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OPERATING INSTRUCTIONS

STUMP CUTTER
Predátor P56 RX

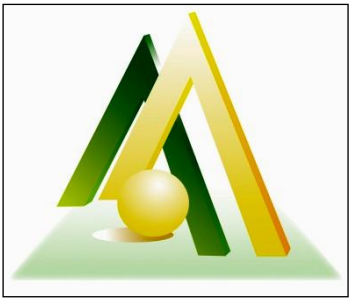
„*Orig. version:*"07.2020

EUROPEAN UNION
European Regional Development Fund
Operational Programme Enterprise
and Innovations for Competitiveness

Foreword

Thank you very much that you have just purchased our product, the stump cutter P 50 R Predator. Our company has been engaged in production of equipment for stump cutting, wood residue crushing and disposal for many years and has gained considerable experiences in this field. Quality of our small and also powerful machines is proven in 40 countries of Europe and Asia we export to.

Permanent innovations of the Laski manufacturing assortment have been crowned by the most important awards in the company's history, the golden medals Grand Prix, gained for its complete family of products at the international shows Techagro und Silva Regina in Brno:



Grand Prix Techagro 1998
Grand Prix Silva Regina 2002
Grand Prix Silva Regina 2008

This manual brings important instructions for users, i.e. instructions for putting the machine into operation, work safety and operating experiences. You will learn how to carry out maintenance, repairs and servicing and who is authorised for doing checks and other actions on the machine.
Your local dealer will give you this manual with instructions for operation and maintenance while taking this new machine over. Make sure if you understand everything. If not, do not hesitate and contact your dealer and ask him for further explanation. It is very important for you and your work safety to understand all instructions given in this manual.
The firm Laski s.r.o. does not bear any responsibility for any claims resulting from disobedience to the instructions given in this manual.
This operation manual includes also work safety instructions in various parts of its text. If there is any work safety rule or instruction in general description, then this instruction is indicated with the following symbol:

Contents

EC Conformity Declaration

issued in compliance with applicable EC Directives

We, as the manufacturer, **LASKI spol. s r.o.**
Blíšťka 263/16
CZ-798 17 Smržice
Reg.-Nr.: 45479593

declare hereby that our product
- designation: **Stump cutter Predator**
- type: **P 56**
- model: **P 56 RX**
- serial number: .....

complies with the given EC Directives:
2006/42/EC - Machinery
2014/53/EU – ACT

List of technical standards, specifications and harmonised norms used for assessment of its conformity: **EN ISO 12100, EN ISO 13732-1, EN ISO 14120, EN ISO 4413, ISO 3767-1,3, EN ISO 5349-1, EN ISO 11 201, EN ISO 4254-1, ISO 11 684**

Basic technical parameters:

Parameter	Unit	Value
Length (with blade)	mm	2900 (3300)
Width	mm	800 / 1180
Height	mm	1625
Cutting head diameter	mm	560
Weight(with blade)	kg	1640 (1800)
Engine - type	-	Kohler KDI 1903 TCR E5
Power output	kW	2900 (3300)
Travel speed (attendance while walking)	km/h	0 - 4
Remote control	-	SCANRECO RC 400, Švédsko
Transmitter frequency	MHz	433,05 – 434,79
Transmitter output	mW	max. 10

The entity participating in this conformity assessment : **NB 1017, TÜV SÜD Czech s.r.o., Novodvorská 994/138, 142 21 Praha 4**

Measured sound power level of this equipment: L_{WA} = 103,8 dB
Guaranteed sound power level: L_{WA} = 105,0 dB

Completion of technical documentation: **Ing. Jiří Kvasnička**
Petra Bezruče 205
CZ-664 43 Želešice

In Smržice, on 1. 7. 2020

.....
Ing. Jiří Kvasnička

EC CONFORMITY DECLARATION

issued in compliance with applicable EC Directives

We, as the manufacturer, **LASKI, s.r.o.**
Blišťka 263/16
Smržice
CZ-798 17
CRN: 45479593

declare hereby that our product

- designation: **Stump cutter Predator**
- typ : **P 56**
- model: **P 56 RX**

serial number:

complies with the given EC Directives:

Directive No. 2014/30/EC - EMC

List of technical standards, specifications and harmonised norms used for assessment of its conformity **EN 55012 ed.2**

Basic technical parameters:

Parameter	Unit	Value
Length (with blade)	mm	2900 (3300)
Width	mm	800 / 1180
Height	mm	1625
Cutting head diameter	mm	560
Weight (with blade)	kg	1640 (1800)
Engine - type	-	Kohler KDI 1903 TCR E5
Power output	kW	42
Remote control	-	SCANRECO RC 400, Švédsko
Transmitter frequency	MHz	433,05 – 434,79
Transmitter output	mW	max. 10

In Smržice, on 1. 7. 2020

Ing. Jiří Kvasnička

Product Identification

Our product is identified with its serial number stamped both on the type plate and on the chassis.

Upon take-over of the product we recommend you to fill required data in the following form concerning the given product and your dealer.

Tab. 1 – Basic information

Product type:	……
Product serial number:	……
Engine type:	……
Engine serial number:	……
Dealer's address:	……
Address of authorised service:	……
Date of delivery:	……
Warranty expiration date:	……
Interruption of warranty period:	……

The engine type plate is located under the hood behind the air filter.

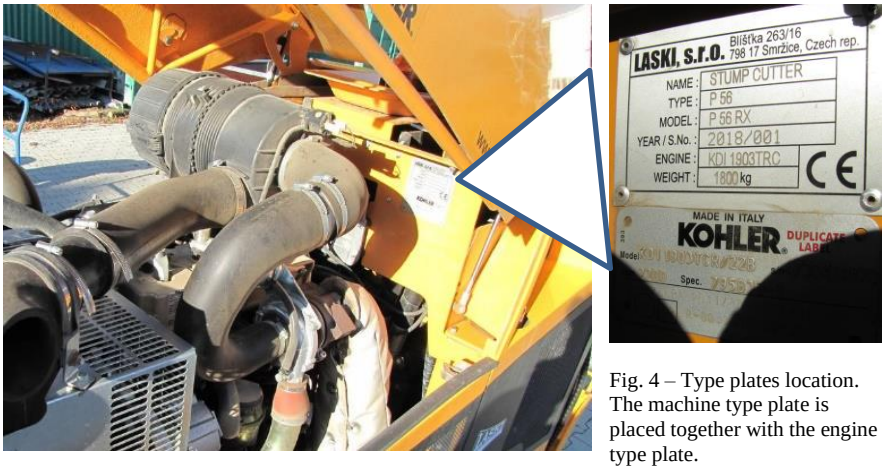


Fig. 4 – Type plates location. The machine type plate is placed together with the engine type plate.

Work Safety Instructions

Utilisation

- This product is designed for cutting away a tree stump from above ground level to below ground level with its above-ground part up to +700 mm and its under-ground part up to -400 mm.
- This machine is rated to climb slopes of up to 11°.
- Range of ambient temperatures allowed: from +30 to -10°C

Not Allowed Use

- This machine cannot be used for cutting of dozy stumps which could be released and pulled out by the blades.
- Avoid any cutting if there can be some foreign matters and objects, such as metal, glass cullet, stony debris, ceramics etc. hidden in the stump.
- Avoid driving on very soft or unstable ground. The machine could sink, slide, slew or turn over.
- Avoid traversing along steep slopes, since there is always the danger of overturning the machine.
- Always ascend and descend slopes with the cutting head up hill.
- Before trying to go up a slope, make sure that the engine and the hydraulic system has reached normal operating temperature. This will help prevent stalling.
- It is strictly forbidden to start working with removed guards, particularly with a rear guard of the cutting head or rubber guards if missing.
- If the rear guard does not cover the head properly.
- It is forbidden to use this machine if operating temperature in the hydraulic system exceeds 75°C.
-

Generally

- Do not use this machine without prior reading this manual. The user/owner of this machine is obliged to instruct attendants about relevant instructions for its operation in a demonstrable way.
- This manual should be available/accessible for attendants any time.
- This machine is allowed to be operated only by an operator who is over 18 yrs old, physically and mentally capable and demonstrably instructed about its operation.

- The stump cutter is allowed to be transported to site either on a trailer or on a low-bed truck. It is not designed to go on public roads.
- While working, wear always personal protective equipment – forestry safety helmet with visor or goggles, protective gloves, steel toe protection boots and working clothes properly buttoned. DO NOT wear rings, bracelets, watches, jewellery or any other items that could be caught in the machine controls. Always wear full protective clothing and full ear protection according to noise level. Wear a dust mask if the ground is very dry.
- Every operator of this machine is fully responsible for any injury or damage caused to the third persons within the operating reach of the machine.
- While working, the operator should stand at least 3 m away from the cutting head.
- Keep this machine beyond children's and unauthorised persons' reach. Avoid their presence while working.
- Observe the working area. If any person, children or animals approach while cutting (within a 20 metre radius of the machine), then stop working immediately.
- Take the time to familiarise yourself with the machine controls before attempting to operate it and slowly build up to operating the machine at its full capability.
- Before working learn all functions of individual controls and safety elements and carry out functional checks before any use.
- Make sure if necessary operating and ancillary space is free and safe.
- At work in residential zones use the machine in accordance with regulations of the local authorities to avoid disturbing of local inhabitants (noise, flying chips, exhaust gases). Engine exhaust gases contain poisonous carbon monoxide.
- While working keep an eye on chips gathering behind the cutting head. In case of excessive accumulation, stop the engine and wait for running the head out. When the head stops, remove excessive chips.
- This manual describes problems and faults that may occur at work and that could be remedied by an instructed person. In case of other problems and faults do not hesitate and contact the manufacturer. He is always ready to help you.
- Do never any technical changes or any actions that are neither given in this manual nor allowed by the manufacturer. This machine, if not correctly installed or adjusted, may run without problems now but in the future any of important parts could get out of order or do fatal damage.
- For replacement of worn or damaged parts use always original spare parts only.
- The manufacturer does not bear responsibility for any damages or injures to the third persons, or to other equipment and property, resulted from disobedience to instructions given in this manual.

- Do not put any objects or tools on the machine.
- When handing the machine over to another person make sure if all controls, guards and other safety elements are complete and properly installed. They serve for your safety.
- Do not use or attempt to start the stump cutter without the cutter guards, engine covers and access covers securely in place. Failure to do so may result in personal injury or loss of life
- Keep the given intervals for checks of bolted joints.
- Always after work clean up all parts of the machine (brush, cleaning rag).
- Any actions or servicing on the machine are allowed to be done only if the engine is turned off, its ignition key is pulled out and the given machine blocked properly against unwished motion. If the cutting head should remain lifted then block the cutter arm separately against sinking.
- Do not use petrol and similar oil products as a cleaning agent.
- Keep the machine beyond the reach of naked flames.
- Any transport of persons, or of any load, on the machine is not allowed.
- Some parts of the machine may run warm (gearings, hydraulics). Do not touch them when the machine is still running or having been just stopped. Use great care when maintaining the hydraulic system since oil is very hot when the machine has just finished working.
- Do not let the engine running at high speed unreasonably.
- Do not attempt to detect contingent hydraulic oil leakage directly by hand. Use always a piece of cardboard, wooden board etc. – risk of injury by oil under high pressure.
- Carry out regular checks of hydraulic hoses for oil leaks and their actual condition (damage, cracks, wear).
- Do not use the machine in confined or ill-ventilated spaces. Exhaust gases include also toxic carbon monoxide which is colourless, odourless, tasteless and can cause death if inhaled.
- Do not use the machine under conditions of low visibility, especially at foggy weather, when you may overlook persons coming. Operate it only at daylight or with sufficient lighting.
- Ensure that all operators are adequately trained for operating this machine especially with safe working practices. In case of any uncertainty with operation of this machine ask your dealer to show proper operation in practice.
- Every training course for attending personnel should include also practical operation under supervision of an experienced person or your dealer and necessary work safety instructions.
- Do not carry out any repairs that are specified for authorised services only.
- Do not carry out any repair where its solution exceeds your experiences.

