

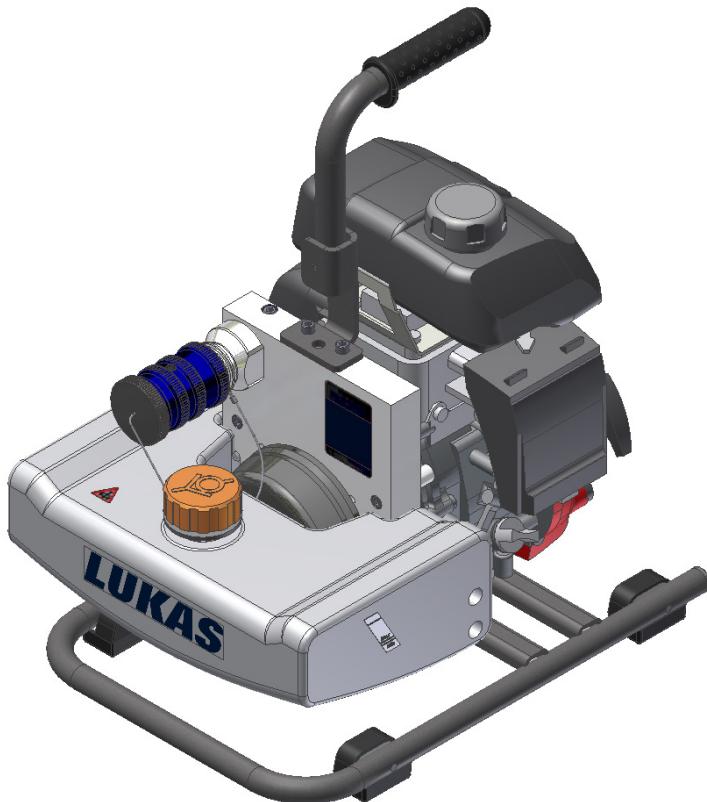
# LUKAS

Because you never get a second chance

## Instruction manual for rescue equipment



### Hydraulic power unit P 630 OG



175077085 EN  
Edition 02.2017  
replaces 11.2014

(Translation of the original instruction manual)

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# 1. Danger classifications

We differentiate between various different categories of safety instructions. The table below shows you an overview of the assignment of symbols (pictograms) and signal words to the specific hazard and the potential consequences.

Pictogram	Damage / injury to	Key word	Definition	Consequences
	Persons	DANGER!	Immediate danger	Death or severe injury
		WARNING!	Potentially dangerous situation	Potential death or serious injury
		CAUTION!	Less dangerous situation	Minor or slight injury
	Property	ATTENTION!	Danger of damage to property/ environment	Damage to the equipment, damage to the environment, damage to surroundings
	-	NOTE	Handling tips and other important/ useful information and advice	No injury/damage to persons/ environment/ device



Wear a helmet with a face guard



Wear protective gloves



Wear safety shoes



Proper recycling



Protect the environment



Read and follow the operating instructions

## 2. Product safety

LUKAS products are developed and manufactured to ensure the best performance and quality when used as intended.

The safety of the operator is the most important consideration in product design. Furthermore, the operating instructions are intended to help in using LUKAS products safely.

The generally applicable legal and other binding regulations pertaining to the prevention of accidents and protection of the environment apply and are to be complied with in addition to the operating instructions.

The equipment may only be operated by persons with appropriate training in the safety aspects of such equipment, otherwise there is a risk of injury.

We would like to point out to all users that they should read carefully the operating instructions and the instructions contained therein before they use the equipment, and that they should be carefully followed.

We also recommend that you have a qualified trainer show you how to use the product.



### **WARNING / CAUTION!**

You must also observe the operating instructions for the hoses, the accessories and the connected devices!

Even if you have already received instructions on how to use the equipment, you should still read through the following safety instructions again.



### **WARNING / CAUTION!**

Ensure that the accessories and connected equipment are suitable for the maximum operating pressure!

	Please ensure that no body parts or clothing get stuck between the visibly moving parts.	Immediately report any changes that occur (including changes in operating behaviour) to the appropriate persons/ departments! If necessary, the equipment is to be shut down immediately and secured!	
	Wear protective clothing, safety helmet with visor, safety shoes and protective gloves.	Check the equipment for visible flaws or damage before and after use.	 
	Working under suspended loads is not permitted where such loads are being lifted only by means of hydraulic devices. If this work is unavoidable, suitable mechanical supports are also required.	Check all lines, hoses and screwed connections for leaks and externally visible damage, and repair immediately! Escaping hydraulic fluid can cause injuries and fires.	 

	In the event of malfunctions, immediately deactivate the device and secure it. Repair the fault immediately.	Do not carry out any changes (additions or conversions) to the equipment without obtaining the approval of LUKAS beforehand.	
 	Observe all safety and danger information on the device and in the operating instructions.	All safety and danger instructions on the device must always be complete and in a legible condition	
 	Please ensure that all safety covers are present on the equipment and that they are in proper and adequate condition.	Any mode of operation which compromises the safety and/ or stability of the device is forbidden!	 
 	Safety devices must never be disabled!	The maximum operating pressure set on the equipment must not be changed!	 
	Make sure before switching on/starting up the device and during its operation that this will put no one in danger.	Observe all intervals for recurring tests and/or inspections that are prescribed or stated in the operating instructions.	
 	When working close to live components and cables, suitable measures must be taken to avoid current transfers or high-voltage transfers to the equipment.	Only original LUKAS accessories and spare parts are to be used for repairs.  When working with this equipment or when transporting it, ensure that you do not get caught up in the hose or cable loops and trip.	 
 	The build-up of static charge and therefore possible sparking must be avoided when handling the device.	Do not touch the engine and exhaust system when running with combustion engine pumps because of the danger of burning.	
 	Motorised pumps must not be operated in areas at risk of explosion!	Combustion engines must not be operated in enclosed spaces because of the danger of poisoning and / or smothering.	

	<p>If you spill any fuel when using combustion engines, you must remove the spilled fuel completely before starting the engine.</p>	<p>Refuelling whilst the engine is running is strictly prohibited!</p>	
	<p>Keep combustion engines and their fuels away from sources of ignition since otherwise there will be a danger of explosion.</p>	<p>All damaged electrical components e.g. scorched cables, etc. are to be replaced immediately!</p>	
	<p>In order to prevent the danger of fire, you should ensure adequate ventilation when operating combustion engines and you must keep a safety distance of at least 1m (39.4 in.) to walls and other screens.</p>	<p>Damage to electrical components may only be repaired by a qualified electrician in compliance with all applicable national and international safety guidelines and regulations.</p>	
	<p>Make sure that the combustion engines are always standing on as flat and horizontal a surface as possible to prevent fuel from leaking out.</p>	<p>When setting up the units, you must ensure that they are not impaired by the effects of extreme temperatures.</p>	
	<p>The equipment is filled with hydraulic fluid. This hydraulic fluid can be detrimental to health if it is swallowed or its vapour is inhaled. Direct contact with the skin must be avoided for the same reason. Also, when handling hydraulic fluid, note that it can negatively affect biological systems.</p>	<p>When working with or storing the equipment, ensure that the function and the safety of the equipment are not impaired by the effects of severe external temperatures or that the equipment is damaged in any way. Please note that the equipment can also heat up over a long period of use.</p>	
	<p>Make sure there is adequate lighting while working.</p>	<p>Before transporting the equipment, always ensure that the accessories are positioned in such a way that they cannot cause an accident.</p>	
	<p>Always keep these operating instructions easily accessible at the place of operation.</p>	<p>Ensure the proper disposal of all removed parts, leftover oil, hydraulic fluid and packaging materials.</p>	

The generally applicable, legal and other binding national and international regulations pertaining to the prevention of accidents and protection of the environment apply and are to be implemented in addition to the operating instructions.

