



LEVELSYSTEM
CARAVAN
COMPACT



» **HYDRAULIC LEVELSYSTEM** ◀

CARAVAN COMPACT
(2 supports)

ENGLISH

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Limited Warranty

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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 also the technicians installing the system are very important to us. 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,
Eric Klinkenberg & Pierre Blom

1. The E&P Hydraulics Compact Levelsystem

1.1 Operating of 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 of 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.

1.2 Using the Compact Levelsystem

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

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

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

Then the caravan is 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.

The E&P Hydraulics Levelsystem *(continued)*

1.3 Specific characteristics of the hydraulic Levelsystem

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

1.4 Operating instructions

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

- Make sure the that the ground is sufficiently even and that 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 hand-brake securely.
- Make sure that no one is in the vicinity of the caravan during operation.
- Note that there are no loose objects under the caravan when levelling.
- Make sure that when levelling is being carried out, no one is inside the caravan.
- 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 of:

- **IMPORTANT ! BEFORE** automatically retracting the axle jacks, make sure that 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 (key points upon delivery to customer)

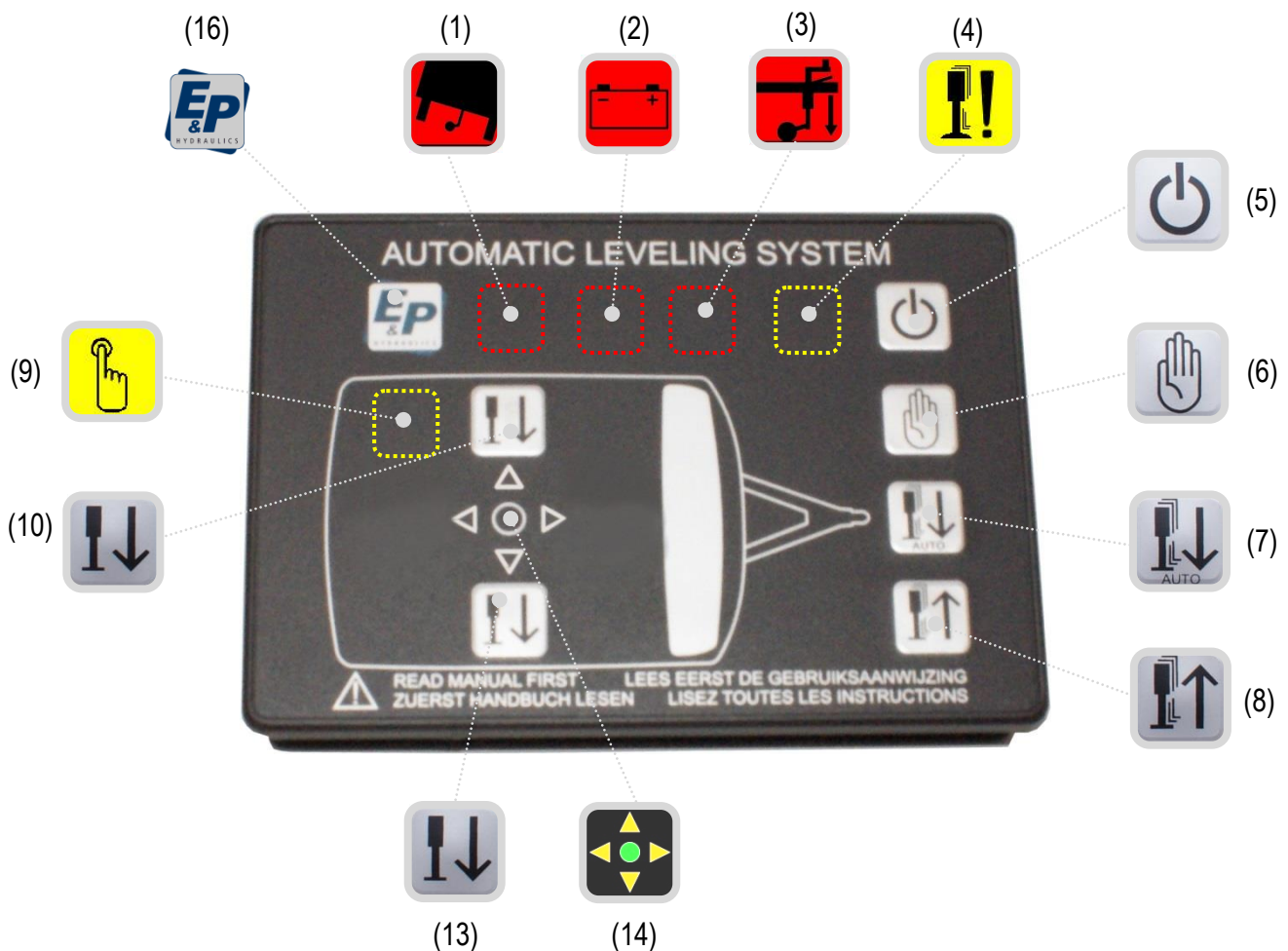
Failure to observe the following warnings may lead to damage to the caravan and/or serious physical injuries.

- Using the E&P Hydraulics levelling system for other purposes 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.
- Check that the installation of the hydraulic Levelsysteem is performed by a skilled mechanic with sufficient practical experience and technical E&P Hydraulics training.
- In case of repairs/malfunctions to the hydraulic Levelsysteem: 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 Levelsysteem.
- After deploying the hydraulic Levelsysteem ALWAYS inspect around the caravan, just to be sure the caravan now stands stable (and both hydraulic jacks are on the ground).
- VERY IMPORTANT! Before driving off, check to make sure that all supports have been fully retracted.

