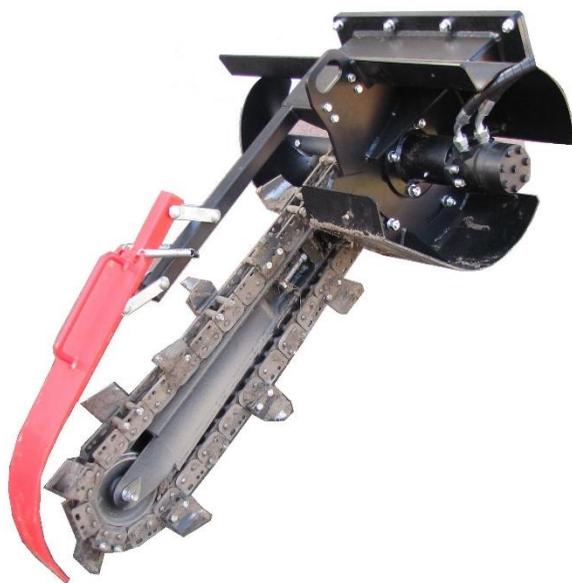


OPERATING INSTRUCTIONS



TRENCHER ATR 90

Version 03.2017



EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
INVESTMENT IN YOUR FUTURE



Foreword

Thank you very much that you have just purchased our product, the trencher TR60 HC. Our company has been engaged in production of machines and equipment for many years and has gained considerable experiences in this field. Quality of our machines is proven in 22 countries of Europe and Asia we export to.

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 service 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 explanation. It is very important for you and your work safety to understand all instructions given in this manual.

The firm Laski spol. 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 the text. If there is any work safety rule or instruction in general description, then this instruction is indicated with the following symbol:



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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: **TRENCHER**
 - type: **ATR 90**
 - serial number:

complies with the given EC Directives:
2006/42/EC

List of technical standards, specifications and harmonised norms used for assessment of its conformity: **EN ISO 12100, EN 474-1+A4, EN 474-10+A1, ČSN EN ISO 4413, EN ISO 13732-1, ČSN EN ISO 14120, EN ISO 3767-1, ISO 11 684**

Basic technical parameters:

Parameter	Unit	Value
Length	mm	1750
Width	mm	950
Height	mm	750
Max. pracovní tlak	MPa	10
Požadovaný průtok	l.min ⁻¹	70
Weight	kg	max. 300
Trench width	mm	160
Max. trench depth	cm	60 - 90

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

In Smržice, on 23.12.2016



.....
 Ing. Jiří Kvasnička

Product Identification

Our product is identified with its serial number stamped on the type plate placed in front of the machine jib. Upon the take-over of the product we recommend you to fill required data in the following form (1) concerning the given product and your dealer.

Basic product data:

Type of product:

Serial number of product:

Dealer's address:

Address of authorised service:

Date of delivery:

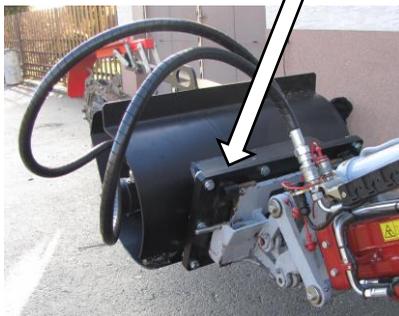
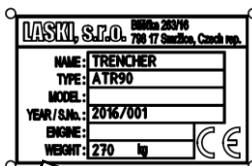
Warranty expiration date:

Interruption of warranty period:

The product type plate is located on the machine frame behind its clamping plate.

It includes:

- manufacturer's data
- product designation
- type
- serial number
- weight of machine
- CE marking



Type plate place

Work Safety Instructions

Utilisation

- The trencher ATR-90, as an implement coupled to a power source (hereinafter referred to as carrier), facilitates trenching works at cables and pipelines lying in gardens, school yards and parks without moving too much earth.
- The trench itself is up to 90 cm deep with a plain and clean unvaried profile given by the cutting chain width. The machine is used for trenching in compact soils with small stones in size up to 50 mm in one-man operation (operated by a carrier driver).
- This machine is allowed to work only on flat and even terrain or up the permissible limits of the used carrier as to its climbing ability.
- The given carrier must be fitted with a corresponding clamping plate. Its hydraulic system should provide minimum jib carrying capacity of 350 kg, hydraulic oil pressure up to 10 MPa and oil flow of 70 l/min.

