



LEVELSYSTEM

CARAVAN



» **HYDRAULIC LEVELSYSTEM** «

CARAVAN COMPLETE

(6 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 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 Levelsystem's 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. This is the reason why E&P Hydraulics do all we 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 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 Levelsystem

1.1 Operating of the Levelsystem

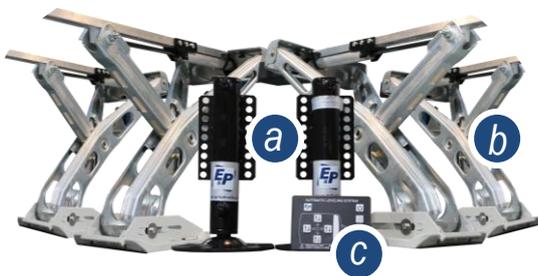
The E&P Hydraulics levelling system is an electrically/hydraulically driven system.

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

The E&P Hydraulics Levelsystem is electronically controlled by an operating system or so called main-unit, which is mounted at a central location in the caravan.

The Levelsystem can be operated either fully automatically or manually by means of a built-in control panel and/or (optional) remote control. In most cases the control panel is mounted in the side panel at the entrance of the caravan.

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



The Caravan Complete Levelsystem consists of:

- a. **Axle jacks** (2 pcs)
- b. **Corner supports** (4 pcs)
- c. **Control panel**
- d. **Emergency pushbutton**
- e. **Protective casing** (pump housing)
- f. **Hydraulic pump**
- g. **Operating system** (main-unit)

Optional extras:



- h. **Remote control**
- i. **Emergency pump**

The E&P Hydraulics Levelsystem *(continued)*

1.2 Using the hydraulic Levelsystem

The levelling system 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.

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

The caravan is then adjusted horizontally in the longitudinal direction with the aid of the four corner supports.

1.3 Specific features of the hydraulic Levelsystem

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



The E&P Hydraulics Levelsystem (continued)

1.4 Operating instructions

Before taking into service, the following points must be observed:

- The nose weight **(A)** may not exceed a **maximum of 100 KG**.
- Make sure the ground is sufficiently even and there are no holes and/or other obstructions present.
- Place the caravan on a firm footing, otherwise the axle supports may sink into the ground.
- It is important that when you use the system the caravan is pointing slightly downhill **(B)**.
- Never use the system if there is anything attached to the caravan e.g. an awning or a canopy.
- Never use the Levelsystem in automatic mode when the caravan is attached to the vehicle.



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.
- Ensure there are no loose objects under the caravan.
- Make sure that when levelling is being carried out, no-one is in 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.

BEFORE DRIVING OFF, CHECK TO MAKE SURE THAT ALL SUPPORTS HAVE BEEN WITHDRAWN.

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 other purposes than supporting the caravan is officially forbidden according to 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 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 the installation of the hydraulic Levelsystem was 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 stands stable (and all hydraulic jacks are on the ground).
- **VERY IMPORTANT!** Before driving off, check to make sure that all supports have been fully retracted.

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 Levelsystem. See also chapter 3.3 for the extended function declaration concerning buttons and indicator LED's.



Function declaration:

- | | |
|--------------------------------------|--------------------------------------|
| (1) LED: Slope too steep | (9) LED: Manual mode |
| (2) LED: Battery low voltage | (10) Button: Left axle jack |
| (3) LED: Withdraw front wheel | (11) Button: Rear corner supports |
| (4) LED: Jacks not (FULLY) retracted | (12) Button: Front corner supports |
| (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 all jacks | |

