

VARI®

Manually pushed drum mower

DS-520 DS-520H

LÍZA



Instructions for use

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1 Basic information.

 **Ask your dealer to provide unpackaging of the machine and briefing.**

Fill in the following data on your machine. The data are important for ordering spare parts.

It is advisable to copy this page with all data on machine purchase for a case of loss or theft of the original record.

Model	DS-520 Liza	DS-520H Liza
Engine type	Tecumseh CENTURA 55 LX T	Honda GCV 135
Machine Serial No.		
Engine Serial No.		
Date of delivery (sale)		
Supplier		
Address		
Telephone/Fax		

Notes:

The manufacturer **reserves the right** of technical modifications and innovations not impacting the machine's function and safety. The changes need not be included in this Manual.

2 Introduction.

Dear customer,

Thank you for the trust you have shown by purchasing our product. You are now owner of machine from a wide range of machines and attachments made by **VARI**, a.s. within a system of gardening, farming, small agricultural and communal machinery.

Please read these Instructions for use carefully. If you follow the instructions properly, you will have our products performing a reliable work for you for years.

2.1 General warnings.

The user **is obliged** to get acquainted with the Instructions for use and to follow all instructions for machine operation so that the user's and other persons' health and property do not suffer any harm.

Safety instructions contained in this manual do not describe all situations or conditions possibly occurring in practical use. Safety factors such as common sense, diligence and scrupulousness are not included; it is assumed, however, that all persons authorized for machine operation or maintenance do possess the intelligence.

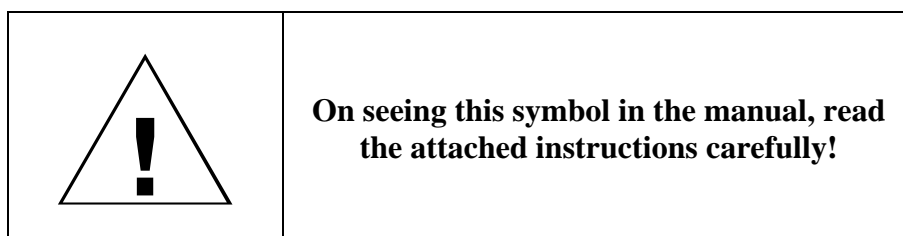
Only persons in good mental and physical condition can operate the machine. For the professional use of the machine the machine owner is obliged to ensure a work safety training and provide instructions on machine control for operators and to keep records on these trainings and briefings.

Should some instructions in the manual be unintelligible, you are encouraged to **contact your seller** or directly the manufacturer of the machine. The contact address and telephone/fax connection are to be found at the end of the manual.

Instructions for use supplied with the machine are an integral part of the machine. They have to be available at any time, placed at a well accessible place with no risk of their damage. If the machine is sold to another person, the Instructions for use must be given to the new machine owner. If the above conditions are not met, the manufacturer bears no responsibility for incurred risks, accidents and injuries resulting from the machine operation.

The manufacturer bears no responsibility for damages caused by unauthorized and incorrect use of the machine and for damages caused by any machine modifications not authorized by the manufacturer.

To prevent injuries of operators and other people occurring in the vicinity of the machine, it is absolutely crucial to follow safety regulations marked in the Instructions for use with the following warning safety symbol:



3 Operation safety.

3.1 Safety regulations.

- ⚠ This international symbol indicates important messages concerning safety. When you see the symbol, be aware of a possible injury to yourself or to other persons and read attached instructions carefully.
- ⚠ The machine operator must be over **18 years of age**. **He (she) is obliged** to get familiar with the instructions for use of the machine and is supposed to be informed of the general principles of work safety.
- ⚠ **Prior to each employment of the machine**, check its parts (cutting blades and their clamping or casing in particular) for possible wear, damage or loosening. **Defects must be rectified without any delay**. Repairs are to be made only with original spare parts.
- ⚠ Prior to carrying out any activities in the near vicinity of the machine or prior to moving the machine to another place switch the engine off and wait until the mowing disk stops moving! Before leaving the machine alone, switch off the engine!
- ⚠ Do not stop the running out mowing disk by pushing it against the ground (e.g. by lifting the rear part of the machine by holding on handlebars).
- ⚠ When the mowing disk runs out, hold the handlebars firm so that no side movement of the machine can occur due to support plate friction on the ground surface!
- ⚠ Never let the engine running at maximum speed or idling for a long time with the mowing disk drive clutch switched off! Components of the machine drive (V-belt, belt pulley, clutch pulley, etc.) might get damaged!
- ⚠ Before using the machine, the sward to be cut must be cleared of solid bodies such as stones, wires, loose construction debris, etc., which could be flinging up or which might damage the machine. If these cannot be removed, don't work the places.
- ⚠ Adhere to basic safety regulations when working with the machine. The machine is equipped with the rotating working blades. Maximum circumferential speed is **64.2 m.sec⁻¹**. Therefore, see to it that other persons move at a safe distance from the machine when it is in operation with regard to a possibility of mown sward or solid objects flying away!
- ⚠ With respect to exceeded recommended values of noise and vibrations, you are warned to observe the following instructions when working with the machine:
 - a) Protect your hearing by using suitable protective aids specified in **ČSN EN 352-1** (shell ear protectors) or **ČSN EN 352-2** (plug ear protectors). Require the aids from your dealer.

- b) Work with the machine should be interrupted after max. 20 minutes for a minimum time of 10 minutes. During these breaks, the machine operator must not be exposed to the impact of another source of noise or vibrations.
- ⚠ Machine operators should use working aids authorized to **CSN EN 166** or **CSN EN 1731** (tight-fitting garments, sturdy shoes, working gloves and protection glasses). Keep a safe distance given by the handle.
- ⚠ Don't start the engine in enclosed spaces! Pay increased attention when handling the machine since the exhaust silencer remains hot after the engine has been switched off; make sure there are no leakages and spills on engine parts when refuelling. If they happen to occur, dry out the stained parts or wait until the petrol evaporates.
- ⚠ When the machine is in operation, all other persons (children in particular) and animals have to be outside the machine's working space. The machine operator can continue working only after they have been shown out to a **safe** distance.
- ⚠ Removal of any protective equipment and machine casings is prohibited.
- ⚠ Safe slope accessibility of the machine is 10°. Maximum engine tilting at work is 20° for a longer time and 30° for a shorter time (up to 1 minute).
- ⚠ All kinds of machine repair, adjustment, lubrication and cleaning are to be made with the machine switched off and spark plug cable disconnected.

3.2 Safety pictographs.

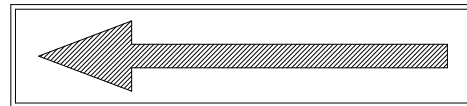
The user is obliged to maintain the pictographs on the machine legible and to provide for their replacement in the case of damage. There are self-stickers on the machine with the following safety pictographs:

The pictographs are located in the rear part of the machine frame.

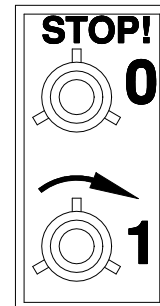


1. Prior to the machine use, study the Instructions for use.
2. For machine maintenance, disconnect the cable from the spark plug.
3. Putting one's hands or stepping into the working space of the cutting blade is prohibited. Danger of injury.
4. Keep a safe distance from the machine at work. Danger of injury by flying material fragments and objects.

Self-sticker „Arrow for direction of rotation“ is located on the V-belt casing.



Self-sticker for switching on the mowing disk drive. It is located near the steering lever on the left handrail of the handlebars.



Mowing disk
standing still

Mowing disk
rotating

3.3 Maximum values of noise and vibrations as measured by AO - 206 SZZPLS Praha.

DS-520
Time averaged emission level of acoustic load at operator's site $L_{pAeq,T} = 83 \text{ dB}$ (measured to ČSN EN ISO 11201).
Guaranteed level of machine's acoustic output $L_{WA} = 100 \text{ dB}$ (according to NV No.9/2002 Gaz.)
Weighted effective value of accelerated vibrations transferred onto operator's hands (vector sum of rectilinear vibrations on individual axes) is $6,4 \text{ m.sec}^{-2}$ (testing method according to standard ČSN EN 1033).
DS-520H
Time averaged emission level of acoustic load at operator's site $L_{pAeq,T} = 80 \text{ dB}$ (measured to ČSN EN ISO 11201).
Guaranteed level of machine's acoustic output $L_{WA} = 100 \text{ dB}$ (according to NV No.9/2002 Gaz.).
Weighted effective value of accelerated vibrations transferred onto operator's hands (vector sum of rectilinear vibrations on individual axes) is $5,3 \text{ m.sec}^{-2}$ (testing method according to standard ČSN EN 1033).

4 Machine use, technical specification and technical description.

4.1 Machine use.

Manually pushed drum mower DS-520 (DS-520H) Liza is designed and manufactured according to the latest knowledge of small gardening machinery.