Not Allowed Use



The trencher is not allowed to be used for trenching in soils with glass cullet, metal subjects, bars, wooden pieces, stony debris, rubbish etc. or in concrete, bitumen and paved surfaces.

- Avoid working with inclination exceeding the limit as allowed for the used carrier,
- It is forbidden to work if the used carrier could not provide required parameters as to oil pressure and flow rate or if it is fitted with an incompatible clamping plate.
- It is forbidden to work if the carrier stands on unstable terrain, steep slopes and close to trenches with risks of instability,
- Avoid working on icy and frozen terrain (it applies also to frost-bound grassed area).
- It is strictly forbidden to start working with removed guards.
- It is not allowed to go on working if oil temperature exceeds 65°C. First let the hydraulic system cool down.

Generally

- Before use of this machine the user (owner) is obliged to instruct operators with this manual and all operating instructions in a provable way.

- This machine is allowed to be operated only by an operator who is over 18 years old, physically and mentally capable and demonstrably instructed with its operation.
- This manual should be available and at operator's disposal any time.
- This machine is allowed to be operated only by an attendant/driver who should have a respective driver's license (according to a carrier type).
- Persons under the influence of drugs, alcohol or medication affecting reaction time must never work with this machine.
- Keep this machine beyond unauthorised person's and children's reach.
- Keep this machine beyond children's and unauthorised person's reach. Avoid their attendance while trenching. Keep them beyond hazardous area which is a space around the machine up to 20 metres.
- Pay special attention to the area on the trencher's right side where its auger turns.
- 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.
- Before work make sure if necessary operating and ancillary space is free and safe.
- Before working learn all functions of individual controls. If necessary, contact your dealer and ask him for operator's training.
- The operator is obliged:
 - to use only such a trencher which is in optimal operating condition, not damaged through transport, storage or from previous operation,
 - 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.
 - before trenching to learn all local regulations concerning noise and to respect them,
 - For replacement of worn or damaged parts use always original spare parts only.
- The operator of this machine is obliged to trench on bearing and compact surfaces only.
 - to stop trenching immediately if there are any undesirable objects in the soil,
 - to stop trenching immediately if he hears any strange noises or vibrations that may result from contact of the cutting chain with undesirable objects bringing usually damage of the chain. Turn the machine off and first remove these objects.
 - to respect all work safety instructions.

- ❑ While taking the machine over from another person or always before work make sure if all controls, guards and other safety elements are complete and properly installed. They serve for your safety.
- ❑ Avoid wearing free parts, such as ties, scarves and shawls, belts etc. In case of longer hairs use always a proper head piece. Otherwise, such a person is not allowed to operate this machine.
- ❑ While working, wear always personal protective equipment – protecting shield or goggles, protective gloves, working shoes and working clothes properly buttoned.
- ❑ This manual describes also some common troubles and failures which could occur and which are easy to be remedied by an instructed person. Other problems and faults should be announced directly to the manufacturer, the LASKI Service Centre that is always ready to help you.
- ❑ Before any checks or servicing stop the engine, disconnect the spark plug cable and wait until any motion stops.
- ❑ Do not put any objects or tools on the machine.
- ❑ While displacing the machine on the plot the cutting chain bar must be set horizontally and the machine operator should stand in the given attendant's place.
- The manufacturer does not bear responsibility for any damages or injuries to the third persons or to other equipment resulted from disobedience to instructions given in this manual
- While handing the machine over to another person make sure if all controls, guards and other safety elements are complete and fully functional.
- Do not remove guards and other safety elements. They serve for your safety.
- Keep the given intervals for checks of bolted joints. The first check should be done after first three operating hours.
- Always after work clean all parts of the machine. For cleaning do not use fuel or other oil products.
- At windy weather orientate the trencher in such direction to avoid exhaust gases and dust bothering the operator. .
- Stop working if some parts running hot are covered with dust and soil deposits. Clean such parts any time when required.