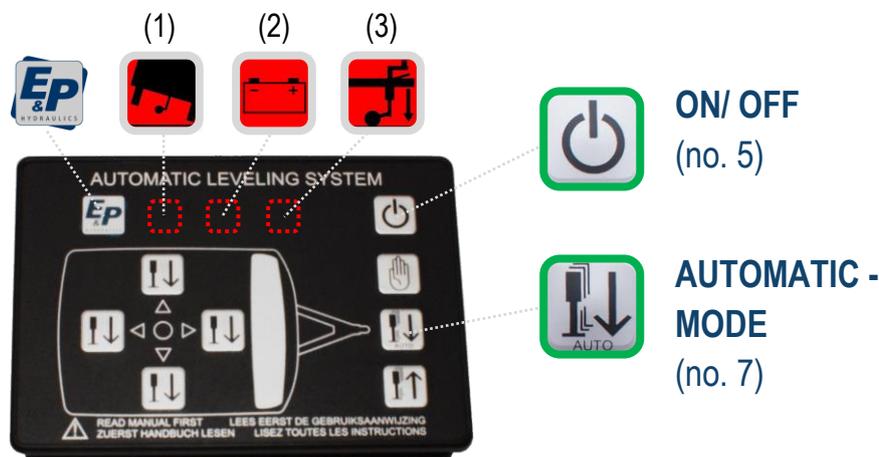
3.3 Extensive function declaration

		LEDs	
(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)		WITHDRAW FRONT WHEEL	The caravan is too high at the front, withdraw the front-wheel and the LED will go out.
(4)		JACKS NOT (FULLY) RETRACTED	One or more jacks are extended or not fully retracted.
(9)		MANUAL MODE	Indicates the caravan can now be brought to the correct level manually.
(14)		LEVEL INDICATOR	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 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 ALL JACKS	Automatically retracts all jacks.
(10)		LEFT AXLE JACK	Controls the left axle-jack.
(11)		REAR CORNER SUPPORT	Controls the rear corner-supports.
(12)		FRONT CORNER SUPPORT	Controls the front corner-supports.
(13)		RIGHT AXLE JACK	Controls the right axle-jack.

4. Operating the Levelsystem

4.1 Automatic levelling

The procedure for automatic deployment/extension of the axle and corner 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.



In automatic levelling, the caravan must be tilted a few degrees forwards. The system will indicate whether you have positioned the caravan level enough. If you have not, the LED indicator “FRONT WHEEL” (no.3) lights up, and the system cannot be started automatically. The front wheel must be wound down.



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 USING THE AUTOMATIC LEVELLING PROCEDURE OR CONTINUE USING THE MANUAL LEVELLING PROCEDURE (SECTION 4.2) AFTER PUTTING SOME SHIMS OR BLOCKS UNDER THE AXLE SUPPORT ON THE LOWEST SIDE OF THE CARAVAN.



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

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



NOTE: DEPENDING ON THE ANGLE OF THE TERRAIN AND TYPE OF CARAVAN, THE AUTOMATIC LEVELLING PROCEDURE TAKES ABOUT 1 MINUTE.



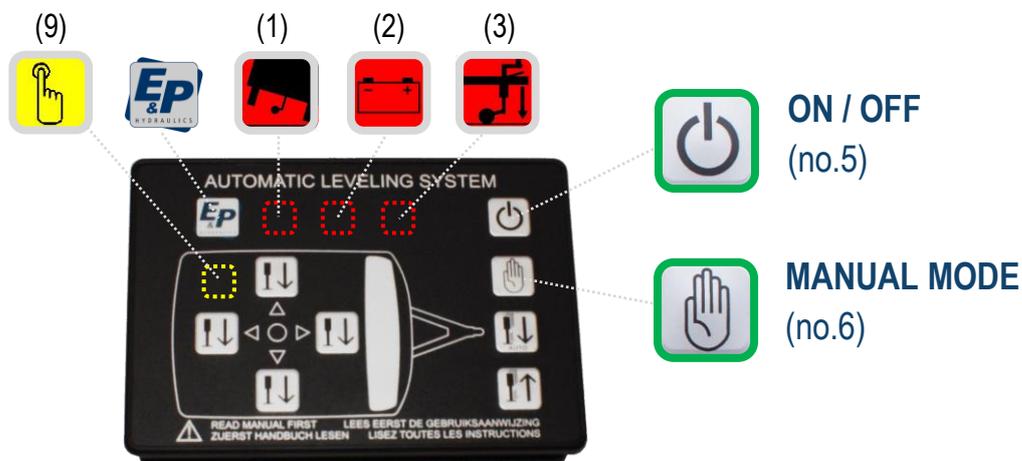
Step 3 Press 1 x on the “**ON / OFF**” button (no.5) to switch the Levelsystem OFF.

4.2 Manual levelling

The procedure for manual deployment/extension of the axle - and corner supports is as follows:

The manual levelling function is mainly used when automatic levelling is not possible due the caravan being on too great a slope.

