

# **VARI®**

Brush Cutter

## **Lucina MaX**

## **Dorotha**

**BDR-620D \* BDR-620DH \* BDR-620DBiS**



☒ **Instructions for use**

**EN** English – Translation of the original instructions for use



## CZ OBSAH / EN CONTENTS / DE INHALT

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### CZ ZÁKLADNÍ INFORMACE

- ❗ Vybalení stroje a instruktáž požadujte u svého prodejce jako součást předprodejního servisu!

### EN BASIC INFORMATION

- ❗ As part of the pre-sale servicing ask your dealer to unwrap the machine and give you a brief training on how to use it!

### DE BASISINFORMATION

- ❗ Verlangen Sie Auspacken und Anweisung bei Ihrem Verkäufer im Rahmen des Vorverkauf-Services!

### RU ИСХОДНАЯ ИНФОРМАЦИЯ

- ❗ Распакование товара и инструктаж надо требовать у своего продавца как часть предпродажного сервиса!

### PL INFORMACJE PODSTAWOWE

- ❗ W ramach serwisu przedsprzedażowego poproś sprzedawcę o rozpakowanie urządzenia i wstępny instruktaż obsługi urządzenia!

<div><div>CZ</div>Typové označení (Type)</div> <div><div>EN</div>Type</div> <div><div>DE</div>Typenbezeichnung</div> <div><div>RU</div>Типовое обозначение</div> <div><div>PL</div>Typ</div>	<div><div>BDR-620DH</div></div> <div><div>BDR-620DBiS</div></div>	<div><div>BDR-620D</div></div> <div><div>-</div></div>	<div><div><div></div></div></div>
<div><div>CZ</div>Typ motoru</div> <div><div>EN</div>Engine type</div> <div><div>DE</div>Motortyp</div> <div><div>RU</div>Тип двигателя</div> <div><div>PL</div>Typ silnika</div>	<div><div>HONDA GCV190</div></div> <div><div>B&amp;S 875EXi</div></div> <div><div>Series™</div></div>		
<div><div>CZ</div>Identifikační číslo<sup>1</sup></div> <div><div>EN</div>Identification number<sup>2</sup></div> <div><div>DE</div>Identifikationsnummer<sup>3</sup></div> <div><div>RU</div>Идентификационный номер<sup>4</sup></div> <div><div>PL</div>Numer identyfikacyjny<sup>5</sup></div>	<div><div>1 0044</div><div>— — — — . — — — . — — — —</div></div> <div><div>1 0068</div><div>— — — — . — — — . — — — —</div></div>		
<div><div>CZ</div>Datum dodání - prodeje</div> <div><div>EN</div>Delivery date - date of sale</div> <div><div>DE</div>Verkaufs - / Lieferdatum</div> <div><div>RU</div>Дата поставки – продажи</div> <div><div>PL</div>Numer seryjny/rok produkcji</div>			
<div><div>CZ</div>Dodavatel (razítko)</div> <div><div>EN</div>Supplier (stamp)</div> <div><div>DE</div>Lieferant (Stempel)</div> <div><div>RU</div>Поставщик (печать)</div> <div><div>PL</div>Dostawca (pieczęćka)</div>			

CZ

Místo pro nalepení identifikačního štítku:

EN

Stick the identification label here:

DE

Platz für die Identifikationsetikette:

RU

Место для приклеивания идентификационного щитка:

PL

Miejsce na naklejkę identyfikacyjną:

- ❗ **Doporučujeme Vám vyhotovit si kopii této stránky s vyplněnými údaji o koupi stroje pro případ ztráty nebo krádeže originálu návodu.**
- ❗ **You are advised to make a copy of this page with filled in information about the machine's purchase in case the original manual is lost or stolen.**
- ❗ **Wir empfehlen Ihnen von dieser Seite eine Kopie zu machen für den Fall, dass das Original der Bedienungsanleitung verloren geht oder gestohlen wird.**
- ❗ **Рекомендуем Вам сделать себе копию этой страницы с заполненными данными о покупке косилки на случай потери или кражи оригинала руководства.**
- ❗ **Zaleca się wykonanie kopii niniejszej strony instrukcji zawierającej informacje o zakupie urządzenia na wypadek utraty lub kradzieży oryginału instrukcji obsługi.**

1 Doplněte číslo z výrobního štítku nebo nalepte identifikační štítek.  
 2 Fill in the plate number from the name plate or stick the identification label.  
 3 Ergänzen Sie die Nummer aus dem Typenschild oder kleben Sie die Identifikationsetikette auf.  
 4 Внесите номер из заводского щитка или приклейте идентификационный щиток  
 5 Wpisz numer z tabliczki znamionowej lub przyklej naklejkę identyfikacyjną.

# 1 **EN** INSTRUCTIONS FOR USE

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The manufacturer **reserves** the right to implement technical changes and innovations not affecting the machine's operability and safety.

These changes may not show in these Operating Instructions. **Typographical errors reserved.**

## 1.1 INTRODUCTION

Dear Customer/User!

Thank you for your confidence in purchasing our product. You have become an owner of a device from the wide range of machinery and tools of the gardening, farming, small agricultural and municipal technology system manufactured by **VARI, a.s.**

Brush cutters **Lucina MaX** and **Dorotha** follow the long tradition of high grass cutting machines. They feature a revolutionary cover solution that provides for significantly better mowing. New technical features used on these machines increase their durability and service life. Brush cutter **Lucina MaX** is designed as a **multifunctional machine**, the cutting drum can be replaced with other adapters, such as mulching or surface cleaning ones. Thanks to this multifunctionality, the utilization options greatly expanded beyond the lawn mowing. Land and real estate owners can now use this universal machine **MaX** all year round. The **Dorotha** brush cutter is designed as a **single-purpose<sup>6</sup> machine** without the adapter change option.

Please read these operating instructions carefully. If you follow the instructions contained herein, our product will serve you reliably for many years.

### 1.1.1 GENERAL NOTICE

The user **must read** these Operating Instructions and follow all the machine operating instructions in order to prevent any health risks or property damage to the user or other persons.

The safety instructions specified in these operating instructions do not cover all the possible conditions and situations, which may occur in practice. Safety factors, such as a reasonable approach, care, and caution are not included in these operating instructions, but it is assumed that every person using the machine or doing any maintenance work on it is able to sufficiently use them.

Only mentally and physically fit persons may operate this machine. Should this machine be used commercially, the owner of the machine is bound to provide operators with work safety training and instruct them regarding its operation, and keep records of such training. **The owner must also implement so-called categorization of works per corresponding national legislation.**

If any piece of information contained in the manual is unclear to you, please contact **your dealer<sup>7</sup>** or directly the **device manufacturer<sup>8</sup>.**

The operating instructions attached to this machine form its integral part. They must be available at all times, stored at an accessible place where they cannot get destroyed. When selling the machine to another person, the operating instructions must be handed over to the new owner. The manufacturer bears no responsibility for the risks, hazards, accidents, or injuries resulting from operation of the machine if the above-mentioned conditions have not been met.

The manufacturer bears no responsibility for the damage caused by unauthorized use, inappropriate operation, and any damage caused by any modification of the machine without the manufacturer's approval.

During work it is necessary to follow safety regulations to avoid any injury to yourself or other persons present nearby and to avoid any property damage. These instructions are marked in the operating instructions by the following warning symbol:

<sup>6</sup> The adapter replacement option is only available for brush cutters whose trade names end with **MaX**.

<sup>7</sup> Fill in the dealer's address in the table in the heading of this manual (unless already filled in by the dealer).

<sup>8</sup> For the address of the manufacturer, see the end of these Operating Instructions.



















	<b>If you see this symbol in the operating instructions, carefully read the statement following after it, please!</b>
	<b>This international safety symbol indicates important instructions concerning safety. When you see this symbol, be alert to the possibility of your or other persons' injury and carefully read the following statement.</b>

Table 1: Symbols

## 1.2 OPERATIONAL SAFETY

The machine is designed to protect the operator as much as possible against any flying pieces of mowed growth. Do not remove any passive or active security features. You would expose yourself to the risk of injury.

### 1.2.1 SAFETY REGULATIONS

-  The machine operator must be over 18 years of age. He is obliged to familiarize himself/herself with the instructions for the use of the machine and to be familiar with the general principles of occupational safety.
-  Always switch OFF the engine and wait for the cutting disc to stop before you perform any activity in the close vicinity of the machine! Always switch OFF the engine before leaving the machine!
-  Never leave the engine running at full speed or idling for a long time when the cutting disk drive clutch and travel wheels drive clutch are OFF! Parts of the drive train (V-belt, belt pulley, coupling pulley, etc.) may get damaged!
-  Always make sure that no part (especially the working mechanism or its cover) is damaged or loose before using the machine. Identified defects must be immediately eliminated. Use only original spare parts during repairs.
-  Cut growth must be free of solid items (such as stones, wires, loose debris, etc.) before using the machine. These items could be thrown out or could damage the machine. If they cannot be removed, avoid such spots.
-  The machine is fitted with a rotating working tool. The maximum tip speed is **64 m.s<sup>-1</sup>**. Make sure that other people stay at a safe distance when you are working with your machine (the possibility of flying off the chopped or ejected solid items)!
-  When working with the machine, all other people (**especially children**) and animals must stay outside the machine's work area. The operator may only continue working after they reach a **safe<sup>9</sup>** distance.
-  Due to exceeding the recommended noise and vibration values, follow these instructions when working with the machine:
  -  - Protect your hearing using suitable protection aids according to **ČSN EN 352-1** (earmuffs) or **ČSN EN 352-2** (earplugs). Request these aids from your seller.
  -  After the maximum of 20 minutes of work with the machine, take a break for at least 10 minutes. During these breaks, the respective operators must not be exposed to any other source of noise or vibrations.
-  During your work, use work aids approved according to **ČSN EN 166** or **ČSN EN 1731** (close-fitting clothes, sturdy shoes, work gloves, and safety glasses). Keep a safe distance from the machine secured by the position of the handlebar.
-  Do not start the engine indoors! Take extra care when handling the machine. When the engine is turned off, the exhaust silencer remains hot. When filling the fuel make sure that no leak occurs and you do not spill the fuel over the engine parts. If it be to the contrary, dry the affected parts or wait until the petrol evaporates.
-  When working with the machine, all other people (**especially children**) and animals must stay outside the machine's work area. The operator may only continue working after they reach a **safe** distance.
-  It is forbidden to remove any protective devices and covers from the machines.
-  The machine's **safe<sup>10</sup>** slope accessibility is 10°. The maximum engine tilt is shown in **Table 5**.
-  Any repairs, adjustments, lubrication, and cleaning of the machine must be carried out when the machine is turned off, its spark plug connector is disconnected, and its battery is removed<sup>11</sup> from its holder.

<sup>9</sup> The ČSN EN 12733 a EN 12733 standards provide for the designation of the outer security zone A around the work area B. It is necessary to prevent access to this area by means of appropriate banning marks. The distance between the sides of areas A and B must not be less than 50 m. Once a person or animal enters this hazardous area of the machine, the operator must immediately release the machine's gear lever and wait with any other work until the area is free again.

<sup>10</sup> Do not use your machine on wet grass. You must always move on safe terrain. While working, always walk. Do not ever run. Be especially careful when changing your direction on the slopes. Do not stand on heavily sloping slopes. Do not hold your machine if you fall down - release it!

<sup>11</sup> Only for **BDR-620DBis**.