- Keep this machine beyond the reach of naked flames,
- Keep in mind all the parts and surfaces that may get hot from operation, i.e. especially the engine, hydraulic elements, motion parts, bearings and exhaust manifold parts.

- Do not let the machine running at high speed unreasonably.
- Do not raise the auger or chain speed through changes in the gearings.
- Do not start this machine in confined or ill-ventilated spaces. Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odourless, colourless 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.
- Before working learn all functions of individual controls and safety elements and carry out functional checks before any use.
- 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.
- Avoid wearing free parts, such as ties, scarves and shawls, belts etc. In case of longer hairs use always a proper head piece. Otherwise, such a person is not allowed to operate this machine.
- While working, wear always personal protective equipment – protecting shield or goggles, protective gloves, working shoes and working clothes properly buttoned.
- Keep all the work safety symbols and markings legible, clear and undamaged.



Residual Risks

HOT PARTS

Some machine components (especially the engine, hydraulic elements, motion parts, bearings and exhaust manifold parts) can get extremely hot from operation. To prevent severe burns do not touch these parts while the engine is still running – or immediately after its turning-off. Do not start the carrier engine with safety guards removed.

CHAIN OR AUGER IN MOTION

When the engine is turned off, the auger and the chain continue to move for a short while. Do not touch these parts until they stop – risk of injury.

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

The operating noise level depends fully on the used carrier. The keeper of this equipment is obliged to consult relevant exposition times of the operator with concerned local authorities.

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.

LIGHTING

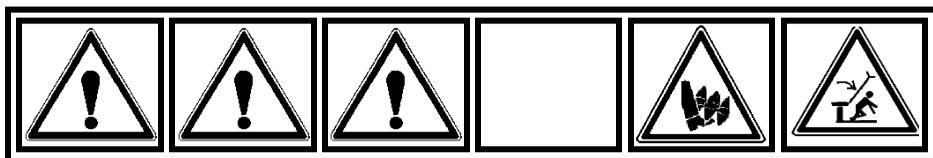
Operate this machine only at daylight or with sufficient lighting in the workplace.

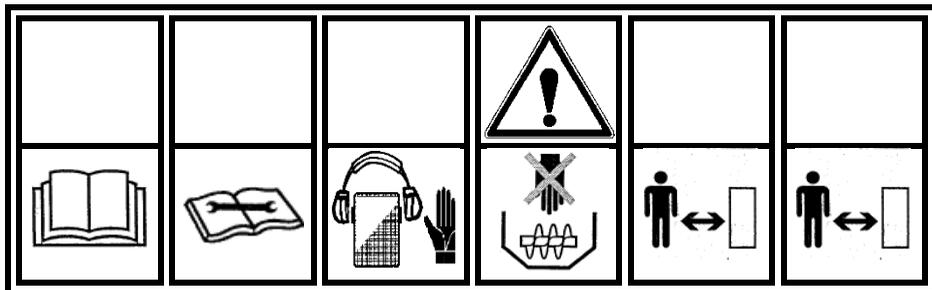
Work Safety Symbols

This article introduces work safety symbols (pictographs) used on this machine. Under the relevant figure there is their location (position) on the machine. 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.

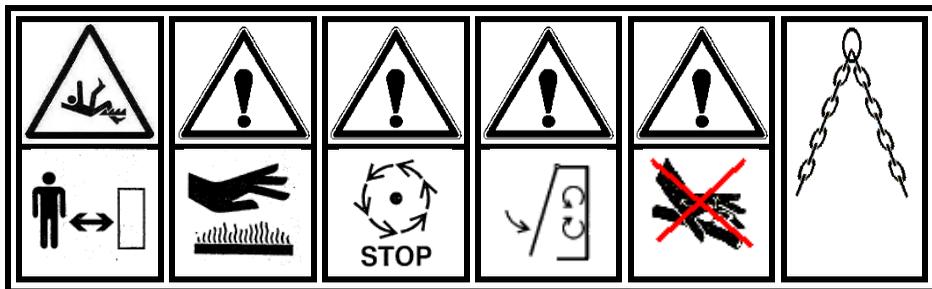


The user is obliged to keep all the work safety symbols legible, clear and undamaged. In case of any damage or illegibility ask your local dealer or an authorised service for a new relevant pictograph.





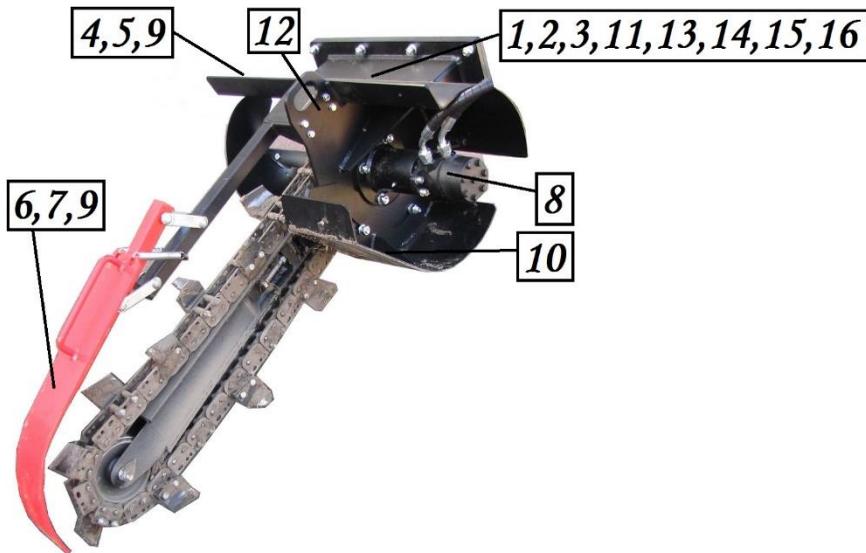
1	2	3	4	5	6
Read this operating manual before use.	Always follow the manual while maintaining, servicing or repairing the machine and disconnect the spark plug cable.	Wear personal protective equipment – eye protection, hearing protectors and protective gloves.	Warning! Rotating auger. Hit and pull-in hazard.	Keep safety distance from turning parts.	Warning! Keep safety distance from chain bar in motion.



7	8	9	10	11	12
Keep safety distance from moving parts.	Warning! Hot parts of exhaust manifold.	Warning! Turning parts are running out.	Warning! Close all guards before starting the machine.	Warning! Risk of high-pressure liquid leakage.	Lashing points.

			
13	14	15	16
Wear protective gloves.	Wear ear protection.	Wear face protecting shield.	Wear steel toe protection boots.

Fig. 5 Work safety symbols on the machine



Work safety symbols on the machine

Noise and Vibrations

This trencher is not equipped with own combustion engine. As an implement it is intended for coupling to a carrier and any noise emissions of this machine depend only on the used carrier type according to its power unit and technical condition.

Technical Description

The trencher ATR-90 is designed for coupling to a carrier fitted with a corresponding clamping plate.

Trenching Device

This device consists of a link chain running on a special bar. The chain links hold tips that cut the soil and bring it to an auger. Above the bar there is a guiding block which helps keeping flatness at trenching. It serves also as a fixed point at displacement of the machine. The auger puts the soil aside, approximately 15 cm from new trench.

The chain bar is height-adjustable according to the carrier actually used. Its hydraulically controlled continuous adjustment can provide trenches in depths as from 60 cm to 90 cm. The guiding block for flat trenching is mounted close to the chain bar edge. The chain tips are fitted as left and right and intended for cutting the soil and bringing it to the auger.

Fully hydraulic control of the machine, i.e. the link chain and the auger, is based on the carrier hydraulics according to the carrier actually used.

This hydraulic system is designed for power transmission from the carrier engine to the working parts of the trencher. It comprises also hydraulic hoses, quick-acting couplers and hydromotor.

Technical Parameters

Parametr	Unit	Value
Overall length	mm	1750
Overall width:	mm	950
Overall height:	mm	750
Weight:	kg	270 – 300*
Speed	m/hod	max. 40
Max. oil flow	l.min ⁻¹	70
Max. oil pressure	MPa	10
Max. trench depth	cm	60 – 90, continuously adjustable
Trench width	cm	max. 16
Trenching chain	inch	1,654“, with 64 pitches
Number of chain tips	-	16
Max. auger speed	rpm	Max. 370
Auger diameter	mm	400

*) according to the chain used

Transport

This trencher can be transported to site either on a trailer or on a low-bed truck. For shorter distances it is also possible to let the machine coupled to the carrier.

Loading/unloading

Always perform the machine loading and unloading operation with the trailer parked on a solid and level surface.



If uncoupled, you may use a lift truck or a tackle with min. carrying capacity of 500 kg. Any suspension is allowed only in the given lashing points. It applies also to lashing straps or other applicable lifting means.

Loading/unloading

Always perform the machine loading and unloading operation with the trailer parked on a solid and level surface.

If uncoupled, you may use a lift truck or a tackle with min. carrying capacity of 500 kg. Any suspension is allowed only in the given lashing points. It applies also to lashing straps or other applicable lifting means.



If coupled, follow the instructions given in the separate manual of the carrier.

Product Delivery

- This product is delivered completely mounted and attached to a wooden pallet.
- While handling you may use a lift truck or a tackle with min. carrying capacity of 500 kg (suspension in the given lashing points only).
- The manufacturer delivers this product 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 or even to pile two machines on each other.

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.
- Lift up the trencher slightly in order to remove the transport pallet and put it on the ground. At lifting keep away from the place under the tackle/crane load.
- For loading or unloading use lifting means with min. carrying capacity of 500 kg.
- For coupling the trencher directly to a carrier, keep the following instructions.

Precautions in Design

Moving parts on this machine, particularly bar, chain and auger, are located beyond attendant's reach. Main controls for machine operation are installed on the carrier. While trenching, the attendant must remain in the intended attendant's workplace, i.e. usually the driver's seat.

Use



Before Use

- Before first putting the cutter into operation check up the entire machine for completeness after transport. In case of any damage or incompleteness contact your dealer or an authorised service point.
- Exchange all damaged parts and use always original spare parts.
- Check up all bolted joints, especially on the moving parts.
- Keep all unauthorised persons or animals out of range of the machine while working.
- Do not put the chain bar on a hard base (concrete). For putting the bar aside, use a wooden board.
- Check up hydraulic lines for tightness and integrity.
- Before coupling check up contact areas of quick-acting couplers. Clean them if fouled.



Handling and Storage

- When loading the trencher on a trailer, fasten retention chains, straps or cables to the loading area. Let the chain bar rest on the floor carefully.
- While handling you may use a lift truck or a tackle with min. carrying capacity of 500 kg (suspension in the given lashing points only).
- **Store the trencher always in dry (sheltered) space to protect it against weather effects.**
- Before storage clean all parts of the machine.
- Exchange all damaged or worn parts. Use always original spare parts. For servicing or spare parts contact your dealer or an authorised service.
- Check up hydraulic hoses for wear. Replace them if necessary or every four years at least!

- Protect the product against oil products. Remove any spilled oil immediately and wipe off all oily spots.
- Keep the stored machine beyond unauthorised person's reach.
- Do not let the chain bar sink on a hard base (concrete) – for underlaying use a wooden board.
- Always put the machine aside on a flat and solid floor
- Do not put any objects or tools on the machine.

Checks before Operation

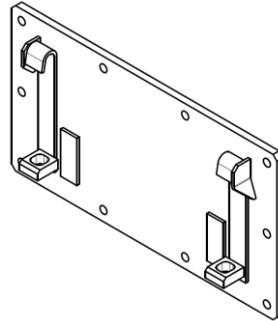
- Before putting the trencher into operation check up the entire machine for completeness.
- Check up all bolted joints, especially on the trenching chain.
- Check up all chain tips for completeness. If one of them is damaged, change it immediately.
- **Warning!** Be always aware that the chain tips are fitted as left and right.
- Check up hydraulic hoses for wear and tightness. Replace them if necessary or every four years at least.
- It is strictly forbidden to start working with removed guards.
- It is not allowed to carry out any modifications and technical changes on the machine without prior permit by the manufacturer.
- It is not allowed to start machine with spilled oil on its parts.
- Before any adjustment put the machine out of operation, i.e. at idle state of the chain and of the engine.
- Keep all unauthorised persons or animals out of range of the machine (20 m at least) while working.
- While working, wear always personal protective equipment – protecting shield or goggles, ear protection, protective gloves, steel toe protection boots and working clothes properly buttoned.

Coupling to Carrier

The trencher should be coupled to a carrier that must be fitted with a corresponding clamping plate.



Trencher coupling to a carrier



Quick-acting clamping plate on trencher



Any figuring as to coupling of the machine to a carrier is informative only. The given way of coupling depends always on the carrier actually used. To couple the machine to the carrier it is necessary to follow the instructions as shown in the concerned manual to the carrier!

- Lift up the safety pins on the carrier clamping plate.
- While coupling, hang up the clamping pins on the carrier clamping plate under the hooks on the trencher plate.
- Lift up the carrier jib and let both plates come near. The trencher, resp. its chain bar, should be approximately 20 cm above ground.
- Let both plates interlock and insert the safety pins of the carrier plate through the holes on the trencher plate. They should go freely through the holes.
- Couple the hydraulic hoses to the corresponding couplers.

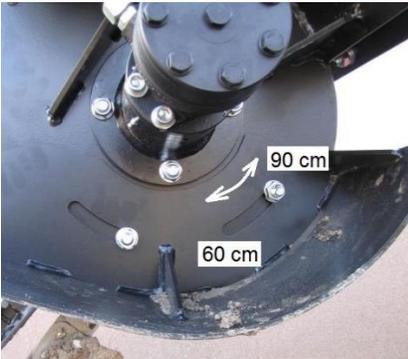
Trenching

The chain bar is height-adjustable according to the carrier actually used. Its hydraulically controlled continuous adjustment can provide trenches in depths as from 60 cm to 90 cm. To work in the required depth first set up a slider on the machine used as a support to follow the ground while trenching. This slider is mounted under the hydromotor and movable in its longitudinal grooves.

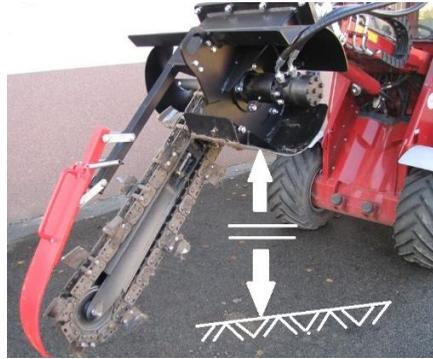
To set up the required depth proceed as follows:

- Block the carrier properly against unwished motion and lift up the jib.

- Block the jib against unwilling sinking.
- Loosen the fixing bolts on the slider and set the required depth in its longitudinal grooves. Afterwards, tighten the bolts properly (see fig.).
- In the required depth the slider should follow the terrain contour and be in touch with the ground over its total length (see fig.).



Slider fixation and adjustment



Slider parallelism



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.
- Before work first observe the working area. To ensure maximum life of the trencher and to keep the chain tips sharp, any contacts with stones, flint brick and other hard materials around the base of the trencher should be kept to an absolute minimum.

- Avoid going with the carrier over contingent obstacles that could cause its damage.
- Avoid going or working on slopes with inclination exceeding the permissible limit of the carrier.
- Any transport to site or dislocation on site is allowed only with the chain drive off.
- Allow the carrier engine to run at no more than fast idle speed to warm up the engine and hydraulic oil (especial in winter time) to reach its required oil pressure and flow rate.
- Start working with the machine and press the chain bar slowly into the trench to reach the required trenching depth. To reach the required depth you can move the carrier also slightly back.



Attention! While trenching, avoid going forward without keeping an eye on the chain motion.

- While pressing the chain bar into the soil, avoid any carrier motion forwards.
- It is always necessary to adapt the carrier speed forwards to on-site conditions, particularly to real properties of the soil. Local conditions and soil properties may considerably differ. First set the carrier speed slow and then speed up slowly, never conversely.
- While trenching, try to keep the engine speed constant resp. according to current machine load (listen to operating noise).
 - It is not possible to repair (renew) the already finished trench by going through the trench repeatedly because of the soil already put aside.
 - We recommend to trench on level grounds or downhill only.
 - Avoid working along the hill contour. It may come to undermining the slope – any angle correction of the jib is not possible.
 - Observe the working area all the time. If any person, children or animals approach while trenching, then stop working immediately.
 - Should the trench line be straight only, first mark the required travelling direction on the ground in order to observe and to keep an equal distance of the carrier wheels from the marked line.

- While working on slippery or muddy ground (not only icy) or on slopes, the carrier wheels may slip. In this case it is necessary to make continuous corrections for keeping the required trench line.
- If you heard any strange noise or vibrations or felt a strange smell while working, then turn off the engine and pull out the ignition key. Detect the cause and remedy the failure. Do not carry out any repair where its solution exceeds your experiences.
In this case contact your dealer or directly the manufacturer. It is forbidden to work with the trencher being out of order.
- **It is strictly forbidden to block the machine controls anyhow and to prevent their return in the neutral position. It is also forbidden to start working with removed guards or with non-functional safety elements/switches (dead-man control).**



Emergency Situations

- If any person or animal approaches the working area while trenching (within a 20 metre radius of the machine), then stop working immediately.
- If you heard any strange noise or vibrations or felt a strange smell while trenching, then turn off the machine immediately, pull out the ignition key and contact your dealer or directly the manufacturer.
- In case of fire or breakdown, stop trenching immediately.
- In case of fire use a foam extinguisher only.
- If you cannot damp the fire down yourself, call for a fire brigade.

Routine Maintenance



- Any servicing of the trencher 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.
- Check up the chain for tightness and wear and keep it in its proper condition.
- Keep regular intervals for lubrication of the machine.

- Check up the hydraulic hoses for wear. Replace them if necessary or every four years at least.

To Change or to Tighten the Chain

Check up regularly the link chain for wear and proper tightening. The chain too much taut or conversely too slack brings also its shorter service life. Check up also all chain tips for wear and completeness. If one of them is damaged, change it immediately.

Change of Worn Tips



Particular chain tips are fitted as left and right by means of two steel bolts on the chain link. The tips can be changed in singles any time according to their wear.



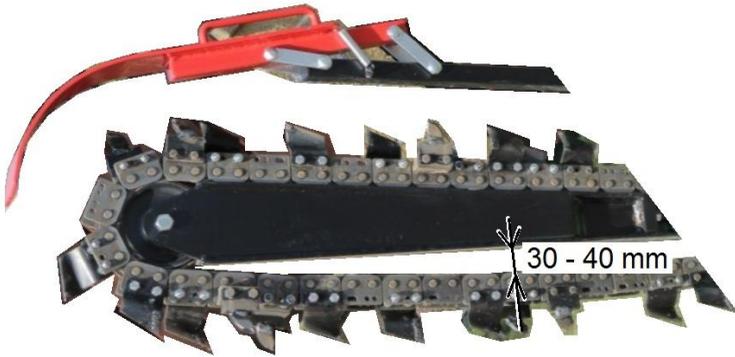
Should the tips be changed, be aware of their alternating direction (left and right). If wrong, functionality of the chain can be limited considerably. The tips must be properly fitted (screwed down) to their links.

Chain Tension

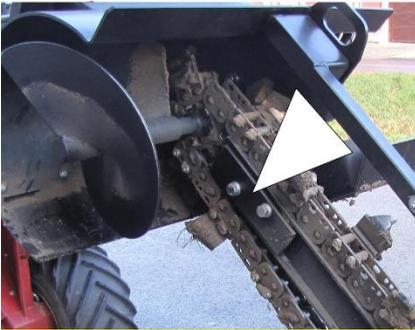
It is necessary to check the chain slack regularly. Too much slack brings negative impact on service life of the chain itself and even of its bar or drive wheel.



The recommended chain slack should be approximately 30 – 40 mm (measured in the horizontal position of the bar and in the middle of the chain length), see next fig.



To reach optimal slack of the chain, it is necessary to move the chain bar in the required direction as needed. First loosen its fixing bolts and turn the tensioning bolts in the required direction.



Fixing bolts



Tensioning bolt with lock nut



Loosen the fixing bolts approximately by $\frac{3}{4}$ turn, loosen the lock nut and turn the tensioning bolt as needed to reach the required slack. Afterwards, screw up the lock nut and the fixing bolts on the bar again.

Chain Change

Release the chain bar, see the aforesaid instructions. Unscrew the tensioning bolt in order to reach maximum chain slack. Disengage the corresponding coupler link

(two pins with cotter key) and remove the chain from its idler and drive wheel. Set new chain in reverse order.

Lubrication

There is only one grease point on this trencher. The given grease nipple is located on the auger and chain drive shaft.

Clean grease nipples before connecting them to the grease gun. Clean all grease being extruded.

Lubrication should be at more frequent intervals if the machine is used in more dusty (severe) operating conditions.



Grease nipple located on the auger and chain drive shaft

Maintenance Intervals

Every 8 – 15 hours, respectively daily checks before starting

- Remove contingent engine oil / hydraulic oil leaks.
- Make sure that all the tips and retaining bolts on the chain bar are tight.

Every 50 hours

- Check out tightening of all bolted joints.

Every 250 hours

- Check out tightening of all bolted joints.
- Pay special attention to chain bar bolts and to chain tips.

Every 500 hours

- Check out all hydraulic elements for condition, function and tightness.

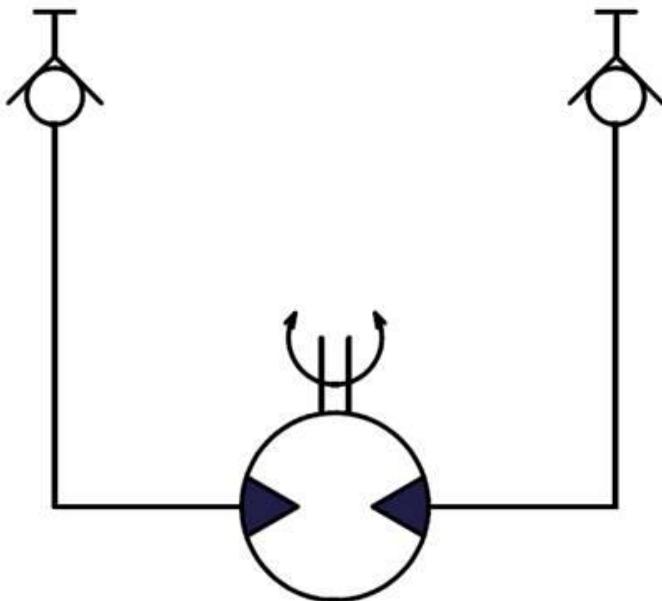
Failures and Troubleshooting

Failure	Cause	Remedy	
Chain cannot be set in motion	Hydraulic circuit broken	Check all hydraulic lines and elements	
	Faulty hydromotor	Change	
	Damaged drive shaft	Change	SERV ICE
Insufficient chain performance	Hydraulic oil overheated	Insufficient cooling – let the machine run idle and in this way oil cool down	
	Faulty hydromotor	Change	
Chain creeping on drive wheel teeth	Chain worn or too slack	Change or retightening	
Chain does not trench	Chain tips worn	Change of tips or change of entire chain	SERV ICE
	Too high carrier speed	Reduce carrier speed	

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

Appendices

HYDRAULIC CIRCUIT



Hydromotor

Hydraulic circuit of this trencher

Warranty

The manufacturer provides warranty on this product for 6 months and on the combustion engine separately for 12 months. The warranty time begins upon delivery to the customer.

This warranty covers all failures resulted from faulty assembly, manufacture and materials except for wear parts, such as its cutting chain.

The manufacturer bears no responsibility for damages resulted from the 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 unoriginal spare parts.
- This warranty does not cover consequences resulted from weather effects.

All defects visible at taking the product over must be claimed within 7 day after the product acceptance by the customer.

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

The company Laski s.r.o. reserves the right to make changes in design or in manufacturing assortment without prior notice.

Service Report

Type of machine:	Serial number:
Day of inspection: after 6 months	Working hours: after 100 hrs

Operations done:

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

Stamp of service station; technician's signature

Additional data:

Date: Working hours:

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Date: Working hours:

.....

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Next service inspection (whichever occurs first)

Date: Working hours:

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