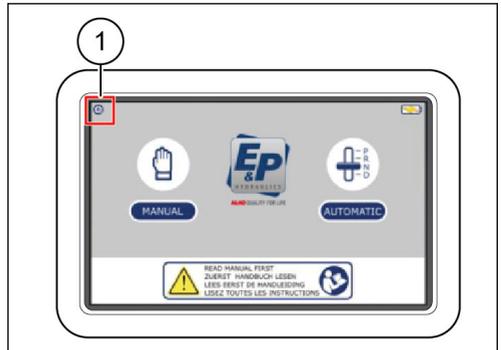
Set the language

1. Touch the settings button (1).
 - ✓ A pop-up keypad shows.
2. Enter the personal access code and push 'OK'.
 - The factory setting personal access code is 0000.
3. Select GENERAL (1) on the touchscreen.
4. Select LANGUAGE (2) on the touchscreen.
5. Select a language.



Set the personal access code

1. Touch the settings button (1).
✓ A pop-up keypad shows.
2. Enter the personal access code and push 'OK'.
 - The factory setting personal access code is 0000.
3. Select GENERAL (1) on the touchscreen.
4. Select UPDATE PIN (2) on the touchscreen.
5. Enter the new personal access code and push 'OK'.



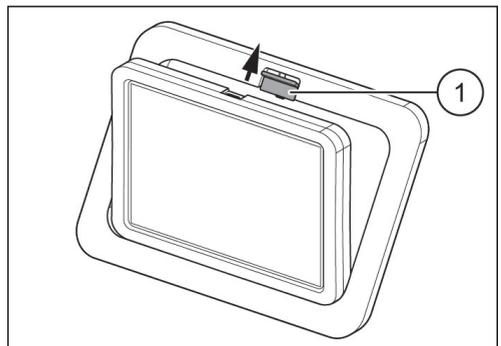
Prepare for operation

Use the device in the fixed location

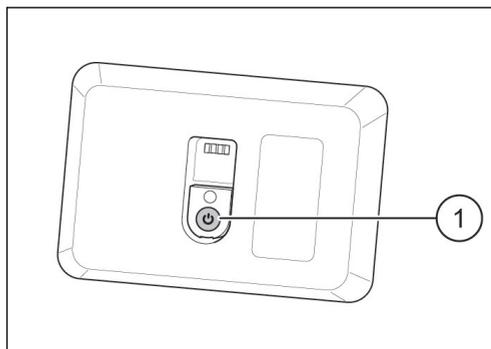
1. Start the touchscreen. Refer to [Start the touchscreen](#).
The touchscreen is prepared for operation in horizontal orientation.

Use the device remotely

1. Push the release slider (1) upwards.
2. Take the touchscreen out of the frame.



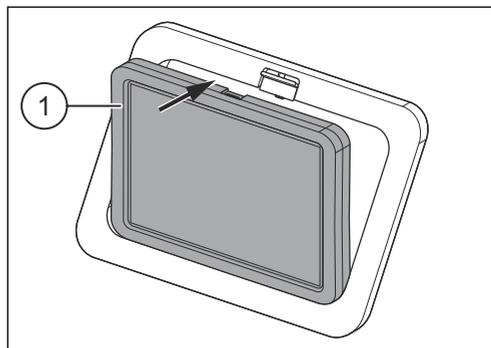
3. Press the ON/OFF button (1) on the back of the touchscreen.



Put the device back into the wall frame

1. Put the touchscreen over the vertical rib at the bottom of the wall frame.
2. Push the touchscreen (1) into the mounting frame.

The touchscreen is locked in the wall frame when you hear a click from the release slider.



Start the touchscreen

The touchscreen can be started in two ways:

- To start the touchscreen in the fixed location, touch the screen.
- To start the touchscreen when it is used remotely, push the ON/OFF button at the back of the touchscreen.

Stop the touchscreen

When not used, the touchscreen automatically switches off after 30 seconds.

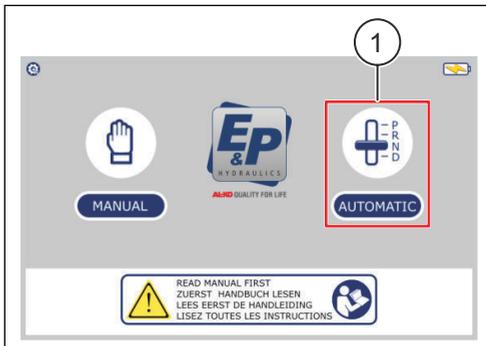
Level the caravan

Read the safety instructions before you start the levelling procedure. Refer to [Safety instructions](#).

Automatic levelling

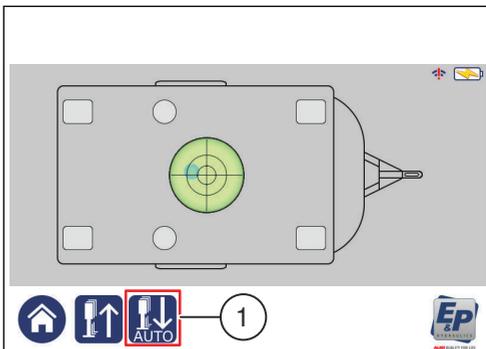
1. Make sure that the handbrake of the caravan is engaged.