The mower is meant for cutting low thin-stalked meadow swards on flat, well-kept surfaces with no terrain irregularities. Maximum sward height is 30 cm. The mower is not designed either for soft landscaping of grass stands or for cutting swards arisen from self-seeding.

⚠ **The working width must be at all times accommodated to the density of the cut sward.**

4.2 Technical specification.

Type of the machine		DS-520	DS-520H
Length	mm	1150	
Width	mm	560	
Height	mm	1050	
Weight	kg	35	
Maximum working width of the machine	cm	52	
Mowing disk speed (at maximum engine revolutions)	min ⁻¹	2360	
Circumferential speed of blades (at max. engine revolutions)	m.s ⁻¹	64.2	
Area output of the machine (according to sward type)	m ² /h	800 -1000	

Type of the engine		CENTURA 55 LX T	GCV 135
Cylinder capacity	cm ³	195	135
Max. power at revolutions	kW/rpm	4.0 (5.5 HP)/3600	3.3 (4.5 HP)/3600
Maximum adjusted engine speed	rpm	3200	3200
Tank volume	litres	1.4	1.1
Petrol (leadless)	oct.No.	91-95	
Oil filling	litres	0.55	
Oil	SAE	30	15W-40
Spark plug	--	CHAMPION RJ17LM	NKG BPR6ES
	--	BRISK JR17	BRISK LR15YC

4.3 Technical description of the machine.

Machine base is a rigid frame. On the upper part of the frame, there is a 4-stroke combustion engine, which drives the mowing disk through the V-belt. Mowing disk drive is switched on by a tension pulley controlled from a lever on the handlebars.

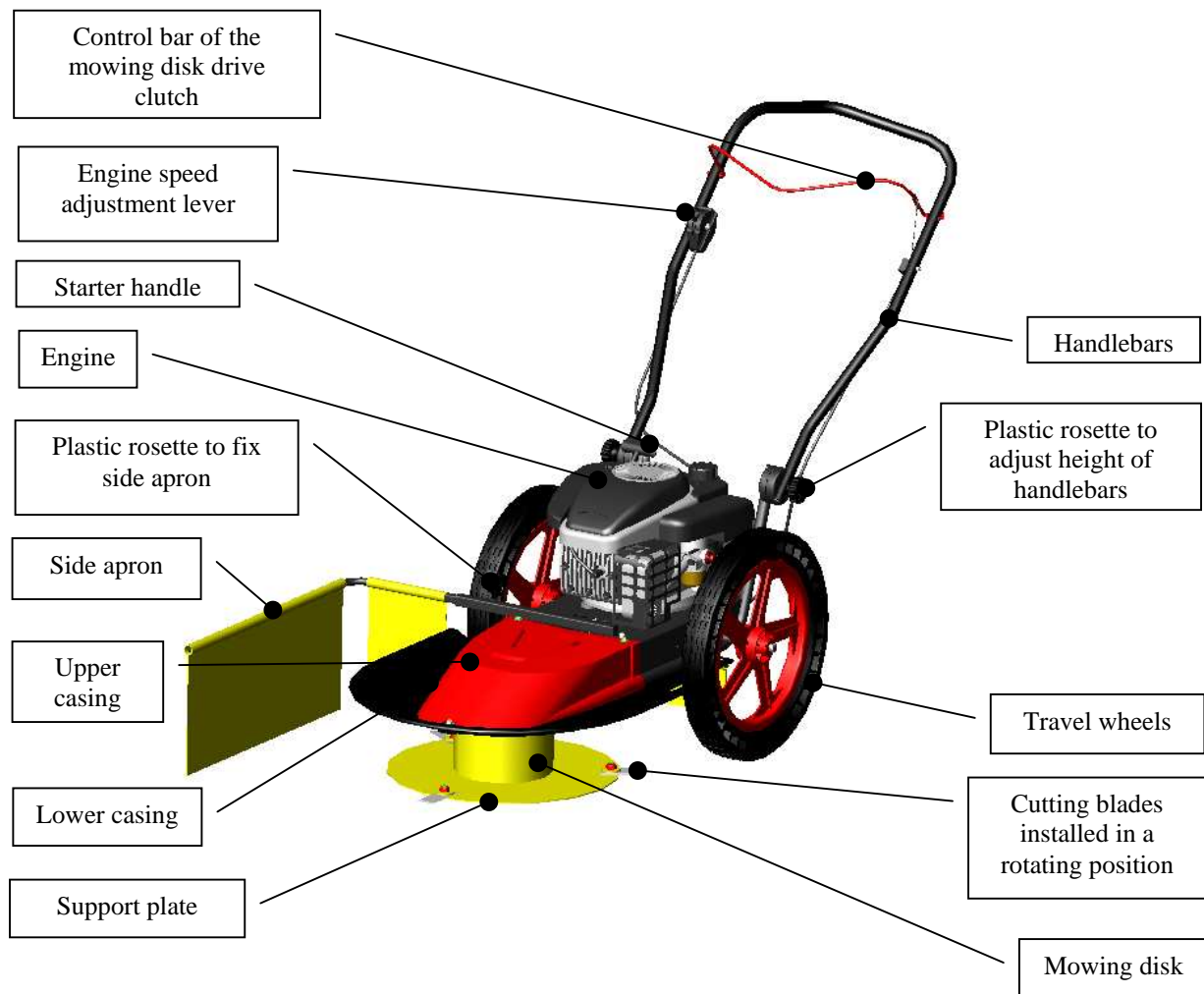
On the mowing disk, there are three cutting blades of hardened steel, sharpened on both sides and installed in a rotating position, which perfectly cut the mown sward. Upper disk throws the cut sward aside. Support plate partly guides the machine, being a guarantee of an even stubble height.

Side apron prevents grass spreading to sides and forms a neat swath.

Travel wheels are equipped with puncture-resistant tyres of solid rubber. Large diameter of the wheels makes pushing of the machine easy and reduces operator's labour.

On the tube handlebars, which can be adjusted with a swivel joint, there is a control bar of the mowing disk drive clutch and a lever for engine speed adjustment. After tipping the handlebars over the engine, the mower can be easily transported in the luggage compartment of common passenger car.

Figure 1: Manually pushed drum mower DS-520 Liza



5 Instructions for use.

5.1 Machine assembly.

Ask your seller to provide unpackaging of the machine and briefing.

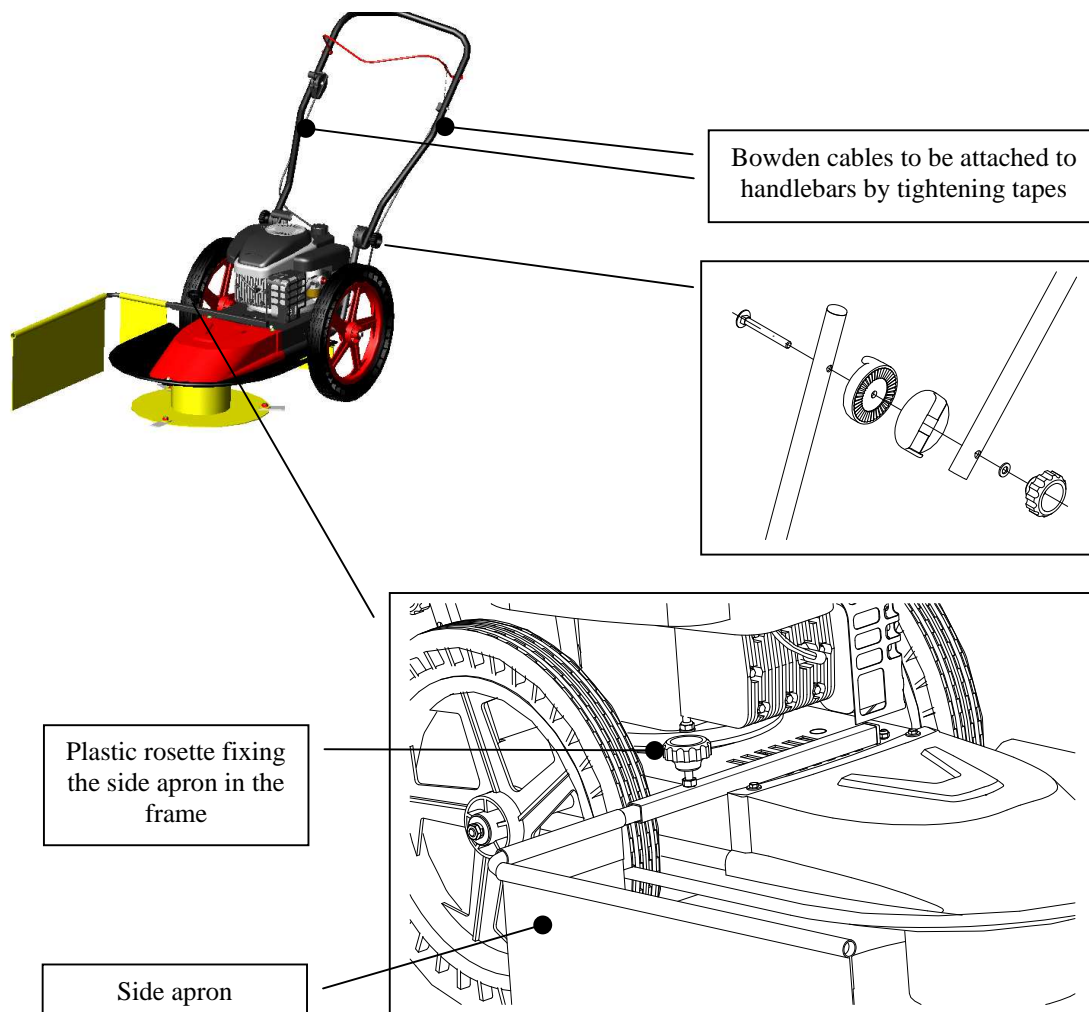
Grip points:

- a) Front: - Mowing disk or lower casing;
- b) Rear: - Handlebar grips or machine frame end tubes with handlebars tipped.