NOTE: ON THE SIDE WHERE THE CARAVAN IS LOWEST, FILL THE SPACE UNDER THE AXLE SUPPORT (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.



In manual levelling, the caravan must be tilted a few degrees forwards. The system will indicate whether you have positioned the caravan level enough. If you have not, the LED indicator “FRONT WHEEL” (no.3) lights up.

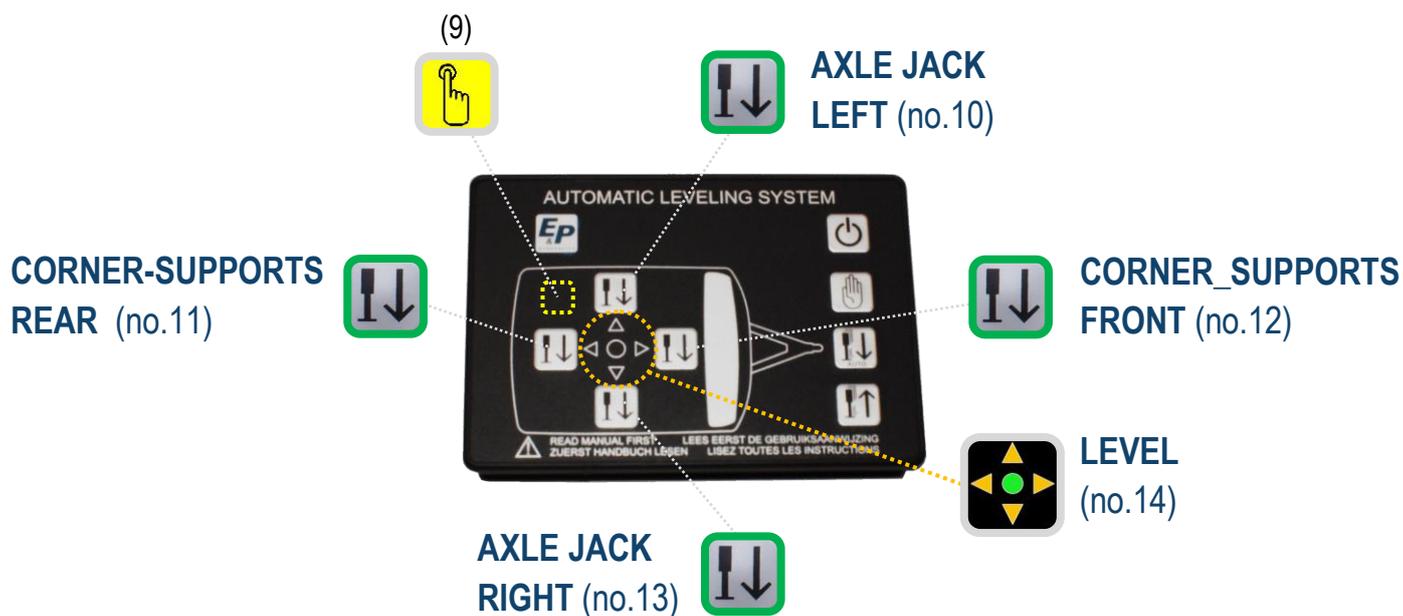


Step 2 Press 1 x on the “**MANUAL MODE**” button (no.6).



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) lights up indicating on which side the caravan needs to be lifted.

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

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

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 (frontside of the caravan stands too low) arrow.

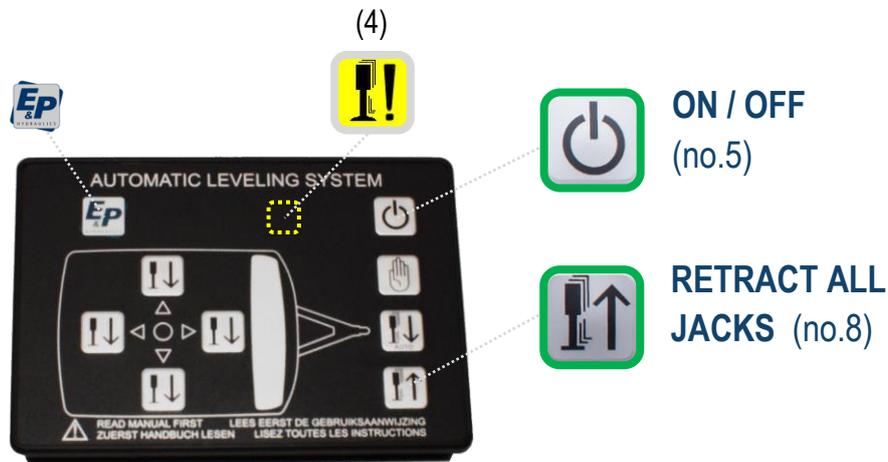
 **Step 4** Hold the button “**CORNER-SUPPORTS FRONT**” (no.12), until the ORANGE arrow level LED (no.14) goes out. Extension of the front corner supports will automatically stop when the caravan is levelled in the front to rear direction.

