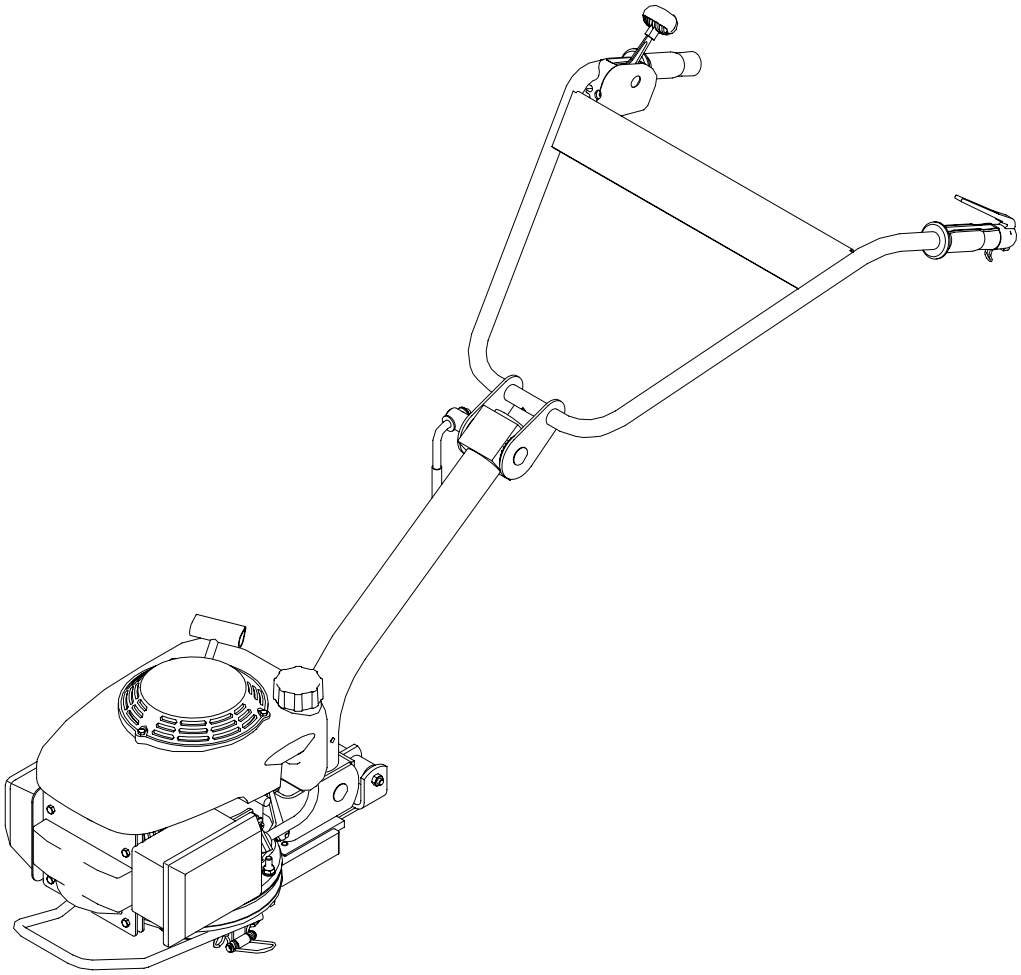
VARI®

Driving unit

PJ GCV 160/190



Instructions for use

Warranty for the driving unit can be applied only if the unit is used with gearboxes and adaptors supplied by VARI, a.s.

Contents

Publication no. **VL-099-2005**

1 Basic information.

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

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

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

Model	**PJ GCV 160**	**PJ GCV 190**
Engine type	**Honda GCV 160**	**Honda GCV 190**
Serial no./Year of manufacture	/	/
Engine serial no.		
Date of delivery (sale)		
Supplier		
Address		
Tel./fax/E-mail/internet		

Your notes:

Manufacturer **reserves the right** of technical modifications and innovations that do not impact the machine function and operation safety. The changes need not be included in these Instructions for use.

2 Foreword.

Dear customer and user,

Thank you for trusting our products. You have become owner of machine from a wide range of machines and attachments made by VARI, a.s. as a system of gardening. farming, small agricultural and communal technology.

Driving units Models ***PJ GCV 160*** and ***PJ GCV 190*** serve to drive gearboxes and adaptors for problem-free works such as active and passive soil cultivation, pumping of liquids, cutting of stalky plants and grasses, removal of snow, sweeping of roads and other surfaces, and transportation of all kinds of materials on one-axle trailers. Driving units ***PJ GCV 160*** and ***PJ GCV 190*** have become popular among users thanks to very easy operation and silent, high-performing and economic HONDA engine.

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

2.1 Warning.

The user **is obliged** to get acquainted with the Instructions for use and to follow all instructions for the machine operation so that the user's and other persons' health and property cannot 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 the machine operation or maintenance do possess the intelligence.

The machine can be operated only by persons in good mental and physical condition. 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. **The machine owner is also obliged to carry out a so called categorization of works according to the relevant national legislation.**

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

The manual of Instructions for use supplied with the machine is an integral part of the machine. It has to be available at any time, placed at a well accessible place with no risk of its damage. In the case that 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 possible 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, for damages caused by any machine modifications not authorized by the manufacturer, and for damages caused by using the driving unit with machines other than those approved by the driving unit manufacturer.

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

✻	**On seeing this symbol in the Manual, read the following information carefully!**

3 Operation safety.

3.1 Safety regulations.

- This international safety symbol indicates important messages concerning safety. If you see the symbol, be aware of a possible injury threatening to yourself or to other persons and read the attached information carefully.
- The machine operator must be over **18 years of age**. **He/she is obliged** to get acquainted with the instruction for use of the driving unit, engine and driven adaptors and is supposed to have awareness on general principles of labour safety.
- Do not start the engine if it is not connected to the adaptor! Do not remove the driving unit from the adaptor if the engine is still running! Do not start the engine in enclosed spaces! Pay increased attention when handling the driving unit since the exhaust of engine silencer remains hot after the engine has been switched off! Make sure that 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.
- **Prior to each employment of the driving unit in connection with the system adaptor** make sure that all parts (namely the working mechanism or its casing) are not damaged or loosened. Defects must be **rectified without any delay**. Repairs are to be made only with original spare parts. Follow the safety regulations included in the instructions for use of the adaptor!
- With respect to the 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). Ask the aids from your dealer.
  b) Working with the machine should be interrupted after max. 20 minutes by breaks of at least 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 **ČSN EN 166** or **ČSN EN 1731** (tight-fitting garments, sturdy shoes, working gloves and protective glasses). Keep a safe distance given by the handle.
- 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 to a **safe** distance. Follow the safety regulations included in the instructions for use of the adaptor!

  - Removal of any protective equipment and casings from the machines is forbidden. Follow the safety regulations included in the instructions for use of the adaptor!
- The machine user must adhere to traffic regulations of the country in which the machine is operated. Regulations in Czech Republic are as follows:
  - all working implements must be transported on the trailer.
  - operation of the assembly of the driving unit with small tractors and with the trailer or with the carrier of implements is allowed only if the following conditions are fulfilled:
  - Under reduced visibility their operation is prohibited on all surface roads.

- Under unreduced visibility their operation is prohibited on Class I and Class II roads with an exception of their perpendicular crossing. Operation on surface roads of Class III and special-purpose roads is permitted.
- Driver of permitted transport assembly must have driving licence „A“ or „B“ or „T“ or higher. According to regulations stipulated in §43 Article 5 of Law no. 361/2000 Gaz. on traffic on surface roads as amended, the operator is obliged to apply for permit at local authorities for the stipulation of other terms required for the ensurance of fast-moving road traffic in using one-axle small tractors on roads with an exception of special-purpose roads. The conditions are to be specified on the back page of Technical Certificate that can be purchased at the manufacturer's.
- The small tractor meets the requirements stipulated in regulations of the Decree no. 102/1995 Gaz. issued by the Czech Ministry of Transport on the approval of technical roadability and technical terms for operation of road vehicles on surface roads as amended with the following exceptions:
- §44: Driving unit and semi-trailer are not equipped with headlights
- §57 Article 1: Assembly is not equipped with headlights
- §58 Article 1: Assembly is not equipped with sidelights
- §60 Article 1: Assembly is not equipped with stop signals
- §61 Article 1: Assembly is not equipped with direction signal lights; direction indication is given by driver's arm
- Assemblies are authorized by the Ministry of Transport of the Czech Republic under ref. no. 19 324/00-112 certificate no. 4322-01-02

* **Safe** slope accessibility of all machines is 7°. Maximum inclination of the engine at work is 20° for a long-time operation and 30° for a shorter time (up to 1 minute). If falling, do not hold on the machine but release your hold!

* Pay increased attention when working with assemblies with adaptors connected to a small tractor of DSK-316.1 series. The transportation of these assemblies on surface roads is prohibited with an exception of their perpendicular crossing.

* The machine must not be used in recreation and health zones at night from 21.00 to 7.00 o'clock.

* Before starting the work with all working machines of the system, check the function of the safety engine switch on the left handle of power unit handlebars. The safety switch function is described below.

* When working with the machines, use the safety ignition switch only in **Position 2**.

* Avoid driving across easily inflammable substances – e.g. hay, straw.

* All kinds of the machine repair, adjustment, lubrication and cleaning are to be made with the machine switched off and spark plug cable disconnected.