If you assemble the machine yourself, follow the below instructions:

1. Take the machine out from the box and all parts from the packages.
(other procedures see Figure 2)
2. Unloose the plastic rosettes in the handlebars joints and turn the handlebars so that they point to the rear of the machine. Adjust the handlebar height so that you comfortably get up to it. Tighten the rosettes.
3. Fix the Bowden cables to the handlebars by using plastic tightening tapes.
4. Slide the apron with the holder into the holder on the frame and secure it by tightening the plastic rosette with bolt.

Figure 2: Machine assembly



5.2 Putting into operation.

- ⚠ **The machine is delivered without operating engine fillings!**
- ⚠ **Read the instruction for engine use carefully! You can prevent a possible damage to the engine.**
- 1. Fill the engine with the prescribed grades and volumes of oil and petrol.
- 2. Move the accelerator lever into the front position ("MAX" or "CHOKE", according to the type of the engine). By pulling on the manual starter start the engine (see guidelines for engine use).
- 3. Let the new or cold engine running for about 30 seconds.
- ⚠ **Don't leave the machine alone when doing this!**

5.3 Starting the mowing disk.

⚠ **When starting the engine, the control bar of the mowing disk drive clutch on the handlebars must be in the off position.**

1. Start the engine. When doing this, follow the instructions presented in the operating manual for engine use.
2. Set-up maximum engine rotations by accelerator lever on the right handle. (Should the engine be cold, let it warm up at a maximum speed for about 30 seconds.)
3. Grasp the handlebar grip with both hands. Then pull the control bar of the mowing disk drive gear to yourself.

⚠ **Press the bar slowly up to two thirds of the stroke so that the mowing disk can start rotating and the engine does not stall.**

The start of the mowing disk is accompanied with a partial V-belt slippage and with the related phenomena such as whistling, rattling, etc. that usually disappear after the belt has run in.

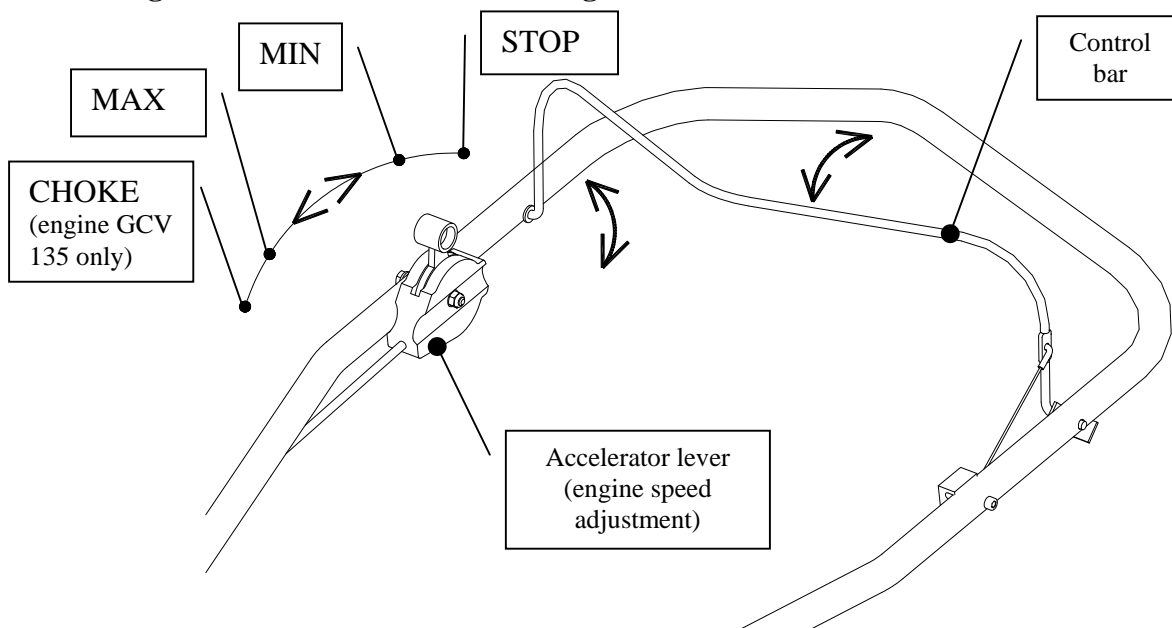
4. After the mowing disk has started turning, press the bar completely to the handle and hold it firm.

Note: In a new or cold engine, engine stalling may occur at several first mowing disk drive starts. The phenomenon will disappear after the engine gets warmer.

5.4 Driving the mower.

In order to initiate its moving forward, you have to push the mower. Instructions for machine travel [see Chapter 5.6.2.](#)

Figure 3: Handlebars with steering elements



5.5 Stopping the mowing disk.

- ⚠ Do not stop the running out mowing disk by pushing it against the ground (e.g. by lifting the rear part of the machine by holding on handlebars).**
- ⚠ When the mowing disk runs out, hold the handlebars firm so that no side movement of the machine can occur due to support plate friction on the ground surface!**
- ⚠ Prior to carrying out any activities in the near vicinity of the machine or prior to moving the machine to another place switch the engine off and wait until the mowing disk stops moving! Before leaving the machine alone, switch off the engine!**
- ⚠ Never let the engine running at maximum speed or idling for a long time with the mowing disk drive clutch switched off! Components of the machine drive (V-belt, belt pulley, clutch pulley, etc.) might get damaged!**

Mowing disk drive switches off immediately after the control bar has been released. Running-out of the mowing disk may take a very long time due to the fact that it is mounted in ball antifriction bearings.

The engine is to be switched off by pushing the lever into the “STOP” position.

- ⚠ In the case of any critical situation, release your hold on the handlebars immediately. The control bar will return to its zero position and the mowing disk will start running-out (while the engine is still running at adjusted rotations; this is why it is to be switched off by pushing the lever into the “STOP” position as soon as possible!)**

5.6 Working with the machine.

5.6.1 Cutting grass stands.

- ⚠ Prior to the machine use, the stand must be cleared of solid bodies such as stones, wires, loose construction debris, etc., which could be flung or might otherwise damage the machine. Should these be impossible to remove, avoid working the places.**
- ⚠ Working width has to be at all times accommodated to stand density!**

5.6.2 Driving the mower.

There are two possibilities how to drive the mower:

1. If you do cutting on well-kept surfaces without terrain irregularities, the mower can be pushed without lifting the machine front and with the support plate sliding on the stubble. Be prepared, however, that the forward motion will not be ideally even. Any unexpected bump can swerve the mower from straight direction.
2. If there are some bumps on the surface such as molehills or natural terrain irregularities, it is advised to slightly lift the machine front by mildly pushing down on handlebars handles while pushing the mower forward.

5.6.3 Cutting procedure.

Set the engine on maximum speed, let the mowing disk rotate at maximum speed (see chapter 5.3) and get the machine into motion (see chapter 5.6.2) against the sward to be cut. Mown grass is thrown away by the mowing disk to the right side onto the apron, which forms a swath.

If the stand is very dense, grown through, rotten or lodged, the machine working width must be reduced accordingly so that the mowing disk rotations are not being excessively reduced and the cutting quality impaired.

5.6.4 Problems at cutting.

Choking of the space under the lower casing with grass shows as follows:

- a) **Engine markedly loosing speed but not stalling:** stop the machine without delay while slightly lifting the machine front (by pushing down on the handlebar handrails). The space under the lower casing will do itself a partial clearance of excessive grass. Then drive the machine against the sward again (see chapter 5.6.2).

⚠ Be very careful while driving with the machine backwards!