 **Step 5** Press the button “**CORNER-SUPPORTS REAR**” (no.11) until the rear corner supports touching the ground. **Attention! The level system does NOT stop automatically.**

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

4.3 Retracting the jacks

In below the procedure for automatic retraction of the axle - and corner supports.



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



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



Step 2 Press **1x** on the button “**RETRACT ALL JACKS**” (no.8).



The LED indicator “jacks not fully retracted” (no. 4) goes out when all jacks have been fully retracted.



Step 3 Press **1x** on the button “**ON / OFF**” (no.5) to switch the Levelsystem OFF.

IMPORTANT: Before departure ensure all supports have been retracted.

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 (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** Press the button’s **“CORNER-SUPPORTS FRONT”** (no.12) and **“CORNER-SUPPORTS REAR”** (no.11) to place the caravan horizontally in the 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 **“CORNER-SUPPORTS FRONT”** (no.12)
(this operation is confirmed by the system with an audio signal)
- Step 10** Press **5x** on the button **“CORNER-SUPPORTS REAR”** (no.11)
(all indicator LED’s light up)
- Step 11** Press **3x** on the button **“RETRACT ALL 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

5.2 Remote control programming

5.2.1 Introduction

The procedure described below has already been carried out at your dealer/installer. You don't have to perform this procedure by yourself. E&P Hydraulics has decided to include this chapter as an extra in this manual, in case of failure and/or service & repair matters.

When this operation, for some reason, has not been done or has been carried out incorrectly, it is not possible to level the caravan with the remote control.