- While working, particularly while transporting the machine, respect all the applicable instructions in the concerned manual. At public road transport the driver must keep all local regulations valid for public roads.
- This manual contains also important health and safety information and explains the machine controls. Read and understand this manual before operating.
- While cutting, do not enter the space in direction of ejected wooden chips.
- While cutting, the operator should not stand in close proximity to the machine, but beyond the reach of exhaust gases, i.e. in the place as stated for attendance, see fig.
- Keep this machine beyond the children's and unauthorised persons' reach. Avoid their presence while working.
- Observe the working area. If any person, children or animals approach while cutting, then stop working immediately.
- Remove the ignition key to avoid accidental starting. Ensure the cutting head has stopped rotating before undertaking any maintenance or adjustments to the machine
- CAUTION!!! Be aware of ejected particles. They have substantial kinetic energy. If the wooden material to be cut contains not allowed parts, such as metal, sand, glass etc., then such objects can reach a longer distance than wooden chips.
- The operator of this machine is fully responsible for any injury or damage caused to the third persons within the operating reach of the machine.
- At work in residential zones use the machine in accordance with regulations of local authorities to avoid disturbing of local inhabitants (noise, flying chips, exhaust gases).

While working the operator is obliged:

- ❑ to use only such a cutter which is in optimal operating condition, not damaged through transport, storage or from previous operation,
- ❑ to check up the working area, respectively soil bearing capacity, before work,
- ❑ to avoid working on wet terrain, steep slopes and close to trenches with risks of instability,
- ❑ to avoid working with inclination exceeding the permissible limit of 11°,
- ❑ to expand the track base before going to any slope,
- ❑ to ascend and to descend slopes with the cutting head up hill,
- ❑ to expand the track base and to reduce the manoeuvring speed in order to avoid the risk of tipping the machine over and skidding,
- ❑ to avoid turning on inclined surfaces as far as possible. When you have to turn on slopes, try to do it on solid and non-slippery sections.

- to check up functions of all controls and safety elements before putting the machine into operation,
- to avoid disturbing other people with noise, exhaust gases or ejected flying particles (at windy weather),
- to protect property, vehicles and people from flying debris and to use sufficient screening accordingly,
- to keep traffic rules and local regulations when going or working on or nearby public roads.
- Do not leave the machine unattended – pull out the ignition key.
- While working, wear always personal protective equipment - protecting shield or goggles, protective gloves, working boots and working clothes properly buttoned.
- Avoid wearing free parts, such as ties, scarves and shawls, belts, jewellery etc. In case of longer hairs use always a proper head piece. Otherwise, such a person is not allowed to operate this machine.
- Keep work safety symbols in proper order.
- Check out the stump to be cut and remove all undesirable objects. If you see such particles in ejected chips stop working immediately.
- In case of any problems and faults at work do not hesitate and stop the machine immediately. Any fault, particularly on rotary parts, may cause fatal and dangerous situations.
- Observe the working area. If any person, children or animals approach while cutting (within a 20 metre radius of the machine), then stop working immediately.
- This manual describes problems and faults that may occur at work and that could be remedied by an instructed person. In case of other problems and faults do not hesitate and contact the manufacturer. He is always ready to help you.
- Do never any technical changes or any actions that are neither given in this manual nor allowed by the manufacturer. This machine, if not correctly installed or adjusted, may run without problems now but in the future any of important parts could get out of order or do fatal damage.
- Pay regular attention to all bolted joints. Keep them properly tightened.
- Do not start the machine in confined or ill-ventilated spaces.
- Always ensure that the cutter arm is in its top position and clear of any obstacles before trying to start the machine
- When having finished the work or for a break, turn off the cutting head drive and reduce the engine speed to idling.
- **While idling, wait for about 1 minute to let the engine and its turbo-set cool down.**

- **Use only fuel and service fluids allowed for the engine, its cooling system and hydraulics.**

Residual Risks

FUEL

Diesel fuel can be injurious to the skin - wash off as soon as possible. If taken internally seek immediate medical attention. Refer to your local fuel supplier for the MSDS sheet.
Store diesel only in approved containers, in well ventilated, unoccupied buildings and away from naked flames. Do not fill the fuel tank while the engine is running.

EXHAUST FUMES

Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odourless, colourless and can cause death if inhaled. Avoid inhaling exhaust fumes and never run the engine in a closed building or confined area.

HOT PARTS

Engine components can get extremely hot from operation. To prevent severe burns, do not touch these areas while the engine is running - or immediately after it is turned off.
Never operate the engine with heat shields or guards removed.

ELECTRICAL SHOCKS

Never touch electrical wires or components while the engine is running - they can be sources of electrical shocks.

ROTATING HEAD

When the engine is turned off, the cutting head could continue to rotate for a short while. Its teeth are sharp and could cause damage or injury even whilst not in motion.

BATTERIES

Batteries contain acid which is corrosive and poisonous. Handle the battery with care - if splashed there is a risk of burns and / or serious damage to eyes. Wash the affected area immediately with lots of clean water and seek medical advice immediately. Read the battery MSDS sheet as supplied.

EXPLOSIVE GASES

Gases, if given off from the battery, are explosive. Keep sparking and flames away.

PERSONAL SAFETY

The following personal protective equipment (P.P.E.) must be worn by the person operating this machine and also all personnel within a 20 metre radius of the machine:

- forestry safety helmet as to EN 397 fitted with a visor as to EN 166
- heavy duty gloves as to EN 388
- full ear protection as to EN 352-3
- close fitting heavy-duty fully protecting clothing
- steel toe protection boots as to EN 345

dust mask if the ground is very dry.

NOISE
Noise levels of 86,1 dB(A) have been recorded at the working position, i.e. in a distance of 3 m away from the machine in duty as to EN 11201.

DUST
If the ground is very dry, a large amount of airborne dust might occur. In this situation a corresponding respiratory mask should be worn.

HAZARDOUS BRASH
Some species of trees and bushes are poisonous and can irritate the skin or give respiratory problems. Do not work in confined areas and if in doubt wear a respiratory mask in addition to the P.P.E already described. Seek professional advice if you are unsure what you are dealing with.

LIGHTING
Operate only at daylight or with sufficient lighting.

Stopping of engine
When having finished the work first turn off the cutting head drive only and reduce the engine speed to idling. While idling, wait for about 1 minute to let the engine and its turbo-set cool down.

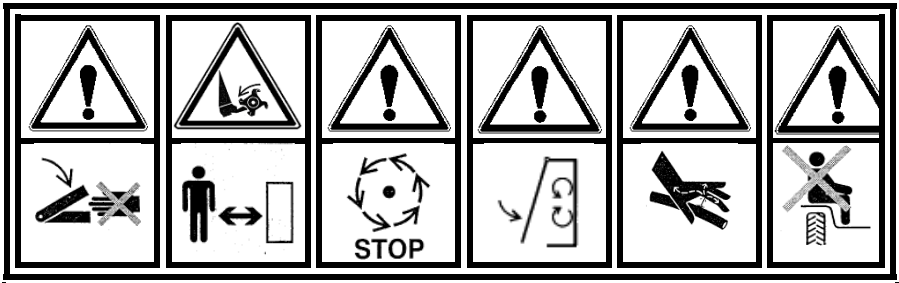
Repeated and too frequent emergency stops of the engine by pressing the emergency stop button may lead to a failure of the engine and its turbo-set.
Noise, flight
The operator is obliged to use protective equipment

Work Safety Symbols

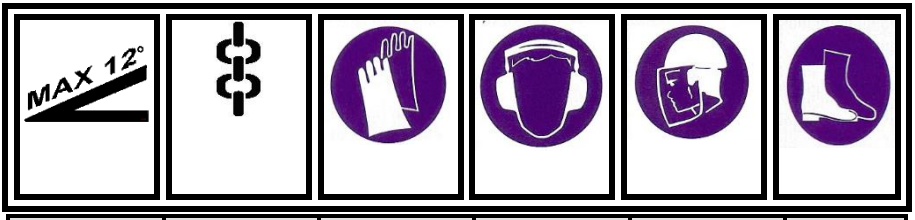
This article introduces work safety symbols (pictographs – fig. 5) used on this machine. Under the given pos. number there is their location on the machine (fig. 6). These work safety symbols warn the operator against risks connected with the machine use. Your respect to the symbol meaning is a precondition for your work safety.

The user is obliged to keep all the work safety symbols legible, clear and undamaged. In case of any damage or illegibility ask your local dealer or an authorised service for a new relevant pictograph.

1	2	3	4	5	6
Read this operating manual before use.	Always follow the manual while maintaining, servicing or repairing the machine and take always the switch out of ignition.	Warning! Keep away – ejected objects hazard.	Warning! Hot parts of exhaust manifold.	Warning! Keep away – cutter arm swings out while working.	Warning! Rotating parts – pull-in hazard.



7	8	9	10	11	12
Warning! Keep extremities away – squeeze hazard.	Warning! Lower extremities injury hazard.	Warning! Cutting head runs out.	Warning! Close all guards before starting the machine.	Warning! Risk of high-pressure liquid leakage.	Transport of persons is strictly forbidden.



13	14	15	16	17	18
Avoid working with inclination exceeding permissible limit.	Lashing points.	While working, wear heavy-duty gloves.	Wear full ear protection.	Wear safety helmet fitted with visor.	Wear steel toe protection boots.

Fig. 5 - Work Safety Symbols

Fig. 6 - Work Safety Symbols

Technical Description

This machine consists of following main parts:

- chassis
- engine
- cutter arm
- control box
- hydraulic system
-

- **Chassis**

This tracked chassis can change its track width. Its travel gear is powered by hydrodrive with continuous regulation. Adjustment of the track base can be done also by means of
a hydraulic cylinder. Profiled rubber tracks are stretched on rollers.

- **Engine**

This machine is powered by the engine Kohler KDI 1903 TCR, water-cooled, three-cylinder, power output of 56 HP. The engine is used also for hydraulic drives and hydrogenerator of the cutting head.

❖ **Cutter arm**

It is intended for swinging of the cutter arm while working. Its suspension itself provides swinging motion against the chassis. The arm, hinged in the suspension, can move up and down and it is controlled by hydraulic cylinders. It is in fact a hinged bearer with the cutting head attached. RH and LH cutting blades are fitted on the head perimeter.