- b) **Engine loosing speed and stalling:** release the control bar of the mowing disk drive clutch on handlebars, lift the machine front (by pushing down on the handlebars) and drive a bit back. Clear the space under the lower casing and spread the cut grass across the ground. Start the engine, switch on the mowing disk drive (see chapter 5.3) and once again drive the machine against the grass stand (see chapter 5.6.2).

⚠ The engine must be always switched off when clearing the space under the lower casing!

⚠ Tilt the machine always only backwards onto the handlebars. Be always very careful while moving in the space under the lifted machine! Secure the machine against motion!

⚠ Be very careful while cleaning the space under the lower casing. Cutting edges of the blades are sharp. You should be wearing protective gloves or you can also use a suitable piece of branch etc.

6 Maintenance, care and storage.

To ensure a long-term satisfaction with our product, it must be given proper care and maintenance. Regular maintenance of the machine will prevent its early wear ensuring at the same time a correct functioning of all its parts.

Follow all instructions for intervals of machine maintenance and for machine adjustment. It is advised that you keep records on the number of machine working hours and on the conditions in which the machine was working (for service purposes). Similarly as the current maintenance, the after-season maintenance should be entrusted to one of our authorized service workshops.

6.1 Machine lubrication.

6.1.1 Engine oil replacement.

⚠ When exchanging oil, follow the basic hygienic principles as well as regulations and laws on environment protection.

Information on oil replacement can be found in the instructions for use of engine. When draining oil, either tip the machine to the side with pouring-in neck and oil gauge or dismount the engine from the machine (see Chapter 6.4 items a),b),e)).

6.1.2 Table of machine lubrication.

Machine lubrication	During season	After season	Figure No.
Tightening pulley arm pin (after disassembly of upper casing)	min 2x	yes	4.1
Mowing disk drive clutch wire	min 2x	yes	
- on input to Bowden cable	min 2x	yes	
- on output from adjustment bolt			
Travel wheel bearings	as required	yes	4.2

Figure 4: Lubrication points

Figure 4.1: Tightening pulley arm pin

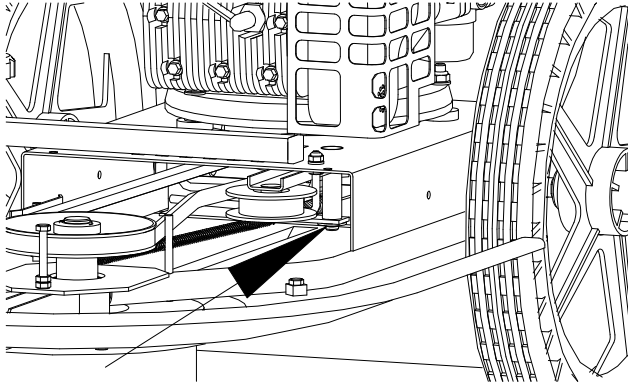
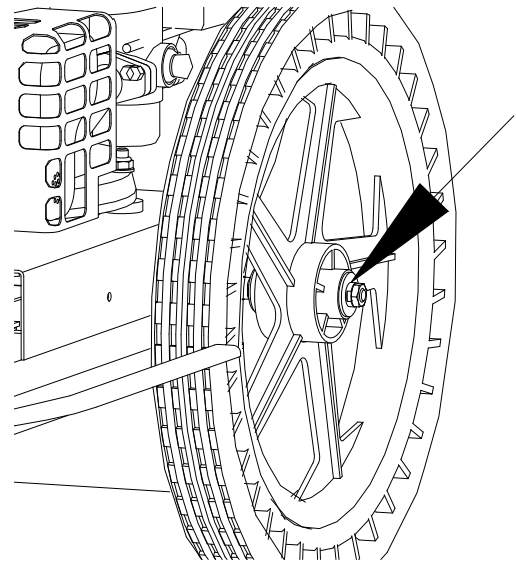


Figure 4.2: Travel wheel bearings



6.2 Tightening bolted connections.

Check bolted connections for proper tightening. Prior to any machine use, check tightening and wear of the heads of bolts which fasten blades in the upper disk and the bolt which fastens support plate to drive shaft.

6.3 Replacing and sharpening cutting blades.

If the cutting edges of working blades show wear or damage to blades results in machine vibrations, the cutting edges must be renewed or the blades replaced.

⚠ **The machine must be standing on a firm support and must be secured so that the blade is easily accessible and an unexpected spontaneous machine motion cannot occur.**

⚠ **Be very careful when dismantling the blades. Their cutting edges are sharp. Protect your hands with working gloves.**

⚠ **The engine must be switched off and the cable end connector to spark plug disconnected!**

1. Hold the mowing disk so that it cannot turn. Dismount the blade bolted connection by using spanner No. 17 and socket screw key No. 6.
2. Take the blade out, level and sharpen the cutting edges. Angle of the sharpened cutting edges should be 30° with respect to the lower blade plane.

⚠ **Should a blade be bent or showing considerable wear, you must always replace all blades in the mowing disk!**

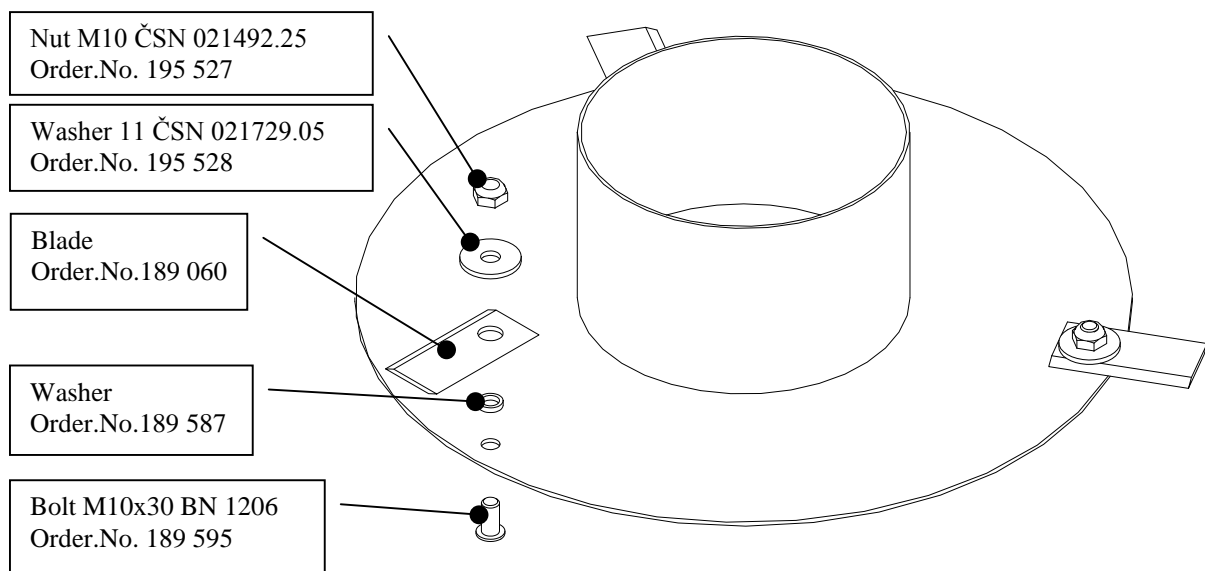
3. Check all parts of the blade clamping to the mowing disk for their measure of wear. Should the bolt heads or nuts show excessive wear, replace them.

4. Screw the bolt back into the mowing disk, place the filler, blade and flat washer. Then screw on the nut.
5. Hold the bolt head with socket screw key No. 6 and tighten the nut. All blades must freely rotate on the bolts.

The blades have cutting edges on both sides; when one side is worn out, the blade can be reversed and the cutting edge of the other side can be used. When replacing the blade, replace also all damaged parts of the blade clamping in the mowing disk (see Fig. 5).

Note: The manufacturer does not answer for damages caused by the machine if the blades were repaired by unskilled persons without the use of the original spare parts. There is a “VARI” stamp on the blade, which identifies the manufacturer and is at the same time a control mark indicating that the blade is an original spare part.