3. Control functions

3.1 Functions on the control panel

The diagram below shows the appearance of the control panel. By using the control panel (or remote control, see chapter 3.2) you can operate the hydraulic Levelsystem. 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 | (16) LED: E&P logo |
| (8) Button: Retract Axle-jacks | |

3.2 Functions on the remote control















The diagram below shows the appearance of the remote control. By using the remote control you can operate the hydraulic Levelsystem. 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 | (15) LED: Remote control battery low |
| (8) Button: Retract Axle-jacks | |

3.3 Extensive function declaration

			LED's
(1)		SLOPE TOO STEEP	In this position the caravan cannot be levelled. (the surface is not even enough) If necessary switch over to manual mode.
(2)		BATTERY LOW VOLTAGE	The battery is empty 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)		JACKS NOT (fully) RETRACTED	One or more Axle Jacks are extended or not fully retracted.
(9)		MANUAL MODE	Indicates that 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. <i>(only present on the remote control)</i>
(16)		E&P LOGO	Indicates that the Levelsystem is switched on. <i>(only present on the control panel)</i>
			BUTTONS
(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)		AXLE-JACK LEFT	Controls retracting and extending the Left Axle-jack.
(13)		AXLE-JACK RIGHT	Controls retracting and extending the Right Axle-jack.

4. Content of the Compact Levelsystem set

The caravan Compact Levelsystem will be delivered in one package set (carton box) which contains the below mentioned components:

- 1**  **Plastic Casing (container)**
(incl. hydraulic pump / Operating system / Buzzer / Elektric cables)
- 2**  **Control panel** (incl. mounting frame)
- 3**  **Hydraulic axle jacks** (set 2 pcs.)
- 4**  **Mounting brackets** (set 2 st.)
(for the purpose of mounting the axle jacks, incl. fastening materials)
- 5**  **Fuse and Fuse holder** (for the battery)
- 6**  **Hydraulic hoses** (set 5 pcs.)
(this set includes: 2x hose Nr.2 - 2x hose Nr. 2R - 1x hose Nr. 5R)
- 7**  **Assembly materials** for the hydraulic levelsystem set
(ty-wraps, parkers, plastic clips, coupler set, bottle hydraulic oil)
- (8)**  **Remote control** (optional)
- (9)**  **Emergency hand pump** (optional)
(incl. fastening materials and bottle hydraulic oil)

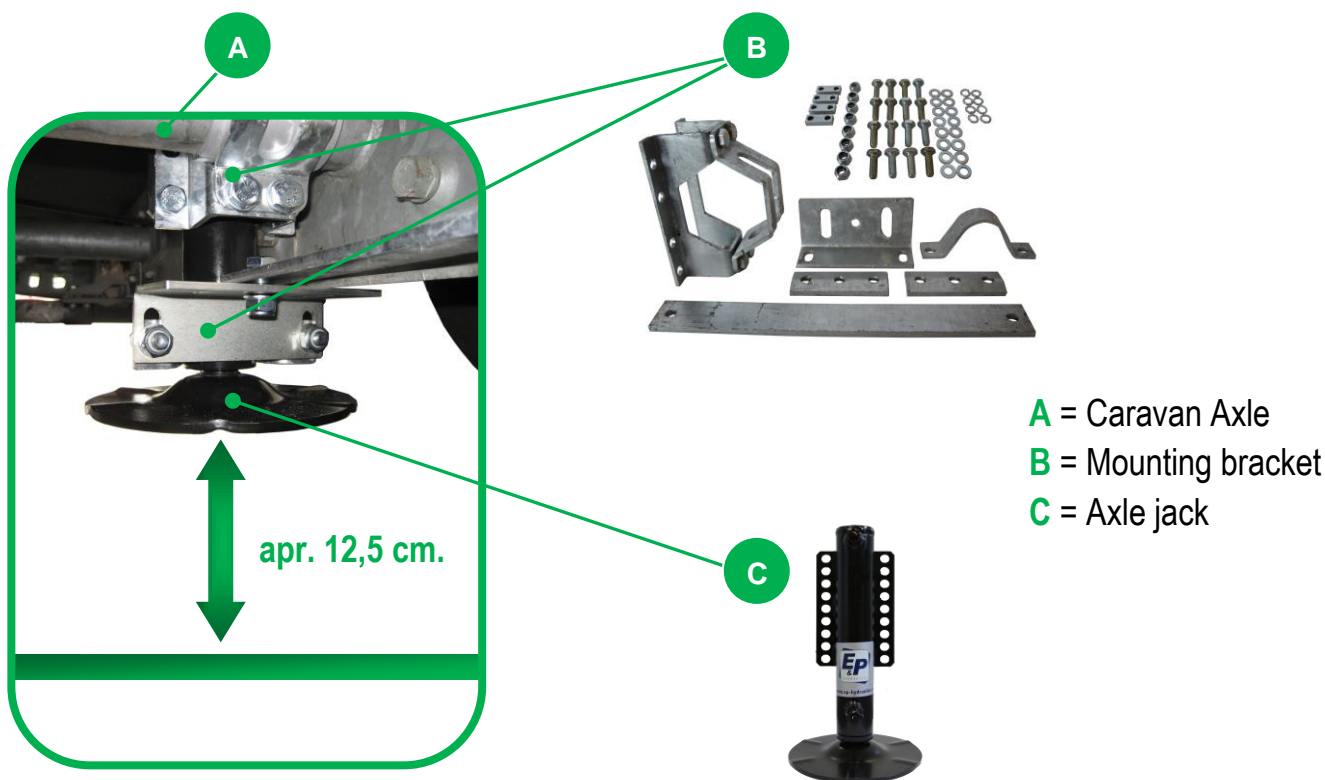
5. Mounting the Compact Levelsystem.

