



LEVELSYSTEM
CARAVAN
COMPACT



» **HYDRAULIC LEVELSYSTEM** «

CARAVAN COMPACT
(2 supports)

ENGLISH

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Limited Warranty

Under all circumstances this manual should be read thoroughly, before installing and/or using the product. In no event shall E&P Hydraulics be liable for any direct, indirect, special consequential or incidental damages arising out of the use or inability to use this documentation or product, even if advised of the possibility of such damages.

E&P Hydraulics reserves the right to change parts of the device at any time without preceding or direct announcement to the client.

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Important

This equipment has been tested and found to comply with the limits valid for this device, pursuant to EN300220, EN301489, EN60950 rules conform 868MHZ. These limits are designed to provide reasonable protection against harmful interference when this product is operated in a commercial environment. Any unauthorized changes or modifications to this device could void the user's authority to operate this equipment.

For CE-countries:

This device is in conformity with the CE standards. Please note that this device can ONLY be used with the official E&P Hydraulics level system parts to conform to these standards.



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» Preface

The E&P Hydraulics Compact Levelsystem will allow your caravan to be automatically levelled and/or stabilised with one push of a button.

Benefits:

- Increased stability when you walk through your caravan, or if it is windy.
- Improved shower and sink drainage.
- Perfectly level sleeping position.

The ergonomic design ensures effortless handling and the modern good looks will automatically enhance your leisure environment. It is based on proven E&P Hydraulics technology which forms the basis of all our E&P Hydraulics products. After installation one button can operate the entire system. As within the E&P Hydraulics strategic vision, this products is 100% user friendly and reliable.

This philosophy does not only apply to our customers (end users), but the technicians installing the system are very important to us also. This product greatly depends on a proper, professional installation. That is the reason why E&P Hydraulics do all they can do to support the people who are responsible for installing our products for you.

This manual is part of our policy. In this manual we explain how to use the general characteristics as easily and efficiently as possible. Carefully follow the instructions for the installation, because installing the E&P Hydraulics Levelsystem is a precise job. Fully installing the system requires a high level of skill. After all, we are dealing with equipment that must be able to withstand huge forces, something that is often underrated by people with insufficient technical training. If the installation is not performed correctly, serious damages could result in a short time, including personal injury. Therefore this system may only be installed by professional technicians with sufficient practical experience and thorough relevant technical training. At all times, the installer will bear sole responsibility for the assembly of the system.

This product is based on hundreds of test hours as well as many successful installations. If you follow this step-by-step manual, you will see what a wonderful, user friendly, high quality product this is. However there will always be aspects that can be improved. If you have any suggestions, notes or questions concerning this product or manual, please do not hesitate to contact us.

On behalf of,
E&P Hydraulics

1. The E&P Hydraulics Compact Levelsystem

1.1 Operating the Compact Levelsystem

The E&P Hydraulics levelling system is an electronically/hydraulically driven system.

A hydraulic pump is powered by a 12V direct current motor. This will pump hydraulic oil through a system of hydraulic hoses to two hydraulic axle jacks, with the aim of stabilising and levelling the caravan. Mounted to this pump are the oil reservoir, the valve block and solenoid (magnetic) valves.

The Compact Levelsystem is electronically controlled by an operating system or so called main unit, which is mounted at a central location beneath the caravan.

The Compact Levelsystem can be operated either fully automatically or manually by means of a built-in control panel and/or (optional) remote control. Most frequently the control panel is mounted in the sidewall at the entrance to the caravan.

The two axle jacks have the weight bearing and levelling capacity your caravan requires. Each axle jack has a 180mm foot plate on a flexible pivot, guaranteeing the maximum firmness possible on any surface.



THE COMPACT LEVELSYSTEM CONSISTS OF:

- a. Axle jacks (2 pcs)
- b. Control panel
- c. Emergency pushbutton
- d. Protective casing (pump housing)
- e. Hydraulic pump
- f. Operating system (main unit)



OPTIONAL EXTRAS:

- g. Remote control
- h. Emergency hand pump

The E&P Hydraulics Compact Levelsystem *(continued)*

1.2 Using the Compact Levelsystem

The Compact Levelsystem is designed to create a stable and horizontal position for your caravan (the maximum slope of which it is possible to level is 8%).

The caravan can be stabilised via the control panel or the (optional) remote control.

With the electronic spirit level indicator, the caravan is adjusted horizontally over its complete width (transversal) with the aid of the two axle jacks.

The caravan is then manually adjusted in the longitudinal direction with the aid of the jockey-wheel.

Finally the caravan can be manually stabilised by adjusting the four corner supports.

1.3 Specific characteristics of the Compact Levelsystem

- Automatically extending the axle jacks from a retracted position.
- Automatically retracting the axle jacks from an extended position.
- Automatically or manually levelling using the axle jacks.



The E&P Hydraulics Compact Levelsystem *(continued)*

1.4 Operating instructions

Before operating the system, the following points must be observed:

- Make sure the ground is sufficiently even and there are no holes and/other obstructions present.
- Place the caravan on a firm footing, otherwise the axle supports may sink into the ground.
- Never use the system when there is anything attached to the caravan, such as an awning or a canopy.

The following safety precautions must be observed when positioning the caravan:

- The caravan must be unhitched from its towing vehicle.
- Apply the caravan handbrake securely.
- Make sure no one is in the vicinity of the caravan during operation.
- Note there are no loose objects under the caravan when levelling.
- Make sure no one is inside the caravan when levelling is being carried out.
- An acoustic signal will be sounded during the levelling process.
- The levelling program can be stopped at any time by pressing the “ON / OFF” button on the control panel or (optional) remote control.

The following safety precautions must be observed when driving off:

- **IMPORTANT!** BEFORE automatically retracting the axle jacks, make sure all four corner supports have been fully withdrawn. By not doing so there is a risk the caravan could be damaged caused by friction in the chassis.

2. Safety warnings

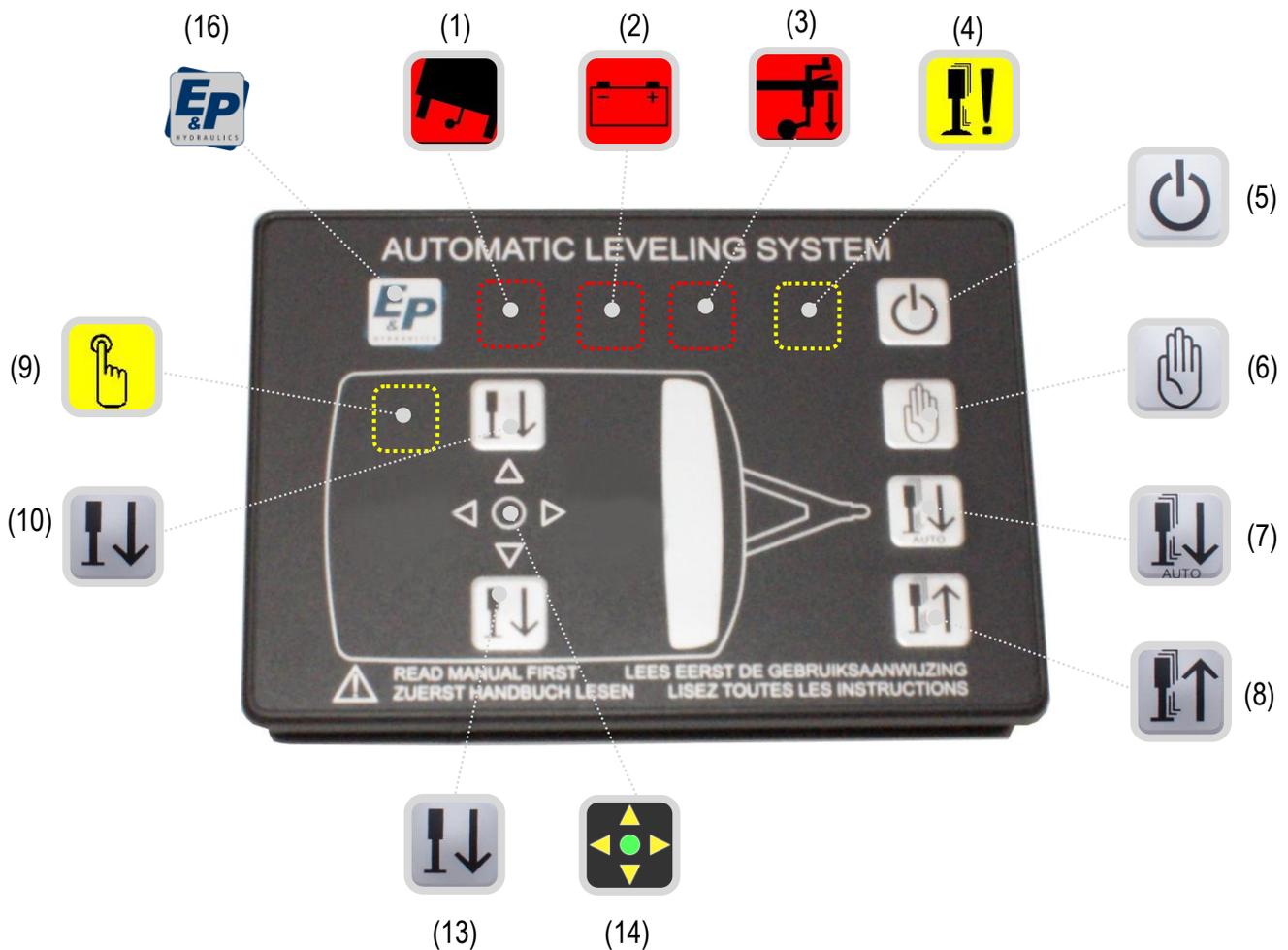
Failure to observe the following warnings may lead to damage to the caravan and/or serious physical injuries.

- Using the E&P Hydraulics levelling system for purposes other than supporting the caravan is officially forbidden according to the E&P Hydraulics limited warranty.
- This product is exclusively developed as a levelling system and is not designed to be used for other work underneath the caravan. If the system is utilised to help with changing a wheel, it is the responsibility of the user to ensure the caravan is secured safely in position. Never lie underneath a jacked-up vehicle, as this is dangerous and could result in serious injury! Please always refer to your caravan manufacturer's recommended jacking procedures.
- When the system is operating, all persons and animals should keep their distance.
- Body parts (e.g. hands and eyes) should never come into contact with released fluids. Oil leaving the hydraulic levelling system may be under high pressure and could cause serious injuries to the skin. Consult a doctor immediately in case of an accident.
- The caravan should be parked on a solid, non-slippery surface. The parking location must be free of holes and free of waste and surrounding objects.
- If the caravan is parked on very soft soil, you must place a support plate under each jack in order to distribute the weight.
- Ensure the installation of the hydraulic Levelsystem is performed by a skilled mechanic with sufficient practical experience and technical E&P Hydraulics training.
- In case of repairs/malfunctions to the hydraulic Levelsystem: know what you are doing. Never try to repair it yourself, but consult your installer or dealer.
- Fully read this user manual before using the hydraulic Levelsystem.
- After deploying the hydraulic Levelsystem ALWAYS inspect around the caravan, just to be sure the caravan now stands stable (and both hydraulic axle jacks are on the ground).
- **VERY IMPORTANT!** Before driving off, check to make sure all supports have been fully retracted.

3. Control functions

3.1 Functions on the control panel

The below diagram shows the appearance of the control panel. By using the control panel (or remote control, see chapter 3.2) you can operate the hydraulic axle jacks. See also chapter 3.3 for the extended function declaration concerning buttons and LED Indicator's.



Function declaration:

- | | |
|---|------------------------------|
| (1) LED: Slope too steep | (9) LED: Manual mode |
| (2) LED: Battery low voltage | (10) Button: Left axle jack |
| (3) LED: Front wheel | |
| (4) LED: Axle jacks not (fully) retracted | |
| (5) Button: ON / OFF | (13) Button: Right axle jack |
| (6) Button: Manual mode | (14) LED: Level indicator |
| (7) Button: Automatic mode | |
| (8) Button: Retract axle jacks | (16) LED: E&P logo |

3.2 Functions on the remote control

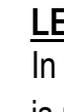
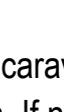
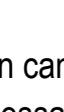
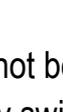
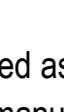
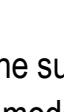
The below diagram shows the appearance of the remote control. By using the remote control you can operate the hydraulic axle jacks. See also chapter 3.3 for the extended function declaration concerning buttons and LED indicators.



Function declaration:

- | | |
|---|--------------------------------------|
| (1) LED: Slope too steep | (9) LED: Manual mode |
| (2) LED: Battery low voltage | (10) Button: Left axle jack |
| (3) LED: Front wheel | |
| (4) LED: Axle jacks not (fully) retracted | |
| (5) Button: ON / OFF | (13) Button: Right axle jack |
| (6) Button: Manual mode | (14) LED: Level indicator |
| (7) Button: Automatic mode | (15) LED: Remote control battery low |
| (8) Button: Retract axle jacks | |

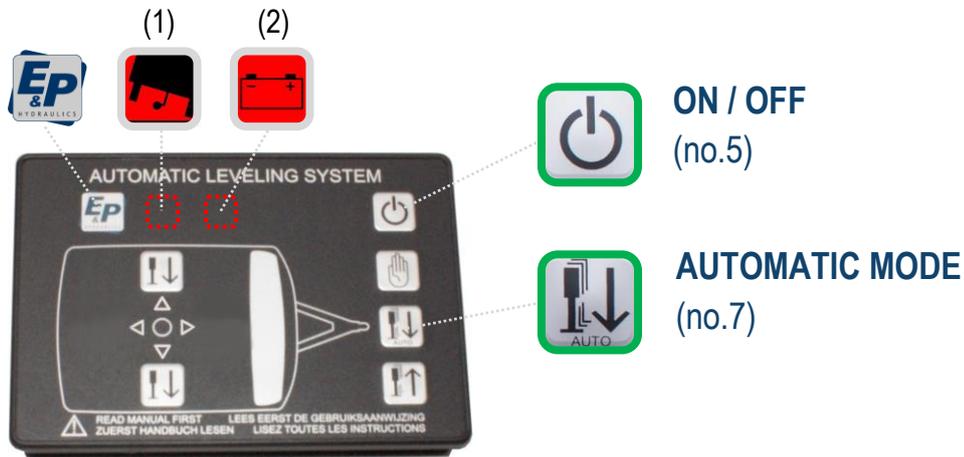
3.3 Extensive function declaration

(1)		SLOPE TOO STEEP	LEDs In this position the caravan cannot be levelled as the surface is not even enough. If necessary switch to manual mode.
(2)		BATTERY LOW VOLTAGE	The battery is flat or the voltage is too low to be able to work safely.
(3)		FRONT WHEEL	ONLY visible at the withdrawal of the axle jacks.
(4)		AXLE JACKS NOT FULLY RETRACTED	One or more axle jacks are extended or not fully retracted.
(9)		MANUAL MODE	Indicates the caravan can now be brought to the correct level manually.
(14)		LEVEL (zero point)	Spirit level indicator. Amber arrows show decline. Green circle shows level has been achieved.
(15)		BATTERY 9V VOLTAGE	The battery voltage of the remote control is too low. (only present on the remote control)
(16)		E&P LOGO	Indicates the Levelsystem is switched on. (only present on the control panel)
			<u>BUTTONS</u>
(5)		ON / OFF	Switches the Levelsystem on or off.
(6)		MANUAL MODE	Switches the Levelsystem into manual mode for levelling the caravan.
(7)		AUTOMATIC MODE	Switches the Levelsystem into automatic mode for levelling the caravan.
(8)		RETRACT AXLE JACKS	Automatically retracts the two axle jacks.
(10)		LEFT AXLE JACK	Controls retracting and extending the left axle jack.
(13)		RIGHT AXLE JACK	Controls retracting and extending the right axle jack.

4. Operating the Compact Levelsystem

4.1 Automatic levelling

The procedure for automatic deployment/extension of the axle supports is as follows.



Step 1 Press 1 x on the “**ON / OFF**” button (no.5) to switch the Levelsystem ON.



The “E&P logo” LED lights up, indicating the Levelsystem is switched on.



When there is insufficient or no battery voltage, the LED indicator “LOW VOLTAGE” (no.2) lights up.



When the caravan leans too steeply, the LED indicator “SLOPE TOO STEEP” (no.1) lights up.

NOTE: When the caravan leans too steeply, the caravan cannot be automatically levelled. You now have two options: Stop the levelling procedure and place the caravan on a flatter surface and start again with automatic levelling procedure OR continue with the manual levelling procedure (section 4.2) after putting some shims or blocks under the axle support on the low side of the caravan.



Step 2 Press 1 x on the “**AUTOMATIC MODE**” button (no.7) to start the automatic levelling procedure.

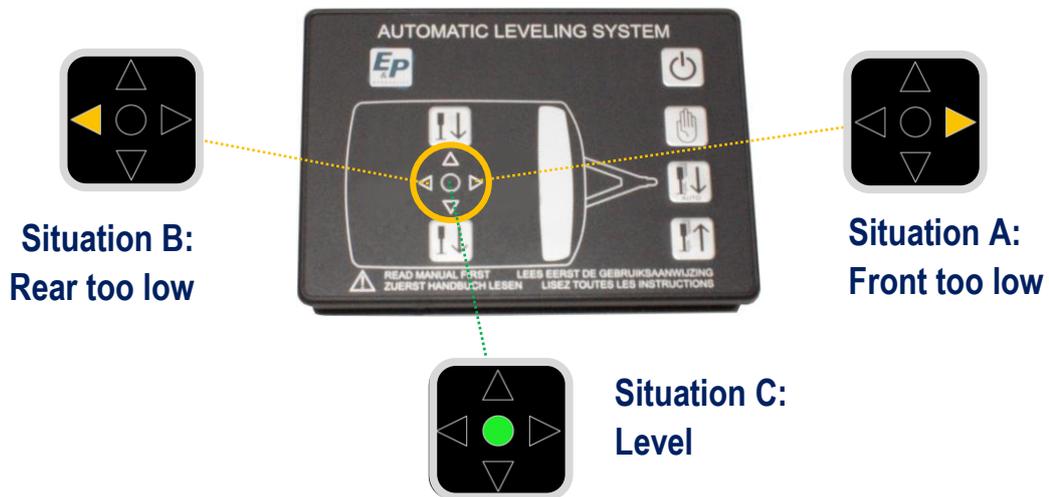
With the electronic spirit level, the caravan is adjusted horizontally over its complete width with the aid of the two axle supports.

(A)  When the levelling procedure is **complete**, the LED indicator “LEVEL” (no.14) lights up GREEN.

(B)  Depending on the position of the caravan, there could be two possibilities: Front side stands too low (A) OR Rear side stands too low (B).

4.1 Automatic levelling (continued)

Step 3 Adjusting the longitudinal (length) position



Depending on the longitudinal position of the caravan one of the above orange arrows may light up. Depending on which arrow lights up (front side or rear side) you should adjust the jockey-wheel so the orange arrow ceases to be lit. As an added aid, the system produces an audio signal when the caravan is completely level in both the width and length position.

- If the arrow is pointing towards the front of the caravan then you should turn the jockey-wheel so the caravan raises at the front (**situation A**)
- If the arrow is pointing towards the rear of the caravan then you should turn the jockey-wheel so the caravan raises at the rear (**situation B**)
- When the caravan is level over its width and length the LED Indicator (no.14) lights up GREEN without any of the surrounding orange arrows (**situation C**)

NOTE: When using a remote control, you can observe the adjustment in the length position whilst you are at the front wheel. When not using the remote control you can listen for the audio signal to sound once the caravan has taken its correct (levelled) position.



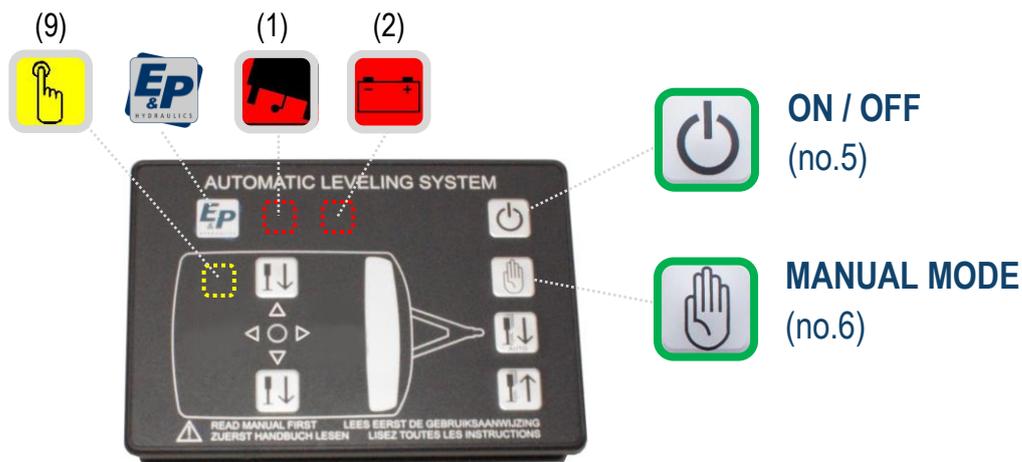
Step 4 Press 1 x on the “**ON / OFF**” button (no.5) to switch the Levelsystem OFF.

Step 5 Finally, the four corner supports can be deployed by hand so the caravan stands completely stable.

4.2 Manual levelling

The procedure for manual deployment/extension of the axle supports is as follows: The manual levelling function is mainly used when automatic levelling is not possible due to the caravan being on too great a slope.

NOTE: On the side where the caravan is lowest, fill the space under the axle jack (footplate) with boards or blocks to compensate for the difference in height. This will avoid the risk of not being able to level and will limit the chance of the hydraulic jacks running out of stroke.



 **Step 1** Press 1 x on the “**ON / OFF**” button (no.5) to switch the Levelsystem ON.

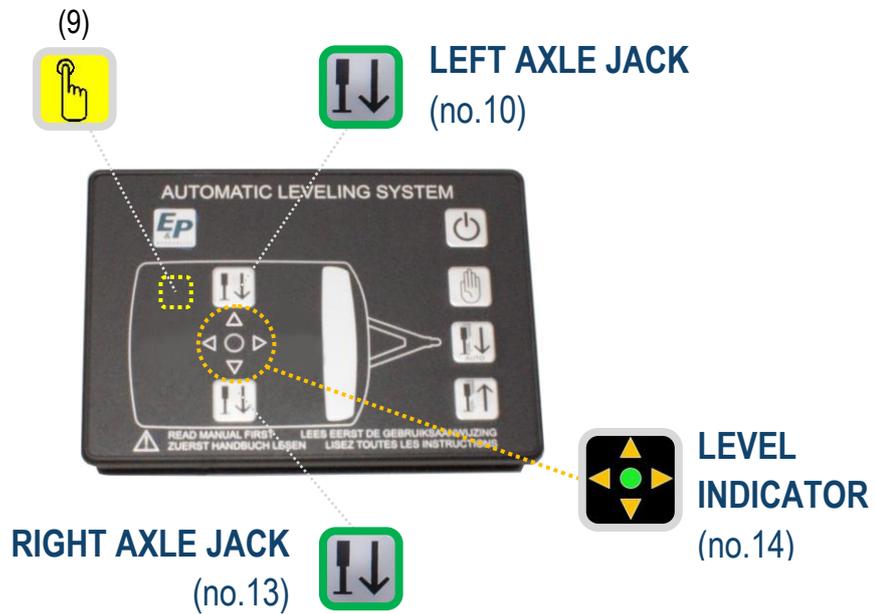
 The “E&P logo” LED lights up, indicating the Levelsystem is switched on.

 When there is insufficient or no battery voltage, the LED Indicator “LOW VOLTAGE” (no.2) lights up.

 **Step 2** Press 1 x on the “**MANUAL MODE**” button (no.6).

 The LED Indicator “MANUAL MODE” (no.9) lights up, indicating the manual levelling procedure may begin.

4.2 Manual levelling (continued)



Step 3 In most common cases, two ORANGE arrows on the control panel (no.14) light up indicating which side the caravan needs to be lifted.

To begin the caravan must be levelled across its width: FIRST you must lower the other axle support by **holding** the “**LEFT AXLE JACK**” button (no.10) or “**RIGHT AXLE JACK**” button (no.13) until it touches the ground.

Then the other axle jack as indicated on the control panel (no.14) can be extended by **holding** the “**LEFT AXLE JACK**” (no.10) or “**RIGHT AXLE JACK**” (no.13) button.

The levelling procedure automatically stops when the caravan is levelled across the width of the caravan.

At this point, depending on the longitudinal position of the caravan, the green LED will be lit along with one orange arrow.

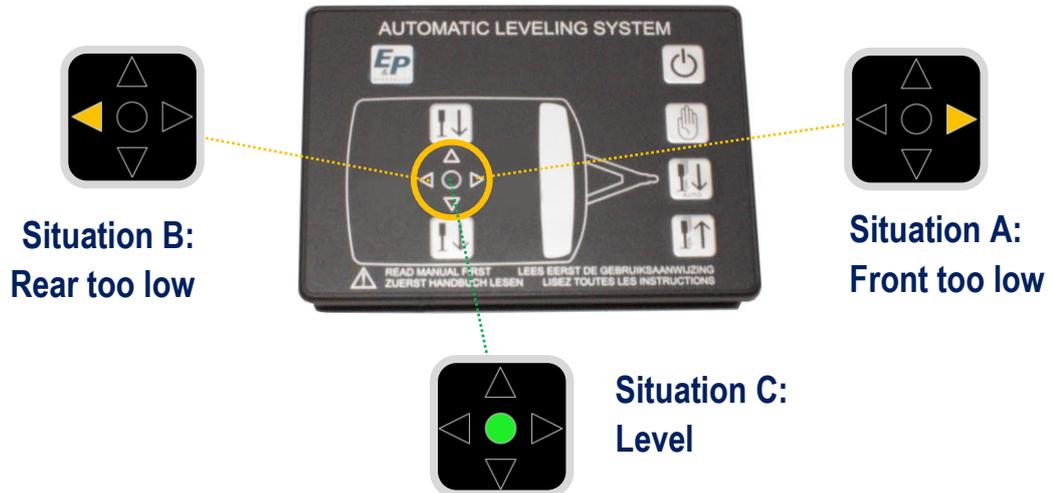
Depending on the length direction there could be two possibilities:

 - Front side of the caravan stands too low (**situation A**)

 - Rear side of the caravan stands too low (**situation B**)

4.2 Manual levelling (continued)

Step 4 Adjusting the longitudinal (across the length of the caravan) position



Depending on the longitudinal position of the caravan one of the orange arrows may light up. Depending on which arrow lights up (front side or rear side) you should adjust the front wheel so the orange arrow ceases to be lit. The system will give an audio signal when the caravan is level both across the width and length of the caravan.

- If the arrow is pointing toward the front side of the caravan then you should turn the jockey-wheel so the caravan raises at the front (**situation A**)
- If the arrow is pointing toward the rear side of the caravan then you should turn the jockey-wheel so the caravan raises at the rear (**situation B**)
- When the caravan is level across its width and length the LED indicator (no.14) lights up GREEN with no surrounding orange arrows (**situation C**)

Note: When using a remote control, you can observe the adjustment in the length position whilst you are located at the front wheel. When not using the remote control you can listen for the audio signal to sound once the caravan has taken its correct (levelled) position.