Figure 5: Clamping of the blade on the mowing disk



6.4 V-belt replacement and adjustment of tightening pulley.

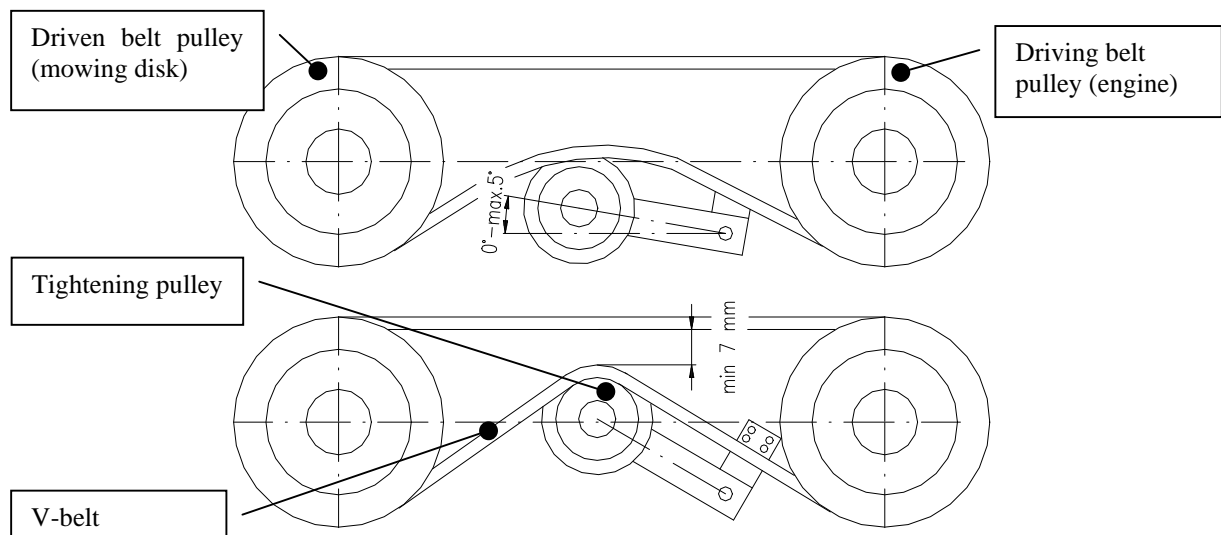
V-belt should be replaced according to its wear (cracked sides, torn belt, sides worn out down to belt carrier fibres, belt “pulled out” of shape) or after about 100 hours of operation at the maximum. In this machine, belt pulled out to maximum is considered a belt in which the distance between the internal belt surfaces is less than 7 mm (with the lever of mowing disk drive clutch pressed). The replacement procedure is as follows:

- a) Drain petrol from the engine tank. Dismount the accelerator lever (2x spanner No. 8) from the handlebars. Bowden cable should never be dismantled from the steering system on the engine!
- b) Unscrew three safety nuts (spanner No. 13) on the engine flange and pull the engine out from the machine frame upwards. Never use force to pull the engine out from the frame!

⚠ Never put the engine on the side. Oil might get into the exhaust or into the air cleaner. The best engine placing is with the lower flange dwelling on two lintels, which are at least 7 cm high.

- c) Dismount the upper casing (spanner No. 8, spanner No. 10). Dismount the bolt with nut in front of the driven belt pulley (see Fig. 4.1) (spanner No. 10). Take the old V-belt off and replace it with a new one. V-belt marking is **GATES A48 BareBack**. It is also possible to use an equivalent V-belt made by other manufacturers at a size of A13x1220 Li (Li=internal length). However, the belt must be made without rubber on sides! Only such a belt model will guarantee that the blade drive start is smooth at engaging the clutch.
- ⚠ **Should a different belt model be used, the machine manufacturer does not bear any responsibility for proper and full functioning of the gear!**
- d) Put the engine back in place and bolt it by using three safety nuts with flat washers. Slide the V-belt into the groove in the driving belt pulley (on engine). Screw the accelerator lever back onto the handlebars.
- e) Check tightening pulley operation. With the control bar being completely pressed, the pulley must ensure a sufficient belt tension (spring on wire being extended by about 5 mm as compared with the loose condition). Possible corrections are to be made by means of adjustment bolt (see Figure 7). With the control bar switched off, the pulley must be inclined from the longitudinal machine axis at an angle of 5° (see Fig. 6) and the wire in the tightening pulley Bowden cable must exhibit no slackness. Guide lamination on the right side of the machine must be parallel to the tense V-belt and at a minimum. Distance of tightening pulley bottom from belt convex side must be 1-2 mm.
- f) Mount the bolt with nut in front of the driven belt pulley. Mount the V-belt casing.

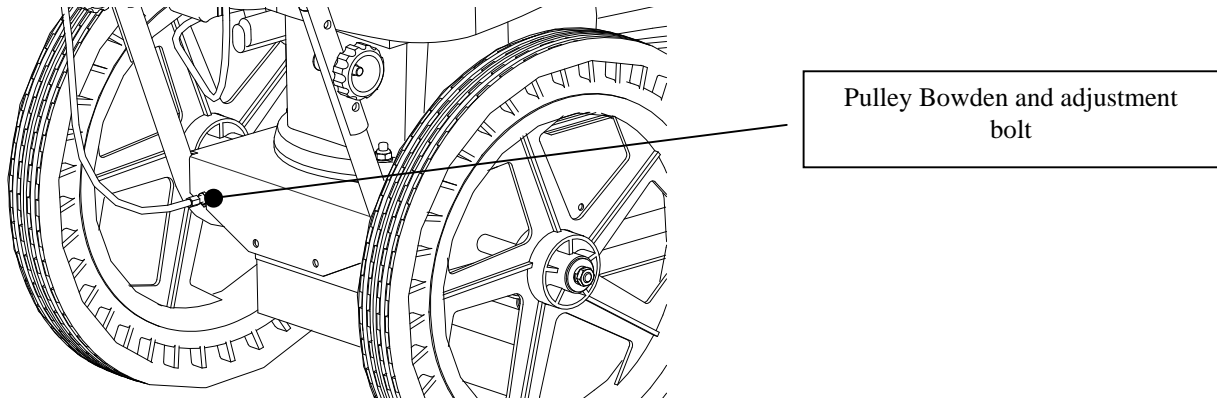
Figure 6: Adjustment of tightening pulley and maximum V-belt extension



6.5 Tightening pulley wire and drive diagnostics.

In order to guarantee low operating forces on levers which control drive switching, it is advisable to lubricate wires in Bowden cables at least 2x during the season with some oil available in atomiser (e.g. SILKAL, MD Spray, WD40). Correct functioning of the machine also requires correct setting of drive steering elements. Should the adjustment bolt be fully screwed out and the V-belt needs to be tightened, wire spring can be hooked into the front hole on the tightening pulley arm.

Figure 7: Bowden cable and adjustment bolt.



6.6 Driving problems diagnostics.

Problem	Reason	Remedial action
Mowing disk does not turn	Tightening pulley does not tighten the belt properly	Adjust the tightening pulley by means of adjustment bolt (see Fig. 7)
	Cable fallen out from tightening pulley lever	Put the cable back
	V-belt fallen behind tightening pulley or out of belt pulley	Put the belt back
	Torn V-belt	Replace the belt with a new one
	Excessive belt pull-out (see Fig. 6)	Replace the belt with a new one
Slippage of mowing disk drive	Tightening pulley does not tighten the belt properly	Adjust the tightening pulley by means of adjustment bolt (see Fig. 7)

Nuts are to be tightened by two spanners No. 10 or No. 9. Should there be no more step on the adjustment bolt, spring on the wire can be hooked in the pulley arm hole for return spring.

6.7 Table of service operations.

Operation	During season	After season
Engine oil volume check	prior to each machine use	*
Engine air filter check	prior to each machine use	overhaul
Check of blades for clamping and intactness	prior to each machine use, **	overhaul
Check of support plate and upper disk on the shaft for their clamping	prior to each machine use, **	overhaul
Check of upper and lower disks for intactness	prior to each machine use, **	overhaul
V-belt tension check	as required	overhaul
V-belt condition check	as required	overhaul, ***
Cleaning of wheel hubs and grease exchange	-	yes
Cleaning of machine from dirt and grass	after each machine use	yes

* - intervals for oil replacement see operating manual for engine;

** - in case of damage (also at cutting) – cracks, bending, breakage, etc.- repair needed without any delay!

*** - or replacement after about 100 hours.

6.8 Washing and cleaning the machine.

⚠ At cleaning and washing the machine, adhere to valid regulations and legislation on the protection of water courses and other water resources against pollution or contamination with chemical substances.

⚠ Never wash the engine with a stream of water! Electric equipment might fail when starting the engine.

All dirt, debris and plant residues should be removed from the machine after the end of the season. Check the intactness of working blades, sharpen the cutting edges (or replace the blades if necessary) and conserve the blades with conservation oil. Travel wheels should be dismantled from the axle once in a season, cleaned and the hubs inside filled with a new filling of plastic lubricant.