## 1.2.2 NOISE AND VIBRATIONS LEVELS

Description	BDR-620D BDR-620DH	BDR-620DBiS	-
Declared <sup>12</sup> acoustic pressure emission level <b>A</b> at the operator's <b>L<sub>pAd</sub></b> site	82+1.5 [dB]	84+4 [dB]	-
Guaranteed <sup>13</sup> value of sound power <b>A L<sub>WA,G</sub></b>	98dB	98dB	-
Declared <sup>14</sup> summary value of vibration acceleration transferred to operator's hand/arm <b>a<sub>hvd</sub></b>	(7.3+2.9) m.s <sup>-2</sup>	(6.7+2.7) m.s <sup>-2</sup>	-

**Table 2: Noise and Vibrations Levels**

## 1.2.3 SAFETY PICTOGRAMS

The user is obliged to keep the pictograms on the machine in a readable state and, in case of any damage, ensure their replacement.

Position:	Number:	Description:
Combined sticker ( <b>Fig. 18</b> ), which is attached under the rear plastic cover on the device frame	<b>1</b>	Before using the machine, read through the operating instructions.
	<b>2</b>	When servicing the machine, disconnect the wire from the ignition spark plug and remove the battery <sup>15</sup> from its holder.
	<b>3</b>	It is forbidden to place your hands or feet into the operating area of the cutting tool – risk of getting cut.
	<b>4</b>	Risk of being hit by flying debris, cuttings, ejected items, etc. Other persons and animals - keep a safe distance from the machine.
	<b>5</b>	During work observe the maximum permissible slope for operation.
	<b>6</b>	Use eye and hearing protection.
A separate sticker on the front cover. ( <b>Fig. 19</b> )	-	Tool turning direction arrow – Right (Clockwise)
A separate sticker on the front cover. ( <b>Fig. 20</b> )	-	Prohibited space for other persons and animals. Minimum safe distance from the machine is 50 m.
A separate sticker on the front cover. ( <b>Fig. 21</b> )	-	Machine's guaranteed sound power level. Value according to <b>Table 2</b> .
Sticker ( <b>Fig. 17</b> ) attached on the control lever <b>1</b> on the right handlebar.	-	Starting the working tool drive: <b>0</b> = working tool not moving <b>1</b> = safety engaged <b>2</b> = working tool moving
Sticker ( <b>Fig. 16</b> ) attached on the control lever <b>2</b> on the right handlebar.	-	Machine travel start <b>0</b> = the machine is stationary <b>1</b> = The machine is moving

**Table 3: Safety Pictograms**

## 1.3 BASIC INFORMATION

### 1.3.1 USE OF THE MACHINE

The BDR-620D brush cutters **Lucina MaX** and **Dorotha** are designed and manufactured according to the latest findings concerning small garden and agricultural technologies. They are easy-to-use and feature a quiet, powerful, fuel-efficient engine and trouble-free maintenance.

The brush cutter adaptor **is designed** for cutting of high thin bladed grass vegetations and wood undergrowth<sup>16</sup> up to the maximum height of 80 cm in maintained<sup>17</sup> areas. The areas must not feature any solid items in the growth or rough terrain. The brush cutter **is not intended** for park landscaping.

The **Lucina MaX** brush cutter is designed as a multifunction machine, the cutting drum can be replaced with other adapters, such as the mulching or surface cleaning ones. The recommended use of the brush cutter with other adapters is described in the instruction manual of the adapter. The **Dorotha** brush cutter is a single-purpose machine that does not feature the adapter replacement option.



**The use for purposes other than the intended purpose is, therefore, to be considered a use for an unspecified purpose!**

The machine may operate in all the inclined positions defined by the engine manufacturer in the event that the operator is able to safely guide the machine, both in relation to himself and the surroundings.

<sup>12</sup> Measured according to **ČSN EN 12733+A1, Annex B**.

<sup>13</sup> Measured in accordance with Directive **2000/14/EC** (equivalent of Government Decree No. 9/2002 Coll.).

<sup>14</sup> Measured according to **ČSN EN 12733+A1, Annex B**.

<sup>15</sup> Only for **BDR-620DBiS**.

<sup>16</sup> The brush cutter is not designed to cut any woody growth thicker than 5 mm! A failure to observe this policy will damage the machine.

<sup>17</sup> The area growth must be cut and raked at least once a year!

The protective devices comply with the requirements of ČSN EN 12733 a EN 12733. These standards primarily take account of the operator's safety since he cannot be hit by any stones or other objects thrown by the machine's rotating mechanism during the machine's regular travel. Therefore, the operator must always be in the regular control position, i.e. behind the machine, and with both hands firmly holding the handlebar.

**! It is forbidden to remove any protective devices and covers from the machines.**

## 1.3.1.1 TECHNICAL DATA

Description	Unit	BDR-620D	BDR-620DH	BDR-620DBiS	-
Length	mm	1755			
Width (including the side screen)	mm	779			
Height	mm	~1130			
Weight	kg	68	67	66	-
The machine's maximum working width	cm	62.2			
Safe slope operation	∠	10°			
Cutting disk speed <sup>18</sup>	min <sup>-1</sup>	1964			
Blade peripheral speed	m.s <sup>-1</sup>	64			
Travel speed	km.h <sup>-1</sup>	2.0 – 2.8			
Machine's surface power <sup>19</sup>	m <sup>2</sup> .h <sup>-1</sup>	1224-1680			
Gearbox oil volume	l (litre)	0,05			
Gearbox OIL quality	API	GL-4 (GL-5)			
	SAE	90 (80W-90)			

Table 4: Technical specifications

## 1.3.1.2 ENGINE INFORMATION

**i** Further information about the motor not stated here is available at the motor manufacturer's website.

Description	Unit	Value		
		BDR-620D BDR-620DH	BDR-620DBiS	-
Engine	-	Honda <sup>20</sup> GCV190	Briggs&Stratton <sup>21</sup> 875EXi (IS) Series™	-
Maximum (set) speed of the motor	min <sup>-1</sup>	3200 ± 100	3200 ± 100	-
Maximum (permanent) tilting of the motor	∠	20°	15°	-
Maximum (short term <sup>22</sup> ) tilting of the motor	∠	30°	30°	-
Fuel tank capacity	l (litre)	0.91 <sup>23</sup>	1	-
Fuel	petrol (unleaded) <sup>24</sup>	Oct. No. 91-95		
Motor oil filling	l (litre)	0.55	0,6	-
Oil grade	SAE / API	SAE 10W-30 or SAE 30 / SJ or SH		
Spark plug	-	BRISK LR15YC	BRISK DR17YC	-

Table 5: Engine technical information

## 1.3.2 DESCRIPTION OF THE MACHINE AND ITS COMPONENTS

The brush cutter (**Fig. 2**) is built on a steel frame, to which all the critical components of the machine are attached. All the **controls** (**14**, **17**, **18**, **19** and **20A/B**) are located on the handlebars. The handlebars are attached to the frame by means of a **bolt 7**, and they are height-adjustable in 6 positions. The **handles 16** are used to firmly grip and guide the machine at work. The left hand side of the handlebar features a **19 drive clutch lever**, which controls the machine's forward motion. The right hand side features the disk **17 drive clutch lever** that turns ON (OFF) the cutting disk drive. The two control levers return to the starting position after releasing the handlebars in an emergency and cut the engine power transmission. The **cutting disk 4** features its automatic brake<sup>25</sup>, which stops it. Engine speed control is performed by the **accelerator level 20A** or, in the case of an electric starter motor, a switch on the **starter panel 20B**. The engine start is either manual, by pulling a cord attached to a ventilator rotor, or electric (**BDR-620DBiS** only) by a

<sup>18</sup> Actual speed of unloaded disc including the loss in the belt transmission.

<sup>19</sup> The machine's surface power depends on the mowed growth type.

<sup>20</sup> For more information about the engine, including the spare parts numbers, go to [www.honda-engines-eu.com](http://www.honda-engines-eu.com)

<sup>21</sup> For more information about the engine, including the spare parts numbers, go to [www.briggsandstratton.com](http://www.briggsandstratton.com)

<sup>22</sup> Short term - up to one minute.

<sup>23</sup> Measured per **Society of Automotive Engineers (SAE) J1940**

<sup>24</sup> With regard to the ever increasing ratio of BIO-components in fuel, use fuel stabilizer.

<sup>25</sup> The automatic brake is an active safety feature that increases the machine safety.

starter and **battery 8**. The travel is ensured by a worm gearbox with a belt clutch that provides a smooth force transmission (the machine starts moving smoothly) to the wheels **15**. The clutch gearbox is covered with the plastic **gearbox cover 13**. At the front, there is the **cutting disk 4** with four **steel blades 5**. The operator is protected against flying cut growth items by a sheet metal **cover (1 and 10)** of the cutting disk, meeting EN 12733. The mowed growth spacing is secured through the removable **side cover 3**, which is attached by its **screw connection 9**.

<b>1</b> Cutting disk top cover	<b>6</b> Drive cover	<b>11</b> Machine frame	<b>16</b> Handle
<b>2</b> Front handle	<b>7</b> Bolt	<b>12</b> Tank cap	<b>17</b> Disk drive clutch lever
<b>3</b> Side cover with a holder	<b>8</b> Engine/Battery	<b>13</b> Gearbox cover	<b>18</b> Lock button
<b>4</b> Cutting disk	<b>9</b> Side cover screw	<b>14</b> Strap with cables	<b>19</b> Travel clutch lever
<b>5</b> Blade (4 pcs)	<b>10</b> Cutting disk bottom cover	<b>15</b> Wheels	<b>20A</b> Accelerator lever <b>20B</b> Starter panel

Table 6: Legend to Fig. 2

## 1.4 OPERATING INSTRUCTIONS

### 1.4.1 MACHINE ASSEMBLY

**i** Request the machine unpacking and training from your seller as a part of his pre-sale service!

Gripping points for unpacking from the box (per **Fig. 1**): grab the cutting disk at the front or use hole under the gearbox cover **1**, and the machine frame tube in the rear **2**.

<b>1</b> Gripping position at the front	<b>6</b> Package with small parts
<b>2</b> Gripping position at the back	<b>7</b> Flap long and short
<b>3</b> Folded handlebars	<b>8</b> Charger - BDR-620DBiS only
<b>4</b> Battery - BDR-620DBiS only	<b>9</b> Flap holder
<b>5</b> Cutting disk top cover	<b>10</b> Left (lower) additional disc cover

Table 7: Legend to Fig. 1

#### 1.4.1.1 MACHINE ASSEMBLY PROCEDURE



Assemble the machine per the following procedure: (We recommend that the machine assembly is completed by two persons.) Instructions regarding right/left directions are given from the operator's view.

- Following **Fig. 1** - remove both the disc cover parts **5**, bag **6** with small parts, side and rear cloth **7**, flap holder, **9** and the left additional cover **10** from the box. For electric starter machines, remove the battery **4** and charger **8** from the box. Remove the cardboard insert between the handlebars and the engine from the box.
- Grab the machine, using its gripping points at the front **1** and in the back **2** and remove it from the box.
- Lift the handlebars **3** per **Fig. 1**, turn them, and attach them per **Fig. 9** step **>1** to the frame (select one of the 3 holes in the height-adjusting handlebars and one of the two holes in the frame). Following **>1**, pass the screw through, attach the flat washer, and firmly tighten the handlebars with the wing nut. **The bowden cables of the control levers must not be crossed - this would reduce their service life!**


**i** Remove 2 pcs of the tightening straps from the bag and attach the bowden cables to the handlebars at the top end of the handlebar tube bend. To fasten, 2 strapping tapes are sufficient. Cut the loose ends of the straps.