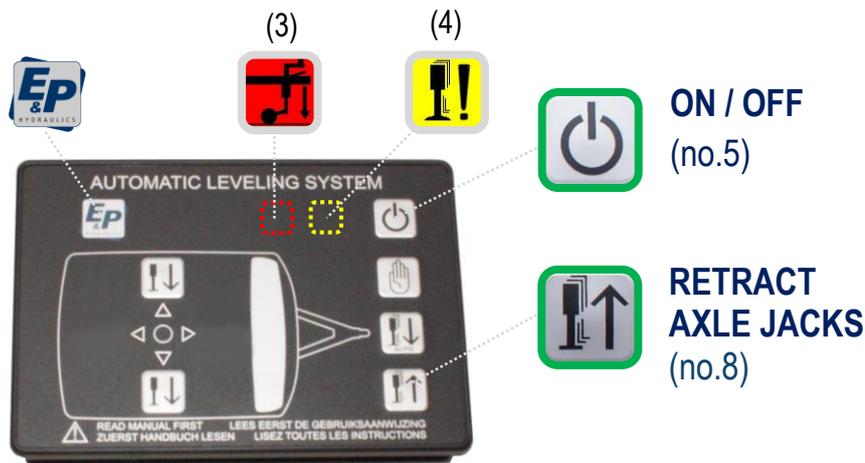
Step 5 Press 1 x on the “**ON / OFF**” button (no.5) to switch the Levelsystem OFF.

Step 6 Finally, the four corner supports can be deployed by hand so the caravan stands completely stable.

4.3.1 Retracting the jacks (freestanding caravan)

Below is the procedure for automatic retraction of the axle jacks. In this procedure the caravan should be de-coupled from the car and NOT be mounted on the hitch.

Step 1 Take care! At departure, make sure that FIRST all four corner supports have been fully withdrawn before starting the automatic retracting procedure



 **Step 2** Press 1 x on the “**ON / OFF**” button (no.5) to switch the Levelsystem ON.

 The “E&P logo” LED lights up, indicating the Levelsystem is switched on.

 **Step 3** Press 1 x on the “**RETRACT AXLE JACKS**” button (no.8).

 **To be sure all corner supports are withdrawn** before retracting the axle jacks, the LED Indicator “FRONT WHEEL” lights up red.

Step 4 The **front wheel must be adjusted** (turn it in or out).
When the Levelsystem sounds the audio signal, you can stop.

 **Step 5** Press 1 x on the “**RETRACT AXLE JACKS**” button (no.8) and the axle jacks will fully withdraw.

 The LED Indicator “AXLE JACKS NOT FULLY RETRACTED” (no. 4) goes out when all axle jacks have been fully retracted.

 **Step 6** Press 1 x on the “**ON / OFF**” button (no.5) to switch the Levelsystem OFF.

Note: See also chapter 4.3.2 for retracting the axle jacks when the caravan is connected to the hitch.

4.3.2 Retracting the axle jacks (*when the caravan is CONNECTED to the hitch*)

In practice, many caravan users have the caravan connected to the car (fastened to the hitch) during sleep/rest periods (for security reasons). In some cases, you may also choose to extend the axle jacks in order to obtain additional stability during this time.

On departure you must ensure the axle jacks are fully retracted.

If the caravan is not standing on its front wheel but in a fixed position on the tow bar, you cannot withdraw the axle jacks in accordance with the standard procedure as mentioned in chapter 4.3.1. In this fixed position there is no use adjusting the front wheel of the caravan because the caravan is attached to the tow bar.

To make it possible to retract the axle jacks in this situation, E&P Hydraulics has created a "Security Override" function for the Compact Levelsystem.

Security Override Procedure:

To make it possible to withdraw the axle jacks in a situation where the caravan is mounted to the tow bar:

- Step 1** Press 1 x on the **"ON / OFF"** button (no.5) to switch the Levelsystem ON
- Step 2** Press 1 x on the **"RETRACT AXLE JACKS"** button (no.8).
- Step 3** Press 1 x on the **"MANUAL MODE"** button (no.6)
- The LED Indicator "FRONT WHEEL" (no.3) will light up and an audio signal from the Levelsystem will be heard.
- Step 4** When holding down the **"RETRACT AXLE JACKS"** button (no.8) the axle jacks will withdraw.
- When fully retracted, the LED Indicator "FRONT WHEEL" (no.3) ceases to be lit and the audio signal will stop.
- Step 5** Press 1 x on the **"ON / OFF"** button (no.5) to switch the Levelsystem OFF.

5. Extra functions

5.1 Calibration (*setting the zero point*)

The calibration procedure described below has already been carried out by your dealer/installer. You do not have to perform this procedure yourself. E&P Hydraulics has decided to include this chapter in the manual in case of failure and/or service & repair matters. Consider setting the zero point** as a way to make it possible to level the caravan automatically and/or manually. If this operation has not been completed or has been carried out incorrectly, it is not possible to level the caravan.

** The zero point is the level point in which the hydraulic levelling system is programmed to automatically return to.

- Step 1** Place the caravan on a level floor
- Step 2** Press **1 x** on the **“ON / OFF”** button (no.5) to switch the Levelsystem ON
- Step 3** Press **1 x** on the **“MANUAL MODE”** button (no.6) to switch the system to manual operation (the LED indicator “MANUAL MODE” (no.9) lights up)
- Step 4** Take a spirit level and lay it flat on the floor of the caravan but still within eyeshot
- Step 5** Press the **“LEFT AXLE JACK”** (no.10) and the **“RIGHT AXLE JACK”** (no.13) buttons to place the caravan in the correct horizontal position.
- Step 6** **ADJUST THE JOCKEY-WHEEL** so the caravan is level over its length position (the LED indicator “LEVEL” (no.14) lights up green)
- Step 7** Press **1 x** on the **“ON / OFF”** button (no.5) to switch the Levelsystem OFF
- Step 8** Press **1 x** on the **“ON / OFF”** button (no.5) to switch the Levelsystem ON
- Step 9** Press **5 x** on the **“LEFT AXLE JACK”** button (no.10)
(this operation is confirmed by the system via an audio signal)
- Step 10** Press **5 x** on the **“RIGHT AXLE JACK”** button (no.13)
(all indicator LED's light up)
- Step 11** Press **3 x** on the **“RETRACT AXLE JACKS”** button (no.8)
(only the LED indicator “MANUAL MODE” (no.9) remains on)
- Step 12** Press **1 x** on the **“ON / OFF”** button (no.5) to switch the Levelsystem OFF

The Zero Point is now programmed.

5.2 Remote control (optional)

5.2.1 Introduction

The procedure described below has already been carried out by your dealer/installer. You do not have to perform this procedure yourself. E&P Hydraulics has decided to include this chapter in the manual in case of failure and/or service & repair matters.

If this operation has not been completed or has been carried out incorrectly, it is not possible to operate the Levelsystem via the remote control.