- If necessary, use support plates below the footplates of the jacks on the lower side of the caravan to compensate for large height differences.
- Select AUTOMATIC (1) on the touchscreen.



- Select the AUTO button (1) on the touchscreen.
 - ✓ The hydraulic levelling procedure starts.
- If the caravan is not in a correct position to start the levelling procedure, the error "NOSE TOO HIGH" shows on the touchscreen.

- Use the jockey wheel of the caravan to tilt it a few degrees forwards and start the levelling procedure again.

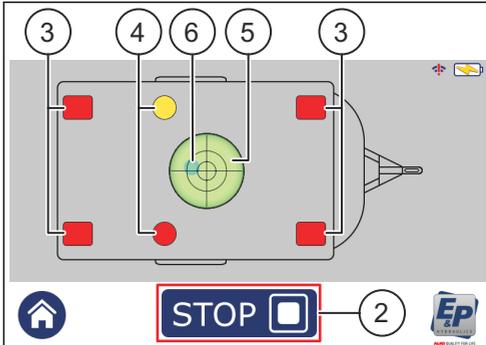


Note: To stop the procedure, push the STOP button (2) on the touchscreen. Before the procedure can be started again, the 'retract all jacks' button must be pushed.

The squares (3) indicate the corner steadies. The circles (4) indicate the hydraulic jacks. The display shows the steps that are done automatically:

- When a circle or square is grey, it indicates a withdrawn position.
- When the circle or square is yellow, the component is in operation.
- When the circle or square is red, it indicates an extended position.

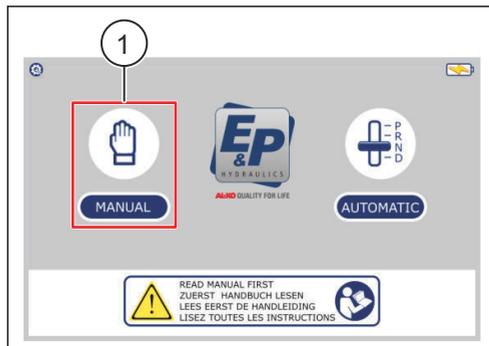
In the spirit level (5) you can see a blue circle (6). When the blue circle is in the middle of the spirit level, the caravan is levelled.



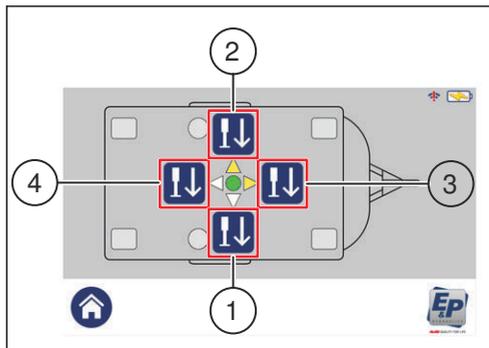
Manual levelling

Use the manual levelling function when it is not possible to automatically level the caravan because of the angle.

1. Make sure that the handbrake of the caravan is engaged.
2. If necessary, use support plates below the footplates of the jacks on the lower side of the caravan to compensate for large height differences.
3. Select MANUAL (1) on the touchscreen.
 - ✓ A new screen shows.



4. It depends on the position of the caravan if you must lift the caravan on the left side or right side first:
 - If the arrow on the left side is yellow, push the right side button (1) and hold it until the right jack touches the ground. Hold the button a while longer to make sure that the jack completely touches the ground.
 - If the arrow on the right side is yellow, push the left side button (2) and hold it until the left jack touches the ground. Hold the button a while longer to make sure that the jack completely touches the ground.



Caution: Always level the caravan on the axle first (left and right side).

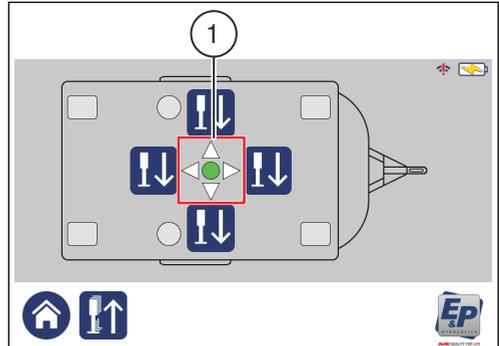
5. Lift the other side of the caravan. The yellow arrow points to this side. Use the right side button (1) or the left side button (2) and hold it until the jack stops automatically.
6. Push the front side button (3) to extend the front corner steadies. When the yellow arrow points to the front, the corner steadies stop automatically.

- Push the rear side button (4) to extend the rear corner steadies. Hold the button until the rear corner steadies touch the ground. Make sure that the foot plate is flat on the ground.