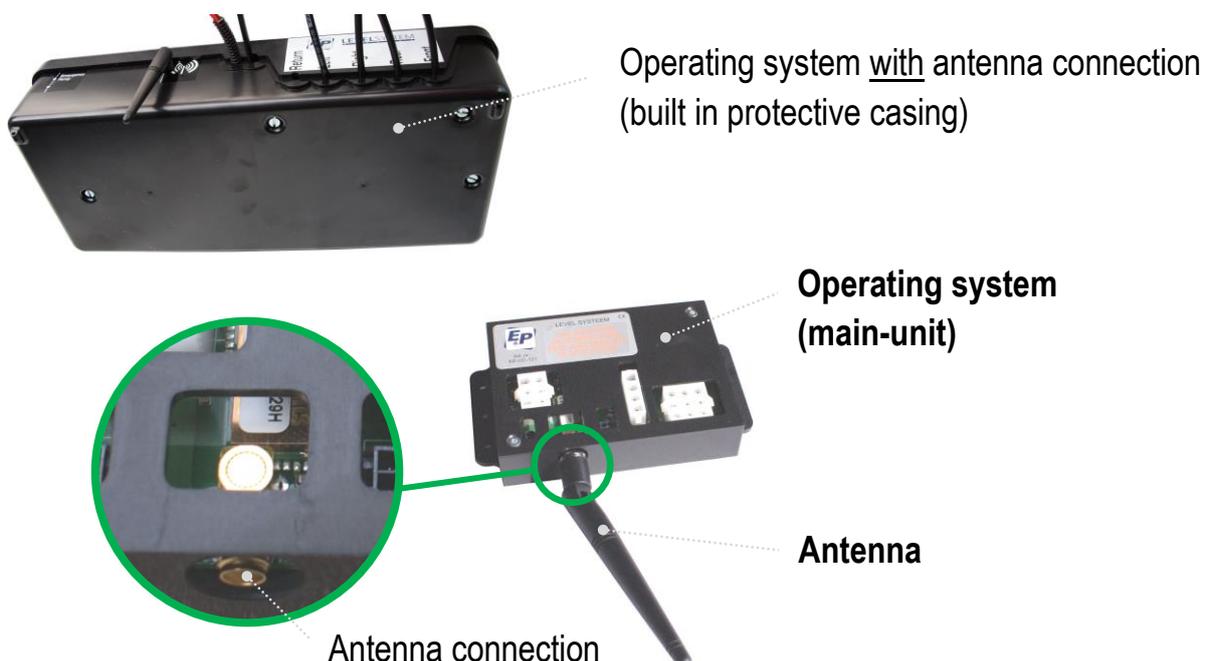
5.2.2. Antenna

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

If you purchased the remote control at a later stage (i.e. not with the Levelsystem), then you should remember that this 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 have this antenna connector. In this case, the dealer/installer can directly connect the antenna to the operating system (the antenna is supplied with the remote control)

Below is the 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 buttons **“AUTOMATIC MODE”** (no.7) and **“RETRACT ALL JACKS”** (no.8) **simultaneously**.

When done, the LED Indicator (no.14) with the surrounding 4 arrows starts blinking GREEN/ORANGE rapidly. This means the remote control is looking for its receiver, mounted within the operating system.

Step 3 Reconnect the fuse to the system.

- The pairing process should be made 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)*

5.2.5 Putting the remote control into use

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

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

Now the GREEN LED will light up by 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) central on the control panel shows the position of the caravan.

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

Further operation goes as described in the chapters 4.1 up to 4.3

5.2.6 Which device takes command

The device which is switched on first (remote control or control panel) takes the command to control 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.

REMARK 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.

REMARK 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).

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 apr. another 4 times.

Make sure there is a spare battery in the caravan.

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 possibility is offered by E&P Hydraulic for situations where, for whatever reason, the Levelsystem does not withdraw its support jacks and is therefore preventing you from driving, or moving, the caravan.

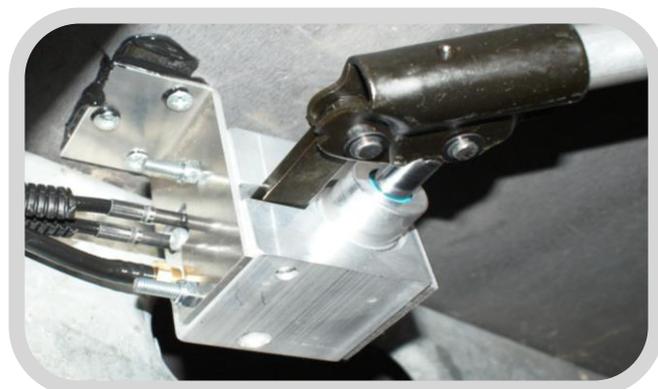
We call it an "emergency situation" because in practice the time for withdrawing the hydraulic jacks is, most often, also the time of a (planned) departure. By not automatically withdrawing the support jacks you can no longer move, with adverse consequences.

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 withdrawal of) all jacks. This means that the time of your departure, transport or movement can be guaranteed.

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 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.