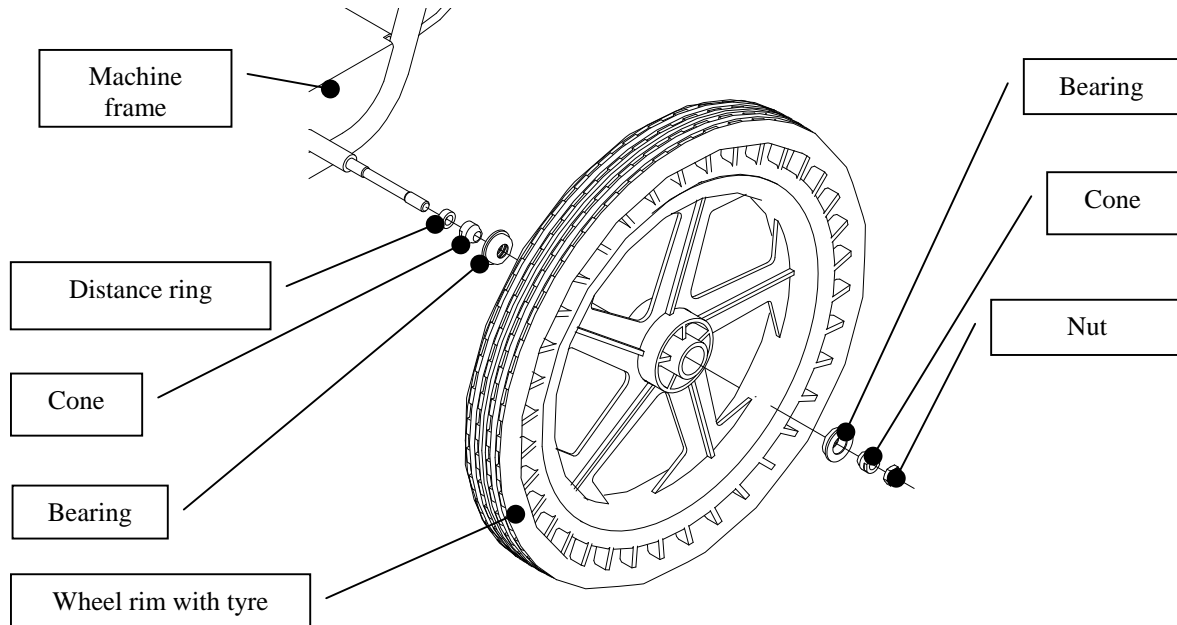
⚠ The engine must be switched off and the cable end terminal to spark plug disconnected!

Procedure of wheel disassembly, lubrication and re-assembly is as follows:

- Underlay the machine so that wheels can freely turn. The machine must be secured against spontaneous motion.
- Dismount the nut and outer cone by using spanner No. 15. Remove the wheel from the axle.
- Press the bearings out from the hub in plastic rim and wash out dirt and old grease.
- Fill the inside of the bearings with new grease (e.g. for water pumps) and press the bearings back into the hub in the plastic rim of the wheel. Lubricate also the inner and outer cones.

- e) Put the wheel back and screw on the outer cone. Screw in the nut and tighten the cone against the nut so that the wheel can freely turn but does not have substantial side clearance.

Figure 8: Travel wheel bearing – parts



6.9 Machine storage.

Prior to a longer storage, clean the machine from all dirt, debris and plant residues. Repair damaged paint on machine parts. Conserve the blades on the mowing disk if the machine is to be put out of operation for a longer time. Prevent access of unauthorized persons to the machine. Protect the machine from weather impacts; don't use air-tight protection due to a possibly increased corrosion under it.

6.10 Disposal of packaging and machine after the end of service life.

After unpacking the machine, you are obliged to provide for the disposal of packaging material with taking into account the use of secondary raw-materials according to Waste Law No. 185/2001 Gaz. (and/or its amendments) and with respect to the decrees of local town or municipal authorities.

The following procedure is recommended for machine disposal after the end of its service life:

1. Dismount all parts from the machine that can still be used.
2. Dismount plastic machine parts and parts made of non-ferrous metals. The dismantled machine remainder and the dismantled parts are to be disposed according to Waste Law No. 185/2001 Gaz. (and/or its possible amendments) and with respect to the decrees of local town or municipal authorities.

7 Instructions for ordering spare parts.

Ordering spare parts, you are encouraged to use the following data for easier identification:

1. Machine model, engine model, machine serial number and year of manufacture;
2. Ordering number given by the manufacturer and its name in the component list;
3. Number of ordered pieces separately for each item;
4. Precise address, telephone number, fax number or e-mail address;
5. If you are not certain about the correct identification of the component, send the damaged component either to the nearest service shop or to the manufacturer;
6. All components should be ordered in the nearest service shop or at your seller's.

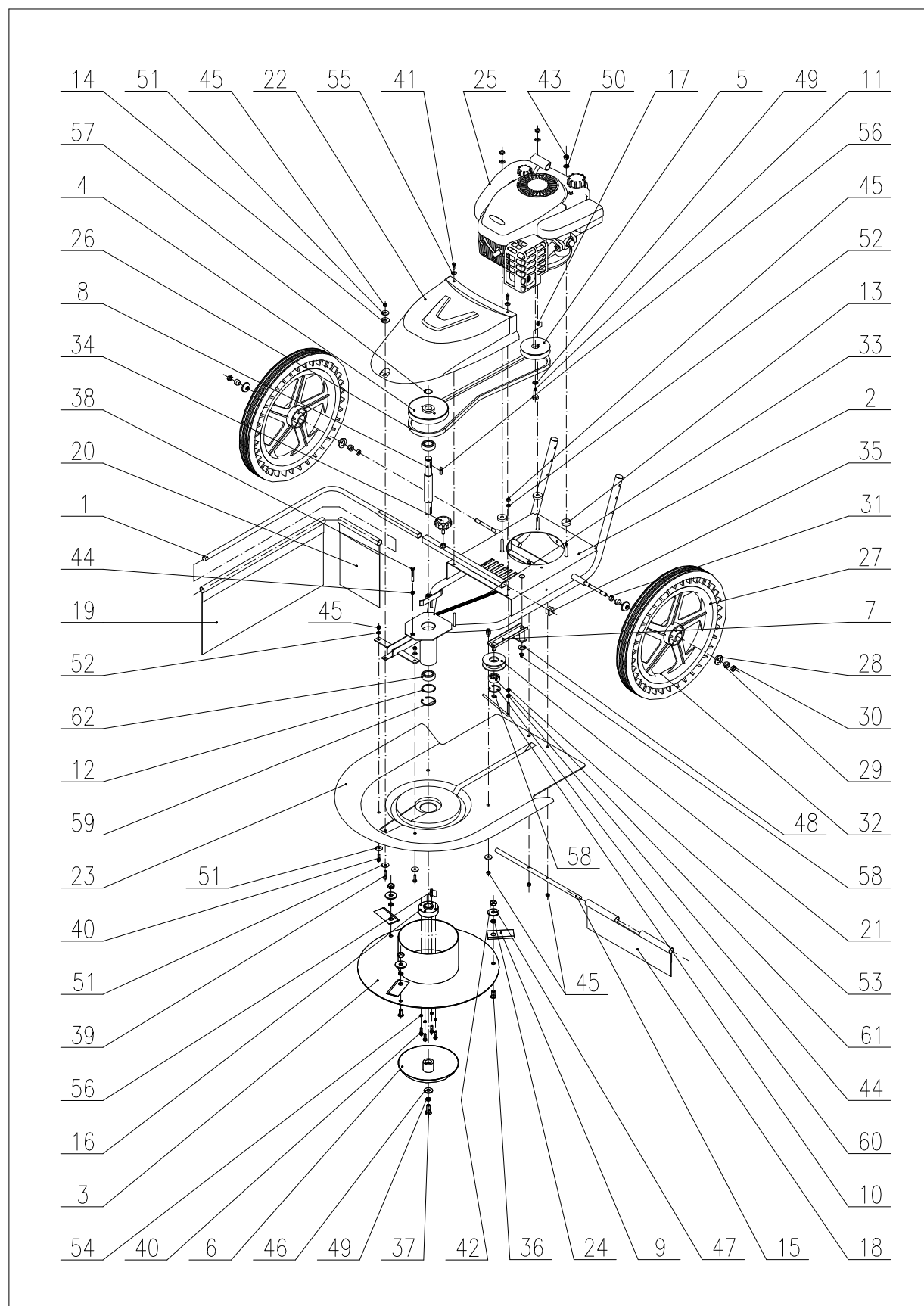
If any hesitance concerning the spare parts or technical issues occurs, the VARI a.s. commercial, customer-service or technical departments are prepared to answer all your inquiries.