Caution: The rear corner steadies do not stop automatically. Make sure that you do not lift the rear side of the caravan.

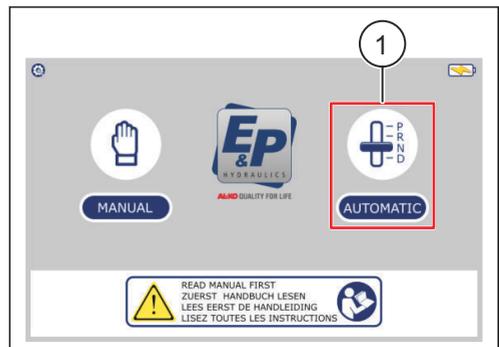
- The caravan is level when there are no yellow arrows and the circle in the middle is green (1).



Retract the jacks

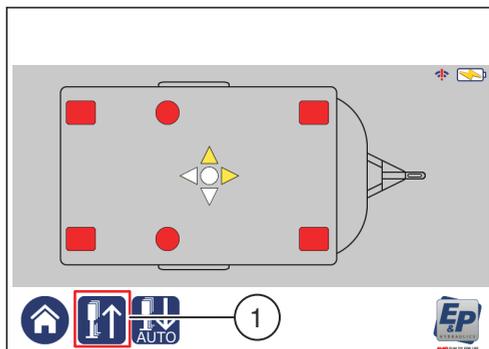
It is only possible to retract the jacks in automatic mode.

- Select AUTOMATIC (1) on the touchscreen.



2. Select the retract all jacks button (1) on the touchscreen one time.
 - ✓ The hydraulic pump starts to retract the jacks.

To cancel the procedure, select the STOP button on the touchscreen.



Emergency operation

Use the back-up buttons



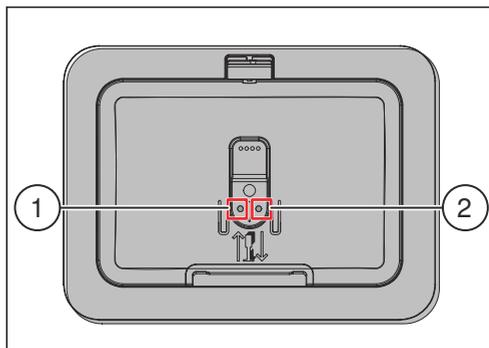
Note: This procedure is only applicable to the Level C System with a touchscreen.

If there is a problem with the touchscreen, the levelling system can also be operated with a pen and the two small holes in the wall frame.

- Push a pen in the hole (1) to automatically retract the jacks and corner steadies.
- Push a pen in the hole (2) to automatically level the caravan.



Note: Use the emergency button in the procedure above does not work. The emergency button automatically retracts the jacks and corner steadies. Refer to [Use the emergency button](#).



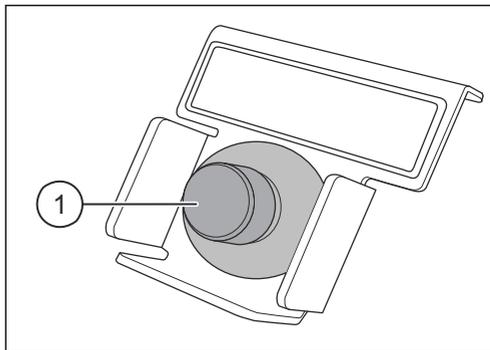
Use the emergency button

If there is a problem with the system, the emergency button automatically retracts the jacks and corner steadies. If you have a compact levelling system installed, refer to [Use the emergency button \(compact system\)](#).



Note: The emergency button only operates if there is sufficient battery power available. If the battery is empty, the jacks and corner steadies can be retracted with the optional emergency hand pump. Refer to *Use the emergency hand pump*.

1. Find the emergency button in the caravan. The emergency button is installed as close to the battery as possible.
2. Push the emergency button (1) and hold it until the hydraulic jacks and corner steadies are fully retracted.



Use the emergency button (compact system)

Do this procedure if you have a compact levelling system installed.

If there is a problem with the system, the emergency button automatically retracts the jacks.



Note: The emergency button only operates if there is sufficient battery power available.

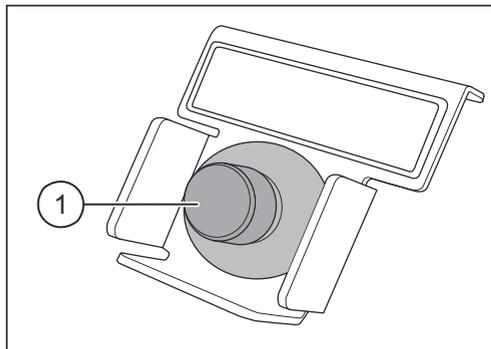
1. Manually retract the four corner steadies of your caravan.



Warning: Failure to do so can cause irreparable damage to the chassis.