❖ **Control box**

It is in fact a multifunctional remote controller SCANRECO RC 400. This radio control unit is highly sophisticated and offers fine control to operations of the machine. For emergency control of the machine you can use control levers (joysticks) of hydraulic valves installed under the cover at the rear of the machine.

❖ **Hydraulic system**

It is designed for transmission of the torque from the driving engine to the working elements powered by a hydraulic motor. The entire system includes also an oil cooler with filtration and electromagnetic valves.

Tab. 2 - Technical Parameters

Parameter	jednotka	hodnota
Overall length (A –fig. 7)	mm	2900/3300**
Width (B –fig. 7)	mm	800
Width (C –fig. 7)	mm	1180
Overall height (D –fig. 7)	mm	1625
Gross weight	kg	1640/1800**
Cutting depth	mm	400
Cutting height	mm	600
Swinging range	mm	1500
Max. permissible inclination	°	11
Fuel tank capacity	l	40
Hydraulic oil tank capacity	l	cca. 75
Hydraulic oil *	-	OH HV46, ISO VG46
Cutting head speed	ot./min	1350 (+/-200)
Number of blades	pc	12
Blades with tips	pc	6
Cutting head diameter	mm	560
Engine - type	-	Kohler KDI 1903 TCR E5
Fuel ***	-	Diesel B7

Power output	HP/kW	56/42
Number of cylinders	-	three-cylinder, four-cycle engine
Bore/stroke	mm	88/102
Displacement	ccm	1861
Lubricating pressure at 100±20ºC and idling of 850 rpm	bar	0,6
Valve play	mm	0,1
Engine oil	-	MOGUL DIESEL L-SAPS 10W-30, API CJ-4
Oil charge	l	7,5
Weight	kg	233
Cooling	-	liquid
Cooling fluid	-	G 12 nebo G12++
Starter	-	elektric
Battery		lead acid, 92 Ah, 12V

* For winter periods we recommend: hydraulic oil ISO VG 32

** With a dozer

*** Use the same sort of Diesel fuel as for cars (EN 590 for E.U. - ASTM D975-09B regulation - Grade 1e 2). Usage of other sorts of fuel may damage the engine. Do not use contaminated fuel or a mixture of Diesel fuel and water because it may lead to a critical failure of the engine.

• For this engine DO NOT USE any vegetable oils as a bio fuel.

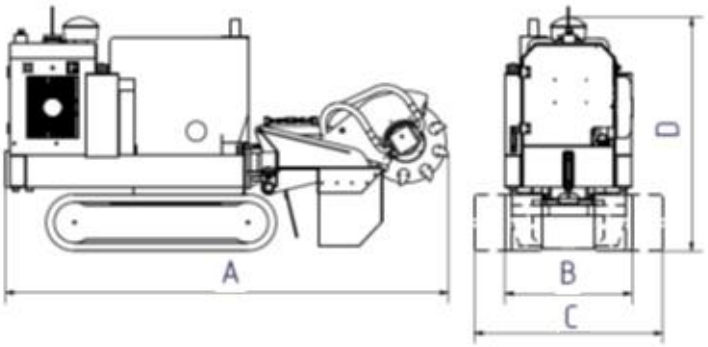


Fig. 7 - Basic dimensions of the machine

Transport

This stump cutter can be transported to site either on a trailer or on a low bed truck. It is not designed for driving on public roads.

Rubber tracks are designed only for use on soft terrain, not for hard and abrasive surfaces such as sand, stone, minerals, etc. Use of rubber tracks on these surfaces can cause premature wear and deformation, hence reducing useful life of the tracks.

Loading/unloading

- Always perform the machine loading and unloading operation with the trailer parked on a solid and level surface.
- Ensure the hand brake is on (if fitted) and the trailer wheels are chocked prior to attempting to move the stump cutter onto/from the trailer.
- If loading on a gradient, always ensure that the trailer wheels are adequately chocked. Failure to do so may result in the brake de-activating and allowing the trailer to roll. Turn the trailer to an appropriate position and chock both trailer wheels. Do not move the trailer with the stump cutter engine running.
- Remember to use a purpose-designed ramp or a loading platform for loading and unloading the stump cutter. The ramp must be strong enough to support the weight of the machine (min. carrying capacity of 2000 kg).
- Make sure the slope of the ramp is less than 11°.
- Before loading the machine clean thoroughly the ramp and the loading area. Ramps or areas that are dirty with oil, mud or ice are slippery and dangerous.

- Avoid steering when going up or down the ramps since this can be extremely dangerous. If it is absolutely necessary to steer, first drive the machine back down to the ground and off the ramps or back onto the vehicle / trailer bed and then change the direction of travel and start back up or down the ramp again.
- Expand the track base and reduce the manoeuvring speed in order to avoid the risk of tipping the machine over and skidding.
- Never operate any control levers except for the drive control levers when going up or down a ramp. Actuating other levers can cause the machine to become unbalanced and tip over.
- The machine will pivot on its tracks with a see-saw type action as it is driven over the point where the ramp meets the trailer / vehicle bed. Be careful when going over this point. Drive slowly on ramps.
- Fasten retention chains, straps or cables to the machine chassis. Do not put them over or against hydraulic hoses. Make sure that they do not cause damage to rubber tracks.
- Fasten each corner of the machine and fasten the front arm to the trailer / vehicle bed with a chain / strap or a suitable anchor.

Product Delivery

- This product is delivered completely mounted and attached to a wooden pallet.
- While handling you may use a lift truck or a crane with min. carrying capacity of 2000 kg (suspension in the given lashing points only). For handling you need min. ceiling height of 2 m.
- The manufacturer delivers this machine shrink-wrapped. The protective foil protects the machine against weather effects but in no case against mechanical damage, fall etc. The protective foil is recyclable, dispose it according to valid local regulations.
- While putting the machine aside (e.g. at reloading) we recommend to place it under a shelter.
- While unloading put the product always on a solid and level surface.
- It is not allowed to put it on a labile base.
- It is not allowed to put any objects or tools on the machine.

Handling

After delivery unload the machine from the transport pallet as follows:

- Cut the binding band carefully. Be aware, the band is tightened up and after cutting its both ends may 'shoot out'. While cutting the band, use protective gloves and goggles.
- Remove the chocks from tracks.
- Fill the fuel tank, connect the battery and try to start the engine.
- Lift up the cutter arm.
- Put the chocks to the pallet.
- Keep free space around the pallet for going down.
- Be aware while the machine leaves the pallet – it may shortly accelerate.

Precautions in Design

This machine is provided with safety guards protecting against any contact with rotating parts (hit and pull-in hazard) and against hot parts (exhaust manifold). The guards are fixed, bolted down and solid; only the guard over the exhaust manifold is perforated.
The cutting head is covered with fixed guards protecting the space above the head and on sides against flying debris.
The hydraulic lock on the cutter arm cylinder is designed for limitation of unwanted sinking in case of a sudden failure or leakage in the hydraulic system.
This stump cutter can be operated by means of a remote control box and the operator can stand off, not in the close proximity to the machine at work.
Control levers (joysticks) are self-returning in their neutral position.
The operator should stand at least 3 metres away from the machine and controls movements of the machine through the remote control box.
To turn on the cutting head first open the switch cover and then turn the switch in the ON position. This cover protects the switch against unwished putting the cutting head into motion. When the cover is placed back the switch turns automatically off and the cutting head stops turning.
The emergency stop buttons are installed both on the remote control box and on the machine. **CAUTION!** Having turned the drive off, the cutting head runs out for about 10 seconds

Controls

This stump cutter can be operated by means of controls installed both on the remote control box (fig. 8) and on the machine (fig. 9). For emergency control of the machine there are controls installed at the rear of the machine (fig. 10).

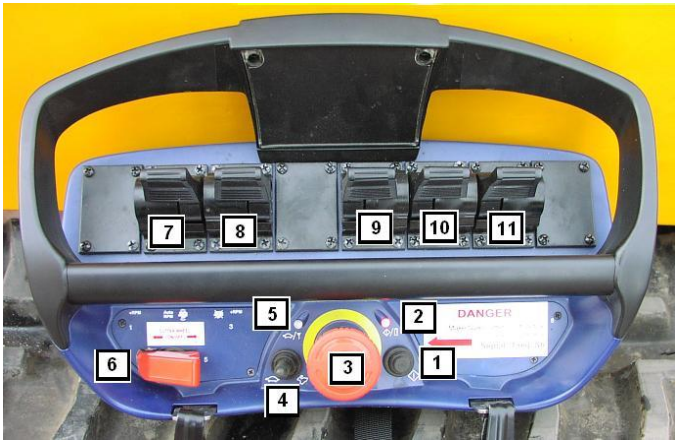


Fig. 8 - Controls on remote control box

1. Main switch of remote control box
2. LED of remote control box activation
3. Engine STOP switch
4. Response speed control of hydraulics*
5. LED of response speed control of hydraulics
6. Cutting head switch with safety cover
7. Cutter arm up / down
8. Left track forward / back
9. Variable track width control
10. Right track forward / back
    Cutter arm left / right

*) This control serves for reduction of working elements speed in five steps: from 100% to 60%, 50%, 40% and 20%.

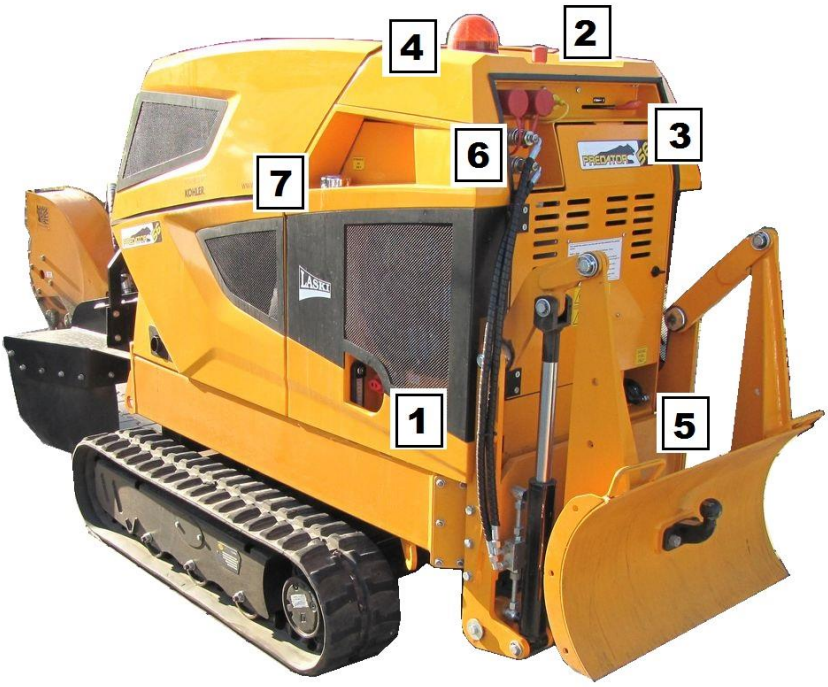


Fig. 9a – Machine controls

1 – battery disconnector, hydraulic oil thermometer
2 – STOP button – emergency stopping of machine
3 – engine speed controller
4 – flashing light indicator
5 – fuel tank filler neck
6 – quick-couplers
7 – hydraulic oil filler neck