5.1 Fitting the hydraulic axle jacks

Now clamp the mounting bracket to the axle, but do not tighten the screws completely just yet, as you can still adjust the position of the mounting bracket by the amount that the axle jacks are out of place due to the bolts being too far apart. Thus the bolts should initially be partly tightened and then the axle jacks fitted at a height of about 12.5 cm (5") from the ground. After this, the bolts are fully tightened.

Finally, check that the axle supports hang vertically and are inclined neither inwards nor outwards, nor to front or rear.

!! Warning: Fixing the supports is probably the most important step of all in fitting the E&P Hydraulics levelling system and therefore suitable expertise in this field is indispensable. The forces which act on the system and the caravan must in no circumstances be underestimated. Do not drill any holes in the chassis, and contact the dealer in all other cases of uncertainty, as the fitter himself is always responsible for the installation of the system.



5.2 Installing the pump unit

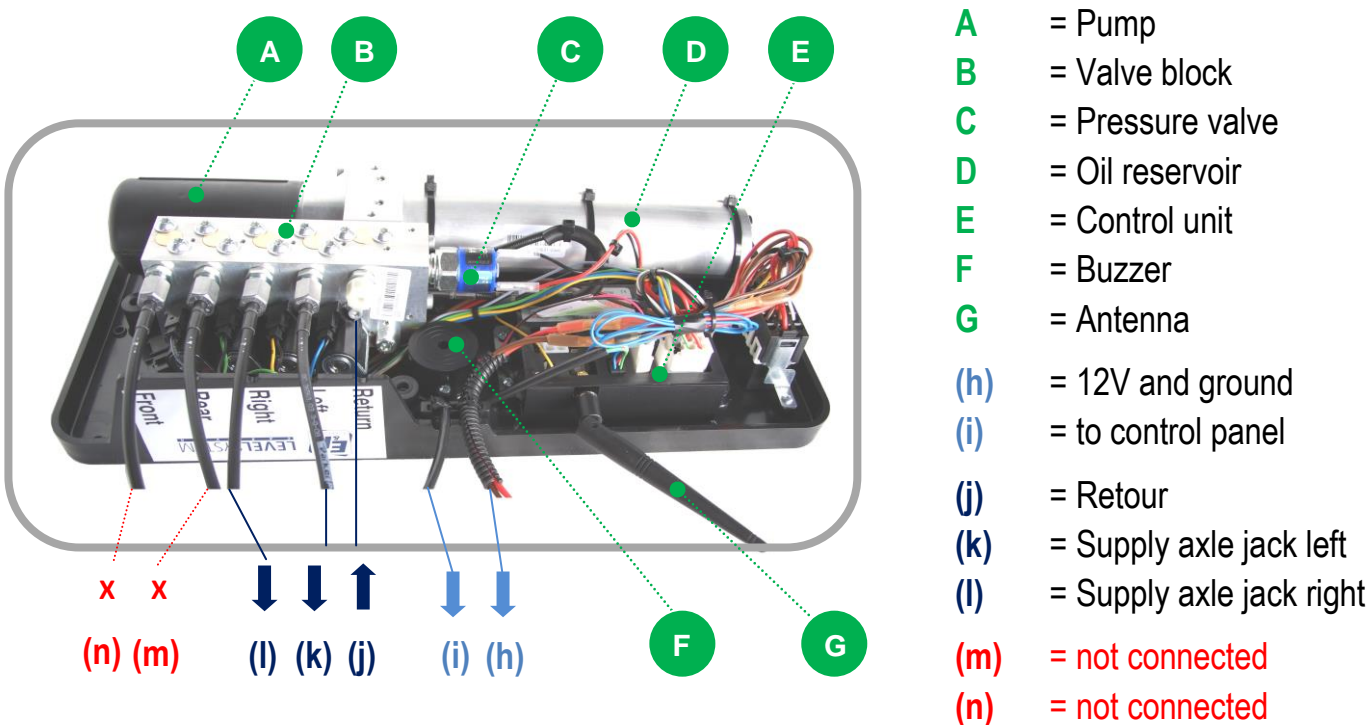
Take the pump unit (mounted into the plastic casing/container) and unscrew the cap of the casing. Seek a suitable position for the casing with its cap removed under the caravan floor.

!! TAKE CARE, VERRY IMPORTANT

Make sure that the connections of the hydraulic hoses point towards the rear of the caravan and that the casing (pump) is mounted at a right-angle (parallel to the caravan axle).

This is important to allow the controls to function properly. The casing must be located as closely as possible behind the (rear) caravan axle and with respect to the width as close to the middle as possible. The purpose of this is to make optimum use of the length of the supplied hydraulic hoses.

Before it is installed, the casing must have adhesive applied all the way round in the groove provided. In addition, a strip of adhesive must be added in the middle directly underneath the control unit area as this is important for well function of the control unit. To avoid malfunctions, the casing must be mounted in a level position and the caravan floor must absorb the weight/load over the entire surface of the casing. Therefore bonding/adhesive the casing is absolutely essential. After bonding, the casing must be correctly fixed with a total of nine screws to the caravan floor.