2. Find the emergency button in the caravan. The emergency button is installed as close to the battery as possible.

3. Push the emergency button (1) and hold it until the hydraulic jacks are fully retracted.



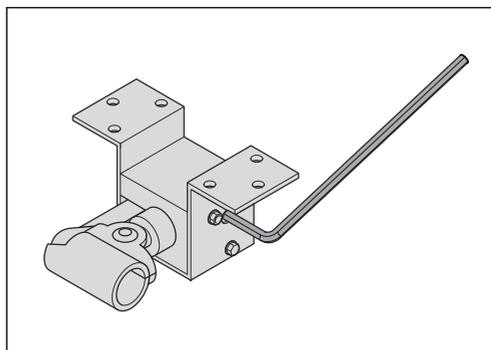
Use the emergency hand pump



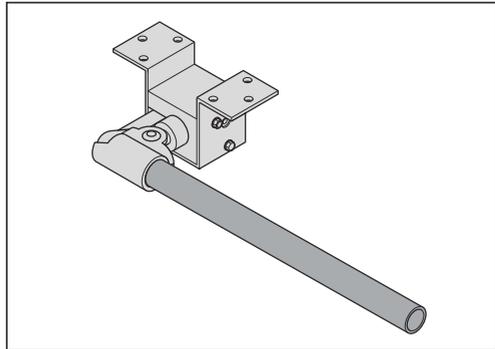
Note: The emergency hand pump is optional. This procedure is only applicable if an emergency hand pump is installed.

The emergency hand pump can operate the system when the electrical system does not work, or if there is not enough battery power for the system to work. The emergency hand pump is installed below the caravan, and is accessible from the side.

1. Turn the gold hexagon bolt on the emergency hand pump clockwise with the supplied hex key until it is open.



2. Put the metal handle in the black holder on the emergency hand pump.
3. Move the metal handle up and down until the hydraulic jacks are withdrawn.
 - ✓ The jacks are withdrawn when you feel pressure during the movement of the handle.
4. Remove the metal handle from the holder on the emergency hand pump.
5. Turn the gold hexagon bolt on the emergency hand pump counterclockwise with the supplied hex key until it locks.



Level the caravan (compact system)

Read the safety instructions before you start the levelling procedure. Refer to [Safety instructions](#).

Automatic levelling (compact system)

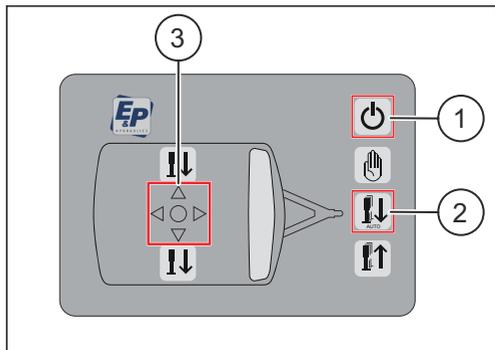


Note: When the caravan leans too steeply, it is not possible to automatically level the caravan. If necessary, put the caravan on a flatter surface, or use the manual levelling procedure.

1. Make sure that the handbrake of the caravan is engaged.
2. Push the 'ON/OFF' button (1) on the main panel to set the levelling system to ON.
3. Push the AUTOMATIC MODE button (2) on the main panel.

The hydraulic levelling procedure starts.

- The two hydraulic jacks level the caravan horizontally.
- The circle in the LED indicator (3) lights up green when the automatic procedure is complete. It depends on the position of the caravan if the front arrow in the LED indicator lights up yellow, or if the back arrow light up yellow.



4. It depends on the position of the caravan if you must adjust the front side or the rear side of the caravan.

- If the arrow on the front side is yellow (1), use the jockey wheel of your caravan to lift the front of the caravan.
- If the arrow on the rear side is yellow (2), turn the jockey wheel of your caravan to lift the rear of the caravan.

✓ An audio signal sounds when the caravan is level.

The caravan is level when the circle in the middle of the LED indicator lights up green and there are no yellow arrows (3).

5. Push the 'ON/OFF' button on the main panel to set the levelling system to OFF.
6. Manually extend the four corner steadies of the caravan to make sure that the caravan is stable.

Manual levelling (compact system)

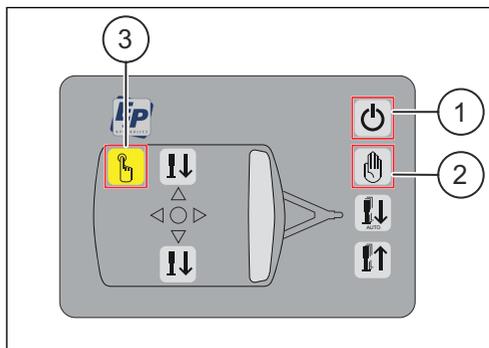
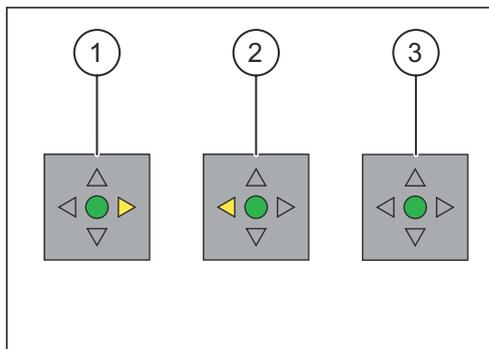
Use the manual levelling function when it is not possible to automatically level the caravan.