Obr. 9b – Ovladače na stroji

1 – cutting head switch / external hydraulic circuit control (for attachments)
2 – switch for control of chassis/scraper
3 – light beacon switch ON/OFF
4 – working lights switch ON/OFF
5 – voltmeter
6 – receptacle 12V
7 – switch box with indicator lamps and engine hours counter

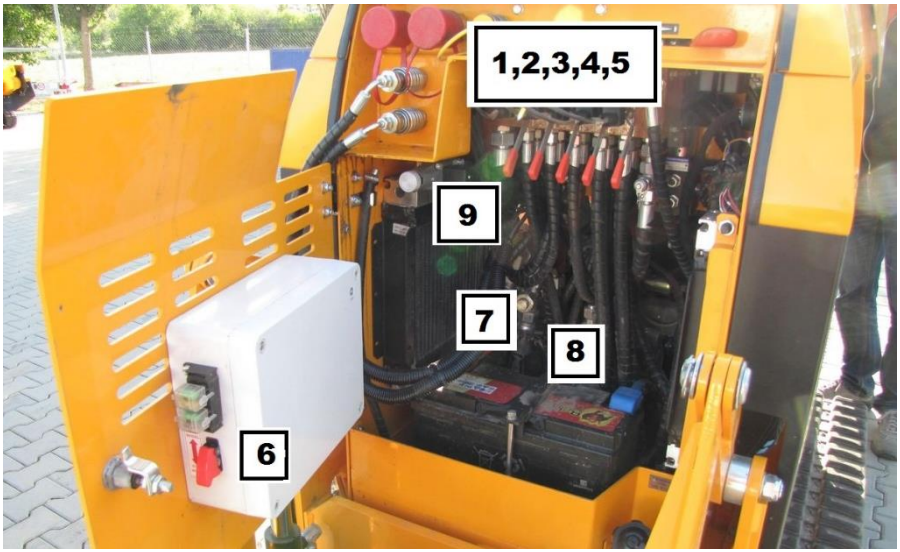


Fig. 10 - Emergency controls

1. Cutter arm up / down
2. Cutter arm left / right Variable track width control
3. Left track forward / back
4. Right track forward / back
5. Cutting head switch

6 – cutting head switch

7,8 – quick-coupling battery connections

9 – regulation of hydraulic response for cutter arm

Noise and Vibrations

While in duty, the stump cutter Predator P56 RX brings the following emissions:

Engine speed while being measured: 2200 rpm

- Measurement #1: measured values recorded on the RH side in a distance of 3 m away from the machine in duty (max. engine speed without load; in line with cutting head).
- Measurement #2: measured values recorded on the LH side in a distance of 3 m away from the machine in duty (max. engine speed without load; in line with cutting head).

- Measurement #1: acoustic pressure level A recorded on the RH side in the operator's position: **LAeq = 84,0 dB.**

- Measurement #2: acoustic pressure level at max. working speed on the LH side in the operator's position: **LAeq = 83,6 dB.**

Total mean sound power level at max. engine speed without load **L_{WA} = 103,2 dB**
Guaranteed sound power level at max. engine speed without load **L_{WA} = 104,0 dB**

All measurements taken in accordance with ČSN EN ISO 11201 and ČSN ISO 3744.

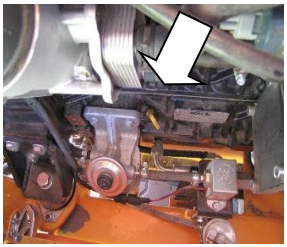
At work the operator of this machine should wear full ear protection according to noise level.

Use

Before Putting into Operation

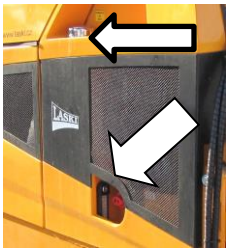
- This stump cutter is delivered completely mounted and ready to use. For servicing or spare parts contact your dealer or an authorised service. Use always original spare parts.
- Check up the engine oil level regularly – top up if necessary. Refer to MSDS sheets from your oil supplier and Engine Manual.
- Check up the hydraulic oil level. When the stump cutter is on level ground the oil should be between MAX and MIN marks on the oil dipstick.

Check up the engine and hydraulic oil levels. When the stump cutter is on level ground the oil should be between the MAX and MIN marks on the oil dipstick (level gauge indicator). In addition to that, check up also the fuel and coolant levels (fig. 11) – fuel volume in the tank should be sufficient for the job to be done.



Red-marked oil dipstick

Fuel gauge – close to fuel tank filler cap



Hydraulic oil gauge with thermometer and oil filler

Fig. 11 - State of fluids

- Caution! Do not open the cooler cap when the machine has just finished working – the coolant is still hot and under pressure.
- Check out tightening of bolted joints, especially of guards and completeness of other parts.
- For the engine operation use Diesel fuel (NM4) only (winter Diesel fuel NM20 according to season).
- Keep this machine beyond children's and unauthorised persons' reach. Avoid their presence while working.
- Check up the rear hood with cover for proper fixing and closing. If it is not properly closed, the remote control of the machine remains limited.

- *Cooler cap*

- Do not let the cutting head sink on a hard surface – for underlaying use a wooden board.
- .

At the first start there is much more air in the intake manifold and on this account the engine may not roar to life immediately when turning the switch key for the first time. Do not crank the engine for a longer time than 10 sec. Keep an interval between two starts (standstill) 30 sec at least. For the first star we recommend to pump fuel by hand on the fuel delivery pump.

- After short pumping check up if the fuel filter is filled with fuel. At light knocking you can see darker fuel level. If this level does not re ach ¾ of the filter height, pump again or try to crank the engine by turning the ignition key shortly.
- Keep an interval between two starts (standstill) 30 sec at least.
- When the engine roars to life, let the engine run warm at higher idling.
- After short idling, increase the engine speed slowly to 50% and then let it run for about one minute.
- Do not leave the machine unattended.
- If you heard any strange noise or vibrations or felt a strange smell while cutting, then turn off the machine immediately and contact your dealer or directly the manufacturer.

For access to engine compartment first release the hood lock, i.e. turn the special key and release the locking catch. The lock is accessible under the hood.

To close the hood, just press it by means of its handgrip until you hear lock snapping.

Handling and Storage

- The stump cutter is allowed to be transported to site either on a trailer or on a low-bed truck. It is not designed to go on public roads.
- As an option you can get a special trailer directly by the machine manufacturer.
- When loading the cutter on a trailer, fasten retention chains, straps or cables to the machine chassis. Do not put them over or against hydraulic hoses. Make sure that they do not cause damage to rubber tracks. Fasten each corner of the machine and fasten the front arm to the trailer / vehicle bed with a chain / strap or a suitable anchor.
- Remember to use a purpose-designed ramp or a loading platform for loading and unloading the stump cutter. The ramp must be strong enough to support the weight of the machine (min. carrying capacity of 2000 kg).
- Do not load the machine by means of ramps and emergency controls if the height of loading area exceeds 750 mm. Otherwise these controls should get beyond the reach of your hands - accident risk.
- Before loading expand the track base to maximum.
- Avoid any handling with inclination exceeding the permissible limit of 11°.
- While loading and transporting the cutter never operate any control levers except for the drive control levers when going up or down a ramp. Actuating other levers can cause the machine to become unbalanced and tip over. **The switch for cutting head control must be closed by its red cover (fig. 12)**.

Fig. 12 - Driver running milling cutter

- When going to another working site always ascend and descend slopes very carefully and with the cutting head up hill. Before going on hilly terrain expand the track base to maximum.

- ***Store the stump cutter always in dry (sheltered) space to protect it against weather effects.*****Skladování výrobku provádějte v suchém prostředí, tak aby do výrobku nezatékala voda.**
- Keep the stored machine beyond unauthorised person's reach. Pull the ignition key out and keep it separately.
- Before storage clean all parts of the machine.
- Remove any spilled oil immediately and wipe off all oily spots.
- Exchange all damaged or worn parts. Use always original spare parts. For servicing or spare parts contact your dealer or an authorised service.
- Do not apply any grease or similar agents on elastic hydraulic hoses.
- Check up hydraulic hoses for wear. Replace them if necessary or every four years at least.
- Protect the rubber tracks against oil products.
- Before putting the machine aside for a longer time change the engine oil and its filter. Clean the air filter.
- Discharge the used oil into a special bin and dispose it always in accordance with applicable laws and local regulations.
- Remove any spilled oil and clean all oily spots properly.
- Always put the machine aside on a flat and solid floor and block it against unwilling motion by means of scotch blocks.
- Do not let the cutting head sink on a hard surface (concrete) – for underlaying use a wooden board.
- Do not put any objects or tools on the machine.
- Store the fuel canisters separately.

Recommendations for rubber tracks:

- Avoid manoeuvring on hard, stony and uneven surfaces such as rock, gravel, etc.
- Avoid keeping the rubber tracks in direct sunlight for more than 3 months.
- Avoid excessive steering manoeuvres on asphalt and concrete surfaces since these cause excess pad wear.
- Avoid driving on asphalt surfaces when their temperature exceeds 60°C since this causes both excess pad wear and damage to the asphalt surface.
- Manoeuvres with a loose track on an irregular surface can cause the pad to detach and /or damage to the rubber track.

Rubber tracks are designed only for use on soft terrain, not for hard and abrasive surfaces such as sand, stone, minerals, etc. Use of rubber tracks on these surfaces can cause premature wear and deformation hence reducing the useful life of the tracks.

- Avoid contact between sharp concrete edges etc. and the rubber track.
- Fuels or synthetic oils must never come in contact with the rubber track. If this does happen then they must immediately be cleaned.
- Avoid using rubber tracks in marine and seaside environments since saline air or salt in general corrode adhesion between rubber and metal inner core.

Track widening

Take care when widening or narrowing the tracks. Contingent obstacles e.g. stumps, walls etc., could cause unnecessary wear to the rubber tracks and its mechanism and could also cause a track to come off. Also take care that no people or obstacles may be caught between the tracks and the machine or between the tracks and other obstacles.

Checklist before Operation

- Before the first putting into operation check up the machine for contingent damages and completeness after its transport and storage.
- Check out tightening of bolted joints, especially of guards and completeness of other parts.
- Check out the cutting head for its condition (attachment and wear of blades, bolts, etc.). Check out condition of the blades. Replace them if worn or damaged. CAUTION! The blades are fitted as left and right.
- All blades should be replaced always at the same time as a set. Pay special attention to their fixing bolts. Replace them if worn or damaged.
- Check up hydraulic hoses for wear. Replace them if necessary or every four years at least.
- Check up the rubber tracks for wear.
- Check up volume of service fluids available.
- Check out guards, movability of turnable parts respectively functionality of the machine.
- It is strictly forbidden to start the machine with removed guards.
- It is strictly forbidden to do any technical changes on the machine.
- Check out the hydraulic system for condition and contingent leakage.
- Do not use petrol or similar inflammable matters as a cleaning agent.
- If any adjustment is required, do it always at standstill only.
- Observe the working area. If any person, children or animals approach while cutting (within a 20 metre radius of the machine), then stop working immediately.