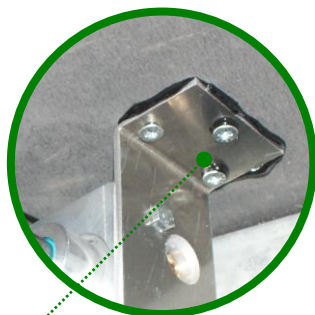
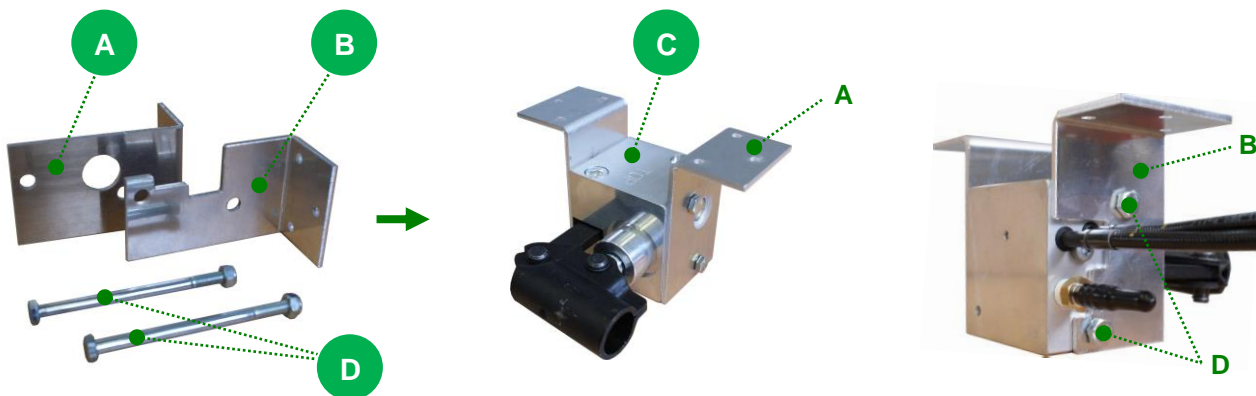
5.3 Installing the Emergency hand pump *(if desired by the customer)*

If an Emergency hand pump is required at the caravan compact Levelsystem, please FIRST the three hoses from the Emergency hand pump to the pump unit. Take care no oil is running out of the Levelsystem.

The Emergency hand pump must be placed UNDER the caravan, in such a way that the end user (customer) can operate it easily from the side of the caravan. The emergency hand-pump must come to lie in one line with the pump-unit of the Levelsystem. Lay the hoses through an opening of the chassis to the location of the pump unit. Remove the hose bridge from the valve block by loosening 2 screws.

Then connect the 2 hoses of the emergency hand pump to the valve block locations No. 6 and No.7. Then remove the black plug from the oil tank (located on the front side) and connect the nylon suction hose.

Note: See also chapter 6.2 (Emergency hand pump)



- Mounting to caravan floor
by means of sealant and 6 screws

- A** = Mounting bracket Allen key side
- B** = Monting bracket hose side
- C** = Emergency pump
- D** = Fastener materials

5. 4 Laying the hydraulic hoses

All components (the pump unit, the axle jacks and if desired the emergency pump) are now installed. The hydraulic hoses can be mounted in place now from the axle jacks to the pump unit. Use the supplied five hydraulic hoses, T coupler, the two 90° couplers and the fastening materials

!! BEWARE: The axle jacks and the pump unit are already filled with oil, so be careful not to deflate by having the hydraulic hoses hanging down. The amount of oil is basically so metered that after installation and bleeding enough oil is present to make the system work. If there is still a leak (more than 5 cc), fill the system than with the supplied oil.

The hydraulic hoses have enough length to fit under all caravan types. Start laying the hydraulic hoses from the direction of the pump unit. Take care not to kink the hydraulic hoses (any kink in a hose means a weakening of the system)

First install the return hoses (hoses: 5R and 2R). Watch closely at the numbers on the hoses and connect them in accordance to the wiring diagram. At first remove the protective caps from the valve block and connect the hydraulic hoses. On all of the hydraulic hoses on either side of the hoses a connecting nipple is present which could be tightened by hand. Then tighten the hoses definitively by tightening the nuts with a spanner.

The two hydraulic return hoses No. 2R are coupled to each other by means of the T-coupler. The connection which remains is intended for the hydraulic return hose No. 5R, which is connected to the other side to the return input of the valve block and by means of the two 90° couplings to the lower side of the axle jacks.

If the return hoses are connected the two supply hoses No. 2 could be connected. These hoses are directly coupled to the valve block unit and connected to the upper two connections of the axle jacks.