1. Make sure that the handbrake of the caravan is engaged.
2. Use support plates below the footplates of the jacks on the lower side of the caravan to compensate for height differences.
3. Push the 'ON/OFF' button (1) on the main panel to set the levelling system to ON.

✓ The E&P-logo LED lights up.

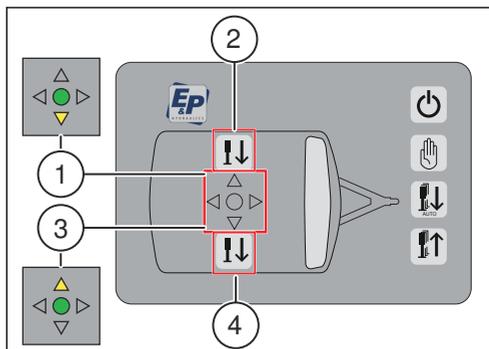
4. Push the MANUAL MODE button (2) on the main panel.

✓ The 'manual mode' indicator (3) lights up.



5. It depends on the position of the caravan if you must lift the caravan on the left side or right side first:

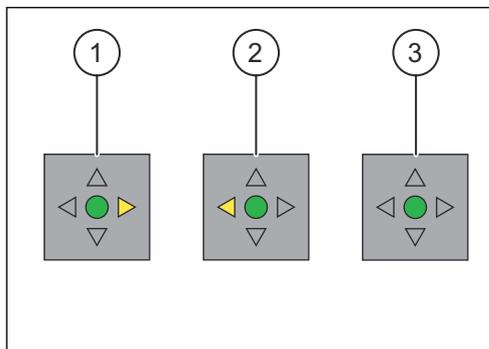
- If the arrow on the right side is yellow (1), push the left side button (2) and hold it until the left jack touches the ground.
- If the arrow on the left side is yellow (3), push the right side button (4) and hold it until the right jack touches the ground.



6. Lift the other side of the caravan. The yellow arrow points to this side. Use the left side button (2) or the right side button (4) and hold it until the jack stops automatically.

7. It depends on the position of the caravan if you must adjust the front side or the rear side of the caravan.

- If the arrow on the front side is yellow (1), use the jockey wheel of your caravan to lift the front of the caravan.
- If the arrow on the rear side is yellow (2), turn the jockey wheel of your caravan to lift the rear of the caravan.



✓ An audio signal sounds when the caravan is level.

The caravan is level when the circle in the middle of the LED indicator lights up green and there are no yellow arrows (3).

8. Push the 'ON/OFF' button on the main panel to set the levelling system to OFF.
9. Manually extend the four corner steadies of the caravan to make sure that the caravan is stable.

Retract the jacks (compact system)

Retract the jacks of a freestanding caravan (compact system)

1. Manually retract the four corner steadies of the caravan.

2. Push the 'ON/OFF' button (1) on the main panel to set the levelling system to ON.

✓ The E&P-logo LED lights up.

3. Push the 'retract all jacks' button (2) on the main panel.

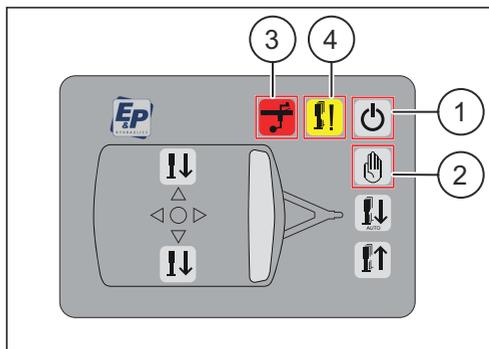
✓ The 'jockey wheel' indicator lights up red (3).

4. Adjust the jockey wheel until the levelling system gives the audio signal.

5. Push the 'retract all jacks' button (2) on the main panel.

✓ The hydraulic pump starts to retract the jacks. The 'jacks not fully retracted' indicator (4) goes out when all the hydraulic jacks are fully retracted.

6. Push the 'ON/OFF' (1) button on the main panel to set the levelling system to OFF.



Retract the jacks of a caravan connected to the tow bar (compact system)

If the caravan does not stand on its jockey wheel, but is attached to the tow bar, you must follow this procedure to retract the jacks.

1. Push the ON/OFF button (1) on the main panel to set the levelling system to ON.

✓ The E&P-logo LED lights up.

2. Push the 'retract all jacks' button (2) on the main panel.

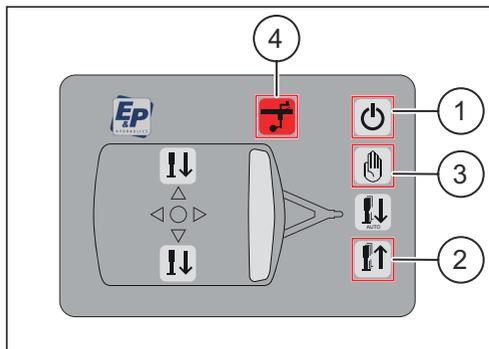
3. Push the MANUAL MODE button (3) on the main panel.