- Following **Fig. 9 >2**, attach the bottom disk cover **2** to the left side of the frame and fasten it by 4 screws **B**. Tighten the screws.
- Following **Fig. 9 >3**, fit the screw **B** into the hole in the right rear part of the frame, but do not tighten it. Insert the right (bigger) part of the cover **3** between the bottom plastic cover of the disk and machine frame, so the screws **B** and **C** in the frame fit into the three grooves in the cover marked with an arrow. Manually tighten the screw connection **B**. Do not tighten the screw connection **C** for the time being. Attach the right side of the cover by three screws **B** per **>4**. Manually tighten the screw connection **B** per **>4**.
- Following **Fig. 9 >5**, insert a screw **B** into the rear part hole and slide the smaller left part of the cover towards the frame from the machine's left side and fasten it with two screws **B** per **>6**. Manually tighten the screws **B**. Connect both halves of the cover together in the front section per **>6** by means of the two connections **D**. Tighten the screw connection **D**.
- Remove the strap (cloth) from the bag and attach it from the left side to the left-hand cover using a screw connection **F** following **Fig. 9 >7**. Place the nut with the washer on the opposite side of the cover other than the strap. Tighten the screw connection **F** so that it moves freely with the loop.
- Always tighten all screw connections **B** and **C** marked with an arrow per **>9**!
- On the shorter flap arm holder (**9** per **Fig. 1**), insert per **Fig. 9** step **>8** the rear (shorter) side cloth **7** and on the longer flap arm holder, insert the side (longer) cloth **6**. Pull the strapping tapes **E** through the cover holder holes and secure both covers **6** and **7** against sliding by tightening the tapes E. Please shorten the loose ends of the tapes.
- First, loosen the mounting bolt of the side cover, **9** so **Fig. 9** it is possible, per **Fig. 9 >8** smoothly insert the shorter cover beam arm into the frame opening. Tighten the mounting bolt and make sure the side cover cannot spontaneously fall out.

## 1.4.2 COMMISSIONING



-  **First, carefully read the instructions<sup>26</sup> for the use of the motor! This way, you will prevent its potential damage.**
-  **The machine may be shipped without its engine operating fluids,** depending on specific national regulations!

### 1.4.2.1 ENGINE STARTING


-  **Check the engine oil level or fill the engine with the specified type and amount of oil. Fill the tank with the prescribed quantity and type of petrol.**

The cold (first) engine start varies with every engine manufacturer. Engines with mechanical chokes (**Honda** and **VARI**) require, as with older cars, to start using a hand-held choke by the accelerator lever in position **4** in **Fig. 4**. The automatic chokes in the **Briggs & Stratton** engines are engaged per the engine temperature and do not require any operator intervention.

The engine starting type depends on the way the engine is rotated:

-  **Manual** - Pulling a hand starter cord.
-  **Electrical (battery)** - Pressing a start panel button.




-  **When starting the engine, both control levers **17** and **19** in **Fig. 2** must be in their OFF positions (they must not touch the handles)!**

-  **Some engines may feature a fuel valve in their fuel supply to the carburettor! Do not forget to open the fuel supply, please.**

The following chapters describe the individual basic differences in starting. The accelerator lever positions (**1**=STOP, **2**=MIN, **3**=MAX, and **4**=CHOKE) are described in **Fig. 4**. All the four main positions described are locked by a simple, dip-protrusion system in the lever body. The functions of the individual switch buttons (**STOP**, **1** and **START**) on the start panel are described in **Fig. 3**.

#### 1.4.2.1.1 ELECTRIC STARTER ENGINE

Modern and also the easiest way of engine starting. The battery also serves as a key to the machine and is also a safety device against any accidental engine start.

-  **The engine cannot be started without a properly inserted battery in its holder at the top of the engine.**
-  **The engine cannot be started with a dead<sup>27</sup> battery.**
-  **The engine features a fixed operating speed and does not idle.**

-  **Before every engine start, check the connector cables and condition of the cable harness that leads from the starting panel to the engine.**

1. **Fig. 3** - On the starting panel, there press the **middle button** marked **1**.
2. Press the **right button** marked **START** and hold it for max. 5 seconds, till the electric starter starts the engine<sup>28</sup>, then release the button.

-  **Do not try starting an already running engine! You may destroy the starter.**

-  **Do not leave the machine unattended!**

#### 1.4.2.1.2 MECHANICAL CHOKE ENGINE

1. Move the accelerator lever per **Fig. 4** to its position **4** CHOKE.

-  **Start an already warm engine with the accelerator lever in its **3** MAX position.**

2. Start the engine by pulling on the hand starter cord<sup>29</sup>.
3. Let a new or cold engine run for about 30 seconds with the choke engaged (accelerator lever in its **4** CHOKE position), then move the accelerator lever to **3** MAX.

-  **Do not leave the machine unattended!**

#### 1.4.2.1.3 AUTOMATIC CHOKE ENGINE

1. Move the accelerator lever per **Fig. 4** to its position **3** MAX.
2. Start the engine by pulling on the hand starter cord<sup>30</sup>.
3. The automatic choke, once the engine is warmed up<sup>31</sup>, will adjust the engine speed.

-  **Do not leave the machine unattended!**

<sup>26</sup> The original operating instructions and their Czech translation are attached to the machine.

<sup>27</sup> Battery charging is described in the engine operating instructions.

<sup>28</sup> Wait for 1 minute between start cycles.

<sup>29</sup> The engine startup instructions are described in detail in the engine operating instructions.

<sup>30</sup> The engine startup instructions are described in detail in the engine operating instructions.

<sup>31</sup> Depending on the ambient temperature and engine temperature, the automatic choke is activated for about 1 minute.

## 1.4.2.2 CUTTING DISK STARTING

- ⚠** Make sure that all persons, animals, children are at a safe distance from the machine! Otherwise, do not continue in this activity!
- ⚠** Prior to every use of the machine, check the tightening of the bolts fastening the work attachment and also all the bolt joints of the safety elements, covers, and engine!
- 1. Start the motor<sup>32</sup>. If the motor is cold, let it warm up at its maximum speed for approx. 1 minute.
- 2. Grab the left handle of the handlebar with your left hand. With your right hand move (lift), per **Fig. 22**, the **right** control lever **1** to its upper position, so it is fully inserted into the **strap with cables 2**.
- 3. Press the button of the **locking device 3** on the strap with cables **2**. Hold the button till the control lever moves downwards to the handle and locks (**Fig. 23**) and starts moving the strap with cables.
  - i** Slowly push the lever approximately two-thirds of its travel, so the cutting disc can start spinning, and the engine does not stop.
- 4. Once the cutting disc starts spinning, push the lever fully to the handle, to its working position (**Fig. 24**), and hold it firmly.
  - i** The cutting disk start is accompanied by partial slipping of the V-belt and associated accompanying phenomena (knocking, whistling). When the belt has been run in, these effects usually disappear.

### Note:

With a new or cold engine, the engine may go out during the first few starts of the cutting disk drive. When the motor has warmed up, this will no longer happen. If the cutting disk drive can not be started even after warming up the engine, make sure that there is no fault per **Table 10**.

## 1.4.2.3 MACHINE START (TRAVEL)

The travel is activated by lever **19** in **Fig. 2** on the left handlebar. Push the lever to the handle, and the machine will immediately move forward. Once you press the lever and the machine starts moving forward, adjust your walking speed to the machine speed.

The travel clutch is a belt one, so you may press the clutch lever slowly - the machine does not move with a jerk, but smoothly.

- i** Always press the clutch lever to the handlebar handle. If the lever is not fully pressed, the V-belt gets damaged.
- i** The travel clutch lever cannot control the travel speed!
- i** Never back with the travel clutch lever pressed!

## 1.4.2.4 MACHINE STOPPING

To stop the machine travel, release the lever on the left handle. The machine travel will stop, but the cutting disc will continue to rotate. The cutting disc drive will stop after you release the lever on the right handle. The automatic brake will brake the cutting disc. Move the accelerator lever to the **MIN** or **STOP** position. To turn off an engine with a starter panel **Fig. 3** press the left button **STOP**.

- ⚠** If the engine cannot be stopped by the **STOP** or with its accelerator lever in the **STOP** position, wait for an empty gasoline tank and do not leave the machine. If you need an engine stop device repair, contact a specialized dealership, please.
- ⚠** Always turn OFF the engine and wait for the cutting disk to stop before performing any work in the close vicinity of the machine! Always switch the engine OFF before leaving the machine!
  - i** Never leave the engine running at full speed or idling for a long time when the cutting disk drive clutch and travel wheels drive clutch are OFF! Parts of the drive train (V-belt, belt pulley, coupling pulley, etc.) may get damaged!

## 1.4.2.5 TRAVEL SPEED SELECTION

The machine features two forward speeds. The lower one **TURTLE** is for dense, moist, or tall growth, the higher one **HARE** is designed for thin, dry, or low growth.

- i** Always adjust the travel speed to the growth type or stop and wait for the mass to be processed by your machine, please!

A speed change is made by moving the V-belt on the pulleys between the gearbox and the shaft per **Fig. 5**. An instruction sticker with a picture of the belts in the pulleys, gearbox, and shaft is attached to the top of the gear unit.

- ⚠** When changing speeds, the engine must always be switched OFF and the throttle in its **1 STOP** position!

### Procedure:

- 1) The **plastic nut (3** in **Fig. 12)** must be loosened<sup>33</sup>, the **upper gearbox cover 1** tilted in the arrow direction and pulled out diagonally backwards. Push on the **foot 4** of the bottom **gearbox cover 2**, which is located in the middle of the rear frame part, till the cover loosens up and leaves<sup>34</sup> the **protrusion 4** in the frame.
  - i** The electric starter machines (BDR-620DBiS) feature their upper gearbox covers **1** with attached cable harnesses. Be careful when handling the cover to prevent damage to the cable harness or disconnect the electric engine control connectors.

<sup>32</sup> The engine startup instructions are described in detail in the engine operating instructions.

<sup>33</sup> Loosen the plastic nut with about 1 to 2 turns. There is a groove in the cover that allows the cover to be removed without unscrewing the plastic nut.

<sup>34</sup> In addition, some models have an extra cover secured with a spring pin.

- 2) Remove the V-belt off the gearbox pulley to the right into the slot in the frame between the pulley and machine frame tube.
- 3) Slide the V-belt forward for about 1.5 cm, and then move it to the wedge groove in the shaft pulley per the selected gear. Check visually and by touching whether the belt fits to the selected pulley groove.
- 4) Insert the V-belt into the groove in the gearbox pulley, corresponding to the selected gear. Visually make sure that the belt is seated straight in the correct pulleys per the selected gear (see **Fig. 5**). The belt must not cross!
- 5) Refit the two covers. Place the top plastic **cover 1** sideways under the engine plate, lock it, and tighten the plastic **nut 3**. Bend the bottom plastic **cover 2** upwards and place the cover opening on the **protrusion/foot 4** of the frame. Release the cover deflection, and the cover snaps into place.

**i** **Make sure the cable harness is not damaged, and connectors are firmly connected together.**

## 1.4.3 WORKING WITH THE MACHINE

### 1.4.3.1 THE MACHINE WORKING WIDTH

**i** **It is always necessary to adjust the working width to the growth density!**

We do not recommend using the maximum working width (see **Table 4**) given by the disc design. The operator cannot lead the machine in the terrain sufficiently straight and accurately to cut the growth over the disc's full working width. We recommend guiding the machine through partially (approximately 5-10 cm from the front cover edge) mowed growth (marked by the arrow in **Fig. 6** from the operator's view).

### 1.4.3.2 GROWTH CUTTING METHOD

**!** **The growth must be free of solid items (such as stones, wires, loose debris, etc.) before using the machine. These items could be thrown out or could damage the machine. If they cannot be removed, avoid such spots.**

When mowing in uneven terrain, care must be taken to ensure that the bottom disc continuously slides over the ground and does not bounce. Disc bouncing results in a low-quality of growth mowing and uneven stubble.