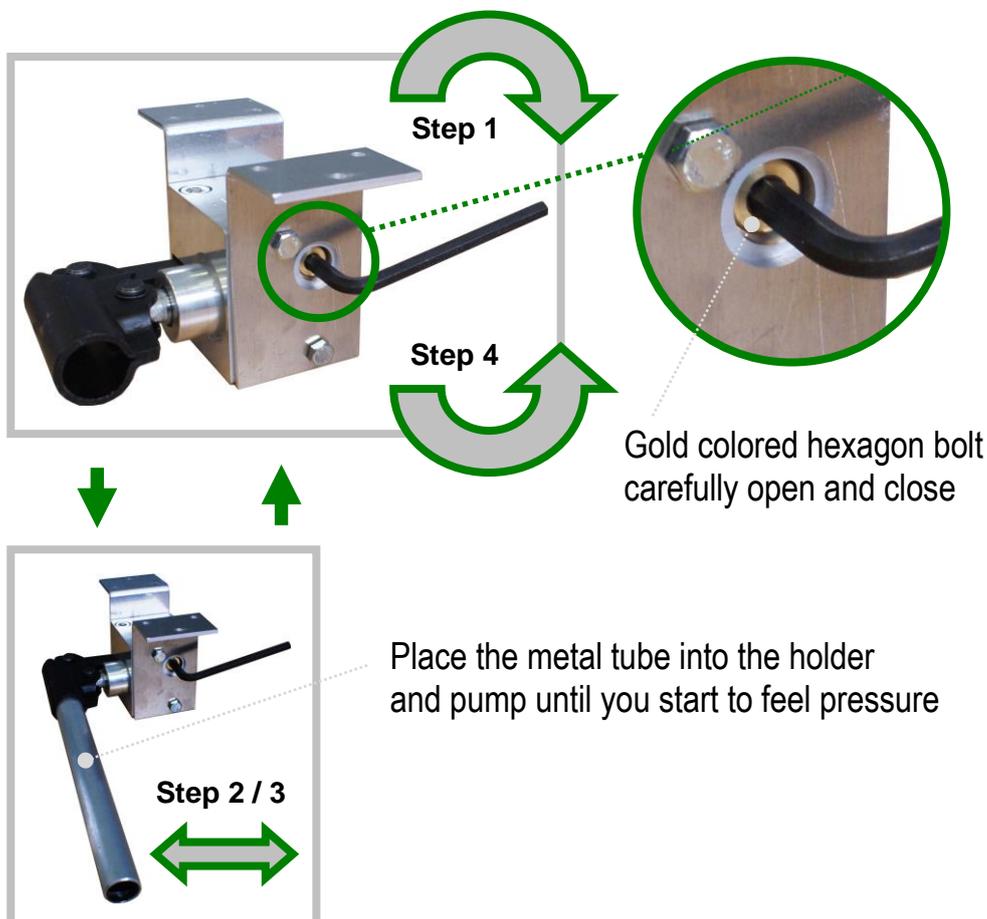
Pump (back and forth) with the metal tube until all hydraulic jacks are withdrawn.
(all jacks will be withdrawn at the same time)

The moment you feel pressure (resistance) building up during this movement is the sign the 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



5.4 Emergency pushbutton

5.4.1 Introduction

In the rare situation where the operating system is not functioning, the hydraulic axle jacks and corner supports 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 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 jacks are fully retracted.

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



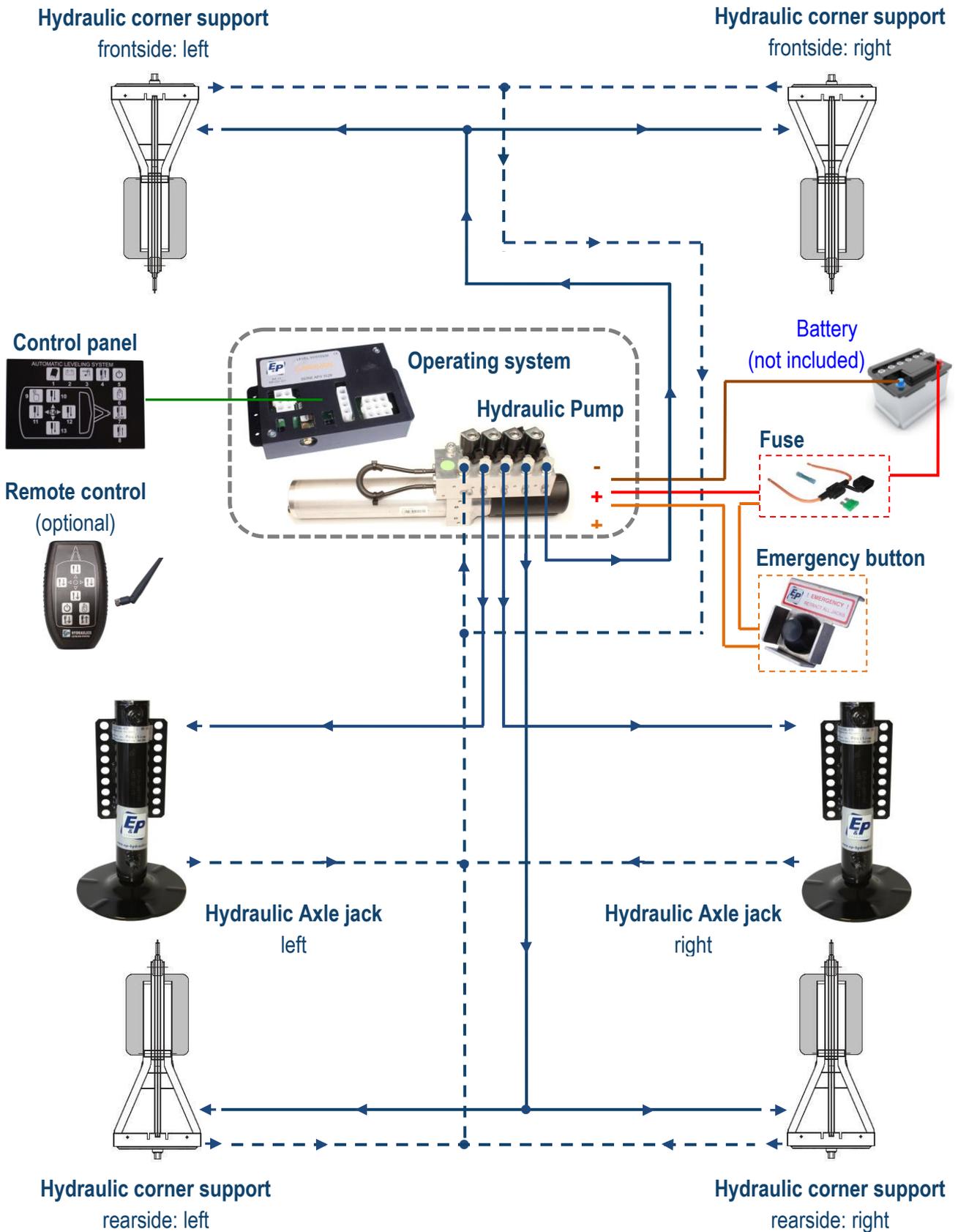
Emergency pushbutton composition.