3.2 Declared and guaranteed noise and vibration values.

	PJ GCV 160			PJ GCV 190		
Machine	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
Tractor TERRA III	86.0 dB	100.0 dB	8.6 $m.s^{-2}$			
Rotavator TERRA III	86.0 dB	98.0 dB	8.6 $m.s^{-2}$			
Tractor VARI IV	85.0 dB	98.0 dB	6.7 $m.s^{-2}$			
Rotavator VARI IV	84.0 dB	not measured	3.70 $m.s^{-2}$			

1. Acoustic output at operator's site $\mathbf{L_{pAeq,T}}$ (according to ČSN EN ISO 11201)
2. Machine acoustic output level $\mathbf{L_{WA}}$ (according to ČSN ISO 3744)
3. Weighed effective value of accelerated vibrations transmitted onto operator's hands (vector sum of linear vibrations on individual axes) (testing method according to ČSN EN 1033)

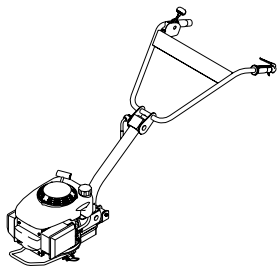
Note : operating conditions for rotavators according to ČSN EN 709
operating conditions for small agricultural tractors according to ČSN EN 1553

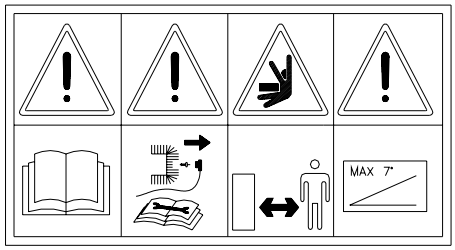
3.3 Safety pictographs.

The user is obliged to maintain the pictographs on the machine legible and to provide for their replacement in the case of damage.

Pictograph no.	Safety information - Description
1	Instruction for use to be studied prior to machine operation and maintenance.
2	During the machine maintenance the conductor is to be disconnected from the spark plug.
3	Entry of exposed and other persons into the machine's working space is prohibited.
4	Keep the maximum permitted-safe slope accessibility while working with the machine.
5	Index plate PJ GCV 160
6	Index plate PJ GCV 190

Note:
Self-stickers with pictographs below on the right are in positions in which they are viewed from the operator's site.





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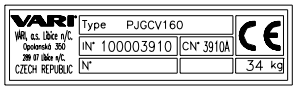
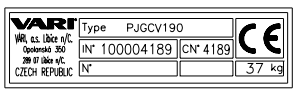


5.



6.

4 Use, technical specifications and technical description of the machine.

4.1 Machine use.

Driving unit Model **PJ GCV 160 or PJ GCV 190** serves as a source of energy to power gearboxes of the **VARI** system. With assemblies consisting of this driving unit, gearboxes **DSK-317/S, T-20SA, DSK-316.1PSA** and **DSK-316.1PSZ** and with attachable implements of the **VARI** system you can do all kinds of farming operations and communal works. Driving unit with engine **HONDA GCV 160** or **GCV 190** is made as a model with guiding handles that have handlebars with a horizontal bar.

Driving unit Model **PJ GCV 160** consists of 4-stroke spark ignition engine **HONDA GCV 160** with an output of 5.5HP with the flange and guiding handles; driving unit Model **PJ GCV 190** consists of 4-stroke spark ignition engine **HONDA GCV 190** with an output of 6.5HP with the flange and guiding handles. Torque transmission onto gearboxes is provided by centrifugal clutch which enables a smooth start of the machine.

Approved gearboxes and adaptors in connection with driving units **PJ GCV 160** and **PJ GCV 190** (manufacturer does not provide guarantee for driving units working with gearboxes and adaptors other than authorized):

DSK-317/S, T-20/SA: for transportation in connection with one-axle trailers; for work with attachable implements used in passive soil cultivation (harrow, ploughs, chisel-shovel tiller, hilling plough-share, etc.); for active soil cultivation, the pulling axle can be replaced with the mechanism of rotary tillers AKY-357/358 (the rotary mechanism type to be adapted to soil quality) and a range of machines for sowing, planting and harvesting crops (the implements can be easy transported by using the tool carrier AV-3). The gearboxes can be connected with the dozer share ASR-2V, tipping cart or loading platform MULA-150A. Maximum carrying capacity of one-axle trailers (specified including the operator) is given by the type of semi-trailer and must be observed.

DSK-316.1PSA, DSK-316.1PSZ: gearboxes designed to power hay tedder OP-1.0 or OP-1.2, hay rake and tedder NM4-010, mulcher TAJFUN-52, drum mower SAMSON-56, brush sweeper KV-100 or KV-100/Z, snow milling cutter SF-55; the gearboxes can be coupled with passive machines – dozer share ASR-2V, tipping cart or loading platform MULA-150A.

BDR-600.4: Drum mower

DZP-005/S: Irrigation pump

TORNADO/S: Garden waste crusher

Permitted one-axle trailers:	HV-220	Permitted implement carriers:	AV-1
	HV-220S		AV-3
	HV-350-5		
	HV-350-7		
	ANV-350		

Note: Connection of implements to the gearbox – see relevant instructions for use.

4.2 Technical specifications.

		PJ GCV 160	PJ GCV 190
Length	mm	1490	
Height	mm	670	
Width	mm	660	
Weight without fluid capacities	kg	34	37
Engine		Honda GCV 160	Honda GCV 190
Drilling	mm	64	69
Lift	mm	50	
Cylinder capacity	cm^3	160	187
Max. output declared by manufacturer	kW/HP	4.1/5.5	4.8/6.5
at revolutions	min^{-1}	3600	
Maximum torque	Nm	11.4	13.2
at revolutions	min^{-1}	2500	
Idle speed	min^{-1}	1700±100	
Maximum speed	min^{-1}	3600±100	
Clutch switching revolutions	min^{-1}	2500±100	
Fuel tank capacity	litres	1.1	
Petrol type-unleaded	octane no.	min. 85	
Oil filling	litres	0.55	
Motor oil classification	SAE API	15W-40 SF/CC; SG/CD	

5 Instructions for use

5.1 Machine assembly.

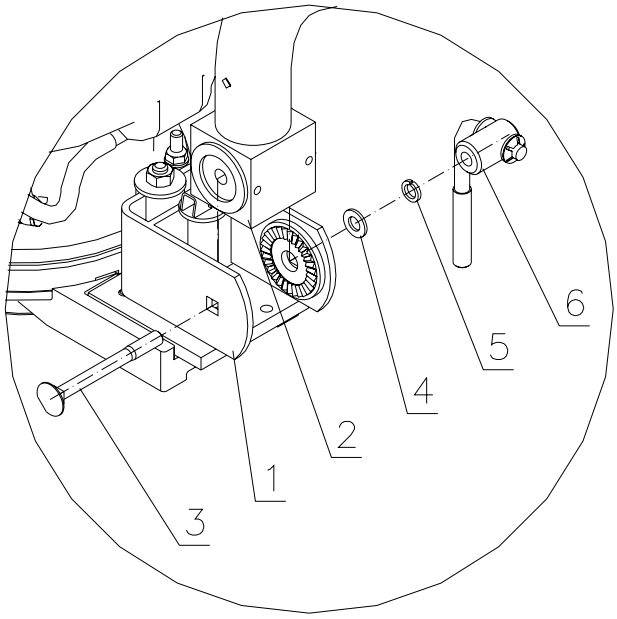
Ask your dealer to provide the machine unpackaging and briefing.

Grip points for the machine removal from the box: front - hand rail, rear – swivelling holder of handlebars.

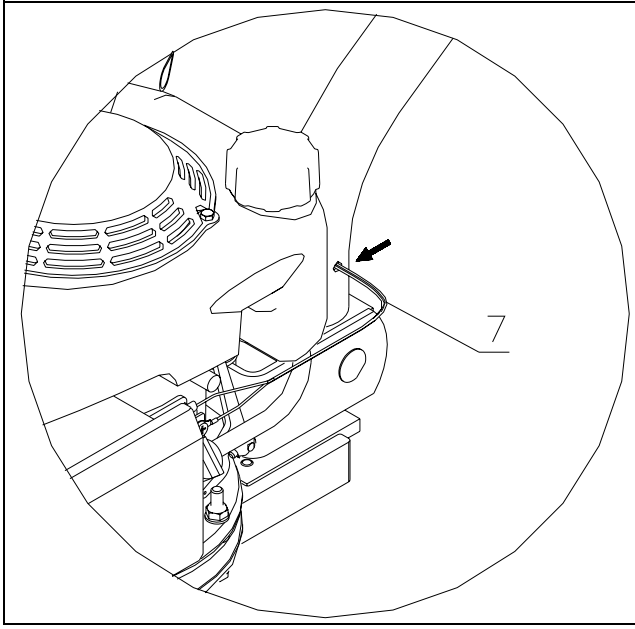
Assembling the machine by yourself, follow the below procedure:

Note: washer size (e.g.∅8.4 mm) is at all times understood to be washer hole diameter.

Remove all parts from the boxes – engine MÚ GCV 160 (190) and guiding handles VR-02 have a separate packing.

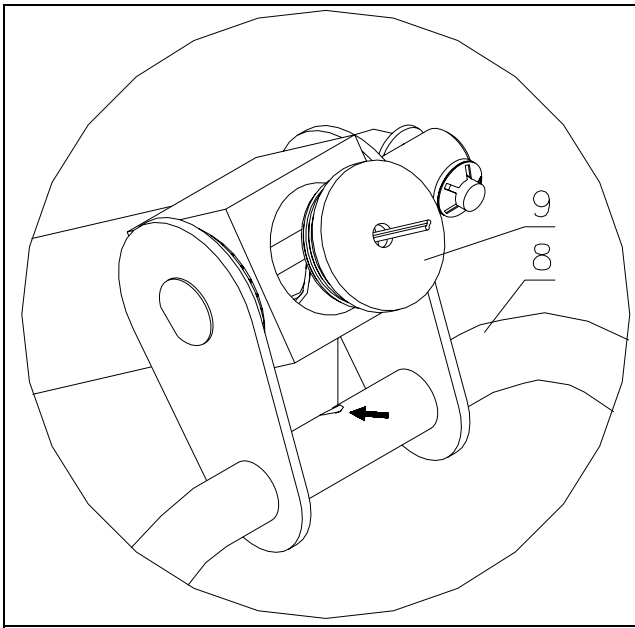
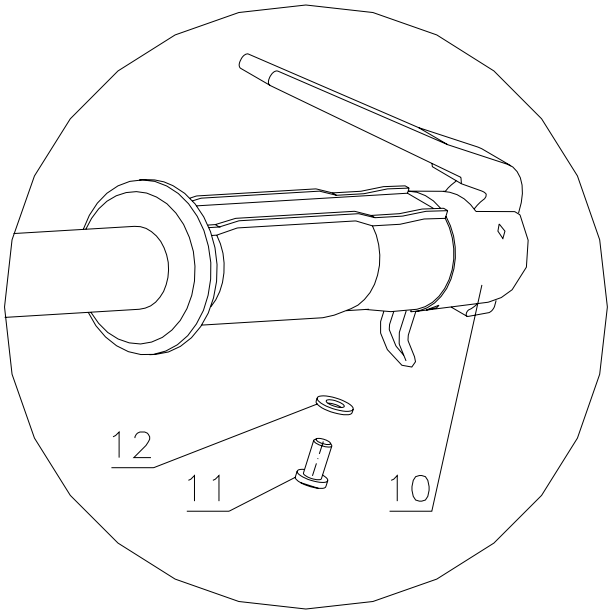
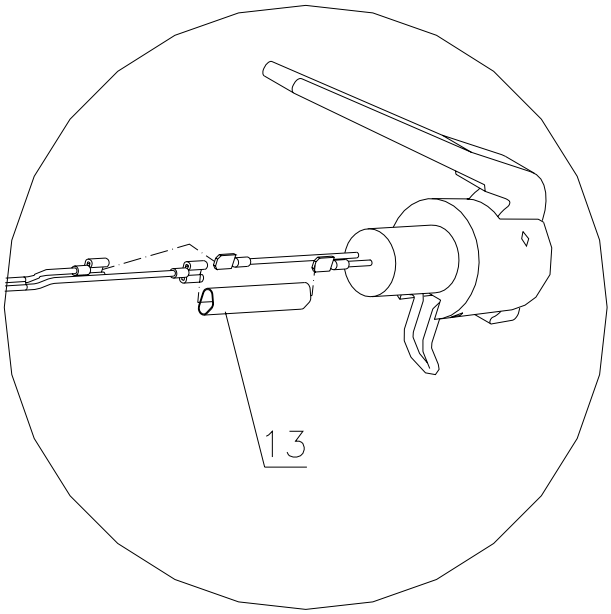


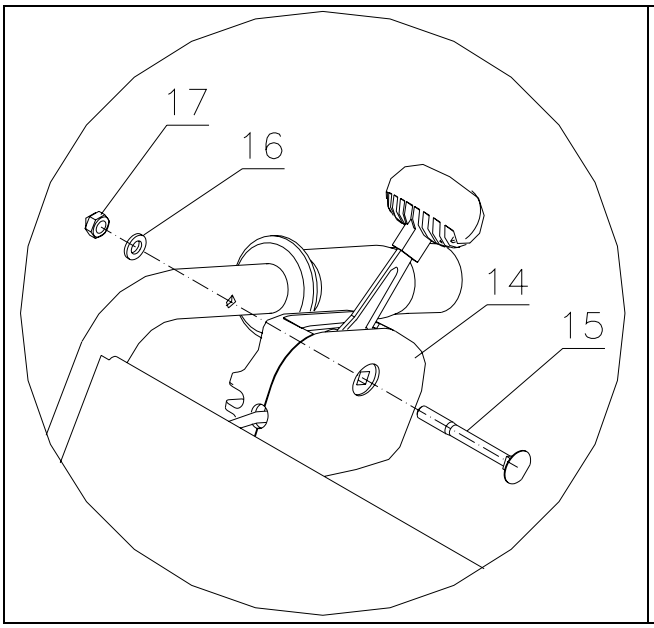
Put the *carrier tube of handlebars* (2) into the *swivel holder* (1) and pass the *carriage bolt M10x100* (3) from the left (viewed from the operator's site) – the square recess of the bolt must fall into the square hole in the swivel holder. Install on the bolt the *flat washer ø10.5* (4), *spring washer ø10.2* (5) and screw on the *tightening nut* (6).



There is the *cable of the safety switch BVA-96* (7) mounted on the engine.

Pass the cable through the hole in the side of the handlebars carrier tube and drive it up to the end of the carrier tube.

	Tilt the *handlebars* (8) down. Put the *plastic plug* (9) on the *cable of safety switch BVA-96* and drive the cable further to pass it through the hole in the handlebars towards the left handrail.
	Dismount the *safety switch BVA-96* (10) from the left handrail – it is screwed from below the handrail by the *bolt M5x10* (11) with the cross groove through the *flat washer ø5.3* (12). Slide the *safety switch BVA-96* out from the tube of handlebars handrail.
	Slide the shorter cable end on the longer (yellow) cable, and the longer cable end on the shorter (red) cable of safety switch BVA-96. Cover the **red cable splicing** with the *insulation sleeving* (13). WARNING: for correct functioning of the safety switch BVA-96 the „live“ contact of two cables **must not** occur! Insert the safety switch BVA-96 back into the handlebars handrail tube and secure it by bolt M5x10 with flat washer ø 5.3.



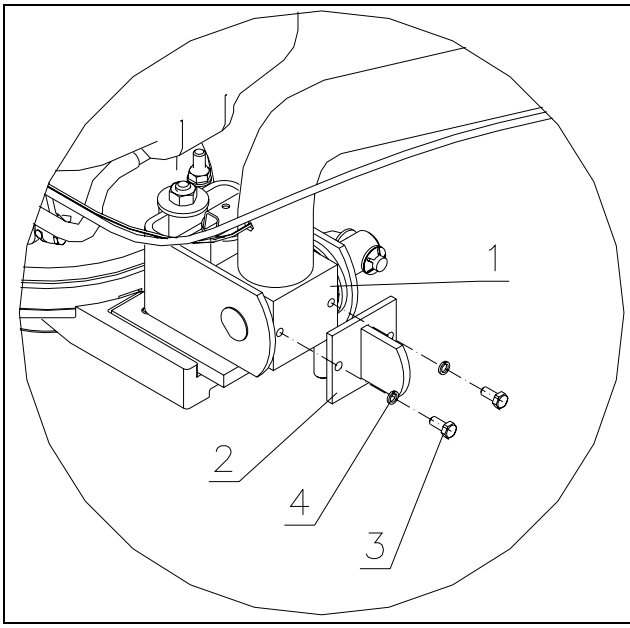
Bolt in the *throttle lever* (14) in front of the rubber grip on the right handlebars handrail by means of *carriage bolt M6x60* (15), *flat washer ø6.4* (16) and *self-locking nut M6* (17). The square bolt recess must fall into the square hole in the throttle lever.

Fix the throttle control Bowden onto the handlebars near the lower bend by means of plastic tape.

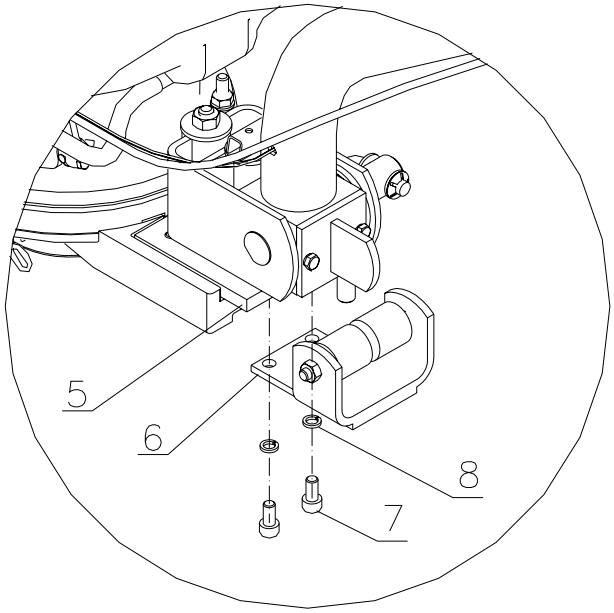
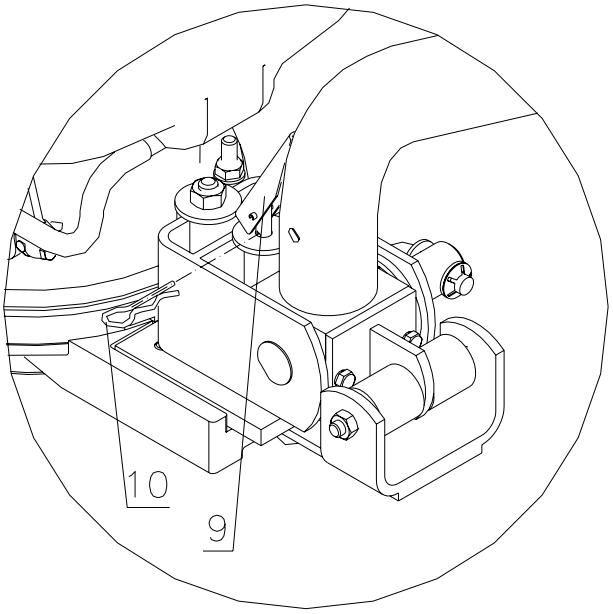
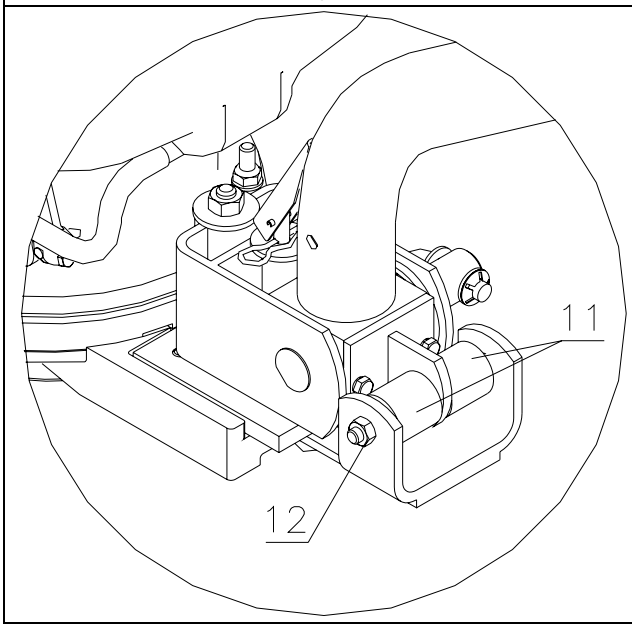
5.2 Assembly and adjustment of vibration damper.

- Working with the cutting adaptors, **you are obliged** to use „ Vibration damper TG-2“ which markedly reduces vibrations induced by the machine operation and transmitted onto handlebars.

Vibration damper TG-2 **is not** a component part of guiding handrails VR-02; it is supplied separately under Order. no. **3915**.



Bolt the *damper lug* (2) to the lower block of the *carrier tube* (1) by means of two *bolts M6x14* (3) and *spring washers ø6.1* (4).

	Bolt the *damper yoke* (6) onto the *plate* (5) on the engine flange by means of two inbus screws *M6x16* (7) and spring washers *ø6.4* (8).
	For the correct functioning of the vibration damper it is necessary to unarrest the pivot on the swivelling holder of handlebars. Push up the *crank* (9) that operates the arresting pin, and secure the pin with the *retaining split pin* (10). Handlebars are side-arrested only by stop silent blocks.
	Set up the position of handlebars by screwing out/in the *rubber silent blocks* (11) so that the handlebars are in longitudinal machine axis. The rubber silent blocks must be seating on the vibration damper foot sides only lightly. Secure the rubber silent blocks in the adjusted position by tightening *counter nuts M8* (12). WARNING: if the rubber silent blocks are tightened too much to the vibration damper lug sides or if there is a gap left between the vibration damper lug sides and the silent blocks, performance of the vibration damper is considerably impaired!

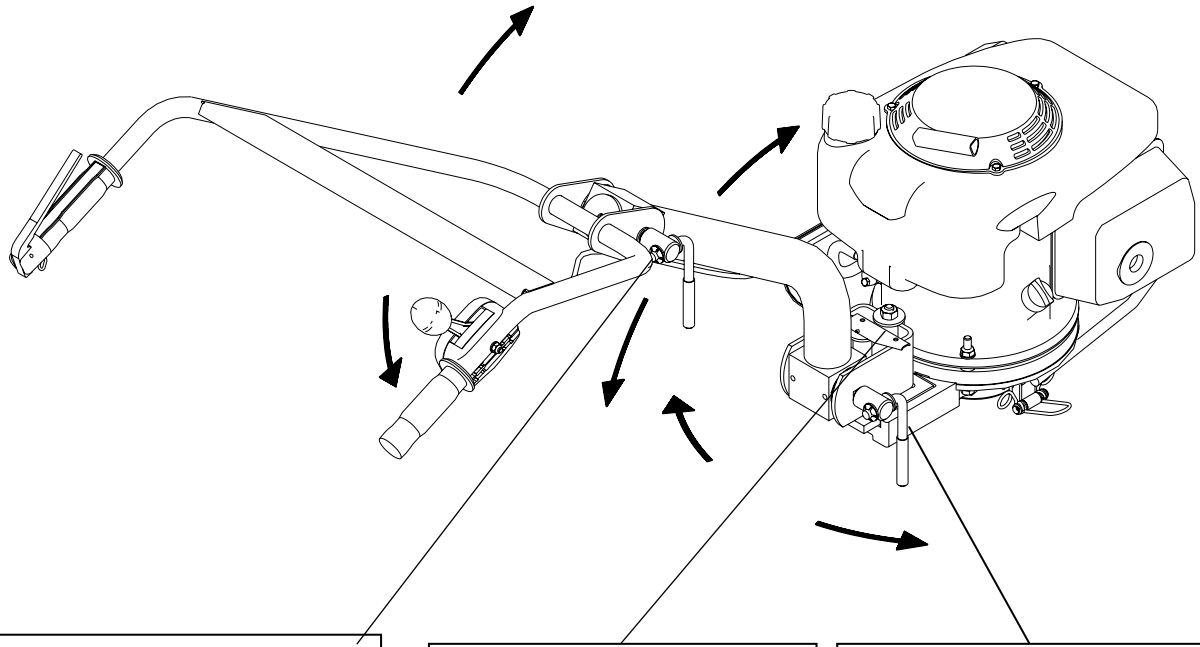
5.3 Adjustment of guiding handles.

Design of guiding handles VR-02 enables to adjust the handles both to sides and to desired height. Side adjustment in three positions is enabled by crank-regulated arresting pin in the swivel holder of handlebars. Plate on the flange to which the swivel holder is clamped has three holes into which the pin falls, thus arresting the position of guiding handles in the machine axis or in two extreme positions. Both extreme positions –slightly turned from the longitudinal machine axis by 25º- are used in cases when the operator's movement across the cultivated soil (e.g. in rotary cultivation) is unwished.

- With the guiding handles set to extreme positions it is impossible to use the vibration damper TG-2; the design of vibration damper enables to set the guiding handles only in the longitudinal machine axis.

Height adjustment can be made at two points. Primary height adjustment is made by loosening the tightening nut on the swivel holder of guiding handles after which the carrier tube in the teeth of swivel holder is set to desired position and the tightening nut is tightened again. A more refined height adjustment of handlebars is made by loosening the tightening nut on the joint of handlebars, slight turning of handlebars in the carrier tube teeth to desired position and final tightening of the tightening nut.

Adjustment of guiding handles



Tightening nut and joint of handlebars for a refined height adjustment of handlebars

Regulation crank of arresting pin for side turning of guiding handles

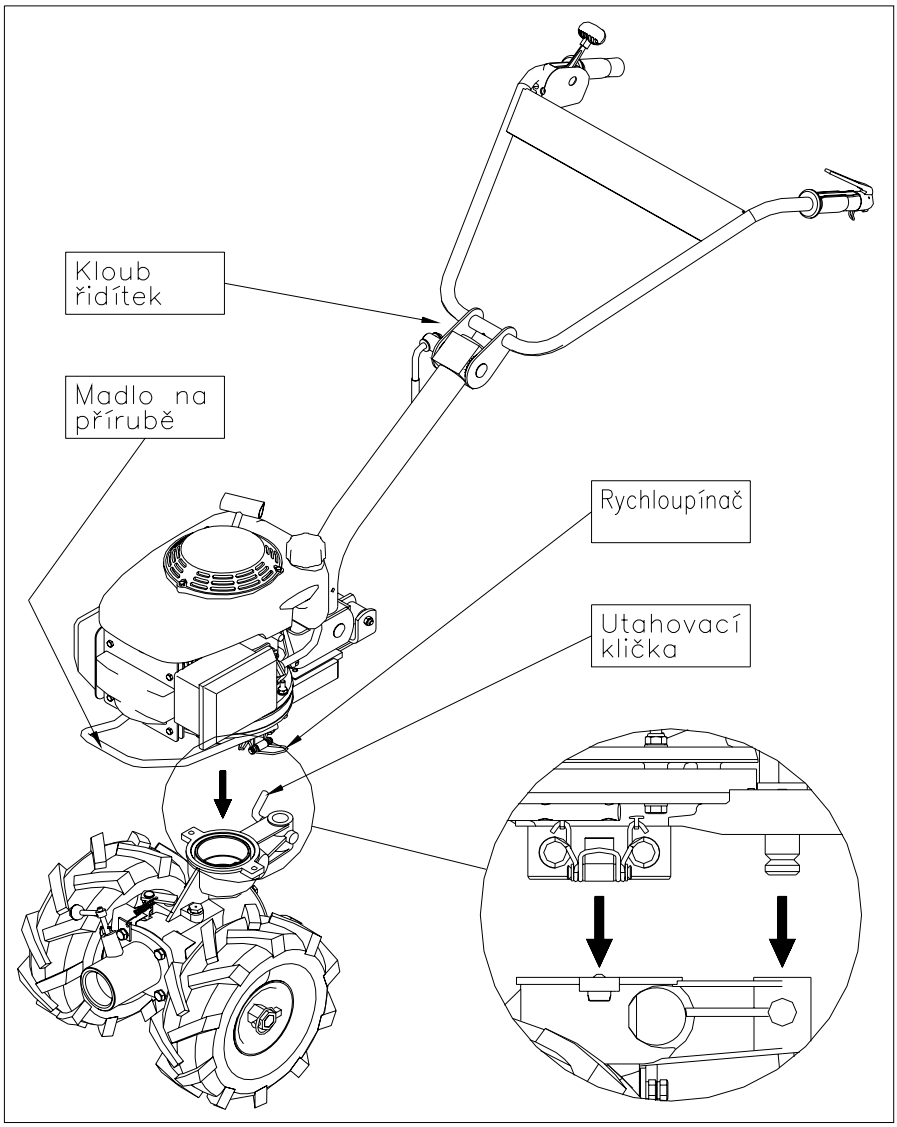
Tightening nut and swivel holder of guiding handles for height adjustment of carrier tube

5.4 Driving unit installation onto gearboxes.

Driving unit (DU) is a power source for driving all machines of the VARI system and it is to be installed in the flange formed in the upper part of gearboxes and adaptors. The driving unit is secured against turning in the gearbox flange by the pivot of guiding handles swivel holder, which falls into the gearbox bracket hole and is secured by screwing the tightening crank which is a component part of gearboxes. In gearbox Model T-20/SA the driving unit can be installed in two directions – see instructions for use of gearbox Model T-20/SA. Finally, the driving unit is secured on the gearbox by two quick-operating spring clamps. In pump Model DZP-005/S and crusher TORNADO/S the stable position of driving unit on the box is secured against turning by means of a pin impressed into the gearbox flange, which falls into the hole in the flange after the DU has been installed.

Get the gearbox with attachable machine or implement to be used for work prepared according to relevant instructions for use. Clean the connection points for the driving unit and the inside of clutch disc; clean the surface of cylindrical flange and guiding handles swivel holder pivot.

* Clutch disc on the gearbox must not be greasy otherwise a slippage of the centrifugal clutch could occur and clutch lining and engine crankshaft sealing might suffer damage due to high temperature.



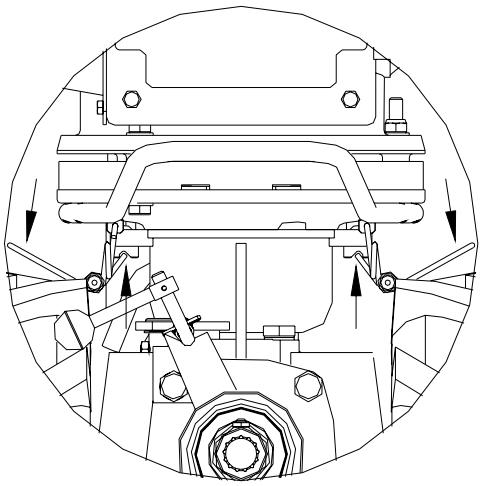
Release the tightening crank which retains the guiding handles swivel holder pivot on the gearbox.

Grip the driving unit with your left hand at the hand rail located on the lower part of the flange and with your right hand at the place of the handlebars joint.

Slide the DU onto the gearbox so that the cylindrical part of the DU flange falls into the gearbox flange and the pin on the swivel holder of guiding handles falls into the gearbox bracket hole.

Move the driving unit slightly from side to side until it fully settles onto the gearbox.

Secure the driving unit on the gearbox by means of two quick-operating spring clamps. Latches on the clamps should be clinched into the notch in the rivet on gearbox flange lugs. Pushing on the clip eye towards the gearbox surface lock the clamps.
Tighten the tightening crank which secures the guiding handles swivel holder pin in the gearbox.
Removal of the driving unit is to be made in reverse order. Disconnect the quick-operating clamps so that the clip eye is taken from below by hand and opened by pulling upwards. Remove the latch of the quick-operating clamp from the notch in the rivet and tilt the clamp away so that it does not stand in the way when sliding the DU out of the gearbox.



- Be careful when connecting and disconnecting the quick-operating clamps! Your fingers can be injured! Clips have a great pull and a considerable force is required for connection or disconnection.
- Be careful when removing the driving unit and installing it onto another machine! Exhaust silencer remains hot for a certain time after the engine has been switched off! During the removal or installation the driving unit should be approached from the left side, i.e. from the side of air cleaner on the engine.
- Never remove (or install) driving unit from gearbox while engine is still running!

5.5 Control of Honda engine with centrifugal clutch SO-4/I.

5.5.1 Control and working positions of accelerator lever

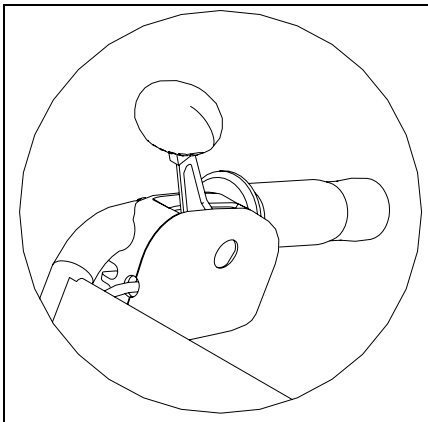
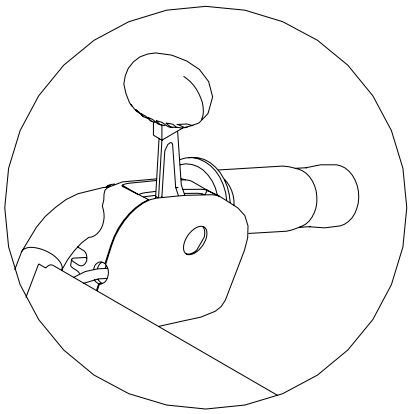
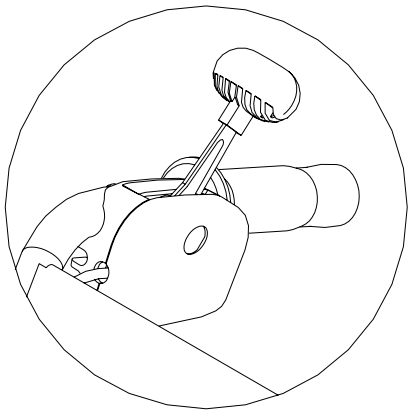
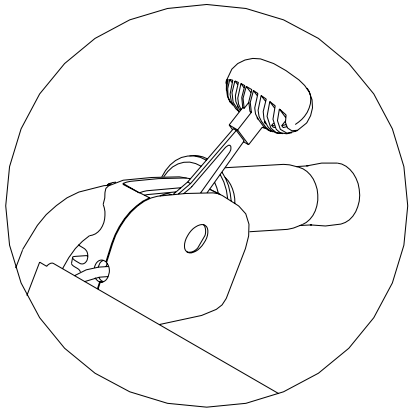
Engagement of centrifugal clutch depends on engine revolutions. This is why the control of engine with this clutch requires a different technique than the control of engine with for example multiple-disc clutch.

It is advised to use maximum engine speed so that clutch slippage does not occur and hence damage to the clutch. Increase the engine revolutions fast so that engine revolutions are higher than engagement revolutions of the clutch (see 5.2) and unwished clutch slippage could occur. Centrifugal clutch has a smooth engagement with the fast increase of engine revolutions.

Particularly with using the driving unit on one-axle tractors with one-axle trailers be sure to use correct gears appropriate to engine load and terrain character at full utilization of trailer carrying capacity, i.e. rather lower gears at which engine power is best utilized.

Note:
In the new clutch lining some accompanying phenomena of clutch slippage in the driven clutch disc may occur – such as „metallic“ whistling, rattling etc. The phenomena are not a reason for raising a complaint about the clutch or about the whole machine since they disappear after the clutch lining has been run-in.

Working positions of accelerator lever

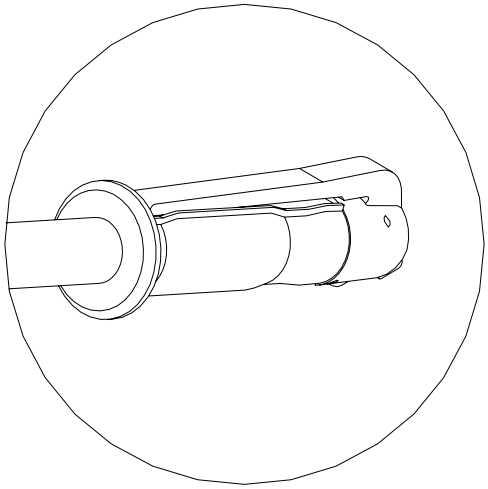
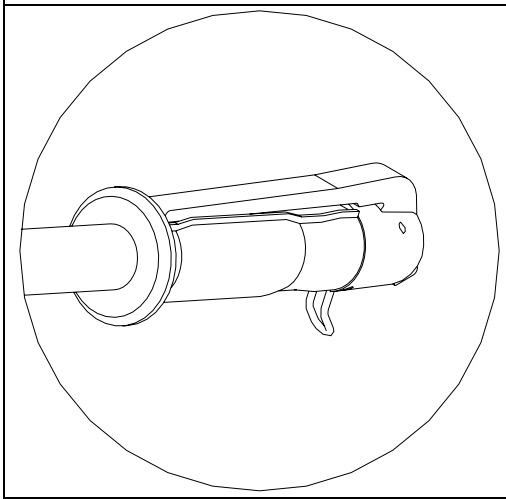
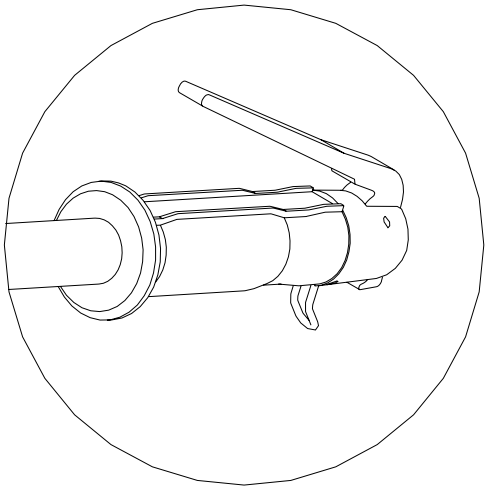
		Position **CHOKE** (air choke) – is to be used only when starting cold engine.
		Position **MAX** (hare) – engine is running in maximum revolutions and clutch is fully engaged; working position
		Position **MIN** (turtle) – engine is running in idle revolutions and clutch is not engaged; used for example when changing gears
		Position **STOP** – is not included; engine is to be switched off by safety switch BVA-96.

5.5.2 Control and working positions of safety ignition switch

Safety ignition switch **BVA-96** answers to the standard for safety ignition switches commonly used by manufacturers of small farming machines abroad. Switch BVA-96 ensures the engine ignition switch-off and hence the engine stoppage immediately after the operator has left its site either in a critical situation or when ending work.

* Safety ignition switch function must be checked prior to any use of the driving unit!

Working positions of safety ignition switch BVA-96

	**Position 1** – is used in starting the engine, in adjusting engine speed or in a short-time machine standstill at which the engine is still running. In this position, wire latch in the lower part of the safety switch arrests the lever in pressed position. **WARNING!** In this position of the safety switch always change gear to neutral on the gearbox or disengage the clutch of travel wheels, switching off the drive of working implements!
	**Position 2** – is used in machine operation. **WARNING!** For the safety switch to be able to fulfil its function in critical situations, the wire latch must be always released!
	**Position 3** – is used to switch off the engine in critical situations or after the end of work. The engine will be switched off at all times after the safety ignition switch lever on the left grip of handlebars has been released; taking off hand from the handrail will do. Wire latch must be at all times released – see Warning in the description of Position 2.

6 Maintenance, care, 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 providing at the same time for a correct functioning of all its parts.

Prior to any use of the driving unit, check all bolts and nuts for their correct tightening. Make sure that all safeguards are in a good order. Check the condition of centrifugal clutch lining for a possible wear or damage. In the case of massive wear of the lining, it is necessary to replace whole weights. All replacements should be made only with original spare parts.

Follow all instructions concerning the intervals of machine maintenance and engine adjustment. It is advised that you keep records on the number of driving unit working hours (for service purposes). After-season and current maintenance of the machine should be entrusted to one of our authorized service workshops in the case that you do not trust your own technical skills.

6.1 Machine lubrication.

- **When replacing oils, follow the basic hygienic principles, regulations and laws on environment protection.**

6.1.1 Engine oil replacement

The information is to be found in the Instructions for use of engine Honda GCV 160 or Honda GCV 190. Engine oil available on the Czech market and specially designed for air-cooled engines of gardening machines is **HEKRA M8AD Super.**

6.1.2 Driving unit lubrication

If the driving unit was out of operation for a long time and after season all bearing and connecting surfaces are to be greased with conservation oil.

Bowden of accelerator is to be greased with silicon oil after season.

- When conserving the connecting surfaces of engine flange, oil **must not** stain the clutch lining as a slippage could occur in the centrifugal clutch as well as damage to clutch lining and engine crankshaft sealing due to high temperature.

6.2 Machine washing and cleaning.

- **Cleaning and washing the machine, proceed to observe 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 driving unit after the end of the season. Dismount the starter and clean the cooling ventilator – see Instructions for use of the engine. Make sure that all bearing and connecting surfaces are clean – grease them with conservation oil whenever necessary and after the end of the season.

6.3 Table of service operations.

Operation	Season	after season
Check of oil level in engine	prior to each use	*
Check of engine air filter	prior to each use	*
Check of the safety switch function	prior to each use	
Conservation of connecting surfaces	as required	yes
Oiling of accelerator bowden	as required	yes
Cleaning of the machine from dirt	after each use	yes**

* - Oil and air filter exchange intervals see the Instructions for use of the engine.

** - After the end of the season, dismout the starter and clean the engine cooling fan – see the Instructions for use of the engine

6.4 Machine storage.

Prior to any longer storage, clean the machine from all dirt, debris and plant residues. Repair damaged paint on machine component parts.

For any long-time storage of the machine it is advisable:

a) to conserve the connecting surfaces
b) to drain petrol out of the engine fuel tank and from the carburetter (more instructions see the Instructions for use of the engine)

Access of unauthorized persons to the machine is to be prevented. Protect the machine from weather impacts but don't use air-tight protection due to a possibly increased corrosion under it.

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

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

The following procedure is recommended for the 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 stripped machine remainder and the dismounted parts are to be disposed according to Waste Law No. 185/2001 Gaz. (and its possible amendments) and with respect to the decrees of local town or municipal authorities.

7 Instructions for ordering spare parts

For an easy identification, the following data are to be used when ordering spare parts:

1. Machine type, engine type, machine serial number and year of manufacture;
2. Ordering number given by 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. Should you be uncertain about the correct identification of the component, send the damaged component either to the nearest service shop or directly to the manufacturer;
6. All components should be ordered in the nearest service shop or at your dealer's.

In the case of any confusions concerning the spare parts or technical issues, the VARI a.s. commercial, customer-service or technical departments are prepared to answer all your inquiries.

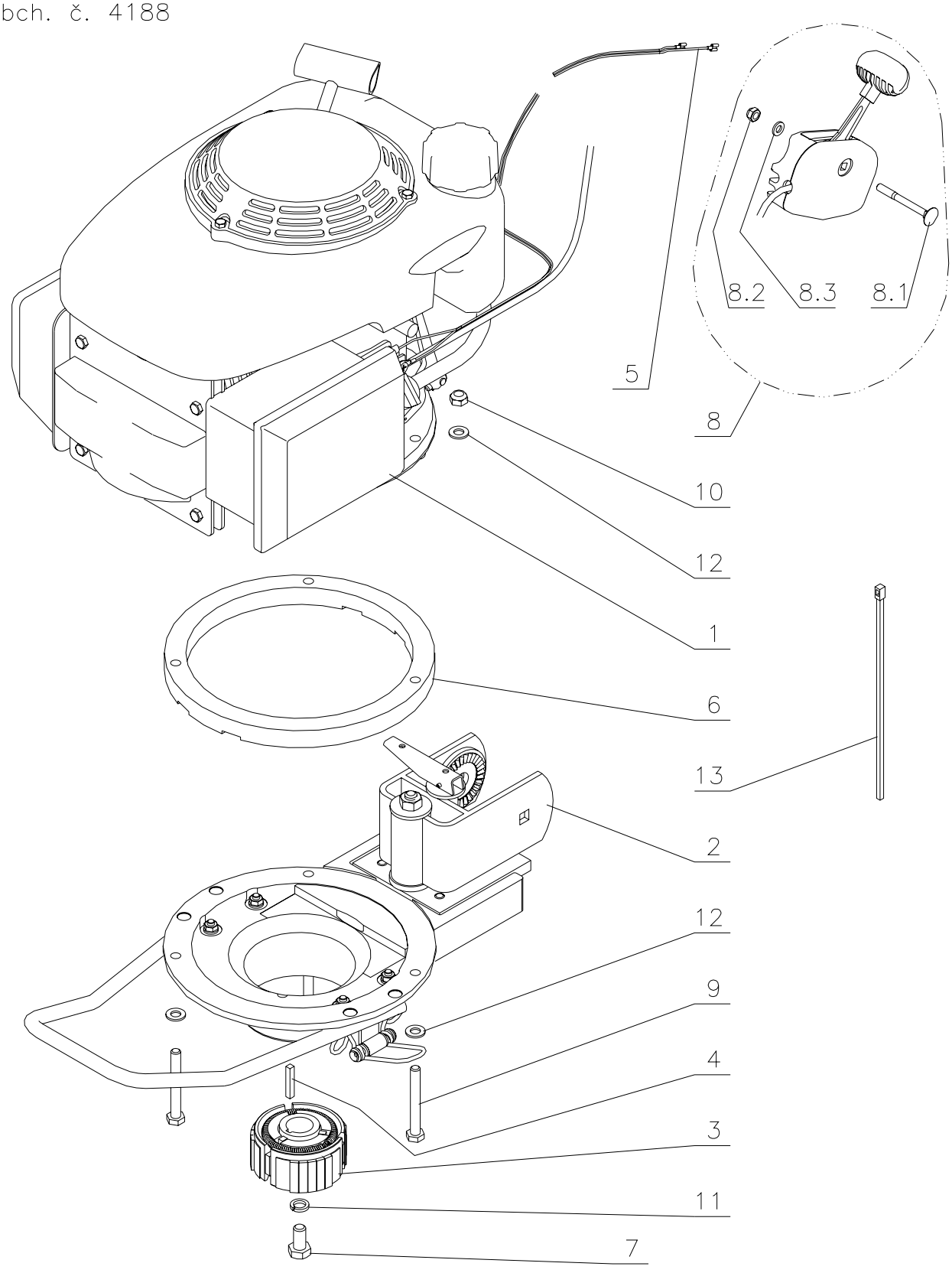
8 Contact to manufacturer:

VARI,a.s.	Telephone:	(+420) 325 607 111
Opolanská 350	Fax:	(+420) 325 607 264
Libice nad Cidlinou		(+420) 325 637 550
CZECH REPUBLIC	E-mail:	vari@vari.cz
289 07	internet:	http://www.vari.cz

9 The list of parts

Motor úplný MÚGCV160
obch. č. 3920

Motor úplný MÚGCV190
obch. č. 4188



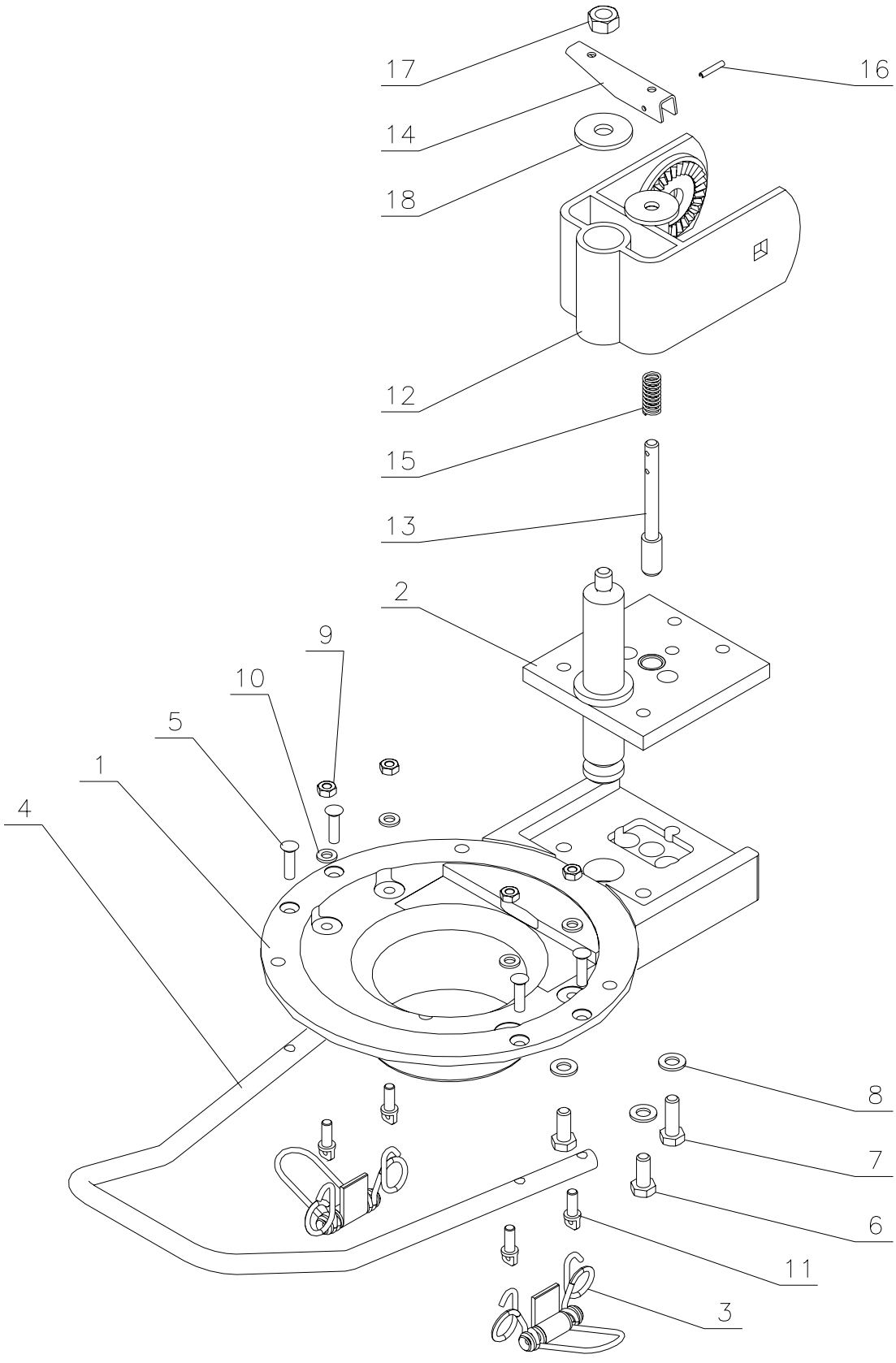
Engine complete GCV-190 order no.4188

Pos.	Description	Size	Drawing-Standard	Order.no.	Pcs
1	Engine Honda GCV160 N2 E3 1)				1
1	Engine Honda GCV190A N2 G7 SD 2)				1
2	Complete flange		22 9 2752 013	192 002	1
3	Centrifugal clutch SO-4/I		22 9 3622 025	192 001	1
4	Feather 3/16"x30		32 0 3330 021	189 036	1
5	Short-circuiting twin cable		632 0 8610 012	192 504	1
6	Circular ring		32 0 2020 001	105 001	1
7	Bolt	W3/8"	32 0 9016 057	105 011	1
8	Throttle lever	1AE00350H	START	192 509	1
8.1	Bolt 3)	M6x60	ČSN 02 1319.25		1
8.2	Nut 3)	M6	ČSN 02 1492.25		1
8.3	Washer 3)	6.4.	ČSN 02 1702.15		1
9	Bolt	M8x65	ČSN 02 1101.25	184 555	3
10	Nut 3)	M8	ČSN 02 1492.25	104 622	3
11	Washer	10,2	ČSN 02 1740.05	106 530	1
12	Washer	8,4	ČSN 02 1702.15	131 517	6
13	Tightening tape	3.6x200		189 525	1

Notes:

1) The part is meant for driving unit PJ GCV 160
2) The part is meant for driving unit PJ GCV 190
3) The part is a component part of "Throttle lever" Pos. 8

Příruba úplná
obch. č. 192002



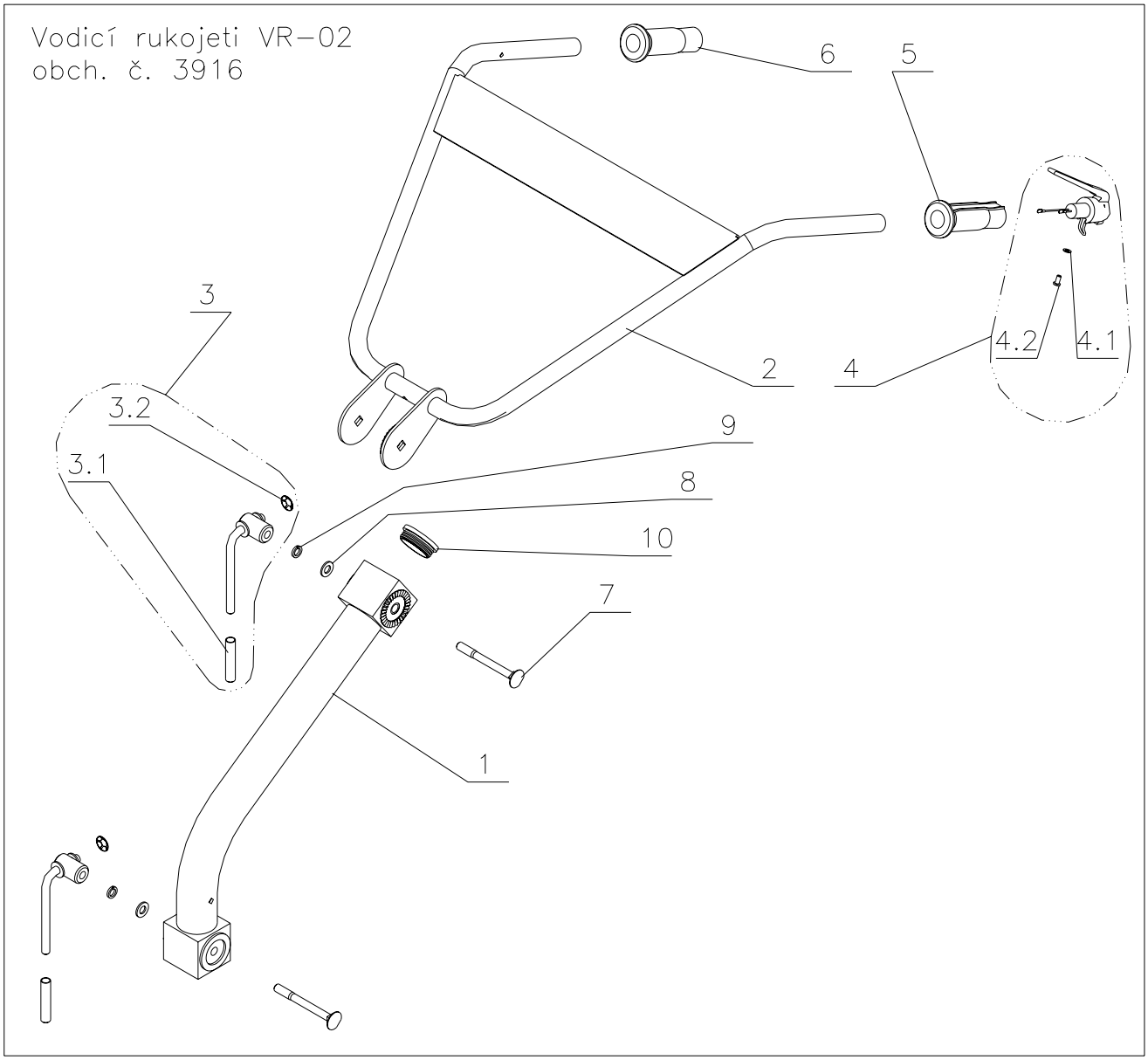
Flange complete order no.192002

Pos.	Description	Size	Drawing-Standard	Order.no.	Pcs
1	Flange		32 0 2752 014	192 003	1
	Swivel holder of handlebars		*22 9 8053 010*	*192 018*	1
2	*Complete plate* *1)*		*22 9 8032 023*		1
12	*Swivel holder of handlebars* *1)*		*22 9 8053 009*		1
13	*Pin* *1)*		*32 0 9311 103*		1
14	*Lever* *1)*		*32 0 8041 015*		1
15	*Spring* *1)*		*632 0 9746 004*	*124 500*	1
17	*Nut* *1)*	*M10-D980V*	*ISO 7042*	*192 500*	1
18	*Washer* *1)*	*11*	*ČSN 02 1727.15*	*195 528*	1
16	*Pin* *1)*	*3x18*	*ČSN 02 2156*	*127 504*	1
3	Complete grip		22 9 8053 008	104 027	2
4	Handrail		32 0 8044 011	192 005	1
5	Rivet	6x22	ČSN 02 2311.1	192 507	4
6	Bolt	M8x20	ČSN 02 1103.55	130 523	2
7	Bolt	M8x25	ČSN 02 1103.55	103 519	1
8	Washer	8,4	ČSN 02 1702.15	131 517	3
9	Nut	M6	ČSN 02 1401.25	1800141	4
10	Washer	6,4	ČSN 02 1745.05	6521602	4
11	Bolt		32 0 9016 055	104 006	4

Note:

1) The part is a component part of "Swivel holder of handlebars"

The part without the above order. no. is not supplied separately.

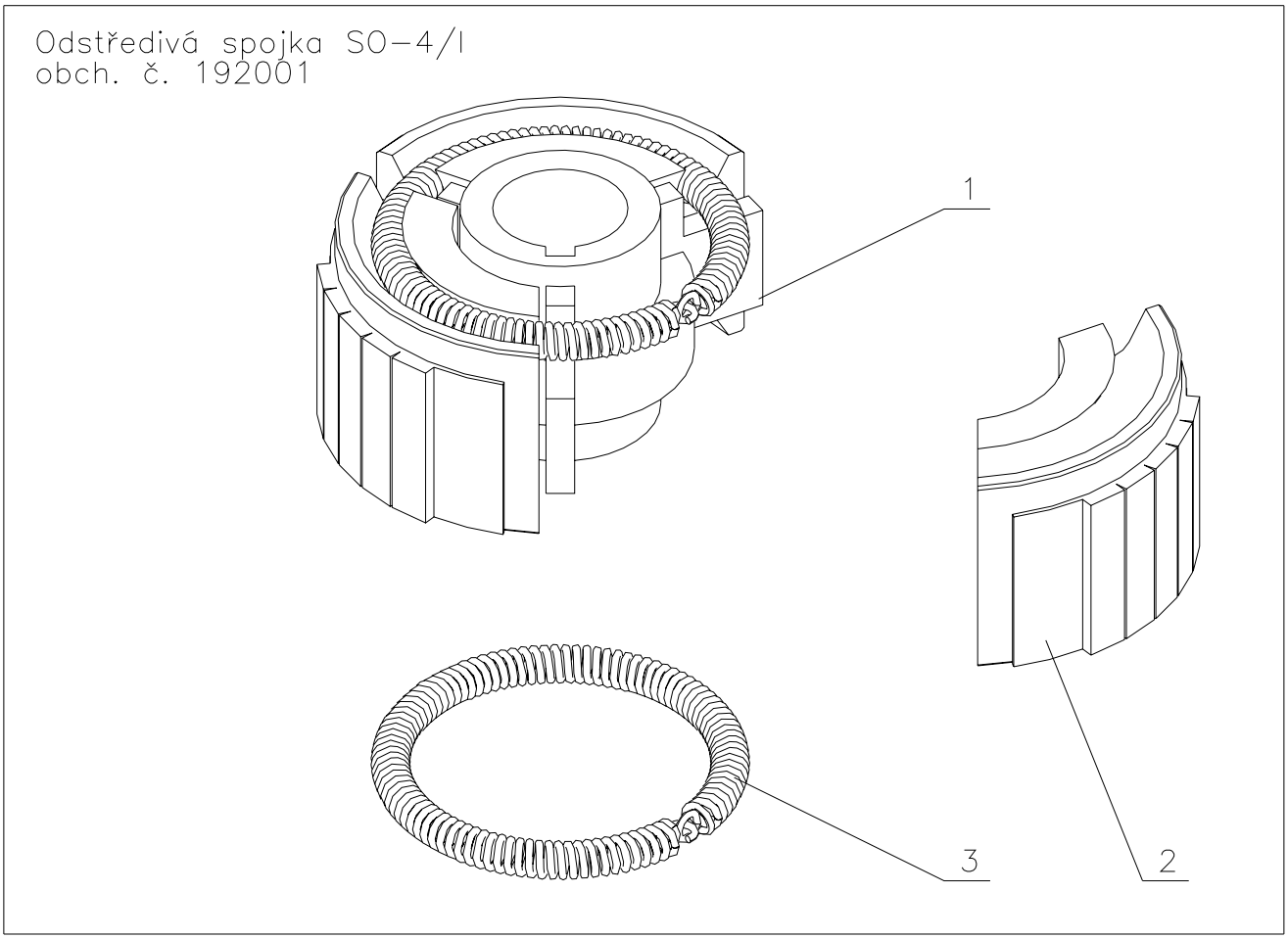

Vodicí rukojeti VR-02
obch. č. 3916
6
5
3
4.2
4.1
2
4
3.2
9
3.1
8
10
7
1

Guiding handles VR-02 order no.3916

Pos.	Description	Size	Drawing-Standard	Order.no.	Pcs
1	Carrier tube of handlebars		22 9 8045 035	192 010	1
2	Handlebars		22 9 8045 055	192 011	1
3	Tightening nut		22 9 9016 010	192 012	2
3.1	Cap 1)	9,7x60		193 502	1
3.2	Retaining ring 1)	10	BN833	150 633	1
4	Safety ignition switch	BVA-96		101 643	1
4.1	Washer 2)	5,3	ČSN 02 1702.25		1
4.2	Bolt 2)	M5x10	ČSN 02 1131.25		1
5	Left rubber grip	1MA04005		101 628	1
6	Right rubber grip	1MA02005		101 627	1
7	Bolt	M10x100	ČSN 02 1319.05	171 534	2
8	Washer	10,5	ČSN 02 1702.15	189 567	2
9	Washer	10,2	ČSN 02 1740.05	106 530	2
10	Plug		32 0 3915 003	195 013	1

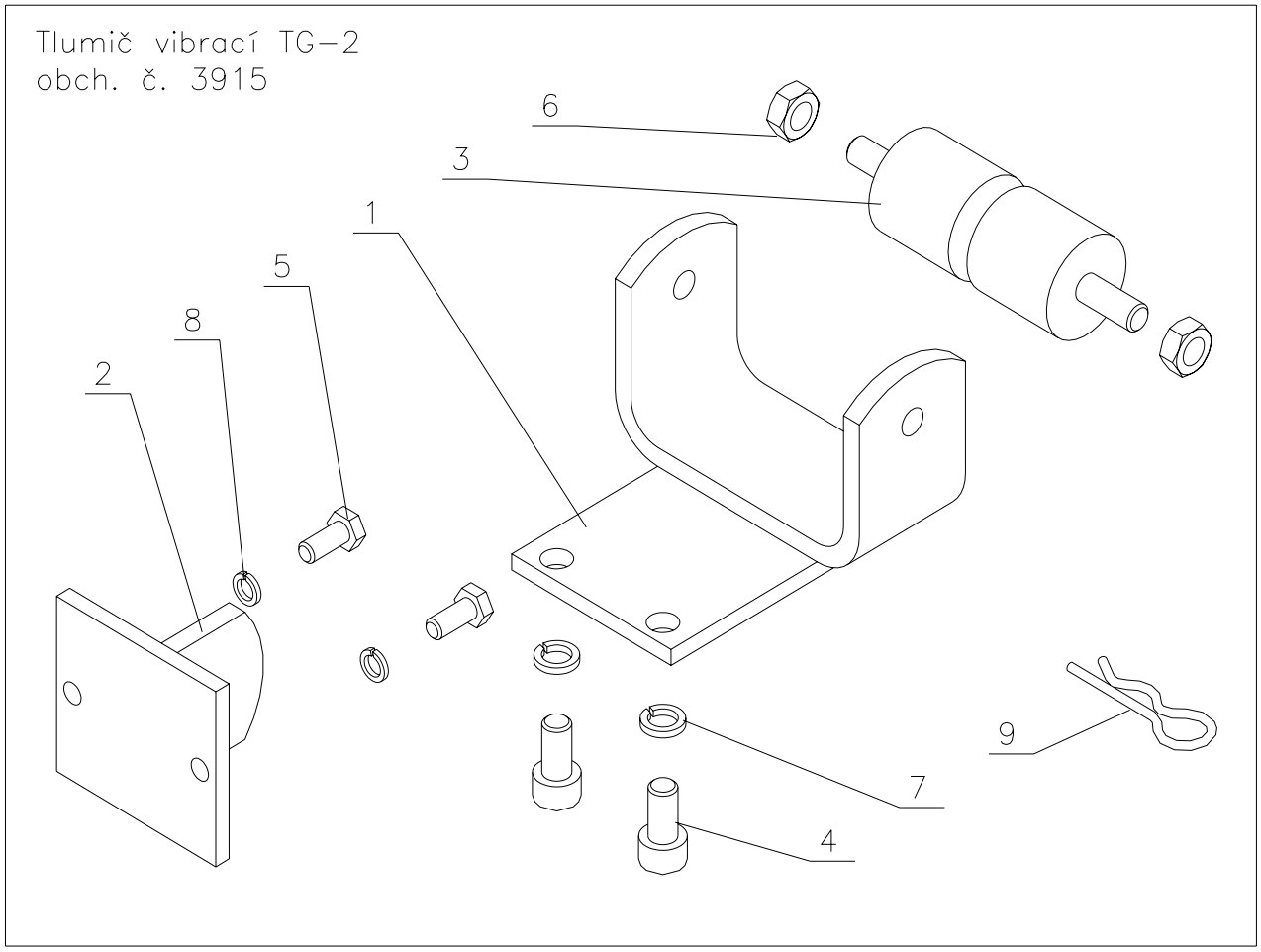
Notes:

1) The part is a component part of "Tightening nut" pos. 3
2) The part is a component part of "Safety ignition switch" pos. 4



Centrifugal clutch SO-4/I order no.192001

Pos.	Description	Size	Drawing-Standard	Order.no.	Pcs
1	Complete hub		22 9 3625 012	192 009	1
2	Complete weight		22 9 3622 024	104 034	3
3	Tension spring		632 0 9746 030	105 502	2



Vibration damper TG-2 order no.3915

Pos.	Description	Size	Drawing-Standard	Order.no.	Pcs
1	Damper yoke		22 9 1436 006	192 014	1
2	Damper lug		22 9 8032 025	192 015	1
3	Silent block	T16437		192 502	2
4	Bolt	M8x16	ČSN 02 1143.55	192 503	2
5	Bolt	M6x14	ČSN 02 1103.25	1512506	2
6	Nut	M8	ČSN 02 1401.25	104 572	2
7	Washer	8,2	ČSN 02 1740.05	104 574	2
8	Washer	6,1	ČSN 02 1740.05	6510920	2
9	Split pin		632 0 9245 009	196 501	1