## **WARNING / CAUTION / ATTENTION!**

The device is exclusively intended for the purpose stated in the operating instructions (see chapter "Appropriate Use"). Any other use is not considered to be appropriate. The manufacturer/supplier is not liable for any damage resulting from inappropriate use. The user bears sole responsibility for such use.

Appropriate use includes observance of the operating instructions and compliance with the inspection and maintenance conditions.



**Never work in a fatigued or intoxicated state!**



### **WARNING / CAUTION / ATTENTION!**

However, if you still injure yourself on the hydraulic unit, clean the wound immediately and consult a doctor to have it attended to!



If you get hydraulic fluid in your eye, rinse it immediately several times with clear, clean water and consult a doctor!

Also, if you swallow hydraulic fluid you should consult a doctor!

### 3. Intended use

LUKAS hydraulic units are specially designed to supply LUKAS rescue equipment with hydraulic fluid so that this equipment can be used to rescue victims of road, rail or air traffic accidents, as well as from buildings.

Their use for supplying pressure / fluid to lifting systems of other manufacturers is possible, but requires the technical inspection and approval of LUKAS in each individual case.

The equipment is not designed to operate **without hoses or equipment** (operating time < 15 minutes).



#### **WARNING / CAUTION / ATTENTION!**

The safety instructions in these operating instructions concerning the installation site and type of installation must **always** be observed!

LUKAS units of the type P 630 are **not** explosion protected!

When using the equipment in explosion risk areas you **must** make sure that operation of the unit does not trigger an explosion!

The responsibility for explosion prevention or for ruling out work with the P 630 rests with the operator of the device or with the person responsible at the operating site.

**When working in areas at risk of explosion, all applicable legal, national and international regulations, standards and safety rules for avoiding explosions must be observed without restriction!**

The equipment should not come into contact with acids or alkalis. If this is unavoidable, clean the equipment immediately afterwards with a suitable cleaning agent.

You can obtain accessories and replacement parts for the rescue equipment from your authorised LUKAS dealer!



#### **ATTENTION!**

When selecting the equipment to connect to the unit, bear in mind that the maximum possible useable volume of hydraulic fluid is limited.

The sum of the maximum required operating volume (hydraulic fluid) of all connected equipment may not exceed the maximum possible usable volume of the unit!

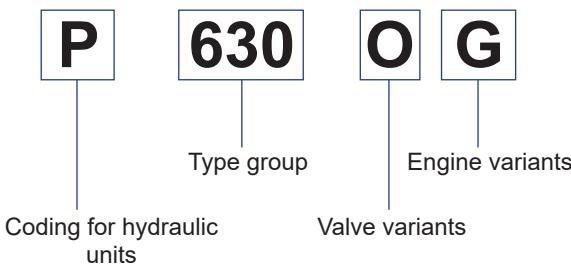


#### **NOTE:**

Always register your hydraulic unit on the LUKAS Hydraulik GmbH internet site. This is the only way to guarantee your extended warranty cover.

Before you use couplings from a different company, you must contact LUKAS or an authorised dealer.

## 4. Unit designation



**Valve variants:**

O = single-flow operation

**Engine variants:**

G = gasoline engine

## 5. Functional description

### 5.1 General information

On all LUKAS hydraulic units, the hydraulic pump is operated with an engine. The pump conveys fluid from the hydraulic oil tank and builds up the pressure in the tool. Fluid is distributed to the connected equipment through valves.

The P 630 OG is a unit with a base and with a gasoline engine and single-flow operation.

All LUKAS rescue devices can be operated with the standard factory hydraulic fluid filling of 1.7 l (0.45 gal.-US).

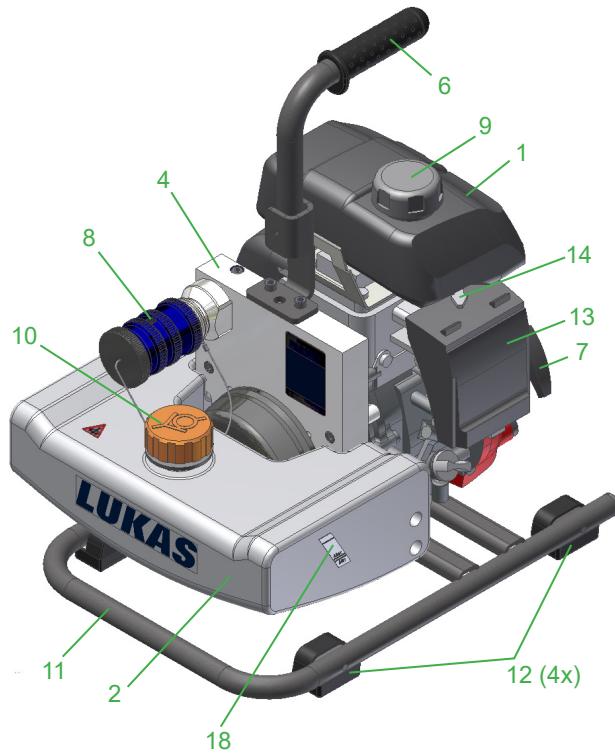
An **exception applies, however**, for the following rescue rams:

- R 422 and LTR 12/705 EN
- R 424 and LTR 12/875 EN
- R 430 and LTR 3,5/820 EN

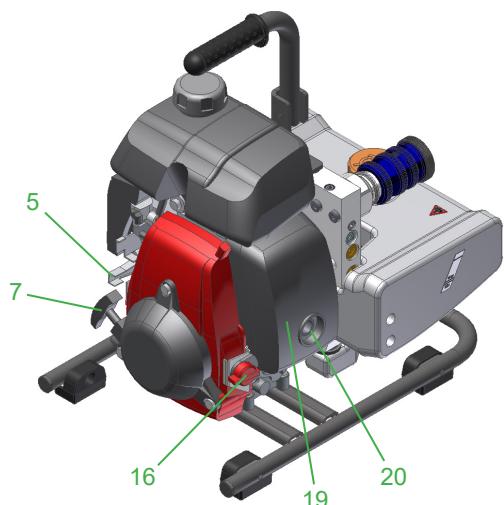
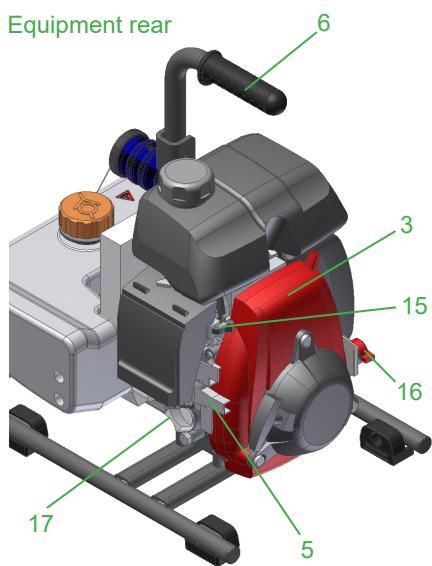
Before using any one of these cylinders you should fill the hydraulic oil reservoir up to the top level mark of the filling indicator. Please note that this way the weight of the motorpump will increase correspondingly.

The extension hose pairs especially designed for this power unit are 5 m (16.4 ft.) and 10 m (32.8 ft.) long.

## 5.2 Installation of the unit



- 1 Gasoline tank
- 2 Hydraulic fluid tank
- 3 Engine
- 4 Hydraulic pump
- 5 (Speed adjusting lever)
- 6 Carrying handle (swivelling)
- 7 Cable starter
- 8 Mono-coupling socket
- 9 Fuel filler cover
- 10 Filler cover for hydraulic fluid
- 11 Base
- 12 Rubber buffer
- 13 Air filter
- 14 Choke
- 15 Fuel tap
- 16 ON/OFF switch (engine switch)
- 17 Engine oil filler cap/dipstick
- 18 Fill level indicator
- 19 Silencer protection
- 20 Spark protection



## 5.3 Engine



### **WARNING / CAUTION / ATTENTION!**

See also the separate operating instructions of each engine manufacturer accompanying the delivery.

### 5.3.1 Gasoline engine

These hydraulic units are equipped with a combustion engine driven by gasoline.

The units are equipped with a cable starter with which the engine is started.

*(For specific details, please consult the separate operating instructions of the engine manufacturer!)*

The HONDA engines have a main switch that must be activated to switch the unit on and off. The speed adjustment lever for this unit has been permanently set for rescue equipment use.

***Switch setting (standard): Speed 4500 rpm "��" may not be changed.***

*(For other applications, the lever can be adjusted up to the upper limit stop "��". Setting takes place by adjusting the limit screw and moving the speed adjustment lever.)*



### **NOTE:**

The engine installed in LUKAS units does not match every detail of the engine described in the manufacturer's separate operating instructions.

Nevertheless, it is important that you follow all safety rules and operating, maintenance and storage instructions in the separate engine instructions as given, as they are not affected by adjustments made by LUKAS.

## 5.4 Connecting block with mono coupling

The pump block is integrated into the hydraulic unit. The hose assemblies (pressure line (grey) and return (blue)) must be connected to the pump block via the mono-coupling. The rescue equipment is connected to the hose assembly.

The hoses are connected with the connecting block via a mono-coupling.



### ATTENTION!

When operating several pieces of rescue equipment with one unit, ensure that the usable volume of hydraulic fluid in the unit is greater than the maximum possible operating fluid volume of all connected rescue equipment!

## 5.5 Pump

The LUKAS hydraulic unit P 630 OG comes equipped with a single-flow pump. The pump is rigidly connected to the connecting block.

Single-flow pump for operating with rescue equipment

The pump used always has two pressure stages - one low pressure and one high pressure.

Low-pressure level (LP) = up to 14 MPa\*

High-pressure level (HP)= up to 70 MPa\*

\*) 1 MPa = 10 bar)

The changeover from low pressure to high pressure is carried out automatically by the pump. This system is secured with a pressure limiting valve. Therefore, the maximum permissible system pressure cannot be exceeded.



### WARNING / CAUTION / ATTENTION!

For safety reasons, the pressure set on this valve must not be adjusted (without the approval of LUKAS directly)!

## 6. Connecting the hoses / devices



### ATTENTION!

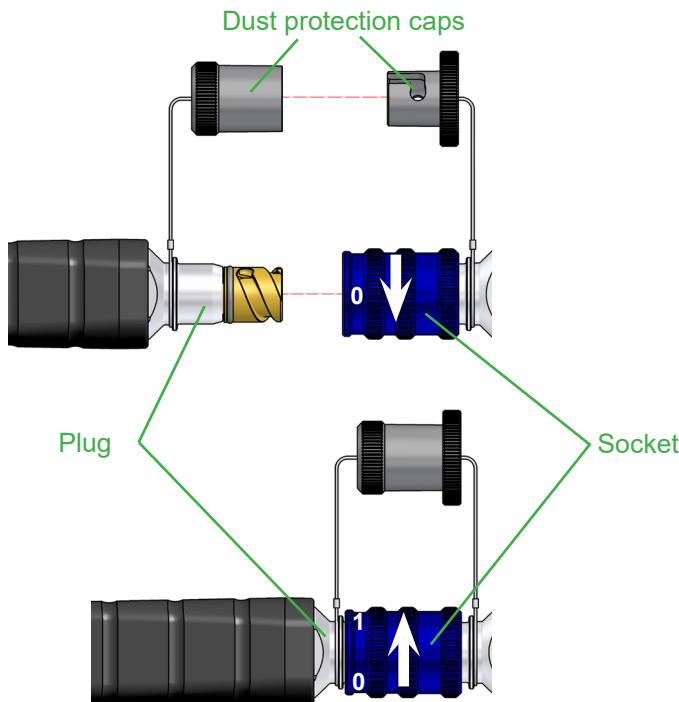
When connecting the hose assemblies / equipment, always ensure that the connection components are not contaminated with dirt. Clean prior to use if necessary!



### WARNING / CAUTION / ATTENTION!

Before connecting the equipment, make sure that **all the components used** are suitable for **the maximum operating pressure of the hydraulic unit!** In cases of doubt, consult LUKAS directly before connecting the equipment!

The hose assemblies / equipment are connected via quick-disconnect coupling halves (female and male) to the hydraulic pump or hose reel in such a way that they cannot be reversed.



Remove the dust caps before coupling together. Then push the male and female parts together and turn the locking sleeve on the female coupling in the direction "1" until the locking sleeve clicks in place. The connection has been made and locked. Decoupling is accomplished by turning the locking sleeve in direction "0".

Coupling of the hose assemblies when under pressure is also possible, assuming that the connected equipment is not turned on.



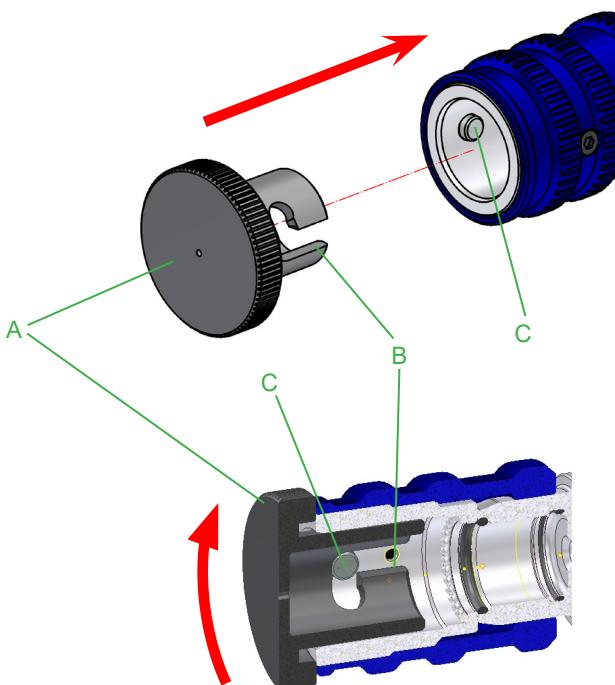
***NOTE:***

We recommend connecting the coupling halves in a **depressurised** state when working in areas with low ambient temperature and using extension hose assemblies / hose reels, as otherwise the coupling may require the application of a great deal of force.

For dust protection, the supplied dust caps must be refitted.

**Using the dust protection caps:**

The dust protection caps "A" have two external grooves "B". The dust protection caps must be inserted in the female coupling in such a way that the grooves can be guided over the pins "C". Screw in the dust protection caps to the limit stop to fix them in the coupling sockets.



## 7. Erection and start-up

### 7.1 Set-up



#### **WARNING / CAUTION / ATTENTION!**

Because of possible spark formation, combustion engine units and electrical equipment must not be used in an explosion-risk area. Units with combustion engines must not be used in enclosed spaces, as there is a danger of poisoning and/or asphyxiation!

The unit is to be set up in a suitable location (safe location / flat surface / sufficient distance from vehicles, loads, sources of ignition, etc.).

LUKAS units work perfectly at an angle of up to 20°. However, in order to guarantee maximum safety and fluid withdrawal, they should be operated in as horizontal a position as possible.

### 7.2 Start-up



#### **NOTE:**

The engine oil level must be inspected before the first commissioning or after longer periods of storage. First fill the engine or top up with engine oil! For safety reasons, LUKAS units do not contain engine oil upon delivery!

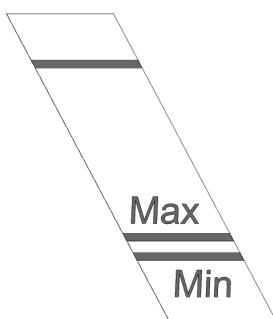


#### **ATTENTION!**

Never mix up the fuel and hydraulic fluid tanks when filling the tank; this can damage the unit!

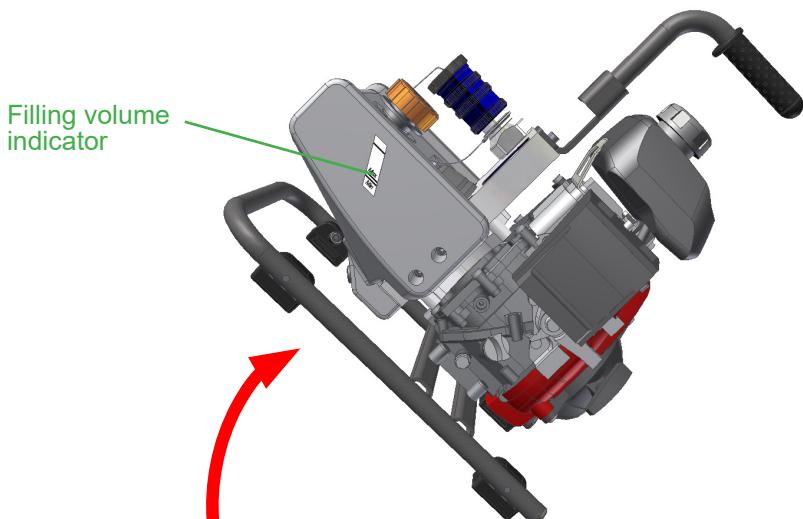
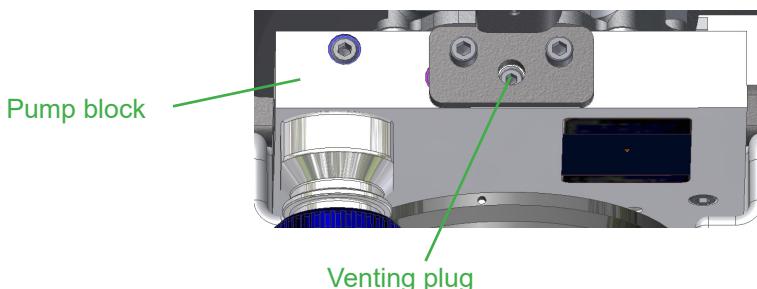
#### **7.2.1 First commissioning - Unit without engine oil and gasoline.**

1. Pour in the engine oil according to the instructions in the scope of delivery included with the separate manufacturer operating instructions regarding the filler opening (engine oil filler cap, see chapter "Installation of the unit").
2. Pour hydraulic oil into the hydraulic fluid tank until the filling level indicator in the viewing window is between MIN/MAX (see illustration on the right). The upper mark shows the absolute filling level when connecting additional equipment with increased usable volume. The resulting fill quantity is up to 3.0 l.
3. Pour fuel (gasoline) into the tank up to the lower edge of the fuel level mark, i.e. a convex edge below the filler opening. If the unit is resting on an inclined surface, do not fill the tank to its maximum capacity.



Filling indicator for  
hydraulic fluid

4. Now vent the hydraulic unit (after refilling or hydraulic oil change):
5. Open and remove the tank cap so that air enters the tank.
6. Open the venting screw on the pump block, tilt the unit backwards by approx. 45°- 60° (see illustration) and wait until oil comes out from the screw. If necessary, tilt the pump further. The filling level should be between MIN/MAX when the unit is in a horizontal position. For filling level, see illustration below.



7. If oil comes out at the venting screw, the air has escaped out of the pump. First close the venting plug and then return the unit to level.
8. Check the fluid levels again. Top up if necessary.
9. Now connect the extension hoses and/or hose reels (unless already connected to the unit) and/or connect the rescue equipment.

## 7.2.2 Commissioning (after the first filling or prior to use)

1. Check the fluid level of the engine oil, the hydraulic fluid and the fuel tank. Top up if necessary. For precise reading of the fluid levels and for topping up, the hydraulic unit should be as level as possible.
2. Now connect the extension hoses and/or hose reels (unless already connected to the unit) and/or connect the rescue equipment.

## 8. Operation

### 8.1 Starting the engine

Before starting the combustion engine, check that the fuel tank is full and that the engine oil level is within the permitted tolerances. If necessary, top up the relevant fluid.

1. Open gasoline tap.
2. Set the ON/OFF switch to the ON position.
3. Move lever from switching position A to switching position B (choke) when starting from cold
4. Pull starter cable.
5. When the engine is running, switch the lever back to position A.

*For the detailed procedure for starting the combustion engine, please see the separate operating instructions of the engine manufacturer!*



### 8.2 Stopping the engine



#### ATTENTION!

The engine can be fully used directly after starting it. However, after **starting**, the engine must be allowed to run for **at least two minutes** before switching it off, so that no malfunction can or premature wear and tear can occur.

1. Set the ON / OFF switch to the OFF position.
2. When the engine has come to a standstill, close the fuel tap.



*For more details on switching the engine off, please refer to the separate operating instructions of the engine manufacturer!*



#### WARNING / CAUTION!

Never touch hot engine parts: this could result in severe burns!

## 8.3 Refuelling

The engine must be switched off for refuelling!

**Procedure:**

1. Open the fuel tank cap.
2. Pour fuel into the tank up to the lower edge of the fuel level indicator, i.e. the convex edge below the filler opening.



***WARNING / CAUTION / ATTENTION!***

Be sure not to spill fuel. In particular, hot engine parts must not come into contact with fuel; danger of fire otherwise!



If fuel is spilled, it must be cleaned up immediately with a suitable absorbent cloth. In doing so, be careful not to burn yourself on one of the hot engine parts! The used cloth must then be cleaned or disposed of according to the relevant provisions and guidelines.

3. Close the fuel tank again with the fuel tank cap.

## 8.4 Controlling the valves

The mono-coupling has been designed in such a way that they are automatically in the de-pressurised state without a connected device.

The control unit on the device controls the switching of the valve when the device is connected.

# 9. Dismantling the equipment / deactivation following operation

Once work has been completed, all connected equipment is to be reset to its neutral position (storage position) before the unit is shut down. Subsequently, you can switch the engine off.

**Mono-couplings:**

If the connected hose assemblies are to be dismantled during shut-down, decouple as described in chapter "Coupling the mono-couplings". Ensure that you put the dust protection caps back onto the mono-coupling halves.

Clean the hydraulic unit of any stubborn dirt prior to storage.

If the equipment is to be stored for a longer period of time, the exterior is to be cleaned completely and the mechanically mobile parts are to be lubricated. You should also remove the fuel from the fuel tank.

Avoid storing the P 630 OG in a damp environment.

*Observe the additional regulations in the separate operating instructions for the hoses.*



***CAUTION!***

Depending on the size and weight of the hydraulic unit, it should be transported to the storage location by one or more persons.

## 10. Tests

The hydraulic units are subject to very high levels of mechanical stress. A visual inspection must therefore be carried out after every use and at least one visual inspection must be carried out every six months.

This reveals wear and tear in good time; punctual replacement of these wearing parts prevents damage to the equipment. Also check regularly that all the securing screws are tightened (if applicable, observe the prescribed tightening torques).

Every 3 years or when there might be doubts regarding the safety or reliability of the unit, an additional function check is to be carried out (in this connection, comply with the applicable national and international regulations with regard to the maintenance intervals of rescue equipment). Operating time per day In the Federal Republic of Germany, regular safety inspections according to the regulations of the Gesetzlichen Unfallversicherung (GUV; connoted 'Legal accident insurance') are mandatory.



### **ATTENTION!**

Clean off any dirt before checking the device!



### **WARNING / CAUTION / ATTENTION!**

To perform inspections, maintenance and repairs, personal safety equipment appropriate for the work is an absolute requirement. (when necessary also use screens).

LUKAS offers a suitable test kit for the function test of the hydraulic units.

*(For specific details, please consult the LUKAS range of accessories or contact your LUKAS dealer.)*

### **10.1 Recommended test intervals**

#### **10.1.1 General visual inspection**

A visual inspection must be carried out after every use, but at least once every six months.

### 10.1.2 Function check

<b>Operating time per day</b>	<b>Function test</b>
up to 1 hour	1 x annually
up to 8 hours	1 x per quarter
up to 24 hours	1 x per month

In addition to these test intervals you need to carry out a function test if:

- the unit makes unusual noises,
- there is a justified suspicion of internal damage to the unit.

If the noises and suspicions referred to above arise several times in a month, or if maximum pressure cannot be achieved during the function test, you should contact LUKAS customer service immediately. The contact details are given in the Chapter "Fault analysis".

## 10.2 Visual and function check

### Visual Inspection

- Tightness of all hydraulic connections,
- General tightness, no leakage (sweated oil does not have any influence on the function),
- Is there any detectable damage to the engine, connecting blocks, on the frame or the side sections,
- Is there any sign of damage to the hydraulics or fuel tank,
- Is the spark catcher free of oil carbon deposits,
- Presence and legibility of the identification plate, all actuation signs, instruction signs, markings and warnings,
- The presence and perfect condition of all covers (e.g. exhaust deflector),
- All fluid levels are within the specified tolerances,
- Are the rotary switches and switching levers in proper working order and undamaged,
- Couplings must be easy to couple,
- Dust protection caps must be available,
- All required accessory parts (e.g. spark plug, spark plug spanner and fuel can) are present.

### Function test

- Unconventional or noticeable noises heard during operation,
- Cable starter fully functional,
- Engine switch, switch lever and couplings fully functional,
- Test for maximum load.



#### NOTE:

use the LUKAS test kit, including testing instructions, for the function test.

# 11.Maintenance and repair

## 11.1 General information

The LUKAS hydraulic unit P 630 OG requires very little maintenance. For **service work**, special illustrations are unnecessary; however, knowledge about the function of the unit, the legal safety instructions and dealing with the required tools are basic prerequisites.



### ATTENTION!

Never use unnecessary force during maintenance work that could damage the components of the unit or compromise operational safety.

For safety reasons (high-pressure pump), **service work** on the hydraulic unit may only be executed by the equipment manufacturer, personnel trained by the equipment manufacturer or authorised LUKAS dealers.



### WARNING / CAUTION / ATTENTION!

Protective clothes must be worn when maintenance and repairs are being carried out, since the devices may also be pressurised when not in operation.

During work, ensure that all components are particularly clean, since dirt can damage the rescue equipment!



### ATTENTION!

As LUKAS hydraulic units are designed for top performance, only those components in the replacement parts lists for the relevant unit can be replaced. Further components in the unit may only be replaced if:

- You have participated in an appropriate LUKAS service training course.
- You have the express permission of LUKAS customer service (permission will be verified on request. To be checked in each individual case!)

When cleaning units and equipment, note that no cleaning agent may be used that has a pH value outside the range 5 - 8!



### ATTENTION!

Attention must be paid to ensuring that no operating fluids escape from the units during repair work!

## 11.2 Service work on the hydraulic unit

### 11.2.1 Care instructions

The exterior of the device must be cleaned from time to time (**not the electrical contacts**) and the metallic surfaces (**not the electrical contacts**) must be treated with a suitable agent to protect against corrosion.

(*In case of doubt, contact your authorised LUKAS dealer or LUKAS directly!*)

### 11.2.2 Function and load test

If there is any doubt regarding the safety or reliability of the equipment, a function and load test must also be performed.

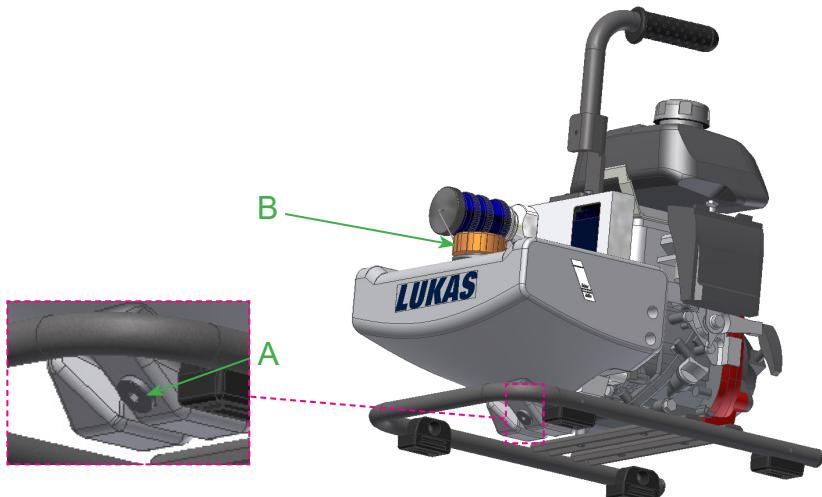
LUKAS offers appropriate testing equipment for this.

### 11.2.3 Replacing the hydraulic fluid

- After approx. 200 deployments, but after three years at the latest, replace the hydraulic fluid.
- The fluid should be replaced after it has warmed up.
- The engine must be switched off!
- The used hydraulic fluid must be disposed of properly.

#### **Replacing the hydraulic fluid - procedure:**

1. Place the unit on a slightly elevated base so that the drain screw "A" for the hydraulic fluid can be easily reached.
2. Place a suitable collection container under the "A" drain plug.
3. Open the "B" filler cap, remove the "A" drain plug and let the hydraulic fluid run into the provided collection container.
4. Screw the "A" drain plug in again (tightening torque max. 5 Nm).



5. Pour the new hydraulic fluid through the filler opening "B" into the hydraulic tank and close the neck again with filler cap "B".
6. The unit then has to be vented again, as described in Section 7.2.2.

#### **11.2.4 Replacing labels**

All damaged and/or illegible labels (safety notices, type plate, etc.) must be replaced.

##### Procedure:

1. Remove damaged and/or illegible decals.
2. Clean surfaces with industrial alcohol.
3. Affix new decals.

Take care to affix the labels in the correct positions. If this is no longer known, you should ask your authorised dealer or contact LUKAS directly.

### **11.3 Additional service work**



#### ***NOTE:***

Non-observance of the maintenance plan can lead to malfunctions that are not covered by the warranty. To remove the spark plug, use a commercially-available spark plug spanner with universal joint and wrench size 16 mm (5/8 inch). A straight / rigid spark plug spanner would damage or break off the spark plug!

#### **Also observe the separate instructions from the engine manufacturer**

##### **First month or after the first 10 operating hours (first time):**

- Change engine oil (see operating instructions of the engine manufacturer ).

*You must conduct the following service measures every 25 operating hours or every 3 months:*

- Clean the air filter element.
- After using in a dusty environment, inspect the air filter element and clean immediately, if necessary.

*You must conduct the following service measures every 50 operating hours or every 6 months:*

- Replace the engine oil.

*You must conduct the following service measures every 100 operating hours:*

- Check the spark plug, clean if necessary / set the electrode gap of the spark plug
- Clean the spark protector.

*You must conduct the following service measures every 300 operating hours or every 2 years:*

- Replace the spark plug  
*(The following service work should be executed by an authorised dealer, LUKAS directly or the engine manufacturer.)*
- Check the idling speed and adjust if necessary
- Inspect the engine for damage
- Check the fuel line and replace if necessary
- Check the valve play and adjust if necessary
- Clean the combustion chamber and the fuel filter.

### 11.3.1 Replacing and cleaning the air filter

#### **NOTE:**

Keeping the air filter in good condition and clean is extremely important. Penetrating dirt leads to damage and wear in the engine in case of incorrect installation, incorrect damage or unsuitable filter inserts.

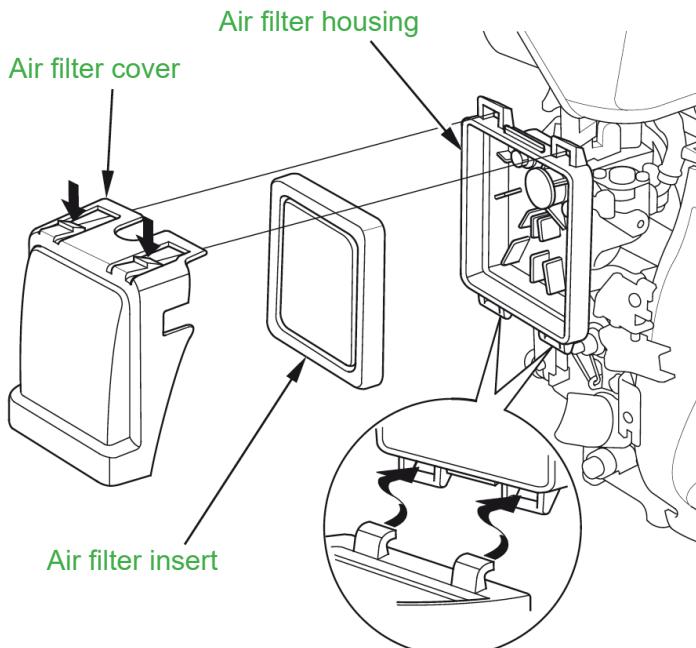
If the engine is operated in a very dusty environment, the air filter should be cleaned more frequently than stated in the MAINTENANCE PLAN.

#### **Inspection**

Remove the air filter cover and inspect the filter insert. Any dirty filter insert should be cleaned or replaced. Any damaged filter insert must be replaced.

#### **Cleaning:**

1. Clean the filter insert in warm soapy water, rinse and let dry thoroughly. Or clean in non-flammable solvent and let dry.
2. Immerse the filter insert in clean engine oil, then press out any excess oil. If too much oil remains, the engine will smoke when starting it.
3. Wipe any dirt off the air filter housing and cover, using a moistened cloth. Ensure that dirt does not penetrate the carburettor.



## 11.3.2 Replacing, cleaning and adjusting the spark plug

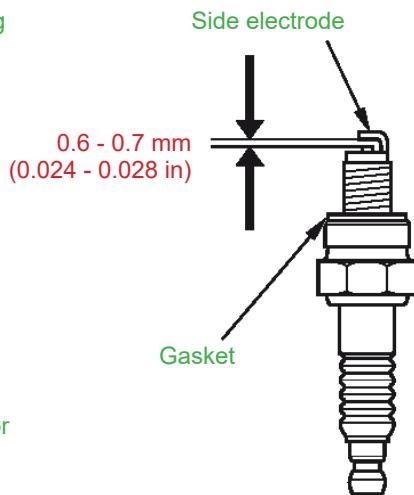
### Procedure:

1. Detach the spark plug connector and remove any dirt near the spark plug.
2. Unscrew the spark plug using a 5/8 inch spark plug spanner.
3. Inspect the spark plug. Replace the spark plug if it is damaged, extremely dirty, if the sealing washer is in poor condition or if the electrodes are worn.
4. Measure the electrode gap of the spark plug with a wire feeler gauge. Correct the electrode gap, if required, by carefully bending the side electrode. Target electrode gap: 0.6 - 0.7 mm (0.024 - 0.028 in)
5. Carefully screw in the spark plug by hand in order to avoid stripping the thread.
6. Tighten the spark plug after mounting with a 5/8-inch spark plug spanner in order to compress the washer.
7. A new spark plug should be tightened by an additional 1/2 turn after mounting in order to compress the washer.
8. A used spark plug should be tightened by an additional 1/8 to 1/4 turn after mounting in order to compress the washer.
9. Place the spark plug connector onto the spark plug.



#### NOTE:

A loose spark plug can overheat and damage the engine.  
A spark plug that is too tight can damage the thread in the cylinder head.



## 11.3.3 Replacing the engine oil and the engine oil filter

For the procedure for replacing the engine oil and engine oil filter, please refer to the separate operating instructions of the engine manufacturer!

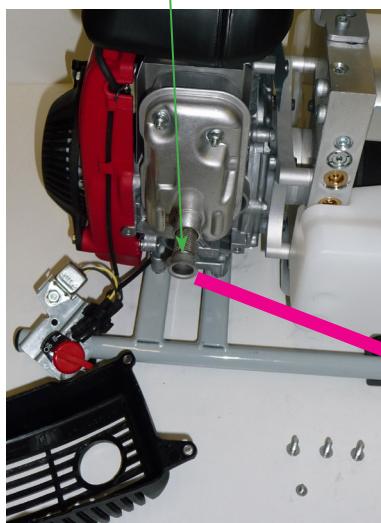
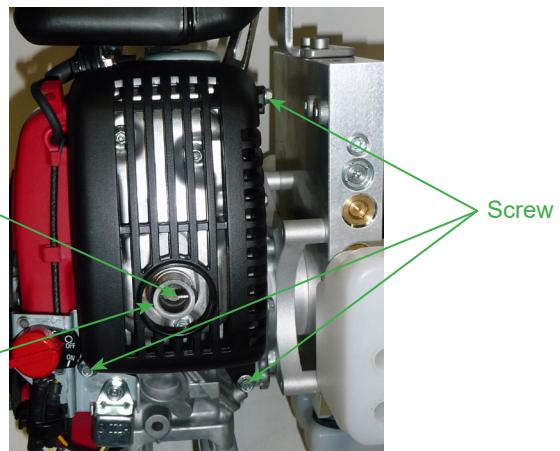
#### 11.3.4 Cleaning and replacing the spark protector

The engine of the P 630 OG comes equipped with a spark protector. The spark protector must be serviced after every 100 hours of operation to maintain its intended function.

If the engine has been in operation, the silencer will be hot. Allow the silencer to cool down before servicing the spark protector.

##### ***Removing the spark protector:***

1. Remove the three 5 mm screws from the silencer and remove the silencer protector.
2. Remove the special screw from the spark protector and remove the spark protector from the silencer.



##### ***Cleaning and inspecting the spark protector:***

1. Brush off any oil carbon deposits from the spark protection strainer using a suitable cleaning brush. Ensure that the strainer is not damaged. Replace the spark protection if it develops cracks or holes.
2. Assemble the spark protector and silencer protection in the reverse order.



### 11.3.5 Mono-couplings

The mono-couplings must be replaced if:

- there is external damage,
- the locking does not function,
- hydraulic fluid continues to leak in the coupled/uncoupled state.



#### **WARNING / CAUTION / ATTENTION!**

Never repair couplings: they must be replaced by genuine LUKAS parts!

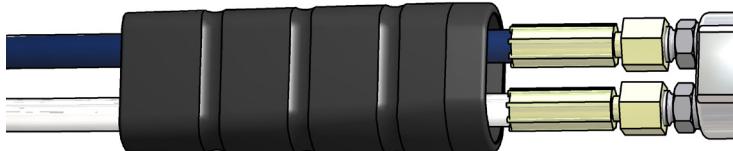


#### Procedure for coupling to valve block:

1. First empty the hydraulic tank as described in the chapter "Replacing the hydraulic fluid".
2. Remove screwed fittings on the coupling.
3. Remove couplings and underlying seals
4. Position the new coupling, together with the seals, on the valve block.
5. Re-attach the couplings with the bolts and tighten to a torque of  $M_A = 40 \text{ Nm}$ .
6. The hydraulic fluid tank must then be refilled and the unit vented.

#### Procedure for coupling to hose pairs:

1. First empty the hydraulic tank as described in the chapter "Replacing the hydraulic fluid".
2. Pull the kink-protection back from the couplings.



3. Loosen the union nuts on the hose assemblies and remove the coupling.



**ATTENTION!**

Ensure that connection "T1"/"T2" on the pump block  
is always connected to connection "T" on the mono-coupling.

4. Position the new coupling and tighten the union nuts on the hose assemblies to a torque of  $M_A = 40 \text{ Nm}$  and push the kink-protection of the couplings back.



5. The hydraulic fluid tank must then be refilled and the unit vented.

## 12.Fault analysis

Fault	Check	Cause	Solution
Combustion engine will not start	Check fuel level in tank	Fuel tank empty	Top up fuel
 <b>NOTE:</b> In case of faults which directly affect the combustion engine, please also observe the separate instructions in the operating instructions of the engine manufacturer.	Check fuel line	Fault in the fuel line	Shut down immediately and have repaired by authorised dealer, engine manufacturer or directly by LUKAS
	Check engine switch	Cable starter not actuated	Actuate the cable starter
		Engine switch not set to Choke	Set engine switch to Choke
	Hydraulic unit or engine not suitable for the working environment	Ambient temperature too low	For the solution, consult the separate operating instructions of the engine manufacturer.
			Use a different hydraulic fluid or operating fluid that is suitable for the relevant ambient temperature (see Chapter "Technical Data")
		Not enough oxygen in the air because of the altitude of application location of the hydraulic engine	Use a different more suitable hydraulic unit.
			Have the engine set to the altitude of application of the hydraulic unit by an authorised dealer, engine manufacturer or LUKAS directly (only if the unit is to be used frequently at this altitude).
	Check air filter	Air filter contaminated	Clean or replace the air filter.

Fault	Check	Cause	Solution
Combustion engine will not start	Are all valves set to pressure-free (rest setting)?	Combustion engine defective or overloaded due to a different defect in the unit	Have repaired by authorised dealer, engine manufacturer or directly by LUKAS
Combustion engine will not start	Engine oil has mixed with gasoline	The engine was switched on and off several times or stopped and started in quick succession.	Change the engine oil, have the cam gear replaced by an accredited workshop.
The engine is running, but the connected rescue equipment is not moving on activation of the valve.	Check hose	Hose assembly not connected properly or damaged	Check connection of hose and reconnect if necessary.
		Defective pump unit	Have repaired by authorised dealer or directly by LUKAS
	Connect a different unit and check whether it works when actuated	The previously connected unit is defective.	Rectification see operating instructions of the connected unit
		Mono-coupling socket defective	Replace mono-coupling (female)
		The previously connected unit is defective.	Rectification see operating instructions of the connected unit
The connected rescue equipment does not move on activation of the valve, or moves only very slowly or unevenly.	Connect a different unit and check whether it works when actuated	Defective pump unit	Have repaired by authorised dealer or directly by LUKAS
		Air in hydraulic system	Vent the hydraulic system
		Mono-coupling (female) defective	Replace mono-coupling (female)

Fault	Check	Cause	Solution
Connected rescue device does not reach its final position	Check hydraulic fluid volume in hydraulic tank	Insufficient fluid in the hydraulic reservoir	Top up hydraulic fluid to the maximum fill level
		Usable hydraulic fluid volume of the unit is insufficient	Caution! Before topping up the rescue equipment, return to the resting position!
Connected rescue device does not reach its specific performance data		Maximum permitted operating pressure of the pump is not reached	Have the pressure limiting valve reset or repaired by authorised dealer or directly by LUKAS
		Pump block defective	Have repaired by authorised dealer or directly by LUKAS
		Connected unit defective	Rectification see operating instructions of the connected unit
During function test: A pressure gauge installed between the rescue equipment and the hydraulic unit does not indicate the maximum operating pressure of the equipment.	Check the specifications for the rescue device	The operating pressure of the connected rescue device is locked internally	No repair or fault rectification required
		Connected rescue device is defective	Consult the separate operating manual for the connected rescue device
		Hydraulic unit defective	Have repaired by authorised dealer or directly by LUKAS

Fault	Check	Cause	Solution
Fluid coming out of hydraulic fluid tank	Connected unit not in rest position yet and fluid coming out of filler cap?	Return of the hydraulic fluid from the rescue device exceeds the reservoir's maximum quantity when filled.	Reduce fluid level in the hydraulic tank to "Minimum" mark, move the unit to the resting position and then fill up with hydraulic fluid to the "Maximum" level.
	Fluid leaks from a different location?	Leak from tank, lines or seals	Replace defective components or repair by authorised dealer or Lukas directly
Leaking fluid between engine and flange bearing		Radial shaft seal on the drive shaft is defective	Have repaired by authorised dealer or directly by LUKAS
Hydraulic fluid milky and cloudy		Water / condensation in the system	Replace the hydraulic fluid immediately
Hoses cannot be coupled		Pressure too high (e.g. caused by ambient temperature too high)	Switch valve block to circulation at static pressure
		Coupling defective	Coupling must be replaced immediately
It is frequently not possible to couple hose assemblies		Hydraulic fluid not adapted to the application situation	Hydraulic fluid must be replaced (see chapter "Recommended hydraulic fluids")
		Coupling defective	Coupling must be replaced immediately
Leak in the couplings		Coupling defective	Coupling must be replaced immediately

**NOTE:**

In case of faults which affect the combustion engine, please also observe the instructions in the separate operating instructions of the engine manufacturer.

Contact an authorised LUKAS dealer or the LUKAS Customer Service Department directly if the malfunctions cannot be rectified.

The address for the LUKAS Customer Service department is:

**LUKAS Hydraulik GmbH**

*A Unit of the IDEX Corporation*

Weinstrasse 39, D-91058 Erlangen

Tel.: (+49) 09131 / 698 - 348

Fax.: (+49) 09131 / 698 - 353

## 13. Technical data

Because all values are subject to tolerances, there may be small differences between the data for your device and the data in the following tables!

The values may also differ because of reading inaccuracies and/or tolerances in the measuring equipment used.



### NOTE:

The following tables contain only the technical data required for standard acceptance.

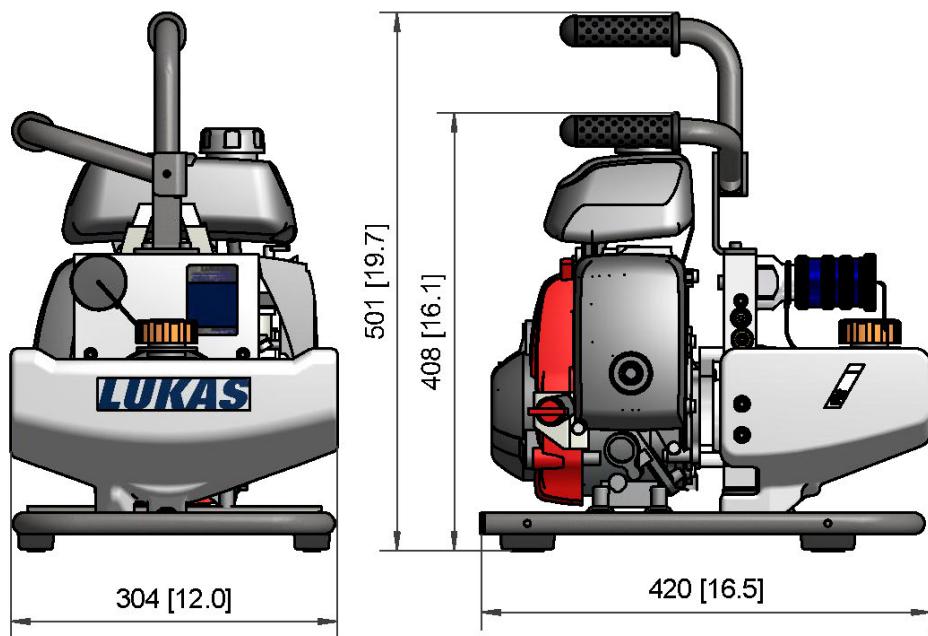
Additional data concerning your unit can be obtained from LUKAS on request.

The limitation of the maximum filling quantity of the hydraulic tank results from the "operability at a slant" prescribed in the standards.

### 13.1 Unit

#### 13.1.1 Basic dimensions of the unit (mm [inch])

*Unit P 630 OG:*



### 13.1.2 Technical data P 630 OG

Device type		P 630 OG
Article number		81-53-27
Engine type		4-stroke gasoline engine
Engine power rating (at 7000 min-1 / rpm.)	[kW]	1,6
	[HP]	2.1
Engine speed	[min-1]	4500
	[rpm.]	
Feed rate (HD)1)	[l/min]	1 x 0,7
	[gal.-US/min]	1 x 0.19
Feed rate (ND)2)	[l/min]	1 x 3,2
	[gal.-US/min]	1 x 0.85
Maximum operating pressure (HD)1)	[MPa]3)	70
	[psi.]	10000
Maximum operating pressure (ND)2)	[MPa]3)	14
	[psi.]	2000
Maximum filling volume and usable quantity hydraulic fluid	[l]	3 / 1,7
	[gal.-US]	0.79 / 0.45
Maximum filling volume gasoline	[l]	0,77
	[gal.-US]	0.17
Weight (with gasoline and hydraulic fluid)	[kg]	15,9
	[lbs.]	35.1
Valve variants		Single-flow operation
Max. unit connection facilities		1

1) HD = High pressure

2) ND = Low pressure

3) 1MPa = 10 bar

## 13.2 Noise emissions

### Sound pressure level

Device type		P 630 OG
Speed		4500 [1/min] / [rpm]
Idle run (according to EN)	[dB(A)]	79
Full load (according to EN)	[dB(A)]	82
Idle run (according to NFPA)	[dB(A)]	75
Full load (according to NFPA)	[dB(A)]	77

Explanation of dual number noise emission values according to DIN EN 13204:2012-09
Serial number of the machine, operating conditions and other characteristic properties:
Model ...P 630SG, type ...81-53-27, maximum working pressure ...700 bar, engine speed ....4500 [1/min] / [rpm]
INDICATED DUAL NUMBER NOISE EMISSION VALUES according to EN ISO 4871
Measured A-valued emission sound pressure level
LpA, in dB, based on 20 µPa ....82
Measurement uncertainty, KpA, in dB ....4
Measured A-valued emission sound power level (if required)
LWA, in dB, based on 1 pW ....98
Measurement uncertainty, KpA, in dB .....4
Determine values according to EN 13204, Appendix B, using basic standards EN ISO 3744 and EN ISO 11201.
NOTE! The sum of the measured noise emission values and the associated measurement uncertainty that can occur during the measurement represent the upper limit of the measured values.

### 13.3 Spark plug

***Spark plug type:*** CR5HSB (NGK)  
U16FSR-UB (DENSO)

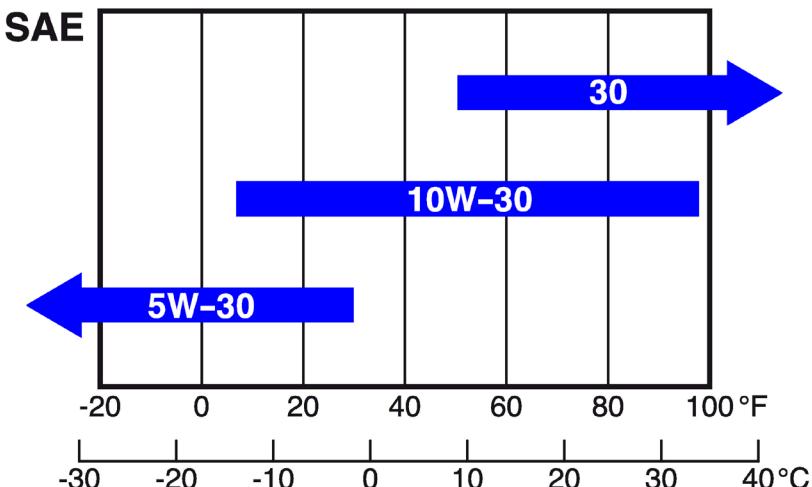
### 13.4 Spark plug spanner

***Universal joint spark plug spanner with spanner size 16 mm  
(5/8 inch)***

### 13.5 Fuel

***Fuel:*** Lead-free gasoline  
ROZ 91 to ROZ 98

## 13.6 Engine oil



## 13.7 Hydraulic fluid recommendation

Mineral oil DIN ISO 6743-4 for LUKAS hydraulic equipment and others

	Oil temperature range	Oil code	Viscosity rating	Remarks
A	-20 .... +55°C	HM 10	VG 10	

	Oil temperature range	Oil code	Viscosity rating	Remarks
A	-4.0 .... +131°F	HM 10	VG 10	

Recommended range of viscosity: 10...200 mm<sup>2</sup>/s    (10...200 cSt.)

Supplied with HM 10 DIN ISO 6743-4.



### ATTENTION!

Before you use hydraulic fluids from a different manufacturer, you must contact LUKAS or an authorised dealer.

## 13.8 Operating and storage temperature ranges

Operating temperature	[°C] / [°F]	-20 ... +55	-4 ... +131
Storage temperature (device not in operation)	[°C] / [°F]	-30 ... +60	-22 ... +140

# 14. EC Declaration of Conformity

**LUKAS**

LUKAS Hydraulik GmbH  
Weinstraße 39,  
91058 Erlangen  
Deutschland

**IDEX**  
RESCUE

Dinglee, LUKAS, Hurst, Vetter  
IDEX Europe GmbH  
Weinstraße 39  
91 058 Erlangen  
Germany

## EG-Konformitätserklärung / EC Declaration of Conformity

Im Sinne der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A  
*In accordance with the EC Machinery Directive 2006/42/EC, Appendix II A*

Hiermit erklären wir, dass die nachfolgend bezeichnete hydraulische Motorpumpe  
*We hereby declare that the following hydraulic power unit*

Artikelnr. / Item no.	Modell und Typ / Model and type
<b>81-53-27</b>	<b>P 630 OG</b>

- in der von uns gelieferten Ausführung den Bestimmungen der Maschinenrichtlinie 2006/42/EG und den sie umsetzenden nationalen Rechtsvorschriften entsprechen.  
Berücksichtigt wurden insbesondere die Normen:
  - DIN EN ISO 12100:2010, Ausgabe: 2011-03 - Sicherheit von Maschinen – Allgemeine Gestaltungsleitsätze – Risikobeurteilung und Risikominderung.
  - DIN EN 13204, Ausgabe: 2016-12 – Doppelt wirkende hydraulischen Rettungsgeräte für die Feuerwehr und Rettungsdienste – Sicherheits- und Leistungsanforderungen.
- *in the versions supplied by us conform to the EC Machinery Directive 2006/42/EC and the national statutory provisions that implement them.*  
*The following standards have particularly been taken into consideration:*
  - DIN EN ISO 12100:2010, publication date: 2011-03 – Safety of machinery - General principles for design - Risk assessment and risk reduction.
  - DIN EN 13204, publication date: 2016-12 – Double acting hydraulic rescue tools for fire and rescue service use – Safety and performance requirements.

Bei einer nicht mit uns abgestimmten Änderung oder Verwendung der Maschine/Ausrüstung verliert diese Erklärung ihre Gültigkeit.

*This declaration loses its validity in the case of alterations or usage of the machinery/equipment not approved by LUKAS.*

Erlangen, 09.12.2016

i. V. 

Carsten Sauerbier  
Bevollmächtigter / Authorized Representative  
Director of Technical Innovation and Development  
IDEX Europe GmbH

i. A. 

Manuela Gumbert  
Konstrukteur / Engineering Designer

## **15.Notes**





## **WARNING / CAUTION / ATTENTION!**



Before connecting the equipment, make sure that **all the components used** are suitable for **the maximum operating pressure of the hydraulic unit!** In cases of doubt, consult LUKAS directly before connecting the equipment!



Please duly dispose of all packaging materials and removed items.

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## **LUKAS Hydraulik GmbH**

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