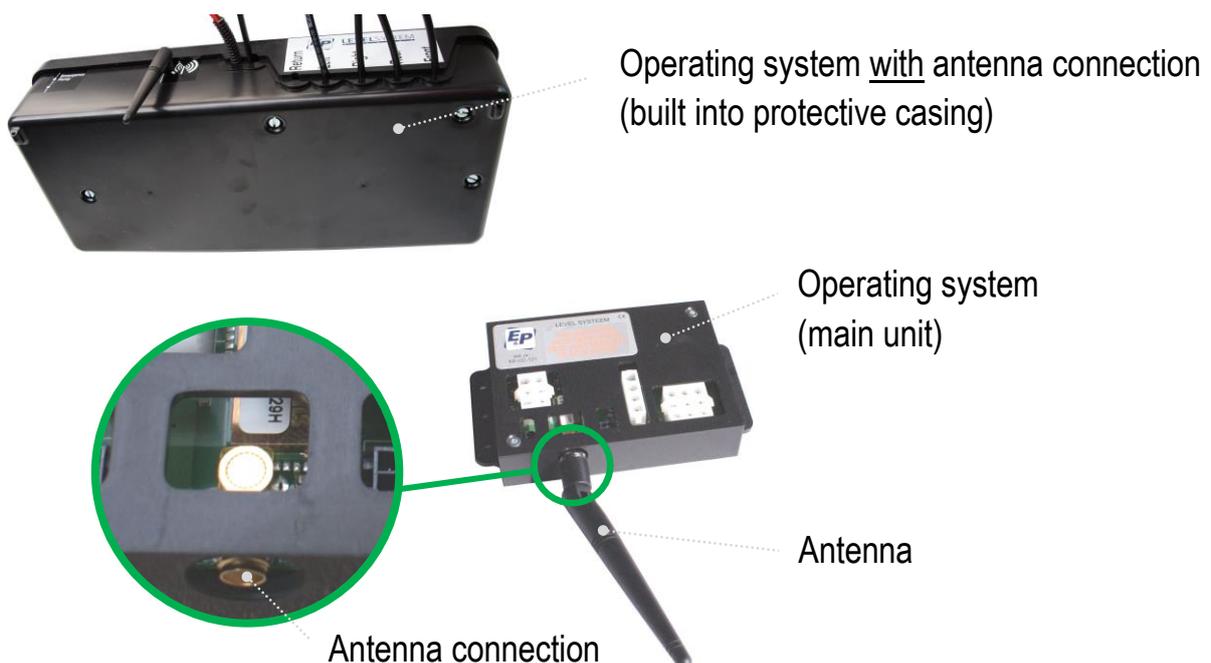
5.2.2. Antenna

Check if there is an antenna connection on the operating system (see below picture). If this is not the case, the remote control CANNOT communicate with the hydraulic levelling system. In principle, the antenna connector and antenna are always present when you purchase a remote control unit with your Levelsystem.

If you purchased the remote control at a later stage (i.e. not with the Levelsystem), then please be aware the antenna connection on the operating system (main unit) could be missing.

The presence of the antenna is dependent on the age of the Levelsystem. After January 2013, all operating systems include the antenna connector. If this is the case, the dealer/installer can connect the antenna directly to the operating system (the antenna is supplied with the remote control).

Below is a picture of the operating system including the antenna connection.



Remote control (continued)

5.2.3. Battery

Remove the battery cover on the rear side of the remote control by firmly pressing the cover and then sliding out. Insert the 9V battery and carefully reassemble the battery cover (in most cases the battery is already fitted)



5.2.4 Programming the remote control (calibrate/pair)

- Step 1** In order to pair the remote control to the system, remove the fuse (30Amp.) in the cable assembly of the hydraulic Levelsystem.
- Step 2** Press the **“AUTOMATIC MODE”** (no.7) and **“RETRACT AXLE JACKS”** (no.8) buttons **simultaneously**.
When done, the LED Indicator (no.14) with the surrounding 4 arrows starts blinking GREEN and ORANGE rapidly. This means the remote control is looking for its receiver, which is mounted within the operating system.
- Step 3** Reconnect the fuse to the system.
- The pairing process should be completed within a certain time (approx. 20 sec.)
 - The remote control turns off automatically.
 - When the LED Indicator (no.14) goes off, the pairing process is complete.

Remote control *(continued)*

5.2.5 Putting the remote control into use

After programming the remote control you now have the ability to operate the Levelsystem with it.

Step 1 Switch the remote control ON by pressing the “**ON / OFF**” button (no.5) for at least 1 second.

Now the GREEN LED will start flashing. As long as you see this LED flashing, the remote control is searching for contact with the operating system. When contact is made the flashing stops.

The illumination of one or two ORANGE arrows on the LED Indicator (no.14) shows the position of the caravan.

In the unlikely event the caravan is already level, the LED Indicator (no.14) lights up GREEN.

Further operation is described in chapters 4.1 to 4.3

5.2.6 Which device takes command?

The device which is switched on first (remote control or control panel) takes command of controlling the system until that device is switched off. If you would like to switch from one control device to another, you need to switch off the power from the device that was in operation first.

NOTE 1: In the event of switching over from the remote control to the control panel: you have to wait a few seconds in order to give the system enough time to switch off contact between the remote control and the operating system.

NOTE 2: It may be the operating system is built in such a way that receiving a signal between the remote control and the operating system works poorly or even not at all (caused by caravan construction materials e.g. steel, wood, plastics, etc.). In this case there is a possibility to move the antenna away from the operating system by means of an optional extension cable (length max. 2 meters, available from E&P Hydraulics).

5.2.7 Battery Indicator

When the “BATTERY LEVEL” LED Indicator (no.15) lights RED, the device does not stop working immediately. After this signal it is possible to use the remote control approximately 4 more times. Make sure you carry a spare battery for this eventuality.

5.3 Emergency hand pump (optional)

5.3.1 Introduction

The optional emergency hand pump allows the Levelsystem to be operated manually, in the (emergency) event the electrical system has a defect, or (more likely) because there is not enough battery voltage present.

This option is offered by E&P Hydraulics for situations where, for whatever reason, the Levelsystem does not retract its axle jacks and is therefore preventing you from moving the caravan.

We call it an "emergency situation" because generally the time for withdrawing the axle jacks is, most often the time of a (planned) departure. By not automatically withdrawing the axle jacks you can no longer move, with adverse consequences.

Therefore, E&P Hydraulics offers you the possibility to integrate an emergency hand pump for the Levelsystem. As the name implies, it is a pump operated by hand which controls the retraction of the axle jacks in case of an electrical defect.

The emergency hand pump is mounted under the caravan in such a way that it is accessible from the side.



Protective pump housing with the connections to the emergency pump.



Emergency hand pump.

Emergency hand pump *(continued)*

5.3.2 Putting the emergency pump into use

When using the emergency hand pump, proceed as follows:

Step 1 Using the Allen key, turn the gold hexagonal bolt on the emergency hand pump clockwise to the right (open position).

Step 2 Place the metal tube (handle) into the black holder on the emergency hand pump assembly.