Set the maximum engine speed, let the cutting disc spin at its maximum speed, and then drive against the growth that you wish to mow. The mowed growth is ejected by the cutting disc to the right, on the side cover that defines rows.

**i** While mowing, proceed through the growth so that the non-mowed growth is always left of the machine (**Fig. 6**).

**i** The covers are designed to fully control the mowed growth flow even when the full working width is used.

**i** **When mowing on slopes, it is best to ride along the slope contour lines.** Observe the safe slope access, please (**Table 4**)!

If the cut growth is very dense, prickly, rotten or beaten, it is necessary to reduce the machine's working width proportionally in such a way that there is no significant reduction in cutting disk speed and thus reduced mowing quality.

#### 1.4.3.2.1 MOWING TROUBLES

**!** **Pay special caution when lifting and backing the machine!**

**!** **The engine must always be OFF when cleaning the area under the top cover!**

**!** **Always only tilt the machine backwards by pushing the handlebar downwards.** Always pay extra caution when moving in the area under the raised machine! Secure it against spontaneous movement!

**!** **Take extra care when cleaning the space underneath the top cover. Blade cutting edges are sharp. When cleaning, protect your hands with work gloves or use a suitable item, such as a tree branch.**

**!** **Always wait for the cutting disc to stop before proceeding with any activity on or around the machine.**

#### 1. The disc loses speed, the engine loses speed, but does not stop.

Immediately stop the machine travel and slightly back-up with the machine front gently lifted (pushing the handlebar downwards). The space underneath the top cover partially cleans itself from the excessive grass mass. Then move again against the growth.

#### 2. The drive stopped, the engine turned OFF.

Release both levers on the handlebars and lift the front of the machine by pushing on the handlebars. Slide the machine slightly backward. Clean the area under the top cover and spread the grass mass on the surface. Start the engine, turn on the cutting disk drive, and start moving against the growth.

## 1.4.4 REPLACEMENT OF ACCESSORIES - RECONFIGURATION

Only the brush cutters with trade name **Lucina MaX**<sup>35</sup> and series starting with **BDR-620D** allow replacing their cutting discs with other adapters.

**i** The brush cutters **Lucina**, **Lucina 65**, and **Dorotha** whose type designations also start with **BDR-620D** are only single-purpose machines and **are not designed for any adapter changes**.

The brush cutter's **Lucina MaX** default adapter mounted to its chassis is **MaX** its cutting disc. It must be removed before any accessory change.

<sup>35</sup> The sticker is attached to the left side of the cutting disc safety cover.

- ❗ Prepare, if possible, **2 spanners** No. 10 and **2 ring spanners**<sup>36</sup> No. 13, and a box for fastening material to be used later.

- ⚠ **Always turn OFF the engine and wait for the work tool to completely stop before performing any work in the close vicinity of the machine!**
- ⚠ **Disconnect the ignition spark plug cable.**
- ⚠ The machine must be placed on a hard horizontal surface and must be secured so that there is good access to all the machine parts, so the machine does not move unexpectedly.
- ⚠ **We recommend completing this activity by two persons.**

## 1.4.4.1 REMOVING THE CUTTING DISC AND COVERS

- ❗ For easy access to the individual screw connections and good movement around the machine, we recommend first removing the side cover for mowed grass spacing.

Please observe the following procedure per the individual steps ➤ in Fig. 26.

- 1) **Removing the top sheet metal cover of the cutting disc:** Using spanner No. 10 per step ➤1, unscrew the screws of the left cover half **A**. The screw marked **A1** may only be loosened by about two turns, there is a groove in the cover. On the right hand side, following step ➤2 unscrew three screws **A**. For about two turns, loosen screw **A1** and two self-locking nuts of screw joint **B**. Push the carriage screw of screw joint **B** from below by your finger, so it does not turn in the square opening of the plastic cover. Now, following ➤3 pull the cover forward in the arrow direction and remove the whole top sheet metal disc cover **1**. Do not separate the cover halves and keep them screwed together. Then, unscrew the loosened screws **A1** per ➤1 and ➤2 and remove the screw joint **B** per ➤2.
- 2) **Removal of the left bottom additional cover ➤4:** First, by about two turns, loosen screw **A1** behind the travel wheel. Then, unscrew three screws **A** and additional cover **2** and remove it upon slightly moving it forward.

- ⚠ **Take care of your own safety. During the following disassembly procedure, you may get injured by the sharp edges of the cutting blade.**

- 3) **Removing the rear centre disc cover:** First, to gain access to the screws inside the machine frame, unscrew two nuts **C** per ➤5 and remove the plastic cover **3** of the belt drive. Now, following ➤6, unscrew two screws **A**, while screw marked **A1** must not be fully unscrewed, making sure the cover **4** is not completely loose. Place the cutting blades into the disc. Especially those under the cover **4** prevent its easy removal. Now, ask the other person to push the handlebar downwards, lifting the machine's front part with its disc approximately to this position ➤7. Hold the cover **4** and unscrew the last already loosened screw ( **A1** per ➤6). Then, following ➤7 partially turn the bottom cover **4** in the arrow direction. Return the machine back to its horizontal position.

- ⚠ **Take care of your own safety. During the next disassembly step, the machine may tilt back by its own weight.**

- 4) **Removal of the cutting disc with blades:** First, complete the removal of the already loosened nuts of screw joint **B** per ➤8. Push on the carriage screws from below, so their square stem does not fall out of the plastic cover opening **5** and lower it in the arrow direction per ➤8 down to the top disc. Ask the other person to hold the machine behind the handlebars and, using spanner No. 13, following ➤9 loosen and then unscrew all the four screws **D**. Lift the machine above its loosened cutting disc. The cutting adapter should remain on the ground due to its own weight.
- 5) **Disassembly Completion** Following ➤10, make sure the adapter shaft features no attached spline **E**. If necessary, move it from the the cutter chassis to the cutting adapter shaft. Make sure the spline is not visibly damaged. If necessary, replace it, please. We recommend no turning of the spline and maintaining the groove position - cone upwards. Following ➤11, reattach<sup>37</sup> plastic cover **3**, and lock it by tightening the nuts **C**. Tighten the nuts carefully since the cover is made of plastic, please. Now, the brush cutter chassis is **MaX** prepared for attaching a new adapter.

- ⚠ **Never start the engine without the plastic belt drive cover attached to the chassis **MaX**.**

## 1.4.4.2 REMOVING THE CUTTING DISC AND COVERS

- ⚠ **Disconnect the ignition spark plug cable.**
- ⚠ The machine must be placed on a hard horizontal surface and must be secured so that there is good access to all the machine parts, so the machine does not move unexpectedly.

The assembly is carried out in the reverse order of dismantling specified in the previous chapter. There are minor differences in the procedure, so, please, if you are not manually skilled enough, follow this recommendation. **The procedure refers to the steps ➤ in Fig. 26.**

- ⚠ **We recommend completing this activity by two persons.**

- 1) Move the brush cutter chassis **MaX** per ➤12 after removing its accessories, over the cutting adapter per ➤10, so the spline **E** snaps into the grooves in the chassis shaft. Turn the fastening flange per ➤9, so it becomes possible to screw and tighten the four screws **D**. **Make sure all the four screws are tightened now **D** since it will be impossible later!**

<sup>36</sup> For quick installation, we recommend preparing, instead of 2 ring spanners, 1 ring spanner No. 13 and 1 ratchet (GOLA) with socket size 13.  
<sup>37</sup> If you suspect that the cover will need to be removed again to install another adapter, do not install it now, and do so later.

- 2) Lift the plastic cover **5** per **>8** up to the frame and insert the carriage screw from screw joint **B** in such a way that the square stem spans into the square opening in the plastic cover **5** and thread proceeds through the frame opening. Push the carriage screw with your finger and place two washers on it. Screw a lock-nut on it. **Do not over-tighten it, please.** Leave a gap of about 1.5 - 2.0 mm between the plastic cover **5** and frame to attach the top cover per **>3** – this will be described later.
- 3) First, to gain access to the screws inside the machine frame, unscrew two nuts **C** per **>5** and remove the plastic cover **3** of the belt drive.

**⚠ Take care of your own safety. During the following disassembly procedure, you may get injured by the sharp edges of the cutting blade.**

- 4) **Before the next step, turn the blades and place them between the cutting disc halves!** Following step **>7**, tilt the machine backwards to its handle and attach the rear centre cover **4** by moving it approximately against the arrow direction. Using cover **4**, press the plastic cover (**5** per **>8**) to the chassis frame at the fastening holes location, so you can follow step **>6** and screw all the three screws **A**. We recommend screwing the screw **A1** first. Tighten the screws lightly, so you can fine-correct the cover position. Tilt the machine back to the base.
- 5) Into the crank nut behind the left wheel, there, following **>4** screw the crew **A1**, so you create a play of about 3 mm between the screw head and frame. Attach the cover **2** by sliding it backwards, so the groove hits the screw, **A1** and screw and tighten the remaining three screws **A**. Now, tighten both screws per **A** and **A1** per **>6**, and as the last step, tighten screw **A1** per **>4**.
- 6) Into the brush cutter chassis frame, **MaX** there, on both sides of the machine, screw the crews **A1** per **>1** and **>2** with a play of 3 mm, if possible. Using these two prepared screws, slide them into **>3** grooves in the rear cover section **1**. Attach the cover **1** from above and by moving it against the arrow direction per **>3**, simultaneously attach the rim in the front cover section to the prepared gap of the screw joint **B** per **>8** between the plastic cover **5** and machine frame. The five remaining screws, **A** following **>1** and **>2**, manually screw into the threaded holes. The cover **1** may be slightly moved, so the holes are all aligned. **Tighten all the screws in their positions!**
- 7) Cover the belt drive with its plastic cover **3** per **>11** and fasten it by tightening two nuts **C**. The brush cutter is ready for its use once its side cover is installed.

## 1.5 MAINTENANCE, CARE, STORAGE

**⚠ Owing to the weight of the machine, all maintenance and adjustment shall be performed by two people.**

To secure a long-term satisfaction with our product, it is necessary to provide it with due care and maintenance. By providing regular maintenance you will prevent its rapid wear and you will secure correct operation of all its parts.

Observe all instructions concerning maintenance and adjusting intervals. We recommend that you keep records of operating hours and the conditions under which the machine is used (these may be useful for servicing centres). We recommend that you have the post-season maintenance implemented by one of our authorized service centres; the same applies to standard maintenance if you are not certain of your technical capabilities.

**⚠ Before every use of the machine, check the tightening of the screws securing the blades in the upper disc and also the screws securing the lower disc to the flange.**

### 1.5.1 TRAVEL WHEELS

The travel wheels are an important part of the machine. The wheels carry the entire weight of the machine, transmit the engine power, and engage the machine.

#### 1.5.1.1 TYRE PRESSURE

For proper operation and to ensure a long service life of the travel wheels, especially the tyres, it is necessary to check the tyre pressure. Perform the check before starting to work with the machine. Before the machine is put away for a longer time, refill the pressure to **MAX**. Keep the same pressure in the left and right wheels – the machine better holds a straight track.

**⚠ Do not exceed the maximum tyre pressure – there is a risk of the tyre explosion!**

**i MAXimum (recommended) tyre pressure: 23 PSI (160 kPa or 1.6 bar or 1.57 atm or 0.16 MPa)**

**i MINimum<sup>38</sup> allowed tyre pressure: 18 PSI (124.1 kPa or 1.24 bar or 1.22 atm or 0.124 MPa)**

If there is a permanent tyre pressure leakage, make sure that there is no defect on the tyre tube – repair it if necessary.