8 Address of the manufacturer:

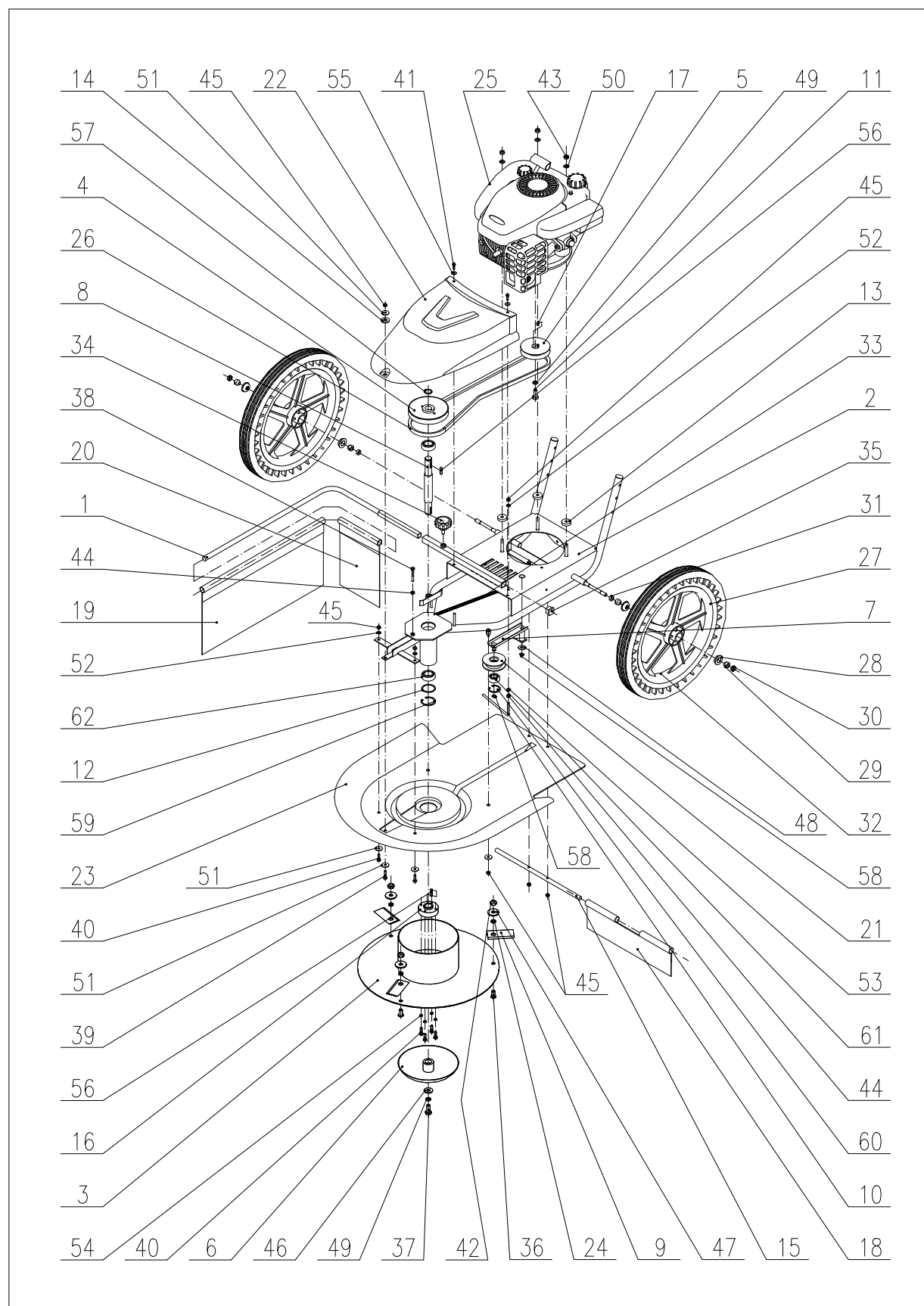
VARI,a.s.
Opolanská 350
Libice nad Cidlinou
CZECH REPUBLIC
289 07

Telephone: (+420) 325 607 111
Fax: (+420) 325 607 264
E-mail: vari@vari.cz
internet: www.vari.cz

9 List of components.



Main assembly					
Pos.	Name	Dimension	Drawing - Standard	Ord. No.	Pcs
1	Complete screen holder		22 9 1456 005	169 016	1
2	Welded frame		22 9 1536 044	189 100	1
3	Mowing disc 520		22 9 3182 026	189 103	1
4	Driven belt pulley		22 9 3325 016	195 008	1
5	Driving belt pulley, diam. 83 mm		22 9 3325 022	189 104	1
6	Support disc		22 9 5025 008	195 025	1
7	Pulley arm - weldment		2 293 330 009	189 022	1
8	Drive shaft of disc mower		32 0 3822 021	189 101	1
9	Blade		32 0 6030 009	189 060	3
10	Stop with belt guide		32 0 8644 003	195 039	1
11	Bolt W3/8"		32 0 9016 057	105 011	1
12	Shim		32 0 9220 024	110 012	3
13	Spacer		32 0 9220 222	189 074	3
14	Rubber pad		32 0 9220 230	189 105	1
15	Screen holder		32 0 9320 043	195 029	1
16	Mowing disc hub		32 0 9320 067	189 102	1
17	Feather 1)		32 0 9516 004	105 007	1
17	Feather 2)		32 0 9516 001	104 012	1
18	Screen		632 0 1840 067	195 542	1
19	Screen - long		632 0 1840 070	189 595	1
20	Screen - short		632 0 1840 071	189 596	1
21	Pulley ADELA		632 0 3325 040	189 586	1
22	Mulcher belt casing		632 0 8545 015	182 502	1
23	Lower casing Liza		632 0 8545 043	189 597	1
24	Washer 14		632 0 9220 205	189 061	3
25	Engine 1)		Tecumseh CENTURA 55	189 600	1
25	Engine 2)		Honda GCV 135	189 602	1
26	V-belt	A48 BareBack	GATES	189 599	1
27	Wheel	diam. 410x50, ET-6923	ETOP Púchov	195 548	2
28	Bearing		BERNARDI MOZZI MOTOR	195 512	4
29	Cone		BERNARDI MOZZI MOTOR	195 510	4
30	Nut	3/8"-26x9	BERNARDI MOZZI MOTOR	195 511	2
31	Distance ring	15x6	BERNARDI MOZZI MOTOR	195 509	2
32	Hole cover	13-9-6.4 - series "B"	EUROPLAST	189 598	2
33	Spring	TZ 0,8x8,8x95,2x100	FEVOZ Slavičín	189 516	1
34	Plastic rosette	M8x20, diam.50 type "JJZ"	EUROPLAST	171 525	1
35	Square plug	056-20x20	SUNAP Neratovice	169 506	1
36	Bolt	M10x20 BN 1206	BOSSARD	189 594	3
37	Bolt	M10x1x25 (8.8)	ČSN EN 28676	137 501	1
38	Bolt	M6x45	ČSN 02 1110.25	195 522	1
39	Bolt	M6x25	ČSN 02 1103.25	171 532	1
40	Bolt	M6x20	ČSN 02 1103.25	189 551	6
41	Bolt	M5x16	ČSN 02 1103.25	182 515	2
42	Nut	M10	ČSN 02 1492.25	195 527	3