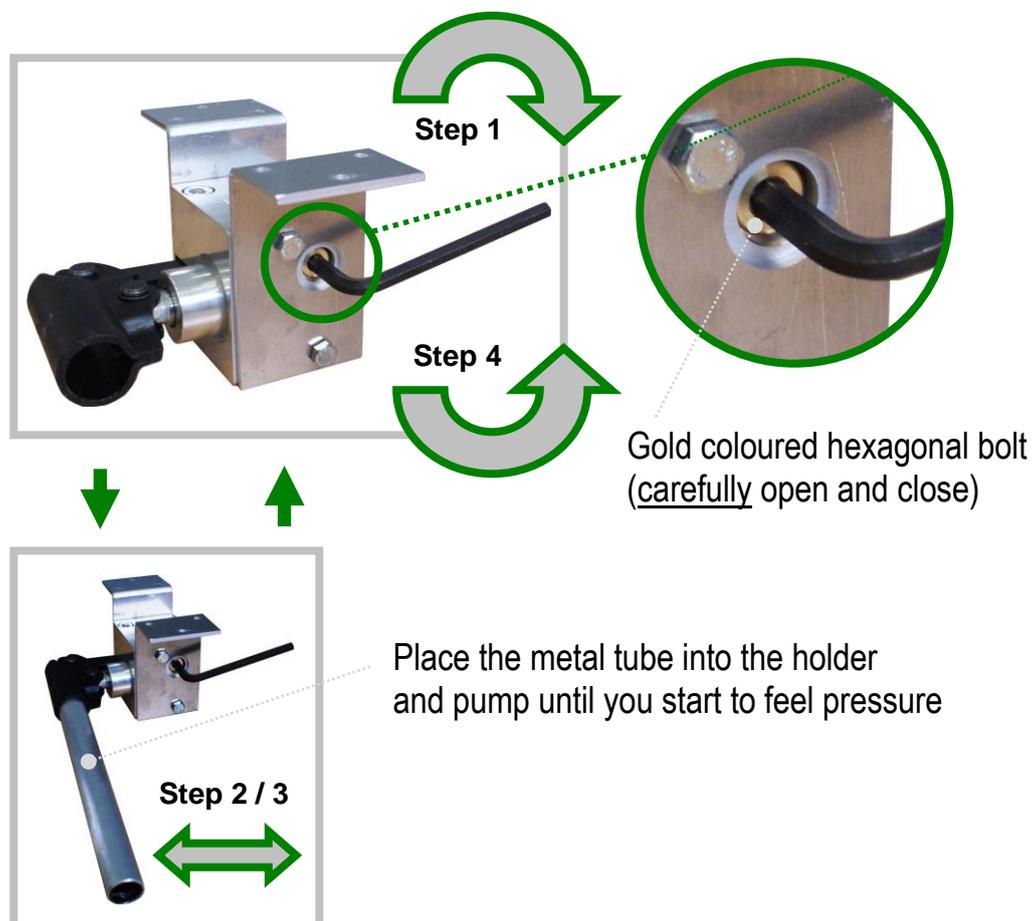
Pump (back and forth) with the metal tube until the two axle jacks are withdrawn.

The moment you feel pressure (resistance) building up during this movement is the sign the axle jacks are fully withdrawn.

Step 3 Remove the metal tube from the holder.

Step 4 Using the Allen key, carefully turn the gold hexagonal bolt on the emergency hand pump assembly anticlockwise, to the left until it locks (closed position).

ATTENTION! CAREFULLY TURN TO THE LOCKED (CLOSED) POSITION



5.4 Emergency pushbutton

5.4.1 Introduction

In the rare situation where the operating system is not functioning, the hydraulic axle jacks can be withdrawn using this new standard fit emergency pushbutton assembly, therefore allowing the customer to depart and seek further assistance.

In practice a system failure should never occur, however due to consumer demand, we have chosen to offer this option as standard to give the customer more confidence in the Levelsystem.

This function can only be used when there is sufficient battery power available. If there is no power the hydraulic axle jacks can only be withdrawn if the (optional) emergency hand pump is installed.

The location for the emergency pushbutton is on the inside of the caravan, as close to the battery as possible, for example behind a hatch, cupboard etc. This will prevent the button being pressed accidentally or without the owner's consent.

5.4.2 Putting the emergency pushbutton into use

Press the emergency pushbutton and **hold it** until all the hydraulic axle jacks are fully retracted.

Important! Only use the emergency pushbutton in emergency situations and never use it when the system is operating normally.

IMPORTANT! ON A COMPACT CARAVAN LEVELSYSTEM, THE FOUR CORNER-SUPPORTS MUST BE RETRACTED MANUALLY BEFORE PRESSING THE EMERGENCY PUSHBUTTON, NOT DOING THIS CAN CAUSE IRREPARABLE DAMAGE TO THE CHASSIS.



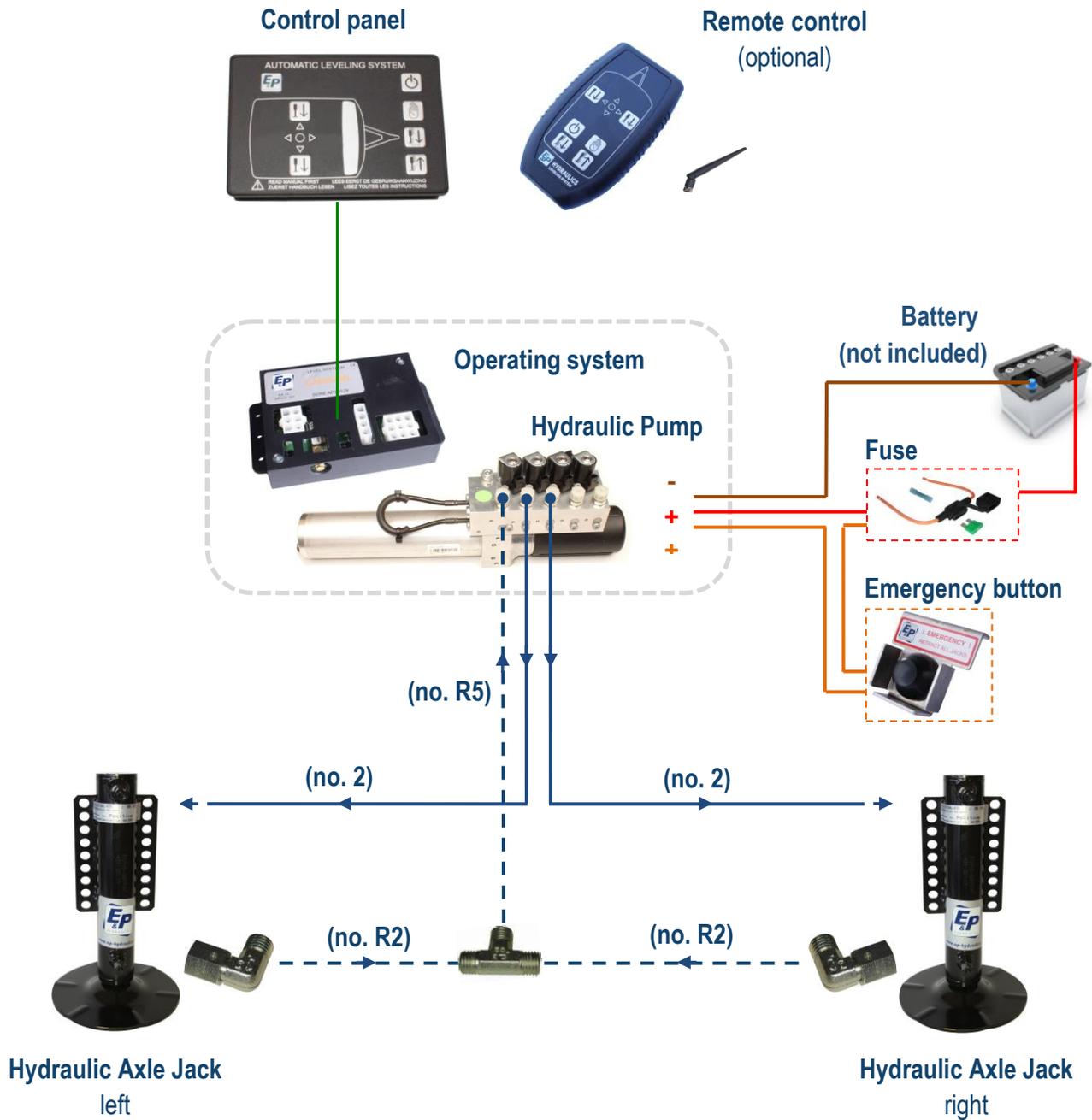
Emergency pushbutton configuration.

PUSH BUTTON

Press and Hold until all the hydraulic axle jacks are fully retracted.

6. Schematic diagram of the hydraulic Compact Levelsystem

Below is the schematic view/diagram of the E&P Hydraulics Compact Levelsystem.



7. Notes and recommendations

Below is an overview concerning notes and recommendations (tips) for the hydraulic Levelsystem:

- After 4 minutes of NO operation, the system will switch off automatically.
- The automatic levelling cycle can only be started after all axle jacks have been retracted.
If the axle jacks are not retracted when you want to start the automatic Levelsystem, than you must retract the axle jacks by pressing the retract axle jacks button (no.8)
- At a low battery voltage, the system will automatically switch off.
- In error mode, all normal functions of the system are switched off.
- During winter conditions (e.g. in snow and ice) put something (e.g. a piece of carpet) under the jacks to avoid sliding.
- The system cannot handle all angles, the limit values differ per caravan.
- If the system meets a slope/angle which is too great, the indicator LED Indicator (no.1) lights up and the system no longer responds to requests for automatic levelling. We recommend bringing the caravan into a levelled position via the manual mode.

8. Troubleshooting (only to be carried out by the dealer/installer)

In case of an error message, check the battery has sufficient voltage, whether the oil level is correct, whether there is any damage to the axle jacks and check all the electric cables and the hydraulic hoses.

If this does not lead to a solution, the fault could be located in the drive units. As the drive unit does not have any repairable parts, you should contact your E&P Hydraulics dealer/installer.

Under normal circumstances, all LEDs are off and the unit will only respond by pressing the button “ON / OFF” (no.5) switching the Levelsystem on.

Problem	Possible causes	Solution(s)
<ul style="list-style-type: none"> ● The system fails to start ** ● The red battery LED lights up. ● When the red battery LED lights continuously, the system is switched off for 4 minutes. 	Battery voltage low.	<ul style="list-style-type: none"> ● Recharge the battery ● Charger is defective or there is no voltage being supplied.
<ul style="list-style-type: none"> ● The axle jacks do not extend towards the ground when the pump is running. 	Oil level too low or no oil in the system. The pump is not working correctly.	<ul style="list-style-type: none"> ● Check for any oil leaks. ● Repair or exchange.

** Nothing works and there are no LEDs lit. The **battery** is fully **out of order** (<5V)

IMPORTANT: FOR ALL OTHER ISSUES AND/OR MALFUNCTIONING OF THE SYSTEM, PLEASE CONTACT YOUR DEALER/INSTALLER.

9. Maintenance (ONLY to be carried out by the dealer/installer)

The E&P Hydraulics Levelsystem does not have parts which need to be maintained periodically. When parts have been dismantled, the warranty will become invalid. If necessary parts can be substituted, repaired and/or exchanged (under warranty). Please contact your E&P Hydraulics dealer/installer if applicable.

WARNING: In controlled service situations, secure the caravan by placing suitable stands under the caravan. By not doing this you create a real danger of personal injury or serious accident.

Preventative controls

- Periodically checking the hydraulic oil level. (ONLY by dealer/installer)
 - The hydraulic oil (type: *Pentosin CHF 11S*) can be replaced if necessary.
- Periodically check the electronic cables and connections.
- Periodically check the hydraulic axle jacks.
 - Remove dirt, sand, mud and other contamination which settle during use, it may obstruct the operation of the hydraulic levelling system.
 - If the axle jacks remain extended for a long period of time, the exposed legs should be protected by spraying them with a silicon lubricant to help prevent corrosion. If the caravan is located in a salty environment, this should be done regularly.
- In wintery (slippery) conditions we advise you to take additional safety and precautionary measures, especially regarding your safety during the operation of the system. For optimal performance under extreme conditions (- 30°F or -1°C). We recommend the use of a special hydraulic oil for low temperatures (consult an authorised dealer).

Furthermore, during the winter period we have to deal with situations in which de-icing salt will stick to the outside of the system. Preventative maintenance should be:

- Good cleaning of the axle jacks.
- Clean the steel cylinder (piston rod) and spray with a silicone lubricant.
- Remove dirt from the footplates (especially at the bottom).
- Try to put the caravan in a location as clean and flat as possible.
- Place a piece of rubber (e.g. carpet) between the frozen surface and the footplates.
- Before leaving make an additional check around the caravan, if necessary remove snow and ice from the jacks before retracting.

» 10. Warranty

E&P Hydraulics has a limited factory warranty for (parts of) the hydraulic levelling system. This manufacturer's warranty applies solely and strictly on the following conditions and exclusions.

1. The guarantee is valid for a period of 24 months from date of purchase.
2. This guarantee covers only defects caused by material and / or workmanship.
3. In order to implement the guarantee, E&P Hydraulics can at its own discretion and preference write a credit note for the defective product/part, either repair or replace the defective product/part at no additional charge by an appointed E&P Hydraulics authorised technician at a location to be designated by E&P Hydraulics. This location can be the E&P Hydraulics factory, another repair facility or the location where the defective product/part is at the moment (repair on location). If E&P Hydraulics on a request as worded would be willing to deviate from her herein at its own discretion and preference choices made, if necessary appropriate fees will be charged such at the sole discretion of E&P Hydraulics.
4. The manufacturer's warranty is only valid if the product is purchased from an authorised E&P Hydraulics dealer.
5. 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. Any attempt to repair a defect will inevitably lead to voiding the warranty.
6. 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. E&P Hydraulics assesses independently and exclusively or a guarantee request may or may not be allocated.
7. 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. Any work carried out beforehand will result in the loss of warranty coverage.
8. 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.

Warranty (continued)

9. In the event of damage caused by abuse, misuse, overloading, improper loading (including incorrect weight distribution), improper maintenance, incorrect connection, connection to wrong parts, negligence, accident, intent or deliberate recklessness, it is at the sole discretion of E&P Hydraulics to void the warranty.
10. 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.
11. 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.

» 11. Notes

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