**i If you are not sufficiently manually skilled, have the operations done by an authorized service centre.**

### 1.5.2 MACHINE LUBRICATION

**⚠ When working with lubricants, observe the basic hygiene regulations and observe the environmental protection regulations and laws.**

**i If you are not sufficiently manually skilled, have the operations done by an authorized service centre.**

In order to secure trouble-free and easy movement of all mechanical parts, it is necessary to pay adequate attention to lubrication. A few drops of oil are usually enough (e.g. oil for bicycles). The gearbox is already factory-filled with a sufficient amount of oil, which is not necessary to change over the life of the machine.

<sup>38</sup> If the tyre pressure is lower than the minimum, the tyre-casing structure will be damaged and the service life will be significantly reduced.

## 1.5.2.1 ENGINE OIL CHANGE

Follow the instructions stated in the motor operating instructions. Shorten the change interval to one half, if you are to use your machine in a dusty environment. When pouring oil out of the engine, tilt the machine to the side where the oil spout is fitted or disassemble the entire engine.

**!** If you are not sufficiently manually skilled, have the operations done by an authorized service centre.

## 1.5.2.2 LUBRICATION POINTS

There is no need to remove any covers from the machine to lubricate the bowden cables on the handlebar. The other lubrication points may be reached after removing the plastic covers. From a wide range of oils, any engine or gear oil or spray oil is suitable for lubrication. When selecting plastic lubricants (grease) any lubricant intended for water pump lubrication is sufficient. However, its application usually requires the dismantling of the respective slide.

*Note:* When using plastic grease with graphite ingredient, the lubrication intervals may be extended during the season up to 25 hours.

Lubrication point - description	Interval within season	After season	Lubricant	Figure	Note
Bowden cables	at least 2x (5 drops)	Yes	Oil	<b>Fig. 8</b>	Bowden cable entry.
Disc drive pulley case	Every 10 hours (2 drops)	Yes	Oil/grease	<b>Fig. 10</b>	
Travel clutch pulley	Every 10 hours (2 drops)	Yes	Oil/grease	<b>Fig. 7</b>	Frame contact surface.
Brake key	Every 5 hours (1 drop)	Yes	Oil	<b>Fig. 11</b>	
Screwed connections	-	Yes	Grease	<b>Fig. 9 &gt; 1, &gt; 8</b>	Attaching the handlebar and side cover.

Table 8: Lubrication intervals

## 1.5.3 SHARPENING AND REPLACEMENT OF WORKING BLADES

**!** If you are not sufficiently manually skilled, have the operations done by an authorized service centre.

If the cutting edges are worn or blades are damaged, causing machine vibrations, the cutting edges should be restored or the blades replaced<sup>39</sup>.

**!** In the case of any unprofessional repair of the blades using other than original parts, the manufacturer is not liable for any damages on the machine or caused by your machine. The blade is embossed with a sign that indicates the manufacturer and is a check mark that the blade is an original spare part.

**!** The machine must be placed on a hard horizontal surface and must be secured so that there is good access to the blade and machine would not start moving unexpectedly.

**!** Take special care when removing the blades. Blade cutting edges are sharp. Protect your hands with working gloves.

**!** Disconnect the cable from the ignition plug and remove the battery<sup>40</sup> from the battery holder.

### Procedure:

- Hold the top disc to prevent it from rotating and remove the blade screw joint by a wrench No. 16 **Fig. 25**. First unscrew the nut **2** and then the screw **3**.
- Remove the blade **1** and blade mount parts (**3** and **4**) from the cutting disc. Straighten the edges and sharpen the blade cutting edges. The inclination of the sharpened edge should be 30° with respect to the blade's bottom plane.
- Make sure all the blade mounting parts feature no visible damage. Otherwise, replace a damaged with a new one.
- Screw the blade screw assembly back in. Tighten the screw **3** firmly<sup>41</sup>. Lock the screw with its nut **2**.

**!** If any blade is bent or excessively worn, you must always replace all the cutting disc blades!

## 1.5.4 BELT TRANSMISSIONS - AUTOMATIC BRAKE

The machine is equipped with modern design belts that do not require special care. It is only necessary to check them regularly, and when there are cracks or tears on the belt surface, replace them. The factory setting of the tensioning pulleys must be checked after the first approximately 5 hours of operation when the belt is breaking in. During breaking in, it is necessary to check the function of the tensioning pulleys to prevent the tensioning pulley from being damaged due to the extension of the belt to its damage. It is also necessary to check the automatic brake function during the run-in.

You may verify the correct function of belt drives in a simple way:

- The machine with its travel turned ON has to overcome the terrain unevenness of 10 cm high - curb is suitable, for example.
- The engine that is started when the drive drive clutch is pressed quickly goes OFF. The belt starts to drive (the disc starts to rotate) already at the 1/3 of the drive lever clutch step.

If at least one of the checks failed, it is necessary to adjust the tensioning pulleys per **1.5.4.1!**

<sup>39</sup> The blades have two edges - they may be rotated as needed. In any case, the blade must be undamaged.

<sup>40</sup> Only in **BDR-620DBIS**.

<sup>41</sup> Insufficient screw tightening leads in most cases to the destruction of the hardened pad around which the blade rotates.

## 1.5.4.1 ADJUSTING OF TENSION PULLEYS

- i** If you are not sufficiently manually skilled, have the operations done by an authorized service centre.
- i** For electric starter brush cutters, we recommend that you cut the strap that holds the harness to the top gearbox cover.

**Per 1.5.4 a):** Remove the rear top plastic cover **1** per **Fig. 12**, so you can see both belts **Fig. 13** used for the machine's forward travel. Try again to overcome the terrain inequality and visually check which belt is slipping.

**!** Secure the cable harness<sup>42</sup> against its contact with the gear moving parts. It may be damaged or destroyed.

- 1) **If the belt slips on the machine's right side**, tension it by unscrewing screw **3** in the bowden end<sup>43</sup> in the arrow direction (away from the frame) by about 1 mm and repeat the check per **1.5.4 a)**. Continue with the tensioning until condition **1.5.4 a)** is met, and the machine does not move forward when the travel clutch lever is released. If it is no longer possible to unscrew the bolt **3**, screw it fully against the direction of the arrow and hook the spring at the end of the cable into the distal hole in the pulley arm. Then, repeat the belt tensioning till condition **1.5.4 a)** is met.
- 2) **If the belt slips between the engine and gearbox**, tension it through the tensioning pulley **4**. Release the tensioning pulley by releasing the nut located on the motor plate using a suitable tool (such as a screwdriver) and tension the pulley in the arrow direction. Once tensioned, tighten the nut, please. Then check the correct travel operation.

As soon as you cannot adjust the tensioning pulleys so that the belt does not slip, the belt must be replaced.

- i** Upon completion of the adjustment, be sure to attach the harness to the gearbox cover with a spare pull tape. Two straps are left upon the machine assembly.

**Per 1.5.4 b):** Remove the front plastic cover to see the drive belt and disk drive pulley (**Fig. 14**). (Marking **1** and **2** in figures **13** and **14** is common and marks the same bowden.)

- 1) Tension the belt by unscrewing screw<sup>44</sup> **1** for **Fig. 13** about 1 mm in the arrow direction (away from the frame) and repeat the check per **1.5.4 b)**. Continue to tension until the condition **1.5.4 b)** is met, and there is no drifting<sup>45</sup> of the belt drive while the disc drive clutch is released. If it is not possible to unscrew screw **1** more, fully screw it against the arrow direction and hook the cable end spring into the more distant hole in the pulley arm. Then, repeat the belt tensioning till condition **1.5.4 b)** is met.

**!** Always check the automatic brake function after any adjustment!

### 1.5.4.1.1 V-BELT CHANGE

Replace the V-belt with a new one<sup>46</sup> every time cracks or cracks appear on the surface of the belt and also when the belt is worn sufficiently by the operation that it can no longer be tensioned with its tensioning pulleys. The exact process of changing the individual belts is not provided here because it would exceed the scope of these operating instructions. During the change, follow **Fig. 15** and **Fig. 5**. Observe the belt path around all the guide elements!

- i** If you are not sufficiently manually skilled, have the operations done by an authorized service centre.

## 1.5.4.2 BRAKE FUNCTION CHECK AND ADJUSTMENT

Check the automatic brake function after every 10 hours of operation. (You may perform a continuous check at work.) **Whenever the disk drive clutch lever is released, the automatic brake must stop the spinning disk within 5 seconds.**

**!** Do not continue working with the machine until you clear the automatic brake fault.

- i** If you are not sufficiently manually skilled, have the operations done by an authorized service centre.

If the brake does not stop the spinning disk in the aforementioned time range, the brake bowden cable must be adjusted **2 Fig. 13** and **14**. The adjustment screw that secures the brake bowden cable **2** to the machine frame **Fig. 13** must be screwed in against the arrow direction (towards the frame), so that the shaft clearance of the bowden screw in the adjustment screw is 1 mm. Then check the automatic brake function. If it is not possible to achieve sufficient brake performance by screwing the screw **2**, fully, screw the brake bolt adjusting screw on the handlebar so that the axle clearance of the bowden bolt in the adjusting screw is 1 mm and then check the automatic brake function <sup>47</sup>.

- i** If the brake does not brake properly after proper adjustment<sup>48</sup>, contact a specialized service facility, please.

## 1.5.5 SERVICING INTERVALS

Activity	Before mowing	During the season	Before storage
Checking engine oil level	Yes	per the engine operating instructions	Yes
Engine air filter cleaning	Check	every 10 hours	Yes
Washing	-	2x	Yes
Removing dirt and mowed growth debris	-	After every mowing	Yes

<sup>42</sup> Only in **BDR-620DBis**.

<sup>43</sup> You can also use the screw at the opposite end of the bowden cable attached to the handlebars. In this case, screw it away from the handlebars.

<sup>44</sup> You can also use the screw at the opposite end of the bowden cable attached to the handlebars. In this case, screw it away from the handlebars.

<sup>45</sup> It is manifested by the belt rattling and irregular drifting.

<sup>46</sup> Use exclusively the V-belts recommended by the manufacturer. If you use belts from other manufacturers, proper operation of the drive may not be guaranteed.

<sup>47</sup> You may proceed in the opposite direction as well - first, screw in the handlebar bolt (towards the handlebar) on the handlebars so that a 1mm clearance in the adjustment screw is achieved.

<sup>48</sup> The condition of the bowden shaft clearance in the adjusting screw is met.