- The person operating this machine must always wear corresponding PPE, such as
- forestry safety helmet fitted with a visor, full ear protection, steel toe protection boots, heavy duty gloves, close fitting heavy-duty fully protecting clothing.
- **Before starting the battery should be fully charged.**
- Remove the battery and let have it recharged by an authorised person.
- While handling, take care of work safety regulations since the battery contains caustic agent (battery acid). Do not tilt resp. overturn the battery. Do not remove its plugs unreasonably.
- Recharge the battery always after a longer operational break exceeding 50 days.
- **Be aware that any start failed and restarting brings loss of battery voltage. Such a drop of potential might be insufficient for the next start.**

Starting the engine

This cutter is equipped with an electric starter installed in the machine switchbox (fig. 14). Ensure that the red emergency stop button is out. Turn ignition key one position clockwise. Wait till the LEDs stop flashing. This is the preheat mode and will vary depending on ambient temperatures. Then turn further to engage starter motor. Once the engine starts, allow the key to spring back into its normal running position, see Engine Manual for further information.

Before starting it is necessary to re-connect the battery that should be properly charged.
A discharged battery prevents starting and the engine cannot roar to life.
The rear hinged cover must be properly closed and locked by means of a safety screw.

The battery contacts must be connected so that the red connector comes to the plus contact (+) and the blue connector comes to the minus contact (-).

Before starting the ignition key is in the position “0”.

Starting:

- Ensure that the red emergency stop buttons on the remote control box and on the machine are in the stand-by mode.
- Set the battery disconnector in the position „ON“
- Turn the remote control box on.
- Turn the ignition key from the position “0” in the position “1”.

- Push the key to activate the remote controller while the ignition key is set in the position 1.
- Set the ignition key in the position „START“ and start up the engine
- When the engine roars to life, release the key and let the engine run warm at idling.

Fig. 13 - View under the rear hinged cover with battery and emergency stop button above

Fig. 14 – Switch box
1 – removable ignition key, 2 – display, 3 – free, 4 – free, 5 – button for parameters change , 6 – Indicator lamp

Do not crank the engine for a longer time than 10 sec. Keep an interval between two starts (standstill) 30 sec at least.
NOTICE: It is also necessary to reactivate the remote controller

Display „2“ shows the following values: engine speed and hours, oil pressure and temperature, cooling fluid temperature, % torque, error messages

Button for parameter showing „5“ – by pressing the button you can browse particular engine parameters

Indicator lamp „6“ - green – all engine in-service parameters are OK
- red – error message registered and displayed

If the engine turns automatically off just after starting, it may be a symptom of automatic disconnection. Detect the cause and remedy the failure, see also chap. 7.

Despite the disconnecting automatics you should keep regular intervals of 8 – 15 hours intended for engine oil checks.

Reasons for automatic engine stop: emergency stop button pressed (External stop), engine oil pressure too low (Low oil pressure), alternator error (Lacko f chargé alternator), cooling fluid temperature too high (High water temperature).

Putting into Operation

- Do not use the machine under conditions of low visibility, especially at foggy weather, when you may overlook persons coming. Operate it only at daylight or with sufficient lighting.
- Every operator of this machine is fully responsible for any injury or damage caused to the third persons, animals and property within the operating reach of the machine.
- Observe the working area. To ensure the maximum life of the cutters and to keep the cutters sharp, contact with soil, stones, flint brick and other hard materials around the base of the tree stump or directly in the stump should be kept to an absolute minimum.
- Avoid going with the tracked chassis over contingent obstacles, such as stumps, walls etc. that could cause unnecessary wear to the rubber track and its mechanism and could also cause a track to come off.
- Avoid going or working on slopes with inclination exceeding the permissible limit of 11°.

- Any transport to site or on public roads is allowed only with the engine and cutting head off.
- This cutter is designed for cutting away a tree stump from above ground level to below ground level with its above-ground part up to +600 mm and its under-ground part up to -380 mm.
- Before going and working on hilly terrain expand the track base to maximum.
- After starting do not increase the engine speed immediately. Allow the engine to run at no more than fast idle speed to warm up the engine and hydraulic oil for about one minute and then you can set it to its max. speed.
- Turn on the switch for electromagnetic clutch and set the cutting head into motion.
- Set the cutter onto the stump, start cutting in a swinging way and take individual stump layers continuously off.
- Cutting operation should be done at swinging motion, from outer parts towards the operator.
- Run slowly up and start cutting with smaller wood chips and go on faster if possible according to the actual conditions. The size of cut layers depends on speed and cutting depth.
- Try to keep the same engine speed while cutting. Optimal working conditions could be adapted by response speed control of hydraulics (cutter arm response).

CAUTION! Response speed changes bring impact on cut layer size, not on cutting head speed. This control serves for reduction of working elements speed in five steps: from 100% to 60%, 50%, 40% and 20%. Frequency of LED flickering shows the given percentage.

- If you heard any strange noise or vibrations or felt a strange smell while cutting, then turn off the machine immediately and contact your dealer or directly the manufacturer.
- If one cut layer is taken off, set the cutter onto the stump in its initial position again and go on cutting as required.
- **To turn the cutting head on first open the switch cover and then turn the switch in the ON position. While working the cover is opened. It protects the switch against unwished putting the cutting head into motion. When the cover is placed back the switch turns automatically off and the cutting head stops turning. It is strictly forbidden to remove or to block it anyhow.**
- The cutter enables cutting of stumps in a max. depth of 380 mm under the ground level.

If fuel refilling is required then put the machine out of operation and let the engine cool down chladné nádrže. Never put in if still hot.

- For filling the tank use always a proper funnel and canisters.
- If any petrol is spilled or overflowed then wipe off the spots and let them fully evaporate before the next start.
- Check up the fuel tank level continuously while working – fuel volume should be sufficient for the job to be done (at least 1/8 tank volume = 5 l). This minimum level should not drop under the red mark on the gauge – risk of aeration and air intake into the fuel system. Refill if needed.

Instruction for engine stop – Warning! Use the emergency stop button only in emergency situations!

Repeated and too frequent emergency stops of the engine by pressing the emergency stop button may damage the engine.

Do not turn off the engine while still running in its max. speed. First reduce the engine speed to idling. While idling, wait for about 1 minute to let the engine cool down. Finally turn off the engine by turning the ignition key in the position OFF.

Emergency Situations

- If any person or animal approaches the working area while cutting (within a 20 metre radius of the machine), then stop working immediately.
- In case of any indisposition of the attendant.
- If any breakage, damage or disengagement occurs, stop cutting immediately.
- If you heard any strange noise or vibrations or felt a strange smell while cutting, then turn off the machine immediately and contact your dealer or directly the manufacturer.
- In case of fire or breakdown, stop cutting immediately.
- In case of fire use foam extinguishers only.
- If you cannot damp the fire down yourself, call for a fire brigade.

Routine Maintenance

- Any servicing of the cutter should be carried out by authorised persons only.

- Any servicing or repair is allowed to be done only if the machine was put out of operation.
- Check up the machine for completeness and its general condition.
- After every working shift check up tightening of bolted joints, especially rotating parts and completeness of other parts, such as fixation of blades.
- Check up the V-belts for tightness and wear.
- Keep regular intervals for lubrication of cutting head bearings.
- Check up condition of blades regularly.
- Check up hydraulic hoses for wear. Replace them if necessary or every four years.
- Pay special attention to routine maintenance of the battery. It requires special tools, measuring appliances and skilled attendants. If necessary, ask for help by an authorised service in order to inspect or to recharge the battery, particularly after a longer operational break exceeding 50 days. A longer storage time might also cause a drop of battery potential needed for the next start before new season.

Recharge the battery to full capacity also before longer break or storage, particularly in winter.

Service life of the battery installed in the machine is rather limited. It is usually 3-4 years and after this period the battery should be replaced by a new one.

Maintenance of MultiTip System

Look after this system as set out below to insure a long and trouble free service life of the cutting head and particular components.

Safety is paramount. Please, take note of all the enclosed recommendations and safety notes in this manual.

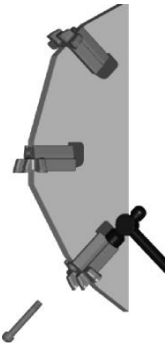


Fig. 15 –Bolt release

1. Remove the bolt and tap behind the blade
with a small hammer (fig. 15). Avoid hitting tips.
Use safety goggles.
The leading blades that are furthest from the centre of the head do most of cutting. By changing these as soon as they become blunt, you can re-use them in other non-leading positions.

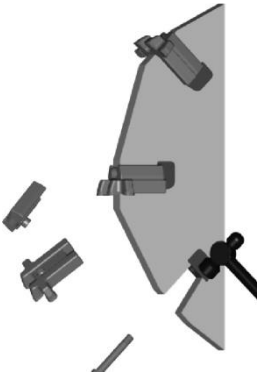


Fig. 16 –Removal tools

2. The keeper plate and blade can be separated once out of the slot (fig. 16). Check the groove in the top of the keeper plate and the edges underneath that locate with the blade. If these are damaged, replace.

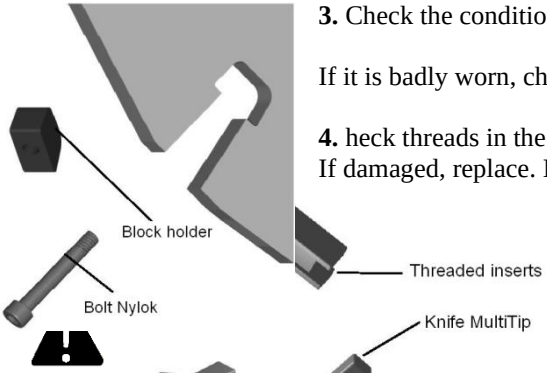


Fig. 17 –Components to ensure

3. Check the condition of the slot.

If it is badly worn, change the entire head.

4. heck threads in the insert and on the bolt.
If damaged, replace. If re-using, make sure they are clean and free from dirt

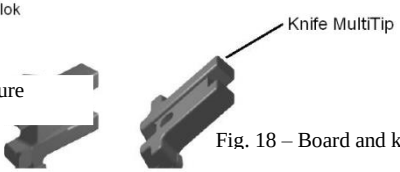


Fig. 18 – Board and knife

The bolt can be re-used up to five times before it needs replacing, providing it is not damaged. **Use bolts supplied**

5. Check condition of the keeper plate.
If badly worn or damaged, replace.
Replace the blade with a new one.

6. Make sure that all surfaces are clean and free from dirt. Re-fit the threaded insert, then the new blade and the keeper block together. Tap the front of the keeper block until it is located (fig. 19). Insert the bolt and tighten it to a torque of 55 Nm. After about ten minutes of use stop and check bolt tightness again.