If all hoses are connected check once more them according to the wiring diagram and make sure you made the correct connections. For carefully securing the hydraulic hoses use the supplied fastener materials (black brackets, tapping and ty-wraps)

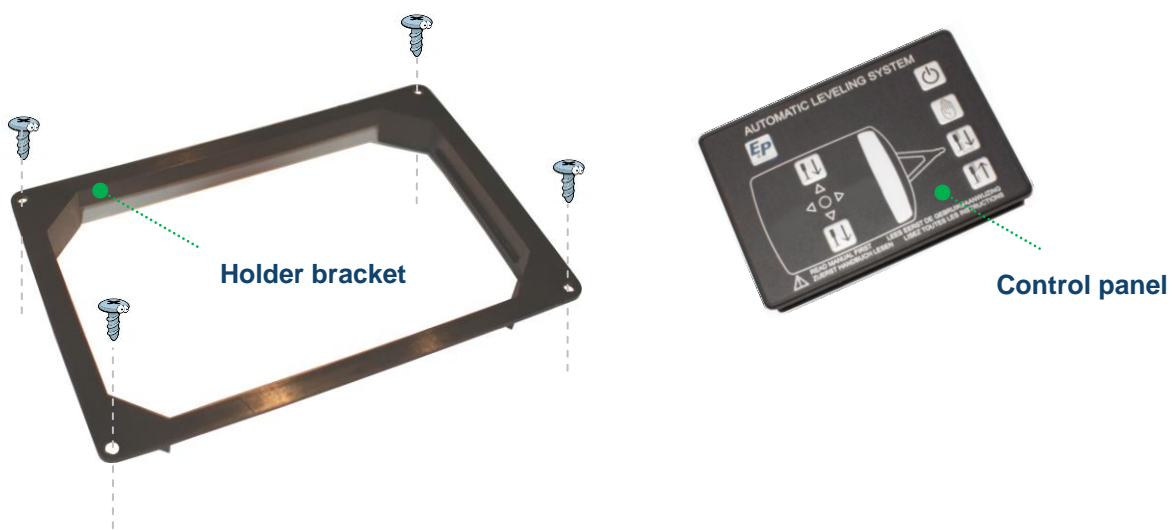
Finally: In relation to the location where the casing (pump unit) is mounted, the hoses are delivered with an over length (excess). Tighten the hoses (if necessary) in a wide loop to the caravan floor. Valid for al hoses: Make sure that the hoses are fastened flush against the bottom of caravan and in no case can catch something. Also keep in mind that the hoses will move at some points when pressure will be placed on the system. This should not be wring/wrench. Use protective hosing around the hoses in places where the hoses run through and over sharp edges (metal parts).

5.5 Installing the electronics

5.5.1 Mounting the control panel

The control panel can be installed in a number of places, but it may in no circumstances be exposed to moisture. A further condition is that the electrical wiring can be installed out of sight without any problem. Place the control panel so that it could be operated from outside the caravan (during operation and while the axle jacks are being extended, no one may be inside the caravan due to movement)

The best option for installation is likely to be in the vicinity of the door. The control panel has a special holder bracket which must be fixed with four little screws. Please take care not to use screws which are too large as the operating panel may not be able to latch into position over their heads into the holder.



5.2 Connecting the electric cable

Connect the four-pole electric cable from the control unit on the control panel. This cable comes from the operating system in the casing (pump unit) under the caravan. Put this cable in place with cable binders (Ty-wraps)

5.3 Connecting the power supply

The Compact Caravan Levelsystem is actuated by a 12 VDC motor. Connection must therefore only be made to a 12 volt supply. The cable running from the pump under the caravan to the battery is approximately 5 m long. If the battery is inside the caravan, it must be connected there. This is done with the fuse-holder and the 30-A fuse to the positive battery terminal. It must be mounted as close as possible to the battery (the brown connection is for the earth and the red for the positive terminal) Now you can switch on the supply to the system.

Note: As soon as the + and – terminals are connected, you will hear an acoustic signal.

Tip: Should there not yet be a battery present, the corresponding power supply must be interposed. (the capacity must be at least 25 Ah. Switch on the supply to the system.

5.6 Taking the system into use (bleeding)

By putting the levelsystem in operation (bleeding procedure) no pressure must be exerted on the axle jacks. Make sure that the axle jacks are fully extended without being in contact with the ground.

In below the caravan compact levelsystem bleeding procedure:

- Step 1** Press **1x** on the button **“ON / OFF”** (no.5) to switch the levelsystem ON.
- Step 2** Press **1x** on the button **“MANUAL MODE”** (no.6) to switch the system to manual operation
- The LED indicator “manual mode” (no.9) lights up
- Step 3** Lower the axle jacks by consecutively **holding** the buttons **“AXLE-JACK LEFT”** (no.10) and **“AXLE-JACK RIGHT”** (no.13)
- The hydraulic pump starts and the axle jack will now extend little by little. Keep the button pressed until the axle jack is fully extended
- Step 4** Press **1x** on the button **“MANUAL MODE”** (no.6) to switch manual operation off.
- The LED indicator “manual mode” (no.9) stops burning
- Step 5** Press **1x** on the button **“RETRACT AXLE-JACKS”** (no.8)
- The LED indicator “frontwheel” (no.3) lights up
- Step 6** Press **1x** on the button **“MANUAL MODE”** (no.6)
- Step 7** Retract both axle jacks by **holding** the button **“RETRACT AXLE-JACKS”** (no.8) **down** until the axle-jacks are fully withdrawn.
- Step 8** Repeat the procedure (2 up to 7) once more.

Now the system is bled

Opmerking: Indien er een Noodbedienings handpomp is gemonteerd, dient ook deze ontlucht te worden. Draai de goudkleurige imbus op de kopse kant van de handpomp rechtersom, vervolgens het meegeleverde metalen buisje in de hiervoor bestemde opening plaatsen en middels een zwengelbeweging net zolang zwengelen totdat u druk voelt. Vergeet niet hierna de imbus weer linksom (tot de vergrendeling), te draaien!

Finally: Close the plastic casing (container) by mounting the cover.