PUSH BUTTON

hold it until all the hydraulic jacks are fully retracted.

6. Schematic diagram of the hydraulic Levelsystem

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



7. Remarks and recommendations

Below is an overview concerning remarks 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 jacks have been retracted. If the jacks are not retracted when the automatic cycle starts, the system will do this automatically. So it is not possible to make short adjustments to the jacks; the system will always first completely retract its jacks.
- At a low battery voltage, the system will automatically switch off.
- All normal functions of the system are switched off, in error mode.
- During winter conditions (e.g. in snow and ice) put something (e.g. a piece of carpet) under the jacks to avoid sliding.
- Manual operation is mainly recommended for uneven surfaces.
- The system cannot handle all angles, the limit values differ per caravan.
- If the system makes a slope angle that is too big and no longer responds to requests for automatic levelling, we recommend bringing the vehicle as close as possible to the zero point in manual mode.

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

In case of an error message, check or the caravan stands not too high at the front (front wheel must be withdrawn), whether the battery has sufficient voltage, whether the oil level is correct, whether there is any damage to the jacks, and check all the cables.

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 Levelsystem 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 support 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> <p>There is no or bad electronic connection.</p>	<ul style="list-style-type: none"> ● Check for any oil-leaks. Repair or exchange. Check cables for loss of voltage.
<ul style="list-style-type: none"> ● The system does not work automatically, lamp front wheel lights up. 	<p>Caravan stands too high on the front side.</p>	<ul style="list-style-type: none"> ● Withdrawn the front wheel.

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

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

IMPORTANT: For all other reports and/or mal-functioning of the system, please contact your dealer/installer.

9. 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 taken apart, the warranty will become invalid. If necessary parts could be substituted, repaired and/or exchanged (warranty). Please contact your E&P Hydraulics dealer/installer if necessary.

WARNING: In control/service-works 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 jacks.
 - Remove dirt, sand, mud and other contamination that settles during use, it may obstruct the operation of the hydraulic leveling system.
 - If the jacks remain extended for a longer 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 operation of the system. For optimal performance under extreme conditions (- 30 degrees) we recommend the use of a special hydraulic oil for low temperatures (consult an authorized 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 jacks.
- Clean the steel cylinder (piston rod) and spray with a silicone lubricant.
- Remove dirt from the foot plate (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.

» 10. Warranty

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.

» 11. Notes

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