Activity	Before mowing	During the season	Before storage
Blade sharpening	-	As needed	Yes
Blade inspection and storage	Yes	Immediate replacement upon damage	Yes
Checking that the cutting disc is tightened	Yes	-	Yes
Checking tightening of screwed connections	Yes	Every 5 hours	Yes
Lubrication	Check of the condition	<b>Table 8</b>	<b>Table 8</b>
V-belts check	-	Every 20 hours	Yes

**Table 9: Servicing intervals**

## 1.5.6 TROUBLESHOOTING

Problem	Cause	Solution
The cutting disc is not rotating	The engine is not running	Start the engine
	The disk drive clutch lever is not pressed	Press the lever
	Insufficient belt tension	Adjust the tension pulley
	Torn belt	Replace the belt
	The belt has come off	Re-mount the belt
	Other defect	Visit a service facility
The machine is not moving	The engine is not running	Start the engine
	The travel clutch lever is not pressed	Press the lever
	Insufficient belt tension	Adjust both the tension pulleys
	Torn belt	Replace the belt
	The belt has come off	Re-mount the belt
	Other defect	Visit a service facility
The engine will not start	The petrol tank is empty	Add petrol
	The petrol supply line is closed	Open the petrol supply line
	The battery is not sufficiently charged	Charge the battery
	Disconnected connector of the start panel cable harness	Connect the connectors
	Defective switch or cable harness	Replace with new ones / visit a service centre
	Other defect	Visit a service facility
The brake does not brake	There is no axial clearance in the bowden cable, the cable is stretched	Adjust the brake
	The brake key is not loose	Lubricate
	Brake lining is worn - brake cannot be adjusted	Visit a service facility
The machine travel will not stop	Broken travel pulley spring	Replace with a new one
	The inner bowden cable is stiff; bent bowden cable	Lubricate or replace the bowden cable
	The tension pulley does not return back to its position	Lubricate
The engine cannot be turned OFF	Electrical installation defect	Wait for an empty petrol tank, visit a service centre
	The engine control string does not control the shortening contact	Wait for an empty petrol tank, adjust, and visit a service centre
	Other defect	Visit a service facility
The cutting disc will not stop	The tension pulley does not return back to its position	Lubricate
The control levers do not return back.	The inner bowden cable is stiff; bent bowden cable	Lubricate or replace the bowden cable
	Broken return spring	Replace with a new one
	Other defect	Visit a service facility
Another defect		Visit a service facility







**Table 10: Troubleshooting**

## 1.5.7 STORAGE

Prior to any long-term storage (e.g. at the season end) remove all the dirt and plant residues from the machine. Prevent unauthorized persons from access to the machine. Protect the machine against climatic conditions but do not use impermeable protection to prevent excessive corrosion it may cause.

-  **Make sure the working blades are not damaged, sharpen blade cutting edges (or replace them, if damaged).**

### We strongly recommend the following steps:

-  Preserve the cutting disc blades.
-  Remove all the dirt and plant residues from the machine.
-  Repair any paint damage.
-  Drain the fuel from the fuel tank and carburettor (further instructions in the engine operating instructions).
-  Implement post-season device lubrication **Table 8**.
-  Check the tyre pressure and inflate the tyres to MAX.

### 1.5.7.1 MACHINE WASHING AND CLEANING

-  **When washing and cleaning the machine, proceed so as to observe valid provisions and laws regarding protection of water courses and other water resources against pollution or contamination by chemical agents.**

-  **Never wash the engine by a water jet! During starting, the engine electric system could malfunction.**




-  **Do not ever wash your machine with any pressure washer .**

## 1.5.8 DISPOSAL OF PACKAGING AND THE MACHINE AT THE END OF ITS SERVICE LIFE

When you unpack the machine you are bound to dispose of the packaging material according to national laws and decrees concerning waste disposal.

### When disposing of the machine at the end of its service life, we recommend proceeding as follows:

Demount from your machine all the parts that may still be used.

-  Drain oil from the engine into a suitable closing container and dispose it in a waste collection centre<sup>49</sup>.
-  Remove the plastic and non-ferrous metal parts.
-  The remaining machine and its removed demounted parts are to be disposed of according to national laws and decrees concerning waste disposal.

## 1.5.9 HOW TO ORDER SPARE PARTS

These Operating Instruction do not include the list of spare parts.

For correct identification of your device, you have to know the type designation (**Type**), serial identification number (**Nº**) and order number (**CNº**) stated on the nameplate of the device, on the box or in the warranty card. Only with this information it is possible to search correctly for the designation of the respective spare part with your dealer.

To search spare parts in the electronic catalogue of spare parts at <http://katalognd.vari.cz>, the first 10 characters of the identification number (**Nº**) are sufficient. If you do not have Internet access, you can ask for the printed catalogue to be sent C.O.D.


Field		Description
Type		Device type designation <b>BDR-620DBiS</b>
Nº		Unique serial identification number: <b>1006500046.0218.00002</b> (product.period.order)
CNº		Business (order) number: <b>4501</b>

Table 11: Nameplate - example

<sup>49</sup> The respective local authority will inform you of the disposal centre location.

## 1.6 MANUFACTURER'S ADDRESS

**VARI, a.s.**

Phone: (+420) 325 607 111

Opolanská 350

Libice nad Cidlinou

289 07

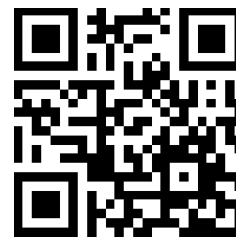
The Czech Republic

E-mail: [vari@vari.cz](mailto:vari@vari.cz)

Web: [www.vari.cz](http://www.vari.cz)



<http://www.vari.cz>



<http://katalognd.vari.cz>

## 1.7 ATTACHED ILLUSTRATIONS

The attached illustrations are common for all language versions. They can be found at the end of this manual in Chapter 2, page 19.

## 2 EN FIGURES

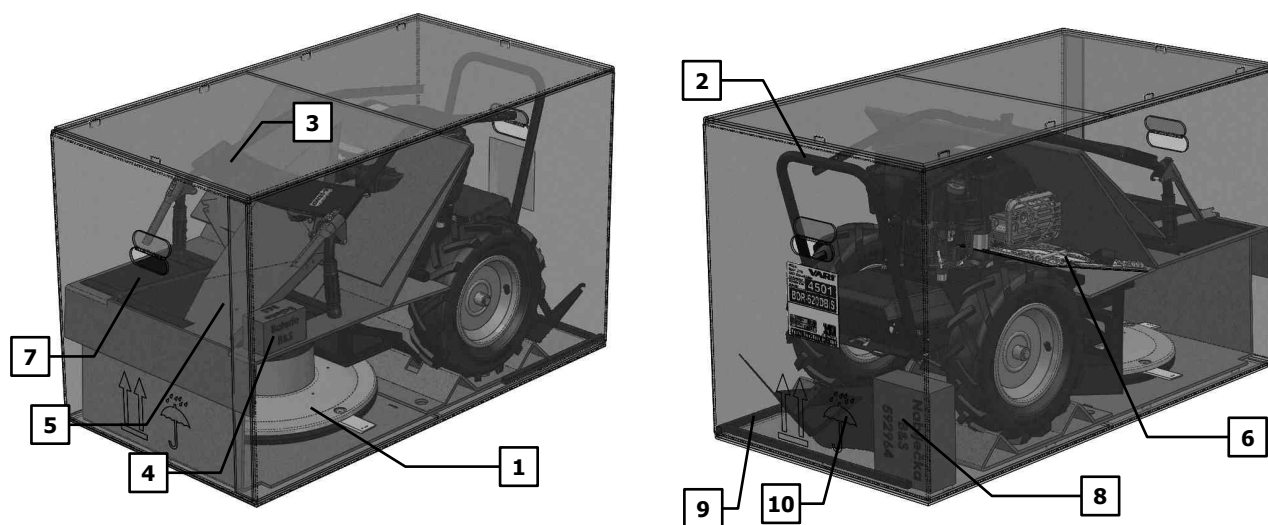


Fig. 1: Machine Unpacking

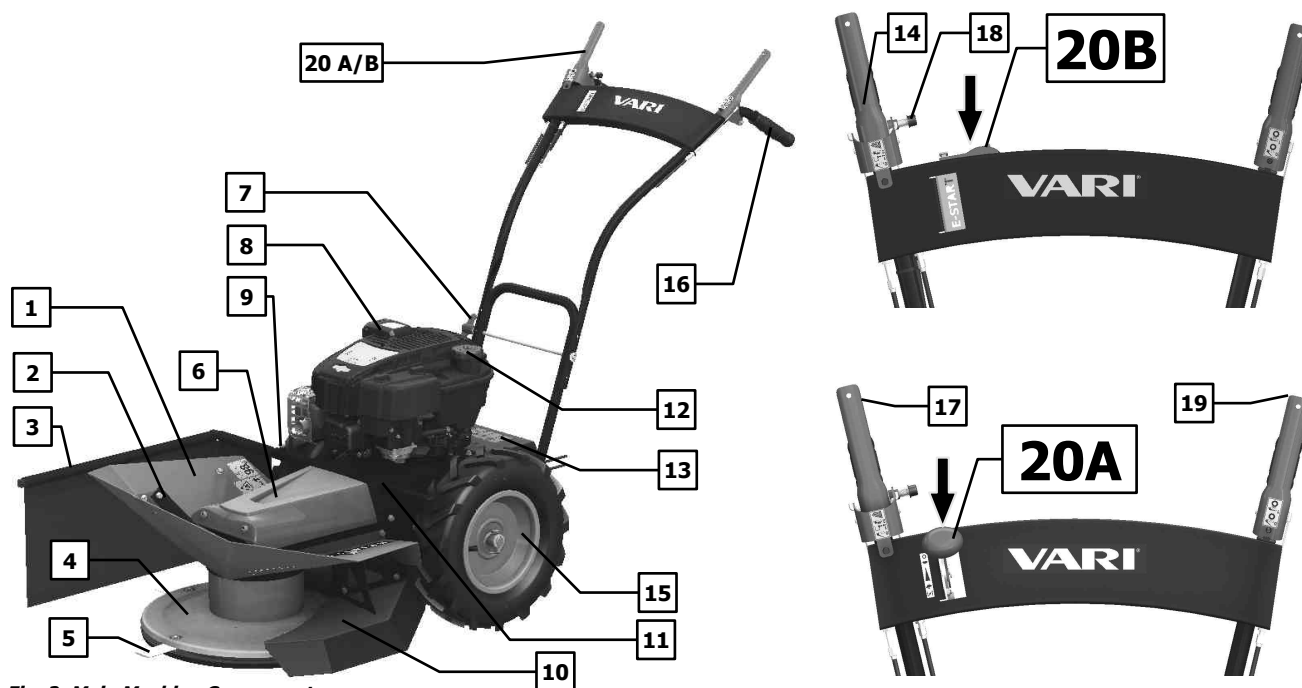


Fig. 2: Main Machine Components



Fig. 3: Starter panel

### Switch:

**STOP** - Running engine stop. (Ignition coil shorting.)

**1** - Starting circuit wiring.

### Button:

**START** - Engine starting **only** with its switch in position **1**.



**Do not start the engine with its switch in position STOP.**

## 1 STOP position

The engine is not running.

- ❗ It is used to turn off a running engine.
- ❗ Engine shutdown.
- ❗ Refuelling.
- ❗ Machine transport.

## 2 MIN position

Engine is idling. (Turtle sign)

- ❗ Short work brake.

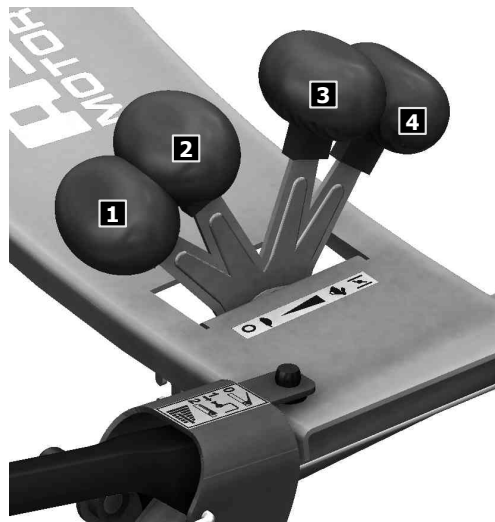


Fig. 4: Accelerator lever position

## 3 MAX position

The engine runs at its maximum speed. (Hare sign)

- ❗ Working position

## 4 CHOKE position

The engine choke is engaged.

- ❗ Cold engine start.

It is not used in automatic choke engines.