5.7 Programming the zero point

Beware ! As a basic requirement, in contrast to the complete caravan 6 support level system the caravan must NOT stand downwards with the nose wheel before setting the zero point.

In below the Zero adjustment procedure for the Caravan Compact Levelsystem:

- Step 1** Place the caravan on a level floor (workfloor)
- Step 2** Press **1x** on the button **“ON / OFF”** (no.5) to switch the levelsystem ON
- Step 3** Press **1x** on the button **“MANUAL MODE”** (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 within eyeshot flat on the floor of the caravan
- Step 5** Press the button's **“AXLE-JACK LEFT”** (no.10) and **“AXLE-JACK RIGHT”** (no.13) to place the caravan horizontally in the width position.
- Step 6** **ADJUST THE JOCKY-WHEEL** in such a way that the caravan is level over its length position. (the LED indicator “level” (no.14) lights up green)
- Step 7** Press **1x** on the button **“ON / OFF”** (no.5) to switch the Levelsystem OFF
- Step 8** Press **1x** on the button **“ON / OFF”** (no.5) to switch the Levelsystem ON
- Step 9** Press **5x** on the button **“AXLE-JACK LEFT”** (no.10)
(this operation is confirmed by the system with an audio signal)
- Step 10** Press **5x** on the button **“AXLE-JACK RIGHT”** (no.13)
(all indicator LED's light up)
- Step 11** Press **3x** on the button **“RETRACT AXLE-JACKS”** (no.8)
(only the LED indicator “manual mode” (no.9) remains on)
- Step 12** Press **1x** on the button **“ON / OFF”** (no.5) to switch the Levelsystem OFF

Now the zero point is programmed

5.8 Final inspection and delivery to the customer

Make sure all skin fittings are closed (skin fittings: cable to the control panel and power supply wire to the battery).

Check the level system for proper operation (automatic - and manual mode and retract axle jacks)

If more advice desired (questions/comments), please contact our technical service department of E&P Hydraulics (see also website www.ep-hydraulics.nl)

In below the most relevant issues regarding the delivery of the level system to the customer. (see also chapter 2 safety warnings and key points)

1. Make sure the client/owner of the caravan has his/her User manual in possession.
2. Demonstrate the full operation of the level system, based on the functions mentioned in the User's manual.
 - The E&P Hydraulics advice to take time for this.
(demonstrate the levelsystem and let the customer do it them self)

6.1 Remote control programming *(optional)*

6.1.1 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.

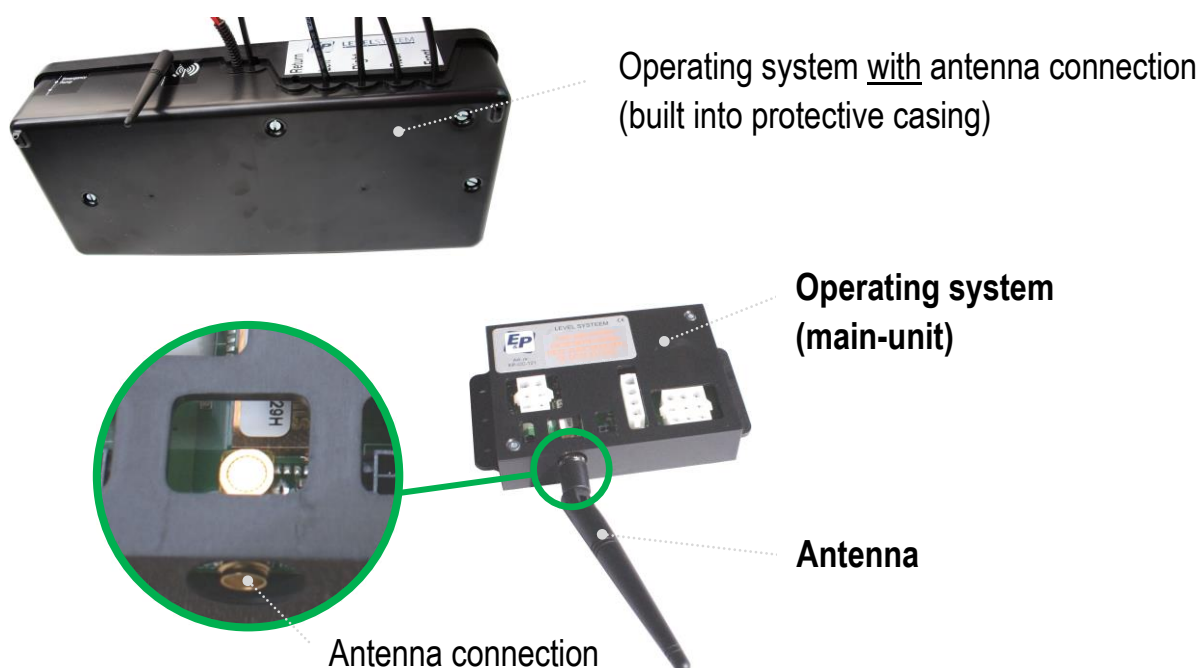
6.1.2 Antenna

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 the Levelsystem including the remote control unit.

If you purchased the remote control at a later stage (i.e. not with the Levelsystem), then please be aware that 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)*

6.1.3 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)



6.1.4 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 buttons **“AUTOMATIC MODE”** (no.7) and **“RETRACT AXLE-JACKS”** (no.8) **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 (apr. 20 sec.)
 - The remote control turns off automatically.
 - When the LED Indicator (no.14) goes off, the pairing process is complete.