✓ The 'jockey wheel' indicator (4) lights up and an audio signal sounds.

4. Push and hold the 'retract all jacks' button (2) until the audio signal stops.

✓ The 'jockey wheel' indicator (4) goes out.

5. Push the 'ON/OFF' button on the main panel to set the levelling system to OFF.



MAINTENANCE

Maintenance schedule



Warning: Before maintenance, a qualified person must put the front and rear axles of the vehicle on suitable axle stands.

The E&P Hydraulics Level C System does not have parts that must receive periodic maintenance. When parts are disassembled, the warranty becomes invalid. If necessary, parts can be replaced or repaired by your E&P Hydraulics dealer/installer.

Preventive maintenance

Part or adjustment	Frequency	Procedure
Hydraulic oil level	Regularly	Do a check on the oil level when the jacks are fully retracted. If necessary, fill the tank with oil. Make sure that the filling port is at a 10 o'clock position when you fill the pump with oil. If it is not at a 10 o'clock position, the system can be overfilled or underfilled. Fill the tank until oil comes out of the filling port.
		Make sure that the quality of the hydraulic oil is good. If necessary, replace the hydraulic oil.
		 <p>Caution: Do not use old oil. E&P Hydraulics recommends the use of Pentosin CHF 11S.</p>
		 <p>Caution: With cold weather conditions, use a special type of oil for low temperatures. Speak to E&P Hydraulics or a recognized dealer before using a different type of oil.</p>
Electronic cables and connections	Regularly	Do a check on the electronic cables and connections.
Hydraulic jacks	Regularly	Remove dirt, sand, mud and other materials that can prevent the operation of the hydraulic levelling system.
		If the jacks stay extended for a longer period of time, the piston rods must be sprayed with a silicone lubricant. Do this more regularly in a salty environment.
Piston rods	Regularly	Do a check on the piston rods for rail tracks and damages.

Part or adjustment	Frequency	Procedure
		Clean the piston rods and spray it with a silicone spray.
Cylinders and hose connections	Yearly	Spray the cylinders, including hose connections, with an anti-corrosive agent when the supports are retracted.

Maintenance for cold weather

E&P Hydraulics recommends the follow safety and precaution measures in winter conditions:

- Make sure that the jacks and corner steadies are clean.
- Clean the cylinder rod, and spray it with a silicone lubricant.
- Make sure that there is no dirt on the foot plates, especially at the bottom.
- Put the caravan in a location as clean and flat as possible.
- Put a piece of rubber or carpet between the frozen surface and the footplates.
- If necessary, remove snow and ice from the jacks and corner steadies.



Note: The oil in the system can endure temperatures of -30°C to 50°C.

TROUBLESHOOTING

General troubleshooting procedure

If there are any error messages, make sure that:

- The battery has sufficient voltage.
- The oil level is correct.
- The jacks do not have damages.
- The cables do not have damages.

If this does not solve the problem, there could be something wrong with the drive units. When you think the drive units do not operate correctly, speak to your E&P Hydraulics dealer/installer.

Error descriptions

Symbol	Description	Remedy
<p>NOSE TOO HIGH</p>  <p>Nose is too high, please lower the jockey wheel</p>	<p>In automatic levelling, the caravan must be tilted some degrees forward. The system shows if the caravan is sufficiently level. If the caravan is not sufficiently levelled, the automatic levelling procedure is not possible.</p>	<p>Lower the jockey wheel.</p>
<p>BATTERY ERROR</p>  <p>Vehicle battery empty Charge battery</p>	<p>The battery does not have sufficient power for the levelling system to operate.</p>	<p>Charge the battery.</p>
<p>SLOPE ANGLE ERROR</p>  <p>Angle of incline too large use manual operation</p>	<p>The inclination is too large to automatically level the caravan.</p>	<p>Manually level the caravan. If the jacks are too short, put blocks below the jacks.</p> <div style="border: 1px solid gray; padding: 5px; background-color: #f0f0f0;"> <p>Warning:</p> <ul style="list-style-type: none"> ■ One or more wheels could come off the ground. ■ The caravan could move because of a slippery surface. </div>