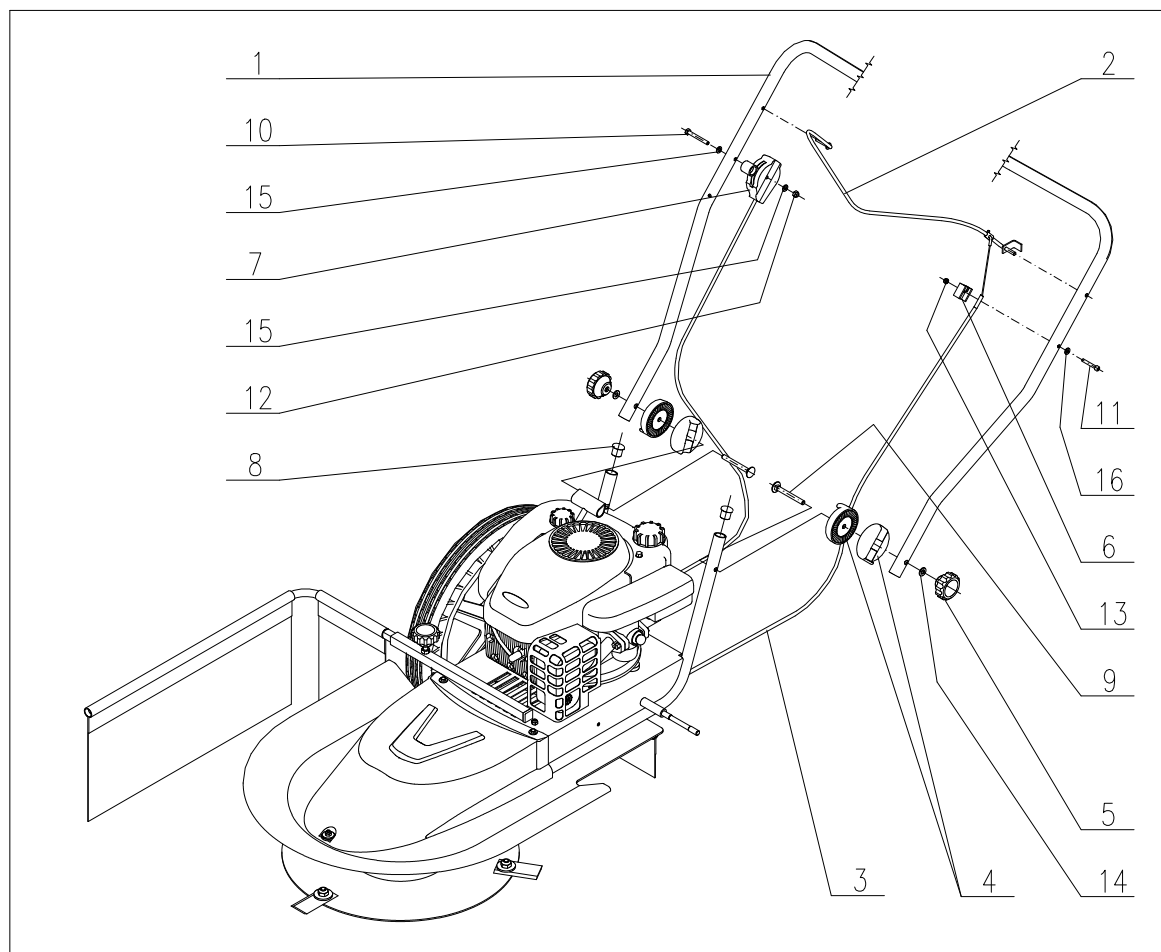


continuation

Main assembly					
Pos.	Name	Dimension	Drawing - Standard	Ord. No.	Pcs
43	Nut	M8	ČSN 02 1492.25	104 622	3
44	Nut	M6	ČSN 02 1401.25	1800141	2
45	Nut	M6	ČSN 02 1492.25	168 516	8
46	Washer	11	ČSN 02 1729.05	195 529	1
47	Washer	11	ČSN 02 1727.15	195 528	3
48	Washer	10,5	ČSN 02 1702.15	131 518	1
49	Washer	10,2	ČSN 02 1740.05	106 530	1
50	Washer	8,4	ČSN 02 1702.15	131 517	3
51	Washer	6,6	ČSN 02 1727.15	169 508	6
52	Washer	6,4	ČSN 02 1702.15	189 571	3
53	Washer	6,4	ČSN 02 1745.05	6521602	1
54	Washer	6,1	ČSN 02 1740.05	6510920	4
55	Washer	5,5	ČSN 02 1729.05	195 531	2
56	Woodruff key	5e7x5x25	ČSN 02 2562	189 574	2
57	Retaining ring	20	ČSN 02 2930	110 515	1
58	Retaining ring	10	ČSN 02 2930	6021519	2
59	Retaining ring	42	ČSN 02 2931	136 506	1
60	Retaining ring	35	ČSN 02 2931	126 503	1
61	Bearing	6300 2RS	ČSN 02 4630	189 585	1
62	Bearing	6004 2RS	ČSN 02 4630	9943158	2

Notes:

- 1) This part is suitable for the DS-520 mower
- 2) This part is suitable for the DS-520H mower



Handlebars					
Pos.	Name	Dimension	Drawing - Standard	Ord. No.	Pcs
1	Handlebar grip		32 0 8045 053	195 046	1
2	Control bar		22 9 8058 011	195 047	1
3	Pulley bowden cable		632 0 8074 027	189 509	1
4	Handlebars joint			195 551	4
5	Plastic through rosette	M8-diam.50 "JJW"	EUROPLAST	189 521	2
6	Bowden cable guide	MEP 10876103		189 519	1
7	Accelerator lever 1)	ACP 400		189 517	1
7	Accelerator lever 2)	AE653H		183 532	1
8	Circular plug	085-068 22x1-2,5		189 524	2
9	Bolt	M8x70	ČSN 02 1319.25	195 552	2
10	Bolt	M6x50	ČSN 02 1101.25	195 521	1
11	Bolt	M5x35	ČSN 021143.55	189 558	1
12	Nut	M6	ČSN 02 1492.25	168 516	1
13	Nut	M5	ČSN 02 1401.25	195 554	1
14	Washer	8,4	ČSN 02 1702.15	131 517	2
15	Washer	6,4	ČSN 02 1702.15	189 571	2
16	Washer	5,3	ČSN 02 1702.15	189 581	1
17	Tightening tape (not in the picture)	3,6x200 (black)		189 525	2

Note:

- 1) This part is suitable for the DS-520 disc mower
- 2) This part is suitable for the DS-520H disc mower

10 List of Guarantee

To be completed by the manufacturer

Name of product	Manually Pushed Drum Mower	
Model	DS-520 Liza*	DS-520H Liza*
Serial number	
Engine serial number	
Warranty (months)	
Output control	



Michał Drobny

The above product was passed over to the purchaser without any defects including the appropriate commercial and technical documentation and accessories. The purchaser was duly informed about principles of sound operation and technical maintenance of the product.

To be completed by the seller

Name of purchaser
Address of purchaser
Purchaser's signature
Place of sale
Date of sale

Seller's stamp and signature

GUARANTEE CONDITIONS

Subject of warranty:

Warranty relates to the basic product including accessories supplied by VARI a.s.

Warranty period:

Warranty period for the product and accessories supplied with the product is 24 months from the date of sale to the purchaser if not stated otherwise in the **"Service Manual for VARI Machines and Systems Equipped with HONDA Engines"**. Time from the enforcement of liability for defects to the date when the user was obliged to take over the thing after the end of repair is not included in the warranty period.

The seller is obliged to give the purchaser a receipt confirming the date of the right exercise and repair and the time of its duration. If the product is exchanged, the warranty period starts running again from the date on which the purchaser took over the new product. If it is a whole assembly to be replaced, the warranty period starts running for the given assembly again from the date of product take-over.

Scope of manufacturer's liability:

The manufacturer bears responsibility for the product having properties usual for the kind of the product in question and specified parameters for the whole period of warranty. The manufacturer does not answer for defects of the product resulting from current wear or from the product's use for purposes other than specified.

Warranty extinction:

Claim of warranty extincts if:

- the product was not used and maintained as specified in the Instructions for use, or it was damaged by any unauthorized operation by the user;
- the product was used in conditions or for purposes other than specified;
- the letter of guarantee for the product cannot be presented;
- data filled in the original product's documentation by the manufacturer, seller or service organization were intentionally falsified;
- a part of the product was replaced with a non-original component;
- the product was damaged or excessively worn due to improper maintenance;
- the product suffered an accident or was damaged by an inevitable accident (force majeure);
- a modification was made to the product without manufacturer's consent;
- defects result from improper storage of the product;
- defects result from natural and common operating wear of the product;
- the prescribed warranty inspection of the product was not made within the prescribed time (this applies only for products with extended warranty period). Warranty inspections must be made in selected products with the extended warranty period according to terms stipulated in the **"Service Manual for VARI Machines and Systems Equipped with HONDA Engines"**.
- the product was connected or operated with equipment not approved by the manufacturer.

Complaints:

Complaints are applicable by purchasers at the seller's. When applying a complaint, the purchaser is obliged to submit a duly filled in letter of guarantee. Warranty repairs are carried out by seller or by special service shops appointed by seller.

Legislation:

Other purchaser/seller relations are ruled by relevant stipulations of the Civil Code No. 47/1992 Gaz., and/or Commercial Code No. 513/1991 Gaz. as amended.

*) delete as appropriate

Warranty inspection 1 Date: Person in charge: Service shop stamp and signature	<u>Warranty inspection 1</u> Machine model Serial No.:
Warranty inspection 2 Date: Person in charge: Service shop stamp and signature	<u>Warranty inspection 2</u> Machine model Serial No.:
1st Warranty service Date of complaint delivery: Date of repair: Brief description of the defect: Replaced parts (new warranty of months): Parts: Repair made by: Service shop stamp and signature	<u>1st Warranty service</u> - - - - - Machine model Serial No.: Date: Repair made by: Stamp and signature:
2nd Warranty service Date of complaint delivery: Date of repair: Brief description of the defect: Replaced parts (new warranty of months): Parts: Repair made by: Service shop stamp and signature	<u>2nd Warranty service</u> - - - - - Machine model Serial No.: Date: Repair made by: Stamp and signature:
3rd Warranty service Date of complaint delivery: Date of repair: Brief description of the defect: Replaced parts (new warranty of months): Parts: Repair made by: Service shop stamp and signature	<u>3rd Warranty service</u> - - - - - Machine model Serial No.: Date: Repair made by: Stamp and signature:
4th Warranty service Date of complaint delivery: Date of repair: Brief description of the defect: Replaced parts (new warranty of months): Parts: Repair made by: Service shop stamp and signature	<u>4th Warranty service</u> - - - - - Machine model Serial No.: Date: Repair made by: Stamp and signat.:

