

## OPERATING INSTRUCTIONS



## STUMP CUTTER 360 SW

„Orig. version: 02. 2015



## Foreword

Thank you very much for purchasing our product, The Predator 360SW.

Our company has been engaged in production of arboricultural equipment for many years and has gained considerable experience in this field and our machines are used worldwide.

This manual brings important instructions for users, i.e. instructions for putting the machine into operation, work safety and operating experience. 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 handing this new machine over. Make sure you understand everything. If not, do not hesitate to 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.

Predator Power Ltd does not bear any responsibility for any claims resulting from failure to follow the instructions given in this manual.

This operation manual includes work safety instructions in various parts of its text. If there is any work safety rule or instruction in the general description, then this instruction is indicated with the following symbol:



## EC CONFORMITY DECLARATION

issued in compliance with applicable EC Directives

We, as the manufacturer,

**LASKI, s.r.o.**  
Blišt'ka 263/16  
Smržice  
CZ-798 17  
CRN: 45479593

declare hereby that our produ

- designation: **Stump cutter**

- type: **F 360 SW**

- model : **F 360 SW /11**

- serial number: .....

complies with the given EC Directives:

**2006/42/EC – machinery**

**2004/108/EC - EMC**

**2002/88/EC, 97/68/EC**

List of technical standards,  
specifications and harmonised  
norms used for assessment of its  
conformity:

**EN ISO 12100, EN ISO 13732-1, EN 953+A1,  
EN ISO 11201, EN ISO 3767-1,3,  
EN 13 478+A1, EN ISO 14982, EN 1175-2,  
EN ISO 3744, EN ISO 20643, ISO 11 684**

Basic technical parameters:

Parameter	Unit	Value
Length	mm	1800
Width	mm	650
Height	mm	1200
Cutting head diameter	mm	350
Engine - type	-	Honda GX 390
Power output	kW	8,7
Weight	kg	145

The entity participating in this conformity assessment in accordance with Directive 2000/14/EC: **NB 1017, TÜV SÜD Czech s.r.o., Novodvorská 994/138, 142 21 Praha 4**

**Measured sound power level of this equipment:**

**L<sub>WA</sub> = 103,3 dB**

**Guaranteed sound power level:**

**L<sub>WA</sub> = 104,0 dB**

Completion of technical  
documentation:

**Ing. Jiří Kvasnička  
Petra Bezručů 205  
CZ-664 43 Želešice**

In Smržice, on 1.9.2014



.....  
Ing. Jiří Kvasnička

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 - type: **F 360 SW**  
 - model: **F 360 SW /14**  
 - serial number: .....

complies with the given EC Directives:  
**2006/42/EC – machinery**  
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List of technical standards, specifications and harmonised norms used for assessment of its conformity: **EN ISO 12100, EN ISO 13732-1, EN 953+A1, EN ISO 11201, EN ISO 3767-1,3, EN 13 478+A1, EN ISO 14982, EN 1175-2, EN ISO 3744, EN ISO 20643, ISO 11 684**

Basic technical parameters:

Parameter	Unit	Value
Length	mm	1800
Width	mm	850
Height	mm	1200
Cutting head diameter	mm	350
Engine - type	-	KOHLER CH 440
Power output	kW	10,4
Weight	kg	145

The entity participating in this conformity assessment in accordance with Directive 2000/14/EC: **NB 1017, TÜV SÜD Czech s.r.o., Novodvorská 994/138, 142 21 Praha 4**

**Measured sound power level of this equipment:**  $L_{WA} = 104,4 \text{ dB}$   
**Guaranteed sound power level:**  $L_{WA} = 105,0 \text{ dB}$

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

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.....  
Ing. Jiří Kvasnička



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# Product Identification

Our product is identified with its serial number stamped both on the type plate and on the chassis. In addition to that, you can find a separate type plate on the engine block.

Upon receipt of the product we recommend you fill in the required data in the following form concerning the given product and your dealer.

Type of product: .....

Serial number of product: .....

Engine type: .....

Engine serial number: .....

Dealer's address: .....

Address of authorised service: .....

Date of delivery: .....

Warranty expiration date: .....

Interruption of warranty period: .....

The product / engine type plate is located on the chassis under its grip / on the engine block.





# Work Safety Instructions

## Utilisation

This product is designed for grinding a stump up to 200MM above-ground and below ground to a max. depth of -120 mm.

Recommended stump diameter: up to 300 mm.

This stump grinder is designed for control and operation by one attendant (operator) only.

### Prohibited Use

- This machine cannot be used for cutting of loose stumps which could be released and pulled out by the blades.
- Avoid any cutting if there are foreign objects, such as metal, glass, stony debris, ceramics etc. hidden in the stump.
- It is strictly forbidden to start working with removed guards, particularly with a missing rear guard of the cutting head or if this guard does not cover the head properly.
- Do not use the cutter if other persons are within the hazardous area (15 Metres).
- This machine should not be operated by untrained or unauthorised operators.

### Generally

- Do not use this machine without first reading this manual. The user/owner of this machine is obliged to instruct operators 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.
- While working, always wear personal protective equipment - protecting visor or goggles, protective gloves, working shoes and working clothes properly buttoned. Avoid wearing loose items of clothing, such as ties, scarves and shawls, belts etc.  
Use hearing protection.
- Every operator of this machine is fully responsible for any injury or damage caused to the third parties.



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, then stop working immediately.
- 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).
- Before working make sure that the bottom edge of the adjustable guard covers the cutting head properly.
- While working keep an eye on chips gathering behind the cutting head. In case of excessive accumulation, stop the engine and 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 not make any modifications or any technical changes. these are not 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 fail 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 injuries to the third persons, or to other equipment, resulted from failure to follow instructions given in this manual.
- Do not put any objects or tools on the machine.
- Do not leave the machine unattended – turn the fuel cock off.
- It is strictly forbidden to start working with removed guards, particularly with a missing rear guard of the cutting head or if this guard does not cover the head properly. When handing the machine over to another person make sure if all controls, guard emergency switches and other safety elements are complete, functional and properly installed. They serve for your safety.
- 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 and the machine should be blocked properly against motion (scotch blocks, supports).

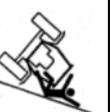
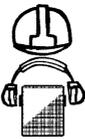
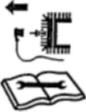


- Do not use or attempt to start the machine without the cutter guards, engine covers and access covers securely in place. Failure to do so may result in personal injury or loss of life
- Keep the given intervals for checks of bolted joints.
  - Keep the air filter and fuel tank clean.
  - Do not use 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 hot. Do not touch them when the machine is still running or has just stopped.
  - Protect yourself and other persons against accidental start: after work always turn off the fuel cock, set the control lever in the STOP position and set the switch on the engine in the “0” position. For emergency cases, disconnect the spark plug cable.
  - Any transport to another site is allowed only with **the engine and cutting head off**.
  - **Caution! The cutting head runs up immediately after the engine start. Keep yourself and other persons away!**
  - While the engine is running, do not touch the engine, particularly the hot exhaust.
  - Do not let the engine run at high speed unnecessarily.
  - Never try to repair or to re-set the engine, particularly the speed regulator.
  - 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.
  - Keep open fire away while filling the tank.  
Remove any spilled fuel or oil immediately and wipe off all oily spots.
  - If any fuel is spilled or overflows then wipe off the spots and let them fully evaporate before the next start.
  - Top up the fuel tank always before working while the engine and the tank are still cooled. If you need to top up the fuel tank while working, first let the engine cool down.
  - While working, particularly while transporting the machine or moving it to another site, respect all the applicable instructions in the concerned manual. At public road transport the driver must keep all local regulations valid for public roads.

## Work Safety Symbols

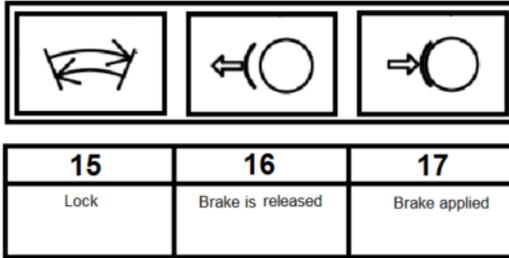
This article introduces work safety symbols (pictographs) used on this machine. Under the given pos. number there is their location on the machine. These work safety symbols warn the operator against risks connected with the machine use. Your respect to the symbol meaning is a precondition for your work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

				
				
<p style="text-align: center;"><b>1</b></p> <p>Read this operating manual before use.</p>	<p style="text-align: center;"><b>2</b></p> <p>While working, wear personal protective equipment.</p>	<p style="text-align: center;"><b>3</b></p> <p>While maintaining, servicing or repairing, keep always the instructions for turning the machine off</p>	<p style="text-align: center;"><b>4</b></p> <p>Before maintaining, servicing or repairing the machine, use always its support.</p>	<p style="text-align: center;"><b>5</b></p> <p>Avoid working with inclination exceeding the permissible limit.</p>

			
			
<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
Warning! Fuel is flammable liquid - keep the machine beyond the reach of naked flames.	Warning! Hot parts of exhaust manifold	Warning! Rotating parts – pull-in hazard.	Lashing points.

				
				
<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
Warning! Lower extremities injury hazard.	Warning! Cutting head runs out.	Warning! Keep away – ejected objects hazard.	Warning! Keep hands away – squeeze hazard.	Warning! Close all guards before starting the machine.



### Transport of Product/Handling

- This product is delivered completely mounted, with all guards and safety elements, controls, engine oil charge and necessary accessories ready to work
- This product is attached to a wooden pallet. While handling, you may use a lift truck or a crane (suspension in the given lashing points only) – unloading together with the pallet.

- The manufacturer delivers the 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 to protect the foil against direct sunshine.
- While unloading, put the machine aside always on a flat and firm base (its weight is about 150 kg incl. pallet).



## Lifting

- While lifting by means of a crane (tackle), use only the given lashing points to suspend the load (marked with chain symbols).
- CAUTION! Never suspend the load on instable (tiltable) parts.
- Any other way of lifting is not allowed.
- The grip should not be in collision with clamps.

- For crane handling, use a crane (tackle) with its minimum carrying capacity of 200 kg.



## Unloading from transport pallet

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

- Cut the binding bands carefully. Be careful, the band is tightened up and after cutting its both ends may shot out. While cutting the band use protective gloves.
- Lift up the machine in order to remove the transport pallet and put it on the ground.
- It is also possible to ride down directly from the pallet: first remove the scotch blocks and use them as ramps against the wheels.
- Set the grip in its working position and lock it with a relevant locking bolt.
- Put the blocks in front of the pallet in the wheel spacing, in direction of the supposed travel.
- Lift up the supporting leg and release the brake.
- Before pushing the machine off the pallet, make sure if the space for the machine is free enough (presence of persons, animals).
- **WARNING!** Having pushed the machine, it will "move out" faster because of its weight (about 145 kg).

## 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.

At standstill the cutting head is covered with a pipe framing protecting the cutting head and its blades against hitting.

Under the grip there is the "dead-man lever" installed which has to be pushed down while working.

CAUTION! This machine cannot be started if this control lever is not pushed down.



**Caution !!!** Having released the dead-man lever, the cutting head is freely running out. Any further handling/motion is allowed only after dead stopping of the cutting head. Any braking of the head, while running out, is strictly forbidden.



Before starting and while running, the dead-man lever must be always held down on the green grip, see fig.



**It is strictly forbidden to tie up the dead-man lever and to disable it anyhow – it serves for your safety.**

## Attendant's Place



While working, the attendant should stand behind the grip (see fig.), holding it with both hands and with both feet standing on a flat and firm base. All working motions should be continuous and uniform.



It is strictly forbidden to stand aside or to hold the grip with one hand only



Right attendant's position behind the grip



Standing aside – not allowed position

## Controls

The stump cutter can be operated by means of controls on the grip and aside on the engine.



- 1 – dead-man lever
- 2 – speed regulator and engine-stop lever
- 3 – swivel base lock
- 4 – wheel brake
- 5 – locking lever of supporting leg

- 6 – adjustment lever for grip positioning
- 7 – breaker - ignition switch
- 8 – cord starter
- 9 – choke, fuel cock

## Noise and Vibrations

Operation of this stump cutter brings following emissions:

-	F 360 SW	
	F 360 SW/11	F 360 SW/14
Noise $L_{Aeq}$ at idle (dB)	90,0	91,6
Sound power $L_{WA}$ (dB):	103,3	104,4
Vibrations $a_w$ ( $m.s^{-2}$ )	6,8	6,9

- All measurements taken in accordance with: EN ISO 11201  
EN ISO 3744
- Measurements of vibrations:
  - Extended uncertainty of measurements:  $U = \pm 1,2$  dB.
  - The given uncertainty means total uncertainty based on standard deviation multiplied by the coefficient  $k=2$  with a confidence interval approximately of 95%.
- 
- Measurements of noise:
  - Extended uncertainty of measurements:  $U = \pm 0,6$  dB.
  - The given uncertainty means total uncertainty based on standard deviation multiplied by the coefficient  $k=2$  with a confidence interval approximately of 95%.
- 
- All measurements were taken at max. speed of  $3600 \pm 50$  rpm.

## Use

### Before Operation

- Before the first putting into operation check up the machine for contingent damages and completeness after transport and storage.
- Check up wrapping for contingent oily spots.
- Check up the engine oil level with a dipstick and top up if necessary. The engine oil level should be kept between both marks (MIN and MAX).
- Check up optimal slack of belts. It should be 10 - 15 mm.
- For replacement use always original spare parts only.
- Check up tightening of bolted joints, especially rotating parts and completeness of other subgroups.



Check up the cutting blades for wear and completeness. If one of them is damaged, change both opposite blades immediately.

- If different abrasion occurs, change both opposite blades on account of balance of the cutting head – unwanted vibrations may damage the machine.
- Fill the given fuel into the tank, min. volume of 2 litres. The tank has its max. capacity of 6,1/7,3 litres.
- The fuel to be used is unleaded petrol, ON 95.
- Check up the tire pressure – it should be 200 kPa in both wheels.
- Set the grip in its working position. The grip should be set in accordance with the attendant's height in order to make the operation of this machine more comfortable.
- Having turned off the machine, avoid any contact of the cutting head while resting on the ground or on any hard objects. When putting the machine aside use always its supporting leg.
- Keep all unauthorised persons or animals beyond the handling range.



Set the cutter arm onto the stump, release the brake and the swivel base lock and start cutting in a swinging way to take individual stump layers continuously off.

- Any servicing of the cutter can be carried out by authorised persons only. If necessary, contact an authorised service.
- Avoid working or putting the machine aside with inclination exceeding the permissible limit of 11°.

## Putting into Operation

This machine can be started by means of a cord starter (see pos. 8 in chap. Controls).

### Cold start:

- Turn on the fuel cock.
- Open the choke.
- Set the ignition switch (breaker) in the position "I" (see pos. 7 in chap. Controls).
- Set the speed regulator (throttle valve) to its starting position (minimum speed) and push the dead-man lever.



- Pull the starting cord. For the first start it is necessary to pull the cord several times to suck the fuel into the engine carburettor. Pull the starting cord quite rapidly.
- Having started, raise the speed gradually by means of the speed regulator and close the choke.

#### Warm start:

- Open the fuel cock.
- Set the speed regulator to 1/3 speed.
- Pull the starting cord quite rapidly.
- Having started, wait for smooth running and then you may raise the speed to its maximum.



**CAUTION !!! As soon as the engine roars to life, the cutting head starts turning. Start the engine first just before cutting – on site.**

- Increase the engine idling speed and let the engine warm up (about 1 minute).
- While warming up, do not leave the machine unattended.
- Increase the speed continuously up to its maximum – start working.
- If you heard any strange noises or vibrations during its initial run turn off the cutter immediately and contact an authorised service.

### **Transport, Handling and Storage**

- This machine is not designed for motion on public roads. It can be transported only on such a trailer which is designed for this purpose.
- For loading or unloading use suitable lifting means with min. carrying capacity of 200 kg.
- Lifting clamps should be fixed in the marked lashing points only.
- Before any handling, first lock up the swivel base to make the chassis steady.
- It is strictly forbidden to transport or to handle the machine with its swivel base lock released.

- If using a ramp for loading or unloading then it must be steady enough with no slippery surface.
- Such a ramp could be with a max. gradient of 20%. In case of this ramp gradient it should be preferable if other two persons will assist to you with such handling.
- After loading fix the machine properly on the loading surface.
- For transport it is necessary to protect the machine against weather effects.
- Any handling/working is allowed on the terrain with its max. permissible inclination of 11°.
- Avoid any handling or work with inclination exceeding the permissible limit of 11°.
- In case of any handling the cutter on a rolling ground we recommend other two persons to assist you because of its weight.
- Be careful when going down the hill. We recommend pushing the machine forward, not to tow it.
- When going downhill be careful while using the brake.
- Transport the cutter only if the engine is off and the cutting head stopped.
- It is strictly forbidden to move the machine to site with its cutting head still turning.

**Store the stump cutter always in dry (sheltered) space to protect it against weather effects.**

- Before storage clean all parts of the machine. Use also pressure water for cleaning of coarse impurities.
- Clean especially oily spots.
- Do not use petrol or similar fluids as a cleaning agent.
- Discharge the used oil into a special bin. Dispose the used filter element always in accordance with relevant valid laws and local regulations. Protect the environment.
- Exchange all damaged or worn parts. Use always original spare parts. For spare parts contact your dealer or authorised services.
- A faulty machine should be marked in a proper way to avoid its putting into operation by other persons before being repaired.
- Check up its right tire pressure.
- Before putting the machine aside for a longer time change the engine oil.
- Swing on the grip and lean it against the engine to save some space around the machine.
- Always put the machine aside on a flat and solid floor and block it against unwilling motion.
- Check up coated surfaces. Repaint the spots and conserve them if needed.

## Use

- Transport the machine to another site with the engine off by pushing or towing.
- Keep all work safety instructions to avoid any risks of injury.
- When going to another working site always ascend and descend slopes very carefully and with the cutting head up the hill.
- Be careful when going down the hill. We recommend pushing the machine forward, not to tow it. When going up the hill it is necessary to tow the machine (if necessary by two persons).
- Always adapt transport speed to current terrain conditions.
- On the working site move the machine in front of the stump to be cut.
- Set the cutter so that
  - it stands on a flat and firm base or declined up to 11°;
  - it is possible to swing with grip (while cutting) according to particular chips up to 1 cm;
  - it is possible to push the cutter continuously into a bite in accordance with required particular chips or into a half of the given stump at least;
  - it is possible to cut under the ground;
  - it is possible to keep space for putting the cutter aside in a stable position for the purpose of further chips removal;
  - it is possible to direct flying chips out of places with possible motion of persons;
  - if necessary, remove some soil to make the given stump more accessible to avoid digging the soil (with stones) by the cutting head.
- Set the cutter to a stump to be able to cut it in swinging motion and to take particular stump layers off.
- Start the machine – see chap. Putting into Operation.
- After a short warming-up, especially in winter, set the controls and the accelerator lever for necessary working speed.
- While cutting, let both wheels braked.
- Run slowly up and start cutting with thinner wood chips (swinging the grip) and go on faster if possible according to actual engine load. While swinging the grip, we recommend covering the whole stump profile.
- **WARNING!!** The grip may have a return impact while cutting the first chips so that it is necessary to hold the grip with both hands (together with the dead-man lever).
- Having cut the first stump layer off, it is possible to let the cutting head sink by lifting the grip and to repeat the swinging motion for the next layer (see fig.) or to release the wheel brake and to push the cutter forward for further approximately 2 cm and to cut the next layer.

- If there are too many chips gathered behind the cutting head, turn off the machine, wait until the head stops and remove the chips so that you can always observe the head while cutting.
-  While the cutting head is still running, it is strictly forbidden to enter the space of the running head with extremities or with any tools (sticks, rake etc.)

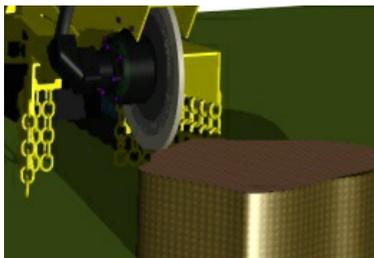
**RECOMMENDATIONS:** While cutting, push the cutting head through corresponding pressure on the grip. Do not let the engine speed fall by more than 800 rpm. Avoid engine stalling or any bigger variation in speed. Pressure on the grip should correspond with the chips size accordingly.



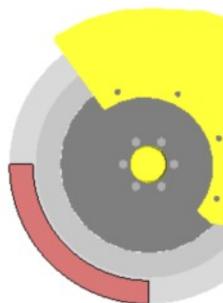
Begin of cutting



Stump cutting in layers at swinging motion



Position the machine at the front of the stump and remove material to the depth required before moving forward.



Use only the lower front part of the wheel to cut the stump

## EMERGENCY STOPPING

Release the 'Deadmans Handle' and turn off the ignition. Wait for the cutterwheel to stop before resting machine on the ground

## BLOCKAGES.

It is possible that foreign matter such as hard soil, clay, stones or pieces of timber may become trapped between the cutter wheel and its cowl either slowing or stopping the cutter. This will be accompanied by the engine starting to labour and excessive noise from the hydraulic system. If this happens proceed as follows:

Stop the cutter wheel by turning the cutter selection switch.

Stop the engine, remove ignition keys. Ensure cutter wheel has stopped turning.

Carefully try to rotate the cutter wheel backwards by hand to release the trapped object. Remove any objects trapped between the cutting teeth and /or trapped inside the cutter cowl.

Thoroughly inspect the cutter wheel and make sure that there is no damage to any of the cutting teeth and that all cutting teeth retention bolts are tight and secure. Replace any damaged cutting teeth.

Restart engine and proceed carefully with grinding operation.

Careful attention should be paid when cutting at ground level to avoid the cutter making contact with large stones or solid objects that may be unearthed by the grinding process. When such objects are identified the cutting /grinding process should be stopped, the machine switched off with the ignition key removed and the objects removed from the cutting area before the cutting / grinding process is restarted.

To stop the cutter wheel rotating reduce the engine speed and turn the cutter selection switch counter clockwise.

- while turning the machine off, avoid any contact of the cutting head when resting on the ground or on any hard objects (stones, iron etc.) – use always its supporting leg.



Having turned the centrifugal clutch off, the cutting head is freely turning out. This turning time depends on the speed in which the engine has been turned off



Any braking of the head is strictly forbidden – injury hazard.



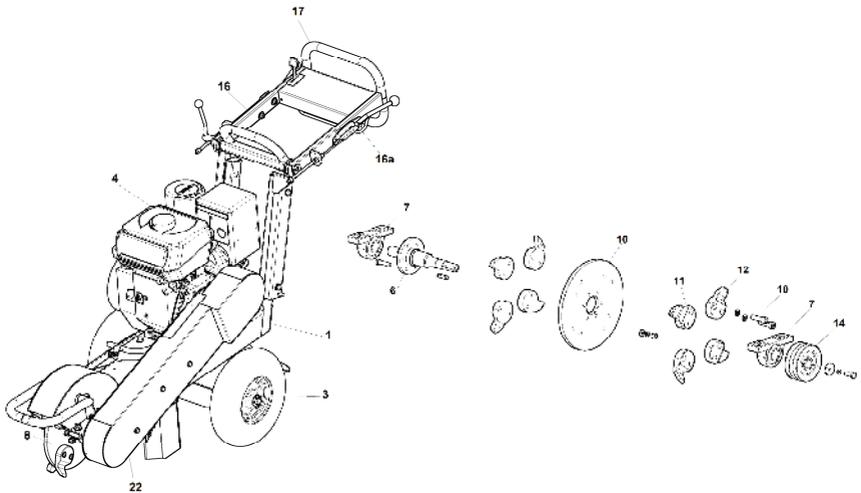
## **Emergency Situations** *Shut Down Immediately*

- If any person or animal approaches the working area (15 m) while cutting, 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.

## **Technical Description**

1. The stump grinder consists of the chassis (1) with two travel wheels (3). On the chassis there is a driving unit (4). The cutting head (8) with its blades (11, 12), overlapping the head periphery, is mounted at the end part of the chassis (1). The cutting head is powered by the driving unit (4) and controlled also by means of the grip (16) and the dead-man lever (16a) on the opposite edge of the chassis. The blades (11, 12) are mounted on the head periphery (8) with two pairs of fixing bolts (10). The blades are left and right.

2. One of the blades is always a straight tool (11) and the other one is a bent tool (12). The straight tools (11) in adjacent pairs are always fixed on the opposite sides of the cutting head (8).
3. The cutting head (8) is powered by the driving unit (4) by means of the V-belts (15). The cutting head (8) and the V-belts (15) are covered with the guard (22).
4. The grip (16) is angularly adjustable on the chassis (1) and equipped with the height-adjustable handle (17).
5. Both travel wheels are provided with brakes.



## Technical Parameters

Overall length working/transport	mm	1800/1300
Overall width	mm	650
Overall height working/transport	mm	1200/1140
Tires	palce	5.30/4.50 - 6
Tire pressure	kPa	200
Brakes	-	mechanical shoe brake acting on both wheels
Cutting performance:	mm	200 mm above ground 120 mm under ground 300 mm recommended stump diameter 800 mm cutting width
Cutting head diameter	mm	300

with blades	mm	350	
Number of blades:	-	8	
Bite width	mm	60	
V-belt	-	3x AVX 13 x 1700 La	
<b>ENGINE</b>			
Type		KOHLER CH 440 four-stroke, air-cooled	HONDA GX 390 four-stroke, air-cooled
Power output	HP/ kW	14/10,4 at 3600 rpm	11,7/8,7 at 3600 rpm
Engine oil charge	l	1,3	1,1
Fuel tank capacity	l	7,3	6,1
Max. engine inclination	°	25	20
Lubrication	-	splash lubrication	
Engine oil	-	SAE 15 W-40	
Fuel		unleaded petrol (ON 95)	
Starter	-	manual cord starter	
Weight of machine	kg	145	

## Maintenance

- Any servicing of the cutter is allowed to be carried out by authorised persons only.
- Any servicing is allowed to be done only if the machine was put out of operation, supported by means of its supporting leg and if the engine is not running.
- While working, servicing or cleaning wear always personal protective equipment - protecting shield or goggles, protective gloves, working shoes and working cloth properly buttoned. 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.
- Any servicing and maintenance should be carried out in spaces designed for such purposes only.
- Check up the machine for completeness and its general condition.
- Check up the V-belts for tightness and wear.
- Keep regular intervals for lubrication of the cutting head bearings.
- Check up condition of the bowden with control cables. If damaged, change it.
- Discharge used oil into a special bin. Dispose used filter elements always in accordance with applicable laws and local regulations. Protect the environment.
- Do not start if some fuel or oil has been spilled. Remove oily spots and keep all parts clean.
- Always use suitable supporting means while maintaining, servicing or repairing the machine. Do not use any crumbling materials.
- Keep in mind that some machine parts and edges are sharp – risk of injury.



- Check all bolts regularly.
- After every working shift check up tightening of bolted joints, particularly rotating parts and completeness of other parts, such as fixation of blades and subgroups on framing.
- Any servicing is allowed to be done at standstill only.
- Provide your machine shops with suitable extinguishers and first-aid kits to be accessible anytime at fire risk. Keep ready necessary telephone numbers for emergency cases (fire brigade, emergency).
- Do not smoke while handling lubricants, oils and fuel. Keep open fire away.
- Store fuel canisters and other flammable materials (cleaning rags) separately. Keep them away from heat sources. Protect the environment.
- Avoid any toxic gas vapours and dust formation. Dangerous vapours may arise if coats warm up while welding (gas burner) or grinding. Such works should be done in well-ventilated rooms or in free space only. Keep applicable regulations concerning coats and solvents. Remove old paints before welding. If some parts have to be grit-blasted or re-ground, avoid inhalation of abrasion dust and use necessary personal protective equipment (breathing mask). Having used any solvent before welding, rinse treated surfaces with soap water and wait for about 15 minutes (flash time) and let the spots fully evaporate.
- Any damaged or worn parts should be replaced immediately. Remove accumulated old lubricants, oil and keep all parts clean.
- Discharge used oil into a special bin (no packages after meals or drinks). Dispose used oil always in accordance with applicable laws and local regulations. Protect the environment.
- Use always original spare parts and proper tools.
- For lifting use always means of proper carrying capacity only. It is possible to use a crane (clamps) with suspension at the given lashing points marked with chain symbols.

Engine Oil Change	The first oil change after 20 working hours and next changes every 100 hrs. Change the oil always when the engine is turned off and still warm. Discharge the used oil into a bin through the drain plug on an adapter behind the cutting head. Having discharged the whole volume screw up the drain plug and fill
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	<p>New oil of proper viscosity through the filler neck and then screw up the filler plug. In case of any failure in the lubrication system the engine stops</p>
Air Filter	<p>The air filter with two filter elements provides maximum protection against mechanic impurities and keeps continuous air flow into the fuel system. Remove the filter cap and unscrew the locking nut and remove the filter element. Check the air pre-cleaner every 25 working hrs as follows:</p> <ol style="list-style-type: none"> <li>a) Remove the pre-cleaner carefully from the paper element and clean it in the warm water with a non-foamy detergent.</li> <li>b) Rinse the element with the water, press the water out and dry it up. Put the cleaned element into the body, tighten up the nut and fit the cap again. In case of heavy fouling check up the element more frequently. Check up the paper element every 10 working hours. If fouled, change the element immediately.</li> </ol> <p><b>CAUTION!</b> - Never oil the element and never clean it with paraffin or similar detergents</p>
Ignition	<p>The electromagnetic ignition system requires no further adjustment. Its spark plug, power cable and plug socket should be checked every 100 hrs. This check consists in cleaning of electrodes and setting of the spark gap to 1,00 mm. Spark plugs should be changed every 300 hrs.</p>
Cleaning of Engine	<p><b>CAUTION!</b> When cleaning with water avoid its penetration into the air intake and ignition systems. Clean the engine also after every change of oil or air filter element. Check the bolts are tight. Any repairs of the engine should be done by an authorised Kohler/Honda service only.</p>
Starting Equipment	<p>This cutter is equipped with a mechanical cord starter. Check up especially condition of the starting cord. <b>CAUTION!</b> The recoil may cause injury if unskilled handling</p>



## Maintenance Of Your Multi-Tip System

Please look after this system as set out below to insure a long and trouble free life span of the wheel and the components.  
Safety is paramount. Please take note of all the enclosed recommendations And safety notes overleaf.

1. Remove bolt and tap behind tooth with a small hammer. Avoid hitting tips. Use safety goggles.

**Tip** - The leading teeth that are furthest from the centre of the wheel do most of the cutting by changing these as soon as they become blunt, you can re-use them in non-leading positions.

2. The keeper plate and tooth can be separated once out of the slot.

Check the groove in the top of the keeper plate and the edges underneath that locate with the tooth. If these are damaged, replace.

3. Check the condition of the slot. If it is badly worn, change wheel.

4. Check threads in Insert and on Bolt. If damaged, replace. If re-using, make sure they are clean and free from dirt.

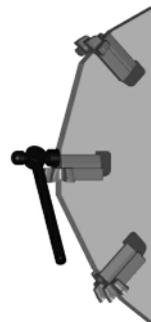
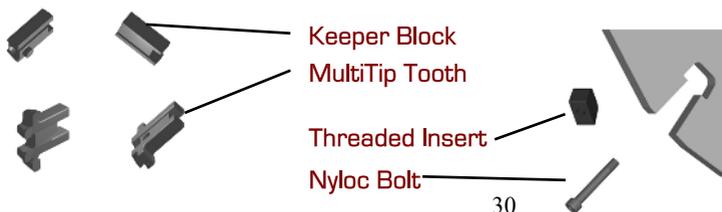
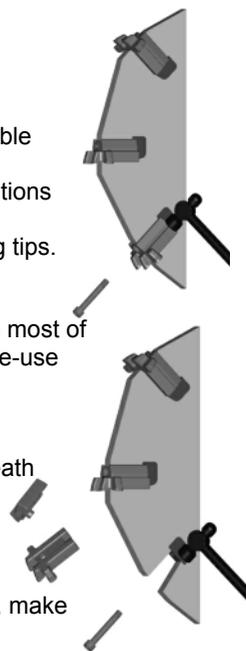
5. Check condition of keeper plate. If badly worn or damaged, replace. Replace tooth with new.

The bolt can be re-used up to five times before it needs replacing, providing it isn't damaged. Only use bolts supplied by Multi-Tip

6. Make sure all surfaces are clean and free from dirt. Re-fit the threaded insert, then the new tooth and keeper block together. Tap the front of the keeper block until it is located. Insert the bolt and wind up to a torque setting of 55Nm (40 ft-lb) After ten minutes of use stop and check bolt tightness.

If the assembly can not be tightened sufficiently into the wheel, do not use.

Never use this system without all components in place and secure.



Electric Installation	Protect all wires against contact with oil products. Keep all elements clean and avoid any damage of wires – short circuit risk. All connections must have clean and proper contact surfaces to avoid intermediate resistance at a wrong contact point.
Parking Brake	Check up brake-lining wear and brake mechanism adjustment. In case of a higher travel of the hand lever tighten up the brake wire by means of its tightening bolts.
Chassis	Check regularly all bolts, wear and air pressure of tires. Keep all parts of the machine clean - clean them according to its actual impurity grade by means of pressure air. Oily spots should be removed and degreased.

### V-Belt tension

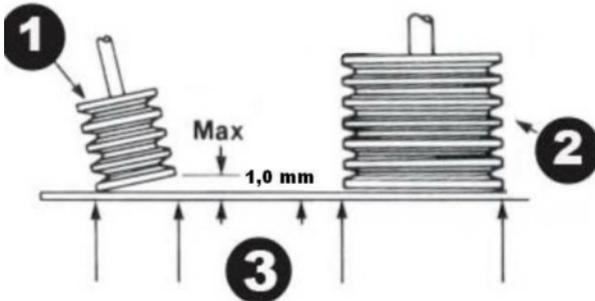
- It is necessary to pay special attention to the routine maintenance and proper belt tension adjustment because the V-belts on this machine transfer the engine torque to the cutting head. Belt creeping may bring considerable impact on the cutting head performance and service life of belts.
- 
- For belt tension adjustment remove two side covers fixed here by the fixing bolts M8.



**!** For proper belt tension check up also alignment of pulleys (their faces) starting as from the belt pulley put on the shaft together with the cutting head. This shaft is bedded in two fixed bearing housings. Before adjustment, check up also proper bedding of pulleys on the shaft (tongue and groove). Each pulley must bear on the shaft shoulder and be fixed by its central fixing bolt (torque 80 Nm).

While tightening the belts proceed as follows:

- Check up tension of new belts after first 5 service hours and afterwards always in intervals of 50 hours. Excessive slipping will wear the belts and the pulleys out prematurely. Excessive tension reduces belt life essentially. It brings also negative impact on optimal alignment of pulleys.



- 1 – driving pulley on engine

2 – pulley on cutting head shaft

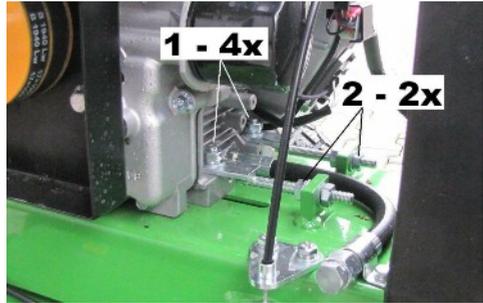
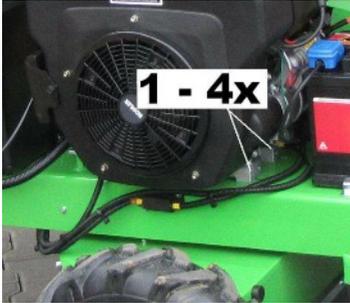
3 – straight-edge rule

- **Align the pulleys**

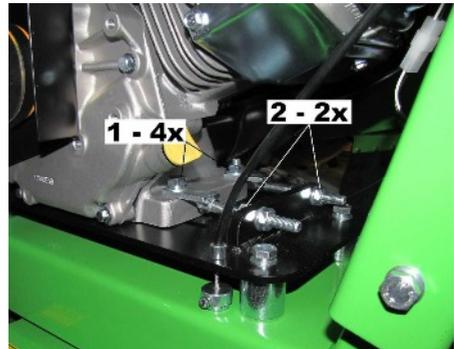
(their faces) by means of a straight-edge rule starting as from the lay-shaft pulley, go on to the engine driving pulley and finally to the cutting head pulley. Max. inclination/deflection allowed should be less than 1 mm. If this inclination found between the driving pulley (engine) and the driven pulley (cutting head) exceeds this limit value, proceed as follows:



Alignment setting on the engine pulley

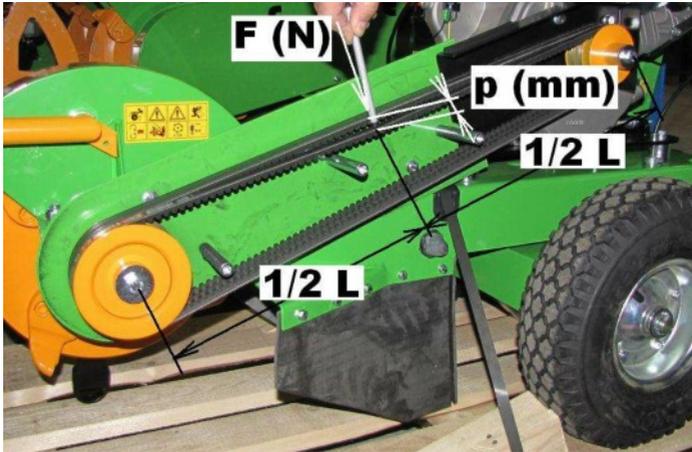


Attachment of the engine to the frame, F 460



Attachment of the engine to the frame, F 360

- Loosen four fixing bolts on the engine (1 - 4x) by 0,5 – 1 turn to let the engine slide on the frame.
- Loosen the locking nuts on the stretching bolts (2 - 2x) and move the engine in its slot holes as necessary. Go on displacing the engine to set up optimal belt tension/slack “p” at finger pressure “F”.
- Having reached the recommended belt slack value and proper pulley alignment, retighten the fixing bolts on the engine (1 - 4x) and the locking nuts (2 - 2x).



Belts as to modification	Finger pressure F (N)	Slack p (mm)
F 360	50	23,5



Replace the belts guards

## Failures and Troubleshooting

Failure	Cause	Remedy	
Engine does not start	Speed regulator lever in STOP position	Set proper speed	
	Ignition breaker in "0" position	Set it in "I" position	
	Broken lead	Check up wiring	service
	No plug sparking	Clean (change) spark plug	
	Fouled fuel filter	Change filter element	
	Lack of fuel	Top up fuel	
	Low engine oil level	Top up oil	
Insufficient engine power	Fouled air filter	Clean	
	Dead piston rings	Repair	service
Insufficient power	V-belts slack	Retighten	

transmission to cutting head	Burnt V-belts	Replacement	
	Worn (extended) V-belts	Replacement	
Insufficient cutting head power	Damaged blades	Replacement	 <b>Opposite blades should be replaced always together</b>
	Blunt or worn blades	Replace teeth	
	Wire control out of tune	Adjustment	service

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

## Waste Disposal

Any waste materials resulting from the machine operation should be disposed in accordance with laws and regulations valid in the given country.

Protect nature and water resources against used oil, lubricants and filter elements.

Any parts of the machine should be disposed in accordance with laws and regulations valid in the given country.

We recommend proceeding as follows:

1. Remove all reusable parts, clean them, conserve and store for further usage.
2. Remove old lubricants and used-up oil, remove all plastic and rubber parts. These parts should be disposed in accordance with laws and regulations valid in the given country.
3. Remove all parts made of non-ferrous metals (bushings etc.). Remaining parts of the machine, incl. non-ferrous metal parts, should be delivered to an authorised waste collection point.

### Recommended disposal of packages:

Wood - secondary waste recovery, burning



Paper - secondary waste recovery, burning  
Metals - secondary waste recovery

Other materials are municipal waste and should be disposed in accordance with laws and regulations valid in the given country.



## 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 the given 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.

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: <b>after 6 months</b>	Working hours: <b>after 100 hrs</b>

### Operations done:

- |                                                                |     |    |
|----------------------------------------------------------------|-----|----|
| <input type="checkbox"/> Engine oil - change                   | Yes | No |
| Sort / viscosity .....                                         |     |    |
| <input type="checkbox"/> Oil filter – change                   | Yes | No |
| <input type="checkbox"/> Air filter – change                   | Yes | No |
| <input type="checkbox"/> Fuel filter – change                  | Yes | No |
| <input type="checkbox"/> Solidification point of coolant ..... |     | °C |
| <input type="checkbox"/> Hydraulic oil – change                | Yes | No |
| Sort / viscosity .....                                         |     |    |
| <input type="checkbox"/> Oil filter element – change           | Yes | No |

Stamp of service station; technician's signature

### Additional data:

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

.....

.....

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

.....

.....

### Next service inspection (whichever occurs first)

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

## Service Report

Type of machine:	Serial number:
Day of inspection:	Working hours:

### Operations done:

- |                                                                |     |    |
|----------------------------------------------------------------|-----|----|
| <input type="checkbox"/> Engine oil - change                   | Yes | No |
| Sort / viscosity .....                                         |     |    |
| <input type="checkbox"/> Oil filter - change                   | Yes | No |
| <input type="checkbox"/> Air filter - change                   | Yes | No |
| <input type="checkbox"/> Fuel filter - change                  | Yes | No |
| <input type="checkbox"/> Solidification point of coolant ..... |     | °C |
| <input type="checkbox"/> Hydraulic oil - change                | Yes | No |
| Sort / viscosity .....                                         |     |    |
| <input type="checkbox"/> Oil filter element - change           | Yes | No |

Stamp of service station; technician's signature
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### 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: .....

## Service Report

Type of machine:	Serial number:
Day of inspection:	Working hours:

### Operations done:

- |                                                                |     |    |
|----------------------------------------------------------------|-----|----|
| <input type="checkbox"/> Engine oil - change                   | Yes | No |
| Sort / viscosity .....                                         |     |    |
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| Sort / viscosity .....                                         |     |    |
| <input type="checkbox"/> 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: .....