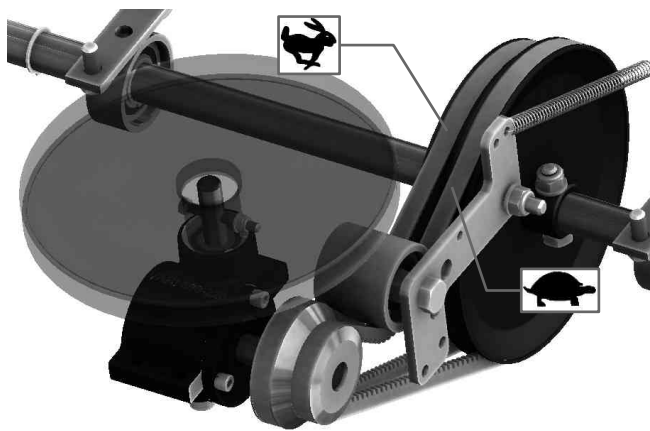
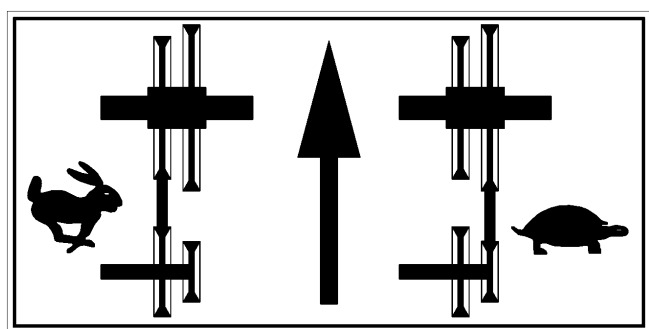


Fig. 5: Gears



2<sup>nd</sup> gear  
**HARE**

1<sup>st</sup> gear  
**TURTLE**

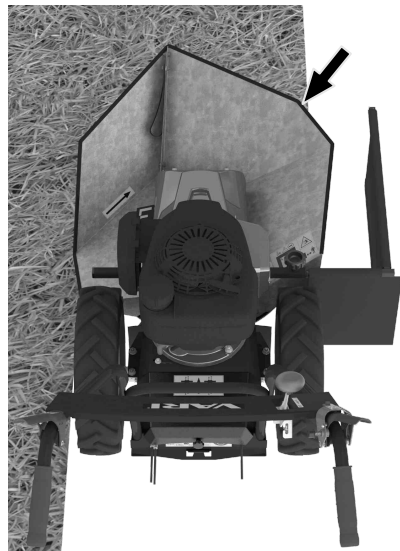


Fig. 6: The machine's working width

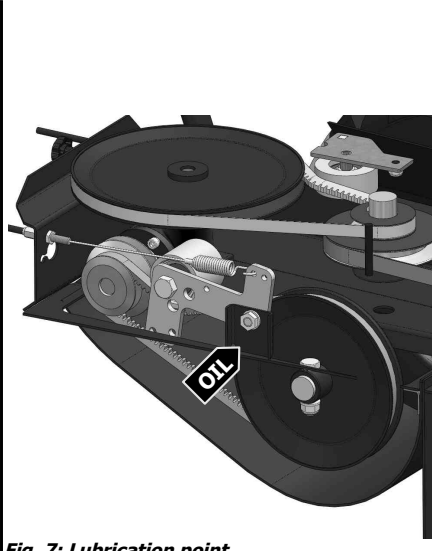
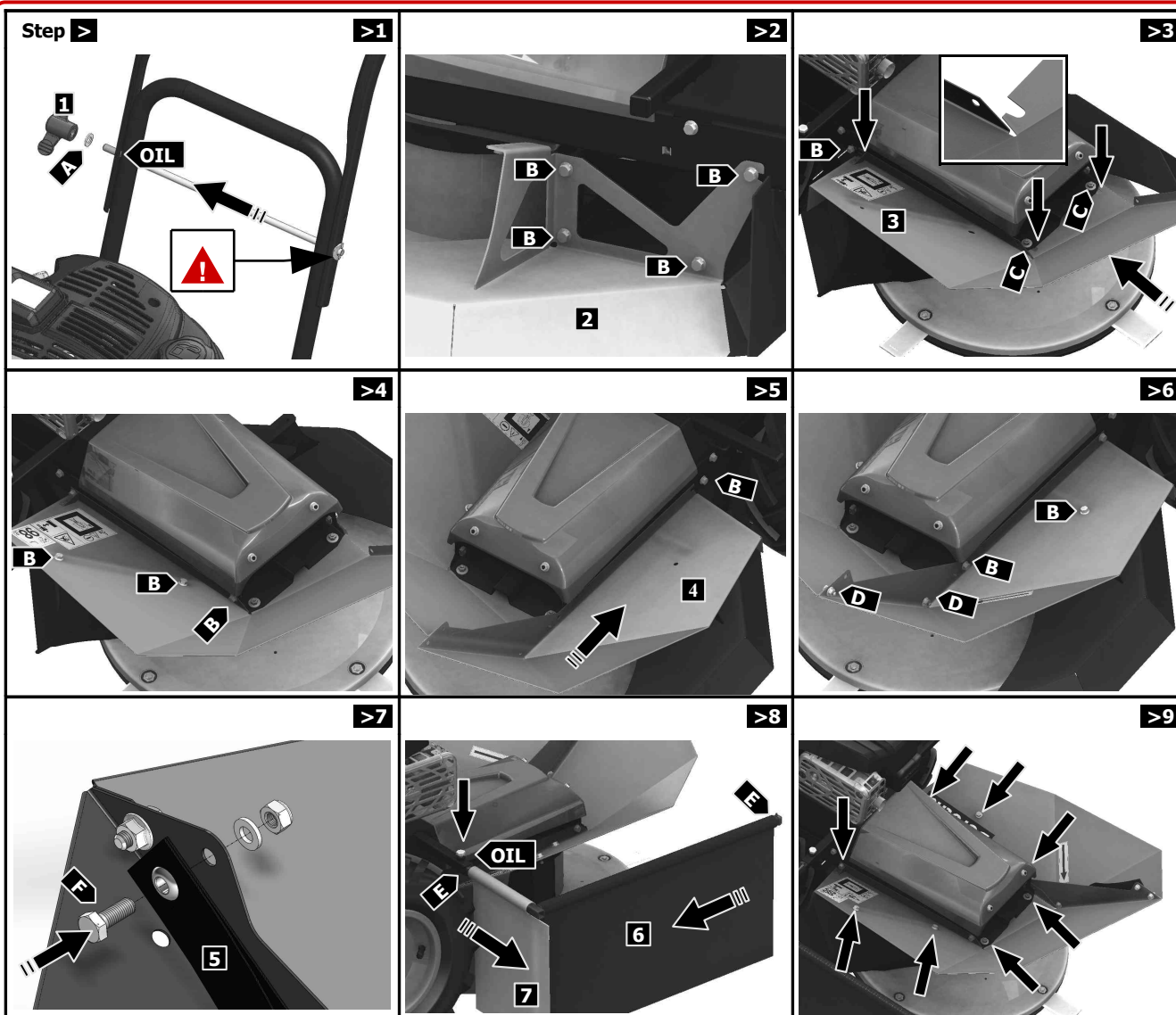


Fig. 7: Lubrication point



Fig. 8: Lubrication point



Legend for Fig. 9:

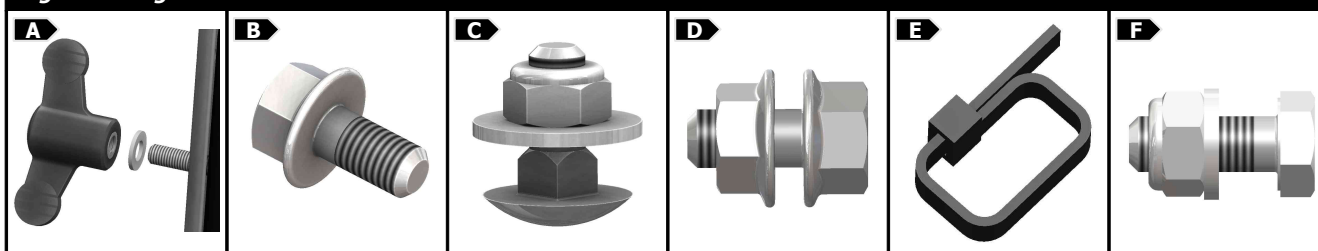


Fig. 9: Machine Assembly Procedure

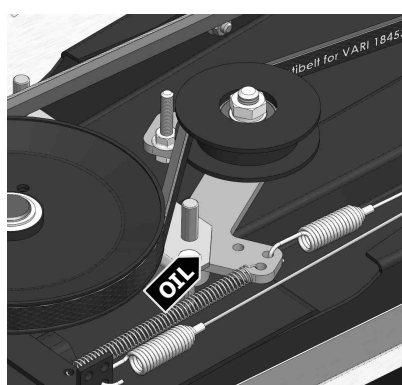


Fig. 10: Lubrication point

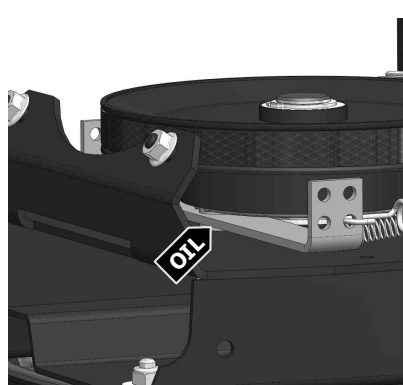


Fig. 11: Lubrication point

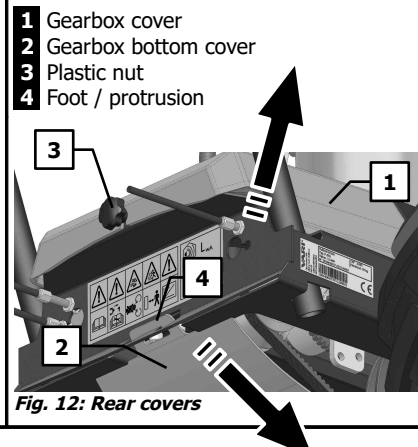


Fig. 12: Rear covers

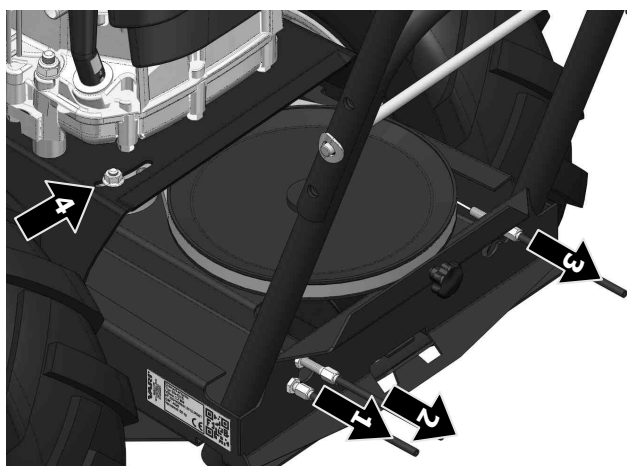


Fig. 13: Travel tensioning pulley adjustment

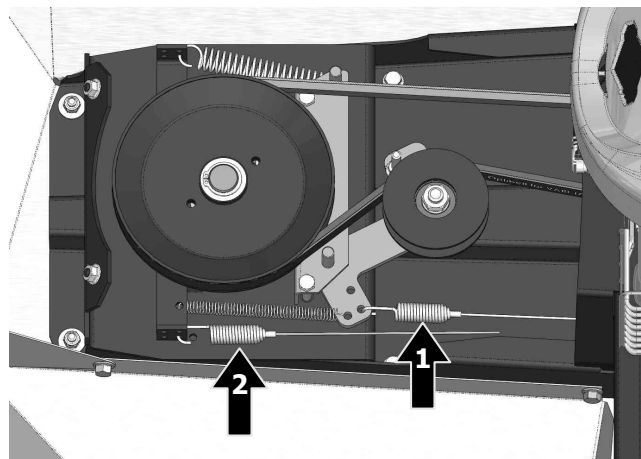


Fig. 14: Disc drive clutch pulley - Brake

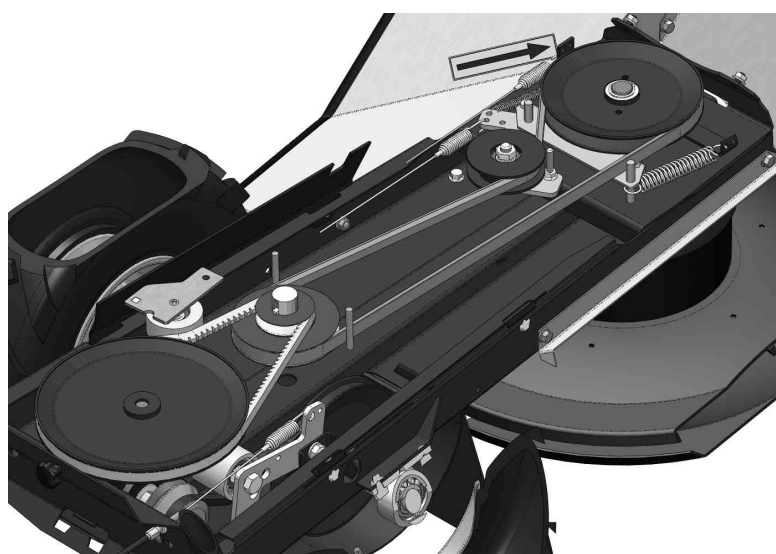


Fig. 15: V-belts path

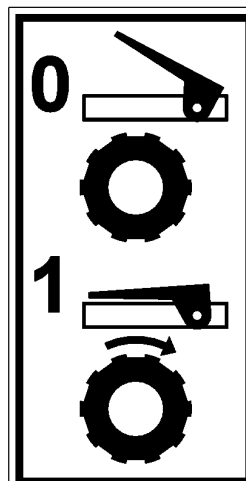


Fig. 16: Safety pictogram Machine travel

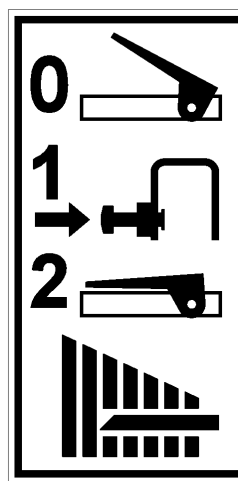


Fig. 17: Safety pictogram Disk starting

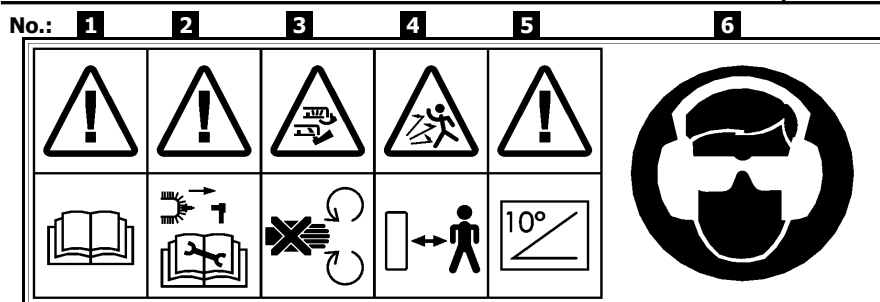
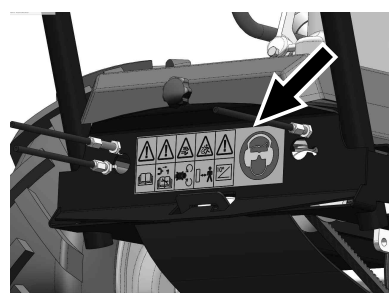


Fig. 18: Safety labels – Combined sticker



Position on the machine

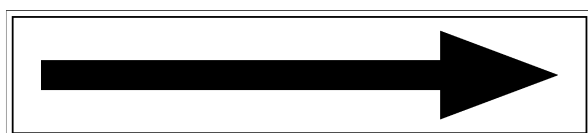


Fig. 19: Safety pictogram - Direction of rotation arrow



Position on the machine

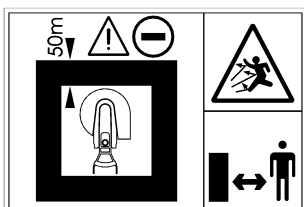


Fig. 20: Safety pictogram **1** – Dangerous area

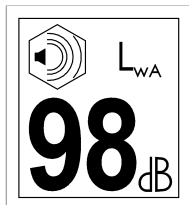
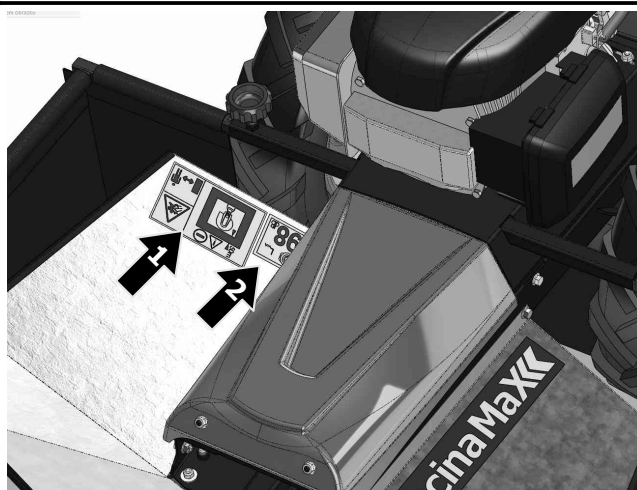


Fig. 21: Safety pictogram **2** - Guaranteed level



Position on the machine

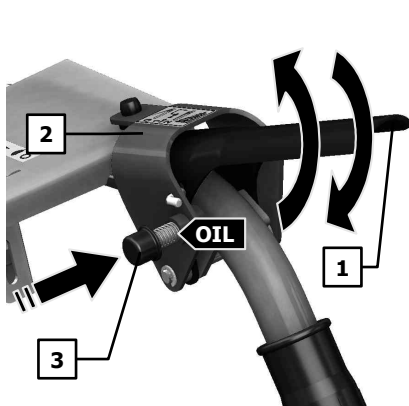


Fig. 22: Disk starting

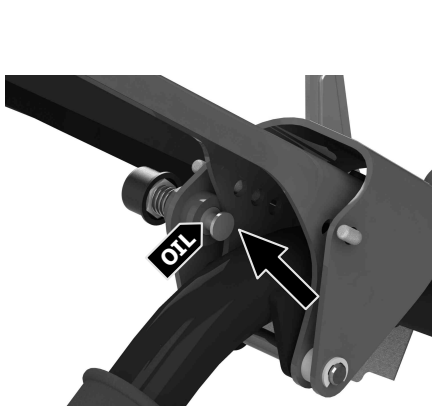


Fig. 23: Lever lock



Fig. 24: Working position

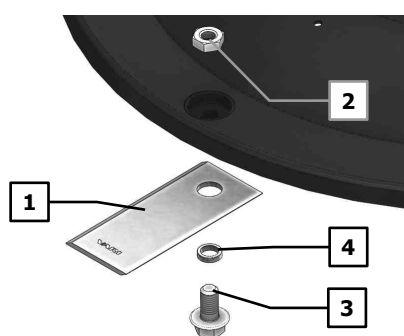
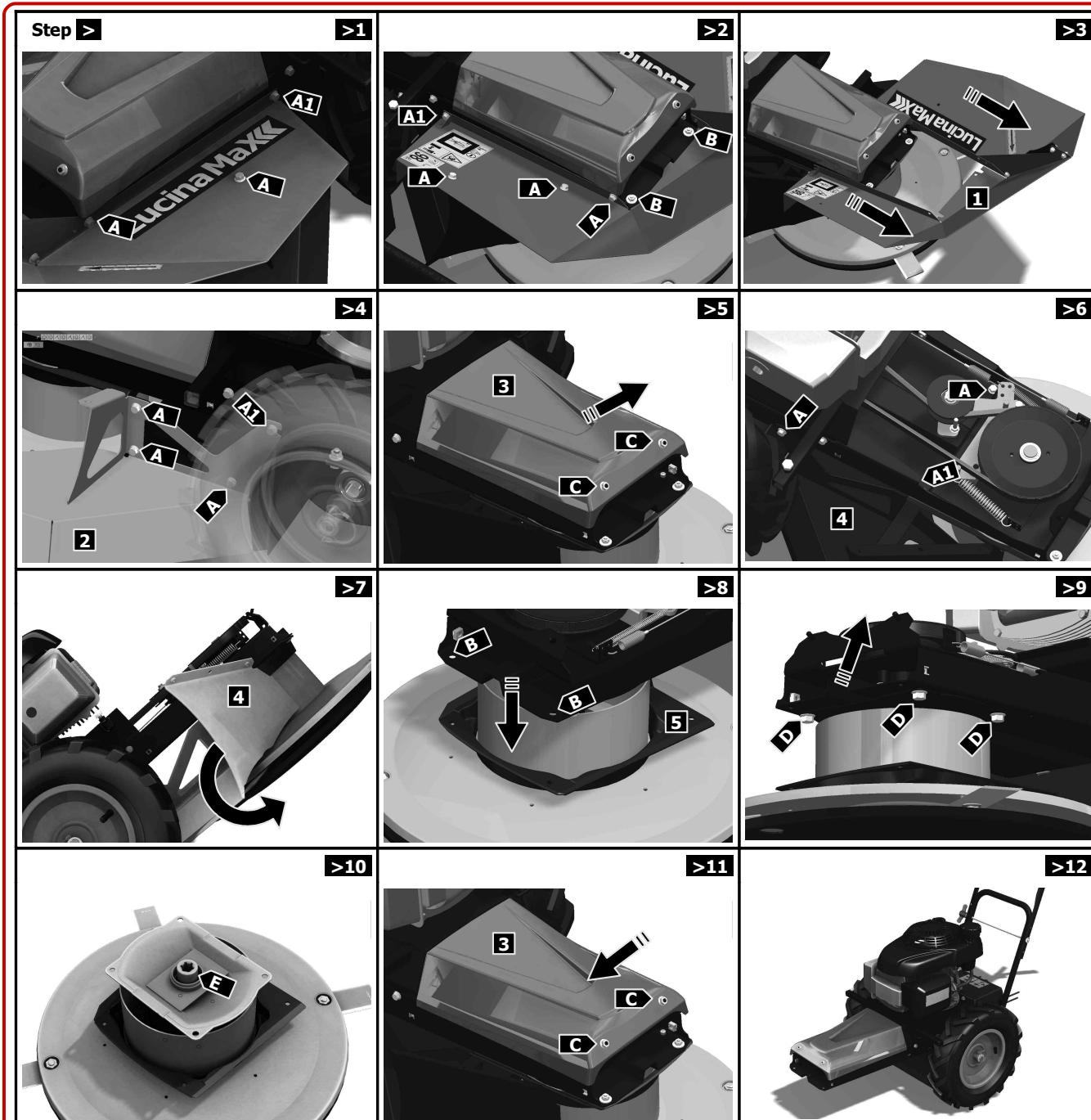


Fig. 25: Blade replacement



Legend for Fig. 26:



Fig. 26: Chassis preparation – Cover and disc removal.



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