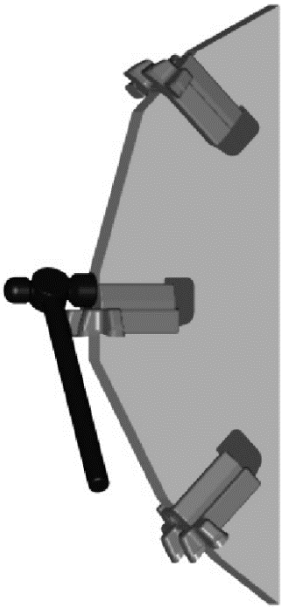


Fig. 19 – Assembly

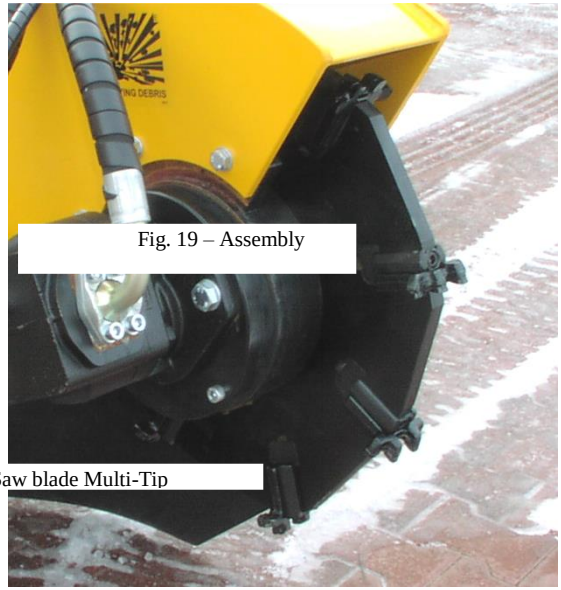


Fig. 20 – Saw blade Multi-Tip

If the assembly cannot be tightened sufficiently into the head, do not use it.
Never use this system without all the components being in place and secure.

Maintenance and Replacement of LASKI Blades

Fig. 21 – Saw blade LASKI

Any faulty change of the Laski blades (fig. 21) and MultiTip blades (fig. 20) is excluded. Be aware that the Laski blades are in pairs as the RH and LH ones. In addition to that they can be straight or bent. As to their design they are not interchangeable with each other and it is not possible to replace them by another brand marks.

Replacement of the LASKI blades (fig. 22):

- Loosen the bolts (10).
- Replace the blades by new ones.
- Tighten the new blades slightly.
- Use the torque wrench and tighten the bolts with a **torque of 110 Nm**.
- For replacement of worn or damaged blades use always original Laski blades and bolts only (10).
- While replacing, proceed very carefully.
- Before replacement the machine must be secured against overturning.
- **Be aware that the Laski blades are interchangeable with each other**.

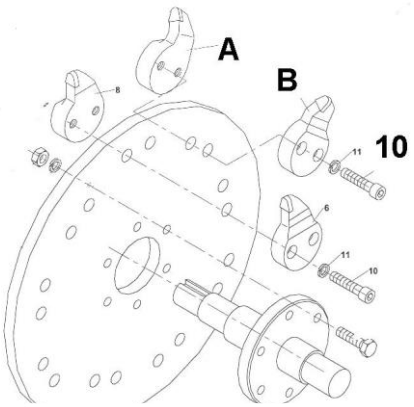


Fig. 21 – Saw blade LASKI

Maintenance of Tracked Undercarriage

Rubber track tension:

When the tracked undercarriage is lifted the rubber track must sag 10-15 mm. When this tension decreases it must be re-tightened to prevent the track from coming off. Do not over tighten it. If you continue to pump grease into the cylinder once the track is already tight, you could compress the cylinder spring and cause excessive damage – the concerned grease nipple is installed under the cover, see fig. 23

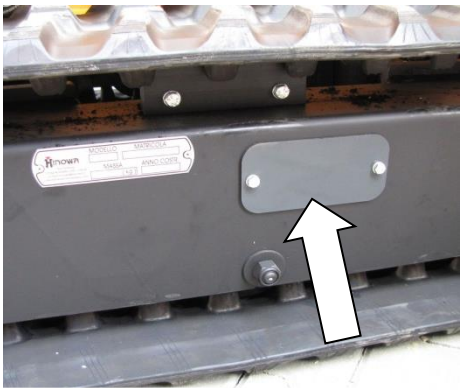


Fig. 23 – Lubricators cover

Correct inspection and maintenance procedures

- Always perform maintenance on a solid and level surface.
- Never grease or lubricate or perform maintenance on the machine while it is in motion.
- Solidly support the undercarriage if it needs to be lifted up for maintenance.
- Use great care when maintaining the hydraulic system since oil is very hot when the machine has just finished working. Oil circuits are under high pressures even when the machine is not working.
- Keep all components properly installed and in good condition.
- Immediately repair all damage and replace worn or broken parts.
- Remove any build-ups of grease, oil or debris regularly.
- Check up hydraulic hoses for oil leaks and/or damage.
- Use recommended lubricants only. Never mix different brands of lubricants.
- Use only original spare parts.
- Keep clean the undercarriage widening cylinder and track-stretcher grease nipples.
- Intervals for routine maintenance are indicated for normal work conditions. If the tracked undercarriage is used in severe work conditions then maintenance must be performed at shorter intervals accordingly.
- Dispose of lubricants always in an ecologically safe way. Thoughtless disposal of lubricants can damage the environment. Become familiar with local anti-pollution laws and regulations.
- Use suitable containers when draining lubricants. Do not use beverage or food containers that might tempt someone to drink from them. Never pour lubricants on the ground or in a canal, pond or watercourse. While disposing of lubricants, comply always with all applicable environmental protection regulations.

Gear oil
Avoid using oils with different characteristics and brands.

Choice of type of reduction unit oil
We recommend, for reduction units, using gear oils with E.P. additives and viscosity class according to ISO VG 150 or SAE 80W/90.

When temperature variation ranges are very high we recommend using synthetic oils with E.P. properties and minimum 165 viscosity index and viscosity class VG.

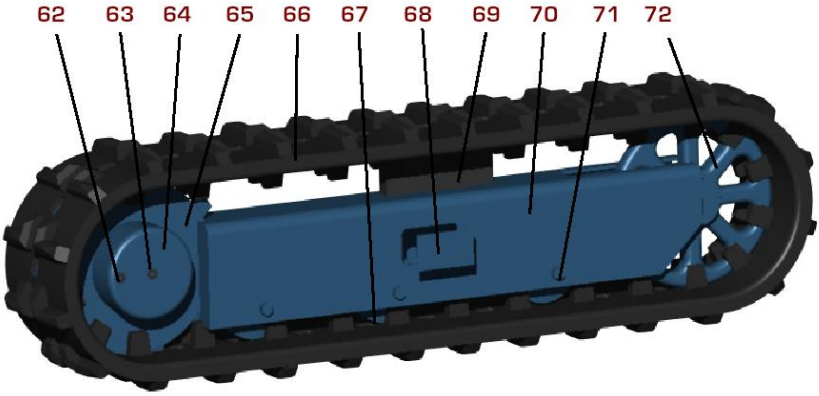


Fig. 24 – Tracked chassis components

62. Gearbox drain plug
63. Gearbox filler plug
64. Gearbox
65. Drive sprocket
66. Rubber track
67. Roller
68. Cover plate
69. Nylon guide block
70. Side frame
71. Roller bolt
72. Front idler wheel
73. Grease nipple
74. Grease valve

Track loosening / tightening procedures:

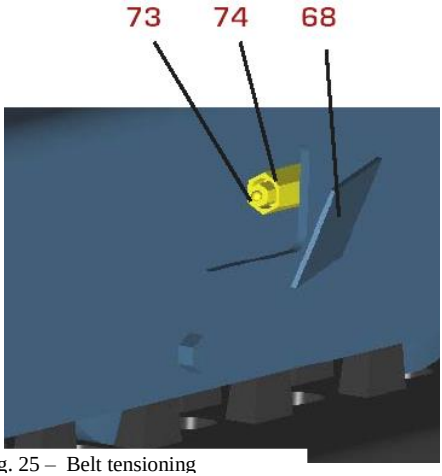


Fig. 25 – Belt tensioning

The grease contained in the hydraulic track is pressurized. Never loosen grease valve (74) for more than one turn. If the valve is loosened too much you risk expelling grease under pressure and possible serious injury to the machine operator. Also never loosen grease nipple (73).

Remove gravel or mud from between the sprocket and the track.

Remove the screws and take off the cover (68) to access the adjustment system.
To loosen the track, turn the valve (74) counter-clockwise but no more than one turn. One turn of the valve (74) is sufficient for loosening the track. If grease does not start to drain out then slowly rotate the track.

Tighten the valve (74) by turning clockwise till tight. Clean all traces of extruded grease.
To tighten the track, connect a grease gun to grease the nipple (73) and pump grease until the track tightens so that there is 10-15 mm of sag. Then stop it.

Front idler locking

It is not normal for the track to remain tight after turning the valve 1 counter-clockwise or for it to remain loose after introducing grease into the grease nipple 2. Never try to remove the tracks or disassemble the track-stretching cylinder since pressure of the grease inside the track is extremely dangerous.

Removing the rubber track

- Stop the machine on a solid and level surface. Jack up side of machine under its main frame and support it in safe condition.
- Remove the cover plate (68) on side of the track frame that gives access to the adjustment system.
- To loosen the track, slowly unscrew the valve (74) counter-clockwise for no more than one turn. One turn of the valve (74) is sufficient for loosening the track.
- If grease does not start to drain out, then slowly rotate the track.

- Insert 3 steel tubes in the space between the rollers and the track. Rotate the driving gear in reverse so that the steel tubes proceed with the track and contact the front idler wheel.
- Exercise force sideways to slide the track and lift it off the front idler wheel.

Installing the rubber track

- Make sure that you are always in safe conditions with the machine lifted before performing this track installation operation.
- Mesh the track links in the sprocket and place the other end of the track on the front idler wheel.
- Rotate the driving gear in reverse slowly and push the track soles into the frame.
- Position the track using a steel tube and turn the driving gear again.
- Make sure the track links mesh correctly with the sprocket and with the front idler wheel.
- Adjust track tension as set out previously. Replace the cover and lower the machine back onto the ground.

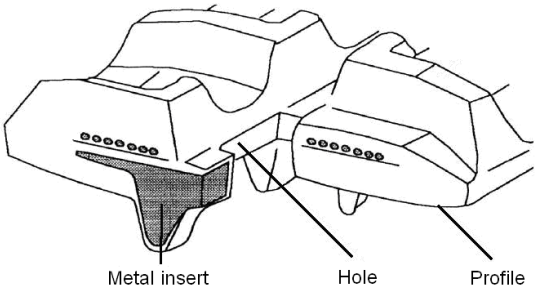


Fig. 26 – Rubber track

The structure of the rubber track is shown above (fig.26). The steel cables and the metal core are embedded in the rubber. The carved profiles function gives stability on soft terrain. The wheel guides, located on the inside of the track, prevent the track from sliding off the guide rollers.

Breakage of steel cables

Excess track tension can cause steel cables to break in the following conditions:

- when stones or foreign matter accumulate between the track and the undercarriage frame;
- when the track slips off its guide system;
- in case of great friction such as rapid changes in direction.

Breakage of metal cores
Excess track tension can cause the metal cores to bend or break just like the steel cables as stated above.

Other causes may include:
- improper contact between track and sprocket;
- rotation of internal rollers;
- operation on sandy terrain.

Maintenance of drive geared motors

Checking the oil level in the reduction unit
- Stop the hydraulic geared motor with the plugs (62 and 63) (fig. 27) aligned horizontally.
- Remove both plugs and check that the oil level is up to their holes. Top up as necessary, filling through one of the holes and using the other to check the oil level.

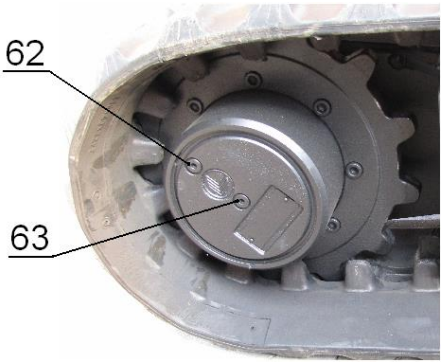


Fig. 27 – Reducer

Replacement of oil in the gearbox
Replace the oil after the first 100 operating hours and then at subsequent 1000-hour intervals.

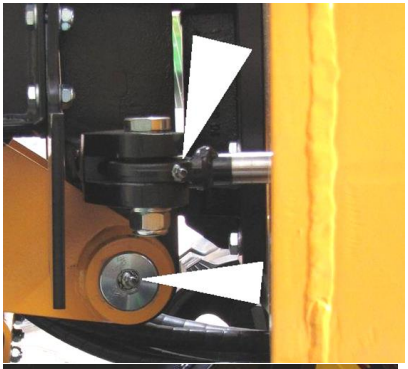
Proceed as follows to perform the replacement:
- Stop the reduction unit with the plugs (62 and 63) aligned vertically with the plug (62) at the bottom.
- Remove both plugs and drain out all the oil.
- Now position the plugs horizontally and fill the reduction unit through one hole, using the other to check the oil level.

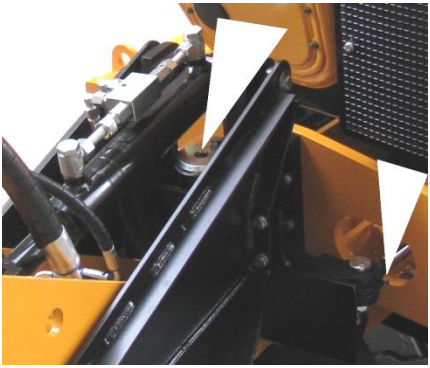
Lubrication

Undercarriage grease points

Perform this maintenance procedure every 100 work hours, using lithium grease with EP2 consistency. Clean grease nipples before connecting them to the grease gun. Clean all grease being extruded.
Lubrication should be at more frequent intervals if the tracked undercarriage is used in particularly severe operating conditions. Grease points for the tracked undercarriage widening cylinder pins can be found when the tracks are extended to maximum. Grease more regularly if working in dusty or wet conditions.

Mazání frézovacího ramene





The cutter arm grease points are especially hinges that serve for cutting and swinging motions. These points are marked with white triangular marks.

Perform this maintenance procedure every 100 work hours, using lithium grease with EP2 consistency.

Obr. 28 – Mazání frézovacího ramene

Maintenance of Engine

Interval of 8 – 15 hrs

Oil level checks

Při kontrole stavu oleje musí stát motor vodorovně a musí být odstaven

Check up the hydraulic oil level. When the stump cutter is on level ground the oil should be between MAX and MIN marks on the oil dipstick "1" (fig. 29) – top up if necessary. Refer to MSDS sheets from your oil supplier and Engine Manual.

Fig. 29 – Oil level checks

Air suction checks
Should heavy fouling with dust deposits be detected, then maintenance must be performed at shorter intervals accordingly.

Check up the air intake, resp. the cyclone separator input for dirt, such as leaves, dust settlings etc. and clean it if necessary (see fig. 30).
- Clean up the external and internal air filter elements by pressure air.
- In case of heavy fouling change the paper elements immediately. Remove the cyclone separator and clean it if some oily spots appear.

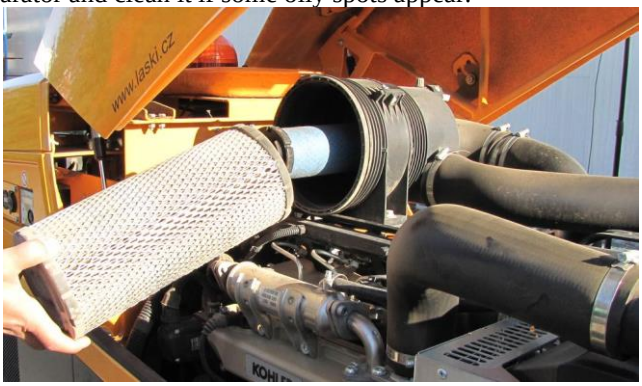


Fig. 30 – Air filter

Inspection of cooler

Cooling air is sucked under pressure by a cooling fan.
This cooling air can bring also dirt and various mechanical impurities that stick on the cooler ribbing and may reduce the engine cooling efficiency.

- remove mechanical impurities stuck on the ribbing by means of a brush;
- remove fine dust sediments on the ribbing by pressure air while holding the air nozzle from
the opposite cooler side.

Before cleaning first turn the engine off and let it cool down – otherwise risk of burns.

Maintenance interval 10 hrs

Check of service fluids charges

Check up the engine oil and coolant levels regularly.

Battery Charger and Battery Charging

There is one charger available with this machine for voltages 12 to 30 V DC. The other option is 240 V with an adapter. The battery pack is rechargeable and of Nickel Cadmium (NiCd) type. The normal charging time for an empty uncharged battery, is approximately 12-14 hours. The battery charger is constructed so that no damage will occur from long continuous charging. The batteries effective operation time is about 8 hours on one charge. When the battery is approaching the time for charging, the control unit beeps three times as a warning and at the same time the LED starts to blink on the control unit. The battery must be used until the LED goes out, after which it can be changed. If the battery capacity is too low, the control unit cannot be activated.

In order to reduce battery loading and for safety reasons, the control unit is turned off automatically, after the unit has been idle for more than approximately five minutes.

Fig. 57 – Battery Remote Control

Should the battery be fully discharged, it can be replaced by a new one. The battery is accessible under the cover in the bottom of the remote control unit.

Wired Emergency Control
Should the battery of the remote control unit be fully discharged, it is possible to use a connecting cable that should interconnect the remote control unit and the electronic control box. This cable is included in the remote control kit.

Maintenance Intervals

Tab. 5 – Machine maintenance

Maintenance intervals	Maintenance to be done
Every 8 – 15 hours, respectively daily checks before starting	Engine oil / hydraulic oil – top up if necessary. Air suction part. Check up cooling air and fluid intake space. Be sure that there is no debris that may break loose when the cutter is started. Contingent engine oil / hydraulic oil leaks. Make sure that all retaining bolts on the cutting head are tight. Access covers and guards must be securely fitted. Check and clean the air filter and remove any debris from within the engine covers and the oil cooler. Refer to Engine Manual for cleaning of the entire air cooling system.

Every 50 hours	Check out tightening of bolted joints, especially of guards and completeness of other parts. Check out the rubber tracks for correct tensioning and contingent damage. Check out and adjust, if necessary, blower belt tightness. Clean the cyclone separator. Cleaning of blower, ribbing and oil cooler.
Every 250 hours	Check out tightening of bolted joints. Check out the fuel pre-filter for cleanness and replace if necessary. Change engine oil and the oil filter element. Check out the air filter LED for function. **Do not retighten the cylinder head nuts.** Make sure that all retaining bolts on the cutting head are tight. Change the fuel pre-filter.
Every 500 hours	Check out and adjust, if necessary, valve clearance. Check out all hydraulic elements for condition, function and tightness. Change hydraulic oil and the oil filter element.
Every 1000 hours	Change the fuel filter.

Failures and Troubleshooting

Tab. 6 – Failures and repairs

Failure	**Cause**	**Remedy**	
Engine does not start but it is possible to crank it	Speed regulator lever in STOP position	Set the lever of speed regulation to 1/2 start or max. starting speed. The lever should remain fixed there.	
	Emergency STOP button activated	Deactivate	
	Remote control OFF	Turn it on	
	Cutting head switch ON	Turn it off before starting	

	Lack of fuel in fuel-injection pump	Use the fuel pump lever by hand and pump so long until fuel goes through the return line back into the fuel tank (it is audible). - check entire fuel system - check fuel supply to engine - check fuel pre-filter - check fuel filter - check fuel pump function	
	Insufficient compression stroke: - wrong valve clearance - wear of valves - wear of cylinders and/or piston rings - failure of decompression automatics - failure of injection nozzle	Check valve clearance and adjust it if needed	
	Blower belt broken	Change	
Problematic starting at low temperatures	Failure of pre-heating system	See Engine Manual	SERVICE
	Jellied fuel	Check of fuel qualities at injection nozzle – it should be clear, not turbid. In case of jellied fuel let the engine run warm (if possible) or drain the entire fuel system and use winter fuel.	
	Too low speed at starting: - solid oil - battery insufficiently charged	- use only recommended oil sorts - recharge battery - resp. contact authorised service	
Starter does not turn on, resp. engine does not crank	Failure of electric equipment: - loose connection of battery and/or wiring - discharged battery - oxidized contacts - failure of starter - failure of relay or controls	Check electric equipment and particular components	SERVICE

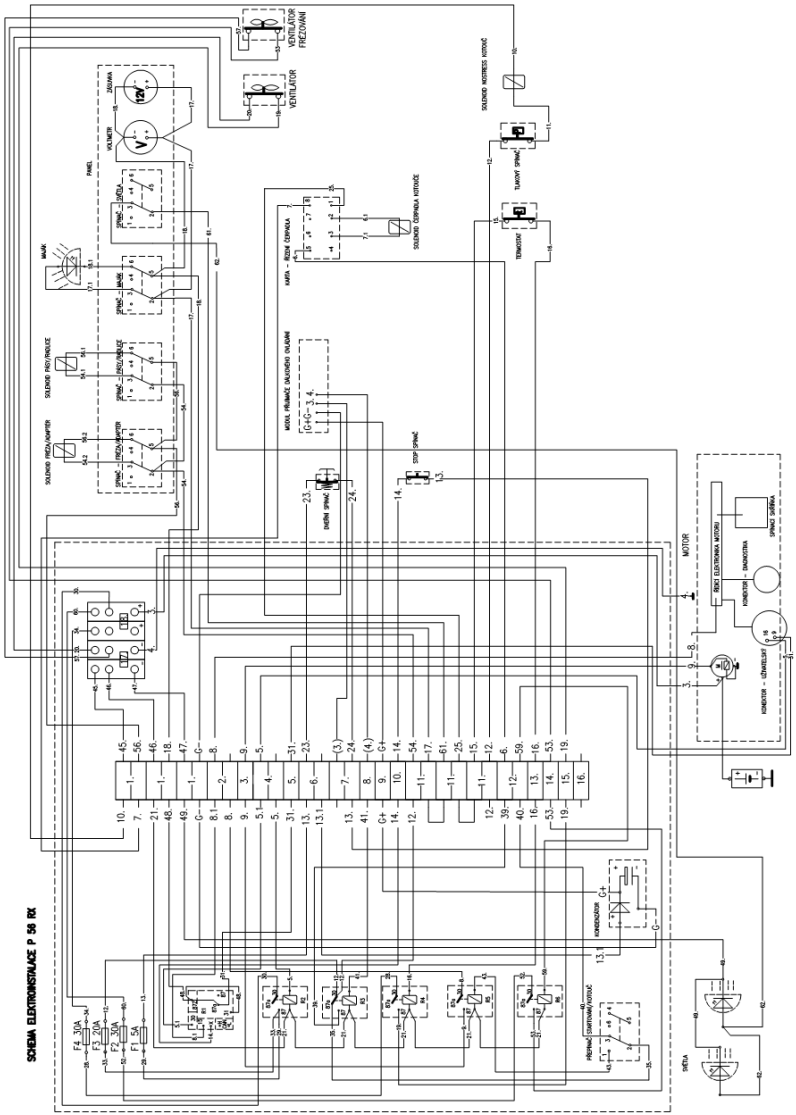
Engine roars to life but does not run after starter disconnecti on	Speed regulator lever not sufficiently in START position	Set the lever to START	
	Fuel filter fouled	Change	
	Fuel supply line broken	Check and remedy	
	Error indication from control elements in connection with disconnecting automatics: - no oil pressure - filter fouled - failure of alternator	- check entire fuel system - check oil level - check filter and clean or replace it as needed - see Engine Manual - change	 SERVICE SERVICE
Engine turns off	Lack of fuel	Refill	
	Fuel pre-filter or fuel filter fouled	Check and replace as needed	
	Blower belt broken	Change	
	Mechanical failure	Check and remedy	SERVICE
Engines with disconnecti ng automatics	STOP indication from control elements: - low oil pressure - too high engine temperature - air filter fouled	 - check oil level - check cooling system - check filter resp. clean it or replace as needed	
	Failure of electric equipment: - loose connections of wiring - failure of alternator - failure of relay	Check electric equipment and particular components	
Insufficient engine power	Insufficient fuel supply: - lack of fuel - fuel filter fouled - insufficient fuel tank venting - fuel line leakage - speed regulator lever does not remain in required position	 - refill - change filter - check and remedy - check and remedy - unblock	
Insufficient engine power, loss of speed, black exhaust fumes	Air filter fouled	Clean filter or replace it as needed	
	Valve clearance not OK	Adjust	
	Failure of in injection nozzle	See Engine Manual	

Engine runs hot - LED for cylinder head temperatur e lights (option)	Engine oil level exceeds MAX mark Insufficient cooling: - cooling system fouled - loosened cooling air ducting	Drain engine oil as needed - check entire system and clean it as needed - check cooling air ducting for tightness	
Cutting head cannot be set in motion	Blown fuse	Replace	
Insufficient cutting quality	Blades blunt	Remove blades and regrind, resp. change them as needed	SERVICE

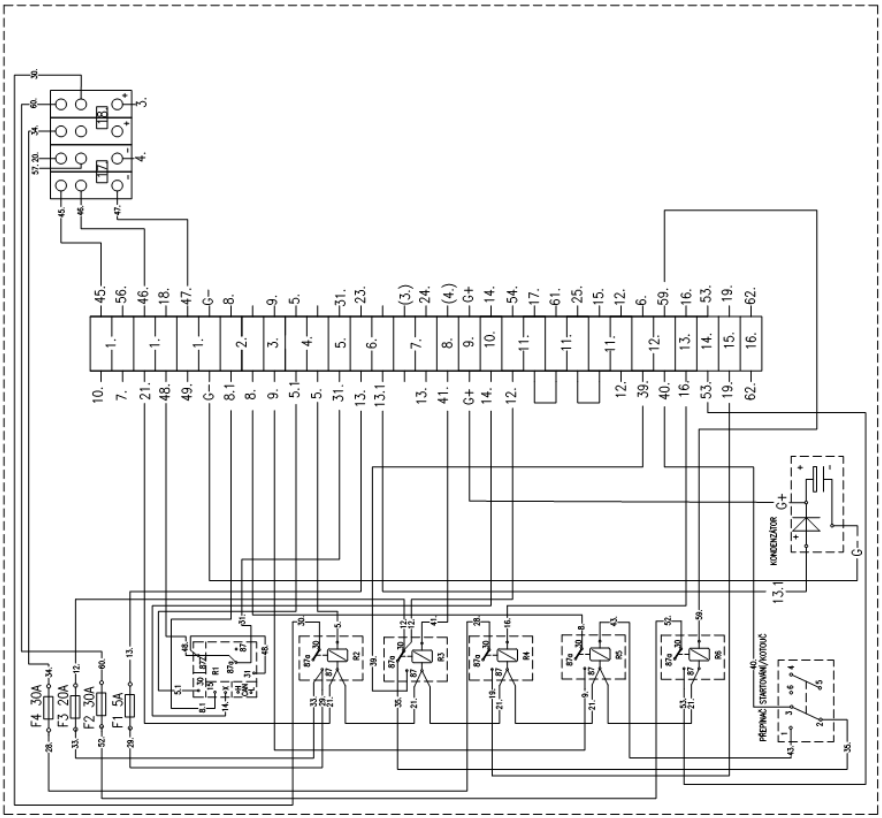
Note: The note "SERVICE" in the "Remedy" column means that this operation should be done by an authorised service only.

Blades edge regrinding requires high demands for keeping optimal cutting edge shape. While regrinding it is necessary to keep the same weight of particular blades because of balance of their rotating mass. We recommend calling the manufacturer Laski s.r.o. for assistance.

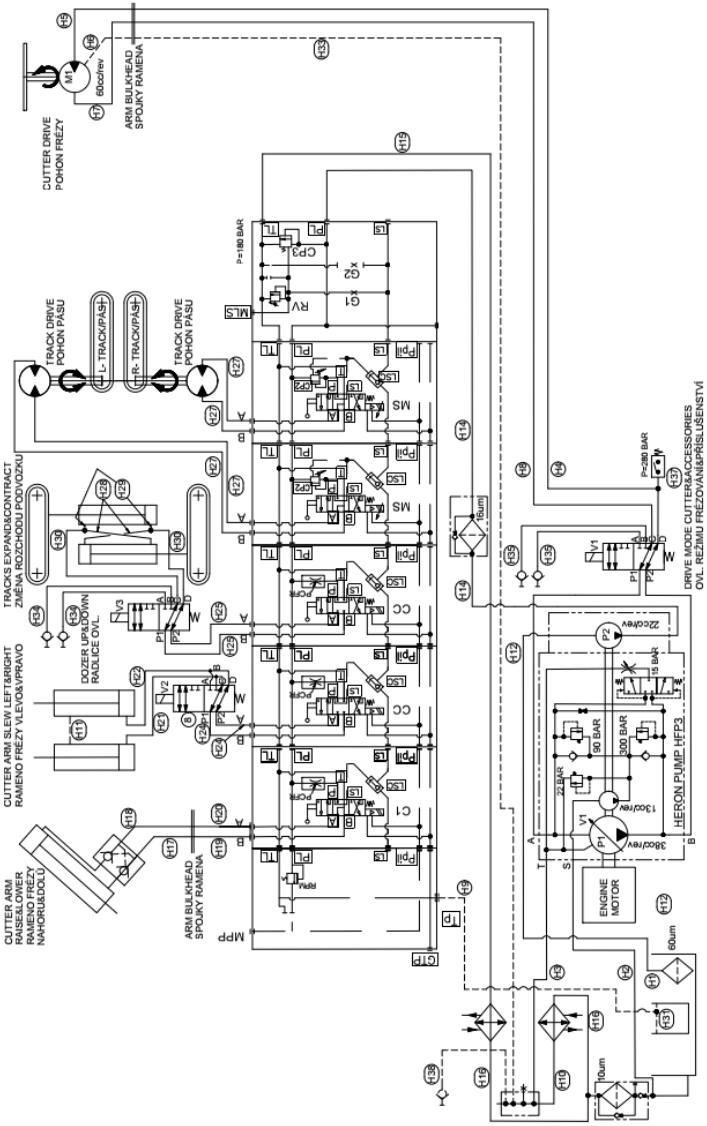
ELECTRIC CIRCUITRY



SCHEMA ZAPOJENÍ KRABICE P 56 RX



HYDRAULICS


CUTTER DRIVE
POHON FRÉZY
ARM BULKHEAD
SPOJKY RAMENA
TRACK DRIVE
POHON PÁSU
L- TRACK(PÁS)
R- TRACK(PÁS)
TRACK DRIVE
POHON PÁSU
TRACKS EXPAND&CONTRACT
ZMĚNA ROZCHODU PODVOZKU
DOZER UP&DOWN
RADLICE OVL.
CUTTER ARM SLEW LEFT&RIGHT
RAMENO FRÉZY VLEVO&VPRAVO
CUTTER ARM
RAISE&LOWER
RAMENO FRÉZY
NAHORU&DOLŮ
ARM BULKHEAD
SPOJKY RAMENA
P=180 BAR
DRIVE MODE CUTTER&ACCESSORIES
OVL. REŽIMU FRÉZOVÁNÍ&PŘÍSLUŠENSTVÍ
HERON PUMP HFP3
ENGINE
MOTOR

Warranty

The manufacturer provides warranty on this product for a period as stated in the enclosed Letter of Indemnity. This warranty period begins upon delivery to the customer.

This warranty covers all failures resulted from faulty assembly, manufacture and materials.

The manufacturer bears no responsibility for damages resulted from user's wrong usage, such as:

- Usage by an unauthorised person.
- Unauthorised changes, repairs and actions on the machine.
- Usage of unoriginal spare parts or parts intended for other models.
- Disobedience to instructions for use.
- Damage of the machine caused by faulty handling, maintenance or overloading.
- This warranty does not cover faults resulted from damages caused by the user.
- This warranty does not cover parts being subject to ordinary wear and tear.
- This warranty does not cover any damage of machine caused by usage of not original spare parts.

- This warranty does not cover consequences resulted from weather effects.

Any warranty claims must be submitted in writing with papers concerning acceptance for warranty or post-warranty repair.

Service Report

Type of machine:	Serial number:
Day of inspection: **after 6 months**	Working hours: **after 500 hrs**

Operations done:

- Engine oil - change Yes No
  Sort / viscosity .....
- Oil filter – change Yes No
- Air filter – change Yes No
- Fuel filter – change Yes No
- Solidification point of coolant ..... °C
- Hydraulic oil – change Yes No
  Sort / viscosity .....
- Oil filter element – change Yes No

Stamp of service station, technician's signature

Additional data:

Date:..... Working hours: .....

.....

.....

Date:..... Working hours: .....

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Next service inspection (whichever occurs first)

Date:..... Working hours:.....

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