Remote control *(continued)*

6.1.5 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 that the caravan is already level, then the LED Indicator (no.14) lights up GREEN.

Further operation is described in the User manual (chapters 4.1 to 4.3)

6.1.6 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 little time, to give the system enough time to switch off contact between the remote control and the operating system.

NOTE 2: It may be that 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).

6.1.7 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.

6.2 Emergency hand pump *(optional)*

6.2.1 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.

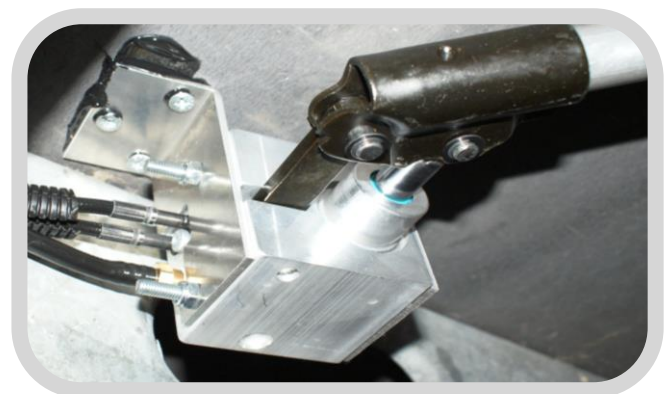
We call it an "emergency situation" because generally the time for withdrawing the axle jacks is, most often the time of a (planned) departure. By not automatically withdrawing the axle jacks you can no longer move, with adverse consequences.

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 that 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)

6.2.2 Putting the emergency pump into use

When actually using the emergency hand pump operation, proceed as follows:

Step 1 Using the Allen key, turn the gold hexagon 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.

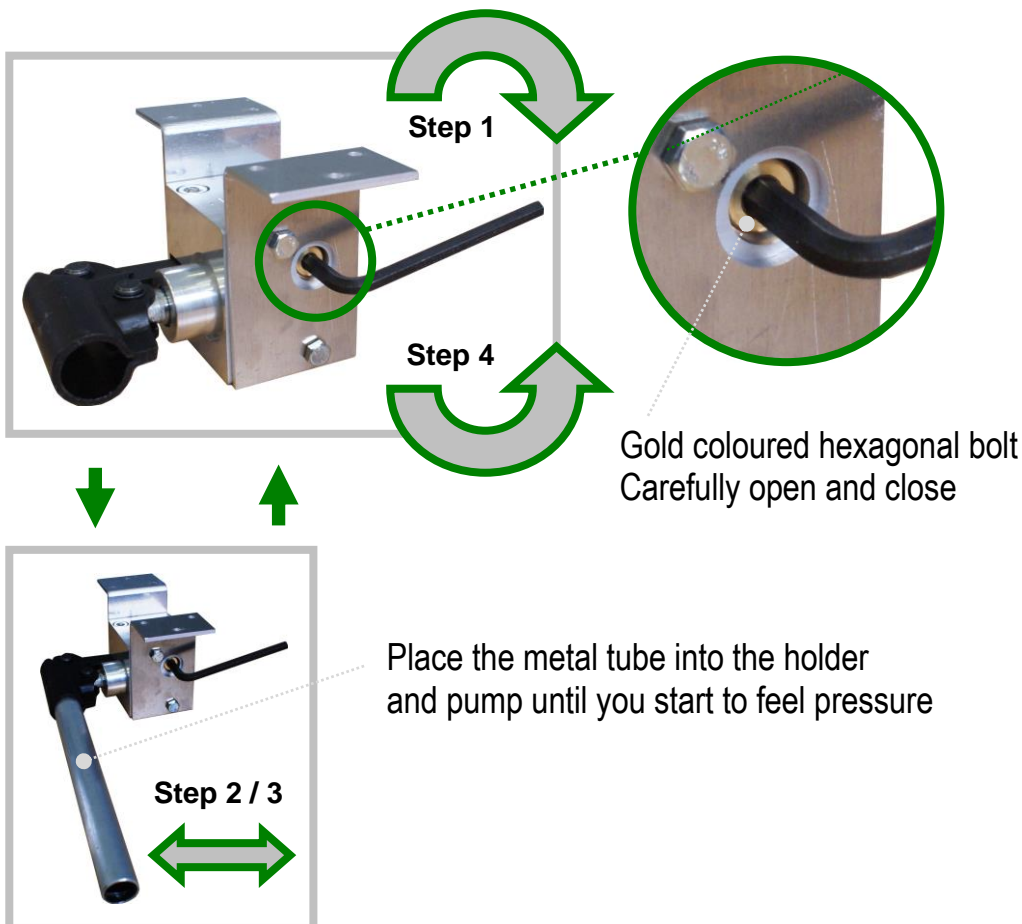
Pump (back and forth) with the metal tube until all axle jacks are withdrawn.
(all jacks will be retracted at the same time)

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.

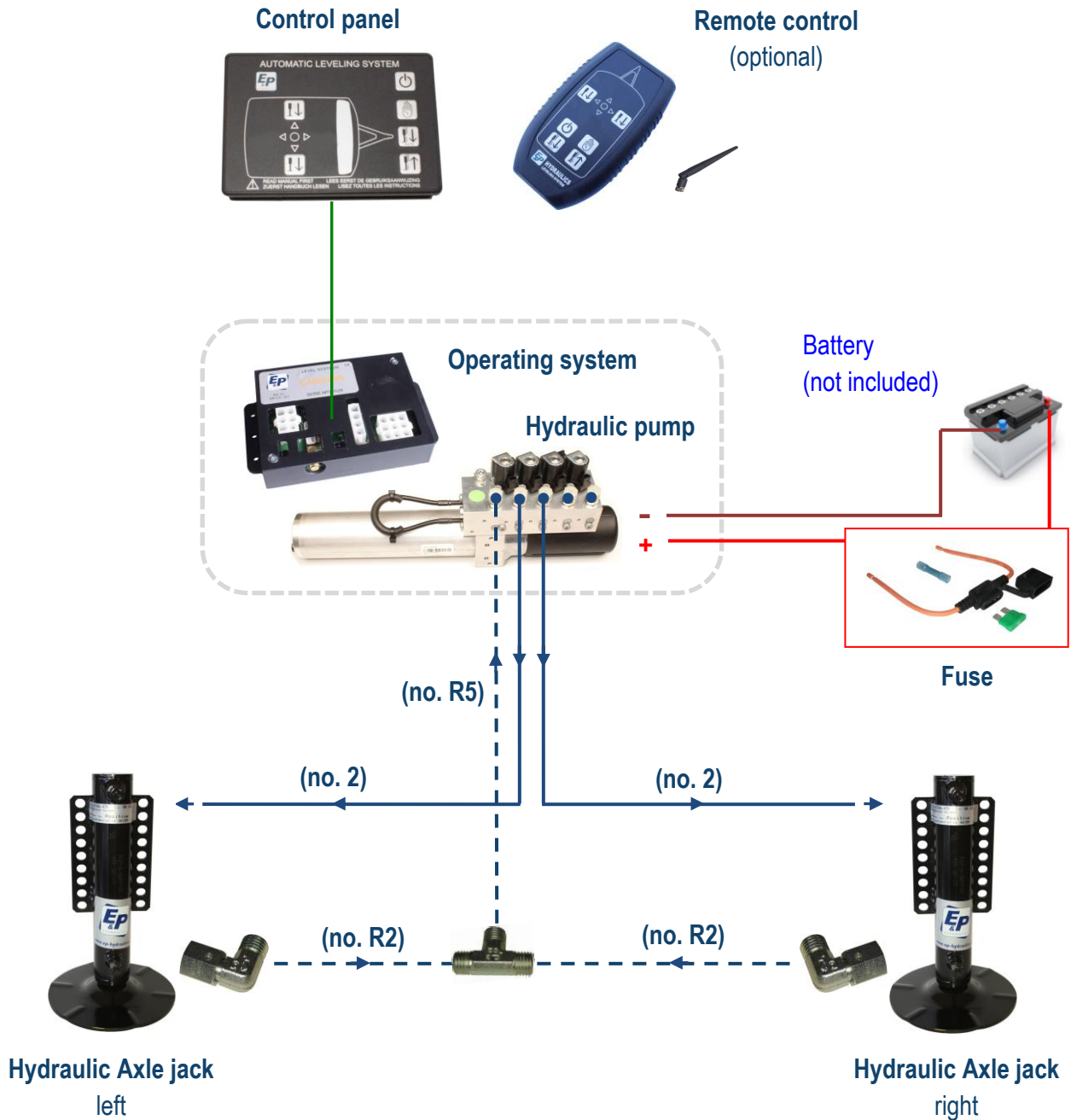
Step 4 Using the Allen key, turn the gold hexagon bolt on the emergency hand pump assembly carefully, anticlockwise, to the left until it locks (closed position).

Attention ! carefully turn to the locked (closed) position



7. Schematic diagram of the hydraulic Compact Levelsystem

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



8. Notes and recommendations

Onderstaand een overzicht betreffende de bijzonderheden (tips) van het hydraulische levelsysteem:

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

- After 4 minutes of no operation, the system will switch off automatically.
- The automatic levelling cycle can only be started after all jacks have been retracted. If the jacks are not retracted when you want to start the automatic Levelsysteem, than you must retract the axle jacks by pressing 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 that 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 in the manual mode.

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

In case of an error message, check or 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 for the fault, 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 LED's are off and the unit will only respond by pressing the button "ON / OFF" (no.5) switching the Levelsysteem on.

Problem	Possible causes	Solution(s)
<ul style="list-style-type: none"> ● The system fails to start ** ● The red battery lamp lights up. ● When the red battery lamp Lights continuously, the Installation is switched off for 4 minutes. 	<p>Battery voltage low.</p>	<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. 	<p>Oil level to low or no oil in the system.</p> <p>The pump is not working correctly.</p>	<ul style="list-style-type: none"> ● Check for any oil-leaks. <p>Repair or exchange.</p>

**** NOTHING** works, even no LED signal.

Possible cause: the **battery** is **fully out of order** (<5V)

IMPORTANT: For all other issues and/or malfunctioning of the system, please contact your dealer/installer.

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

The E&P Hydraulics Levelsystem does not have parts that 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 (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 that settles during use, it may obstruct the operation of the hydraulic leveling 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 winter (slippery) conditions we advise you to take additional safety and precautionary measures, especially because 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 tack 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 foot plates (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 round the caravan, if necessary remove snow and ice from the jacks before retracting.

› 11. Warranty (ONLY be carried out by the dealer / installer)

E&P Hydraulics has a limited factory warranty for (parts of) the hydraulic leveling 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.

» 12. Notes

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