Symbol	Description	Remedy
<p>SYSTEM ERROR</p>  <p>(1) Overheat error Wait for cool down</p>	The pump has operated for too long and is too hot.	Let the pump cool down before you use the levelling system.
<p>SYSTEM ERROR</p>  <p>(2) Retract error Jacks not retracted</p>	The jacks could not retract. It is possible that the system has not sufficient oil, or that there is a defect in the system.	Speak to your dealer. <p>Warning: Before you drive the caravan, make sure that the four jacks are fully retracted. Refer to <i>Retract the jacks</i>.</p>
<p>SYSTEM ERROR</p>  <p>(3) Jack down time error No movement felt</p>	The jacks did not correctly touch the ground. It is possible the jacks sank into the ground, or there is not sufficient oil in the system.	Retract the jacks. Extend the jacks and monitor the movement of the jacks.
<p>SYSTEM ERROR</p>  <p>(4) Level movement error possible jacks too short</p>	The levelling procedure could not be completed. It is possible that the jacks are too short or that the surface is uneven.	Manually level the caravan, move the caravan to a flatter area, or put blocks below the retracted jacks and do the procedure again.
<p>SYSTEM ERROR</p>  <p>(5) Movement time error</p>	The levelling procedure could not be completed. It is possible the jacks sank into the ground, or there is not sufficient oil in the system.	Retract the jacks. Extend the jacks and monitor the movement of the jacks.

Symbol	Description	Remedy
 <p>SYSTEM ERROR (8) Wrong movement Left-right inverted</p>	The caravan makes an unexpected movement during the levelling procedure. The cause could be wind, one or more jacks sank into the ground, or someone moved the caravan.	Do the levelling procedure again.
 <p>SYSTEM ERROR (9) Wrong movement Front-rear inverted</p>	The caravan makes an unexpected movement during the levelling procedure. The cause could be wind, one or more jacks sank into the ground, or someone moved the caravan.	Do the levelling procedure again.

Troubleshooting table

Problem	Possible cause	Remedy
The hydraulic levelling system does not start.	The battery is empty.	Charge the battery.
The 'battery low' LED is on,	The battery is almost empty.	Charge the battery.
The LED message 'slope too steep' shows.	The nose of the caravan is too high.	Lower the height of the nose at the jockey wheel.
The jacks do not (fully) extend when the pump operates.	The oil level is too low.	Do a check on the oil level. If necessary, fill the tank when the jacks are fully retracted.
	The valve or the pump does not operate correctly.	Clean, repair or change the valve or pump.
	There is no electrical connection between the operation system and the valve.	Do a check on the cables for voltage loss. If necessary, repair or replace the cables.



Note: For all other problems, speak to your dealer/installer.

Reset the touchscreen settings

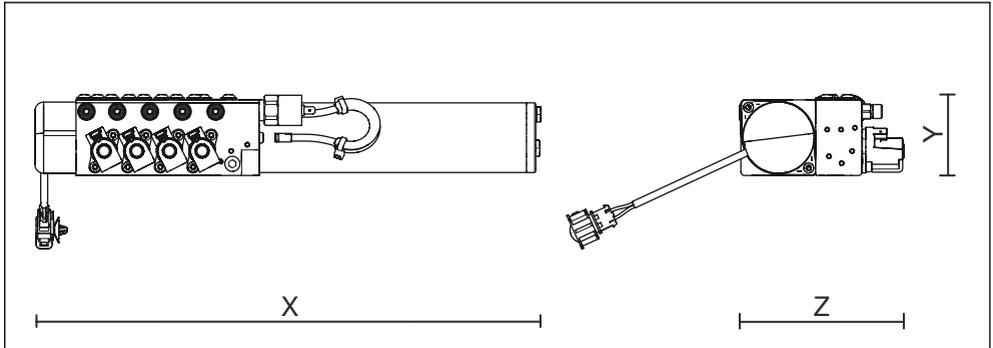
Use this procedure if during installation the wrong language or wrong vehicle type was chosen, or if you want to reset the system.

1. Touch the settings button.
 - ✓ A pop-up keypad shows.
2. Enter code '374' and push 'OK'.
3. Enter the code '1234' and push 'OK'.
4. Select DEALER on the touchscreen.
 - Select SYSTEM CONFIGURATION to reset the vehicle type.
 - Select RESET LANGUAGE SELECTION to reset the language.
 - Select FACTORY RESET to set the system to the factory settings.
 - ✓ A pop-up keypad shows.
5. Push 'YES'.
 - ✓ A pop-up keypad shows.
6. Push 'OK'.

TECHNICAL SPECIFICATIONS

Specifications of the hydraulic pump

Dimensions and mass



Item	Value
Length (X)	410 mm
Height (Y)	70 mm
Width (Z)	150 mm
Mass	4,000 grams

Electrical data

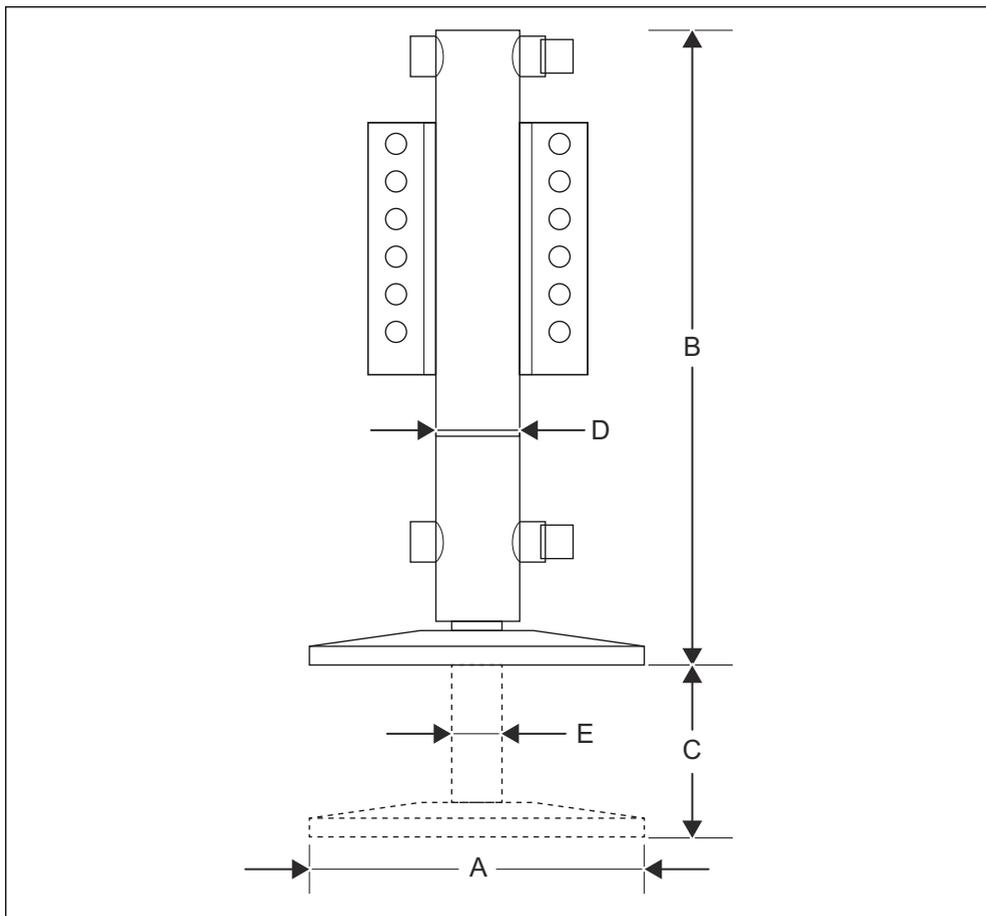
Item	Value
Power supply	12 Vdc

Ambient conditions

Item	Value
Temperature	-20°C to +50°C

Specifications of the hydraulic jacks

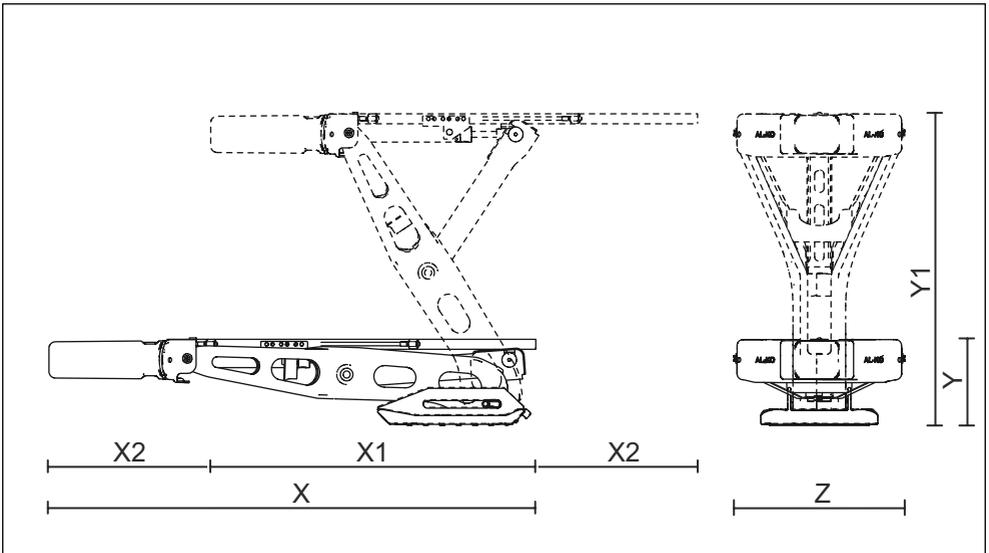
Dimensions and mass



Item	Value
Baseplate (A)	Ø 180 mm
Total length (B)	300 mm
Stroke (C)	190 mm
Cylinder tube (D)	Ø 50 mm
Piston rod (E)	Ø 25 mm
Mass	4,600 grams

Specifications of the corner steadies

Dimensions and mass



Item	Value
Length (X)	830 mm
Length (X1)	285 mm
Length (X2)	565 mm
Height (Y)	170 mm
Height (Y1)	530 mm
Width (Z)	290 mm
Mass	6,100 grams



ALKO QUALITY FOR LIFE

E&P HYDRAULICS
Haverstraat 143
2153 GD, Nieuw Vennepe
The Netherlands
+31 (0)25 2626151
info@ep-hydraulics.com
www.ep-hydraulics.com